

# Product Specification

850Gb/s 2xDR4+ OSFP 1310nm 2km  
Optical Transceiver

P/N: 800G-OSFP-2DR4+



## Features

- Hot Pluggable OSFP form factor
- Operating data rate 850Gbps
- Single +3.3V power supply
- Dual MPO-12 connector
- Max power dissipation <16.5W
- PIN receivers
- Built-in digital diagnostic function
- Commercial temperature range 0°C to 70°C

## Compliance

- Compliant with OSFP MSA
- Compliant with CMIS 5.1
- RoHS

## Applications

- 800G Ethernet
- Cloud Services
- Data Center Interconnect
- Data center Enterprise networking
- Switches with OSFP ports

Description

The 800G-OSFP-2DR4+ is a cutting-edge optical transceiver designed to deliver 800G Ethernet connectivity over single-mode fiber (SMF) with a reach of up to 2 kilometers. Utilizing dual MTP/MPO-12 connectors, it ensures efficient and reliable data transmission for high-density, high-speed applications. Ideal for next-generation data centers and enterprise networks, this transceiver supports flexible configurations, including 2x 400G XDR4 and 8x 100G FR, enabling seamless scalability for evolving infrastructure demands.

Fully compliant with IEEE 802.3ck, IEEE 802.3cu-2021, OSFP MSA, and CMIS Rev 5.0 standards, the 800G-OSFP-2DR4+ guarantees interoperability and future-proof performance. Its integrated digital diagnostics monitoring (DDM) provides real-time access to critical parameters such as temperature, voltage, and optical power, ensuring proactive network management and optimized operational efficiency.

Engineered for 800G Ethernet and advanced data center environments, this transceiver excels in high-bandwidth scenarios like AI/ML workloads, cloud computing, and distributed storage systems. Its robust design and extended reach make it a reliable choice for enterprises prioritizing speed, compliance, and scalability in mission-critical networks.

Product performance Specifications

1、Basic Product Characteristics

| Parameter                                 | Symbol             | Min                  | Typ. | Max                  | Unit |
|-------------------------------------------|--------------------|----------------------|------|----------------------|------|
| Absolute Maximum Ratings                  |                    |                      |      |                      |      |
| Storage Temperature                       | T <sub>s</sub>     | -40                  | -    | +85                  | °C   |
| Supply Voltage                            | V <sub>CC</sub>    | -0.5                 | -    | 3.6                  | V    |
| Relative Humidity                         | RH                 | 5                    | -    | 95                   | %    |
| Control Input Voltage                     | V <sub>I</sub>     | -0.3                 | -    | V <sub>CC</sub> +0.5 | V    |
| Control Input Voltage High                | V <sub>IH</sub>    | V <sub>CC</sub> *0.7 |      | V <sub>CC</sub> +0.3 | V    |
| Control Input Voltage Low                 | V <sub>IL</sub>    | -0.3                 |      | V <sub>CC</sub> *0.3 | V    |
| Maximum Power Dissipation, Low Power Mode | PDLP               |                      |      | 2                    | W    |
| Control Output Current                    | I <sub>O</sub>     | -20                  |      | 20                   | mA   |
| Operational Specifications                |                    |                      |      |                      |      |
| Operating Case Temperature                | T <sub>C</sub>     | 0                    | -    | 70                   | °C   |
| Power Supply Voltage                      | V <sub>CC</sub>    | 3.135                | 3.3  | 3.465                | V    |
| Instantaneous Peak Current at Hot Plug    | I <sub>CC_IP</sub> |                      |      | TBD                  | mA   |
| Sustained Peak Current at Hot Plug        |                    |                      |      |                      |      |

|                                       |            |   |                      |      |      |
|---------------------------------------|------------|---|----------------------|------|------|
| Power Consumption                     | $P_{DISS}$ | - | -                    | 16.5 | W    |
| Data Rate                             | DR         | - | 850                  | -    | Gbps |
| Pre-FEC Bit Error Ratio               |            |   | $2.4 \times 10^{-4}$ |      |      |
| Transmission Distance                 | -          | 2 | -                    | 2000 | m    |
| Two Wire Serial Interface Clock Rate  |            |   |                      | 400  | kHz  |
| Power Supply Noise 1 kHz -1 MHz (p-p) |            |   |                      | 66   | mVpp |

## 2、Product Optical and Electrical Characteristics

| Parameter                                                             | Symbol           | Min                | Typ. | Max    | Unit  | Note |
|-----------------------------------------------------------------------|------------------|--------------------|------|--------|-------|------|
| Transceiver                                                           |                  |                    |      |        |       |      |
| Modulation format                                                     |                  | PAM4               |      |        |       |      |
| Center Wavelength                                                     | $\lambda_C$      | 1304.5             | 1311 | 1317.5 | nm    |      |
| Side Mode Suppression Ratio                                           | SMSR             | 30                 |      |        | dB    |      |
| Average Launch power, each lane                                       | $P_{AVG}$        | -2.9               |      | 4.0    | dBm   | 1    |
| Optical Power OMA, each Lane max                                      | $P_{OMA}$        | 3.5                |      |        | dBm   |      |
| Outer Optical Modulation Amplitude (OMA <sub>outer</sub> ), each Lane | OMA              | -0.1<br>-1.5+TDECQ |      | 4.2    | dBm   |      |
| Transmitter and dispersion eye closure (TDECQ), each lane             | TDECQ            |                    |      | 3.4    | dB    |      |
| Transmitter Eye Closure for PAM4 (TECQ), each Lane                    | TECQ             |                    |      | 3.4    | dB    |      |
| TDECQ-TECQ                                                            |                  |                    |      | 2.5    | dB    |      |
| Over/Under-shoot                                                      |                  |                    |      | 22     | %     |      |
| Transmitter Power Excursion                                           |                  |                    |      | 2      | dBm   |      |
| Average Launch Power of OFF Transmitter, each Lane                    | $T_{OFF}$        |                    |      | -15    | dBm   |      |
| Extinction Ratio                                                      | ER               | 3.5                |      |        | dB    |      |
| Transmitter Transition Time                                           | $T_r$            |                    |      | 17     | ps    |      |
| RIN15.6OMA                                                            | $R_{IN}$         |                    |      | -136   | dB/Hz |      |
| Optical Return Loss Tolerance                                         | ORL              |                    |      | 17.1   | dB    |      |
| Transmitter Reflectance                                               | TR               |                    |      | -26    | dB    | 2    |
| Differential Pk-pk Input Voltage Tolerance(TP1a)                      |                  | 750                |      |        | mV    |      |
| AC Common-mode RMS Voltage Tolerance(TP1a)                            |                  | 25                 |      |        | mV    |      |
| Differential-mode to Common-mode Return Loss                          | RL <sub>cd</sub> | 802.3ck 120G-2     |      |        | dB    |      |
| Effective Return Loss                                                 | ERL              | 8.5                |      |        | dB    |      |

