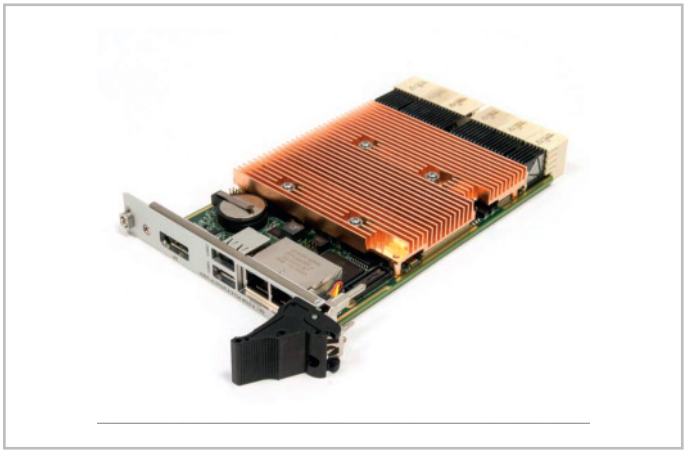
CPC514
3U CPCI Serial Elbrus CPU Module



Features

- VLIW-based CPU of Elbrus architecture (up to 800 MHz)
- DDR3 SDRAM 1600 MHz with ECC support 8 GB, soldered, 2x channel
- Flash BIOS: 64 Mb SPI-Flash
- USB 2.0 ports: 2x ports are routed to the front panel connectors, 7x ports are routed to J3 CPCI Serial connector
- Humidity: up to 80%, no condensation; up to 98%, no condensation, for /Coated option
- Operating temperature range: from –40 to + 85°C
- Software compatibility: Elbrus OS; KPDA. 10964-01 OS
- MTBF: no less than 80 000 h

Overview

CPC514 CPU Module is made in CPCI Serial 3U form-factor and is a highly integrated solution based on the Elbrus domestic platform.

CPC514 is designed for the use in real-time systems, manufacturing control systems and other systems for data acquisition and processing, which are used in harsh environments and require high reliability, information security and flexibility while supporting various extension interfaces.

Technical Specifications

CPU Elbrus-4C (1891ВМ8Я)
- VLIW-based CPU of Elbrus architecture (up to 800 MHz)
- 4x processor cores
- L1 data cache per core 64 KB
- L1 commands cache per core 128 KB
- L2 cache per core 8 MB

RAM
- DDR3 SDRAM 1600 MHz with ECC support 8 GB, soldered, 2x channel

Flash BIOS
- 64 Mb SPI-Flash

SSD 16 GB
- Innodisk 3SE, SLC, soldered. Connected to SATA II interface

Video output
- DisplayPort connector (resolution up to 1920x1440), Routed to the front panel

PCI-E bus
- Routed via PCI-E switch to J1 and J2 CPCI Serial connectors with support of 2x devices x4
- Routed via PCI-E switch to J4 and J5 CPCI Serial connectors with support of 6x devices x2
- Support of the Non-transparent mode for the first port x4
- Support of PCI-E 1.0a (up to 2,5 Gb/sec)

SATA II interface
- 3x interfaces for the connection of storage units are routed to J3 CPCI Serial connector

USB 2.0 ports
- 2x ports are routed to the front panel connectors
- 7x ports are routed to J3 CPCI Serial connector

Interface Ethernet 10/100/1000 Mb/sec
- 2x ports are routed to the front panel connectors
- 1x port is routed to J6 CPCI Serial connector

Real-Time Clock
- Power supply from lithium battery CR2032 (3 V)

Audio support
- Integrated HD Audio audio codec, interfaces Audio IN/OUT/MIC are routed to the mezzanine connector

Hardware monitor
- Implemented via SMBUS interface
- Monitoring of eight power supply voltages
- Monitoring of CPU temperature
- Monitoring of PCB temperature
- Connector for additional fan

LEDs
- LED for diagnostics of the board start/ “hot swap” LED
- LED of NT state of PCI Express port
- LED for addressing to SATA drives
- LED for module’s temperature mode indication
- Two software-controlled LEDs (user LEDs)

Power supply and power consumption
- +5V ±5%, no more than 1 A
- +12 V ±5%, no more than 4,5 A

Humidity
- Up to 80%, no condensation
- Up to 98%, no condensation, for /Coated option

Resistance to mechanical stress
- Sinusoidal vibrations for frequencies from 10 to 150 Hz: with acceleration of no more than 2 g
- Single shocks with duration of 11 ms, with a peak acceleration of no more than 50 g
- Multiple shocks with duration of 6 ms, with a peak acceleration of no more than 25 g

