extremeEDGE Server™ 2000 Series

Products Overview

The 2000 series brings powerful processing to the extreme edge, enabling remote system monitoring and management via the built-in NANO-BMC (Baseboard Management Controller). This fanless enclosure offers scalability with dense memory and storage configurations.

Control at the extremeEDGE...

The first of its kind, offering NANO-BMC out-of-band management in a small form factor enables remote management of edge devices at the extremeEDGE.

Functionality Overview: Monitor, control, and manage hardware health and performance.

Benefits:

- **Remote access to hardware even when the main system is powered off (useful for troubleshooting).**
- **Increased system uptime and faster problem resolution.**
- **Improved power management and resource utilization.**
- **Remote Management reduces support cost.**

NANO-BMC Features:

Features	Function	Notes
Remote Console Access:	Accessing the system console for diagnostics and troubleshooting	Serial over IP
Remote Power Management:	Power-on/off control, power cycling reset	Hard & soft
Virtual Drive:	Make a local file or directory appear as a Drive on the Remote System	This allows updating the BIOS, installing an OS, or loading files remotely onto the system
Firmware Updates	Updating firmware remotely	n/a

Remote Access Methods:

- **Dedicated BMC management interface.**
- **Integration with system management software.**

Architecture

The 2000 series leverages a range of powerful AMD processors, including the V3C18I, 7840U, and the AMD Pro 8840U.

Features	EE-2000	EE-2100	EE-2200
Processor	AMD / V3C18I	AMD / 7840U	AMD Pro / 8840U
NANO-BMC	Yes	Yes	Yes
Max Memory	96 GB	96 GB	96 GB
Max Storage	16 TB	16 TB	16 TB
Max Drives	2x 2280	2x 2280	2x 2280
Network	2x 2.5GbE, 2x 10GbE SFP+, 1x BMC	2x 2.5GbE, 1x BMC	2x 2.5GbE, 1x BMC
Display Out	Headless	2x Mini-DP	2x Mini-DP
Console Port	Mini-USB	Mini-USB	Mini-USB
PoE+ PD	Optional	Optional	Optional
AI Accelerator Upgradeable	Optional	Optional	Optional

Product Differentiating Features

Built for the Edge: Power and Efficiency in a Compact Design

The 2000 series thrives in edge computing applications where space is limited and on-site processing is crucial. Its compact size brings powerful computing to the edge of your network, while remote monitoring and management capabilities enhance security and simplify control.

Quiet Operation, Lower Costs

This fanless system operates silently and consumes minimal power – up to 28 watts under load, significantly less than a traditional server with a single CPU. This translates to lower energy costs and a reduced environmental footprint.

Flexible Mounting, Scalable Performance

The 2000 series adapts to diverse environments with its DIN rail compatibility, making installation a breeze. Additionally, it supports dense memory and storage configurations, allowing you to tailor the system to your specific data storage and management requirements.

NANO-BMC (Baseboard Management Controller)

The 2000 series redefines remote management with its built-in NANO-BMC module. This module enables secure out-of-band access for monitoring, control, and power management, including remote power cycling, reboots, virtual drive and critical BIOS updates.

Dual mDP Display Support

The EE-2100 and EE-2200 systems are equipped with dual mini-DisplayPort connectors. Powered by the AMD RADEON 780M integrated Graphics processor it allows for extended dual monitor support, up to a resolution of 3840 x 2169 / 4K @ 60 Hz.

Expanded Network Connectivity

The 2000 series enhances connectivity flexibility with SFP+ (Small Form-Factor Pluggable) module support. These modules come in RJ-45 (Copper) or Fiber Optic options, enabling high-speed data transfer up to 10Gbps. This versatility allows the system to adapt to diverse network configurations.

Model	Description	Details
EE-2000	Two-Port 2.5 Gb/s RJ-45 Intel I226-IT	This PCI Express controller with Base-T copper networking interface, provides compact, standard IEEE 802.3 Ethernet interface for 2500BASE-T, 1000BASE-T, 100BASE-TX, 10BASE-TE connections.
EE-2000	Two-Port 10 Gb/s SFP+ Modules (Copper or Fiber Optic)	The 10GEMAC core is designed to the IEEE 802.3-2012 specification and supports the high-bandwidth demands of network Internet Protocol (IP) traffic on LAN, MAN and WAN networks.
EE-2100, EE-2200	Four-Port 2.5 Gb/s RJ-45 Intel I226-IT	This PCI Express controller with Base-T copper networking interface, provides compact, standard IEEE 802.3 Ethernet interface for 2500BASE-T, 1000BASE-T, 100BASE-TX, 10BASE-TE connections.
EE-2000, EE-2100, EE-2200	One-Port 1 Gb/s RJ-45 (BMC)	The BMC feature offers a lower level of remote control and management. Allowing for, remote power on and off, system reset and the ability to push BIOS updates and images to the system.

