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Information technology – Microprocessor systems – VICbus – Inter-crate cable bus

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Foreword

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

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.

International Standard ISO/IEC 11458 was prepared by Joint technical committee ISO/IEC JTC 1, *Information technology*, SC 26: *Microprocessor Systems*.

Annex A forms an integral part of ISO/IEC 11458. Annexes B to F are for information only.

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Information technology - Microprocessor systems - VICbus - Inter-crate cable bus

1 Scope

The widespread use of high-performance, multi-processor systems based on backplane buses such as the IEC 821 bus (VMEbus), has inevitably led to the requirement to create multi-crate (-subrack, -chassis, etc.) systems. The VICbus inter-crate cable bus is designed to achieve such assemblies in a standard way.

VICbus, a multiplexed, multi-master, multi-slave cable bus, connects multiple backplane buses or stand-alone devices, providing transparent, softwareless interconnection for low latency short data transactions and fast transmission of data blocks over cables of up to 100 m in length. Address and data signals, each of 32 bits, together with those necessary for the control of the bus protocols, signal multiplexing, reset and error reporting are transmitted on twisted-wire pairs using differential line drivers and receivers. Up to 31 devices are permitted on a single VICbus cable.

VICbus data transfer protocols include both a compelled mode with end-to-end acknowledgement as well as two, high speed, non-compelled modes for high rate data transfers. The compelled protocols allow both broadcast (master write) and broadcall (master read) data transfers. One of the non-compelled protocols allows broadcast transfers, whereas neither permit broadcall operation.

Inter-master arbitration uses an efficient, modified single-level, daisy-chained mechanism. The interrupt mechanism allows 32 interrupt requests, multiplexed on eight physical lines. The specification includes system failure reporting, reset and live connection and disconnection, as well as the specification of control and status registers. Particular attention has been paid to redundancy of operation.

Whilst VICbus has been derived with multi-crate backplane bus systems in mind, this specification does not preclude the design of stand-alone VICbus devices. A normative annex giving rules and recommendations for a VMEbus to VICbus interface has been included, and further, similar annexes for other backplane bus standards will be added as the need arises.