



Project Olympus

US1-EPYC Feature Summary

2018/01/18

Quanta

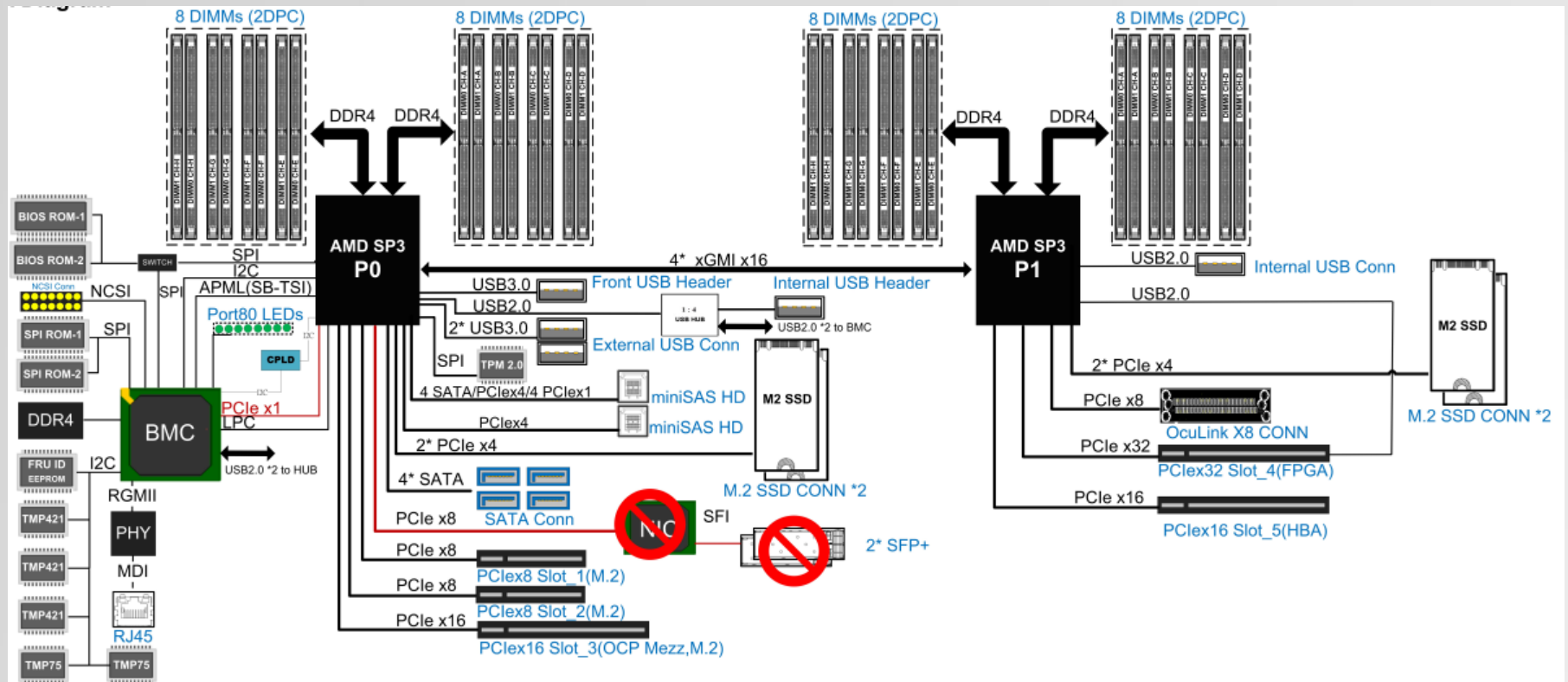
Overview

- This specification describes the Project Olympus AMD Server design as US1-EPYC. This presentation covers as below:
 - High level feature list
 - block diagram
 - Mechanical View
 - System & Motherboard Layout
 - US1-EPYC Design Files
 - OCP Tenets for US1-EPYC

