VPX980

Chassis Manager with JTAG Switch Module (JSM), 6U VPX

VPX980

Key Features

- Quad ARM Cortex-A53 @ 1.6 GHz per core
- 4GB LP-DDR4 memory
- FRAM for log messages
- 64 NAND Flash
- JSM with 18 JTAG Ports
- I2C Real Time Clock with battery backup
- Low power (4W)
- Based on VadaTech VT040 Module
- IPMI 2.0 compliant

Benefits

- Supports VITA 46.11 Tier-2 command set
- Utilizing VadaTech VT003 third generation Shelf
- Electrical, mechanical, software, and system-level expertise in house
- Full system supply from industry leader
- AS9100 and ISO9001 certified company

OpenVPX™

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VPX980

The VadaTech VPX980 Chassis Manager is based on the VITA 46.11 specification. The VITA 46.11 leverages the Intelligent Platform Management Interface (IPMI) and AdvancedTCA Specification by PICMG as its architectural foundation. The VPX980 is based on VadaTech VT040 Module VT040 - Shelf Manager, 4th Generation ATCA, MTCA and VPX platforms (vadatech.com).

The VadaTech Chassis Management solution is derived from our field proven VadaTech ATCA Shelf Manager utilizing core interfaces such as the Simple Network Management Protocol (SNMP), Remote Management Control Protocol (RMCP), Web Interface, System Management application (Scorpionware™), and a user-friendly Command Line Interface.

VadaTech VPX IPMC and Chassis Management solutions support VITA 46.11 Tier-2 command set, providing a higher level of functionality in the management layer and chassis cooling capabilities. Additionally, VadaTech VPX management solutions have taken advantage of the HPM.1 PICMG Specification providing a framework for upgrading the IPMC firmware.

The Module has GbE as 1000Base-TX from the front panel connecting to the Shelf Manager. It also has dual GbE to P1 as 1000Base-BX (SERDES Based).

The module also has an option for JTAG Switch Module (JSM) and optional Virtual Probe, easing device access within the chassis for FPGA code developers. The JTAG Ports from each VPX module are routed to the P3/P4 for a total of 18 modules. This allows max flexibility within the chassis. The JSM is configured via either the front panel JTAG Port or the optional Virtual JTAG (VTMJTAG) command line of the management CPU. The optional Virtual JTAG feature is available via either of the GbE Ports (front or rear).

The JSM can also be used as a standalone module, so multiple JTAG dongles are not needed within the chassis.

Figure 1: VPX980

JTAG Master/JTAG via Ethernet Virtual Probe

The VPX980 provides JTAG Master Capability to send out configuration data streams via the chassis JSM to configure arbitrary JTAG Slave devices on the VPX cards. Virtual Probe services are also available to provide JTAG via Ethernet for Xilinx FPGAs. This allows for standard development tools such as Xilinx iMPACT/ChipScope to treat the MCH/JSM combination as if it was a standard JTAG probe. This approach frees the developer from having to attach JTAG probes directly to the VPX or JSM which can be difficult when systems are already fully assembled. It also allows for remote debugging across long distances when required without the need to install additional JTAG equipment on-site.

Scorpionware™ Software

VadaTech's Scorpionware™ software can be used to access information about the current state of the Shelf or the Carrier, obtain information such as the FRU population, or monitor alarms, power management, current sensor values, and the overall health of the Shelf. The software GUI is very powerful, providing a Virtual Carrier and FRU construct for a simple, effective interface.

