

MINI-SAS HD NEXT GENERATION SAS STORAGE INTERFACE

OVERVIEW

The Mini-SAS HD product is the next generation SAS storage interface addressing channel bandwidth requirements of 6Gb/s, 12Gb/s and 14Gb/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 20lbs
- 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 plating: Gold over Nickel
- Plug paddle card: Copper/FR4 – Gold over Nickel plating

ELECTRICAL PERFORMANCE

- Impedance: 100 +/- 15Ω
- Voltage rating: 30 V AC (RMS)/DC max.
- Current rating: 0.5A 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

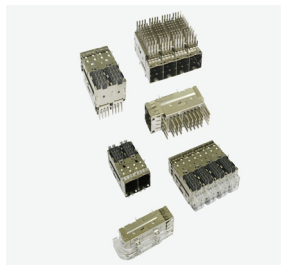
- RoHS conforms to EU directive 2002/95/EC
- UL Approval

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 Right Angle
end Cables



Internal Mini-SAS HD to
mini-SAS Straight End Cables

PART NUMBERS EXTERNAL AND INTERNAL BOARD CONNECTORS

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

PART NUMBERS (EXTERNAL CABLE ASSEMBLIES)

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

Product Description	Signal Pairs	Part Numbers
Mini-SAS HD to mini-SAS HD passive external cable assembly – 4x configuration – SAS 2.1 (6Gb/s) compatible	8 Pairs	10112041
Mini-SAS HD to mini-SAS passive external cable assembly – SAS 2.1 (6Gb/s) compatible – 4x configuration on mini-SAS HD end and universal keying on mini-SAS end	8 Pairs	10117771
Mini-SAS HD to mini-SAS HD passive external cable assembly – 8x configuration – SAS 2.1 (6Gb/s) compatible	16 Pairs	10112359
Mini-SAS HD to mini-SAS passive external cable assembly – SAS 2.1 (6Gb/s) compatible – 8x configuration on mini-SAS HD end and universal keying on mini-SAS end	16 Pairs	10117947

MINI – SAS HD NEXT GENERATION SAS STORAGE INTERFACE

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

Product Description	Signal Pairs	Part Numbers
Mini-SAS HD to mini-SAS HD passive external cable assembly – 4x configuration – proposed SAS 3.0 (12Gb/s) compatible	8 Pairs	10117949
Mini-SAS HD to mini-SAS HD passive external cable assembly – 8x configuration – proposed SAS 3.0 (12Gb/s) compatible	16 Pairs	10117950

Enhanced (14Gb/s per channel) cable assemblies

Product Description	Signal Pairs	Part Numbers
Mini-SAS HD to mini-SAS HD passive external cable assembly – 4x configuration – Enhanced (14Gb/s) compatible	8 Pairs	10120707

PART NUMBERS (INTERNAL CABLE ASSEMBLIES) WITH STANDARD MINI-SAS HD CABLE HOUSING

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

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

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

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

MINI – SAS HD NEXT GENERATION SAS STORAGE INTERFACE

WITH SHORT MINI–SAS HD CABLE HOUSING

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

Product Description	Signal Pairs	Part Numbers
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	10123417
Short 8x Mini–SAS HD to Short 8x Mini–SAS HD passive internal cable assembly – Controller to Backplane – SAS2.1 (6Gb/s) compatible	16 Pairs	10127771
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	10123416
Short 8x Mini–SAS HD to Short 8x Mini–SAS HD passive internal cable assembly – Controller to Controller – SAS2.1 (6Gb/s) compatible	16 pairs	10127773

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

Product Description	Signal Pairs	Part Numbers
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	10122527
Short 8x Mini–SAS HD to Short 8x Mini–SAS HD passive internal cable assembly – Controller to Backplane – SAS3.0 (12Gb/s) compatible	16 Pairs	10126495
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	10122671
Short 8x Mini–SAS HD to Short 8x Mini–SAS HD passive internal cable assembly – Controller to Controller – SAS3.0 (12Gb/s) compatible	16 pairs	10127772

