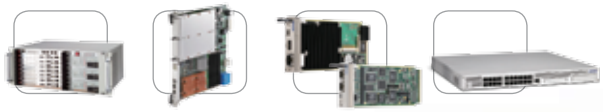
Telecom & Network Computing Platforms

Expertise for Modular Mission Critical Computing



- CompactPCI Platforms
- AdvancedTCA Blades
- AdvancedMC Modules
- MicroTCA Solutions
- Network Application Platforms

Trusted ePlatform Services

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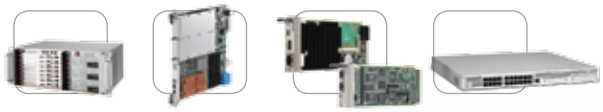

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About Advantech Telecom and Network Computing Platforms

Advantech provides mission critical hardware to the world's leading telecom and networking equipment manufacturers. Whether it's wired or wireless nodes at the core or edge of the network, Advantech's products are embedded in the OEM equipment that our world's networking and telecommunications infrastructure depends upon.

Our Blade Computing Division, with an extensive CompactPCI deployed base, designs both standard and customized products for AdvancedTCA, AdvancedMC and MicroTCA. We team up locally with customers to evaluate project requirements, share design knowledge and develop optimized solutions together. Our Network Application Platform Division shares the same principles and engineers X86, network processor and FPGA designs into customized tabletop, 1U and 2U platforms for the world's leading brands in Network Security.

Advantech's standard commercial off-the-shelf platforms coupled with comprehensive operating system and middleware support provide the foundations for rapid application benchmarking. Proof-of-concept systems can be evaluated quickly, allowing a faster time-to-market for OEM and branded product designs or providing the baseline specificiation for a customized design. Advantech customization services are designed with customer choice and requirements in mind, allowing our customers to choose the precise level of differentiation 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 Reseach & Development and support facilities in the USA, Europe and Asia, our customer-facing project teams link seamlessly into our worldwide network of over 3100 employees. We manufacture to stringent quality procedures in our own ISO-9001 certified factories in Taiwan and China and our global integration and logistics centres operate on all continents to provide unified and localized services for optimum supply chain efficiency.

In this Telecom & Network Computing brochure, Advantech brings together the core competencies of our Blade Computing Solutions and Network Application Platforms. It mirrors the changing market requirements we are observing where baseline technologies and platform scalability needs converge. The products represented here provide a wide range of platform choices for designers of the next wave of Telecom, Networking and Security appliances.

Advantech-designing a world of products and services for fast and secure global communications.

The Convergence in Communications

IP-based Customer-centric Network Convergence

Voice, data and video networks are converging around the Internet Protocol. Because telecommunications and IT networks were originally built on separate and disparate technologies with little commonality, it was both complex and costly for service providers to implement new services. But today, with the convergence to an all-IP network, video, just like voice becomes simply another application which can run on a standard IT server. Service providers no longer have to rely on customized hardware to create new service offerings and can create customer value by using software applications to create new services.

A Common Set of Core Technologies

As new multimedia services drive explosive new revenue growth, the use of open-systems internet-base technologies will dramatically reduce capital and operating costs. In addition the new IP-based applications and services can all employ a common set of core technologies, which means they can also take advantage of security appliances to handle firewalls, anti-virus, intrusion detection or prevention, spam etc to mitigate risk.

Synergy and Scalability

Convergence in the network has stimulated synergy between Advantech's Network Application Platform Division and Blade Computing Division to propose a scalable offering spanning tabletop appliances for small-to-medium businesses, 1U/2U rack mount appliances for medium-to-large enterprise and bladed computing elements for large enterprise, data centers and core networks.

Cost Efficiency

Whilst our dedicated appliances target customizable, white-box requirements for cost-effective large volume deployment, our ATCA, CompactPCI and MicroTCA blades offer a modular, open-standards approach. As MicroTCA is expected to bring greater economies of scale over time, it will become a key technology for hardware platform convergence by offering common re-usable Advanced Mezzanine Card technology on a wider scale.

Design Expertise

Our Networking OEM customers are extending their reach into larger-scale enterprise, data center and core network space. Advantech's cross-industry expertise in appliances, servers and blade computing elements makes us the ideal technology partner for converged hardware design expertise. Dedicated software development teams provide Board and Linux Support Packages with pre-tested middleware when remote platform management and high availability are key requirements.

Telecommunication Solutions

Open Modular Building Blocks

The telecommunications industry is fundamentally evolving as equipment manufacturers and modular communications platform designers are repositioned along the telecommunications value chain. Advantech provides foundation building blocks for that value chain in the form of standard off-the-shelf computing and management blades designed to meet the needs of Telecom Equipment Manufacturers (TEMs). These building blocks enable our TEM partners to redeploy their resources to focus on differentiated services, such as application development and network management as they themselves evolve into Telecom solutions providers.

Integration and Partnership

Our Blade Computing Division designs and manufactures blades in AdvancedTCA, AdvancedMC and CompactPCI form factors. We provide 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. When standard product adaptation is necessary to meet a TEM partner's design constraint, 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.

Customization

While the AdvancedTCA and MicroTCA ecosystem grows, not all required blade-level functions or elements are available as off-the-shelf products. That's why 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.

Strong Ecosystem

As TEMs turn their attention to the higher layers of the value chain to create differentiation, we understand that a strong co-working ecosystem is required to ensure that hardware platforms, operating systems and high-availability middleware components work together. At Advantech we collaborate closely, and partner with, ecosystem hardware and software vendors to ensure interoperability at the earliest possible stage in the design cycle. Board Support Packages and Linux Support Packages are developed both internally and in collaboration with the main industry players. In this way, true time-to-market advantages can be realized.

Economies of Scale

The shift to modular computing and communications platforms is underway. Advantech is firmly committed to helping the telecommunications industry make a smooth transition to modular platforms, by working closely with the strong worldwide community of hardware developers and software solutions providers. We acknowledge that through partnership and standards, the telecommunications industry can leverage enormous horizontal economies of scale to drive down the overall hardware development costs of the next generation of telecommunications voice and data infrastructure.

AdvancedTCA® µTCA™ CompactPCI® AdvancedMC™

MicroTCA & AdvancedTCA Platforms

MicroTCA Overview

MicroTCA has a primary purpose of serving as a platform for telecommunications and enterprise computer network equipment. Its secondary goal is to function as a platform for other demanding marketplaces, such as Customer Premises Equipment (CPE) and looks set to expand into a wider cross industry adoption. Ratified in 2006, MicroTCA is complementary to Advanced Telecommunications Computing Architecture (AdvancedTCA). Where AdvancedTCA is optimized for very high capacity, high performance applications, MicroTCA is designed to address cost sensitive and physically smaller applications with lower capacity, performance, and perhaps less stringent availability requirements.

MicroTCA preserves many of the important philosophies of AdvancedTCA, including basic interconnect topologies and management structure. MicroTCA is a highly modular standard where diverse collections of AdvancedMCs (AMCs) in a MicroTCA Shelf provide the foundations for many different application architectures. The common elements defined by MicroTCA are capable of interconnecting these AMCs in many interesting ways—powering and managing them, all at high efficiency and low cost. MicroTCA offers a significant advantage because the same AMCs that connect directly to the MicroTCA Backplane can also be equipped on an AdvancedTCA Carrier Board. At Advantech we are investing in MicroTCA because we see it as a pervasive convergence technology which will be used on multiple form factor boards in a wide variety of cross-industry platforms.

AdvancedMCs Are a Leap Forward in Blade Miniaturization, Modularity & Scalability

The ability to use any AMCs that conform to the AMC standard without modification in MicroTCA is an overarching goal of the standard. Examples of AMCs that could be installed into a MicroTCA shelf include CPUs for control and feature processing; network processing units for packet processing; DSP AMCs for signal processing; storage AMCs with built-in disk, built-in flash, or external interfaces to storage arrays; and I/O AMCs for subscriber lines, Ethernet or optical networks. This brochure introduces some of Advantech's major advances in the MicroTCA arena.

AdvancedTCA & MicroTCA 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 new 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.

MicroTCA System Management

Our MicroTCA Carrier Hub (MCH) family combine the control and management infrastructure and the interconnect fabric resources needed to support up to twelve AdvancedMCs. A primary Gigabit Ethernet fabric interconnects up to 12 AMCs. On-board Management Controller functions configure and control the elements and optionally the shelf. Additional modules can be added to the MCH for enhanced switch management, extended fabric options and external clock connectivity.

Scalability and Processing Density

For applications where processing power needs to be scaled to meet changing application requirements, Advantech's processor AMC's allow highly dense load-balanced clusters to be built up. Our processor AMC family provides densely-packed, low power consumption blades with front or rear GbE connectivity. Additional PCIe, SATA and USB options provide a pervasive I/O offering and the foundation for the multi-core evolution.

CompactPCI Platforms

Complete CompactPCI Computing Platform Solutions

CompactPCI platforms are widely used for mission-critical telecommunication applications that demand high-serviceability, enhanced reliability, and vibration/shock resistance. Advantech CompactPCI solutions are designed with the latest technologies and offer excellent support for rugged design, durability, hot-swapping and CT Buses. All of these great features are available in an easily-expandable "Eurocard" CompactPCI form factor. Advantech CompactPCI platforms incorporate these characteristics into many unique products, including processor boards, chassis, rear I/O units, carrier boards and other accessories – and all are designed to bring flexibility and exceptional value.

Modularized and Customized Design

Advantech understands the variation among applications; therefore, we are committed to provide a complete line-up of CompactPCI platform solutions to service our customers. Advantech cPCI solutions offer a wide range of 1U to 12U enclosures, as well as both high-performance "professional" and "entry-level" processor boards. Modular design allows customers to mix-and-match solutions based on specific needs, whether it be CT Bus backplanes or additional enclosed redundant power supplies. For ODM and system integrators, Advantech offers custom-made equipment tailored to specific applications through Design To Order Services (DTOS). Leveraging the industry's leading technology, Advantech can speed your development process and significantly reduce capital investments. We offer the best combination of technology and price-for-performance. In addition, Advantech provides basic customization services for SBCs, backplanes, chassis, and system integration.

CompactPCI Product Lines

High Density, Configurable CompactPCI Enclosures

CompactPCI systems are available in a full series of 1U to 12U rack-mountable enclosures. They offer different front/rear panel I/Os, redundant power supplies, and cooling mechanisms. The systems comply with many industry standards such as the CompactPCI packet switching backplane (PICMG 2.16) technology, cPCI hot-swap (PICMG 2.1) capability and H.110 CT Bus (PICMG 2.5) specifications. Rugged design ensures that the enclosures can provide service in the most severe environmental conditions and meet the toughest customer demands.

CompactPCI Single Board Computers

Intel-based CompactPCI single board computers are available in many configurations. The boards range from high-performance master CPU boards for mission-critical telecom applications to more all-round processor boards for multi-purpose applications. The high-performance 6U CompactPCI board features the latest Intel Core 2 Duo processor with exceptional I/O expandability for VGA/LAN/SCSI/HDD. These boards are designed to meet rapidly expanding requirements for modern Computer Telephony (CT) and Telecom applications.

A Variety of CompactPCI Peripherals

Advantech offers a variety of carrier and interface boards for I/O expansions, and PMC modules for added platform features. We provide a complete range of rear transition boards that interface with our CompactPCI CPU boards, plus power supplies and fan modules to complement the system.

Network Application Platforms

Network Appliances are becoming the mainstream for deploying network security services. Whether it be network security with firewall, virtual private network (VPN) and intrusion detection/prevention; content security with anti-virus and anti-spam; or network access control (NAC) content management systems; the use of network appliances lowers maintenance costs compared to traditional software solutions on standard network servers. As more and more network security functions are delivered via a dedicated appliance, system integrators need to consider the integration between hardware and software, to provide secure and high-performance network throughput. As technology progresses, the use of network appliances have moved on to other network application fields, such as traffic management for WAN optimization and wireless/WiMax gateways.

The Foundation for Secure Networks

Advantech Network Application Platforms are essentially hardware platforms for network appliances. We are dedicated to the research and development of network security platforms for network security application developers, system integrators and service providers. We provide a full series of standardised x86-based platforms in tabletop, rackmount 1U and 2U form factors. Our high-performance, rack-mountable enterprise platforms feature highly integrated motherboards, LCM control modules and Dual/Quad-core Xeon processor support. Advantech Network Application Platforms are modular to provide the basis for customized solutions. Our tabletop platforms are compact and consume minimal power. User-friendly designs satisfy the need of small businesses or home/office applications.

Customization, Design and Integration Capabilities

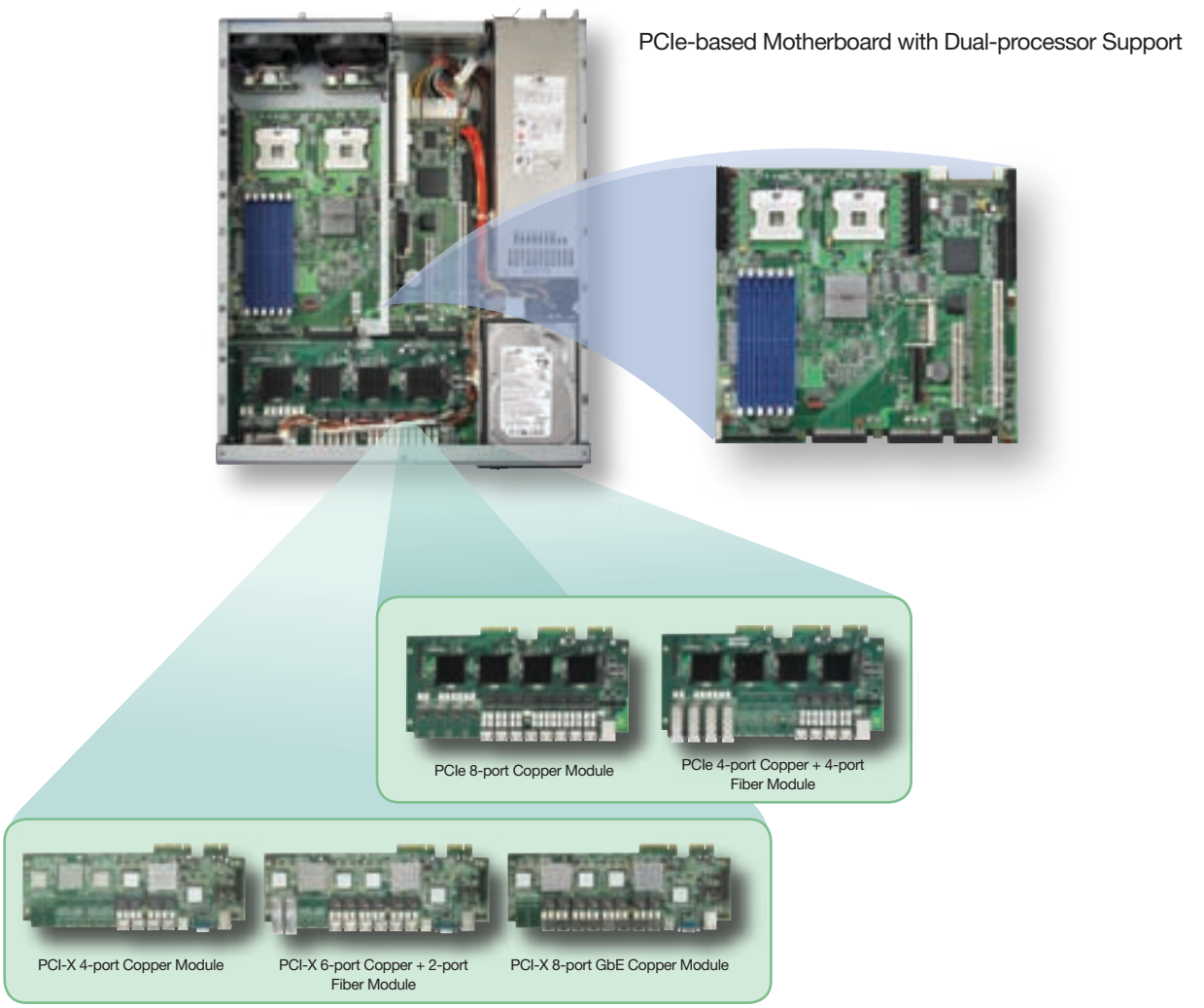
Based on our standard product lines and form factors, Advantech offers tailor-made products and value-added integration services. Various customizations are available from chassis color and front cover design, to extensive board-level design innovations. Apart from the standard x86 platforms, we offer a variety of advanced network security technologies through Design To Order Services. Right from the beginning, Advantech places you ahead of the competition.

While network convergence is evolving and creates the complexity of network connectivity, the use of network processors has become an important source of computing power for dealing with such high speed packet processing. Advantech partners with solution vendors to create the perfect ecosystem to provide the best and innovative solution to the market. Advantech integrates the latest Network Processing Unit (NPU) with security accelerators and Unified Threat Management (UTM) solutions. The result is a platform that can serve more advanced network security applications while taking advantage of enhanced network connectivity. Our professional team of experts understands your computing needs and provides appropriate system integrations and compatibility testing services, so you can focus on the important innovations that are driving a changing networked world.

Modular Solutions for Fast & Simple Upgrades

The Advantech network security platform series has a modular design that separates the main processor board from the network expansion board. The platform can be configured to accommodate a selection of I/O cards with different port densities or types through Advantech's proprietary PCI Express (PCIe) interface. Customers may also choose to integrate other vendor's hardware acceleration solutions through standard PCI/PCI-X interfaces. This modularity enables our standard platform to be quickly customized for many application-focused network appliances, offering scalability and flexibility.

This modular design permits quick upgrades to more advanced technologies. So, stepping up to new and innovative requirements for Internet security applications can be handled efficiently and easily.



Advantech Global Services

Global Presence with a Local Touch

Advantech global services is a comprehensive service model that integrates the three main elements of Advantech's customer initiation process, from the product design phase, to manufacturing and after-sales support. Advantech understands the way our customers do business, and with globalized services, we deliver computing platforms for solution providers around the world faster and more efficiently than anyone else.

Over the years, advantech has built a strong global network. We have three manufacturing facilities based in Asia, and four design, service & logistics centers across America, Europe and Asia. We are located in 16 countries and 32 cities. This well established network helps Advantech develop, design and assemble products to meet our customers' demanding requirements with maximized flexibility and efficiency, bringing products to market in a timely and cost-effective manner.


Milpitas, CA, USA


Eindhoven, Netherlands


Kunshan, China


Taipei, Taiwan

Flexible Global Manufacturing Capability

Advantech complements its design strengths with three world-class production centers in China and Taiwan, ready to meet all your manufacturing needs. With a full range of products, we can supply large or small volumes, as each customer requires. Each center focuses on particular production expertise, so we offer top-quality products with faster delivery.

	ATMC Taipei, Taiwan	**AKMC** KunShan, China	**ADMC** Dongguan, China
Land	17,488 m^2	66,667 m^2	7,000 m^2
Capability	• Small Volume Production • Board & System Products • ODM/OEM Projects • Engineering Sample Innovation Services • Specialized in Complex Product Lines	• Mid-to-High Volume Production • Board & System Products • ODM/OEM Projects • Focused on Mature Product Lines	• Chassis Design & Production

Design To Order Services

Realize Your Creative Ideas

Advantech Design To Order Services (DTOS) provides a full range of customization services, a one-stop solution for creating system platforms. We understand the challenges that customers face everyday with respect to the rapid technological changes associated with complex, evolving designs. As the leading ePlatform services provider, Advantech has the business and technological maturity to work with you as a long-term ODM partner. Advantech DTOS integrates expert technical knowledge across many application domains with cutting edge design capabilities and proven industrial ODM processes. DTOS offers the expertise essential for a comprehensive service that can fulfill many customization demands. Our service benefits clients with faster project development times, lower risks and the assurance of working with a trusted global leader to achieve win-win solutions.

Advantech DTOS Features

- Complete and integrated backend infrastructure to streamline the design process
- Board-level customization for diverse applications
- Chassis & front panel design and customization
- Value-added software and firmware optimization services
- Assured reliability and performance benchmarks
- Globalized design, service and manufacturing centers

ADVANTECH DTOS
Design To Order Services

For more information, please go to http://www.advantech.com/DTOS

Focused on High-Performance Computing Applications

Incorporating Advantech's expertise in Industrial and Network applications, DTOS provides system-level customizations, mainly for the Network Security, Medical, Telecommunication, Industrial and Public Services markets. Based on different application demands, we offer a complete range of x86 based industrial boards, available in different sizes and form factors with a wide range of I/O options. For enclosures, we offer a full range of rackmount & wallmount chassis with front/rear accessible designs. For mission-critical telecommunications, Advantech offers CompactPCI and AdvancedTCA based board-level solutions that incorporate the latest technology and compliance with the industry's latest PICMG standards. For network security applications, Advantech's x86 based platforms incorporate leading network accelerators, and tailored add-on expansions that can be configured for various Internet security applications.

Media Gateways

Customer: Network Equipment Provider — **Location: Europe**

Introduction

With the growth in data network traffic driving major changes in public networks, the convergence of existing voice traffic onto the data network infrastructure promises significant benefits (such as reduced costs and simplified network management) for carriers and enterprises alike. Media gateways that support the integration of Voice over Internet Protocol (VoIP), legacy public switched telephone network (PSTN), and ATM networks make this convergence possible. A Media Gateway acts as a translation unit between disparate telecommunications networks and enables multimedia communications via multiple transport protocols. Because a Media Gateway connects different types of networks, one of its main functions is to convert between the different transmission and coding techniques. Communication is achieved by means of protocols such as MGCP, Megaco, H.248 and SIP. VoIP Media Gateways perform the conversion between Time Division Multiplex (TDM) voice to Voice over Internet Protocol (VoIP). Some examples of Media Gateway applications are:

(1) Multimedia services where callers who wish to select media (such as a radio station, conference broadcast, or song clips) connect through the Media Gateway to a VoiceXML server for content selection. The Media Gateway then connects the caller to the desired SIP endpoint, which streams the selected content to the caller.

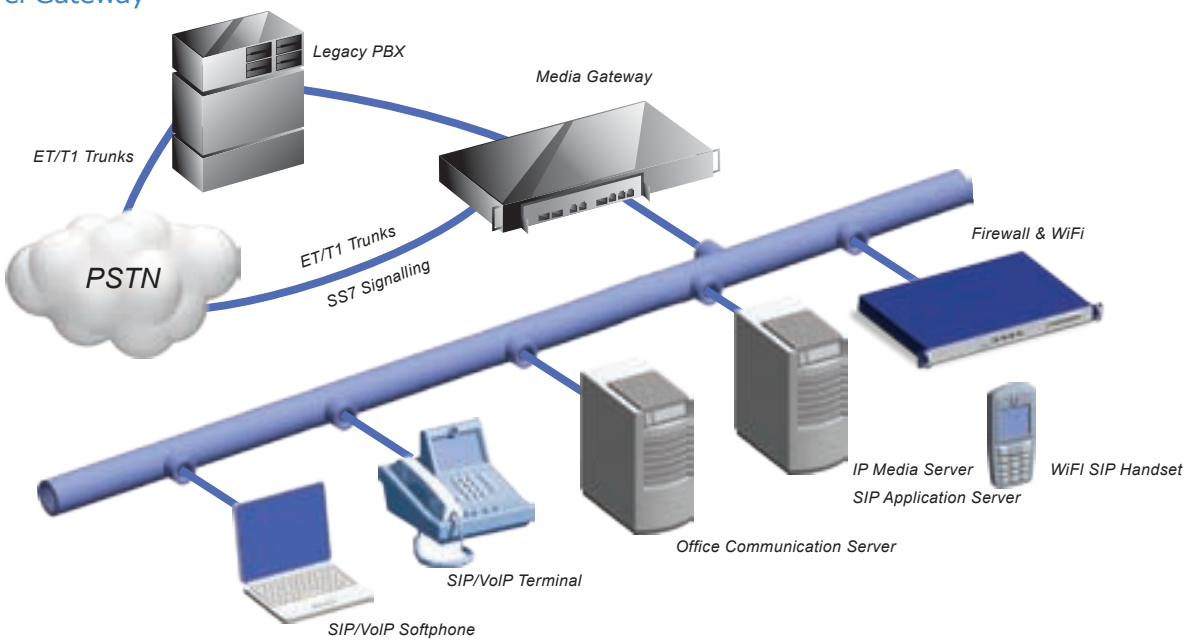
(2) Contact Centers where calls that arrive over the PSTN are first routed (via SIP signaling) to a speech-enabled self-service application based on a VoiceXML server. Once it is established that the caller needs to connect to a call agent, the call is redirected by the Media Gateway to the appropriate agent.

(3) Unified Communications, where voice, voice messaging, email, fax, instant messaging and mobile communications are integrated to deliver significant productivity gains to employees through a convenient desktop user interface and a separate voice interface that may also be embedded in business applications.

Solution

One of our European customers, a developer of turn key network equipment solutions needed a hardware partner able to provide a wide range of scalable platforms for their Media Gateway & Signalling Server product offering. Their platforms needed to scale to 960 ports with multiple T-1/E-1 interfaces for medium and large enterprises deploying a variety of applications such as IP media servers, remote office connectivity, long-distance consolidation, call centers, messaging, conferencing, self-service, voice portals and more. The Media Gateway needed to provide PSTN network and signalling with fully integrated gateway and call routing functions. The Media Gateway also needed to provide SIP and other Internet protocols to provide standards-based interfaces for application servers and other network resources, including VoiceXML servers and content storage systems.

