



Features

- Vortex86DX processor 600 MHz
- 256 MB DDR2 SDRAM
- 10/100 Mbit/s Fast Ethernet
- 32-bit PCI, 8-bit ISA, LPC
- Two USB 2.0
- IDE interface (alternative 2xSD10)
- Two RS-232, PS/2
- Eight digital I/O ports
- Industrial operating temperature range: -40°C to +85°C

Overview

Fastwel CPB906 is a Computer Module designed for use as a computing core in application specific embedded systems.

Fastwel CPB906 is based on x86 code compatible CPU — Vortex86DX running at 600 MHz and addressing 256 MB DDR2 SDRAM.

CPB906 has just a 65x40 mm footprint (57% of credit card size). It is so far the smallest x86 Computer-on-Module, which is a perfect choice for space constrained applications.

All basic interfaces are routed to the high-density 220-contact bottom-side connector for installation on a customized carrier board bearing standard interface connectors.

Fastwel custom design division offers development of application specific embedded systems based on CPB906 computer module.

Fastwel CPB906 supports DOS, Windows CE 5.0, Linux 2.6 and QNX 6.3 operating systems.

Real scale size



Technical Specifications

System

- CPU: DM&P Vortex86DX (600MHz): 32-bit x86 kernel, 16-bit memory bus, 32 KB L1 cache, 256 KB L2 cache
- 256 MB DDR2 SDRAM (soldered)
- 64 Kbit nonvolatile FRAM for configuration parameters storage
- Two watchdog timers:
 - Internal: built in controller, programmable timeout period from 30.5 μ s to 512 s;
 - External: a part of the power supply supervisor, fixed timeout period of 1.6 s.
- MTBF: more then 320 000 hours at 30°C, Telcordia Issue 1 method (Method I Case 3)

Flash BIOS

- 2 MB SPI-flash incorporated in Vortex86DX
- In-system modification
- 512 KB external flash support (on carrier board)

Storage

- Flash disk: 1 GB NAND Flash SLC (Secondary IDE channel)
- PATA (alternatively — 2'SDIO): 1 Primary channel; Ultra-DMA 100 support

Software Support

- MS DOS™ 6.22
- Fastwel DOST™ 6.22
- Windows® CE 5.0
- Linux® 2.6
- QNX® 6.3

Interfaces

- LAN: one 10/100 Mb/s Ethernet channel (MAC + PHY)
- USB: 1.1, USB 2.0 (HS, FS, LS) support, two channels
- I²C port
- ISA, 8-bit
- PCI, 32-bit
- LPC bus
- Serial ports: COM1, COM2: RS232 (TTL-levels), up to 750 Kb/s, automatic data flow control signals supported.

- Console operation via COM1, COM2 serial ports
- PS/2: keyboard and mouse port
- Discrete input/output: 6 GPIO channels + 2 Chip Select lines of internal programmable address decoder (I/O or Memory map)
- Real time clock with CR2032 battery onboard
- External reset/interrupt port

Mechanical

- Dimensions: 65x40x10 mm (2.56"x1.57"x0.39")
- Weight: 0.05 kg

Power

- 5V $\pm$ 10%, maximum 450 mA

Environmental Conditions

- Operating temperature range: -40°C to +85°C
- Storage temperature range: -55°C to +90°C
- Humidity: 0% to 80%, non-condensing
- Single/multiple shock stability: up to 100G/50G
- Vibration: up to 5G

