IPnexus® AMP5071 PRODUCT SHEET

1U MicroTCA® Application-Ready System

FEATURES

Innovative, Cost-Effective, Highly Integrated, 1U MicroTCA®-Compliant Platform Supports Six AdvancedMC™ Modules

Designed for Deployments in Wireless, Telecom, Aerospace, and Defense

Application-Ready System Configured with:
- PT's AdvancedMC™ Modules
- NexusWare® Linux-based Distribution

1Gbps Ethernet and x4 PCI Express® Fabrics

Onboard MicroTCA® Carrier and Shelf Managers with NexusWare® Portal

High Reliability Via Redundant and Hot-Swappable Cooling and Power Supplies (AC or DC)



The AMP5071 is part of PT's family of IPnexus® Application-Ready Systems. It is a highly reliable, high-performance, and highly integrated 1U MicroTCA®-compliant platform that maximizes payload slot density in a 1U form factor. 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 for demanding operating environments such as telecom, wireless, aerospace, and defense.

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

The AMP5071 supports up to six AdvancedMC module payload slots in a 1U shelf. High reliability is achieved with redundant and hot-swappable power supplies and fan trays. 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.

For applications that require high-performance connectivity, the AMP5071 features dual 1 GbE Ethernet and x4 PCI Express lanes 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

Equipment manufacturers and providers can immediately begin development of their application on receipt of Application-Ready 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 LTE, WiMAX, media gateways, managed WAN gateways, voice over IP (VoIP), lawful intercept, radar servers, and signaling gateways. 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 Image 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

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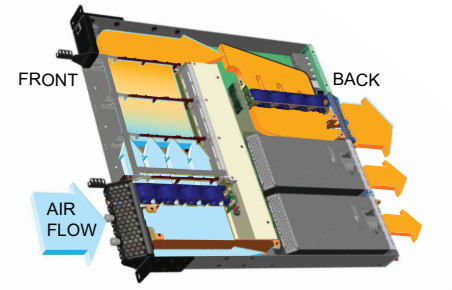
AMP5071 Application-Ready System Configuration Options

DESCRIPTION	PLATFORM OPTIONS	PROCESSOR OPTIONS	OPERATING SYSTEM	VIDEO/STORAGE OPTIONS	ACCESS OPTIONS
Freescale™ MPC8641D PowerPC w/NexusWare® Linux®, MTCA Platform	**PT-AMP5071-12363** 1U MTCA Platform, Two 300W AC **PT-AMP5071-12364** 1U MTCA Platform, Two 300W DC	**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-MSD8G-12397** MiniSD Card, 8GB, Class 6	**PT-AMC304-12339** AMC Four Port T1/E1/J1 Controller **PT-AMC305-12340** AMC Four Port T1/E1/J1 Controller with I-TDM **PT-AMC335-12289** AMC Four Port Sync. Serial Controller (RS232) **PT-AMC335-12258** AMC Four Port Sync. Serial Controller (RS422/449) **PT-AMC335-12287** AMC Four Port Sync. Serial Controller (V.35)
x86 Intel® Core™ 2 Duo w/NexusWare® Linux®, MTCA Platform	**PT-AMP5071-12363** 1U MTCA Platform, Two 300W AC **PT-AMP5071-12364** 1U MTCA Platform, Two 300W DC	**PT-AMC121-12208** Processor AMC, Core 2 Duo, 1.5 GHz, 2 GB DDR **PT-AMC121-12280** Processor AMC, Core 2 Duo, 1.5 GHz, 4 GB DDR **PT-AMC122-12318** Processor AMC, Core 2 Duo, 2.16 GHz, 4 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-MSD4G-12293** MiniSD Card, 4GB, Class 4 **PT-MSD8G-12397** MiniSD Card, 8GB, Class 6	
x86 Intel® EP80579 Integrated Processor 1.2 GHz w/NexusWare® Linux®, MTCA Platform	**PT-AMP5071-12363** 1U MTCA Platform, Two 300W AC **PT-AMP5071-12364** 1U MTCA Platform, Two 300W DC	**PT-AMC123-12337** Processor AMC, EP80579, 1.2 GHz, 1 GB DDR **PT-AMC123-12338** Processor AMC, EP80579, 1.2 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-UDM4G-12376** USB Disk Module Kit, 4 GB **PT-SDM4G-12377** SATA Disk Module Kit, 4GB	



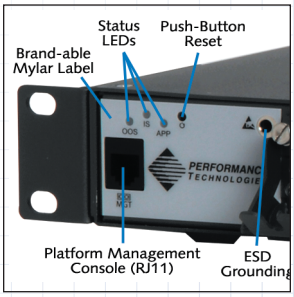
Front-to-Back Cooling Subsystem

The AMP5071 features front-to-back cooling, critical in NEBS specified installations. The hot swappable fan tray (4 fans) in the front pushes air through the AMCs, while an identical hot-swappable fan tray in the back 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 tray can be replaced. Some of the air intake is routed to the power supplies that have their own fans. The removable air intake grills allow for routine replacement of NEBS specified filters. Each slot receives an ample airflow of 1500 LFM to ensure cooling of up to 40 W per mid-size slot.

