Ampere® Altra® & Altra® Max Mt. Jade Aarch64 2-Socket Overview

In Partnership with Wiwynn®

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Presenters:

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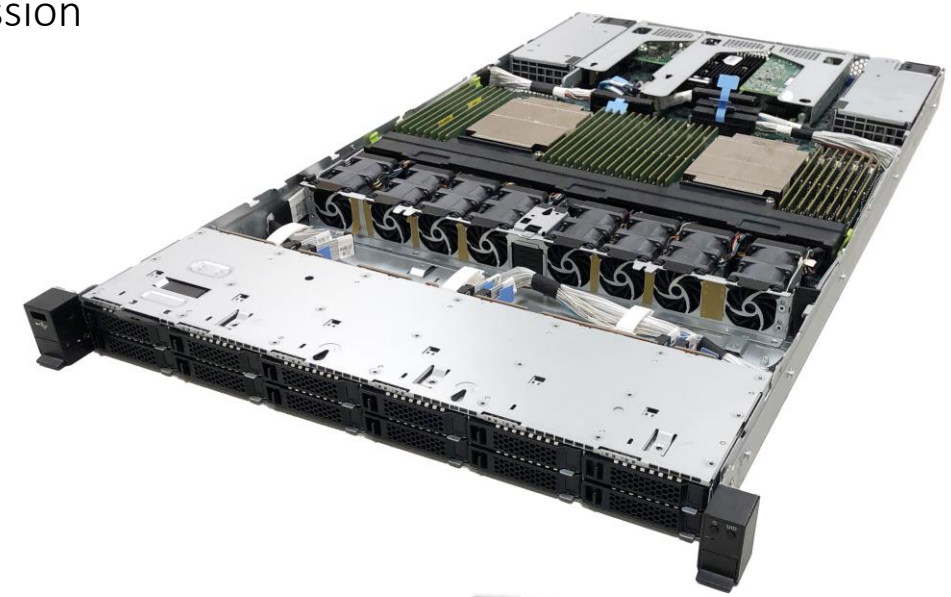
Ampere® Altra® & Altra® Max Mt. Jade Aarch64 Overview

Proposal for OCP Specification, Hardware Design and Firmware Submission

- Ampere® Altra® & Altra® Max 2-socket spread-core platform design for general compute
- Supports 19” EIA Rack Systems for 1U and 2U chassis
- PCIe Gen4 with flexibility for front or rear PCIe cabling
- Standard CRPS PSU support
- Platform specification to be uploaded to wiki for review



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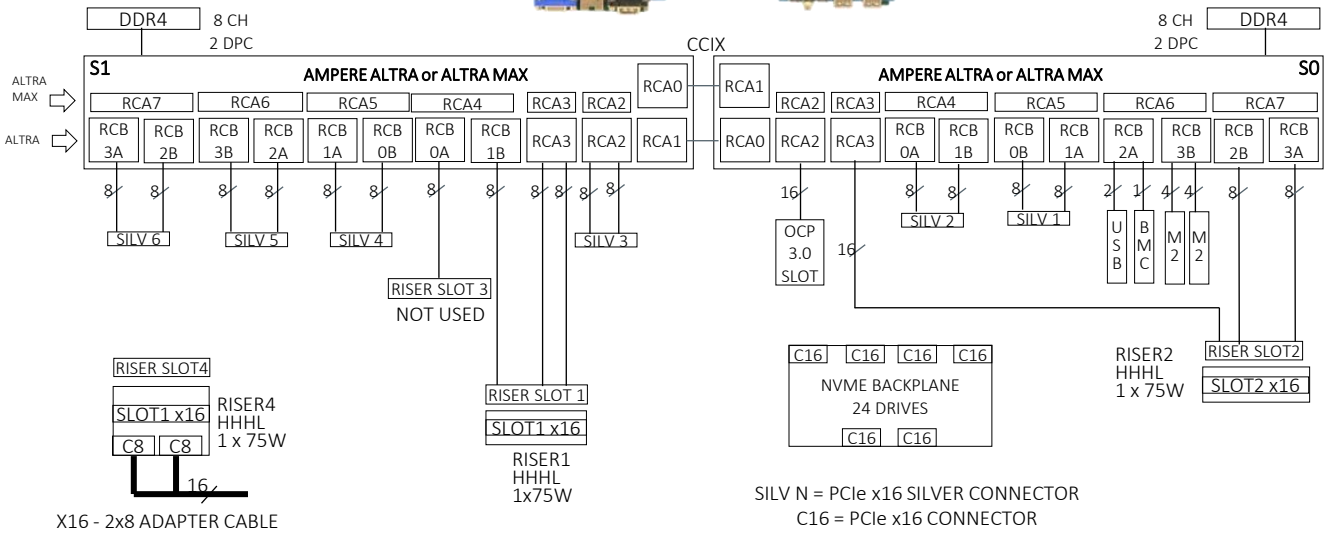
Mt. Jade Baseboard



