

An abstract graphic on the left side of the image, composed of numerous thin, light green lines that curve and swirl together to form a large, irregular, organic shape. The lines are more densely packed in some areas, creating a sense of depth and movement.

Open. Together.

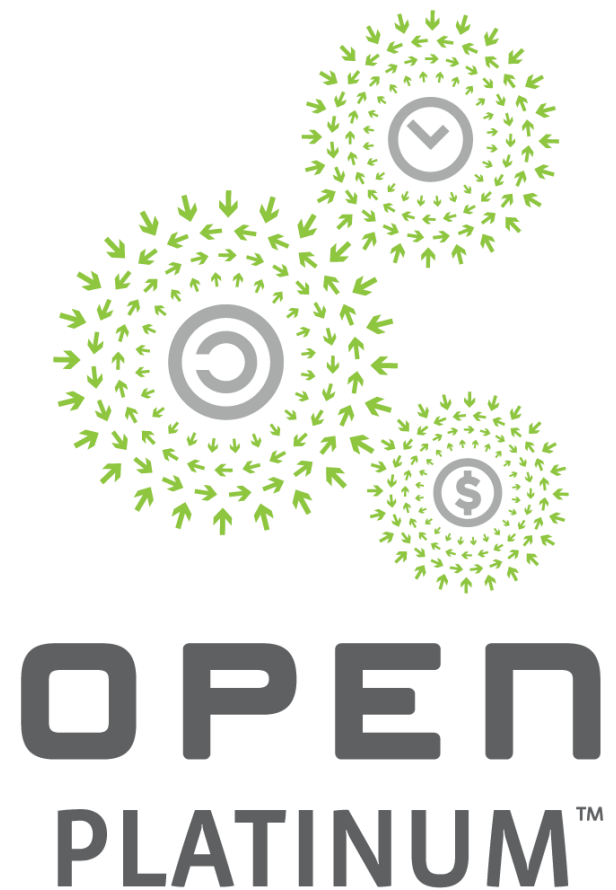


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SUMMIT

HPC & GPU/FPGA Technology

Leverage OCP Design Advantages on EIA 19" Accelerator Server

Gregary Liu, Product Director, Wiyynn Corporation



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Agenda

- Brief System Overview
- High CFM/watt Thermal Efficiency
- Flexible & Easy Design for Different Applications
- Design for Serviceability
- Design Extension to ORv2
- Power Distribution Design for ORv2



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Specifications

Agenda

- **Brief System Overview**
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Specifications

Brief System Overview – I



- System Design Advantages
 - High CFM/watt thermal design for **large-scale simulation models** and **DL training** at all workloads
 - By selecting **different PCIe Topologies** and **PCIe cards**, various different applications can be addressed
- OCP Related Design Highlights
 - **Front IO Access**
 - **Tool-less** ME design for labor-saving
 - Integrated **field proven** Mt. **Olympus M/B** for high quality assurance

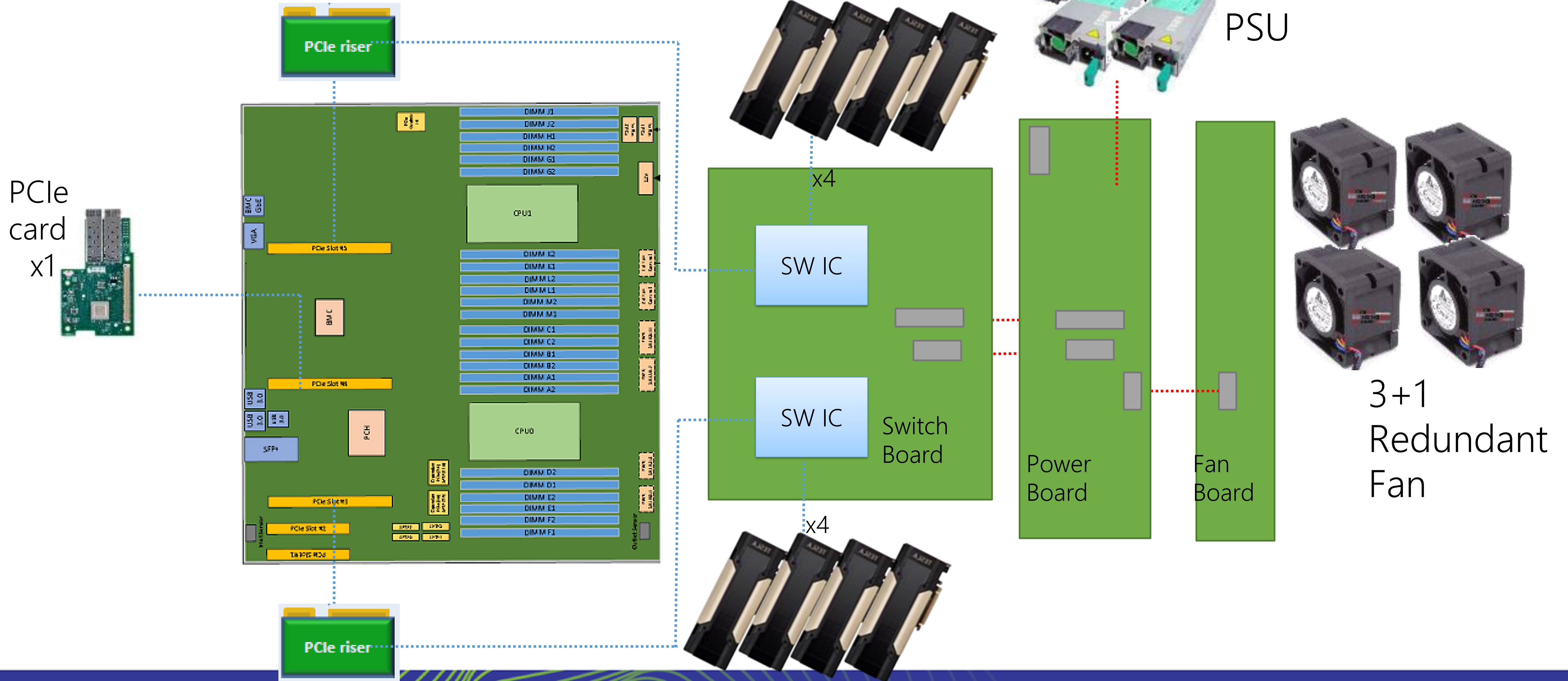
Brief System Overview – II



- EIA 19" Design Highlights
 - Standard **4RU** High-Power Server design
 - Designed for **8 double-width PCIe G3 x16** slots →
adopt to various accelerators for different workloads
 - Dual-Zone thermal/cooling design → Cold air **run through** PCIe card directly
 - CRPS PSU → **2+2 Power redundancy**
 - Scalable design → **easily migrated** to ORv2

So, how do we achieve them?

