



## Highlights

- >> 12U, 19-inch Rack-Mount Enclosure
- >> 21 Hot-Swappable, 6U, Standards-Based Slots
  - 18 node slots
  - Two 10/100/1000 PICMG® 2.16 redundant fabric slots
  - Two 3U redundant PICMG 2.9 IPMI-based ISM slots in 6U slot
- >> Multiple Midplane Configuration Options
- >> Up to 1300W Total Power and Cooling (e.g. 50W per node slot and 70W per fabric slot)
- >> Designed for NEBS Level 3 and ETSI Installations
- >> Five-Nines Availability
- >> Dual-Power Domain Midplane Isolates Catastrophic Power Failures
- >> IPMI Star Topology for Increased Reliability and Security
- >> All Field-Replaceable Units (FRUs) Serviceable from the Front (Except RTMs)

The IPnexus™ ZT 5088e 12U General Purpose Packet-Switched Platform is an extremely flexible, high availability platform, configurable for both compute-intensive and I/O-intensive applications. Part of the Advanced Managed Platform offering, it provides OEM equipment designers with a carrier-grade, standards-based, high availability computing platform for demanding, mission-critical applications.

The ZT 5088e platform supports five-nines (99.999%) availability with built-in redundancy for active system components including Ethernet switches, intelligent shelf managers (ISMs), power supplies and fan trays. Redundant ISMs enable customers to manage multiple SBCs and conduct chassis diagnostics remotely for enhanced system reliability. Ethernet signals are routed across the midplane without the use of cables, saving time in setup, maintenance and repair and minimizing the thermal challenges of traditional cabling methods.

## Flexible Midplane Configurations

The midplane is flexible and can accommodate multiple configurations. It supports up to 18 independent servers communicating over the PICMG® 2.16-compliant Ethernet midplane (slots 3-20) or four dedicated system masters supporting four independent PCI bus segments (see Figure 1).

The ZT 5088e can also be configured to support two extended bus segments. PCI segments one and two are bridged together using the ZT 5524e System Master Processor Board and ZT 4901e I/O Mezzanine expansion by bridging segments one and two together, one system master can control seven peripheral slots at 66MHz bus speed. The same bridging can be performed on PCI segments three and four with the ZT 5524e/ZT 4901e pair installed in slots 16 and 17. All slots support IEEE 1101.11-style, 80mm-deep transition cards in the rear panel I/O section, directly behind the midplane. Each node and fabric slot may be independently configured for 3.3V or 5V V/I/O operation.

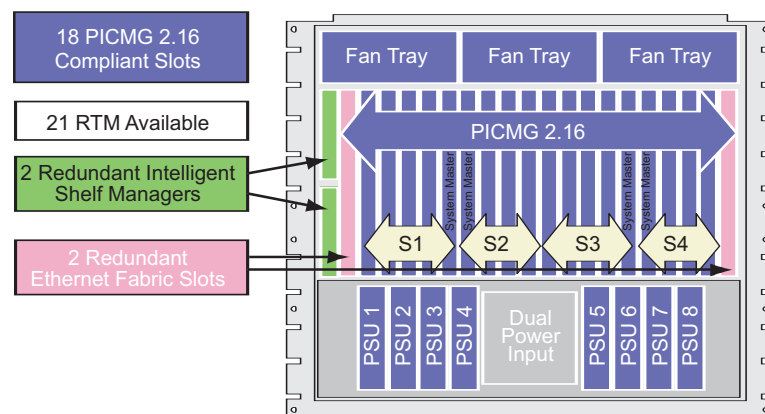


Figure 1:  
Component layout  
for the ZT 5088e  
platform.

## Intelligent Shelf Manager

The ZT 5088e includes two redundant IPnexus CPC7301 Intelligent Shelf Managers (ISMs) operating in active/standby mode. The CPC7301 is the central management component for all Performance Technologies' PICMG 2.16-compliant platforms. It uses standards-based interfaces, allowing management of third-party IPMI-based products within an IPnexus platform. It communicates with components in the ZT 5088e via point-to-point IPMB busses in a unique star topology to achieve comprehensive, highly available management.

