INTERNATIONAL STANDARD

ISO/IEC 11518-10

First edition
2001-03

Information technology – High-performance parallel interface

Part 10: 6 400 Mbit/s Physical Layer (HIPPI-6400-PH)

PRICE CODE V

For price, see current catalogue

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INFORMATION TECHNOLOGY – HIGH-PERFORMANCE PARALLEL INTERFACE –

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FOREWORD

1) ISO (International Organization for Standardization) and IEC (International Electrotechnical Commission) form the specialized system for worldwide standardization. National bodies that are members of ISO or IEC participate in the development of International Standards through technical committees established by the respective organization to deal with particular fields of technical activity. ISO and IEC technical committees collaborate in fields of mutual interest. Other international organizations, governmental and non-governmental, in liaison with ISO and IEC, also take part in the work.

2) In the field of information technology, ISO and IEC have established a joint technical committee, ISO/IEC JTC1. Draft International Standards adopted by the joint technical committee are circulated to national bodies for voting. Publication as an International Standard requires approval by at least 75 % of the national bodies casting a vote.

3) Attention is drawn to the possibility that some of the elements of this International Standard may be the subject of patent rights. ISO and IEC shall not be held responsible for identifying any or all such patent rights.

International Standard ISO/IEC 11518-10 was prepared by subcommittee 25: Interconnection of information technology equipment, of ISO/IEC joint technical committee 1: Information technology.

This publication has been drafted in accordance with the ISO/IEC Directives, Part 3.

ISO/IEC 11518 consists of the following parts, under the general title *Information technology – High-Performance Parallel Interface:*

– *Part 1: Mechanical, electrical, and signalling protocol specification (HIPPI-PH)*
– *Part 2: Framing Protocol (HIPPI-FP)*
– *Part 3: Encapsulation of ISO/IEC 8802-2 (IEEE Std 802.2) Logical Link Control Protocol Data Units (HIPPI-LE)*
– *Part 4: Mapping of HIPPI to IPI device generic command sets (HIPPI-IPI)* [1)]
– *Part 5: Memory Interface (HIPPI-MI)* [1)]
– *Part 6: Physical Switch Control (HIPPI-SC)*
– *Part 8: Mapping to Asynchronous Transfer Mode (HIPPI-ATM)*
– *Part 9: Serial Specification (HIPPI-Serial)*
– *Part 10: 6 400 Mbit/s Physical Layer (HIPPI-6400-PH)*
– *Part 11: 6 400 Mbit/s Physical Switch Control (HIPPI-6400-SC)* [1)]
– *Part 12: 6 400 Mbit/s Optical Specification (HIPPI-6400-OPT)* [1)]

Annex A is for information only.

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[1)] Under consideration.

INTRODUCTION

Characteristics of a HIPPI-6400-PH physical-layer interface include:

– user data transfer bandwidth of 6 400 Mbit/s (800 MByte/s);

– a full-duplex link capable of independent full-bandwidth transfers in both directions simultaneously;

– four virtual circuits providing a limited multiplexing capability;

– a fixed-size transfer unit, i.e., a 32-byte micropacket, for hardware efficiency;

– a small transfer unit resulting in low latency for short Messages, and a component for large transfers;

– credit-based flow control that prevents buffer overflow;

– end-to-end, as well as link-to-link, checksums;

– automatic retransmission to correct flawed data providing guaranteed, in-order, reliable, data delivery;

– an a.c. coupled parallel electrical interface for driving parallel copper cable over limited distances;

– a parallel electrical interface for driving a local optical interface for longer distances.

INFORMATION TECHNOLOGY – HIGH-PERFORMANCE PARALLEL INTERFACE –

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1 Scope

This part of ISO/IEC 11518 specifies a physical-level, point-to-point, full-duplex, link interface for reliable, flow-controlled transmission of user data at 6 400 Mbit/s per direction, across distances of up to 1 km. A parallel copper cable interface for distances of up to 40 m is specified. Connections to a separate longer-distance optical interface are provided. Small fixed-size micropackets provide an efficient, low-latency structure for small transfers, and a component for large transfers.

Specifications are included for:

– automatic retransmission to correct flawed data;
– the format of a small data transfer unit called a micropacket;
– a message structure that includes routing information for network applications;
– end-to-end, as well as link-to-link, checksums;
– the timing requirements of the parallel signals;
– a parallel interface using copper coaxial cable;
– connections to a separate local optical interface;
– a link-level protocol tuned for a maximum distance of 1 km.

2 Normative references

The following normative documents contain provisions which, through reference in this text, constitute provisions of this part of ISO/IEC 11518. For dated references, subsequent amendments to, or revisions of, any of these publications do not apply. However, parties to agreements based on this part of ISO/IEC 11518 are encouraged to investigate the possibility of applying the most recent edition of the normative documents indicated below. For undated references, the latest edition of the normative document referred to applies. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO/IEC TR 8802 (all parts), *Information technology – Telecommunications and information exchange between systems – Local and metropolitan area networks – Specific requirements*

ISO/IEC TR 8802-1:1997, *Information technology – Telecommunications and information exchange between systems – Local and metropolitan area networks – Specific requirements – Part 1: Overview of Local Area Network Standards*

ISO/IEC 8802-2:1998, *Information technology – Telecommunications and information exchange between systems – Local and metropolitan area networks – Specific requirements – Part 2: Logical link control*

ISO/IEC 15802-3:1998, *Information technology – Telecommunications and information exchange between systems – Local and metropolitan area networks – Common specifications – Part 3: Media Access Control (MAC) Bridges*