|                                                                                     |             |                               |      |        |      |   |
|-------------------------------------------------------------------------------------|-------------|-------------------------------|------|--------|------|---|
| Differential Termination Mismatch                                                   |             |                               |      | 10     | %    |   |
| Single-ended Voltage Tolerance Range                                                |             | -0.4                          |      | 3.3    | V    |   |
| DC Common-mode Voltage Tolerance                                                    |             | -0.35                         |      | 2.85   | V    |   |
| Receiver                                                                            |             |                               |      |        |      |   |
| Modulation format                                                                   |             | PAM4                          |      |        |      |   |
| Center Wavelength                                                                   | $\lambda_c$ | 1304.5                        | 1311 | 1317.5 | nm   |   |
| Damage threshold                                                                    |             | 5                             |      |        | dBm  |   |
| Average receive power, each lane                                                    |             | -7.1                          |      | 4      | dBm  |   |
| Receive power, each lane (OMA <sub>outer</sub> )                                    |             |                               |      | 4.2    | dBm  |   |
| Receiver reflectance                                                                | RR          |                               |      | -26    | dB   |   |
| Receiver Sensitivity (OMA <sub>outer</sub> ) for TECQ<1.4 dB for 1.4dB<=TECQ<=3.4dB |             | Max(-4.5, -5.9+TECQ)          |      |        | dBm  | 3 |
| Stressed receiver sensitivity, each lane                                            | SRS         |                               |      | -2.5   | dBm  | 4 |
| AC Common-mode Output Voltage (RMS)                                                 |             |                               |      | 25     | mVpp |   |
| Differential Peak-to-peak Output Voltage                                            | Short Mode  |                               |      | 600    | mV   |   |
|                                                                                     | Long Mode   |                               |      | 845    | mV   |   |
| Eye Height                                                                          | EH          | 15                            |      |        | mV   |   |
| Vertical Eye Closure                                                                | VEC         |                               |      | 12     | dB   |   |
| Common-mode to differential-mode return loss                                        |             | IEEE802.3ck Equation (120G-1) |      |        |      |   |
| Effective Return Loss                                                               | ERL         | 8.5                           |      |        | dB   |   |
| Differential Termination Mismatch                                                   |             |                               |      | 10     | %    |   |
| Transition Time                                                                     |             | 8.5                           |      |        | ps   |   |

**Note1:** Average launch power, each lane (min) is informative and not the principal indicator of signal strength

**Note2:** Transmitter reflectance is defined looking into the transmitter

**Note3:** Receiver sensitivity (OMA<sub>outer</sub>), each lane (max) is informative and is defined for a transmitter with a value of SECQ up to 3.4 dB

