SFF specifications are available at http://www.snia.org/sff/specifications
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
Email: SFF-Chair@snia.org

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 electronic form.
SFF specifications are available at ftp://ftp.seagate.com/sff

SFF Committee

SFF-8146 Specification for

Serial ATA Connector Position in the 54x71mm Drive form factor

Rev 1.0 November 3, 2008

Secretariat: SFF Committee

Abstract: This specification defines the connector position and cable dimensions for the Serial ATA connector in the 54x71mm form factor magnetic disk drives.

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.

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
Fujitsu CPA
Hewlett Packard
Seagate
Sun Microsystems
Toshiba
Tyco
Vitesse Semiconductor

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

AMCC
Amphenol
Cortina Systems
Emulex
Finisar
Foxconn
Hitachi GST
ICT Solutions
LSI
Luxtera
Meritec
Molex
OpNext
Panduit
W L Gore

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, 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.

1. Scope

The 814x suite of specifications defines the configuration characteristics associated with 54mm wide drives.

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, connector placement, and interface pinouts to assist manufacturers in the systems integration of small form factor drives.

1.1 Description of Clauses

Clause 1 contains the Scope and Purpose.
Clause 2 contains Referenced and Related Standards and SFF Specifications.
Clause 3 contains the General Description.

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 are relevant to many SFF Specifications.

- Serial ATA Revision 2.6

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).

2.4 Conventions

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

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

2.5 Definitions

For the purpose of SFF Specifications, the following definitions apply:

Height: Distance from board surface to farthest overall connector feature

Offset: An alignment shift from the center line of the connector

Optional: This term describes features which are not required by the SFF Specification. However, if any feature defined by the SFF Specification is implemented, it shall be done in the same way as defined by the Specification. Describing a feature as optional in the text is done to assist the reader. If there is a conflict between text and tables on a feature described as optional, the table shall be accepted as being correct.

