Product Catalog 2017 - 2018

Networks & Communications

Telecom, Enterprise, Industrial & Video Infrastructure

- Carrier-grade & High-performance Servers & Blade Servers
- x86 Network Appliances
- PCI Express Adapters
- ATCA Blades & Integrated Systems
- CPCI Boards & Enclosures
- VPX Blades
- Video Processing Platforms

ADVANTECH

Enabling an Intelligent Planet

www.advantech.com

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About Advantech Networks & Communications Group

Founded in 1983, Advantech is a leader in providing trusted innovative embedded and automation products and solutions. Advantech Networks and Communications Group has being providing mission critical hardware to the world's leading telecom and networking equipment manufacturers for over 15 years. Whether it is wired or wireless, virtual or physical nodes at the core or the edge of the network, Advantech's products are embedded in the telecommunications infrastructure that our world depends upon.

Quick Facts	
Headquarters	Taipei, Taiwan
Established	1983
Publicly listed	TPE: 2395
Employees	8,000
Revenue (2015)	USD $1.2 Billion
Worldwide support	95 cities, 23 countries

Our customers can choose from the broadest choice of communications infrastructure platforms in the industry, scaling from one to hundreds of Intel® processor cores, consolidating packet, application, and control processing onto a single platform architecture and one code base. Our technology leadership stems from field-proven design expertise on Intel® architecture combined with high performance switching, hardware acceleration, and innovative offload techniques.

We team up locally with customers and partners to evaluate project requirements, share application knowledge and build optimized solutions together. Our standard commercial off-the-shelf platforms coupled with comprehensive pre-validated operating system and application support and remote evaluation services provide the foundations for rapid and smooth deployments. In addition, Advantech's customization capabilities allow customers to choose the precise level of differentiation, cost optimization or enhancement they require. This can range from small hardware or mechanical changes, to full-custom design or complete system branding, bundling and logistics services.

From Research & Development and support facilities in the USA, Europe and Asia, our customer-facing project teams link seamlessly into our worldwide network of nearly 8,000 employees. We manufacture to stringent quality procedures in our own ISO-9001 certified factories in Taiwan and China and our global integration and logistics centers operate on all continents to provide unified and localized services for optimum supply chain efficiency.

In this Networks & Communications brochure, we bring together the core competencies of our Telecom, Enterprise, Industrial, and Video Platforms. It also mirrors the changing market requirements we are observing, where computing moves to the network edge. The products represented here provide a wide range of platform choices for designers of the next wave of communications platforms as well as those in broader markets where high performance, mission critical attributes are important.

Your Network Platform Partner

Enabling Industry Leading Solutions

Companies that provide market leading solutions have learned that working with trusted partners that help them create value and reduce risks is one of the most critical contributors to continued success. Good partners provide expertise, access to technology and time-to-market benefits that every innovator can benefit from. Also crucial are development and manufacturing strategies that encourage innovation, delivering flexible and scalable platforms able to run next-generation services anywhere in the network without sacrificing its mission critical nature. Our broad range of products combined with our customization capabilities, industry expertise and global services allow us to firmly accompany customers through their network transformation process towards the New IP Infrastructure.

Easily Adapt to Changing Business Requirements

Scalability is considered one of the most important criteria when deploying network solutions today. Our unrivaled range of networking platforms based on Intel® Architecture allows service providers to select the most effective solution that meets today's performance needs and easily adapt as requirements change. For the New IP Infrastructure, our NFV Elasticity initiative extends your reach to the edge by supporting scalable carrier-grade platforms that can run VNFs anywhere in the network over a common execution environment.

Integration, Customization & Design Services

Starting from commercial-off-the-shelf platforms, we offer personalized products through a wide range of specialized services. All of our platforms are application-ready with branding options available including chassis color, logo and front bezel design. Customers can cost optimize our modular appliances and servers to reach their sweet spot of price, performance and functionality. In addition, solution providers can leverage our Customized COTS framework for semi-custom electronic or mechanical design as well as BIOS firmware strings or IDs. When the migration of proprietary IP to a new platform is essential, our Customized COTS framework helps bridge the gap between ODM and standard product to speed time to market.

Added Value Beyond just Hardware Designs

Advantech's solutions are more than just hardware designs as we go much further than an ordinary hardware vendor. We ensure that our systems not only have outstanding stability secured by a world class design quality assurance process, but are enhanced by building in features which improve availability, serviceability and usability. Advanced platform features include redundant images and fail safe updates using a single industry standard protocol (HPM.1) which are built into Advantech's dedicated R&D Carrier Grade BIOS and IPMI firmware.

Remote Monitoring & Control | Remote Update | Redundant Firmware | Failsafe Update | Chassis Intrusion Detection | Digital Inventory | Service-friendly Design | Advanced LAN Bypass | Advanced Hot Plug

Additional features such as NEBS certification, operation up to 55°C ambient, resilience to single PSU and fan failures, support for DC power supplies, equipment grounding or front air filters are the foundation of platforms tailored to deliver five 9's availability. All these system and platform features have a moderate impact on cost as they have been carefully designed by Advantech's in-house engineering teams and are kept consistent across the product line.

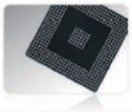
Ecosystem Partnerships

Choosing the Right Partners

To ensure functionality of business critical solutions, Advantech has formed an Ecosystem Alliance Program that brings together industry leaders and innovators to foster technology teamwork, interoperability testing and solution development. Proven product interoperability means Communication Service Providers and OEMs can readily integrate tested combinations of hardware and software components with total confidence. In a fast paced market this allows them to evaluate and deliver innovative solutions more rapidly and respond more effectively to emerging customer needs.

Participating ecosystem partners collaborate to meet customers' application-specific needs by facilitating the transformation of leading-edge embedded technologies into readily available business solutions. Our partner ecosystem is made up of leaders in each of their respective areas of expertise. Together, these companies provide all of the essential components for developing, verifying, integrating and building high performance products.

Strategic Partners

CHIPS	BOARDS	CHASSIS & SI's	OS & Virtualization	Solutions & VNFs
				
• Intel • Broadcom • Cavium • Mellanox • NXP • SiliconMotion • Socionext	• Dialogic • Napatech	• ASIS • Aricent • Bressner • Comtel • ECA • Elma • Emu Corporation	• 3L Ltd • 6WIND • Blue Planet • Canonical • ENEA • Mirantis • Polycore • Red Hat • Wind River	• 6WIND • Amarisoft • Casa Systems • Qosmos • Telco Systems • Versa Networks • WIPRO

The New NFV Ecosystem

The arrival of game-changing technologies to the communications industry opens up new business models and no longer locks operators into fixed architectures. The new network infrastructure is flexible, modular and open. At Advantech, we understand that a strong co-working ecosystem is required to ensure that white boxes, middleware, operating systems, orchestration and network functions work together in this multi-vendor environment. We collaborate closely with hardware and software partners in different initiatives, from industry alliances such as Intel® Network Builders to Proof of Concepts, to ensure interoperability at the earliest possible stage in the development cycle and enable our customers with early access to the latest technology which accelerates their next generation product roll-outs.

If you'd like to join Advantech's Ecosystem Partner Program:

Please email us at NCG@advantech.com or visit www.advantech.com/NC for further details.

Remote Evaluation Services

Get on the Fast Track to Deployment

Advantech's Remote Evaluation Service (RES) is designed to help you get ahead of the curve and rapidly evaluate next-generation technology on a wide range of network platforms that can emulate different deployment scenarios at different network locations. We work together with leading silicon, middleware and Network Functions Virtualization (NFV) ecosystem partners so that you can:

Early evaluate and benchmark latest hardware and software technologies

Perform functional and interoperability testing

Get an early start on development while saving resources, time and money

RES puts virtual control of your own test lab at your finger-tips. You no longer need to incur the costs of shipping heavy freight around the world, purchasing expensive test rigs or breaking your back installing equipment in a lab which you probably wouldn't sit in anyway. The systems we propose are pre-integrated, application-ready platforms embedded in a qualified, dedicated, and secure network test environment. In addition, our NFV Test-Drive Portals build a full-stack NFV Infrastructure (NFVI) platform where users can remotely evaluate Virtual Network Functions (VNFs) performance or interoperability for a particular NFVI configuration:

Bare Metal Evaluation: check out the performance gains achievable on next generation Intel® CPUs and NICs or see how your software scales across multiple blades in a Packetarium XLc server. You can measure the acceleration which DPDK and Intel® QuickAssist offload can bring or get a grasp of terabit throughput on Advantech ATCA.

NFV Test-Drive Portals: lower risks and reduce time-to-market of NFV solutions by remotely validating VNFs and use cases on a wide range of Advantech's platforms powered by software from a rich NFV ecosystem. You can early detect and remove NFV performance bottlenecks and incompatibilities or simply compare throughput of data plane intensive VNFs running on an accelerated vs non-accelerated environment.

Get NFV Solutions to Market Faster and at Lower Risk

The NFVI consists of several building blocks from different vendors that need to work together to form the consistent network-wide virtual infrastructure that runs the VNFs. The tight relationship between all NFV components makes collaboration a key element in NFV deployment success. RES provides a powerful tool to address NFV integration challenges and help eliminate NFV performance uncertainties by enabling collaboration beyond basic ecosystem partnership. End-users and partners can remotely test VNF performance and interoperability on an open NFVI and work collaboratively towards production-ready end-to-end solutions. RES also offers a powerful tool to support developers in their critical decision making process when designing high-performance, scalable, carrier-grade NFV software.

Performance and scalability: RES allows vendors and service providers to easily test how multi-threaded, multi-tenancy VNFs scale out across multiple network nodes with several instances running on different VMs, and optimize VM provisioning and mapping. The wide choice of white boxes, appliances and servers that can be deployed to implement the virtual edge makes RES a perfect tool to accelerate the selection process and choose the appropriate platform with the right price/performance point.

Interoperability and integration: RES helps simplify complex NFV-stack dependencies when testing VNF compliance with standard NFVI interfaces or the conformity of a particular NFVI configuration to guarantee VNF portability. Partners can tap into RES to reduce time and costs of multi-vendor certifications. The joint effort of certifying that particular NFV hardware or software products have been validated to work together is an common initiative that reduces NFV integration risks and streamlines end-user's purchasing process.

Visit our Live NFV Test-Drive Portals
www.go-res.com

Premium Global Services


Manufacturing

Logistics


Customer Support

The foundation of our business is built on world-class manufacturing, quality and integration processes that enable our customers to deploy reliable business-critical solutions worldwide with total confidence.

Deploying standards-based products that enable our customers to create industry leading solutions requires a full suite of high-quality products, advanced customization technology, an extensive ecosystem and a full complement of life-cycle services. Advantech's platforms, Customized COTS framework, Ecosystem Alliance Program, Remote Evaluation and Global Services meet these needs perfectly. We provide a comprehensive service package that integrates our key service models into a complete transaction process, from the manufacturing and system integration phase, global logistics and after-sales support. In order to create the maximum value for our customers, Advantech Global Services is the shortcut for transforming your projects into reality.

Manufacturing Capabilities

Our world-class manufacturing centers in Taiwan and China both maintain precise quality control, and offer a full range of cost-effective, state-of-the-art production capabilities. To maximize the efficiency of operational procedures, we have implemented a cluster manufacturing system within our segmented manufacturing service units. This unique approach enables a direct, simplified, and highly streamlined design-to-manufacturing process. We pride ourselves on our:

- In-house board, chassis, and system production capabilities
- Dual world-class manufacturing centers
- Advanced production capabilities and customizable processes
- Rigid quality assurance system
- Complete ISO standard coverage

We Build It Exactly as You Imagine It

Advantech provides full customization and branding services to integrate our innovative platforms with existing product lines and give them customers' look and feel. With our Configure-To-Order-Services we provide cost efficient services to build different system SKUs in our logistic centers around the world. Through these services we bring our clients the benefits of greater flexibility, lower inventory, shorter lead times and global reach with local touch at work.

International Quality Standards

The Group Quality system is audited and compliant with ISO 9001. The Quality system covers all aspects of product design, component selection, design verification, manufacturing, quality control and customer satisfaction. From the board of directors down, each member takes pride in providing our customers with the highest level of quality in products and services. We also hold global certifications of ISO 13485, TL 9000, ISO 14001, OHSAS 18001 and IECQ QC 080000.

Global Logistics Services

With strong integrated ERP and SAP supply chain solutions, our worldwide logistics network offers a wide range of flexibilities to bring out different delivery models including local and global solutions that meet your unique needs and budget requirements. Advantech's Logistics Service gives you the flexibility to simplify your logistical networks, bring your products to market on time, and enjoy a timely return on your investment.

Customer Support Services

Our global presence provides localizable, customizable, and reliable customer support services that can be leveraged to create an optimized maintenance and support plan that helps reduce costs and proactively mitigate business risks. In addition to our complete technical and repair support, we provide a variety of customizable after-sales services, including extended warranty, advance replacement, upgrade, fast repair, etc. Our knowledgeable local support groups enable a consistent support experience around the world and help keep your investment at peak performance and within your budget.

- 24/7 technical support: hotline AE & online chat support
- Global deployment with local full-line repair capability
- Easy-to-use web-based repair and tracking system
- Various other value-added, after-sales support services

Global Operation Infrastructure and Logistics Network with Local Delivery

Advantech is located in 25 countries and 93 cities in each major operating region, offering a global reach with teams in many geographic regions. We support our customers through an extensive global network of offices and an industry-leading eBusiness infrastructure designed to provide responsive service that benefits clients anytime, anywhere.

Online Technical and Repair Services for Total Lifecycle Support

Our Post-Sales Repair Service is equal in importance to our Design and Manufacturing division. The service represents our commitment to provide comprehensive technical support after delivery of new products. Web-based eRMA System is a personalized portal system which offers real-time RMA status-tracking at all times, anywhere via the Internet. Through Advantech's worldwide Customer Support Centers, our clients can get regional technical support and repair services along with a stringent, dependable quality standard.

Six Ready-to-Go AdvantechCare Service Packages

(1) Extended Warranty Service:

Advantech provides 3-month, 6-month, and 1-to-3-year extended warranty service.

(2) Onsite Service:

Defective parts will be replaced with the same or higher quality components and Advantech also provide one-off onsite service by request.

(3) Fast Repair Service:

Commitment to repair the defective unit within 24 / 48 hours.

(4) Advanced Replacement Service:

Advantech provides advanced replacement service by 1-2-3 year contract and all parts are free of charge during the warranty period.

(5) Technology Update Service:

Upgrade, furnish, and refurbish your stock at a fraction of the new purchase cost. Customizable product revision management solution. Optimize system performance and extend equipment life cycles.

(6) Preventive Maintenance Service:

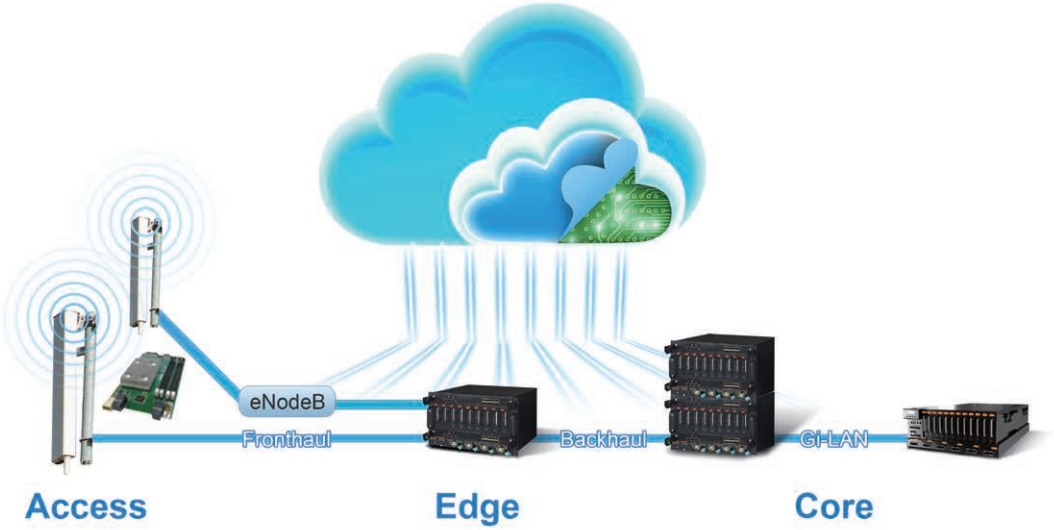
Advantech Preventive Maintenance Service preserves and enhances equipment reliability by replacing worn components before they actually fail.

Edge Computing

Extend Your Reach with Advantech's Micro-data-center-in-a-Box

The next wave of innovation in the communications industry that introduces new concepts such as real-time interactive services or the Internet of Things (IoT) is redefining the network edge role. Edge computing has the potential to transform the digital experience as it allows applications to seize user's proximity to provide low latency and high bandwidth benefits. Equipment manufacturers, developers and service providers are co-working to enable this new Virtual Edge where diverse access protocols co-exist with revenue generating applications. The result is a decentralized and elastic architecture using cloudlets at the edge of the network that also provides an intermediary processing stage to avoid the costs of transporting large amounts of data back to the cloud.

As the industry seeks to accelerate the delivery of these new services at the edge, it is vital that Communication Service Providers (CSPs) optimize infrastructure for density and cost leveraging existing brown field sites where possible. Advantech's Packetarium XLc carrier-grade blade server is designed to efficiently meet increasing edge computing trends by bringing higher aggregate compute performance closer to the user while fully complying with telecom industry equipment practices. It extends the same programming and deployment environment of the datacenter to central offices, aggregation sites or base stations, taking a micro-datacenter-in-a-box approach that packs 18 Intel® Xeon® D processors, redundant user and control plane switching and system management in a 6U platform with only 400mm depth and 400W/RU power consumption.



On the Road to 5G

Advantech has designed the Packetarium XLc for next generation carrier networks with a number of objectives in mind:

- Help integrators and operators to evolve from closed proprietary solutions to an **agile and scalable software-driven** architecture using virtualized network functions running on general-purpose Intel® architecture processors anywhere in the network.
- Ensure **carrier-grade availability** and conformity to standards such as NEBS in order to accelerate brown field deployment in the network edge.
- Facilitate the deployment of vRAN by providing a platform which can be used to scale baseband pools with virtualized baseband units (vBBUs) and evolve the traditional BBU beyond C-RAN and hoteling.
- Enable greater NFV elasticity allowing operators to deploy just-in-time baseband resources to match increased network load rather than provisioning capacity to meet expected peak demand in each cell.
- Offer sufficient compute capacity to enhance 4G performance now and deploy 5G-ready services earlier.
- Provide the flexibility needed now to deploy the new applications and services described by the ETSI Mobile Edge Computing ISG, paving the way to **5G and the Internet of Things (IoT)**.

NFV Infrastructure

Carrier-grade Platforms designed for Five 9's Availability

Central Office Virtualization and Workload Consolidation

With the challenges of growing data-rates and over-the-top competition, NFV and SDN offer the potential of massive infrastructure economies to service providers through the use of a reduced number of building blocks based on open source software and white-box hardware. They also give service providers the agility of a cloud provider with platforms that enable the rapid provisioning of new revenue-generating services.

NFV and SDN have triggered the current surge in telecom central office and edge redesign initiatives which involve the virtualization of vast numbers of proprietary hardware platforms onto standard, commercial-off-the-shelf x86-based servers. Communication Service Providers around the globe, either independently or through projects such Central Office Re-architected as a Datacenter (CORD), are seizing the opportunity brought about by NFV to transform over 300 types of specialized CapEx and OpEx-consuming equipment into a fabric of white-box servers, switches, storage, and I/O running open source software. Advantech's Packetarium XLc blades servers and SKY servers provide CSPs with a new generation of carrier-grade platforms based on the latest Intel® Xeon® processors that offer the performance and reliability required for deployment in central office environments to run low latency compute, networking and signaling workloads. They have been designed from the ground up to provide greater robustness and meet more stringent NEBS Level 3 environmental conditions while complying with reduced rack depths. Key features such as hot swappable redundant power supplies and fans, advanced carrier grade remote management, and redundant BIOS or firmware images for fail safe updates all bring increased reliability and serviceability advantages to CSPs.

Carrier Wi-Fi Controller

Service providers are increasingly adopting a Heterogeneous Network (HetNet) approach to cope with the growing number of bandwidth eager mobile devices and overcome performance limitations of traditional macro cells in indoor environments. Wi-Fi is an inexpensive way to improve broadband coverage at large public venues such as shopping malls or transport hubs and can be deployed to complement a small cell infrastructure especially in high density areas or crowded events such as stadiums or exhibition centers. A carrier-grade Wireless LAN (WLAN) controller can scale to support over 10,000 access points and 100,000 clients and is designed to comply with telecom availability standards.

Advantech's SKY servers offer a high-performance, reliable and standard architecture solution to host WLAN controller functions in Carrier Wi-Fi deployments. They support dual Intel® Xeon® E5 processors and high-density PCIe I/O that is balanced between CPU sockets to handle control and data plane traffic of large-scale deployments. Certified acceleration and smart adapters can be integrated to offload packet classification, load-balancing and encryption tasks which is essential to implement and scale application-aware analytics, traffic filtering and advanced authentication functions in high-end WLAN controllers. What is more, Advantech's SKY Servers have been designed for telecom applications and combine cutting-edge performance with the ruggedness and reliability of a NEBS 3 ready platform in a 20" deep platforms that follows the long system lifecycles required by networking equipment providers.

vE-CPE & SD-WAN

Your New Universal Whitebox Devices Just Arrived

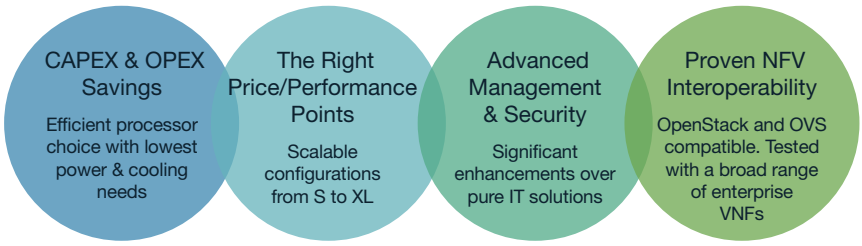
Enterprise services offered by service providers have traditionally required the installation of multiple appliances at the customer site in order to deliver mainstream functions such as routing, firewall and VPN. The customer premise equipment or CPE used to accomplish this is typically deployed on proprietary or specialized WAN technology with dedicated appliances. In addition, WAN traffic generally flows over E1/T1 lines using MPLS technology and the CSP provides the management systems that are required to operate and maintain the network.

This approach has the benefits of guaranteeing enterprise customers with reliable network services and helps to ensure that service level agreements can be met. On the flip side, it offers little flexibility for businesses who require more capacity or additional services as it lacks the agility needed to quickly respond to new business opportunities. Time to revenue ultimately suffers as CSPs struggle to provision new services, which in turn slows the innovation cycle and delays growth.

These challenges can now be overcome thanks to NFV elasticity which allows network services to be moved around different locations in the network, both at the service provider edge and on the customer premises. Network functions like routers and firewalls become virtual network functions and can run on open networking platforms based on Intel® architecture in the cloud as well as at the branch office. While physical service functions require a truck roll to deploy a new service, NFV provides the ability to bring virtualized service network functions to managed network service customers much faster.

The Appliance Advantage

Although standard IT servers may be considered for deployment of vE-CPE on the customer premises, white box appliances offer a reduced CAPEX alternative for deployment in volume. Advantech's Universal vCPE offering embraces CSP disaggregation strategies through NFV and enables a more cost effective separation of hardware and software in the provisioning of zero-touch appliances installed at customer branch offices.



Advantech's open white-box vCPE approach, using standard Intel® processors in feature-flexible appliances, provides the range of bare-metal server platforms needed by CSPs and system integrators to transform conventional deployment models in the enterprise WAN.

Visit **www.ve-cpe.com** to find out more about our vCPE range and the ecosystem partners that enable end-to-end solutions

Network Security

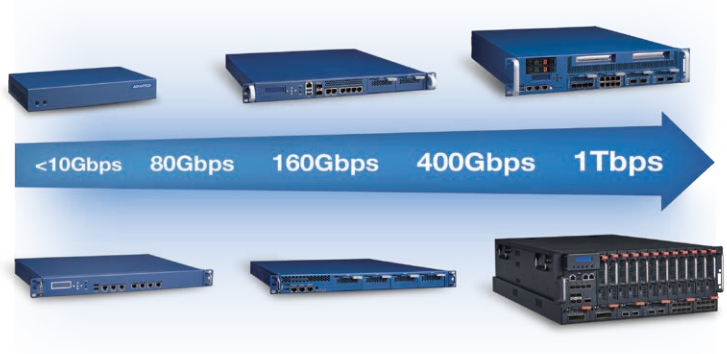
Excel to Protect Your Customers

Network security evolves as rapidly as new threats spread. Security applications protect services and users in a variety of network deployments with different architectures. However, they all share a basic requirement: complete visibility and control over the traffic crossing the network. Applications such as intrusion detection and prevention, SSL inspection, Unified Threat Management or next-generation firewalls need to capture 100% of the traffic across all packet sizes without risking any portion of data therefore strongly relying on Deep Packet Inspection (DPI) techniques to accurately classify network traffic. Traditional DPI stopped at the application identification but latest application-aware solutions can classify both enterprise and consumer applications and protocols, and extract valuable insights up to Layer 7.

Network security equipment vendors need solutions able to perform packet processing at wire speeds on 40GbE and 10GbE ports as well as on legacy gigabit Ethernet ports. In addition, their network application platforms need to be scalable and flexible in order to adjust to evolving requirements such as increases in network bandwidth, application performance, and the virtualization of security functions. To achieve this, network security vendors are investing more and more in application software development and require flexible, scalable and high performance platforms to deliver their solutions. From their perspective, any appliance upon which their network applications are delivered must meet and exceed strict performance criteria, reduce overall development costs, and accelerate time-to-market.

Network Throughputs from Mbps to Tbps

Advantech's communications platforms provide that scalability and reliability with the broadest range of communication platforms based on Intel® architecture scaling from megabits to terabits per second of throughput. Our desktop and 1U rackmount server platforms meet the needs of UTM solution providers supplying small to medium businesses as well as large enterprises. For large enterprise solutions requiring the fastest of security appliances, Advantech's high end platforms scale from 2U rackmount appliances all the way up to multi-bladed server solutions offering scalable performance for data center and telecom network security, where customers need terabits per second of processing performance.



We help accelerate time-to-market by working closely with major processor and network interface vendors on early silicon to ensure we have the latest technology available for the earliest possible customer sampling. By working in close unison with silicon vendors we are able to provide platforms, blades and accelerators which give our customers first mover advantage and allow them to deploy solutions in volume as soon as production level silicon is available.

Intel® QuickAssist & Data Plane Development Kit (DPDK)

NPU-like packet processing performance is attained by leveraging the performance-optimized libraries in the DPDK to speed up packet processing and increase throughput. The platform integrates Intel® QuickAssist Technology, a set of software modules for bulk encryption, data compression, and other workloads critical to networking. As acceleration hardware embedded within the chipset or add-in modules are available, compute-intensive algorithms can be off-loaded from the CPU cores, freeing up processor cycles for application and control processing.

What's more, you can tap into Intel® architecture with the guarantee of proven software compatibility spanning multiple processor generations allowing you to commit to any platform today with the assurance your software investment is securely future-proofed. Scalability makes it simpler to design a range of products using a common software base starting with desktop appliances for SMB security and ranging to UTMs and policy enforcement engines leveraging DPDK and Intel® QuickAssist Technology in next-generation network platforms.

Core Network

Extend the Life of Your ATCA Infrastructure

The telecommunications industry is fundamentally evolving and equipment manufacturers are repositioning themselves along the telecommunications value chain. Advantech provides the foundation building blocks for that value chain in the form of standard off-the-shelf computing platforms designed to meet the new virtual infrastructure needs. These building blocks enable our Telecom Equipment Manufacturer (TEM) partners to focus on differentiated services, such as application development and network management as they themselves evolve into solutions providers.

Coexistence of Legacy and the New IP Infrastructure

The shift to network virtualization and programmability is underway. Advantech is firmly committed to helping the telecommunications industry make a smooth transition to the new, open and software-driven infrastructure by working closely with the worldwide community of equipment manufacturers, software developers, solution providers, integrators and service providers. This commitment includes the upgrade of our ATCA blade product line to the latest processing and switching technology so that TEMs can extend existing infrastructure life with best-in-breed support from Advantech while operators make the move to the New IP at their own pace and according to their needs.

Integration, Customization and Partnership

Our blade computing division provides solid and timely technology introductions while designing to stringent industry standard requirements such as NEBS and ETSI. From experience, we know how to work hand-in-hand with system integrators and TEMs during the pre-certification phase of their integrated platforms. Advantech's ATCA systems integration team unites products designed in our own labs and manufactured on our own production lines with trusted and tested ecosystem partner building blocks. Our customer focused architects work closely with networking and telecom OEMs to design systems from pretested ATCA elements with proven product interoperability.

When standard product adaptation is necessary, Advantech understands how to change, move or remove connectors and components, re-adjust for EMC and adjust for chassis-specific cooling issues in a timely manner. Since not all required ATCA blade-level functions or elements are available as off-the-shelf products, we invested in geo-regional R&D teams to accompany our TEM partners in design-to-order-services (DTOS). Our DTOS organization offers same time-zone project management for the development of custom or accelerated designs based on our IP design libraries.

Increase the Return of Your ATCA Investment

Upgrade your ATCA blades to the latest processing and switching technology with Advantech.

MIC-5345

Dual/single Intel® Xeon® E5-2600 Series Processors CPU ATCA blade with 40GbE fabric ports

MIC-5342

Dual Intel® Xeon® E5-2600 Series Processors CPU ATCA blade with Intel® QuickAssist and 40GbE fabric ports

MIC-5604

Intel® Xeon® D-1500 Series Processor AdvancedMC card with DDR4 EEC

ATCA-9112

10/40GbE switch ATCA blade for 16 slots and 8 front panel uplinks with a 640Gbps non-blocking fabric switch

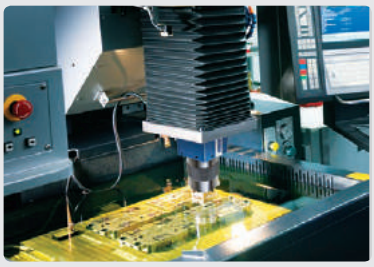
Mission Critical

Secure Your Long Term Success

Many mission-critical applications benefit from the robustness and modularity offered by CompactPCI systems. For more than 15 years, Advantech has been developing standard CompactPCI equipment tailored to high-tech industries that require high levels of specialization leveraging COTS and customization. In addition, our growing range of 3U and 6U VPX blades are OpenVPX-compliant, long-life cycle, COTS modules that have been carefully designed to serve compute intensive defense applications.

Transportation

With over 11,000 km of tracks in service and 1.3 million daily ridership, the high-speed rail network in China is the largest and most heavily used in the world. Safety being the major concern, not only train operation is monitored but also external factors that can have a fatal impact. Integrated as part of the disaster prevention system, Advantech CompactPCI platforms collect and analyze metrological, seismic and intrusion data allowing to foresee unwanted circumstances and react if necessary. Dual CompactPCI systems in active-backup configuration help the system integrator bring the reliable, non-stop operation required.



Machine Automation

Surface-mount technology (SMT) is a method of producing electronic circuits in which components are mounted directly onto the surface of printed circuit boards. To satisfy high market demands driven by mobile devices high-speed SMT placement machines are required to precisely mount the smallest parts being used in mass production while being able to handle next generation components. Advantech CompactPCI platforms are used in this rugged environment to ensure reliability and uptime. Advantech's wide range of CompactPCI cards allow customers to perfectly balance cost and performance.

Military & Aerospace

Radar technology is the cornerstone of Intel®ligence, surveillance and reconnaissance systems. C4ISR solutions rely on radar data processing and control which finds in VPX the perfect ally for high bandwidth and robust computing. Advantech's OpenVPX-compliant blades combine the high-performance that allows real-time processing with the ruggedness that secures continuous operation of mission-critical radar solutions. The extensive operating system support of our VPX modules and our strong design and customization capabilities bring maximum development flexibility to military and aerospace equipment manufacturers for reduced time-to-market and in-house development efforts.

Medical

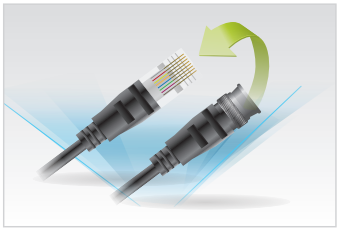
Manufacturers of MRI equipment are constantly focusing on offering higher performance in terms of improved image quality and consistency, faster imaging and processing. With high levels of reliability, modularity and upgradability, Advantech CompactPCI platforms have been chosen as processing element of MRI equipment design. Advantech's flexibility in modifying standard products is a decisive factor, as not all CompactPCI manufacturers' CPU blades offer the required feature set.

Video Infrastructure

Accelerating UHD Workflow Transformation

Advantech VEGA Video Platforms and PCI Express Adapters are designed to boost video infrastructure performance from acquisition to distribution at the lowest power budget while fully complying with the media industry needs. By providing access to the latest 4K/8K video processing and IP media technologies on commercial-off-the-shelf IT platforms we accelerate the deployment of next-generation, open and more efficient video solutions across a wide range of applications from broadcast encoding and OTT transcoding to cloud, mobile, VR and 360 video. Advantech's standard portfolio can be tailored to meet a range of system requirements, significantly reducing time-to-market efforts for our customers.

Here are the principal issues confronting the industry and how we can help.



The Move to IP

One of the major disruptors in the industry is the migration to IP that improves flexibility, reduces costs, and allows more use of commercial computing and networking gear. Advantech accelerates this transition by working together with key industry partners through industry alliances such as AIMS or IP Live on standard and interoperable solutions that unlock the full potential of the new IP media infrastructure.

UltraHD and HEVC

The advent of 4K/8K and H.265 are a double whammy for the industry, together significantly outstripping the processing capability of many infrastructure elements. Advantech provides a wide range of easy-to-integrate, ultra-low-power video acceleration cards and application-ready platforms that efficiently upgrade throughput of high-density video infrastructure solutions to enable next-generation UHD services.

The Video Cloud

As the need for video ingest, processing and storage skyrockets, media companies are considering moving to cloud-based architectures. However, some aspects of video processing are less than optimal in a generic IT cloud environment. Advantech acceleration technology offloads heavy-lifting video processing tasks and enables higher density, server based solutions that bring data center efficiencies to large-scale cloud media deployments.

Video Infrastructure

Boost Your Media Application Performance

Do More with Less

Traditional server hardware is not well suited to video processing, especially when multiple high-resolution channels require manipulation. Using hardware acceleration allows a server to do more of what it is good at, and significantly reduces power, cost and footprint of high-density media solutions. Advantech's ultra-low power video encoder, decoder and transcoder platforms enable real-time HEVC encoding at up to 20x less power consumption than a software-only solution helping OEMs successfully address the challenges of 4K/8K media processing in a cost-effective manner. Advantech products can provide the acceleration required to support video processing across a range of applications from UHD HEVC broadcast encoding to high-density OTT video transcoding or cloud media processing.

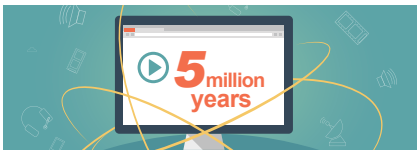
The Online Video Era

The media industry is undergoing a profound transformation driven by the fundamental change in video consumers' behavior that disrupts the traditional business model. Media organizations and service providers are looking to optimize their operations and monetize the big opportunities that the mobile video era brings. Advantech helps equipment manufacturers lead the video-centric network transformation with products that address its current upheaval and the convergence of broadcast, networking and IT technologies.

In 2020

There will be 26.3 billion networked devices (3.4 per capita), 41% of which will be video enabled consumer devices.

Internet traffic will grow 3-fold from 2015. Video will be 82% of all Internet traffic.



It would take an individual over 5 million years to watch the amount of video that will cross the Internet each month.

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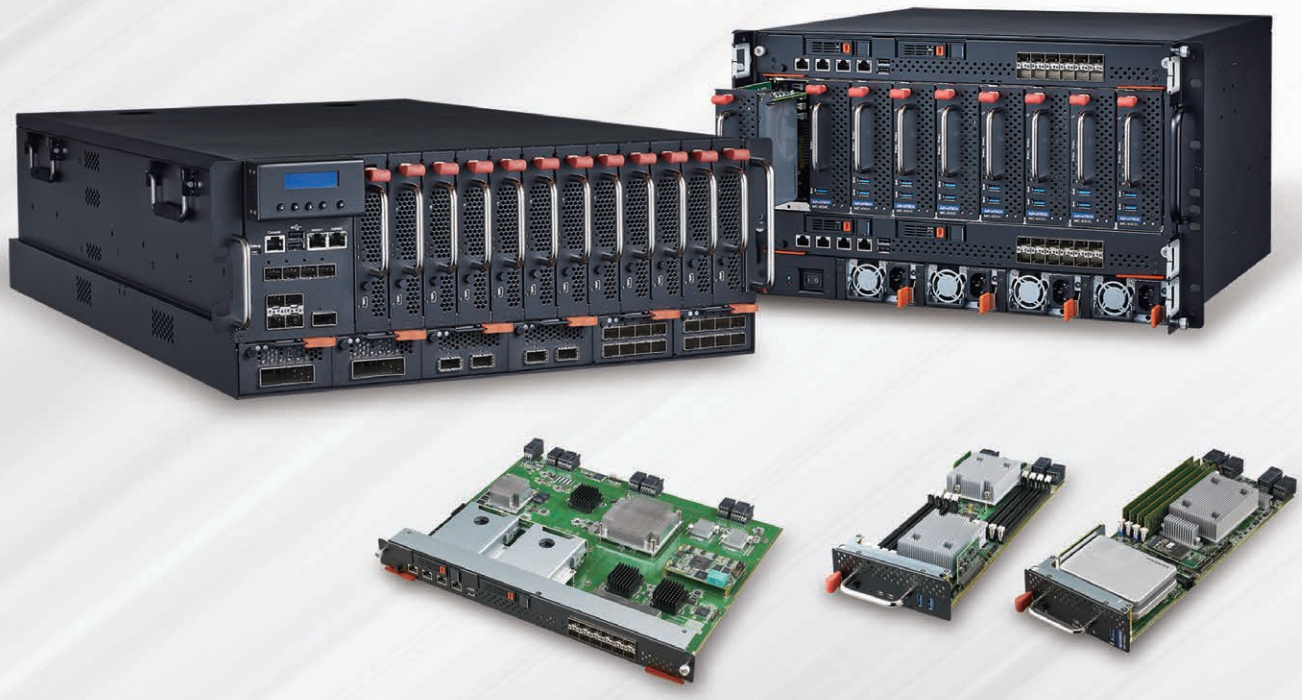
Packetarium XL Blade Servers

Please visit www.advantech.com/nc for the latest product updates.



Packetarium XL Blade Servers

Advantech's Packetarium XL is a family of scale out network platforms that leverages best IT and networking design principles to optimize the performance of enterprise and network applications in a virtualized environment. Packetarium XL platforms take a microserver approach with a modular design that scales compute performance on Intel® Architecture processors distributed across high-speed switched backplanes, bringing greater flexibility and cost efficiencies to higher density deployments with reduced total cost of ownership. Packetarium XL blade servers seamlessly integrate with standard software frameworks to provide an open infrastructure that accelerates the roll-out of next generation NFV and software defined services.

Packetarium XL Family

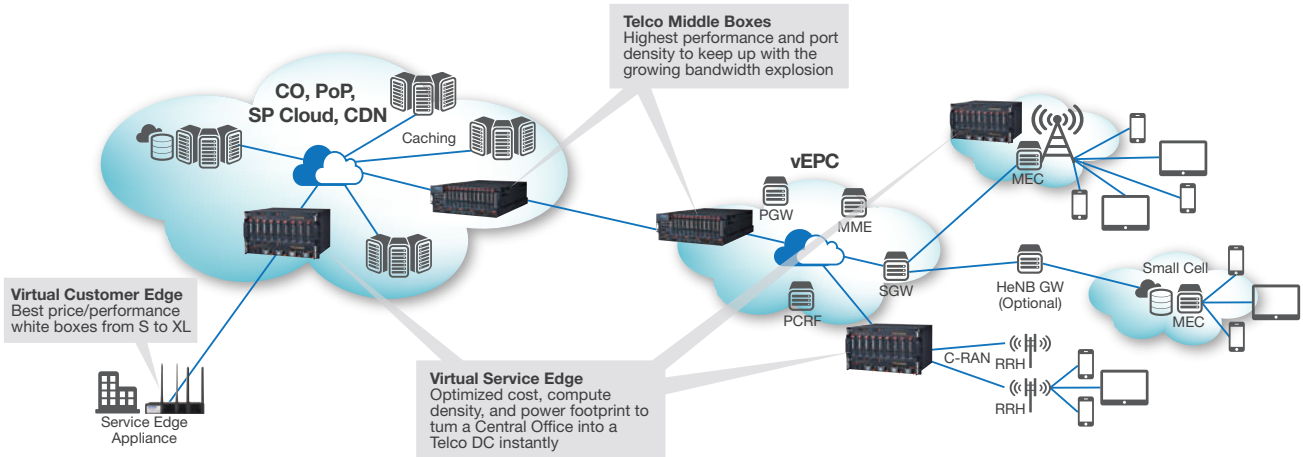
Carrier Grade

The Packetarium XLc is a truly carrier-grade network platform for the telecom cloud infrastructure that optimizes VNF performance, yet meets demanding industry standards with five 9's availability and NEBS-3 compliance in a 6U, compact format with a reduced depth of 400mm. Packetarium XLc is the first telco-grade server of its class to extend NFV elasticity to both edge and access equipment bringing higher processing densities, more memory for VNF support and the scale-out headroom needed to meet stringent service level agreements.

Ultra-high Performance

The enterprise version of the Packetarium XL family, the Packetarium XLe, achieves higher CPU and I/O density in a 4U, 27" deep system that meets the increased demand for faster packet handling at lower cost. The Packetarium XLe targets Network Intel® ligence deployments requiring accelerated packet processing performance in applications such as high-end network security, policy control and traffic analysis.

NFV Elasticity for a Competitive Edge



NFV Elasticity allows service providers and network operators to provision an efficient base line service at the edge of the network while covering peak loading at the core over a consistent virtual infrastructure with a common execution environment. Advantech's NFV Elasticity program supports scalable platforms based on server-class Intel® processors that can run Virtual Network Functions anywhere in the network. Moreover, Advantech's edge platforms enable new premium services as described by the Multi-access Edge Computing ETSI group requiring low latency, near real time response paired with best-in-class performance per watt of compute. We work with key ecosystem partners, including system integrators, to give you a head start on NFV by putting together production-ready, end-to-end NFV solutions such as virtual CPE for the enterprise (vE-CPE) and Network in a box leveraging vRAN and vEPC functions.

Selection Guide

Packetarium XL Systems

Model			Packetarium XLe (PAC-4010)	Packetarium XLc (PAC-6009)
Processor System	CPU		12 CPU blades, Single Intel® Xeon® Processor E5-2600 v3/v4 series on each CPU blade	9 CPU blades, Single Intel® Xeon® processor E5-2600, Dual or Single Intel® Xeon® D SoC per blade
	Switch		Up to 1.68 Tbps data plane switching capacity, Up to 320Gbps control plane switching capacity, Up to 100Gbps connectivity per blade	Up to 280Gbps data plane switching capacity, Up to 40Gbps mid-plane connectivity per CPU blade, Up to 100Gbps external I/O connectivity
External I/O Modules & Interface	CPU Blade		Flexible processor blade with up to 12 CPU blades equipped with single Intel® Xeon® E5-2600 v3/v4 series	Flexible processor blade with up to 9 CPU blades equipped with single or dual Intel® Xeon® D SoC Dual 8- or 16-core Intel® Xeon® Processor D (MIC-8303), Single 8- or 16-core Intel® Xeon® Processor D with additional on-board SSD storage (MIC-8304)
	PMM Modules		Flexible I/O with up to 6 PHY Mezzanine Modules (PMMs) which can host 1x100GbE, 3x40GbE, 2x40GbE, or 8x10GbE ports each Maximum 120Gbps traffic for each PHY Mezzanine Module (PMM)	–
	LAN		4x SFP+ for data plane, 4x SFP+ and 1x QSFP+ for control plane, 2x GbE for system management	10x SFP+ for data plane, 2x SFP+ for control plane
	Serial Console		2x RS-232 (with RJ-45 port for ShMC) per CPU blade	2x RS-232 (with miniUSB port for ShMC) per CPU blade
	USB		2x USB 2.0 ports connect to switch LMP	Up to 2x USB 3.0 port connect to Intel® Xeon® D per CPU blade
Storage	SATA		2x system storages (2.5" SSD or HDD) 2x on-board m-SATA storages on the switch board 2x m-SATA M.2 SSD on each CPU blade	2x 2.5" SSD per switch blade (ESP-9002C) 2x M.2 SATAIII SSD per CPU blade (MIC-8303) 2x on-board 2.5" SSD per CPU blade (MIC-8304)
Cooling	Technology		Six Rear pluggable, hot swappable fan modules with PICMG compliant fan speed control	Four Rear pluggable, hot swappable fan modules with PICMG compliant fan speed control
Power	AC Input		Up to four redundant power supply units with separate AC inlets AC 200~240V, 50~60Hz, with 2+2 and N+1 power redundancy options (max output 3600W) AC 100~127V, 50~60Hz, with N+1 power redundancy (max output 3000W)	Up to four redundant power supply units with separate AC inlets AC 220V, 50~60Hz, maximum output 1800W per PSU, with 2+2 and N+1 power redundancy options AC 110V, 50~60Hz, maximum output 1000W per PSU, with N+1 power redundancy
	DC Input		Up to four redundant power supply units with separate DC inlets DC -40V - -60V, 55A, with 2+2 and N+1 power redundancy options (max output 3600W)	Up to four redundant power supply units with separate DC inlets DC -40V - -60V, maximum output 1800W per PSU, with 2+2 and N+1 power redundancy options
	PSU cooling		Self cooled	Self-cooled
	Output DC voltage		+12V	+12V
	Output Current rating		Maximum 148A @ +12V per PSU Maximum 2A @ +12VSB per PSU	Maximum 148A @ +12V per PSU (under 220V AC source; -48V DC source) Maximum 2A @ +12VSB per PSU
	Power Consumption		3100W (with configuration: 12x CPU blades with 4x 2133MHz 16GB DDR4 memory and 2x M.2 SSD each blade, 6x single port 100GbE PMMs)	2400W (with configuration: 9x Dual Intel® Xeon® Processor D CPU blades with 8x 2133MHz 16GB DDR4 memory and 2x M.2 SATAIII SSD each blade, 2x Switch blades)
Shelf management	BMC		ARM 9 based controller (400MHz)	ARM 9 based controller (400MHz)
	IPMI		IPMI 2.0 based on Advantech IPMI Core	IPMI 2.0 based on Advantech IPMI Core
	Interfaces		RMCP, SSH, SNMP, CLI, and serial interfaces	RMCP, SSH, SNMP, CLI, and serial interfaces
	Sensors		FRU presence, fan health, PSU health, temperatures, input voltages	FRU presence, fan health, PSU health, temperatures, input voltages
Accessibility	Front		CPU blades, PMMs, 2.5" SSDs or HDDs	CPU blades, Switch blades, 2.5" SSDs, AC or DC PSU's
	Rear		Fan modules, AC or DC PSU's	Fan modules
Physical Characteristics	Dimensions (H x W x D)		177 x 483 x 686 mm	266 x 483 x 400 mm
	Weight		63 kg	48 kg
	Operating	Temperature	0 ~ 40° C (32 ~ 104° F)	-5 ~ 40° C (23 ~ 131° F)
		Humidity	50% @ 25°C to 95% @ 40°C (non condensing)	50% @ 25°C to 95% @ 40°C (non condensing)
		Altitude	Up to 13000ft @ 45°C	Up to 13000ft @ 45°C
		Acoustic	61.3dB(A) (Idle mode)	83dB @ 23 ~ 27°C
	Non-operating	Temperature	- 40 ~ 70° C (-40 ~ 158° F)	- 40 ~ 70° C (-40 ~ 158° F)
		Humidity	95% @ 60° C (non-condensing)	95% @ 60° C (non-condensing)
Compliance	PICMG		IPMI, HPM.1 firmware upgrade, HPM.2 extended message size	IPMI, HPM.1 firmware upgrade, HPM.2 extended message size
	Safety & EMC		CB report (IEC60950-1), CE mark (EN60950-1), UL60950-1/CSAC22.2 FCC47 CFR Part15, Class A, CE Mark (EN55032/ EN55024), RCM Mark (AS/NZS CISPR 23), VCCI, KCC	CB report (IEC60950-1), CE mark (EN60950-1), UL60950-1/CSAC22.2 FCC47 CFR Part15, Class A, CE Mark (EN55032/ EN55024), RCM Mark (AS/NZS CISPR 22), VCCI
	NEBS		–	Designed to comply with NEBS Level 3
Page			1-5	1-10

Selection Guide

Packetarium XL Node Blades

Model			MIC-8301	MIC-8303C	MIC-8304C
System Series			Packetarium-XLe (PAC-4010)	Packetarium-XLc (PAC-6009)	Packetarium-XLc (PAC-6009)
Processor System	CPU		Single Intel® Xeon® E5-2600 v3/ v4 series	Dual Intel® Xeon® D SoC	Single Intel® Xeon® D SoC
	BIOS		Dual 64-Mbit BIOS firmware flashes with AMI UEFI based BIOS	Dual 64-Mbit BIOS firmware flashes with AMI UEFI based BIOS	Dual 64-Mbit BIOS firmware flashes with AMI UEFI based BIOS
Memory	Technology		Dual channel DDR4 ECC RDIMM up to 2133MHz	Dual channel DDR4 ECC RDIMM up to 2133MHz	Dual channel DDR4 ECC RDIMM up to 2133MHz
	Max. Capacity		Configurable up to 256GB	Configurable up to 256GB	Configurable up to 128GB
	Socket		4 ECC RDIMMs	8 ECC RDIMMs	4 ECC RDIMMs
Connection	Fabric Interface		2x 40GbE in KR4 for data plane interface and 2x 10GbE in KR for control plane interface	2x Intel® Xeon® D 10GBASE-KR per processor	2x Intel® Xeon® D 10GBASE-KR
	Base Interface		1x GbE in 1000Base-KX	i210 GbE	i350 GbE
Front I/O Interface	Serial (COM)		1x mini USB console	2x mini USB console	1x mini USB console
	USB 3.0		NA	2 x Type A ports	1 x Type A ports
Storage	SATA		2x M.2 SATAIII SSD	Up to 2x M.2 SATAIII SSD per blade	1x M.2 SATAIII SSD 2x 2.5" SATAIII SSD
Hardware Management	BMC		ARM 9 based controller (400MHz)	ARM 9 based controller (400MHz)	ARM 9 based controller (400MHz)
	IPMI		IPMI 2.0 based on Advantech IPMI Core	IPMI 2.0 based on Advantech IPMI Core	IPMI 2.0 based on Advantech IPMI Core
Power Requirement	Configuration		1x 105W CPU, 64GB memory, 2x 64GB M.2 SATAIII SSD	2x 65W SoCs, 256GB memory, no storage	1x 65W SoC, 128GB memory, 2x 512GB 2.5" SATAIII SSD
	Comsumption		200W (Estimated)	200W (Estimated)	200W (Estimated)
Physical Characteristics	Dimensions (HxWxD)		27.40 x 134.20 x 543.95 mm	44.30 x 130.30 x 357.21 mm	44.30 x 130.30 x 357.21 mm
	Weight		2.3 kg	1.235 kg	1.225 kg
Environment	Operating	Temperature	0 ~ 40° C (32 ~ 104° F)	-5 ~ 40° C (23 ~ 131° F)	-5 ~ 40° C (23 ~ 131° F)
		Humidity	50% @ 25°C to 95% @ 40°C (non condensing)	50%@25°C to 95%@40°C (non condensing)	50%@25°C to 95%@40°C (non condensing)
		Altitude	Up to 13000ft @ 45°C	Up to 13000ft@45°C	Up to 13000ft@45°C
	Non-operating	Temperature	- 40 ~ 70° C (-40 ~ 158° F)	- 40 ~ 70° C (-40 ~ 158° F)	- 40 ~ 70° C (-40 ~ 158° F)
		Humidity	95% @ 60° C (non-condensing)	95% @ 60° C (non-condensing)	95% @ 60° C (non-condensing)
Compliance	PICMG		IPMI, HPM.1 firmware upgrade, HPM.2 extended message size	IPMI, HPM.1 firmware upgrade, HPM.2 extended message size	IPMI, HPM.1 firmware upgrade, HPM.2 extended message size
	Safety & EMC		CB report (IEC60950-1), CE mark (EN60950-1), UL60950-1/CSAC22.2 FCC47 CFR Part15, Class A, CE Mark (EN55032/EN55024), RCM Mark (AS/NZS CISPR 23), VCCI, KCC	CB report (IEC60950-1), CE mark (EN60950-2001), UL60950-1/CSAC22.2 FCC47 CFR Part15, Class A, CE Mark (EN55032/EN55024/ EN300386), RCM, VCCI	CB report (IEC60950-1), CE mark (EN60950-2001), UL60950-1/CSAC22.2 FCC47 CFR Part15, Class A, CE Mark (EN55032/EN55024/ EN300386), RCM, VCCI
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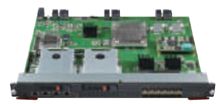
Packetarium XLc Switch Blade



Model			ESP-9002C
System Series			Packetarium-XLc (PAC-6009)
Processor	Processor		NXP QorIQ® P2040
	Switch		Up to 280 Gbps data plane switching capacity,
Storage	SATA		Up to 2x 2.5" SSD per switch blade
I/O Front Interface	BMC console port		1 x RJ-45
	LMP console port		1 x RJ-45
	USB		1 x USB1.0, 1 x USB 2.0
	Control Plane port		2 x SFP+
	Data Plane port		10 x SFP+
Shelf Management	BMC		ARM 9 based controller (400MHz)
	IPMI		IPMI 2.0 based on Advantech IPMI Core
	Interfaces		RMCP, SSH, SNMP, CLI, and serial interfaces
	Sensors		FRU presence, fan health, PSU health, temperatures, input voltages
Physical Characteristics	Dimensions (HxWxD)		430 x 330 x 43 mm
	Weight		3.24kg
Software Support	Bootloader		U-boot
	HW Management		IPMI 2.0
	Switch Management		Broadcom FASTPATH 8.2
Environment	Operating	Temperature	-5 ~ 40° C (23 ~ 131° F)
		Humidity	50% @ 25°C to 95% @ 40°C (non condensing)
		Altitude	Up to 13000ft @ 45°C
	Non-operating	Temperature	- 40 ~ 70° C (-40 ~ 158° F)
		Humidity	95% @ 60° C (non-condensing)
Compliance	PICMG		IPMI, HPM.1 firmware upgrade, HPM.2 extended message size
	Safety & EMC		CB report (IEC60950-1), CE mark (EN60950-2001), UL60950-1/CSAC22.2 FCC47 CFR Part15, Class A, CE Mark (EN55032/EN55024/EN300386), RCM, VCCI
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Packetarium XLe PHY Mezzanine Modules (PMM)




Model			PMM-4103	PMM-2400	PMM-3200	PMM-3201
System Series			Packetarium-XLe (PAC-4010)	Packetarium-XLe (PAC-4010)	Packetarium-XLe (PAC-4010)	Packetarium-XLe (PAC-4010)(Preliminary)
Ethernet PHY			APM S28115	TI DS125RT	TI DS125RT	TI DS125RT
I/O			1x 100GbE LAN	8x 10GbE LAN	2x 40GbE LAN	3x 40GbE LAN
Interface			CFP2	SFP+	QSFP+	QSFP+
Physical Characteristics	Dimensions (H x W x D)		39.50 x 73.50 x 162.26 mm (including handle)	39.50 x 73.50 x 162.26 mm (including handle)	39.50 x 73.50 x 162.26 mm (including handle)	39.50 x 73.50 x 162.26 mm (including handle)
	Weight		0.8 kg	0.8 kg	0.8 kg	0.8 kg
Environment	Operating	Temperature	0 ~ 40° C (32 ~ 104° F)	0 ~ 40° C (32 ~ 104° F)	0 ~ 40° C (32 ~ 104° F)	0 ~ 40° C (32 ~ 104° F)
		Humidity	50% @ 25°C to 95% @ 40°C (non condensing)	50% @ 25°C to 95% @ 40°C (non condensing)	50% @ 25°C to 95% @ 40°C (non condensing)	50% @ 25°C to 95% @ 40°C (non condensing)
		Altitude	Up to 13000ft @ 45°C	Up to 13000ft @ 45°C	Up to 13000ft @ 45°C	Up to 13000ft @ 45°C
	Non-operating	Temperature	- 40 ~ 70° C (-40 ~ 158° F)	- 40 ~ 70° C (-40 ~ 158° F)	- 40 ~ 70° C (-40 ~ 158° F)	- 40 ~ 70° C (-40 ~ 158° F)
		Humidity	95% @ 60° C (non-condensing)	95% @ 60° C (non-condensing)	95% @ 60° C (non-condensing)	95% @ 60° C (non-condensing)
Compliance	Safety & EMC		CB report (IEC60950-1), CE mark (EN60950-1), UL60950-1/CSAC22.2 FCC47 CFR Part15, Class A, CE Mark (EN55032/ EN55024), RCM Mark (AS/NZS CISPR 23), VCCI, KCC	CB report (IEC60950-1), CE mark (EN60950-1), UL60950-1/CSAC22.2 FCC47 CFR Part15, Class A, CE Mark (EN55032/ EN55024), RCM Mark (AS/NZS CISPR 23), VCCI, KCC	CB report (IEC60950-1), CE mark (EN60950-1), UL60950-1/CSAC22.2 FCC47 CFR Part15, Class A, CE Mark (EN55032/ EN55024), RCM Mark (AS/NZS CISPR 23), VCCI, KCC	CB report (IEC60950-1), CE mark (EN60950-1), UL60950-1/CSAC22.2 FCC47 CFR Part15, Class A, CE Mark (EN55032/ EN55024), RCM Mark (AS/NZS CISPR 23), VCCI, KCC
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PAC-4010

Packetarium XLe Ultra High Performance Blade Server with 100G Switched Midplane

Features

- Highest CPU and I/O density platform in the Packetarium XL family
- Up to 12 CPU blades with single Intel® Xeon® Processor E5-2600 v3/v4
- Up to 2Tbps switching capacity with 100Gbps midplane connectivity per blade
- Flexible I/O configurations with up to 6 PHY Mezzanine Modules (PMMs) which can host 1x100GbE, 3x40GbE, 2x40GbE, or 8x10GbE ports each
- Broadcom FastPath v8.2 and Advantech Load Balancer (L2) supports
- Enhanced platform management features for increased RASUM
- Hot swappable and redundant AC/DC and DC/DC PSU options
- Front-to-rear push-pull cooling mode. Six rear pluggable, hot swappable fan modules with fan speed control
- Optional SATA storage devices on the CPU blade and on the system mount
- Optional LCD module support

Introduction

Advantech's Packetarium XLe series meets the higher levels of performance and throughput needed by next generation enterprise and telecom applications, offering new, cost-effective ways to scale-out compute density using Intel® Architecture processors distributed across high-speed switched backplanes.

The system is optimized for maximum CPU and network I/O density, enabling faster packet handling to meet the increased data throughput rates needed in enterprise networking and in telecom middle boxes. It is ideal for Network Intelligence deployments requiring accelerated packet processing performance on 10GbE, 40GbE and 100GbE ports in applications such as high-end network security, policy control and traffic analysis. The first model in the Packetarium XLe for Enterprise series, the PAC-4010 fits in just 4RU and reaches the performance levels typically only found in specialized ATCA or proprietary network processor-based solutions, but at a fraction of the cost.

The platform uses common IP and building blocks to bring greater cost efficiencies and economies of scale which can then be passed on to customers.

The PAC-4010, packs up to 840 Gbps of I/O, up to 2 Tbps of switching capacity and up to 12 Intel® Xeon® Processor E5-2600 v3/v4 CPUs in just 4RU. The integrated switch & system control module is based on the high capacity Broadcom StrataXGS® Trident II/II+ switch family managed by an Intel® Atom™ Processor C2000 and provides six hot swappable PHY mezzanine module (PMM) slots to accommodate a wide choice of 10 GbE, 40 GbE and 100 GbE ports with optional LAN bypass support.

Many different payloads can be integrated into Advantech Packetarium XLe systems and configured to address a broad range of industry applications. For more details on integrating a specific configuration please contact your local sales representative.

Specifications

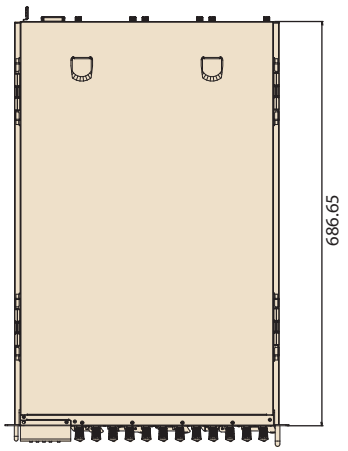
Processor System	CPU NOTE1	12 CPU blades, Single Intel® Xeon® Processor E5-2600 v3/v4 series on each CPU blade
	Switch	Up to 1.68 Tbps data plane switching capacity, Up to 320Gbps control plane switching capacity, Up to 100Gbps connectivity per blade
External I/O Modules & Interface	PMM Modules NOTE1	Flexible I/O with up to 6 PHY Mezzanine Modules (PMMs) which can host 1x100GbE, 3x40GbE, 2x40GbE, or 8x10GbE ports each Maximum 120Gbps traffic for each PHY Mezzanine Module (PMM)
	LAN	4x SFP+ for data plane, 4x SFP+ and 1x QSFP+ for control plane, 2x GbE for system management
	Serial Console	2x RS-232 (one with RJ45 port for switch LMP and the other with miniUSB port for ShMC)
	USB	2x USB 2.0 port connect to switch LMP
Storage	SATA	Up to 2x system storages (2.5" SSD or HDD) and 2x on-board m-SATA storages on the switch board Up to 2x m-SATA M.2 SSD on each CPU blade
Cooling	Technology	Six Rear pluggable, hot swappable fan modules with PICMG compliant fan speed control
Power	AC Input	Up to four redundant power supply units with separate AC inlets. AC 200~240V, 50~60Hz, with 2+2 and N+1 power redundancy options (max output 3600W) AC 100~127V, 50~60Hz, with N+1 power redundancy (max output 3000W)
	DC Input	Up to four redundant power supply units with separate DC inlets. DC -40V - -60V, 55A, with 2+2 and N+1 power redundancy options (max output 3600W)
	PSU cooling	Self cooled
	Output DC voltage	+12V
	Output Current rating	Maximum 148A@ +12V per PSU Maximum 2A@ +12VSB per PSU
	Power Consumption	3100W (with configuration: 12x CPU blades with 4x 2133MHz 16GB DDR4 memory and 2x M.2 SSD each blade, 6x single port 100GbE PMMs)

Specifications (Cont.)

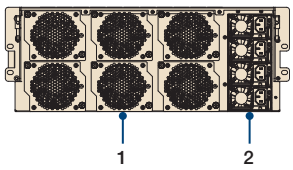
Shelf management	BMC	ARM 9 based controller (400MHz)	
	IPMI	IPMI 2.0 based on Advantech IPMI Core	
	Interfaces	RMCP, SSH, SNMP, CLI, and serial interfaces	
	Sensors	FRU presence, fan health, PSU health, temperatures, input voltages	
Accessibility	Front	CPU blades, PMMs, 2.5" SSDs or HDDs	
	Rear	Fan modules, AC or DC PSU's	
Physical Characteristics	Dimensions (H x W x D)	4U x 19" x 686 mm	
	Weight	63kg (system weight with full configuration (including 12x CPU blades and 6x PMMs))	
Environment		Operating	Non-operating
	Temperature	0 ~ 40° C (32 ~ 104° F)	- 40 ~ 70° C (-40 ~ 158° F)
	Humidity	50% @ 25°C to 95% @ 40°C (non condensing)	95% @ 60° C (non-condensing)
	Altitude	Up to 13000ft @ 45°C	
	Acoustic	61.3dB(A) (Idle mode)	
Compliance	PICMG	IPMI, HPM.1 firmware upgrade, HPM.2 extended message size	
	Safety & EMC	CB report (IEC60950-1), CE mark (EN60950-1), UL60950-1/CSAC22.2 FCC47 CFR Part15, Class A, CE Mark (EN55032/EN55024), RCM Mark (AS/NZS CISPR 23), VCCI, KCC	

Dimensions

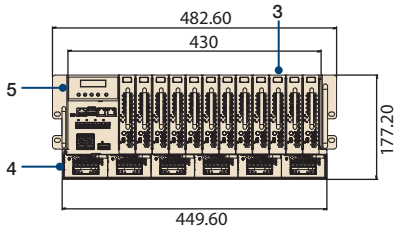
Top View



Rear View



Front View



1. Hot swappable FAN module
2. AC/DC or DC/DC PSU
3. CPU blade (MIC-8301)
4. PMM (PMM-4103)
5. LCM module

Ordering Information

Part Number	Description
PAC-4010-BTO	4U, 12x processor blade slots with 4x 1800W PSUs, 6x fan modules, optional processor blades and PMMs

Related Products

Model Series	Configuration
MIC-8301	Advantech Single socket CPU Blade with Intel® Xeon® Processor E5 series
PMM-2400	8 port 10GbE PHY Mezzanine Modules (PMM)
PMM-4103	Single port 100GbE PMM
PMM-3200	2 port 40GbE PMM
PMM-3201	3 port 40GbE PMM

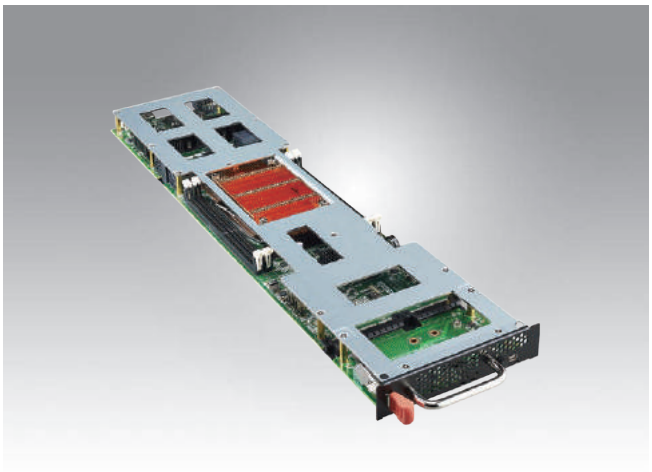
NOTE 1: Please contact your local Advantech sales representative for more information on CPU blades and PMMs.

Chassis FRU List

Model Series	Description
PAC-4010SC2-P1AE	4U, 12x processor blade slots with 4x 1800W AC PSUs, N+1 power redundancy, 6x fan modules, w/o processor blades and PMMs
PAC-4010SC2-P2AE	4U, 12x processor blade slots with 4x 1800W AC PSUs, 2+2 power redundancy, 6x fan modules, w/o processor blades and PMMs
PAC-4010SC2-P1DE	4U, 12x processor blade slots with 4x 1800W DC PSUs, N+1 power redundancy, 6x fan modules, w/o processor blades and PMMs
PAC-4010SC2-P2DE	4U, 12x processor blade slots with 4x 1800W DC PSUs, 2+2 power redundancy, 6x fan modules, w/o processor blades and PMMs
PAC-4010SF1-00E	PAC-4010 fan module
PAC-4010SP1-ACE	Power supply AC 1800W for PAC-4010
PAC-4010SP1-DCE	Power supply DC 1800W with 3m 6AWG DC power cable for PAC-4010
MIC-8301S-000E	Filler panel for PAC-4010 processor blade slot
PMM-0000-AD0000E	Filler panel for PAC-4010 PMM slot

MIC-8301

Packetarium XLe Single Socket CPU Blade with Intel® Xeon® Processor E5-2600 v3/v4



Features

- Single 12 Core /14 Core Intel® Xeon® Processor E5-2600 v3/v4
- Intel® C610 Series Chipset
- Four DDR4 VLP DIMMs with ECC support
- 2x 40GbE in KR4 for data plane interface and 2x 10GbE in KR for control plane interface; 1x GbE in 1000Base-KX
- Optional 2x SATA M.2 SSD devices on the CPU blade
- Hardware management based on Advantech IPMI Core

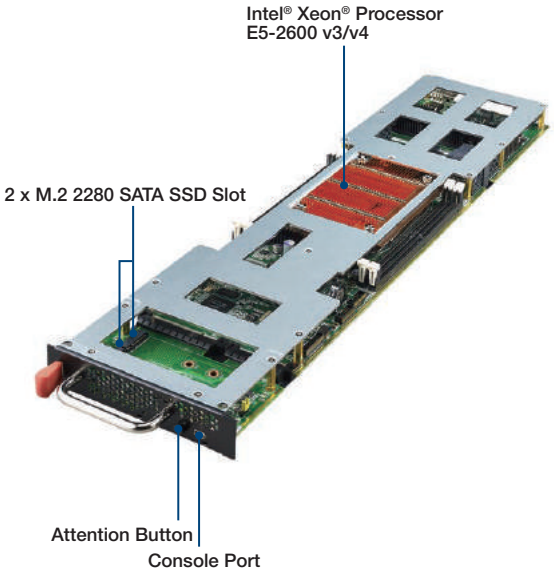
Introduction

Advantech's Packetarium XLe series meets the higher levels of performance and throughput needed by next generation enterprise and telecom applications, offering new, cost-effective ways to scale-out compute density using Intel® Architecture processors distributed across high-speed switched backplanes.

Advantech's MIC-8301 is a single processor blade for the Advantech Packetarium XLe platform, with Intel® Xeon® E5-2600v3/v4 series EP processor and C610 PCH. The MIC-8301 enables the latest x86 CPU technology in micro blade-style form factor with up to 14 cores and 28 threads of processing power. The blade provides high-speed PCI Express Gen3 lanes running at up to 8Gbps.Four DDR4 DIMMs running up to 2133MT/s support memory densities up to 128GB, while two 2280 M.2 SSD slots support up to 1TB (2x 512GB) storage capacities.

Advantech's MIC-8301 supports one mini-USB console port for the management interface. The fabric connection is implemented by two Intel® Ethernet Controller XL710 devices providing two 40GBASE-KR connections. MIC-8301 includes dual 40GBASE-KR4 network ports for the data plane Interface, dual 10GBASE-KR4 ports for the control plane interface, and one 1000Base-KX port for management purposes.

Two standard CPU blade configurations are available. For other configurations please contact your local sales representative.



Specifications

Processor System	CPU	Single 12 core/14 core Intel® Xeon® Processor E5-2600 v3/v4	
	Max. Speed	2.2 GHz	
	Chipset	Intel® C610 series chipset	
	BIOS	Dual 64-Mbit BIOS firmware flashes with AMI UEFI based BIOS	
	QPI	9.6 GT/s	
Memory	Technology	Quad channel DDR4 ECC VLP RDIMM up to 2133MHz	
	Max. Capacity	Configurable up to 128GB (default 64GB)	
	Socket	4x VLP DIMMs	
Connection	Fabric Interface	Dual 40GBASE-KR4 for data plane interface and dual 10GBASE-KR4 for control plane interface	
	Base Interface	1x 1000BASE-KX port	
Front I/O Interface	Serial (COM)	1x mini USB console	
Storage	SATA	2x M.2 SATAIII SSD	
Shelf management	BMC Controller	ARM 9 based controller (400MHz)	
	IPMI	IPMI 2.0 based on Advantech IPMI Core	
Power Requirement	Configuration	1x 105W CPU, 64GB memory, 2x 64GB M.2 SATAIII SSD	
	Consumption	200W (Estimated)	
Physical Characteristics	Dimensions (H x W x D)	27.40 x 134.20 x 543.95 mm	
	Weight	2.3 kg	
Environment		Operating	Non-operating
	Temperature	0 ~ 40° C (32 ~ 104° F)	- 40 ~ 70° C (-40 ~ 158° F)
	Humidity	50%@25°C to 95%@40°C (non condensing)	95% @ 60° C (non-condensing)
	Altitude	Up to 13000ft@45°C	
Compliance	PICMG	IPMI, HPM.1 firmware upgrade, HPM.2 extended message size	
	Safety & EMC	CB report (IEC60950-1), CE mark (EN60950-1), UL60950-1/CSAC22.2 FCC47 CFR Part15, Class A, CE Mark (EN55032/EN55024), RCM Mark (AS/NZS CISPR 23), VCCI, KCC	

Ordering Information

Part Number	Configuration
MIC-8301SA2-P1E	Advantech single socket CPU Blade with Intel® Xeon® Processor E5 series, 4x 16GB 2133MHz DDR4, 2x 64GB M.2 2280 SATAIII SSD
MIC-8301SA1-P1E	Advantech single socket CPU Blade with Intel® Xeon® Processor E5 series, 4x 16GB 2133MHz DDR4

Related Products

Model Series	Configuration
PAC-4010	4U, 12x processor blade slots with 4x 1800W PSUs, 6x fan modules, optional processor blades and PMMs
PMM-2400	8 port 10GbE PHY Mezzanine Module (PMM)
PMM-4103	Single port 100GbE PMM
PMM-3200	2 port 40GbE PMM
PMM-3201	3 port 40GbE PMM

NOTE

[1] Please contact your local Advantech sales representative for more information of PAC-4010 system, CPU blades, and PMMs.

PMM Modules

Packetarium XLe Series PHY Mezzanine Modules

Introduction

PHY Mezzanine Modules (PMM) provide a modular solution for network connectivity offering a broad choice of transport media with 10, 40 and 100GbE ports. PMMs are front loadable, offering easy maintenance & field upgradability.

Customers can take full advantage of PMMs to match different application and networking needs using various Advantech system platforms.

Specifications

Product Name		PMM-4103	PMM-2400	PMM-3200	PMM-3201 (Preliminary)
Ethernet PHY		APM S28115	TI DS125RT410	TI DS125RT410	TI DS125RT410
I/O		1x 100GbE LAN	8x 10GbE LAN	2x 40GbE LAN	3x 40GbE LAN
Interface		CFP2 (SR-10, LR-4)	SFP+	QSFP+	QSFP+
Compatible with the Following Platform		PAC-4010	PAC-4010	PAC-4010	PAC-4010
Physical Characteristics	Dimension (H x W x D)	39.50 x 73.50 x 162.26 mm (including handle)			
	Weight	0.80 kg			
Environment		Operating		Non-operating	
	Temperature	0 ~ 40° C (32 ~ 104° F)		- 40 ~ 70° C (-40 ~ 158° F)	
	Humidity	50%@25°C to 95%@40°C (non condensing)		95% @ 60° C (non-condensing)	
	Altitude	Up to 13000ft@45°C			

PAC-6009

6U Carrier Grade Blade Server for Edge Computing and NFV

Features

- Carrier Grade Blade Server with support for industry standard software frameworks accelerates the roll-out of next-generation NFV solutions
- Up to 9 front slots for hot-swappable Intel® Xeon® Processor E5-2600 or Intel® Xeon® Processor D based CPU blades for cloud networking and computing
- 9 slot mid-plane for dual star connectivity between switch boards and blades. Each fabric and star network supports dual GbE control/management ports per slot and dual 10GbE data fabric ports per compute slot
- 2 x ESP-9002C Switch/Management Modules integrating Broadcom Trident+ BCM56842 data plane switch and Broadcom BCM53346 GbE control plane / management switch
- Hot swappable and redundant AC/DC and DC/DC PSU options
- Front-to-rear push-pull cooling Mode. Four rear pluggable, hot swappable fan modules with fan speed control
- Optional SATA storage devices on the CPU blade and on the switch blade
- Optional network synchronization support
- Shelf management based on Advantech IPMI
- Designed to comply with NEBS Level 3

Introduction

The Packetarium XLc carrier grade blade server is designed to accommodate the highest density of hot-swappable compute power available in a 400mm deep 6U carrier-grade chassis. It is a highly scalable platform for deploying Intel® Xeon® Processor E5-2600 and Intel® Xeon® Processor D -based blades designed for the most demanding NFV workloads. The system's 400W per RU power footprint enables deployment in industry standard 19" racks, in addition its shallow depth and straight front to rear airflow make it easy to install and operate in data centers, central offices and telecom rooms at the edge of the network alike. The system has been carefully designed to meet carrier grade requirements in these environments including NEBS level 3 compliance and five 9's availability. These features make Packetarium XLc ideal for applications such as Mobile Edge Computing (MEC), Cloud RAN (C-RAN) and Central Office consolidation among others. The system has been interoperability-tested with software building blocks from key Network Function Virtualization (NFV) ecosystem vendors to provide a fully-functional NFV Infrastructure (NFVI).

The first model in the Packetarium XLc Carrier Grade Blade Server series, the PAC-6009, incorporates a highly versatile and modular design with 9 front slots to host 9 single or dual node Intel® Xeon® processor blades. Generic compute blades run application workloads (VNFs) while dedicated cloud control nodes provide orchestration and virtual infrastructure management functions. The system includes 2 integrated switch blades using low-latency Broadcom StrataXGS® Trident+ switches, each with 280Gbps data plane switching capacity enabling 40Gbps mid-plane connectivity per CPU blade(1). The switch blades also provide ten 10GbE SFP+ ports each for 100Gbps of external I/O connectivity and uplinks. Support for an optional timing module based on IEEE1588v2 is also available to support network synchronization using industry standard mechanisms.

PAC-6009 system management is based on Advantech's widely deployed SMM-5060 shelf & system manager and is integrated on the switch / management modules. Low level shelf management runs on a dedicated ARM processor while a Freescale QorIQ P2040 runs switch management and higher level system management functions.

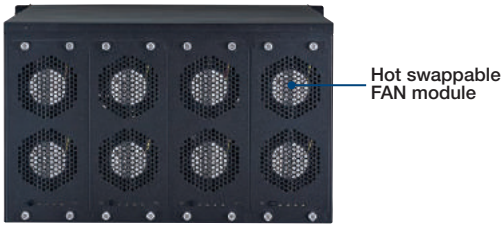
High availability of Shelf and System management is implemented by running the modules in an active/hot standby scheme. A low latency failover mechanism is provided by a robust, low level failover interface and using crossover Ethernet connections for more extensive state and log synchronization.

A full suite of management interfaces is provided ranging from a command line interface for debugging purposes, to a Secure Shell (SSH), Simple Network Management Protocol (SNMP) and a Web interface. A System Explorer is available as a secure web server with graphical user interface (GUI) that displays status and control information such as views of the system repository, sensor data and system health. It also provides access to system configuration and supports system maintenance tasks such as upgrade management.

Various payloads can be integrated into the PAC-6009 allowing the system to be configured to address a broad range of telecom and industry applications. For more details on integrating a specific configuration please contact your local sales representative.

Front View

Rear View



Specifications

Processor & Switch	CPU[2]	9 CPU blades, Single Intel® Xeon® processor E5-2600, Dual or Single Intel® Xeon® D SoC per blade	
	Switch	Up to 280Gbps data plane switching capacity, Up to 40Gbps mid-plane connectivity per CPU blade, Up to 100Gbps external I/O connectivity.	
CPU Blade and Interface	CPU Blade[2]	Flexible processor blade with up to 9 CPU blades which equip with single or dual Intel® Xeon® D SoC. Dual 8- or 16-core Intel® Xeon® Processor D (MIC-8303), Single 8- or 16-core Intel® Xeon® Processor D with additional on-board SSD storage (MIC-8304).	
	Serial Console	Up to 2x RS-232 (with miniUSB port for ShMC) per CPU blade	
	USB	Up to 2x USB 3.0 port connect to Intel® Xeon® D per CPU blade (2x MIC-8303C; 1x MIC-8304C)	
Storage	SATA	Up to 2x 2.5" SSD per switch blade (ESP-9002C) Up to 2x M.2 SATAIII SSD per CPU blade (MIC-8303) Up to 2x on-board 2.5" SSD per CPU blade (MIC-8304)	
Cooling	Technology	Four Rear pluggable, hot swappable fan modules with PICMG compliant fan speed control	
Power	AC Input	Up to four redundant power supply units with separate AC inlets. AC 220V, 50~60Hz, maximum output 1800W per PSU, with 2+2 and N+1 power redundancy options AC 110V, 50~60Hz, maximum output 1000W per PSU, with N+1 power redundancy	
	DC Input	Up to four redundant power supply units with separate DC inlets. DC -40V~-60V, maximum output 1800W per PSU, with 2+2 and N+1 power redundancy options	
	PSU cooling	Self-cooled	
	Output DC Voltage	+12V	
	Output Current Rating	Maximum 148A @ +12V per PSU (under 220V AC source; -48V DC source) Maximum 2A @ +12VSB per PSU	
	Power Consumption	2400W (with configuration: 9x Dual Intel® Xeon® Processor D CPU blades with 8x 2133MHz 16GB DDR4 memory and 2x M.2 SATAIII SSD each blade, 2x Switch blades)	
Shelf management	BMC	ARM 9 based controller (400MHz)	
	IPMI	IPMI 2.0 based on Advantech IPMI Core	
	Interfaces	RMCP, SSH, SNMP, CLI, and serial interfaces	
	Sensors	FRU presence, fan health, PSU health, temperatures, input voltages	
Accessibility	Front	CPU blades, Switch blades, 2.5" SSDs, AC or DC PSU's	
	Rear	Fan modules	
Physical Characteristics	Dimensions (H x W x D)	483 x 266 x 400 mm	
	Weight	48kg	
Environment		Operating	Non-operating
	Temperature	-5 ~ 40° C (23 ~ 131° F)	- 40 ~ 70° C (-40 ~ 158° F)
	Humidity	50% @ 25°C to 95% @ 40°C (non condensing)	95% @ 60° C (non-condensing)
	Altitude	Up to 13000ft @ 45°C	
	Acoustic	83dB @ 23 ~ 27°C	
Compliance	PICMG	IPMI, HPM.1 firmware upgrade, HPM.2 extended message size	
	Safety & EMC	CB report (IEC60950-1), CE mark (EN60950-2001), UL60950-1/CSAC22.2 FCC47 CFR Part15, Class A, CE Mark (EN55032/EN55024/EN300386), RCM, VCCI	
	NEBS	Designed to comply with NEBS Level 3	

Ordering Information

Part Number	Description	
PAC-6009S3A-0AAE	6U, 4x 1800W AC PSUs, 2+2 power redundancy, 4x fan modules	
	7x Dual 16-core Intel® Xeon® Processor D-1500 series CPUs with	8x 2133MHz 16GB DDR4 REG/ECC memory 2x 128GB M.2 SATAIII SSD
	2x Single 8-core Intel® Xeon® Processor D-1500 series CPUs with	4x 2133MHz 16GB DDR4 RDG/ECC memory 1x 64GB M.2 SATAIII SSD 2x Optional 2.5" SSD storage
	2x Switch blades with	2x Optional 2.5" SSD storage
PAC-6009S4A-0AAE	6U, 4x 1800W DC PSUs, 2+2 power redundancy, 4x fan modules	
	7x Dual 16-core Intel® Xeon® Processor D-1500 series CPUs with	8x 2133MHz 16GB DDR4 REG/ECC memory 2x 128GB M.2 SATAIII SSD
	2x Single 8-core Intel® Xeon® Processor D-1500 series CPUs with	4x 2133MHz 16GB DDR4 RDG/ECC memory 1x 64GB M.2 SATAIII SSD 2x Optional 2.5" SSD storage
	2x Switch blades with	2x Optional 2.5" SSD storage

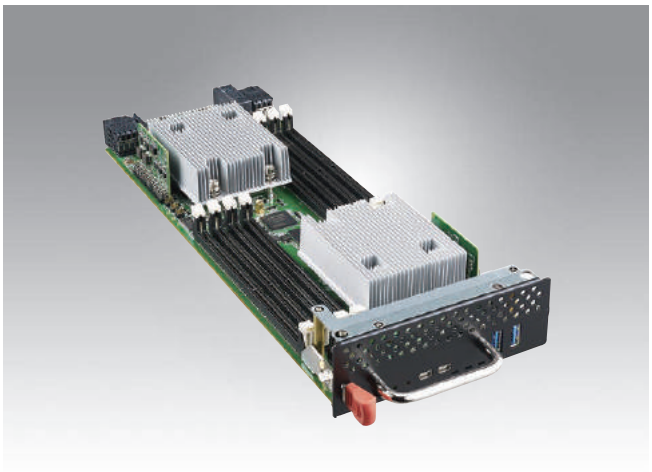
Related Products

Part Number	Description
ESP-9002C	Advantech Switch and Management Blade for PAC-6009 ▪ Timing Module supports SyncE and IEEE-1588v2, one-step clocking ▪ 2 slots of SSD 2.5" SATAIII
MIC-8303	Advantech CPU Blade with dual 8- or 16-core Intel® Xeon® Processor D-1500 series CPUs ▪ Dual 8- or 16-core Intel® Xeon® Processor D-1500 series CPUs ▪ 8 slots of DDR4 RDIMM ▪ 2 slots of SSD M.2 2242
MIC-8304	Advantech CPU Blade with single 8- or 16-core Intel® Xeon® Processor D-1500 series CPUs with additional on-board SSD storage ▪ Single 8- or 16-core Intel® Xeon® Processor D-1500 series CPUs ▪ 4 slots of DDR4 RDIMM ▪ 1 slot of SSD M.2 2242 ▪ 2 slots of SSD 2.5" SATAIII

NOTES
[1] Mid-plane connectivity to Dual SOC CPU blade is 40Gbps, while single CPU blade is 20Gbps.
[2] Please contact your local Advantech sales representative for more information of CPU blades and PMMs.

MIC-8303C

Packetarium XLc Dual Node Blade with Intel® Xeon® D-1500 series SoCs



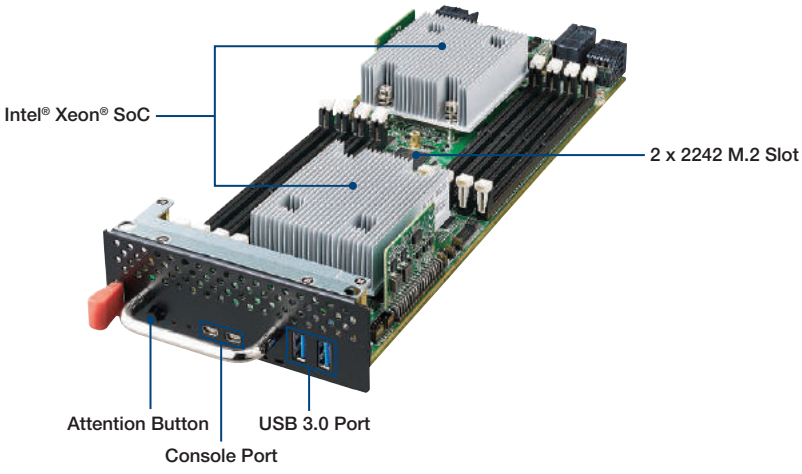
Features

- Two Intel® Xeon® D-1500 series SoCs, each combines up to sixteen high performance physical cores and the PCH onto a single die.
- Low power consumption with only 65W per SoC
- Eight DDR4 regular DIMMs up to 2133 256GB with ECC support
- 10GBASE-KR for Fabric connection to support Dual Star Topology
- Optional 2 SATA M.2 storage devices on the CPU blade
- Hardware management based on Advantech IPMI Core

Introduction

The MIC-8303C is a dual node blade with up to 32 cores / 64 threads of processing power, and fast PCI Express Gen3 lanes running at up to 8Gbps. With eight DDR4 DIMMs per processor in a two channel design running up to 2133MT/s, it can support memory densities of up to 128GB. Each CPU supports one USB 3.0 port to the front, one mini USB console port for Management Interface, and the fabric connection is implemented by two 10GBASE-KR connections from each of the onboard System-on-chips (SoC).

The blade is based on the Intel® Xeon® Processor D-1500 family which offers new options for infrastructure optimization by bringing the performance and advanced intelligence of Intel® Xeon® processors into a dense, lower-power system-on-a-chip. The Intel® Xeon® Processor D-1500 product family is the first 64-bit SoC based on Intel® Xeon® processor technology and addresses a broad range of low-power, high-density infrastructure needs. The system on a chip (SoC) has an integrated platform controller hub (PCH), integrated I/O, two integrated 10 Gigabit Intel® Ethernet ports, and a low thermal design point (TDP). It can run the same instruction set as more robust Intel® Xeon® processors to provide elasticity and software consistency from the data center to the network edge. Hardware management is based on Advantech IPMI Core connecting to a full suite of management interfaces on the PAC-6009's switch/management module.



Specifications

Processor System	CPU [1]	Dual 16-core Intel® Xeon® Processor D-1587 series	
	BIOS	Dual 64-Mbit BIOS firmware flashes with AMI UEFI based BIOS	
Memory	Technology	Dual channel DDR4 ECC RDIMM up to 2133MHz	
	Max. Capacity	Configurable up to 128GB per processor	
	Socket	4 ECC RDIMMs per processor	
Connection	Fabric Interface	2x 10GBASE-KR per processor	
	Base Interface	2x 1000BASE-KX per processor	
Front I/O Interface	Serial (COM)	1x mini USB console per processor	
	USB 3.0	1 x Type A ports per processor	
Storage	SATA	Up to 1x M.2 SATAIII SSD per processor	
Hardware Management	BMC	ARM 9 based controller (400MHz)	
	IPMI	IPMI 2.0 based on Advantech IPMI Core	
Power Requirement	Configuration	2x 65W SoCs, 128GB memory, no storage	
	Comsumption	200W (Estimated)	
Physical Characteristics	Dimensions (H x W x D)	44.30 x 130.30 x 357.21 mm	
	Weight	1.235 kg	
Environment		Operating	Non-operating
	Temperature	-5 ~ 40° C (23 ~ 131° F)	- 40 ~ 70° C (-40 ~ 158° F)
	Humidity	50%@25°C to 95%@40°C (non condensing)	95% @ 60° C (non-condensing)
	Altitude	Up to 13000ft@45°C	
Compliance	PICMG	IPMI, HPM.1 firmware upgrade, HPM.2 extended message size	
	Safety & EMC	CB report (IEC60950-1), CE mark (EN60950-2001), UL60950-1/CSAC22.2 FCC47 CFR Part15, Class A, CE Mark (EN55032/EN55024/EN300386), RCM, VCCI	

Ordering Information

Part Number	Configuration
MIC-8303C1A-A21	Dual 16-core Intel® Xeon® Processor D-1587 series CPUs with 8x 2133MHz 16GB DDR4 REG/ECC memory 2x 128GB M.2 SATAIII SSD

Related Products

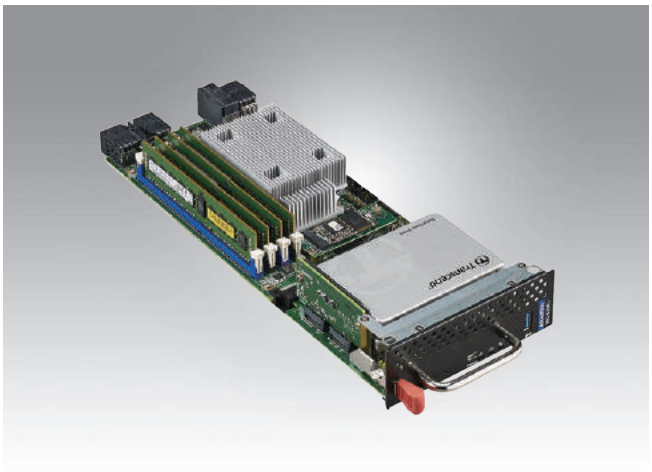
Model Series	Configuration
PAC-6009	6U Carrier Grade Blade Server for Edge Computing and NFV 6U, 4x 1800W AC PSUs, 2+2 power redundancy, 4x fan modules Scale out and scale up system
ESP-9002	Advantech Switch and Management Blade for PAC-6009 Timing Module supports SyncE and IEEE-1588v2, one-step clocking 2 slots of SSD 2.5" SATAIII
MIC-8304	Advantech CPU Blade with single 8- or 16-core Intel® Xeon® Processor D-1500 series CPUs with additional on-board SSD storage Single 8- or 16-core Intel® Xeon® Processor D-1500 series CPUs 4 slots of DDR4 RDIMM 1 slot of SSD M.2 2242 2 slots of SSD 2.5" SATAIII

NOTE

[1] Please contact your local Advantech sales representative for more information of CPU blades.

MIC-8304C

Packetarium XLc Intel® Xeon® D-1500 series Blade with additional on-board storage



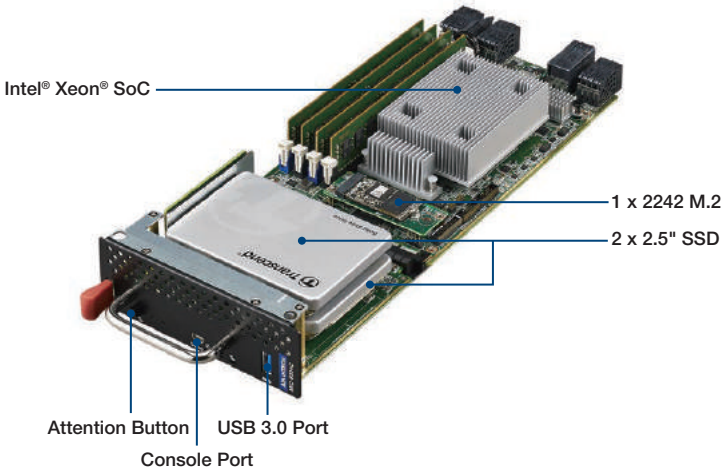
Features

- Single Intel® Xeon® D-1500 series SoCs, each combines up to sixteen high performance physical cores and the PCH onto a single die.
- Low power consumption with only 65W per SoC
- Four DDR4 regular DIMMs up to 2133 128GB with ECC support
- 10GBASE-KR for Fabric connection to support Dual Star Topology
- Optional one SATA M.2 storage and two 2.5" SATA SSD devices on the CPU blade
- Hardware management based on Advantech IPMI Core

Introduction

The MIC-8304C is a single processor blade with up to 16 cores / 32 threads of processing power, and fast PCI Express Gen3 lanes running at up to 8Gbps. With four DDR4 DIMMs in a two channel design running up to 2133MT/s, it can support memory densities up to 128GB. Optional one 2242 SATA M.2 and two 2.5" SATAIII SSD devices provide the flexibility of storage. The SoC provides one USB 3.0 port to the front, one mini USB console port for management, and two 10GBASE-KR connections to the fabric interface.

The blade is based on the Intel® Xeon® Processor D-1500 family which offers new options for infrastructure optimization by bringing the performance and advanced intelligence of Intel® Xeon® processors into a dense, lower-power system-on-a-chip. The Intel® Xeon® Processor D-1500 product family is the first 64-bit SoC based on Intel® Xeon® processor technology and addresses a broad range of low-power, high-density infrastructure needs. The system on a chip (SoC) has an integrated platform controller hub (PCH), integrated I/O, two integrated 10 Gigabit Intel® Ethernet ports, and a low thermal design point (TDP). It can run the same instruction set as more robust Intel® Xeon® processors to provide elasticity and software consistency from the data center to the network edge. Hardware management is based on Advantech IPMI Core connecting to a full suite of management interfaces on the PAC-6009 system's switch/management module.



Specifications

Processor System	CPU [1]	Single Intel® Xeon® Processor D-1500 series	
	BIOS	Dual 64-Mbit BIOS firmware flashes with AMI UEFI based BIOS	
Memory	Technology	Dual channel DDR4 ECC RDIMM up to 2133MHz	
	Max. Capacity	Configurable up to 128GB	
	Socket	4 ECC RDIMMs	
Connection	Fabric Interface	2x 10GBASE-KR	
	Base Interface	1x 1000BASE-KX	
Front I/O Interface	Serial (COM)	1x mini USB console	
	USB 3.0	1 x Type A ports	
Storage	SATA	1x M.2 SATAIII SSD 2x 2.5" SATAIII SSD	
Hardware Management	BMC	ARM 9 based controller (400MHz)	
	IPMI	IPMI 2.0 based on Advantech IPMI Core	
Power Requirement	Configuration	1x 65W SoCs, 128GB memory, 2x 512GB 2.5" SATAIII SSD	
	Comsumption	200W (Estimated)	
Physical Characteristics	Dimensions (H x W x D)	44.30 x 130.30 x 357.21 mm	
	Weight	1.225 kg	
Environment		Operating	Non-operating
	Temperature	-5 ~ 40° C (23 ~ 131° F)	- 40 ~ 70° C (-40 ~ 158° F)
	Humidity	50%@25°C to 95%@40°C (non condensing)	95% @ 60° C (non-condensing)
	Altitude	Up to 13000ft@45°C	
Compliance	PICMG	IPMI, HPM.1 firmware upgrade, HPM.2 extended message size	
	Safety & EMC	CB report (IEC60950-1), CE mark (EN60950-2001), UL60950-1/CSAC22.2 FCC47 CFR Part15, Class A, CE Mark (EN55032/EN55024/EN300386), RCM, VCCI	

Ordering Information

Part Number	Configuration
MIC-8304C1A-A11E	Single 8-core Intel® Xeon® Processor D-1548 series CPUs with 4x 2133MHz 16GB DDR4 RDG/ECC memory 1x 64GB M.2 SATAIII SSD without 2x Optional 2.5" SSD storages

Related Products

Model Series	Configuration
PAC-6009	6U Carrier Grade Blade Server for Edge Computing and NFV 6U, 4x 1800W AC PSUs, 2+2 power redundancy, 4x fan modules Scale out and scale up system
ESP-9002	Advantech Switch and Management Blade for PAC-6009 Timing Module supports SyncE and IEEE-1588v2, one-step clocking 2 slots of SSD 2.5" SATAIII
MIC-8303	Advantech CPU Blade with dual 8- or 16-core Intel® Xeon® Processor D-1500 series CPUs Dual 8- or 16-core Intel® Xeon® Processor D-1500 series CPUs 8 slots of DDR4 RDIMM 2 slots of SSD M.2 2242

NOTE

[1] Please contact your local Advantech sales representative for more information of CPU blades.

ESP-9002C

Advantech Switch Blade for Packetarium XLc

Features

- ESP-9002C Switch/Management Modules integrating Broadcom Trident+ BCM56842 data plane switch and Broadcom BCM53346 GbE control plane / management switch
- Supports SyncE/IEEE1588
- Supports SNMP/CLI/Web-based configuration
- System storage – two 2.5 inch HDD slots, supports SATA 1.0 and 2.0 and can be accessed from the Local Management Processor (LMP)
- 10GbE switching between 18 data fabric ports and 10 front panel ports
- GbE switching between 18 control plane ports
- Each switch blade can interconnect management LAN port to ShMC, LMP, control plane switch, and alternative switch blade

Introduction

The ESP-9002C switch/management blade is based on low-latency Broadcom StrataXGS® Trident+ switches, each with 280Gbps data plane switching capacity enabling up to 40Gbps mid-plane connectivity per CPU blade. The switch blade also provides ten 10GbE SFP+ ports for 100Gbps of external I/O connectivity and uplinks. Support for an optional timing module based on IEEE1588v2 is also available to support network synchronization using industry standard mechanisms.

The Broadcom BCM56842 provides Layer 2 routing and Quality of Service (QoS) management for the dataplane. Control plane switching is implemented via a Broadcom BCM53346 device. The ESP-9002C is fully compatible with the Broadcom SDK (Software Development Kit) and offers Layer 2 fast path capabilities. Switch management is handled by an on-board Freescale QorIQ P2040 processor.

The ESPC-9002C also provides PAC-6009 system management based on Advantech's widely deployed SMM-5060 shelf and system manager and is fully integrated on the switch/management module. Low level shelf management runs on a dedicated ARM processor while a Freescale QorIQ P2040 runs switch management and higher level system management functions. High availability is implemented by running the modules in an active/hot standby scheme. A low latency fail-over mechanism is provided by a robust, low level fail-over interface and using crossover Ethernet connections for more extensive state and log synchronization.

A full suite of management interfaces are available ranging from a command line interface (CLI) for debugging purposes, to a Secure Shell (SSH), Simple Network Management Protocol (SNMP) and a Web interface. A System Explorer is also available as a secure web server with graphical user interface (GUI) that displays status and control information such as views of the system repository, sensor data and system health. It also provides access to system configuration and supports system maintenance tasks such as upgrade management.

