

SFF Committee
SFF-8337 Specification for
SCA-2 Connector Location

EXPIRED

This specification has been incorporated as a standard of the Electronic Industries Association, and can be purchased through Global Engineering (303-792-2181) in hard copy form as EIA-740.

The SFF practice of making Expired Specifications unavailable has been modified for cases where the information is unavailable in an electronic format.

EIA standards and draft standards are not available electronically, so the SFF is continuing to provide this revision of the specification. Be aware that if any changes were made during the EIA approvals process, they are not reflected in this copy.

SFF Committee documentation may be purchased (see p4).
SFF Committee documents are available by FaxAccess at 408-741-1600

SFF Committee
SFF-8337 Specification for
SCA-2 Connector Location
Rev 1.2 July 27, 1995

Secretariat: SFF Committee

Abstract: This document defines the dimensions for 3.5" magnetic disk drives.

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.

3M
Adaptec
AMP
Cirrus Logic
Conner Peripherals
ENDL
Hewlett Packard
Honda Connector
IBM
Madison Cable
Maxtor
Methode
Robinson Nugent
Seagate
Sigmax
Unisys

The following member companies of the SFF Committee voted to forward this industry specification to an accredited standards body.

Methode

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.

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SFF Committee --

SCA-2 Connector Location

1. Scope

The 83xx suite of specifications defines the configuration characteristics associated with 3.5" disk drives.

The purpose of the 83xx 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-8300 contains general information regarding connector space, mounting considerations and measurement requirements.
- SFF-8301 defines the dimensions of 3.5" disk drives.
- Other specifications in the 83xx family define the location of connectors on 3.5" disk 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
- X3T9.2/0855 SPI (SCSI-3 Parallel Interface)
- X3.221-199x ATA (AT Attachment)
- X3T10/0948 ATA-2 (ATA 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.
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 October 16, 1995
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SFF-8000		SFF Committee Information
SFF-8001i	E	44-pin ATA (AT Attachment) Pinouts for SFF Drives
SFF-8002i	2.1	68-pin ATA (AT Attachment) for SFF Drives
SFF-8003	1.1	SCSI Pinouts for SFF Drives
SFF-8004	1.1	Small Form Factor 2.5" Drives
SFF-8005	2.5	Small Form Factor 1.8" Drives
SFF-8006	2.0	Small Form Factor 1.3" Drives
SFF-8007	0.1	2mm Connector Alternatives
SFF-8008	2.3	68-pin Embedded Interface for SFF Drives
SFF-8009	3.1	Unitized Connector for Cabled Drives
SFF-8010	1.0	Small Form Factor 15mm 1.8" Drives
SFF-8011i	2.0	ATA Timing Extensions for Local Bus
SFF-8012	1.0	Power Connector Pin Dimensions
SFF-8013	0.1	ATA Download Microcode Command
SFF-8014	C	Unitized Connector for Rack Mounted Drives
SFF-8015	3.7	SCA Connector for Rack Mounted SFF SCSI Drives
SFF-8016	C	Small Form Factor 10mm 2.5" Drives
SFF-8017	1.7	SCSI Wiring Rules for Mixed Cable Plants
SFF-8018	0.1	ATA Low Power Modes
SFF-8019	2.0	Identify Drive Data for ATA Disks up to 8 GB
SFF-8020i	2.5	ATA Packet Interface for CD-ROMs
SFF-8028i		- Errata to SFF-8020 Rev 2.5
SFF-8029	1.4	- Errata to SFF-8020 Rev 1.2

SFF-8030	1.7	SFF Committee Charter
SFF-8031		Named Representatives of SFF Committee Members
SFF-8032	1.2	SFF Committee Principles of Operation
SFF-8033i	1.0	Improved ATA Timing Extensions to 16.6 MBs
SFF-8034i	3.0	High Speed Local Bus ATA Line Termination Issues
SFF-8035i	1.0	Self-Monitoring, Analysis and Reporting Technology
SFF-8036i	1.1	ATA Signal Integrity Issues
SFF-8037i	1.0	Intel Small PCI SIG
SFF-8038i	1.0	Intel Bus Master IDE ATA Specification
SFF-8039i	1.0	Phoenix EDD (Enhanced Disk Drive) Specification
SFF-8040	1.2	25-pin Asynchronous SCSI External Connector
SFF-8041	1.0	SCA-2 Connector Backend Configurations
SFF-8042	x.x	VHDCI Connector Backend Configurations
SFF-8045	3.2	40-pin SCA-2 Connector w/Parallel Selection
SFF-8046	2.2	80-pin SCA-2 Connector for SCSI Disk Drives
SFF-8047	3.2	40-pin SCA-2 Connector w/Serial Selection
SFF-8048	1.1	80-pin SCA-2 Connector w/Parallel ESI
SFF-8200	1.1	2 1/2" drive form factors (all of 82xx family)
SFF-8201	1.2	2 1/2" drive form factor dimensions
SFF-8212	1.2	2 1/2" drive w/SFF-8001 44-pin ATA Connector
SFF-8300	1.1	3 1/2" drive form factors (all of 83xx family)
SFF-8301	1.2	3 1/2" drive form factor dimensions
SFF-8302	1.1	3 1/2" Cabled Connector locations
SFF-8332	1.2	3 1/2" drive w/80-pin SFF-8015 SCA Connector
SFF-8337	1.2	3 1/2" drive w/SCA-2 Connector
SFF-8342	1.2	3 1/2" drive w/Serial Unitized Connector
SFF-8400	0.1	Very High Density Cable Interconnect
SFF-8500	1.1	5 1/4" drive form factors (all of 85xx family)
SFF-8501	1.1	5 1/4" drive form factor dimensions
SFF-8508	1.1	5 1/4" ATAPI CD-ROM w/audio connectors
SFF-8551	1.2	5 1/4" CD-ROM 1" High form factor

