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Embedded modules • Industrial PCs
OPC Software • Assembling & Customization
PCs for mission-critical applications

Our membership

PC/104 Consortium is an international organization of PC/104 products manufacturers that maintains the PC/104 specifications, disseminates PC/104 technology, and promotes the welfare of its members.

Executive Member

PICMG (PCI Industrial Computer Manufacturers Group) is a consortium of companies who collaboratively develop open specifications for high performance telecommunications and industrial computing applications.

Associate Member

VITA, the VMEbus International Trade Association, is an incorporated, non-profit organization of vendors and users, promoting VME bus and concept of open technology.

Corporate Member

The OPC Foundation is dedicated to ensuring interoperability in automation by creating and maintaining open specifications that standardize the communication of acquired process data, alarm and event records, historical data, and batch data to multi-vendor enterprise systems and between production.

CAN in Automation (CiA) is the international users’ and manufacturers’ organization that develops and supports CAN-based higher-layer protocols.

QNX Board Vendor Enablement Program is designed to support single board computer vendors by enabling them to market QNX-based products, speed up time-to-market and build strong out-of-the-box solutions.

Wind River is the global leader in Device Software Optimization and the developer of real-time systems for industrial automation.

Intel Embedded and Communications Alliance (Intel ECA) is a community of developers and solution providers committed to the design and implementation of modular systems based on Intel technologies in the area of communication and embedded applications.

System Platforms

Our important system partnership with Elma Electronics allows us to meet the demands of our customers for integrated platforms based on Elma housing solutions and Fastwel CPU boards.

Elma has vast expertise in Eurocard-based system platforms with most relevant PICMG and VITA bus architectures, such as AdvancedTCA, MicroTCA, CompactPCI, CompactPCI Serial/PlusIO, OpenVPX, VPX, VXS, VME64x, VME etc.

We are able to integrate almost every Fastwel “passive backplane suitable” CPU module with Elma products and provide our customer with a validated platform, which can become the base of his embedded solution and save time for other complicated tasks.

Embedded Flash Storage

The industrial CPU modules and SBCs from Fastwel can be supplied with the Innodisk rugged 2.5”, ATA, SATA, CF Cards on your request. You may benefit from having fully compatible products from a single source at a competitive pricing level.
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About company

Fastwel’s primary goal is to provide world class, highly reliable embedded computer solutions for mission-critical applications, which can serve long-term demands of our customers and secure their efforts and time.

We develop and manufacture rugged Box-PCs, industrial single board computers and modules for mission-critical applications in transport, security and defence, telecom, aerospace equipment and also industrial automation and process control systems.

We deliver a wide range of industrial CPU modules designed in PC/104, EPIC, VME, CompactPCI, 3.5", MicroPC, Mini-ITX form factors and Computer-on-Modules.

All our products have high integration capability and can be used in different applications without adaptation. Our products operate at the temperature range from –40°C to +85°C and withstand high level of shock/vibration (50G/5G) and humidity (up to 95% noncondensing).

Manufacturing

Fastwel has its own modern manufacturing facilities that allow producing high-tech electronic modules. Fastwel production lines make it possible to manufacture prototypes and large volumes of serial equipment and products for OEMs.

The manufacturing lines allow utilizing RoHS compliant lead free mounting technology for all types of components – from THT-elements with non-standard shape to SMT-components with 0.3 mm lead pitch, including BGA, MicroBGA and Flip-chip packages. Soldering is performed in nitrogen atmosphere.
Quality

High quality of Fastwel products is provided by the quality management system and thorough product testing procedures. We test our products in strict accordance with the international standards and procedures.

Quality management system procedures and algorithms allow to provide quick response to customers’ needs.

Every product manufactured by Fastwel is thoroughly checked at every development and production stage to guarantee conformance to the high standards of mission-critical applications. To ensure stability and reliability of the products intended for operation within the industrial temperature range climatic acceptance tests are conducted.

The products are also tested for vibration and shock resistance, for safety, electromagnetic compatibility and interference immunity. Special tests, such as radiation tolerance or reduced atmospheric pressure resistance are performed at customer’s request.

