VPX3-ZU1B-SDR-A

3U VPX SDR 2T2R Module Zynq Ultrascale+ MPSoC AD9371 RF Transceiver

Specifications

- 3U OpenVPX module, Air-Cooled and Conduction Cooled version
- AMD Zynq Ultrascale+ MPSoC ZU6/ZU9/ZU15 FFVC900E package
- Up to 8GB PS DDR4-2400 memory 64-bit, 8-bit ECC
- Up to 2GB PL DDR4-2400 memory 16-bit, no ECC
- Up to 256GB eMMC managed NAND Flash
- FMC HPC site with 10x MGTs @ up to 16.3Gb/s
- AD9371 Wideband RF Transceiver
- Dual Transmitter (Tx), Dual Receiver (Rx)
- Observation Receiver (ORx) with 2 inputs
- Sniffer Receiver (SnRx) with 1 input
- Reference Clock Input
- RF Coverage 300MHz to 6.0 GHz
- Tx Synthesis Bandwidth (BW) to 250MHz
- Rx Bandwidth: Up to 100MHz
- On-Board VCXO @ 122.88MHz.

Description

PanaTeQ's VPX3-ZU1B-SDR-A is a 3U OpenVPX modules based on the Zynq UltraScale+ MPSoC device from AMD coupled to RadioVerse Analog Devices RF Wideband Transceiver AD9371 for a broad range of applications such as Software Defined Radio, MILCOM, massive MIMO, Phase Array Radar and Electronic Warfare.

PanaTeQ provides solutions for Ruggedized Air-Cooled and Conduction Cooled systems.

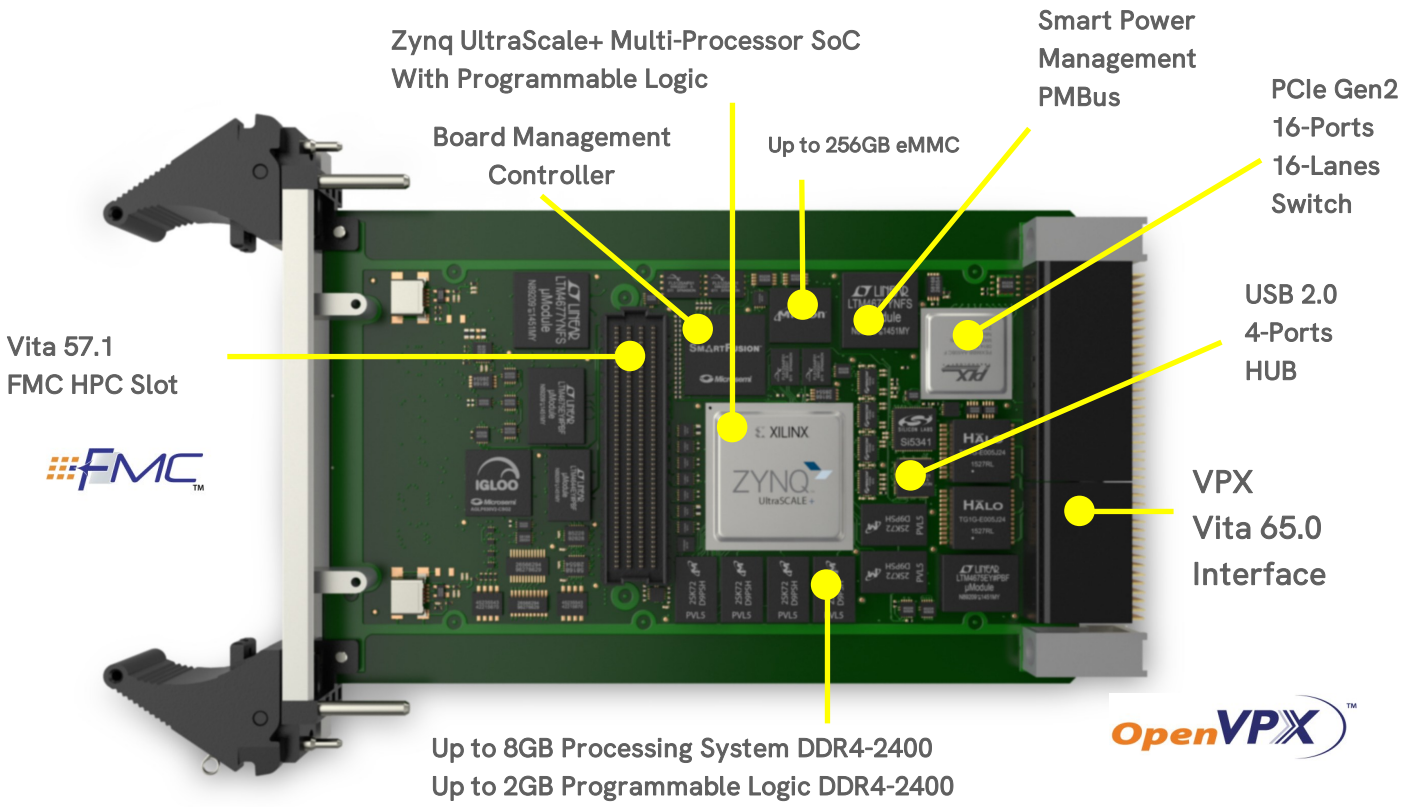
These VPX3-ZU1B-SDR-A module is based on the following PanaTeQ's sub-modules (boards):

