Embedded

OEM Solutions for Industry

➤ **Modules**

➤ **Boards**

➤ **Systems**

➤ **Applications**

kontron

➤ Embedded OEM Solutions for Industry

➤ Wide Range of Platforms

➤ The Kontron group is one of the world's largest suppliers of embedded computer technology to a diversified customer base in the communications, industrial control, test & measurement, medical, transportation/telematic, point of information/sale, gaming, mobile, network security, defense and public safety markets. And with its corporate headquarters located in Munich, Kontron has a strong presence in Europe. 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. It ranges from off-the-shelf and custom-engineered embedded computer modules, boards and blades to modular computer systems and up to application ready platforms, each designed to meet your current and future needs.

➤ Worldwide, over 1800 Kontron group employees are working to provide you with one of the widest ranges of products based on cutting-edge embedded computer technology. With engineering, manufacturing, integration, project management, technical services and sales teams in Europe, North America 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-application 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 help you to develop 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: Kontron Industrial Control (KIC), Kontron Communications (KCO) and Kontron Transportation (KTR).

➤ Kontron products are the preferred choice for any application that requires long life, highly reliable, typically high-performance and dedicated products to be installed in demanding and mission-critical environments.

➤ The Kontron organisation is ISO 9001 certified to ensure consistency and the highest level of quality in products and services on a global basis.

➤ **VDC** 2004-2005 PLATINUM VENDOR EMBEDDED BOARDS

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.

➤ You are invited to visit our website at **www.kontron.com**.

Kontron goes lead-free new Pb

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.

Please contact your nearest sales office for more details.

kontron

➤ Kontron – A Global Company

➤ Strategic Partners /Memberships

Eching • Deggendorf • Kaufbeuren   San Diego   Beijing   Taipei   Moscow

Together with our major industry partners, Intel®, Freescale, IBM, Microsoft and WindRiver, we are working to reduce the time-to-market for our OEM customers. Kontron is a top level member of the Intel® Communications Allicance (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 thanks to the top-level support we receive. Through our strategic memberships we drive new technologies and open standards that ensure Kontron is able to offer OEM solutions based on open standards that ensure open standards for future- oriented applications.

Bringing new applications to market first

Kontron helps leading OEMs and systems integra-tors significantly to reduce their time-to-market and thus to gain a competitive edge. Kontron designs and manufactures innovative building blocks capable of supporting numerous applica-tions for today's networked infrastructure. Our broad portfolio of products includes Computer- On-Modules, industry standard board-level solutions, open platform communications servers, industrial-grade rackmount solutions, Human-Machine Interface (HMI) systems and rugged mobile computers. We also offer a host of embed-ded hardware as well as application specific tech-nology and custom engineered solutions.

Providing custom design and integration

Although Kontron's wide array of standard product designs offers options that can satisfy the require-ments of most applications, we also provide design support for custom designs so we can meet appli-cation requirements that are unique to our custo-mers' situations.

Delivering global service & support

As a truly global company we have R&D, manufac-turing and sales & support facilities located across Europe, the United States, Canada and the Asia-Pacific region. Each region has the skills and knowledge needed to support Kontron's product lines and range of services, which is beneficial for global OEMs, enabling them to work effectively and efficiently. 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 tech-nical support, you will have an application engi-neer 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.

➤ Driving Industry Standards

Industry Standards, Computer-On-Modules

In addition to designing products based on indus-try standard formfactors and featuring the latest technological 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 deve-loped 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 COMexpress/ETXexpress based on PCI-Express are blazing new trails in embedded tech-nology.

Flat panel technology

Embedded boards and modules from Kontron all have exceptional support for flat panel techno-logy. They support numerous flat panel sizes and resolutions, from small, quarter-panel VGA displays to the latest UXGA displays. Embedded products from Kontron support 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. "We drive your display!"

➤ Kontron – Your OEM Partner

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

Kontron offers you not only the industry's broadest range of Embedded Computer Technology (ECT), but also a cutting-edge portfolio of services.

We have concentrated all our services, experience and effort under the umbrella of Kontron Applications, where you can find all the experts you need to get the solution you are looking for.

We are dedicated to Original Equipment Manufacturers (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 a huge knowledge base and experience in many different leading-edge technology areas:

➤ **Processor platforms** – to name just a few: Geode, Intel® Pentium® M, III and 4, XScale, PowerPC
➤ **Operating systems** – Windows 2000/XP, Embedded XP, Windows CE, Linux, VxWorks, QNX, OS-9
➤ **Formfactors** – DIMM-PC, ETX, ETXexpress, X-board, E²Brain, cPCI, PCI, ATCA, AMC, VME, PICMG 1.X, PISA, PISA-eXpress, 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

Project Management

Be it a small project to tailor a board or a piece of software or a huge full custom project, we always assign a Kontron project manager for you. He 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 understands your situation, listens to your description, analyzes the problem and gets it resolved quickly.

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 on request.
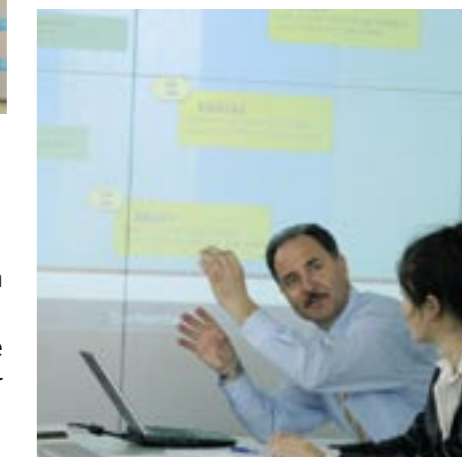
Longevity

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

Another service we offer our customers is the ruggedization of our products for extreme environmental conditions in industrial automation, transportation, mobile computing, off-shore or shipboard applications. Many of our products are available for use in extended temperature range - 40° C to +85° C (with passive heat sinks, where necessary) and additional fixture of components (for increased shock and vibration resistance) and/or conformal coating to protect them against aggressive environmental conditions.

➤ Application Ready Platforms

Communications

AT8000

AM4001

Kontron's Communications Division is addressing the specific requirements of the communications market with Commercial Off The Shelf (COTS) products, such as AdvancedTCA, AdvancedMC, CompactPCI or COMexpress. 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
➤ COMexpress
➤ ... etc.

XL8000

Gaming

Flex ATX

Computer modules for Gaming

Kontron has identified gaming, with its lottery, gambling and gaming machines, as a key market, due to the rapid growth of PC enabled gaming systems and platforms. In America, Asia and Europe more than 200,000 EC modules featuring Kontron technology are active around the clock, and the amusement arcades 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

Intel® PRO
Network Connections

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 Industrial Control 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/Governmental
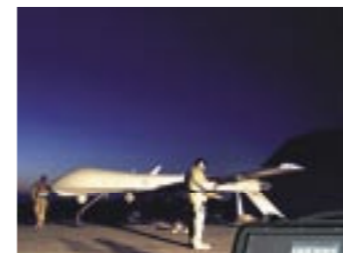
MilPAC

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 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, subsystems 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 aircraft carriers for a military real time

redundant military 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
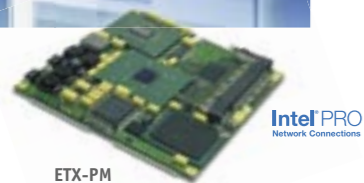
ETX-PM

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 is 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).

Ultrasound System

The latest generation of ultrasound systems is based on Kontron PCI 951 technology and it is in use, imaging more than 15 million women each year. Thousands of articles and studies attest to the clinical efficacy of these industry-leading imaging technologies. With Kontron's customized Intel® Pentium® 4 based PCI951 running under Linux, the world's first and only system capable of true volume ultrasound has arrived. This powerful system enables real-time acqisition, navigation and analysis of images, so clinical decisions can be made with unprecedented confidence.

PCI 951

Test & Measurement

CP306

Specialists in development, production, research, calibration and service the world over 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, all of the 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

Telematics

Full Custom
Telematic 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 endeavour 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.

CV-Server

Transportation

Customized Train Management System

The Kontron Transportation (KTR) division was founded more than 15 years ago in Belgium and 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. KTR 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. The 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 KTR developed the Train Management System for these regional trains allows the customer to concentrate on the integration of his specific application.

PC/104 / MOPS

➤ 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
➤ Scaleable due to interchangeable modules
➤ Extended temperature range (optional)
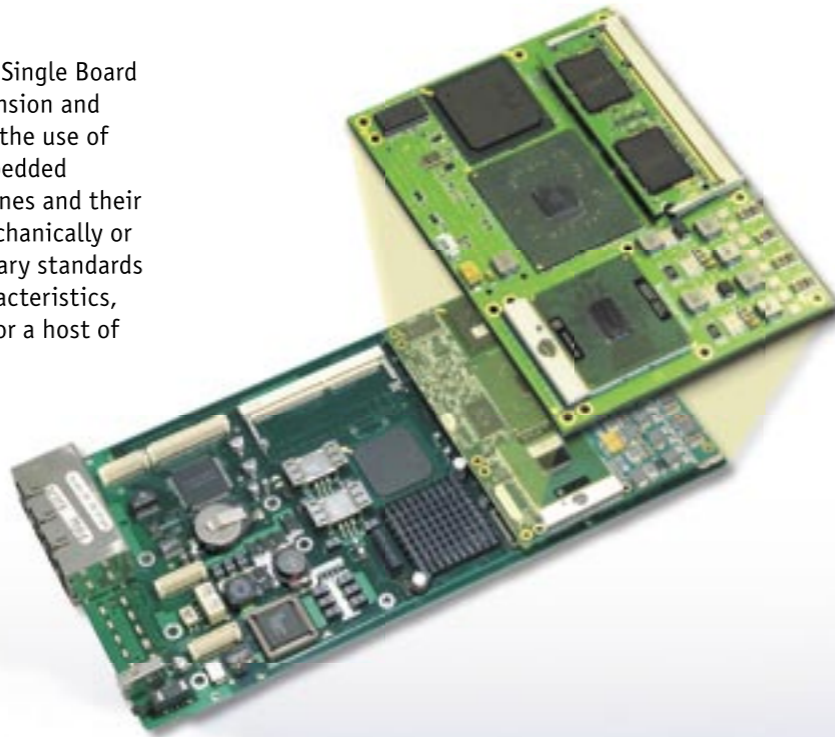
Starterkit

➤ 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:

boards & MORE

Customized Baseboards for our Computer-On-Modules
Full Custom Computer Boards

CONCEPT EVALUATION
COM starter kits with BSP

> **Instant** product concept evaluation with our COM starter kits which come with **full OS BSP's**

SPECIFICATION
Consulting & Optimization

> Design consulting and concept optimization that guarantee **a short time to market** with a **working** and **cost effective solution**

REALIZATION
Kontron First Class
Project Management

> You are **in control** of your out-sourcing project– our design process combines **flexibility** even in the design phase with design quality control through **regular reviews** and customer approvals

PROTOTYPING
Design Verification

> Standard BIOS or drivers won't do? – we will **customize** and **modify the BIOS and drivers** for you. Our **standardized approval process** ensures that your product **specifications are fully met**

PRODUCTION
Logistic & quality control

> We **adapt** to your logistics model – with **customized testing and quality control**

LIFECYCLE MANAGEMENT
Re-designs, upgrades, end of life

> Our product lifecycle management ensures that **your investment** pays off – we manage the longevity of your Kontron solution for 5 years and more*
>
> *conditions apply

new

➤ 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 datapath

➤ Gigabit Ethernet - for high connectivity

➤ SerialATA - for highspeed mass storage

➤ USB 2.0 - for fast peripherals

➤ Dual Channel DDR2 - for maximum memory bandwidth

➤ ExpressCard™ - for hot-pluggable I/O cards

➤ Dual Channel LVDS - for high resolution

➤ SDVO - for maximum display flexibility

➤ ETXexpress

powered by Intel® Pentium® M

Features	ETXexpress-PM
CPU	Intel® Pentium® M, Intel® Celeron® M
CPU Clock	600 MHz up to 2.0 GHz
Cache	512 kByte up to 2 MByte L2
Chipset	Intel® 915GM, ICH6-M
Bus Speed	400/533 MHz FSB
DRAM	up to 2 GByte (DDR2-RAM)
DRAM socket	DDR2-SODIMM socket
SM Bus Support	✓
Flash Disk	-
Hard Disk	4x Serial ATA, 1x Parallel ATA
USB	USB 2.0, 8 ports
USB Boot/Legacy Support	✓/✓
Ethernet	10/100Base-Tx will be upgraded to Gigabit Ethernet
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
Graphics Memory	Dynamic Video Memory Technology (DVMT) 3.0 supports up to 224 MByte VRAM UMA
Flat Panel Interface	DUAL DVO (multiplexed with PCI-Express Graphics port), CRT, DVI A / I, JILI-LVDS
Power Management	ACPI 2.0 + APM 1.2
Power Consumption (typ.)	30W @ 12 V
Dimensions H x W	95 x 125 mm
PCI	4 PCI Express x1 lanes, PCI 2.3, 32 bit / 66 MHz
RoHS compliant	✓

ET **X** express™

www.etx-express.com

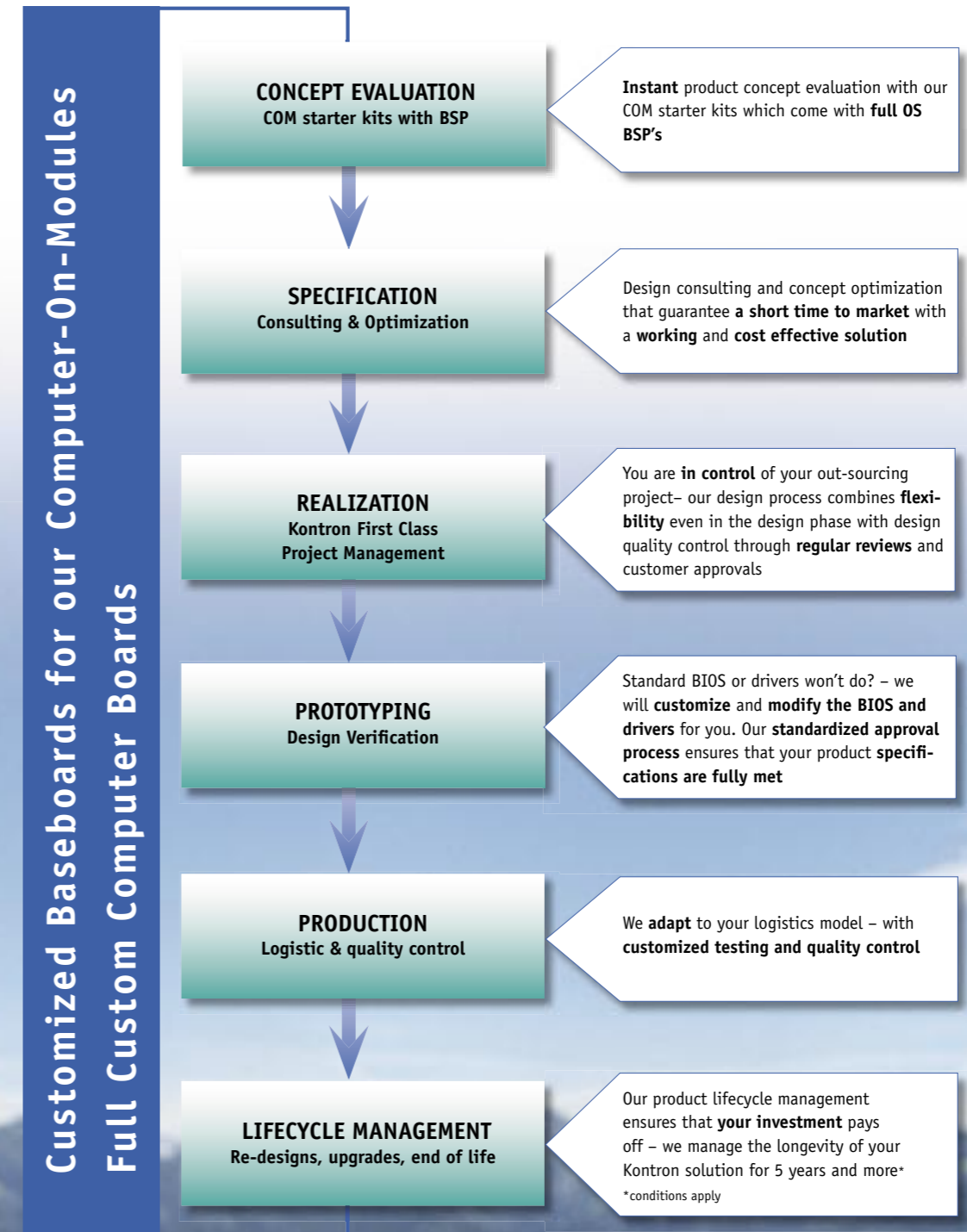**COM Express**

PCI EXPRESS®
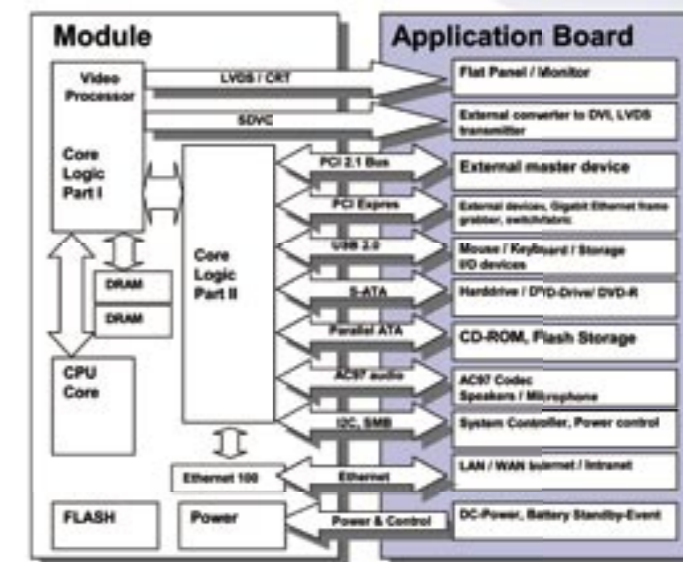
➤ ETXexpress™ Starter-KIT

➤ 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.