Customer approach

- Customer support at all project implementation stages
- More than 7 years product availability
- Technical support
- 3 years warranty
- Standard products customization
Embedded modules

PC/104  CPU modules

Basic comparison chart

<table>
<thead>
<tr>
<th>Field</th>
<th>USB 2.0</th>
<th>Ethernet</th>
<th>Video</th>
<th>ISA 16-bit (PC/104)</th>
<th>PCI 32-bit (PC/104+)</th>
<th>Storage</th>
</tr>
</thead>
<tbody>
<tr>
<td>CPC306</td>
<td>2×RS-232&lt;br&gt;2×RS-485/422 isolated analog and digital I/O</td>
<td>4</td>
<td>2 FE</td>
<td>—</td>
<td>+</td>
<td>CF, IDE</td>
</tr>
<tr>
<td>CPC307</td>
<td>4×RS-232&lt;br&gt;2×RS-485/422 isolated CAN</td>
<td>4</td>
<td>1 FE</td>
<td>—</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>CPC304</td>
<td>2×RS-232&lt;br&gt;2×RS-485/422 isolated</td>
<td>2</td>
<td>2 FE</td>
<td>VGA or LVDS or TFT</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>CPC308</td>
<td>2×RS-232&lt;br&gt;2×RS-485/422 galvanically isolated</td>
<td>4</td>
<td>2GE</td>
<td>VGA and LVDS</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>CPC1600</td>
<td>—</td>
<td>6</td>
<td>2GE</td>
<td>VGA and LVDS</td>
<td>+</td>
<td>+</td>
</tr>
</tbody>
</table>

PC/104-Plus DM&P Vortex86DX

CPC306

- DM&P Vortex86DX, 600 MHz CPU
- 16-bit ISA and 32-bit PCI buses
- 256 MB DDR2 SDRAM soldered
- IDE, CF Type I/II
- Two Fast Ethernet 10/100 Mb/s
- Four USB ports, two RS-232, two RS-485/422
- 72 channels of Digital I/O
- 8/2 channels of Analog I/O
- Shock/vibration resistance: 100g/10g
- Fastwel DOS, Windows CE, Linux, QNX

PC/104-Plus DM&P Vortex86DX

CPC307

- DM&P Vortex86DX, 600 MHz CPU
- 16-bit ISA and 32-bit PCI buses
- 256 MB DDR2 SDRAM soldered
- DE, up to 2 MicroSD
- Fast Ethernet 10/100 Mb/s
- 4×USB ports 2.0
- Two isolated CAN 2.0 ports
- 2×RS-232, 2×RS-232/485/422, 2×RS-485/422
- Shock/vibration resistance: 100g/10g
- Fastwel DOS, MS DOS, Linux, QNX
PC/104 CPU modules

PC/104-Plus AMD® Geode™ LX800

CPC304
- AMD® Geode™ LX800 CPU, 500 MHz
- 16-bit ISA and 32-bit PCI buses
- 256 MB soldered DDR SDRAM
- VGA, LVDS and TFT interfaces
- Two Fast Ethernet 10/100 Base-T ports
- Soldered Flash 1 GB, CF Type I/II, IDE interface
- Two USB 2.0
- 2×RS-232, 2×RS-422/485 isolated
- Shock/Vibration resistance: 50g/3g
- MS DOS, QNX, Windows XPe, Windows CE, RTOS32, Linux

PC/104-Plus Intel Atom

CPC308
- Intel Atom N450/D510, 1.66 GHz CPU
- DDR2 SDRAM 667 MHz, 512 MB / 1 GB, soldered
- 2 GB NAND Flash
- VGA output (up to 1400×1050 60 Hz (N450) and 2048×1536 60 Hz (D510));
- LVDS interface (up to 1280×800 60 Hz (N450) and 1366×768 60 Hz (D510), single-channel 18-bit mode)
- Two Gigabit Ethernet controllers 2×SATA and CFI/II
- Conduction cooling
- 4×USB 2.0, 2×RS-232, 2×RS-485/422 galvanically isolated
- Shock/vibration resistance: 50g/5g
- Windows XP (Embedded), Linux 2.6, QNX 6.5

PC/104-Plus Intel® Pentium® M with conduction cooling

CPC1600
- Intel® Pentium® M CPU up to 2.0 GHz
- 16-bit ISA and 32-bit PCI buses
- 1 GB PC4200 DDR2 SDRAM on board
- Two independent CRT/LVDS Displays
- Two Gigabit Ethernet ports
- 2×USB 2.0 ports
- Two serial ATA channels, CF Type I/II
- Conduction cooling
- Shock/Vibration resistance: 50g/2g
- Windows XP Embedded, QNX, Linux
Embedded modules

