Project Olympus
Flash Expansion FX-16

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Goals

- Modular 1U PCIe expansion chassis
  - Hot plug PCIe Cards
  - Cold aisle accessible
  - Support for M.2 NVME SSD (128TB)
- Project Olympus compatible
  - Project Olympus Chassis, PSU, Fans, Cables
  - Universal PDU
- OCP support
  - Open BMC
  - Readily Adaptable to Open Rack and other standard chassis
Key Features

- N+2 Fans
- Project Olympus PSU
- 16 Storage Carriers
- PCIe Switch Board
- Paddle Boards
- 1GbE RJ45
- Project Olympus Chassis (leveraged)
- Internal Cabling
- External Host Cabling PCIe x16
- External Host Cabling PCIe x16
- Internal Cabling

OPEN HARDWARE. OPEN SOFTWARE. OPEN FUTURE.
Block Diagram

- Supports 2 PCIe x16 Hosts
- External PCIe Cabling
- Two 80 Lane Switches
- Supports 16 Storage Carriers
- Managed by BMC (AST2520)
Interlink Option

- Enabled pooled storage
- Host failover
- 96 Lane Switches
- 16 Lane Interlink
BMC Option

- 96 Lane Switches
- PCIe x1 to BMC
Management

- Telemetry Monitoring
- Fan Control
- GbE Management
- Redundant Flash
Power

- Project Olympus PSU
  - 680W (n)
  - Est Power 625W (max)
- HSC Isolation zones
  - PCIe Switches / BMC
  - M.2 Carriers
- Fault isolation between Carriers and Management
Front Panel

1GbE RJ45

16 Storage Carriers

External MiniSAS HD 4x4

Pitch 19mm

External MiniSAS HD 4x4
Carrier Key Features

- Supports up to four M.2 (22110 modules)
- PCIe x8 edge card interface
  - PCIe x2 interface to each module
- Maximum power 50W
- Tool-less latch
- PCB ~ 320mm x 38.6mm (DRAFT)
Block Diagram

PCIe x8

Edge

Finger

Gen3 x2 (4GB/s)

4

PCIe x2

I2C

Switch

3.3V

VR

4

I2C

12V

3.3V
Paddle Board

- Translates power and signals from Switch Board to Carrier
- Non-air blocking
- Enables support for alternative solutions
- Requires external mechanical alignment
- Connector selections < 1U
OCP Support

- OCP Reuse
  - Retimer Card
  - External MiniSAS HD Cabling to Host
- AST2520 with Open BMC
- Adaptable to Open Rack Chassis
  - Power
  - Fan Control
  - Mechanical