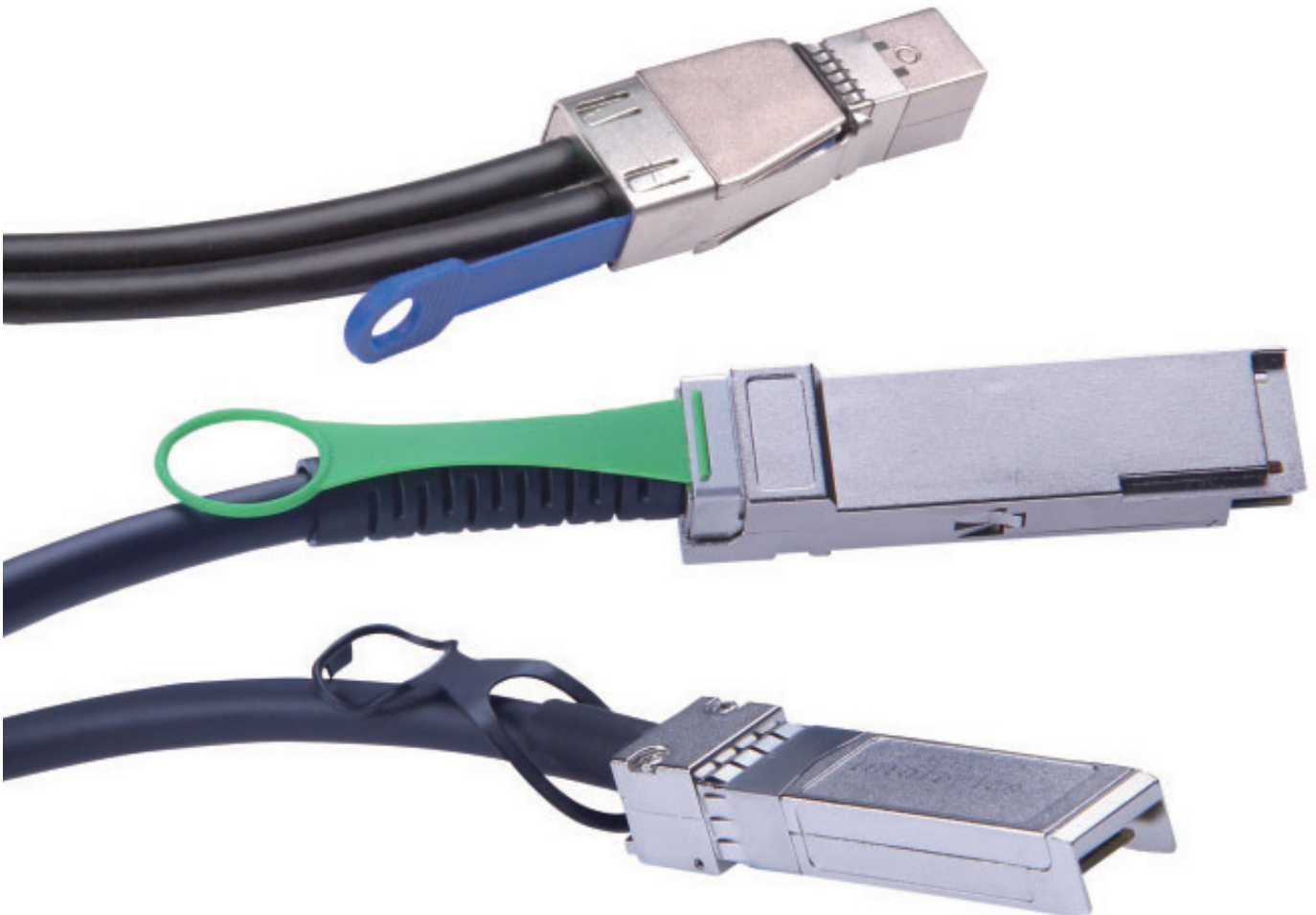


STERLING

Overview Brochure

Direct attach and active optical cables



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High speed bables and transceivers