SFP+ Description

Upgrade Your Network Connectivity with Blazing-Fast Speeds

This dual-port SFP+ module leverages AMD's 10 Gigabit Ethernet Controller (10GEMAC) technology to deliver exceptional performance and scalability for your network.

Key Features:

- **High-Speed Connectivity:** Supports data transfer rates up to 10 gigabits per second (Gbps) per port, enabling significant performance improvements over traditional Gigabit Ethernet connections.
- **SFP+ Interface:** Compatible with SFP+ transceivers (sold separately), providing flexibility for various network cable types (Fiber Optic or Copper) based on your specific needs.
- **Dual-Port Design:** Enables you to connect two separate 10 Gb/s devices, expanding your network bandwidth and facilitating communication between high-performance systems.
- **AMD 10GEMAC Technology:** Built with AMD's 10GE MAC controller, ensuring reliable and efficient data transfer.

Benefits:

- **Ideal for Demanding Applications:** Perfect for applications requiring high-bandwidth data transfer, such as data centers, cloud computing environments, video editing workstations, and more.
- **Future-Proofs Your Network:** Prepares your network for future data transfer needs and supports demanding workloads.
- **Increased Scalability:** Allows you to easily connect multiple high-performance devices to your network.

Note: SFP+ transceivers are required for operation (not included) and should be chosen based on your desired network cable type (fiber optic or copper) and transmission distance.

Dense Expandable Memory & Storage

The 2000 Series allows for a wide range of memory configurations as noted below.

Memory

Feature	Maximum Configurations	Supported Types
Memory	Up To 96 GB	JEDEC Standard LPDDR5 - 5600 MHz / Dual Channel / Non-ECC & EEC
Storage	Up to 16 TB	NVMe / (2x) M.2 SSD / 2280 Form Factor

Note: The second M.2 Slot can be used for extra storage or for an Ai M.2 add-in card.

Storage

The 2000 Series allows for a wide range of storage configurations as noted below.

Interface	Capacity	Configuration	M/2 Slot Primary	M/2 Slot Secondary
PCIe Gen 4	1 TB	NVMe / 2280	✔	NVME SSD or AI
PCIe Gen 4	2 TB	NVMe / 2280	✔	NVME SSD or AI
PCIe Gen 4	4 TB	NVMe / 2280	✔	NVME SSD or AI
PCIe Gen 4	8 TB	NVMe / 2280	✔	NVME SSD or AI

Note: Each system variant comes with one Storage SSD installed. The second M.2 is optional and can be populated with an additional NVMe drive or AI add-in module. Encrypted drive options are also available.

AI Support

The 2000 Series supports the addition of an optional AI module via an M.2 add-in card. This enables real-time, low-power AI functions compared to larger server-class products. Inferencing and neural network inference can be performed using either widely available or custom-coded applications.

Additional Product Protecting

The 2000 series of products can be treated with a “Conformal Coating” at the PCBA level allowing for a lower level of protection against dust, moisture and harsh chemicals intrusion.

System Power Consumption (Runtime)

Model	Watts	Runtime Stimulus
EE-2000	~ 25 Watts	Under CPU load
EE-2100	~ 28 Watts	Under CPU load
EE-2200	~ 28 Watts	Under CPU load

Power Supply

Specification	Specification Limits	Notes
AC Input Range	100 - 240 VAc	50 Hz to 60 Hz
DC Voltage Out	19 VDc	Regulated
Amperage	4.74 Amps	Static
Wattage Out	90 Watts	Maximum
System Connection	2 Pin Phoenix	Keyed Connector w/ Screw Down (Positive Retention)

System Dimensions & Weight

Dimensions	Weight
177.8 mm (L) x 89.0 mm (W) x 39.0 mm (H) 7" (L) x 3.5" (W) x 1.5" (H)	2 Lbs 2 oz / .96Kg (Including PSU)

Certifications

Certifications	Notes
FCC	Federal Communication Commission
CE	Consumer Electronics
ROHS	Restriction Of Hazardous Substances
REACH	Registration / Evaluation / Authorization / Restriction Of Chemicals

Service & Support

Global Support	
Integration Services	Custom Configuration Service - BIOS Settings, Imaging, System Configuration & Labeling
Deployment Services	Field Deployment Management
Support	In-region Technical Support

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