



Intel® NetStructure™ ZT 5088

12U General Purpose Packet Switched Platform

Product Overview

The Intel® NetStructure™ ZT 5088 12U General Purpose Packet Switched Platform is an extremely flexible, high-availability platform, configurable for both compute-intensive and I/O-intensive applications. It is one of several telecom building blocks from Intel, built on the PICMG* 2.16 specification, providing OEM equipment designers with carrier-grade, standards-based solutions. This high-capacity CompactPCI* platform features innovative power and cooling. In addition to its high-availability features, the ZT 5088 platform is highly modular, scalable, and extremely serviceable. It is designed to interoperate with the entire Intel® NetStructure™ family of packet switched backplane products, and with third-party boards meeting the PICMG 2.16 specifications.

The ZT 5088 platform supports five-nines (99.999%) availability with built-in redundancy for active system components including Ethernet switches, chassis management modules, power supplies and fan trays. Redundant chassis management modules enable customers to manage multiple SBCs and conduct chassis diagnostics remotely for enhanced system reliability.

The ZT 5088 platform routes Ethernet signals across the backplane without the use of cables, saving time in set-up, maintenance and repair, and minimizing the thermal challenges of traditional cabling methods.

Product Highlights

High Capacity

- 12U, 19-inch rack-mount enclosure
- 21 slots (18 node slots, two fabric slots, and two 3U chassis management slots)
- Up to 50W per node slot and 80W per fabric slot power and cooling
- Designed for NEBS Level 3 and ETSI installations

High Availability

- Five-nines availability
- Redundant, hot-swappable modules for fault recovery
 - Two PICMG 2.16 10/100/1000 fabric slots
 - Two IPMI-based chassis management modules
 - N+1 cooling architecture
 - N+N load-sharing 250W AC or DC power supplies
- Redundant power input (front- or rear panel cabling)
- Dual-power domain midplane isolates catastrophic power failures

Highly Flexible

- Multiple midplane configuration options
- All node slots support 32/64-bit, 33/66MHz single board computers and peripherals
- Four PCI bus segments
- 21 rear-panel I/O slots (18 node slots, two fabric slots, and two 3U CMM slots)

Highly Manageable

- IPMI-based, PICMG 2.9-compliant redundant chassis management modules
- Unique star topology for increased reliability and security

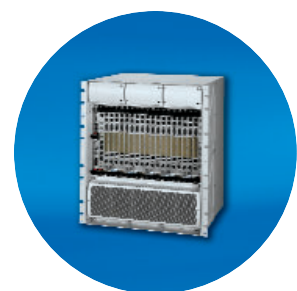
Highly Serviceable

- All Field-Replaceable Units (FRUs) serviceable from the front (except rear-panel transition boards)

Highly Scalable

- Processors, I/O boards, power, and cooling

Intel in
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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).

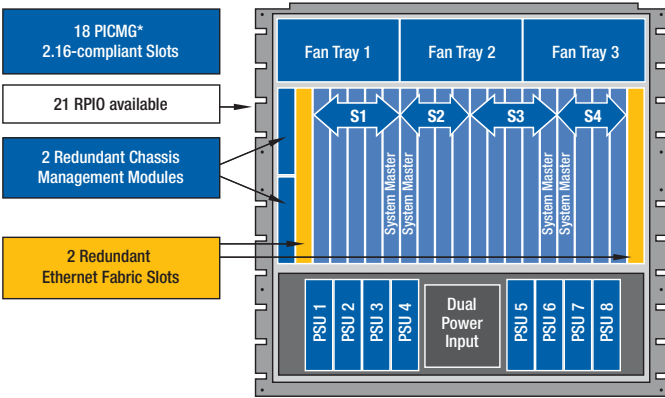


Figure 1: Component layout for ZT 5088 platform

The ZT 5088 can also be configured to support two extended bus segments. PCI segments one and two are bridged together using Intel's ZT 5524A System Master Processor Board and ZT 4901A I/O Mezzanine Expansion Card, mated together and installed in slots 7 and 8.

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 5524/ZT 4901 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

Chassis Management Module

The ZT 5088 includes two redundant Intel® NetStructure™ ZT 7102 chassis management modules (CMMs) that operate in active/standby mode. The ZT 7102 is the central management component for all Intel® NetStructure™ PICMG 2.16-compliant platforms. It uses standards-based interfaces, allowing management of third-party IPMI-based products within a NetStructure platform. It communicates with components in the ZT 5088 platform 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 5088 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 CMMs and fan trays draw power from both domains for continued operation, should one domain fail (see Figure 2).

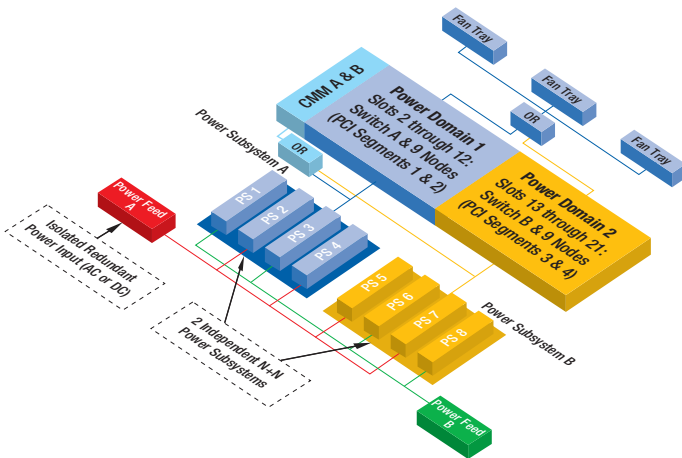


Figure 2: The ZT 5088 platform dual-power domain/redundant power-input architecture

Cooling Architecture

With 250W power supplies, the ZT 5088 platform supports more than 40W per slot or, when scaled to 350W 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 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).

