

OPEN Compute Project

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64X800Gb Ethernet Switch Specification

Version 1.0

Base Hardware Specification

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Table of Contents

1. License 3
2. Compliance with OCP Tenets 5
2.1. Openness 5
2.2. Efficiency 5
2.3. Impact 5
2.4. Scale 5
2.5 Sustainability 5
3. Version Table 6
4. Scope 7
Base Hardware Specification 8
5. Overview 8
6. Rack Compatibility 9
7. Physical Specifications 9
8. Environmental Requirements 9
Environmental: 9
9. I/O System 9
System Overview 9
LED Indicators 10
System LEDs 10
CPU Subsystem 10
Switching system requirements 10
10. Rear side power and fan 10
11. Mechanical 11
12. Power System 11
13. Environmental Regulations/Environmental Requirements 11
15. Software Support 11
16. Hardware Management 11
Appendix A - Checklist for IC approval of this specification 12

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2. Compliance with OCP Tenets

2.1. Openness

These specifications are being contributed to allow the OCP community to build additional systems and products related to the datacenter market.

2.2. Efficiency

The 64x800Gb Ethernet Switch specification allows building a cost-effective leaf, spine, blade and aggregation switch across the entire datacenter.

2.3. Impact

The 64x800Gb Ethernet Switch specification is the first specification contributed to Open Compute for 800Gb-capable Ethernet switches. Additional follow-on designs and product contributions should come from this specification.

2.4. Scale

The 64x800Gb Ethernet Switch specification describes the requirements for a high density Ethernet switch that can be configured as 800G/400G/200G to be used by a wide range of customers.

2.5 Sustainability

The 64x800Gb Ethernet Switch is built to maximize performance while being ROHS compliant. It maximizes design reuse. The 64x800G Ethernet Switch incorporates modularity into the design.

3. Version Table

Date	Version #	Author	Description
3/29/2023	1.0	CSG Hardware	

4. Scope

This document defines the Base Hardware Specification for a 64x800Gb Ethernet switch, which can be configured as a leaf, spine, blade and aggregation switch (“64x80Gb Ethernet Switch”). A separate Design Specification complies with this Base Hardware Specification and includes further technical detail.

Any supplier seeking OCP recognition for a hardware product based on this Base Hardware Specification or Design specification must be 100% compliant with any and all features or requirements described in these documents.

Base Hardware Specification

5. Overview

The 64x800Gb Ethernet Switch is a networking device targeted for use in datacenter environments.

The 64X800Gb Ethernet Switch can provide connectivity to various other networking devices with various capabilities through the following port configurations.

- 64X800Gb connections
- 128x400Gb connections
- 256x200Gb connections

Typical System Configuration:

- 64x800Gb connections to direct attached devices
- Two management ports
  - RJ45 serial console port
  - RJ45 (10/100/1000) Ethernet port
- Redundant cooling system
- Redundant power system

6. Rack Compatibility

The 64X800Gb Ethernet Switch will be rack mountable in a standard EIA-310 rack. Rack mounting will be accomplished by standard rack mounting rail kit.

7. Physical Specifications

The 64X800Gb Ethernet Switch will be a 2RU design with the estimated dimensions as follows

Length	Estimated: 730mm.
Width	Estimated: 440mm.
Height	Estimated: 90mm.

8. Environmental Requirements

The 64x800Gb Ethernet Switch will be installed in temperature-controlled environments and be required to operate between temperatures ranging from 0C–+40C. The 64x800Gb Ethernet Switch will be equipped with field replaceable fans capable of cooling the entire unit under maximum load conditions. The airflow for cooling the 64x800Gb Ethernet Switch will be drawing air into the front of the Switch and exhausting air out the rear of the unit. The 64x800Gb Ethernet Switch will incorporate sufficient temperature sensors located on the PCB assembly(s) allowing the unit to be managed for thermal conditions.

Environmental:

- Operating Temperature: 0-40C

9. I/O System

System Overview

The 64x800Gb Ethernet Switch system will comprise the following

- 64 x 800Gb capable SERDES ports
- 1x RJ45 10/100/1000 Gb Ethernet management port
- 1 x RJ45 Serial console port
- Switching silicon with external CPU
  - Adequate memory and storage to support the device
- Support for field replaceable power supply modules
- Support for field replaceable system fans

LED Indicators

System LEDs

The 64x800Gb Ethernet Switch will support a minimum of two LEDs to indicate overall system status.

CPU Subsystem

The 64x800Gb Ethernet Switch will support a modular CPU architecture. Different CPU modules could be used that support the specific form factor.

