TE Connectivity 12 Gb/s Internal Mini-SAS HD Interconnect

12G Internal Mini-SAS HD Interconnect

The Product:

- Transfers an aggregate data rate of 48 Gb/s per connector (12G x 4 lanes); 1x4 version transfers aggregate data of 192 Gb/s

- Adopted by SAS 2.1 and SAS 3 specifications

- Features right angle and vertical connector orientations, and right angle and straight cable plugs
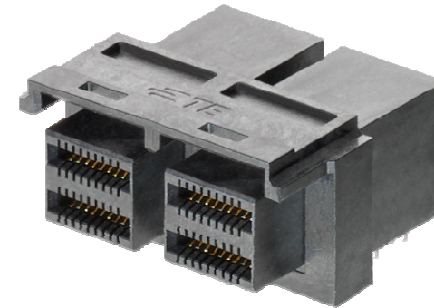

Applications:

- Enterprise storage

- High performance computing

- Networking

- Data center communication systems

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Connector Features

- **High Density, High-Speed:** Capable of transferring an aggregate data rate of 48 Gb/s; the 1x4 version transmits an aggregate data transfer of 192 Gb/s (12 Gb/s x 16 lanes)

- **Compact Size:** With a 0.75mm contact pitch, the receptacle is 30% smaller than existing products

- **Faster Installation:**
  - Press-fit termination
  - Pre-assembled, one-piece connector assembly
  - Keying for proper plug orientation

- **Flexibility:**
  - Available in three configurations: 1x1, 1x2 and 1x4
  - Stacked board interface with 36 positions per 1x1
  - Plug options for direct passive and active copper cable assemblies

- **Error-Proof:** Screw-mounted for additional retention

- 100 Ohm impedance

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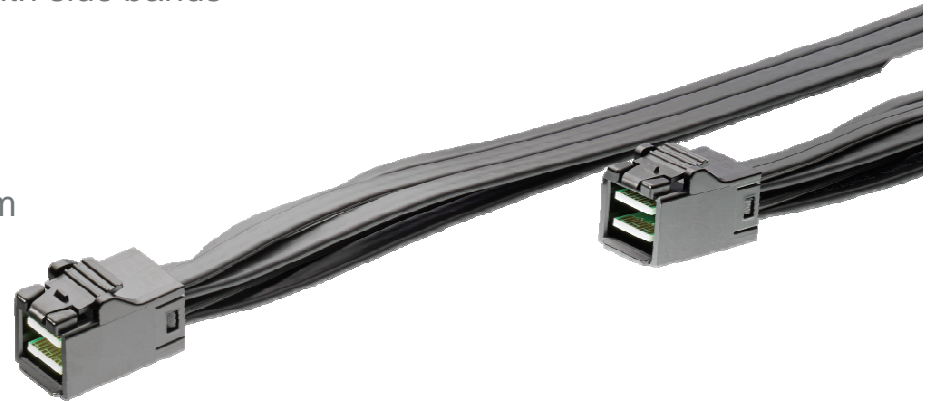# Connector Performance

Electrical

- Signal integrity performance meets SAS-2.1 at 6 Gb/s and SAS-3 at 12 Gb/s requirements
- Voltage rating: 30 volts AC
- Current rating: Signal application only

Mechanical

- Plug insertion force: 50N Max
- Plug extraction force: 25N Max
- Latch retention: 50N Min
- Durability: 250 cycles

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Cable Assembly Features

- **High Density, High-Speed:** 4i Capable of transferring an aggregate data rate of 48 Gb/s (12Gb/s x 4 lanes); the 8i version transmits an aggregate data transfer of 96 Gb/s (12 Gb/s x 8 lanes)

- **Greater Airflow & Space Savings:**
  - 0.75mm contact pitch stacked paddle card interface
  - Short 18mm length cable plug
  - 4-pair 30AWG composite flat twin axial cable with side bands

- **Design Flexibility:**
  - Available in 4i and 8i configurations
  - Standard cable lengths 0.3m, 0.5m, 0.7m and 1m
  - Straight and right angle cable connectors
  - PVC or halogen-free cable jacket material
  - 85 or 100 Ohm impedance

