OpenVPX Industry Working Group: Overview

OVPX Overview rev 3.3

5/11/2009

Overview

- Objectives
- Value Proposition
- What's going with VITA 46 – VPX?
- OpenVPX proposed solution
- How does OpenVPX work?
- Schedule
- Summary

OpenVPX™ Objectives

Develop a VPX system specification that defines system-level, interoperable architectures

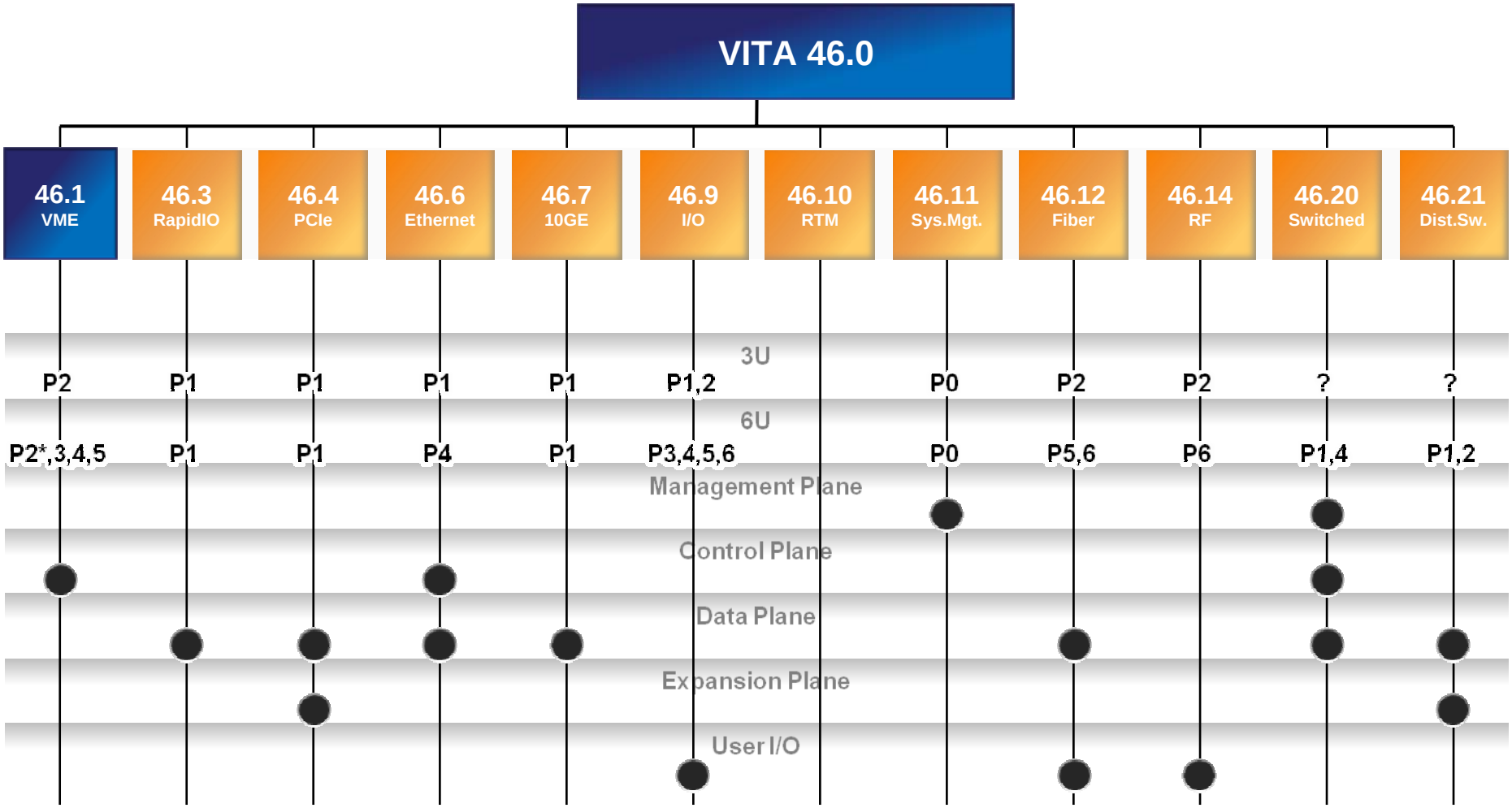
- Leverage the existing VPX specifications as much as possible
  - V46 efforts represent 10's of thousands of volunteer man-hours to date!
- Define an architecture that manages and constrains module and backplane tradeoffs to define interoperability points in VPX
- Follow VITA Policy and Procedures (P+P) Rev. 2.4 unless otherwise stated in the OpenVPX Working Group MOU
- Complete a system specification by October 2009 and submit it through VITA 65 for consideration and adoption

Value Proposition

Significant Tangible Benefits for the Customers and the Industry shall be realized by meeting OpenVPX Objectives

- Reduced Time to System Concept and Design Verification
- More Flexibility and Greater Choice
- Proven and Established Topologies
- Off-The-Shelf Products via Established Ecosystem
- Lower cost (integration, total ownership, second sourcing, obsolescence benefits, etc.)

What is the issue with VITA 46.x?



