DATASHEET

ExpressBox 4400

Part Number: OSS-EB4400

FEATURES

- PCIe Gen 4 architecture
- Small, rugged frame design
- Dynamic fan speed control
- Configurable slot and host uplinks to optimize throughput
- Integrated IPMI based system monitoring
- AC and DC power inlet options

The EB4400 provides PCIe Gen 4 configurable expansion for ruggedized, transportable AI applications at twice the performance of the previous generation PCIe Gen 3. The appliance supports up to 4 NVIDIA A100 PCIe GPUs which deliver 2.5x FP64 performance compared to the NVIDIA V100, with two PCIe Gen 4 x16 HBA/NIC slots for up to 128GB/s of sustained data throughput. Alternatively, the EB4400 can be configured to provide 8 single-width PCIe Gen 4 x8 slots for FPGA data ingest or the latest storage add-in cards. Additional features including dynamic fan speed control, IPMI based system monitoring, replaceable fan filters, and optional SmartNIC host configuration elevate the EB4400 to the ideal expansion platform for the entire AI workflow.

The EB4400 combines a small, rugged form factor with the latest PCIe Gen 4 add-in cards and features to meet the needs of any airborne, naval, or ground based transportable AI application.

APPLICATION EXAMPLES

EB4400 as a GPU Compute Accelerator

- OSS-538, 5-slot PCIe Gen4 x16, supporting 4 dual-width GPU
- 2x PCIe4 x16 Host-to-Target uplinks (128 GB/s)

EB4400 as a Flash Storage Array

- OSS-521, 8-slot PCIe Gen4
- 8x OSS-PCIe4-ADPT-x8-M.2-2 for 16x hot-swappable PCIe Gen4 M.2/E1.S drives
- PCIe4 x16 Host-to-Target uplinks (32 GB/s)

EB4400 as an FPGA Sensor Array

- OSS-521, 8-slot PCIe Gen4, supporting 7 PCIe Gen4 x8 FPGA sensor add-in cards
- 2x PCIe4 x16 Host-to-Target uplinks (64 GB/s)

SPECIFICATIONS

System	4U Custom Form Factor (10.7” x 7.0” x 18.5”)
Host Options	1x PCIe4 x16 Host-to-Target uplink (32 GB/s) 2x PCIe4 x16 Host-to-Target uplinks (64 GB/s) SmartNIC Host
Backplane Options	**OSS-538:** • 1x single-width PCIe 4.0 x16 FHFL upstream slot • 4x dual-width PCIe 4.0 x16 FHFL downstream slots **OSS-521:** • 1x single-width PCIe 4.0 x16 FHFL upstream slot • 6x single-width PCIe 4.0 x16 FHFL downstream slots • 1x dual-width PCIe 4.0 x16 FHFL downstream slot

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SPECIFICATIONS CONTINUED

Additional Slot Options	**Standard** • Modifies one dual-width PCIe 4.0 x16 FHFL downstream slot to two single-width PCIe 4.0 x16 FHFL downstream slots per backplane **Riser** • Adds an additional single-width PCIe 4.0 FHFL downstream slot per backplane
Environmental Specifications	**Temperature:** Operating temp -10 ° to 50 °C* ambient. Short-term (30 mins) operating temp –5°C to 40°C ambient. Storage temp –40°C to 85°C. **Operational Humidity:** Operating humidity 5-95% (non-condensing) Storage humidity 0-95% (non-condensing) **Operational altitude:** Operating altitude 6000 ft. at operating temp, 15,000ft. at derated temp. Storage altitude 40,000 ft. **Fans:** 2x 180CFM 92mm fans Default PWM controlled based on built-in temperature sensors Optional IPMI system monitoring and control
Power Options	Single/Dual AC 2600W Single/Dual AC 1600W
System Monitoring	**Default** – automatic dynamic temperature-based fan speed control **Optional** – IPMI system monitoring with power, temperature, and fan speed control and monitoring
Fan Filters	Optional Quadrafoam 45 PPI Replaceable Fan Filters
PCIe 4.0 Cable Lengths	1m 2m 3m
Power Cords	6’ US 110V C19 6’ US 240V C19 6’ US 240V C14 6’ UK 2’ IEC
Agency Compliance	Agency Certifications: TUV-GS (EN60950-1 /IEC60950-1,EK1-ITB2000) Agency Certifications (testing pending): FCC Class A CE Safety & Emissions UL, cUL RoHS3

*These temperature ranges may require GPU/CPU throttling.

DATASHEET

PCIe 4.0 2U Expansion Optimized Server

Part Number: OSS-EOS-2U-4a

FEATURES

- AMD EPYC™ 7002 Series (Rome) Processor
- Options for 7x add-in cards or 24x U.2/U.3 drives
- Up to six x16 PCIe 4.0 HH slots
- Supports OSS 256Gb/s PCIe 4.0 expansion
- Dual 1+1 redundant universal AC input power supplies
- Resource expanded BIOS for large expansion capability
- Guaranteed to operate with all OSS expansion products

The EOS-2U-4a contains an AMD EPYC™ 7002 Series Processor and provides the widest BIOS compatibility with dense storage and accelerator expansion systems. This allows the highly integrated server to stand alone or form the core CPU and memory resources for a scale-out, rack level, expandable solution. The EOS-2U-4a features six PCIe 4.0 x16 half-height slots and 1 PCIe 3.0 x16 half height slot. The EOS-2U-4a provides options for 7x add-in cards or 24x U.2 or U.3 drives. The server supports up to 2TB of memory and a resource expanded BIOS for scale-out device enumeration and large memory mapped I/O used for GP-GPUs and accelerators.