- **Robust Design:** Cable jacketed for abrasion/cut resistance and shield isolation (no exposed metallic edges)

- REACH and RoHS II compliant

Cable Assembly Performance

Electrical

- Signal integrity performance meets SAS-2.1 at 6 Gb/s and SAS-3 at 12 Gb/s requirements

- Voltage rating: 30 volts AC

- Current rating: Signal application only

- Attenuation: 100 Ohm 3.7 dB/m at 6 GHz; 85 Ohm 4.3 dB/m at 6 GHz

Mechanical

- Plug insertion force: 50N Max

- Plug extraction force: 25N Max

- Latch retention: 50N Min

- Durability: 250 cycles

- Compliant to SFF-8643 mini-multilane interface specification

- Cable construction consists of 8 differential pair bundles: 2 cables with 4 pairs in each cable
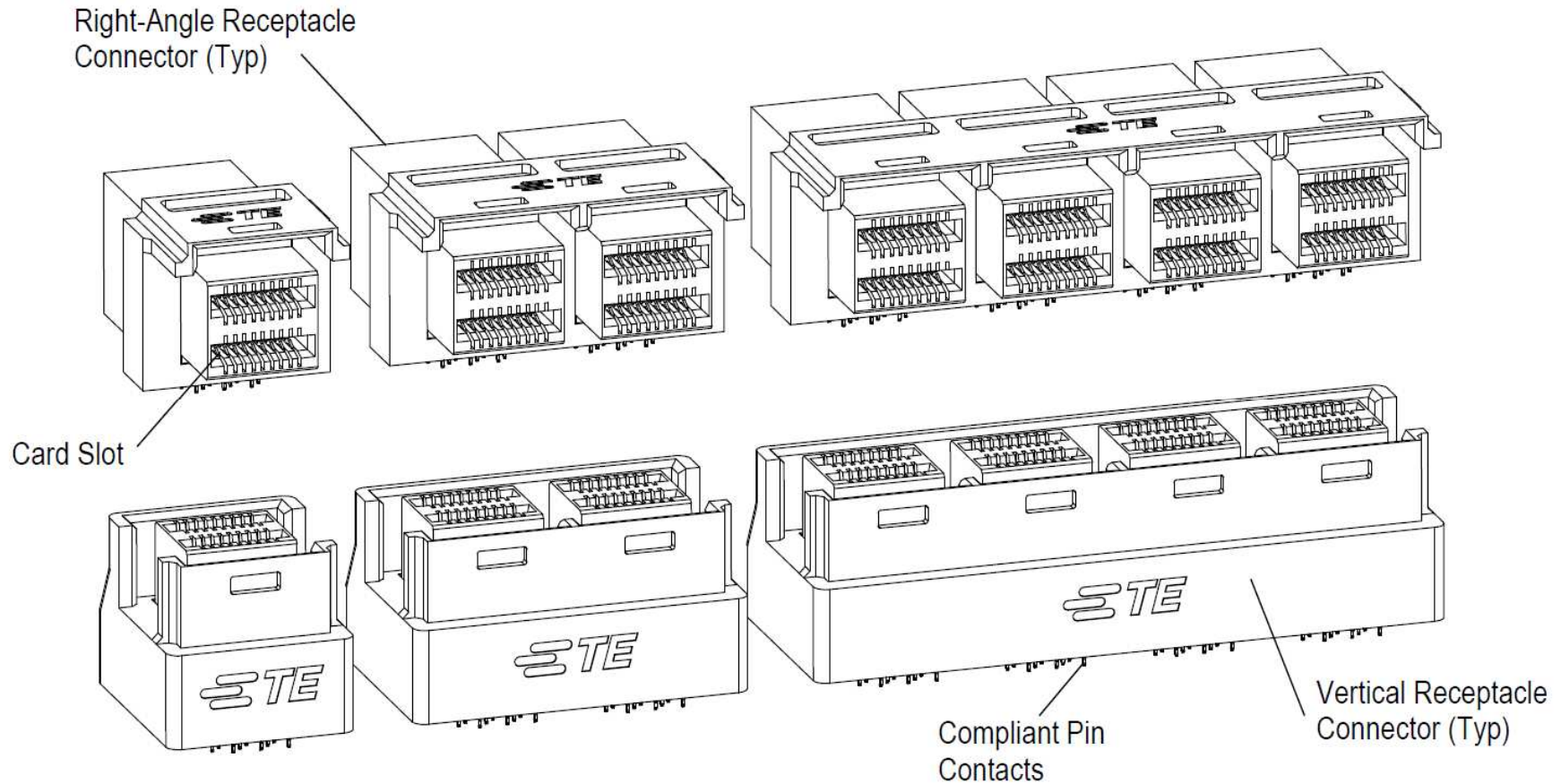
Additional Information

