

**ETU-LINK**

Optical Communication System

DSFP56 DAC Series

DSFP56

ED5DP10X-330CNxx

100G DSFP56 Direct Attach Cable (DAC)

- Up to 100 Gbps data rate (PAM4)
- Up to 3 meter transmission
- Hot-pluggable SFP 22PIN footprint
- Compatible IEEE802.3cd
- Compatible to SFP28 MSA
- Temperature Range: 0~ 70 °C
- RoHS compliant



Applications

- Switch/router/HBA
- Servers and storage devices
- Data center network
- Base station/BBU/RRU
- Meet 100Gbs Ethernet (IEEE802.3cd)

Benefits

- Cost-effective copper solution
- Lowest total system power solution
- Lowest total system EMI solution
- Optimized design for Signal Integrity

Description

The DSFP56 Direct Attach Cables Latching mechanism compatible with SFP+. Various choices of wire gauge are available from 30 to 26 AWG with various choices of cable length (up to 3m).

The DSFP56 passive cable assemblies are high performance, cost effective I/O solutions for 100G PAM4 Ethernet. DSFP56 copper cables allow hardware manufactures to achieve high port density, configurability and utilization at a very low cost and reduced power budget.

High Speed Characteristics

Parameter	Symbol	Min	Typical	Max	Unit	Note
Differential Impedance	TDR	90	100	110	Ω	Not include gold finger site
Insertion loss	SDD21	-17.16			dB	At 13.28 GHz
Differential Return Loss	SDD11 SDD22			See 1	dB	At 0.05 to 4.1 GHz
				See 2	dB	At 4.1 to 19 GHz
Common-mode to common-mode output return loss	SCC11 SCC22			-2	dB	At 0.2 to 19 GHz
Differential to common-mode return loss	SCD11 SCD22			See 3	dB	At 0.01 to 12.89 GHz
				See 4		At 12.89 to 19 GHz
Differential to common Mode Conversion Loss	SCD21-IL			-10	dB	At 0.01 to 12.89 GHz
				See 5		At 12.89 to 15.7 GHz
				-6.3		At 15.7 to 19 GHz

Notes:

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

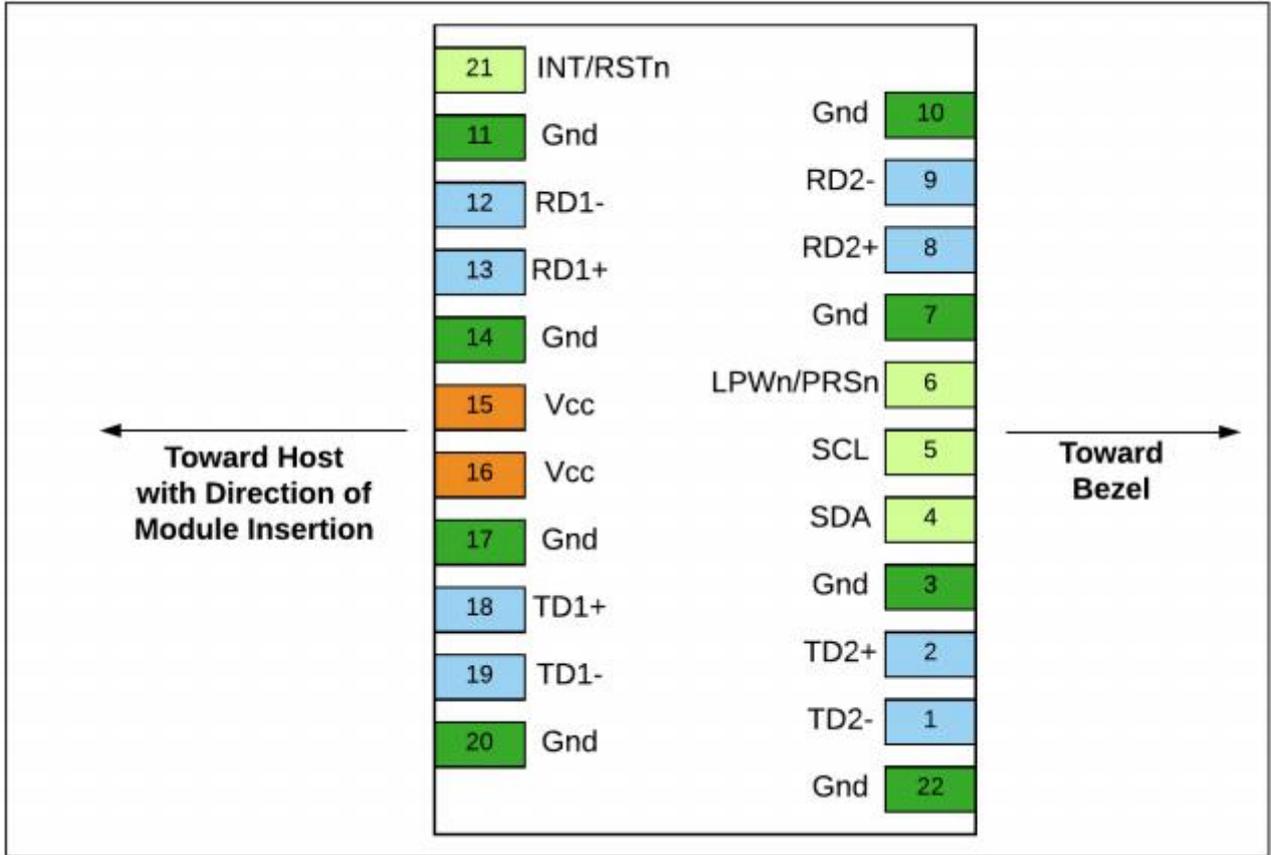
Pin Descriptions

DSFP56 Pin Function Definition

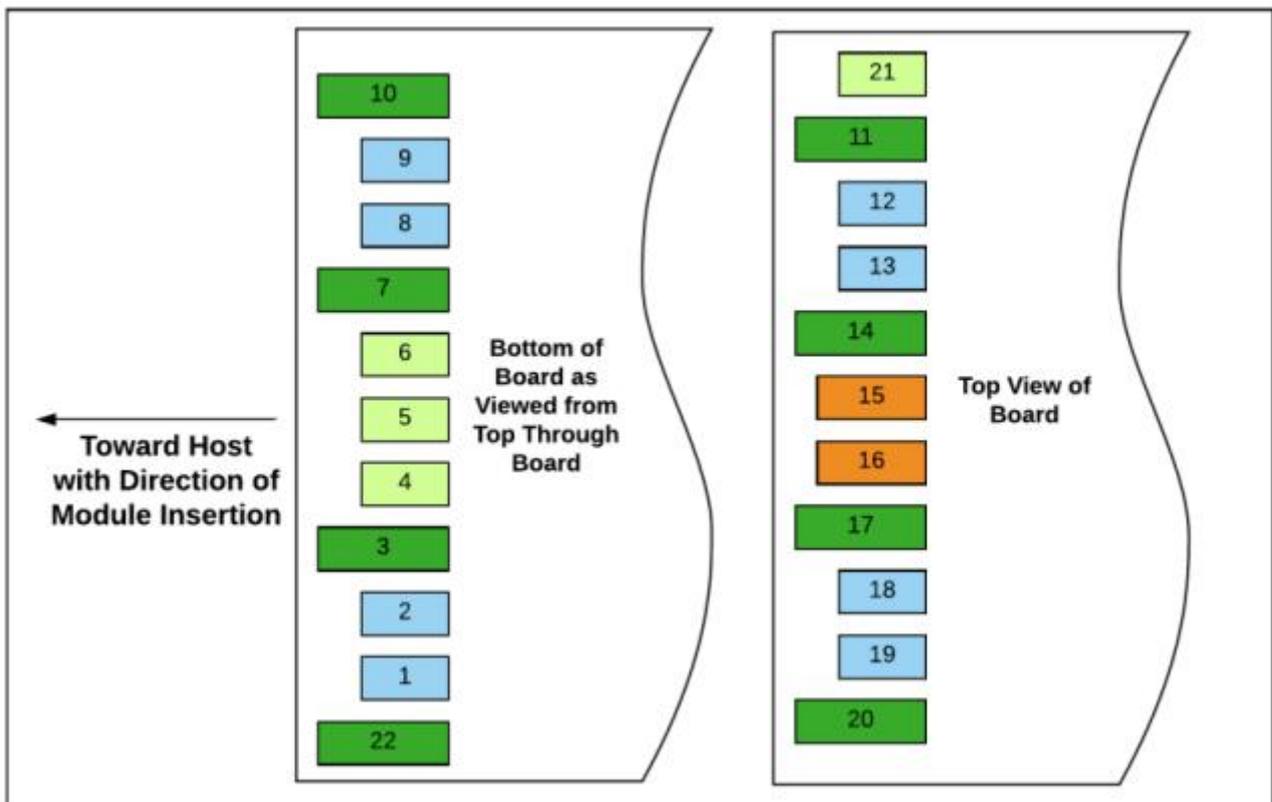
The DSFP56 connector is a 0.8 mm pitch 22 contacts improved connector compatible to SFP+ 20 contacts connector.