PC/104 Extension modules

PC/104 power supply and system control

- Input voltage range: 11…36 VDC
- Overall power output: 50 W max
- Surge overvoltage protection, Input/output isolation – 1500V
- Capability to supply power from main and reserve sources
- Control and monitoring system via isolated RS-232/RS-422
- Automatic power control modes
- Watchdog, Real time clock, Temperature sensor;
- System events log (switch to reserve power, input voltage reduction, etc.)
- Heater and fan control powering at T > –50°C
- Shock/vibration 50g/5g

PC/104-Plus Communication and Navigation Module

- PC/104 Plus complainace
- 4-band GSM 850/900/1800/1900 modem, GPRS/EDGE Class 10
- Two SIM card support
- GPS/GLONASS receiver, 24 channels
- PCI/104 (PCI) interface to Host processor
- Shock/vibration resistance: 50g/10g
- Windows, XP Embedded, Linux, QNX

PC/104-Plus Graphics CoProcessor module

- Lynx3DM8+(SM722G8) GPU
- Graphics memory 8 MB, 64-bit, 100 MHz
- PCI/104 (PCI) interface to Host processor
- VGA up to 1280×1024
- Two LVDS interfaces
- Two Flat Panel (FP) interfaces
- One SGD 4-bit LCD (EL Planar) interface
- Four analog video input channels
- Shock/vibration resistance: 50g/10g
- Fastwel DOS, Windows CE/XPe, Linux, QNX

Field Buses module

- Compliance to PC/104 Plus v2.2
- 2 isolated CAN 2.0a and 2.0b
- 2 isolated RS422/RS485
- ISA based controller, PCI path through
- Protective coating (optional)
- Support for DOS, RTOS32, QNX6.3x, 4.25, Windows CE5.0, Linux
Small form-factors

Basic comparison chart

<table>
<thead>
<tr>
<th>Type</th>
<th>Size, mm</th>
<th>ISA 16-bit (PC/104)</th>
<th>PCI 32-bit (PC/104+)</th>
<th>Ethernet</th>
<th>SATA, IDE</th>
<th>Compact Flash</th>
</tr>
</thead>
<tbody>
<tr>
<td>3,5&quot;</td>
<td>107×147</td>
<td>+</td>
<td>+/—</td>
<td>FE</td>
<td>IDE</td>
<td>+</td>
</tr>
<tr>
<td>EPIC</td>
<td>115×165</td>
<td>+</td>
<td>+</td>
<td>GE</td>
<td>SATA, IDE</td>
<td>+</td>
</tr>
<tr>
<td>MicroPC</td>
<td>123×125</td>
<td>+</td>
<td>—</td>
<td>FE</td>
<td>IDE</td>
<td>+</td>
</tr>
</tbody>
</table>

3,5"

**3,5" AMD® Geode™ LX800**

**CPB905**

- AMD® Geode™ LX800 500 MHz
- 512/256 MB SDRAM soldered
- 32-bit PCI, 16-bit ISA
- VGA, LVDS, TFT up to 1920 1440
- Two Fast Ethernet 10/100 Mb/s ports
- 4 USB 2.0 ports, three RS-232, four RS-422/485 isolated
- Shock/Vibration: 50g/5g
- Linux, QNX, Windows XP Embedded/CE

**3,5" STPC Vega®**

**CPB902**

- STPC Vega® 200 MHz CPU onboard
- Up to 128 MB SDRAM soldered
- VGA, LVDS, TFT
- Two Fast Ethernet 10/100 Mb/s ports
- Two RS-232, four RS-232/422/485
- Two USB ports
- Shock/Vibration: 50g/5g
Embedded modules

**EPIC**

**EPIC Single Board Computer with PCI-104 and StackPC expansions**

**CPC805** NEW

- Intel® Atom N450 CPU 1.66GHz soldered
- 1 or 2 GB DDR2 SDRAM soldered
- VGA and LVDS up to 1400×1050 pixels
- Expansions: PCI-104 32/33 and StackPC (4×1 PCI-Express, 6×USB 2.0, 2×SATA II, LPC, 2×RS-232, SM bus)
- 2 GbEthernet, 4 USB 2.0, PS/2, Audio
- 1 SATA II, CF, Soldered 2 GB IDE Flash
- 4 RS-232, 2 RS-485 isolated
- 7-30V DC or ATX power supply
- Shock/vibration resistance: 50G/5G
- DOS, Windows Xp Embedded, Windows Embedded Compact 7, QNX, Linux

