Intel® NetStructure™ ZT 7102 Chassis Management Module

Intel in Communications

Product Overview

Platform management – to anticipate and prevent failures, and reduce Mean Time to Repair (MTTR) – is a key requirement for delivering maximum service availability in a computing system. To achieve this, the Intel® NetStructure™ ZT 7102 3U Chassis Management Module delivers a superb level of protection with reliable, comprehensive, IPMI (Intelligent Platform Management Interface) standards-based management. Whereas IPMI is most commonly implemented as a bus-management topology, Intel utilizes the IPMI standard within a unique star topology to support very high-level management applications.

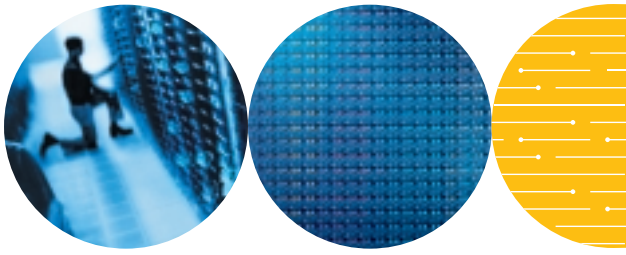
The ZT 7102 is the central management component for all Intel® NetStructure™ PICMG* 2.16-compliant platforms, including the ZT 5090, the ZT 5085 and the ZT 5088. Additionally, the standards-based approach allows management of third-party IPMI-based products. The ZT 7102 also defines the interface between platform hardware and system software to support higher level management interfaces such as Remote Procedural Calls (RPC) and Simple Network Management Protocol (SNMP).

Product Highlights

- High-density 3U x 1-slot CompactPCI form-factor
- Compatible with PICMG 2.16*- and 2.9-compliant components
- Enhanced security and reliability utilizing IPMI in a unique star topology
- Isolated I2C signals provided for each slot
- 10/100 Ethernet at the front or through the backplane



- RS-232 Command Line Interface (CLI) at the front
- µDB15 Telco Alarm Interface at the front panel
- Support for multiple management standards including SNMP, IPMI, and Telnet
- Comprehensive monitoring for health, status, state change, and component presence
- Out-of-Band Management (regardless of OS and CPU state)
- Intel® XScale™ processor design for addition of advanced and automated features with future software releases
- Hot add/Hot swap support for all IPMI-based field-replaceable components
- Individual-slot power control for power-on sequencing
- Support for up to 21 slots in a custom backplane or chassis
- Full synchronization and failover support for platforms supporting two redundant chassis management modules



Key Design Elements

Star Topology Protection

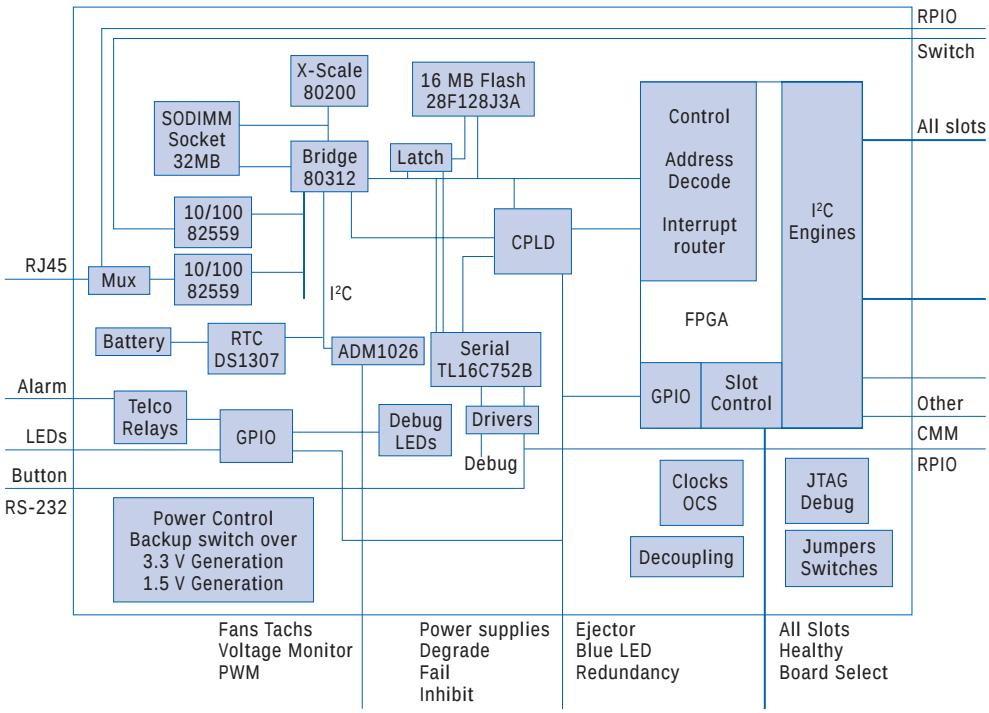
When used within an Intel® NetStructure™ 2.16-compliant platform, the ZT 7102 provides point-to-point connection to each individual IPMI-based single-board computer (SBC) in the chassis, much like an Ethernet hub or switch in a star topology. The chassis management module (CMM) acts as the primary Baseboard Management Controller (BMC) for the entire chassis, blocking traffic between any two points of the star, including components and slots. This protected architecture allows multiple single-board computers with BMCs to coexist in the same chassis but not compete as the primary management controller. It also provides that no single processor board or application can manage or control other processor boards in the chassis without permission of the CMM.