14

kontron

15

➤ ETX – The Standard for Custom Designs

➤ ETX

ETX module | **Application board**

X86 core

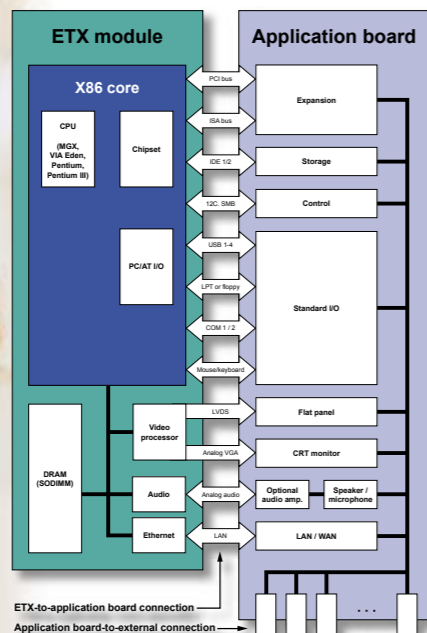Available Q4/2005

Features	ETX-PM	ETX-P3Tx	ETX-P3T	ETX-P3m	ETX-VE	ETX-VEGA	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 ESP3000, ESP4000, ESP7000, C3-800, ESP10000	STPC® VEGA	STPC® ELITE
CPU Clock	600 MHz up to 1.8 GHz	733 MHz, 1 GHz	400 MHz, 733 MHz, 1 GHz	400, 650, 800, 933 MHz	300, 400, 700, 800 MHz, 1 GHz	200 MHz	100 MHz
Cache	1 MByte (L2 on chip) 0 MByte up to 2 MByte (L2 on chip)	256 kByte (L2 on chip)	256 kByte (L2 on chip)	ETX-P3m: 512/256 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	integrated	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)	256 MByte (SDRAM)	16/32/64 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	2 ports USB 1.1, 4 ports USB 2.0 optional	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 (Davicom opt.)	Intel® 82551ER	Intel® 82551ER	Davicom DM9102A/D	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 Graphics2	ATI® Radeon Mobility M6	Intel® Extreme Graphics (integrated)	VT8603C (S3Savage 4)	VT8603C (S3 Savage 4)	Silicon Motion Lynx 3DM	-
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 2 MByte Video Memory	-
Flat Panel Interface	JILI Interface (LVDS)	JILI Interface (LVDS)	JILI Interface (LVDS)	JILI Interface (LVDS)	JILI Interface (LVDS)	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	5 W @ 200 MHz	4 W @ 100 MHz
RoHS compliant	✓	✓	✓	✓	✓	✓	✓

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 inte-grated 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.
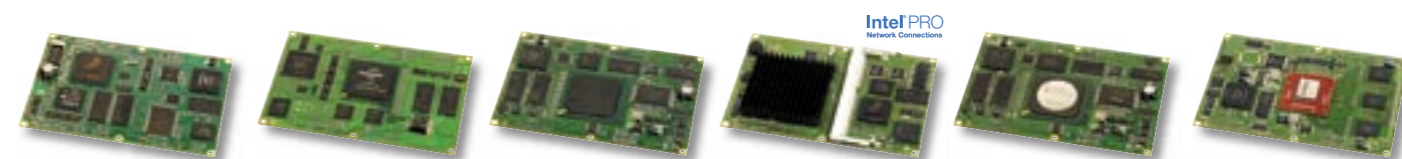- ➤ The only surface that needs cooling is the top of the heatspreader.

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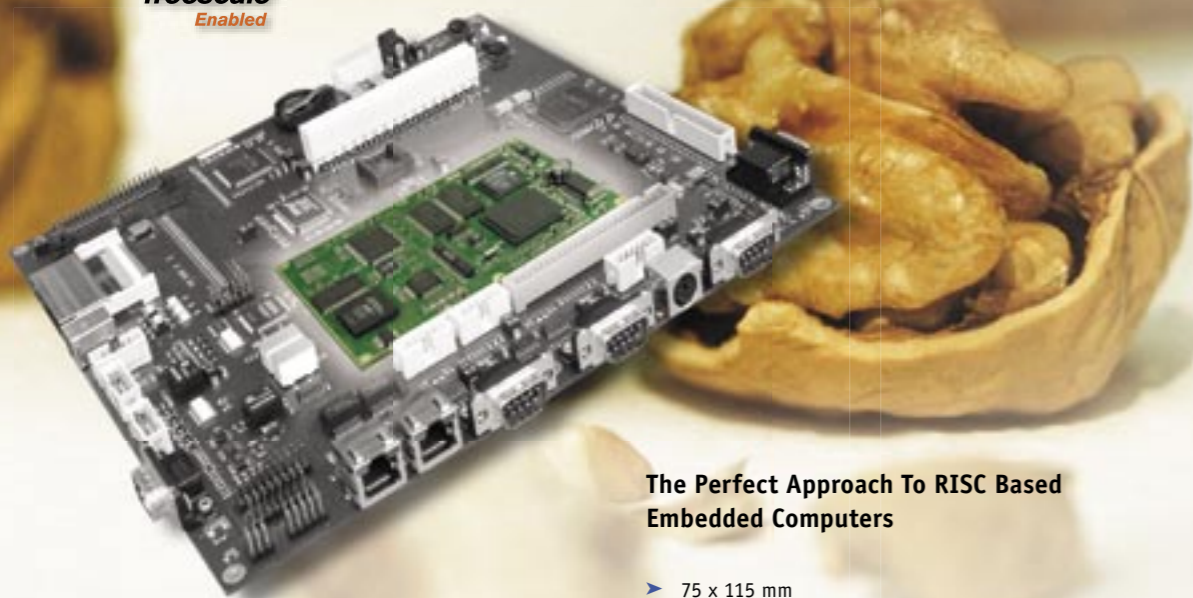
E²Brain – we crack the nut ... for you!

E²Brain - one family, two branches

Advanced Computing Cores
Embedded Real Time Control

Communication Engines
Sophisticated Networking and Security

freescale™
Enabled

The Perfect Approach To RISC Based Embedded Computers

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

➤ E²Brain

Features	EB860/855	EB405	EB420	EB8245	EB425	EB8540/8541
CPU	Freescale MPC855/860	AMCC 405EP	Intel® XScale IXP420	Freescale MPC8245	Intel® XScale IXP425	Freescale MPC8540/8541
CPU Clock	80 MHz	266 MHz	266 MHz	330 MHz	533 MHz	660/800 MHz
Cache	4 kByte instructional, 4 kByte data	16 kByte I-Cache, 8 kByte D-Cache	32 kByte instructional, 32 kByte data, 2 kByte mini-data	16 kByte instructional, 16 kByte data	32 kByte instructional, 32 kByte data, 2 kByte mini-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	128/256 MByte DDR-SDRAM
DRAM socket	Soldered			SO-DIMM	Soldered	
Flash	Up to 32 MByte					
Ethernet	100 Base-Tx Ethernet interface	2x 100 Base-Tx Ethernet interfaces	2x 100 Base-Tx Ethernet interface	100 Base-Tx Ethernet interface	2x 100 Base-Tx Ethernet interface	2x Gigabit, 1(2:EB8541)x Fast Ethernet interface
Ethernet Controller	Integrated			Intel® 82551	Integrated	Integrated
Serial	EB860: 6x and UTOPIA (8 Bit), EB855: 3x	2/4 ports	2/4 high speed ports	Up to six high speed ports	Up to six high speed ports and UTOPIA 2 (16 Bit)	Up to 6 high speed interfaces
I/O Features	PCI 32 Bit/33 MHz UTOPIA (EB860 only) LPC, I²C	PCI 32 Bit/33/66 MHz, LPC, I²C, 15 GPIO	PCI 32 Bit/33/66 MHz, LPC, I²C	PCI 32 Bit/33 MHz, LPC, I²C, CAN	PCI 32 Bit/33/66 MHz, LPC, I²C, CAN, UTOPIA 2	PCI 32 Bit/33 MHz, LPC, I²C, CAN
Expansion	PCI, LPC, I²C	PCI, LPC, I²C	PCI, LPC, I²C	PCI, LPC, I²C	PCI, LPC, I²C	PCI, LPC, I²C
Power Consumption (typ.)	3 W	3 W	2 W	5 W	3 W	12 W
Additional	Passive cooling, RTC, Watchdog, extended temperature range					
	-	CompactFlash interface				
	-		-	CAN	CAN	CAN
	-		-	-	Security engine	Security engine (EB8541)
RoHS compliant	✓	✓		✓	✓	✓

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.

E²Brain module

Application board

System core

RISC CPU (PowerPC, XScale)

System Interface

DRAM

ROM / FLASH

Communication controllers

LPC bus
PCI (x) 32 bus
PCI (x) 64 bus
High-speed (rapidIO / mSband / PCI-express)

Standard expansion

I²C
JTAG / debug / other

Optional expansion

High-speed serial
Terminal
CAN

Control

LAN
UTOPIA
GPIO
I²GMII
USB

Standard I/O

Tailored I/O

Ethernet

= Standard
= Optional or N/A on all modules

E²Brain-to-application board connection
Application board-to-external connection

➤ 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

Kontron

➤ X-board – Reduced to the maX
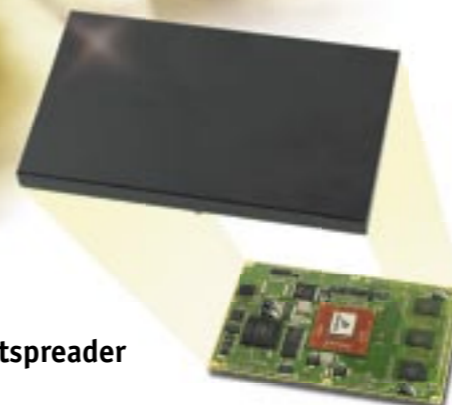
X-board
Reduced to the maX

➤ Small, Powerful Computer-On-Module

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

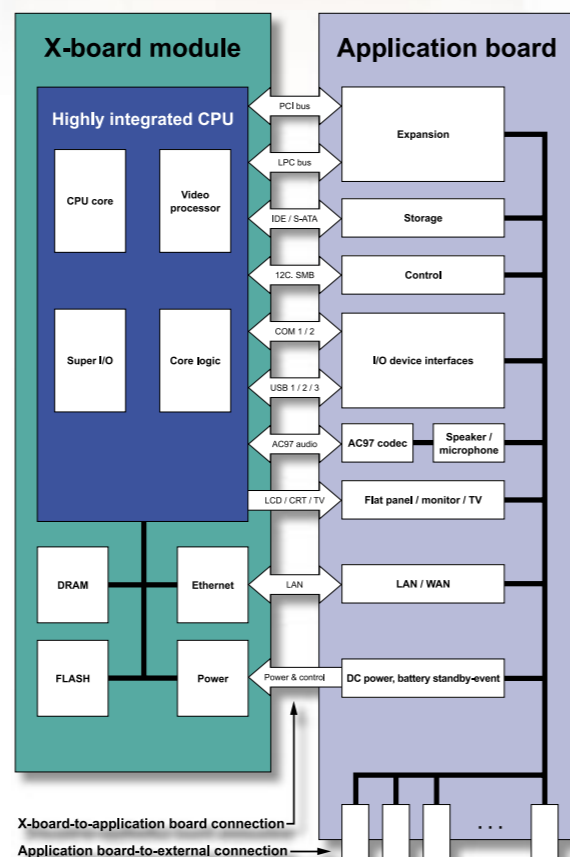**Evaluation Baseboard**

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 baseboard is a simple SO-DIMM-style connector. The baseboard 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 module

Highly integrated CPU

CPU core	Video processor
Super I/O	Core logic
DRAM	Ethernet
FLASH	Power

PCI bus
LPC bus
IDE / S-ATA
I2C, SMB
COM 1 / 2
USB 1 / 2 / 3
AC97 audio
LCD / CRT / TV
LAN
Power & control

Application board

| Expansion |
| Storage |
| Control |
| I/O device interfaces |
| AC97 codec | Speaker / microphone |
| Flat panel / monitor / TV |
| LAN / WAN |
| DC power, battery standby-event |

X-board-to-application board connection
Application board-to-external connection

Intel PRO
Network Connections

Available Q4/2005

➤ X-board

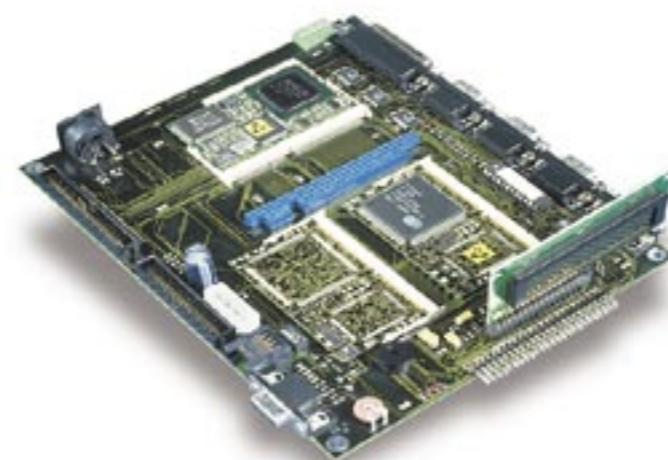| Features	X-board<861>	X-board<863>	X-board<PXA>	X-board<GP8>
CPU	AMD Geode® SC1200	SIS 550LV USB	Intel® XScale PXA255	Intel® XScale 80219
CPU Clock	266 MHz	200 MHz	200/400 MHz	400/600 MHz
Front Side Bus	66 MHz	100 MHz	-	200
Cache	16 kByte (L1)		32 kByte instruction and 32 kByte data	
BIOS	Insyde	AMI	Bootloader	Bootloader
Chipset	AMD Geode® SC1200	SIS 550LV USB	Integrated / Companion	Silicon Motion SM501
DRAM	32 to 128 MByte	64 to 256 MByte	32/64 MByte	up to 128 MByte DDR
Flash	32 to 128 MByte	32 to 128 MByte	16/32 MByte	16/32 MByte
Resolution	1024x768 (on LCD), 1280x1024 (on CRT)	1280x1024 (on LCD), 1920x1440 (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	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)	AC97 link (external codec)
Hard Disk	1x IDE Channel	1x IDE Channel	1x IDE Channel	1x IDE Channel
USB	3x Host Channels	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 Davicom 9102ATE	10/100Base-T Realtek RTL8100BL	10/100Base-T Davicom
Keyboard	Keyboard via USB			
Mouse	Mouse via USB			
Parallel Port	Possible via USB or LPC			
Graphics Controller	Integrated	TFT-DSTN Controller onboard	Integrated	Silicon Motion SM501
Graphics Memory	up to 4 MByte (UMA)	16 MByte (UMA)	UMA	8 MByte / 16 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, 18 Bit digital	JILI/JIDI, 16 Bit digital	JIDI, 18 Bit digital
JRC/JIDA32	✓/✓	✓/✓	-/✓	✓/✓
Drives	Possible via USB or LPC	Possible via USB or LPC	Possible via USB or LPC	Possible via USB
Darkboot/Lanboot	✓/✓	✓/✓	LAN Bootloader	
Watchdog	✓	✓	✓	✓
Real Time Clock	RTC with CMOS data backup	RTC with CMOS data backup	RTC	RTC with CMOS data backup
Power Management	APM 1.2	APM 1.2	✓	✓
Cooling	passive/self	passive	passive/self	
Power Consumption (typ.)	3 W	3W @ 3.3 V	1.5 W @ 3.3 V	4 W @ 3.3 V
Dimensions H x W	68 x 49 mm			
Additional			JTAG, MMC Interface, 14 GPIO's	12 several GPIO`s, 8051 µController by Silicon Motion SM501
RoHS compliant	✓	✓	✓	✓

kontron

# ➤ DIMM-PC - The Smallest
Computer-On-Modules

DIMM-PC baseboard

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

DIMM-PC module / Application board

DIMM-PC-to-application board connection
Application board-to-external connection

Starterkit for DIMM-PC®

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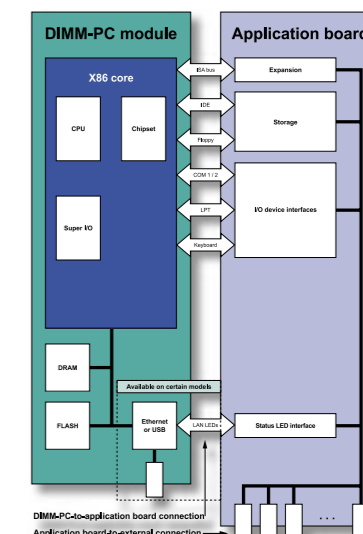
The DIMM-PC Solution

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-B	DIMM-PC/386-I	DIMM-PC/386-IE	DIMM-PC/520-I	DIMM-PC/520-IU	DIMM-PC/520-IE
CPU	386SX, ALi® M6117C	386SX, ALi® M6117C	386SX, ALi® M6117C	586DX, AMD® Elan™ SC520	586DX, AMD® Elan™ SC520	586DX, AMD® Elan™ SC520
CPU Clock	40 MHz	40 MHz	40 MHz	133 MHz	133 MHz	133 MHz
DRAM	2 MByte	8 MByte	8 MByte	16/32 MByte	32 MByte	32 MByte
Flash Onboard	1.6 MByte (Int 13h)	16 MByte (IDE)	16 MByte (IDE)	16/32 MByte (IDE)	32 MByte (IDE)	32 MByte (IDE)
Operating System Preinstalled	DR DOS	DR DOS	DR DOS	DR DOS	DR DOS	DR DOS
IDE Interface	2 devices	one ext. device	one ext. device	one ext. device	one ext. device	one ext. device
Power Consumption (typ.)	1.5 W @ 33 MHz	1.5 W @ 33 MHz	1.6 W @ 33 MHz	2 W @ 33 MHz	2.2 W @ 33 MHz	2.2 W @ 33 MHz
Special Feature			10 Base-T Ethernet Crystal CS8900		1x USB 1.1, UHCI	10 MBit Ethernet
Additional	Keyboard Controller, Watchdog, I²C Bus, alphanum. 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	-	-	-	✓	✓	✓

➤ DIMM-PC

Features	DIMM-PC/lite-I	DIMM-PC/lite-IE	DIMM-PC/lite-IU
CPU	STPC ELITE™		
CPU Clock	100 MHz		
DRAM	32 MByte		
Flash Onboard	32 MByte (IDE)		
Operating System Preinstalled	DR DOS		
IDE Interface	one ext. device		
Special Features	-	10 MBit Ethernet	1x USB 1.1, UHCI
Power Consumption (typ.)	~3.5 W @ 100 MHz		
Additional	Keyboard Controller, Watchdog, I²C Bus, alphanum. 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	✓	✓	✓

➤ Accessories

DIMM-PC/COM	DIMM-PC/VGA2	DIMM-PC/ETH+COM	DIMM-PC/ISDN	DIMM-PC/ETIS	DIMM-PC/MD
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	16 Bit ISDN Adapter, RoHS compliant	Ethernet (10 MBit) + ISDN, RoHS compliant	Modem Module V.92, RoHS compliant

➤ Mobile Module (LPM)

➤ Boards & MORE !

Deciding between making or buying?

➤ Reduce outsourcing risks

➤ Minimize potential problems

➤ Stay in control
with Kontron First-Class
Outsourcing Management

DIMM-PC

X-board

ETX (microSERVER)

ETX baseboard

E²Brain

ETXexpress-PM

Custom LPM Application

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.

