

INTERNATIONAL STANDARD

**Information technology – Fibre channel –
Part 521: Fabric application interface standard (FAIS)**

ISO/IEC 14165-521:2009
<https://standards.iteh.ai/catalog/standards/sist/d74999ac-7982-4d31-8405-ce730aff44c4/iso-iec-14165-521-2009>



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INFORMATION TECHNOLOGY – FIBRE CHANNEL –

Part 521: Fabric application interface standard (FAIS)

FOREWORD

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The list of all currently available parts of the 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.

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INTRODUCTION

This International Standard defines an application programming interface (API) by which a storage application may perform the functions of one or more SCSI Targets or Initiators, and control high-performance command/data forwarding and manipulation facilities.

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INFORMATION TECHNOLOGY – FIBRE CHANNEL –

Part 521: Fabric application interface standard (FAIS)

1 Scope

This part of ISO/IEC 14165 describes a set of functions and data structures in the C language abstracting the details of the FAIS_Platform from the implementation of a storage management application.

This standard defines an API only in the C language. Functionally equivalent APIs may be implemented in other languages but these are beyond the scope of this part of ISO/IEC 14165. All functions provided to operate with function specifications defined in this standard shall use C-style calling conventions. This constraint does not limit the internal implementation of components of a FAIS_Provider.

Unless specified otherwise in this standard, data structures and elements shall be stored in memory as determined by the local machine, operating system and C compiler.

This standard provides declarations for all data structures that it requires. Although these declarations may, in common practice, be combined into a C header file, this is not required by this standard.

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.

The provisions of the referenced specifications other than ISO/IEC, IEC, ISO and ITU documents, as identified in this clause, are valid within the context of this International Standard. The reference to such a specification within this International Standard does not give it any further status within ISO or IEC. In particular, it does not give the referenced specification the status of an International Standard.

ISO/IEC 9899:1999, *Programming languages – C*

ISO/IEC 10646:2003, *Information technology - Universal Multiple-Octet Coded Character Set (UCS)*

ANSI INCITS 408-2005, *Information technology – Fibre Channel – Framing and Signaling-2 (FC-FS-2)*

ISO/IEC 14776-453, *Information technology – Small computer system interface (SCSI) – Part 453: SCSI Primary Commands-3 (SPC-3)* [ANSI INCITS 408-2005]

ISO/IEC 19501: *Information technology – Open distributed processing – Unified modeling language (UML), Version 1.4.2*

NOTE For more information on UML specifications, contact the Object Modeling Group at <http://www.omg.org>.

INCITS Project 1828-D: *Fibre Channel Protocol for SCSI, Fourth Version (FCP-4)*

RFC 791, *Internet Protocol*

RFC 2279, *UTF-8, a transformation format of ISO 10646*

RFC 2460, *Internet Protocol, Version 6 (IPv6)*

RFC 3720, *Internet Small Computer Systems Interface (iSCSI)*

3 Definitions and conventions

3.1 Overview

For this standard, the following definitions, conventions, abbreviations, acronyms, and symbols apply.

3.2 Terms and definitions

3.2.1

Activate

In the context of a FAIS_SCSI_Port, the process of making an FT or BI accessible to the SCSI transport. A FAIS_SCSI_Port needs to be activated before it is visible to other nodes in the storage network.

3.2.2

application programming interface (API)

interface that provides the means for higher-level software (i.e., applications) to control a specialized subsystem

3.2.3

asynchronous function call

function call that returns when the request is scheduled to be performed. When all of the processing for the request is completed, a subsequent callback indicating the completion status is generated

3.2.4

Back-end

A qualifier for FAIS constructs that issue SCSI commands

3.2.5

BI

back-end Initiator FAIS_SCSI_Port

3.2.6

BIT

back-end I_T nexus

3.2.7

BITL

A back-end I_T_L nexus

3.2.8

BITLSet

group of BITLs

3.2.9

Concatenation

logical joining of two or more contiguous ranges of logical blocks

3.2.10

Control Path Processor (CPP)

computational entity in which the FAIS_Provider processes FAIS_Client invocations of the FAIS_API

3.2.11

Data Path Controller (DPC)

computational entity to which the FAIS_Provider delegates some computations (e.g., SCSI processing)

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3.2.12**Drain**

Wait until there are no offloaded I/Os that are actively being processed by the FAIS_Platform. An I/O is no longer considered to be actively processed when it is either fully completed or its processing has been halted for any reason (e.g., when an offloaded I/O is held by a Quiesce operation or faulted to the FAIS_Client).

3.2.13**FAIS_API**

API defined in this standard

3.2.14**FAIS_Client**

instance of an application that runs on the CPP. The entity that invokes the FAIS_API

3.2.15**FAIS_Platform**

hardware portion of a FAIS-based storage subsystem, that generally consists of two primary components, the Control Path Processor (CPP) and the Data Path Controller (DPC)

3.2.16**FAIS_Portal**

addressable endpoint in the storage network

3.2.17**FAIS_Provider**

instance of the provider of the FAIS_API

3.2.18**FAIS_Region**

abstraction representing a subset of the resources provided by a FAIS_Platform for exposing FAIS_SCSI_Ports

3.2.19**FAIS_SCSI_Port**

SCSI Port used by the FAIS_Provider (e.g., in Fibre Channel an Nx_Port supporting FCP). Either an Initiator (BI) or Target (FT)

3.2.20**Fault**

operation performed by the FAIS_Provider that halts the processing of an offloaded I/O and generates an event notification to the FAIS_Client. The operation occurs when the FAIS_Provider encounters a condition that requires assistance from the FAIS_Client, that may occur during any phase of the I/O. The I/O remains offloaded but its processing does not continue until it is explicitly allowed by the FAIS_Client.

3.2.21**FIT**

Front-end I_T nexus

3.2.22**FITL**

Front-end I_T_L nexus

3.2.23**Forward**

operation performed by the FAIS_Provider that transfers the processing responsibility for an I/O to the FAIS_Client. It is the responsibility of the FAIS_Client to handle all phases of a forwarded I/O.