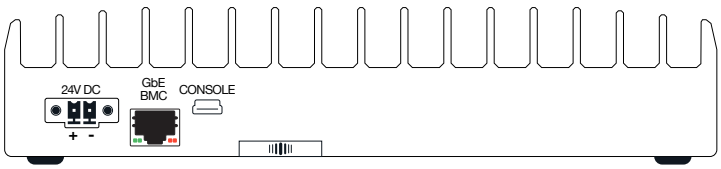
extremeEDGE Server™

# 2000 Series




## Product Overview

The 2000 Series delivers powerful processing right where you need it, at the extreme edge. All models come with a built-in NANO-BMC (Baseboard Management Controller), which enables secure, remote system monitoring and management right out of the box. The EE-2300 expands this functionality with NANO-BMC with KVM, enabling direct remote access to the system's display, keyboard, and mouse for complete lifecycle control.

The series offers flexible power options, accepting standard DC input or, on select models, optional PoE+ (30W) for simplified single-cable installation. Common high-speed I/O features across the series include USB-A 3.2 ports, Dual 2.5GbE for ultra-fast networking, and a Dedicated BMC GbE Port for out-of-band management. Built for scalability in demanding environments, the EE-2000 and 2200 feature a fanless system while the 2300 introduces an active hybrid cooling chassis. All models provide versatile memory and storage configuration options to adapt to a wide range of edge workloads.

The EE-2300 enhances thermal performance with an active hybrid cooling solution while maintaining robust ingress protection. Delivering advanced connectivity, supporting optional Wi-Fi, Bluetooth and high-speed LTE (4G) or 5G with dual-SIM support for reliable, global deployments.

## Remote control in any environment

The first of its kind, offering NANO-BMC out-of-band management in a small form factor enables remote management of edge devices in extreme conditions, worldwide.

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 | Remotely maintain device security and functionality. |

## BMC Benefits:

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

## Remote Access Methods:

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

## Architecture

The 2000 series leverages a range of powerful AMD processors, including the V3C18I, the 8840U, and the AI 9 HX 370.

| Features | EE-2000 | EE-2200 | EE-2300 |
|---|---|---|---|
| Processor | AMD Ryzen V3C18I (Zen 3) | AMD Ryzen 7 8840U (Zen 4) | AMD Ryzen™ AI HX 370 (Zen 5) |
| BMC | NANO-BMC | NANO-BMC | NANO-BMC with KVM |
| Console Port | USB Chip (FTDI RS232) | USB Chip (FTDI RS232) | Mini-USB (FTDI RS232) |
| TPM (Discrete) | TPM 2.0 | TPM 2.0 | TPM 2.0 |
| Max Memory | 96 GB | 96 GB | 128 GB |
| Max Storage | 8 TB | 8 TB | 12 TB |
| Max Drives | 2x 2280 PCIe Gen 4 | 2x 2280 PCIe Gen 4 | 3 × 2280 PCIe Gen 4 |
| USB | 2x USB-A 3.2 | 2x USB-A 3.2 | 2 × USB-A 3.2 |
| Network | 2x 2.5GbE (Intel® i226)<br>2x 10GbE SFP+<br>1x 1GbE BMC | 2x 2.5GbE (Intel® i226)<br>1x 1GbE BMC | 2 × 2.5GbE RJ45 (Intel® i226)<br>2 × 25GbE SFP28 (Intel® E830),<br>1x 1GbE BMC |
| Cooling | Passive | Passive | Active |
| Wifi-AC + Bluetooth | N/A | N/A | Optional |
| 4G / 5G Modem | N/A | N/A | Optional |
| POE+ PD | Optional | Optional | N/A |
| Display Out | Headless | 2x Mini-DP | 2x Mini-DP (4 x 4K displays) |
| Video Chipset | N/A | Radeon 780M, 12 Compute Units<br>2x 3840x2160<br>1x 7680x4320 * | Radeon 890M, 16 Compute Units<br>4x 3840x2160<br>1x 7680x4320 * |
| NPU | N/A | 16 TOPS | 50 TOPS |
| AI Processing | Optional Modules | 38 TOPS + Optional Modules | 80 TOPS + Optional Modules |
| Operating Temperature | –40°C to 60°C | | |
| Mounting (Optional) | DIN-Rail, 1U Rack Mount | | |

* Untested feature

## 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 when compared to 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 memory and storage configurations, allowing you to tailor the system to your specific data storage and management requirements. The EE-2300 adds optional Wireless and 4G/5G connectivity.

