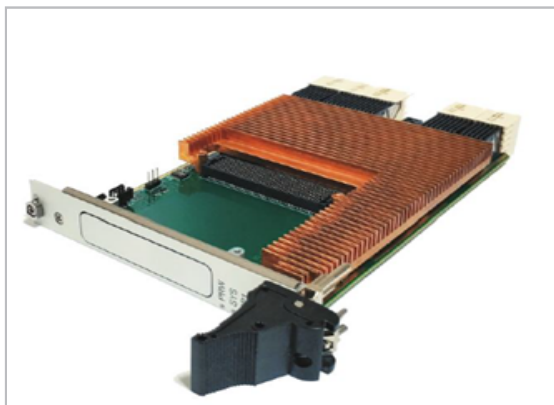


FPU502

3U CompactPCI Serial Computation Module



Overview

The FPU502 Module is designed for building CompactPCI Serial-based high-performance industrial systems with parallel digital data processing in real-time mode. The module provides an opportunity of implementing data processing algorithms in the real-time mode. The main computing resources are determined by the field programmable gate array (FPGA) of the Kintex UltraScale (Xilinx) family.

Features

- Form-factor: 3U CompactPCI Serial, 4HP;
- System Bus: PCIe x8 Gen3;
- RAM: 2 x channels 4GB each;
- Power supply: 12 V +/-10%;
- High Density Connector for Mezzanine Module with support of a full set of pins (HPC);
- Operating temperature range: from -40 to +85°C;
- Dimensions: no more than $(130.6 \pm 0.4) \times (212.4 \pm 1.6) \times (21.3 \pm 0.5)$ mm;
- Weight: no more than 0.62 kg;
- MTBF: min. 100,000 hours.

Technical Specifications

Form-factor

- 3U CompactPCI Serial, width: 4HP

System Bus

- PCIe x8 Gen3

High Density Connector for Mezzanine Module with support of a full set of pins (HPC)

Main computing resource is the FPGA of the Kintex UltraScale (Xilinx) family

- XCKU060-2FFVA1517I for FPU502-03
- XCKU115-2FLVA1517I for FPU502-04

Reconfiguration

- Development of your own FPGA configuration for specific tasks
- Ability to debug the developed FPGA configuration using JTAG and UART
- Replacement of the FPGA configuration file via JTAG or PCIe

RAM

- 2 x channels 4GB each

Non-volatile memory NOR flash

- 1 Gb for storing FPGA configuration file
- 1 Gb for user data

Device synchronization system over Ethernet interface lines (for backplanes with full mesh topologies)

Signals for Rear I/O Module

- MGT x8 interface
- Clock signal input
- 2 x external clock inputs
- 2 x external clock outputs

XC2C512 CoolRunner-II Service Microchip

Ability to connect an external battery to store the encryption key of the FPGA configuration

LED indication of FPU502 operation modes on the front panel

Power supply

- 12 V +/-10%;

Operating temperature range

- from -40 to +85 °C,*

Resistance to external factors

- Changes in ambient temperature from -40 to +85* °C, at relative humidity up to 80%, non-condensing
- Resistance to sinusoidal vibrations of 2g for the frequencies from 10 to 150 Hz
- Resistance to multiple shocks of 25g and single shocks of 50g

Resistance to cyclic damp heat

- With a conformal coating (for the /Coated option) in accordance with the GOST 28216-89 standard

Need for the forced cooling

- With a flow rate of at least 2.5 m/s.

Supported standards

- PICMG CPCI-S.0 R2.0
- PCI Express Base Specification, rev.3.0
- ANSI/VITA 57.1-2010

Weight

- No more than 0.62 kg

Dimensions

- No more than $(130.6 \pm 0.4) \times (212.4 \pm 1.6) \times (21.3 \pm 0.5)$ mm

MTBF

- Min. 100,000 hours

* The maximum operating temperature of the FPU502 may be reduced depending on the algorithm / scope of the FPGA configuration and cooling system capabilities. In turn, the FPGA configuration is limited by the cooling system applied and the power supply capabilities of the device in accordance with the PICMG CPCI-S.0 R2.0 standard.