**EPIC Intel® Pentium® M**

**CPC800**

- Intel® Pentium® M up to 1.8 GHz onboard
- 16-bit ISA and 32-bit PCI buses
- Up to 1 GB DDR SDRAM ECC soldered onboard
- Two Gigabit Ethernet ports
- CRT and LVDS up to 2048×1536
- Four USB 2.0 ports, four COM ports
- Two SATA, IDE and CF Type I/I
- Shock/vibration resistance: 50G/5G
- Fastwel DOS, Windows 200/XP/ XP Embedded, Linux

**Pin-header EPIC Intel® Pentium® M**

**CPC801**

- Intel® Pentium® M up to 1.8 GHz onboard
- 16-bit ISA and 32-bit PCI buses
- Up to 1 GB DDR SDRAM ECC soldered
- Pin header connectors
- Two Gigabit Ethernet ports
- VGA and LVDS up to 2048 1536
- Four USB 2.0 ports, two RS-232, two RS-485
- Two SATA, IDE and CF Type I/I
- Shock/vibration resistance: 50G/5G
- Windows 2000/XP Embedded, QNX, Linux
**MicroPC AMD® Geode™ LX800**

**CPC108**

- AMD® Geode™ LX800 CPU, 500 MHz
- 256 MB DDR SDRAM
- Support for LCD panels (resolution up to 1600×1200) and CRT monitors (resolution up to 1920×1440)
- Two isolated CAN ports via KIB985
- Fast Ethernet controller 10/100 Mb/s
- Four USB 2.0, two RS-232, isolated two RS-422/485, PS/2
- DOS, QNX, Windows CE/XP Embedded, RTOS32, Linux

**MicroPC Vortex86DX 600 MHz**

**CPC109**

- Vortex86DX 600 MHz
- 256 MB DDR II SDRAM (soldered)
- 1 GB SLC NAND Flash (soldered)
- CompactFlash socket
- Ethernet port: 10/100 Mbit/s
- Four USB 2.0
- 8 isolated analog inputs, 12-bit ADC
- 2 isolated analog outputs: 12-bit DAC
- 72 DIO
- MS DOS 6.22, Fastwel FDOS 6.22, Linux 2.6, QNX, Windows CE 5

**MicroPC AMD® Geode™ LX800**

**CPC150**

- AMD® Geode™ LX 800 (500 MHz)
- System memory: 256 MB DDR SDRAM
- Flash-disk: 1 GB with IDE interface
- CompactFlash (Type I or II) socket
- Graphics controller: CRT, LCD (TFT or DSTN) up to 1920×1440
- Two Ethernet 10/100 Mbit controllers
- FPGA with open programming interface and 256 KB SRAM
- Serial ports: 2×RS232, 2×RS422/485 isolated
- Four USB 2.0
- Linux 2.6, Fastwel FDOS 6.22, QNX 4.25,6.3, Windows CE/XP Embedded
Embedded modules

3U & 6U CompactPCI

6U CompactPCI Host blade Intel Core i7 CPU, Dual and Quad core

- CPC503 NEW
- 0...+70°C
- -40...+85°C
- PICMG 2.0, PICMG2.16, PICMG 2.1 compliant
- Intel Core i7 CPU, Dual (2.2 and 1.5 GHz) and Quad (2.1 GHz) core
- 4 or 8 GB DDR3 SDRAM ECC 1333 MHz, soldered
- 4 Gigabit Ethernet : 2 on front, 2 on rear (PICMG2.16)
- 2 Displayports (front/rear) up to 2560×1600, 1 DVI-I front, 1 DVI-D on rear I/O
- 4 SATA II, site for onboard 1.8 HDD, 4 USB 2.0 (front)
- PCI 64 bit / 66MHz, hot swap support
- XMC mezzanines: x8 PCI-Express Gen II, 64/133 PCI-X, 2×USB2.0, 1×SATA II
- Watchdog, RTC, Voltage and Temperatures monitoring
- OS support for Linux 2.6, QNX 4.25, 6.4 and VX Works 6.8

