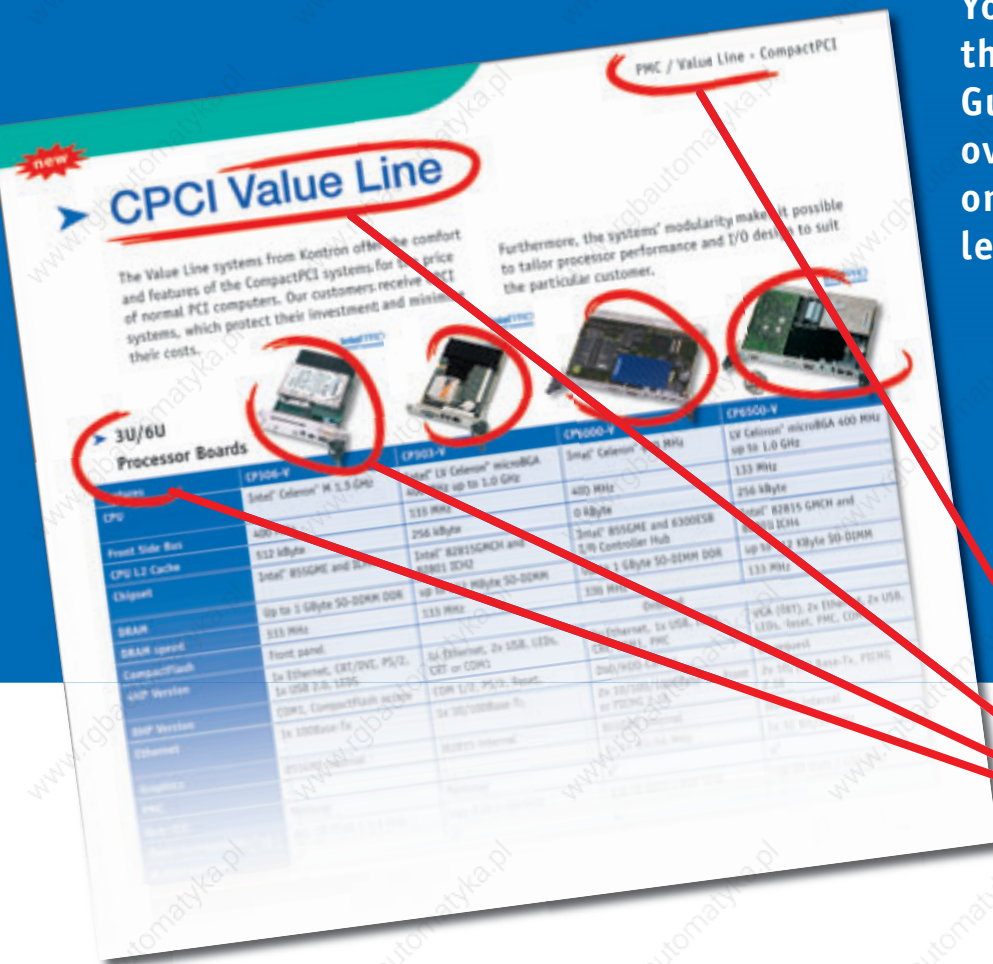


You'll find web access links throughout the whole Product Guide - arranged as mouse-overs like you can see them on the example page on the left.

Web
Access
Links



Interactive Product Guide

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yes

Please send me a **detailed technical data sheet** about

yes

Please call me, I have a question concerning:

Please make me an **offer - free-of-charge** and **with no obligation** - for the following product:

Product name _____ quantity _____

yes

Please send me your **free and no-obligation** email newsletter

My address is:

Company _____

First name, Surname _____

Position _____

Street _____

Postcode, City _____

Country _____

Telephone _____

Fax _____

E-Mail _____

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Computer On Modules | Blades & Mezzanines | CPU Boards | Systems | Mobile Rugged | Custom Solutions



► Embedded OEM Solutions for Industry



- Kontron group is one of the world's largest manufacturers of embedded computer technology and mobile rugged computers & displays to a diversified customer base in the communications, industrial control, test & measurement, medical, transportation /telematic, energy, point of information/sale, gaming, oil & gas, network security, defense, and public safety markets. With its global corporate headquarters located in Europe and regional headquarters in North America and Asia, Kontron has established a strong presence worldwide. When it comes to embedded computing, you can focus on your core capabilities, and rely on Kontron as your global OEM partner for a successful long-term business relationship.
- We offer you an extensive portfolio of products and services based on internationally accepted industry standards for hardware, software and connectivity. Solutions ranging from off-the-shelf to custom-engineered embedded computer modules, boards and blades to modular computer systems and application ready platforms, each designed to meet your current and future needs.

- Over 2300 employees worldwide are working to provide you with one of the widest range of products based on cutting-edge embedded computer technology. With engineering, manufacturing, integration, project management, technical services, and sales teams in Europe, Americas, and the Asia-Pacific region, we are close to you - wherever you are. Our superior service and excellent technical support allow you significantly to reduce your time-to-market and gain a clear competitive edge.
- More than 700 highly qualified engineers in R&D, technical support and project management work with our experienced sales teams and sales partners to devise a solution that meets your individual application's demands, based on standard products, custom-tailored or full custom-engineered solutions. We assist you in developing your embedded application, moving it from proprietary technology to solutions based on open-standard platforms.

- Kontron has established dedicated global divisions to provide application-ready OEM platforms for specific markets: such as Industrial Control, Communications, Transportation and Defense & Security.
- Kontron products are the preferred choice for any application that requires long-life, high-performance and cost-effective products to be installed in demanding and mission-critical environments.
- Kontron has advanced testing and manufacturing facilities that are ISO 9001 and ATEX-certified to ensure consistency and the highest level of quality in products and services on a global basis.



In 2003, VDC awarded Kontron "Platinum" vendor status for SBCs and in 2004-2005 named Kontron as a "Platinum" vendor for the all-encompassing category "Embedded Boards", based on a global customer survey.

► Wide Range of Platforms

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Kontron goes lead-free / RoHS Compliant



The environment and human health must be protected against hazardous substances. The EU Directive 2002/95/EC on RoHS, also referred to as the Lead Free Directive, therefore bans the use of certain substances in new electrical and electronic equipment from July 1, 2006. For some time, Kontron has been working on a global program to convert most products to comply with the new regulations and to ensure that all new products are designed to be fully RoHS compliant. Products that are marked under "RoHS compliant" with "Yes" are either today or will be RoHS compliant latest by June 30, 2006.

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► Kontron – A Global Company



Bringing new applications to market first

Kontron helps leading OEMs and systems integrators significantly to reduce their time-to-market to gain a competitive edge. Kontron designs and manufactures innovative building blocks capable of supporting numerous applications for today's networked infrastructure. Our broad portfolio of products includes industry standard PCI, COM Express/ETXexpress, Compact PCI, AdvancedTCA, AdvancedMC, ePCI-X and VME board-level solutions, open-platform communications servers, industrial-grade rackmount solutions, Human-Machine Interface (HMI) systems and mobile rugged computers. We also offer a host of embedded hardware as well as application specific technology and custom engineered solutions.

Providing custom design and integration

While Kontron's wide array of standard product designs offer options that can satisfy the requirements of most applications, we also provide in-depth design support for custom tailoring of products to meet specific application requirements that are unique to our customers' environments.

Delivering global service & support

As a global company our R&D, manufacturing and sales & support facilities are located across Europe, Americas, and the Asia-Pacific region. Support expertise and technical knowledge is located right where our customers need it – not many time zones away at a distant factory. Kontron retains an experienced staff of highly knowledgeable sales and technical personnel and our pre- and post-sales support is unparalleled in the industry. When you call Kontron for technical support, you will have an application engineer on the line with you from start to finish. Kontron is committed to providing real-time, customer-focused support, whether you are calling to see how we can best meet your application needs or for troubleshooting assistance.

► Strategic Partners/Memberships



Together with our major industry partners, such as Intel®, Freescale, Microsoft and WindRiver, we are working to reduce the time-to-market for our OEM customers. Kontron is a Premier member of the Intel® Communications Alliance (ICA).

Close relationships with our strategic partners allow us the earliest access to cutting-edge technologies and enables us to solve customer problems efficiently and quickly.

Through our strategic memberships, we drive new technologies to ensure Kontron is able to offer OEM solutions based on open-standards for today's markets and for future-oriented applications.

► Driving Industry Standards

Industry Standards, Computer-On-Modules

In addition to designing products based on industry standard form factors and featuring the latest technology advancements, Kontron's engineers are embedded computer innovators. Kontron's engineering teams create benchmark standards for cutting-edge embedded solutions. ETX (Embedded Technology eXtended), which was originally developed by Kontron, has become the standard for custom-designed solutions based on Computer-On-Modules.

Kontron's DIMM-PC, X-board, E²Brain and the latest COM Express/ETXexpress based on PCI-Express are blazing new trails in embedded computer technology.

Flat panel technology

Embedded boards and modules from Kontron all have exceptional support for flat panel technology. They support numerous flat panel sizes and resolutions, from small, quarter-panel VGA displays to the latest UXGA displays. Embedded products from Kontron sup-

port both digital and LVDS interfaces, either directly onboard or through a simple adapter interface. Flat panel interface standards such as JILI and JIPA, developed by Kontron, make the integration of flat panels, including software and cabling, quick and easy.

If it's Embedded, it's Kontron.

► Kontron – Your OEM Partner



Kontron's years of experience with - global production - and logistics capabilities offer our customers high-quality, innovative products that are delivered on time.

We are dedicated to OEMs business and we strongly believe that system and software integration is the key for success.

Kontron offers OEMs:

- One-stop shopping
- Expert consulting
- High-quality products
- Single-point-of-contact
- Excellent support

Kontron's system integration includes:

- Application-ready platforms/systems
- HMI, TouchPanelPCs, ThinClients
- Communication servers/HA systems
- Third-party hardware
- SW, middleware, protocol stacks
- Industrial web development tools

Customization and building blocks

Kontron has an experienced knowledge base in many different technology areas:

- **Processor platforms** – Geode, Intel® Core™ Duo, Pentium® M, III and 4, XScale, PowerPC, etc.
- **Operating systems** – Windows 2000/XP, Embedded XP, Windows CE, Linux, VxWorks, QNX, OS-9
- **Form Factors** – DIMM-PC, ETX, COM Express/ETXexpress, X-board, E²Brain, CompactPCI, PCI, AdvancedTCA, AdvancedMC, VME, PICMG 1.X, PISA, PC/104, 3.5" SBCs, ATX, MicroATX, FlexATX, MiniITX
- **Housings** 1U, 2U, 3U, 4U, 6U, ...
- **Connectivity** – Fieldbus interfaces, network interfaces, switches, new technologies like WLAN and Bluetooth, ...
- Industrial I/O boards – digital, analog, serial
- BIOS, Board support packages (BSPs)
- Driver software, middleware

Semi and Full Customization

If your demands go beyond our standard products or a tailored solution – including from 3rd parties – Kontron offers you the possibility of a partially or fully customized design including carrier-boards, SBCs and integrated systems, including all the services you need, right down the delivery chain.

As an example, Kontron designed an Intel® Celeron® M-based embedded long-life motherboard and a completely sealed chassis with a heat pipe for use in the harsh and dusty environment of automotive mass production for a leading manufacturer of industrial robots. The complete integrated systems are manufactured and shipped just-in-time to our OEM customer.



Professional Services:

- Fully documented design
- Hard- and software as well as complete system development
- Mechanical construction



- Design customization services
- Certifications
- Support and maintenance
- Life cycle management



Individual Training

As part of our service package we offer regular seminars and training sessions on hardware, software and networking as well as custom training by request.

Longevity

We have been aware of the needs and requirements of the OEM business for decades, so we know about the problem of longevity. This is why we offer our OEMs a long-term delivery contract. We design longevity into our products, even into our embedded motherboards.

Ruggedization

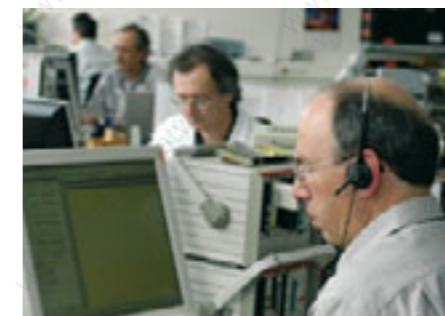
Kontron has advanced testing and manufacturing facilities that are ISO 9001:2000, ISO 13485:2004, ISO 14001:1997, 18001:1997, AS9100, and ATEX certified ensuring that our products are designed, built, and tested to meet the most stringent requirements throughout the world. This service we offer to our customers is the ruggedization of our products for extreme environmental conditions in: industrial automation, oil & gas, transportation, public safety, defense, utilities, data acquisition applications. Many of our products are available for use in an extended temperature range of -40° C to +85° C (with passive heatsinks, where necessary) and additional fixture of components (for increased shock and vibration resistance) and/or conformal coating to protect them against aggressive environmental conditions.

Project Management

Be it a small project to tailor a board or a large full custom project, we always assign a Kontron project manager for you. This individual is your single point of contact and coordinates all your specifications and the resulting commitments.

Technical Support

We emphasize personal contact rather than annoying answering systems and virtual assistants.



Our technical support staffs are comprised of experienced engineers who are ready and able to respond to your requests. This means that you instantly get in contact with someone who understands your situation, listens to your description, analyzes the problem and gets it resolved quickly.

➤ Application Ready Platforms

Communications



AT8001 AM4001

Kontron is addressing the specific requirements of the communications market with Commercial Off The Shelf (COTS) products, such as AdvancedT-CA, AdvancedMC, CompactPCI or COM Express. Telecom Equipment Manufacturers can benefit directly from Kontron's building blocks which are designed to meet the evolving needs of communications infrastructure such as:

- Scalable shelf capacity
- System availability up to 99.999%
- Robust power infrastructure
- High cooling capacity
- High levels of modularity and configurability
- Ease of integration of multiple functions and new features.

Typical applications for Kontron's building blocks include:

- Base Transceiver Station, Base Station Controller, NodeB and Radio Network Controller in Wireless Access equipment.
- Mobile Switching Center, Media Gateway, Media Gateway Controller (MGC – Softswitch), Servicing GPRS Support Node (SGSN), Gateway GPRS Support Node (GGSN) and Signaling Server (IMS, SCP) in Wireless Edge devices.

- Home Location Register (HLR), Visitors Location Register (VLR), Media/Billing/Signaling/OAM Server in Wireless Core applications.
- Wireline Access (DSLAM) and Enterprise networks (Traffic Policing/Shaping Devices, Traffic Filter/Security Devices).

With our in-depth understanding of the market and the customers, Kontron is involved in the specification of relevant standards like:

- PICMG 3.x (AdvancedTCA)
- PICMG 2.x (CompactPCI)
- PICMG AMC
- ETXexpress
- COM Express
- ... etc.



XL8000

Gaming/Entertainment



Flex ATX

Kontron has identified gaming and entertainment, with its lottery, gambling and gaming machines, as a key market, due to the rapid growth of PC enabled gaming systems and platforms. In Americas, Asia, and Europe more than several hundreds thousands EC modules and Embedded motherboards featuring Kontron technology are active around the clock, and the casino floors of Las Vegas are no exception. The gaming industry makes especially high demands on graphics performance in order to conjure up lightning fast animations. Dual-display driving has recently become essential to the gaming market.

At the same time, hefty computer performance is essential in generating versatile and multifaceted, but also manipulation safe gaming sequences.



ETXexpress-PM



Industrial Control



JREx-IBOX

Industrial automation is now more common, important and sophisticated than ever before. Downtime costs can be significant. With so much relying on the smooth performance of automated machinery, customers need a trusted source for embedded computer technology products and expertise. They require small solutions that leave as much space as possible for the machines they operate. They must

be rugged enough to withstand the temperature and vibration conditions in industrial environments. Besides OS support, special software requirements like SoftPLC, communication (Web, OPC, fieldbus, special protocols) and visualization have to be fulfilled. Kontron meets these needs, supplying components for industrial control at both the board level and open-system level including software for OEMs and large end users.

High-tech laser machine

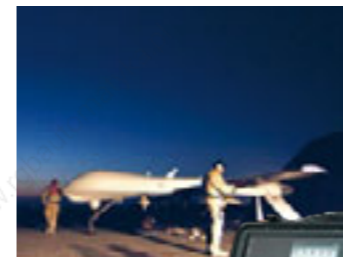
Our customer's laser systems combine precision mechanical engineering with high-powered laser technology. They are highly productive systems for cutting, welding and surface treatment. Engineers chose a customized 6U CompactPCI system, which is passively cooled and therefore very shock and vibration resistant.

To simplify the customer's logistics, Kontron delivers a complete configured central unit including the VxWorks target licence.



Custom CPCI System

Defense/Government



MILPAC

It's difficult to imagine more sensitive or more critical computing environments than those involving the military. For dozens of important military applications,

Kontron's embedded and mobile computers and custom designs help to ensure reliable performance when it matters most. For applications from data acquisition to communications and test and measurement, the world's largest defense contractors rely on Kontron products, sub-systems and systems.

Network in military ships

A leading international naval contractor, shipbuilder and systems integrator has selected Kontron as a partner. The customer uses the E²Brain EB8541 with customized carrier boards in military submarine, war ships and air-craft

carriers for a real-time network with single data control based on Linux. In this case, the E²Brain offers the advantages of extended temperature range, shock and vibration resistance and longevity.



EB8540

Medical



ETX-PM

In the medical technology area, embedded computer systems by Kontron are successfully employed in an extremely wide range of applications and types of equipment. Compact, menu-operated dialysis equipment, for example, is controlled by way of EC modules and tailored carrier boards. Mobile and stationary ultrasonic equipment for pregnancy checkups are fitted with Kontron control elements, as is state-of-the-art medical technology in the

mammography and mobile cardiology fields.

Clinical Workstation

The Clinical Workstation is one of the most advanced medical PC systems on the market. Approved and certified to operate as a data-collector in the operating theatre, this machine is connected to several technical devices and records all steps and events that take place during surgery. The powerful Intel® Pentium® M ETX-PM Module from Kontron allows it to handle several real-time data connections simultaneously. It carries a high-resolution graphical user interface. The system operates without a fan in a fully closed chassis. It is extremely shallow (85 mm) and waterproof (IP65 rating).

HMI based control of radiography systems

For a leading supplier of diagnostic imaging devices, Kontron provides controlling and visualization units. Thanks to this modern digital technique it's possible to examine patients in a more

gentle way to provide faster more confident diagnoses. With this highly advanced all digital X-ray system a wide range of applications is possible – from cardio vascular diagnostic procedures, vascular and non-vascular interventional procedures to routine RF examinations. The imaging information is forwarded as digital image data to the PC and thus can be made available to all users of the internal network in the hospital. The main criteria for choosing a Kontron HMI solution was their knowledge of the medical market and the compliance with the norms and regulations of this market, which even had to be partially exceeded.



Telematics



Full Custom Car-PC Board

Telematics is a vibrant growth market in which Kontron modules have been building an impressive track record for decades. They are driving the operation of mobile, battery-based applications. Our ready to switch on standard systems, board level products and full custom designs build an excellent base which can be used to realize almost any possible in-vehicle application. Kontron combines more than 15 years' presence in the telematic and transportation sector with a vast engineering expertise in Intel® XScale, x86 and other CPU designs. Our solutions are engineered, certified and optimized for reliable operation under the demanding conditions of the automotive environment.

In-Car-PC

In the constant endeavor to trim transport and logistics costs and optimize routes, more and more logistics companies are relying on fleet management systems based on Kontron customized board developments for their trucks. These computers must be compact, shock and vibration resistant and capable of coping with a wide range of ambient temperatures. Due to battery powered operation, low power consumption is also an essential aspect. Kontron's customized solutions are very cost-efficient, as they are based on standard developments.

Transportation



Customized Train Management System

Kontron has built up a wealth of experience in developing, certifying and manufacturing real-time embedded systems for the transportation market.

COTS (Commercial Off The Shelf) products, and semi and full custom designs, are successfully used with a focus on time-to-market reduction. Kontron works with selected partners to ensure that standards (ISO9001, EN50155, Mil-Std, etc.) are strictly adhered to and organizes regular audit checks to assure the quality of all parts.

Train Management System

A leading train manufacturer builds its Train Management Systems (TMS) on Kontron's reliable hardware. Kontron's E²Brain, a computer-on-module, is the "RISC-Processor Heart" of Kontron's EN50155 certified GUI (Graphical User Interface). Through the GUI, maintenance personnel and train engineers access the Train Management System. The TMS is based on Kontron's reliable CPCI and VME technology and runs

under Linux. The fact that Kontron developed the Train Management System for these regional trains allows the customer to concentrate on the integration of his specific application.



PC/104 / MOPS

Test & Measurement



CP306

Specialists in development, production, research, calibration and service around the world rely on the accuracy of their various measurement instruments. Kontron offers cost-effective board level solutions for any testing system - from an instrument for the service shop through to complex test equipment for the electronics lab.

The signal generators are at home in both the digital and the analog worlds, from DC well up into the microwave range. We thus provide the basis for our customers to play leading roles on the market through high-quality and competitive prices.

Open test platforms

One of the leading German manufacturers of test systems for the communications industry relies on innovative Kontron computers in its new high-tech family of modular universal testers that are used in testing antenna systems among other applications. These test systems are unique in the market place, and are characterized by high-flexibility and ease of operation. As the control elements are subject to 24-hour continuous operation in mass manufacturing, the entire tester modules must be front accessible and swappable -

highly scalable computer performance is essential. With this criteria in mind, the customer opted for rugged CompactPCI computers.



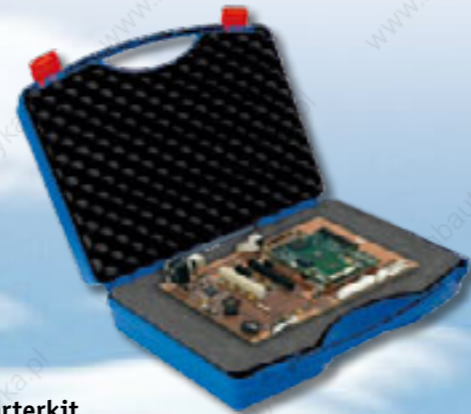
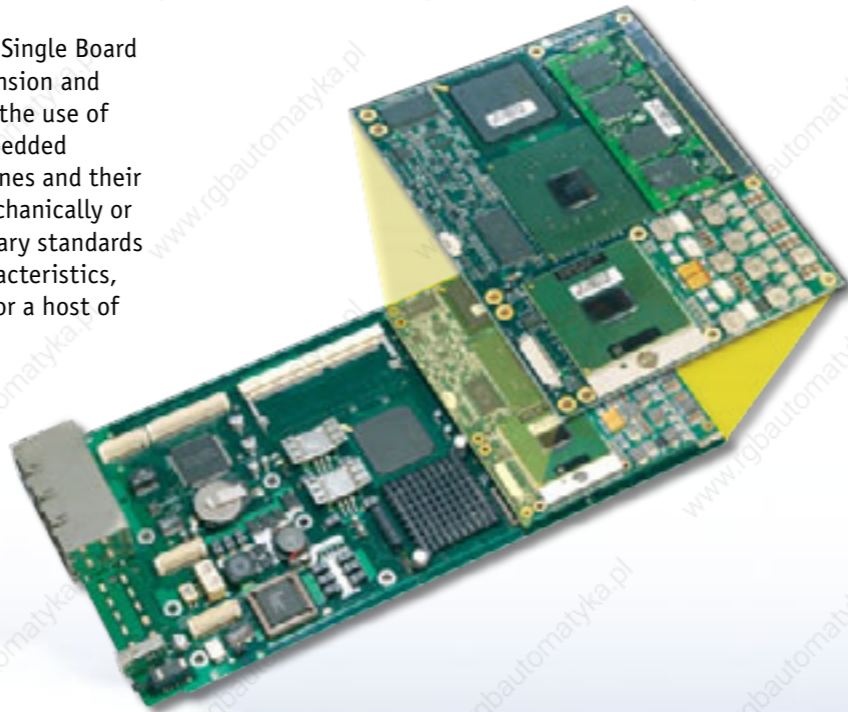
EPIC/CE

➤ Computer-On-Modules

Computer-On-Modules are highly integrated Single Board Computers (SBCs) that support system expansion and application-specific customization without the use of backplanes. Typically small and rugged, embedded SBCs are used in applications where backplanes and their attendant technology are not a good fit mechanically or economically. Based on industry or proprietary standards for mechanical and electrical interface characteristics, embedded modules are the ideal solutions for a host of embedded applications.

Advantages of the modules at a glance:

- Short time-to-market
- Reliable performance
- Flexibility
- High stability
- Longevity
- Open module standards
- Scalable due to interchangeable modules
- Extended temperature range (optional)



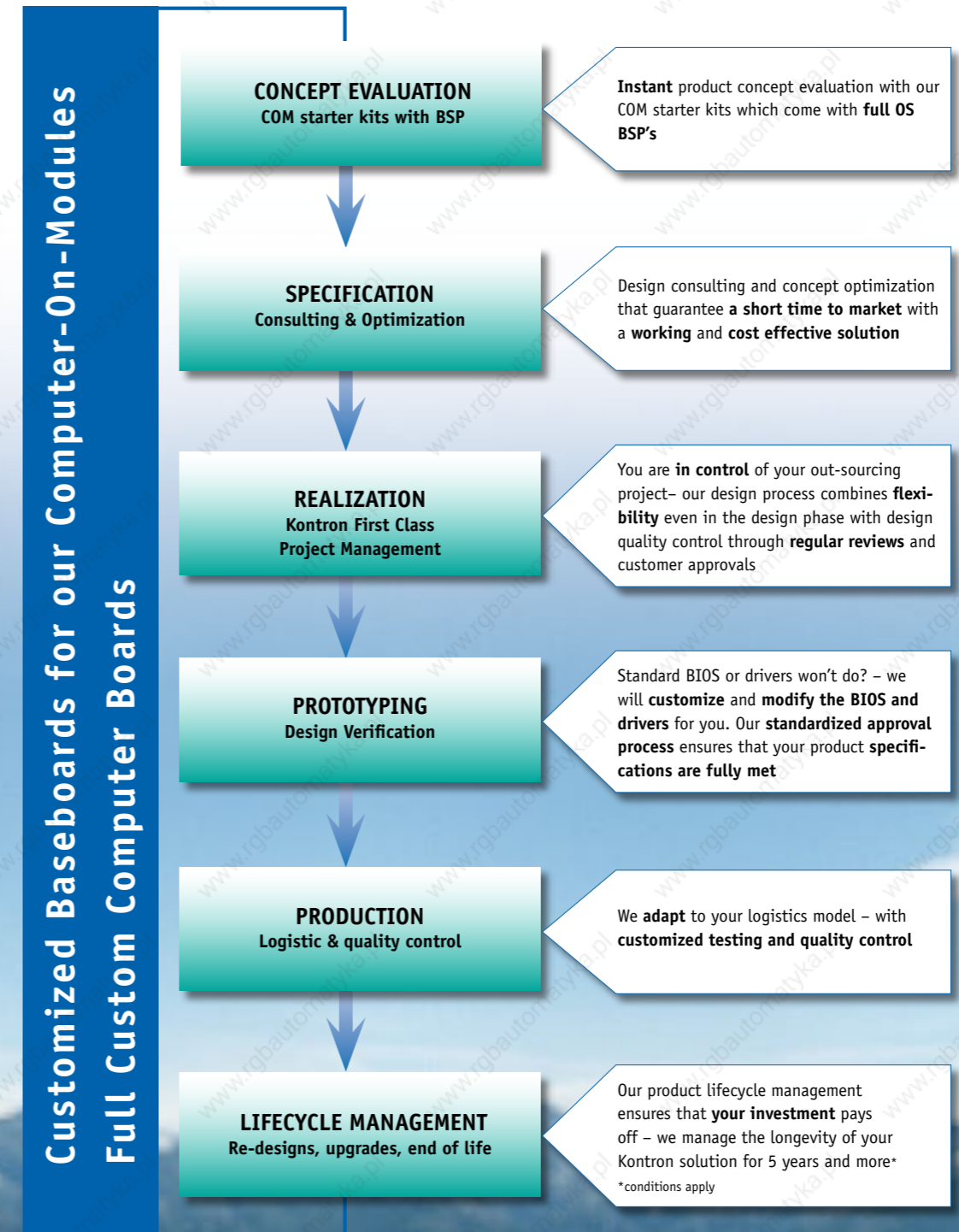
Starterkit

- Complete Starterkit for immediate evaluation purposes
- Includes all required hard-/ software components for a quick start
- Choose your Module for the Starterkit



... & More!

Take advantage of our engineering power and expertise and get your complete COM solution from Kontron. We offer design and production services for your customized baseboard – COM solutions that are tailored to your needs:



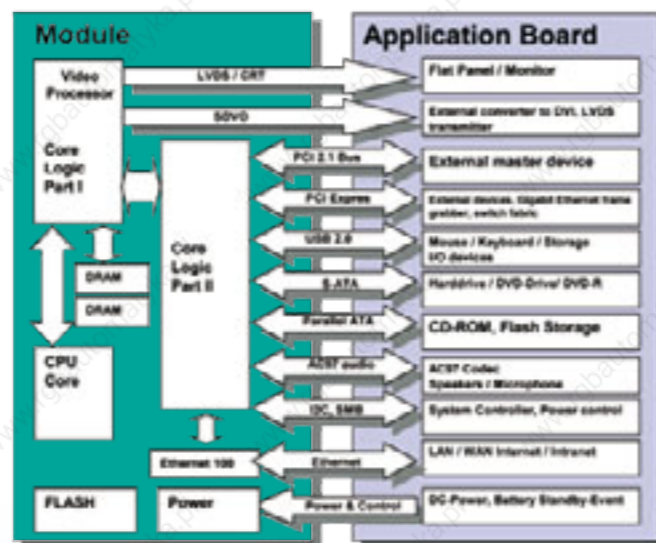


COM Express / ETXexpress™ - Perform beyond the limits

The ETXexpress™ Solution



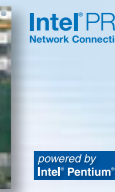
ETXexpress™ is the Module concept for the new open Standard COM Express (by PICMG). The module offers complete, multimedia-capable computing cores for high-level applications and high performance for your next generation product. The modules are highly integrated off-the-shelf building blocks based on PCI Express Bus architecture that plug into custom-made, application-specific carrier boards. PCI-Express™ is the primary data path for upcoming x86 based systems. Non PCI-Express components such as PCI plug-in cards can still be supported with the PCI 2.1 32 Bit Interface, as ETXexpress™ COMs will continue to support the PCI bus for legacy applications.



