



IPnexus[®] AMP5070

1U MicroTCA[®] Application-Ready System

Highlights

- >> 1U Carrier Supports up to 6 AdvancedMC™ Modules
- >> Integrated Non-Payload Functions, such as Ethernet Switch, PCI Express[®] Switch, and Carrier/Shelf Manager Eliminate Overhead Costs Associated with Standard MCH Modules
- >> Designed for Deployments in Telecom, Aerospace and Defense, Medical, Enterprise, and Industrial Control
- >> Application-Ready System Configured with:
 - Performance Technologies' AdvancedMC™ Modules
 - NexusWare[®] Linux[®] OS
 - NexusWare[®] Portal (A Web-Based Management and Development Tool)
- >> Integrated Ethernet Switch with One1 GbE to AMCs and Dual 1 GbE Uplinks
- >> Integrated PCI Express[®] Switch Supports x1 PCIe Lane to AMCs
- >> Integrated Onboard MicroTCA[®] Carrier and Shelf Managers
- >> Storage Accommodated via Direct SATA/SAS Slot-to-Slot Connections between the AMC Sites
- >> Front-to-Back Push/Pull Cooling with Redundant Fans
- >> Enterprise-Class Power Supply Supports up to 40 W per Mid-Size, Single AMC Module
- >> AC or DC Input Options
- >> Telecom Clock Distribution
- >> Full Compliance with PICMG[®] MicroTCA[®] and AMC Standards



The AMP5070 is part of Performance Technologies family of IPnexus[®] Application-Ready Systems. It is a scalable, cost-effective, and highly integrated 1U MicroTCA[®]-compliant system that maximizes payload slot density in a 1U form factor. Application-Ready Systems offer a highly integrated and comprehensive COTS-based platform, processor, storage, access, operating systems, and value-added software configured into a single, compact network system that is ideal for demanding operating environments such as telecom, wireless, aerospace and defense applications.

High-Reliability, High-Performance, and Highly Integrated Architecture

The AMP5070 supports up to six AdvancedMC module payload slots in a 1U shelf. Its cost-effective and innovative architecture integrates non-payload functions, such as the Ethernet switch, PCI Express[®] switch, and carrier/shelf manager into the rear of the chassis, thus eliminating the high overhead costs associated with standard MCH modules.

The AMP5070 features one 1 GbE Ethernet and a x1 PCI Express lane to each slot. Storage is accommodated by direct SATA/SAS slot-to-slot connections between the AMC sites. A comprehensive suite of system management interfaces, both user-based and programmatic-based, also increase availability and reduce cost-of-ownership when systems are deployed.

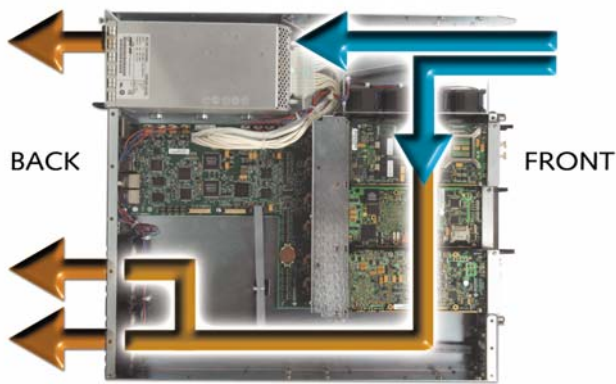
IPnexus[®] Application-Ready Systems

Performance Technologies' IPnexus[®] Application-Ready Systems offer a highly integrated and comprehensive COTS-based hardware and software solution to rapidly develop and deploy value-added capabilities to embedded applications. Developers can immediately begin development of their application on receipt of these systems, eliminating the time and costs normally associated with integrating, troubleshooting and configuring building blocks from one or more vendors. Application-Ready Systems come integrated with an operating system, drivers, APIs, and other value-added software options. The configurable components include a MicroTCA-based platform, AMC modules (such as compute, storage/video, and communications controllers), and the NexusWare family of Linux software products ideal for solutions such as WiMAX, media gateways, managed WAN gateways, voice over IP (VoIP), lawful intercept, radar servers, signaling gateways, and base station controllers. The NexusWare Software Suite is made up of the following products:

- **NexusWare Core** is a complete Carrier Grade Linux (CGL) distribution, with web-based management, GUI-based IDE, and Kernel Builder
- **NexusWare SIP** is an installable Session Initiation Protocol (SIP) stack and API software package
- **NexusWare C7** is a comprehensive SS7 MTP-2 installable software package
- **NexusWare WAN** protocols provides a wide range of WAN protocols

AMP5070 Application-Ready System Configuration Options

DESCRIPTION	PLATFORM OPTIONS	PROCESSOR OPTIONS	OPERATING SYSTEM	VIDEO/STORAGE OPTIONS	ACCESS OPTIONS	
Freescale™ MPC8641D PowerPC w/NexusWare® Linux®, MTCA Platform	PT-AMP5070-12259 1U MTCA Platform, One 300W AC	PT-AMC131-12115 Processor AMC, Dual Core 8641D PPC, 1.0 GHz, 2 GB DDR	PT-NXWPPC-12236 NexusWare® Core Right To Use License	PT-MSD4G-12293 MiniSD Card, 4GB, Class 4	PT-AMC304-12339 AMC Four Port T1/E1/J1 Controller	
	PT-AMP5070-12260 1U MTCA Platform, One 300W DC			PT-MSD8G-12397 MiniSD Card, 8GB, Class 6		PT-AMC305-12340 AMC Four Port T1/E1/J1 Controller with I-TDM
x86 Intel® Core™ 2 Duo w/NexusWare® Linux®, MTCA Platform	PT-AMP5070-12259 1U MTCA Platform, One 300W AC	PT-AMC121-12208 Processor AMC, Core 2 Duo, 1.5 GHz, 2 GB DDR	PT-NXWX86-12235 NexusWare® Core Right To Use License	PT-AMC590-12270 AMC Storage w/ 40GB HDD, Video w/128MB DDR, Audio	PT-AMC335-12289 AMC Four Port Sync. Serial Controller (RS232)	
	PT-AMP5070-12260 1U MTCA Platform, One 300W DC	PT-AMC121-12280 Processor AMC, Core 2 Duo, 1.5 GHz, 4 GB DDR		PT-MSD4G-12293 MiniSD Card, 4GB, Class 4		PT-AMC335-12258 AMC Four Port Sync. Serial Controller (RS422/449)
		PT-AMC122-12318 Processor AMC, Core 2 Duo, 2.16 GHz, 4 GB DDR		PT-MSD8G-12397 MiniSD Card, 8GB, Class 6		PT-AMC335-12287 AMC Four Port Sync. Serial Controller (V.35)
x86 Intel® EP80579 Integrated Processor 1.2 GHz w/NexusWare® Linux®, MTCA Platform	PT-AMP5070-12259 1U MTCA Platform, One 300W AC	PT-AMC123-12337 Processor AMC, EP80579, 1.2 GHz, 1 GB DDR	PT-NXWX86-12235 NexusWare® Core Right To Use License	PT-AMC590-12270 AMC Storage w/40GB HDD, Video w/128MB DDR, Audio		
	PT-AMP5070-12260 1U MTCA Platform, One 300W DC	PT-AMC123-12338 Processor AMC, EP80579, 1.2 GHz, 2 GB DDR		PT-UDM4G-12376 USB Disk Module Kit, 4 GB		
				PT-SDM4G-12377 SATA Disk Module Kit, 4GB		