Specifications

Processor	Processor	Freescale P2040	
	Switch	Up to 280 Gbps switching capacity,	
Storage	SATA	Up to 2x 2.5" SSD per switch blade	
I/O Front Interface	BMC console port	1 x RJ-45	
	LMP console port	1 x RJ-45	
	USB	1 x USB1.0, 1 x USB 2.0	
	Control Plane port	2 x SFP+	
	Data Plane port	10 x SFP+	
Shelf management	BMC	ARM 9 based controller (400MHz)	
	IPMI	IPMI 2.0 based on Advantech IPMI Core	
	Interfaces	RMCP, SSH, SNMP, CLI, and serial interfaces	
	Sensors	FRU presence, fan health, PSU health, temperatures, input voltages	
Physical Characteristics	Dimensions (HxWxD)	430 x 330 x 43 mm	
	Weight	3.24kg	
SW Support	Bootloader	U-boot	
	HW Mgmt	IPMI 2.0	
	Switch Mgmt	Broadcom FASTPATH 8.2	
Environment		Operating	Non-operating
	Temperature	-5 ~ 40° C (23 ~ 131° F)	- 40 ~ 70° C (-40 ~ 158° F)
	Humidity	50% @ 25°C to 95% @ 40°C (non condensing)	95% @ 60° C (non-condensing)
	Altitude	Up to 13000ft@45°C	
Compliance	PICMG	IPMI, HPM.1 firmware upgrade, HPM.2 extended message size	
	Safety & EMC	CB report (IEC60950-1), CE mark (EN60950-2001), UL60950-1/CSAC22.2 FCC47 CFR Part15, Class A, CE Mark (EN55022/EN55024/EN300386), RCM, VCCI	

Ordering Information

Part Number	Description
ESP-9002C1A-AA2E	ESP-9002C switch blade for Packetatium XLc, with timing module
ESP-9002C2A-AA2E	ESP-9002C switch blade for Packetatium XLc, without timing module

2

High Performance Servers

Please visit www.advantech.com/nc for the latest product updates.

High Performance Servers

Advantech's SKY-8000 Server line integrates the most performing Intel® Xeon® processors with a rich I/O subsystem and extensive PCI Express based expansion capabilities into a compact system design tailored to operate in business and mission critical environments.

More than CPU Performance

Unlike IT servers, SKY servers are designed from the ground up to optimize throughput and offload required by communication and industrial workloads. The systems not only combine powerful CPUs with support for high thermal design power (TDP) PCI Express cards but also carefully balance I/O between multiple processor sockets. These performance and density advantages maximize system throughput in smaller footprint deployments which reduce total cost of ownership (TCO).

High Availability

In business and mission critical applications, service interruptions result in the loss of valuable data, revenue and customers. To minimize system downtime, our servers do more than just use the reliability features of the processor platform: Advantech's advanced design yields higher margins and lower component stress for improved platform reliability. The servers support single failures of critical components such as power supply modules and fans. In addition, redundant BIOS and firmware images not only provide a safe way to recover from component failures but also offer remote fail-safe update capabilities via Advantech`s IPMI which reduces MTTR and costly on-site services.

Robustness

SKY servers have been designed to withstand high levels of shock and vibration and provide unique thermal properties for the most challenging environments. They can continuously operate at high temperatures up to 55°C in both clean environments and applications that require air filters for dust immunity.

Compact & Easy

With just 20” (508 mm) depth, SKY-8000 servers can easily be deployed in space constrained environments such as 600 mm telecom racks, high-end machinery or in-vehicle units where standard IT servers cannot. The SKY-8000 service friendly design and its front to rear airflow combined with Advantech's integration service ease product development reducing technical and schedule risks.

Secure & Serviceable

All SKY-8000 Series serviceable items are Field Replaceable Units (FRUs) accessible from the front or rear of the chassis.
While optimizing Mean-Time-To-Repair (MTTR), this also enables advanced physical security via intrusion detection sensors. Security-optimized BIOS and IPMI firmware, Trusted Platform Module (TPM) support, and the option to leverage internal SSDs as boot and application drives allow for a clear separation between user and manufacturer privileges.

Integration, Customization & Design

Advantech takes a complete platform approach with the high-performance SKY server line to help solution providers offload the complex system integration and validation services of PCIe cards from Advantech and third parties. Advantech integrates, tests and delivers fully integrated systems. Solution providers can also leverage our Customized COTS framework for semi-custom electronic or mechanical design as well as full product branding including artwork, packaging and BIOS firmware strings or IDs. As we design and manufacture all our sub-assemblies we are able to modify and optimize any element in the system to suit a specific market need.

Pre-Validation & Certification

Advantech works together with key Operating System, Virtualization, and Provisioning software partners to certify SKY servers towards production-ready end-to-end solutions that reduce time to market, integration and deployment risks. In addition, Advantech’s certification program helps manage the whole platform life cycle more efficiently by staying up to date with continuous software version upgrades.

Full Life Cycle Support

Advantech operates a totally integrated value chain starting from in-house R&D and self-owned factories to global logistics and integration centers as well as local field support engineers. That allows us to apply strict Bill-of-Materials (BOM) control and to provide a “No Surprises“ policy to our customers across the full product life span.

Optimized CPU Selection

Interoperable & Optimized IO


Thermal Simulation


Safety/Reliability Test


Mechanical Design


System Integration


Certification

Longevity Support

Selection Guide

Model		SKY-8200	SKY-8100
Form Factor		2U - Rack Mount	1U - Rack Mount
Processor System	Processor	Dual Intel® Xeon® Processor E5-2600 v3 v4 Series	Single Intel® Xeon® Processor D 15xx Series
	Core Number	Up to 14C	Up to 16C
	Frequency	2.3GHz	2.5GHz
	Chipset	Intel® DH8900 Intel® DH8925	Intel® Xeon® Processor D SoC
Virtualization		–	–
Memory	Technology	16 x DDR4 DIMMs, ECC/REG/RDIMM/LRDIMM, up to 2400 MHz	4x DDR4 DIMMs, ECC/REG/RDIMM/LRDIMM, up to 2400MHz
	Max. Capacity	1024 GB/ 64 GB per DIMM	128 GB/ 32 GB per DIMM
	Socket	16 x 288-pin RDIMM/LRDIMM	4 x 288-pin RDIMM/LRDIMM
	ECC Support	ECC/REG	ECC/REG
Networking	Controller	Intel® i210-AT	Intel® i210-AT
	1GbE	2x 10/100/1000Mbps Mgmt ports	2x 10/100/1000Mbps Mgmt ports
	10GE		
Expansion	PCIe x 16	2 x FH/FL PCIe gen.3 x16 slots (x16 riser card only)	1 x FH/FL PCIe gen.3 x16 slots (x16 riser card only)
	PCIe x 8	4x FH/FL PCIe gen.3 x8 slots 2x FH/HL PCIe gen.3 x8 slots 1x LP PCIe gen.3 x8 slot	2x FH/FL PCIe gen.3 x8 slot
	PCIe x 4	–	–
	NIC	–	–
	M.2 PCIe/SSD	–	1x M.2 2242 slot 1x M.2 2280 slot
	mSATA	2x mSATA slot	–
Storage	2.5" HDD/SSD	4x 2.5" hot-swappable SAS/SATA HDD/SSD drives	2x 2.5" hot-swappable SAS/SATA HDD/SSD drives
	3.5" HDD	–	–
	mSATA SSD	2x mSATA	–
	CompactFlash/ CFast	–	–
Display		–	–
I/O	Console port	2	2
	USB2.0/USB3.0	2x USB3.0/USB2.0 Type A port at front 2x USB3.0/USB2.0 Type A port at rear	2x USB3.0/USB2.0 Type A port at front 2x USB3.0/USB2.0 Type A port at rear
	GPIO		
	LED Indicator	ID, Critical, Major, Minor, Power, status	ID, Critical, Major, Minor, Power, status
	Reset button	Power button ID button	Power button ID button
	Others	1x VGA port, 1x external mini SAS port 1x Telco Alarm port	1x VGA port(internal), 2x external mini SAS port 1x Telco Alarm port
LCD Module		–	–
Others		–	–
Power	Power Type	Redundant AC 1400W Redundant DC 1400W	Redundant AC 650W Redundant DC 650W
	Watts	1400W	650W
	Input	AC 100-240V_{AC}, 12-10A, 50-60Hz DC -36--72V_{DC}, 40-25A	AC 90-264V_{AC}, 9-4A, 47-63Hz DC -38 - -75V_{DC}, 18-10A
	Power Adaptor	AC or DC, redundant	AC or DC, redundant
Environment	Operating Temperature (air flow 0.7 m/sec)	-5°C (23°F) to 55°C (131°F)	-5°C (23°F) to 55°C (131°F)
	Non-operating Temperature	-40°C (-40°F) to 70°C (158°F)	-40°C (-40°F) to 70°C (158°F)
Cooling		6* 80 x 38mm fan	4* 40 x 56mm fan
Mechanical	Construction	Iron	Iron
	Mounting	Rack-mounting	Rack-mounting
	Dimensions (W x H x D)	430 x 500.1 x 88.1 mm (16.93" x 19.69" x 3.47")	430 x 493.5 x 43.6 mm (16.93" x 19.43" x 1.72")
	Weight	22 Kg	15 Kg
OS Support		Linux (CentOS, Red Hat, Ubuntu)	Linux (CentOS, Red Hat, Ubuntu)
Advantech S/W Packages		–	–
IPMI		Aspeed AST2400 iBMC + AMI MegaRAC firmware Supports IPMI 2.0, Supports iKVM Dedicated NIC via NC-SI on management LAN ports	Aspeed AST2400 iBMC + AMI MegaRAC firmware Supports IPMI 2.0, Supports iKVM Dedicated NIC via NC-SI on management LAN ports
Certification		CB, UL, FCC, CE, CCC, RoHS, REACH, NEBS Level 3	CB, UL, FCC, CE, CCC, RoHS, REACH
Page		2-5	2-3

SKY-8100

1U Carrier Grade Server based on Intel® Pentium® Processor D and Intel® Xeon® Processor D series

Features

- 1U network server, < 20" deep
- Supports Intel® Pentium® Processor D1508, Intel® Xeon® Processor D-1527, D-1528, and D-1548
- Four DIMM sockets support up to 128 GB DDR4 1600/1866/2133/2400 MHz SDRAM(ECC/UDIMM)
- Supports PCIE Gen3
- 2 x PCIe x8, Full-Height/Full-Length
- 2 x 2.5" hot-swappable HDDs or on board SFF SSDs
- Carrier Grade BIOS Features
- LOM (Light Out Management) module for BMC support (AST2400)

Introduction

The Advantech SKY-8100 is a highly configurable carrier-grade server designed to balance the best in x86 server-class processing performance with maximum I/O and offload density in a 20" depth chassis. The system is a cost effective, highly available platform optimized to meet next-generation networking equipment needs. It is specifically designed for applications where offload and acceleration technology is essential. The power and cooling options along with the streamlined mechanical design make it ideal for Digital Signal Processing and other high tdp PCIe adapter cards. Architected around single 5th Intel® Pentium® Processor and Intel® Xeon® Processor D series, processors, the SKY-8100 combines cutting-edge performance with the ruggedness, reliability, and long sytem lifecycles required by both industrial and networking equipment providers. The system supports single Intel® Pentium D-1508, Intel® Xeon® Processor D-1527, D-1528, and D-1548 with a maximum memory capacity up to 128GB with 4 DIMM sockets.

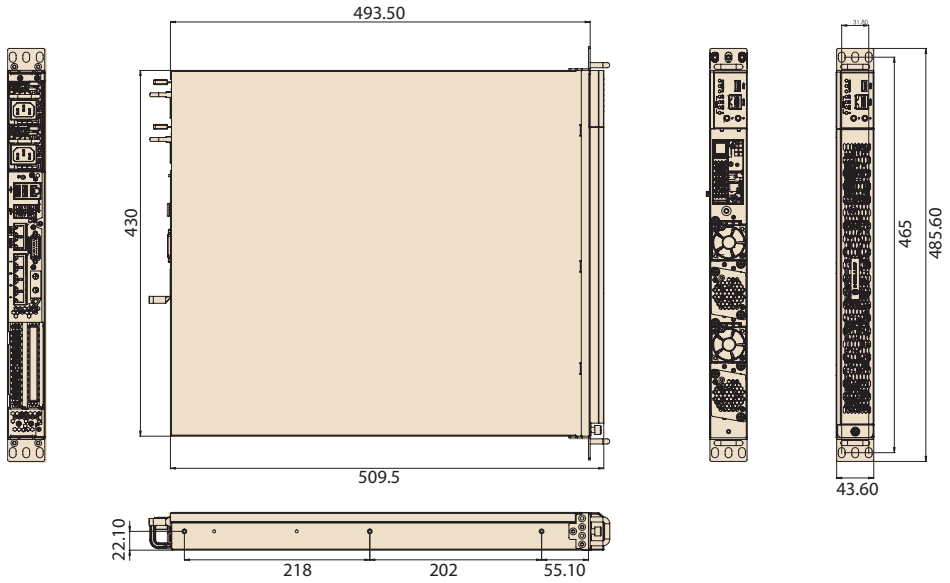
The system provides hot-swappable and redundant 650W power supply modules, 4 sets of hot-swappable fans, 2 hot-swappable hard disk drives, and 2 FH/FL PCIe expansion slots. A management card provides 4 GbE Ethernet ports, 2 10GbE ports, 2 USB and a TAM alarm module connector. The SKY-8100 is designed for NEBS Level 3 carrier grade environments and where limited rack space is available. Interoperability testing is performed with a wide selection of third-party PCIe card vendors.

Specifications

Processor System	CPU	Supports Intel® Pentium D-1508, Intel® Xeon® Processor D-1527, D-1528, and D-1548
Memory	Technology	4 x DDR4 DIMMs, ECC/non-ECC UDIMM/RDIMM, 1600/1866/2133/2400 MHz
	Capacity	Max memory capacity per channel RDIMM: 64GB UDIMM: 32GB RDIMM: 32GB per slot UDIMM: 16GB per slot Max memory capacity total in system RDIMM: 128GB UDIMM: 64GB RDIMM: 32GB x 4 DIMMs UDIMM: 16GB x 4 DIMMs
	Socket	4 x 288-pin DIMM
PCIe	Expansion slot	Total 2 x PCIe x8 FH/FL
IO	Front Mgmt IO	1 x PWR button, 1 x ID button, 1 x RJ45-type console, 2 x USB, LEDs
	Rear Mgmt IO	1 x RJ45-type console, 1 x DB15 for TAM (Optional), 2 x USB, 2 x GbE Mgmt ports (1 for IPMI) 4 x GbE Ethernet ports VGA x 2
Ethernet	Management Interface	10/100/1000 Mbps
	Controller	GbE LAN1:Intel® I210-AT, GbE LAN2:Intel® I210-AT
	Connector	RJ-45 x 2
	Traffic Interface	10/100/1000 Mbps, 10Gbps
	Controller	GbE LAN1~LAN4:Intel® I350-AM4, 10Gbps LAN1~LAN2:Intel® BDE
	Connector	RJ-45 x 4, SFP x 2
Storage		2 x 2.5", hot-swappable, SATA/SSD trays in front
Power Supply	Watt	650W AC/DC Redundant PSU
	Input	(AC) 100-240V_{AC}, 12-10A, 50-60Hz (DC) +12V/52.9A, +5Vsb/4A
Environment	Humidity operational (non-condensing)	5% to 85%
	Operational temperature	-5°C (23°F) to 55°C (131°F)
	Storage temperature	-40°C (-40°F) to 70°C (158°F)
Cooling	Chassis Fan	4 * 40 x 56 high speed fan
	Air Filter	Yes
System Management	IPMI	Aspeed AST2400 iBMC Supports IPMI 2.0 Supports iKVM Shared NIC via NC-SI on management LAN ports
Physical	Dimension (W x D x H)	430 x 493.5 x 43.6 mm (16.93" x 19.43" x 1.72")
	Weight (N.W)	15kg

Dimensions

Unit: mm [inch]



Front View

Rear View

Ordering Information

Part Number	Description
SKY-8100AS-0000E	1U HPS w GSMB-3010 Intel® Xeon® Processor D-1548 8C/STD AC/PCIEx8
SKY-8100BS-0000E	1U HPS w GSMB-3010 Pentium® Processor D1508 2C/ STD AC/PCIEx8
SKY-8100CS-0000E	1U HPS w GSMB-3010 Xeon® Processor D-1527 4C/STD AC/PCIEx8
SKY-8100DS-0000E	1U HPS w GSMB-3010 Xeon® Processor D-1528 6C/STD AC/PCIEx8
SKY-8100AS-0001E	1U HPS w GSMB-3010 Xeon® Processor D-1548 8C/STD DC/PCIEx8
SKY-8100BS-0001E	1U HPS w GSMB-3010 Pentium® Processor D1508 2C/ STD DC/PCIEx8
SKY-8100CS-0001E	1U HPS w GSMB-3010 Xeon® Processor D-1527 4C/STD DC/PCIEx8
SKY-8100DS-0001E	1U HPS w GSMB-3010 Xeon® Processor D-1528 6C/STD DC/PCIEx8

Packing List

Part Number	Description	Qty
9680017059	20" slide rail (pair)	1
1700012372-11	Console cable	1

Optional Accessories

Part Number	Description
1702002600-02	Power Cord 3P UL/CSA(USA) 125V 10A 1.83M 180D
1702002605-02	Power Cord 3P European 10A/16A 250V 1.83M 90D
1702031801	Power Code 3P (UK) 5A-Fuse 183cm
1700000237-01	Power Cord 3P PSE 12A 125V 1.83M Japan

SKY-8200

2U Carrier Grade Server based on Dual Intel® Xeon® Processor E5-2600 v3 v4 Series

Features

- Dual Intel® Xeon® Processor E5-2600 v3 v4 Series
- 16 DIMM sockets support up to 1024 GB DDR4 1600/1866/2133/2400 MHz SDRAM (ECC/REG/RDIMM)
- 4 FH/FL PCIe x8 Gen3 slots, 2 FH/HL PCIe Gen3 x8 slots, 1 low profile PCIe x 8 Gen 3 slot
- 4 x 2.5" hot-swappable SAS/SATA HDD/SSD drives
- Telco Alarm Module support & IPMI 2.0-compliant remote management
- Carrier Grade and Optimized I/O versions
- Best-in-class compute for applications requiring high density offload and I/O in a carrier grade design
- Shortened development time with integrated services including rich portfolio of qualified PCIe adapters plus customization & branding options

Introduction

The Advantech SKY-8200 is a highly configurable carrier-grade server designed to balance the best in x86 server-class processing performance with maximum I/O and offload density in a 20" depth chassis. The system is a cost effective, highly available platform optimized to meet next-generation networking equipment needs. It is specifically designed for high density PCIe card payloads where maximum port count is needed or the integration of industry leading offload and acceleration technology is essential. The PCIe I/O is balanced between CPU sockets for optimum throughput. The power and cooling options along with the streamlined mechanical design make it ideal for Digital Signal Processing (DSP) payloads for video encoding/decoding, transcoding and transrating applications.

The non NEBS SKY-8200 system variant caters for higher power and cooling requirements when NEBS certification is not mandatory. Architected around two Intel® Xeon® Processor E5 v3 or v4 Series CPUs, the SKY-8200 combines cutting-edge performance with the ruggedness, reliability, and long system lifecycles required by networking equipment providers. The system supports dual Intel® Xeon® Processor E5-2600 v3/v4 processors and DDR4 memory up to 1024GB with 16 DIMM sockets. The system provides hot-swappable and redundant 1400W(AC) &1400W(DC) power supply modules, 3 sets of hot-swappable fans, 4 hot-swappable hard disk drives connected to LSI 3008 SAS controller, and 6 PCIe expansion slots.

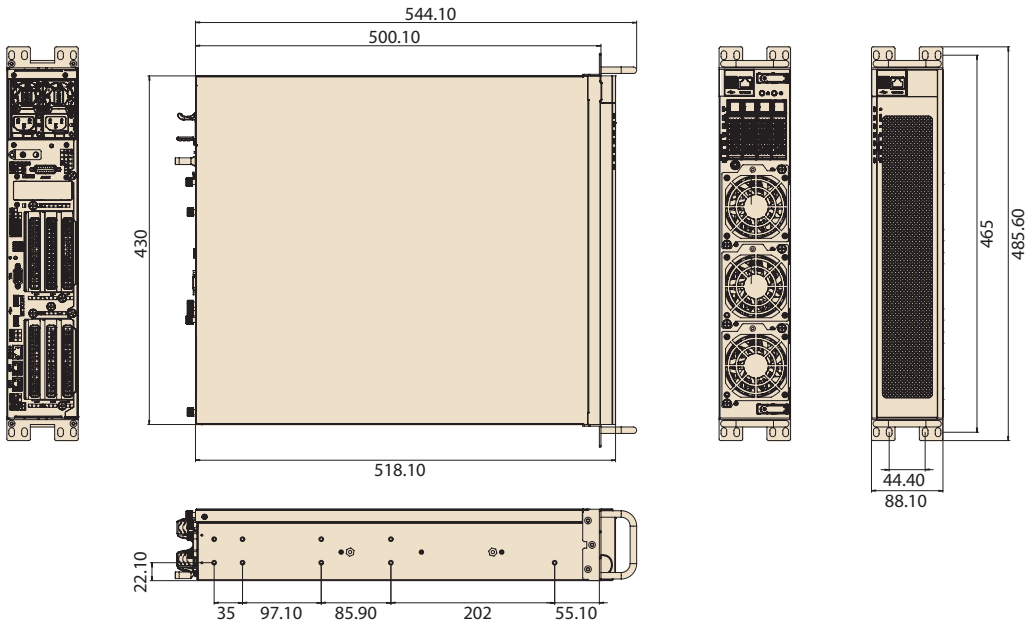
The SKY-8200 is designed for NEBS Level 3 carrier grade environments and where limited rack space is available. Interoperability testing is performed with a wide selection of third-party PCIe card vendors.

Specifications

Processor System	CPU	Dual Intel® Xeon® Processor E5-2600 v3 v4 Supports: Non-NEBS: E5-2690v3, E5-2680v3, E5-2670v3, E5-2660v3, andE5-2650v3 NEBS: E5-2658v3, E5-2648Lv3, E5-2628Lv3, E5-2618Lv3, E5-2608Lv3 E5-2628LV4 30MB 12C 1.9GHz, E5-2648Lv4 35MB 14C 1.8GHz, E5-2650v4 30MB 12C 2.2GHz, E5-2658v4 35MB 14C 2.3GHz, E5-2680v4 35MB 14C 2.4GHz.
	Chipset	Intel® DH 8900 & DH 8925 chipset
Memory	Technology	16 x DDR4 DIMMs, ECC/REG memory, 1600/1866/2133/2400 MHz, Supports 1.2V memory model
	Capacity	1024GB/ 64GB per DIMM
	Socket	16 x 288-pin DIMM
PCIe	Expansion slot	Total 4 x PCIe x8 (FH/FL), 2 x PCIe x8 (FH/HL), & 1 x Advantech expansion slots for Advantech LAN card
IO	Front Mgmt IO	1 x PWR button, 1 x ID button, 1 x RJ45-type console, 2 x USB, LEDs
	Rear Mgmt IO	1 x RJ45-type console, 1 x DB15 for TAM (Optional), 2 x USB, 2 x GbE Mgmt ports, 1 x VGA, and 1 x external mini SAS port
Ethernet	Management Interface	10/100/1000 Mbps
	Controller	GbE LAN1: Intel® i210-AT, GbE LAN2: Intel® i210-AT
	Connector	RJ-45 x 2
Storage		4 x 2.5", hot-swappable, SAS/SATA HDD/SSD trays in front, 2 x mSATA
Power Supply	Watt	1400W AC/DC PSU
	Input	(AC) 100-240V_{AC}, 12-10A, 50-60Hz (DC) -36--72V_{DC}, 40-25A
Environment	Humidity Operational (non-condensing)	5% to 85%
	Operational Temperature	-5°C (23°F) to 55°C (131°F)
	Storage Temperature	-40°C (-40°F) to 70°C (158°F)
Cooling	Chassis Fan	6 * 80 x 38 high speed fan
	Air Filter	Yes
System Management	IPMI	Aspeed AST2400 iBMC + AMI MegaRAC firmware Supports IPMI 2.0 Supports iKVM Dedicated NIC via NC-SI on management LAN ports
Physical	Dimension (W x D x H)	430 x 500.1 x 88.1 mm (16.93" x 19.69" x 3.47")
	Weight (N.W)	22kg

Dimensions

Unit: mm [inch]



Front View

Rear View

Ordering Information

Part Number	Description
SKY-8200AN-0000E	2U HPS w NAMB-6010 E5-2600v3v4/8925/TPM/B/B/ AC/x8
SKY-8200AN-0001E	2U HPS w NAMB-6010 E5-2600v3v4/8925/TPM/B/B/ DC/x8
SKY-8200BN-0000E	2U HPS w NAMB-6010 E5-2600v3v4/8900/TPM/B/B/ AC/x8
SKY-8200BN-0001E	2U HPS w NAMB-6010 E5-2600v3v4/8900/TPM/B/B/ DC/x8

Optional Accessories

Part Number	Description
1700020095	Military Power Cord UL 3P 15A 125V 1.83M 14AWG
1702002605-02	Power Cord 3P European 10A/16A 250V 1.83M 90D
1700000237-01	Power Cord 3P PSE 12A 125V 1.83M Japan

Packing List

Part Number	Description	Qty
9680017059	20" slide rail (pair)	1
1700012372-11	Console cable	1
1700024872-11	Power cord Cable 2*3P-5.0 180cm for SKY-8200(for DC version only)	2
1960062167N001	Heatsink I-Core i7-2600-S-95W 106X70X25-SS	2

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Network Appliances

Please visit www.advantech.com/nc for the latest product updates.

Network Appliances

Advantech offers a broad portfolio of x86-based Network Platforms built with the latest generation Intel® processors, LAN access devices and accelerator silicon for SSL and IPsec encryption. Integrated into state-of-the-art tabletop and rackmount designs, a range of customized branding options are available for fast and efficient deployment. The platforms range from cost-efficient and compact tabletop solutions to higher performance 1U rackmount server designs and scalable 2U Enterprise/Data Center level platforms. Specifically designed to meet the requirements of Network Equipment Providers (NEPs), Cyber Security OEMs, and Communication Service Providers, the platforms are highly scalable and configurable with flexible port counts across a wide range of 1GbE, 10GbE, 40GbE and 100GbE options.

Advantech platforms are deployed in volume around the world in a wide range of applications for network and cyber security in the form of Unified Threat Management (UTM) appliances, Intrusion Prevention and Detection (IPS / IDS) devices, Next Generation Firewalls (NGFW) and Security Gateways (SeGW) among others. They are ideally suited for enterprise applications such as vE-CPE and SD-WAN, and widely used as physical appliances such as load balancers, application delivery controllers (ADC), WAN Optimization Controllers (WOC) and VPN gateways.

Scalability by Design

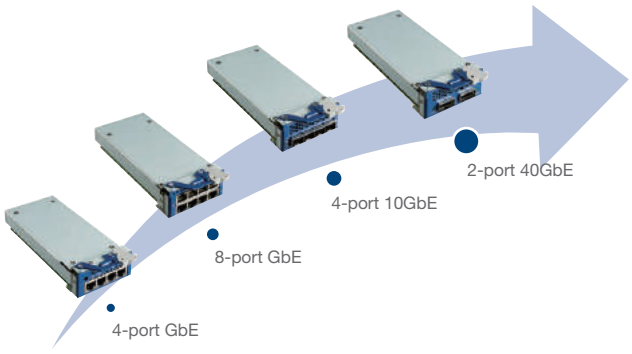
Advantech works to realize CSP's and NEP's scalability goals by providing solutions based on Intel® architecture where individual systems can be easily expanded with new hardware options and across compatible product families ranging from table-top appliances all the way up to blade servers with terabit-per-second throughput. Building a product portfolio that can indeed do this requires an underlying hardware architecture that can support a consistent and cohesive software framework that in turn is able to scale up based on the functionality and capacity requirements. A silicon partner like Intel®, delivering dependable year over year performance and feature improvements using world leading process technology is a key enabler in these fast paced times.

At the foundation of Advantech's portfolio is the Intel® Platform for Communications Infrastructure. Specifically designed for workload consolidation, it is capable of performing application, control plane, and data plane processing concurrently with scalable security performance to over 100 Gbps of IPsec acceleration.

Enhanced Platform Management Lowers Total Cost of Ownership

Advantech's network appliances have been specifically designed to run high-availability networking services and minimize costly downtime. Advantech's Advanced Platform management provides all required IPMI v2.0 Baseboard Management Controller (BMC) functionality and also additional features that allow local and remote users to early detect system degradation, avoid system interruption and shorten mean time to repair.

Pay-as-you-Grow with Advantech's Modular I/O



Advantech's Network Mezzanine Cards (NMCs) are cost-optimized, high density I/O modules for use in Advantech's appliances. A wide choice of GbE, 10 GbE and 40 GbE modules supporting copper and fiber interfaces with or without advanced LAN bypass gives customers the flexibility to match varying deployment scenarios. At the same time, Advantech's modular I/O approach reduces the total cost of ownership and service cost via re-usability across the product range and multiple product generations. The option of factory and field installation enables upselling opportunities and pay-as-you-grow concepts. Leveraging best-in-class Intel® Ethernet controller technology, NMCs provide a "it just works" user experience and a maximum of software compatibility.

FWA Series Selection Guide

Model			FWA-1010VC
Form Factor			Tabletop
Processor System	Processor		Intel® Atom™ C2558/Intel® Atom™ C2758
	Core Number		4C/8C
	Cache		2.4GHz/2.4GHz
	Chipset		2MB/4MB
	BIOS		AMI Efi 64Mbit
Virtualization			VT-x
Memory	Technology		DDR3/DDR3L 1600MHz
	Max. Capacity		32GB
	Socket		2 x 240-pin UDIMM
	ECC Support		Non-ECC or ECC
Networking	Controller		3 x Marvell 88E1112 1 x Marvell 88E6141
	1GbE		2 x 10/100/1000BASE-T RJ45 or SFP auto-negotiation link via Marvell 88E1112 1 x 10/100/1000BASE-T RJ45 port via Marvell 88E1112 4 x 10/100/1000BASE-T RJ45 ports via Marvell 88E6141 with 1GbE uplink to CPU
	10GE		-
	LAN bypass	Advanced	-
		Legacy	-
Expansion	PCIe x 16/ 8/ 4/ 1		-
	NMC		-
	m.2 PCIe		1 x M.2 2232 for WiFi module with 2 x antenna holes
	Mini PCIe		1 x Full-size Mini PCIe with SIM holder for 3G/4G LTE module with 2 x antenna holes
Storage	HDD/SSD		1 x 2.5" SATA3.0 Gen3 SSD bracket (Max 9.5mm height only) (only on C2758 SKU)
	m.2 SSD		1 x M.2 2280 (option 2 x M.2 2242)
	mSATA/ CF/ Cfast		-
Display			
I/O	Console port		1
	USB3.0		-
	USB2.0		1 x USB2.0 Type A host port
	GPIO		-
	LED Indicator		Power, HDD, LTE, WiFi, SW defined status
	Reset button		-
	Others		1 x Power Switch 1 x Software definable button
TPM			optional by module: 98923260H0E
LCD Module			-
Power	Power Type		DC
	Watts		60W
	Input		100 V ~ 240 V
	Connector		DC Jack
	Power Adaptor		12V 5A, 60W external adaptor
Environment	Operating Temperature (air flow 0.7 m/sec)		0 ~ 40 °C (32 ~ 104 °F)
	Non-operating Temperature		-20 ~ 80° C (-4 ~ 167° F) and 40° C @ 95% RH Non-Condensing
	Vibration Resistance		with SSD: 0.3 Grms, IEC 60068-2-64, 5-500Hz, 1hr/axis
	Shock Protection		with SSD: 10G, IEC-60068-2-27, half sine, 11ms duration
Cooling			1 x system FAN with smart FAN for maximum 37.5dB(A)
Mechanical	Construction		Iron
	Mounting		Support desktop/Rack/Wall-mounting options
	Dimensions (W x H x D)		250 x 44 x 190.4 mm (9.8" x 1.7" x 7.5")
	Weight		2.3 Kg (4.8lb)
OS Support			Linux (CentOS, Red Hat, Ubuntu)
Advantech S/W Packages			QuickStart Linux Image (Ubuntu based reference BSP) including ▪ afru ▪ lmsensors ▪ flashrom ▪ Sierra QMI drivers ▪ Intel® DPDK ▪ Intel® QAT ▪ DUI (Offline Diagnostics) Individual packages: ▪ DUI (Offline Diagnostics)
IPMI			-
Certification			CE/FCC Class B(without RF), CCC, CB, UL
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FWA-1320	FWA-1330	FWA-2011
Tabletop	Tabletop	1U - Rack Mount
Intel® Atom™ C2358/2558	Intel® Celeron® QC J1900(2.0GHz) / N2807(1.58GHz)	Intel® E3940(1.6GHz) & E3930(1.3GHz)
2C/4C	4C/2C	4C/2C
1.7GHz/2.4GHz	2MB/1MB	2MB/2MB
1MB/2MB	-	-
AMI Efi 64Mbit	AMI Efi 64Mbit	AMI Efi 64Mbit
VT-x	-	-
DDR3/DDR3L 1600MHz	DDR3L,1066/1333/1600MHz	DDR3L 1333/1600/1867MHz
16GB	-	-
2 x 240-pin UDIMM	1 x 204-pin SODIMM up to 4GB	2 x 204-pin SODIMM up to 16GB
Non-ECC or ECC	Non-ECC	E3940&3930 support ECC
4 x Marvell 88E1111 2 x Intel® i210	4 x Intel® i211-AT	6 x Intel® i210-AT
4 x 1GbE RJ45 with 2 segment advanced bypass support via Marvell 88E1111 2 x 1GbE RJ45 for management via Intel® I210-AT	4 x 10/100/1000 Mbps RJ45 via Intel® i211-AT	6 x 10/100/1000 Mbps RJ45 via Intel® i210-AT
-	-	-
2 segment	-	-
-	2 x pair of LAN Bypass	2 x pair of LAN Bypass
-	-	1 x FH/HL gen2 PCIex4 slot (option)
-	-	1 NMC
-	-	-
-	1 x Mini PCIE Slot(Half Size, USB Interface Default, PCIE Interface Option)	-
1 x 2.5" SATA3.0 Gen3 HDD/SSD bracket (Max 9.5mm height only)	1 x 2.5" HDD	1 x 3.5" or 2.5" HDD
1	-	-
-	1 x mSATA (Half Size or Full Size)	1 x mSATA CF (option)
	VGA option	-
1	1	1
-	1 x USB 3.0 Optional	2 x USB 3.0 Front;
2	2 x USB 2.0	1 x USB 2.0 Pin Header
-	-	-
Power, HDD status	1 x Power, HDD,4 pairs LAN	1 x Power, HDD
-	-	-
1 x Power Switch	1 x Power Switch DC power connector	1 x AC Power Switch ,RS232
TPM 1.2 support by Infineon SLB9635TT1.2	-	-
-	-	-
DC	DC	AC
84W	40W	60W
100 V ~ 240 V	100 V ~ 240 V	100 V ~ 240 V
DC Jack	DC Jack	AC 4pin plug
12V 7A, 84W external adaptor	External AC/DC,adapter	AC, Openframe
0 ~ 40 °C (32 ~ 104 °F)	0 ~ 40 °C (32 ~ 104 °F)	0 ~ 40 °C (32 ~ 104 °F)
-20 ~ 80° C (-4 ~ 167° F) and 40° C @ 95% RH Non-Condensing	-20 ~ 75° C (-4 ~ 167° F) 5 ~ 95%	-40 ~ 60° C (-40 ~ 140° F) 5 ~ 95%
with HDD: 0.5 Grms, IEC 60068-2-64, 5-500Hz, 1hr/axis with SSD: 0.3 Grms, IEC 60068-2-64, 5-500Hz, 1hr/axis	with 2.5"HDD:0.5 Grms; IEC 60068-2-64; 5-500Hz,1hr/axis	with SATA HDD: 0.5 Grms, IEC 60068-2-64, 5-500Hz, 1hr/axis
with HDD: 10G, IEC-60068-2-27, half sine, 11ms duration with SSD: 10G, IEC-60068-2-27, half sine, 11ms duration	with 2.5"HDD;10G, IEC-60068-2-27, half sine, 11 ms duration	with SATA HDD: 10G, 11ms,IEC-60068-2-27, X,Y,X-X,-Y-Z axis, 3times per axis
1 x system FAN with smart FAN for maximum 37.5dB(A)	1 x system FAN with smart FAN	2 x system smart FAN
Iron		
Desktop	Desktop	1U Rackmount
280 x 44 x 176 mm (11" x 1.7" x 6.9")	208 x 44 x 178 mm (8.2" x 1.7" x 7.0")	430 x 44 x 300 mm (16.7" x 1.7" x 11.8")
2 Kg (3.3 lb)	1.8 Kg (3.96 lb)	5.4 kg (11.9 lbs)
Linux (CentOS, Red Hat, Ubuntu)	Linux (CentOS, Red Hat,) Windows* 10	Linux (CentOS, Red Hat,) Windows* 10
QuickStart Linux Image (CentOS based reference BSP) including ▪ afru ▪ lmsensors ▪ flashrom ▪ Advanced LBP Utility ▪ DUI (Offline Diagnostics) Individual packages: ▪ Advanced LBP Library ▪ DUI (Offline Diagnostics)	-	-
-	-	-
CE/FCC Class A; CCC, CB, UL	CE/FCC/CB/UL/CCC	CE/FCC/CB/UL/CCC
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FWA Series Selection Guide

Model			FWA-2320	FWA-2330
Form Factor			1U - Rack Mount	1U - Rack Mount
Processor System	Processor		Intel® Atom™ C2358 (1.7GHz)/2558 (2.4GHz)/ C2758 (2.4GHz)	Intel® Celeron® J1900 (2.0GHz)
	Core Number		2C/4C/8C	4C
	Cache		1MB/2MB/4MB	2MB
	Chipset		-	-
	BIOS		AMI Efi 64Mbit	AMI Efi 64Mbit
Virtualization			VT-x	-
Memory	Technology		DDR3/DDR3L,1600MHz	DDR3L 1066/1333/1600MHz
	Max. Capacity			
	Socket		2 x 240-pin UDIMM up to 16GB	1 x 204-pin SODIMM up to 8GB
	ECC Support		Non-ECC or ECC	Non-ECC
Networking	Controller		4 x Marvell 88E1111 2 x Intel® i210	4 x Intel® i211-AT
	1GbE		4 x 1GbE RJ45 with 2 segment advanced bypass support via Marvell 88E1111 2 x 1GbE RJ45 for management via Intel® I210-AT	4 x 10/100/1000 Mbps RJ45 via Intel® i211-AT
	10GE		-	-
	LAN bypass	Advanced	2 segment	-
		Legacy	-	2 x pair of LAN Bypass
Expansion	PCIe x 16/ 8/ 4/ 1		-	-
	NMC		-	1 NMC
	m.2 PCIe		-	-
	Mini PCIe		-	-
Storage	HDD/SSD		1 x 2.5" HDD/SSD (by request) 1 x 3.5" HDD	1 x 2.5" HDD/SSD (option) 1 x 3.5" HDD
	m.2 SSD		-	-
	mSATA/ CF/ Cfast		1 x mSATA	1 x mSATA
Display			-	VGA option
I/O	Console port		1	1
	USB3.0		-	-
	USB2.0		2	2
	GPIO		-	-
	LED Indicator		Power, HDD status	1 x Power, HDD
	Reset button		-	-
	Others		1 x Power Switch	RS232, 1 x AC Power Switch
TPM			TPM 1.2 support by Infineon SLB9635TT1.2	-
LCD Module			16x2 graphic display,5 buttons	-
Power	Power Type		AC	AC
	Watts		100W	60W
	Input		100 V ~ 240 V	100 V ~ 240 V
	Connector		AC 3pin plug	AC 4pin plug
	Power Adaptor		-	AC, Openframe
Environment	Operating Temperature (air flow 0.7 m/sec)		0 ~ 40 °C (32 ~ 104 °F)	0 ~ 40 °C (32 ~ 104 °F)
	Non-operating Temperature		-20 ~ 80° C (-4 ~ 167° F) and 40° C @ 95% RH Non-Condensing	-40 ~ 60° C (-40 ~ 140° F) 5 ~ 95%
	Vibration Resistance		with HDD: 0.5 Grms, IEC 60068-2-64, 5-500Hz, 1hr/axis with SSD: 0.3 Grms, IEC 60068-2-64, 5-500Hz, 1hr/axis	with SATA HDD: 0.5 Grms, IEC 60068-2-64, 5-500Hz, 1hr/axis
	Shock Protection		with HDD: 10G, IEC-60068-2-27, half sine, 11ms duration with SSD: 10G, IEC-60068-2-27, half sine, 11ms duration	with SATA HDD: 10G, 11ms,IEC-60068-2-27, X,Y,X-X,-Y-Z axis, 3times per axis
Cooling			1x system FAN with smart FAN for maximum 37.5dB (A)	2x system smart FAN
Mechanical	Construction			
	Mounting		1U Rackmount	1U Rackmount
	Dimensions (W x H x D)		426 x 44 x 318mm (16.8" x 1.7" x 12.5")	430 x 44 x 301 mm (16.7" x 1.7" x 11.8")
	Weight		4.5 Kg (9.9 lb)	5.4 kg (11.9 lbs)
OS Support			Linux (CentOS, Red Hat, Ubuntu)	Linux (CentOS, Red Hat,)
Advantech S/W Packages			QSI (Linux based Advantech Bring-Up Image) DUI (Offline Diagnostics)	-
IPMI			-	-
Certification			CE/FCC/CB/UL/CCC	CE/FCC/CB/UL/CCC
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FWA-3210	FWA-3230	FWA-3231
1U - Rack Mount	1U - Rack Mount	1U - Rack Mount
2nd & 3rd Gen Intel® Xeon® E3 (2.4GHz~3.5GHz) Socket LGA1155	E3-1225 (4C,3.2G)/E3-1275 (4C,3.5G)/ E3-1268L (4C,2.3G)/I7-4770S (4C,3.1G)/ I5-4570S (4C,2.9G)/I5-4570TE (2C,2.7G), Socket LGA1150 DT v3	4th Gen Intel® Xeon® E3 DT (2.0GHz~3.5GHz) Socket LGA1150
2C/4C	2C/4C	2C/4C
2MB/3MB/6MB/8MB	4MB/6MB/8MB	2MB/3MB/4MB/6MB/8MB
C206/H61	A: C226/ B: H81	C226
AMI Efi 64Mbit	AMI Efi 64Mbit	AMI Efi 64Mbit
-	VT-x, VT-d	-
DDR3 1066/1333MHz	DDR3/DDR3L,1600MHz	DDR3, 1333/1600MHz
4/2 x240-pin UDIMM up to 32GB	A: 4 x 240-pin UDIMM up to 32GB B: 2 x 240-pin UDIMM up to 16GB	4 x240-pin UDIMM up to 32GB
for FWA-3210A	ECC for SKUA Non-ECC for SKUB	Yes (E3 CPU only)
6 x Intel® 82574L	6 x Intel® i210-AT 2 x Intel® i210-AT (LOM)	2 x Intel® i210-AT
6x 10/100/1000 Mbps RJ45 via Intel® 82574L	6 x 1GbE RJ45 with 3 segment advanced bypass support via Intel® i210-AT 2 x 1GbE RJ45 for management via Intel® i210-AT	2x 10/100/1000 Mbps RJ45 via Intel® i210-AT
-	-	-
-	3 segment	-
3 x pair of LAN Bypass	3 segment (option by jumper)	Legacy
2 FH/HL PCIe x 16 1 x FH/HL gen3 PCIex8 (option) 2 x FH/HL gen3 PCIex4	A:1 FH/HL gen3 PCIe x8 (option) A:2 FH/HL gen3 PCIe x4	1 x FH/HL gen3 PCIe x8 (option) 1 x FH/HL gen2 PCIe x4 (option)
2 NMC	2 NMC	4 NMC
-	-	-
-	1 x mSATA Slot (full Size, USB Interface Default, PCIE Interface Option)	1mSATA with full size
2 x 2.5" SATA HDD bay 1 x 3.5" SATA HDD bay (option)	2 x 2.5" HDD/SSD 1 x 3.5" HDD/SSD (option)	2 x 2.5" SATA HDD bay 1 x 3.5" SATA HDD bay (option)
-	-	-
1 x CFast	1 x mSATA	1 x mSATA
1 x VGA box header	1 x VGA box header	1 x VGA box header
1 x RJ45	1 x RJ45	1 x RJ45
-	2 x USB3.0	2 x USB3.0 with Pin head
4 (2 in front+2 with pin header)	2 (pin header)	2
8-bit GPIO	8-bit GPIO	8-bit GPIO
1 x Power led, 1x HDD led	1 x Power led, 1 x HDD led	1 x Power led, 1 x HDD led,1xlocation
Pin Header	Pin Header	Pin Header
RS232,VGA option	1 x RS232, 2 x USB2.0, VGA Opt. by request	RS232, 2 x USB option
-	TPM 1.2	-
16x2 graphic display,5 buttons	16x2 graphic display,5 buttons	16x2 graphic display,5 buttons
AC , redundant and non-redundant	Single AC or Redundant AC/DC	AC , redundant and non-redundant DC, redundant DC (optional)
270W/ 250W	250W / 300W (1+1)AC/DC	300W/ 250W
100 V ~ 240 V	100 V ~ 240 V / DC-48V	100 V ~ 240 V
AC 3pin plug / DC pin header	AC 3pin plug / DC pin header	AC 3pin plug / DC pin header
-	AC or DC, redundant and non-redundant	AC or DC, redundant and non-redundant
0 ~ 40 °C (32 ~ 104 °F)	0 ~ 40 °C (32 ~ 104 °F)	0 ~ 40 °C (32 ~ 104 °F)
-40 ~ 60° C (-40~140F) 5~95%	-20 ~ 80° C (-4 ~ 167° F) 5~95%	-40 ~ 60° C (-40~140F) 5~95%
with SATA HDD: 0.5 Grms, IEC 60068-2-64, 5-500Hz, 1hr/axis	with SATA HDD: 0.5 Grms, IEC 60068-2-64, 5-500Hz, 1hr/axis	with SATA HDD: 0.5 Grms, IEC 60068-2-64, 5-500Hz, 1hr/axis
with SATA HDD: 10G, 11ms,IEC-60068-2-27, X,Y,X-X, -Y-Z axis, 3times per axis	with SATA HDD: 10G, IEC-60068-2-27, half sine, 11ms duration, 3times per axis	with SATA HDD: 10G, 11ms,IEC-60068-2-27, X,Y,X-X, -Y-Z axis, 3times per axis
4 x system smart FAN	4 x system smart FAN	4 x system smart FAN
1U Rackmount	1U Rackmount	1U Rackmount
430 x 44 x 500 mm (16.9" x 1.7" x 19.6") (FWA-3210A) 430 x 44 x 375 mm (16.9" x 1.7" x 14.7") (FWA-3210B)	430 x 44.2 x 500mm (16.6" x 1.7" x 19.7")	430 x 44 x 550 mm (16.9" x 1.7" x 21.6")
10 kg/6 kg	A SKU:15 Kg (33lb) B SKU:13 Kg (29lb)	10kg
Linux (CentOS, Red Hat,) Windows* 7	Linux (CentOS, Red Hat, Ubuntu, etc.)	Linux (CentOS, Red Hat,) Windows* 7
-	QSI (Linux based Advantech Bring-Up Image,LANbypass,FRU)	-
IPMI V2.0, SOL	A: IPMI V2.0,SOL	IPMI V2.0,SOL
CE/FCC/CB/UL/CCC/BSMI	CE/FCC/CB/UL/CCC	CE/FCC/CB/UL/CCC
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FWA Series Selection Guide




Model			FWA-3232	FWA-3260	FWA-3270	FWA-4210
Form Factor			1U - Rack Mount	1U - Rack Mount	1U - Rack Mount	2U - Rack Mount
Processor System	Processor		4th Gen Intel® Xeon® E3 (2.0GHz~3.5GHz), Socket LGA1150	Xeon® D, A: D-1548(8C,2.0G) B: D-1527(4C,2.2G) Options: D-1508(2C,2.2G)/D-1528(6C,1.9G)/ D-1567(12C,2.1G)/D-1587(16C,1.7G)	6nd Gen Intel® Xeon® E3 (2.4GHz~3.6GHz), Socket LGA 1151	2nd/3rd Gen Intel® Xeon® E3 (2.4GHz~3.5GHz), Socket LGA1155
	Core Number		2C/4C	A:8C, B:4C Options:2C/6C/12C/16C	2C/4C	2C/4C
	Cache		2MB/3MB/4MB/6MB/8MB	3MB/6MB/9MB/12MB/18MB/24MB	2MB/4MB/8MB	2MB/3MB/6MB/8MB
	Chipset		C226/H81	-	C236/H110	C206
	BIOS		AMI Efi 64Mbit	AMI Efi 64Mbit	AMI Efi 64Mbit	AMI Efi 64Mbit
Virtualization			-	VT-x, VT-d	-	-
Memory	Technology		DDR3, 1333/1600MHz	DDR4, 2400MHz	DDR4 2133/2400MHz	DDR3, 1066/1333MHz
	Socket		4/2 x 240-pin UDIMM up to 32GB	4 x 288-pin RDIMM up to 128GB	4/2 x 288-pin UDIMM up to 64GB	4 x 240-pin UDIMM up to 32GB
	ECC Support		for FWA-3232A	ECC with register	Yes (E3 CPU only)	Yes (E3 CPU only)
Networking	Controller		8 x Intel® i210-AT(3232A) 6 x Intel® i210-AT(3232B)	4 x Intel® i350 2 x Intel® i210	8 x Intel® i210-AT(3270A) 6 x Intel® i210-AT(3270B)	6 x Intel® 82574L
	1GbE		8 x 10/100/1000 Mbps RJ45 (3232A) 6 x 10/100/1000 Mbps RJ45 (3232B)	4 x 1GbE RJ45 with 2 segment advanced bypass support via Intel® i350 2 x 1GbE RJ45 for management via Intel® i210-AT	8 x 10/100/1000 Mbps RJ45 (3270A) 6 x 10/100/1000 Mbps RJ45 (3270B)	6 x 10/100/1000 Mbps RJ45
	10GE		-	2 x 10G SFP+ via BDE SOC+CS4277 (10G Dual PHY)	-	-
	LAN bypass	Advanced	optional	2 segment	-	-
		Legacy	3 x pair of LAN Bypass	-	3 x pair of LAN Bypass (3270A) 2 x pair of LAN Bypass (3270B)	-
Expansion	PCIe x 16/ 8/ 4/ 1		1 x FH/HL gen3 PCIe x8 (option) 2 x FH/HL gen3 PCIe x4	A:1 FH/HL PCIe x 8 A:2 FH/HL PCIe x 4(option)	1 x FH/HL gen3 PCIe x8 2 x FH/HL gen3 PCIe x 4 (option)	-
	NMC		2 x NMC (3232A) 1 x NMC (3232B)	2 NMC	2 x NMC (3270A) 1 x NMC (3270B)	4 NMC
	m.2 PCIe		-	2 x (2280/2242)	-	-
	Mini PCIe		-	-	-	-
Storage	HDD/SSD		2 x 2.5" SATA HDD/SSD bay 1 x 3.5" SATA HDD bay	2 x 2.5" HDD/SSD 1 x 3.5" HDD/SSD(option)	2 x 2.5" SATA HDD/SSD bay 1 x 3.5" SATA HDD bay	1 x 3.5" and 2 2.5" HDD
	m.2 SSD		-	2 x m.2 (2280/2242)	1 x m.2 SSD (2242/2260/2280)	-
	mSATA/ CF/ Cfast		1 x mSATA	-	1 x mSATA	-
Display			1 x VGA box header	-	HDMI(3270A)/ DVI(3270B)	VGA option
I/O	Console port		1 x RJ45	1 x RJ45	1 x RJ45	1 x RJ45
	USB3.0		2 x USB3.0	2 x USB3.0	4 (2 in front+2 with pin header)	-
	USB2.0		1 x USB 2.0 Pin Header	2 (pin header)	-	4 (2 in front+2 with pin header)
	GPIO		8-bit GPIO	1 (Pin header)	8-bit GPIO	8-bit GPIO
	LED Indicator		1 x Power led, 1 x HDD led	1 x Power led, 1 x HDD led	1 x Power led, 1 x HDD led	1 x Power led, 1 x HDD led
	Reset button		Pin Header	Pin Header	Pin Header	Pin Header
	Others		RS232,VGA option	RS232, 2 x USB3.0. Opt. by request	RS232, 2 x USB option	RS232, 2 x USB option
TPM			TPM 1.2	A SKU: TPM(2.0), Option: TPM(1.2)	-	TPM 1.2
LCD Module			16x2 graphic display,5 buttons	16x2 graphic display,5 buttons	16x2 graphic display,5 buttons	16x2 graphic display,5 buttons
Power	Power Type		AC , redundant and non-redundant DC, redundant DC (optional)	Single AC or Redundant AC/DC	AC , redundant and non-redundant DC, redundant DC (optional)	AC , redundant and non-redundant
	Watts		300W/ 250W	250W / 300W (1+1)AC/DC	300W/ 250W	380W/ 300W
	Input		100 V ~ 240 V	100 V ~ 240 V / DC-48V	100 V ~ 240 V	100 V ~ 240 V/-36~-60vdc
	Connector		AC 3pin plug / DC pin header	AC 3pin plug / DC pin header	AC 3pin plug / DC pin header	AC 3pin plug / DC pin header
	Power Adaptor		-	AC or DC, redundant and non-redundant	AC or DC, redundant and non-redundant	AC or DC, redundant and non-redundant
Environment	Operating Temperature (air flow 0.7 m/sec)		0 ~ 40 °C (32 ~ 104 °F)	0 ~ 40 °C (32 ~ 104 °F)	0 ~ 40 °C (32 ~ 104 °F)	0 ~ 40 °C (32 ~ 104 °F)
	Non-operating Temperature		-40 ~ 60° C (-40~140F) 5~95%	-20 ~ 80° C (-4 ~ 167° F) 5~95%	-40 ~ 60° C (-40~140F) 5~95%	-40 ~ 60° C (-40~140F) 5~95%
	Vibration Resistance		with SATA HDD: 0.5 Grms, IEC 60068-2-64, 5-500Hz, 1hr/axis	with SATA HDD: 0.5 Grms, IEC 60068-2-64, 5-500Hz, 1hr/axis	with SATA HDD: 0.5 Grms, IEC 60068-2-64, 5-500Hz, 1hr/axis	with SATA HDD: 0.5 Grms, IEC 60068-2-64, 5-500Hz, 1hr/axis
	Shock Protection		with SATA HDD: 10G, 11ms,IEC-60068-2-27, X,Y,X-X,-Y-Z axis, 3times per axis	with SATA HDD: 10G, IEC-60068-2-27, half sine, 11ms duration, 3times per axis	with SATA HDD: 10G, 11ms,IEC-60068-2-27, X,Y,X-X,-Y-Z axis, 3times per axis	with SATA HDD: 10G, 11ms,IEC-60068-2-27, X,Y,X-X,-Y-Z axis, 3times per axis
Cooling			4 x system smart FAN	4 x system smart FAN	4 x system smart FAN	3 x system smart FAN
Mechanical	Mounting		1U Rackmount	1U Rackmount	1U Rackmount	1U Rackmount
	Dimensions (W x H x D)		430 x 44 x 500 mm (16.9" x 1.7" x 19.6") (FWA-3232A) 430 x 44 x 375 mm (16.9" x 1.7" x 14.7") (FWA-3232B)	430 x 44.2 x 500 mm (16.6" x 1.7" x 19.7")	430 x 44 x 500 mm (16.9" x 1.7" x 19.6") (FWA-3232A) 430 x 44 x 375 mm (16.9" x 1.7" x 14.7") (FWA-3232B)	430 x 88 x 500 mm (16.9"' x 3.4" x 19.6")
	Weight		10 kg/6 kg	A SKU:15 Kg (33lb) B SKU:13 Kg (29lb)	10 kg/6 kg	20 KG
OS Support			Linux (CentOS, Red Hat,) Windows* 7	Linux (CentOS, Red Hat, Ubuntu, etc.)	Linux (CentOS, Red Hat, Ubuntu, etc.),Windows*10	Linux (CentOS, Red Hat,) Windows* 7
Advantech S/W Packages			-	QSI (Linux based Advantech Bring-Up Image, LANbypass, FRU)	-	-
IPMI			-	A: IPMI V2.0,SOL	-	-
Certification			CE/FCC/CB/UL/CCC	CE/FCC/CB/UL/CCC	CE/FCC/CB/UL/CCC	CCC
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FWA-4231	FWA-4232	FWA-5020	FWA-6520	FWA-6520L
2U - Rack Mount	2U - Rack Mount	1U - Rack Mount	2U - Rack Mount	2U - Rack Mount
4th Gen Intel® Xeon® E3 (2.4GHz~3.5GHz), Socket LGA1150	4th Gen Intel® Xeon® E3 (2.0GHz~3.5GHz), Socket LGA1150	2 x Intel® Xeon® E5-2600 v3 / v4 Socket R3 (2.0GHz~2.6GHz)	2 x Intel® Xeon® E5-2600 v3 / v4 Socket R3 (2.0GHz~2.6GHz)	Intel® Xeon® E5-2600 v3 / v4 Intel® Xeon® E5-1600 v3 / v4 Socket R3 (1.6~3.7GHz)
2C/4C	2C/4C	8C/10C/12C/14C/16C/18C/20C/22C	8C/10C/12C/14C/16C/18C/20C/22C	4C/6C/8C/10C/12C/14C/16C/18C/ 20C/22C
2MB/3MB/6MB/8MB	2MB/3MB/4MB/6MB/8MB	30MB ~ 55 MB	30MB ~ 55 MB	10MB ~ 55MB (LLC)
C226	C226/H81	C612	C612	C612
AMI Efi 64Mbit	AMI Efi 64Mbit	AMI Efi 64Mbit	AMI Efi 64Mbit	AMI EFI 128 Mbit
-	-	VT-x	VT-x	-
DDR3, 1066/1333MHz	DDR3,1333/1600MHz	DDR4, 2133/2400MHz	DDR4, 2133/2400MHz	DDR4, 2133/2400MHz
4 x 240-pin DIMM up to 32GB	4/2 x240-pin UDIMM up to 32GB	8 x 288-pin RDIMM up to 256GB	16 x 288-pin RDIMM up to 256GB (CPU0x8,CPU1x8)	8 x 288-pin RDIMM up to 256GB
Yes (E3 CPU only)	for FWA-4232A	Yes	Yes	Yes
2 x Intel® i210-AT	8 x Intel® i210-AT(4232A) 6 x Intel® i210-AT(4232B)	1 x Intel® I210	1 x Intel® I210	2 x Intel® i210-AT
8 x 10/100/1000 Mbps RJ45 via I210AT	8 x 10/100/1000 Mbps RJ45 (4232A) 6 x 10/100/1000 Mbps RJ45 (4232B)	4 x 1GbE RJ45 with 2 segment advanced bypass support via I-350 AM4 2 x 1GbE RJ45 for management via Intel® i210-AT	2 x 10/100/1000 Mbps RJ45 via Intel® I210 chip	2 x 10/100/1000 Mbps RJ45 viaIntel® i210-AT
-	-	2 x 10GbE SFP+ via Intel® X710	-	-
-	optional	2 segment	LBP support by NMC	Optional (based on NMCs)
support by NMC	3 x pair of LAN Bypass	-	-	Legacy
1 FH/HL PCIe x 16	1 x FH/HL gen3 PCIe x8	1 HH/HL PCIe x 16(Internal Proprietary: PCIe-3021-00E)	2 FH/HL PCIe x 16	1 FH/HL Gen3 PCIe x8
4 NMC	2 NMC	2/4 NMC	4/6/8 NMC	4 NMC
-	-	-	-	-
-	-	-	-	-
Max. 4 x 2.5" HDD/SSD or 2 x 3.5" HDD	2 x 2.5" SATA HDD/SSD bay 2 x 3.5" SATA HDD/SSD bay	Max. 2 2.5" HDD/SSD	Max. 2 2.5" HDD/SSD	4 x 3.5" HDD bay
-	-	-	-	-
-	1 x mSATA	2 x mSATA	2 x mSATA	1 x mSATA 1 x CF slot
VGA option	1 x VGA box header	-	-	1 x VGA Header
1 x RJ45	1 x RJ45	1	-	1 x RJ45
-	2	2	1	-
4 (2 in front+2 with pin header)	1 x USB 2.0 Pin Header	-	2	4 (2 in front+2 Pin header)
8-bit GPIO	8-bit GPIO	-	-	8-bit GPIO
1 x Power led, 1 x HDD led, 1 x Location	1 x Power led, 1 x HDD led	3 (IPMI Event)	-	1 x Power LED, 1 x HDD LED
Pin Header	Pin Header	-	-	Pin Header
RS232, 2 x USB option	RS232,VGA option	RS232, 2 x USB, VGA opt.	1 x power button	-
-	TPM 1.2	On board' TPM 1.2	-	TPM1.2
16x2 graphic display,5 buttons	16x2 graphic display,5 buttons	16x2 graphic display,5 buttons	16x2 graphic display,5 buttons	-
AC, redundant and non-redundant DC, redundant DC (optional)	AC, redundant and non-redundant DC, redundant DC (optional)	AC or DC, redundant	AC, redundant DC, redundant (optional)	AC redundant
350W/ 300W	300W/ 250W	650W	820W	500W
100 V ~ 240 V/-36~-60vdc	100 V ~ 240 V	(AC) 100 ~ 240 V @ 50 ~ 60 Hz, full range (DC) -40 ~ - 72V, 12 ~ 24A	100V ~ 240V	100V~240V
AC 3pin plug / DC pin header	AC 3pin plug / DC pin header	AC 3pin plug / DC pin header	AC 3pin plug	AC 3pin plug
AC or DC, redundant and non-redundant	-	AC or DC, redundant	-	AC or DC, redundant
0 ~ 40 °C (32 ~ 104 °F)	0 ~ 40 °C (32 ~ 104 °F)	0 ~ 40 °C (32 ~ 104 °F)	0 ~ 40 °C (32 ~ 104 °F)	0 ~ 40 °C (32 ~ 104 °F)
-40 ~ 60° C (-40~140F) 5~95%	-40 ~ 60° C (-40~140F) 5~95%	-20 ~ 80° C (-4 ~ 167° F) and 40° C @ 95% RH Non-Condensing	-20 ~ 80° C (-4 ~ 167° F) and 40° C @ 95% RH Non-Condensing	-20 ~ 60° C (-4~140F) 5~95%
with SATA HDD: 0.5 Grms, IEC 60068-2-64, 5-500Hz, 1hr/axis	with SATA HDD: 0.5 Grms, IEC 60068-2-64, 5-500Hz, 1hr/axis	with SATA HDD: 0.5 Grms, IEC 60068-2-64, 5-500Hz, 1hr/axis	with SSD: 0.3 Grms, IEC 60068-2-64, 5-500Hz, 1hr/axis	3.5" HDD: 0.5 Grms, IEC 60068-2-64, 5-500Hz, x/y/z axis, 1hr/axis
with SATA HDD: 10G, 11ms,IEC-60068-2-27, X,Y,X-X,-Y-Z axis, 3times per axis	with SATA HDD: 10G, 11ms,IEC-60068-2-27, X,Y,X-X,-Y-Z axis, 3times per axis	with SATA HDD: 10G, IEC-60068-2-27, half sine, 11ms duration	with SSD: 10G, IEC-60068-2-27, half sine, 11ms duration	10G, 11ms,IEC-60068-2-27, X,Y,X-X,-Y-Z axis, 3times per axis
3 x system smart FAN	3 x system smart FAN	2/3 x system FAN with smart FAN	3 x system FAN with smart FAN	3 x system smart Fan
2U Rackmount	2U Rackmount	1U Rackmount	2U Rackmount	2U Rackmount
430 x 88 x 550 mm (16.9" x 3.4" x 21.6")	430 x 88 x 500 mm (16.9" x 3.4" x 19.6")	438 x 44 x 625 mm (17.24" x 1.732" x 24.61")	430 x 88 x 558 mm (16.9" x 3.4" x 22")	TBD
20 KG	20 KG	18 KG	20 KG	20 KG
Linux (CentOS, Red Hat,) Windows* 7	Linux (CentOS, Red Hat,) Windows* 7	Linux (CentOS, Red Hat, Ubuntu)	Linux (CentOS, Red Hat, Ubuntu, etc.)	Linux (CentOS, Red Hat,) Windows* 7
-	-	QSI (Linux based Advantech Bring-Up Image) DUI (Offline Diagnostics)	-	-
IPMI V2.0,SOL(Opt.)	-	IPMI V2.0, LOM, KVM redirection	IPMI 2.0	IPMI V2.0, LOM, KVM redirection
CCC	CCC	CE/FCC/CB/UL/CCC	CE/FCC/CB/UL/CCC	CCC
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NMC Series Selection Guide

Model Name		NMC-0107		NMC-0108		NMC-0111	
Part Number		NMC-0107E	NMC-0107-10E	NMC-0108E	NMC-0108-10E	NMC-0111E	NMC-0111-10E
Chipset		1x Intel® i350-AM4		1x Intel® i350-AM4		Intel® 82583V x4	Intel® I211 x4
Speed		GbE		GbE		GbE	GbE
Network Interface (connector type)		4 Copper(RJ45)		4 Fiber(SFP)		4 Copper(RJ45)	
NMC type		Handle	Latch	Handle	Latch	Handle	Latch
PCIe		1 PCIe x4, Gen2	11 PCIe x4, Gen2	1 PCIe x4, Gen2	1 PCIe x4, Gen2	4 PCIe x1 Gen2	4 PCIe x1 Gen2
LAN Bypass (Legacy/Advanced)		Legacy LBP: (Micro_P 8051) -Bypass, Normal, Disconnect		-		Lagacy LBP 2 x Pairs	Lagacy LBP 2 x Pairs
Present Pin Detection		YES		YES		YES	YES
LAN LED definition		Left LED: Speed 10: x/100: Yellow/1000: Green Right LED: Link / Act (Green), LAN Bypass (Yellow), Disconnect (Yellow blinking)		Link/Act LED: Speed link 1000: Green Act: Green blinking		Link/Act LED: Left LED: Speed link 1G: Green; 100M: Yellow Righ LED: Link: Green light on; Act: Green blinking, LAN Bypass (yellow), Disconnect (Yellow blinking)	
Power	Voltage	+12V ± 15%		+12V ± 15%		+12V ± 15%	
	consumption	10W		10W		6W	
Environment	Operating Temperature (air flow 0.7 m/sec)	-5°C ~ 45°C (23°F~113°F)		-5°C ~ 45°C (23°F~113°F)		-5°C ~ 45°C (23°F~113°F)	-5°C ~ 45°C (23°F~113°F)
	Storage Temperature	-20°C ~ 65°C (-4°F~149°F)		-20°C ~ 65°C (-4°F~149°F)		-20°C ~ 65°C (-4°F~149°F)	-20°C ~ 65°C (-4°F~149°F)
	Storage Humidity	5 ~ 85 % @ 60° C (140° F)	5 ~ 85 % @ 60° C (140° F)	5 ~ 85 % @ 60° C (140° F)	5 ~ 85 % @ 60° C (140° F)	5 ~ 85 % @ 60° C (140° F)	5 ~ 85 % @ 60° C (140° F)
	Vibration Resistance	1. Test PSD: 0.026 G/Hz, 2.16 Grms 2. System condition: Packaged mode 3. Test Frequency: 5-500Hz 4. Test Axis: X, Y and Z axis	1. Test PSD: 0.026 G/Hz, 2.16 Grms 2. System condition: Packaged mode 3. Test Frequency: 5-500Hz 4. Test Axis: X, Y and Z axis	1. Test PSD: 0.026 G/Hz, 2.16 Grms 2. System condition: Packaged mode 3. Test Frequency: 5-500Hz 4. Test Axis: X, Y and Z axis	1. Test PSD: 0.026 G/Hz, 2.16 Grms 2. System condition: Packaged mode 3. Test Frequency: 5-500Hz 4. Test Axis: X, Y and Z axis	1. Test PSD: 0.026 G/Hz, 2.16 Grms 2. System condition: Packaged mode 3. Test Frequency: 5-500Hz 4. Test Axis: X, Y and Z axis	1. Test PSD: 0.026 G/Hz, 2.16 Grms 2. System condition: Packaged mode 3. Test Frequency: 5-500Hz 4. Test Axis: X, Y and Z axis
	Shock Protection	half sine 10G with package (x y z axis)	half sine 10G with package (x y z axis)	half sine 10G with package (x y z axis)	half sine 10G with package (x y z axis)	half sine 10G with package (x y z axis)	half sine 10G with package (x y z axis)
Mechanical	Dimensions (W x H x D) mm	73 x 37.26 x 171 mm	73 x 37.26 x 171 mm	73 x 37.26 x 171 mm	73 x 37.26 x 171 mm	73 x 37.26 x 171 mm	73 x 37.26 x 171 mm
	Weight	0.3kg	0.3kg	0.3kg	0.3kg	0.3kg	0.3kg
Page		online		online		online	

NMC-0112		NMC-0113	NMC-0114	NMC-0115	NMC-0116
NMC-0112E	NMC-0112-10E	NMC-0113E	NMC-0114E	NMC-0115E	NMC-0116E
Intel® I210-IS x4		Intel® I211-AT x2 Intel® I210-IS x2	Intel® I350-AM4 x1	Intel® I350-AM2 x1	Intel® I350-AM2 x1
GbE		GbE	GbE	GbE	GbE
4 Fiber(SFP)		2 Copper(RJ45) + 2 Fiber(SFP)	2 Copper(RJ45) + 2 Fiber(SFP)	2 Copper(RJ45)	2 Fiber(SFP)
Handle	Latch	Handle	handle	Handle	handle
4 PCIe x1 Gen2		4 PCIe x1 Gen2	1 PCIe x4 Gen2	1 PCIe x4 Gen2	1 PCIe x4 Gen2
-		Lagacy LBP 1 x Pair	Lagacy LBP 1 x Pair	Lagacy LBP 1 x Pair	-
YES		YES	YES	YES	YES
Link/Act LED: Left LED: Speed link 1G: Green; 100M: Yellow Righ LED : Link: Green light on; Act: Green blinking		Link/Act LED: Left LED: Speed link 1G: Green; 100M: Yellow Righ LED : Link: Green light on; Act: Green blinking, LAN Bypass (yellow), Disconnect (Yellow blinking)	Link/Act LED: Left LED: Speed link 1G: Green; 100M: Yellow Righ LED : Link: Green light on; Act: Green blinking, LAN Bypass (yellow), Disconnect (Yellow blinking)	Link/Act LED: Left LED: Speed link 1G: Green; 100M: Yellow Righ LED : Link: Green light on; Act: Green blinking, LAN Bypass (yellow), Disconnect (Yellow blinking)	Link/Act LED: Left LED: Speed link 1G: Green; 100M: Yellow Righ LED : Link: Green light on; Act: Green blinking
+12V ± 15%		+12V ± 15%	+12V ± 15%	+12V ± 15%	+12V ± 15%
6W		6W	10W	10W	10W
-5°C ~ 45°C (23°F~113°F)		-5°C ~ 45°C (23°F~113°F)	-5°C ~ 45°C (23°F~113°F)	-5°C ~ 45°C (23°F~113°F)	-5°C ~ 45°C (23°F~113°F)
-20°C ~ 65°C (-4°F~149°F)		-20°C ~ 65°C (-4°F~149°F)	-20°C ~ 65°C (-4°F~149°F)	-20°C ~ 65°C (-4°F~149°F)	-20°C ~ 65°C (-4°F~149°F)
5 ~ 85 % @ 60° C (140° F)		5 ~ 85 % @ 60° C (140° F)	5 ~ 85 % @ 60° C (140° F)	5 ~ 85 % @ 60° C (140° F)	5 ~ 85 % @ 60° C (140° F)
1. Test PSD: 0.026 G/Hz, 2.16 Grms 2. System condition: Packaged mode 3. Test Frequency: 5-500Hz 4. Test Axis: X, Y and Z axis		1. Test PSD: 0.026 G/Hz, 2.16 Grms 2. System condition: Packaged mode 3. Test Frequency: 5-500Hz 4. Test Axis: X, Y and Z axis	1. Test PSD: 0.026 G/Hz, 2.16 Grms 2. System condition: Packaged mode 3. Test Frequency: 5-500Hz 4. Test Axis: X, Y and Z axis	1. Test PSD: 0.026 G/Hz, 2.16 Grms 2. System condition: Packaged mode 3. Test Frequency: 5-500Hz 4. Test Axis: X, Y and Z axis	1. Test PSD: 0.026 G/Hz, 2.16 Grms 2. System condition: Packaged mode 3. Test Frequency: 5-500Hz 4. Test Axis: X, Y and Z axis
half sine 10G with package (x y z axis)		half sine 10G with package (x y z axis)	half sine 10G with package (x y z axis)	half sine 10G with package (x y z axis)	half sine 10G with package (x y z axis)
73 x 37.26 x 171 mm		73 x 37.26 x 171 mm	73 x 37.26 x 171 mm	73 x 37.26 x 171 mm	73 x 37.26 x 171 mm
0.3kg		0.3kg	0.3kg	0.3kg	0.3kg
online		online	online	online	online

NMC Series Selection Guide

Model Name		NMC-0120		NMC-0121		NMC-0801
Part Number		NMC-0120-000110E	NMC-0120-000111E	NMC-0121-000010E	NMC-0121-000110E	NMC-0801-10E
Chipset		1x Intel® i350-AM4		1x Intel® i350-AM4		
Speed		GbE		GbE		GbE
Network Interface (connector type)		4 Fiber LC(SX)		4 Copper(RJ45)		
NMC type		Latch		Latch		Latch
PCIe		1 PCIe x4, Gen2		1 PCIe x4, Gen2		2 PCIe x4, Gen2
LAN Bypass (Legacy/Advanced)		Advance Fiber bypass		N/A	Advanced LBP: (Micro_P 8051) -Bypass, Normal, Disconnect	-
Present Pin Detection		YES		YES		N/A
LAN LED definition		Status LED: Link up: Green On Active: Green Blinking BYPASS LED: BYPASS: Amber on DISCONNECT: Amber blinking CONNECT: N/A		Left LED: Speed 10: x/100: Yellow/1000: Green Right LED: Link / Act (Green), LAN Bypass (Yellow), Disconnect (Yellow blinking)		Left LED: Speed 10: x /100: Yellow/ 1000: Green Right LED: Link / Act (Green)
Power	Voltage	+12V ± 15%		+12V ± 15%		+12V ± 15%
	consumption	10W		10W		15W
Environment	Operating Temperature (air flow 0.7 m/sec)	-5°C ~ 45°C (23°F~113°F)		-5°C ~ 45°C (23°F~113°F)		-5°C ~ 45°C (23°F~113°F)
	Storage Temperature	-20°C ~ 65°C (-4°F~149°F)		-20°C ~ 65°C (-4°F~149°F)		-20°C ~ 65°C (-4°F~149°F)
	Storage Humidity	5 ~ 85 % @ 60° C (140° F)		5 ~ 85 % @ 60° C (140° F)		5 ~ 85 % @ 60° C (140° F)
	Vibration Resistance	1. Test PSD: 0.026 G/Hz, 2.16 Grms 2. System condition: Packaged mode 3. Test Frequency: 5-500Hz 4. Test Axis: X, Y and Z axis		1. Test PSD: 0.026 G/Hz, 2.16 Grms 2. System condition: Packaged mode 3. Test Frequency: 5-500Hz 4. Test Axis: X, Y and Z axis		1. Test PSD: 0.026 G/Hz, 2.16 Grms 2. System condition: Packaged mode 3. Test Frequency: 5-500Hz 4. Test Axis: X, Y and Z axis
	Shock Protection	half sine 10G with package (x y z axis)		half sine 10G with package (x y z axis)		half sine 10G with package (x y z axis)
Mechanical	Dimensions (W x H x D) mm	73 x 37.26 x 171 mm		73 x 37.26 x 171 mm		-
	Weight	0.7kg		0.4kg		-
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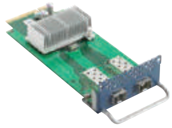
NMC-0803		NMC-0804	NMC-0805	NMC-0806		NMC-1004	
NMC-0803E	NMC-0803-10E	NMC-0804E	NMC-0805E	NMC-0806-000010E	NMC-0806-000110E	NMC-1004E	NMC-1004-10E
1x Intel® i350-AM4		2x Intel® i350-AM4	2x Intel® i350-AM4	2x Intel® i350-AM4		1x 82599ES	1x 82599ES
GbE		GbE	GbE	GbE		10GbE	
8 Copper(RJ45)		8 Fiber(SFP)	4 Copper(RJ45) + 4 Fiber(SFP)	8 Copper(RJ45)		2 Fiber(SFP)	
Handle	Latch	Handle	Handle	Latch		Handle	Latch
2 PCIe x4, Gen2		2 PCIe x4, Gen2	2 PCIe x4, Gen2	2 PCIe x4, Gen2		1 PCIe x8, Gen2	
Legacy LBP: (Micro_P 8051) -Bypass, Normal, Disconnect		-	-	-	Advanced LBP: (Micro_P 8051) -Bypass, Normal, Disconnect	-	
YES		YES	YES	YES		YES	
Left LED: Speed 10: x/100: Yellow/1000: Green Right LED: Link / Act (Green), LAN Bypass (Yellow), Disconnect (Yellow blinking)		SFP Connector: Link/Act LED: Speed link 1000: Green Act: Green blinking	SFP Connector: Link/Act LED: Speed link 1000: Green Act: Green blinking RJ45: Left LED: Speed 10: x/100: Yellow/1000: Green Right LED: Link / Act (Green)	Left LED: Speed 10: x/100: Yellow/1000: Green Right LED: Link / Act (Green) , LAN Bypass (Yellow), Disconnect (Yellow blinking)		SFP Connector: Link/Act LED: Speed link 1000: Green Act: Green blinking	
+12V ± 15%		+12V ± 15%	+12V ± 15%	+12V ± 15%		+12V ± 15%	
15W		15W	15W	15W		15W	
-5°C ~ 45°C (23°F~113°F)		-5°C ~ 45°C (23°F~113°F)	-5°C ~ 45°C (23°F~113°F)	-5°C ~ 45°C (23°F~113°F)		-5°C ~ 45°C (23°F~113°F)	
-20°C ~ 65°C (-4°F~149°F)		-20°C ~ 65°C (-4°F~149°F)	-20°C ~ 65°C (-4°F~149°F)	-20°C ~ 65°C (-4°F~149°F)		-20°C ~ 65°C (-4°F~149°F)	
5 ~ 85 % @ 60° C (140° F)		5 ~ 85 % @ 60° C (140° F)	5 ~ 85 % @ 60° C (140° F)	5 ~ 85 % @ 60° C (140° F)		5 ~ 85 % @ 60° C (140° F)	
1. Test PSD: 0.026 G/Hz, 2.16 Grms 2. System condition: Packaged mode 3. Test Frequency: 5-500Hz 4. Test Axis: X, Y and Z axis		1. Test PSD: 0.026 G/Hz, 2.16 Grms 2. System condition: Packaged mode 3. Test Frequency: 5-500Hz 4. Test Axis: X, Y and Z axis	1. Test PSD: 0.026 G/Hz, 2.16 Grms 2. System condition: Packaged mode 3. Test Frequency: 5-500Hz 4. Test Axis: X, Y and Z axis	1. Test PSD: 0.026 G/Hz, 2.16 Grms 2. System condition: Packaged mode 3. Test Frequency: 5-500Hz 4. Test Axis: X, Y and Z axis		1. Test PSD: 0.026 G/Hz, 2.16 Grms 2. System condition: Packaged mode 3. Test Frequency: 5-500Hz 4. Test Axis: X, Y and Z axis	
half sine 10G with package (x y z axis)		half sine 10G with package (x y z axis)	half sine 10G with package (x y z axis)	half sine 10G with package (x y z axis)		half sine 10G with package (x y z axis)	
73 x 37.26 x 171 mm		73 x 37.26 x 171 mm	73 x 37.26 x 171 mm	73 x 37.26 x 171 mm		73 x 37.26 x 171 mm	
0.45kg		0.45kg	0.45kg	0.65kg		0.4kg	0.45kg
online		online	online	3-48		3-49	

NMC Series Selection Guide




Model Name		NMC-1008		NMC-1009	NMC-1010	NMC-4001	
Part Number		NMC-1008-000110E	NMC-1008-000111E	NMC-1009-000010E	NMC-1010-000110E	NMC-4001E	NMC-4001-10E
Chipset		1x 82599ES		1x XL710	1x X710	2x 82599ES	
Speed		10GbE		10GbE	10GbE	10GbE	
Network Interface (connector type)		2 Fiber LC(SR)	2 Fiber LC (LR)	2 Fiber(SFP+)	2 Fiber(LC)	4 Fiber(SFP)	
NMC type		Handle	Latch	Latch	Latch	Handle	Latch
PCIe		1 PCIe x8, Gen2		1 PCIe x8, Gen3	1 PCIe x8, Gen3	1 PCIe x8, Gen2	
LAN Bypass (Legacy/Advanced)		Fiber bypass		-	Fiber bypass	-	-
Present Pin Detection		YES		YES	Yes	YES	
LAN LED definition		Status LED: Link up: Green On Active: Green Blinking BYPASS LED: BYPASS: Amber on DISCONNECT: Amber blinking CONNECT: N/A		SFP Connector: Link/Act LED: Speed link 1000: Green Act: Green blinking	Status LED: Link up: Green On Active: Green Blinking BYPASS LED: BYPASS: Amber on DISCONNECT: Amber blinking CONNECT: N/A	SFP Connector: Link/Act LED: Speed link 1000: Green Act: Green blinking	
Power	Voltage	+12V ± 15%		+12V ± 15%	+12V ± 15%	+12V ± 15%	
	consumption	15W		15W	15W	15W	
Environment	Operating Temperature (air flow 0.7 m/sec)	-5°C ~ 45°C (23°F~113°F)		-5°C ~ 45°C (23°F~113°F)	-5°C ~ 45°C (23°F~113°F)	-5°C ~ 45°C (23°F~113°F)	
	Storage Temperature	-20°C ~ 65°C (-4°F~149°F)		-20°C ~ 65°C (-4°F~149°F)	-20°C ~ 65°C (-4°F~149°F)	-20°C ~ 65°C (-4°F~149°F)	
	Storage Humidity	5 ~ 85 % @ 60° C (140° F)		5 ~ 85 % @ 60° C (140° F)	5 ~ 85 % @ 60° C (140° F)	5 ~ 85 % @ 60° C (140° F)	
	Vibration Resistance	1. Test PSD: 0.026 G/Hz, 2.16 Grms 2. System condition: Packaged mode 3. Test Frequency: 5-500Hz 4. Test Axis: X, Y and Z axis		1. Test PSD: 0.026 G/Hz, 2.16 Grms 2. System condition: Packaged mode 3. Test Frequency: 5-500Hz 4. Test Axis: X, Y and Z axis	1. Test PSD: 0.026 G/Hz, 2.16 Grms 2. System condition: Packaged mode 3. Test Frequency: 5-500Hz 4. Test Axis: X, Y and Z axis	1. Test PSD: 0.026 G/Hz, 2.16 Grms 2. System condition: Packaged mode 3. Test Frequency: 5-500Hz 4. Test Axis: X, Y and Z axis	
	Shock Protection	half sine 10G with package (x y z axis)		half sine 10G with package (x y z axis)	half sine 10G with package (x y z axis)	half sine 10G with package (x y z axis)	
Mechanical	Dimensions (W x H x D) mm	73 x 37.26 x 171 mm		73 x 37.26 x 171 mm	73 x 37.26 x 171 mm	73 x 37.26 x 171 mm	
	Weight	0.65kg	0.7kg	0.5kg	0.7kg	0.38kg	0.4kg
Page		3-50		3-51	3-52	3-53	

NMC-4005	NMC-4006	NMC-4007	NMC-4001FB	NMC-1001C	NMC-6002
NMC-4005-000010E	NMC-4006-000010E	NMC-4007-000110E			NMC-6002FD-02A1L
Intel® XL710	Intel® XL710	Intel® XL710	1x Intel® XL710-BM2 40G	2x Intel® x550	1 x Mellanox ConnectX-4
10GbE	40GbE	10GbE	40GbE	100GbE	100G
4 Fiber(SFP)	2 Fiber QSFP	4 Fiber(LC)	2x QSFP 40G type	4x 10G-BASET(RJ-45	2 Fiber (QSFP28)
Latch	Latch	Latch	Latch	Latch	Latch
1 PCIe x8, Gen3	1 PCIe x8, Gen3	1 PCIe x8, Gen3	1 PCIe x8, Gen3	1 PCIe x8, Gen3	2 PCIe X8, Gen3
-	-	Advanced LBP: (Micro_P 8051) -Bypass, Normal, Disconnect	Advanced LBP: (Micro_P 8051) -Bypass, Normal, Disconnect	-	-
YES		YES	YES	YES	YES
SFP Connector: Link/Act LED: Speed link 1000: Green Act: Green blinking	QSFP Connector: Link/Act LED: Speed link 1000: Green Act: Green blinking	Status LED: Link up: Green On Active: Green Blinking BYPASS LED: BYPASS: Amber on DISCONNECT: Amber blinking CONNECT: N/A	Status LED: Link up: Green On Active: Green Blinking BYPASS LED: BYPASS: Amber on DISCONNECT: Amber blinking CONNECT: N/A	Speed LED: 1G: Amber (downgrade speed) 10G: Green (Maximum speed) Link/active LED Link: green on Active: green blinking	Link/active LED Link: green on Active: green blinking
+12V ± 15%	+12V ± 15%	+12V ± 15%	+12V ± 15%	+12V ± 15%	+12V ± 15%
15W	15W	15W	15W	15W	34.85W
-5°C ~ 45°C (23°F~113°F)	-5°C ~ 45°C (23°F~113°F)	-5°C ~ 45°C (23°F~113°F)	-5°C ~ 45°C (23°F~113°F)	"-5°C ~ 45°C (23°F~113°F)"	-5°C ~ 45°C (23°F~113°F)
-20°C ~ 65°C (-4°F~149°F)	-20°C ~ 65°C (-4°F~149°F)	-20°C ~ 65°C (-4°F~149°F)	-20°C ~ 65°C (-4°F~149°F)	"-20°C ~ 65°C (-4°F~149°F)"	-20°C ~ 65°C (-4°F~149°F)
5 ~ 85 % @ 60° C (140° F)	5 ~ 85 % @ 60° C (140° F)	5 ~ 85 % @ 60° C (140° F)	5 ~ 85 % @ 60° C (140° F)	5 ~ 85 % @ 60° C (140° F)	5 ~ 85 % @ 60° C (140° F)
1. Test PSD: 0.026 G/Hz, 2.16 Grms 2. System condition: Packaged mode 3. Test Frequency: 5-500Hz 4. Test Axis: X, Y and Z axis	1. Test PSD: 0.026 G/Hz, 2.16 Grms 2. System condition: Packaged mode 3. Test Frequency: 5-500Hz 4. Test Axis: X, Y and Z axis	1. Test PSD: 0.026 G/Hz, 2.16 Grms 2. System condition: Packaged mode 3. Test Frequency: 5-500Hz 4. Test Axis: X, Y and Z axis	1. Test PSD: 0.026 G/Hz, 2.16 Grms 2. System condition: Packaged mode 3. Test Frequency: 5-500Hz 4. Test Axis: X, Y and Z axis	1. Test PSD: 0.026 G/Hz, 2.16 Grms 2. System condition: Packaged mode 3. Test Frequency: 5-500Hz 4. Test Axis: X, Y and Z axis	1. Test PSD: 0.026 G/Hz, 2.16 Grms 2. System condition: Packaged mode 3. Test Frequency: 5-500Hz 4. Test Axis: X, Y and Z axis
half sine 10G with package (x y z axis)	half sine 10G with package (x y z axis)	half sine 10G with package (x y z axis)	half sine 10G with package (x y z axis)	half sine 10G with package (x y z axis)	half sine 10G with package (x y z axis)
73 x 37.26 x 171 mm	73 x 37.26 x 171 mm	73 x 37.26 x 171 mm	73 x 37.26 x 171 mm	73 x 37.26 x 171 mm	147.4 x 36.3 x 187.6 mm
0.545kg	0.55kg	0.7kg			0.5 kg
3-54	3-55	3-56	online	online	online

NMC Mapping Guide




Model		FWA-1010VC	FWA-1320	FWA-1330	FWA-2011
NMC Type		–	–	–	handle
GbE	2 port Copper	–	–	–	–
	4 port Copper	–	–	–	NMC-0107E
	8 port Copper	–	–	–	–
	2 port Fiber	–	–	–	–
	4 port Fiber	–	–	–	NMC-0108E
	8 port Fiber	–	–	–	–
10GbE	2 port Copper	–	–	–	–
	4 port Copper	–	–	–	–
	2 port Fiber	–	–	–	–
	4 port Fiber	–	–	–	–
40GbE	2 port Fiber	–	–	–	–
100GbE	2 port Fiber	–	–	–	–




Model		FWA-3231	FWA-3232	FWA-3260	FWA-3270
NMC Type		handle/latch	handle	Latch	latch
GbE	2 port Copper	–	–	–	–
	4 port Copper	NMC-0107E	NMC-0107E	NMC-0121-000110E	NMC-0121-000110E
	8 port Copper	NMC-0803E	NMC-0803E	NMC-0806-000110E	NMC-0806-000110E
	2 port Fiber	–	–	–	–
	4 port Fiber	NMC-0108E	NMC-0108E	NMC-0120-000110E	NMC-0120-000110E
	8 port Fiber	NMC-0804E	NMC-0804E	–	–
10GbE	2 port Copper	–	–	–	–
	4 port Copper	–	–	–	–
	2 port Fiber	NMC-1004E	NMC-1004E	NMC-1008-000110E	NMC-1008-000110E
	4 port Fiber	NMC-4001E	NMC-4001E	NMC-4005-000010E	NMC-4005-000010E
40GbE	2 port Fiber	NMC-4006-000010E	–	NMC-4006-000010E	NMC-4006-000010E
100GbE	2 port Fiber	–	–	–	–





FWA-2012	FWA-2320	FWA-2330	FWA-3210	FWA-3230
Latch type	–	handle	handle	Latch type
–	–	–	–	–
NMC-0121-000110E	–	NMC-0111E	NMC-0103E	NMC-0107-10E
NMC-0806-000110E	–	–	NMC-0803E	NMC-0803-10E
–	–	–	–	–
NMC-0120-000110E	–	NMC-0112E	NMC-0102E	NMC-0108-10E
–	–	–	NMC-0804E	–
–	–	–	–	–
–	–	–	–	–
NMC-1008-000110E	–	–	NMC-1001E	NMC-1004-10E
NMC-4005-000010E	–	–	NMC-4001E	NMC-4001-10E
–	–	–	–	NMC-4006-000010E
–	–	–	–	–





FWA-4210	FWA-4231	FWA-4232	FWA-5020	FWA-6520	FWA-6520L
handle	handle	handle	Latch	Latch	Thumb screw
–	–	–	–	–	–
NMC-0107E	NMC-0107E	NMC-0107E	NMC-0121-000110E	NMC-0121-000110E	NMC-0107E
NMC-0803E	NMC-0803E	NMC-0803E	NMC-0806-000110E	NMC-0806-000110E	NMC-0803E
–	–	–	–	–	–
NMC-0108E	NMC-0108E	NMC-0108E	NMC-0120-000110E	NMC-0120-000110E	NMC-0108E
NMC-0804E	NMC-0804E	NMC-0804E	–	–	NMC-0804E
–	–	–	–	–	–
–	–	–	–	–	–
NMC-1004E	NMC-1004E	NMC-1004E	NMC-1008-000110E	NMC-1008-000110E	NMC-1004E
NMC-4001E	NMC-4001E	NMC-4001E	NMC-4005-000010E	NMC-4005-000010E	NMC-4001E
–	NMC-4006-000010E	–	NMC-4006-000010E	NMC-4006-000010E	–
–	–	–	–	–	–

FWA-1010VC

Tabletop Network Appliance with Intel® Atom™ Processor C2000 for vE-CPE and SD-WAN

Features

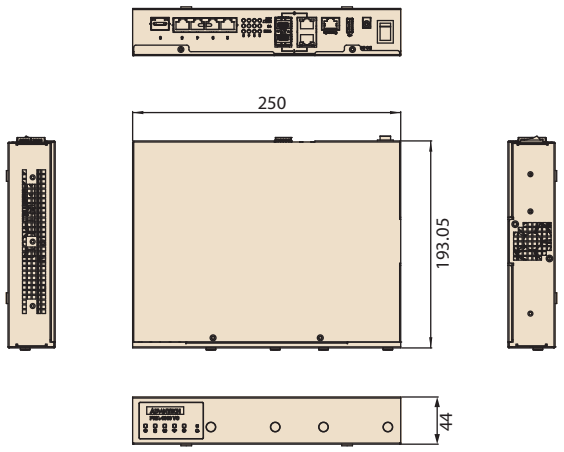
- Industry-standard, off-the-shelf x86 server platform for remote office, and small to medium enterprise installations
- Dual 1GbE RJ45 or SFP auto-negotiation link for WAN connectivity
- Enhanced design to optimize system performance by integrated offload technology
- Optional 3G, 4G LTE and WiFi connectivity for flexible deployment
- Tested and Certified by key software vendors for universal vE-CPE and SD-WAN roll-out

Specifications

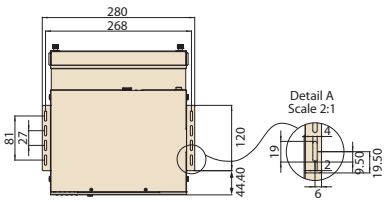
		FWA-1010VC-4CA2S	FWA-1010VC-8CA2S
Form Factor		Tabletop	
Processor System	Processor	Intel® Atom™ Processor C2558	Intel® Atom™ Processor C2758
	Core Number	4	8
	Frequency	2.4GHz	
	L2 Cache	2MB	4MB
	BIOS	AMI EFI 64Mbit	
Virtualization		VT-x	
Memory	Technology	DDR3/DDR3L 1600MHz	
	Max. Capacity	32GB (16GB per socket)	
	Socket	2 x 240-pin UDIMM	
	ECC Support	ECC or Non-ECC	
Networking	Controller	3 x Marvell 88E1112 1 x Marvell 88E6141	
	1GbE	2 x 1000/100/10BASE-T RJ45 or SFP auto-negotiation link by Marvell 88E1112 1 x 1000/100/10BASE-T RJ45 by Marvell 88E1112 4 x 1000/100/10BASE-T RJ45 by Marvell 88E6141 with 1GbE uplink to CPU	
Expansion	Mini PCIe	1 x Full-size Mini PCIe with SIM holder for 3G/4G LTE module with 2 x external antenna holes	
	SIM socket	1 x Mini SIM type (25 x 15 mm)	
	M.2	1 x M.2 2232 for WiFi module with 2x external antenna holes	
Storage	2.5" SSD	None	1 x 2.5" SATA3.0 Gen3 SSD bracket (Max 9.5mm height only)
	M.2	1 x SATA3.0 Gen3 M.2 2280 (option 2x M.2 2242)	
I/O	Console port	1	
	USB2.0	1 x USB2.0 Type A host port	
	LED Indicator	Power, HDD, 3G/4G LTE, WiFi, SW defined status	
	Others	1 x Power Switch 1 x Software definable button with LED indicator	
TPM		Optional support by TPM module: 98923260H0E	
Power Supply	Power Type	DC	
	Watts	60W	
	Input	100 V ~ 240 V	
	Connector	DC Jack	
	Power Adaptor	12V 5A, 60W external adaptor	
Environment	Operating Temperature (air flow 0.7 m/sec)	0 ~ 40 °C (32 ~ 104 °F)	
	Non-operating Temperature	-20 ~ 80° C (-4 ~ 167° F)	
	Humidity	95% @ 40° C (non-condensing)	
	Vibration Resistance	with SSD: 0.3 Grms, IEC 60068-2-64, 5-500Hz, 1hr/axis	
	Shock Protection	with SSD: 10G, IEC-60068-2-27, half sine, 11ms duration	
Cooling		1 x system FAN with smart FAN for maximum 37.5dB(A)	
Mechanical	Construction	Iron	
	Mounting	Support desktop/Rack/Wall-mounting options	
	Dimensions (W x H x D)	250 x 44 x 190.4 mm (9.8" x 1.7" x 7.5")	
	Weight	2.3 Kg (4.8lb)	
OS support		Linux (CentOS, Red Hat, Ubuntu)	
Advantech S/W Packages	QuickStart Linux Image (Ubuntu based reference BSP)	afru, lmsensors, flashrom, WiFi drivers, QMI Wireless drivers, Intel® DPDK, Intel® QAT, DUI (Offline Diagnostics)	
	Individual Package	DUI (Offline Diagnostics)	
Certification		CE/FCC Class B, CCC, CB, UL: All certification exclude RF	

Dimensions

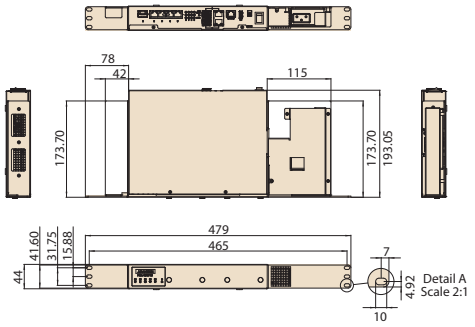
Unit: mm



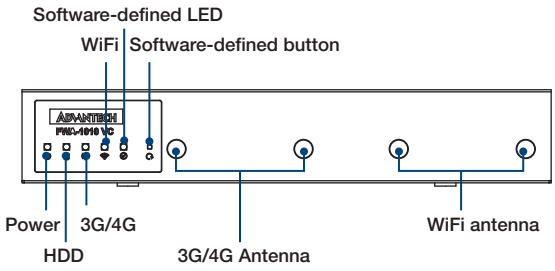
Wall-Mount



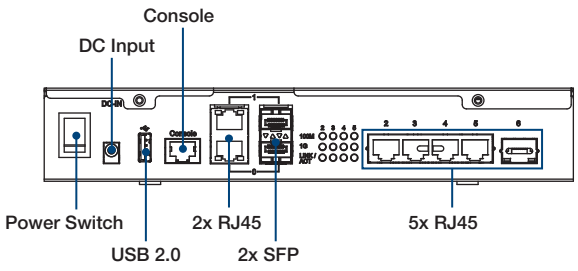
Rack-Mount



Front Panel External I/O Mechanical Layout/Drawing



Rear Panel External I/O Mechanical Layout/Drawing



Ordering Information

Part No.	CPU	L2 Cache	DDR3	RJ45	1GbE Dual Media	USB 2.0	2.5" SSD	M.2 2280	M.2 2232 (PCIe/USB)	Full Size MiniPCIe	SIM	DC input
FWA-1010VC-4CA2S	Intel® Atom™ C2558 4Core, 2.4GHz	2MB	2	5	2	1	N/A	1	1	1	1	60W
FWA-1010VC-8CA2S	Intel® Atom™ C2758 8Core, 2.4GHz	4MB	2	5	2	1	1	1	1	1	1	60W

Packing List

Part Number	Description
-	China RoHS letter
193000688-01	M.2 SSD screws (2pcs)
96PSA-A60W12V1-1	AC-to-DC Adaptor, DC 12V 60W 0 ~ 40 °C for Home and Office Use

Optional Accessories

Part Number	Description
1700018950	Console cable
98923260H0E	TPM1.2 Module
FWA-1010VC-RMT	Rack-mount kit
FWA-1010VC-WMT	Wall-mount kit
FWA-1010VC-WWAN[Note]	LTE 4G module kit for NA and EU (Sierra/MC7455 with antenna)
FWA-1010VC-WLAN	WiFi module kit (Advantech/EWM-W162M with 2x internal SMA and 2x external antenna)
FWA-1010VC-WWAN2[Note]	LTE 4G module kit for APAC (Sierra/MC7430 with antenna)
1702002600	Power cord 3P 180 cm, USA
1702002605	Power cord 3P 180 cm, Europe
1702031801	Power cord 3P 180 cm, UK
1700000237	Power cord 3P 180 cm, JP
96CB-POWER-B-1.8M1	Power cord 3P 180 cm, China
1700025855-01	Power cord 3P 180 cm, India
1700025112-01	Power cord 3P 180 cm, Brazil
1700022938-01	Power cord 3P 300 cm, Korea
1700020098	Power cord 3P 180cm, Australia

