

MINI-SAS HD

NEXT GENERATION SAS STORAGE INTERFACE

DESCRIPTION

The Mini-SAS HD product is the next generation SAS storage interface addressing channel bandwidth requirements of 6 Gb/s to 12 Gb/s meeting or exceeding the respective SAS 2.1 and proposed SAS 3.0 specifications.

The Mini-SAS HD product provides greater port density (11mm port-to-port) versus the existing Mini-SAS 2.0 product (19.01mm port-to-port). FCI's Mini-SAS HD product is fully compliant to the SFF-8643 and SFF-8644 industry specifications. Internal and external connector configurations of the Mini-SAS HD product include 1X1 (4x), 1X2 (8x), and 1X4(16x) and enables 4x and 8x internal & external cable assembly solutions which include EEPROM communication. The Mini-SAS HD profile design is PCI Express compatible and can be utilized in PCI Express architecture applications.



FEATURES & BENEFITS

- IMLA based board connector insures compliance to the SAS 2.1 & proposed 3.0 electrical performance criteria
- Internal and external board connector and cable assemblies provide end-to-end application solutions
- 1X1, 1X2 and 1X4 connector/cage assemblies offer product family design flexibility
- All board connectors and configurations are fully 6G and 12G compliant allowing for use of same part numbers when system speeds increase from 6G to 12G
- Metal cages on the external connector and cables provide 360° EMI shielding and replaces problematic EMC elastomeric gaskets
- Cable assemblies offered in 4x and 8x configurations
- Eye-of-the-needle connector and cage single step termination yields consistent application to the PCB
- The external cable strain relief results in an axial pull force in excess of 20 lbs
- Cable latch design reduces cable insertion force and un-mating issues
- Pull tabs are available in multiple lengths in Pantone 279 color to meet many application needs.
- Positive stop feature on the casting prevents external cable assembly mating over-travel.
- Hybrid external cables (mini-SAS HD to mini-SAS) allow for backwards compatible cabling with legacy system hardware

TARGET MARKETS / APPLICATIONS

- Data
 - Servers
 - RAID systems
 - Storage racks
- External Storage Systems
 - SAS/SATA HBA interfaces
 - Direct-attached storage (DAS)
- Communications
 - Switches

TECHNICAL INFORMATION

MATERIALS

- Board Receptacle Contact: Copper alloy
- Board Receptacle Housing: Thermoplastic high temperature UL94V-0
Board Receptacle Planting: Gold over Nickel
- Plug Paddle Card: Copper/FR - Gold over Nickel plating

ELECTRICAL PERFORMANCE

- Impedance: 100 +/- 15Ω
- Voltage Rating: 30 Volts AC (RMS)/DC Max
- Current Rating: 0.5 Amps Max

ENVIRONMENTAL

- Thermal Shock (temperature cycling): conforms to EIA-364-32
- Temperature life (heat aging): conforms to EIA-364-17 105°C for 500 hours
- Operating temperature range: -40°C to 80°C

MECHANICAL PERFORMANCE

- Durability: 250 cycles

SPECIFICATIONS

- External Cable to Board Connector System
 - Product Spec: GS-12-651
 - Application Spec: GS-20-0327
- Internal Cable to Board Connector System
 - Product Spec: GS-12-650
 - Application Spec: GS-20-0356

APPROVALS AND CERTIFICATIONS

- RoHS conforms to EU directive 2002/95/EC
- UL Approval

PACKAGING

- Board Receptacle: Tray
- Plug/Cable Assembly: Bag



External Mini-SAS HD Cables



External Mini-SAS HD Connectors



Internal Mini-SAS HD Connectors



Internal Mini-SAS HD Cables



Internal Mini-SAS HD to Mini-SAS Straight end Cables



Internal Mini-SAS HD to mini-SAS Right Angle end Cables

PART NUMBERS (External and Internal Board Connectors)

