4UV Expansion Accelerator

Part Number: OSS-PCIe3-4UV/OSS-PCIe4-4UV

FEATURES

- PCIe 3.1 or 4.0 Expansion
- 4U Rackmount Design
- 10 PCIe x16 Expansion Slot option
- 16 PCIe x8 Expansion Slot option
- Up to two PCIe 3.0 or 4.0 x16 Host Connections
- PCIe Copper or Optical Cables (up to 100-Meters)
- Tach and PWM Fan Options
- Two 2000W Load-Sharing Power Supplies
- Eight EPS 12V PCIe Power Connectors

This rackmount expansion chassis provides up to 16-Slot expansion capabilities at a value price for use with high-performance GPUs, NVMe drives, instrumentation or industrial I/O . With 2 backplane options to choose from in both PCIe Gen3 and Gen4 this flexible system fits mainstream applications in Scale-out Compute Acceleration, Storage, Data Acquisition and Instrumentation used in AI workloads. In its minimum configuration, the 4UV is populated with one 8-slot PCIe Gen3 backplane with one PCIe Gen3 128Gbps uplink to provide 8 single-width data acquisition or control FPGAs with a single PCIe Gen3 connection to the host server. In the maximum configuration two 5-slot PCIe Gen4 backplanes with two host uplinks can provide 512Gbps of bandwidth to up to 8 of the world's fastest Gen4 PCIe GPUs for AI training and large scale inference. The benefits of expansion accelerators include traffic isolation, large scale-out system architecture, cooling high powered add-in boards and location of I/O and acceleration in physically distant locations using copper cables up to 3 meters or fiber cables up to 100 meters away from the host system.

With options for static or dynamic cooling, users have the choice to control fan-speeds for optimal high-power cooling. Each 4UV chassis is equipped with two 2000W power supplies which provide 2000W of redundant or 4000W of non-redundant power to to-days most demanding add-in cards.

Application Examples

4U Value as a GPU Compute Accelerator
- o Dual OSS-457 Gen3 or OSS-522 Gen4, 10-slot PCIe x16, supporting 8 dual-width GPUs
- o 2x PCIe x16 HIB-68 Gen3 or HIB616 Gen4 Host-to-Target uplinks (up to 512Gbps)

4U Value as a Flash Storage Array
- o Dual OSS-452 Gen 3 or OSS-521 Gen4, 16-slot PCIe x16 physical (x8 electrical) single width slots
- o 16x OSS-PCIe4-SDPT-x8-M.2-2 for 32x hot-swappable PCIe Gen4 M.2/E1.S drives
- o 2x PCIe x16 HIB-68 Gen3 or HIB616 Gen4 Host-to-Target uplinks (up to 512Gbps)

4U Value as a FPGA Sensor Array
- o Dual OSS-452 Gen3 or OSS-521 Gen4, 16-slot PCIe x16 physical (x8 electrical) single width slots
- o 16 PCIe Gen3/4 x8 or x16 FPGA sensor add-in cards
- o 2x PCIe x16 HHIB-68 Gen3 or HIB616 Gen4 ost-to-Target uplinks (up to 512Gbps)
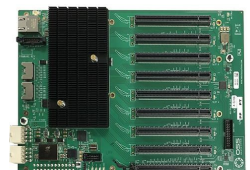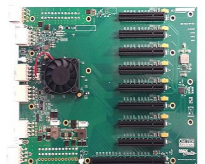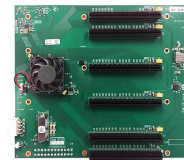
4U Value as a Converged AI Compute, Storage Sensor, Network Scalable Platform
- o Mix and match Gen3 and Gen4 backplanes of 5 or 8 slots to create a system that works for your application
- o 4x PCIe Gen4 dual-width compute accelerator GPUs
- o 4x PCIe4-ADPT x8-M.2-2 for 8x hot-swappable PCIe Gen4 M.2/E1.S drives
- o 3x single-width PCIe Gen4 x8 FPGA sensor add-in cards
- o 2x Host-to-Target HIB-68 Gen3 or HIB616 Gen4 uplinks (up to 512Gbps)
- o 2x 200Gb Ethernet or IB Network Interface Cards (NICs)

