» Product Guide 2010 «

Embedded Computing Products

» Boards & Mezzanines
» Computer-on-Modules
» HMIs & Displays
» Systems & Platforms

If it's embedded, it's Kontron.

Kontron worldwide

» Kontron – A Global Company «

Kontron, the global leader of embedded computing technology, serves a diverse customer base in the Communications, Military, Energy, Industrial Control, Infotainment, Medical, Point of Information/Sale and Transportation markets. With our global corporate headquarters located in Europe, and regional headquarters in the United States and Asia-Pacific, Kontron has established a strong presence worldwide. When it comes to embedded computing, you can focus on your core capabilities and rely on Kontron as your global OEM partner for a successful long-term business relationship.

In addition to COTS standards based products, Kontron also offers semi- and full-custom ODM services for a full product portfolio that ranges from Computer-on-Modules and SBCs, up to embedded integrated systems and application ready platforms.

We offer you an extensive portfolio of products and services based on internationally accepted industry standards for hardware, software and connectivity. Solutions range from off-the-shelf to custom-engineered embedded Computer-on-Modules, boards and blades to modular computer systems, and application ready platforms, each designed to meet your current and future needs.

We are working worldwide 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, Americas, and Asia-Pacific, we are close to you - wherever you are. Our superior value-added services and excellent technical support allow you to significantly reduce your time-to-market and gain a clear competitive edge.

More than 890 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. These solutions can be based on standard products, custom-tailored, or full custom-engineered OEM solutions. We assist you in developing your embedded application, moving it from a proprietary technology to a solution based on open-standard platforms.

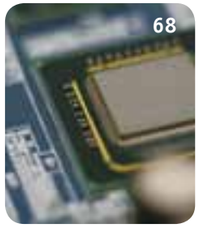
Kontron has established dedicated global business units to provide application-ready OEM platforms for specific markets, including Defense, Medical, Industrial Control, Communications, Transportation and Infotainment.

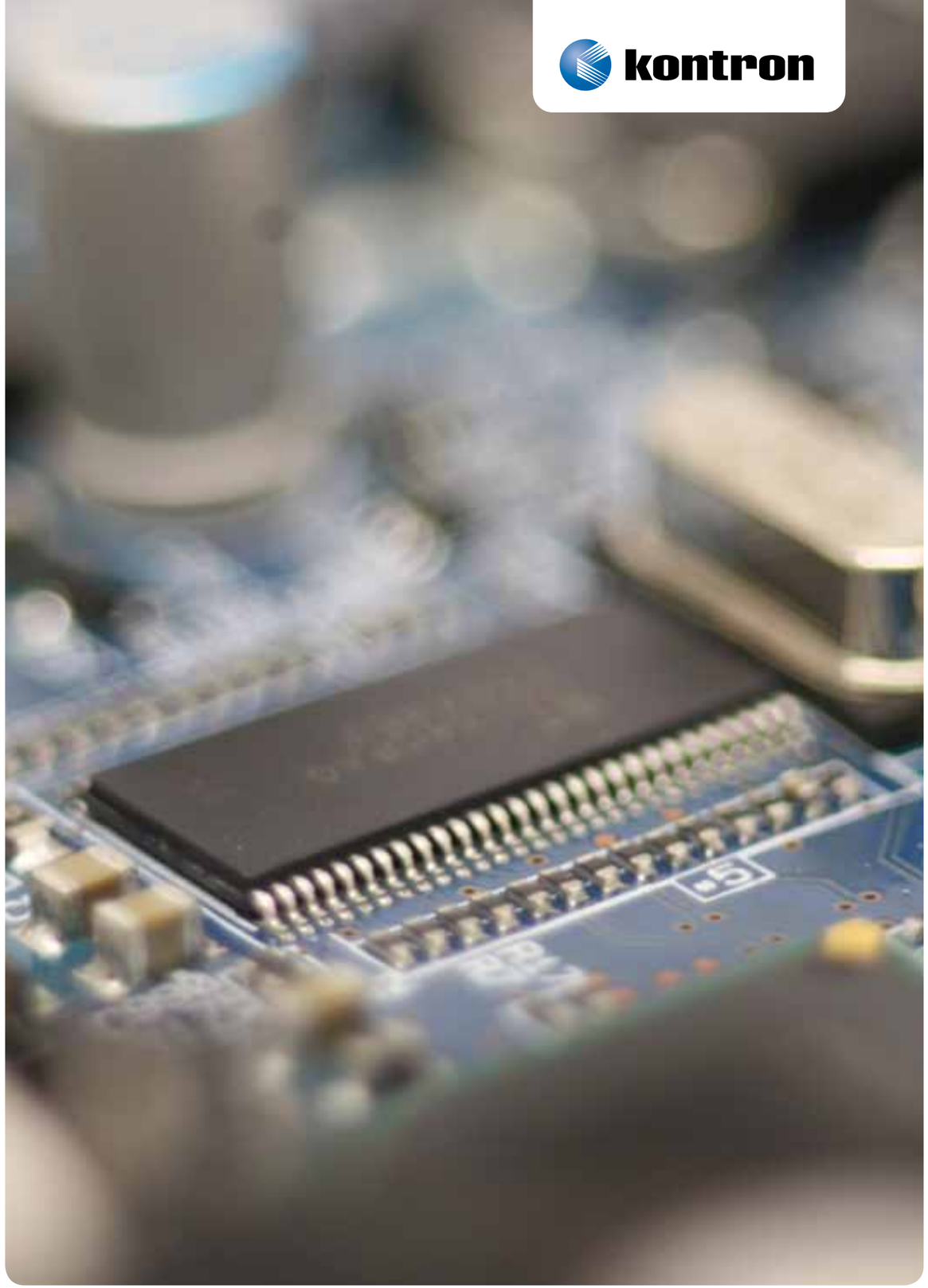
Kontron products are the preferred choice for any application that requires long-life, high-performance and cost-effective products to be installed in demanding and mission-critical environments.

Kontron has advanced testing and manufacturing facilities that are ISO 9001-certified to ensure consistency and the highest level of quality in products and services on a global basis.

Based on VDC's global customer survey, for half-a-decade now Kontron has been named a VDC *Platinum Embedded Board Vendor.* Based entirely on user feedback, industry professionals evaluate vendors on over 45 non-product related criteria. Kontron is only one of two companies to receive the Platinum award 5-years running. Kontron is a Premier member of the Intel® Embedded Alliance.

» Content «





» Boards & Mezzanines «

Kontron's Boards and Mezzanines give designers a Commercial-Off-The-Shelf solution that also offers the flexibility of full or semi-customization.

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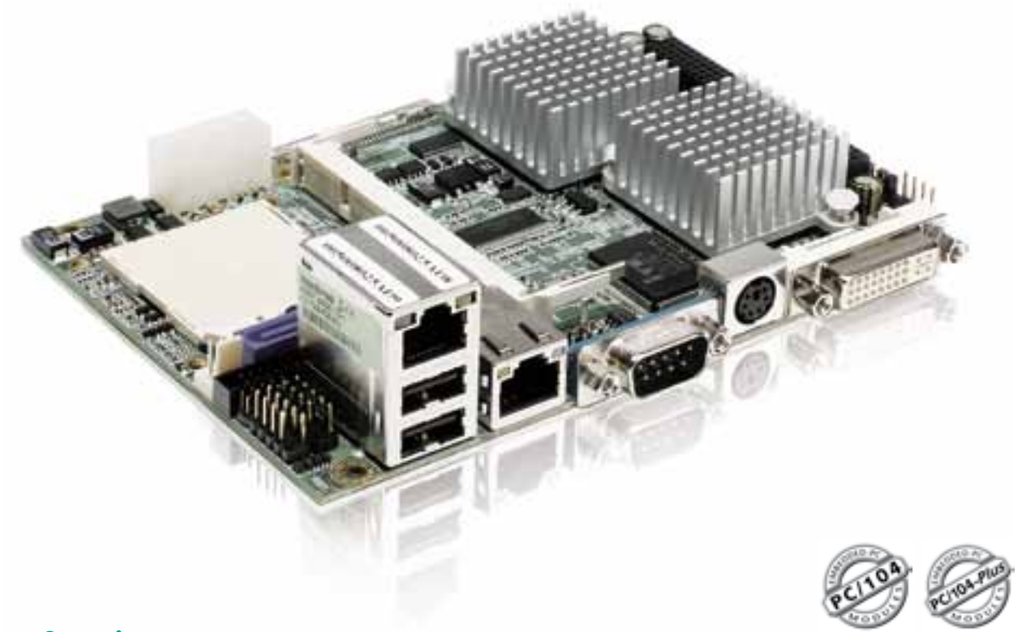
» Single Board Computers «



Overview

Single Board Computers (SBCs) are standard, off-the-shelf computer boards that come in various industry conforming form factors. They can deliver customized features for the total solution when integrated with expansion boards ranging in type from PC/104, PC/104-Plus and PCI-104 just to name a few.

Additionally you can find as well now the brand new small form factor Pico-ITX (100 x 72 mm).

Advantages of SBCs

SBCs are designed to work right out-of-the-box, thus optimizing development time so the final application can achieve an extremely quick time to market.

Kontron SBCs are highly integrated with all key system interfaces and functionalities already designed in to the board. This means that only application-specific I/O needs to be integrated for the complete solution. This is made easy with standard accessories and contributes to the ultimate in fast system set-up – no specialized R&D knowledge and development time required. Just plug and go!

Kontron's SBC Families

Kontron offers three main families of small form factor single board computers. These include the PC/104 SBCs, the JRex*plus* family of 3.5-inch SBCs, and the Pico-ITX family of 2.5" SBC.

The members of the PC/104 SBCs product family are fully compliant with the standards defined by the PC/104 Consortium (PC/104, PC/104-Plus, PCI/104, and PCI/104-Express). JRex*plus* 3.5-inch SBCs support PCI-104 compliant expansion boards.

JRex*plus* 3.5" SBCs

- From AMD-LX800 up to Intel® Atom™
- Chassis re-use
- Full featured
- Expansion via PCI-104

PC/104 SBCs

- Full featured
- Passive cooling
- Low power
- Extended temperature and conformal coating options
- Compliant to the standards of the PC/104 Consortium (PC/104, PC/104-Plus, PCI/104, and PCI/104-Express)

Pico-ITX – the small, powerful and cost effective 2.5" SBC family.

With the Pico-ITX form factor, Kontron now supports a new definition of small (100 x 72 mm), powerful and very cost effective 2.5" SBCs. The *p*ITX-SP, Kontron's first 2.5" SBC based on this specification, features the Intel® ATOM™ Z510 / Z530 processor and US15W System Controller Hub, together with multiple I/O options, microSD-Card boot etc..

Pico-ITX 2.5" SBCs

*p*ITX-SP

CPU	Intel® Atom™ Z510 / Z530 1.1 / 1.6 GHZ
Chipset	Intel® System Controller Hub US15W
DRAM	1x DDR2 SO-DIMM up to 1GB
Audio	HD Audio analog / SPDIF *
USB	6x USB 2.0 (2x at front panel, 4x on board) *
Ethernet	Intel® 82574L Gigabit Ethernet
I/O Features	4 Bit GPI/O TTL *, SDIO *
Graphics Controller	Integrated decoders in Intel® System Controller Hub US15W for MPG2 and H.264 / MPEG-4 AVC
Graphics	DirectX 9.0e, OpenGL 2.0, Shader based 2D and 3D dual independent graphics
Dimensions (H x W x D)	100 x 72mm (Pico-ITX)
Special Features	TPM 1.2 *, 1x microSD socket *
Temperature/Humidity	Operating 0°C - 60°C (32°F ~140°F) / Storage: tbd (Ask about extended temperature ranges)
Power Consumption (typ.)	5V DC, 5W typical
Storage	Single or Dual SATA II (chipset option) *, 1x PATA 44 Master / Slave *

* depends on version (plus, standard or basic)

KONTRON'S NEW Pico-ITX

Pico™

*p*ITX-SP

- With Intel® Atom™ Z5xx processor with up to 1.6 GHz
- Small Form Factor 10 x 7.2 cm
- Intel® System Controller Hub US15W
- Low power consumption with latest energy saving 45nm technology

KAB-FLEX32

Low cost TTL flat panel cable type for JRex*plus*-LX

JILI30

Low cost LVDS flat panel cable type for all JRex*plus* and *p*ITX boards (for TTL Displays please use KAB-ADAPT-LVDStoTTL P/N 61029 + KAB-FLEX32-xxx)

JRex*plus* 3.5-inch SBCs – Reduce System Costs!

The Kontron JRexplus family of 3.5-inch single board computers delivers computing performance suited to fit a wide range of embedded applications from diagnostics tools to box PC control systems. These highly integrated SBCs make designing simple with family consistent features including onboard connectors for up to 6 USB 2.0 devices, single and dual Gigabit Ethernet offerings, integrated graphics and audio capabilities, system monitoring, and much more. And with all standard accessories available right away there's no need to worry about moving from in-lab platform evaluation to full design production. Try a JRexplus 3.5-inch SBC today and kick start your embedded design.

JRex*plus* 3.5" SBCs

JRex-PM*

JRex*plus*-LX

JRex*plus*-690

JRex*plus*-DC

	JRex-PM*	JRex*plus*-LX	JRex*plus*-690	JRex*plus*-DC
Line	PERFORMANCE	plus	plus	plus
CPU	Intel® Pentium® M, Celeron® M and Intel® Processor	AMD® Geode™ LX800	AMD® Turion™ 64 / Sempron™ mobile CPU	Intel® Atom™ N270 processor
CPU Clock	600 MHz up to 1.8 GHz	500 MHz	up to 2.1 GHz Dual Core	1.6 GHz
Front Side Bus	400 MHz	-	Hyper Transport Technology	533 MHz
Cache	L2: up to 2 MByte	L2: 128 KByte	L2: 1x 512 KByte / 2x 512 KB	L2: 1 x 512 KByte
BIOS	Phoenix™	Phoenix™	AMIBIOS®	AMIBIOS®
Chipset	Intel® 855GME / ICH4 (or 852GM @ 600MHz)	AMD CS5536	AMD M690E	Intel® 945GSE, Intel® ICH7M
DRAM	1 GByte DDR	1 GByte DDR SDRAM	2 GByte DDR2 SDRAM	2 GByte DDR2 SDRAM
DRAM socket	DDR-RAM-DIMM	SDRAM-SODIMM	SDRAM-SODIMM	SDRAM-SODIMM
CompactFlash	CompactFlash™ Socket Type 1	yes	yes	yes
Audio	AC'97	AC'97	HD Audio	HD Audio
Hard Disk	EIDE (UDMA-133)	EIDE (UMDA-66)	EIDE (UMDA-133)	EIDE (UMDA-133)
USB	2x USB 2.0	4x USB 2.0 (2 on front panel, two internal)	6x USB 2.0 (4 on front panel, two internal)	6x USB 2.0 (2 on front panel, 4 internal)
Ethernet	1x 10/100	1x 10/100/1000	2x 10/100/1000	1x 10/100, 1x 10/100/1000
Graphics Controller	Intel® Extreme Graphics 2	AMD on chip graphic	Integrated ATI on chip graphic	Integrated with Intel® GMA950 (DirectX® 9, PS 2.0)
Graphics Memory	up to 2x 32 MByte	on-chip shared 8-256 MByte VRAM	shared memory	shared memory
Graphics	CRT/LCD, JILI-interface	CRT/LCD, JILI30 (LVDS)-interface (optional),TTL (FLEX32)	CRT/LCD, JILI30 (LVDS)-interface	CRT/DVI, JILI30
Supply Voltage	5V or ATX	5V single supply	ATX power supply	ATX power supply
IEEE 1394 Firewire	via JFLEX™	-	-	-
Serial Channels	1x DSUB RS232, 1x TTL internal, plus more via JFLEX™	1x DSUB RS232, 1x RS232 internal	1x DSUB RS232, 1x RS232 internal	1x DSUB RS232, 1x RS232 internal
Drives	2x 1.44/2.88	1x 1.44/2.88	-	-
Watchdog	yes	yes	yes	yes
System Monitoring	yes	yes	yes	yes
Expansion	JFLEX™	PCI-104 compliant (PCI)	PCI-104 compliant (PCI)	PCI-104 compliant (PCI), MiniPCIe
Special Features	DUAL Independent panel & Enhanced SpeedStep	2x SATA, 1x PATA, CF-Socket	2x GBit-LAN, 2x SATA, 1x PATA, CF-Socket, 4bit Digital I/O	2x SATA, 1x PATA, CF-Socket, TPM 1.2, 4bit Digital I/O, Dual Independent Display
Power Management	APM 1.2 / ACPI 2.0	APM 1.2 / ACPI 2.0	APM 1.2 / ACPI 2.0	APM 1.2 / ACPI 2.0
Cooling	up to 1 GHz just passive cooling	fanless	active	passive / active depending on application
Dimensions H x W x D	102 x 147 mm	102 x 147 mm	102 x 147 mm	102 x 147 mm
I/O Expansion Type	JFLEX™	PCI-104 compliant (PCI)	PCI-104 compliant (PCI)	PCI-104 compliant (PCI)
Operating Temperature	0°C to 60°C	0°C to 60°C	0°C to 60°C	0°C to 60°C
RoHS compliant	yes	yes	yes	yes

* Please note: extended lifetime, not for new design, for this product last time shipment is August 2012

PC/104

For building reliable embedded PCs, we offer a broad selection of PC/104 modules. If the customer does not find the required computer module in the standard product portfolio, we will develop and manufacture a custom computer system. Complete cable sets can be delivered with all CPU modules to facilitate the customer's entry into the world of PC/104.

Advantages

- **» Short development time**
- **» Reduction of manufacturing costs**
- **» Best price-performance ratio**
- **» Full PC compatibility**
- **» No wiring costs**
- **» Maximum system reliability**
- **» Extremely robust**
- **» Vibration resistant**
- **» Various processor performances**
- **» Space-saving**
- **» Lightweight**

PC/104 CPUs

MICROSPACE® MSM586SL

MICROSPACE® MSM586SEL

	MICROSPACE® MSM586SL	MICROSPACE® MSM586SEL
Processor/Performance	AMD ELAN™ 520 / 133 MHz	AMD ELAN™ 520 / 133 MHz
Chipset	SC520-133	SC520-133
Bus	ISA-BUS: 8/16 bit	ISA-BUS: 8/16 bit
Memory	32-64 MByte DRAM soldered	32-128 MByte DRAM, SODIMM
IDE Interface P-ATA	1x	1x
COM1 / COM2	RS232C, RS422/485 / RS232C, RS422/485	RS232C, RS422/485 / RS232C, RS422/485
COM3 / COM4	RS232C, RS422/485 / RS232C, RS422/485	RS232C, RS422/485 / RS232C, RS422/485
USB	-	2x V1.1 / 2.0
Ethernet	-	LAN port 1: 10/100 BASE-T
Sound	-	-
RTC Battery onboard	400mAh (typ. 5 years)	400mAh (typ. 5 years)
Standard Temperature	-25°C to +70°C	-25°C to +70°C
Extended Temperature	-40°C to +85°C (E48)	-40°C to +85°C (E48)
Dimenstions (W x L in mm)	90 x 96	90 x 96
Special Features	Passive cooling, DOC-socket 32pin, soldered RAM	Passive cooling, DOC-socket 32pin

PC/104 Power Supply

MICROSPACE® MSMPS104A

MICROSPACE® MSMPS104B

	MICROSPACE® MSMPS104A	MICROSPACE® MSMPS104B
Function	Power supply	Power supply, UPS option
ISA-BUS	not mounted	not mounted
Protective Features	Reverse polarity, Fuse, Overload	Reverse polarity, Fuse, Overload
BUS Compatibility	-	-
Controller	-	Battery controller
Vinput (nom.)	12V (8V-20V)	24V, 36V, 42V, 48V (20V-55V)
1st Output	5V, 10Amp	5V, 10Amp
2nd Output	12V, 1Amp	12V, 1Amp
Power normal	75W, n=90%	75W, n=80%
Remote on/off Input	optoisolated (ignition)	optoisolated (ignition)
Power monitoring	Uin, Uout	Uin, Uout, Charger
Standard Temperature	-25°C to +60°C	-25°C to +60°C
Extended Temperature	-40°C to +85°C (reduced power to 50W)	-40°C to +85°C (reduced power to 50W)
Dimensions (W x L in mm)	90 x 96	90 x 96
Weight	85 g	100 g
Software Support	-	UPS management
MTBF	100'000 h	100'000 h
Complies to	e1, EN60950	EN50155, IEC62040-3, e1, EN60950
Special Features	EN60950	Charger regulator interface: COM/SMB interface, Load voltage range: 20V-55V, Rechargeable battery: Pb, Pb-Gel
Accessories	Heatpipe cooler PSCS	Battery PS12BAT, Heatpipe cooler PSCS

PC/104 Peripherals

MICROSPACE® MSMX104

	MICROSPACE® MSMX104
Function	4x serial
ISA-BUS	yes (8 bit)
PCI-BUS	-
PCI Express-BUS	-
BUS Compatibility	PC/104
Controller	4x 16C550
Memory	-
1st Interface	4x COM RS232
2nd Interface	-
3rd Interface	-
Power normal (typ.)	5V/2W
Power Management	-
Standard Temperature	-25°C to +70°C
Extended Temperature	-40°C to +85°C
Dimensions (W x L in mm)	90 x 96
Weight	80 g
Software Support	DOS, WIN, Linux
MTBF	100'000 h

