

High Speed Interconnects

The Siemon Interconnect Solutions team has developed a full offering of interconnect assemblies for ultra high-speed point-to-point applications. Supporting speeds up to 40Gb/s across an array of application standards, the line features QSFP+, SFP+, SFF-8470 and MiniSAS interfaces, as well as hybrid assemblies. Independently tested to be interoperable with most major equipment manufacturers, Siemon interconnects deliver cost-effective, flexible support for your high-speed, direct attach equipment connections

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SFP+ Copper Cable Assemblies

SFP+ copper cable assemblies from Siemon Interconnect Solutions (SIS) were developed specifically as a cost-effective and lower-power alternative to optical modules for short reach links in high-speed interconnect applications such as high-performance computing (HPC), enterprise networking and network storage markets. The assemblies support data transfer rates up to 10+ Gb/s per lane, meeting or exceeding current standards specifications.

These SFP+ fully-shielded assemblies combine twin-axial shielded cable configuration with robust die cast housings for enhanced support of high frequency data rates. These SFP+ assemblies are impedance matched to ensure interoperability and minimize EMI leakage through their fully-shielded design.

STANDARDS COMPLIANCE

- Electrical: SFF-8431* SFF-8083
- Mechanical: SFF-8432
- EEPROM: SFF-8472

* SDD11, not SCC11

APPLICATIONS

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

PCB Termination

Product Information

PERFORMANCE SPECIFICATIONS

Electrical	
Min. Dielectric Withstand Voltage	300 VDC
Insulation Resistance	1000 Mohms
Current Rating	0.5 Amp Min/Signal Contact
General	
Operating Temperature	-10 to 70 °C, (14 to 158 °F)
Flammability Rating	UL 94 V-0
Green Features	RoHS, Lead-Free
Shield	Braid/Foil
Marking	Mfg Name, Part#, Date Code



Plug	
Backshell Material	Nickel-Plated Zinc Diecast
Contact Material	PCB with Gold-Plated Pads
Latch	Positive Latching w/ Pull
Insertion Force	30N (6.74 lbf.) Max
Withdrawal Force	20N (4.5 lbf.) Max
Retention Force	90N (20.23 lbf.) Max
Durability	50 Cycles Min
Cable	
Conductor	Solid
Wire Gauge	30 AWG to 24 AWG
Impedance	100± 5 ohms
Construction	Twinaxial
Cable OD	30 AWG = 4.5mm (0.177 in.)
	28 AWG = 4.7mm (0.185 in.)
	26 AWG = 5.2mm (0.205 in.)
	24 AWG = 6.2mm (0.244 in.)
Jacket Type	PVC
Bend Radius	5X Cable OD

Ordering Information:

SFP+ Passive Copper Cable Assembly, Double-ended, Black

Part Number	Length	Gauge	dWDP(dB)*	VMA(dB)*	VMA(dB)*
SFPP30-01	1m (3.3 ft.)	30			
SFPP30-02	2m (6.6 ft.)	30			
SFPP30-03	3m (9.8 ft.)	30			
SFPP28-05	5m (16.4 ft.)	28	6.2	4.0	46
SFPP24-07	7m (23 ft.)	24	6.5	4.0	42
SFF-8431 Limits			6.75	4.5	32.5

Note: Contact Customer Service for additional lengths and wire gauges.