Materials

- Receptacle housing: LCP
- Contacts: Copper Alloy
- Chicklets: LCP
- Cable plug: Polycarbonate
- Paddle card contact pads: u30 gold
- Cable jacket: PVC or Halogen-free

Protocols

- SAS-2.1 at 6 Gb/s
- Capable of SAS 3.0 at 12 Gb/s
- SFF-8643

Additional Information

Right-Angle Receptacle Connector (Typ)

Card Slot

Compliant Pin Contacts

Vertical Receptacle Connector (Typ)

Connector Part Numbers

Part	Description
2227580-1	1x1 Right Angled Press-fit, 100 Ohms
2227581-1	1x2 Right Angled Press-fit, 100 Ohms
2227582-1	1x4 Right Angled Press-fit, 100 Ohms
2227595-1	1x1 Vertical Press-fit, 100 Ohms

Connector Part Numbers

Part	Description
2227640-1	1x2 Vertical Press-fit, 100 Ohms
2227642-1	1x4 Vertical Press-fit, 100 Ohms

Cable Assembly Part Numbers

Part	Description	Impedance	Hal-Free
2231171	4i Straight to Straight Plugs	100	No
2820350	4i Straight to Straight Plugs	100	Yes
2820328	4i Right Angle to Right Angle Plugs	100	No
2820329	4i Right Angle to Right Angle Plugs	100	Yes
2820332	4i Straght to Right Angle Plugs	100	No
2820333	4i Straght to Right Angle Plugs	100	Yes
2820337	8i Straight to Straight Plugs	100	No
2820338	8i Straight to Straight Plugs	100	Yes
2820325	4i Right Angle to Right Angle Plugs	85	No
2820326	4i Right Angle to Right Angle Plugs	85	Yes
2820330	4i Straght to Right Angle Plugs	85	No
2820331	4i Straght to Right Angle Plugs	85	Yes
2820334	4i Straight to Straight Plugs	85	No
2820335	4i Straight to Straight Plugs	85	Yes
2820339	8i Straight to Straight Plugs	85	No
2820340	8i Straight to Straight Plugs	85	Yes

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Supporting Documents

Technical Documents

- Product Specification: 108-32038

- Application Specification: 114-32101

Brochure: 7-1773461-9 Mini-SAS HD Interconnects (includes information on external and internal products)

Website: http://www.te.com/products/miniSASHD

MINI-SAS HIGH DENSITY
Connectors & Cable Assemblies

Mini-SAS High Density (HD) Connectors & Cable Assemblies

TE Connectivity's (TE's) Mini-SAS HD (high density) product family includes compact, high-speed I/O solutions for SAS applications: storage, rack-mount servers, workstations, storage racks, high performance computing, HBAs (host bus adapters), RAID (redundant arrays of inexpensive disks), switches and more. The product family supports speeds up to 12 Gb/s and includes the following interfaces:

- Internal receptacles and copper cable assemblies

- External receptacles and copper cable assemblies

The interfaces are adopted for the SAS-2.1 and SAS-3 standards. The reduced size of the interconnects saves additional 30% to 50% PCB space; a low profile PCIe card can accomodate 4 Mini-SAS HD connectors versus 2 SAS connectors.

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