3M Science. Applied to Life.™

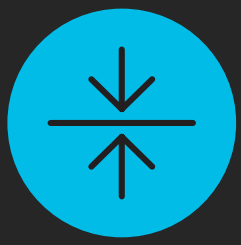
3M™ Twin Axial Cable Assemblies

Flexible solutions for today and tomorrow's requirements.

It's one thing to keep up with the need for speed in dense server system applications. It's another to lead the way. Twin axial cable assemblies from 3M feature flexible, foldable cabling and shielding technology for cable management and design freedom not possible with standard cable solutions. Cable assemblies for PCIe Gen 4 or Gen 5 as well as IEEE 802.3ck industry standards, and are poised to seamlessly adapt to future advancements including PCIe Gen 6.

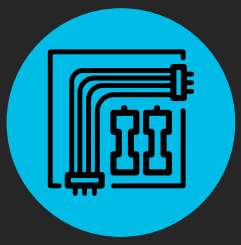
Highly foldable, flexible and routable

Featuring 3M™ Twin Axial Cable technology



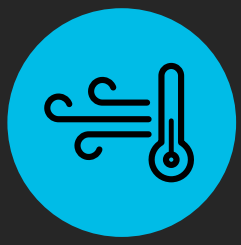
Thin, low-profile ribbon cable

Allows more routing options within a case, and more packaging configurations



Extremely tight bend radii

Foldable ribbon construction allows cable to fold back on itself with minimal performance impact



Improved thermal management

Thin ribbon cable helps maximize airflow for more efficient cooling

Cable Assemblies

3M™ 800G OSFP AEC Cable Assembly, 10Y Series

- Delivers aggregate bandwidth up to 800G (8x 100Gbps) with active electrical cable assemblies:
  - Up to 3 meters with 32 AWG
  - Up to 4 meters with 30 AWG
  - Up to 5 meters with 28 AWG
- Meets the following industry-standard protocols:
  - IEEE 802.3ck; OSFP MSA
  - 800G Ethernet applications
- Standard CMIS EEPROM mapping, custom is available
- OSFP to OSFP & OSFP to 2xQSFP Breakout assemblies available
- RoHS 2011/65/EU compliant*

3M™ 800G OSFP Direct Attach Copper Cable Assemblies, 9Y Series

- Delivers aggregate bandwidth up to 800G (8x 100Gbps) with passive copper assemblies:
  - 0.5 to 0.75 meters with 32 AWG
  - 0.75 to 1.2 meters with 30 AWG
  - 1.2 to 1.5 meters with 28 AWG
  - 1.5 to 2.0 meters with 26 AWG
- Meets the following industry-standard protocols:
  - IEEE 802.3ck; OSFP MSA
  - 800G Ethernet applications
- Custom EEPROM mapping available
- OSFP to 2xQSFP/4xQSFP and 8xSFP breakout assemblies available
- RoHS 2011/65/EU compliant*

3M™ 400G QSFP-DD Direct Attach Copper Cable Assemblies, 9V Series

- Up to 400G Ethernet applications
- IEEE 802.3cd
- QSFP-DD MSA
- Signal wire size 30A WG and 26 AWG
- Standard lengths available up to 3 m
- Custom EEPROM mapping available
- QSFP-DD to 2xQSFP56 Y-Cable assemblies available
- QSFP-DD to 4xQSFP28/4xQSFP56 and 8xSFP56 breakout assemblies available

Typical Applications: Network Interface Card (NIC) to switch

3M™ External QSFP28 Cable Assembly, 9Q Series

- 100G Ethernet applications
- IEEE 802.3bj
- SFF-8665, -8661, -8662
- Signal wire size 30 AWG and 26 AWG
- Standard lengths available up to 4 m
- Custom EEPROM mapping available
- QSFP28 (100G) to 4xSFP28 (25G) break out assemblies available
- QSFP28 (100G) to 2xQSFP28 (50G) Y-cable assemblies available

Typical Applications: Network Interface Card (NIC) to switch

3M™ External QSFP+ Cable Assembly, 9Q Series

- 40G Ethernet applications
- IEEE 802.3bd
- SFF-8436
- Signal wire size 30 AWG
- Standard lengths available up to 3 m
- Custom EEPROM mapping available
- InfiniBand DDR (4×5Gbps), QDR (4×10Gbps) and FDR (4×14Gbps) applications
- Tested at Open Network Systems Interoperability PlugFest (UNH IOL)