ETXexpress™ - the standard of the inventor.

Ultra-high performance with the latest interface technologies

- PCI-Express - the elemental data highway
- PCI-Express Graphic - for high speed x16 graphic
- Gigabit Ethernet - for fastest connectivity
- Serial ATA - for performing drives & data storage
- Dual Channel DDR2 - for maximum memory bandwidth
- ExpressCard™ - for hot-pluggable I/O cards
- ETXexpress connectors - for highest proven transfer rates
- USB 2.0 - for fast third party standard periphery
- Dual Channel LVDS - for high resolution
- SDVO - for maximum display flexibility



ETXexpress

Features	ETXexpress-CD	ETXexpress-PM	microETXexpress-PM
CPU	Intel® Core™ Duo and Intel® Core™ Solo	Intel® Pentium® M, Intel® Celeron® M	Intel® Pentium® M, Intel® Celeron® M
CPU Clock	1.06 GHz up to 2.0 GHz	1 GHz up to 2 GHz	800 MHz up to 1.4 GHz
Cache	1 MByte L2 up to 2 MByte L2	512 kByte up to 2 MByte L2	512 kByte up to 2 MByte (L2 on chip)
Chipset	Intel® 945GM, ICH7M (opt. ICH7M-DH)	Intel® 915GM, ICH6-M	Intel® 855 GME
Bus Speed	667/533 MHz FSB	400/533 MHz FSB	400 MHz
DRAM	up to 2 GByte (DDR2-RAM)		
DRAM socket	1x DDR2-SODIMM socket		
SM Bus Support	yes		
Flash Disk	-	-	-
Hard Disk	2x Serial ATA, 2x Parallel ATA		
USB	USB 2.0, 8 ports		
USB Boot/Legacy Support	yes/yes		
Ethernet	Gigabit Ethernet	10/100Base-Tx will be upgraded to Gigabit Ethernet	10/100Base-Tx
Ethernet Controller	Intel® 82562 (integrated)		
Audio Controller	Intel® High Definition Audio - onboard		
Graphics Controller	Intel® Graphics Media Accelerator (GMA) 900 with a powerful 333 MHz core and new DirectX 9 hardware acceleration or expand via 16x PCIexpress card	Intel® Extreme Graphics 2	
Graphics Memory	Dynamic Video Memory Technology (DVMT) 3.0 supports up to 224 MByte VRAM UMA	up to 32 MByte UMA	
Flat Panel Interface	DUAL DVO (multiplexed with PCI-Express Graphic port), CRT, DVI A / I, JILI-LVDS	JILI Interface (LVDS)	
Power Management	ACPI 2.0 + APM 1.2		
Power Consumption (typ.)	30 W @ 12 V	26 W @ 1.8 GHz, 12 V	12 W @ 1.0 GHz, 12 V
Dimensions H x W x D	95 x 125 mm		
PCI	3 PCI Express x1 lanes (opt. 5 PCI x1 lanes)	4 PCI Express x1 lanes, PCI 2.3, 32 bit / 66 MHz	PCI 2.3, 32 bit / 66 MHz
RoHS compliant	yes	yes	yes



ETXexpress™ Starter-KIT

- Complete Starterkit for immediate evaluation purposes.
- Includes all required hard- and software components for a quick start.
- Choose your Module for the starterkit.

The Thermal Concept

- ETXexpress™ Heatspreader provides:
- Identical mechanical size - all ETXexpress™ modules fit in the same system.
 - The only surface that needs cooling is the top of the heatspreader.

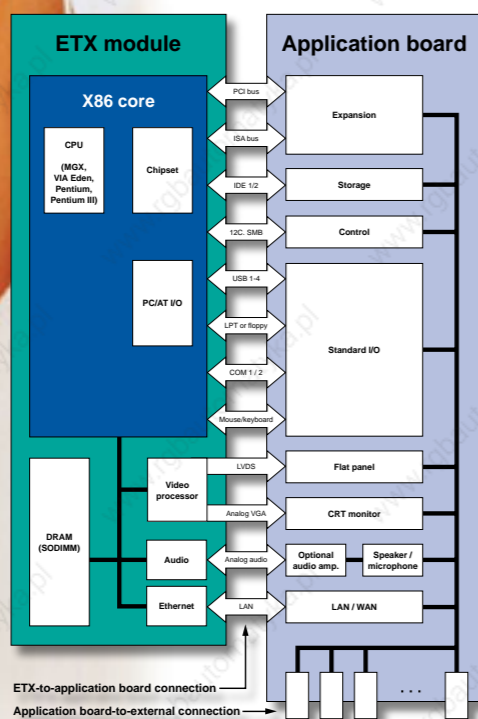


microETXexpress

- Based on ETXexpress/COM Express
- Latest interface technologies
- Available with PCI bus or PCI-Express bus
- Smaller compact module size
- ETX for future proof designs
- Smoothest entrance into future technologies
- ETXexpress connectors - for highest proven transfer rates



ETX – The Standard for Custom Designs



ETX

powered by Intel® Pentium® M



Features	ETX-PM	ETX-P3Tx	ETX-P3T	ETX-P3m	ETX-VE	ETX-LX	ETX-e.lite
CPU	Intel® Pentium® M, Intel® Celeron® M	Intel® Celeron® Processor & ATI® Graphics	Intel® Celeron® Processor	Mobile Intel® Pentium® III Processor-M, Intel® Celeron® Processor®	VIA® Eden ESP4000, ESP10000	AMD LX800	STPC® ELITE
CPU Clock	600 MHz up to 1.8 GHz	733 MHz	400 MHz, 733 MHz	400, 650, 933 MHz	400 MHz, 1 GHz	500 MHz	100 MHz
Cache	0 MByte up to 2 MByte (L2 on chip)	256 kByte (L2 on chip)	256 kByte (L2 on chip)	256/512 kByte (L2 on chip)	64 kByte (L2 on chip)	16 kByte (L1)	8 kByte (L1)
Chipset	Intel® 855 GME	Intel® 815	Intel® 815	VIA® Twister™ T	VIA® Twister™ T	AMD GEODE™ CS5536	integrated
Bus Speed	400 MHz	100 MHz	100 MHz	133 MHz	133 MHz	200 MHz	-
DRAM	1024 MByte (DDR-SDRAM)	512 MByte (SDRAM)	512 MByte (SDRAM)	1024 MByte (SDRAM)	512 MByte (SDRAM)	512 MByte (DDR-SDRAM)	128 MByte SDRAM onboard (soldered)
DRAM socket	1x SO-DIMM, 200 pin	1x SO-DIMM, 144 pin	1x SO-DIMM, 144 pin	1x SO-DIMM, 144 pin	1x SO-DIMM, 144 pin	1x SO-DIMM, 144 pin	-
SM Bus Support	✓	✓	✓	✓	✓	-	-
Flash Disk	-	-	-	-	n.a.	CompactFlash Socket	CompactFlash Socket
USB	4 ports USB 2.0	4 ports USB 2.0	4 ports USB 2.0	4 ports USB 1.1	4 ports USB 1.1	4x 2 USB 2.0 (3x Host, 1x OTG)	2 ports USB 1.1
USB Boot/Legacy Support	✓/✓	✓/✓	✓/✓	✓/✓	✓/✓	✓/✓	✓/✓
Ethernet	10/100Base-Tx	10/100Base-Tx	10/100Base-Tx	10/100Base-Tx	10/100Base-Tx	10/100Base-Tx	10Base-Tx
Ethernet Controller	Intel® 82562	Intel® 82562	Intel® 82562	Intel® 82551ER	Intel® 82551ER	Intel® 82551ER	Davicom DM9102AT
Audio Controller	VIA® VT1612A AC97	VIA® VT1612A AC97	VIA® VT1612A AC97	VIA® VT1612A AC97	VIA® VT1612A AC97	PCI C-Media CMI8738	(optional)
Graphics Controller	Intel® Extreme Graphics 2	ATI® Radeon Mobility M7	Intel® Extreme Graphics (integrated)	VT8603C (S3Savage 4)	VT8603C (S3 Savage 4)	CS5536	-
Graphics Memory	up to 32 MByte UMA	up to 32 MByte UMA	up to 32 MByte UMA	up to 32 MByte UMA	up to 32 MByte UMA	up to 16 MByte UMA	-
Flat Panel Interface	JILI Interface (LVDS)	JILI Interface (LVDS)	JILI Interface (LVDS)	JILI Interface (LVDS)	JILI Interface (LVDS) or JIDI (digital) Interface	JILI Interface (LVDS) or JIDI (digital) Interface	-
Power Management	ACPI, APM 1.2	ACPI, APM 1.2	ACPI, APM 1.2	ACPI, APM 1.2	ACPI, APM 1.2	APM 1.2	APM 1.2
Power Consumption (typ.)	12.5 W @ 1.1 GHz	tbd.	14.5 W @ 733 MHz	12.5 W @ 800 MHz, 22 W @ 1.2 GHz	10 W @ 400 MHz	4 W @ 200 MHz	4 W @ 100 MHz
RoHS compliant	yes	yes	yes	yes	yes	yes	yes

The ETX Solution

ETX Computer-On-Modules are the perfect solution for embedded applications that require full PC functionality and high performance CPUs. They support x86 CPUs from 100 MHz to 1.8 GHz and offer a full complement of PC/AT I/O such as keyboard, serial, parallel and IDE interfaces. The full-featured ETX series also includes onboard USB, Ethernet, graphics and sound. ETX modules are installed on the application-specific baseboard much like an integrated circuit component, in a hostsite comprised of four low profile, surface mount connectors.

The baseboard provides the drive electronics and physical connectors for the I/O originating on the ETX. Additional I/O and application-specific subsystems may be integrated on the baseboard designed as PCI or ISA bus peripherals.

For more information download the Design Guide at www.kontron.com/techlib/whitepapers/ETXDesignGuide116.pdf

The Thermal Concept

ETX Heatspreader provides:

- Identical mechanical size - all ETX modules fit in the same system.
- The only surface that needs cooling is the top of the heatspreader.



ETX Starter-KIT

- Complete Starterkit for immediate evaluation purposes.
- Includes all required hard- and software components for a quick start.
- Choose your Module for the starterkit.



➤ E²Brain – we crack the nut ... for you!



E²Brain - one family, two branches

➤ E²Brain

Features	EB860	EB405	EB420	EB8245	EB425	EB8347	EB8540/8541
CPU	Freescale MPC860	AMCC 405EP	Intel® XScale IXP420	Freescale MPC8245	Intel® XScale IXP425	Freescale MPC8347	Freescale MPC8540/8541
CPU Clock	80 MHz	266 MHz	266 MHz	330 MHz	533 MHz	533MHz	660/800 MHz
Cache	4 kByte instruction, 4 kByte data	16 kByte instruction, 8 kByte data	32 kByte instruction, 32 kByte data, 2 kByte mini-data	16 kByte instruction, 16 kByte data	32 kByte instruction, 32 kByte data, 2 kByte mini-data	32 kByte instruction, 32 kByte data	Layer1: 32 kByte, Layer2: 256 kByte
BIOS	Bootloader with Ethernet support						
DRAM	Up to 128 MByte/SDRAM	16/64 MByte SDRAM	64/128/256 MByte SDRAM	Up to 512 MByte/SDRAM	64/128/256 MByte/SDRAM	64/128/256 MByte DDR-SDRAM	128/256 MByte DDR-SDRAM
DRAM socket		Soldered		SO-DIMM		Soldered	
Flash	Up to 32 MByte	Up to 32 MByte	Up to 32 MByte	Up to 32 MByte	Up to 32 MByte	Up to 64 MByte	Up to 32 MByte
Ethernet	100 Base-Tx Ethernet interface	2x 100 Base-Tx Ethernet interfaces				2x Gigabit Ethernet	2x Gigabit, 1x(2: EB8541) Fast Ethernet interface
Ethernet Controller	Integrated			Intel® 82551	Integrated		
Serial	6x and UTOPIA (8 Bit)	2/4 ports	2/4 high speed ports	Up to 6 high speed ports	Up to 6 high speed ports and UTOPIA 2 (16 Bit)	2/4 ports	Up to 6 high speed interfaces
I/O Features	PCI 32 Bit/33 MHz, UTOPIA, LPC, I ² C	PCI 32 Bit/33/66 MHz, LPC, I ² C, 15 GPIO	PCI 32 Bit/33/66 MHz, LPC, I ² C	PCI 32 Bit/33 MHz, LPC, I ² C, CAN	PCI 32 Bit/33/66 MHz, LPC, I ² C, CAN, UTOPIA 2	PCI 32 Bit/33/66 MHz, LPC, I ² C, 24 GPIO, DVI graphics, 2x USB 2.0, AC97, PWM	PCI 32 Bit/33 MHz, LPC, I ² C, CAN
Expansion	PCI, LPC, I ² C	PCI, LPC, I ² C	PCI, LPC, I ² C	PCI, LPC, I ² C	PCI, LPC, I ² C	PCI, LPC, I ² C, SPI	PCI, LPC, I ² C
Power Consumption (typ.)	3 W	3 W	2 W	5 W	3 W	5 W	12 W
Additional	Passive cooling, RTC, Watchdog, extended temperature range	Passive cooling, RTC, Watchdog, extended temperature range, CompactFlash interface	Passive cooling, RTC, Watchdog, extended temperature range, CompactFlash interface	Passive cooling, RTC, Watchdog, extended temperature range, CompactFlash interface, CAN	Passive cooling, RTC, Watchdog, extended temperature range, CompactFlash interface, CAN, Security engine	Passive cooling, RTC, Watchdog, extended temperature range, CompactFlash interface	Passive cooling, RTC, Watchdog, extended temperature range, CompactFlash interface, CAN, Security engine (EB8541)
RoHS compliant	yes	yes	yes	yes	yes	yes	yes



Advanced Computing Cores
Embedded Real Time Control



Communication Engines
Sophisticated Networking and Security



The Perfect Approach To RISC Based Embedded Computers

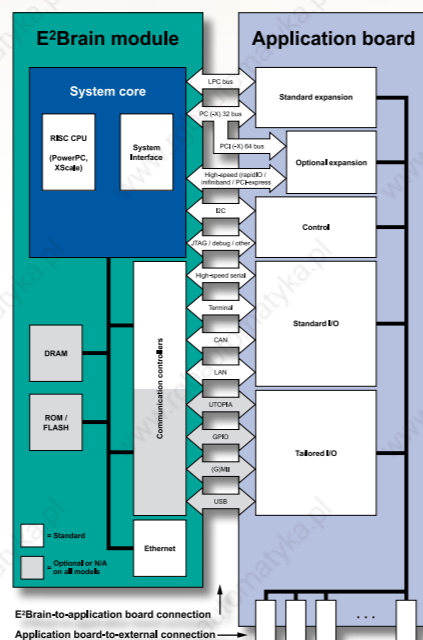
- 75 x 115 mm
- Built around sophisticated RISC CPUs
- New application oriented module architecture

The E²Brain Solution

E²Brain (Embedded Electronic Brain) Computer-On-Modules are a perfect fit for embedded applications requiring RISC performance and low power consumption. They support PowerPC, XScale and other processors in a wide performance range.

All modules feature a common basic system and communications interface with PCI, LPC, I²C, Ethernet and serial ports. A number of optional interfaces, including CAN, UTOPIA and more, tailor the modules for specific application areas. All modules are characterized by an excellent performance/power consumption ratio qualifying them for use in the extended temperature range (-40° to 85°C).

E²Brain modules, like ETX, are installed on application specific carrier boards providing the physical interfaces for all used ports. Additional I/O and peripheral devices, if necessary, are interfaced as PCI or LPC bus peripherals.



➤ Starter Kit

With E²Brain starter kits readily available from Kontron, development time is significantly reduced and semi-custom designs are brought to market quickly and economically.

➤ BrainCAP heatspreader

BrainCAP heatspreader for convection and conduction cooling solutions.



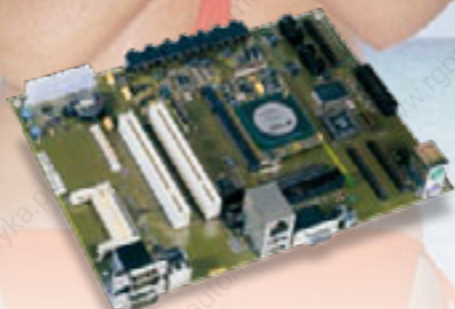
➤ X-board – Reduced to the maX



X-board
Reduced to the maX

➤ Small, Powerful Computer-On-Module

- 68 x 49 mm
- Legacy free
- Low power X86 and RISC CPUs



Evaluation Baseboard

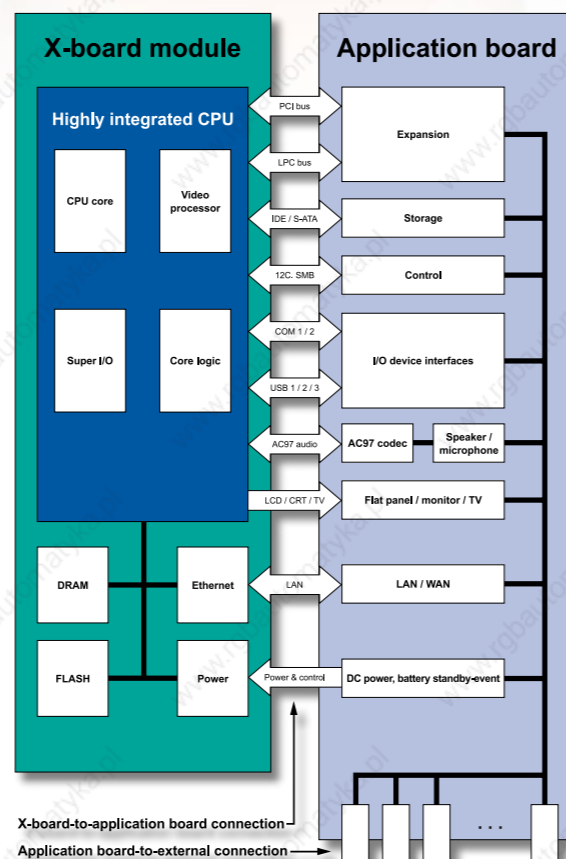
For X-board<86x> / RISC series

The X-board Solution

X-board Computer-On-Modules are ideal solutions for embedded designs where low power, mid-to-high performance and small size is required. Current modules support X86 and XScale CPUs. Future modules based on RISC CPUs such as ARM and MIPS are planned.

X-board offers the perfect mix of interfaces for a new generation of embedded applications: Legacy-free I/O including USB, serial, IDE, Ethernet, graphics and sound interfaces. X-board modules support both FLASH and DRAM onboard memory for stand-alone operation.

The X-board host site on the application-specific base-board is a simple SO-DIMM-style connector. The base-board provides the drive electronics and physical connectors for the I/O originating on the X-board. Additional I/O and application-specific subsystems may be placed on the baseboard designed as PCI or LPC bus peripherals.



➤ X-board



Features	X-board<861>	X-board<PXA>	X-board<GP8>
CPU	AMD Geode® SC1200	Intel® XScale PXA255	Intel® XScale 80219
CPU Clock	266 MHz	200/400 MHz	400/600 MHz
Front Side Bus	66 MHz	-	200
Cache	16 kByte (L1)	32 kByte instruction and 32 kByte data	32 kByte instruction and 32 kByte data
BIOS	Insyde	Bootloader	Bootloader
Chipset	AMD Geode® SC1200	Integrated / Companion	Silicon Motion SM501
DRAM	32 to 128 MByte	32/64 MByte	64/128 MByte DDR
Flash	32 to 128 MByte	16/32 MByte	32 MByte
Resolution	1024x768 (on LCD), 1280x1024 (on CRT)	640x480 (on LCD)	1280x1024 (on LCD), 1280x1024 (on CRT)
TV out	Standard NTSC/PAL	-	-
Expansion Bus	PCI 32 Bit/33 MHz, LPC Bus	PCI 32 Bit/33 MHz, LPC Bus	PCI 32 Bit/33 MHz, LPC Bus
Audio	AC97 link (external codec)	AC97 link (external codec)	AC97 link (external codec)
Hard Disk	1x IDE Channel	1x IDE Channel	1x IDE Channel
USB	3x Host Channels	2x USB host, 1x USB client	2x USB 2.0 host, 1x USB 1.1 client
Ethernet	10/100Base-T Intel® 82551ER	10/100Base-T Realtek RTL8100BL	10/100Base-T Davicom
Keyboard	Keyboard via USB	Keyboard via USB	Keyboard via USB
Mouse	Mouse via USB	Mouse via USB	Mouse via USB
Parallel Port	Possible via USB or LPC	Possible via USB or LPC	Possible via USB
Graphics Controller	Integrated	Integrated	Silicon Motion SM501
Graphics Memory	up to 4 MByte (UMA)	UMA	8 MByte
Serial Channels	2x UART (TTL signal)	2x UART (TTL, high speed), one Bluetooth ready	2x UART (TTL, high speed), none Bluetooth ready
Flat Panel Interface	JILI/JIDI, 18 Bit digital	JIDI, 16 Bit digital	JIDI, 18 Bit digital
JRC/JIDA32	✓/✓	-/✓	✓/✓
Drives	Possible via USB or LPC	Possible via USB or LPC	Possible via USB
Darkboot/Lanboot	✓/✓	LAN Bootloader	LAN Bootloader
Watchdog	✓	✓	✓
Real Time Clock	RTC with CMOS data backup	RTC	RTC with CMOS data backup
Power Management	APM 1.2	✓	✓
Cooling	passive/self	passive/self	passive/self
Power Consumption (typ.)	3 W	1.5 W @ 3.3 V	4 W @ 3.3 V
Dimensions H x W x D	68 x 49 mm	68 x 49 mm	68 x 49 mm
Additional	-	JTAG, MMC Interface, 14 GPIO's	12 several GPIO's, 8051 µController by Silicon Motion SM501
RoHS compliant	yes	yes	yes

► DIMM-PC - The Smallest Computer-On-Modules



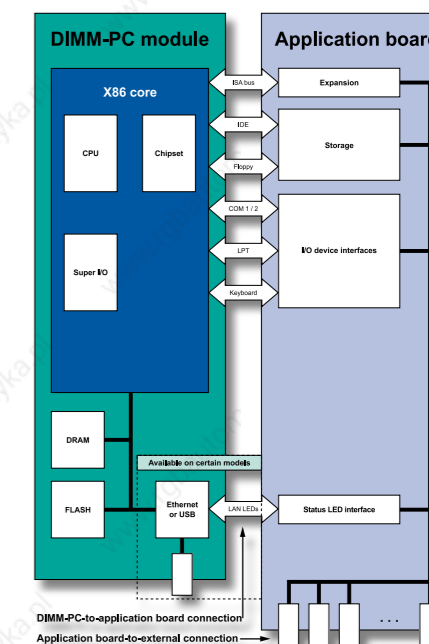
Small, Powerful x86 Embedded PC Module

- 68 x 40 mm
- 386 and 486 class x86 CPUs
- DIMM-PC I/O modules: Graphics, Ethernet and more



Starterkit for DIMM-PC®

With evaluation-board, DIMM-PC/VGA2, floppy drive, cables, manuals (without DIMM-PC/CPU)



The DIMM-PC Solution

DIMM-PC Computer-On-Modules provide a small, basic x86 compatible engine for embedded applications. They support x86 CPUs from 40 to 133 MHz, perfect for a variety of monitoring and control tasks. The onboard core PC I/O includes keyboard, serial, parallel, IDE and floppy interfaces. Some models have Ethernet. DIMM-PC modules support both FLASH and DRAM onboard memory for stand-alone operation. The DIMM-PC family also includes I/O modules for off-the-shelf expansion.

DIMM-PC application-specific baseboards are designed with a CPU module host site and, if necessary, I/O module host sites. The DIMM-PC host site is a simple DIMM-style connector. The baseboard provides the drive electronics and physical connectors for the I/O originating on the DIMM-PC CPU and I/O modules. Additional I/O and application-specific subsystems may be placed on the baseboard designed as ISA bus peripherals.



► DIMM-PC

Features	DIMM-PC/386-I	DIMM-PC/386-IE	DIMM-PC/lite-I	DIMM-PC/lite-IE	DIMM-PC/lite-IU
CPU	386SX, ALi® M6117C	386SX, ALi® M6117C	STPC ELITE™	STPC ELITE™	STPC ELITE™
CPU Clock	40 MHz	40 MHz	100 MHz	100 MHz	100 MHz
DRAM	2 MByte	2 MByte	32 MByte	32 MByte	32 MByte
Flash Onboard	16 MByte (IDE)	16 MByte (IDE)	32 MByte (IDE)	32 MByte (IDE)	32 MByte (IDE)
Operating System Preinstalled	DR DOS	DR DOS	DR DOS	DR DOS	DR DOS
IDE Interface	one ext. device	one ext. device	one ext. device	one ext. device	one ext. device
Special Features		10 Base-T Ethernet Crystal CS8900	-	10 MBit Ethernet	1x USB 1.1, UHCI
Power Consumption (typ.)	1.5 W @ 33 MHz	1.6 W @ 33 MHz	~3.5 W @ 100 MHz	~3.5 W @ 100 MHz	~3.5 W @ 100 MHz
Additional	Keyboard Controller, Watchdog, I²C Bus, alphanumeric LCD Support, E²PROM BIOS Setup, JIDA Support, JRC Support, RTC, 2x Serial (TTL, 16550 comp.), 1x Enhanced Printer Port, Floppy Interface, Dimm-PC expansion bus (ISA)				
RoHS compliant	yes	yes	yes	yes	yes

► DIMM-PC



Features	DIMM-PC/520-I	DIMM-PC/520-IE	DIMM-PC/520-IU
CPU	586DX, AMD® Elan™ SC520	586DX, AMD® Elan™ SC520	586DX, AMD® Elan™ SC520
CPU Clock	133 MHz	133 MHz	133 MHz
DRAM	32 MByte	32 MByte	32 MByte
Flash Onboard	32 MByte (IDE)	32 MByte (IDE)	32 MByte (IDE)
Operating System Preinstalled	DR DOS	DR DOS	DR DOS
IDE Interface	one ext. device	one ext. device	one ext. device
Power Consumption (typ.)	2 W @ 33 MHz	2.2 W @ 33 MHz	2.2 W @ 33 MHz
Special Feature		10 MBit Ethernet	1x USB 1.1, UHCI
Additional	Keyboard Controller, Watchdog, I²C Bus, alphanumeric LCD Support, E²PROM BIOS Setup, JIDA Support, JRC Support, RTC, 2x Serial (TTL, 16550 comp.), 1x Enhanced Printer Port, Floppy Interface, Dimm-PC expansion bus (ISA)		
RoHS compliant	yes	yes	yes

► Accessories



DIMM-PC/COMBO2	DIMM-PC/VGA2	DIMM-PC/ETH+COM
CRT and Flat Panel Graphics, 2x serial (TTL), Ethernet (10 MBit), RoHS compliant	CRT and Flat Panel Graphics, RoHS compliant	2x serial (TTL), Ethernet (10 MBit), RoHS compliant

➤ Mobile Module (LPM)



Custom LPM Application

➤ Boards & MORE !

Deciding between making or buying?

- Reduce outsourcing risks
- Minimize potential problems
- Stay in control with Kontron First-Class Outsourcing Management

➤ **Modules & MORE!**
So, you are convinced that a Kontron Computer-On-Module meets your product requirements but you don't know how to go about getting a customized baseboard?

- We support the full range of Kontron Computer-On-Modules
- DIMM-PC
 - X-board
 - E²Brain
 - ETX
 - COM Express / ETXexpress
 - microETXexpress

➤ **Boards & MORE!**
You are looking for a fully customized computer board?

➤ **We have the right solution for you**
Take advantage of our engineering expertise and get your whole solution from Kontron. We offer design and production services for your customized baseboard – COM or full custom solution that are tailored to your needs.

- Specification optimization & consulting for competitively priced products
- Design and Production to ensure high product quality
- SW & BIOS services to make your solution work
- Lifecycle management to make your investment pay off

➤ **We offer First-Class Project Management**
Our customer focused Outsourcing Project Management allows you to concentrate on your core business:

- You are in full control of your outsourcing project – our design process combines flexibility even in the design phase with design quality control through regular reviews and customer approvals.
- Our support doesn't stop with your product approval – we will support and stay with you throughout the lifetime of your solution.

RELAX AND BUY! Give us a try!

We'd like to add YOU to our track record of successful outsourcing projects.

Mobile Module (LPM)

Designed to be compatible with Intel's® MMC2 module, the Kontron low power modules for applied computing achieve high performance in embedded applications. The 500 MHz Intel® Pentium® III processor based module extends the lifecycle of your existing designs.

With the 700 MHz Intel® Pentium® III processor based module, Kontron's module leverages your design to extend the performance of your system as a low power envelope. In most applications, Kontron's modules enable customers to improve the performance of their system without redesigning it.



➤ Mobile Module (LPM)

Features	LPM500	LPM700	LPM700/850
CPU	Low power Pentium® III 500 MHz	Low power Pentium® III 700 MHz	Low power Pentium® III 700 MHz
Cache	256 kByte		
Chipset	Intel® BX		
Interface	MMC2-Style (Memory, PCI, AGP)		
Dimensions H x W x D	2.5 x 4 x 0.39" (63.5 x 101.6 x 9.9 mm)	2.5 x 4 x 0.39" (63.5 x 101.6 x 9.9 mm)	2.5 x 4 x 0.39" (63.5 x 101.6 x 9.9 mm)
RoHS compliant	yes	yes	yes

*) Intel® GX chipset available on request

DIMM-PC



X-board



ETX (microSERVER)



ETX baseboard



E²Brain



ETXexpress-PM



➤ SBC Overview

➤ Single Board Computers

Single board computers are standard off-the-shelf computer modules, that come in different formfactors and work with different expansion concepts – for example using a passive backplane or in a straight stack.