Boards & Mezzanines

PC/104-Plus CPUs

MOPSlcdLX

MICROSPACE® MSM800SEL

MICROSPACE® MSM800SEV

MICROSPACE® MSM800BEV

MICROSPACE® MSM800XEL

MICROSPACE® MSM800XEV

MOPS-PM*

MICROSPACE® MSM855/B2*

MICROSPACE® MSM200S

	MOPSlcdLX	MICROSPACE® MSM800SEL	MICROSPACE® MSM800SEV	MICROSPACE® MSM800BEV	MICROSPACE® MSM800XEL	MICROSPACE® MSM800XEV	MOPS-PM*	MICROSPACE® MSM855/B2*	MICROSPACE® MSM200S
Processor/Performance	AMD Geode™ LX800 / 0.5GHz	AMD Geode™ LX800 / 0.5 GHz	AMD Geode™ LX800 / 0.5 GHz	AMD Geode™ LX800 / 0.5 GHz	AMD Geode™ LX800 / 0.5 GHz	AMD Geode™ LX800 / 0.5 GHz	Intel® Pentium® M / Celeron® M 600MHz up to 1.4 GHz	Intel® Processor ® / 1000MHz / Pentium ® / 1400 / 1800MHz	Intel® Atom™ Z510/Z530 (1.1/1.6 GHz)
Chipset	CS5536 AD	CS5536 AD	CS5536 AD	CS5536 AD	CS5536 AD	CS5536 AD	855GME	855GME	US15W
Bus	PC/104-Plus: Option	PCI-BUS: Option (3slot)	PCI-BUS: Option (3slot)	PCI-BUS: Option (3slot)	PCI-BUS: Option (2slot)	PCI-BUS: Option (2slot)	PC/104-Plus	ISA-Bus PC/104: 8/16bit +DMA, PCI-Bus: Option (3slot)	PCI-BUS:Option, ISA: yes (8 bit / no DMA / no Interrupt)
Memory	128-1024 MByte	128-1024 MByte	128-1024 MByte	128-1024 MByte	soldered 256 MByte	soldered 256 MByte	128-1024MB	128-1024MB	soldered 0.5-2 GByte
Video Controller	int. graphic Controller	int. graphic Controller	int. graphic Controller	int. graphic Controller	int. graphic Controller	int. graphic Controller	int. graphic Controller	int. graphic Controller	int. graphic Controller
Video Memory	16MB (UMA)	16 MByte (UMA)	16 MByte (UMA)	16 MByte (UMA)	16 (UMA)	16 (UMA)	16-64MB (UMA)	16-64MB (UMA)	128 (UMA)
LCD Interface	24bit, 240 x 320 to 1600 x 1200	24 bit, 240 x 320 to 1600 x 1200	24 bit, 240 x 320 to 1600 x 1200	24 bit, 240 x 320 to 1600 x 1200	24 bit, 240 x 320 to 1600 x 1200	24 bit, 240 x 320 to 1600 x 1200	18bit, 1600 x 1200	18bit, 1600 x 1200	24 bit LVDS
CRT Interface	yes	yes	yes	yes	yes	yes	yes	yes	yes, up to 1920 x 1200 with reduced blanking
IDE Interface P-ATA	1x EIDE (UDMA-33)	1x	1x	1x	1x	1x	1x	1x	1x
IDE Interface S-ATA (Sil 3132)	-	-	-	-	-	-	-	-	2x SATA300
COM1 / COM2	RS232C / RS232C	RS232C / RS232	RS232C / RS232	RS232C / RS232	RS232C / RS232C	RS232C / RS232C	RS232C / RS232C	RS232C / RS232C	RS232C, RS422/485 / RS232C, RS422/485
COM3 / COM4	-	-	-	-	-	-	-	-	-
USB	2x 2.0	4x 2.0	4x 2.0	4x 2.0	4x 2.0	4x 2.0	2x 2.0	5x 2.0	6x 2.0
Ethernet	10/100 BASE-T	10/100 BASE-T	10/100 BASE-T	10/100 BASE-T	10/100 BASE-T	10/100 BASE-T	10/100 BASE-T	2x 10/100 BASE-T (LAN 1 / LAN2)	1 GByte LAN
Sound	-	-	AC97	AC97	-	AC97	-	AC97-5.1	HDA (ALC882-7.1), 2x Stereo, SPDIF
RTC Battery onboard	-	-	400mAh	400mAh	-	400mAh (typ. 5 years)	-	80mAh or external 900mAh	900mAh (typ. 10 years)
Standard Temperature	0°C to +60°C	0°C to +60°C	0°C to +60°C	0°C to +60°C	0°C to +60°C	0°C to +60°C	0°C to +60°C	-25°C to +50°C / +60°C / +70°C	-25°C to +70°C
Extended Temperature	-	-25°C to +70°C	-25°C to +70°C	25°C to +70°C,-40°C to +85°C (with large cooler and E48 or with thermo junction and E48)	25°C to +70°C, -40°C to +85°C (with large cooler and E47 or thermo junction and E48	25°C to +70°C, -40°C to +85°C (with large cooler and E47 or thermo junction and E48	-	-40°C to +50°C / +70°C	-40°C to +85°C
Dimenstions (W x L in mm)	90 x 96 Lan Boot, Watchdog, JIDA-Support, JRC-Support, Dark Boot, 32 MB - 1GB	90 x 96/99	90 x 96/99	90 x 96/99	90 x 96/99	90 x 96/99	90 x 96	90 x 96	90 x 96 mm
Special Features	chipDISK	-	-	-	soldered RAM	soldered RAM	Full feature compatibility withhin the MOPS family, low cost, low power	LAN boot, Watchdog	-

PC/104-Plus Peripherals

MICROSPACE® MSMCA104+

MICROSPACE® MSMCA104+ISOL

MICROSPACE® MSMG104+

MICROSPACE® MSMW104+

MICROSPACE® MSMX104+

MICROSPACE® MSME104+

MICROSPACE® MSMGE104+

	MICROSPACE® MSMCA104+	MICROSPACE® MSMCA104+ISOL	MICROSPACE® MSMG104+	MICROSPACE® MSMW104+	MICROSPACE® MSMX104+	MICROSPACE® MSME104+	MICROSPACE® MSMGE104+
Function	CAN	CAN	Video frame grabber	FireWire	8x serial	Ethernet LAN	1Gigabit-LAN
ISA-BUS	-	-	-	-	-	-	-
PCI-BUS	yes	yes	yes	yes	yes	yes	yes
PCI Express-BUS	-	-	-	-	PC/104-Plus	-	-
BUS Compatibility	PC/104-Plus	PC/104-Plus	PC/104-Plus	PC/104-Plus	PCI	PC/104-Plus	PC/104-Plus
Controller	Peak-CAN	Peak-CAN	BT878A	TSB43AB22	EXAR 17C158	i82551	i82541
Memory	-	-	-	-	-	32 kByte	32 kByte
1st Interface	CAN DSUB9, CiA DS102-1	CAN DSUB9, CiA DS102-1	1st channel CVBS	IEEE 1394 A	8ch RS232C	RJ45	RJ45
2nd Interface	CAN DSUB9, CiA DS102-1	CAN DSUB9, CiA DS102-1	2nd channel CVBS	IEEE 1394 A	8ch RS422	-	-
3rd Interface	-	-	3nd channel CVBS /SVideo	-	8ch RS485	-	-
Power normal (typ.)	3.3V/5V/2W	3.3V, 5V/4W	5V/2W	3.3V/3W	3.3V/3W	3.3V/1W	3.3V/2W
Power Management	-	-	-	-	-	-	-
Standard Temperature	-25°C to +70°C	-25°C to +70°C	-25°C to +70°C	-25°C to +70°C	-25°C to +70°C	-25°C to + 70°C	-25°C to + 70°C
Extended Temperature	tbd	tbd	-40°C to +85°C	-40°C to +70°C	-40°C to +85°C	-40°C to + 85°C	-40°C to + 85°C
Dimensions (W x L in mm)	90 x 96	90 x 96	90 x 96	90 x 96	90 x 96	90 x 96	90 x 96
Weight	80 g	30 g	35 g	70 g	70 g	70 g	70 g
Software Support	Win, Linux	Win, Linux	WIN, CE, Linux	WIN, Linux	WIN, Linux	WIN, CE, Linux	WIN, Linux
MTBF	200'000 h	200'000 h	200'000 h	>200'000 h	>200'000 h	200'000 h	100'000 h
Special Features	Reset using software commands	500V isolated, Reset using software commands	Digital I/O, PAL, NTSC	-	8x 10pin header	100/10Mbit/sec.	-
Accessories	-	-	-	-	-	-	-

* Please note: extended lifetime, not for new design, for this product last time shipment is August 2012

» PCI/104 Express «

Stackable PCI/104 Express bus specification

PCI Express is a point-to-point connection with a 2.5 GHz data rate. The high transmission rate requires a fitting loading system. This should enable high speeds and simultaneously fulfil the requirements of the applications for high stability and reliability for use in a rough environment, as well as the basic mechanical requirements of the PC/104 architecture. The connector assembly selected for this purpose is a modified version of the Samtec high-density Q2 connector assembly, which was optimised for a module spacing of 15.24 mm.

With the PCI/104 Express Bus, we facilitate the market acceptance for the PC/104 form factor for a period of at least ten more years. PCI/104 Express has the bandwidth to support high-speed applications such as 1- and 10-Gbit Ethernet, high-end graphics processing, customer-specific FPGA and DSP requirements and I/O-intensive applications.

We offer a PCI/104 Express CPU board with Intel® Core™2 Duo processor with a clock rate of up to 2x 1.6 GHz (MSM945P), as well as a PCI/104 Express with the new Intel® Atom™ CPU Z510 / Z530 (MSM200X/XU/XP).

Several PCI/104 Express periphery cards, e.g. fourfold 1-Gbit Ethernet LAN controller (MSM4E104EX), one ExpressCard adapter (MSMEC104EX), one fourfold frame grabber (4XBT878, 16 channels) (MSMG104EX/A), one twofold SATA300 adapter (MSMSA104EX) and power-supply modules are available.

PCI/104-Express CPUs

MICROSPACE® MSM945P

Processor/Performance	Intel® Core™ Duo L2400 / Intel® Core™2 Duo L7400 (2x 1.6 GHz / 2x 1.5 GHz)
Chipset	945GME
Bus	PCI-BUS: Option, PCI Express-BUS: on the bottom, PCI-BUS: Option
Memory	512-3072 MByte DRAM
Video Controller	i945GME
Video Memory	8-224 MByte
LCD Interface	SDVO
CRT Interface	yes
IDE Interface P-ATA	1x
IDE Interface S-ATA (Sil 3132)	2x SATA 300
COM1 / COM2	RS232C / RS232C
COM3 / COM4	-
USB	4x 2.0, 2x PCI104ex
Ethernet	10/100 BASE-T
Sound	ALC882-7.1
RTC Battery onboard	80mAh (or ext. 900mAh)
Standard Temperature	-25°C to +60°C/+70°C
Extended Temperature	-40°C to +70°C
Dimensions (W x L in mm)	90/117 x 96/99

Further PCI/104-Express CPUs »

Boards & Mezzanines

« Further PCI/104-Express CPUs

PCI/104-Express CPUs

MICROSPACE® MSM945

MICROSPACE® MSM200X

MICROSPACE® MSM200XP

MICROSPACE® MSM200XU

	MICROSPACE® MSM945	MICROSPACE® MSM200X	MICROSPACE® MSM200XP	MICROSPACE® MSM200XU
Processor/Performance	Intel® Core™ Duo L2400 / Intel® Core™2 Duo L7400 (2x 1.6 GHz / 2x 1.5 GHz)	Intel® Atom™ Z510/Z530 / 1.1/1.6 GHz	Intel® Atom™ Z510/Z530 / 1.1/1.6 GHz	Intel® Atom™ Z510/Z530 / 1.1/1.6 GHz
Chipset	945GME	US15W	US15W	US15W
Bus	PCI-BUS:Option	PCI-BUS: Option, PCI Express-BUS: not assembled	PCI-BUS: Option, PCI Express-BUS: on the bottom	PCI-BUS: Option, PCI Express-BUS: on the top
Memory	256-3072 MByte DRAM	soldered 0.5-2 GByte	soldered 0.5-2 GByte	soldered 0.5-2 GByte
Video Controller	i945GME	int. graphic Controller	int. graphic Controller	int. graphic Controller
Video Memory	8-224 MByte	128 MByte (UMA)	128 MByte (UMA)	128 MByte (UMA)
LCD Interface	SDVO	24 bit LVDS	24 bit LVDS	24 bit LVDS
CRT Interface	yes	yes, up to 1920 x 1200 with reduced blanking	yes, up to 1920 x 1200 with reduced blanking	yes, up to 1920 x 1200 with reduced blanking
IDE Interface P-ATA	1x	1x	1x	1x
IDE Interface S-ATA (Sil 3132)	2x SATA 300	2x	2x	2x
COM1 / COM2	RS232C / RS232C	RS232C / RS232C	RS232C / RS232C	RS232C / RS232C
COM3 / COM4	-	RS232C, RS422/485 / RS232C, RS422/485	RS232C, RS422/485 / RS232C, RS422/485	RS232C, RS422/485 / RS232C, RS422/485
USB	4x 2.0	4x 2.0	4x 2.0	4x 2.0
Ethernet	10/100 BASE-T	1 GByte LAN	1 GByte LAN	1 GByte LAN
Sound	ALC882-7.1	HDA (ALC882-7.1), 2x Stereo, SPDIF	HDA (ALC882-7.1), 2x Stereo, SPDIF	HDA (ALC882-7.1), 2x Stereo, SPDIF
RTC Battery onboard	80mAh (or ext. 900mAh)	900mAh (typ. 10 years)	900mAh (typ. 10 years)	900mAh (typ. 10 years)
Standard Temperature	-25°C to +60°C/+70°C	-25°C to +70°C	-25°C to +70°C	-25°C to +70°C
Extended Temperature	-40°C to +70°C	-40°C to +85°C	-40°C to +85°C	-40°C to +85°C
Dimensions (W x L in mm)	90/117 x 96/99	90 x 96 mm	90 x 96 mm	90 x 96 mm

PCI/104-Express Peripherals

MICROSPACE® MSMGE104EX

MICROSPACE® MSM4E104EX

MICROSPACE® MSMEC104EX

MICROSPACE® MSMMI104EX

MICROSPACE® MSMSA104EX

MICROSPACE® MSMFW104EX

MICROSPACE® MSMG104EX

MICROSPACE® MSMG104EX-A

MICROSPACE® MSMGS104EX

MICROSPACE® MSMSP104EX

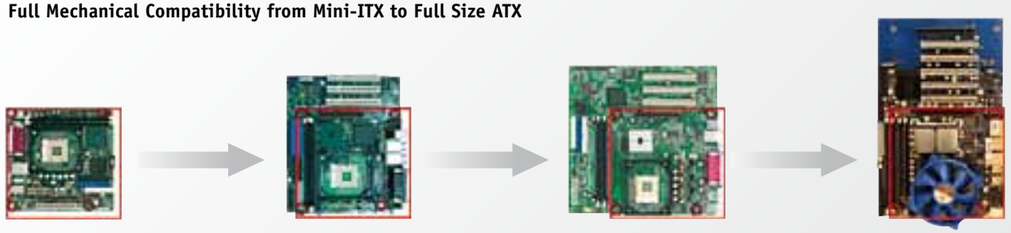
MICROSPACE® MSM8C104EX

	MICROSPACE® MSMGE104EX	MICROSPACE® MSM4E104EX	MICROSPACE® MSMEC104EX	MICROSPACE® MSMMI104EX	MICROSPACE® MSMSA104EX	MICROSPACE® MSMFW104EX	MICROSPACE® MSMG104EX	MICROSPACE® MSMG104EX-A	MICROSPACE® MSMGS104EX	MICROSPACE® MSMSP104EX	MICROSPACE® MSM8C104EX
Function	1 GByte-LAN	4x 1 GByte LAN	ExpressCard-Adapter	PCIe MiniCard adapter	2x SATA300	FireWire, IEEE1394B	4x Frame grabber	4x Frame grabber	GSM-UMTS	Spacer Kit for PCI/104e	8 channel serial port
ISA-BUS	-	-	-	-	-	-	-	-	-	-	-
PCI-BUS	pass-through	pass-through	pass-through	pass-through	pass-through	pass-through	pass-through	pass-through	pass-through	-	pass-through
PCI Express-BUS	yes, 1x Lane	yes, 1x lane	yes, 1x lane	yes, 1x lane	yes, 1x lane	yes, 1x lane	yes, 1x lane	yes, 1x lane	yes, 1x lane	-	1x lane
BUS Compatibility	PCI/104-Express	PCI/104-Express	PCI/104-Express	PCI/104-Express	PCI/104-Express	PCI/104-Express	PCI/104-Express	PCI/104-Express	PCI/104-Express	PCI/104-Express	PCI/104-Express
Controller	82573L (Intel®)	4x 82574L (Intel®)	-	-	SIL 3132	TI	4x BT878A, PAL, NTSC	4x BT878A, PAL, NTSC	HC-25	-	8 ch. UART
Memory	-	-	-	-	-	-	-	-	-	-	-
1st Interface	1 GByte LAN (RJ45)	4x 1 GByte LAN (RJ45)	ExpressCard	PCIe MiniCard	2x SATA	1x IEEE1394A	16x Video, MCX (90°)	16x Video, MCX (180°)	GSM module	-	8 ch. RS232C (+/-9V) or
2nd Interface	2x USB	-	-	SIM card	2x USB	2x IEEE1394B	4x SVideo, MCX	4x SVideo, MCX	SIM card	-	8 ch. RS422 (1/8 load) or
3rd Interface	-	-	-	-	-	-	-	-	Headset	-	8 ch. RS485 (1/8 load) or
Power normal (typ.)	5V, 3.3V/4W	5V, 3.3V/4W	5V/3W	5V/8W	5V, 3.3V/2W	5V, 3.3V/1W	5V, 3.3V/6W	5V, 3.3V/6W	5V, 3.3V/5W	-	5V/3W
Power Management	-	-	yes	yes	-	12V	-	-	yes	-	-
Standard Temperature	-25°C to +70°C	-25°C to +70°C	-25°C to +70°C	-25°C to +70°C	-25°C to +70°C	-25°C to +70°C	-25°C to +70°C	-25°C to +70°C	-25°C to +70°C	-	-20°C to +70°C
Extended Temperature	-	-40°C to +70°C	-	-	-	-40°C to +70°C	tbd	tbd	-40°C to +70°C	-	-40°C to +85°C
Dimensions (W x L in mm)	90 x 96	90 x 96	90 x 96	90 x 96	90 x 96	90 x 96	90 x 96	90 x 96	90 x 96	90 x 14	90 x 96
Weight	60 g	80 g	65 g	55 g	65 g	75 g	95 g	95 g	65 g	15 g	70 g
Software Support	WINXP, Linux, VxWorks, QNX	WINXP, Linux	XP, VISTA	XP, VISTA	XP, VISTA, Linux	WINXP, Linux	WIN, Linux	WIN, Linux	WINXP, Linux	-	XP, VISTA
MTBF	100'000 h	100'000 h	100'000 h	100'000 h	200'000 h	200'000 h	100'000 h	100'000 h	100'000 h	500'000 h	200'000 h
Special Features	-	PCI-switch:PLX 8505	Hot plug support: depending on BIOS/OS	-	Bandwidth: 2x 300MByte/s, RAID 0/1	Bandwidth: 2.5x 800Mbit/Sek.	Bandwidth: 133MByte/sec. max., TTL i/o, 8bit	Bandwidth: 133MByte/sec. max., TTL i/o, 8bit	Bandwidth: (max.) HSDPA 3.6 Mb/s, GSM-Edge: Quadband, UMTS: 850/1900/2100MHz	Complies to PCI/104-Express	RS422/85:TX, RX, CTS, RTS, +/-, 8x onboard termination
Accessories	-	-	-	WLAN-MC, GSM-MC	-	-	MSMG104EX-Cable (MCX-BNC)	MSMG104EX-Cable (MCX-BNC)	GSM/UMTS	-	-

» Motherboards «

Embedded Motherboards

Full Mechanical Compatibility from Mini-ITX to Full Size ATX



Motherboards

Kontron offers a broad range of high-quality 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, lottery systems, gaming and many other applications. These products are based on state-of-the-art processors and chipset platforms, and utilize advanced technology components.

These embedded and industrial motherboards follow international industry size 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 up to 7 years product availability from the release date, based on embedded key components.

- **Up to 7 year lifecycle and long term service & support**
- **Extensive validation, verification & optimization testing**
- **Life cycle management & revision control**
- **Extended technical support and documentation**
- **Flat panel display support expertise including LVDS, DVI, CRT, HDMI and ADD2 Cards**
- **Scalability from Mini-ITX to full-size ATX**
- **Quick time-to-market with standard form factors**
- **Remote hardware and hard disk monitoring/control by original API software**
- **Advanced technologies such as solid capacitors and up to 12 multilayer PCBs**

Embedded Motherboards

886LCD-M/FLEX

886LCD-M/ATX*

886LCD/ATX (GV)*

	886LCD-M/FLEX	886LCD-M/ATX*	886LCD/ATX (GV)*
CPU	Intel® Pentium® M and Celeron® M	Intel® Pentium® M and Celeron® M	Intel® Pentium® 4 Celeron® and Celeron® D
CPU Clock	Up to 2.1 GHz	Up to 2.1 GHz	Up to 3.2 GHz
Front Side Bus	400 MHz	400 MHz	400/533 MHz
Chipset	Intel® 855GME + 6300ESB	Intel® 855GME + 6300ESB	Intel® 845GV + ICH4
DRAM	Up to 2 GByte DDR333 SDRAM (PC2700), 1x DIMM-240	Up to 2 GByte DDR333 SDRAM (PC2700), 1x DIMM-240	Up to 2 GByte DDR-SDRAM
Video Memory	Up to 96 MByte shared video memory	Up to 96 MByte shared video memory	Up to 64 MByte shared memory
IDE Interface	2x SATA 150 w. RAID 0,1, 2x ATA100	2x SATA 150 w. RAID 0,1, 2x ATA100	2x SATA 150, 2x ATA100
USB	4x USB 2.0	4x USB 2.0	6x USB 2.0 (2x internal)
Ethernet	Up to 3x GbE LAN	Up to 3x GbE LAN	10/100 Base-T
Form Factor	Flex-ATX 228,6mm x 190,5mm (9" x 7,5")	ATX 300,5mm x 190,5mm (12" x 7,5")	ATX 300,5mm x 243,8mm (12" x 9,6")
Available I/Os	3x PCI, 4x COM	6x PCI, 4x COM	6x PCI, 2x COM
Graphic Interface	CRT / LVDS / AGP x4 / DVO	CRT / LVDS / AGP x4 / DVO	CRT / DVO
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
Special Feature	HDD SOFT-RAID 0/1 support On board audio amplifier	HDD SOFT-RAID 0/1 support On board audio amplifier, GPIO	Drive digital LCD display by Add-Cards: ADD-LVDS (LVDS) & ADD-DVI (DVI)
Additional	Available Add-Cards for DVO Interface for 2nd 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)

* Please note: extended lifetime, not for new design, for this product last time shipment is August 2012

Further Embedded Motherboards »

Embedded Motherboards

Embedded Motherboards

986LCD-M/FLEX

CPU	Intel® Core™ 2 Duo, Intel® Core™ Duo and Intel® Core™ Solo (mPGA478, mBGA479 prepared)
CPU Clock	Up to 2.16 GHz
Front Side Bus	533 / 667 MHz
Chipset	Intel® 945GM + ICH7R
DRAM	Up to 3 GByte DDR2 533/667, 2x DIMM-240
Video Memory	Up to 192 MByte shared video memory
IDE Interface	4x SATA 150/300 w. RAID 0,1,5,10, 1x ATA100
USB	8 x USB 2.0
Ethernet	2x GbE LAN
Form Factor	Flex-ATX 228.6mm x 190.5mm (9" x 7.5")
Available I/Os	1x PCI Express x4, 2x PCI, 4x COM
Graphic Interface	CRT / LVDS / PCI-Express x16 / SDVO
Rear I/O	COM1, CRT, Ethernet, USB, S-video (Optional), line-in, line-out, speaker, PS/2 mouse/keyboard
Special Feature	IEEE1394, GPIO, HDD RAID 0/1/5/10 support, HD Audio, SPDIF, TV-out (optional)
Additional	Up to 7 years availability, ADD2-Cards for SDVO Interface for 2nd LCD

986LCD-M/ATXE

CPU	Intel® Core™ 2 Duo, Intel® Core™ Duo and Intel® Core™ Solo (mPGA478, mBGA479 prepared)
CPU Clock	Up to 2.16 GHz
Front Side Bus	533 / 667 MHz
Chipset	Intel® 945GM + ICH7R
DRAM	Up to 3 GByte DDR2 533/667, 2x DIMM-240
Video Memory	Up to 192 MByte shared video memory
IDE Interface	4x SATA 150/300 w. RAID 0,1,5,10, 1x ATA100
USB	8 x USB 2.0
Ethernet	2x GbE LAN
Form Factor	ATX 300.5mm x 190.5mm (12" x 7.5")
Available I/Os	1x PCI Express x4, 5x PCI, 4x COM
Graphic Interface	CRT / LVDS / PCI-Express x16 / SDVO
Rear I/O	COM1, CRT, Ethernet, USB, line-in, line-out, speaker, PS/2 mouse/keyboard
Special Feature	IEEE1394, GPIO, HDD RAID 0/1/5/10 support, HD Audio, SPDIF, TV-out (optional)
Additional	Up to 7 years availability, ADD2-Cards for SDVO Interface for 2nd LCD

986LCD-M/ATXP

CPU	Intel® Core™ 2 Duo, Intel® Core™ Duo and Intel® Core™ Solo (mPGA478, mBGA479 prepared)
CPU Clock	Up to 2.16 GHz
Front Side Bus	533 / 667 MHz
Chipset	Intel® 945GM + ICH7R
DRAM	Up to 3 GByte DDR2 533/667, 2x DIMM-240
Video Memory	Up to 192 MByte shared video memory
IDE Interface	4x SATA 150/300 w. RAID 0,1,5,10, 1x ATA100
USB	8 x USB 2.0
Ethernet	3x GbE LAN
Form Factor	ATX 300.5mm x 190.5mm (12" x 7.5")
Available I/Os	1x mini PCI Express, 6x PCI, 4x COM
Graphic Interface	CRT / LVDS / PCI-Express x16 / SDVO
Rear I/O	COM1, CRT, Ethernet, USB, line-in, line-out, speaker, PS/2 mouse/keyboard
Special Feature	IEEE1394, GPIO, HDD RAID 0/1/5/10 support, HD Audio, SPDIF, TV-out (optional)
Additional	Up to 7 years availability, ADD2-Cards for SDVO Interface for 2nd LCD