System

SPECIFICATIONS

Enclosure	Dimensions: 19"W x 18.5"D x 7"H (4U)

Host/Target Interface	Two PCIe x16 Host/Target Adapter Cards for Expansion-to-Host Uplink
	Host/Target Interface Boards:
	  o Form Factor: Half-Height/Half-Length, Single-Slot PCIe x16 Add-in-Card
	  o Card-Edge Connector: PCIe x16 Physical and Electrical
	  o Cable Connector: PCIe Cable Specification 3.0 x16
	     o Option 1: HIB68 Interface Board
	        o PCIe 3.0 x16, 128 Gbps using Broadcom PEX 8733 33-lane switch
	        o Four SFF-8644 x4 Connectors for x16 cable link
	        o Accepts mini-SAS HD with CMI copper or fiber optic cables
	     o Option 2: HIB616 Interface Board
	        o PCIe 4.0 x16, 256 Gbps using Broadcom PEX 88032 34-lane switch
	        o Four SFF-8644 Connectors for x16 cable link
	        o Accepts Mini-SAS HD with CMI copper cables up to 3M

	Switch: Broadcom Switches; Includes:
	  o Fast Cut-Through (132ns Gen3 or 105ns Gen4 Latency)
	  o SSC Isolation
	  o Non-Blocking Switch Fabric
	  o Maximum Server-Compatibility Design
	  o Integrated 4-channel (Gen3) or 16-channel (Gen4) DMA Engine
	Average Power Consumption: 6.4W (Gen3) or 13.2W (Gen4) Typical

PCIe Backplanes	**OSS-457**
	  o One PCIe 3.0 x16 Cable-Target Interface Slot
	  o Three PCIe 3.0 x16 Double-Width Slots
	  o Two PCIe 3.0 x16 Single-Width Slots
	
	OSS-452
	  o One PCIe 3.0 x16 Cable-Target Interface Slot
	  o Eight PCIe 3.0 x8 Single-Width Slots
	  o Open back connectors accept up to x16 physical add-in boards
	
	OSS-522
	  o One PCIe 4.0 x16 Cable-Target Interface Slot
	  o Three PCIe 4.0 x16 Double-Width Slots
	  o Two PCIe 4.0 x16 Single-Width Slots
	
	OSS-521
	  o One PCIe 4.0 x16 Cable-Target Interface Slot
	  o Eight PCIe 4.0 x16 Single-Width Slots
	  o The eight x16 downstream slots are x8 electrically

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SPECIFICATIONS CONTINUE

Cables	HIB68 Interface Board Option (Requires 4 Cables per x16 Host-Uplink)
	   o 1, 2 or 3 Meter Mini-SAS HD x4 CMI Cables
	   o Optical cables available up to 100 Meters (call for pricing)
	
	HIB616 Interface Board Option (Includes 4 Cable per Host-Uplink)
	   o 1, 2 or 3 Meter Mini-SAS HD x4 Cables

Cooling	Three High-Power Fans, Mounted to Front Bezel of the Chassis
	   o Dimensions: 120mm x 38mm
	   o Speed: 250CFM
	   o Use: Cools Multi-GPU, FPGA or add-in card applications up to 4000W at 25°C or 3000W at 35°C
	   o Monitoring: Tachometer Monitoring via Front-Panel LED
	   o Optional: Fan Speed Controller *(not included in standard price)*