➤ **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
➤ ETXexpress

➤ **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)

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	256 kByte	256 kByte
Chipset	Intel® BX	Intel® BX	Intel® BX
Interface	MMC2-Style (Memory, PCI, AGP)	MMC2-Style (Memory, PCI, AGP)	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	✓	✓	✓

*) Intel® GX chipset available on request

Kontron

➤ Overview

JRex 3.5"

➤ 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 downgrades.

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

powered by Intel® Pentium® M

SBC incl. I/O

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

JRex-IBOX

PC/104

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

powered by Intel® Pentium® M

SBC Modules incl. I/O

MOPS

Horizon 104
available in USA, EMEA on request

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/CE incl. I/O

EPIC-CAGE
available in USA, EMEA on request
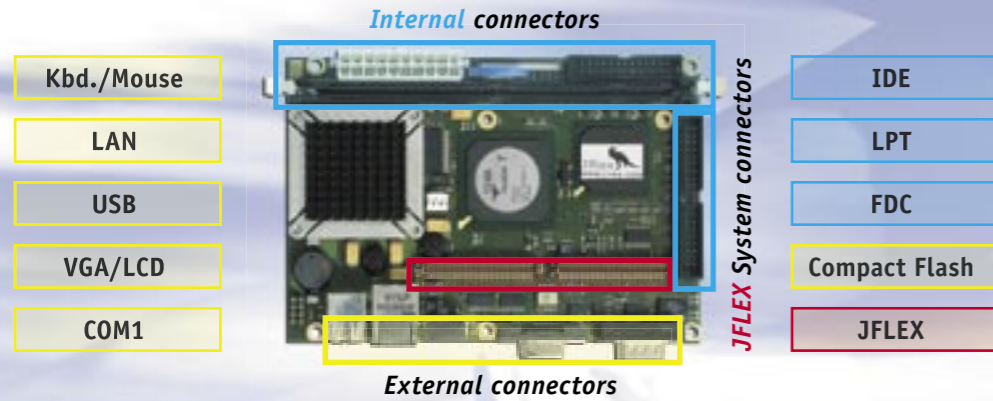
powered by Intel® Pentium® M

EPIC

Applications

Kontron
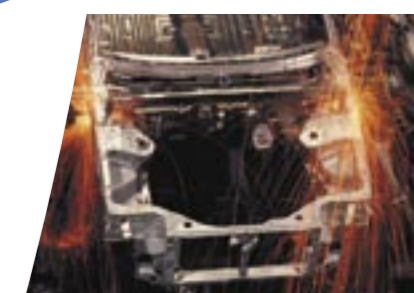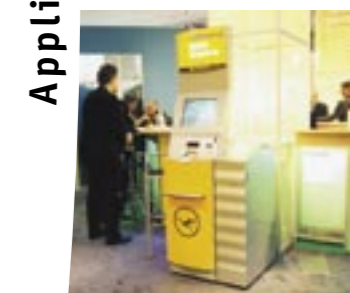
➤ JRex SBC 3.5"

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

Internal connectors

| Kbd./Mouse |
| LAN |
| USB |
| VGA/LCD |
| COM1 |

JFLEX System connectors

| IDE |
| LPT |
| FDC |
| Compact Flash |
| JFLEX |

External connectors

Reduce System Costs!

3.5" embedded line

new

Intel PRO Network Connections   Intel PRO Network Connections

powered by Intel® Pentium® M

➤ 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

new

JFLEX-3COMGPIOPCcard-USB	JFLEX-4COMGPIOPCcard
3x COM, 2x USB, 4x 8 Bit GPIO, 32 Bit PCMCIA drive bay, RoHS compliant	4x COM, 4x 8 Bit GPIO, 32 Bit PCMCIA drive bay, RoHS compliant

➤ JRex Value Line

3.5" value line

JRex-GX1LCD	JRex-786LCD
AMD Geode™ GX1 300 MHz PC/104 und PC/104-Plus, LAN, USB, CRT/LCD	Socket 370 Pentium® III/Celeron® PC/104-Plus only, LAN, USB, CRT/LCD

➤ JRex SBC 3.5"

Features	JRex-GX1	JRex-C3/P3	JRex-VE/VC	JRex-CE	JRex-PM
Line	Embedded Line				
CPU	AMD Geode® GX1	ULP Intel® Celeron®, LP Intel® Pentium® III	VIA Eden®, VIA C3®	Intel® LV/ULV Celeron®	Intel® Pentium® M, Celeron® M
CPU Clock	300 MHz	300 MHz/700 MHz	300/600/1000 MHz	400/733 MHz	600 MHz up to 1.8 GHz
Front Side Bus	66 MHz	100 MHz	133 MHz	100/133 MHz	400 MHz
Cache	L1: 16 kByte	L2: 128/256 kByte	L2: 64 kByte	L2: 256 KByte	L2: up to 2 MByte
BIOS	Phoenix™				
Chipset	CS5530A	VIA® Twister® T	VIA® Twister® T	Intel® 815 / ICH4	Intel® 855GM / ICH4
DRAM	256 MByte	512 MByte	512 MByte	512 MByte SDRAM	1 GByte DDR
DRAM socket	DRAM-DIMM	SDRAM-DIMM	SDRAM-DIMM	SDRAM-DIMM	DDR-RAM-DIMM ECC
CompactFlash	✓	✓	✓	✓	✓
Audio	AC97				
Hard Disk	EIDE	EIDE (UDMA-66)	EIDE (UMDA-100)	EIDE (UMDA-100)	EIDE (UMDA-133)
USB	2x	2x	2x	2x USB 2.0	2x USB 2.0
Ethernet	1	1	1	1	1
Graphics Controller	on chip	S3 Savage		Intel® Graphics	Intel® Extreme Graphics 2
Graphics Memory	up to 4 MByte	up to 32 MByte	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®				
Drives	2x 1.44/2.88				
Watchdog	✓	✓	✓	✓	✓
System Monitoring	✓	✓	✓	✓	✓
Expansion	JFLEX®				
Special Features	low power	-	300/600 MHz FANLESS for rugged use	4x GPIO and 2nd COM onboard	DUAL Independent panel & Enhanced SpeedStep
Power Management	APM 1.2	APM 1.2 / ACPI 1.0	APM 1.2 / ACPI 1.0	APM 1.2/ ACPI 2.0	APM 1.2/ ACPI 2.0
Cooling	Passive	300 MHz Passive / 700 MHz Active	300/600 MHz Passive/ 1000 MHz Active	400 MHz Passive / 733 MHz Active	Active
Dimensions H x W	102 x 147 mm				
I/O Expansion Type	JFLEX®				
Operating Temperature	0 to 60°C				
RoHS compliant	-	-	✓	✓	✓

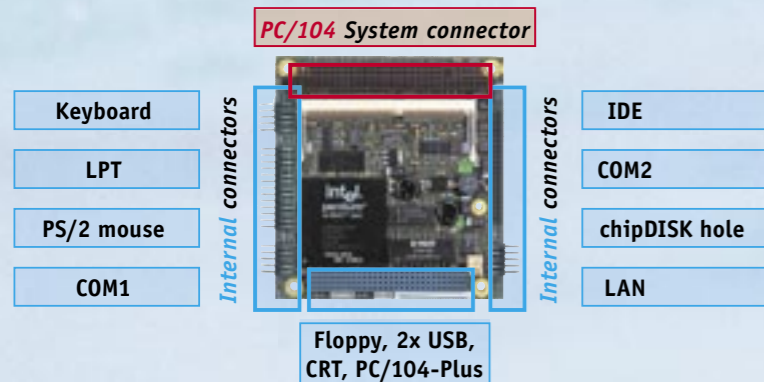kontron

➤ MOPS, PC/104 & PC/104-Plus
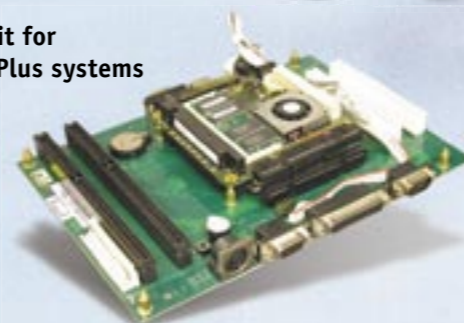

➤ PC/104 I/O Modules

Features	MOPS/386A	MOPS/520	MOPSlcdSE / MOPS/SE	MOPSlcdVE	MOPSlcdGX1	MOPSlcd6/ MOPS/686+	MOPSlcd7	T-MOPSlcdSA	speedMOPSlcdCE	speedMOPSlcdPM
CPU	Ali® 386SX	AMD® ELAN® SC520	STPC® ELITE	VIA® Eden	AMD Geode® GX1	Intel® Pentium® MMX®	Intel® Celeron® or Pentium® III	STPC ATLAS	Intel® ULV/LV Celeron®	Intel® Pentium®/Celeron® M
CPU Clock	40 MHz	133 MHz	100 MHz, 100 MHz FSB	300/600/1000 MHz	300 MHz	166/266 MHz	300/500/700 MHz	120 MHz FANLESS	400/733 MHz	600 MHz up to 1.8 GHz
Chipset	Singlechip		on chip	Twister™ T	CS5530A	Ali® M1531/ M1543C	VIA® Twister™ T	on chip	Intel® 815, ICH4	Intel® 855GME, ICH4
DRAM	2 MByte (EDO)	16/32/64 MByte (SDRAM)	32 MByte SDRAM	512 MByte (SDRAM)	256 MByte (SDRAM)	256 MByte (SDRAM)	512 MByte (SDRAM)	32 MByte SDRAM - SOLDERED	512 MByte SDRAM	1 GByte DDR-RAM
DRAM socket	Soldered on	Soldered on	Soldered SDRAM	SO-DIMM	1x SO-DIMM, 144 pin	1x SO-DIMM, 144 pin	1x SO-DIMM, 144 pin	soldered SDRAM	SO-DIMM	DDR-RAM-SODIMM
IDE Interface	4 MByte flash onboard, 1x IDE	1x IDE	1x EIDE (UDMA-33)	1x EIDE (UDMA-33)	1x EIDE (UDMA-33)	1x EIDE (UDMA-33)	1x EIDE (UDMA-33)	1x EIDE (UDMA-33)	2x EIDE (UDMA-33)	2x EIDE (UDMA-33)
Audio	-	-	-	-	-	-	-	-	Sound onboard	
USB	-	2	2	2	2	1	2	2	2x 2.0	2x 2.0
Ethernet	10Base-T	10/100Base-T	10/100Base-T	10/100 Base-T	DUAL 10/ 100Base-T	10/100Base-T	10/100Base-T	10/100 Base-T	10/100 (2nd LAN optional)	10/100 Base-T
Ethernet Controller	Crystal CS8900	Davicom DM9102A	Davicom 10/100 MBit	Davicom DM9102	Davicom DM9102A	Intel® 82559ER	Davicom DM9102A	on chip	Intel® 82551ER	Intel® 82551ER
Mouse	-	PS/2	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 / -	S3 Savage 4 engine	on chip	Intel Graphics engine	Intel Extreme Graphics 2
Graphics Memory	-	-	4 MByte / -	32 MByte VRAM UMA	4 MByte UMA	2 MByte / -	up to 32 MByte (UMA)	4 MByte VRAM UMA	12 MByte VRAM UMA	2x 32 MByte VRAM UMA
Flat Panel Interface	-	-	JIPA / -	JILI	JILI	JIPA / -	JILI	JIPA (option)	JILI	JILI
Expansion	PC/104	PC/104-Plus (optional)	PC/104			- / PC/104-Plus (optional)	PC/104-Plus	PC/104	PC/104-Plus	PC/104-Plus
Special Features	8x 10 Touch Matrix, LED character display interface	3x RS-232, 1x TTL, CAN-Bus (Intel® 82527)	Fastest fully synchronous CPU and SDRAM, FANLESS, no moving parts	VIA® Eden 1.0 GHz	Dual LAN, CompactFlash socket Type I	Fanless Intel® Pentium® MMX 166 MHz	up to 512 MByte SDRAM	Ext Temp E2 full warranty - RUGGED - no moving parts	USB 2.0 & Sound onboard	Pentium® M power with ISA IO expansion
Power Consumption (typ.)	2.5 W	3.75 W	5 W / 7 W	5 V only / tbd.	Approx. 5 W/ 5 W	7 W / 8 W	tbd / 11 W		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	-	✓	✓	✓	✓	-	-	-	✓	✓

➤ The MOPS family features

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

PC/104 System connector

Keyboard | LPT | PS/2 mouse | COM1 — Internal connectors

IDE | COM2 | chipDISK hole | LAN — Internal connectors

Floppy, 2x USB, CRT, PC/104-Plus

Starterkit for PC/104-Plus systems

Includes: PC/104-ISAPCI-1 adapterboard, power supply, floppy-drive and all cables! Excludes CPU and I/O graphics board!

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

kontron

new

➤ EPIC

The EPIC family features

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

Internal connectors

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

External connectors

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

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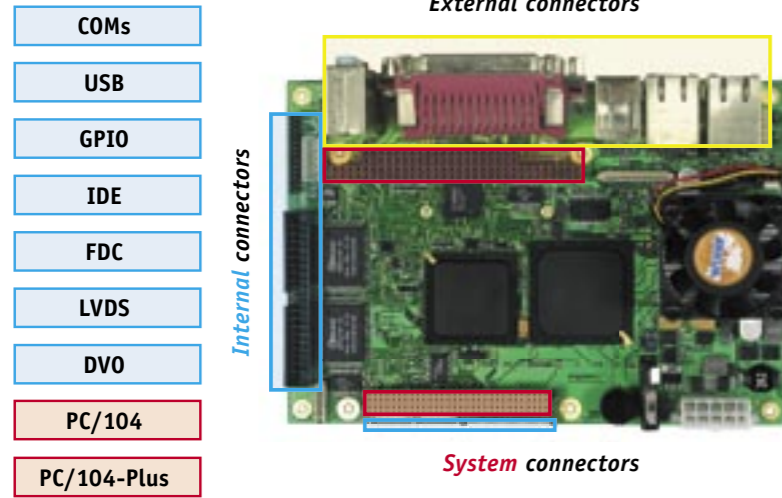
What happens when PC/104 falls in love with a motherboard?

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, Celeron® M
CPU Clock	400/733 MHz	600 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 (UMDA-133)	
USB	6x USB 2.0 (4x ext, 2x int)	
USB Boot/Legacy Support	✓	✓
I/O Standards	2x Ethernet, 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	Active
Power connector	ATX or 5 V (option)	
Dimensions H x W	115 x 165 mm	
I/O Expansion Type	PC/104-Plus (ISA & PCI)	
Operating Temperature	0 to 60°C	
RoHS compliant	✓	✓

➤ 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 1 GByte (max.)
DRAM socket	1x SO-DIMM, 144 pin	1x SO-DIMM, 200 pin
CompactFlash	True I DE Mode Primary Channel Boot Drive	True I DE 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	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 3 A max. charging current 18 V max charging voltage power monitoring by SMBus	Smart battery charger onboard 1 A 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, 1x EPP, single Floppy Interface, Dark Boot, I2C, Watchdog, PC Card Adapter Typ II	Keyboard, Mouse, 1x 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	140 x 180 mm	
RoHS compliant	-	✓

➤ **I/O Adapter standard connectors**

➤ **I/O Adapter video in/out**

kontron

➤ LCD-Graphics Controller

... We Drive Your Display!

TV-Tuner Kit available!   *TV-Tuner Kit available!*

Available Q4/2005   Available Q4/2005   Available Q4/2005   Available Q4/2005

Features	dFLAT-AGP-1	CRTtoLCD-2	CRTtoLCD-3	CRTtoLCD-1-TC	CRTtoLCD-1-LC	CRTtoLCD-6-SM	CRTtoLCD-6	CRTtoLCD-5	CRTtoLCD-8	CRTtoLCD-7
Series	dFLAT series	aFLAT series	aFLAT series	aFLAT series	aFLAT series	aFLAT series	aFLAT series	aFLAT series	aFLAT series	aFLAT series
DRAM	16/32/64 MByte DDR Video RAM	1.5 MByte	1.5 MByte	-	-	-	-	-	-	16 MByte
Colors	16 M 1600x1200	16 M				16 M				
Frame Buffering	-	✓	✓	-	-	-	-	-	-	✓
2D/3D Acceleration	✓	-	-	-	-	-	-	-	-	-
Audio	-	-	-	-	-	-	-	✓	-	-
Panel signal	LVDS	TTL/ LVDS	TTL/ LVDS	TTL/LVDS	TTL/ LVDS	LVDS	LVDS	TTL/ LVDS	TTL/ LVDS	LVDS
MPEG2 HW decoder	✓	-	-	-	-	-	-	-	-	-
Display Types	TFT, CRT	TFT, Plasma				TFT, Plasma				
Cable Interface	JILI/JILI40 (2x 24 Bit LVDS)	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, JILI30	JILI-40, FLEX-32	JILI-30 (2x 24 Bit LVDS)	JILI-30	JILI-30, FLEX-32	JILI-30, FLEX-32	JILI-30
Touch Controller	-	-	-	4/8 Wire	-	-	-	-	-	-
Supply Voltage	1.5 V /3.3 V (AGP Bus)	12 V (typical 12 V)				12 V (typical 12 V)				
Resolution min./max.	VGA - UXGA	QVGA - SXGA	QVGA - UXGA	VGA - SXGA	VGA - SXGA	VGA - SXGA	VGA - SXGA	VGA - SXGA	VGA - SXGA	VGA - WUXGA
Windows	98, NT, 2000, ME, XP	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	-	-	-	-	-	-	-
Dimensions H x W	134 x 90 mm	180 x 119.5 mm	180 x 119.5 mm	95 x 118.6 mm	95 x 118.6 mm	162.4 x 70 mm	95 x 118.6 mm	180 x 119.5 mm	180 x 119.5 mm	180 x 119.5 mm
Additional	long term availability	available also without video in	available also without video in	-	-	For Samsung Smartpanel Replacement Kit	-	-	-	Picture in Picture, TV-Tuner
Type	AGP Graphics Cards	analog TFT converter				analog TFT converter				
Controller	ATI Radeon Mobility M6/M7/M9	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 - SXGA 70 Hz analog RGB	VGA - SXGA 70 Hz analog RGB	VGA - SXGA 70 Hz analog RGB	VGA - SXGA 70 Hz analog RGB, DVI	VGA - SXGA 70 Hz analog RGB, DVI, S-Video, FBAS	VGA - WUXGA 70 Hz analog RGB, DVI, S-Video, FBAS
Bus type	AGP 2.0 (4x)	-	-	-	-	-	-	-	-	-
RoHS Compliant	✓	*	*	*	*	*	✓	✓	✓	✓

*) Please note: This product will be replaced by a successor which will be compatible in Form, Fit and Function.

Touch Panels, TFT Monitors see»

➤ Graphics

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 graphics products, Kontron has the display interfacing technology to meet your requirements.

There is a wide range of powerful software tools available for the analog LCD-Converters.

