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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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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.

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