The most common SBCs are PC/104, 3.5" and EPIC cards.

➤ Advantages of SBCs

SBCs work right out-of-the-box with instant availability and almost zero time to market. All interfaces and most functionalities are onboard. Standard accessories are likewise off-the-shelf and contribute to the ultimate fast system set-up. Modules on the other hand, always need a custom backplane that requires detailed R&D knowledge and development time – even to connect to a mouse or hard drive – so their time-to-market is longer and R&D costs are higher compared to an SBC.

➤ The Board Families

MOPS + EPIC are PC/104-Plus processor boards, and are fully PC/104 Consortium Specification compliant.

JRex are 3.5" embedded SBCs.

JFLEX are cost-effective I/O expansions for JRex.

➤ The Family Features

All Kontron MOPS, EPIC and JRex boards feature unified mechanical and electrical interface layouts. This allows 100% accessory re-use and even 100% chassis re-use delivering the easiest possible product up- and down-grades.

Changing SBC involves minimal risk and costs, since the accessories and chassis do not change and even how they are attached stays the same.

JRex 3.5"



powered by Intel® Pentium® M

SBC incl. I/O

- From Celeron M™ to Intel® Pentium® M
- 100% accessory re-use
- 100% chassis re-use
- Full featured



JRex-IBOX

JRex 3.5"/JRex-IBOX **see»** p. 28/58



powered by Intel® Pentium® M

PC/104

- From 386 to Intel® Pentium® M
- 100% accessory re-use
- Full featured

SBC Modules incl. I/O

MOPS



Horizon 104

*available in USA, EMEA on request

PC/104 **see»** p. 30

EPIC

- From fanless low power up to Intel® Pentium® M
- With PC/104 ISA! and PC/104-Plus PCI extension for limitless I/O use
- Max. ATX-alike featureset, max. cable reduction
- Lead-free future



EPIC-CAGE

*available in Asia, EMEA on request



powered by Intel® Pentium® M

EPIC/CE incl. I/O

EPIC **see»** p. 32

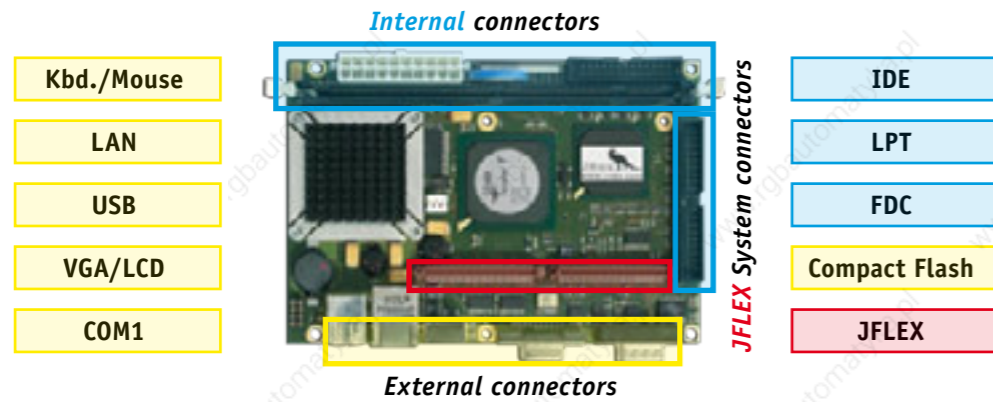
EPIC



Applications

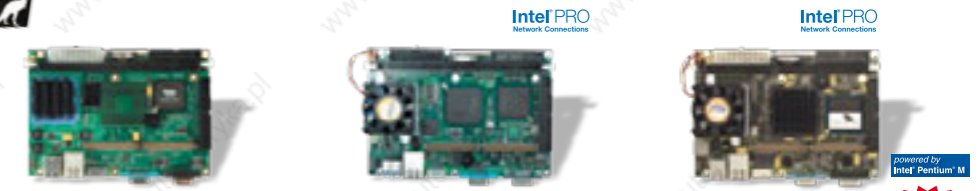
➤ JRex SBC 3.5"

The JRex family feature The following interfaces stay the same - throughout the whole JRex embedded line FAMILY!



Reduce System Costs!

3.5" embedded line



➤ JRex SBC 3.5"

Features	JRex-VE/VC	JRex-CE	JRex-PM
Line	Embedded Line		
CPU	VIA Eden®, VIA C3®	Intel® LV/ULV Celeron®	Intel® Pentium® M, Celeron® M
CPU Clock	300/600/1000 MHz	400/733 MHz	800 MHz up to 1.8 GHz
Front Side Bus	133 MHz	100/133 MHz	400 MHz
Cache	L2: 64 kByte	L2: 256 kByte	L2: up to 2 MByte
BIOS	Phoenix™	Phoenix™	Phoenix™
Chipset	VIA® Twister® T	Intel® 815 / ICH4	Intel® 855GME / ICH4
DRAM	512 MByte	512 MByte SDRAM	1 GByte DDR
DRAM socket	SDRAM-DIMM		DDR-RAM-DIMM ECC
CompactFlash	✓		
Audio	AC97		
Hard Disk	EIDE (UMDA-100)	EIDE (UMDA-100)	EIDE (UMDA-133)
USB	2x	2x USB 2.0	
Ethernet	1		
Graphics Controller	S3 Savage	Intel® Graphics	Intel® Extreme Graphics 2
Graphics Memory	up to 32 MByte	12 MByte VRAM	up to 2x 32 MByte
Graphics	CRT/LCD, JILI-interface		
IEEE 1394 Firewire	via JFLEX®		
Serial Channels	1x, expandable via JFLEX®	2x, plus more via JFLEX®	
Drives	2x 1.44/2.88		
Watchdog	✓		
System Monitoring	✓		
Expansion	JFLEX®		
Special Features	300/600 MHz FANLESS for rugged use	4x GPIO and 2nd COM onboard	DUAL Independent panel & Enhanced SpeedStep
Power Management	APM 1.2 / ACPI 1.0	APM 1.2 / ACPI 2.0	APM 1.2 / ACPI 2.0
Cooling	300/600 MHz Passive, 1000 MHz Active	400 MHz Passive, 733 MHz Active	up to 1 GHz just passive cooling
Dimensions H x W x D	102 x 147 mm		
I/O Expansion Type	JFLEX®		
Operating Temperature	0 to 60°C		
RoHS compliant	yes	yes	yes

➤ JRex Embedded Line Expansions: JFLEX™

JFLEX-miniPCI	JFLEX-Communication1	JFLEX-SERIALGPIO1
miniPCI socket RoHS compliant	2x LAN, 2x USB, Firewire RoHS compliant	4x COM, 4x 8 Bit GPIO, LPT2 CANBus-option, RoHS compliant
JFLEX-Sound1	JFLEX-Multimedia1	JFLEX-PCMCIA1
line-in, line-out, mic-in (jackplugs) AC97-sound, RoHS compliant	DVI or TV OUT, sound (AC97, SPDIF), Firewire, RoHS compliant	PCMCIA drive for WLAN and hot swap mass storage, RoHS compliant
JFLEX-3COMGPIOPCcard-USB	JFLEX-4COMGPIOPCcard new	
3x COM, 2x USB, 4x 8 Bit GPIO, 32 Bit PCMCIA drive bay, RoHS compliant	4x COM 3xRS232, 1xRs485/422), 4x 8 Bit GPIO, 32 Bit PCMCIA drive bay, RoHS compliant	

Kickstart with JRex – no Starterkit necessary!

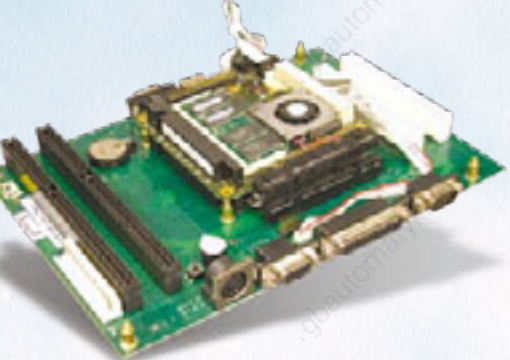


➤ MOPS, PC/104 & PC/104-Plus



➤ PC/104

Features	MOPS/520	MOPSlcdSE / MOPS/SE	MOPSlcdVE	T-MOPSlcdSA	MOPSlcd6 / MOPS/686+	MOPSlcdLX	speedMOPSlcdCE	speedMOPSlcdPM
CPU	AMD® ELAN® SC520	STPC® ELITE	VIA® Eden	STPC ATLAS	Intel® Pentium® MMX®	AMD LX800	Intel® ULV/LV Celeron®	Intel® Pentium® M / Celeron® M
CPU Clock	133 MHz	100 MHz, 100 MHz FSB	300/600/1000 MHz	120 MHz FANLESS	166/266 MHz	up to 500 MHz	400/733 MHz	800 MHz up to 1.8 GHz
Chipset	Singlechip	on-chip	Twister™ T	on chip	Ali® M1531/ M1543C	AMD CS5536A	Intel® 815, ICH4	Intel® 855GME, ICH4
DRAM	16/32/64 MByte (SDRAM)	32 MByte SDRAM	512 MByte (SDRAM)	32 MByte SDRAM - SOLDERED	256 MByte (SDRAM)	512 MByte (DDR)	512 MByte SDRAM	1 GByte DDR-RAM
DRAM socket	Soldered on	Soldered SDRAM	SO-DIMM	soldered SDRAM	1x SO-DIMM, 144 pin	1x DDR-SODIMM	SO-DIMM	DDR-RAM-SODIMM
IDE Interface	1x IDE	1x EIDE (UDMA-33)	1x EIDE (UDMA-33)	1x EIDE (UDMA-33)	1x EIDE (UDMA-33)	1x EIDE (UDMA-66)	2x EIDE (UDMA-33)	2x EIDE (UDMA-33)
Audio	-	-	-	-	-	✓	Sound onboard	Sound onboard
USB	2	2	2	2	1	2x 1.1	2x 2.0	2x 2.0
Ethernet	10/100Base-T	10/100Base-T	10/100Base-T	10/100Base-T	10/100Base-T	10/100Base-T	10/100 (2nd LAN optional)	10/100 Base-T
Ethernet Controller	Davicom DM9102A	Davicom 10/100 MBit	Davicom DM9102	on chip	Intel® 82559ER	Intel® 82551ER	Intel® 82551ER	Intel® 82551ER
Mouse	PS/2	PS/2	PS/2	PS/2	-	PS/2	PS/2	PS/2
Graphics Controller	-	SMI Lynx+ / -	S3 Savage 4 engine	on chip	PCI CT69000 / -	on chip graphic	Intel® Graphics engine	Intel® Extreme Graphics 2
Graphics Memory	-	4 MByte / -	32 MByte VRAM UMA	4 MByte VRAM UMA	2 MByte / -	on chip shared VRAM MByte	12 MByte VRAM UMA	2x 32 MByte VRAM UMA
Flat Panel Interface	-	JIPA / -	JILI	JIPA (option)	JIPA / -	JILI	JILI	JILI
Expansion	PC/104-Plus (optional)	PC/104	PC/104	PC/104	- / PC/104-Plus (optional)	- / PC/104-Plus (optional)	PC/104-Plus	PC/104-Plus
Special Features	3x RS-232, 1x TTL, CAN-Bus (Intel® 82527)	Fastest full synchronous CPU and SDRAM, FANLESS, no moving parts	VIA® Eden 1.0 GHz	Ext Temp E2 full warranty - RUGGED - no moving parts	Fanless Intel® Pentium® MMX 166 MHz	Fanless - just 0.9 W	USB 2.0 & Sound onboard	Pentium® M power with ISA IO expansion
Power Consumption (typ.)	3.75 W	5 W / 7 W	5 V only / tbd.	tbd	7 W / 8 W	tbd	tbd	tbd
Additional	2x RS232, Lan Boot, Watchdog, JIDA-Support, JRC-Support, RTC, Dark Boot, Floppy Interface, Enhanced Printer Port, 32-512 MByte chipDISK			2x RS232, Lan Boot, Watchdog, JIDA-Support, JRC-Support, RTC, Dark Boot, Floppy Interface, Enhanced Printer Port, 32-512 MByte chipDISK			full cable compatibility within the MOPS family feature low cost, low power	
RoHS compliant	yes	yes	yes	yes	yes	yes	yes	yes



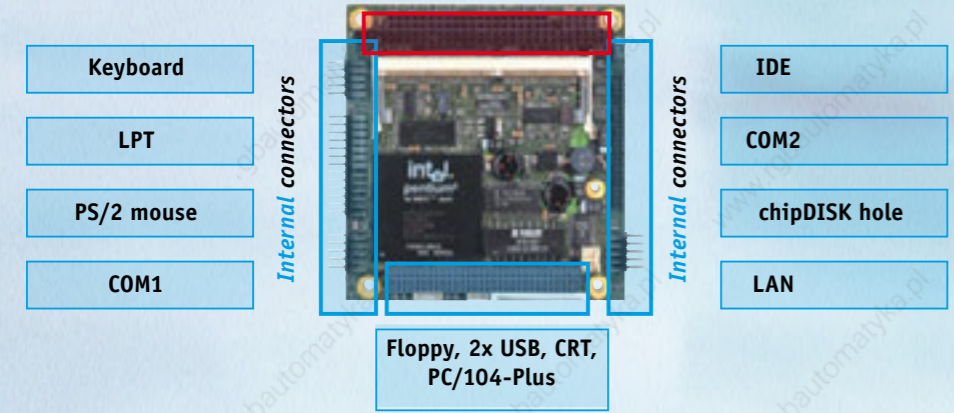
Starterkit for PC/104-Plus systems
Includes: PC/104-ISA PCI-1 adapterboard, power supply, floppy-drive and all cables!
Excludes CPU and I/O graphics board!



➤ The MOPS family features

The following interfaces stay the same - throughout the whole MOPS FAMILY!

PC/104 System connector



PC/104-PCMCIA-1 PCMCIA Adapter, 2x Type II or 1x Type III	chipDISK-IDE IDE compatible flash disk 32...512 MByte directly mountable and lockable, RoHS compliant	Compact flash adapter 2.5" Format CompactFlash Type I, II and Microdrive	PC/104-VGALCD-6 For CRT and LCD with JIPA interface

Multi-Serial Differential or single-ended inputs, 4 analog outputs, 24 digital lines (50 pin IDC)	Digital I/O48 48 channels of digital I/O, Standard external relay/input conditioning pin out, 2x 50 pin IDC connectors	Digital I/O8 8 electro-mechanical relays, 8 optically isolated AC/DC inputs, 8 TTL digital inputs	Multi Serial RS422 and RS485 serial HighSpeed, DLC + HDLC support Dual channel sync/async ports

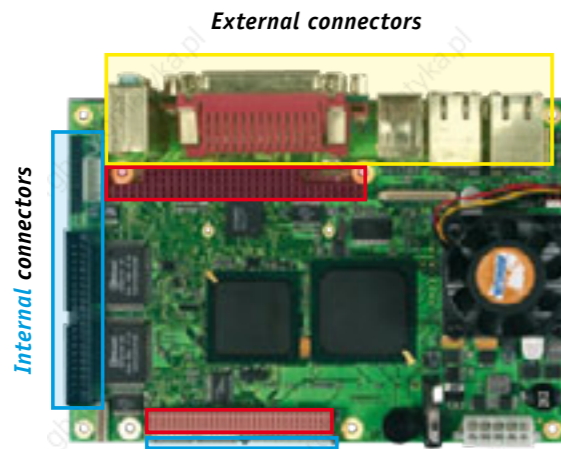


EPIC

The EPIC family features

The following interfaces stay the same - throughout the whole EPIC FAMILY!

- COMs
- USB
- GPIO
- IDE
- FDC
- LVDS
- DVO
- PC/104
- PC/104-Plus



External connectors

System connectors

- 5.1 Sound
- USB
- LAN
- CRT
- COM
- LPT
- Kbd./Mouse
- CompactFlash



What happens when PC/104 falls in love with a motherboard?

EPIC is born - with the best of both worlds:

- ▶ From fanless low power up to Intel® Pentium® M.
- ▶ With PC/104 ISA and PC/104-Plus PCI extension for limitless I/O use.
- ▶ Max. ATX alike featureset, max. cable reduction - lead-free future provided for.

Features	EPIC/CE	EPIC/PM
CPU	Intel® LV/ULV Celeron®	Intel® Pentium® M 745, Celeron® M 373 and Intel® Processor 800 MHz cacheless
CPU Clock	400/733 MHz	800 MHz up to 1.8 GHz
Front Side Bus	100/133 MHz	400 MHz
Cache	L2: 256 kByte	L2: up to 2 MByte
BIOS	Phoenix®	
Chipset	Intel® 815 / ICH4	Intel® 855GME / ICH4
DRAM	up to 512 MByte SDRAM	up to 2 GByte DDR
DRAM socket	SDRAM-SODIMM	DUAL DDR-RAM-SODIMM ECC
CompactFlash	✓	✓
Audio	5.1 Sound, Jack-plugs (Line In/Out/Mic)	
Hard Disk	EIDE (UDMA-133)	
USB	6x USB 2.0 (4x ext, 2x int)	
USB Boot/Legacy Support	✓	✓
I/O Standard	2x LAN, PS/2 mouse and keyboard, LPT DSUB, FDD 2x 1.44/2.88	
I/O Features	21x GPIO	8x GPIO
Graphics Controller	Intel® Graphics engine	Intel® Extreme Graphics 2
Graphics Memory	12 MByte VRAM	up to 2x 32 MByte VRAM
Graphics	CRT & DVO & LCD (JILI-LVDS)	
Serial Channels	4x (1x RS232 DSUB, 3x int. RS232 with 1x as RS422/485)	
Common Features	Darkboot/Lanboot, Watchdog, System Monitoring	
Special Features	fanless at 400 MHz for enhanced reliability	DUAL independent panel & Enhanced SpeedStep
Power Management	APM 1.2 / ACPI 2.0	
Cooling	400 MHz Passive/ 733 MHz Active	up to 1 GHz just passive cooling
Power connector	ATX or 5 V (option)	
Dimensions H x W x D	115 x 165 mm	
I/O Expansion Type	PC/104-Plus (ISA & PCI)	
Operating Temperature	0 to 60°C	
RoHS compliant	yes	yes

ePanel

The SBC for mobile panel PCs

Do you need a low profile single board computer to be mounted directly behind the Flatpanel?

ePanel-mgx is a complete, ultra-low-profile assembled PC with a maximum height of 7 mm, based on SC1200@266 MHz CPU. A wide range of software is available for this proven x86 platform. In addition to very low power consumption (<7 W), this system also offers a wide variety of interfaces, which makes it an ideal embedded PC.

ePanel-C3 is the next stage in the development of the unique Flatpanel-PC Concept in an ultra-flat formfactor. It is based on VIA Eden CPUs from 300 MHz up to 1 GHz and offers very low power consumption and a wide variety of interfaces. Further attractive features include USB 2.0 support, 64 Mbyte graphics memory and an MPEG2-hardware decoder for DVD applications. Supported Operating Systems: Windows XP Embedded, Windows CE, LINUX.

- ▶ Low profile
- ▶ Low power consumption
- ▶ MPEG2 hardware decoder (C3)

These boards work straight out of the box and have instant availability and almost zero time to market. All interfaces and most functionalities are onboard and built in. Standard accessories are likewise off-the-shelf and permit a fast system setup. Other modules, on the other hand, always need a fully customized backplane that demands detailed R&D knowledge and engineering time, so its time to market is longer and R&D costs are higher. With an SBC like the ePanel, systems can be designed within a short period and built with little additional engineering efforts.



Features	ePanel-mgx	ePanel-C3
CPU	AMD Geode® SC1200	VIA® Eden ESP
CPU Clock	266 MHz	300 MHz, 733 MHz, 1 GHz
Chipset	integrated	CLE266 / VT8235
DRAM	256 MByte SDRAM (max.)	DDR RAM 1GByte (max.)
DRAM socket	1x SO-DIMM, 144 pin	1x SO-DIMM, 200 pin
CompactFlash	True IDE Mode Primary Channel Boot Drive	
Resolution	XGA (max.)	UXGA (max.)
Video Input	Philips Videodecoder SAA7118	Philips Videodecoder SAA7118
Backlight Support	standard 7 pin connector 12 V/500 mA dimming control voltage 0-5 V	
IDE Interface	1x EIDE (UDMA-33)	1x EIDE (UDMA-100)
Audio	AMD® AC97	VIA® VT1616 (AC97) Line in /out
USB	3x 1.0	3x 2.0
Ethernet	10/100Base-T	10/100Base-T VIA® VT6103
Graphics Controller	integrated	VIA® CLE266 with integrated VIA® AGP (4x) Castelrock
Graphics Memory	shared up to 4 MByte	16/32/64 MByte shared memory
MPEG2 HW decoder	-	✓
Touch Controller	supports 4/8 wire resistive technology	supports 4/5*/8 wire resistive technology (5-wire optional)
Touch Matrix	8x8	
PC CARD Adapter	Typ II	
Mini-PCI	-	✓
Supply Voltage	8 / 28 V	
Battery Interface (SMB)	Smart battery charger onboard 3A max. charging current 18 V max charging voltage power monitoring by SMBus	Smart battery charger onboard 1A max. charging current 18 V max charging voltage power monitoring by SMBus
Flat Panel Interface	TTL / LVDS	
Expansion	I/O Adapters (for standard connectors as USB, Mouse etc.) a. video in/TV out	I/O Adapters (for standard connectors as USB, Mouse etc.) a. video in/TV out (optional)
Common Features	Keyboard, Mouse, 1 x EPP, single Floppy Interface, Dark Boot, I2C, Watchdog, PC Card Adapter Typ II	Keyboard, Mouse, 1 x EPP, single Floppy Interface, Dark Boot, I2C, Watchdog, PC Card Adapter Typ II, Mini-PCI
Cooling	-	passive / active (depends on system design)
Power Consumption (typ.)	7 W/12 V	estim. 16 W/12 V (@ 733 MHz)
Dimensions H x W x D	140 x 180 mm	140 x 180 mm
RoHS compliant	no	yes

I/O Adapter standard connectors



I/O Adapter video in/out



Flatpanel Controller

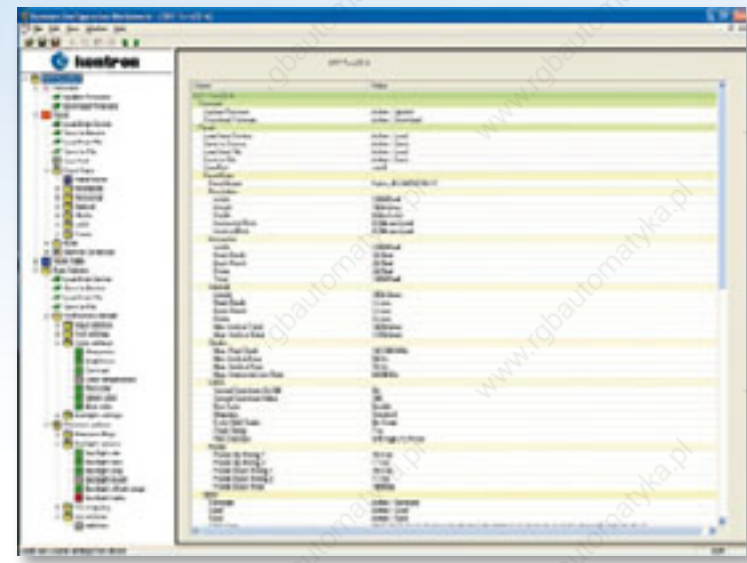
... We Drive Your Display!



Features	CRTtoLCD-2	CRTtoLCD-3	CRTtoLCD-1-LC	CRTtoLCD-6 ^{new}	CRTtoLCD-5 ^{new}	CRTtoLCD-7 ^{new}
Series	aFLAT series	aFLAT series	aFLAT series	aFLAT series	aFLAT series	aFLAT series
DRAM	1.5 MByte	1.5 MByte	-	-	-	16 MByte
Colors	16 M	16 M				
Frame Buffering	✓	✓	-	-	-	✓
2D/3D Acceleration	-	-	-	-	-	-
Audio	-	-	-	-	-	-
Panel signal	TTL/ LVDS	TTL/ LVDS	TTL/ LVDS	LVDS	TTL/ LVDS	TTL, LVDS
MPEG2 HW decoder	-	-	-	-	-	-
Display Types	TFT, Plasma	TFT, Plasma	TFT, Plasma	TFT	TFT	TFT, Plasma
Cable Interface	JIPA (36 Bit TTL), JILI (2x 24 Bit LVDS), FLEX32 (1x 18 Bit TTL), JILI40 (2x 24 Bit LVDS)	JILI (2x 24 Bit LVDS), JILI-40 (2x 24 Bit LVDS)	JILI-40, FLEX-32	JILI-30, FLEX32	JILI-30, FLEX-32	JILI-30, JILI40, FLEX32
Touch Controller	-	-	-	-	-	-
Supply Voltage	12 V	12 V				
Resolution min./max.	QVGA - SXGA	QVGA - UXGA	VGA - SXGA	QVGA - WUXGA		
Windows	no drivers needed	no drivers needed				
LINUX	no drivers needed	no drivers needed				
Available Extensions	TV-Tuner-Module, High End Video Module	TV-Tuner-Module, High End Video Module	-	-	-	TV-Tuner-Module
Dimensions H x W x D	180 x 119.5 mm	180 x 119.5 mm	95 x 118.6 mm	95 x 118.6 mm	180 x 119.5 mm	180 x 119.5mm
Additional	available also without video in	available also without video in	-	-	-	Picture in Picture, TV-Tuner
Type	flatpanel controller	flatpanel controller				
Controller	Genesis Microchip	Genesis Microchip				
Input signal	VGA - SXGA 70 Hz analog RGB, DVI, S-Video, FBAS	VGA - UXGA 70 Hz analog RGB, DVI, S-Video, FBAS	VGA - SXGA 70 Hz analog RGB			VGA - WUXGA 70 Hz analog RGB, DVI, S-Video, FBAS, analogYPbPr
RoHS compliant	no	no	no	yes	yes	yes

LCD Flatpanel Solutions

One of our key competences is the ability to support a variety of flat panel displays. If your system requires flatpanel display support, then Kontron can provide the control solution you need. With a wide range of flatpanel solution products, Kontron has the display interfacing technology to meet your requirements.



TFT Monitors **see»** p. 80 f

Kontron Configuration Workbench (KCWB) - the new unified software tool available for new aFLAT-generation (CRTtoLCD-5, -6 and -7), which makes the boards so powerful and flexible!

For quick and easy flatpanel adaptation

FLEX32-Cable
(1x 18 Bit TTL)

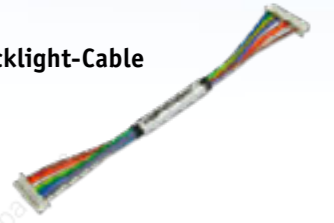


JILI30-Cable

(2x 24 Bit LVDS)



Backlight-Cable





➤ AdvancedTCA / AdvancedMC



AdvancedTCA®

AdvancedTCA is the new open standard specification for carrier grade communications equipment. A wide range of processing, switch and I/O open modular building blocks now enable Telecom Equipment Manufacturers (TEMs) to accelerate their time-to-market of new network applications while reducing development costs. The open modular communications platform approach also provides TEMs with unsurpassed application design versatility and improved economies of scale. There are major spin-off benefits for mobile service providers and carriers, who can expect a reduction in CAPEX and OPEX, can reuse network infrastructure, possess greater flexibility to quickly introduce and terminate – “Swap-in/Swap-out” – subscriber services with no downtime, and still have the room to grow their networks, effortlessly.

Benefits of AdvancedTCA

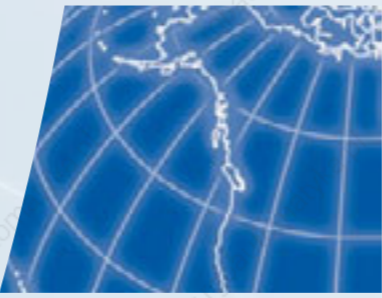
- Scalable shelf capacity to 2.5Tb/s
- System availability up to 99.999%
- Robust power infrastructure and large cooling capacity
- High levels of modularity and configurability
- Ease of integration of multiple functions and new features
- Convergence of telco access, core, optical, and datacenter functions
- Full security and regulatory conformance (NEBS, ETSI)

AdvancedMC

AdvancedMCs: In order to ensure adaptation to various applications, a corresponding mezzanine concept was developed the course of ATCA standardization: The new AMC specification (Advanced Mezzanine Card, defined by the PICMG committee) adds some important technical innovations to the PMC model (PCI Mezzanine Card) in order to achieve, among other advances, carrier-grade „five nines“ availability at carrier level. AMCs are flexible, powerful and simple to integrate into the ATCA concept. In addition, they can also be employed on proprietary (manufacturers’ own) platforms.

