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CPC7301 PRODUCT SHEET

Intelligent Shelf Manager

FEATURES

Delivers High Availability
- Manages all IPMI-based components in platform
- Active/standby dual ISM redundancy and synchronization
- Star topology provides enhanced reliability
- Out-of-band management with dedicated Ethernet interface
- Hot-swap support for field replaceable components

System-Level Compatibility
- Compatible with packet-based, IPMI-compliant products
- PICMG® 2.1, PICMG® 2.9, and PICMG® 2.16 compatible

Comprehensive Software Interfaces
- SNMP, IPMI, RMCP, Telnet, and SSH support
- Command Line Interface (CLI)
- Web-based graphic user interface

Comprehensive Hardware Interfaces
- Out-of-band Ethernet port
- Dedicated serial port
- µDB15 telecom alarm interface with dry contact relays for critical, major, minor, and power fail
- Alarm cutoff pushbutton
- Critical, major, minor, and hot-swap LEDs



Advanced, intelligent shelf management ensures maximum service availability in a computing platform by monitoring sensors and predicting failures. The CPC7301 Intelligent Shelf Manager offers a comprehensive management architecture that delivers high availability protection with reliable, redundant, and Intelligent Platform Management Interface (IPMI) standards-based management to all the major components in the shelf.

The CPC7301 is a 3U, single-slot, Intelligent Shelf Manager (ISM) card for PT's platforms. It provides centralized management and alarming for system power supplies, fan trays, fabric slots, and node slots, including single board computers and I/O cards. The ISM may be paired with a redundant, standby ISM for use in high availability applications. A dedicated ISM-to-ISM link allows redundant ISMs to synchronize management data and polling for failover. The ISM provides comprehensive user and software interfaces via Simple Network Management Protocol (SNMP), Application Programming Interface (API), Command Line Interface (CLI), Remote Management Control Protocol (RMCP), and a Web interface. The single slot, 6U, RTM4820 Rear Transition Module (RTM) provides rear panel access to the I/O functions of two redundant CPC7301A ISMs.

As part of the Advanced Managed Platform offering, the CPC7301 provides hot-swap slot control and monitoring of IPMI-based components in the chassis. When thresholds, such as temperature and voltage, are crossed or a failure occurs, the ISM captures these events, stores them in an event log, sends SNMP traps, and drives the telecom alarm relays and alarm LEDs. User-defined scripts and applications allow OEMs to extend functionality directly into the ISM. The ISM 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 perform health monitoring of each component. In addition, the ISM controls the user-defined power-up sequencing of each slot via radial BD_SEL# signals.

Star Topology

In conjunction with PT's AMP platforms, the CPC7301 provides a point-to-point IPMI connection from the ISM to each individual node or fabric slot, to the power supply subsections, and to the fan tray section in the chassis, much like an Ethernet switch in a star topology.

The ISM acts as the primary Baseboard Management Controller (BMC) for the entire chassis, eliminating any cross traffic between two points of the star.

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This protected architecture has two major benefits:

High Reliability
If any IPMI-based component or subsystem fails and renders its bus inoperable, the ISM isolates it from the rest of the IPMI framework.

High Security
The ISM allows multiple single board computers with BMCs to coexist in the same chassis but not compete as the primary management controller.