**Note4:** Measured with conformance test signal at TP3 for the BER =  $2.4 \times 10^{-4}$

## Recommended Host Board Power Supply Circuit

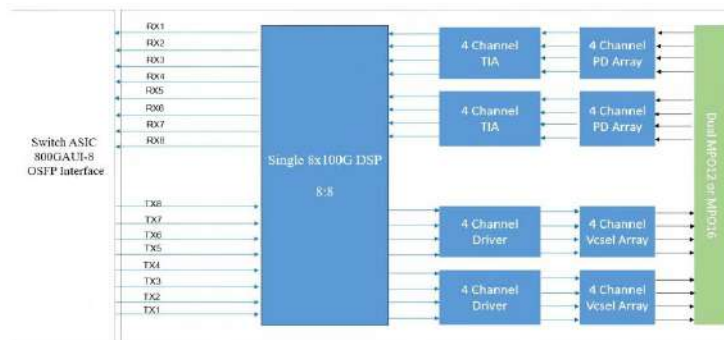


Figure 1: Module Block Diagram

## Recommended Interface Circuit

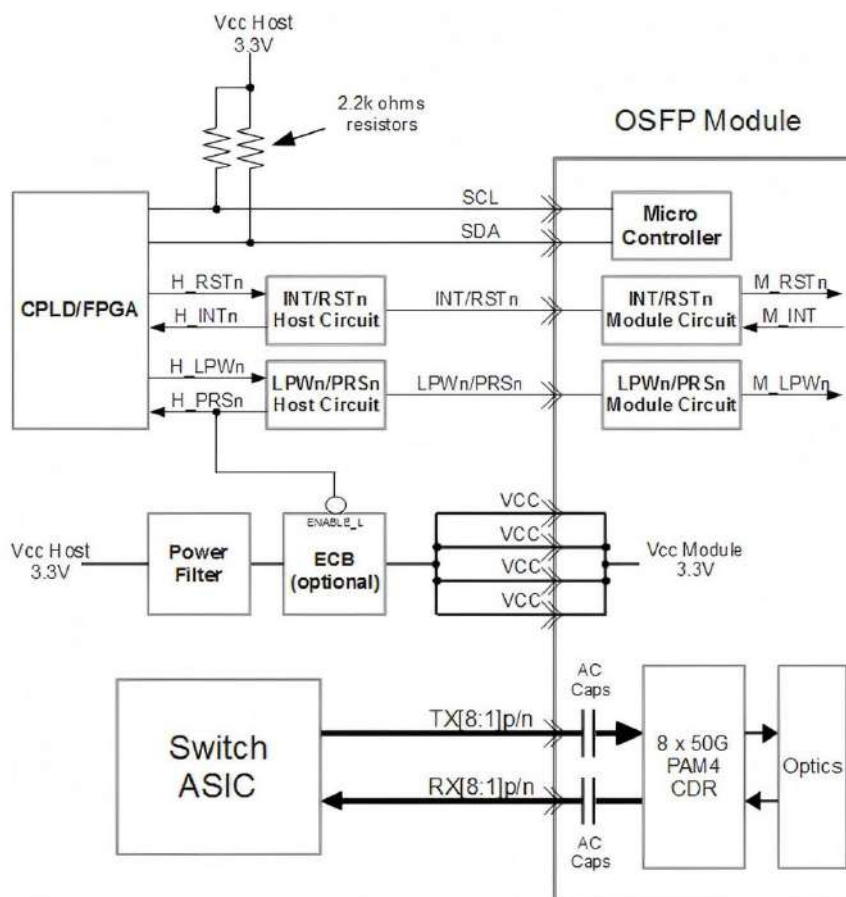


Figure2: Recommended Interface Circuit

## Optical Interface

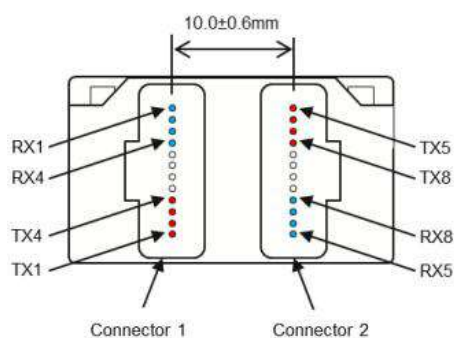


Figure3:Optical Lane Sequence

## Pin-out Definition

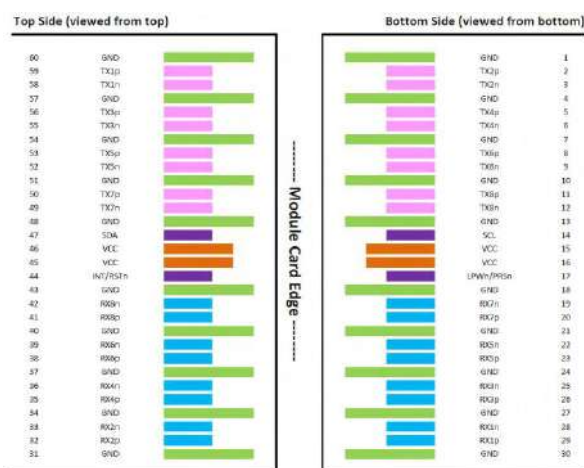


Figure4:Pin view

## Pin Function Definitions

| Pin | Logic | Symbol | Description                   | Note |
|-----|-------|--------|-------------------------------|------|
| 1   |       | GND    | Ground                        |      |
| 2   | CML-I | TX2p   | Transmitter Data Non-Inverted |      |
| 3   | CML-I | TX2n   | Transmitter Data Inverted     |      |
| 4   |       | GND    | Ground                        |      |
| 5   | CML-I | TX4p   | Transmitter Data Non-Inverted |      |
| 6   | CML-I | TX4n   | Transmitter Data Inverted     |      |
| 7   |       | GND    | Ground                        |      |
| 8   | CML-I | TX6p   | Transmitter Data Non-Inverted |      |

|    |             |           |                                 |   |
|----|-------------|-----------|---------------------------------|---|
| 9  | CML-I       | TX6n      | Transmitter Data Inverted       |   |
| 10 |             | GND       | Ground                          |   |
| 11 | CML-I       | TX8p      | Transmitter Data Non-Inverted   |   |
| 12 | CML-I       | TX8n      | Transmitter Data Inverted       |   |
| 13 |             | GND       | Ground                          |   |
| 14 | LVC MOS-I/O | SCL       | 2-wire Serial interface clock   | 1 |
| 15 |             | VCC       | +3.3V Power                     |   |
| 16 |             | VCC       | +3.3V Power                     |   |
| 17 | Multi-Level | LPWn/PRSn | Low-Power Mode / Module Present | 2 |
| 18 |             | GND       | Ground                          |   |
| 19 | CML-O       | RX7n      | Receiver Data Inverted          |   |
| 20 | CML-O       | RX7p      | Receiver Data Non-Inverted      |   |
| 21 |             | GND       | Ground                          |   |
| 22 | CML-O       | RX5n      | Receiver Data Inverted          |   |
| 23 | CML-O       | RX5p      | Receiver Data Non-Inverted      |   |
| 24 |             | GND       | Ground                          |   |
| 25 | CML-O       | RX3n      | Receiver Data Inverted          |   |
| 26 | CML-O       | RX3p      | Receiver Data Non-Inverted      |   |
| 27 |             | GND       | Ground                          |   |
| 28 | CML-O       | RX1n      | Receiver Data Inverted          |   |
| 29 | CML-O       | RX1p      | Receiver Data Non-Inverted      |   |
| 30 |             | GND       | Ground                          |   |
| 31 |             | GND       | Ground                          |   |
| 32 | CML-O       | RX2p      | Receiver Data Non-Inverted      |   |
| 33 | CML-O       | RX2n      | Receiver Data Inverted          |   |
| 34 |             | GND       | Ground                          |   |
| 35 | CML-O       | RX4p      | Receiver Data Non-Inverted      |   |
| 36 | CML-O       | RX4n      | Receiver Data Inverted          |   |
| 37 |             | GND       | Ground                          |   |
| 38 | CML-O       | RX6p      | Receiver Data Non-Inverted      |   |
| 39 | CML-O       | RX6n      | Receiver Data Inverted          |   |
| 40 |             | GND       | Ground                          |   |
| 41 | CML-O       | RX8p      | Receiver Data Non-Inverted      |   |
| 42 | CML-O       | RX8n      | Receiver Data Inverted          |   |
| 43 |             | GND       | Ground                          |   |
| 44 | Multi-Level | INT/RSTn  | Module Interrupt / Module Reset | 2 |
| 45 |             | VCC       | +3.3V Power                     |   |
| 46 |             | VCC       | +3.3V Power                     |   |