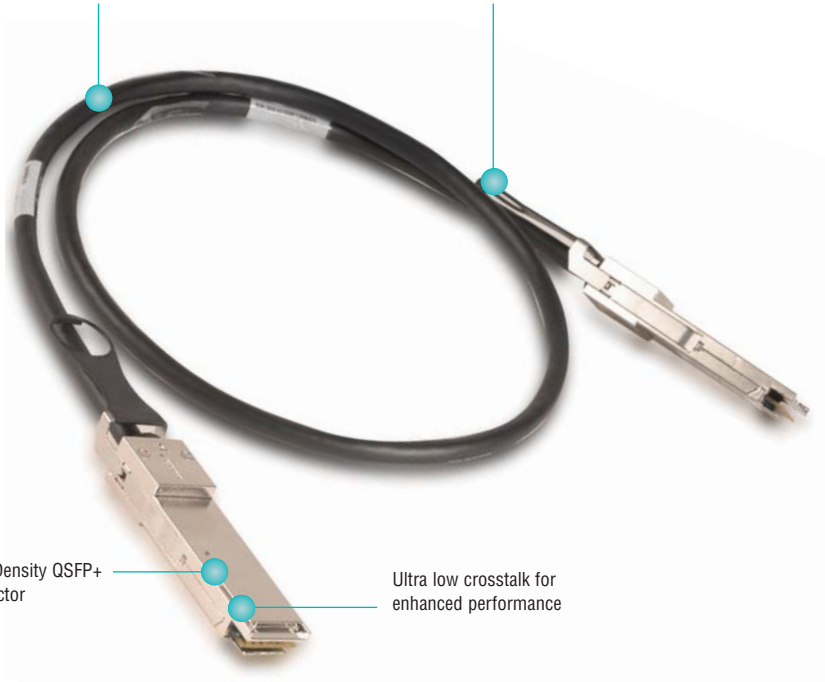
*Typical

Siemon QSFP+ Passive Copper Assemblies

Siemon Interconnect Solutions QSFP+ Copper Cable assemblies were developed for high-density applications, offering a cost-effective, low-power option for high-speed data center interconnects. The QSFP+ form factor (Quad SFP+) can replace up to four standard SFP+ connections, providing greater density and reduced system cost. The direct-attach assemblies support emerging 40Gb/s applications and are available in standard lengths up to 6 meters (19.7 feet) with longer custom lengths available.

Multiple conductor sizes available to achieve optimized performance

Positive retention pull-release latch system



High-Density QSFP+ connector

Ultra low crosstalk for enhanced performance

STANDARDS COMPLIANCE

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

APPLICATIONS

- InfiniBand 4X SDR, DDR, QDR
- Ethernet 10G, 40G
- FiberChannel 10G, 40G, SAN
- RapidIO
- Myrinet 40G
- Rack-to-Rack, Shelf-to-Shelf Interconnect
- Networking
- Storage
- Hubs, switches, routers, servers

PCB Termination

Laser stripped conductors

Overmold provides additional strain relief to minimize pistoning



Automated welding for unmatched consistency

Welding results in less dielectric shrink-back than soldering

Product Information

PERFORMANCE SPECIFICATIONS

Electrical	
Min. Dielectric Withstand Voltage	300 VDC
Insulation Resistance	1000 Mohms
Current Rating	0.5 Amp Min/Signal Contact
General	
Operating Temperature	0 to 70 C (32 to 158 F)
Flammability Rating (Plastics)	UL 94
Green Features	RoHS, Lead-Free
Shield	Braid/Foil
Marking	Mfg Name, Part#, Date Code

Ordering Information:

QSFP+ to QSFP+ Passive Copper Cable Assemblies

Part Number	Length	Gauge
QSFP30-00.5	0.5m (1.6 ft.)	30
QSFP30-01	1m (3.3 ft.)	30
QSFP30-01.5	1.5m (4.9 ft.)	30
QSFP30-02	2m (6.6 ft.)	30
QSFP30-02.5	2.5m (8.2 ft.)	30
QSFP30-03	3m (9.8 ft.)	30
QSFP26-05	5m (16.4 ft.)	26
QSFP24-06	6m (19.6 ft.)	24

Maximum Lengths

Gauge	IBTA DDR	IBTA QDR ¹	IEEE 802.3ba
30	5m (16.4 ft.)	3m (9.8 ft.)	3m (9.8 ft.)
28	7m (23 ft.)	4m (13.1 ft.)	4m (13.1 ft.)
26	8m (26.2 ft.)	5m (16.4 ft.) ²	5m (16.4 ft.)
24	10m (32.8 ft.)	6m (19.6)	n/a