High Level Feature List

Items	Description
Processor	AMD EPYC processors, Dual sockets, Up to 180W (Support for all server class SKUs)
Memory	32 total DIMM slots, 16 DIMMs per CPU, 2 DIMMs per channel, DDR4/LRDIMM/NVDIMM RDIMM type support DDR4 transfer rates of 1333MT/s to 2667MT/s are supported
Storage	SATA interface: -4 local ports @ 6.0 Gb/s (SATA x1) -4 expansion ports @ 6.0Gb/s (MiniSAS HD)
Front IO Ports	2 xUSB3.0 connectors
PCI-Express Expansion	2 PCIe x8 Slots: Supports PCIe M.2 Riser Cards 2 PCIe x16 Slots: Supports standard PCIe x16 cards for AVA card and LAN card 1 PCIe x32 Slot: Supports standard PCIe x16 or custom PCIe x32 cards for FPGA 4 M.2 Slots: Supports 60mm, 80mm, and 110mm M.2 Cards 1 PCIe x8 Expansion: 1 OCuLink x8 for Slot4 FPGA card 2 PCIe x4 Expansion: 2 MiniSAS HD PCIe x4
Server Management	BMC Aspeed AST2520 with 1xRJ45 connector
Security	Trusted Platform Module (TPM 2.0) to support Secure Boot
Networking	Ethernet transportation with FGA card MGMT:1x 1GbE from BMC to RJ45 Connector