KTGM45/FLEX

CPU	Intel® Core™ 2 Quad & Intel® Core™ 2 Duo
CPU Clock	Up to 3.06 GHz
Front Side Bus	667 / 800 / 1066 MHz
Chipset	Intel® GM45 + ICH9M-E
DRAM	Up to 8 GB DDR3, 2 pcs. DIMM 240 pin
Video Memory	Up to 256 MByte shared video memory
IDE Interface	4x SATA 150/300 w. RAID 0,1, 1x ATA133
USB	12x USB 2.0
Ethernet	Up to 3x GbE LAN
Form Factor	Flex-ATX 228.6mm x 190.5mm (9" x 7.5")
Available I/Os	1x PCI Express x4, 2x PCI, 4x COM
Graphic Interface	CRT / LVDS / PCI-Express x16 / SDVO
Rear I/O	COM1, CRT, Ethernet, USB, S-video (Optional), line-in, line-out, speaker, PS/2 mouse/keyboard
Special Feature	GPIO, HDD RAID 0/1 support, AMT 4.0, TPM 1.2
Additional	Up to 7 years availability, ADD2-Cards for SDVO Interface for 2nd LCD

KTGM45/ATXE

CPU	Intel® Core™ 2 Quad & Intel® Core™ 2 Duo
CPU Clock	Up to 3.06 GHz
Front Side Bus	667 / 800 / 1066 MHz
Chipset	Intel® GM45 + ICH9M-E
DRAM	Up to 8 GB DDR3, 2 pcs. DIMM 240 pin
Video Memory	Up to 256 MByte shared video memory
IDE Interface	4x SATA 150/300 w. RAID 0,1, 1x ATA133
USB	12x USB 2.0
Ethernet	Up to 3x GbE LAN
Form Factor	ATX 300.5mm x 190.5mm (12" x 7.5")
Available I/Os	1x PCI Express x4, 5x PCI, 4x COM
Graphic Interface	CRT / LVDS / PCI-Express x16 / SDVO
Rear I/O	COM1, CRT, Ethernet, USB, S-video (Optional), line-in, line-out, speaker, PS/2 mouse/keyboard
Special Feature	GPIO, HDD RAID 0/1 support, AMT 4.0, TPM 1.2
Additional	Up to 7 years availability, ADD2-Cards for SDVO Interface for 2nd LCD

KT965/FLEX

CPU	Intel® Core™ 2 Quad, Intel® Core™ 2 Duo Desktop, Pentium® 4 / D
CPU Clock	Up to 3.8 GHz
Front Side Bus	533 / 800 / 1066 MHz
Chipset	Intel® Q965 + Intel® ICH8DO
DRAM	Up to 8 GByte, DDR2 800, 4x DIMM-240
Video Memory	Up to 256 MByte Dynamic shared memory
IDE Interface	6x SATA150/300 w. RAID 0/1/5/10
USB	10x USB 2.0 (2x internal)
Ethernet	2x GbE LAN
Form Factor	Flex-ATX 228.6mm x 190.5mm (9" x 7.5")
Available I/Os	1x PCI Express x4, 2x PCI, 2x COM
Graphic Interface	CRT / PCI-Express x16 / SDVO
Rear I/O	COM1, CRT, Ethernet, USB, line-in, line-out, speaker, PS/2 mouse/keyboard
Special Feature	HDD RAID, GPIO, LPT, HD Audio
Additional	Up to 7 years availability, ADD2-Cards for SDVO Interface for 2nd LCD

KT965/ATXE

CPU	Intel® Core™ 2 Quad, Intel® Core™ 2 Duo Desktop, Pentium® 4 / D
CPU Clock	Up to 3.8 GHz
Front Side Bus	533 / 800 / 1066 MHz
Chipset	Intel® Q965 + Intel® ICH8DO
DRAM	Up to 8 GByte, DDR2 800, 4x DIMM-240
Video Memory	Up to 256 MByte Dynamic shared memory
IDE Interface	6x SATA150/300 w. RAID 0/1/5/10
USB	10x USB 2.0 (2x internal)
Ethernet	2x GbE LAN
Form Factor	ATX 300.5mm x 190.5mm (12" x 7.5")
Available I/Os	1x PCI Express x4, 5x PCI, 2x COM
Graphic Interface	CRT / PCI-Express x16 / SDVO
Rear I/O	COM1, CRT, Ethernet, USB, line-in, line-out, speaker, PS/2 mouse/keyboard
Special Feature	HDD RAID, GPIO, LPT, HD Audio
Additional	Up to 7 years availability, ADD2-Cards for SDVO Interface for 2nd LCD

KT965/ATXP

CPU	Intel® Core™ 2 Quad, Intel® Core™ 2 Duo Desktop, Pentium® 4 / D
CPU Clock	Up to 3.8 GHz
Front Side Bus	533 / 800 / 1066 MHz
Chipset	Intel® Q965 + Intel® ICH8DO
DRAM	Up to 8 GByte, DDR2 800, 4x DIMM-240
Video Memory	Up to 256 MByte Dynamic shared memory
IDE Interface	6x SATA150/300 w. RAID 0/1/5/10
USB	10x USB 2.0 (2x internal)
Ethernet	2x GbE LAN
Form Factor	ATX 300.5mm x 190.5mm (12" x 7.5")
Available I/Os	1x mini PCI Express, 6x PCI, 2x COM
Graphic Interface	CRT / PCI-Express x16 / SDVO
Rear I/O	COM1, CRT, Ethernet, USB, line-in, line-out, speaker, PS/2 mouse/keyboard
Special Feature	HDD RAID, GPIO, LPT, HD Audio
Additional	Up to 7 years availability, ADD2-Cards for SDVO Interface for 2nd LCD

KTQ45/FLEX

CPU	Intel® Core™ 2 Duo E8400 and Intel® Core™ 2 Quad Q9400
CPU Clock	Up to 3.0 GHz
Front Side Bus	800/1066/1333 MHz
Chipset	Intel® Q45 Express
DRAM	Up to 8 GB DDR3, 4x DIMM-240
Video Memory	Up to 256 MByte Dynamic shared memory
IDE Interface	5x SATA150/SATA300 w. RAID 0/1/5/10, 1x eSATA
USB	12x port USB 2.0 (4x internal)
Ethernet	2x GbE LAN
Form Factor	Flex-ATX 228.6mm x 190.5mm (9" x 7.5")
Available I/Os	1x PCI Express x4, 2x PCI, 2x COM
Graphic Interface	CRT / PCI-Express x16 / SDVO
Rear I/O	COM1, CRT, Ethernet, USB, line-in, line-out, speaker, PS/2 mouse/keyboard
Special Feature	HDD RAID, GPIO, LPT, HD Audio, AMT 5.0
Additional	Up to 7 years availability, ADD2-Cards for SDVO Interface for 2nd LCD

KTQ45/ATXE

CPU	Intel® Core™ 2 Duo E8400 and Intel® Core™ 2 Quad Q9400
CPU Clock	Up to 3.0 GHz
Front Side Bus	800/1066/1333 MHz
Chipset	Intel® Q45 Express
DRAM	Up to 8 GB DDR3, 4x DIMM-240
Video Memory	Up to 256 MByte Dynamic shared memory
IDE Interface	5x SATA150/SATA300 w. RAID 0/1/5/10, 1x eSATA
USB	12x port USB 2.0 (4x internal)
Ethernet	2x GbE LAN
Form Factor	ATX 300.5mm x 190.5mm (12" x 7.5")
Available I/Os	1x PCI Express x4, 4x PCI, 2x COM
Graphic Interface	CRT / PCI-Express x16 / SDVO
Rear I/O	COM1, CRT, Ethernet, USB, line-in, line-out, speaker, PS/2 mouse/keyboard
Special Feature	HDD RAID, GPIO, LPT, HD Audio, AMT 5.0
Additional	Up to 7 years availability, ADD2-Cards for SDVO Interface for 2nd LCD

Embedded Mini-ITX Motherboards

Mini-ITX has become a very successful embedded motherboard form factor. Key features including multi LAN and a wide range of I/O possibilities make these products ideal for a wide range of applications. The very compact and space-saving footprint (17 cm x 17 cm, (6.7" x 6.7")) meets the growing need for a small form factor board-level solutions and allows the customer to design a very compact system without sacrificing the requirement of standard ATX mounting holes and the I/O bracket area.

The Mini-ITX form factor fills the gap between small single board computers (i.e. 3.5" Single Board Computers) and full-size Flex and ATX motherboards.

Temperature monitoring example

Email hardware status reporting by email

Embedded Mini-ITX Motherboards

786LCD/mITX*

CPU	Intel® ULV/LV Celeron®
CPU Clock	Intel® Celeron® 400 MHz ULV / 733 MHz LV
Front Side Bus	100 / 133 MHz
Chipset	Intel® 815 + ICH4
DRAM	Up to 256 MByte on board. 1x168pin DIMM socket for extra memory (up to 512 MByte total)
Video Memory	Up to 12 MByte shared video memory
IDE Interface	2x ATA100, 2x SATA 150 (optional)
USB	6x USB 2.0
Ethernet	Up to 3x 10/100 BaseT LAN
Form Factor	Mini-ITX 170 x 170 mm (6,7" x 6,7")
Available I/Os	1x PCI, 4x COM
Graphics Controller	Integrated Intel® Graphics engine, LVDS on board
Graphic Interface	CRT / LVDS / AGP x4 / DVI (optional)
Rear I/O	COM1, LPT, CRT, line-in, line-out, speaker, PS/2 mouse/keyboard
Special Feature	HDD SOFT-RAID 0/1 support, IEEE 1394 optional
Additional	Up to 7 years availability, DVI, Firewire, onboard memory, GPIO
Partnumber	810046-4500 / 810045-4500

886LCD-M/mITX (BGA)*

CPU	Intel® Mobile Celeron® on board
CPU Clock	800 MHz (BGA) / Other BGA CPUs available on request
Front Side Bus	400 MHz
Chipset	Intel® 855GME + 6300ESB
DRAM	Up to 1 GByte DDR333 SDRAM (PC2700), 1x DIMM
Video Memory	Up to 96 MByte shared video memory
IDE Interface	2x SATA 150 w. RAID 0,1, 2x ATA100
USB	4x USB 2.0
Ethernet	Up to 3x GbE LAN
Form Factor	Mini-ITX 170 x 170 mm (6,7" x 6,7")
Available I/Os	1x PCI, 4x COM
Graphics Controller	Intel® Extreme Graphics 2, LVDS on board
Graphic Interface	CRT / LVDS / AGP x4 / DVO
Rear I/O	COM1, LPT, CRT, line-in, line-out, speaker, PS/2 mouse/keyboard
Special Feature	GPIO, HDD SOFT-RAID 0/1 support
Additional	Up to 7 years availability, Available Add-Cards for DVO Interface for 2nd LCD: ADD-LVDS (LVDS), ADD-DVI (DVI), on board audio amplifier
Partnumber	810196-4500

886LCD-M/mITX*

CPU	Intel® Pentium® M and Celeron® M
CPU Clock	Up to 2.1 GHz
Front Side Bus	400 MHz
Chipset	Intel® 855GME + 6300ESB
DRAM	Up to 1 GByte DDR333 SDRAM (PC2700), 1x DIMM
Video Memory	Up to 96 MByte shared video memory
IDE Interface	2x SATA 150 w. RAID 0,1, 2x ATA100
USB	4x USB 2.0
Ethernet	Up to 3x GbE LAN
Form Factor	Mini-ITX 170 x 170 mm (6,7" x 6,7")
Available I/Os	1x PCI, 4x COM
Graphics Controller	Intel® Extreme Graphics 2, LVDS on board
Graphic Interface	CRT / LVDS / AGP x4 / DVO
Rear I/O	COM1, LPT, CRT, line-in, line-out, speaker, PS/2 mouse/keyboard
Special Feature	GPIO, HDD SOFT-RAID 0/1 support
Additional	Up to 7 years availability, Available Add-Cards for DVO Interface for 2nd LCD: ADD-LVDS (LVDS), ADD-DVI (DVI), on board audio amplifier
Partnumber	810182-4500

986LCD-M/mITX (BGA)

CPU	Intel® ULV Celeron® M / LV Core Duo
CPU Clock	1.06 GHz / 1.66 GHz Other BGA CPU´s available on request
Front Side Bus	533 / 667 MHz
Chipset	Intel® 945GM + ICH7R
DRAM	Up to 3 GByte DDR2 533/667
Video Memory	Up to 192 MByte shared video memory
IDE Interface	4x SATA 150/300 w. RAID 0,1,5,10, 1x ATA100
USB	8x USB 2.0
Ethernet	Up to 3x GbE LAN
Form Factor	Mini-ITX 170 x 170 mm (6.7" x 6.7")
Available I/Os	1x PCI, 4x COM, 1x mini PCI-Express
Graphics Controller	Intel® GMA950, LVDS onboard
Graphic Interface	CRT / LVDS / PCI-Express x16 / SDVO
Rear I/O	COM1, CRT,IEEE1394, Ethernet, USB, line-in, line-out, speaker, PS/2 mouse/keyboard
Special Feature	GPIO, IEEE1394, HDD RAID 0/1/5/10 support
Additional	Up to 7 years availability, ADD2-Cards for SDVO Interface for 2nd LCD, S-Video TV-out (optional), HD Audio, SPDIF
Partnumber	810203-4500 / 810201-4500

986LCD-M/mITX

CPU	Intel® Core™ 2 Duo, Intel® Core™ Duo and Intel® Core™ Solo (mPGA478, mBGA479 prepared)
CPU Clock	Up to 2.16 GHz
Front Side Bus	533 / 667 MHz
Chipset	Intel® 945GM + ICH7R
DRAM	Up to 3 GByte DDR2 533/667, 2x DIMM-240
Video Memory	Up to 192 MByte shared video memory
IDE Interface	4x SATA 150/300, 1x ATA100
USB	8x USB 2.0
Ethernet	Up to 3x GbE LAN
Form Factor	Mini-ITX 170 x 170 mm (6.7" x 6.7")
Available I/Os	1x PCI, 4x COM, 1x mini PCI-Express
Graphics Controller	Intel® GMA950, LVDS onboard
Graphic Interface	CRT / LVDS / PCI-Express x16 / SDVO
Rear I/O	COM1, CRT,IEEE1394, Ethernet, USB, line-in, line-out, speaker, PS/2 mouse/keyboard
Special Feature	GPIO, IEEE1394, HDD RAID 0/1/5/10 support
Additional	Up to 7 years availability, ADD2-Cards for SDVO Interface for 2nd LCD, S-Video TV-out (optional), HD Audio, SPDIF
Partnumber	810200-4500

KT690/mITX

CPU	Mobile AMD Sempron™ single core and AMD Turion™ dual core
CPU Clock	Up to 2.0 GHz
Front Side Bus	16 Lane Hyper Transport
Chipset	AMD M690T + SB600
DRAM	Up to 8 GByte DDR2 533/667 - 200 Pin, 2x SODIMM
Video Memory	Up to 256 MByte shared video memory
IDE Interface	4x SATA 150/300 w. RAID 0,1,10, 1x ATA133
USB	10x USB 2.0
Ethernet	Up to 2x GbE LAN
Form Factor	Mini-ITX 170 x 170 mm (6.7" x 6.7")
Available I/Os	1x PCI, 2x COM, 1x mini PCI-Express
Graphics Controller	Radeon X1250, LVDS onboard
Graphic Interface	DVI / CRT / LVDS / TV-Out (optional) / PCI-Express x8
Rear I/O	COM1, CRT, DVI, TV-Out (optional), Ethernet, USB, line-in, line-out, speaker, PS/2 mouse/keyboard
Special Feature	GPIO, HDD RAID 0/1/5/10 support, TPM Onboard
Additional	Up to 7 years availability, S-Video TV-out (optional), HD Audio, SPDIF
Partnumber	810280-4500

KTUS15/mITX - 1.1

CPU	Intel® Atom™ Z510 CPU BGA
CPU Clock	1,1 GHz Basic / 1,1 GHz Std
Front Side Bus	400 MHz
Chipset	Intel® US15 Embedded
DRAM	Up to 2 GB, SO-DIMM 200-Pin, 1x SODIMM
Video Memory	Up to 256 MByte shared video memory
IDE Interface	1x ATA100 / 1x ATA100, 2x SATA 150/300
USB	8x USB 2.0
Ethernet	1x GbE Intel® LAN
Form Factor	Mini-ITX 170 x 170 mm (6.7 x 6.7")
Available I/Os	2x COM / 1x PCI, 4x COM
Graphics Controller	Intel® GMA 500, LVDS on board
Graphic Interface	DVI / CRT / LVDS / 2x PCI-Express x1
Rear I/O	DVI or CRT, Ethernet, USB, line-in, line-out, speaker, PS/2 keyboard
Special Feature	GPIO, 2x SDIO
Additional	Up to 7 years availability
Partnumber	810291-4500 / 810293-4500

KTUS15/mITX - 1.6

CPU	Intel® Atom™ Z530 CPU BGA
CPU Clock	1.6 GHz Std / 1.6 GHz Plus
Front Side Bus	533 MHz
Chipset	Intel® US15 Embedded
DRAM	Up to 2 GB, SO-DIMM 200-Pin, 1x SODIMM
Video Memory	Up to 256 MByte shared video memory
IDE Interface	1x ATA100, 2x SATA 150/300
USB	8x USB 2.0
Ethernet	1x GbE Intel® LAN
Form Factor	Mini-ITX, 170 x 170 mm (6.7 x 6.7")
Available I/Os	2x/4x COM / 1x PCI
Graphics Controller	Intel® GMA 500, LVDS on board
Graphic Interface	CRT / DVI / LVDS / 2x PCI-Express x1
Rear I/O	DVI or CRT, Ethernet, USB, line-in, line-out, speaker, PS/2 keyboard
Special Feature	GPIO, 2x SDIO, TPM Onboard (Plus)
Additional	Up to 7 years availability
Partnumber	810290-4500 / 810292-4500

KTGM45/mITX

CPU	Intel® Core™2 Quad & Intel® Core™2 Duo
CPU Clock	Up to 3.06 GHz
Front Side Bus	667 / 800 / 1066 MHz
Chipset	Intel® GM45 + ICH9M-E
DRAM	Up to 8 GB DDR3, 2 pcs. DIMM 240 pin
Video Memory	Up to 256 MByte shared video memory
IDE Interface	4x SATA 150/300 w. RAID 0,1, 1x ATA133
USB	12x USB 2.0
Ethernet	Up to 3x GbE LAN
Form Factor	Mini-ITX 170 x 170 mm (6.7" x 6.7")
Available I/Os	1x PCI, 4x COM, 1x mini PCI-Express
Graphics Controller	Intel® GMA4500 MHD, LVDS onboard
Graphic Interface	CRT / LVDS / PCI-Express x16 / SDVO
Rear I/O	COM1, CRT,IEEE1394, Ethernet, USB, line-in, line-out, speaker, PS/2 mouse/keyboard
Special Feature	GPIO, IEEE1394, HDD RAID 0/1 support, AMT 4.0, TPM 1.2
Additional	Up to 7 years availability, ADD2-Cards for SDVO Interface for 2nd LCD, S-Video TV-out (optional), HD Audio, SPDIF
Partnumber	810350-4500

KT780/mITX (BGA)

CPU	Mobile AMD Sempron™ single core and AMD Turion™ dual core
CPU Clock	Up to 1.6 GHz
Front Side Bus	16 Lane Hyper Transport
Chipset	AMD 780E + SB710
DRAM	Up to 8 GB DDR3, 2 pcs. DIMM 240 pin
Video Memory	Up to 256 MByte shared video memory
IDE Interface	4x SATA 150/300 w. RAID 0,1,10, 1x ATA133
USB	12x USB 2.0
Ethernet	2x GbE Intel® LAN
Form Factor	Mini-ITX 170 x 170 mm (6.7" x 6.7")
Available I/Os	1x PCI, 2x COM, 1x mini PCI-Express
Graphics Controller	Radeon HD 3200, LVDS onboard
Graphic Interface	DVI / CRT / LVDS / TV-Out (optional) / PCI-Express x16
Rear I/O	COM1, CRT, DVI, TV-Out (optional), Ethernet, USB, line-in, line-out, speaker, PS/2 mouse/keyboard
Special Feature	GPIO, HDD RAID 0/1/10 support, TPM Onboard
Additional	Up to 7 years availability, S-Video TV-out (optional), HD Audio, SPDIF
Partnumber	TBD

* Please note: extended lifetime, not for new design, for this product last time shipment is August 2012

Basic Motherboards

The Kontron basic motherboard is a product line with a focus on performance and price. This line offers product longevity of up to 3 years, less complex/more basic features, and earlier product availability at the release of newer chipsets. You get all this in addition to the Kontron quality and support you've come to rely on.

After the successful launch of the basic motherboard KT780/ATX, Kontron has now extended its family of basic motherboards to include a high-performance variant based on the 45nm Intel® Core™ 2 Quad processor: The Kontron KTG41/ATXU basic motherboard. Compared to standard Micro-ATX motherboards, the new Kontron Micro-ATX basic motherboard with Intel® G41 Express chipset and LGA 775 socket for Intel® processors up to the 45nm Intel® Core™2 Quad processor Q9650 offer advanced design features that are well-suited for rugged environments plus up to 3 years product availability.

Compared to embedded motherboards that offer up to 7 years availability and support, basic motherboards focus on applications with faster innovation cycles and high demands on computing and graphics performance. Equipped with only the latest and most demanded interfaces, Kontron basic motherboards are extremely cost-effective, making them a good match for high-volume applications with fast innovation cycles such as those in the fields of Gaming/ Entertaimnent, Digital Signage, POS/POI, Hospitality (check-in terminals, ticketing machines, hotel multimedia terminals) or even industrial shop floor applications managing quality control.

Basic Motherboards	 KTG41/ATXU	 KT780/ATX
CPU	Intel® Core™ 2 Duo E8000 series and Intel® Core™ 2 Quad Q9000 series	AMD Athlon™ 64 & AMD Phenom™ Single to Quad Core
Chipset	Intel® G41 + ICH7R	AMD RS780 + SB700
DRAM	Up to 8 GByte, DDR3 1066, 2x DIMM-240	Up to 32 GByte, DDR2 800, 4x DIMM-240 - ECC Support
Video Memory	Up to 256 MByte shared video memory	Up to 256 MByte shared video memory
Form Factor	Micro-ATX 243.8mm x 243.8mm (9.6" x 9.6")	ATX 300.5 mm x 243.8mm (12" x 9.6")
Graphics Controller	Intel® GMA X4500	ATI Radeon HD 3200
Graphic Interface	CRT / PCI-Express x16	DVI / CRT / PCI-Express x16 2.0
Special Feature	HDD RAID 0/1/10 support, HD Audio, TPM support (optional)	HDD RAID 0/1/10 support, HD Audio, HDMI (optional), TPM support
Partnumber	810310-4500	810300-4500

Embedded Server Class Motherboard

Kontron has added an embedded server-class category to its already extensive portfolio of embedded and basic motherboard products. These motherboards feature long-life embedded server processors from Intel. These server boards are ideal for medical imaging, simulation, storage and multimedia telecom and data center markets. They also offer leading-edge remote management tools with support for KVM and VM over IP for real time access.