|    |             |      |                               |   |
|----|-------------|------|-------------------------------|---|
| 47 | LVC MOS-I/O | SDA  | 2-wire Serial interface data  | 1 |
| 48 |             | GND  | Ground                        |   |
| 49 | CML-I       | TX7n | Transmitter Data Inverted     |   |
| 50 | CML-I       | TX7p | Transmitter Data Non-Inverted |   |
| 51 |             | GND  | Ground                        |   |
| 52 | CML-I       | TX5n | Transmitter Data Inverted     |   |
| 53 | CML-I       | TX5p | Transmitter Data Non-Inverted |   |
| 54 |             | GND  | Ground                        |   |
| 55 | CML-I       | TX3n | Transmitter Data Inverted     |   |
| 56 | CML-I       | TX3p | Transmitter Data Non-Inverted |   |
| 57 |             | GND  | Ground                        |   |
| 58 | CML-I       | TX1n | Transmitter Data Inverted     |   |
| 59 | CML-I       | TX1p | Transmitter Data Non-Inverted |   |
| 60 |             | GND  | Ground                        |   |

**Note1:** Open-Drain with pull up resistor on Host.

**Note2:** See pin description for required circuit.



Monitoring Specification

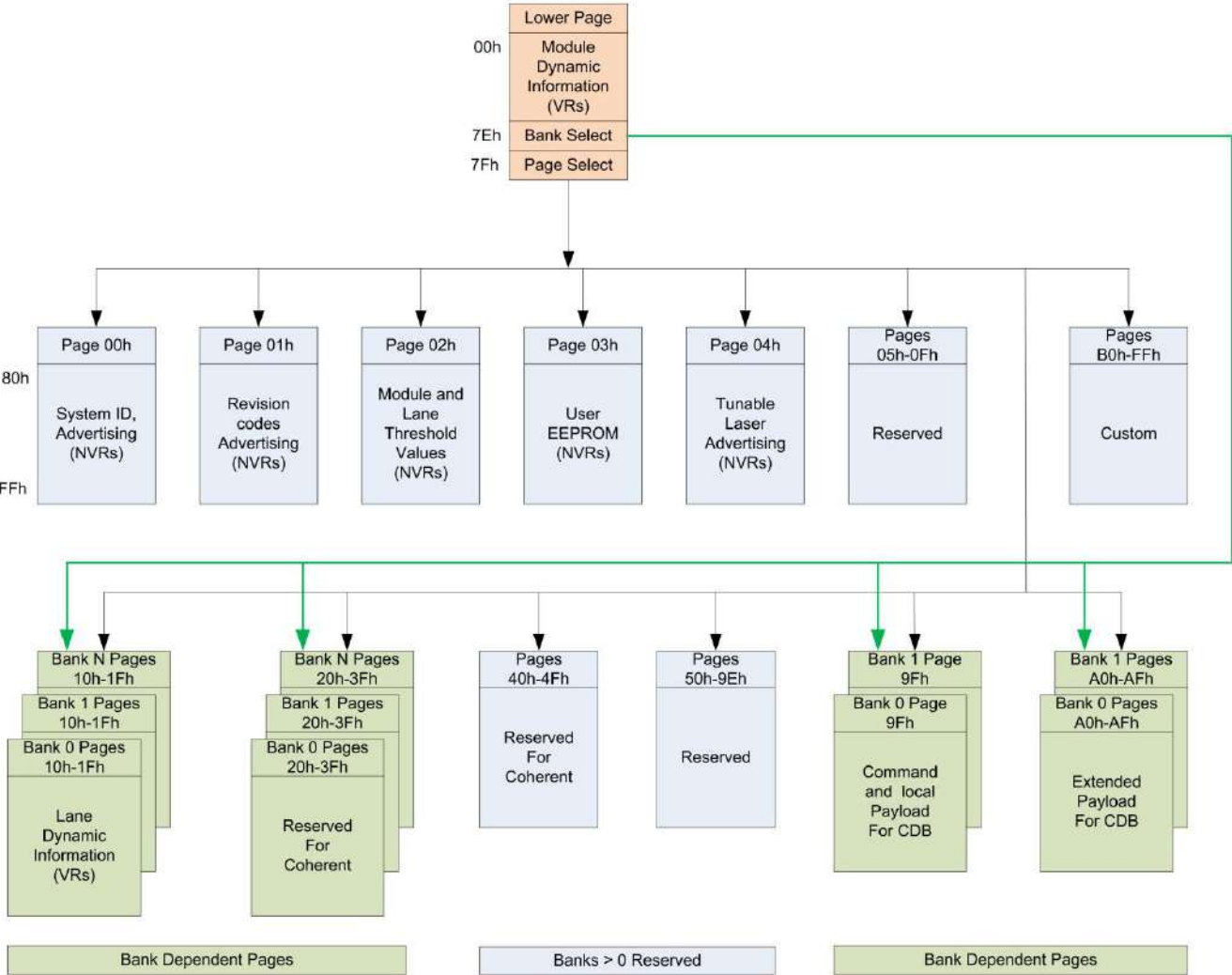


Figure5:Memory map

Memory map Table

| Byte           | Unit | Name                | Description                                                                                                                                                                       |
|----------------|------|---------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Lower Page 00h |      |                     |                                                                                                                                                                                   |
| 0              | 1    | Identifier          | Identifier - Type of Serial Module - See SFF-8024.                                                                                                                                |
| 1              | 1    | Revision Compliance | Identifier – CMIS revision; the upper nibble is the whole number part and the lower nibble is the decimal part.<br>Example: 01h indicates version 0.1, 21h indicates version 2.1. |
| 2-3            | 2    | ID and Status Area  | Flat mem indication, CLEI present indicator, Maximum TWI speed,                                                                                                                   |

