

<b>TITLE</b>  <b>800G OSFP PAM4 Active Copper Cable</b>	<b>DOC No. RFD-20240226012-001</b>	
	<b>REVISION :</b> <b>01</b>	<b>AUTHORIZED BY :</b> <b>Hawk Rong</b>
	<b>DATE :</b> <b>2024/02/28</b>	<b>CLASSIFICATION :</b> <b>Active Copper</b>

## 1. DESCRIPTION

OSFP active copper cable assembly feature sixteen differential copper pairs, providing eight data transmission channels at speeds up to 100Gbps(PAM4) per channel, and meets 800G Ethernet and InfiniBand Next Data Rate(NDR) requirements. Available in 26AWG and 30AWG wire gauges, this 800G copper cable assembly features low insertion loss and low crosstalk.

OSFP active copper cable uses PAM4 signals for transmission, which doubles the rate. However, there are more stringent requirements for cable insertion loss. For detailed requirements, please see High Speed Characteristics.

## 2. PRODUCT FEATURES

- Compatible with IEEE 802.3ck
- Supports aggregate data rates of 800Gbps(PAM4)
- Optimized construction to minimize insertion loss and crosstalk
- Pull-to-release slide latch design
- Straight and break out assembly configurations available
- Customized cable braid termination limits EMI radiation
- Customizable EEPROM mapping for cable signature
- 26AWG and 30AWG cable
- 3.3V Power supply
- Low power Consumes 0.15W per active channel , the total power of the cable is 2.5W
- EQ programmable
- Temperature Range: 0~ 70 °C

## 3. PRODUCT Applications

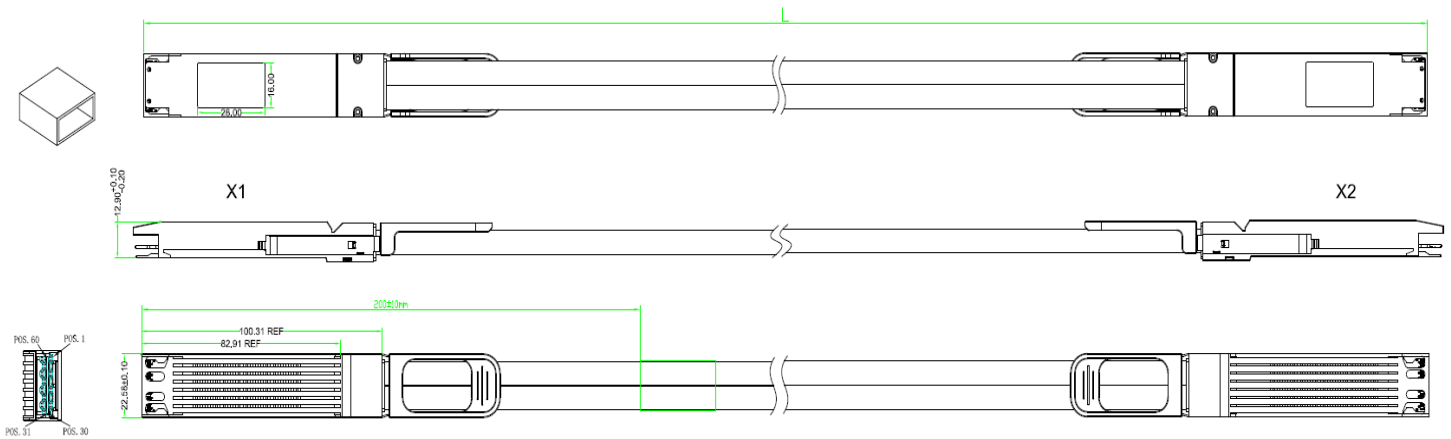
- Switches, servers and routers
- Data Center networks
- Storage area networks
- High performance computing
- Telecommunication and wireless infrastructure
- Medical diagnostics and networking
- Test and measurement equipment

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## 4. PRODUCT DESCRIPTION

### 4.1 DIMENSIONS, MATERIALS, PLATINGS AND MARKING

The connector is compatible with the SFF8024 specification.