Note: Please contact your Advantech representative for details

FWA-1320

Tabletop Network Appliance with Intel® Atom™ Processor C2000 for vE-CPE and Network Applications

Features

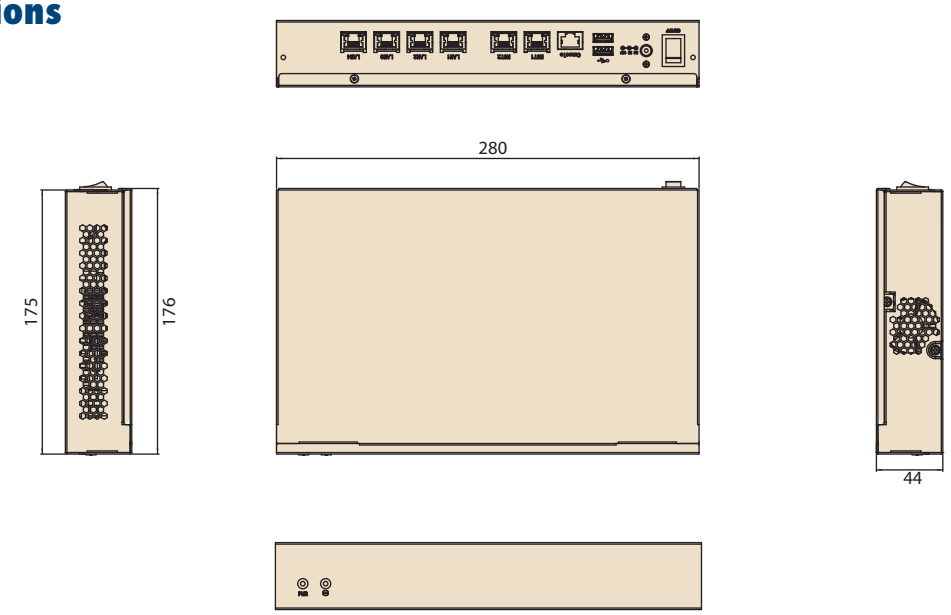
- Supports Intel® Atom™ Processor C2000 System On Chip up to 4 cores
- 2x 1GbE RJ45 implemented by Intel® i210 for management
- 4x 1GbE RJ45 by Marvell with 2 segment advanced LAN bypass support
- Multiple storage options depends on system performance requirement
- Tested and Certified by key software vendors for universal vE-CPE and SD-WAN roll-out

Specifications

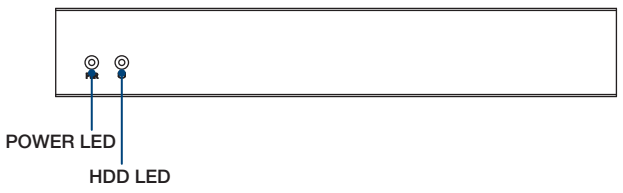
		FWA-1320-00E	FWA-1320-01E
Form Factor		Tabletop	
Processor System	Processor	Intel® Atom™ Processor C2358	Intel® Atom™ Processor C2558
	Core Number	2	4
	Frequency	1.7GHz	2.4GHz
	L2 Cache	1MB	2MB
	BIOS	AMI EFI 64Mbit	
Virtualization		VT-x	
Memory	Technology	DDR3/DDR3L 1600MHz	
	Max. Capacity	16GB (8GB per socket)	
	Socket	2 x 240-pin UDIMM	
	ECC Support	ECC or Non-ECC	
Networking	Controller	4 x Marvell 88E1111 2 x Intel® i210	
	1GbE	4 x 1000/100/10BASE-T RJ45 with 2 segment advanced bypass support by Marvell 88E1111 2 x 1000/100/10BASE-T RJ45 for management by Intel® I210-AT	
	Advanced LAN Bypass	2 segment	
Storage	2.5" HDD/SSD	1 x 2.5" SATA3.0 Gen3 HDD/SSD bracket (Max 9.5mm height only)	
	mSATA SSD	1	
I/O	Console port	1	
	USB2.0	2 x USB2.0 Type A host port	
	LED Indicator	Power, HDD status	
	Others	1 x Power Switch	
TPM		TPM 1.2 support by Infineon SLB9635TT1.2	
Power Supply	Power Type	DC	
	Watts	84W	
	Input	100 V ~ 240 V	
	Connector	DC Jack	
	Power Adaptor	12V 7A, 84W external adaptor	
Environment	Operating Temperature (air flow 0.7 m/sec)	0 ~ 40 °C (32 ~ 104 °F)	
	Non-operating Temperature	-20 ~ 80° C (-4 ~ 167° F)	
	Humidity	95% @ 40° C (non-condensing)	
	Vibration Resistance	with HDD: 0.5 Grms, IEC 60068-2-64, 5-500Hz, 1hr/axis with SSD: 0.3 Grms, IEC 60068-2-64, 5-500Hz, 1hr/axis	
	Shock Protection	with HDD/SSD: 10G, IEC-60068-2-27, half sine, 11ms duration	
Cooling		1 x system FAN with smart FAN for maximum 37.5dB(A)	
Mechanical	Construction	Iron	
	Mounting	Desktop	
	Dimensions (W x H x D)	280 x 44 x 176mm (11" x 1.7" x 6.9")	
	Weight	2.0 Kg (3.3lb)	
OS support		Linux (CentOS, Red Hat, Ubuntu)	
Advantech S/W Packages	QuickStart Linux Image (CentOS based reference BSP)	afru, lmsensors, flashrom, Advanced LBP Utility, DUI (Offline Diagnostics)	
	Individual Package	Advanced LBP Library, DUI (Offline Diagnostics)	
Certification		CE/FCC Class A, CCC, CB, UL	

Dimensions

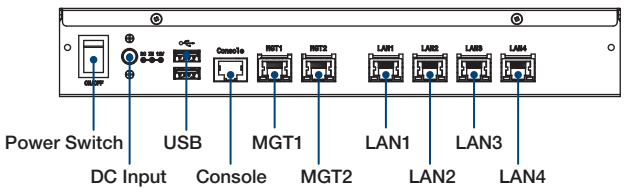
Unit: mm



Front Panel External I/O Mechanical Layout/Drawing



Rear Panel External I/O Mechanical Layout/Drawing



Ordering Information

Part number	CPU	DDR3	RJ45	2.5" SSD/HDD	mSATA	DC Input
FWA-1320-00E	Intel® Atom™ C2358 2Core, 1.7GHz	2	6	1	1	84W
FWA-1320-01E	Intel® Atom™ C2558 4Core, 2.4GHz	2	6	1	1	84W

Packing List

Part Number	Description
-	China RoHS letter
1700018950	Console cable
96PSA-A84W12V1-1	AC-to-DC Adaptor, DC 12V 84W 0-40oC for Home and Office Use

Optional Accessories

Part Number	Description
1702002600	Power cord 3P 180 cm, USA
1702002605	Power cord 3P 180 cm, Europe
1702031801	Power cord 3P 180 cm, UK
1700000237	Power cord 3P 180 cm, JP
1700009652	Power cord 3P 180 cm, China
1700025855-01	Power cord 3P 180 cm, India
1700025112-01	Power cord 3P 180 cm, Brazil
1700022938-01	Power cord 3P 300 cm, Korea
1700020098	Power cord 3P 180cm, Australia

FWA-1330

Tabletop Network Appliance with Intel® Celeron® Processor J1900/ N2807 and 4 GbE ports

Features

- Supports Intel® Celeron® Processor N2807/J1900
- One DDR3L 1333/1600 SODIMM, up to 8 GB
- Four GbE LAN ports with 2 segments LAN bypass
- One mSATA Slot
- Supports One fixed 2.5" SATA HDD
- One Mini-PCIE slot

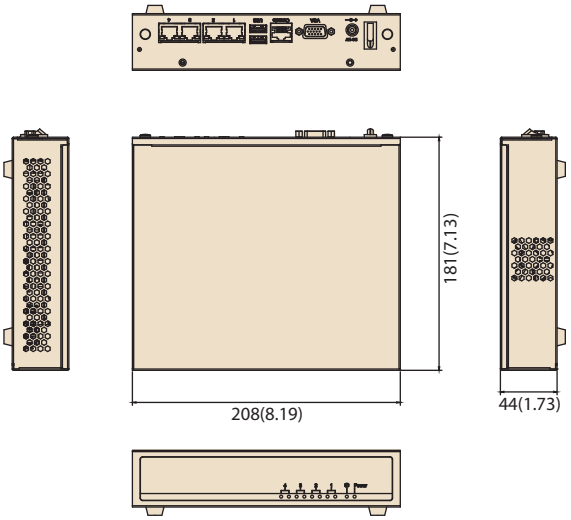
Specifications

		FWA-1330A-01E	FWA-1330B-00E
Processor System	CPU	Intel® Celeron® J1900	Intel® Celeron® N2807
	Max. Speed	2.0 GHz (4 Cores)	1.58 GHz (2 Cores)
	L2 Cache	2MB	1MB
	BIOS	AMI 16 Mbit SPI	
Memory	Technology	1 x DDR3L 1066/1333/1600 SODIMM	
	Socket	1 x 204-pin SODIMM	
	Capacity	8 GB	4 GB
	ECC Support	No	
Networking	Controller	4 x Intel® i211-AT	
	1GbE	4 x 10/100/1000 Mbps RJ45 via Intel® i211-AT	
	LAN bypass Advanced	-	
	LAN bypass Legacy	2 x pair of LAN Bypass	
Expansion	Mini PCIe	1 x Mini PCIE Slot(Half Size, USB Interface Default, PCIE Interface Option)	
Storage	2.5" HDD/SSD	1 x 2.5" HDD	
	mSATA SSD	1 x mSATA(Half Size or Full Size)	
I/O	Console port	1	
	USB2.0	2	
	LED Indicator	1 x Power, HDD LED,4 pairs LAN LED	
	Others	1 x power button	
Power	Power Type	DC	
	Watts	40W	
	Input	100 V ~ 240 V	
	Connector	DC Jack	
	Power Adaptor	40W External DC,adapter	
Environment	Operating Temperature (air flow 0.7 m/sec)	0 ~ 40 °C (32 ~ 104 °F)	
	Non-operating Temperature	-20 ~ 75° C (-4 ~ 167° F)	
	Humidity	95% @ 40° C (non-condensing)	
	Vibration Resistance	with 2.5" HDD:0.5 Grms; IEC 60068-2-64; 5-500Hz,1hr/axis	
	Shock Protection	with 2.5" HDD;10G, IEC-60068-2-27, half sine, 11 ms duration	
Mechanical	Construction	Iron	
	Mounting	Desktop	
	Dimensions(W x H x D)	208 x 44 x 178 mm (8.2" x 1.7" x 7.0")	
	Weight	1.8 Kg (3.96 lb)	
OS Support		Linux (CentOS, Red Hat)	
Advantech S/W Packages		QuickStart Linux Image (CentOS based reference BSP) including ▪ afru ▪ lmsensors ▪ flashrom ▪ Legacy LBP utility Individual packages: ▪ Legacy LBP utility	
Certification		CE/FCC/CB/UL/CCC	

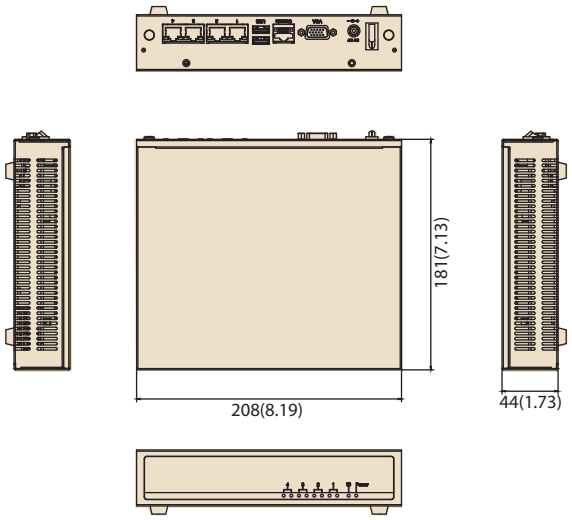
Dimensions

Unit: mm

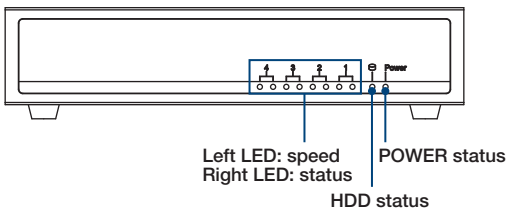
FWA-1330A



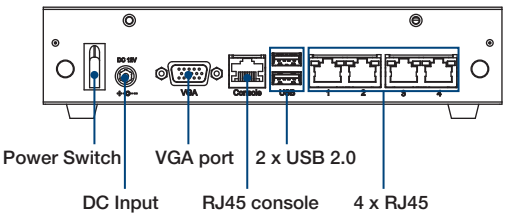
FWA-1330B



Front Panel External I/O Mechanical Layout/Drawing



Rear Panel External I/O Mechanical Layout/Drawing



Ordering Information

Part Number	Processor	L2 Cache	DDR3L	LAN	LAN Bypass	Cooling	DC input
FWA-1330A-01E	Intel® Celeron® J1900 4 core, 2.0GHz	2MB	1,up to 8GB	4	2 Segments	1 Smart Fan	40W
FWA-1330B-00E	Intel® Celeron® N2807 2 core, 1.58GHz	1MB	1,up to 4GB	4	2 Segments	Fanless	40W

Packing List

Part Number	Description
96PSO-A60W12-1	OPENFRAME A/D 100-240V 60W 12V
1700020691-01	Console cable D-sub 9-pin 2 m
1700018155	PS/2 Keyboard/Mouse Cable 20CM

Optional Accessories

Part Number	Description
1702002600	Power cord 3P 180 cm, USA
1702002605	Power cord 3P 180 cm, Europe
1702031801	Power cord 3P 180 cm, UK
1700000237	Power cord 3P 180 cm, JP
1700009652	Power cord 3P 180 cm, China

FWA-2011

1U Rackmount Network Appliance with Intel® Atom™ X5-E3930 Processor and 6 GbE ports

Features

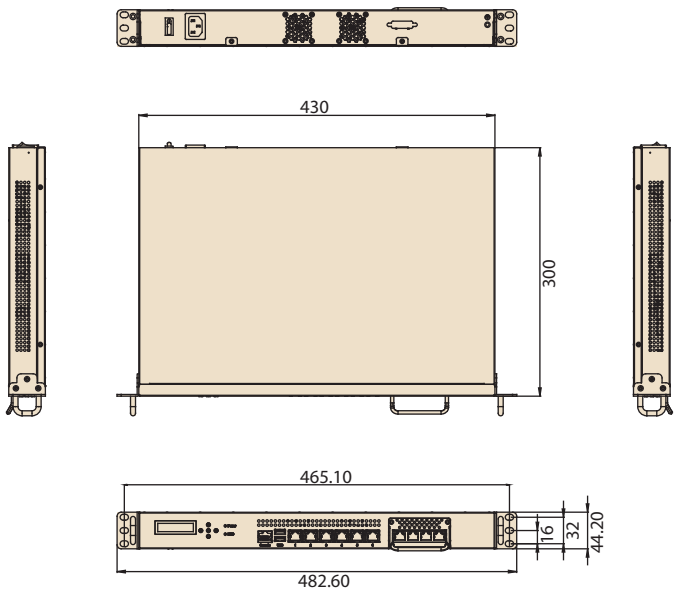
- Supports Intel® E3930 & E3940 processor
- Two DDR3L 1333/1600/1867MHz, up to 16GB
- Six GbE LAN ports with 2 segments LAN bypass
- One mSATA Slot
- Supports one fixed 3.5" SATA HDD bay
- One NMC slot for 4ports Ethernet card expansion
- One Mini-PCIE slot

Specifications

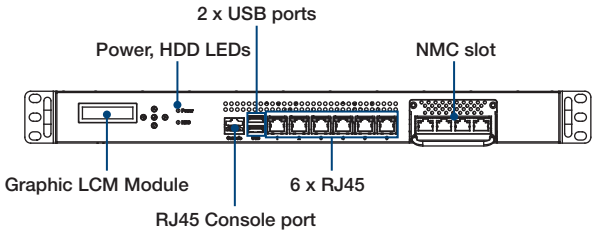
Processor System	CPU	Intel® E3930&3940
	Core number	4C/2C
	Max. Speed	1.6/1.3 GHz
	L2 Cache	2MB
	BIOS	AMI 16 Mbit SPI
Memory	Technology	1 x DDR3L 1333/1600/1867MHz
	Socket	2 x 204-pin SODIMM
	Capacity	16 GB
	ECC Support	E3940&3930 support ECC
Networking	Controller	6 x Intel® i210-AT
	1GbE	6 x 10/100/1000 Mbps RJ45 via Intel® i210-AT
	Legacy LAN bypass	2 x pair of LAN Bypass
	PCIe x 4	1 x FH/HL gen2 x4 slot
Expansion	NMC	1 x NMC
Storage	2.5" HDD/SSD	1 x 3.5" or 2.5" HDD
	mSATA SSD	1 x mSATA Slot
I/O	Console port	1
	USB3.0	2
	LED Indicator	1x Power, HDD LED
	Others	1 x power button
LCD Module		16 x 2 graphic display, 5 buttons
Power	Power Type	AC
	Watts	60W
	Input	100 V ~ 240 V
	Connector	AC 4pin plug
	Power Adaptor	AC, Openframe
Environment	Operating Temperature (air flow 0.7 m/sec)	0 ~ 40 °C (32 ~ 104 °F)
	Non-operating Temperature	-40 ~ 60° C (-40 ~ 140° F)
	Humidity	95% @ 40° C (non-condensing)
	Vibration Resistance	with SATA HDD: 0.5 Grms, IEC 60068-2-64, 5-500Hz, 1hr/axis
	Shock Protection	with SATA HDD: 10G, 11ms, IEC-60068-2-27, X, Y, X-X, -Y-Z axis, 3times per axis
Mechanical	Construction	Iron
	Mounting	1U Rackmount
	Dimensions (W x H x D)	430 x 44 x 300 mm (16.7" x 1.7" x 11.8")
	Weight	5.4 kg (11.9 lbs)
OS Support		Linux (CentOS, Red Hat,) Windows* 10
Advantech S/W Packages		Individual packages: ▪ Legacy LBP Library
Certification		CCC

Dimensions

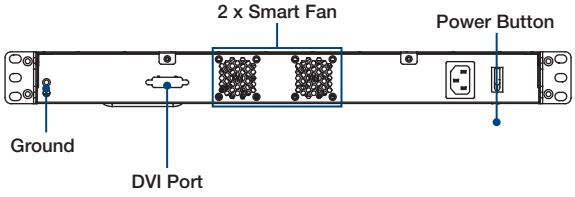
Unit: mm



Front Panel External I/O Mechanical Layout/Drawing



Rear Panel External I/O Mechanical Layout/Drawing



Ordering Information

Part Number	Processor	DDR3L	USB 3.0	RJ45 LAN Port	Console port	NMC Slot	mSATA	PSU
FWA-2011U-2C00E	E3930/2C	2	2	6	1	1	1	Open Frame 60W
FWA-2011U-4C00E	E3940/4C	2	2	6	1	1	1	Open Frame 60W

Packing List

Part Number	Description
1700018971	SATA Data cable 15cm
1700020691-01	Console cable D-sub 9-pin 2 m
1960063246N002	Rack mount Ear bracket

Optional Accessories

Part Number	Description
1702002600	Power cord 3P 180 cm, USA
1702002605	Power cord 3P 180 cm, Europe
1702031801	Power cord 3P 180 cm, UK
1700000237	Power cord 3P 180 cm, JP
1700009652	Power cord 3P 180 cm, China

FWA-2320

1U Rackmount Network Appliance with Intel® Atom™ Processor C2000 for vE-CPE and Network Applications

Features

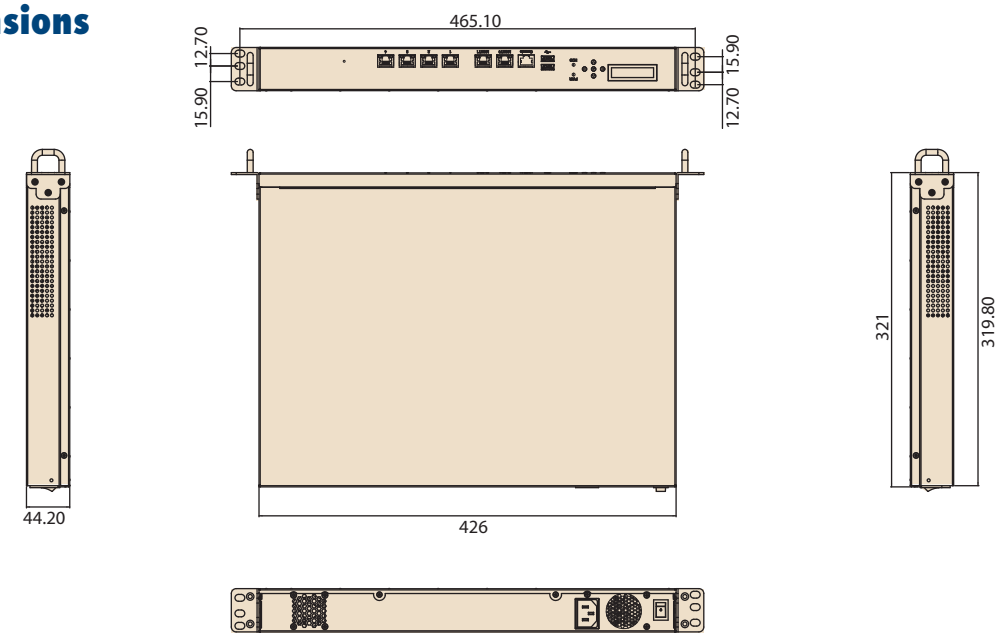
- Supports Intel® Atom™® C2000 System On Chip up to 8 cores Processor
- 2x 1GbE RJ45 implemented by Intel® i210 for management
- 4x 1GbE RJ45 by Marvell with 2 segment advanced LAN bypass support
- Multiple storage options depends on system performance requirement
- Tested and Certified by key software vendors for universal vE-CPE and SD-WAN roll-out

Specifications

		FWA-2320-00E	FWA-2320-01E	FWA-2320-02E
Form Factor		1U Rackmount		
Processor System	Processor	Intel® Atom™ C2358	Intel® Atom™ C2558	Intel® Atom™ C2758
	Core Number	2	4	8
	Frequency	1.7GHz	2.4GHz	2.4GHz
	L2 Cache	1MB	2MB	4MB
	BIOS	AMI EFI 64Mbit		
Virtualization		VT-x		
Memory	Technology	DDR3/DDR3L 1600MHz		
	Max. Capacity	16GB (8GB per socket)		
	Socket	2 x 240-pin UDIMM		
	ECC Support	ECC or Non-ECC		
Networking	Controller	4 x Marvell 88E1111 2 x Intel® i210		
	1GbE	4 x 1000/100/10BASE-T RJ45 with 2 segment advanced bypass support by Marvell 88E1111 2 x 1000/100/10BASE-T RJ45 for management by Intel® I210-AT		
	Advanced LAN Bypass	2 segment		
Storage	2.5" HDD/SSD	1 (by request)		
	3.5" HDD	1		
	mSATA SSD	1		
I/O	Console port	1		
	USB2.0	2 x USB2.0 Type A host port		
	LED Indicator	Power, HDD status		
	Others	1 x Power Switch		
TPM		TPM 1.2 support by Infineon SLB9635TT1.2		
LCD Module		16 x 2 graphic display, 5 buttons		
Power Supply	Power Type	AC		
	Watts	100W		
	Input	110 V - 240 V		
	Connector	AC 3-pin PSU		
Environment	Operating Temperature (air flow 0.7 m/sec)	0 ~ 40 °C (32 ~ 104 °F)		
	Non-operating Temperature	-20 ~ 80° C (-4 ~ 167° F)		
	Humidity	95% @ 40° C (non-condensing)		
	Vibration Resistance	with HDD: 0.5 Grms, IEC 60068-2-64, 5-500Hz, 1hr/axis with SSD: 0.3 Grms, IEC 60068-2-64, 5-500Hz, 1hr/axis		
	Shock Protection	with HDD/SSD: 10G, IEC-60068-2-27, half sine, 11ms duration		
Cooling		1 x system FAN with smart FAN for maximum 37.5dB(A)		
Mechanical	Construction	Iron		
	Mounting	Rack-mount		
	Dimensions (W x H x D)	426 x 44 x 318mm (16.8" x 1.7" x 12.5")		
	Weight	4.5 Kg (9.9 lb)		
OS support		Linux (CentOS, Red Hat, Ubuntu)		
Advantech S/W Packages	QuickStart Linux Image (CentOS based reference BSP)	afru, lmsensors, flashrom, LCD4Linux, Advanced LBP Utility, DUI (Offline Diagnostics)		
	Individual Package	Advanced LBP Library, DUI (Offline Diagnostics)		
Certification		CE/FCC Class A, CCC, CB, UL		

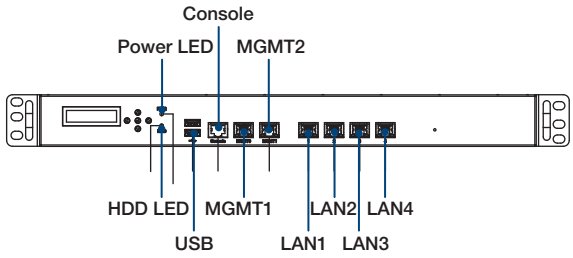
Dimensions

Unit: mm



Front Panel External I/O Mechanical Layout/Drawing

Rear Panel External I/O Mechanical Layout/Drawing



Ordering Information

Part number	CPU	L2 Cache	QuickAssist	DDR3	RJ45	3.5" HDD	mSATA	AC Input
FWA-2320-00E	Intel® Atom™ C2358 2Core, 1.7GHz	1MB	2Gbps	2	6	1	1	100W
FWA-2320-01E	Intel® Atom™ C2558 4Core, 2.4GHz	2MB	5Gbps	2	6	1	1	100W
FWA-2320-02E	Intel® Atom™ C2758 8Core, 2.4GHz	4MB	10Gbps	2	6	1	2	100W

Packing List

Part Number	Description
-	China RoHS letter
1700018950	Console cable
96PSA-A100W12V1-1	AC Adaptor, 12V 100W 0-40oC for Home and Office Use

Optional Accessories

Part Number	Description
1702002600	Power cord 3P 180 cm, USA
1702002605	Power cord 3P 180 cm, Europe
1702031801	Power cord 3P 180 cm, UK
1700000237	Power cord 3P 180 cm, JP
1700009652	Power cord 3P 180 cm, China
1700025855-01	Power cord 3P 180 cm, India
1700025112-01	Power cord 3P 180 cm, Brazil
1700022938-01	Power cord 3P 300 cm, Korea
1700020098	Power cord 3P 180cm, Australia

FWA-2330

1U Rackmount Network Appliance with Intel® Celeron® Processor J1900 and 4 GbE ports

Features

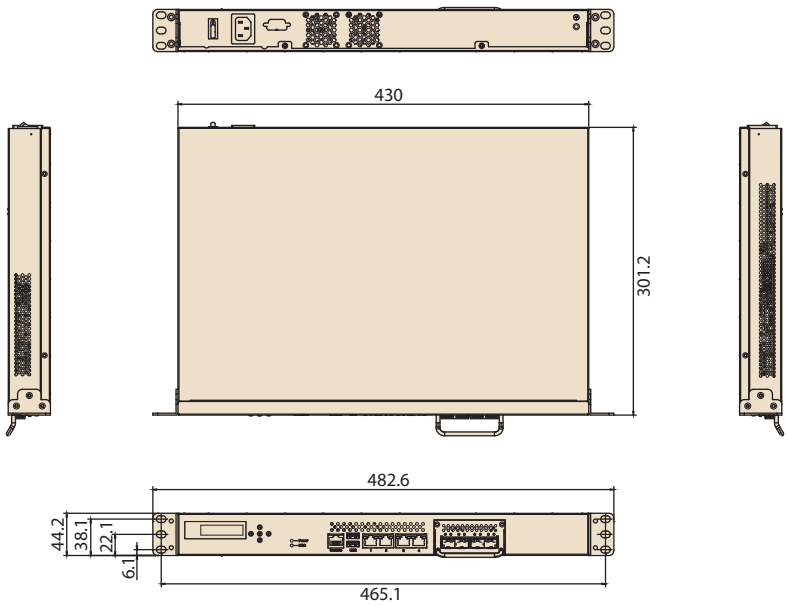
- Supports Intel® Celeron® Processor J1900
- One DDR3L 1333/1600 SODIMM, up to 8 GB
- Four GbE LAN ports with 2 segments LAN bypass
- One mSATA Slot
- Supports one fixed 3.5" SATA HDD bay
- One NMC slot for Ethernet port expansion
- One Mini-PCIE slot

Specifications

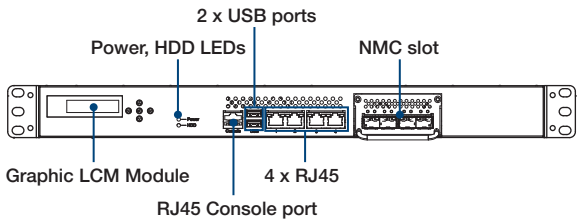
Processor System	CPU	Intel® Celeron® Processor J1900
	Max. Speed	2.0 GHz (4 Cores)
	L2 Cache	2MB
	BIOS	AMI 16 Mbit SPI
Memory	Technology	1 x DDR3L 1066/1333/1600 SODIMM
	Socket	1 x 204-pin SODIMM
	Capacity	8GB
	ECC Support	No
Networking	Controller	4 x Intel® i211-AT
	1GbE	4 x 10/100/1000 Mbps RJ45 via Intel® i211-AT
	Legacy LAN bypass	2 x pair of LAN Bypass
	PCIe x 4	1 x FH/HL gen2 x4 slot
Expansion	NMC	1 x NMC
Storage	3.5" HDD	1 x 3.5" HDD
	mSATA SSD	1 x mSATA Slot
I/O	Console port	1
	USB2.0	2
	LED Indicator	1 x Power, HDD LED
	Others	1 x power button
LCD Module		16x2 graphic display,5 buttons
Power	Power Type	AC
	Watts	60W
	Input	100 V ~ 240 V
	Connector	AC 4pin plug
	Power Adaptor	AC, Openframe
Environment	Operating Temperature (air flow 0.7 m/sec)	0 ~ 40 °C (32 ~ 104 °F)
	Non-operating Temperature	-40 ~ 60° C (-40 ~ 140° F)
	Humidity	95% @ 40° C (non-condensing)
	Vibration Resistance	with SATA HDD: 0.5 Grms, IEC 60068-2-64, 5-500Hz, 1hr/axis
	Shock Protection	with SATA HDD: 10G, 11ms, IEC-60068-2-27, X, Y, X-X,-Y-Z axis, 3times per axis
Mechanical	Construction	Iron
	Mounting	1U Rackmount
	Dimensions (W x H x D)	430 x 44 x 301 mm (16.7" x 1.7" x 11.8")
	Weight	5.4 kg (11.9 lbs)
OS Support		Linux (CentOS, Red Hat)
Advantech S/W Packages		QuickStart Linux Image (CentOS based reference BSP) including ▪ afru ▪ lmsensors ▪ flashrom ▪ Legacy LBP utility Individual packages: ▪ Legacy LBP utility
Certification		CE/FCC/CB/UL/CCC

Dimensions

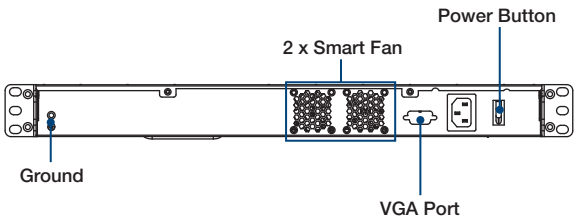
Unit: mm



Front Panel External I/O Mechanical Layout/Drawing



Rear Panel External I/O Mechanical Layout/Drawing



Ordering Information

Part Number	Processor	DDR3L	USB 2.0	RJ45 LAN Port	Console port	NMC Slot	mSATA	PSU
FWA-2330-00A1E	Intel® Celeron® J1900	1	2	4	1	1	1	Open Frame 60W

Packing List

Part Number	Description
1700018971	SATA Data cable 15cm
1700020691-01	Console cable D-sub 9-pin 2 m
1960063246N001	Rack mount Ear bracket

Optional Accessories

Part Number	Description
1702002600	Power cord 3P 180 cm, USA
1702002605	Power cord 3P 180 cm, Europe
1702031801	Power cord 3P 180 cm, UK
1700000237	Power cord 3P 180 cm, JP
1700009652	Power cord 3P 180 cm, China

FWA-3230

1U Rackmount Network Appliance with 4th gen. Intel® Xeon® Processor E3 series and Intel® Core™ i7/i5/i3 Processors, 6+2 GbE ports

Features

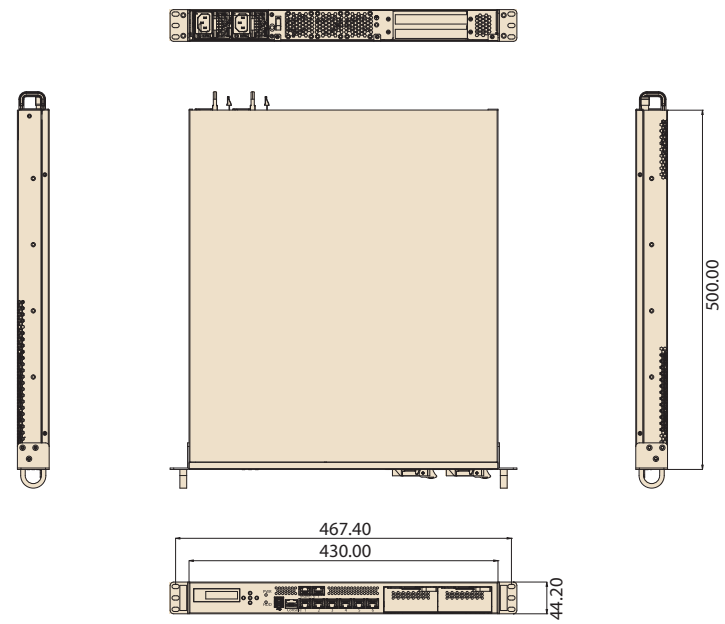
- Supports Intel® Xeon® Processor E3-1225/E3-1275/E3-1268 V3 and 4th generation Core™ i7-4770S/i5-4570TE/4570S and Pentium® G3420/G3320TE, Celeron® G1820/G1820TE
- Supports four DDR3L Un-buffered 1333/1600 DIMMs, up to 32GB (FWA-3230A); two DDR3L Un-buffered 1333/1600 DIMMs, up to16GB (FWA-3230B)
- Six 10/100/1000 Mbps LAN on Board with up to 3 bypass segments
- Two 2.5" SATA HDDs / SSDs or 1x 3.5" HDD
- Up to two Advantech Network Mezzanine Cards (NMCs)
- IPMI 2.0 compliant Remote Management (optional)

Specifications

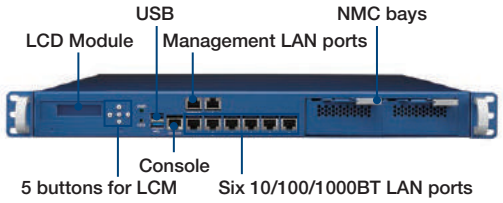
		FWA-3230A	FWA-3230B
Processor System	Processor	Intel® Xeon® Processor E3-1225/E3-1275/E3-1268 V3 / 4th gen. Intel® vPro™ Processors (LGA1150)	Intel® 4th gen. Core i7-4770S/i5-4570S/i5-4570TE Pentium G3420/G3320TE, Celeron® G1820/G1820TE vPro™ processors (LGA1150)
	Core Number	4	4 / 2
	Frequency	2.0GHz~3.5GHz	
	L2 Cache	8MB	8MB / 4MB
	BIOS	AMI EFI 64Mbit	
Virtualization		VT-x, VT-d	
Memory	Technology	DDR3L,1333/1600MHz	
	Max. Capacity	32GB	16GB
	Socket	4 x 240-pin UDIMM	2 x 240-pin UDIMM
	ECC Support	Yes	None
Networking	Controller	6 x Intel® I210-AT 2 x Intel® I210-AT (LOM)	6 x Intel® I210-AT
	1GbE	6 x 1GbE RJ45 with 3 segment advanced bypass support via Intel® i210 2 x 1GbE RJ45 for management via Intel® i210-AT	6 x 1GbE RJ45 with 3 segment advanced bypass support via Intel® i210
	LAN bypass	3 segment	
Expansion	PCIex4	2 x FH/HL	None
	NMC	2 x NMCs	
Storage	2.5" or 3.5" HDD/SSD	2 x 2.5" HDD/SSD, 1 x 3.5" HDD/SSD (option)	
	mSATA	1 x mSATA Slot (full Size, USB Interface Default, PCIE Interface Option)	
I/O	Console port	1	
	USB2.0/3.0	1 x USB2.0 on board 2 x USB3.0 ports in the front	
	LED Indicator	Power, HDD	
	GPIO	1x 8-bit GPIO pin header	
	Others	1 x Power button	
TPM	Trust Platform Module	TPM 1.2	
LCD Module		16 x 2 graphic display, 5 buttons	
Power Supply	Power Type	Redundant AC PSU (redundant DC PSUs on request)	Single AC PSU
	Watts	300W	250W
	Input	AC 100 ~ 240 V @ 50 ~ 60 Hz, full range	AC 100 ~ 240 V @ 50 ~ 60 Hz, full range
	Connector	AC 3pin plug / DC pin header	AC 3pin plug
Environment	Operating Temperature (air flow 0.7 m/sec)	0 ~ 40 °C (32 ~ 104 °F)	
	Non-operating Temperature	-20 ~ 80° C (-4 ~ 167° F) and 40° C @ 95% RH Non-Condensing humidity	
	Vibration Resistance	with SATA HDD: 0.5 Grms, IEC 60068-2-64, 5-500Hz, 1hr/axis	
	Shock Protection	with SATA HDD: 10G, IEC-60068-2-27, half sine, 11ms duration	
Cooling		4 x system FAN with smart FAN	
Mechanical	Construction	Iron	
	Mounting	1U Rackmount	
	Dimensions (W x H x D)	430 x 44.2 x 500 mm (16.6" x 1.7" x 19.7")	
	Weight	15 Kg (33lb)	13 Kg (29lb)
OS Support		Linux (CentOS, Red Hat, Ubuntu)	
Advantech S/W Packages		- QuickStart Linux Image (CentOS based reference BSP) including ▪ afru ▪ ipmitool ▪ lmsensors ▪ flashrom ▪ LCD4Linux ▪ Advanced LBP Utility Individual packages: ▪ Advanced LBP Library	
IPMI		Optional IPMI v2.0 compliant LOM module (AMI MegaRAC SP-X)	None
Certification	EMC	CE/FCC/CB/UL/CCC	

Dimensions

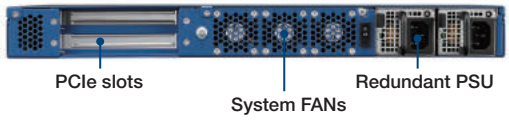
Unit: mm



Front Panel External I/O Mechanical Layout/Drawing



Rear Panel External I/O Mechanical Layout/Drawing



(Redundant PSU or single PSU type)

Ordering Information

Part Number	CPU	RAM	GbE	NMC	LOM	TPM	PCIE riser	PSU
FWA-3230A-00E	Intel® E3-1225/E3-1275/E3-1268 V3	4x DDR3L U-DIMM	6 GbE + 2 GbE(LOM)	2 NMC slots	IPMI2.0	TPM1.2	2PCIEx4	Red. AC
FWA-3230B-00E	Intel® Core i7-4770S/i5-4570S/ i5-4570TE Pentium G3420/ G3320TE, Celeron® G1820/G1820TE	2x DDR3L U-DIMM	6 GbE	2 NMC slots	N/A	TPM1.2	N/A	Single AC

Packing List

Part Number	Description
1700014518	SATA Data Cable 25 cm
1700019367	VGA cable 45cm
1700020691-01	RJ-45 Console Cable 220 cm
1960053153N001	EAR-R 295U
1960053154N001	EAR-L 295U
1961100D00	Ears Handel for NAS 1100 AL (A1)

Optional Accessories

Part Number	Description
1702002600	Power cord 3P 180 cm, USA
1702002605	Power cord 3P 180 cm, Europe
1702031801	Power cord 3P 180 cm, UK
1700000237	Power cord 3P 180 cm, JP
1700009652	Power cord 3P 180 cm, China
9680009153	1U 26" slide rail (pair)

FWA-3231

1U Rackmount Network Appliance with 4th gen. Intel® Xeon® Processor E3 series and Intel® Core™ i7/i5/i3 Processors, 4 NMC slots

Features

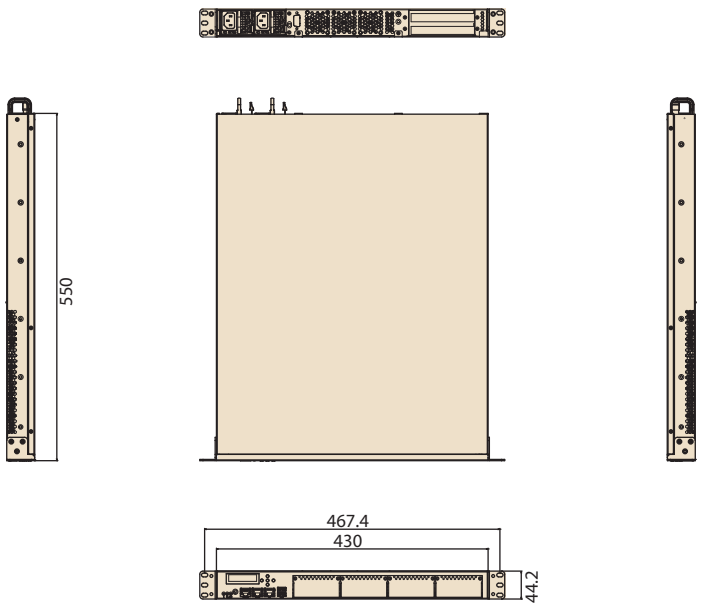
- Supports Intel® Xeon® Processor E3-1275/E3-1225/E3-1268LV3 and 4th Gen Intel® Core™ Processors i5-4570TE,i3-4360,i3-4330,i3-4330TE, Intel® Pentium® Processor G3320TE and Intel® Celeron® Processor G1820TE.
- Supports 2 channel four DDR3 ECC Un-buffered 1333/1600 DIMMs, up to 32GB
- Four Network Mezzanine Cards(NMC) slots for a wide range of GbE and 10GbE NMCs with or without bypass
- One PCIe x8 and on PCIe x4 full-height/half-length add-on card
- One 2.5" SATA HDD and SSD and one HS/FS mSATA socket
- C-Fast or CF Module support (optional)
- IPMI2.0 compliant Remote Management (optional)

Specifications

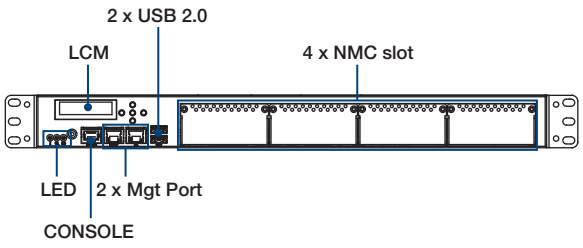
Processor System	Processor	Socket LGA 1155 4th Gen Intel® Xeon® E3 (E3-1200v3;4th Core-I;Pentium;Celeron®)
	Core Number	2C/4C
	Frequency	2.0GHz~3.5GHz
	L2 Cache	2MB/4MB/6MB/8MB
	Chipset	C226
	BIOS	AMI Efi 64Mbit
Memory	Technology	Dual Channel DDR3 with 1600 MHz
	Max. Capacity	4 x DIMM Slots Expandable to 32GB
	Socket	4 x 240-pin UDIMM
	ECC Support	Yes (E3 CPU only)
Networking	Controller	2 x Intel® i210-AT
	1GbE	2 x 10/100/1000 Mbps RJ45
	Legacy	Support by NMC
	PCIe x 8	1 x FH/HL gen3 x8 slot (default)
	PCIe x 4	1 x FH/HL gen2 x4 slot (option)
	NMC	4 x NMC
Storage	2.5" HDD/SSD	2 x 2.5" SATA HDD/SSD bay
	3.5" HDD	1 x 3.5" SATA HDD bay
	mSATA SSD	1 x Full/Half-Size mSATA SSD
Display		VGA
I/O	Console port	1 x RJ45
	USB3.0	2 in front
	USB3.0	2 with pin header
	GPIO	8-bit GPIO
	LED Indicator	1x Power led, 1x HDD led,1xlocation
	Reset button	Pin Header
	Others	RS232, 2x USB option
LCD Module		16x2 graphic display,5 buttons
Power	Power Type	AC, redundant and non-redundant DC, redundant DC (optional)
	Watts	300W/ 250W
	Input	100 V ~ 240 V
Environment	Operating Temperature (air flow 0.7 m/sec)	0 ~ 40 °C (32 ~ 104 °F)
	Non-operating Temperature	-40 ~ 60° C (-40~140F)
	Humidity	95% @ 40° C (non-condensing)
	Vibration Resistance	with SATA HDD: 0.5 Grms, IEC 60068-2-64, 5-500Hz, 1hr/axis
	Shock Protection	with SATA HDD: 10G, 11ms,IEC-60068-2-27, X, Y, X-X, -Y-Z axis, 3times per axis
Cooling		4x system samrt FAN
Mechanical	Construction	Iron
	Mounting	1U Rackmount
	Dimensions (W x H x D)	430 x 44 x 550 mm (16.9" x 1.7" x 21.6")
	Weight	10 kg
OS Support		Linux (CentOS, Red Hat, Ubuntu, etc.), Windows*7
IPMI		Opiton
Certification		CE/FCC/CB/UL/CCC

Dimensions

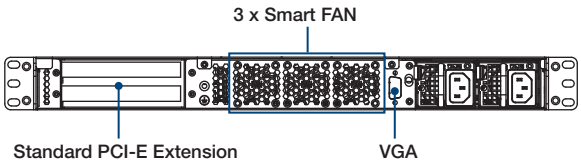
Unit: mm



Front Panel External I/O Mechanical Layout/Drawing



Rear Panel External I/O Mechanical Layout/Drawing



Ordering Information

Part Number	Power	PCH	DDR3 slot	1Gb LAN Port	Console	USB2.0	2.5HDD	3.5HDD	PCIe Expansion	NMC
FWA-3231-00A1E	AC 300W redundant	C226	4	2	1	2	2	1	1 x PCIe x8 (conflict with3.5" HDD)	4
FWA-3231-01A1E	AC 250W single	C226	4	2	1	2	2	1	1 x PCIe x8 (conflict with3.5" HDD)	4
FWA-3231-07A1E	DC 300W redundant	C226	4	2	1	2	2	1	1 x PCIe x8 (conflict with3.5" HDD)	4

Packing List

Part Number	Description
1700012272	SATA Data Cable 25 cm
1700017838	SATA Data Cable 30 cm
1700018950	RJ-45 Console Cable 220 cm

Optional Accessories

Part Number	Description
1702002600	Power cord 3P 180cm, USA
1702002605	Power cord 3P 180cm, Europe
1702031801	Power cord 3P 180cm, UK
1700000237	Power cord 3P 180cm, JP
1700009652	Power cord 3P 180cm, China
9680009153	1U 26" slide rail (pair)

FWA-3232

1U Rackmount Network Appliance with 4th gen. Intel® Xeon® Processor E3 series and Intel® Core™ i7/i5/i3 Processors, up to 8 GbE ports

Features

- Intel® Xeon® Processor E3 v3 family and 4th Gen Intel® Core™ i7/i5/i3 Processors, Intel® Pentium® and Intel® Celeron® Processor
- 4x DDR3 Un-buffered 1333/1600 DIMMs, up to 32 GB
- 8x Intel® i210-AT 10/100/1000 Mbps LAN on board with up to 3 bypass segments
- Up to 2 Network Mezzanine Cards(NMC) Slots for a wide range of GbE and 10GbE with or without bypass
- 2 x 2.5" or 1 x 3.5 SATA HDD/SSD and one HS/FS mSATA socket
- 1 PCIe x8 or 2 PCIe x4 full-height/half-length add-on card

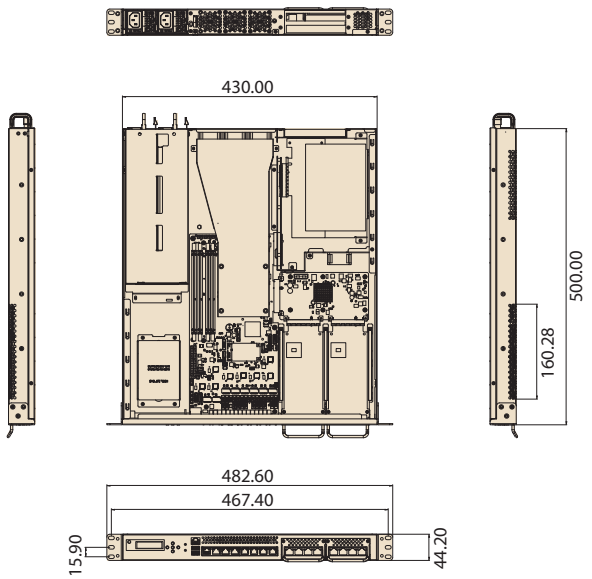
Specifications

			FWA-3232A	FWA-3232B
Processor System	Processor		Socket LGA1150 on Intel® Xeon® Processor E3-1275/ E3-1225/E3-1268LV3, 4th Gen Intel® Core™ Processors i7/ i5/ i3, Intel® Pentium® and Intel® Celeron® Processor	Socket LGA1150 on 4th Gen Intel® Core™ Processors i7/ i5/ i3, Intel® Pentium® and Intel® Celeron® Processor
	Core Number		2C/4C	
	Frequency		2.0GHz~3.5GHz	
	L2 Cache		2MB/3MB/4MB/6MB/8MB	
	Chipset		C226	H81
	BIOS		AMI Efi 64Mbit	
Memory	Technology		DDR3 1333/1600MHz	
	Max. Capacity		32GB	16GB
	Socket		4 x 240-pin UDIMM	2 x 240-pin UDIMM
	ECC Support		Yes	No
Networking	Controller		8 x Intel® i210-AT	6 x Intel® i210-AT
	1GbE		8 x 10/100/1000 Mbps RJ45	6 x 10/100/1000 Mbps RJ45
	LAN bypass	Advanced	optional	optional
		Legacy	3 x pair of LAN Bypass	3 x pair of LAN Bypass
Expansion	PCIe x 8		1x FH/HL gen3 x8 slot (optional)	NA
	PCIe x 4		2x FH/HL gen3 x4 slot (default)	NA
	NMC		2 x NMC	1 x NMC
Storage	2.5" HDD/SSD		2 x 2.5" SATA HDD/SSD bay	2 x 2.5" SATA HDD/SSD bay
	3.5" HDD		1 x 3.5" SATA HDD bay(optional)	NA
	mSATA SSD		1 x mSATA	
Display			1 x VGA box header	
I/O	Console port		1 x RJ45	
	USB3.0		2 x USB3.0	
	USB2.0		2 (pin header)	
	GPIO		8bits GPIO	
	LED Indicator		1 x Power led, 1 x HDD LED	
	Reset button		Pin Header	
	Others		RS232	
TPM			TPM 1.2	
LCD Module			16 x 2 graphic display,5 buttons	
Power	Power Type		AC, redundant and non-redundant DC, redundant (optional)	AC, single power
	Watts		300W/ 250W	250W
	Input		100 V ~ 240 V -36 V_{DC} ~ -60 V_{DC}	100 V ~ 240 V
	Connector		AC 3pin plug / DC pin header	
Environment	Operating Temperature (air flow 0.7 m/sec)		0 ~ 40 °C (32 ~ 104 °F)	
	Non-operating Temperature		-40 ~ 60° C (-40~140F)	
	Humidity		95% @ 40° C (non-condensing)	
	Vibration Resistance		with SATA HDD: 0.5 Grms, IEC 60068-2-64, 5-500Hz, 1hr/axis	
	Shock Protection		with SATA HDD: 10G, 11ms,IEC-60068-2-27, X,Y,X-X,-Y-Z axis, 3times per axis	
Cooling			4 x system smart FAN	3 x system smart FAN
Mechanical	Construction		Iron	
	Mounting		1U Rackmount	
	Dimensions (W x H x D)		430 x 44 x 500 mm (16.9" x 1.7" x 19.6")	430 x 44 x 375 mm (16.9" x 1.7" x 14.7")
	Weight		10 kg	6 kg
OS Support			Linux (CentOS, Red Hat,), Windows* 7	
Certification			CE/FCC/CB/UL/CCC	

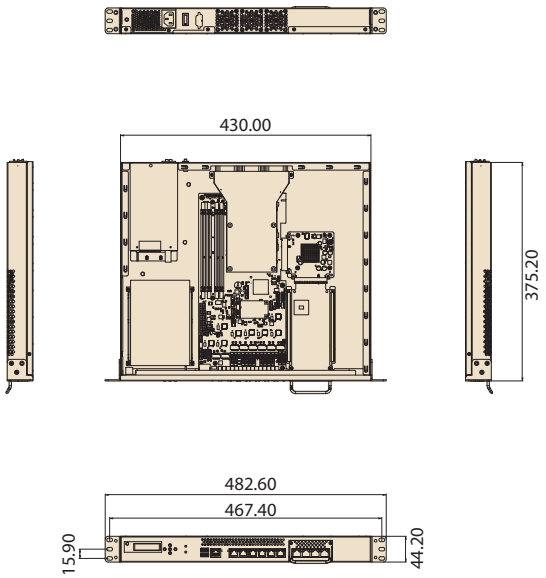
Dimensions

Unit: mm

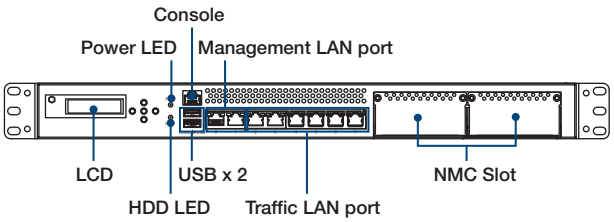
FWA-3232A



FWA-3232B



Front Panel External I/O Mechanical Layout/Drawing



Ordering Information

Part Number	PCH	DDR3	1Gb LAN port	Console	USB 3.0	2.5" HDD	3.5" HDD	PCIe Expansion	NMC	Power
FWA-3232A-00A1E	C226	4	8	1	2	2	1 (optional)	2 x PCIe x4 or 1 x PCIe x8 (optional)	2	AC 300W redundant
FWA-3232B-00A1E	H81	2	6	1	2	2	1 (optional)	NA	1	AC 250W single

Packing List

Part Number	Description
1700017838	SATA Data Cable 30 cm
1700018950	RJ-45 Console Cable 220 cm

Optional Accessories

Part Number	Description
1702002600	Power cord 3P 180cm, USA
1702002605	Power cord 3P 180cm, Europe
1702031801	Power cord 3P 180cm, UK
1700000237	Power cord 3P 180cm, JP
1700009652	Power cord 3P 180cm, China
9680009153	1U 26" slide rail (pair)

FWA-3260

1U Rackmount Network Appliance with Intel® Xeon® Processor D Family for vE-CPE and Network Applications, 2 NMC slots

Features

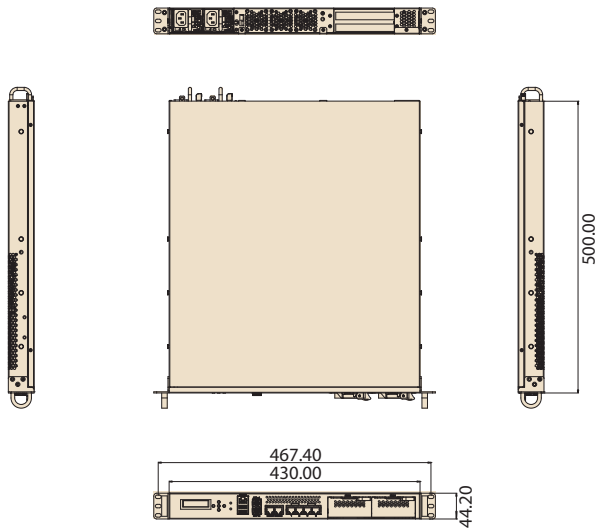
- Intel® Xeon® Processor D System On Chip up to 16 cores and 1.5MB last level cache per core
- 4 x DDR4 ECC UDIMMs/RDIMMs and RDIMMs, up to 2400MHz and up to 128GB
- 4 server class GbE ports implemented by an Intel® i350 Ethernet Controller with advanced LAN bypass support
- 2 GbE management ports
- 2 x 10GE SFP+ ports
- 2 Network Mezzanine Card bays for PCIe gen.3 based port expansion with 1GbE and 10GbE and 40GbE ports
- 1 x PCIe x8 full-height / half-length add-on cards
- Two 2.5" SATA HDDs/SSDs and two M.2 SSD sockets
- IPMI2.0 compliant Remote Management (optional)

Specifications

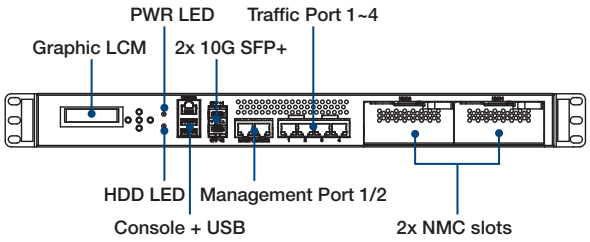
		FWA-3260A	FWA-3260B
Processor System	Processor	Intel® Xeon® Processor D-1548(8C,2.0G)	Intel® Xeon® Processor D-1527(4C,2.2G)
		Options: D-1508(2C,2.2G)/D-1528(6C,1.9G)/D-1567(12C,2.1G)/D-1587(16C,1.7G)	
	Core Number	8	4
	Frequency	2.0GHz	2.2GHz
	L2 Cache	12MB	6MB
	BIOS	AMI EFI 64Mbit	
Virtualization		VT-x, VT-d	
Memory	Technology	DDR4, 2133/2400MHz	
	Max. Capacity	128GB	
	Socket	4 x 288-pin RDIMM	
	ECC Support	Yes	
Networking	Controller	4 x Intel® I350-AM4 2 x Intel® I210-AT	
	1GbE	4 x 1GbE RJ45 with 2 segment advanced bypass support via Intel® i350-AM4 2 x 1GbE RJ45 for management via Intel® I210-AT	
	10GbE	2 x 10G SFP+ via BDE SOC+CS4277 (10G Dual PHY)	
	LAN bypass	2 segment	
Expansion	PCIex8	1 x FH/HL	Option
	NMC	2 x NMCs	
Storage	2.5" HDD/SSD	2 x 2.5" HDD/SSD, Option: 1 x 3.5" HDD	
	M.2	2 x (2280/2242)	
I/O	Console port	1	
	USB2.0/3.0	1 x USB2.0 on board 2 x USB3.0 ports in the front	
	LED Indicator	Power, HDD	
	GPIO	1x 8-bit GPIO pin header	
	Others	1 x Power button	
TPM	Trust Platform Module	A SKU: TPM(2.0), Option: TPM(1.2)	
LCD Module		16 x 2 graphic display, 5 buttons	
Power Supply	Power Type	Redundant AC PSU (redundant DC PSUs on request)	Single AC PSU
	Watts	300W	250W
	Input	AC 100 ~ 240 V @ 50 ~ 60 Hz, full range	AC 100 ~ 240 V @ 50 ~ 60 Hz, full range
	Connector	AC 3pin plug / DC pin header	AC 3pin plug
Environment	Operating Temperature (air flow 0.7 m/sec)	0 ~ 40 °C (32 ~ 104 °F)	
	Non-operating Temperature	-20 ~ 80° C (-4 ~ 167° F) and 40° C @ 95% RH Non-Condensing humidity	
	Vibration Resistance	with SATA HDD: 0.5 Grms, IEC 60068-2-64, 5-500Hz, 1hr/axis	
	Shock Protection	with SATA HDD: 10G, IEC-60068-2-27, half sine, 11ms duration	
Cooling	4x system FAN with smart FAN		
Mechanical	Construction	Iron	
	Mounting	1U Rackmount	
	Dimensions (W x H x D)	430 x 44.2 x 500 mm (16.6" x 1.7" x 19.7")	
	Weight	15 Kg (33lb)	13 Kg (29lb)
OS support		Linux (CentOS, Red Hat, Ubuntu)	
Advantech S/W Packages		- QuickStart Linux Image (CentOS based reference BSP) including ▪ afru ▪ ipmitool ▪ lmsensors ▪ flashrom ▪ LCD4Linux ▪ Advanced LBP Utility Individual packages: - Advanced LBP Library	
IPMI		LOM Module with Aspeed AST1250 chip Supports IPMI 2.0, redundant BIOS and remote, failsafe BIOS update (Advantech IPMI Core)	Option
Certification	EMC	CE/FCC/CB/UL/CCC	

Dimensions

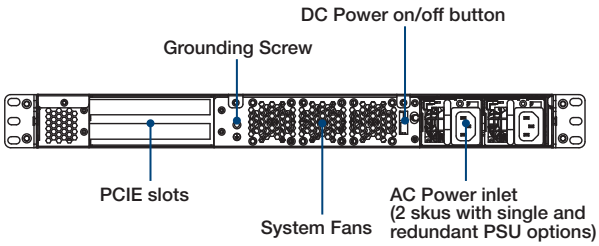
Unit: mm



Front Panel External I/O Mechanical Layout/Drawing



Rear Panel External I/O Mechanical Layout/Drawing



Ordering Information

Part Number	CPU	RAM	GbE	NMC	LOM	TPM	PCIE riser	PSU
FWA-3260A-01E	Intel® Xeon® D-1548 8C, 2.0 GHz	4x DDR4 R/U-DIMM	6 GbE + 2 10G SFP+	2 NMC slots	IPMI2.0	TPM2.0	1 PCIe x8	Red. AC
FWA-3260B-01E	Intel® Xeon® D-1527 4C, 2.2 GHz	4x DDR4 R/U-DIMM	6 GbE + 2 10G SFP+	2 NMC slots	N/A	N/A	N/A	Single AC

Note: SKUs for other CPU cores will be launched by project base only

Packing List

Part Number	Description
1700012272	SATA Data Cable 25 cm
1700018950	RJ-45 Console Cable 220 cm
1960079966N001	EAR-R 295U FWA-3260
1960079968N001	EAR-L 295U FWA-3260
1961100D00	Ears Handle for NAS 1100 AL (A1)

Optional Accessories

Part Number	Description
1702002600	Power cord 3P 180 cm, USA
1702002605	Power cord 3P 180 cm, Europe
1702031801	Power cord 3P 180 cm, UK
1700000237	Power cord 3P 180 cm, JP
1700009652	Power cord 3P 180 cm, China
9680017063	Customized 1/2 Extension Ball Bearing slide_3561

FWA-3270

1U Rackmount Network Appliance with Intel® Xeon® Processor E3 series and 6th gen. Intel® Core™ i7/ i5/ i3 Processor, up to 4 NMC slots

Features

- Intel® Xeon® E3-1275 /E3-1225/E3-1268L V5 (FWA-3270A only) and 6th generation Intel® Core™ i7-6700/i7-6700TE/i5-6500/i5-6500TE/i3-6100/ i3-6100TE, Intel® Pentium® Processor G4400/G4400TE, Intel® Celeron® G3900/G3900TE
- Support max 4 x 2133Mhz DDR4 ECC/UDIMMs, 32GB per channel, up to 64GB
- 2 GbE management ports
- 8x GbE LAN by Intel® I210-AT with 3 segment LAN bypass
- Max 2 Network Mezzanine Card bays for PCIe gen.3 based port expansion with 1 x PCIe x8 full-height / half-length add-on card
- 2 x 2.5" SATA HDDs/SSDs and 1x mSATA Socket or 1 x M.2 SSD sockets
- IPMI2.0 compliant Remote Management (optional)

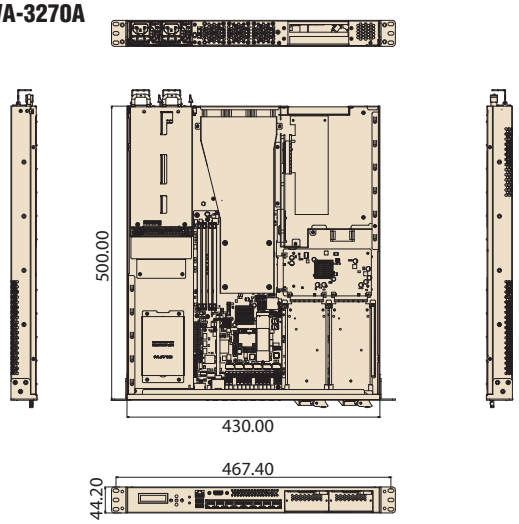
Specifications

			FWA-3270A	FWA-3270B
Processor System	Processor		Socket LGA 1151 (E3-1200v5; 6th Core-I; Pentium; Celeron®)	Socket LGA 1151 (6th Core-I, Pentium, Celeron®)
	Core Number		2C/4C	
	Frequency		2.4GHz~3.6GHz	2.4GHz~3.4GHz
	L2 Cache		2MB/4MB/8MB	
	Chipset		C236	H110
	BIOS		AMI Efi 64Mbit	
Memory	Technology		Dual Channel DDR4 with 2133/2400 MHz	Dual Channel DDR4 with 2133/2400 MHz
	Max. Capacity		4 x DIMM Slots Expandable to 64GB	2 x DIMM Slots Expandable to 32GB
	Socket		4 x 288-pin UDIMM	2 x 288-pin UDIMM
	ECC Support		Yes (E3 CPU only)	NA
Networking	Controller		8 x Intel® i210-AT	6 x Intel® i210-AT
	1GbE		8 x 10/100/1000 Mbps RJ45	6 x 10/100/1000 Mbps RJ45
	LAN bypass	Advanced	3 x pair of LAN Bypass (default)	2 x pair of LAN Bypass (default)
		Legacy	2 x pair of LAN Bypass (option by jumper)	2 x pair of LAN Bypass (option by jumper)
	PCIe x 8		1 x FH/HL gen3 x8 slot (default)	NA
	PCIe x 4		2 x FH/HL gen3 x4 slot (option)	NA
	NMC		2 x NMC	1 x NMC
Storage	2.5" HDD/SSD		2 x 2.5" SATA HDD/SSD bay	
	3.5" HDD		1 x 3.5" SATA HDD bay	
	m.2 SSD		1 x m.2 SSD (2242/2260/2280)	
	mSATA SSD		1 x Half-Size mSATA SSD	
Display			HDMI	DVI
I/O	Console port		1 x RJ45	
	USB3.0		4 (2 in front+2 with pin header)	
	GPIO		8-bit GPIO	
	LED Indicator		1 x Power led, 1 x HDD led	
	Reset button		Pin Header	
	Others		RS232, 2 x USB option	
TPM			TPM 2.0	NA
LCD Module			16x2 graphic display,5 buttons	NA
Power	Power Type		AC, redundant and non-redundant DC, redundant DC (optional)	AC non-redundant
	Watts		300W	250W
	Input		100 V ~ 240 V	
Environment	Operating Temperature (air flow 0.7 m/sec)		0 ~ 40 °C (32 ~ 104 °F)	
	Non-operating Temperature		-40 ~ 60° C (-40~140F)	
	Humidity		95% @ 40° C (non-condensing)	
	Vibration Resistance		with SATA HDD: 0.5 Grms, IEC 60068-2-64, 5-500Hz, 1hr/axis	
	Shock Protection		with SATA HDD: 10G, 11ms, IEC-60068-2-27, X, Y, X-X,-Y-Z axis, 3times per axis	
Cooling			4x system samrt FAN	3x system samrt FAN
Mechanical	Construction		Iron	
	Mounting		1U Rackmount	
	Dimensions (W x H x D)		430 x 44 x 500 mm (16.9" x 1.7" x 19.6")	430 x 44 x 375 mm (16.9" x 1.7" x 14.7")
	Weight		10 kg	6kg
OS Support			Linux (CentOS, Red Hat, Ubuntu, etc.), Windows*10	
Advantech S/W Packages			QSI (Linux based Advantech Bring-Up Image, LANbypass, FRU)	
IPMI			Opiton	NA
Certification			CE/FCC/CB/UL/CCC	

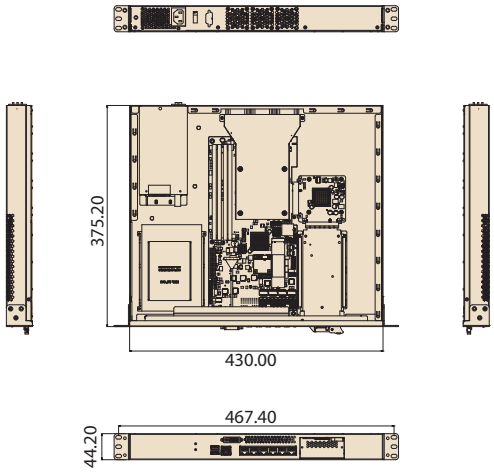
Dimensions

Unit: mm

FWA-3270A

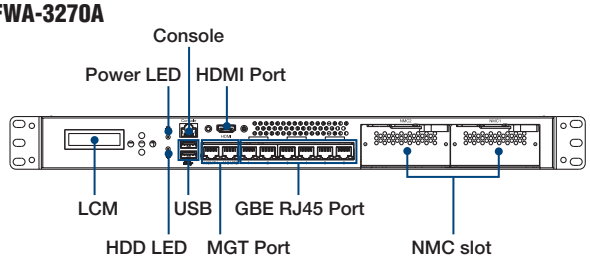


FWA-3270B



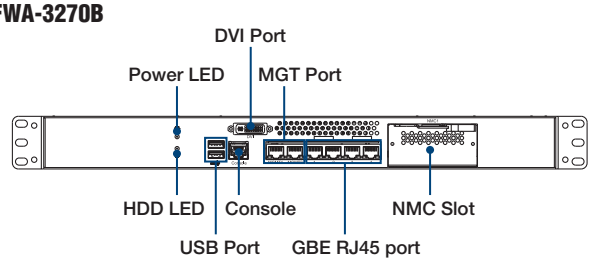
Front Panel External I/O Mechanical Layout/Drawing

FWA-3270A



Front Panel External I/O Mechanical Layout/Drawing

FWA-3270B



Ordering Information

Part Number	PCH	DDR4 slot	1Gb LAN Port	Console	USB3.0	2.5HDD	3.5HDD	PCIe Expansion	NMC	Power
FWA-3270A-00A1E	C236	4	8	1	2	2	1	1 x PCIe x8 (conflict with3.5" HDD)	2	AC 300W redundant
FWA-3270B-00A1E	H110	2	6	1	2	2	1	NA	1	AC 250W single

Packing List

Part Number	Description
1700024783-01	SATA Data Cable 30cm
1700018950	RJ-45 Console Cable 220 cm

Optional Accessories

Part Number	Description
1702002600	Power cord 3P 180cm, USA
1702002605	Power cord 3P 180cm, Europe
1702031801	Power cord 3P 180cm, UK
1700000237	Power cord 3P 180cm, JP
1700009652	Power cord 3P 180cm, China
1700024019-01	HDMI Cable 20 cm (FWA-3270A)
1700024962-01	DVI Cable 20 cm (FWA-3270B)
9680009153	1U 26" slide rail (pair)

FWA-4231

2U Rackmount Network Appliance with 4th gen. Intel® Xeon® Processor E3 series and Intel® Core™ i7/i5/i3 Processors, 4 NMC slots

Features

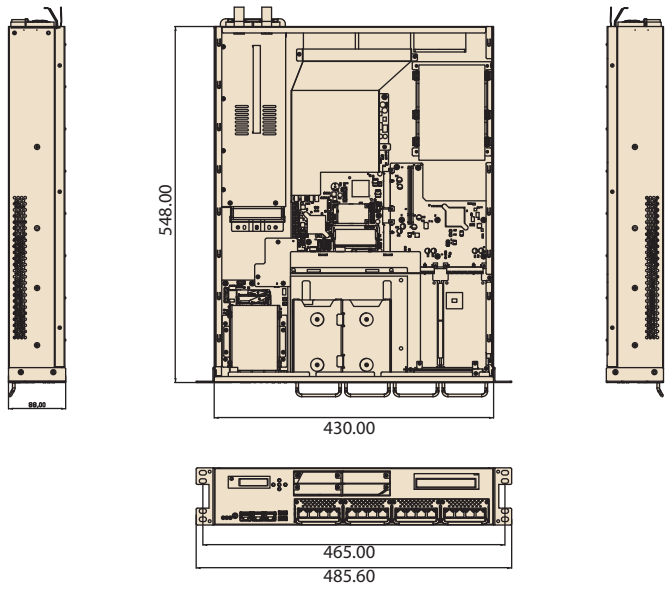
- Supports Intel® Xeon® Processor E3-1275/E3-1225/E3-1268LV3 and 4th Gen Intel® Core™ Processors i7-4790S, i7-4770S, i7-4770TE, i5-4590T, i5-4590S, i5-4570TE,i3-4360,i3-4330,i3-4330TE, Intel® Pentium® Processor G3320TE and Intel® Celeron® Processor G1820TE.
- Supports 2 channel four DDR3 ECC Un-buffered 1333/1600 DIMMs, up to 32GB
- Four network Mezzanine Cards(NMC) Slots for a wide range of GbE and 10GbE NMCs with or without bypass
- One PCIe x8 full-height/half-length add-on card
- Four 2.5" SATA HDD and SSD and one HS/FS mSATA socket
- C-Fast or CF Module support (optional)

Specifications

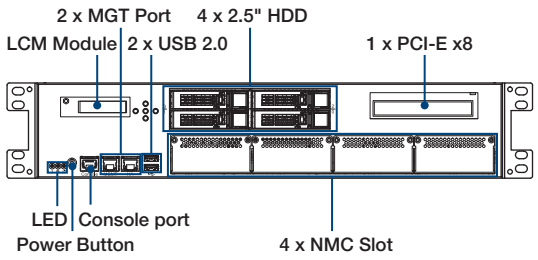
Processor System	Processor	Socket LGA 1155 (E3-1200v3;4th Core-I;Pentium;Celeron®)
	Core Number	2C/4C
	Frequency	2.0GHz~3.5GHz
	L2 Cache	2MB/4MB/6MB/8MB
	Chipset	C226
	BIOS	AMI Efi 64Mbit
Memory	Technology	Dual Channel DDR3 with 1600 MHz
	Max. Capacity	4 x DIMM Slots Expandable to 32GB
	Socket	4 x 240-pin UDIMM
	ECC Support	Yes (E3 CPU only)
Networking	Controller	2 x Intel® i210-AT
	1GbE	2 x 10/100/1000 Mbps RJ45
	Legacy	Support by NMC
	PCIe x 8	1 x FH/HL gen3 x8 slot (default)
	NMC	4 x NMC
Storage	2.5" HDD/SSD	2 x 2.5" SATA HDD/SSD bay
	3.5" HDD	1 x 3.5" SATA HDD bay
	mSATA SSD	1x Full/Half-Size mSATA SSD
Display		VGA
I/O	Console port	1 x RJ45
	USB3.0	2 in front
	USB3.0	2 with pin header
	GPIO	8-bit GPIO
	LED Indicator	1 x Power led, 1 x HDD led, 1 x location
	Reset button	Pin Header
	Others	RS232, 2 x USB option
LCD Module		16 x 2 graphic display,5 buttons
Power	Power Type	AC, redundant and non-redundant DC, redundant DC (optional)
	Watts	350W/ 250W
	Input	100 V ~ 240 V
Environment	Operating Temperature (air flow 0.7 m/sec)	0 ~ 40 °C (32 ~ 104 °F)
	Non-operating Temperature	-40 ~ 60° C (-40~140F)
	Humidity	95% @ 40° C (non-condensing)
	Vibration Resistance	with SATA HDD: 0.5 Grms, IEC 60068-2-64, 5-500Hz, 1hr/axis
	Shock Protection	with SATA HDD: 10G, 11ms,IEC-60068-2-27, X, Y, X-X, -Y-Z axis, 3times per axis
Cooling		4 x system samrt FAN
Mechanical	Construction	Iron
	Mounting	2U Rackmount
	Dimensions (W x H x D)	430 x 88 x 550 mm (16.9" x 3.4" x 21.6")
	Weight	20 kg
OS Support		Linux (CentOS, Red Hat), Windows* 7
Certification		CCC

Dimensions

Unit: mm



Front Panel External I/O Mechanical Layout/Drawing



Ordering Information

Part Number	Power	PCH	DDR3 slot	1Gb LAN Port	Console	USB2.0	2.5HDD	3.5HDD	PCIe Expansion	NMC
FWA-4231-00A1E	AC 350W redundant	C226	4	2	1	2	4	1	1 x PCIe x8	4
FWA-4231-01A1E	AC 300W single	C226	4	2	1	2	4	1	1 x PCIe x8	4

Packing List

Part Number	Description
1700012272	SATA Data Cable 25 cm
1700017838	SATA Data Cable 30 cm
1700018950	RJ-45 Console Cable 220 cm

Optional Accessories

Part Number	Description
1702002600	Power cord 3P 180cm, USA
1702002605	Power cord 3P 180cm, Europe
1702031801	Power cord 3P 180cm, UK
1700000237	Power cord 3P 180cm, JP
1700009652	Power cord 3P 180cm, China

FWA-4232

2U Rackmount Network Appliance with 4th gen. Intel® Xeon® Processor E3 series and Intel® Core™ i7/i5/i3 Processors, 2 NMC slots

Features

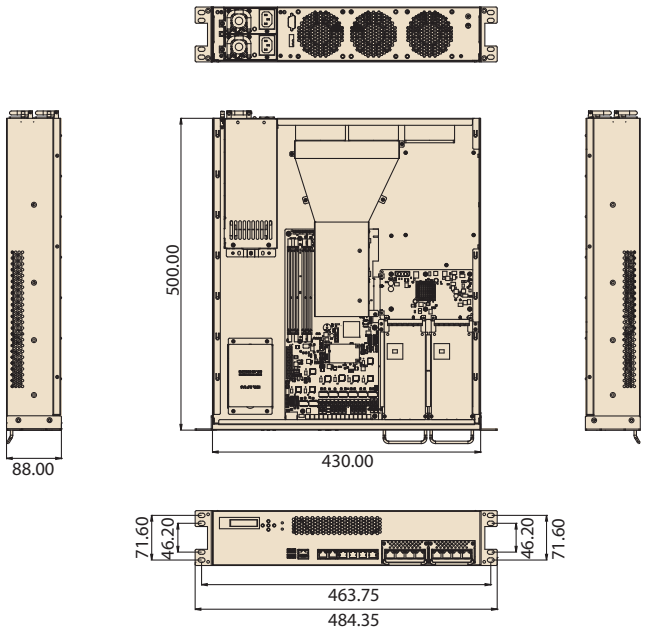
- Intel® Xeon® Processor E3 v3 family and 4th Gen Intel® Core™ i7/i5/i3 Processors, Intel® Pentium® and Intel® Celeron® Processor
- 4 x DDR3 Un-buffered 1333/1600 DIMMs, up to 32 GB
- 8 x Intel® i210-AT 10/100/1000 Mbps LAN on board with up to 3 bypass segments
- Up to 2 Network Mezzanine Cards(NMC) Slots for a wide range of GbE and 10GbE with or without bypass
- 2 x 2.5" and 2 x 3.5" SATA HDD/SSD and one HS/FS mSATA socket
- 1 PCIe x8 full-height/half-length add-on card

Specifications

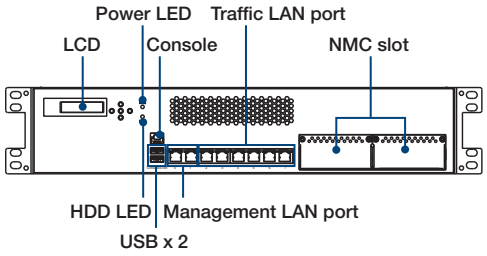
			FWA-4232A	FWA-4232B
Processor System	Processor		Socket LGA1150 Intel® Xeon® Processor E3-1275/E3-1225/ E3-1268LV3, 4th Gen Intel®Core™ Processors i7-4770S/ i5-4570TE/ i3-4360/ Intel® Pentium® Processor G3320TE and Intel® Celeron® Processor G1820TE	Socket LGA1150 4th Gen Intel® Core™ Processors i7-4770S/ i5-4570TE/ i3-4360/ Intel® Pentium® Processor G3320TE and Intel® Celeron® Processor G1820TE
	Core Number		2C/4C	
	Frequency		2.0GHz~3.5GHz	
	L2 Cache		2MB/3MB/4MB/6MB/8MB	
	Chipset		C226	H81
	BIOS		AMI Efi 64Mbit	
Memory	Technology		DDR3 1333/1600MHz	
	Max. Capacity		32GB	16GB
	Socket		4 x 240-pin UDIMM	2 x 240-pin UDIMM
	ECC Support		Yes	No
Networking	Controller		8 x Intel® i210-AT	6 x Intel® i210-AT
	1GbE		8 x 10/100/1000 Mbps RJ45	6 x 10/100/1000 Mbps RJ45
	LAN bypass	Advanced	optional	optional
		Legacy	3 x pair of LAN Bypass	3 x pair of LAN Bypass
Expansion	PCIe x 8		1 x FH/HL gen3 x8 slot	NA
	NMC		2 x NMC	1 x NMC
Storage	2.5" HDD/SSD		2 x 2.5" SATA HDD/SSD bay	
	3.5" HDD		2 x 3.5" SATA HDD/SSD bay	
	mSATA SSD		1 x mSATA	
Display			1 x VGA box header	
I/O	Console port		1 x RJ45	
	USB3.0		2 x USB3.0	
	USB2.0		2 (pin header)	
	GPIO		8bits GPIO	
	LED Indicator		1 x Power LED, 1 x HDD LED	
	Reset button		Pin Header	
	Others		RS232	
TPM			TPM 1.2	
LCD Module			16 x 2 graphic display,5 buttons	
Power	Power Type		AC, redundant and non-redundant DC, redundant (optional)	AC , single power
	Watts		380W/ 300W(optional)	300W
	Input		100 V ~ 240 V -36 V_{DC} ~ -60 V_{DC}	100 V ~ 240 V
Environment	Operating Temperature (air flow 0.7 m/sec)		0 ~ 40 °C (32 ~ 104 °F)	
	Non-operating Temperature		-40 ~ 60° C (-40~140F)	
	Humidity		95% @ 40° C (non-condensing)	
	Vibration Resistance		with SATA HDD: 0.5 Grms, IEC 60068-2-64, 5-500Hz, 1hr/axis	
	Shock Protection		with SATA HDD: 10G, 11ms,IEC-60068-2-27, X,Y,X-X,-Y-Z axis, 3times per axis	
Cooling			3x system smart FAN	
Mechanical	Mounting		2U Rackmount	
	Dimensions (W x H x D)		430 x 88 x 500 mm (16.9" x 3.4" x 19.6")	
	Weight		20 kg	
OS Support			Linux (CentOS, Red Hat), Windows* 7	
Certification			CCC	

Dimensions

Unit: mm



Front Panel External I/O Mechanical Layout/Drawing



Ordering Information

Part Number	PCH	DDR3	1Gb LAN port	Console	USB 3.0	2.5" HDD	3.5" HDD	PCIe Expansion	NMC	Power
FWA-4232A-00A1E	C226	4	8	1	2	2	2	1 x PCIe x8	2	AC 380W redundant
FWA-4232A-01A1E	C226	4	8	1	2	2	2	1 x PCIe x8	2	AC 300W single
FWA-4232B-00A1E	H81	2	6	1	2	2	2	NA	2	AC 300W single

Packing List

Part Number	Description
1700012272	SATA Data Cable 25 cm
1700017838	SATA Data Cable 30 cm
1700018950	RJ-45 Console Cable 220 cm

Optional Accessories

Part Number	Description
1702002600	Power cord 3P 180cm, USA
1702002605	Power cord 3P 180cm, Europe
1702031801	Power cord 3P 180cm, UK
1700000237	Power cord 3P 180cm, JP
1700009652	Power cord 3P 180cm, China

FWA-5020

1U Rackmount Network Appliance with Intel® Xeon® Processor E5-2600 v4 series, up to 4 NMC slots

Features

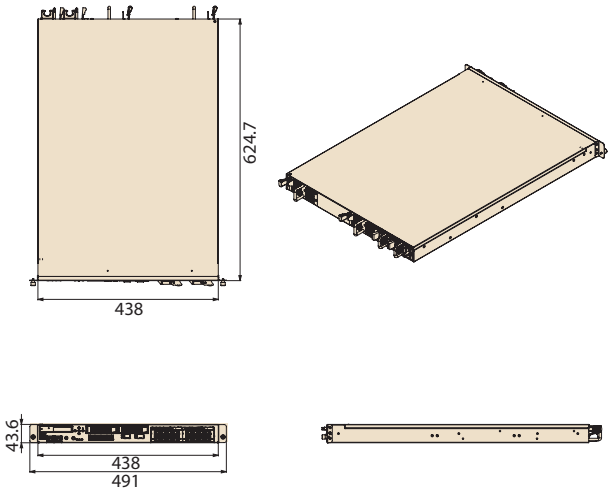
- Single or dual Intel® Xeon® E5-2600 v4 processor(s) up to 145W TDP
- DDR4 2400 MHz ECC registered memory up to 512 GB (CPU SKU)
- 4 x GbE with LAN bypass, 2 x GbE for Mgmt (SKU dependent)
- 2 x 10GbE SFP+ NICs (SKU dependent)
- Up to 4 x NMC (Network Mezzanine Card) slots for a wide range of GbE, 10GbE and 40GbE NMCs with or without advanced LAN bypass
- 2 x 2.5" SATA HDDs/SSDs
- IPMI 2.0 compliant Remote Management
- Advanced Platform Reliability and Serviceability
- 2 x internal CLC PCIE card (Dual DH8955) supported (SKU dependent)

Specifications

SKU		FWA-5020L-00A1R	FWA-5020U-00A1R	FWA-5020U-D0A1R
Form Factor		1U-Rack Mount		
Processor System	Processor	1 x Intel® Xeon® E5-2600 v3 / v4 Socket		2 x Intel® Xeon® E5-2600 v3 / v4 Socket
	Core Number	8C/10C/12C/14C/16C/18C/20C/22C		
	Frequency	2.0GHz/2.1GHz/2.2GHz/2.3GHz/2.4GHz/2.6GHz		
	L2 Cache	30MB ~ 55 MB		
	Chipset	C612		
	BIOS	AMI EFI 64Mbit		
Virtualization		VT-x		
Memory	Technology	DDR4, 2133/2400MHz(CPU SKU)		
	Max. Capacity	256GB (CPU0 x8 DIMM,CPU1 x8 DIMM)		
	Socket	16 x 288-pin RDIMM		
	ECC Support	Yes		
Networking	Controller	1 x Intel® I210		
	1GbE	▪ 2 x 1GbE RJ45 for management via Intel® i210-AT	▪ 4 x 1GbE RJ45 with 2 segment advanced bypass support via I-350 AM4 ▪ 2 x 1GbE RJ45 for management via Intel® i210-AT	▪ 2 x 1GbE RJ45 for management via Intel® i210-AT
	10GbE	NA	2*10GbE SFP+ via Intel® X710	NA
	LAN Bypass	NA	2 segment Advanced LAN Bypass	NA
Expansion	NMC	2 NMCs		4 NMCs
	PCIe	NA		Up to 2* Proprietary x16 crypto PCIe
Storage	2.5" HDD/SSD	Max. 2 x 2.5" HDD/SSD		
	mSATA SSD	2 x mSATA		NA
I/O	Console port	1		
	USB 3.0	2		
LCD Module	TPM	On board TPM 1.2 Chip support		
Power Supply	LCD	16x2 graphic display,5 buttons		
	Power Type	AC, redundant/ DC, redundant (optional)		
	Watts	650W		
	Input	(AC) 100 ~ 240 V @ 50 ~ 60 Hz, full range, (DC) -40 ~ - 72V, 12 ~ 24A		
	Connector	AC 3pin plug		
Environment	Operating Temperature (air flow 0.7 m/sec)	0 ~ 40 °C (32 ~ 104 °F)		
	Non-operating Temperature	-20 ~ 80° C (-4 ~ 167° F) and 40° C @ 95% RH Non-Condensing humidity		
	Vibration Resistance	with SATA HDD: 0.5 Grms, IEC 60068-2-64, 5-500Hz, 1hr/axis		
	Shock Protection	with SATA HDD: 10G, IEC-60068-2-27, half sine, 11ms duration		
Cooling		2x system FAN with smart FAN		3x system FAN with smart FAN
Mechanical	Construction	Iron		
	Mounting	Rack mount kits(ear)/ Slide rail(Optional)		
	Dimensions (W x H x D)	438 x 44x 625 mm (17.24" x1.732" x24.61")		
	Weight	15Kg		
OS support		Linux (CentOS, Red Hat, Ubuntu)		
Advantech S/W Packages		QuickStart Linux Image (CentOS based reference BSP) including ▪ IPMI Tool ▪ LCD4Linux ▪ Advanced LBP Utility Individual packages: ▪ Advanced LBP Library		
IPMI		IPMI IPMI v2.0 compliant BMC with web interface (AMI MegaRAC SP-X)		
Certification		CE/FCC/CB/UL/CCC (FWA-5020U-D0A1R without CCC)		

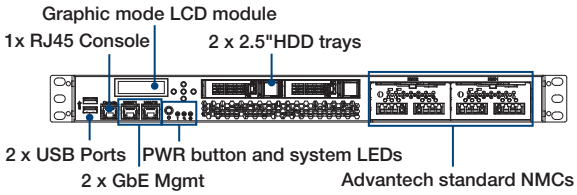
Dimensions

Unit: mm



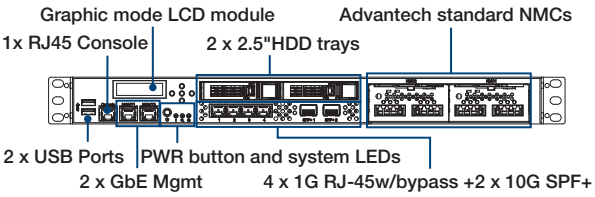
FWA-5020L-00A1R

Front Panel External I/O Mechanical Layout/Drawing



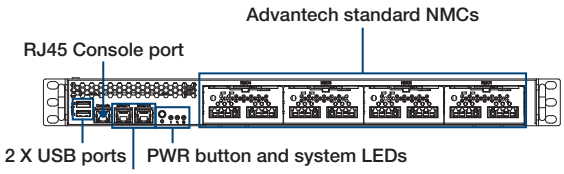
FWA-5020U-00A1R

Front Panel External I/O Mechanical Layout/Drawing



FWA-5020U-D0A1R

Front Panel External I/O Mechanical Layout/Drawing



Ordering Information

PN	CPU	DDR4	PCIe Slot	Console Port	RJ45 LAN Port	Fixed I/O Port	NMC Slot	LCM	PSU
FWA-5020L-00A1R	Single Intel® Xeon® E5-2600 v3 / v4	8	NA	1	2	NA	2	1	Red. 650W AC PSU
FWA-5020U-00A1R	Single Intel® Xeon® E5-2600 v3 / v4	8	NA	1	2	-4*1G RJ-45 w/Advanced LBP -2*10G SFP+	2	1	Red. 650W AC PSU
FWA-5020U-D0A1R	Dual Intel® Xeon® E5-2600 v3 / v4	16	2*Proprietary Crypto x16 PCIe	1	2	NA	4	NA	Red. 650W AC PSU

Packing List

Part Number	Description
1700020691-01	Console Cable D-SUB9P(F)/RJ45 220cm

Recommended PCIe list

Part Number	Description
PCIe-3021-00E	Dual Intel Coleto 8955 Crypto card (x16 gold finger)

Optional Accessories

Part Number	Description
9680016905	Tool-Less Server slide, 26", for 438 Chass
1700020691-01	Console Cable D-SUB9P(F)/RJ45 220cm
1702002600	Power cord 3P 180 cm, USA
1702002605	Power cord 3P 180 cm, Europe
1702031801	Power cord 3P 180 cm, UK
1700000237	Power cord 3P 180 cm, JP
1700009652	Power cord 3P 180 cm, China
1700025855-01	Power cord 3P 180 cm, India
1700025112-01	Power cord 3P 180 cm, Brazil
1700022938-01	Power cord 3P 300 cm, Korea

FWA-6520

2U Rackmount Network Appliance with Intel® Xeon® Processor E5-2600 v3/v4 series, up to 4 NMC slots

Features

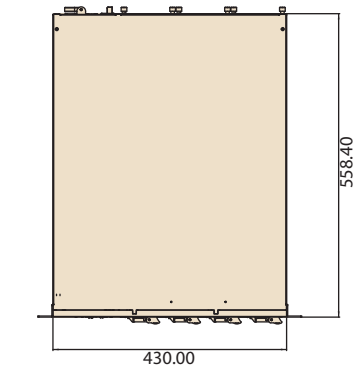
- 2 x Intel® Xeon® E5-2600 v3/v4 processors up to 145W TDP
- DDR4 1866/2133 ECC registered memory up to 512GB
- PCIe gen. 3 support
- Up to 8 x NMC (Network Mezzanine Card) slots for a wide range of GbE, 10GbE and 40GbE NMCs with or without advanced LAN bypass
- 2 x PCIe x16 slots support FH/HL add-on cards
- 2 x 2.5" removable external SATA HDDs/SSDs
- IPMI 2.0 compliant Remote Management
- Advanced Platform Reliability and Serviceability

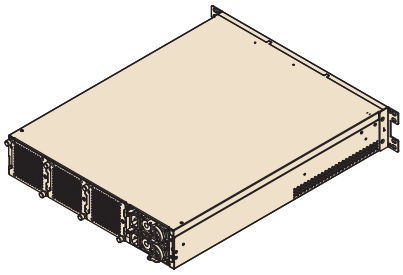
Specifications

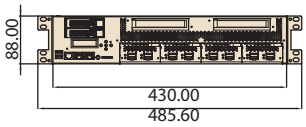
Form Factor			2U - Rack Mount
Processor System	Processor		2 x Intel® Xeon® E5-2600 v3 / v4 Socket R3
	Core Number		8C/10C/12C/14C/16C/18C/20C/22C
	Frequency		2.0GHz/2.1GHz/2.2GHz/2.3GHz/2.4GHz/2.6GHz
	L2 Cache		30MB ~ 55 MB
	Chipset		C612
	BIOS		AMI Efi 64Mbit
Virtualization			VT-x
Memory	Technology		DDR4, 2133/2400MHz
	Max. Capacity		256GB (CPU0x8,CPU1x8)
	Socket		16 x 288-pin RDIMM
	ECC Support		Yes
Networking	Controller		1 x Intel® I210
	1GbE		2 x 10/100/1000 Mbps RJ45 via Intel® I210 chip
	LAN bypass	Advanced	LBP support by NMC
		Legacy	-
Expansion	PCIe x 16		2 x FH/HL
	NMC		4/6/8 NMCs
Storage	2.5" HDD/SSD		Max. 2 x 2.5" HDD/SSD
	mSATA SSD		2 x mSATA
I/O	Console port		1
	USB3.0		2
	Others		1 x power button
LCD Module			16x2 graphic display,5 buttons
Power	Power Type		AC, redundant DC, redundant (optional)
	Watts		820W
	Input		100V ~ 240V
	Connector		AC 3pin plug
Environment	Operating Temperature (air flow 0.7 m/sec)		0 ~ 40 °C (32 ~ 104 °F)
	Non-operating Temperature		-20 ~ 80° C (-4 ~ 167° F) and 40° C @ 95% RH Non-Condensing humidity
	Vibration Resistance		with SSD: 0.3 Grms, IEC 60068-2-64, 5-500Hz, 1hr/axis
	Shock Protection		with SSD: 10G, IEC-60068-2-27, half sine, 11ms duration
Cooling			3x system FAN with smart FAN
Mechanical	Construction		Iron
	Mounting		2U Rackmount
	Dimensions (W x H x D)		430 x 88x 558 mm (16.9" x 3.4" x 22")
	Weight		20 KG
OS Support			Linux (CentOS, Red Hat, Ubuntu)
Advantech S/W Packages			- QuickStart Linux Image (CentOS based reference BSP) including ▪ ipmitool ▪ LCD4Linux ▪ Advanced LBP Utility Individual packages: - Advanced LBP Library
IPMI			IPMI v2.0 compliant BMC with web interface (AMI MegaRAC SP-X)
Certification			CE/FCC/CB/UL/CCC

Dimensions

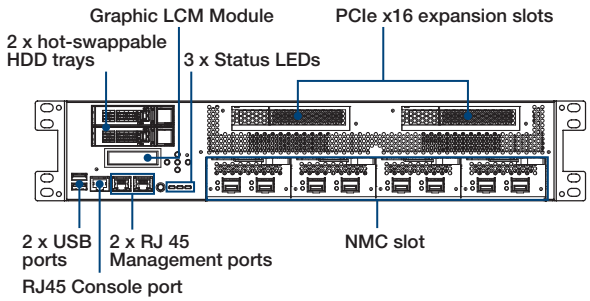
Unit: mm



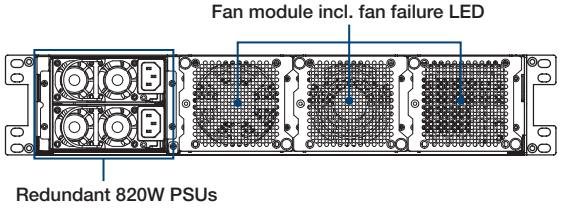




Front Panel External I/O Mechanical Layout/Drawing



Rear Panel External I/O Mechanical Layout/Drawing



Ordering Information

Part No.	CPU	DDR4	PCIe slot	NMC slot	USB 3.0	RJ45 LAN Port	Console port	LCM	PSU
FWA-6520-01E	Dual Intel® Xeon® E5-2600 v3 / v4 processors support, up to 145W TDP	16	2	4	2	2	1	1	820W AC PSU
FWA-6520-03E	Dual Intel® Xeon® E5-2600 v3 / v4 processors support, up to 145W TDP	16	N/A	8	2	2	1	1	820W AC PSU

DC SKU will be supported by MOQ base

Packing List

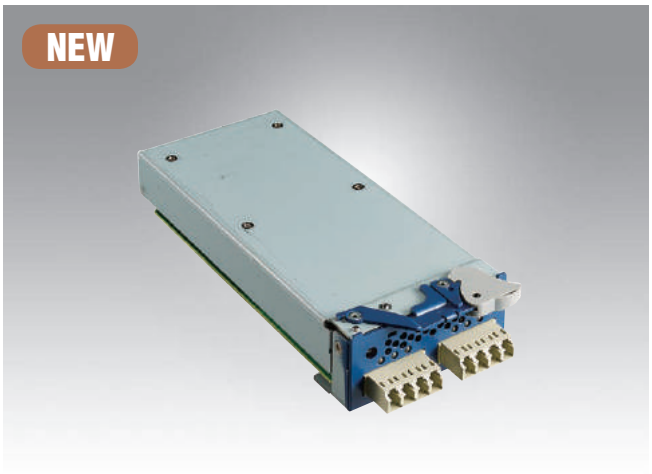
Part Number	Description
1700020691-01	Console cable D-SUB9P(F)/RJ45 220 cm

Optional Accessories

Part Number	Description
1702002600	Power cord 3P 180cm, USA
1702002605	Power cord 3P 180cm, Europe
1702031801	Power cord 3P 180cm, UK
1700000237	Power cord 3P 180cm, JP
1700009652	Power cord 3P 180cm, China
9680006904	Slide rail

