



REF-TA-1011

Reference Guide for

Cross Reference to Selected SFF Connectors and Modules

Rev 1.1.6 April 21, 2025

SECRETARIAT: SFF TWG

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The description of the connector in this specification does not assure that the specific component is available from connector suppliers. If such a connector is supplied, it should comply with this specification to achieve interoperability between suppliers.

ABSTRACT: This reference guide defines the naming conventions for the various configurations of pluggable I/O solutions.

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Reference Guide for

~~Cross-~~

~~Reference to Select SFF Connectors and Modules~~

~~Rev 1.13~~

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~~SECRETARIAT: SFF-TA-TWG~~

~~This-~~

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~~submitted at considered for inclusion in future revisions of this document.~~

~~The descriptions of any of the connectors in this reference guide do not assure that any specific component is available from one or more connector suppliers. If such a connector is supplied, it must comply with its respective specifications referenced in this guide to achieve interoperability between suppliers.~~

~~ABSTRACT: This reference guide defines the naming conventions for the various configurations of pluggable I/O solutions.~~

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Foreword

The development work on this document was done by the SNIA ~~SFF SFF-TA~~ TWG, an industry group. Since its formation as the SFF Committee in August 1990, as well as since SFF's transition to SNIA in 2016, the membership has included a mix of companies which are leaders across the industry.

For those who wish to participate in the activities of the SFF ~~TA~~ TWG, the sign up for membership can be found at

<http://www.snia.org/sff/join>

Change History**Rev 1.0** *September 12, 2018*

- Original content was taken from Section 3 of SFF-8024
- Table content updated to reflect current document status per July 2018

Rev 1.1 *October 1, 2019*

- Added SAS-4.1 references where applicable
- Add references for SFF-8431 and SFF-8639
- ~~Table 4-1~~~~Table 4-1~~ entry for SFP changed to include "Superseded by SFP+ (see below)"
- ~~Table 4-1~~~~Table 4-1~~ entry for SFP+ changed to "SFF-8431 (Archived) → Superseded by SFP10" Added SFP56 and QSFP56 (Styles A & B) to ~~Table 4-1~~~~Table 4-1~~ and added a note
- Added SFF-8639 to ~~Table 4-3~~~~Table 4-3~~
- Minor formatting and editorial changes

Rev 1.1.2

- Added SFP112, SFP224, QSFP112, QSFP224 to Table 4-1
- Added stacked QSFP drawings
- Added device connector table for SFP, QSFP with IEEE, OIF, Fibre Channel, InfiniBand

Rev 1.1.4

- Comments from ballot:
- Added references to IEEE, CMIS, SFF specs
- Modified Table 4-1
 - o Added QSFP112, QSFP224
 - o Added CMIS references
 - o Added note allowing QSFP28 coherent modules to support CMIS
- Added SATA references to Table 4-3
- Removed SFP support for CR2, CR4

Rev 1.1.5

- Removed SFF-TA-1029 (Project cancelled)
- Added SFF-TA-1027 to QSFP28 and QSFP56 in Table 4-1

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1. Scope

This document provides a cross reference between the names of connectors and pluggable modules and the SFF specifications which define them.