Compared to PMCs, AdvancedMCs offer following advantages:

- Hot swappable, front loadable
- High real estate (20% more than PMC)
- High power envelope (up to 60 W per bay)
- High speed serial interconnect based on LVDS
- Interoperability check with base board with electronic keying



➤ Processor Blades



Available Q2/2006



Features	AT8020	AT8001	AT8000
CPU	Dual Intel® Dual Core™ LV Xeon 2.0 GHz	Intel® LV Xeon 2.8 GHz	Dual Intel® LV Xeon 2.0 GHz
Front Side Bus	667 MHz	800 MHz	400 MHz
CPU L2 Cache	Dual 2 MByte	1 MByte	Dual 512 kByte
Chipset	Intel® E7520 MCH + 6300ESB ICH	Intel® E7520 MCH + 6300ESB ICH	Intel® E7501 MCH + ICH3
DRAM	Up to 8 GByte DDR2 400 ECC registered SDRAM via DIMM sockets	Up to 8 GByte DDR2 400 ECC registered SDRAM via 2 DIMM sockets	Up to 8 GByte DDR2 266 ECC registered SDRAM via 4 DIMM sockets
Flash	CompactFlash	CompactFlash	-
Frontpanel	Ethernet, COM1, 2x USB, 2x optional SFP (Fiber Channel), 2x AMC, LEDs	VGA (CRT), Ethernet, COM1, 2x USB, 2x optional SFP (Fiber Channel), 2x AMC or 1x PMC	COM1, USB, 2x optional SFP (Fiber Channel), 1x PMC, LEDs
Connectivity	Dual GbE on Base Interface, Dual GbE + Fiber Channel on Fabric Interface	Dual GbE on Base Interface, Dual GbE + Fiber Channel on Fabric Interface	Dual GbE on Base Interface
Mezzanine	AMC, optional SAS or Fiber Channel	Dual AMC or 1x PMC (enables onboard HDD)	1x PMC (optional onboard HDD)
Compliance	PICMG 3.0, PICMG 3.1	PICMG 3.0, PICMG 3.1	PICMG 3.0
RoHS compliant	yes	yes	yes

➤ Hub Boards



Features	AT8902	AT8901
Base Interface Support	Gigabit Ethernet to 15 Payload Slots	Gigabit Ethernet to 15 Payload Slots
Fabric Interface Support	Dual Gigabit Ethernet to redundant Hub Board, Dual Gigabit Ethernet to Payload Slots 2-5, Gigabit Ethernet to Payload Slots 6-15	None
Support for 14 Slot Shelves	✓	✓
Support for 16 Slot Shelves	✓	✓
AMC Slots	✓, 2 AMC Slots	✓, 2 AMC Slots
Usage Models for AMC Slots	AMC Slots can be used for Processor-AMCs, Storage-AMCs, Uplink-AMCs	AMC Slots can be used for Processor-AMCs, Storage-AMCs
Uplinks for Base Interface	Up to 4x 10/100/1000 Base-T	Up to 4x 10/100/1000 Base-T
Uplinks for Fabric Interface	Up to 4x 10/100/1000 Base-T plus up to 4x 10Gigabit Ethernet via AMC Slots	None
Routing Protocols	Include OSPFv2, RIPv2, VRRP, IGMP Snooping, DiffServ, ARP, ICMP	Include OSPFv2, RIPv2, VRRP, IGMP Snooping, DiffServ, ARP, ICMP
Ethernet/Bridging Protocols	Include VLANs (802.1Q), Link Aggregation (802.3ad), Spanning Tree (802.1D, 802.1w), QoS (802.1p), Flow Control (802.3x), GVRP, GMRP	Include VLANs (802.1Q), Link Aggregation (802.3ad), Spanning Tree (802.1D, 802.1w), QoS (802.1p), low Control (802.3x), GVRP, GMRP
RTM Support	Synchronous Timing I/O for Multi-Shelf Synchronization, Storage	Synchronous Timing I/O for Multi-Shelf Synchronization, Storage
Shelf Manager Crossconnect Support	✓	✓
Configuration Options	Version with Base- and Fabric Interface	Version with Base Interface
Management	SNMP, TELNET, Command Line Interface in-band or out of band via 10/100 Base-T or RS232	SNMP, TELNET, Command Line Interface in-band or out of band via 10/100 Base-T or RS232
IPMI	Version 1.5	Version 1.5
RoHS compliant	yes	yes

AdvancedMC

AMC everywhere



powered by Intel Pentium M

Intel PRO Network Connections

PCI EXPRESS



Carrier Blades

Features	AT8400 Quad AMC Carrier
Base Interface Support	Two Gigabit Ethernet
Fabric Interface Support	Two Dual Gigabit Ethernet
AMC Slots	Four full height, single width AMC slots with cut away for SAS drives and enhanced cooling
Usage Models for AMC Slots	Support for 2x GbE, 1x SATA/SAS, 4/8x PCI Express, IPMI, Telco Clock
GbE Switch Features	Multicast Support, extended QoS, VLANs
Ethernet/Bridging Protocols	Include VLANs (802.1Q), Link Aggregation (802.3ad), Spanning Tree (802.1D, 802.1w), QoS (802.1p), Flow Control (802.3x), GVRP, GMRP
RTM Support	4x SAS/SATA Storage, Dual Gb Ethernet, X8 lanes per AMC Rear I/O, out of band Management 10/100Base-Tans RS232
Configuration Options	PCI-Express / SAS-SATA / Gigabit Ethernet combinations
Management	SNMP, TELNET, Command Line Interface in-band or out of band via 10/100 Base-T or RS232 on RTM
IPMI	Version 1.5
RoHS compliant	yes

AM4001 - Processor AMC module

- ▶ Intel® Pentium® M up to 2.0 GHz with 2 MByte L2 cache
- ▶ 400/533 MHz Front Side Bus
- ▶ Up to 4 GByte DDR2 400 MHz registered memory
- ▶ Server-class chipset Intel® E7320 + 6300ESB
- ▶ Soldered CompactFlash up to 1 GByte
- ▶ Single-width, full-height
- ▶ Connectivity to Carrier: 2x GbE, PCI-Express 1x4, 2x SATA
- ▶ Connectivity to Frontpanel: 2x MiniUSB (1x USB 2.0, 1x USB 1.1 serial-to-USB), 8 Control/Status LEDs
- ▶ IPMI V1.5
- ▶ Compliant to AMC.0 / AMC.1 / AMC.2 / AMC.3
- ▶ RoHS compliant

AM-EVAL1 - Evaluation Platform for AM4001

- ▶ AMC connector for Half Height and Full Height Modules
- ▶ Two copper RJ45 Gigabit Ethernet connectors for 1000 Base-TX support
- ▶ One standard PC PCI-Express x16 connector
- ▶ Two standard PC SATA connectors
- ▶ IPMI debug connector with I2C signals
- ▶ ATX power supply
- ▶ FANS for active cooling
- ▶ Control/Status LEDs
- ▶ RoHS compliant

AdvancedMC

IO-AMC

Features	AM4300	AM4320
Interface	4x Gigabit Ethernet	4x OC-3 optical links
Form Factor	Single-width, full-height	Single-width, full-height
Characteristics	Support for VLAN, Jumbo Frames (9 kByte), Flow Control	Support for SDH (STM-1) and Sonet (STS-3c)
Controller	Broadcom controller including internal RISC processor	-
RoHS compliant	yes	yes

Available Q3/2006

Chassis

Features	XL8001 16 Slot ATCA Shelf	XL8000	XL8500	XL8200
Form Factor	13U ATCA	12U ATCA	5U ATCA	3U ATCA
Rear I/O	All slots	All slots	All slots	no
Slot	16 Slots	14 Slots	5 Slots	2 Slots
Alarm Card	Dual Shelf Manager	Dual Shelf Manager	Dual Shelf Manager	-
Bus type	Dual Star or Full Mesh	Dual Star or Full Mesh	Full Mesh	Full Mesh
RoHS compliant	yes	yes	yes	yes

Mass Storage AMCs

Features	AM4520	AM4500
Interface	SAS	SATA
Capacity	37 GByte or 73 GByte	Up to 60 GByte
Form Factor	Single-width, full-height	Single-width, full-height
Access	10,000 RPM, avg seek time 4.1 ms	5,400 RPM, avg seek time 12 ms
Characteristics	24 hours / 7 days operation, MTBF 1,400,000 hours	24 hours / 7 days operation, MTBF target 500,000 hours
RoHS compliant	yes	yes

Available Q2/2006

➤ CompactPCI Performance Line & PICMG 2.16

The requirements are obvious

The way that systems are designed for OEM applications is influenced by:

- Off-the-shelf software availability
- The need for a short time-to-market
- The availability of experienced engineers
- An abundance of third-party hardware and software products
- The demand for open systems

Today's demands on industrial PC technology are far more than standard motherboards can fulfill because their designs are optimized for production cost, but not for longevity and they lack solutions for intelligent cabling, EMI shielding or optimized cooling.

CompactPCI is the answer

Industrial PCs traditionally focus on improved mechanics to overcome the limitations posed by the standard PC set-up. This changed dramatically with the invention of CompactPCI, the fully industrialized version of desktop PC technology. In the past, price played a decisive role when deciding to invest in a PC-based system. Today price still plays a very important role, but experience shows us that the ultimate deciding factors are the availability of off-the-shelf standard software and the low MTTR (Mean-Time to Repair) connected with CompactPCI based technology.

CompactPCI provides solutions for high density integrated systems, excellent EMI shielding, optimized cooling and reliable, serviceable, robust and high availability systems. Kontron integrates all these characteristics into a wide range of CompactPCI products with advantageous features:

- High-performance PCI bus (66/133 MHz/64 bit)
- Parallel card insertion from front for easy replacement and minimum MTTR
- Proved 19" mechanics in 3U, 6U and mixed configurations
- Rear I/O support option for internal cabling requirements and hot swap
- Improved airflow by consequent vertical mounting of boards
- Hot swap hardware provision on highly reliable connector

PICMG 2.16



Additionally, new switch-fabric architectures, such as the PICMG 2.16 packet switched backplane, increase system availability by eliminating single points of failure in board inter-connectivity. PICMG 2.16 is an extension of the PICMG 2.x family of specifications. PICMG 2.16 provides a standard for the implementation of a packetbased switching architecture (based on Ethernet) on top of CompactPCI.

➤ 6U x86 Processor Boards

Features	CP6012	CP6000	CP6011	CP6010	CP605
CPU	Intel® Core™ Duo Processor up to 2.0GHz	Intel® Pentium® M up to 1.8GHz (745)	Intel® Pentium® M up to 2.0 GHz (760)	Dual LV Intel® Xeon® up to 2.4 GHz	Intel® Pentium® 4M up to 2.2 GHz
Front Side Bus	667 MHz	400 MHz	400 MHz (533 MHz with 2.0 GHz Pentium® M)	400/533 MHz	400 MHz
CPU L2 Cache	2 MByte	up to 2 MByte	up to 2 MByte	dual 512 kByte	512 kByte
Chipset	Intel® E7520 and 6300ESB I/O Controller Hub	Intel® 855GME and 6300ESB I/O Controller Hub	Intel® E7501 + ICH3-S	Serverworks GC-LE	Intel® 845GV and ICH4
DRAM	up to 4 GByte with ECC, DDR2 400	up to 2 GByte with ECC, DDR 333	up to 2 GByte with ECC, PC1600 DDR SDRAM	up to 8 GByte PC 2100 DDR, ECC	up to 1 GByte DDR SDRAM (2 GByte with DDR SO-DIMM socket)
Flash	CompactFlash	CompactFlash	CompactFlash	CompactFlash	CompactFlash
Frontpanel	VGA (CRT), COM1, 2x Ethernet, 1x USB, LEDs, Reset, PMC/XMC	VGA (CRT), COM1, 2x Ethernet, 1x USB, LEDs, Reset, PMC	1x COM, 1x Ethernet, LEDs, Reset, 2x PMC	VGA (CRT), COM1, 2x Ethernet, 1x USB, LEDs, Reset, PMC	VGA (CRT) or COM2, 3x Ethernet, 2x USB, LEDs, Reset, PMC, COM1
USB	4x USB 2.0	4x USB 2.0	3x USB 1.1	3x USB 1.1	5x USB 2.0
Ethernet	Max. 4x Gigabit, 2x to front, 2x to rear, PICMG 2.16 compliant	Max. 4x Gigabit, 2x to front, 2x to rear, PICMG 2.16 compliant	2x Gigabit, 1x 10/100 Base-Tx, PICMG 2.16 compliant	2x 10Base-T/100Base-Tx/1000Base-T, PICMG 2.16 compliant	2x Gigabit, 1x 10/100 Base-Tx, PICMG 2.16 compliant
Graphics	ATI ES1000 (64 MByte video memory)	855GME internal	ATI® Mobility-M (4 MByte video memory)	C&T 69030 (4 MByte)	845GV internal VGA, up to 64 MByte shared memory
Mezzanine	1x slot PMC: 64 Bit/66 MHz or 1x slot XMC: x8 PCIExpress	1x slot PMC: 64 Bit/66 MHz	2x slots PMC: 1x 64 Bit/133 MHz, 1x 64 Bit/66 MHz	1x slot PMC: 64 Bit/66 MHz	1x slot PMC: 32 Bit/33 MHz
System Peripheral	system/stand alone	system/stand alone	Universal Bridge	Universal Bridge	system/stand alone
Rear I/O	✓	✓	✓	✓	✓
IPMI	✓ (IPMI V1.5)	✓ (IPMI V1.5)	✓ (IPMI V1.5)	✓ (IPMI V1.5)	✓ (IPMI V1.5)
RoHS compliant	yes	yes	yes	yes	yes



TFT Monitors [see»](#) p. 76
 PMC Mezzanines [see»](#) p. 46

► 6U PSB Platforms



Features	CP-ASM6-PSB	CP-ASM10-PSB
Expansion	8 or 16	14 node + 2 switch
Power Supply	up to 4x 200 W / 3U	up to 4x 250 W / 3U
Housing	84 HP / 6U	84 HP / 10U
Alarm Card	-	Chassis monitor optional
Packet Switched Backplane	✓	✓
IPMI	-	Optional
H110	✓	-
RoHS compliant	yes	yes



► 6U Standard Platforms



Features	XL2000	XL1000	CP-ASM6-P47
Depth	210 mm	275 mm	275 mm
19" Rack Mounting	Wall mount	Cabinet / ETSI mount	Cabinet or Wall mount
Backplanes	4 slot	2, 4, 6 or 8 Slot	4, 8 or 16 Slot
Drives	HDD / FDD optional	CPU onboard only	DVD / HDD / FDD optional
Power Supply	75 Watt AC or DC	up to 3x P47 series	up to 6x P47 series
Cooling	optional	Left to right fan	Bottom to top fan
Housing	28 HP / 7U	84 HP / 1, 2, 3 or 4U	84 HP / 6U
Packet Switched Backplane	-	optional	optional
H110	-	✓	optional
RoHS compliant	yes	yes	yes

► 3U Performance Line Processor Boards



Features	CP307 ^{new}	CP306	CP303
CPU	Intel® Core™ Duo Processor up to 2.0 GHz	Intel® Pentium® M up to 1.8 GHz (745)	Intel® Mobile Pentium® III-M 800 MHz
CPU L2 Cache	2 MByte	up to 2 MByte	512 kByte
Chipset	Intel® 945GM and ICH7-R	Intel® 855GME and ICH4	Intel® 82815 GMCH and 82801 ICH2
DRAM	Max 4 GByte, (2 GByte soldered + 2 GByte via SO-DIMM socket)	1 GByte with ECC soldered	256 MByte soldered + 256 MByte SO-DIMM
DRAM speed	667 MHz	333 MHz	133 MHz
Flash Disk	CompactFlash socket	CompactFlash socket	CompactFlash socket
4HP Version	2x Ethernet, CRT, 2x USB 2.0, LEDs	2x Ethernet, CRT, 2x USB 2.0, LEDs	2x Ethernet, 2x USB, LEDs, CRT or COM1
8HP Version	DVI, COM1, 2x USB 2.0, Reset, HDD Activity LED	COM1/2, PS/2, Reset	COM1/2, PS/2, Reset
Ethernet	2x 1000Base-Tx	1x 1000Base-Tx, 1x 100Base-Tx	2x 100Base-Tx
Graphics	945GM internal	855GME internal	i82815 internal 2D/3D graphics accelerator
Characteristics	Highest Performance, Rugged	High Performance, Low Power, Rugged	Low Power, Rugged
Power Consumption (typ.)	23 W / 1.66 GHz	22 W / 1.8 GHz, 13 W / 1.4 GHz	15 W/800 MHz
RoHS compliant	yes	yes	yes

► 3U/6U PowerPC Processor Boards



Features	CP321 System Master	CP620 System Master
CPU Clock	Freescall MPC8245 330 MHz	IBM 750CX(E) 600 MHz
DRAM	up to 256 MByte w. ECC direct soldered	up to 1 GByte soldered SDRAM
Flash	Disk-On-Chip	CompactFlash
Ethernet	10/100 BaseT	2x 10/100BaseT PICMG 2.16 compliant
Serial Channels	1x RS232, 1x RS232/485	1x RS232, 3x RS232/422/485 optional front/rear I/O
Rear I/O	Optional	Optional, 2x PMC, 3x serial, 2x Ethernet
Expansion	PCI extension connector	2x PMC sockets
Accessories	PMC carrier, HDD module	HDD module
RoHS compliant	yes	yes

PMC Mezzanines [see»](#) p. 46

CPCI Value Line [see»](#) p. 47

► 3U Digital



Features	CP384	CP383	CP382	CP381
Digital In Channels	16 (24 V DC Nom.)	16 (24 V DC Nom.)	-	30 (24 V DC Nom.)
Input Voltage	Low Range: -3-5 V, High Range: 11-30 V	Low Range: -3-5 V, High Range: 11-30 V	-	Low Range: -3-5 V, High Range: 11-30 V
Input Current	5 mA	5 mA	-	5 mA
Digital Out Channels	8 Relay contacts	16 (24 V DC Nom.)	24 (24 V DC Nom.)	-
Output Current	max. 1A per channel	max. 500 mA per channel	max. 500 mA per channel	-
Isolation	2 kV	2 kV	2 kV	2 kV
RoHS compliant	yes	yes	yes	yes

► Controller Boards



Features	CP332	CP346	CP360
	Graphics Controller	Serial Controller	SCSI Controller
Interface	Dual DVI-i with DVI and CRT signals	RS232, RS422, RS485	Wide-Ultra2 (SCSI-3)
Form Factor	3U / 4HP	3U / 4HP	3U / 4HP
Channels	Dual head	4 independently controlled	one channel for 15 devices
Characteristics	Ultra High res. VGA	16550 UART compatible	Ultra SCSI-2 interface
Controller	ATI Radeon Mobility M9	Quad UART OX16PCI954	SCSI 53C895
RoHS compliant	yes	yes	yes

► 3U Analog



Features	CP371	CP372
Analog In Channels	16 (optionally 8)	-
Analog In Resolution	12 Bit	-
Input Voltage Range	0-5 v, 0-10 V, +/-5 V, +/-10 V	-
Input Current Range	0-20 mA, 4-20 mA	-
Analog In	Differential	-
Throughput Rate	13 kHz	-
Analog Out Channels	-	8 (optionally 4)
Analog Out Resolution	-	12 Bit
Output Current	-	0-20 mA
Basic Accuracy	+/- 1 LSB	+/- 1 LSB
Isolation	2 kV	2 kV
RoHS compliant	yes	yes

► 3U Ethernet and Fieldbus Controller Boards



Features	CP340	CP341	CP353
Frontpanel	RJ-45 Status LEDs	2x RJ-45 Status LEDs	9 pin D-sub for fieldbus connection, 9 pin D-sub fieldbus configuration
Function	one 10/100Base-Tx Fast Ethernet port	two 10/100Base-Tx Fast Ethernet port	Profibus DP V1 Master/Slave
Data Rate	10 + 100 MBit/sec.	2x 10 + 100 MBit/sec.	up to 12 MBit/sec.
Channels	1	2	1
Isolation	-	-	opto-isolated
Controller	Intel® 82558	Intel® 82558	EC-1 System on Chip
RoHS compliant	no	no	yes

► 3U/6U PMC Carrier Boards



Features	CP390	CP690HS
Height	3U	6U
PCI Bus	32 Bit/33 MHz	64 Bit/66 MHz
PMC	1x 32 Bit	2x 64 Bit
Rear I/O	-	✓
Hot Swap	optional	✓
RoHS compliant	yes	yes

► Ethernet Switch Boards



Features	CP6922	CP932 ^{new}	CP930
Power Consumption (typ.)	47 Watt	5 Volt / 8 Watt	5 V / 1.5 Watt
Dimensions H x W x D	6U / 4 HP	3U / 4HP	3U / 4HP
Ports	24 Gigabit Ethernet	five Gigabit Ethernet / one NIC	five Fast Ethernet
Connection	PICMG 2.16	5x RJ45 / cPCI	RJ45/MTRJ1300 nm
Operating Temperature	0 °C to 55 °C	-25°C to +75°C	-40° to +85° C
RoHS compliant	yes	yes	yes

PMC Mezzanines **see»** p. 46

► PMC Modules



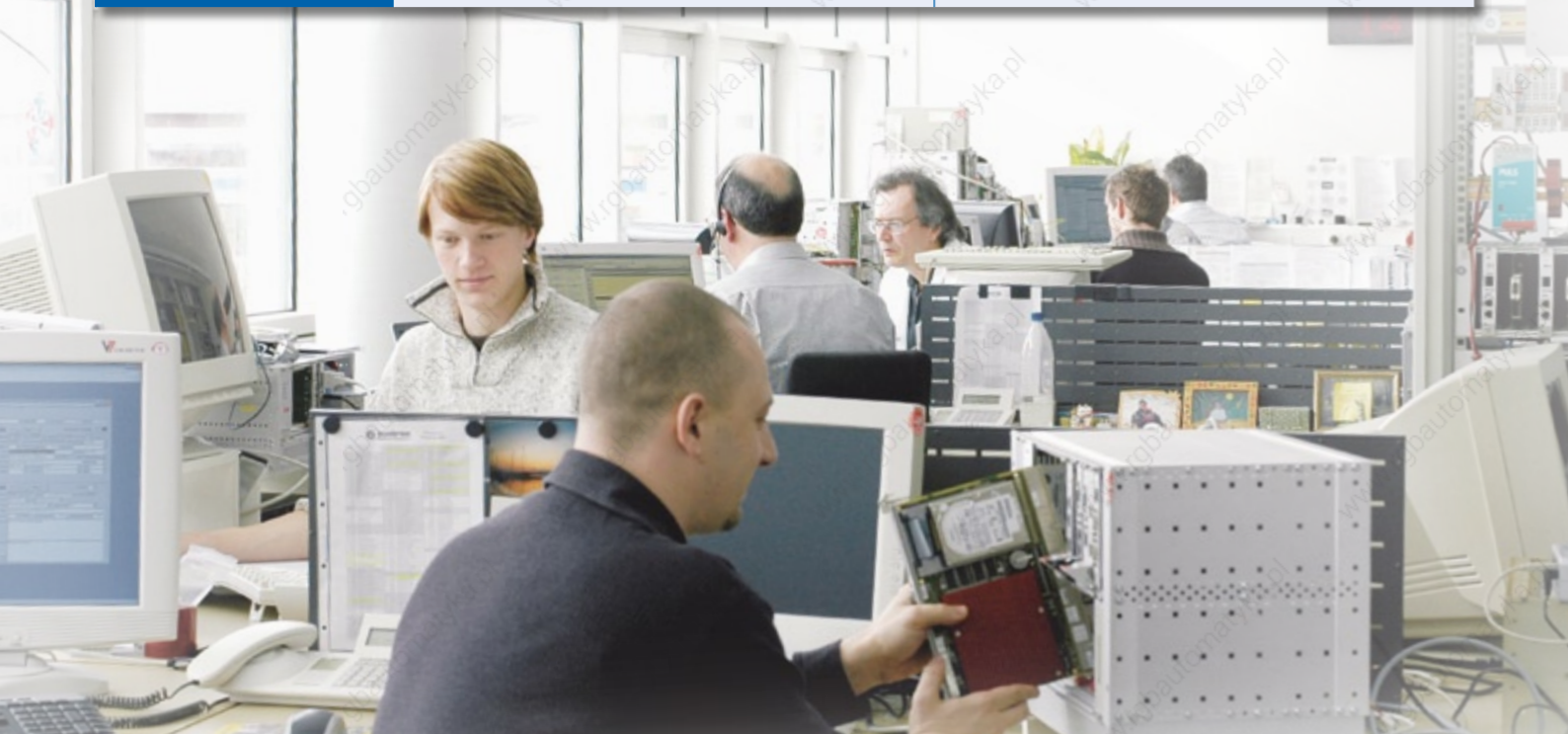
► PMC Mezzanines

Features	PMC240 (Dual Gigabit Ethernet)	PMC253 (Profibus)
	Dual Gigabit Ethernet	Profibus
Frontpanel	2x RJ45: 2x copper, 2x SC-Type connector: 2x fiber, 1x RJ45 and 1x SC-Type connector for mixture	9 pin D-Sub for fieldbus connection
Function	1 or 2 independent Gigabit, Ethernet channels	Profibus DP V1 Master/Slave
Data Rate	Copper: 10Base-T, 100Base-Tx, 1000Base-T, Fiber: 1000Base-SX	up to 12 MBit/sec.
Signals	Copper or fiber, or mixture copper and fiber	RS485
FIFO	2x 64 KByte (configurable)	-
Controller	Intel® 82546EB or Intel® 82545EM	EC-1 System on Chip
RoHS compliant	yes	yes



► PMC Mezzanines

Features	PMC260	PMC261
	SCSI	SCSI
Frontpanel	68 pin high density connector	68 pin ultra high density connector
Function	Wide Ultra 2 SCSI	Dual Channel Ultra160 or Ultra320 SCSI
Data Rate	80 MByte/sec.	160 or 320 MByte/sec.
FIFO	Up to 816 Byte	944 Byte DMA to PCI bus
Controller	SYM53C895	LSI 53C1010R
RoHS compliant	yes	yes



new

► CPCI Value Line

The Value Line systems from Kontron offer the comfort and features of the CompactPCI systems for the price of normal PCI computers. Our customers receive CPCI systems, which protect their investment and minimize their costs.

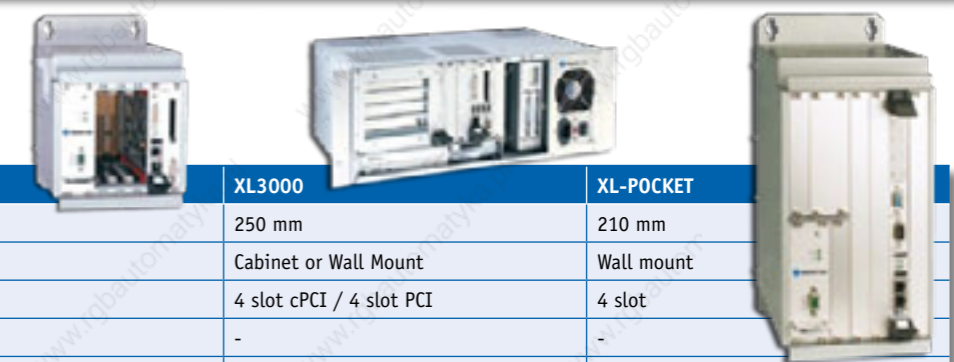
Furthermore, the systems' modularity makes it possible to tailor processor performance and I/O design to suit the particular customer.



► 3U/6U Processor Boards

Features	CP307-V	CP306-V	CP303-V	CP6000-V	CP6500-V
CPU	Intel® Core™ Solo Processor 1.86 GHz	Intel® Celeron® M 1.3 GHz	Intel® LV Celeron® microBGA 400 MHz	Intel® Celeron® 600 MHz	LV Celeron® microBGA 400 MHz
Front Side Bus	533 MHz	400 MHz	133 MHz	400 MHz	133 MHz
CPU L2 Cache	1 MByte	512 kByte	256 kByte	0 kByte	256 kByte
Chipset	Intel® 945GM and ICH7-R	Intel® 855GME and ICH4	Intel® 82815GMCH and 82801 ICH2	Intel® 855GME and 6300ESB I/O Controller Hub	Intel® 82815 GMCH and 82801 ICH4
DRAM	Up to 2 GByte SO-DIMM DDR2	Up to 1 GByte SO-DIMM DDR	up to 512 MByte SO-DIMM	Up to 1 GByte SO-DIMM DDR	up to 512 KByte SO-DIMM
DRAM speed	533 MHz	333 MHz	133 MHz	333 MHz	133 MHz
CompactFlash	Onboard	Front panel	Onboard	Onboard	Onboard
4HP Version	1x Ethernet, CRT, 2x USB 2.0, LEDs	1x Ethernet, CRT/DVI, PS/2, 1x USB 2.0, LEDs	1x Ethernet, 2x USB, LEDs, CRT or COM1	2x Ethernet, 1x USB, LEDs, CRT, COM1, PMC	VGA (CRT), 2x Ethernet, 2x USB, LEDs, Reset, PMC, COM1
8HP Version	DVI, COM1, 2x USB 2.0, PS/2, Reset, HDD Activity LED	COM1, CompactFlash access	COM 1/2, PS/2, Reset.	DVD/HDD-Carrier	on request
Ethernet	1x 1000Base-Tx	1x 100Base-Tx	1x 10/100Base-Tx	2x 10/100/1000Base-Tx, Front or PICMG 2.16	2x 10/100 Base-Tx, PICMG 2.16
Graphics	945GM internal	855GME internal	i82815 internal	855GME internal	i82815 internal
PMC	none	none	none	1x 64 Bit/ 66 MHz	1x 32 Bit/33 MHz
Rear I/O	Optional	Optional	Optional	✓	✓
Power Consumption (typ.)	25 Watt / 1.86 GHz	20 Watt / 1.3 GHz	8 Watt / 400 MHz	12 Watt / 600 MHz	10 Watt / 400 MHz
RoHS compliant	yes	yes	yes	yes	yes

CP POCKET Control **see** p. 90



► 3U/6U Systems

Features	CP-Pocket	XL3000	XL-POCKET
Depth	210 mm	250 mm	210 mm
19" Rack Mounting	Wall mount	Cabinet or Wall Mount	Wall mount
Backplanes	4 slot	4 slot cPCI / 4 slot PCI	4 slot
Rear I/O	-	-	-
Drives	Only CPU onboard	DVD / HDD	HDD / FDD optional
Characteristics	Integrated CP306-V or CP303-V	Integrated CP306-V	Integrated CP6500-V
Power Supply	75 Watt AC or DC	ATX 250 Watt	75 Watt AC or DC
Cooling	✓	✓	optional
Housing	28 HP / 4U	84 HP / 4U	28 HP / 7U
RoHS compliant	yes	yes	yes

VME

Technology

VMEbus is a modular 19" computer architecture, the term VME stands for "VERSAmodule Eurocard". Since 1983 this standard has become increasingly well established; it is supported by hundreds of companies producing thousands of off-the-shelf products.

