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ISO/IEC 14165-131

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**Information technology –
Fibre Channel –**

**Part 131:
Switch Fabric Requirements (FC-SW)**

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Contents	Page
Foreword.	1
Introduction.	1
1 Scope	1
2 Normative references	1
2.1 General Provisions	1
2.2 Approved references	1
2.3 References under development	1
2.4 Other references	2
3 Definitions and conventions	2
3.1 Definitions	2
3.2 Editorial conventions	6
3.2.1 Binary notation	7
3.2.2 Hexadecimal notation	7
3.3 Abbreviations, acronyms, and symbols	7
3.3.1 Acronyms and abbreviations	7
3.3.2 Symbols	7
4 Structure and Concepts	9
4.1 Fabric	9
4.2 Switch	9
4.3 Switch Topologies	11
4.4 Switching characteristics	11
4.4.1 Synchronous switching	11
4.4.2 Asynchronous switching	11
4.5 Switch Ports	11
4.5.1 F_Port	12
4.5.2 FL_Port	12
4.5.3 E_Port	12
4.6 Fabric Addressing	12
4.7 Class F Service	14
4.8 Relationship Between this Standard and FC-FG	14
5 Switch Ports	15
5.1 General Model	15
5.2 Model elements	15
5.2.1 FC Transports	15
5.2.2 Switch Transport	15
5.2.3 Control Facilities	15
5.2.4 Link Services	15
5.3 F_Port Operation	15
5.3.1 Model	16
5.3.2 Link Behavior	16
5.4 FL_Port Operation	17
5.4.1 Model	17
5.4.2 Link Behavior	18
5.5 E_Port Operation	18
5.5.1 Model	18
5.5.2 Inter-Switch Link Behavior	19
5.6 Class F Service	20
5.6.1 Class F Function	20
5.6.2 Class F Rules	20
5.6.3 Class F Frame Format	22
5.6.4 Class F Flow Control	22
6 Switch Fabric Services	23
6.1 Switch Fabric Internal Link Services (SW_ILS)	23
6.1.1 Switch Fabric Internal Link Service Accept (SW_ACC)	23
6.1.2 Switch Fabric Internal Link Service Reject (SW_RJT)	24
6.1.3 Exchange Link Parameters (ELP)	26
6.1.4 Exchange Fabric Parameters (EFP)	30
6.1.5 Announce Address Identifier (AAI)	33
6.1.6 Request Domain_ID (RDI)	34

Contents**Page**

6.1.7	Build Fabric (BF)	36
6.1.8	Reconfigure Fabric (RCF)	37
6.1.9	Disconnect Class 1 Connection (DSCN)	38
6.1.10	Detect Queued Class 1 Connection Request Deadlock (LOOPD)	39
7	Fabric Configuration	42
7.1	Summary	42
7.2	Switch Port Initialization	42
7.3	Principal Switch Selection	46
7.4	Address Distribution	49
7.4.1	Domain_ID Distribution by the Principal Switch	49
7.4.2	Domain_ID Requests by the Switches	50
7.5	E_Port and Fabric Isolation	52
Annex A	(informative) - Future Projects	53
A.1	Switch Standards in development	53
A.2	Switch Technical Reports in development	53
Annex B	(informative) - Examples of Switch Port Initialization	54
B.1	Examples Overview	54
B.2	Example 1: two E/F/FL_Port-capable Switch Ports	54
B.3	Example 2: two E/F/FL_Port-capable Switch Ports and one Nx_Port	55
B.4	Example 3: one E/F/FL_Port-capable Port and one E/F_Port-capable Port	56
Annex C	(informative) - Fibre Channel Link Switch Command Set for FC-AE	57
C.1	Scope	57
C.2	Technical Description	57
C.2.1	Definition	57
C.2.2	Context	57
C.2.3	Command Set	63
C.2.4	Example Usage of Link Switch Control Interface	75
C.2.4.1	Example Using Only Individual Link Switch Port Commands.	76
C.2.4.2	Example Using N_Port-Level Commands.	77
Index		81