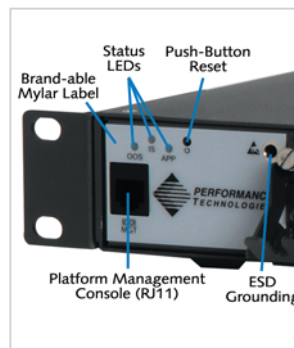
Front-to-Back Cooling Subsystem

The AMP5070 features front-to-back cooling. This is especially critical in NEBS specified installations. The front fan assembly (4 fans) pushes air through the AMCs, while the back fan assembly (4 fans) pulls the air through the chassis and exhausts out the back. This fan configuration offers a 7+1 redundancy, such that if one fan fails, the other 7 continue to cool the system until the fan can be replaced. Some of the air intake is routed to the power supply, which has its own fan. A removable air intake grill located in the front of the chassis allows for routine replacement of a NEBS specified filter. Each slot receives an ample airflow of 1500 LFM to ensure cooling of up to 40 W per mid-size slot.

Power Subsystem

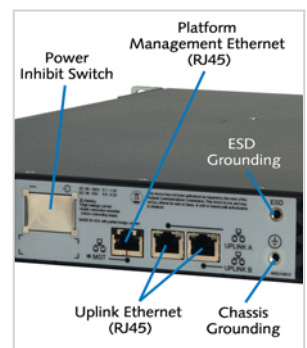
The system power is provided by a removable 300 W intelligent power supply that is monitored by the platform management subsystem. It delivers up to 40 W of 12 V payload power and 3.3 V management power to each AMC site. Two input options are available; AC or DC. An inhibit switch located in the back disables the power supply output.

Front Panel I/O



The front I/O panel features LEDs (in-service, out-of-service, and user-defined), a reset switch, and a platform management console port.

Back Panel I/O



The back panel has dual 10/100/1000 Mb Ethernet uplink ports, a 10/100 Mb Ethernet out-of-band platform management port, power input, and a power switch.

Ethernet Subsystem

The onboard Ethernet Switch provides one 1 Gb SERDES Ethernet link to Port 0 of each AMC site. Dual 10/100/1000Mb Ethernet uplink ports are available on the back panel (RJ45). Via the Command Line Interface, Ethernet Switch functions can be configured, including:

- Port-Based VLANs
- 802.1Q VLANs
- Port Trunks (Up to four in the uplink ports and/or the port pairs to the AMC sites)
- Port Speed, Duplex, Pause Configuration on the uplinks
- Packet Thresholds (Broadcast Storm Suppression)
- Quality of Service
- Jumbo Frame Support
- BPDU Packet Forwarding Control
- Configuration Storage and Recovery

PCI Express® Subsystem

The Fat Pipes supports a x1 lane of PCI Express® (PCIe) to Port 4 of each AMC site. The root complex is located in the T2-S3 location. The PCIe subsystem in the AMP5070 supports hot plug capabilities (Presence Detect and in-band link state change notification). The AMP5070 provides PCIe clock distribution to each AMC site, sourced from either the root complex AMC or from the AMP5070.

SAS/SATA Storage Subsystem

The AMP5070 supports up to four storage AMC modules such as the AMC590 Video/Storage AdvancedMC® Module. SATA/SAS channels are directly connected between the AMC sites from ports 2 and 3 on the right-hand slot to port 2 on slots 1 and 2 of their respective tier.

Comprehensive Platform Management Subsystem

The carrier manager monitors, manages, and controls the AMC payload boards and the active platform functions: Ethernet, PCI Express®, Telco clock, and power and cooling subsystems. The shelf manager communicates with the carrier manager and interfaces to external management systems via an out-of-band 10/100 Mb Ethernet port located in the rear of the chassis.

