X6590-R6A-C

NetAPP X6590-R6A Compatible TAA Compliant 40GBase-CU QSFP+ to QSFP+ Direct Attach Cable (Active Twinax, 10m)

Features:

- Support for multi-gigabit data rates up to 10Gbps
- Data rates backward compatible to 1Gbps
- Hot-Pluggable SFP 20PIN footprint
- Improved Pluggable from Factor (IPF) compliant for enhanced EMI/EMC performance
- Low Power Consumption 0.2W
- Power Supply 3.3V
- MSA Compatible
- Operating Temperature: 0 to 70 Celsius
- RoHS Compliant and Lead-Free

Applications:

- Data Center: Switches, Storage, Servers and Routers
- High density connections between networking equipment

Product Description

This is a NetAPP® X6590-R6A Compatible 40GBase-CU QSFP+ to QSFP+ direct attach cable that operates over active copper with a maximum reach of 10m. It has been programmed, uniquely serialized, and data-traffic and application tested to ensure it is 100% compliant and functional. We stand behind the quality of our products and proudly offer a limited lifetime warranty. This cable is TAA (Trade Agreements Act) compliant and is built to comply with MSA (Multi-Source Agreement) standards.

ProLabs' transceivers are RoHS compliant and lead-free.

TAA refers to the Trade Agreements Act (19 U.S.C. & 2501-2581), which is intended to foster fair and open international trade. TAA requires that the U.S. Government may acquire only "U.S. – made or designated country end products."

Rev. 082824

General Specifications

Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
Storage Temperature	Tstg	-40		85	°C	
Operating Case Temperature	Tc	0		70	°C	
Power Supply Voltage	Vcc	3.14	3.3	3.47	V	
Power Dissipation	P_{DISS}			0.2	W	
Differential Input Impedance	ZIN	90	100	110	Ω	2
Differential Output Impedance	ZOUT	90	100	110	Ω	3
Differential Input Voltage Amplitude	ΔVIN	300		1100	mVp-p	
Differential Output Voltage Amplitude	ΔVOUT	500		800	mVp-p	
Skew	Sw			300	ps	
Bit Error Rate	BR			E^{-12}		
Input Logic Level - High	VIH	2.0		Vcc	V	
Input Logic Level - Low	VIL	0		0.8	V	
Output Logic Level - High	VOH	Vcc-0.5		Vcc	V	
Output Logic Level - Low	VOL	0		0.4	V	

Notes:

1. BER=10^{-12} and PRBS 2^{31}-1 @10.3125Gbps.
2. Differential input voltage amplitude is measured between Tx#+ and Tx#-.
3. Differential output voltage amplitude is measured between Rx#+ and Rx#-.

Systems

Parameter	Media	Operating Parameters
10Gbps Line Speed, Full Duplex Bit Error Rate: Better Than 10E^{-12}	Hot-Pluggable, Industry-Standard Small Form-Factor Pluggable (SFP+) Copper Cable	Supply Voltage: 3.3V Power Consumption (Per End): Max. 0.2W

Optical Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
Transmitter						
Center Wavelength	λC	840	850	860	nm	
RMS Spectral Width	Δλ			0.65	nm	
Average Launch Power Per Channel	POUT	-7.5		-2.5	dBm	
Difference in Launch Power Between Any Two Lanes (OMA)					dB	
Extinction Ratio	ER	3			dB	
Peak Power Per Lane				4	dBm	
Transmitter and Dispersion Penalty (TDP) Per Lane	TDP			3.5	dB	
Average Launch Power of Off Transmitter Per Lane				-30	dB	
Transmitter Eye Mask Definition: (X1, X2, X3, Y1, Y2, Y3)		(0.23, 0.34, 0.43, 0.27, 0.33, 0.4)				1
Receiver						
Center Wavelength	λC	840	850	860	nm	
Stressed Receiver Sensitivity in OMA Per Lane				-5.4		2
Maximum Average Power at Receiver Input Per Lane				2.4		
Receiver Reflectance				-12		
Peak Power Per Lane				4		
LOS Assert		-30				
LOS De-Assert – OMA				7.5		
LOS Hysteresis		0.5				

Notes:

1. Hit Ratio = $5x10^{-5}$.
2. Measured with conformance test signal at TP3 for BER = $10e^{-12}$.

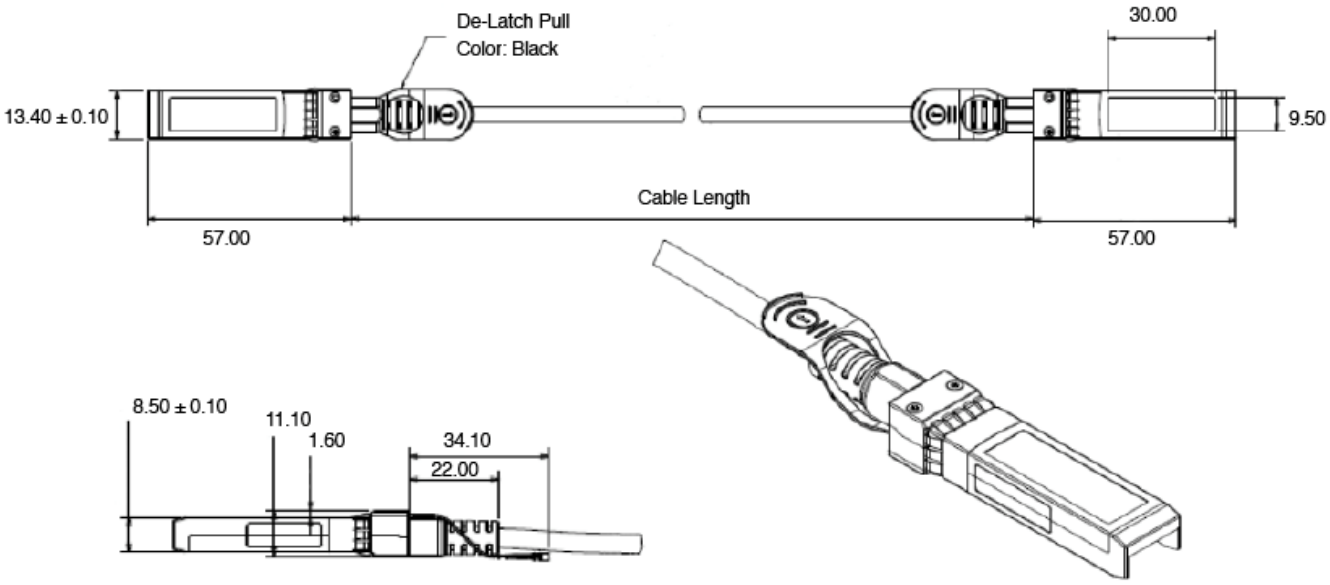
Pin Descriptions

Pin	Logic	Symbol	Name/Description	Notes
1		VeeT	Transmitter Ground.	
2	LVTTL-O	Tx_Fault	N/A.	1
3	LVTTL-I	Tx_Disable	Transmitter Disable.	
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	N/A.	1
8	LVTTL-O	LOS	Loss of Signal.	
9	LVTTL-I	RS1	N/A.	1
10		VeeR	Receiver Ground.	
11		VeeR	Receiver Ground.	
12	CML-O	RD-	Receiver Data Inverted.	
13	CML-O	RD+	Receiver Data Non-Inverted.	
14		VeeR	Receiver Ground.	
15		VccR	+3.3V Receiver Supply.	
16		VccT	+3.3V Transmitter Supply.	
17		VeeT	Transmitter Ground.	
18	CML-I	TD+	Transmitter Data Non-Inverted.	
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 30kΩ resistor.

Mechanical Specifications



About ProLabs

Our experience comes as standard; for over 15 years ProLabs has delivered optical connectivity solutions that give our customers freedom and choice through our ability to provide seamless interoperability. At the heart of our company is the ability to provide state-of-the-art optical transport and connectivity solutions that are compatible with over 90 optical switching and transport platforms.

Complete Portfolio of Network Solutions

ProLabs is focused on innovations in optical transport and connectivity. The combination of our knowledge of optics and networking equipment enables ProLabs to be your single source for optical transport and connectivity solutions from 100Mb to 400G while providing innovative solutions that increase network efficiency. We provide the optical connectivity expertise that is compatible with and enhances your switching and transport equipment.

Trusted Partner

Customer service is our number one value. ProLabs has invested in people, labs and manufacturing capacity to ensure that you get immediate answers to your questions and compatible product when needed. With Engineering and Manufacturing offices in the U.K. and U.S. augmented by field offices throughout the U.S., U.K. and Asia, ProLabs is able to be our customers best advocate 24 hours a day.

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