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**SFF Committee**

SFF-8551 Specification for

**Form Factor of 5.25" CD Drives**

Rev 3.3            July 26, 2000

Secretariat: SFF Committee

Abstract: This document defines the dimensions for 5.25" devices.

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

This document 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 document.

Support: This document 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.

ENDL

The following SFF member companies voted no on the technical content of this industry specification.

Adaptec  
Fujitsu CPA  
Honda Connector  
Pioneer NewMedia  
Seagate  
Yamagata Fujitsu

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

Amphenol  
Compaq  
DDK Fujikura  
FCI/Berg  
Hitachi Cable  
IBM  
Matsushita  
Maxtor  
Molex  
Quantum  
Thomas & Betts  
Toshiba America  
Tyco AMP

To save space for SFF Specifications being reviewed, the information on the principles of the SFF Committee and how to join has not been printed.

## TABLE OF CONTENTS

1.	Scope	5
1.1	Description of Clauses	5
2.	References	5
2.1	Industry Documents	5
2.2	SFF Specifications	6
2.3	Sources	7
3.	General Description	7
4.	Definitions and Conventions	7
4.1	Definitions	7
4.2	Conventions	7
5.	5.25" CD Drive Form Factor	

## TABLES

TABLE 5-1	FORM FACTOR OF 5.25" CD DRIVE	8
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## FIGURES

FIGURE 5-1	FORM FACTOR OF 5.25" CD DRIVE	9
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**SFF Committee --****Form Factor of 5.25" CD Drives****1. Scope**

The 85xx suite of specifications defines the configuration characteristics associated with 5.25" drives.

The purpose of the 85xx 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, mounting holes and interface pinouts to assist manufacturers in the systems integration of small form factor disk drives.

- SFF-8500 contains general information regarding connector space, mounting considerations and measurement requirements.
- SFF-8501 defines the dimensions of 5.25" disk drives.
- Other specifications in the 85xx family define the location of connectors on 5.25" drives.

In an effort to broaden the applications for storage products, an ad hoc industry group of companies representing system integrators, peripheral suppliers, and component suppliers decided to address issues which appear in the marketplace that affect many OEMs and vendors.

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 contains the General Description.

Clause 4 contains the Glossary.

Clause 5 and successive Clauses (if any) contain detailed characteristics.

**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.

- X3.131R-1994 SCSI-2 Small Computer System Interface
- X3.253-1995 SPI (SCSI-3 Parallel Interface)
- X3.302-xxxx SPI-2 (SCSI-3 Parallel Interface -2)
- X3.277-1996 SCSI-3 Fast 20
- X3.221-1995 ATA (AT Attachment) and subsequent extensions

## 2.2 SFF Specifications

There are several projects active within the SFF Committee. At the date of printing document numbers had been assigned to the following projects. The status of Specifications is dependent on committee activities.

- F = Forwarded    The document has been approved by the members for forwarding to a formal standards body.
- P = Published    The document has been balloted by members and is available as a published SFF Specification.
- A = Approved    The document has been approved by ballot of the members and is in preparation as an SFF Specification.
- C = Canceled    The project was canceled, and no Specification was Published.
- D = Development    The document is under development at SFF.
- E = Expired    The document has been published as an SFF Specification, and the members voted against re-publishing it when it came up for annual review.
- e = electronic    Used as a suffix to indicate an SFF Specification which has Expired but is still available in electronic form from SFF e.g. a specification has been incorporated into a draft or published standard which is only available in hard copy.
- i = Information    The document has no SFF project activity in progress, but it defines features in developing industry standards. The document was provided by a company, editor of an accredited standard in development, or an individual. It is provided for broad review (comments to the author are encouraged).
- s = submitted    The document is a proposal to the members for consideration to become an SFF Specification.