	DAC		AOC	Transceiver			
	0-7 Metre	0-15 Metre	<100 Metre	<300 Metre	<10 KM	<40 KM	<80 KM
SFP+	✓	✓ Active	✓ AOC	✓ SR	✓ LR,LRM	✓ ER	✓ ZR
SFP+25G	✓			2016, Q3			
XFP	✓ Active	/	/	✓ SR	✓	✓ ER	✓ ZR
XENPAK/X2	/	/	/	✓ SR	✓ LR,LRM	✓ ER	✓ ZR
CX4	✓	✓	/	/	/	/	/
MiniSAS	✓	✓	/	/	/	/	/
MiniSAS HD	✓	TBD	TBD	/	/	/	/
QSFP+ QDR	✓		✓ AOC	✓ SR4	✓ IR,LR4	✓ ER4	/
QSFP+ FDR	✓	/	✓ AOC	/	/	/	/
QSFP+ EDR	✓	2015, Q4	2016, Q2	2016, Q3	2016, Q3	/	/
CXP	TBD	/		/	/	/	/
CFP	2015, Q4	/	/	✓ SR10	✓ LR4	/	/
CFP2	2015, Q4	/	/	✓ SR10	✓ LR4	/	/
CFP	2015, Q4	/	/	/	/	/	/