3. General Description

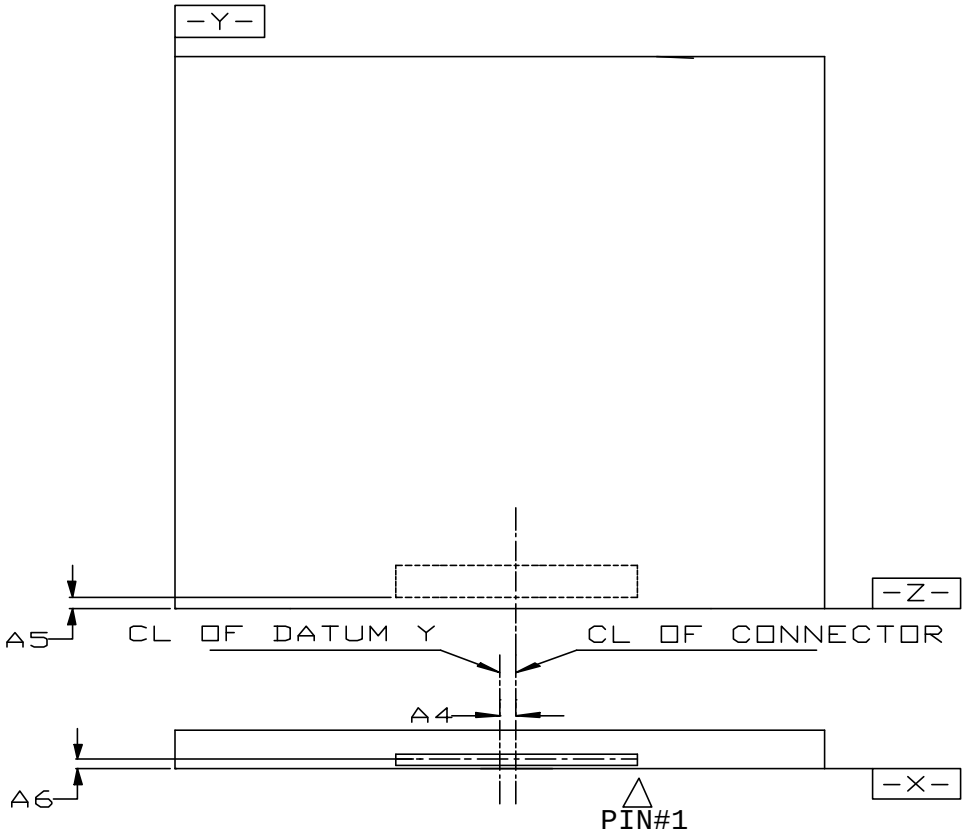


Figure 1 Serial ATA Connector Position in the 54x71mm Form Factor Drawing

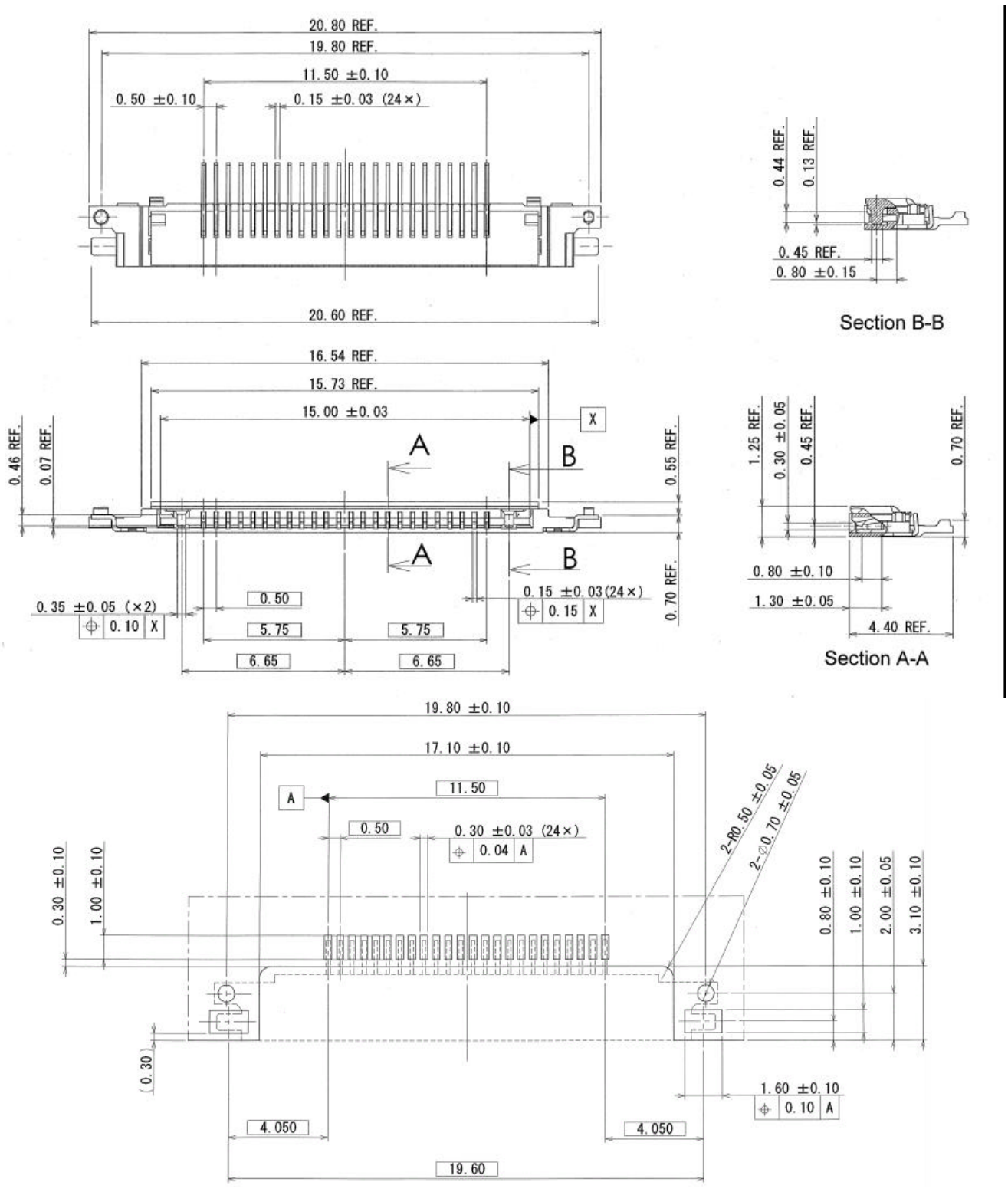
Table 1 Serial ATA Connector Position in the 54mm x 71mm Disk Drive Dimensions

