PRODUCT BRIEF
Intel® Ethernet SFP+ Twinaxial Cables
Network Connectivity

Intel® Ethernet SFP+ Twinaxial Cables

SFP+ Direct Attach cables for the Intel® Ethernet Converged Network Adapter X520 Family

Features

- 1 m (3.3 ft), 3 m (9.8 ft.), and 5 m (16.4 ft.) SFP+ 10 GbE direct attach passive copper cables
- SFP+ Direct Attach cables offer a highly cost-effective way to connect within racks and across adjacent racks
- Fully compatible with the Intel® Ethernet Converged Network Adapter X520 Family
- Zinc die-cast SFF-8431 SFP+ connectors
- Low cross-talk and pair-to-pair skew
- Fully compliant to the latest SFP Plus MSA (multi-source agreement)
- Data rates backward compatible to 1 Gbps
- Reduced power budget and lower port cost compared to optical solutions
- Conforms to environmental standards as described in the *Product Environmental Content Report*[1]
- One year warranty

The Intel® Ethernet Converged Network Adapter X520 family with SFP+ connectivity delivers the most flexible and scalable Ethernet adapters for today's demanding data center environments. The escalating deployments of multi-core processor-based servers and demanding applications such as server virtualization, High Performance Computing (HPC), unified storage deployments, and video-on-demand are driving the need for 10 Gigabit connections. Customers require flexible and scalable I/O solutions to meet the rigorous requirements of these deployments.

Powered by Intel's third-generation 10 GbE network controller, the Intel® Ethernet 82599 10 Gigabit Ethernet Controller, the X520 server adapter family addresses the demanding needs of the next-generation data center by providing unmatched features for virtualization, flexibility for LAN and SAN networking, and proven, reliable performance.

To ensure maximum flexibility, Intel uniquely supports the ability to mix any combination of SFP+ optical modules, direct attach copper cables, or 1000BASE-T SFP modules on the Intel Ethernet X520 Adapters. For instance, customers can remove the optical modules that come installed on the adapter and replace them with an Intel® Ethernet SFP+ Optic, an Intel® Ethernet SFP+ Twinaxial Cable, or a 1000BASE-T SFP module. Intel® Ethernet SFP+ Twinaxial Cables are ideal for short distances and offer a highly cost-effective way to connect within racks and across adjacent racks. The cables are available in three lengths; 1, 3, and 5 meters, enabling customers to create the configuration that best meets the needs of their data center environment.

Note: Other manufacturers may require specific cables for equipment compatibility. Please check with the manufacturer of your device regarding cable requirements for that device.

Intel® Ethernet SFP+ Twinaxial Cables Product Codes
XDACBL1M (1 meter)
XDACBL3M (3 meter)
XDACBL5M (5 meter)

Intel® Ethernet SFP+ Optics Product Codes
E10GSFPSR—Intel® Ethernet SFP+ SR Optic
E10GSFPLR—Intel® Ethernet SFP+ LR Optic

Compatible Intel® Server Adapters Product Codes
E10G42BTDA—Intel® Converged Network Adapter X520-DA2
E10G41BFSR—Intel® Converged Network Adapter X520-SR1*
E10G42BFSR—Intel® Converged Network Adapter X520-SR2*
E10G41BFLR—Intel® Converged Network Adapter X520-LR1*

* Ships with pluggable optic installed

Electrical/Cable Characteristics					
Parameter	**Symbol**	**Min**	**Typ**	**Max**	**Unit**
Storage Temperature Range	T_S	-40	--	85	°C
Operating Temperature Range	T_A	-40		85	°C
Operating Humidity Range	RH	0		85	%
Supply Voltage	Vcc	2.95	3.3	3.6	V
Supply Current (per cable end)	Icc	--	100	--	µA
Power Consumption		--	0.4	--	mW
Data Rate	DR	--	--	11.3	Gbps
Transmitter					
Differential Input Voltage Swing	V_{DIFF}	300	--		mVp-p
Differential Input Return Loss	SDD11		-10		dB @ 5 GHz
Receiver					
Differential Output Return Loss	SDD22		-10		dB @ 5 GHz
Voltage Modulate Amplitude Loss	L			4.5	dBe
VMA Loss to Crosstalk Ratio	VCR	32.5			dB
Waveform Dispersion Penalty	dWDP			6.8	dBe
Cable					
Cable Differential Impedance			100	105	Ω
Cable Outer Diameter			0.175^{30AWG} 0.235^{24AWG}		Inches
Cable Bend Radius (Measured at Diecast Endface)			0.7^{30AWG} 0.95^{24AWG}		Inches
Cable Flex Cycle			200		cycles
Cable Weight			30^{30AWG} 50^{24AWG}		kg/km

Length and Part Number		
SKU	**Length**	**AWG**
XDACBL1M	1000 mm ± 25 mm	30
XDACBL3M	3000 mm ± 75 mm	30
XDACBL5M	5000 ± 125 mm	24

Difference Waveform Dispersion Penalty			
Cable	**WDPi**	**WDPo**	**dWDP**
1 m, 30AWG	2.0965	4.2087	2.1122
3 m, 30AWG	2.0965	6.6828	4.5863
5 m, 24AWG	2.0965	6.2477	4.1512

Note: dWDP=6.8 (max), SFF-8431

Voltage Modulation Amplitude to Crosstalk Ratio (VCR)					
Cable	**B' VMA (mV)**	**C' VMA (mV)**	**VMA LOSS (dB)**	**NEXT (rms) (mV)**	**VCR (dB)**
1 m, 30AWG	700	615	1.12	1.73	35.8
3 m, 30AWG	700	503	2.86	1.79	34.4
5 m, 24AWG	700	505	2.84	1.87	34.0

Notes: VMA LOSS (dB)=4.5 (max), SFF-843. VCR=32.5 dB (min), SFF-8431

Customer Support

Intel® Customer Support Services offers a broad selection of programs including phone support and warranty service. For more information, contact us at:

support.intel.com/support/go/network/

(Service and availability varies by country.)

For Product Information

To speak to a customer service representative regarding Intel products, call 1-800-538-3373 (U.S. and Canada) or visit:

support.intel.com/support/go/network/contact.htm

For more information on the Intel® Ethernet SFP+ Twinaxial Cables visit: **www.intel.com/go/ethernet**

[1] Product Environmental Content Reports are found on Intel Web site at http://qdms.intel.com.

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