SFF specifications are available at http://www.snia.org/sff/specifications.

SFF-9422

Former Specification for

Drive Common Connector Platform Pinouts for USB

Rev 1.0 July 18, 2018

SECRETARIAT: SFF TA TWG

ABSTRACT: This specification formerly defined the SFF-8639 connector pin assignment subset for a USB drive. The SFF-8639 connector provides a fully populated version of the connector platform established by SATA and SAS for traditional storage device drive form factor platforms. Several storage device interfaces use subsets of this platform for signaling, power, and sideband functions. A list of the different interface pin assignments is found in SFF-9639.

REASON FOR EXPIRATION: Voided
Seagate Technology LLC requested that this published document be voided because the implementation was not available in product for the marketplace and USB does not have a certification for such product.

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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.

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TABLES

SFF Committee --

Drive Common Connector Platform Pinouts for USB

1. Scope

This specification defines the pin assignment for a USB drive using the common connector platform specified by SFF-8639 mechanical drawings.

2. References

2.1 Industry Documents

The following interface standards are relevant to many SFF Specifications.

- Universal Serial Bus Specification Revision 2.0
- Universal Serial Bus 3.0 Specification
- SFF-8639 Multifunction 12 Gb/s 6X Unshielded Connector
- SFF-9639 Multifunction 12 Gb/s 6X Unshielded Connector Pinouts

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://www.techstreet.com/incitsgate.tmpl).

2.4 Conventions

The dimensioning conventions are described in ANSI-Y14.5M, Geometric Dimensioning and Tolerancing. All dimensions are in millimeters, which are the controlling dimensional units (if inches are supplied, they are for guidance only).

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.

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

3. General Description

The connector system defined in SFF-8639 is considered to be an extension of the connector systems defined in SFF-8482, SFF-8680, and SFF-8630. The SFF-8639 specification defines a multi-function connector system that may be used to implement specific storage device use cases.

The connector system defines a total of 68 contacts. The receptacle may implement all of the defined contacts while the plug may implement only the contacts required by the use case supported on a particular device. This allows for multiple device types supporting different use cases to be inserted into a common receptacle.

This specification defines the pin assignment subset for a USB drive.

4. USB Drive Pin Assignment

Table 4-1, Table 4-2 and Table 4-3 define the common pin assign for drives. For USB electrical compliance purposes, the device shall be considered a captive cable application (vendor-specific connector on the device end) and tested with an appropriate cable attached to the USB device.

TABLE 4-1 P SERIES SIGNALS (PLUG)

	Signal	USB
P1		P1->P2
P2		P2->P1
P3		
P4		GND
P5	Ground	GND
P6	Ground	GND
P7	+5V	V5 PRECHARGE
P8	+5V	V5
P9	+5V	V5
P10		GND
P11		LED
P12	Ground	GND
P13	+12V	V12 PRECHARGE
P14	+12V	V12
P15	+12V	V12

TABLE 4-2 S SERIES SIGNALS (PLUG)

	Signal	USB
S1	Ground	GND
S2	Rcvr+	SSRX+
S3	Rcvr-	SSRX-
S4	Ground	GND
S5	Xmtr-	SSTX-
S6	Xmtr+	SSTX+
S7	Ground	GND
S8	Ground	
S9	Rcvr+	
S10	Rcvr-	
S11	Ground	
S12	Xmtr-	
S13	Xmtr+	
S14	Ground	
S15		VBUS
S16	Ground	
S17	Rcvr+	
S18	Rcvr-	
S19	Ground	
S20	Xmtr-	
S21	Xmtr+	
S22	Ground	
S23	Rcvr+	
S24	Rcvr-	
S25	Ground	
S26	Xmtr-	
S27	Xmtr+	
S28	Ground	

TABLE 4-3 E SERIES SIGNALS (PLUG)

	Signal	USB
E1		
E2		
E3	+3.3V	
E4		
E5		
E6		
E7		D+
E8		D-
E9		GND
E10	Rcvr+	
E11	Rcvr-	
E12	Ground	
E13	Xmtr-	
E14	Xmtr+	
E15	Ground	
E16		VBUS
E17	Rcvr+	
E18	Rcvr-	
E19	Ground	
E20	Xmtr-	
E21	Xmtr+	
E22	Ground	
E23		
E24		
E25		