The VPX3-ZU1B is a 3U OpenVPX module based on a AMD Zynq Ultrascale+ MPSoC with a FMC 57.1 site, HW/SW compatible with ZCU102 Evaluation board from AMD.

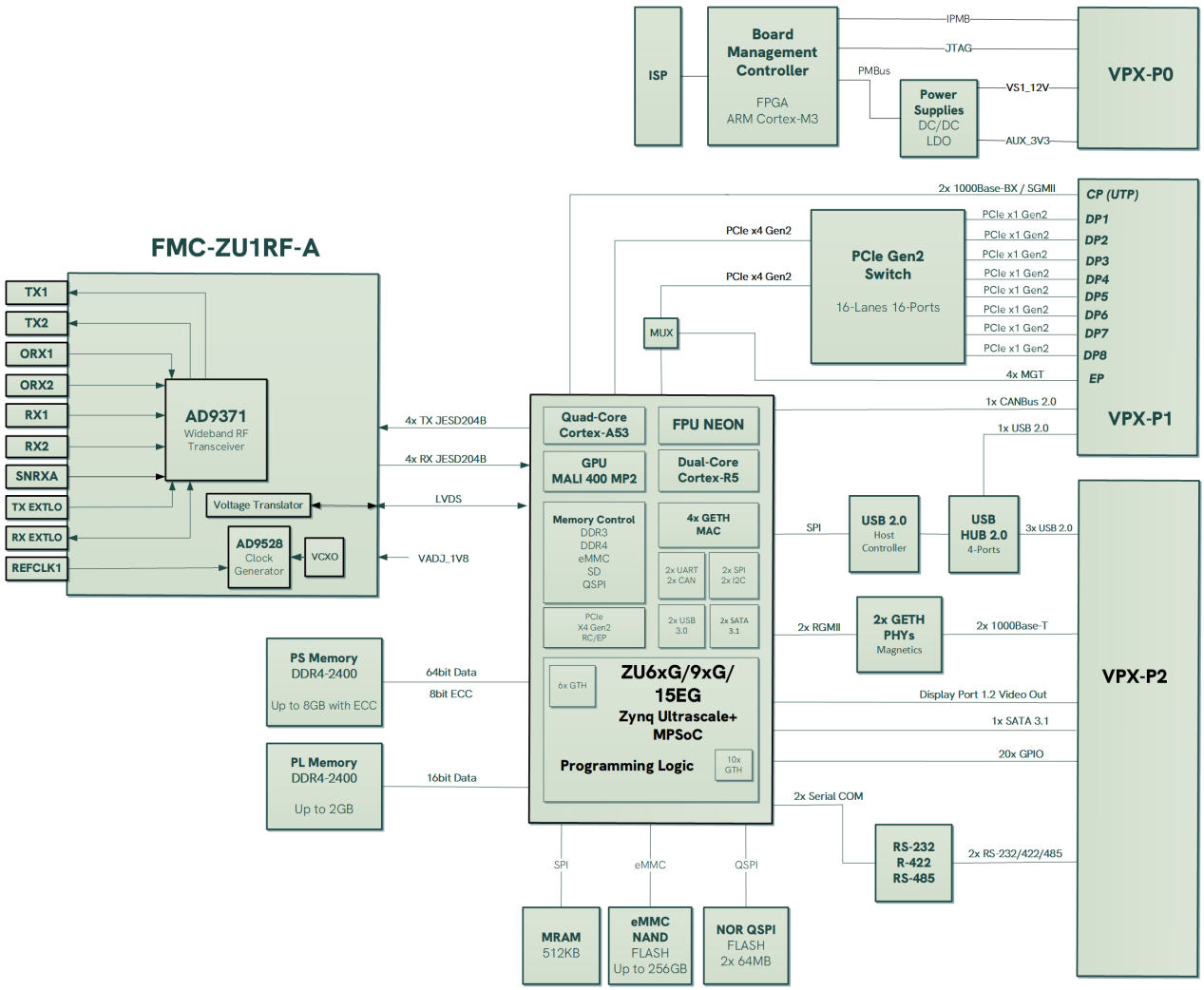
The FMC-ZU1RF-A is a FMC based on an Analog Devices AD9371, HW/SW compatible with ADRV9371 Evaluation Board from Analog Devices.