¹ Per IBTA cable MOI V0.69: -13dB @5GHz

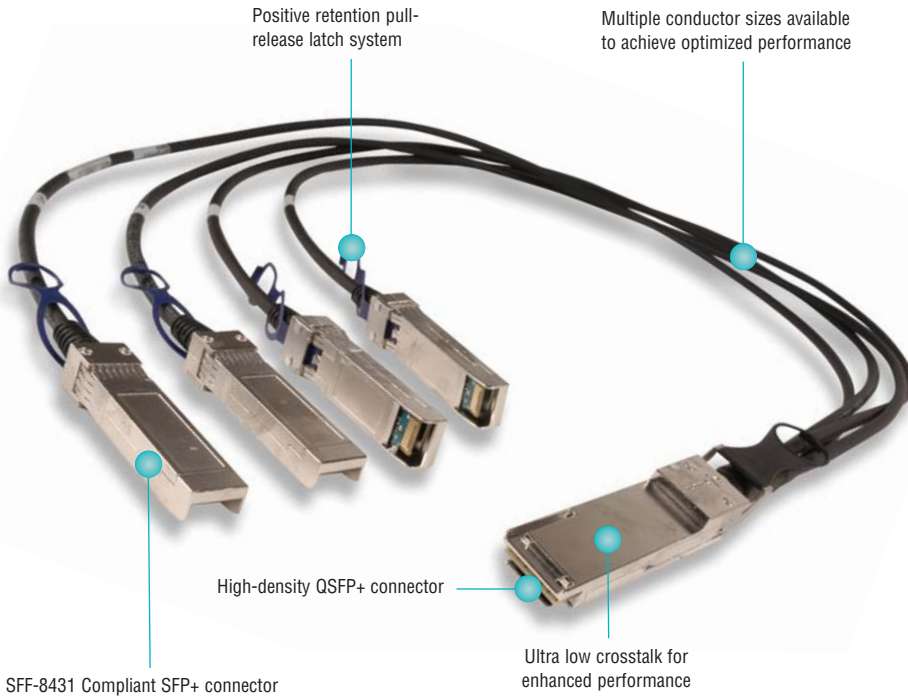
² May not meet IBTA QDR insertion loss limits but is acceptable for most InfiniBand and all Ethernet applications.

Note: Contact Customer Service for additional lengths.

Plug	
Backshell Material	Nickel Plated Zinc Diecast
Contact Material	PCB with Gold-Plated Pads
Plastic Material	PA66
Latch	Positive Latching w/Pull Tab
Insertion Force	40N (8.99 lbf.) Max
Withdrawal Force	30N (6.74 lbf.) Max
Retention Force	90N (20.23 lbf.) Min
Durability	250 Cycles
Tightest Recommended Vertical Spacing (Belly to Belly)	11.80 mm (0.5 in.) Center to Center
Tightest Recommended Vertical Spacing (Stacked)	17.50 mm (0.7 in.) Center to Center
Cable	
Conductor	Solid
Wire Gauge	30 AWG to 24 AWG
Impedence	100 +/- 5 ohms
Construction	Twinaxial
Cable OD	30 AWG = 6.50mm (0.256 in.)
	28 AWG = 7.49mm (0.295 in.)
	26 AWG = 8.61mm (0.339 in.)
	24 AWG = 9.70mm (0.382 in.)
Jacket Type	PVC
Bend Radius	5X Cable OD - Single 10X Cable OD - Repeated

Siemon QSFP+ to 4 SFP+ Passive Copper Assemblies

Siemon Interconnect Solutions hybrid cables allow users to connect SFP+ and QSFP+ equipment. They offer a cost-effective, low-power option for high-speed data center interconnects. The direct-attach assemblies support 4 lanes of 10 Gb/s (40 Gb/s composite) and are available in standard lengths up to 5 meters (16.4 feet) with longer custom lengths available.