APPROVED

DRAFT

Too many unchecked degrees of freedom

Interoperability Problems Are Real

U.S. Department of Defense is mandating improved implementation of open standards and interoperability

- Many VITA 46 dot specifications are still in DRAFT form
- Modules from different vendors have difficulty interoperating without modification
  - Dot specs allow for too many options without a framework for ensuring interoperation
  - Recent showings of 3U VPX architectures at OpenVPX Working Group meeting confirmed - 3 suppliers with 3 different implementations
  - Many open architectures had this issue in the early days of adoption and multi-vendor implementation (STD bus, Multibus I & II, VMEbus, Futurebus…)
    - VME vendor community solved this by creating an LLC and developing a now universally-used VMEbus interface device ("VIC" chip, now Tundra)
- Interoperability issues may potentially undermine VPX and its market

OpenVPX™ Charter

Develop the VPX System Specification and transfer it to VITA 65 for consideration and adoption in October

- Control and manage the assignment of VPX pins to functional planes in an interoperable architecture
  - To get a high-degree of interoperability, while leaving room for sensor- / application-specific augmentation
  - To simplify and streamline the development of dot specifications
  - To make the process of developing VPX-based solutions from the lab to the field much more efficient in cost, time, quality, and repeatability
- Leverage VITA
  - Build upon the efforts of the VITA dot specifications
  - Ensure critical functions interoperate through the development of an architecture
  - Follow baseline VITA Policy and Procedures
  - Submit the final work product through VITA 65 for consideration and adoption

Working Group Operation

- Formed OpenVPX Industry Working Group
  - Only open to any and all VITA members
  - Logo developed by VITA
  - OpenVPX Website transitioning to VITA in Q2'09
  - Following VITA rules, policy and procedures
  - Exception – governed by MOU to define the OpenVPX entity, manage outreach as a group, document mission statement, and drive accountability
- OpenVPX organized into three functional groups:
  - Steering Committee – OpenVPX governing body. Charged with enforcing schedule and approving the final spec release to VITA
  - Technical Working Group – responsible for drafting the system specification in the scheduled time.
  - Marketing Working Group – responsible for educating, training, and promoting the potential capabilities of the system specification and inform on OpenVPX activities to the VITA community and the press
  - VITA 65 – liaison to larger VITA community and conduit for submitting final work product

Member Companies (As of 5/7/09)

Aitech Defense Systems, Inc.
Bittware, Inc.
Concurrent Technologies
Diversified Technology, Inc.
CSPI
Curtiss -Wright Controls, Inc.
Elma Electronic, Inc.
Extreme Engineering Solutions (X-ES)
FoxConn Electronics, Inc
General Dynamics Canada
GE Fanuc
General Dynamics Advanced Information Systems
Hybricon Corporation
Kontron Modular Computers S.A.S
Mercury Computer Systems, Inc.
Molex Inc.
Northrop Grumman Electronic Systems
Pentek, Inc.
Pentair Electronic Packaging/Schroff
Pigeon Point Systems
SIE Computing Solutions
The Boeing Company
Tracewell Systems
Tyco Electronics Corporation

All Companies are VITA members

Why Outside of VITA?

- A core group of companies needed to assemble under one umbrella and do the work
  - Transcends multiple specifications and their respective dot specifications
  - Involves organizing and modifying existing work and guiding its completion around a system architecture
  - Time is of the essence – markets and programs are at risk – so a core group of companies focused on delivering on time was critical
- There is some precedent for starting on the outside and transitioning into a standard -- ANSI/VITA 1 VME64 standard was developed this way
- To date, no “Top-down” System Level Specifications have been developed within VITA 46 family of specifications
- OpenVPX is set up for one member company = one vote, no single company can exercise undo influence
- OpenVPX works within the VITA/VSO P&P, all companies are active VITA/VSO members (some are VITA BoD members also)

Key Milestones

Date	OpenVPX	Comments
1/30	OpenVPX Announcement	Press release announcing formation of working group
3/16	OpenVPX Open Enrollment	Open F2F Meeting for WTG
4/23	1st TWG progress assessment report	Early progress report to SC to identify critical issues. SC to redirect, if necessary
5/12	2nd TWG progress assessment report	Report closure on critical issues identified in 1st progress report
6/25	1st Draft Ballot – V0.7 complete	Ballot Draft Specification, resolve issues, update Specification
7/20	2nd Draft Ballot – V0.8 complete	Ballot Draft Specification, resolve issues, update Specification
8/25	Final Ballot – V0.9 complete	Ballot Final Draft Specification, resolve issues, Finalize V1.0
9/8	V1.0 Specification Vote by SC	Specification approval for VITA Submission at 9/23 VITA meeting

Summary

- Many VPX specifications are in DRAFT form, so it is an ideal time to get them aligned and governed going forward
  - Implementations allowed by the various dot specifications are introducing integration difficulties
  - Integrators are doing more interoperability testing than expected
- U.S. Department of Defense is mandating improved implementation of open standards and interoperability, to support technology refresh, and lower procurement and life-cycle costs
- OpenVPX will specify a system architecture
  - Ensure a foundation for an evolutionary roadmap for VPX into the future, built on the foundation of the VITA 46 dot specifications
  - Introduces the concept of bundling to enable a new level of system interoperation and performance
- OpenVPX will strive for a new level of interoperability while leaving room for application specific augmentation