Processor Support	2x Ampere® Altra® & Altra® Max, LGA4926 Pins 2x CCIX links @25Gbps Up to 250W /2U and 210W/1U TDP
Memory	32-channels of DDR4 across 2-processors 32x DDR4-2933/3200
On-board Storage	Dual M.2 NVMe 22110 modules
Front Drive Bay Options	1U 12x 2.5 " U.2 NVMe 2U 24x 2.5 " U.2 NVMe 2U 24x 2.5 " SAS/SATA
Rear Drive Bay Option	None
PCIe	OCP 3.0 6x TA-1002 connectors 2U Riser Options • 3x PCIe x16 LP/HHHL card 2U Riser Options • 6x PCIe FHHL card • 2x PCIe LP/FHHL card
IO	COM port (RJ45) 1x USB 2.0 (front) ports + 1x VGA (front) port 2x USB 3.0 ports
Manageability & Security	TPM 2.0 support ASpeed AST2500 1GbE RTL8211E management phy

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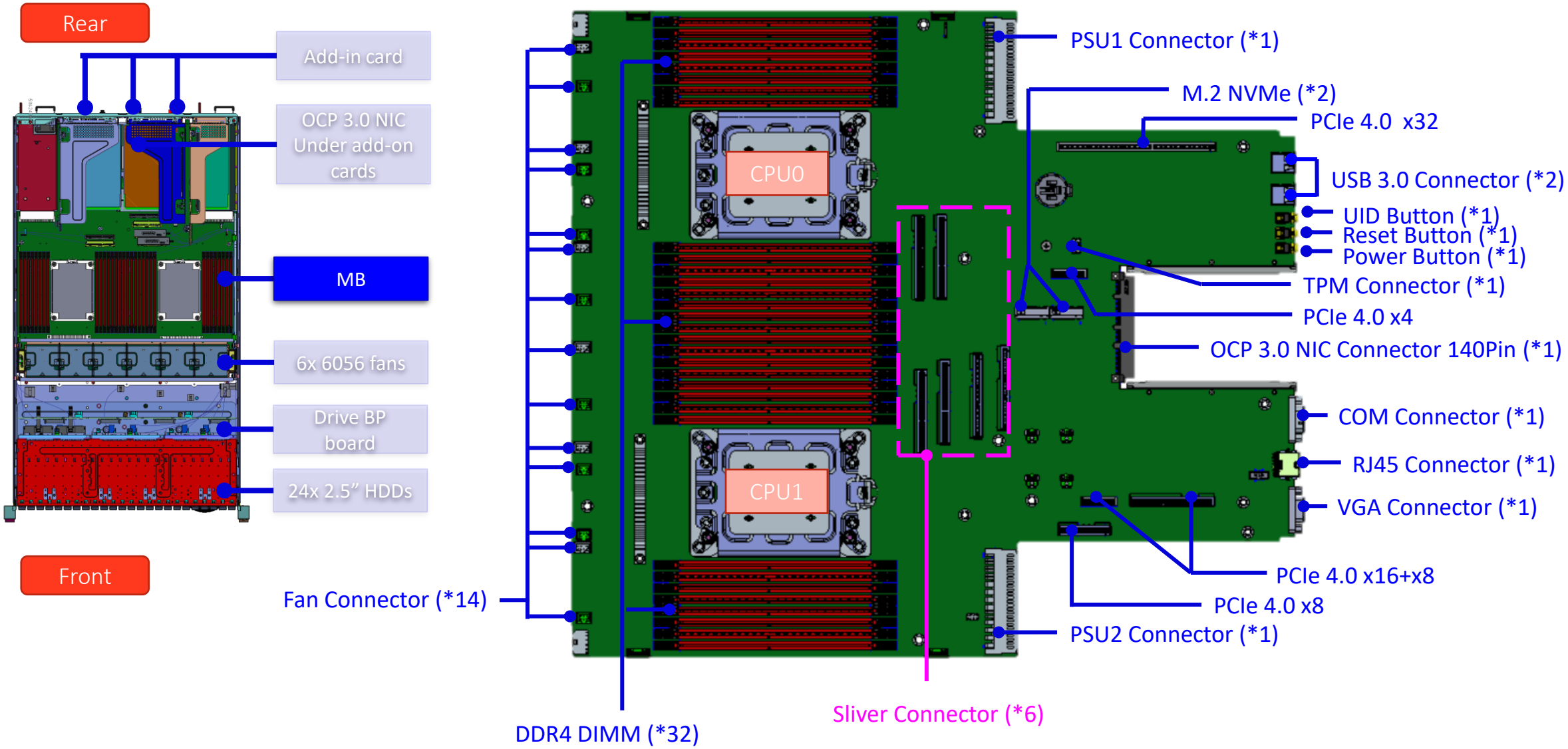
Mt. Jade Motherboard Placement