More than two decades later, VMEbus is still the leading bus technology in the world of embedded applications. Continuous evolution of the technology and the introduction of many improvements have spawned a number of powerful VME standards keeping the architecture up to date. VMEbus systems provide scalable bandwidth and unparalleled features for real time operation and multi-tasking.

Kontron's comprehensive 3U and 6U VMEbus product range is built in accordance with the ANSI/IEEE standard 1014 for VMEbus architecture, which is still regarded as the leading bus system in embedded systems.



The active VMEbus community, headed by the VITA (VMEbus International Trade Association), offers a multitude of products with the advantages of compatibility, interoperability, and reliability, together with comprehensive expertise that ensures a short time-to-market for all kinds of industrial applications.

Advantages for you

- Reduced time-to-market
- Low system cost
- System configuration flexibility

- Scalability
- Easy system expansion
- Off-the-shelf products
- Low development cost
- Vendor independence
- Investment protection

Due to its flexibility, ruggedness and scalability, VME technology is present in applications from industrial control to military, telecommunications, automation and instrumentation systems.



➤ 3U Power PC Processor Boards



Features	VMP3	VMP2	VMP60
CPU	Freescale MPC8541 @ 660 MHz	Freescale MPC8245 @ 330 MHz	Freescale MPC860T @ 80 MHz
CPU MIPS	1520	465	108
DRAM	128 MByte DDR-SDRAM	64 MByte (256) SDRAM	up to 64 MByte
SRAM	1 MByte (optional)	-	0.25/1 MByte
Flash	CompactFlash	up to 144 MByte (Disk onChip)	2/4 MByte
Flash Onboard	8/16 MByte	4/8 MByte	0.5 MByte (also EPROM)
NVRAM	1 MByte	up to 0.5 MByte	-
Serial Channels Frontpanel (total)	1	2	2 [6]
Network Options	2x 10/100/1000BaseT, 1x 100/100BaseT	100BaseT/10BaseT	
Mezzanine	PMC carrier optional		(E)CXC interface
Power Consumption (typ.)	10 (typ.) @ 660 MHz	5.8 (typ.) @ 330 MHz	6.2 (typ.) @ 80 MHz
RoHS compliant	yes	yes	yes

➤ 3U 68 k CPUs



Features	VM62	VM42	VSBC-32
CPU	Freescale MC68060 @ 50 MHz	Freescale MC68040 @ 33 MHz	Freescale MC68EN360 @ 33 MHz
Coprocessor	Freescale MC68EN360 @ 25 MHz	Freescale MC68EN360 @ 33 MHz	-
CPU MIPS	80	45	6
DRAM	up to 64 MByte	up to 64 MByte	up to 64 MByte
SRAM	0.25/1 MByte	0.25/1 MByte	0.25/1 MByte
Flash	2/4 MByte	2/4 MByte	2/4 MByte
Serial Channels Frontpanel (total)	4 [6]	4 [6]	4 [6]
Network Options	10Base5/T, RS485	10Base5/T, RS485	10Base5/T, RS485
Mezzanine	CXC interface	CXC interface	CXC interface
Power Consumption (typ.)	7 (typ.) @ 50 MHz	7 (typ.) @ 33 MHz	3.5 (typ.) @ 33 MHz
RoHS compliant	yes	yes	yes

➤ 6U 68k Processor Boards



Features	VM172	VM162	VM662
CPU	Freescale MC68060 @ 50 MHz	Freescale MC68040 @ 33 MHz	Freescale MC68060 @ 50 MHz
Coprocessor	Freescale MC68EN360 @ 25 MHz	Freescale MC68EN360 @ 33 MHz	Freescale MC68EN360 @ 33 MHz
CPU MIPS	80	45	100
DRAM	up to 64 MByte	up to 64 MByte	up to 64 MByte
SRAM	0.25/1 MByte	0.25/1 MByte	0.25/1 MByte
Flash	2/4 MByte	2/4 MByte	2/4 MByte
Serial Channels Frontpanel (total)	4 [5]	4 [5]	5 [6]
Network Options	10Base5/T, RS485	10Base2/5/T, RS485	10Base2/5/T, RS485
Mezzanine	IndustryPack, CXC interface	IndustryPack, CXC interface	ModPack, CXC interface
Power Consumption (typ.)	7 (typ.) @ 50 MHz	9 (typ.) @ 33 MHz	5 (typ.) @ 50 MHz
RoHS compliant	yes	yes	yes

➤ Racks and Chassis



Features	ASM3-VME	ASM6-VME
Height	3U	6U
Expansion	7, 12, 15	15
Power Supply	50 or 90 Watt	160 Watt
Dimensions H x W x D	42 / 84 HP / 3U	84 HP / 6U
Input Voltage	95-260 V AC	95-260 V AC
RoHS compliant	yes	yes

For Industrial I/O please visit our webpage at www.kontron-emea.com

➤ Slot-CPU PICMG 1.2



Over the years the importance of the ISA bus has diminished. Omitting the ISA bus has offered a new freedom to manufacturers, who have responded with a variety of ISA-free products, which have mostly been single-source and incompatible with one another. Most known variants are right- or left-hand PCI-only and combinations of PCI and AGP. A new official industrial standard was needed to satisfy customer demands for an advanced, future-proof multi-source solution. The ePCI-X standard (PICMG 1.2) was adopted by the PICMG Consortium of major embedded computer suppliers in 2002.

By removing the ISA legacy and retaining the widely used full size and half size formfactors, new flexibility in functionality and system-design is offered.

Kontron's half size ePCI-X products currently implement one standard 32 bit PCI bus running at 33 MHz offering the same functionality and performance as the majority of existing PICMG 1.0 products. Using the ePCI-X half size formfactor allows the definition of smaller chassis, or alternately offers more room for peripherals bays while staying with an existing system outline.

Kontron's full size ePCI-X products integrate two independent PCI buses. For the highest-performance applications, the primary bus offers 64 Bit running at up to 133 MHz. Combined with the high performance backplane it is possible to run for example, Matrox Odyssey XPro at 100 MHz bus-speed. This is an unmatched level of performance for a passive backplane system. The independent secondary bus offers, at the same time, an interface to components with lower bandwidth, such as serial interfaces or industrial I/Os, without slowing down the primary bus.

- Industrial standard
- Well defined interface
- Scalable from single bus 32 Bit @ 33 MHz to dual bus 64 Bit @ 133 MHz

➤ ePCI-X / PICMG 1.2



Features	ePCI-100	ePCI-101	ePCI-102	ePCI 201
CPU	1 GHz Intel® Pentium® III, Intel® Celeron®	Intel® Pentium® M	Via® Eden up to 1 GHz	Intel® Pentium® 4 Intel® Celeron®
Cache	128/256 kByte	0/512/1024/2048 kByte	64 kByte	512/1024 kByte
Chipset	Intel® 810	Intel® 855GME	Via® Twister™ T	Intel® 82875 + 6300ESB
DRAM	512 MByte SDRAM	1 GByte DDR-SDRAM	512 MByte SDRAM	4 GByte DDR-SDRAM
Flash Disk	CompactFlash Option			
Ethernet	Dual 10/100Base-Tx	Dual 10/100Base-Tx	10/100Base-TX	Dual Intel® 10/100/1000Base-T
IDE Channels	2 (1*)	2 (1*)	2 (1*)	1
Available I/Os	PS/2, FDD, 2x USB, LPT, 2x COM	PS/2, FDD, 6x USB 2.0, LPT, 2x COM	PS/2, FDD, 2x USB 2.0, LPT, COM	PS/2, FDD, 4x USB, LPT, 2x COM, 2x SATA
Graphics	Internal 810	Internal 855GME	Internal S3 Pro Savage 4	ATI M7
Dimensions H x W x D	half size ePCI-X			full size ePCI-X
Additional	DVI, PC104-Plus (no ISA), audio	JILI (LVDS 24 Bit 2 channel), audio	JILI, audio	Dual PCI, Dual VGA, JILI
RoHS compliant	no	yes	no	yes

*) with internal CompactFlash Disk

➤ MiniPCI expansions



Features	SATA	MF1394	SCSI160	ML592
Function	Dual channel serial ATA interface	Dual channel FireWire®	One channel SCSI160	Dual Intel® 10/100 Lan
Bus	32 Bit/33 MHz			
Format	miniPCI			
RoHS compliant	yes	yes	yes	yes

➤ Backplanes



Features	eBP-11A4B6	eBP-6A4B1	eBP-5A4B0	eBP-5A4B0_2	eBP-3A2B0	eBP-11A10B0	eBP-4A3B0
Power connector	ATX				ATX		
Type	full size		half size			half size	
CPU Slots	1	1	1	1	1	1	1
Fast Bus	6	1	0	0	0	0	0
Std. Bus	4	4	4	4	2	10	3
RoHS compliant	yes	yes	yes	yes	yes	yes	yes

TFT Monitors [see»](#) p. 76 f
 Complete Systems [see»](#) p. 58 ff

Slot-CPU PICMG 1.0

PICMG 1.0 Slotcard offers maximal flexibility or system-integration. For customers needing many slots there is no better way to implement the solutions. If you need high performance combined with some legacy ISA-card it might even be the only way to a working solution.

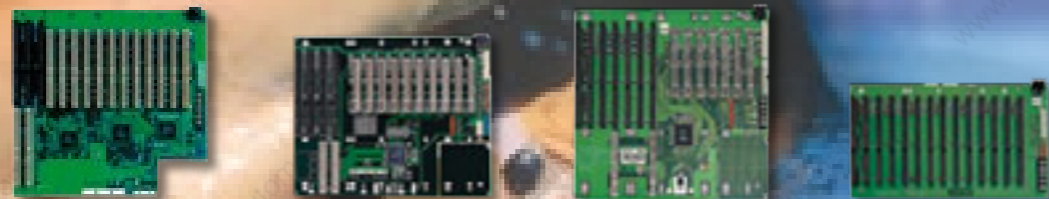


Slot-CPU PICMG 1.0



Features	PCI951	PCI-954	PCI-955	PCI-956
CPU	Intel® Pentium® 4	Intel® Pentium® M	Intel® Pentium® M	Intel® Pentium® M
CPU Clock	up to 3.06 GHz	up to 1.8 GHz	up to 2.13 GHz	up to 2.13 GHz
Front Side Bus	400/533 MHz	400 MHz	400/533 MHz	400/533 MHz
Cache	256/512 kByte	0/512/1024/2048 kByte	0/512/1024/2048 kByte	0/512/1024/2048 kByte
Chipset	Intel® 845GV	Intel® 82855GME + 6300ESB	Intel® 915GM	Intel® 915GM
DRAM	2 GByte DIMM DDR-SDRAM	2 GByte DIMM DDR-SDRAM	2 GByte SO-DIMM DDRII-SDRAM	2 GByte SO-DIMM DDRII-SDRAM
Flash Disk	CompactFlash Socket	-	CompactFlash-option	CompactFlash-option
Ethernet	Dual 10/100Base-Tx or Single 10/100Base-Tx and Single 10/100/1000Base-Tx	Dual 10/100Base-Tx or Dual 1000Base-Tx/Sx	Dual 1000Base-Tx	10/100Base-Tx
IDE Channels	2 (1*)	2	2 (1*)	2 (1*)
Available I/Os	CRT, PS/2, FDD, 4x USB, LPT, 2x COM	CRT, PS/2, FDD, 2x USB, LPT, 4x COM	CRT, PS/2, FDD, 2x USB, LPT, 2x COM	CRT, PS/2, FDD, 2x USB, LPT, 2x COM
Graphics	Internal 845GV	Internal 855GME	Internal 915GM	Internal 915GM
Dimensions H x W x D	PICMG full size	PICMG full size	PICMG full size	PICMG full size
Additional	audio	dual DVI option	DVI option, 64bit @ 66 MHz option, Audio	-
Operating Temperature	0° to 50°C	0° to 50°C	0° to 50°C	0° to 50°C
RoHS compliant	yes	yes	yes	yes

*) with internal CompactFlash Disk



Backplanes

Features	BP14 I1P12	BP14I3P10	BP14I6P7	BP14I13P0
Keyboard	DIN	DIN	DIN	DIN
Power connector	ATX/Screws	AT/ATX/Screws	AT/ATX/Screws	AT/Screws
PICMG Slot	2	2	2	0
ISA	1	3	6	13
PCI	12 (64 Bit)	10	7	0
RoHS compliant	yes	yes	yes	yes

PISA®

Each coolMONSTER is a member of the only real half-size SBC family - all feature LAN, Graphics, 4xCOM, Sound and 2x IDE.

coolMONSTER boards are characterized by the same surface pinouts and interfaces for 4xCOM, 2xIDE, USB, FAST LAN, LPT, FDC, Keyboard/Mouse and VGA. This family feature allows to re-use accessories and maximizes design re-use.

The coolMONSTER family hosts processors from VIA Eden, VIA C3, Intel® Celeron® and Intel® Pentium® M processors, up to latest processor types. All coolMONSTER are plug-and-work enabled to further reduce time-to-market and lower system cost.

Slot-CPU PISA®



Features	coolMONSTER/VE	coolMONSTER/VC	coolMONSTER/PM
CPU	VIA® Eden	VIA® C3	Intel® Pentium® M, Intel® ULV Celeron® M
CPU Clock	300/600 MHz	1.0 GHz	800 MHz up to 1.8 GHz
CPU L2 Cache	64 kByte on chip		0 kByte up to 2 MByte L2
Chipset	VIA® Twister™ T	VIA® Twister™ T	Intel® 855GME, ICH4
DRAM	512 MByte (SDRAM)	512 MByte (SDRAM)	1 GByte (DDR-RAM)
DRAM socket	1x SDRAM-DIMM		
Audio	Sound onboard		
Ethernet Controller	on chip		Intel® 551
Graphics Controller	S3 Savage4®		Intel® Extreme Graphics 2
Graphics Memory	32 MByte UMA	32 MByte UMA	2x 32 MByte UMA
Flat Panel Interface	JILI-LVDS		
Expansion	PISA® slot		
Power Consumption (typ.)	estim. 35 W @ 5 V	estim. 35 W @ 5 V	tbd
Additional	4x RS-232 (one switchable to RS-485), CRT, 1x EPP/ECP, 10/100Base-T Ethernet, LAN Boot, Dark Boot, 16 Bit PCI Sound, 1x USB, Keyboard, Mouse, dual Floppy Interface, 2x EIDE (UDMA-33), Watchdog, RTC		
RoHS compliant	yes	yes	yes

TFT Monitors see p. 76 f

PISA® Backplanes



Features	PISA-2	PISA-2P3I	PISA-3P4I	PISA-B441A	PISA-B111B
Keyboard	-	-	✓	✓	-
Power connector	AT				5 V
Dimensions H x W x D	170 x 51 mm (6.7 x 2.0")	170 x 101 mm	170 x 146 mm (6.7 x 5.8")	220 x 170 mm (8.7 x 6.7")	170 x 60 mm (6.7 x 2.4")
PISA	1x	2x (1x shared)	4x (1x shared)	1x	2x (1x shared)
ISA	1x	1x	1x	4x	4x
PCI	-	2x (1x shared)	3x (1x shared)	4x	1x (1x shared)
RoHS compliant	no	no	no	no	no



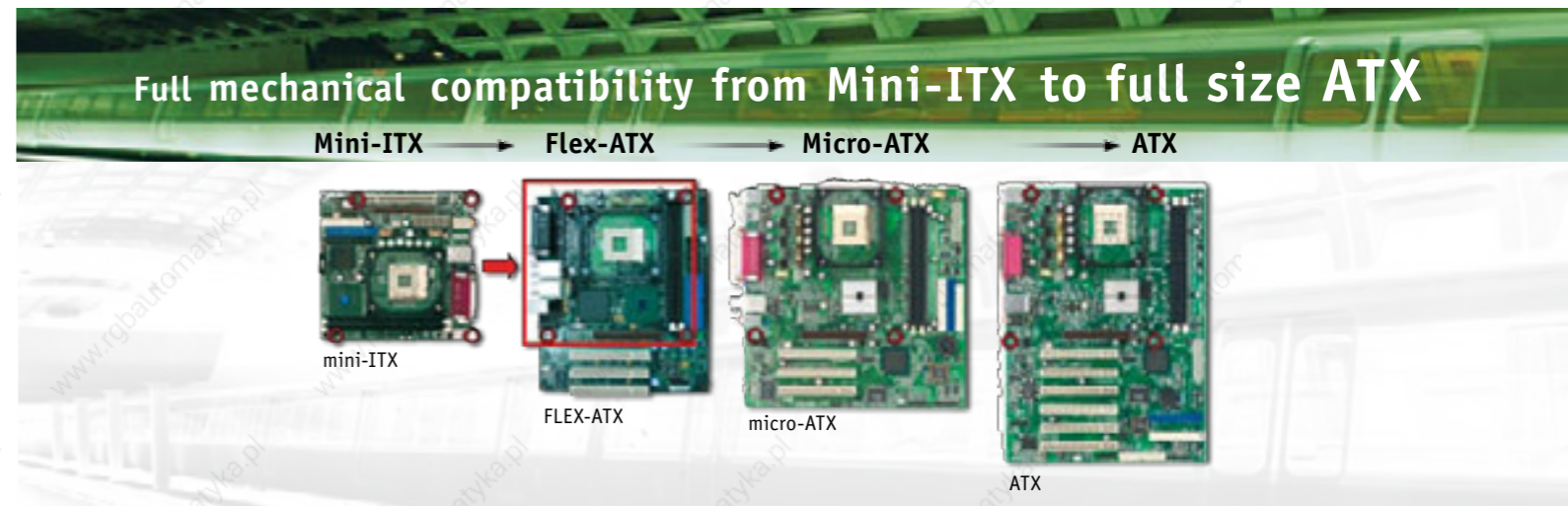
Embedded Motherboards

Kontron offers a broad range of industrial and embedded motherboards from mini-ITX to full size ATX. This variety of motherboards serves the different needs of our customers in the industrial and medical fields, point of sales technology, lotteries, gaming and many other applications. These products are based on state-of-the-art processor and chipset platforms. These embedded and industrial motherboards follow international industry standards with

well-defined mounting holes and standard I/O bracket areas. In addition, Kontron offers many value-added services like product longevity, detailed documentation, display support and complete life-cycle management. The embedded motherboards offer more than 5 years product availability, from the release date, based on embedded key components.

TFT Monitors **see»** p. 76

Complete Rackmount Systems **see»** p. 64 ff



Embedded Motherboards



Features	986LCD-M/ATX new	886LCD-M/ATX	886 LCD/ATX (GV)	ATX-855GME	986LCD-M/FLEX new	886 LCD/ATXU (GV)	886LCD-M/FLEX	embATX-401
CPU	Intel® Core™ Duo and Intel® Core™ Solo	Intel® Pentium® M and Celeron® M	Intel® Pentium® 4 and Celeron®	Pentium® M and Celeron® M	Intel® Core™ Duo and Intel® Core™ Solo	Intel® Pentium® 4 and Celeron®	Intel® Pentium® M and Celeron® M	Pentium® 4, Pentium®4 M
CPU Clock	Up to 2.16 GHz	Up to 2.1 GHz	Up to 3.2 GHz	Up to 1.8 GHz	Up to 2.16 GHz	Up to 3.2 GHz	Up to 2.1 GHz	Up to 2.8 GHz
Front Side Bus	533/667 MHz	400 MHz	400/ 533 MHz	400/533 MHz	533/667 MHz	400/533 MHz	400 MHz	400/533 MHz
BIOS	AMI®				AMI®			
Chipset	Intel® 945GM + ICH7M	Intel® 855GME + 6300ESB	Intel® 845GV + ICH4	Intel® 855GME	Intel® 945GM + ICH7M	Intel® 845GV + ICH4	Intel® 855GME + 6300ESB	Intel® 845GV
DRAM	Up to 2 GByte DDR2 533/667	Up to 2 GByte DDR333 SDRAM (PC2700)	Up to 2 GByte DDR-SDRAM	2 GByte, DDR-SDRAM, ECC	Up to 2 GByte DDR2 533/667	Up to 2 GByte DDR-SDRAM	Up to 2 GByte DDR333 SDRAM (PC2700)	2 GByte, DDR-SDRAM, ECC
Video Memory	Up to 192 MByte shared video memory	Up to 96 MByte shared video memory	Up to 128 MByte shared video memory	Up to 64 MByte shared video memory	Up to 192 MByte shared video memory	Up to 128 MByte shared video memory	Up to 96 MByte shared video memory	Up to 64 MByte shared video memory
IDE Interface	2x SATA 150, 2x ATA100	2x SATA 150, 2x ATA100	2x SATA 150, 2x ATA100	2x ATA100	2x SATA 150, 2x ATA100	2x SATA 150, 2x ATA100	2x SATA 150, 2x ATA100	2x ATA100
USB	8x USB 2.0	4x USB 2.0	6x USB 2.0 (2x internal)	6x USB 2.0	8x USB 2.0	6x USB 2.0 (2x internal)	4x USB 2.0	6x USB 2.0
Ethernet	Up to 3x GbE LAN	Up to 3x GbE LAN	10/100Base-T	10/100Base-T	Up to 3x GbE LAN	10/100Base-T	Up to 3x GbE LAN	Dual 10/100Base-T, second optional 10/100/1000 Base-T
Form Factor	ATX 300.5mm x 190.5mm (12" x 7.5")	ATX 300.5mm x 190.5mm (12" x 7.5")	ATX Formfactor, 305 x 220 mm	ATX	Flex - ATX 228.6 mm x 190.5 mm (9" x 7.5")	Micro-ATX Formfactor 243.8 mm x 243.8 mm (9.6" x 9.6")	Flex - ATX 228.6 mm x 190.5 mm (9" x 7.5")	embATX
Available I/Os	1x PCI, 2x COM	6x PCI, 4x COM	6x PCI 2.2 master slots	6x PCI, 1x AGPx4	1x PCI, 2x COM	3x PCI 2.2 master slots	3x PCI, 4x COM	3 (raiser needed)
Graphics Controller	Intel® GMA950, LVDS on board	Intel® Extreme Graphics 2	Intel® Extreme Graphics	Intel® Extreme Graphics 2	Intel® GMA950, LVDS on board	Intel® Extreme Graphics	Intel® Extreme Graphics 2	Intel® Extreme Graphics
Graphic Interface	CRT / LVDS / PCI-Express / SDVO	CRT / LVDS / AGP x4 / DVO	CRT / DVO	CRT / DVO	CRT / LVDS / PCI-Express / SDVO	CRT / DVO	CRT / LVDS / AGP x4 / DVO	CRT / DVO
Rear I/O	COM1, CRT,IEEE1394, Ethernet, USB, S-video, SPDIF, line-in, line-out, speaker, PS/2 mouse/keyboard	COM1, LPT, CRT, line-in, line-out, speaker, PS/2 mouse/keyboard	COM1, LPT, CRT, line-in, line-out, speaker, PS/2 mouse/keyboard	2x COM, LPT, VGA, LAN, PS2 KBD/MS	COM1, CRT,IEEE1394, Ethernet, USB, S-video, SPDIF, line-in, line-out, speaker, PS/2 mouse/keyboard	COM1, LPT, CRT, line-in, line-out, speaker, PS/2 mouse/keyboard	COM1, LPT, CRT, line-in, line-out, speaker, PS/2 mouse/keyboard	4x COM, LPT, VGA, PS2 KBD/MS, 2x USB
Power Management	ACPI 2.0 + APM 1.2	ACPI 2.0 + APM 1.2	APM 1.2 + ACPI 1.0	APM 1.2 + ACPI 1.0	ACPI 2.0 + APM 1.2			
Special Feature	IEEE1394, HDD SOFT-RAID 0/1 support	HDD SOFT-RAID 0/1 support On board audio amplifier	Drive digital LCD display by Add-Cards: ADD-LVDS(LVDS) & ADD-DVI(DVI)	Audio	IEEE1394, HDD SOFT-RAID 0/1 support	Drive digital LCD display by Add-Cards: ADD-LVDS(LVDS) & ADD-DVI(DVI)	HDD SOFT-RAID 0/1 support On board audio amplifier	Battery backed SRAM
Additional	Add-Cards for SDVO Interface for 2nd LCD, S-Video TV-out, HD Audio, SPDIF, on board audio amplifier, over 5 years availability	Available Add-Cards for DVO Interface for 2nd LCD: ADD-LVDS (LVDS), ADD-DVI(DVI)	Available Add-Cards for DVO Interface for LCD: ADD-LVDS (LVDS), ADD-DVI(DVI)	More than 5 years availability Add-Cards: ADD-LVDS (LVDS), ADD-DVI (DVI)	Add-Cards for SDVO Interface for 2nd LCD, S-Video TV-out, HD Audio, SPDIF, on board audio amplifier, over 5 years availability	Available Add-Cards for DVO Interface for LCD: ADD-LVDS (LVDS), ADD-DVI(DVI)	Available Add-Cards for DVO Interface for 2nd LCD: ADD-LVDS (LVDS), ADD-DVI(DVI)	Audio, opt. 2x internal COM, opt. miniPCI, LVDS
RoHS compliant	yes	yes	yes	yes	yes	yes	yes	yes



➤ Embedded Mini-ITX

Mini-ITX is the latest motherboard formfactor and has been well received by our demanding industrial customers. The very compact and space saving footprint (17 cm x 17 cm) meets the growing need for a small formfactor and allows the customer to design a very

compact system without giving up the standard ATX mounting holes and the I/O bracket area. The Mini-ITX formfactor fills the gap between small modules (like 3.5" Single Board Computers) and full-size ATX motherboards.

➤ ADD-cards

Features	ADD-LVDS	ADD-DVI-I/CRT	ADD-CRT-Internal	ADD2-DVI
Series	ADD-Card	ADD-Card	ADD-Card	ADD2-Card
Video Output	LVDS	DVI & CRT	CRT	DVI
Resolution	Up to 2048x1536	Up to 1600x1200	Up to 1600x1200	Up to 1600x1200
Applicable Motherboards	886LCD series and 886LCD-M series	886LCD series and 886LCD-M series	886LCD series and 886LCD-M series	889LCD series and 986LCD series
Height	Full	Low Profile	Low Profile	Full
Interface	AGP/DVO	AGP/DVO	AGP/DVO	PCI-Express
RoHS compliant	yes	yes	yes	yes

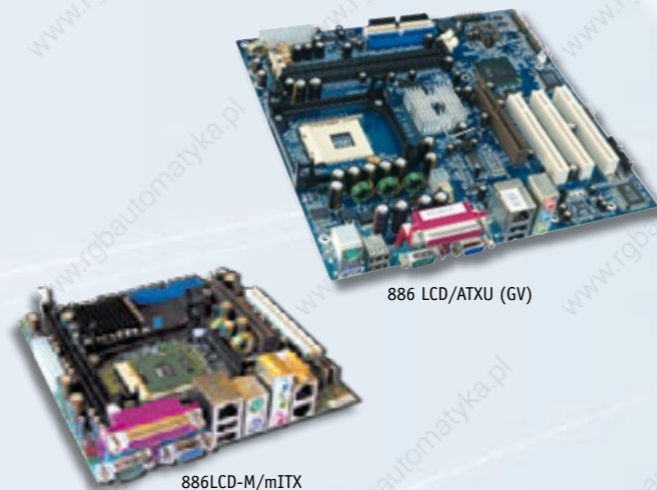
AGP Digital Display Card (ADD-Card)

ADD-Cards add extra digital flat panel display support by using an onboard graphics interface connectors such as AGP/DVO and PCI-Express/SDVO. The solution is flexible and cost effective. By using an ADD-Card to no on board LCD supported

motherboards, you can build a low cost single LCD supported system. By adding an ADD-Card to already LVDS on board motherboards, you can drive two LCDs from single motherboard. Kontron offers both LVDS and DVI interface ADD-Cards.

➤ Advantages of Embedded motherboards and Embedded Mini-ITX

- 5 year lifecycle and long term service & support
- Life-cycle management & revision control
- Extended technical support and documentation
- Flat Panel Display support incl. LVDS, DVI and ADD Cards
- Scalability from mini-ITX to full-size ATX
- Standard ATX power supply and standard I/O bracket area
- Short time-to-market with standard formfactors
- Remote hardware and hard disk monitoring/control by original API software



Temperature monitoring example



Email hardware status reporting by email



Features	986LCD-M/mITX	886LCD-M/mITX	886LCD-M/mITX (BGA)	886LCD/mITX	786LCD/mini-ITX
CPU	Intel® Core™ Duo and Intel® Core™ Solo	Intel® Pentium® M and Celeron® M	Intel® Mobile Celeron® on board	Intel® Pentium® 4, Celeron®	Intel® ULV/LV Celeron®
CPU Clock	Up to 2.16 GHz	Up to 2.1 GHz	600 MHz (BGA) / Other BGA CPUs available on request	Up to 3.06 GHz	Intel® Celeron 400 MHz ULV / 733 MHz LV
Front Side Bus	533 / 667 MHz	400 MHz	400 MHz	400 / 533 MHz	100 / 133 MHz
BIOS	AMI®	AMI®	AMI®	AMI®	AMI®
Chipset	Intel® 945GM + ICH7M	Intel® 855GME + 6300ESB			Intel® 815 + ICH4
DRAM	Up to 2 GByte DDR2 533/667	Up to 1 GByte DDR333 SDRAM (PC2700)	1 GByte DDR333 SDRAM (PC2700)	1 GByte DDR333 SDRAM (PC2700)	Up to 256 MByte on board. 1x 168pin DIMM socket for extra memory (up to 512 MByte total)
Video Memory	Up to 192 MByte shared video memory	Up to 96 MByte shared video memory			Up to 12 MByte shared video memory
IDE Interface	2x SATA 150, 2x ATA100				2x ATA100, 2x SATA 150 (optional)
USB	8 x USB 2.0	4x USB 2.0			6x USB 2.0
Ethernet	Up to 3x GbE LAN				Up to 3x 10/100BaseT LAN
Form Factor	Mini-ITX 170 mm x 170 mm (6.7" x 6.7")				
Available I/Os	1x PCI, 2x COM	1x PCI, 4x COM	1x PCI, 4x COM	1x PCI, 4x COM	1x PCI, 4x COM
Graphics Controller	Intel® GMA950, LVDS on board	Intel® Extreme Graphics 2, LVDS on board	Intel® Extreme Graphics 2, LVDS on board	Intel® Extreme Graphics 2, LVDS on board	Integrated Intel® Graphics engine, LVDS on board
Graphic Interface	CRT / LVDS / AGP x4 / DVO				
Rear I/O	COM1, LPT, CRT, line-in, line-out, speaker, PS/2 mouse/keyboard				
Power Management	ACPI 2.0 + APM 1.2				
Special Feature	IEEE1394, HDD SOFT-RAID 0/1 support	HDD SOFT-RAID 0/1 support	HDD SOFT-RAID 0/1 support	HDD SOFT-RAID 0/1 support	IEEE 1394 optional
Additional	Add-Cards for SDVO Interface for 2nd LCD, S-Video TV-out, HD Audio, SPDIF, on board audio amplifier, over 5 years availability	Available Add-Cards for DVO Interface for 2nd LCD: ADD-LVDS (LVDS), ADD-DVI(DVI), on board audio amplifier, over 5 years availability			N/A on board audio amplifier, over 5 years availability
RoHS compliant	yes	yes	yes	yes	yes



JRex-IBOX

The JRex-IBOX is specifically designed for industrial use; it is robustly equipped and intended to be maintenance-free during its life on the factory floor or in similarly rugged environments – for example, all its CPU assemblies are fanless. Thanks to its limited size, there is also room for the JRex-IBOX in more cramped environments. Typical applications for these IPCs are in field buses, processor control, firewalls, human-machine interfaces and embedded applications.