IPMI Protocol Analyzer

VPX980 can be used as an IPMI protocol analyzer. Figure 2 shows the trace viewer output from VPX980.
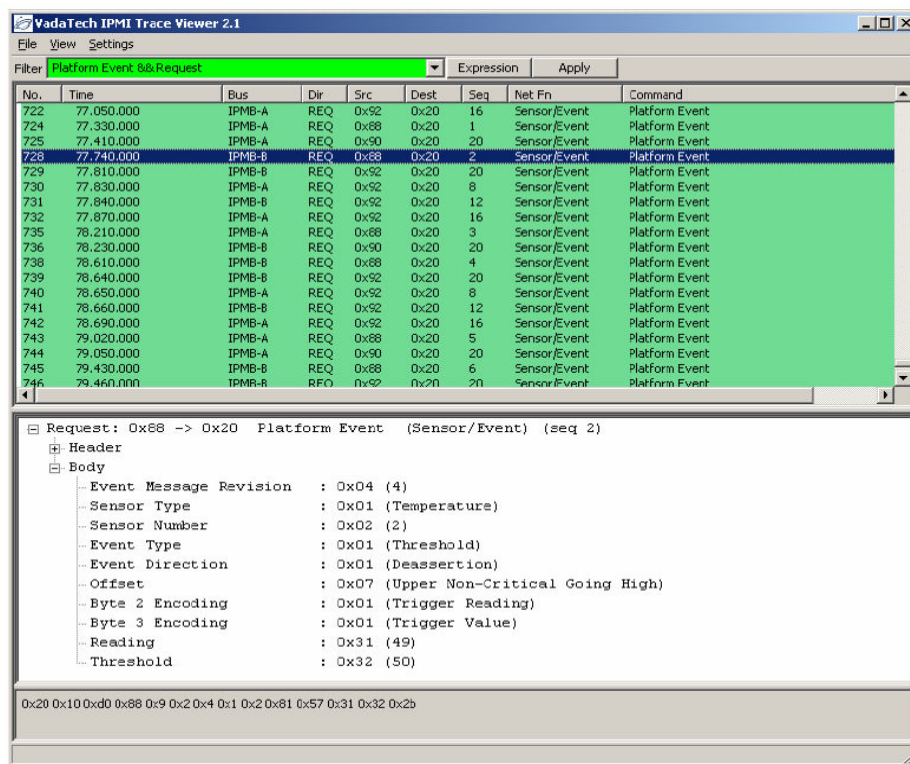

