

IC-FEP-VPX3a

Xilinx Virtex-5 3U VPX board with FMC Site

IC-FEP-VPX3a is 3U VPX board, powered by a Xilinx Virtex-5 SX95T, matching with several Payload Slot Profiles of OpenVPX standard.

Designed for applications requiring a very high level of computing power in a compact form factor, the **IC-FEP-VPX3a** board mixes the flexibility of a Virtex-5 FPGA and the VPX high bandwidth serial interfaces.

A FMC mezzanine site enlarges the adaptability of the board to connect ADC, DAC, general IOs, video, sFPDP or additional FPGA FMC modules.

As part of our 3U VPX range, the **IC-FEP-VPX3a**, associated with our Intel® or Freescale SBCs and with our XMC carrier supporting IOs boards, provides the ideal platform for radar, sonar, electronic warfare and other digital signal processing applications.

Description

The Virtex®-5 FPGAs used on the **IC-FEP-VPX3a** are part of the Xilinx 65nm FPGA family, manufactured in 1.0v, triple-oxide process technology.

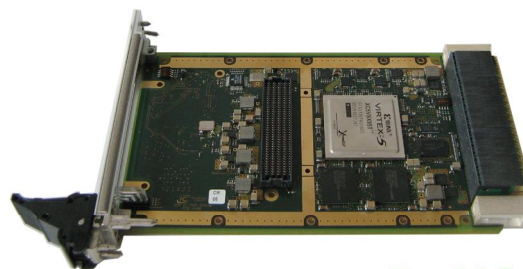
The board is equipped with a Virtex®-5 SX95T providing :

- DSP48E slices : 640
- Virtex-5 Slices : 14720
- BlockRAM : 244

The Fabric Links of the VPX backplane, connected to the FPGA, allow data rate of 2,5 Gbps or 3,125 Gbps per lane, depending on the type of the interface (PCIe or Aurora - SRIO available thanks to specific IP).

It is possible to take advantage of the embedded 10/100/1000 MAC block IP to provide two Ethernet 1000BASE-KX ports on the backplane.

The FMC site is fully compliant with the FPGA Mezzanine Card standard (VITA 57.1), allowing to install FMC modules provided by IC, third-party or developed by the customers. These mezzanine modules will authorize to systematically use the latest / best suited high resolution A/D components in regards of the needs.



Main features

Processing Unit

- ▶ Xilinx virtex-5 XC5VXSX95T
- ▶ One DDR2 bank : 32-bit wide, 256MBytes
- ▶ configuration flash :
 - one parallel Flash (16MByte)
 - two SPI flash (2*16MBytes)
- ▶ Two QDR2 banks : 36-bit wide, 8MBytes (optional)
- ▶ PIC µ-controller for System Management (optional)

VPX Interfaces

- ▶ three 4-lanes Fabric ports (on P1)
 - one PCIe x4 (port A)
 - two GTP x4 (ports B & C)
- ▶ two 1-lane ports (on P1)
 - a dual GTPx1 link usable as 2 1000BASE-KX ports
- ▶ General purpose IOs (on P2)
 - eight single-ended IOs
 - sixteen differential pairs
- ▶ One RS232 port on P1 (Rx/Tx)

FMC interfaces

- ▶ one GTPx4 link (limited to x2 when the dual GTPx1 link used on P1 - user configuration)
- ▶ 68 differential pairs

Accessories

- ▶ Engineering kit : JTAG ports for FPGA direct configuration

The **IC-FEP-VPX3a** is a VPX 3U / 4HP 0.8" board compliant (1" on request) with 3U module definitions of the VITA 46.0 standard.

It is available in standard, rugged and conduction-cooled grades.

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XILINX Virtex 5 3U VPX board with FMC site

On-board firmware

The IC-FEP-VPX3a hardware platform is compatible with the Xilinx development tools (ISE Design Suite, Platform cable...).

Interface Concept provides :

- ▶ VHDL code for system services (DDR2, PCIe, Aurora, IC FMC interfaces, optional QDR2...). Their implementation requires the Xilinx ISE Design Tools. Integration from Xilinx System Generator will be available soon.
- ▶ host drivers for our CPUs (Linux, VxWorks)

The customers implement their own realtime applications with the capability to integrate the existing openSource code or third-party IP cores.

