

Subject: Potential High Speed Token Ring PAR for submission at the November 802 Plenary Session
For Your Review.

IEEE 802.5 has NOT taken a formal position on whether to submit a PAR for High Speed Token Ring. However, in case we decide to do so at the November plenary meeting we want you to have the required 30 days advance notice to review this preliminary PAR.

1. Date of Request October 11, 1996
2. Assigned Project # 802.5
3. Does the PAR revise a previously approved PAR? - NO

4. Description of Proposed Project:
Standard
New
Full Use

5. Is this standard intended to form the basis of an international standard?
YES

6. Project Title:
Part 5: Token Ring access method and physical layer specifications
High Speed Token Ring Operation

7. Scope of Proposed Project:
Generate a standard for a MAC and a Physical layer for high speed 802.5 Token Ring LANs. It will support an appropriate subset of cabling specified in IS-11801 (and EIA/TIA 568A) including both copper and fiber attachment.

The standard will consist of specifications for both the station and the concentrator port and their corresponding MAC and physical layers.

Frame format will be identical to that defined for IEEE 802.5

It is expected that a range of higher speeds will be supported with appropriate PHY specifications for each. The data rate for high speed Token Ring will be 100 Mbit/s or above.

8. Purpose of Proposed Project:
The objective of higher speed Token Ring is to provide a cost effective solution to the Token Ring users by specifically developing a High Speed LAN technology that can be incorporated into a Token Ring environment with minimal increase in LAN complexity.

This standard is expected to support emerging applications requiring higher bandwidths than are currently available with 4 and 16 Mbit/s signalling rates.

9. Sponsor:
IEEE Computer Society
LAN MAN Standards Committee

10. Name of Working group that will be writing the document:
IEEE P802.5

11. Target Completion date for submittal to IEEE Standards Review Committee:
June 1998.

12. Proposed Coordination:	Recommended Method of Coordination
SCC 10 (IEEE Dictionary)	Circulation of Drafts
SCC14 (Quantities, Units, and Letter Symbols)	Circulation of Drafts

13. Are you aware of any patent, copyright, or trademark issues?
YES, existing patents that are used in present Token Ring may apply. We are not aware of any patents that would apply only to high speed Token Ring, and not to the present and the DTR Token Ring specifications.

Are you aware of any other national or international standards or projects with a similar scope?
No

14. Copyright Agreement for IEEE Standards

I hereby acknowledge my appointment as Official Reporter to the IEEE P802.5 committee to write/revise a Standards Publication "Part 5: Token Ring access method and physical layer specifications High Speed Token Ring Operation"

Name: Robert D. Love	IEEE Member # 1609353
Chair, P802.5 Working Group	Phone: 919 543-2746
IBM	
PO Box 12195 CE6A/664	Fax: 919 254-5483
Research Triangle Park, NC 27709	E Mail: rdlove@vnet.ibm.com

Submitted by:
Jim Carlo Chair IEEE Project 802, LMSC
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THE 5 CRITERIA

- Show that the proposed solution satisfies the "5 Criteria"
- IEEE 802: 5 Criteria
 - o Broad Market Potential
 - o Compatibility
 - o Distinct Identity
 - o Technical Feasibility
 - o Economic Feasibility

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1. BROAD MARKET POTENTIAL

A standards project authorized by IEEE Project 802 shall have a broad market potential. Specifically, it shall have the potential for:

- Broad sets of applicability
Users have identified a wide range of applications for higher bandwidth networks which include but are not limited to:

- o High-speed transfer of traditional data
- o Client/Server Computing
- o Database
- o Imaging
- o Computer Aided Design and Modeling

There are also emerging applications which will benefit from higher throughput with bounded latency including:

- o Video and teleconferencing
- o Interactive video training
- o Real time control

- Multiple vendors, numerous users
 - o ____ participants representing at least ____ companies indicate that they plan to participate in High Speed Token Ring standardization
 - o High Speed Token Ring's frame format compatibility with existing 802.5 Token Ring applications will assure a large number of users of this technology

NOTE: The blanks will be supplied at the November meeting if the PAR is submitted then.