STANDARDS COMPLIANCE

QSFP+ End

- SFF-8436
- Electrical: IBTA Volume 2 Revision 1.2.1*

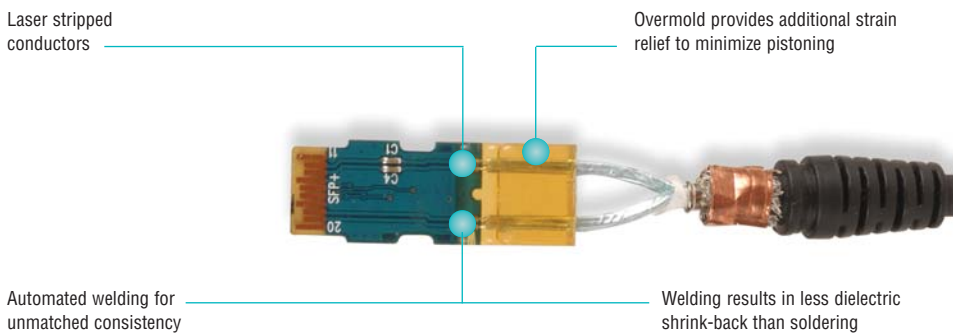
SFP+ End

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

APPLICATIONS

- InfiniBand SDR, DDR
- Ethernet 1G, 10G
- Fiber Channel
- Rack-to-Rack, Shelf-to-Shelf Interconnect
- Networking
- Storage
- Hubs, switches, routers, servers

PCB Termination



* Proposed IBTA return loss limit (used at latest plugfest)

Product Information

PERFORMANCE SPECIFICATIONS

Electrical	
Min. Dielectric Withstand Voltage	300 VDC
Insulation Resistance	1000 Mohms
Current Rating	0.5 Amp Min/Signal Contact
General	
Operating Temperature	0 to 70 C (32 to 158 F)
Flammability Rating (Plastics)	UL 94
Green Features	RoHS, Lead-Free
Shield	Braid/Foil
Marking	Mfg Name, Part#, Date Code



Plug	
Backshell Material	Nickel Plated Zinc Diecast
Contact Material	PCB with Gold-Plated Pads
Latch	Positive Latching w/Pull Tab
Insertion Force	QSFP+: 40N (8.99 lbf.) Max SFP+ 30N (6.74 lbf.) Max
Withdrawal Force	QSFP+: 30N (6.74 lbf.) Max SFP+ 20N (4.50 lbf.) Max
Retention Force	90N (20.23 lbf.) Min
Durability	QSFP+: 250 Cycles Min SFP+ 50 cycles Min
Cable	
Conductor	Solid
Wire Gauge	30 AWG and 28 AWG
Impedance	100 +/- 5 ohms
Construction	Twinaxial
Jacket Type	PVC
Bend Radius	5X Cable OD - Single 10X Cable OD - Repeated

Ordering Information:

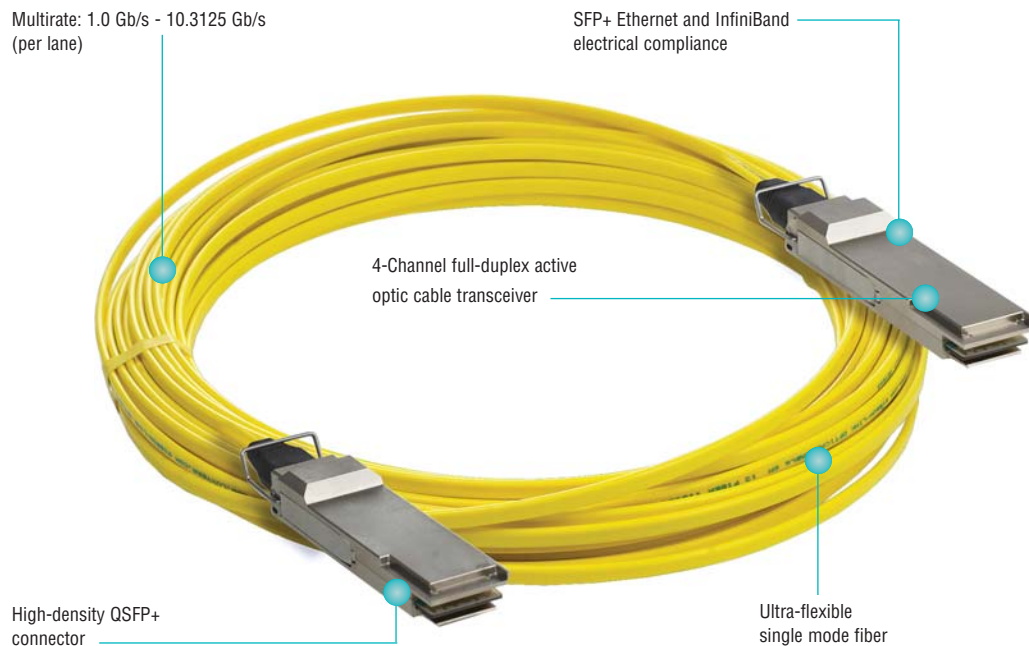
QSFP+ to SFP+ Passive Copper Cable Assemblies