NMC-0120

4 Ports 1GbE Fiber Advanced LAN Bypass Module



Features

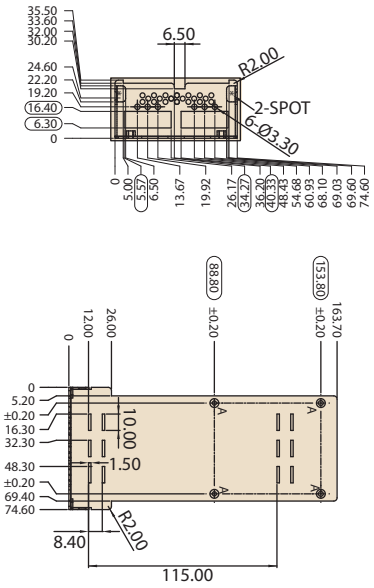
- 1x Intel® I350_AM4
- 4 ports fiber LC (SX & LX) interface
- PCI-E 2.0 x4
- Lan Bypass model (Advanced LAN Bypass-Bypass, Normal, Disconnect mode)
- NC-SI for IPMI Management
- RoHS compliant

Specifications

Controller	1x Intel® I350_AM4
Interface	PCI-E 2.0 x4
Speed	1GbE
Port	4x Fiber Connector
LAN LED definition	OE1 & OE2 Indicator: Green: Link OSW State Indicator: Amber: Optical Switch State 
Advanced Software Features	Teaming support IEEE 802.3ad IEEE 802.1Q VLANs IEEE 802.3 2005 flow control support Interrupt moderation
OS Support	Windows® Server 2012 R2, 2012, 2008 R2 X86-64 Linux RedHat EL 6.5 and 7.0 IA-32, X86-64, and IA-64 Linux SuSE SLES 11 SP3 and 12 IA-32, X86-64, and IA-64 FreeBSD 9 and 10 IA-32, X86-64, and IA-64 UEFI 2.1 and 2.3 X86-64 and I-64 VMware ESXi 5.1, ESXi 5.5 and ESXi 6.0 X86-64
Operating Conditions	Operation: 0°C ~ 45°C Storage: -20°C ~ 67°C
Power Voltage & consumption	+12V ± 15% 17W
Dimension (mm)	163.7 x 74.6 x 35.5
Compliance	CE/FCC

Dimensions

Unit: mm



Ordering Information

Part Number	Description
NMC-0120-000110E	4 ports 1GbE Fiber LC(SX) w/Advanced bypass NMC
NMC-0120-000111E	4 ports 1GbE Fiber LC (LX) w/Advanced bypass NMC

NMC-0121

4 Ports 1GbE RJ45 Module (Advanced LAN Bypass Available)

Features

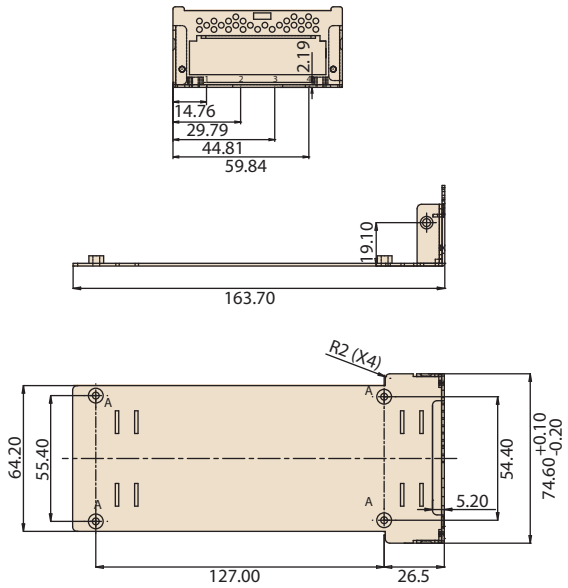
- 1x Intel® i350_AM4
- 4 ports RJ45 connector
- PCI-E 2.0 x4
- NC-SI for IPMI Management
- Lan Bypass model available (Advanced LAN Bypass)
- RoHS compliant

Specifications

Controller	1x Intel® i350_AM4
Interface	PCI-E 2.0 x4
Speed	1GbE
Port	4x RJ45 Ports
LAN LED definition	10Mbps: LED off 100Mbps: LED on (Amber) 1000Mbps: LED on (Green) Link: LED on Act: Blinking
Advanced Software Features	Teaming support IEEE 802.3ad IEEE 802.1Q VLANs IEEE 802.3 2005 flow control support Interrupt moderation
OS Support	Windows® Server 2012 R2, 2012, 2008 R2 X86-64 Linux RedHat EL 6.5 and 7.0 IA-32, X86-64, and IA-64 Linux SuSE SLES 11 SP3 and 12 IA-32, X86-64, and IA-64 FreeBSD 9 and 10 IA-32, X86-64, and IA-64 UEFI 2.1 and 2.3 X86-64 and I-64 VMware ESXi 5.1, ESXi 5.5 and ESXi 6.0 X86-64
Operating Conditions	Operation: 0°C ~ 45°C Storage: -20°C ~ 67°C
Power Voltage & consumption	+12V ± 15% 16W
Dimension (mm)	163.7 x 74.6 x 35.5
Compliance	CE/FCC

Dimensions

Unit: mm



Ordering Information

Part Number	Description
NMC-0121-000010E	4-ports 1GbE RJ45 w/ 1x Intel® i350_AM4 chip NMC
NMC-0121-000111E	4-ports 1GbE RJ45 w/ 1x Intel® i350_AM4 chip NMC (2 Pair Advanced LAN Bypass)

NMC-0806

8 Ports 1GbE RJ45 Module (Advanced LAN Bypass Available)

Features

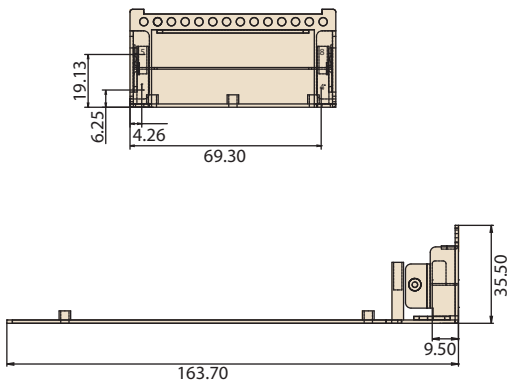
- 2x Intel® i350_AM4
- 8 ports RJ45 connector
- 2x PCI-E 2.0 x4
- NC-SI for IPMI Management
- Lan Bypass model available
- RoHS compliant

Specifications

Controller	2x Intel® i350_AM4
Interface	2x PCI-E 2.0 x4
Speed	1GbE
Port	8x RJ45
LAN LED definition	10Mbps: LED off 100Mbps: LED on (Amber) 1000Mbps: LED on (Green) Link: LED on Act: Blinking
Advanced Software Features	Teaming support IEEE 802.3ad IEEE 802.1Q VLANs IEEE 802.3 2005 flow control support Interrupt moderation
OS Support	Windows® Server 2012 R2, 2012, 2008 R2 X86-64 Linux RedHat EL 6.5 and 7.0 IA-32, X86-64, and IA-64 Linux SuSE SLES 11 SP3 and 12 IA-32, X86-64, and IA-64 FreeBSD 9 and 10 IA-32, X86-64, and IA-64 UEFI 2.1 and 2.3 X86-64 and I-64 VMware ESXi 5.1, ESXi 5.5 and ESXi 6.0 X86-64
Operating Conditions	Operation: 0°C ~ 45°C Storage: -20°C ~ 67°C
Power Voltage & consumption	+12V ± 15% 16W
Dimension (mm)	163.7 x 74.6 x 35.5
Compliance	CE/FCC

Dimensions

Unit: mm

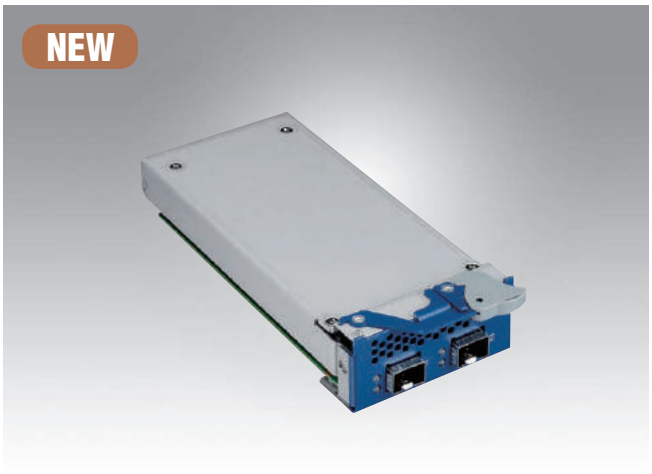


Ordering Information

Part Number	Description
NMC-0806-000010E	8-ports 1GbE RJ45 NMC card w/ 2x Intel® i350_AM4 chip NMC
NMC-0806-000110E	8-ports 1GbE RJ45 NMC card w/ 2x Intel® i350_AM4 chip NMC (4 pair advanced LAN bypass)

NMC-1004

2 Ports 10GbE SFP+ Module



Features

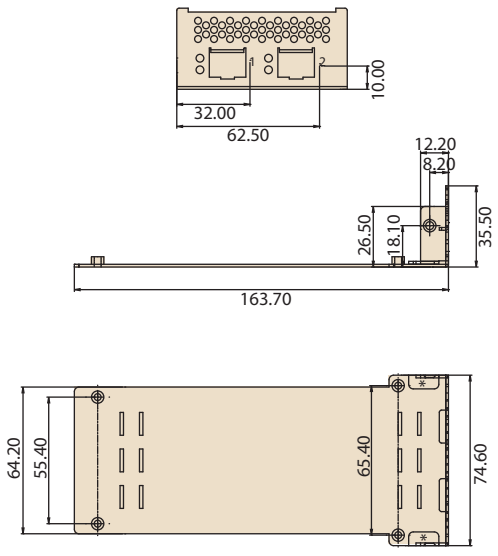
- 1x Intel® 82599ES
- 2 ports SFP+ connector
- PCI-E 2.0 x8
- NC-SI for IPMI Management
- RoHS compliant

Specifications

Controller	1x Intel® 82599ES
Interface	PCI-E 2.0 x8
Speed	10GbE
Port	2x SPF+ Port
LAN LED definition	Port#1 & Port#2 Indicator: Link: LED on Act: Blinking 
Advanced Software Features	Teaming support IEEE 802.3ad IEEE 802.1Q VLANs IEEE 802.3 2005 flow control support Interrupt moderation
OS Support	Windows® Server 2012 R2, 2012, 2008 R2 X86-64 Linux RedHat EL 6.5 and 7.0 IA-32, X86-64, and IA-64 Linux SuSE SLES 11 SP3 and 12 IA-32, X86-64, and IA-64 FreeBSD 9 and 10 IA-32, X86-64, and IA-64 UEFI 2.1 and 2.3 X86-64 and I-64 VMware ESXi 5.1, ESXi 5.5 and ESXi 6.0 X86-64
Operating Conditions	Operation: 0°C ~ 45°C Storage: -20°C ~ 67°C
Power Voltage & consumption	+12V ± 15% 16W
Dimension (mm)	163.7 x 74.6 x 35.5
Compliance	CE/FCC

Dimensions

Unit: mm



Ordering Information

Part Number	Description
NMC-1004-10E	2-ports 10GbE SFP+ w/ Intel® 82599ES chip NMC

NMC-1008

2 Ports 10GbE Fiber Advanced LAN Bypass Module

Features

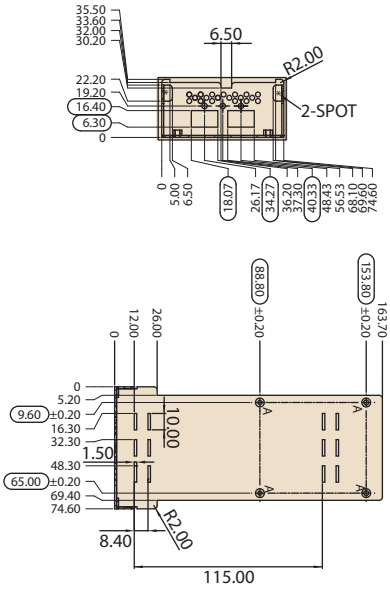
- 1x Intel® 82599ES
- 2 ports fiber LC (SR & LR) interface
- PCI-E 2.0 x8
- Lan Bypass model (Advanced LAN Bypass-Bypass, Normal, Disconnect mode)
- NC-SI for IPMI Management
- RoHS compliant

Specifications

Controller	1x Intel® 82599ES
Interface	PCI-E 2.0 x8
Speed	10GbE
Port	2x Fiber port
LAN LED definition	OE1 & OE2 Indicator: Green: Link OSW State Indicator: Amber: Optical Switch State 
Advanced Software Features	Teaming support IEEE 802.3ad IEEE 802.1Q VLANs IEEE 802.3 2005 flow control support Interrupt moderation
OS Support	Windows® Server 2012 R2, 2012, 2008 R2 X86-64 Linux RedHat EL 6.5 and 7.0 IA-32, X86-64, and IA-64 Linux SuSE SLES 11 SP3 and 12 IA-32, X86-64, and IA-64 FreeBSD 9 and 10 IA-32, X86-64, and IA-64 UEFI 2.1 and 2.3 X86-64 and I-64 VMware ESXi 5.1, ESXi 5.5 and ESXi 6.0 X86-64
Operating Conditions	Operation: 0°C ~ 45°C Storage: -20°C ~ 67°C
Power Voltage & consumption	+12V ± 15% 17W
Dimension (mm)	163.7 x 74.6 x 35.5
Compliance	CE/FCC

Dimensions

Unit: mm

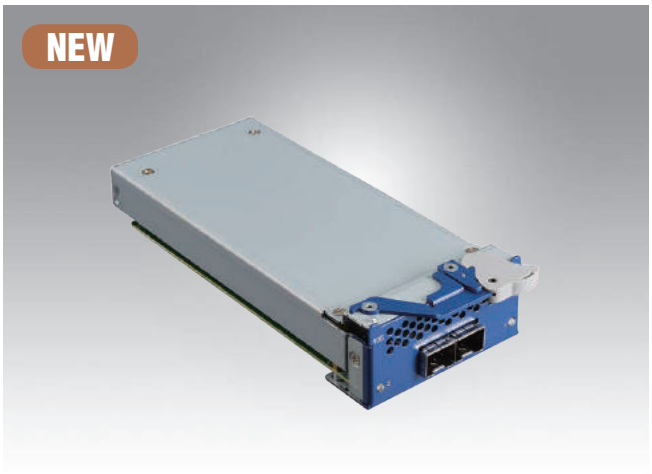


Ordering Information

Part Number	Description
NMC-1008-000110E	2 ports 10GbE Fiber LC(SR) w/Advanced bypass NMC
NMC-1008-000111E	2 ports 10GbE Fiber LC (LR) w/Advanced bypass NMC

NMC-1009

2 Ports 10GbE SFP+ Module



Features

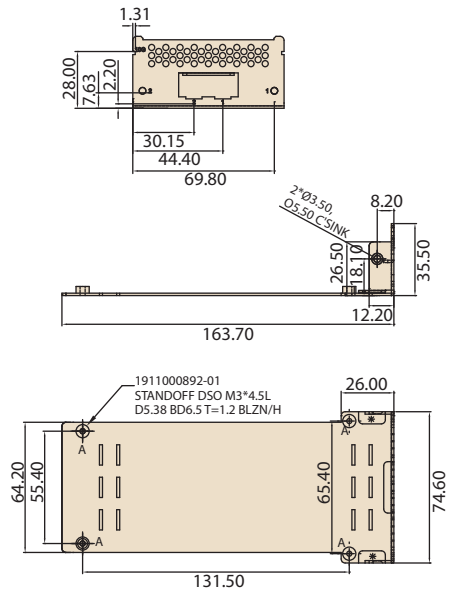
- 1x Intel® XL710-BM1
- 2 ports fiber interface
- PCI-E 3.0 x8
- NC-SI for IPMI Management
- RoHS compliant

Specifications

Controller	1x Intel® XL710-BM1
Interface	PCI-E 3.0 x8
Speed	10GbE
Port	2x SPF+ Port
LAN LED definition	Port#1 & Port#2 Indicator: Link: LEDO on Act: Blinking
Advanced Software Features	Teaming support IEEE 802.3ad IEEE 802.1Q VLANs IEEE 802.3 2005 flow control support Interrupt moderation
OS Support	Windows® Server 2012 R2, 2012, 2008 R2 X86-64 Linux RedHat EL 6.5 and 7.0 IA-32, X86-64, and IA-64 Linux SuSE SLES 11 SP3 and 12 IA-32, X86-64, and IA-64 FreeBSD 9 and 10 IA-32, X86-64, and IA-64 UEFI 2.1 and 2.3 X86-64 and I-64 VMware ESXi 5.1, ESXi 5.5 and ESXi 6.0 X86-64
Operating Conditions	Operation: 0°C ~ 45°C Storage: -20°C ~ 67°C
Power Voltage & consumption	+12V ± 15% 16W
Dimension (mm)	163.7 x 74.6 x 35.5
Compliance	CE/FCC

Dimensions

Unit: mm

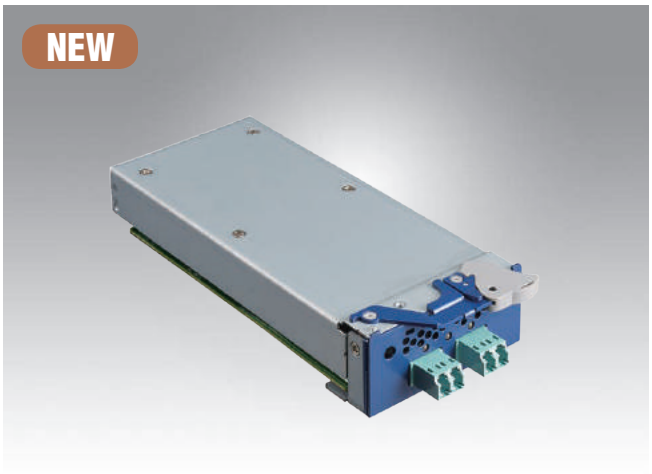


Ordering Information

Part Number	Description
NMC-1009-000010E	2-ports 10GbE SFP+ NMC card w/ Intel® XL710 chip NMC

NMC-1010

2 Ports 10GbE Advanced LAN Bypass Module



Features

- 1 x Intel® X710-BM2
- 2 ports fiber interface
- PCI-E 3.0 x8
- Advanced LAN Bypass-Bypass, Normal, Disconnect mode
- NC-SI for IPMI Management
- RoHS compliant

Specifications

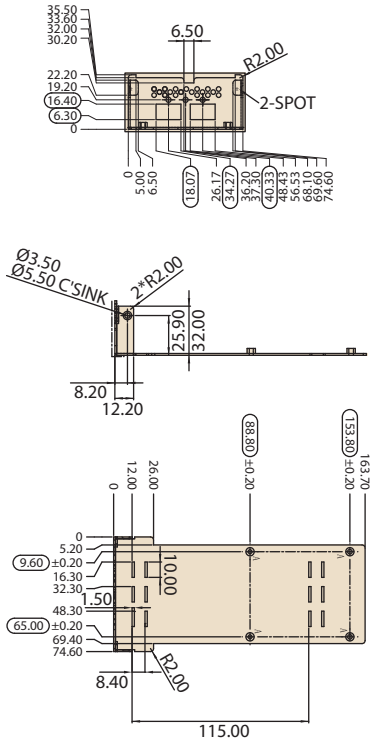
Controller	1x Intel® X710-BM2
Interface	PCI-E 3.0 x8
Speed	10GbE
Port	2x Fiber port
LAN LED definition	OE1 & OE2 Indicator: Green: Link OSW State Indicator: Amber: Optical Switch State
Advanced Software Features	Teaming support IEEE 802.3ad IEEE 802.1Q VLANs IEEE 802.3 2005 flow control support Interrupt moderation
OS Support	Windows® Server 2012 R2, 2012, 2008 R2 X86-64 Linux RedHat EL 6.5 and 7.0 IA-32, X86-64, and IA-64 Linux SuSE SLES 11 SP3 and 12 IA-32, X86-64, and IA-64 FreeBSD 9 and 10 IA-32, X86-64, and IA-64 UEFI 2.1 and 2.3 X86-64 and I-64 VMware ESXi 5.1, ESXi 5.5 and ESXi 6.0 X86-64
Operating Conditions	Operation: 0°C ~ 45°C Storage: -20°C ~ 67°C
Power Voltage & consumption	+12V ± 15% 17W
Dimension (mm)	163.7 x 74.6 x 35.5
Compliance	CE/FCC

Ordering Information

Part Number	Description
NMC-1010-000110E	2 ports 10 GbE Fiber w/Advanced bypass NMC

Dimensions

Unit: mm



NMC-4001

4 Ports 10GbE SFP+ Module

Features

- 2x Intel® 82599ES + 1x PEX 8724
- 4 ports SFP+ connector
- 1x PCI-E 2.0 x8
- NC-SI for IPMI Management
- RoHS compliant

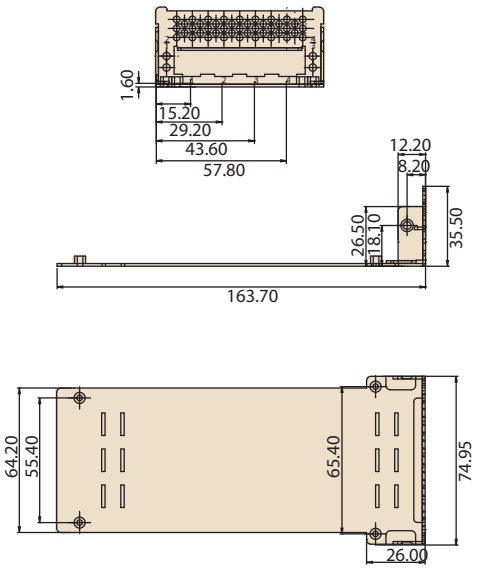
RoHS COMPLIANT 2002/95/EC CE FCC

Specifications

Controller	2x Intel® 82599ES + 1x PEX 8724
Interface	PCI-E 2.0 x4
Speed	10GbE
Port	4x SFP+ connector
LAN LED definition	Port#1 & Port#2 Indicator: Link: LED on Act: Blinking 
Advanced Software Features	Teaming support IEEE 802.3ad IEEE 802.1Q VLANs IEEE 802.3 2005 flow control support Interrupt moderation
OS Support	Windows® Server 2012 R2, 2012, 2008 R2 X86-64 Linux RedHat EL 6.5 and 7.0 IA-32, X86-64, and IA-64 Linux SuSE SLES 11 SP3 and 12 IA-32, X86-64, and IA-64 FreeBSD 9 and 10 IA-32, X86-64, and IA-64 UEFI 2.1 and 2.3 X86-64 and I-64 VMware ESXi 5.1, ESXi 5.5 and ESXi 6.0 X86-64
Operating Conditions	Operation: 0°C ~ 45°C Storage: -20°C ~ 67°C
Power Voltage & consumption	+12V ± 15% 16W
Dimension (mm)	163.7 x 74.6 x 35.5
Compliance	CE/FCC

Dimensions

Unit: mm



Ordering Information

Part Number	Description
NMC-4001-10E	4-ports 10GbE SFP+ w/ 1x Intel® 82599ES chip NMC

NMC-4005

4 Ports 10GbE SFP+ Module

Features

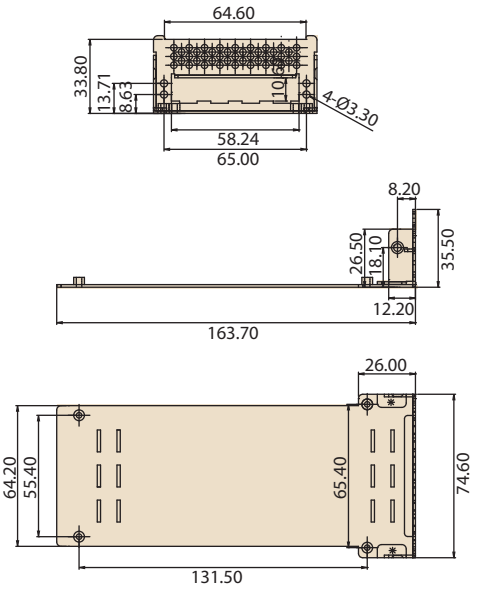
- 1x Intel® XL710-BM1
- 4 ports SFP+ connector
- PCI-E 3.0 x8
- NC-SI for IPMI Management
- RoHS compliant

Specifications

Controller	1x Intel® XL710-BM1
Interface	PCI-E 3.0 x8
Speed	10GbE
Port	4x SPF+ Port
LAN LED definition	Port#1 & Port#2 Indicator: Link: LED on Act: Blinking 
Advanced Software Features	Teaming support IEEE 802.3ad IEEE 802.1Q VLANs IEEE 802.3 2005 flow control support Interrupt moderation
OS Support	Windows® Server 2012 R2, 2012, 2008 R2 X86-64 Linux RedHat EL 6.5 and 7.0 IA-32, X86-64, and IA-64 Linux SuSE SLES 11 SP3 and 12 IA-32, X86-64, and IA-64 FreeBSD 9 and 10 IA-32, X86-64, and IA-64 UEFI 2.1 and 2.3 X86-64 and I-64 VMware ESXi 5.1, ESXi 5.5 and ESXi 6.0 X86-64
Operating Conditions	Operation: 0°C ~ 45°C Storage: -20°C ~ 67°C
Power Voltage & consumption	+12V ± 15% 16W
Dimension (mm)	163.7 x 74.6 x 35.5
Compliance	CE/FCC

Dimensions

Unit: mm



Ordering Information

Part Number	Description
NMC-4005-000010E	4-ports 10GbE SFP+ w/ Intel® XL710-BM1 chip NMC

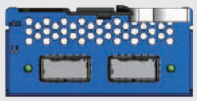
NMC-4006

2 port 40GbE QSFP+ Module

Features

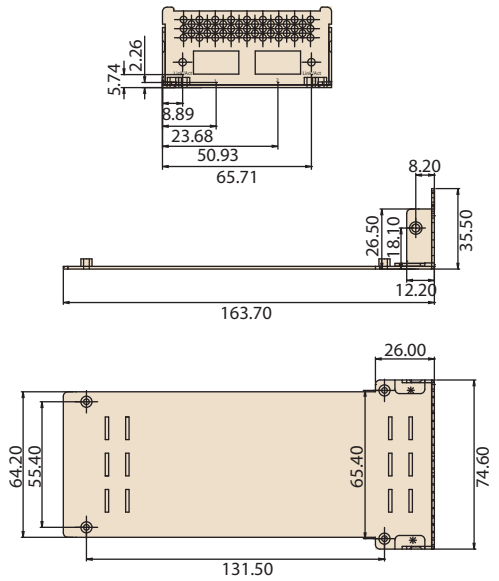
- 1x Intel® XL710-BM2
- 2 ports QSFP connector
- PCI-E 3.0 x8
- NC-SI for IPMI Management
- RoHS compliant

Specifications

Controller	1x Intel® XL710-BM2
Interface	PCI-E 3.0 x8
Speed	40GbE
Port	2x QSPF+ Port
LAN LED definition	Port#1 & Port#2 Indicator: Link: LED on Act: Blinking 
Advanced Software Features	Teaming support IEEE 802.3ad IEEE 802.1Q VLANs IEEE 802.3 2005 flow control support Interrupt moderation
OS Support	Windows® Server 2012 R2, 2012, 2008 R2 X86-64 Linux RedHat EL 6.5 and 7.0 IA-32, X86-64, and IA-64 Linux SuSE SLES 11 SP3 and 12 IA-32, X86-64, and IA-64 FreeBSD 9 and 10 IA-32, X86-64, and IA-64 UEFI 2.1 and 2.3 X86-64 and I-64 VMware ESXi 5.1, ESXi 5.5 and ESXi 6.0 X86-64
Operating Conditions	Operation:0°C ~ 45°C Storage: -20°C ~ 67°C
Power Voltage & consumption	+12V ± 15% 16W
Dimension (mm)	163.7 x 74.6 x 35.5
Compliance	CE/FCC

Dimensions

Unit: mm



Ordering Information

Part Number	Description
NMC-4006-000010E	4-ports 10GbE QSFP+ w/ Intel® XL710- BM2 chip NMC

NMC-4007

4 Ports 10GbE Fiber Advanced LAN Bypass Module

Features

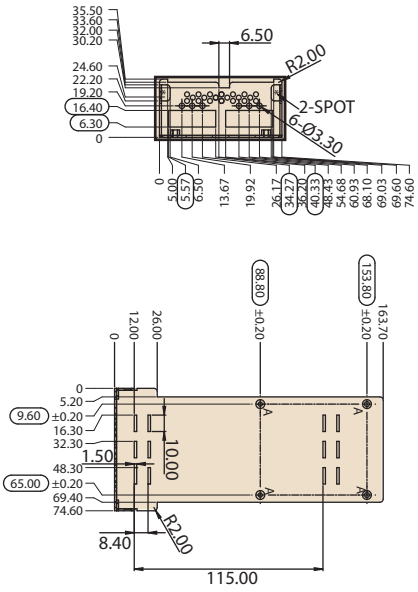
- 1x Intel® XL710-BM2
- 4 ports fiber LC (SR & LR) interface
- PCI-E 3.0 x8
- Lan Bypass model available (Advanced LAN Bypass-Bypass, Normal, Disconnect mode)
- NC-SI for IPMI Management
- RoHS compliant

Specifications

Controller	1x Intel® X710-BM2
Interface	PCI-E 3.0 x8
Speed	10GbE
Port	4x Fiber port
LAN LED definition	OE1 & OE2 Indicator: Green: Link OSW State Indicator: Amber: Optical Switch State 
Advanced Software Features	Teaming support IEEE 802.3ad IEEE 802.1Q VLANs IEEE 802.3 2005 flow control support Interrupt moderation
OS Support	Windows® Server 2012 R2, 2012, 2008 R2 X86-64 Linux RedHat EL 6.5 and 7.0 IA-32, X86-64, and IA-64 Linux SuSE SLES 11 SP3 and 12 IA-32, X86-64, and IA-64 FreeBSD 9 and 10 IA-32, X86-64, and IA-64 UEFI 2.1 and 2.3 X86-64 and I-64 VMware ESXi 5.1, ESXi 5.5 and ESXi 6.0 X86-64
Operating Conditions	Operation: 0°C ~ 45°C Storage: -20°C ~ 67°C
Power Voltage & consumption	+12V ± 15% 17W
Dimension (mm)	163.7 x 74.6 x 35.5
Compliance	CE/FCC

Dimensions

Unit: mm



Ordering Information

Part Number	Description
NMC-4007-000110E	4 ports 10GbE Fiber LC(SR) w/Advanced Bypass NMC
NMC-4007-000111E	4 ports 10GbE Fiber LC (LR) w/Advanced Bypass NMC

4

PCI Express Adapters

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PCI Express Adapters

Advantech's PCI Express adapter range of accelerators and network interface cards enables network equipment and cybersecurity solution providers to integrate LAN access and acceleration devices with more robust and reliable feature sets into industrial PCs, high-performance servers and high-end network appliances. Advantech's family of PCI Express adapters comes in a range of form factors specifically adapted for deployment in high density network appliances and high performance servers.

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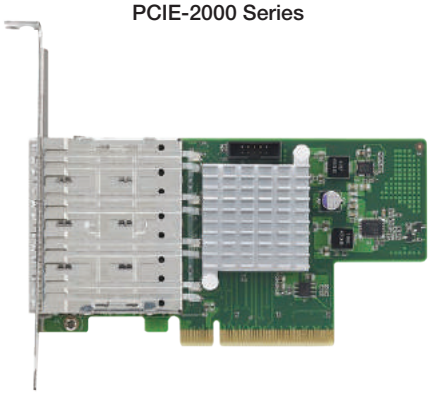
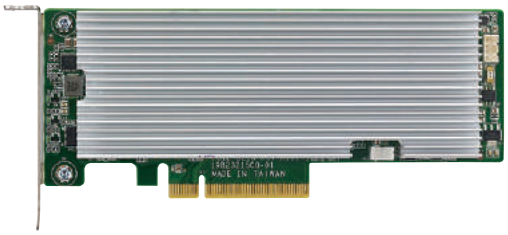
PCIE-2000 Series



Full Range of Network Interface Cards

PCIE-3000 Series



Security and Compression Offload based on Intel® QuickAssist® Technology

- **Server Class Ethernet**
- **Virtualization Support with SR-IOV and multiple queues**
- **Networking, Storage and Security Offload**
- **Ease of Integration**
- **Fulll range of 1GE, 10GE, 40GE products**
- **LAN bypass for fail to wire applications**
- **Fiber options for long reach and noise immunity**
- **Configure to Order Services**
- **Interoperability tested**
- **Revision control**
- **Performance tested with leading Spirent SmartBits**
- **Long Life Cycle**

Selection Guide

Model name		PCIE-2130	PCIE-2220	PCIE-2230	PCIE-2131	PCIE-2320	PCIE-2221BP	PCIE-2221NP
Chipset		Intel® I350	Intel® 82599ES	Intel® XL710-BM1	Intel® I350	Intel® XL710-BM2	Intel® X710-BM2	Intel® X550-AT2
Description		Quad Port Fiber Gigabit w/ Intel® I350	Dual Port Fiber 10GbE w/ Intel® 82599ES	Quad Port Fiber 10GbE w/ Intel® XL710-BM1	Quad Port Copper Bypass Gigabit w/ Intel® I350	Dual Port Fiber 40GbE w/ Intel® XL710-BM2	Dual Port Fiber 10GbE w/ Intel® X710-BM2	Dual Port Copper 10G w/ Intel® X550-AT2
Network Interface	Ports	4 x SFP cages	2 x SFP+ cages	4 x SFP+ cages	4 x RJ45 copper cages	2 x QSFP+ cage	2 x SFP+ cages	2 x copper cages
	Media	GbE	10GbE	10GbE	1GbE	40GbE	10GbE	10GbE
Form type		Standard L/P PCIe card	Standard L/P PCIe card	Standard L/P PCIe card	Standard L/P PCIe card	Standard L/P PCIe card	Standard L/P PCIe card	Standard L/P PCIe card
PCIe		PCIe gen2. x4	PCIe gen2. x8	PCIe gen3. x8	PCIe gen2. x4	PCIe gen3. x8	PCIe gen3. x8	PCIe gen3. x4
HeatSink		Passive	Passive	Passive	Passive	Passive	Passive	Passive
Present Pin Detection		–	–	–	–	–	–	–
Power	Voltage	+12V ± 15%						
	consumption	5W	8.5W	9W	5W	9W	10W	12.5W
Environment	Operating Temperature (air flow 0.7 m/sec)	0 ~ 45° C (32 ~ 113° F)	0 ~ 45° C (32 ~ 113° F)	0 ~ 45° C (32 ~ 113° F)	0 ~ 45° C (32 ~ 113° F)	0 ~ 45° C (32 ~ 113° F)	0 ~ 45° C (32 ~ 113° F)	0 ~ 45° C (32 ~ 113° F)
	Storage Temperature	-40 ~ 65° C (-40 ~ 149° F)	-40 ~ 65° C (-40 ~ 149° F)	-40 ~ 65° C (-40 ~ 149° F)	-40 ~ 65° C (-40 ~ 149° F)	-40 ~ 65° C (-40 ~ 149° F)	-40 ~ 65° C (-40 ~ 149° F)	-40 ~ 65° C (-40 ~ 149° F)
	Storage Humidity	0 ~ 90%, non-condensing	0 ~ 90%, non-condensing	0 ~ 90%, non-condensing	0 ~ 90%, non-condensing	0 ~ 90%, non-condensing	0 ~ 90%, non-condensing	0 ~ 90%, non-condensing
Mechanical	Dimensions	167 x 68.9 mm	167 x 68.9 mm	167 x 68.9 mm	167 x 68.9 mm	167 x 68.9 mm	167 x 68.9 mm	167 x 68.9 mm
	Net Weight	0.08kg	0.07kg	0.125kg	0.125kg	0.135kg	0.2kg	0.115kg
Part Number		PCIE-2130NP-00A1E	PCIE-2220NP-00A1E	PCIE-2230NP-00A1E	PCIE-2131BP-00A1E (4 ports w/ bypass) PCIE-2131NP-00A1E (2 ports w/o bypass) PCIE-2131NP-01A1E (4 ports w/o bypass)	PCIE-2320NP-00A1E (2 ports) PCIE-2320NP-01A1E (1 port)	PCIE-2221BP-00A1E	PCIE-2221NP-00A1E (2 ports) PCIE-2221NP-01A1E (1 port)
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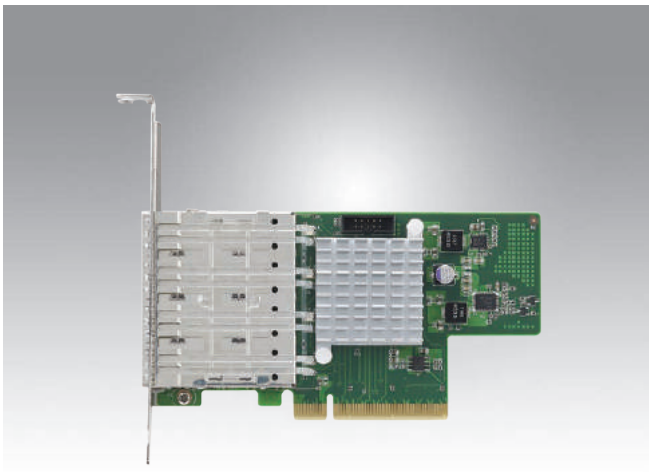
Model Name		PCIE-3020				PCIE-3021
Part Number		PCIe-3020NA-00A1E	PCIe-3020NP-01A1E	PCIe-3020NP-02A1E	PCIe-3020NP-03A1E	PCIe-3021-00E
Chipset		Intel® DH 8950	Intel® DH 8950	Intel® DH 8950	Intel® DH 8925	Intel® DH 8955
Description		Dual 8950 w/ Active heatsink	Dual 8950 w/ Passive heatsink	Single 8950 w/ Passive heatsink	Single 8925 w/ Passive heatsink	Dual 8955 w/ Passive heatsink
Network Interface (connector type)		PCIe				
Form type		Standard PCIe card	Standard PCIe card	Standard PCIe card	Standard PCIe card	Proprietary PCIe card
PCIe		PCIe gen3. x8	PCIe gen3. x8	PCIe gen3. x8	PCIe gen3. x8	PCIe gen3. x16
HeatSink		Active	Passive	Passive	Passive	Passive
Present Pin Detection		–	–	–	–	–
Power	Voltage	+12V ± 15%				+12V ± 15%
	consumption	50W	50W	30W	27W	52W
Environment	Operating Temperature (air flow 0.7 m/sec)	0 ~ 40°C (32 ~ 131°F)	0 ~ 40°C (32 ~ 131°F)	0 ~ 40°C (32 ~ 131°F)	0 ~ 40°C (32 ~ 131°F)	0 ~ 40°C (32 ~ 131°F)
	Storage Temperature	-40 ~ 70°C (-40 ~158°F)	-40 ~ 70°C (-40 ~158°F)	-40 ~ 70°C (-40 ~158°F)	-40 ~ 70°C (-40 ~158°F)	-40 ~ 70°C (-40 ~158°F)
	Storage Humidity	95 % @ 40° C (140° F)	95 % @ 40° C (140° F)	95 % @ 40° C (140° F)	95 % @ 40° C (140° F)	95 % @ 40° C (140° F)
	Vibration Resistance	1.0.5Grms (operating); 2.16Grms (Non operating) 2. System condition: Packaged mode 3. Test Frequency: 5-500Hz 4. Test Axis: X, Y and Z axis	1.0.5Grms (operating); 2.16Grms (Non operating) 2. System condition: Packaged mode 3. Test Frequency: 5-500Hz 4. Test Axis: X, Y and Z axis	1.0.5Grms (operating); 2.16Grms (Non operating) 2. System condition: Packaged mode 3. Test Frequency: 5-500Hz 4. Test Axis: X, Y and Z axis	1.0.5Grms (operating); 2.16Grms (Non operating) 2. System condition: Packaged mode 3. Test Frequency: 5-500Hz 4. Test Axis: X, Y and Z axis	1.0.5Grms (operating); 2.16Grms (Non operating) 2. System condition: Packaged mode 3. Test Frequency: 5-500Hz 4. Test Axis: X, Y and Z axis
	Shock Protection	4G each axis (Operating); 20G each axis (Non-operating)	4G each axis (Operating); 20G each axis (Non-operating)	4G each axis (Operating); 20G each axis (Non-operating)	4G each axis (Operating); 20G each axis (Non-operating)	4G each axis (Operating); 20G each axis (Non-operating)
Mechanical	Dimensions (W x H x D) mm	60 x 20 x 195 mm	60 x 20 x 195 mm	60 x 20 x 195 mm	60 x 20 x 195 mm	86 x15 x 125 mm
	Weight	0.37kg	0.37kg	0.37kg	0.37kg	0.35kg
Page		4-11				4-12

PCIE-2130

Quad Port Fiber Gigabit Ethernet PCI Express Server Adapter with Intel® I350



Features

- 1 x Intel® Ethernet Controller I350-AM4
- 4 x GbE SFP ports
- PCIe gen. 2 x4 host interface
- Supports multi-mode fiber (SX) and single mode fiber (LX) modules
- Supports SR-IOV based virtualization
- Low profile and half length form factors

RoHS COMPLIANT 2002/95/EC CE FCC

Introduction

Advantech's PCIE-2130 is a low-profile quad port Gigabit Ethernet PCI Express server adapter based on the Intel® Ethernet Controller I350-AM4. By supporting a PCI Express gen. 2 x4 host interface, this adapter provides sufficient bandwidth for line rate traffic on all Gigabit Ethernet ports. Four SFP ports can be configured to support a variety of optical transceivers such as single mode SX, multi mode LX optical as well as 1G Base-T copper modules. Improved support for virtualization, including VMDq and SR-IOV make the PCIE-2130 a perfect fit for virtualized environments and applications with network overlays. PCIE-2130 can be used to achieve high densities of network interfaces on servers and platforms for networking as well as industrial applications.

Specifications

Controller		Intel® I350-AM4 MAC+PHY
	Physical Functions	2
	Virtual Functions	8
Host Interface	PCI Express	4 lanes gen. 2
Network Interfaces	Ports	4 SFP cages
	LEDs (per port)	Link/Act LED (Green)
Software support	Operating Systems	Red Hat, CentOS Linux (Windows Server and FreeBSD under investigation)
	Virtualization	KVM (VMware under investigation)
Power consumption	+12V	5W
Environment	Operating Humidity	0 ~ 90%, non-condensing
	Operating Temperature	0 ~ 45° C (32 ~ 113° F)
	Storage	-40 ~ 65° C (-40 ~ 149° F)
Mechanical Specifications	Board Dimension	167 x 68.9mm (PCIe low profile)
	Bracket	Full height and low profile options available
Compliance	EMC Certifications:	FCC CE Class A

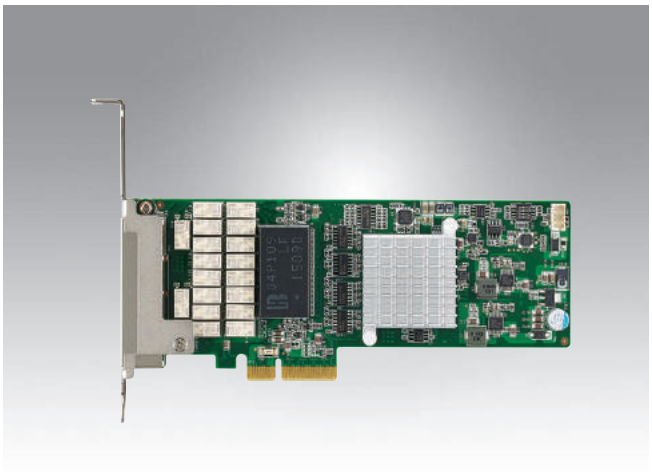
Ordering Information

Part Number	Description
PCIE-2130NP-00A1E	4-port Fiber Gigabit Ethernet PCI Express Server Adapter with Intel® I350 controller

Please contact your Advantech representative of a list of supported and validated transceiver modules.

PCIE-2131

Quad Port Copper Bypass Gigabit Ethernet PCI Express Server Adapter with Intel® I350



Features

- 1 x Intel® Ethernet Controller I350-AM4
- 4 x GbE RJ45 ports
- PCIe gen. 2 x4 host interface
- Supports SR-IOV based virtualization
- Low profile and half length form factors
- Advanced LAN bypass

RoHS COMPLIANT 2002/95/EC CE FCC

Introduction

Advantech's PCIE-2131 is a low-profile quad port Gigabit Ethernet PCI Express server adapter based on the Intel® Ethernet Controller I350 series. By supporting a PCI Express gen. 2 x4 host interface, this adapter provides sufficient bandwidth for line rate traffic on all Gigabit Ethernet ports. Improved support for virtualization, including VMDq and SR-IOV make the PCIE-2131 a perfect fit for virtualized environments and applications with network overlays. PCIE-2131 can be used to achieve high densities of network interfaces on servers and platforms for networking as well as industrial applications.

Specifications

Controller		Intel® I350-AM4 MAC+PHY
	Physical Functions	2
	Virtual Functions	8
Host Interface	PCI Express	4 lanes gen. 2
Network Interfaces	Ports	4 RJ45 connectors with 10/100/1000Base-T support
	LEDs (per port)	Right: Speed -10: None Speed -100: Amber Speed -GbE: Green Left: Link: Green Active: Blinking Green Bypass: Amber
Software support	Operating Systems	Red Hat, CentOS Linux (Windows Server and FreeBSD under investigation)
	Virtualization	KVM (VMware under investigation)
Power consumption	+12V	5W
Environment	Operating Humidity	0% ~ 90%, non-condensing
	Operating Temperature	0 ~ 45° C (32 ~ 113° F)
	Storage	-40 ~ 65° C (-40 ~ 149° F)
Mechanical Specifications	Board Dimension	167 x 68.9 mm (PCIe low profile)
	Bracket	Full height and low profile options available
Compliance	EMC Certifications	FCC CE Class A

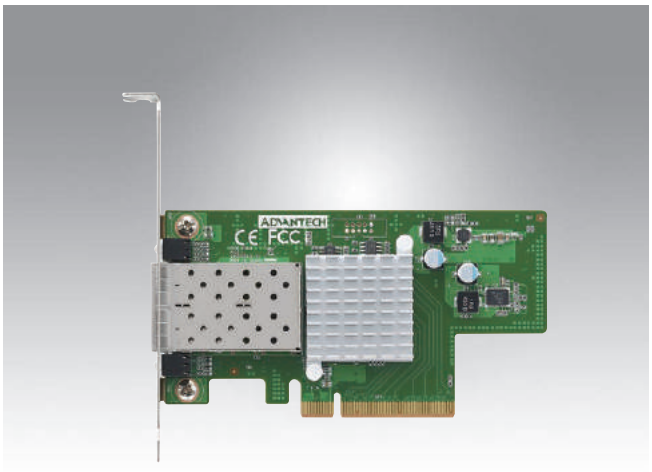
Ordering Information

Part Number	Description
PCIE-2131BP-00A1E	4-port 1GbE copper bypass NIC with Intel® I350-AM4 controller
PCIE-2131NP-00A1E	4-port 1GbE copper NIC with Intel® I350-AM4 controller
PCIE-2131NP-01A1E	2-port 1GbE copper NIC with Intel® I350-AM2 controller

Please contact your Advantech representative of a list of supported and validated transceiver modules.

PCIE-2220

Dual Port Fiber 10GbE Ethernet PCI Express Server Adapter with Intel® 82599ES



Features

- 1 x Intel® 82599ES Ethernet Controller
- 2 x 10GbE SFP+ ports
- PCIe gen. 2 x8 host interface
- Supports 10GBASE-SR and 10GBASE-LR
- Supports SR-IOV based virtualization
- Low profile and half length form factors

Introduction

Advantech's PCIE-2220 is a low-profile dual port 10GbE Ethernet PCI Express server adapter based on the Intel® 82599ES Ethernet Controller. By supporting a PCI Express gen. 2 x8 host interface, this adapter provides sufficient bandwidth for line rate traffic on both 10GbE ports. Two SFP+ ports can be configured to support a variety of optical transceivers such as 10GBASE-SR and 10GBASE-LR optical modules as well as direct attach cables. Improved support for virtualization, including VMDq and SR-IOV make the PCIE-2220 a perfect fit for virtualized environments and applications with network overlays. PCIE-2220 is an ideal network interface solution for multi-tenant environments, Network Function Virtualization as well as networking applications such as WAN optimization and cyber security.

Specifications

Controller		Intel® 82599ES MAC+PHY
	Physical Functions	2
	Virtual Functions	64
	Virtualization Support	VMDq, SRIOV
Host Interface	PCI Express	8 lanes gen. 2
Network Interfaces	Ports	2 SFP+ cages
	Media	10GBASE-SR, -LR, -ER, -T transceivers, Direct Attach cables
	LEDs (per port)	Link/Act LED (Green) Speed: 10GbE (Green), GbE (Amber)
Software support	Operating Systems	Red Hat, CentOS Linux (Windows Server and FreeBSD under investigation)
	Virtualization	KVM (VMware under investigation)
Power consumption	+12V	8.5W
Environment	Operating Humidity	0 ~ 90%, non-condensing
	Operating Temperature	0 ~ 45° C (32 ~ 113° F)
	Storage	-40 ~ 65° C (-40 ~ 149° F)
Mechanical Specifications	Board Dimension	167 x 68.9mm (PCIe low profile)
	Holder	Full height and low profile options available
Compliance	EMC Certifications	FCC CE Class A

Ordering Information

Part Number	Description
PCIE-2220NP-00A1E	2-port Fiber 10GbE Ethernet PCI Express Server Adapter with Intel® 82599ES

Please contact your Advantech representative of a list of supported and validated transceiver modules.

PCIE-2230

Quad Port Fiber 10GbE Ethernet PCI Express Server Adapter with Intel® XL710-BM1

Features

- 1 x Intel® Ethernet Controller XL710-BM1
- 4 x 10GbE SFP+ ports
- Supports 10GBASE-SR and 10GBASE-LR transceivers
- PCIe gen. 3 x8 host interface
- Supports SR-IOV based virtualization
- Advanced virtualization and network overlay support
- Low profile and half length form factors

RoHS COMPLIANT 2002/95/EC CE FCC

Introduction

Advantech's PCIE-2230 is a low-profile quad port 10GbE Ethernet PCI Express server adapter based on the Intel® Ethernet Controller XL710-BM1. By supporting a PCI Express Gen3 x8 host interface, this adapter provides sufficient bandwidth for line rate traffic on all four 10GbE ports. Quad SFP+ ports can be configured to support a variety of optical transceivers such as 10GBASE-SR and 10GBASE-LR optical modules as well as direct attach cables. Improved support for virtualization, including VMDq, SR-IOV and VEB make the PCIE-2230 a perfect fit for virtualized environments and applications with network overlays. Packet filtering, load balancing and protocol offload capabilities further enhance efficiency by saving valuable processing time on the host.

PCIE-2230 is an ideal network interface solution for multi-tenant environments and Network Function Virtualization as well as networking applications such as WAN optimization and cyber security.

Specifications

Controller		Intel® XL710-BM1 MAC+PHY
	Physical Functions	4
	Virtual Functions	128
	Virtualization Support	VMDq, SRIOV, VEB
Host Interface	PCI Express	8 lanes gen. 3
Network Interfaces	Ports	4 SFP+ cages
	Media	10GBASE-SR, -LR, -ER, -T transceivers, Direct Attach cables
	LEDs (per port)	Link/Act (Green/ Green Blink) Speed: 10GbE (Green), GbE (Amber)
Software support	Operating Systems	Red Hat, CentOS Linux (Windows Server and FreeBSD under investigation)
	Virtualization	KVM (VMWare under investigation)
	others	Intel® DPDK
Power consumption	+12V	9W
Environment	Operating Humidity	0 ~ 90%, non-condensing
	Operating Temperature	0 ~ 45° C (32 ~ 113° F)
	Storage	-40 ~ 65° C (-40 ~ 149° F)
Mechanical Specifications	Board Dimensions	167 x 68.9mm (PCIe low profile)
	Bracket	Full height and low profile options available
Compliance	EMC Certifications	FCC, CE Class A

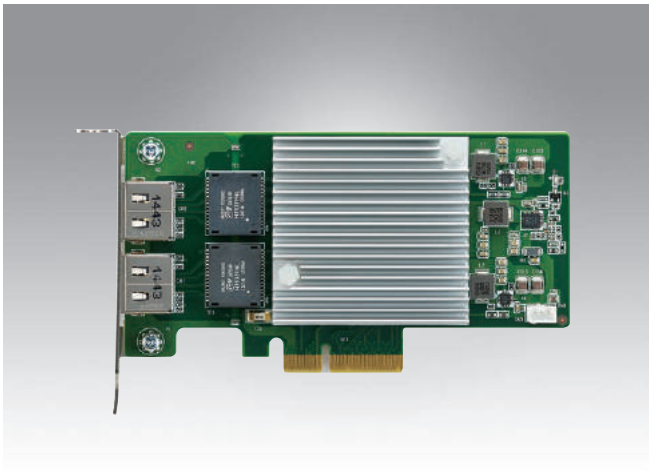
Ordering Information

Part Number	Description
PCIE-2230NP-00A1E	4-port Fiber 10GbE Ethernet PCI Express Server Adapter with Intel® XL710-BM1

Please contact your Advantech representative of a list of supported and validated transceiver modules.

PCIE-2221NP

Dual Port Copper 10GbE Ethernet PCI Express Server Adapter with Intel® X550-AT2



Features

- 1 x Intel® X550-AT2 Ethernet Controller
- 2 x 10GbE Copper ports
- PCIe gen. 3 x4 host interface
- Supports SR-IOV based virtualization
- Advanced virtualization and network overlay support
- Low profile and half length form factors

RoHS COMPLIANT 2002/95/EC CE FCC

Introduction

Advantech's PCIE-2221NP is a low-profile dual port 10GbE Ethernet PCI Express server adapter based on the Intel® Ethernet Controller X550-AT2. By supporting a PCI Express gen. 3 x4 host interface, this adapter provides sufficient bandwidth for line rate traffic on all two 10GbE ports. Improved support for virtualization, including VMDq and VEB make the PCIE-2221NP a perfect fit for virtualized environments and applications with network overlays. PCIE-2221NP can be used to achieve high densities of network interfaces on servers and platforms for networking as well as industrial applications.

Specifications

Controller		Intel® X550-AT2 MAC+PHY
	Physical Functions	2
	Virtual Functions	128
	Virtualization Support	VMDq, SRIOV, VEB
Host Interface	PCI Express	4 lanes gen. 3
Network Interfaces	Ports	2 RJ-45 Copper
	Media	10GBASE-T copper Physical Layer Transceivers
	LEDs (per port)	Link/Act LED (Green/Green Blink) Speed: 10GbE (Green), GbE (Amber)
Software support	Operating Systems	Red Hat, CentOS Linux (Windows Server and FreeBSD under investigation)
	Virtualization	KVM (VMware under investigation)
	Other	Intel® DPDK
Power consumption	+12V	12.5W
Environment	Operating Humidity	0 ~ 90%, non-condensing
	Operating Temperature	0 ~ 45° C (32 ~ 113° F)
	Storage	-40 ~ 65° C (-40 ~ 149° F)
Mechanical Specifications	Board Dimension	167 x 68.9 mm (PCIe low profile)
	Bracket	Full height and low profile options available
Compliance	EMC Certifications	FCC CE Class A

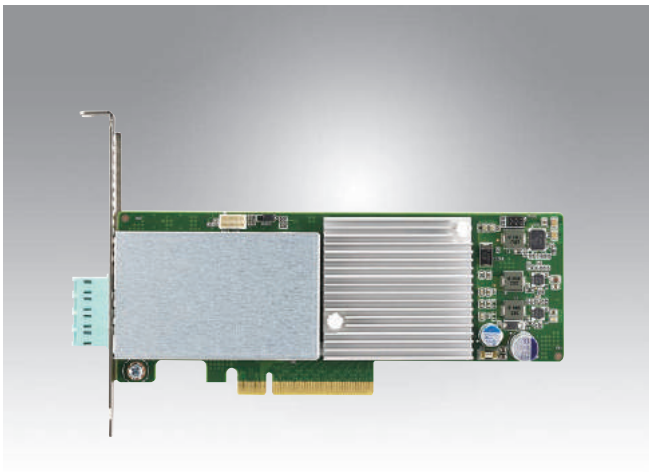
Ordering Information

Part Number	Description
PCIE-2221NP-00A1E	2-port 10GBase-T Ethernet PCI Express Server Adapter with Intel® X550 controller
PCIE-2221NP-01A1E	1-port 10GBase-T Ethernet PCI Express Server Adapter with Intel® X550 controller

Please contact your Advantech representative of a list of supported and validated transceiver modules.

PCIE-2221BP

Dual Port Fiber 10GbE Ethernet PCI Express Server Adapter with Intel® X710-BM2



Features

- 1 x Intel® X710-BM2 Ethernet Controller
- 2 x 10GbE LAN ports
- Supports 10G-SR, 10G-LR, 10G-ER Optical Bypass Module
- PCIe gen. 3 x8 host interface
- Supports SR-IOV based virtualization
- Low profile and half length form factors

RoHS COMPLIANT 2002/95/EC CE FCC

Introduction

Advantech's PCIE-2221BP is a low-profile dual port 10GbE PCI Express server adapter based on the Intel® X710-BM2 Ethernet Controller. By supporting a PCI Express gen. 3 x8 host interface, this adapter supports fiber interfaces with advanced LAN bypass. PCIE-2221BP is compliant with PCIe card form factor and can be used on Advantech network appliance platforms. mproved support for virtualization, including VMDq and SR-IOV and VEB make the PCIE-2221BP a perfect fit for virtualized environments and applications with network overlays. PCIE-2221BP can be used to achieve high densities of network interfaces on servers and platforms for networking as well as industrial applications.

Specifications

Controller		Intel® X710-BM2 MAC+PHY
	Physical Functions	2
	Virtual Functions	128
	Virtualization Support	VMDq, SRIOV, VEB
Host Interface	PCI Express	8 lanes gen. 3
Network Interfaces	Ports	2 SFP+ cages
	LEDs (per port)	Link/Act LED (Green/Green Blink) Lan bypass LED (Amber)
Software support	Operating Systems	Red Hat, CentOS Linux (Windows Server and FreeBSD under investigation)
	Virtualization	KVM (VMware under investigation)
	Other	Intel® DPDK
Power consumption	+12V	10W
Environment	Operating Humidity	0% ~ 90%, non-condensing
	Operating Temperature	0 ~ 45° C (32 ~ 113° F)
	Storage	-40 ~ 65° C (-40 ~ 149° F)
Mechanical Specifications	Board Dimension	167 x 68.9 mm (PCIe low profile)
	Bracket	Full height and low profile options available
Compliance	EMC Certifications	FCC CE Class A

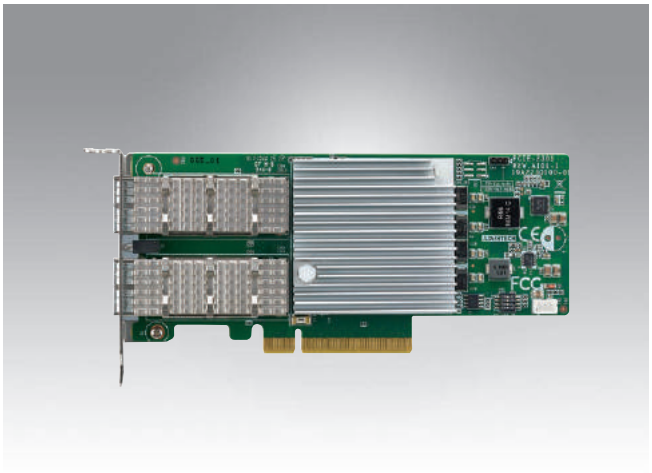
Ordering Information

Part Number	Description
PCIE-2221BP-00A1E	2-port 10GbE fiber bypass NIC with Intel® X710 controller

Please contact your Advantech representative of a list of supported and validated transceiver modules.

PCIE-2320

Dual Port Fiber 40GbE Ethernet PCI Express Server Adapter with Intel® XL710-BM2



Features

- 1 x Intel® Ethernet Controller XL710-BM2
- 2 x 40GbE QSFP+ ports
- Supports 40GBASE-SR and 40GBASE-LR (TBD) transceivers
- PCIe gen. 3 x8 host interface
- Supports SR-IOV based virtualization
- Advanced virtualization and network overlay support
- Low profile and half length form factors

RoHS CE FCC

Introduction

Advantech's PCIE-2320 is a low-profile dual port 40GbE Ethernet PCI Express server adapter based on the Intel® Ethernet Controller XL710-BM2. By supporting a PCI Express gen. 3 x8 host interface, this adapter provides sufficient bandwidth for line rate traffic on both 40GbE ports. Dual QSFP+ ports can be configured to support a variety of optical transceivers such as 40GBASE-SR and 40GBASE-LR (TBD) optical modules as well as direct attach cables. Improved support for virtualization, including VMDq, SR-IOV and VEB make the PCIE-2320 a perfect fit for virtualized environments and applications with network overlays. Packet filtering, load balancing and protocol offload capabilities further enhance efficiency by saving valuable processing time on the host.

PCIE-2320 is an ideal network interface solution for multi-tenant environments, Network Function Virtualization as well as networking applications such as WAN optimization and cyber security.

Specifications

Controller		Intel® XL710-BM2 MAC+PHY
	Physical Functions	2
	Virtual Functions	128
	Virtualization Support	VMDq, SRIOV, VEB
Host Interface	PCI Express	8 lanes gen. 3
Network Interfaces	Ports	2 QSFP+ cages
	Media	40GBASE-SR, -LR(TBD), -T transceivers, Direct Attach cables
	LEDs (per port)	Link/Act LED (Green/Green Blink) Speed: 40GbE (Green)
Software support	Operating Systems	Red Hat, CentOS Linux (Windows Server and FreeBSD under investigation)
	Virtualization	KVM (VMware under investigation)
	Other	Intel® DPDK
Power consumption	+12V	9W
Environment	Operating Humidity	0% ~ 90%, non-condensing
	Operating Temperature	0 ~ 45° C (32 ~ 113° F)
	Storage	-40 ~ 65° C (-40 ~ 149° F)
Mechanical Specifications	Board Dimension	167 x 68.9 mm (PCIe low profile)
	Bracket	Full height and low profile options available
Compliance	EMC Certifications	FCC CE Class A

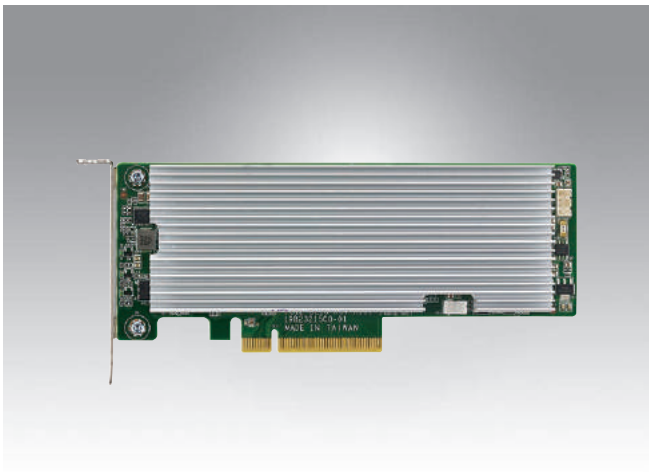
Ordering Information

Part Number	Description
PCIE-2320NP-00A1E	2-port 40GbE fiber (QSFP+) Ethernet PCI Express Server Adapter with Intel® XL710 controller
PCIE-2320NP-01A1E	1-port 40GbE fiber (QSFP+) Ethernet PCI Express Server Adapter with Intel® XL710 controller

Please contact your Advantech representative of a list of supported and validated transceiver modules.

PCIE-3020

Dual / Single Intel® QuickAssist Acceleration Card



Features

- One or two Intel® QuickAssist Accelerators based on the Intel® Communications Chipset 8950 & 8925 previously codenamed "Coleto Creek"
- Compression, Crypto, Security Offload and Acceleration
- IPsec and SSL Acceleration including AES, 3DES, Kasumi and SNOW
- Two devices provide over 300k RSA decrypt ops per card
- Compression/Decompression with 40Gbps Compression offload (LZS, Deflate) per card
- PCIe gen. 3 x8 host interface
- Onboard Gen.3 PCIe switch
- Half-height, half-length PCIe form factor

RoHS COMPLIANT 2002/95/EC CE FCC

Introduction

Advantech's PCIE-3020 is a half-height, half-length PCI Express adapter supporting hardware acceleration for Intel® QuickAssist Technology. In the highest performance SKU, two Intel® Communications Chipset 8950 onboard accelerator devices are complemented by a PCI Express gen. 3 switch to fully utilize the bandwidth offered by the latest Intel® Xeon® E5 processor family. Packaged in a standard half-height, half-length PCIe form factor, the PCIE-3020 is a perfect fit for hardware acceleration and offloading in high performance, high density throughput servers and appliances.

Offering acceleration for common security and crypto offloads such as AES, 3DES, Kasumi and SNOW, the PCIE-3020 can supplement the CPU throughput for the termination of standard security protocols such as IPsec and SSL, freeing up valuable cores and CPU cycles for application processing. With 50Gbps bulk crypto throughput and 165k RSA decrypt ops per accelerator device, the PCIE-3020 with more than 300k RSA decrypt ops offers best-in-class performance per watt at an outstanding price-performance ratio. Complemented with 20Gbps compression offload (LZS, Deflate) and even higher decompression offload per accelerator device, the PCIE-3020 can also be of great benefit in storage applications.

Ultimately, the PCIE-3020 supports simultaneous crypto and compression offloading, making it an ideal choice for demanding applications such as WAN and traffic optimization, secure storage and secure web servers. Two price / performance optimized variants of the card are available supporting one Intel® DH8950 and one Intel® DH8925 PCH device providing scalability of Intel® QuickAssist offload capability.

Fully supported by Intel® QuickAssist Libraries and the Intel® Data Plane Development Kit (DPDK), customers can use application software without modifications across Intel® platforms with and without Intel® QuickAssist hardware acceleration minimizing time-to-market, total cost of ownership and resource investment.

Complementing Advantech's offering of standard blades, servers and appliances with built-in and scalable Intel® QuickAssist offload, the PCIE-3020 rounds up the portfolio by bringing Intel® QuickAssist offload to white-box servers and proprietary platforms. Through Advantech's Customized COTS framework and services, the PCIE-3020 can be easily tailored to meet customer requirements, both in terms of standard PCIe form factor cards with different accelerator configurations or integrated with Ethernet controller silicon on both standard and proprietary form factor cards. Contact your Advantech representative to learn more about Advantech's standard PCIe adapters, networking platforms or professional customization services.

Specifications

Accelerator	Chipset	2 x Intel® Communications Chipset 8950	1 x Intel® Communications Chipset 8950	1 x Intel® Communications Chipset 8925
PCIexpress	Host Interface	PCIe gen. 3 x8 (8Gbps/lane)		
	Onboard switch	PLX PEX8747		
Software	Intel® DPDK	Version 1.0 or higher		
Power Requirement	Configuration	2 x Intel® Communications Chipset 8950	1 x Intel® Communications Chipset 8950	1 x Intel® Communications Chipset 8925
	Consumption	50W (typical)	30W (typical)	27W (typical)
Physical Characteristics	PCB Dimensions	Half height, low profile PCIe		
	Weight	0.37 kg	0.35 kg	0.35 kg
Environment		Operating		Non-operating
	Temperature	0 ~ 40° C (32 ~ 131° F)		- 40 ~ 70° C (-40 ~ 158° F)
	Humidity	5 to 93% @ 40° C (non condensing)		95% @ 40° C (non-condensing)
	Shock	4 G each axis		20 G each axis
	Vibration (5 ~ 500 Hz)	0.5 Grms		2.16 Grms, 30 mins each axis
Compliance	Environment	ETSI EN300019-2-1 Class1.2, EN300019-2-2 Class 2.3		
	PCI SIG	PCI Express CEM Specification Rev. 2.0		

Ordering Information

Model Number	Configuration
PCIE-3020NA-00A1E	Dual Intel® QuickAssist Acceleration Adapter with Intel® DH8950 and active heatsink
PCIE-3020NP-01A1E	Dual Intel® QuickAssist Acceleration Adapter with Intel® DH8950 and passive heatsink
PCIE-3020NP-02A1E	Single Intel® QuickAssist Acceleration Adapter with Intel® DH8950 and passive heatsink
PCIE-3020NP-03A1E	Single Intel® QuickAssist Acceleration Adapter with Intel® DH8925 and passive heatsink

PCIE-3021

Dual Intel® DH 8955 QuickAssist Acceleration Card

Features

- Dual Intel® QuickAssist Accelerator based on the Intel® Communications Chipset 8955 codenamed "Coleto Creek"
- Support for SR-IOV
- Up to 100Gbps Compression, Crypto, Security Offload and Acceleration
- IPsec and SSL Acceleration including AES, 3DES, Kasumi and SNOW
- Two devices provide over 300k RSA decrypt ops per card
- Compression/Decompression offload (LZS, Deflate) per card
- PCIe gen. 3 x16 host interface
- Standard low profile PCIe and custom small form factor options

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Introduction

Advantech's PCIE-3021 is a PCI-Express based adapter supporting hardware acceleration for Intel® QuickAssist Technology. It is offered in a standard PCI Express add-in card form factor as well as a small form factor footprint for density optimized platforms such as Advantech's FWA-5020. The adapter supports two Intel® Communications Chipset 8955 devices behind a PCIe gen.3 switch to leverage the full acceleration capabilities of the devices.

Offering acceleration for common security and crypto offloads such as AES, 3DES, Kasumi and SNOW, the PCIE-3021 can supplement the CPU throughput for the termination of standard security protocols such as IPsec and SSL, freeing up valuable cores and CPU cycles for application processing. With 100Gbps bulk crypto throughput and more than 300k RSA decrypt operations, the PCIE-3021 offers best-in-class performance per watt at an outstanding price-performance ratio.

Complemented with 100Gbps compression and decompression offload (LZS, Deflate), the PCIE-3021 can also be of great benefit in storage applications.

Ultimately, the PCIE-3021 supports simultaneous crypto and compression offloading, making it an ideal choice for demanding applications such as WAN and traffic optimization, secure storage and secure web servers.

Fully supported by Intel® QuickAssist Libraries and the Intel® Data Plane Development Kit (DPDK), customers can use application software without modifications across Intel® platforms with and without Intel® QuickAssist hardware acceleration minimizing time-to-market, total cost of ownership and resource investment.

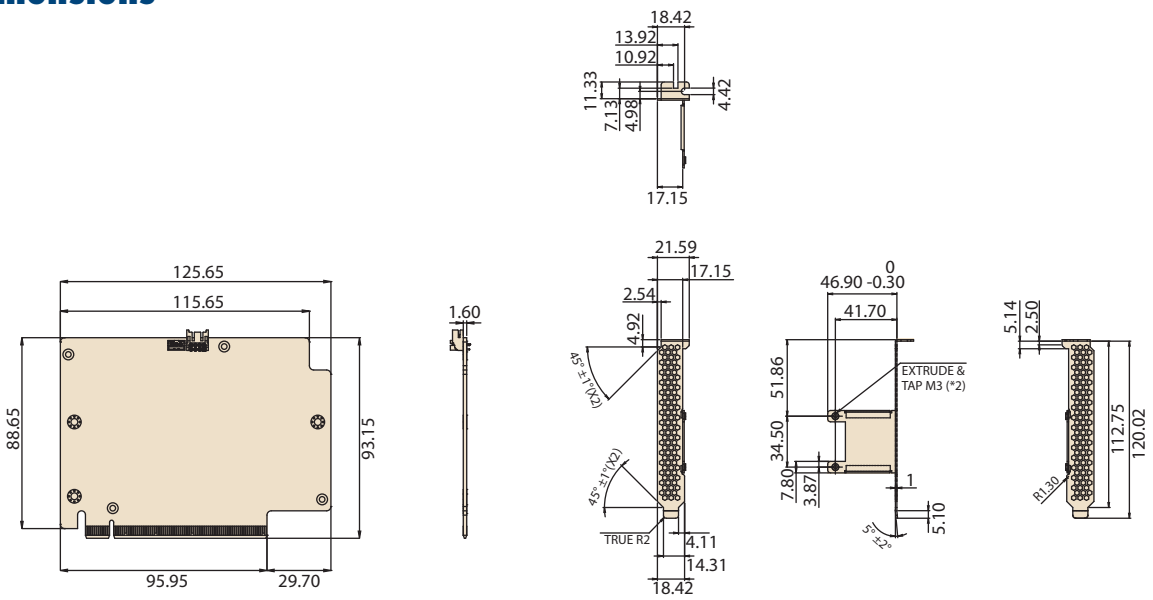
Contact your Advantech representative to learn more about Advantech's standard PCIe adapters, networking platforms or professional customization services.

Specifications

Chipset		Dual 8955 w/ Passive heatsink
Form type		Low profile and small form factor PCIe card
PCIe		PCIe gen3. x16
Software Support		Intel® QuickAssist library and DPDK
Virtualization Support		SR-IOV with 32 virtual functions per 8955 device
HeatSink		Passive
Power	Voltage	+12V ± 15%
	consumption	52W
Environment	Operating Temperature (air flow 0.7 m/sec)	0°C ~ 40°C (32°F~131°F)
	Storage Temperature	-40°C ~ 70°C (-40°F~158°F)
	Storage Humidity	95 % @ 40° C (140° F) non condensing
	Vibration Resistance	0.5Grms (operating); 2.16 Grms (Non- operating), 5-500Hz
	Shock Protection	4G each axis (Operating); 20G each axis (Non-operating)
Mechanical	Dimensions (W x H x D)	86 x 15 x 125 mm (PCB size)
	Weight	0.35kg
Compliance	Safety and Regulatory	CE/FCC compliant

Dimensions

Unit: mm



Ordering Information

Model Number	Configuration
PCIe-3021-00E	PCIE-3021-00E Dual Intel® QuickAssist Acceleration Adapter with Intel® DH8955 and passive heatsink

Packing List

Part Number	Description
1960077983N001	Standard PCIE Bracket for PCIE-3021

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Network Switches

Please visit www.advantech.com/nc for the latest product updates.

Network Switches

White-box switching platforms from Advantech offer the intelligent bare-metal switching capabilities upon which network equipment providers and proficient SDN/NFV developers can design their own software and services. They offer a new generation of intelligent switching platform for software defined networks that provide the performance, flexibility and port density required by highly virtualized enterprise and data center environments. The portfolio is designed for NFV network architects requiring open switching platforms that are programmable, scale easily and offer greater operational simplicity allowing them to develop functions that provide a deeper understanding of what's going on in their network.

The switches are all based on standard merchant silicon from Broadcom, Intel® and NXP, making the switch more programmable and economical, allowing developers to easily add new services and capabilities that give them greater network insight.

The platforms utilize standards-based protocols such as OpenFlow, and support manageability through open technologies such as OpenStack and OpenDaylight. They also allow developers to implement virtual security functions for high performance packet processing functions such as firewalling, intrusion detection and IPSEC over VxLAN.

Redundant, hot swappable, DC power supplies and fans, along with IPMI 2.0 and OpenIPMI hardware management interfaces provide the high availability and management features which equip the switch for managing business-critical traffic.

The platforms help OEMs and their customers unleash the full value of SDN, while saving power and cost by eliminating the need for additional appliances commonly required in traditional switching implementations.

ESP-9110

1U Rackmount Enterprise-Class Switch with combo port flexibility:16 x 1000BASE-T/TX, 24 x GbE SFP & 4 x 10GbE SFP+

ESP-9212

High Performance 10/40GbE Top of Rack Ethernet Switch (Fiber Version)

ESP-9230

High Performance 10/25/40/50/100GbE Top of Rack Ethernet Switch

Selection Guide

Model name		ESP-9110	ESP-9212	ESP-9230
Part Number		ESP-9110-F0AF0E	ESP9212F2A0PN0E-ES	ESP92302500AAE-ES
Status		MP	MP	DVT
Life Cycle		5	5	5
Processor, Memory and Switch	CPU	Intel®	Intel®	Intel®
	Switch	Broadcom	Broadcom	Broadcom
	Flash Memory		2 x 64Mbit SPI Flash	2 x 1Gbit SPI Flash
	Memory	2GB	16GB	32GB
	Bandwidth	128 Gbps	680Gbps	3.2Tbps
Interface	Switch I/O	4 x 10GbE SFP+ slot 8 x 100/1000BaseFX(X) SFP 16 x Gigabit Combo Port (Gigabit 10/100/1000Base-T(X) or 100/1000BaseFX(X) SFP	44 x 10GbE SFP+ 6 x 40GbE QSFP	2 x 10GbE SFP+ 32 x 100GbE QSFP28/ 64 x 50GbE/ 32 x 40GbE/ 128 x 25-GbE/ 128 x 10-GbE
	Mgmt I/O	1x GbE RJ-45	1x GbE RJ-45	2 x GbE RJ-45
	Console	RJ-45	RJ-45	RJ-45
	USB	1 x USB	3x USB	2 x USB
Local Storage	SATA	N/A	2 x SATA	2 x M.2 SATA
Fan	System Fans	Fanless	4x Hot-swappable redundant FAN trays	5 x Hot-swappable redundant FAN trays; support reverse and forward airflow
	Air Flow	Forward	Forward/Reverse	Forward/Reverse
Power	Power Supply	2x AC	2x Redundant AC/DC PSU	Redundant AC/DC PSU
	Power Input	110 ~ 220 VAC Redundant Inputs	AC 100 -240 V @ 47-63 Hz, full range	AC 100 -240 V @ 47-63 Hz, full range
	Consumption	72Watts Max	312 Watt Max	435 Watt (Max.)
Environment	Operating	-10 ~ 45° C	0 to 40° C @ 1800m and 85%RH	0 to 40° C @ 1800m and 85%RH
	Storage	-40 ~ 85° C	- 20 to 70° C @ 3000m and 95%RH	- 40 to 70° C @ 3000m and 95%RH
	Humidity	5 ~ 95% (non-condensing)	5 ~ 95% (non-condensing)	5 ~ 95% (non-condensing)
Mechanical	Dimensions (W x H x D)	446 x 44 x 352 mm	431.8 x 558.8 x 43.2 mm (17" x 22" x 1.7")	17.32" x 17.56" x 1.73"
	Weight	10 kg	18 kg	20kg
SW	ONIE		√	√
	FastPATH	√	√	√
	OP-DPA		√	√
Page		5-4	5-6	5-7

ESP-9110

High Performance 1/10GbE Top of Rack Ethernet Switch with combo port flexibility

Features

- Switching architecture with 24 x GbE ports and 4 x 10GbE ports
- 16 x gigabit combo ports (1000BASE-T/TX or GbE SFP)
- 2 x redundant power 110 ~ 220 V_{AC} input
- Fanless design
- Hardware-ready IEEE1588 PTPv2 with 1-step precision clock
- 128 Gbps switch fabric supported
- Embedded hardware monitor
- SDN Support

CE FC

Introduction

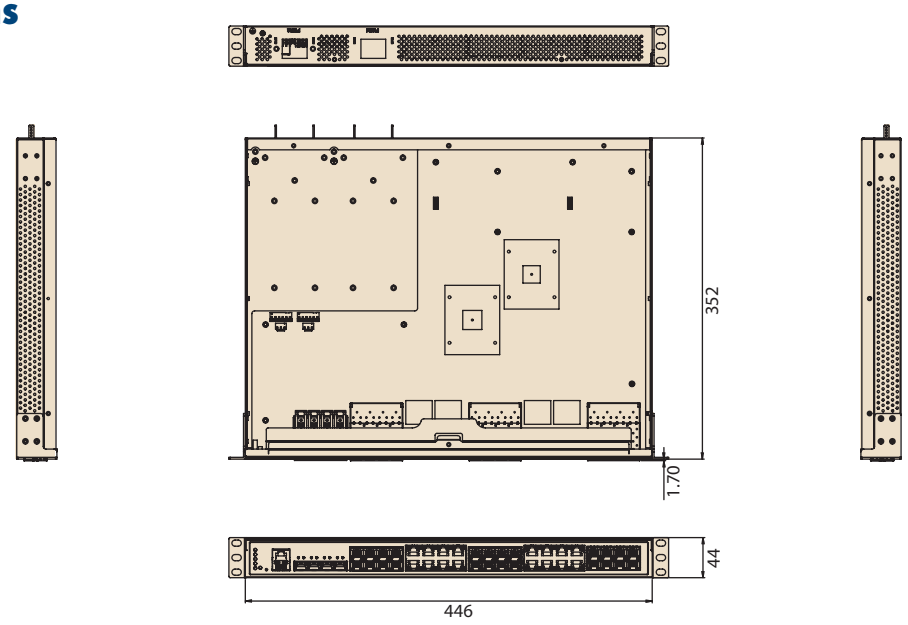
The ESP-9110 Enterprise-Class switch represents the entry level of Advantech's white box switch portfolio. It integrates Layer 2 switching software optimized to meet the connectivity and performance requirements of cloud data centers, with 16 gigabit Ethernet combo ports, 8 SFP ports and 4 SFP+ ports offering greater installation flexibility. The ESP-9110 meets small data center requirements, delivering wire speed across all ports at up to 128 Gbps for Layer 2 traffic forwarding. In addition, the fanless convection design provides a higher degree of reliability, making it suitable for data centers operating at temperatures up to 45°C, while two 110~220 VAC input, built-in, redundant power modules ensure vital network capabilities for higher levels of availability. The ESP-9110 meets data center requirements for top-of-rack deployment; the switch can also be deployed to form a spine network, providing a high performance and cost-effective data center fabric that supports Software Defined Networking (SDN). The ESP-9110, when delivered with Advantech's SDN software framework supports multiple protocols on the southbound interface, including Broadcom OF-DPA, OpenFlow and Indigo, allowing the ESP-9110 to be deployed as a physical switch under full SDN control.

Specifications

Interface	I/O Port	4 x 10GbE SFP+ slot 8 x 100/1000BaseFX(X) SFP 16 x Gigabit Combo Port (Gigabit 10/100/1000Base-T(X) or 100/1000BaseFX(X) SFP
	Console port	RJ-45
	F/W backup port	USB
	Power Connector	AC Socket or 3-Pin Screw Terminal Block
Physical	Enclosure	Metal Shell
	Installation	Rack-Mount
	Dimensions (WxHxD)	446 x 44 x 352 (mm)
LED Display	System LED	PWR1, PWR2, SYS, CFG and Custom Defined
	Port LED	Link / Activity / Speed
Environment	Operating Temperature	-10 ~ 60° C
	Storage Temperature	-40 ~ 85° C
	Ambient Relative Humidity	5 ~ 95% (non-condensing)
Power	Power Consumption	~72Watts Max
	Power Input	110 ~ 220 V_{AC} Redundant Inputs

Dimensions

Unit: mm

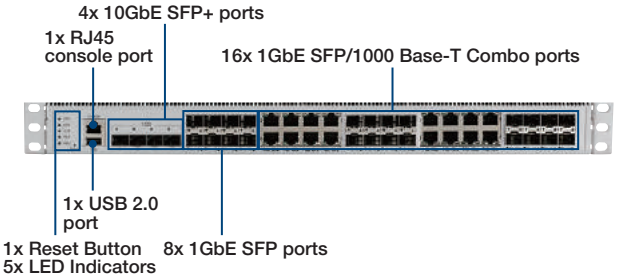


Ordering Information

Part number	Description	Product Status
ESP-9110-F0AF0E	Layer 2 Fastpath, 8 x GbE SFP slot + 16 x GbE Combo Port + 4 x (10GbE SFP+ slot) w/ 110 ~ 220 V_{AC} Redundant Power Input	Mass Production

Contact our sales for more pricing & ordering information.

Front View



Rear View

ESP-9212

High Performance 10/40GbE Top of Rack Ethernet Switch (Fiber Version)

Features

Hardware

- Built-in Intel® Xeon® Processor E3 v2 series with four DDR3 UDIMMs
- Broadcom StrataXGS® Trident II BCM56854 switch solution
- 680Gbps forwarding bandwidth
- Fiber version support 6x QSFP and 44x SFP+ and Up to 68 10GbE ports
- Redundant & Hot-swappable AC/DC PSU design
- Four redundant hot-swappable fan modules
- Front-to-rear or rear-to-front cooling
- Supports Solid State Drive or Hard Disk Drive
- Network boot nodes from the switch
- IPMI 2.0 compliant hardware management function
- Open IPMI compliant hardware management function

CE FC

Introduction

The ESP-9212 is a new generation of switch from Advantech Networks and Communications Group and is optimized for use in software-defined networks (SDN) requiring 10 and 40 Gigabit Ethernet connectivity. Configuration of the ESP-9212 is flexible, with high performance options for CPU, memory, and SSD or HDD; it combines a high performance, low-latency Broadcom StrataXGS® Trident II BCM56854 switch for up to 680Gbps of forwarding bandwidth, and a quad-core Intel® Xeon® processor E3 v2 series, providing a powerful and flexible platform that supports enhanced features essential for top-of-the-rack deployment in modern datacenter switching installations. The built-in Ethernet pipeline between the CPU and the switching chip provides a fat, internal communications pipe that keeps data flowing. Data center networks require increasingly dense 10GbE and 40GbE connectivity at the access and aggregation layers in order to address the higher speed network interface cards being deployed in servers and the increased link utilization due to widespread use of virtualization.

With fiber support for six 40GbE QSFP+ ports and forty-four 10GbE SFP+ ports in a 1U rackmount design, the ESP-9212 can be used to build highly scalable, feature-rich, top-of-the-rack switches and aggregation equipment to optimize big data and cloud workloads. Instead of the usual 48 + 4 (48 10G base-T + 4 40GbE), the ESP-9212 provides 44 + 6. The two additional 40GbE QSFP+ ports provide for Westbound and Eastbound horizontal connections, excellent for SDN connectivity.

Redundant, hot swappable, AC or DC power supplies and fans, along with IPMI 2.0 and OpenIPMI hardware management interfaces provide the high availability and management features which equip the switch for managing business-critical traffic. In addition, the front-to-rear or rear-to-front cooling capabilities of the ESP-9212 help to reduce air conditioning costs by matching the airflow of other servers in the rack. One 10/100/1000 Ethernet RJ45 port and two serial ports are available for out-of-band management, with two USB ports available for installation and maintenance needs. Two 128GB SSD devices within the chassis provide storage for boot images allowing external network nodes to be loaded and booted from the switch.

Specifications

Processor, Memory and Switch	Processor	Intel® Xeon® processor E3 v2 series
	Flash Memory	2x 64Mbit SPI Flash
	Max DDR3 DIMM#	4x (8GB UDIMM)
	Ethernet Switch	Broadcom StrataXGSR® Trident-II BCM56854
	Forwarding Bandwidth	680Gbps
Ethernet I/O (on rear side)	Fiber Version	44x 10GbE SFP+ 6x 40GbE QSFP+
Management I/O	Ethernet	1x GbE RJ-45
	Serial	1x RJ-45 Type console port for x86, 1x RJ-45 Type console port for BMC
	USB	2x USB
	VGA	1x VGA
Local Storage	SATA	2x SATA devices (128GB SSD)
System FRU	Power supply	2x Redundant AC/DC PSU
	Power input	AC 100 -240 V @ 47-63 Hz, full range
	Type/Watt	500 W 2U (1+1 redundant, 500 W each)
	System power consumption	312 Watt Max.
	System Fans	4x Hot-swappable redundant FAN trays
Physical	Dimension (W x D x H)	431.8 x 558.8 x 43.2 mm (17" x 22" x 1.7")
	Weight	18.5 kg
Environment	Operating	0 to 40° C @ 1800m and 85%RH
	Storage	- 20 to 70° C @ 3000m and 95%RH

Ordering Information

Part Number	Description
ESP9212F2A0PN0E-ES	ESP-9212 fiber version with 44 ports 10GbE SFP+, 6 ports 40GbE QSFP+, Intel® Xeon® E3-1275L v2 and 4x 8 GB DDR3-1333 MHz memory & 256 GB SSD

Please contact your Advantech regional sales office or email ncg@advantech.com for additional ordering information and pricing.

ESP-9230

High Performance 10/25/40/50/100GbE Top of Rack Ethernet Switch

Features

- High Density
  - 32 40/50/100GbE ports in 1 RU
  - Up to 128 10/25/50GbE ports
- Wire Speed Switching
- Ultra low latency
  - As low as 400 nanoseconds

Benefits

- Non-blocking cut-through switching fabric
- Easy Scale from one to thousands of nodes and switches
- Arranged and Organized Data Center
  - Support speeds of 10/25/40/50/100GbE
  - Easy deployment
  - Easy maintenance
- Unprecedented performance
  - Line rate performance on all ports at all packet sizes
  - Storage and server application run faster
- Software Defined Networking (SDN) support
- Running Broadcom FASTPATH®, alternative operating systems over ONIE
- IPMI 2.0 compliant hardware management function

Introduction

The Advantech Networking ESP-9230 is a high-performance, power-efficient, 100Gbps Top-of-Rack (TOR) switch designed for data center use. The ESP-9230 delivers line-rate L2 and L3 forwarding capacity on all ports in this compact, 1-rack-unit (1U) model. The ESP-9230 is loaded with the Open Network Install Environment (ONIE) which supports installation of compatible NOS, including Open Network Linux and commercial offerings. The Advantech Networking ESP-9230 is a Quad Small Form-Factor Pluggable (QSFP) switch with 32 QSFP28 ports. Each QSFP28 port can operate at 10, 25, 40, 50, and 100 Gbps, up to a maximum of 128 x 25-Gbps ports.

While running with a powerful x86-based processor, this system is not only the highest performing switch fabric element, but also has the ability to a Linux running server into the same device.

Including the ONIE software offering, the ESP-9230 has three software offerings in total to fulfill different customer applications. Details are below.

(1) Powered by the Broadcom OF-DPA pipeline, the ESP-9230 becomes a 3.2T OpenFlow switch plus a high-end NFV computer platform in a single 1U device. The Broadcom switch silicon, managed by the OpenFlow protocol for the Broadcom OF-DPA, provides full line rate switching across all ports.

(2) With the Broadcom FASTPATH®, the ESP-9230 helps users achieve quick time-to-market for new Ethernet products. FASTPATH operates on the Linux operating system and supports numerous industry RFCs, standards and protocols, like L2 and L3 Ethernet switching, and routing protocols.

(3) Loaded with the Open Network Install Environment (ONIE), the ESP-9230 supports the installation of compatible independent switchOS offerings.

The ESP-9230 supports the Open Network Install Environment (ONIE) for zero touch installation of network operating systems.

Specifications

Processor, Memory and Switch	Processor	Intel® Xeon® Processor D-1548
	Flash Memory	2 x 1Gbit SPI Flash
	Max DDR4 DIMM#	2 x DDR SO-DIMM, up to 32GB
	Ethernet Switch	Broadcom StrataXGS® Tomahawk BCM56960
	Forwarding Bandwidth	3.2Tbps
Ethernet I/O	Fiber Version	32 x 100GbE QSFP28/ 64x 50GbE/ 32x40GbE/ 128x 25-GbE/ 128x 10-GbE 2 x 10GbE SFP+
Management I/O	Ethernet	2 x GbE RJ-45
	Serial	1 x RJ-45 Type console port for D-1548
	USB	2 x USB 3.0
Local Storage	SATA	2 x M.2 SATA devices
System FRU	Power supply	Redundant AC/DC PSU
	Power input	AC 100 -240 V @ 47-63 Hz, full range
	Type/Watt	600 W (1+1 redundant, 500 W each)
	System power consumption	435 Watt (Max.)
	System Fans	5 x Hot-swappable redundant FAN trays; support reverse and forward airflow
Physical	Dimension (W x D x H)	17.32" x 17.56" x 1.73"
	Operating	0 to 40° C @ 1800m and 85%RH
Environment	Storage	- 40 to 70° C @ 3000m and 95%RH

Ordering Information

Part Number	Description
ESP-9230-25AA00	Support 32 x 100GbE QSFP28/ 64x 50GbE/ 32x40GbE/ 128x 25-GbE/ 128x 10-GbE; Intel® Xeon® Processor D-1548 and 32 GB DDR4 memory and M.2 SATA

Please contact your Advantech regional sales office or email ncg@advantech.com for additional ordering information and pricing.

6

ATCA Blades & Integrated Systems

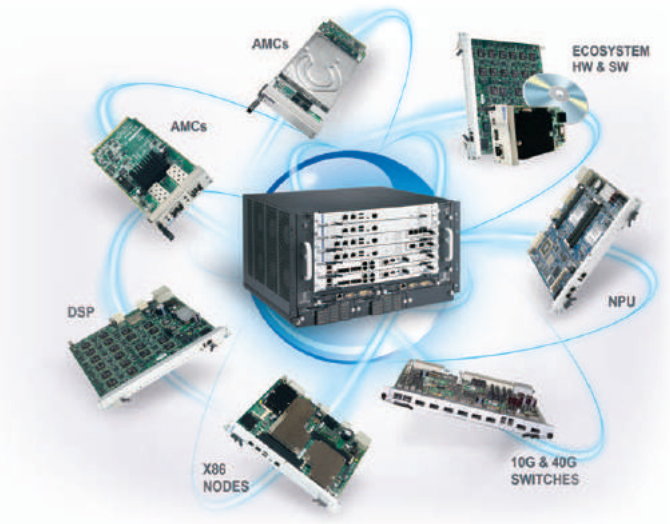
Please visit www.advantech.com/nc for the latest product updates.

ATCA Blades & Systems

Advantech began AdvancedTCA development in 2006 and is now one of the world's leading ATCA vendors serving the most important networking OEMs with standard and customized ATCA blades, as well as fully integrated systems.

Advantech's ATCA integration team unites products engineered by our own hardware and software designers with trusted and tested ecosystem partner building blocks. Our customer focused architects work closely with networking and telecom OEMs to design systems from pre-tested xTCA elements with proven product interoperability. As technology evolves, our integration teams facilitate the delivery of innovative solutions more rapidly to help network equipment OEMS overcome the capacity challenges they are facing and respond more effectively to ever increasing customer demand.

By reducing project risk and complexity at the system level, our customers get to market faster and more affordably, with tested and dependable solutions.



xTCA Product Lines

AdvancedTCA Design Expertise

ATCA solutions are an extension of Advantech's existing technological expertise. Over the years, we have serviced customers with high-performance industrial-grade computing platforms. With Advantech's strength in AdvancedTCA dual processor designs, we can help our customers to architect the exact Telecom control and application blades that they desire. Our latest AdvancedTCA CPU boards represent a clear benchmark for our ATCA design capabilities.

xTCA System Management

Advantech's expertise in system management began with IPMI on CPCI and the adaption of code for Tier-1 accounts. With the advent of MicroTCA, Advantech designed two generations of MCHs with the associated management software and also deploys IPMI on ATCA based on an Advantech codebase. This allows cross-platform re-use and special feature development for OEMs. The IPMI core has been tested against a variety of 3rd party shelf managers and with industry standard compliance test suites.

ATCA Integrated Systems

Advantech's Netarium series of ATCA reference systems are specifically targeted to help network equipment providers reach superior levels of performance and extend their product range at the high end. The series represents a new generation of systems which offer superior performance, scalability and flexibility with the latest 40 and 100G switches and application blades. We optimize the systems to achieve the highest possible density at the rack level, with a maximum number of payload blades, network ports and switching capacity.

Selection Guide

		Netarium-2	Netarium-2v2	Netarium-6
Physical Characteristics	Dimensions (HxWxD)	3U x 19 x 462 mm	3U x 19 x 462 mm	6U x 19 x 462 mm
	Slot	2	2	6
Power Supply	Input	AC	AC/DC	AC/DC
	Output	2x 850W	2x 850W	2x 2750W/220V
Cooling	Max Capacity	300W/slot	300W/slot	300W/slot
ShMM	Quantity per system	n/a	1	1 or 2
	Solution	n/a	Advantech SMM-5060	PPS-500R
Backplane	Topology	replicated	replicated	triple-replicated
Node board	X86 Platform	Dual Intel® E5-2600v1/v2	Dual Intel® E5-2600v1/v2/v3/v4	Dual Intel® E5-2600v1/v2
	Core per system	–	Up to 56	Up to 80
Data Plane Bandwidth	Backplane	MIC-5332: 20Gbps	MIC-5332: 20Gbps MIC-5342: 160Gbps MIC-5345D: 80Gbps MIC-5345S: 20Gbps	MIC-5332: 80Gbps MIC-5333: 320Gbps
	External	n/a	n/a	160Gbps
	Options	–	120Gbps via RTM-5106	320Gbps via RTM-5106
Control Plane Bandwidth	Backplane	4Gbps	4Gbps	8Gbps
	External	4Gbps	4Gbps	40Gbps
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		Netarium-6v2	Netarium-14
Physical Characteristics	Dimensions (HxWxD)	6U x 19 x 462 mm	14U x 19 x 500 mm
	Slot	6	14
Power Supply	Input	AC/DC	AC/DC
	Output	2x 2750W/220V	5x 1600W/220V
Cooling	Max Capacity	300W/slot	350W/slot
ShMM	Quantity per system	1 or 2	1 or 2
	Solution	Advantech SMM-5060	PPS-500R
Backplane	Topology	triple-replicated	dual-star
Node board	X86 Platform	Dual Intel® E5-2600v1/v2 Dual or Single Intel® E5-2600v3/v4	Dual Intel® E5-2600v1/v2/v3/v4
	Core per system	Up to 80	Up to 240
Data Plane Bandwidth	Backplane	MIC-5332: 80Gbps MIC-5342: 640Gbps MIC-5345D: 320Gbps MIC-5345S: 80Gbps	MIC-5332: 240Gbps MIC-5342: 1920Gbps MIC-5345D: 960Gbps MIC-5345S: 240Gbps
	External	160Gbps	160Gbps
	Options	240Gbps via RTM-5106 200Gbps via RTM-5108	720Gbps via RTM-5106 600Gbps via RTM-5108
Control Plane Bandwidth	Backplane	8Gbps	24Gbps
	External	40Gbps	40Gbps
Page		6-24	6-26

MIC-5332

AdvancedTCA® 10GbE Dual Socket CPU Blade with Intel® Xeon® E5-2600/ E5-2600V2 Processors

Features

- Two Intel® Xeon® E5-2600/E5-2600V2 Processors
- Intel® C600 Series PCH server class chipset with integrated SAS controller
- Eight DDR3 VLP DIMMs up to 256 GB with ECC support
- Up to four XAUI ports on Fabric interface
- Two 1000BASE-T ports on Base interface
- Three 1000BASE-T front panel ports
- One Fabric Mezzanine Module support with front I/O support (type II)
- Two CFast / one 2.5" SSD storage Device
- Fully managed, hot swappable RTM

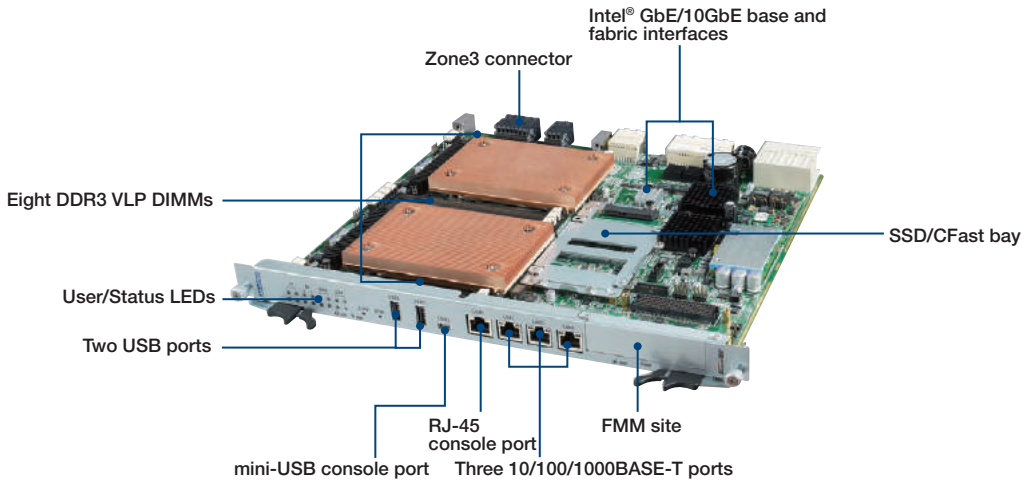
Introduction

Advantech's MIC-5332 is a dual processor ATCA blade based on the Intel® next generation platform. It enables the highest performance available in ATCA form factor with up to 20 cores and 40 threads of processing power, fast PCI Express gen. 3 lanes running at up to 8Gbps, and best in class virtualization support. Two QPI interfaces between the CPUs improve memory and I/O access throughput and latencies when one processor needs to access resources hosted by the other socket. With four DDR3 DIMMs per socket in a quad channel design running up to 1866MT/s, the MIC-5332 not only offers superior memory bandwidth over 3-channel designs, but can also support memory densities up 256GB using latest LR DIMM technology. It outperforms previous generation dual socket designs while keeping similar thermal characteristics with balanced airflow resistance.