SFP+ Cable



MiniSAS Cable



QSFP+ Cable



CX4 Cable



SFP+ AOC



SFP+
Transceivers



XFP
Transceivers



QSFP+
Transceivers



XENPAK
Transceivers



X2
Transceivers



QSFP+ AOC

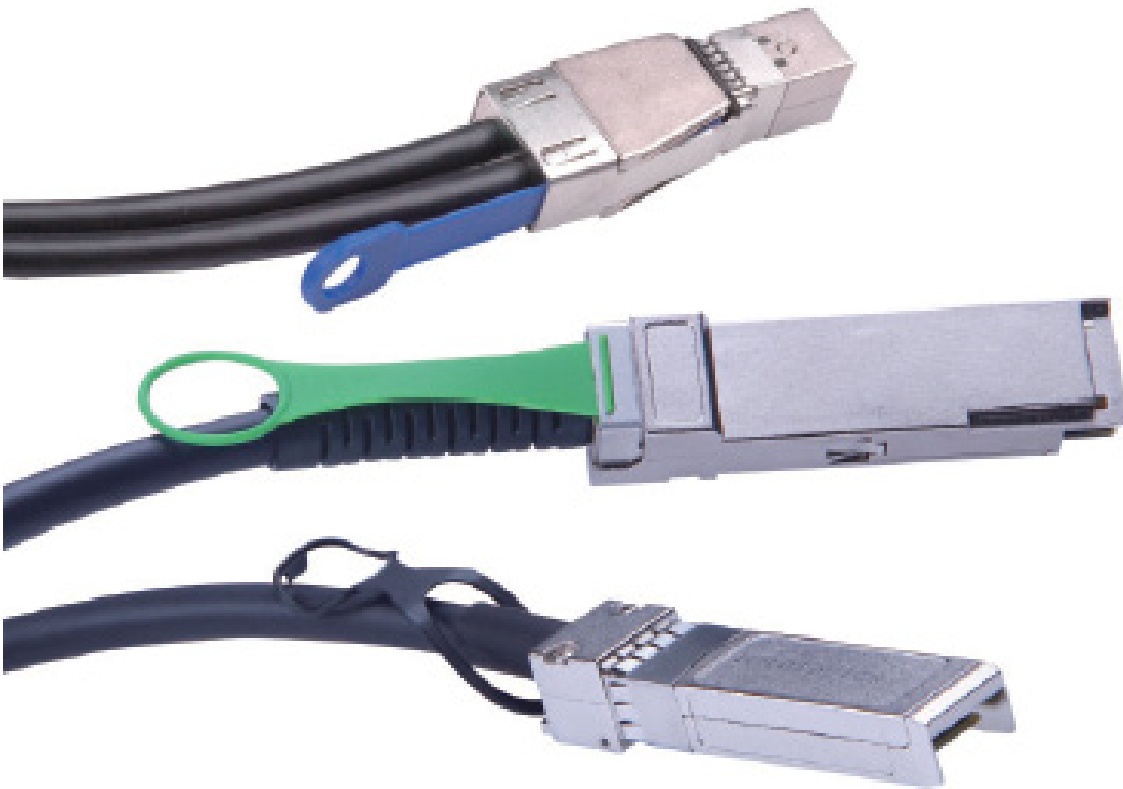
Compatible with multiple systems

Sterling cables can be coded for compatibility with a wide range of vendors including: CISCO, HP, Juniper, Dell/Force 10, Intel, Brocade, Huawei and many more.

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DAC

Direct attach copper cable



DAC 10GB/s SFP+ DAC

DAC 40GB/s QSFP+ DAC

DAC 40GB/s QSFP+ to 4 x SFP+DAC

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DAC

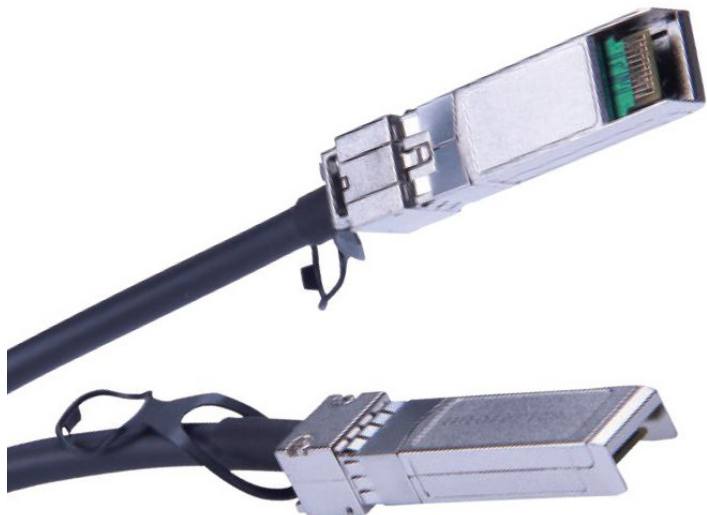
10GB/s SFP+ DAC (Passive and Active)

Applications:

- InfiniBand SDR, DDR, QDR
- Ethernet
- Fiber Channel 8G, 10G
- FCoE 10G
- Networking, Storage
- Hubs, switches, routers, servers, NICs

Standards compliance:

- IEEE 802.3ae
- Electrical: SFF-8431, SFF-8083
- Mechanical: SFF-8432
- EEPROM: SFF-8472
- RoHS



SFP+ direct attach copper cable assembly is a high speed, cost-effective alternative to fiber optics in 10Gb Ethernet, 8Gb Fiber Channel and InfiniBand applications. SFP+ copper cable assemblies enable hardware OEMs and data center operators to achieve high port density and configurability at a low cost and reduced power requirement. SFP+ copper assemblies meet the industry MSA for signal integrity performance.

SFP+ Active Copper Cable design has a signal amplification and a class 10G Clock and Data Recovery (CDR) or Equalizer technology to support longer distances than standard passive SFP+ DAC cables.

Stocked lines

SFP+ Copper cable assemblies - passive

Length	Description	Data rate
1m	SFP+ to SFP+ Passive (+1m)	10Gbp/s
2m	SFP+ to SFP+ Passive (+2m)	10Gbp/s
3m	SFP+ to SFP+ Passive (+3m)	10Gbp/s
5m	SFP+ to SFP+ Passive (+5m)	10Gbp/s
7m	SFP+ to SFP+ Passive (+7m)	10Gbp/s

SFP+ Copper cable assemblies - active

Length	Description	Data rate
3m	SFP+ to SFP+ Active (+1m)	10Gbp/s
5m	SFP+ to SFP+ Active (+1m)	10Gbp/s
10m	SFP+ to SFP+ Active (+1m)	10Gbp/s

*Other lengths available to order, 7-10 day lead time. All with 5 years warranty.

