VPX336

Complete VPX Timing Module with IRIG-B, GPS, 1PPS, IEEE1588, SyncE

VPX336

Key Features

- 3U VPX timing module
- Single-module complete timing card supporting grandmaster clock / slave clock modes
- GPS receiver on board
- Sine Wave clock input (typically 10MHz)
- 1PPS/IRIG-B DCLS/Manchester input
- Clock/IRIG-B DCLS/Manchester output
- IRIG-B Amplitude Modulated (AM) input
- IRIG-B Amplitude Modulated (AM) output
- Synchronous Ethernet (SyncE) Master/Slave
- IEEE1588 PTP Master/Slave via 10/100/1000Base-T
- NMEA standard serial output from GPS
- 5x DPLL on board for precise timekeeping
- RoHS compliant
- Clocks to P0 as MLVDS

Benefits

- Design utilizes proven VadaTech subcomponents and engineering techniques
- Electrical, mechanical, software, and system-level expertise in house
- Full system supply from industry leader
- AS9100 and ISO9001 certified company

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VPX336

The VPX336 is a 3U VPX module providing a complete timing solution. The VPX336 has 1PPS, Sine Wave clock, IRIG-B input, IRIG-B out and a GbE.

The module can take its upstream time/frequency from one of:

- GPS (freq and time + location/velocity/other metadata)
- IEEE1588 PTP (freq and time)
- IRIG-B AM/DCLS/Manchester (freq and time)
- 1PPS (freq only)
- Sine Wave Clock In (freq only)
- Synchronous Ethernet (freq only, can be combined with IEEE1588 PTP)

The module can provide its downstream time/frequency to all of:

- IEEE1588 PTP (freq and time)
- IRIG-B AM/DCLS/Manchester (freq and time)
- 1PPS (freq only, can be combined with NMEA for freq and time)
- NMEA (time only, can be combined with 1PPS for freq and time)
- Clock Out (freq only)
- Synchronous Ethernet (freq only)

The module has an on board 5 x DPLL. The DPLL synchronizes 1Hz to 750MHz, providing frequency with jitter cleaning of noisy references. Complies with ITU-T G.8286, G.813, G. 812 and Telcordia GR-253/GR-1244. The module will automatically holdover upon loss of reference while still providing its time/frequency outputs to the rest of the system. The DPLL allows for fast lock to 1HZ input taking only 3 to 60 seconds depending on the reference input compared to 10 minutes or more for previous solutions.

The VPX336 has RS-232 routed to the front as well as to the rear (P2 connector). The rear RS-232 has an option to be level shifted or simply as LVCMOS.

The VPX336 provides standard NMEA format via RS-232 for external devices.