6U CompactPCI Intel® Pentium® M

- CPC501
- 0...+70°C
- -40...+85°C
- PICMG 2.16 and PICMG 2.1 compliant
- Intel® Pentium® M CPU up to 1.8 GHz
- Two Gigabit and one Fast Ethernet ports
- Integrated VGA graphics
- Onboard PMC or 2.5” HDD
- Wide range of interfaces on rear I/O modules
- Windows XP/XP Embedded, Linux, QNX support
- RIO 581: 2×Gigabit Ethernet, VGA, LVDS, 2×RS-485, 2×RS-232, 2×USB, PS/2
- Linux, QNX, VX Works, Windows XP

3U CompactPCI Intel® Core™ 2 Duo

- CPC506 NEW with extended heatsink
- 0...+70°C
- -40...+85°C
- Intel® Core™ 2 Duo 1.6 or 2.2 GHz
- Up to 4 GB soldered DDR2 SDRAM
- VGA up to 2048×1536 and Dual DVI-D (8HP and 12HP)
- PICMG 2.30: 32-bit PCI bus, 4×1 PCI Express, 2 SATA II, 4 USB 2.0

- CPC506 NEW with 2DVI
- 0...+70°C
- -40...+85°C
- Two Gigabit Ethernet ports
- Up to 4 GB soldered NAND Flash, SD interface
- Increased heatsink versions for passive cooling (8HP)
- MIC584: 6×RS-232/485, 2×USB, PS/2, Audio
- Windows XP/XP Embedded, Linux, QNX
3U CompactPCI

3U CompactPCI Intel® Atom

CPC508 NEW

- Intel Atom N450 or D510 CPU, soldered
- 1GB DDR2 SDRAM soldered
- VGA up to 2048×1536; 2 GbEthernet front-rear switchable
- PICMG2.30: PCI 32/33, PCI-Express 4x1, 2 SATA II, 4 USB
- CF and SD interfaces, 1 or 2 GB Flash SSD soldered
- Mezzanine MIC589 : 2 USB, 2 RS-232, 2 RS-485 isolated, 2 CAN 2.0 isolated, HD Audio, LVDS
- Mezzanine MIC584: 2 USB, 4 RS-232, 2 RS-485, PS/2, HD Audio
- MS DOS 6.22, Free DOS, Windows XP Embedded, Linux 2.6, QNX

3U CompactPCI Intel® Core 2 Duo

CPC504

- PICMG 2.0 compliant
- Intel® Core™ 2 Duo up to 2.2 GHz, 800 MHz
- Dual Channel DDR II SDRAM up to 4096 MB soldered
- VGA (front) and LVDS (back) up to 2048x1536
- Two Gigabit Ethernet 10/100/1000 Mbit/s
- Onboard : SD card and 4GB SATA Flash, 2 DVI-D up to 1600×1200
- Mezzanine MIC 588: 2×SATA, 6×RS-232/485, 2×USB, PS/2
- Linux, QNX, Windows XP Embedded

3U CompactPCI/PXI Intel® Pentium® M

CPC502

- PICMG 2.0 compliant
- Intel® Pentium® M CPU up to 1.8 GHz
- VGA interface resolution up to 2048×1536
- Two Gigabit Ethernet10/100/1000 Mbit/s
- Soldered 1 GB DDR SDRAM with ECC
- Two USB 2.0 ports, CF Type I/II
- Wide range of interfaces available through mezzanine and rear i/o modules
- Windows XP/XP Embedded, Linux, QNX
Embedded modules

Peripheral 3U CompactPCI modules

CompactPCI Graphics Processing Module

**VIM552**

- Compliance with PICMG 2.30 and PICMG S.0 standards
- LynxExp SM750 graphics processor,
- 64 MB DDR SDRAM
- VGA (up to 1920×1440) and DVI-I (up to 1920×1200) front panel interfaces
- One USB 2.0 on front panel
- One SATA channel with possibility to mount a 2.5" HDD
- Passive cooling
- MS DOS 6.22, FDOS 6.22, Windows XP Embedded, Linux 2.6

Storage Module for Connection of 2.5" HDD

**KIC550**

- Compliance with PICMG 2.30 and PICMG S.0 standards
- Place for mounting a 2.5" disk with SATA interface
- USB 2.0 at the front panel or USB 3.0 via on-board connector