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DAC

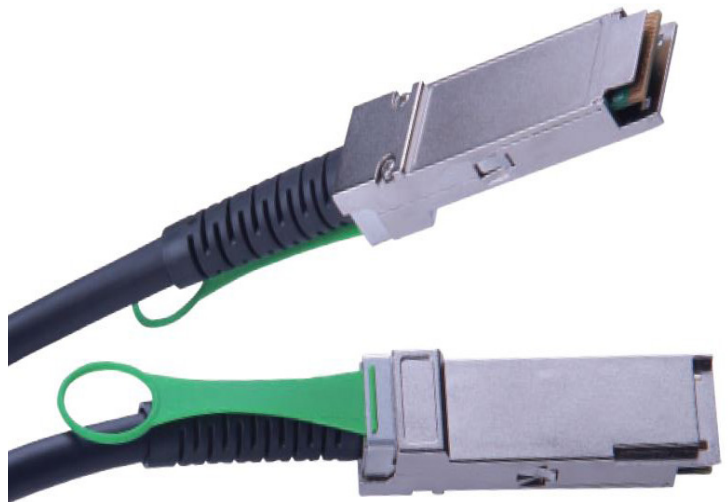
40GB/s QSFP+ DAC

Applications:

- InfiniBand 4X SDR, DDR, QDR and FDR
- Ethernet 10G, 40G
- FiberChannel 10G, 40G, SAN, 4X16G
- RapidIO
- Rack-to-Rack, Shelf-to-Shelf Interconnect
Top of Rack (TOR) and Core Switch
- Networking, Storage
- Hubs, switches, routers, servers

Standards compliance:

- Electrical: IBTA V2 Revision 1.2.1 and 1.3
- IEEE 802.3ba
- SFF-8436
- RoHS



Sterling QSFP+ direct attach copper cable assemblies are a high-speed, cost-effective alternative to fibre optics in Ethernet, Fibre Channel and InfiniBand technology applications. These cable assemblies are designed to meet emerging data center and high performance computing application and support the bandwidth transmission requirements as defined by IEEE 802.3ba (40 Gb/s) and Infiniband QDR (4x10 Gb/s per channel) and FDR (4x14 Gb/s per channel) specifications. The QSFP+ copper cable form factor uses 8 differential pairs that provide 4 data transmission channels. The cable assemblies meet or exceed the industry MSA for signal integrity performance.

QSFP+ Active Copper Cable design has a signal amplification and a class 10G Clock and Data Recovery (CDR) technology to support longer distances than standard passive QSFP+ DAC cables.

Stocked lines

SFP+ Copper cable assemblies - passive

Length	Description	Data rate
1m	QSFP+ to QSFP+ Passive (+1m)	40Gbp/s
2m	QSFP+ to QSFP+ Passive (+2m)	40Gbp/s
3m	QSFP+ to QSFP+ Passive (+3m)	40Gbp/s
5m	QSFP+ to QSFP+ Passive (+5m)	40Gbp/s
7m	QSFP+ to QSFP+ Passive (+7m)	40Gbp/s

*Other lengths available to order. All with 5 years warranty.

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DAC

40GB/s QSFP+ to 4x SFP+ DAC

Applications:

- InfiniBand 4X SDR, DDR, QDR and FDR
- Ethernet 10G, 40G
- FiberChannel 10G, 40G, SAN, 4X16G
- RapidIO
- Rack-to-Rack, Shelf-to-Shelf Interconnect
- Top of Rack (TOR) and Core Switch
- Networking, Storage
- Hubs, switches, routers, servers

Standards compliance:

QSFP+ End

- Electrical: IBTA V2 Revision 1.2.1 and 1.3
- IEEE 802.3ba
- SFF-8436

SFP+ End

- IEEE 802.3ae
- SFF-8432
- RoHS
- SFF-8431
- SFF-8472



QSFP+ to 4SFP+ direct-attach assembly is available in standard lengths up to 7 meters with longer custom lengths available. These Interconnect Solutions breakout cables allow users to connect equipment with QSFP+ ports configured to work as four SFP+ ports.