## Redundant Power Subsystems and Dual-Domain Architecture

The ZT 5088e platform supports a redundant, scalable power solution, accommodating up to eight 3U CompactPCI power supplies, divided into two separate power subsystems. Each delivers power to one of the two power domains on the midplane. Each power subsystem supports N+N redundant power supplies and receives input power from redundant DC or AC inputs.

This is critical in central office locations where two power plants deliver redundant DC input into high-availability devices. These two power subsystems maintain isolation of these inputs (no diode OR'ing) to ensure that failure of one will not affect the power input of the other. For high availability and to isolate catastrophic events, the midplane is divided into two separate power domains. Each power domain supports one fabric slot and nine node slots. The redundant ISMs and fan trays draw power from both domains for continued operation, should one domain fail (see Figure 2).

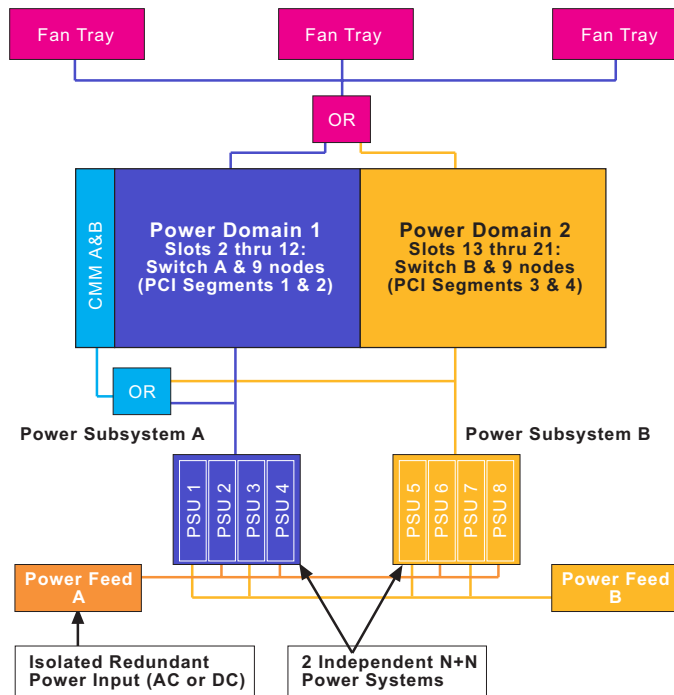


Figure 2: The ZT 5088e platform dual-power dominant/redundant power-input architecture.

## Contact Information

### Performance Technologies

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## Cooling Architecture

With 250W power supplies, the ZT 5088e platform supports more than 40W per slot or, when scaled to 325W power supplies, powers and cools up to 50W per node slot and 80W per fabric slot. The platform houses three hot-swappable fan trays, serviceable from the front. Each tray includes three blowers and spans the distance from front to back of the chassis. The front blower

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12U General Purpose PICMG® 2.16 Platform

cools the front card cage area and the rear blower cools the power supplies and rear of the card cage. The middle blower cools both areas, providing N+1 redundant cooling for the entire chassis (see Figure 3).

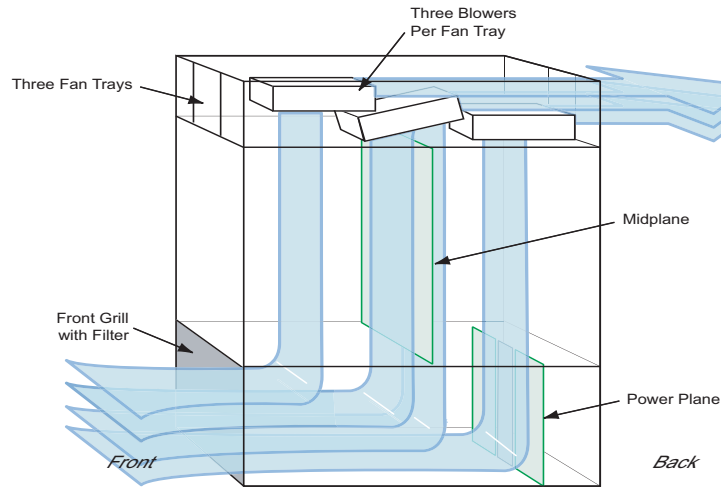


Figure 3: Cross section/side view of the ZT 5088e platform.