➤ For quick and easy flatpanel adaptation

FLEX32-Cable
(1x 18 Bit TTL)

JILI30-Cable
(2x 24 Bit LVDS)

Backlight-Cable

kontron

new

➤ AdvancedTCA / AMC

➤ Processor Blades

Features	AT8001	AT8000
CPU	Intel® LV Xeon™ 2.8 GHz	Dual Intel® LV Xeon™ 2.0 GHz
Front Side Bus	800 MHz	400 MHz
CPU L2 Cache	1 MByte	Dual 512 kByte
Chipset	Intel® E7520 MCH + 6300ESB ICH	E7501 MCH + ICH3 I/O Controller Hub
DRAM	Up to 8 GByte DDR2 400 ECC registered SDRAM via 2 DIMM sockets	Up to 8 GByte DDR 266 ECC registered SDRAM via 4 DIMM sockets
Flash	CompactFlash	-
Frontpanel	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
Mezzanine	Dual AMC or 1x PMC (enables onboard HDD)	1x PMC (optional onboard HDD)
Compliance	PICMG 3.0, PICMG 3.1	PICMG 3.0
RoHS compliant	✓	✓

AdvancedTCA, the new carrier grade server and I/O blades standard, allows telecoms equipment manufacturers to reduce up their time-to-market and cut their development costs by migrating from propriety hardware to open architecture applications. The modular communications platforms approach allows systems to achieve high levels of service availability, scalability and performance.

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)

AMCs: In order to ensure adaptation to various applications, a corresponding mezzanine concept was developed in 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, AMCs 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

Available Q3/2005

➤ Hub Boards

Features	AT8901	AT8900
Base Interface Support	Gigabit Ethernet to 15 Payload Slots	Gigabit Ethernet to 13 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	Gigabit Ethernet to redundant Hub Board, Gigabit Ethernet to Payload Slots 2-13
Support for 14 Slot Shelves	✓	✓
Support for 16 Slot Shelves	✓	Not available
AMC Slots	✓, 2 AMC Slots	Not available
Usage Models for AMC Slots	AMC Slots can be used for Processor-AMCs, Storage-AMCs, SETS-AMCs (Synchronous Equipment Timing Source), Uplink-AMCs	Not applicable
Uplinks for Base Interface	Up to 4x 10/100/1000 Base-T	3x 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	Not available
Routing Protocols	Include OSPFv2, RIPv2, VRRP, IGMP Snooping, DiffServ, ARP, ICMP	Include VRRP, IGMP Snooping, DiffServ
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), Spanning Tree (802.1D, 802.1w), QoS (802.1p), GMRP
RTM Support	Synchronous Timing I/O for Multi-Shelf Synchronisation, Storage	Not available
Shelf Manager Crossconnect Support	✓	Not available
Configuration Options	Version with Base Interface only, 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	
IPMI	Version 1.5	Version 1.5
RoHS compliant	✓	✓

kontron

➤ AMC

AMC™ everywhere

➤ Chassis

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

PCI EXPRESS

powered by Intel® Pentium® M

Intel® PRO Network Connections

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
➤ 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

AdvancedMC

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

Available Q3/2005

AM4500 - Storage AMC module

➤ Serial ATA Storage AMC, single with, full height
➤ Support of 2 SATA ports according AMC.3,
   with on board selector
➤ High reliability 2,5" SATA drive up to 100 GByte
➤ RoHS compliant

Available Q3/2005

AM4300 - Quad GbE AMC module

➤ 4 Port Gigabit Ethernet AMC, single width, full height
➤ PCI-E x8, x4, x2 and x1 link supported
➤ Ports configurable via IPMI to front panel or baseboard
➤ RoHS compliant

Kontron

➤ 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 tech-nology 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 experi-ence shows us that the ultimate deci-ding 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, excel-lent EMI shielding, optimized cooling and reliable, serviceable, robust and high availability systems. Kontron inte-grates 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	CP6000	CP6011	CP6010	CP605
CPU	Intel® Pentium® M up to 2.0 GHz (755)	Intel® Pentium® M up to 2.0 GHz (760)	Dual LV Intel® Xeon® up to 2.4 GHz	Intel® Pentium® 4 M up to 2.2 GHz
Front Side Bus	400 MHz	400 MHz (533 MHz with 2.0 GHz Pentium® M)	400/533 MHz	400 MHz
CPU L2 Cache	up to 2 MByte	up to 2 MByte	dual 512 kByte	512 kByte
Chipset	Intel® 855GME and 6300ESB I/O Controller Hub	Intel® E7501 + ICH3-S	Serverworks GC-LE	Intel® 845GV and ICH4
DRAM	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
Frontpanel	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	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	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	855GME internal	ATI® Mobility-M (4 MByte video memory)	C&T 69030 (4 MByte)	845GV internal VGA, up to 64 MByte shared memory
PMC	1x 64 Bit/66 MHz	2 slots, 1x 64 Bit/133 MHz, 1x 64 Bit/66 MHz	1x 64 Bit/66 MHz	1x 32 Bit/33 MHz
System Peripheral	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)
RoHS compliant	✓	✓	✓	✓

➤ 6U PSB Platforms

Features	CP-ASM6-PSB	CP-ASM10-PSB	XL-VHDS
Slots	8 or 16	14 node + 2 switch	2 up to 19
Power Supply	up to 4x 200 W / 3U	up to 4x 250 W / 3U	up to 6x 250 W / 3U
Housing	84 HP / 6U	84 HP / 10U	84 HP / 10U
Alarm Card	-	Chassis monitor optional	up to 2 redundant IPMI
Packet Switched Backplane	✓	✓	✓
IPMI	-	Optional	✓
H110	✓	-	✓
RoHS compliant	✓	✓	✓

➤ 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
Slots	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	no	optional	optional
H110	no	✓	optional
RoHS compliant	✓	✓	✓

➤ 3U Performance Line Processor Boards
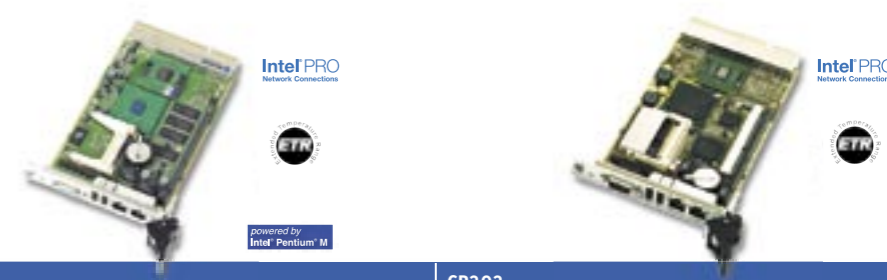
Features	CP306	CP303
CPU	Intel® Pentium® M up to 2.0 GHz (755)	Intel® Mobile Pentium® III-M up to 933 MHz
CPU L2 Cache	up to 2 MByte	512 kByte
Chipset	Intel® 855GME and ICH4	Intel® 82815 GMCH and 82801 ICH2
DRAM	1 GByte with ECC soldered	256 MByte soldered + 256 MByte SO-DIMM
DRAM speed	333 MHz	133 MHz
Flash Disk	CompactFlash socket	CompactFlash socket
4HP Version	2x Ethernet, CRT, 2x USB 2.0, LEDs	2x Ethernet, 2x USB, LEDs, CRT or COM1
8HP Version	COM1/2, PS/2, Reset	COM1/2, PS/2, Reset
Ethernet	1x 1000Base-Tx, 1x 100Base-Tx	2x 100Base-Tx
Graphics	855GME internal	i82815 internal 2D/3D graphics accelerator
Characteristics	High Performance, Low Power, Rugged	Low Power, Rugged
Power Consumption (typ.)	max. 32 W/2.0 GHz, 16 W/1.4 GHz	typ. 15 W/933 MHz
RoHS compliant	✓	✓

➤ 3U/6U PowerPC Processor Boards

Features	CP321	CP620
	System Master	System Master
CPU Clock	Motorola 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
RoHS compliant	✓	✓

Intel PRO Network Connections

kontron

Available 08/2005

➤ 3U Digital

Features	CP383	CP381	CP382
Digital In Channels	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	-
Input Current	5 mA	5 mA	-
Digital Out Channels	16 (24 V DC Nom.)	-	24 (24 V DC Nom.)
Output Current	max. 500 mA per channel	-	max. 500 mA per channel
Isolation	2 kV	2 kV	2 kV
RoHS compliant	✓	✓	✓

➤ Controller Boards

Features	CP346	CP360	CP332
	Serial Controller	**SCSI Controller**	**Graphics Controller**
Interface	RS232, RS422, RS485	Wide-Ultra2 (SCSI-3)	Dual DVI-i with DVI and CRT signals
FormFactor	3U / 4HP	3U / 4HP	3U / 4HP
Channels	4 independently controlled	one channel for 15 devices	Dual head
Characteristics	16550 UART compatible	Ultra SCSI-2 interface	Ultra-high resolution VGA
Controller	Quad UART OX16PCI954	SCSI 53C895	ATI Radeon Mobility M6 / M9
RoHS compliant	✓	✓	✓

➤ 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	✓	✓

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	-	-	✓

➤ 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	✓	✓

Available 08/2005

➤ Ethernet Switch Boards

Features	CP6922	CP932	CP930
Power Consumption (typ.)	47 Watt	5 Volt / 8 Watt	5 V / 1.5 Watt
Dimensions	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	✓	✓	✓

kontron

new

➤ PMC Modules

➤ PMC Mezzanines

Features	PMC240	PMC253
	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	Profi bus 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	✓	✓

➤ 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	✓	✓

➤ 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	CP306-V	CP303-V	CP6000-V	CP6500-V
CPU	Intel® Celeron® M 1.3 GHz	Intel® LV Celeron® microBGA 400 MHz up to 1.0 GHz	Intel® Celeron® 600 MHz	LV Celeron® microBGA 400 MHz up to 1.0 GHz
Front Side Bus	400 MHz	133 MHz	400 MHz	133 MHz
CPU L2 Cache	512 kByte	256 kByte	0 kByte	256 kByte
Chipset	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 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	333 MHz	133 MHz	333 MHz	133 MHz
CompactFlash	Front panel	Onboard	Onboard	Onboard
4HP Version	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	COM1, CompactFlash access	COM 1/2, PS/2, Reset	DVD/HDD-Carrier	on request
Ethernet	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	855GME internal	i82815 internal	855GME internal	i82815 internal
PMC	none	none	1x 64 Bit/66 MHz	1x 32 Bit/33 MHz
Rear I/O	Optional	Optional	✓	✓
Power Consumption (typ.)	typ. 20 Watt / 1.3 GHz	typ. 8 W/400 MHz	typ 12 Watt / 600 MHz	typ 10 Watt / 400 MHz
RoHS compliant	✓	✓	✓	✓

➤ 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	✓	✓	✓

kontron

➤ 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.

freescale™ Enabled

➤ 3U 68k CPUs

Features	VM62	VM42	VSBC-32
CPU	MC68060 @ 50 MHz	MC68040 @ 33 MHz	MC68EN360 @ 25 or 33 MHz
Coprocessor	MC68EN360 @ 25 MHz	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	10Base2/5/T, RS485	10Base2/5/T, RS485	10Base2/5/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	✓	✓	✓

➤ 6U 68k Processor Boards

Features	VM172	VM162	VM662	VM642
CPU	MC68060 @ 50 MHz	MC68040 @ 33 MHz	MC68060 @ 50 MHz	MC68040 @ 33 MHz
Coprocessor	MC68EN360 @ 25 MHz	MC68EN360 @ 33 MHz	MC68EN360 @ 33 MHz	MC68EN360 @ 33 MHz
CPU MIPS	80	45	100	45
DRAM	up to 64 MByte	up to 64 MByte	up to 64 MByte	1/4/8/16/32/64 MByte
SRAM	0.25/1 MByte	0.25/1 MByte	0.25/1 MByte	0.25/1 MByte
Flash	2/4 MByte	2/4 MByte	2/4 MByte	2/4 MByte
Serial Channels Frontpanel (total)	4 [5]	4 [5]	5 [6]	5 [6]
Network Options	10Base2/5/T, RS485	10Base2/5/T, RS485	10Base2/5/T, RS485	10Base2/5/T, RS485
Mezzanine	Industrypack, CXC interface	Industrypack, CXC interface	ModPack, CXC interface	ModPack, CXC interface
Power Consumption (typ.)	7 (typ.) @ 50 MHz	9 (typ.) @ 33 MHz	5 (typ.) @ 50 MHz	7 (typ.) @ 33 MHz

➤ 3U Power PC Processor Boards

Intel PRO Network Connections

Features	VMP3	VMP2	VMP60
CPU	MPC8540 @ 660 MHz	MPC8245 @ 330 MHz	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 (Disk on Chip)	2/4
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	✓	✓	✓

➤ Racks and Chassis

Features	ASM3-VME	ASM6-VME
Expansion	7, 12, 15	15
Power Supply	50 or 90 Watt	160 Watt
Housing	42/84 HP / 3U	84 HP / 6U
Input Voltage	95-260 V AC	95-260 V AC
RoHS compliant	✓	✓

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

kontron

➤ Slot-CPU PICMG 1.2

Over the years the importance of the ISA bus has dimished. 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-200	ePCI 201
CPU	1 GHz Intel® Pentium® III, Intel® Celeron®	Intel® Pentium® M	Via® Eden up to 1 GHz	Intel® Pentium® 4 Intel® Pentium® 4 M Intel® Celeron®	Intel® Pentium® 4, Intel® Celeron®
Cache	128/256 kByte	0/512/1024/2048 kByte	64 kByte	256/512 kByte	512/1024 kByte
Chipset	Intel® 810	Intel® 855GME	Via® Twister™ T	ServerWorks Grand Champion SL	Intel® 82875 + 6300ESB
DRAM	512 MByte SDRAM	1 GByte DDR-SDRAM	512 MByte SDRAM	4 GByte DDR-SDRAM	4 GByte DDR-SDRAM
Flash Disk	CompactFlash Option	CompactFlash Option	CompactFlash Option	CompactFlash Option	CompactFlash Option
Ethernet	Dual 10/100Base-Tx	Dual 10/100Base-Tx	10/100 Base-TX	Dual 10/100 Base-TX	Dual Intel® 10/100/1000 Base-T
IDE Channels	2 (1*)	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, 2x USB, LPT, 2x COM	PS/2, FDD, 4x USB, LPT, 2x COM, 2x SATA
Graphics	Internal 810	Internal 855GME	Internal S3 Pro Savage 4	ATI M6	ATI M7
Dimensions	half size ePCI-X	half size ePCI-X	half size ePCI-X	full 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	Dual PCI, Dual VGA, JILI
RoHS compliant	-	✓	-	-	✓

* with internal CompactFlash Disk

➤ **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
Standard Bus	4	4	4	4	2	10	3
RoHS compliant	✓	✓	✓	✓	✓	✓	✓

kontron

➤ Slot-CPU PICMG 1.0

➤ Slot-CPU PICMG 1.0

Features	PCI747	PCI946	ePCI947	PCI949
CPU	Intel® Pentium® III, Intel® Celeron®		Intel® Pentium® III Low Power Intel® Pentium® Intel® Celeron®	Intel® Pentium® III Intel® Celeron®
CPU Clock	up to 1.4 GHz	up to 850 MHz		
Front Side Bus	66/100/133 MHz	66/100 MHz		
Cache	128/256/512 kByte	128/256 kByte		
Chipset	Intel® 815E	Intel® 440 BX		Intel® GX
DRAM	512 MByte DIMM, SDRAM	768 MByte DIMM, SDRAM	1 GByte DIMM SDRAM, ECC	
Flash Disk	Disk-On-Chip	CompactFlash & Disk-On-Chip	CompactFlash-option	
Ethernet	Dual 10/100Base-Tx	10/100Base-Tx		Dual 10/100Base-Tx
IDE Channels	2	2 (1*)	2 (1*)	2 (1*)
Available I/Os	CRT, PS/2, FDD, 4x USB, LPT, 2x COM	CRT, PS/2, FDD, 2x USB, LPT, 2x COM	DVI, PS/2, FDD, 2x USB, LPT, 2x COM	CRT, PS/2, FDD, 2x USB, LPT, 2x COM
Graphics	internal Intel® 815E	CT69030	CT69000	CT69030
Dimensions	PICMG full size			
Additional	MicroPCI, audio	SCSI LVD/SE	SCSI LVD/SE,	SCSI LVD /SE
Operating Temperature	0° to 50°C			
RoHS compliant	-	-	-	-

*) with internal CompactFlash Disk
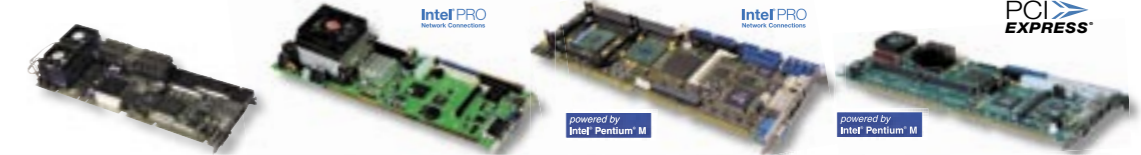
Features	PCI990	PCI951	PCI954	PCI955
CPU	Dual Intel® Pentium® III and Intel® Pentium® III-S	Intel® Pentium® 4	Intel® Pentium® M	
CPU Clock	up to 1.4 GHz	up to 3.06 GHz	up to 1.8 GHz	up to 2.13 GHz
Front Side Bus	100/133 MHz	400/533 MHz	400 MHz	400/533 MHz
Cache	256/512 kByte	256/512 kByte	0/512/1024/2048 kByte	0/512/1024/2048 kByte
Chipset	ServerWorks LE	Intel® 845GV	Intel® 82855GME + 6300ESB	Intel® 915GM
DRAM	4 GByte registered DIMM SDRAM with ECC	2 GByte DIMM DDR-SDRAM	2 GByte DIMM DDR-SDRAM	2 GByte DIMM DDR-SDRAM
Flash Disk	CompactFlash-option	CompactFlash Socket	-	2 GByte SODIMM DDR-II
Ethernet	Dual 10/100Base-Tx or 1000Base-Tx/Sx	Dual 10/100Base-Tx or Single 10/100Base-Tx and Single 10/100/1000Base-Tx	Dual 10/100Base-Tx or 1000Base-Tx/Sx	10/100Base-Tx or Dual 1000Base-Tx
IDE Channels	2 (1*)	2 (1*)	2	2 (1*)
Available I/Os	CRT, PS/2, FDD 4x USB, LPT, 2x COM		CRT, PS/2, FDD, 2x USB, LPT, 4x COM	CRT, DVI, PS/2, FDD, 2x USB, LPT, 2x COM
Graphics	CT69000	Internal 845GV	Internal 855GME	Internal 915GM
Dimensions	PICMG full size			
Additional	Dual channel Ultra160 SCSI LVD/SE, 64 Bit 66 MHz PCI	audio	dual DVI option	64bit@66 MHz option, Audio
Operating Temperature	0° to 50°C			
RoHS compliant	-	✓	✓	✓

