

VITA Standards Organization (VSO) Update

The VITA Standards Organization (VSO) met on January 14, 1997, at the Real Time Computer Conference in Santa Clara, California. VITA received accreditation from ANSI as a Canvass Ballot Standard Development Organization (SDO) in June of 1993 and its members are involved in a variety of standards developments. Current activities include: VME64 extensions (VME64x), High Availability VME (H.A.VME), Live Insertion, Autobahn, SCSA Extensions, Pin Assignment for IP Modules, SKYchannel, Heterogeneous InterConnect (HIC), M-Modules, Front Panel Data Port (FPDP), CCPMC, BusNet, VISION, and VMEbus on SEM-E. Standards activities take place in study groups and task groups within the VSO. In addition, the VSO sponsors ESSE — the Embedded Systems Software Environment, an initiative to develop standards for the embedded systems market. If you are working on a technology that fits within the scope of the VSO and feel that the standardization of that technology would be of benefit, please contact John Rynearson, Technical Director for more information about the VITA Standards Organization.

The next two VSO meetings are scheduled for March 1997 in Orlando, Florida and May 1997 in Phoenix, Arizona. Surf VITA's web site at <http://www.vita.com/vso/std.html> for agenda and registration information.

RECOGNIZED STANDARDS

ANSI/VITA 1-1994, VME64— The VME64 Specification brings a number of new features to the VMEbus, such as 64-bit data transfers for 6U modules, 32-bit data transfers for 3U modules, rescinding DTACK, lock commands, RETRY signal, auto slot identification, auto system controller enable, and configuration ROM (CR) and control/status registers (CSR).

This specification was officially recognized as an American National Standard on April 10, 1995 and is available from the VITA office.

ANSI/VITA 3-1994, Board-Level Live

Insertion for VMEbus— The Board-Level Live Insertion (BLLI) specification is a recommended practices document for live insertion of VMEbus modules. This document identifies a standardized methodology by which a faulty board can be removed from a system and a replacement board can be inserted while the system continues to operate. The intent of this standard is to provide a methodology that will work with currently existing boards. This specification was officially recognized as an American National Standard on January 12, 1996 and is available from the VITA office.

ANSI/VITA 4-1995, IP Modules— Mezzanine modules add functionality to base level circuit boards. On VME, IP Modules can be used to create a custom VMEbus board by selecting the functions needed for a specific application. IP Modules are approximately the size of a business card. Four modules can be placed on a single VMEbus module. This specification was officially recognized as an American National Standard on July 16, 1996 and is available from the VITA office.

ANSI/VITA 5-1994, RACEway Interlink— RACEway Interlink is a standard for a parallel-bused cross-bar switched interconnect on the P2 connector of the VMEbus. Data rates for a single RACEway interconnect are 160 Mbytes/sec peak and 150 Mbytes/sec sustained. This specification was officially recognized as an American National Standard on July 31, 1995 and is available from the VITA office.

ANSI/VITA 6-1994, Signal Computing System Architecture (SCSA)— SCSA stands for Signal Computing System Architecture and is used for processing digitized voice, video, and digital data in telephony applications. This specification was officially recognized as an American National Standard on July 24, 1995 and is available from the VITA office.

ANSI/VITA 13-1995, VMEbus Pin Assignment Standard for IEC 14475

(IEEE Std 1355-1995) Heterogeneous Interconnect (H.I.C.) on VME— HIC (Heterogeneous InterConnect) is a serial bi-directional, high-speed data transfer interface between processor boards, subsystems, or multiple computer chassis. The VITA 13 pin-assignment specification was developed under the VSO (VITA Standards Organization), the standards committee of VITA (the VMEbus International Trade Association), an accredited ANSI standards developer. This specification was officially recognized as an American National Standard on July 16, 1996 and is available from the VITA office.