Optimizing systems to operate with Sterling's passive copper cables significantly reduces power consumption, EMI emission, eliminating the use of EDC hosts and enlarge the connectivity opportunities of the system.

QSFP+ Active Copper Cable design has a signal amplification and a class 10G Clock and Data Recovery (CDR) technology to support longer distances than standard passive QSFP+ DAC cables.

Stocked lines

QSFP+ to 4x SFP+ copper cable assemblies - passive

Length	Description	Data rate
1m	QSFP+ to SFP+ Passive (+1m)	40Gbp/s
2m	QSFP+ to SFP+ Passive (+2m)	40Gbp/s
3m	QSFP+ to SFP+ Passive (+3m)	40Gbp/s
5m	QSFP+ to SFP+ Passive (+5m)	40Gbp/s
7m	QSFP+ to SFP+ Passive (+7m)	40Gbp/s

*Other lengths available to order. All with 5 years warranty.

STERLING

AOC

Active optical cable



AOC 10GB/s SFP+ AOC

AOC 40GB/s QSFP+ AOC

AOC 40GB/s QSFP+ to 4 x SFP+AOC

STERLING

AOC 10GB/s SFP+ AOC

Applications:

- 10 Gigabit Ethernet (10GbE)
- 4G and 8G Fiber Channel , Fibre Channel over Ethernet (FCoE)
- InfiniBand (QDR/DDR/SDR)
- Top of Rack (TOR) Switch
- Networked storage systems
- High Performance Computing
- Servers, switches, storage and NIC

Standards compliance:

- SFF-8431
- SFF-8432
- SFF-8472
- RoHS



Sterling SFP+ Active Optical Cables are hot-swappable, low-voltage cable assemblies that connect directly into SFP+ modules at both ends. These cables use a 20-position connector with active circuitry to increase distances and to improve EMI and reduce signal loss. SFP+ Active Optical Cable transmits 10Gbps data in each direction over a loose tube fibre with distance up to 100m.

Sterling AOC are SFP+ MSA compliant, low power consumption and lightweight, which can be used as an alternative solution to SFP+ passive and active copper cables, while providing improved signal integrity, longer distances, superior electromagnetic immunity and better bit error rate performance.

Stocked lines

SFP+ Active optical cable assemblies

Length	Description	Data rate	Power	BER
3m	SFP+ to SFP+ AOC (+3m)	10Gbp/s	<0.35W	<10 ⁻¹⁵
5m	SFP+ to SFP+ AOC (+5m)	10Gbp/s	<0.35W	<10 ⁻¹⁵
7m	SFP+ to SFP+ AOC (+7m)	10Gbp/s	<0.35W	<10 ⁻¹⁵
10m	SFP+ to SFP+ AOC (+10m)	10Gbp/s	<0.35W	<10 ⁻¹⁵
15m	SFP+ to SFP+ AOC (+15m)	10Gbp/s	<0.35W	<10 ⁻¹⁵

*Other lengths available to order. All with 5 years warranty.