Accelerator Server Basics



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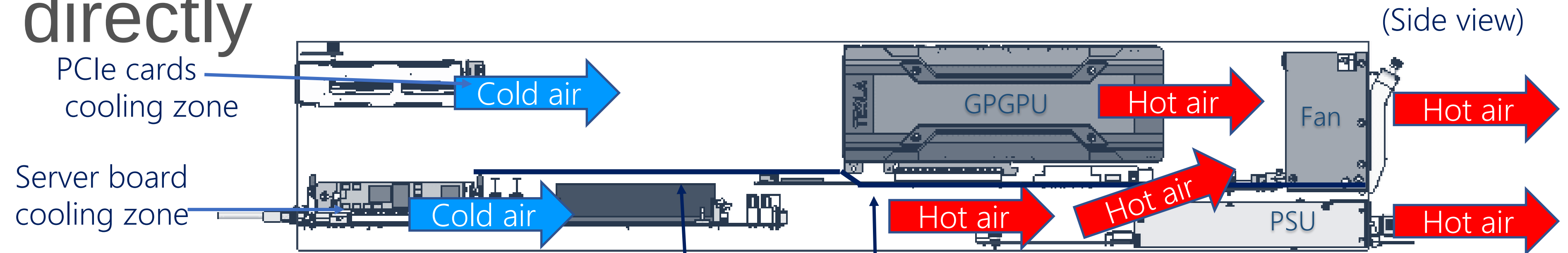
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Specifications