Using Intel®'s latest PCH with its integrated 4-port SAS controller, the need for an external storage controller is eliminated making the MIC-5332 an ideal choice for cost sensitive control plane applications. While supporting two XAUI interfaces in the base model, support for dual dual star fabric implementations can be added by installing the FMM-5001B Fabric Mezzanine Module (FMM). Beyond that, the Fabric Mezzanine Module type II socket with PCIe x16 connectivity provides extension possibilities for additional front port I/O, offload and acceleration controllers such as Intel® QuickAssist™ accelerators, IPSec offload engines or customer specific logic. FMMs do not only have higher PCI Express bandwidth than AMCs, but also do integrate well in terms of thermal design and board real estate when compared to Advanced Mezzanine Cards. Moreover, FMMs can be reused on RTMs and across different blade designs. This unmatched flexibility combined with the highest performance Intel® Xeon®s available make the MIC-5332 equally well suited for application and data plane workloads.

The onboard IPMI firmware was developed entirely by Advantech to offer greater modularity and flexibility for the customization of system management features especially when it comes to tailoring a system design to meet target cost points without sacrificing features and time to market. HPM.1 based updates are available for all programmable components (BIOS, IPMC firmware, FPGA) including rollback support. Advantech's IPMI solution, combined with an optimized AMI UEFI BIOS continues to offer advanced features used on previous generation MIC-532x blades, such as BIOS redundancy, Real Time Clock Synchronization, CMOS Backup, CMOS Override and MAC Mirroring. Advantech IPMI firmware has been tested for CP-TA compliance using the Polaris Networks ATCA Test Suite.

The MIC-5332 supports hot-swappable RTMs such as the RTM-5104 for High Availability (HA) needs, rear I/O and dual SAS storage with RAID as well as an optional FMM (Fabric Mezzanine Module). Please contact Advantech for more information on available RTMs. On-board FPGA design facilitates customer-specific modifications and the core board design can be modified or adapted to other form factors through Advantech's DMS customization services.



Specifications

Processor System	CPU	Two Intel® Xeon® E5-2600/E5-2600V2 processors*	
	Max. Speed	2.4 GHz	
	Chipset	Intel® C600 Series PCH server class chipset	
	BIOS	Dual 64-Mbit BIOS firmware flashes with AMI UEFI based BIOS	
	QPI	8.0 GT/s	
Memory	Technology	Four channel DDR3 1066/1333/1600/1866MHz SDRAM (72-bit ECC Un-/ Registered), LR DIMM support	
	Max. Capacity	Configurable up to 256 GB	
	Socket	8 VLP DIMMs	
Zone 2	Fabric Interface	2 x Intel® 82599 Dual 10GE MAC/PHY supporting four 10GBase ports (XAUI) (one by default and the second one is optional, through FMM-5001B)	
	Base Interface	i350 quad GbE MAC/PHY supporting two 10/100/1000 Mbps ports	
Front I/O Interface	Serial (COM)	2 x 16C550 compatible Serial Ports (1 RJ-45 connector, 1 mini-USB connector)	
	Ethernet	2 x 10/100/1000BASE-T through PCIe based i350 MAC/PHY, 1x 10/100/1000 Mbps Chipset LAN	
	USB 2.0	2 x Type A ports	
Operating System	Compatibility	WindRiver PNE/LE 4.2, RedHat Enterprise 6.1, CentOS 6.1, Windows Server 2008	
IPMC	BMC Controller	NXP LPC1768 (ARM7)	
	IPMI	Compliant with IPMI 1.5 using Advantech IPMI code base	
Watchdog Timer	Supervision	1 for x86 BIOS POST, OS Boot, Application	
	Interval	IPMI compliant	
FMM	Site	1 FMM type II socket	
	Interface	1 x PCIe x16 or 2 x PCIe x8	
Miscellaneous	Storage	2 x CFast / 1 x 2.5" SSD*, 4-port SAS controller integrated in in PCH to zone 3	
	Real Time Clock	Built-in	
Power Requirement	Configuration	2 x 70 W CPUs, 32 GB memory, no FMM, no RTM	
	Consumption	230 W (estimated)	
Zone 3 (RTM)	RTM	Advantech common RTM interface Type 2	
	Interface	4 x SAS/SATA, 1 x PCIex16, 4 x USB, 2 x UART	
Physical Characteristics	Dimensions (W x D)	6HP, 322.25 x 280.00 mm (12.69" x 11.02") (PCB size)	
	Weight	2.90 kg	
Environment		Operating	Non-operating
	Temperature	0 ~ 55° C (32 ~ 131° F)	-40 ~ 70° C (-40 ~ 158° F)
	Humidity	5 to 93% @ 40° C (non condensing)	95% @ 40° C (non-condensing)
	Shock	4 G each axis	20 G each axis
	Vibration (5 ~ 500 Hz)	0.5 Grms	2.16 Grms, 30 mins each axis
Compliance	Environment	ETSI EN300019-2-1 Class1.2, EN300019-2-2 Class 2.3, ETSI EN300019-2-3 Class 3.1E	
		Designed to meet GR63-CORE	
	PICMG	3.0 R3.0, 3.1 R1.0, HPM.1	
	Safety	CE mark (EN60950-2001), UL60950-1/CSAC22.2	
	EMC	FCC47 CFR Part15, Class A, CE Mark (EN55022/EN55024/EN300386) Designed to meet GR1089-CORE	

*Note: 1. MIC-5332 supports 2 x 95 W CPUs in non-NEBS environments. Special system airflow requirements apply.
2. CFast and 2.5" SSD are mutually exclusive.

Ordering Information

Part Number	Description
MIC-5332SA1-P1E	MIC-5332 RJ45 version with dual E5-2648L CPUs
MIC-5332SA1-P2E	MIC-5332 RJ45 version with dual E5-2658 CPUs

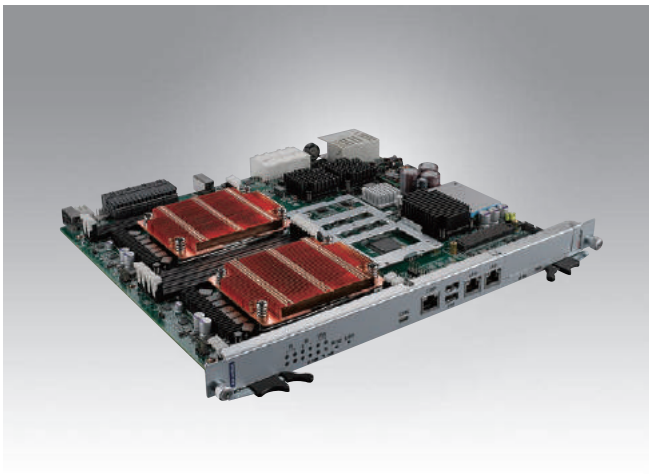
Contact Advantech for information on available and future RTMs and FMMs.

Related Products

Part Number	Description
RTM-5104	RTM Module for MIC-5332
FMM-5001B	Intel® 82599 dual 10GE FMM for dual dual star configuration
FMM-5001F	Intel® 82599 dual 10GE FMM with 2x SFP+ LAN IO
FMM-5002	VGA FMM module

MIC-5342

AdvancedTCA, Dual Socket CPU Blade with Intel® Xeon® E5-2600 v3/v4 Series Processors for Telecom Applications



Features

- Two 14-Core Intel® Xeon® E5-2600 v3/v4 Series processors
- Intel® Communications Chipset 8900 Series
- Eight DDR4 VLP DIMMs with ECC support
- Up to four 40GBase-KR4 ports on Fabric interface to support Dual-Dual Star Topology
- Two 10/100/1000Mbps BI ports
- Two 10/100/1000BASE-T front panel ports
- One Fabric Mezzanine Module (type II) for optional front I/O or additional acceleration
- Fully managed, hot-swappable RTM with 8 PCIe gen.3 lanes

Introduction

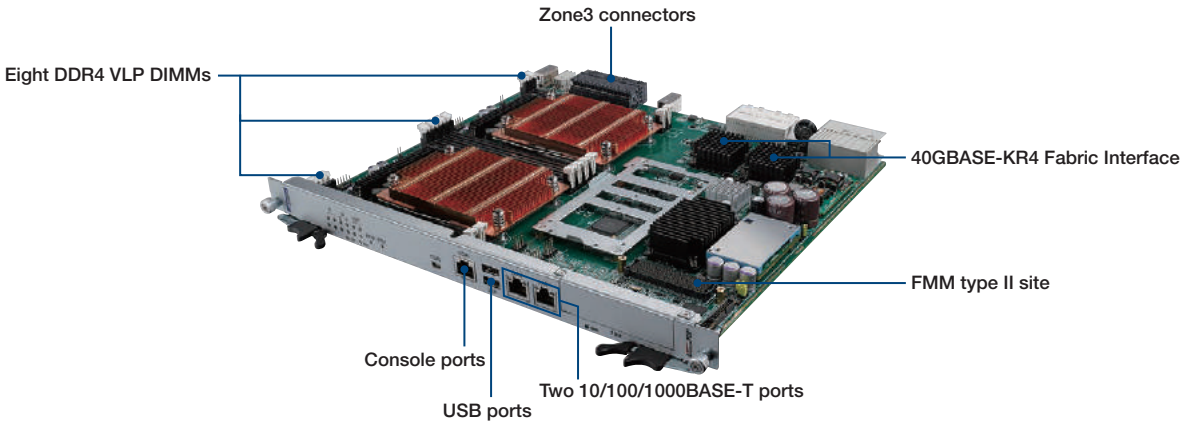
Advantech's MIC-5342 is a dual processor ATCA blade based on the Intel® platform formerly codenamed "River Forest". It enables the highest performance available in the ATCA form factor with up to 28 cores and 56 threads of processing power, fast PCI Express gen. 3 lanes running at up to 8Gbps, and best in class virtualization support. Two QPI interfaces between the CPUs improve memory and I/O access throughput and latencies when one processor needs to access resources hosted by the other socket. With four DDR4 DIMMs per socket in a quad channel design running up to 2400MT/s, the MIC-5342 not only offers superior memory bandwidth over 3-channel designs, but can also support RAM density up to 256GB. It outperforms previous generation dual socket designs while keeping similar thermal characteristics with balanced airflow resistance.

Fabric connectivity is implemented by two Intel® Ethernet controllers XL710-BM2 devices onboard, connecting to four backplane fabric channels. This allows the MIC-5342 to scale from legacy 10GbE to high speed 40GbE network interfaces as well as enable optional dual-dual star support for the most demanding applications utilizing 4 hub blades per system. A Fabric Mezzanine Module type II socket with PCIe x16 connectivity provides on-board expansion capability for additional front panel I/O, offload and acceleration controllers such as the Intel® Communications Chipset 8900 Series, IPSec offload engines, or customer specific logic.

The onboard IPMI firmware based on Advantech's advanced IPMI core enhances modularity and flexibility for customization of system management features, and provides a framework for value-added features that enhance the Reliability, Availability, Serviceability, Usability and Manageability (RASUM) of the product. HPM.1 based updates, including rollback support, are available for all programmable components such as the BIOS, BIOS settings, IPMC firmware, and FPGA. Advantech's IPMI solution, combined with an optimized UEFI BIOS, continues to offer advanced features used on previous generation Advantech MIC-533x blades, such as HPM.2 support, Dynamic Power Budgeting, BIOS redundancy, Real Time Clock Synchronization and MAC mirroring. Advantech's IPMI firmware has been tested for CP-TA compliance using the Polaris Networks ATCA Test Suite and against a variety of AdvancedTCA shelf management solutions.

The MIC-5342 connects 8 PCIe gen.3 lanes to the Zone 3 interface for hot-swappable RTMs such as the RTM-5107, which supports two SAS HDDs. Please contact Advantech for more information about available RTMs. The MIC-5342 can also be easily customized based on Advantech's unique Customized COTS framework with custom RTMs, FMMs, or modifications of the on-board system FPGA, IPMI and/or BIOS firmware.

The optimization of features and unmatched flexibility based on Advantech's leading FMM technology make the MIC-5342 equally well suited for both control plane and application workloads in telecom networks.



Specifications

Processor System	CPU	Dual Intel® Xeon® E5-2600 v3/v4 Series processors up to 120W TDP (chassis airflow dependent)	
	Max. Speed	2.5 GHz (SKU dependent)	
	Chipset	Intel® Communications Chipset 8900 Series	
	BIOS	Redundant AMI UEFI based BIOS	
	QPI	9.6 GT/s	
Memory	Technology	Four channel DDR4 2400MHz SDRAM (72-bit ECC Un-/ Registered) to each CPU	
	Max. Capacity	Configurable up to 256GB	
	Socket	8 x VLP RDIMMs	
Zone 2	Fabric Interface	Up to four 40GBASE-KR4 ports	
	Base Interface	2 x 10/100/1000BASE-T ports	
Front I/O Interface	Serial (COM)	1 x 16C550 compatible Serial Port (RJ-45 connector)	
	Ethernet	2 x 10/100/1000BASE-T ports	
	USB 2.0	2 x Type A ports	
Operating System	Compatibility	CentOS 7.0, Red Hat Enterprise 7.0, Wind River Linux 6.0	
IPMC	BMC Controller	Compliant with IPMI 2.0	
FMM	Site	1 FMM type II socket	
	Interface	1 x PCIe x16	
Miscellaneous	Storage	2 x CFast or 2 x M.2 SSD (Supporting RAID) 1 x 2.5" SSD	
	TPM	TPM 2.0	
Power Requirement	Configuration	2 x E5-2658v4 (TDP 105W), 8 x DDR4 2400 8GB VLP Memory, FMM-5001F (Single Intel® Ethernet Controller with 2x SFP+ output to Front Panel), no RTM	
	Consumption	Input Voltage: -48V / 300W (Preliminary)	
Zone 3 (RTM)	RTM	Advantech common RTM interface Type 2	
	Interface	1 x PCIe x8, 1 x PCIe x16, 1x COM, 2x USB 2.0, 2x SATA 3.0	
Physical Characteristics	Dimensions (W x D)	6HP, 322.25 x 280.00 mm (12.69" x 11.02") (PCB size)	
	Weight	2.8 kg	
Environment		Operating	Non-operating
	Temperature	0 ~ 55° C (32 ~ 131° F) (selected SKUs, only)	-40 ~ 70° C (-40 ~ 158° F)
	Humidity	5 to 95% @ 40° C (non-condensing)	95% @ 60° C (non-condensing)
	Shock	4 G each axis	-
	Vibration	5-200 Hz, 0.5 Grms each axis	5 Hz to 20 Hz @ 1 m2/s3 (0.01 g2 /Hz) (flat) 20 Hz to 200 Hz @ -3 dB/oct (slope down)
Compliance	Environment	ETSI EN300019-2-1 Class1.2, EN300019-2-2 Class 2.3, ETSI EN300019-2-3 Class 3.1E, Designed to meet GR-63-CORE	
	PICMG	3.0 R3.0, 3.1 R2.0, HPM.1, HPM.2, HPM.3	
	EMC	FCC47 CFR Part15, Class A, CE Mark (EN55022/EN55024/EN300386) Designed to meet GR-1089-CORE	

Ordering Information

Part Number	Description
MIC-5342SD1-P2E	DH8955 Chipset, four 40GBASE-KR4 FI ports with dual 14C/28T 105W (E5-2658v4) CPUs, no memory, no CFAST/SSD/M.2
MIC-5342SD4-P2E	DH8955 Chipset, two 40GBASE-KR4 FI ports with dual 14C/28T 105W (E5-2658v4) CPUs, no memory, no CFAST/SSD/M.2
MIC-5342SD3-P3E	DH8900 Chipset, two 40GBASE-KR4 FI ports with dual 14C/28T 75W (E5-2648Lv4) CPUs, no memory, no CFAST/SSD/M.2

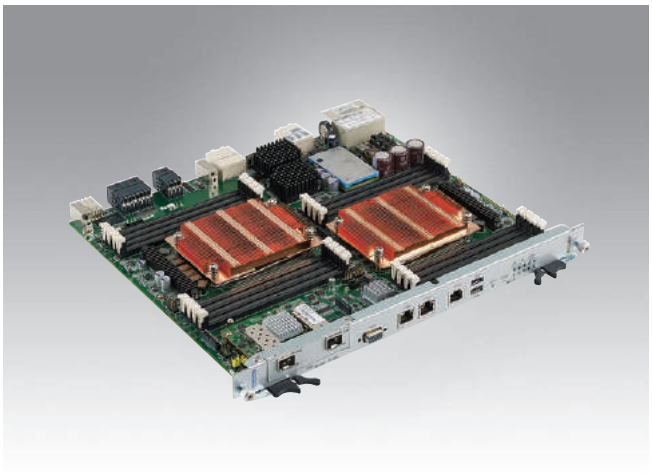
Optional CFAST/SSD/M.2 and new FMMs/RTMs are introduced on a regular basis. Please contact Advantech for an up-to-date list of compatible modules.

Related Products

Part Number	Description
RTM-5107S00E	Storage Extended ATCA RTM
FMM-5001FE	Niantic 10Gb LAN I/O Extended FMM (2x SFP+)
FMM-5002E	External VGA Port FMM
FMM-5006AE	Cave Creek Extended FMM (DH8920 chipset)
FMM-5006TE	Coleto Creek Extended FMM (DH8955 chipset)

MIC-5345

AdvancedTCA, Dual/Single Socket CPU Blade with Intel® Xeon® E5-2600 v3/v4 Series Processors for Server and NFV Applications



Features

- Two SKUs available with one or two Intel® Xeon® E5-2600 v3/v4 Series processors
- Intel® C610 series PCH server class chipset
- Sixteen or eight DDR4 VLP DIMMs with ECC support
- Support 40G/10G ports on Fabric interface
- Two 10/100/1000Base-T BI ports
- Two 10/100/1000BASE-T front panel ports
- One Fabric Mezzanine Module (type II) for optional front I/O
- Support on-board VGA port
- Extended Storage options (2xSSD / MO-297)

Introduction

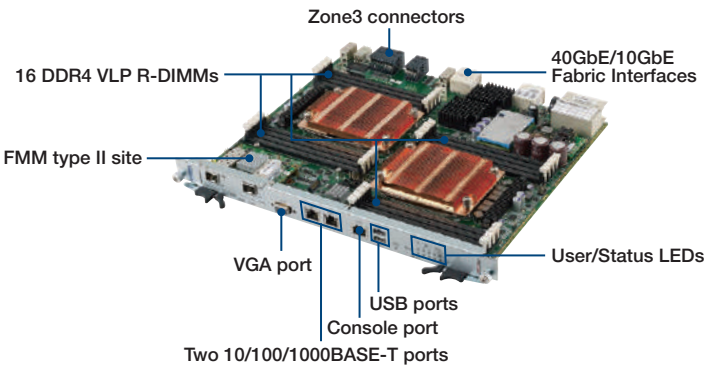
Advantech's MIC-5345 is a 40G dual processor ATCA blade based on the Intel® server platform formerly codenamed "Grantley". MIC-5345 is offered in two main configurations: As a dual processor blade supporting 16 DDR4 VLP DIMM slots it offers best in class memory support at lowest cost making it an ideal choice for typical server workloads and virtualized application scenarios such as NFV. Up to 512GB memory capacity allow users to harness the full capabilities of Intel®'s E5-2600v3 series processors with up to 24 cores and 48 threads for virtualization by providing an high amount of physical memory per virtual machine.

In a single processor configuration, the MIC-5345 offers a very attractive price point for applications which require lower processing power such as control plane and orchestration. With support for 8 DIMM sockets, two 2.5" SSDs and the processing performance offered by a 12 core Intel® E5-2600v3 processor, the MIC-5345 comes with an optimized feature set and outperforms 1st and 2nd generation dual socket ATCA blades resulting in a major cost reduction.

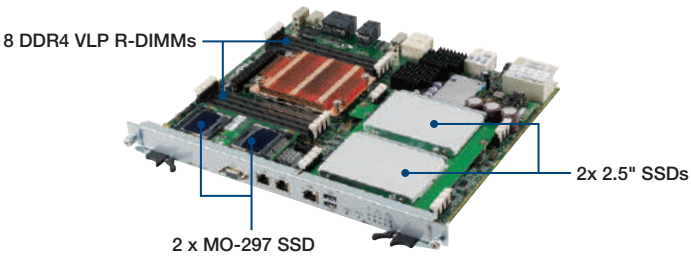
Both blade configurations feature two 10/40GbE fabric ports based on XL710-BM2 Ethernet controller with fast PCI Express gen. 3 technology running at up to 8Gbps per lane and best-in-class virtualization support. Two QPI interfaces between the CPUs improve memory and I/O access throughput and latencies when one processor needs to access resources hosted by the other socket. With eight DDR4 DIMMs per socket in a quad channel design running at up to 2133MT/s (1866MT/s with two DIMMs per channel populated) and RAM density up to 512GB, the MIC-5345 offers the latest memory technology with higher performance and lower power compared to DDR3 technology. It outperforms previous generation dual socket designs while keeping similar thermal characteristics. The dual socket SKU of MIC-5345 supports a a Fabric Mezzanine Module type II socket with PCIe x8 connectivity providing extension possibilities for additional front port I/O, offload and acceleration controllers such as the Intel® Communications Chipset 89xx Series, IPSec offload engines or customer specific logic. The single socket MIC-5345 SKU features two additional MO-297 sockets instead of an FMM site.

The onboard IPMI firmware based on Advantech's IPMI core offers greater modularity and flexibility for the customization of system management features, and provides the framework for added value features enhancing Reliability, Availability, Serviceability, Usability and Manageabil ity (RASUM) of the product. HPM.1 based updates are available for all programmable components (BIOS, BIOS Settings, IPMC firmware, FPGA) including rollback support . Advantech's IPMI solution, combined with an optimized UEFI BIOS, continues to offer advanced features used on previous generation MIC-533x blades, such as HPM.2 support, Dynamic Power Budgeting, BIOS redundancy, Real Time Clock Synchronization and MAC Mirroring. Advantech IPMI firmware has been tested for CP-TA compliance using the Polaris Networks ATCA Test Suite and against a variety of AdvancedTCA shelf management solutions. The MIC-5345 can be easily customized based on Advantech's unique Customized COTS framework with custom FMMs, modifications of the on -board system FPGA, IPMI and/or BIOS firmware.

Dual CPU SKU with 16 DIMM Support



Single CPU SKU with Extended Storage Support



Specifications

Processor System	CPU	Single or Dual Intel® Xeon® E5-2600 v3/v4 Series processors up to 105W TDP (chassis airflow dependent)	
	Max. Speed	2.2GHz (SKU dependent)	
	Chipset	Intel® C610 series PCH server class chipset	
	BIOS	Redundant AMI UEFI based BIOS	
	QPI	9.6 GT/s	
Memory	Technology	DDR4 up to four channel / 2400MHz SDRAM (72-bit ECC Un-/ Registered), LR DIMM support	
	Max. Capacity	Configurable up to 256 GB	
	Socket	16 VLP RDIMMs(Dual CPU SKU) / 8VLP RDIMMs (Single CPU SKU)	
Zone 2	Fabric Interface	1 Intel® XL710 controller with 2 x 40GBaseKR4 ports(Dual CPU SKU) 1 X710-BM2 with 2x 10GBase-KR ports (Single CPU SKU)	
	Base Interface	i350 supporting two 10/100/1000Base-T ports	
Front I/O Interface	Serial (COM)	1 x Serial Port (RJ-45)	
	VGA	1 x VGA Port	
	Ethernet	2 x 10/100/1000BASE-T through Intel® i350	
	USB 3.0	2 x Type A ports	
Operating System	Compatibility	CentOS7.0, RedHat Enterprise 7.0	
IPMC	BMC Controller	Aspeed	
	IPMI	Compliant with IPMI 2.0 using Advantech advanced IPMI core	
FMM	Site	1 FMM type II socket	
	Interface	FMM type II: one PCIe x8 from CPU socket 0	
Miscellaneous	Storage	2 x MO-297 (Single and Dual CPU SKU) / 2 x SATAIII 2.5" SSD HD (Single CPU SKU only)	
	Real Time Clock	Built-in	
Power Requirement	Configuration	2 x E5-2648 v3 (TDP 75W), 16 x DDR4 2133 (1866) 8GB VLP Memory	
	Consumption	Input Voltage: -48V / 288W Input Voltage: -60V / 289W	
Zone 3 (RTM)	RTM	Advantech common RTM interface Type 2	
	Interface	2 x PCIe x8 (J34), 2 x USB2.0 (J31), 4 x SATA3.0 (J32) 12V, 3.3V power for RTM (P30)	
Physical Characteristics	Dimensions (W x D)	6HP, 322.25 x 302.00 mm (PCB size)	
	Weight	2.8 kg	
Environment		Operating	Non-operating
	Temperature	0 ~ 55° C (32 ~ 131° F) (selected SKUs, only)	-40 ~ 70° C (-40 ~ 158° F)
	Humidity	5 to 93% @ 40° C (non condensing)	95% @ 40° C (non-condensing)
	Shock	4 G each axis	20 G each axis
	Vibration (5 ~ 500 Hz)	0.5 Grms	2.16 Grms, 30 mins each axis
Compliance	Environment	ETSI EN300019-2-1 Class1.2, EN300019-2-2 Class 2.3, ETSI EN300019-2-3 Class 3.1E Designed to meet GR63-CORE	
	PICMG	3.0 R3.0, 3.1 R2.0, HPM.1	
	EMC	FCC47 CFR Part15, Class A, CE Mark (EN55022/EN55024/EN300386) Designed to meet GR1089-CORE	

Ordering Information

Part Number	Description
MIC-5345SS1-P1E	MIC-5345 single cpu sku, two 10GBASE-KR4 FI ports with single eight-cores E5-2608Lv3 CPUs, no memory, no MO-297/SSD
MIC-5345SD2-P2E	MIC-5345 dual cpu sku, fur 40GBASE-KR4 FI ports with two twelve-cores E5-2648Lv4 CPUs, no memory, no MO-297/SSD

Related Products

Part Number	Description
RTM-5108	Rear Transition Module with dual 25G port, dual SAS 3.0 HDD supported (Available in 2017 Q2)
FMM-5001F	Niantic 10Gb LAN I/O Extended FMM (2x SFP+)

MIC-5604

Advanced Mezzanine Card based on Intel® Xeon®D Processors with DDR4 ECC

Features

- Supports Intel® Grangeville Platform Processor family
- Intel® Xeon®-D Soc
- Up to 8 GB / 16 GB (DDR4 1866/2133 MHz) soldered SDRAM with ECC
- Two Gigabit Ethernet (RJ-45), one USB 2.0/3.0, one console (micro-USB), and one HDMI Type D to front panel
- AMC connector routes Gigabit Ethernet (x2), SATA 3.0 (x2), PCIe x4
- Boot from network, onboard flash, M.2 SSD or external devices
- Supports IPMI v1.5 and Serial-over-LAN function
- AMC.0, AMC.1, AMC.2, and AMC.3 compliant

AdvancedMC™ PICMG FCC CE RoHS COMPLIANT 2002/95/EC

Introduction

The Advantech MIC-5604 is a single-width mid-size general purpose processor AMC module for ATCA or MicroTCA applications. Its design is based on Intel® Xeon®-D SoC processors in a BGA package. This AMC module supports processors with integrated memory controllers, and a maximum cache of 6MB. It can support up to 8/16 GB, dual-channel, on-board DDR4 memory with ECC at 2133/1866 MHz, making it ideal for mission critical applications requiring low latency and reliable memory access. For graphics or control applications the front panel HDMI port provides the Display support.

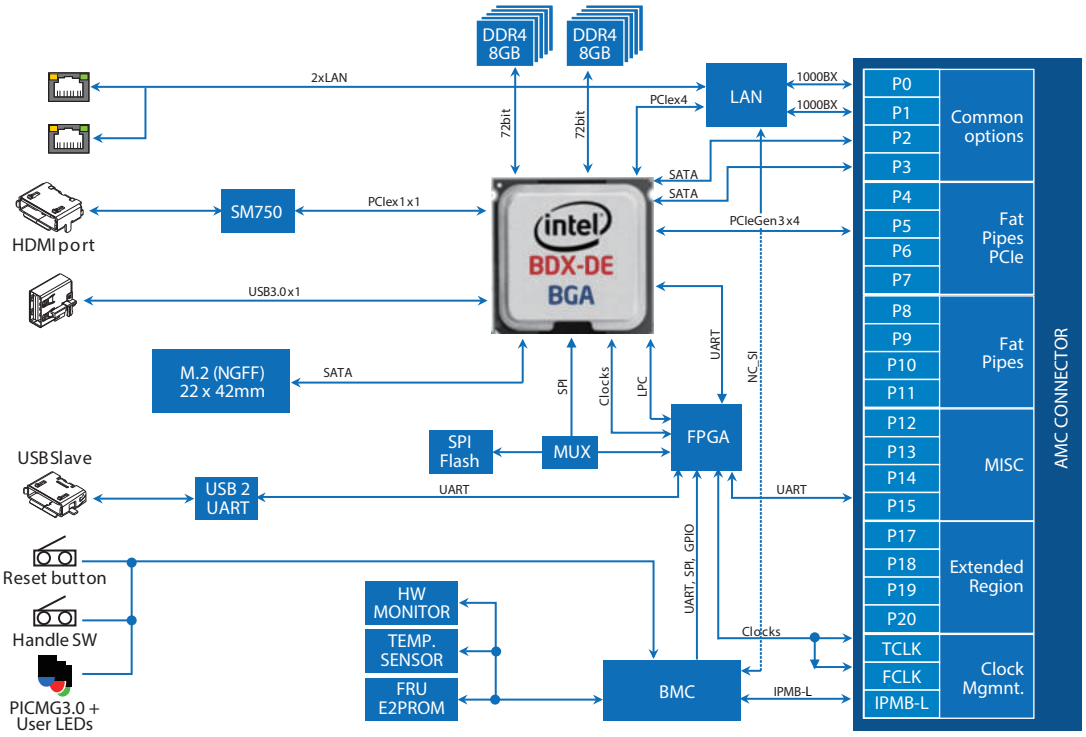
As standard feature, external Ethernet connectivity is provided on two dedicated GbE front panel ports, one each from the onboard Intel® I350 AM4 quad port LAN controller, which also provides two additional GbE ports to the AMC base fabric. The Intel® I350 supports remote management capabilities with KVM over LAN as well as introducing faster I/O than previous generation designs with SATA-III to AMC ports 2..3 and PCIe x4 gen.2 to ports 4..7. This module can also be configured to boot from the network, M.2 SSD, or external storage media such as HDD or USB drives.

To enable maximum application flexibility, the MIC-5604 is not only designed to support PICMG AMC sub-specifications such as AMC.1/.2/.3, it also has a fabric expansion mezzanine interface that allows the implementation of standard or customized mezzanine modules that offer enhanced fat pipe connectivity and I/O support. A dedicated Module Management Controller (MMC) monitors onboard conditions and manages hot swap operation, module replacement and field upgrades without the need to power down the carrier system.

Specifications

Processor System	CPU	Intel® Grangeville Platform Xeon®-D(Broadwell-DE) ▪ D-1508 Broadwell-DE 3MB 2c 2.2GHz 25W ▪ D-1527 Broadwell-DE 6MB 4c 2.2GHz 35W
	Max. Speed	2.2 GHz
	PCH	Integrated PCH
	BIOS	UEFI BIOS based on AMI (1. Redundant flash with HPM.1 update & rollback, 2. Configuration settings can be changed over IPMI)
Memory	Technology	Dual-channel DDR4 memory at 1867/2133 MHz soldered SDRAM with ECC
	Max. Capacity	8 GB / 16GB RAM (soldered on-board memory)
Ethernet	Controllers	Intel® I350-AM4 Quad-port Gigabit Ethernet controller
	Interface	Two GbE accessible on front panel via RJ-45 and two SerDes links to AMC ports 0 and 1
Front I/O Interface	Serial (COM)	One x86 Serial Port (USB slave connector through onboard USB to Serial converter)
	Ethernet	Two 10/100/1000BASE-T from Intel® I350
	USB 2.0/3.0	One port (Type A)
Mass Storage	M.2	Mezzanine Module with CFast socket (NOTE 1)
SATA		
Interfaces	AMC edge connector	Two SATA interfaces (6Gbps) to common option ports 2..3
	Other	One SATA routed to M.2 daughter board (optional)
Operating System	Compatibility	RHEL, CentOS, Windows Server 2008, Windows Server 2012
System Management	MMC	NXP LPC1768
	IPMI Compliancy	IPMI 1.5 with IPMI 2.0 features (e.g. RMCP, SOL) using Advantech IPMI Core
Watchdog Timer	Supervision	One MMC watchdog, One payload watchdog
	Interval	IPMI compliant
Miscellaneous	LEDs	x1 blue for hot swap, x1 red/amber for failure and OOS, x1 green for general purpose
Compliance	Standards	PICMG AMC.0, AMC.1, AMC.2, AMC.3, IPMI v1.5, HPM.1
Power Consumption	Configuration	Intel® Xeon®-D D-1508 + 8GB on-board DDR-4 memory
	TDP (Estimated)	40W max. (52W max with D-1527 35W CPU)

Block Diagram



Specifications (Cont.)

Physical Characteristics	Dimensions (W x D)	Mid-size (or Full-size), 180.6 x 73.5 mm	
Environment		Operating	Non-operating
	Temperature	-5 ~ 55° C (23 ~ 131° F) (NOTE 2)	-40 ~ 70° C (-40 ~ 158° F)
	Humidity	IEC60068-2-78 (95%RH @ 40° C)	
	Vibration (5 ~ 500Hz)	IEC60068-2-6 (0.002G2/Hz, 1Grms)	
	Shock	IEC60068-2-27 (10G, 11ms)	
	Altitude	4,000m above sea level	10,000m above sea level
Regulatory	Conformance	UL94V0, FCC Class B, CE, RoHS & WEEE Ready	

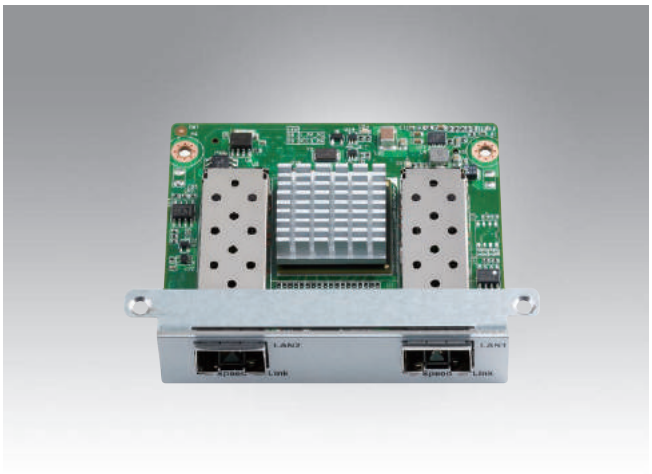
Ordering Information

Part Number (NOTE3, NOTE4)	Description
MIC-5604AM-S27-16E	With Intel® D-1527, Quad Cores,2.2G ,35W CPU, 16G DDR4 memory, with M.2 daughter board but no M.2 Module
MIC-5604AM-S08-M8E	With Intel® D-1508, Dual Cores, 2.2G ,25W CPU, 8G DDR4 memory, with M.2 daughter board but no M.2 Module.

Where A stands for general AMC module option (M for Mid-Size, S= Standard).
Note:
1. M.2 module, available on the mid-size sku as default, and the AMC Mezzanine Module are mutually exclusive.
2. Operating Temperature: depending on the actual air flow through the AMC slot.
3. For lower or higher on-board memory support, please contact your local Advantech sales for options.
4. For the Intel® Xeon®-D CPU support, please contact your local Advantech sales.

FMM Series

Extension Modules for Advantech CPU Boards



Features

- PCIe based extension modules for ATCA CPU & RTM boards
- Implicit e-keying support
- Ideal to add additional I/O or customer-specific functionality to a standard product:
  - Different or additional I/O on a blade
  - Accelerators and offload engines to a platform
  - Backplane fabric ports on a blade
- FRU EEPROM on mezzanine for management
- Smaller, lower power & less expensive than AMC modules

RoHS COMPLIANT 2002/95/EC

Introduction

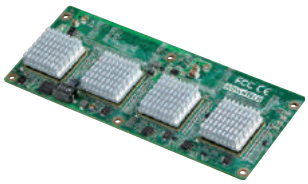
Advantech's Fabric Mezzanine Modules (FMM) provide additional flexibility to Advantech ATCA CPU and RTM boards. Additional flexibility can be I/O ports such as 10GE SFP+ ports, 40GE networking , VGA server type graphics module, PCIe-based expression offload, as well various FI interfaces for ATCA CPU boards. Fabric Mezzanine Modules facilitate ease of system customization by using standard CPU boards and RTMs.

Fabric Mezzanine Modules have a PCIex8 or x16 high speed local CPU / processor interface, which can be routed to local resources, or ATCA Zone 2/3. Advantech has defined two types of modules, Fabric mezzanine Type I and Fabric mezzanine Type II, offering different functionality dependent on the host board. Type I FMMs are internal mezzanines with PCIe and fabric connectivity, providing customized fabric interface, such as XAUI, KR, or KR4. Type II FMMs have the same PCB shape as Type I modules, but support I/O connectors and front panel mounting. With one PCIex16 or two PCIex8 gen.3 ports routed to the front CPU blade, the FMM socket is a perfect solution for I/O port expansion, and also customer-defined acceleration and interfaces. As FMM modules are less complex than AMC modules, customers can deploy faster with a customized design.

FMM-5001B

FMM-5001F

FMM-5001Q



FMM-5002

FMM-5004M

FMM-5006

Specifications

FMM Module/ Main Chip		**Fabric mezzanine type I***			**Fabric mezzanine type II**		
		FMM-5001B	Intel® 82599EB		FMM-5001F	Intel® 82599ES	
		FMM-5001Q	4 x Intel® 82599ES		FMM-5002	Silicon Motion SM750	
		FMM-5004M	Mellanox CX3		FMM-5006	Intel® Communications Chipset 8900 Series	
Management	EEPROM FRU	Microchip 24LC32A					
	Thermal IC	TI TMP75AIDR					
Protocol / I/O ports	FMM-5001B	Dual ports XAUI to backplane					
	FMM-5001F	2 SFP+					
	FMM-5001Q	Dual ports 4 x KR to backplane					
	FMM-5002	VGA					
	FMM-5004M	Dual ports KR4 to backplane					
	FMM-5006	Quick Assist					
Power Requirement		FMM-5001B 7.35W	FMM-5001F 9.29W	FMM-5001Q 29.4W	FMM-5002 4.54W	FMM-5004M 6.8W	FMM-5006 28.08W Max
Physical Characteristics	Dimensions (W x D)	Single Size (75mm x 64mm): FMM-5001B, FMM-5001F, FMM-5002, FMM-5004M, FMM-5006 Double Size (150mm x 64mm): FMM-5001Q					
	Weight	FMM-5001B 75g	FMM-5001F 75g	FMM-5001Q 90g	FMM-5002 60g	FMM-5004M 35g	FMM-5006 45g
Environment		Operating			Non-operating		
	Temperature	0 ~ 55° C (32 ~ 131° F)			- 40 ~ 70° C (-40 ~ 158° F)		
	Humidity	5 to 93%@40°C (non-condensing)			95% @ 40° C (non-condensing)		
	Shock	3G, half-sine 11ms, each axis			18G, half-sine 11ms, each axis		
	Vibration	5 - 200 Hz, 0.2G, each axis			5 Hz to 20 Hz @ 1 m2/s3 (0.01 g2 /Hz) (flat) 20 Hz to 200 Hz @ -3 dB/oct (slope down) 95% @ 40° C (non-condensing)		
Compliance	Environment	ETSI EN300019-2-1 Class1.2, EN300019-2-2 Class 2.3, ETSI EN300019-2-3 Class 3.1E					
	PICMG	3.0 R3.0, HPM.1, IRTM.0					
	EMC	CSAC22.2 FCC47 CFR Part15, Class A, CE Mark (EN55022/EN55024/EN300386) Designed to meet GR1089-CORE					

*Note: Type I FMMs do not include a front panel, other than the FMM-5001B

Compatibility

	FMM-5001B	FMM-5001F	FMM-5001Q	FMM-5002	FMM-5004M	FMM-5006
MIC-5332	Yes	Yes	-	Yes	-	Yes
MIC-5333	Yes	Yes	Yes	Yes	Yes	Yes
RTM-5104	-	Yes	-	Yes	-	Yes
MIC-5342	-	Yes	-	Yes	-	Yes
MIC-5345	-	Yes	-	Yes	-	Yes

Ordering Information

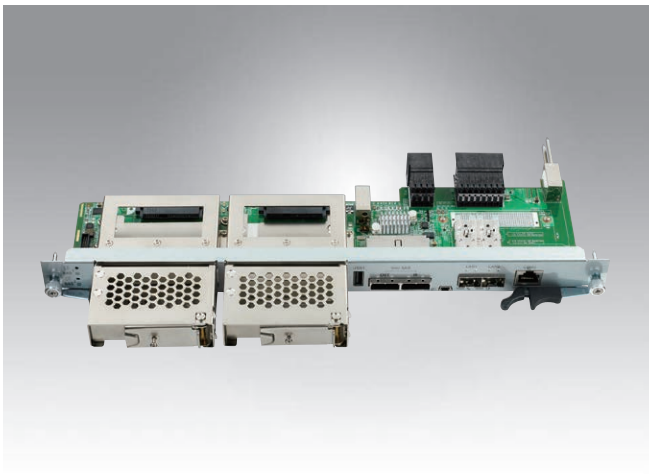
Part Number	Description
FMM-5001BE	10GE Dual-dual star FI support
FMM-5001FE	10GE Intel® 82599ES with dual SFP+ output
FMM-5001QE	Quad Intel® 82599ES for 40GE FI support
FMM-5002E	Server graphic with one external VGA port
FMM-5004ME	Mellanox CX3 for 40GE FI support
FMM-5006AE	Intel® DH8920 PCH QuickAssist Accelerator
FMM-5006TE	Intel® DH8955 PCH QuickAssist Accelerator

Related Products

Model Name	Description
MIC-5332 series	ATCA CPU blade with dual Intel® Xeon® CPU
MIC-5333 series	ATCA CPU blade with dual Intel® Xeon® CPU
MIC-5342 series	ATCA CPU blade with dual Intel® Xeon® CPU
MIC-5345 series	ATCA CPU blade with dual Intel® Xeon® CPU
RTM-5104 series	AdvancedTCA® RTM for MIC-5332

RTM-5104

AdvancedTCA® RTM for MIC-5332



Features

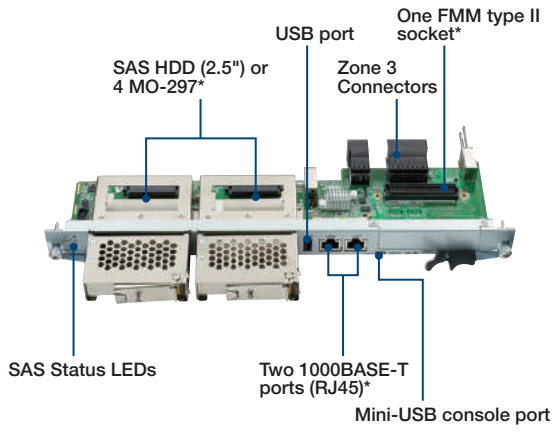
- PICMG IRTM.0 compliant
- Supports two 2.5" SAS HDDs / 4 MO-297
- Supports one Advantech Fabric Mezzanine Module
- Provides external SAS / HDD failover cabling (mini SAS connectors)
- Two 1000BASE-T or fiber rear panel ports (RJ45 / SFP connectors)
- One USB2.0 rear panel port
- Up to two serial ports
- Fully managed, hot swappable RTM

Introduction

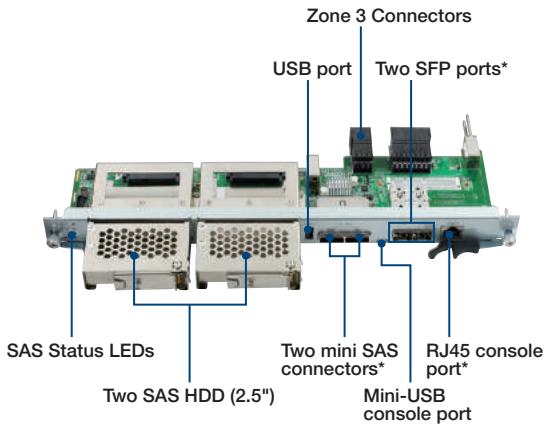
The RTM-5104 is a single slot (6HP) ATCA rear transition module for I/O extension of Advantech ATCA CPU blades. To meet serviceability requirements, RTM-5104 is designed as a fully managed and hot swappable FRU. The storage tray supports up to two 2.5" SAS HDD or four MO-297A SSD's, and can be operated up to 3.0 Gbits/sec. Two external mini SAS connectors are provided on the rear panel for failover cabling as a separate part number. The RTM implements a miniUSB connector that provides a host powered USB slave port exposing a UART port of the front blade via USB. Two Ethernet GbE ports provide two additional I/O ports for rear LAN access. One USB port (USB 2.0) supports USB devices such as keyboard, mouse, USB Flash drive, or USB-CDROM.

The RTM also implements one Fabric Mezzanine Module type II socket to support flexible IO extension like 10GE ports, a server type graphics module or PCIe expressed based offload. With a PCIex16 or 2 PCIex8 gen.3 ports interfacing to the front blade, the FMM socket is not only a perfect solution for IO port extension but also custom acceleration and interafces.

RTM-5104SE / RTM-5104ME



RTM-5104NE



*Note: This may show variant with the other SKUs, please refer to ordering information for details.

Specifications

Rear Panel Interface	Serial (COM)	One mini USB connector (USB slave), RJ-45 connector (RS232)	
	Ethernet	Two 1000BASE-T or SFP ports	
	USB 2.0	One USB connector (Type A)	
	Storage	Two 2.5" SAS HDD bays or 4 MO-297A trays; optional Two mini SAS connectors	
Extension	FMM	One type II socket with PCIex16 gen.3 host interface	
IPMI	MMC Controller	Cortex M	
	IPMI	Advantech IPMI Core, compliant to IRTM.0 and IPMI 1.5/2.0	
Zone 3	RTM	Advantech common RTM interface Type II	
	Interface	One PCIe x 4, One PCIe x 16, Two SAS, One USB, 2 x RS232, GPIO, IPMBL, MMC management interface	
Power Requirements		8W typical without hard drives and FMM 18W typical with two hard drives and FMM	
Physical Characteristics	Dimensions (W x D)	6HP, 322.25 x 94 mm (PCB size) HDD cages protrude 30mm over rear panel	
	Weight	1.15 kg with two hard drives 0.6 kg without hard drivers	
Environment		Operating	Non-operating
	Temperature	0 ~ 55° C (32 ~ 131° F)	-40 ~ 70° C (-40 ~ 158° F)
	Humidity	5 to 93% @ 40° C (non condensing)	95% @ 40° C (non-condensing)
	Shock	3G, half-sine 11ms, each axis	18G, half-sine 11ms, each axis
	Vibration	5 - 200 Hz, 0.2G, each axis	5 Hz to 20 Hz @ 1 m2/s3 (0.01 g2 /Hz) (flat) 20 Hz to 200 Hz @ -3 dB/oct (slope down)
Compliance	Environment	ETSI EN300019-2-1 Class1.2, EN300019-2-2 Class 2.3, ETSI EN300019-2-3 Class 3.1E	
	PICMG	3.0 R3.0, HPM.1, IRTM.0	
	EMC	FCC47 CFR Part15, Class A, CE Mark (EN55022/EN55024/EN300386) Designed to meet GR1089-CORE	

Ordering Information

Part Number	Storage	USB	LAN	COM	FMM Support	External SAS
RTM-5104S00E	SAS x2	1	RJ45x2	miniUSB x 1	Yes	-
RTM-5104M00E*	MO-297x4	1	RJ45x2	miniUSB x 1	Yes	-
RTM-5104N00E	SAS x2	1	SFPx2	miniUSB x1 RJ45 x1	-	mini SAS x2

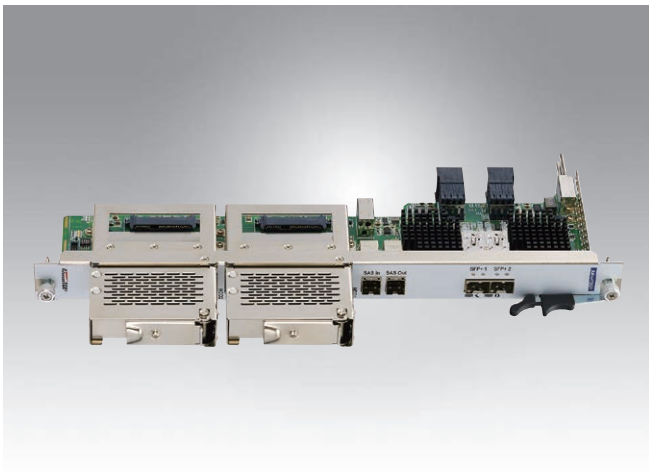
*Note: Please contact your local Advantech sales for RTM-5104M00E availability.

Related Products

Part Number	Description
MIC-5332 series	ATCA CPU blade with dual Intel® Xeon® CPU
FMM-5001FE	10Gb Intel® 82599ES with dual SFP+ output
FMM-5002E	FMM-5002 with one external VGA port
FMM-5006E	FMM-5006 with Intel® QuickAssist Accelerator

RTM-5107

AdvancedTCA® Rear Transition Module for MIC-5333 and MIC-5342



Features

- PICMG IRTM.0 compliant
- Supports two 2.5" SAS HDD / SATA SSD
- Supports two miniSAS HD connectors to external device & failover
- SAS interface speeds up to 12Gbps
- Supports two SFP+ ports

Introduction

The RTM-5107 is a single slot (6HP) ATCA rear transition module of Advantech ATCA CPU blades.

An Avago SAS3008 controller provides two SAS/SATA ports to two 2.5" Direct Attached Storage drives installed in the RTM-5107 storage trays and two miniSAS HD ports. One miniSAS HD port can be connected to external SAS devices (up to 4 devices). The other miniSAS HD port is used in a failover configuration, so two sets of compute blades and two RTM-5107 modules can be connected in a crossover mode to provide fail safe storage if used in conjunction with SAS disks supporting dual host ports. All internal and external SAS ports support 12Gbps lane speed.

For rear LAN access, an Intel® Ethernet Controller X710-BM2 on the RTM-5107 provides two SFP+ ports on the RTM panel for 10GbE/1GbE connections.

Specifications

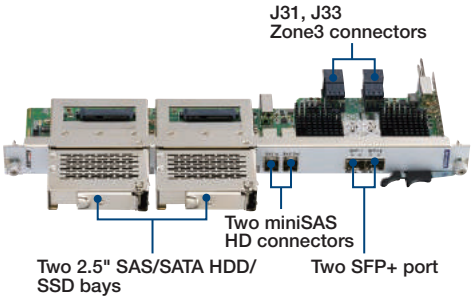
Rear Panel Interface	Ethernet	Intel® Ethernet Controller X710-BM2 supporting two SFP/SFP+ ports	
	Storage	Two 2.5" SAS/SATA HDD/SSD bays. Support SAS3008 HW RAID 0/1, RAID 1 support Disk Hot-swap auto-recovery Two miniSAS HD connectors to external device & failover	
IPMI	MMC Controller	NXP LPC1756	
	IPMI	Advantech IPMI core, compliant with IRTM.0 and IPMI 1.5/2.0	
Zone 3	RTM	Advantech common RTM interface Type II	
	Interface	Two PCIe x8, IPMB-L, MMC management interface	
Power Requirement	Max Power Consumption	14.6W without SAS hard drives (estimated) 24W with two SAS hard drives (estimated)	
Physical Characteristics	Dimensions (W x D)	6 HP, 322.25 x 94.00 mm (PCB size) Note: 322.25 x 123.92 mm (The HDD's cages extend beyond the rear panel)	
	Weight	1.2 kg (with two SAS hard drivers) 0.72 kg (without SAS hard drivers)	
Environment		Operating	Non-operating
	Temperature	0 ~ 55° C (32 ~ 131° F)	- 40 ~ 70° C (-40 ~ 158° F)
	Humidity	5 to 93%@40°C (non condensing)	95% @ 40° C (non-condensing)
	Shock	4Grms, each axis	
	Vibration	5 - 200 Hz, 0.2G, each axis	5 Hz to 20 Hz @ 1 m2/s3 (0.01 g2/Hz) (flat) 20 Hz to 200 Hz @ -3 dB/oct (slope down)
Compliance	Environment	ETSI EN300019-2-1 Class1.2, EN300019-2-2 Class 2.3, ETSI EN300019-2-3 Class 3.1E	
	PICMG	3.0 R3.0, HPM.1, IRTM.0	
	Safety	CE Mark (EN60950-2005), UL60950-1/CSAC22.2	
	EMC	FCC47 CFR Part15, Class A, CE Mark (EN55022/EN55024/EN300386) Designed to meet GR1089-CORE	

Ordering Information

Part Number	Description
RTM-5107S00E	Rear Transition Module compatible with MIC-5333 and MIC-5342* ATCA compute blades

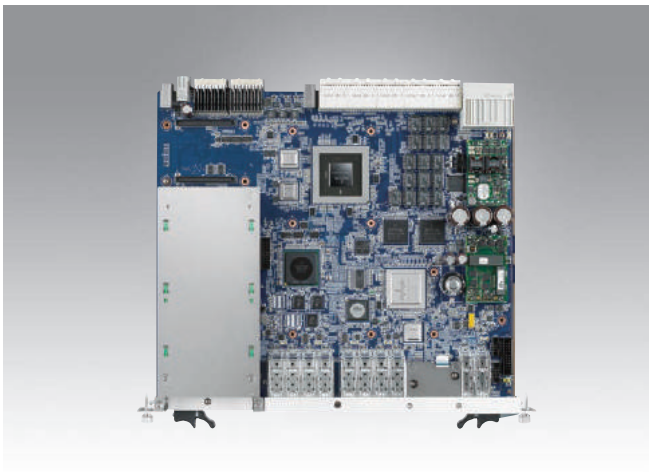
*Note: Two SFP+ port is not supported with MIC-5342.

Please contact Advantech for further information about current and future ATCA product offerings.



ATCA-9112

40 GbE Switch Blade Supports Up to 16 Slots



Features

- PICMG 3.0/3.1 compliant AdvancedTCA®
- Supports up to 16-slot platforms
- Separate base and fabric interface switching to provide enhanced security and protection
- 10/40G fabric interface with eight 10GE uplinks
- Fabric interface bandwidth up to 640G
- 1/10G basic interface with two GE uplinks
- Basic interface bandwidth up to 64G
- One AMC slot

Specifications

Local Mgmt. Processor (LMP)	Processor	Freescale QorIQ P1011
	E500 Core Frequency	800 MHz
	Memory Type and Capacity	Unbuffered 2Gb DDR3 1333 MHz
	Interface	Two SGMII interface PCIe x1 interface USB 2.0 interface SDHC interface
Switch	Ethernet Switch	Broadcom BCM56846 for 40Gb & 10G
	Management Switch	Broadcom BCM56321 for 10Gb & 1Gb
	PCIe Switch	PLX PEX8614
Boot Flash	Redundant Flash Type (LMP)	Parallel NOR Flash 128MB TSOP56
AMC	Interface	1 x XAUI SAS PCIe x4
Zone 3 Interface (RTM)	Physical Connection	Advantech RTM interface
	Interface	PCIex4 SAS/SATA 2 x XLAUI or 2 x XAUI
I/O Front Interface	LMP Console Debug Port	1 x RJ-45
	LMP USB Port	-
	SFP+ Port	10 x SFP+
	Ethernet Management Port	RJ-45 10/100/1000BT
Physical Characteristics	Dimensions (W x D)	6HP, 322.25 x 280.00 mm (12.69" x 11.02") (PCB size)
	Weight	3.0 kg (Est.)
SW Support	Bootloader	U-Boot
	HW Mgmt	IPMI
	Switch Mgmt	Broadcom FASTPATH 8.0
	Operating System	WindRiver Linux 4.0
Environment	Operating Environment	Temperature: 0 to 40° C Humidity: 20% to 90 % RH
	Storage Temperatures	Temperature: -20 to 70° C Humidity: 5% to 95 % RH
Compliance	EMC/Safety	CE/ FCC/ UL/CB (planned)

Ordering Information

Part Number	Description
ATCA-9112	40GbE ATCA Switch Blade

Netarium-2

3U 2-Slot AdvancedTCA Reference Platform

Features

- 3U 2-slot 19" rackmount ATCA shelf with integrated server blades
- 2 front slots with power distribution and cooling for up to 300W per slot
- 2 rear transition module (RTM) slots
- Supports two redundant Shelf Managers
- 40G ATCA-compliant backplane with cross-connected Base and Fabric Interfaces, handles up to 10 Gbps and 3.125 Gbps per differential pair
- Redundant AC and DC power options
- Right-to-Left Push-Pull Cooling Mode
- Hot swappable FRUs (blades, RTMs, fan trays, power modules, and ShMM)
- PICMG 3.0 (AdvancedTCA Base Specification) Compliance

AdvancedTCA® RoHS COMPLIANT 2002/95/EC

Introduction

Advantech's Netarium series of ATCA reference systems are specifically targeted to help network equipment providers reach superior levels of performance over traditional rackmount servers or appliances and extend their product range at the high end. The series represents a new generation of systems which offer higher performance, greater scalability and extreme flexibility by using the latest 40 Gigabit Ethernet (40G) backplanes, switches and application blades. Advantech optimizes the systems to achieve the highest possible density at the rack level, enabling a maximum number of processor cores, network ports and switching capacity.

Each system is tailored for customers to rapidly deploy in data communication markets for applications which require faster and deeper packet processing such as policy and charging enforcement, network security, real-time traffic monitoring, load balancing, subscriber analytics and content optimization among others. As ATCA was designed to meet the carrier-grade constraints of the telecom industry, the systems integrate the chassis, cooling, power distribution and shelf management into an off-the-shelf platform solution capable of superior 5 NINES availability and reliability.

Netarium-2 is the ultimate in entry level flexibility. This 2-slot platform allows OEMs to redeploy common platform hardware which scales when needed. Based on the MIC-5333 it packs more processing power than previous generation 6-slot systems. With an increase in miniaturization and performance at the blade level it is accompanied by a new concept at the mezzanine level to bring more I/O and acceleration closer to the processing cores. With four FMM sites on each ATCA blade and RTM, the MIC-5333 integrated into the Netarium-2 Reference System offers the broadest flexibility in entry level system performance on ATCA.

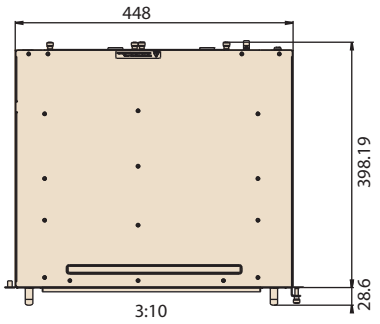
Many different payloads can be integrated into Advantech Netarium systems and configured to address diverse industry applications. For more details on integrating a specific configuration please contact your local sales representative.

Specifications

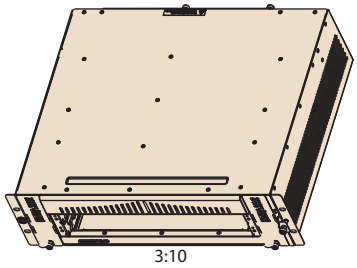
Number of slots	Front blades	2 ATCA compliant node blades
	RTM's	2 ATCA rear transition modules
Backplane	IPMB	Bussed (radial available on request)
	Base interface	Dual star, 1000 Base-T
	Fabric interface	Full mesh, 3.125Gbps or 10Gbps per differential pair
Cooling	Technology	Two front pluggable, hot swappable push-pull fan trays with N+1 redundant fans (no degradation with a single fan failure)
	Max. Capacity	>CPTA B.4, 300W/slot
	Air filter	One hot swappable air filter on the right side of chassis
Accessibility	Front	ATCA blades, ShMC's, front fan trays
	Rear	RTM's, PEM's / AC PSU's
Power	AC	Integrated dual, redundant AC power supplies, 850W
	PSU cooling	Self cooled
	DC feed	2 redundant, hot swappable PEMs w. integrated EMI filters
	DC voltage	-36V to -72V (Nominal -48V)
	Current rating	30A per feed
Shelf management	Full featured	Dual, redundant enhanced shelf managers
	Interfaces	RMCP, SSH, SNMP, CLI, Web and serial interfaces
	Sensors	FRU presence, fan health, PSU health, temperatures, input voltages
Miscellaneous	ESD plug	Front and rear
	Cable management	Front / rear cable trays (optional)
Physical Characteristics	Dimensions (H x W x D)	3U x 19 x 462 mm
	Weight	10kg (chassis weight only)

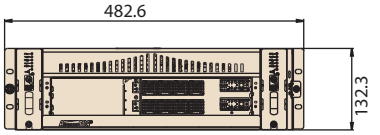
Dimensions

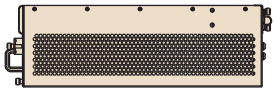
Unit: mm

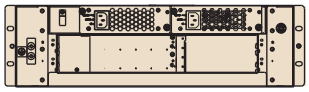


3U2S AC POWER
ATCA CHASSIS









Specifications

		Operating	Non-operating
Environment	Temperature	0 ~ 55° C (32 ~ 131° F)	- 40 ~ 70° C (-40 ~ 158° F)
	Humidity	5 to 93%@40°C (non condensing)	95% @ 40° C (non-condensing)
	Altitude	Up to 1800m (w/o cooling degradation)	Up to 4000m
Compliance	Environment	ETSI EN300019-2-1 Class1.2, EN300019-2-2 Class 2.3, ETSI EN300019-2-3 Class 3.1E Designed to meet GR63-CORE	
	PICMG	3.0 R3.0, 3.1 R1.0, HPM.1	
	Safety & EMC	CB report (IEC60950-1), CE mark (EN60950-2001), UL60950-1/CSAC22.2 FCC47 CFR Part15, Class A, CE Mark (EN55022/EN55024/EN300386) Designed to meet GR1089-CORE	

Ordering Information

Model Series	Configuration
Netarium-2 (AC)	3U, 2-slot ATCA chassis with 2x 850W AC PSUs, 2 fan trays, air filter, full mesh backplane, optional ShMM
Netarium-2 (DC)	3U, 2-slot ATCA chassis with 2 PEMs, 2 fan trays, air filter, full mesh backplane, optional ShMM

Note: Please contact your local Advantech sales representative for more information.

1. PSU 1
2. Fan Tray 1
3. Shelf Management 1
4. MIC-5333 node board
5. PSU 2
6. Fan Tray 2
7. Shelf Management 2

Related Products

Model Series	Description
MIC-5332	AdvancedTCA 10GbE Dual Socket CPU Blade with Intel® Xeon® E5-2600 Processors
MIC-5342	AdvancedTCA 40GbE Dual Socket CPU Blade with Intel® Xeon® E5-2600 v3/v4 Processors for Telecom Applications
MIC-5345	AdvancedTCA 40GbE Dual/Single Socket CPU Blade with Intel® Xeon® E5-2600 v3/v4 Processors for Server and NFV Applications
RTM-5104	AdvancedTCA RTM for MIC-5332
RTM-5107	AdvancedTCA Rear Transition Module for MIC-5333 and MIC-5342

Netarium-2v2

3U 2-Slot AdvancedTCA Reference Platform with Advantech Shelf Manager support

Features

- 3U 2-slot 19" rackmount ATCA shelf with integrated server blades
- 2 front slots with power distribution and cooling for up to 300W per slot
- 2 rear transition module (RTM) slots
- Supports two redundant Advantech Shelf Managers with Telco alarm signals
- 40G ATCA-compliant backplane with cross-connected Base and Fabric Interfaces, handles up to 10 Gbps and 3.125 Gbps per differential pair
- Redundant AC and DC power options
- Right-to-Left Push-Pull Cooling Mode
- Hot swappable FRUs (blades, RTMs, fan trays, power modules, and ShMM)
- PICMG 3.0 (AdvancedTCA Base Specification) Compliance

AdvancedTCA® RoHS COMPLIANT 2002/95/EC

Introduction

Advantech's Netarium series of ATCA reference systems are specifically targeted to help network equipment providers reach superior levels of performance over traditional rackmount servers or appliances and extend their product range at the high end. The series represents a new generation of systems which offer higher performance, greater scalability and extreme flexibility by using the latest 40 Gigabit Ethernet (40G) backplanes, switches and application blades. Advantech optimizes the systems to achieve the highest possible density at the rack level, enabling a maximum number of processor cores, network ports and switching capacity.

Each system is tailored for customers to rapidly deploy in data communication markets for applications which require faster and deeper packet processing such as policy and charging enforcement, network security, real-time traffic monitoring, load balancing, subscriber analytics and content optimization among others. As ATCA was designed to meet the carrier-grade constraints of the telecom industry, the systems integrate the chassis, cooling, power distribution and shelf management into an off-the-shelf platform solution capable of superior 5 NINES availability and reliability.

Netarium-2v2, which supports Advantech's SMM-5060 Advanced Shelf Management Module, providing IPMI2.0 and ATCA compliant shelf management, is the ultimate in entry level flexibility. This 2-slot platform allows OEMs to redeploy common platform hardware which scales when needed. Based on the MIC-5333 it packs more processing power than previous generation 6-slot systems. With an increase in miniaturization and performance at the blade level it is accompanied by a new concept at the mezzanine level to bring more I/O and acceleration closer to the processing cores. With four FMM sites on each ATCA blade and RTM, the MIC-5333 integrated into the Netarium-2 Reference System offers the broadest flexibility in entry level system performance on ATCA.

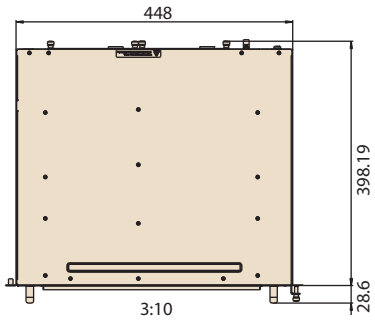
Many different payloads can be integrated into Advantech Netarium systems and configured to address diverse industry applications. For more details on integrating a specific configuration please contact your local sales representative.

Specifications

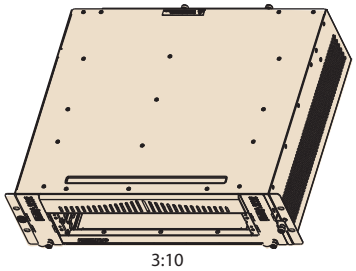
Number of slots	Front blades	2 ATCA compliant node blades
	RTM's	2 ATCA rear transition modules
Backplane	IPMB	Bussed (radial available on request)
	Base interface	Dual star, 1000 Base-T
	Fabric interface	Full mesh, 3.125Gbps or 10Gbps per differential pair
Cooling	Technology	Two front pluggable, hot swappable push-pull fan trays with N+1 redundant fans (no degradation with a single fan failure)
	Max. Capacity	>CPTA B.4, 300W/slot
	Air filter	One hot swappable air filter on the right side of chassis
Accessibility	Front	ATCA blades, ShMC's, front fan trays
	Rear	RTM's, PEM's / AC PSU's
Power	AC	Integrated dual, redundant AC power supplies, 850W
	PSU cooling	Self cooled
	DC feed	2 redundant, hot swappable PEMs w. integrated EMI filters
	DC voltage	-36V to -72V (Nominal -48V)
	Current rating	30A per feed
Shelf management	Full featured	Dual, redundant enhanced shelf managers based on Advantech SMM-5060
	Interfaces	RMCP, SSH, SNMP, CLI, Web and serial interfaces
	Telco alarm	Telco alarm signals, populated on each ShMM
	Sensors	FRU presence, fan health, PSU health, temperatures, input voltages
Miscellaneous	ESD plug	Front and rear
	Cable management	Front / rear cable trays (optional)
Physical Characteristics	Dimensions (H x W x D)	3U x 19" x 462 mm
	Weight	10kg (chassis weight only)

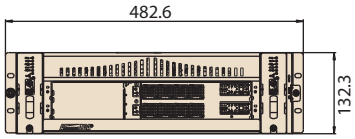
Dimensions

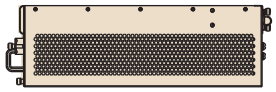
Unit: mm

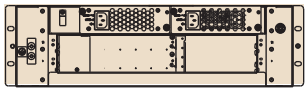


3U2S AC POWER
ATCA CHASSIS









Specifications

Environment		Operating	Non-operating
	Temperature	0 ~ 55° C (32 ~ 131° F)	- 40 ~ 70° C (-40 ~ 158° F)
	Humidity	5 to 93%@40°C (non condensing)	95% @ 40° C (non-condensing)
	Altitude	Up to 1800m (w/o cooling degradation)	Up to 4000m
Compliance	Environment	ETSI EN300019-2-1 Class1.2, EN300019-2-2 Class 2.3, ETSI EN300019-2-3 Class 3.1E Designed to meet GR63-CORE	
	PICMG	3.0 R3.0, 3.1 R1.0, HPM.1	
	Safety & EMC	CB report (IEC60950-1), CE mark (EN60950-2001), UL60950-1/CSAC22.2 FCC47 CFR Part15, Class A, CE Mark (EN55022/EN55024/EN300386) Designed to meet GR1089-CORE	

Ordering Information

Model Series	Configuration
Netarium-2v2 (AC)	3U, 2-slot ATCA chassis with 2x 850W AC PSUs, 2 fan trays, air filter, full mesh backplane, optional ShMM
Netarium-2v2 (DC)	3U, 2-slot ATCA chassis with 2 PEMs, 2 fan trays, air filter, full mesh backplane, optional ShMM

Note: Please contact your local Advantech sales representative for more information.

1. PSU 1
2. Fan Tray 1
3. SMM-5060 Shelf Management 1
4. MIC-5333 node board
5. PSU 2
6. Fan Tray 2
7. SMM-5060 Shelf Management 2

Related Products

Model Series	Description
MIC-5332	AdvancedTCA 10GbE Dual Socket CPU Blade with Intel® Xeon® E5-2600 Processors
MIC-5342	AdvancedTCA 40GbE Dual Socket CPU Blade with Intel® Xeon® E5-2600 v3/v4 Processors for Telecom Applications
MIC-5345	AdvancedTCA 40GbE Dual/Single Socket CPU Blade with Intel® Xeon® E5-2600 v3/v4 Processors for Server and NFV Applications
RTM-5104	AdvancedTCA RTM for MIC-5332
RTM-5107	AdvancedTCA Rear Transition Module for MIC-5333 and MIC-5342
SMM-5060	Netarium System Management Module

Netarium-6

6U 6-Slot AdvancedTCA Reference Systems

Features

- 6U 6-slot 19" rackmount ATCA shelf with integrated switches and server blades
- 4 node + 2 hub slots with power distribution and cooling for up to 350W per slot
- 6 rear transition module (RTM) slots
- Supports two redundant Shelf Managers, and one optional Shelf Alarm Panel
- 40G ATCA-compliant backplane, with triple full mesh on fabric channel and dual star on base channel, supports up to 10 Gbps and 3.125 Gbps per differential pair
- Redundant AC and DC power options
- Right-to-Left Push-Pull Cooling Mode
- Hot swappable FRUs (blades, RTMs, fan trays, power modules, ShMM, and Telco alarm module)
- PICMG 3.0 (AdvancedTCA Base Specification) Compliance

AdvancedTCA® RoHS COMPLIANT 2002/95/EC

Introduction

Advantech's Netarium series of ATCA reference systems are specifically targeted to help network equipment providers reach superior levels of performance over traditional rackmount servers or appliances and extend their product range at the high end. The series represents a new generation of systems which offer higher performance, greater scalability and extreme flexibility by using the latest 40 Gigabit Ethernet (40G) backplanes, switches and application blades. Advantech optimizes the systems to achieve the highest possible density at the rack level, enabling a maximum number of processor cores, network ports and switching capacity.

Each system is tailored for customers to rapidly deploy in data communication markets for applications which require faster and deeper packet processing such as policy and charging enforcement, network security, real-time traffic monitoring, load balancing, subscriber analytics and content optimization among others. As ATCA was designed to meet the carrier-grade constraints of the telecom industry, the systems integrate the chassis, cooling, power distribution and shelf management into an off-the-shelf platform solution capable of superior 5 NINES availability and reliability.

The mid-range Netarium-6 focuses on the high performance needs of large enterprise customers in a cost effective system loaded with four MIC-5333 dual Intel® Xeon® blades and 40G switches in a dual-star configuration. The system provides up to 1.28 Tbps switching capacity and each MIC-5333 blade with RTM pair can accommodate up to 4 FMMs for over 100 Gbps egress per blade with high-speed encryption using FMM-based acceleration modules.

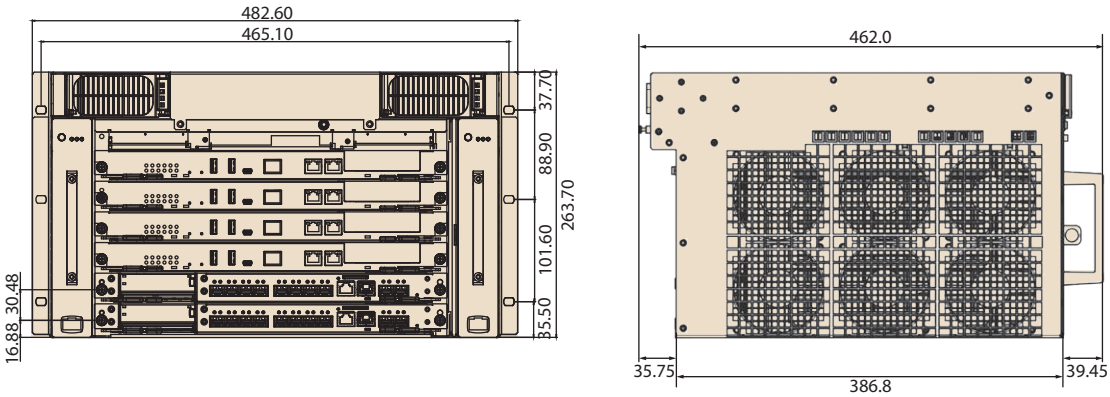
Many different payloads can be integrated into Advantech Netarium systems and configured to address diverse industry applications. For more details on integrating a specific configuration please contact your local sales representative.

Specifications

Number of slots	Front blades	6 ATCA compliant node or hub blades (4 node blades and 2 hub blades)
	RTM's	6 ATCA rear transition modules
Backplane	IPMB	Bussed (radial available on request)
	Base interface	Dual star, 1000 Base-T
	Fabric interface	Triple replicated Full mesh, up to 10Gbps and 3.125Gbps per differential pair
Cooling	Technology	Two front pluggable, hot swappable push-pull fan trays with N+1 redundant fans (no degradation with a single fan failure)
	Max. Capacity	3350W/slot with △t=12K
	Air filter	Front replaceable air inlet filter with presence monitoring
Accessibility	Front	ATCA blades, ShMC's, front fan trays
	Rear	RTM's, PEM's / AC PSU's
Power	AC	Integrated dual, redundant AC power supplies, 2725W 230V @ 50.5A or 115V @ 22A (with limited performance) per AC inlet
	PSU cooling	Self cooled
	DC feed	2 redundant, hot swappable PEMs w. integrated EMI filters
	DC voltage	-54V (Nominal -48V)
	Current rating	50A per feed
Shelf management	Full featured	Dual, redundant Shelf Manager ACB-V, SW executes on the Pigeon Point Shelf Management Mezzanine 500 (ShMM-500)
	Interfaces	RMCP, SSH, SNMP, CLI, Web and serial interfaces
	Telco alarms	Optional Telco alarm panel (with three Telco alarm LEDs and one DB15-male Telco alarm connector)
	Sensors	FRU presence, fan health, PSU health, temperatures, input voltages
Miscellaneous	ESD plug	Front and rear
	Cable management	Front / rear cable trays (optional)
Physical Characteristics	Dimensions (H x W x D)	6U x 19 x 462 mm
	Weight	23 kg (chassis weight only)

Dimensions

Unit: mm



Specifications

Environment		Operating	Non-operating
	Temperature	0 ~ 55° C (32 ~ 131° F)	- 40 ~ 70° C (-40 ~ 158° F)
	Humidity	5 to 93% @ 40°C (non condensing)	95% @ 40° C (non-condensing)
	Altitude	Up to 1800m (w/o cooling degradation)	Up to 4000m
Compliance	Environment	ETSI EN300019-2-1 Class1.2, EN300019-2-2 Class 2.3, ETSI EN300019-2-3 Class 3.1E	
		Designed to meet GR63-CORE	
	PICMG	3.0 R3.0, 3.1 R1.0, HPM.1	
	Safety & EMC	CB report (IEC60950-1), CE mark (EN60950-2001), UL60950-1/CSAC22.2 FCC47 CFR Part15, Class A, CE Mark (EN55022/EN55024/EN300386) Designed to meet GR1089-CORE	

Ordering Information

Model Series	Configuration
Netarium-6 (AC)	6U, 6-slot ATCA chassis with 2x 2725W AC PSUs, 2 fan trays, air filter, triple replicated full mesh backplane, optional ShMM & Shelf Alarm Module
Netarium-6 (DC)	6U, 6-slot ATCA chassis with 2 PEMs, 2 fan trays, air filter, triple replicated full mesh backplane, optional ShMM & Shelf Alarm Module

Note: Please contact your local Advantech sales representative for more information.

1. PSU 1
2. Pigeon Point System Shelf Manager 1
3. Fan Tray 1
4. MIC-5333 node board
5. Switch board
6. PSU 2
7. Optional Telco Alarm Panel
8. Pigeon Point System Shelf Manager 2
9. Fan Tray 2

Related Products

Model Series	Description
MIC-5332	AdvancedTCA 10GbE Dual Socket CPU Blade with Intel® Xeon® E5-2600 Processors
MIC-5342	AdvancedTCA 40GbE Dual Socket CPU Blade with Intel® Xeon® E5-2600 v3/v4 Processors for Telecom Applications
MIC-5345	AdvancedTCA 40GbE Dual/Single Socket CPU Blade with Intel® Xeon® E5-2600 v3/v4 Processors for Server and NFV Applications
RTM-5104	AdvancedTCA RTM for MIC-5332
RTM-5107	AdvancedTCA Rear Transition Module for MIC-5333 and MIC-5342
ATCA-9112	40GbE AdvancedTCA Switch Blade support up to 16 slots
Telco Systems T-HUB4	40GbE AdvancedTCA Switch Blade support up to 16 slots
Telco Systems T-ATCA510	100GbE AdvancedTCA Switch Blade

Netarium-6v2

6U 6-Slot AdvancedTCA Reference Systems with Advantech Shelf Manager support

Features

- 6U 6-slot 19" rackmount ATCA shelf with integrated switches and server blades
- 4 node + 2 hub slots with power distribution and cooling for up to 300W per slot
- 6 rear transition module (RTM) slots
- Supports two redundant Advantech Shelf Managers with Telco alarm signals
- 40G ATCA-compliant backplane, with dual star topology on Base and Fabric Interfaces, handles up to 10 Gbps and 3.125 Gbps per differential pair
- Redundant AC and DC power options
- Right-to-Left Push-Pull Cooling Mode
- Hot swappable FRUs (blades, RTMs, fan trays, power modules, and ShMM)
- PICMG 3.0 (AdvancedTCA Base Specification) Compliance

AdvancedTCA® RoHS COMPLIANT 2002/95/EC

Introduction

Advantech's Netarium series of ATCA reference systems are specifically targeted to help network equipment providers reach superior levels of performance over traditional rackmount servers or appliances and extend their product range at the high end. The series represents a new generation of systems which offer higher performance, greater scalability and extreme flexibility by using the latest 40 Gigabit Ethernet (40G) backplanes, switches and application blades. Advantech optimizes the systems to achieve the highest possible density at the rack level, enabling a maximum number of processor cores, network ports and switching capacity.

Each system is tailored for customers to rapidly deploy in data communication markets for applications which require faster and deeper packet processing such as policy and charging enforcement, network security, real-time traffic monitoring, load balancing, subscriber analytics and content optimization among others. As ATCA was designed to meet the carrier-grade constraints of the telecom industry, the systems integrate the chassis, cooling, power distribution and shelf management into an off-the-shelf platform solution capable of superior 5 NINES availability and reliability.

The mid-range Netarium-6v2, which supports Advantech's SMM-5060 Advanced Shelf Management Module, providing IPMI2.0 and ATCA compliant shelf management, focuses on the high performance needs of large enterprise customers in a cost effective system loaded with four MIC-5333 dual Intel® Xeon® blades and 40G switches in a dual-star configuration. The system provides up to 1.28 Tbps switching capacity and each MIC-5333 blade with RTM pair can accommodate up to 4 FMMs for over 100 Gbps egress per blade with high-speed encryption using FMM-based acceleration modules.

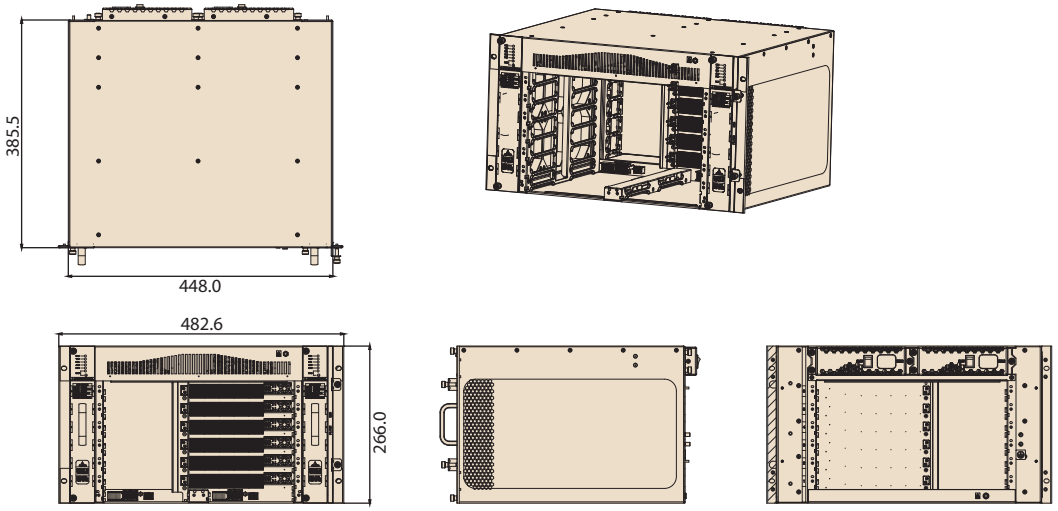
Many different payloads can be integrated into Advantech Netarium systems and configured to address diverse industry applications. For more details on integrating a specific configuration please contact your local sales representative.

Specifications

Number of slots	Front blades	6 ATCA compliant node or hub blades (4 node blades and 2 hub blades)
	RTM's	6 ATCA rear transition modules
Backplane	IPMB	Bussed (radial available on request)
	Base interface	Dual star, 1000 Base-T
	Fabric interface	Dual star, up to 10Gbps and 3.125Gbps per differential pair
Cooling	Technology	Two front pluggable, hot swappable push-pull fan trays with N+1 redundant fans (no degradation with a single fan failure)
	Max. Capacity	>CPTA B.4, 300W/slot
	Air filter	One hot swappable air filter on the right side of chassis
Accessibility	Front	ATCA blades, ShMC's, front fan trays
	Rear	RTM's, PEM's / AC PSU's
Power	AC	Integrated dual, redundant AC power supplies, 2000W
	PSU cooling	Self cooled
	DC feed	2 redundant, hot swappable PEMs w. integrated EMI filters
	DC voltage	-36V to -72V (Nominal -48V)
	Current rating	40A per feed
Shelf management	Full featured	Dual, redundant enhanced shelf managers based on Advantech SMM-5060
	Interfaces	RMCP, SSH, SNMP, CLI, Web and serial interfaces
	Telco alarm	Telco alarm signals, populated on each ShMM
	Sensors	FRU presence, fan health, PSU health, temperatures, input voltages
Miscellaneous	ESD plug	Front and rear
	Cable management	Front / rear cable trays (optional)
Physical Characteristics	Dimensions (H x W x D)	6U x 19" x 462mm
	Weight	23kg (chassis weight only)

Dimensions

Unit: mm



Specifications

Environment		Operating	Non-operating
	Temperature	0 ~ 55° C (32 ~ 131° F)	- 40 ~ 70° C (-40 ~ 158° F)
	Humidity	5 to 93%@40°C (non condensing)	95% @ 40° C (non-condensing)
	Altitude	Up to 1800m (w/o cooling degradation)	Up to 4000m
Compliance	Environment	ETSI EN300019-2-1 Class1.2, EN300019-2-2 Class 2.3, ETSI EN300019-2-3 Class 3.1E Designed to meet GR63-CORE	
	PICMG	3.0 R3.0, 3.1 R1.0, HPM.1	
	Safety & EMC	CB report (IEC60950-1), CE mark (EN60950-2001), UL60950-1/CSAC22.2 FCC47 CFR Part15, Class A, CE Mark (EN55022/EN55024/EN300386) Designed to meet GR1089-CORE	

Ordering Information

Model Series	Configuration
Netarium-6v2 (AC)	6U, 6-slot ATCA chassis with 2x 2000W AC PSUs, 2 fan trays, air filter, dual star backplane, optional ShMM
Netarium-6v2 (DC)	6U, 6-slot ATCA chassis with 2 PEMs, 2 fan trays, air filter, dual star backplane, optional ShMM

Note: Please contact your local Advantech sales representative for more information.

Related Products

Model Series	Description
MIC-5332	AdvancedTCA 10GbE Dual Socket CPU Blade with Intel® Xeon® E5-2600 Processors
MIC-5342	AdvancedTCA 40GbE Dual Socket CPU Blade with Intel® Xeon® E5-2600 v3/v4 Processors for Telecom Applications
MIC-5345	AdvancedTCA 40GbE Dual/Single Socket CPU Blade with Intel® Xeon® E5-2600 v3/v4 Processors for Server and NFV Applications
RTM-5104	AdvancedTCA RTM for MIC-5332
RTM-5107	AdvancedTCA Rear Transition Module for MIC-5333 and MIC-5342
ATCA-9112	40GbE AdvancedTCA Switch Blade support up to 16 slots
SMM-5060	Netarium System Management Module
Telco Systems T-HUB4	40GbE AdvancedTCA Switch Blade support up to 16 slots
Telco Systems T-ATCA510	100GbE AdvancedTCA Switch Blade

1. PSU 1
2. Fan Tray 1
3. MIC-5333 node board
4. Switch board
5. SMM-5060 Shelf Management 1
6. PSU 2
7. Fan Tray 2
8. Air Filter
9. SMM-5060 Shelf Management 2

Netarium-14

14U 14-Slot AdvancedTCA Reference Systems

Features

- 14U 14-slot 19" rackmount ATCA shelf with integrated switches and server blades
- 12 node + 2 hub slots with power distribution for over 350W per slot
- 14 rear transition module (RTM) slots
- Supports two redundant Shelf Managers, and two redundant Shelf FRU Data and Telco Alarms boards
- 40G ATCA-compliant backplane, with dual star topology on fabric channel and base channel, supporting up to 10 Gbps per differential pair for the fabric
- Redundant AC and DC power options
- Front-to-rear Pull Cooling Mode
- Hot swappable FRUs (blades, RTMs, fan trays, power modules, and ShMM)
- PICMG 3.0 (AdvancedTCA Base Specification) Compliance

AdvancedTCA® RoHS COMPLIANT 2002/95/EC

Introduction

Advantech's Netarium series of ATCA reference systems are specifically targeted to help network equipment providers reach superior levels of performance over traditional rackmount servers or appliances and extend their product range at the high end. The series represents a new generation of systems which offer higher performance, greater scalability and extreme flexibility by using the latest 40 Gigabit Ethernet (40G) backplanes, switches and application blades. Advantech optimizes the systems to achieve the highest possible density at the rack level, enabling a maximum number of processor cores, network ports and switching capacity.

Each system is tailored for customers to rapidly deploy in data communication markets for applications which require faster and deeper packet processing such as policy and charging enforcement, network security, real-time traffic monitoring, load balancing, subscriber analytics and content optimization among others. As ATCA was designed to meet the carrier-grade constraints of the telecom industry, the systems integrate the chassis, cooling, power distribution and shelf management into an off-the-shelf platform solution capable of superior 5 NINES availability and reliability.

Rising volumes of data traffic, media-rich applications and data center consolidation are driving the need for increased bandwidth scalability and high-speed connections. To meet these challenges, Advantech's flagship Netarium-14 targets the high-end market where equipment providers require superior performance, scalability and deployment flexibility for their large enterprise, managed security service provider or carrier customers.

Many different payloads can be integrated into Advantech Netarium systems and configured to address diverse industry applications. For more details on integrating a specific configuration please contact your local sales representative.

Specifications

Number of slots	Front blades	14 ATCA compliant node or hub blades (12 node blades and 2 hub blades)
	RTM's	14 ATCA rear transition modules
Backplane	IPMB	Bussed
	Base interface	Dual star, 1000 Base-T
	Fabric interface	Dual star, up to 10Gbps per differential pair
Cooling	Technology	Four front pluggable, hot swappable high pressure fan trays with N+1 redundant fans (no degradation with a single fan failure)
	Max. Capacity	350W for front board and 35W for RTM
	Air filter	Front pluggable air inlet filter with redundant presence sensor
Accessibility	Front	ATCA blades, fan trays, air filter, and AC PSU's
	Rear	RTM's, ShMC's, and PEM's
Power	AC	Up to five redundant (N+1) power supply units with separate AC inlets, 1600W (at high line) and 1200W (at low line)
	PSU cooling	Self cooled
	DC feed	2 redundant, hot swappable PEMs w. integrated EMI filters
	DC voltage	-48V / -60V
	Current rating	105A@-48V and 84A@-60V via 4 studs
Shelf management	Full featured	Dual, redundant carrier board for Pigeon Point Shelf Management Mezzanine 500 (ShMM-500)
	Interfaces	RMCP, SSH, SNMP, CLI, Web and serial interfaces
	Telco alarms	Dual, redundant Shelf FRU Data and Telco alarm boards (Optional)
	Sensors	FRU presence, fan health, PSU health, temperatures, input voltages
Miscellaneous	ESD plug	Front and rear
	Cable management	Front and rear cable management trays (optional)

Specifications

Physical Characteristics	Dimensions (H x W x D)	14U x 19 x 500 mm	
	Weight	40kg (chassis weight only)	
Environment		Operating	Non-operating
	Temperature	0 ~ 55° C (32 ~ 131° F)	- 40 ~ 70° C (-40 ~ 158° F)
	Humidity	5 to 93% @ 40° C (non condensing)	95% @ 40° C (non-condensing)
	Altitude	Up to 1800m (w/o cooling degradation)	Up to 4000m
Compliance	Environment	ETSI EN300019-2-1 Class1.2, EN300019-2-2 Class 2.3, ETSI EN300019-2-3 Class 3.1E	
		Designed to meet GR63-CORE	
	PICMG	3.0 R3.0, 3.1 R1.0, HPM.1	
	Safety & EMC	CB report (IEC60950-1), CE mark (EN60950-2001), UL60950-1/CSAC22.2 FCC47 CFR Part15, Class A, CE Mark (EN55022/EN55024/EN300386) Designed to meet GR1089-CORE	

Ordering Information

Model Series	Configuration
Netarium-14 (AC)	14U, 14-slot ATCA chassis with 5x 1600W AC PSUs, 4 fan trays, air filter, dual star backplane, optional ShMM & Shelf Alarm Module
Netarium-14 (DC)	14U, 14-slot ATCA chassis with 2 PEMs, 4 fan trays, air filter, dual star backplane, optional ShMM & Shelf Alarm Module

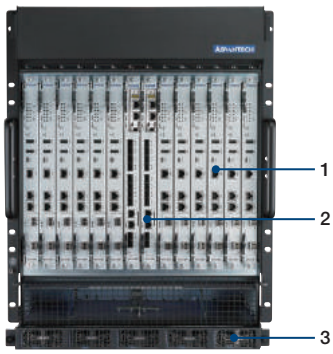
Note: Please contact your local Advantech sales representative for more information.

Related Products

Model Series	Description
MIC-5332	AdvancedTCA 10GbE Dual Socket CPU Blade with Intel® Xeon® E5-2600 Processors
MIC-5342	AdvancedTCA 40GbE Dual Socket CPU Blade with Intel® Xeon® E5-2600 v3/v4 Processors for Telecom Applications
MIC-5345	AdvancedTCA 40GbE Dual/Single Socket CPU Blade with Intel® Xeon® E5-2600 v3/v4 Processors for Server and NFV Applications
RTM-5104	AdvancedTCA RTM for MIC-5332
RTM-5107	AdvancedTCA Rear Transition Module for MIC-5333 and MIC-5342
ATCA-9112	40GbE AdvancedTCA Switch Blade support up to 16 slots
Telco Systems T-HUB4	40GbE AdvancedTCA Switch Blade support up to 16 slots
Telco Systems T-ATCA510	100GbE AdvancedTCA Switch Blade

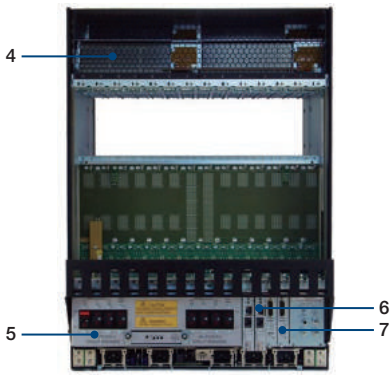
Front View

Netarium-14 (AC)



Rear View

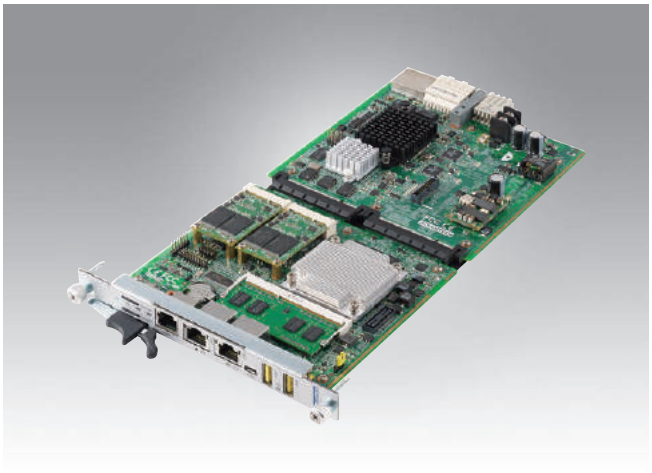
Netarium-14 (AC) Shelf



1. MIC-5333 node board
2. ATCA-9112 Switch board
3. Power Supply Unit
4. Fan Tray
5. Power Entry Module
6. Shelf Manager
7. Shelf FRU Data and Telco Alarms board

SMM-5060

Netarium System Management Module



Features

- ATCA / eATCA Shelf and System Management
- ARM9 based Shelf Management controller with Advantech IPMI core
- Full event log synchronization, robust redundancy and failover
- Optional Netarium System Manager on Intel® Atom™ Processor C2000 series
- Features include SoL Proxy, System Explorer, System Boot Server, etc.
- Up to two GbE (RJ45), two USB (host) ports, and two console ports (one RJ-45 and one micro-USB) on front panel
- Two microSD slots for shelf and system event logs storage.
- Up to two internal MO300 SSDs for OS, system management applications, and extended event logs storages
- System mount RAID boot disks and LCD module support
- HPM.1 updates, HPM.2, HPM.3 and HPI options
- Option to host customer applications

Introduction

Advantech's SMM-5060 is the Intel®ligence in Netarium ATCA or eATCA systems responsible for platform health and management as a whole. All individual FRU elements in the system including each power supply, fan module, node blade, hub blade, RTM or eRTM, backplane, and even the module itself can be monitored and controlled through the Shelf Manager residing in the SMM-5060's BMC module. The SMM-5060's Shelf Management (ShM) is ATCA compliant and supports the latest PICMG specifications such as HPM.1, HPM.2 and HPM.3. In addition to providing full redundancy and failover support, Advantech's ShM features full log and state synchronization. All firmware and software on the Shelf Manager supports redundant images and can be upgraded via HPM.1 for maximum reliability.

As an option, the SMM-5060 can be extended with System Manager functionality via a module based on the Intel® Atom™ processor C2000. Advantech's System Manager (SysM) acts as centralized service access point (such as SoL Proxy), blade boot server (provisioning OS images and node blades' applications), and advanced configuration manager enabling any iA node in the Netarium system to boot with a tailored set of BIOS settings yielding best performance for a specific workload. In addition, an integrated web front end, the System Explorer can be used to provide graphical displays of various levels of system information such as system inventory, health views, sensor status, system IDs, and event logs, leading to a friendlier shelf/system management user experience. An LCD module implemented on the chassis can also be interfaced to the SMM-5060 and used to display system statistics or status to onsite technicians, allowing the Netarium system to be managed like a big appliance. Customers who are using appliances for their entry and mid-range network gear can now have a consistent system management view for their high end product line based on Advantech's Netarium platform and SMM-5060.

Specifications

Processor System	X86 CPU	Intel® Atom™ Processor C2000 Series (C2358/ 2 Cores/ 2 Threads/ 1 MB L2 Cache or C2558/ 4 Cores/ 4 Threads, 2 MB L2 Cache)
	Max. Speed	2.4 GHz
	BIOS	Carrier Grade UEFI BIOS based on AMI 1. Redundant flash with HPM.1 update & rollback 2. Configuration settings can be changed over IPMI
	BMC Processor	ARM9 based Microcontroller (400MHz)
Memory	Technology	x86: 2x 2GB DDR3 1333 MHz with ECC (2GB on board, 2GB on SODIMM) BMC: On-board DDR3/ 800 MHz/ 512 MB
	Max. Capacity	Up to 4GB for x86 module
Ethernet	Devices	x86: Intel® i354 Quad port Gigabit Ethernet controller BMC: 2 integrated 10/100/1000 Mbit MACs
	Interface	Up to 2 x GbE uplink Interfaces (only one uplink for basic shelf management SKU) 2 x Base Interface (100 Mbps) 1 x Cross-over interface to other SMM-5060 (GbE)
Front I/O Interface	Serial (COM)	2 x Console ports (1 RJ-45 connector for x86 module and 1 micro-USB connector for BMC module)
	Ethernet	2 x GbE ports (RJ-45 connectors)
	USB 2.0	2 x Type A ports (available only for x86 SKU)
	SDHC	2 x MicroSD Sockets
Mass Storage	Onboard	2 x 64GB (or 2 x 32GB) MO300 SATA SSD (available only for x86 SKU)
	Off board (system connector)	Two SATA-II Interfaces (available only for x86 SKU)
Operating System	Compatibility	CentOS 6 64 bit, RHEL6 64bit, others on request
Shelf Management	BMC	ARM 9 based controller (400MHz)
	IPMI	IPMI 2.0 based on Advantech IPMI Core
Watchdog Timer	Supervision	BMC watchdog
	Interval	IPMI compliant

Specifications

Miscellaneous	LEDs	x1 blue for hot swap, x1 red for failure and OOS, x4 green/amber for general purpose (user definable)	
Compliance	Standards	PICMG 3.0, IPMI v1.5, HPM.1, HPM.2, HPM.3	
Power Consumption	Configuration	Based on Intel® Atom™ C2558, 2 x 1333MHz 2GB DDR3 memory	
	Measured	30W max.	
Physical	Dimensions	6HP, 278.3 mm x 144.8 mm	
Environment		Operating	Non-operating
	Temperature	-5 ~ 55° C (23 ~ 131° F) NOTE1	- 40 ~ 70° C (-40 ~ 158° F)
	Humidity	IEC60068-2-78 (95%RH @ 40° C)	
	Vibration (5 ~ 500Hz)	IEC60068-2-6 (0.002G2/Hz, 1Grms)	
	Shock	IEC60068-2-27 (10G, 11ms)	
	Altitude	4000m above sea level	10,000m above sea level
Regulatory	Conformance	UL94V0, FCC Class B, CE, RoHS & WEEE Ready	
	NEBS Level 3	Designed to meet GR-63-CORE and GR-1089-CORE	

Ordering Information

Part Number [2]	Description
SMM-5060P1-M4E	Netarium system management module with Intel® Atom™ Processor C2558 module, 4GB DDR3 with ECC, 2x MO300 64GB SSDs, 2x USB host ports, 2x GbE uplink ports
SMM-5060P2-M2E	Netarium system management module with Intel® Atom™ Processor C2358 module, 2GB DDR3 with ECC, 2x MO300 32GB SSDs, 2x USB host ports, 2x GbE uplink ports, no system mount SATA interfaces to backplane
SMM-5060B1-M1E	Netarium shelf management module. No Intel® processor module, 1x GbE uplink port

NOTE 1: Operating Temperature: depends on the actual air flow through the ShMM slot. Numbers based on Advantech Netarium series
NOTE 2: Two main SKUs are available – one basic SKU provisioning PICMG3.0 compliant shelf management functions, the other SKU contains an x86-based module to provide advanced system management functions
NOTE 3: Contact your regional Advantech NCG representative for detailed information, including other system memory and SSD configurations.