Spec #	Rev	List of Specifications as of February 6, 2000
SFF-8000		SFF Committee Information
SFF-8001i	E	44-pin ATA (AT Attachment) Pinouts for SFF Drives
SFF-8002i	E	68-pin ATA (AT Attachment) for SFF Drives
SFF-8003	E	SCSI Pinouts for SFF Drives
SFF-8004	E	Small Form Factor 2.5" Drives
SFF-8005	E	Small Form Factor 1.8" Drives
SFF-8006	E	Small Form Factor 1.3" Drives
SFF-8007	E	2mm Connector Alternatives
SFF-8008	E	68-pin Embedded Interface for SFF Drives
SFF-8009	4.1	Unitized Connector for Cabled Drives
SFF-8010	E	Small Form Factor 15mm 1.8" Drives
SFF-8011i	E	ATA Timing Extensions for Local Bus
SFF-8012	2.3	4-Pin Power Connector Dimensions
SFF-8013	E	ATA Download Microcode Command
SFF-8014	C	Unitized Connector for Rack Mounted Drives

SFF-8015	E	SCA Connector for Rack Mounted SFF SCSI Drives
SFF-8016	C	Small Form Factor 10mm 2.5" Drives
SFF-8017	E	SCSI Wiring Rules for Mixed Cable Plants
SFF-8018	E	ATA Low Power Modes
SFF-8019	E	Identify Drive Data for ATA Disks up to 8 GB
INF-8020i	E	ATA Packet Interface for CD-ROMs
SFF-8028i	E	- Errata to SFF-8020 Rev 2.5
SFF-8029	E	- Errata to SFF-8020 Rev 1.2
SFF-8030	1.8	SFF Committee Charter
SFF-8031		Named Representatives of SFF Committee Members
SFF-8032	1.4	SFF Committee Principles of Operation
SFF-8033i	E	Improved ATA Timing Extensions to 16.6 MBs
SFF-8034i	E	High Speed Local Bus ATA Line Termination Issues
SFF-8035i	E	Self-Monitoring, Analysis and Reporting Technology
SFF-8036i	E	ATA Signal Integrity Issues
INF-8037i	E	Intel Small PCI SIG
INF-8038i	E	Intel Bus Master IDE ATA Specification
SFF-8039i	E	Phoenix EDD (Enhanced Disk Drive) Specification
SFF-8040	1.2	25-pin Asynchronous SCSI Pinout
SFF-8041	C	SCA-2 Connector Backend Configurations
SFF-8042	C	VHDCI Connector Backend Configurations
SFF-8043	E	40-pin MicroSCSI Pinout
SFF-8045	4.2	40-pin SCA-2 Connector w/Parallel Selection
SFF-8046	E	80-pin SCA-2 Connector for SCSI Disk Drives
SFF-8047	C	40-pin SCA-2 Connector w/Serial Selection
SFF-8048	C	80-pin SCA-2 Connector w/Parallel ESI
SFF-8049	E	80-conductor ATA Cable Assembly
INF-8050i	1.0	Bootable CD-ROM
INF-8051i	E	Small Form Factor 3" Drives
INF-8052i	E	ATA Interface for 3" Removable Devices
SFF-8053	5.4	GBIC (Gigabit Interface Converter)
INF-8055i	E	SMART Application Guide for ATA Interface
SFF-8056	C	50-pin 2mm Connector
SFF-8057	E	Unitized ATA 2-plus Connector
SFF-8058	E	Unitized ATA 3-in-1 Connector
SFF-8059	E	40-pin ATA Connector
SFF-8060	1.1	SFF Committee Patent Policy
SFF-8061	1.1	Emailing drawings over the SFF Reflector
SFF-8065	C	40-pin SCA-2 Connector w/High Voltage
SFF-8066	C	80-pin SCA-2 Connector w/High Voltage
SFF-8067	2.6	40-pin SCA-2 Connector w/Bidirectional ESI
INF-8068i	1.0	Guidelines to Import Drawings into SFF Specs
SFF-8069	E	Fax-Access Instructions
INF-8070i	1.2	ATAPI for Rewritable Removable Media
SFF-8072	1.2	80-pin SCA-2 for Fibre Channel Tape Applications
SFF-8073	-	20-pin SCA-2 for GBIC Applications
SFF-8080	E	ATAPI for CD-Recordable Media
INF-8090i	3.6	ATAPI for DVD (Digital Video Data)

SFF-8200e 1.1 2 1/2" drive form factors (all of 82xx family)  
 SFF-8201e 1.3 2 1/2" drive form factor dimensions  
 SFF-8212e 1.2 2 1/2" drive w/SFF-8001 44-pin ATA Connector  
  