2. References and Conventions

2.1 Industry Documents ~~(alphabetize)~~

- ~~IEEE Std 802.3 Standard for Ethernet~~
- ~~IEEE Std 802.3ck Standard for Ethernet for 100 Gb/s electrical signaling-~~
- INCITS 417 SAS-1.1 (Serial Attached SCSI – 1.1)
- INCITS 478 SAS-2.1 (Serial Attached SCSI – 2.1)
- INCITS 519 SAS-3 (Serial Attached SCSI - 3)
- INCITS 534 SAS-4 (Serial Attached SCSI - 4)
- INCITS 567 SAS-4.1 (Serial Attached SCSI – 4.1)
- ~~INF-8074 Small Formfactor Pluggable (SFP) Transceiver~~
- ~~INF-8077 XFP 1X 10 Gb/s Pluggable Module~~
- InfiniBand Architecture Specification Volume 2
- ~~SFF-8071 SFP+ 1X 0.8mm Card Edge Connector~~
- ~~INF-8074 Small Formfactor Pluggable (SFP) Transceiver~~
- ~~INF-8077 XFP 1X 10 Gb/s Pluggable Module~~ - OIF CMIS (Common Management Interface Specification)
- SFF-TA-1027 QSFP2 Cage, Connector and Module Specification
- SFF-TA-1031 SFP2 Cage, Connector and Module Specification
- ~~SFF-8071 SFP+ 1X 0.8mm Card Edge Connector~~
- SFF-8418 SFP+ 10 Gb/s Electrical Interface
- SFF-8419 SFP+ Power and Low Speed Interface
- SFF-8431 Enhanced Small Form Factor Pluggable Module SFP+
- SFF-8432 SFP+ Module and Cage
- SFF-8433 SFP+ Ganged Cage
- SFF-8436 QSFP+ 4X 10 Gb/s Pluggable Transceiver
- INF-8438 QSFP 4X 4 Gb/s Transceiver (Quad SFP)
- SFF-8449 Management Interface for SAS Shielded Cables
- SFF-8472 Management Interface for SFP+
- SFF-8482 Serial Attachment 2X Unshielded Connector
- SFF-8613 Mini Multilane 4/8X Unshielded Connector (HDun)
- SFF-8614 Mini Multilane 4/8X Shielded Cage/Connector (HDsh)
- SFF-8617 Mini Multilane 12X Shielded Cage/Connector (CXP)
- SFF-8630 Serial Attachment 4X Unshielded Connector
- SFF-8636 Management Interface for 4-lane Modules and Cables
- SFF-8639 Multifunction 6X Unshielded Connector
- SFF-8642 Mini Multilane 12X 10 Gb/s Shielded Connector (CXP10)
- SFF-8661 QSFP+ 4X Pluggable Module
- SFF-8662 QSFP+ 4X Connector (Style A)
- SFF-8663 QSFP+ Cage (Style A)
- SFF-8665 QSFP+ 4x Pluggable Transceiver Solutions
- SFF-8672 QSFP+ 4X Connector (Style B)
- SFF-8679 QSFP+ 4X Base Electrical Specification
- SFF-8680 Serial Attachment 2X 12 Gb/s Unshielded Connector
- SFF-8682 QSFP+ 4X Connector
- SFF-8683 QSFP+ Cage

2.2 Sources

The complete list of SFF documents which have been completed, are currently being worked on, or that have been expired by the SFF Committee can be found at <http://www.snia.org/sff/specifications>. Suggestions for

- 1 improvement of this specification will be welcome, they should be submitted to <http://www.snia.org/feedback>.
- 2
- 3 Copies of SAS standards may be obtained from the International Committee for Information Technology
- 4 Standards (INCITS) (<http://www.incits.org>).
- 5
- 6 Copies of InfiniBand standards may be obtained from the InfiniBand Trade Association (IBTA)
- 7 (<http://www.infinibandta.org>).
- 8
- 9 Copies of IEEE standards may be obtained from: <https://standards.ieee.org/ieee/802.3/10422>
- 10
- 11 Copies of OIF CMIS specification may be obtained from: [https://www.oiforum.com/technical-](https://www.oiforum.com/technical-work/implementation-agreements-ias/#Management)
- 12 [work/implementation-agreements-ias/#Management](https://www.oiforum.com/technical-work/implementation-agreements-ias/#Management)
- 13

2.3 Conventions

The following conventions are used throughout this document:

DEFINITIONS:

Certain words and terms used in this standard have a specific meaning beyond the normal English meaning. These words and terms are defined either in the definitions or in the text where they first appear.

ORDER OF PRECEDENCE:

If a conflict arises between text, tables, or figures, the order of precedence to resolve the conflicts is text; then tables; and finally figures. Not all tables or figures are fully described in the text. Tables show data format and values.

3. Definitions

For the purposes of this document, the following definitions apply:

Dual-Card Connector: Connectors in which all receptacle contacts mate to one of two PCBs per port on the module side of the interface.

