

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

SFF Committee

SFF-8142 Specification for

**Parallel ATA Connector Position in the 54x71mm Drive form factor**

Rev 1.4 Jan 31, 2008

Secretariat: SFF Committee

Abstract: This specification defines the connector position and cable dimensions for the parallel 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.

POINTS OF CONTACT:

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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 against this industry specification:

tbd

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

tbd

**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](http://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 sign-up for membership and/or documentation can be found at:

[www.sffcommittee.com/ie/join.html](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.

## 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.

- INCITS 397-2005: AT Attachment with Packet Interface - 7 (ATA/ATAPI-7)

### 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, T10 (SCSI), T11 (Fibre Channel) and T13 (ATA) standards and standards still in development are available on the HPE version of CD\_Access (<http://tinyurl.com/85fts>).

### 2.4 Conventions

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

American:	ISO:
0.6	0,6
1,000	1 000
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

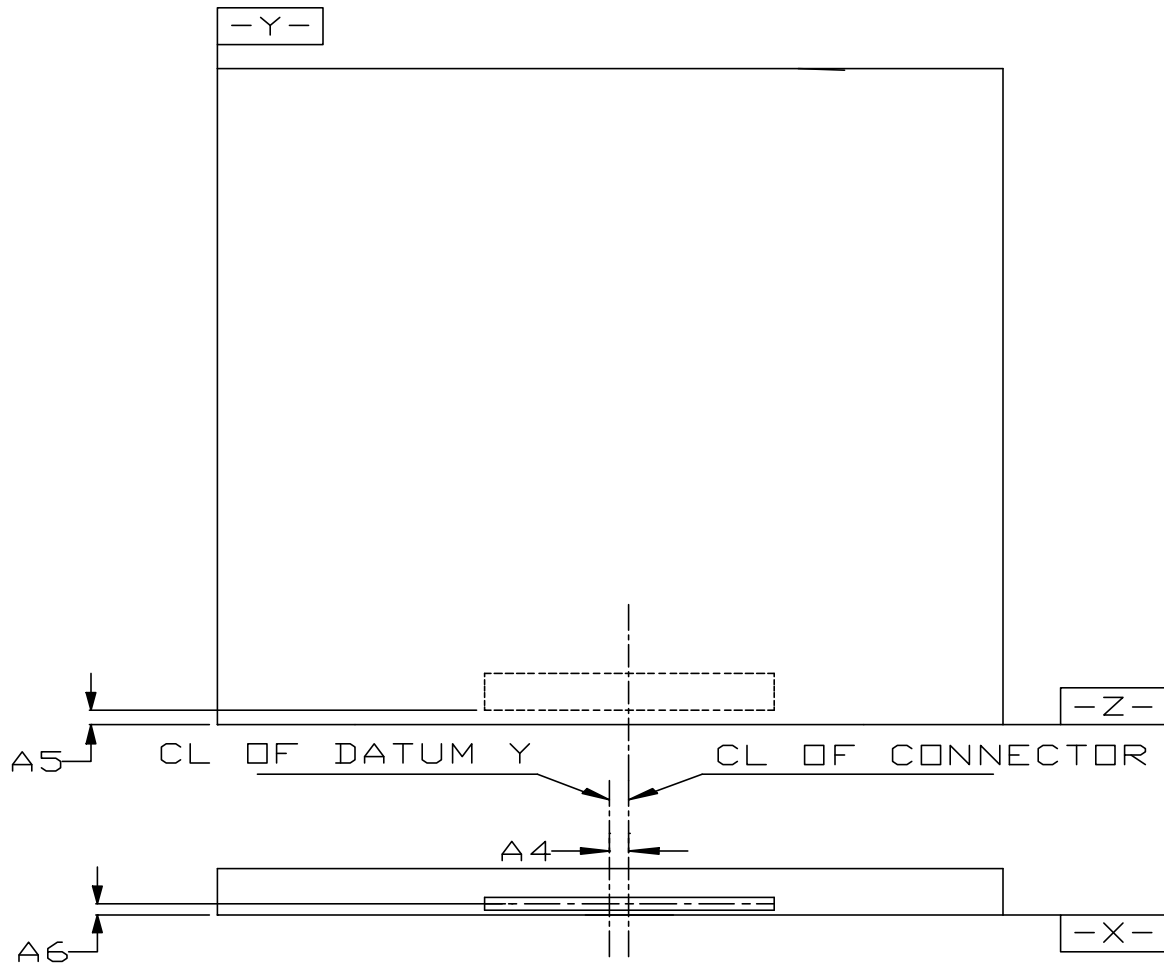


Figure 1: Parallel ATA Connector Position in the 54x71mm Form Factor Drawing

Table-1 : Parallel ATA Connector Position in the 54mm x 71mm DISK DRIVE DIMENSIONS

Dimension	Millimeters	Tolerance	Note
A4	1.35	$\pm 0.40$	Centerline of Connector to Centerline of Drive Datum Y
A5	1.30	$\pm 0.50$	Front surface of Connector to Drive Datum Z
A6	0.85	$\pm 0.35$	Connector contact surface opposite the connector locking flap to Drive Datum X

