



extremeEDGE Server™ 3000 Series

Product Overview

The 3000 series brings powerful processing to the extreme edge, enabling remote system monitoring and management via the built-in NANO-BMC (Baseboard Management Controller).

The fanless enclosure offers scalability with memory and storage configurations.

These products are powered using a Phoenix Contact style connector with screw posts

Common IO features include USB-A 3.2 as well as Dual 2.5GbE, and Dedicated BMC GbE Ports.

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.

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

BMC 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.

Remote Access Methods:

- Dedicated BMC management interface.
- Integration with system management software.
- In-Band management through OS applications (SSH, Telnet, etc).

Architecture

The 3000 series leverages a range of powerful AMD processors, including the V3C18I, 7840U, and the 8840U.

Features	EE-3000	EE-3100	EE-3200
Processor	AMD Ryzen V3C18I (Zen 3)	AMD Ryzen 7 7840U (Zen 4)	AMD Ryzen 7 8840U (Zen 4)
BMC	NANO-BMC	NANO-BMC	NANO-BMC
Console Port, Mini-USB	USB Chip (FTDI RS232 Controller)	USB Chip (FTDI RS232 Controller)	USB Chip (FTDI RS232 Controller)
TPM (Discrete)	TPM 2.0	TPM 2.0	TPM 2.0
Max Memory	96 GB	96 GB	96 GB
Max Storage	26 TB	26 TB	26 TB
Max Drives	3x 2280, 1x 2242	3x 2280, 1x 2242	3x 2280, 1x 2242
USB	4x USB-A 3.2	4x USB-A 3.2 1x USB-C 4	4x USB-A 3.2 1x USB-C 4
Network	2x 2.5GbE 2x 10GbE SFP+ 1x 1GbE BMC	4x 2.5GbE 1x 1GbE BMC	4x 2.5GbE 1x 1GbE BMC
Wifi-AC + Bluetooth	Optional	Optional	Optional
4G / 5G Modem	Optional	Optional	Optional
POE+ PD	N/A	N/A	N/A
Display Out	Headless	1x HDMI, 1x USB-C (DP)	1x HDMI, 1x USB-C (DP)
Video Chipset	N/A	Radeon 780M 12 Cores 2x 3840x2160@120Hz 1x 7680x4320@60Hz * Hardware Accelerators	Radeon 780M 12 Cores 2x 3840x2160@120Hz 1x 7680x4320@60Hz * Hardware Accelerators
AI Accelerator	Optional Module	32 TOPS + Optional Module	38 TOPS + Optional Module
Operating Temperature Range	Standard: 0°C to 70°C Extended: -40°C to 85°C (Optional)		
Mounting Options	DIN-Rail, 1U Rackmount		

Product Differentiating Features

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

The 3000 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

These fanless systems operate silently and consume minimal power – up to 54 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 3000 series adapts to diverse environments with its DIN rail compatibility, making installation a breeze. Additionally, it supports memory and storage configurations, allowing you to tailor the system to your specific data storage and management requirements.

NANO-BMC (Baseboard Management Controller)

The 3000 series of products redefines remote management with its built-in patent pending NANO-BMC module. This module enables secure out-of-band access for monitoring, control, and power management, including remote power cycling, reboots, virtual drives, and critical BIOS updates.

Display Support

The EE-3100 and EE-3200 systems are equipped with an integrated GPU, the AMD Radeon 780M supporting RDNA3, and provide the following display out connectors;

- (1) HDMI Version 2.1 Connector
- (1) USB-C (USB 4.0) with AltDP 2.1 support

Supported Multi-Display Configurations

The EE-3100 and EE-3200 systems support up to 2 displays in the following arrangements;

- Two 4096 x 2160 @ 120 Hz (4K)
- One 4096 x 2160 @ 2400 Hz (4K)
- One 7680 x 4320 @ 60 Hz (8K) (Untested)

Network Connectivity

All 3000 series systems support 2x RJ-45 2.5GbE for the Host and 1x RJ-45 GbE for the remote management and control through the BMC.

For wireless connectivity, an optional Wireless-AC+BT radio and optional 4G/5G Modem are supported. Two RP-SMA and two SMA antennas complete the support for the wireless network.

Model	Description	Details
EE-3000	2x RJ-45 Ports 2.5 Gb/s Intel i226	These Ethernet controllers support Base-T copper networking interface and provide standard IEEE 802.3 Ethernet interface for 2500BASE-T, 1000BASE-T, 100BASE-TX, and 10BASE-TE connections.
EE-3000	2x SFP+ Ports 10 Gb/s SFP+ Modules (Copper or Fiber)	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-3100	4x RJ-45 Ports 2.5 Gb/s Intel i226	These Ethernet controllers support Base-T copper networking interface and provide standard IEEE 802.3 Ethernet interface for 2500BASE-T, 1000BASE-T, 100BASE-TX, and 10BASE-TE connections.
EE-3200	4x RJ-45 Ports 2.5 Gb/s Intel i226	These Ethernet controllers support Base-T copper networking interface and provide standard IEEE 802.3 Ethernet interface for 2500BASE-T, 1000BASE-T, 100BASE-TX, and 10BASE-TE connections.
All Models	1x RJ-45 Port, 1 Gb/s (BMC)	The BMC feature offers a higher 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.
All Models	Wireless-AC + Bluetooth 5 2230 M.2 E-Key (Optional)	2x RP-SMA antennas (Optional)
All Models	4G / 5G Modem 3042 M.2 B-Key (Optional)	2x SMA antennas (Optional)

SFP+ Description: (EE-3000 only)

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.

