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Specification for Mini Multilane 12 Gbs 12X Shielded Connector

EIA-965

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(Was SFF-8642, Rev 2.2, dated February 1, 2006)

October 2012



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(From Standards Proposal No. 5191, formulated under the cognizance EIA CE-2.0 Committee on National Connector Standards, and previously published by the SFF Committee as SFF-8642.)

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Foreword

(This Foreword is informative only and is not part of this standard.)

This Specification is from EIA Standards Proposal No. 5191, formulated under the cognizance of EIA CE-2.0, Committee on Connector and Socket Standards. This project was conducted in liaison with the SFF Committee as representing the disk drive industry. Utilization of this Standard is intended to eliminate misunderstandings or confusion between a manufacturer and user with respect to product performance and testing requirements for this as well as other possible applications.

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.

Background

(This Background is informative only and is not part of this Specification.)

Abstract: This specification defines the physical interface and general performance requirements for the Mini Multilane Shielded Integrated Connector, which is designed for use in high speed serial, interconnect applications at speeds up through 12 Gigabits/second. Usage includes the 120G 12x10 InfiniBand CXP high density external pluggable.

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 connector in this specification does not assure that the specific component is actually available from connector suppliers. If such a connector is supplied it must comply with this specification to achieve interoperability between suppliers.

NOTE - The user's attention is called to the possibility that compliance with this standard may require use of an invention covered by patent rights.

By publication of this standard, no position is taken with respect to the validity of any such claim(s) or of any patent rights in connection therewith. If a patent holder has filed a statement of willingness to grant a license under these rights on reasonable and nondiscriminatory terms and conditions to applicants desiring to obtain such a license, then details may be obtained from the standards developer.

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1. Introduction

1.1 Scope

1.1.1 This specification defines the plug, guide/strain relief shell, and latching requirements for the Mini Multilane 12 Gbs 12X Shielded Connector based upon the mating interface defined herein.

1.1.2 The SFF Committee activities support the requirements of the storage industry, and it is involved with several standards.

2 Applicable documents

The following documents form a part of this specification to the extent indicated herein. In the event of conflict between this specification and the referenced documents, this specification shall take precedence.

2.1 Industry documents

- EIA-364 Electrical Connector/Socket Test Procedures Including Environmental Classifications (see Table 2, 3 and 4 for relevant test procedures)
- SFF-8410 High Speed Serial Testing for Copper Links
- SFF-8643 Mini Multilane Series: Unshielded Integrated HD Connector
- SFF-8644 Mini Multilane Series: Shielded Integrated HD Connector
- InfiniBand Architecture Volume 1.2, Annex 6

3 Definitions

For the purpose of this specification, the following definitions apply:

3.1 Fixed

Used to describe the gender of the mating side of the connector that accepts its mate upon mating. This gender is frequently, but not always, associated with the common terminology “receptacle”. Other terms commonly used are “female” and “socket connector”. The term “fixed” is adopted from EIA standard terminology as the gender that most commonly exists on the fixed end of a connection, for example, on the board or bulkhead side. In this specification “fixed” is specifically used to describe the mating side gender illustrated in Figure 3.1.

3.2 Free

Used to describe the gender of the mating side of the connector that penetrates its mate upon mating. This gender is frequently, but not always, associated with the common terminology “plug”. Other terms commonly used are “male” and “pin connector”. The term “free” is adopted from EIA standard terminology as the gender that most commonly exists on the free end of a connection, for example, on the cable side. In this specification “free” is specifically used to describe the mating side gender illustrated in Figure 3.1.

3.3 Height

Distance from board surface to farthest overall connector feature.

3.4 Mating side

The side of the connector that joins and separates from the mating side of a connector of opposite gender. Other terms commonly used in the industry are mating interface, separable interface and mating face.