High CFM/watt Thermal Efficiency – I

Two isolated cooling zones enable cold air run through PCIe cards directly

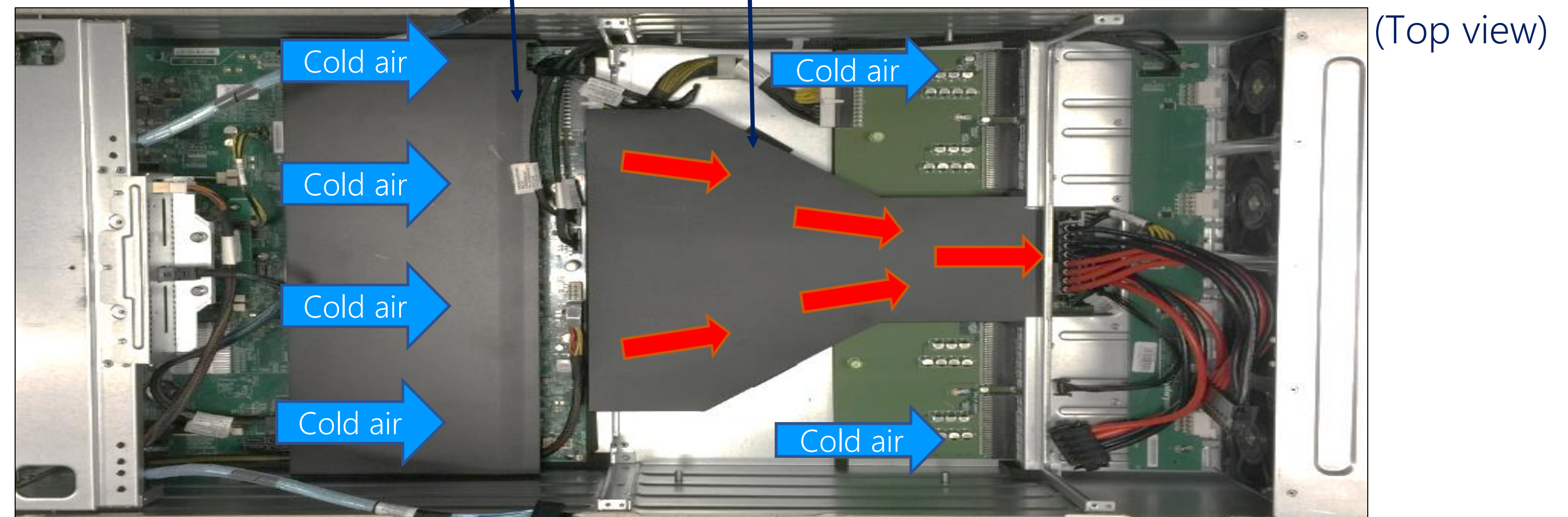


- Thermal efficiency

0.135 CFM/watt, at 30°C

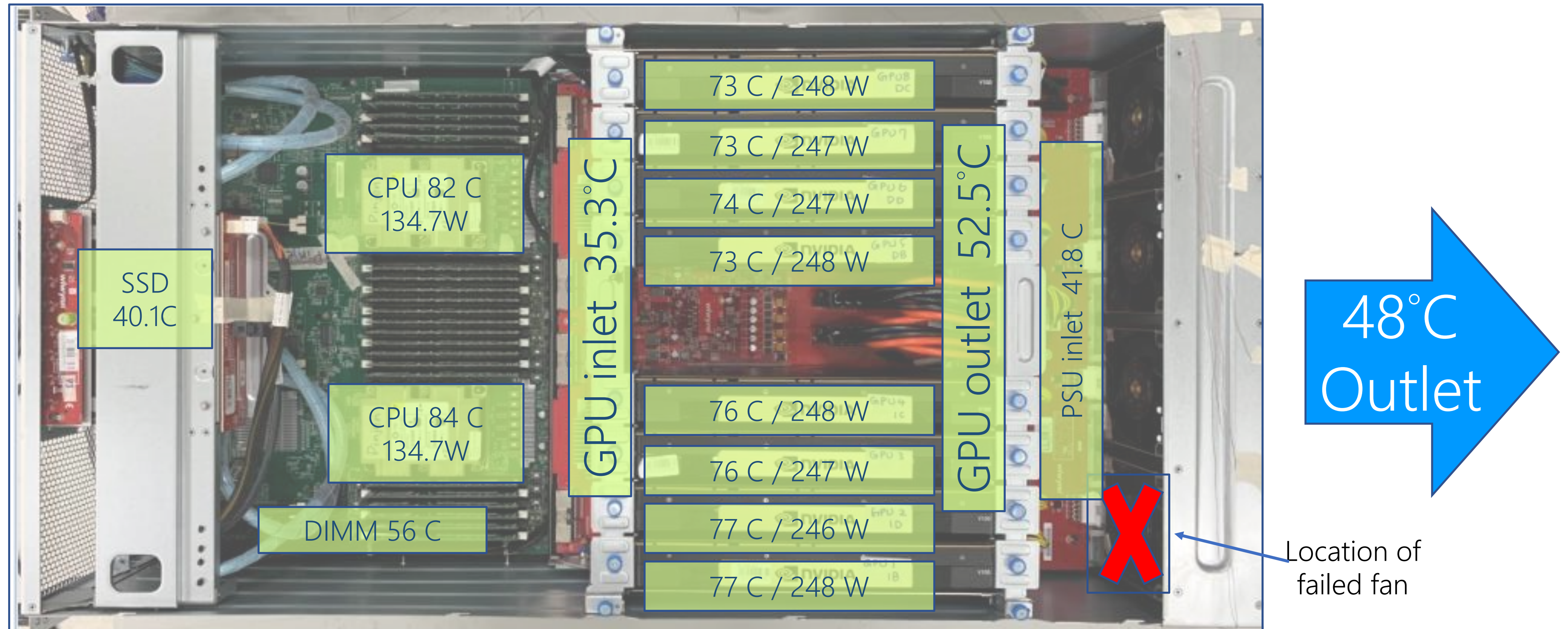
0.117 CFM/watt, at 25°C