DRAFT STANDARDS IN THE ANSI CANVASS PROCESS

VITA 4.1-1996, IP I/O Mapping to VME64x, Draft 0.7a, September 26, 1996.— This draft standard creates a standard I/O pin assignment map between IP Modules (ANSI/VITA 4-1996) and backplane I/O pins as specified in draft standard VITA 1.1-199x, VME64x. A task group ballot was completed in September 1996 and VITA 4.1 was moved to ANSI canvass ballot. Contact the VITA office if you are interested in participating in the ballot process. A copy of this draft standard is available from the VITA office.

VITA 6.1-1996, SCSA Extensions, Draft 4., March 19, 1996— The purpose of this draft standard is to define the J2/P2 pin assignment and operating modes of additional SCbus bearer channel (time slot) capacity and to define a redundant set of SCbus controls. This document provides several nested levels of capacity with increasing redundancy features, each of which is oriented towards specific segments of the computer telephony market. A task group ballot was completed in early September 1996 and VITA 6.1 was moved to ANSI canvass ballot. Contact the VITA office if you are interested in participating in the ballot process. A copy of this draft standard is available from the VITA office.

VITA 10-199x, SKYchannel Packet Bus, Electrical and Physical Layers, Draft 2.3, 31 May 1995— SKYchannel is a high performance 320 Mbyte/sec packet-switched architecture being proposed as a P2 subsystem bus. The SKYchannel specification is available from the VITA office. Richard Jaenicke, SKY, is the task group chair. SKYchannel completed a successful task group ballot earlier in 1995 and was moved to the Canvass Ballot process. The initial ballot closed in November 1995. The negative ballot review committee completed its review and a recirculation ballot will begin shortly.

VITA 12-199x, M-Modules, Draft 0.3, April 2, 1996— M-Modules is a mezzanine bus specification that was started by MEN Mikro Elektronik GmbH in the late 1980s. The development of M-Modules as a standard is supported by the members of the European MUMM Association which promotes the use of M-Modules worldwide. At the March 1996 VSO meeting VITA 12-199x was moved to ANSI Canvass ballot. Individuals that are interested in being part of the canvass ballot should contact the VITA office. Draft copies of the M-Modules specification are available from the VITA office.

VSO TASK GROUP ACTIVITIES

Standards within the VSO are developed in task groups. The formation of a task group requires at least three companies that are VITA members and the proposed work must fit within the defined scope of VITA's accreditation with ANSI. Non-VITA members may serve on task groups with the approval of the chair and the task group. Currently there are task groups working on a variety of open technology standards.

VITA 1.1-199x, VME64x, Draft 1.6, February 7, 1997— During the development of the VME64 specification a number of proposals were discussed. In order to complete the VME64 specification in a timely manner, certain proposals were put into the category of VME64 extensions to allow more time for investigation and discussion. This investigation and discussion is currently underway and a number of exciting proposals are being addressed that will pave the way for

VME64's use well into the 21st century. Wayne Fischer, Force Computers is chair of the VME64 extensions task group. The draft standard addresses the following areas: Geographical Addressing, Enhanced Transceiver Logic (ETL), EMC Front Panels and Subracks, Injector/Extractor Handles, and ESD Protection. In addition task group members are working on an enhanced data transfer protocol called 2eVME for 2 Edge VMEbus Protocol. This protocol would clock data on both edges of a data strobe signal thus providing a significant increase in data transfer speed. Another task group ballot was held in February 1997. VME64x is expected to move to ANSI canvass ballot in March 1997. Copies of the latest draft of VME64x are available from the VITA office.

VITA 1.x-199x, High Availability VME (H. A. VME), Draft 0.2, Nov. 9, 1995.— This work is a result of the work started as VMEbus System-Level Live Insertion. At the Orlando VSO meeting in March 1995 a special meeting was held to discuss High Availability VMEbus (H.A. VME) requirements. The purpose of this group is to develop a standard based on VME64 and VME64 Extensions that provides Scalable Fault Management and Dynamic Configuration in Live Systems. Issues to be addressed include: fault detection, fault isolation, fault repair, and live insertion. It was realized that not all applications require all the features and that scalability is an important issue. During the November 1996 VSO meeting, Lou Francz, Dialogic, proposed that a separate standard addressing live insertion be developed using much of the work already done for H.A.VME. He argued that this standard could be completed in a short period of time and would address current market needs. The membership agreed and Lou is currently forming a task group to develop this standard. Contact the VITA office if you want more information on this effort.