GSM/UMTS Wireless Communication and GPS/GLONASS Positioning Module

**CNM550**

- Compliance with PICMG 2.0 specification (32-bit / 33 MHz)
- Supports Windows XP Embedded/Vista7, Linux
- GSM 850/900/1800/1900 MHz, UMTS 850/1900/2100 MHz
- Data transmission: GPRS (up to 48 Kbit/s reception/ transmission), EDGE (up to 236.8 Kbit/s reception), HSDPA (up to 7.2 Mbit reception), HSUPA class 5 (up to 2 Mbit transmission)
- Two SIM/USIM card sockets
- USB 2.0 device interface
- 24 universal GPS/GLONASS channels; maximum positioning error – 5 m (2 m in differential mode)
- External GSM/UMTS and GSM/ GLONASS antennas support

Power Supply Module for CompactPCI Systems

**PS550**

- Form-factor: Eurocard 3U, 8HP, P47 connector
- Input voltage: 9…36 V or 36…72 V
- Hot swap support
- Surge protection at input; overload and overheating protection
- Input/output galvanic isolation: 1500V
- Output voltages/currents:
  - +12V / 8A
  - -12V / 0.5A
  - +5V / 18A; total power – 86W max
  - +3.3V / 10A
- Total output: 150W max
6U VME64/64x/2eSST Intel® Pentium® M

CPC600-01

- VME64/64x, 2eSST and VITA 31 compliant
- Intel® Pentium® M CPU up to 1.8 GHz onboard
- Soldered 1 GB DDR SDRAM ECC
- SODIMM socket for additional 1 Gb SDRAM
- VGA up to 2048×1536
- Four Gigabit Ethernet ports
- CF Type I, 64-bit PMC or 1,8” HDD, IDE
- Six USB 2.0 ports, one RS-232 port
- RIO 680: VGA, 2 Gb Ethernet, RS-232, RS-485, 2×USB, PS/2
- Linux, VX Works, QNX

0…+70°C
-40…+85°C

6U VME64/VME64x/2eSST Intel® Pentium® M; Reduced heatsink

CPC600-02

- VME64/64x, 2eSST and VITA 31 compliant
- Intel® Pentium® M CPU up to 1.8 GHz
- Soldered 1 GB DDR SDRAM ECC
- SODIMM socket for additional 1 Gb SDRAM
- Four Gigabit Ethernet ports
- IDE interface and site for 2,5" HDD
- Six USB 2.0 ports
- Two Serial ATA channels
- RIO 680: VGA, 2 Gb Ethernet, RS-232, RS-485, 2×USB, PS/2
- Linux, VX Works, QNX

0…+70°C
-40…+85°C
Embedded modules

Computer-on-modules

COM Express module based on Intel® Core™ 2 Duo

- CPC1301
  - COM Express basic, Type two pinout
  - Intel® Core™ 2 Duo/Core™ Duo/Core™ Solo CPUs with 533/667 MHz FSB up to 2.2 GHz
  - Up to 4 GB DDR2 dual channel memory
  - VGA and LVDS up to 2048x1536
  - 5 x 1 or 1 x 4 and 1 x 1 PCI Express, 1 Gb Ethernet
  - x16 PCI-Express graphics interface, up to 8 for I/O
  - Two serial ATA, one IDE Ultra ATA/100 interface
  - Windows XP/XP Embedded/CE, Linux, QNX

ETX module based on AMD® Geode™ LX800

- CPB904
  - AMD® Geode™ LX800 500 MHz
  - Soldered 256/512 DDR SDRAM or SODIMM
  - VGA and LCD up to 1024x768
  - 10/100 Fast Ethernet controller
  - 32-bit PCI, 16-bit ISA
  - Four USB 2.0 ports, three RS-232
  - EIDE: ATA-5/ATAPI UDMA100
  - Windows XP Embedded, Linux, QNX

"FemtoCore" processor module based on Vortex86DX

- CPB906
  - 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 2 SD10)
  - Two RS-232, PS/2
  - Eight digital I/O ports
  - MS DOS 6.22, FDOS 6.22, Windows CES, Linux 2.6, QNX 6.3
Industrial Box and Panel PCs
The products below are fully configurable and can be customized according to the specific demands of your application.