Entry Level Gateway



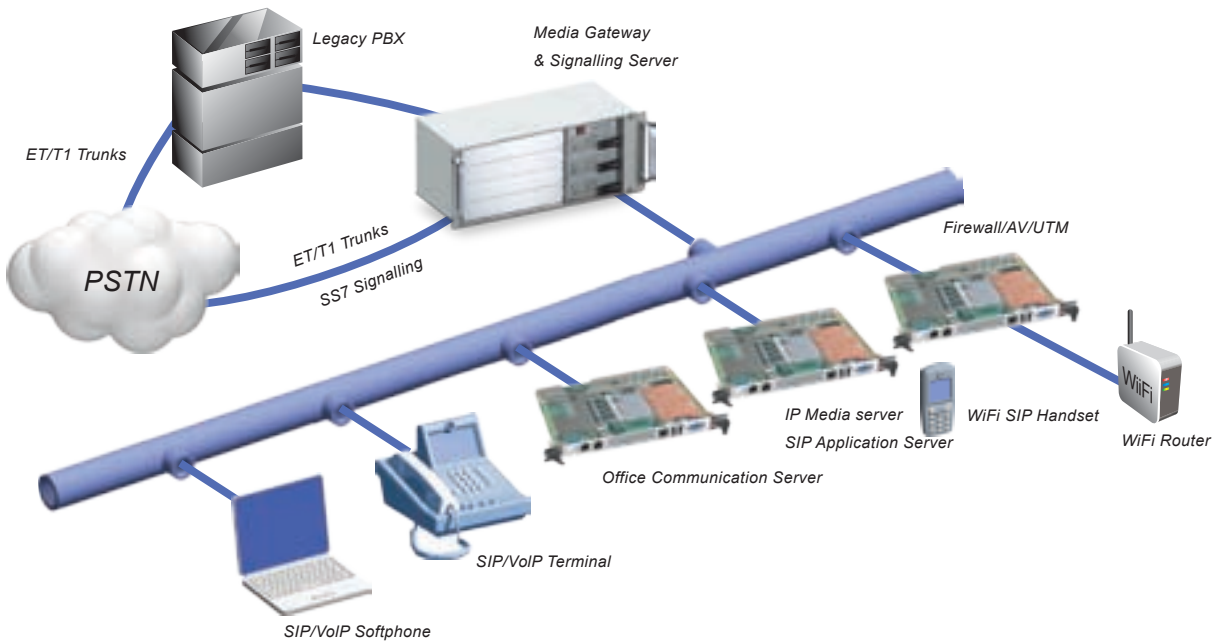
System

The customer selected the MIC-3392 Intel-based Core 2 Duo CompactPCI blade for the control and application functions along with two CompactPCI platforms to obtain important scalability. The MIC-3392 blade was selected for its processing power and the ability to execute Host Media Processing software in certain lower-density, DSP-less configurations. The MIC-3039 2-slot CompactPCI chassis was chosen as a compact entry-level solution with one available PMC on the MIC-3392 and one free CompactPCI-slot for gateway and signalling functionality. The MIC-3043D mid-to-high-end platform was chosen for its denser port count and five slots for gateway, signalling and possible application or media server functionality at a later date. The MIC-3043D is also available in AC or DC versions and provides two hot-swappable SATA bays for database mirroring requirements. As this system is also expected to be deployed to Service Providers globally as well as medium and large enterprises, the 1+1 and 2+1 power supply options and redundant disks provide a higher level of avaibility.

Benefits

- Scalable off-the-shelf platforms ranging from low-cost turn-key gateways to service provider approved, large scale gateways
- High-performance Dual Core CompactPCI computing blade with pervasive I/O connectivity
- Highly available design with disk striping or mirroring and redundant AC or DC power supplies

Higher Density Gateway with Bladed Application Server



Network Monitoring & Deep Packet Inspection

Customer: Network Equipment Provider — **Location: Europe**

Introduction

One of our longstanding Industrial PC and CompactPCI customers was looking for a smaller-footprint, modular architecture for their next generation of deep packet inspection (DPI) equipment. Typically, DPI identifies individual streams of traffic on a per-user and per-application basis, allowing policy enforcement of quality of service (QOS) and security as well as service quality logging. DPI essentially provides visibility and control to service providers so they can see what is traversing their networks and take appropriate action.

DPI applications include traffic management of peer-to-peer (P2P) flows to prevent bandwidth hogging, network security, service enhancements such as content filtering as well as resource and admission control systems for video stream availability based on network load.

Solution

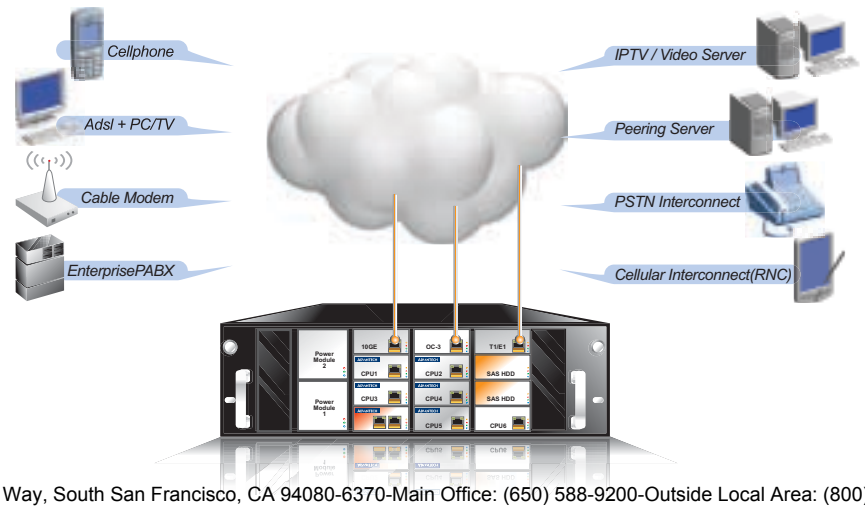
The system examines the data and header part of a packet as it passes an inspection point and provides the ability to look at all data from Layer 2 through Layer 7 of the OSI model. This includes headers and data protocol structures as well as the actual payload of the message. The DPI identifies and classifies the traffic based on a signature database that includes information extracted from the data part of a packet, allowing much finer control than classification based only on header information. The chosen system needed to fit in a reduced 3U height and be able to scale its packet processing power according to network bandwidth. Mutiple network connection types and a scalable number of physical connections needed to be accomodated. A custom MicroTCA system was designed to provide the density and necessary infrastructure to support expandable high speed WAN and LAN connectivity, and between two and six processor AMC blades for wire-speed packet analysis.

System

The customer selected a 3U MicroTCA system based on a custom-developed 12-slot chassis and six MIC-5601 Processor AMCs. The 10 GbE Controllers and OC-3/STM1 boards were developed specifically by the customer and associated 3rd parties. Advantech's UTCA-5503 provides the MicroTCA Carrier Hub management and GbE switching between all elements with a 10GbE version under definition. Only one MCH is required as redundancy and high availability is not needed. For logging purposes, two SATA/SAS drives provide for up to 1/2 a terabyte of packet recording. The system provides one further slot for connection to four T1/E1's should this become a service provider requirement at a later date. Future versions of the Processor AMC with Intel Core 2 Duo based Processor AMCs are currently in design at Advantech for the next generation system. The availability of both AC and DC versions of the chassis were key to customer deployment in central offices as well as data centers.

Benefits

- Globalized R&D with Local Project Management for engineer-to-engineer support in the same time zone
- Access to innovative new technology allows early market entry for hi-density next generation system
- Scalable design allows processing performance and I/O matching



Voice and Data Communications via Satellite

Customer: Telecommunication Service Provider — **Location: South Africa**

Introduction

Today, there are hundreds of commercial satellites in operation around the world. These satellites are used for diverse applications such as wide-area network communications, weather forecasting, television broadcasting, amateur radio communications, Internet access and the Global Positioning Systems (GPS). The introduction of the Very Small Aperture Terminal (VSAT), has successfully opened access to communication networks in rural and remote areas. VSAT is a fixed satellite terminal that provides interactive or one-way communications. VSATs operate with ground stations that use small dish antennas less than 3 meters in diameter for point to point and/or multiple point communications. VSAT is most commonly used for applications that require a wide area of network coverage, especially in locations where local terrestrial communications infrastructures are unavailable. Satellite communications has had great success complementing the existing terrestrial infrastructure because it is readily available and offers a reliable terrestrial-free network for secured multi-cast content distribution.

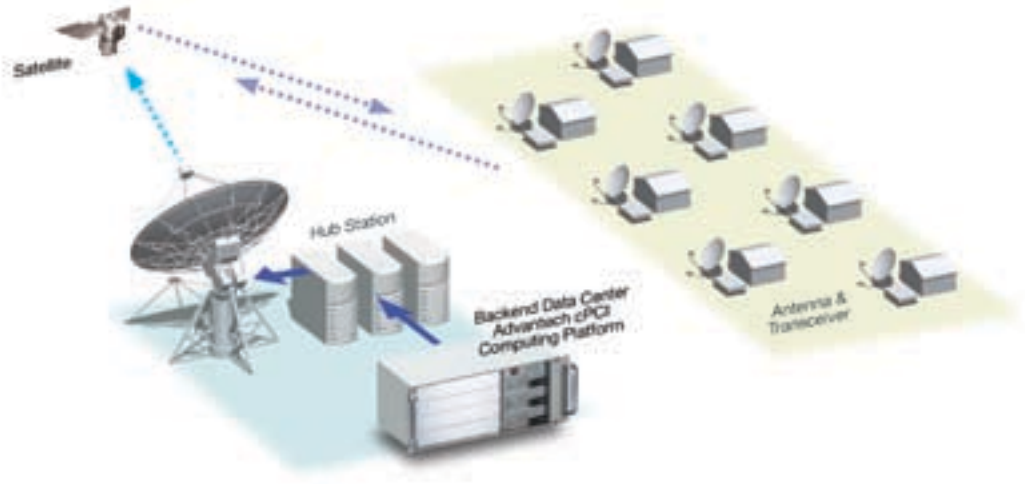
Solution

Our customer is a leading Telecommunications service provider that is looking for a solution to bring new services, like Internet access, email and fax, to citizens in rural areas of Africa within a short span of time. Due to the remote geographic setting and lack of existing infrastructure, the obvious choice for establishing rapid access was the use of a Satellite Internet Network. To setup such a comprehensive network, apart from traditional satellite antennas and receivers, requires a high-performance platform to serve as a reliable backend data support center.

CompactPCI blade servers were selected for this task since they are reliable, stable and readily-available for real-time data communications. Multiple blade servers can fit into a single chassis and each can act as an independent system, with their own processors, memory, storage, network controllers, operating systems and applications. The slim, hot-swappable nature of blade servers is convenient for creating complex cabled platform racks, which are easily accessed for adding or removing server boards. With switches and power units shared, precious space is freed up to offer higher densities with far greater ease.

System

Advantech offers a complete platform solution based on Advantech's MIC-3369C 6U CompactPCI Intel Pentium M-based processor board. This unit provides an ideal application blade for integrating systems that require high performance yet low power consumption. Paired with the RIO-3309 rear transition board, the platform provides additional Gigabit Ethernet connectivity to manage the high data throughput that the networks demand. To finish the system, and offer a reliable platform-level solution, the server blades are enclosed in the MIC-3042 4U CompactPCI enclosure.



Benefits

- A comprehensive product line for board-level and system-level solutions
- Fast design and integration service for quick deployment
- Cost-effective solutions and service for customers worldwide through global logistics and localized customer support

WiMAX Gateway Appliance

Customer: Network Equipment Provider — **Location: United States**

Introduction

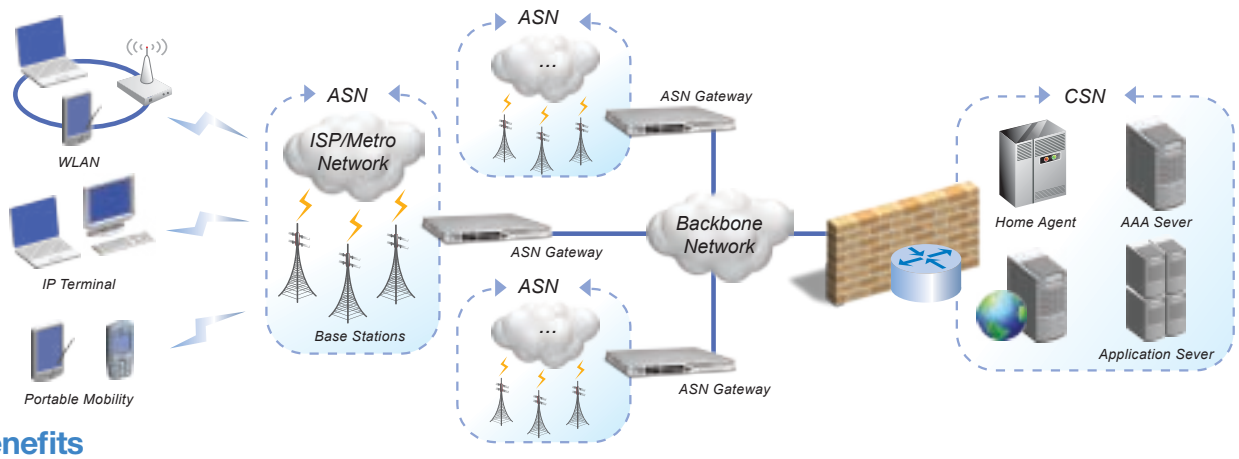
As more users demand broadband access on the move, WiMAX technology (Worldwide Interoperability for Microwave Access) shows great potential for service providers to deliver cost-effective broadband access over a wide geographic area. It often serves as a substitute for DSL (Digital Subscriber Line) to extend Internet services to rural areas, or as a WiFi hotspot backhaul which is less expensive than wired public networks.

Solution

A WiMAX network is built from many Access Service Networks (ASNs) that encompass a number of base stations. Each ASN has an ASN gateway that is used to control the transition of users from one base station to another. The ASN gateway must be built on an industrial-grade IP networking platform that is highly reliable and available. Based on the diverse requirements for WiMAX deployments in different towns or campuses, the platform must be scalable from small deployments of only a few base stations, to nationwide deployments involving a large number of base stations.

System

The Advantech NCP-3120 is designed for ASN gateways that require high network throughput and computing power. The NCP-3120 is a 1U platform based on the industry leading Cavium OCTEON Network Services Processor. This multi-core MIPS64 processor provides excellent hardware-based network acceleration functions, including TCP offload, security encryption, pattern matching and more. The system has two CN3800 NSP processors offering stable computing power to manage network traffic from all twenty Gigabit Ethernet ports on the system. A PMC expansion slot supports LAN or HDD expansions. Also, redundant power supply and hot-swappable fans in the system bring greater reliability and availability to the system. Apart from the hardware design and system integration, Advantech's own software team also developed the boot loader and device drivers to make it easier for the customer to port software. In addition, the platform is NEBs level 3 compliant, making it the ideal solution for WiMAX deployment.



Benefits

- Network processor based platform offers performance at wire-speed for small packet traffic
- Validated boot loader and device driver helps customer software development
- Modular power supplies, fans and HDDs reduces maintenance costs once deployed

Customized Firewall Systems with Modular Design

Application Field: Network Security Solution — **Location: China**

Introduction

Solution providers in the Network Security field are always looking for new and innovative hardware solutions that can fulfill diverse firewall solutions. Customers need different hardware platforms to fulfill their needs depending on the market segment, business size, network environment and physical environment. Advantech can provide copper or fiber LAN interfaces, a range of computing power in a selection of form factors from rackmountable 1U or 2U platforms to compact tabletop designs. Solution providers are searching for a modular and scalable platform that is able to fulfill complex demands while simplifying product and stock management.

Solution

Our customer is a major network appliance solution provider who is looking for a platform that can complete their line up of firewalls. The customer was looking for an industrial-grade platform with long life support that was designed for mainstream use. This platform must have computing power that is scalable from entry-level mid-level to high-level processing performance. Additionally, the platform must offer a range of port densities and expansion capabilities to suit various applications. Our customer chose Advantech, because they were familiar with Advantech design excellence and modularity in Network Application Platforms.

System

The customer has chosen Advantech's 1U Rackmount Platform, the FWA-3710, to implement a complete line of Firewall products for different business segments. The FWA-3710 is modular and uses PCI Express interface technology as a base for communication. With the use of a specially customized LAN expansion board, Advantech offers a selection of platforms with different LAN interface options, from 4 fiber or copper ports or a mixture of the two.

In addition, Advantech designed a new 2U rackmount chassis, which accommodates the main board, the expansion board and redundant power supply to create a complete enterprise-level solution based on the same platform configuration. The new system has been fully qualified through strict reliability testing, and is already EMC and safety certified.

Since most of the solution comes from an existing platform, our customer was able to receive the first sample within 8 weeks. After a minor modification for final confirmation, the system was ready for production within 5 months of project kick-off.

Benefits:

- Fast design and integration service for quick deployment, because the product was based on design of the existing FWA-3710
- PCI Express based module provides additional high-speed GbE ports for added flexibility
- Modular design offers unlimited opportunities for customers to design their desired platforms

Session Initiation Protocol (SIP) Enabled Firewall Appliance

Application Field: Network Security Solution — **Location: United States**

Introduction

Real-time communications have become an essential requirement for most enterprises. Whether it is through VOIP, multimedia conferences or instant-messaging, individuals and businesses can enjoy instant communications to save time and money. Generally, almost all instant communication connections are controlled by the Session Initiation Protocol (SIP), that initiates, modifies and terminates sessions between the participants. However, conventional network firewalls do not recognize SIP media, and whenever the firewall must relay SIP media packets for inspection, delays are caused during real-time communications. To speed up the inspection process, some firewalls create an automatic bypass for media packets, which creates a potential loophole for security threats.

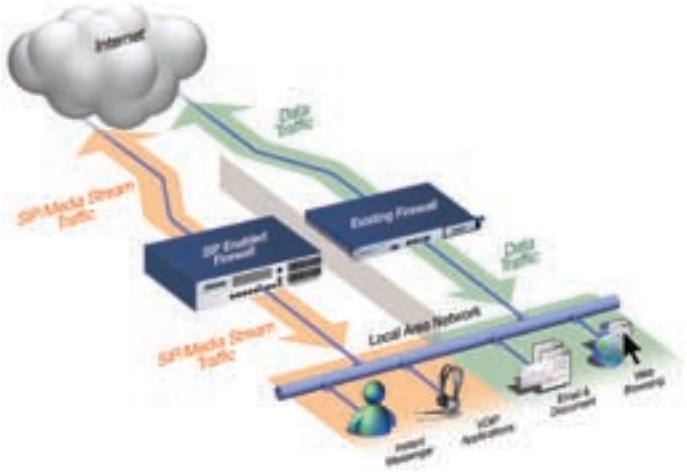
Solution

Our customer develops network firewalls and is a leader for the industry. They are looking into products that can enable SIP-based live communications while maintaining control and network security. The solution Advantech helped to develop can be a stand-alone firewall or a SIP proxy that complements existing firewalls. The company was searching for two platforms, one that was suitable for Small to Mid-size Business (SMB) and another to target large organizations or enterprises. Based on these requirements, they chose the FWA-3140 and the FWA-6280 network platforms as ideal solutions. They both command high levels of computing power, which makes them suitable for a stand-alone firewall application or a complementary proxy server to support existing firewalls.

System

The customer's enterprise-level security application was powered by the Advantech FWA-6280-AF platform with the high-performance Intel Xeon processor. The platform is capable of managing the busy traffic of large enterprises and handles up to 1500 concurrent VoIP calls (e.g. RTP sessions). The SMB solution is powered by the Advantech FWA-3140-C, and the system can handle up to 240 concurrent RTP sessions. The platform is designed for the Intel Pentium 4 processor and supports 4 GbE LAN ports for fast and robust connectivity. Both platforms can be used as independent firewalls dedicated to SIP media inspections, or to complement existing enterprise firewalls by off-loading SIP media sessions.

Advantech also offers system integration services, which includes software installation and final system testing. Network systems are turnkey solutions that are ready to go. This service helps customers to focus on their software development to maintain their competitive edge, and leave the rest of the turnkey configuration work up to Advantech.



Benefits

- High performance computing can provide real-time threat management solutions
- Supports best-performing Intel Pentium and Intel Xeon processors for maximum platform efficiency and reliability
- Advantech offers a full range of network security platforms to service diverse applications

All-in-one Unified Threat Management Solution

Application Field: UTM Solution — **Location: Taiwan**

Introduction

Unified Threat Management (UTM) is a term introduced in 2004, to describe a network appliance that has many security features built into a single box. It aims to provide an integrated and comprehensive solution rather than the limited “point solution” that a traditional firewall offers. However, there is a trade off between security and connectivity. As all security functions demand a lot of system resources, they inevitably reduce throughput, which is not desirable for real-time network management. Therefore, the ideal UTM solution must provide all-round protection without undermining the performance of network traffic. For this application, hardware acceleration delivers the greatest network performance improvement.

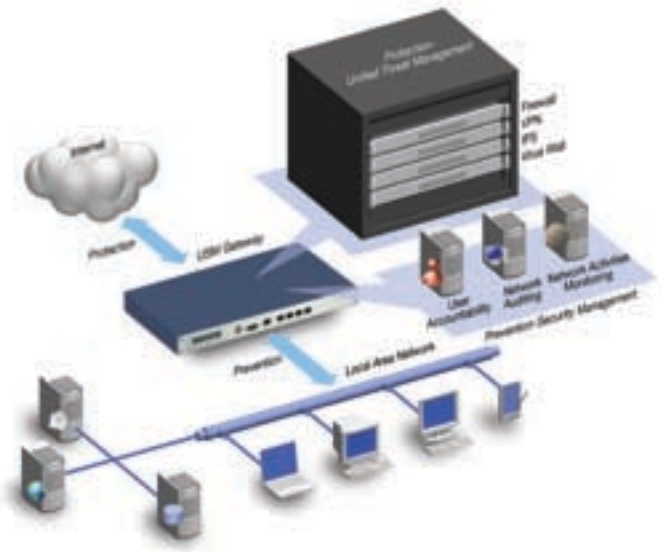
Solution

Our customer has introduced a new UTM device, called the “USM” (Unified Security Management) appliance. USM is capable of generating a network-traffic forensic analysis that provides a detailed on-going analysis of any system anomaly. This forensic analysis distinguishes the USM device from competitors by providing an extra layer of protection that has never been seen before. Even with the enhanced security features, the overall efficiency of the system must be maintained as the number of security signatures increases. The use of hardware security performance enhancers, including security accelerators, x86 processors or FPGA processors, can significantly improve network efficiency.

System

The customer has chosen Advantech’s 1U Rackmount Platform, the FWA-3700, to implement a complete line of USM products for different business usage. Powered by Intel Pentium M processors, the new system supports high-speed PCI Express (PCIe) connectivity and a LAN Bypass function for consistent network connectivity. The customer selected the Pentium M 1.73 GHz and Celeron M 1.5 GHz processors for their performance and mainstream platforms respectively. Accommodating variations in system memory and application features, a total of six platform versions are available to meet various user applications and segments.

In addition, the FWA-3700 has one proprietary PCIe x4 connector for further LAN expansions. Advantech offers a LAN module with a built-in encryption/decryption accelerator to increase hardware security performance. Customers may also develop and integrate their custom-built security acceleration modules to meet unique processing needs.



Benefits

- High-performance computing provides real-time security management solutions
- The PCIe based module provides additional high-speed GbE ports as well as VPN accelerators
- Modular design offers unlimited opportunities for customers to design their desired platforms

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Contents

MIC-5301

AdvancedTCA® Dual-Core Low Voltage Intel® Xeon® Processor Board with Two AMC Slots

Features

- Two Dual-Core Intel® Xeon® processors LV 2.0 GHz
- Intel E7520® chipset supports 667 MHz FSB
- Dual channel DDR2 400 MHz ECC Registered SDRAM, configurable up to 16 GB
- Four 1000Base-BX ports on Fabric interface
- Two 1000Base-Tx ports on Base interface
- Two PCI Express x4 (PCIe) AMC slots with style B/B+ connector
- Supports optional Serial Attached SCSI (SAS) module
- SAS ports module to Rear-Transition Module (RTM)
- One serial port for IPMI on front panel
- Two USB 2.0 ports in front and in RTM; One 2.5" SATA/SAS HDD on RTM

RoHS AdvancedTCA®

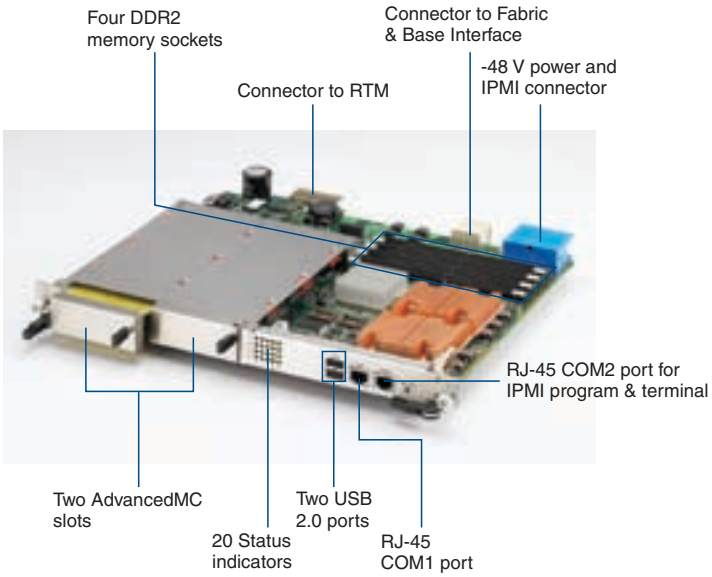
Introduction

Advantech's MIC-5301 single-slot AdvancedTCA® processor blade combines computing performance with I/O flexibility in a power efficient quad core, dual AMC design. Featuring two high performance Dual-Core Intel® Xeon® LV processors, the MIC-5301 facilitates the consolidation of multiple single core designs and frees up valuable system slots for increased processing power or I/O connectivity.

The MIC-5301's overall design flexibility positions it for use as a common processing blade for multiple applications. As architecture re-use means gains in economies of scale, the MIC-5301 is ideally suited for a wide range of application processing needs. Two single full-size AMC sites support the use of a variety of AMC modules such as coprocessors, TCP/IP offload engines, physical disks, LAN or WAN adapters. Packet throughput is increased by enhanced fabric connectivity with four Gigabit Ethernet ports to the fabric interface in addition to the two Gigabit Ethernet ports to the base interface.

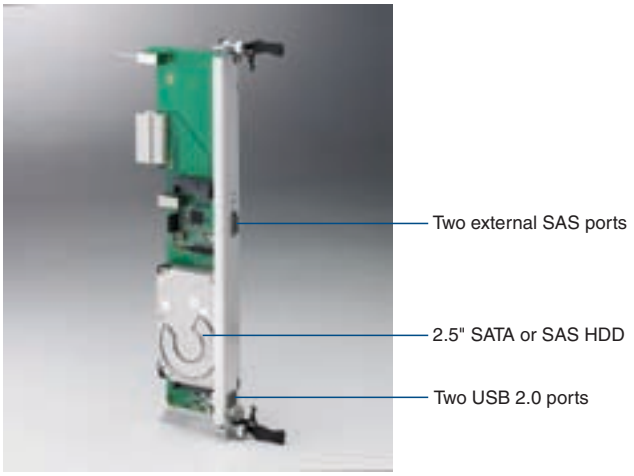
An Intel E7520 Memory Controller Hub MCH and Intel 6300ESB I/O Controller Hub provide high-end server class support for the two dual-core processors. The E7520 addresses up to 16 GB of dual channel DDR2 ECC Registered SDRAM in 4 DIMM sockets. Further connectivity is supported via an optional Serial Attached SCSI (SAS) module with SAS ports connected to a Rear Transition Module mounted SAS drive. IPMI 1.5 support is assured by a PigeonPoint System® (PPS) Solution on a Renesas H8S/2167.