- Balanced costs (LAN versus attached stations)

Since High Speed Token Ring will use much of the same MAC design used in Token Ring and readily available high speed PHY hardware, the costs should be in line with these proven accepted technologies

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2. COMPATIBILITY

IEEE Project 802 defines a family of standards. All standards shall be in conformance with 802.1 Architecture, Management and Interworking

All LLC and MAC standards shall be compatible with ISO/IEC 10039, MAC Service Definition at the LLC/MAC boundary. Within the LLC Working Group there shall be one LLC standard, including one or more LLC protocols, with a common LLC/MAC interface. Within a MAC Working Group there shall be one MAC standard and one or more Physical Layer standards with a common MAC/ Physical Layer interface.

Each standard in the IEEE Project 802 family of standards shall include a definition of managed objects which are compatible with OSI systems management standards.

High Speed Token Ring will use the 802.5 frame format and therefore will be compatible with the LLC/MAC boundary, and 802.1 Interworking. Its scope includes managed objects consistent with 802.1 Management.

There will be a single MAC supporting possible multiple physical layers. The standard will have a single medium independent physical sublayer to adapt to various media. The High Speed Token Ring proposal is conformant to 802 Functional Requirements.

It is compatible with 802.1 architecture.

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3. DISTINCT IDENTITY

Each IEEE Project 802 standard shall have a distinct identity.

To achieve this, each authorized project shall be:

- Substantially different from other 802 projects

High Speed Token Ring is distinct both from present Token Ring solutions, and from other LAN solutions including FDDI, 802.12, and 802.3, because none of the present LAN solutions provide for high speed (>16 Mbit/s) in addition to providing:

- o 8 priority levels allowing for priority differentiation in bridging and routing across the LAN for the various classes of asynchronous, synchronous, and multi-media traffic.
- o Variable frame sizes exceeding 4K
- o compatibility with present applications designed for 802.5 token ring.

One unique solution per problem

High Speed Token Ring is unique since it provides the full capabilities of Token Ring frame formatting.

- Easy for document reader to select the relevant specification

A separate Annex will be prepared to guide the reader selecting the High Speed Token Ring option

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4. TECHNICAL FEASIBILITY

For a project to be authorized, it shall be able to show its technical feasibility. At a minimum, the proposed project shall show:

- Demonstrated system feasibility
 - o Token Ring MAC chips are available today and have a proven track record. DTR function is also available.
 - o 100 and 155 PHYs are also available to provide transport of high speed Token Ring frames

- Proven technology, reasonable testing
 - The MAC technology is the same as for Token Ring stations
 - The PHY hardware will be comparable to that used to deliver ATM or Ethernet
 - It is not anticipated that major implementation breakthrough will be required to implement this standard

- Confidence in reliability

There are two aspects of reliability to address: hardware and architectural

- The hardware reliability of existing token-ring adapters provides adequate confirmation that the High Speed Token Ring interface hardware will be reliable
- High Speed Token Ring hardware will be based on technology that has evolved in Local Area Networks.

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ECONOMIC FEASIBILITY

For a project to be authorized, it shall be able to show economic feasibility (so far as can reasonably be estimated), for its intended applications. At a minimum, the proposed project shall show:

- Known cost factors, reliable data
 - Expect costs to be comparable with present Token Ring hardware. Extensive experience with 155Mbit/s ATM, 100BaseT, 100VG Anylan provides the basis for the cost estimates.
 - High Speed Token Ring Adapters will deliver significantly increased bandwidth at comparable cost
 - Reasonable cost for performance
 - High Speed Token Ring will offer considerably better cost/performance than existing 4/16 Token Ring
 - Consideration of installation costs
 - Since High Speed Token Ring uses the Token Ring wiring plant there are no additional installation costs

In general, migration changes will be limited to the concentrator equipment and those workstations requiring High Speed Token Ring