Block Diagram

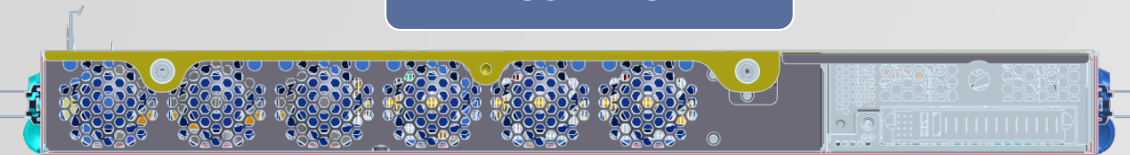


Mechanical View

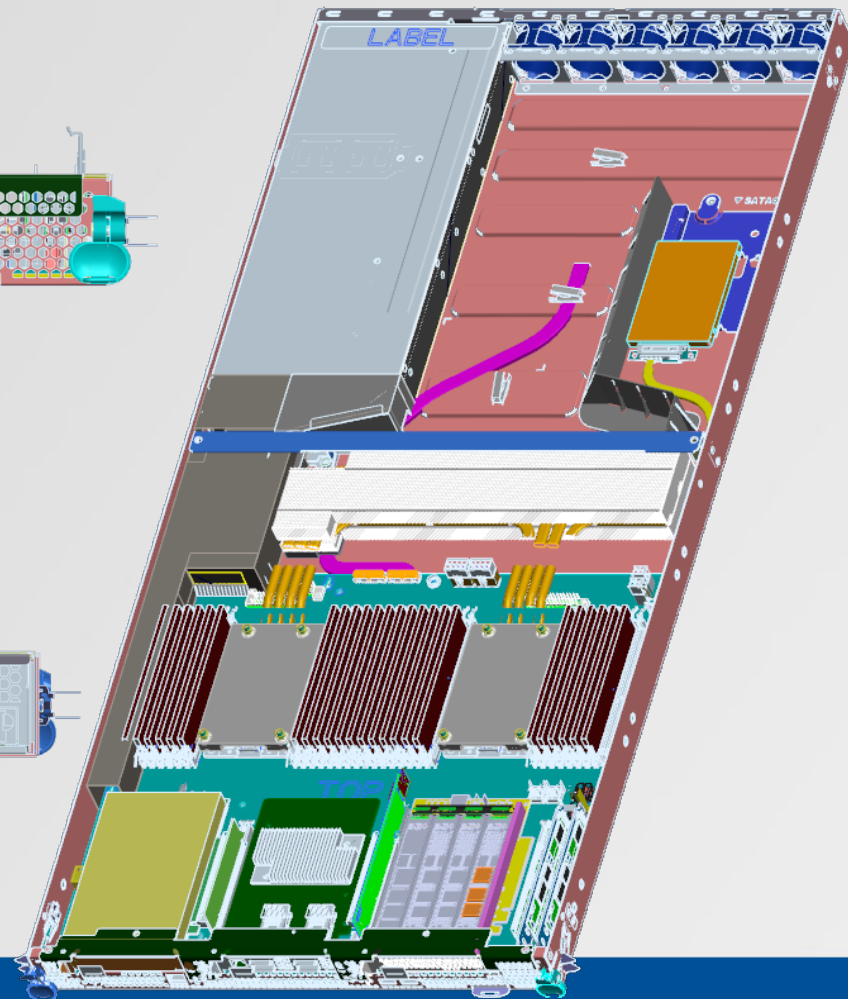
Front View



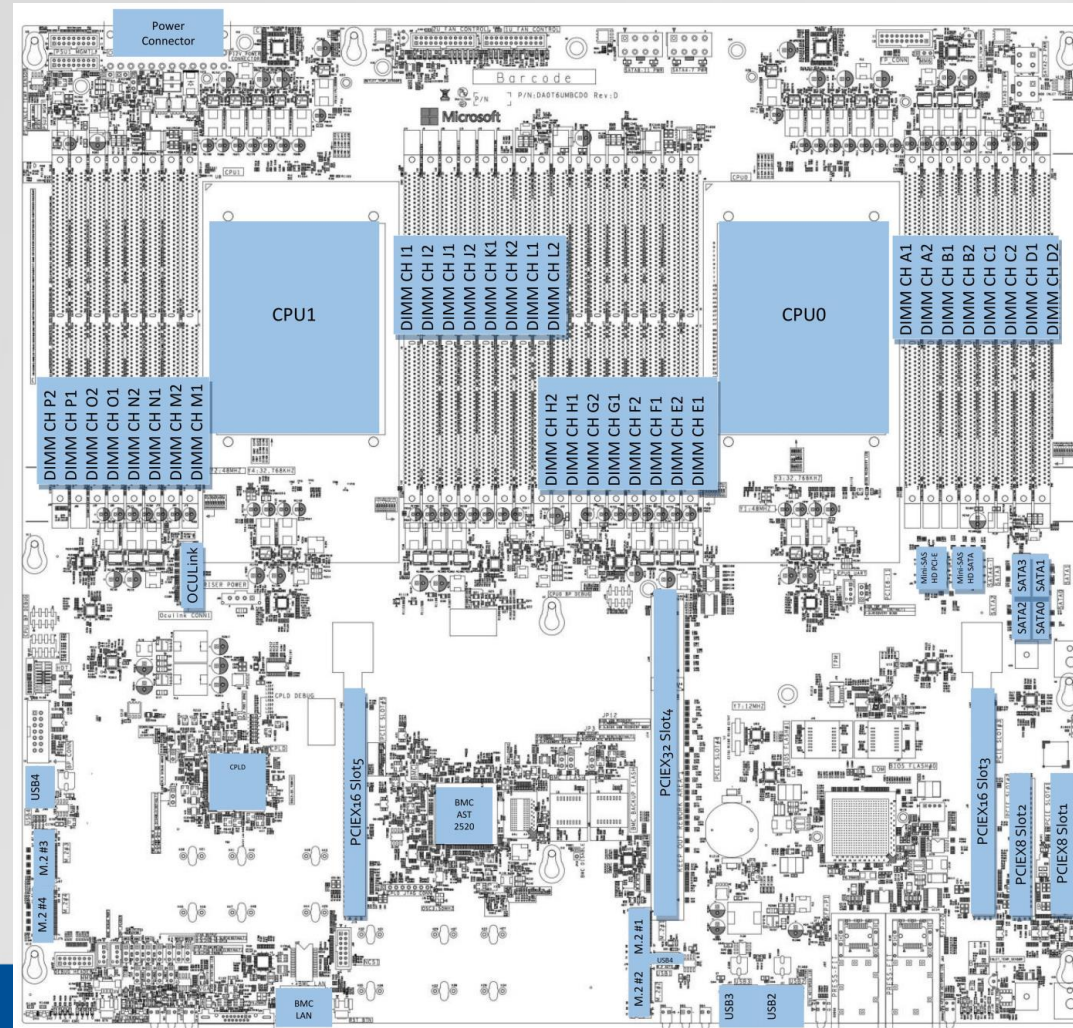
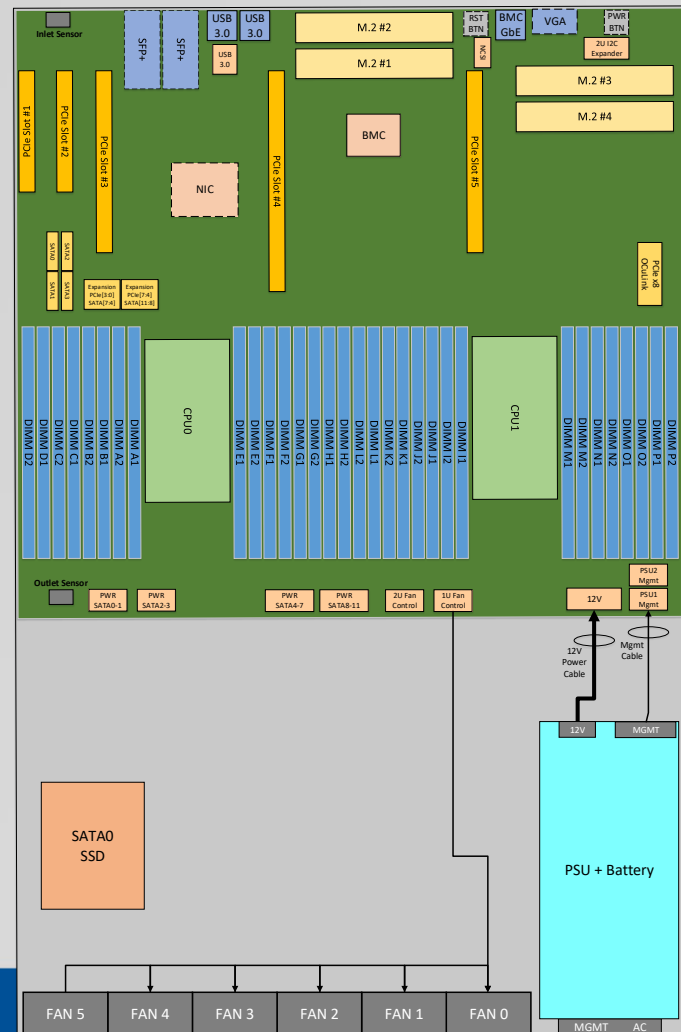
Rear View