## NANO-BMC (Baseboard Management Controller)

The 2000 series redefines small-form-factor 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.

NANO-BMC with KVM: Now featured in the EE-2300, delivering full keyboard-video-mouse (KVM) control on top of the core NANO-BMC technology. This allows administrators to view the system's display output, interact with the OS or BIOS, and perform remote troubleshooting and recovery. Delivering true "hands-on" control as if technicians were on-site.

## Display Support

The EE-2200, EE-2300 systems are equipped with an integrated GPU, and supports up to 4 x 4k displays via 2 x Mini DisplayPort (mDP)

## SFP+ Key Features

- **High-Speed Connectivity: Supports data transfer rates up to 10 Gigabits per second (Gb/s) per port on the EE-2000 and up to 25 Gb/s on the EE-2300, 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 or 25 Gb/s devices, expanding your network bandwidth and facilitating communication between high-performance systems.**

## SFP+ 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-Proof 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.

## Expandable Memory

The EE-2000 supports ECC or Non-ECC, while the EE-2200 and EE-2300 support Non-ECC memory only.

## Memory

| Feature | Maximum Configurations | Supported Types |
|---|---|---|
| Non-ECC | 16 GB, 32 GB, 64GB, 96 GB, or 128GB (EE-2300) | DDR5-4800 2x SODIMM / Dual Channel |
| ECC | 32 GB, 64 GB, or 96 GB | DDR5-4800 2x ECC SODIMM / Dual Channel |

## Wireless and 4G/5G Support

The EE-2300 provides support for a 2230 Key-E M.2 for Wi-Fi + BT as well as supporting a 3042 or 3052 Key-B M.2 for an LTE (4G) or 5G modem. Two SIM sockets are provided for backup network connectivity.

## AI Support

The EE-2000 and EE-2200 support an optional AI Acceleration module, while the EE-2300 supports up to two optional AI Acceleration modules. This enables AI Compute Acceleration at a higher performance and lower power.

The EE-2200 & EE-2300 have native AI acceleration within the processor as shown in the table below:

| AI Engine Capabilities | EE-2200 | EE-2300 |
|---|---|---|
| NPU Performance | Up to 16 TOPS | 50 TOPS |
| Platform Performance | Up to 38 TOPS plus AI Accelerator | 80 TOPS plus AI Accelerator(s) |

## Additional Product Protection

The 2000 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. Contact salesman for volume orders

## Model with Power Consumption (Runtime)

The 2000 series can be ordered with different max processor operating wattage based on passive or active cooling. The unit can be ordered with either passive cooling, or the “T” version is for active cooling in a 1U height, half width server sled. The 1U Server Cabinet accepts two sleds. The EE-2300 is available in an Active Cooled, higher-wattage version.

| Model | Watts |
|---|---|
| EE-2000 / EE-2000T / EE-2002 | Up to 25 Watts |
| EE-2200 / EE-2200T / EE-2202 | Up to 28 Watts |
| EE-2300 (Active Cooling) | Up To 48 Watts |

## System Dimensions & Weight

| Dimensions | Weight |
|---|---|
| 177.8 mm (W) x 88.9 mm (L) x 38.1 mm (H)<br>7" (W) x 3.5" (L) x 1.5" (H) | Base unit \| ~2.125 Lbs / 0.96Kg<br>Final weight based on configuration |