Power	Dual Load-Sharing Power Supplies, Pluggable from the Rear of the Chassis
	Two 2000W 80Plus Titanium Efficiency Power Supplies with Dual IEC C14 AC Input Connectors
	   o Output Power (per PSU)
	      o 1000W: 100-127Vac / 12.5-9.5A / 50-60 Hz
	      o 1800W: 200-220Vac / 10-9.5A / 50-60 Hz
	      o 1980W: 220-230Vac / 10-9.8A / 50-60 Hz
	      o 2000W: 230-240Vac / 10-9.8A / 50-60 Hz
	   o Total Power to the System: 4000W Non-Redundant
	   o Redundancy: Hot-Swappable when Total System Power Requirements are Under 2000W
	   o Aux Power: 8 EPS12V AUX Power Connectors Available for High-Power Cards

Operating Environment	0-35°C 10-90% relative humidity 0-10,000 feet above sea level
Storage Environment	-40 to 85°C 5-96% relative humidity 0-50,000 feet above sea level

Agency Compliance	Agency Certifications:
	   o FCC Class A
	   o CE Safety & Emissions
	   o UL, cUL
	   o RoHS3

Part Number Options (call for more options)	OSS-PCIe3-4UV-10-2-1M-HIB68 10 slots with 2x OSS-457 backplanes, 2x HIB68 host Connections, 8x 1M cables OSS-PCIe3-4UV-10-2-2M-HIB68 10 slots with 2x OSS-457 backplanes, 2x HIB68 host Connections, 8x 2M cables OSS-PCIe3-4UV-10-2-3M-HIB68 10 slots with 2x OSS-457 backplanes, 2x HIB68 host Connections, 8x 3M cables OSS-PCIe3-4UV-16-2-1M-HIB68 16 slots with 2x OSS-452 backplanes, 2x HIB68 host Connections, 8x 1M cables OSS-PCIe3-4UV-16-2-2M-HIB68 16 slots with 2x OSS-452 backplanes, 2x HIB68 host Connections, 8x 2M cables OSS-PCIe3-4UV-16-2-3M-HIB68 16 slots with 2x OSS-452 backplanes, 2x HIB68 host Connections, 8x 3M cables OSS-PCIe3-4UV-5-1-1M-HIB68 5 slots with 1x OSS-457 backplane, 1x HIB68 host Connection, 4x 1M cables OSS-PCIe3-4UV-5-1-2M-HIB68 5 slots with 1x OSS-457 backplane, 1x HIB68 host Connection, 4x 2M cables OSS-PCIe3-4UV-5-1-3M-HIB68 5 slots with 1x OSS-457 backplane, 1x HIB68 host Connection, 4x 3M cables OSS-PCIe3-4UV-8-1-1M-HIB68 8 slots with 1x OSS-452 backplane, 1x HIB68 host Connection, 4x 1M cables OSS-PCIe3-4UV-16-2-1M-HIB616 16 slots with 2x OSS-452 backplanes, 1x HIB616 host Connection, 4x 1M cables OSS-PCIe4-4UV-10-2-1M-HIB616 10 slots with 2x OSS-522 backplanes, 2x HIB616 host Connections, 8x 1M cables OSS-PCIe4-4UV-10-2-2M-HIB616 10 slots with 2x OSS-522 backplanes, 2x HIB616 host Connections, 8x 2M cables OSS-PCIe4-4UV-10-2-3M-HIB616 10 slots with 2x OSS-522 backplanes, 2x HIB616 host Connections, 8x 3M cables OSS-PCIe4-4UV-16-2-1M-HIB616 16 slots with 2x OSS-521 backplanes, 2x HIB616 host Connections, 8x 1M cables OSS-PCIe4-4UV-16-2-2M-HIB616 16 slots with 2x OSS-521 backplanes, 2x HIB616 host Connections, 8x 2M cables OSS-PCIe4-4UV-8-1-1M-HIB616 8 slots with 1x OSS-521 backplane, 1x HIB616 host Connection, 4x 1M cables OSS-PCIe4-4UV-5-1-1M-HIB616 5 slots with 1x OSS-522 backplane, 1x HIB616 host Connection, 4x 1M cables