Part Number	Length	Gauge
SFPPQSFP30-00.5	0.5m (1.6 ft.)	30
SFPPQSFP30-01	1m (3.3 ft.)	30
SFPPQSFP30-02	2m (6.6 ft.)	30
SFPPQSFP28-03	3m (9.8 ft.)	28
SFPPQSFP28-05	5m (16.4 ft.)	28

MORAY™ Active Optical Cable Assemblies Single Mode, QSFP+

Siemon Interconnect Solutions MORAY 40 Gb/s Active Optical Cable assemblies offer a cost-effective, extended reach option for high-speed data center interconnects. MORAY assemblies incorporate integrated optoelectronics with four single-mode fiber optic transceivers per end, each operating at data rates from 1 to 10.3125 Gb/s. The cable is available in a number of standard lengths up to 300 meters (984 feet) and custom lengths up to 4,000 meters (13,123 feet).

MORAY offers customers the flexibility of traditional optical modules by interfacing to systems via a standard QSFP+ MSA, SFF-8436 connector. The cable is electrically compliant with the SFP+ interface supporting InfiniBand, Ethernet, Fibre Channel and other applications. Optical transceivers are permanently attached to the fiber, shielding the optical interface from environmental contaminants and protecting it from damage during installation.



APPLICATIONS

- InfiniBand SDR, DDR, QDR
- Ethernet 10G, 40G
- Fibre Channel 8G, 10G
- SAS, SATA 3G, 6G
- Fibre Channel SAN 10G, 20G, 40G
- Myrinet 40G
- Optical Backplanes
- Rack-to-Rack, Shelf-to-Shelf Interconnect
- Proprietary Cluster Interconnect
- Networking
- Storage
- Hubs, switches, routers, servers

STANDARDS COMPLIANCE

- SFF-8436
- SFF-8431
- FCC Class B
- EN55022: 2006 (Class B)
- EN/IEC 61000-4-3
- Safety: UL, CSA, CE
- RoHS
- Class 1 laser product per IEC 6095 (eye safety)
- Telcordia GR-468-CORE

Product Information

PERFORMANCE SPECIFICATIONS

Electrical	
Supply Voltage	3.1 to 3.5V
Power Consumption Per End	2.5W (max) per end
General	
Operating Temperature	0 to 70 C (0 to 158 F)
Storage Temperature	-45 to 85 C (-49 to 185 F)
Channels	4 channels, bi-directional
Connector (each end)	QSFP
Weight for 10m (33 ft.) cable	360 g (12.7 oz.) typical
Cable Pull Strength	68N (15.29 lbf.)

Cable	
Type	OFNP/CSA-FT6 (plenum) single mode fiber
Minimum Bend Radius	Cable only: ≤15mm (0.6 in.)
Minimum Cable Assembly Bend Radius	Cable and Connector: 5mm (2.2 in.)
Cross Section (without connector)	4.1mm (0.16 in.) Max x 2.5mm (0.1 in.) Max
Channel Parameters	
Channels	4 Lanes, bi-directional
Data Rate	1 to 10.3125 Gbps/channel
Link Bit Error Rate (BER)	10 ⁻¹⁵
Signal Latency	2 ns for TX/RX plus 5 ns/m cable length
Operating Optical Wavelength	1490 nm