Embedded Server Motherboards	 KTC5520/EATX
CPU	Dual socket Intel® Xeon® 5500 series; New for Q2;10 – Dual socket support for the Next Generation Intel® Xeon® processor
Chipset	Intel® 5520 I/O Hub (36D) and I/O Controller Hub (ICH10R)
DRAM	96 GB DDR3 Registered ECC SDRAM; 12 (twelve) DIMM sockets
IDE Interface	Interface 6 SATA ports (3Gb/s)
USB	4 X USB 2.0
Form Factor	Server System Infrastructure (SSI) EBB Form factor
Available I/Os	Two 10/100/1000 Mbps Ethernet (Intel® 82576EB); 1x 10/100/1000 Mbps Mangement; Integrated VGA XGI Volari Z9
Rear I/O	VGA; PS/2 Mouse and PS/2 Keyboard; Serial (DB-9); Audio In, Out Speaker Out; 2 X Gbe RJ-45
Available Extensions	4 PCIe2 x8, 1 PCIe x4, 1 PCI 32/33 5V
Special Features	On board remote management: Extensive sensors monitoring and event generation on thresholds; Serial over LAN (IPMI v2.0); Trust Platform Management 1.2; UL, CE, NEBS Level 3 (designed for), FCC B; IPMI v2.0

ADD2-cards

ADD2-Cards add extra digital flat panel display support by using onboard graphics interface connectors such as PCI-Express/SDVO. The solution is flexible and cost effective. By using an ADD2-Card, you can build a low-cost, single LCD-supported system. By adding an ADD2-Card to motherboards that have onboard LVDS support, you can drive two LCDs from a single motherboard. Kontron offers both LVDS, CRT, HDMI and DVI interface ADD2-Cards.

ADD2-cards	 ADD2-CRT-Internal	 ADD2-DVI-DUAL-Internal	 ADD2-DVI-DUAL-Internal-External	 ADD2-LVDS-Internal
Series	ADD2-Card	ADD2-Card	ADD2-Card	ADD2-Card
Video Output	CRT	Single or Dual DVI	Single or Dual DVI	Single output LVDS
Resolution	Up to 1600x1200	1600x1200 / 1920x1080	1600x1200 / 1920x1080	1600x1200 / 1920x1080
Applicable Motherboards	986LCD-M, KT965, KTQ45, KTG41 and KTGM45 families	986LCD-M, KT965, KTQ45, KTG41 and KTGM45 families	986LCD-M, KT965, KTQ45, KTG41 and KTGM45 families	986LCD-M, KT965, KTQ45, KTG41 and KTGM45 families
Height	Low Profile	Low Profile	Low Profile	Low Profile
Interface	PCI-Express/SDVO	PCI-Express/SDVO	PCI-Express/SDVO	PCI-Express/SDVO
Partnumber	820954	820951	820952	820953

ADD2-cards	 ADD2-LVDS-DUAL-Internal	 KT-PCIe-DVI-HDMI	 KT-PCIe-HDMI-DVI-I
Series	ADD2-Card	AMD PCIe Card	Intel® PCIe Card
Video Output	Single or dual output LVDS	DVI & HDMI	DVI & HDMI
Resolution	1600x1200 / 1920x1080	Up to 1920x1200	Up to 1920x1200
Applicable Motherboards	986LCD-M, KT965, KTQ45, KTG41 and KTGM45 families	KT690/mITX & KT780/ATX	KTQ45 and KTGM45 families
Height	Low profile	Low Profile	Low Profile
Interface	PCI-Express/SDVO	PCI-Express	PCI-Express
Partnumber	820950	820957	820977

» AdvancedTCA «

SCOPE

CP-TA

AdvancedTCA®

PICMG

AdvancedTCA Integrated Open Modular Platforms

Kontron is a preeminent AdvancedTCA platform provider that can pre-validate, pre-test and, of course, provide the flexibility to integrate even third-party ATCA/AMC hardware and OS/Middleware/HPI software.

The Kontron OM Series of carrier-grade, high-density AdvancedTCA platforms is designed from a full range of GbE and 10GbE AdvancedTCA processor nodes, switches, carriers, plus a unique portfolio of AdvancedMC processor, storage and I/O modules.

Our goal always remains the same – to see your new application designs go to market faster and more cost-effectively. As a commercial-off-the-shelf (COTS) platform provider, Kontron offers telecom equipment manufacturers (TEMs) and network equipment providers (NEPs) an exceptional business solution to counter the high costs of in-house, proprietary hardware designs.

ATCA OM platforms

Integrated Open Modular Platforms

The Kontron OM Series of ATCA open modular platforms are pre-integrated, pre-validated and pre-tested to accelerate new application designs for faster market deployment. As a carrier-grade, high-density platform, Kontron integrated platforms offer TEMs and NEPs exceptional transaction processing performance with low latency and High Availability (HA) in redundant N+1 configurations. Kontron integrated platforms are ideal for a full range of GbE to 10GbE applications found in existing wireless-wireline and IMS networks. Some examples include Session (Call Servers, Media Gateway Controllers, IMS-SCSF, HLR/HSS) and Media (High throughput media processing for IPTV, Content Adaptation, and Content Filtering).

7 KEY BENEFITS TO TEMs & NEPs

» Faster time-to-market
» Development cost savings
» Reduced inventory costs
» Faster upgrades to new technology advances
» Consistent long-life product support
» Achieve shorter lead times for build-to-order systems
» Global service & maintenance

ATCA OM platforms	 OM9140	 OM9060	 OM9020
Form Factor	13U GbE Platform; 10GbE options	5U GbE Platform; 10GbE options	2U GbE Platform; 10GbE options
Connectivity	Supports Dual-Star GbE or 10GbE channels on Fabric Interface	Supports Dual-Star GbE or 10GbE channels on Fabric Interface	GbE or XAUI direct interconnect
Slot	14	6	2
NEBS	Designed for Level 3 compliance	Designed for Level 3 compliance	Designed for NEBS Level 3 compliance
Platform Software	Options for: Red Hat Enterprise; Linux V.5, or Wind River Linux PNE 1.4; ENEA Element 2.0 HA middleware; support for IPMI 1.5	Options for: Red Hat Enterprise; Linux V.5, or Wind River Linux PNE 1.4; ENEA Element 2.0 HA middleware; support for IPMI 1.5	Options for: Red Hat Enterprise; Linux V.5, or Wind River Linux PNE 1.4; ENEA Element 2.0 HA middleware; support for IPMI 1.5
Node	12x slots for GbE or 10 GbE multi-core processor and/or carrier nodes	4x slots for GbE or 10 GbE multi-core processor and/or carrier nodes	2 Slots for GbE or 10GbE multi-core processor and/or carrier nodes
Switching	Fabric: 2x GbE switches, or 2x 10 GbE options; Base: 2x GbE	Base Interface (GbE); Fabric (1xGbE/2xGbE)	N/A
Storage	SAS/SATA AMCs	SAS/SATA AMCs	SAS/SATA options via AMC or RTM
Front IO	Quad GbE AMCs (option)	Quad GbE AMCs (option)	8x GbE or 4x GbE + 2x 10GbE
Rear IO	All Slots	All Slots	All Slots
Open Slots	Based on customer requests	2 slots on base configuration	Based on customer requests
Shelf Manager	Single or Dual	Single or Dual	Single or Dual
Bus type	Dual Star	Dual Star	GbE or XAUI direct interconnect
Basic Configuration	Session Processor (containing Processor Blades) or Media Server (containing Processor Blades, Carrier Blades and DSPs) or Gateway (containing Processor Blades, Carrier Blades, DSPs and Line Cards)	Session Processor (containing Processor Blades) or Media Server (containing Processor Blades, Carrier Blades and DSPs) or Gateway (containing Processor Blades, Carrier Blades, DSPs and Line Cards)	Processor Blade (AT8030) c/w 3 Dual Core processor; Carrier Blade (AT8404); Total of 5 AMC slots (for Line Cards, DSPs, Network Service Processors, storage)
Customer Configuration	on demand	on demand	on demand

Processor Boards/Blades

Processor, Switch and Carrier Blades – Choose from a complete Kontron portfolio of AdvancedTCA GbE and 10GbE processor, switch and carrier blades to build your next AdvancedTCA-based carrier grade system.

Each platform element provides System High Availability (HA) and high levels of modularity and configurability. This permits an ease of integration of multiple functions and new features, all on the same platform. There are major spin-off benefits for mobile-telco service providers, who can expect reductions in CAPEX and OPEX, with reusable network systems and a greater flexibility to quickly introduce and terminate – "Swap-in/Swap-out" – subscriber services with no downtime. Even more significant for your carrier clients clients is they will be able to effortlessly grow their networks as their subscriber traffic increases. Kontron, with its global production and logistics capabilities, offers the advantages of one of the broadest ranges of computer technology for the communications market combined with industry-leading services, such as system assembly and middleware and OS implementation.

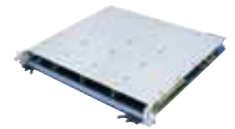
Processor Boards/Blades

AT8050

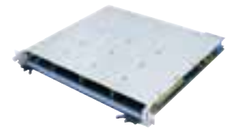
AT8020

	AT8050	AT8020
CPU	Intel® Xeon® Quad-Core L5518 processor; New for Q2;10 – single socket support for the Next Generation Intel® Xeon® processor	Dual Intel® Dual Core LV Xeon™ 2.0 GHz
Front Side Bus	-	667 MHz
CPU L2 Cache	-	Dual 2 MByte
Chipset	Intel® 5520 I/O Hub (36D) and I/O Controller Hub (ICH10R)	Intel® E7520 MCH + 6300ESB
DRAM	Support for up to 48 GB on 3-channels, DDR3 1066 MHz, ECC, registered SDRAM on 6 DIMM sockets total	Up to 16 GByte DDR2 400 ECC registered SDRAM via DIMM sockets
Flash	Two redundant 1MB BIOS (Field software upgradeable)	CompactFlash
Frontpanel	Serial (RJ-45), 2 i82576 Management LAN (RJ-45), 2 USB	Ethernet, COM1, 1x USB, 2x AMC, LEDs
Connectivity	2x 10/100/1000 Base-T (Base Interface); 2x 10Gb XAUI (Fabric Interface); Gen 2 PCI Express x4 to Update Channel and to RTM; Telecom clock support in Zone 2 and AMC	Dual GbE on Base Interface, Dual GbE + Fiber Channel on Fabric Interface
Mezzanine	1 x AMC (mid-size); Hot Swap SAS/SATA HDD available via RTM8050	2x AMC (mid-size), optional SAS or Fiber Channel
Compliance	PICMG 3.0R3 / 3.1 Option 9, Option 2	PICMG 3.0, PICMG 3.1

Carrier Boards



AT8404 Quad AMC Carrier (mid-size)



AT8402 Quad AMC Carrier (mid-size)

	AT8404 Quad AMC Carrier (mid-size)	AT8402 Quad AMC Carrier (mid-size)
Base Interface Support	Two Gigabit Ethernet	Two Gigabit Ethernet
Fabric Interface Support	Two 10 Gigabit Ethernet	Two Quad Gigabit Ethernet
AMC Slots	4 mid-size bays OR 2 mid-size bays + 1 mid-size double-bay, OR, 2 mid-size double-bays (cut away for SAS drives and enhanced cooling)	4 mid-size bays OR 2 mid-size bays + 1 mid-size double-bay, OR, 2 mid-size double-bays (cut away for SAS drives and enhanced cooling)
Usage Models for AMC Slots	Support for 2x GbE, IPMI, Telco Clock	Support for 2x GbE, 1x SATA/SAS, 4/8x PCI Express, IPMI, Telco Clock
GbE Switch Features	Multicast Support, extended QoS, VLANs	Multicast Support, extended QoS, VLANs
Ethernet/Bridging Protocols	Include VLANs (802.1Q), Link Aggregation (802.3ad), Spanning Tree (802.1D, 802.1w), QoS (802.1p), Flow Control (802.3x), GVRP, GMRP	Include VLANs (802.1Q), Link Aggregation (802.3ad), Spanning Tree (802.1D, 802.1w),QoS (802.1p), Flow Control (802.3x), GVRP, GMRP
RTM Support	2 x SAS/SATA & SAS/SATA HD on RTM (AT8404) 4x SAS/SATA Storage (AT8400;AT8402), Dual Gb Ethernet, X8 lanes per AMC Rear I/O, out of band Management 10/100/1000 Base-T and RS232	2 x SAS/SATA & SAS/SATA HD on RTM (AT8404) 4x SAS/SATA Storage (AT8400;AT8402), Dual Gb Ethernet, X8 lanes per AMC Rear I/O, out of band Management 10/100/1000 Base-T and RS232
Configuration Options	SAS-SATA / Gigabit Ethernet combinations	PCI-Express / SAS-SATA / Gigabit Ethernet combinations
Management	SNMP, TELNET, Command Line Interface in-band or out of band via 10/100/1000 Base-T or RS232 on front plate or RTM	SNMP, TELNET, Command Line Interface in-band or out of band via 10/100/1000 Base-T or RS232 on front plate or RTM
IPMI	Version 1.5	Version 1.5
Controller	PPC405GPr 400 MHz, 256 MByte SDRAM, 64 MByte Flash	PPC405GPr 400 MHz, 256 MByte SDRAM, 64 MByte Flash

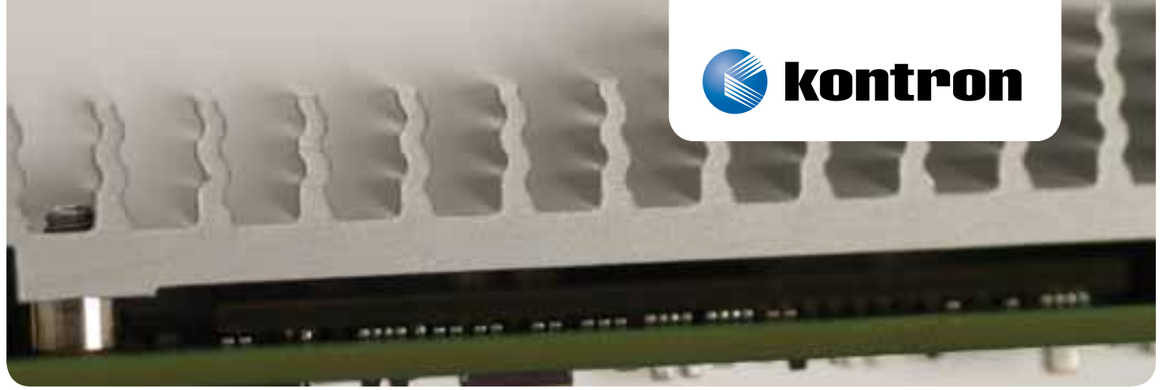
Hub Boards

AT8904 (mid-size)

AT8902 (mid-size)

AT8901 (mid-size)

	AT8904 (mid-size)	AT8902 (mid-size)	AT8901 (mid-size)
Base Interface Support	Gigabit Ethernet to 14 Payload Slots	Gigabit Ethernet to 14 Payload Slots	Gigabit Ethernet for 14 Payload Slots
Fabric Interface Support	10 Gigabit Ethernet to 14 Payload slots	Dual Gigabit Ethernet to redundant Hub Board, Dual Gigabit Ethernet to Payload Slots 2-5, Gigabit Ethernet to Payload Slots 6-15	-
Support for 14 Slot Shelves	Yes	Yes	Yes
Support for 16 Slot Shelves	Yes	Yes	Yes
AMC Slots	2 mid-size slots OR 1 AMC (mid-size; double-wide) bay	2 AMC (mid-size) bays OR 1 AMC (mid-size; double-wide) bay	2 AMC (mid-size) bays OR 1 AMC (mid-size; double-wide) bay
Usage Models for AMC Slots	AMC Slots can be used for Processor-AMCs, Storage-AMCs, Uplink-AMCs	AMC Slots can be used for Processor-AMCs, Storage-AMCs, Uplink-AMCs	AMC Slots can be used for Processor-AMCs, Storage-AMCs
Uplinks for Base Interface	4x 10/100/1000 Base-T	4x 10/100/1000 Base-T	4x 10/100/1000 Base-T
Uplinks for Fabric Interface	1x 10/100/1000 Base-T plus 4x 10 GBit Ethernet via AMC Slots	4x 10/100/1000 Base-T plus 4x 10 GBit Ethernet via AMC Slots	-
Routing Protocols	Include OSPFv2, RIPv2, VRRP, IGMP Snooping, DiffServ, ARP, ICMP	Include OSPFv2, RIPv2, VRRP, IGMP Snooping, DiffServ, ARP, ICMP	Include OSPFv2, RIPv2, VRRP, IGMP Snooping, DiffServ, ARP, ICMP
Ethernet/Bridging Protocols	Include VLANs (802.1Q), Link Aggregation (802.3ad), Spanning Tree (802.1D, 802.1w), QoS (802.1p), Flow Control (802.3x), GVRP, GMRP	Include VLANs (802.1Q), Link Aggregation (802.3ad), Spanning Tree (802.1D, 802.1w), QoS (802.1p), Flow Control (802.3x), GVRP, GMRP	Include VLANs (802.1Q), Link Aggregation (802.3ad), Spanning Tree (802.1D, 802.1w), QoS (802.1p), Flow Control (802.3x), GVRP, GMRP
RTM Support	2x SAS/SATA Storage, 4x/8x lanes per AMC Rear I/O	2x SAS/SATA Storage, 4x/8x lanes per AMC Rear I/O	2x SAS/SATA Storage, X4/X8 lanes per AMC Rear I/O
Shelf Manager Crossconnect Support	Yes	Yes	Yes
Management	SNMP, TELNET, Command Line Interface in-band or out of band via 10/100 Base-T or RS232	SNMP, TELNET, Command Line Interface in-band or out of band via 10/100 Base-T or RS232	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	Version 1.5
RoHS compliant	yes	yes	yes



» AdvancedMCs «

AdvancedMC™ PICMG®

A new form factor defined by a PICMG standard has already established itself on the market – Advanced Mezzanine Cards (AMC), the mutual part of AdvancedTCA and MicroTCA. AdvancedMCs are based on serial interfaces and support different transport systems such as, for example, PCI-Express, Gigabit Ethernet, 10 Gigabit Ethernet, Serial Rapid I/O and SAS (Serial Attached SCSI)/SATA (Serial ATA). AMCs are flexible, powerful and simple to integrate into the AdvancedTCA or MicroTCA concept.

AMCs are offering:

» High Data Throughput via high speed serial interconnects

» High Managability via IMPI concept and interoperability check

» High Serviceability through hot swap cabability

Processor AMCs Double-Width

	AM5030	AM5020	AM5010
CPU	Intel® Quad Core 1.73 GHz	Intel® Core™ i7-620LE LV 2.0 GHz and i7-610LE SV 2.53 GHz	Intel® Core™2 Duo 1.5GHz
Front Side Bus	-	-	667 MHz
CPU L2 Cache	8 MByte (LLC)	4 MByte (LLC)	4 MByte
Chipset	PCH 3420	PCH QM57	Server-class chipset Intel® 3100
DRAM	Up to 24 GByte registered DDR3 1067 MHz with ECC (3 channels)	Up to 8 GByte soldered registered DDR3 1066 MHz with ECC	Up to 4 GByte soldered registered DDR2 400 MHz with ECC
Flash	Socket for SATA NAND Flash module	Socket for SATA NAND Flash module	Socket for 16 GByte USB NAND Flash module
Frontpanel	2x GbE, 1x VGA, 2x USB 2.0, 1x COM (RJ45), 4 Control/Status LEDs (bi color), Reset button	2x GbE, 2x DisplayPort, 2x USB 2.0, 1x COM (RJ45), 4 Control/Status LEDs (bi color), Reset button	2x GbE, 1x DVI-I, 2x USB 2.0, 1x COM (RJ45), 4 Control/Status LEDs (bi color), Reset button
Form Factor	Double width, full-size	Double width, full-size or mid-size	Double width, full-size or mid-size
Graphics	SM 750	Integrated in Core i7	ATI ES1000
Connectivity	System Interconnect: 2x GbE, 2x 10 GbE, 1x PCI-Express x4, 4x SATA, 1x COM	System Interconnect: 2x GbE, 2x PCI-Express x4, 4x SATA, 1x COM	System Interconnect: 2x GbE, 1x PCI-Express x4, 2x SATA, 1x COM
Compliance	PICMG: AMC.0 R2.0 / AMC.1 / AMC.2 / AMC.3; IPMI V1.5	PICMG: AMC.0 R2.0 / AMC.1 / AMC.2 / AMC.3; IPMI V1.5	PICMG: AMC.0 R2.0 / AMC.1 / AMC.2 / AMC.3; IPMI V1.5
Options	Up to 32 GB SATA NAND Flash module	Onboard 2.5“ SATA HDD/SDD, Up to 32 GB SATA NAND Flash module	Onboard 2.5“ SATA HDD/SDD, Up to 16 GByte USB NAND Flash module

Processor AMCs





	AM4020	AM4011	AM4010	AM4101	AM4100
CPU	Intel® Core™ i7-620LE LV 2.0 GHz and i7-610LE SV 2.53 GHz	Intel® Core™2 Duo 1.5GHz	Intel® Core™2 Duo 1.5GHz	Freescale dual-core Power PC MPC8641D, 1.5GHz	Freescale dual-core Power PC MPC8641D, 1.5GHz
Front Side Bus	-	667 MHz	667 MHz	-	-
CPU L2 Cache	4 MByte (LLC)	4 MByte	4 MByte	Dual 1 MByte	Dual 1 MByte
Chipset	PCH QM57	Server-class chipset Intel® 3100	Server-class chipset Intel® 3100	-	-
DRAM	Up to 8 GByte registered DDR3 1066 MHz with ECC	Up to 4 GByte registered DDR2 400 MHz with ECC	Up to 4 GByte registered DDR2 400 MHz with ECC	Up to 2 GByte soldered DDR2 600 MHz with ECC	Up to 2 GByte soldered DDR2 600 MHz with ECC
Flash	Socket for SATA NAND Flash module	Socket for USB NAND Flash module	Socket for USB NAND Flash module	2 GByte NAND Flash with onboard controller for application code and data	512 MByte NAND Flash with onboard controller for application code and data
Frontpanel	2x GbE, 1x USB 2.0 (mini 5-pin), 1x COM (mini 10-pin) or DisplayPort, 4 Control/ Status LEDs (bi color)	1x GbE, 1x USB 2.0, 1x COM (mini pin-row), 4 Control/Status LEDs (bi color)	1x GbE, 1x USB 2.0, 1x COM (RJ45), 4 Control/Status LEDs (bi color)	2x GbE, 1x COM (RJ45), 4 Control/Status LEDs (bi color)	2x GbE, 1x COM (RJ45), 4 Control/Status LEDs (bi color)
Form Factor	Single width, full-size or mid-size	Single width, full-size or mid-size	Single width, full-size or mid-size	Single width, full-size or mid-size	Single width, full-size or mid-size
Graphics	Integrated in Core i7	-	-	-	-
Connectivity	System Interconnect: 2x GbE, 2x PCI-Express x4, 4x SATA, 1x COM	System Interconnect: 2x GbE, 1x PCI-Express x4, 2x SATA, 1x COM	System Interconnect: 2x GbE, 1x PCI-Express x4, 4x SATA, 1x COM	System Interconnect: 2x GbE, 1x PCI-Express x4, 1x sRIO x4, 1x COM	System Interconnect: 2x GbE, 1x PCI-Express x4 or 1x sRIO x4, 1x COM
Compliance	PICMG: AMC.0 R2.0 / AMC.1 / AMC.2 / AMC.3; IPMI V1.5	PICMG: AMC.0 R2.0 / AMC.1 / AMC.2 / AMC.3; IPMI V1.5	PICMG: AMC.0 R2.0 / AMC.1 / AMC.2 / AMC.3; IPMI V1.5	PICMG: AMC.0 R2.0 / AMC.1 / AMC.2 / AMC.4; IPMI V1.5	PICMG: AMC.0 R2.0 / AMC.1 or AMC.4 / AMC.2; IPMI V1.5
Options	Up to 32 GByte SATA NAND Flash module	Up to 16 GByte USB NAND Flash module	Up to 16 GByte USB NAND Flash module	-	-

I/O AMCs






	AM4220	AM4210	AM4204	AM4311	AM4310	AM4301
Interface	2x SFP+ 10GbE and Serial RJ45	4x SFP GbE	4x SFP GbE	4x SFP GbE	2x 10 Gigabit Ethernet	4x Gigabit Ethernet
Form Factor	Mid-size	Mid-size	Mid-size	Mid-size	Mid-size	Mid-size
Characteristics	Cavium OCTEON Plus 5650 Network Service Processor provides high-density, high-bandwidth serial I/O for networking; 12x MIPS64 R2 Cores; 600Mhz	Cavium OCTEON Plus 5650 Network Service Processor provides high-density, high-bandwidth serial I/O for networking; 12x MIPS64 R2 Cores; 600Mhz	Cavium OCTEON Plus 5650 Network Service Processor provides high-density, high-bandwidth serial I/O for networking; 12x MIPS64 R2 Cores; 600Mhz	Direct-connect GbE ports from an AMC connector of an AMC carrier or a µTCA system to the front.	Accessory for AT8902M/ AT8904M/AT8902, provides shelf interconnect for Fabric Interface, supports two XFP modules	Jumbo Frames (9 kByte), Advanced packet filtering, Transmit and receive IP, TCP and UDP checksum offloading capabilities, PCLE towards AMC connector
Compliance	AMC.0 R2.0 Advance Mezzanine Card Base Specification	AMC.0 R2.0 Advance Mezzanine Card Base Specification	AMC.0 R2.0 Advance Mezzanine Card Base Specification	AMC.0 R2.0 / AMC.2	AMC.0 R2.0 / AMC.2 R1.0 Type 6	AMC.0 R2.0 / AMC.1 R1.0 Type 4
Controller	Dual Gigabit Ethernet Controller Intel® 82571EB	Dual Gigabit Ethernet Controller Intel® 82571EB	Dual Gigabit Ethernet Controller Intel® 82571EB	-	none (controlled via Hub Board, e.g. AT890x)	2x Dual Gigabit Ethernet Controller Intel® 82571EB

Mass Storage AMCs





	AM5500	AM4500	AM4510	AM4520	AM4521
Interface	2x SATA	SATA I	SATA 1 and SATA II	SAS	SAS
Storage Technology	HDD or SDD	Extended Duty Rotating Drive	Solid State Flash Drive	Serial Attached Storage Drive	Serial Attached Storage Drive
Capacity	Up to 2x 500 GByte	Up to 250 GByte	Up to 64 GByte	76 GByte or 143 GByte	143 GByte SAS Drive
Form Factor	Mid-size	Full-size or mid-size	Full-size or mid-size	Full-size or mid-size*	Mid-size only
Access	depending on selected storage device	7,200 RPM, avg seek time 12 ms	75 microseconds	10,000 RPM, avg seek time 4.1 ms	10,000 RPM, avg seek time 4.1 ms
Sequential Bandwidth RW	depending on selected storage device	8 MByte cache 150 MByte/s burst	250 / 170 MByte/s Sustained 300MByte/s burst	8 MByte cache 300 MByte/s burst	8 MByte cache 300 MByte/s burst
Characteristics	depending on selected storage device	24 hours / 7 days operation	NEBS level 3; 24 hours / 7 days operation	24 hours / 7 days operation	24 hours / 7 days operation
Compliance	AMC.0 R2.0 / AMC.3 R1.0	AMC.0 R2.0 / AMC.3 R1.0	AMC.0 R2.0 / AMC.3 R1.0	AMC.0 R2.0 / AMC.3 R1.0	AMC.0 R2.0 / AMC.3 R1.0
Operating Temperature	0-55 °C with HDD, 0-70°C wit SSD	5-40 °C	0-70 °C	0-55 °C	5-55 °C

* Mid-Size version height exceeds component envelope as outlined in the AMC.0 R 2.0 specification.