Advantech offers a range of innovative ATCA customization services specifically targeted at Telecommunications Equipment Manufacturers (TEMs). Advantech's Design To Order Services (DTOS) team partners with TEMs to evaluate project requirements and develop TEM-specific solutions in order to improve overall operating costs. The MIC-5301 is an example where proven core engineering IP can be re-used as a base for a TEM specific design.



Specifications

Processor System	CPU	Two Dual-Core Intel Xeon LV processors	
	Max. Speed	2.0 GHz	
	Chipset	Intel E7520 MCH	
	BIOS	Dual 4Mbit FWHs with AMI embedded BIOS	
Bus	Front Size Bus	667 MHz	
Memory	Technology	Dual channel DDR2 400 MHz SDRAM (72-bit ECC Registered)	
	Max. Capacity	Configurable up to 16 GB	
	Socket	4	
Ethernet	Interface	Two 10/100/1000Base-TX ports for base interface; Four 1000Base-BX ports for fabric interface (compliant with PICMG 3.1 option 2)	
	Controller	BCM5715S (PCIe x4) and BCM5715C (PCIe x4)	
Front I/O Interface	Serial (COM)	1 (RS-232, RJ-45 connector)	
	Serial (BMC)	1 (RS-232, RJ-45 connector)	
	USB 2.0	2	
Operating System	Compatibility	Windows 2000; Windows 2003; Linux	
IPMC	BMC Controller	Renesas H8S/2167	
	IPMI	Compliant with IPMI 1.5 using Pigeon Point System® (PPS) Solution	
	Hardware Monitor	LM93	
Watchdog Timer	Output	System reset; system power down	
	Interval	Set in BIOS menu for 10 sec, 30 sec, 1 min and 5 min	
AMC	Site	2	
	Interface	PCI Express x4	
	Power limit	30 watts	
Miscellaneous	Solid State Disk	One CompactFlash socket	
	LED Indicator	20	
	Storage module	SAS daughter module with four ports up to 3 Gb/s for each	
	Real Time Clock	Built-in	
RTM	Real I/O interface	Two external SAS ports Two USB 2.0 port	
	Storage Site	One 2.5" SATA/SAS HDD (HDD not included)	
Physical Characteristics	Dimensions (W x D)	Node blade: 294.56 x 322.25 mm (11.60" x 12.69") RTM: 94 x 322.25 mm (3.7" x 12.69")	
	Weight	Node blade: 2 kg (4.41 lb) RTM: 0.275 kg (0.61 lb)	
Environment		Operating	Non-operating
	Temperature	0 ~ 65° C (32 ~ 149° F)	- 40 ~ 70° C (-40 ~ 158° F)
	Humidity	NA	95% @ 60° C (non-condensing)
	Shock	20 G	50 G
	Vibration (5 ~ 500 Hz)	1.5 Grms	2 G
Compliance	PICMG 3.0 R2.0 AdvancedTCA Base Specification PICMG 3.1 R1.0 Ethernet/Fibre Channel for ATCA Systems PICMG AMC.0 R1.0 Advanced Mezzanine Card Base Specification PICMG AMC.1 R1.0 PCI Express and Advanced Switching		



MIC-5301 Rear Transition Module (RTM)

MIC-5602

Advanced Mezzanine Card
Intel® Core™ 2 Duo Processor AMC

Features

- Supports Intel Core 2 Duo Duo processor Low Voltage and Ultra Low Voltage
- Intel® 3100 chipset 400/533 MHz FSB
- Up to 2 GB DDR2 400 MHz SDRAM with ECC
- One Gigabit Ethernet (RJ-45), one USB 2.0 port, and one console port (mini-USB) to front panel
- AMC connector routes dual Gigabit Ethernet SerDes (x2), SATA (x2), USB (x2), dual PCIe x4, or single PCIe x8
- Boot from network, CompactFlash, SATA, USB or onboard flash disk
- Supports IPMI v1.5 and Serial-over-LAN function
- AMC.0, AMC.1, AMC.2 and AMC.3 compliant

AdvancedMC™ FCC CE RoHS COMPLIANT 2002/95/EC

Introduction

The MIC-5602 is a highly integrated single-width, mid-size, processor AMC. Its design is based on the low-power, high-performance Intel Core 2 Duo LV and ULV processors combined with the high-performance Intel 3100 chipset. The board includes 1 or 2 GB of soldered DDR2 400 MHz memory with ECC for higher MTBF and optimum cooling. To facilitate development, test and integration whilst offering typical network connectivity once deployed, the front panel provides a gigabit Ethernet connector, a serial port and a USB 2.0 host port.

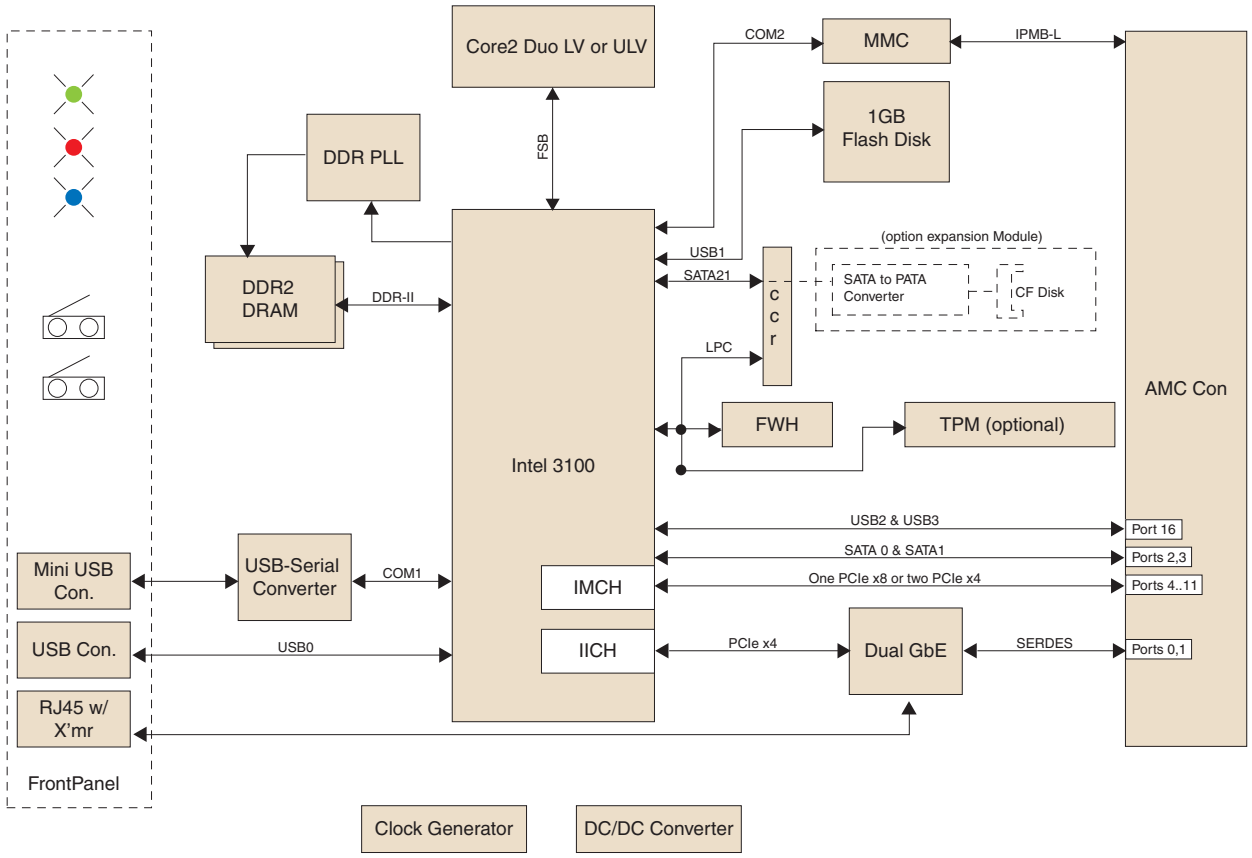
The MIC-5602 maximizes AMC edge connector connectivity for the best design flexibility. When redundancy or two separate interconnects are required, the board can be configured with two PCI Express x4 ports or with a single PCI Express x8 port when throughput is essential. Two gigabit Ethernet ports provide AMC.2 compliance and offer control and data plane connectivity to facilitate the migration of existing applications. Both ports connect to the 3100 chipset via PCI Express for maximum data throughput. Dual SATA interfaces provide AMC.3–compliant storage and two USB ports offer further connectivity opportunities.

A dedicated Module Management Controller (MMC) monitors onboard conditions and manages hot swap operation for field upgrades or module replacement without the need to power down the underlying system.

Specifications

Processor System	CPU	Intel Core 2 Duo ULV (U7500) and LV (L7400) up to 1.5 GHz
	Chipset	Intel 3100
	BIOS	AMI (1. Dual images with update rollback, 2. CMOS settings can be changed over IPMI, and 3. CMOS backup works without battery)
Bus	Front Side Bus	400/533 MHz
	PCI Express	PCI Express rev1.0a : one x8 and two x4 routed to AMC connector
Memory	Technology	DDRII 400 with ECC
	Max. Capacity	2 GB
Ethernet	Controller	Intel 82571EB dual-port Gigabit Ethernet controller (support 802.3d compliant link aggregation)
	Interface	One GbE accessible on front panel via RJ-45 and two SerDes links to AMC common options region ports 0 and 1
Mass Storage	CompactFlash	Optional expansion board with CF type-1 B socket
	Onboard	1GB industrial grade internal flash disk (used as NV storage, emergency boot disk or diagnostics boot media)
SATA Interface	AMC edge connector	Two SATA interfaces to common ports region 2-3
	Other	One SATA routed to CF daughter board
Serial Interface	I/O	Routed to front panel as USB Slave interface through onboard USB to Serial converter
USB Interface	I/O	One USB 2.0 compliant host port (standard USB Connector) on front panel
	AMC edge connector	Two USB 2.0 ports connect to rear AMC edge connector
Watchdog Timer		AMC compliant watchdog
Hardware Monitor	Controller	IPMI v1.5 compatible MMC
Firmware	Source Code	Pigeon Point System-based
	Update Standard	HPM.1 compliant
Operating System	Compatibility	Carrier Grade Linux (Wind River Platform for Network Equipment, Linux Edition 2.0)
Form Factor	AMC	Mid-size, single width
	Interface	AMC.0 compliant
Miscellaneous	LEDs	x1 blue for hot swap, x1 red/amber for failure and OOS, x1 green for general purpose
Power Requirement	Configuration	Core™ 2 Duo L7400 + 3100 + 1 GB on-board DDR2 SDRAM
	Consumption	38.5 watts

Block Diagram



Physical	Dimension	180.6 mm x 73.5 mm	
Environment		Operating	Non-operating
	Temperature	-5 ~ 55° C (23 ~ 122° F)	-40 ~ 70° C (-40 ~ 140° F)
	Humidity	IEC60068-2-78 (95%RH @ 40° C)	
	Vibration (5 ~ 500 Hz)	IEC60068-2-6 (0.002 G²/Hz, 1 Grms)	
	Shock	IEC60068-2-27 (10 G, 11 ms)	
	Altitude	300 m below sea level to 4,000 m above sea level	10,000 above sea level
Regulatory	Conformance	UL94V0, FCC Class B, CE, RoHS & WEEE Ready	
	NEBS Level 3	Designed for GR-63-CORE and GR-1089-CORE	
Compliance	Standards	PICMG AMC.0, AMC.1, AMC.2, AMC.3, IPMI v1.5, HPM.1	

Ordering Information

Model Number	On-Board Option	
	CPU	Memory
MIC-5602A-M1E	Core2 Duo LV 1.5 GHz (L7400)	1 GB DDR2 with ECC
MIC-5602A-M2E	Core2 Duo LV 1.5 GHz (L7400)	2 GB DDR2 with ECC
MIC-5602B-M1E	Core2 Duo ULV 1.06 GHz (U7500)	1 GB DDR2 with ECC
MIC-5602B-M2E	Core2 Duo ULV 1.06 GHz (U7500)	2 GB DDR2 with ECC

Notes:

1. TPM support will be available as an option.
2. Full size front panel design will be available upon request.
3. CF module available as an option.
4. Low cost Celeron M ULV 1.06 GHz (423) on request.

MIC-5601

Advanced Mezzanine Card
Intel® Pentium® M Processor AMC

Features

- Supports Intel® Pentium® M processor Low Voltage or Celeron® M processor Ultra Low Voltage
- Intel® 3100 chipset 400/533 MHz FSB
- Up to 2 GB DDR2 400 MHz SDRAM with ECC
- One Gigabit Ethernet (RJ-45), one USB 2.0 port, and one console port (mini-USB) to front panel
- AMC connector routes dual Gigabit Ethernet SerDes (x2), SATA (x2), USB (x2), dual PCIe x4, or single PCIe x8
- Boot from network, CompactFlash, SATA, USB or onboard flash disk
- Supports IPMI v1.5 and Serial-over-LAN function
- AMC.0, AMC.1, AMC.2 and AMC.3 compliant

AdvancedMC™ FCC CE RoHS COMPLIANT 2002/95/EC

Introduction

The MIC-5601 is a highly integrated single-width, mid-size, processor AMC. Its design is based on the low-power, high-performance Intel Celeron M ULV and Pentium M LV processors combined with the high-performance Intel 3100 chipset. The board includes 1 or 2 GB of soldered DDR2 400 MHz memory with ECC for higher MTBF and optimum cooling. To facilitate development, test and integration whilst offering typical network connectivity once deployed, the front panel provides a gigabit Ethernet connector, a serial port and a USB 2.0 host port.

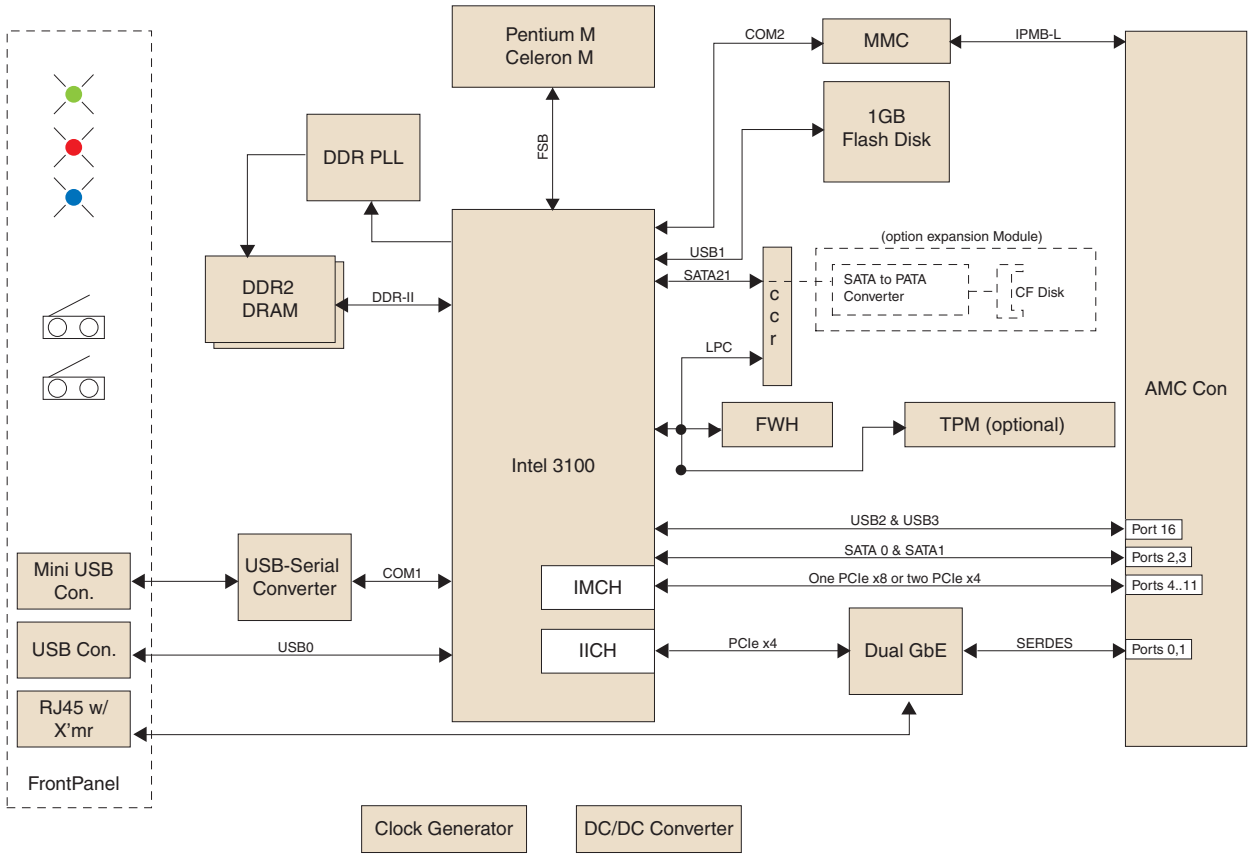
The MIC-5601 maximizes AMC edge connector connectivity for the best design flexibility. When redundancy or two separate interconnects are required, the board can be configured with two PCI Express x4 ports or with a single PCI Express x8 port when throughput is essential. Two gigabit Ethernet ports provide AMC.2 compliance and offer control and data plane connectivity to facilitate the migration of existing applications. Both ports connect to the 3100 chipset via PCI Express for maximum data throughput. Dual SATA interfaces provide AMC.3–compliant storage and two USB ports offer further connectivity opportunities.

A dedicated Module Management Controller (MMC) monitors onboard conditions and manages hot swap operation for field upgrades or module replacement without the need to power down the underlying system.

Specifications

Processor System	CPU	Intel Celeron M ULV (373) or Pentium M LV (738) up to 1.4 GHz
	Chipset	Intel 3100
	BIOS	AMI (1. Dual images with update rollback, 2. CMOS settings can be changed over IPMI, and 3. CMOS backup works without battery)
Bus	Front Side Bus	400/533 MHz
	PCI Express	PCI Express rev1.0a : one x8 and two x4 routed to AMC connector
Memory	Technology	DDR2 400 with ECC
	Max. Capacity	2 GB
Ethernet	Controller	Intel 82571EB dual-port Gigabit Ethernet controller (support 802.3d compliant link aggregation)
	Interface	One GbE accessible on front panel via RJ-45 and two SerDes links to AMC common options region ports 0 and 1
Mass Storage	CompactFlash	Optional expansion board with CF type-1 B socket
	Onboard	1GB industrial grade internal flash disk (used as NV storage, emergency boot disk or diagnostics boot media)
SATA Interface	AMC edge connector	Two SATA interfaces to common ports region 2-3
	Other	One SATA routed to CF daughter board
Serial Interface	I/O	Routed to front panel as USB Slave interface through onboard USB to Serial converter
USB Interface	I/O	One USB 2.0 compliant host port (standard USB Connector) on front panel
	AMC edge connector	Two USB 2.0 ports connect to rear AMC edge connector
Watchdog Timer		AMC compliant watchdog
Hardware Monitor	Controller	IPMI v1.5 compatible MMC
Firmware	Source Code	Pigeon Point System-based
	Update Standard	HPM.1 compliant
Operating System	Compatibility	Carrier Grade Linux (Wind River Platform for Network Equipment, Linux Edition 2.0)
Form Factor	AMC	Mid-size, single width
	Interface	AMC.0 compliant
Miscellaneous	LEDs	x1 blue for hot swap, x1 red/amber for failure and OOS, x1 green for general purpose
Power Requirement	Configuration	Pentium M 738 LV + 3100 + 1 GB on-board DDR2 SDRAM
	Consumption	31.2 watts

Block Diagram



Physical	Dimension	180.6 mm x 73.5 mm	
Environment		Operating	Non-operating
	Temperature	-5 ~ 55° C (23 ~ 122° F)	-40 ~ 70° C (-40 ~ 140° F)
	Humidity	IEC60068-2-78 (95%RH @ 40° C)	
	Vibration (5 ~ 500 Hz)	IEC60068-2-6 (0.002 G²/Hz, 1 Grms)	
	Shock	IEC60068-2-27 (10 G, 11 ms)	
	Altitude	300 m below sea level to 4,000 m above sea level	10,000 above sea level
Regulatory	Conformance	UL94V0, FCC Class B, CE, RoHS & WEEE Ready	
	NEBS Level 3	Designed for GR-63-CORE and GR-1089-CORE	
Compliance	Standards	PICMG AMC.0, AMC.1, AMC.2, AMC.3, IPMI v1.5, HPM.1	

Ordering Information

Model Number	On-Board Option	
	CPU	Memory
MIC-5601A-M1E	Pentium M LV 1.4 GHz (738)	1 GB DDR2 with ECC
MIC-5601A-M2E	Pentium M LV 1.4 GHz (738)	2 GB DDR2 with ECC
MIC-5601B-M1E	Celeron M ULV 1 GHz (373)	1 GB DDR2 with ECC

Notes:

1. TPM support will be available as an option.
2. Full size front panel design will be available upon request.
3. CF module available as an option.

MIC-5401

Advanced Mezzanine Card
SAS/SATA Storage AMC

Features

- Single-width mid-size AMC form factor
- SAS or SATA 2.5" hard disk drive compatible
- Hot-swap capable
- AdvancedTCA and MicroTCA compatible
- Dual port SAS drive support
- 3.0 Gb/s interface speed support
- Two thermal sensors to monitor on-board temperatures
- System management compliant to PICMG3.0 R2.0, AMC.0 R2.0, AMC.3 R1.0, and IPMI1.5
- Power-on hour counter
- HPM.1 compliant firmware upgrade and rollback support through IPMB

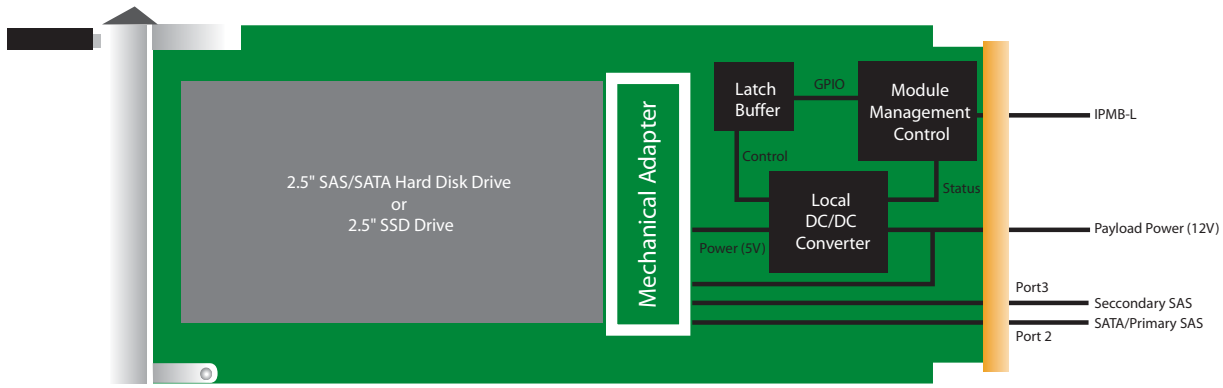
Introduction

The Advantech MIC-5401 is a single-width/mid-size Advanced Mezzanine Card (AMC) designed to support a 2.5" SAS or SATA hard disk drive to work as an enterprise storage module on an ATCA platform or in a MicroTCA shelf. The 2.5" hard disk drive is connected to the AMC port 2 (SAS and SATA) and port 3 (SAS only) according to the AMC.3 specifications. Dual port SAS drives may be used on the MIC-5401 to increase the interface bandwidth of failover support between dual hosts in fault tolerant environments. Like all other standard AMC modules, an IPMI-based module management controller (MMC) is also implemented on the MIC-5401 to serve as a communication interface to the Carrier Management Controller on an ATCA platform, or to the MicroTCA Carrier Management Controller on the MicroTCA Carrier Hub in a MicroTCA shelf. As a local IPMI controller on the AMC, it manages all hot-swap activities, E-keying, and hardware heath monitoring such as voltages (12V, 5V, and management power 3.3V) and on-board temperatures (including hard disk drive's ambient temperature). The MIC-5401's mechanical design is optimized for a maximum of shock and vibration durability combined with a user- and service friendly mounting process for the disk drive.

Specifications

AMC Module	Single width, mid-size form factor (full-size front panel available as an option)	
Storage Device Supported	2.5" SAS or SATA hard disk drives, or 2.5" SATA SSD (solid state drive)	
System Management	PICMG 3.0 R2.0, AMC.0 R2.0, and IPMI 1.5 compliant	
	Redundant firmware images based on Pigeon Point Systems' solution supporting HPM.1 compliant upgrades and manual/automatic rollback	
Monitor	Power-on hour counter	
	Voltage: 12 V, 5 V, and 3.3 V management power	
	Temperature: two on-board locations	
Watchdog	AMC compliant watchdog	
Thermal Sensor	LM75/DS75 (x2)	
Environmental Conditions	Temperature and humidity (operating)	GR-63-CORE, Issue 3, R4-7 (-5° C ~ 55° C; 5% ~ 95%RH)
	Temperature and humidity (non-operating)	GR-63-CORE, Issue 3, R4-7 (-40° C ~ 70° C; 95%RH)
	Altitude	GR-63-CORE, Issue 3, R4-8, R4-9, R4-10, R4-11, R4-12 (-60 m ~ 4000 m)
	Vibration (operating)	IEC 60068-2-64 (0.002G²/Hz, 1 Grms, 5 ~ 500 Hz)
	Vibration (non-operating)	IEC 60068-2-6 (2 G, 5 ~ 500 Hz, 1 Octave/min)
	Shock (operating)	IEC 60068-2-27 (half-Sine, 10 G, 11 ms)
	Shock (non-operating)	IEC 60068-2-27 (half-Sine, 30 G, 11 ms)
Regulatory	Conformance	UL94V0, FCC Class B, CE, RoHS & WEEE compliant
	NEBS Level 3	Designed for GR-63-CORE and GR-1089-CORE
Compliance	Standards	PICMG 3.0 R2.0, AMC.0 R2.0, AMC.3 R1.0, IPMI1.5, and SCOPE AdvancedMC Hardware Profile V1.0

Block Diagram



Ordering Information

Model Number	Front Panel
MIC-5401-0000E	Mid-Size

Note:

1. AMC modules with pre-installed hard disk or solid state disk drives are available on request. Please contact Advantech sales representative for further detail.
2. Full size front panel is available on request.

