

IC-FEP-VPX3f

3U VPX VITA 66.5 FPGA board with FMC+ Site

- 3U VPX - VITA 66.5
- 1 * AMD Kintex™ UltraScale™ FPGA
- 2 * DDR4 banks (up to 4GB each)
- 1 * AMD Artix™7 control node
- 1 * FMC+ site (VITA 57.4)



Based on the latest AMD 20nm FPGA family, the **IC-FEP-VPX3f** enhances the front-end processing (FEP) product line of Interface Concept, as the first VITA 66.5 compliant FPGA board on the market today.

The AMD Kintex™ UltraScale™ FPGA provides a better performance/power consumption ratio compared to previous FPGAs, and makes the **IC-FEP-VPX3f** the perfect solution for applications requiring DSP intensive processing in a 3U VPX form factor.

The **IC-FEP-VPX3f** and other IC building blocks (Intel® and PowerPC SBCs, Ethernet Switches & Routers, FMC) running our Signal Processing Reference Design are the ideal platforms to users who are willing to streamline development by concentrating their efforts on their most strategic tasks.

Description

The **IC-FEP-VPX3f** takes advantage of AMD Kintex™ UltraScale™ family capabilities and features by offering scalability, performance, connectivity and reliability in a range of environments

The Kintex™ UltraScale™ FPGA built on a high performance, low power 20nm process technology is available in multiple models providing different features while keeping the same package and footprint. Hence, the **IC-FEP-VPX3f** is available with a selection of 3 FPGAs (KU060, KU085 or KU115), and speed grades 1, 2 & 3.

The FPGA 2133MB/s bus interfaces with the 2 DDR4 banks remove bottleneck in DSP and packet processing, maximizing

the board transfer performance. The Fabric Links of the VPX backplane are connected to the FPGA GTHs (FPGA dependent) transceivers, allowing data rates up to 16.3 Gbps, and 28 GPIO's.

The Embedded Hard IP Resources can be used to implement PCI Express Gen2/Gen3 (FPGA dependent) links, as well as the 10 Gigabit Ethernet ports (XAUI, 10GBase-KR) or Xilinx Aurora.

The FMC+ site of the **IC-FEP-VPX3f** is compliant with the FPGA Mezzanine Card standard (VITA 57.4), supporting plug in FMC modules provided by IC or developed by users.

The **IC-FEP-VPX3f** benefits from the latest enhancements in Kintex™ UltraScale™ regarding power reduction and is available in standard, air-cooled to conduction-cooled grades (85°C).

Furthermore, Kintex™ UltraScale™ interfaces with a local flash for local storage of up to 2 bitstreams. It supports secured bitstreams and partial reconfiguration.

Due to the modularity of the FPGA, the **IC-FEP-VPX3f** is compliant with several Module Profiles of the OpenVPX standard (TBD).

The **IC-FEP-VPX3f** is compliant with 3U module definitions of the VITA 46.0 standard, and optionally with the VITA 66.5 standard when it is populated with the LightConex™ transceivers.

It is available in air-cooled and conduction cooled versions compliant with VITA 47 classes

On-board firmware

The **IC-FEP-VPX3f** hardware platform is compatible with AMD development tools Vivado™, Platform cable, etc.

Interface Concept provides

- VHDL code for system services (DDR4, PCIe, Aurora, IC FMC interfaces, etc.) and reference designs such as PCIe DMA Engine, signal capture & processing, etc.
- Host drivers for our CPU (Linux, VxWorks)

Customers can implement their own real-time applications with the capability to integrate existing Open Source code or third-party IP cores.

Grades

Criterion	Coating	Operation Temperature	Rec. Airflow	Oper. HR% no cond.	Storage Temperature	Sinusoidal Vibration	Random Vibration	Shock 1/2 Sin. 11ms
Standard	Optional	0 to 55°C	1 .. 2 m/s	5 to 90%	-45 to 85°C	2G [20..2000]Hz	0.002g2 /Hz [10..2000]Hz	20G
Extended	Yes	-20 to 65°C	2 .. 3 m/s	5 to 95%	-45 to 85°C	2G [20..2000]Hz	0.002g2 /Hz [10..2000]Hz	20G
Rugged	Yes	-40 to 75°C or 85° C (*)	2 .. 5 m/s	5 to 95%	-45 to 100°C	5G [20..2000]Hz	0.05g2 /Hz [10..2000]Hz	40G
Conduction-Cooled 71°C	Yes	-40 to 71°C at the thermal interface (*)	-	5 to 95%	-45 to 100°C	5G [20..2000]Hz	0.05g2 /Hz [10..2000]Hz	40G
Conduction-Cooled 85°C	Yes	-40 to 85° C at the thermal interface (*)	-	5 to 95%	-45 to 100°C	5G [20..2000]Hz	0.1g2 /Hz [10..2000]Hz	40G

(*) : Temperature grades are subject to availability according to IC products. Please consult us.

All information contained herein is subject to change without notice.

For more information, please contact:



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