» MicroTCA «

µTCA™ PICMG®

MicroTCA is a new open modular standard developed by the PICMG committee. MicroTCA is complementary to AdvancedTCA (ATCA). Where ATCA is optimized for very high capacity, high performance applications, MicroTCA is designed to address cost sensitive and physically smaller applications with lower capacity, performance, and perhaps less stringent availability requirements.

MicroTCA preserves many of the important philosophies of ATCA, including basic interconnect topologies and management structure. MicroTCA has a primary purpose of serving as a platform for telecommunications and enterprise computer network equipment. Its secondary goal is to function as a platform for other demanding market places, such as Customer Premises Equipment (CPE). By configuring highly diverse collections of AMCs in a MicroTCA Shelf, many different application architectures can be easily realized. The common elements defined by MicroTCA are capable of inter connecting these AMCs in many interesting ways – powering and managing them, all at high efficiency and low cost.

Some Further Benefits of MicroTCA:
» Complementary to AdvancedTCA
» Full conformance with the AMC.0 definition
» Support any/all AMC-defined form factors
» Favorable cost, size, and modularity
» Target low start-up costs
» Modular and serviceable
» Hot Swap/plug&play support, in conformance with AMC.0 and consistent with AdvancedTCA

Because of the diverse configurations available with AdvancedMCs, MicroTCA platforms can be found throughout many application spaces today. The common elements defined by the MicroTCA standard allow the AMCs to be configured in many ways.

Powering and managing the AMCs with high efficiency demands a solid MicroTCA Carrier Hub (MCH). The MCH plays a key role in each individual MicroTCA platform in regards to felxibility, features and cost. Kontron offers different levels of MCH functionality to meet the needs of every application.

Requirement Summary

» High performance and throughput
» Multi-Processor
» Advanced Switching Requirements
» Advanced System Management
» Hot-Swap
» Redundant

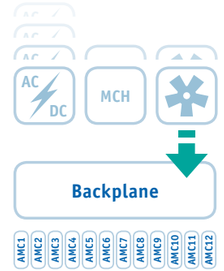
HIGH

LEVEL OF REQUIREMENTS

LOW

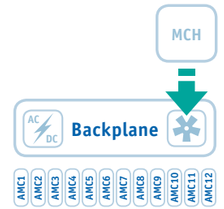
» High performance and throughput
» Multi-Processor
» Basic Switching Requirements
» Basic System Management
» IO-oriented

Fully-Featured



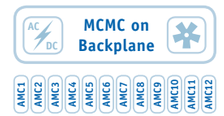
» Completely redundant
» Fully featured MCH
» Power Modules
» Cooling Units

Cost-optimized



» Simple Power Supplies
» Simple Fans
» Simple MCH

Lowest cost



» Simple Power Supplies
» Simple Fans
» MCMC Module on Backplane

MCH

AM4904 / AM4910

» Fully Featured MCH
  » MCMC incl. remote Mgt. + Managed Switch
  » GbE, PCIe, SRIO (AM4904)
  » 10GbE (AM4910)

AM4901

» Basic MCH
  » MCMC + Unmanaged Switch
  » GbE

AM5901R

AM2901

» MCMC module for MicroTCA
  » Management over IPMI
  » No fabrics

MicroTCA Carrier Hub – MCH

A MicroTCA Carrier Hub (MCH) plays a key role in the design of a MicroTCA platform. It combines the control and management infrastructure and the interconnect fabric resources needed to support up to twelve AdvancedMCs in a MicroTCA Platform. A MCH has the same form factor as an AdvancedMC. MCHs are the infrastructure elements that are shared by all AdvancedMCs. Since MCHs represent a single point of failure in a MicroTCA platform (where any fault could bring down the entire system), it is possible to include a pair of MCHs to make the solution suitable for High Availability (HA) applications.

AM4904 / AM4910

The AM4904/AM4910 is a fully featured MCH providing high sophisticated system management and high performance switching capabilities for up to 12 AdvancedMC™ modules.

The AM4904 supports a Layer 2 (on request Layer 3) managed GbE switch combined with additional switching options for 10 GbE, PCIe or SRIO.

Completing the rich feature-set of the MCH by offering various clocking functions the AM4904/AM4910 is the perfect match for advanced communication application requirements.

» Fully-featured MCH for up to 12 AMCs, 2 Power Modules and 2 Cooling Units
» Enterprise class switching functions
» Sophisticated management capabilities
» Layer 2 (on request Layer 3) managed GbE switch, optionally PCIe, SRIO or 10 GbE
» 2x GbE or 2x 10 GbE Uplink channels
» Update channel to redundant MCH

AM4901 / AM5901

The AM4901 and AM5901 are entry-level MCH solutions which enables cost-effective MicroTCA system designs. The two main functions of an MCH are system management (i.e. IPMI controlled power management, electronic keying, hot-swap of AMCs) and Ethernet switching. The AM4901 / AM5901 provide these functions for 6 AMCs - designed as a single PCB solution with one tongue only. The AM4901 / AM5901 contain an unmanaged Ethernet switch, which simplifies designs and improves costs (lower cost com–ponents, no switch controller, no software for switch controller). The AM5901 as a double AMC form factor offers more front panel space allowing a broader set of uplink capabilities compared to the single AMC form factor. Furthermore the AM5901 is designed to meet MicroTCA.1 requirements achieving higher robustness and shock and vibration resistance.

» Cost optimized design by focusing to essential requirements
» System management + Unmanaged Ethernet Switching
» Low power consumption
» High reliability (MTBF > 620 000 h)

AM2901

The AM2901 is the smallest possible solution to provide as an MicroTCA Carrier Management Controller (MCMC) system management functions in a compact MicroTCA design. These functions include i.e IPMI controlled power management, electronic keying, hot-swap of AMCs). The AM42901 is the optimized solution where switching capabilities are not required.

» Cost optimized design for small custom MicroTCA solutions
» System management only - MCMC
» Lowest power consumption
» Highest reliability (MTBF > 2 000 000 h)

MicroTCA OM platforms

MicroTCA and AMC-Systems the (re)Evolution

The advent of the MicroTCA open standard is quickly proving to gain considerable traction as an architecture that fulfills a need for various telecom applications that do not require the size and cost of a complete ATCA system. One of the significant factors behind the success of MicroTCA is its reuse of support of the ecosystem of new and existing AMC modules. Even though it was designed for telecommunication applications, the application areas for MicroTCA go far beyond.

Among these applications are communication technologies and image processing in the military and medical area, Professional Mobile Radio, multiprocessing systems in industrial automation, as well as avionic servers. Other areas of application include infotainment, video surveillance and information systems. The MicroTCA specification today supports managed systems consisting of processors, DSP, Network Service Processors, storage, line cards, I/O cards and RF modules. Among the benefits of MicroTCA is the flexibility with respect to interconnecting AMCs over PCI-Express, Ethernet (1GbE and 10GbE), Serial Rapid IO and SAS/SATA.

Basically all application areas combine the following requirements:
» Multiprocessor systems
» High network capacity
» Low latency
» Large data throughput

MicroTCA OM platforms

	OM6040 Compact	OM6060	OM6120	OM6062
Form Factor	3U	3U	5U	5U
Slot	4x single width	6x single width	12x single width	6x single or double width
Power Supply	250W AC	250W AC	300W or 2x 300W AC	300W AC
Connectivity	GbE, PCIe or SRIO switching, SATA as P2P	GbE switching, PCIe, SRIO, SATA as P2P	GbE, PCIe, SRIO, 10GbE switching, SATA as P2P	GbE switching, PCIe, SATA as P2P
MCH	AM4904-BASE, AM4904-PCIE, AM4904-SRIO	AM4901, AM4904-BASE	AM4904-BASE, AM4904-PCIE, AM4904-SRIO, AM4910	AM5901
Basic Configuration	MCH and Processor AMCs	MCH and Processor AMCs	MCH and Processor AMCs	MCH and Processor AMCs
Customer Configuration	on demand line cards, DSPs, I/O	on demand line cards, DSPs, I/O	on demand line cards, DSPs, I/O	on demand I/O cards
Characteristics	Compact, high performance	Value oriented	High performance, high density	Cost optimized, front I/O connectivity

OM5080

The OM5080 provides the lowest per-slot cost for carrier grade MicroTCA today by integrating both the MCH and Power Module functionality in the 2U chassis. The OM5080 is ideally suited for high bandwidth multi-processor and I/O intensive applications that need be deployed in a small footprint.

Key Features:
» 2U integrated carrier grade platform
» 8 mid-size AdvancedMCs
» Dual integrated MCH
» Dual integrated AC or DC Power Supply

OM6061

The OM6061 is a highly flexible, Carrier Grade 1U platform for Central Office and service aggregation point applications, and is fully pre-tested with Kontron storage, processor, and network processor AdvancedMC modules.

» Cost-efficient MCH module and six (6) AMC slots
» Front-to-back cooling and integrated 360W -48V or -60V power supply
» Designed for NEBS compliance

OM5080

	OM6061	OM5080
CPU	AM4010 (processor), AM4204 (network processor)	2x AM4010 processor AMC
Form Factor	1U	2U
Connectivity	GbE, PCIe	GbE, PCIe
Options	Packet processor cards, Storage, DSPs, I/O	line cards, DSPs, I/O
Slot	6	8
Platform Software	Linux Kernel 2.6 installed; IPMI compliant on Carrier	Linux Kernel 2.6 installed; IPMI compliant on Carrier
Switching	MCH module	single star base & fabric
Storage	AM4510 SSD Module	SAS/SATA AMCs (option)
Front IO	8x GbE or 4x GbE + 2x 10GbE	8x GbE or 4x GbE + 2x 10GbE
Open Slots	6	6
MCH	AM4901	on Carrier (GbE, PCIe, SAS/SATA point-to-point)
Basic Configuration	Designed to meet NEBS; fully pre-tested with AM4510 (storage), AM4010 (processor), and AM4204 (network processor) AdvancedMC modules.	8 AMC Slots (2 x AM4010, 6 slots for customiziation, 2x GbE per AMC, 8 GbE Uplinks or 8 AMC Slots (2x AM4010, 6 slots for customiziation, 5x GbE per AMC, 4x GbE + 2x 10GbE Uplinks
Customer Configuration	On Demand	on demand

Rugged MicroTCA

Modern warfare systems must expertly blend issues of ruggedness, flexibility, mobility and high-end processing. MicroTCA boards and systems are designed to meet NEBS Level 3 requirements, addressing demands such as thermal margins, fire suppression, emissions and the ability to continue working even during a severe earthquake. As a result, standard MicroTCA systems are beyond rugged enough for environments such as ground installations or on certain types of airborne platforms.

MicroTCA systems can offer up to 12 slots, which makes the platform highly suitable for high-bandwidth, high-performance military applications.

» **MicroTCA.0:** Base Specification
  » 7G Shock, 0.5G Amplitude Vibe (IEC 61587-1 DL1)
» **MicroTCA.1:** Air Cooled Rugged - Extended Environment
  » Standard AMCs, but fixed on front
  » 25G Shock, 3G Amplitude Vibe (XR1: IEC 61587-1 DL3 or XR2: VITA 47 V2 vibe)
  » Extended Temperature (XTL1: -40°C to 55°C, XT1: -40°C to 70°C)
» **MicroTCA.3:** Rugged Conduction Cooled and Hardened Air Cooled - MIL Environment

AM4010 clamshell

» Rugged, conduction cooled single AMC
» Intel® Core™ Duo 1.5 GHz

OM6062

» MicroTCA.1 face plates
» MicroTCA.1 card cage

Conduction Cooled Platform

» AMC clamshells for conduction cooling
» Management via MMC Module (AM2901)

» 6U CompactPCI Performance Line «

The Requirements are Obvious

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

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

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

CompactPCI is the Answer

Industrial PCs traditionally focus on improved mechanics to overcome the limitations posed by the standard PC set-up. This changed dramatically with the invention of CompactPCI, the fully industrialized version of desktop PC technology.

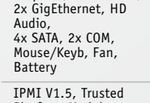
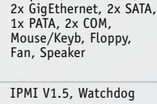
In the past, price played a decisive role when deciding to invest in a PC-based system. Today, price still plays a very important role but experience shows us that the ultimate deciding factors are the availability of off-the-shelf standard software and the low Mean-Time to Repair (MTTR) connected with CompactPCI based technology.

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

» High-performance PCI bus (528 MByte/s with up to 64 Bit data width)
» Parallel card insertion from front for easy replacement and minimum MTTR
» Proven 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

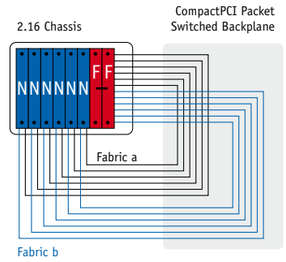
6U x86 Processor Boards

The high performance and low-power 32nm Intel® processors propel Kontron CompactPCI boards to new levels. These boards offer up to 30% more performance, with 25% less power consumption over previous generations. The Kontron CP6002-R1 and CP6002-R2 have been engineered with the Intel® Core™ i7 technology and, for the first time, integrate memory controller, PCI Express, all within the multi-core processor. This offers Medical, Military, Industrial and Telecommunications applications a major jump in performance power.

6U x86 Processor Boards	Available Q2-2010 CP6002_R1	 CP6016	 CP6014	 CP6012[64], CP6012	 CP6001
CPU	Intel® Core™ i7 up to 2.53 GHz	Intel® Core™2 Duo Processor, up to 2.53 GHz (T9400)	Two Intel® Quad-Core Xeon® Processor; or 2 x Intel® Dual-Core Xeon® Processor; up to to 2.13 GHz core frequency	Intel® Core™2 Duo, Core Duo Processor, up to 2.16 GHz	Intel® Core™2 Duo, Core Duo Processor up to 1.5 GHz
Front Side Bus	1066 MHz	1066 MHz	1066 MHz	up to 667 MHz	up to 667 MHz
CPU L2 Cache	4 MByte	6 MByte	4 MByte Dual Core, 12MB (2x 6MB) Quad Core	2 / 4 MByte	2 / 4 MByte
Chipset	Intel® QM57	Intel® 5100 and ICH9R I/O Controller Hub	Intel® 5100 and ICH9R I/O Controller Hub	Intel® E7520 and 6300ESB I/O Controller Hub	Intel® 945GM, ICH7R I/O Controller Hub
DRAM	up to 8 GB soldered with ECC	up to 16 GByte with ECC, DDR2 667MHz SO-RDIMM	up to 32 GByte, DDR2 667MHz	up to 4 GByte with ECC, DDR2 400	up to 4 GByte, DDR2 533/667 MHz
Flash Disk	CompactFlash	USB NAND Flash	USB NAND Flash	CompactFlash	USB NAND Flash, soldered IDE Flash
4HP Version	VGA (CRT), COM, 2x Ethernet, 2x USB, LEDs, Reset, PMC/XMC	VGA (CRT), COM1, 3x Ethernet, 2x USB, LEDs, Reset, PMC/XMC	N/A	VGA (CRT), COM1, 2x Ethernet, 1x USB, LEDs, Reset, PMC/XMC	VGA (CRT), COM1, 3x Ethernet, 2x USB, 1x Serial, LEDs, Reset, PMC
8HP Version	N/A	N/A	1x Ethernet, 1x microVGA; 1x DB9 serial port; 1x USB, XMC/PMC	N/A	N/A
USB	6x USB	7x USB 2.0	3x USB 2.0	4x USB 2.0	6x USB 2.0
Ethernet	4x Gigabit, 2x to front, 2x to rear, PICMG2.16 compliant	5x Gigabit, 3x to front, 2x to rear, PICMG 2.16 compliant	3x Gigabit; 1x to front, 2x to rear, PICMG 2.16 compliant	4x Gigabit, 2x to front, 2x to rear, PICMG 2.16 compliant	3x Gigabit, 1 fixed to front, 2 front or rear, PICMG 2.16 compliant
Graphics	Intel ® QM57	ATI ES1000 (64 MByte video memory)	ATI M72 (128 MByte video memory)	ATI ES1000 (64 MByte video memory)	Intel® 945GM (shared video memory)
PMC	up to 2x PMC/XMC	1x slot XMC: x8 PCIExpress or 1x slot PMC: 64-bit/66 MHz	1x slot XMC: x4 PCIExpress or 1x slot PMC: 64-bit/133 MHz	1x slot XMC: x8 PCIExpress or 1x slot PMC: 64-bit/66 MHz	1x slot PMC: 32-bit/66 MHz
Rear I/O	2x Graphics (DVI/ HDMI) 4x USB2.0, 2x GigEthernet, 4x SATA, 2x COM, Mouse/Keyb, HDAudio, Speaker, Fan, GPIO, Battery	Graphics, 4x USB 2.0, 2x GigEthernet, HD Audio, 4x SATA, 2x COM, Mouse/Keyb, Fan, Battery	Graphics, 2x USB 2.0, 2x GigEthernet, 2x SATA, 2x COM	Graphics, 2x USB 2.0, 2x GigEthernet, 2x SATA, 1x PATA, 2x COM, Mouse/Keyb, Floppy, Fan, Speaker	2x Graphics, 4x USB 2.0, 2x GigEthernet, 4x SATA, 2x COM, Mouse/Keyb, HDAudio, Speaker, Fan, GPIO, Battery
Characteristics	IPMI1.5, trusted Platform Module, Watchdog, CP6002 with 2xPMC/XMC optional	IPMI V1.5, Trusted Platform Module, Watchdog	IPMI V1.5	IPMI V1.5, Watchdog	IPMI V1.5, Trusted Platform Module, Watchdog
Power Consumption (typ.)	40W	50W @ 2.53 GHz	126W 2x Dual Core on 2 slots; 4GB memory 156W 2x Quad Core on 2 slots; 4GB memory	35W @ 1.5 GHz	20W @ 1.2 GHz
Operating Temperature	0- +60°C	0 - +60°C	0 - +55°C	0 - +60°C	0 - +60°C

Packed Switching / 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 interconnectivity. 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 packet-based switching architecture (based on Ethernet) on top of CompactPCI.



6U Ethernet Switch Boards

CP6930 (PICMG 2.16)

CP6923 (PICMG 2.16)

CP6925 (PICMG 2.16)

	CP6930 (PICMG 2.16)	CP6923 (PICMG 2.16)	CP6925 (PICMG 2.16)
Routing Protocols	Include OSPFv2, RIPv2, VRRP, IGMP Snooping, DiffServ, ARP, ICMP	Include OSPFv2, RIPv2, VRRP, IGMP Snooping, DiffServ, ARP, ICMP	N/A
Ethernet/Bridging Protocols	Include VLANs (802.1Q), Link Aggregation (802.3ad), Spanning Tree (802.1D, 802.1w), QoS (802.1p), Flow Control (802.3x), GVRP, GMRP	Include VLANs (802.1Q), Link Aggregation (802.3ad), Spanning Tree (802.1D, 802.1w), QoS (802.1p), Flow Control (802.3x), GVRP, GMRP	N/A
Function	managed	managed	unmanaged
Power Consumption (typ.)	50 Watt	35 Watt	18 Watt
Ports	24x GbE according PICMG2.16, 2x front 1GbE SFP, 6x front 10GbE SFP+	24x GbE (CP6923-R) or 20x GbE (CP6923-C)+ 4x SFP (CP6923-O), 2x 10 GbE XFP	16x GbE
Connection	PICMG 2.16; front RJ45 & SFP / SFP+	PICMG 2.16; front RJ45 & SFP / XFP	PICMG 2.16; front RJ45
Additional	Management port at front panel	Management port at front panel; front-IO (CP6923-C), rear-IO (CP6923-R), optical-IO (CP6923-O), rugged and rugged conduction cooled optional	
Operating Temperature	0°C to 60°C; extended temperature versions available	0°C to 55°C; E2 (-40 - +85°C) versions available	0°C to 55°C

6U PSB Platforms

CP-ASM6-PSB

CP-ASM10-PSB

	CP-ASM6-PSB	CP-ASM10-PSB
Depth	275 mm	275 mm
19" Rack Mounting	Cabinet mounting	Cabinet mounting
Backplanes	16 slot	14 slot + 2 fabric switch slots
Power Supply	up to 4x 200 W / 3U	up to 4x 250 W / 3U
Cooling	Bottom to top fan	Built in fan tray
Housing	84 HP / 6U	84 HP / 10U
Packet Switched Backplane	yes	yes
H110	yes	N/A
Additional		IPMI & chassis monitoring optional

Rear Transition Modules

All of Kontron's CompactPCI CPU boards can be used with Rear Transition Modules (RTM) to access the boards' I/O from the back of the system, therefore easing the system's serviceability (with no cables plugged to the boards). RTMs can interface to I/Os such as VGA, serial ports, Ethernet ports, SCSI, USB, keyboard/mouse, IDE, floppy and others.