Comprehensive Management

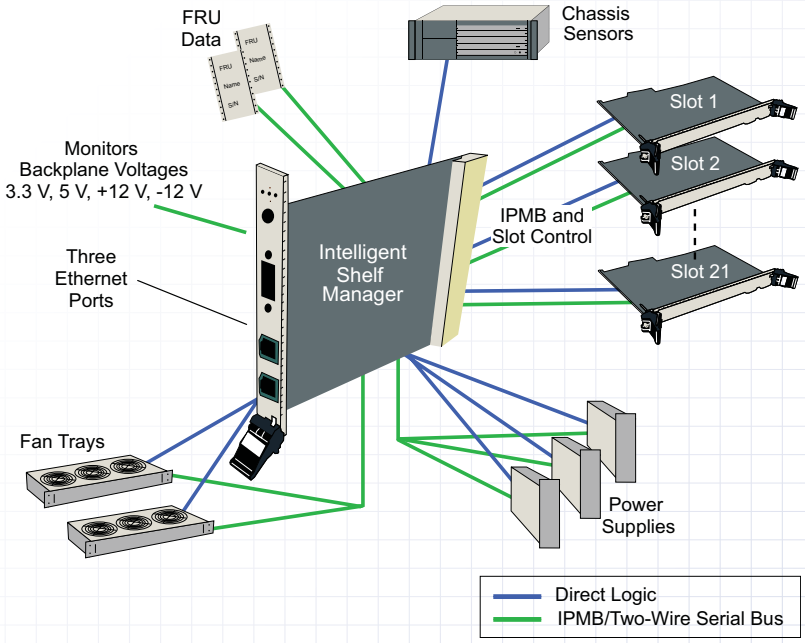
The ISM manages up to 21 slots, which may be any combination of node slots and fabric switch slots. In addition, it manages up to eight power supplies, up to four fan trays, and up to two ISMs (itself and the standby ISM). It can also access chassis sensors and a comprehensive list of management information and configuration options provided by the switched fabric components.

High Availability

The Intelligent Shelf Manager provides the ability to operate in redundant mode, where one ISM is active and the other is in standby mode. In the event of a failure on the active ISM, the standby ISM takes over control of the chassis. A dedicated watchdog timer on each ISM monitors the software. In the event of a software failure on the active ISM, the watchdog will initiate failover to the standby ISM and reset the unstable ISM. The configuration information, event log, and other state information of the active ISM is continuously synchronized with the standby ISM. This synchronization can be performed via Ethernet switches that are in or out of the platform, via an Ethernet cable at the front or rear panel, or via a dedicated, internal ISM-to-ISM Ethernet link that eliminates dependence on Ethernet switches and external cabling.

The firmware on the ISMs can be updated remotely via the network in a secure, fail-safe operation. This can be sequenced so that one ISM is active while the other is being updated.

The ISMs are hot-swap-capable for "non-stop" service. Intelligent, hot-swappable system managers both reduce Mean Time to Repair (MTTR) and improve system availability.



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Front Panel Input/Output

The Intelligent Shelf Manager's front panel supports the following I/O (see the RTM4820 datasheet for details on the Input/Output features for the ISM Rear Transition Module):

- Out-of-band 10/100 Ethernet port provides access to SNMP, the Command Line Interface (via Telnet or SHH), RMCP, FTP, and the Web interface. It is also used for sending network alerts.
- In-band 10/100 Ethernet port via packet-switched backplane is also supported.
- Green link LED and amber activity LED.
- µDB15-pin telecom alarm interface
  - Dry contact relays indicate critical, major, and minor events and generate a continuous output until the alarm cut-off button is pressed or it is turned off via software.
  - Dry contact relay indicates power fail.
  - Two optically isolated inputs allow clearing of major and minor alarms.
  - The relays and inputs are abstracted for future user-defined options.
- RJ-45 COM port provides access to the Command Line Interface.
- Minor, major, and critical LEDs, plus three independent LEDs
- Hot-swap LED indicates when the part is ready to be hot-removed.
- Status LED indicates active/fault status.

Warranty

One year.

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Technical Specifications

ORDERING INFORMATION

PT-CPC7301-11972
Intelligent Shelf Mangaer (ISM)

PT-RTM4820-11973
Rear Transition Module (RTM) for ISM

PT-ACC7340-12077
Console Cable Adapter Bundle
(RJ-45 to DB9)

For more information visit www.pt.com or call your local representative.