List of Deliverables

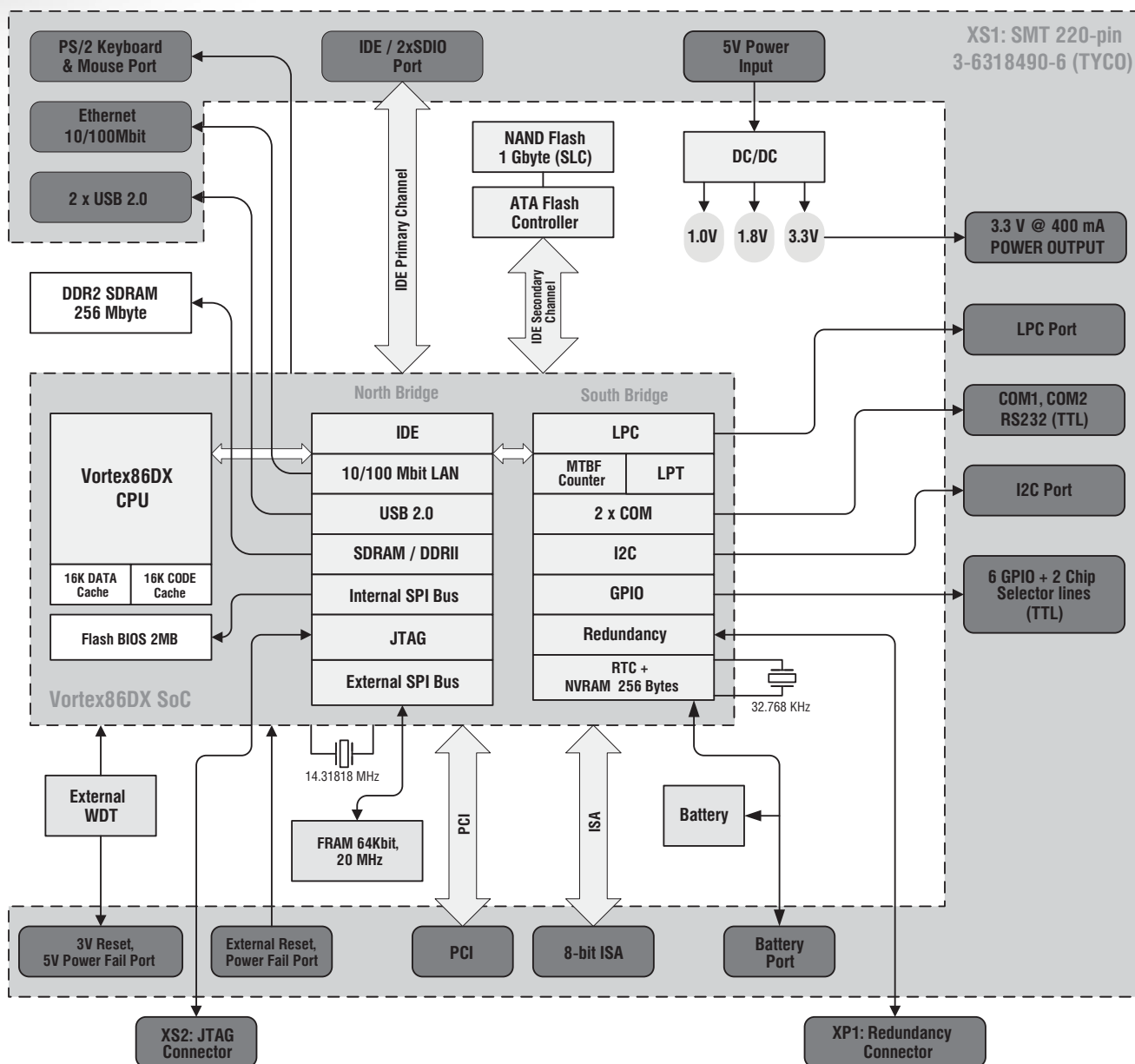
- CPB906 module
- CD with software and documentation
- Package

Warranty

- 3 years for parts and labor



Block Diagram



Applications



Embedded



Process Control



Fastwel



Fastwel



Fastwel

Accessories for CPB906



KIB880

EPIC carrier board for CPB906 processor module

Overview

KIB880 is a development board for CPB906 processor module, designed especially to provide a quick start (i.e. initial software and hardware development and debugging) for CPB906-based applications.

KIB880 with CPB906 processor module can be used as a ready-to-use solution for some applications.

Technical features

- Expansion modules support:
 - PC/104 (8-bit ISA);
 - PC/104+ (8-bit ISA, PCI)
- IDE (channel shared with SDIO port):
 - Primary channel;
 - Up to two devices;
 - Ultra-DMA 100 support;
 - CompactFlash Type I/II socket
- SDIO (channel shared with IDE):
 - MiniSD cards support;
 - Up to two devices
- LAN: one 10/100 Mb/s Ethernet channel (MAC + PHY)
- USB: 1.1, 2.0 (HS, FS, LS) support; up to two devices
- Serial ports:
 - COM1, COM2: RS232, up to 230 Kb/s;

- COM1, COM2: RS422/485, up to 750 Kb/s, automatic data flow control signals supported;
- COM5, COM6: RS232, up to 921 Kb/s
- Universal parallel port: SPP, EPP, ECP modes support
- PS/2 mouse and keyboard port
- Discrete I/O ports:
 - 8 channels via CPB906 GPIO;
 - 8 channels via LPC SuperIO GPIO.
- Temperature sensor (I2C port)
- Console operation via COM1 serial port
- Main power supply voltage: +5 V $\pm 5\%$
- Operating temperature: -40°C to $+85^{\circ}\text{C}$
- MTBF: 170000 hours more then
- Vibration resistance: 5g
- Single shock resistance: 100g
- Multiple shock resistance: 50g

List of deliverables

- KIB880 module;
- A set of counterparts for KIB880 connectors;
- CD with software and documentation (developer's kit);
- CD with software and documentation (standard Fastwel CD);
- Consumer package

Development Kits

Development Kits

DVK-01: CPB906, KIB880, VIM301, FDOS

DVK-02: CPB906, KIB880, VIM301, Windows CE

DVK-03: CPB906, KIB880, VIM301, Linux

Ordering Information

CPB906 Configuration

CPB906-01

Device Type

CPB906-01 Vortex86DX 600 MHz, 256 MB DDR2 SDRAM, 128 MB FFD, PCI, ISA, Ethernet 10/100 Mb/s, 1 LPC, 1 IDE / 2 SDIO, 2 USB 2.0, 2 RS-232 (TTL), 8 discrete I/O channels (GPIO), $-40\ldots+85^{\circ}\text{C}$.

Example

CPB906-01

Vortex86DX 600 MHz, 256 MB DDR2 SDRAM, 128 MB FFD, PCI, ISA, Ethernet 10/100 Mb/s, 1 LPC, 1 IDE / 2 SDIO, 2 USB 2.0, 2 RS-232 (TTL), 8 discrete I/O channels (GPIO), $-40\ldots+85^{\circ}\text{C}$

Ver. 0.10 2009

Product specifications are subject to change without notice