6U Standard Platforms

XL2000

XL1000 Series

CP-ASM6-P47

	XL2000	XL1000 Series	CP-ASM6-P47
Depth	210 mm	275 mm	275 mm
19" Rack Mounting	Wall mount	Cabinet / ETSI mount	Cabinet or Wall mount
Backplanes	4 slot	2, 4, 6 or 8 Slot	4, 8 or 16 Slot
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	N/A	optional	optional
H110	N/A	optional	optional
Additional	not fitted with boards		

6U PMC Carrier Boards

CP690HS

	CP690HS
PCI Bus	32/64 Bit, 33/66 MHz
PMC	2x 32/64 Bit
Rear I/O	yes
Drives	-
Hot Swap	yes
Operating Temperature	0 - +60°C; E1 (-25°C - +75°C) optional

HDD/SSD Carrier

CP-HDD-S-KIT

	CP-HDD-S-KIT
Configuration Options	1-slot Backplane + 1x CP-HDD-S (HDD Carrier) or 2-slot Backplane + 2x CP-HDD-S (HDD Carriers)
Data Rate	Up to SATA II (300 MByte/s)
Form Factor	3U / 4HP (1x Carrier) or 3U / 8HP (2x Carriers)
Drives	Up to 2x 2.5" HDD / SSD's
Hot Swap	Yes
Operating Temperature	-40°C to +85°C (depending on used storage media)

» 3U CompactPCI Performance Line «

The CompactPCI architecture embodies mechanical reliability, compactness, easy accessibility and maintenance.

In many applications, the available space for the installation is limited. Another issue to be solved is that applications must withstand harsh environmental conditions.

For rugged applications, the 3U CPCI form factor offers a robust solution with excellent shock and vibration characteristics of the Eurocard design and a high density pin-and-socket connector that ensures optimum mechanical stability. The compact 3U form factor offers obvious space-saving advantages and makes the 3U CompactPCI predestined for applications in all fields that require a small footprint as well as a robust design.

3U Processor Boards




	CP308	CP307[64], CP307	CP305	CP321
CPU	Intel® Core™2 Duo, up to 2.26 GHz	Intel® Core™2 Duo, Core Duo Processor, up to 2.16 GHz	Intel® Atom™ N270, 1.6 GHz	Freescale MPC8245 330 MHz
Front Side Bus	800 / 1066 MHz	533 / 667 MHz	533 MHz	-
CPU L2 Cache	6 MByte	2 / 4 MByte	512 kByte	-
Chipset	Intel® GS45 and ICH9M	Intel® 945GM and ICH7R	Intel® 945GSE and ICH7-M	-
DRAM	Max. 8 GByte DDR3, 800/1066 MHz	Max. 4 GByte, (2 GByte soldered + 2 GByte via SO-DIMM socket), 667 MHz	Max. 2 GByte DDR2 soldered, 533 MHz	up to 256 MByte with ECC soldered, 133 MHz
Flash Disk	USB NAND Flash, CompactFlash on Mezzanine	CompactFlash	CompactFlash	Flash socket
4HP Version	2x Ethernet, CRT, 2x USB 2.0, LEDs	2x Ethernet, CRT, 2x USB 2.0, LEDs	2x Ethernet, CRT, 2x USB 2.0, LEDs	1x Ethernet, 1x RS232 port, 1x configurable RS232/485 port
8HP Version	Different Extension Modules: CP308-HDD, CP308-MEDIA	DVI, COM1, 2x USB 2.0, PS/2, Reset, HDD Carrier	DVI, COM1, 2x USB 2.0, PS/2, Reset, HDD Carrier	Up to 2 expansion modules are stackable, 8/12 HP version with 1/2 PMC slots
Ethernet	2x 1000 Base-Tx, WOL functionality	2x 1000 Base-Tx	2x 1000 Base-Tx	10/100 Base-Tx
Graphics	GS45 internal	945GM internal	945GSE internal	-
Rear I/O	Optional	Optional	Optional	Optional
Characteristics	Highest Processor Performance, TPM, System Management Controller	High Performance, Rugged	Low Power, Rugged, EN50155 compliant	RISC processor, Low Power, Rugged
Power Consumption (typ.)	18 W / 1.86 GHz LV	18 W / 1.66 GHz LV	10 W / typ.	6.5 W / typ.
Operating Temperature	0° to 60°C Standard, -40°C to +85°C E2 (optional with 1.2 GHz ULV processor)	0°C to +60°C Standard, -40°C to +85°C E2 (optional with 1.2 GHz ULV processor)	0°C to +55°C convection cooled, -40°C to +80°C with forced airflow	-40°C to + 85°C

3U Platforms




	CP-ASM3-RAID	CP-ASM3-P47	CP-ASM4-POCKET	RTOP
Depth	235 mm	275 mm	210 mm	298 mm
19" Rack Mounting	Cabinet or Wall mount	Cabinet or Wall Mount	Wall mount	Desktop
Backplanes	4-slot cPCI, 8x SATA	Various Versions available / 2-11 slots	4 slot	4-slot cPCI
Rear I/O	No	Yes	No	Yes 80mm
Drives	8x HDD's on Carrier	DVD / HDD / FDD optional	HDD optional	Room
Characteristics	Modular RAID Server	Modular System, Redundant PSU	Cost Optimized System	Development Rack
Power Supply	120W DC	P47 series	75 Watt AC or DC	200 W
Cooling	Optional	Optional	Optional	Fan
Housing	84 HP / 3U	42 HP or 84 HP / 3U	28 HP / 4U	H=191mm W=170mm

3U Ethernet Switch Boards

CP932

CP930

	CP932	CP930
Function	unmanaged	unmanaged
Form Factor	3U / 4HP	3U / 4HP
Power Consumption (typ.)	5 Volt / 8 Watt	5 V / 1.5 Watt
Ports	Five Gigabit Ethernet / One NIC	Five Fast Ethernet
Connection	5x RJ45 / cPCI	RJ45 / MT-RJ
Operating Temperature	-25°C to +75°C	-40°C to +85°C

3U Ethernet and Fieldbus Controller Boards

CP342

CP353

	CP342	CP353
Frontpanel	2x RJ45 or 2x SFP	9 pin D-sub for fieldbus connection, 9 pin D-sub fieldbus configuration
Function	two 10/100/1000 Base-Tx or two 1000 BaseFX	Profibus DP V1 Master
Data Rate	Up to Gigabit Ethernet	up to 12 MBit/sec.
Channels	2	1
Isolation	-	opto-isolated
Controller	Intel® 82546GB	EC-1 System on Chip
Operating Temperature	-40°C to +85°C	0°C to +60°C

3U Controller Boards

CP332 (Graphics Controller)

CP346 (Serial Controller)

	CP332 (Graphics Controller)	CP346 (Serial Controller)
Frontpanel	Dual DVI-I with DVI and CRT signals	37-pin DSUB Connector
Form Factor	3U / 4HP	3U / 4HP
Channels	Dual head	4 independent serial channels, RS232, RS422, RS485 configurable
Characteristics	Ultra High res. VGA	16550 UART compatible
Controller	ATI Radeon Mobility M9, 64MB	Quad UART OX16PCI954
Operating Temperature	-25°C to +75°C	-40°C to +85°C

HDD/SSD Carrier

CP-HDD-S-KIT

	CP-HDD-S-KIT
Configuration Options	1-slot Backplane + 1x CP-HDD-S (HDD Carrier) or 2-slot Backplane + 2x CP-HDD-S (HDD Carriers)
Data Rate	Up to SATA II (300 MByte/s)
Form Factor	3U / 4HP (1x Carrier) or 3U / 8HP (2x Carriers)
Drives	Up to 2x 2.5" HDD / SSD's
Hot Swap	Yes
Operating Temperature	-40°C to +85°C (depending on used storage media)

3U Analog I/O Boards

CP371

CP372

	CP371	CP372
Resolution	12 Bit	12 Bit
Channels	analog in 16 (optionally 8)	analog out 8 (optionally 4)
Voltage Range	0-5V, 0-10V, +/-5V, +/- 10V	0-5V, 0-10V, +/-5V, +/- 10V
Current Range	0-20 mA, 4-20 mA	0-20 mA
Throughput Rate	13 kHz	-
Basic Accuracy	+/- 1 LSB	+/- 1 LSB
Isolation	2 kV	2 kV
Operating Temperature	-40°C to +85°C	-40°C to +85°C

3U Digital I/O Boards

CP384

CP383

CP382

CP381

	CP384	CP383	CP382	CP381
Channels	16 digital in, 8 Relay out	16 digital in, 16 digital out	24 digital out	30 digital in
Input Voltage	Low Range: -3-5 V, High Range: 11-30 V	Low Range: -3-5 V, High Range: 11-30 V	-	Low Range: -3-5 V, High Range: 11-30 V
Input Current	5 mA	5 mA	-	5 mA
Output Current	max. 2A per channel	max. 500 mA per channel	max. 500 mA per channel	-
Isolation	2 kV	2 kV	2 kV	2 kV
Operating Temperature	0°C to +60°C	-40°C to +85°C	-40°C to +85°C	-40°C to +85°C

3U PMC Carrier Boards

CP390

CPMC1

	CP390	CPMC1
Height	3U	3U
PCI Bus	32 Bit/33 MHz	32 Bit/33 MHz
PMC	1x 32 Bit	1x 32 Bit
Rear I/O	-	64 rear I/O of the PMC P4 connector routed to the cPCI J2 backplane connector
Hot Swap	optional	-
Operating Temperature	-25°C to +85°C	0°C to +55°C Standard Commercial, -40°C to +85°C Rugged Conduction-Cooled

» CompactPCI Rugged Line «

CompactPCI® PICMG®

Rugged Reliable Robust

Kontron is constantly evolving its line of reliable and powerful rugged CompactPCI boards to ensure our customers can develop leading edge applications that work under extreme temperatures and high levels of physical stress. From communication systems on the ground to in-flight systems, the highest requirements must be met without compromise. Examples of other applications include, defense flight combat simulators, on-board vehicle systems, shelter applications and in-flight entertainment. Kontron's rugged, high performance boards and switches are a perfect combination for applications that demand the highest levels of performance.

3U / 6U Rugged Processor Boards

Available Q3-2010

	CP6001-R3	CP6002-R2	CP6001-R2	ITC-320	CP3210
CPU	Intel® Core™2 Duo, Core Duo Processor up to 1.5 GHz	Intel® Core™ i7 up to 2.53 GHz	Intel® Core™2 Duo, Core Duo Processor up to 1.5 GHz	Intel® Core™2 Duo 1.5 GHz, Core Duo 1.2 GHz, Celeron 1.07GHz Processor	PowerPC 750FX @733 MHz
Front Side Bus	up to 667 MHz	1066 MHz	up to 667 MHz	Up to 667MHz	133MHz
CPU L2 Cache	2 / 4 MByte	4 MByte	2 / 4 MByte	2 / 4 MBytes	512 KB
Chipset	Intel® 945GM, ICH7R I/O Controller Hub	Intel® QM57	Intel® 945GM, ICH7R I/O Controller Hub	Intel® 3100	Discovery III Host Bridge
DRAM	up to 4 GByte, DDR2 soldered, 533/667 MHz	up to 8 GB soldered with ECC	up to 4 GByte, DDR2 soldered, 533/667 MHz	1 or 2 GB with ECC soldered, 400 MHz	512 MB of DDR SDRAM with ECC, 266 MHz
Flash Disk	USB NAND Flash, soldered IDE Flash	CompactFlash	USB NAND Flash, soldered IDE Flash	USB 2.0 Flash Disk socket & USB Flash Disk module	256 MB of User Flash & 128 MB of System Flash
4HP Version	no front I/O available	VGA (CRT), COM, 2x Ethernet, 2x USB, LEDs, Reset, PMC/XMC	VGA (CRT), COM1, 3x Ethernet, 2x USB, 1x Serial, LEDs, Reset, PMC	VGA 1600x1200 16M colors (Optional in RC build)	no front I/O available
8HP Version	N/A	N/A	N/A	COM1-2, 2x USB 2.0, PS/2, HDD Carrier	N/A
USB	6x USB 2.0	6x USB	6x USB 2.0	2x USB2.0	-
Ethernet	3x Gigabit, 1 fixed to front, 2 front or rear, PICMG 2.16 compliant	4x Gigabit, 2x to front, 2x to rear, PICMG2.16 compliant	3x Gigabit, 1 fixed to front, 2 front or rear, PICMG 2.16 compliant	2x Gigabit front or rear	1x Gigabit, 1x 100 Base-Tx
Graphics	Intel® 945GM (shared video memory)	Intel ® QM57	Intel® 945GM (shared video memory)	VGA 1600x1200 16M colors	-
PMC	1x slot PMC: 32-bit/66 MHz	1x PMC/XMC	1x slot PMC: 32-bit/66 MHz	Rugged PMC carrier CPMC1 supported	1x slot PMC: 32-bit 33/66 MHz
Rear I/O	2x Graphics, 4x USB 2.0, 2x GigEthernet, 4x SATA, 2x COM, Mouse/Keyb, HDAudio, Speaker, Fan, GPIO, Battery	2x Graphics (DVI/ HDMI) 4x USB2.0, 2x GigEthernet, 4x SATA, 2x COM, Mouse/Keyb, HDAudio, Speaker, Fan, GPIO, Battery	2x Graphics, 4x USB 2.0, 2x GigEthernet, 4x SATA, 2x COM, Mouse/Keyb, HDAudio, Speaker, Fan, GPIO, Battery	2x USB 2.0, 2x GigEthernet, 3x SATA, 2x COM, PCIe 4x1, GPIO	46 I/Os PMC, Gbe Ethernet, Ethernet 10/100, asynchronous EIA-232, simplified synchronous EIA-422/485, 4x GPIO, JTAG
Characteristics	IPMI 1.5, TPM, Watchdog, System or Peripheral slot, Low-power, Rugged Conduction-Cooled (-40°C to +85°C)	IPMI1.5, trusted Platform Module, Watchdog, CP6002 with 2xPMC/XMC optional	IPMI 1.5, TPM, Watchdog, System or Peripheral slot, Low-power, Rugged Forced-Air-Cooled (-40°C to +85°C)	High Performance, Low Power, Expandable I/ Os; Rugged Conduction Cooled	System or Peripheral slot, Low-power, Rugged Conduction-Cooled
Power Consumption (typ.)	20W @ 1.2GHz	40W	30W @ 1.5GHz	24W @ Celeron 1.07GHz	11W
Operating Temperature	E2 (-40 - +85°C) with 1.2 GHz ; E1 (-40 - +70°C) with 1.5 GHz	0- +60°C	E2 (-40 - +85°C) with 1.2 GHz; E1 (-40 - +70°C) with 1.5 GHz	0 - +55°C; E2 (-40 - +85°C); E1 (-40 - +75°C)	E2 (-40 - +85°C)

3U CompactPCI Rugged COTS Line System

The Modular Embedded Computer is a low cost 3U CompactPCI rugged COTS Line sub-system designed to exceed requirements through its compact dimension, low-power dissipation and real-time software with a very large I/O offering. The Modular Embedded Computer (MEC) concept is customizable to meet customer's requirements by proposing a wide range of options to cover all the specific applications needs.

CP6923-R2/R3

The rugged versions CP6923-R-R2-E2 and CP6923-R-R3-E2 fulfill the temperature, shock and vibration requirements for harsh environments. Both operate from -40°C to +85°C. The forced air cooled R2 board withstands shock & vibration according to the VITA 47's EAC3 specification. The conduction cooled R3 switch fulfills the VITA 47's ECC4 specifications.

» CompactPCI Value Line «

3U/6U Processor Boards

CompactPCI 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 CompactPCI 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.

CompactPCI® PICMG®

3U / 6U Processor Boards

	CP307-V	CP6001-V
CPU	Intel® Celeron® M 1.86 GHz (Core Solo based)	Intel® Celeron® M 440, 1.86 GHz
Front Side Bus	533 MHz	533 MHz
CPU L2 Cache	1 MByte	1 MByte
Chipset	Intel® 945GM and ICH7R	Intel® 945GM and ICH7R
DRAM	up to 2 GByte SO-DIMM DDR2, 533 MHz	up to 4 GByte DDR2 SO-DIMM, 533 MHz
Flash Disk	CompactFlash	CompactFlash, USB NAND Flash
4HP Version	N/A	2x Ethernet, 2x USB 2.0, LEDs, CRT, COM1, PMC
8HP Version	2x Ethernet, CRT, DVI, COM1, 4x USB 2.0,PS/2, LEDs,Reset	N/A
USB	4x USB2.0	3x USB2.0
Ethernet	2x 1000 Base-Tx	2x 10/100/1000 Base-Tx, Front or PICMG 2.16
Graphics	945GM internal	945GM internal (shared Memory)
PMC	none	1x 32 Bit/ 33 MHz
Rear I/O	N/A	2x GigEthernet acc. PICMG2.16
Characteristics	Cost optimized 3U CPU	Performance & cost optimized for industrial applications
Power Consumption (typ.)	20 Watt @ 1.86 GHz	25 Watt @ 1.86 GHz
Operating Temperature	0°C to +60°C	0°C to +60°C

3U / 6U Systems

	CP-POCKET	XL-2000
CPU	Up to 1.86 GHz Celeron® M CPU	Up to Intel® Core™2 Duo Processor CPU
Depth	210 mm	210 mm
19" Rack Mounting	Wall mount	Wall mount
Backplanes	4 slot	4 slot
Rear I/O	no	no
Drives	HDD optional	HDD / FDD optional
Characteristics	Complete solution: CPU, Backplane, PSU included	Backplane, PSU included
Power Supply	75 Watt AC or DC	75 Watt AC or DC
Cooling	optional	Fan optional
Housing	28 HP / 4U	28 HP / 7U

» XMC/PMC «

Kontron supports an extensive range of COTS PCI Mezzanine Cards (PMCs) and Switched Mezzanine Cards (XMCs) for VPX, VME and CompactPCI systems used in Commercial or Harsh environments. Providing cost-effective performance and flexibility, Kontron's PMC/XMC products meet the specific requirements for your COTS embedded systems.

PCI Mezzanine Card (PMC)

Standardized by the IEEE association, PMC is the de facto standard for mezzanine cards used in the VPX, VME and CompactPCI ecosystems. PMC offers system designers a reliable form factor with the high-performance of the PCI bus.

Switched Mezzanine Card (XMC)

XMC is a PMC with a high-speed serial fabric interconnect defined by the VITA 42 standard. XMC specifies an additional connector („P5") that supports PCI Express (VITA 42.3) or other high speed serial formats such as Serial RapidIO (VITA 42.2) and Parallel RapidIO (VITA 42.1).

XMC Mezzanines

XMC401 (Dual 10 Gigabit Ethernet)

XMC-ETH2 (Dual Gigabit Ethernet)

XMC-G72 (Graphics)

	XMC401 (Dual 10 Gigabit Ethernet)	XMC-ETH2 (Dual Gigabit Ethernet)	XMC-G72 (Graphics)
Frontpanel	2x SFP+	2x RJ-45	Digital DVI and CRT or dual CRT
Interface	Host: PCIe x8; ETH to front	Host: PCIe x4; ETH to front or rear (P4)	Host: PCIe x4; front or rear (P4)
Function	2 independent 1/10 Gigabit Ethernet channels at front panel	1 or 2 independent Gigabit Ethernet channels selectable to front or rear	Dual Head Graphics XMC; video to front or rear
Data Rate	Copper: 10 GbE, Fiber: 1/10 GbE	Copper: 10 Base-T, 100 Base-Tx, 1000 Base-T	High throughput interface to host: x8 PCI-Express up to 2.5 GB/s
Signals	Copper & Fiber	Copper	DVI-I and 15-pin VGA
Controller	Intel® 82599ES	Intel® 82571	M72-CSP128 graphics controller from ATI-AMD
Operating Temperature	Standard Commercial: 0°C to +55°C	Standard Commercial: 0°C to +55°C Rugged Air-Cooled: -40°C to +70°C Rugged Conduction-Cooled: -40°C to +85°C	Standard Commercial: 0°C to +55°C Rugged Conduction-Cooled: -40°C to +85°C

PMC Mezzanines

PMC-6L (Avionics I/O)

PMC240 (Dual Gigabit Ethernet)

PMC253 (Profibus)

	PMC-6L (Avionics I/O)	PMC240 (Dual Gigabit Ethernet)	PMC253 (Profibus)
Frontpanel	MIL-STD-1553-B Connector, ARINC429, Serial Lines and GPIO Lines Connector	2x RJ45 copper or 2x SC-type connector fiber or mixed	9 pin D-Sub for Fieldbus connection
Interface	Host: PMC 64 / 66MHz	Host: 32/64 bit, 33/66MHz; copper or fiber to front	Host: 32 bit, 33MHz; Profibus to front opto isolated
Function	ARINC-429 Interface, MIL-STD-1553, Up to 6 Serial Lines, Up to 16 GPIO	1 or 2 independent Gigabit Ethernet channels	Profibus DP V1 Master
Data Rate	-	Copper: 10Base-T, 100 Base-Tx, 1000 Base-T, Fiber: 1000 Base-SX	up to 12 MBit/s
Signals	-	Copper or Fiber or mixed	RS485
Controller	T/T ARINC 429, T/R EIA 485/232	Intel® 82546EB or Intel® 82545EM	EC-1 System on Chip
Operating Temperature	Standard Commercial: 0°C to +55°C	0°C to +55°C	0°C to +60°C

» VME Standard and Rugged Products «

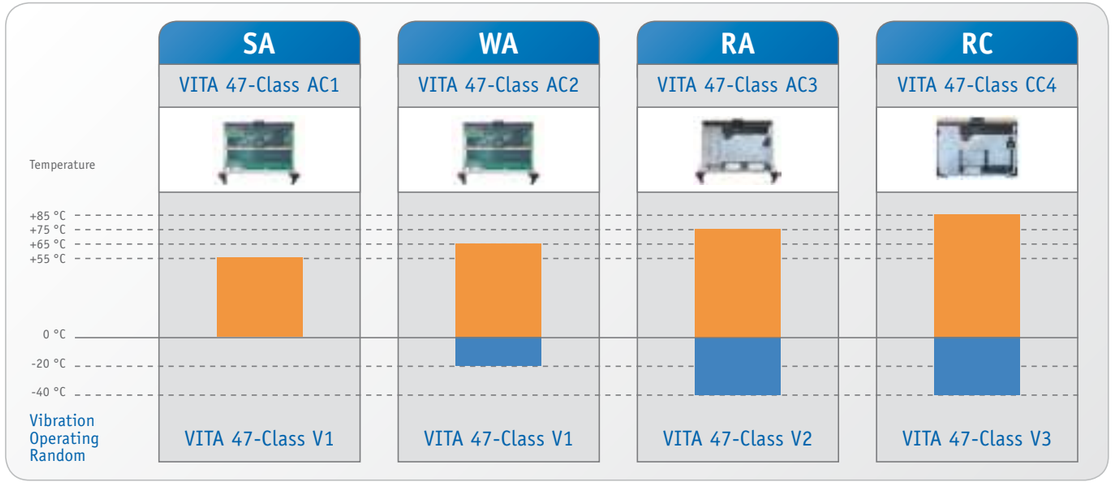
VMEbus is an open and flexible slot-card computer architecture which supports up to 21 cards in 3U, 6U or 9U Eurocard format. First standardized in the early '80s, the VMEbus has ever been improved by addition of new features and by the integration of new technologies while keeping backward compliance to legacy equipments.

The VMEbus is one of the most commonly used computer architectures in embedded applications, and more precisely defense, transportation and industrial applications, for which robustness and long term supply are key selection criteria.

Kontron is one of the pioneering **companies of VMEbus** and is an active member of the **VMEbus International Trade Association (VITA)** which gathers more than 130 members. Kontron designs and markets a wide range of 3U and 6U VMEbus products and leads the improvement of the features of VMEbus products such as the support of Gigabit-Ethernet backplane switching (VITA 31), IPMI system management (VITA 38) or the use of enhanced performance P0 connector for the support of PCI-Express backplane interconnections.

Harsh Environments

To fulfill the demanding environmental requirements of the defense and other mission-critical markets, Kontron VME boards are manufactured in four classes: SA, WA and RA (Air-Cooled), and RC (Conduction-Cooled). All classes are 100% software compatible.