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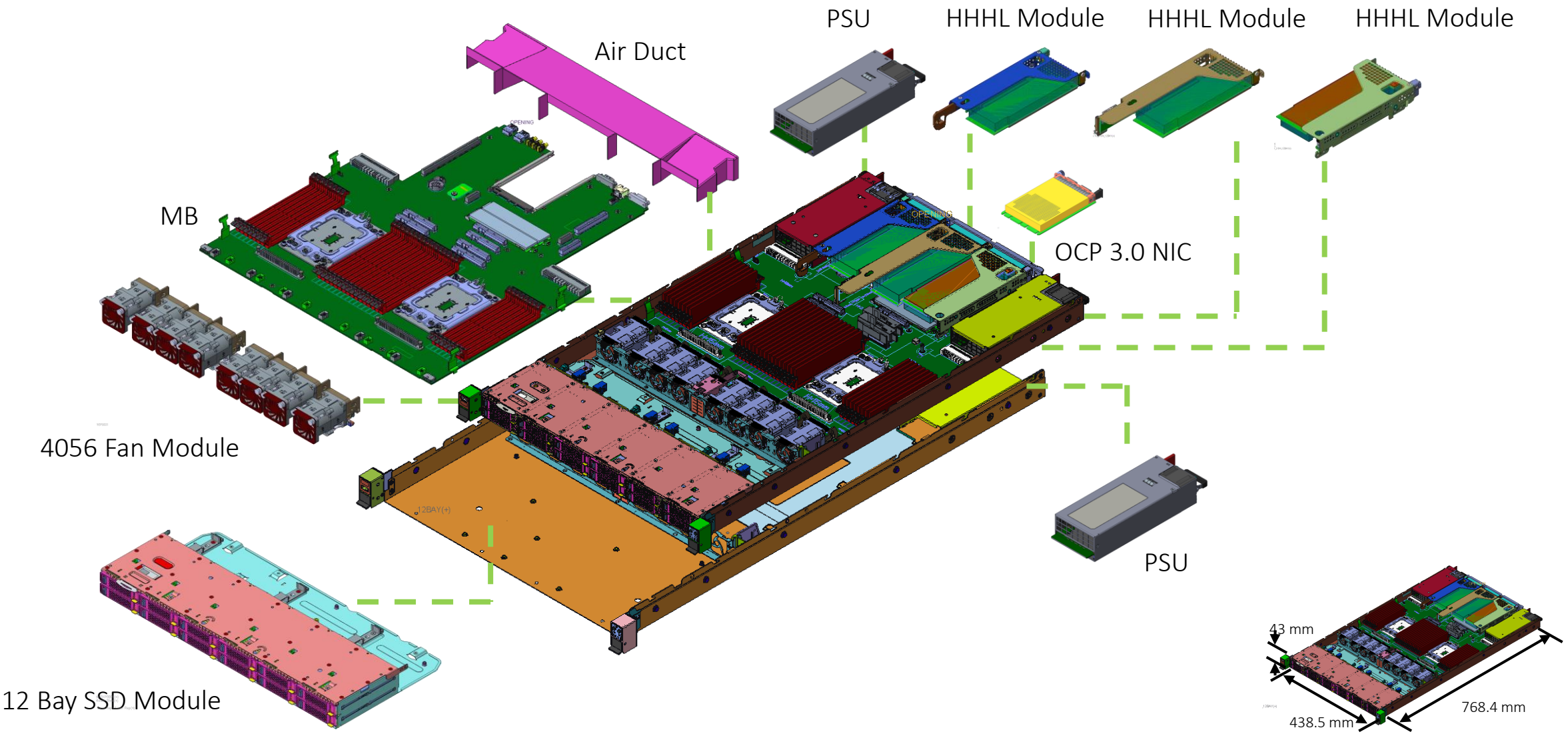
Mt. Jade 1U Server



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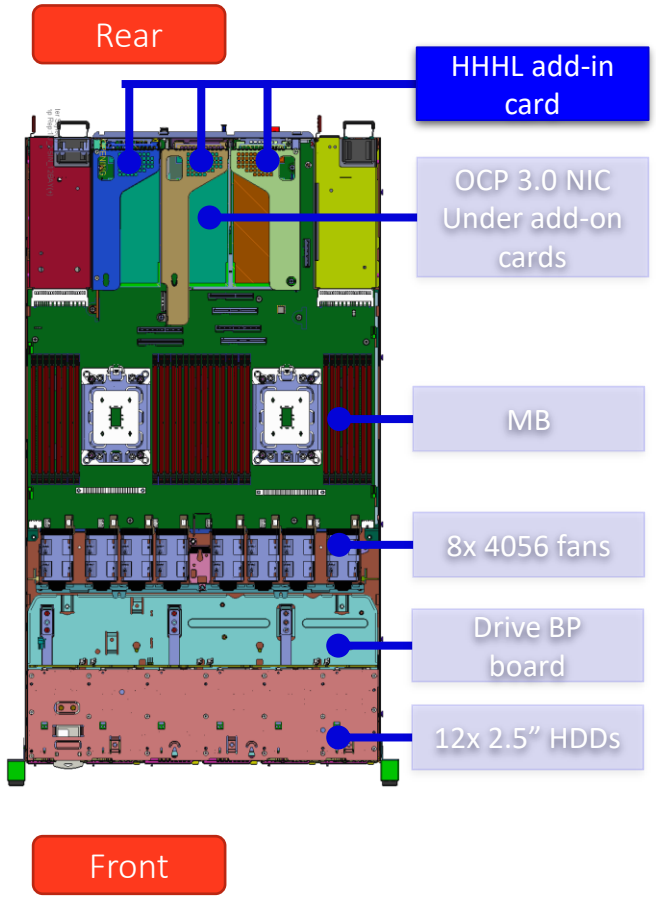
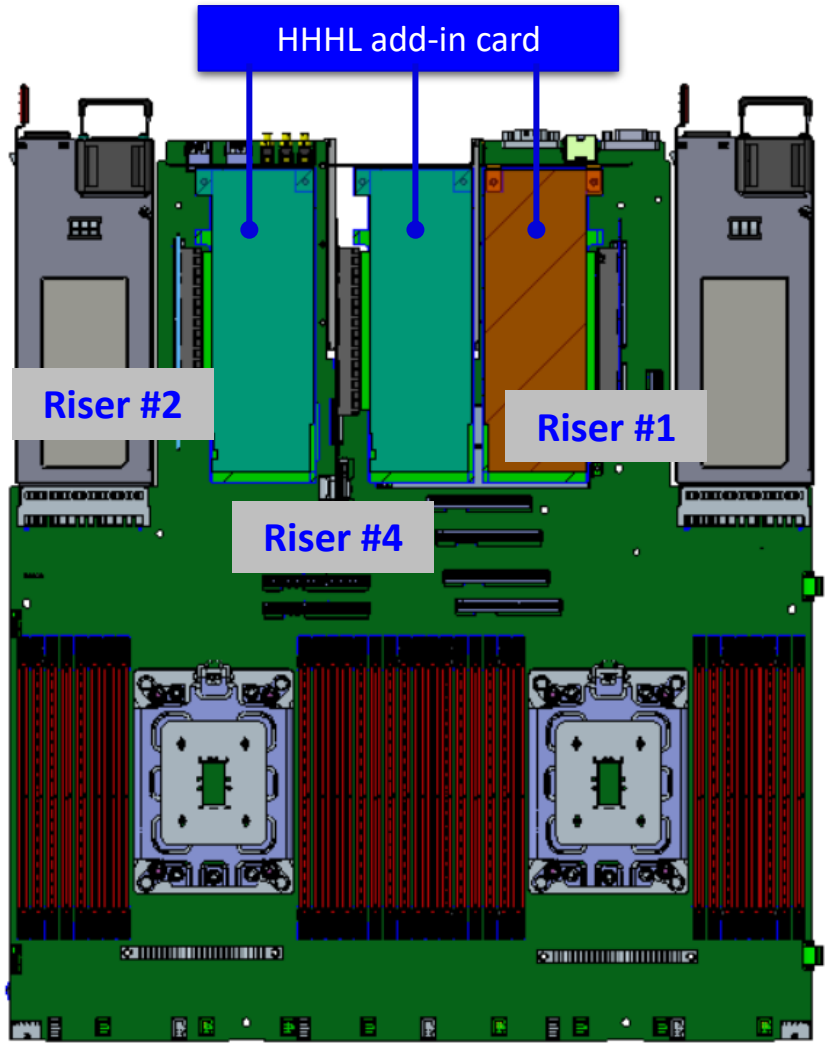
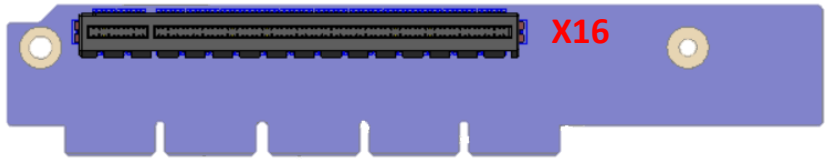
Mt. Jade 1U Risers and Placement