→ Exceed DC requirement



High CFM/watt Thermal Efficiency – II

3+1 System Fan Redundant design for up to 2.8KW workload @ 35°C



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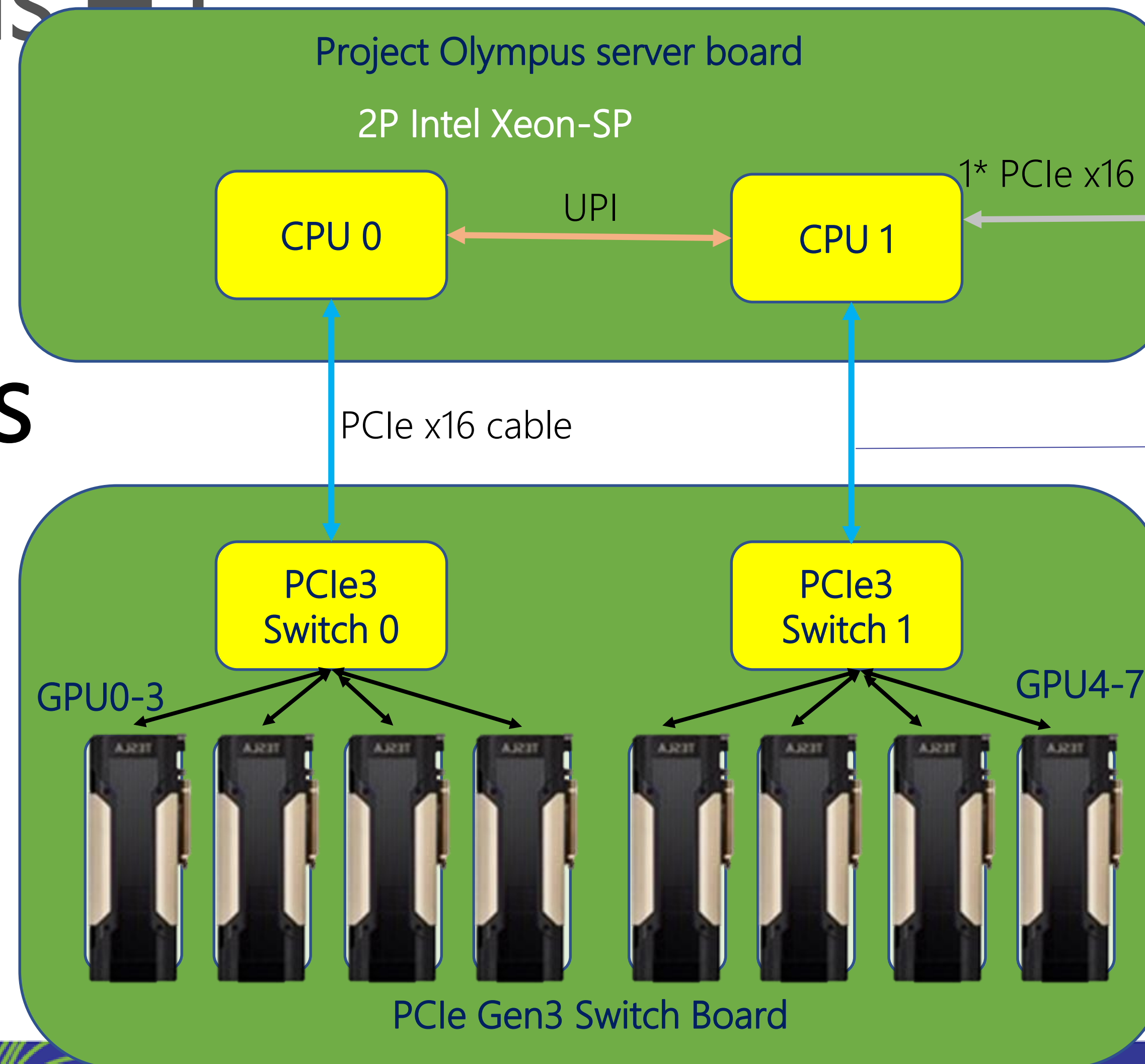
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Specifications