Dimension	Millimeters	Tolerance	Note
A4	0	±0.40	Centerline of Connector to Centerline of Drive Datum Y
A5	1.55	±0.40	Front surface of Connector to Drive Datum Z
A6	1.10	±0.70	Connector contact surface opposite the connector locking flap to Drive Datum X

Table 2 Connector Pin Assignment

Pin No	Type	Description
1	GND	
2	V_{33}	3.3V Power
3	V_{33}	3.3V Power
4	GND	
5	V_5	5V Power[1]
6	V_5	5V Power[1]
7	GND	
8	DAS/DSS	Device Activity Signal/Disable Staggered Spinup[2]
9	GND	
10	GND	
11	A+	Differential Signal Pair A
12	A-	
13	GND	
14	B-	Differential Signal Pair B
15	B+	
16	GND	
17	GND	
18	Vendor	Vendor Specific
19	Vendor	Vendor Specific
20	Vendor	Vendor Specific
21	Vendor	Vendor Specific
22	Vendor	Vendor Specific - Mfg pin[3]
23	Vendor	Vendor Specific - Mfg pin[3]
24	GND	

NOTE:
1. The 5V supply voltage pins are included to meet future product requirements.
2. The corresponding pin to be mated with Pin 8 shall always be grounded.
3. No connect on the host side.



Recommended PCB layout

Figure 2 Serial ATA Device connector dimensions (reference only).

See SATA for normative dimensions and performance requirements.

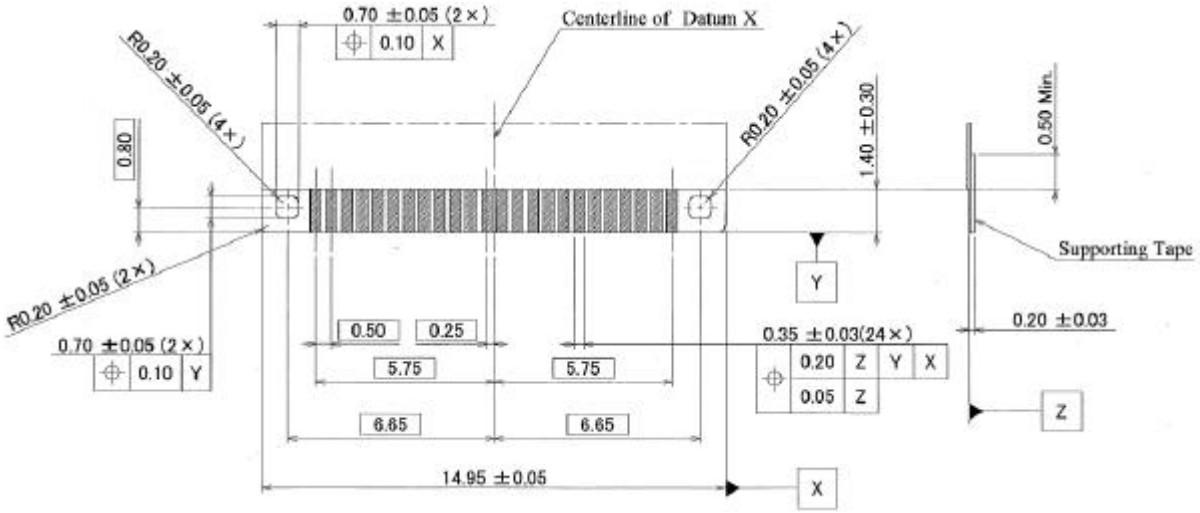


Figure 3 Serial SATA FPC dimensions (reference only).

See SATA for normative dimensions and performance requirements.