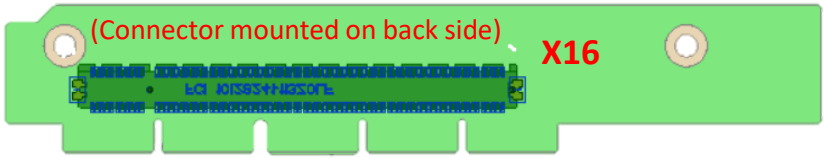


Riser #1 PCIe x16 (16 lanes)



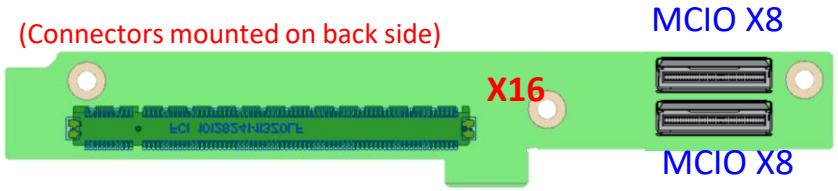
Sliver GFX16 GF=Gold Finger

Riser #2 PCIe x16 (16 lanes)



Sliver GFX16

Riser #4 PCIe x16 (2x MCIO x8 lanes) cabled



Sliver GFX4

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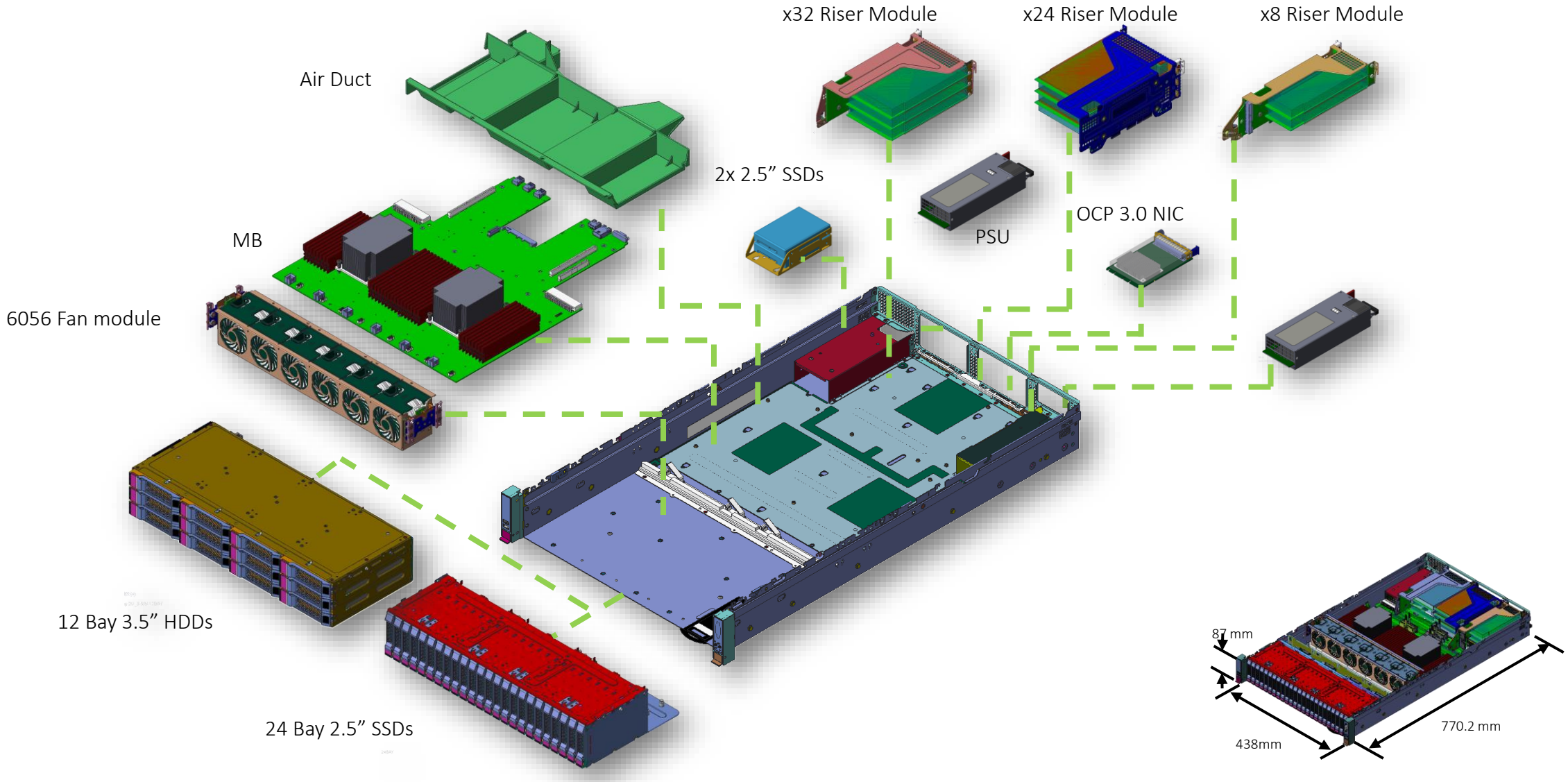
Mt. Jade 2U Server



