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American National Standard for VME64 Extensions

Secretariat
VMEbus International Trade Association

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Abstract
This standard is an extension of the ANSI/VITA 1-1994, VME64 Standard. It defines a set of features that can be added to VME and VME64 boards, backplanes and subracks. These features include a 160 pin connector, a P0 connector, geographical addressing, voltages pins for 3.3V, a test and maintenance bus, and EMI, ESD, and front panel keying per IEEE 1101.10.

American National Standard

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Foreword

This Foreword is not part of ANSI/VITA 1.1-1997

VME became the industrial bus of choice in the 80's with hundreds of manufacturers supplying more than a thousand different boards to the world-wide market place. Thousands of customers utilized VME for a broad number of applications.

In the late 80's, the VME's draft standard was expanded for 64 bit data and address capability, which also doubled the throughput. Locks, Configuration ROM / Control & Status Registers (CR/CSR), rescinding DTACK*, auto system control detection, auto slot ID, plus optional shielded DIN connectors were also added. These additional features effectively transformed VME from an 80's bus to a 90's bus, which allows VME to be used in even more demanding applications for the early 90's. This standard is commonly referred to as VME64.

In the summer of 1993 the VITA Standards Organization (VSO) agreed to publish the VME64 Standard. It was also agreed to use additional standards to add features as they are agreed upon by the VSO membership. This standard is a collection of additional features as agreed upon during 1994, 1995 and the first half of 1996. There will most likely be follow on standards with even more features.

Features added to VME64 in this standard encompass twenty major areas:

1) "z" and "d" pin rows to the P1/J1 and P2/J2 connectors for 160 pins in each connector.
2) An optional 2 mm hard metric 95 signal pin plus 19 or 38 ground pins P0/J0 connector for more user defined I/O through the backplane.
3) Supply voltages of +3.3 and auxiliary volts, plus more +5V power
4) 35 more signal ground returns between VME64x boards and VME64x backplanes for a total of 47 signal ground returns.
5) 46 more user defined I/O pins on the P2/J2 connector pair.
6) 14 bused spare pins and associated bused lines in the backplane, plus 2 unbused spare pins on the P1/J1 connector for future definition.
7) Pins allocated for a test and maintenance bus.
8) Slot geographical addressing.
9) Mechanical support for electromagnetic compatibility (EMC) control.
10) Mechanical support for electrostatic discharge (ESD) control.
11) Solder side covers with ESD protection.
12) An injection/extraction handle with a locking feature.
13) User installed board to slot keying
14) Alignment pin which supports solid keying, improved connector alignment, front panel ESD protection and EMC gasket alignment.
15) Front Panel Safety Ground.
16) Reserved area on the front panel for attachment of ID and/or bar code labels.
17) Rear I/O transition boards.
18) Added CR/CSR definition.
19) Supporting specifications for hot swap.
20) 2eVME: fast 2 edge protocol.

Some of these features are independent of one another. Others are tied close together, such as the usage of +3.3 V which requires the new 160 pin connector for the P1 connector on VME64x boards and the usage of the VME64x backplane. If the 160 pin connector is

used on a VME64x board, the usage of 3.3 volt power, 48 volt power, hot swap control, serial bus, etc. are independent of one another.

Wayne Fischer, Force Computers, was chair of the VSO (VITA Standards Organization) task group that developed the draft for this standard. The following people participated in the ANSI canvass ballot.

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