Note: Weight depends on configuration

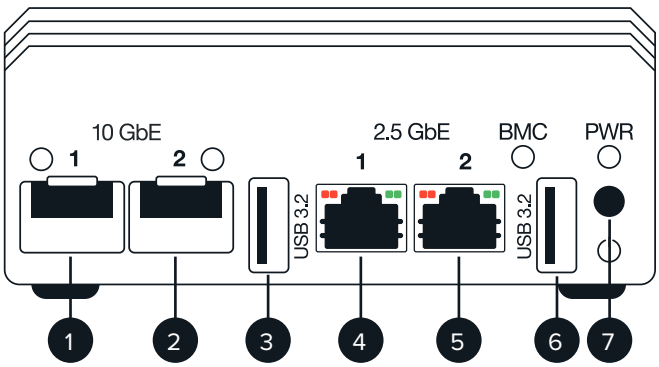
## Certifications

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

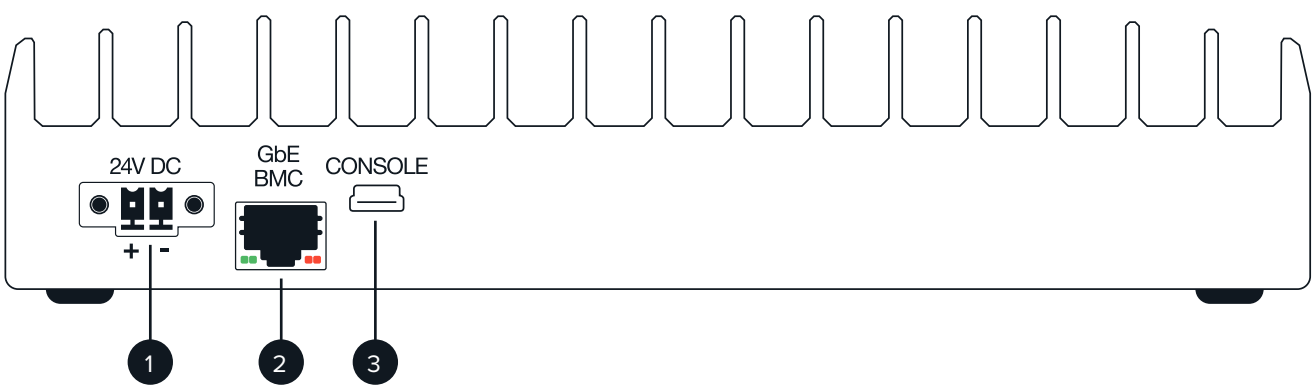
## Service & Support

| 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-2000

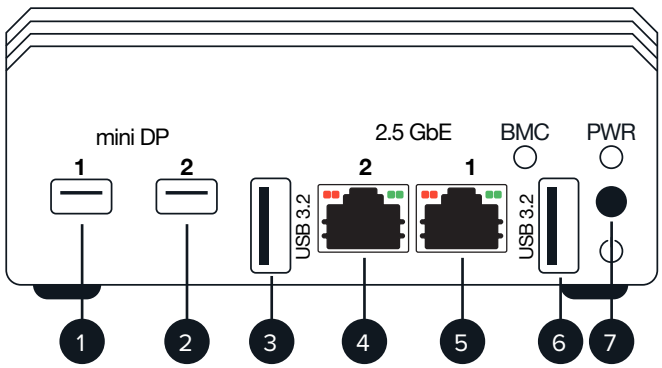



| FRONT | | | |
|---|---|---|---|
| 1 | 10GbE SFP+ | 5 | 2.5 GbE |
| 2 | 10GbE SFP+ | 6 | USB-A 3.2 |
| 3 | USB-A 3.2 | 7 | POWER BUTTON |
| 4 | 2.5 GbE | | |