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

1. Labeling as inputs (I) and outputs (O) are from the perspective of the module.
2. The case makes electrical contact to the cage before any of the board edge contacts are made.
3. See 4.4 the 2-wire specifications.
4. Backward compatible with SFF-8431 SFI interface.
5. The module ground contacts Gnd recommended to be isolated from the module case by offering flexibility in the host EMI control strategy.



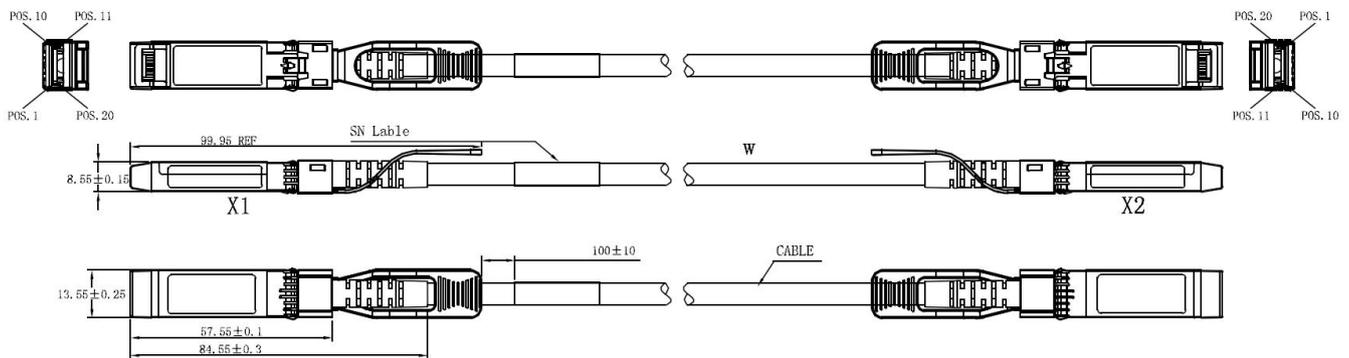
DSFP56 Host PCB pad assignment top view



DSFP56 module contact assignment

Mechanical Specifications

The connector is compatible with the DSFP56 specification.



Length (m)	Cable AWG
1	30
2	28
3	26

Regulatory Compliance

Feature	Test Method	Performance
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

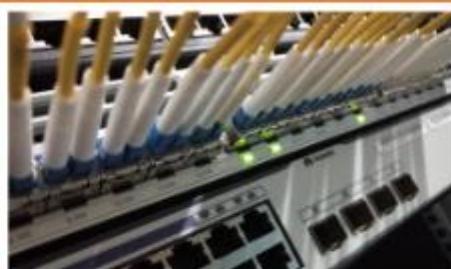
Compatibility Test

In order to ensure the product compatibility, our products will be tested on the switch before shipment. Our modules can be compatible with many mainstream brand switches, such as Cisco, Juniper, Extreme, Brocade, IBM, H3C, HP, Huawei, D-Link, Mikrotik, ZTE, TP-Link...

Our test equipment: VOLKTEK MEN-4110, HP 2530-8G, CRS226-24G-25+RM, Catalyst 2960G Series, Catalyst 3850 XS 10G SFP+, Catalyst 3750-E Series, HUAWEI S5700Series, H3C S3100V2 Series, Juniper-EX4200, etc.



Cisco Catalyst 3850



HUAWEI S5700



H3C S3100V2



HP J9264AR



Juniper EX 4200



Alcatel 6850E-U24X



Mikrotik CR5226-24G-25+RM



Cisco Catalyst 2960G



Volktek MEN-4110

Product Production Process

Quality Assurance

Continuous introduction of new equipment, produced by strict standards, strict quality inspection, to guarantee the high quality standard of each product.



**Standardized
Production Line**



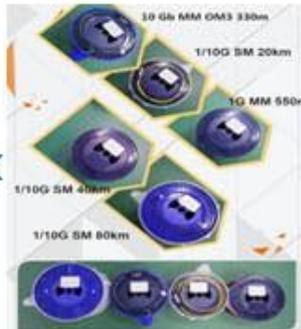
**Professional
Welding**



Assembling



Aging Testing



Distance Testing



Cleaning end face



Product Initial Test



Switch Testing



Product Final Test

Packaging

Individual package.



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