

# SoC AMD FP5 APU Based 6U Compact PCI CPU Module CPC507

## Features

- CPU: AMD Ryzen Embedded V1404I SoC APU 2.0 GHz 25W;
- RAM: DDR4-2400 SDRAM up to 16 GB, with ECC;
- Video output: DisplayPort interface (resolution of up to 4096x2160 @60 Hz) is routed to the front panel;
- USB ports: support of USB 2.0 (480 Mb/s) and USB 3.0 (5 Gb/s);
- Power supply voltage: +3.3 V; +5 V;
- Operating temperature range: from -40 to +85 °C;
- MTBF: no less than 50,000 hours;
- Software compatibility: Linux Debian 10, Astra Linux Special Edition, the "Smolensk" release v1.5, Microsoft Windows 10 IoT Enterprise 64bit;



## Overview

The CPC507 CPU Module implemented in the 6U Compact PCI format and has two platforms for installing the PMC/XMC mezzanines. The applied oC AMD FP5 APU (Ryzen Embedded VSeries) solution together with two mezzanine modules makes it possible to use CPC507 in compact computing systems.

## TECHNICAL SPECIFICATIONS

### ■ AMD Ryzen Embedded V1404I SoC APU

#### 2.0 GHz 25W:

- 4 x cores x64, 8 x threads;
- 8 x GPU cores;
- 6 MB cache;

#### ■ RAM:

- DDR4-2400 SDRAM up to 16 GB, with ECC support;

- 64-bit data bus;

#### ■ Video output:

- DisplayPort interface (resolution of up to 4096x2160 @60 Hz) is routed to the front panel;

- 3 x DisplayPort interfaces are routed to RIO;
- simultaneous operation of all interfaces is possible;

#### ■ PCI bus:

- routed to the CompactPCI J1/J2 connectors;
- 64 bit /66 MHz;
- implemented on the PCIe->PCI-X PI7C9X130 bridge;

- Non-transparent Bridge mode;

#### ■ LPC bus:

- routed to RIO;

#### ■ PCIe bus:

- PCIe Gen3 (up to 8 GT/s) routed to the P15 XMC connector with support of up to x8 devices;
- it is possible to use link x8 in the 2x4 mode (to be set in BIOS), links x4 are routed to the P15 XMC1 and XMC2 connectors;
- XMC is compatible with the ANSI/VITA 42.3 specification;

#### ■ SMBUS:

- Compatibility with the 2.0 specification;
- Rate up to 100 Kb/s;

#### ■ FLASH BIOS:

- 8 MB SPI-Flash;
- modifiable within the system;

#### ■ FRAM:

- volume: 32 KB;
- implemented on the SPI bus;

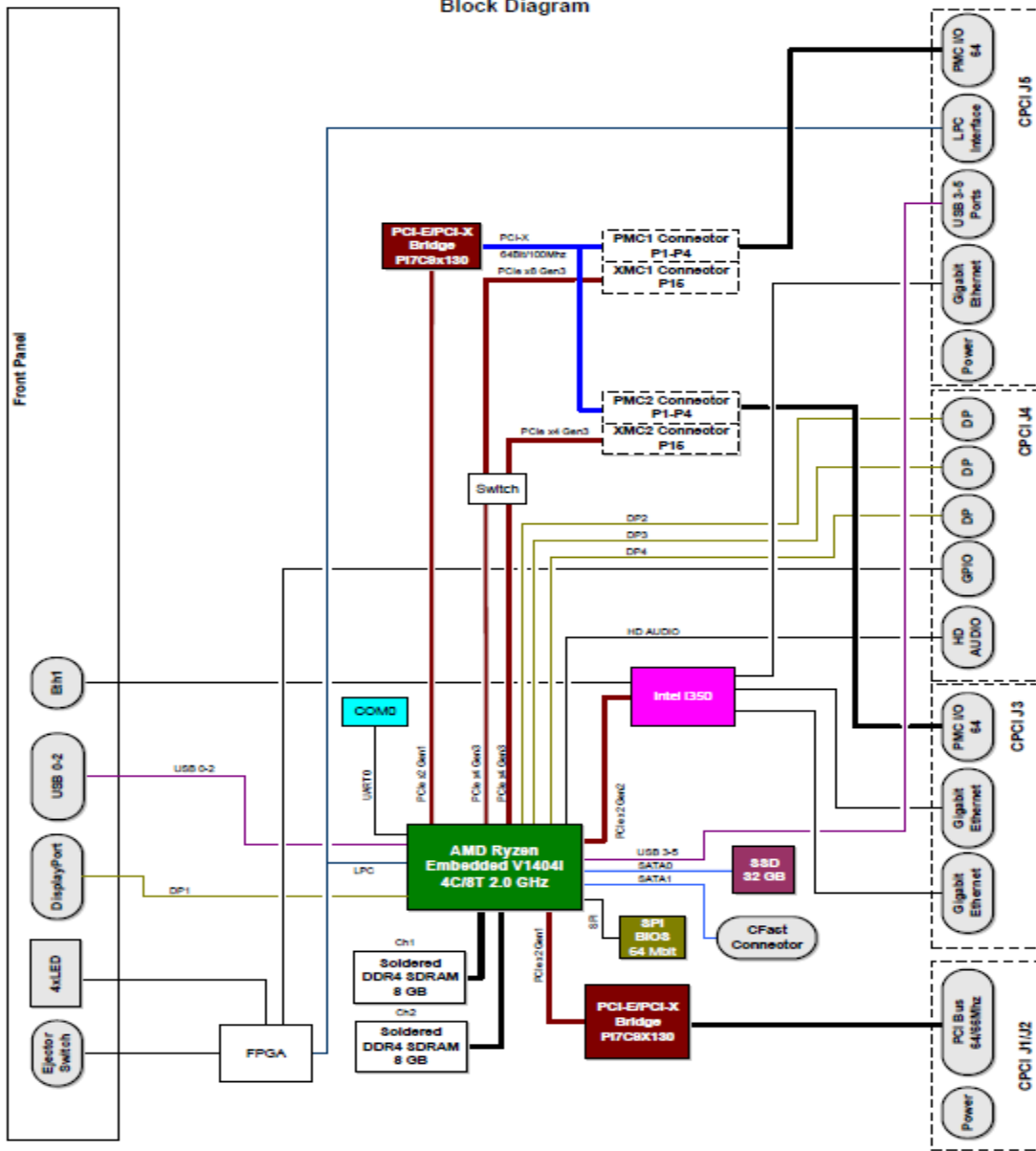
#### ■ Integrated SATA SSD:

- 32 GB 3D NAND Flash (Pseudo-SLC);
- Interface: SATA III 6 Gb/s;

- **CFast drive:**
  - SATA III rate: 6 Gb/s;
- **SPI interface:**
  - FRAM support;
  - frequency: up to 25 MHz;
- **4 x LAN 10/100/1000 Mb ports on PCIe x2 Gen2:**
  - 1 x channel is routed to the RIO connector;
  - 2 x channels are routed to the backplane (PICMG 2.16);
  - 1 x channel is routed to the front panel;
  - Intel i350 server network adapter is used;
- **USB ports:**
  - support of USB 2.0 (480 Mb/s), USB 3.0 (5 Gb/s);
  - connection of up to 3 x devices via connectors on the front panel (USB 3.0);
  - 3 x USB 2.0 interfaces are routed to RIO;
- **Real Time Clock:**
  - supplied by the lithium battery CR2032 (3V);
- **Audio:**
  - HD Audio interface is routed to RIO connector;
- **Watchdog Timer:**
  - internal, with the possibility of software control;
- **Hardware monitor:**
  - implemented via the SMBUS interface;
  - monitoring up to 7 power supply voltages;
  - CPU temperature monitoring;
  - PCB temperature monitoring;
- **Support of XMC/PMC expansion boards:**
  - support of two PMC/XMC modules;
  - PCI-X 64 bit/100 MHz bus is routed to the P1-P4 PMC1 and PMC2 connectors (ANSI/VITA 39, PCI-X on PMC);
  - PMC I/O P4 is routed to RIO for both mezzanines (PICMG 2.3);
  - PCIe x8 Gen3 bus is routed to the P15 XMC1 connector (ANSI/VITA 42.3, XMC PCI Express Protocol Standard), can be used in the x4 mode for 2 x mezzanines;
- **Software compatibility:**
  - Linux Debian 10;
  - Astra Linux Special Edition, the “Smolensk” release v1.5,
  - Microsoft Windows 10 IoT Enterprise 64bit;
- **Power supply voltage:**
  - +3.3 V; +5 V;
- **Operating temperature range:**
  - from -40 to +85 °C.;
- **MTBF:**
  - No less than 50,000 hours;
- **Resistance to sinusoidal vibration from 10 to 500 Hz with acceleration of 2 g;**
- **Resistance to single shocks 30 g;**
- **Resistance to multiple shocks 10 g;**
- **Resistance to electromagnetic interference in accordance with the requirements of the GOST R standard 50839-2000 (group II) (BS EN 61000-6-2:2001);**
- **Level of generated radio interference does not exceed the values set by the GOST R standard 51318.22-99 Class A (CISPR 22-97);**

**BOARD LAYOUT**

CPC507 PCI 6U Board Block Diagram



**ORDERING INFORMATION**

**CPC507 Configurations**

**CPC507 \ Options:**

Number	Version	Description
1	CPC507-01	CPC507 CPU Module, AMD Ryzen Embedded V1404I 25W, 4 x Cores, 16 GB DDR4 SDRAM, -40...+70 °C;
2	CPC507-02	CPC507 CPU Module, AMD Ryzen Embedded V1404I 15W, 4 x Cores, 8 GB DDR4 SDRAM, -40...+85 °C;

Conformal coating is available. When ordering, the version obtains the \COATED option.

**Delivery checklist:**

- CPC507 AMD FP5 APU Based 6U Compact PCI CPU Module ;
- Packaging.