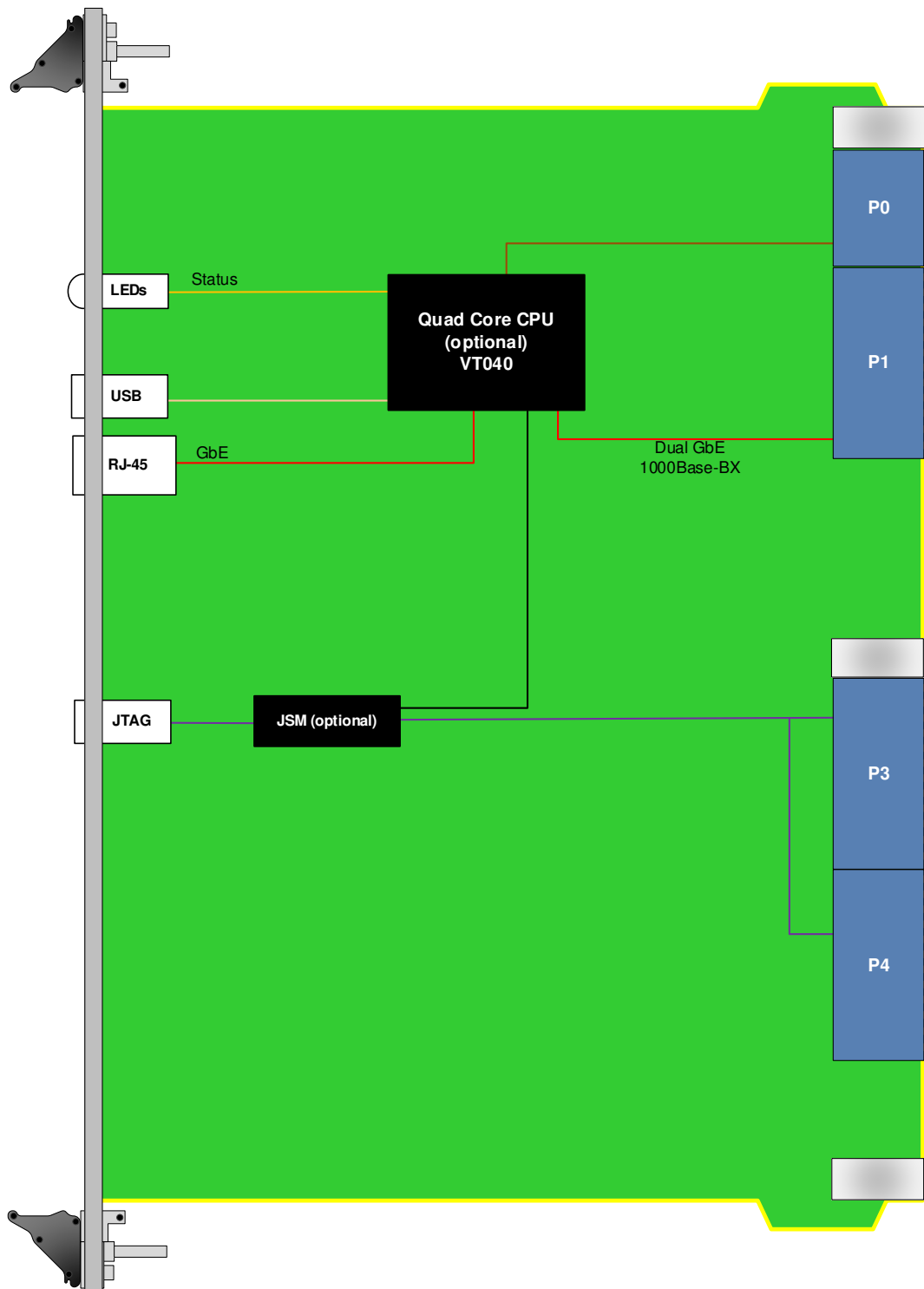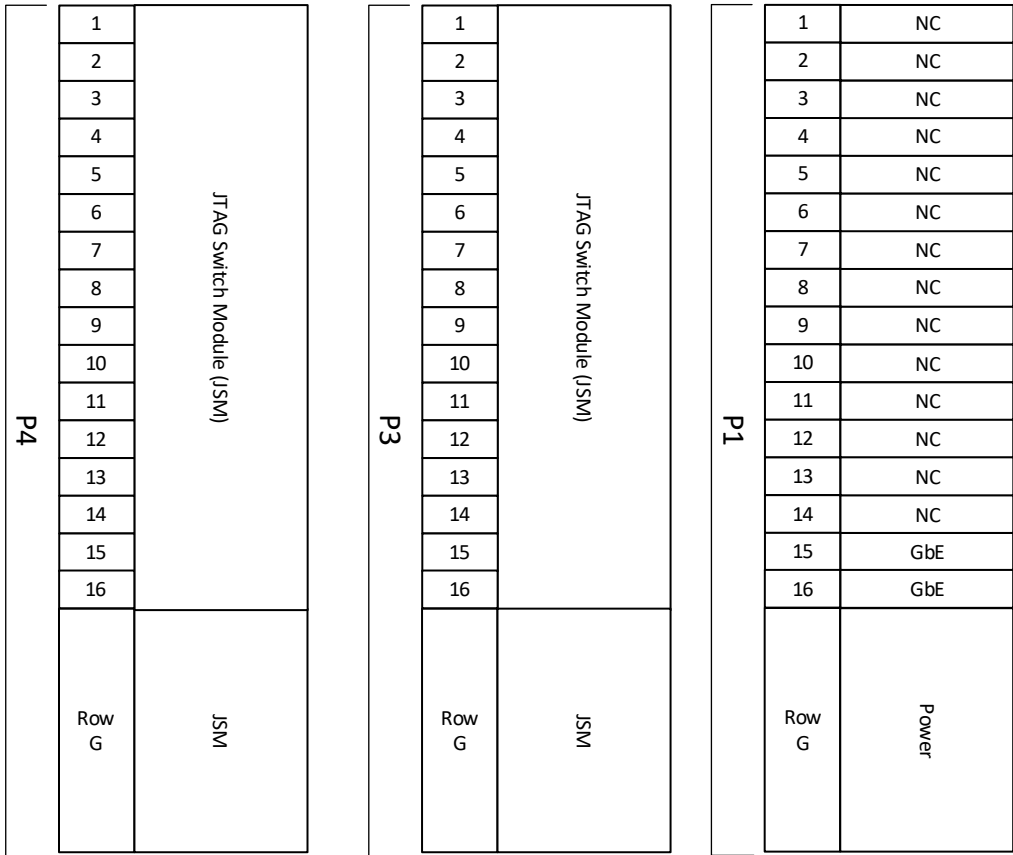*Figure 2: IPMI Protocol Analyzer Trace Viewer Output*