Power Subsystem

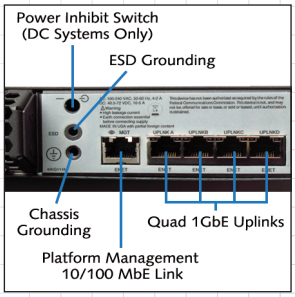
The system power is provided by dual, redundant and hot-swappable 300 W intelligent power supplies that are monitored by the platform management subsystem. The load-sharing supplies deliver up to 40 W of 12 V payload power and 3.3 V management power to each AMC site. AC and DC input options are available. 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 quad 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 dual 1 Gb SERDES Ethernet links to Port 0 and Port 1 of each AMC site. Four 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 Ports 4-7 support x1, x2, or x4 lanes of PCI Express® (PCIe) to each AMC site. The root complex is located in the T2-S3 location. The PCIe subsystem in the AMP5071 supports hot plug capabilities (Presence Detect and in-band link state change notification). The AMP5071 provides PCIe clock distribution to each AMC site, sourced from either the root complex AMC or from the AMP5071.

SAS/SATA Storage Subsystem

The AMP5071 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.

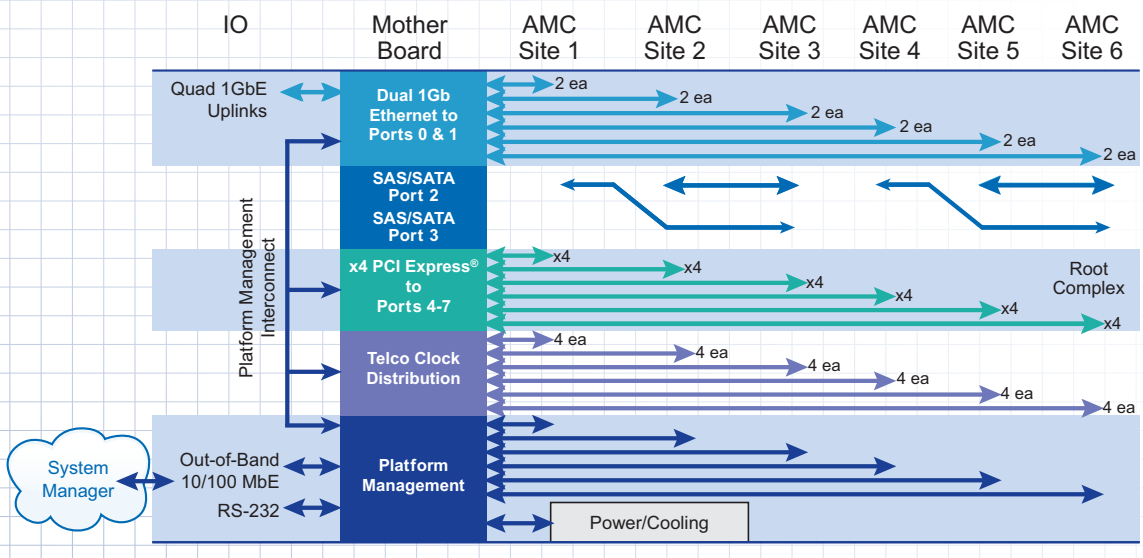
Five management interfaces are available:

A. User-based Interfaces:

- NexusWare® Portal – a web-based GUI development and management tool that provides remote management and monitoring
- I/O Front Panel – offers visual information via LEDs
- Command Line Interface (CLI)

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)



AMP5071 Interconnect Diagram

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Technical Specifications

ORDERING INFORMATION

PT-AMP5071-12363
1U MicroTCA®, 6 AMC sites, AC input, x4 PCIe, Dual 1 GbE/site

PT-AMP5071-12364
1U MicroTCA, 6 AMC sites, DC input, x4 PCIe, Dual 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-MTC6201-12307
300 W, AC Removable Power Supply

PT-MTC6211-12308
300 W, DC Removable Power Supply

PT-MTC5151-12371
Air Filter for AMP5071 Systems, 10-pack

PT-MTC5161-12372
Fan Tray for AMP5071 Systems (Front or Back)

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 (ports 4-7): x1, x2, or x4 PCI Express®
- AMC.2 (ports 0-1): Dual 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
- Quad 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: 442 mm (17.4 in.) without rack-mount flanges. Rack-mount flanges allow mounting to 19 in. racks
- Depth: 470 mm (18.5 in.)
- Weight: 9.06 kg (20 lbs) with 2 power supplies 8.12 kg (17.9 lbs) with 1 power supply

Environmental
- The AMP5071 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 AMP5071, 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
201,585 hours per Bellcore SR-332 Issue 1
99.994% Availability (Four-nines)

Agency Certifications

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

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