CPC7301 supports the following specifications:

- PICMG® 2.0 R3.0 (CompactPCI®) and PICMG 2.1 R2.0 (Hot-Swap) Specifications
- PICMG 2.9 (CompactPCI System Management)
- IPMI v1.5 Intelligent Platform Management Interface specification
- Compatible with PICMG 2.16 (Packet- Switched Backplane)
- Designed for NEBS level 3 and ETSI installations

Power Requirements

- Supply voltage, Vcc: 5 V ± 5%, with 50 mV maximum ripple

Environmental

- Storage temperature: -40° to 85°C (-40° to 185°F)
- Operating temperature: 5° to 55°C (41° to 131°F)
- Non-condensing relative humidity: <95% at 40°C (104°F)

Operating Temperature

- The CPC7301 can operate between 5° and approximately 55°C ambient, with a minimum of 200 LFM (1 meter/sec) of external airflow. External airflow must be provided to the CPC7301 at all times.

Operating System

NexusWare®, CGL-registered Linux®

I/O Interface	Connector Type
RS-232 Serial Port	RJ-45
10/100 Ethernet Port	RJ-45
Telecom Alarm Port	Micro-DB-15

Telecom Alarm Signal

Alarm Relays

- The CPC7301's alarm relay circuits are capable of carrying 60 V DC or 1 A with a maximum rating of 30 VA.

Opto Inputs

- The CPC7301 accepts timed pulse inputs for clearing minor and major alarm states. (There is no reset for the critical state.) Reset is accomplished by asserting a voltage differential from 3.3 V to 48 V for between 200 and 300 ms. The acceptable voltage range is from 0 to 48 V DC continuous. The current drawn by a reset input does not exceed 12 mA.

Mechanical

In a compatible enclosure, the CPC7301 occupies a single 3U ISM slot. Dimensions are below:

- PCB Dimensions: 100 mm x 160 mm x 1.6 mm (3.94 in. x 6.3 in. x 0.063 in.)
- Board Dimensions: 3U x 4HP (one slot) Weight: 0.218 kg (7.7 oz)

Regulatory Compliance

Safety

- UL/cUL 60950 Safety for Information
- UL File Number E179737
- IEC 60950 Safety for Information Technology Equipment
- CB Certificate and Report
- CE Certificate

Emissions Tests Regulations

- FCC, Class B
- EN 55022/CISPR22 Class B Radiated and Conducted Emissions Tests
- EN 55025/CISPER 24
- EN-61000-3-2 Power Line Harmonic Emissions
- EN-61000-3-3 Power Line Fluctuation and Flicker
- EN-61000-4-2 Electro-Static Discharge (ESD)
- EN-61000-4-3 Radiated Susceptibility
- EN-61000-4-4 Electrical Fast Transient Burst
- EN-61000-4-5 Power Line Surge
- EN-61000-4-6 Frequency Magnetic Fields
- EN-61000-4-11 Voltage Dips, Variation, and Short Interruptions

Network Equipment-Building System – (NEBS) Requirements

- GR-1089-CORE
  - Sect. 2 Electrical Discharge
  - Sect. 3.2.2 Radiated RF Emissions
  - Sect. 3.2.3 AC Line Conducted Emissions-Voltage
  - Sect. 3.2.4 AC and DC Line Conducted Emissions-Current
  - Sect. 3.3.1 RF Radiated Fields
  - Sect. 3.3.3 RF Common Mode
- GR-63-CORE
  - Sect. 5.1.1.1 Low-Temperature Exposure, and Thermal Shock
  - Sect. 5.1.1.2 High-Temperature Exposure, and Thermal Shock
  - Sect. 5.1.1.3 High Relative Humidity Exposure
  - Sect. 5.3.1 Handling Drop Tests-Packaged Equipment
  - Sect. 5.3.2 Unpackaged Equipment Drop Tests
  - Sect. 5.4.1 Earthquake Tests
  - Sect. 5.4.2 Office Vibration Test Procedure
  - Sect. 5.4.3 Transportation Vibration-Packaged Equipment
  - Sect. 5.6 Acoustic Noise TestCompactPCI core specifications

MTBF

- 178,868 hours Bellcore SR-332 Issue 1

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