## Product Interoperability

### Processor and I/O Boards

- CPC5505: 1.6 GHz Intel® Pentium® M processor – Low Power, supports up to 2GB of DDR SDRAM, EIDE hard drive and PT7MC site in single slot
- ZT 5504e: 1GHz Intel® Pentium® III processor - Low Power, up to 2GB SDRAM ECC, HDD, PMC, SVGA
- ZT 5524e: Single or dual 1GHz Intel® Pentium® III processor – Low Power, SDRAM DIMM socket, single slot
- ZT 4901e: Mezz/bridge card for ZT 5524e, provides dual PMC sites and dual Fibre channel interfaces
- ZT 4807e: Rear panel transition board
- RTM4808A: Rear panel transition board

### Ethernet Switches

- See the complete line of our IPnexus Ethernet switches.

### Management

- CPC7301: Intelligent shelf manager (ISM)
- RTM4820: ISM rear transition module

### Power Supplies

- CPC6314A: 325W DC
- ZT 6303: 250W AC

### Fan Tray

- 20450: Fan tray with blowers

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# ZT5088e

12U General Purpose PICMG® 2.16 Platform

## Ordering Information

The ZT 5088e may be ordered with the following options:

### >> Base Enclosure and Power Input Panel

- C1: AC input panel
- C2: DC input panel

### >> Power Supplies

- P2: Eight CPC6314 325W DC power supplies
- P4: Eight ZT 6303 250W AC power supplies

### >> Intelligent Shelf Manager

- I0: No CPC7301A-1A Intelligent Shelf Manager
- I1: One CPC7301A-1A Intelligent Shelf Manager
- I2: Two CPC7301A-1A Intelligent Shelf Manager

### >> ISM Rear Transition Module

- R0: No RTM4820A ISM RTM
- R1: One RTM4820A ISM RTM

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## Specifications

The ZT 5088e is compliant with the following:

- CompactPCI® core spec. PICMG® 2.0, R2.1
- CompactPCI hot-swap spec., PICMG 2.1, R2.0
- CompactPCI system management spec., PICMG 2.9, R1.0
- CompactPCI power interface spec., PICMG 2.11, R1.0
- CompactPCI packet switching backplane spec., PICMG 2.16, R1.0
- IPMI Spec., version 1.5
- Standard CompactPCI keying

### Power

#### Input

- AC input: 110 to 220V AC (50/60Hz)
- DC input: -36 to -60V DC

#### Output

Power Supplies	+5V	+3.3V	+12V	-5V
Eight 325WDC supplies (4+4)	120A	160A	20A	4A
Eight 250WAC supplies (4+4)	160A*		22A	6A

\* ZT 6303 AC power supply, the 5V and 3.3V rails share current

### Physical

- Height: 12U, 21" (533mm)
- Width: 17.2" (436mm) without rack-mount flanges. Rack-mount flanges allow mounting to 19" racks.
- Depth: 17" (431mm)
- Weight: 97.5 lbs. (44.2 kg)

Note: To provide proper cooling to the ZT 5088e, each unused slot in the chassis should be populated with an air management blade. All rear slots should be populated with a rear filler panel. See the list below for orderable components:

- To cover a single rear panel slot, use a filler panel that is 6U x 4HP (horizontal pitch=0.2") (Performance Technologies PN 18299).
- To cover six rear panel slots, use a filler plate that is 6U x 24HP (Performance Technologies PN 20434).
- To fill a front slot, use an air management blade that is 6U x 4HP (Performance Technologies PN 20456).
- To fill a power supply bay, use an air management blade that is 3U X 8HP (Performance Technologies PN 20455).
- To fill an SM slot, use a filler panel that is 3U X 4HP (Performance Technologies PN 18309).

## Regulatory Compliance

Designed for NEBS Level 3 and ETSI Installations

### Safety

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

### Emissions Test Regulations

- FCC, Class B
- EN 55022/CISPR 22 Class B Radiated and Conducted Emissions Tests
- EN 55025/CISPR 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 & 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 & DC Line Conducted Emissions-Current
  - Sect. 3.3.1 RF Radiated Fields
  - Sect. 3.3.3 RF Common Mode
- GR-63-CORE issue 1
  - 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 Test