VITA 1.x-199x, 9U x 400 mm VMEbus Form Factor, Draft 0.6, 20 Oct 1996.— The purpose of this group is to standardize a 9U form factor for use in VME. A draft document is available from the VITA office. A task group ballot was completed in August 1996 and the specification was revised. Another task group ballot will be held in December. The draft standard should move to ANSI canvass ballot during the first quarter of 1997. Bob

Downing, Fermi, 630-840-4061, is the task group chair of this activity.

VITA 11-199x, Autobahn, Draft 1.0, January 12, 1996— Autobahn technology promises high speed bused and point to point data links with data rates of 200 Mbytes/sec. In its initial implementation existing VMEbus protocols would be used to set up Autobahn data transfers which could take place concurrently with VMEbus activities. Current Autobahn chips have demonstrated data rates of 50 and 100 Mbyte/sec. The Autobahn draft specification is available from the VITA office. Contact PEP Modular Computers, phone: ++49 8341 803-0, fax: ++49 8341 803-499, for more information regarding this effort.

VITA 14-199x, CXC and ModPacks, Draft 2.5, January 12, 1996— CXC is based on the 68302 controller bus and ModPacks are used to add functionality to the CXC base module. This document will be used to standardize an existing industry practice originally developed by PEP Modular Computers. An initial task group ballot was completed in April. Contact PEP Modular Computers, phone: ++49 8341 803-0, fax: ++49 8341 803-499, for more information regarding this effort.

VITA 17-199x, FPDP, Draft 1.2, 11 October 1996— FPDP stands for Front Panel Data Port and is a proposed standard being put forth by Interactive Circuits and Systems, Ltd. with support provided by SKY Computers, Ixthos, and CSPI. Task group status was granted at the January 1995 VSO meeting. FPDP is an existing industry practice specification developed to provide high speed data transfer using front panel data ports. Data transfer rates of 80 Mbytes/sec are possible using the FPDP interface and 160 Mbytes/sec are possible using the FPDP2 interface. The draft was updated in October 1996 and the task group continues to work on it. Contact Jonathan Jones, ICS, (613) 749-9241 if you are interested in FPDP.

VITA 18-199x, VMEbus on SEM-E, Draft 1.2, January 3, 1997— SEM-E has been a popular form factor used in the military for a number of years. It is based on conduction cooled technology, a small form factor, and a blade-and-fork style connector that provides high reliability in high shock and vibration environments.

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Mary Mosier, Naval Air Warfare Center, has asked the VSO to create a task group to standardize the VMEbus on the SEM-E form factor. During the January 1995 VSO meeting MITRE and Hughes Processor Division expressed interest in supporting this effort. At the May 1996 VSO meeting more than the required three VITA member sponsors agreed to support the development of VITA 18. Thus VITA 18 was granted task group status. A draft of this document is available from the VITA office. Currently optimal pin assignments are under investigation. Contact Mary Mosier, Naval Air Warfare Center, (317) 353-3807 if you are interested in this effort.

VITA 19-199x, BusNet, Draft 1.4.2, 18 August 1995— BusNet enables multiple CPU boards (and/or intelligent controller boards) to communicate across a backplane as if it were an Ethernet network. BusNet permits system configurations consisting of UNIX, real-time or mixed UNIX/real-time computing nodes to exist within one single chassis. The chair of this activity is Paul Fischer, FORCE Computers. For more information contact Paul at pfischer@force.de. The task group continues to work on the development of this draft standard.

