

**Project Proposal For A New INCITS Standard  
Fibre Channel – Backbone - 5**

**(FC-BB-5)**

T11/07-196v2

**1 Source of the Proposed Project**

**1.1 Title**

Fibre Channel – Backbone - 5 (FC-BB-5).

**1.2 Date**

7 June 2007.

**1.3 Proposer(s)**

INCITS TC T11, with a current membership of 46.

**2 Process Description for Proposed Project**

**2.1 Project Type (Development or Revision)**

Type D (Development done within INCITS TC T11).

**2.2 Type of Document**

Standard.

**2.3 Definition of Concepts and Special Terms**

Backbone: A network, and its associated resources and services, used to connect one or more Fibre Channel entities over non-Fibre Channel protocol infrastructures. These Fibre Channel entities may be connected over varying geographical distances or locally.

**2.4 Expected Relationship with Approved Reference Models, Frameworks, Architectures, etc.**

All Fibre Channel standards are intended for use in closed systems. This technology is applicable to any storage network environment.

**2.5 Recommended INCITS Development Technical Committee (Existing or New)**

It is recommended that this project be assigned to TC T11, in order that the project be coordinated with work on other Fibre Channel and Storage Networking standards.

**2.6 Anticipated Frequency and Duration of Meetings**

This project will make use of the regularly-scheduled bimonthly T11 plenary meetings. Informal Working Groups will be organized on an ad-hoc basis.

## **2.7 Target Date for Initial Public Review (Milestone 4)**

June 2008.

## **2.8 Estimated Useful Life of Standard or Technical Report**

It is anticipated that this standard will have a useful life of over 10 years.

# **3 Business Case for Developing the Proposed Standard or Technical Report**

## **3.1 Description**

This project proposal recommends the development of a set of additional and enhanced mechanisms, services, and protocols to connect Fibre Channel entities over selected non-Fibre Channel protocol infrastructures.

Enhancements to Ethernet protocols, such as the Pause mechanism defined in IEEE 802.3-2005, make possible to define a direct mapping of Fibre Channel over Ethernet (FCoE). This mapping provides several technological benefits over the currently defined Fibre Channel over IP (FCIP) mapping and gives a significant business advantage to Fibre Channel over competing technologies, such as iSCSI, because it provides seamless compatibility with existing storage, drivers, and management tools. The FCoE mapping allows Fibre Channel to be used in Ethernet based I/O consolidated environments and will be especially useful in both the Data Center and Metro Ethernet environments.

Included within the scope of this project are functions such as:

- a) A direct mapping of Fibre Channel over selected full duplex IEEE 802.3 networks; and
- b) Any other item as deemed necessary during the development.

## **3.2 Existing Practice and the Need for a Standard**

The Fibre Channel Backbone standards (i.e., FC-BB, FC-BB-2, FC-BB-3, FC-BB-4) describe how Fibre Channel may be carried over non-Fibre Channel protocol infrastructures, such as the ATM, SONET, TCP/IP, and GFPT protocols.

There is a need to support configurations and protocols not yet addressed by the current Fibre Channel Backbone standards. In particular, there is the opportunity to define a direct mapping of Fibre Channel over Ethernet (FCoE). This mapping will allow Fibre Channel to be used in Ethernet based I/O consolidated environments, providing a significant business advantage to Fibre Channel over competing technologies, such as iSCSI. The new standard may address performance, timers, and management functions associated with these additional configurations and protocols.

### **3.2.1 Development Costs**

This standard will be developed through the voluntary and cooperative efforts of T11 Task Committee members. No significant development costs are anticipated.

### **3.2.2 Impact on Existing or Potential Markets**

The proposed standard will provide an upward growth path that complements and enhances existing supplier products and support schemes. The proposed standard will result in expanded applications for existing and conceived products in both the channel and network markets.

### **3.2.3 Costs and Methods for Conformity Assessment**

The committee will consider the results of testing provided to the committee through the voluntary efforts of the participants in T11. With this method all costs are borne by the organizations of the various participants and have for the most part been mainly an adjunct of their normal development costs.

### **3.2.4 Return on Investment**

The return on investment for this development is expected to be high, due to the commonality of effort directed to a singular method of providing the services covered by the proposed standard.

## **3.3 Legal Considerations**

### **3.3.1 Patent Assertions**

Calls will be made to identify assertions of patent rights in accordance with the relevant INCITS, ANSI and ISO/IEC policies and procedures. T11 is aware of patent assertions that have been made and letters indicating compliance with INCITS policies have been received.

### **3.3.2 Dissemination of the Standard or Technical Report**

Drafts of this document will be disseminated electronically. Dissemination of the final standard will be restricted as the document becomes the property of INCITS, ANSI, or ISO/IEC.

## **4 Related Standards Activities**

### **4.1 Existing Standards and Technical Reports**

ANSI INCITS 424-2007, *Fibre Channel – Framing and Signaling - 2 (FC-FS-2)*

ANSI INCITS 418-2006, *Fibre Channel – Switch Fabric - 4 (FC-SW-4)*

ANSI INCITS 433-2007, *Fibre Channel – Link Services (FC-LS)*

ANSI INCITS 426-2007, *Fibre Channel – Security Protocols (FC-SP)*

IEEE Std 802.3-2005, *Carrier sense multiple access with collision detection (CSMA/CD) access method and physical layer specifications*

IEEE Std 802.1Q-2005, *Virtual Bridged Local Area Networks*

ITU-T G.7041/Y.1303 2005, *Generic Framing Procedure (GFP)*

### **4.2 Standards Under Development**

Project 1822-D, *Fibre Channel – Switch Fabric - 5 (FC-SW-5)*

Project 1796-D, *Fibre Channel – Backbone - 4 (FC-BB-4)*

IEEE 802.1Qau, *Virtual Bridged Local Area Networks – Amendment 7: Congestion Notification*

### **4.3 Recommendations for Close Liaison**

IEEE 802.1Qau, IEEE 802.1Qay, IETF Trill.

### **5 Units of Measurement used in the Standard**

Système Internationale d'Unités (International System of Units).