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or <ftp://ftp.seagate.com/sff>

This specification was developed by the SFF Committee prior to it becoming the SFF TA (Technology Affiliate) TWG (Technical Working Group) of SNIA (Storage Networking Industry Association).

The information below should be used instead of the equivalent herein.

POINTS OF CONTACT:

Chairman SFF TA TWG
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If you are interested in participating in the activities of the SFF TWG, the membership application can be found at:

<http://www.snia.org/sff/join>

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

<http://www.snia.org/sff/specifications/SFF-8000.TXT>

The operations which complement the SNIA's TWG Policies & Procedures to guide the SFF TWG can be found at:

<http://www.snia.org/sff/specifications/SFF-8032.PDF>

Suggestions for improvement of this specification will be welcome, they should be submitted to:

<http://www.snia.org/feedback>

SFF Committee documentation may be purchased in hard copy or electronic form.
SFF specifications are available at <ftp://ftp.seagate.com/sff>

SFF Committee
SFF-8147 Specification
for
54mm X 78.5mm Form Factor with Micro SAS Connector

Rev 0.6 December 31, 2012

Secretariat: SFF Committee

Abstract: This specification defines the 54mm x 78.5mm form factor and connector position for drives with the Micro SAS connector. This form factor includes integrated side rail mounting features, height of 5mm, and centers the connector on the narrow end of the drive.

This document provides a common specification for systems manufacturers, system integrators, and suppliers of drives. This is an internal working document 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.

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.

EMC
FCI
Foxconn
Hewlett Packard
Hitachi GST
IBM
Seagate
Sun Microsystems
Tyco Electronics

No member companies of the SFF Committee voted against this industry specification.

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

3M
AMCC
Amphenol
Arista Networks
Cinch
Finisar
Fujitsu CPA
LSI
Molex
Panasonic
Pioneer NewMedia
Sandisk/RAD
Volex

Change History

Revision 0.5

-Changed the A2 tolerance (Table 3-1) to 0.35 from 0.15.

Revision 0.6

-Replaced Fig 3-1 showing a Micro-SAS connector instead of a Micro-SAS/SATA and changed A9 tolerance to A2 (did not change tolerance - there was no A9 called out in Table 3-1) in sketch.

-Modified caption under Fig 3-1 to remove reference to Micro-SAS/SATA Plug.

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:

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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SFF Committee -

Micro SAS Connector

1. Scope

The 814x suite of specifications defines the configuration characteristics associated with 54mm wide drives. SFF-8147 is unique in that it incorporates SFF-8144 features not necessarily included in other 54mm wide form factor SFF specifications with the addition of 9 contacts for Micro SAS connections.

The purpose of the 814x suite is to define the external characteristics of drives such that products from different vendors may be used in the same mounting configurations. The set of specifications provide external dimensions, connectors, and connector placement to assist manufacturers in the system integration of small form factor drives.

In an effort to broaden the applications for storage devices, an ad hoc industry group of companies representing system integrators, peripheral suppliers, and component suppliers decided to address the issues involved.

The SFF Committee was formed in August, 1990 and the first working document was introduced in January, 1991.

1.1 Description of Clauses

Clause 1 contains the Scope and Purpose

Clause 2 contains Referenced and Related Standards and SFF Specifications

Clause 3 begins the specification

2. References

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

2.1 Industry Documents

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

- Serial ATA
- Serial Attached SCSI
- SFF-8486
- ASME Y14.5M Dimensioning and Tolerancing

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 InterNational Committee for Information Technology Standards (<http://tinyurl.com/c4psg>).

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 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

English	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. Physical Configurations

This specification describes the location of the Micro SAS connector and the 54mm x 78.5mm form factor for storage devices. The connector is defined in SFF-8486. See Table 3-1, and Figure 3-1 for the form factor details and connector location.

TABLE 3-1 54mm X 78.5mm Form Factor with Micro SAS Connector Dimensions

Dimension	Millimeters	Comments
A1a	5.00	Height
A2	0.35	
A3	0.20	
A4	54.00	Width
A6	78.50	Length
A7	3.00	
A8	3.30	
A10	35.00	Connector Width
A11	27.04	
A12	0.20	
A13	4.00	Connector Height
A14	1.35	
A15	0.40	
A16	0.30	
A17	0.35	
A18	0.50	See Note 2
A19	3.85	
A21	2.50	
A22	0.30	

Notes:

1. Millimeter is the controlling dimension.
2. Material in this area allows the system implementation of an ejector device.