Part Numbers	Product Description	Signal Pairs
10112626	Mini-SAS HD 1 X 1 External Assembly (6 & 12 Gb/s per channel)	8 Pairs
10112627	Mini-SAS HD 1 X 2 External Assembly (6 & 12 Gb/s per channel)	16 Pairs
10112628	Mini-SAS HD 1 X 4 External Assembly (6 & 12 Gb/s per channel)	32 Pairs
10112632	Mini-SAS HD 1 X 1 Internal R/A Assembly (6 & 12 Gb/s per channel)	8 Pairs
10112633	Mini-SAS HD 1 X 2 Internal R/A Assembly (6 & 12 Gb/s per channel)	16 Pairs
10112634	Mini-SAS HD 1 X 4 Internal R/A Assembly (6 & 12 Gb/s per channel)	32 Pairs
10120960	Mini-SAS HD 1 X 1 External Assembly with Light Pipe (6 & 12 Gb/s per channel)	8 Pairs
10120959	Mini-SAS HD 1 X 2 External Assembly with Light Pipe (6 & 12 Gb/s per channel)	16 Pairs
10120728	Mini-SAS HD 1 X 4 External Assembly with Light Pipe (6 & 12 Gb/s per channel)	32 Pairs
10112629	Mini-SAS HD 1 X 1 External Assembly with Heat Sink (6 & 12 Gb/s per channel)	8 Pairs
10112630	Mini-SAS HD 1 X 2 External Assembly with Heat Sink (6 & 12 Gb/s per channel)	16 Pairs
10112631	Mini-SAS HD 1 X 4 External Assembly with Heat Sink (6 & 12 Gb/s per channel)	32 Pairs
10120666	Mini-SAS HD 1 X 1 Internal V/T Assembly (6 & 12 Gb/s per channel)	8 Pairs
10120667	Mini-SAS HD 1 X 2 Internal V/T Assembly (6 & 12 Gb/s per channel)	16 Pairs

PART NUMBERS (External Cable Assemblies)

SAS 2.1 (6 Gb/s per channel) cable assemblies

Part Numbers	Product Description	Signal Pairs
10112041	Mini-SAS HD to Mini-SAS HD passive external cable assembly - 4x configuration - SAS2.1 (6Gb/s) compatible	8 Pairs
10117771	Mini-SAS HD to Mini-SAS passive external cable assembly - SAS2.1 (6Gb/s) compatible - 4x configuration on Mini-SAS HD end and universal keying on Mini-SAS end	8 Pairs
10112359	Mini-SAS HD to Mini-SAS HD passive external cable assembly - 8x configuration - SAS2.1 (6Gb/s) compatible	16 Pairs
10117947	Mini-SAS HD to Mini-SAS passive external cable assembly - SAS2.1 (6Gb/s) compatible - 8x configuration on Mini-SAS HD end and universal keying on Mini-SAS end	16 Pairs

Proposed SAS 3.0 (12 Gb/s per channel) cable assemblies

Part Numbers	Product Description	Signal Pairs
10117949	Mini-SAS HD to Mini-SAS HD passive external cable assembly - 4x configuration - Proposed SAS3.0 (12Gb/s) compatible	8 Pairs
10117950	Mini-SAS HD to Mini-SAS HD passive external cable assembly - 8x configuration - Proposed SAS3.0 (12Gb/s) compatible	16 Pairs

PART NUMBERS (Internal Cable Assemblies)

With Standard Mini-SAS HD Cable Housing **SAS 2.1 (6 Gb/s per channel) cable assemblies**

Part Numbers	Product Description	Signal Pairs
10119312	4x Mini-SAS HD to 4x Mini-SAS HD passive internal cable assembly - Controller to Backplane - SAS2.1 (6Gb/s) compatible	8 Pairs
10119577	8x Mini-SAS HD to 8x Mini-SAS HD passive internal cable assembly - Controller to Backplane - SAS2.1 (6Gb/s) compatible	16 Pairs
10120086	4x Mini-SAS HD to 4x Mini-SAS HD passive internal cable assembly - Controller to Controller - SAS2.1 (6Gb/s) compatible	8 Pairs
10120088	8x Mini-SAS HD to 8x Mini-SAS HD passive internal cable assembly - Controller to Controller - SAS2.1 (6Gb/s) compatible	16 Pairs