UTCA-5503

MicroTCA™ Carrier Hub: Layer 2 GbE switch with MCMC

Features

- Layer 2 GbE switch for up to 12 AdvancedMC™ modules on Common Options Fabric A
- MCH Update channel for Carrier Hub redundancy
- Front panel GbE uplink over RJ-45 or SFP
- Pigeon Point based MCMC with direct or switched 10/100 Management LAN port available on front panel
- IPMB-0 / IPMB-L for complete carrier management
- Built-in expandability for future pluggable enhancements
- Switch Management and Extended Fabric switching
- Customizable clock module and front panel I/O
- Compliant with PICMG MTCA.0 R1.0 specification

Introduction

The Advantech MicroTCA™ Carrier Hub UTCA-5503 combines into a single AdvancedMC Module that controls and manages infrastructure and the interconnect fabric resources necessary to support up to twelve AdvancedMCs in a MicroTCA shelf:

- A Primary Gigabit Ethernet fabric on Common Options Fabric A
- MicroTCA Carrier Management Controller (MCMC) functions to configure and control the elements

Where redundancy is required, two MCHs permit the creation of highly reliable systems.

Basic Interconnect Fabric, Control and Management Infrastructure

MicroTCA Carrier Management Controller (MCMC)

The first element on the MCH is the MicroTCA Carrier Management Controller (MCMC). It is the central authority in a MicroTCA Shelf and has the ability to monitor and control the constituent AdvancedMCs. This control function makes use of IPMI Links to each AdvancedMC, as well as presence detect, enable, and Geographic Address signals. When redundant MCHs are installed, failures in the management circuitry on one MCH can be handled by a failover to the other MCH. The MCMC LAN interface is available for optional remote management via the front panel RJ-45 connector or for optional routing to the Base Fabric switch.

E-Keying

Electronic keying (E-Keying) is the responsibility of the Carrier Manager and ensures that all AdvancedMCs and MCHs installed in a Shelf are compatible before they are permitted to power-up and enable their fabric links.

Basic Interconnect Fabric

In its basic configuration, the MCH acts as the Gigabit Ethernet hub of a star network, providing centralized switching and high-speed connectivity to each AdvancedMC. The Gigabit Ethernet Switch on the MCH provides an unmanaged layer 2, non-blocking, low-latency Gigabit Ethernet Switch.

Two MCHs can be used to implement a dual-star topology required for reliability. This is further enhanced by a Gigabit Ethernet Update Channel Port between the two MCHs. A front panel RJ-45 or SFP provides further network expandability with Gigabit Ethernet uplink ports for external interconnects.

This basic configuration provides a solid solution to the most cost sensitive application requirements.

Enhanced Options

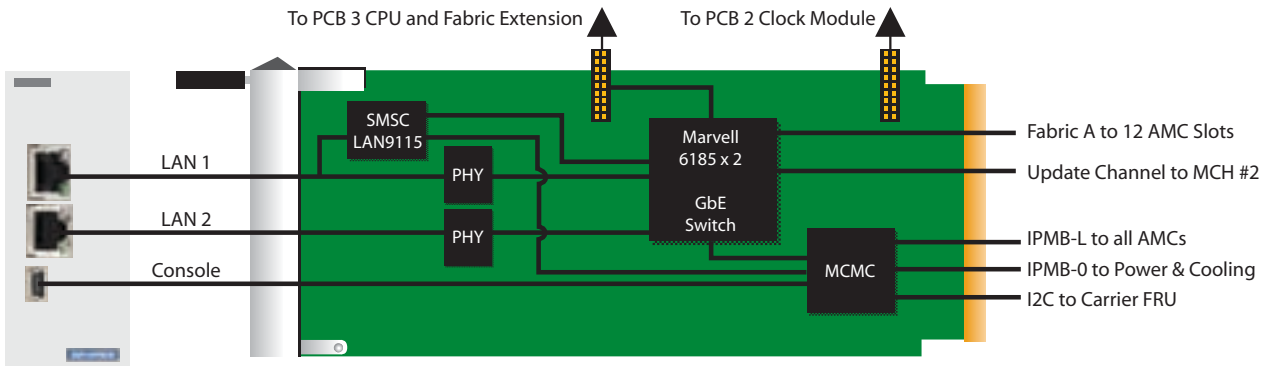
Switch Management and Fat Pipe Fabrics

The UTCA-5503 provides extension connectors between PCB1, 2 and 3 for clocks and enhanced processing functions such as Level 2/3 switch management, authentication and encryption; TPM facilities for server/cluster security; or HPI-over-IP remote management. It can also provide PCB3 switching for fat pipe PCI Express, SRIO, GbE or 10 GbE. A PCB2 module can be added for clock distribution and external clock connectivity. The front panel design offers flexibility for clock, I/O and alarm panel requirements.

Clocks and Alarms

An additional PCB2 module can be added to the MCH for enhanced clock distribution and external clock connectivity depending on customer specific requirements. Flexibility has been built into the Front PCB2 module design in order to meet a wide range of current and future Clock, I/O and Alarm panel requirements.

Block Diagram



Ordering Information

Model Number	MCMC	LAN1 RJ-45	LAN2 RJ-45	LAN2 SFP	Fabric A GbE Switch	Comments
UTCA-5503-1000E	Yes	Yes	Yes	-	Yes	Management and Switch
UTCA-5503-2000E	Yes	Yes	-	Yes	Yes	Management and Switch

Note: Model with management only (no switch) will be available upon request. Please contact local sales representative for details.

Expansion Options

Several options are currently under definition and planning for PCB 2 Clock modules, PCB 3 Processing and Switch management as well as Fat Pipe Fabric switching. Please contact your local sales representative for further details.

UTCA-5533

MicroTCA Carrier Hub: Optional PCIe Switching on UTCA-5503

Features

- Fat pipe switching capabilities for PCI-Express protocol on MCH PCB Level 3 with tongue 3 and 4 plug connectors
- Low power and high performance PCIe switch silicones
- PCI-Express x4 links to up to 12 AdvancedMCs on Fat Pipe Fabric
- On-board spread spectrum clock generator
- Optional clock input/output from/to PCB Level 2
- Reliable mezzanine mounting design to minimize the induced stresses in the PCBs and the board-to-board connectors during the MCH insertion to the backplane
- Benefits of all the features on UTCA-5503
- Compliant with PICMG MTCA.0 R1.0 specification and PCI Express Base Specification r1.1

Introduction

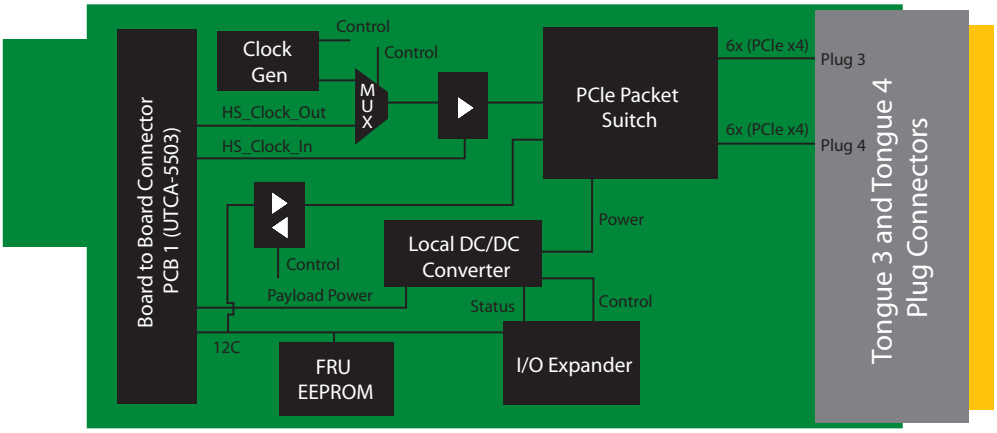
The Advantech UTCA-5533 is a PCI-Express fabric extension module implemented on the PCB Level 3 of the MicroTCA Carrier Hub. It is to be bundled with the UTCA-5503 to provide the control and management infrastructure and the interconnection to support up to twelve AdvancedMCs in a MicroTCA shelf:

- A Primary Gigabit Ethernet fabric on common Options Fabric A
- MicroTCA Carrier Management Controller (MCMC) functions to configure and control the element
- PCIe switching capabilities on Fat Pipe Fabric

Specifications

MCH Module	Standard MCH module (PCB Level 1+ PCB Level 3), single width, full size	
Application	Fat pipe switching for PCIe protocol	
Bus Interface	COM1 exposed to front panel as USB Slave interface through onboard USB/Serial converter, USB1.1 compliant	
Ethernet	10/100BT Management LAN on Front panel (RJ45, labeled as LAN1, which may also be 10/100/1000BT Fabric LAN when MLAN is routed through base fabric switch)	
	10/100/1000BT Fabric LAN on Front panel (RJ45 or SFP, labeled as LAN2)	
	1000BX GBE base fabric interface to backplane (12x)	
	1000BX GBE update channel to other MCH	
	Management LAN may be routed through base fabric switch (option)	
	SGMII Interface from PCB Level 3 into base fabric switch	
System Management	Pigeon Point System based firmware solution	
	Carrier manager	
	Shelf manager (by default); optional to exclude uShM	
Watchdog	A programmable watchdog is implemented in MCMC	
PCIe Switching	PCIe x4 links to up to 12 AMCs	
Thermal Sensor	LM75/DS75 (x2)	
Environmental Conditions	Temperature and humidity (operating)	GR-63-CORE, Issue 3, R4-7 (-5° C ~ 55° C; 5% ~ 95%RH)
	Temperature and humidity (non-operating)	GR-63-CORE, Issue 3, R4-7 (-40° C ~ 70° C; 95%RH)
	Altitude	GR-63-CORE, Issue 3, R4-8, R4-9, R4-10, R4-11,R4-12 (-60 m ~ 4000 m)
	Vibration (operating)	IEC 60068-2-64 (0.002 G^2/Hz, 1 Grms, 5 ~ 500 Hz)
	Vibration (non-operating)	IEC 60068-2-6 (2 G, 5 ~ 500 Hz, 1 Octave/min)
	Shock (operating)	IEC 60068-2-27 (half-Sine, 10 G, 11 ms)
	Shock (non-operating)	IEC 60068-2-27 (half-Sine, 30 G, 11 ms)
Regulatory	Conformance	UL94V0, FCC Class B, CE, RoHS & WEEE compliant
	NEBS Level 3	Designed for GR-63-CORE and GR-1089-CORE
Compliance	Standards	PICMG MicroTCA.0 R1.0, PCI-Express R1.1

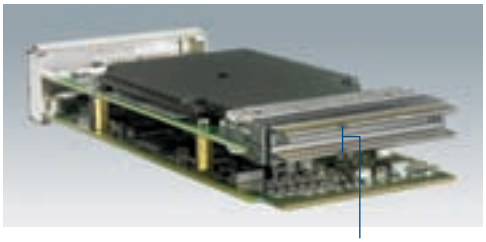
Block Diagram



Ordering Information

Model Number	PCIe Switches	MCMC	LAN1 RJ-45	LAN2 RJ-45	LAN2 SFP	Fabric A GbE Switch	Comment
UTCA-5533-1000E	Yes	Yes	Yes	Yes	-	Yes	Management and switch
UTCA-5533-2000E	Yes	Yes	Yes	-	Yes	Yes	Management and switch

Note: Model with management only (no switch) will be available upon request. Please contact local sales representative for details.



Tongue 3 and Tongue 4 Plug Connectors

UTCA-5533 PCB Level 3

6U CompactPCI Boards

Selection Guide

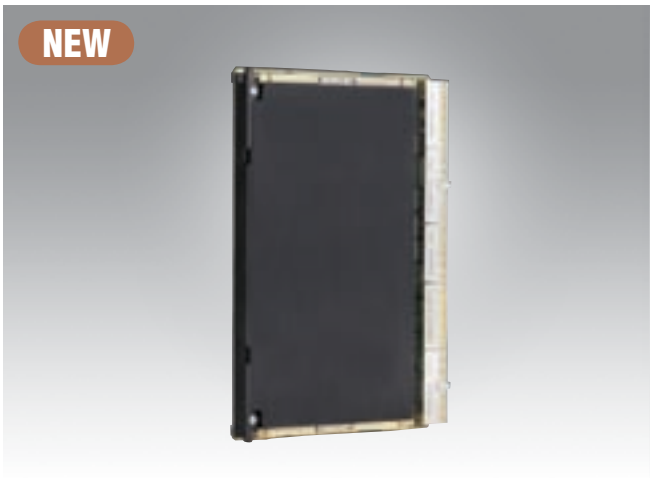
Specifications		MIC-3392MILS (Standard CompactPCI)	MIC-3392MILC (Conduction Cooled)
Slot Width		1	1
PICMG 2,16 Compliant		Yes	Yes
Chipset		Intel 945GME	Intel 945GME
CPU	CPU (Not Included)	Intel LV Core Duo Intel ULV Core 2 Duo	Intel ULV Core 2 Duo
	No. of CPUs	1	1
	CPU Front Side Bus	533/667 MHz	533/667 MHz
	Max. CPU Speed	1.66 GHz	1.06 GHz
	L2 Cache	2 MB	2 MB
Memory	Technology	DDR2 533/667 MHz non-ECC SDRAM	DDR2 533/667 MHz non-ECC SDRAM
	Max. Capacity	3 GB	2 GB
	On-board	2 GB	2 GB
	Socket	Optional 2 GB	-
PCI-to-PCI Bridge	Bus Speed	64-bit/66 MHz	64-bit/66 MHz
	Controller	PLX PCI 6540	PLX PCI 6540
	Mode	Universal (System/Peripheral)	Universal (System/Peripheral)
Graphic	Controller	Intel 945GME Integrated	Intel 945 GME Integrated
	VRAM	Dynamic	Dynamic
Ethernet	Controller	Intel 82571EB/Intel 82546GB	Intel 82571EB/Intel 82546 GB
	Interface	10/100/1000Base-TX	10/100/1000Base-TX
	No. of Ports	2/2	2/2
	PCI Bus Speed	PCI-Express x4 / PCI 32-bit/33 MHz	PCI-Express x4 / PCI 32-bit/33 MHz
	LAN3	-	-
Watchdog Timer	Output	System Reset	System Reset
	Interval	Programmable 0 ~ 255 sec.	Programmable 0 ~ 255 sec
EIDE	Mode	SATA/PATA	SATA/PATA
	Channel	1 (SATA) 1 (PATA)	1 (SATA) 1 (PATA)
	CompactFlash Socket	1	1
	2.5" Drive Bay	1 (SATA)	-
Front Panel I/O	VGA	1	-
	LAN	-	-
	PMC Site	-	-
	Serial	-	-
	Parallel	-	-
	USB	2 (USB 2.0)	-
	PS/2	-	-
	SCSI	-	-
	Audio Interface	-	-
Hardware Monitor	Controller	Winbond W83627HG	Winbond W83627HG
	Monitor	CPU temperature	CPU temperature
Rugged Conduction Cooling		-	Yes
Pre-heating		-	Yes
SODIMM Gluing Service		Optional (on SODIMM purchased from Advantech)	-
SCSI Controller Option		-	-
Miscellaneous	LED Indicator	HDD, BMC heartbeat, power, system/peripheral	-
	USB Channel	2 on RTM panel / 2 on RTM board	2 on RTM panel / 2 on RTM board
	Real Time Clock	Built-in	Built-in
	Audio Output	Reserved	Reserved
Compliant Standard	PICMG 2.0 R3.0 cPCI Spec.	Yes	Yes
	PICMG 2.1 R2.0 cPCI Hot Swap Spec.	Yes	Yes
	PICMG 2.9 R1.0 cPCI SystemManagement Spec.	Yes (IPMI 1.5)	-
	PICMG 2.16 R1.0 cPCI Packet Switching Backplane Spec.	Yes	Yes
	ANSI/VITA30.1-2002	-	Yes
	MIL-I-46058C and MIL-STD-810B	-	Yes
Rear Transition Board		RIO-3392MIL-A1E (No Coating)	RIO-3392MIL-A1E (No Coating)
		RIO-3392MIL-A2E (Conformal Coating)	RIO-3392MIL-A2E (Conformal Coating)
		-	-
Enclosure		MIC-3039-BE	-
		MIC-3056A/4-2RE	-
		MIC-3042AE MIC-3042A-xE MIC-3042BE MIC-3042B-xE	-
		MIC-3043AE MIC-3043BE MIC-3043CE MIC-3043DE MIC-3043x-BE	-
		MIC-3081B/8-10AE MIC-3081B/8-10RE	-
PMC Module		-	-
Note		-	Used on customized conduction cool enclosure
Reference Page		1-14	1-14

Yes: Supported, -: Unsupported

MIC-3392A Rev.2	MIC-3392B Rev.2	MIC-3390	MIC-3369C
1	1	1	1
Yes	Yes	Yes	Yes
Intel 945GME	Intel 945GME	Intel 915GME	Intel E7501 + ICH4
Intel Core 2 Duo, Core Duo Intel ULV Core 2 Duo, LV Core Duo	Intel Core 2 Duo, Core Duo Intel ULV Core 2 Duo, LV Core Duo	Intel Pentium M	Intel Pentium M
1	1	1	1
533/667 MHz	533/667 MHz	400/533 MHz	400/533 MHz
2.16 GHz	2.16 GHz	2.0 GHz	1.6/2.0 GHz (400/533 MHz FSB)
4 MB	4 MB	1 MB/ 2 MB	1 MB/ 2 MB
DDR2 533/667 MHz SDRAM	DDR2 533/667 MHz SDRAM	DDR2 400/533 MHz SDRAM	DDR 266 MHz SDRAM with ECC support
3 GB	3 GB	2 GB	2 GB
1GB/2GB	1 GB/2 GB	-	512 MB/1 GB/2 GB
Optional 2 GB	Optional 2 GB	Optional 2 GB	-
64-bit/66 MHz	64-bit/66 MHz	64-bit/66 MHz	64-bit/66 MHz
PLX PCI 6540	PLX PCI 6540	PLX6254	PLX6254
Universal (System/Peripheral)	Universal (System/Peripheral)	Universal (System/Peripheral)	Universal (System/Peripheral)
Intel 945GME Integrated	Intel 945GME Integrated	Intel 915GME Integrated	ATI RageXL
Dynamic	Dynamic	Dynamic	8 MB dedicated
Intel 82573E x 2	Intel 82573E x 2	Intel 82573E x 2	Intel 82546 GB
10/100/1000Base-TX	10/100/1000Base-TX	10/100/1000Base-TX	10/100/1000Base-TX
2	1	2	1
PCI Express x1	PCI Express x1	PCI Express x1	64-bit/133 MHz
Yes (FE, Intel 82562GT)	Yes (FE, Intel 82562GT)	Yes (FE, Intel 82562GT)	Yes (FE, Intel 82562GT)
System reset	System reset	System reset	System reset
Programmable 0 ~ 255 sec.	Programmable 0 ~ 255 sec.	Programmable 0 ~ 255 sec.	Programmable 0 ~ 255 sec.
SATA/PATA	SATA/PATA	SATA/PATA	ATA 33/66/100
1 (SATA)	1 (SATA)	1 (SATA)	2
1 (PATA)	1 (PATA)	1 (PATA)	
1	1	1	1
1 (SATA)	-	1 (SATA)	1
1	-	1	1
2	1	2	1
1	2	1	1
1	1	1	1
-	-	-	-
2 (USB 2.0)	-	2 (USB 2.0)	2 (USB 2.0)
-	-	-	-
-	-	-	-
-	-	-	-
Winbond W83627DHG	Winbond W83627DHG	Winbond W83782D	Winbond W83782D
CPU temp. +3.3/+5/+12 V	CPU temp. +3.3/+5/+12 V	CPU temp. +3.3/+5/+12 V	CPU temp. +3.3/+5/+12 V
-	-	-	-
-	-	-	-
-	-	-	-
Rear I/O	Rear I/O	Rear I/O	Rear I/O
HDD, BMC heartbeat, power, hot swap, system/peripheral	HDD, BMC heartbeat, power, hot swap, system/peripheral	HDD, power, hot swap, system/peripheral	HDD, power, hot swap
2 (USB 2.0)	Rear I/O	2 (USB 2.0)	2 (USB 2.0)
Built-in	Built-in	Built-in	Built-in
-	-	-	-
Yes	Yes	Yes	Yes
Yes	Yes	Yes	Yes
Yes	Yes	Yes	-
Yes	Yes	Yes	Yes
-	-	-	-
-	-	-	-
RIO-3310S-A1E	RIO-3310S-A1E	RIO-3310S-A1E	RIO-3309C-AE
RIO-3310S-A2E	RIO-3310S-A2E	RIO-3310S-A2E	RIO-3309S-A1E
RIO-3310AE	RIO-3310AE	RIO-3310AE	RIO-3309S-A2E
MIC-3039-BE	MIC-3039-BE	MIC-3039-BE	MIC-3039-BE
MIC-3056A/4-2RE	MIC-3056A/4-2RE	MIC-3056A/4-2RE	MIC-3056A/4-2RE
MIC-3042AE MIC-3042A-xE MIC-3042BE MIC-3042B-xE	MIC-3042AE MIC-3042A-xE MIC-3042BE MIC-3042B-xE	MIC-3042AE MIC-3042A-xE MIC-3042BE MIC-3042B-xE	MIC-3042AE MIC-3042A-xE MIC-3042BE MIC-3042B-xE
MIC-3043AE MIC-3043BE MIC-3043CE MIC-3043DE MIC-3043x-BE	MIC-3043AE MIC-3043BE MIC-3043CE MIC-3043DE MIC-3043x-BE	MIC-3043AE MIC-3043BE MIC-3043CE MIC-3043DE MIC-3043x-BE	MIC-3043AE MIC-3043BE MIC-3043CE MIC-3043DE MIC-3043x-BE
MIC-3081B/8-10AE MIC-3081B/8-10RE	MIC-3081B/8-10AE MIC-3081B/8-10RE	MIC-3081B/8-10AE MIC-3081B/8-10RE	MIC-3081B/8-10AE MIC-3081B/8-10RE
MIC-3665-AE MIC-3665-BE	MIC-3665-AE MIC-3665-BE	MIC-3665-AE MIC-3665-BE	MIC-3665-AE MIC-3665-BE
1-16	1-16	1-18	1-20

MIC-3392MIL

6U CompactPCI Intel® Core™ 2 Duo Rugged Processor Blade



CompactPCI® FCC CE RoHS COMPLIANT 2002/95/EC

Features

- Supports Intel® Core™ Duo Low Voltage or Core™2 Duo Ultra Low Voltage mobile processor
- Intel® 945GME chipset supports 533/667 MHz FSB
- Up to 3GB (DDR2 533/667) memory with SODIMM expansion
- Conduction cooled with ANSI/VITA30.1-2002 compliancy
- Pre-heat circuitry for reliable cold-booting in low temperature environment, or optional support for IPMI v1.5 without pre-heat
- Boot from network, Compact Flash, or local 2.5" SATA HDD
- Four GbE ports, two USB 2.0 ports, two DVI-I ports, one P/S2 port, and one COM interface to the Rear Transition Module
- Optional one VGA port and two USB 2.0 ports to front panel
- Optional conformal coating and SODIMM gluing service
- PICMG 2.16 R1.0, PICMG 2.1 R2.0, PICMG 2.6 R1.0 compliant

Introduction

MIC-3392MIL, a CompactPCI PICMG 2.16 compliant single slot 6 U CPU board, comes with three different configurations that meet a wide range of environmental requirements from ruggedized applications. Based on the Intel Core Duo LV or Core 2 Duo ULV processor, it offers a low power dissipation design without the need of on-board forced ventilation. Ruggedized requirements are addressed by a conduction cooled design and 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-3392MIL fully utilizes the I/O features of the Intel chipsets. It supports up to 3 GB of 667 MHz DDR2 RAM, an onboard 2.5" Serial ATA HDD, a CompactFlash slot, and a set of I/O functions brought through the backplane to a unique rear transition module, which contains four LAN ports, two DVI-I ports, two USB 2.0 ports, one P/S2 port, and one RS232 port on the panel.

