

VITA 42 Update

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Overview

- **Next generation PMC I/O module**
- **Adds switched fabric J5/J6 connectors**
- **Base standard 42.0**
- **Fabric agnostic:**
 - **42.1 Parallel RapidIO – ANSI**
 - **42.2 Serial RapidIO – ANSI**
 - **42.3 PCI Express – ANSI**
 - **42.4 HyperTransport – No activity**
 - **42.5 VITA 55 Aurora – No activity**
- **Many companies have released XMC modules and carrier cards, both VSO and non-VSO companies**

VITA 46 Issues

VITA 42.3 PCI Express

- VITA 46 working group has proposed changes
 - Modify dual connector pinout
 - Add additional valid configurations
- Draft revision to 42.3 in process (Curtiss Wright)

Dual Fabrics

- VITA 46 working group has had discussions about mixing different fabrics on P5 and P6
- Proposed options are PCI Express and Serial RapidIO
- Approach to be standardized in 42.20 I/O Standard

Other VITA 46 efforts on front burner, no activity

VITA 42.0 ANSI Ballot

Results

Approve	9
Disapprove	6
Abstain	0
No Return	12
Total	27

Approve / Total – 33.33 %

Approve / Returned – 60.00%

Ballot did not pass

VITA 42.0 ANSI Ballot

Comment #1 (1 ballot “disapprove”)

Include the 12 mm connector stacking height allowed in VITA 48.

Action

- **Draft 42.0 standard to be modified to incorporate this comment**

VITA 42.0 ANSI Ballot

Comment #2 (5 ballots “disapprove”)

The high density connector specified in this document will likely not meet the VITA-47.0r1 ECC3 and ECC4 temperature cycling requirement for 500 cycles. This is with the conditions of the connector set soldered to the mezzanine and host board and temperature cycled as a mated pair. Need a more robust connector solution.

Actions

- Survey XMC market and participants
- Put together summary information about current market
- Recirculate ANSI ballot with recommendation that XMC stay as-is and connector issues get addressed with a future standard (YMC?)

Ecosystem: Processors / Carriers

- **Intel & PowerPC based Processor Cards**
 - One or more XMC sites
 - Typically support PCI Express
- **Form factors:**
 - 3U and 6U CompactPCI
 - 6U VXS
 - 3U and 6U VPX
 - ATCA
- **17+ manufacturers, 27+ products**
- **Concurrent, Cornet, CSPI, Creative Electronic Systems, Curtiss Wright, Diversified Technology, Dynatem, Extreme Engineering, GE Fanuc, General Micro Systems, Innovative Integration, Mercury Computer Systems, MEN, Micro Memory, Performance Technologies, Themis, VMETRO**

Ecosystem: Processors / Modules

- **Processor XMC modules**
 - Mostly PowerPC based
 - Typically support PCI Express or Serial RapidIO
- **5+ manufacturers, 6+ products**
- **Extreme Engineering, GDA Technologies, Innovative Integration, Themis, Varisys**

Ecosystem: I/O Modules

- **Wide range of I/O modules available**
 - **Networking – GbE / 10 GbE**
 - **Storage – Fibre Channel, Serial ATA**
 - **Video – Graphics, Image Capture, CameraLink**
 - **Sensor I/O – Serial FPDP**
 - **Analog I/O – 105 Msps to 3 Gsps**
 - **Streaming I/O – LVDS, High Speed Serial, other**
- **Most I/O modules also offer FPGA processing**
- **14+ manufacturers, 60+ products**
- **4DSP, Advanced IO, Alpha-Data, Critical I/O, Curtiss Wright, GE Fanuc, Innovative Integration, Mercury Computer Systems, MEN, Micro Memory, Pentek, Spectrum Signal Processing, Tekmicro, VMETRO**

Ecosystem: Summary

- **Based on public sources, web survey**
 - 24+ manufacturers
 - 90+ announced products
 - Additional 10+ large integrators doing application specific modules & carriers
- **Active marketplace**
 - Evolutionary standard well suited to military / defense applications and rugged applications
 - PCI Express leveraging silicon ecosystem migration
 - Some products on 2nd and 3rd generations
- **Broad ecosystem (VME, VXS, VPX, CPCI, CPCI Express, ATCA) supports wide range of modules across multiple applications**