**Fanless Panel PC**

**BS03**

- LCD 10.2"
- IP65 at front panel
- Protective glass
- 2×CompactFlash, 2×USB, Ethernet, 2×CAN
- −50...+60°C, without fans and heating
- Shock/vibration: 10g/1g
- Windows, QNX, Linux
- Perfect for transport application

**Compact PC-104 Based Solution**

**MK-306**

- CPU 600 MHz Vortex86DX;
- Passive Cooling;
- Lynx3DM8+ Graphics;
- True Industrial Grade
- −40...+85°C

**Box-PC with PC/104 expansion option**

**MK-307**

- DM&P Vortex86DX 600 MHz CPU
- 256 MB DDR2 SDRAM
- VGA, LVDS, LCD up to 1280×1024
- Ethernet controller 10/100 Mb/s
- Four USB 2.0 ports
- Housing up to five PC/104 expansion modules
- 50G/5G – shock/vibration resistance
- 10–36 V DC Power in
- IP65 Sealed
Industrial PCs

Industrial Box PCs

Modular Computer

MK1301

- Core2Duo 1.5 GHz
- DDR2 SDRAM 2048 MB
- 5+1 RS-232 serial ports, complete, up to 1.5 MB/s;
- 1 LAN 10/100/1000 MB/s, isolated;
- 2+2 USB 2.0 ports;
- PS/2 keyboard / mouse;
- VGA, LVDS 18/36-bit for MK1301-01;
- Two LVDS ports 24/48-bit for MK1301-02;
- One CAN 2.0b port, up to 1 MB/s, isolated;
- Power voltage: 9 – 36 VDC
- Shock/vibration: 50g/5g
- FreeDOS; Windows XP; Linux 2.6; QNX 6.4

Fanless Embedded Box-PC

TK8000

- Intel® Pentium® M 1.8 GHz
- Onboard 1 GB DDR SDRAM with ECC
- VGA output
- Two RS-232 ports, four USB 2.0 ports
- Dual Gigabit Ethernet LAN
- 2.5'' HDD, IDE/SATA interface, CF Type I/II
- LPT, AC’97 Audio
- DC power supply
- IP54 Sealed

-40…+70°C
**OPC Software**

**CAN OPC server**

Fastwel CAN OPC Server is a Windows application providing OPC Data Access interface for Control Area Network (CAN) devices. The current version of the OPC Server can access CAN networks using CAN adapters by PEAK Systems Technik (via PCAN-Light programming interface) and IXXAT (via VCI V2 programming interface).

Fastwel CAN OPC Server can be used in CAN networks that utilize any user specific real-time data exchange protocol based on broadcast communication mechanism, and supports the following types of communication objects defined by DS-301 CANopen Application Layer and Communication Profile specification:

- **RxPDO** – input communication object received by OPC server from a CAN network
- **TxPDO** – output communication object sent by OPC server to a CAN network
- **SYNC** – synchronization telegram sent by OPC server to initiate the synchronized data exchange cycle in a CAN network
- **RTR** data acquisition is not yet supported

Fastwel CAN OPC Server supports OPC Data Access 2.0 specification and can be used with various HMI/SCADA packages.

**Modbus OPC server**

Fastwel Modbus OPC Server is a Windows application providing OPC Data Access interface for Modbus RTU/ASCII and Modbus TCP networks. On the fieldbus side Fastwel Modbus OPC Server acts as Modbus master and is able to perform reading and writing operations on Modbus slave devices. Server can interact with Modbus RTU/ASCII and Modbus TCP devices simultaneously and supports the following types of data objects defined by Modbus protocol application layer:

- **Input Register** – read only 16-bit data located in the output area of Modbus slave device
- **Holding Register** – 16-bit data object in the input area of Modbus slave device, available both for reading and writing
- **Discrete Input** 1-bit read only data located in the output area of Modbus slave device.
- **Coil** – 1-bit data object in the input area of Modbus slave device, available both for reading and writing

Fastwel Modbus OPC Server supports OPC Data Access 2.0 specification and can be used with various HMI/SCADA packages.

Trial version is available at [www.fastwel.com](http://www.fastwel.com)
Coating

Protective coating is a thin protective polymeric film (25–75 μm thick) applied on an assembled electronic module or PCB. It is mainly intended for protection of electronics operating in rugged environments, exposed to moisture, aggressive chemicals, salt mist, vibration, and risk of fungous organics buildup.

For high quality protection of its products against various environmental impacts Fastwel employs the HumiSeal® 1A33 urethane protective coating.

