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INFORMATION TECHNOLOGY – FIBRE CHANNEL –

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This consolidated version of the official IEC Standard and its amendment has been prepared for user convenience.

ISO/IEC 14165-122 edition 1.1 contains the first edition (2005) and its Amendment 1 (2008).

A vertical line in the margin shows where the base publication has been modified by Amendment 1.

International Standard ISO/IEC 14165-122 was prepared by subcommittee 25: Interconnection of information technology equipment, of ISO/IEC joint technical committee 1: Information technology.

The list of all currently available parts of ISO/IEC 14165 series, under the general title *Information technology – Fibre channel*, can be found on the IEC web site.

This International Standard has been approved by vote of the member bodies, and the voting results may be obtained from the address given on the second title page.

This publication has been drafted in accordance with the ISO/IEC Directives, Part 2.

INTRODUCTION

International Standard ISO/IEC 14165-122 specifies an enhancement to the signaling protocol of the Fibre Channel Physical and Signaling Interface (FC-PH), ISO/IEC 14165-251, to support communication among two or more Ports without using the Fabric topology. The following diagram shows the relationship of this document to other parts of Fibre Channel. FC-PH-n refers to *n* versions of FC-PH. The roadmap is intended to show the general relationship of documents to one another, not a hierarchy, protocol stack or system architecture. It does not show the complete set of Fibre Channel documents.

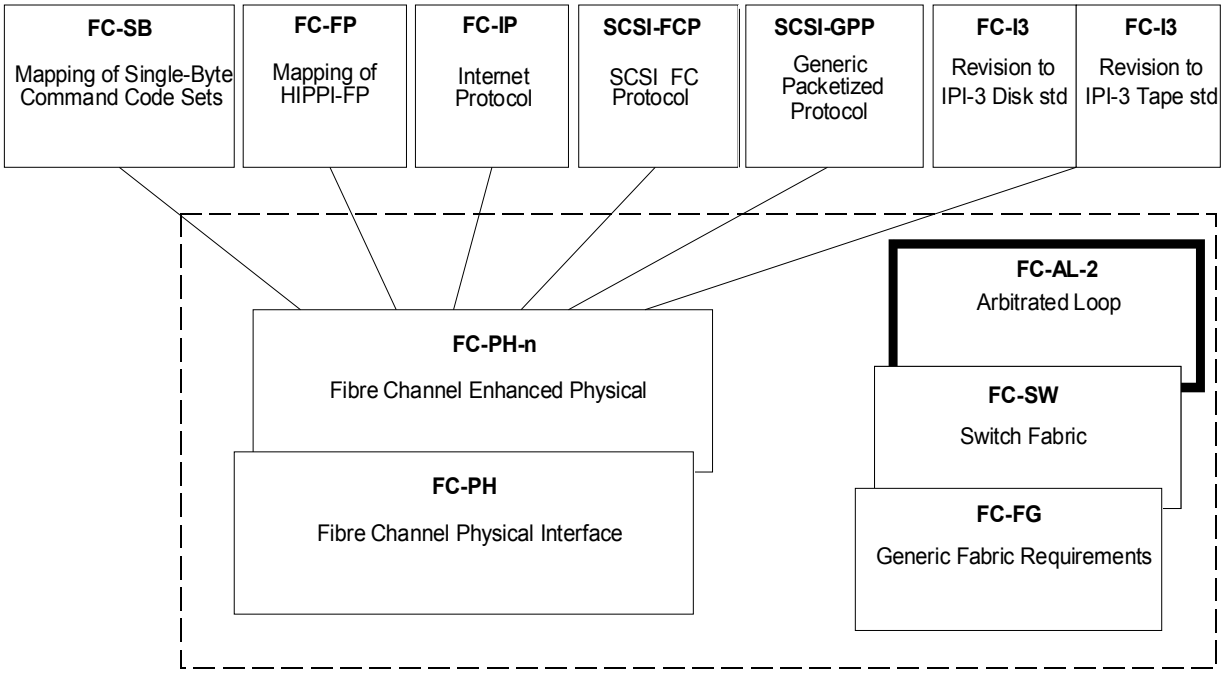

Figure 1 — Fibre channel roadmap

FC-AL features enhanced Ports, called L_Ports, which arbitrate to access an Arbitrated Loop. Once an L_Port wins arbitration, a second L_Port may be opened to complete a single point-to-point circuit (i.e., communication path between two L_Ports). When the two connected L_Ports release control of the Arbitrated Loop, another point-to-point circuit may be established. An L_Port may have the ability to discover its environment and works properly, without outside intervention, with an F_Port, an N_Port or with other L_Ports.

There is no change to the framing protocol of FC-PH-n, however, modification to the Port hardware is required to transmit, receive and interpret the new Arbitrated Loop Primitive Signals and Sequences.

INTRODUCTION to Amendment 1

Since the publication of ISO/IEC 14165-122:2005 (FC-AL) important technical corrections have been developed.

FC-AL-2 defines a method for the operation of a FC arbitrated loop. This amendment revises the base document, FC-AL-2, with respect to some inconsistencies found since approval of the base document.

This amendment contains the following changes:

- the transmission word delay through an L_Port is changed from 6 words to 12 words to accommodate higher fibre channel speeds; for example, 8 Gbit/s and 16 Gbit/s.
- the OPEN state is corrected to assure fairness for an L_Port that is using the TRANSFER state while another L_Port is using ARBf.

INFORMATION TECHNOLOGY – FIBRE CHANNEL –

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1 Scope

This part of ISO/IEC 14165 specifies signaling interface enhancements for FC-PH, to allow L_Ports to operate with an Arbitrated Loop topology. This standard defines L_Ports that retain the functionality of Ports as specified in FC-PH. The Arbitrated Loop topology attaches multiple communicating points in a loop without requiring switches.

The Arbitrated Loop topology is a distributed topology where each L_Port includes the minimum necessary function to establish a Loop circuit. A single FL_Port connected to an Arbitrated Loop allows multiple NL_Ports to attach to a Fabric.

When an L_Port is operating on a Loop with at least one other L_Port, the L_Port uses the protocol extensions to FC-PH that are specified in this standard.

When an L_Port is connected with an N_Port or an F_Port, the L_Port communicates using the protocol defined in FC-PH.

Each L_Port may use a self-discovering procedure to find the correct operating mode without the need for external controls.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO/IEC 14165-131, *Information technology — Fibre Channel — Part 131: Switch Fabric Requirements (FC-SW)*

ISO/IEC 14165-141, *Information technology — Fibre Channel — Part 141: Fabric Generic Requirements (FC-FG)*

ISO/IEC 14165-251, *Information technology — Fibre Channel — Part 251: Framing and Signaling (FC-FS)*[1]

INCITS 230:1994 [R2004], *Fibre Channel — Physical and Signaling Interface (FC-PH) [T11]*

Amendment 1 (1996)

Amendment 2 (1999)

[1] Under consideration.