Block Diagram

Figure 3: VPX980 Functional Block Diagram

Pinout Block Diagram

P4	JTAG Switch Module (JSM)
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	
11	
12	
13	
14	
15	
16	
Row G	JSM

P3	JTAG Switch Module (JSM)
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	
11	
12	
13	
14	
15	
16	
Row G	JSM

P1	
1	NC
2	NC
3	NC
4	NC
5	NC
6	NC
7	NC
8	NC
9	NC
10	NC
11	NC
12	NC
13	NC
14	NC
15	GbE
16	GbE
Row G	Power

Specifications

Architecture		
Physical	**Dimensions**	6U, 1" pitch
Standards		
Module Management	**IPMI**	VadaTech VPX Shelf Manager and JTAG Switch Module
Configuration		
Power	**VPX980**	~4W
Environmental	**Temperature**	See Ordering Options
Other		
MTBF	MIL Hand book 217-F@ TBD hrs	
Certifications	Designed to meet FCC, CE and UL certifications, where applicable	
Standards	VadaTech is certified to both the ISO9001:2015 and AS9100D standards	
Warranty	Two (2) years, see VadaTech Terms and Conditions	

INTEGRATION SERVICES AND APPLICATION-READY PLATFORMS

VadaTech has a full ecosystem of OpenVPX, ATCA and MTCA products including chassis platforms, shelf managers, AMC modules, Switch and Payload Boards, Rear Transition Modules (RTMs), Power Modules, and more. The company also offers integration services as well as pre-configured Application-Ready Platforms. Please contact VadaTech Sales for more information.

Ordering Options

VPX980 – ABC-D0F-GHJ

A = Shelf Manager	D = P1 Connector	G = Applicable Slot Profiles
0 = No Shelf 1 = Reserved 2 = VT040	0 = Installed 1 = Not Installed	0 = 5 HP, VITA 48.1

B = JSM		H = Environmental
0 = No JSM 1 = JSM		See Environmental Specification

C = VPX Connector Type	F = JTAG Virtual Probe*	J = Conformal Coating
0 = Standard 50u Gold Rugged 1 = KVPX Connectors	0 = No Virtual Probe 1 = Virtual Probe	0 = No coating 1 = Humiseal 1A33 Polyurethane 2 = Humiseal 1B31 Acrylic

Notes:
*If Option F=1 is required, Option A=2 and B=1 must also be ordered.

Environmental Specification

	Air Cooled		Conduction Cooled		
Option H	**H = 0**	**H = 1**	**H = 2**	**H = 3**	**H = 4**
Operating Temperature	AC1* (0°C to +55°C)	AC3* (-40°C to +70°C)	CC1* (0°C to +55°C)	CC3* (-40°C to +70°C)	CC4* (-40°C to +85°C)
Storage Temperature	C1* (-40°C to +85°C)	C3* (-50°C to +100°C)	C1* (-40°C to +85°C)	C3* (-50°C to +100°C)	C3* (-50°C to +100°C)
Operating Vibration	V2* (0.04 g2/Hz max)	V2* (0.04 g2/Hz max)	V3* (0.1 g2/Hz max)	V3* (0.1 g2/Hz max)	V3 (0.1 g2/Hz max)
Storage Vibration	OS1* (20g)	OS1* (20g)	OS2* (40g)	OS2* (40g)	OS2* (40g)
Humidity	95% non-condensing	95% non-condensing	95% non-condensing	95% non-condensing	95% non-condensing

Notes: *Nomenclature per ANSI/VITA 47. Contact local sales office for conduction cooled (H = 2, 3, 4).

Related Products

VPX551

- Dual Kintex UltraScale™ XCKU115
- 16 GB of 64-bit wide DDR4 Memory to each FPGA
- Rear fibre I/O via VITA 66.5

VPX645

- 3U VPX NVMe Host Bus Adapter with Full support for RAID
- Dual Core ARM A15 RAID on Chip (ROC)
- Onboard 8 GB of DDR4 Memory with ECC

VPX752

- 6U VPX module Intel 5th Generation Xeon-D SoC
- PCIe Gen3 x16 (dual x8 or quad x4)
- Quad 10GbE XAUI

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