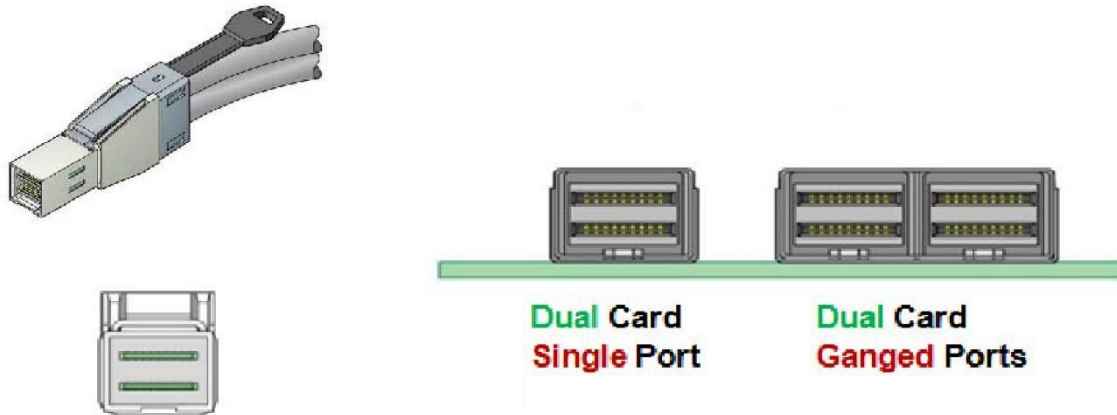


FIGURE 3-1 DUAL CARD CONNECTOR

Single-Card Connector: Connectors in which all receptacle contacts mate to a single PCB on the module side of the interface.

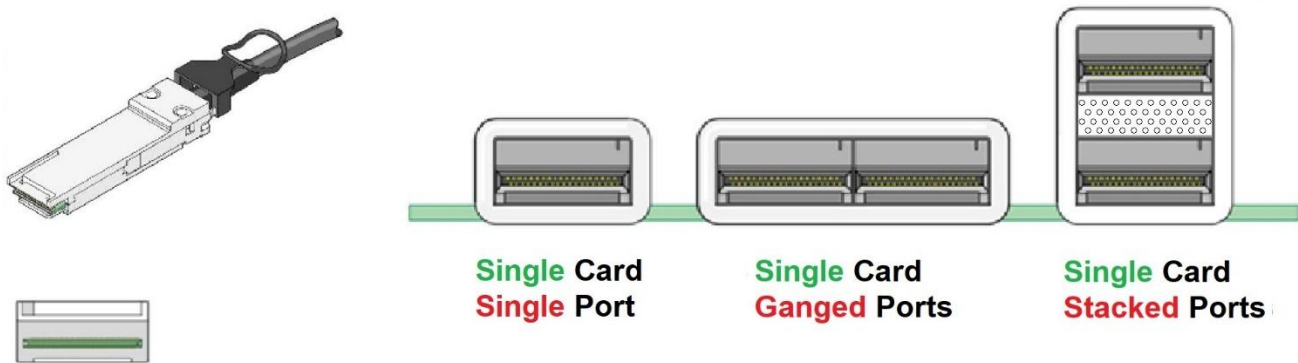


FIGURE 3-2 SINGLE CARD CONNECTOR

4. Specifications Related to Selected Pluggable Modules and I/O Form Connectors Factors

Table 4-1 and Table 4-2 list the relevant SFF specifications for selected pluggable modules and I/O connectors. Please note that in Table 4-1 and Table 4-2, the gray color denotes expired or superseded SFF documents. See SFF-8024 Module Management Reference Codes for the Transceiver Identifier values, Connector types, Extended Specification Compliance Codes, Host Electrical Interface IDs, Media Interface IDs and Transceiver Sub-type codes. For the QSFP family see also SFF-8665.