➤ MiniPCI expansions
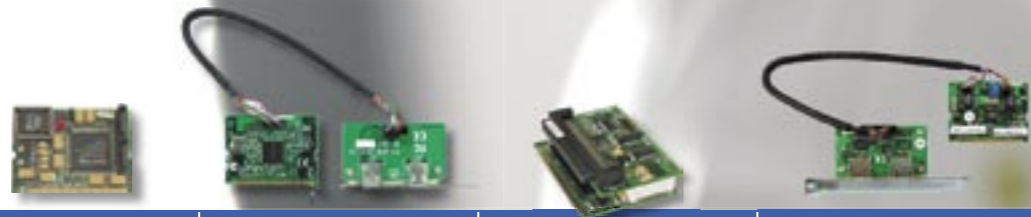
Features	SATA	MF1394	SCSI160	ML5592
Function	Dual channel serial ATA interface	Dual channel FireWire®	One channel SCSI160	Dual Intel® 10/100 Lan
Bus	32 Bit/33 MHz	32 Bit/33 MHz	32 Bit/33 MHz	32 Bit/33 MHz
Format	miniPCI	miniPCI	miniPCI	miniPCI
RoHS compliant	✓	✓	✓	✓

➤ 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	✓	✓	✓	✓

kontron

new

➤ PISA®

➤ Slot-CPU PISA®

Features	coolMONSTER/S	coolMONSTER/C3	coolMONSTER/P3	coolMONSTER/VE	coolMONSTER/VC	coolMONSTER/PM
CPU	Fanless Low Power, Intel® Pentium® MMX	Fanless ULP Intel® Celeron®	Low Power Intel® Pentium® III	VIA® Eden	VIA® C3	Intel® Pentium® M, Intel® ULV Celeron® M
CPU Clock	266 MHz	300 MHz	400/700/850 MHz	300/600 MHz	1.0 GHz	600 MHz up to 1.8 GHz
CPU L2 Cache	512 kByte on chip		256 kByte on chip	64 kByte on chip	64 kByte on chip	0 kByte up to 2 MByte L2
Chipset	ALi® M1541/M1543C	Intel® 440BX	Intel® 440BX/GX	VIA® Twister™ T		Intel® 855GME, ICH4
DRAM	256 MByte (SDRAM)	256 MByte (SDRAM)	256/512 MByte (SDRAM)	512 MByte (SDRAM)		1 GByte (DDR-RAM)
DRAM socket	1x SDRAM-DIMM					1x DDR-RAM-DIMM
Audio	Sound onboard					
Ethernet Controller	Intel® 559ER			on chip	on chip	Intel® 551
Graphics Controller	AGP CT 69000	AGP ATI® Rage Mobility	AGP ATI® Rage Mobility	S3 Savage4®	S3 Savage4®	Intel® Extreme Graphics 2
Graphics Memory	2 MByte on chip	4 MByte on chip	4/8 MByte on chip	32 MByte UMA		2x 32 MByte UMA
Flat Panel Interface	JIPA	JILI-LVDS				
Expansion	PISA® slot	PISA® slot	PISA® slot	PISA® slot	PISA® slot	PISA® slot
Power Consumption (typ.)	10.5 W @ 5 V	10 W @ 5 V	5 to 32 W @ 5 V	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	-	-	-	✓	✓	✓

Touch Panels, TFT Monitors   see»

➤ PISA® Backplanes

Features	PISA-2	PISA-2P3I	PISA-3P4I	PISA-B441A	PISA-B111B
Keyboard	-	-	✓	✓	-
Power connector	AT	AT	AT	AT	5 V
Dimensions H x W	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	-	-	-	-	-

➤ PISA®-eXpress

The connectivity concept - the PISA®-eXpress slot for half size Slot CPU supplies:

➤ PCI-express 16x slot - for Graphics - the future is here

➤ PCI-express 1x and 4x slots - GIGAbit LAN, etc. - for high connectivity

➤ Standard PCI I/O slots - re-use proven I/O - respect the past

➤ LPC

➤ ExpressCARD

➤ PISA®-eXpress

Features	RAPTOR/PM
CPU	Intel® Pentium® M, Intel® ULV Celeron® M, Mobile Celeron®
CPU Clock	600 MHz up to 2.0 GHz
CPU L2 Cache	0 kByte up to 2 MByte L2
Chipset	Intel® 915GM, ICH6-M
Bus Speed	400/533 MHz FSB
DRAM	1 GByte (DDR2-RAM)
DRAM socket	1x DDR2-RAM-DIMM
EIDE	2x SATA
Audio	Intel® High Definition Audio - onboard
USB	6x USB 2.0 (2x onboard, 4x via cartedge)
Ethernet	1x GIGAbit LAN, 1x 10/100 LAN
Ethernet Controller	Intel® LAN onchip and single chip
Serial	4x COM ports (3x RS232, 1x TTL on micro pin headers)
Parallel Port	1x PATA, LPT via internal feature connector as 8x GPIO
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
Graphics Memory	Dynamic Video Memory Technology (DVMT) 3.0 supports up to 224 MByte VRAM UMA
Flat Panel Interface	DUAL DVO (multiplexed with PCI-Express Graphics port), CRT, DVI A/I, JILI-LVDS
Darkboot/Lanboot	✓
Expansion	PISA®-eXpress slot for standard PCIexpress/PCI/ISA/LPC Slot Cards
Special Features	Intel® Stable Image Technology, Direct Media Interface (DMI)
Power Supply	12 V only
Power Consumption (typ.)	tbd
Dimensions H x W x D	176 x 125 mm incl. edge connector, height depending on cooling device and DDR-RAM
Additional	Simple expansion with PCI and PCIexpress IO (1x, 4x 16x)
RoHS compliant	✓

PISA®-eXpress is the best link between latest Intel® Pentium® M performance, PCI-express high speed Graphics I/O and well proven PCI I/O - the best of all worlds.

The PISA®-eXpress Specification is open standard & FREE for download starting H2 2005.

PISA®-eXpress is the combination of the next generation PCI express with current generation PCI. It bridges the gap between the fastest and the best proven I/O.

A backplane allows you to simply re-use your proven and cheap PCI I/O cards - while you still benefit from x16 PCI-express slot for the latest super high speed graphics cards - or just x4 or x1 PCI-express for GIGABIT LAN cards, etc.

Intel® Pentium® M power drives the generation link

➤ Low power

➤ Longevity

➤ Lead-free future

➤ Enhanced Speedstep Architecture

➤ Max. feature-set are built-in

Touch Panels, TFT Monitors   see»

kontron

➤ Embedded & Industrial 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. Industrial motherboards typically offer 3 years availability from the release date.

Full mechanical compatibility from Mini-ITX to full size ATX

Mini-ITX → Flex-ATX → Micro-ATX → ATX

mini-ITX

FLEX-ATX

micro-ATX

ATX

➤ Embedded Motherboards

Available Q3/2005

Available Q3/2005

Features	886LCD-M/ATX	ATX-855GME	886LCD/ATX(GV)	886LCD-M/FLEX	886LCD/ATXU(GV)	embATX-401
CPU	Intel® Pentium® M and Celeron® M	Pentium® M and Celeron® M	Intel® Pentium® 4 and Celeron®	Intel® Pentium® M and Celeron® M	Intel® Pentium® 4 and Celeron®	Pentium® 4, Pentium® 4 m
CPU Clock	Up to 2.1 GHz	up to 1.8 GHz	Up to 3.06 GHz	Up to 2.1 GHz	Up to 3.06 GHz	up to 2.8 GHz
Front Side Bus	400 MHz	400/533 MHz		400 MHz	400/533 MHz	400/533 MHz
BIOS	AMI®	AMI®	AMI®	AMI®	AMI®	Award BIOS
Chipset	Intel® 855GME + 6300ESB	Intel® 855GME	Intel® 845GV + ICH4	Intel® 855GME + 6300ESB	Intel® 845GV + ICH4	Intel® 845GV
DRAM	Up to 2 GByte DDR333 SDRAM (PC2700)	2 GByte, DDR-SDRAM, ECC	Up to 2 GByte DDR-SDRAM	Up to 2 GByte DDR333 SDRAM (PC2700)	Up to 2 GByte DDR-SDRAM	2 GByte, DDR-SDRAM, ECC
Video Memory	Up to 96 MByte shared video memory	Up to 64 MByte shared video memory	Up to 256 MByte shared memory	Up to 96 MByte shared video memory	Up to 256 MByte shared memory	Up to 64 MByte shared memory
IDE Interface	2x SATA 150, 2x ATA 100	2x ATA100	2x SATA 150, 2x ATA100	2x SATA 150, 2x ATA100	2x SATA 150, 2x ATA100	2x ATA100
USB	4x USB 2.0	6x USB 2.0	6x USB 2.0 (2x internal)	4x USB 2.0	6x USB 2.0 (2x internal)	6x USB 2.0
Ethernet	Up to 3x GbE LAN	10/100Base-T		Up to 3x GbE LAN	10/100Base-T	Dual 10/100Base-T, second optional 10/100/1000 Base-T
Formfactor	ATX 300.5 mm x 190.5 mm (12" x 7.5")	ATX	ATX Formfactor, 305 x 220 mm	Flex-ATX, 228.6 mm x 190.5 mm (9" x 7.5")	Micro-ATX Formfactor 243.8 x 243.8mm (9.6" x 9.6")	embATX
Available I/Os	6x PCI, 4x COM	6x PCI, 1x AGPx4	6x PCI 2.2 master slots	3x PCI, 4x COM	3x PCI 2.2 master slots	3 (raiser needed)
Graphics Controller	Intel® Extreme Graphics 2	Intel® Extreme Graphics 2	Intel® Extreme Graphics	Intel® Extreme Graphics 2,	Intel® Extreme Graphics	Intel® Extreme Graphics
Graphics Interface	CRT / LVDS / AGP x4 / DVO	CRT / DVO		CRT / LVDS / AGP x4 / DVO	CRT / DVO	CRT / DVO
Rear I/O	COM1, LPT, CRT, line-in, line-out, speaker, PS/2 mouse/keyboard	2x COM, LPT, VGA, LAN, PS2 KBD/MS	COM1, LPT, CRT, 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	APM 1.2 + ACPI 1.0		ACPI 2.0 + APM 1.2	APM 1.2 + ACPI 1.0	
Special Feature	HDD SOFT-RAID 0/1 support On board audio amplifier	Audio	Drive digital LCD display by Add-Cards: ADD-LVDS (LVDS) & ADD-DVI (DVI)	HDD SOFT-RAID 0/1 support On board audio amplifier	Drive digital LCD display by Add-Cards: ADD-LVDS(LVDS) & ADD-DVI (DVI)	Battery backed SRAM
Additional	Available Add-Cards for DVO Interface for 2nd LCD: ADD-LVDS (LVDS), ADD-DVI (DVI)	More than 5 years availability Add-Cards: ADD-LVDS (LVDS), ADD-DVI (DVI)	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)	Available Add-Cards for DVO Interface for LCD: ADD-LVDS (LVDS), ADD-DVI(DVI)	Audio, opt. 2x internal COM, opt. miniPCI, LVDS
RoHS compliant	✓	✓	✓	✓	✓	✓

➤ 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
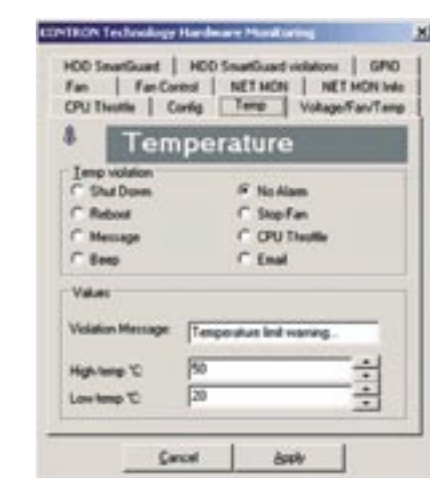
Temperature monitoring example

➤ Industrial Motherboards

Features	889 LCD/ATX	889 LCD/ATXU	886 LCD/ATXU
CPU	Intel® Pentium® 4 and Celeron®	Intel® Pentium® 4 and Celeron®	Intel® Pentium® 4 and Celeron®
CPU Clock	Up to 3.8 GHz	Upto 3.4 GHz	Upto 2.8 GHz
Front Side Bus	800/533 MHz	800/533 MHz	400/533 MHz
BIOS	Phoenix™	Phoenix™	Phoenix™
Chipset	Intel® 915G + ICH6	Intel® 915G + ICH6	Intel® 845G + ICH4
IDE Controller	4x SATA150, 1x ATA100	2x SATA150, 1x ATA100	2x ATA 33/66/100
DRAM	up to 4 GByte of DDR2 533/400 SDRAM	up to 4 GByte of DDR 400 SDRAM (PC3200)	Up to 2 GByte of DDR 266 SDRAM (PC2100)
USB	8x USB 2.0 (4 x internal)	8x USB 2.0 (4x internal)	6x USB 2.0
Ethernet	10/100/1000 Base-T	10/100/1000 Base-T	10/100 Base-T
FormFactor	ATX Formfactor, 304.8 x 243.8 mm	Micro-ATX Formfactor, 243.8 mm x 243.8 mm	
Available I/Os	2x PCI Expressx1, 4x PCI (32Bit/33MHz)	1x PCI Expressx1, 2x PCI (32Bit/33MHz)	3x PCI (2.2 master)
Graphics Memory	Up to 224 MByte	Up to 224 MByte	Up to 96 MByte
Graphics	Intel® GMA 900 on board, PCI-Express 16x, SDVO port for ADD2-DVI card	Intel® GMA 900 on board, PCI-Express 16x, SDVO port for ADD2-DVI card	Intel® Extreme Graphics on board, AGP x 4, DVO port for ADD cards
Format	ATX Formfactor, 304.8 x 243.8 mm	Micro-ATX Formfactor, 243.8 mm x 243.8 mm	
Rear I/O	COM1, LPT, CRT, 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
Power Management	APM 1.2 + ACPI 1.0	APM 1.2 + ACPI 1.0	APM 1.2 + ACPI 1.0
Additional	Available Add-Cards for SDVO Interface: ADD2-DVI (Digital LCD drive)	Available Add-Cards for SDVO Interface: ADD2-DVI (Digital LCD drive)	Available Add-Cards DVO Interface: (DVI/LVDS)
Operating Temperature	0° to 50°C	0° to 50°C	0° to 50°C
RoHS compliant	✓	✓	-

Touch Panels, TFT Monitors	see »	p. 80 f
Complete Rackmount Systems	see »	p. 66 ff

➤ AGP Digital Display Cards

Features	ADD-LVDS	ADD-DVI	ADD-DVI-I/CRT	ADD2-DVI
Series	ADD-Card	ADD-Card	ADD-Card	ADD2-Card
Video Output	LVDS	DVI, CRT and TV-out	DVI & 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
Height	Full	Full	Low Profile	Full
Interface	AGP/DVO	AGP/DVO	AGP/DVO	PCI-Express
RoHS compliant	✓	✓	✓	✓

AGP Digital Display Card (ADD-Card)

Adds extra digital flat panel display support by using an on-board graphics interface connector. The solution is flexible and cost effective. Kontron offers both LVDS and DVI interface ADD cards.

➤ Embedded Mini-ITX

Mini-ITX is the latest motherboard formfactor and has been well received by the 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.

Features	886LCD-M/mITX	886LCD-M/mITX (BGA)	886LCD/mITX	786LCD/mini-ITX
CPU	Intel® Pentium® M, Celeron® M	Intel® Mobile Celeron® on board	Intel® Pentium® 4, Celeron®	Intel® ULV/LV Celeron®
CPU Clock	Up to 2.1 GHz	600MHz (BGA) / Other BGA CPUs available on request	Up to 3.06 GHz	Intel® Celeron 400 MHz ULV / 733 MHz LV
Front Side Bus	400 MHz	400 MHz	400 / 533 MHz	100 / 133 MHz
BIOS	AMI®	AMI®	AMI®	AMI®
Chipset	Intel® 855GME + 6300ESB	Intel® 855GME + 6300ESB	Intel® 852GME + 6300ESB	Intel® 815E + ICH4
DRAM	Up to 1 GByte DDR333 SDRAM (PC2700)	1 GByte DDR333 SDRAM (PC2700)	1 GByte DDR333 SDRAM (PC2700)	128/256 MByte on board. 1x168pin DIMM socket for extra memory (up to 512 MByte total)
Video Memory	Up to 96 MByte shared video memory	Up to 96 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 SATA 150, 2x ATA100	2x SATA 150, 2x ATA100	2x ATA100, 2x SATA 150 (optional)
USB	4x USB 2.0	4x USB 2.0	4x USB 2.0	6x USB 2.0
Ethernet	Up to 3x GbE LAN	Up to 3x GbE LAN,	Up to 3x GbE LAN	Up to 3x 10/100 BaseT LAN
FormFactor	Mini-ITX, 17 cm x 17 cm (6.7" x 6.7")	Mini-ITX, 17 x 17 cm (6.7" x 6.7")	Mini-ITX, 17 x 17 cm (6.7" x 6.7")	Mini-ITX, 17 x 17 cm (6.7" x 6.7")
Available I/Os	1x PCI, 4x COM	1x PCI, 4x COM	1x PCI, 4x COM	1x PCI, 4x COM
Graphics Controller	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
Graphics Interface	CRT / LVDS / AGP x4 / DVO	CRT / LVDS / AGP x4 / DVO	CRT / LVDS / AGP x4 / DVO	CRT/ LVDS / AGP x4 / DVI
Rear I/O	COM1, LPT, CRT, 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	COM1, LPT, CRT, line-in, line-out, speaker, PS/2 mouse/keyboard
Power Management	ACPI 2.0 + APM 1.2	ACPI 2.0 + APM 1.2	ACPI 2.0 + APM 1.2	ACPI 2.0 + APM 1.2
Special Feature	HDD SOFT-RAID 0/1 support	HDD SOFT-RAID 0/1 support	HDD SOFT-RAID 0/1 support	IEEE 1394 optional
Additional	Available Add-Cards for DVO Interface for 2nd LCD: ADD-LVDS (LVDS), ADD-DVI(DVI) 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	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	✓	✓	✓	✓

➤ 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 1.1 GHz and 1.6 GHz, VIA Eden 600 MHz, VIA C3 1 GHz, 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.

Features	JRex-IBOX CE	JRex-IBOX VC	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	VIA® C3 1.0 GHz	Pentium® M 1.1 GHz, Pentium® M 1.6 GHz, Celeron® 600 MHz	VIA® Eden 600 MHz
DRAM	Up to 512 MByte SDRAM	SDRAM-DIMM for up to 512 MByte	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			
Rel. Humidity	10 - 95% relative humidity non-condensing			
Operating System	WIN 2000, WIN XP, Linux			
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	✓	✓	✓	✓

*) Without FANs

kontron

➤ Industrial Box PCs

➤ Light Industrial Box

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.