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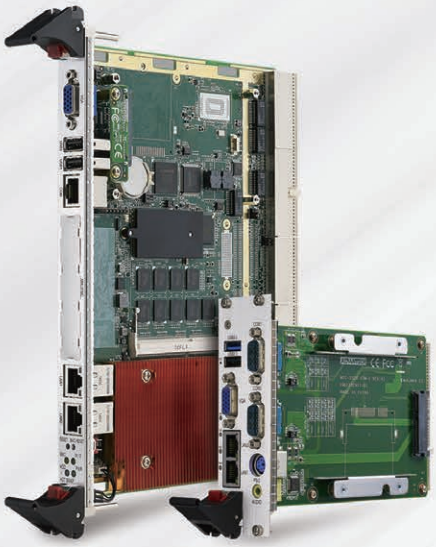
CPCI Boards & Enclosures

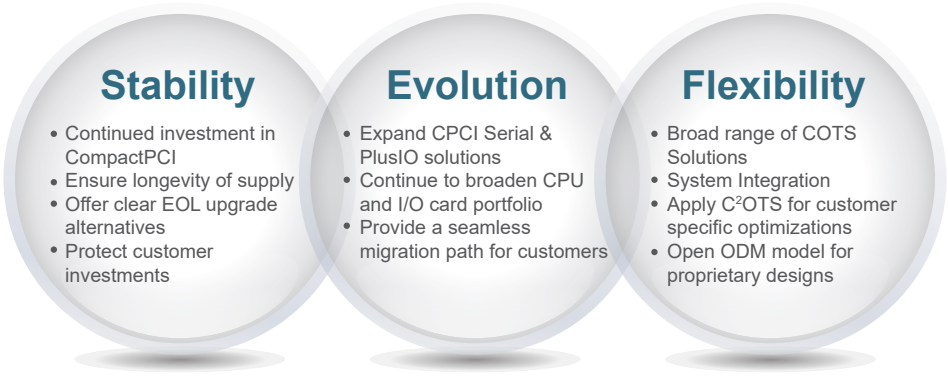
Please visit www.advantech.com/networks-telecom/cpci for the latest product updates.



CPCI Boards & Enclosures

Advantech offers a complete range of 3U and 6U CompactPCI products including chassis, CPU boards, and industrial and networking I/O. Advantech CPCI platforms are widely used in mission-critical industrial and telecommunication applications that demand enhanced reliability, high-availability and serviceability as well as long-term upgradability and manageability.

Advantech has been a key player in CompactPCI development for well over a decade now, assisting rugged and industrial OEMs as well as telecom equipment manufacturers to design and integrate CompactPCI in their business and mission critical systems. Our broad selection of processing power and I/O and our flexible approach to customization allow us to adapt to each customer's requirements and business model. Advantech CompactPCI team is committed to providing long-term technology support and timely new product introductions so that our customers can choose when to upgrade their equipment based on strategy and market demands, well ahead of silicon end-of-life scenarios.



At Advantech, we understand the impact which the discontinuation of a component can have on a customer's product portfolio and we have solid lifecycle management processes in place to handle it. We've also learnt how to step in when a key supplier announces the end of a product line and a second source blade is urgently needed which meets the same form, fit and function. Our CompactPCI team is committed to providing long-term technology support and timely new product introductions so that our customers can choose when to upgrade their equipment based on strategy and market demands, well ahead of silicon end-of-life scenarios.

Your OEM Blade

There's almost always a special feature that your customer needs you to integrate to meet a specific requirement. It's been that way since CompactPCI started and spans back even further to the early days of VMEbus. Mezzanine card technology has evolved in various form factors and with different interconnects helps address the problems caused by over-customization. But when the rubber meets the road and you can't find that feature on COTS products, you need a partner who is ready to go the extra mile and is geared to helping you re-engineer a product to meet your needs. Advantech's CompactPCI customization team is here to identify and scope your special requests.

CompactPCI PlusIO Solutions

Advantech has a long tradition of driving platform innovation in multiple form factors using industry-leading processor architectures. Our commitment to extending the lifetime of our customer's CompactCPCI solutions is no different. Our products support a smooth transition path to new technologies and we support our customer's migration with reference platforms and integrated systems.

Advantech CompactPCI PlusIO solutions provide a backward compatible migration path for your proven CompactPCI solutions to newly designed, high speed serial peripherals based on CompactPCI Serial. With our CompactPCI PlusIO and CompactPCI Serial solutions, we protect your investments but also take them a step forward - by giving you the ability to utilize the latest high speed bus interfaces available from Advantech and the CompactPCI ecosystem in the same system that hosts your legacy I/O boards. Our focus on allowing you to reuse well qualified platform building blocks like special purpose I/O cards along with the related software in these hybrid systems helps you to stay within your R&D budgets, meet your time-to-market objectives and mitigate risk.

Selection Guide

Model		MIC-3395	MIC-3395MIL
Form Factor		6U	6U
Processor System	CPU	2nd and 3rd Generation Intel® Core™ i3/i5/i7 Processors	3rd Generation Intel® Core™ i3/i5/i7 Processors
	Chipset	Intel® QM67	Intel® QM67
Memory	Technology	DDR3 1066/1333/ 1600ECC memory	DDR3 1066/1333/ 1600 ECC memory
	Max. Capacity	16GB (8GB on board, socket SO-UDIMM x1, max 8GB)	16GB
CompactPCI Interface	J1	32-bit PCI	32-bit PCI
	J2	64-bt PCI	64-bt PCI
	J3	PICMG2.16 RTM	PICMG2.16 RTM
	J4~J5	RTM	RTM
Front I/O	VGA	1	1
	USB3.0 (type A)	n/a	n/a
	USB2.0 (type A)	2	1
	LAN (RJ45)	2 GbE	2 GbE
	COM (RJ45)	1	1
	COM (DB9)	n/a	n/a
	Front Panel LEDs	Power Hot swap HDD Master/Drone BMC heartbeat	Power Hot swap HDD Master/Drone BMC heartbeat
	Others	CPU reset button BMC reset button	CPU reset button BMC reset button
RTM interface	USB3.0	n/a	n/a
	USB2.0	4	4
	COM	2	2
	LAN	2	2
	SATA 2.0	2	2
	SATA 3.0		
	PCIe	1 PCIe x4	1 PCIe x4
	Others	PS/2 for KB/MS, DVI-I and DVI-D	PS/2 for KB/MS, DVI-I and DVI-D
Storage	Mode	SATA-III/SATA-II	SATA-III/SATA-II
	2.5" HDD/SSD	1 (SATA III)	1 (SATA III)
	CFast	1 (SATA II)	1 (SATA II)
	onboard flash	1 (SATA II)	1 (SATA II)
	other channel	2 channels to RTM (SATA II)	2 channels to RTM (SATA II)
XMC/PMC Socket	PCIe x8	Gen2 (5GT/s)	Gen2 (5GT/s)
	PCI	64-bit/66 MHz	64-bit/66 MHz
BMC	Controller	optional	optional
Operating System	Compatibility	Windows 7, Windows 2008, Windows 2003, Windows XP SP3, RHEL 6.1 VxWorks 6.x (on request)	Windows 7, Windows 2008, Windows 2003, Windows XP SP3, RHEL 6.1 VxWorks 6.x (on request)
Power Consumption	TDP	Up to 60 W (quad core), 50 W (dual core) or less, depending on CPU type	Up to 50 W (dual core) or less, depending on CPU type
Physical Characteristics	Dimensions (W x D)	233.35 x 160 mm (9.19" x 6.3")	233.35 x 160 mm (9.19" x 6.3")
Environment	Operating Temperature	0 ~ 55° C (32~ 122° F)	-40 ~ 70° C (-40 ~ 158° F)
	non-operating temperature	-40 ~ 85° C (-40~ 185° F)	-40 ~ 85° C (-40~ 185° F)
	Humidity	95 % @ 40° C, non-condensing (Operating) 95 % @ 60° C, non-condensing (Non-operating)	95 % @ 40° C, non-condensing (Operating) 95 % @ 60° C, non-condensing (Non-operating)
	Vibration	2Grms (5-500Hz, without HDD) (Operating) 3.5Grms (Non-operating)	2Grms (5-500Hz, without HDD) (Operating) 3.5Grms (Non-operating)
	Shock	20G (without HDD) (operating) 50G (non-operating)	20G (without HDD) (operating) 50G (non-operating)
	Altitude	4,000m (operating) 10,000m (non-operating)	4,000m (operating) 10,000m (non-operating)
Regulatory	Conformance	FCC Class A, CE, RoHS	FCC Class A, CE, RoHS
Compliance	Standards	PICMG2.0 R3.0, PICMG2.1 R.0, PICMG2.9 R1.0, PICMG2.16 R1.0,	PICMG2.0 R3.0, PICMG2.1 R.0, PICMG2.9 R1.0, PICMG2.16 R1.0,
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MIC-3396	MIC-3396MIL	MIC-3397	MIC-3398
6U	6U	6U	6U
4th Generation Intel® Core™ i3/i5/i7 Processor	4th/5th Generation Intel® Core™ i3/i5/i7 Processor	Quad-Core Intel® Xeon® Processor E3-1125C v2/E3-1105C v2; Dual-Core Intel® Pentium® Processor B925C	Intel® Atom™ E38xx, Celeron N2930 and J1900 processors,
QM87	QM87	Intel® DH8900 PCH (Cave creek)	
DDR3 1600 low voltage ECC memory	DDR3 1600 low voltage ECC memory	Dual Channel DDR3 1333/1600 MHz with ECC	1333MHz DDR3L memory
16GB (8GB on board, socket SO-UDIMM x1, max 8GB)	16GB (8GB on board, socket SO-UDIMM x1, max 8GB)	Up to 16GB,8GB on board, 8GB SO-DIMM	Up to 8GB
32-bit PCI	32-bit PCI	32-bit PCI	32-bit PCI
64-bt PCI	64-bt PCI	64-bt PCI	64-bt PCI
PICMG2.16 RTM 1x PCIex8	PICMG2.16 RTM 1x PCIex8	PICMG2.16 RTM	n/a
RTM	RTM	RTM	n/a
1	1	1	DVI-D
2	2	n/a	1
1	1	3	2
2 GbE	2 GbE	2 GbE	2 (for 4HP) 4 (for 8HP)
1	1	1	
n/a	n/a		2
Power Hot swap HDD Master/Drone BMC heartbeat	Power Hot swap HDD Master/Drone BMC heartbeat	Power, Hot swap, HDD Master/Drone	HDD, Master/Drone mode Power
CPU reset button BMC reset button	CPU reset button BMC reset button	CPU reset button	CPU reset button BMC reset button
1	1	n/a	n/a
4	4	3	n/a
2	2	2	n/a
2	2	2 ports (1 switchable with front)	n/a
			n/a
2	2	2	n/a
PCIe x8 Gen3	PCIe x8 Gen3	PCIe x4 Gen2	n/a
PS/2 for KB/MS, DVI-I and DVI-D	PS/2 for KB/MS, DVI-I and DVI-D	PS/2 for KB/MS, DVI-I and DVI-D	n/a
SATA-III	SATA-III	SATA-II	SATA-II
1 (SATA III)	1 (SATA III)	1 SATA-II	1 (SATA-II)
1 (SATA II)	1 (SATA II)	1	1 (SATA-II)
1	1	1	n/a
2 channels to RTM	2 channels to RTM	n/a	n/a
Gen3 (7GT/s)	Gen3 (7GT/s)	n/a	n/a
64-bit/66 MHz	64-bit/66 MHz	n/a	n/a
optional	optional	n/a	n/a
Windows 7, Linux VxWorks 6.x (on request)	Windows 7, Linux VxWorks 6.x (on request)	Windows7, Windows7 Embedded, Linux	Win7/WES7, Win8/WES8, Linux, VxWorks 6.x (on request)
Up to 80 W (quad core), 50 W (dual core) or less, depending on CPU type	Up to 80 W (quad core), 50 W (dual core) or less, depending on CPU type	4HP:80W (MIC-3397) 8HP:115W (MIC-3397 + MIC-3314)	21 W (E3845), 20 W (J1900) or less, depending on CPU type
233.35 x 160 mm (9.19" x 6.3")	233.35 x 160 mm (9.19" x 6.3")	233.35 x 160 mm (9.19" x 6.3")	233.35 x 160 mm (9.19" x 6.3")
0 ~ 55° C (32~ 122° F)	-40 ~ 85° C (measured at wedge lock)	0 ~ 55° C (32~ 122° F)	0 ~ 55° C (32 ~ 122° F)
-40 ~ 85° C (-40~ 185° F)	-40 ~ 85° C (-40~ 185° F)	-40 ~ 85° C (-40~ 185° F)	-40 ~ 85° C (-40~ 185° F)
95 % @ 40° C, non-condensing (Operating) 95 % @ 60° C, non-condensing (Non-operating)	95 % @ 40° C, non-condensing (Operating) 95 % @ 60° C, non-condensing (Non-operating)	95 % @ 40° C, non-condensing (Operating) 95 % @ 60° C, non-condensing (Non-operating)	95 % @ 40° C, non-condensing (Operating) 95 % @ 60° C, non-condensing (Non-operating)
3.5Grms (without HDD)	3.5Grms (without HDD)	2Grms (Single slot, without HDD) 1.06Grms (Dual slot, without HDD) (operating)	3.5Grms (without HDD)
25G, 6ms (non-operating)	25G, 6ms (non-operating)	10G (Without HDD) (operating) 30G (without HDD) (non-operating)	25G, 6ms (non-operating)
4,000m (operating) 10,000m (non-operating)	4,000m (operating) 10,000m (non-operating)	4,000m (operating) 10,000m (non-operating)	4,000m (operating) 10,000m (non-operating)
FCC Class A, CE, RoHS	FCC Class A, CE, RoHS	FCC Class A, CE, RoHS	FCC Class A, CE, RoHS
PICMG2.0 R3.0, PICMG2.1 R.0, PICMG2.9 R1.0, PICMG2.16 R1.0,	PICMG2.0 R3.0, PICMG2.1 R.0, PICMG2.9 R1.0, PICMG2.16 R1.0,	PICMG2.0 R3.0, PICMG2.1 R.0, PICMG2.9 R1.0, PICMG2.16 R1.0,	PICMG2.0 R3.0, PICMG2.1 R.0, PICMG2.9 R1.0, PICMG2.16 R1.0,
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Selection Guide

Model		MIC-3328	MIC-3329
Form Factor		3U	3U
Processor System	CPU	Intel® 3rd Generation Core™ i7	Intel® Atom™ Processor E3827/E3845
	Chipset	Intel® QM77	n/a
Memory	Technology	DDR3-1600MHz SDRAM, dual channel with ECC support	Single Channel DDR3L 1333 MHz with ECC
	Max. Capacity	8GB	Up to 4GB on board
CompactPCI Interface	J1	32-bit PCI	32-bit PCI
	J2	CompactPCI PlusIO / RTM	RTM
	J3	n/a	n/a
	J4~J5	n/a	n/a
Front I/O	VGA	1	1
	USB3.0 (type A)	2	1
	USB2.0 (type A)	n/a	1
	LAN (RJ45)	2 GbE	2
	COM (RJ45)		n/a
	COM (DB9)	n/a	2
	Front Panel LEDs	Power, Hot Swap, HDD	Power, Hot swap, HDD Master/Drone
	Others	CPU reset button	CPU reset button
RTM interface	USB3.0	n/a	n/a
	USB2.0	4	2
	COM	2 (internal)	2
	LAN	1	2 ports (2 switchable with front)
	SATA 2.0	2	1
	SATA 3.0	1	n/a
	PCIe	4 x PCIex1 Gen2	n/a
	Others	VGA (switchable with front)	VGA (switchable with front)
Storage	Mode	SATA-II	SATA-II
	2.5" HDD/SSD	1 SATA-II	1 SATA-II
	CFast	1	1
	onboard flash	1	1 (optional)
	other channel	3 channels to RTM	n/a
XMC/PMC Socket	PCIe x8	Gen2 (5GT/s)	n/a
	PCI	n/a	n/a
BMC	Controller	n/a	n/a
Operating System	Compatibility	Windows XP Professional, Windows 7, Windows server 2008, VxWorks 6.9, Linux Redhat 6.1	Windows7,Windows8.1,Linux redhat6.5, CentOS6.6/6.5
Power Consumption	TDP	23.42W/ 33.12W /43.91W	Up to 12W
Physical Characteristics	Dimensions (W x D)	4HP, 160.00 x 100.00 mm (6.30" x 3.95")	4HP, 160.00 x 100.00 mm (6.30" x 3.95")
Environment	Operating Temperature	0 ~ 60° C (32 ~ 140° F)	-40 ~ 60° C fanless (-40 ~ 140 F)
	non-operating temperature	-40 ~ 85° C (-40~ 185° F)	-40 ~ 85° C (-40~ 185° F)
	Humidity	95 % @ 40° C, non-condensing (Operating) 95 % @ 60° C, non-condensing (Non-operating)	95 % @ 40° C, non-condensing (Operating) 95 % @ 60° C, non-condensing (Non-operating)
	Vibration	2Grms	2Grms (5-500Hz, without HDD) (Operating)
	Shock	10G, 11ms (Without HDD) 30G (without HDD) (non-operating)	10G, 11ms (Without HDD) 30G (without HDD) (non-operating)
	Altitude	4,000m (operating) 10,000m (non-operating)	n/a
Regulatory	Conformance	FCC Class A, CE, RoHS	FCC Class A, CE, RoHS
Compliance	Standards	PICMG 2.0 Rev. 3.0, PICMG 2.1 R2.0, PICMG2.30 PlusIO compatible	PICMG2.0 R3.0, PICMG2.1 R.0,
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Model		MIC-3951	MIC-3961	MIC-3953	MIC-3954	MIC-3957
Form Factor		6U	6U	3U	3U	3U
Main Function		PMC carrier	PCI carrier	PMC carrier	mini-PCIe/HDD carrier	GPS board
Bus	PCI	From 32-bit/33 MHz up to 64-bit/66 MHz	From 32-bit/33 MHz up to 64-bit/66 MHz	32-bit PCI	CPCI-Serial	32-bit/33 MHz
	PCI-X					
	PCIe					
Power Consumption	TDP	2.2 W	1 W	depending on plugged card,0.1A max. w/o card	depending on plugged card, 0.1A max. w/o card	2.5W
Environment	Operating Temperature	0 ~ 60 °C (32 ~ 140 °F)	0 ~ 60 °C (32 ~ 140 °F)	0 ~ 60° C (32 ~ 140° F)	0 ~ 60° C	-25 ~ 55° C (-13 ~ 131° F)
	non-operating temperature	-20 ~ 80 °C (-4 ~ 176 °F)	20 ~ 80 °C (-4 ~ 176 °F)	-40 ~ 85° C (-40~ 185° F)	-40 ~ 85° C (-40~ 185° F)	-40 ~ 85° C (-40 ~ 185° F)
	Humidity	5 ~ 95 % @ 60 C, non-condensing (non-operating)	5 ~ 95 % @ 60 C, non-condensing (non-operating)	95 % @ 40° C, non-condensing (Operating) 95 % @ 60° C, non-condensing (Non-operating)	95 % @ 40° C, non-condensing (Operating) 95 % @ 60° C, non-condensing (Non-operating)	10 ~ 95% @ 40° C, non-condensing
	Vibration	1.0 Grms (Operating) 2.0 Grms (Non-Operating)	1.0 Grms (Operating) 2.0 Grms (Non-Operating)	2Grms	2Grms (5-500Hz, without HDD) (Operating)	1.06 Grms Operating 2 Grms Non-Operating
	Shock			n/a	n/a	10 Grms Operating 20 Grms Non-Operating
	Altitude			n/a	n/a	4,000m (operating) 10,000m (non-operating)
Regulatory	Conformance			FCC Class A, CE, RoHS	FCC Class A, CE, RoHS	FCC Class A, CE, RoHS
Operating System	Compatibiity					
Compliance	Standards	PICMG 2.0 R3.0 CompactPCI Specification PICMG 2.3 R1.0 CompactPCI PMC I/O Mapping Specification IEEE P1386.1 R2.3 PMC Specification	PICMG 2.0 R3.0 CompactPCI Specification PICMG 2.3 R1.0 CompactPCI PMC I/O Mapping Specification IEEE P1386.1 R2.3 PMC Specification	PICMG 2.0 R3.0 PICMG 2.3 R1.0 IEEE P1386.1 R2.3 PMC Specification	PICMG CPCI-S.0 CompactPCI® Serial peripheral card	PICMG 2.0 Rev. 3.0
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Selection Guide




Model		MIC-3955	MIC-3958	MIC-3666	MIC-3667
Form Factor		3U	3U	XMC	XMC
Main Function		Quad RS232/422/485	Quad GbE LAN	Dual 10GbE LAN	Quad GbE LAN
Bus	PCI	32-bit/33 MHz	32-bit PCI	-	-
	PCI-X	-	-	-	-
	PCIe	-	-	PCIe x8 gen.2 @ 5Gbps/lane	PCIe x8 gen.2 @ 5Gbps/lane
Power Consumption	TDP	3.5W	Up to 9.5W	8.5 W	5W
Environment	Operating Temperature	-25 ~ 55° C (-13 ~ 131° F)	-40 ~ 60° C (-40 ~ 140 F)	0 ~ 60 °C (32 ~ 140 °F)	0 ~ 60 °C (32 ~ 140 °F)
	non-operating temperature	-40 ~ 85° C (-40 ~ 185° F)	-40 ~ 85° C (-40~ 185° F)	-20 ~ 80 °C (-4 ~ 176 °F)	-20 ~ 80 °C (-4 ~ 176 °F)
	Humidity	10 ~ 95% @ 40° C, non-condensing	95 % @ 40° C, non-condensing (Operating) 95 % @ 60° C, non-condensing (Non-operating)	5 ~ 95 % @ 60 C, non-condensing (non-operating)	5 ~ 95 % @ 60 C, non-condensing (non-operating)
	Vibration	1.06 Grms Operating 2 Grms Non-Operating	2Grms	1.0 Grms (Operating) 2.0 Grms (Non-Operating)	1.0 Grms (Operating) 2.0 Grms (Non-Operating)
	Shock	10 Grms Operating 20 Grms Non-Operating	n/a	-	-
	Altitude	4,000m (operating) 10,000m (non-operating)	n/a	-	-
Regulatory	Conformance	FCC Class A, CE, RoHS	FCC Class A, CE, RoHS	-	-
Operating System	Compatibiity	-	-	Linux X86 Kernel 2.6.x Windows Server2003, Server2008	Linux X86 Kernel 2.6.x Windows Server2003, Server2008
Compliance	Standards	PICMG 2.0 Rev. 3.0	PICMG2.0 R3.0	IEEE Std 1386.1-2001 PMC specification VITA 42.0-2005, 42.3-2006 XMC specifications	IEEE Std 1386.1-2001 PMC specification VITA 42.0-2005, 42.3-2006 XMC specifications
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Model		MIC-3042CE/ MIC-3042C-AE			
Backplane	slot	System x 1, Peripheral x 7, Rear transition x 8			
	bus	Up to 64-bit/66 MHz PCI bus			
	H.110 CT bus	No			
	V (I/O)	+3.3 V/+5 V (selectable)			
Cooling	FAN	2 (front: 193 CFM, rear: 61.3 CFM)			
Device Bay	HDD	n/a			
	Slim DVD-RW/RAM	n/a			
Management Interface	Alarm Indicators	n/a			
Power Supply	Input	AC 100 ~ 254 V @ 50 ~ 60 Hz, full range (MIC-3042C-AE)			
	Output	AC cPCI 250 W redundant power module			
		+3.3V	+5V	+12V	-12V
	Max Load	36A	50A	10A	1A
	Min Load	0A	2A	0A	0A
Physical Characteristics	Dimensions (W x D)	440 x 177 x 320 mm (17.3" x 7" x 12.6")			
Environment		Operating		Non-operating	
	Temperature	0 ~ 45° C (32 ~ 113° F)		-20 ~ 60° C (-4 ~ 140° F)	
	Humidity	20 ~ 90% @ 40° C, non-condensing		10 ~ 95% @ 40° C, non-condensing	
	Vibration	1Grms		2Grms	
	Shock	10G		30G	
Reliability	MTBF	Backplane		FAN module	Power supply
		800,000 hours		50, 000 hours @ 25 °C	100,000 hours @ 70% load
Regulatory	Conformance	RoHS, CE, FCC, UL, CCC			
Compliance	Standards	PICMG 2.0 R3.0 CompactPCI Specification PICMG 2.1 R2.0 CompactPCI Hot Swap Specification PICMG 2.11 R3.0 Front-Access Power Connectors Specification			
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Selection Guide

Model		MIC-3022CE/ MIC-3022PCE				MIC-3022AE				MIC-3023D1-A1E/ MIC-3023S1-D1E			
Backplane	slot	System x 1, Peripheral x 7, Rear transition x 8 CompactPCI® PlusIO system slot x1 CompactPCI® peripherl slot x3 CompactPCI® Serial peripherl slot x4				System x 1, Peripheral x 7, Rear transition x 8 CompactPCI® PlusIO system slot x1 CompactPCI® peripherl slot x3 CompactPCI® Serial peripherl slot x4				MIC-3023D1-A1E: System x 2, Peripheral x 10, Rear transition x 0 MIC-3023S1-D1E: System x 1, Peripheral x 6, adding peripheral x7 by using bridge card, Rear transition x 0			
	bus	32-bit/33 MHz/66 MHz PCI bus Serial bus, up to 5.0Gb/s				32-bit/33 MHz/66 MHz PCI bus Serial bus, up to 5.0Gb/s				MIC-3023: 32-bit/33 MHz/66 MHz PCI bus			
	H.110 CT bus	–				–				–			
	V (I/O)	+3.3 V/+5 V (selectable)				+3.3 V/+5 V (selectable)				+3.3 V/+5 V (selectable)			
Cooling	FAN	2 Blowers (Max 45.6CFM/FAN); up to 4 Blowers for dual system				2 Blowers (Max 45.6CFM/FAN); up to 4 Blowers for dual system				fanless			
Device Bay	HDD	n/a				n/a				n/a			
	Slim DVD-RW/ RAM	n/a				n/a				n/a			
Management Interface	Alarm Indicators	n/a				n/a				n/a			
Power Supply	Input	AC 100 ~ 240 V @ 50 ~ 60 Hz, full range				AC 100 ~ 240 V @ 50 ~ 60 Hz, full range				AC 100 ~ 240 V @ 50 ~ 60 Hz, full range DC 24V/110V			
	Output	AC cPCI 250 W redundant power module (for Legacy) AC cPCI 300 W redundant power module (for PlusIO)				ATX 400W PSU				AC cPCI 50W power module (for MIC-3023D) DC cPCI 150W redundant power module (for MIC-3023S)			
		+3.3V	+5V	+12V	-12V	+3.3V	+5V	+12V	-12V	+3.3V	+5V	+12V	-12V
	Max Load	250W PSU				11.6A	12.89A	11.74A	0.37A	50W AC PSU			
		18A	25A	5A	0.5A					0A	10A	0A	0A
		300W PSU								150W DC PSU			
		40A	40A	10A	2A					10A	20A	3A	0.5A
	Min Load	0A	1A	0A	0A	0.3A	0.3A	0.5A	0A	0A	0.1A	0A	0A
Physical Characteristics	Dimensions (W x D)	440 x 177 x 295 mm (17.3" x 7" x 11.6")				440 x 177 x 295 mm (17.3" x 7" x 11.6")				436.8 x 133.3 x 252 mm (17.2" x 5.25" x 9.92")			
Environment		Operating		Non-operating		Operating		Non-operating		Operating		Non-operating	
	Temperature	0 ~ 50° C (32 ~ 122° F)		-40 ~ 70° C (-40 ~ 158° F)		0 ~ 50° C (32 ~ 122° F)		-40 ~ 70° C (-40 ~ 158° F)		-25 ~ 55° C (-13 ~ 131° F)		-40 ~ 85° C (-40~ 185° F)	
	Humidity	10 ~ 95% @ 40° C, non-condensing		10 ~ 95% @ 40° C, non-condensing		10 ~ 95% @ 40° C, non-condensing		10 ~ 95% @ 40° C, non-condensing		10 ~ 95% @ 40° C, non-condensing		10 ~ 95% @ 60° C, non-condensing	
	Vibration	2Grms		2Grms		2Grms		2Grms		1.06Grms		2Grms	
	Shock	10G		30G		10G		30G		10G		30G	
Reliability	MTBF	Backplane	FAN module	Power supply		Backplane	FAN module	Power supply		Backplane		Power supply	
		800,000 hours	50, 000 hours @ 25°C	100, 000 hours @70% load		800,000 hours	50, 000 hours @ 25 °C	100, 000 hours @ 70% load		147,077 hours		AC:733,472 hours @ 50% load DC: 2,815,391 hours @ 50% load	
Regulatory	Conformance	RoHS, CE, FCC, UL, CCC				RoHS, CE, FCC, UL, CCC				RoHS, CE, FCC,CCC			
Compliance	Standards	PICMG 2.0 R3.0 CompactPCI Specification PICMG 2.1 R2.0 CompactPCI Hot Swap Specification PICMG 2.11 R3.0 Front-Access Power Connectors Specification				PICMG 2.0 R3.0 CompactPCI Specification PICMG 2.1 R2.0 CompactPCI Hot Swap Specification PICMG 2.11 R3.0 Front-Access Power Connectors Specification				PICMG 2.0 R3.0 CompactPCI Specification PICMG 2.1 R2.0 CompactPCI Hot Swap Specification PICMG 2.11 R3.0 Front-Access Power Connectors Specification			
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Mapping Guide

		Rear panel								
Main board	Model	LAN	USB3.0	COM (RJ-45)	USB2.0	PS/2	DVI-D	DVI-I	Display Pot	COM (DB9)
MIC-3395	RIO-3315-A1E	2	–	1	2	1	1	1	–	–
	RIO-3315-B1E	2	–	1	2	1	1	1	–	1
	RIO-3315-C1E	4	–	1	2	1	1	1	–	–
MIC-3396	RIO-3316-C1E	4	1	1	2	1	1	1	–	–
	RIO-3316-D1E	2	–	–	–	1	–	–	1	–
MIC-3396MIL	RIO-3396MIL-A1E	4	2	1	–	1	1	1	–	4

		On-board Header / Socket / Connector								
Main board	Model	VGA	USB2.0	USB3.0	COM	SATA II	SATA III	GPIO	MiniSAS	SAS (SATA Interface)
MIC-3395	RIO-3315-A1E	1	2	–	1	2	–	–	1	4
	RIO-3315-B1E	1	2	–	–	2	–	–	–	–
	RIO-3315-C1E	1	2	–	1	2	–	–	–	–
MIC-3396	RIO-3316-C1E	–	–	1	1	2	–	–	–	–
	RIO-3316-D1E	–	–	–	–	2	–	–	–	–
MIC-3396MIL	RIO-3396MIL-A1E	1	4	–	4	2	2	8	–	–

MIC-3328

3rd Generation Intel® Core™ Processor 3U CompactPCI® PlusIO Card

Features

- Supports 3rd Generation Intel® Core™ processor
- Intel® QM77 Platform Controller Hub
- 4 or 8GB DDR3-1600 soldered SDRAM with ECC
- Triple independent display support
- Optional 8GB SATA NAND Flash on board
- 2.5" SATA-II SSD, CFast, XMC on 8HP version
- Two 10/100/1000 Mbps ports, 2 USB 3.0 ports, 1 VGA port on front panel (4HP)
- Two COM ports, 2 Display ports, 1 PS/2 port (8HP)
- Supports CompactPCI PlusIO
- PICMG2.0, R3.0 , PICMG2.1, R2.0, PICMG2.30 compliant

Introduction

Advantech's MIC-3328 is a 3U CompactPCI PlusIO CPU blade based on the 3rd generation Intel® Core™ processor family. Based on 22nm process technology these processors support up to four cores / eight threads at up to 2.5GHz and up to 6M last level cache. With Intel® HD Graphics(Gen7,DX11,OCL1.1) integrated into the CPU, the MIC-3328 can serve applications demanding high performance, high resolution video output on up to three independent display interfaces. DDR3 DRAM up to 8GB running at 1600MT/s complements the powerful processor with high performance, ECC protected onboard memory.

The MIC-3328 is designed for reliabilty with soldered processor, DRAM and flash storage for enhanced shock and vibration tolerance making it an ideal choice for workstation workloads in harsh environments and mission/business-critical applications such as military, transportation, test & measurement and traffic control.

MIC-3328 uses the Intel® QM77 PCH, which provides extensive I/O support such as USB3.0, PCI Express gen.2 and SATA-III ports.

The MIC-3328 PlusIO J2 supports interfaces such as 4 PCI Express x1 gen. 2 links for IO extension, one GbE for computer to computer multiprocessing, three SATA for Hard drives and RAID systems as well as 4 USB ports for wireless interfaces and legacy interface replacement.

For more information about CompactPCI PlusIO and Serial offerings from Advantech or information on how this new platform can help you to gain competitive advantages, please contact your Advantech representative.

Specifications

Processor System	CPU	3rd Generation Intel® Core™ i7 up to 2.5 GHz (6MB L2 cache) 1.7G, 3517UE, 17w / 2.5G,3555LE, 25w/ 2.1G, 3612QE, 35w
	Platform Controller Hub	Intel® QM77
	BIOS	Customized AMI Aptio UEFI BIOS
CompactPCI Interface	J1 Connector	32-bit PCI local bus (33MHz)
	J2 Connector	CompactPCI PlusIO / RTM
Memory	Technology	DDR3-1600MHz SDRAM, dual channel with ECC support
	Max. Capacity	8GB
	Soldered/socket	Soldered
Graphics	Chipset	Integrated in Intel® CPU
	Resolution	VGA 2048 x 1536 pixels with 32-bit color at 75 Hz Display port 2560 x 1600 at 60 Hz
Ethernet	Controller	3 x i210AT
	Interface	10/100/1000 Mbps
	I/O Connector	RJ-45 x 2 (front panel), RJ-45 x 1 (RTM / PlusIO)
Storage	IDE	1 x CFast Socket on 8HP
	SATA	1 x optional SATA NAND Flash on 4HP,1x Internal SATA connector on 8HP version
Front I/O	VGA	DB15 Port
	Ethernet	2 x 10/100/1000 Mbps RJ-45
	USB 3.0	2 x Type A
	8HP XTM	8HP-1: 2x RJ45 RS232, 2x Display port, 1x PS/2 port 8HP-2: XMC (PCIex8 gen.3) front IO
PlusIO / RTM interface (4HPJ2 interface)	PCIE	4 x PCIex1 Gen 2 (one PCIex1 is routed to Mini-PCIe socket on board for wireless LAN using)
	SATA	2 x SATA-II (one SATA-II is designed as half size mSATA socket on board), 1 x SATA-III
	RJ45	1 GbE based on i210AT
	USB 2.0	4 ports

Specifications (Cont.)

RIO (8HP)	8HP-1 J2 interface	1 x PS/2 is mutually exclusive with PS/2 on 8HP front panel by BOM control. It requires a special 8HP board to work. The special 8HP board is on available by customer request. 2 x COM default setting is RS232, RS422/485 can be set by the switch on 8HP board (Total 4 COM ports on 8HP and it's RIO) 2 x DisplayPort is switchable from front panel by switch on 8HP board	
Watchdog Timer	Supervision	0 ~ 255s, 1s step, generate reset signal	
Operating System	Compatibility	Microsoft Windows XP Professional, Windows 7, Windows server 2008, VxWorks 6.9, Linux Redhat 6.1	
Power Requirement	Configuration	CPU TDP 17w/25w/35w, 8HP with RIO	
	Consumption	23.42W/ 33.12W /43.91W	
Physical	PCB Dimensions	4HP or 8HP, 160.00 x 100.00 mm (6.30" x 3.95") (W x H)	
	Weight	0.62kg w. AL Heatsink ,0.9kg w. Cu Heatsink including XTM	
Environment		Operating	Non-operating
	Temperature	0 ~ 60° C (32 ~ 140° F)	- 40 ~ 85° C (-40 ~ 185° F)
	Humidity	95% @ 40° C (non condensing)	95% @ 60° C (non-condensing)
	Shock	10 G, 11ms, each axis three times	30 G, 11ms, each axis three times
	Vibration	2Grms (5~500Hz, with CFast on 8HP)	Sine 2 Grms, 30mins each axis (5 ~ 500 Hz)
Regulatory	Conformance	FCC, Class A, CE, RoHS	
Compliance	Standard	PICMG 2.0 Rev. 3.0, PICMG 2.1 R2.0, PICMG2.30 PlusIO compatible	

Supported CPU Configurations

Intel® CPU Model Number	# Cores	Freq.	Cache	Memory Types	CPU TDP
I3 3120ME	2	2.4GHz	3 MB L2 Cache	DDR3-1600	35W
I7 3517UE	2	1.7 GHz	4 MB L2 Cache	DDR3-1600	17W
I7 3555LE	2	2.5GHz	4 MB L2 Cache	DDR3-1600	25W
I7 3612QE	4	2.1GHz	6 MB L2 Cache	DDR3-1600	35W

Ordering Information

System board	Front panel								On board Features			
	LAN (RJ45)	LAN (M12)	USB3.0	VGA	COM RJ45	COM DB9	Displayport	PS/2	CPU	Memory	SATA CFast/ HDD	Slot Width
MIC-3328B1-D1E	2		2	1	2		2	1	I7 3555LE	8GB	2	2
MIC-3328C2-D1E	-	2	2	1	-	1	-	-	I7 3612QE	8GB	2	2
MIC-3328D1-D1E	2		2	1	2		2	1	I3 3120ME	4GB	2	2
MIC-3328B1-D3E	2		2	1	2		2	1	I7 3555LE	8GB	2	2

Ordering Information

Model Number	Configuration
MIC-3328B1-D1E	MIC-3328, 3555LE, 8G RAM, w/ 8HP-1, 2 DP, 2 COM, PS/2, Support PlusIO
MIC-3328C2-D1E	MIC-3328, 3612QE, 8G RAM, VGA, USB,w/ 8HP-3, 2 M12 LAN, 1 DB9 COM
MIC-3328D1-D1E	MIC-3328, i3120ME, 4G RAM, w/8HP-1, 2DP, 2COM, PS/2
MIC-3328B1-D3E	MIC-3328, 3555LE, 8G RAM, w/8HP-1, 2DP, 2COM, PS/2

For other CPU blade SKU,chassis and RIO, please contact your Advantech sales representative.

Related Products

Model Number	Configuration
MIC-3955A2-S1E	4port RS for RIO application 3U CPCI
MIC-3527A1-S1E	4port RS RIO for MIC-3955A2-S1E 3U CPCI
MIC-3955A1-S1E	4-port RS-232/422/485
MIC-3716/3-A	3U 250kS/s,16-bit,16-ch multifunction Card
MIC-3756/3-A	3U CPCI 64-ch Isolated DI/O Card
MIC-3680/3-A	2-port CAN Card
MIC-3022AE	3U single system CPCI enclosure, with 400W ATX PSU
MIC-3022PAE	3U single system CPCI PlusIO enclosure, with 400W ATX PSU
MIC-3022CE	3U enclosure,8slots,32-bit/33 MHz/66 MHz,250W CPCI PSU
MIC-3022PCE	3U enclosure, w/ CPCI PlusIO BP, 300W CPCI PSU
MIC-3954-AE	3U CPCI-Serial card with dual mini-PCIe slot and SIM slot
MIC-3953-AE	3U CPCI PMC Carrier board

MIC-3329

Quad-Core Intel® Atom™ Processor 3U CompactPCI® Card

Features

- Supports Intel® Atom™ Processor E3845 (4 cores) and E3827 (2 cores)
- Supports up to 4GB DDR3L-1333 soldered ECC memory
- Optional extension module on 8HP and RIO for VGA, LAN, USB, PS/2, Audio, COM ports
- Supports fanless application with optimized heatsink design
- Designed to meet EN50121-4 and EN50155 for railway applications
- PICMG2.0 R3.0, PICMG2.1 R.0 Compliant

Introduction

The Advantech MIC-3329 is based on Intel® Atom™ technology, previously codenamed Baytrail and is designed to provide balanced performance and power efficiency. The MIC-3329 is a 3U CompactPCI® processor blade designed for dual-core Intel® Atom E3827 and quad-core Intel® Atom E3845 processors, and up to 4GB soldered DDR3L-1066/1333 ECC memory. It is available in single and dual slot form factor, offering a range of I/O functionality by XTM (8HP) & Rear I/O extensions.

Front panel I/O on the single slot (4HP) provides 2 x RJ45 GbE ports (Switchable with RIO 4HP),1 x VGA port (Switchable with RIO 4HP), 1 x USB2.0 port and 1 x USB3.0 port.

Front panel I/O on the second layer (XTM) provides 2 x COM ports (RS232/422/485), 1 x PS/2 KB/MS and 1 x Audio ports.

Three types of storage device are available including an optional onboard 8GB SSD flash on the 4HP version, a Cfast socket on the Rear I/O 4HP version, a Cfast socket and a 2.5" on board SATA drive on the front second layer board.

The MIC-3329 provides an ideal solution for transportation, railway and factory automation applications. Its robust design from a layout and thermals perspective allows it to meet or exceed EN50155 and EN50121-4 using a very low TDP selection of 8W/10W processors.

Its low power consumption and industrial SoC features make the MIC-3329 a perfect fit for all fanless system applications.

Specifications

Processor System	CPU	Intel® Atom™ Processor E3827/E3845
	Max Speed	Up to 2MB L2 Cache, 1.91 GHz
	BIOS	2 x AMI 8 MByte SPI flash
Memory	Technology	Single Channel DDR3L 1333 MHz with ECC
	Max. Capacity	Up to 4GB on board
Compact PCI Interface	J1 Connectors	32bit/33MHz PCI local bus
	J2 Connector	RTM
	Mode	System Master/Drone (Stand alone)
Ethernet	Controller	Intel® WGI210AT SLJXR Gigabit Ethernet Controller
	Interface	PCIe 1.0 x 1, 10/100/1000 Base TX Ethernet
	I/O Connector	2 x RJ45 to 4HP front (Switchable with RIO 4HP)
Graphics	Chipset	Integrated in processor
	I/O Connector	1 x VGA to 4HP front (Switchable with RIO 4HP)
	Resolution	1 x VGA 2560 x 1600, 60Hz
Storage	Mode	SATA-II
	Channels	1 x 2.5" SATA Drive connector on front 8HP (optional to Cfast upon request) 1 x Cfast socket on RIO (switchable with 8GB SSD flash on front 4HP, upon request)
Front I/O	USB	1 x US2.0 type A, 1 x USB3.0 type A
	VGA	1 x VGA (Switchable with RIO)
	LAN	2 x 10/100/1000Mbps on RJ45 (Switchable with RIO)
	Front Panel LEDs	x 1 blue/yellow for Hot Swap/HDD, x 1 green for Power, and x 1 green for Master/Drone mode
	8HP (XTM)	2 x COM port on DB9 (RS232/422/485); 1 x PS/2 KB/MS; 1 x Audio Line-in/Line-out
	Buttons	System reset button

To RTM	USB	2 x US2.0 type A,	
	VGA	1 x VGA (Switchable with front)	
	LAN	2 x 10/100/1000Mbps on RJ45 (Switchable with front)	
	8HP (XTM)	2 x COM port on DB9 (RS232/422/485)	
BIOS	Boot Options	SATA, USB, network (PXE)	
Watchdog Timer	Output	Local reset	
	Interval	Programmable 1s ~ 255s	
Operating System	Compatibility	Windows7,Windows8.1,Linux, CentOS6.6	
Physical	Dimension & Weight	3U/ 4HP&8HP: 100mm x 160 mm	
Environment		Operating	Non-operating
	Temperature	-40 ~ 60° C (-40 ~ 140° F) Fanless	-40 ~ 85° C (-40 ~ 185° F)
	Humidity	95 % @ 40° C, non-condensing	95 % @ 60° C, non-condensing
	Vibration	2Grms (X,Y,Z 1H/axis, w/o HDD)	2G
	Shock	30 G, 11ms, each axis three times	
Regulatory	Conformance	FCC Class A, CE, RoHS EN50121-4, EN50155	
Compliance	Standards	PICMG2.0 R3.0, PICMG2.1 R.0	

Supported CPU Configurations

Intel® CPU Model Number	# Cores	Freq.	Cache	Memory Types	CPU TDP
Intel® Atom™ Processor E3827	2	1.75GHz	1 MB L2 Cache	DDR3L-1333	8W
Intel® Atom™ Processor E3845	4	1.91GHz	2 MB L2 Cache	DDR3L-1333	10W

Ordering Information

System board	Front panel								On board Features		
	LAN(1)	USB2.0	USB3.0	VGA(2)	COM	PS/2	Audio	CPU	Memory	SATA	Slot Width
MIC-3329B1-D1E	2	1	1	1	2	1	1	E3827	4GB	1	2
MIC-3329C1-D1E	2	1	1	1	2	1	1	E3845	4GB	1	2

*Note: (1)(2): 2 x LAN and 1 x VGA are switchable between front and RTM

RIO Board	Rear panel				On board Features	
	LAN(1)	USB2.0	VGA(2)	COM	Cfast Socket	Slot Width
MIC-3329R1-D1E	2	2	1	2	1	2

*Note: (1)(2): 2xLAN and 1xVGA are switchable between front and RTM

Recommended Configurations

CPU board	Rear I/O Board
MIC-3329xx-DxE Series	MIC-3329Rx-DxE Series

Front Board

RIO Board

Related Products

Peripheral board	Description
MIC-3955	4-port RS232/422/485 communication card, with RIO support
MIC-3958	3U CPCI 4/2 port RJ45 Gigabit Ethernet Card, with RIO support
MIC-3953-AE	PMC carrier board
MIC-3022	4U enclosure for 3U cards, with RIO support
MIC-3023	3U fanless enclosure for 3U cards,w/o RIO support

MIC-3395

6U CompactPCI® 2nd and 3rd Generation Intel® Core™ i3/i5/i7 Processor Blade with ECC Support

Features

- Supports 2nd and 3rd Generation Intel® Core™ i3/i5/i7 Processors and Intel® QM67 PCH with embedded graphics (dual independent display)
- Up to 16GB (DDR3 1066/1333/1600) ECC memory (max 8GB on-board socket SO-UDIMM x1, max 8GB)
- Optimized single-slot SBC with 2.5" SATA-III HDD/CFast socket
- Integrated on-board 2KB NVRAM and min. 8GB flash (optional)
- TPM
- Two SATA ports, four USB 2.0 ports, two DVI ports, two RS-232 ports, one PS/2 connector, and PCIe x4 interfaces to the Rear Transition Module (RTM)
- Six Gigabit Ethernet ports including two PICMG 2.16 for front and rear connectivity
- PICMG 2.16 R1.0, PICMG 2.1 R2.0, PICMG 2.6 R1.0 compliant

CE FCC

Introduction

Using Intel® 2nd and 3rd generation Core™ i3/i5/i7 processors based on 32nm and 22nm process technology supporting up to two Cores / four threads at 2.2 GHz and 4 MB level 2 cache, the MIC-3395 blade boosts computing performance deploying the latest virtualization, techniques and CPU enhancements. Onboard soldered DRAM with ECC support and optional memory expansion via an SODIMM socket extend the memory to a maximum of 16 GB to support the most demanding applications in high performance or virtualized environments, supporting up to 4GB per virtual machine. Dual channel design and memory speeds up to 1333MT/s for 2nd generation or 1600MT/s for 3rd generation processors along with increased cache size and cache algorithms guarantee maximum memory throughput. Combined with the powerful Intel® QM67 chipset, these new processors offer improved I/O performance by leveraging 5GT/s DMI and PCIe interfaces. An onboard XMC/PMC site with PCIe x8 gen.2 connectivity can host high speed offload or I/O mezzanines such as the MIC-3666 dual 10GE XMC card. With SATA-III support and up to 6Gbps I/O, the latest enhancements in storage technology such as high speed SSDs can be employed. Six Gigabit Ethernet ports including two PICMG 2.16 for front and rear connectivity ensure best in class network connectivity. The processor's integrated enhanced graphics engine (HD3000/HD4000) offers twice the performance over previous generations. With dual independent display support, the MIC-3395 is an ideal fit for demanding workstation or imaging applications. RASUM features integrated in the CPU and chipset combined with PICMG 2.9, IPMI-based management make the MIC-3395 a highly available and reliable computing engine. The RIO-3315 RTM module supports one PS/2 connector with both keyboard and mouse ports, two USB ports, two RS-232 ports, two SATA ports, two DVI ports, and two Gigabit Ethernet ports. In case the SATA disk drives and SATA RAID support of the QM67 do not meet performance and reliability requirements, the RIO-3315 SAS version supports a 4-port SAS controller with RAID and failover support.

Specifications

Processor System	CPU	2nd and 3rd Generation Intel® Core™ i3/i5/i7 up to 2.2 GHz (4MB L2 cache)
	Platform Controller Hub	Hub Intel® QM67
	BIOS	Redundant AMI 8MByte SPI flash
CompactPCI Interface	J1 Connector	32-bit PCI local bus
	J2 Connector	64-bit PCI local bus
	J3 Connector	PICMG2.16 + RTM area
	J4~J5 Connectors	RTM area
XMC/PMC Socket	PCIe x8	Gen2 (5GT/s)
	PCI	64-bit/66 MHz
Memory	Technology	DDR3 1066/1333/1600 MHz, dual channel with ECC support
	Max. Capacity	Up to 16GB (8GB on-board, 8GB SODIMM)
	Socket	204-pin SOUDIMM x1
Graphics	Controller	Intel® embedded graphic controller HD3000/HD4000 (dual independent display)
	VRAM	Dynamic
	Resolution	Up to 2048 x 1536, 64k colors at 75Hz
Ethernet	Controller	5 Intel® 82574L single-port Gigabit Ethernet controllers (on PCIe x1 channel)
	Interface	10/100/1000 Mbps Ethernet
	I/O Connector	PICMG 2.16 and RJ-45 x2 (RTM rear panel), RJ-45 x1 (front panel)
	Controller	1 Intel® 82579LM single-port Gigabit Ethernet controller
	Interface	10/100/1000 Mbps Ethernet
	I/O Connector	RJ-45 (front panel)
Storage	Mode	SATA-III
	Channels	Onboard SATA-III connector
	Mode	SATA-II
	Channels	2 channels to RTM 1 channel to CFast socket 1 channel to on-board flash (optional)

Specifications (Cont.)

Front I/O	USB2.0	2 type A	
	COM	1 RS-232 on RJ-45	
	LAN	2 10/100/1000 Mbps on RJ-45	
	Front Panel LEDs	x1 blue/yellow for Hot Swap/HDD, x1 green for Master/Drone mode, x1 yellow BMC Heartbeat, and x1 green for Power	
	Buttons	CPU reset button and BMC reset button	
Rear I/O	USB2.0	4 ports	
	COM	2 ports	
	LAN	2 ports	
	SATA	2 SATA-II	
	PCIe	1 PCIe x4	
	Others	PS/2 for keyboard & mouse, DVI-I and DVI-D	
Watchdog Timer	Output	Local Rest and Interrupt	
	Interval	Programmable 1s ~ 255s	
Hardware Monitor	HWM	NCT6776F	
BMC	Controller	Renesas H8S 2167, IPMI v2.0 compliant	
Operating System	Compatibility	Windows 7, Windows 2008, Windows 2003, Windows XP SP3, RHEL 6.1, VxWorks 6.x (on request)	
Miscellaneous	NVRAM	2KB	
Power Requirement	Configuration	4HP	
	TDP	Maximum: up to 60 W (quad core), 50 W (dual core) or less, depending on CPU type	
Physical Characteristics	Dimensions (W x D)	233.35 x 160 mm (9.19" x 6.3")	
Environment		Operating	Non-operating
	Temperature	0 ~ 55° C (32 ~ 122° F)	-40 ~ 85° C (-40 ~ 185° F)
	Humidity	95 % @ 40° C, non-condensing	95 % @ 60° C, non-condensing
	Vibration (5-500 Hz)	2 Grms (without on-board 2.5" SATA HDD)	3.5 Grms
	Shock	20 G (without on-board 2.5" SATA HDD)	50 G
	Altitude	4, 000 m above sea level	10, 000 m above sea level
Regulatory	Conformance	FCC Class A, CE, RoHS	
	NEBS Level 3	Designed to meet GR-63-Core and GR-1089-Core	
Compliance	Standards	PICMG2.0 R3.0, PICMG2.1 R.0, PICMG2.9 R1.0, PICMG2.16 R1.0,	

Ordering Information

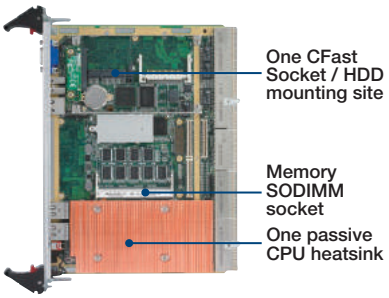
Part Number	Front Panel				Main On-board Features					
	VGA	USB2.0 (type A)	Ethernet (RJ-45)	Console (RJ-45)	CPU	Onboard Memory	CFast Socket	Storage Channel	SODIMM Socket	BMC Function
MIC-3395A1-M4E	1	2	2	1	i7-2655LE	4GB	1	1 SATA-III	1	No
MIC-3395A2-M4E	1	2	2	1	i7-2655LE	4GB	1	1 SATA-III	1	Yes
MIC-3395C1-M4E	1	2	2	1	i7-2715QE	4GB	1	1 SATA-III	1	Yes
MIC-3395IA-M8E	1	2	2	1	i7-3555LE	8GB	1	1 SATA-III	1	Yes
MIC-3395IB-M8E	1	2	2	1	i7-3612QE	8GB	1	1 SATA-III	1	Yes

* Note: For Sandy Bridge I3, I5 and Ivy Bridge I7-3615QE CPU and on-board flash available by request, please contact your local sales office.

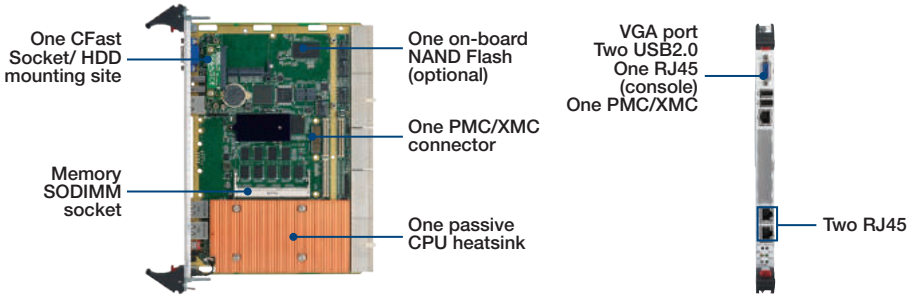
Related Products

Part Number	Description
RIO-3315-A1E	RTM Module with SAS Controller for MIC-3395
RIO-3315-B1E	RTM Module without SAS Controller for MIC-3395
RIO-3315-C1E	RTM Module with 4 LAN ports for MIC-3395
RIO-3316-D1E	RTM Module with HDD support for MIC-3395
MIC-3666-AE	Dual 10 Gigabit Ethernet XMC
MIC-3665-AE	CompactPCI PMC with dual copper (RJ-45) Gigabit Ethernet interfaces
MIC-3665-BE	CompactPCI PMC with dual fiber Gigabit Ethernet interfaces

MIC-3395x-MxE Series

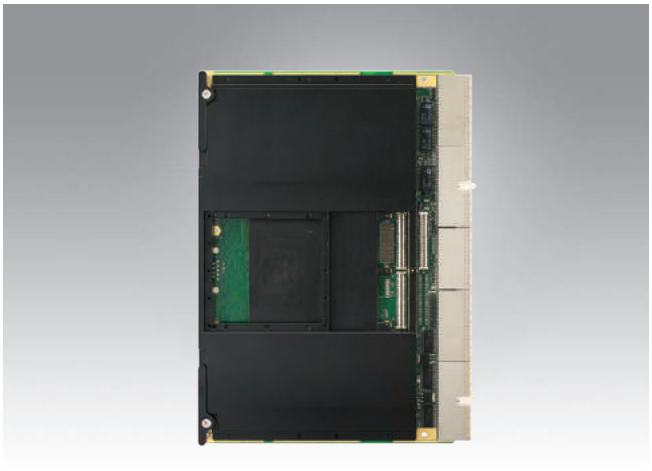


MIC-3395Ix-MxE Series



MIC-3395MIL

6U CompactPCI 3rd Generation Intel® Core™ i7 Rugged Processor Blade with ECC



Features

- Supports 3rd Generation Intel® Core™ i3/i5/i7 processors and Intel® QM67 PCH with embedded graphic (dual independent display)
- Up to 16GB (DDR3 1600) ECC memory (max 8GB on board, socket SO-UDIMM x1, max 8GB)
- Conduction cooled with ANSI/VITA30.1-2002 compliancy
- Optimized single-slot SBC with 2.5" SATA-III HDD/CFast socket/ on-board flash (optional)
- TPM
- Two SATA ports, four USB 2.0 ports, two DVI ports, two RS-232 ports, one PS/2 connector, and PCIe x4 interfaces to the Rear Transition Module (RTM)
- Six Gigabit Ethernet ports including two PICMG 2.16 for front and rear connectivity
- PICMG 2.16 R1.0, PICMG 2.1 R2.0, PICMG 2.6 R1.0 compliant

CE FCC

Introduction

MIC-3395MIL, a CompactPCI PICMG2.16 compliant single slot 6U CPU board, is available in two different configurations that meet a wide range of environmental requirements for ruggedized application.

Using Intel® 3rd generation core i7 ULV processors, it offers a low power dissipation design without the need for forced air cooling. Ruggedized requirements are addressed by a conduction cooled design for an extended operating temperature range (-40°C ~ 70°C). Shock and vibration resistances of the board are increased by using wedge locks and a single-piece CNC-milled aluminum alloy plate that conforms to the major IC packages. With highly integrated functional capabilities, the MIC-3395MIL fully utilizes the I/O features of the Intel® chipsets. It supports up to 16GB of 1600MHz DDR3 RAM, an onboard 2.5" Serial ATA HDD or SSD, a CFast slot, an onboard NAND flash (optional), and a set of I/O functions routed through the backplane to a unique rear transition module, which contains two/four LAN ports, two DVI ports, two USB 2.0, one P/S2 port and one RS-232 port on the front panel.

Specifications

Processor System	CPU	3rd Generation Intel® Core™ i7 ULV up to 2.5 GHz (4MB L2 cache)
	Platform Controller Hub	Intel® QM67
	BIOS	Redundant AMI 8MByte SPI flash
CompactPCI Interface	J1 Connector	32-bit PCI local bus
	J2 Connector	64-bit PCI local bus
	J3 Connector	PICMG2.16 + RTM area
	J4~J5 Connectors	RTM area
XMC/PMC Socket	PCIex8	Gen2 (5GT/s)
	PCI	64-bit/66 MHz
Memory	Technology	DDR3 1600 MHz, dual channel with ECC support
	Max. Capacity	Up to 16GB (max. 8GB on-board, max. 8GB SODIMM)
	Socket	204-pin SODIMM x1
Graphic	Controller	Intel® embedded graphic controller Iris (triple independent display)
	VRAM	Dynamic
	Resolution	Up to 2048 x 1536, 64k colors at 75Hz
Ethernet	Controller	5 Intel® 82574L single-port Gigabit Ethernet controllers (on PCIe x1 channel)
	Interface	10/100/1000Base-TX Ethernet
	I/O Connector	PICMG 2.16 and RJ-45 x2 (RTM rear panel), RJ-45 x1 (front panel)
	Controller	1 Intel® 82579LM single-port Gigabit Ethernet controller
	Interface	10/100/1000Base-TX Ethernet
	I/O Connector	RJ-45 (front panel)
Storage	Onboard HDD/SSD	1 2.5" (SATA-III)
	Channels	Onboard SATA-III connector
	Onboard Flash	SATA-II
	Channels	1 CFast socket (SATA-II) 1 soldered NAND Flash (SATA-II optional)
	RTM	SATA-III
	Channels	2 SATA-III connectors
Front I/O	USB2.0	1 type A
	VGA	1
	COM	1 RS232 on RJ45
	LAN	2 10/100/1000 Mbps on RJ45
	Front Panel LEDs	x1 blue/yellow for Hot Swap/HDD, x1 green for Master/Drone mode, x1 yellow BMC Heartbeat, and x1 green for Power
	Buttons	CPU reset button and BMC reset button

Specifications (Cont.)

Rear I/O	USB2.0	4 ports	
	COM	2 ports	
	LAN	2 ports	
	SATA	2 SATA-III	
	PCIe	1 PCIex4	
	Display	1 DVI-I and 1 DVI-D	
	Others	PS/2 for keyboard & mouse	
Watchdog Timer	Output	Local Rest and Interrupt	
	Interval	Programmable 1s ~ 255s	
Hardware Monitor	HWM	NCT6776F	
BMC	Controller	Renesas H8S 2167, IPMI v2.0 compliant	
Operating System	Compatibility	Windows® 2003/XP SP3/2008/Win7, RHEL 6.1, VxWorks 6.x (on request)	
Power Requirement	Configuration	4HP	
	TDP	Maximum: up to 50W (dual core) or less, depending on CPU type	
Physical	Dimension (WxD)	233.35 x 160.0 mm	
Environment		Operating	Non-operating
	Temperature	-40 ~ 70° C (-40 ~ 158° F)	-40 ~ 85° C (-40 ~ 185° F)
	Humidity	95 % @ 40° C, non-condensing	95 % @ 60° C, non-condensing
	Vibration (5-500 Hz)	3.5 Grms (without on-board 2.5" SATA HDD)	
	Bump		25G, 6ms
	Altitude	15000ft above sea level (without conformal coating)	40000 ft, -40° C, above sea level
Regulatory	Conformance	FCC Class A, CE, RoHS	
Compliance	Standards	PICMG2.0 R3.0, PICMG2.1 R.0, PICMG2.9 R1.0, PICMG2.16 R1.0	

Ordering Information

System Board Model Number	Front Panel					Main On-board Features					
	VGA	USB2.0 (type A)	Ethernet (RJ45)	Console (RJ45)	Conduction cool	CPU	Memory	CFast Socket	Storage Channel	SODIMM Socket	BMC
MIC-3395MILS-P4E	1	1	2	1	-	I7-3517UE	4GB	1	1	1	Yes
MIC-3395MILS3-P8E	1	1	2	1	-	I7-3555LE	8GB	1	1	1	No
MIC-3395MILC-P4E	-	-	-	-	Yes	I7-3555LE	4GB	1	-	-	Yes

Part number	Rear Panel								On-board Header/Socket/Connector						
	LAN	USB2.0 (type A)	COM (D-SUB9)	COM (RJ45)	PS/2	DVI-D	DVI-I	VGA	MiniSAS	USB	COM	SATA	SAS (SATA interface)	Slot Width	Conn.
RIO-3395MIL-A1E	2	2	1	-	1	1	-	1	-	-	-	2	-	2*	J3, J4, J5
RIO-3315-A1E	2	2	-	1	1	1	1	-	1	2	1	2	4	1	J3, J4, J5
RIO-3315-C1E	4	2	-	1	1	1	1	-	-	2	1	2	-	1	J3, J4, J5

CPU Information

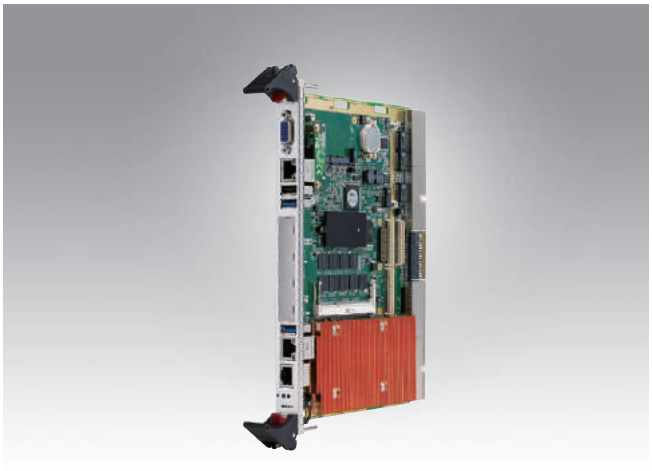
CPU Type	# of Core	# of Thread	DMI	Frequency	Cache	TDP	Graphics	PCIe
I7-3517UE	2	4	5 GT	1.7 GHz	4 MB	17W	350-900GHz	Gen 3
I7-3555LE	2	4	5 GT	2.5 GHz	4 MB	25W	550-950GHz	Gen 3

Related Products

Model number	Configuration
RIO-3395MIL-A1E	RTM Module with 2 LAN port, 1 DVI, 1 VGA, 1 COM (D-SUB9), 2 USB 2.0
RIO-3315-A1E	RTM Module with SAS Controller for MIC-3395 and MIC-3395MIL
RIO-3315-C1E	RTM Module with 4 LAN ports and USB2.0 for MIC-3395 and MIC-3395MIL
MIC-3666-AE	Dual 10 Gigabit Ethernet XMC
MIC-3665-AE	CompactPCI PMC with dual copper (RJ-45) Gigabit Ethernet interfaces
MIC-3665-BE	CompactPCI PMC with dual fiber Gigabit Ethernet interfaces
MIC-3667-AE	Quad copper (RJ-45) Gigabit Ethernet XMC

MIC-3396

6U CompactPCI 4th Generation Intel® Core™ i3/i5/i7 Processor Blade with ECC support



Features

- Supports 4th Generation Intel® Core™ i3/i5/i7 processors and Intel® QM87 PCH with embedded graphic (up to 3 independent displays)
- Up to 16GB (DDR3 1600) low voltage ECC memory (max 8GB on board, socket SO-UDIMM x1, max 8GB)
- Optimized single-slot SBC with 2.5" SATA-III HDD/CFast socket/ on-board flash (optional)
- Two SATA ports, 1x USB 3.0, four USB 2.0 ports, two DVI ports, two RS-232 ports, one PS/2 connector, and PCIe x8 interfaces to the Rear Transition Module (RTM)
- Five Gigabit Ethernet ports including two PICMG 2.16 for front and rear connectivity
- PICMG 2.16 R1.0, PICMG 2.1 R2.0, PICMG 2.6 R1.0 compliant

CE FCC

Introduction

Using 4th generation Intel® Core™ i3/i5/i7 processors based on 22nm process technology supporting up to four cores / eight threads at 2.4GHz and 6MB last level cache, the MIC-3396 blade boosts computing performance deploying the latest virtualization, techniques and CPU enhancements. Onboard soldered low voltage DRAM (1.35V) with ECC support and optional memory expansion via an SODIMM socket extend the memory to a maximum of 16GB supporting the most demanding applications in high performance or virtualized environments. Dual channel design and memory speeds up to 1600MT/s along with increased cache size and cache algorithms guarantee maximum memory performance. Combined with the powerful Intel® QM87 chipset, the 4th generation Intel® Core™ processors offer improved I/O performance by leveraging 5GT/s DMI and 3rd generation PCIe interfaces. An onboard XMC/PMC site with PCIe x8 gen.3 connectivity can host high speed offload or I/O mezzanines such as the MIC-3666 dual 10GE XMC card. With SATA-III support and up to 7Gbps I/O. the latest enhancements in storage technology such as high speed SSDs or traditional HDDs can be used on the MIC-3396. Five gigabit Ethernet ports based on Intel® GbE controllers for front and rear,including two PICMG 2.16, ensure best in class network connectivity

The processor's integrated enhanced graphics engine (Iris) offers twice the performance over previous generations. With triple independent display support, the MIC-3396 is an ideal fit for demanding workstation applications.

RASUM features integrated in the CPU and chipset combined with PICMG 2.9, IPMI-based management make the MIC-3396 a highly available and reliable computing engine.

The RIO-3316 RTM module supports one PS/2 connector with both keyboard and mouse ports, one USB 3.0, two USB 2.0 ports, two RS-232 ports, two SATA ports, two DVI ports, and two Gigabit Ethernet ports. In case of the SATA disk drives and SATA RAID support of the QM87 do not meet performance and reliability requirements, the RIO-3315 SAS version supports a 4-port SAS controller with RAID and fail over support.

Specifications

Processor System	CPU	4th Generation Intel® Core™ i3/i5/i7 mobile processors up to 2.4 GHz (6MB LLC)
	Platform Controller Hub	Intel® QM87
	BIOS	Redundant AMI 8MByte SPI flash
CompactPCI Interface	J1 Connector	32-bit PCI local bus
	J2 Connector	64-bit PCI local bus
	J3 Connector	PICMG2.16 + RTM area, 1x PCIex8
	J4~J5 Connectors	RTM area
XMC/PMC Socket	PCIex8	Gen3 (7GT/s)
	PCI	64-bit/66 MHz
Memory	Technology	DDR3 1600 MHz, dual channel with low voltage and ECC support
	Max. Capacity	Up to 16GB (max. 8GB on-board, max. 8GB SODIMM)
	Socket	SODIMM x1
Graphics	Controller	Intel® embedded graphic controller Iris (triple independent display)
	VRAM	Dynamic
	Resolution	Up to 2048 x 1536, 64k colors at 75Hz
Ethernet	Controller	4 Intel® I210AT single-port Gigabit Ethernet controllers (on PCIe x1 channel)
	Interface	10/100/1000Base-TX Ethernet
	I/O Connector	PICMG 2.16 and RJ-45 x2 (RTM rear panel), RJ-45 x1 (front panel)
	Controller	1 Intel® I217LM single-port Gigabit Ethernet controller
	Interface	10/100/1000Base-TX Ethernet
	I/O Connector	RJ-45 (front panel)
Storage	Onboard HDD/SSD	1 2.5" (SATA-III)
	Channels	Onboard SATA-III connector
	Onboard Flash	SATA-II
	Channels	1 CFast socket (SATA-II) 1 on-board flash (SATA-II optional)
	RTM	SATA-III
	Channels	2 SATA-III connectors

Specifications (Cont.)

Front I/O	USB3.0	2 type A	
	USB2.0	1 type A	
	VGA	1	
	COM	1 RS-232 on RJ-45	
	LAN	2 10/100/1000 Mbps on RJ-45	
	Front Panel LEDs	x1 blue for Hot Swap, 1x yellow for HDD, x1 green for Master/Drone mode, x1 green BMC Heartbeat, and x1 green for Power	
	Buttons	CPU reset button and BMC reset button	
Rear I/O	USB2.0	4 ports	
	USB3.0	1 port	
	COM	2 ports	
	LAN	2 ports	
	SATA	2 SATA-III	
	PCIe	1 PCIex8 Gen3 7GT/s	
	Display	1 DVI-I and 1 DVI-D	
	Others	PS/2 for keyboard & mouse	
Watchdog Timer	Output	Local Rest and Interrupt	
	Interval	Programmable 1s ~ 255s	
Hardware Monitor	HWM	NCT7904	
BMC	Controller	LPC1768, IPMI v2.0 compliant	
Operating System	Compatibility	Win7, Linux, VxWorks 6.x (on request)	
Power Requirement	Configuration	4HP	
	TDP	Maximum: up to 80W (quad core), 50W (dual core) or less, depending on CPU type	
Physical	Dimensions (W x D)	233.35 x 160.0 mm	
Environment		Operating	Non-operating
	Temperature	0 ~ 55° C (32 ~ 122° F)	-40 ~ 85° C (-40 ~ 185° F)
	Humidity	95 % @ 40° C, non-condensing	95 % @ 60° C, non-condensing
	Vibration (5-500 Hz)	3.5Grms (without on-board 2.5" SATA HDD)	
	Bump		25G, 6ms
	Altitude	15000ft, 55° C above sea level	40000 ft, -40° C above sea level
Regulatory	Conformance	FCC Class A, CE, RoHS	
Compliance	Standards	PICMG2.0 R3.0, PICMG2.1 R.0, PICMG2.9 R1.0, PICMG2.16 R1.0,	

Ordering Information

System Board Model Number	Front Panel					Maon On-board Features						
	VGA	USB3.0 (type A)	USB2.0 (tyoe A)	Etehrnet (RJ-45)	Console (RJ45)	CPU	Onboard Memory	Cfast Socket	Stroage Channel	SODIMM Socket	BMC	PCIex8
MIC-3396HB-M8E	1	2	1	2	1	i5-4400E	8GB	1	1 SATA-III	1	No	Yes
MIC-3396HC-M8E	1	2	1	2	1	i7-4700QE	8GB	1	1 SATA-III	1	Yes	Yes
MIC-3396HD-M8E	1	2	1	2	1	i7-4700QE	8GB	1	1 SATA-III	1	Yes	No

*Note: For i3 CPU, 4GB on-board memory and on-board flash available by request, please contact your local sales office.

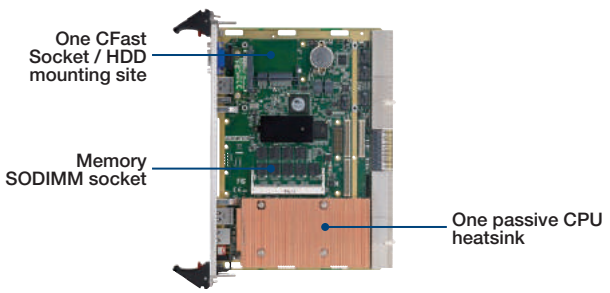
CPU Configurations

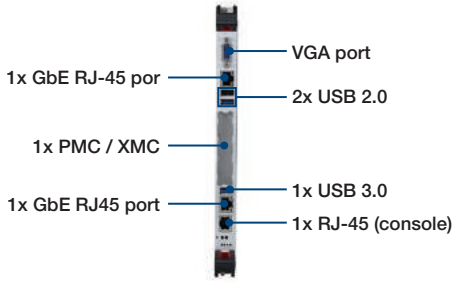
Intel® CPU Model Number	CPU Architecture	# Cores	# Threads	Freq.	Cache	CPU TDP	ECC
i3-4100E	22 nm	2	4	2.4 GHz	3 MB	37W	Yes
i5-4402E	22 nm	2	4	1.6 GHz	3 MB	25W	Yes
i5-4400E	22 nm	2	4	2.7 GHz	3 MB	37W	Yes
i7-4700EQ	22 nm	4	8	2.4 GHz	6 MB	47W	Yes

Related Products

Model number	Configuration
RIO-3316-C1E	RTM Module with 4 LAN ports and USB 3.0 for MIC-3396
RIO-3315-A1E	RTM Module with SAS Controller for MIC-3395 and MIC-3396
MIC-3666-AE	Dual 10 Gigabit Ethernet XMC
MIC-3665-AE	CompactPCI PMC with dual copper (RJ-45) Gigabit Ethernet interfaces
MIC-3665-BE	CompactPCI PMC with dual fiber Gigabit Ethernet interfaces
MIC-3667-AE	Quad copper (RJ-45) Gigabit Ethernet XMC

MIC-3396x-MxE Series





MIC-3396MIL

6U CompactPCI 4th/5th Generation Intel® Core™ i5/i7 Processor Blade with ECC support

Features

- Supports 4th /5th Generation Intel® Core™ i5/i7 processors and Intel® QM87 PCH with embedded graphic (up to 3independent displays)
- Up to 16 GB (DDR3 1600) low voltage ECC memory (max 8GB on board, socket SO-UDIMM x1, max 8GB)
- Optimized single-slot SBC with 2.5" SATA-III HDD/CFast socket/ on-board flash (optional)
- Two SATAIII and two SATAII ports, two USB 3.0, four USB 2.0 ports, two DVI ports, four RS-232 ports, one PS/2 connector, and PCIe x16 interfaces to the Rear Transition Module (RTM)
- Four gigabit Ethernet ports for PICMG 2.16, front and rear connectivity
- PICMG 2.16 R1.0, PICMG 2.1 R2.0, PICMG 2.6 R1.0 compliant

CompactPCI® CE FCC RoHS

Introduction

The MIC-3396MIL is specially design for ruggedized applications, and offers three different configurations that meet a wide range of environment requirements.

Using 4th and 5th generation Intel® Core™ i5/i7 and Intel® Xeon® processors, it supports up to four cores / eight threads at 2.7GHz and 6MB last level cache. Ruggedized requirements are addressed by a conduction cooled design an extended operation temperature range (-40 ~ 85° C measured at wedge lock). Shock and vibration resistances of the board are increased by using wedge locks and a single-piece CNC-milled aluminum alloy plate that conforms to the major IC packages.

With highly integrated functional capabilities, the MIC-3396MIL fully utilizes the I/O features of the Intel® chipsets. It supports maximum 16GB of 1600 MHz DDR3L RAM, an onboard 2.5" Serial ATA HDD or SSD, a CFast slot, for an onboard NAND flash (as optional), one PCIex16 and a set of I/O functions brought through the backplane to a unique rear transition module, which contains eight GPIOs, two USB 2.0 and four RS-232/422/485 console ports as pin headers, two SATA Gen III and two SATA Gen II as connectors, two/four LAN ports (two LAN ports are switchable form front panel to RTM), two DVI ports, two USB 3.0, one PCIex16, one P/S2 port and one RS-232/422/485 port on the front panel.

Specifications

Processor System	CPU	4th/5th Generation Intel® Core™ i5/i7 mobile and Xeon® processors up to 2.7 GHz (6MB LLC)
	Platform Controller Hub	Intel® QM87
	BIOS	Redundant AMI 8MByte SPI flash
CompactPCI Interface	J1 Connector	32-bit PCI local bus
	J2 Connector	64-bit PCI local bus
	J3 Connector	PICMG2.16 + RTM area
	J4~J5 Connectors	RTM area
Memory	Technology	DDR3L 1600 MHz, dual channel with low voltage and ECC support
	Max. Capacity	Up to 16GB (max. 8GB on-board, max. 8GB SODIMM)
	Socket	SODIMM x1
Graphic	Controller	Intel® embedded graphic controller (triple independent display)
	VRAM	Dynamic
	Resolution	Up to 2048 x 1536, 64k colors at 75Hz
Ethernet	Controller	1 Intel® I350 four-ports Gigabit Ethernet controllers (on PCIe x4 channel)
	Interface	10/100/1000Base-TX Ethernet
	I/O Connector	PICMG 2.16 and RJ-45 x2 (switchable from front panel to RTM)
Storage	Onboard HDD/SSD	1 2.5" (SATA-III)
	Channels	Onboard SATA-III connector
	Onboard Flash	SATA-III
	Channels	1 CFast socket (SATA-II) 1 soldered SSD (SATA-II optional)
	RTM	SATA-III and SATA-II
	Channels	2 SATA-III connectors 2x SATA-II connectors
Front I/O	USB3.0	2 type A
	USB2.0	2 type A
	VGA	1
	DVI-D	1
	COM	1 RS232 D-Sub9
	LAN	2 10/100/1000 Mbps on RJ45
	Front Panel LEDs	x1 blue for Hot Swap, 1x yellow for HDD, x1 green for Master/Drone mode, x1 green BMC Heartbeat, and x1 green for Power
	Buttons	CPU reset button and BMC reset button

Specifications (Cont.)

Rear I/O	USB2.0	4 ports	
	USB3.0	1 port	
	COM	4 ports (1x on front panel, 3x as pin headers)	
	LAN	4 ports (2x PICMG 2.16, 2x GbE switchable from front panel)	
	SATA	2 SATA-III and 2 SATA-II	
	PCIe	1 PCIex16 Gen3 7GT/s	
	Display	1 DVI-I and 1 DVI-D	
	Others	PS/2 for keyboard & mouse	
Watchdog Timer	Output	Local Rest and Interrupt	
	Interval	Programmable 1s ~ 255s	
Hardware Monitor	HWM	NCT7904	
BMC	Controller	LPC1768, IPMI v2.0 compliant	
Operating System	Compatibility	Win7/8.1/10, Linux, VxWorks 6.x (on request)	
Power Requirement	Configuration	4HP	
	TDP (estimate)	Maximum: up to 80W (quad core), 50W (dual core) or less, depending on CPU type	
Physical	Dimension (W x D)	233.35 x 160.0 mm	
Environment		Operating	Non-operating
	Temperature	-40 ~ 85° C (measured at wedge lock)	-50 ~ 100° C (measured at wedge lock)
	Humidity	95 % @ 40° C, non-condensing	95 % @ 60° C, non-condensing
	Vibration (5-500 Hz)	3.5Grms (without on-board 2.5" SATA HDD)	
	Bump		25G, 6ms
	Altitude	15000ft, 55° C, above sea level	40000 ft, -40° C, above sea level
Regulatory	Conformance	FCC Class A, CE, RoHS, CCC	
Compliance	Standards	PICMG2.0 R3.0, PICMG2.1 R.0, PICMG2.9 R1.0, PICMG2.16 R1.0,	

Ordering Information

System Board Model Number	Front Panel						Main On-board Features					Other
	VGA	USB3.0 (type A)	USB2.0 (type A)	Ethernet (RJ45)	Console (RJ45)	Conduction Cool	CPU	Onboard Memory	CFast Socket	Storage Channel	SODIMM Socket	Coating
MIC-3396MILS-P8E	1	2	2	2	1	-	I5-4402E	DDR3L-8GB	1	1 SATA-III	1	-
MIC-3396MILS1-P8E	1	2	2	2	1	-	I7-5850EQ	DDR3L-8GB	1	1 SATA-III	1	-
MIC-3396MILB-P8E*	-	-	-	-	-	Available	I5-4402E	DDR3L-8GB	1	-	-	Yes

Note: For CPU, on-board memory and other feature availability request, please connect your local sales office.
* Bare board w. CPU and on-board memory w/o conduction cool

Part Number	Rear Panel						On-board Header / Socket / Connector					
	LAN	PS/2*	COM (RJ45)	USB 3.0	DVI-D	VGA	Audio	USB 2.0	COM	SATA	Slot Width	Conn.
RIO-3396MIL-A1E	4	1	1*	2	1	1	1	2 (4 ports)	4*	4	1	J1, J3, J4, J5

*Note: One PS/2 port carries the signals for keyboard and mouse. Y cable is included. There are four RS-232/485/422 ports max, including from rear panel and on-board header.

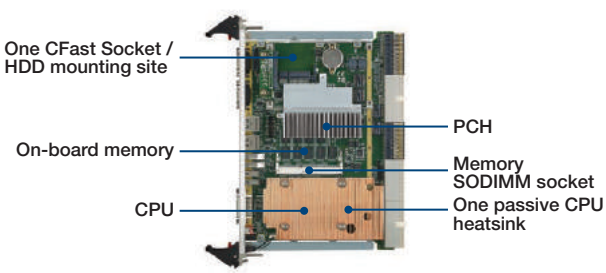
CPU Information

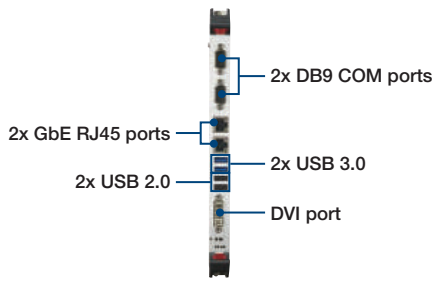
CPU Type	# of Core	# of Thread	DMI	Frequency	Turbo Frequency	Cache	TDP	Graphics	Graphic Frequency	PCIe
I5-4402E	2	4	5 GT	1.6 GHz	2.7 GHz	3 MB	25W	HD4600	400-900MHz	Gen 3
I7-5700EQ	4	8	5 GT	2.6 GHz	3.4 GHz	6 MB	47W	GT2	300MHz-1GHz	Gen 3
I7-5850EQ	4	8	5 GT	2.7 GHz	3.4 GHz	6 MB	47W	GT3e	300MHz-1GHz	Gen 3
E3-1258Lv4	4	8	5 GT	1.8 GHz	3.2 GHz	6 MB	47W	GT2	700MHz-1GHz	Gen 3
E3-1278Lv4	4	8	5 GT	2 GHz	3.3 GHz	6 MB	47W	GT3e	800MHz-1GHz	Gen 3

Related Products

Model number	Configuration
RIO-3396MIL-A1E	RTM Module with 4 LAN ports, USB3.0/2.0, DVI, PS2 and COM ports for MIC-3396MIL
MIC-3396MIL-1960E	Conduction Cool cold blade metal parts for MIC-3396MILN-P8E
MIC-3396MIL-1961E	Semi cold blade metal parts for air cool MIC-3396MIL

MIC-3396MIL-PxE Series





MIC-3397

6U CompactPCI Quad Core Intel® Xeon® Processor E3 & Dual Core Intel® Pentium® Processor Blade

Features

- Supports 22nm Intel® Xeon® & Pentium® low voltage processor
- Intel® DH8900 chipset supports DM1.0 x 4
- Up to 16GB DDR3-1333/1600 ECC memory
- Optional extension module on 8HP version supports high-end discrete graphics, up to four display output ports
- Supports up to five GbE ports, six USB2.0 ports, two VGA ports,three COM ports, one PS/2 connector, three 2.5" SATA connector (one SATA HDD is optional with 8GB NAND flash), one Cfast, one PCIe 2.0x4 interface to the Rear Transition Module (RTM)
- PICMG2.0 R3.0, PICMG2.1 R.0, PICMG2.16 R1.0 Compliant

CE FCC

Introduction

Advantech's MIC-3397 is a 6U CompactPCI single board computer with a choice of server class or low power processors based on the Quad-Core Intel® Xeon® E3-1125C v2(40W) or Dual-Core Intel® Pentium® B925C(15W), with DH8900 chipset. The processor is based on Intel® 22nm 64 bit process technology, with up to 2.5GHz clock speeds 8MB L3 cache, Intel® Hyper-Threading, Virtualization, and Trusted Execution Technology, all of which enable the board for applications requiring higher levels of performance and security. The MIC-3397 supports dual channel ECC memory, up to 16GB DDR3 at 1333/1600MHz with max 8GB on board and 8GB SO-DIMM memory, three 2.5" Serial ATA interfaces (one on board optional with one 8 GB NAND flash, two to RTM),one Cfast slot, five Gigabit Ethernet ports (two on front panel, two to PCIMG2.16, two to RTM with one optional on the front panel), six USB2.0 ports (three on front panel, three to RTM), two VGA ports (one on front panel, one to RTM) on the 4HP model, three COM ports (one to front panel, two to RTM), one PS/2 port, and one PCIe2.0 x4 interface reserved for user define extensions on the rear transition module.

The MIC-3397, is designed in single slot (4HP) and dual slots (8HP) form factor. The 8HP version provides extensive & rich IO support, and features high-performance discrete graphics, using an AMD Radeon E8860 GPU, supports 2GB GDDR5 at PCIe x1, x2, x4, x8, and x16 lane widths, 2.5 GT/s and 5.0 GT/s link-data rates, up to four display outputs including one DVI-I, one DVI-D port and two DP 1.1or 1.2 port in a MXM 3.0 type A form factor.

MIC-3397 Series can be installed in a standard CompactPCI system slot as system master, or peripheral slot as stand-alone server blade without CompactPCI bus communication, it meets the needs of applications operating in harsh enviroments and is ideally suited for datacom, telecom and military applications. Its outstanding graphics capabilities make it a good choice for image-processing in medical, defense system and many other vertical segments applications.

Specifications

Processor System	CPU	Quad-Core Intel® Xeon® Processor E3-1125C v2; Dual-Core Intel® Pentium® Processor B925C
	Max Speed	Up to 8MB L3 Cache, 2.5 GHz
	Chipset	Intel® DH8900 PCH (Cave creek)
	BIOS	Redundant AMI 8 MByte SPI flash
Memory	Technology	Dual Channel DDR3 1333/1600 MHz with ECC
	Max. Capacity	8GB on board
	Socket	SO-DIMM x1, up to 8GB
Compact PCI Interface	J1 ~ J2 Connectors	64bit/66MHz PCI local bus
	J3 Connector	PICMG2.16 + RTM
	J5 Connector	RTM
	Bridge	Pericom PI7C9X130DNDE
	Mode	System Master/Drone
Ethernet	PHY	4 Marvel I 88E1112-C2-NNC1I000 Gigabit Ethernet PHY
	Interface	SGMII, 10/100/1000 Base TX Ethernet
	I/O Connector	PICMG2.16 x 2 to J3, RTM x2 or RJ45 x1 to front
	Controller	Intel® WGI210AT SLJXR Gigabit Ethernet Controller
	Interface	PCIe 1.0x1, 10/100/1000 Base TX Ethernet
	I/O Connector	RJ45 x1 to front
Graphics	Controller	SM750GX160000-AC ,265P, 16Mbytes of embedded 32-bit DDR memory
	Resolution	Dual display: 1360 x 768 (Clone & extended mode) Single display:1920 x 1080 (16bit, clone mode only)
	Controller (on MIC-3314)	AMD Radeon E8860, 128-bit wide, 2 GB, GDDR5
	Resolution	DP: 3840 x 2160; Dual Link DVI-D: 2560 x 1600; Single Link DVI-I: 1920 x 1080
	Multi-display	Max up to 4 multidisplays:(Clone mode/extended): Config 1:1xDP+1xDP+1xDVI-D+1xDVI-I Config 2: 1xDP+1xDP+1xDVI-D+1xVGA
Storage	Mode	SATA-II
	Channels	1 channel to on board SATA carrier or on board NAND flash 1 channel to on board cfast socket 2 channels to RTM

Specifications (Cont.)

Front I/O	USB2.0	3 type A	
	COM	1 RS232/422 on RJ45	
	LAN	2 10/100/1000Mbps on RJ45	
	Graphics	1 VGA port on 4HP 2 DP port, 1 DVI-D and 1 DVI-I port on extension board	
	Front Panel LEDs	x1 blue/yellow for Hot Swap/HDD, x1 green for Power, and x1 green for Master/Drone mode	
	Buttons	System reset button	
To RTM	USB2.0	3 ports	
	COM	2 RS232/422/485 on RJ45 or DB9	
	LAN	PICMG2.16 x2 to J3, RTM x2 (1 mux to front)	
	SATA	2 ports	
	PCIe	PCIe2.0 x4	
	Graphics	1 VGA port	
	Others	PS/2 for KB & Mouse	
BIOS	Boot Options	SATA,USB port, USB disk, network (PXE)	
Watchdog Timer	Output	Local reset & interrupt	
	Interval	Programmable 1s ~ 255s	
Hardware Monitor	Controller	NCT6776D	
Operating System	Compatibility	Windows7, Windows7 Embedded, Linux	
Power Requirement	TDP (max./typ.)	4HP:80W (MIC-3397) 8HP:115W (MIC-3397 + MIC-3314)	
Physical	Dimension & Weight	6U/1 slot width (4HP): 233.35 x 160 x 20 mm (9.2" x 6.3" x 0.8") 6U/2 slot width (8HP): 233.35 x 160 x 40 mm (9.2" x 6.3" x 1.6")	
Environment		Operating	Non-operating
	Temperature	0 ~ 55° C (32 ~ 122° F)	-40 ~ 85° C (-40 ~ 185° F)
	Humidity	95 % @ 40° C, non-condensing	95 % @ 60° C, non-condensing
	Vibration	2.0G Grms (Single slot, without on-board 2.5" SATA HDD) 1.06 Grms (Dual slot, without on-board 2.5" SATA HDD)	2Grms
	Shock	10G (Without on-board 2.5" SATA HDD)	30G (Single slot, without on-board 2.5" SATA HDD)
	Altitude	15000 feet above sea level	40000 feet above sea level
Regulatory	Conformance	FCC Class A, CE, RoHS	
	NEBS Level 3	Designed to meet GR-63-Core and GR-1089-Core	
Compliance	Standards	PICMG2.0 R3.0, PICMG2.1 R.0, PICMG2.16 R1.0,	

Supported CPU Configurations

Intel® CPU Model Number	# Cores	Freq.	Cache	Memory Types	CPU TDP
Intel® Pentium® Processor B925C	2	2.0GHz	4 MB L3 Cache	DDR3/3-1333	15W
Intel® Xeon® Processor E3-1125C v2	4	2.5GHz	8 MB L3 Cache	DDR3/3-1333/1600	40W

Ordering Information

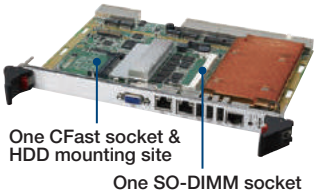
CPU Board	Front panel						CPU	On board Features					
	LAN (1)	COM (RJ45) (2)	USB	VGA	DVI	DP		Memory (Up to 8GB) (3)	SO-DIMM (Up to 8G)(4)	SATA HDD Socket	Cfast Socket	Slot Width	Conn.
MIC-3397A2-M8E	2	1	3	1	NA	NA	Pentium B925C	8 GB	NA	1	1	1	J3/J5
MIC-3397C2-M8E	2	1	3	1	NA	NA	Xeon® E3-1125C v2	8 GB	1	1	1	1	J3/J5
MIC-3397C1-M8E	2	1	3	1	2	2	Xeon® E3-1125C v2	8 GB	1	1	1	2	J3/J5

Note:
1. LAN2 on front is switchable with RIO LAN1 which can be set in BIOS
2. COM support RS232/422 mode only
3. Total memory capacity is up to 16GB, 8GB on board, 8GB on SO-DIMM
4. Pentium B925C SKU w/o SO-DIMM socket

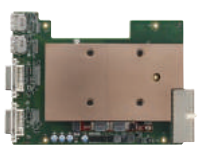
Recommended Configurations

CPU board	Extension Module	Rear I/O Board
MIC-3397x-MxE Series	MIC-3314	RIO-3317-XXX

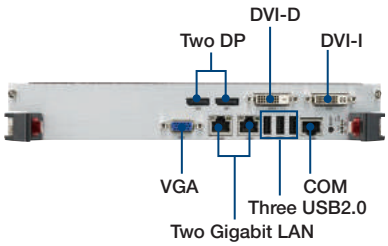
MIC-3397 4HP



MIC-3314



MIC-3397 + MIC-3314



MIC-3398

6U CompactPCI Intel® Atom™ Processor Blade

Features

- Supports Intel® Atom™ E38xx, Celeron N2930 and J1900 processors, up to quad-core at 2 GHz
- Up to 8GB of 1333MHz DDR3L memory
- 2.5" SATA-II HDD/SSD mounting site
- Comprehensive I/O capabilities: DVI, USB 3.0/USB 2.0, Gigabit Ethernet, Serial Ports, SATA-II/CFast
- 4HP single slot high with dual GbE interfaces or 8HP dual slot high with quad GbE interfaces
- PICMG 2.1 R2.0, PICMG 2.6 R1.0 compliant

CE FCC

Introduction

The MIC-3398 is a Low-Power 6U CompactPCI® CPU blade with best in class price/performance ratio tailored for applications that require a state of the art processor platform based on Intel® Architecture with full IO capability at an attractive cost point.

The MIC-3398 supports Intel® Atom™ E3845 and Celeron N2930, J1900 SoC (system on a chip) family previously codenamed Bay trail with a maximum of quad-core 2.00 GHz processing performance.

Intel® Atom™ technology provides significant increases in performance and energy efficiency by using the 22nm Intel® manufacturing process making it an ideal choice for control and workstation applications that require passive cooling with a power dissipation as low as 10W.

Up to 8GB, dual channel 1333 MHz DDR3L memory with ECC support provide a high performance and robust memory interface for demanding applications. With built-in graphics based on Intel® HD Graphics Technology this blade offers a significant improvement in graphics performance compared to previous generation platforms. Support for an onboard 2.5" SATA-II drive as well as CFast SSDs adds comprehensive mass storage support.

On the system side, the MIC-3398 supports 32-bit, 33MHz and 64-bit, 66MHz PCI bus interfaces to a CompactPCI backplane.

A rich set of I/O interfaces such as DVI-D, USB3.0/2.0, Gigabit Ethernet and RS-232/422/485 ports round off the feature set. In addition to the single slot wide (4HP) board offering, a dual slot wide (8HP) version of the blade offers additional network connectivity by increasing Gigabit Ethernet port count from two to four.

Specifications

Processor System	CPU	Intel® Atom™TM SoC (22nm) E38xx and Celeron N2930 and J1900, up to quad core 2.00 GHz
	BIOS	AMI 8MByte SPI flash
CompactPCI Interface	J1 Connector	32-bit PCI local bus
	J2 Connector	64-bit PCI local bus
Memory	Technology	DDR3L 1333 MHz, dual channel without ECC support
	Max. Capacity	Up to 8GB
	Socket	SODIMM x2
Graphic	Controller	Intel® Gen 7 Graphics Engines and media encode/decode engine; GPU Frequency 750MHz
	VRAM	Shared memory up to 224 MB SDRAM
	Resolution	High resolution display up to 2560 x 1600 @ 60Hz
Ethernet	Controller	2 or 4 Intel® I210AT single-port Gigabit Ethernet controllers (on PCIe x1 channel)
	Interface	10/100/1000Base-T Ethernet
	I/O Connector	2 RJ45 (4HP), 4 RJ45 (8HP)
Storage	Onboard HDD/SSD	1 2.5" mounting site (SATA-II)
	Channels	1 CFast socket (SATA-II)
Front I/O	USB3.0	1 type A
	USB2.0	3 type A
	DVI-D	1
	COM	2 RS232/422/485 on D-Sub-9
	LAN	2 10/100/1000 Mbps on RJ45 (4HP) 4 10/100/1000 Mbps on RJ45 (8HP)
	Front Panel LEDs	1x yellow for HDD, x1 green for Master/Drone mode, and x1 green for Power
	Buttons	CPU reset button and power button
Hardware Monitor	HWM	NCT7904

Specifications (Cont.)

Operating System	Compatibility	Win7/WES7, Win8/WES8, Linux, VxWorks 6.x(on request)			
Power Requirement	CPU	J1900		E3845	
	Voltage	+3.3 V	+5 V	+3.3 V	+5 V
	Current	0.02 A	3.91 A	0.02 A	4.02 A
	Maximum	0.07 W	20.41 W	0.07 W	20.94 W
Physical	Dimension (W x D)	233.35 x 160.0 mm			
Environment		Operating		Non-operating	
	Temperature	0 ~ 55° C (32 ~ 122° F)		-40 ~ 85° C (-40 ~ 185° F)	
	Humidity	95 % @ 40° C, non-condensing		95 % @ 60° C, non-condensing	
	Vibration (5-500 Hz)	2 Grms (without on-board 2.5" SATA HDD)		3.5 Grms	
	Shock	10G 11ms			
	Altitude	15000ft, 55° C, above sea level		40000 ft, -40° C, above sea level	
Regulatory	Conformance	FCC Class A, CE, RoHS			
Compliance	Standards	PICMG2.0 R3.0, PICMG2.1 R.0, PICMG2.9 R1.0			

Ordering Information

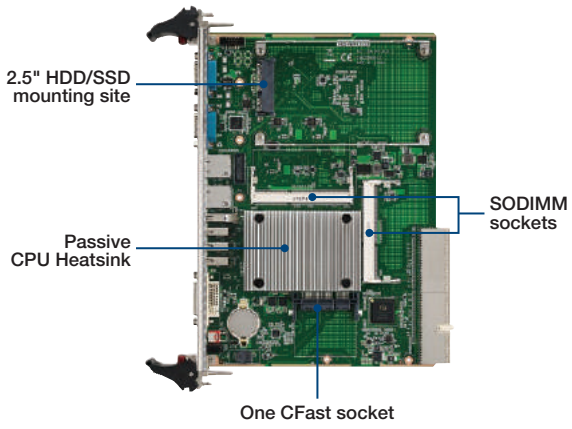
System Board Model Number	Front I/O					Main On-board Features						
	DVI-D	USB3.0 (type A)	USB2.0 (type A)	Ethernet (RJ45)	Console (D-Sub9)	CPU	Installed SODIMM	ECC Support	CFast Socket	Storage Channel	SODIMM Sockets	Front Panel
MIC-3398A-M2E	1	1	3	2	2	J1900	1x 2GB	No	1	1 SATA II	2	4HP
MIC-3398B-M4E	1	1	3	4	2	J1900	1x 4GB	No	1	1 SATA II	2	8HP

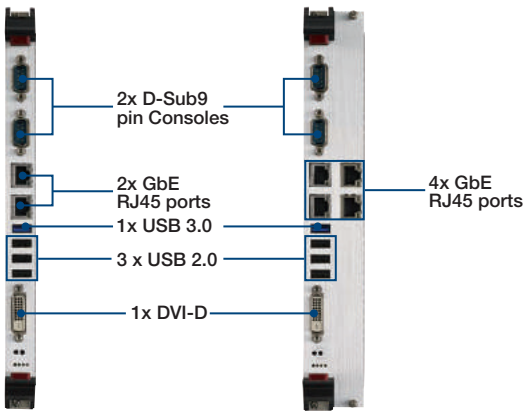
For availability of other configurations please contact your Advantech representative.