Typical Applications: Network Interface Card (NIC) to switch

Cable Assemblies

3M™ External SFP28 Cable Assembly, 1422 Series

- 25G Ethernet applications
- IEEE 802.3by
- SFF-8431
- Signal wire size 30 AWG and 26 AWG
- Standard lengths available up to 4 m
- Custom EEPROM mapping available
- Available in black (red or blue PVC jacket options available)
- Tested at Open Network Systems Interoperability PlugFest (UNH IOL)

Typical Applications: Network Interface Card (NIC) to switch

3M™ External SFP+ Cable Assembly, 1410/1412 Series

- 10G Ethernet applications
- IEEE 802.3ae
- SFF-8431 and SFF-8432
- Signal wire size 30 AWG and 26 AWG
- Standard lengths available up to 7 m
- Custom EEPROM mapping available
- Available in black, red or blue PVC jacket options

Typical Applications: Network Interface Card (NIC) to switch

3M™ External miniSAS Cable Assembly, 8G26 Series

- x4 configuration
- SAS 2.0 and 2.1 (100 ohm) applications
- SFF-8086, 8088
- Signal wire size 30 AWG and 28 AWG
- Standard lengths available up to 6 m
- Various keying options and custom cable lengths available

Typical Applications: Network Interface Card (NIC) to switch

Cable Assemblies

3M™ Twin Axial PCI Express Extender Assemblies Gen 4.0 8Kxx Series

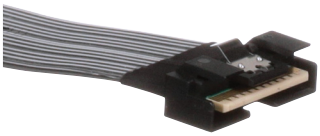
High-speed data transmission
- x8 and x16 configurations
- PCIe© CEM
- PCIe© Card Edge
- Signal wire size 31 AWG and 30 AWG
- Standard lengths 0.25 m and 0.5 m
- PCIe Gen 4.0 (85 ohm) applications
- Straddlemount and SMT connector types

Typical Applications: Flexible riser cable assembly

3M™ Twin Axial PCI Express Extender Assemblies Gen 5.0 8KDx Series

High-speed data transmission
- x8 and x16 configurations
- PCIe© CEM
- PCIe© Card Edge
- Signal wire size 30 AWG
- Standard lengths 0.25 m and 0.5 m
- PCIe Gen 5.0 (85 ohm) applications
- Straddlemount and SMT connector types

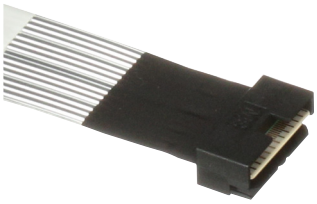
Typical Applications: Flexible riser cable assembly



3M™ Multi-Channel I/O Twin Axial Cable Assemblies, 8MSx Series (x4 is 8MS4)

- x4 and x8 configurations
- SFF-TA-1016 straight and right angle
- Signal wire size 30 AWG and 31 AWG
- Standard lengths 0.5 m, 0.75 m, and 1 m
- PCIe (85 ohm) applications
- Custom folded assemblies available

Typical Applications: Motherboard or controller to drive backplane, midboard



3M™ Low Profile I/O Twin Axial Cable Assemblies, 8CSx Series (x4 is 8CS4)

- x4 and x8 configurations
- Straight and right angle
- Signal wire size 30 AWG and 31 AWG
- Standard lengths 0.5 m, 0.75 m, and 1 m
- PCIe (85 ohm) applications
- Custom folded assemblies available

Typical Applications: Motherboard or controller to drive backplane, midboard

3M™ SlimLine Twin Axial Cable Assemblies, 8ESx Series (x4 is 8ES4)

- x4 and x8 configurations
- SFF-8654 straight and right angle
- Signal wire size 30 AWG and 31 AWG
- Standard lengths 0.5 m, 0.75 m, and 1 m
- PCIe (85 ohm) and SAS (100 ohm) applications
- Custom folded assemblies available