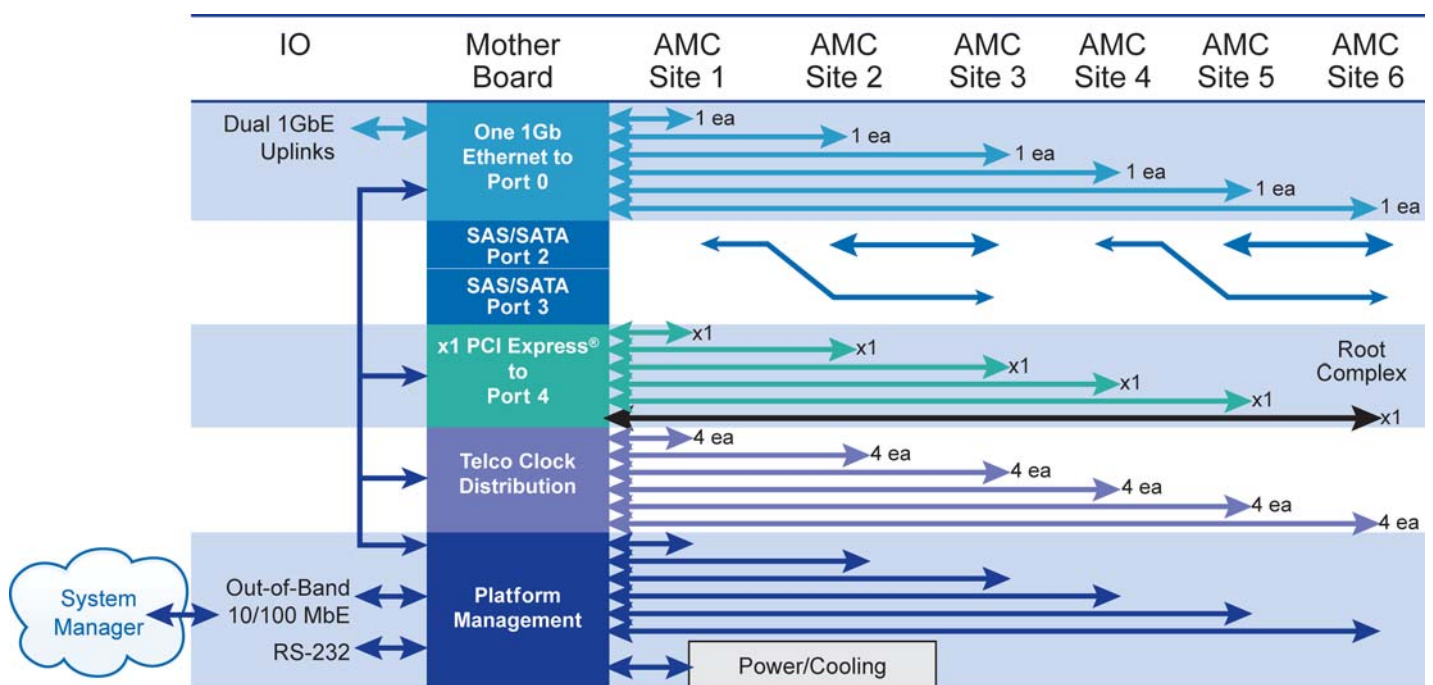
Five management interfaces are available:

A. User-based Interfaces:

- NexusWare® Portal – a web-based GUI development and management tool that provides remote management and monitoring (LAN Interface)
- IO Front Panel – offers visual information via LEDs (Physical Interface)
- Command Line Interface (CLI) (Serial Interface from the Front Panel for Local Servicing)

B. Programmatic-based Interfaces:

- Remote Management Control Protocol (RMCP) (LAN Interface – via OOB management port)
- Simple Network Management Protocol (SNMP) (LAN Interface – comprehensive platform management via AMC Processor)



Platform Management



IPnexus[®] AMP5070

Technical Specifications

Ordering Information

Pre-Configured Systems

- >> **PT-AMP5070-12294**
1U MicroTCA w/AC, AMC121 w/2 GB DDR, 2 GB SD, NW RTU
- >> **PT-AMP5070-12317**
1U MicroTCA w/DC, AMC121 w/2 GB DDR, 2 GB SD, NW RTU