CPU Configuration

Intel® CPU Model Number	# Cores	Freq.	Turbo Freq.	Cache	CPU TDP	ECC
E3845	4	1.91 GHz	Na	2 MB	10 W	Yes
N2930	4	1.83 GHz	2.16 GHz	2 MB	7. 5 W	Yes
J1900	4	2.00 GHz	2.42 GHz	2 MB	10 W	No

MIC-3398x-MxE Series





MIC-3666

Dual 10 Gigabit Ethernet XMC

Features

- Intel® 82599 Dual Port 10 Gigabit Ethernet Controller
- PCIe x8 Gen.2 host interface
- Dual SFP+ connectors
- Compliant with VITA 42.0-2005, 42.3-2006 XMC specifications

RoHS COMPLIANT 2002/95/EC

Introduction

The MIC-3666 is a low power, dual-port 10 GbE XMC, with SFP+ pluggable modules for multi-mode and single-mode fiber media and is based on the Intel® 82599ES 10 Gigabit Ethernet controller. The XMC provides a high performance PCIe x8 interface at 5 Gb/s per lane at an outstanding low power dissipation of less than 10W. Support for Intel®'s offloading and platform enhancement features yields maximum network throughput while preserving valuable CPU cycles for application processing.
The MIC-3666 features an Intel® 82599 which provides Intel® Virtualization Technology for Connectivity (VT-c) including Virtual Machine Device Queues (VMDq) and PCI_SIG compliant Single Root I/O Virtualization (SR-IOV), helping to reduce I/O bottlenecks, boost throughput, and reduce latency. Where virtualization is required, VMDqs improve performance by offloading the data-sorting burden from the virtual machine manager (VMM) to the network controller. The MIC-3666's specialized features include Layer 2 & 3 security with IPSec & LinkSec; Intel® I/OAT Acceleration Technology v3.0; VLAN tagging, stripping and packet filtering; and TCP, iSCSI, and Fiber Channel over Ethernet (FCoE) offload.

Specifications

XMC Connectivity	Connector	P15 assembled,	
	Host interface	PCIe x8 gen.2 @ 5Gbps/lane	
Controller	Controller	Intel® 82599ES dual 10GbE MAC/PHY	
	Virtualization Technologies	VMDq, VMD, SR-IOV	
	IP	IPv4, IPv6	
	Queues	128RX, 128TX per port	
	Offloading	TCP, UDP, SCTP, FCoE	
	Security Acceleration	Linksec IEEE802.1ae (AES-128 Authorization./Encryption) IPSec (AES-128, 1024 SA's)	
I/O	SFP+	2 sites with support for presence detect, status and ID EEPROM	
	LEDs	Network Link, Activity	
Software	Linux	X86 Kernel 2.6.x	
	Windows	Server2008	
	Boot	PXE, iSCSI	
Power	Power Consumption	+3.3V	VPWR (+5V)
	Does not include FOT Transceivers	0.25A max	1.5A max
Environment		Operating	Non-Operating
	Temperature	0 ~ 60° C (32 ~ 140° F)	-40 ~ 80° C (-40 ~ 176° F)
	Humidity	95 % @ 40° C, non-condensing	95 %@ 60° C, non-condensing
Physical Characteristics	Dimensions (W x D)	74 x 149 mm (2.9" x 5.78")	
	Weight	0.104 kg (0.23 lbs)	
Compliance	IEEE Std 1386.1-2001 PMC specification		
	VITA 42.0-2005, 42.3-2006 XMC specifications		

Recommended Configurations

XMC Extension Board	CPU Board
MIC-3312-A1E	MIC-3393B-M2E, MIC-3395, MIC-3396

MIC-3666-AE

Ordering Information

Part Number	Description
MIC-3666-AE	XMC with dual SFP+ 10GbE interfaces

MIC-3667

Quad Ports Gigabit Ethernet XMC

Features

- Intel® Ethernet Controller I350-AM4
- Four 10 / 100 / 1000Base-T Ethernet ports (RJ45 connectors)
- PCIex4 gen2 host interface
- UDP, TCP and IP Checksum Offload
- UDP and TDP Transmit Segmentation Offload
- VMDq and SR-IOV Support with 8 RX and 8TX queues per port
- Parity or ECC protected buffers
- Fully Integrated to comply with IEEE802.3u
- Compliant with VITA 42.0-2005, 42.3-2006 XMC specifications

VITA Open Standards, Open Markets CE FCC RoHS COMPLIANT 2002/95/EC

Introduction

The MIC-3667 is a low power, quad-port Gigabit Ethernet XMC based on the Intel® Ethernet Controller I350-AM4. It provides four copper Gigabit Ethernet interfaces at the front panel on RJ45 connectors. With a PCIex4 gen2 host interface, the MIC-3667 can support line rate traffic on all ports. Using intel's latest controller technology, the card provides a wealth of offload and virtualization support capabilities to minimize the burden of handling network traffic on the hosting platform.

With a power dissipation as low as 4W, the MIC-3667 is perfectly suited for use in rugged requirements and applications with passive cooling. The board is prepared for conformal coating required for harsh environments.

Specifications

XMC Connectivity	Connector	P15	
	Host interface	Gen.2 @ 5Gbps/lane	
Ethernet	Interface	IEEE 802.3x Ethernet interface four 10/100/1000Base-T interfaces	
	Controller	Intel® I350 quad GbE MAC/PHY	
	LED	4x2 status LEDs to signal link status and activity	
	Connector	Four standard 8-pin RJ45 connectors	
Power	Power Consumption	4 W	
Environment		Operating	Non-Operating
	Temperature	0 ~ 60° C (32 ~ 140° F)	-40 ~ 85° C (-40 ~ 185° F)
	Humidity	95% @ 40° C, non-condensing	95% @ 60° C, non-condensing
	Vibration	2.0 Grms	
Software Support		Windows®; Linux	
Physical Characteristics	Dimensions (W x D)	233.35 x 80 mm (9.2" x 1.5"), 1-slot width	
	Weight	0.240 kg (0.529 lbs) with heat sink	
Compliance		IEEE Std 1386.1-2001 PMC specification	
		VITA 42.0-2005, 42.3-2006 XMC specifications	

Related Products

CPU Board
MIC-3395, MIC-3396, MIC-3397, MIC-3328, MIC-3329, MIC-6311, MIC-6313, MIC-6314 series

Ordering Information

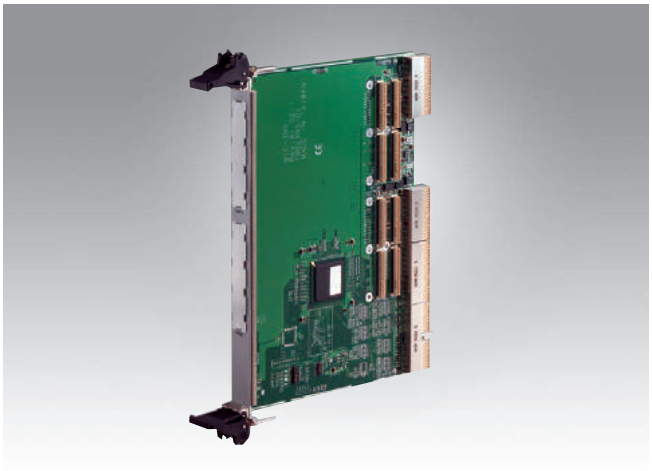
Part Number	Description
MIC-3667-AE	XMC with quad Gigabit Ethernet interfaces

Note: For ruggedized options including conformal coating, please contact your Advantech representative.

MIC-3667-AE

MIC-3951

6U CompactPCI® Dual PMC or CMC Carrier Board (64-bit/66 MHz)



Features

- 64-bit, 66 MHz CompactPCI® interface
- Supports dual PMC module
- Onboard PCI-to-PCI bridge
- Compliant with CMC specification

RoHS COMPLIANT 2002/95/EC

Introduction

The MIC-3951 is a 6U CompactPCI carrier board for PCI Mezzanine Cards (PMC) modules. It provides two 64-bit PMC sites for easy CompactPCI system expansion through different PMC modules. An Intel® 21154 PCI-to-PCI bridge chip is used in the MIC-3951 for CompactPCI bus expansion and decreases the CompactPCI bus loading to one, in addition to meeting industry requirements. Advantech provides several PMC modules that work in conjunction with the MIC-3951, such as the inclusive 10/100 Ethernet module and Gigabit module. In addition to being compatible with Advantech CompactPCI products, the MIC-3951 can also be used with other standardized, off-the-shelf modules from other manufacturers.

Specifications

Bus	PCI	From 32-bit/33 MHz up to 64-bit/66 MHz	
	PCI-to-PCI Bridge	Intel® 21154	
Power	Power Consumption	2.2 W @ 64 bit/66 MHz (670 mA @ +3.3 V)	
Environment		Operating	Non-Operating
	Temperature	0 ~ 60 °C (32 ~ 140 °F)	-20 ~ 80 °C (-4 ~ 176 °F)
	Humidity	-	5 ~ 95 % @ 60 C, non-condensing
	Vibration (5 ~ 500 Hz)	1.0 Grms	2.0 G
Physical Characteristics	Dimensions (W x D)	233.35 x 160 mm (9.2" x 6.3"), 1-slot width	
	Weight	0.5 kg (1.10 lb)	
Reliability	Mean-Time-To-Repair (MTTR)	5 minutes	
Compliance	PICMG 2.0 R3.0 CompactPCI Specification PICMG 2.3 R1.0 CompactPCI PMC I/O Mapping Specification IEEE P1386.1 R2.3 PMC Specification		

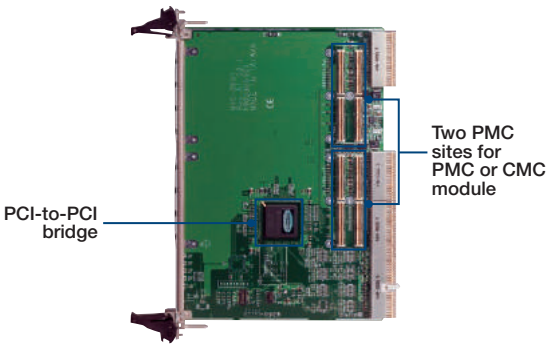
Recommended Configurations

PMC Carrier Board	PMC Module
MIC-3951	MIC-3665-AE MIC-3665-BE

Ordering Information

Part Number	Description
MIC-3951-AE	6U CompactPCI dual PMC carrier board (64-bit/66 MHz)

Note: Please contact your local distributor for more information on CMC solution



MIC-3953

3U CompactPCI® Single PMC Slot Carrier Board

Features

- Up to 64-bit/66 MHz CompactPCI® Interface
- Supports one single-size PMC site in 4HP width
- Comprehensive EMC shielding

CompactPCI®

Introduction

The MIC-3953 is a 3U CompactPCI carrier board for PCI Mezzanine Cards (PMC) modules. It provides one 32,64-bit/33,66 MHz PMC site in 4HP width for system expansion through different PMC modules. Advantech provides several PMC modules that work with MIC-3953, such as the 10/100 Ethernet module and Gigabit module. It is also compatible with other standardized modules from other manufacturers.

Specifications

Bus	PCI	32/64-bit/33MHz,up to 32/64-bit/66MHz	
Environment		Operating	Non-Operating
	Temperature	0 ~ 60° C (32 ~ 140° F)	-40 ~ 85° C (-40 ~ 185° F)
	Humidity	95% @ 40° C, non-condensing	95% @ 60° C, non-condensing
	Vibration (5~500 Hz)	2.0 Grms	-
Physical Characteristics	Dimensions (W x D)	160.00 x 100.00 mm (6.30" x 3.95")	
	Weight	0.5kg	
Compliance		PICMG 2.0 R3.0 CompactPCI Specification PICMG 2.3 R1.0 CompactPCI PMC I/O Mapping Specification IEEE P1386.1 R2.3 PMC Specification	

Recommended Configurations

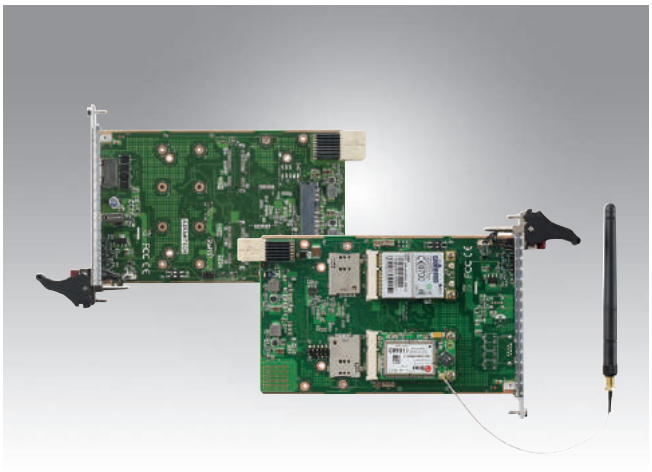
Carrier Board	PMC Module
MIC-3953-AE	MIC-3665-AE MIC-3665-BE

Ordering Information

Part Number	Description
MIC-3953-AE	3U CompactPCI single PMC carrier board

MIC-3954

3U CompactPCI® Serial Peripheral Board with PCIe® Mini Card or Storage Function



Features

- For card 1 with internal PCIe and USB interface
- For card 2 with SATA interface
- PICMG CPCI-S.0 CompactPCI® Serial

CompactPCI® Serial

Introduction

The MIC-3954 is a rugged single Eurocard CompactPCI® Serial carrier board with two function options; Option 1: Supports the PCI Express® Mini Card, which offers two standard PCI Express® Mini Card slots, with dual on-board SIM slots for 3G module. It allows to use all types of cards for HF applications, for example GPS, WLAN, UMTS, GSM, or HSDPA which is connected to two external SMA antenna connectors; Option 2: Supports the hard disk drive carrier board and one USB connector on front panel. It is designed to carry a 2.5" SATA hard disk drive or a solid state drive.

Specifications

		MIC-3954 PCIe Mini Card Carrier Board	MIC-3954 Storage Carrier Board
Interface		PCIex1 and USB2.0	SATA2.0 and USB2.0
Power		+12 V, power consumption depending on plugged card, 0.1A max. w/o card	+12 V, power consumption depending on plugged HDD/SSD
Environment		Operating	Non-Operating
	Temperature	0 ~ 60° C (32 ~ 140° F)	-40 ~ 85° C (-40 ~ 185° F)
	Humidity	95% @ 40° C, non-condensing	95% @ 60° C, non-condensing
	Vibration (5~500 Hz)	2.0 Grms (With SSD)	-
Physical Characteristics	Dimensions	160.00 x 100.00 mm (6.30" x 3.95")	
	Weight	0.5 kg	
Compliance		PICMG CPCI-S.0 CompactPCI® Serial peripheral card	

Recommended Configurations

Carrier Board	CPU Board	Enclosure
MIC-3954-AE MIC-3954-BE	MIC-3328 series	MIC-3022PAE MIC-3022PCE

Ordering Information

Part Number	Description
MIC-3954-AE	3U CompactPCI® Serial PCIe® Mini Card Carrier Board for Wireless Functions
MIC-3954-BE	3U CompactPCI® Serial SATA HDD/SSD Carrier board

Note: Please contact Advantech sales representative for recommended wireless modules.

MIC-3955

3U CompactPCI® 4-port RS-232/422/485 Communication Card

Features

- 4-port RS-232/422/485
- 32bit 33/66MHz PCI bus backplane
- Speeds up to 115200 bps
- 16C550 Compatible 5G Register Set
- 2KV Surge protection
- Support 5V only power input
- RIO Support 4-port or 8-port RS-232/422/485
- PICMG 2.0 Rev. 3.0 compatible

Introduction

The MIC-3955 is a 3U CompactPCI 4-port RS-232/422/485 Communication Card. It supports 32bit 33MHz or 66MHz PCI frequencies.

The MIC-3955 supports rear IO with 4-port RS-232/422/485 and 8-port RS-232/422/485. 4-port RS RIO Data Signals are DCD, RxD, TxD, DTR, GND, DSR, RTS, CTS, RI, (for RS-232); TxD-, TxD+, RxD+, RxD-(for RS-422);DATA-, DATA+, (for RS-485). 8-port RS-232/422/485 Data Signals are TxD-, TxD+, RxD+, RxD- (for RS-422); DATA+, DATA- (for RS-485); RxD, TxD, RTS, CTS, GND (for RS-232).

Specifications

Speeds		up to 115200 bps	
COM port		4-port RS-232/422/485	
UART		64-byte Transmit and Receive FIFOs	
I/O address		automatically assigned by PCI Plug & Play	
Data flow		Automatic RS-485 data flow control	
LED-Front panel		Tx-orange / Rx-Green LED indicator	
Data Signals		Data Signals:TxD, RxD, RTS, CTS, DTR, DSR, DCD, RI, GND(for RS-232) TxD, RxD, RTS, CTS(for RS-422) DATA+, DATA- (for RS-485)	
IRQ		All ports use the same IRQ assigned by PCI Plug & Play	
BUS controller		EXAR XR17D154/XR17D158	
Data Bits		5, 6, 7, 8	
Stop Bits		1, 1.5, 2	
OS support		Windows 7, CentOS6.6 32bit	
Power consumption		3.5W	
Surge Protection		2KV	
Isolation protection		Board Isolate Protection 2500VRMS D-SUB Cable protection is AC 1KV Isolation protection	
Environment		Operating	Non-Operating
	Temperature	-40 ~ 70° C (-40 ~ 184° F)	-40 ~ 80° C (-40 ~ 176° F)
	Humidity	10 ~ 95% @ 40° C, non-condensing	10 ~ 95% @ 60° C, non-condensing
	Shock	10 G	30 G
	Vibration (5 ~ 500 Hz)	1.06 Grms	2 Grms
Physical Characteristics	PCB Dimensions (W x H)	160 x 100 mm (6.3" x 3.9")	
	Weight	0.5 kg (1.1lb)	
Reliability		MTBF :477,727 hours	

Related Products

Part Number	Description
MIC-3328	3U CompactPCI 3rd generation Intel® Core™ Processor Blade
MIC-3329	3U CompactPCI Intel® Atom™ Low power Quad Core E3845/ Dual Core E3827 SoC processor w/4GB ECC RAM
MIC-3023D1-A1E	3U CPCI fanless enclosure dual system with 2 backplane, 2 AC-In panel
MIC-3023S1-D1E	3U CPCI fanless enclosure single system with 1 back plane, 2 CPCI power connecter for DC-Input power

Ordering Information

Part Number	Description
MIC-3955A1-S1E	Assy 4port RS-232/422/485 3U CPCI A101 Rohs
MIC-3955A2-S1E	Assy 4port RS for RIO app. 3U CPCI A101 Rohs
MIC-3955B1-S1E	Assy 8port RS-232/422/485 3U CPCI A101 Rohs
MIC-3955B2-S1E	Assy 8port RS for RIO app. 3U CPCI A101 Rohs
MIC-3527A2-S2E	Assy 4port RS RIO for MIC-3955 3U CPCI A101 Rohs
MIC-3527B2-S1E	Assy 8port RS RIO for MIC-3955 3U CPCI A101 Rohs

MIC-3957

3U CompactPCI® GPS Communication Board

Features

- GPS based on 50 channel u-blox lea-6s module
- 32bit 33/66MHz PCI bus backplane
- UART interface for GPS module
- Accuracy 2.5 m CEP
- PICMG 2.0 Rev. 3.0 compatible

Introduction

The MIC-3957 is a 3U CompactPCI GPS Communication Card. It is designed with u-blox lea-6s GPS module via UART interface. MIC-3957 is capable of massive parallel time/frequency space searches, enabling it to find satellites instantly. Innovative design and technology suppresses interference sources and mitigates multipath effects, providing excellent navigation performance even in the most challenging environments in automotive and industrial applications.

Specifications

GPS Interface		UART	
Main chip		u-blox lea-6s	
Antenna		GPS antenna 1575MHz	
Receiver Type		50 Channels GPS L1 frequency, C/A code GALILEO Open Service capable SBAS:WAAS,EGNOS, MSAS, GAGAN	
Time-To-First-Fix		Cold Start: 29 s Warm Start: 29 s Hot Start: < 1 s	
Sensitivity		Tracking & Navigation: -160 dBm Reacquisition: -160 dBm Cold Start: -147 dBm	
Horizontal Position Accuracy		Autonomous: < 2.5 m SBAS: < 2.0 m	
Max Navigation Update Rate		< 5 Hz	
Velocity Accuracy		0.1 m/s	
Heading Accuracy		0.5 degrees	
Operational Limits	Dynamics	< 4 g	
	Altitude	50,000m	
	Velocity	515 m/s	
OS support		Windows XP, Windows 7, Linux CentOS6.6	
Power consumption		2.5W	
Environment	Temperature	-25 ~ 55° C (-13 ~ 131° F)	-40 ~ 80° C (-40 ~ 176° F)
	Humidity	10 ~ 95% @ 40° C, non-condensing	10 ~ 95% @ 60° C, non-condensing
	Shock	10 G	20 G
	Vibration (5 ~ 500 Hz)	1.06 Grms	2 Grms
Physical Characteristics	PCB Dimensions (W x H)	160 x 100 mm (6.3" x 3.9"),	
	Weight	0.4 kg	
Reliability	MTBF	-	

Related Products

Part Number	Description
MIC-3328	3U CompactPCI 3rd generation Intel® Core™ Processor Blade
MIC-3023D1-A1E	3U CPCI fanless enclosure dual system with 2 backplane, 2 AC-In panel
MIC-3023S1-D1E	3U CPCI fanless enclosure single system with 1 back plane, 2 CPCI power connecter for DC-Input power

Ordering Information

Part Number	PCI	PICMG 2.0	Description
MIC-3957A1-S1E	Yes	Yes	3U CPCI GPS communication board

Accessories

Part Number	Description
1750006432	GPS antenna 5000mm AG1575-0250SM-UL

MIC-3958

3U CompactPCI® 4 RJ45 Port Gigabit Ethernet Card

Features

- Standard 3U 4HP CompactPCI® form factor
- Up to four Intel® i210 Ethernet controllers
- Four or two 10/100/1000BASE-T Ethernet ports via RJ-45 connectors
- Two LAN ports switchable to rear (MIC-3958R)
- Compliant PICMG2.0 R3.0

Fully Compliant with EN 50121-4 | Fully Certified with EN 50155 | cULus CE FCC RoHS COMPLIANT 2002/95/EC

Introduction

Advantech MIC-3958 Series, a 3U height 4HP CompactPCI® peripheral card, using Intel® i210 Ethernet controller, to support up to four RJ45 Gigabit lan connectors, two switchable with rear transition module; MIC-3958A provides four RJ45 lan ports on front panel, MIC-3958R provides two RJ45 lan ports on rear IO panel. Its ideal power solution make it perfect for all fanless system applications.

Specifications

Bus	PCI	32bit, up to 33/66MHz	
	PCI-to-PCIe Bridge	PI7C9X130	
	J2 Connector	RTM	
Ethernet	Controller	Intel® Industry I210IT Ethernet Controller	
	Interface	PCIe 1.0x1, 10/100/1000 Base TX Ethernet	
	I/O Connector	4x RJ45 to 4HP front (2x RJ45 Switchable with RIO 4HP)	
	LED	LAN Speed LED Status (Dual-Color)=>10Mb/s :off, 100Mb/s: Green, 1000Mb/s: Orange LAN Link/ACT LED status=> Link: Green, Activity: Green Blink	
Operating System	Compatibility	Windows7, Windows8, Linux CentOS6.5/6.6	
Max Power Consumption	Max./Typ.	4x LAN ports: 9.5W (5V@1.9A) 2x LAN ports: 7.1W (5V@1.42A)	
Physical	Dimensions (W x D)	100 x 160 mm (6.30" x 3.95")	
Environment		Operating	Non-Operating
	Temperature	-40 ~ 55° C (-40 ~ 122° F) Fanless	-40 ~ 85° C (-40 ~ 185° F)
	Humidity	95 % @ 40° C, non-condensing	95 % @ 60° C, non-condensing
	Vibration	2 Grms	-
Compliance	Standards	PICMG2.0 R3.0	

Front Board

RIO board

Related Products

I/O Board	CPU Board	Enclosure
MIC-3958 series	MIC-3325 series / MIC-3328 series / MIC-3329 series	MIC-3022 series / MIC-3023 series

Ordering Information

Part Number	Description
MIC-3958A1-S1E	3U CompactPCI peripheral card w./ 4xRJ45 Gigabit Ethernet Connectors on front panel
MIC-3958B1-S1E	3U CompactPCI Peripheral card w./ 4 M12 Gigabit Ethernet connector on front panel
MIC-3958R1-S1E	3U CompactPCI RIO peripheral card w./2xRJ45 Gigabit Ethernet Connectors on rear panel

*Note: MIC-3958R is switchable w./ MIC-3958A by switch setting on front board.

MIC-3961

6U CompactPCI® PCI Carrier Board

Features

- 64-bit PCI interface
- 5 V only
- 33/66 MHz PCI clock selectable
- Hold-down bracket to secure PCI board

RoHS COMPLIANT 2002/95/EC

Introduction

The MIC-3961 is a 6U CompactPCI® PCI carrier board that allows users to attach a 32/64-bit PCI card via a J1/J2 connector to a CompactPCI platform. The hold-down bracket secures the PCI card onto the carrier board and protects it against vibration and shock. In addition, the bracket allows a cable to be routed through the front slot panel.

Specifications

Bus	PCI	32-bit/33 MHz, 64-bit/66 MHz	
Power	Power Consumption	1 W @ 33 MHz	
Environment		Operating	Non-Operating
	Temperature	0 ~ 60° C (32 ~ 140° F)	-20 ~ 80° C (-4 ~ 176° F)
	Humidity	-	5 ~ 95 % @ 60° C, non-condensing
	Vibration (5 ~ 500 Hz)	1.0 Grms	2.0 G
Physical Characteristics	Dimensions (W x D)	233.35 x 160 mm (9.2" x 6.3"), 1-slot width	
	Weight	0.6 kg (1.32 lb)	
Reliability	Mean-Time-To-Repair (MTTR)	5 minutes	
Compliance	PICMG 2.0 R3.0 CompactPCI Specification		

Recommended Configurations

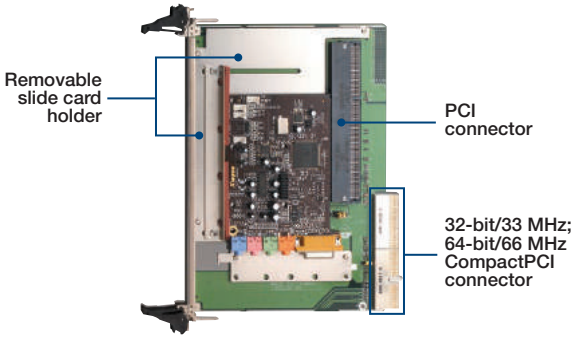
PCI Carrier Board	Enclosure
MIC-3961-AE	MIC-3042, MIC-3043 series

Note: Because of the PCI slot form factor, it can not support 3.3 V PCI card.

Ordering Information

Part Number	Description
MIC-3961-AE	6U CompactPCI PCI carrier board

Note: Please contact your sales distributor for the optional internal-to-panel cable adaptation assembly set.



RIO-3315

6U CompactPCI® Rear Transition Board for MIC-3395

Features

- External rear-panel interface connector for the MIC-3395 CPU board
- Supports SAS, SATA, USB 2.0, COM and PS/2 interfaces
- One USB header for USB NAND flash module
- Two RJ-45 GbE ports on the rear panel
- One Digital and One analog DVI port on the rear panel
- One MiniSAS port on the rear panel (for RIO-3315-A1E)
- Two PICMG 2.16 LAN ports on the rear panel (for RIO-3315-C1E)

CompactPCI® FCC CE RoHS COMPLIANT 2002/95/EC

Introduction

The RIO-3315 is the first Rear Transition Module (RTM) supporting PCIe connectivity to the main CPCI board enabling significant value-added features and extensions to next generation CPCI blades such as MIC-3395. The RIO-3315 supports: one PS/2 port, six USB ports, two RS-232 ports, two SATA ports, two Gigabit Ethernet ports, one digital and one integrated (digital/analog) DVI port. Three versions of RIO-3315 provide a choice of storage and LAN options. The RIO-3315-A1E with LSI1064E SAS controller supports a 4-port SAS controller with RAID, which allows switching between four internal SAS/SATA or four external MiniSAS ports. The RIO-3315-B1E supports SATA disk drives and SATA RAID via the QM67 PCH. An additional DSUB COM port is placed on rear panel. The RIO-3315-C1E provides two GbE LAN ports and two PICMG 2.16 LAN ports on the rear panel.

The RIO-3395MIL-A1E provides D-SUB9 COM port, one DVI-D, one VGA on rear panel and can carry two SATA HDD/SSD.

Specifications

CompactPCI Connector	J3 / J4 / J5		
SAS Controller	LSI1064E SAS Controller chip supports 3 Gb/s SAS/SATA data transfer and RAID		
Power	Power Consumption	+3.3 V	+5 V
		3 A	2 A
Environment		Operating	Non-Operating
	Temperature	0 ~ 60° C (32 ~ 140° F) -40 - 70° C (-40 - 158° F) (for RIO-3395MIL)	-40 ~ 85° C (-40 ~ 185° F)
	Humidity	95 % @ 40° C, non-condensing	95 % @ 60° C, non-condensing
Physical Characteristics	Dimensions (W x D)	233.35 x 80 mm (9.2" x 3.15"), 1-slot width	
	Weight	0.3 kg (0.66 lbs)	

Ordering Information

Part Number	Rear Panel								On-board Header/Socket/Connector						
	LAN	PS/2*	COM (RJ-45)	COM (DB9)	USB	DVI-D	DVI-I	MiniSAS	USB	VGA	COM	SATA	SAS (SATA Interface)	Slot Width	Conn.
RIO-3315-A1E	2	1	1	-	2	1	1	1	2	1	2	2	4	1	J3, J4, J5
RIO-3315-B1E	2	1	1	1	2	1	1	-	2	1	-	2	-	1	J3, J4, J5
RIO-3315-C1E	4	1	1	-	2	1	1	-	2	1	2	2	-	1	J3, J4, J5
RIO-3395MIL-A1E	2	1	-	1	2	1	-	-	-	-	-	2	-	2*	J3, J4, J5

*Note: One PS/2 port carries the signals for keyboard and mouse. A "Y" cable is included.

**Note: The use of Advantech's EmbCore USB 2.0 Disk Module (Type C) is recommended.

Recommended Configurations

Rear I/O Board	CPU Board
RIO-3315-A1E	MIC-3395 Series
RIO-3315-B1E	MIC-3395 Series
RIO-3315-C1E	MIC-3395 Series
RIO-3395MIL-A1E	MIC-3395MIL

I/O View (RIO-3315-A1E)

RIO-3316

6U CompactPCI® Rear Transition Board for MIC-3396

Features

- External rear-panel interface connector for the MIC-3396 CPU board
- Supports SATA Gen III, USB 2.0, USB 3.0, GbE, PS/2, COM and DVI, interface
- 2x SATA pin headers
- 2x RJ45 GbE and 2x PICMG 2.16 LAN ports on the rear panel
- 1x digital and 1x analogue DVI ports on the rear panel
- 1x UHM connector to support USB 3.0 and SATA Gen III signal

CompactPCI® FCC CE RoHS COMPLIANT 2002/95/EC

Introduction

The RIO-3316 is the first Rear Transition Module (RTM) supporting PCIe connectivity to the main CPCI board enabling significant value-added features and extensions to next generation CPCI blades such as MIC-3396.

The RIO-3316 supports: one PS/2 port, one USB 3.0 and one USB 2.0 ports, one RS-232/485/422 ports, two Gigabit Ethernet ports, two PICMG 2.16 LAN ports, one digital and one integrated (digital/analogue) DVI port on the rear panel.

One UHM connector on J3 provides PCIe bus and allows supporting USB 3.0 and SATA Gen III (6 Gb/s).

Specifications

CompactPCI Connector		J3 / J4 / J5	
Power	Power Consumption	+3.3 V	+5 V
		3 A	2 A
Environment		Operating	Non-Operating
	Temperature	0 ~ 60° C (32 ~ 140° F)	-40 ~ 85° C (-40 ~ 185° F)
	Humidity	95% @ 40° C, non-condensing	95% @ 60° C, non-condensing
Physical Characteristics	Dimensions (WxD)	233.35 x 80 mm (9.2" x 1.5"), 1-slot width	
	Weight	0.3 kg (0.66 lbs)	

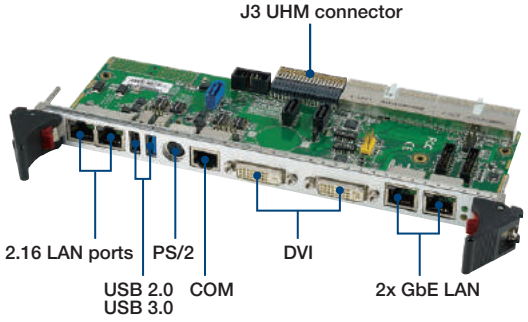
Ordering Information

Part Number	Rear Panel							On-board Header / Socket / Connector				
	LAN	PS/2*	COM (RJ45)	USB 2.0	USB 3.0	DVI-D	DVI-I	USB 3.0	COM	SATA	Slot Width	Conn.
RIO-3316-C1E	4	1	1	1	1	1	1	1	1	2	1	J3, J4, J5

Note: One PS/2 port carries the signals for keyboard and mouse. Y cable is included.

Recommended Configurations

Rear I/O Board	CPU Board
RIO-3316-C1E	MIC-3396 Series



MIC-3022

4U CompactPCI® Enclosure for 3U Cards

Features

- Hosts up to eight 3U Eurocard boards
- CompactPCI® Legacy or Plus IO Hybrid backplane
- PICMG 2.11power supplies
- ATX power supply option for cost sensitive applications
- Dual system ready

Introduction

MIC-3022 is a 4U enclosure designed to host up to 8 CompactPCI 3U cards connected via a 32bit 33MHz or 66MHz PCI bus or serial bus. The chassis can be powered by PICMG2.11 CPCI power supplies or an ATX 400W power supply for cost sensitive applications. A CPCI power supply supports a wide range of applications in the industrial market requiring a robust, compact and reliable platform. Rear transition modules can be installed for each of the 8 slots to support I/O extension.

The MIC-3022 enclosure is available for two kinds of backplanes; Legacy backplane provides up to 8 peripheral PCI slot while the hybrid backplane offers three PCI slots and four serial slots. Being a hybrid system, it offers an uncomplicated and cost effective migration solution from parallel 3U CompactPCI® to serial CompactPCI® via the CompactPCI PlusIO standard instead of a bridge or an active logic. To save peripheral slots, there are two SATA connectors reserved on hybrid backplane by cable connection for storage extension.

The chassis can be powered by PICMG2.11 CPCI power supplies or an ATX 400W power supply for cost sensitive applications. Four high performance fans provide adequate air flow to all slots, enabling system configurations which can be used in extended temperature environments. With the support of front swappable power supplies and add-in cards as well as a simplified fan replacement mechanism built in, systems based on the MIC-3022 can support a MTTR of 5 minutes or less.

Specifications

Backplane	Legacy backplane		System x 1, Peripheral x 7, Rear transition x 8 (80 mm, IEEE1101.11 compliant) 32-bit/33 MHz/66 MHz PCI bus			
	PlusIO Hybrid backplane		System x 1, Peripheral x 7 (80 mm, IEEE1101.11 compliant) 32-bit/33 MHz/66 MHz PCI bus, serial bus			
	V (I/O)		+3.3 V/+5 V (selectable)			
Cooling	Fan		2 Blowers ;up to 4 Blowers for dual system			
Power Supply	Legacy chassis: CPCI PSU 250W	Input	AC 100 ~ 240 V @ 50 ~ 60 Hz, full range			
			+3.3V	+5V	+12V	-12V
		Max. Load	18A	25A	5A	0.5A
		Min. Load	0A	1A	0A	0A
	PlusIO Hybrid Chassis: CPCI PSU 300W		+3.3V	+5V	+12V	-12V
		Max. Load	40A	40A	10A	2A
		Min. Load	0A	1A	0A	0A
	Legacy/PlusIO Hybrid Chassis: ATX PSU 400W	Input	AC 100 ~ 240 V @ 50 ~ 60 Hz, full range			
			+3.3V	+5V	+12V	-12V
		Max. Load	11.6A	12.89A	11.74A	0.37A
		Min. Load	0.3A	0.3A	0.5A	0A
Environment	Temperature		Operation: 0 ~ 50° C (32 ~ 122° F); Storage: -40 ~ 70° C (-40 ~ 158° F)			
	Humidity		10 ~ 95% @ 40° C, non-condensing 10 ~ 95% @ 60° C, non-condensing			
	Shock		Operation: 10G; Non Operation 30G			
	Vibration		Random: Operating: 2G Sine: Non-operating: 2G			
Physical Characteristics	Dimensions (W x H x D)		440 x 177 x 295 mm (17.3" x 7" x 11.6")			
	Weight		11 kg			
Reliability	MTBF		Backplane	Fan module	Power supply	
			800, 000 hours	50, 000 hours @25 °C	100, 000 hours @ 70% load	
Compliance			PICMG 2.0 R3.0 CompactPCI Specification PICMG 2.1 R2.0 CompactPCI Hot Swap Specification PICMG 2.11 R3.0 Front-Access Power Connectors Specification RoHS, CE, FCC, UL, CCC			

Backplane Information

MIC-3022 PlusIO Hybrid		
Physical Number	**Function**	**Rear I/O**
1	CPCI I/O slot	Yes
2	CPCI I/O slot	Yes
3	CPCI I/O slot	Yes
4	Plus IO System slot	-
5	CPCI-Serial I/O slot	-
6	CPCI-Serial I/O slot	-
7	CPCI-Serial I/O slot	-
8	CPCI-Serial I/O slot	-

MIC-3022 Legacy		
Physical Number	**Function**	**Rear I/O**
1	System Slot	Yes
2	CPCI I/O slot	Yes
3	CPCI I/O slot	Yes
4	CPCI I/O slot	Yes
5	CPCI I/O slot	Yes
6	CPCI I/O slot	Yes
7	CPCI I/O slot	Yes
8	CPCI I/O slot	Yes

Recommended Configurations

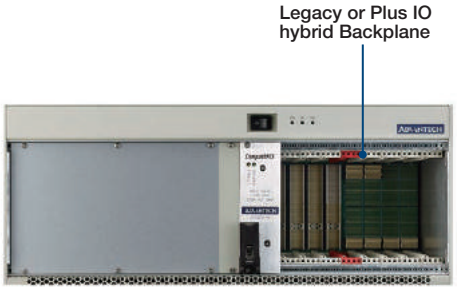
Enclosure	CPU Board	Front I/O Board
MIC-3022AE MIC-3022CE MIC-3022PAE MIC-3022PCE	MIC-3329 MIC-3328	MIC-3953;MIC-3954; MIC-3955; MIC-3957;MIC-3958

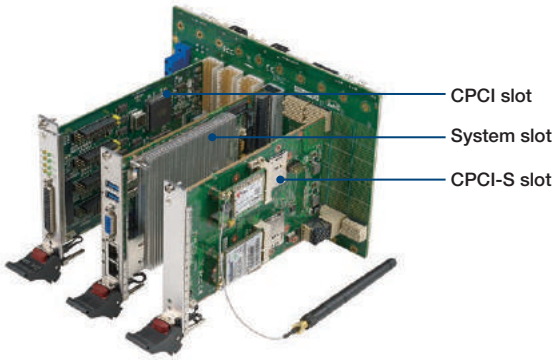
Ordering Information

Part Number	PCI/Serial	PICMG 2.11	ATX power SPEC	Description
MIC-3022AE	Yes	-	Yes	3U CPCI enclosure with 400W ATX PSU, single system
MIC-3022CE	Yes	Yes	-	3U CPCI enclosure with 250W CPCI PSU, single system
MIC-3022PCE	Yes	Yes	-	3U CPCI Plus IO enclosure with 300W CPCI PSU, single system

Optional Accessories

Part Number	Description
1757004516-01	CPCI 250W Power Supply Unit
1757004391-01	ATX 400W Power Supply Unit
1757004594-01	CPCI 300W Power Supply Unit
1757004391-01	ATX 400W Power Supply Unit





CPCI PSU Rear side

ATX PSU Rear side

MIC-3023

3U CompactPCI® Enclosure for 3U Cards

Features

- Hosts up to twelve 3U CompactPCI® boards
- 32bit 33/66MHz PCI bus backplane
- Two 50W low power PICMG2.11power supplies
- Dual system ready
- Fanless design

Introduction

The MIC-3023 is a space and cost optimized 3U CompactPCI enclosure which is designed to host up to two 6-slot CompactPCI 3U backplanes. Each backplane supports 32bit 33MHz or 66MHz PCI add in cards. The chassis can be powered by two PICMG2.11 CPCI power supplies for two individual systems, which is suitable for redundant and high density applications. MIC-3023 is ideal for a wide range of applications in the industrial market requiring a robust, compact and reliable platform such as in transportation.

With fanless design and the support of front swappable power supplies, systems based on the MIC-3023 can support a Mean Time To Repair (MTTR) of 5 minutes or less.

Specifications

			MIC-3023	
Backplane	Backplane		Up to two backplanes. Each backplane supports 1 System slot left and 5 Peripheral slots, 2 PSU slots	
	Bus Interface		32-bit/33 MHz/66 MHz PCI bus	
	V (I/O)		+3.3 V/+5 V (selectable)	
Cooling	Natural convection		Fanless design	
Power Supply	MIC-3956-50AE CPCI 50W PSU	Input	AC 100 ~ 240 V @ 50 ~ 60 Hz, full range, DC power is under development	
			+5 V	
		Max. Load	10 A	
		Min. Load	0.1 A	
Environment			Operating	Non-Operating
	Temperature		-25 ~ 55° C (-13 ~ 131° F)	-40 ~ 80° C (-40 ~ 176° F)
	Humidity		10 ~ 95% @ 40° C, non-condensing	10 ~ 95% @ 60° C, non-condensing
	Shock		10 G	30 G
	Vibration (5 ~ 500 Hz)		1.06 Grms	2 Grms
Physical Characteristics	Dimensions (W x H x D)		436.8 x 133.3 x 252 mm (17.2" x 5.25" x 9.92")	
	Weight		4.76kg (10.5 lb)	
Reliability	MTBF		Backplane	Power supply
	at 25° C ambient		147,077 hours	746,880 hours @ 100% load
Compliance			PICMG 2.0 R3.0 CompactPCI Specification PICMG 2.1 R2.0 CompactPCI Hot Swap Specification PICMG 2.11 R3.0 Front-Access Power Connectors Specification	
			RoHS, CE, FCC GB/T 17626	

Related Products

CPU Board	Description
MIC-3329B1-D1E	MIC-3329 w/ E3827 4G RAM dual slot
MIC-3329C1-D1E	MIC-3329 w/ E3845 4G RAM dual slot

Ordering Information

Part Number	Description
MIC-3023D1-A1E	3U CPCI fanless enclosure dual system with 2 backplane, 2 AC-In panel
MIC-3023S1-D1E	3U CPCI fanless enclosure single system with 1 back plane, 2 CPCI power connecter for DC-Input power

MIC-3042

4U CompactPCI® Enclosure with cPCI Power Supply (non-CT Bus)

Features

- 8-slot 6U CompactPCI® backplane
- AC cPCI 500 W + 250 W redundant (2+1) power supplies

Introduction

The MIC-3042 is a 4U enclosure designed for standard cPCI power supplies. It is equipped with a cPCI 500 W redundant 2+1 power supply with hot-swap support. The system has 8 slots for CompactPCI boards and 6 slots for IEEE 1101.11 rear I/O transition boards. The MIC-3042 comes with a built-in high quality backplane that supports 64-bit / 66 MHz PCI cards.

Specifications

		MIC-3042C			
Backplane	6U Slot	System x 1, Peripheral x 7, Rear transition x 8 (80 mm, IEEE1101.11 compliant)			
Cooling	Fan	2 (front: 193 CFM, rear: 61.3 CFM)			
Power Supply	Input	AC 100 ~ 254 V @ 50 ~ 60 Hz, full range (MIC-3042X-A)			
	Output	AC cPCI 250 W redundant power module			
		+3.3 V	+5 V	+12 V	-12 V
	Max. Load	36 A	50 A	10 A	1 A
	Min. Load	0 A	2.0 A	0 A	0 A
Environment		Operating		Non-Operating	
	Temperature	0 ~ 45° C (32 ~ 113° F)		-20 ~ 60° C (-4 ~ 140° F)	
	Humidity	20 ~ 90% @ 40° C, non-condensing		10 ~ 95% @ 40° C, non-condensing	
	Shock	10 G		30 G	
	Vibration (5 ~ 500 Hz)	1.0 Grms		2.0 G	
Physical Characteristics	Dimensions (W x H x D)	440 x 177 x 320 mm (17.3" x 7" x 12.6")			
	Weight	18 kg (39.7 lb)			
Reliability	MTBF	Backplane	Fan module	Power supply	
		800, 000 hours	50, 000 hours @ 25 °C	100, 000 hours @ 70% load	
Serviceability	MTTR	5 minutes			
Compliance	PICMG 2.0 R3.0 CompactPCI Specification PICMG 2.1 R2.0 CompactPCI Hot Swap Specification PICMG 2.5 R1.0 CompactPCI Computer Telephony Specification PICMG 2.11 R3.0 Front-Access Power Connectors Specification PICMG 2.16 R1.0 CompactPCI Packet Switching Backplane Specification (non-standard offering, available upon request)				
	RoHS, CE, FCC, UL, CCC				

Backplane Information

Physical Number	Function
8	I/O slot
7	I/O slot
6	I/O slot
5	I/O slot
4	I/O slot
3	I/O slot
2	I/O slot
1	System slot

MIC-3042C, non-CT backplane (for MIC-3042C series)

Recommended Configurations

Enclosure	CPU Board	Rear I/O Board	Chassis Management Module		
MIC-3042CE MIC-3042C-AE	MIC-3395A1-M4E, MIC-3395A2-M4E, MIC-3395C1-M4E MIC-3396HA-M8E, MIC-3396HB-M8E, MIC-3396HC-M8E MIC-3397A2-M8E, MIC-3397C2-M8E MIC-3397B1-M8E, MIC-3397C1-M8E	RIO-3315-A1E, RIO-3315-B1E, RIO-3315-C1E, RIO-3316-C1E, RIO-3317	Included MIC-3924L-AE	or	Optional MIC-3927CE

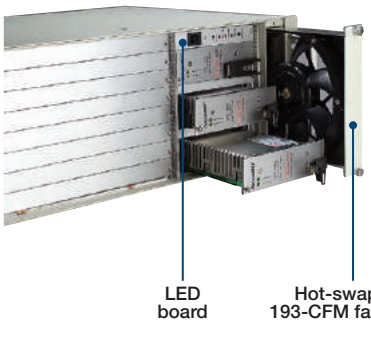
Ordering Information

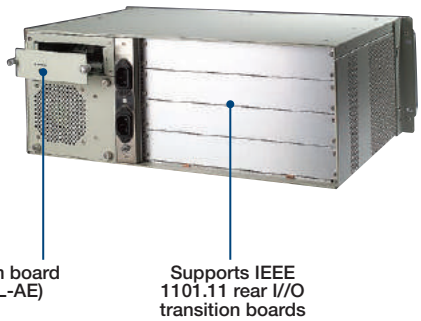
Part Number	PICMG 2.16	PICMG 2.5	PCI	Switch Board Support	Media Blade Support	Chassis Management Module	cPCI Power Supply
MIC-3042CE	-	-	Yes	-	-	MIC-3924L-AE	-
MIC-3042C-AE	-	-	Yes	-	-	MIC-3924L-AE	AC cPCI 500 W + 250 W redundant (2+1)

For PICMG 2.16 support inquiry, please contact your Advantech local representative

Optional Accessories

Part Number	Description
1757004516-01	One AC cPCI 250 W redundant power module
MIC-3927CE	MIC-3927 Intel®ligent chassis management module (IPMI)





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VPX Blades

To view all of Advantech's VPX Blades, please visit www.advantech.com/products.

VPX Blades

Advantech's growing range of 3U and 6U VPX blades has been designed to serve compute intensive, data and signal processing applications in rugged military and aerospace environments. Their server-grade performance and proven reliability along with Advantech's customization, software and long lifecycle support provide equipment manufacturers maximum flexibility and confidence to focus their efforts on mission-critical application development.

OpenVPX

OpenVPX makes the development and deployment of solutions based on VPX more efficient in terms of customization, testing, cost, time-to-market, quality, and repeatability while mitigating risk. Advantech's VPX blades are VITA 46 and VITA 65 compliant commercial-off-the-shelf modules that can be integrated into standard OpenVPX backplanes with guaranteed interoperability between modules, and from module to backplane and chassis as well as backward compatibility of PMC/XMC mezzanines.

Intel® Inside

Advantech has been a long term Intel® partner for over 30 years and our VPX blades are all based on state-of-the-art Intel® processor technology developed in close collaboration with our R&D teams. We help speed OEMs to market and accelerate time to revenue by timely introductions of the latest silicon on each of our VPX products. We enable customers with greater longevity by developing form fit and function follow-ons that allowing them to take advantage of the latest processor enhancements while extending the lifecycle of their products in the field.

Designed for Performance

Our OpenVPX blades support all the major fabric protocols from Serial RapidIO to PCI Express and Ethernet for the highest speed data throughput across the backplane. With onboard PCI Express Gen. 3 and 10GbE support developers are ensured that their applications are running on bare-metal platforms optimized for the highest performance. Local PMC/XMC slot breakout offers an extension to acceleration and FPGA based mezzanines providing even broader options for high performance data preprocessing and offload.

Rugged & Robust

Advantech VPX products come with the durability and ruggedness you can expect from an OpenVPX product line. Designed exclusively using low voltage processors and chipsets from the Intel® embedded range, every blade goes through a rigorous design cycle from the start of its product life with strict design quality assurance procedures and on to extensive production testing. With onboard ECC memory for high reliability and convection cooled technology for optimum power dissipation, Advantech VPX products are designed for the most demanding mission critical applications.

Enhanced Software Features

Our VPX blades support Linux, Windows and VxWorks operating systems for maximum development flexibility. Customers can leverage Advantech's pre-built Linux image including Serial RapidIO drivers and sample utilities to streamline integration. VxWorks users can shorten time to market with Advantech developed drivers, tools and samples. Additional advanced features include carrier-grade IPMI v2.0 compliant baseboard management control (BMC) providing health monitoring, remote control as well as fail-safe local and remote BMC and BIOS updates with redundant FLASH chips for improved availability solutions.

Customization & Design Services

Advantech gives VPX integrators the advantages of its Customized COTS framework, enabling varying levels of customization to standard product. This offers much more flexibility over a "standard-product-only" roadmap by supporting changes ranging from branding, cost optimization, mechanical changes as well as the integration of a customer's proprietary IP. It allows also us to deliver VPX products uniquely tailored to meet customer needs without sacrificing the economy of scale offered by standard off-the-shelf. If your product is unique and you need full ODM design support, our VPX team is also ready to help.

Long Life Cycle

Advantech VPX products are designed with industrial lifecycles in mind and as such make exclusive use of embedded Intel® Architecture chipsets and processors. This ensures five-year availability of the most critical parts from Intel®. Ownership of our own production facilities gives us to better control over resources during the phase-in of new products and phase-out of older products that have reached end-of-life (EOL). This gives our customers an advantage when we schedule the production of large, last-time-buy orders. This typically allows lifecycles of 7 years or more depending on negotiated last time contracts.

Selection Guide




Model		MIC-6311	MIC-6313	MIC-6314	MIC-6330
Form Factor		6U			3U
Processor System	CPU	4th Generation Intel® Core™ processor	4th/ 5th Generation Intel® Core™ processor	4th/ 5th Generation Intel® Core™ processor	Intel® E3-1505 Lv5
	Chipset	Intel® QM87 PCH			Intel® CM236 PCH
Memory	Technology	Onboard and SO-DIMM DDR3-1600 with ECC	Onboard and SO-DIMM DDR3L-1600,ECC	Onboard and SO-DIMM DDR3L-1600,ECC	Onboard DDR4-2133,ECC
	Max. Capacity	16GB	16GB	16GB	16GB
VPX Interface	P1	2x SRIO Gen2 x4	4x SRIO Gen2 x4	2 x PCIE Gen3 x 8 (1 port NT Capable)	1x PCIE Gen 3 x8; 1 x USB 3.0; 2 x USB 2.0; 2x 10/100/1000BaseT+ 2x 1000BaseBX
	P2	2x PCIe Gen3 x8 (1 port NT Capable)			2x SATA-III; DPx1; 2x USB 2.0; 2x UART TTL; 1 x HAD; (2nd DisplayPort, 3rd, 4th UART) or X8D option
	P3	64s PMC IO	–		
	P4	12d XMC IO; 2x 10/100/1000BT or 2x SerDes (on request) from I350	8d+12d XMC IO; 2x 10/100/1000BT (alternative of SerDes) from I350		–
	P5	2x USB3.0; 2x USB 2.0; 3x SATA-III; DisplayPort x2; UART(2x); Audio; KB/Mouse from SIO	2x USB3.0; 2x USB 2.0; 3x SATA-III; DVI x2; 2x UART(RS-232/422/485 switchable)		–
	P6	–	2x 10/100/1000BT; Audio from ALC892; 2x USB 2.0; KB/Mouse from SIO; 1x SATA II		–
Front I/O	Display	1x VGA	1x DVI / 1x VGA		1x VGA
	USB3.0 (type A)	2x USB 3.0	2x USB 3.0		1x USB 3.0
	USB2.0 (type A)	1x USB2.0	1x USB2.0		–
	LAN (RJ45)	2 x RJ-45 10/100/1000BASE-T			1x RJ-45 10/100/1000BASE-T
	COM (RJ45)	1 RS-232	1 RS-232		–
	COM (DB9)	–			
	Front Panel LEDs	HDD/Hot Swap LED (yellow/blue) HDD (yellow) Power LED (green) BMC LED (green)			Hot Swap LED (blue) HDD (yellow) Power LED (green) BMC LED (green)
	Others	BMC Reset Button Platform Reset Button			
RTM interface	USB3.0	2	2		1
	USB2.0	2	5	4	4*
	COM	2x UART	2x UART		4*
	LAN	2x 10/100/1000BT or 2x SerDes (on request) from I350	4x 10/100/1000BT , 2x SerDes (on request,MUX with 1G Base-T)		2 x 10/100/1000BT + 2x BX
	SATA 2.0	–	1x SATA-II		–
	SATA 3.0	3x SATA-III	3x SATA-III		2
	PCIe	2x PCIex8	2x PCIE gen3 x 8		1x PCIE gen3 x 8
	Others	DisplayPort x2; Audio; KB/Mouse from SIO	DVI x2; Audio; KB/Mouse from SIO		HDA; Displayportx 2*
Storage	Mode	SATA	SATA	SATA	SATA
	2.5 HDD/SSD	SATA-III	–	SATA-III on daughter board	–
	CFast	SATA-II	SATA-III	–	–
	onboard flash	SATA-III interface w/ 8G	SATA-III interface w/ 64G		
	other channel	–	M.2 w/ PCIE Gen2 x 2		–
XMC/PMC Socket	PCIe x8	Gen3 (8GT/s)			
	PCI	64-bit/133 MHz	–		
BMC	Controller	optional, NXP LPC1768	NXP LPC1768		Aspeed AST1010
Operating System	Compatibility	Windows 7, Fedora 17 and Red Hat Enterprise Linux,VxWorks6.x	Windows 7, and Red Hat Enterprise Linux,VxWorks6.x	Windows 7 VxWorks 6.9* Linux (kernel > 3.10*)	Windows 7 Windows 10 Linux
Power Consumption	TDP	66.3W total power envelope with 47W CPU 56.3W total power envelope with 37W CPU (on request)	117 W total power envelope with 47W CPU 91W with 25W CPU	59 W total power envelope with 47W CPU	45W total power envelope with 25W CPU
Physical Characteristics	Dimensions (W x D)	4HP, 233.35 x 160 mm (9.2" x 6.3")			5HP, 160 x 100 mm (6.3" x 3.9")
Environment	Operating Temperature	Grade 1: 0 ~ 55°C Grade 2: -25 ~ 70 °C (on request)	Grade 1: 0 ~ 55°C Grade 2: -25 ~ 70 °C Grade 3: -40 ~ 85°C (on request)		
	non-operating temperature	-40 ~ 85° C (-40~ 185° F)	-55 ~ 105° C (-67~ 221° F)		
	Humidity	Operating:95% @ 40° C, non-condensing Non-operating:95% @ 60° C, non-condensing			
	Vibration	Operating:3.5Grms (without onboard HDD)	VITA47, V2 (ruggedized convection cooled SKU with the on-board flash only) 0.008 g^2/Hz, 2 Grms, 5-500Hz (convection cooled)		
	Shock	20 G (without on-board 2.5 SATA HDD)	VITA 47, OS2 (40G, ruggedized convection cooled with onboard flash only)		
	Altitude	4,000 m above sea level	50,000ft @ -40° C above sea level		
Regulatory	Conformance	Safety:FCC class A, CE, RoHS EMC:FCC47 CFR Part15, Class A, CE Mark (EN55022/EN55024/EN300386)			
Compliance	Standards	OpenVPX (VITA 65), REDI (VITA 48), IPMI 2.0			
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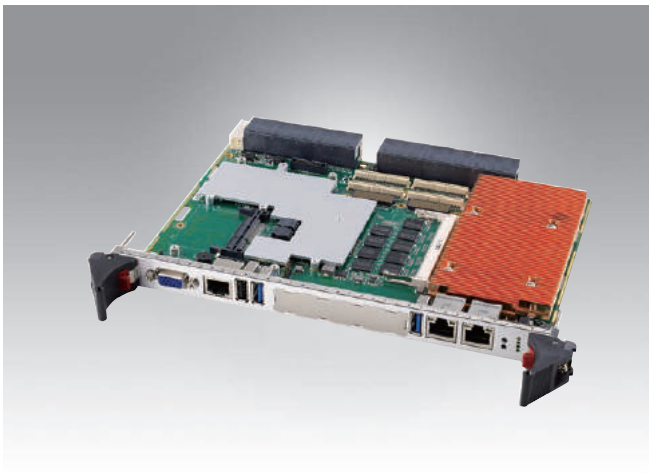
MIC-6311

OpenVPX CPU Blade with 4th Generation Intel® Core™ Processor



Features

- 4th Generation Intel® Core™ processor up to 4 cores / 8 threads
- Intel® QM87 PCH
- Triple independent display support
- OpenVPX MOD6-PAY-4F1Q2U2T-12.2.1-2 profile compliant
- Onboard and SO-DIMM DDR3-1600 up to 16GB with ECC support
- Two SRIOx4 ports and two PCIex8 ports on Fabric interface
- Two 1000BASE-T ports on Base interface
- Two 1000BASE-T front panel ports
- One CFast / one 2.5" SSD storage Device

OpenVPX™ VITA Open Standards, Open Markets RoHS COMPLIANT 2002/95/EC

Introduction

Advantech's MIC-6311 is a single processor VPX blade based on the 4th generation Intel® Core™ i3/i5/i7 platform. It enables the highest performance available in 6U VPX form factor with two SRIOx4 ports in the VPX data plane and two PCI Express x8 gen. 3 lanes in the VPX expansion plane for workstation and compute intense applications. The two Serial RapidIO ports offer the possibility to interface the MIC-6311 to digital front ends such as DSP and FPGA cards via a high speed, low latency deterministic interconnect. In addition, PCI Express ports with up to 8GB/s throughput offer a high performance interface to mainstream peripherals and IO cards. With a SO-DIMM socket and additional soldered, onboard DRAM with ECC in a dual channel design running up to 1600MT/s, the MIC-6311 offers the ability to fit harsh environments while maintaining maximum memory throughput and supporting memory expansion using the latest SO DIMM technology. Moreover, the 4th generation Intel® Core™ processors offer increased cache size and efficiency as well as instruction set improvements which make the MIC-6311 a high performance compute engine with outstanding floating point and vector processing performance.

Tailored for rugged environments, MIC-6311 has been designed to support ruggedized convection cooled heat sinks. Additionally, it implements an onboard soldered, industrial SSD for maximum reliability. By using the latest powerful PCH (Lynx Point) from Intel®, with its advanced SATA controller advanced storage options are supported such as a 2.5" SATA III HDD/SSD socket offering high storage capacity with up to 6Gbps transfer speed. A CFast socket provides an alternative for implementing a cost efficient, pluggable SSD. An onboard XMC/PMC site with PCIe x8 gen.3 connectivity can host high speed offload or I/O mezzanines. Two USB 3.0 ports in front panel can connect to the external devices with up to 5Gbps data rate. Network and remote connectivity can be achieved via a RS232 console (RJ45) and two GbE RJ45 ports, powered by Intel®'s latest Gigabit Ethernet Controiller, the i350.

The processor's integrated enhanced graphics engine Iris offers up to 2x the graphic performance compared to previous generation solutions. Triple independent display support can be implemented by using the MIC-6311's VGA front panel port and two Display port / HDMI interfaces on rear transition modules. Audio port support via the backplane interface enhances media support. Three SATA ports (SATAIII) and four USB ports (2x USB 3.0, 2x USB 3.0) are also connected to backplane to fulfill the demand for extra IO ports or storage. Two GbE/ SERDES ports support system level IP connectivity and two UART interfaces can be leveraged to interface to legacy devices and consoles.

Specifications

Processor System	CPU	4 th Generation Intel® Core™ i3/i5/i7 mobile processors up to 2.4 GHz (6MB L2 cache)
	Max. Speed	2.4 GHz
	Chipset	Intel® QM87
	BIOS	Redundant AMI UEFI based 8MByte SPI flash
Memory	Technology	Dual channel DDR3 1600MHz w/ ECC
	Max. Capacity	Configurable up to 16GB
	Socket	1 bank soldered onboard, 1x 204-pin SODIMM
VPX Interface	P1	2x SRIOx4 Gen2
	P2	2x PCIex8 (1 port NT Capable)
	P3	64s PMC IO
	P4	12d XMC IO; 2x 10/100/1000BT or 2x SerDes (on request) from I350
	P5	2x USB3.0; 2x USB 2.0; 3x SATA-III; DisplayPort x2; UART(2x); Audio; KB/Mouse from SIO
Graphics	Controller	Intel® embedded graphic controller Iris (3 independent displays)
Ethernet	Controller	Intel® I350-AM4 Quad Port Gigabit Ethernet Controller
Front I/O Interface	Serial (COM)	1 RS-232 on RJ-45 connector
	Ethernet	2 x RJ-45 10/100/1000BASE-T
	USB	2x USB 3.0, 1x USB2.0
	Miscellaneous	XMC/PMC, VGA
Operating System	Compatibility	Linux; Windows7; VxWorks6.x (on request)

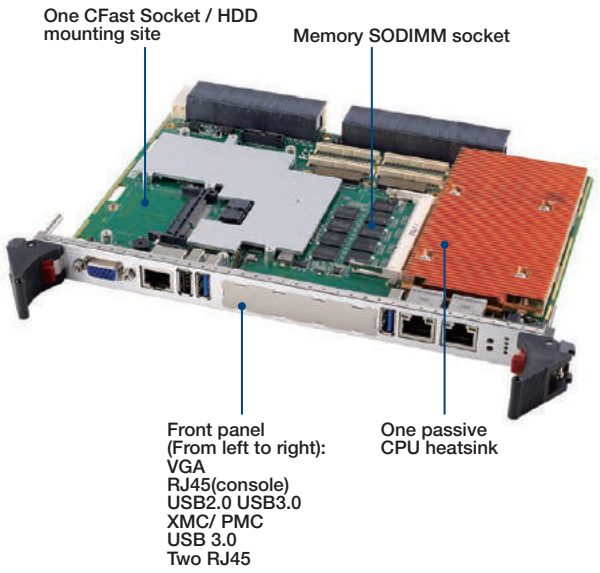
Specifications (Cont.)

Storage	2.5" SSD/SATA	SATA III	
	CFast	SATA II	
	Onboard Flash	8G	
Power Requirement	Consumption	56.3W total power envelope with 37W CPU (on request)	
		66.3W total power envelope with 47W CPU	
Physical Characteristics	PCB Dimensions	4HP, 160.00 x 233.35 mm (6.30" x 9.19") (W x D)	
	Weight	0.95kg without peripherals	
Environment		Operating	Non-operating
	Temperature	Grade 1: 0 ~ 55°C Grade 2: -25 ~ 70 °C (on request)	-40 ~ 85 °C
	Humidity	95% @ 40° C, non-condensing	95% @ 60° C, non-condensing
	Bump		25G, 6ms
	Vibration (5 ~ 500 Hz)	3.5Grms (without onboard HDD)	
Compliance	Altitude	15,000ft, 55° C above sea level	40,000ft, -40° C above sea level
	VPX	OpenVPX (VITA 65)	
	Safety	FCC class A, CE, RoHS	
	EMC	FCC47 CFR Part15, Class A, CE Mark (EN55022/EN55024/EN300386)	

Note: 1. CFast and 2.5" SSD are mutually exclusive.

Ordering Information

System Board Model Number	Front Panel						Main On-board Features					
	VGA	USB3.0 (type A)	USB2.0 (type A)	Ethernet (RJ-45)	Console (RJ-45)	XMC / PMC	CPU	Onboard Memory	CFast Socket	Storage Channel	SODIMM Socket	BMC
MIC-6311-A1I8E	1	2	1	2	1	1	i7-4700QE	8GB	1	1 SATA-III	1	No
MIC-6311-B1I8E	1	2	1	2	1	1	i5-4402E	8GB	1	1 SATA-III	1	No
MIC-6311-B2C8E	-	-	-	-	-	-	i5-4402E	8GB	1	-	-	Yes



MIC-6313

OpenVPX CPU Blade with 4th/ 5th Generation Intel® Core™ Processor

Features

- 4th/ 5th Generation Intel® Core™ processor, up to 4 cores / 8 threads
- Intel® QM87 PCH
- Triple independent display support
- OpenVPX MOD6-PAY-4F1Q2U2T-12.2.1-2 profile compliant
- Onboard and SO-DIMM DDR3L-1600, up to 16 GB, with ECC support
- Four SRIOx4 ports and two PCIex8 ports on Fabric interface
- Four 1000BASE-T ports on Base interface (two configurable to SERDES)
- Two 1000BASE-T front panel ports
- One CFast and one onboard flash storage device

Introduction

The MIC-6313 is Advantech's next generation single processor 6U VPX blade, based on the 4th/ 5th Generation Intel® Core™ and Intel® Xeon® Processor E3 Lv4 embedded platform. To enable the highest performance available in the 6U VPX form factor for workstation and compute intense applications, the four Serial RapidIO ports in the VPX data plane offer high speed up to 5Gb/s, low latency, scalable, error recoverable deterministic interconnectivity to digital front ends such as DSP and FPGA cards. In addition, two PCI Express ports x8 lanes in the VPX expansion plane, with up to PCI Express gen. 2 (5Gb/s) throughput offer a high performance interface to mainstream peripherals and I/O cards. With a SO-DIMM socket and additional soldered, onboard DRAM with ECC in a dual channel design running up to 1600MT/s, the MIC-6313 can be integrated into various harsh environments while maintaining maximum memory throughput, and supports memory expansion by using the latest SO-DIMM technology simultaneously. In addition, the 4th/ 5th generation Intel® Core™ and Xeon® E3 Lv4 embedded processors offer increased cache size and efficiency, as well as instruction set improvements, which make the MIC-6313 a high performance compute engine with outstanding floating point and vector processing performance.

Tailored for harsh environments, the MIC-6313 has a native ruggedized convection cooled heat sink adaptable to various chassis environments; with the alternative optional air cooled heat sink, additional I/O is provided on the front panel. An onboard soldered, industrial SSD is included for maximum reliability, and a CFast/ SSD socket is also available for a cost-efficient, modular storage. By using Intel®'s powerful PCH (Lynx Point) with its advanced SATA controller, the MIC-6313 offers high storage capacity at up to 6Gbps transfer speed. An onboard XMC site with PCIe x8 gen.3 connectivity can host high speed offload or I/O mezzanines. Two USB 3.0 ports on the front panel can connect to external devices with up to 5Gbps data rate. Network and remote connectivity can be achieved via a RS-232 console (RJ-45) and two GbE RJ-45 ports, powered by Intel®'s latest Gigabit Ethernet controller.

The next generation graphics engine Intel® Iris Pro offers up to 2x the graphic performance compared to previous generation solutions. Triple independent display support can be implemented by using the MIC-6313's DVI front panel port and two DVI interfaces on rear transition modules. Audio is powered by a ALC892 controller via the backplane interface, and provides media support. Four SATA ports (SATAIII) and four USB ports (2x USB 3.0, 2x USB 3.0) are also connected to the backplane to fulfill the demand for extra IO ports or storage. Four GbE ports (two SERDES selectable) support system level IP connectivity, and four UART interfaces (RS232/422/485 selectable) can be leveraged to interface to legacy devices and consoles.

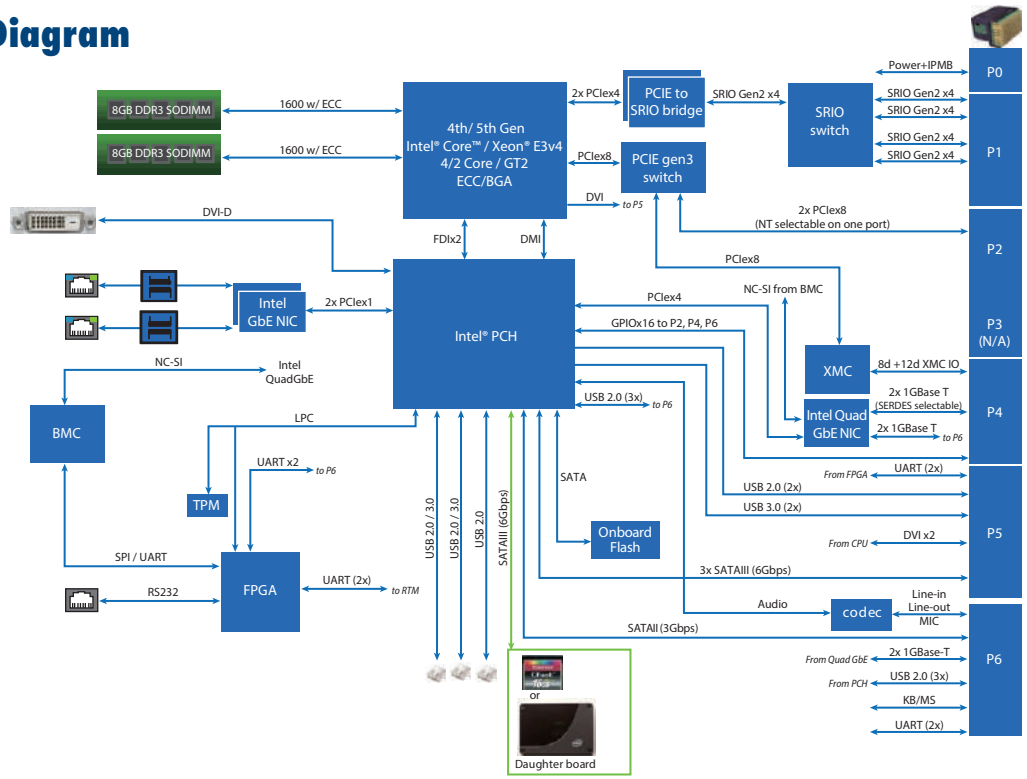
Specifications

Processor System	CPU	Intel® Xeon® Processor E3-1278L/i5-4402E*
	Max. Speed	3.3 GHz
	Chipset	Intel® Lynx Point (QM87)
	BIOS	Redundant AMI UEFI based 8MByte SPI flash
Memory	Technology	Dual channel DDR3L 1600MHz w/ ECC
	Max. Capacity	Configurable up to 16GB
	Socket	8GB memory soldered onboard, 1x 204-pin SODIMM socket max. to 8GB
VPX Interface	P1	4x SRIOx4 Gen2
	P2	2x PCIex8 (1 port NT Capable)
	P4	8d+12d XMC IO;, 2x 10/100/1000BT (alternative of SerDes) from I350
	P5	2x USB3.0; 2x USB 2.0; 3x SATA-III; DVI x2; 2x UART(RS-232/422/485 switchable)
	P6	2x 10/100/1000BT; Audio from ALC892; 2x USB 2.0; KB/Mouse from SIO;1x SATA II
Graphics	Controller	Intel® embedded graphic controller Iris (3 independent displays)
Ethernet	Controller	Intel® I350-AM4 Quad Port Gigabit Ethernet Controller to backplane; 2x I210 to front panel
Front I/O Interface	Serial (COM)	1 RS-232 on RJ-45 connector,
	Ethernet	2 x RJ-45 10/100/1000BASE-T
	USB	2x USB 3.0, 1x USB2.0
	Miscellaneous	XMC, DVI
Operating System	Compatibility	Linux; Windows7
Storage	CFast	SATA III
	Onboard Flash	64G SATA
Power Requirement	Consumption	117 W total power envelope with 47W CPU 91W with 25W CPU
Physical Characteristics	PCB Dimensions	4HP, 233.35 x 160 mm (9.2" x 6.3") (W x D)
	Weight	0.95kg without peripherals

Specifications (Cont.)

		Operating (with 30 CFM airflow)	Non-operating
Environment	Temperature	-40 ~ 70° C	-40 ~ 85° C
	Humidity	95% @ 40° C, non-condensing	95% @ 60° C, non-condensing
	Shock	VITA 47, OS2 VITA 47, OS1 (ruggedized convection cooled)	
	Vibration	VITA 47, V2 (ruggedized convection cooled) 0.008 g²/Hz, 2 Grms, 5-500Hz (convection cooled)	
	Altitude	50,000ft @ -40° C above sea level	
Compliance	VPX	OpenVPX (VITA 65), REDI (VITA 48), IPMI 2.0	
	Safety	FCC class A, CE, RoHS	
	EMC	FCC47 CFR Part15, Class A, CE Mark (EN55022/EN55024/EN300386)	

Block Diagram



	Front Panel				Main On-board Features					
Part Number	**Display**	**USB**	**Ethernet (RJ45)**	**Console (RJ45)**	**CPU**	**Onboard Memory**	**Onboard Flash**	**External storage**	**SODIMM Socket**	**IPMI management**
MIC-6313-A1A4E	DVI x1	2.0x1; 3.0x2	2	1	E3-1278Lv4	8GB	64GB	CFast Socket	Yes	Yes
MIC-6313-B1C4E	VGA x1	3.0x2	0	0	i5-4402E	8GB	64GB	CFast Socket	No	Yes

Ordering Information**

Model number	Configuration
MIC-6313-A1A4E	MIC-6313 with E3-12x8Lv4, Air-cooled heat sink, 64G onboard flash
MIC-6313-B1C4E	MIC-6313 with i5-4402E, ruggedized convection cooled heat sink, 64G onboard flash

*: For the other Intel® 4th/5th generation Core family CPU availability, please contact your local sales office.

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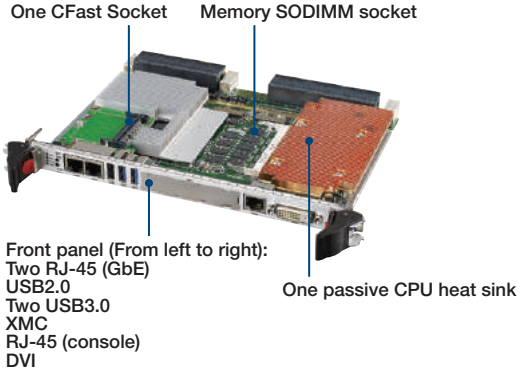
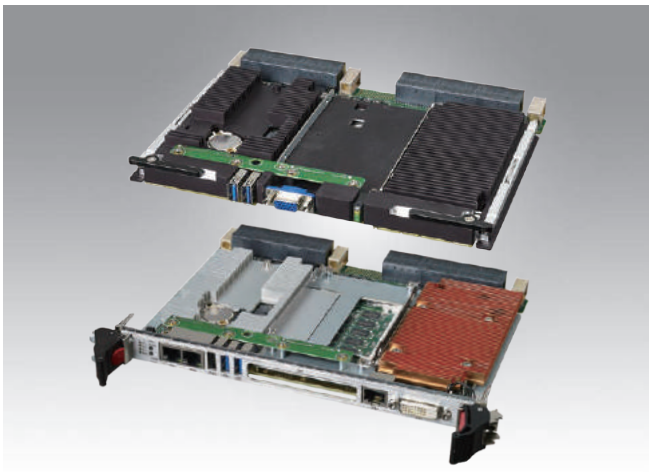


MIC-6314

OpenVPX CPU Blade with 4th/ 5th Generation Intel® Core™ Processor



Features

- 4th/ 5th Generation Intel® Core™ processor, up to 4 cores / 8 threads
- Intel® QM87 PCH
- Triple independent display support
- OpenVPX MOD6-PAY-4F1Q2U2T-12.2.1-2 profile compliant
- Onboard and SO-DIMM DDR3L-1600, up to 16 GB, with ECC support
- TwoPCIEx8 ports on the data plane and two PCIex8 ports on the extension plane
- Four 1000BASE-T ports on Base interface (two configurable to SERDES)
- Two 1000BASE-T front panel ports
- One SSD and one onboard flash storage device

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Introduction

The MIC-6314 is Advantech's next generation single processor 6U VPX blade, based on the 4th/ 5th Generation Intel® Core™ embedded platform with increased cache size and efficiency, as well as instruction set improvements. The MIC-6314 provides two configurable PCIE x 8 ports in the VPX data plane and two PCI Express ports x8 lanes in the VPX expansion plane to enable the highest performance available in the 6U VPX form factor compute intense applications. These PCIE interfaces offer high speed up to PCIE gen. 2 (5Gb/s) throughput, low latency, scalable, error recoverable deterministic interconnectivity to the mainstream peripherals and I/O cards such as DSP and FPGA cards. The PCIE widths and ports on the data plane and the extension plane of MIC-6314 is user configurable, which make MIC-6314 capable to replace the PCIE switch blade in a small system.

With a SO-DIMM socket and additional soldered, onboard DRAM with ECC in a dual channel design running up to 1600MT/s, the MIC-6314 can be integrated into various harsh environments while maintaining maximum memory throughput, and supports memory expansion by using the latest SO-DIMM technology simultaneously.

Tailored for harsh environments, the MIC-6314 has a native ruggedized convection cooled heat sink adaptable to various chassis environments; with the alternated optional air cooled heat sink, additional I/O is provided on the front panel. An onboard soldered, industrial SSD is included for maximum reliability, and a SSD socket is also available for a cost-efficient, modular storage. By using Intel®'s powerful PCH (Lynx Point) with its advanced SATA controller, the MIC-6314 offers high storage capacity at up to 6Gbps transfer speed. An onboard XMC site with PCIe x8 gen.3 connectivity can host high speed offload or I/O mezzanines. Two USB 3.0 ports on the front panel can connect to external devices with up to 5Gbps data rate. Network and remote connectivity can be achieved via a RS-232 console (RJ-45) and two GbE RJ-45 ports, powered by Intel®'s latest Gigabit Ethernet controller.

The Intel® next generation graphics engine Iris Pro offers up to 2x the graphic performance compared to previous generation solutions. Triple independent display support can be implemented by using VGA and 2 DVI ports on MIC6314. Audio is powered by a ALC892 controller via the backplane interface, and provides media support. A PCIEinterface is reserved for the optional M.2 high speed storage.Besides the modern M.2 storage, three SATA III one SATA II and four USB ports (2x USB 3.0, 2x USB 3.0) are also connected to the backplane to fulfill the demand for extra IO ports or storage. Four GbE ports (two SERDES selectable) support system level IP connectivity, and four UART interfaces (RS232/422/485 selectable) can be leveraged to interface to legacy devices and consoles.

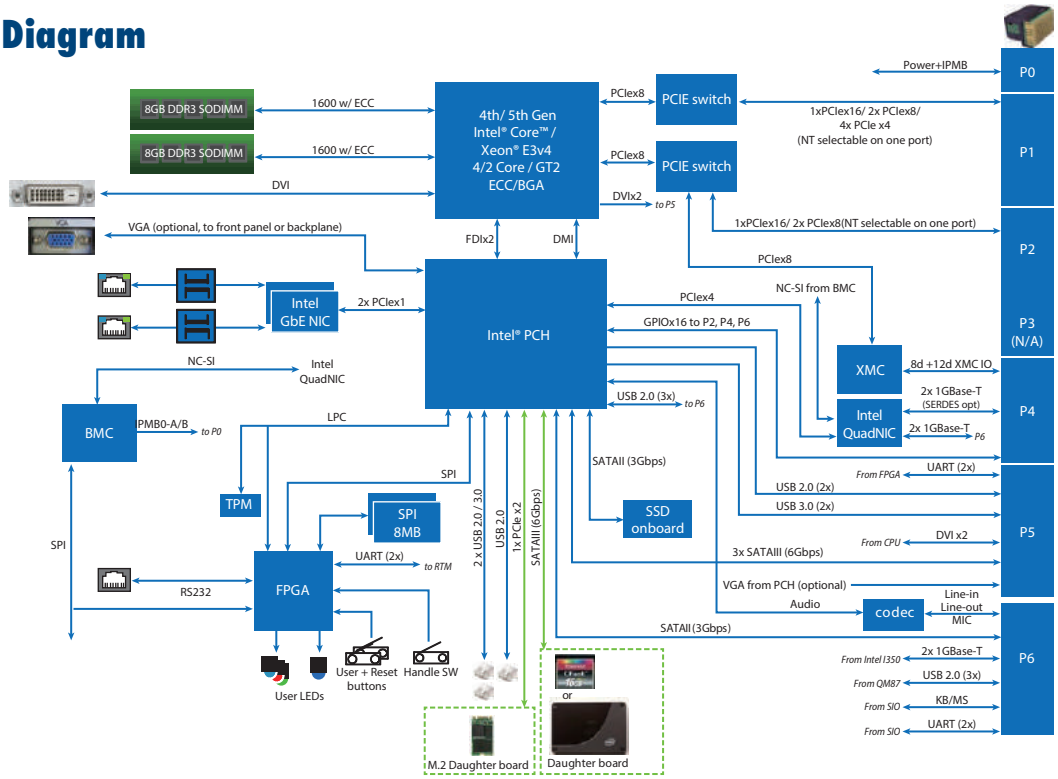
Specifications

Processor System	CPU	Intel® Core™ I7-5850EQ/i5-4402E*
	Max. Speed	3.4 GHz
	Chipset	Intel® QM87
	BIOS	Redundant AMI UEFI based 8MByte SPI flash
Memory	Technology	Dual channel DDR3L 1600MHz w/ ECC
	Max. Capacity	Configurable up to 16GB
	Socket	8GB memory soldered onboard, 1x 204-pin SODIMM socket max. to 8GB
VPX Interface	P1	2x PCIEx8 Gen2 configurable to 1 x 16 or 4 x 4
	P2	2x PCIex8 (1 port NT Capable)
	P4	8d+12d XMC IO;, 2x 10/100/1000BT (alternative of SerDes) from I350
	P5	2x USB3.0; 2x USB 2.0; 3x SATA-III; DVI x2; 2x UART(RS-232/422/485 switchable)
	P6	2x 10/100/1000BT; Audio from ALC892; 2x USB 2.0; KB/Mouse from SIO;1x SATA II
Graphics	Controller	Intel® Iris™ Pro Graphics 6200 (3 independent displays)
Ethernet	Controller	Intel® I350-AM4 Quad Port Gigabit Ethernet Controller to backplane; 2x I210 to front panel
Front I/O Interface	Serial (COM)	1 RS-232 on RJ-45 connector,
	Ethernet	2 x RJ-45 10/100/1000BASE-T
	USB	2x USB 3.0, 1x USB2.0
	Miscellaneous	XMC, DVI
Operating System	Compatibility	Linux; Windows7
Storage	Onboard Flash	64G SATA
Power Requirement	Consumption	59 W total power envelope with 47W CPU
Physical Characteristics	PCB Dimensions	4HP, 233.35 x 160 mm (9.2" x 6.3") (W x D)
	Weight	0.95kg without peripherals

Specifications (Cont.)

Environment		Operating (with 30 CFM airflow)	Non-operating
	Temperature	-40 ~ 70° C	-50 ~ 100° C
	Humidity	95% @ 40° C, non-condensing	95% @ 60° C, non-condensing
	Shock	VITA 47, OS2 VITA 47, OS1 (ruggedized convection cooled)	
	Vibration	VITA 47, V2 (ruggedized convection cooled) 0.008 g²/Hz, 2 Grms, 5-500Hz (convection cooled)	
	Altitude	50,000ft @ -40° C above sea level	
Compliance	VPX	OpenVPX (VITA 65), REDI (VITA 48), IPMI 2.0	
	Safety	FCC class A, CE, RoHS	
	EMC	FCC47 CFR Part15, Class A, CE Mark (EN55022/EN55024/EN300386)	

Block Diagram

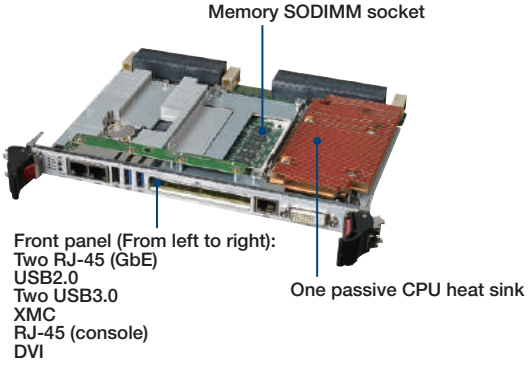


	Front Panel				Main On-board Features					
Part Number	Display	USB	Ethernet (RJ45)	Console (RJ45)	CPU	Onboard Memory	Onboard Flash	External storage	SODIMM Socket	XMC site
MIC-6314-A1A4E	DVI x1	2.0x1; 3.0x2	2	1	I7-5850EQ	8GB	64GB	SSD site	Yes	No
MIC-6314-A2A4E (POR)*	DVI x1	2.0x1; 3.0x2	2	1	I7-5850EQ	8GB	64GB	M.2 site	Yes	Yes
MIC-6314-B1C4E	VGA x1	3.0x2	0	0	i5-4402E	8GB	64GB	SSD site	No	No

Ordering Information**

Model number	Configuration
MIC-6314-A1A4E	MIC-6314 with I7-5850EQ, convection heat sink, SSD site
MIC-6314-A2A4E	MIC-6314 with I7-5850EQ, convection heat sink, XMC & M.2 site
MIC-6314-B1C4E	MIC-6314 with i5-4402E, ruggedized convection cooled heat sink, SSD site

*: For the other Intel® 4th/5th generation Core family CPU availability, please contact your local sales office.



MIC-6330

3U OpenVPX CPU Blade with Intel® Xeon® Processor E3v5 and 6th Generation Intel® Core™ Processor

Features

- Intel® Xeon® E3v5 and 6th Generation Intel® Core™ Processor
- Intel® CM236 PCH
- Multiple display support
- OpenVPX MOD3-PAY-2F2U-16.2.3-3 profile compliant
- Onboard 16GB DDR4-2133 with ECC support
- Configurable PCIE x8 ports on Data Plane
- Two 1000Base-BX ports on Control Plane
- Optional I/O module for front panel access
- Onboard flash storage device

Introduction

Based on the 6th Generation Intel® Core™ and Xeon® E3 L v5 embedded platform, the MIC-6330 builds on the success of Advantech's 6U VPX boards, and is the first 3U VPX product launched by Advantech. Together with the Intel® processor, the MIC-6330 offers intense computational ability in a very compact form factor. The MIC-6330 provides configurable connectivity (up to four ports) of PCI Express via the backplane to the highest performance mainstream peripherals and I/O cards, and vast I/O functions for extended interconnectivity and controllability.

The MIC-6330 meets various computing needs, including vPro™ and workstation capabilities, by using the Intel® CM236 PCH. The MIC-6330 offers high storage capacity at up to SATA 6Gbps transfer speed. Four USB2.0 ports and one USB 3.0 port to the backplane fulfill requirements for extra I/O ports or storage, up to 5Gbps data rate. Four GbE ports (two ports configurable as SERDES) support system level IP connectivity, and the UART interfaces (RS-232/422/485 selectable) can be leveraged as an interface to legacy devices and consoles. Like Advantech's 6U VPX products, the MIC-6330 supports multiple displays, and the maximum resolution of the MIC-6330 is 4K, empowered by the Intel® integrated graphics engine. The MIC-6330 also offers a High Definition Audio to the backplane interface for media demands.

With the standard ruggedized convection cooled heatsink or the optional air-cooled heatsink, the MIC-6330 is tailored for harsh environmental applications and adaptable to various chassis designs. The industrial NAND Flash, and the soldered onboard DDR4 ECC memory chips are appropriate for a variety of vehicle applications for the maximum reliability.

The MIC-6330 is sophisticated and suitable for various purposes. An onboard X8D XMC site with PCIE x8 gen.3 connectivity can host high speed offload or I/O mezzanines for project-specific applications. For applications that need the maximum expandability, the XMC interface can be modified to add another DisplayPort and the 2 more UART. The optional front I/O module facilitates the development and qualification process, and also enables the possibility of the front panel access.

Specifications

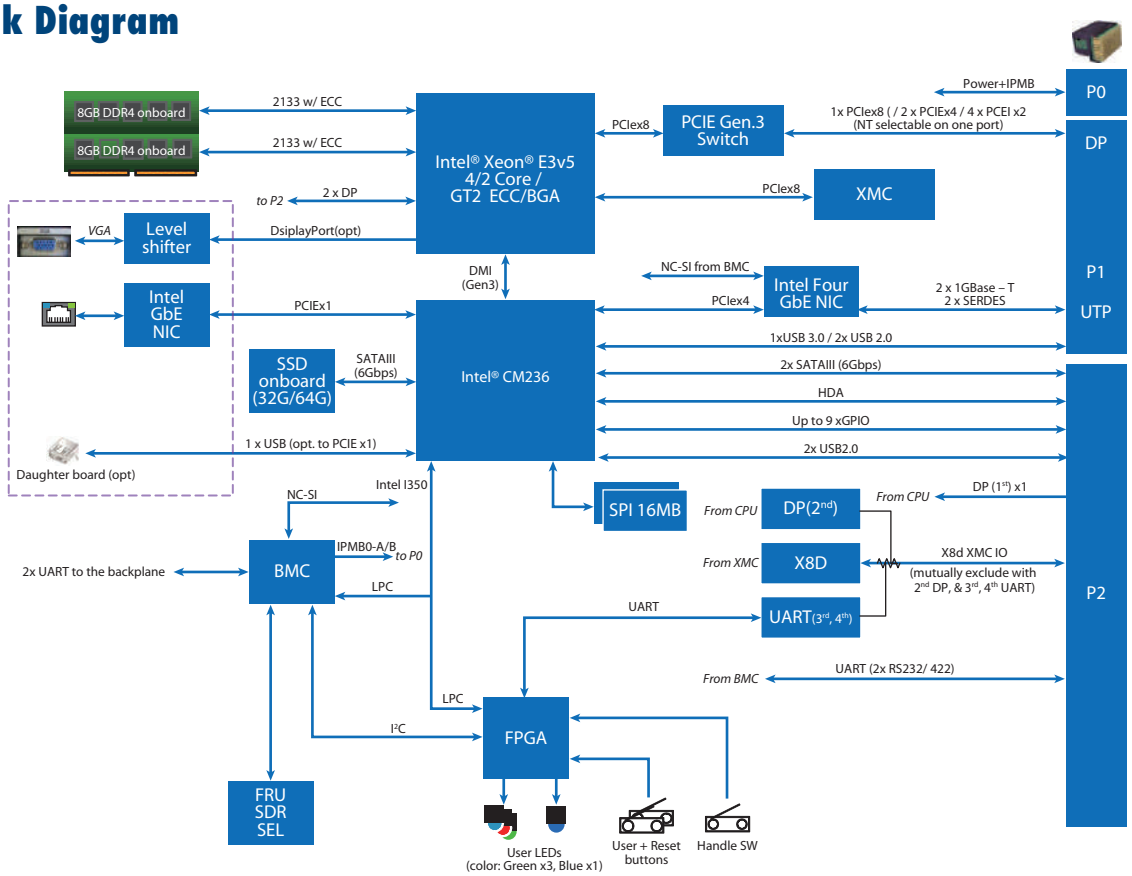
Processor System	CPU	Intel® E3-1505L v5
	Max. Speed	2.8 GHz
	Chipset	Intel® CM236
	BIOS	Redundant AMI UEFI based 16MByte SPI flash
Memory	Technology	Dual bank DDR4 2133MHz w/ ECC
	Capacity	16GB
VPX Interface	P1	1x PCIE x8 (NT Capable, configurable to 2 x PCIE x 4 or 4x PCIE x 2 from Gen.3 switch); 1 x USB 3.0; 2 x USB 2.0
		2x 10/100/1000Base-T; 2x 1000Base-BX
	P2	2x SATA-III; DPx1; 2x USB 2.0; 2x UART (mode selectable via FPGA setting); 1 x HDA
	Option 1	2nd DisplayPort, 3rd, 4th UART
	Option 2	X8D
Graphics	Controller	Intel® HD Graphics P530
Ethernet	Controller	Intel® i350-AM4 Quad Port Gigabit Ethernet Controller to backplane
		Intel® i210AT Single Port Gigabit Ethernet Controller to front panel
Front panel I/O module	Ethernet	1 x RJ-45 10/100/1000BASE-T
	USB	1x USB 2.0/3.0
	Display	VGA
Operating System	Compatibility	Linux (with the kernel 3.10 or above); Windows10, Windows 7*
Storage	Onboard Flash	64 GB SATA
Power Requirement	Consumption	45W total power envelope with 25W CPU
Physical Characteristics	Dimensions	160.00 x 100.00 mm (6.3" x 3. 95") (W x D), 5HP (H)
	Weight	0.54 kg without peripherals

Specifications (Cont.)

Environment (POR)		Operating (with TBD CFM airflow)	Non-operating
	Temperature	-40 – 70 °C (POR)	-40 – 105 °C (POR)
	Humidity	95%@40°C, non-condensing	95%@60°C, non-condensing
	Operation Shock	VITA 47, OS2	
	Vibration	VITA 47, V3	
	Altitude	50,00ft above sea level	60,000ft, -40°C above sea level
Compliance	VPX	OpenVPX (VITA 65), REDI (VITA 46.2)	
	Safety	FCC class A, CE, RoHS	
	EMC	FCC47 CFR Part15, Class A, CE Mark (EN55022/EN55024/EN300386)	

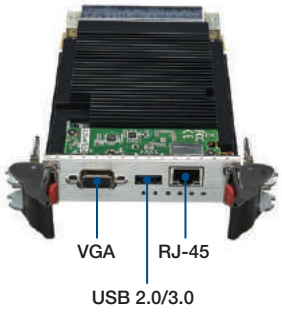
*Will need to patch the proper driver

Block Diagram



Ordering Information

Model number	Configuration
MIC-6330-A1A4E	MIC-6330 with Intel® 64GB onboard flash, front I/O module
MIC-6330-A1C4E	MIC-6330 with Intel® 64GB onboard flash



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Video Processing & IP Media Platforms

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Video Processing & IP Media

Advantech's Video Solutions Division develops broadcast quality, scalable video platforms for the top OEMs in the media industry. From ultra-light modules that can be embedded into portable cameras to high-density architectures for cloud media services, our VEGA video platforms provide an easy-to-use software framework supported by our software engineering team that simplifies their integration into your next generation video products.

Unrivaled HEVC Performance

The new HEVC standard can bring many benefits to the media industry, reducing bit rates by 50% in average when compared to an equivalent quality stream encoded using AVC, but these improvements are achieved at the penalty of much higher computation complexity. Advantech's ultra-low power VEGA platforms enable real-time HEVC processing at up to 20x less power consumption than a software-only solution helping OEMs successfully address the challenges of 4K/8K media processing in a cost-effective manner.

Choose Your Platform

Application-Ready Server

The VEGA-7000 is a highly configurable video server that combines best video and IT practices within an optimized density, power consumption, and functionality, off-the-shelf platform that has been designed to efficiently scale throughput of high-density encoding and transcoding applications in live broadcast, OTT or cloud workflows.

Compact All-in-One Appliance

The VEGA-6000 4K HEVC and IP encoder and decoder appliances target power and space contained scenarios such as outside broadcasting and remote contribution in live events coverage. The appliances are 1U high, less than 270mm deep, and two can fit side by side in a standard 19" rack.

Plug-and-Play PCI Express Accelerator

The VEGA-3300 Series of 4K/8K encoding, decoding and transcoding cards enable real-time UHD HEVC processing in an ultra-low-power PCI Express format. Driven by the convergence of IT and media technologies, these compact plug-in adapters accelerate the heavy-lifting part of the media workflow significantly improving density, costs and time-to-market of a wide range of live UHD video solutions.

Small Module for Portable Solutions

The VEGA-2000 Series of HEVC encoder modules enable UHD live streaming over mobile networks and can be embedded into different portable solutions from self-broadcasting devices to professional camera systems. Measuring only 90mm by 100mm, the modules still pack in SDI and HDMI interfaces for video capture, an SD Card slot for local file storage, and streaming outputs via Ethernet or using a USB dongle.

The Move to IP

The media industry is moving to an all-IP future, driven by both UltraHD and the universal flexibility that comes from an IP based infrastructure. IP differs from media-specific Serial Digital Interface (SDI) in many inherent aspects. Accurate synchronization, high availability or low latency are some of the video-critical features that need to be reproduced in the best-effort, connectionless IP world so as to guarantee media integrity.

Advantech accompanies customers on their migration to IP-based media by supporting a broad range of media interface options based on industry agreed standards such as SMPTE 2110, SMPTE 2022 and Sony IP Live. We work together with key partners through industry alliances such as AIMS or IP Live to help solve the technical and interoperability challenges of high-resolution IP video transport and unlock the full potential of an agnostic IP infrastructure able to support future resolutions and services.