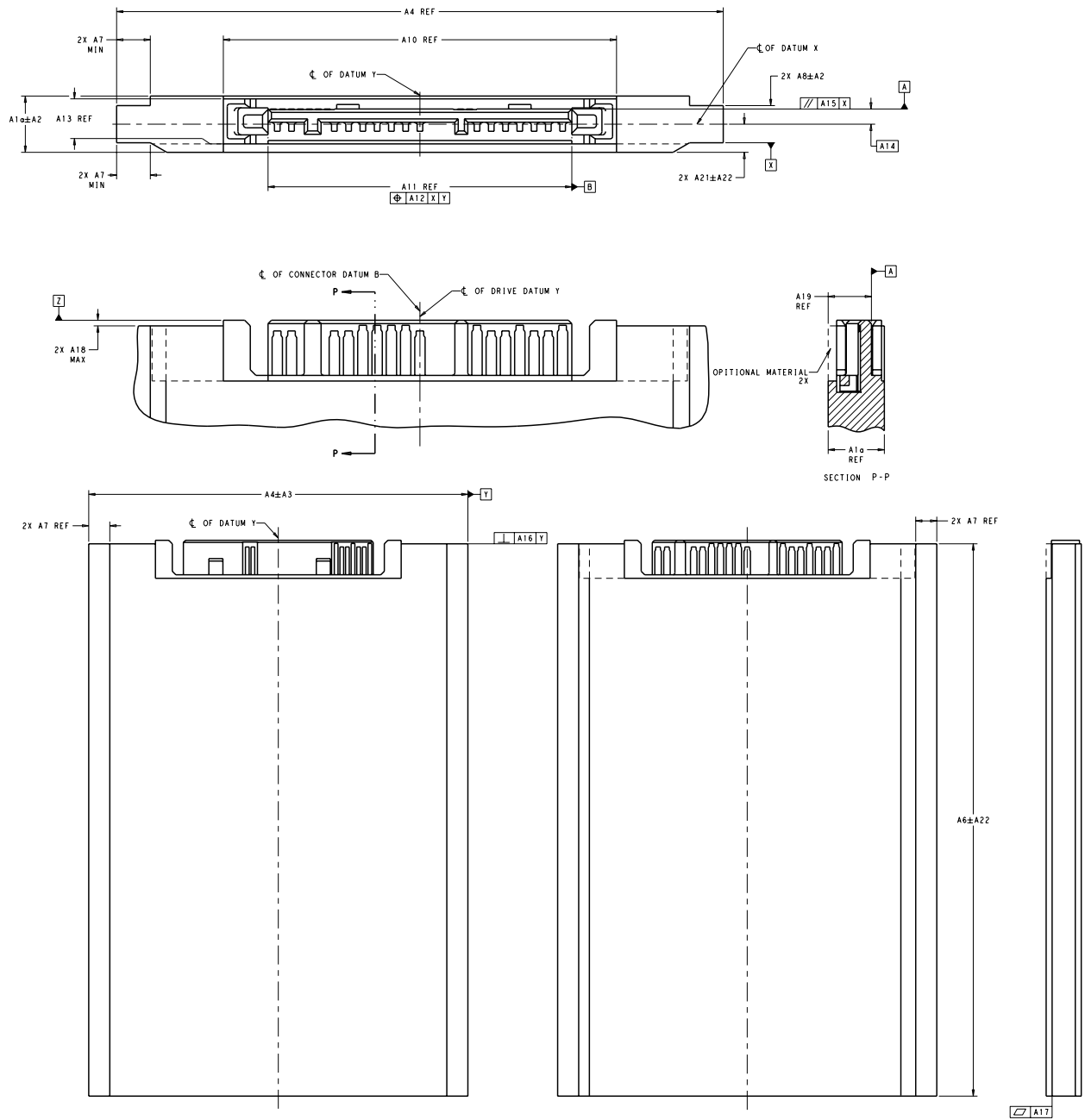


FIGURE 3-1 54mm x 78.5mm x 5mm Form Factor and Micro SAS Connector Location