SFP+ Key Features: (EE-3000 only)

- **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:** This 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.

SFP+ Benefits: (EE-3000 only)

- **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.

Modem

The 3000 series supports either a 4G (LTE) or 5G modem in a 3042 M.2 B-Key module.

LTE and 5G are supported for locations where Wifi or Wired options are not available, or as a fail-safe backup for those technologies.

Two SIM cards are provided to support two providers as a backup for weak signal locations.

5G is further enhanced with ultra-low latency of up to only ~ 5 ms improving download speed.

Expandable Memory & Storage

The 3000 series allows for a wide range of memory configurations as noted below.

Memory

Feature	Maximum Configurations	Supported Types
Non-ECC	16 GB, 32 GB, 64 GB, or 96 GB	JEDEC Standard DDR5-5600 2x SODIMM / Dual Channel
ECC	32 GB, 64 GB, or 96 GB	JEDEC Standard DDR5-5600 2x ECC SODIMM / Dual Channel

Only the processors for the EE-3000 and EE-3200 support ECC memory.

Storage

The 3000 series allows for a wide range of storage configurations but not limited to what is detailed below:

Interface	Capacity	Configuration
Primary 2280 M.2 M-Key	1 TB, 2 TB, 4 TB, 8 TB, or AI Accelerator	PCIe NVMe Gen 4
Secondary 2280 M.2 M-Key	1 TB, 2 TB, 4 TB, 8 TB, or AI Accelerator	PCIe NVMe Gen 4
Tertiary 2280 M.2 M-Key	1 TB, 2 TB, 4 TB, 8 TB, or AI Accelerator	PCIe NVMe Gen 4

Note: The Primary M.2 device must be pre-installed by Simply NUC. At least one of the three slots must have an SSD for the OS installation. Encrypted drive options are also available. The second/third M.2 Slot can be used for extra storage or for an AI M.2 2280 add-in card.

AI Support

The 3000 Series supports an optional AI Acceleration module via up to two of the three available 2280 M.2 slots. This enables AI Compute Acceleration at a higher performance and lower power, the 2230 Wifi slot can also be used. Inferencing and Neural-Network processing can be performed using widely available AI Accelerators. User coding is required for your application.

The EE-3100 and EE-3200 have native AI acceleration within the processor as shown in the table below:

AI Engine Capabilities	AMD Ryzen 7 7840U (Zen 4)	AMD Ryzen 7 8840U (Zen 4)
AMD Ryzen™ AI (Brand Name)	Available	Available
Performance	Up to 10 TOPS	Up to 16 TOPS
Total Processor Performance	Up to 32 TOPS	Up to 38 TOPS
NPU Performance	Up to 10 TOPS	Up to 16 TOPS

Additional Product Protection

The 3000 series of products can be treated with a “Conformal Coating” at the PCBA level allowing for a higher level of protection against dust, moisture, and harsh chemical intrusion.

System Power Consumption (Runtime)

The 3000 series can be ordered with different max processor operating wattage which allows different passive heatsink cooling solutions. Flat plates (tiles) attached to each side of the unit allow a 15w processor wattage setting, while using 8mm tall heatsinks on each side allows a 30w processor wattage setting, and the tallest 22mm heatsinks on each side allow for a 60w processor wattage setting. This flexibility allows for limiting the height of the unit to meet your requirements.

Model	Watts	Runtime Stimulus
15w Processor Wattage Limit	Up to 25 Watts	Under System of Stress Test
30w Processor Wattage Limit	Up to 40 Watts	Under System of Stress Test
60w Processor Wattage Limit	Up to 70 Watts	Under System of Stress Test

Power Supply

Specification	Specification Limits	Notes
AC Input Range	100 - 240 VAc	50 Hz to 60 Hz
DC Voltage Out	19 VDC	Regulated +/- 5%
Amperage	4.74 Amps	Maximum
Wattage Out	90 Watts	Maximum
System Connection	2 Pin Phoenix	Keyed Connector w/ Screw Down (Positive Retention)

System Dimensions & Weight

Dimensions	Weight
160 mm (L) x 130 mm (W) (6.3" x 5.11") Height depends on processor wattage Tiles (up to 15w) = 29mm (1.14") height Thin Heatsinks (30w) = 45mm (1.77") height Thick Heatsinks (60w) = 73mm (2.87") height	5.0 Lbs / 2.25 Kg

