

10GFC PROJECT PROPOSAL

1. Source of the Proposed Project

1.1 10 Gbps Fibre Channel Physical Layer

1.2 December 26, 1999

1.3 Proposer: Technical Committee T11, **nn** members also NCITS members

2. Process Description for the Proposed Project

2.1 Project Type: D - Development within NCITS T11

2.2 Type of Document: Standard

2.3 Definitions of Concepts and Special Terms

10 Gbps - A data/payload rate corresponding to approximately 10,000,000,000 bits per second. Overhead information such as idles, frame delimiters, etc. are transported at the same rate and do not increase data rate requirements. The specific data rate selected for Fibre Channel could leverage the physical layers being developed by [related](#) industry efforts.

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

All Fibre Channel standards are intended for use in closed systems.

2.5 Recommended NCITS Development Technical Committee: T11

2.6 Anticipated Frequency and Duration of Meetings

Technical Committee T11 meets bimonthly. Specific ad hoc groups are called as may be required for one to three days between the regular meetings but their results are not binding.

2.7 Target Date for Initial Public Review (Milestone 4): August 2001

2.8 Estimated Useful Life of Standard or Technical Report

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

3. Business Case for Developing the Proposed Standard or Technical Report

3.1 Description

10G describes the Fiber Channel physical layer for the transport of data at a rate of approximately 10 Gbps.

3.2 Existing Practice and the Need for a Standard

Fibre Channel equipment supporting a data rate of 800 Mbps is currently widely deployed in the industry. FC-PI specifies extended data rates of 1,600 and 3,200 Mbps.

There is a need to standardize extended data rates beyond the 1,600 and 3,200 Mbps data rates specified in FC-PI. Physical layer standards activities related to Fibre Channel are currently addressing a data rate of approximately 10 Gbps for the LAN and MAN application space. It is deemed prudent to leverage those physical layer specifications as the basis for Fibre Channel data transport at approximately 10 Gbps.

10 Gbps data transport represents the current state-of-the-art for LAN, MAN and WAN components. It is deemed prudent to leverage the same technology for SAN applications.

Candidate objectives for this effort include the following:

- (1) Preserve the Fibre Channel Frame Format including Size;
- (2) Support a Data/Payload rate of approximately 10 Gbps;
- (3) Support Media selected from ISO/IEC 11801;
- (4) Provide a family of Physical Layer specifications which support media and corresponding link distances of:
 - (a) short-haul copper ≥ 15 m;

- (b) installed multi-mode fiber >100 m;
- (c) multi-mode fiber >300 m;
- (d) singlemode fiber >2 km;
- (e) singlemode fiber >10 km;
- (f) singlemode fiber >40 km.

(5) Provide the following interfaces:

- (a) Disk drive physical interface;
- (b) Removable small form factor transceivers;
- (c) New small form factor copper connector.

(6) Additional requirements discovered in the development of this standard.

3.3 Implementation Impacts of the Proposed Standard

3.3.1 Development Costs

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

3.3.2 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. It is likely that isolated adverse effects would occur in any case through non-standard evolution or revolution.

3.3.3 Costs and Methods for Conformity Assessment

The committee will consider the results of 10G testing as may be available to the committee through the voluntary efforts of the various 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.

3.3.4 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.

3.4 Legal Considerations

3.4.1 Patent Assertions

Calls will be made to identify assertions of patent rights in accordance with the relevant NCITS, ANSI and ISO/IEC policies and procedures. T11 is not aware of any patent assertions that may be made.

3.4.2 Dissemination of the Standard or Technical Report

Drafts of this document will be disseminated electronically. The Standard will be disseminated in accordance with [ANSI and](#) NCITS procedures.

4. Related Standards Activities

4.1 Existing Standards

- (1) X3.230-1994, Fibre Channel Physical and Signaling Interface (FC-PH).
- (2) X3.297-1997, Fibre Channel Physical and Signaling Interface - 2 (FC-PH-2).
- (3) NCITS.303-1998, Fibre Channel Physical and Signaling Interface - 3 (FC-PH-3).

4.2 Related Standards Activity

| BSR | Number | Title | Project |
|----------------|--------|---|---------|
| NCITS.XXXXXX | | Methodology of Jitter Specification | 1230-DT |
| NCITS 326:199x | | Fibre Channel 10 km Cost-Reduced Physical variant | 1300-D |
| NCITS.xxxxxx | | Fiber Channel Physical Interface | 1306-D |
| NCITS.xxxxxx | | Fibre Channel Framing and Signaling Interface | 1331-D |
| NCITS.xxxxxx | | Fibre Channel Backbone | 1238-D |
| NCITS.xxxxxx | | Methodology of Jitter Specification 2 | 1316-DT |

4.3 Recommendations for Coordinating Liaison

None.

4.4 Recommendations for Close Liaison

IEEE [P802.3ae](#).