Interface features

P1 connector

- ▶ three 4-lanes Fabric ports
 - one PCIe x4 (port A)
 - two GTPx4 (ports B & C)
- ▶ two 1-lane ports
 - a dual GTPx1 link usable as 2 *1000BASE-KX ports
- ▶ One RS232 port on P1 (Rx/Tx)

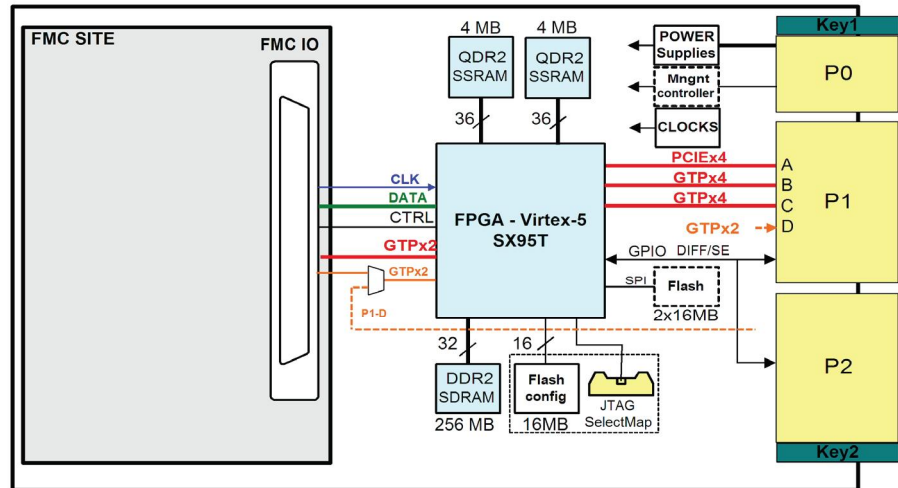
P2 connector

- ▶ General purpose IOs (on P2)
 - eight single-ended IOs
 - sixteen differential pairs

FMC connector

- ▶ one GTPx4 link (limited to x2 when the dual GTPx1 link used on P1 - user configuration)
- ▶ 68 differential pairs

Block Diagram



FMC modules

Interface Concept provides FMC modules

IC-DAC-FMCA :

- ▶ Quad 16-bit 800 Msps DAC

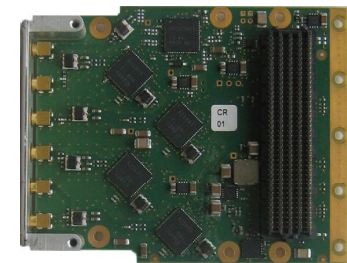
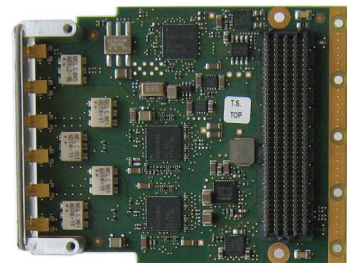
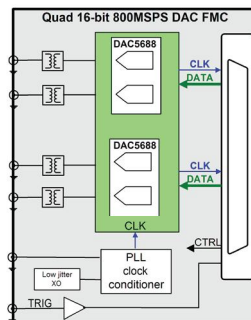
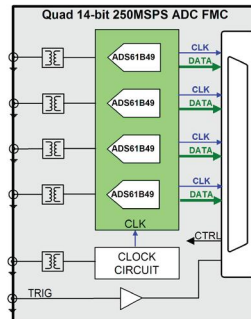
IC-ADC-FMCA :

- ▶ Quad 16-bit 135/200 Msps ADC

IC-ADC-FMCb :

- ▶ Quad 14-bit 250 Msps ADC

Please consult us for technical details and availability.



Environnement Specifications:

Please consult the IC-FEP-VPX3a page at www.interfaceconcept.com.

Ordering Information:

Please contact our sales department : tel. +33 (0)2 98 573 030 - email : info@interfaceconcept.com

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