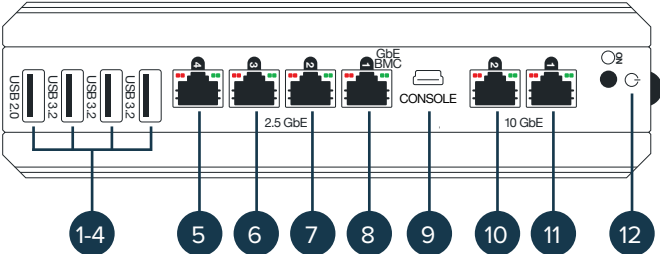
Certifications

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

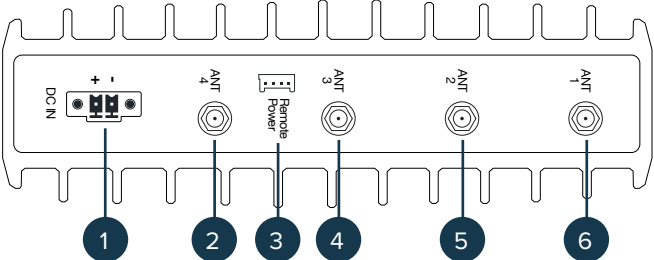
Service & Support

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

Illustrated I/O Port Overview EE-3000

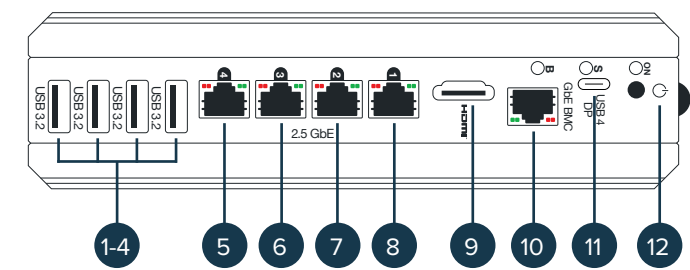


FRONT			
1	USB-A 2.0	7	2.5 GbE
2	USB-A 3.2	8	1 GbE BMC
3	USB-A 3.2	9	BMC CONSOLE
4	USB-A 3.2	10	10 GbE
5	2.5 GbE	11	10 GbE
6	2.5 GbE	12	POWER BUTTON

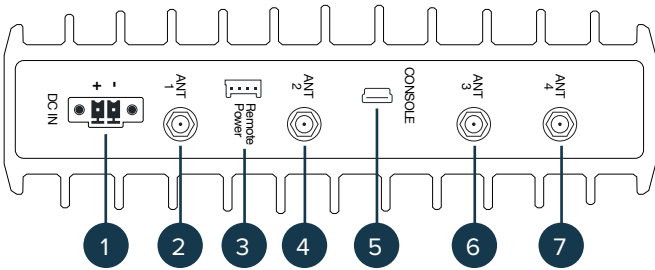


TOP			
1	DC-IN	5	ANTENNA
2	ANTENNA	6	ANTENNA
3	REMOTE POWER		
4	ANTENNA		

Illustrated I/O Port Overview EE-3100

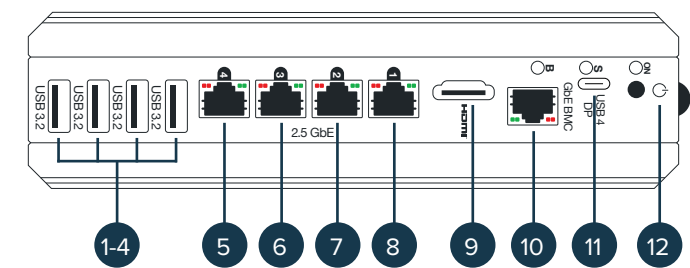


FRONT			
1	USB-A 3.2	7	2.5 GbE
2	USB-A 3.2	8	2.5 GbE
3	USB-A 3.2	9	HDMI™
4	USB-A 3.2	10	GbE BMC
5	2.5 GbE	11	USB-C 4.0 / Alt-DP
6	2.5 GbE	12	POWER BUTTON

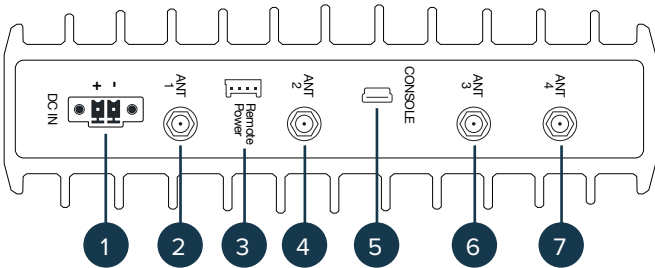


TOP			
1	DC-IN	5	BMC CONSOLE
2	ANTENNA	6	ANTENNA
3	REMOTE POWER	7	ANTENNA
4	ANTENNA		

Illustrated I/O Port Overview EE-3200



FRONT			
1	USB-A 3.2	7	2.5 GbE
2	USB-A 3.2	8	2.5 GbE
3	USB-A 3.2	9	HDMI™
4	USB-A 3.2	10	GbE BMC
5	2.5 GbE	11	USB-C 4.0 / Alt-DP
6	2.5 GbE	12	POWER BUTTON



TOP			
1	DC-IN	5	BMC CONSOLE
2	ANTENNA	6	ANTENNA
3	REMOTE POWER	7	ANTENNA
4	ANTENNA		



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