Ordering Information:

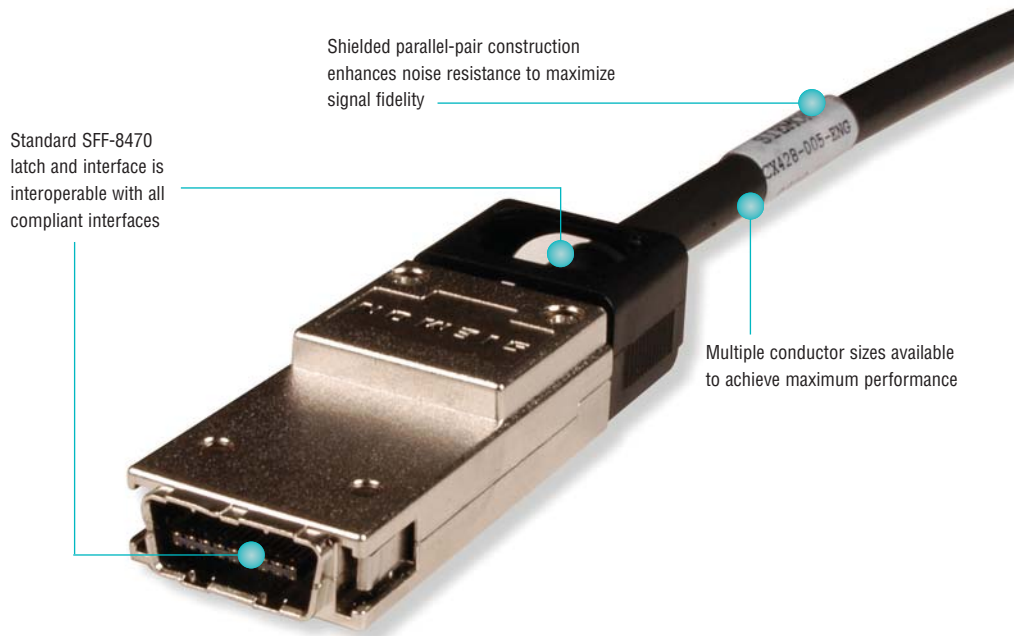
QSFP to QSFP Active Optical Cable Assemblies

Part Number	Length
QSFP-F-007	7m (23 ft.)
QSFP-F-010	10m (32.8 ft.)
QSFP-F-015	15m (49.2 ft.)
QSFP-F-020	20m (65.6 ft.)
QSFP-F-025	25m (82 ft.)
QSFP-F-030	30m (98.4 ft.)
QSFP-F-040	40m (131.2 ft.)
QSFP-F-050	50m (164 ft.)

Note: Contact Customer Service for additional lengths.

8470 4X Copper Cable Assemblies

Siemon Interconnect Solutions (SIS) 8470 4X copper cable assemblies were designed to support an array of high-speed interconnect infrastructures such as high-performance computing (HPC), enterprise networking, data centers and network storage. Combining high bandwidth and low latency signal transmission, these assemblies are ideal for Ethernet, InfiniBand SDR/DDR/QDR and other industry-standard applications. These assemblies support data rates from 2.5Gb/s to 10+ Gb/s per lane.



APPLICATIONS

- InfiniBand SDR, DDR and QDR
- Ethernet CX4, CR4
- Fiber Channel 1, 2, 4, 8, 10G
- XAUI, XAUI.2
- RapidIO
- SAS, SATA
- Myrinet
- Serial Transmissions to 10+Gb/s
- Networking
- Storage
- Hubs, switches, routers, servers