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AOC 40GB/s QSFP+ AOC

Applications:

- InfiniBand 4X SDR, DDR, QDR and FDR
- Ethernet 10G, 40G, 56G
- FiberChannel 40G, SAN, 4x16G
- Rack-to-Rack, Shelf-to-Shelf Interconnect
- Top of Rack (TOR) Switch
- Networking, Storage
- Hubs, switches, routers, servers
- Supercomputer, HPC

Standards compliance:

QSFP+ End

- Electrical: IBTA V2 Revision 1.2.1 and 1.3
- IEEE 802.3ba
- SFF-8436

Sterling interconnect solutions 40 Gb/s low power active optical cable assemblies offer a cost-effective, extended reach option for high-speed data center interconnects. Using 850 nm VCSEL technology, Sterling QSFP+ cable is an assembly of 4 full-duplex lanes, where each lane is capable of transmitting data at rates up to 10Gb/s per direction, providing an aggregated rate of 40Gb/s.



Stocked lines

SFP+ Active optical cable assemblies

Length	Description	Data rate	Power	BER
5m	QSFP+ to QSFP+ AOC (+5m)	40Gbp/s	<1.05W	<10 ⁻¹⁵
7m	QSFP+ to QSFP+ AOC (+7m)	40Gbp/s	<1.05W	<10 ⁻¹⁵
10m	QSFP+ to QSFP+ AOC (+10m)	40Gbp/s	<1.05W	<10 ⁻¹⁵
12m	QSFP+ to QSFP+ AOC (+12m)	40Gbp/s	<1.05W	<10 ⁻¹⁵
15m	QSFP+ to QSFP+ AOC (+15m)	40Gbp/s	<1.05W	<10 ⁻¹⁵

*Other lengths available to order. All with 5 years warranty.

STERLING

DAC

40GB/s QSFP+ to 4x SFP+ AOC

Applications:

- InfiniBand 4X SDR, DDR, QDR and FDR
- Ethernet 10G, 40G
- FiberChannel 10G, 40G, SAN
- Rack-to-Rack, Shelf-to-Shelf Interconnect
- Top of Rack (TOR) Switch
- Networking, Storage
- Hubs, switches, routers, servers
- Supercomputer, HPC

Standards compliance:

QSFP+ End

- Electrical: IBTA V2 Revision 1.2.1 and 1.3
- IEEE 802.3ba
- SFF-8436

SFP+ End

- SFF-8431
- SFF-8432
- SFF-8472



The Sterling QSFP+ to four SFP+ 40Gbps fanout Active Optical Cable is an adaptor cable which provides connectivity between device using QSFP+ port on one end and SFP+ ports on the other end. The integrated cable transmits 4x10Gbps data on the QSFP+ side and 1x10Gbps data on the SFP+ side in duplex over a loose tube fibre with distance up to 100m. The fanout AOC is SFF-8431 (SFP+ side) and SFF-8436 (QSFP+ side) compliant.

Stocked lines

QSFP+ to 4x SFP+ active optical cable assemblies

Length	Description	Data rate	Power SFP+	Power QSFP+	BER
1m	QSFP+ to 4x SFP+ AOC (+1m)	40Gbp/s	<0.35W	<1.05W	<10 ⁻¹⁵
2m	QSFP+ to 4x SFP+ AOC (+2m)	40Gbp/s	<0.35W	<1.05W	<10 ⁻¹⁵
3m	QSFP+ to 4x SFP+ AOC (+3m)	40Gbp/s	<0.35W	<1.05W	<10 ⁻¹⁵
5m	QSFP+ to 4x SFP+ AOC (+5m)	40Gbp/s	<0.35W	<1.05W	<10 ⁻¹⁵

*Other lengths available to order. All with 5 years warranty.

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Other items available for order



Transceivers



CX4



QSFP



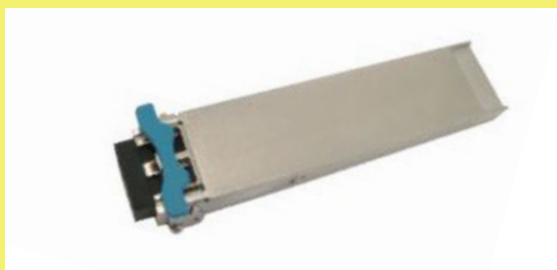
CXP



XENPAK



MiniSAS



XFP



Switch/router cables

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