 SFF-8300e 1.1 3 1/2" drive form factors (all of 83xx family)  
 SFF-8301e 1.2 3 1/2" drive form factor dimensions  
 SFF-8302e 1.1 3 1/2" Cabled Connector locations  
 SFF-8332e 1.2 3 1/2" drive w/80-pin SFF-8015 SCA Connector  
 SFF-8337e 1.2 3 1/2" drive w/SCA-2 Connector  
 SFF-8342e 1.3 3 1/2" drive w/Serial Unitized Connector  
  
 SFF-8400 C Very High Density Cable Interconnect  
 SFF-8410 15.1 High Speed Serial Testing for Copper Links  
 SFF-8411 - High Speed Serial Testing for Backplanes  
 SFF-8412 - HSS Requirements for Duplex Optical Links D  
 SFF-8420 10.1 HSSDC-1 Shielded Connections  
 SFF-8421 tbd HSSDC-2 Shielded Connections  
 SFF-8422 tbd \*\*FCI\*\* Shielded Connections  
 SFF-8423 tbd \*Molex\* Shielded Connections  
  
 SFF-8430 4.1 MT-RJ Duplex Optical Connections  
 SFF-8441 14.1 VHDCI Shielded Configurations  
 SFF-8451 10.1 HSS (High Speed Serial) SCA-2 Connections  
 SFF-8480 2.1 HSS (High Speed Serial) DB9 Connections  
  
 SFF-8500e 1.1 5 1/4" drive form factors (all of 85xx family)  
 SFF-8501e 1.1 5 1/4" drive form factor dimensions  
 SFF-8508e 1.1 5 1/4" ATAPI CD Drives w/audio connectors  
 SFF-8551 3.2 5 1/4" CD 1" High form factor  
 SFF-8572 - 5 1/4" Tape form factor  
  
 SFF-8610 C SDX (Storage Device Architecture)

## 2.3 Sources

Copies of ANSI standards or proposed ANSI standards may be purchased from Global Engineering.

15 Inverness Way East      800-854-7179 or 303-792-2181  
 Englewood                      303-792-2192Fx  
 CO 80112-5704

Copies of SFF Specifications are available by joining the SFF Committee as an Observer or Member or at <ftp://fission.dt.wdc.com/pub/standards/sff/spec>.

14426 Black Walnut Ct      408-867-6630x303  
 Saratoga                      408-867-2115Fx  
 CA 95070

## 3. General Description

The application environment for small form factor disks is any computer connecting to one or more disks in a restricted packaging environment.

The purpose of an SFF Specification is to provide information that will assist vendors to design products that can fit the same packaging envelope.

Small form factor disks are widely-used where low power and small size are important configuration parameters.

## 4. Definitions and Conventions

### 4.1 Definitions

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

4.1.1 IDE (Integrated Drive Electronics): IDE describes a device with built in ATA protocol electronics.

4.1.2 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.

4.1.3 PC Card-ATA: This term describes an application specification for the implementation of ATA-like devices compatible with host systems implementing PCMCIA Type III slots.

4.1.4 Reserved: Where this term is used for bits, bytes, fields and code values; the bits, bytes, fields and code values are set aside for future standardization. The default value shall be zero. The originator is required to define a Reserved field or bit as zero, but the receiver should not check Reserved fields or bits for zero.

### 4.2 Conventions

If there is a conflict between text and tables on a feature described as optional, the table shall be accepted as being correct.

Certain terms used herein are the proper names of signals. These are printed in uppercase to avoid possible confusion with other uses of the same words; e.g., ATTENTION. Any lower-case uses of these words have the normal American-English meaning.

A number of conditions, commands, sequence parameters, events, English text, states or similar terms are printed with the first letter of each word in uppercase and the rest lower-case; e.g., In, Out, Request Status. Any lower- case uses of these words have the normal American-English meaning.

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 convention of a space and comma.

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

## 5. 5.25" CD Drive Form Factor

This specification defines the configuration characteristics associated with 5.25" CD drives. Table 5-1 lists the dimensions associated with Figure 5-1, which is a detail of the form factor which has an integrated bezel. The tolerance on the listed dimensions is  $\pm 0.25\text{mm}$  (0.010").