The JRex-IBOX is modularly constructed in all of its components and can be configured and ordered by users in accordance with their needs. The basic variants of the compact IPC are defined by the types of processor used. Customers can choose from Intel® Pentium® M Celeron® 600 MHz to and 1.8 GHz, VIA Eden 600 MHz, Intel® ULV Celeron® 400 MHz and Intel® LV Celeron® 733 MHz. All the CPU assemblies are fanless and passively cooled. Depending on the customer's requirements and the processor and chipset chosen, between 256 MByte and 1 GByte of RAM is available and is implemented with low-cost standard SDRAM-DIMM Desktop Memory modules.



TFT Monitors [see»](#) p. 76 f

JRex-IBOX Control [see»](#) p. 89 f

Features	JRex-IBOX CE	JRex-IBOX PM	JRex-IBOX VE
Construction	Anti corrosion and long term stable heavy duty steel EN 10215-DX 51D+AZ 150-A-C		
Mounting	Wall Mount, Desktop, DIN RAIL		
Paint Color	Blue		
Weight	~1,2 kg		
Control Panel Indicators	Power LED, HDD LED		
Control Panel Switch	PWR On		
CPU	ULV 400 MHz, LV 733 MHz	Pentium® M Celeron 600 MHz, Pentium® M 1.8 GHz	VIA® Eden 600 MHz
DRAM	Up to 512 MByte SDRAM	Up to 1 GByte DDR 200/266	SDRAM-DIMM for up to 512 MByte
I/O Standard	2x USB 2.0, 1x LAN 10/100, VGA analog, 1x RS232, PS/2 Mouse and Keyboard		
Drives	1x 2,5" HDD internal, Compact Flash accessible		
Expansion Slots	1x JFLEX, 2x JFLEX w/o HDD		
Power Supply	Integrated AC 100-240 V, 24 V DC (18-36)		
Cooling	1x Chassis Fan, no CPU Fan		
Protection Class	IP 20		
Options (Fully Certified with System)	JFLEX Sound, JFLEX Communication, JFLEX Serial GPIO (+ Can, + USB)		
Altitude	10000 ft		
Shock DIN EN 60068-2-27	15 g 11 ms half sine		
Vibration DIN EN 60068-2-6	10-58 Hz + -0.075 mm 58-500 Hz 1 g		
Humidity rel.	10 - 95% relative humidity non condensing		
Operating System	WIN 2000, WIN XP, Linux, XP emb		
MTBF	> 50000 h°		
Noise	< 35 dB @ 25°C		
Dimensions H x W x D	229 x 59 x 122 mm		
Operating Temperature	0° to 50°C		
Type	Premium		
RoHS compliant	yes	yes	yes

*) Without FANs

➤ JReX-IBOX Fanless

Kontron's JReX-IBOX Fanless wall mount/DIN rail mount industrial box PCs can be used for various applications as Fieldbus Applications, System, Process Control, Firewall and in Embedded Applications. The JReX-IBOX Fanless is specifically designed for use within factories and other harsh industrial environments. With Fieldbuses or Industrial I/Os, you can realize all requirements to control your machine. The fanless and low power system operates

between 0° and 50°C. With its passive Heat Pipe concept the JReX-IBOX Fanless is developed for permanent operation without maintenance. You can snap the system onto a DIN rail or mount it on a wall: thanks to its compact design you will find space to mount it anywhere. Supporting embedded operating system turns the JReX-IBOX Fanless into a real embedded system.



➤ JReX IBOX Fanless

Features	JReX-IBOX CE Fanless	JReX-IBOX PM Fanless
Construction	Anti corrosion and long term stable heavy duty steel EN 10215-DX 51D+AZ 150-A-C	
Mounting	Wall Mount, Desktop, DIN RAIL	
Paint Color	Blue	
Weight	~1,5 kg	
Control Panel Indicators	Power LED, HDD LED	
Control Panel Switch	PWR On	
CPU	ULV 400 MHz, LV 733 MHz	PM Celeron 600 MHz, PM 1,8 GHz
DRAM	Up to 512 MByte SDRAM	Up to 1 GByte DDR
I/O Standard	2x USB 2.0, 1x LAN 10/100, VGA analog, 1x RS232, PS/2 Mouse and Keyboard	
Drives	1x 2,5" HDD internal, Compact Flash accessible	
Expansion Slots	1x JFLEX, 2x JFLEX w/o HDD	
Power Supply	Integrated AC 100-240 V, 24 V DC (18-36)	
Cooling	Fanless	
Protection Class	IP 20	
Options (Fully Certified with System)	JFLEX Sound, JFLEX Communication, JFLEX Serial GPIO (+ Can, + USB)	
Altitude	10000 ft	
Shock DIN EN 60068-2-27	15 g 11 ms half sine	
Vibration DIN EN 60068-2-6	10-58 Hz + -0.075 mm 58-500 Hz 1 g	
Humidity rel.	10 - 95% relative humidity non condensing	
Operating System	WIN 2000, WIN XP, Linux, XP emb	
MTBF	> 50000 h°	
Noise	0 dB @ 25°C without HDD	
Dimensions H x W x D	228 x 59 x 148,5 mm	
Operating Temperature	0° to 50°C	0° to 45°C
Type	Premium	
RoHS compliant	yes	

➤ Industrial Box PCs

Industry capability and high performance with compact designs

Kontron's Box PC Family can be used for control and visualization applications. The core components of this easy integrateable computer are the fastest available half size

SlotCPUs. The SC-75_e is powered by our ePCI-101 PICMG 1.2 board, with the fast, low power Intel® Pentium® M 1.6 GHz processor.

TFT Monitors [see»](#) p. 76 f

Industrial Software, OPC drivers [see»](#) p. 91 ff



➤ Industrial Box PCs

Features	SC-75	SC-75_e	InLine- P3_e
Construction	heavy duty steel		
Mounting	Wall Mount, Desk Top	Wall Mount, Desk Top	DIN Rail Mount
Paint Color	beige		
Control Panel Switch	Power on		
CPU	Pentium® III 850 MHz, Pentium III 1,266 GHz, Celeron® 850 MHz	Pentium® M Celeron® 1.3 GHz, Pentium® M 1.8 GHz	Celeron® 600 MHz, Pentium® III 933 MHz
DRAM	512 MByte SO-DIMM max	Up to 2 GByte DDR	Up to 512 MByte SDRAM
Drive bays internal	1x 3,5" for HDD		1x 2,5" HDD (blocks one PC/104 Slot)
I/O Standard	3x COM, 1x LPT, DVI, 1x LAN 10/100, 2x USB 1.1, PS/2 mouse and keyboard	2x COM, 1x LPT, VGA, 1x LAN 10/100, 2x USB 2.0, PS/2 mouse and keyboard	3x RS232, 1x LPT, VGA, 2x LAN, 2x USB, PS/2 M + K
Ethernet	second Ethernet 10/100 with CNR	2x LAN 10/100	2x LAN 10/100
Certified and Supported PC boards	P6	ePCI 101	STX Module
Expansion Slots	2 free PCI half size, 1x CNR for long distance	3 free PCI half size	3x PC/104
Drives side accessible	1x FDD, 1x Slim bay for CD ROM, DVD RW		-
Power Supply	115/230 V AC, 24 V DC +/- 20%		24 V DC +/- 20%
Cooling	1 chassis FAN	1 Chassis FAN	FANless
Options (Fully Certified with System)	PROFIBUS, CAN Bus, Device Net, long Distance	on request	PROFIBUS, DeviceNet CAN Bus, MDI
Certifications	CE, FCC A, designed to meet UL and TÜV		
Shock DIN EN 60068-2-27	15 g 11 ms operating		
Vibration DIN EN 60068-2-6	1 g at 10-500 Hz operating		0-58 Hz +/-0.0375 mm, 58-500 Hz 0.5 g sinus/ 6 axis
Humidity rel.	5 - 95% @ 40°C not condensing		
Operating System	WIN XP, WIN 2000, WIN Emb XP, LINUX	WIN XP, WIN 2000, LINUX	WIN XP, WIN 2000, WIN Emb XP, LINUX
MTBF	> 30000 h		
Dimensions H x W x D	200 x 175 x 280 mm		270 x 183 x 77.4 mm
Operating Temperature	0° to 50°C		
RoHS compliant	yes	yes	yes

➤ ThinkIO - Industrial PC or SoftPLC

ThinkIO is the combination of a compact, complete DIN rail mounted PC with industrial field bus support and the granular WAGO-I/O-SYSTEM 750/753. The ThinkIO system is scalable in terms of IO connections as well as computing performance, so ThinkIO is a highly customizable standard product. All the ThinkIOs are very reliable as the designs are passively cooled/fanless and have no rotating mass medias. The software used with it determines whether ThinkIO is an IPC with application development on different operating systems or a SoftPLC.

WAGO-I/O-SYSTEM 750 and 753

- Smallest, modular, field bus independent, input/output systems for decentralized automation.
- 1, 2, 4 or 8 channels per module
- Modules digital, analog, AS-I, RS232, RS485, counter, ...
- 753 series – connection part removable from electronics
 - pre-wiring possible
 - increased maintainability
 - intermixable with 750 series

ThinkIO and HMI

- ThinkIO may be control and visualization computer in one
- Easy process data display with CoDeSys Target Visualization
- Panel connection via DVI/VGA
- Touch function via USB
Drivers integrated in software for Kontron 10.4" and 15" Touch Panels
- Distant monitoring can be provided by the Long Distance Monitor System

Long Distance Monitor, HMI [see](#) p. 77 ff

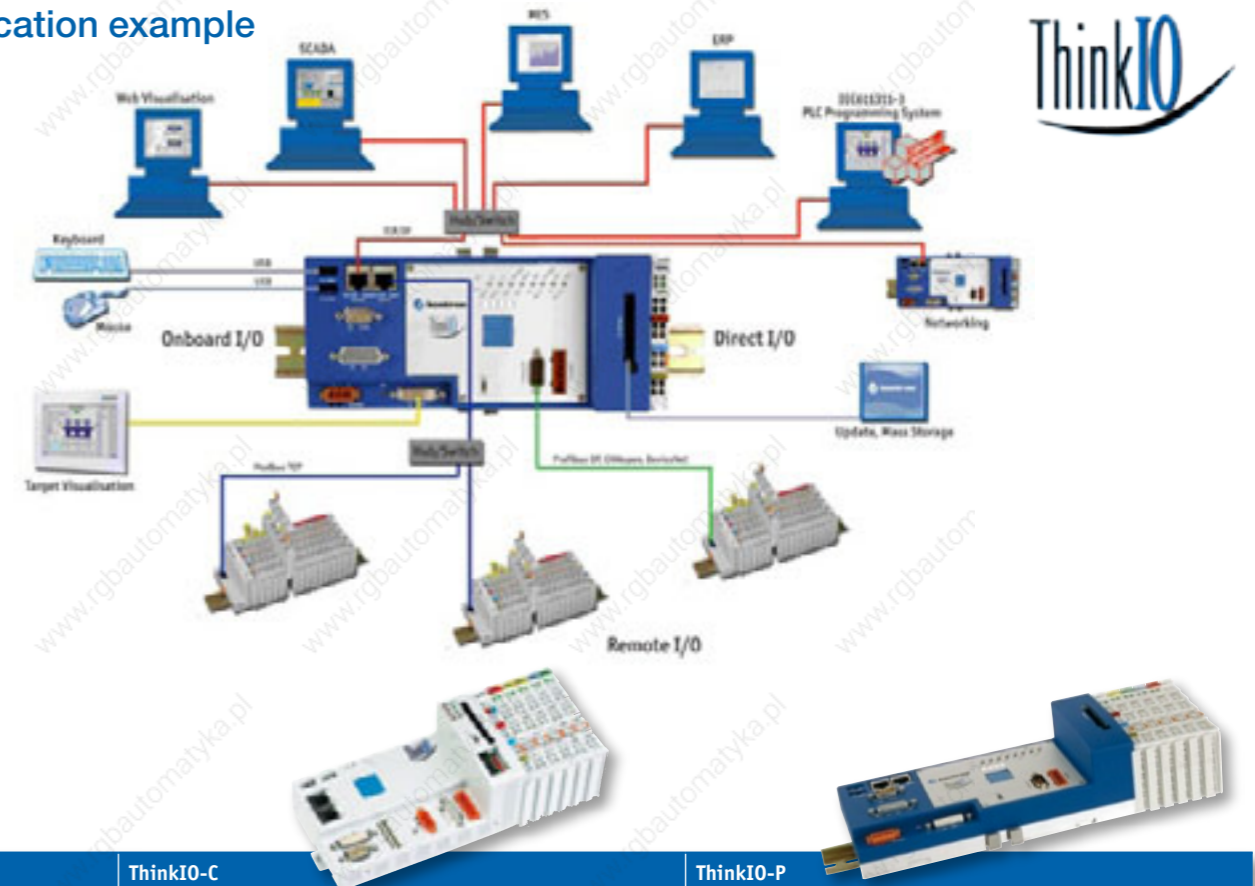
Industrial Control Systems [see](#) p. 89 ff

SoftPLC CoDeSys

- Supports all five IEC 61131-3 languages
- Integrated Target Visualization
- Integrated Web Visualization (on customer request)
- Integrated WAGO-I/O configuration
- Integrated field bus configuration
- Network variables by symbolic access via TCP or CAN
- Tracing, logging, parametrizing of watchdog properties
- Offline simulation
- More than 60 companies belong to the CoDeSys Automation Alliance



➤ Application example



➤ Think IO

Features	ThinkIO-C	ThinkIO-P
Construction	heavy duty steel base, soldered memory, no rotating mass media	aluminum chassis, no ventilation slots, soldered memory, no rotating mass media
Mounting	DIN Rail	DIN Rail
Weight	~ 500 g	~ 1100 g
CPU	AMD Geode 266 MHz	Intel Celeron 600 MHz, Intel Pentium M 1.4 GHz
DRAM	32/128 MByte	256 MByte standard, up to 1 GByte max.
SRAM	128 kByte, battery backed	1 MByte standard, up to 2 MByte max., battery backed
Flash	32/128 MByte onboard, external CF socket	128 MByte onboard standard, up to 1 GByte max., external CF socket
I/O Standard	2x LAN 10/100, 2x USB 1.1, RS232, DVI-I, 2x digital in, 2x digital out, watchdog relay out, RUN/STOP switch, reset	2x LAN 10/100, 2x USB 2.0, RS232, DVI-I, 2x digital in, 2x digital out, watchdog relay out, RUN/STOP switch, reset
Dimensions (H x W x D)	95mm x 160mm x 65*mm (*from upper edge of DIN 35 rail)	100mm x 236mm x 65*mm (*from upper edge of DIN 35 rail)
Power Supply	24 V DC (-25%/+30%) / 13.5 W	24 V DC (-25%/+30%) / 600 MHz: 17 W, 1.4 GHz: 24 W
Cooling	passive, no fan	passive, no fan
Protection Class	IP 20	IP 20
Options (Fully Certified with System)	WAGO-I/O System, Profibus-DP Master/Slave, CANopen Master/Slave, DeviceNet Master/Slave (DeviceNet only with BSPs)	
Shock DIN EN 60068-2-27	15 g acceleration, 11 ms duration, 3 shocks per direction (18 total)	
Vibration DIN EN 60068-2-6	5-9 Hz 3.5mm amplitude, 9-150 Hz 1g, 1 octave/min, 10 sweeps/axis	
Humidity rel.	93% RH at 40°C, non-condensing	
Operating System	Embedded Linux 2.4/RTAI distribution independent (preinstalled), Windows CE 5.0, SoftPLC CoDeSys on Linux 2.4/RTAI	Embedded Linux 2.4/RTAI distribution independent (preinstalled), Embedded Linux 2.6 distribution independent, Windows XP embedded, SoftPLC CoDeSys on Linux 2.4/RTAI
Standard	Emission: EN55022/A, EN61000-6-3 / Immission: EN55024, EN61000-6-2 / Electrical Safety: EN60950-1 / Temperature Cold: IEC60068-2-1 / Temperature Dry Heat: IEC60068-2-2 / DIN 35 Rail: EN50022	Emission: EN55022/B, EN61000-6-3 / Immission: EN55024, EN61000-6-2 / Electrical Safety: EN60950-1 / Temperature Cold: IEC60068-2-1 / Temperature Dry Heat: IEC60068-2-2 / DIN 35 Rail: EN50022
Operating Temperature	0°C to +55°C	0°C to +55°C
RoHS compliant	yes	yes

Kontron Industrial Silent Server

4U Rackmount Systems KISS



Your requirements are our challenges. With KISS, Kontron will meet your demands.

The KISS system has been designed with flexibility in mind and can accommodate PICMG 1.0, PICMG 1.2, ATX and Dual Xeon/64-bit based motherboards, as well as PCI Express ATX motherboards, all in a case that can be used as a tower, desktop or 19" rack mounted chassis. The main attraction of KISS servers is their extremely low noise level: they are inaudible against normal conversation. KISS IPC servers are therefore ideal for most noise-sensitive environments, such as hospital operating theaters and computer server rooms. The performance and configuration of KISS servers are based on Kontron's extensive range of CPU boards and backplanes, which allows them to be adapted to meet a very wide range of requirements. KISS servers based on the new PICMG 1.2 standard enable exciting applications to be realized since they allow both the PCI 32-bit/33 MHz and PCI-X 66 bit/133 MHz internal buses to operate, in parallel and independently of each other.

Extra accessories adapt KISS to precisely meet your specific requirements:

- Additional hold down bar for short add-on boards helps the system to withstand higher levels of shock and vibration.
- The extension bracket allow you to put two extra full-size cards into the KISS.
- Up to three removable HDDs and one additional 5.25" device are possible.
- Extra front I/Os are optionally available.
- Choose from three mounting options: 19" rackmount, Desktop or Tower.
- Optional remote operation functionality.

Features	KISS 886LCD-M/ATX	KISS 889LCD	KISS PCI 951	KISS PCI-955	KISS ePCI 201	KISS Dual XEON
Construction	Anti-corrosion and long term stable heavy duty steel EN 10215-DX 51D+AZ 150-A-C					
Mounting	19" Rack Mount, Desk Top, Tower					
Paint Color	Flap blue, Body blank					
Weight	~ 16 kg					
Control Panel Indicators	Power LED and HDD LED (others on request)					
Control Panel Switch	ATX Power, Reset					
CPU	Celeron® M 1.3 GHz, Pentium® M 1.8 GHz	Celeron® Pentium® 4 3.0 GHz, Pentium® 4 Prescott 3.2 GHz	Pentium® 4 Celeron® 2.0 GHz, Pentium® 4 2.4 GHz, Pentium® 4 2.8 GHz	Celeron M® 1.3 GHz, Pentium M® 1.8 GHz, 2.13 GHz	Up to P4 3.2 GHz	Up to dual Xeon™ 3.2 GHz
Front Side Bus	400 MHz	533/800 MHz	400/533 MHz	400/533 MHz	533/800 MHz	533/800 MHz
DRAM	Up to 2 GByte DDR 333	Up to 4 GByte DDR2	Up to 2 GByte DDR 333	Up to 2 GByte DDR II	Up to 4 GByte DDR 400	Up to 16 GByte reg ECC
I/O Standard	2x USB 2.0 Front side					
I/Os	Rear I/Os: 3x 10/100/1000 LAN, 2x USB 2.0, PS/2 Mouse and Keyboard, VGA, Sound, 4x RS232C, LPT	Rear I/Os: 1x 10/100/1000 LAN, 4x USB 2.0, PS/2 Mouse and Keyboard, VGA, Sound, 2x RS232C, LPT	2x LAN 10/100, 1x VGA, PS/2 Mouse and Keyboard, 2x COM RS232C	2x LAN 10/100/1000, VGA, PS/2 Mouse and keyboard, 2x COM RS232C	2x LAN 10/100/1000, VGA, PS/2 Mouse and keyboard, 1x COM RS232C, 2x USB 2.0	
Drives	accessible: 3x 5.25", 2x 3.5", 1x internal 3.5"					
Expansion Slots	6x PCI full size, 1x AGP x4	4x PCI 32, 1x PCI express x 16, 2x PCI Express x1	4x PCI full size, 3x PCI half size, 5x ISA full size, 2x PICMG, others on request	12x PCI 64 Bit, 2x PICMG	4x PCI full size, 6x PCI-X full size, 1x SBC Slot	2x 64 Bit 133/100/66 MHz 3.3 V PCI X, 3x 32 Bit 33 MHz 5 V PCI, no AGP
Power Supply	AC 300 W wide range					AC 460 W 100-240 V AC 50 - 60 Hz
Cooling	2x Hot Swap Chassis Fans ultra low noise					
Protection Class	IP 20					
Options (Fully Certified with System)	Raid Subsystem (3x Hot Swap PATA,SATA, SCA, SCSI), Slide Rails					
Altitude	0 - 3000 m (0 - 10.000 ft) operating					
Shock DIN EN 60068-2-27	operating: 15G, 11 ms 6 axis					
Vibration DIN EN 60068-2-6	operating: 10 - 500 Hz 1G					
Humidity rel.	operating: 5 - 80 % rel non condensing					
Operating System	WIN 2000, WIN XP, Linux,	WIN 2000, WIN XP, Linux,	WIN 2000, WIN XP, Linux, Solaris	WIN 2000, WIN XP, Linux	WIN 2000, WIN XP, Linux	WIN 2000, WIN XP, Linux
MTBF	50.000 h* at 25°C					
Noise	~ 35 dB					< 42 dB
Dimensions H x W x D	4U x 19" x 472mm					
Operating Temperature	0° to 50°C	0° to 45°C	0° to 50°C			
Type	Premium					
RoHS compliant	yes	yes	yes	yes	yes	yes

*) Without FANS

KISS-Short

KISS-Short is the answer for space limited applications.

The KISS-Short has been designed with flexibility in mind and can accommodate half size PICMG 1.2 and Flex-ATX motherboards. The main attraction of KISS-Short is its extremely low noise level, which is inaudible against normal conversation. Kontron's 4U KISS-Short offers the same features in drive space, maintainability and functionality as his "Big Brother" KISS but is only 300 mm deep.

If space is an issue, KISS-Short is the right choice.



► **KISS-Short**

Features	KISS Short ePCI	KISS Short 886LCD-M/Flex
Mechanical Dimensions	Rackmount: 19" x 4U x 300 mm	
Construction	Anti-corrosion and long term stable heavy duty steel EN 10215-DX 51D+AZ 150-A-C	
Mounting	Rackmount	
Paint Color	Flap blue, body blank	
Weight	~12 kg	
Control Panel Indicators	Power LED, HDD LED	
Control Panel Switch	PWR On, Reset	
CPU	Pentium® M Celeron® 1.3 GHz, Pentium® M 1.8 GHz	
Front Side Bus	400 MHz	
DRAM	Up to 1 GByte DDR	Up to 2 GByte DDR
I/O Standard	2x USB 2.0 front	
I/Os	Rear I/Os: 2x 10/100 LAN, 2x USB 2.0, VGA, 2x RS232C	Rear I/Os: 3x 10/100/1000 LAN, 2x USB 2.0, VGA, 2x RS232C
Drives	1x 3.5" internal, 1x 3.5", 3x 5.25" front accessible	1x 3.5" internal, 1x 3.5", 3x 5.25" front accessible
Expansion Slots	9 free PCI 32 Bit Slots half Size	3 free PCI 32 Bit, 1x AGP
Power Supply	AC 270W 115/230 Manual switching	
Cooling	2 Hot swap Sensor Controlled Ultra Low Noise Chassis FANS, no CPU FAN	
Protection Class	IP 20	
Options (Fully Certified with System)	Slide Rails, additional front I/Os, SATA Raid subsystem (3x Hot Swap HDDs)	
Altitude	Operating: 0-3000 m	
Shock DIN EN 60068-2-27	Operating: 15 g 11 ms half sine	
Vibration DIN EN 60068-2-6	Operating: 10-500 Hz 1 g	
Humidity rel.	Operating: 5-80 rel.% non condensing	
Operating System	WIN 2000, WIN XP, Linux	
MTBF	50000 h* @ 25° C	
Noise	< 35 dB @ 25° C	
Operating Temperature	0° to 50°C	
Type	Premium	Premium
RoHS compliant	yes	

*) Without FANS

TFT Monitors **see»** p. 76 f

Industrial Software, OPC drivers **see»** p. 91 ff

► **Keyboard-Video-Mouse**

Kontron's RMVS and RPD series 1U monitor/keyboard drawers have been meeting the needs of our customers for over five years. During this time, we have noted the additional features that customers have requested and have incorporated them into our revolutionary new KVM 1U series, which offers more valuable features and options than any other comparable models.

Choose from different standard keyboard languages based on your application's requirements. The KVMs are designed to allow multiple back panel termination options including 8-port KVM which can be cascaded to control up to 512 systems. The unit comes with standard preinstalled ball bearing slide rails making rack installation faster and easier than ever.

The KVMs offers three different LCD display sizes up to an unprecedented 19", all with high contrast ratios and wide viewing angles. The monitor flips up and stays put at any angle thanks to its heavy-duty torque hinge.



► **1U KVM**

Features	RPD-1151	RPD-1158	RPD-1171/1178	RMVS19
Weight	14 kg	14 kg	14 kg	~14 kg
OSC	OnScreenControl function including: auto adjustment, brightness, contrast, phase, H-V position, frequency, size and display mode			Contrast, brightness, H-position, V-position, phase, clock, auto setup, color, language
Brightness	200 cd/m²	200 cd/m²	260 cd/m²	250 cd/m²
Interface	8x 25 pin D type female connectors for 8-platform connection (VGA, PS/2 keyboard and PS/2 mouse, male connectors at the platform side)			analog RGB 15 pin DSUB
Keyboard	PS/2 84 keys keyboard and trackball (German and US layout)			83 keys with trackball
Display Types	15" TFT XVGA	15" TFT XVGA	17" TFT SXGA	19"
KVM	-	8 port	Single port for 1171 8 port KVM for 1178	1 port optional 8 port
Cascading	-	up to 512 PCs	up to 512 PCs	up to 512
KVM control	-	Port selection through front panel switches		Full featured OSD included
Material	heavy duty steel			
Power Supply	85 V ~ 264 V AC input	85 V ~ 264 V AC input optimal - 48 V DC	85 V ~ 264 V AC input	12 V DC input with AC/DC adapter 100-240 V AC 50/60 Hz
Humidity rel.	max. 90% rel.			20 to 80% non condensing
Dimensions H x W x D	19" x 1U x 492 mm	19" x 1U x 492 mm	19" x 1U x 550 mm	483.6 x 44.5 x 558.8 mm (19 x 1.75 x 22")
Additional	-	8 Port KFM for cascading	8 Port KFM for cascading	-
Operating Temperature	0° to 40°C			0° to 50°C (32° to 122° F)
RoHS compliant	yes			

► 4U Rackmount Systems

KPR - PxV414 and KPR - MBx406 Premium 4U Systems

KPR, Kontron's Premium 4U system, is the answer if you need long term availability. KPR has the longest life-cycle of any Rackmount system on the market. The KPR utilizes a revolutionary housing innovation, E-PAC (Electronic Packaging Assembly Concept). The housing features a chassis with a molded-foam lining designed to hold all major components securely in place. All components such as the hard disk, boards and fans are installed in a secure foampacked frame. Resistance to vibration and shock is considerably improved by embedding the computer's inner workings in foam.

As a result the computer has a longer life span, is easier to maintain and has an improved MTBF. With KPR you buy 16 years of experience.