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 FaxAccess or by joining the SFF Committee as an Observer or Member.

14426 Black Walnut Ct	408-867-6630x303
Saratoga	408-867-2115Fx
CA 95070	FaxAccess: 408-741-1600

FaxAccess is a computer-operated service capable of faxing copies of documents selected from a menu. Anyone ordering documents over FaxAccess must be using the handset of a fax machine, as the documents are transmitted over the same line as the caller dialed in on to make the selection(s).

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. 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.

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

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
 1,000
 1,323,462.9

ISO: 0,6
 1 000
 1 323 462,9

5. Location of SCA-2 Connector on 3.5" Drives

SFF-8337 defines the location of the interface connectors of 80-pin SCA-2 (Single Connector Attach) for parallel SCSI 3.5" disk drives and 40-pin SCA for Fibre Channel 3.5" disk drives.

This specification defines a drive which can be directly inserted into the backplane of a cabinet, without the need for a cable and provides information necessary to assist manufacturers in the systems integration of small form factor disk drives. This specification allows only one location for the interface connector on the drive.

Provision exists in the SCA-2 connector for improved mating via guides which incorporate provision for mating ground prior to mating any other signals.

Table 5-1 defines the dimensions associated with the positioning of the connector on the drive as illustrated in Figure 5-1. In the table, references offset to the left in the dimensions column are variables, and those to the right are tolerances.

Figure 5-2 identifies the clearance zones which are required around the connector.

TABLE 5-1 SCA-2 CONNECTOR LOCATION

Dimension	Millimeters	Inches
A 1	101.60	4.000
A 2	66.50	2.618
A 2	41.10	1.618
A 3	1.02	0.040
A 4	0.38	0.015
A 5	7.00	0.276
A 6	1.02	0.040
A 7	4.60	0.181
A 8	41.28	1.625
A 9	0.38	0.015
A10	0.50	0.020

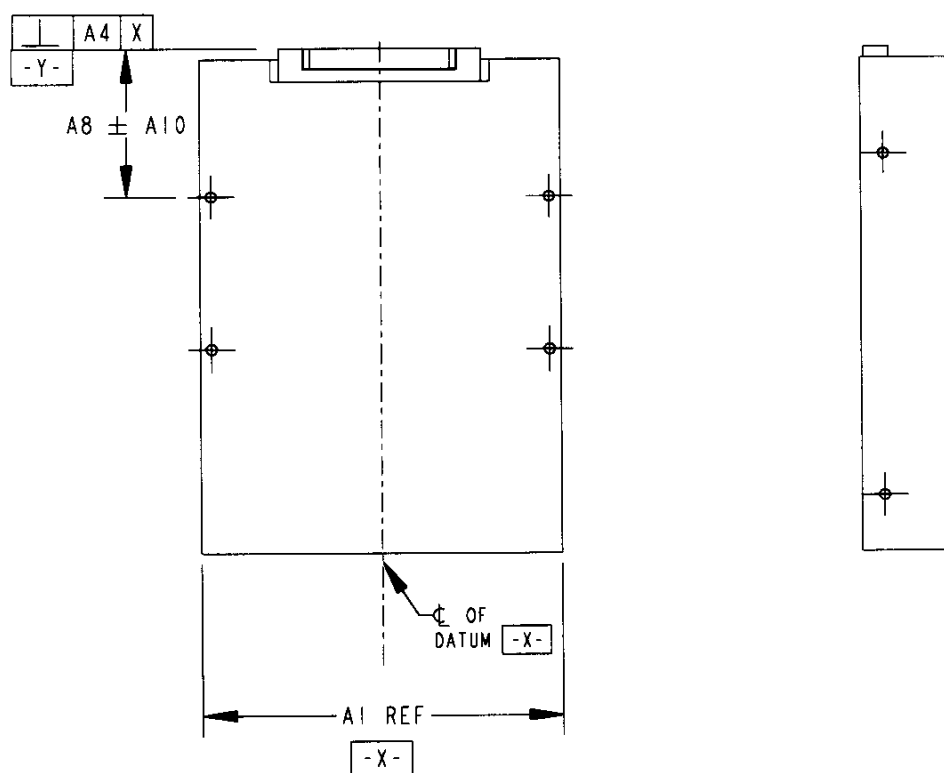
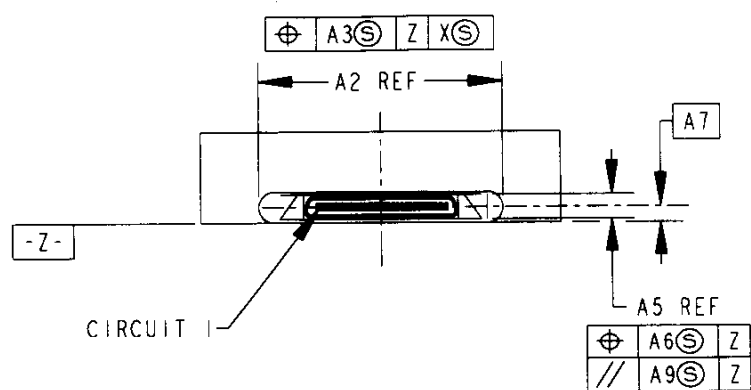
- NOTES: 1) No feature shall protrude more than 0.50mm (0.020") beyond the face of the connector.
 2) Reference drawings: SFF-8301 3.5" Form Factor
 SFF-xxxx SCA-2 Connector
 3) Inch is the controlling dimensional unit.