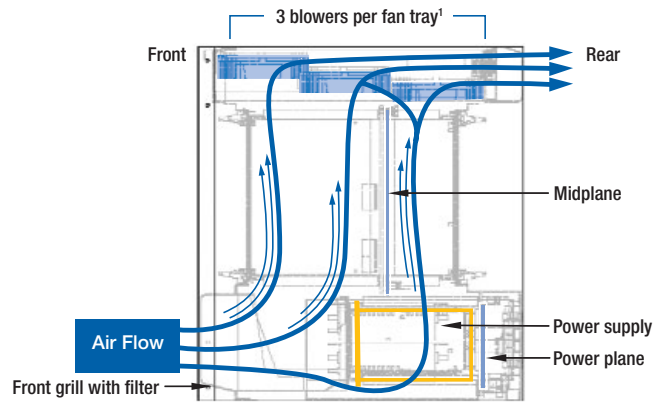


Figure 3: Cross section/side view of the ZT 5088 platform

Specifications

The most current product specifications and order options are posted on the Web version of this product brief (developer.intel.com/design/network/products/cbp/linecard.htm).

Specifications – The ZT 5088 platform is compliant with the following specifications:

- CompactPCI* Core Specification, PICMG* 2.0 R2.1
- CompactPCI Hot Swap Specification, PICMG 2.1 R2.0
- CompactPCI System Management Specification, PICMG 2.9 R1.0
- CompactPCI Power Interface Specification, PICMG 2.11 R1.0
- CompactPCI Packet Switching Backplane Specification, PICMG 2.16 R1.0
- IPMI Specification, Version 1.5
- Standard CompactPCI Keying

Power

Input: 100-230 VAC (50-60Hz) or -36 to -60 VDC

- Output: Assumes that 8 power supplies are installed, operating in the 4+4 configuration. The total wattage per supply not to exceed 250W.

Output Voltage	Output Current
+5V	160A
+3.3V	160A
+12V	22A
-12V	6A

Physical

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

Regulatory Compliance Pending

- Safety
 - UL/cUL 60950 Safety for Information Technology Equipment E179737
 - EN/IEC 60950 Safety for Information Technology Equipment
 - CB Report Scheme CB Certificate and Report
- Emissions Test Regulations
 - FCC, CFR 47, Part 15, Class B
 - EN 55022
 - CISPR 22
 - GR-1089-CORE Sections 2 and 3
 - EN 55022 Class B Radiated
 - EN 55022 Power Line Conducted Emissions
 - 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, Variations, & Short Interruptions

Ordering Information

The Intel® NetStructure™ ZT 5088 12U General Purpose Packet Switched Platform includes the enclosure with PICMG 2.16-compliant midplane, eight power supplies, two ZT 7102 chassis management modules, and three fan trays.

ZT 5088AC: Includes AC power input panel

ZT 5088DC: Includes DC power input panel

The ZT 5088 platform is designed to interoperate with the following Intel NetStructure building blocks (please see individual product briefs for details):

Processor and I/O Boards

ZT 5504B-1A: 1GHz Intel® Pentium® III processor – Low Power, 512 MB ECC SDRAM, EIDE hard drive, and SVGA

ZT 5504B-1B: 1GHz Intel Pentium III processor – Low Power, 1GB ECC SDRAM, EIDE hard drive, and SVGA

ZT 5504B-1C: 1GHz Intel Pentium III processor – Low Power, 1GB ECC SDRAM, EIDE hard drive, SVGA, and CD-ROM mezzanine card

ZT 5524A-1A: Dual 933MHz Intel Pentium III processors – Low Power, SDRAM DIMM socket, single slot

ZT 5524A-1B: Single 933MHz Intel Pentium III processor – Low Power, SDRAM DIMM socket, single slot

ZT 4807: Rear-Panel Transition Board

ZT 4901A: I/O Mezzanine Expansion Card

Ethernet Switch

ZT 8101: 10/100 24-port Ethernet managed Layer 2/3 Switch with 2Gbps uplinks

ZT 8102: 16 port Layer 2/3 Gigabit Ethernet Switch

ZT 8102HA: 16 port Layer 2/3 Gigabit Ethernet Switch with high availability management software

Management

ZT 7102: IPMI-based chassis management module

Power Supplies

ZT 6303: 250W AC power supply

ZT 6313: 250W DC power supply

Fan Tray

ZT 5061: Fan tray with blowers

Intel Access

Developer's Site:	developer.intel.com
Networking and Communications Building Blocks:	developer.intel.com/design/network
Other Intel Support:	Intel Literature Center developer.intel.com/design/network (800) 548-4725 7 a.m. to 7 p.m. CST (U.S. and Canada) International locations please contact your local sales office.
General Information Hotline:	(800) 628-8686 or (916) 356-3104 5 a.m. to 5 p.m. PST

For more information, visit the Intel Web site at: developer.intel.com

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¹For details please refer to the Intel® NetStructure™ ZT 5085 12U Redundant Host Packet Switched Platform Technical Product Specification at <http://developer.intel.com/design/network/manuals/zt5085.htm>

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