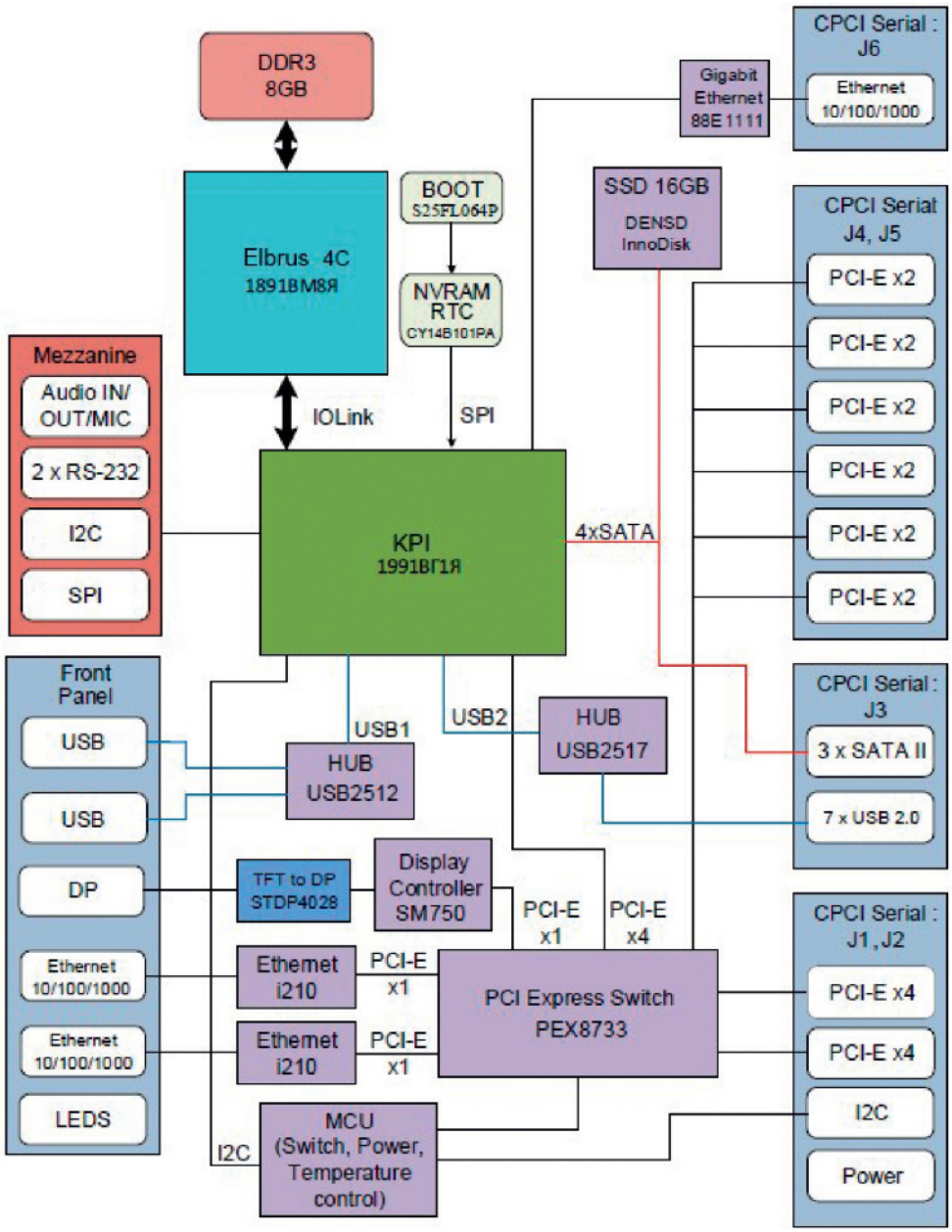
Operating temperature range
- From –40 to + 85°C

MTBF
- No less than 80 000 h

Software compatibility
- Elbrus operating system
- KPDA. 10964-01 operating system

CPC514
3U CPCI Serial Elbrus CPU Module

Board Layout



Expansion Possibilities

Two RS-232 interfaces are routed to the module's mezzanine connector (processor console is routed to the first connector), two I²C interfaces, SPI interface (up to 2x devices on the bus), UART-interface for configuration of the DisplayPort shaper.

CPC514
3U CPCI Serial Elbrus CPU Module

Ordering Information

CPC514 Configuration

CPC514 - 01 \ Options

Versions

CPC514-01	CPCI Serial 3U/4HP module with four core CPU 600 MHZ, 8 GB RAM, or operation in the industrial temperature range
CPC512RC-01	CPCI Serial 3U/5HP module, with four core CPU 600 MHz, 8 GB RAM, with conduction cooling

Options

\Coated	Conformal coating

For all the versions of CPC514 with heatsinks (convection cooling), forced cooling with the flow rate of no less than 0,5 m/s. Conformal coating can be applied. In case of this option, "\COATED" will be added to the ordered version.

Delivery checklist

CPC514 delivery checklist contains:

1. CPC514 CPU Module
2. Packaging

Ver. 1.8.2018

Product specifications are subject to change without notice

Corporate Offices

FASTWEL GROUP Co. Ltd

108 Profsoyuznaya str.
Moscow, Russia 117437
Tel: +7 (495) 232-1681
Fax: +7 (495) 232-1654
E-mail: info@fastwel.com
Web: www.fastwel.com

FASTWEL Corporation US

Fastwel Corporation US
6108 Avenida Encinas,
Suite B, Carlsbad,
CA 92011.
Phone: 858-488-3663
E-mail: info@fastwel.com

PICMG®

ISO 9001:2008
EC.C.0.02.01.000823 12

READY FOR RoHS

Fastwel