Fastwel

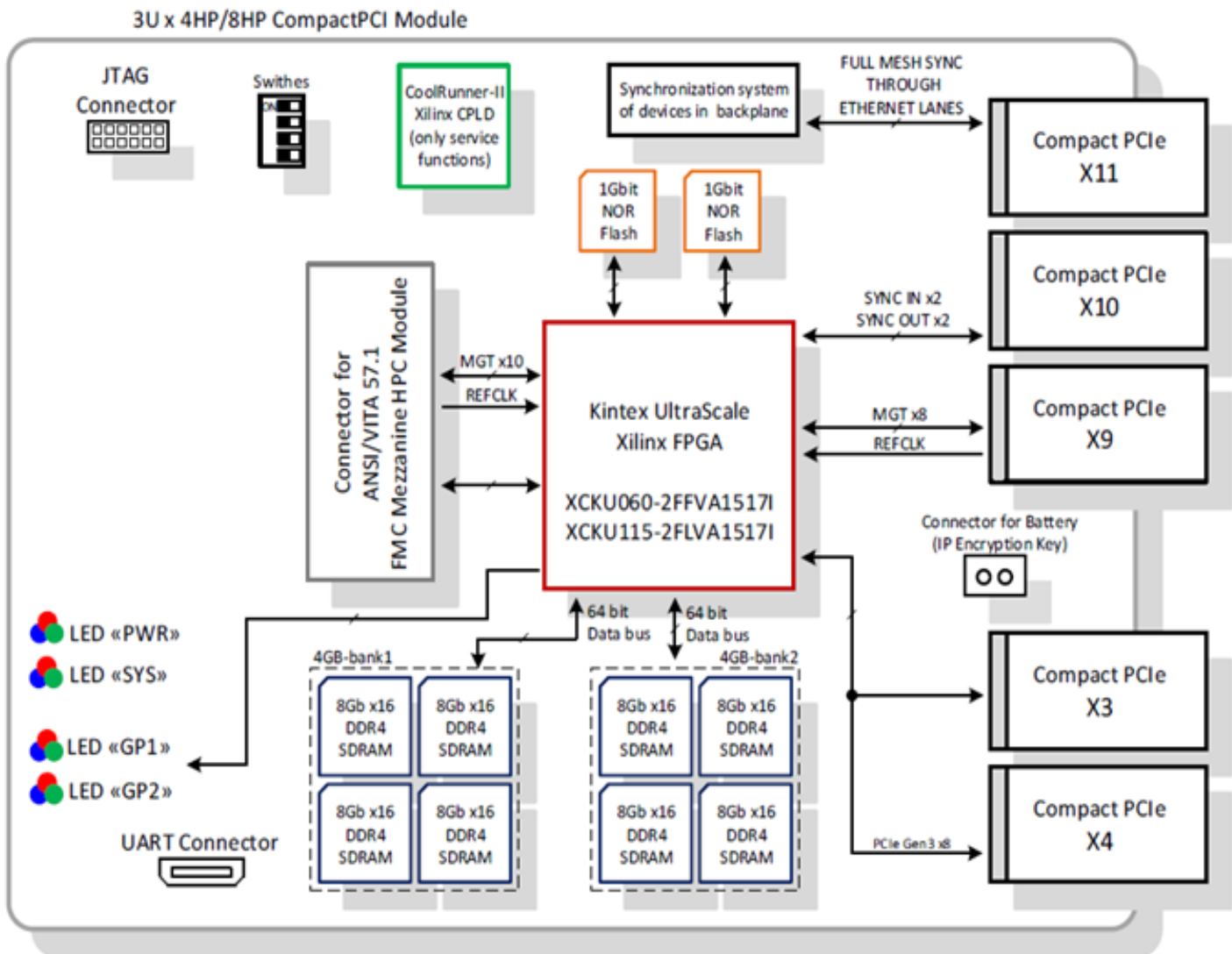


Fastwel



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Block Diagram



FPU502

3U CompactPCI Serial Computation Module

Ordering Information

FPU502 Configuration

FPU502 / Options

Configurations

- FPU502-03** 3U CompactPCI Serial Computation Module, main computing resource – FPGA XCKU060-2FFVA1517I, conformal coating\Coated
- FPU502-04** 3U CompactPCI Serial Computation Module, main computing resource – FPGA XCKU115-2FLVA1517I, conformal coating\Coated

Modules for expanding the system

RIO502 I/O Module (to be connected to FPU502 from the rear of the backplane)

RIO502 includes:

- 2 x adapters for QSFP + transceivers
- Connector for two input and two output synchronization signals
- Clock generator

Mezzanine modules:

- The mezzanine modules connected must comply with the ANSI/VITA 57.1-2010 standard. The existing limitations are described in the User Manual for FPU502
- Fastwel Group confirms the full functional compatibility of FPU502 and the 80289-0-L0C module made by Innovative Integration (a module with two adapters for QSFP + transceivers) *.

*If application of any other mezzanine modules is required, please contact the Fastwel Group technical support service.

Delivery checklist

FPU502 delivery checklist contains:

1. FPU502 3U CompactPCI Serial Computation Module
2. Installation kit
3. Packaging.

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Product specifications are subject to change without notice



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