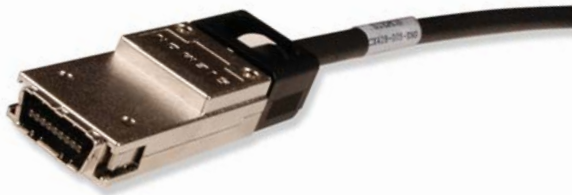
STANDARDS COMPLIANCE

- SFF-8470
- IBTA Volume 2 revision 1.2.1
- IEEE 802.3ak
- OIF - CEI SR 11G

Product Information

PERFORMANCE SPECIFICATIONS

Electrical	
Min. Dielectric Withstand Voltage	300 VDC
Insulation Resistance	1000 Mohms
Current Rating	0.5 Amp Min/Signal Contact
Impedance	10 +/- 10 Ohms at 100psec
Near End Crosstalk (NEXT)	<2% at 100psec (multiple aggressors)
General	
Operating Temperature	-10 to 60 °C (14 to 140 °F)
Flammability Rating	UL 94 V-0
Green Features	RoHS, Lead, Halogen and PVC-Free
Shield	Braid/Foil
Marking	Mfg Name, Part#, Date Code



Plug	
Backshell Material	Nickel-Plated Zinc Diecast
Contact Material	Gold-Plated Copper Alloy
Plastic Material	LCP
Latch	Thermoplastic and Copper Alloy
Insertion Force	30N (6.74 lbf.) Max
Withdrawal Force	15N (3.37 lbf.) Max
Retention Force	75N (16.86 lbf.) Max
Durability	250 Cycles Min
Cable	
Conductor	Solid
Wire Gauge	30 AWG to 24 AWG
Impedance	100± 5 ohms
Construction	Twinaxial
Cable OD	30 AWG = 6.1mm (0.240 in.)
	28 AWG = 7.1mm (0.280 in.)
	26 AWG = 8.1mm (0.320 in.)
	24 AWG = 9.2mm (0.362 in.)
Bend Radius	5X Cable OD
Jacket Type	LSZH

Ordering Information:

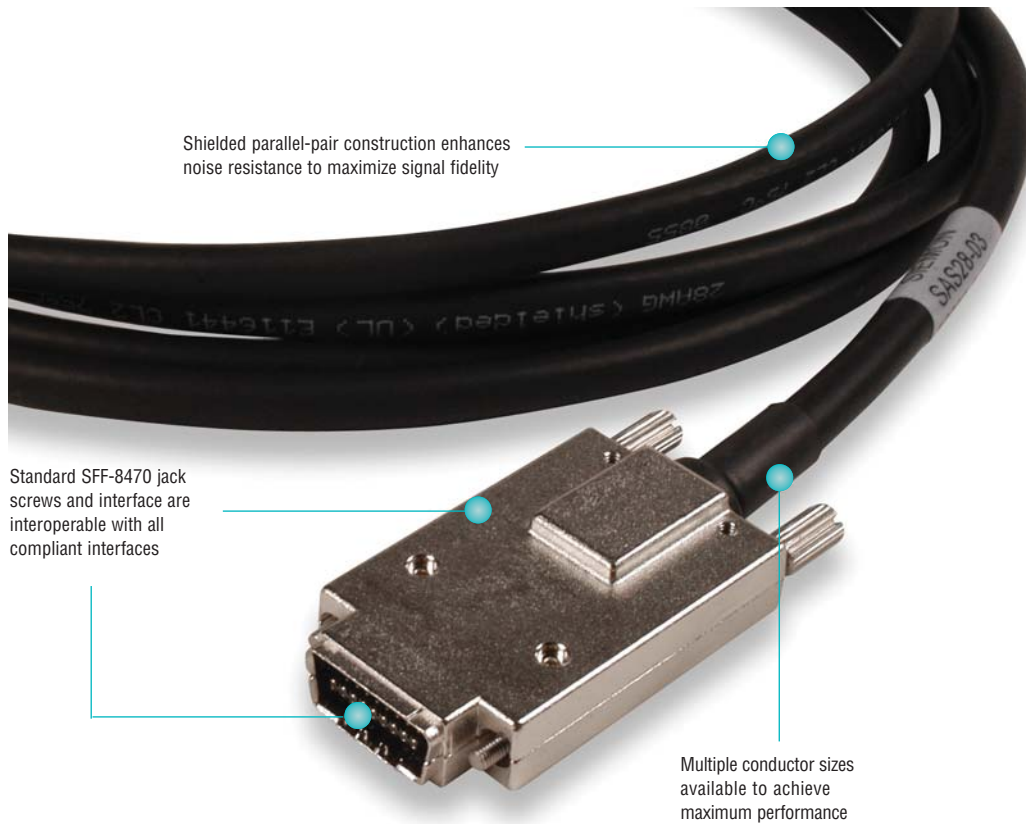
8470 4X Passive Copper Cable Assembly, Double-ended, Black