Length (m)	Cable AWG
1	30
2	30
3	30
4	26
5	26

## 5. APPLICABLE DOCUMENTS AND SPECIFICATIONS

- 800G Ethernet(IEEE 802.3ck)
- InfiniBand NDR

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## 6. Absolute Maximum Ratings & Recommended Operating Conditions

<b>General Product Characteristics</b>	
Parameter	
Number of Lanes	Tx8 & Rx8
Channel Data Rate	106.25Gbps
Operating Temperature	0 to + 70°C
Storage Temperature	-40 to + 85°C
Supply Voltage	3.3 V nominal
Electrical Interface	76pins edge connector
Management Interface	Serial, I <sup>2</sup> C

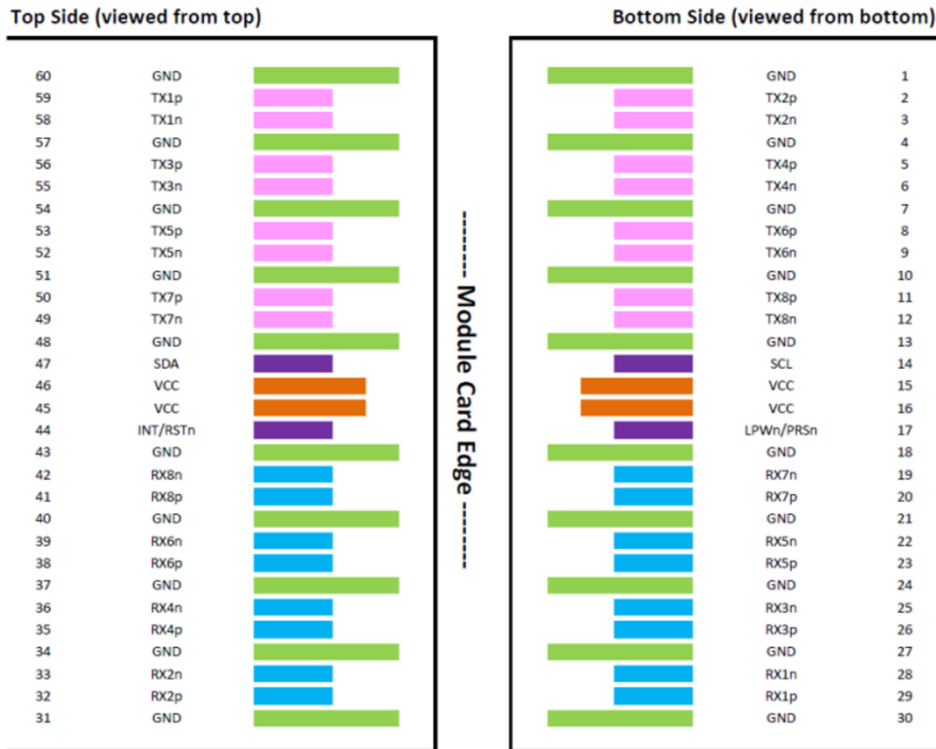
<b>High Speed Characteristics</b>						
Parameter	Symbol	Min.	Typical	Max.	Unit	Note
Differential Impedance	TDR	90	100	110	Ω	
Insertion loss	SDD21	-19.75			dB	At 26.56 GHz
Differential Return Loss				See 1	dB	At 0.05 to 26.56GHz
	SDD11 SDD22			See 2	dB	At 26.56 to 40 GHz
Common-mode to common-mode output return loss	SCC11 SCC22			-2	dB	At 0.2 to 40GHz
Differential to common Mode Conversion Loss	SCD21- SDD21			-10	dB	At 0.05 to 12.89 GHz
				See3	dB	At 12.89 to 40 GHz

**Notes:**

1. Reflection Coefficient given by equation  $SDD11(dB) < 22 - 10(f/26.56)$ , with f in GHz
2. Reflection Coefficient given by equation  $SDD11(dB) < 15 - 3(f/26.5)$ , with f in GHz
3. Reflection Coefficient given by equation  $SCD21-CDD21(dB) < 14 - 0.3108*f$ , with f in GHz