Typical Applications

- Software Defined Radio
- Wireless Infrastructure 3G/4G
- FDD and TDD active Antenna Systems
- Electronic Warfare
- Drones and UAVs
- Military Communications



Block Diagram



Module Specifications

- 3U Compliant to VITA 46.0, 46.4, 46.6, 65.0, 57.1 standards
- AMD Zynq UltraScale+ MPSoC
- ZU6xG/ZU9xG/ZU15EG FFVC-900 Package
- Up to 8GB DDR4-2400 64-bit PS memory with 8-bit ECC
- Up to 2GB DDR4-2400 16-bit PL memory
- 128MB QSPI NOR
- Up to 256GB eMMC
- 512KB MRAM
- On-board PCIe Gen2 Switch 16-Lanes 16-Ports with NT support
- 4x MGTs on VPX-P1 Expansion Plane
- 1x Display Port 1.2 Video Out on VPX-P2
- 2x ETH 1000Base-BX/SGMII on VPX-P1 Control Plane
- 2x ETH 1000Base-T on VPX-P2
- 4x USB 2.0, 1x SATA 3.1 on VPX-P2
- 20x LVCMOS or 10x LVDS GPIO on VPX-P2
- 2x RS-232/422/485, 1x CAN 2.0B on VPX-P2
- FMC HPC site with 90x IO / 45x LVDS, 10x MGT
- Smart Power Management using 4x LTM467x with PMBus
- Board Management Controller ARM Cortex-M3 based
- VPX System Controller
- Air Cooled and Conduction Cooled
- Optional Conformal Coating and KVPX Connectors

- ADI AD9371 RFIC based. Fully compatible with ADRV9371 Evaluation board
- VITA 57.1-2010 specification compliant
- Conduction cooled compatible
- Dual Transmitters (Tx)
- Dual Receivers (Rx)
- Observation Receiver (ORx) with 2 inputs
- Sniffer Receiver (SnRx) with 1 input
- RF coverage 300MHz to 6.0GHz
- Tx synthesis bandwidth (BW) to 250MHz
- Rx BW: 8MHz to 100MHz
- Supports Time Division Duplex (TDD) and Frequency Division Duplex (FDD) operation
- Fully integrated independent fractional-N radio frequency (RF) synthesizers
- FMC High Pin Connector (HPC)
- JESD024B interface up to 6144 Mbps - 2 Tx - 4 Rx Operates with VAdj = 1.8V to 1.5V
- VAdj = 2.5V to 1.8V On-board VCXO : 122.88 MHz

Product Codification

The **VPX3-ZU1B-SDR-A** can be assembled with different versions of the Zynq Ultrascale+ MPSoC devices and various amounts of memory storage. The cooling technique et ruggedization level are also available options. The following table shows the product coding for all these options.

VPX3-ZU1B-SDR-A– B 1 M – AS

	Device	ARM A53 Cores	GPU	System Logic Cells	DSP Slices	Memory
A	XCZU6EG	4	Yes	469K	1973	25.1 Mb
B	XCZU9EG	4	Yes	600K	2530	32 Mb
C	XCZU15EG	4	Yes	747K	3528	57.7 Mb
D	XCZU6CG	2	No	469K	1973	25.1 Mb
E	XCZU9CG	2	No	600K	2530	32 Mb

	Device Speed Grade
1	Standard
2	Fast

	PS / PL Memory Size
M	4GB/1GB
P	8GB/2GB

	Ruggedization Level	VITA 47
AS	Air Standard	EAC4
AR	Air Rugged	EAC6
CC	Conduction Cooled	ECC3
CR	Conduction Rugged	ECC4

Ordering Information

The following product references are offered by Panateq as standard products. Other combinations of devices, speed grade, memory and cooling can be specially ordered. Please contact us for details

Reference	Device	Temp Grade	Speed Grade	Memory PS/PL	Ruggedization Level
VPX3-ZU1B-SDR-A-B1M-AS	ZU9EG-E	0 to +100C	-1	4GB/1GB	Air Standard EAC4
VPX3-ZU1B-SDR-A-C1M-AS	ZU15EG-E	0 to +100C	-1	4GB/1GB	Air Standard EAC4

PanaTeQ

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Available from: