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American National Standard
for VME64 Extensions

Secretariat

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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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TABLE OF CONTENTS

Foreword	v
Chapter 1	1
Introduction to the VME64 Extensions standard	1
1.1 VME64 Extensions Objectives	1
1.1.1 9U Boards, Backplanes and Subracks	2
1.2 Terminology	2
1.3 References	2
1.3.1 Connector Notes	2
1.4 Standard Terminology	3
Chapter 2	5
VME64x Compliance	5
2.1 Introduction	5
2.2 Requirements	5
2.2.1 6U VME64x Board's Minimum Features	5
2.2.2 3U VME64x Board's Minimum Features	5
2.2.3 6U VME64x Backplane's Minimum Features	5
2.2.4 3U VME64x Backplane's Minimum Features	6
Chapter 3	7
P1/J1 & P2/J2 160 Pin Connectors	7
3.1 Introduction	7
3.2 Requirements	7
3.2.1 160 Pin Connector Placement	7
3.2.2 P1/J1 & P2/J2 Connectors, Rows z & d Pin Assignments	7
3.2.3 Geographical Address Pin Assignments	9
3.2.4 +3.3V Power	10
3.2.5 V1/V2 Auxiliary Power	11
3.2.6 VPC Power and Additional +5V Power	11
3.2.7 Reset and ACFail	12
3.2.8 Board Power Dissipation	12
3.2.9 Backplane Termination Network using +3.3V Supply	12
3.2.10 Monolithic Backplanes	13
3.2.11 Geographical Address Implementation	13
3.2.12 Connector Pin Tail Lengths	14
3.2.13 Labels on 96-pin Plug Connectors	14
3.2.14 Backplane Connectors with Keying Devices	14
Chapter 4	17
P0/J0 Connector Area and VME64x Backplane Dimensions	17
4.1 Introduction	17
4.2 Requirements	17
4.2.1 Connector Selection	17
4.2.2 Custom Connectors	18
4.2.3 P0/J0 Pin Definitions	18
4.2.4 P0/J0 Connector Mounting	19
4.2.5 Pin Current Ratings	19
4.2.6 Backplane P0/J0 Keying	20
4.2.7 VME64x Backplane End Dimensions	21
Chapter 5	23
EMC Front Panels and Subracks	23

Table of Contents

5.1	Introduction	23
5.2	Requirements	23
5.2.1	EMC Front Panels and Subracks	23
5.2.2	Solder Side Covers	23
5.2.3	Front Panel Label Areas	23
Chapter 6	.....	25
Injector/Extractor Handles	.....	25
6.1	Introduction	25
6.2	Requirements	25
6.2.1	Handles	25
6.2.2	Subracks	25
Chapter 7	.....	27
Keying and Alignment Pin	.....	27
7.1	Introduction	27
7.2	Requirements	27
7.2.1	Subrack Keying	27
7.2.2	Board Keying	27
7.2.3	Keying Number Identification	28
7.2.4	User Defined and User Installed	28
7.2.5	Multifunctional Alignment Pin	28
Chapter 8	.....	31
ESD and Front Panel Safety Ground Protection	.....	31
8.1	Introduction	31
8.2	Requirements	31
8.2.1	ESD Strips on VME64 Boards	31
8.2.2	ESD Clips in Card Guides and Subracks	31
8.2.3	Solder Side Covers with ESD Protection	32
8.2.4	Front Panel Design for ESD Protection	32
8.2.5	Front Panel Safety Ground Protection	32
Chapter 9	.....	33
Rear I/O Transition Boards	.....	33
9.1	Introduction	33
9.2	Requirements	33
9.2.1	Mechanical Dimensions	33
9.2.2	Mechanical Components	33
9.2.3	Board Layout Orientation	34
9.2.4	Slot Keying Codes	34
9.2.5	Connector Pin Labeling	34
9.2.6	Increase in Backplane Height	35
9.2.7	Power to Rear I/O Transition Board	36
Chapter 10	.....	37
Additions to CR/CSR Definition	.....	37
10.1	Introduction	37
10.2	Requirements	39
10.2.1	The Defined CR Area	39
10.2.1.1	CR/CSR Space Specification ID	39
10.2.1.2	Module Characteristics Parameters	39
10.2.1.3	Interrupt Capabilities	40
10.2.1.4	Address Space Relocation	41
10.2.1.4.1	Data Access Width ParameteRs (DAWPR) Definition	41
10.2.1.4.2	AM Capabilities Parameters (AMCAPs)	42