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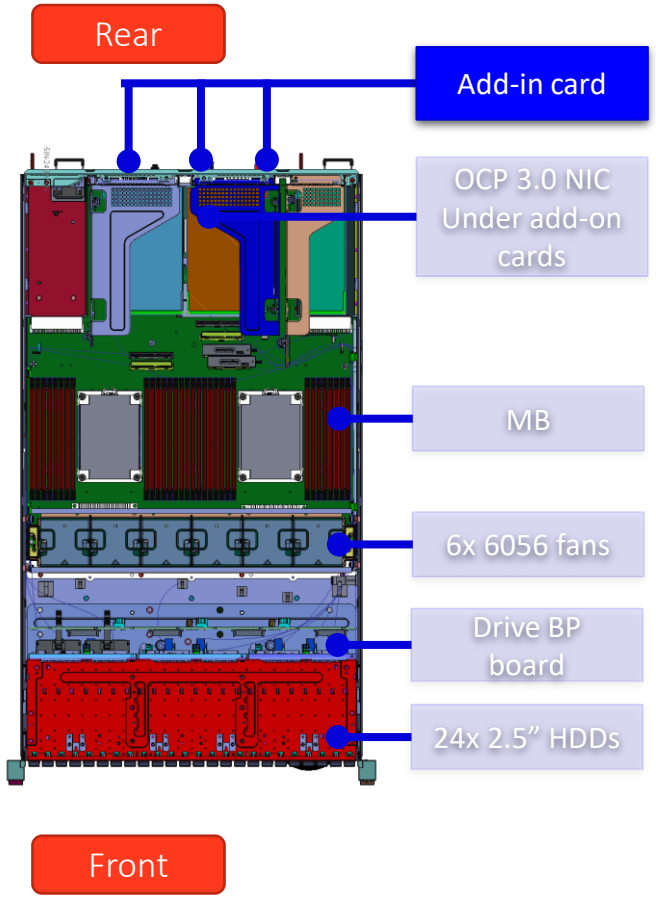
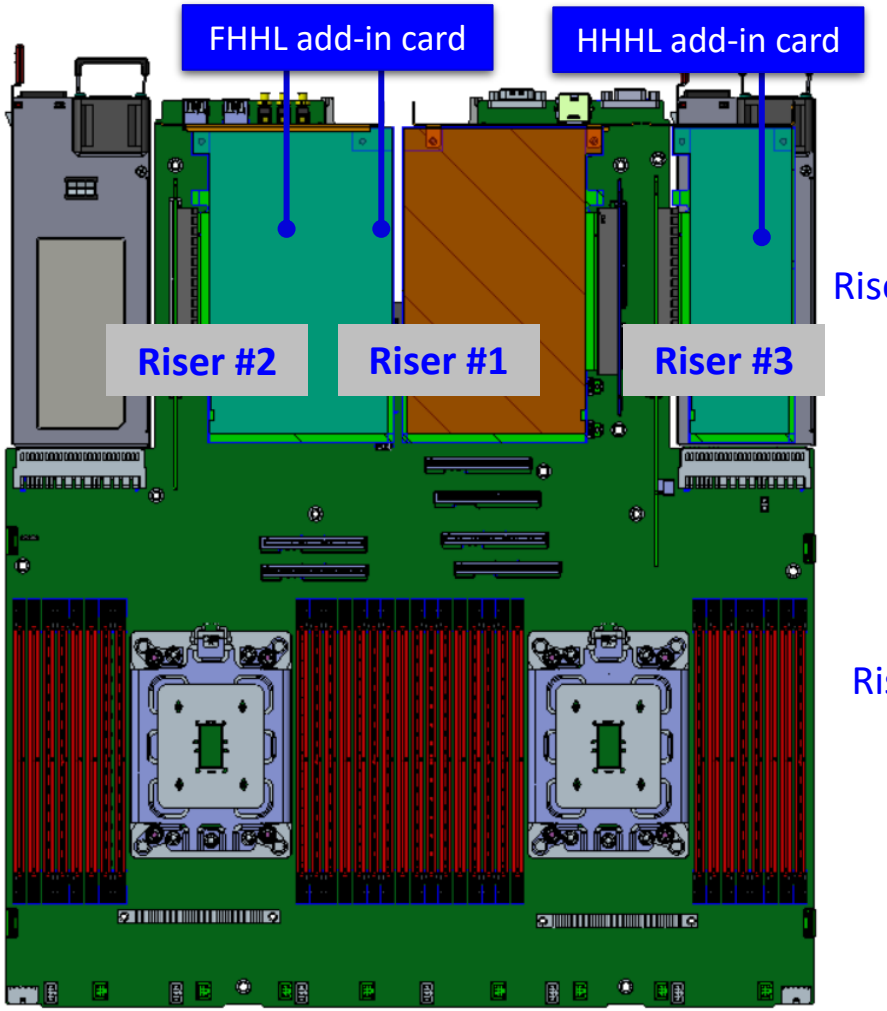