E-PAC

- Particle foam
- Pure hydrocarbon
- High energy absorption relative to weight
- Tolerant of water, dust & chemicals
- Tolerant of high temperatures
- Resumes original shape after distortion



► 4U Rackmount Systems

Features	KPR - PxV414 PCI 951	KPR - PxV414 PCI 955	KPR - MBx406 886 LCD	KPR - MBx406 889 LCD
Construction	Anti-corrosion and long term stable heavy duty steel EN 10215-DX 51D+AZ 150-A-C			
Mounting	19" (Rackmount)			
Paint Color	Front: RAL 7021 (black)			
Weight	~17 kg	~17 kg	~16 kg	~16 kg
Control Panel Indicators	Power LED, HDD LED			
Control Panel Switch	PWR ON, Reset			
CPU	Celeron® 2.0 GHz, Pentium® 4 2.4 GHz, Pentium® 4 2.8 GHz	Celeron® M 1.3 GHz, Pentium® M 1.8 GHz	Celeron® 2.0 GHz, Pentium® 4 2.4 GHz, Pentium® 4 2.8 GHz	Celeron® 3.0 Prescott, Pentium® 4 3.2 GHz Prescott, Pentium® 4 3.4 GHz Prescott
Front Side Bus	400/533 MHz	400/533 MHz	400/533 MHz	533/800 MHz
DRAM	Up to 2 GByte DDR 333	Up to 2 GByte DDR2	Up to 2 GByte DDR 333	Up to 4 GByte DDR2
I/O Standard	2x USB	2x USB	2x USB	2x USB
Drives	1x 3.5" internal, 1x 3.5" and 2x 5.25" front accessible			
Expansion Slots	Backplane 1: 5x ISA, 2x PICMG, 4x PCI, 3x PCI half size, Backplane 2: 7x PCI*, 3x PCI half size, 2x PICMG, 2x ISA		6x PCI, 1x AGP x4	4x PCI 32, 1x PCI express x16, 2x PCI Express x1
Power Supply	AC 300 W wide range			
Cooling	2 Chassis FAN			
Protection Class	IP54 front			
Options (Fully Certified with System)	I/O boards, Fieldbus, Ethernetcards, sound cards, fan control board			
Altitude	10000 ft			
Vibration DIN EN 60068-2-6	10 - 58 Hz +-0,075 mm, 58 - 500 Hz 1 g			
Humidity rel.	10 - 95% non condensing			
Operating System	WIN 2000, WIN XP, Linux, Solaris with PCI 951	WIN 2000, WIN XP, Linux,		
MTBF	> 30000 h*			
Dimensions H x W x D	Front: 19" x 4U, Body: 174 mm x 446 mm x 452 mm			
Operating Temperature	0° to 50°C		0° to 45°C	
Type	Premium			
RoHS compliant	yes			

VL406 and VL414 Value 4U Systems

If you do not need the highest industrial tolerances, Kontron 4U Value Line is the best choice. With state of the art performance and an impressive feature set, the Kontron Value Line is the budget solution.



Features	VL406 855 GME	VL406 889LCD ATX	VL414 PCI951
Construction	Heavy duty steel		
Mounting	19" (Rackmount), Desktop		
Paint Color	Black Chassis and Front		
Weight	15 kg		16 kg
Control Panel Indicators	Power LED, HDD LED		
Control Panel Switch	PWR ON, Reset		
CPU	Celeron® M 1.3 GHz, Pentium® M 1.6 GHz	Celeron® 3.0 Prescott, Pentium® 4 3.2 GHz Prescott	Celeron® 2.0 GHz, Pentium® 4 2.4 GHz, Pentium® 4 2.8 GHz
Front Side Bus	400 MHz	533/800 MHz	400/533 MHz
DRAM	Up to 2 GByte DDR	Up to 4 GByte DDR2	Up to 2 GByte DDR
I/O Standard	DIN Keyb		
Drives	1x 3.5" internal, 1x 3.5" and 3x 5.25" front accessible		
Expansion Slots	6x PCI 32 bit, 1x AGP	4x PCI 32 bit, 2x Express x1, 1x PCI Express x16	Backplane 1: 5x ISA, 2x PICMG, 4x PCI, 3x PCI half size, Backplane 2: 6x PC*, 3x PCI half size, 2x PICMG, 2x ISA
Power Supply	AC 300 W front		
Cooling	2 FANS		
Protection Class	IP 20		
Options (Fully Certified with System)	I/O boards, Fieldbus, Ethernetcards, Soundcards, Slide Rails		
Altitude	basic industrial grade		
Vibration DIN EN 60068-2-6	10 - 58 Hz +-0,075 mm, 58 - 500 Hz 1 g		
Humidity rel.	10 - 80% non condensing		
Operating System	WIN 2000, WIN XP, Linux,		
MTBF	> 25.000h*		
Dimensions H x W x D	Front: 19" x 4 U, Body: 173 mm x 348 mm x 450 mm		
Operating Temperature	0° to 45°C		
Type	Value		
RoHS compliant	yes		

*) Without FANS

*) Without FANS

TFT Monitors [see»](#) p. 76 f
Industrial Software, OPC drivers [see»](#) p. 89 ff

➤ 2U Rackmount Systems

➤ 2U Rackmount Systems



Features	PxV206 PCI951
Construction	Anti-corrosion heavy duty steel, EN 10215-DX 51D+AZ 150-A-C
Mounting	Rackmount, Desktop
Paint Color	RAL 7021 (black)
Weight	~12 kg
Control Panel Indicators	Power LED, HDD LED
Control Panel Switch	Power ON, reset
CPU	Celeron® 2.0 GHz, Pentium® 4 2.4 GHz, Pentium® 4 2.8 GHz
Front Side Bus	400/533 MHz
DRAM	Up to 2 GByte DDR 333
I/O Standard	Front: Com2, PS/2 M+K
Drives	HDD up to 120 GByte IDE or SCSI internal, FDD, CD ROM, DVD, Removable HDD front accessible
Expansion Slots	3x PCI full size 32 Bit, 1x PCI half size, 32 Bit and 1x ISA
Power Supply	AC 300 W, or 48 V DC
Cooling	2 Chassis fan, hot swap
Altitude	10000 ft
Shock DIN EN 60068-2-27	operating: 5 g 11 ms half sine
Vibration DIN EN 60068-2-6	operating: 10 - 58 Hz +- 0.075 mm, 58 - 500 Hz 0.5 g
Humidity rel.	operating: 5 - 95% non condensing
Operating System	WIN 200, Linux, WIN XP, Solaris with PCI 951
MTBF	> 30000 h*
Dimensions H x W x D	2U x 19" x 457 mm
Operating Temperature	0° to 50°C
Type	Premium
RoHS compliant	yes

*) Without FANs

VL203 886LCD/ATXU	VL203 855GME
Heavy duty steel	
0° to 45° C	
Black	
~10 kg	
Power LED, HDD LED	
Power ON, reset	
Celeron® 2.0 GHz, Pentium® 4 2.4 GHz, Pentium® 4 2.8 GHz	Pentium M Celeron® 1.3 GHz, Pentium M® 1.8 GHz
400/533 MHz	400 MHz
Up to 2 GByte DDR 333	Up to 2 GByte DDR
Front: 2x USB 2.0	
2 HDD up to 120 GByte IDE, DVD ROM, optional REM HDD front accessible	
3x PCI half size 32 Bit	
AC 300 W	
3 Chassis fans	
10000 ft	
basic industrial grade	
basic industrial grade	
operating: 10 - 80% non condensing	
WIN 2000, WIN XP	
25000 h*	
2 U x 19" x 450 mm	
0° to 45°C	
Value	
yes	



Value Line
Beating down prices!

Versatile 2U Solution for space limited applications

Its shallow depth and compact size make the 2U family the ideal solution for space limited environments. It is typically found in industrial communications as well as in testing and measurements processes. As in any industrial application, the demands on your system will change and grow. Expansion slots and built in reliability ensure system longevity and scalability.

The 2U solution's simplified management features not only facilitate system control and data acquisition, but also enable easy configuration and upgrading to meet new requirements as they evolve. With the 2U solution from Kontron, your industrial communication, testing and measurement requirements are met and your investment is protected for today and for the future.

TFT Monitors [see»](#) p. 76 f

Industrial Software, OPC drivers [see»](#) p. 91 ff

➤ 1U Rackmount Systems

Kontron introduces our Premium 1U platform, the PxV103. The PxV103 is designed to meet the needs of many general purpose industrial and test and measurement applications.

It is a budget, high-performance 1U solution that uses next generation Intel® Pentium® 4 motherboards.

Only 18" deep, the PxV103 fits in 600 mm cabinets.

TFT Monitors

see» p. 76 f

➤ 1U Rackmount Systems



Features	PxV103 PCI 951
Construction	Anti corrosion and long term stable heavy duty steel EN 10215-DX 51D+AZ 150-A-C
Mounting	19" or Desktop
Paint Color	RAL 7021 (black)
Weight	8 kg
Control Panel Indicators	Power LED, HDD LED
Control Panel Switch	Power ON, Reset
CPU	Celeron® 2.0 GHz, Pentium® 4 2.4 GHz, Pentium® 4 2.8 GHz
Front Side Bus	400/533 MHz
DRAM	Up to 2 GByte DDR 333
I/O Standard	Front I/O Dual LAN, VGA, PS/2 mouse and keyboard, additional faceplate with 2x COM or 2x USB or 1x COM 1x LPT
Drives	2x 3.5" internal for HDD, FDD, CD ROM or DVD front accessible (only with one internal HDD)
Expansion Slots	2x PCI full size rear
Power Supply	AC 250 W
Cooling	4 chassis FAN
Options (Fully Certified with System)	mini PCI
Altitude	10000 ft
Shock DIN EN 60068-2-27	10 g 11 ms half sine
Vibration DIN EN 60068-2-6	10 - 58 Hz +-0.075 mm, 58 - 500 Hz 1 g
Humidity rel.	5 - 95% non condensing
Operating System	WIN XP, WIN 2000, Linux, Solaris
MTBF	> 30000 h*
Dimensions H x W x D	1U x 19" x 457 mm
Operating Temperature	0° to 45°C
Type	Premium
RoHS compliant	yes

*) Without FANs

➤ HMI Panel PC V Panel

The new V Panel line based on ETX technology offers supreme computing performance with processors based on Intel's Pentium® M technology at extreme low power consumption.

The ETX technology permits scalable CPU performances for a wide range of industrial applications. The integrated innovative cooling concept realizes passive and fanless cooling for the highest processor performance up to Pentium® M. The CANopen, DeviceNet or Profibus field buses can optionally be integrated directly on board.

➤ HMI Panel PC V Panel

Features	V Panel				
Model	104	121	150	170	190
Display	10.4"	12.1"	15"	17"	19"
Resolution	800x600	800x600	1024x768	1280x1024	1280x1024
Brightness	350cd/m ²	350cd/m ²	250cd/m ²	250cd/m ²	250cd/m ²
Touch Screen	Resistive analog				
Function Keys	16 keys optional				
Front Bezel	Alu, Stainless steel optional				
Dimensions (Panelmount) H x W x D	295 x 348 x 120 mm	327 x 400 x 125 mm	362 x 452 x 125 mm	390 x 465 x 130 mm	426 x 516 x 136 mm
Processor	up to Pentium® M				
Main Memory	up to 1024 MByte				
I/Os	3x USB (1x front; 2x rear side), 2x PS/2, 1x LPT, 1x LAN 10/100, 1x LAN 100/1000, 4x RS232				
Free Slots	2x PCI, PCMCIA slot optional				
Field Buses	CANopen or DeviceNet or Profibus				
Internal Drives	CompactFlash, HDD optional				
Drives side accessible	HDD				
Power Supply	24 VDC				
Cooling	Fanless cooling concept				
EMC	US: FCC47 CFR PART 15; Class A level CE: EN61000-6-2; EN55022/A (CISPR22)				
Approvals	CE, FCC, cULus				
Protection Class	IP 65 front (NEMA 250 type 12 and 13)				
Altitude	Operating: 10000 ft (3,048 m) / Storage: 15000 ft (4,622 m)				
Shock DIN EN 60068-2-27	Operating: 15G, 11ms duration / Storage: 30G, 11ms duration (half-sinus)				
Vibration DIN EN 60068-2-6	Operating: 10-500 Hz: 1G/3 axis / Storage: 10-500 Hz: 2G/3 axis				
Temperature/Humidity	Operating: 0° to +50°C / 5 to 95% non condensing Storage: -25° to +70°C / 5 to 95% non condensing				
MTBF	> 40000 h*				
Verified OS	Windows XP, Windows XP Embedded, Linux, Linux Embedded				
RoHS compliant	yes				

*) Excluding the Backlight Tube

➤ HMI Panel PC Eco Panel

The Eco Panel series offers an innovative integrated cooling concept which enables passive, fanless cooling at the maximum processor performance, currently up to Intel® Pentium® III 933 MHz.

The display dimensions of the resistive touchscreen are scalable from 10" to 17". It is easy to tailor the functionalities to customers' specific needs thanks to a wide variety of modularly designed function modules such as the integrated field bus connection for CANopen, DeviceNet, Profibus and Ethernet.

Optimal resistance against shock, vibration and temperature, as well as compliance with strictest EMC standards are a matter of course for this 100% industry-grade Panel PC. In addition, Kontron guarantees long-term availability of five years for the system and all components.

➤ HMI Panel PC Eco Panel

Features	Eco Panel			
Model	104	121	150	170
Display	10.4"	12.1"	15"	17"
Resolution	640x480	800x600	1024x768	1280x1024
Brightness	350cd/m ²	300cd/m ²	250cd/m ²	350cd/m ²
Touch Screen	Resistive analog			
Dimensions (Panelmount) H x W x D	252 x 325 x 107 mm	300 x 380 x 107 mm	362 x 452 x 107 mm	390 x 465 x 107 mm
	(Installation depth depending on heat sink)			
Processor	Celeron® 400 MHz up to 650 MHz, Pentium® III 933 MHz			
Main Memory	Up to 512 MByte PC133			
I/Os	2x USB, 2x PS/2, 1x LPT, 2x LAN 10/100, 1x CRT, 3x RS232			
Free Slots	2x PC/ 104+			
Field Buses	CANopen or DeviceNet or Profibus			
Internal Drives	HDD			
Drives side accessible	Compact Flash			
Power Supply	24 VDC			
Cooling	Fanless cooling concept			
EMC	US: FCC47 CFR PART 15; Class A level, CE: EN61000-6-2; EN55022/A (CISPR22)			
Approvals	CE, FCC, cULus			
Protection Class	IP 65 front (NEMA 250 type 12 and 13)			
Altitude	Operating: 10,000 ft (3,048 m) / Storage: 15,000 ft (4,622 m)			
Shock DIN EN 60068-2-27	Operating: 15G, 11ms duration / Storage: 30G, 11ms duration (half-sinus)			
Vibration DIN EN 60068-2-6	Operating: 10-500 Hz: 1G/3 axis / Storage: 10-500 Hz: 2G/3 axis			
Temperature/Humidity	Operating: 0°C to +50°C / 5 to 95% non condensing / Storage: -25°C to +70°C / 5 to 95% non condensing			
MTBF	> 40000 h*			
Verified OS	Windows XP Embedded, Windows CE.net, Embedded Linux			
RoHS compliant	yes			

*) Excluding the Backlight Tube

➤ HMI Micro Clients

Kontron's Micro Clients (Thin Clients) are cost conscious human machine interfaces. They achieve a superior price/performance ratio through a combination of reduced hardware costs, reduced maintenance and support costs, reduced down time, improved performance and enhanced security. All programs run on a central web or Windows server, so that only visualization and user input proceed locally.

Shock and vibration resistance, thermal stability and compliance with the strictest EMC standards are standard features for all Micro Clients.

Designed to meet the performance requirements of visualization and communications over ethernet, the new Micro Clients M@C84, M@C104 and M@C121 have high-performance ETX-based x86 CPU modules that can be scaled inexpensively to meet changing performance needs. The innovative fanless cooling concept allows for a compact, space-saving system.

Industrial Control Systems **see»** p. 89 f



➤ HMI Micro Clients

Features	Micro Client M@C84	Micro Client M@C104	Micro Client M@C121
Display	8.4" TFT	10.4" TFT	12.1" TFT
Resolution	800x600	800x600	800x600
Brightness	300cd/m ²	300cd/m ²	300cd/m ²
Touch Screen	Resistive analog		
Function Keys	optional		
Dimensions (Panelmount) H x W x D	188 x 257 x 47 mm	252 x 325 x 47 mm	300 x 380 x 49 mm
Processor	up to Celeron M 600 MHz		
Main Memory	up to 1024 MByte		
I/Os	1x RS232 (RS422/RS485 optional), 1x LAN 10/100, 2x USB		
Field Buses	CAN bus		
Internal Drives	Compact Flash		
Power Supply	24 VDC		
Cooling	Fanless cooling concept		
EMC	US: FCC47 CFR PART 15; Class A level CE: EN61000-6-2 EN55022/A (CISPR22)		
Approvals	CE, FCC, cULus		
Protection Class	IP 65 front (NEMA 250 type 12 and 13)		
Altitude	Operating: 10000 ft (3,048 m) / Storage: 15000 ft (4,622 m)		
Shock DIN EN 60068-2-27	Operating: 15G, 11ms duration / Storage: 30G, 11ms duration (half-sinus)		
Vibration DIN EN 60068-2-6	Operating: 10-500 Hz: 1G / 3 axis Storage: 10-500 Hz: 2G / 3 axis		
Temperature/Humidity	Operating: 0° to +50°C / 5 to 95% non condensing Storage: -25° to +70°C / 5 to 95% non condensing		
MTBF	> 40000 h*		
Verified OS	Windows XP Embedded, CE.net, Embedded Linux		
RoHS compliant	yes		

*) Excluding the Backlight Tube

➤ KFM - More than a Display

The KFM series of 15", 19" and 21" LCD monitors is fully certified and specially designed for industrial applications.

The KFM's ample display area can present vivid and precise images for your HMI. The front accessible On-Screen-Display function allows users to adjust images with ease. The optional touch screen gives you access to your system.

➤ **Fanless concept guarantees continuous operation**

All KFM monitors offer as standard: VGA and DVI and S-Video and Composite Video inputs.

Four Inputs:

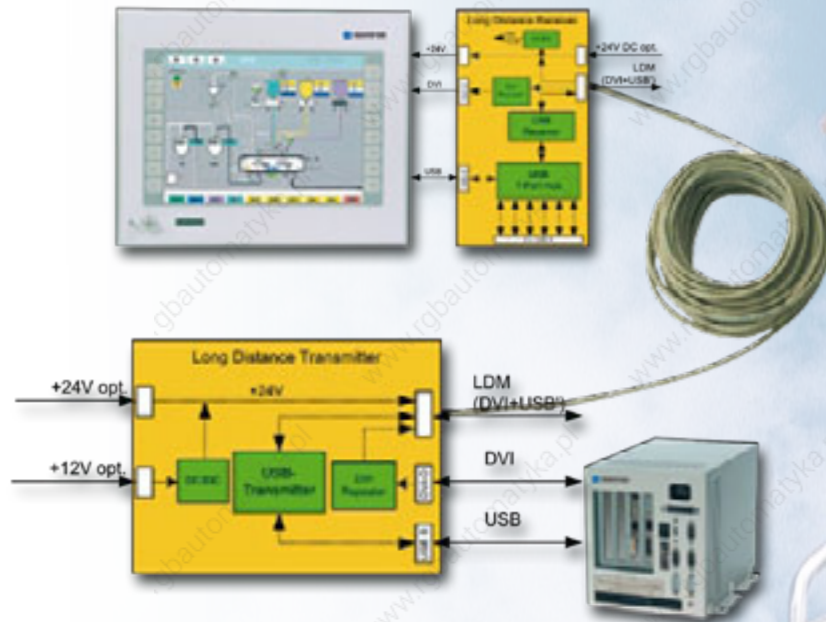
- VGA
- DVI
- S-Video
- Composite Video



➤ KFM

Features	KFM15_e	KFM19_e	KFM21_e
Construction	Anti-corrosion heavy duty steel EN 10215-DX 51D+AZ 150-A-C		
Mounting	Panel Mount / Rackmount	Panel Mount / Rackmount	Panel Mount
Paint Color	RAL 7021 (black)		
Weight	~5.6 kg	~9.6 kg	~10 kg
Control Panel Indicators	Power LED	Power LED	-
Control Panel Switch	Power ON/Off	Power ON/Off	-
Viewing angle L R U D	75, 75, 55, 60	85, 85, 85, 85	85, 85, 85, 85
OSD	✓	✓	✓
Brightness	200 cd/m ²	250 cd/m ²	200 cd/m ²
Interface	VGA SUB-D, DVI, S-Video, Composite Video		
Display Types	15.1" XGA	19.0" SXGA	21.3" UXGA
Power Supply	24 V DC integrated, AC integrated		
Cooling	Fanless		
Options (Fully Certified with System)	Touchscreen resistive		
Altitude	10000 ft		
Shock DIN EN 60068-2-27	15 g 11ms half sine		
Vibration DIN EN 60068-2-6	10 - 58 Hz +- 0.075 mm, 58 - 500 Hz 1g		
Temperature/Humidity	Operating: 0°C to +50°C / 5 to 95% non condensing		
MTBF	> 40000 h		
Dimensions H x W x D	FrontPanel: 450 x 334 x 3 mm, Front 19": 19" x 7 HE x 3 mm, Body: 393 x 277 x 52 mm	FrontPanel: 483 x 431 x 5 mm, Front 19": 19" x 9 HE x 5 mm, Body: 428 x 372 x 70 mm	FrontPanel: 559 x 444 x 6.5 mm, Body 517 x 413 x 118 mm
RoHS compliant	yes	yes	yes

➤ HMI Long Distance Monitoring



- Detached HMI
- Single cable solution
- 10" - 15" TFT: up to 40*/30 m distance
17" - 19" TFT: up to 30 m distance
21" TFT: up to 20 m distance
- Standard interfaces (USB/DVI)
- 7x USB HUB

Features	104	121	150	170	190	210
Display	10.4"	12.1"	15"	17"	19"	21"
Max. Cable Length (Single Cable)	40*/30 m	40*/30 m	40*/30 m	30 m	30 m	20 m
Resolution	640x480 @60 Hz	800x600 @60 Hz	1024x768 @60 Hz	1280x1024 @60 Hz	1280x1024 @60 Hz	1600x1280 @60 Hz
Power Supply	24 VDC					
EMC	US: FCC47 CFR PART 15; Class A level CE: EN61000-6-2; EN55022/A (CISPR22);					
Approvals	CE, FCC, cULus					
Protection Class	IP 20					
Altitude	Operating: 10,000 ft (3,048 m) - Storage: 15,000 ft (4,622 m)					
Shock DIN EN 60068-2-27	Operating: 15G, 11ms duration - Storage: 30G, 11 ms duration (half-sinus)					
Vibration DIN EN 60068-2-6	Operating: 10-500 Hz: 1G / 3 axis - Storage: 10-500 Hz: 2G / 3 axis					
Temperature/Humidity	Operating: 0°C to +50°C / 5 to 95% non condensing; Storage: -25°C to +70°C / 5 to 95% non condensing					
MTBF	> 180 000 h					
RoHS Compliant	yes					

*) DVI only

➤ Configurations

PC	Patch Cable DVI/USB	Long Distance Transmitter (LDT)	Long Distance Cable	Long Distance Receiver (LDR)	Patch Cable DVI/USB	Monitor
any with DVI/USB e.g. SC75	0,25 / 2,0 / 5,0 m	LDT-box (ext.) (H x W x D: 166 x 200 x 40 mm) LDT-slotPCI LDT-slotISA LDT-cPCI	LDC-15: 15 m LDC-20: 20 m LDC-25: 25 m LDC-30: 30 m LDC-40: 40 m	LDR-box (ext.) (H x W x D: 182 x 223 x 41 mm)	0,25 / 2,0 / 5,0 m	any with DVI/USB e.g. HMI Touch Panel

Detached HMI

In some applications, the installation of a Panel PC at an activity location is difficult because of limited space or inappropriate because the display is required at a distance from the actual equipment. For these special requirements, Kontron has developed a breakthrough solution that can bridge distances of up to 40 meters for any IPC and TFT display with DVI and USB interfaces.

Standard interfaces

This Long Distance Monitoring is implemented by Kontron over a DVI and a USB interface and a Long Distance Transmitter, which is either installed in any computer requiring only one slot or is placed separately in a corresponding Long Distance Transmitter box (LDT-box). A corresponding Long Distance Receiver box is placed next to the TFT display, connected between the cable and the monitor. The connection between the Long Distance Transmitter and Receiver is just a single cable.

Single cable solution

In order to meet the requirements of industrial automation technology, this single cable supplies the monitor's power along with the image and USB information. In addition, the connection of the touch panel, which is frequently requested in the automation field, is implemented in the same cable. Despite this performance package, the cable is highly flexible.

USB-HUB

10" to 15" TFT monitors can be used at a maximum distance of 40 meters with these „Long Lines“, 17" to 19" displays up to 30 meters and 21" TFT displays can be placed up to 20 meters away. Upgrading the Long Distance Receivers to a USB hub furthermore enables the connection of up to 7 USB 1.1 compatible devices with up to 12 MBit/s full speed transfer rate. From keyboard and mouse to printers, hard drives and DVD drives, everything that the user requires in daily operation - for installation or maintenance (such as for software updates) - can thus be connected as plug-and-play.

► HMI OEM Products

Meeting market demands

However specific your requirements – whether for automation, mechanical and systems engineering, machines or automated systems or even for applications in medical or safety technology – we can supply you with semi- and fully customized systems for your control and visualization

applications. We will define and develop an industrial HMI system as a customized system solution that precisely meets your requirements. The HMI can be integrated directly into your installations and systems.



Quality and innovation

Our long-term OEM experience, which results from cooperation with companies from various industries, satisfying diverse application requirements, makes us a qualified engineering partner for high performance and reliable HMI systems.

Our systems offer high resilience, even in the toughest industrial environments. High shock and vibration resistance as well as extended temperature ranges and resistance to demanding EMC conditions are hallmarks of our systems.

Both as a supplier to end customers and as an OEM manufacturer we assume full system responsibility and guarantee long-term availability to allow you to concentrate on your own core competence. We set the highest quality standards for industrial requirements or sensitive demands in medical technology. Define your requirements. We'll be glad to show you a suitable certified reference application.

From mechanical construction to industrial design

We'll give your product a unique face. A user interface is an important visiting card for any OEM customer. Design, ergonomics and functionality shape images and promote sales. For instance we can offer various and individually customized faceplate colors, special housings and freely programmable function keys to meet your specific needs.

Software Competence

As an innovative technology company, we have made it our business to create an information network for our customers, complementing our own top-of-the-line technological performance and offering our customers added value. This network includes project partnerships with companies who also develop and offer superior products and services for their customers. For example, the control and visualization software used in Kontron's HMIs represents added value for our customers in terms of user friendliness and real-world solutions.



Certified reference application

Kontron has designed a rugged customized, EN 50155 certified HMI for public transportation applications. This panel withstands shock/vibrations, extreme temperatures and harsh environments and is based on the PowerPC MPC8245 (300 MHz) running under Linux + QT embedded, Photon, QNX or VxWorks.



Housing for customized solutions

- Modular system: The width and height dimensions of the housing are selectable
- 5 possible basic housing designs
- Particularly good heat dissipation due to single-wall profiles
- Internal mounting slots for simple fastening using spring nuts
- Standard protection type IP65
- cULus accredited
- Online Configurator on www.bernstein-ag.com

Customers with the highest demands are our best references

Some examples for our successful OEM applications:

- Industrial Automation
- Building Automation
- Medical
- Test and Measurement
- Communication
- Transportation
- Point of Sale/ Point of Interest



➤ Rugged Portable Computers



- Convertible and Notebook PCs
- Individual system configuration
- Ready for use in rough environment
- Systems for in-field professionals

- Public Safety - Field Service
- Defense - Maintenance
- Utilities - Data Acquisition
- Industry - Measurement

ReVolution



The ReVolution combines a Notebook and Tablet-PC with connectivity and modularity in one housing. This system concept, which provides wireless connectivity, is ideal for field applications like service and maintenance.

Features	ReVolution
Weight	3.8 kg (magnesium-alloy case)
CPU	Intel® Pentium M 1.4 GHz, 2 MByte cache, Intel® 855GME
RAM	512 MByte, 1 GByte
Display	12.1" TFT 1024x768, resistive touch screen; Option: day light readable
Audio	2x integrated stereo speakers, 1x integrated microphone
Hard Disk	Removable EIDE HD, up to 80 GByte
Battery bay	Removable Li-Ion main battery (typ. 3.5h); Option: 2nd battery in Media-Bay (typ. 3.5h)
Keyboard	Full size sealed keyboard, 84 keys, touch pad; Optional: backlight keyboard
Graphics	Intel® 855GME, up to 32 MByte shared memory
Drives	Option: FD or CD-DVD writer or 2nd HD or 2nd battery in Left-Bay
Wireless connectivity	Bluetooth, WLAN 802.11b/g
Connectivity	1x LAN 10/100/1000, 1x FireWire, 1x modem, 2x USB 2.0, 1x RS232, 3x AudioIn/Out, docking connector (1x RGB, 1x PS/2, 1x LPT)
Expansion Slots	2x PC-Card/Cardbus slots; optional: IO-stick
Protection Class	IP54 (dust & rain)
Shock DIN EN 60068-2-27	MIL-STD-810: 40 g; 3 feet drop
Vibration DIN EN 60068-2-6	MIL-STD-810: Ground Vehicles
EMI & Safety	FCC class B, CE class B
Humidity rel.	10-88% non-condensing
Power Consumption (typ.)	10-28 V DC direct input, external AC/DC adapter 90-264 V
Dimensions H x W x D	295 x 245 x 44 mm
Operating Temperature	-15° to +50° C

NotePAC Light

The NotePAC Light combines small a footprint and minimal weight with a robust magnesium housing that is protected against dust and dripping water. Its compact design and attractive price make this ruggedized notebook the ideal replacement for any consumer notebook.

NotePAC Ultra

The NotePAC Ultra is a very compact system with fully outdoor-tested specifications, such as dust and rain protection and optionally available EMI protection, combined with a 15" 1400x1050 pixel high resolution screen. It is the ideal partner for demanding outdoor applications.

NotePAC

Modular drives, interfaces and expansion card configuration options (2 ISA or PCI slots with optional expansion unit) allow the system to be tailored perfectly to fit your application. The NotePAC is a home in harsh and demanding outdoor environments.