Proposed SAS 3.0 (12 Gb/s per channel) cable assemblies

Part Numbers	Product Description	Signal Pairs
10119217	4x Mini-SAS HD to 4x Mini-SAS HD passive internal cable assembly - Controller to Backplane - SAS3.0 (12Gb/s) compatible	8 pairs
10119576	8x Mini-SAS HD to 8x Mini-SAS HD passive internal cable assembly - Controller to Backplane - SAS3.0 (12Gb/s) compatible	16 pairs
10120087	4x Mini-SAS HD to 4x Mini-SAS HD passive internal cable assembly - Controller to Controller - SAS3.0 (12Gb/s) compatible	8 pairs
10120089	8x Mini-SAS HD to 8x Mini-SAS HD passive internal cable assembly - Controller to Controller - SAS3.0 (12Gb/s) compatible	16 pairs

With Short Mini-SAS HD cable Housing

SAS 2.1 (6 Gb/s per channel) cable assemblies

Part Numbers	Product Description	Signal Pairs
10123417	Short 4x Mini-SAS HD to Short 4x Mini-SAS HD passive internal cable assembly - Controller to Backplane - SAS2.1 (6Gb/s) compatible	8 Pairs
10123416	Short 4x Mini-SAS HD to Short 4x Mini-SAS HD passive internal cable assembly - Controller to Controller - SAS2.1 (6Gb/s) compatible	8 Pairs

Proposed SAS 3.0 (12 Gb/s per channel) cable assemblies

Part Numbers	Product Description	Signal Pairs
10122527	Short 4x Mini-SAS HD to Short 4x Mini-SAS HD passive internal cable assembly - Controller to Backplane - SAS3.0 (12Gb/s) compatible	8 Pairs
10122671	Short 4x Mini-SAS HD to Short 4x Mini-SAS HD passive internal cable assembly - Controller to Controller - SAS3.0 (12Gb/s) compatible	8 Pairs



Mini-SAS HD to Mini-SAS - with Short HD cable Housing

Straight Cable exit on Mini-SAS end

Part Numbers	Product Description	Signal Pairs
10120612	4x Mini-SAS HD to Mini-SAS 36pin Straight type passive internal cable assembly - Controller to Backplane - SAS2.1 (6Gb/s) compatible	8 Pairs
10124108	4x Mini-SAS HD to Mini-SAS 36pin Straight type passive internal cable assembly - Controller to Controller - SAS2.1 (6Gb/s) compatible	8 Pairs

Right Angle Cable exit on Mini-SAS end

Part Numbers	Product Description	Signal Pairs
10123401	4x Mini-SAS HD to Mini-SAS 36pin Horizontal RA type passive internal cable assembly - Controller to Backplane - SAS2.1 (6Gb/s) compatible	8 Pairs
10124110	4x Mini-SAS HD to Mini-SAS 36pin Horizontal RA type passive internal cable assembly - Controller to Controller - SAS2.1 (6Gb/s) compatible	8 Pairs

Mini-SAS HD to Mini-SAS - with Short HD cable Housing

Straight Cable exit on Mini-SAS end

Part Numbers	Product Description	Signal Pairs
10122526	Short 4x Mini-SAS HD to Mini-SAS 36pin Straight type passive internal cable assembly - Controller to Backplane - SAS2.1 (6Gb/s) compatible	8 Pairs
10124109	Short 4x Mini-SAS HD to Mini-SAS 36pin Straight type passive internal cable assembly - Controller to Controller - SAS2.1 (6Gb/s) compatible	8 Pairs

Right Angle Cable exit on Mini-SAS end

Part Numbers	Product Description	Signal Pairs
10123402	Short 4x Mini-SAS HD to Mini-SAS 36pin Horizontal RA type passive internal cable assembly - Controller to Backplane - SAS2.1 (6Gb/s) compatible	8 Pairs
10124111	Short 4x Mini-SAS HD to Mini-SAS 36pin Horizontal RA type passive internal cable assembly - Controller to Controller - SAS2.1 (6Gb/s) compatible	8 Pairs

Please note that the information in this datasheet is subject to change without notice.
 For more information, visit www.fciconnect.com/hsio or contact minisashd@fci.com



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