6U x86 Processor Boards

PENTXM4

PENTXM2

	PENTXM4	PENTXM2
CPU	Two Dual-Core Intel® Xeon® Processors ULV from 1.33 to 1.67GHz	Dual-Core Intel® Xeon® Processor ULV from 1.33 to 1.67GHz
CPU MIPS	11332 DMIPS	5666 DMIPS
Front Side Bus	667MHz	667MHz
CPU L2 Cache	2 MB	2 MB
Chipset	E7520 Server Class	E7520 Server Class
DRAM	Up to 4 GB w ECC	Up to 4 GB w ECC
Flash	4 GB NAND-Flash	4 GB NAND-Flash
Frontpanel	2x GigEthernet, COM, USB 2.0, Reset	2x GigEthernet, COM, USB 2.0, Reset
Backplanes	VME64x, PCI-Express on P0	VME64x, PCI-Express on P0
USB	3x USB2.0 (1x front, 2x rear P0)	3x USB 2.0 (1x front, 2x rear P0)
Ethernet	2x GigEthernet configurable front or rear VITA 31	2x GigEthernet configurable front or rear VITA 31
Graphics	Option on XMC	Option on XMC
PMC	1x PMC slot: PCI-64-bit @66 MHz and 1x PMC/XMC slot: PCI-64bit @66 MHz x8 PCI-Express configurable in dual x4 links	1x PMC slot: PCI-64-bit @66 MHz and 1x PMC/XMC slot: PCI-64bit @66 MHz x8 PCI-Express configurable in dual x4 links
Cooling	Standard Air, Rugged Conduction Cooled	Standard Air, Rugged Convection Cooled and Conduction Cooled
Power Consumption (typ.)	40W	24W
Rear IO	2x GigEthernet VITA 31, 2x USB, 2x SATA, PCIe x4, 2x Serial, PMC I/Os	2x GigEthernet VITA 31, 2x USB, 2x SATA, PCIe x4, 2x Serial, PMC I/Os
IPMI	Build option	Build option

Boards & Mezzanines

6U PowerPC Processor Boards

VM6250

CPU	Single or Dual Core MPC864x with AltiVec
CPU Clock	1 GHz to 1.33 GHz
CPU MIPS	4706 DMIPS @1.33GHz
CPU L2 Cache	1 MB with ECC
Chipset	Freescale MPC864x
DRAM	Up to 2 GB DDR2 with ECC
Flash Onboard	Up to 16 GB USB Flash modules
NVRAM	128 KB
USB	3 x USB 2
Ethernet	4 x 10/100/1000 BaseT
Serial Channels	2 x UART
PMC	2 x PMC/XMC + 1 FMC
Rear I/O	2 x GBE, 1 x 4xPCIe, 2 x USB2, 2 x SATA, 2x UART, 3x GPIO, Mezzanine I/O
Connectivity	4x PCIe, VME 2eSST, Gigabit Ethernet, Serial Lines, USB, SATA
SCSI Controller	-
Available Extensions	Rear Transition Module, PMCs Carrier Board, FMC support
Watchdog	Dual stage Watchdog Timer available
Expansion Slots	VME Carrier Board for 2 PMCs
Cooling	Standard Air, Extended Temperature, Rugged Convection-Cooled, Rugged Conduction-Cooled
Operating System	Linux kernel 2.6.25, VxWorks 6.6, LynxOS5, ElinOS
Power Consumption (typ.)	27 to 45W
Front IO	Gigabit Ethernet, Serial Lines, USB

PowerEngine7

CPU	Single or Dual PowerPC 750FX/GX
CPU Clock	700 MHz to 1 GHz
CPU MIPS	2508 DMIPS @1GHz
CPU L2 Cache	512 KByte
Chipset	CPC710 Host Bridge
DRAM	Up to 512 MByte with ECC
Flash Onboard	Up to 128 MByte of User Flash
NVRAM	8 KByte
USB	1 x USB
Ethernet	1 x 10/100/100 BaseT, 1 x 10/100 BaseT
Serial Channels	4 x UART, 2 x ESCC sync/asynchronous
PMC	PCI-64-bit @66MHz and PCI-32bit @33MHz PMC slots
Rear I/O	PMC I/O, Serial Lines, Ethernets, GPIO, USB, SCSI
Connectivity	VME 2eSST, Gigabit Ethernet, Serial Lines, USB, SCSI
SCSI Controller	Up to 40MB/s in Wide Ultra SCSI Mode
Available Extensions	Rear Transition Module, PMCs Carrier Board
Watchdog	Hardware Watchdog Timer available
Expansion Slots	VME Carrier Board for 2 PMCs
Cooling	Standard Air, Extended Temperature, Rugged Convection-Cooled, Rugged Conduction-Cooled
Operating System	LynxOS 4.0.0, Linux kernel 2.6.9, VxWorks 6.2, VxW 5.5.1
Power Consumption (typ.)	17.5W Single, 29W Dual
Front IO	Gigabit Ethernet, Serial Lines, USB

VCE405

CPU	PowerPC 405GPr
CPU Clock	400 MHz
CPU MIPS	608 DMIPS
CPU L2 Cache	32KB
Chipset	Memory Bridge integrated in PowerPC 405GPr
DRAM	Up to 128 MB with ECC
Flash Onboard	8 MB Flash EPROM
NVRAM	1 MB UVEPROM socket
USB	-
Ethernet	1x 10/100 Base-T (Front Panel or Rear I/O)
Serial Channels	2x async. serial lines (Front Panel and Rear I/O), 4x sync./async. serial lines (Rear I/O)
PMC	2x 64-bit PMC sites
Rear I/O	Ethernet, Serial Lines, IIC Bus
Connectivity	VME, Ethernet
SCSI Controller	-
Available Extensions	Rear Transition Module
Watchdog	Hardware Watchdog Timer available
Expansion Slots	-
Cooling	Standard Air, Rugged Convection-Cooled, Rugged Conduction-Cooled
Operating System	LynxOS 4.0, VxWorks 5.4, Linux 2.4
Power Consumption (typ.)	7 W
Front IO	1x Async. Serial Line, 1x Ethernet 10/100 BASE-T

PowerNode5

CPU	Dual PowerPC 970FX with Altivec
CPU Clock	1.6 GHz
CPU MIPS	6500 DMIPS
CPU L2 Cache	512 KByte
Chipset	CPC925 Host Bridge
DRAM	Up to 1 GByte with ECC
Flash Onboard	128 MByte of User Flash
NVRAM	32 Kbyte
USB	2 x USB 1.0
Ethernet	2 x 10/100/100 BaseT
Serial Channels	2 x EIA-232
PMC	PMC slot 64/32-bit PCI/PCI-X @133MHz
Rear I/O	PMCs I/O, EIDE interface, Ethernets, EIA-232, 4x RapidIO & SFPDP links
Connectivity	Serial FPDP, Serial RapidIO, VME 2eSST, Gigabit Ethernet, Serial Lines, USB, EIDE
SCSI Controller	-
Available Extensions	Rear Transition Module
Watchdog	Hardware Watchdog Timer available
Expansion Slots	-
Cooling	Standard Air, Rugged Conduction-Cooled
Operating System	Linux kernel 2.6.9 SMP, VxWorks 6.2
Power Consumption (typ.)	75W
Front IO	2x Gigabit Ethernet, 2x Serial Lines, 1x USB 1.0

PowerNode3

CPU	Single or Dual PowerPC 7457 with Altivec
CPU Clock	1 GHz
CPU MIPS	2488 DMIPS
CPU L2 Cache	512 KByte
Chipset	CPC710 Host Bridge
DRAM	Up to 1 GByte with ECC
Flash Onboard	Up to 64 MByte of User Flash
NVRAM	8 KByte
USB	-
Ethernet	2 x 10/100/100 BaseT
Serial Channels	4 asynchronous EIA-232 serial lines on front panel & 2 EIA-422/485 on rear
PMC	PCI-64-bit @66MHz and PCI-32bit @33MHz PMC slots
Rear I/O	PMCs I/O, Gigabit & 10/100 Ethernets, EIA-232, GPIO
Connectivity	VME 2eSST, Gigabit Ethernet, Serial Lines
SCSI Controller	-
Available Extensions	Rear Transition Module
Watchdog	Hardware Watchdog Timer available
Expansion Slots	-
Cooling	Standard Air, Rugged Convection-Cooled, Rugged Conduction-Cooled
Operating System	LynxOS 4.0.0, Linux kernel 2.6.9 SMP, VxWorks 6.2, VxW 5.5.1
Power Consumption (typ.)	23W Single, 35W Dual
Front IO	Gigabit Ethernet, Serial Lines

PowerNode3+

CPU	Single or Dual PowerPC 7448 with Altivec
CPU Clock	1 to 1.4 GHz
CPU MIPS	3484 DMIPS
CPU L2 Cache	1 MByte
Chipset	CPC710 Host Bridge
DRAM	Up to 1 GByte with ECC
Flash Onboard	Up to 64 MByte of User Flash
NVRAM	8 KByte
USB	-
Ethernet	2 x 10/100/100 BaseT
Serial Channels	4 asynchronous EIA-232 serial lines on front panel & 2 EIA-422/485 on rear
PMC	PCI-64-bit @66MHz and PCI-32bit @33MHz PMC slots
Rear I/O	PMCs I/O, Giga-bit & 10/100 Ethernets, EIA-232, GPIO
Connectivity	VME 2essT, Gigabit Ethernet, Serial Lines
SCSI Controller	-
Available Extensions	Rear Transition Module
Watchdog	Hardware Watchdog Timer available
Expansion Slots	-
Cooling	Standard Air, Rugged Conduction-Cooled
Operating System	LynxOS 4.0.0, Linux kernel 2.6.9 SMP, VxWorks 6.2, VxW 5.5.1
Power Consumption (typ.)	35W Single, 57W Dual
Front IO	Gigabit Ethernet, Serial Lines

3U PowerPC Processors Boards

3U PowerPC Processor Boards	VMP3	VMP2
		
CPU	Freescale MPC8541 @ 660 MHz	Freescale MPC8245 @ 330 MHz
CPU MIPS	1520	465
DRAM	128 MByte DDR-SDRAM	up to 256 SDRAM
SRAM	1 MByte (optional)	-
Flash	CompactFlash (optional)	128 MByte (optional, DIL socket)
Flash Onboard	8 MByte	8 MByte
NVRAM	1 MByte	up to 0.5 MByte
Serial Channels Frontpanel (total)	1	2
Network Options	2x 10/100/1000 BaseT, 1x 100/100 BaseT	100 BaseT/10 BaseT
Mezzanine	PMC carrier optional	PMC carrier optional
Power Consumption (typ.)	10 (typ.) @ 660 MHz	5.8 (typ.) @ 330 MHz

Racks and Chassis

Racks and Chassis	R4U8S	R2U4S	ASM3-VME
			
Height	4U	2U	3U
Expansion	8-slot 6U 160mm cards and 80mm RTM	4-slot 6U 160mm cards with 80mm RTM	7, 12, 15
Power Supply	700W	400W	50W or 90W
Dimensions H x W x D	H=4U D=17.32" W=19"	H=2U D=17.32" W=19"	42 / 84 HP /3U
Input Voltage	100-240 VAC 50-60 Hz	100-240 VAC 50-60 Hz	95-260 V AC

» VPX Standard and Rugged Products «

VPX (VITA 46) is a broadly defined technology utilizing the latest in a variety of switch fabric technologies in 3U and 6U format blades.

OpenVPX™ (VITA 65) is the architecture framework that defines system level VPX interoperability for multi-vendor, multi-module, integrated system environments.

These VPX standards are the right solution for applications deploying in harsh conditions. They are a perfect answer for high numbers of I/O requirements found in Vetronics computers as well as very high speed interconnect requirements found in parallel signal processing systems.

3U/6U VPX Turnkey Systems

Kontron has developed a range of 3U/6U VPX Turnkey development systems to help customers evaluate new VPX systems easily and allow rapid time-to-market.

For more information, please visit the „Turnkey Systems" section (p. 120).

3U/6U Processor Boards

Leveraging the latest features of processor chipsets, 3U and 6U VPX Processor boards bring existing application software into the new world and performances offered by the VPX standard. Both VPX and OpenVPX pinout are available.

3U/6U Processor Boards

VX3230

VX3020

VX6060

	VX3230	VX3020	VX6060
CPU	Freescale 8544 1GHz low power CPU	Intel® Core™2 Duo 1.5 GHz	Four Intel® Core™ i7 cores in 2 processors
CPU MIPS	2041 DMIPS	5948 DMIPS	7200 DMIPS on each CPU @ 2GHz
CPU L2 Cache	256 KB	4 MB	256 KB per core
Chipset	Single Chip Design (SOC)	Intel® 3100	Mobile Intel® QM57 Express
DRAM	1 GB Soldered with ECC	1 or 2 GB Soldered with ECC	2 GB DDR3 with ECC (per core)
DRAM speed	400 MHz DDR2	400 MHz	1067 MHz
Frontpanel	2x GigEthernet, COM, USB 2.0	VGA (build option)	2x GigEthernet, 1 VGA, 1x Display Port, 1x USB 2.0, 1x EIA-232 port, 4x LEDs
Ethernet	2x GigEthernet configurable front or rear	2x GigEthernet on rear	2x Gig Ethernet on front and 4x Gigabit Ethernet on rear. On board switch.
Graphics	-	VGA 1600x1200 16M colors	One eDP (enhanced display ports) per 3U core on P2. Each port can be converted to an HDMI/DVI interface.
Rear I/O	2x USB 2.0, 2x GigEthernet, 2x SATA, 2x COM, PCIe 4x1, GPIO	2x USB 2.0, 2x GigEthernet, 3x SATA, 2x COM, PCIe 4x1, GPIO	4x GigEthernet, 4x SATA, 2x PCi Express, 4x Serial Ports, 2 Display Ports
Characteristics	Very Low Power, XMC/PMC slot	High Performance, Low Power, Rugged, Expandable I/Os	High Performance, Low Power, Rugged, Expandable I/Os
Power Consumption (typ.)	15W	27W	100W with 4 GB of memory, no RTM and no PMC
Storage	USB 2.0 Flash Disk socket. 2 SATA ports	USB 2.0 Flash Disk socket. 3 SATA ports	USB 2.0 Flash Disk socket. On board 2"5 SATA support, 4 SATA ports
Accessories	VPX 3U RTM Module, Mezzanine carrier, USB Mass Storage Cards	VPX 3U RTM Module, Mezzanine carrier, USB Mass Storage Cards	VPX RTM Module, USB Mass Storage Cards

3U Carrier Boards

Thanks to their PCIe interface to the backplane, 3U VPX carriers feature an efficient data path to I/Os from single board computer boards. Legacy PMC and XMC mezzanines are supported by VX3800 while VX3830 supports the new VITA57 FMC mezzanine standard.

3U Carrier Boards

VX3830

VX3800

	VX3830	VX3800
Function	FMC Carrier Board	PMC and XMC Carrier Board
Form Factor	3U VPX	3U VPX
Operating Temperature	Standard: 0°C to +55 °C Rugged Conduction-Cooled: -40°C to +85°C	Standard: 0°C to +55 °C Rugged Conduction-Cooled: -40°C to +85°C

3U Ethernet Switch

3U VITA 46.7 fully managed switch

VX3910

	VX3910
Ports	28x GbE according OpenVPX/VITA65 and VITA 46.x, 4 front panel 1GbE RJ45
Routing Protocols	Include OSPFv2, RIPv2, VRRP, IGMP Snooping, DiffServ, ARP, ICMP, ACLs
Ethernet/Bridging Protocols	Include VLANs (802.1Q), Link Aggregation (802.3ad), Spanning Tre (802.1D, 802.1w), QoS (802.1p), Flow Control (802.3x), GVRP, GMRP Function managed , port mirroring,
Switch Management	via SNMP, TELNET, CLI Out of Band (front panel FE) or In-band via Fabric Management Port 10/100/1000 Base-T on front panel
Power Consumption (typ.)	20 Watt
Operating Temperature	Air Cooled: 0°C to 55°C; Conduction Cooled: -40°C to +85°C

MODULAR EMBEDDED COMPUTER

3U VPX Rugged COTS Line Systems

The Modular Embedded Computer (MEC) is a low-cost 3U VPX COTS conduction-cooled subsystem designed to meet the most demanding application requirements, specially in avionics, vetronics and navtronics applications. The MEC is designed to exceed requirements through its compact dimension, low-power dissipation and real-time software with a very large I/O offering. The MEC concept is customizable to meet customer's requirements by proposing a wide range of options to cover all the specific applications needs.

3U System	MEC-PPC-xxx
I/O	MIL-STD-1553B, ARINC-429, VGA, GETH, UART
Operating Systems	Linux, VxWorks, ARINC653, DO178B
Input Power Supply	100 Watts
Environmental Specifications	-40°C to +71°C
Backplanes	4-slot VITA 46 VPX backplane

» Slot-CPU's «

PICMG 1.3 & PICMG 1.0

Satisfy the requirement for flexible PC standard expansion slots.

Compared to other solutions offering standard PC style I/O-slots like PCI, PCI Express or even ISA, the Slot-CPU based implementation offers more flexibility and the highest number of slots in a given system.

Compare, for example, a KISS 4U motherboard offering with 7 I/O-slots to a KISS 4U based on PICMG technology with up to 13 slots, the Slot-CPU offers many more possibilities for adding functionality.

Advantages

- » PC-style I/O-Slots
- » Commodity for I/O-cards
- » Flexible Slot-Configuration
- » Affordable adoption of backplane technology
- » Same proven CPU-board for different systems possible

Slot-CPU 1.3

With the growing importance of PCIexpress, ISA-cards are not implemented as often as they used to be, forcing the need for a new PICMG solution. The new PICMG 1.3 industrial standard addresses the need for PCI Express as well as offering modern standard interfaces on the edge-connector. Based on PICMG 1.3 system, solutions can use highly optimized cabling for USB and SATA. Even an internal LAN-connection is available for maximum flexibility. Slot-CPU Full-Size Slot-CPU PICMG 1.0 PICMG 1.0 offers excellent flexibility for system integration. For customers needing many slots there is no better way to implement the solutions. If you need up to date performance or a high amount of memory combined with a legacy ISA-card, it might be the only way to a working solution.

Slot-CPU 1.3	 PCI-960	 PCI-760
CPU	Intel® Core™ Duo and Core™2 Duo	Core™ 2 Duo and Core™ 2 Quad
CPU Clock	up to 2x 2.33 GHz	up to 4x 3 GHz
Front Side Bus	533/800 MHz	800/1066/1333 MHz
Cache	2048/4096 kByte	2048/4096/9192 kByte
Chipset	Intel® 945GM	Intel® Q35
DRAM	4 GByte DIMM DDRII-SDRAM	8 GByte DIMM DDRII-SDRAM
Flash Disk	Compact Flash	USB Flash
Ethernet	Tripple 1000 Base-Tx	Tripple 1000 Base-Tx
IDE Channels	1x	-
SATA	4 (RAID-Support)	6 (RAID-Support)
Available I/Os	CRT, PS/2, FDD, 8x USB, LPT, 2x COM	CRT, PS/2, FDD, 8x USB, LPT, 2x COM
Graphics	GMA950	GMA3100
Dimensions H x W x D	PICMG 1.3 full size	PICMG 1.3 full size
Additional	Audio, JILI, miniPCI	Audio, JILI, miniPCI
Operating Temperature	0° to 50°C	0° to 50°C

Slot-CPU 1.3 Backplanes	 xBP-13E5P7_2	 xBP-13E5P7	 xBP-6E2P3	 xBP-6E5P0	 xBP-13E9P3
Power connector	ATX	ATX	ATX	ATX	ATX
Type	ATX-type	ATX-type	2U Butterfly	2U Butterfly	ATX-type
CPU Slots	1	1	1	1	1
PCIexpress	1x PCIe X16, 1x PCIe X4, 3x PCIe X1	1x PCIe X16, 4x PCIe X1	1x PCIe X16, 1x PCIe X4	1x PCIe X16, 1x PCIe X8, 3x PCIe X4 (all X16 connector)	1x PCIe X16, 4x PCIe X4 (all X16 connectors), 4x PCIe X1 (X1 connectors)
PCI	7	7	3	0	3

Slot-CPU 1.0

PICMG 1.0 offers excellent flexibility for system integration. For customers needing many slots, the PICMG 1.0 can offer a flexible, cost effective solution.

If you need up to date performance or a high amount of memory combined with a legacy ISA-card, it might even be the only way to a working solution.

Slot-CPU 1.0

	PCI-951	PCI-954	PCI-759
CPU	Intel® Pentium® 4	Intel® Pentium® M	Intel® Pentium® 4D, Core™2 Duo
CPU Clock	up to 3.06 GHz	up to 1.8 GHz	up to 3.6 GHz
Front Side Bus	400/533 MHz	400 MHz	533/800/1066 MHz
Cache	256/512 kByte	0/512/1024/2048 kByte	1024/2048/4096 kByte
Chipset	Intel® 845GV	Intel® 82855GME + 6300ESB	Intel® 945GV
DRAM	2 GByte DIMM DDR-SDRAM	2 GByte DIMM DDR-SDRAM	4 GByte DIMM DDRII-SDRAM
Flash Disk	CompactFlash Socket	-	-
Ethernet	Dual 10/100 Base-Tx or Single 10/100 Base-Tx and Single 10/100/1000 Base-Tx	Dual 10/100 Base-Tx or Dual 1000 Base-Tx/Sx	Dual 10/100/1000 Base-Tx
IDE Channels	2 (1*)	2	1
SATA	-	2	4
Available I/Os	CRT, PS/2, FDD, 4x USB, LPT, 2x COM	CRT, PS/2, FDD, 2x USB, LPT, 4x COM	CRT, PS/2, FDD, 4x USB, LPT, 2x COM
Graphics	Internal 845GV	Internal 855GME	GMA950
Dimensions H x W x D	PICMG full size	PICMG full size	PICMG full size
Additional	audio, miniPCI	dual DVI option, miniPCI	miniPCI
Operating Temperature	0° to 50°C	0° to 50°C	0° to 50°C
S-ATA	-	2	4

Slot-CPU 1.0 Backplanes

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

Slot-CPU PISA®

PISA® Each coolMONSTER is a member of the only real half-size SBC family – all feature LAN, Graphics, 4x COM, Sound and 2x IDE. coolMONSTER boards are characterized by the same surface pinouts and interfaces for 4x COM, 2x IDE, USB, FAST LAN, LPT, FDC, Keyboard/Mouse and VGA. This family feature allows to re-use accessories and maximizes design reuse. The coolMONSTER family hosts processors from VIA Eden, VIA C3, Intel® Celeron® and Intel® Pentium® M processors, up to latest processor types. All coolMONSTER are plug-and-work enabled to further reduce time-to-market and lower system cost.