Comprehensive Management

The CMM can manage up to 21 general-purpose nodes, two Ethernet switches, up to eight power supplies, up to four fan trays (up to 16 fans total), multiple chassis sensors, and up to two redundant CMMs. It can also access a comprehensive list of management information and configuration options provided by switched fabric building blocks.

The ZT 7102 CMM queries information from the field-replaceable units (serial number, model number, manufacture date, etc.), detects presence, and performs health monitoring of each component. It also controls the power-up sequencing of each component and the power-on/off to each slot via BD_SEL#. When the threshold of any IPMI-based component in the chassis is crossed (i.e., temperature, voltage) or a failure occurs, the CMM captures the data, stores it in an event log, and can send SNMP traps, drive the telco alarm and light three independent alarm LEDs (Critical, Major, Minor). Users may access previous alerts from the event log.

An SDK allows developers to host simple high-level management applications with the CMM, using the CMM API. A Command Line Interface (CLI) allows administrators to integrate custom scripts with the CMM. These scripts can be used to drive corrective actions on any IPMI event. Administrators may interface with the CLI directly across the network through a Telnet session to access information about the current state of the system including the sensor values, threshold settings for each sensor, overall health of the modules and chassis, recent events, and various power states.



The ZT 7102 will integrate with any rack-level management system supporting SNMP. The CMM supports version 3 SNMP gets, sets and traps.

High Availability

When two CMMs are used, the two chassis management modules will operate in a redundant active/standby mode. In this configuration, one CMM is active while the other remains fully synchronized in hot standby mode, ready to take over seamlessly, should the active CMM go out of service. Redundant CMMs are hot-swappable to simplify replacement and minimize service time.

Input/Output

The ZT 7102 Chassis Management Module supports pinout for a rear-panel I/O card. The front panel supports a variety of I/O:

- A 10/100 Ethernet port provides a network exclusively for management, thus avoiding impact to traffic on the primary network. A switch connects Ethernet from the CMM to either the front-panel Ethernet connector or through the packet switched backplane to the Ethernet switch.
- A 15-pin telco connector driven by dry contact relay alarms, and three independent amber LEDs indicating Critical, Major, and Minor events, generate a continuous output until the alarm cut-off button is pressed or turned off via software.
- An RS-232 serial port provides a serial console for access to the Command Line Interface.
- A blue LED indicates hot swap. An amber/green/blinking-green LED indicates failure/active/standby, respectively.

Specifications

The most current product specifications and order options are posted on the Web version of this data sheet:
developer.intel.com/design/network/products/cbp/zt7102.htm

Power

Power Requirements	Minimum	Typical	Maximum
Supply Voltage, V_{cc}	4.75V	5.0V	5.25V
Supply Current, V_{cc}=	5.0V	0mA	200mA

Physical

Measures:	5.25" x 6.3" (133.4 mm x 160 mm)
Width:	0.8" (1 slot-4HP)
Weight:	7.7oz.
Connector:	Z-Pack hard metric connectors

Environmental

Operating Temperature:	5° to 55°C
Storage Temperature:	-40° to +85°C
Relative Humidity:	<95% at 40°C, non-condensing

Operating System

- BlueCat Linux*

I/O Interface

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

Intel Access

Developer's Site:	developer.intel.com
Networking and Communications Design Components:	developer.intel.com/design/network
Other Intel Support:	Intel Literature Center developer.intel.com/design/litcentr/ (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

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