Table-2: Signal Definitions

Table Connector pin assignment

Pin	signal name	Pin	signal name	Pin	signal name	Pin	signal name
1	DRVSEL1	11	DD4	21	GROUND	31	DA1
2	DRVSEL2	12	DD11	22	DMARQ	32	PDIAG-
3	RESET-	13	DD3	23	GROUND	33	DA0
4	GROUND	14	DD12	24	DIOW-	34	DA2
5	DD7	15	DD2	25	DIOR-	35	CS0-
6	DD8	16	DD13	26	GROUND	36	CS1-
7	DD6	17	DD1	27	IORDY	37	DASP-
8	DD9	18	DD14	28	GROUND	38	+3.3V
9	DD5	19	DD0	29	DMACK-	39	+3.3V
10	DD10	20	DD15	30	INTRQ	40	Vendor Specific

## Signal Definition

Pin 1-2: When Pins 1 and 2 are not connected the drive responds as ATA Device 0  
When Pins 1 and 2 are connected together the drive responds as ATA Device 1

Pin 3-39: As defined in INCITS 397-2005: AT Attachment with Packet Interface - 7 (ATA/ATAPI-7)

Pin 40: Vendor Specific





Figure 2: Cable Connector

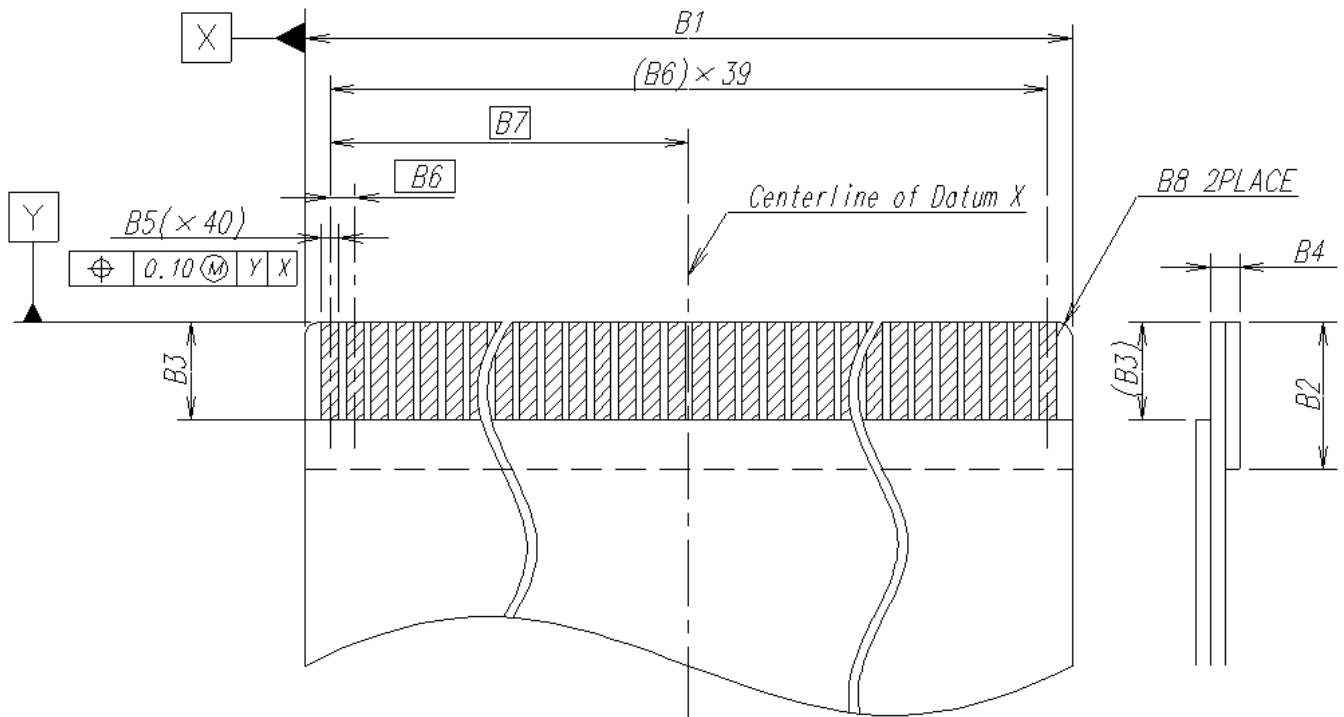


Table-3 : Parallel ATA Cable Dimensions

Dimension	Millimeters	Tolerance	Note
B1	20.5	<b>±0.07</b>	Cable Width
B2A	2.20	MIN	Stiffener Length
B2B	4.00	MIN	Stiffener Length
B3A	1.40	± 0.3	Conductor Exposure
B3B	3.00	±0.4	Conductor Exposure
B4A	0.20	± 0.03	Cable End Thickness
B4B	0.30	±0.05	Cable End Thickness
B5	0.35	±0.03	Conductor Width
B6	0.50	-	Conductor Spacing
<b>B7</b>	<b>9.75</b>		<b>Conductor Location</b>
B8	0.30	-0.30 +0.40	Cable End Radius