Specifications

Processor System	CPU	Intel Core 2 Duo ULV or Core Duo LV up to 1.6 GHz (2 MB L2 cache)
	Chipset	Intel945GME/ICH7M
	BIOS	Award 4Mb flash
CompactPCI Interface	J1 Connector	32-bit PCI local bus
	J2 Connector	64-bit PCI local bus
	J3~J5 Connectors	PICMG2.16 + RTM area
PCI-X to cPCI Bridge	Controller	PLX PCI 6540CB
	Interface	Master/Drone
Bus	Front Side Bus	533/667 MHz
	PCI	Up to 64-bit/66 MHz
Memory	Technology	DDR2 533/667 MHz
	Max. Capacity	3 GB
	Socket	SODIMM x1 2 GB memory integrated on board
Graphic	Controller	Intel 945GME integrated
	VRAM	Dynamic
	Resolution	Up to 2048 x 1536, 64k color at 75 Hz
Ethernet	Controller	Intel 82571EB dual-port Gigabit Ethernet controller
	Interface	10/100/1000Base-TX Ethernet (on PCIe x4 channel)
	I/O Connector	PICMG2.16 and RJ-45 x2 (RTM rear panel)
	Controller	Intel 82546GB dual-port Gigabit Ethernet controller
	Interface	10/100/1000Base-TX Ethernet (on PCI 32bits/33Mhz)
	I/O Connector	RJ-45 x2 (RTM rear panel)
Storage	Mode	SATA
	Channel	2 interfaces to CompactPCI connector
	Storage Site	1 SATA connector and space reserved for a 2.5" HDD on one of the two channels (optional for non-conduction cooled product configuration)
	Mode	IDE
	Channel	1 interface to CompactPCI connector
	Storage Site	1 on-board CompactFlash socket on the same channel

Specifications

Expansion I/O	USB 2.0	2 host ports (std. USB connectors) on front panel and 4 host interfaces to cPCI connectors	
	DVI-I	2 interfaces to CompactPCI connector	
	Serial	3 interfaces to CompactPCI connector (1 reserved for BMC IPMI F/W update)	
	Parallel, FDD, PS2	Each with 1 interface to CompactPCI connector	
Watchdog Timer	Output	Local Rest and Interrupt	
	Interval	Programmable 1s ~ 255s	
Hardware Monitor	Controller	Winbond 83627HG	
BMC	Controller	Renesas H8S 2167, IPMIv1.5 compliant for standard CompactPCI SKU/Pre-heat F/W for conduction-cool SKU, mutually exclusive	
Operating System	Compatibility	Windows® XP/2000, Linux, VxWorks 6.4 (on request)	
Miscellaneous	Front Panel LEDs (standard cPCI SKU only)	x1 blue/yellow for Hot Swap/HDD, x1 green for Master/Drone, x1 yellow BMC Heartbeat, and x1 green for Power	
Power Requirement	Configuration	Conduction cooled SKU (with Intel U7500 processor)	
	TDP	37 watts (thermal model available on request)	
Physical	Dimension	160.0 mm x 233.35 mm	
Environment		Operating	Non-operating
	Temperature	0 ~ 70° C (std CompactPCI SKU) -40 ~ 70° C (conduction-cool with pre-heat)	-50 ~ 80° C
	Humidity	5 ~ 85 % @ 45° C, non-condensing	10 ~ 95 % @ 45° C, non-condensing
	Vibration (5-500 Hz)	1.5 Grms (without on-board 2.5" SATA HDD)	2 G
	Shock	20G (without on-board 2.5" SATA HDD)	50 G
	Altitude	300m below sea level to 4,000m above sea level (without conformal coating)	10,000m above sea level
Regulatory	Conformance	FCC Class A, CE, RoHS	
	NEBS Level 3	Designed for GR-63-CORE and GR-1089-CORE	
Compliance	Standards	PICMG 2.0 R3.0, PICMG 2.1 R.0, PICMG 2.9 R1.0 (std cPCI SKU), PICMG 2.16 R1.0, ANSI/VITA 30.1-2002	

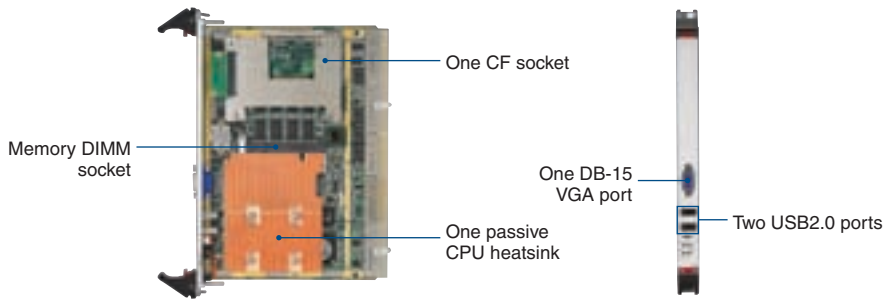
Recommended Configurations

CPU Board	Rear I/O Board	Enclosure
MIC-3392MILS-PxE Series	RIO-3392MIL-AxE Series	MIC-3039-BE, MIC-3042A/B, MIC-3043A/B/C/D, MIC-3056A, MIC-3081B
MIC-3392MILC-P1E	RIO-3392MIL-AxE Series	Customized conduction cool enclosure

Ordering Information

System Board Model Number	Front Panel				Conduction Cool	Main On-board Features					Conformal Coating
	VGA	USB2.0	BMC Reset	System Reset		CPU	Memory	CF Socket	Storage Channel	SODIMM Socket	
MIC-3392MILS-P1E	1	2	Yes	Yes	-	Intel U7500	2 GB	1	1	1	-
MIC-3392MILS-P2E	1	2	Yes	Yes	-	Intel L2400	2 GB	1	1	1	-
MIC-3392MILC-P1E	-	-	-	-	Yes	Intel U7500	2 GB	1	-	-	Yes

RTM Model Number	Rear Panel					On-board Header/Socket/Connector							CPCI Conn.	Conformal Coating
	LAN	COM	DVI-I	PS2	USB	IDE	FDD	LPT	SATA	COM Interface	Console Interface	USB Interface		
RIO-3392MIL-A1E	4	1	2	1	2	1	1	1	2	1	1	2	J3 ~ J5	-
RIO-3392MIL-A2E	4	1	2	1	2	1	1	1	2	1	1	2	J3 ~ J5	Yes



MIC-3392MILS-PxE Series

MIC-3392MILC-P1E

MIC-3392 Rev.2

6U CompactPCI Intel® Core™2 Duo Processor-based Board with Dual PCIe GbE/DDR2/SATA/PMC

Features

- Supports Intel® Core™2 Duo processor
- Intel 945GME chipset supports 533/667 MHz FSB
- Up to 3 GB (DDR2 533/667) memory with SODIMM expansion
- Comprehensive I/O capability, dual Gigabit Ethernet, SATA, CompactFlash
- One 64-bit/66 MHz PMC expansion slot, and optional second 64-bit/66 MHz PMC expansion slot
- PICMG 2.16, R1.0 Packet Switching Backplane Specification compliant
- PICMG 2.9, R1.0 IPMI Specification compliant
- PICMG 2.1, R2.0 Hot-Swap Specification compliant
- Selectable System/Peripheral mode

Introduction

The MIC-3392 is a high performance, power efficient CompactPCI single board computer based on the Intel Core 2 Duo processor. It combines the benefits of two execution cores with intelligent power management features to deliver significantly greater performance per watt over previous Intel processors. The two execution cores share a power-optimized 667 MHz front side bus to access the same system memory. To save power, address and data buffers are turned off when there is no activity.

The MIC-3392 uses PCI Express (PCIe) technology to maximize I/O throughput. It supports up to 3 GB of 667 MHz DDR2 RAM (6.4 GB/s throughput), an onboard 2.5" Serial ATA HDD and a CompactFlash slot. Two front-accessible PCI Express (PCIe) Gigabit Ethernet (GbE) ports provide a bidirectional bandwidth of 2 Gb/s. In addition, the MIC-3392 supports Rear Transition Boards and PCI Mezzanine Cards for further expansion options.

Specifications

Processor System	CPU (Not Included)	Intel Core Duo T2500/L2500 or Intel Core 2 Duo T7400/L7400 processor (Enclosure with forced air cooling is required)
	Max. Speed	2.16 GHz (2 MB up to 4 MB L2 cache)
	Chipset	Intel 945GME
	BIOS	AMI 8 Mbit flash
Bus	Front Side Bus	533/667 MHz
	PCI	Up to 64-bit/100 MHz
Memory	Technology	DDR2 533/667 SDRAM
	Max. Capacity	3 GB
	Socket	SODIMM x 1 1 GB/ 2 GB memory integrated on board
Graphic	Controller	Intel 945GME integrated
	VRAM	Dynamic
	Resolution	Up to 2048 x 1536, 64k color at 75 Hz
Ethernet	Interface	10/100/1000Base-TX Ethernet
	Controller	Intel 82573E x 2
	I/O Connector	RJ-45 x 2 (front)
Storage	Mode	SATA
	Channels	2
	Storage Site	One SATA connector and space reserved for embedded 2.5" HDD
Bridge	Bus	PCI 64-bit/66 MHz
	Interface	Universal (System/Peripheral mode capability)
I/O Interface	Serial (COM1)	RJ-45 x 1 (front)
Operating System	Compatibility	Windows® Vista/XP/2000, Linux Fedora Core 5
Hardware Monitor	Controller	Winbond W83627DHG
	Monitor	CPU temperature, +3.3 V, +5 V, +12 V
Watchdog Timer	Output	System reset
	Interval	Programmable, 0 ~ 255 sec.
PMC	Site	1 or 2
	Interface	IEEE1386.1 64-bit/66 MHz on A version PMC1 and PMC2 are 64-bit/66 MHz on B version
	Signal	+5 V/+3.3 V compliant

Specifications Cont.

Miscellaneous	Solid State Disk	One CompactFlash socket			
	LEDs	HDD, Power, Hot Swap, system/peripheral			
	USB 2.0	2 channels			
	Real Time Clock	Built-in to the South Bridge			
Power Requirement (Intel Core 2 Duo 2 GHz with 2 GB memory)	Voltage	+3.3 V	+5 V	+12 V	- 12V
	Typical	2.66 A	3.04 A	0.39 A	0 A
	Maximum	3.17 A	7.16 A	0.40 A	0 A
Physical	Dimensions	233.35 x 160 mm (9.19" x 6.3"), 1-slot width			
	Weight	0.8 kg (1.76 lb)			
Environment		Operating		Non-Operating	
	Temperature *	0 ~ 55° C (32 ~ 122° F)		-20 ~ 60° C (-4 ~ -140° F)	
	Humidity	-		95% @ 60° C (non-condensing)	
	Shock	20 G		50 G	
	Vibration(5 ~ 500 Hz)	1.5 Grms		2.0 G	
	Altitude	60 m below sea level to 4000 m above sea level			
Regulatory	Conformance	FCC Class A, CE			
	NEBS Level 3	Design for GR-63-core & GR-1089-core			
Compliance	Standard	PICMG 2.0, R3.0 CompactPCI Specification PICMG 2.1, R2.0 Hot-Swap Specification PICMG 2.9, R1.0 IPMI Specification PICMG 2.16, R1.0 Packet Switching Backplane Specification			

* Optional large heatsink available but only adapted to single PMC model. Please contact your local distributor for ordering information.

Recommended Configurations

CPU Board	PMC Module	Rear I/O Board	Enclosure
MIC-3392A2-MxE, MIC-3392B2-MxE	MIC-3665-AE, MIC-3665-BE	RIO-3310AE, RIO-3310S-A1E, RIO-3310S-A2E	MIC-3039-B, MIC-3042, MIC-3043, MIC-3081B, MIC-3056

Rear Transition Board

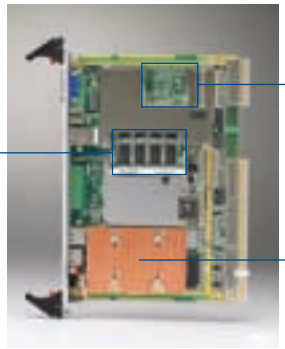
Model	Rear Panel							Onboard Header/Socket/Connector							
	KB & Mouse	COM2 *	GbE LAN	VGA	USB	10/100Base-T LAN	SCSI **	IDE	SATA	FDD	SCSI**	PRT	USB	Slot Width	Conn.
RIO-3310S-A1E	1	1	2	1	1	1	-	1	1	1	1	1	1	1	J3/J5
RIO-3310S-A2E	1	1	2	1	1	1	1	1	1	1	1	1	1	1	J3/J5
RIO-3310AE	1	1	2	1	1	1	-	1	1	1	-	1	1	1	J3/J5

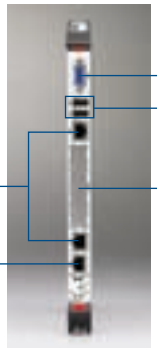
* Optional 3rd LAN port occupies the rear COM2 port

** Internal Ultra 320 SCSI port with optional external rear I/O port

Ordering Information

Model Number	Front Panel I/O					Main Onboard Features				
	LAN	COM	PMC	USB	VGA	CPU	Memory	CF Socket	Storage Channel	Slot Width
MIC-3392A2-M1E	2	1	1	2	1	-	1 GB	1	1	1
MIC-3392A2-M2E	2	1	1	2	1	-	2 GB	1	1	1
MIC-3392B2-M1E	1	1	2	-	-	-	1 GB	1	1	1
MIC-3392B2-M2E	1	1	2	-	-	-	2 GB	1	1	1





MIC-3390

6U CompactPCI® Intel® Pentium® M Processor-based Board with Dual PCIe GbE/DDR2/SATA/PMC

Features

- Supports low-power Intel® Pentium® M processor at up to 2.0 GHz in a 479-pin Micro-FCPGA socket
- PCI Express dual Gigabit Ethernet on board
- Dual channel DDR2 400/533 MHz SDRAM up to 2 GB
- PICMG 2.16 R1.0 CompactPCI® Packet Switching Backplane Specification compliant
- PICMG 2.9 R1.0 CompactPCI System Management Specification compliant
- PICMG 2.1 R2.0 CompactPCI Hot Swap Specification compliant
- Onboard SATA 2.5" HDD bay, PMC connector and CompactFlash socket

Introduction

The MIC-3390 single board computer is designed to offer embedded system builders the best value in low-power Intel Pentium M computing. The Intel Pentium M processor, Mobile Intel 915GME Express chipset and Intel I/O Controller Hub ICH6M, enables the MIC-3390 to deliver great computing performance, connectivity and throughput without compromising system thermal design. The MIC-3390 Graphic Memory Controller Hub and ICH6M provide an optimized integrated memory, graphics and I/O solution. The MIC-3390 is validated for all Intel Pentium M processors, and supports up to 2 GB of 400/533 MHz DDR2 memory in dual-channel SODIMMs.

The MIC-3390 maximizes I/O throughput with the ICH6-M's PCI Express (PCIe) ports. The two Intel 82573E Ethernet controllers are linked directly using PCIe connectivity for a total bidirectional peak bandwidth of 2 Gb/s. Another PCIe lane connects to a PCIe to PCI-X Bridge to provide a 64-bit / 100 MHz data path for the PMC and a 64-bit / 66 MHz data path for the CompactPCI Bridge. The flexibility of the bridge allows the MIC-3390 to be used in a system slot or a peripheral slot as an intelligent I/O processor or as an application blade in a multi-processor or clustered architecture. In addition to a full array of industry standard I/O features, ICH6M provides two Serial ATA ports for high speed data transfers up to 150 MB/s. One port is routed to rear I/O and the other port is routed to both the onboard 2.5" SATA drive and rear I/O for a greater choice of connectivity. With an optional mezzanine card, the MIC-3390 provides a fully compatible IPMI 2.0 interface with LAN and serial port support for out-of-band management.

Specifications

Processor System	CPU (Not Included)	Intel Pentium M Processor (Socket 479)
	Max. Speed	2.0 GHz (2 MB L2 cache)
	Chipset	Intel 915GME
	BIOS	Award™ 8 Mbit flash
Bus	Front Side Bus	400/533 MHz
	PCI	Up to 64-bit/100 MHz (PCI-X support)
Memory	Technology	DDR2 400/533 MHz SDRAM
	Max. Capacity	2 GB
	Socket	SODIMM x 2
Graphic	Controller	Integrated in Intel 915GME
	VRAM	Dynamic
	Resolution	Up to 2048 x 1536, 64k color at 75 Hz
Ethernet	Interface	10/100/1000Base-TX Ethernet
	Controller	Intel 82573E x 2
	I/O Connector	RJ-45 x 2 (front)
Storage	Mode	SATA
	Channels	2
	Storage Site	One SATA connector and space reserved for embedded 2.5" HDD
Bridge	Bus	PCI 64-bit/66 MHz
	Interface	Universal (System/Peripheral mode capability)
I/O Interface	Serial (COM1)	RJ-45 x 1 (front)
Operating System	Compatibility	Windows® XP/2000/NT 4.0, Red Hat Fedora Core 3
Hardware Monitor	Controller	Winbond W83782D
	Monitor	CPU temperature, +3.3 V, +5 V, +12 V
Watchdog Timer	Output	System reset
	Interval	Programmable, 0 ~ 255 sec.
PMC	Site	1
	Interface	PCI Mezzanine (IEEE1386.1 compliant)
	Signal	+5 V/+3.3 V compliant

Specifications Cont.

Miscellaneous	Solid State Disk	One CompactFlash socket			
	LED Indicator	HDD, Power, Hot swap, system/peripheral			
	USB 2.0	2 channels			
	Real Time Clock	Built-in			
Power Requirement (Intel 1.8 GHz with 1 GB memory)	Voltage	+3.3 V	+5 V	+12 V	-12 V
	Typical	4 A	4 A	< 12 mA	< 65 mA
	Maximum	4.2 A	6.2 A	< 20 mA	< 57 mA
Physical Characteristics	Dimensions (W x D)	233.35 x 160 mm (9.19" x 6.3"), 1-slot width			
	Weight	0.8 kg (1.76 lb)			
Environment		Operating		Non-Operating	
	Temperature	0 ~ 65° C (32 ~ 149° F)		-40 ~ 70° C (-40 ~ 140° F)	
	Humidity	-		95% @ 60° C (non-condensing)	
	Shock	20 G		50 G	
	Vibration (5 ~ 500 Hz)	1.5 Grms		2.0 G	
	Altitude	60 m below sea level to 4000 m above sea level			
	Airflow	300 LFM=1.54 m/s			
Regulatory	Conformance	FCC Class A, CE			
	NEBS Level 3	Design for GR-63-core & GR-1089-core			
Compliance	PICMG 2.0 R3.0 CompactPCI Specification PICMG 2.1 R2.0 CompactPCI Hot Swap Specification PICMG 2.9 R1.0 CompactPCI System Management Specification PICMG 2.16 R1.0 CompactPCI Packet Switching Backplane Specification				

Recommended Configurations

CPU Board	PMC Module	Rear I/O Board	Enclosure
MIC-3390E, MIC-3390-AE	MIC-3665-AE, MIC-3665-BE	RIO-3310AE, RIO-3310S-A1E, RIO-3310S-A2E	MIC-3039-B, MIC-3042, MIC-3043, MIC-3081B, MIC-3056

Rear Transition Board

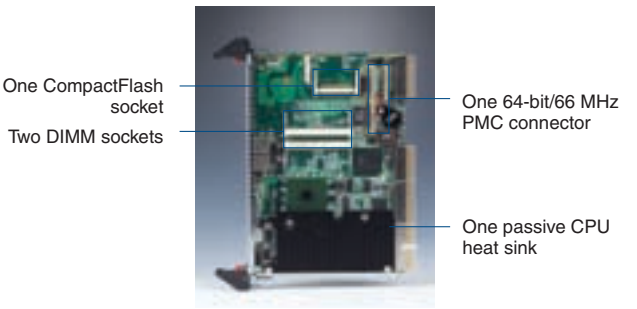
Part Number	Rear Panel							Onboard Header/Socket/Connector								Slot Width
	KB & Mouse	COM2*	GbE LAN	VGA	USB	10/100Base-T LAN	SCSI**	IDE	SATA	FDD	COM1	SCSI**	PRT	USB	Conn.	
RIO-3310AE	1	1	2	1	1	1	-	1	1	1	1	-	1	1	J3/J5	1
RIO-3310S-A1E	1	1	2	1	1	1	-	1	1	1	1	1	1	1	J3/J5	1
RIO-3310S-A2E	1	1	2	1	1	1	1	1	1	1	1	1	1	1	J3/J5	1

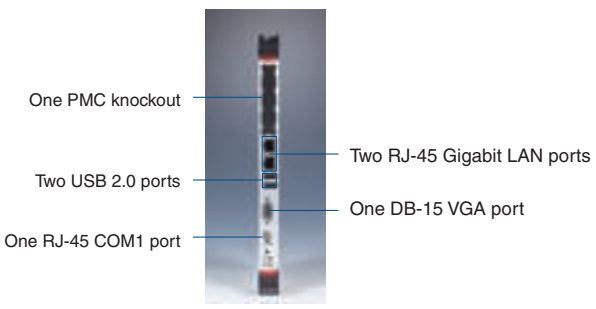
* Optional 3rd LAN port occupies the rear COM2 port

** Internal Ultra 320 SCSI port with optional external rear I/O port

Ordering Information

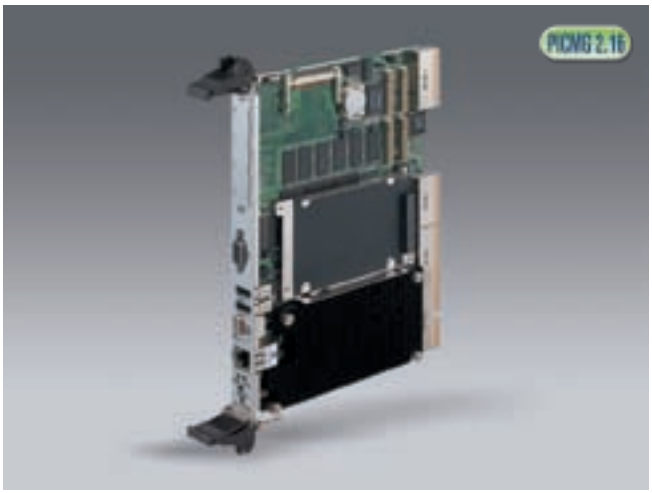
Part Number	Front Panel I/O					Main Onboard Features					
	LAN	COM	PMC	USB	VGA	CPU	Memory	CF Socket	IDE Channel	Slot Width	IPMI BMC Module
MIC-3390E	2	1	1	2	1	-	-	1	2.5" SATA HDD	1	-
MIC-3390-AE	2	1	1	2	1	-	-	1	2.5" SATA HDD	1	1





MIC-3369C

6U CompactPCI® Intel® Pentium® M Processor-based Board with VGA/Dual PCI GbE/PMC (PICMG 2.16)



Features

- Supports Intel® Pentium® M 760 processor (2.0 GHz, 2 MB L2 cache)
- Supports 400/533 MHz FSB
- Supports dual Gigabit LAN ports on the rear
- Up to 2 GB (DDR 200/266 MHz) onboard memory with ECC
- PICMG 2.16 R1.0 CompactPCI Packet Switching Backplane Specification compliant
- PICMG 2.1 R2.0 CompactPCI Hot Swap Specification compliant
- Onboard 2.5" HDD bay, PMC connector and CompactFlash socket

Introduction

The MIC-3369C is a highly integrated and cost effective CompactPCI single board computer based on the Intel Pentium M processor. It is an ideal application blade for integration into products where performance and low power consumption are key requirements. The Intel E7501 chipset delivers 4.3 GB/s bandwidth across a 400/533 MHz front side bus. The Pentium M processor has 32 KB of level 1 cache, 1 MB/2 MB of level 2 advanced transfer cache and up to 4.3 GB/s of bandwidth across dual data rate memory channels. The MIC-3369C supports up to 2 GB of ECC DDR 266 onboard memory.

The MIC-3369C uses Intel's I/O controller hub technology to provide 64-bit data buses. The onboard dual Gigabit Ethernet controller is connected via a 64-bit / 133 MHz PCI-X bus for maximum sustained packet throughput. A full array of industry standard I/O features, onboard 2.5" hard disk drive bay and a 64-bit/66 MHz PMC site enables the MIC-3369C to meet the most flexible and demanding I/O processing needs. The MIC-3369C can be used in either a system slot or peripheral slot, making it an ideal choice for applications requiring PICMG 2.16 CompactPCI Packet Switching Backplane support for Gigabit switched-fabric interconnection between blades. The MIC-3369C is perfect for mission critical telecom and data communication applications such as 3G wireless infrastructure, Voice-over-IP, media gateways, soft switches and triple-play server clusters.

Specifications

Processor System	CPU (Not Included)	Intel Pentium M processor (Socket 479)
	Speed	Up to 2.0 GHz
	L2 Cache	1 MB on 1.6 GHz CPU or 2 MB on 2.0 GHz CPU
	Chipset	Intel E7501 + ICH4
	BIOS	Award™ 4 Mbit flash (network booting/console redirection on request)
Bus	Front Side Bus	400/533 MHz
	PCI	64-bit/133 MHz (PCI-X support)
Memory	Technology	DDR 200/266 MHz SDRAM with ECC support
	Max. Capacity	2 GB
	Integrated	512 MB / 1 GB / 2 GB memory on board (no DIMM socket)
Graphic	Controller	ATI RageXL™
	VRAM	8 MB dedicated
Ethernet	Interface	10/100/1000Base-TX Ethernet
	Controller	Intel 82546GB (Dual GbE ports)
	I/O Connector	RJ-45 x 1 (front)
EIDE	Mode	ATA 33/66/100
	Channel	2
	Connector	One IDE connector and space reserved for embedded 2.5" HDD
PCI-to-PCI Bridge	Interface	Universal (System/Peripheral mode capability)
	Controller	PLX6254
	Bus	64-bit / 66 MHz
Front I/O Interface	PMC	1
	VGA	1
	USB	2 (USB 2.0)
	Serial (COM1)	1 (RS-232, RJ-45 connector)
	LAN	1
Operating System	Compatibility	Windows® XP/2000/NT 4.0, Red Hat Linux 9.0, VxWorks
Hardware Monitor	Controller	Winbond® W83782D
	Monitor	CPU temperature, +3.3 V, +5 V, +12 V
Watchdog Timer	Output	System reset
	Interval	Programmable, 0 ~ 255 sec.
PMC	Site	1
	Interface	64-bit/66 MHz PCI Mezzanine (IEEE1386.1)
	Signal	+5 V/+3.3 V compliant

Specifications Cont.

Miscellaneous	Solid State Disk	CompactFlash socket			
	LED Indicator	HDD, Power, Hot Swap			
	USB 2.0	2 channels			
	Real Time Clock	Built-in			
Power Requirement (Intel Pentium M 1.6 GHz)	Voltage	+3.3 V	+5 V	+12 V	-12 V
	Maximum	5.18 A	4.19 A	38 mA	< 25 mA
Environment		Operating			Non-Operating
	Temperature	0 ~ 65° C (32 ~ 149° F)			-40 ~ 70° C (-40 ~ 158° F)
	Humidity	-			95% @ 60° C (non-condensing)
	Shock	20 G			50 G
	Vibration (5 ~ 500 Hz)	1.5 Grms			2.0 G
	Altitude	60 m below sea level to 4000 m above			
Physical Characteristics	Dimensions (W x D)	233.35 x 160 mm (9.2" x 6.3"), 1-slot width			
	Weight	0.8 kg (1.76 lb)			
Compliance	PICMG 2.0 R3.0 CompactPCI Specification PICMG 2.1 R2.0 CompactPCI Hot Swap Specification PICMG 2.16 R1.0 CompactPCI Packet Switching Backplane Specification				

Recommended Configurations

CPU Board	PMC Module	Rear I/O Board	Enclosure
MIC-3369C-MxE	MIC-3665-AE, MIC-3665-BE	RIO-3309C-AE, RIO-3309S-AxE	MIC-3039-B, MIC-3056, MIC-3042, MIC-3043, MIC-3081B

Rear Transition Board

Part Number	Rear Panel							Onboard Header/Socket/Connector							Slot Width
	KB & Mouse	COM2*	GbE LAN	VGA	USB	10/100 LAN**	SCSI	IDE	FDD	SCSI	COM1	USB	PRT	Conn.	
RIO-3309C-AE	1	1	2	1	1	1	-	1	1	-	1	1	1	J3/J5	1
RIO-3309S-A1E	1	1	2	1	1	1	-	1	1	1	1	1	1	J1/J2/ J3/J5	1
RIO-3309S-A2E	1	1	2	1	1	1	1	1	1	-	1	1	1	J1/J2/ J3/J5	1

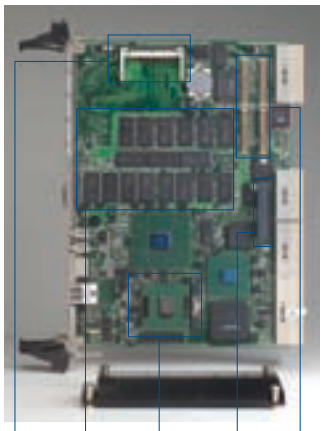
* RS-232/422/485 selectable

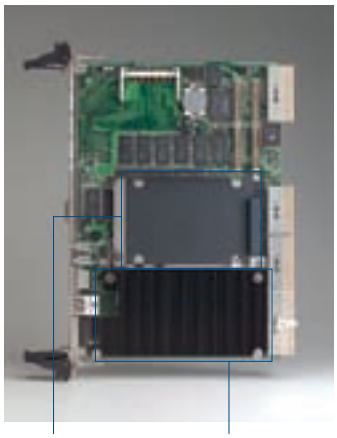
** Optional 3rd LAN port occupies the rear COM2 port

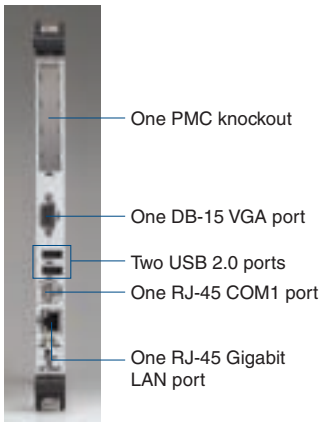
Ordering Information

Part Number	Front Panel I/O					Onboard Header/Socket/Connector			
	LAN	COM	PMC	USB	VGA	Memory	IDE Channel	CF Socket	Slot Width
MIC-3369C-M0E	1	1	1	2	1	512 MB	2.5" HDD	1	1
MIC-3369C-M1E	1	1	1	2	1	1 GB	2.5" HDD	1	1
MIC-3369C-M2E	1	1	1	2	1	2 GB	2.5" HDD	1	1

Note: The above part numbers do not include the CPU, please order separately.