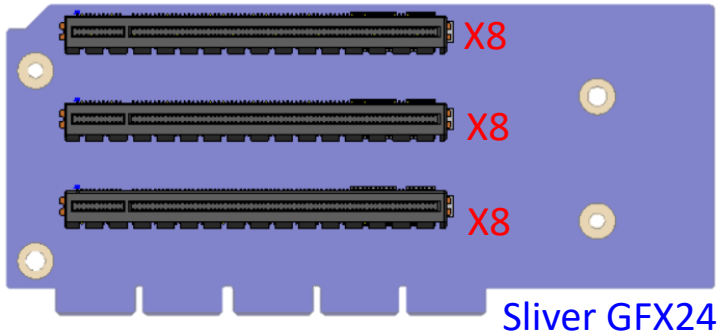
Mt. Jade 2U Risers and Placement



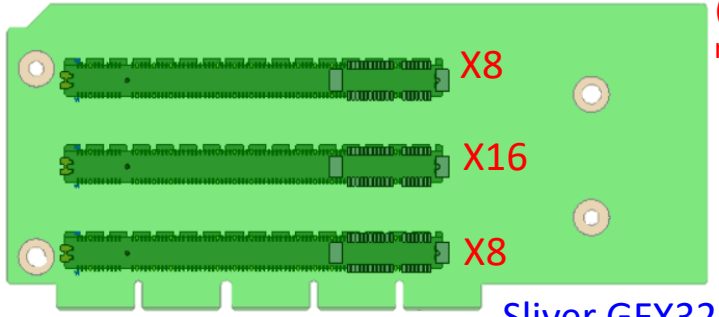


Riser #1 PCIe x24 (8Lane+8Lane+8Lane)



