CPC306
PC/104-Plus CPU Module

Features
- DM&P Vortex86DX (600 MHz) processor
- 256 MB DDR2 SDRAM
- Two Xilinx FPGAs
- Flash disk 128 MB
- Ethernet controller 10/100 Mb/s
- PC/104 slot (32-bit PCI, 16-bit ISA)
- USB 1.1, USB 2.0 support, up to four devices connection
- Four COM ports
- Isolated analog input – 8 channels
- Isolated analog output – 2 channels
- ADC, DAC
- 100G/10G – shock/vibration
- Industrial operating temperature range: –40°C to +85°C
- Protective coating (option)

Overview

Fastwel CPC306 is designed for applications requiring industrial controller with low power and compact size but capable to run in industrial environments.

CPC306 complies to PC/104-Plus™ specification and compatible with high number of PC/104 peripheral modules, power supplies and cages available from various vendors worldwide.

Empowered by x86 compatible Vortex™ 86DX family system-on-chip, CPC306 offers quick software development under DOS, Linux, Windows or QNX operating systems. High performance CPU core with frequency 600 MHz and 256 MB of DDR2 SDRAM provides sufficient computational resources for majority of controller applications.

Integrated Ethernet channel, four COM ports and high number of digital and analogues input-outputs ports give developers an excellent set of interconnects to the sensors, slave devices and host systems. Four USB 2.0 and LPT ports give CPC306 connectivity to various devices from PC environments.

Full 16-bit ISA bus support ensures expansion capability of CPC306 with legacy periphery modules and power supplies, while 32-bit PCI provides interconnect for mainstream expansion modules.

CPC306 has onboard CF and EIDE interfaces, providing developers a choice of storage media to be used with.

With all components soldered on board CPC306 withstands vibration up to 10g, shock up to 100g and operates within industrial temperature range of –40…+85°C.

For development purpose and for application requiring graphical output, CPC306 can work together with Fastwel VIM301 — PC/104-Plus compatible board empowered by embedded GPU from Silicon Motion™ — Linx3DM8+ with set of video interfaces comprising of 2 LVDS, 2 TFT, one CRT and one EL.

Technical Specifications

System
- CPU: DM&P Vortex86DX (600MHz): 32-bit x86 kernel, math, L1 cache (16 KB I-Cache, 16 KB D-Cache), L2 cache (256 KB), 16-bit memory
- 256 MB DDR2 SDRAM 266 MHz
- 2 Xilinx FPGAs
- MTBF: 170 000 hours

Flash BIOS
- 512 KB parallel Flash (ISA)
- 256 KB, reserved
- In-system modification
- FRAM (SPI) 256 Kbit for CMOS settings

Storage
- Flash disk: ATA Flash Disk Controller, NAND Flash 1 GB, IDE interface
- CompactFlash Type I/II socket, DMA support
- HDD connection: one primary channel, up to two devices connection (when ATA Flash Disk and CompactFlash are disabled in BIOS Setup), UltraDMA/100 support

Software support
- MS™ DOS 6.22
- FREEDOS
- QNX® 6.4
- Windows® CE 5.0
- Linux® 2.6

Interfaces
- Ethernet: two Ethernet controllers, 10/100 Mb/s
- USB: USB 1.1, USB 2.0 support, up to four devices connection
- Universal parallel port with SPP, EPP and ECP support
- PC/104 (PCI) 32-bit, 33 MHz slot
- PC/104 (ISA) 16-bit, 8/16 MHz slot
- Serial ports:
  COM1, COM2: RS-422/485, console, channel isolation 500 V
  COM3, COM4: RS-232 full control
- Transfer rate 115,2 Kbaud
- PS/2: keyboard and mouse port

- 72-bit discrete input/output +5V (TTL)
- Isolated analog input – 8 channels
- Isolated analog output – 2 channels
- ADC (12-bit analog-digital converter), DAC (12-bit digital-analog converter)
- Isolation 500 V
- Three watchdog timers: two programmable timers, one hardware based timer with fixed timeout period
- Module uptime counter
- Real-time clock
- Opto-isolated reset/interrupt

Mechanical
- Dimensions: 115.8×103.5×23.7 mm (4.56"×4.1"×0.93")
- Weight: 0.15 kg