6U CompactPCI Enclosures

MIC-3043 Series

Selection Guide

Specifications			4U Enclosure	
Model Name			MIC-3043B/MIC-3043B-BE	MIC-3043C/MIC-3043C-BE
Height (1U = 1.75")			4U	4U
Backplane	6U Slot		6	6
	PCI Bus		32-bit/33 MHz	32-bit/33 MHz
			64-bit/66 MHz	64-bit/66 MHz
	H.110 CT Bus		Yes	-
	PICMG 2.16		-	-
	VI/O Voltage		3.3 V/5 V	3.3 V/5 V
Drive Bay	5.25"		-	-
	3.5" HDD Bracket		2 IDE removable	2 SCSI hot-swappable
	Slim FDD		-	-
	Slim CD-ROM		1 USB	1 USB
Cooling	No. of Fans		2	2
	Fan Air Flow Rate		193 CFM, 61.3 CFM	193 CFM, 61.3 CFM
Max. Power Supply	AC (100 ~ 240 V)		Hot-swap AC cPCI 500 W + 250 W (2+1)	Hot-swap AC cPCI 500 W + 250 W (2+1)
	DC (-48 V)		Hot-swap DC cPCI 500 W + 250 W (2+1)	Hot-swap DC cPCI 500 W + 250 W (2+1)
CPU Board	MIC-3392		Yes	Yes
	MIC-3390		Yes	Yes
	MIC-3369C		Yes	Yes
RIO Card			Yes	Yes
PCI Carrier Board	MIC-3961		Yes	Yes
Media Carrier Board	MIC-3960		-	-
Dual PMC Carrier Board	MIC-3951		Yes	Yes
Chassis Management Module	MIC-3927	MIC-3927AE	-	-
		MIC-3927BE	-	-
		MIC-3927CE	Yes	Yes
Dimensions (W x H x D)	mm		440 x 177 x 320	440 x 177 x 320
	inch		17.3 x 7 x 12.6	17.3 x 7 x 12.6
Weight	kg		18	18
	lb		39.7	39.7
RoHS Compliance			RoHS	RoHS
Reference Page			1-24	1-24

Yes: Supported; -: Unsupported; △: CPU board and chassis don't support HDD

MIC-3042 Series

MIC-3043 Series

4U Enclosure			
MIC-3043DE/MIC-3043D-BE	MIC-3042AE/MIC-3042A-xE	MIC-3042BE/MIC-3042B-xE	MIC-3043AE/MIC-3043A-BE
4U	4U	4U	4U
6	8	8	6
32-bit/33 MHz	32-bit/33 MHz	32-bit/33 MHz	32-bit/33 MHz
64-bit/66 MHz	64-bit/66 MHz	64-bit/66 MHz	64-bit/66 MHz
-	Yes	Yes	Yes
-	-	-	-
3.3 V/5 V	3.3 V/5 V	3.3 V/5 V	3.3 V/5 V
-	-	-	-
2 SATA (IDE or SATA interface optional) hot-swappable	-	-	2 IDE removable
-	-	-	-
1 USB	-	-	1 USB
2	2	2	2
193 CFM, 61.3 CFM	193 CFM, 61.3 CFM	193 CFM, 61.3 CFM	193 CFM, 61.3 CFM
Hot-swap AC cPCI 500 W + 250 W (2+1)	Hot-swap AC cPCI 500 W + 250 W (2+1)	Hot-swap AC cPCI 500 W + 250 W (2+1)	Hot-swap AC cPCI 500 W + 250 W (2+1)
Hot-swap DC cPCI 500 W + 250 W (2+1)	Hot-swap DC cPCI 500 W + 250 W (2+1)	Hot-swap DC cPCI 500 W + 250 W (2+1)	Hot-swap DC cPCI 500 W + 250 W (2+1)
Yes	Yes	Yes	Yes
Yes	Yes	Yes	Yes
Yes	Yes	Yes	Yes
Yes	Yes	Yes	Yes
Yes	-	Yes	Yes
-	Yes	Yes	-
Yes	Yes	Yes	Yes
-	-	-	-
-	-	-	-
Yes	Yes (optional)	Yes (optional)	Yes (optional)
440 x 177 x 320	440 x 177 x 320	440 x 177 x 320	440 x 177 x 320
17.3 x 7 x 12.6	17.3 x 7 x 12.6	17.3 x 7 x 12.6	17.3 x 7 x 12.6
18	18	18	18
39.7	39.7	39.7	39.7
RoHS	RoHS	RoHS	RoHS
1-24	1-26	1-26	1-24

MIC-3043

4U CompactPCI® Enclosure with cPCI Power Supply and Removable HDD Bay (CT Bus or Non-CT Bus)

Features

- 6-slot 6U CompactPCI® backplane
- Supports two hot-swappable SCSI/SATA or removable IDE HDD bays
- Built-in IDE slim-type CD-ROM
- AC cPCI 250 W + 250 W redundant (1+1) power supplies
- Supports hot-swappable fan modules
- PICMG 2.5 (CompactPCI Computer Telephony) compliance
- Built-in alarm module (MIC-3924L-AE)

Introduction

The MIC-3043 is a 4U enclosure designed for mission-critical and high-reliability applications such as Networking, Telecommunication, Computer Telephony Integration, and Image Processing. It is equipped with a hot-swappable CompactPCI redundant power supply and hot-swappable fan modules to minimize MTTR (Mean-Time-to-Repair). The MIC-3043 supports IEEE 1101.11 rear I/O transition boards. Users can route I/O signals to the rear transition boards for simplified system cabling. Front boards pop in and out without any hardwiring. The MIC-3043 has two hot-swappable SCSI/SATA or removable IDE HDD bays and one slim CD-ROM as standard.

The MIC-3043 has a high-quality backplane that supports impedance control and 64-bit / 66 MHz cards for full compatibility. The H.110 CT Bus complies with PICMG 2.5, which is an open architecture ideal for telecom solutions or development platforms.

Specifications

		MIC-3043A	MIC-3043B	MIC-3043C	MIC-3043D
Backplane	6U Slot	System x 1, Peripheral x 5, Rear transition x 6 (80 mm, IEEE1101.11 compliant)			
	H.110 CT Bus	Yes	-	Yes	Yes
	Bus	32-bit/33 MHz, 64-bit/66 MHz			
	V (I/O)	+3.3 V/+5 V (selectable)			
Cooling	Fan	2 (front: 193 CFM, rear: 61.3 CFM)			
Drive Bay	3.5" HDD	2 (IDE)	2 (IDE)	2 (SCSI)	2 (SATA)
	Slim CD-ROM	1	1	1	1
Management Interface	Alarm indicators	2 (fan failure and system overheating)			
Power Supply	Input	AC 100 ~ 240 V @ 50 ~ 60 Hz, full range (MIC-3043X-XX)			
	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
Reliability	MTBF	Backplane	Fan module	Power supply	
		800,000 hours	50,000 hours @ 25° C	100,000 hours @ 70%	
Environment		Operating		Non-Operating	
	Temperature	0 ~ 45° C, (32 ~ 113° F)		-20 ~ 60° C, (-4 ~ 140° F)	
	Humidity	-		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)			
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 PICMG 2.5 R1.0 CompactPCI Computer Telephony Specification (MIC-3043B is not compliant with PICMG 2.5)				
	RoHS, CE, FCC, UL, CCC				

* Without SCSI/IDE/SATA HDD

Backplane Information

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

MIC-3811, CT Bus backplane (for MIC-3043A/C/D)
MIC-3812, non-CT Bus backplane (for MIC-3043B)

Recommended Configurations

Enclosure	CPU Board	Rear I/O Board	Chassis Management Module	
MIC-3043AE MIC-3043A-BE	MIC-3369C-MxE, MIC-3358A-MxE	RIO-3309C-AE, RIO-3309S-A2E, RIO-3309S-A1E	Included MIC-3924L-AE	Optional MIC-3924A-BE MIC-3927AE
	MIC-3390E, MIC-3390-AE MIC-3392A-MxE, MIC-3392B-MxE	RIO-3310AE, RIO-3310S-A2E, RIO-3310S-A1E		
MIC-3043BE MIC-3043B-BE	MIC-3369C-MxE, MIC-3358A-MxE	RIO-3309C-AE, RIO-3309S-A2E, RIO-3310S-A1E		
	MIC-3390E, MIC-3390-AE MIC-3392A-MxE, MIC-3392B-MxE	RIO-3310AE, RIO-3310S-A2E, RIO-3310S-A1E		
MIC-3043CE MIC-3043C-BE	MIC-3369C-MxE, MIC-3358A-MxE	RIO-3309S-A1E		
	MIC-3390E, MIC-3390-AE MIC-3392A-MxE, MIC-3392B-MxE	RIO-3310S-A1E		
MIC-3043DE MIC-3043D-BE	MIC-3369C-MxE, MIC-3358A-MxE	RIO-3309S-A1E, RIO-3309C-AE, RIO-3309S-A2E		
	MIC-3390E, MIC-3390-AE MIC-3392A-MxE, MIC-3392B-MxE	RIO-3310S-A1E, RIO-3310S-A2E, RIO-3310AE		

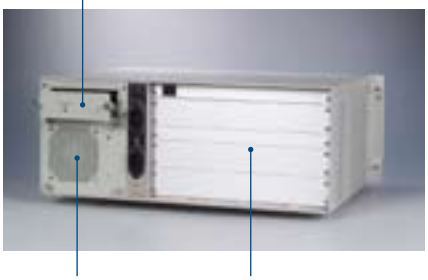
Ordering Information

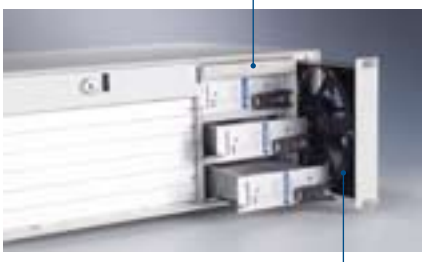
Part Number	PICMG 2.5	HDD Bay	Media Support	Chassis Management Module	cPCI Power Supply
MIC-3043AE	Yes	IDE	Slim CD-ROM	MIC-3924L-AE	-
MIC-3043A-BE	Yes	IDE	Slim CD-ROM	MIC-3924L-AE	Hot-swap AC cPCI 250 W + 250 W
MIC-3043BE	-	IDE	Slim CD-ROM	MIC-3924L-AE	-
MIC-3043B-BE	-	IDE	Slim CD-ROM	MIC-3924L-AE	Hot-swap AC cPCI 250 W + 250 W
MIC-3043CE	Yes	SCSI	Slim CD-ROM	MIC-3924L-AE	-
MIC-3043C-BE	Yes	SCSI	Slim CD-ROM	MIC-3924L-AE	Hot-swap AC cPCI 250 W + 250 W
MIC-3043DE	Yes	SATA	Slim CD-ROM	MIC-3924L-AE	-
MIC-3043D-BE	Yes	SATA	Slim CD-ROM	MIC-3924L-AE	Hot-swap AC cPCI 250 W + 250 W

Note: Please contact your local distributor to order AC 500W + 250W (2+1) redundant power suppliers.

Accessories

Part Number	Description
1757000190G	One AC cPCI 250 W redundant power module (included)
1757000011	One DC cPCI 250 W redundant power module
968A390022	MIC-3924L-AE alarm module (included)
MIC-3927CE	MIC-3927 intelligent chassis management module (IPMI)





MIC-3042

4U CompactPCI® Enclosure with cPCI Power Supply (CT Bus or PICMG 2.16)

Features

- 8-slot 6U CompactPCI® backplane
- AC cPCI 500 W + 250 W redundant (2+1) power supplies
- PICMG 2.16 (CompactPCI Packet Switching Backplane) compliance
- PICMG 2.5 (CompactPCI Computer Telephony) compliance
- Built-in alarm module (MIC-3924L-AE)

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. The standard configuration includes a H.110 CT Bus that complies with PICMG 2.5, which is the open architecture used to build telecom solutions.

Specifications

		MIC-3042A		MIC-3042B	
Backplane	6U slot	System x 1, Peripheral x 6, Switch x 1, Rear transition x 8 (80 mm, IEEE1101.11 compliant)		System x 1, Peripheral x 6, Media x 1, Rear transition x 7 (80 mm, IEEE1101.11 compliant)	
	Blade Server Support	Yes		-	
	Bus	Up to 64-bit/66 MHz PCI bus			
	H.110 CT Bus	Yes		Yes	
	V (I/O)	+3.3 V/+5 V (selectable)			
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 (MIC-3042B is not compliant with PICMG 2.16)				
	RoHS, CE, FCC, UL, CCC				

Backplane Information

Physical Number	Function
8	Switch 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-3042A, PICMG 2.16 / CT backplane (for MIC-3042A series)

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	System slot
1	Media blade slot

MIC-3042B, CT backplane (for MIC-3042B series)

Recommended Configurations

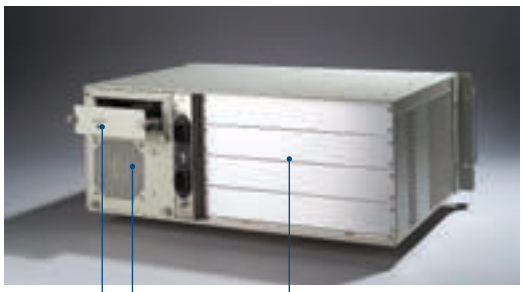
Enclosure	CPU Board	Rear I/O Board	Chassis Management Module
MIC-3042AE MIC-3042A-AE	MIC-3369C-MxE	RIO-3309C-AE, RIO-3309S-A2E	Included MIC-3924L-AE or Optional MIC-3927CE
	MIC-3358A-MxE	RIO-3309C-AE, RIO-3309S-A2E	
	MIC-3390E, MIC-3390-AE MIC-3392A-MxE, MIC-3392B-MxE	RIO-3310S-A2E	
MIC-3042BE MIC-3042B-AE	MIC-3369C-MxE	RIO-3309C-AE, RIO-3309S-A2E	
	MIC-3358A-MxE	RIO-3309C-AE, RIO-3309S-A2E	
	MIC-3390E, MIC-3390-AE MIC-3392A-MxE, MIC-3392B-MxE	RIO-3310S-A2E	

Ordering Information

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

Accessories

Part Number	Description
1757000190G	One AC cPCI 250 W redundant power module (included)
968A390022	MIC-3924L-AE alarm module (included)
MIC-3927CE	MIC-3927 intelligent chassis management module (IPMI)



MIC-3927

CompactPCI® Intelligent Chassis Management Module (PICMG® 2.9)

Features

- Compatible with PICMG 2.1, 2.16, and 2.9-compliant components
- Monitors via the Intelligent Platform Management Bus (IPMB) protocol
- Provides isolated IPMI signals for each slot for maximum security and reliability
- Out-of band management interface
- Hot swap support for IPMI based field replaceable components
- Alarm cut off push button on the front panel
- Standalone system monitoring: no driver needed, independent OS

Introduction

The MIC-3927 is a proprietary form factor Chassis Management Module (CMM) intended for use with PICMG* 2.1, 2.16, and 2.9-compliant systems (the CompactPCI* Hot Swap, Packet Switching Backplane, and System Management specifications respectively). The MIC-3927 plugs into a dedicated slot in compatible systems. It provides centralized management and alarm notification for system power supplies and fans as well as single board operation status. The CMM may be paired with a backup for high-availability applications.

The MIC-3927 is essentially a special-purpose single board computer with a CPU, some memory, a PCI bus, an operating system and peripherals. The MIC-3927 monitors and configures IPMI-based components in the chassis. When the thresholds for temperature and voltage limitations are reached or when failure occurs, the CMM will capture an event. At the same time, the MIC-3927 sends SNMP traps and drives the Telco alarm relays that trigger onboard LEDs. The CMM can query FRU information (such as serial number, model number, manufacture date, etc.), detect presence of components (such as fan tray, CPU board, etc.), and monitor the status of each component.

The MIC-3927 also has a built-in Web-based administration interface that allows users to monitor the system's operation from any place with Internet connectivity. The MIC-3927 adds another dimension to the reliability of your most critical applications.

*IPMI function only supported for MIC-3390 and MIC-3392

Sensor Specifications

Voltage	Input	+3.3 V_{DC}, +5 V_{DC}, -5 V_{DC}, +5 V_{SB}, +12 V_{DC}, -12 V_{DC}, VBat
Temperature	Input	1 (onboard)
	Sensor	Thermistor
	Interface	I2C
	Range	-40 ~ 120° C (-40 ~ 248° F)
Fan Speed	Input	9
	Range	700 ~ 10000 rpm
Power Good	Input	4
	Range	High > 2.4 V_{DC}, Low < 0.8 V_{DC}
CPU Board Health	Interface	I2C
	Input	CPU Vcore, CPU fan, CPU temperature (up to 2 CPUs), DC +5 V, DC -5 V, V (I/O), DC +12 V, DC -12 V
	Max. SBC Monitoring	8 boards
Digital Input/Output (optional)	Input	4
	Output	4

Hardware Specifications

Processor System	CPU	RDC2880	
	Firmware	2 MB Embedded Flash ROM	
	Memory	2 MB SRAM	
Ethernet	Interface	10/100Base-T	
Serial Port	Interface	RS-232	
	Baud Rate	9600 bps	
Miscellaneous	Buzzer support	Yes	
	Time-out Signal for watchdog timer detection	Yes	
Battery	Charge Time	24 hr	
	Battery Type	Ni-MH	
	Capacity	1500 mA-H (full charged, for 15~20 minutes operation, depending on the system configuration)	
	Battery Life	80% capacity @ 20° C after 1000 cycles of charge and discharge	
Power Requirement	Typical	5 V @ 550 mA	
Environment		Operating	Non-Operating
	Temperature	0 ~ 60° C (-32 ~ 140° F)	-20 ~ 70° C (-4 ~ 158° F)
	Humidity	-	5 ~ 95 % RH, non-condensing
Physical Characteristics	Dimensions (W x D)	Kernel module: 40.5 x 93 mm (1.6" x 3.7") Carrier module: 100 x 95 mm (3.9" x 3.7")	

Ordering Information

Part Number	Description
MIC-3927AE	MIC-3927 alarm module for MIC-3056, MIC-3081
MIC-3927BE	MIC-3927 alarm module for MIC-3038, MIC-3041
MIC-3927CE	MIC-3927 alarm module for MIC-3042, MIC-3043

Firmware Specifications

System Status Monitoring and Management	Real-time system status monitoring: provides real-time status display in HTTP/Java graphical format
	Monitor the temperature, fan speed and system voltage
	Alarm event record display
Alarm Notification	E-mail: can setup up to 4 addresses to receive notification e-mails
	Audible alarm sound
	SMS support for receiving short message through mobile phone
Supported Protocol	TCP, UDP, IP, ICMP, DHCP, BOOTP, ARP, SNMP, HTTP, Telnet
Management Function	Web-based remote configuration, control and monitor
	Remote power up and power down
	Firmware upgrade from serial port and Ethernet port
	Supports Time Sync with system board
	The SSL and SSH secure communications across Internet

RS-232 COM port LAN port

Onboard Battery

RIO-3309/3310

6U CompactPCI® Rear Transition Boards

Introduction

The RIO series of rear transition boards provide rear-panel access to the I/O interfaces of Advantech's CompactPCI CPU boards.

RIO-3309C/3309S is designed for the MIC-3358A and MIC-3369C series.

RIO-3310S/3310A is designed for the MIC-3390 and MIC-3392 series.

Features

- External rear-panel interface connectors for CPU boards
- Onboard CompactFlash socket
- Ultra 320 SCSI interface
- Supports SATA interface

Specifications

CompactPCI Connector	RIO-3309C: J3, J5; RIO-3309S: J1/J2/J3/J5; RIO-3310S: J1/J2/J3/J5; RIO-3310A: J3/J5			
SCSI Controller	RIO-3309S: Adaptec AIC-7901 Ultra 320 SCSI controller chip supports RAID 0, 1, 10 RIO-3310S: Adaptec AIC-7901 Ultra 320 SCSI control chip supports RAID 0, 1, 10			
Power	Power Consumption	+3.3 V	+5 V	+12 V
		3 A	2 A	1 A
Environment		Operating		Non-Operating
	Temperature	0 ~ 60° C (32 ~ 140° F)		-20 ~ 80° C (-4 ~ 176° F)
	Humidity	-		5 ~ 95%, non-condensing
Physical Characteristics	Dimensions (W x D)	233.35 x 80 mm (9.2" x 1.5"), 1-slot width		
	Weight	0.4 kg (0.88 lb)		

RIO-3309C-AE

RIO-3309S-A1E

RIO-3309S-A2E

RIO-3310S series

I/O Interfaces

I/O	Connector				Interface Location			
	RIO-3309C	RIO-3309S	RIO-3310S	RIO-3310A	RIO-3309C	RIO-3309S	RIO-3310S	RIO-3310A
Keyboard	J5	J5	J5	J5	Rear panel	Rear panel	Rear panel	Rear panel
Mouse	J5	J5	J5	J5	Rear panel	Rear panel	Rear panel	Rear panel
COM1	J5	J5	J5	J5	Internal	Internal	Rear panel	Rear panel
FDD	J3	J3	J3	J5	Internal	Internal	Internal	Internal
IDE	J3	J3	J3/J5	J3/J5	Internal	Internal	Internal	Internal
FE LAN	-	J5	J5	J5	-	Rear panel (optional)	Rear panel (optional)	Rear panel (optional)
GbE LAN	J5	J5	J5	J5	Rear panel	Rear panel	Rear panel	Rear panel
USB	J5	J5	J5	J5	Rear panel/ Internal	Rear panel	Rear panel	Rear panel
VGA	J5	J5	J5	J5	Rear panel	Rear panel	Rear panel	Rear panel
COM2	J5	J5	J5	J5	Rear panel	Rear panel	Rear panel	Rear panel
Ultra 320 SCSI (controller chip on board)	-	J1/J2	J1/J2	-	-	Rear panel/internal	Internal	-
Parallel	-	J3	J3	J3	-	Internal	Internal	Internal
SATA	-	-	-	-	-	-	Internal	Internal

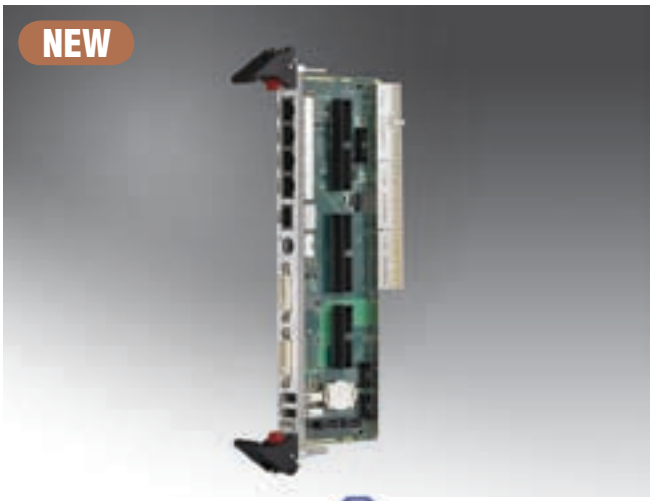
Ordering Information

Part Number	Rear Panel I/O							On-board Header						Slot Width
	Keyboard	Mouse	COM	USB	LAN	VGA	SCSI	COM	USB	SCSI	IDE 40-pin	FDD	Parallel	
RIO-3309C-AE	1*	1*	1	1	2 (GbE)	1	-	1	1	-	1	1	1**	1
RIO-3309S-A1E	1*	1*	1	1	2 (GbE)	1	-	1	1	1***	1	1	1	1
RIO-3309S-A2E	1*	1*	1	1	2 (GbE)	1	1***	1	1	-	1	1	1	1
RIO-3310S-A1E	1*	1*	2	1	2 (GbE)	1	-	-	1	1***	2	1	1	1
RIO-3310S-A2E	1*	1*	2	1	2 (GbE)	1	1***	-	1	-	2	1	1	1
RIO-3310AE	1*	1*	2	1	2 (GbE)	1	-	-	1	-	2	1	1	1

* Y cable is included.
** An optional extension adapter will extend a 2-slot width panel.
*** Only RIO-3310S has the SCSI chipset on board.

RIO-3392MIL

6U CompactPCI® Rear Transition Board for MIC-3392MIL



CompactPCI® FCC CE RoHS COMPLIANT 2002/95/EC

Features

- External rear-panel interface connectors for the MIC-3392MIL CPU board
- On-board battery
- Supports SATA, IDE, FDD, LPT, USB2.0, COM, and audio interfaces
- 4 RJ-45 ports on the rear-panel
- 2 DVI-I ports on the rear panel

Introduction

RIO-3392MIL is designed specifically for the MIC-3392MIL series. It contains a rich variety of I/O interfaces and ports on the external rear panel, extending the functional features of MIC-3392MIL.

