

The **OpenVPX™** Working Group  
Press Briefing  
Monday, October 19, 2009

Milcom 2009 – Press Room

4:30 to 5:30 EDT

World Trade Center  
Boston, MA

# Welcome



THE OPENVPX™ WORKING GROUP

CORDIALLY INVITES YOU TO A  
PRESS BRIEFING  
ANNOUNCING A KEY MILESTONE IN THE DEVELOPMENT  
OF VPX (VITA 46) SYSTEM-LEVEL INTEROPERABILITY  
FOR HIGH BANDWIDTH/HIGHLY RUGGED  
AEROSPACE AND DEFENSE APPLICATIONS.

MONDAY, OCTOBER 19, 2009  
4:30 P.M. - 5:30 P.M. EDT  
MILCOM 2009 - PRESS ROOM  
WORLD TRADE CENTER  
200 SEAPORT BLVD. STE. 164  
BOSTON, MA 02210

BEVERAGES, HORS D'OEUVRES,  
AND COMMEMORATIVE MEMENTO PROVIDED.

R.S.V.P. REQUESTED BY OCTOBER 12, 2009  
TO [npeterson@hybricon.com](mailto:npeterson@hybricon.com)

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[www.openvpx.org](http://www.openvpx.org)

# Agenda

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- 4:30 – Drinks and Networking
- 4:40 - Part 1 – **What is VPX and Why OpenVPX? – Ian Dunn, Mercury**
- 4:50 - Part 2 – **Customer Benefits of Interoperability – Frank Willis, GE FANUC**
- 5:00 - Part 3 – **Specification Hand-off – OpenVPX to VITA 65**
- 5:05 - Part 4 – **Discussion of Vita 65 – Mark Littlefield, Curtiss Wright**
- 5:15 - Part 5 – **Q&A (Steering Committee)**
- 5:20 – **Press Give-away**

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OpenVPX™ Press Conference  
MilCom Tradeshow  
Boston Massachusetts  
October 19<sup>th</sup> 2009

**What is VPX and Why OpenVPX?**

Ian Dunn  
Mercury Computer Systems, Inc.

## What is VPX ?

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- VPX module technology, both on board capabilities and backplane switch fabric I/O options, is the right evolutionary technology needed for next generation applications with complex, high performance requirements
  - VPX is a powerful , evolutionary extension of VME and VXS standards
  - VPX technology has already shown significant promise to provide technology to the industry to solve very real, critically important applications requirements
- VPX specifications (VITA 46.0 with many evolving supporting 46.x dot specifications) were created using a logical, bottoms up approach to creating standards for new VPX technology implementations
- However, the overall breadth of permutations of powerful VPX implementation choices has shown that this approach to standards development for VPX multi-vendor COTS equipment implementations did not fully meet market needs.
- For more detailed information go to [www.VITA.com](http://www.VITA.com)

## How to Unleash the Vision of VPX?

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- System Architecture standards are required for defining multi-vendor integrated solutions while specifying board and backplane implications
  - A top-down, Systems engineering architecture approach was needed to create the VPX standard for it to enable the VPX market to flourish and meet the needs of the system integrator and end user customer
  - This need and approach was supported by Ray Alderman, VITA Executive Director, whom had recently asked the VITA 46 committee to take a systems view in its specification process.
  - Defining Interoperability points that can be specified and verified in a multi-vendor COTS environment became the critical outcome for VPX to prosper
- A new, Open System architecture “Systems” VPX vision began to come to light and gain industry momentum

## Why OpenVPX?

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- Based upon confirmation with the user community needs, Mercury Computer Systems, Inc. founded the OpenVPX™ Industry Working Group (IWG) in January 2009 with the charter to complete an OpenVPX system architecture specification by October 2009.
  - 28 OpenVPX members signed a Memorandum of Understanding (MOU) operating agreement defining how to work together which also specified project deliverables, per a predefined schedule.
  - Via Commitment, unprecedented collaboration and perseverance with internationally distributed teams, the OpenVPX IWG achieved its goal.
  
- Today we are here to celebrate and reach out to the community about this major success, as well as identify next steps for OpenVPX.
  - OpenVPX is a trademark of VITA

# OpenVPX Member Companies



- Aitech Defense Systems, Inc. \*\*
- Agilent Technologies, Inc.
- Bittware, Inc. ##
- The Boeing Company ##
- 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
- TEK Microsystems, Inc.
- Tracewell Systems \*\*
- Tyco Electronics Corporation

\*\* Also Marketing Working Group Members

## Also Steering Committee Members



All Companies are VITA members

# OpenVPX Results and Next Steps

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- The OpenVPX V1.0 System Specification is complete and approved by the OpenVPX Steering Committee, on its original schedule.
- 350+ pages of System level specifications defining interoperability points in the architecture
  - Backplane Architectures and Development Chassis Topologies
  - Module level pin outs and protocol definitions
  - Chassis and backplane definitions on Power and system signals
  - Interoperability Compliance recommendations
- V1.0 OpenVPX System Specification is ready for handoff to VITA 65 committee for final review, balloting and ratification
  - OpenVPX Members are VITA 65 members
  - OpenVPX team look to the VITA 65 committee to work towards VSO ratification targeted for year's end
- OpenVPX IWG shall dissolve in the coming month - job done!
  - MWG arm of OpenVPX IWG to continue to work with Ray Alderman's VMG



