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SFF Committee

SFF-8621

Specification for

MiniLink 4/8X 24 Gb/s Connector and I/O Cable Assemblies

Rev 0.1 July 20, 2015

Secretariat: SFF Committee

Abstract: This specification defines the general performance requirements for the MiniLink connector and cable assemblies, which are designed for use in high speed serial, interconnect applications at multi-gigabit speeds.

This specification provides a common reference for systems manufacturers, system integrators, and suppliers. This is an internal working specification of the SFF Committee, an industry ad hoc group.

This specification is made available for public review, and written comments are solicited from readers. Comments received by the members will be considered for inclusion in future revisions of this specification.

The description of a cable assembly in this specification does not assure that the specific assembly is actually available from cable suppliers. If such a cable assembly is supplied it must comply with this specification to achieve interoperability between suppliers.

Support: This specification is supported by the identified member companies of the SFF Committee.

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EXPRESSION OF SUPPORT BY MANUFACTURERS

The following member companies of the SFF Committee voted in favor of this industry specification.

tbd

The following member companies of the SFF Committee voted to abstain on this industry specification.

tbd

The user's attention is called to the possibility that implementation to this Specification may require use of an invention covered by patent rights. By distribution of this Specification, no position is taken with respect to the validity of this claim or of any patent rights in connection therewith. Members of the SFF Committee, which advise that a patent exists, are required to provide a statement of willingness to grant a license under these rights on reasonable and non-discriminatory terms and conditions to applicants desiring to obtain such a license.

Change History

Rev 0.1

- The speed characteristics and electrical considerations of SFF-8611 and SFF-8612 were used to create SFF-8621.

Foreword

The development work on this specification was done by the SFF Committee, an industry group. The membership of the committee since its formation in August 1990 has included a mix of companies which are leaders across the industry.

When 2 1/2" diameter disk drives were introduced, there was no commonality on external dimensions e.g. physical size, mounting locations, connector type, and connector location, between vendors.

The first use of these disk drives was in specific applications such as laptop portable computers and system integrators worked individually with vendors to develop the packaging. The result was wide diversity, and incompatibility.

The problems faced by integrators, device suppliers, and component suppliers led to the formation of the SFF Committee as an industry ad hoc group to address the marketing and engineering considerations of the emerging new technology.

During the development of the form factor definitions, other activities were suggested because participants in the SFF Committee faced more problems than the physical form factors of disk drives. In November 1992, the charter was expanded to address any issues of general interest and concern to the storage industry. The SFF Committee became a forum for resolving industry issues that are either not addressed by the standards process or need an immediate solution.

Those companies which have agreed to support a specification are identified in the first pages of each SFF Specification. Industry consensus is not an essential requirement to publish an SFF Specification because it is recognized that in an emerging product area, there is room for more than one approach. By making the documentation on competing proposals available, an integrator can examine the alternatives available and select the product that is felt to be most suitable.

SFF Committee meetings are held during T10 weeks (see www.t10.org), and Specific Subject Working Groups are held at the convenience of the participants. Material presented at SFF Committee meetings becomes public domain, and there are no restrictions on the open mailing of material presented at committee meetings.

Most of the specifications developed by the SFF Committee have either been incorporated into standards or adopted as standards by EIA (Electronic Industries Association), ANSI (American National Standards Institute) and IEC (International Electrotechnical Commission).

If you are interested in participating or wish to follow the activities of the SFF Committee, the signup for membership and/or documentation can be found at:

<http://www.sffcommittee.com/ie/join.html>

The complete list of SFF Specifications which have been completed or are currently being worked on by the SFF Committee can be found at:

<ftp://ftp.seagate.com/sff/SFF-8000.TXT>

If you wish to know more about the SFF Committee, the principles which guide the activities can be found at:

<ftp://ftp.seagate.com/sff/SFF-8032.TXT>

Suggestions for improvement of this specification will be welcome. They should be sent to the SFF Committee, 14426 Black Walnut Ct, Saratoga, CA 95070.

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1. Scope

This specification defines the general performance requirements for the MiniLink connector and cable assemblies, which are designed for use in high speed serial, interconnect applications at multi-gigabit speeds..

1.1 Application Specific Criteria

This connector is capable of meeting the interface requirements for the internal I/O requirements of T10 SAS-4.

2. References

2.1 Industry Documents

The following interface standards and specifications are relevant to this Specification.

- T10 SAS-4
- T10 2212-D SAS-3
- SFF-8410 High Speed Serial Testing for Copper Links
- SFF-8611 MiniLink 4/8X I/O Cable Assemblies
- SFF-8612 MiniLink 4/8X Unshielded Connector

2.2 SFF Specifications

There are several projects active within the SFF Committee. The complete list of specifications which have been completed or are still being worked on are listed in the specification at <ftp://ftp.seagate.com/sff/SFF-8000.TXT>

2.3 Sources

Those who join the SFF Committee as an Observer or Member receive electronic copies of the minutes and SFF specifications (<http://www.sffcommittee.com/ie/join.html>).

Copies of ANSI standards may be purchased from the Inter-National Committee for Information Technology Standards (<http://tinyurl.com/c4psq>).

Copies of SFF, ASC T10 (SCSI), T11 (Fibre Channel) and T13 (ATA/SATA) standards and standards still in development are available on the HPE version of CD_Access (<http://tinyurl.com/85fts>).

2.4 Conventions

The dimensioning conventions are described in ANSI-Y14.5M, Geometric Dimensioning and Tolerancing. All dimensions are in millimeters.