Specifications

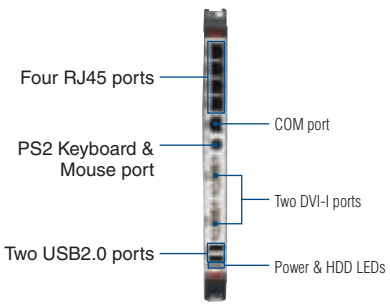
CompactPCI Connector	J3/J4/J5		
Environment		Operating	Non-Operating
	Temperature	-40 ~ 70° C (-40 ~ 158° F)	-50 ~ 80° C (-58 ~ 176° F)
	Humidity	5 ~ 85 % @ 45° C, non-condensing	10 ~ 95 % @ 45° C, non-condensing
Physical Characteristics	Dimensions (W x D)	233.35 mm x 80 mm (9.2" x 1.5"), 1-slot width	
	Weight	0.305 kg (0.672 lbs)	

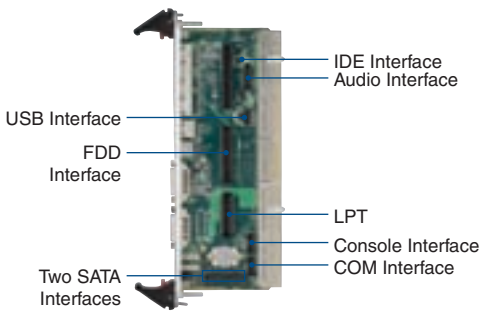
Recommended Configurations

Rear I/O Board	CPU Board	Enclosure
RIO-3392MIL-AxE Series	MIC-3392MILS-PxE Series	MIC-3039-BE, MIC-3042A/B, MIC-3043A/B/C/D, MIC-3056A, MIC-3081B
RIO-3392MIL-AxE Series	MIC-3392MILC-PxE Series	Customized conduction cool enclosure

Ordering Information

RTM Model Number	Rear Panel					On-board Header/Socket/Connector							CPCI Conn.	Conformal Coating
	LAN	COM	DVI-I	PS2	USB	IDE	FDD	LPT	SATA	COM Interface	Console Interface	USB Interface		
RIO-3392MIL-A1E	4	1	2	1	2	1	1	1	2	1	1	2	J3 ~ J5	-
RIO-3392MIL-A2E	4	1	2	1	2	1	1	1	2	1	1	2	J3 ~ J5	v





Note: final production will not contain J1 and J2 connectors.

Memo

Network Security Platforms

NCP-5120

NCP-3108

FWA-6480

Selection Guide

Specification \ Model Name		Network Processor Platform		x86 Processor Platforms
		NCP-5120	NCP-3108	FWA-6480
Processor System	CPU	Cavium OCTEON CN3860	Cavium OCTEON CN3860	Dual-Core/Quad-Core Dual Intel® Xeon™ 5200/5400
	Max. Speed	1 G	500 MHz	3.0 GHz/2.83 GHz
	L2 Cache	2 MB	2 MB	6 MB/12 MB
Memory	Technology	DDR2 400 ECC Registered	DDR2 400/533/677 ECC Registered	DDR2 DIMM, support ECC/ Registered, 533 MHz or 667 MHz
	Max. Capacity	8 GB	4 GB	16 GB
Ethernet	Interface	100/1000Base-T	100/1000BaseT	10/100/1000Base-TX
	Controller	Cortina IXF1010 x 2	Cavium OCTEON CN3860	Intel 82571 x 4 Intel 82573
	Connector	RJ-45 x 20	RJ-45 x 4 SFP x 4	RJ-45 x 8 (SFP x 4)
Console & Management Port	Connector	RJ-45 x 1	DB9 x 1	RJ-45 x 2
Miscellaneous	LCD	-	1	16 Characters, 2 Lines
	PCI Express	-	-	PCIe x 8 x 2
	PCI	-	-	1
	PMC Slot	1	-	-
	PCI-X	-	1	-
	USB	-	2	2
Dimensions (W x H x D)	mm	426 x 44 x 456	426 x 44 x 403.6	430 x 88 x 515
	inches	16.8 x 1.7 x 18	16.8 x 1.7 x 15.9	17 x 3.5 x 20.2
Weight	kg	10	5 kg	18
	lb	22	11	40
Reference Page		2-2	2-4	2-6

FWA-3800

FWA-3240

FWA-3710

FWA-710

x86 Processor Platforms			Tabletop Platforms
FWA-3800	FWA-3240	FWA-3710	FWA-710
Intel Core 2 Duo/ Pentium D/Pentium 4	Intel EP80579 Integrated Processor (Tolapai) supports 600/1066/1200 MHz processor	Intel Pentium M/ Celeron M	Intel Pentium M/Celeron M processor
2.66 GHz/3.4 GHz/ 3.4 GHz	1.2 GHz	2.0 GHz/1.5 GHz	2.0 GHz/1.5 GHz
2 MB/4 MB/2 MB	256 KB	2 MB/512 KB	2 MB/512 KB
DDR2 533/667/800 DIMM	DDR2 800/667/533/400 MHz SODIMM	DDR2 533/400 SODIMM	DDR2 533/400 SODIMM
4 GB	2 GB	2 GB	2 GB
10/100/1000Base-TX	10/100/1000Base-T	10/100/1000Base-TX	10/100/1000Base-TX
Intel 82573 x 6	3 x GE from Intel EP80579 Integrated Processor + Marvell 88E1111 PHY 1 x GE from Intel 82574L	Intel 52573 x 4 Intel 82562FE x 1	Intel 52573 x 4 Intel 82562FE x 1
RJ-45 x 6	RJ-45 x 4	RJ-45 x 5	RJ-45 x 5
RJ-45 x 1	RJ-45 x 1	DB9 x 1	DB9 x 1
16 Characters, 2 Lines	16 Characters, 2 Lines	16 Characters, 2 Lines	-
PCIe x4	PCIe x4	PCIe x4	-
MINI PCI	-	MINI PCI	-
-	-	-	
1	2	2	
430 x 44 x 435	426 x 44 x 236	426 x 44 x 280	252 x 44 x 167
17 x 1.7 x 17.1	16.8 x 1.7 x 9.3	16.7 x 1.7 x 11	9.9 x 1.7 x 6.6
4.5	4.2	4.5	1.2
9.9	9.3	9.9	2.6
2-8	2-10	2-12	2-14

NCP-5120

Dual Cavium OCTEON™ MIPS64 Multi-core Processor-based Network Appliance

Features

- Dual 1 GHz OCTEON™ MIPS64 Processors with 16 cores each
- Supports security and de/compression engine
- Up to 20 Gigabit Ethernet ports
- Supports one 64-bit/66 MHz PMC Slot
- Supports one 2.5" SATA HDD
- One 10/100 Mbps Ethernet port for management function
- Designed for NEBS

Introduction

The NCP-5120 is a 1U rackmount network applications platform designed for mission-critical performance-demanding applications. With the increasing demand and complexity in networking environments, system integrators and solution providers are seeking platforms that can manage high-speed packet processing.

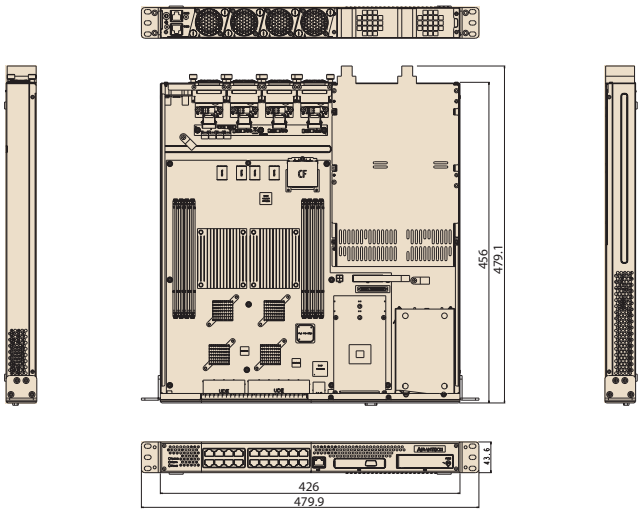
Based on a new generation high-performance OCTEON network processors, the NCP-5120 offers up to sixteen 1 GHz cores. The chipset supports a variety of I/O interfaces from Gigabit Ethernet interfaces and SPI 4.2 to PCI-X. The built-in security and compression/decompression engine provides reliable security functions at top speed.

The NCP-5120 comes with specially designed platform features, including redundant power supplies and a front-accessible HDD bay. In addition, a uniquely-designed thermal mechanism and hot-swappable fan modules enhance platform reliability.

Specification

Processor System	Processor	Dual Cavium OCTEON CN38XX/CN58XX series
	Max. Speed	1 GHz
	Processor Cores	4 – 16
	Encryption Engine	Yes
	Reg-ex Acceleration	Yes
	TCP Acceleration	Yes
	Inter Processor Communication	Direct, multi-channel SPI 4.2 between OCTEON processors (Primary configured as host and secondary configured as target mode)
System Memory	Memory Socket	Eight 240-pin DIMM slots
	Memory type and capacity	ECC registered DDR2 400 MHz DIMMs, up to 8 G per processor
Boot Flash	Flash Type	4 x S29GL01GP
	Max Flash Size	4 GB
Networking Interface	Data Port Controller	Intel® IXF1010 10-port 100/1000 Gigabit Ethernet MAC x 2 Broadcom® BCM5488 8-port Gigabit Ethernet Transceiver x 2 Broadcom® BCM5482 dual-port Gigabit Ethernet Transceiver x 2
	Ethernet Data Port	100/1000 Base-T ports x 20 with LED indicators Supports 802.1Q, 802.1P and 802.3AD in software and CPLD
	Management Port Controller	Intel 82545GM PCI-X 64/66 GbE LAN
	Management Port	10/100/1000Base-T port x 1 with LED indicator Supports 802.1Q and 802.1P
Expansion	PMC Slot	One 64-bit/66 MHz PMC Slot
Storage System	Controller	Silicon Image Sil 3124-2 SATA PCI 64-bit/66 MHz
	Storage Interface	One 2.5" SATA removable HDD tray
I/O Interface	Serial Port	RJ-45 RS-232 x 2, one for each processor
	Debug Port	JTAG pin header x 2, one for each processor
Miscellaneous	Hardware Monitor	Winbond W83791G x 1
	EEPROM	Atmel® AT24C256 x 3
	CPLD	Xilinx® XC2C284-7FT256C x 1

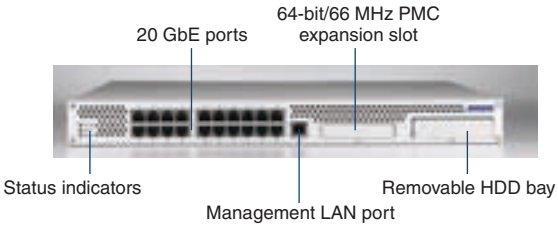
Dimensions

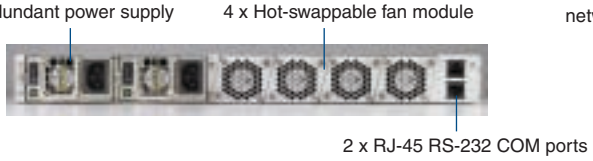


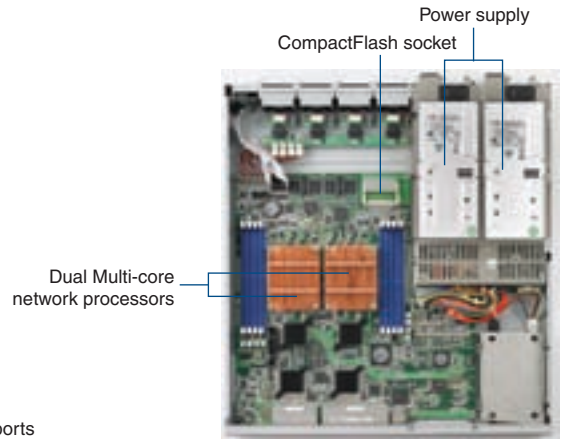
Unit: mm (inch)

Specifications Cont.

Power	Type/Watt	1 + 1 redundant hot-swappable SPS / 250 W + 250 W	
	Input	AC 90 ~ 264 VAC full range	
Cooling	CPU Heatsink	Passive copper fin heatsink	
	Fan	4 x hot-swappable fans	
SW support	Bootloader	Cavium SDK 1.4 U Boot 1.1	
	Operating system	Linux Kernel 2.6.14 Debian MIPS	
Environment	Operating Enviroment	Temperature: 0 to 40° C	Humidity: 20% to 90% RH
	Storage Temperature	Temperature: -20 to 70° C	Humidity: 5% to 95% RH
Physical Dimensions	Dimension (W x H x D)	426 x 44 x 456 mm (16.8" x 1.7" x 18")	
	Weight	10 kg (22 lb)	







Ordering Information

Note: Please contact local sales for details!

NCP-3108

Single Multi-core MIPS64-based Cavium OCTEON™ Network Appliance

Features

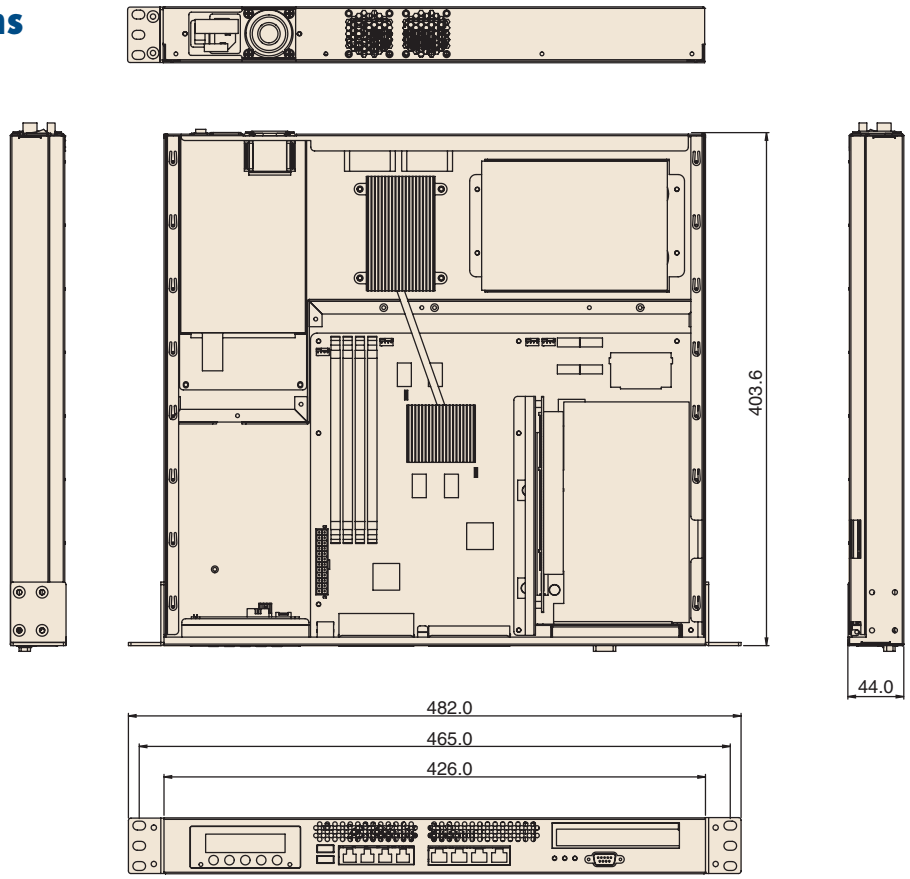
- OCTEON™ MIPS64 processor with 16 cores
- Up to 8 Gigabit Ethernet ports
- Supports one 64-bits/66 MHz PCI-X slot
- Supports one 3.5" SATA HDD or two 2.5" SATA HDD
- Supports security, regular expression and de-/compression engine

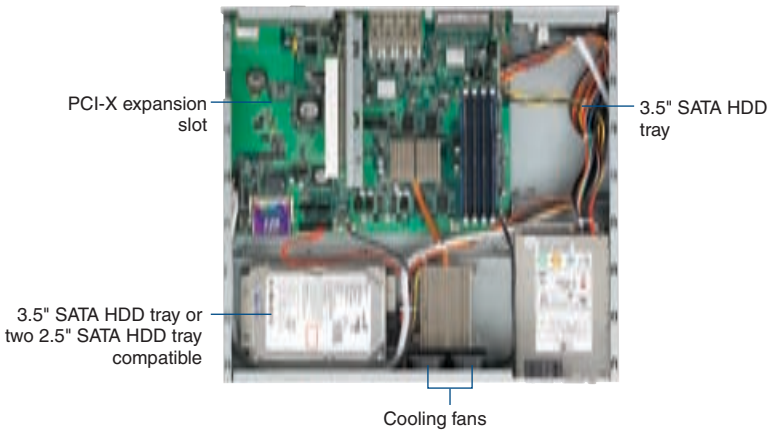
Specifications

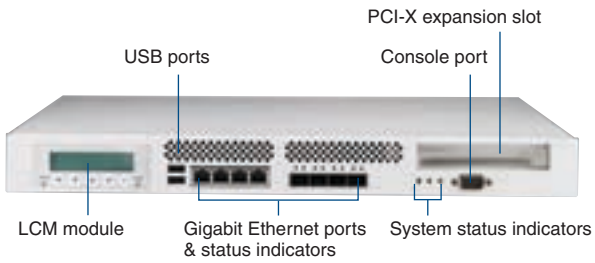
Processor System	Processor	Cavium OCTEON CN3860
	Max Speed	500 MHz
	Processor Cores	16
	Encryption Engine	Yes
	Reg-ex Acceleration	Yes
	TCP Acceleration	Yes
System Memory	Technology	ECC registered DDR2 400/533/667 MHz DIMMs
	Capacity	Up to 8 GB
	Memory Socket	Four 240-pin DIMM slots
RLDRAM	RLDRAM type	MT49H32M9BM-33
	Size	256 MB
Boot Flash	Flash type	S29JL064H x 1
	Max Flash size	8 MB
Networking Interface	Ethernet Port	Option I. Eight 100/1000 Base T Gigabit Ethernet Ports. Option II. Four 100/1000 Base T Gigabit Ethernet Ports Four SFP connectors.
Expansion	PCI-X Slot	One 64-bits/66 MHz PCI-X Slot
Storage System	Controller	Silicon Image Sil3124-II SATA PCI 64-bits/66 MHz
	Storage Interface	One 3.5" SATA HDD Bay or two 2.5" SATA HDD Bay
	Compact Flash Socket	1CF socket typeII
Peripheral	Serial Port	1 x DB9 RS-232
	USB	2
	LCM Module	1
	Notification LED	16 x LAN activity and connection 3 x Power, HDD and system status
Power	Type/Watt	AC: Zippy H1U-6250P 250 W/DC: DP1A-6251F
	Input	AC 100 ~ 264 Vac Full Range/DC -36 ~ -72 V_{DC} (-48 V normal)
Cooling	CPU Heatsink	Passive copper fin heatsink with heatpipe
	Fan	2
Physical Characteristics	Dimension (W x D x H)	426 x 403.6 x 44 mm (16.8" x 15.9" x 1.7")
	Weight	8 KG
Environment	Operating	Temperature: 0 to 40° C Humidity: 20 % to 90 % RH
	Non-Operating	Temperature: -20 to 70° C Humidity: 5% to 95 % RH

Dimensions

Unit: mm (inch)







Ordering Information

Note: Please contact local sales for details!

FWA-6480

Two Dual/Quad-Core Intel® Xeon® Processor-based 2U Rackmount Platform with up to 8 PCIe GbE LAN Ports

Features

- Dual Intel® Xeon® Processors with 4/6 MB L2 cache, FSB support 1066/1333 MHz
- Support Dual-Core/Quad-Core Intel® Xeon® 5100/5200/5300/5400 series processors
- DDR2 533/667 ECC Registered Memory, up to 16 GB
- Eight 10/100/1000 Mbps LAN ports with LAN bypass
- Supports 8 RJ-45 connectors or 4 SFP's and 4 RJ-45 connectors
- Supports PCIe or PCI-X add-in cards
- Supports two hot-swappable front 3.5" SATA HDD

Introduction

Built with functionality and availability in mind, the FWA-6480 Network Application Platform provides high-performance and an abundant feature set for enterprise-level network communication appliances. Designed with the Intel 5100 MCH chipset, the FWA-6480 can support both single or dual processors with Intel Xeon 64-bit Quad-Core or Dual-Core 5400/5300/5200/5100 series processors. Utilizing Intel VT technology, it significantly improves system performance for networking environments. Incorporating an Intel I/O controller Hub, ICH9R and other I/O subsystems, the system provides optimized computing efficiency and high-speed I/O bandwidth ideal for networking applications.

The FWA-6480 supports DDR2 533/667 MHz ECC registered memory, Serial ATA and PCI Express technologies, which optimize the system for space constrained installations. It supports different I/O combinations, as the Intel 5100 MCH can provide either three PCIe x8 interfaces or 6 PCIe x4. Furthermore, this ultra dense platform is built with a redundant power supply, which further increases the system's fault tolerance level.

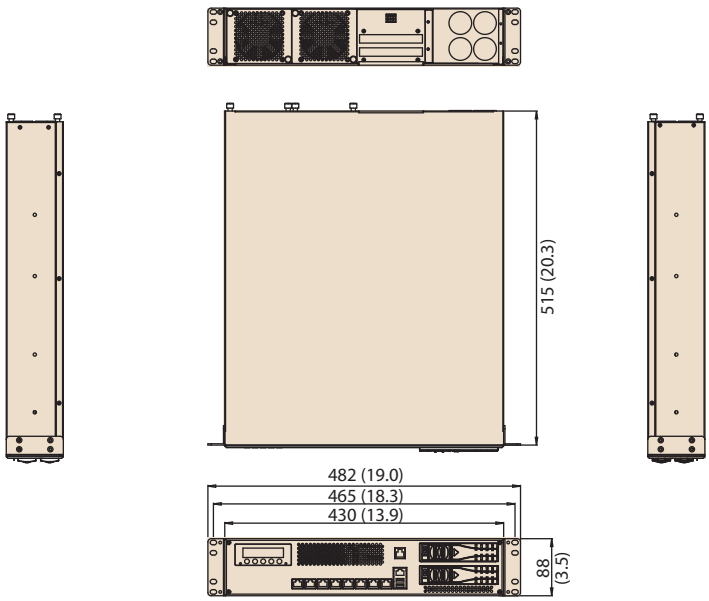
This 2U rackmount system supports two hot-swappable 3.5" SATA HDD's and CompactFlash for OS and network security applications. Also located on the front panel is an RJ-45 serial port, a 10/100 management LAN port, two USB ports and an LCD module for local system management, maintenance, and diagnostics.

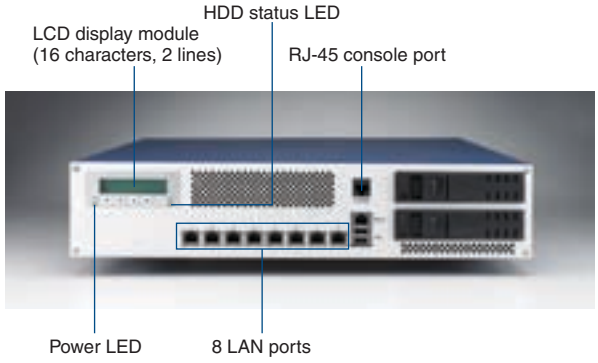
Specifications

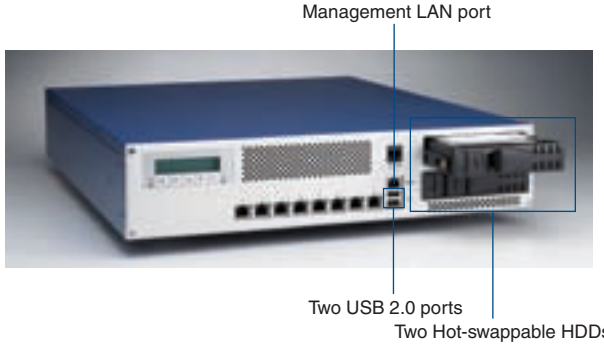
Processor System	CPU	2 x Intel Dual-Core 5100/5200 Series and Intel Quad-Core 5300/5400 series processor	
	Max. Speed	Dual-Core up to 3.0 GHz and Quad-Core up to 2.8 GHz	
	Front Side bus	1066/1333MHz	
	Chipset	Intel 5100P (San Clemente) + ICH9R	
Memory	Technology	Dual Channel DDR2 533/677 MHz ECC registered	
	Capacity	Up to 16 GB with 4 DIMMs, 4G dual rank memory module	
BUS	PCI-E	2 x PCIe x8 connects to IO board 5 x PCIe x1 connects to IO board 1 x PCIe x8 slot for riser card	
	Riser Card	2 x PCI-E x8 slots Supports full-height cards and external access, such as 10 G Ethernet card	
	PCI	1 x PCI 32-bit/33 MHz slot	
Ethernet	Management Port	1 x Intel 82573E 10/100/1000Base-T Ethernet	
	Interface	4 x 10/100/1000BaseT via RJ-45 interface and 4 x GbE via SFP interface from Intel 82571 Ethernet Controller supports 2 LAN Bypass Segements	
Storage	SATA	Supports 2 x 3.5" hot-swappable SATA HDD, front accessible	
	Compact Flash socket	1 x CF socket	
Peripheral	USB	1 x USB2.0 in the front	
	Serial	1 x Console port in the front by RJ-45 connector	
	LCD Module	1	
Power	Watt	500 W, 2U height (1+1 redundant, 500 W each)	
	Input	AC 100 ~ 240 V @ 50 ~ 60 Hz, full range	
Environment		Operating	Non-Operating
	Temperature	0 ~ 40° C (32 ~ 104° F)	-20 ~ 75° C (-4 ~ 167° F)
	Humidity	5 ~ 85% @ 40° C (104° F)	5 ~ 95%
Physical	Dimension (W x H x D)	430 x 88 x 515 mm (16.9" x 3.5" x 20.3")	
	Weight	18 kg (40 lb)	

Dimensions

Unit: mm (inch)







Ordering Information

Note: Please contact local sales for details!