|                |    |                                 |                                                                                                   |
|----------------|----|---------------------------------|---------------------------------------------------------------------------------------------------|
|                |    |                                 | Current state of Module, Current state of the Interrupt signal.                                   |
| 4-7            | 4  | Lane Flag Summary               | Flag summary of all lane flags on pages 10h-1Fh.                                                  |
| 8-13           | 6  | Module-Level Flags              | All flags that are not lane or data path specific.                                                |
| 14-25          | 12 | Module-Level Monitors           | Monitors that are not lane or data path specific.                                                 |
| 26-30          | 5  | Module Global Controls          | Controls applicable to the module as a whole                                                      |
| 31-36          | 6  | Module-Level Flag Masks         | Masking bits for the Module-Level flags                                                           |
| 37-38          | 2  | CDB Status Area                 | Status of most recent CDB command                                                                 |
| 39-40          | 2  | Module Firmware Version         | Module Firmware Version.                                                                          |
| 41-63          | 23 | Reserved Area                   | Reserved for future standardization                                                               |
| 64-82          | 19 | Custom Area                     | Vendor or module type specific use                                                                |
| 83-84          | 2  | Inactive Firmware Version       | Version Number of Inactive Firmware. Values of 00h indicates module supports only a single image. |
| 85-117         | 33 | Application Advertising         | Combinations of host and media interfaces that are supported by module data path(s)               |
| 118-125        | 8  | Password Entry and Change       | Password Entry and Change                                                                         |
| 126            | 1  | Bank Select Byte                | Bank address of currently visible Page                                                            |
| 127            | 1  | Page Select Byte                | Page address of currently visible Page                                                            |
| Upper Page 00h |    |                                 |                                                                                                   |
| 128            | 1  | Identifier                      | Identifier - Type of Serial Module - See SFF-8024.                                                |
| 129-144        | 16 | Vendor name                     | Vendor name (ASCII)                                                                               |
| 145-147        | 2  | Vendor OUI                      | Vendor IEEE company ID                                                                            |
| 148-163        | 16 | Vendor PN                       | Part number provided by vendor (ASCII)                                                            |
| 164-165        | 8  | Vendor rev                      | Revision level for part number provided by vendor (ASCII)                                         |
| 166-181        | 10 | Vendor SN                       | Vendor Serial Number (ASCII)                                                                      |
| 182-183        | 2  | Date code year                  | ASCII code, two low order digits of year (00=2000)                                                |
| 184-185        | 2  | Date code month                 | ASCII code digits of month (01=Jan through 12=Dec)                                                |
| 186-187        | 2  | Date code day of month          | ASCII code day of month (01-31)                                                                   |
| 188-189        | 2  | Lot code                        | ASCII code, custom lot code, may be blank                                                         |
| 190-199        | 10 | CLEI code                       | Common Language Equipment Identification code                                                     |
| 200-201        | 2  | Module power characteristics    | Module power characteristics                                                                      |
| 202            | 1  | Cable assembly length           | Cable assembly length                                                                             |
| 203            | 1  | Media Connector Type            | Media Connector Type                                                                              |
| 204            | 1  | 5 GHz attenuation               | Passive copper cable attenuation at 5 GHz in 1 dB increments                                      |
| 205            | 1  | 7 GHz attenuation               | Passive copper cable attenuation at 7 GHz in 1 dB increments                                      |
| 206            | 1  | 12.9 GHz attenuation            | Passive copper cable attenuation at 12.9 GHz in 1 dB increments                                   |
| 207            | 1  | 25.8 GHz attenuation            | Passive copper cable attenuation at 25.8 GHz in 1 dB increments                                   |
| 208-209        | 2  | Reserved                        | Reserved                                                                                          |
| 210-211        | 2  | Cable Assembly Lane Information | Cable Assembly Lane Information                                                                   |

|         |    |                            |                            |
|---------|----|----------------------------|----------------------------|
| 212     | 1  | Media Interface Technology | Media Interface Technology |
| 213-220 | 8  | Reserved                   | Reserved                   |
| 221     | 1  | Custom                     | Custom                     |
| 222     | 1  | Checksum                   | Includes bytes 128-221     |
| 223-255 | 33 | Custom Info NV             | Custom Info NV             |

