



## SKY-DSFP2S56NV-P1M

MSA to Nvidia® Compatible 100GBase-CU DSFP to 2xSFP56 Direct Attach Cable (Passive Twinax, 1m)

### Product Description

This MSA to Nvidia® dual OEM compatible 100GBase-CU DSFP to 2xSFP56 active optical cable has a maximum reach of 1.0m (3.3ft). It is 100% MSA to Nvidia® compatible and has been programmed, uniquely serialized, data-traffic and application tested to ensure that it is compliant and functional. This active optical cable will initialize and perform identically to MSA and Nvidia®'s individual cables and is built to meet or exceed MSA and Nvidia®'s specifications. This product complies with MSA (Multi-Source Agreement) standards. We stand behind the quality of our products and proudly offer a limited lifetime warranty.

Skylane's transceivers are RoHS compliant and lead-free.

### Features:

- Compliant with DSFP and SFP MSA Specifications
- Up to 100Gbps Data Rate on PAM4
- Compliant with IEEE 802.3cd
- Optimized Construction to Minimize Insertion Loss and Crosstalk
- Customized Cable Braid Termination Limits EMI Radiation
- Hot-Pluggable
- Operating Temperature: 0 to 70 Celsius
- Single 3.3V Power Supply
- RoHS Compliant and Lead-Free



### Applications:

- 100GBase Ethernet

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*For your product safety, please read the following information carefully before any manipulation of the transceiver:*



#### **ESD**

This transceiver is specified as ESD threshold 1kV for SFI pins and 2kV for all others electrical input pins, tested per MIL-STD-883G, Method 3015.4 / JESD22-A114-A (HBM). However, normal ESD precautions are still required during the handling of this module.



#### **LASER SAFETY**

This is a Class1 Laser Product according to IEC 60825-1:2007. This product complies with 21 CFR 1040.10 and 1040.11 except for deviations pursuant to Laser Notice No. 50, dated (June 24, 2007).

*The optical ports of the module need to be terminated with an optical connector or with a dust plug in order to avoid contamination.*

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## Absolute Maximum Ratings

| Parameter                  | Symbol | Min. | Typ.   | Max. | Unit | Notes   |
|----------------------------|--------|------|--------|------|------|---------|
| Supply Voltage             | Vcc    |      |        | 3.3  | V    | Nominal |
| Storage Temperature        | Tstg   | -40  |        | 85   | °C   |         |
| Operating Case Temperature | Tc     | 0    |        | 70   | °C   |         |
| Data Rate                  | DR     |      | 53.125 |      | Gbps |         |
| Wire Gauge                 |        |      | 30     |      | AWG  |         |

## High Speed Characteristics

| Parameter                                     | Symbol         | Min.   | Typ. | Max.   | Unit | Notes                          |
|-----------------------------------------------|----------------|--------|------|--------|------|--------------------------------|
| Differential Impedance                        | TDR            | 90     | 100  | 110    | Ω    | Not including gold finger site |
| Insertion Loss                                | SDD21          | -17.16 |      |        | dB   | At 13.28GHz                    |
| Differential Return Loss                      | SDD11          |        |      | Note 1 | dB   | At 0.05 to 4.1GHz              |
|                                               | SDD22          |        |      | Note 2 | dB   | At 4.1 to 19GHz                |
| Common-Mode to Common-Mode Output Return Loss | SCC11<br>SCC22 |        |      | -2     | dB   | At 0.2 to 19GHz                |
| Differential to Common-Mode Return Loss       | SCD11          |        |      | Note 3 | dB   | At 0.01 to 12.89GHz            |
|                                               | SCD22          |        |      | Note 4 | dB   | At 12.89 to 19GHz              |
| Differential to Common-Mode Conversion Loss   | SCD21-IL       |        |      | 10     | dB   | At 0.01 to 12.89GHz            |
|                                               |                |        |      | Note 5 | dB   | At 12.89 to 15.7GHz            |
|                                               |                |        |      | -6.3   | dB   | At 15.7 to 19GHz               |

### Notes:

1. Reflection Coefficient given by equation  $SDD11(dB) < -16.5 + 2 \times \sqrt{f}$ , with f in GHz.
2. Reflection Coefficient given by equation  $SDD11(dB) < -10.66 + 14 \times \log_{10}(f/5.5)$ , with f in GHz.
3. Reflection Coefficient given by equation  $SCD11(dB) < -22 + (20/25.78) \times f$ , with f in GHz.
4. Reflection Coefficient given by equation  $SCD11(dB) < -15 + (6/25.78) \times f$ , with f in GHz.
5. Reflection Coefficient given by equation  $SCD21(dB) < -27 + (29/22) \times f$ , with f in GHz.

