

Configuring for Interoperability of 19" and Open Rack Standards in ORv3

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Open. Together.

Introduction and Motivation

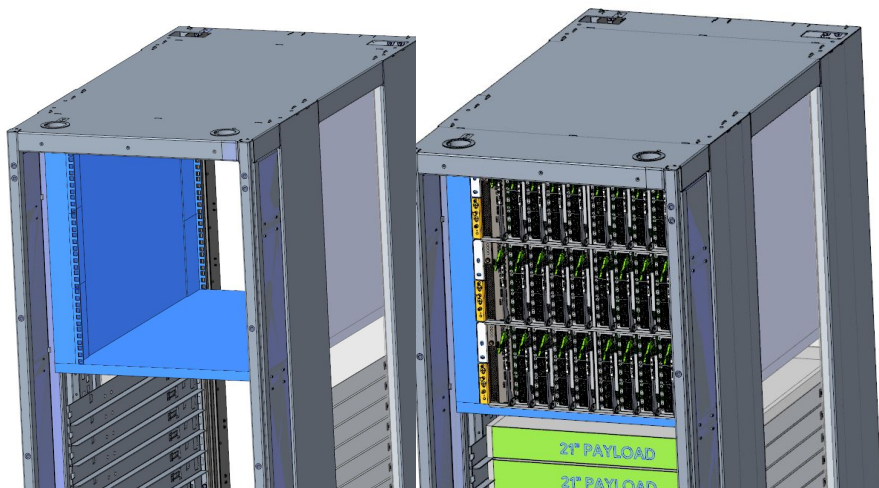
- Develop a configuration of Open Rack that complies with both Open Compute and EIA-310-D standards.
 - Support 4-post mounting 19" Gear, with **unimpeded rear FRU and cable access**.
 - Maintain support for servers designed to ORv2 power interface specification.
- **Scalability:** A single base SKU for both 19"(EIA-310-D) and Open Rack v2/v3 configurations
- **Flexibility:** Provides a platform for mixing OCP devices with 19" equipment in a single rack configuration.

References

A review of 48V Power Distribution Scheme in Open Rack V2:

- **48V Vertical System Bus Bar:** Open Rack V2.2, Section 2.5.2
- **48V IT Gear Connector:** Open Rack V2.2, Section 5
- **48V Horizontal Bus Bar:** Open Rack V2.2, Appendix C
- **48V Horizontal Bus Bar Connector Interface:** Open Rack V2.2, Appendix C

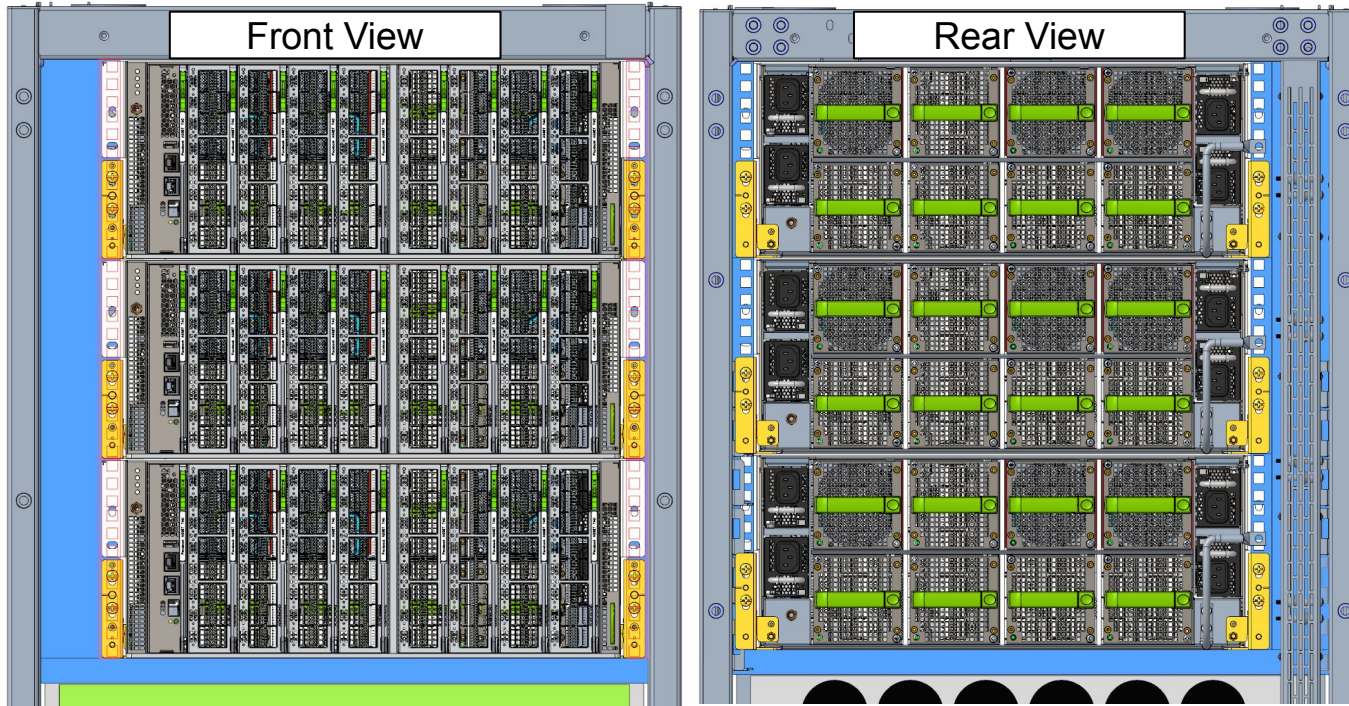
Approach



If shifting the system bus bar to Left-side or Right-side of the rack, there is enough remaining width for 19" rack subframe + 0.8" of budget for clearances and tolerances.