Typical Applications: Motherboard or controller to drive backplane, midboard

3M™ Mini SlimLine Twin Axial Cable Assemblies, 8EL8 Series

- x8 configurations
- SFF-8654 straight
- Signal wire size 31 AWG
- Standard lengths 0.5 m, 0.75 m, and 1 m
- PCIe (85 ohm) applications
- Custom folded assemblies available
- Assembly plug depth reduced 25% compared to standard SlimLine

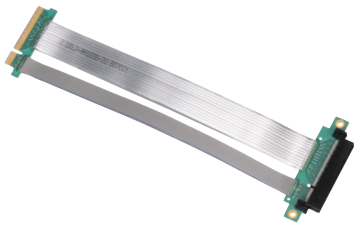
Typical Applications: Motherboard or controller to drive backplane, midboard

Cable Assemblies

3M™ Compact SlimLine Twin Axial Cable Assemblies, 8EC8 Series

- x8 configurations
- SFF-8654 straight
- Signal wire size 30 AWG and 31 AWG
- Standard lengths 0.5 m, 0.75 m, and 1 m
- PCIe (85 ohm) applications
- Custom folded assemblies available
- Assembly plug width reduced by 8% and depth reduced by 25% compared to standard SlimLine

Typical Applications: Motherboard or controller to drive backplane, midboard



3M™ Internal PCI Express Extender and Jumper Cable Assemblies

- x4, x8 and x16 configurations
- Straddlemount and SMT connector types
- Signal wire size 30 AWG
- Standard lengths 0.25 m and 0.5 m
- PCIe Gen 3.0 (85 ohm) applications
- Includes aux signals

Typical Applications: Flexible riser (extender) motherboard to motherboard (jumper)

3M™ Internal miniSAS Cable Assemblies, 8F36 / 8F68 / 8S36 Series

- x4 (36-position) and x8 (68-position) configurations
- SFF-8087 straight and right angle
- SFF-8087 to 7-position SATA fan-out assemblies
- Signal wire size 30 AWG, available in either silver or tin
- Available with and without sidebands
- SAS (100 ohm) applications
- SFF-8087 hybrid to SATA
- Standard lengths available up to 1 m
- Custom folded assemblies available

Typical Applications: Motherboard or controller to drive backplane, midboard

3M™ Internal miniSAS HD Cable Assemblies, 8US4 / 8UH4 Series

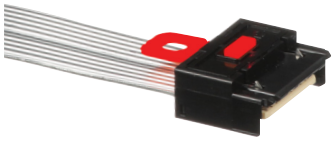
- x4 configuration
- SFF-8643 straight short body, straight, and right angle
- SFF-8643 hybrid to SFF-8087
- Signal wire size 30 AWG
- Available with or without sidebands
- Available with mesh sleeve
- SAS (100 ohm) applications
- Standard lengths available up to 1 m
- Custom lengths available

Typical Applications: Motherboard or controller to drive backplane, midboard

3M™ Internal SATA Cable Assemblies, 5602 Series

- 7-position configuration
- Straight and right angle with either passive or active latch
- Signal wire size 30 AWG
- SATA (100 ohm) applications
- Standard lengths available up to 1 m

Typical Applications: Motherboard or controller to drive backplane, midboard



3M™ Scalable High Speed I/O Assemblies

- 1C, 2C, 4C configurations
- SFF-TA-1020 straight
- Signal wire size 30 AWG
- Standard lengths 0.5 m, 0.75 m, and 1 m
- PCIe (85 ohm) applications
- Custom folded assemblies available

Typical Applications: Motherboard or controller to drive backplane, midboard

Over 50 years of interconnect innovation

3M™ Twin Axial Cable Assemblies are part of a long line of 3M firsts in electronics cabling technology. 3M developed the first known mass-termination interconnect system; the first 64-wire termination; color-coded flat cabling; the first IDC solution for I/O applications; foldable twin-ax cable and more – all to help manufacturers improve their device performance, streamline their assembly and add more value to their solutions.

Safety Data Sheet: Consult Safety Data Sheet before use.

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Electronics Materials Solutions Division
3M Center, Building 223-3S-23
St. Paul, MN 55144-1000 USA

Web 3M.com/twinax
Phone 1-800-810-8513

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