The market for light industrial box PCs is growing rapidly. The applications' operating environments are not as harsh as traditional industrial applications but systems need to work stably 24 hours a day. Price is also an important factor in the decision-making process.

Our light, industrial Box PCs are ideal for kiosks, point of information, point of sales, office equipment controllers and data communication terminals.

➤ Industrial Box PCs

Features	SC-75	SC-75_e	Inline- P3_e
Construction	heavy duty steel		
Mounting	Wall Mount, Desk Top		DIN Rail Mount
Paint Color	beige		
Control Panel Switch	Power on		
CPU	Pentium® III 600 MHz - 1.4 MHz Celeron® 850 MHz - 1.2 GHz	Pentium® M Celeron® 1.3 GHz, Pentium® M 1.6 GHz, Pentium® M 1.8 GHz	Celeron® 600 MHz, Pentium® III 933 MHz
DRAM	512 MByte SO-DIMM max	Up to 1 GByte DDR	Up to 512 MByte SDRAM
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
Drive bays internal	1x 3,5" for HDD		1x 2,5" HDD (blocks one PC/104 Slot)
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	CE, FCC A, designed to meet UL and TÜV	CE, FCC A, designed to meet UL and TÜV
Shock DIN EN 60068-2-27	15 g 11 ms operating	5 g 11 ms 6 axis / half sine	5g 11 ms 6 axis / half sine
Vibration DIN EN 60068-2-6	1 g at 10-500 Hz operating	10-58 Hz +-0.0375 mm, 58-500 Hz 0.5 g sinus/ 6 axis	0-58 Hz +-0.0375 mm, 58-500 Hz 0.5 g sinus/ 6 axis
Rel. Humidity	5 - 95% @ 40°C not condensing	5 - 95% @ 40°C not condensing	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	215 x 215 x 280 mm (8.46 x 8.46 x 11.02")	270 x 183 x 77.4 mm
Operating Temperature	0° to 50°C		
RoHS compliant	-	✓	✓

PDE-2-PCI

The PDE series are ideal for wide screen plasma display applications for professionals.

➤ Video support from 42" to 61" plasma display with 16x9 format
➤ Multimedia functionality
➤ MPEG2/DVD decoding
➤ Industrial PC features
➤ Ready to use without extra hardware development

Features	PDE-2-PCI/Standard
CPU	Socket 370 Celeron®, Pentium® III 1.26 GHz
DRAM	128/256 MByte (512 MByte on request)
TV out	optional
Audio	SB16 compatible in/out
Hard Disk	1x 3.5"
USB	5x
Ethernet	3x 10/100Base-T
Parallel Port	1x
Graphics	CRT/Plasma (16x9) / LCD
Digital Video Out	-
MPEG2 HW decoder	✓
Serial Channels	2x RS232C
Drives	-
Expansion Slots	2x PCI
Material	Sheet metal blackpowdered
Power Supply	95 - 265 V AC
Dimensions H x W x D	425 x 221 x 73 mm
CPU Boards	786LCD/5.25 Plus
Operating Temperature	+5° to +40°C

Kontron

➤ ThinkIO - I've got it all!

The **ThinkIO** is the combination of a complete PC (Intel® Pentium® MMX compatible 266 MHz processor) with the granular WAGO-IO/-SYSTEM 750 and 753. The combination of the perfect connectivity and diversity of the Wago clamps with this DIN Rail PC provides the opportunity to realize new ideas.

The optional IEC 61131-3 compliant PLC Programming System CoDeSys provides the customer with an easy way to configure the ThinkIO.

With features like USB, Ethernet, RS232, DVI and external watchdogs in combination with field buses like PROFIBUS-DP, CANopen and DeviceNet, the ThinkIO offers an extraordinary connectivity.

➤ **System IO**
2 Digital Input and Output Channels each opto-isolated
2x USB 1.1 Ports
1x RS232 Serial Port
2x 10Base-T/100BASE-TX Fast Ethernet ports
1x DVI panel-link, TFT, VGA (with adapter)
External Watchdog
Run/Stop Switch
Reset Button

➤ **System Processor**
Geode™ SC1200 (266 MHz) and
integrated Chipset from AMD
Cache: 16 kByte 1st level

➤ **Memory**
Bootable Onboard Flash Disk:
32/128 MByte
SDRAM: 32 MByte/128 MByte
RAM: 128 kByte, battery-buffered
External Compact Flash type I/II

➤ **Flexible Field Bus Selection:**
PROFIBUS-DP Master/Slave
CANopen Master/Slave
DeviceNet Master/Slave

➤ **Dimensions:** 160 x 70 x 95 mm

➤ **Available Software**
➤ PLC Programming System CoDeSys with Target Visualization
➤ Linux 2.4 GPL BSP
➤ Windows CE 5.0 BSP
➤ OPC Driver
➤ SOPH.I.A.

➤ **Delivered Devices** are ready to use with pre-installed software.

The **WAGO-I/O-SYSTEM 750 and 753** are the smallest modularized, fieldbus independent, input/output systems for decentralized automation. They facilitate the integration of cost and space saving I/O clamp nodes using application specific, intermixable, digital, analog and complex input/output modules.

➤ The WAGO I/O System 753 offers all existing clamps with the additional advantage that it separates the clamps' wire and function blocks
➤ Fine Granularity: 1, 2, 4 or 8 channels in one bus-module
➤ Safe Investment: fieldbus independent node design
➤ Special Functions: different voltages, output power, and signals on one clamp
➤ Furthermore, I/O clamps are available for Ex zone, Profisafe, step motors, Dali bus, valves and others
➤ Safe Operation: Certification for industrial automation, construction, shipboard automation and on/off shore applications guarantees a wide range of application possibilities (CE and GL approval)

ThinkIO and HMI

It is possible to connect Panels and Touchpanels directly to the ThinkIO via the DVI and USB interfaces. We suggest the 6.4" (640x480), 8.4" (640x480) and 10.4" (800x600) panels on page 81. The ready-to-use configuration means that with our displays, communication between ThinkIO and the display can start immediately.

For visualization of a process, the Target Visualization is implemented in CoDeSys.

Long distances between ThinkIO and Touchpanel on the machine can be solved by the Long Distance Monitor System. Up to 40 m can be bridged with this system (details see page 82).

➤ **CoDeSys Automation Alliance CAA**

More than 60 companies belong to the CoDeSys Automation Alliance. The aim of this association is to achieve a standard within the IEC 61131-3, which helps to harmonize programs used in automation on independent hardware from different suppliers.

➤ **CoDeSys** is a multi-function software tool for the automation industry; it covers many typical tasks in the field of plant and machine construction. CoDeSys offers a range of open interfaces for external software systems.

➤ **CoDeSys** supports all five IEC 61131-3 languages and on top offers a sixth editor, which is a variation of the Function Block Diagram (FBD), called Continuous Function Chart (CFC).

➤ Integrated Target Visualization
➤ Integrated Web Visualization
➤ Integrated Modbus TCP/IP protocol
➤ Field bus support and configuration for Profibus-DP, CANopen and DeviceNet
➤ Open Interfaces: OPC, HTTP, TCP/IP
➤ Network variables by symbolic access via TCP or CAN
➤ Tracing, logging, parameterizing watchdog properties
➤ Offline simulation
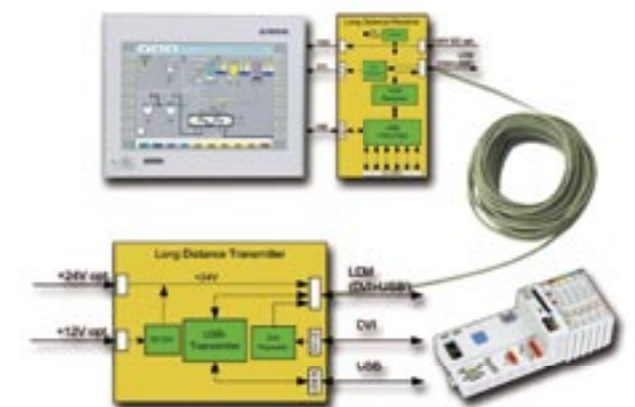
kontron

Kontron Industrial Silent Server

➤ **4U Rackmount Systems**

KISS ed by

kontron
... always a Jump ahead!

**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 yout 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-953	KISS ePCI 201	KISS Dual XEON
Construction	Anti-corrosion 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 1.6 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® 2.0 GHz, Pentium® 4 3.2 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	400/533/800 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 333	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 x16, 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 (w0 - 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					
Rel. Humidity	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	✓	✓	✓		✓	✓

*) 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 1.6 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: 2 X 10/100 LAN, 2x USB 2.0, VGA, 2x RS232C	
Drives	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	
Protection Class	IP 20	
Options (Fully Certified with System)	Slide Rails, additionals front IOs, 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	
Rel. Humidity	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	
RoHS compliant	✓	

*) Without FANs

➤ 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.

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.

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.

➤ 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	heavy duty steel	heavy duty steel	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
Rel. Humidity	max. 90% rel.	max. 90% 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 40°C	0° to 40°C	0° to 50°C (32° to 122° F)
RoHS compliant	✓	✓	✓	-

➤ 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

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.

➤ 4U Rackmount Systems

Features	KPR - PxV414 PCI 951	KPR - PxV414 PCI 955	KPR - MBx406 886 LCD	KPR - MBx406 889 LCD
Construction	Anti-corrosion 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 x 16, 2x PCI Express x 1
Power Supply	AC 300 W wide range			
Cooling	2 Chassis FAN			
Protection Class	IP54 front			
Options (Fully Certified with System)	I/O boards, Fieldbus, Ethernet cards, 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			
Rel. Humidity	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	✓	✓	-	✓

*) Without FANs

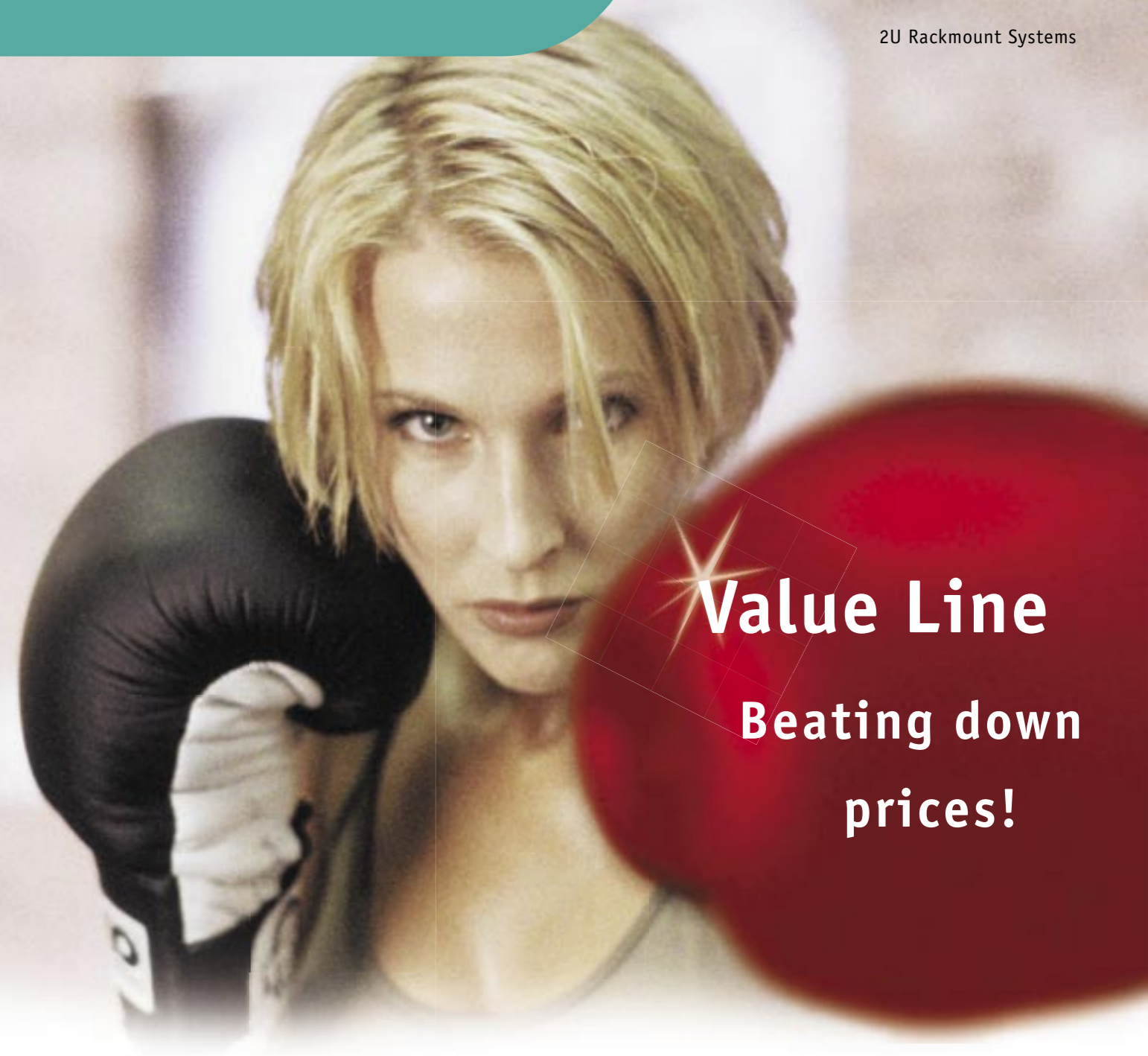| Features	VL406 855 GME	VL406 889LCD ATX	VL414 PCI951
Construction	Heavy duty steel		
Mounting	19" (Rackmount), Desktop		
Paint Color	Black Chassis and Front		
Weight	15 kg		16 kg
Control Panel Indicators	Power LED, HDD LED		
Control Panel Switch	PWR ON, Reset		
CPU	Celeron® M 1.3 GHz, Pentium® M 1.6 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		
Rel. Humidity	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	✓	✓	✓

*) Without FANs

kontron

➤ 2U Rackmount Systems

➤ 2U Rackmount Systems

Features	PxV206 PCI951	PxV206 PCI 946	VL203 886LCD/ATXU	VL203 855GME	VL206 PCI 951
Construction	Anti-corrosion heavy duty steel, EN 10215-DX 51D+AZ 150-A-C		Heavy duty steel		
Mounting	Rackmount, Desktop		0° to 45°C		
Paint Color	RAL 7021 (black)		Black		
Weight	~12 kg		~10 kg		
Control Panel Indicators	Power LED, HDD LED		Power LED, HDD LED		
Control Panel Switch	Power ON, reset		Power ON, reset		
CPU	Celeron® 2.0 GHz, Pentium® 4 2.4 GHz, Pentium® 4 2.8 GHz	Pentium® 3, 850 MHz	Celeron® 2.0 GHz, Pentium® 4 2.4 GHz, Pentium® 4 2.8 GHz, Pentium® M 1,8 GHz		
Front Side Bus	400/533 MHz	60/100 MHz	400/533 MHz	400 MHz	400/533 MHz
DRAM	Up to 2 GByte DDR 333	Up to 768 MByte	Up to 2 GByte DDR 333	Up to 2 GByte DDR	Up to 2 GByte DDR 333
I/O Standard	Front: Com2, PS/2 M+K		Front: 2x USB 2.0		
Drives	HDD up to 120 GByte IDE or SCSI internal, FDD, CD ROM, DVD, Removable HDD front accessible	HDD up to 120 GByte IDE or SCSI internal, FDD, CD ROM, DVD, Removabel HDD front accessible	2 HDD up to 120 GByte IDE, DVD ROM, optional REM HDD front accessible		
Expansion Slots	3x PCI full size 32 Bit, 1x PCI half size, 32 Bit and 1x ISA		3x PCI half size 32 Bit		3x PCI full size 32 Bit, 1x ISA full size, 2x PICMG
Power Supply	AC 300 W, or 48 V DC		AC 300 W		
Cooling	2 Chassis fan, hot swap		3 Chassis fans		
Altitude	10000 ft		10000 ft		
Shock DIN EN 60068-2-27	operating: 5 g 11 ms half sine		basic industrial grade		
Vibration DIN EN 60068-2-6	operating: 10 - 58 Hz +- 0.075 mm, 58 - 500 Hz 0.5 g		basic industrial grade		
Rel. Humidity	operating: 5 - 95% non condensing		operating: 10 - 80% non condensing		
Operating System	WIN 2000, Linux, WIN XP, Solaris with PCI 951		WIN 2000, WIN XP	WIN 2000, WIN XP	WIN 2000, WIN XP
MTBF	> 30000 h*		25000 h*		
Dimensions H x W x D	2U x 19" x 457 mm		2 U x 19" x 450 mm		
Operating Temperature	0° to 50°C		0° to 45°C		
Type	Premium		Value		
RoHS compliant	✓	✓	✓	✓	✓

*) Without FANs

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 scaleability.

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.

Value Line
Beating down prices!

72   73   Kontron

➤ 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.

Touch Panels, TFT Monitors **see»** p. 80 f

➤ 1U Rackmount Systems

Features	PxV103 PCI 946	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	Pentium® 3 850 MHz	Celeron® 2.0 GHz, Pentium® 4 2.4 GHz, Pentium® 4 2.8 GHz
Front Side Bus	66/100 MHz	400/533 MHz
DRAM	Up to 768 MByte	Up to 2 GByte DDR 333
I/O Standard	Front depending on SBC faceplate (Additional I/Os block, PCI slot)	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 IDE or SCSI, FDD, CD ROM or DVD front accessible (only with one internal HDD)	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 and 1x PCI half size front	2x PCI full size rear
Power Supply	AC 150 W, DC 48 V	AC 250 W
Cooling	4 chassis fans	4 chassis fans
Options (Fully Certified with System)	-	mini PCI
Altitude	10000 ft	
Shock DIN EN 60068-2-27	15 g 11 ms half sine	10 g 11 ms half sine
Vibration DIN EN 60068-2-6	10 - 58 Hz +-0.075 mm, 58 - 500 Hz 1 g	
Rel. Humidity	5 - 95% non condensing	
Operating System	WIN XP, WIN 2000, Linux	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 50°C	0° to 45°C
Type	Premium	
RoHS compliant	-	✓

*) Without FANs

new

➤ # HMI Panel PC
V Panel

powered by
Intel® Pentium® M

The new V Panel line based on ETX technology offers supreme computing performance with processor speeds up to Pentium® M 1.1 GHz (1.6 GHz is on the roadmap) at extreme low power consumption.