Features	NotePAC Light	NotePAC Ultra	NotePAC
Weight	2.7 kg (magnesium-alloy case)	3.9 kg (magnesium-alloy case)	5.8 kg (magnesium-alloy case)
CPU	Intel® Pentium® M 1.4 GHz, 2 MByte cache, Intel® 855GM	Intel® Pentium® M 1.6 GHz, 2 MByte cache, Intel® 855GME	Intel® Pentium® M 1.6/1.8 GHz, 2 MByte cache, Intel® 855GME
RAM	256 MByte, 512 MByte, 1 GByte	256 MByte, 512 MByte, 1 GByte, 2 GByte	256 MByte, 512 MByte, 1 GByte, 2 GByte
Display	12.1" TFT 1024x768; Option: sunlight readable; touch screen	14.1" TFT 1024x768; Option: 15.0" TFT 1400x1050; sunlight readable; touch screen	12.1" TFT 1024x768; Option: 14.1" TFT 1024x768; sunlight readable; 12.1" touch screen
Audio	Integrated speaker	Integrated stereo speakers	
Hard Disk	Integrated EIDE HD, up to 80 GByte; Option: Removable HD	Removable EIDE HD, up to 80 GByte, ENOVA encryption feature	Removable EIDE HD, up to 80 GByte
Battery bay	Integrated Li-Ion battery (typ. 3.5h)	Removable main Li-Ion battery (typ. 4h); Option: 2nd battery in Media-Bay (typ. 2h)	Removable main Li-Ion battery (typ. 4h); Optional: 2nd battery in Bay1, 3rd battery in Bay2 (typ. 2h)
Keyboard	82 key keyboard with touch pad; Optional: backlight rubber keyboard	89 key keyboard with touch pad; Optional: backlight rubber keyboard	87 key rubber keyboard with touch pad; Optional: backlight
Graphics	Intel® 855GM, up to 32 MByte shared memory	Intel® 855GM, up to 32 MByte shared memory; Option: ATI M11 64 MByte	Intel® 855GM, up to 32 MByte shared memory
Drives	Optional: FD and CD/DVD drive in docking station	Option: Removable CD/DVD combo drive in Media-Bay	FD drive in Bay1; Option: CD/DVD or 2nd HD drive in Bay1; FD drive in Bay2
Wireless connectivity	WLAN 802.11b/g; Option: GPRS/GSM	WLAN 802.11g; Option: Bluetooth; GPRS/GSM; GPS	1x IRDA; Option: WLAN 802.11b/g; Option Bay2: GPS/GPRS/GSM
Connectivity	1x COM, 2x USB2.0, 1x RGB, 1x Modem, 1x LAN 10/100, Audio LineIn/Out	1x COM, 2x USB2.0, 1x RGB, 1x PS/2, 1x LPT, 1x IRDA, 1x LAN 10/100, Audio LineIn/Out, 1x Modem	1x COM, 2x USB2.0, 1x RGB, 1x FireWire, 1x LPT, 1x LAN 10/100, Audio LineIn/Out, 1x Modem; Option Bay2: 2x COM; 2nd PCMCIA; 2nd FDD
Expansion Slots	1x PC-Card/CardBus slot; Optional: docking station; in vehicle mount	2x PC-Card/CardBus slots; Optional: in vehicle docking station (2x 6 W out, video in, ext. antennas, ...)	2x PC-Card/CardBus slots; Optional: Expansion unit for two 3/4 size ISA or PCI bus cards
Protection Class	IP52 (dust & dripping water)	IP54 (dust & rain)	
Shock	MIL-STD-810: 15g 11ms; 3 feet drop		
Vibration	MIL-STD-810: Highway Truck		
EMI & Safety	FCC class B, CE class B; Option: MIL-STD-461E		
Humidity rel.	5-95% non condensing		
Power Consumption (typ.)	External AC adapter: 100-240 V AC, 50/60Hz		
Dimensions H x W x D	276 x 239 x 43 mm	328 x 272 x 42 mm	310 x 255 x 70 mm
Operating Temperature	0° to +55° C ; Option: -20° C		



➤ Rugged Portable Workstations



- On-site maintenance
- Factory floor environments
- Remote field service
- Mobile data logger
- Flight line system analysis
- Geophysical exploration
- Shipboard exposure
- Military deployment



FlexPAC

If your application needs an industrial portable PC-based platform, the FlexPAC family offers the right technology. Based on industrial passive backplane technology, the full size open slots give enormous flexibility. Up to four or six full-size PCI boards can be accommodated and there is an option for one ISA card. Expensive expansion cards are secured and protected by the FlexPAC chassis-within-a-chassis construction and its unique card retention system.

FW8600

Expansion slots for 3 full size or 6 half length PCI cards, AC and DC combo power supply and a magnesium chassis built to take a beating form the basis of this mobile workstation. Several options like UPS battery, removable hard disk and rack-mounting allow for perfect adaptation to applications involving harsh and demanding environments.

MilPAC

The MilPAC is a fully sealed, high performance portable workstation designed for use in extremely harsh environments. It is built to work in both military and industrial „lethal zones“- environments conventional rugged portables can't survive. The rugged metal enclosure with IP54 dust and rain protection shields the I/O connectors. Where extra protection is required, the MilPAC Plus offers IP65, extended temperature, shock and vibration protection and customized MIL-connectors. Consequently, there is no problem using the MilPAC outdoors where exposure to rain, dust or snow can be expected to be part of the normal day.

Features	FlexPAC (4 slot)	FlexPAC PCI-X	FW8600 / FW8000	MilPAC Plus
Weight	8.8 kg (polycarbonate case)	8.8 kg (polycarbonate case)	6.7 kg (magnesium-alloy case)	13.1 kg (corrosion resistant alu-case)
CPU	Intel® Pentium® 4, 2.8 GHz, Intel® 845PE	Intel® Pentium® 4, 2.8 GHz, Intel® E7501	Intel® Pentium® M® 1.7 GHz, 2 MByte cache, Intel® 855 GME (FW8000 with 850 MHz Intel® Pentium® III CPU)	Intel® Pentium® 4, 2.4 GHz, Intel® 845PE
RAM	512 MByte, 1 GByte, 2 GByte	512 MByte, 1 GByte, 2 GByte	512 MByte, 1 GByte	512 MByte, 1 GByte, 2 GByte
Display	14.1" TFT 1024x768	14.1" TFT 1024x768	12.1" TFT 1024x768; Option: sun light readable	14.1" TFT 1024x768; Option: Sun light readable
Audio	Integrated stereo speakers	Integrated stereo speakers	PCI SoundBlaster compatible	-
Hard Disk	Integrated EIDE HD 40 GByte; Option: 2nd integrated or removable EIDE HD	Integrated SATA HD 80 GByte; Option: 2 SATA or removable EIDE HD	Integrated EIDE HD up to 60 GByte; Option: 2x removable EIDE HD	Integrated EIDE HD 20 GByte; Option: higher capacities on request
Battery bay	-	-	Option: UPS battery (typ. 15 min.)	Option: UPS battery (typ. 10 min)
Keyboard	104/105 key keyboard with touch pad	104/105 key keyboard with touch pad	85 key keyboard, sealed mouse pad	84 key keyboard with pointing device; Option: IP65 foil keyboard; IP65 back light rubber keyboard
Graphics	16 MByte / 32 MByte video memory	32 MByte video memory	Intel® 855GM, up to 32 MByte shared memory	ATI Mobility M6, 16 MByte video memory
Drives	CD-ROM, FD drive; Option: DVD/CD-RW	Option: DVD/CD-RW	CD-ROM, FD drive; Option: CD/DVD-writer	CD-ROM, FD drive
Connectivity	2x RS232, 1x LPT, 2x USB, 1x CRT, 1x LAN; Option: 2x PC-Card/CardBus slots	2x USB, 1x CRT, 2x LAN; Option: 2x PC-Card/CardBus slots	2x RS232, 1x LPT, 1xPS/2, 2x USB, 1x CRT, 1x PCMCIA slot	2x RS232, 2x USB, 1x CRT, 1x LAN; Option: MIL-Connectors; PC-Card/CardBus slots; 1x LPT
Expansion Slots	4 slot full size backplane (3x PCI, 1x PCI/ISA)	3 slot full size backplane (1x PCI-X 64 Bit 133 MHz, 2x PCI-X 64 Bit 100 MHz)	3 full or 6 half length cards (FW8600 6x 3PCI) (FW8000 with Pentium® III CPU 3x ISA, 3x PCI)	3x PCI slots; Option: 1x ISA slot
Protection Class	-	-	-	IP54; Option: MIL connectors; IP65
Shock	MIL-STD-810: 10g 11ms	MIL-STD-810: 10g 11ms	MIL-STD-810: 40g, 75g Crash Hazard	MIL-STD-810: 15g 8ms
Vibration	IEC 68-2-6: 30 to 500 Hz 0.41 g	IEC 68-2-6: 30 to 500 Hz 0.41g	MIL-STD-810: Method 514.4, Tank	MIL-STD-810: 10 to 500 Hz 1.04 g
EMI & Safety	CE class A, FCC class A	CE class A, FCC class A	CE class A, FCC class A	CE, FCC; Option: MIL-STD on request
Humidity rel.	20-93% non condensing	20-93% non condensing	10-80% non condensing	20-93% non condensing
Power Consumption (typ.)	Internal AC power supply: 100-250 V AC, 50/60 Hz	Internal AC power supply: 100-250 V AC, 50/60 Hz	Internal AC+DC combo power supply, 100-250 V AC, 10-30 V DC	Internal AC power supply: 110-240 V AC, 50/60 Hz Option: Internal AC+DC combo power supply, 110 to 230 V AC, 12 to 30 V DC
Dimensions H x W x D	401 x 281 x 188 mm	401 x 281 x 241 mm	383 x 449 x 103 mm	472 x 334 x 206 mm
Operating Temperature	0° to +50° C	0° to +50° C	-15° to +50° C	-10 to +50° C; Option: -20 to +50°C

➤ Rugged In-Vehicle Computers

➤ In-Vehicle Displays



- Designed for automotive applications
- Commercial - Short time to market
- Public safety - First response
- Tactical - Situational awareness



Features	CV-Server	CVX-Server	ECM_Solution Plattform
Weight	2.7 kg	2.3 kg	0.63 kg
CPU	Intel® Pentium® M® 1.4 GHz, 600 MHz Celeron®, Intel® 855GME	Intel® Pentium® M® 1.7 GHz, Intel® 855GME	Intel® Pentium® M® 1.4 GHz, Intel® 855GME
RAM	256 MByte, 512 MByte, 1 GByte	512 MByte, 1 GByte	512 MByte, 1 GByte
Audio	AC97 compatible		
Hard Disk	Integrated EIDE automotive HD, 20 GByte	Removable EIDE HD, up to 80 GByte	Removable EIDE HD, up to 80 GByte; Option: Heated
Graphics	Intel® 855GME, up to 32 MByte shared memory	Intel® 855GME, up to 32 MByte shared memory	Intel® 855GME, up to 64 MByte shared memory
Drives	-	Option: disk on chip	-
Connectivity	6x USB, 4x RS232, 1x LAN, 1x RGB, 3x sound line-in/out	2x USB, 2x COM, 1x COM (USB), 1x PS/2, 1x LAN, 1x RGB, 1x LVDS, sound LineInOut 2x 2W	Docking Connector (PCI Bus, Power, 2x COM, 1x LPT, 4x USB, 1x RGB, LVDS, 3x Audio-in/out, 2x PS/2)
Expansion Slots	Option: Internal Mini-PCI slot	1x CompactFlash slot, 1x PCI slot (5.8"), 2x PC-Card/CardBus slots; Option: Internal Mini-PCI slot	Option: Internal Mini-PCI slot
Protection Class	IP50 (dust)	-	MIL-STD-810: Water, Dust, Salt Fog
Shock	MIL-STD-810: 20g, 75g Crash Hazard	MIL-STD-810: 40g, 75 g Crash Hazard	
Vibration	MIL-STD-810: Highway Truck	MIL-STD-810: Composite Wheeled Vehicle	MIL-STD-810: Method 514.4, Composite Wheeled Vehicle
EMI & Safety	E1, CE class A	CE class 1, FCC class 1	CE class A, FCC class A
Humidity rel.	10-90% non condensing		
Power Consumption (typ.)	12/24 V DC input voltage (11 to 32 V DC max.), internal UPS 10 min. backup time	12/24 V DC Input Voltage (6.5 to 30 V DC max.)	DC input voltage
Dimensions H x W x D	220 x 170 x 65 mm	292 x 146 x 67 mm	110 x 48 x 167 mm
Operating Temperature	-20°C to +60°C; Option: -25/-40°C start/operation		

ECM

The ECM is a rugged, high protected, Intel® Pentium M-based Embedded Computing Module. It is designed specifically for the OEM who requires a small form factor rugged PC engine for their application-specific solution. The small footprint makes it ideal for body worn and in-vehicle embedded applications. Using the ECM as a PC-platform allows to develop easy custom I/O that tailors the end product to the application.



- 7" commercial display
- 6.5" slim line display
- 8.4" robust display
- 10.4" rugged display



Features	7" Display	8.4" Display	10.4" Display
Weight	0.6 kg	1.4 kg	4.2 kg
Suitable Server	CV-Server	CV, CVX	CVX
Resolution	800x480 (16:9; RGB)	800x600 (RGB); Option: 1024x768	800x600 (LVDS)
Brightness	350 cd; 280 cd with touch-screen	400 cd	1400 cd
Connectivity	-	-	1x DSUB for keyboard/ mouse
Protection Class	-	Dust & Water	-
Shock	-	MIL-STD-810: 20 g	MIL-STD-810: 40 g, 75 g Crash Hazard
Vibration	-	MIL-STD-810: Highway Truck	MIL-STD-810: Composit Wheeled Vehicle
EMI & Safety	CE, FCC, E13	CE, FCC	
Humidity rel.	-	10-90% non condensing	
Power Consumption (typ.)	11 V to 24 V DC	12 V / 24 V DC	From Server
User Interface	Option: resistive touch screen (USB), internal speaker	Touch screen	Resistive touch screen (PS/2)
Cables	Display to Server (5 m)		
Dimensions H x W x D	197 x 121 x 36 mm	224 x 179 x 49 mm	320 x 240 x 70 mm
Housing	Slimline plastic housing	Robust housing	Rugged metal housing
Operating Temperature	-5°C to +70°C	-10°C to +60°C ; Option -20°C	-15°C to +60°C

CV-Server

An ideal cost-optimized platform for commercial automotive applications. Using standard PC software and PC accessories simplifies system engineering, which results in reduced engineering effort, a short time-to-market and fast return on your investment.

CVX-Server

Expansion capabilities via PCI slot, Mini-PCI slot, Compact Flash, PC-Card/CardBus sockets make this system highly customizable. The CVX is an embedded computing platform giving OEMs the flexibility they need to develop their customer specific systems.



Rugged Displays



Gas & Oil Solutions



- Industrial flat panel displays
- Panel mount or rack mount
- Built for use in harsh environments
- Protected against dirt and dust ingress



Features	Shark	Orca
Resolution	17" or 19" TFT, 1280x1024	17" or 19" TFT, 1280x1024
Brightness	250 cd	250 cd
Protection Class	IP66 (dust & water)	IP66 (dust & water on front bezel)
Shock	10g, 11ms, 1/2 sine	10g, 11ms, 1/2 sine
Vibration	3-500 Hz, 0.41 g	3-500 Hz, 0.41 g
EMI & Safety	CE, FCC, UL	CE, FCC, UL
User Interface	Option: Resistive touch screen	Option: Resistive touch screen
Dimensions H x W x D	17" (17.7 x 16.6 x 2.4"); 19" (21.3 x 18.2 x 3.3")	17" (19.1 x 16.1 x 2.5"); 19" (20.2 x 17.1 x 2.6")
Housing	Rugged aluminum chassis	Rugged aluminum chassis

Shark

Shark flat-panel displays are Rugged Monitors and Operator Interfaces designed to withstand harsh physical treatment and the environmental hazards routinely encountered in industrial, military, and transportation related applications. Rated NEMA 4/IP 66 for water, dust and dirt intrusion, they are tested to all relevant aspects of MIL-STD-810F for shock and vibration.

Orca

Built to cope with harsh environments, the Orca panel mount display is rated NEMA 4 and IP 66 for water, dust and dirt intrusion. It is tested to all relevant aspects of MIL-STD-810F for the shock and vibration routinely encountered in industrial, military, and transportation related applications. Our touch screen option provides the ultimate operator interface that for seamless and easy operation.

- Display
- Workstation
- Sunlight Viewable Display
- Enhanced IR touch screen
- Class 1 Division 1 (Atex Zone 1)
- Class 1 Division 2 (Atex Zone 2)



Features	Triton D1	Triton D2
CPU	Option for Workstation: Intel® Pentium® M 1 GHz	Intel® Pentium® M 1 GHz
RAM	Option: 512 MByte	Option: 512 MByte
Display	15.1" TFT 1024x768, sun light readable	15.1" TFT 1024x768, sun light readable
Hard Disk	Option: Removable Compact Flash	Option: Removable Compact Flash
Touch Screen	Enhanced Infrared Touch Screen	Enhanced Infrared Touch Screen
Drives	Option: Removable Compact Flash	Option: Removable Compact Flash
Connectivity	Display: VGA, PS/2, copper KVM; Workstation: Fiber LAN, Copper LAN, PS/2, WLAN (option)	Display: VGA, PS/2, copper KVM; Workstation: Fiber LAN, Copper LAN, PS/2, WLAN (option)
Expansion Slots	Option: Via internal USB	Option: Via internal USB
Protection Class	Explosion Proof and Flame Proof; Class 1 Div 1 ; Atex Zone 1 (Workstation: Class 1 Div 2 ; Zone 2)	ATEX Zone 2
Shock	60 g, 11 ms, 3-axis	10 g, 11 ms, 1/2 sine
Vibration	10-200 Hz, 6.06 Grms	3-500 Hz, 0.41 g
EMI & Safety	CE, FCC, UL, CSA	CE, FCC, UL
Power Consumption (typ.)	AC 90-264 V AC ; Option: 24 V DC	AC 100-240 V AC
Housing	Rugged aluminum flameproof enclosure	Rugged aluminium enclosure
Operating Temperature	-40° to +50° C	-40° to +50° C

Triton

Designed for the rigors of the oil and gas industries, the Triton provides a new solution for harsh environments. The Triton integrates new technology into operator Interface Displays and Workstations where safety is critical.

Our innovative design includes Kontron's enhanced infrared touch-screen and sunlight-readable display and performs beyond anything else in its class. Built to meet the challenges of extreme temperatures, the Triton's enclosure provides unparalleled heat transfer capabilities and repels fumes, moisture and harsh particulates routinely encountered in explosive or flammable conditions.

Tough enough to handle indoor and outdoor extreme temperatures, the Triton is certified Class 1 Division 1 (Atex Zone1) and Class 1 Division 2 (Atex Zone 2). The rugged construction features a sealed aluminum enclosure designed to provide reliable operation in extreme, classified environments.



➤ Industrial Control System Solutions

Kontron offers complete solutions:
Open and scalable systems for
Control & Industrial Communications.

CoDeSys SoftPLC, high communication capabilities
with open standards, hardware from the market leader:
Kontron's systems have *everything you need* to succeed
in the automation business.

With ready-to-go systems and first class support,
time-to-market cannot be shorter.

With its *connectivity* and its *openness* in hardware
variants and software interfaces, Kontron control
systems fit into nearly any control scenario. And they
are open for future progress.

For IEC61131-3 programming, CoDeSys
is a first class and safe platform.

- One of the most common and powerful SoftPLC systems
- Support for all five IEC61131-3 programming languages
- Easy-to-use approach and many practical functions for efficient work
- High performance and minor resource requirements
- Open interfaces for external software systems: XML, OPC, functionAPI, Network Variables

Thanks to its high communications capabilities, Kontron control systems can be integrated into almost any environment.

- Multiple PC-level connectivity
- Innovative fieldbus technologies, unique comfort for configuration by SyCon
- Visualization to flatpanel, HMI, or Intra-/Internet
- Open standards for vertical integration such as OPC, XML

Kontron control systems are based upon
Hardware from the market leader.

- Wide selection of platforms and features
- Variability in performance, connectivity, size
- Open to be used as application-ready solution or as base-system for custom application
- First class service



Ask for the separate brochure of
Kontron Industrial Control Systems.

In addition, see the ThinkIO solution as well.



The solutions - Ready to go!

Besides the preferred configurations below, more variants are available on request. For more hardware details, see the respective catalog pages.

Micro Client Control

Low-end HMI & control in one

Microclient 8.4" (10.4", 12.1") TFT resistive touch with Via Eden 400 MHz, Celeron 600 MHz

CANopen

Win CE

CoDeSys SP Full with Target Visualization

CoDeSys WebVisu option

Micro Client **see** p. 75 ff

ThinkIO-C Control , ThinkIO-P Control

ThinkIO-C and ThinkIO-P DIN Rail I/O-PC

CANopen, PROFIBUS, DeviceNet

Embedded realtime Linux, Win CE

CoDeSys SoftPLC

CoDeSys Target and Web Visualization options

TouchPanel option

ThinkIO **see** p. 62 ff

V-Panel Control

High-end control & HMI in one

V-Panel 150 with 15" TFT resistive touch

Celeron M 600 MHz or Pentium M 1.1 GHz

CANopen, PROFIBUS, or DeviceNet

Win XPe

CoDeSys SP RTE

CoDeSys HMI and Web Visualization options

V-Panel **see** p. 73 ff

JREX-IBOX Control

Ultra compact, powerful, flexible

JREX-IBOX industrial PC

Celeron 400 MHz or Pentium M 1.1 GHz

JFLEX for CANopen, PROFIBUS, DeviceNet

Win XP installed

CoDeSys SP RTE

CoDeSys HMI and Web Visualization options

TouchPanel option

JREX-IBOX **see** p. 58 ff

CP-Pocket Control, XL-Pocket Control

CompactPCI for harsh environments

4U/7U card cage, 4 slots

CP306-V 1.3 GHz, CP6500-V 400 MHz

Win XPe

Fieldbus (option)

CoDeSys SP RTE

CP-POCKET, XL-POCKET **see** p. 47 ff

➤ OPC Servers



The OPC standard is the basis for convenient and powerful connections between automation components, control hardware and field devices, and for the integration of office products and information systems such as ERP and MES systems on the enterprise level.

Our OPC products consist of **OPC Servers**, **OPC Clients** and further **OPC Software tools** supporting the OPC data exchange on the basis of the latest standards and recommendation of the OPC Foundation organization - www.opcfoundation.org.

➤ OPC Servers List

OPC Server	Supported Devices
ADAM 4000	ADVANTECH ADAM4000
Allen Bradley DF1	Allen Bradley SLC-500
Allen Bradley Ethernet	Allen-Bradley Ethernet
AutomationDirect EBC	Ethernet Base Controllers using UDP protocol
AutomationDirect ECOM	Direct Ethernet UDP compliant PLCs
Allen Bradley ControlLogix	Allen Bradley ControlLogix controllers
Binder	Hot-flue chamber Binder device
Elcor	Gas-meter Elcor
Fatek Facon	Fatek PLC using Facon protocol
GE Ethernet	GE PLCs
GE Fanuc SNP-X	GE Fanuc series 90
Koyo DirectNet	Koyo DL205 and DL405 using DirectNet
Lecom	Lenze Drives using Lecom protocol
Lighthouse	Particle counter Lighthouse
Melsec FX	PLCs of Mitsubishi FX family
Mitsubishi A Series	Mitsubishi A Series PLCs via AJ71C24 card
Mitsubishi Ethernet	PLC Mitsubishi of A and Q series
OPC OLE DB	OLE DB Database
Omron Sysmac HostLink	Omron PLCs using HostLink
Omron FINS Serial	Omron PLCs using FINS
Optimation OptiLogic	Optilogic Ethernet RTUs using UDP
Modbus/Jbus Master RTU	Modbus/Jbus compliant devices
Modbus/Jbus Slave	Modbus/Jbus compliant devices
Met	Particle counter MET One
Memmert	Incubator Memmert
Modbus ASCII Serial	Any device using Modbus ASCII
Modbus Unsolicited Serial	Modbus compatible devices
SAIA S-Bus	ALL SAIA PCD's
Siemens Simatic AS511	Simatic S5 using AS 511
Siemens Simatic MPI	Simatic using MPI (Siemens libraries required)
Siemens Simatic MPI	Simatic using MPI (ECI required)
Siemens Simatic RK512	Simatic S5/S7 using RK 512
Siemens Simatic S7 200	Any Siemens S7-200
Siemens S7 200-400 TCP/IP Ethernet	Siemens S7-200/300/400
Siemens Simatic 505 Serial	Simatic S5, S7
Siemens Simatic 505 Ethernet	Simatic 505 PLCs using CP2572 interface
TIWAY Host Adapter	TIWAY Secondary Device
Toyopuc Ethernet PC3/PC2	Toyopuc PC3/PC2 Ethernet Link Protocol
UCON Driver	Development tool for any serial/Ethernet device
Wago Ethernet	WAGO Ethernet I/O using TCP/IP
Yokogawa Darwin Ethernet	Yokogawa Darwin DA using TCP/IP
Yokogawa DX Ethernet	Yokogawa DX 100/200 DA using TCP/IP
Yokogawa DX Serial	Yokogawa DX 100/200 DA using RS-XXX

➤ Other OPC Products

OPC Tool	Description
DDEtoOPC Convertor	Data convertor from DDE into OPC format
OPCtoDDE Convertor	Data convertor from OPC into DDE format
OPC ValueKeeper	OPC data bridge for OPC Clients
PI-OPC Interface	OPC Interface for database PI by OSI
OPC HDA PI Server	OPC HDA Server for database PI by OSI Soft
Web HMI OPC Client	OPC Client for various development languages

➤ Custom-developed OPC Software

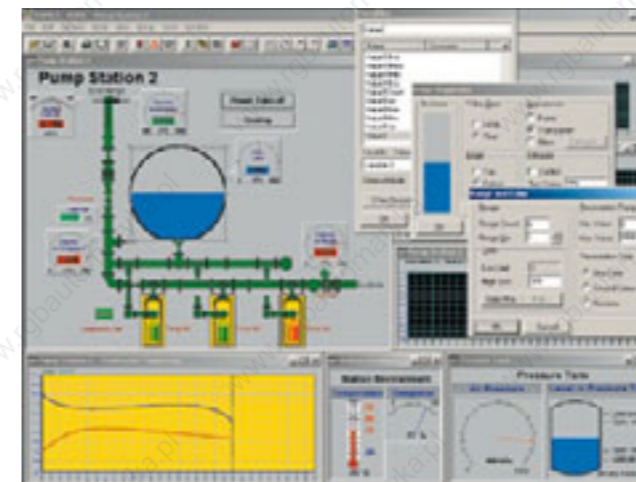
We develop software for industrial information systems as well as new OPC Servers for customers' devices/PLCs. We are ready to supply you with the new OPC Software quickly, offering you excellent functionality on great business terms. If you are interested in OPC Software development to meet your specification, please contact our representatives for a no-obligation quotation.



➤ SCADA HMI

Kontron Czech s.r.o. is a leading solutions provider oriented toward the development, sale and implementation of industrial software applications for industrial process monitoring and control. Today, we offer two SCADA HMI systems - **Aspic 3.30** and **Aspic MP**.

➤ ASPIC 3.30



ASPIC 3.30

is an open, powerful, reliable and full-featured SCADA HMI application, designed for Win 9x/NT/2000/XP and CE, works as a Full OPC Server / OPC Client as well as a full DDE Server / DDE Client.

Main Features

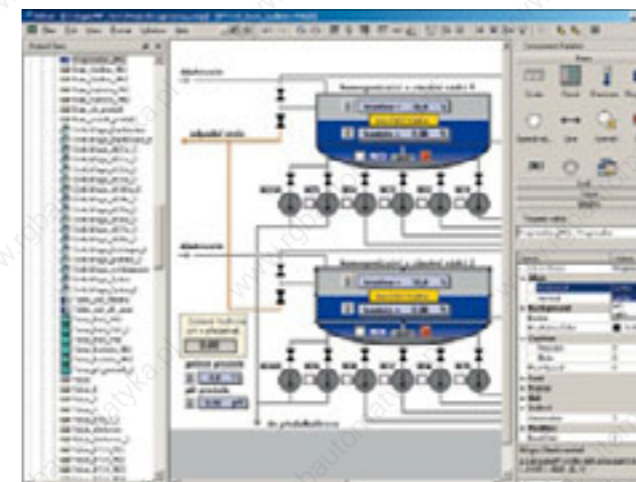
- Designed for Windows 9x/NT/2000/XP and CE 4.1 + higher
- **Full OPC** Server/OPC Client functionality
- **Full DDE** Server/DDE Client functionality
- Sophisticated system of alarms and status messages
- Data archiving into files/via ODBC interface
- Reuse objects from graphics libraries
- Comprehensive Alarms Editor
- Security features, page zoom
- Built-in math module with scripting language
- Reports via AspicRep application
- Reports into MS Excel



Version for max 10 tags for FREE!
All features built-in, no extra fees!
CE 4.1 version available!
HMI Editor for FREE!

Aspic 3.30 Licenses	
RunTime 10 I/O	
RunTime 50 I/O	
RunTime 100 I/O	
RunTime 200 I/O	
RunTime Lite 1000 I/O (one OPC Server included)	
RunTime Lite Plus 1000 I/O (one OPC Server included)	
Full Version (one OPC Server included)	
RunTime CE4.1 (and higher versions)	

➤ ASPIC MP



ASPIC MP

is a revolutionary client-server SCADA HMI application, designed for embedded and large-scale projects requiring easy monitoring, visualization and control of industrial processes.

Besides OPC communication, Aspic MP also offers an API interface for a direct access to programmable logic controllers (PLC) and other different industrial control devices.

Main Features

- Designed for Windows NT/2000/XP
- **Full OPC** implementation DA, HDA
- Communication with any other devices is available on request.
- **Archiving modules for reading / writing** to the database (or to any other devices) is available upon request.
- Distributed **Client Server architecture**
- One project - **multiple languages**
- Modular system with an open interface
- Built-in math module with scripting language
- Reports are generated into MS Excel
- Four levels of role based security
- Project stored in **XML** format
- Alarms shared to all clients
- Full trending features



Aspic MP Licenses	
HMI Editor	For Free
RunTime	Number of I/O upon request