FWA-3800

1U Rackmount Intel® Core™2 Duo Processor-based Platform with 6 PCIe LAN Ports

Features

- Supports Intel® Core™2 Duo Processor
- Intel® Q965 chipset, 1066 MHz FSB
- Dual-channel DDR2 memory, up to 4 GB
- 6 x PCIe GbE LAN ports w/LAN bypass
- 1 x proprietary PCIe x4 connector for LAN expansion board
- Supports 1 x 3.5" SATA HDD

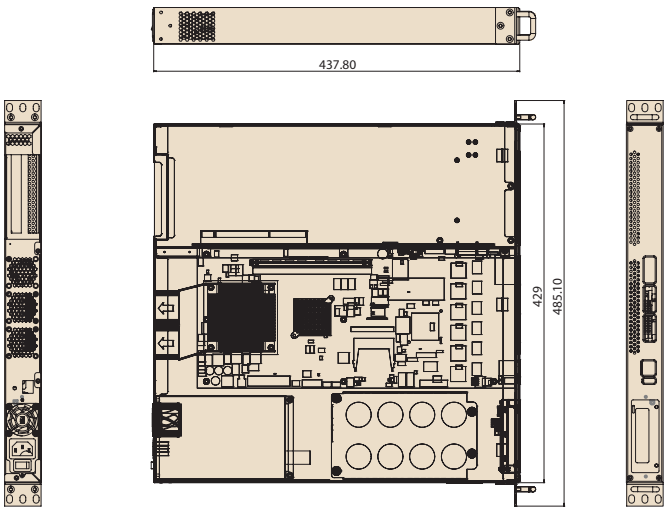
Introduction

A high-performance and power-efficient network security platform, the FWA-3800 is specifically designed for advanced Internet security applications where performance is in high demand. The FWA-3800 adopts the latest Intel Core 2 Duo processor and Intel Q965 chipset. This supports up to 4 GB of dual-channel DDR2 SDRAM on two DIMMs. The platform reserves space for one 3.5" SATA HDD and one CompactFlash slot for storing or upgrade OS and other network security applications. By leveraging PCI Express (PCIe) technology, the FWA-3800 takes full advantage of the ICH8D0 PCIe capability to maximize I/O throughput. The platform has six PCIe x1 lanes connected directly to the Intel 82573 Ethernet controllers to offer 6 ports of Gigabit Ethernet at wire speed. For easy access, the front panel also has an RJ-45 console port and LCD Module for local system management, maintenance, and diagnostics. It is FCC, CE, UL, CCC and RoHS compliant.

Specifications

Processor System	CPU	Intel Core 2 Duo / Intel Pentium D 4	
	Max Speed	2.66 GHz/ 3.4 GHz/ 3.4 GHz	
	Chipset	Intel Q965 and ICH8D0	
	Front Side Bus	1066/ 800 MHz	
	BIOS	Award™ 16 Mbit SPI	
Memory	Technology	Dual-channel DDR2 533/ 667/ 800 MHz	
	Max. Capacity	Up to 4 GB with 2 slots	
Onboard Expansion	PCI Express (PCIe)	1 proprietary internal PCIe x4 connector for LAN expansion board	
	Riser Card	2 PCI-X 100 slots (Option) support full-height cards and external access	
	Mini PCI	One 32-bit/33 MHz Mini PCI slot	
Ethernet	Interface	6 x 10/100/1000 Mbps Intel 82573 PCIe-based ports	
	LAN Bypass	3 segments in pairs	
Storage	SATA	Supports 1 x 3.5" SATA HDD. Max. data transfer rate 300 MB/s	
	CompactFlash Socket	1 CF socket	
Peripheral	USB	1 (USB2.0)	
	Serial	1 (RJ-45)	
	LCD Module	1	
Power	Watt	250 W	
	Input	AC 100 ~ 240 V @ 50 ~ 60 Hz, full range	
Environment		Operating	Non-Operating
	Temperature	0 ~ 40° C (32 ~ 104° F)	-20 ~ 75° C (-4 ~ 167° F)
	Humidity	5 ~ 85 % @ 40° C (104° F)	5 ~ 95 %
Physical	Dimensions (W x H x D)	430 x 44 x 435 mm (17" x 1.7" x 17.1")	
	Weight	4.5 kg (9.9 lb)	

Dimensions



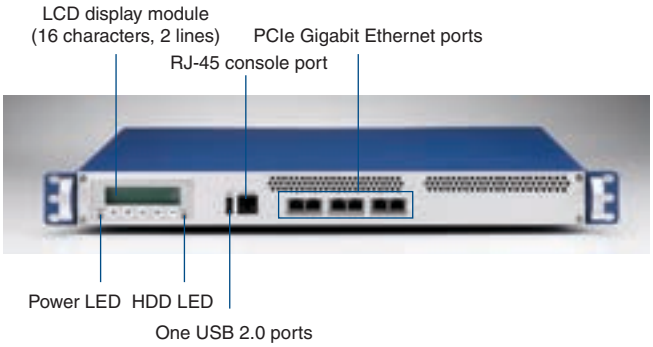
Unit: mm (inch)

Ordering Information

Part Number	LAN	LAN Bypass	Power Supply	PCI-X / PCI slot
FWA-3860E	6	3	250 W	N/A
FWA-3860RE	6	3	250 W	2 (PCI only support 3.3 V)

Accessories

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



FWA-3240

1U Rackmount Intel Tolapai-based Platform with 4 Front LAN Ports & LCD Display

Features

- 1U Rackmount Network Application Platform
- Intel EP80579 Integrated Processor (Tolapai) solution
- One internal proprietary PCIe x4 expansion slot
- Single channel DDR2 SODIMM support up to 2 GB
- 4 x 10/100/1000 Mbps GbE LAN ports
- Console port for local setting

RoHS CE FCC

Introduction

The FWA-3240 incorporates Intel's Tolapai System-on-Chip which combines Intel's QuickAssist Technology and integrates an Intel Pentium M class core, memory controller and I/O controller. The high-performance CPU core supplies the horse power needed to perform deep packet inspection and other complex operations and is particularly optimized for entry to mid-range network security appliances.

Security applications can run existing x86 software applications because of backward code compatible with earlier Intel processors. Most network security platforms already run on Intel x86 processors and can run existing software applications on Tolapai because it is backward compatible with earlier Intel processors. Typical appliance workloads which require IP-SEC encryption, acceleration and compression of content can offload processing on to the QuickAssist Integrated Accelerator which increases the effective data throughput and performance and reduces the overall power consumption of a given application.

The FWA-3240 features a low-power design, and supports up to 2 GB DDR2 on one single-channel SO-DIMM. It provides a total of four GbE LANs, three of which are from the Tolapai on-chip MACs (Intel 82574-derived) and the fourth from a PCIe-based Intel 82574 Ethernet controller.

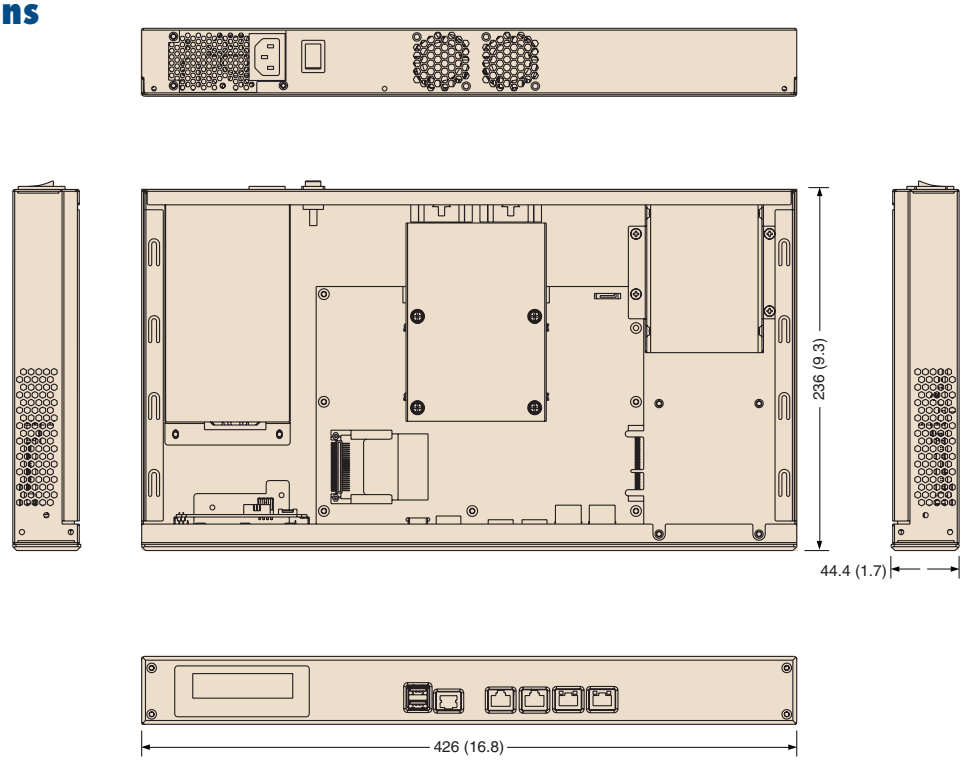
The on-chip MACs are routed to 3 Marvell PHY devices.

The system supports one 2.5" SATA HDD and CompactFlash for OS and/or Internet security applications. The front panel provides a RS-232 serial port with RJ-45 socket, 2 USB ports and a LCD Module for local system management, maintenance and diagnostics. The system is fully FCC, CE and RoHS compliant.

Specifications

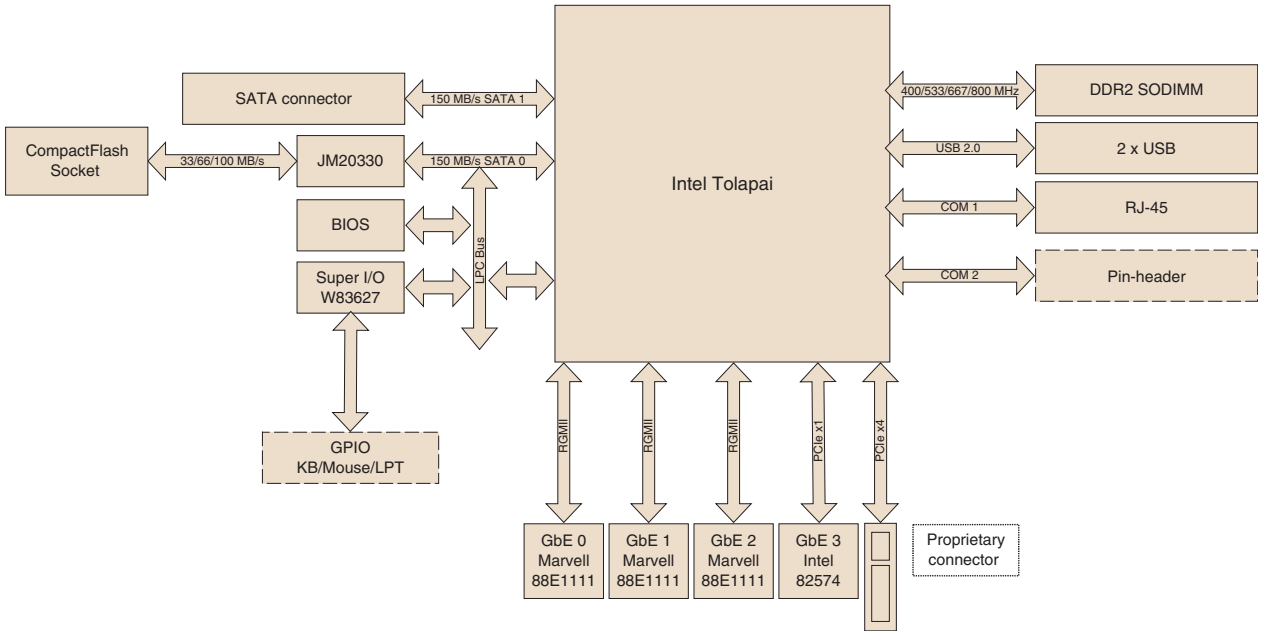
Processor System	CPU & Chipset	Intel EP80579 Integrated Processor (Tolapai) supports 600/1066/1200 MHz processor	
	Max. Speed	1.2 GHz	
	Front Side Bus	400/533 MHz	
	BIOS	Award™ 4 Mbit Flash	
Memory	Technology	Single channel DDR2 800/667/533/400 MHz SODIMM	
	Capacity	Up to 2 GB with 1 slot	
Expansion	Onboard Expansion slots	One proprietary internal PCIe x4 connector	
Ethernet	Interface	4 x 10/100/1000Base-T	
	Controller	Three GbE from Intel EP80579 Integrated Processor + Marvell 88E1111 PHY One GbE from Intel 82574, with bypass function	
Storage	SATA	1 x 2.5" HDD bay Max. data transfer rate at 150 MB/sec	
	Controller	JMicron (SATA to IDE bridge)	
	Compact Flash Socket	1 x CF socket on IDE 0 (Primary)	
Peripheral	USB	2 x USB 2.0	
	Serial	1 x RS-232 with RJ-45 connector	
	LCD Module	16 characters, 2 lines, 5 buttons	
	Pin headers	K/B, Mouse, LPT, COM	
Power	Watt	180 W	
	Input	90 ~ 240 V AC, auto range	
Environment		Operating	Non-Operating
	Temperature	0 ~ 40° C (32 ~ 104° F)	-20 ~ 75° C (-4 ~ 167° F)
	Humidity	5 ~ 85 % @ 40° C (104° F)	5 ~ 95 %
Physical	Dimensions (W x H x D)	426 x 44 x 236 mm (16.8" x 1.7" x 9.3")	
	Weight	4.2 kg (9.3 lb)	

Dimensions



Unit: mm (inch)

Block Diagram



FWA-3710

1U Rackmount Intel® Pentium® M Processor-based Platform with 4 PCIe LAN Ports

Features

- Supports Intel® Pentium® M or Celeron® M Processor
- Dual-channel DDR2 400/533 SODIMM, up to 2 GB
- Four 10/100/1000 Mbps LAN ports
- One proprietary PCIe expansion connector onboard
- Supports one fixed 3.5" IDE or SATA HDD
- One 10/100 Mbps LAN port for management

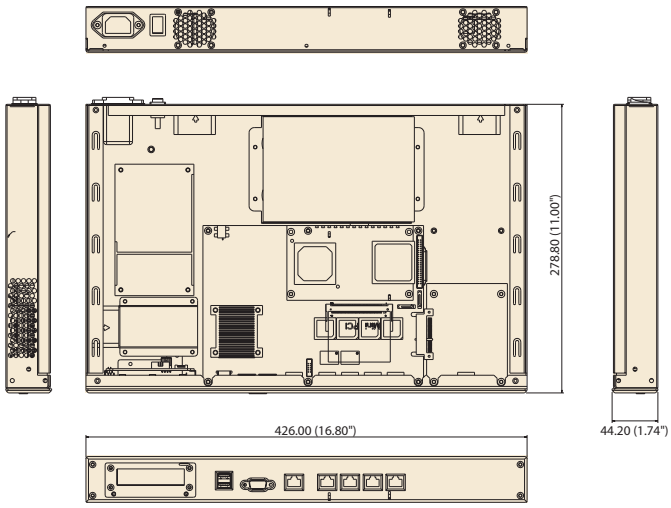
Introduction

Conceived as a powerful but low power consumption rackmount Internet security platform, the FWA-3710 series was specifically designed for mainstream IDS/IPS, Anti-virus, VPN gateway and Unified Threat Management (UTM) applications. Using the latest Intel Pentium M processor combined with the Mobile Intel 915GM Express chipset and Intel's ICH6M I/O Controller Hub, the FWA-3710 series provides unprecedented performance, connectivity and throughput without compromising on system thermal design. It supports up to 2 GB of DDR2 system memory at 400 or 533 MHz on dual-channel SODIMM banks. By leveraging PCI Express technology, the platforms maximize I/O throughput by taking full advantage of the ICH6-M's PCI Express (PCIe) capability. Four PCIe lanes connect directly to the Ethernet controllers to provide bi-directional 2 Gb/s peak bandwidth for Gigabit Ethernet support at wire speed. The system supports one optional 3.5" IDE or SATA HDD, and CompactFlash for OS and Internet security applications. The front panel has a 9-pin RS-232 serial port and one 10/100 managed LAN port, with an LCD module for local system management, maintenance and diagnostics. It is FCC, CE, CCC, and UL compliant.

Specifications

Processor System	CPU	Intel Pentium M / Celeron M processor
	Max. Speed	2.0 GHz/1.5 GHz
	Chipset	Intel 915GM + ICH6M
	Front Side Bus	533/400 MHz
	BIOS	Award™ 4 Mbit Flash
Memory	Technology	Dual-channel DDR2 533/400 SODIMM
	Capacity	Up to 2 GB with 2 slots
Expansion	Onboard Expansion Slots	1 proprietary internal PCIe x4 connector 1 32-bit/33 MHz Mini PCI Slot
Ethernet	Fast Ethernet	1 10/100 Intel 82562 FE port for management
	Gigabit Ethernet	4 10/100/1000 Mbps PCIe GbE ports
	GbE Controller	4 x Intel 82573
	LAN Bypass	2 segment on GbE ports
Storage	Controller	Supports 3.5" HDD x 1 on IDE 0, or SATA HDD x 1 - ATA100 connector x 1 on IDE 0 (Secondary) - Max. data transfer rate 100 MB/s - Supports 3.5" ATA HDD
	SATA	SATA interface - SATA connector x 1 on separate SATA channels - Max. data transfer rate 150 MB/s - Support 3.5" SATA HDD
	CompactFlash Socket	1 CF socket on IDE 0 (Primary/Master)
Peripheral	USB	2 (USB 2.0)
	Serial	1 (RS-232)
	LCD Module	1
	K/B, Mouse, LPT, CRT, COM	Pin Headers

Dimensions



Unit: mm (inch)

Specifications Cont.

Power	Watt	180 W	
	Input	90 ~ 240 V AC, auto range	
Environment		Operating	Non-Operating
	Temperature	0 ~ 40° C (32 ~ 104° F)	-20 ~ 75° C (-4 ~ 167° F)
	Humidity	5 ~ 85 % @ 40° C (104° F)	5 ~ 95 %
Physical Characteristics	Dimensions (W x H x D)	426 x 44 x 280 mm (16.7" x 1.7" x 11")	
	Weight	4.5 kg (9.9 lb)	

Ordering Information

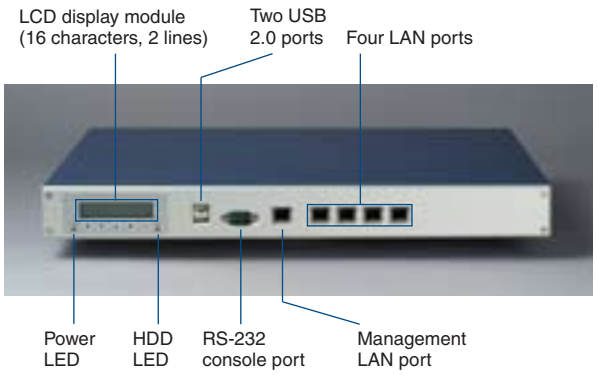
Part Number	Processor	LAN	Power Supply	Ethernet Controller
FWA-3710E	-	5	180 W	4 x Intel 82573

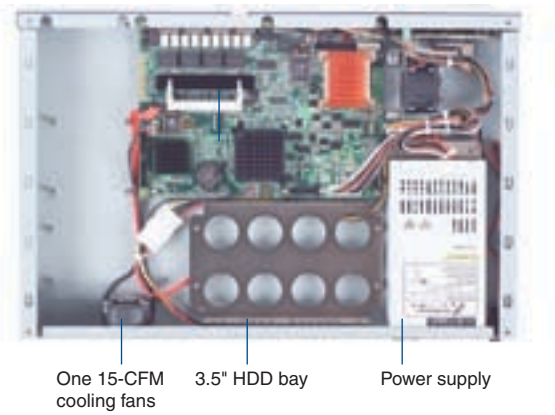
Packing List

Part Number	Description
1701160101	VGA port cable (for system installation use)
1703080160	PS/2 Y cable mini-DIN 16 cm
1703092000	Console cable D-sub 9-pin 2 m

Accessories

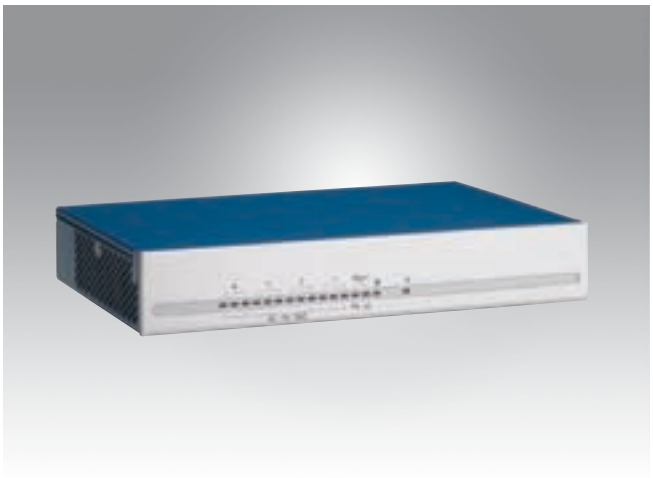
Part Number	Description
1702002600	3P 180 cm, USA
1702002605	3P 180 cm, Europe
1702031801	3P 180 cm, UK
1700000237	3P 180 cm, JP





FWA-710

Tabletop Intel® Pentium® M Processor-based Platform with 4 PCIe LAN Ports



Features

- Supports Intel® Pentium® M or Celeron® M Processor
- Dual-channel DDR2 400/533 SODIMM, up to 2 GB
- Four 10/100/1000 Mbps LAN ports
- One MINI PCI Slot
- Supports one fixed 2.5" IDE HDD
- One 10/100 Mbps LAN port for management

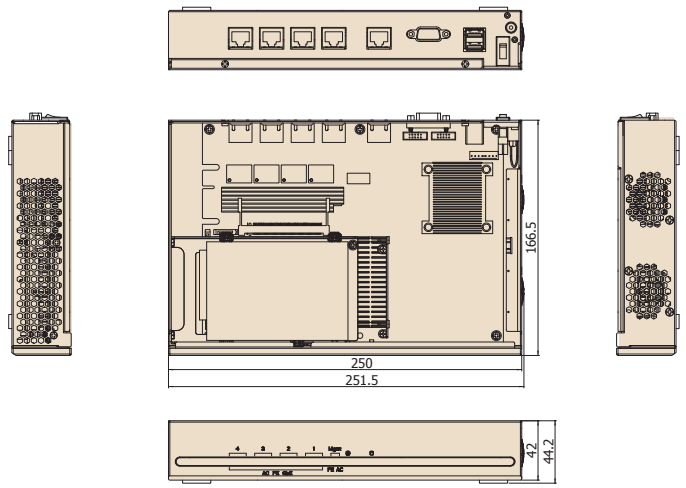
Introduction

Conceived as an exceptional but low power consuming tabletop Internet security platform, the FWA-710 series was specifically designed for SMBs/SOHOs that require a single device to combine functions such as IDS/IPS, anti-virus, VPN gateway and Unified Threat Management (UTM) in to a multi-functional gateway. Using the latest Intel Pentium M processor combined with the Mobile Intel 915GM Express chipset and Intel ICH6M I/O Controller Hub, the FWA-710 series provides unprecedented performance, connectivity and throughput without compromising on system thermal design. It supports up to 2 GB of DDR2 system memory at 400 or 533 MHz on dual-channel SODIMM banks. By leveraging PCI Express technology, the platforms maximizes I/O throughput by taking full advantage of the ICH6-M's PCI Express (PCIe) capability. Four PCIe lanes connect directly to the Ethernet controllers to provide bi-directional 2 Gb/s peak bandwidth for Gigabit Ethernet support at wire speed. The system supports one optional 2.5" IDE HDD, and one CompactFlash device for OS and Internet security applications. The rear I/O panel has a 9-pin RS-232 serial port and one 10/100 managed LAN port. It is FCC, CE, UL, CCC, and RoHS compliant.

Specifications

Processor System	CPU	Intel Pentium M/Celeron M processor	
	Max. Speed	2.0 GHz/1.5 GHz	
	Chipset	Intel 915 GM + ICH6-M	
	Front Side Bus	533/400 MHz	
	BIOS	Award™ 4 Mbit Flash	
Memory	Technology	Dual-channel DDR2 533/400 SODIMM	
	Capacity	Up to 2 GB with 2 slots	
Expansion	Onboard Expansion Slot	One 32-bit/33 MHz Mini PCI slot	
Ethernet	Fast Ethernet	One 10/100 Intel 82562 FE port for management	
	Gigabit Ethernet	Four 10/100/1000 Mbps GbE ports	
	GbE Controller	4 x Intel 82573	
	LAN Bypass	Two segment on GbE ports	
Storage	Controller	Supports 2.5" HDD x 1 on IDE 0	
	IDE	ATA100 connector x 1 on IDE 0 (Secondary) Max. data transfer rate 100 MB/s Supports 2.5" ATA HDD	
	CompactFlash Socket	1 CF socket on IDE 0 (Primary/Master)	
Peripheral	USB	2 USB 2.0	
	Serial	1 RS-232	
	K/B, Mouse, LPT, CRT, COM	Pin headers	
Power	Watt	65 W	
	Input	100 ~ 240 V AC, auto-range	
Environment		Operating	Non-Operating
	Temperature	0 ~ 40° C (32 ~ 104° F)	-20 ~ 75° C (-4 ~ 167° F)
	Humidity	5 ~ 85 % @ 40° C (104° F)	5 ~ 95 %
Physical	Dimensions (W x H x D)	252 x 44 x 167 mm (9.9" x 1.7" x 6.6")	
	Weight	1.2 kg (2.6 lb)	

Dimensions



Unit: mm (inch)

Ordering Information

Part Number	Processor	LAN	AC Adapter	Ethernet Controller
FWA-710E	-	5	65 W	4 x Intel 82573

Accessories

Part Number	Description
1700001947	2P 180 cm, USA
1700001948	2P 180 cm, Europe
1700001949	2P 180 cm, UK
1700002141	2P 180 cm, JP

Packing List

Part Number	Description
1701160101	VGA port cable (for system installation use)
1703080160	PS/2 Y cable mini-DIN 16 cm
1703092000	Console cable d-sub 9-pin 2 m
1701440054	Flat cable 44 pin, 2.0 mm pitch connectors 5 cm

Sixteen LED Indicators for Power, HDD and LAN status

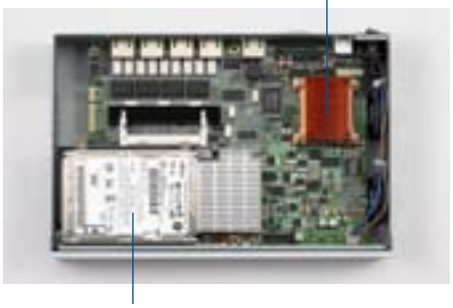
Two USB 2.0 ports

RS-232 console port

Management LAN port

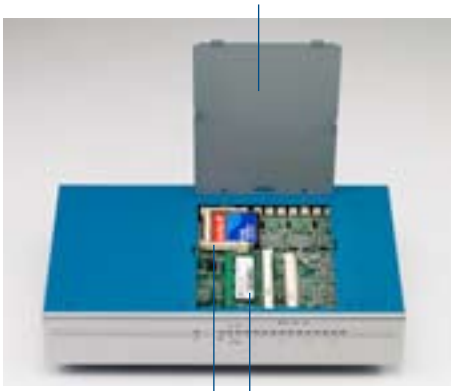
Four LAN ports

Intel Pentium M CPU



2.5" IDE HDD

Removable cover allows easy maintenance and software upgrade



CompactFlash socket

SDRAM socket

Memo

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