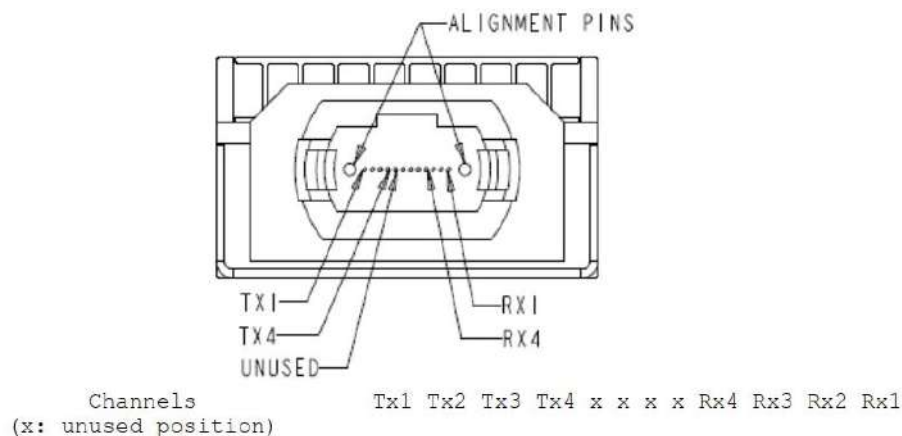
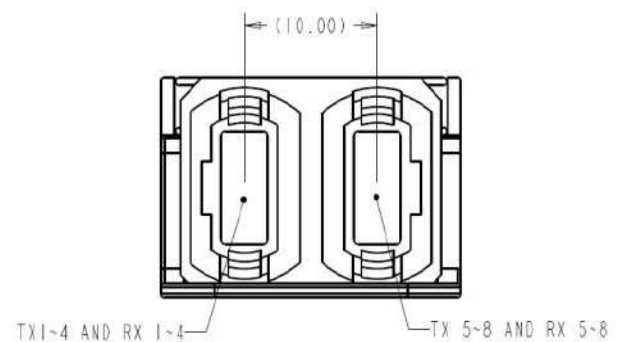
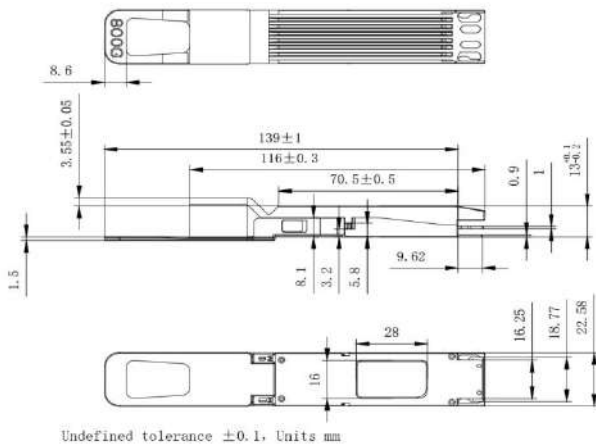
#### Page 01h (Optional)

|         |    |                                                    |                                                                                                                                                                                                                                                                                                                                                     |
|---------|----|----------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 128     | 1  | Inactive Module firmware major revision            | Numeric representation of inactive module firmware major revision                                                                                                                                                                                                                                                                                   |
| 129     | 1  | Inactive Module firmware minor revision            | Inactive Module firmware minor revision                                                                                                                                                                                                                                                                                                             |
| 130     | 1  | Module hardware major revision                     | Module hardware major revision                                                                                                                                                                                                                                                                                                                      |
| 131     | 1  | Module hardware minor revision                     | Module hardware minor revision                                                                                                                                                                                                                                                                                                                      |
| 132     | 1  | Length (SMF)                                       | Bits 7-6 Length multiplier (SMF), Bits 5-0 Base Length (SMF)                                                                                                                                                                                                                                                                                        |
| 133     | 1  | Length (OM5)                                       | Link length supported for OM5 fiber, units of 2 m (2 to 510 m)                                                                                                                                                                                                                                                                                      |
| 134     | 1  | Length (OM4)                                       | Link length supported for OM4 fiber, units of 2 m (2 to 510 m)                                                                                                                                                                                                                                                                                      |
| 135     | 1  | Length (OM3)                                       | Link length supported for EBW 50/125 $\mu$ m fiber (OM3), units of 2m (2 to 510 m)                                                                                                                                                                                                                                                                  |
| 136     | 1  | Length (OM2)                                       | Link length supported for 50/125 $\mu$ m fiber (OM2), units of 1m (1 to 255 m)                                                                                                                                                                                                                                                                      |
| 137     | 1  | Reserved                                           | Reserved                                                                                                                                                                                                                                                                                                                                            |
| 138-139 | 2  | Nominal Wavelength                                 | Nominal Wavelength                                                                                                                                                                                                                                                                                                                                  |
| 140-141 | 2  | Wavelength Tolerance                               | Wavelength Tolerance                                                                                                                                                                                                                                                                                                                                |
| 142-144 | 3  | Implemented Memory Pages and Durations advertising | Implemented Memory Pages and Durations advertising                                                                                                                                                                                                                                                                                                  |
| 145-154 | 10 | Module Characteristics advertising                 | Module Characteristics advertising                                                                                                                                                                                                                                                                                                                  |
| 155-156 | 2  | Implemented Controls advertising                   | Implemented Controls advertising                                                                                                                                                                                                                                                                                                                    |
| 157-158 | 2  | Implemented Flags advertising                      | Implemented Flags advertising                                                                                                                                                                                                                                                                                                                       |
| 159-160 | 2  | Implemented Monitors advertising                   | Implemented Monitors advertising                                                                                                                                                                                                                                                                                                                    |
| 161-162 | 2  | Implemented Signal Integrity Controls advertising  | Implemented Signal Integrity Controls advertising                                                                                                                                                                                                                                                                                                   |
| 163-166 | 4  | CDB support advertising                            | CDB support advertising                                                                                                                                                                                                                                                                                                                             |
| 167-168 | 2  | Additional Durations advertising                   | Additional Durations advertising                                                                                                                                                                                                                                                                                                                    |
| 169-175 | 7  | Reserved                                           | Reserved                                                                                                                                                                                                                                                                                                                                            |
| 176-190 | 15 | Module Media Lane advertising                      | Coded 1 if the Application is allowed to begin on a given media lane. Bits 0-7 correspond to Host Lanes 1-8. In multi-lane Applications each instance of an Application shall use contiguous media lane numbers. If multiple instances of a single Application are allowed each starting point is identified. If multiple instances are advertised, |