Flexible & Easy Design for Different Applications – 1

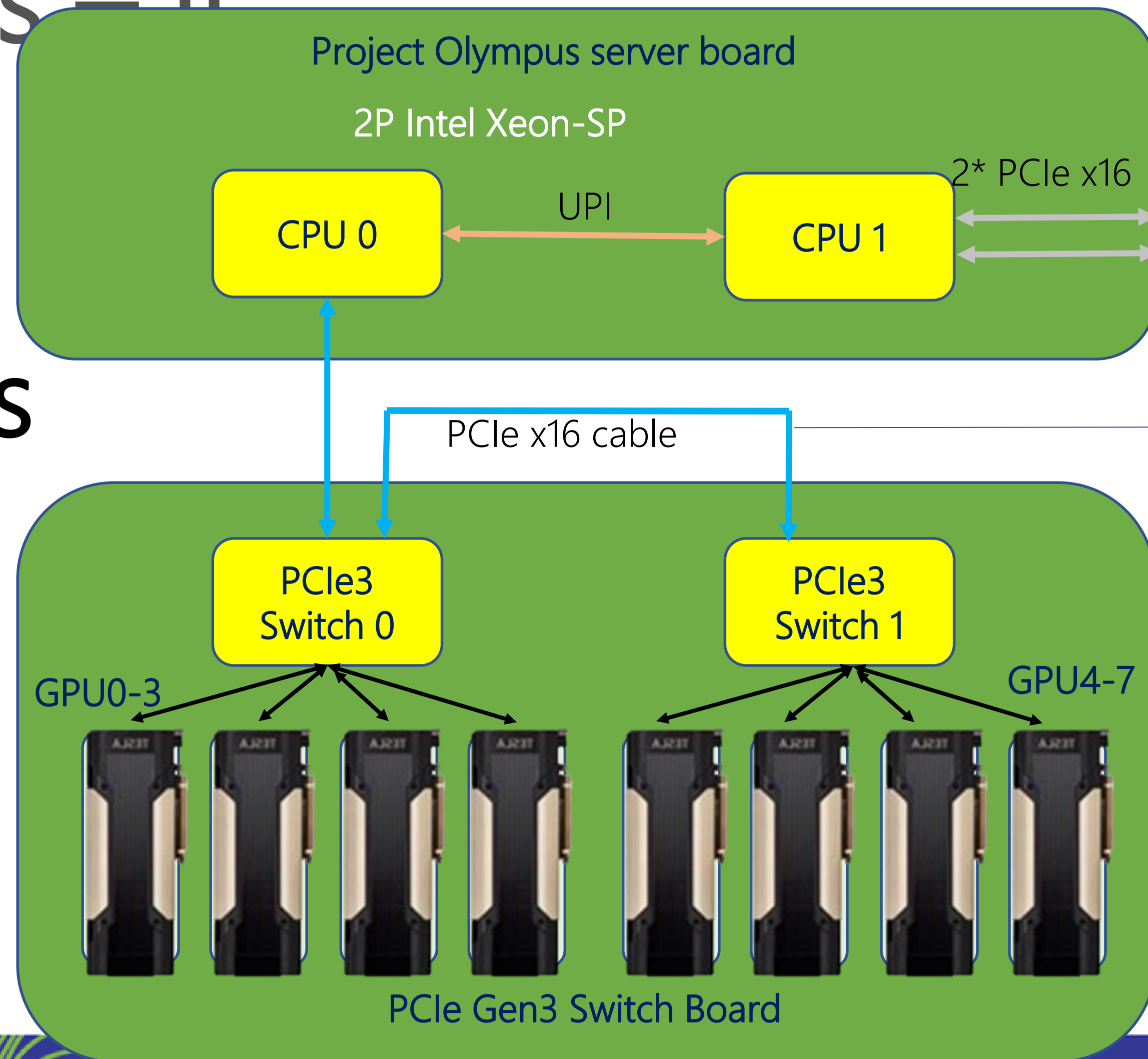
CPU-PCIe Cards
Topology 1 –
Balance Mode
CPU:GPU = 1:4



Higher bandwidth
between CPU and
GPU.