Table of Contents

10.2.1.4.3 XAM Capabilities Parameters (XAMCAPs)	42
10.2.1.4.4 Address Decoder Masks (ADEMs)	43
10.2.1.5 Master Addressing Capabilities	44
10.2.2 The Defined CSR Area	45
10.2.2.1 Additions to the Bit Set and Bit Clear Registers	45
10.2.2.2 Address Decoder compaRe (ADER) Registers	47
10.2.3 The User CR Area	48
10.2.4 The Configuration RAM (CRAM) Area	49
10.2.5 The User CSR Area	50
10.2.6 Board Serial Number	51
 Chapter 11	 57
2eVME Protocol	57
11.1 Introduction	57
11.1.1 2 Edge Handshakes	57
11.1.2 Address Phases	57
11.1.3 Remapping the LWORD* Line	57
11.1.4 Extended AM Codes	57
11.1.5 Address Modes	58
11.1.6 Known Length 2eVME Transfers	58
11.1.7 Slave Terminated 2eVME Transfers	58
11.1.8 Slave Suspended 2eVME Transfers	59
11.1.9 Slave Error States	59
11.1.10 Master Terminated 2eVME Transfers	59
11.1.11 2eBTO Bus Time Out Timer	59
11.2 Requirements	59
11.2.1 Transceivers and Connectors	59
11.2.2 Extended AM Codes	60
11.2.3 Data Size	60
11.2.4 Protocols - General	60
11.2.5 Address Phase Protocol and Timing	61
11.2.6 Data Phase Protocol and Timing	62
11.2.7 2eBTO(x) Bus Time Out Timer	63
 Appendix A	 79
Glossary of Additional VME64x Terms	79
 Appendix B	 83
Additional VME64x Signal/Pin Descriptions	83
 Appendix C	 85
VME64 and VME64x Function Mnemonics	85
 Appendix D	 89
IEEE 1101.2-1992 Background	89
 Appendix E	 91
IEEE 1101.x Mechanical Feature References	91

List of Figures

Figure 3-1 Backplane Termination Network using +3.3V Power	15
Figure 4-1 P0 Connector Layout Position on VME64x Boards	20
Figure 4-2 J0 Connector Layout Position on VME64x Backplanes	21
Figure 4-3 VME64x Backplane Left and Right End Dimensions	22

Table of Contents

Figure 5-1	Front Panel Label Areas	24
Figure 5-2	Injector/Extractor Handle Label Area	24
Figure 7-1	Keying Hole Positions and Associated Keying Codes	29
Figure 9-1	Front and Rear Board Orientation & Connector Pin Labeling	35
Figure 10-1	Structure of CR/CSR Space	38
Figure 11-1	2eVME Address Broadcast	66
Figure 11-2	2eVME Address Broadcast - Slave Suspend Response	67
Figure 11-3	2eVME Address Broadcast - Slave Stop/Error Response	68
Figure 11-4	2eVME Address Broadcast - Slave Suspend/Stop/Error Response	69
Figure 11-5	2eVME Read Data Transfers - Master Termination	70
Figure 11-6	2eVME Read Data Transfers - Slave Suspend	71
Figure 11-7	2eVME Read Data Transfers - Slave Stop/Error on Odd Beat	72
Figure 11-8	2eVME Read Data Transfers - Slave Stop/Error on Even Beat	73
Figure 11-9	2eVME Write Data Transfers - Master Termination	74
Figure 11-10	2eVME Write Data Transfers - Slave Suspend	75
Figure 11-11	2eVME Write Data Transfers - Slave Stop/Error on Odd Beat	76
Figure 11-12	2eVME Write Data Transfers - Slave Stop/Error on Even Beat	77

List of Tables

Table 3-1	P1/J1 & P2/J2 Rows z & d Pin Assignments	8
Table 3-2	Geographical Address Pin Assignments	10
Table 4-1	P0/J0/RJ0/RP0 Connector Contact Labeling	19
Table 10-1	Slave Characteristics Parameter	40
Table 10-2	Master Characteristics Parameter	40
Table 10-3	Data Access Width Parameter (DAWPR) Definitions	42
Table 10-4	Address Decoder Mask (ADEM) Definitions	43
Table 10-5	Address Relocation CR Examples	44
Table 10-6	Bit Set Register Assignment	45
Table 10-7	Bit Clear Register Assignment	46
Table 10-8	Address Decoder compaRe (ADER) Register Definition	47
Table 10-9	Address Relocation CR/CSR Examples	48
Table 10-10	CRAM_ACCESS_WIDTH Definition	49
Table 10-11	Serial Number Example	51
Table 10-12	Defined Configuration ROM Assignments	53
Table 10-13	Defined Control/Status Register (CSR) Assignments	55
Table 11-1	Extended Address Modifier Line Definition	57
Table 11-2	6U 2eVME Extended Address Modifier Codes	58
Table 11-3	3U 2eVME Extended Address Modifier Codes	58
Table 11-4	6U VME64x Signal Field Definition	63
Table 11-5	3U VME64x Signal Field Definition	64
Table 11-6	2eVME Specific Timing Parameters	64
Table 11-7	VME64 Timing Parameters	65

Foreword

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

Foreword

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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