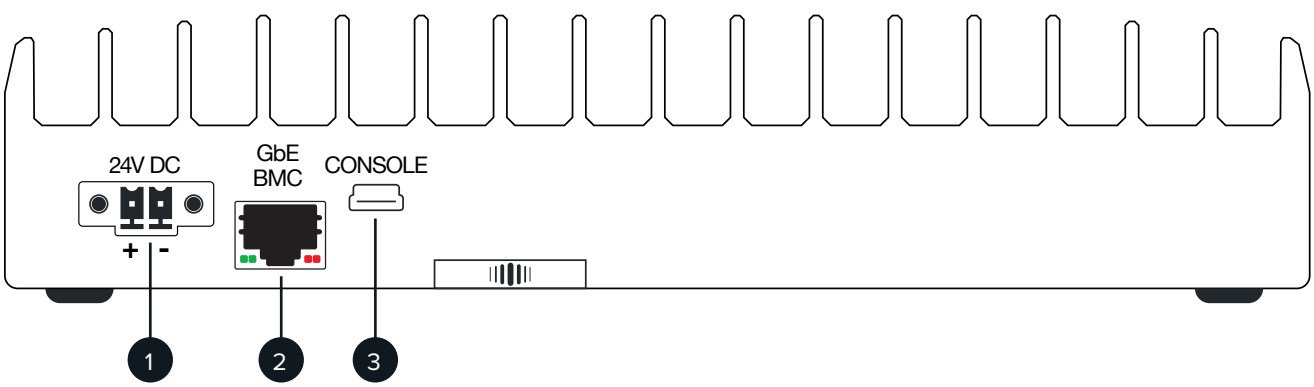



| RIGHT | |
|---|---|
| 1 | 24V DC |
| 2 | GbE BMC |
| 3 | BMC CONSOLE |

## **Illustrated I/O Port Overview** EE-2200

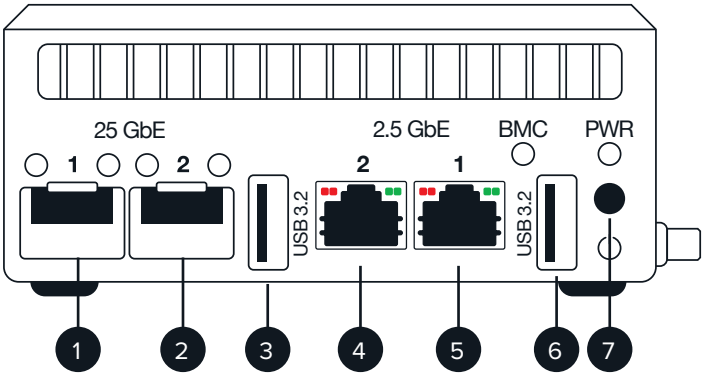



| FRONT | | | |
|---|---|---|---|
| 1 | MINI-DP | 5 | 2.5 GbE |
| 2 | MINI-DP | 6 | USB-A 3.2 |
| 3 | USB-A 3.2 | 7 | POWER BUTTON |
| 4 | 2.5 GbE | | |

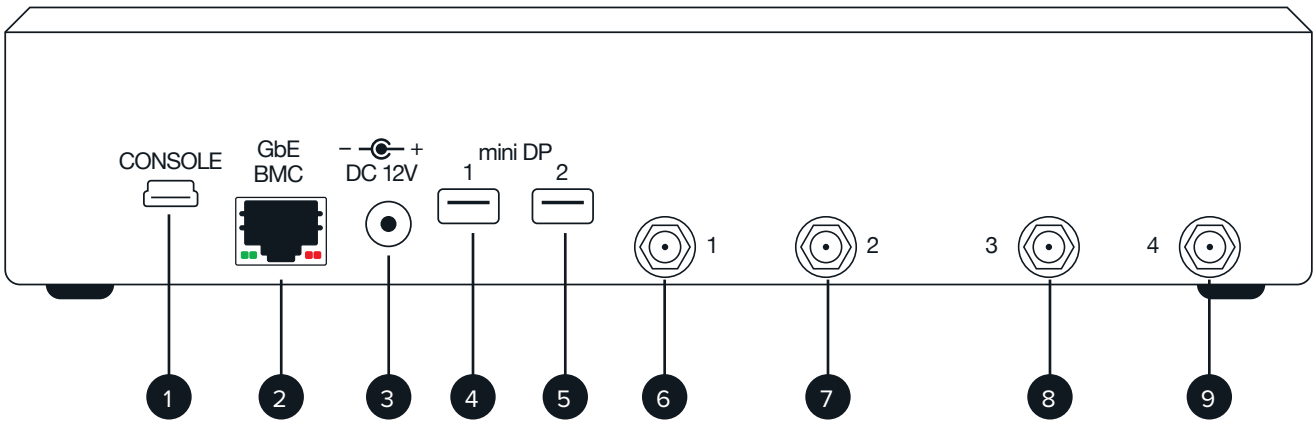



| RIGHT | |
|---|---|
| 1 | 24V DC |
| 2 | GbE BMC |
| 3 | BMC CONSOLE |

## **Illustrated I/O Port Overview** EE-2300




| FRONT | | | |
|---|---|---|---|
| 1 | 25GbE SFP28 | 5 | 2.5 GbE |
| 2 | 25GbE SFP28 | 6 | USB-A 3.2 |
| 3 | USB-A 3.2 | 7 | POWER BUTTON |
| 4 | 2.5 GbE | | |




| FRONT | | | | | |
|---|---|---|---|---|---|
| 1 | BMC CONSOLE | 4 | Mini-DP | 7 | LTE ANTENNA |
| 2 | GbE BMC | 5 | Mini-DP | 8 | WI-FI ANTENNA (OPTIONAL) |
| 3 | 12V DC | 6 | WI-FI ANTENNA | 9 | LTE ANTENNA (OPTIONAL) |

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