Main Specifications of the Coating

<table>
<thead>
<tr>
<th>Service Life:</th>
<th>Not less than 20 years</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coating Thickness:</td>
<td>25 μm to 75 μm</td>
</tr>
<tr>
<td>Dielectric Breakdown Voltage:</td>
<td>Not less than 7500 V</td>
</tr>
<tr>
<td>Insulation Resistance:</td>
<td>Not less than 200×10^{12} ohms (200T)</td>
</tr>
<tr>
<td>Continuous Use Operating Range</td>
<td>-65°C to +125°C</td>
</tr>
</tbody>
</table>

- Polyurethane (PU) coatings provide excellent chemical stability, good moisture protection, dielectric and temperature characteristics.
- This coating is certified to conform to Military and UL American standards. In addition, PU coatings comply with the requirements of IEC-1086 and IPC-CC-830B industry standards accepted by most aerospace companies in the United States and European Union.

Protective coating is a proven and efficient way to increase the resistance of electronic modules against all types of surface shortings caused by various environmental impacts, such as dewfall, salt mist, ingress of metallic particles. Fastwel products with protective coating have proved themselves to be a good advantage among the customers from different branches of industry, transport, and defense.
Assembling

To make a better approach to customers’ needs, Fastwel has its own manufacturing facility for electronic modules, as well as cases and card cages assembly. Due to developed network of integration partners we are capable to assemble complicated products, including industrial computers, servers, special purpose monitors, 19-inch stands, cases and blocks.

It is widely known that not only mechanical features determine the assembly process quality. The human factor, hidden development and production defects are of great significance as well. Competent testing of assembled products plays an important role in the manufacturing process. It requires both appropriate equipment and professional engineering team, which is not only developing test stands and software, but can also find defects and do rework operations.

Fastwel Testing Department has all the necessary equipment; its staff consists of specialists who have experience in complicated rework stations and test desks development. All together, it allows the company to reveal defects and rework products even before they get off the production line. Product testing minimizes the risk of failure during the operating time, which is extremely important for mission critical applications.
Design and contract manufacturing

Having long-term experience in complex electronics development, Fastwel offers contract manufacturing services which include not only separate electronic modules production, but also complete solutions incorporating hardware and software components.

The cooperation with customer is not finished at the elaboration of performance specifications, but continues throughout all stages of product development – construction of testing equipment and software, prototyping, preproduction samples building and setup, creation of design and maintenance documentation, pilot lot production.

System and application software is developed as well. Among supported operating systems are Windows XPe/CE, Linux, RTOS32, QNX 4.25, QNX 6.3, VxWorks.
Our membership

PC/104 Consortium is an international organization of PC/104 products manufacturers that maintains the PC/104 specifications, disseminates PC/104 technology, and promotes the welfare of its members.

Executive Member

PICMG (PCI Industrial Computer Manufacturers Group) is a consortium of companies who collaboratively develop open specifications for high performance telecommunications and industrial computing applications.

Associate Member

VITA, the VMEbus International Trade Association, is an incorporated, non-profit organization of vendors and users, promoting VME bus and concept of open technology.

Corporate Member

The OPC Foundation is dedicated to ensuring interoperability in automation by creating and maintaining open specifications that standardize the communication of acquired process data, alarm and event records, historical data, and batch data to multi-vendor enterprise systems and between production.

CAN in Automation (CiA) is the international users’ and manufacturers’ organization that develops and supports CAN-based higher-layer protocols.

QNX Board Vendor Enablement Program is designed to support single board computer vendors by enabling them to market QNX-based products, speed up time-to-market and build strong out-of-the-box solutions.

Wind River is the global leader in Device Software Optimization and the developer of real-time systems for industrial automation.

Intel® Embedded and Communications Alliance (Intel® ECA) is a community of developers and solution providers committed to the design and implementation of modular systems based on Intel technologies in the area of communication and embedded applications.

System Platforms

Our important system partnership with Elma Electronics allows us to meet the demands of our customers for integrated platforms based on Elma housing solutions and Fastwel CPU boards.

Elma has vast expertise in Eurocard-based system platforms with most relevant PICMG and VITA bus architectures, such as AdvancedTCA, MicroTCA, CompactPCI, CompactPCI Serial/PlusI0, OpenVPX, VPX, VXS, VME64x, VME etc.

We are able to integrate almost every Fastwel “passive backplane suitable” CPU module with Elma products and provide our customer with a validated platform, which can become the base of his embedded solution and save time for other complicated tasks.

Embedded Flash Storage

The industrial CPU modules and SBCs from Fastwel can be supplied with the Innodisk rugged 2.5”, ATA, SATA, CF Cards on your request. You may benefit from having fully compatible products from a single source at a competitive pricing level.
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...a part of your technical drawing

Embedded modules • Industrial PCs
OPC Software • Assembling & Customization