|                     |    |                                                          |                                                                                                                                                                                                                                                                                                                               |
|---------------------|----|----------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                     |    |                                                          | all instance must be supported concurrently.                                                                                                                                                                                                                                                                                  |
| 191-222             | 32 | Custom                                                   | Custom                                                                                                                                                                                                                                                                                                                        |
| 223-250             | 28 | Extended Module Host-Media Interface Advertising options | Extended Module Host-Media Interface Advertising options                                                                                                                                                                                                                                                                      |
| 251-254             | 4  | Reserved                                                 | Reserved                                                                                                                                                                                                                                                                                                                      |
| 255                 | 1  | Checksum                                                 | Checksum                                                                                                                                                                                                                                                                                                                      |
| Page 02h (Optional) |    |                                                          |                                                                                                                                                                                                                                                                                                                               |
| 128-129             | 2  | Temperature monitor high alarm                           | Thresholds for internally measured temperature monitor: signed 2's complement in 1/256 degree Celsius increments                                                                                                                                                                                                              |
| 130-131             | 2  | Temperature monitor low alarm                            |                                                                                                                                                                                                                                                                                                                               |
| 132-133             | 2  | Temperature monitor high warning                         |                                                                                                                                                                                                                                                                                                                               |
| 134-135             | 2  | Temperature monitor low warning                          |                                                                                                                                                                                                                                                                                                                               |
| 136-137             | 2  | Supply 3.3-volt monitor high alarm                       | Thresholds for internally measured 3.3 volt input supply voltage: in 100 $\mu$ V increments                                                                                                                                                                                                                                   |
| 138-139             | 2  | Supply 3.3-volt monitor low alarm                        |                                                                                                                                                                                                                                                                                                                               |
| 140-141             | 2  | Supply 3.3-volt monitor high warning                     |                                                                                                                                                                                                                                                                                                                               |
| 142-143             | 2  | Supply 3.3-volt monitor low warning                      |                                                                                                                                                                                                                                                                                                                               |
| 144-145             | 2  | Aux 1 monitor high alarm                                 | Thresholds for TEC Current or Reserved monitor TEC Current: signed 2's complement in 100/32767% increments of maximum TEC current<br>+32767 is max TEC current (100%) – Max Heating<br>-32767 is min TEC current (100%) – Max Cooling                                                                                         |
| 146-147             | 2  | Aux 1 monitor low alarm                                  |                                                                                                                                                                                                                                                                                                                               |
| 148-149             | 2  | Aux 1 monitor high warning                               |                                                                                                                                                                                                                                                                                                                               |
| 150-151             | 2  | Aux 1 monitor low warning                                |                                                                                                                                                                                                                                                                                                                               |
| 152-153             | 2  | Aux 2 monitor high alarm                                 | Thresholds for TEC Current or Laser Temperature monitor TEC Current: signed 2's complement in 100/32767% increments of maximum TEC current<br>+32767 is max TEC current (100%) – Max Heating<br>-32767 is min TEC current (100%) – Max Cooling<br>Laser Temperature: signed 2's complement in 1/256 degree Celsius increments |
| 154-155             | 2  | Aux 2 monitor low alarm                                  |                                                                                                                                                                                                                                                                                                                               |
| 156-157             | 2  | Aux 2 monitor high warning                               |                                                                                                                                                                                                                                                                                                                               |
| 158-159             | 2  | Aux 2 monitor low warning                                |                                                                                                                                                                                                                                                                                                                               |
| 160-161             | 2  | Aux 3 monitor high alarm                                 | Thresholds for Laser Temperature or additional supply voltage monitor<br>Laser Temperature: signed 2's complement in 1/256 degree Celsius increments<br>NOTE: Laser Temp can be below 0 if uncooled or in Tx Disable.<br>Additional supply voltage monitor: in 100 $\mu$ V increments                                         |
| 162-163             | 2  | Aux 3 monitor low alarm                                  |                                                                                                                                                                                                                                                                                                                               |
| 164-165             | 2  | Aux 3 monitor high warning                               |                                                                                                                                                                                                                                                                                                                               |
| 166-167             | 2  | Aux 3 monitor low warning                                |                                                                                                                                                                                                                                                                                                                               |
| 168-169             | 2  | Custom monitor high alarm                                | Custom monitor: signed or unsigned 16 bit value                                                                                                                                                                                                                                                                               |
| 170-171             | 2  | Custom monitor low alarm                                 |                                                                                                                                                                                                                                                                                                                               |
| 172-173             | 2  | Custom monitor high warning                              |                                                                                                                                                                                                                                                                                                                               |
| 174-175             | 2  | Custom monitor low warning                               |                                                                                                                                                                                                                                                                                                                               |

|         |    |                               |                                                                                                                                                                                                                 |
|---------|----|-------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 176-177 | 2  | Tx optical power high alarm   | Threshold for Tx optical power monitor: unsigned integer in 0.1 uW increments, yielding a total measurement range of 0 to 6.5535 mW (~-40 to +8.2 dBm) See section 8.8.3 for monitor details including accuracy |
| 178-179 | 2  | Tx optical power low alarm    |                                                                                                                                                                                                                 |
| 180-181 | 2  | Tx optical power high warning |                                                                                                                                                                                                                 |
| 182-183 | 2  | Tx optical power low warning  |                                                                                                                                                                                                                 |
| 184-185 | 2  | Tx bias current high alarm    | Threshold for Tx bias monitor: unsigned integer in 2 uA increments, times the multiplier from Table 8-33. See section 8.8.3 for monitor details including accuracy                                              |
| 186-187 | 2  | Tx bias current low alarm     |                                                                                                                                                                                                                 |
| 188-189 | 2  | Tx bias current high warning  |                                                                                                                                                                                                                 |
| 190-191 | 2  | Tx bias current low warning   |                                                                                                                                                                                                                 |
| 192-193 | 2  | Rx optical power high alarm   | Threshold for Rx optical power monitor: unsigned integer in 0.1 uW increments, yielding a total measurement range of 0 to 6.5535 mW (~-40 to +8.2 dBm) See section 8.8.3 for accuracy.                          |
| 194-195 | 2  | Rx bias current low alarm     |                                                                                                                                                                                                                 |
| 196-197 | 2  | Rx bias current high warning  |                                                                                                                                                                                                                 |
| 198-199 | 2  | Rx bias current low warning   |                                                                                                                                                                                                                 |
| 200-229 | 30 | Reserved                      | Reserved                                                                                                                                                                                                        |
| 230-254 | 25 | Custom                        | Custom                                                                                                                                                                                                          |
| 255     | 1  | Checksum                      | Covers bytes 128-254                                                                                                                                                                                            |