MINI – SAS HD NEXT GENERATION SAS STORAGE INTERFACE

MINI-SAS HD TO MINI-SAS – WITH STANDARD HD CABLE HOUSING

Straight Cable exit on Mini-SAS end

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

Right Angle Cable exit on Mini-SAS end

Product Description	Signal Pairs	Part Numbers
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	10123401
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	10124110

MINI-SAS HD TO MINI-SAS – WITH SHORT HD CABLE HOUSING

Straight Cable exit on Mini-SAS end

Product Description	Signal Pairs	Part Numbers
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	10122526
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	10124109

Right Angle Cable exit on Mini-SAS end

Product Description	Signal Pairs	Part Numbers
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	10123402
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	10124111

INOMINSASHD0715EA4

Mouser Electronics

Authorized Distributor

Click to View Pricing, Inventory, Delivery & Lifecycle Information:

Amphenol:

[10120667-101LF](#) [10112632-121LF](#) [10112633-121LF](#) [10112634-121LF](#)

FCI / Amphenol:

[10117771-3010LF](#) [10112359-2030LF](#) [10112359-2010LF](#) [10112041-3050LF](#) [10112041-2030LF](#) [10112633-101LF](#)
[10112634-101LF](#) [10112632-101LF](#) [10117771-3030LF](#) [10112041-2010LF](#) [10117771-3015HLF](#) [10117771-4075LF](#)
[10117947-4050HLF](#) [10112041-2040LF](#) [10112041-3015LF](#) [10112359-3030LF](#) [10117947-4030HLF](#) [10117947-5100LF](#)
[10117947-2015HLF](#) [10112041-5090LF](#) [10117771-3025HLF](#) [10112359-4075HLF](#) [10112359-4045HLF](#) [10112041-](#)
[5030LF](#) [10117947-5050LF](#) [10112359-2010HLF](#) [10117771-5060LF](#) [10117950-2010LF](#) [10117771-5080LF](#) [10117947-](#)
[2005LF](#) [10117949-4020LF](#) [10112041-4065LF](#) [10112359-4065LF](#) [10117947-5030HLF](#) [10112041-5045HLF](#)
[10117771-5070LF](#) [10112359-5025LF](#) [10117947-2035HLF](#) [10117771-2030LF](#) [10112041-3020LF](#) [10112359-4075LF](#)
[10112041-5030HLF](#) [10112041-4025LF](#) [10112359-2025HLF](#) [10117771-4055HLF](#) [10112359-5075LF](#) [10112041-](#)
[4055HLF](#) [10112041-2035LF](#) [10117949-2005HLF](#) [10117950-4025HLF](#) [10117947-3050LF](#) [10112041-3055HLF](#)
[10112359-5025HLF](#) [10117949-3020LF](#) [10112359-3030HLF](#) [10117771-2025LF](#) [10117949-4020HLF](#) [10117949-](#)
[2005LF](#) [10117947-4065LF](#) [10117947-4060HLF](#) [10117947-5095LF](#) [10117771-5020HLF](#) [10117947-3060HLF](#)
[10112359-5040HLF](#) [10117950-4020HLF](#) [10117771-5050HLF](#) [10117947-4060LF](#) [10112041-2015HLF](#) [10112041-](#)
[5090HLF](#) [10117771-2010HLF](#) [10117771-3055LF](#) [10117947-3040LF](#) [10117947-4075LF](#) [10117771-3040HLF](#)
[10117947-5065LF](#) [10117771-2035LF](#) [10112041-5060HLF](#) [10117771-4065HLF](#) [10117771-5035HLF](#) [10117947-](#)
[3015HLF](#) [10112359-5055HLF](#) [10112041-5050HLF](#) [10117771-4070LF](#) [10112041-3035HLF](#) [10117949-4035HLF](#)
[10117950-2005HLF](#) [10117947-5070HLF](#) [10117947-4020LF](#) [10117947-4035HLF](#) [10112041-3025LF](#) [10117947-](#)
[3045HLF](#) [10112041-5055HLF](#) [10117947-3020LF](#) [10112359-5095LF](#) [10112041-3025HLF](#) [10117947-4035LF](#)
[10117949-2010LF](#) [10117771-2005LF](#) [10117771-4050HLF](#) [10112041-2020HLF](#)