ISO View



System & Motherboard Layout



OCP Tenets for US1-EPYC

➤ Efficiency

- This system is designed with 32x DIMM, 3x Full height add-in cards and maximal 32 cores to be suitably adapted for different workloads
 - This is first 32 DIMM base system, especially for larger in-memory database
 - Support up to 3x full height add-in cards to increase the expandability, for example, storage card with PCIe x16 bandwidth requirement, and extra 2x PCIe slots for flexible usage
 - Per watt/per core of CPU is better than current x86 architecture
 - Optimization of power consumption and architecture cost(better heatsink to lower the power consumption requirement of FAN duty)

➤ Scalability

- Comply with Microsoft Olympus design criteria to be easily adapted for deployment with Olympus 42U or 48U rack

➤ Openness

- The system builds to be compatible with Microsoft Olympus architecture 19' ' EIA rack and also compatible with Olympus 1U server chassis, to re-use the PSU, FAN, and leverage the mechanical design as much as possible

➤ Impact

- This is first AMD x86 CPU architecture for Microsoft Olympus project, it expands the diversification of architecture for heterogeneous application
- This is first 8 DIMM channels/CPU socket to expand the memory capacity to 2TB
- Integrate I/O chipset to CPU directly to expand the flexibility of component placement in PCB layout
- Rich 128x PCIe lanes/CPU to enable more I/O devices and throughput



Thanks!!!