Base Platform (Any Configured System)

- >> **PT-AMP5070-12259**
1U MicroTCA, 6 AMC sites, AC input, x1 PCIe, 1 GbE/site
- >> **PT-AMP5070-12260**
1U MicroTCA, 6 AMC sites, DC input, x1 PCIe, 1 GbE/site

Accessories and FRUs

- >> **PT-MTC5140-12300**
4HP, Single, Filler Panel
(All MicroTCA Systems)
- >> **PT-MTC5131-12301**
4HP, Single, Air Management Blade
(All MicroTCA Systems)
- >> **PT-MTC5132-12302**
2HP, Single, Air Management Blade
(All MicroTCA Systems)
- >> **PT-MTC5133-12358**
4HP, Single, Adjustable Airflow Blade
(All MicroTCA Systems)
- >> **PT-MTC5150-12303**
Air Filter for AMP5070 Platforms, 10-pack
- >> **PT-MTC5160-12304**
Fan FRU for AMP5070 Platforms
- >> **PT-MTC5120-12305**
19" Rack Mount Brackets for AMP5070 Platforms
- >> **PT-MTC5121-12306**
23" Rack Mount Brackets for AMP5070 Platforms
- >> **PT-MTC6201-12307**
300 W, AC Removable Power Supply
- >> **PT-MTC6211-12308**
300 W, DC Removable Power Supply



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PICMG[®] Specifications

- Full Compliance with MicroTCA.0, AMC.0, AMC.1, AMC.2, AMC.3
- Supports mid or full and single or double size AdvancedMC™ modules

AdvancedMC Interconnects and Specifications

- AMC.1 (port 4): x1 PCI Express[®]
- AMC.2 (port 0): One 1 Gb Ethernet
- AMC.3 (port 2): 1 SATA/SAS Port (see diagram)
- AMC.0: IPMB-L Management Interface

Front Panel Interfaces

- LEDs
 - In-Service
 - Out-of-Service
 - User Defined
- Serial Console Port
- Reset Switch
- Brand Label is Customizable

Back Panel Interfaces

- Dual 1 Gb Ethernet Uplink Ports
- 10/100 Mb Out-of-Band Shelf Manager Port
- Power Inhibit Switch
- Chassis Grounding

Power

- AC input: 100 to 240 V AC, 50 to 60 Hz, 4 to 2 A
- DC input: -40.5 to -60 V DC, 10 to 5 A

Mechanical

- Height: 1U, 44 mm (1.75 in.)
- Width: 436 mm (17.2 in.) without rack-mount flanges. Rack-mount flanges allow mounting to 19 in. racks
- Depth: 457 mm (18.0 in.)
- Weight: 6.76 kg (14.90 lb)

Environmental

- The AMP5070 system (enclosure, fan trays, and Motherboard) is designed for harsh environments. The system features sturdy steel construction with a durable powder coat finish.
- Operating: 5 to 40°C (41 to 104°F), up to 55°C (131°F) for 96 hours for both AC and DC power supplies
- Storage: -40 to 70°C (-40 to 158°F)
- Relative humidity: 5 to 85%, up to 90% for 96 hours, non-condensing

NOTE: To provide proper cooling of the AMP5070, each unused AMC slot in the chassis must be populated with the proper filler panel or Air Management Blade. Refer to "MicroTCA Air Management" White Paper.

MTBF

86,012 hours per Bellcore SR-332 Issue 1

Agency Certifications (Pending)

Safety

- UL/cUL 60950 Safety for Information Technology Equipment
 - UL File Number E170533
- EN/IEC 60950 Safety for Information Technology Equipment
- CB Certificate and Report Scheme

EMC Test Regulations

- FCC, Class A
- CE Declaration of Conformance

Network Equipment-Building System (NEBS)

- Designed for NEBS Level 3 and ETSI installations
- GR-1089-CORE Issue 4
- GR-63-CORE Issue 3