TABLE 5-1 CD FORM FACTOR

Dimension	Millimeters	Inches	
A 1	41.53	1.635	*
A 2	42.30	1.665	
A 3	148.00	5.827	
A 4	202.80	7.984	*
A 5	146.05	5.750	
A 6	139.70	5.500	
A 7	3.18	0.125	
A 8	79.25	3.120	
A 9	47.40	1.866	
A10	47.40	1.866	
A11	79.25	3.120	
A13	10.00	0.394	
A14	21.84	0.860	
A16	6.50	0.256	
A17	5.00	0.197	

• = Maximum

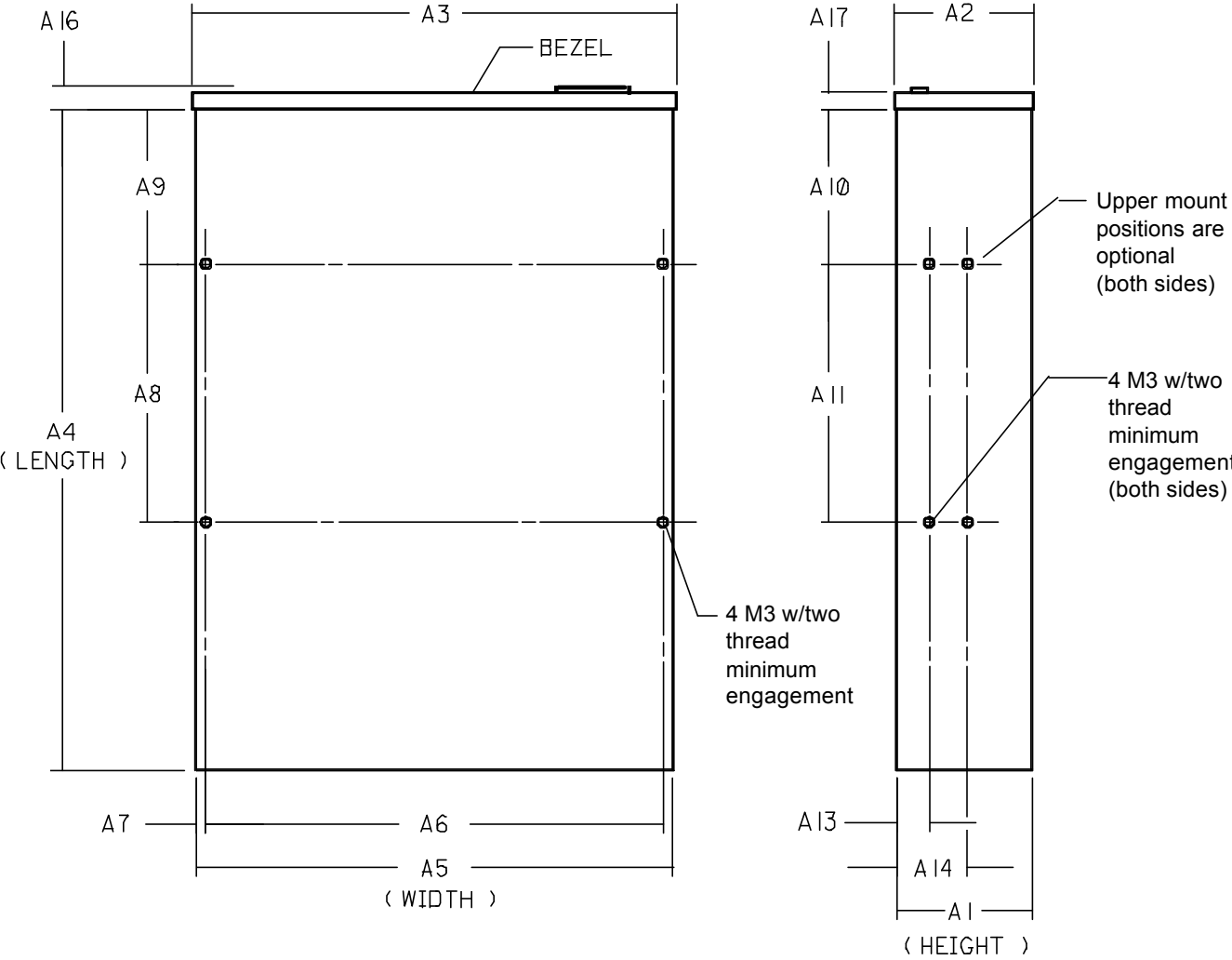


FIGURE 5-1 CD FORM FACTOR