**DSFP Pin Descriptions**

| Pin | Logic           | Symbol    | Name/Description                              | Notes |
|-----|-----------------|-----------|-----------------------------------------------|-------|
| 1   | CML-I           | TD2-      | Transmitter Inverted Data Input Lane 2.       |       |
| 2   | CML-I           | TD2+      | Transmitter Data Input Lane 2.                |       |
| 3   |                 | GND       | Module Ground.                                | 2     |
| 4   | LVTTL-I/O       | SDA       | 2-Wire Serial Interface Data Line.            |       |
| 5   | LVTTL-I/O       | SCL       | 2-Wire Serial Interface Clock Line.           |       |
| 6   | Multi-Level-I/O | LPWn/PRSn | Low-Power Mode/Module Present (MOD_ABS).      |       |
| 7   |                 | GND       | Module Ground.                                | 2     |
| 8   | CML-O           | RD2+      | Receiver Non-Inverted Data Output Lane 2.     |       |
| 9   | CML-O           | RD2-      | Receiver Inverted Data Output Lane 2.         |       |
| 10  |                 | GND       | Module Ground.                                | 2     |
| 11  |                 | GND       | Module Ground.                                | 2     |
| 12  | CML-O           | RD1-      | Receiver Inverted Data Output Lane 1.         | 1     |
| 13  | CML-O           | RD1+      | Receiver Data Output Lane 1.                  | 1     |
| 14  |                 | GND       | Module Ground.                                | 2     |
| 15  |                 | Vcc       | Module +3.3V Power Supply.                    |       |
| 16  |                 | Vcc       | Module +3.3V Power Supply.                    |       |
| 17  |                 | GND       | Module Ground.                                | 2     |
| 18  | CML-I           | TD1+      | Transmitter Non-Inverted Data Input Lane 1.   | 1     |
| 19  | CML-I           | TD1-      | Transmitter Inverted Data Input Lane 1.       | 1     |
| 20  |                 | GND       | Module Ground.                                | 2     |
| 21  | Multi-Level-I/O | INT/RSTn  | Dual Function Module Interrupt and Reset Pin. |       |
| 22  |                 | GND       | Module Ground.                                | 2     |

**Notes:**

1. Backwards compatible with SFF-8431 SFI Interface.
2. The module ground contacts GND recommended to be isolated from the module case by offering flexibility in the host EMI control strategy.

DSFP Electrical Pin-Out Details



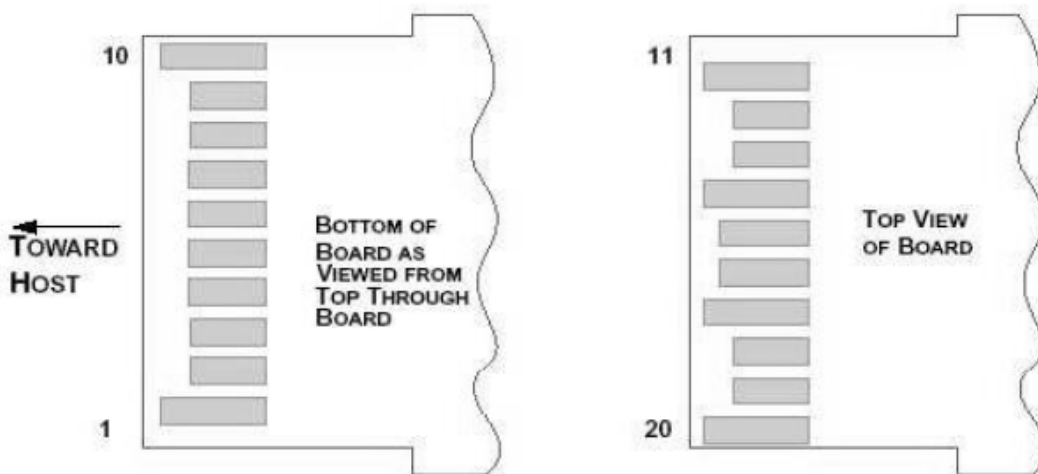
## SFP Pin Descriptions

| Pin | Logic     | Symbol     | Name/Description                       | Notes |
|-----|-----------|------------|----------------------------------------|-------|
| 1   |           | VeeT       | Transmitter Ground.                    |       |
| 2   | LVTTL-O   | Tx_Fault   | Not Connected.                         | 1     |
| 3   | LVTTL-I   | Tx_Disable | Transmitter Disable.                   | 2     |
| 4   | LVTTL-I/O | SDA        | 2-Wire Serial Data.                    |       |
| 5   | LVTTL-I   | SCL        | 2-Wire Serial Clock.                   |       |
| 6   |           | MOD_DEF0   | Module Present. Connected to the VeeT. |       |
| 7   | LVTTL-I   | RS0        | Not Connected.                         | 1     |
| 8   | LVTTL-O   | LOS        | Loss of Signal.                        | 2     |
| 9   | LVTTL-I   | RS1        | Not Connected.                         | 1     |
| 10  |           | VeeR       | Receiver Ground.                       |       |
| 11  |           | VeeR       | Receiver Ground.                       |       |
| 12  | CML-O     | RD-        | Receiver Data Inverted.                |       |
| 13  | CML-O     | RD+        | Receiver Data.                         |       |
| 14  |           | VeeR       | Receiver Ground.                       |       |
| 15  |           | VccR       | Receiver Power Supply 3.3V.            |       |
| 16  |           | VccT       | Transmitter Power Supply 3.3V.         |       |
| 17  |           | VeeT       | Transmitter Ground.                    |       |
| 18  | CML-I     | TD+        | Transmitter Data.                      |       |
| 19  | CML-I     | TD-        | Transmitter Data Inverted.             |       |
| 20  |           | VeeT       | Transmitter Ground.                    |       |

### Notes:

1. Signals not supported in SFP+ copper pulled down to the VeeT with a 30k $\Omega$  resistor.
2. Passive cable assemblies do not support LOS and Tx\_Disable.

## SFP Electrical Pin-Out Details



**Mechanical Specifications**



# About Skylane Optics

Skylane is a leading provider of transceivers for optical communication.

We offer an extensive portfolio for the enterprise, access, datacenter and metropolitan fiber optical market as well as for smart home applications and home networks.

We cover the European, South American and North American market with a strong partner network and have offices in Belgium, Brazil, Sweden and USA.

Our offerings are characterized by high quality and performance. In combination with our strong technical support, we enable our customers to build cost optimized network solutions.

We offer an extensive range of high-quality products including transceivers (Optical and copper), Active Optical Cable (AOC), Direct Attach Cable (DAC), Mux/Demux, Coding Box.