The ETX technology permits scaleable 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, Profibus or CAN 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/m²	350cd/m²	250cd/m²	250cd/m²	250cd/m²
Touch Screen	Resistive analog				
Function Keys	optional 16 up to 112 freely programmable keys				
Front Bezel	Alu, Stainless steel optional				
Dimensions (Panelmount) H x W x D	295 x 325 x 120 mm	327 x 400 x 125 mm	362 x 452 x 125 mm	390 x 465 x 130 mm	t.b.d.
Processor	up to Pentium® M 1.1 GHz				
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 or CAN				
Internal Drives	CompactFlash up to 2 GByte, 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 (3,048m), Storage: 15000 ft (4,622m)				
Shock DIN EN 60068-2-27	Operating: 15G, 11ms duration / storage: 50G, 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	✓				

*) Excluding the Backlight Tube

➤ HMI Panel PC

Increasing demands in terms of ergonomics and communication options and capabilities are catered for by Kontron's new HMI Control and Visual Panel PC systems. The scaleable Economy and Business class Panel PCs offer a wide range of processors up to a Pentium® III 1.4 GHz and display dimensions from 10" to 19". The Panel PCs meet the toughest industrial requirements concerning shock, vibration and temperature resistance. The Eco Panel's innovative integrated cooling concept realizes passive and fanless cooling for processor performance up to Pentium® III 933 MHz. The CANopen, DeviceNet or Profibus field buses can optionally be integrated directly on board. The systems therefore offer extremely low-cost connections both for conventional field buses and for the future Ethernet link to the field level.

Features	Business Panel					Eco Panel			
Model	104	121	150	170	190	104	121	150	170
Display	10.4"	12.1"	15"	17"	19"	10.4"	12.1"	15"	17"
Resolution	640x480	800x600	1024x768	1280x1024	1280x1024	640x480	800x600	1024x768	1280x1024
Brightness	350cd/m²	300cd/m²	250cd/m²	250cd/m²	250cd/m²	350cd/m²	300cd/m²	250cd/m²	350cd/m²
Touch Screen	Resistive analog								
Function Keys	optional 16 up to 112 freely programmable keys					No			
Dimensions (Panelmount) H x W x D	295 x 325 x 166 mm	327 x 400 x 166 mm	362 x 452 x 166 mm	390 x 465 x 178 mm	426 x 516 x 210 mm	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® 1200 MHz, Pentium® III 850 MHz up to 1.4 GHz					Geode™ 300 MHz**, Celeron® 400 MHz up to 650 MHz, Pentium® III 933 MHz			same as Eco Panel 150, but no Geode™
Main Memory	Up to 512 MByte PC133								
I/Os	2x USB, 1x PS/2, 1x LPT, 2x LAN 10/100 Base-TX, 1x DVI/VGA, 3x RS232					2x USB, 2x PS/2, 1x LPT, 2x LAN 10/100 Base-TX, 1x CRT, 3x RS232			
Free Slots	2x PCI					2x PC/104+			
Field Buses	CANopen or DeviceNet or Profibus								
Internal Drives	2.5" EIDE Interface					HDD			
Drives side accessible	2nd HDD, CD ROM, Compact Flash, FDD					Compact Flash up to 1 GByte			
Power Supply	115/230 VAC or 24 VDC					24 VDC			
Cooling	Active					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: 50G, 11ms duration (half-sinus)								
Vibration DIN EN 60068-2-6	Operating: 10-500Hz: 1G / 3 axis - Storage: 10-500Hz: 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	MS-DOS 6.22, Windows 95, Windows 98, Windows NT 4.0, Windows 2000, Windows XP, Linux, VxWorks RTOS					Windows XP Embedded, CE.net, Embedded Linux			
RoHS Compliant	✓					✓			

*) excluding the Backlight Tube   **) not RoHS compliant

Kontron

➤ HMI Micro Clients / Thin Clients

Kontron's Micro Clients and 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.

High availability and the lack of local hard disk related problems allow the user to spend more time on his actual tasks. Performance upgrades needed due to increasing software demands are done on the servers. The cost and time spent in upgrading one or few servers are only fractions of what would be spent to upgrade all workstations. These advantages keep the total cost of ownership to a minimum.

With high shock, vibration and temperature resistance, as well as resistance with regard to more stringent EMC requirements, these Micro Clients are particularly suitable for use as an IPC based control system or as an HMI in CAN-based networks with an Ethernet backbone. The new line of Micro Clients/Thin Clients is based on Intel's Xscale architecture with a fanless cooling concept. It offers scaleable display dimensions from 6.4" to 12.1" with a depth of only 45 mm and low power consumption.

coming soon!

➤ HMI Micro Clients / Thin Clients

Features	Micro Client	Micro Client	Micro Client				Thin Client			
	M@C57	M@C64	M@C64x	M@C84x	M@C104x	M@C121x	T@C64x	T@C84x	T@C104x	T@C121x
Availability	✓	✓	Q4/2005	Q3/2005	Q4/2005	Q3/2005	Q4/2005	Q3/2005	Q4/2005	Q3/2005
Display	5.7" QVGA TFT	6.4" TFT	6.4" TFT	8.4" TFT	10.4" TFT	12.1" TFT	6.4" TFT	8.4" TFT	10.4" TFT	12.1" TFT
Resolution	320x240	640x480	640x480	800x600	640x480	800x600	640x480	800x600	640x480	800x600
Brightness	350cd/m²	300cd/m²	300cd/m²				300cd/m²			
Touch Screen	Resistive analog	Resistive analog	Resistive analog				Resistive analog			
Function Keys	optional	optional	optional				optional			
Dimensions (Panelmount) H x W x D	156 x189 x 45.5 mm	184 x 237 x 60 mm	184 x 237 x 45 mm	216 x 277 x 45 mm	252 x 325 x 45 mm	300 x 380 x 45 mm	184 x 237 x 45 mm	216 x 277 x 45 mm	252 x 325 x 45 mm	300 x 380 x 45 mm
Processor	Geode™ SC1200 266 MHz	Geode™ GX1 300 MHz	Xscale PXA 255 400 MHz				Xscale PXA 255 400 MHz			
Main Memory	up to 128 MByte SDRAM, up to 128 MByte onboard Flash	up to 256 MByte SDRAM	up to 128 MByte DRAM and up to 128 MByte FlashRAM				up to 128 MByte DRAM and up to 128 MByte FlashRAM			
I/Os	1x RS232, 1x LAN 10/100, 2x USB	1x RS232, (RS422/RS485 optional), 1x LAN 10/100, 1x USB	2x RS232, 1x LAN 10/100, 2x USB Host, 1x USB Client				1x RS232, 1x LAN 10/100			
Field Buses	No	CAN bus	CAN bus				No			
Internal Drives	Compact Flash up to 512 MByte	Compact Flash up to 1 GByte	Compact Flash up to 1 GByte				Compact Flash up to 1 GByte			
Power Supply	24 VDC	24 VDC	24 VDC				24 VDC			
Cooling	Fanless cooling concept	Fanless cooling concept	Fanless cooling concept				Fanless cooling concept			
EMC	US: FCC47 CFR PART 15; Class A level CE: EN50081-1/-2 (emission); EN50082-1/-2 (immunity) EN55022/ A (CISPR22)	US: FCC47 CFR PART 15; Class A level CE: EN61000-6-2 EN55022/A (CISPR22)	US: FCC47 CFR PART 15; Class A level CE: EN61000-6-2; EN55022/A (CISPR22)				US: FCC47 CFR PART 15; Class A level CE: EN61000-6-2 EN55022/A (CISPR22)			
Approvals	CE, FCC Class A	CE, FCC, cULus	CE, FCC, cULus				CE, FCC, cULus			
Protection Class	IP 65 front (NEMA 250 type 12 and 13)	IP 65 front (NEMA 250 type 12 and 13)	IP 65 front (NEMA 250 type 12 and 13)				IP 65 front (NEMA 250 type 12 and 13)			
Altitude	Operating: 10000 ft (3,048 m) Storage: 15000 ft (4,622 m)	Operating: 10000 ft (3,048 m); storage: 15000 ft (4,622 m)	Operating: 10000 ft (3,048 m); storage: 15000 ft (4,622 m)				Operating: 10000 ft (3,048 m); storage: 15000 ft (4,622 m)			
Shock DIN EN 60068-2-27	Operating: 5G, 11ms duration Storage: 15G, 11ms duration (half-sinus)	Operating: 15G, 11ms duration Storage: 50G, 11ms duration (half-sinus)	Operating: 15G, 11ms duration Storage: 50G, 11ms duration (half-sinus)				Operating: 15G, 11ms duration Storage: 50G, 11ms duration (half-sinus)			
Vibration DIN EN 60068-2-6	Operating: 10-500 Hz: 0.5G / 6 axis Storage: 10-500 Hz: 1G / 6 axis	Operating: 10-500 Hz: 1G / 3 axis Storage: 10-500 Hz: 2G / 3 axis	Operating: 10-500 Hz: 1G / 3 axis Storage: 10-500 Hz: 2G / 3 axis				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: -10° to +60°C / 0 to 95% non condensing	Operating: 0° to +50°C / 5 to 95% non condensing Storage: -25° to +70°C / 5 to 95% non condensing	Operating: 0° to +50°C / 5 to 95% non condensing Storage: -25° to +70°C / 5 to 95% non condensing				Operating: 0° to +50°C / 5 to 95% non condensing Storage: -25° to +70°C / 5 to 95% non condensing			
MTBF	> 40000 h*	> 40000 h*	> 40000 h*				> 40000 h*			
Verified OS	Windows CE.net, Embedded Linux	Windows XP Embedded, CE.net, Embedded Linux	Windows CE.net, Embedded Linux				Windows CE.net, Embedded Linux			
RoHS Compliant	-	-	✓				✓			

*) Excluding the Backlight Tube

kontron

➤ 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

➤ HMI Touch Panels

The HMI Touch Panel product line, with its various display sizes from 10.4" to 19", is 100% industry-capable and satisfies the toughest industrial requirements with regard to shock, vibration and temperature resistance. In conjunction with the HMI Panel PCs, the touch connection can be realized with only one cable, which is highly flexible and has proved itself even under difficult and complex industrial conditions, for instance in the pivot-arm of a machine. In some applications visualization is required at a distance from the actual PC equipment. For these special requirements, Kontron has developed a solution that is able to bridge distances of up to 30 meters. (Please refer to "Long Distance Monitoring" on page 82). A further requirement in the industrial area is Electromagnetic Compatibility (EMC) and related norms and directives concerning radiation and emissions; these are all fulfilled by Kontron's HMI Touch Panels.

➤ 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/m²	250 cd/m²	200 cd/m²
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 11 ms 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	✓	✓	✓

➤ HMI Detached Displays/ Touch Panels

Features	104	121	150	170	190
Display	10.4"	12.1"	15"	17"	19"
Availability	Q4/2005	Q3/2005	Q3/2005	Q3/2005	Q4/2005
Resolution	640x480	800x600	1024x768	1280x1024	1280x1024
Brightness	350cd/m²	300cd/m²	250cd/m²	250cd/m²	250cd/m²
Touch Screen	Resistive analog				
Function Keys	optional 16 up to 112 freely programmable keys				
Dimensions (H x W x D)	295 x 325 x 56 mm	327 x 400 x 56 mm	362 x 452 x 56 mm	390 x 465 x 66 mm	426 x 516 x 66 mm
Interfaces	DVI/VGA, USB/RS232				
I/Os	USB frontside optional				
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 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: 50G, 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*				
RoHS Compliant	✓	✓	✓	✓	✓

*) excluding the Backlight Tube

Kontron

new

➤ HMI
Long Distance Monitoring

➤ **Detached HMI**

➤ **Single cable solution**

➤ **10" - 15" TFT up to 30 m distance**
17" - 19" TFT up to 20 m distance
21" TFT up to 15 m distance

➤ **Standard interfaces (USB/DVI)**

➤ **7x USB HUB**
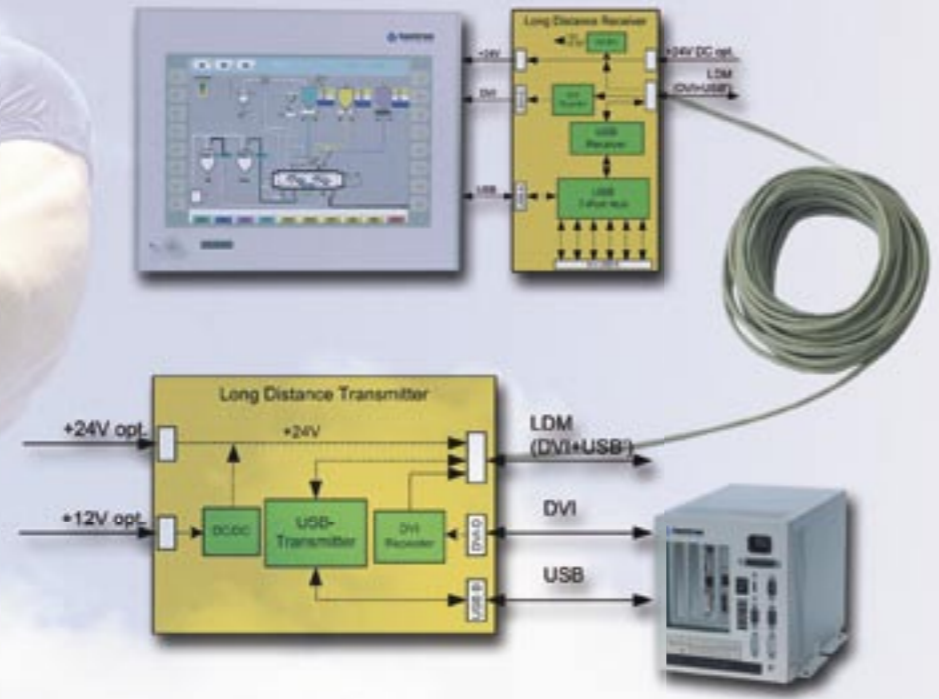
Detached HMI

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 30 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 30 meters with these „Long Lines", 17" to 19" displays up to 20 meters and 21" TFT displays can be placed up to 15 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.

Touch Panels see»

Features	104	121	150	170	190	210
Display	10.4"	12.1"	15"	17"	19"	21"
Max. Cable Length (Single Cable)	30 m	30 m	30 m	20 m	20 m	15 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 (3,048m) - Storage: 15,000 ft (4,622m)					
Shock DIN EN 60068-2-27	Operating: 15G, 11ms duration - Storage: 50G, 11ms duration (half-sinus)					
Vibration DIN EN 60068-2-6	Operating: 10-500Hz: 1G / 3 axis - Storage: 10-500Hz: 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	✓					

➤ **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	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

kontron

➤ 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 and are licensed according to DIN EN 46001 and DIN EN ISO 9001:2000.
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. But a system is only as good as its individual components. The EMC, thermal characteristics, expansion options and environmental protection provided by a system are just as important as the performance of its CPU board. If all of these requirements are fulfilled the system`s ergonomics and industrial design become the next crucial criteria in determining a sale. We have completely taken care of this in all our solutions. Just specify the degree of customization you require. From customized logo printing on individual panels to totally new industrial design – we do it all.

Certified reference application

Kontron Transportation has designed a 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.

Customers with the highest demands are our best references

Some examples for our successful OEM applications:

➤ Industrial Automation

➤ Test and Measurement

➤ Communication

➤ Medical

➤ Transportation

➤ Point of Sale/
   Point of Interest

Kontron

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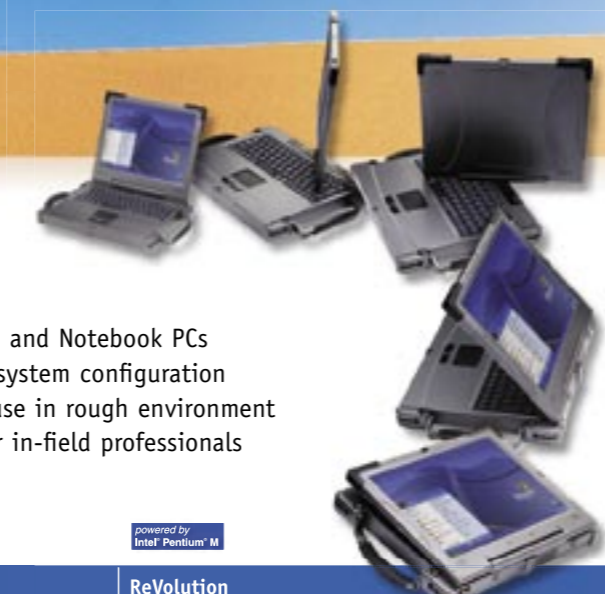
➤ Convertible and Notebook PCs
➤ Individual system configuration
➤ Ready for use in rough environment
➤ Systems for in-field professionals

➤ 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.

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 allow the system to be tailored perfectly to fit your application. The NotePAC is a home in harsh and demanding outdoor environments.