## Mechanical Dimension

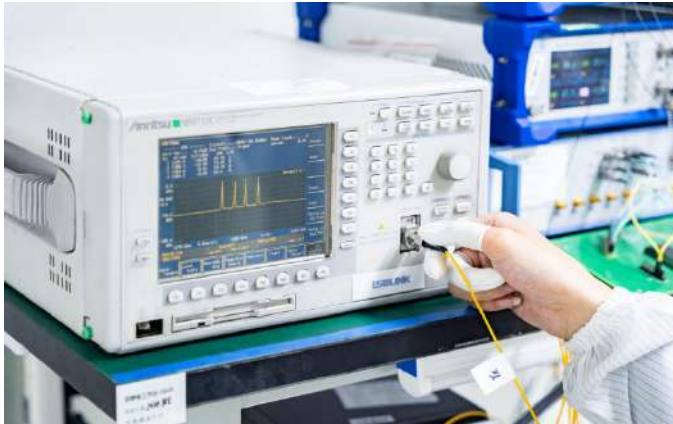




## Test Center

### 1、Performance Testing

Every fiber optic transceiver is thoroughly tested by the LSOLINK Assurance Program, which is equipped with the world's most advanced analytical equipment to ensure that our transceivers meet the industry's international public protocol standards while still functioning flawlessly in your facility.



#### Optical Spectrum Inspection

Using the industry's leading optical spectrum analyser to check in real time that the parameters of the optical transceiver's laser comply with industry standards.

- **Peak:** Peak wavelength and peak level
- **2nd Peak:** Side-mode wavelength and level
- **Mean Wl:** Center wavelength
- **Total Power:** Total power of spectrum
- **SMSR:** Side-Mode Suppression Ratio



#### Optical Signal Quality Inspection

Using highly efficient sampling oscilloscopes and BERT testers, equipped with an automated test platform to accurately test the signal quality of the transceiver, test records are kept for up to 5 years to ensure the traceability of each transceiver.

- **Eye Mask Margin(NRZ)**
- **TDECQ(PAM4):**transmitter dispersion eye closure
- **OMA:** Optical modulation amplitude
- **BER:** Bit error rate
- **ER:** Extinction Ratio



#### Flow Pressure Test

Using multi-protocol network traffic analyser with various brands of switches to test the transceiver's ability to transmit at full speed.

- **Bandwidth:** Actual transceiver bandwidth on the port
- **Packet Loss**
- **Packet Errors:**CRC Errors/PCS Errors/Symbol Errors
- **LinkDown Counts**
- **latency**

Above is part of our test bed network equipment. For more information, Please click [download](#) for optical transceiver performance test report.

## 2、Quality Control

We adopt advanced quality management solutions. Each transceiver is self-inspected, including: 20x microscope inspection, 200x microscope inspection, and QC process inspection.



visual inspection



Microscopic inspection: 20X



Microscopic inspection: 200X



Reliability Verification



Optical endface inspection



OQC Inspection

## Order Information

| Part Number     | Description                                                                                 |
|-----------------|---------------------------------------------------------------------------------------------|
| 400G-OSFP-VR4   | 400GBASE-VR4 OSFP PAM4 850nm 50m DOM MTP/MPO-12 APC MMF Transceiver Module, Flat Top        |
| 400G-OSFP-SR4   | 400GBASE-SR4 OSFP PAM4 850nm 100m DOM MTP/MPO-12 APC MMF Optical Transceiver Module         |
| 400G-OSFP-DR4   | 400GBASE-DR4 OSFP PAM4 1310nm 500m DOM MTP/MPO-12 APC SMF Optical Transceiver Module        |
| 800G-OSFP-2VR4  | 800GBASE-2xVR4 OSFP PAM4 850nm 50m DOM Dual MTP/MPO-12 APC MMF Optical Transceiver Module   |
| 800G-OSFP-2SR4  | 800GBASE-2xSR4 OSFP PAM4 850nm 100m DOM Dual MTP/MPO-12 APC MMF Optical Transceiver Module  |
| 800G-OSFP-2DR4  | 800GBASE-2xDR4 OSFP PAM4 1310nm 500m DOM Dual MTP/MPO-12 APC SMF Optical Transceiver Module |
| 800G-OSFP-2FR4  | 800GBASE-2xFR4 OSFP PAM4 1310nm 2km DOM Dual Duplex LC SMF Optical Transceiver Module       |
| 800G-OSFP-2DR4+ | 800GBASE-2xDR4+ OSFP PAM4 1310nm 2km DOM Dual MTP/MPO-12 APC SMF Optical Transceiver Module |



## Further Information

 | Lighting the Path to Global Links

 **Web** | [www.lsolink.com](http://www.lsolink.com)

 **Email** | For [Sales@lsolink.com](mailto:Sales@lsolink.com)

## Disclaimer

1. We are committed to continuous product improvement and feature upgrades, and the contents contained in this manual are subject to change without notice.
2. Nothing herein should be construed as constituting an additional warranty.
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