Power requirements
- 5V ±5%, 1.3A

Environmental conditions
- Operating temperature range: –40°C to +85°C
- Storage temperature range: –55°C to +90°C
- Humidity: 0% to 80%, non-condensing
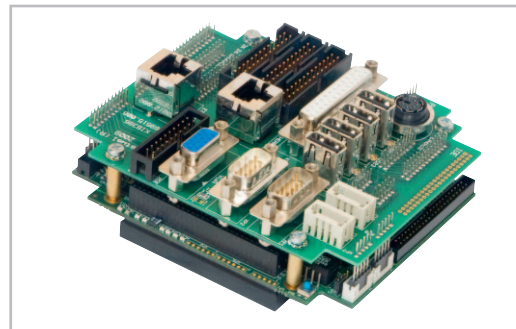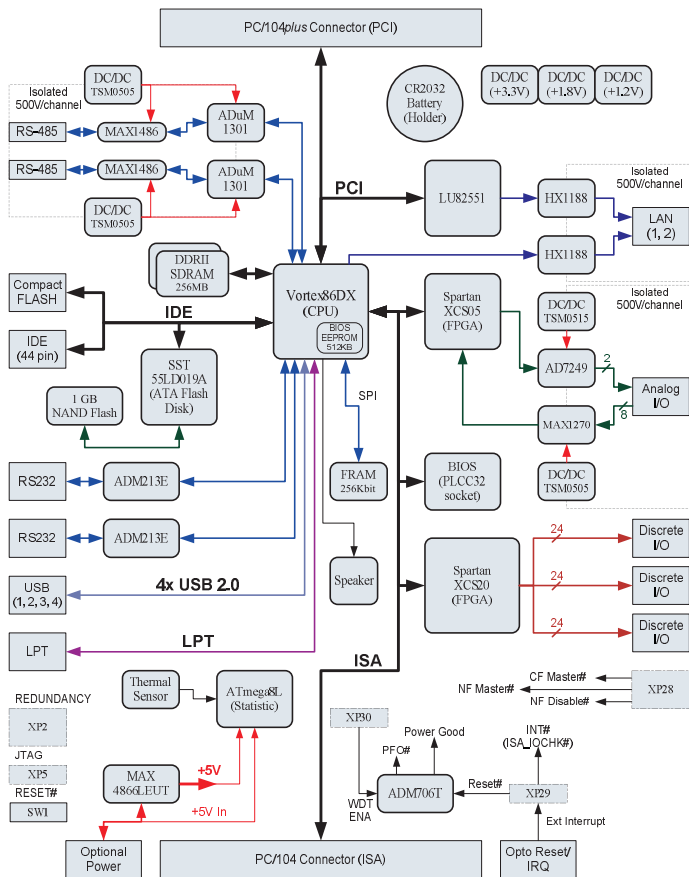- Shocks/vibration: 150G/10G

List of deliverables
- CPC306 module
- IDC10-DB9 adapter cable for connection of a console to COM port (ACS00023)
- Set of connecting elements
- CD with software and documentation
- Package

Warranty
- 3 years for parts and labor

Board Layout

Board block diagram showing PC/104plus Connector (PCI), Vortex86DX (CPU), DDRII SDRAM 256MB, Compact FLASH, IDE (44 pin), 1 GB NAND Flash, SST 55LD019A (ATA Flash Disk), RS232, RS485, USB (1,2,3,4), LPT, and various interface blocks.

KIB386 interface module Interfaces:
- Two RS-232-DB9
- Two RS-485
- VGA-DB15
- LPT-DB25
- Four USB-A
- Two LAN-RJ45
- PS/2
- Analog IO
- Descrete IO

KIB386 versions:
- KIB386-01– Samtec interface connectors as well as standard interface connectors are mounted on the module for connection of peripheral equipment.
- KIB386-02 – Only Samtec interface connectors are installed on the module. This version is intended for soldering interface cables directly to the module.

Ordering Information

CPC306 Configuration

CPC306 - 01 \Options

Device Type

CPC306 — PC/104+ Module, Vortex86DX 600MHz, 256MB DDR2 SDRAM, 1GB ATA Flash Disk, CF, IDE, 2×LAN 10/100Mbps, 2×RS-232, 2×RS-422/485, 4×USB2.0, Dual BIOS

Configurations

01 — Analog IO, Discrete IO, 2 Xilinx FPGAs, ADC, DAC
02 — no 2 Xilinx FPGAs, no ADC, no DAC

Options

\xxx — Choose available options from the table

CPC306 Available Options

Compact Flash Module	
\CF1024	1024 MB Compact Flash, industrial
\CF2G	2 GB Compact Flash, industrial
\CF4G	4 GB Compact Flash, industrial
\CF8G	8 GB Compact Flash, industrial
\CF16G	16 GB Compact Flash, industrial
Coating	
\COATED	Protective coating

Other configurations and options are available upon request.

Example

CPC306-01\CF2G\COATED

PC/104+ Module, Vortex86DX 600MHz, 256MB DDR2 SDRAM, 1GB ATA Flash Disk, CF, IDE, 2×LAN 10/100Mbps, 2×RS-235, 2×RS-485, 4×USB2.0, Analog IO, Discrete IO, Dual BIOS, –40…+85°C
2 GB Compact Flash
Protective coating

Corporate Offices

READY FOR RoHS

CE

TÜV CERT EN ISO 9001:2000 Zertifikat: 75.100.9545 TÜV Rheinland InterCert

EMBEDDED PC PC/104-Plus MODULES