3U Compute Accelerator with Intel Xeon Phi Coprocessors

The CA16001 Compute Accelerator with sixteen Intel Xeon Phi Coprocessors is employed in a variety of HPC applications including oil and gas exploration and financial services. Completely integrated with the Coprocessors most suited for a specific application, it's easy installation and tested reliability makes it superior to alternative products. The CA16001 occupies only 3U of rack space and connects directly to one or four host server(s) through the latest technology PCIe x16 Gen3 connections. Four removable canisters house up to four full-height, full-length, PCIe x16 double-wide Coprocessors each. The system is powered by three 3000-watt redundant power supplies and includes an IPMI-based system monitor.

PN: OSS-PCIe3-3U-16-4

Features

- 3U High
- Four removable canisters with four Coprocessors each
- Fully IPMI v2.0-compliant system monitoring capability
- Three 3000-watt power supplies
- Superior cooling with four temperature controlled fans
- Up to four PCIe x16 Gen3 cable connections to host server(s)

Specifications

Enclosure	• Dimensions: 17″W x 5.25″ H x 38″D • Supports 16 full-length, full-height, 2-slot PCIe x16 GPU/PHIs • All 16 boards face the rear of the chassis (no IO bracket access) • Removable front bezel with air filter • Front panel LEDs • Four rear panel PCIe x16 Gen3 cable interfaces • 4 individually-removable rear fans and 4 canister mounted fans • Weight: 92lbs when fully loaded with 16 accelerators
Main Backplane	• Four PCIe x16 cable inputs to rear of enclosure • Four PCIe x16 high-density connectors to each canister • 1x PLX PEX 8796 and 2 x PLX PEX 8749 PCIe 3.0 switches manage PCIe cross connects from cables to canisters • 2x RJ45 connectors for IPMI v2.0 System Monitor • 1x Micro DB-9 serial port for IPMI network configuration • Optional RJ45 for basic SYSMON2 chassis monitor (not required when using IPMI System Monitor) • Supports bus-bar power distribution to the canisters through 8 high-power bladed connectors (2 per canister) • On board IPMI System Monitor & SYSMON2 connectors
Canister Backplane	• 4x PCIe 3.0 x16 double-spaced slots in 2 ranks of 2 GPUs each • 4x 8-Pin 12V power connectors for GPU/PHI AUX power cables • PLX PEX 8796 PCIe 3.0 switch
Power	• 6000W redundant power subsystem • Three 3U 3,000-watt front removable, hot-swap supplies • Each supply measures 1U (1.65″) x 2.7″ x 28.5″ • 2+1 redundant with full current sharing operation • 3,000W each at 208-277VAC, 15A max input • 1,500W each at 90-124VAC, 15A max input • 15A breaker and IEC C19power input at rear for each supply • +12V and +12V standby voltage outputs • All +12V power rails shared on copper bus bar delivery system

Power Cords	• 110V power cord for PDUs and Wall receptacles o OSS Part number: OSS-CBL-PWR-5-15-C13-15A-6 o NEMA 5-15 to IEC C13, Straight, 14AWG, 15A, 6' • 240V power cord for PDUs o OSS Part number: OSS-CBL-PWR-C14-C13-15A-6 o IEC C14 to IEC C13, Straight, 14AWG, 15A, 6' • 240V power cord for US Wall receptacles o OSS Part number: OSS-CBL-PWR-6-15-C13-15A-6 o NEMA 6-15 to IEC C13, Straight, 14AWG, 15A, 6'
System monitoring/alarming	Fully IPMI v2.0 compliant monitoring, control & alarming system Temperature • Monitors inlet & exhaust temps • Fan speed auto adjusts by temp • Alarm set-points for over temp Fans • Monitors all system fan tachs • PWM fan speed control • Alarms for slow or failed fans Power • Monitors supply telemetry • Monitors output voltage rails • Alarms for voltages out of range • Alarms for supply failure Add-in Cards • Monitors add-in card I2C SM bus • Alarms for abnormal card telemetry Interface • CLI or web GUI • Supports SNMP and RCMP • Remote chassis and canister LED tagging
Air Filter	• 30 ppi open cell polyfoam • Die-cut, removable and replaceable
Cooling	• Four 80 x 80 x 38mm fans on the rear of the enclosure • One 80 x 80 x 38mm fan on the front of each canister • All fans are 141CFM each in push-pull configuration • All fans PWM monitored and speed controlled by the IPMI system monitor • Rear fans hot-swap from rear of the chassis • Power supplies separately cooled from internal 40mm fans
Operating Environment	• Temperature range: • Operating: 10°—35°C • Storage: -40°—85°C • Humidity range: • Operating: 20% to 80% relative (non-condensing) • Non-operating: 5% to 95% relative (non-condensing) • Altitude range: • Operating: 0 to 10,000 ft. • Storage: 0 to 50,000 ft.
Agency compliance	Designed to meet the following agency certifications with testing currently pending: • FCC - Part 15 of the FCC Rules, Class A, 47CFR • Canada ICES-003, issue 4, Class A • UL/IEC 60950-1 • Canada: CSA C22.2 No. 60950-1 • Argentina: IEC60950-1 • Japan: VCCI, Class A • Australia/New Zealand AS/NZS CISPR 22, Class A • IEC 60950-1 (CB Certificate and CB Test Report) • CE Mark (EN55022 Class A, EN60950-1, EN55024, EN61000-3-2, EN61000-3-3) • CISPR 22, CISPR 24, Class A • CE Emissions 2004-108EC • RoHS compliance (Directive 2002/95/EC) • CCN NWGQ, NWGQ7

Intel Xeon Phi Coprocessors			
Model	3120P	5110P	7120P
Peak Double Precision Performance	1.003 teraflops	1.011 teraflops	1.208 teraflops
Board TDP	300W	225W	300W
# of Cores	57	60	61
Core Freq.	1.1 GHz	1.05 GHz	1.24 GHz
Memory Capacity	6GB	8GB	16GB
Memory Bandwidth	240GB/s	320GB/s	352GB/s
Computing Applications	Monte Carlo, Black-Scholes, HPL, LifeSC	STREAM, ray-tracing, RTM	Seismic Imaging Processing, Molecular Dynamics, WRF
Architecture Features	Maximum Value	Power Efficient	Intel Turbo Boost 1.0 1.33GHz

For a list of qualified servers, go to http://www.onestopsystems.com/hpc/3u-intel-phi