TABLE 4-1 SINGLE-CARD PLUGGABLE MODULES AND I/O CONNECTORS

	Mechanical				Low Speed & General Electrical	Management Interface
	Module	Connector	Single Port Cage	Stacked Cage		
SFP	INF-8074 → Superseded by SFP+ (see below)					
SFP+	SFF-8431 (Archived) → Superseded by SFP10					
SFP10	SFF-8432	SFF-8071	SFF-8432, single port,	=	SFF-8418 & SFF-8419	SFF-8472
SFP16, SFP28, & SFP56			SFF-8433, ganged		SFF-8419 SFF-8419	
SFP112	SFF-TA-1031			=		CMIS CMIS
SFP224	TBD			=		
XFP	INF-8077					
QSFP	INF-8438 → Superseded by QSFP+ (see below)					
QSFP+	SFF-8436 (Expired) → Superseded by QSFP10 (see below)					
QSFP10 & QSFP14	SFF-8661 <u>SFF-TA-1027</u>	SFF-8682	SFF-8683	=	SFF-8679 SFF-8679 SFF-8679	SFF-8636** or CMIS
QSFP28 & QSFP56		SFF-8672 Style B*				
		SFF-8662 Style A, Single Port*	SFF-8663 Style A*			
QSFP56		<u>SFF-TA-1027</u>	<u>SFF-TA-1029</u> Style C, cabled			
	SFF-8672 Style B*	SFF-8683				
		SFF-8662 Style A, Single Port*	SFF-8663 Style A*	=		SFF-8636 or CMIS
		<u>SFF-TA-1027</u>	<u>SFF-TA-1027</u>			
QSFP112	SFF-TA-1027			SFF-TA-1027		CMIS CMIS
QSFP224	SFF-TA-1027			=		

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*Both Style 'A' and Style 'B' are suitable for 28 GBd (including PAM4 use, up to 56 Gbps on each lane) applications.

** Coherent modules may use CMIS

TABLE 4-2 DUAL-CARD PLUGGABLE MODULES AND I/O CONNECTORS

	Mechanical			Low Speed & General Electrical	Management Interface
	Module	Connector	Single Port Cage		
CXP10	SFF-8642 (Expired)→ Superseded by CXP14 (see below)			IBTA QDR	NA
CXP14	SFF-8617			IBTA FDR	
CXP28				IBTA EDR	
HD12un	SFF-8613			SAS-2.1/SAS-3	SFF-8636 & SFF-8449
HD24un	NA			SAS-4/SAS-4.1	
HD12sh	SFF-8614			SAS-2.1/SAS-3	SFF-8636 & SFF-8449
HD24sh	NA			SAS-4/SAS-4.1	

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TABLE 4-3 EDGE CARD DEVICE CONNECTORS

Connector	Application	No. of ports
SFF-8482	SAS 1.1 SAS-2.1 SAS-4/SAS-4.1 <u>SATA</u>	2
SFF-8680	SAS-3 <u>SATA</u>	
SFF-8630	SAS-3 SAS-4/SAS-4.1 <u>SATA</u>	4
SFF-8639	8 GT/s PCIe 16 GT/s PCIe SAS-3 SAS-4/ SAS-4.1 <u>SATA</u>	

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Table 4-4 PLUGGABLE MODULE DEVICE CONNECTORS

Connector	Form Factor	Application	No. of lanesports
SFF-TA-1031	<u>SFP</u>	IEEE 50GBASE-CR1; 100GBASE-CR1,2,4 Fibre Channel PI-7,8 OIF CEI_28G-VSR, OIF CEI_56G-VSR, OIF CEI_112G-VSR InfiniBand HDR, NDR	1
SFF-TA-1027	<u>QSFP</u>	IEEE 100GBASE-CR1,2,4; 200GBASE-CR2,4; 400GBASE-CR4; 100GAUI-1,2,4 C2M; 200GAUI-2,4 C2M; 400GAUI-4 C2M Fibre Channel PI-7,8 OIF CEI_28G-VSR, OIF CEI_56G-VSR, OIF CEI_112G-VSR InfiniBand HDR, NDR	4

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1 ~~Flip 1027 and 1031 in Table 4-4.~~
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