VITA 20-199x, Conduction Cooled PCI Mezzanine Card — The purpose of this effort is to develop a standard for a conduction cooled PMC card based on IEEE 1386 and IEEE 1386.1 for conduction cooled VMEbus boards. This group was granted task group status at the January 1996 VSO meeting. Contact Bob McKee, MITRE, 703-883-5484 or Jing Kwok, DY4, 613-596-9911 for more information about this effort.

VITA 22-199x, CellBus on VME— CellBus is an ATM multiplexing and switching technology that could be used on the P0/J0 connector to provide ATM access across the VMEbus backplane. Javier Berrios, TranSwitch, provided an overview of CellBus to members at the November 1996 VSO meeting. Contact Javier at javier@txc.com for more information regarding this effort.

VITA 23-199x, VMEbus for Physics Applications— Many particle physics labs use VME as the basis for experiment control. The purpose of this effort is to come up with a set of recommended practices to encourage commonality. This effort is

being sponsored by VIPA — the VME International Physics Association. Contact Bob Downing, Fermi, rwd@uiuc.edu, or Chris Parkman, CERN, chris_parkman@cern.ch, for more information regarding this effort.

VITA 25-199x, VISION— At the July 1996 meeting in Ottawa, Jim Pangburn of Fermi National Accelerator Laboratories presented a proposal for an object based I/O software interface for the VMEbus. To build consensus for this effort Jim asked and was granted study group status. At the September 1996 VSO meeting, task group status was granted when CERN, Lecroy, and Fermi indicated that they would sponsor this effort. Contact Jim Pangburn, Fermi, pangburn@fnal.fnal.gov, for more information on this effort.

VITA 26-199x, Myrinet— At the January 1997 meeting in Santa Clara, a new activity called Myrinet was proposed to the VSO by Paul Vena, CSPI. Myrinet is a high-speed (gigabit-per-second) packet communication and packet-routing technology that is used both as a system-area-network (SAN) and a local-area-network (LAN). Three VITA members, CSPI, AMP, and Myricom have agreed to support the standardization of Myrinet. Task group status has been granted and those interested in Myrinet should contact Paul Vena at pvena@cspi.com.

VSO STUDY GROUPS

VITAL— At the March 1996 meeting in Orlando, Florida, Dave Hodges, McDonnell Douglas spoke to the VSO about VITAL which stands for Vehicle

Management System Integration Technology for Affordable Life Cycle Cost. The goal of VITAL is to develop a set of common VMS (Vehicle Management System) building blocks based on commercial parts and practices that are applicable to a wide variety of aircraft. Contact Dave Hodges, McDonnell Douglas, at whodges@mdc.com

ESSE UPDATE— Embedded Systems Software Environment (ESSE) is an effort within the VSO to develop consensus regarding embedded software standards. Initially three areas are being studied: tools, osapi, and i/o drivers.

At the January 1996 VSO members of the ESSE subcommittee agreed to adopt the VSO Rules with two modifications: they chose to vote by company not individual, and to waive prior attendance requirements.

The ESSE Tools Working Group had a joint meeting with the PowerPC EABI working group in April at the Embedded Systems Conference in Boston. A number of issues were discussed and several action items were assigned. See VITA's web site (<http://www.vita.com/>) for complete minutes. Mark Edwards, Motorola, proposed to the PowerPC EABI working group that it move to the ESSE subcommittee. The proposal was accepted.

The next ESSE meeting is tentatively scheduled in conjunction with the March 1997 Embedded Systems Conference). Contact Mark Edwards, Motorola, rl2518@ email.sps.mot.com or Kim Clohessy, OTI, Kim_Clohessy@oti.com for more information regarding ESSE.

1997 VME64 Training

VITA is pleased to announce the following schedule and cities for its one-day Understanding VME64 training seminar. Complete details including location specifics will be available on our Homepage as they become available. URL <<http://www.vita.com>>.

- May 8Greater Washington DC
- The following dates and locations are tentative:**
- Aug. 14Seattle
- Sept. 25Greater New York City
- Nov. 13Houston