Selection Guide

Model			VEGA-2000	VEGA-2001
Life Cycle			2020, Q4	2020, Q4
Platform			Module	Module
Video Inputs and Outputs	Channels (Max.)		1 (up to 1080p60)	1 (up to 4Kp60)/ 4 (up to 1080p60)
	Video formats	Resolution	1920x1080 / 1280x720 / 720x576 / 720x480	3840x2160 /1920x1080 / 1280x720
		Frame rate	60p / 59.94p / 50p / 30p / 29.97p / 25p / 24p	60p / 59.94p / 50p / 30p / 29.97p / 25p / 24p
	Chroma Sampling Format		4:2:2 / 4:2:0	4:2:2 / 4:2:0
	Bit Depth		8 bit	8 bit
	Input Interface		1x HDMI 1.4/ 1x SDI-3G	4 x SDI-3G or 1 x SDI-12G/ 1 x HDMI 2.0
		PCIe	–	–
	Output Interface		1x 1GbE ports / USB	1x 1GbE ports / USB
		PCIe	–	–
Video Coding	Video Encoding	Standard	H.265(HEVC)/H.264(AVC)	H.265(HEVC)/H.264(AVC)
		Bit Depth	8 bit	8 bit
		Chroma Subsampling	4:2:0	4:2:0
	Video Decoding	Standard	–	–
		Bit Depth	–	–
		Chroma Subsampling	–	–
VoIP	Connectivity		–	–
	Standard Supported		–	–
Audio	Channels (Max.)			
	Formats		AAC	AAC
	Sampling Frequenct		48K Hz	48K Hz
	Sampling Bit Depth		16 bit	16 bit
	Audio Connectors		Embedded from HDMI or SDI /Line-In	Embedded from HDMI or SDI /Line-In
Feature	Operation System		Standalone with Embedded Linux	Standalone with Embedded Linux
	Streaming Protocol		RTSP/RTMP/HLS/TS over IP	RTSP/RTMP/HLS/TS over IP
	Management & Control Interface		Remote Web GUI interface	Remote Web GUI interface
	Development Kits		–	–
Module/ Card/System Characteristic	System Processor		–	–
	System Memory		–	–
	Storage		Micro SD card	
	Local Video Output		--	1x HDMI 2.0
	Network Interface		1x GigE	1x GigE
	USB Port		1x USB 2.0	2x USB 2.0
Power	Power Input		DC 12V	DC 12V
	Power Consumption		<5W	<15W
Mechanical	Dimensions		Small form-factor (90 x 100 mm²)	90 x 100 x 16 mm
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VEGA-3000	VEGA-3001	VEGA-3002
2020, Q4	–	–
PCI Express Card	PCI Express Card	PCI Express Card
3 (up to 1080p60)	1 (up to 4Kp60)	1 (up to 4Kp60)/ 4 (up to 1080p60)
1920x1080 / 1280x720	3840x2160	3840x2160 /1920x1080 / 1280x720
60p / 59.94p / 50p / 30p / 29.97p / 25p / 24p	60p / 59.94p / 50p	60p / 59.94p / 50p / 30p / 29.97p / 25p / 24p
4:2:2	4:2:2	4:2:2 / 4:2:0
10bit	8 bit	8bit/10bit
3 x SDI-3G/ 10G Ethernet port	2x 10GbE	1 x SDI-12G/3G, 3 x SDI-3G / 2x 10GbE/ 1 x tri-sync
PCIe Gen2 x4	PCIe Gen2 x8	PCIe Gen2 x8
3 x SDI-3G/ 10G Ethernet port	2x 10GbE	1-ch 12G/3G-SDI, 3-ch 3G-SDI with tri-sync
PCIe Gen2 x4	PCIe Gen2 x8	PCIe Gen2 x8
–	–	–
–	–	–
–	–	–
–	–	–
–	–	–
–	–	–
1x 10GbE (SFP+ cages)	2x 10GbE (SFP+ cages)	2x 10GbE (SFP+ cages)
SMPTE 2022-5/6	Sony LLVC	ST 2022-5/6, ST 2022-7, ST 2059, TICO, TR-03/04
4	2	4
PCM	PCM	PCM
48K Hz	48K Hz	48K Hz
16 bit	24 bit	16 bit
Embedded from SDI	–	Embedded from SDI
Windows/ Linux	Windows/ Linux	Windows/ Linux
–	–	–
–	–	–
–	–	–
–	–	–
–	–	–
–	–	–
–	–	–
–	–	–
–	–	–
DC 12V	–	–
<15W	<19W	<30W
PCI Express Half Length Full Height 167.65 x 111.15 mm	PCI Express Half Length Full Height 167.65 x 111.15 mm	PCI Express Half Length Full Height 167.65 x 111.15 mm
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Selection Guide




Model			VEGA-3300	VEGA-3301	VEGA-3304	VEGA-3310
Life Cycle			–	–	2018, Q1	2020, Q4
Platform			PCI Express Card	PCI Express Card	PCI Express Card	PCI Express Card
Video Inputs and Outputs	Channels (Max.)		1 (up to 4Kp60)/ 4 (up to 1080p60)	1 (up to 4Kp60)/ 4 (up to 1080p60)	1 (up to 8Kp60) or 4 (up to 4Kp60) / 16 (up to 1080p60)	1 (up to 4Kp120) / 2 (Up to 4Kp60) / 8 (Up to 1080p60)
	Video formats	Resolution	3840x2160 /1920x1080 / 1280x720	3840x2160 /1920x1080 / 1280x720	7680x 4320 or 3840x2160 /1920x1080 / 1280x720 /720x480	3840x2160 /1920x1080 / 1280x720 /720x480
		Frame rate	60p / 59.94p / 50p / 30p / 29.97p / 25p / 24p	60p / 59.94p / 50p / 30p / 29.97p / 25p / 24p	60p / 59.94p / 50p / 30p / 29.97p / 25p / 24p	60p/59.94p/50p/30p/29.97p/ 25p/24p / 59.94i/50i
	Chroma Sampling Format		4:2:2 / 4:2:0	4:2:2 / 4:2:0	4:2:2 / 4:2:0	4:2:2 / 4:2:0
	Bit Depth		8bit/10bit	8bit/10bit	8bit/10bit	8bit/10bit
	Input Interface		–	1 x HDMI 2.0/ 1 x Display Port 1.2 / 4 x SDI-3G	16 x SDI-3G	–
		PCIe	PCIe Gen2 x4	PCIe Gen2 x8	PCI express Gen3 x16	PCIe Gen3 x8
	Output Interface		–	–	–	–
		PCIe	PCIe Gen 2 x4	PCIe Gen 2 x8	PCI express Gen3 x16	PCIe Gen3 x8
Video Coding	Video Encoding	Standard	H.265(HEVC)	H.265(HEVC)	H.265(HEVC)	H.265(HEVC)/ H.264 (AVC)/ MPEG-2
		Bit Depth	8bit/10bit	8bit/10bit	8bit/10bit	8bit/10bit
		Chroma Subsampling	4:2:2 / 4:2:0	4:2:2 / 4:2:0	4:2:2 / 4:2:0	4:2:2 / 4:2:0
	Video Decoding	Standard	–	–	–	H.265(HEVC)/ H.264 (AVC)/ MPEG-2
		Bit Depth	–	–	–	8bit/10bit
		Chroma Subsampling	–	–	–	4:2:2 / 4:2:0
VoIP	Connectivity		–	–	–	–
	Standard Supported		–	–	–	–
Audio	Channels (Max.)		–	4	–	8-ch / 16-ch
	Formats		–	PCM	–	
	Sampling Frequenct		–	48K Hz	–	48KHz / 96KHz
	Sampling Bit Depth		–	16 bit	–	16 bit
	Audio Connectors		–	–	–	
Feature	Operation System		Windows/ Linux	Windows/ Linux	Windows/ Linux	Windows/ Linux
	Streaming Protocol		–	–	–	–
	Management & Control Interface		–	–	–	–
	Development Kits		FFmpeg, Microsoft DirectShow	FFmpeg, Microsoft DirectShow	FFmpeg, Microsoft DirectShow	FFmpeg, Microsoft DirectShow
Module/ Card/System Characteristic	System Processor		–	–	–	–
	System Memory		–	–	–	–
	Storage		–	–	–	–
	Local Video Output		–	–	–	–
	Network Interface		–	–	–	–
	USB Port		–	–	–	–
Power	Power Input		–	–	–	–
	Power Consumption		<15W	<35W	<70W	<35W
Mechanical	Dimensions		PCI Express Half Length Half Height 167.65 x 56 mm	PCI Express Half Length Full Height 167.65 x 111.15 mm	PCI Express 3/4 length Full Heigh 234 x 111.15 x 41.19 mm	PCI Express Half Length Full Height 167.65 x 111.15 mm
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VEGA-3311	VEGA-6300	VEGA-6301	VEGA-6311	VEGA-7000	
–	2023, Q1	2022, Q4	2023, Q4	2020, Q4	
PCI Express Card	Appliance	Appliance	Appliance	High-Density HEVC Contribution or Distribution Encoder/ Transcoder	IP Live Production System Encoder/Transcoder Platform
1 (up to 4Kp60)/ 4 (up to 1080p60)	1 (up to 4Kp60)	1 (up to 4Kp60)/ 4 (up to 1080p60)	1 (up to 4Kp60)	Up to 8-ch 4Kp60 AVC/ HEVC Video Transcode/ 4-ch 4Kp60 HEVC Video Encode	2-ch 4Kp60 or 4-ch 1080p60
3840x2160 /1920x1080 / 1280x720 /720x480	3840x2160 /1920x1080 / 1280x720	3840x2160 /1920x1080 / 1280x720	3840x2160 /1920x1080 / 1280x720 / 720x480 / 720x576	3840x2160 /1920x1080 / 1280x720 /720x480	
60p/59.94p/50p/30p/29.97 p/25p/24p / 59.94i/50i	60p / 59.94p / 50p / 30p / 29.97p / 25p / 24p	60p / 59.94p / 50p / 30p / 29.97p / 25p / 24p	50/59.94Hz	60p/59.94p/50p/30p/29.97 p/25p/24p	60p/59.94p/50p/30p/29.97 p/25p/24p
4:2:2 / 4:2:0	4:2:2	4:2:2 / 4:2:0	4:2:2 / 4:2:0	4:2:2 / 4:2:0	4:2:2 / 4:2:0
8bit/10bit	8bit	8bit/10bit	8bit/10bit	8bit/10bit	8bit/10bit
1 x SDI-12G/3G, 3 x SDI-3G / 1x mini-HDMI 2.0 (VEGA-3311-S) 1 x SDI-12G/3G, 3 x SDI-3G I / 2x 10GbE (VEGA-3311-I)	1 x SDI-12G /1x HDMI2.0/ 4x SDI-3G	1x SDI-12G or 1x HDMI2.0 Or 4x SDI-3G 2 x GbE RJ45 port 2 x 10GbE	1 x SDI-12G/3G, 3 x SDI-3G 1 x HDMI output 2 x GbE RJ45 port 2 x 10GbE	16x SDI-3G 4x HDMI 2.0 4x SDI -12G File-based SATA III SSDs	8x SDI-3G 2x HDMI 2.0 2x SDI -12G 2x 10GbE
PCIe Gen3 x8	–	–	–	–	–
4x SDI-3G or 1x SDI-12G 1x mini-HDMI 2.0 (VEGA-3311-S)	–	1x 12G-SDI or 1x HDMI2.0, 4x 3G-SDI, 2 x GbE RJ45 port 2 x 10GbE SFP+ modules	4 x 3G/HD/SD-SDI (or 1 x 12G SDI) 1 x HDMI output 2 x GbE RJ45 port 2 x 10GbE SFP+ modules	2x 10GbE/ 4x 1GbE ports File-based storage	4x 1GbE ports/ 4x 10GbE ports
PCIe Gen3 x8	–	–	–	–	–
H.265(HEVC)/ H.264 (AVC)/ MPEG-2	H.265(HEVC)/ H.264 (AVC)	H.265(HEVC)	H.265(HEVC)/ H.264 (AVC)/ MPEG-2	H.265(HEVC)	
8bit/10bit	10bit	8bit/10bit	10bit	8bit/10bit	
4:2:2 / 4:2:0	4:2:0	4:2:2 / 4:2:0	4:2:2	4:2:2 / 4:2:0	
H.265(HEVC)/ H.264 (AVC)/ MPEG-2	–	–	H.265(HEVC)/ H.264 (AVC)/ MPEG-2	–	
8bit/10bit	–	–	10bit	–	
4:2:2 / 4:2:0	–	–	4:2:2	–	
2x 10GbE (SFP+ cages)	–	2x 10GbE (SFP+ cages)	2x 10GbE (SFP+ cages)	–	2x 10GbE (SFP+ cages)
SMPTE 2022-5/-6/-7 & VSF TR-03/-04 w/ AES67 audio & SMPTE 2059 sync Optional TICO or Sony LLVC compression-	–	ST 2022-5/6/7, ST 2059, TICO, Sony LLVC	ST 2022-5/6/7, ST 2059, TICO, Sony LLVC	–	SMPTE 2022-5/-6/-7 & VSF TR-03/-04 w/ AES67 audio & SMPTE 2059 sync Optional TICO or Sony LLVC compression
8-ch / 16-ch	2-ch / 4-ch	4	8	16	8
–	AAC	PCM	MPEG-2 AAC LC, MPEG-4 AAC LC, MPEG-4 HE-AAC V2, MPEG-4 AAC-ELD	PCM/ MPEG1 Layer2 / AAC-LC / HE-AAC v1, v2	
48KHz / 96KHz	48KHz	48KHz / 96KHz	–	48KHz / 96KHz	
16 bit	–	16 bit	16-bit	16-bit	16-bit / 24-bit / 20-bit
–	–	Embedded from HDMI or SDI	Embedded from HDMI or SDI	Embedded from HDMI or SDI	
Windows/ Linux	Standalone with Embedded Linux	Linux	Windows, Linux	Windows/ Linux	
RTSP/RTP/RTCP over UDP	RTSP/RTMP/HLS/TS over IP	RTP/MPEG/JDP/IP	RTP, UDP, Unicast, Multicast (IGMPv3/IPv4, MLDv2/IPv6)	SPTS (Single Program Transport Stream) UDP / RTP / RTSP / RTMP / HLS / MPEG-DASH	–
–	Remote Web GUI interface	Local or remote Control GUI interface	Local or remote Control GUI interface	GUI for video workflow control	
FFmpeg, Microsoft DirectShow	–	FFmpeg, Microsoft DirectShow	FFmpeg, Microsoft DirectShow	FFmpeg	
–	–	i7-6820EQ, i5-6440EQ, i3-6100E	i7-6820EQ, i5-6440EQ, i3-6100E	–	–
–	–	8GB Standard, up to 16GB on request	8GB Standard, up to 16GB	–	–
–	–	32GB mSATA	M.2 SSD	4 bays of SATA III SSD, RAID 0 (option)	
–	1x HDMI 2.0	1x HDMI 2.0	1x HDMI 2.0	–	–
–	1x GigE port	2x GigE port	2x GigE port	–	–
–	2x USB2.0 port	2x USB3.0 port	2x USB3.0 port	–	–
–	DC12V	DC12V	DC12V	–	–
<35W	<29W	75W based on Intel® Core™ i3 SOM	–	< 400W for 4-ch 4K Acquisition & HEVC Encode	
PCI Express Half Length Full Height 167.65 x 111.15 mm	214 x 211.9 x 42.8 mm	214 x 289.7 x 42.8 mm	214 x 300 x 42.8 mm	1U standard 19 wide 445 x 500 x 44 mm	
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VEGA-7000

High Density 1RU Video Server: Multi-channel 4K acquisition with HEVC encode and Video over IP solution

Features

- 1U scalable & versatile video server w/ optional support for:
  - Multi-channel UltraHD real-time HEVC, AVC & MPEG-2 encode, decode & transcode
  - Wide range of resolutions from SD to UltraHD (4K/8K) & High Frame Rate
  - Video-over-IP SMPTE-2022, Sony IP Live & TICO technology, w/ SMPTE-2059 synchronization
  - SDI-3G/12G, HDMI 2.0 & DP 1.2 video inputs
  - Multiple 10Gb & 1Gb IP Ethernet ports for streaming
- VEGA Media Flow SDK Package:
  - GUI for video workflow control
  - RESTful API
- Robust and low power host system:
  - Redudant system image, fan, and PSU
  - 4 SATA3 storage bays & 4 USB3 ports
  - DP & console port

Introduction

A highly scalable and flexible video server platform for enabling multi-channel UltraHD, FullHD and mobile video acquisition, processing, recording and streaming, VEGA-7000 delivers unprecedented superiority of broadcasting quality and channel-density within a standard IT 1U rack-mount system with low power budget.

VEGA-7000 supports advanced video codecs including HEVC/H.265, AVC/H.264 and MPEG-2 for various video processing applications such as encoding, decoding and transcoding. The acquisition option in VEGA-7000 also possesses the capability to sink the video source from SDI-3G, HDMI and DisplayPort inputs for real-time video content capture. As the emerging transition from existing SDI cable to IP network infrastructure is well received in broadcasting industry for video transport, VEGA-7000 is equipped with the configurations for supporting video-over-IP functions via SMPTE-2022, Sony IP Live and intoPIX TICO standards for streaming video content in raw or lightweight compression format with low-latency delay. The broadcasting quality of sampling scheme (ex. 4:2:2) and the deep-color (ex. 10-bit) picture can be manipulated by VEGA-7000 with 60 frames per second for resolutions ranging from low 480p to UltraHD 4K.

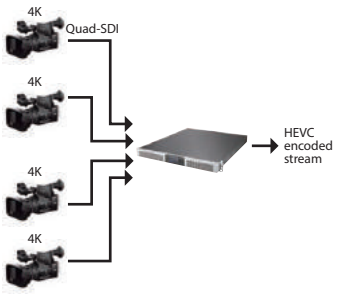
The future 8K, HFR and HDR preprocessing configurations will also be available later for system upgrade. With the graphic and web based user interface, VEGA-7000 offers friendly and efficiently management and control of the video flows to accommodate various usage models for maximum flexibility and productivity. The RESTful software application interface from VEGA-7000 also facilitates the system integration with other functions in user site. The IT based system architecture in VEGA-7000 ensures the leverage of open and most up-to-date technology and expansion being effortless and seamless.

Application

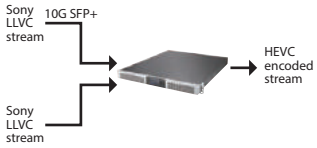
- Live UltraHD Content Creation, Processing, Recording & Streaming
- Over-the-Top (OTT) Video
- LTE/5G Broadcast & Mobile Video
- CDN (Content Delivery Network)
- Video-on-Demand (VOD)
- IPTV
- Web Content Provider
- Web Video Social Media
- Medical Imaging

Suggested Configurations

4-ch 4K Capture and HEVC Encode



2-ch IP-live + 2-ch 4K HEVC Encode



Preliminary Specification

Specification \ Suggested Config. Models		4-ch 4K Acquisition & HEVC Encode/Transcoder	2-ch 4K Video over IP and 2-ch 4K Acquisition & HEVC Encode/Transcoder
Video Inputs and Outputs	Channel Counts (Max.)	Up to 8-ch 4Kp60 AVC/HEVC Video Transcode/4-ch 4Kp60 HEVC Video Encode	2-channel LLVC 4Kp60, 10bit, 2-channel 4Kp60 acquisition, 8bit/10bit, and 4-channel TICO 4Kp60
	Inputs (Max.)	16x 3G-SDI 4x HDMI 2.0 4x SDI 1.2 - File-based SATA III SSDs	8x 3G-SDI 2x DisplayPort 1.2 DisplayPort 1.2 2x 10GbE ports
	Outputs (Max.)	SPTS (Single Program Transport Stream) UDP / RTP / RTSP / RTMP / HLS / MPEG-DASH 2x 10GbE ports, 4x 1GbE ports File-based storage	4x 1GbE ports, 4x 10GbE ports
Audio Inputs	Channel Counts (Max.)	up to 16	up to 8
	Format	PCM SDI Embedded	
	Sampling Frequency	48KHz / 96KHz	
	Sampling Bit Depth	16-bit	16-bit / 24-bit / 20-bit
Video Encoding	Compression	AVC/HEVC	
	HEVC Profile	Main / Main 10	
	HEVC Tier	Main / High	
	HEVC Level	Up to 5.1	
	4K Bitrate Per-Channel	Up to 200 Mbps	
	Color Depth	8 / 10	
	Bitrate Control	CBR / VBR / ABR	
Audio Encoding	Codec	MPEG1 Layer2 / AAC-LC / HE-AAC v1, v2	
	Format	Stereo	
Features	Redundancy for System Reliability	Redudant system image 1+1 power supply unit N+1 fan module redundancy	
	Operating System	Windows, Linux	
	Development Kits	FFmpeg	
	Storage	4 bays of SATA III SSD, RAID 0 (option)	
Chassis	Form Factor	1U standard 19" wide	
	Power Consumption	< 400W for 4-ch 4K Acquisition & HEVC Encode	
	Redudant Power Supply	Option	
	Dimensions	445 x 500 x 44 mm (W x D x H)	
Environment	Operating	Temperature: 0 to 40 °C Humidity: 20% to 90% RH	
	Storage	Temperature: -20 to 70 °C Humidity: 5% to 95% RH	
Compliance	Safety	EN 60950 2014/35/EC and UL 60950	
	EMC	EN 55011/22 2014/30/EC, FCC PART 15 CLASS (A)	

Ordering Information

Part Number	Description
VEGA-7000-DDDDA0E	4-ch 4K Capture and HEVC Encode
VEGA-7000-BDBDA0E	2-ch IP-live + 2-ch 4K HEVC Encode

VEGA-6300

UHD/4K HEVC/H.264 Online Video and Live Streaming Platform

Features

- 4Kp60 audio/video capture (4 x SDI-3G or 1 x 12G inputs or HDMI 2.0 input)
- Real time 4K HEVC Main8 encode up to 30fps
- Real time 4K H.264 8 bit encode up to 60fps
- Streaming output via Gigabit Ethernet or USB
- HDMI 2.0 output for local console
- Light weight, small size & low power consumption
- Easy to use SDK and remote management interfaces

Introduction

The concept of local and personal broadcasting is proliferating, driven by web-accessible or OTT service providers such as Facebook, YouTube & Twitch. In addition to personal streaming from cellphones, many sports and music events and activities are being pushed to online media and this requires a more professional-grade solution, capable of handling industry standard SDI interfaces. Inevitably, the demand for 4K will invade this segment too, and providing a stable, high quality live video stream product becomes the key to this industry. This is where the VEGA-6300 can help.

Based on renowned Ambarella technology, the VEGA-6300 is a small, lightweight, low power video processing engine featuring a range of HEVC and H.264 encoding features. It allows users to capture live video up to 4K/UHD resolution from SDI feeds or from an HDMI 2.0 input, encode for efficient transmission using the latest hardware HEVC compression technology, and then transmit to end users or content delivery networks across an Ethernet or wireless network (using USB network access “dongles”). The unit can create multiple output streams from a single video input and encode each using different codecs with different parameters.

VEGA-6300 offers a friendly user interface across HTTP, and can be remotely controlled using a CGI-style API. The software package also implements the streaming protocols used by of most of the CDNs, making it straightforward for a user to can upload the video stream to a network.

Application

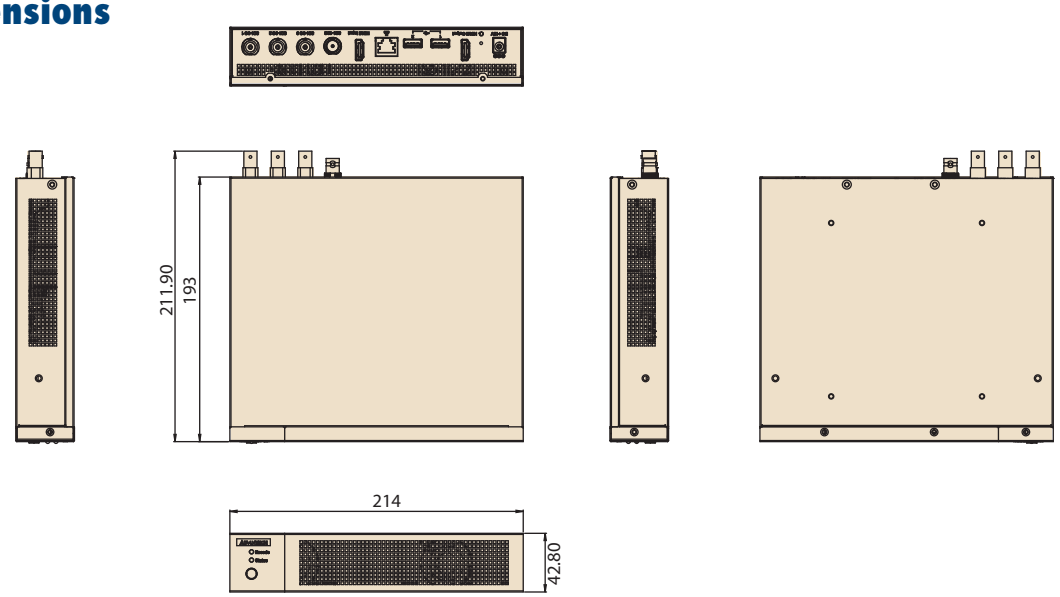
- Live event streaming
- Education & Healthcare
- Government & Corporate video
- Sports & Music concert
- Gaming live stream

Specification

		VEGA-6300
Video Input Format	Channels/interface	1x 12G-SDI or 1x HDMI2.0, up to 4Kp60 8bit 4:2:2 Or 4x 3G-SDI, each up to 1080p60 4:2:2
	Video formats	4K / 3840x2160: 60p / 59.94p / 50p / 30p / 29.97p / 25p / 24p 1920x1080: 60p / 59.94p / 50p / 30p / 29.97p / 25p / 24p 1280x720: 60p / 59.94p / 50p / 30p / 29.97p / 25p / 24p
Video Compression	Compression	AVC (H.264) up to 4Kp60 HEVC (H.265) up to 4Kp30
	AVC or HEVC profile	AVC BP/MP/HP Level 5.1 HEVC Main Level 5.1
	HEVC Tier	Main
	Bitrate in 4K format	512kbps~150Mbps
	Bit Depth	8 bits
	Chroma Sampling Format	4:2:0
	Bit Rate Control	CBR / VBR

Dimensions

Unit: mm



Specifications (Cont.)

Audio	Channels	2/4
	Format	AAC
	Operation mode	4ch Mono 2ch Stereo
	Sampling Frequency	48KHz
	Connectors	Embedded from HDMI or SDI
Other Features	Frame Rate & Resolution Control	Yes
	Encoding Control & Manipulation	Yes
	Streaming Protocol	RTSP/RTMP/HLS/TS over IP
	GOP Definition	I, IP, IPB, IBBP
	Ancillary Data & VBI	Yes
	Operation System	Standalone with Embedded Linux
	Management & Control Interface	Remote Web GUI interface
System Characteristic	Local Video Output	1x HDMI 2.0
	Network Interface	1x GigE port
	USB port	2x USB2.0 port
	Power & Reset Buttons	Yes (with power on indicator)
	LCM & LED Indicators	Configurable 2x LED
	Power Consumption	Less than 29W
	Power Input	DC12V
	System Dimension	(W) x (H) x (D): 214 x 42.8 x 211.9 mm

Ordering Information

Model	Decription
VEGA-6300-A1E	VEGA-6300 encoder w/ Ambarella H1 Cortex-A9

VEGA-6301

For 4K HEVC encoding and streaming applications

Features

- Compact Video Appliance with real-time HEVC 4Kp60 encoding capabilities
- 1U high & half rack mountable / standalone design allowseasy user mounting different combinations of appliance in a small space
- Range of UHD-ready video input formats such as quad 3G-SDI, high speed 12G-SDI, andHDMI 2.0
- UHD-ready Video over IP connections in addition to standard video connectivity
- HEVC Encoder supports high quality 10bit 4:2:2 modes @ 4Kp60 or 4 x 1080p60
- Low power consumption
- Easy to use SDKs and remote web based configuration interface

Introduction

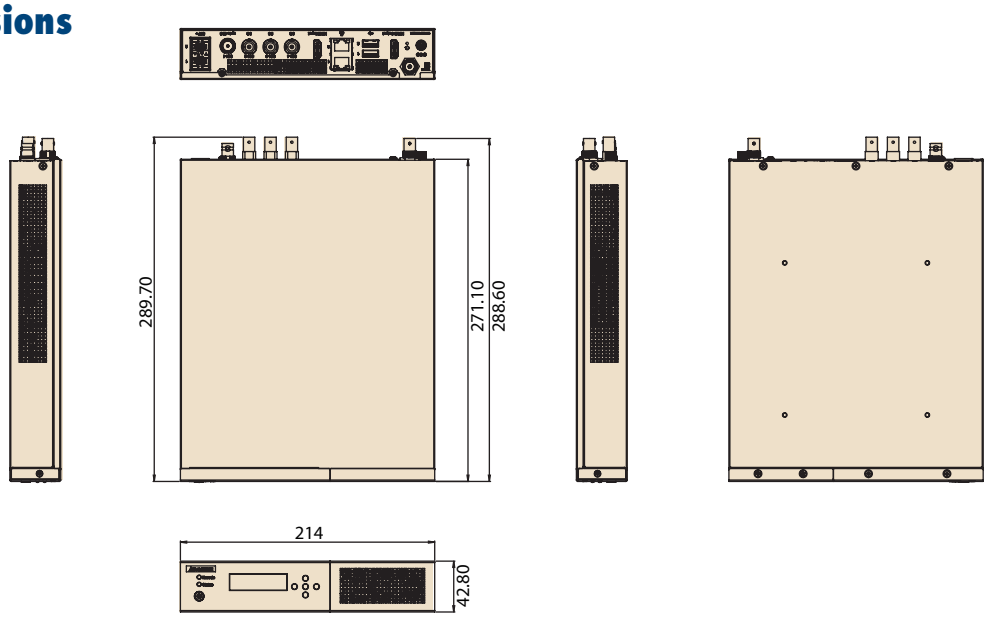
The VEGA-6301 application ready appliance is a small, low power video processing platform,cramming professional video acquisition and capture interfaces, optional Video over IP terminations, a real-time 4Kp60 10bit HEVC encoder, and a full capability Intel® Core™ series processing host into a half rack-width, short depth enclosure. It allows users to capture and adapt live video at up to 4K/UHD resolution from SDI or HDMI feeds and then encode for streaming to content delivery or distribution networks by using the latest hardware HEVC compression technology. A software upgrade option can enable live Video over IP capture and playout, allowing users to support standards like SMPTE 2022-6, Sony IP Live Production System, and AIMS/VSF recommendations with the TICO mezzanine codec. Compressed video can be streamed over a redundant Gigabit Ethernet connection, or a USB connected wireless access dongle. The application development environment is the same Linux or Windows based SDK supported by the VEGA 3000 series PCI Express adapter range, allowing extra deployment scalability options.

Specification

		VEGA-6301
Video Inputs/Output	Channels/interface	1x 12G-SDI or 1x HDMI2.0, up to 4Kp60 10bit YUVOr 4x 3G-SDI, each up to 1080p60 10bit YUV
	SDI Video formats	4K / 3840x2160: 60p / 59.94p / 50p / 30p / 29.97p / 25p / 24p 1920x1080: 60p / 59.94p / 50p / 30p / 29.97p / 25p / 24p 1280x720: 60p / 59.94p / 50p / 30p / 29.97p / 25p / 24p
Hardware Video Compression	Compression	HEVC (H.265)
	HEVC profile	Main / Main 10
	HEVC Tier	Main / High
	HEVC Level	HEVC Level 5.1
	Bitrate in 4K format	3Mbps ~ 300Mbps
	Bit Depth	8 /10 bits
	Chroma Sampling Format	4:2:2 & 4:2:0
	Bit Rate Control	CBR / VBR
	Elementary Stream	Yes
Video-Over-IP option	Connectivity	Redundant 10GbE (SFP+ cages)
	Standards Supported*	ST 2022-5/6/7, ST 2059, TICO, SONY IP-Live
Audio	Channels	4
	Format	PCM
	Operation mode	Stereo
	Sampling Frequency	48KHz
	Sampling Bit Depth	16 bits
	Connectors	Embedded from HDMI or SDI
Other Features	Frame Rate & Resolution Control	Yes
	Encoding Control & Manipulation	Yes
	Full-feature API available	Yes – local using FFMPEG or low level SDK
	Dual Encoding	Yes
	GOP Definition	I, IP, IPB, IBBP, IBBBP
	Ancillary Data & VBI	Yes
	Operating System	Linux Kernel 4.4.0 (64-bit) – Ubuntu 16.04LTS
	Development Assistance	FFmpeg plugins Microsoft DirectShow support
	Management & Control Interface	Local or remote Control GUI interface

Dimensions

Unit: mm



Specifications (Cont.)

System Characteristics	System Processor	(6th Gen. Intel®) i7-6820EQ, i5-6440EQ, i3-6100E
	Memory	8GB Standard, up to 16GB on request
	Storage	32GB mSATA for OS, program, local data and cache
	Local Video Output	1x HDMI 2.0 (from CPU)
	Network Interface	2x GigE port with separate NICs
	USB port	2x USB3.0 port
	Power & Reset Buttons	Yes (with power on Indicator)
	LCM & LED Indicators	Configurable 2x LED indicators Configurable LCD displaywith 5-way control button
	Power Consumption	75W based on Intel® Core™ i3 SOM
	Power Input	DC12V
	System Dimension	(W) x (H) x (D): 214 x 42.8 x 289.7 mm

* Video over IP support can be added as a firmware upgrade to the standard platform. Not all standards will be supported at first release. Contact your Advantech representative to confirm.

Ordering Information

Model	Decription
VEGA-6301F3-3EAE	VEGA-6301 Full Function with SOM-5897C3-U7A1E, i3-6100E, 32GB mSATA, 8GB DDR3 RAM, AC/DC power adaptor
VEGA-6301F5-3EAE	VEGA-6301 Full Function with SOM-5897C5-U7A1E, i5-6440EQ, 32GB mSATA, 8GB DDR3 RAM, AC/DC power adaptor
VEGA-6301F7-3EAE	VEGA-6301 Full Function with SOM-5897C7-U8A1E, i7-6820EQ, 32GB mSATA, 8GB DDR3 RAM, AC/DC power adaptor
VEGA-6301E3-3EAE	VEGA-6301 Encoder with SOM-5897C3-U7A1E, i3-6100E, 32GB mSATA, 8GB DDR3 RAM, AC/DC power adaptor without Video-over-IP features
VEGA-6301E5-3EAE	VEGA-6301 Encoder with SOM-5897C5-U7A1E, i5-6440EQ, 32GB mSATA, 8GB DDR3 RAM, AC/DC power adaptor without Video-over-IP features

Model	Decription
VEGA-6301E7-3EAE	VEGA-6301 Encoder with SOM-5897C7-U8A1E, i7-6820EQ, 32GB mSATA, 8GB DDR3 RAM, AC/DC power adaptor without Video-over-IP features
VEGA-6301V3-3EAE	VEGA-6301 Video-over-IP Tx/Rx with SOM-5897C3-U7A1E, i3-6100E, 32GB mSATA, 8GB DDR3 RAM, AC/DC power adaptor without HEVC encode funcitons
VEGA-6301V5-3EAE	VEGA-6301 Video-over-IP Tx/Rx with SOM-5897C5-U7A1E, i5-6440EQ, 32GB mSATA, 8GB DDR3 RAM, AC/DC power adaptor without HEVC encode functions
VEGA-6301V7-3EAE	VEGA-6301 Video-over-IP Tx/Rx with SOM-5897C7-U8A1E, i7-6820EQ, 32GB mSATA, 8GB DDR3 RAM, AC/DC power adaptor without HEVC encode functions

VEGA-6311

4K/UHD Professional Video Network Solutions

Features

- 4K/uhd multi-format codec
- Contribution grade performance
- Flexible video connectivity
- Small form factor
- Ready for the ip-connected future

Introduction

The VEGA-6311 is a video encoder/decoder platform that uses H.265/HEVC high-efficiency video encoding technology to enable high quality 4K/UHD signal transmission in professional contribution applications, and all in a low-power half-1U chassis.

Features

4K/UHD MULTI-FORMAT CODEC

VEGA-6311 features the latest technology from Socionext capable of real-time encoding and decoding of H.265/HEVC, H.264/AVC and MPEG2 video and audio at up to 4K/UHD resolution and 60fps.

POWERFUL LOCAL CPU

A COM Express Module with a choice of 6th Generation Intel® Core™ CPUs provides intense graphics performance and multitasking capabilities with HDMI display output and 2 x USB connections.

CONTRIBUTION GRADE PERFORMANCE

The encoder/decoder subsystem supports HEVC Main 10 and Main 422 10 profiles (10bit depth 4:2:2 chroma subsampling) for the best possible video quality on the streaming link. Low latency modes add to the appeal for real-time sports action at 60fps.

FLEXIBLE VIDEO CONNECTIVITY

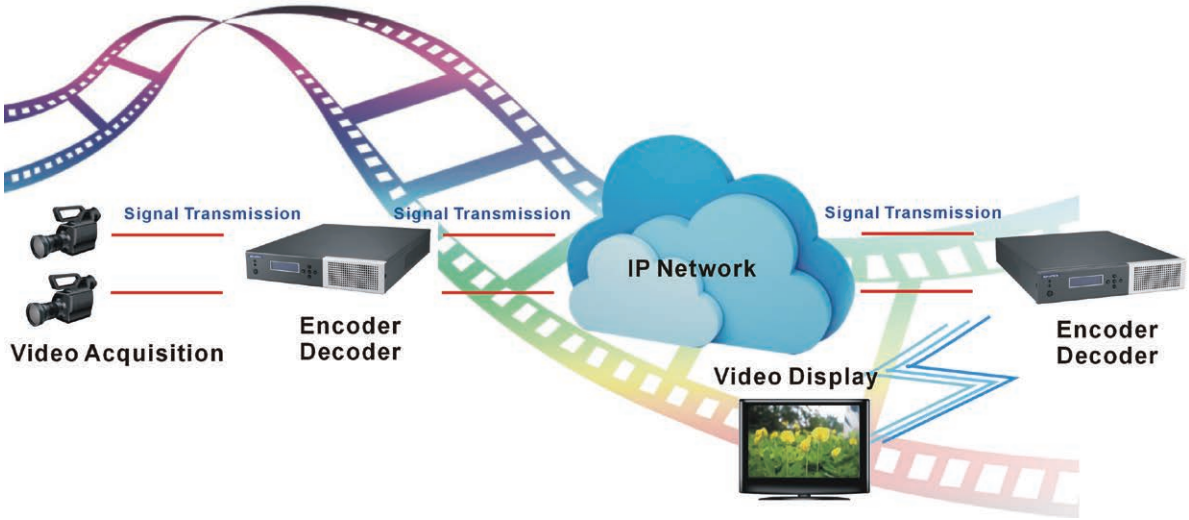
The VEGA-6311 offers the latest in video connectivity. In addition to quad 3G-SDI video inputs and ASI connections, it supports a single 12G-SDI input for latest professional 4K/UHD cameras and accessories.

SMALL FORM FACTOR

The Half-1U chassis is designed to support flexible operational deployment. Only half the width of a standard rack mount 1U chassis and consuming less than 100W power, VEGA-6311 can bring 4K/UHD performance into many space and power constrained applications .

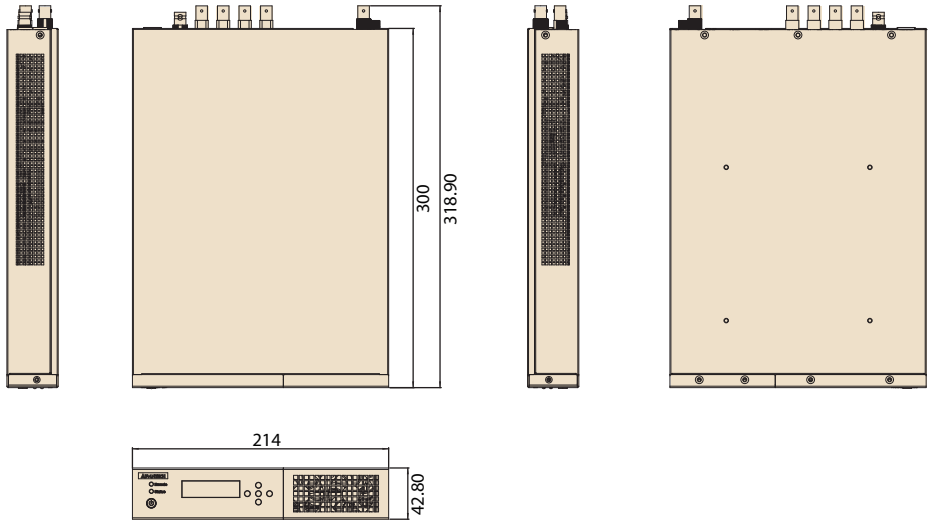
READY FOR THE IP-CONNECTED FUTURE

The move to IP is a significant trend in the broadcast industry and VEGA-6311 is ready! It is capable of supporting the latest Video over IP streaming standards with dual 10Gigabit Ethernet links for SMPTE 2022/2110 Media over IP terminations.



Dimensions

Unit: mm



Specifications

System Processor	i7-6820EQ, i5-6440EQ, i3-6100E
Operating System	Windows, Linux
Video Coding	H.265/HEVC ▪ Profile: Main422 10, Main 10, Main ▪ Level: 5.1, 4.1, 4.0, 3.0 ▪ Resolution (Frequency): 2160p x 4096 (50/59.94Hz), 1080p x 1920 (50/59.94Hz), 1080i x 1920 (50/59.94Hz), 720p x 1280 (50/59.94Hz), 480i x 720 (59.94Hz), 576i x 720 (50Hz)
	H.264/MPEG-4 AVC ▪ Profile: High422, High, Main ▪ Level: 4.2, 4.0, 3.0 ▪ Resolution (Frequency): 1080p x 1920 (50/59.94Hz), 1080i x 1920 (50/59.94Hz), 720p x 1280 (50/59.94Hz), 480i x 720 (59.94Hz), 576i x 720 (50Hz)
	MPEG-2 ▪ Profile: 422, High ▪ Level: High, Main ▪ Resolution (Frequency): 1080i x 1920 (50/59.94Hz), 720p x 1280 (50/59.94Hz), 480i x 720 (59.94Hz), 576i x 720 (50Hz)
Audio Coding	MPEG-2 AAC LC, MPEG-4 AAC LC, MPEG-4 HE-AAC V2, MPEG-4 AAC-ELD
	8ch, 5.1ch
Ancillary Data	SMPTE 2038, SMPTE 334, SMPTE RD 11, CEA-608/708, ARIB STD-B40
Streaming Protocol	RTP, UDP, Unicast, Multicast (IGMPv3/IPv4, MLDv2/IPv6)
Error Correction (IP)	FEC, ARQ, SMPTE 2022-1
Audio & Video I/F	4 x 3G/HD/SD-SDI (or 1 x 12G SDI) 1 x HDMI output 2 x GbE RJ45 port 2 x 10GbE SFP+ modules for ST2022/ST2110 I/F
Streaming I/F	2 x 10BASE-T/100BASE-TX/1000BASE-T (Stream & Control) 1 x DVB-ASI input
Time Sync.	Bi-level or Tri-level
USB Port	2 x USB3.0 port
PCIe Bus	Gen3 x 8
Storage	M.2 SSD
Misc. Functions	File reproduction
Dimensions/Weight	214 (W) x 281 (D) x 42.8 (H) mm/Approx. 1.8kg
Temp/Humidity	0 ~ 45°C/20 ~ 90RH (No condensation)

* The specifications are subject to change without notice.

VEGA-3300

4Kp60 HEVC Broadcast Video Encoder Card

Features

- 1-ch 4K (2160p) or 4-ch FHD (1080p) @ 60 fps real-time encoding in Main 8, Main 10 or Main 10 4:2:2 modes
- Less than 15W power consumption
- Simple-to-use API and example code for FFmpeg and GStreamer multimedia frameworks

Introduction

VEGA-3300 enables real-time 4K UltraHD (2160p60) HEVC encoding at up to 20x less power consumption than a software-only solution. The HEVC/H.265 codec is gaining momentum because it reduces bit rates by approximately 50% when compared to an equivalent quality video stream encoded using H.264, enabling more channels or higher resolution video delivery over the same infrastructure. It is particularly relevant for 4K UltraHD transmission which requires a much higher stream capacity. These improvements are achieved at the penalty of much higher computation complexity, with up to four general purpose server class processors required to perform a 4K 60fps software-based broadcast quality HEVC encoding in real time.

VEGA-3300 is tailored for professional media processing and are capable of performing professional grade 4Kp60 Main10 profile HEVC encoding at less than 15W power consumption. The VEGA-3300 targets file or stream-based encoding workflows in a low profile PCIe adapter format to facilitate the integration of multiple accelerators in a range of servers and appliances. This card feature a simple-to-use API and example code for FFmpeg and GStreamer multimedia frameworks to streamline product development and their integration into existing applications.

Specification

Video Input	Channels	1 (up to 4Kp60, 8bit/10bit, YUV) / 4 (up to 1080p60, 8bit/10bit, YUV)
	Video Formats	4K, HD, SD
	Frame Rate /s	PCI Express Interface 4K / 4096x2160: 60p / 59.94p / 50p / 30p / 29.97p / 25p / 24p 4K / 3840x2160: 60p / 59.94p / 50p / 30p / 29.97p / 25p / 24p 1920x1080: 60p / 59.94p / 50p / 30p / 29.97p / 25p / 24p 1280x720: 60p / 59.94p / 50p / 30p / 29.97p / 25p / 24p 720x480: 60p / 59.94p
	Chroma Sampling Format	4:2:2 / 4:2:0
	Interfaces	PCI express Gen2 x4
Video Compression	Compression	H.265
	HEVC Profile	Main / Main 10
	HEVC Tier	Main / High
	HEVC Level	1.0 / 2.0 / 2.1 /3.0 / 3.1 / 4.0 / 4.1 / 5.0 / 5.1
	Bit Depth	8 / 10
	Bitrate 4K format	3 Mbps ~ 300 Mbps
	Bit Rate Control	CBR / VBR
	Elementary Stream	Yes
Feature	Frame rate and resolution control	Yes
	Encoding control and manipulation	Yes
	Full-feature API available	Yes
	Dual encoding (4 file from a unique video source)	Yes
	GOP definition	I, IP, IPB, IBBB
	Operating System	Windows 8 & 8.1(64-bit) Windows 7(64-bit) Windows Server 2012 & 2012 R2 (64-bit) Windows Server 2008 R2 (64-bit) Linux Kernel 3.13.0 (64-bit)
	Development Kits	FFmpeg Microsoft DirectShow
Physical Characteristic	Power Consumption	< 15W
	Dimensions	PCI Express Half Length Half Height 167.65 x 56 mm

Ordering Information

Part number	Description
VEGA-3300E	4Kp60 HEVC Broadcast Video Encoder Card (M31)

VEGA-3301

4Kp60 HEVC Broadcast Video Encoder Card

Features

- 1-ch 4K (2160p) or 4-ch FHD (1080p) @ 60 fps real-time encoding in Main 8, Main 10 or Main 10 4:2:2 modes
- Less than 35W power consumption
- 4K video capture over built-in HDMI 2.0, Display Port 1.2 or 4-ch SDI-3G video inputs
- Simple-to-use API and example code for FFmpeg and GStreamer multimedia frameworks

Introduction

VEGA-3301 enables real-time 4K UltraHD (2160p60) HEVC encoding at up to 20x less power consumption than a software-only solution. The HEVC/H.265 codec is gaining momentum because it reduces bit rates by approximately 50% when compared to an equivalent quality video stream encoded using H.264, enabling more channels or higher resolution video delivery over the same infrastructure. It is particularly relevant for 4K UltraHD transmission which requires a much higher stream capacity. These improvements are achieved at the penalty of much higher computation complexity, with up to four general purpose server class processors required to perform a 4K 60fps software-based broadcast quality HEVC encoding in real time.

VEGA-3301 is tailored for professional media processing and are capable of performing professional grade 4Kp60 Main10 profile HEVC encoding at less than 35W power consumption. The VEGA-3301 adapter additionally features 4K video capture over built-in HDMI 2.0, Display Port or 4-ch SDI-3G video inputs for acquisition-based encoding in contribution workflows. This card feature a simple-to-use API and example code for FFmpeg and GStreamer multimedia frameworks to streamline product development and their integration into existing applications.

Specification

Video Input	Channels	1 (up to 4Kp60, 8bit/10bit, YUV) / 4 (up to 1080p60, 8bit/10bit, YUV)
	Video Formats	4K, HD, SD
	Frame Rate	HDMI 2.0 / Display Port 1.2 Interface* 4K / 3840x2160: 60p / 59.94p / 50p / 30p / 29.97p / 25p / 24p 1920x1080: 60p / 59.94p / 50p / 30p / 29.97p / 25p / 24p 1280x720: 60p / 59.94p / 50p / 30p / 29.97p / 25p / 24p BNC (3G-SDI) Interface 4K / 3840x2160: 60p / 59.94p / 50p / 30p / 29.97p / 25p / 24p 1920x1080: 60p / 59.94p / 50p / 30p / 29.97p / 25p / 24p 1280x720: 60p / 59.94p / 50p / 30p / 29.97p / 25p / 24p PCI Express Interface 4K / 4096x2160: 60p / 59.94p / 50p / 30p / 29.97p / 25p / 24p 4K / 3840x2160: 60p / 59.94p / 50p / 30p / 29.97p / 25p / 24p 1920x1080: 60p / 59.94p / 50p / 30p / 29.97p / 25p / 24p 1280x720: 60p / 59.94p / 50p / 30p / 29.97p / 25p / 24p 720x480: 60p / 59.94p
	Chroma Sampling Format	4:2:2 / 4:2:0
	Interfaces	PCI express Gen2 x8 / HDMI 2.0 / SDI-3G / Display Port 1.2
Video Compression	Compression	H.265
	HEVC Profile	Main / Main 10
	HEVC Tier	Main / High
	HEVC Level	1.0 / 2.0 / 2.1 /3.0 / 3.1 / 4.0 / 4.1 / 5.0 / 5.1
	Bitrate 4K format	3 Mbps ~ 300 Mbps
	Bit Depth	8 / 10
	Bit Rate Control	CBR / VBR
	Elementary Stream	Yes

Specifications (Cont.)

Audio	Channels	4
	Format	PCM
	Operation Mode	Stereo
	Sampling Frequency	48Khz
	Sampling Bit Depth	16-bit
	Connectors	HDMI 2.0 / SDI-3G / Display Port 1.2
Feature	Frame rate and resolution control	Yes
	Encoding control and manipulation	Yes
	Full-feature API available	Yes
	Dual encoding (4 file from a unique video source)	Yes
	GOP definition	I, IP, IPB, IBBB
	Ancillary data and VBI	Yes
	Operating System	Windows 8 & 8.1(64-bit), Windows 7(64-bit) Windows Server 2012 & 2012 R2 (64-bit), Windows Server 2008 R2 (64-bit) Linux Kernel 3.13.0 (64-bit)
	Development Kits	FFmpeg, Microsoft DirectShow
Physical Characteristic	Power Consumption	< 35W
	Dimensions	PCI Express Half Length Full Height 167.65 x 111.15 mm

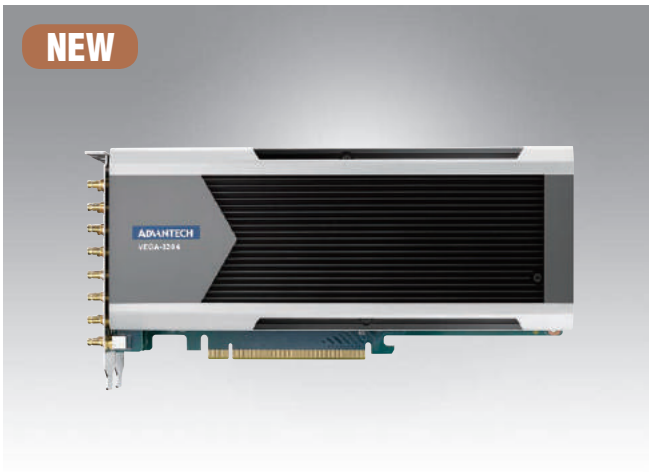
*Output: Auto scale to 4K/3840x2160p60

Ordering Information

Part Number	Description
VEGA-3301E	4Kp60 HEVC Broadcast Video Encoder Card (M31)
9652A33000E	Assembly box for BNC cable (5pcs/box)

VEGA-3304

8Kp60 Real-time HEVC Encoder Card



Features

- 1-ch 8Kp60, 4-ch 4Kp60 or 16-ch 1080p60 real-time HEVC encoding
- Main or Main 10 HEVC profiles with 8 or 10 bit depth and 4:2:0 or 4:2:2 chroma subsampling
- Video acquisition over built-in 16-ch 3G-SDI inputs
- Support for High Dynamic Range (HDR) Video
- Linux and Windows SDK including simple-to-use API and example code for FFmpeg and GStreamer multimedia frameworks
- Double width, 3/4 length PCI Express Gen3 x16, compatible with server GPU slots

Introduction

Advantech's VEGA-3304 is the first 8K video accelerator able to perform real time, professional grade 8Kp60 HEVC encoding in an ultra-low-power PCI Express format. The new VEGA-3304 helps video equipment manufacturers efficiently cope with the processing complexity of UHD and HEVC enabling them with a powerful tool to accelerate their next-generation 4K, 8K, Virtual Reality and 360 degree video solutions. Its impressive quality, density and cost benefits can bring a competitive advantaged to a wide range of media processing applications for the broadcasting, mobile, gaming and medical markets.

Supporting 10 bit colour depth HDR and 4:2:2 chroma subsampling, the VEGA-3304 is a commercial-off-the-shelf add-in accelerator compatible with standard GPU slots that can be easily integrated into IT-based server applications. It features sixteen 3G-SDI inputs to maximize the PCI Express slot usage and can be configured for multi-channel operation. Developers can leverage Advantech's video processing SDK for Linux and Windows that includes an FFmpeg plug-in to reduce in-house development efforts and time to market.

Specification

Video Input		VEGA-3304-8K (8K SDK by request)	VEGA-3304-4K
	Channels	1 (up to 8Kp60, 8bit/10bit, YUV)	4 (up to 4Kp60, 8bit/10bit, YUV) /16 (up to 1080p60, 8bit/10bit, YUV)
	Video Formats	8K	4K, HD
	Frame Rate	BNC (3G-SDI) Interface 8K / 7680 x 4320: 60p / 59.94p / 50p / 30p / 29.97p / 25p / 24p PCI Express Interface 8K / 7680 x 4320: 60p / 59.94p / 50p / 30p / 29.97p / 25p / 24p	BNC (3G-SDI) Interface 4K / 3840 x 2160: 60p / 59.94p / 50p / 30p / 29.97p / 25p / 24p 1920 x 1080: 60p / 59.94p / 50p / 30p / 29.97p / 25p / 24p 1280 x 720: 60p / 59.94p / 50p / 30p / 29.97p / 25p / 24p PCI Express Interface 4K / 4096 x 2160: 60p / 59.94p / 50p / 30p / 29.97p / 25p / 24p 4K / 3840 x 2160: 60p / 59.94p / 50p / 30p / 29.97p / 25p / 24p 1920 x 1080: 60p / 59.94p / 50p / 30p / 29.97p / 25p / 24p 1280 x 720: 60p / 59.94p / 50p / 30p / 29.97p / 25p / 24p 720 x 480: 60p / 59.94p
	Chroma Sampling Format	4:2:2 / 4:2:0	
	Interfaces	PCI express Gen3 x16 / SDI-3G	
Video Compression	Compression	H.265	
	HEVC Profile	Main / Main 10	
	HEVC Tier	Main / High	
	HEVC Level	1.0 / 2.0 / 2.1 /3.0 / 3.1 / 4.0 / 4.1 / 5.0 / 5.1	
	Bitrate 4K format	3 Mbps ~ 300 Mbps	
	Bitrate 8K format	12 Mbps ~ 1.2 Gbps	
	Bit Depth	8 / 10	
	Bit Rate Control	CBR / VBR	
	Elementary Stream	Yes	

Specifications (Cont.)

Feature	Frame rate and resolution control		Yes
	Encoding control and manipulation		Yes
	Full-feature API available		Yes
	Dual encoding (4 file from a unique video source)		Yes
	GOP definition		I, IP, IPB, IBBB
	Ancillary data and VBI		Yes
	Operating System	Linux Kernel 3.13.0 (32-bit, 64-bit)	Windows 8 & 8.1(64-bit), Windows 7(64-bit) Windows Server 2012 & 2012 R2 (64-bit), Windows Server 2008 R2 (64-bit) Linux Kernel 3.13.0 (64-bit)
	Development Kits		FFmpeg, Microsoft DirectShow
Physical Characteristic	Power Consumption		< 70W
	Dimensions		PCI Express 3/4 length Full Heigh 234 x 111.15 x 41.19 mm

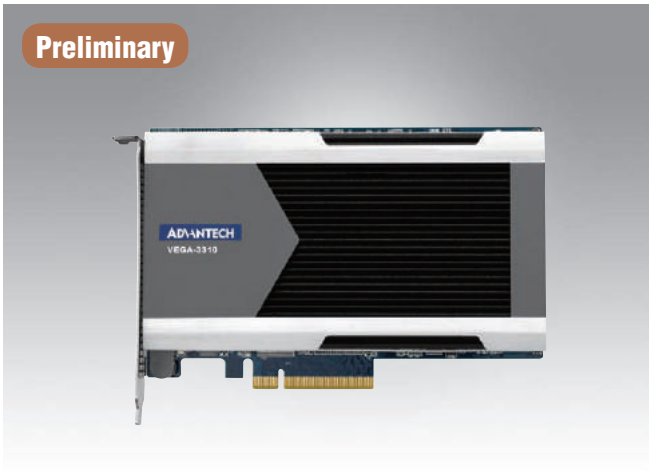
*Output: Auto scale to 4K/3840 x 2160p60

Ordering Information

Part Number	Description
VEGA-3304	8Kp60/4-ch 4Kp60 HEVC Encoder Accelerator

VEGA-3310

4K HEVC Broadcast Video Encoding/ Decoding / Transcoding Card



Features

- 1-ch 4Kp120 or 2-ch 4Kp60 or 8-ch 1080p60 real-time 4:2:2 10bit HEVC, AVC & MPEG-2 encode & decode
- 1-ch 4Kp60 or 4-ch 1080p60 real-time HEVC, AVC & MPEG-2 transcode
- HFR (High Frame Rate, 4Kp120)
- Ultra-low latency support
- Less than 35W power consumption
- Simple-to-use API and example code for FFmpeg and GStreamer multimedia frameworks

Introduction

VEGA-3310 is a high performance video processing accelerator card supporting professional grade 4K/UHD encoding, decoding and transcoding at a very low power consumption. It allows these features to be added to systems that support a standard PCI Express architecture such as PC/IT server based video applications.
The technology underlying VEGA-3310 is the latest encoding/decoding SoC. Each device supports HEVC, AVC, and MPEG2 real-time encoding, decoding, and transcoding at up to 4Kp60 with 10 bit colour depth and 4:2:2 chroma sampling. HEVC compression is particularly relevant for 4K UltraHD transmission which requires a much higher stream capacity. These bandwidth reduction improvements are achieved at the penalty of much higher computation complexity, with two general purpose server class processors required to perform a 4K 60fps software-based broadcast quality HEVC encoding in real time. The technology behind VEGA-3310 can do the same task in under 35W, and VEGA-3310 can also support up to 4Kp120 high frame rate for next generation sports broadcasts and 360 degree VR applications..
This card feature a simple-to-use API and example code for FFmpeg and GStreamer multimedia frameworks to streamline product development and integration into existing applications.

Specification

File Based Video Input (PCI Express)	Video Encoding	H.265/HEVC	Resolution (x1ch)	3840x2160 /1920x1080 / 1280x720 /720x480
			Resolution (Multi-channel more than x2ch)	1920x1080 /1280x720 /720x480
			Frame rate/Scan mode	60p/59.94p/50p/30p/29.97p/25p/24p / 59.94i/50i
			Bit depth	8, 10 bits
			8-bit encoding from 10-bit raw data	Supported
			Chroma Sampling	4:2:0 / 4:2:2
			Rate control	CBR / VBR / Capped VBR
			GOP length	One Picture (I only) / 0.5sec / 1 sec
			GOP structure	I picture only / IPPP /IBB/IBBB/IBBBBBBB (Hierarchical GOP:supported) / Closed GOP/ Open GOP / Temporal ID on/off for hierarchical GOP / Scene change / Adaptive GOP
			CPB delay control	3s, 1s, 0.5s
			Filter	Fixed strength
			Low latency	5,6 frame (with IPPPP)
			Ultra low-latency	< 1 frame
		H.264/AVC	Resolution (x1ch)	3840x2160 /1920x1080 / 1280x720 /720x480
			Resolution (Multi-channel more than x2ch)	1920x1080 /1280x720 /720x480
			Frame rate/Scan mode	60p/59.94p/50p/30p/29.97p/25p/24p / 59.94i/50i
			Bit depth	8, 10 bits
			8-bit encoding from 10-bit raw data	Supported
			Chroma Sampling	4:2:0 / 4:2:2
			Rate control	CBR / VBR / Capped VBR
			GOP length	One Picture (I only) / 0.5sec / 1 sec
			GOP structure	I picture only / IPPP /IBB/IBBB / Closed GOP/ Open GOP / Scene change / Adaptive GOP
			CPB delay control	1s, 0.5s
			Filter	De-blocking filter / Fixed strength
			Low latency	5,6 frame (with IPPPP)

Specifications (Cont.)

File Based Video Input (PCI Express)	Video Encoding	MPEG-2	Resolution (x1ch)	1920x1080 / 1280x720 /720x480
			Resolution (Multi-channel more than x2ch)	1920x1080 /1280x720 /720x480
			Frame rate/Scan mode	30p/29.97p/25p/24p / 59.94i/50i
			Bit depth	8 bits
			Chroma Sampling	4:2:0
			Rate control	CBR
			GOP length	One Picture (I only) / 0.5sec / 1 sec
			GOP structure	I picture only / IPPP /IBB / Closed GOP/Open GOP / Scene change / Adaptive GOP
	Video Decoding	H.265/HEVC	Resolution (x1ch)	3840x2160 /1920x1080 / 1280x720 /720x480
			Frame rate/Scan mode	60p/59.94p/50p/30p/29.97p/25p/24p / 59.94i/50i
			Bit depth	8, 10 bits
			Chroma Sampling	4:2:0 / 4:2:2
		H.264/AVC	Resolution (x1ch)	3840x2160 /1920x1080 / 1280x720 /720x480
			Frame rate/Scan mode	60p/59.94p/50p/30p/29.97p/25p/24p / 59.94i/50i
			Bit depth	8, 10 bits
			Chroma Sampling	4:2:0 / 4:2:2
		MPEG-2	Resolution (x1ch)	1920x1080 / 1280x720 /720x480
			Frame rate/Scan mode	30p/29.97p/25p/24p / 59.94i/50i
			Bit depth	8 bits
			Chroma Sampling	4:2:0
	Audio Encoding	Control	Single ch	Supported
	Audio Decoding	Control	Single ch	Supported
Feature		Operating System	Windows Server 2012 & 2012 R2 (64-bit), Windows Server 2008 R2 (64-bit) / Linux Kernel 3.13.0 (32-bit, 64-bit)	
		Development Kits	FFmpeg, Microsoft DirectShow	
Physical Characteristic		Video Input/Output Interfaces	PCI express Gen3 x8	
		Power Consumption	<35W	
		Dimensions	PCI Express Half Length Full Height / 167.65 x 111.15 mm	
Environmental		Operating Temperature	-10 to 70 degrees Celsius	
		Non-operating Temperature	-40 to 85 degrees Celsius	
		Operating Humidity	50 to 95% (non-condensing)	
		Non-operating Humidity	50 to 95% (non-condensing)	

Ordering Information

Part number	Description
VEGA-3310E	4Kp120 HEVC Broadcast Video Encoding / Decoding Card (M30)

VEGA-3311

4K HEVC Broadcast Video Encoding/ Decoding Card

Features

- 1-ch 4Kp60 or 4-ch 1080p60 real-time 4:2:2 10-bit HEVC, AVC & MPEG-2 encode & decode
- AIMS roadmap support including SMPTE 2022-5/-6/-7 & VSF TR-03/-04 w/ AES67 audio & SMPTE 2059 sync
- Optional TICO or Sony LLVC compression
- 4K video capture over built-in, 4-ch SDI-3G or 1-ch SDI-12G, 1x mini-HDMI 2.0 input and 1x mini-HDMI 2.0 output (VEGA-3311-S)
- 4K video capture over built-in, 4-ch SDI-3G or 1-ch SDI-12G and 2x 10GbE (VEGA-3311-I)
- Simple-to-use API and example code for FFmpeg and GStreamer multimedia frameworks

Introduction

VEGA-3311 enables HEVC, AVC, MPEG2 real-time 1-ch 4K UltraHD (2160p60) and 4-ch FHD (1080p60) encode and decode. It is particularly relevant for 4K UltraHD transmission which requires a much higher stream capacity.

VEGA-3311 is tailored for professional media processing and are capable of performing professional grade 4Kp60 Main10 profile HEVC encoding and decoding at less than 35W power consumption. The VEGA-3311 adapter additionally features 4K video capture over built-in 4-ch SDI-3G or 1-ch SDI-12G or mini-HDMI2.0 video inputs for acquisition-based encoding and 4-ch SDI-3G video outputs for acquisition-based decoding in contribution workflows. VEGA-3311 can also support low latency transmission of uncompressed or lightly compressed video over standard IP networks according to industry agreed standards. This card feature a simple-to-use API and example code for FFmpeg and GStreamer multimedia frameworks to streamline product development and their integration into existing applications.

Specification

Live Video Input - SDI-3G/SDI-12G	Video Encoding	H.265/HEVC	Resolution (x1ch)	3840x2160 /1920x1080 / 1280x720 /720x480
			Resolution (Multi-channel more than x2ch)	1920x1080 /1280x720 /720x480
			Frame rate/Scan mode	60p/59.94p/50p/30p/29.97p/25p/24p / 59.94i/50i
			Bit depth	8, 10 bits
			8-bit encoding from 10-bit raw data	Supported
			Chroma Sampling	4:2:0 / 4:2:2
			Rate control	CBR / VBR / Capped VBR
			GOP length	One Picture (I only) / 0.5sec / 1 sec
			GOP structure	I picture only / IPPP /IBB/IBBB/IBBBBBBB (Hierarchical GOP:supported) / Closed GOP/Open GOP / Temporal ID on/off for hierarchical GOP / Scene change / Adaptive GOP
			CPB delay control	3s, 1s, 0.5s
			Filter	Fixed strength
			Low latency	5,6 frame (with IPPPP)
			Ultra low-latency	< 1 frame
		H.264/AVC	Resolution (x1ch)	3840x2160 /1920x1080 / 1280x720 /720x480
			Resolution (Multi-channel more than x2ch)	1920x1080 /1280x720 /720x480
			Frame rate/Scan mode	60p/59.94p/50p/30p/29.97p/25p/24p / 59.94i/50i
			Bit depth	8, 10 bits
			8-bit encoding from 10-bit raw data	Supported
			Chroma Sampling	4:2:0 / 4:2:2
			Rate control	CBR / VBR / Capped VBR
			GOP length	One Picture (I only) / 0.5sec / 1 sec
			GOP structure	I picture only / IPPP /IBB/IBBB / Closed GOP/Open GOP / Scene change / Adaptive GOP
			CPB delay control	1s, 0.5s
			Filter	De-blocking filter / Fixed strength
			Low latency	5,6 frame (with IPPPP)
		MPEG-2	Resolution (x1ch)	1920x1080 / 1280x720 /720x480
			Resolution (Multi-channel more than x2ch)	1920x1080 /1280x720 /720x480
			Frame rate/Scan mode	30p/29.97p/25p/24p / 59.94i/50i
			Bit depth	8 bits
			Chroma Sampling	4:2:0
			Rate control	CBR
			GOP length	One Picture (I only) / 0.5sec / 1 sec
			GOP structure	I picture only / IPPP /IBB / Closed GOP/Open GOP / Scene change / Adaptive GOP

Specifications (Cont.)

Live Video Input - SDI-3G/SDI-12G	Video Decoding	H.265/HEVC	Resolution (x1ch)	3840x2160 /1920x1080 / 1280x720 /720x480
			Frame rate/Scan mode	60p/59.94p/50p/30p/29.97p/25p/24p / 59.94i/50i
			Bit depth	8 / 10 bits
			Chroma Sampling	4:2:0 / 4:2:2
		H.264/AVC	Resolution (x1ch)	3840x2160 /1920x1080 / 1280x720 /720x480
			Frame rate/Scan mode	60p/59.94p/50p/30p/29.97p/25p/24p / 59.94i/50i
			Bit depth	8, 10 bits
			Chroma Sampling	4:2:0 / 4:2:2
		MPEG-2	Resolution (x1ch)	1920x1080 / 1280x720 /720x480
			Frame rate/Scan mode	30p/29.97p/25p/24p / 59.94i/50i
			Bit depth	8 bits
			Chroma Sampling	4:2:0
	Audio Encoding	Control	Single ch	Supported
	Audio Decoding	Control	Single ch	Supported
	Video Capture	Control	Pixel Format	NV12 / YV12 / I420 / P010 / NV16 / YV16 / YUY2/P210
	Audio Capture	Control	Sample Frequency	48KHz / 96KHz
			Sampling Depth	16 bit
			Channel Layouts	8-ch / 16-ch
Live Video Input - mini-HDMI (VEGA-3311-S)	Video Encoding	H.265/HEVC	Resolution (x1ch)	3840x2160 /1920x1080 / 1280x720 /720x480
			Frame rate/Scan mode	60p/59.94p/50p/30p/29.97p/25p/24p / 59.94i/50i
			Bit depth	8, 10 bits
			8-bit encoding from 10-bit raw data	Supported
			Chroma Sampling	4:2:0 / 4:2:2
			Rate control	CBR / VBR / Capped VBR
			GOP length	One Picture (I only) / 0.5sec / 1 sec
			GOP structure	I picture only / IPPP /IBB/IBBB/IBBBBBBB (Hierarchical GOP:supported) / Closed GOP/Open GOP / Temporal ID on/off for hierarchical GOP / Scene change / Adaptive GOP
			CPB delay control	3s, 1s, 0.5s
			Filter	Fixed strength
			Low latency	5,6 frame (with IPPPP)
			Ultra low-latency	< 1 frame
		H.264/AVC	Resolution (x1ch)	3840x2160 /1920x1080 / 1280x720 /720x480
			Frame rate/Scan mode	60p/59.94p/50p/30p/29.97p/25p/24p / 59.94i/50i
			Bit depth	8, 10 bits
			8-bit encoding from 10-bit raw data	Supported
			Chroma Sampling	4:2:0 / 4:2:2
			Rate control	CBR / VBR / Capped VBR
			GOP length	One Picture (I only) / 0.5sec / 1 sec
			GOP structure	I picture only / IPPP /IBB/IBBB / Closed GOP/Open GOP / Scene change / Adaptive GOP
			CPB delay control	1s, 0.5s
			Filter	De-blocking filter / Fixed strength
			Low latency	5,6 frame (with IPPPP)
		MPEG-2	Resolution (x1ch)	1920x1080 / 1280x720 /720x480
			Frame rate/Scan mode	30p/29.97p/25p/24p / 59.94i/50i
			Bit depth	8 bits
			Chroma Sampling	4:2:0
			Rate control	CBR
			GOP length	One Picture (I only) / 0.5sec / 1 sec
			GOP structure	I picture only / IPPP /IBB / Closed GOP/Open GOP / Scene change / Adaptive GOP
	Audio Encoding	Control	Single ch	Supported
	Video Capture	Control	Pixel Format	NV12 / YV12 / I420 / P010 / NV16 / YV16 / YUY2 / P210
	Audio Capture	Control	Sample Frequency	48KHz / 96KHz
			Sampling Depth	16 bit
			Channel Layouts	8-ch / 16-ch
File Based Video Input (PCI Express)	Video Encoding	H.265/HEVC	Resolution (x1ch)	3840x2160 /1920x1080 / 1280x720 /720x480
			Resolution (Multi-channel more than x2ch)	1920x1080 /1280x720 /720x480
			Frame rate/Scan mode	60p/59.94p/50p/30p/29.97p/25p/24p / 59.94i/50i
			Bit depth	8, 10 bits
			8-bit encoding from 10-bit raw data	Supported
			Chroma Sampling	4:2:0 / 4:2:2
			Rate control	CBR / VBR / Capped VBR
			GOP length	One Picture (I only) / 0.5sec / 1 sec
			GOP structure	I picture only / IPPP /IBB/IBBB/IBBBBBBB (Hierarchical GOP:supported) / Closed GOP/Open GOP / Temporal ID on/off for hierarchical GOP / Scene change / Adaptive GOP
			CPB delay control	3s, 1s, 0.5s
			Filter	Fixed strength
			Low latency	5,6 frame (with IPPPP)
			Ultra low-latency	< 1 frame

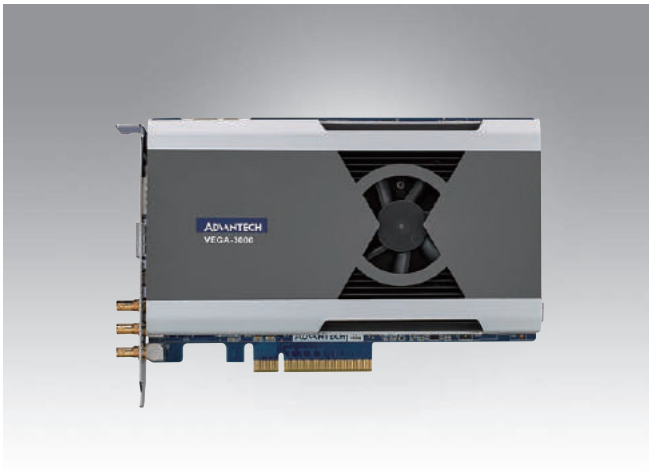
File Based Video Input (PCI Express)	Video Encoding	H.264/AVC	Resolution (x1ch)	3840x2160 /1920x1080 / 1280x720 /720x480
			Resolution (Multi-channel more than x2ch)	1920x1080 /1280x720 /720x480
			Frame rate/Scan mode	60p/59.94p/50p/30p/29.97p/25p/24p / 59.94i/50i
			Bit depth	8, 10 bits
			8-bit encoding from 10-bit raw data	Supported
			Chroma Sampling	4:2:0 / 4:2:2
			Rate control	CBR / VBR / Capped VBR
			GOP length	One Picture (I only) / 0.5sec / 1 sec
			GOP structure	I picture only / IPPP /IBB/IBBB / Closed GOP/Open GOP / Scene change / Adaptive GOP
			CPB delay control	1s, 0.5s
			Filter	De-blocking filter / Fixed strength
			Low latency	5,6 frame (with IPPPP)
		MPEG-2	Resolution (x1ch)	1920x1080 / 1280x720 /720x480
			Resolution (Multi-channel more than x2ch)	1920x1080 /1280x720 /720x480
			Frame rate/Scan mode	30p/29.97p/25p/24p / 59.94i/50i
			Bit depth	8 bits
			Chroma Sampling	4:2:0
			Rate control	CBR
			GOP length	One Picture (I only) / 0.5sec / 1 sec
			GOP structure	I picture only / IPPP /IBB / Closed GOP/Open GOP / Scene change / Adaptive GOP
	Video Decoding	H.265/HEVC	Resolution (x1ch)	3840x2160 /1920x1080 / 1280x720 /720x480
			Frame rate/Scan mode	60p/59.94p/50p/30p/29.97p/25p/24p / 59.94i/50i
			Bit depth	8, 10 bits
			Chroma Sampling	4:2:0 / 4:2:2
		H.264/AVC	Resolution (x1ch)	3840x2160 /1920x1080 / 1280x720 /720x480
			Frame rate/Scan mode	60p/59.94p/50p/30p/29.97p/25p/24p / 59.94i/50i
			Bit depth	8, 10 bits
			Chroma Sampling	4:2:0 / 4:2:2
		MPEG-2	Resolution (x1ch)	1920x1080 / 1280x720 /720x480
			Frame rate/Scan mode	30p/29.97p/25p/24p / 59.94i/50i
			Bit depth	8 bits
			Chroma Sampling	4:2:0
	Audio Encoding	Control	Single ch	Supported
	Audio Decoding	Control	Single ch	Supported
Feature		Operating System	Windows Server 2012 & 2012 R2 (64-bit), Windows Server 2008 R2 (64-bit) Linux Kernel 3.13.0 (64-bit)	
		Development Kits	FFmpeg, Microsoft DirectShow	
Physical Characteristic		Networking Interface	2x 10Gbps Ethernet port (VEGA-3311-I)	
		Forward Error Correction	Level A and Level B FEC (steam basis)	
		Connectors	SFP+ Module	
		Internet protocol	Support IPV4 static IP setting	
		Streaming Protocols	RTSP/RTP/RTCP over UDP	
		Video-over-IP	SMPTE 2022-5/-6/-7 & VSF TR-03/-04 w/ AES67 audio & SMPTE 2059 sync Optional TICO or Sony LLVC compression	
		Video Input Interfaces	PCIexpressGen3 x8 4x SDI-3Gor 1x SDI-12G 1x Tri-sync 1x mini-HDMI 2.0 input (VEGA-3311-S) 2x 10Gbps Ethernet port (VEGA-3311-I)	
		Video Output Interface	PCI express Gen3 x8 4x SDI-3G or 1x SDI-12G 1x mini-HDMI 2.0 (VEGA-3311-S)	
		Power Consumption	<35W	
		Dimensions	PCI Express Half Length Full Height 167.65 x 111.15 mm	
Environmental		Operating Temperature	-10 to 70 degrees Celsius	
		Non-operating Temperature	-40 to 85 degrees Celsius	
		Operating Humidity	50 to 95% (non-condensing)	
		Non-operating Humidity	50 to 95% (non-condensing)	

Ordering Information

Part number	Description
VEGA-3311E	4Kp60 HEVC Broadcast Video Encoding / Decoding Card (M30)

VEGA-3000

SMPTE 2022-5,6 Video-over-IP PCIe Card



Features

- SMPTE 2022-6 Video over IP bridge that converts 3G-SDI x3 to 10G Ethernet
- Forward Error Correction (FEC) supported according to SMPTE 2022-5
- Send or receive raw video through PCIe interface to host computer
- Single configurable module allows operating as a transmitter or receiver
- Single slot, half length PCIe x8 card (only x4 used in logical)

Introduction

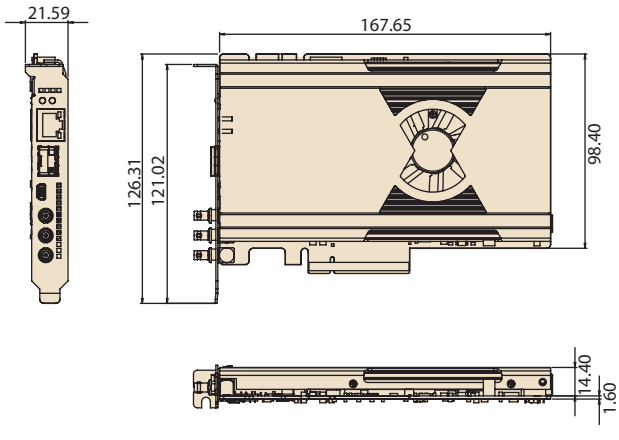
VEGA-3000 is a single slot, Half-Length PCIe add-on card in terms of performing encapsulation/decapsulation multiple High-Definition 1080p60 video streams over a 10 gigabit Ethernet network in uncompressed format. VEGA-3000 supports the approved SMPTE 2022-6 (High Bit Rate Media Transport over IP Networks) standard for transmitting and receiving video raw data through IP networks via RTP protocol. The SMPTE 2022-5 (Forward Error Correction for High Bit Rate Real-Time Video/Audio Transport over IP) feature is also supported by VEGA-3000 to improve resilience of bit errors and packet loss during video data transmission. VEGA-3000 can be operated either as a transmitter or receiver function, by configuring the selection jumper onboard. The transmitter mode will take the video raw data from multiple SDI inputs or PCI Express interface and converts the video content into the packet format defined by SMPTE 2022 before transmitting out through 10 gigabit Ethernet port. The receiver mode will perform very similar process like transmitter mode but in reversed way of datapath. It is also doable in using VEGA-3000 as the standalone board without the need for plugging into a host system for operation. With the easy-to-use software development kit (SDK), VEGA-3000 is an ideal solution for broadcasters or system integrators who need to carry the uncompromised video data through the existing IP infrastructure. The wide range of target applications that VEGA-3000 can serve includes cloud video acquisition, video over IP bridge, real-time video transfer and networked broadcast studio installations.

Specification

Live Video Input (Tx Mode) Live Video Output (Rx Mode)	Channels	3
	SDI Interfaces	SD-SDI SMPTE 259-C HD-SDI SMPTE 292 3G-SDI Level A SMPTE 425-A
	Video Standards	PAL/NTSC/SMPTE 274/SMPTE 296/ SMPTE 260/SMPTE 2048-2/ SMPTE 428-9/SMPTE 428-19/ SMPTE 372
	Resolution	Up to 1920 x 1080p (Full HD 1080p)
	Max. Frame Rate	Up to 60 fps per channel
	Connectors	SMA
File-based I/O	PCIe Gen2 x4 (Physical link is PCIe Gen2 x8, reserved for future upgrade)	
10G Ethernet Interfaces	Function Standards	SMPTE 2022-5/6
	Forward Error Correction	Level A and Level B FEC (steam basis)
	Connectors	SFP+ Module
Giga Ethernet Interfaces	10/100/1000 Mbps LAN port; RJ-45 connector (This interface is reserved for future upgrade)	
Latency	60 ms (3G-SDI, 1080/60p)	
Internet Protocol	Support IPV4 static IP setting	

Dimension

Unit: mm



Ordering Information

Part Number	Description
VEGA-3000-S000E	SMPTE-2022 Encapsulation PCIe Card

VEGA-3001

SONY LLVC Video-over-IP PCIe Card

Features

- Support Sony Low Latency Video Coding (LLVC) to compress and transmit live video, audio and metadata over single 10GbE link
- Live AV transmission over IP Network, High-QoS, Low-latency (under 20 ms) supported
- Support one 4Kp60, two 1080p60 or four 1080i60 data streams
- Forward Error Correction (FEC) supported
- Send or receive raw video through PCIe interface to host computer
- Single configurable module allows operating as a transmitter or receiver
- Single slot, half- length PCIe x8 card
- Low operating power consumption (<19 Watt)

Introduction

VEGA-3001 leverages Sony Low Latency Video Coding (LLVC) to compress and transmit live 4Kp60 video, audio and metadata over a single 10GbE link. As a standard PCI Express interface card, VEGA-3001 further accelerates the fusion of the broadcasting industry and the PC/IT industry by allowing UHD video streaming interfaces to be integrated into well-established server architectures, thus facilitating cloud-based broadcast workflows.

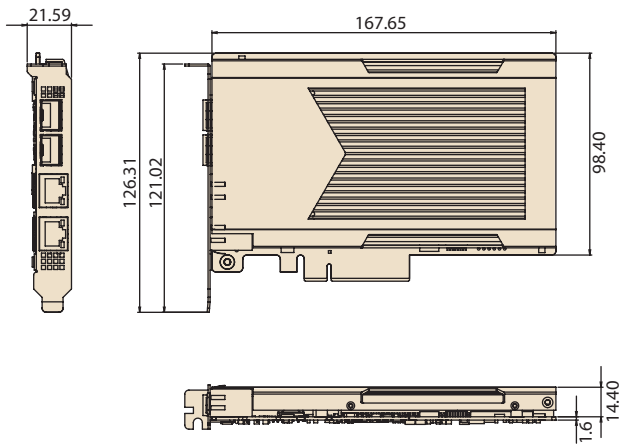
The VEGA-3001 Video Interface Card overcomes SDI limitations in the transition to 4K workflows by delivering low latency and noise-free switching of HD and UHD media on standard IP networks. The visually-lossless compression used in the LLVC block is used to one 4Kp60, two 1080p60 or four 1080i data streams into a convenient 10GbE Ethernet link. Replacing purpose-specific SDI equipment with payload-agnostic IP networks, VEGA-3001 utilizes Sony IP Live Production technology to packetize HD and UHD video streams from the host into IP datagrams that can be carried along with audio and control data over commercial-off-the-shelf IP cables, switchers and routers.

Specification

Video Specification	Number of Channels	1ch 4Kp60 (2ch 1080p60 and 4ch 1080i60 are available upon request)
	Video Format	YUV422, 8-bit, 3840x2160, 50p/59.94p/60p YUV422, 8-bit, 4096x2160, 50p/59.94p/60p
Audio Format	Number of Channels	16ch/ Link
	Bit Width	24bit
	Sampling Frequency	48KHz
File-based I/O		PCIe Gen2 x8
10G Ethernet Interfaces	Forward Error Correction	Level A and Level B FEC (steam basis)
	Connectors	SFP+ Module
Giga Ethernet Interfaces		10/100/1000 Mbps LAN port; RJ-45 connector (This interface is reserved for future upgrade)
Latency		20 ms
Internet protocol		Support IPV4 static IP setting
Power Consumption		<19W
Form Factor		Standard Half-Length PCIe Card

Dimension

Unit: mm

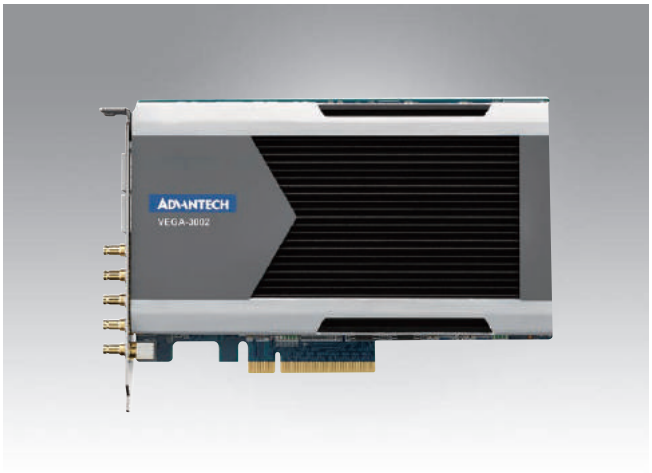


Ordering Information

Part Number	Description
VEGA-3001-F000E	SONY LLVC 4Kp60 Video-over-IP PCIe Card

VEGA-3002

Universal Media-over-IP Adapter



Features

- Support SMPTE 2022-5/6 Video over IP bridge that converts 3G
- 1-ch 12G/3G-SDI, 3-ch 3G-SDI with tri-sync & 2x 10GbE
- Optional Tico light-weight mezzanine code to compress one 4Kp60 over single 10GbE link
- Smpte 2059 1/2 time-aligned signal generation
- VSF TR-03/04 with AES67 audio supported
- Send and receive raw video through PCIe interface to host computer
- Single configurable module allows operating as a transmitter and receiver

Introduction

The VEGA-3002 is a single slot, Half-Length PCIe add-on card in terms of performing video capture, encapsulation, light weight compression and streaming to enable UHD media transport over 10GbE IP network. VEGA-3002 supports the approved SMPTE 2022-6 standard for transmitting and receiving video raw data through IP networks via RTP protocol. The SMPTE 2022-5 (Forward Error Correction for High Bit Rate Real-Time Video/Audio Transport over IP) feature is also supported by VEGA-3002 to improve resilience of bit errors and packet loss during video data transmission. As a software-configurable board, the VEGA-3002 can support multiple application scenarios and can be firmware-upgraded to support future standard enhancements, which allows users to move their server-based video applications confidently into an IP future with minimum risk. The standard allowing users deploy IP standard such as SMPTE 2022-5/6/7, AIMS/VSF recommendations with the TICO mezzanine codec, and TR-03/04 carries individual packetization of video, audio and Metadata make network more efficient.(up to 40% bandwidth saving).

The VEGA-3002 Video Interface Card overcomes SDI limitations in the transition to 4K workflows by delivering low latency and support IP routing while switching of HD and UHD media on standard IP networks. Replacing purpose-specific SDI equipment with payload-agnostic IP networks, VEGA-3002 utilizes universal media-over-IP technology to packetize HD and UHD video streams over commercial-off-the-shelf IP cables, switchers and routers. The wide range of target applications that VEGA-3002 can serve includes cloud video acquisition, video over IP bridge, real-time video transfer and networked broadcast studio installations.

Specification

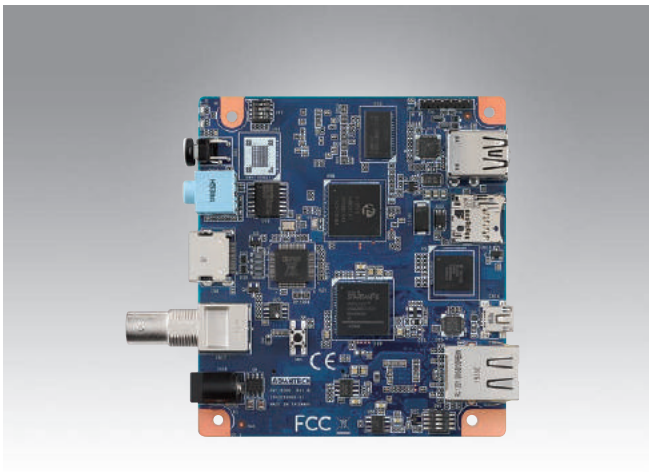
Video Input (Tx Mode) Video Output (Rx Mode)	Channels	1 (up to 4Kp60 10bit. YUV)) / 4 (up to 1080p60 10bit, YUV)
	Video Formats	4K, HD, SD
	Resolution/Frame	BNC (3G-SDI/12G-SDI) interface 4K /3840 x 2160: 60p / 50p / 30p 1920 x 1080: 60p / 59.94p / 50p / 30p / 29.97p / 25p / 24p 1280 x 720: 60p / 59.94p / 50p / 30p / 29.97p / 25p / 24p PCIe Express Interface 4K /3840 x 2160: 60p / 50p / 30p 1920 x 1080: 60p / 59.94p / 50p / 30p / 29.97p / 25p / 24p 1280 x 720: 60p / 59.94p / 50p / 30p / 29.97p / 25p / 24p
	Interface	PCIe express Gen2x8 / 1x 12G-SDI or 4x 3G-SDI
Video-over-IP option	Connectivity	Redundant 10GbE (SFP+ cages)
	Standards Supported*	ST 2022-5/6, ST 2022-7, ST 2059, TICO, TR-03/04
Audio Format	Number of Channels	4
	Sampling Bit Width	16
	Operation mode	Stereo
	Sampling Frequency	48KHZ
File-based I/O		PCIe Gen2 x8 (Physical link is PCIe Gen2 x8, reserved for future upgrade)
10G Ethernet Interfaces	Forward Error Correction	Level A and Level B FEC (steam basis)
	Connectors	SFP+ Module
Internet protocol		Support IPV4 static IP setting
Power Consumption		< 30W
Form Factor		Standard Half-Length PCIe Card

Ordering Information

Part Number	Description
VEGA-3002	

VEGA-2000

1-Ch HEVC/H.264 Video Capture & Encode Module



Features

- 1-Ch HEVC/H.264 1080p60 encode
- 1-Ch SDI-3G & HDMI video inputs
- One audio phone jack input
- One USB2.0 Type-A connector
- One gigabit Ethernet RJ-45 connector
- One micro SD card connector
- One miniUSB console port
- Onboard 1GB DDR3 memory
- Small form-factor (90 x 100mm^2)
- Low power consumption (<5W)

Introduction

VEGA-2000 (previously known as HVC-6300), is a small form-factor module designed for encoding live video using either advanced HEVC (High Efficiency Video Coding) Main Profile or H.264 BP/MP/HP video compression up to 1080p resolution at 60 frames per second, with CBR (Constant Bit Rate) & VBR (Variable Bit Rate) support from 64kbps ~ 32Mbps. The single SDI-3G or HDMI video inputs provide video capture capability in convenient formats for professional video feeds while the onboard USB 2.0 and gigabit Ethernet ports offer great flexibility in transporting the compressed video stream through wireless (such as WiFi, LTE, etc.) and wireline interconnections to remote and cloud side for archiving or further processing. The SD memory card interface can also be used for local storage. The module also features audio encoding from either embedded SDI/HDMI audio channels or a separate 3.5mm audio jack socket.

The module is supplied with a bundled software package that demonstrates a streamlined workflow from video acquisition, encoding, streaming to archiving in a hassle-free approach for simplifying system adoption and integration effort. The well-defined web-based software APIs open the possibilities for customization based on the final usage cases.

With a small physical dimension and low power dissipation characteristics, VEGA-2000 can be easily applied to portable and mobile broadcasting, medical imaging, UAV (Unmanned Aerial Vehicle) applications, etc. where real-time and high-quality video content needs to be captured and transported in an efficient way using the latest HEVC compression standard.

Specification

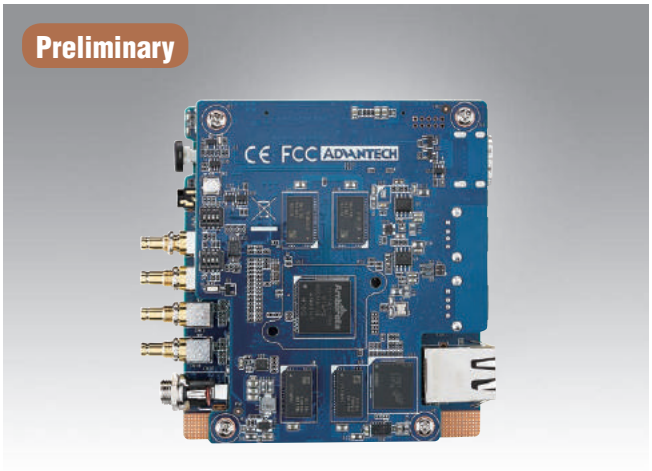
Video Input	Channels	1 (up to 1080p60, 8bit,YUV)
	Video Formats	HD, SD
	Frame Rates	HDMI 1.4 Interface 1920x1080: 60p / 59.94p / 50p / 30p / 29.97p / 25p / 24p 1280x720: 60p / 59.94p / 50p / 30p / 29.97p / 25p / 24p 720x576: 50p 720x480: 60p / 59.94p BNC (3G-SDI) Interface 1920x1080: 60p / 59.94p / 50p / 30p / 29.97p / 25p / 24p 1280x720: 60p / 59.94p / 50p / 30p / 29.97p / 25p / 24p 720x576: 50p 720x480: 60p / 59.94p
	Chroma Sampling Format	4:2:2 / 4:2:0
	Interfaces	HDMI 1.4 3G-SDI BNC (SMPTE424M Level A)
Video Compression	Compression	H.265/H.264
	HEVC Profile	Main
	HEVC Tier	Main
	HEVC Level	1.0 / 2.0 / 2.1 /3.0 / 3.1 / 4.0 / 4.1
	Bitrate 1080P Format	64Kbps - 32Mbps
	Bit Depth / Chroma Subsampling	8 bit / 4:2:0
	Bit Rate Control	CBR/VBR
	Output Format	RTSP/MP4
Audio	Channels	Up to 2
	Format	AAC encoding
	Sampling Rates	48Khz/16bit
	Connectors	HDMI 1.4 / SDI-3G / Line-In
Web	PC/Mobile Phone	IE/Chrome/FireFox

Ordering Information

Part Number	Description
VEGA-2000-00ME	FHD HEVC/H.264 Video Capture & Encoder Module
VEGA2000SE-ES	FHD HEVC/H.264 Video Capture & Encoder Module w/ Chassis

VEGA-2001

4K HEVC/AVC Real-Time Encoder and Streaming Module



Features

- 4Kp60 audio/video capture over built in 4 x SDI-3G or 1 x 12G inputs or HDMI 2.0 input
- Real-time 4Kp30 HEVC 8-bit encode
- Real-time 4Kp60 H.264 8-bit encode
- Streaming output via Gigabit Ethernet or USB
- WiFi and LTE dongle support
- HDMI 2.0 output for local console
- Small size and low power consumption for easy adoption in portable video applications
- Easy to use SDK and remote management interfaces

Introduction

With more and more viewers turning to online video, new concepts such as social media and anywhere broadcasting are gaining popularity among video professionals. The VEGA-2001 helps leveraging the ubiquity of mobile networks and the flexibility of over-the-top delivery without jeopardizing video quality by providing a professional-grade 4K HEVC engine that can be easily integrated into portable broadcasting solutions. The VEGA-2001 is a powerful tool that opens new online media opportunities enabling live event streaming even in the most challenging scenarios where a traditional outside broadcasting setup is not feasible.

The VEGA-2001 is a small, low power, real-time encoding module based on Ambarella's video compression technology which supports UHD resolution and HEVC and AVC codecs. It features 4K video acquisition through built-in SDI or HDMI inputs and encoded video can be streamed to mobile or Wi-Fi networks by connecting an USB wireless adapter. The VEGA-2001 can create multiple output streams from a single video input and encode each one using different codecs with different parameters.

The VEGA-2001 offers a user-friendly HTTP interface and can be remotely controlled using a web-based CGI interface. It supports streaming protocols commonly used by CDNs, making it easier for users to deliver video over-the-top.

Specification

		VEGA-2001	
Video Input Format	Channels/interface	4x 3G-SDI, each up to 1080p60	1x 12G-SDI or 1x HDMI2.0, up to 4Kp60 8bit 4:2:2
	Video formats	4K / 3840x2160: 60p / 59.94p / 50p / 30p / 29.97p / 25p / 24p 1920x1080: 60p / 59.94p / 50p / 30p / 29.97p / 25p / 24p 1280x720: 60p / 59.94p / 50p / 30p / 29.97p / 25p / 24p	
Video Compression	Compression	AVC (H.264) up to 4Kp60 HEVC (H.265) up to 4Kp30	
	AVC or HEVC profile	AVC BP/MP/HP Level 5.1 HEVC Main Level 5.1	
	HEVC Tier	Main	
	Bitrate in 4K format	512kbps~150Mbps	
	Bit Depth	8 bits	
	Chroma Sampling Format	4:2:0	
	Bit Rate Control	CBR / VBR	
Audio	Format	AAC	
	Operation mode	2ch Stereo	
	Sampling Frequency	48KHz	
	Connectors	Audio Jack	

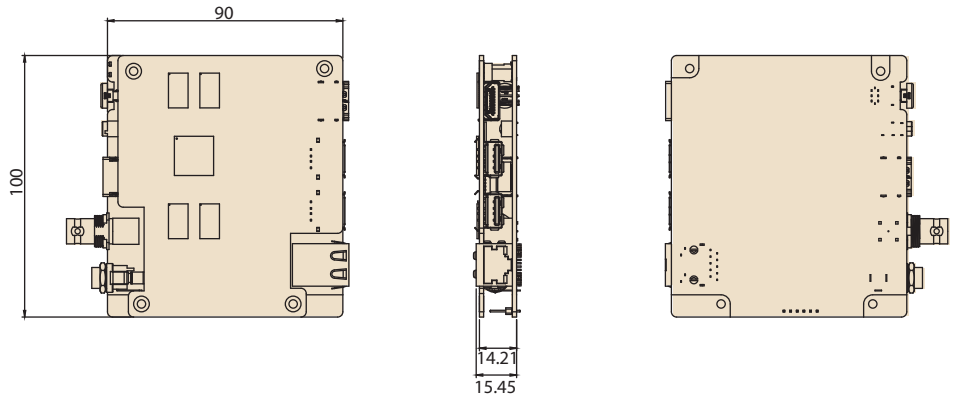
Specifications (Cont.)

Other Features	Frame Rate & Resolution Control	Yes
	Encoding Control & Manipulation	Yes
	Streaming Protocol	RTSP/RTMP/HLS/TS over IP
	GOP Definition	I, IP, IPB, IBBP
	Ancillary Data & VBI	Yes
	Operation System	Standalone with Embedded Linux
	Management & Control Interface	Remote Web GUI interface
Module Characteristic	Local Video Output	1x HDMI 2.0
	Network Interface	1x GigE port
	USB port	2x USB2.0 port
	Power	Yes
	Power Consumption	Less than 15W
	Power Input	DC12V
	Module Dimension	(L) x (W) x (H): 90 x 100 x 16 mm

Dimensions

Unit: mm

Type 1



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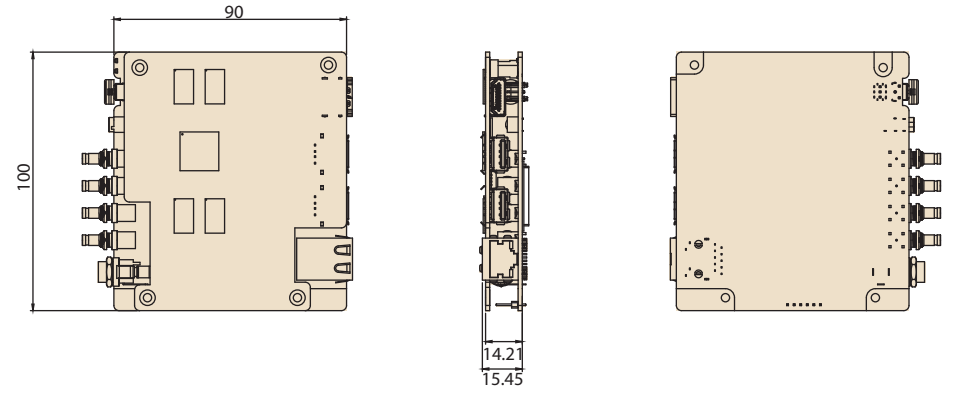

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