SPECIFICATIONS

Dimensions	3.45” H x 17.2” (19” with rack ears) W x 28” D (8.7 x 43.7 x 71 cm)
CPUs	AMD EPYC™ 7002 Series (Rome) Processor up to 225W TDP LGA 4094 single socket SP3
System Memory	8x DDR4 3200/2933/2666/2400 R DIMM slots (Modules Up to 64GB Supported) LR DIMM (Modules up to 256GB Supported) 8 Memory Channels, 1.2V low profile DIMMs
Expansion Slots	EOS configuration: o 5 x PCIe 4.0 x16 HHFL slots o 1 x PCIe 4.0 x16 HHFL slot or 2x M.2 (2230/2242/2260/2280) + 2x miniSAS-HD + 2x Oculink by jumper o 1 x PCIe 3.0 x16 HHFL slot NVMe configuration: o 2 x PCIe 4.0 x16 HHFL slots available with 48 PCIe 3.0 lanes routed to NVMe drives o 1 x PCIe 4.0 x16 HHFL slot or 2x M.2 (2230/2242/2260/2280) + 2x miniSAS-HD + 2x Oculink by jumper o 1 x PCIe 3.0 x16 HHFL slot
Storage Subsystem	EOS configuration: o 24x hot-swap configurable SATA-3, SAS-3 or NVMe x4 2.5” x 15mm drive carriers o 12Gb SAS-3, 6Gb SATA-3 SFF-8680, NVMe x4 32Gb slots o Up to 8 SATA-3 slots use no PCIe slots o 12x and 24x SATA/SAS slots require 1 and 2 PCIe x16 HHHL slots respectively o 8x and 16x NVMe x2 slots require 1 and 2 x16 PCIe HHHL slots respectively (for 24x NVMe x4 use NVMe config) o Further expansion up to 4PB possible using OSS JBOF expansion systems o 2x M.2 x4 and 4x NVMe internal drive connections possible with jumper option NVMe configuration: o 24x hot-swap NVMe x4 2.5” x 15mm drive carriers o Up to 8 NVMe drive bays can be SATA-3 configured o 1x M.2 x4 internal drive connections possible with jumper option
USB	4 USB 3.1 Gen 1 (2 from Rear I/O, 2 via Header) 3 USB 3.1 Gen 2 (1 from Type C, 2 via Header)
Ethernet	2x RJ45 10GBASE-T LAN from Intel® X550-AT2 1 x RJ45 Dedicated IPMI LAN port from RTL8211E

Part Number: OSS-EOS-2U-4a

SPECIFICATIONS CONTINUED

BIOS	32 MB AMI UEFI BIOS Supports PnP, PCI 4.0, ACPI 2.0 Wake, SMBIOS 2.8 support, Instant Flash 1TB BAR1 max size and 256 PCI bus enumeration expansion support
Cooling Fans	Four 80mm x 38mm PWM hot-swap Cooling fans
Chassis	Rugged steel enclosure Liquid paint with customizable front bezel
Weight	33-48lbs (15-22 kg)
Power Supply	1000W 90-264VAC, 47-63Hz Input: o 1+1 Redundant 80plus Silver efficiency with Active PFC, PM Bus and Over Voltage Protection o 15A input current at 115VAC and 7.5A at 230VAC each module o 15A @ 115VAC and 30A @ 230VAC max inrush current each module o EPS 12V Output type with 22A at+5V, 83A at +12V, 0.5A at -12V, 22A at+3.3V and 3A at +5V Standby
Environment	Operating: o 5°C to 35°C (41°F to 95°F) at 0 to 915m (3,000ft) altitude o 5% to 90% non-condensing relative humidity, max dew point 21°C, max rate of change 5°C/hr Non-Operating: o -20°C to 60°C (-40°F to 140°F) o 5% to 90% non-condensing relative humidity, max dew point 27°C, max rate of change 5°C/hr
Agency	Tested to conform to the following standards: o FCC - Verified to comply with Part 15 of the FCC Rules, Class A o Canada ICES-003, issue 4, Class A o CE Mark (EN55022 Class A, EN55024, EN61000-3-2, EN61000-3-3) o CISPR 22, Class A Designed to conform to the following extended standards: o NOM-019 o Argentina IEC60950-1 o Japan VCCI, Class A o Australia/New Zealand AS/NZS CISPR 22, Class A o China CCC (GB4943), GB9254 Class A, GB17625.1 o Taiwan BSMI CNS13438, Class A; CNS14336-1 o Korea KN22, Class A; KN24 o Russia/GOST ME01, IEC-60950-1, GOST R 51318.22, GOST R 51318.24, GOST R 51317.3.2, o GOST R 51317.3.3 o TUV-GS (EN60950-1 /IEC60950-1,EK1-ITB2000)
Compliance	RoHS 6 of 6, WEEE