In Specifications under review, the figures are not integrated with the text but follow behind its transmittal. Space has been left here so the figure can be pasted in the proper position.

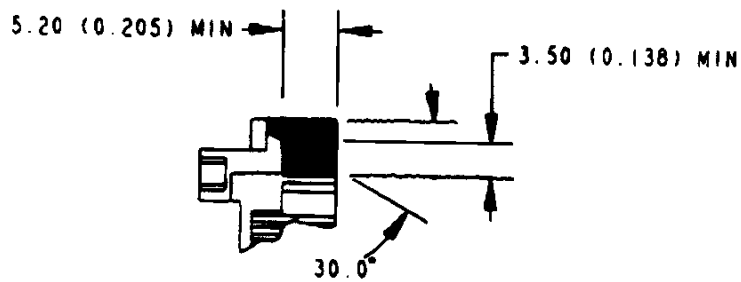
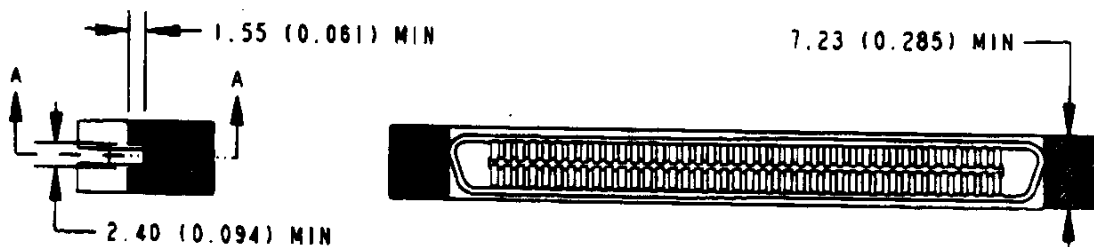
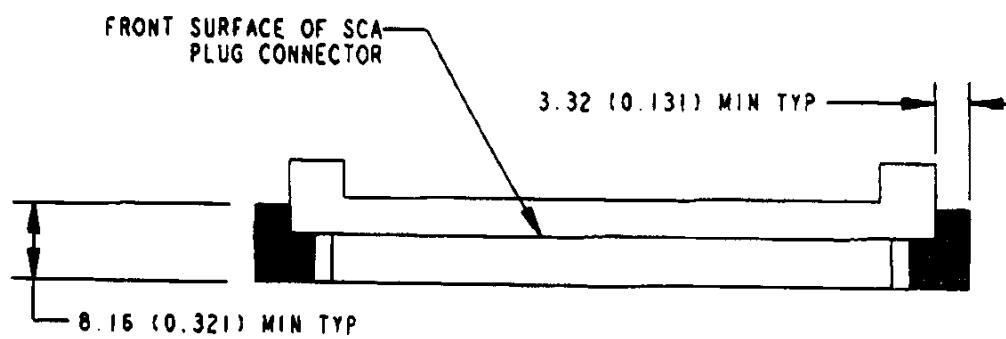
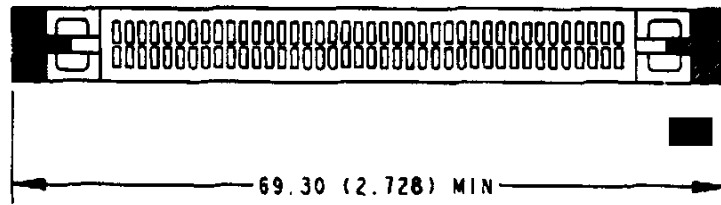
FIGURE 5-1 SCA-2 CONNECTOR LOCATION

In Specifications under review, the figures are not integrated with the text but follow behind its transmittal. Space has been left here so the figure can be pasted in the proper position.

FIGURE 5-2 SCA-2 CONNECTOR CLEARANCE ZONES



SFF-8337 SCA-2 Connector Location



SECTION A-A

1. CROSS HATCH DEPICTS CLEARANCE ZONE

SCA-2 Connector Clearance Zones