## **Customer Benefits of Interoperability**

Frank Willis  
GE Fanuc Intelligent Platforms

# 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

# Typical OpenVPX Development Flow



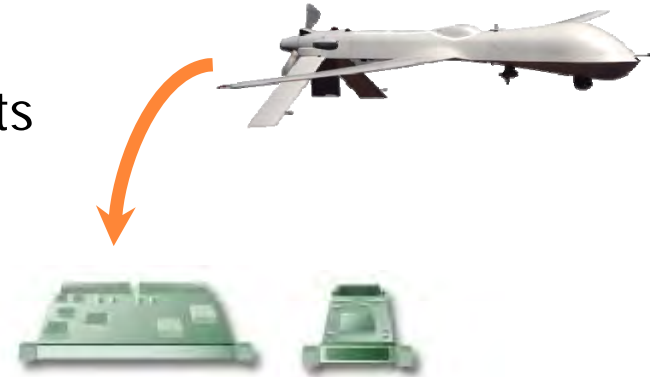
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  - Size, weight and power
  - Processing, fabric and I/O requirements



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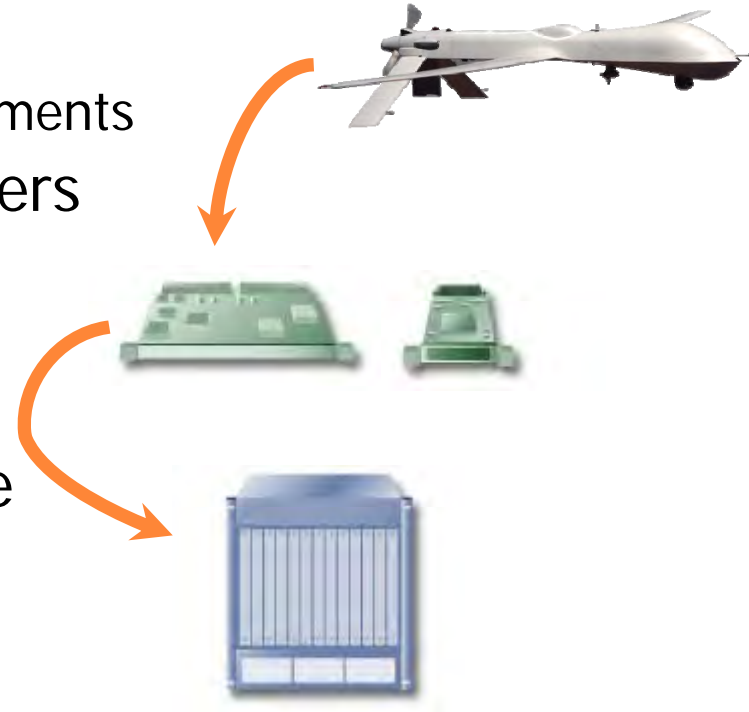


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  - Switching topology?
  - Number and type of slots?



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  - COTS boards
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- Design deployment system
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  - Typically route I/O signals to custom I/O slot or bulkhead connector



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## OpenVPX Benefits

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- Promotes interoperability and vendor choice
- Provides specific design profiles that vendors can design to and integrators can specify as requirements
- Reduces integration issues resulting in faster development & deployment time
- Higher board volumes → Economies of scale
- Industry leading bandwidth and density
- Higher velocity of technology upgrades
- Will support higher backplane signaling speeds as technology matures

## Specification Hand Off OpenVPX to Vita 65

OpenVPX (Ian Dunn)

Vita 65 (Mark Littlefield)



# VITA 65 VPX System Specifications and Practices

Mark Littlefield  
Curtiss-Wright Controls

- Working group chair: Mark Littlefield, Curtiss-Wright Controls
- Editor: Pete Jha, Curtiss-Wright Controls
- Goals:
  - Landing pad for the released OpenVPX revision 1.0 document
  - Drive to VITA and ANSI approvals of this document as soon as is practical
  - Develop an infrastructure to maintain VITA 65 as a “living” specification
  - Work with the VITA marketing group to promote VITA 65 and to develop a product directory based on the OpenVPX profiles

# Current Schedule



Objective	Date
Release of OpenVPX revision 1.0 document to VITA 65	10/15
Two week "polish" review of the document	10/15 - 10/30
VITA ballot	10/30 - 11/13
Comment resolution	VSO Face-to-Face, week of 11/18.
Ballot comment resolution period and finalization	VSO face-to-face – late January

# Living Specification

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- **Desire in the community to keep VITA 65 as a living specification**
- **Objective**
  - Provide a process for existing and future architectures to become part of the OpenVPX/VITA 65 specification
  - Provide a process for retiring architectures that have no product support
- **Goals**
  - Preserve the OpenVPX philosophy of increasing VPX interoperability
  - Protect supplier innovation
  - Protect supplier contractual obligations
- **Ground Rules**
  - All proposed architectures, regardless of source will be treated equally
  - All profiles are normative

# Living Specification

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- Need for a mechanism to capture new profiles as the market evolves
- Need for a mechanism to mark profiles that are not being adopted as “inactive”
  - No profiles or other content is removed – only additions made
    - Minor exception for correcting gross errors
- Working with VITA to establish procedures and frequency of specification updates

## Future of VITA 65

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- Incorporate alternate connectors
  - VITA 60/Viper
  - VITA 63/KVPX
  
- Incorporate new connectivity
  - VITA 66 – Fiber Optic Interconnect
  - VITA 67 – Analog/RF Interconnect

# Questions and Answers OpenVPX Steering Committee

Thank You For Coming