



# OpenVPX Industry Working Group: Overview

OVPX Overview rev 3.4

# Overview

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

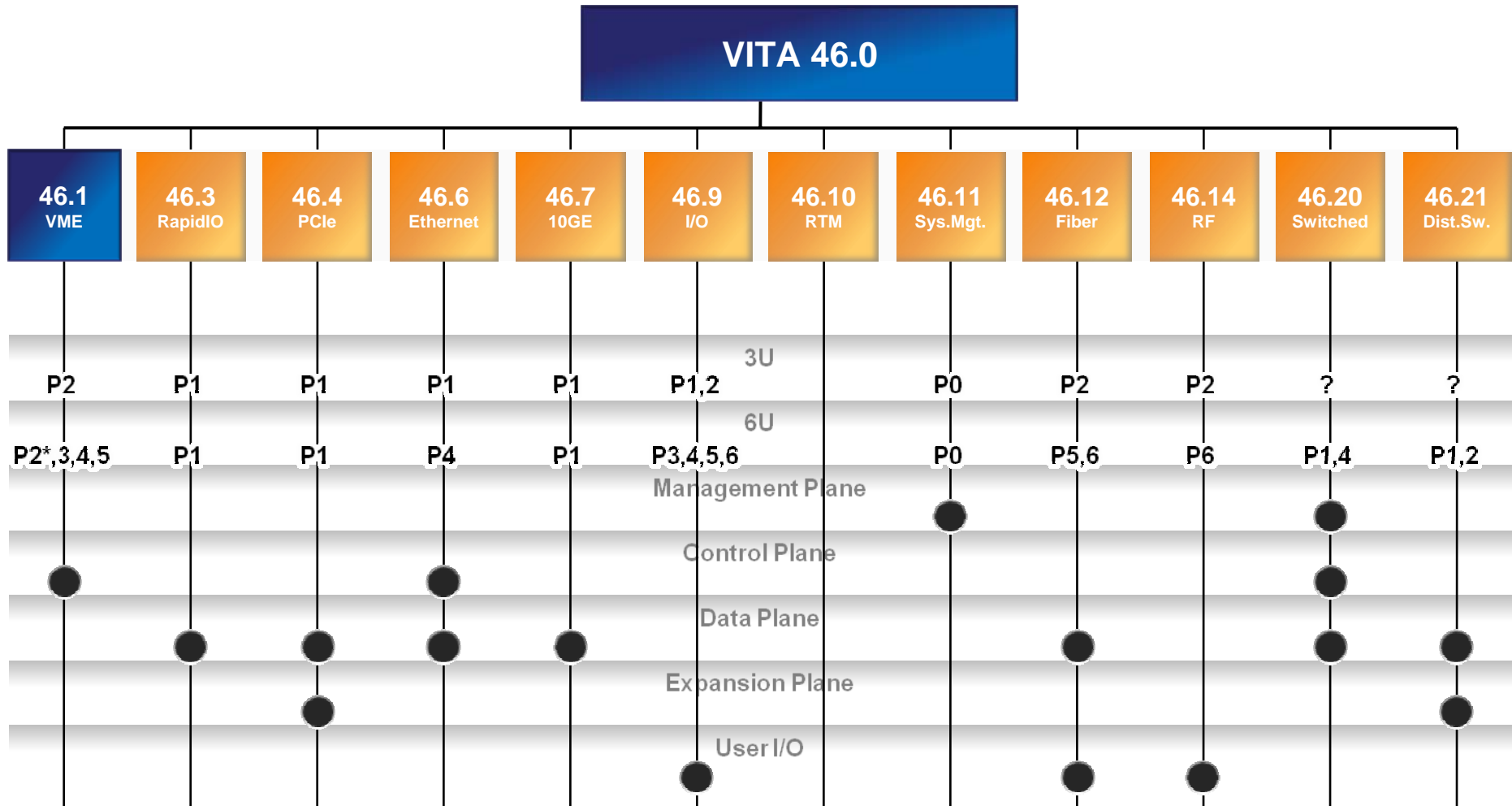
**Develop a VPX system specification that defines system-level, interoperable architectures**

- 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

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

- Off-The-Shelf Products via Known Established Ecosystem
- Product Interoperability
- More Flexibility and Greater Choice of Supplier Base
- Proven and Established Topologies
- Reduced Time to System Concept and Design Verification
- 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

## 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

# OpenVPX Member Companies



Aitech Defense Systems, Inc. \*\*  
Agilent Technologies, Inc.  
Bittware, Inc. ##  
Concurrent Technologies \*\*  
CSPI  
Curtiss -Wright Controls, Inc. \*\* ##  
DRS Signal Solutions, Inc.  
Diversified Technology, Inc.  
Elma Electronic, Inc. \*\*  
Extreme Engineering Solutions (X-ES) ##  
FoxConn Electronics, Inc ##  
General Dynamics -Canada  
GE Fanuc Intelligent Platforms \*\* ##  
General Dynamics - Advanced Information  
Systems  
Hybricon Corporation \*\* ##  
Kontron Modular Computers S.A.S  
Lockheed Martin Corporation ##  
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

\*\* Also MWG Members

## Also SC members

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	1 <sup>st</sup> TWG progress assessment report	Early progress report to SC to identify critical issues. SC to redirect, if necessary
5/12	2 <sup>nd</sup> TWG progress assessment report	Report closure on critical issues identified in 1 <sup>st</sup> progress report
6/25	1 <sup>st</sup> Draft Ballot – V0.7 complete	Ballot Draft Specification, resolve issues, update Specification
7/20	2 <sup>nd</sup> 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