Sliver GFX24

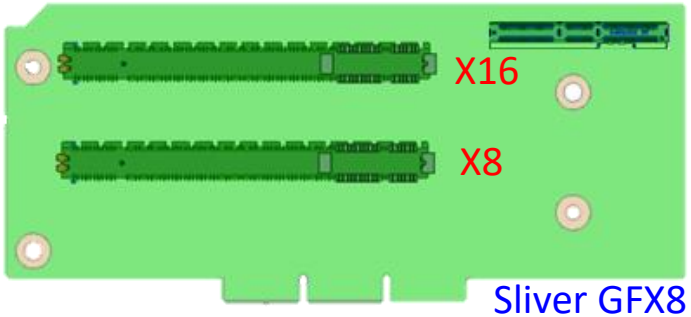
Riser #2 PCIe x32 (16Lane+8Lane+8Lane)



(Connectors mounted on back side)

Sliver GFX32

Riser #3 PCIe x8 +Sliver X16(16Lane+8Lane)



(Connector mounted on back side)

Sliver GFX8

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Ampere® Mt. Jade Open-source Contribution

OpenBMC

Ampere Computing Helpful links and info

- Github: https://github.com/ampere-openbmc
- Mt Jade implementation: https://github.com/ampere-openbmc/openbmc
- Linux kernel changes https://github.com/ampere-openbmc/linux
- SSIF bridge https://github.com/openbmc/ssifbridge
- Ampere's support for various IPMI commands, standard and OEM.https://github.com/ampere-openbmc/ampere-ipmi-oem
- Code for platform hardware interface and control https://github.com/ampere-openbmc/ampere-platform-mgmt
- Other source code that do not fit any permanent category or expect further changes https://github.com/ampere-openbmc/ampere-misc

Effort will be around Redfish and not IPMI

Tianocore (Github) Project / EDK2 Implementation

- Helpful links and info
  - Ampere Computing github releases
    - https://github.com/AmpereComputing/edk2
    - https://github.com/AmpereComputing/edk2-platforms
  - Ampere Computing source
    - https://github.com/AmpereComputing/edk2-platforms/tree/ampere/Platform/Ampere
    - https://github.com/AmpereComputing/edk2-platforms/tree/ampere/Silicon/Ampere
  - The above were forked from:
    - https://github.com/tianocore/edk2
    - https://github.com/tianocore/edk2-platforms
- Currently under review by upstream community and this skeleton directory has been set up
  - https://github.com/tianocore/edk2-platforms/tree/master/Platform/Ampere

Mt. Jade General Availability/Production Systems In August 2021
Ampere® Will Submit Mt. Jade Spec, Design, OpenBMC FW and Tianocore/EDK-II to OCP

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LP = Low-profile PCIe add-in card or HHHL half-height half-length
FHHL = Full height half-length PCIe add-in card
FHFL = Full height Full Length PCIe add-in card
DW = Double Wide add-in card

Wiwynn's Ampere® Altra® & Altra® Max 2-Socket Servers

	Mt Jade	
		Two 2U SKUs
Form Factor / Height	1U	2U
Max TDP	Up to 210W	Up to 250W
Memory	32-DIMMs (8-channels 2DPC per CPU) Up to DDR4-3200 Up to 8TB	
PCIe Gen4 Riser Configs	Riser1: PCIe Gen4 x16 (LP) Riser2: PCIe Gen4 x16 (LP) Riser3: PCIe Gen4 x16 (LP) cabled	Riser1: PCIe Gen4 2x x8 + x16 (FHHL or LP) Riser2: PCIe Gen4 3x x8 (FHHL or LP) Riser3: PCIe Gen4 x8 (LP) + x16 (LP)
FHFL Card Support	None	
OCP Mezzanine	OCP 3.0 – PCIe Gen4 x16	
Cabled PCIe	x8 TA-1002 PCIe Gen4 (Sliver)	
TPM Module Support	Yes	
Host/CPU Network	None	
BMC Network	Realtek RTL8211E 1GbE	
Storage Drive Bay Options	12x U.2 NVMe	24x U.2 NVMe
	None	24x 2.5" SAS/SATA
On-board Storage	Dual 2x PCIe Gen4 x4, NGFF (22110/2280)	
Thermal fan	8x 4056mm	6x 6056mm
BMC Support	AST2500	
Power	Redundant 2000W with PMBus 1.2 support	
Firmware Support	UEFI: AMI AptioV & BMC: AMI MegaRAC	
Open Firmware Support	EDK2 & Open BMC Reference Code Available	

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