Figures

1. Switch Model	9
2. Multiple Switch Fabric Example	10
3. Domain, Area, and Port Address Partitioning	12
4. F_Port Model	16
5. FL_Port Model	17
6. E_Port Model	18
7. Principal Inter-Switch Links	20
8. Class F Frame Format	22
9. Switch Port Mode Initialization Flow	43
10. Simultaneous ELP Processing	46
11. Propagation of BF and RCF SW_ILS requests	47
12. RDI Request Processing by Principal Switch	50
13. RDI Request Processing by non-Principal Switch	51
B.1. Initialization example 1	54
B.2. Initialization example 2	55
B.3. Initialization example 3	56
C.1. Software Context for Link Switch Control	58
C.2. Example 1 of System Context With Out-of-Band Control	59
C.3. Example 2 of System Context With Out-of-Band Control	59
C.4. Example of System Context With in-Band Control	60
C.5. Example 3 of System Context With Out-of-Band Control	61
C.6. Example 4 of System Context With Out-of-Band Control	62
C.7. Example System Interconnection	76

Tables**Page**

1. Address Identifier Values	13
2. SW_ILS Command Codes	23
3. SW_RJT Payload	24
4. SW_RJT Reason Codes	24
5. SW_RJT Reason Code Explanation	25
6. ELP Request Payload	26
7. E_Port Class F Service Parameters	27
8. Class 1 E_Port Parameters	28
9. Class 2 E_Port Parameters	28
10. Class 3 E_Port Parameters	29
11. ELP Accept Payload	30
12. EFP Request Payload	31
13. Switch_Priority Field Values	31
14. Domain_ID_List Record Format	32
15. Record_Type Field Values	32
16. EFP Accept Payload	33
17. AAI Request Payload	33
18. AAI Accept Payload	34
19. RDI Request Payload	35
20. RDI Accept Payload	36
21. BF Request Payload	37
22. BF Accept Payload	37
23. RCF Request Payload	38
24. RCF Accept Payload	38
25. DSCN Request Payload	39
26. DSCN Reason Codes	39
27. DSCN Accept Payload	39
28. LOOPD Request Payload	40
29. LOOPD Accept Payload	41
30. Fabric Configuration Summary	42
31. Responses to ELP Request for Originating E_Port	44
32. Recommended BF and RCF Usage Summary	47

Foreword

ISO (the International Organization for Standardization) and IEC (the International Electrotechnical Commission) together form a system for world-wide standardization as a whole. National bodies that are members of ISO or IEC participate in the development of International Standards through technical committees established by the respective organization to deal with particular fields of activity. ISO and IEC technical committees collaborate in fields of mutual interest. Other internal organizations, governmental and non-governmental, in liaison with ISO and IEC, also take part in this work.

In the field of information technology, ISO and IEC have established a joint technical committee, ISO/IEC JTC 1. Draft International Standards adopted by the joint technical committee are circulated to national bodies for approval before their acceptance as International Standards. They are approved in accordance with procedures requiring at least 75% approval by the national bodies voting.

International Standard ISO/IEC 14165-131 was prepared by Joint Technical Subcommittee ISO/IEC JTC 1, *Information Technology*, Subcommittee SC 25, *Interconnection of Information Technology Equipment*.

This part of ISO/IEC 14165 describes tools and algorithms for interconnection and initialization of Fibre Channel switches to create a multi-switch Fibre Channel Fabric.

ISO/IEC 14165 will consist of the following parts, under the general title *Information technology - Fibre Channel*

- Part 111: Physical and Signaling Interface (FC-PH)
- Part 112: Physical and Signaling Interface - Two (FC-PH-2)
- Part 122: Arbitrated Loop - 2 (FC-AL-2)
- Part 131: Switch Fabric Requirements (FC-SW)
- Part 141: Generic Fabric Requirements (FC-FG)
- Part 211: Mapping to HIPPI-FP (FC-FP)
- Part 222: Single-Byte Command Code Sets - 2 (FC-SB-2)
- Part 412: Generic Services -2 (FC-GS-2)

Annexes A through C are not integral part of ISO/IEC 14165-131, but are included for information only.