Flexible & Easy Design for Different Applications – II

CPU-PCIe Cards Topology 2 – Cascade Mode CPU:GPU = 1:8



Peer to Peer
performance can
be extended to 8
PCIe cards

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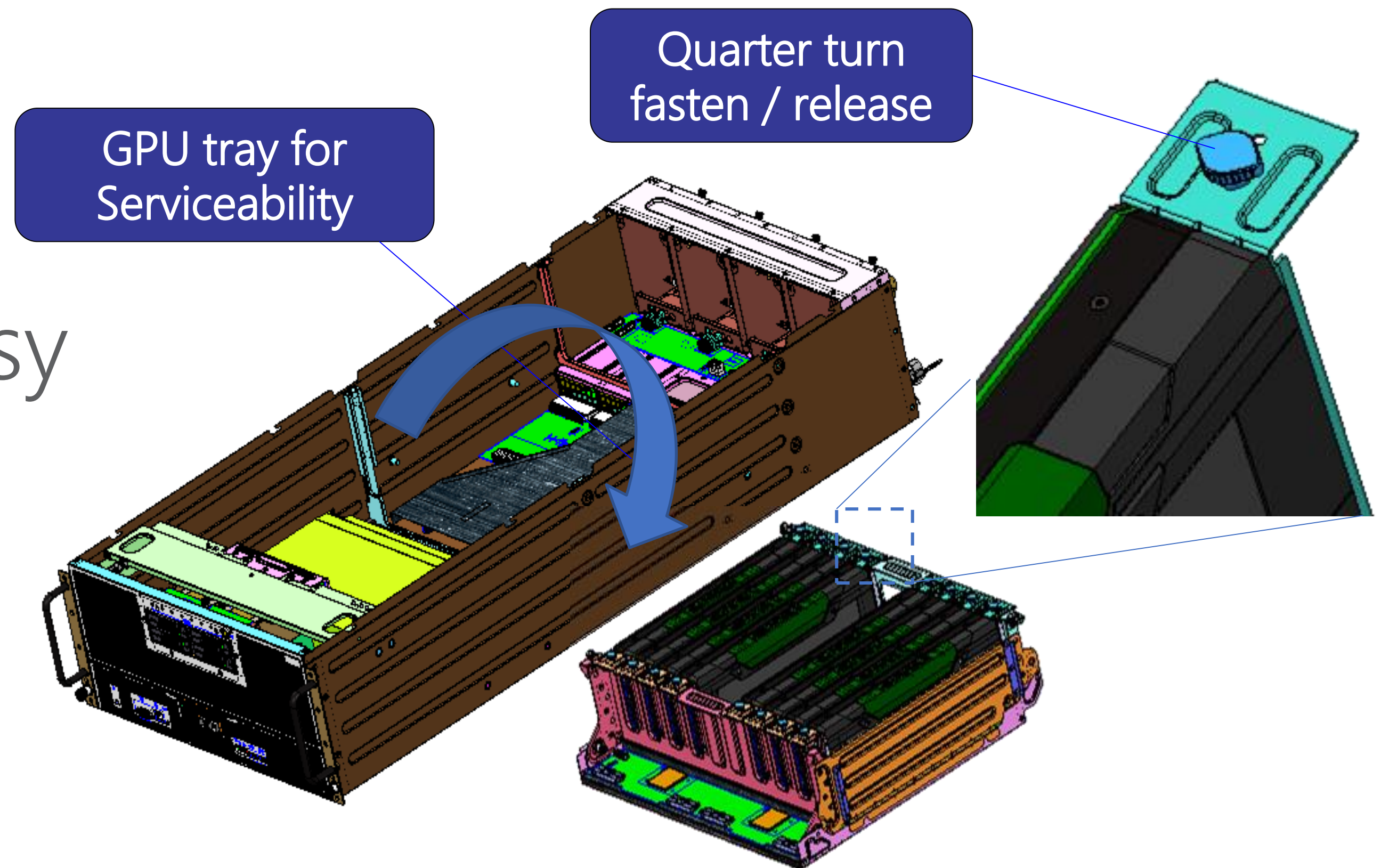


Specifications

Tool-less Design for PCIe Cards Maintenance – I

Module and tool-less design for DW PCIe maintenance

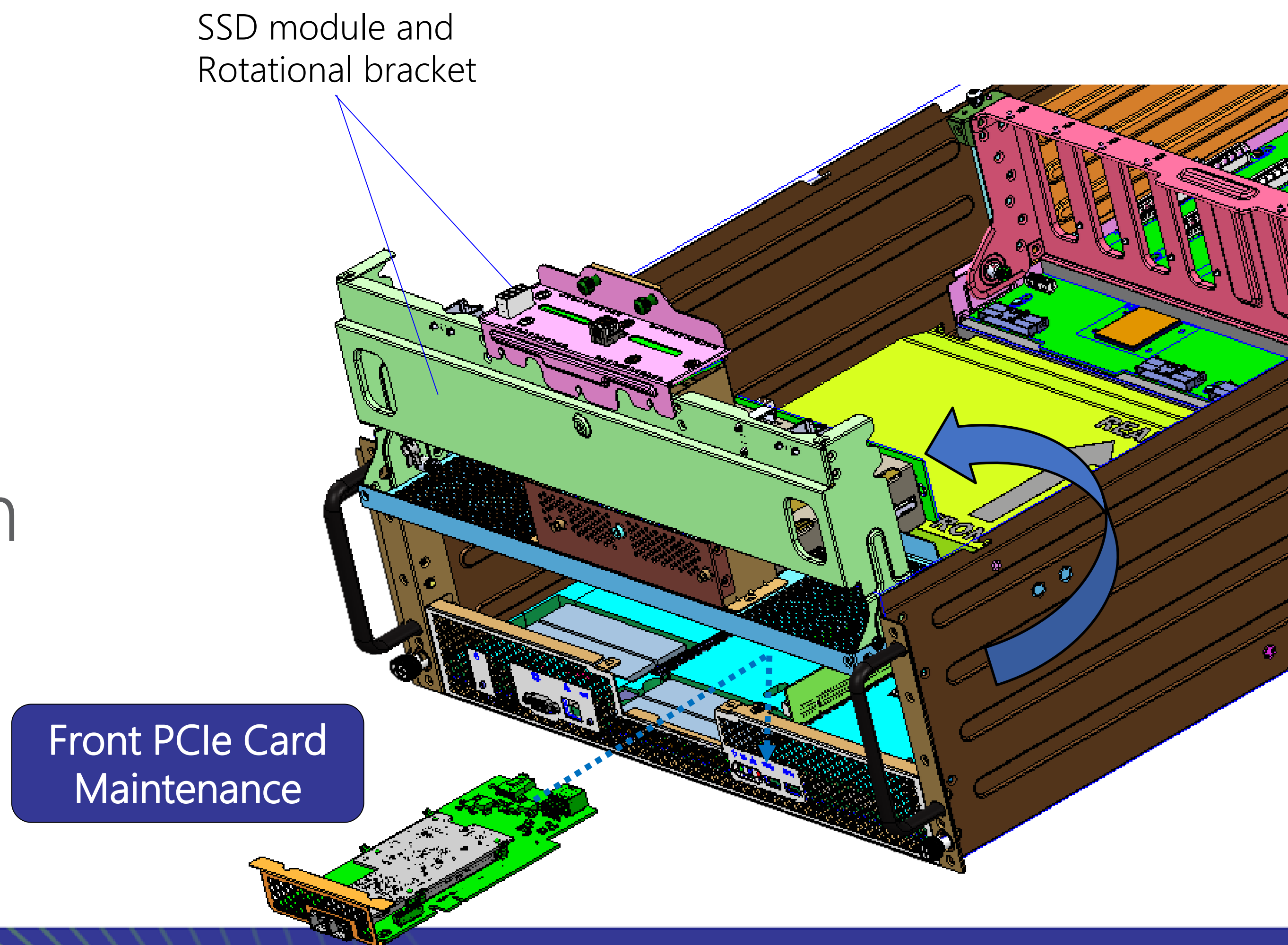
- Modular SW tray for easy DW PCIe cards swap
- Using quarter-turn fastener for PCIe cards replacement