Figure 3.1- Mating side gender definition

3.5 Press-fit

The connector's press-fit pins are pressed into the plated through holes in the PCB by applying mechanical force. The pins are sized to deform to create a lasting gas-tight electrical connection between the press-fit pin and the metalized hole. The press-fit pins ensure the mechanical stability and the electrical contact.

3.6 Right angle

A connector design for use with printed circuit board assembly technology where the mating direction is parallel to the plane of the printed circuit board.

3.7 Straight

A connector design for use with printed circuit board assembly technology where the mating direction is perpendicular to the plane of the printed circuit board.

3.8 Surface mount

A connector design and a printed circuit board design style where the connector termination points do not penetrate the printed circuit board and are subsequently soldered to the printed circuit board.

3.9 Termination side

The side of the connector opposite the mating side that is used for permanently attaching conductors to the connector. Due to pin numbering differences between mating side genders the termination side shall always be specified in conjunction with a mating side of a specific gender. Other terms commonly used in the industry are: back end, non-mating side, footprint, pc board side, and post side.

3.10 Through hole

A connector design and a printed circuit board design style where the connector termination points penetrate the printed circuit board and are subsequently soldered to the printed circuit board.

3.11 Conventions

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.

Table 3.1 - Conventions

English	French	ISO
0.6	0,6	0.6
1,000	1 000	1 000
1,323,426.9	1 323 426,9	1 323 462.9

4 Description

The connector system is based upon a shielded integrated receptacle connector and guide shell. The host board footprint positioning holes contain the critical dimensions for locating the integrated receptacle guide shell. The receptacle guide shell functions as the guide and strain relief for the free (plug) connector interface. This connector system provides positive retention along with ease of insertion and removal.

4.1 General view

Figure 4.1 illustrates an example of one configuration of the shielded integrated connector.

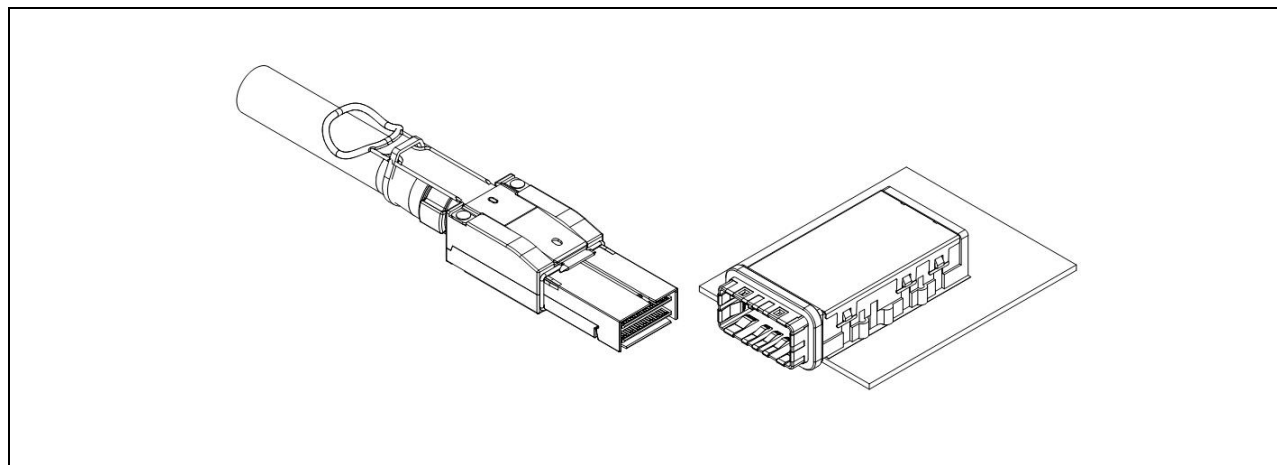


Figure 4.1 - General view of a shielded integrated connector

4.2 Shielded integrated connector configurations

The configuration defined in this specification is an integrated right angle 84 position host board receptacle and its mating cable plug connector.