Figure 1: VPX336

Figure 2: VPX336 Top View

Figure 3: VPX336 Front Panel View

Block Diagram

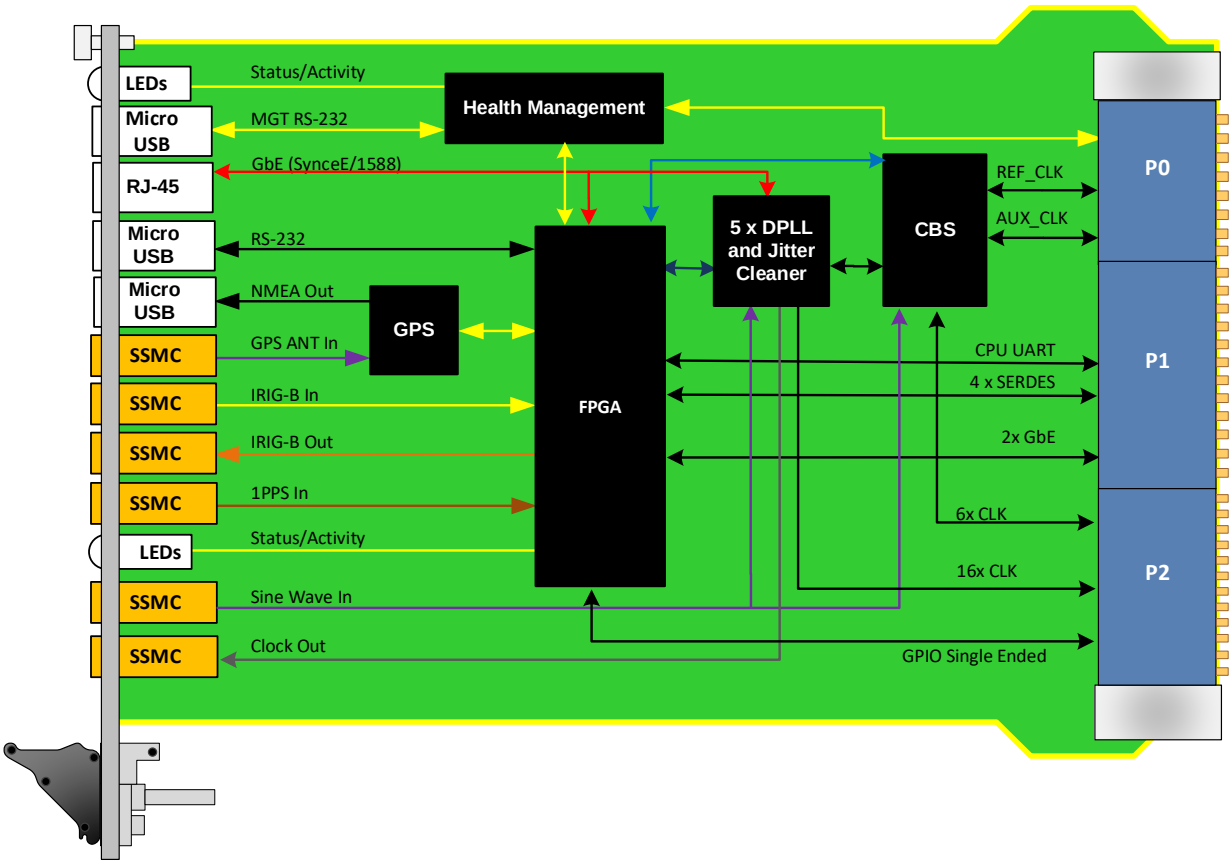


Figure 4: VPX336 Functional Block Diagram

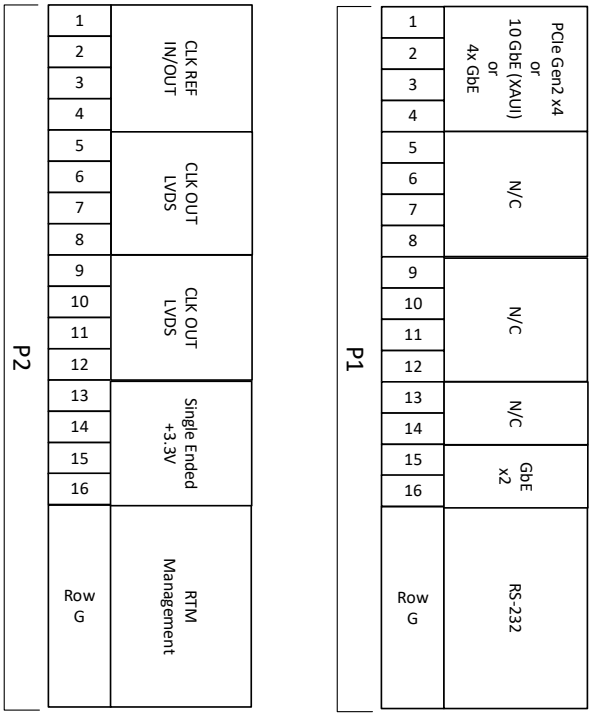


Figure 5: VPX336 Pinout Block Diagram

Specifications

Architecture		
Physical	**Dimensions**	3U, 1” pitch
Type	**Timing Module**	IRIG-B In/Out; GPS; IEEE1588; SyncE; Grand Master clock; 1PPS
Standards		
VPX	**Type**	VITA 46.x
VPX	**Type**	VITA 65 OpenVPX
Module Management	**IMPI**	IPMI v2.0
Configuration		
Power	**VPX336**	~7W
Front Panel	**SSMC**	GPS Ant In, IRIG-B In & Out, 1PPS In, Sine Wave In, Clock Out
	Micro USB	2x RS-232, NMEA Out
	RJ-45	GbE (SynceE/1588)
	LEDs	Status
Software Support	**Operating System**	Agnostic
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

VPX336 – ABC-DEF-0HJ

A = P1 option	D = P2 option	
0 = Not installed 1 = Installed*	0 = Not installed 1 = Installed	
B = SERDES Configuration P1 Ports 1-4	**E = RS-232 Level Shifter for P1 G9/G11**	**H = Operating Temperature**
0 = None 1 = 4 x GbE 2 = 10GbE (XAUI) 3 = PCIe as end point 4 = Reserved	0 = Installed (TX/RX are level shifted per RS-232 specification) 1 = Not Installed (TX/RX as LVCMOS)	See Environmental Specification
C = VPX Connector Type	**F = Battery**	**J = Conformal Coating**
0 = Standard 50u Gold Rugged 1 = KVPX Connectors	0 = No battery installed 1 = Lithium Ion installed	0 = None 1 = Humiseal 1A33 Polyurethane 2 = Humiseal 1B31 Acrylic

*Option B applies

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

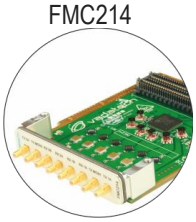
Notes: *Nomenclature per ANSI/VITA 47. Contact local sales office for conduction cooled (H = 2, 3, 4).

Related Products

VPX592

- 3U FPGA carrier for FPGA Mezzanine Card (FMC) per VITA 46 and VITA 57
- Xilinx Kintex UltraScale™ XCKU115 FPGA
- 20 GB of DDR4 Memory (2 banks of 64-bit wide, and single bank of 32-bit wide)

FMC214



- Dual complete transceiver signal chain solution using Analog Devices AD9361 transceiver
- Frequency range 70 MHz to 6 GHz with instantaneous bandwidth from 200 kHz to 56 MHz
- MIMO transceiver is Time Domain Duplex (TDD) and Frequency Domain Duplex (FDD) compatible

AMC585

- Xilinx UltraScale+ XCZU19EG FPGA
- Single FMC+ (VITA 57.4) site
- MPSoC with block RAM and UltraRAM

Contact

VadaTech Corporate Office

198 N. Gibson Road, Henderson, NV 89014
Phone: +1 702 896-3337 | Fax: +1 702 896-0332

Asia Pacific Sales Office

7 Floor, No. 2, Wenhu Street, Neihu District, Taipei 114, Taiwan
Phone: +886-2-2627-7655 | Fax: +886-2-2627-7792

VadaTech European Sales Office

VadaTech House, Bulls Copse Road, Southampton, SO40 9LR
Phone: +44 2380 016403

info@vadatech.com | www.vadatech.com

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DOC NO. 4FM737-12 REV 01 | VERSION 1.0 – MAR/24