Tech Company

Zen4 System Hardware Guide

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Chapter 1

Zen4 System Architecture

Multiple Zen4 system chassis can be directly coupled and managed as a single pool of resources. The result is a mainframe-class architecture that offers high throughput and stability for enterprise applications.

The Zen4 system consists of a chassis with the following installed resources:

- **Processor and Memory Modules (PMMs)** that support general-purpose computing requirements. Two types of PMMs are available: PMM-0410s and PMM-0200s.
    - PMM-0410s provide processor sockets for up to four AMD Opteron 64-bit x86 CPUs with memory. The PMM-0410 also offers a total of 8 Gbps of storage I/O bandwidth using Fibre Channel interfaces.
    - PMM-0200s provide CPU sockets for a maximum of two AMD Opteron 64-bit x86 CPUs with memory. Applications can be installed on a PMM-0200 to provide low-latency access by the PMM-0410. Such a configuration can improve performance for certain applications on the PMM-

0410 that depend on other applications that can be accessed with low latency.

- **Q-Series System Modules (ZSMs)** that implement provisioning, system management, and fabric management capabilities.
- **Ethernet Network Modules (ENMs)**, each providing 10 Gbps of network I/O bandwidth, using either copper or fiber optic interfaces.
- **Fibre Channel Modules (FCMs)** that interface to storage arrays and storage devices, either directly or indirectly through storage area networks (SANs).
- **Application Service Modules (ASMs)** that provide acceleration facilities for specialized functions such as load balancing, SSL encryption, and XML processing. The initial ASM implementation is the ASM-0201, which hosts SSL acceleration and server load balancing (SLB) services either in standalone or "cluster" mode.

Major Zen4 components are designed for front-accessible servicing. Power modules are located on the back of the chassis. Fan trays above and below the resource modules provide system cooling.

The Tech Company Zen4 enterprise server combines partitionable symmetric multiprocessing (SMP) using 64-bit AMD Opteron® processors with multi-Gigabit

Ethernet networking, Fibre Channel storage I/O, and offloaded application services. The network and storage I/O can be dynamically allocated across a built-in 80-Gbps switch fabric.

FCM Hardware Module

The FCM is a hardware module that is installed in a Zen4 chassis and communicates with other modules in the same or other chassis using the chassis backplane and vNIC functionality. The FCM provides access to disk arrays connected over Fibre Channel.

The FCM is an iSCSI-to-Fibre Channel gateway that provisions Fibre Channel resources such as bandwidth, ports, and external storage devices to different server partitions within a Zen4 chassis. From a functional point of view, the FCM resides between server partitions and external storage targets.

Server partitions access external storage devices provided by the FCM using iSCSI initiators. The iSCSI initiators configured on a partition in one chassis can access iSCSI targets across the fabric that are exported by an FCM in a different chassis.

Storage connected to the FCM and provisioned to a server is available as iSCSI targets on the server and can be accessed like any other disk device.

Up to two FCMs can be installed in slots 5, 6, and 7 of the Zen4 chassis, but other system functions might be affected by the removal of any module.

Application Service Module (ASM) LEDs

ASM LEDs The table below lists the possible signals from LEDs that the application service module (ASM) might display and what each signal means.

Table 1-1. ASM LEDs

Label	Meaning
Power	**Steady green**: The module is receiving full power, and a server is configured and booted.
Fault	**Steady amber** indicates one of the following conditions: • Startup has failed. • An internal fault has occurred. • An environmental monitor is reporting a problem.
Status	**Steady green**: The module is operational; the boot process is complete. **Flashing**: The boot process is in progress. **Off**: The module is idle or initializing itself.
Service	**Steady blue**: The module is in “locate” mode. An off-site administrator can place the module in locate mode to help on-site service personnel identify the component for additional service.

Appendix A

Warranty

Zen4 systems are covered by a comprehensive warranty. For detailed information about the standard warranty, contact the Tech Company Sales or Customer Support Team.

Verifying Warranty Status

To verify warranty status, contact Tech Company Customer Support or your Tech Company account representative. You will need the chassis serial number from the label on the back of the Zen4 chassis.

Service Features and Levels

The goal of the Tech Company Customer Support organization is to consistently deliver the highest quality of customer service. We provide these services around-the-clock either directly or through our factory-trained, certified service partners.

You can send your questions through:

- phone
    - A Tech Company Support Engineer will manage your question to conclusion.
- email
- web interface
    - Status tracking is available through this option.

Tech Company offers multiple priority levels for service calls:

Priority 1	high severity	addresses problem immediately
Priority 2	medium severity	addresses problem within 1 hour
Priority 3	low severity	addresses problem within 4 hours

Some service levels include access to an assigned Tech Company Customer Support account engineer. This engineer can help you with installation and upgrade planning and provide progress reviews. An assigned account engineer is the primary point of contact for handling service calls.