Tool-less Design for PCIe Cards Maintenance – II

Rotatable SSD bracket for PCIe card maintenance

- Tool-less design
- Prevents interference on serviceability on M/B

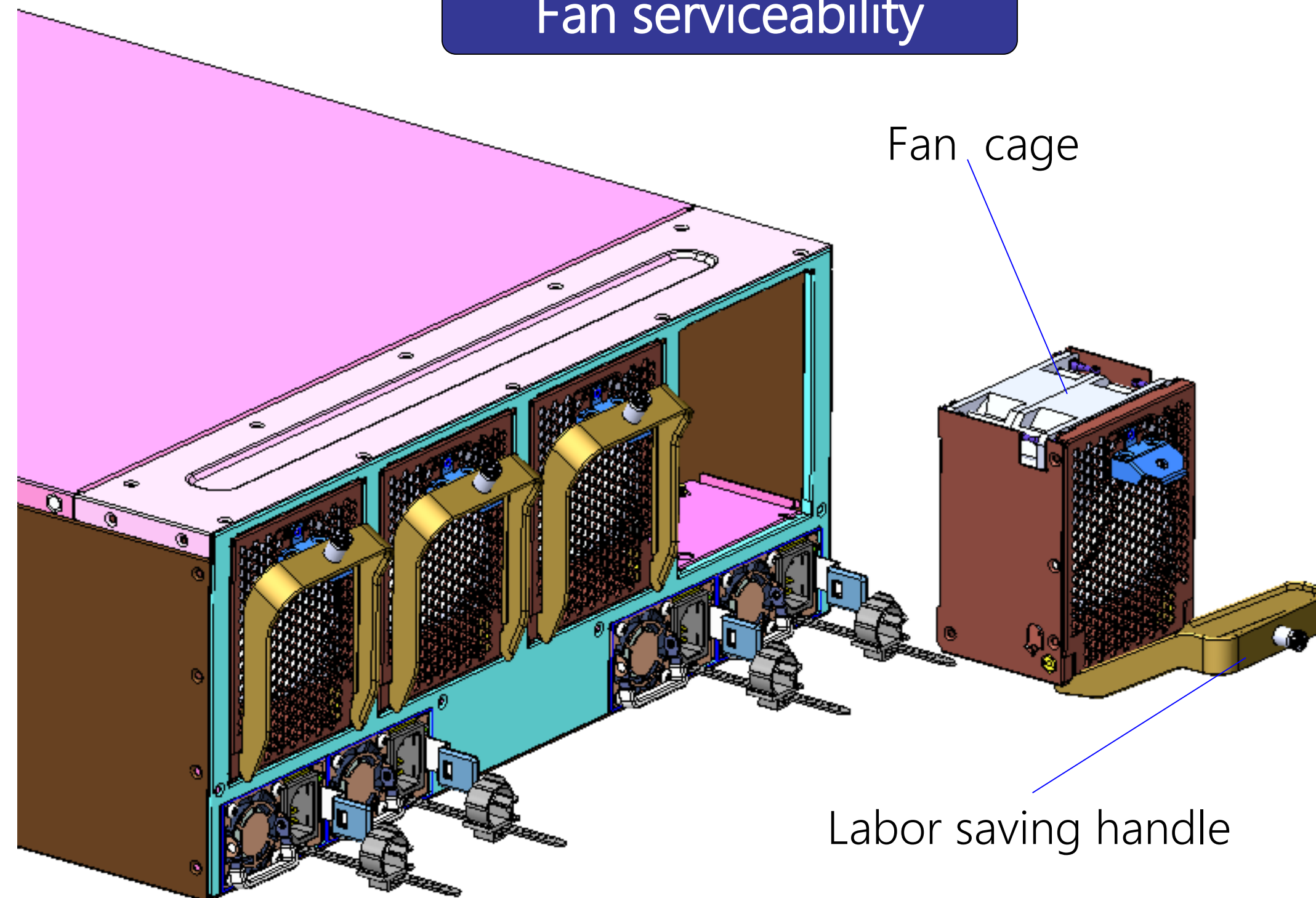


Serviceability Design for Fan and SSD Replacement

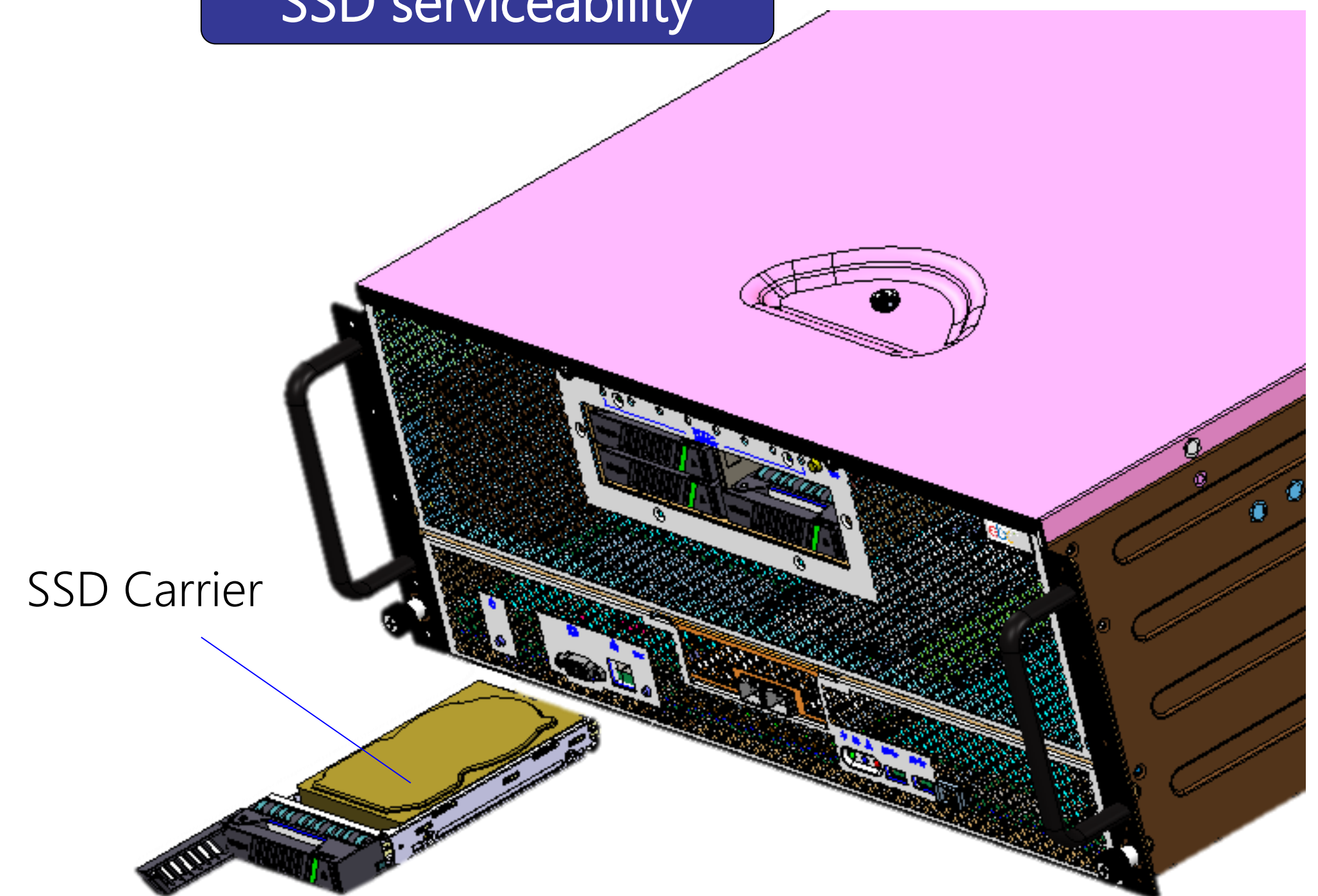
Modularized and labor-saving design

- Hot plug fan module with labor-saving handle for fast replacement
- Hot plug, front access SSDs are tool-less design

Fan serviceability



SSD serviceability



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Specifications

Design Extension to ORv2

- Retrofit to 4OU chassis to fit for **ORv2 supporting 12V DC busbar**
- Redesign **PTB for power transition** to server board and PCIe switch board
- Support up to 8x **SATA SSDs**



Processor		2S Intel® Xeon® Processor Scalable Family
DIMM		1.5TB DDR4; up to 2666 MT/s; 24 DIMM slots
Storage	Drive support	8 x 2.5” hot plug SATA HDDs/SSDs
	M.2 SSD Module	4 onboard M.2 modules
Accelerator	PCIe 3.0 slot	8, GPU/FPGA/Flash add-in cards
Expansion Slot	PCIe Gen3 (x16)	3, (1 or 2 reserved for GPU connection)
System Dimensions (mm)		4OU; 188 (H) x 537 (W) x 879 (D)