The ISO convention of numbering is used i.e., the thousands and higher multiples are separated by a space and a period is used as the decimal point. This is equivalent to the English/American convention of a comma and a period.

American	French	ISO
0.6	0,6	0.6
1,000	1 000	1 000
1,323,462.9	1 323 462,9	1 323 462.9

3. General Description

This specification identifies the documentation required to implement a four or eight lane 24 Gb/s MiniLink cable assembly.

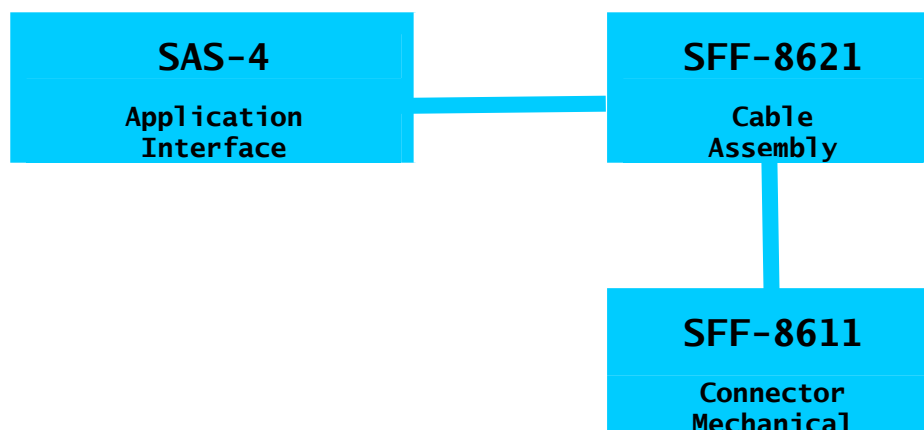


FIGURE 3-1 DOCUMENTATION TO IMPLEMENT A 24 GB/S CONNECTOR

4. Overview of Referenced Specifications

4.1 Application Requirements

The electrical and EMI considerations for the use of this connector are specified by the using standards listed in Section 1.1.

4.2 SFF-8611

The cable assembly system is based upon straight-out and right angle cable exit (free) mating plugs. The integral plug shell functions as the guide for the free (plug) connector interface and also provides the latches for mating with the receptacles in SFF-8612. This connector system provides positive retention along with ease of insertion and removal.

This specification provides for 1x1 (4X) and 1x1 (8X) (free side) straight-out and right angle cable exit mating cable plugs.

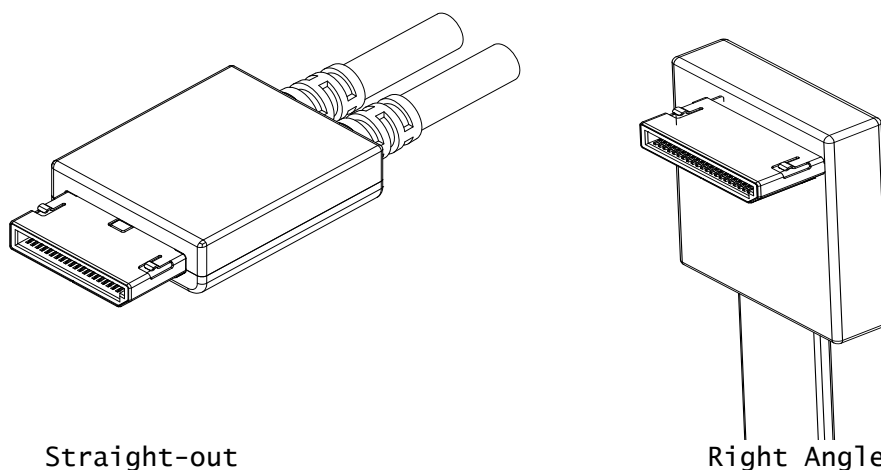


FIGURE 4-1 GENERAL VIEW - FREE CABLE EXIT CONFIGURATIONS

4.3 SFF-8612

This specification provides for 1x1 (4X) and 1x1 (8X) vertical and right angle receptacles (fixed side).

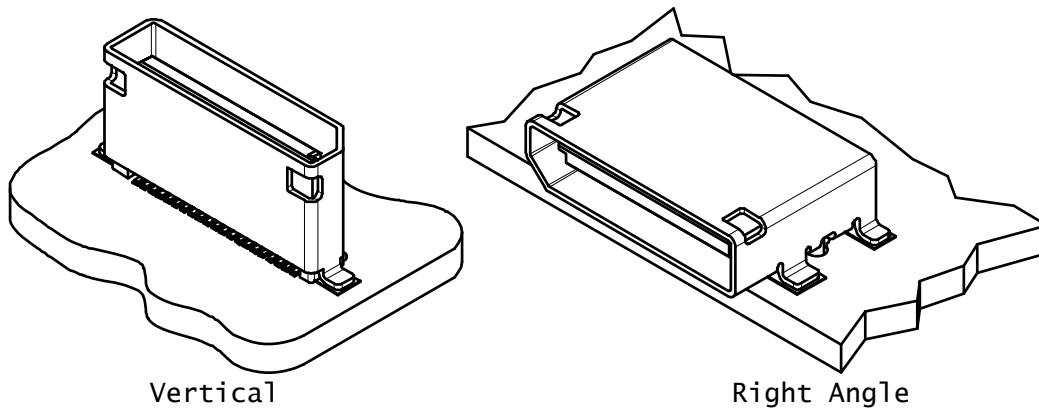


FIGURE 4-2 CONNECTOR CONFIGURATIONS