Switching system requirements

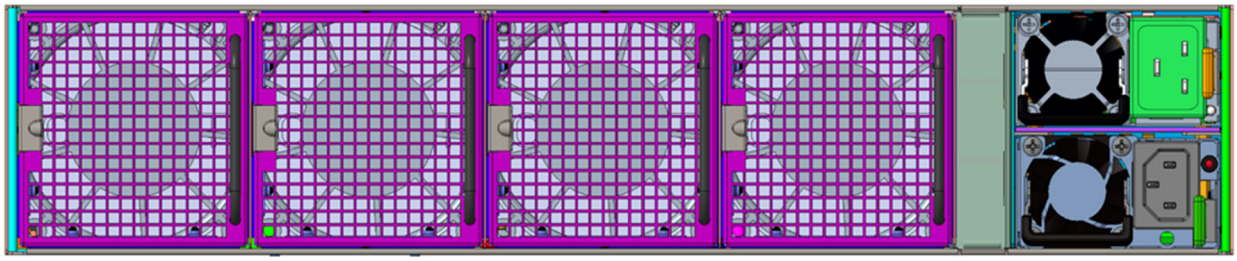
The 64x800Gb Ethernet Switch and its underlying packet switching system must support the following functions

1. 64x800GbE, 128x400GbE, 256x200GbE, 320x100GbE, 320x50GbE data switching capability
2. Large forwarded databases
3. Load balancing
4. Advanced congestion management

10. Rear side power and fan

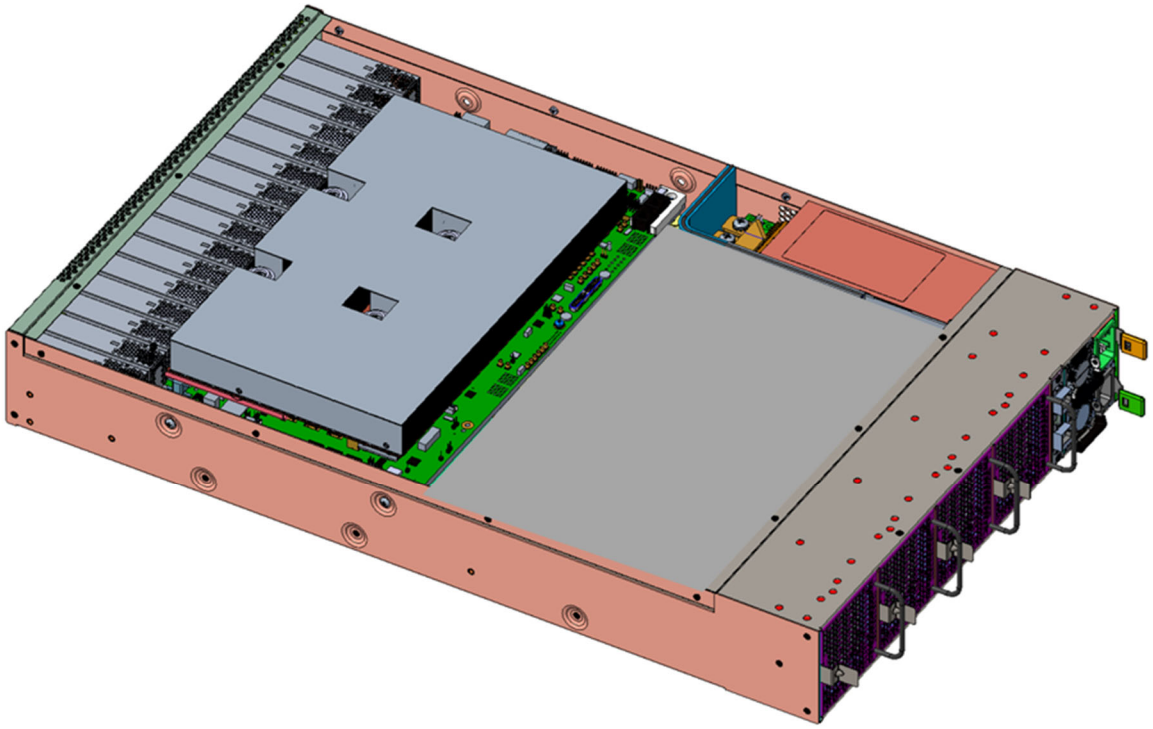
The rear of the 64x800Gb Ethernet Switch should support field replaceable power supplies and the field replaceable system fans.

Concept Drawing: Rear view 64x800GbE Switch



11. Mechanical

Concept Mechanical Drawing: Overall 64x800Gb Ethernet Switch



12. Power System

The 64x800Gb Ethernet Switch will support field replaceable power supplies with input voltage ranging from 90V- 264 AC. The on-board power system will convert the output of these power supplies to the necessary voltages needed by the system.

13. Environmental Regulations/Environmental Requirements

0 to 40 Degrees C operating range

15. Software Support

The 64x800Gb Ethernet Switch will be capable of supporting open source software options.

16. Hardware Management

The 64x800Gb Ethernet Switch will support out of band manageability.

Appendix A - Checklist for IC approval of this specification

Complete all the checklist items in the table with links to the section where it is described in this spec or an external document .

Item	Status or Details	Link to detailed explanation
Contribution License Agreement	OWF CLA	License
Are All Contributors listed in Sec 1: License?	Yes	License
Did all the Contributors sign the appropriate license for this spec? Final Spec Agreement/HW License?	Yes	
Which 3 of the 5 OCP Tenets are supported by this Spec?	Openness Efficiency Impact Scale Sustainability	2. Compliance with OCP Tenets
Is there a Supplier(s) that is building a product based on this Spec?	Yes	
Will Supplier(s) have the product available for GENERAL AVAILABILITY within 120 days?	Yes	