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**7. Pin-out Definition:**



Pin	Logic	Symbol	Description
1		GND	Ground
2	CML-I	Tx2p	Transmitter Non-Inverted Data Input
3	CML-I	Tx2n	Transmitter Inverted Data Input
4		GND	Ground
5	CML-I	Tx4p	Transmitter Non-Inverted Data Input
6	CML-I	Tx4n	Transmitter Inverted Data Input
7		GND	Ground
8	CML-I	Tx6p	Transmitter Non-Inverted Data Input
9	CML-I	Tx6n	Transmitter Inverted Data Input

JESS-LINK PRODUCTS CO., LTD  
**PRODUCT SPECIFICATION**

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10		GND	Ground
11	CML-I	Tx6p	Transmitter Non-Inverted Data Input
12	CML-I	Tx6n	Transmitter Inverted Data Input
13		GND	Ground
14	LVCMOS-	SCL	2-wire serial interface clock
15	I/O	Rx3n	Receiver Inverted Data Output
15		VCC	+3.3V Power supply
16		VCC	+3.3V Power supply
17		LPWn/PRSn	Low-Power Mode / Module Present
18		GND	Ground
19	CML-O	Rx7n	Receiver Inverted Data Output
20	CML-O	Rx7p	Receiver Non-Inverted Data Output
21		GND	Ground
22	CML-O	Rx5n	Receiver Inverted Data Output
23	CML-O	Rx5p	Receiver Non-Inverted Data Output
24		GND	Ground
25	CML-O	Rx3n	Receiver Inverted Data Output
26	CML-O	Rx3p	Receiver Non-Inverted Data Output
27		GND	Ground
28	CML-O	Rx1n	Receiver Inverted Data Output
29	CML-O	Rx1p	Receiver Non-Inverted Data Output
30		GND	Ground
31		GND	Ground
32	CML-O	Rx2p	Receiver Non-Inverted Data Output
33	CML-O	Rx2n	Receiver Inverted Data Output
34		GND	Ground

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35	CML-O	Rx4p	Receiver Non-Inverted Data Output
36	CML-O	Rx4n	Receiver Inverted Data Output
37		GND	Ground
38	CML-O	Rx6p	Receiver Non-Inverted Data Output
39	CML-O	Rx6n	Receiver Inverted Data Output
40		GND	Ground
41	CML-O	Rx8p	Receiver Non-Inverted Data Output
42	CML-O	Rx8n	Receiver Inverted Data Output
43		GND	Ground
44		INT/RSTn	Module Interrupt / Module Reset
45		VCC	+3.3V Power supply
46		VCC	+3.3V Power supply
47	LVCMOS-	SDA	2-wire serial interface data
49	I/O	VS2	
48		GND	Ground
49	CML-I	Tx7n	Transmitter Inverted Data
50	CML-I	Tx7p	Input Transmitter Non-Inverted Data Input
51		GND	Ground
52	CML-I	Tx5n	Transmitter Inverted Data
53	CML-I	Tx5p	Input Transmitter Non-Inverted Data Input
54		GND	Ground
55	CML-I	Tx3n	Transmitter Inverted Data
56	CML-I	Tx3p	Input Transmitter Non-Inverted Data Input
57		GND	Ground
58	CML-I	Tx1n	Transmitter Inverted Data
59	CML-I	Tx1p	Input Transmitter Non-Inverted Data Input

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60		GND	Ground
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**8. Mefulatory Compliance**

Feature	Test Method	Perform
Electrostatic Discharge (ESD) to the Electrical Pins	MIL-STD-883C Method 3015.7	Class 1(>2000 Volts)
Electromagnetic Interference(EMI)	FCC Class B	Compliant with Standards
	CENELEC EN55022 Class B	
	CISPR22 ITE Class B	
RF Immunity(RFI)	IEC61000-4-3	Typically Show no Measurable Effect from a 10V/m Field Swept from 80 to 1000MHz
RoHS Compliance	RoHS Directive 2011/65/EU and it's Amendment Directives ( EU ) 2015/863	RoHS ( EU ) 2015/863 compliant
REACH Compliance	REACH Regulation (EC) No 1907/2006	REACH (EC) No 1907/2006 compliant

**9. Modification History**

Rev.	Comments	Date	Originator	Approval
01	Preliminary Draft	2024/02/27	Hawk Rong	Mike Sun