Part Number	Length	Gauge
CX428-000.5	0.5m (1.6 ft.)	28
CX428-001	1m (3.3 ft.)	28
CX428-002	2m (6.6 ft.)	28
CX428-003	3m (9.8 ft.)	28
CX428-005	5m (16.4 ft.)	28
CX426-007	7m (23 ft.)	26
CX424-010	10 (32.8 ft.)	24

Note: Contact customer service for additional lengths and wire gauges.

8470 4X Copper Cable Assemblies (Thumbscrew Style)

Siemon Interconnect Solutions (SIS) 8470 4X copper cable assemblies were designed to support an array of high-speed interconnect infrastructures such as high-performance computing (HPC), enterprise networking, data centers and network storage. Combining high bandwidth and low latency signal transmission, these assemblies are ideal for Ethernet, InfiniBand SDR/DDR/QDR and other industry-standard applications. These assemblies support data rates from 2.5Gb/s to 10+ Gb/s per lane.



Shielded parallel-pair construction enhances noise resistance to maximize signal fidelity

Standard SFF-8470 jack screws and interface are interoperable with all compliant interfaces

Multiple conductor sizes available to achieve maximum performance

APPLICATIONS

- SAS, SATA
- InfiniBand SDR, DDR and QDR
- Ethernet CX4, CR4
- Fiber Channel 1, 2, 4, 8, 10G
- XAUI, XAUI.2
- RapidIO
- Myrinet
- Serial Transmissions to 10+Gb/s
- Networking
- Storage
- Hubs, switches, routers, servers

STANDARDS COMPLIANCE

- SFF-8470
- IBTA Volume 2 revision 1.2.1
- IEEE 802.3ak
- OIF - CEI SR 11G

Product Information

PERFORMANCE SPECIFICATIONS

Electrical	
Min. Dielectric Withstand Voltage	300 VDC
Insulation Resistance	1000 Mohms
Current Rating	0.5 Amp Min/Signal Contact
Impedance	100 +/- 10 Ohms at 100psec
Near End Crosstalk (NEXT)	<2% at 100psec (multiple aggressors)
General	
Operating Temperature	-10 to 60 °C (14 to 140 °F)
Flammability Rating	UL 94 V-0
Green Features	RoHS, Lead, Halogen and PVC-Free
Shield	Braid/Foil
Marking	Mfg Name, Part#, Date Code



Plug	
Backshell Material	Nickel-Plated Zinc Diecast
Contact Material	Gold-Plated Copper Alloy
Insertion Force	30N (6.74 lbf.) Max
Withdrawal Force	15N (3.37 lbf.) Max
Durability	250 Cycles Min
Cable	
Conductor	Solid
Wire Gauge	30 AWG to 24 AWG
Impedance	100± 5 ohms
Construction	Twinaxial
Cable OD	30 AWG = 6.1mm (0.240 in.)
	28 AWG = 7.1mm (0.280 in.)
	26 AWG = 8.1mm (0.320 in.)
	24 AWG = 9.2mm (0.362 in.)
Bend Radius	5X Cable OD
Jacket Type	LSZH

Ordering Information:

8470 4X Passive Copper Cable Assembly, Double-ended, Black

Part Number	Length	Gauge
SAS28-00.5	0.5m (1.6 ft.)	28
SAS28-01	1m (3.3 ft.)	28
SAS28-02	2m (6.6 ft.)	28
SAS28-03	3m (9.8 ft.)	28
SAS28-05	5m (16.4 ft.)	28
SAS26-07	7m (23 ft.)	26
SAS24-10	10 (32.8 ft.)	24

Note: Contact Customer Service for additional lengths and wire gauges