Introduction

This ISO/IEC standard for FC-SW specifies tools and algorithms for interconnection and initialization of Fibre Channel switches to create a multi-switch Fibre Channel Fabric. This Standard defines an E_Port (“Expansion Port”) that operates in a manner similar to an N_Port and F_Port, as defined in ISO/IEC 14165-111, with additional functionality provided for interconnecting switches.

This standard describes the following:

- An overview of the Switched-based Fabric;
- The general behavior for all modes of the Switch Port;
- The services provided for use by the Switch Fabrics;
- Fabric Configuration process.

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Information Technology Fibre Channel

Part 131: Switch Fabric Requirements (FC-SW)

1 Scope

This ISO/IEC standard for FC-SW specifies tools and algorithms for interconnection and initialization of Fibre Channel switches to create a multi-switch Fibre Channel Fabric. This Standard defines an E_Port (“Expansion Port”) that operates in a manner similar to an N_Port and F_Port, as defined in ISO/IEC 14165-111, with additional functionality provided for interconnecting switches.

This Standard also defines how ports that are capable of being an E_Port, F_Port, and/or FL_Port may discover and self-configure for their appropriate operating mode. Once a port establishes that it is connected to another switch and is operating as an E_Port, an address assignment algorithm is executed to allocate port addresses throughout the Fabric.

This Standard does not define credit models and management between E_Ports for the various Classes of Service other than Class F. Broadcast and multicast services are not defined. E_Ports conforming to this Standard support Class F, and also Class 1, Class 2, and/or Class 3; support for other Classes of Service are not defined by this Standard. The method by which routing of frames is established and effected is not described.

2 Normative references

2.1 General Provisions

The following Standards contain provisions which, through reference in the text, constitute provisions of ISO/IEC 14165. At the time of publication, the editions indicated were valid. All Standards are subject to revision, and parties to agreements based on ISO/IEC 14165 are encouraged to investigate the possibility of applying the most recent editions of the Standards listed below. Members of IEC and ISO maintain registers of currently valid international standards.

2.2 Approved references

- [1] ISO/IEC 14165-111, *Information Technology - Fibre Channel Physical and Signaling Interface (FC-PH)*.
- [2] ISO/IEC 14165-112, *Information Technology - Fibre Channel - Physical and Signaling Interface-2 (FC-PH-2)*
- [3] ISO/IEC 14165-122, *Information Technology - Fibre Channel - Arbitrated Loop - 2 (FC-AL-2)*.
- [4] ISO/IEC 14165-412, *Information Technology - Fibre Channel - Generic Services - 2 (FC-GS-2)*.
- [5] ISO/IEC 14165-141, *Information Technology - Fibre Channel - Generic Fabric Requirements (FC-FG)*.

2.3 References under development

At the time of publication, the following referenced Standards were still under development. For information on the current status of the document, or regarding availability, contact the relevant Standards body or other organization as indicated.

- [6] ISO/IEC 14165-113, *Fibre Channel - Physical and Signaling Interface-3 (FC-PH-3)*

- [7] ISO/IEC 14165-241, *Fibre Channel - Backbone (FC-BB)*

2.4 Other references

Profiles provided by the Fibre Channel Association (FCA) are available from the Fibre Channel Association (FCA), 12407 MoPac Expressway North 100-357, P. O. Box 9700, Austin, TX 78758-9700; (800) 272-4618 (phone); or via e-mail, FCA-Info@amcc.com.

- [8] FCSI-101, *FCSI Common FC-PH Feature Sets Used in Multiple Profiles*, Rev 3.1

- [9] *FCA N_Port to F_Port Interoperability Profile*, Rev 1.0