$$\begin{array}{rcll} \text{[ORv3 internal width]} & - & \text{[ORv2/v3 48V Bus Bar Width]} & = \text{[Remaining Config Space]} \\ 539 \text{ mm} & - & 36 \text{ mm} & = 503 \text{ mm (19.8")} \end{array}$$

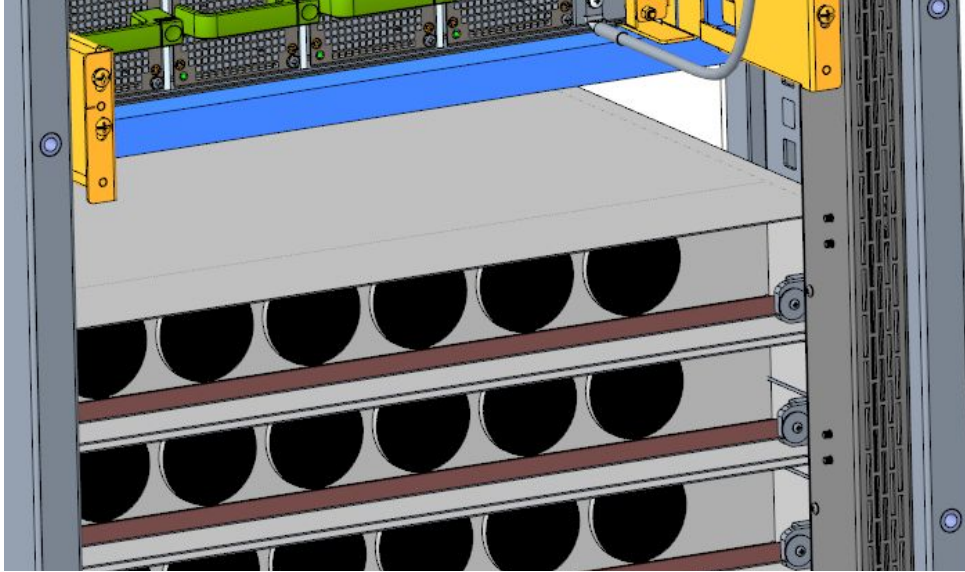
Detailed View: 4-Post Mounting 19" Gear



Enough horizontal space for **4-post 19" subframe** and outboard full-height 48V bus bar.

Unimpeded rear access for FRUs, cables, and deep devices.

Detailed View: Sled Mounting ORv3 Gear



ORv3 Gear mounts similarly to ORv2 Gear when utilizing IT Gear Sled with Horizontal Bus Bar.

No change on server-to-shelf bus bar interface. Still follows Open Rack V2.2, Appendix C.

System-Level Benefits

- Provides a platform that accommodates both EIA-310-D and Open Rack v2/v3 specifications under a common base SKU.
- **Fungibility:** minimizes variation of rack types in fleet.
- **Flexibility:** accommodates multiple use-cases.
 - Network-heavy configuration: Majority 19" network gear paired with OCP servers.
 - Custom On-Prem configurations: Where preferred standard and mix of gear varies by customer.

Scoping / Next Steps: 19" Subframe and Mounting

- Document 19" subframe reference design in white paper.
- Add mounting provisions in ORv3 rack spec.
- Ensure no collisions with current ORv3 plan of record.

Scoping / Next Steps: Side Bus Bar Mounting

- Document application and details in white paper for community release.
- Leverage ORv2 System Bus Bar Interface with modification to mounting cage for left-side and right-side positions.
- Define mounting features for left and right 48V bus bars and add to ORv3 spec.

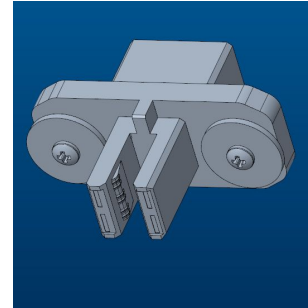
Scoping / Next Steps: Narrow 48V IT Gear Connector

Maintain ORv2 48V IT Gear Connector pin/bus bar interface, but narrow down connector body size.

Engage with community to define narrower IT Gear panel mount scheme.

Possibilities include:

- Snap Fit
- Shoulder Screw
- Other



High-Level Recap and Next Steps

- Proposing a configuration of Open Rack v3 that can accommodate both EIA-310-D and Open Rack v2/v3 specifications.
- Engage with community to propose minor updates to left-side / right-side 48V Bus Bar Cage and IT Gear connector.
- Document reference configuration in a white paper for community release.
 - Includes 19" subframe details.
 - Includes rack-level interfaces and datums.
 - Includes narrower 48V IT Gear connector proposal.
- Promote appropriate material into Open Rack v3 specification.

Questions and Feedback

- Please reach out to OCP-RackandPower@OCP-All.groups.io for any comments, questions, or feedback.

THANK YOU!