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 60 GByte
Battery	Removable Li-Ion main battery (typ. 3.5h); Option: 2nd battery in left 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 802.11g
Connectivity	1x LAN 10/100/1000, 1x modem, 2x USB 2.0, 1x RS232, 3x AudioInOut, 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	MIL-STD-810: 40 g ; 3 feet drop
Vibration	MIL-STD-810: Ground Vehicles
EMI & Safety	FCC class B, CE class B
Humidity	10-88 % non-condensing
Power	10-28 V DC direct input, external AC/DC adapter 90-264 V
Dimensions	295 x 245 x 44 mm
Temperature	-15º to +50ºC

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 1.1 GHz, 1 MByte cache, Intel® 855GM	Intel® Pentium® M 1.4 GHz, 2 MByte cache, Intel® 855GME	Intel® Pentium® M 1.4/1.6 GHz, 2 MByte cache, Intel® 855GME
RAM	256 MByte, 512 MByte	256 MByte, 512 MByte, 1 GByte, 2 GByte	256 MByte, 512 MByte, 1 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; 1024x768; sunlight readable; 12.1" touch screen
Audio	Integrated speaker	Integrated stereo speakers	
Hard Disk	Integrated EIDE HD, up to 60 GByte	Removable EIDE HD, up to 80 GByte, ENOVA encryption feature	Removable EIDE HD, up to 80 GByte
Battery	Integrated Li-Ion battery (typ. 3.5h)	Removable main Li-Ion battery (typ. 4h); Optional: 2nd battery in Bay1 (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 Bay1	FD drive in Bay1; Option: CD/DVD or 2nd HD drive in Bay1; FD drive in Bay2
Wireless connectivity	WLAN 802.11b ; Option: GPRS/GSM	WLAN 802.11g; Option: BlueTooth; GPRS/GSM; GPS	1x IRDA; Option: WLAN 802.11g; Option Bay2: GPS; GPRS/GSM
Connectivity	1x COM, 2x USB2.0, 1x RGB, 1x Modem, 1x LAN 10/100, Audio LineInOut	1x COM, 2x USB2.0, 1x RGB, 1x PS/2, 1x LPT, 1x IRDA, 1x LAN 10/100, Audio LineInOut, 1x Modem	1x COM, 2x USB2.0, 1x RGB, 1x FireWire, 1x LPT, 1x LAN 10/100, Audio LineInOut, 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 6W 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 & dripging water)	IP54 (dust & rain)	IP54 (dust & rain)
Shock	MIL-STD-810: 15g 11ms ; 3 feet trop		
Vibration	MIL-STD-810: Highway Truck		
EMI & Safety	FCC class B, CE class B; Option: MIL-STD-461E		
Humidity	5-95% non condensing		
Power	External AC adapter: 100-240 V AC, 50/60 Hz		
Dimensions	276 x 239 x 43 mm	328 x 272 x 42 mm	310 x 255 x 70 mm
Temperature	0° to +55°C; Option: -20°C		

new

➤ 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.

powered by Intel® Pentium® M

powered by Intel® Pentium® M

Features	FlexPAC (4 slot)	FlexPAC (6 slot)	FW8600	MilPAC	MilPAC Plus
Weight	8.8 kg (polycarbonate case)	10.6 kg (polycarbonate case)	6.7 kg (magnesium-alloy case)	12.6 kg (aluminium case)	13.1 kg (corrosion resistant alu-case)
CPU	Intel® Pentium® 4, 2 GHz/3 GHz, Intel® 845	Intel® Pentium® 4, 2 GHz/3 GHz, Intel® 845	Intel® Pentium® M® 1.7 GHz, 2 MByte cache, Intel® 855 GME	Intel® Pentium® 4, 2 GHz, Intel® 845	Intel® Pentium® 4, 2 GHz, Intel® 845
RAM	512 MByte, 1 GByte, 2 GByte	512 MByte, 1 GByte, 2 GByte	512 MByte, 1 GByte	512 MByte, 1 GByte, 2 GByte	512 MByte, 1 GByte, 2 GByte
Display	14.1" TFT 1024x768	14.1" TFT 1024x768	12.1" TFT 102x768; Option: 12.1" TFT 800x600 sun light readable	14.1" TFT 1024x768; Option: other sizes on request	14.1" TFT 1024x768; Option: other sizes on request
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 EIDE HD 40 GByte; Option: 2nd integrated 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	Integrated EIDE HD 20 GByte; Option: higher capacities on request
Battery	-	-	Option: UPS battery (typ. 15 min.)	Option: UPS battery (typ. 10 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	84 key keyboard with pointing device; Option: IP65 foil keyboard; IP65 back light rubber keyboard
Graphics	16 MByte / 32 MByte video memory	16 MByte / 32 MByte video memory	Intel® 855GM, up to 32 MByte shared memory	ATI Mobility M6, 16 MByte video memory	ATI Mobility M6, 16 MByte video memory
Drives	CD-ROM, FD drive; Option: CD/DVD-writer	CD-ROM, FD drive; Option: CD/DVD-writer	CD-ROM, FD drive; Option: CD/DVD-writer	CD-ROM, FD drive	CD-ROM, FD drive
Connectivity	2x RS232, 1x LPT, 2x USB, 1x CRT, 1x LAN; Option: 2x PC-Card/CardBus slots	2x RS232, 1x LPT, 2x USB, 1x CRT, 1x 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 10/100; Option: PC-Card/CardBus slots; 1x LPT	2x RS232, 2x USB, 1x CRT, 1x LAN 10/100; Option: MIL-Connectors; PC-Card/CardBus slots; 1x LPT
Expansion Slots	4 slot full size backplane (3x PCI, 1x PCI/ISA)	4 slot full size backplane (3x PCI, 1x PCI/ISA); Option: 6 slot full size backplane (5x PCI, 1x PCI/ISA)	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	3x PCI slots; Option: 1x ISA slot
Protection Class	-	-	-	IP54; Option: MIL connectors	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: 10g 8ms	MIL-STD-810: 15g 8ms
Vibration	IEC 68-2-6: 30 to 500 Hz 0.41g	IEC 68-2-6: 30 to 500Hz 0.41g	MIL-STD-810: Method 514.4, Tank	MIL-STD-810: 10 to 500 Hz 0.41g	MIL-STD-810: 10 to 500 Hz 1.04g
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	CE, FCC; Option: MIL-STD on request
Humidity	20-93% non condensing	20-93% non condensing	10-80% non condensing	20-93% non condensing	20-93% non condensing
Power	Internal AC power supply: 100-250 V AC, 50/60 Hz	Intenal 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	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	401 x 281 x 188 mm	401 x 281 x 241 mm	383 x 449 x 103 mm	472 x 334 x 206 mm	472 x 334 x 206 mm
Temperature	0° to +50°C	0° to +50°C	-15° to +50°C	0° to +45°C; Option: -20 to +45°C	-10 to +50°C; Option: -20 to +50°C

kontron

➤ Rugged In-Vehicle Computers

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

powered by
Intel® Pentium® M

powered by
Intel® Pentium® M

Features	CV-Server	CVX-Server	EnVoy & FW2000
Weight	2.7 kg	2.3 kg	4.6 kg
CPU	Intel® Pentium® M® 1.4 GHz, 600 MHz Celeron, Intel® 855GME	Intel® Pentium® M® 1.7 GHz, Intel® 855GME	Intel® Pentium® III 700 MHz, Intel® 443MX
RAM	256 MByte, 512 MByte, 1 GByte	512 MByte, 1 GByte	128 MByte, 256 MByte
Audio	AC97 compatible	AC97 compatible	PCI SoundBlaster compatible
Hard Disk	Integrated EIDE automotive HD, 20 GByte	Removable EIDE HD, up to 80 GByte	Removable EIDE HD, up to 40 GByte
Graphics	Intel® 855 GME, up to 32 MByte shared memory	Intel® 855 GME, up to 32 MByte shared memory	Lynx 3DM, 4 MByte memory
Drives	-	Option: integrated CD/DVD drive; 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	3x COM, 1x LPT, 2x USB, 1x RGB, 1x TVout, 3x Audio-in/out, 1x LVDS, 1x PS/2, 1x FD
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	2x PC-Card/CardBus slots
Protection Class	IP50 (dust)	-	FW2000: IP54 (dust & rain)
Shock	MIL-STD-810: 20 g, 75 g Crash Hazard	MIL-STD-810: 40g, 75 g Crash Hazard	MIL-STD-810: 40 g, 75 g Crash Hazard
Vibration	MIL-STD-810: Highway Truck	MIL-STD-810: Composite Wheeled Vehicle	MIL-STD-810: Method 514.4, Tank
EMI & Safety	E1	CE class 1, FCC class 1	CE class A, FCC class A
Humidity	10-90% non condensing	10-90% non condensing	10-90% non condensing
Power	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.)	12/24VDC input voltage (10 to 30 V DC max.), external UPS 5 min backup time
Dimensions	220 x 170 x 65 mm	292 x 146 x 67 mm	244 x 126 x 119 mm
Operating Temp.	-20° to +60°C	-15° to +60°C ; Option: -25/-40°C start/ operation	-15° to +60°C

EnVoy/FW2000

Proven ruggedness in applications for public safety and defense. A rugged display, removable Hard Disk and dust and rain protection are options often required in these demanding markets.

➤ In-Vehicle Displays

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

Features	7" Display	6.5" Display	8.4" Display	10.4" Display
Weight	0.6 kg	0.7 kg	1.4 kg	3.2 kg
Suitable Server	CV-Server	CVX, EnVoy, FW2000	CV, CVX, EnVoy, FW2000	CVX, EnVoy, FW2000
Resolution	800x480 (16:9; VGA)	VGA 640x480 (LVDS)	SVGA 800x600 (VGA)	SVGA 800x600 (LVDS)
Brightness	350 Nit; 280 Nit with touch-screen	300 Nit	350 Nit	1200 Nit
Connectivity	-	1x PS/2 mouse, 1x PS/2 keyboard (on transmitter box)	-	1x DSUB for keyboard/mouse
Protection Class	-	-	IP54 (dust & rain)	IP54 (dust & rain)
Shock	-	IEC 68-2-27: 20g 11ms	IEC 68-2-27: 30g 11ms	MIL-STD-810: 40g, 75 g Crash Hazard
Vibration	-	IEC 68-2-6: 10-58 Hz 0.035mm, 58-500 Hz 0.5G	IEC 68-2-6: 10-200Hz 1.0g, 200-500Hz 1.5G	MIL-STD-810: Ground Vehicles
EMI & Safety	CE, FCC, E13	CE, FCC	CE, FCC	CE, FCC
Humidity	-	10-88% non condensing	10-88% non condensing	10-88% non condensing
Power	From Server (11 to 24 V DC max., 8 W)	From Server	10 to 36 V DC, 12 W	From Server
User Interface	Option: resitive touch screen (USB), internal speaker	4 Cursor-Keys, 3 Function-Keys (PS/2)	Resistive touch screen (COM)	8 function keys, resistive touch screen (PS/2)
Cables	Display to Server (5 m)	Display to Transmitter-Box (1m), Transmitter-Box to Server (5m)	Display to Server (5m)	Display to Server (6m)
Dimensions	197 x 121 x 36 mm	236 x 148 x 35 mm	224 x 179 x 49 mm	292 x 229 x 61 mm
Housing	Slimline plastic housing	Plastic housing	Rugged housing	Rugged metal housing
Operating Temp.	-5° to +70°C	0° to +60°C	-10° to +50°C	-15° 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.

◆ kontron

new

➤ Industrial Control System Solutions
– Ready to go!

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

JRex-IBOX Control

Micro Client Control

V-Panel Control

CP-POCKET Control

Ask for the separate brochure of
Kontron Industrial Control Systems.

In addition, see the ThinkIO solution as well.

**CoDeSys softPLC, high communication capabilities with
open standards, hardware from the market leader:
Kontron Industrial Control (KIC) systems have
all trumps you need to be on the winning side of
your automation business.**

System components in general*
a Kontron Industrial PC (JRex-IBOX or Micro Client or V-Panel or CP-POCKET)
IEC 61131-3 SoftPLC
Fieldbus (option) CANopen, PROFIBUS, DeviceNet, Modbus
Visualization (option) via Flatpanel or HMI
Web access (option) with SOPH.I.A. tools

*) For hardware details, see the respective catalog pages.
Ask your sales contact for your system configuration.

**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,
KIC systems fit into nearly any control scenario.
And they are open for future progress.**

More advantages:

**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 of its high communication capabilities,
KIC systems can be integrated into
nearly any environment.**

➤ Multiple PC-level connectivity

➤ Innovative fieldbus technologies, unique comfort for configuration by SyCon

➤ Visualisation to flatpanel, HMI, or Intra-/Internet

➤ Open standards for vertical integration such as OPC, XML
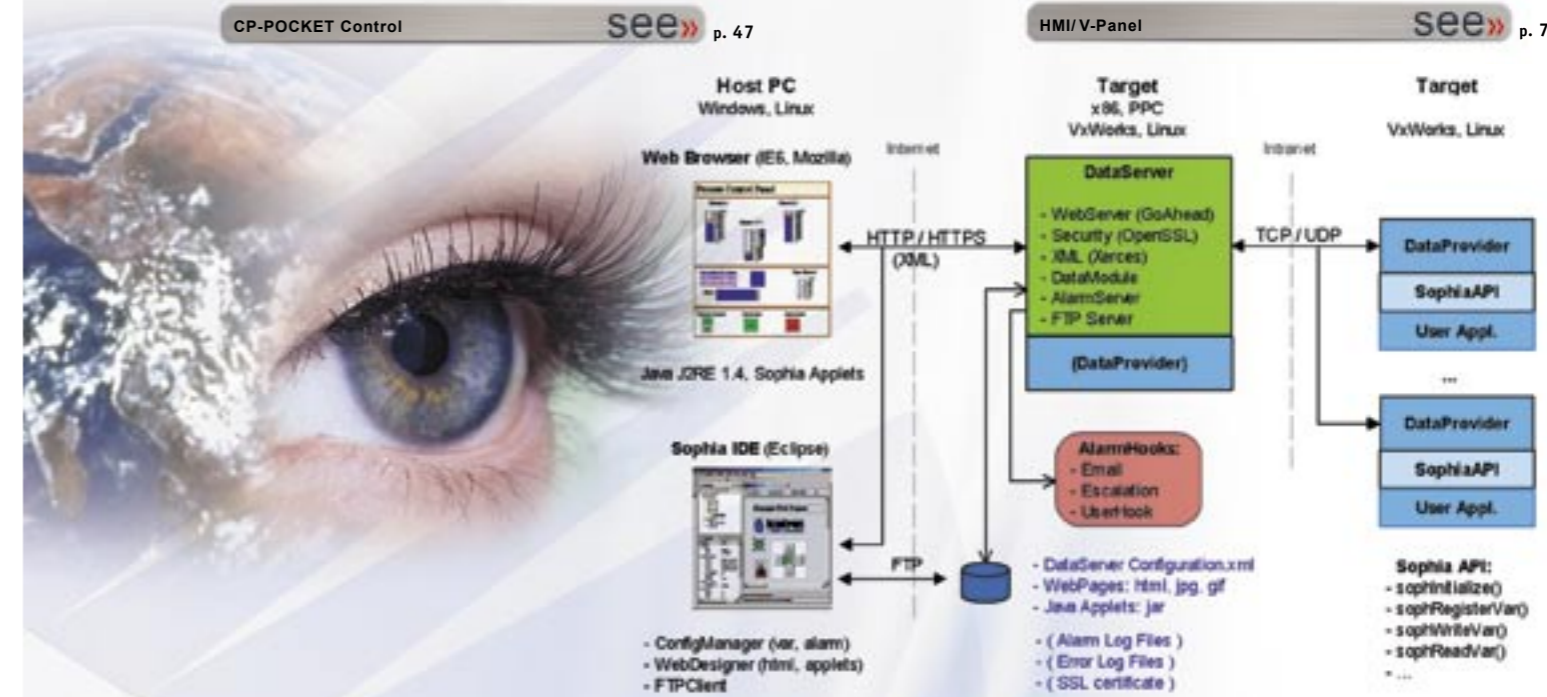
**SOPH.I.A.
And the internet access is easy.**

SOPH.I.A. is ...

➤ A comfortable Web-enabler for configuration and visualization of process data

➤ A comprehensive toolbox, simplifying the work of the OEM and of the end-user

➤ An IDE to build graphical user interfaces: static and dynamic web pages, including html documents, applets, images

➤ Scalable and OS-independent

➤ Modular and flexible by standard open interfaces, protocols and data formats (OPC, XML, SOAP)

... more than just a web server

**KIC 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

kontron

➤ 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

SCADA HMI

OPC SERVER

OPC SERVER

PLC

➤ 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
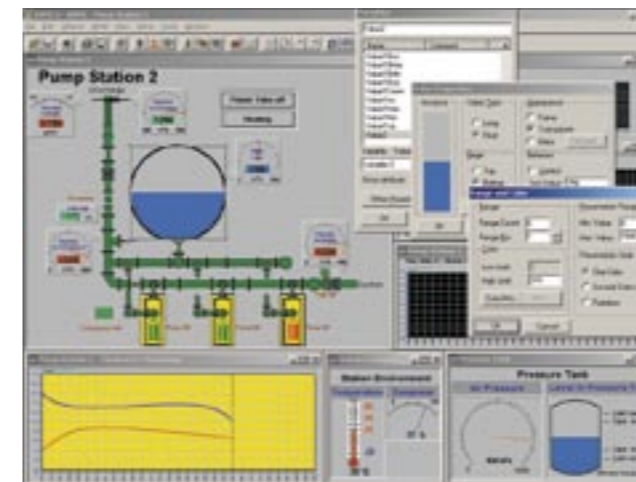
ASPIC 3.30
is an open, powerful, reliable and full-featured SCADA HMI application, designed for Win 9x/NT/2000/XP and CE, works as a Full OPC Server/OPC Client as well as a full DDE Server/DDE Client.

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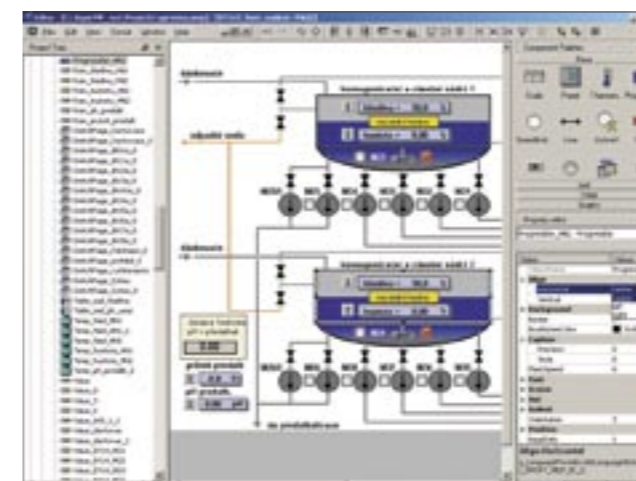
ASPIC MP
is a revolutionary client-server SCADA HMI application, designed for embedded and large-scale projects requiring easy monitoring, visualization and control of industrial processes.

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

kontron

Index

kontron

Freecall: +49 (0) 800 SALESKONTRON
+49 (0) 800-7253756

HEADQUARTERS:

EMEA

Kontron AG
Oskar-von-Miller-Strasse 1
85386 Eching
Tel.: +49 (0) 8165 77 777
Fax: +49 (0) 8165 77 279
sales@kontron.com

NORTH AMERICA

Kontron America Corporate Office
14118 Stowe Dr
Poway, CA 92064-7147
Tel: (888) 294-4558
Fax: (858) 677-0898
sales@us.kontron.com

ASIA PACIFIC

Far East Science Pa.,
2nd Fl. No. 2, Lane 50,
Nan Kang Road Section 3
Nan Kang District Taipei, Taiwan
Tel.:+ 886 2 2782 0201
Fax: + 886 2 2782 7486
sales@kontron.com.tw

**OUR SALES OFFICES /
SALES PARTNERS:**

Australia * Austria * Belarus * Belgium * Bosnia and Herzegovina * Bulgaria * Canada * China * Croatia *
Czech Republic * Denmark * Egypt * Estonia * France * Germany * Hungary * India * Israel * Italy *
Japan * Kazakstan * Korea, Republic Of * Latvia * Liechtenstein * Lithuania * Luxembourg * Macedonia, the
Former Yugoslav, Republic of * Moldova, Republic Of * Netherlands * Poland * Portugal * Russian Federation *
Serbia and Montenegro * Slovakia (Slovak Republik) * Slovenia * Spain * Sweden * Switzerland * Taiwan *
Ukraine * United Kingdom * United States *

For more details www.kontron.com/contact

Fax-response to +49 (0) 8165 77 279
or www.kontron.com/response

Werbung & Media Huber

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

❏ Please arrange an **obligation-free consultation**

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

EMail

kontron

sales@kontron.com   www.kontron.com

Free Manuals Download Website

http://myh66.com

http://usermanuals.us

http://www.somanuals.com

http://www.4manuals.cc

http://www.manual-lib.com

http://www.404manual.com

http://www.luxmanual.com

http://aubethermostatmanual.com

Golf course search by state

http://golfingnear.com

Email search by domain

http://emailbydomain.com

Auto manuals search

http://auto.somanuals.com

TV manuals search

http://tv.somanuals.com