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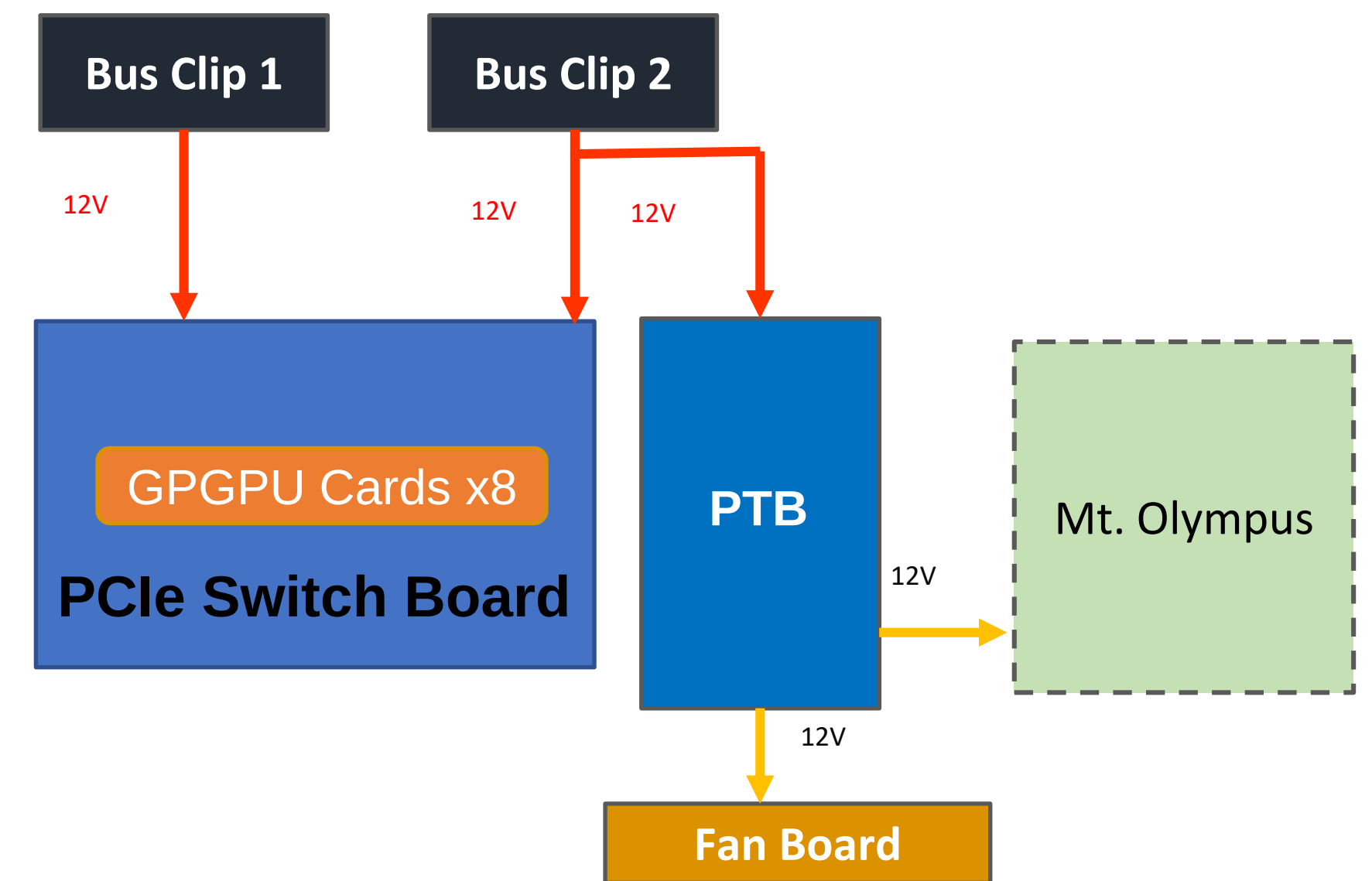
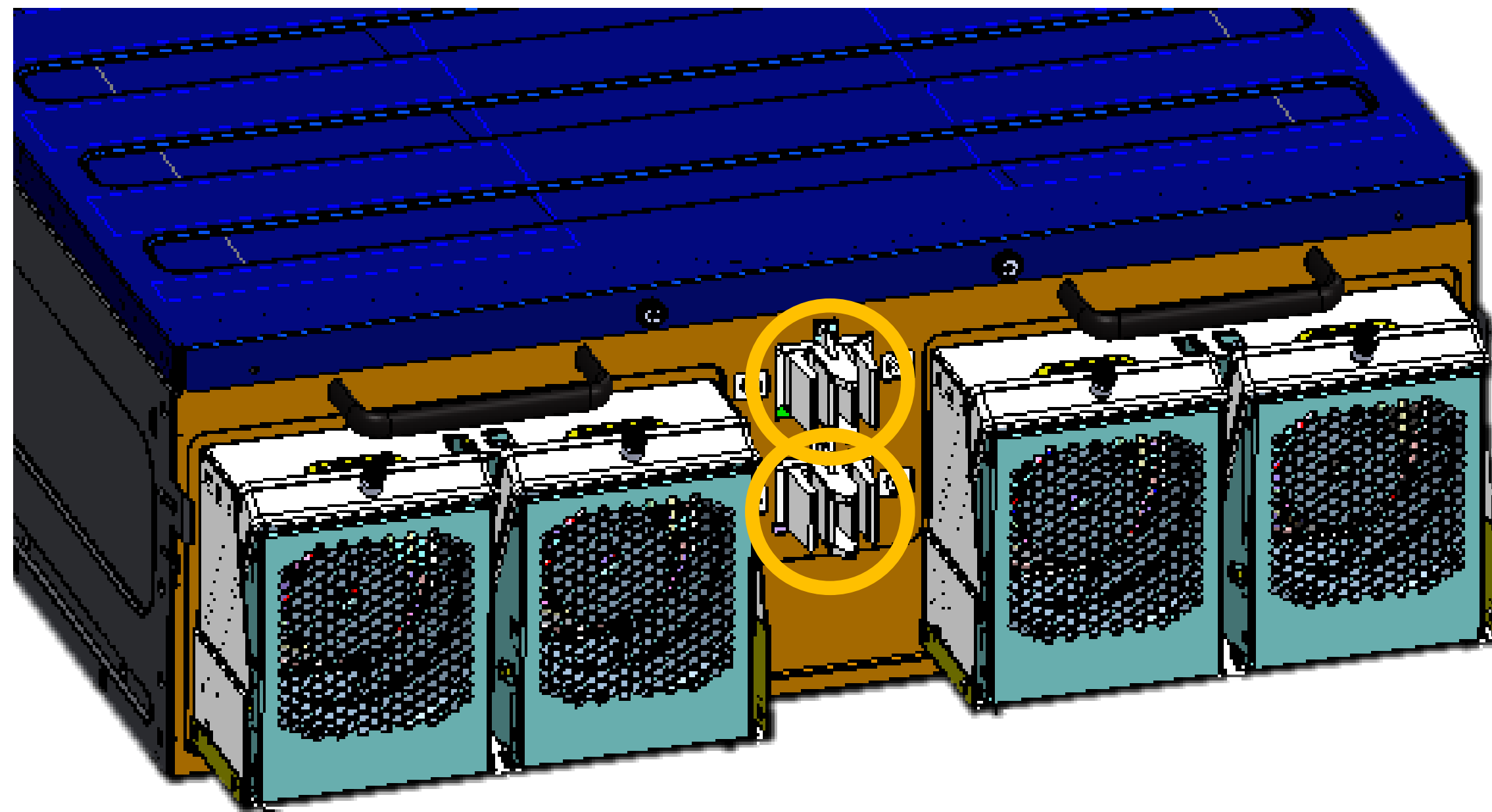
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Specifications

Power Distribution Design for ORv2

- Dual Busbar Clips to support up to 2.8KW
- Power transition board (PTB) for MB, Switch board, Fan board





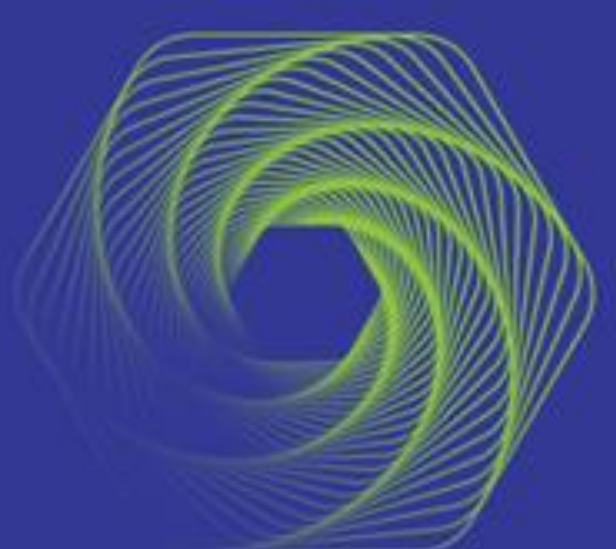
Q&A

Welcome

The Open IT Gears By Choice

OCP Global Summit 2019. San Jose Convention Center. March 14-15.

Booth A12



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OCP Global Summit | March 14–15, 2019