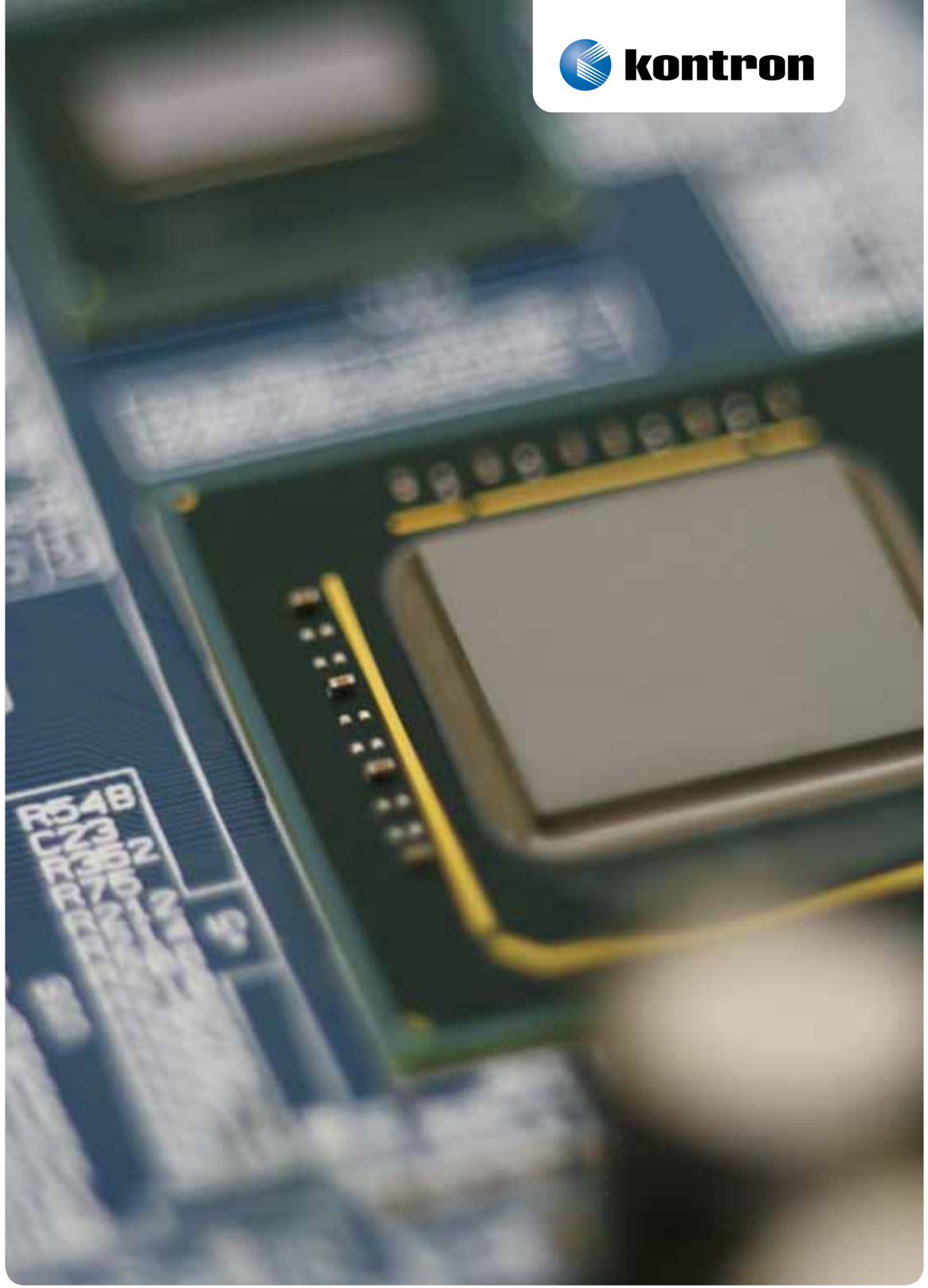
Slot-CPU PISA®

	coolMONSTER/PM*
CPU	Intel® Pentium® M, Intel® ULV Celeron® M - socketed or soldered
CPU Clock	800 MHz & 1 GHz fanless and up to 1.5 and 1.8 GHz
CPU L2 Cache	0 kByte up to 2 MByte L2
Chipset	Intel® 855GME, ICH4 (852GM upon request)
DRAM	1 GByte (DDR-RAM)
DRAM socket	1x DDR-RAM-DIMM
Audio	Sound onboard
Ethernet Controller	Intel® 551
Graphics Controller	Intel® Extreme Graphics 2, DUAL Display Screen support
Graphics Memory	2x 32 MByte UMA
Flat Panel Interface	JILI-LVDS, DVO & CRT
Expansion	PISA® slot
Power Consumption (typ.)	tbd
Additional	4x RS-232, CRT, 1x EPP/ECP, 10/100 Base-T Ethernet, LAN Boot, Dark Boot, 16 Bit PCI Sound, 3x USB, Keyboard, Mouse, dual Floppy Interface, 2x EIDE, Watchdog, RTC
RoHS compliant	yes

* Please note Extended Lifetime, not for new design, for this product Last Time Shipment is August 2012

PISA® Backplanes

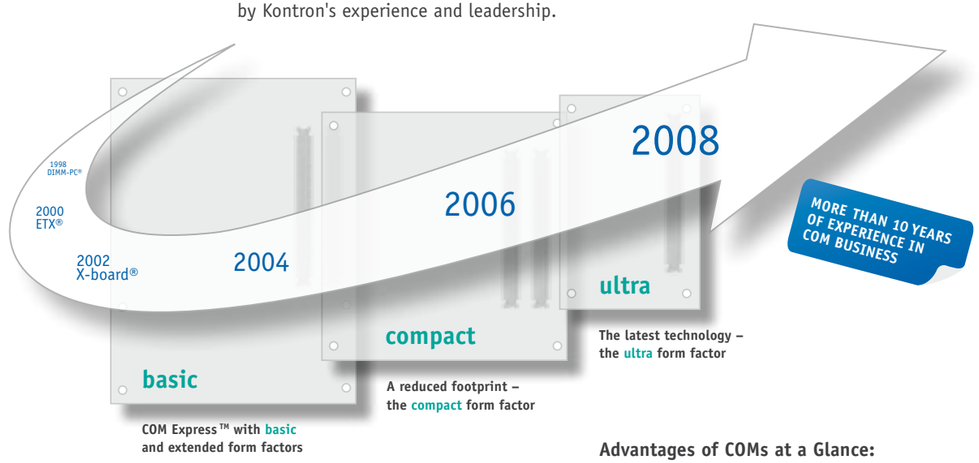
	PISA-2	PISA-2P3I	PISA-3P4I	PISA-B441A
Keyboard	-	-	yes	yes
Power connector	AT	AT	AT	AT
Dimensions H x W	170 x 51 mm (6.7 x 2.0")	170 x 101 mm	170 x 146 mm (6.7 x 5.8")	220 x 170 mm (8.7 x 6.7")
PISA	1x	2x (1x shared)	4x (1x shared)	1x
ISA	1x	1x	1x	4x
PCI	-	2x (1x shared)	3x (1x shared)	4x
RoHS compliant	-	-	-	-



»Computer-on-Modules«

Computer-on-Modules (COM) are highly integrated computer modules that support system expansion and application-specific customization without the use of cables. When using a Computer-on-Module, customers don't need to worry about the complex design of the COM, instead freeing them to concentrate on their core business. To tailor this modular solution to the application's specific needs, Kontron designs the carrier board including all necessary interfaces for the individual application. Kontron COMs are based on industry standards like ETX® and COM Express™. As such, Kontron COMs are simply plugged into the carrier board like a component.

The entire history of Computer-on-Modules has been shaped by Kontron's experience and leadership.



COM Express™ with basic and extended form factors

A reduced footprint – the compact form factor

The latest technology – the ultra form factor

Advantages of COMs at a Glance:

- Scalability in size and performance
- Short time-to-market
- Simplified development
- Flexibility and interoperability
- Reuse of knowledge
- Longevity of standards and products
- Multi-vendor support

CONTENTS

» What Outsourcing Services can do for you «

Boards & More

Development

Profit from profound design know how

With our x86, ARM and PowerPC design experience, Kontron develops and delivers the carrier board to fit your application, including test, standard memory, heatsink, assembly, customer-specific configuration plus housing, packaging and shipment.

Reliability

Stay involved through supervising project management

Your Kontron project manager guides you securely and without risk through the entire design-in process to a production-ready product.

Product quality

Eliminate risk through contracted manufacturers worldwide

With our global production and logistics capabilities, Kontron offers you the correct form factor fit in absolutey top quality. If a module plus carrier board solution doesn't match your requirements, Kontron also has the experience and expertise to take on the full or semi-custom project.

Cost efficiency

Save through integration of proven technologies

We minimize modification costs, thus guaranteeing 'form, fit and function'. Careful selection and testing of suitable components and reliable suppliers additionally increases your security.

Technological edge

Stay ahead through strategic partnerships

You gain a technical advantage, since our strategic partnerships with Intel® and others give us early access to the latest technologies.

Investment protection

Increase design security through Life Cycle Management

We take on responsibilities using ongoing lifecycle management, because we want to further the success of your product. If required, we offer extended lifetimes to match your application's lifespan.

Continuity

Build on future-proof embedded standards

To retain assurance across many generations of processors, we realize future products in both proven and new embedded standards.

Custom Carrier Board Services

» Evaluation Board

» Starter Kit

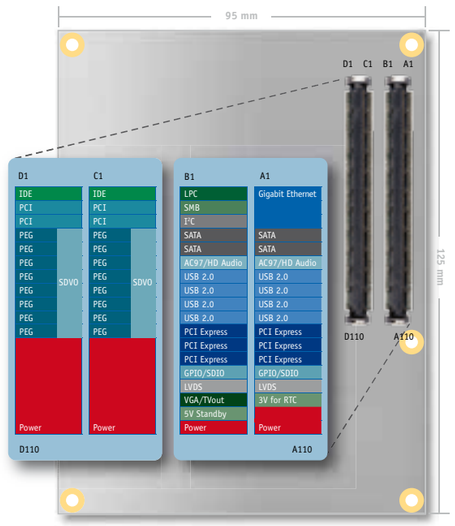
» Custom Carrier Board

» Full Custom Design

» Customized Housing

» ETXexpress® «

The COM Express™ basic module



Kontron has a long and successful history of innovation within Computer-on-Modules. Under Kontron's leadership, the COM Express™ specification was developed and is now maintained by the PCI Industrial Computer Manufacturer Group (PICMG®). Kontron offers a wide range of COM Express™ compliant and compatible modules including those in its ETXexpress®, microETXexpress® and nanoETXexpress product families.

ETXexpress® is Kontron's COM Express™ basic form factor module with a footprint of 125 x 95 mm. Kontron modules offer complete, multimedia-capable computing cores for high-level applications and the high performance needed for your next generation product.

Highest Performance with the Latest Interface Technologies

» PCI Express® – the elemental data highway

» PCI Express® for Graphics (PEG) – for high speed x16 graphic

» Gigabit Ethernet – for fastest connectivity

» SerialATA 300 – for performing drives & data storage

» Dual Channel DDR3 – for maximum memory

» USB 2.0 - for hot plugable devices

» COM Express™ connectors – for highest proven transfer rates

» Dual Channel LVDS – for high resolution

» SDVO – for maximum display flexibility

ETXexpress®	 ETXexpress®-CD	 ETXexpress®-PC Small Form Factor	 ETXexpress®-PC Performance Package	 Sampling Q1/2010 ETXexpress®-AI
CPU	Intel® Core™ Duo L2400, Intel® Celeron® M 440, ULV423	Intel® Core™2 Duo SP9300, SL9400, SU9300	Intel® Core™2 Duo T9400, P8400, Intel® Celeron® M Processor 575	Intel® Core™ i7 and i5 processors up to 2.66GHz
CPU Clock	up to 2x 1,66 GHz	up to 2x 2.26 GHz	up to 2x 2.53 GHz	up to 2.66 GHz
Cache	up to 4 MB L2	up to 6 MB L2	up to 6 MB L2	up to 4M L2
Chipset	Intel® 945GME, ICH7M-DH	Intel® GS45, ICH9M SFF	Intel® GM45, ICH9EM, Intel® GL40, ICH9M	Intel® Mobile QM57 Platform Controller Hub
Bus Speed	533/667 MHz FSB	800/1066 MHz FSB	800/1066 MHz FSB	800/1066 FSB
DRAM	physical memory up to 4 GByte (DDR2-RAM), Dual Channel	up to 8 GByte (DDR3-RAM), Dual Channel	up to 8 GByte (DDR3-RAM), Dual Channel	Up to 8GBytes (DDR3-RAM), Dual Channel with ECC support
DRAM socket	2x DDR2 SO-DIMM socket up to 4GByte	2x DDR3 SO-DIMM socket up to 8 GByte	2x DDR3 SO-DIMM socket up to 8 GByte	2x DDR3 SO-DIMM socket up to 8 GByte
SM Bus Support	yes	yes	yes	yes
Hard Disk	2x SerialATA (AHCI; RAID 0,1), 1x PATA	4x SerialATA 300 (AHCI; RAID 0,1), 1x PATA (optional Flash onboard)	4x SerialATA 300 (AHCI; RAID 0, 1, 5, 10, Matrix), 1x PATA	4x SerialATA (3Gb/Sec) and PATA (on type 2 only)
USB	USB 2.0, 8 ports	USB 2.0, 8 ports	USB 2.0, 8 ports	USB 2.0, 8 ports
Ethernet	10/100/1000 MBit	10/100/1000 MBit	10/100/1000 MBit	10/100/1000 MBit
Ethernet Controller	Realtek RTL 8111C	Intel® 82567	Intel® 82567	Intel® 82557
Audio Controller	Intel® High Definition Audio, AC97	Intel® High Definition Audio	Intel® High Definition Audio	Intel® High Definition Audio
Graphics Controller	Intel® GMA 950 DirectX®; 9, PS 3.0	Intel® GMA X4500 DirectX®; 10, PS 4.0	Intel® GMA X4500 DirectX®; 10, PS 4.0	
Graphics Memory	up to 256 MByte DVMT 3.0	up to 1024 MB DVMT 5.0	up to 1024 MB DVMT 5.0	
Flat Panel Interface	Dual SDVO multiplexed with PEG port, Single and Dual Channel JILI-LVDS 18/24 Bit, TVout, CRT	Dual SDVO multiplexed with PEG, DisplayPort, HDMI Single and Dual Channel JILI-LVDS 18/24 Bit, TVout, CRT	Dual SDVO multiplexed with PEG, DisplayPort, HDMI Single and Dual Channel JILI-LVDS 18/24 Bit, TVout, CRT	Analog VGA, LVDS & SDVO plus 3 new Digital Display interfaces (VESA Display Port, HDMI or DVI modes)
Power Management	ACPI 2.0	ACPI 3.0	ACPI 3.0	ACPI 3.0
Wide Range Support	8.5 V - 18 V	8.5 V - 18 V	8.5 V - 18 V	8 V - 18 V
Temperature/Humidity	Operation: 0 °C to 60 °C, Extended Temperature -25 °C to 75 °C on request	Operation: 0 °C to 60 °C, Extended Temperature -25 °C to 75 °C on request	Operation: 0 °C to 60 °C, Extended Temperature -25 °C to 75 °C on request	Operation: 0 °C to 70 °C
Power Consumption (typ.)	typ. Idle 11 W @ Intel® Core™ Duo L2400	typ. Idle 8W @ Intel® Core™2 Duo SP9300	typ. Idle estimated ~12W @ Intel® Core™2 Duo P8400 Economic Power-Off S5 Eco < 1 mA	20W-40W (estimate)
Dimensions H x W x D	95 x 125 mm	95 x 125 mm	95 x 125 mm	95 x 125 mm
PCIexpress	5 PCIe x1 or 1 PCIe x4, 1 PEG x16	5 PCIe x1 or 1 PCIe x1 and 1 PCIe x4, 1 PEG x16	5 PCIe x1 or 1 PCIe x1 and 1 PCIe x4, 1 PEG x16	PCIe 7(x1) lanes on Type 6, 6 (x1) lanes on Type 2, 1 PEG x16
PCI	PCI 2.3, 32 bit / 33 MHz	PCI 2.3, 32 bit / 33 MHz	PCI 2.3, 32 bit / 33 MHz	PCI Rev 2.3 @ 33MHz (Type 2 only)

THE THERMAL CONCEPT

ETXexpress® Heatspreader provides:

» Identical mechanical size – all COM Express™ modules fit in the same system.

» The only surface that needs cooling is the top of the heatspreader.

» Additional active and passive Heatsinks are available.

COM Express™ Starter-Kit for ETXexpress® COMs

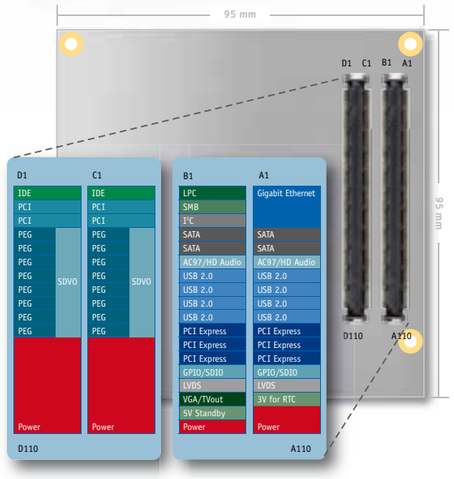
» Complete Starter-Kit for immediate evaluation purposes.

» Includes all required hard- and software components for a quick start.

» Choose your Module for the Starter-Kit.

» microETXexpress® «

The compact COM Express™ module



Kontron microETXexpress® modules are 100 percent compliant to the open standard COM Express™ COM.0 specification maintained by PICMG® and follow the Compact form factor and the Type 2 pin-out definitions. Kontron's microETXexpress® modules are equipped with state-of-the-art features. The microETXexpress® design is the entry-level model for applications looking to transition from other small form factor solutions to COM Express™ and offers full PCI Express or PCI support.

Advantages

» COM Express™ Compact Form Factor, Pin-out Type 2

» Interfaces compatible to ETXexpress® resp. COM Express™ basic

» Performance scalability from Intel® Atom™ up to Intel® Core™2 Duo

» Compact module size (95 x 95 mm)

» Designed for mobile application requirements Kontron

» Specialised microETXexpress® Startkits available, but also compatible with ETXexpress® Starterkits

THE THERMAL CONCEPT

microETXexpress® Heatspreader provides:

» Identical mechanical size – all microETXexpress® modules fit in the same system.

» The only surface that needs cooling is the top of the heatspreader.

» COM Express™ compatible

microETX express®	 microETX express®-PM	 microETX express®-SP	 microETX express®-XL	 microETX express®-PV	 microETX express®-DC	 microETX express®-PC
CPU	Intel® Pentium® M, Intel® Celeron® M	Intel® Atom™ Z510 and Z530	Intel® Atom™ processor Z520PT (1.33GHz)	Intel® Next Generation Atom processors up to Dual Core	Intel® Atom™ N270	Intel® Core™ 2 Duo SL9400, SU9300, Intel® Celero® M Processor 722, 723
CPU Clock	600 MHz up to 1.4 GHz	1.1 GHz and 1.6 GHz	1.33GHz	TBD	1.6 GHz	up to 1.86 GHz
Cache	up to 2 MByte L2	32 kB Instruction Cache + 24 kB L1, up to 512kB L2	512KB L2	TBD	512kB L2	up to 6 MB L2
Chipset	Intel® 82855GME Intel® 82852GME, ICH4	Intel® System Controller Hub US15W	Intel® US15WPT System Controller Hub	Intel® 82801HM	Intel® 945GSE, ICH7M	Intel® GS45, ICH9M SFF
Bus Speed	400 MHz FSB	400/533 MHz FSB	533MHz FSB	TBD	400/533 MHz FSB	800/1066 MHz FSB
DRAM	up to 1 GByte (DDR-RAM)	up to 2 GB (DDR2-RAM)	up to 2GB on-board DDR2 (industrial temperature range)	up to 2 GB (DDR2-RAM)	up to 2 GB (DDR2-RAM)	up to 4 GB (DDR3-RAM)
DRAM socket	1x DDR SO-DIMM socket up to 1 GByte	1x DDR2 SO-DIMM socket up to 2 GB	N/A	1x DDR2 SO-DIMM socket up to 2 GB	1x DDR2 SO-DIMM socket up to 2 GB	1x DDR3 SO-DIMM socket up to 4 GB
SM Bus Support	yes	yes	yes	yes	yes	yes
Hard Disk	2x SerialATA (RAID 0,1), 1x PATA	2x SerialATA (RAID 0,1), 1x PATA	1x SATA, 1x PATA, Optional industrial temperature range SSD onboard	3x SerialATA	2x SerialATA (AHCI), 1x PATA, optional SSD flash onboard	3x SerialATA 300 (AHCI; RAID 0,1), 1x PATA
USB	USB 2.0, 6 ports	USB 2.0, 8 ports (1x USB Client)	USB 2.0, 8 ports	USB 2.0, 8 ports	USB 2.0, 8 ports	USB 2.0, 8 ports
USB Boot/Legacy Support	yes/yes	yes/yes	yes/yes	yes/yes	yes/yes	yes/yes
Ethernet	10/100 MBit	10/100/1000 MBit	10/100/1000 MBit	10/100/1000 MBit	10/100/1000 MBit	10/100/1000 MBit
Ethernet Controller	Intel® 82562 ET	Intel® 82574L	Intel® 82574 (Industrial Temperature Range)	Intel® 82567	Intel® 82574L	Intel® 82567
Audio Controller	AC97	Intel® High Definition Audio	Intel® High Definition Audio	Intel® High Definition Audio	Intel® High Definition Audio, AC97	Intel® High Definition Audio
Graphics Controller	Intel® Extreme Graphics 2	Intel® GMA 500, DirectX® 9, PS 3.0	Intel® GMA 500, DirectX® 9, PS 3.0	TBD	Intel® GMA950, DirectX®; 9, PS 2.0	Intel® GMA X4500, DirectX®; 10, PS 4.0
Graphics Memory	up to 64 MByte UMA	up to 256 MB DVMT	up to 1024 MB DVMT	TBD	up to 256 MB DVMT	up to 1024 MB DVMT
Flat Panel Interface	CRT, JILI-LVDS	SDVO, Single-Channel JILI-LVDS 18/24 Bit	Single channel 24 bit LVDS, Single SDVO channel, No VGA support	LVDS, VGA	VGA, SDVO Single and Dual Channel JILI-LVDS 18 Bit, TVout	Dual SDVO multiplexed with PEG, DisplayPort and HDMI, Single and Dual Channel JILI-LVDS 18/24 Bit, TVout, VGA
Power Management	ACPI, APM 1.2	ACPI 2.0	ACPI 3.0	ACPI 3.0	ACPI with S5 Eco	ACPI 3.0
Wide Range Support	8.5 V - 18 V	8.5 V - 18 V	4.75 V - 18 V	4.75V to 18V	8.5 V - 18 V	8.5 V - 18 V
Power Consumption (typ.)	typ. Idle 10,5 W @ Intel® Pentium® M 738	typ. Idle ~9.5 W @ Intel® Atom™ Z530	< 8W (estimate)	8W - 18W (estimate)	typ. Idle ~8 W @ Intel® Atom™ N270, Economic Power-Off S5 Eco < 1 mA	typ. Idle ~7.5W @ Intel® Core™2 Duo SU9300
Dimensions H x W x D	95 x 95 mm	95 x 95 mm	95 x 95 mm	95 x 95 mm	95 x 95 mm	95 x 95 mm
PCIexpress		2 PCIe x1, optional up to 5 PCIe x1	2 PCIe x1 lanes	5 PCIe x1 lanes	3 PCIe x1	5 PCIe x1 or 1 PCIe x1 and 1 PCIe x4, 1 PEG x16
PCI	PCI 2.3, 32 bit / 33 MHz	PCI 2.3, 32 bit / 33 MHz	PCI 2.3, 32 bit / 33 MHz	PCI 2.3, 32 bit / 33 MHz	PCI 2.3, 32 bit / 33 MHz	PCI 2.3, 32 bit / 33 MHz

COM Express™ for Extreme Temperatures

Mission-critical applications in the military, aerospace, transportation, energy and industrial automation markets offer the biggest challenges for extended temperature designs. To achieve functionality in extended temperature ranges, customers have two recommended ways to ensure that COM solutions perform within extended temperature environments – by design (solutions built with all industrial grade components) and by 100 percent extended temperature testing of the solution. The Kontron microETXexpress®-XL offers a "by design" modular solution fully approved for use under E2 industrial temperature range (-40°C to +85°C) conditions. Kontron also offers other high-performance COMs re-engineered to be reliable under such extreme temperature conditions. A whitepaper detailing the Kontron approach to serving extreme applications also is downloadable from the Kontron website.

» nanoETXexpress «

The ultra-small COM Express™ compatible module

The Kontron nanoETXexpress Computer-on-Module design is compatible with the PICMG® defined COM Express™ standard and follows the Pin-out Type 1. With a credit card sized footprint of a mere 55 mm x 84 mm, nanoETXexpress modules are ideal for ultra-mobile applications that require energy-saving x86 processor performance, high-end graphics, PCI Express and Serial ATA combined with longer battery life.

The nanoETXexpress is designed with the requirements of handheld devices for medical and multi-media applications as well as small mobile data systems in mind, not to mention a host of new applications that prior to now have not been possible due to size or power consumption limitations. Kontron nanoETXexpress modules are compatible with the COM Express™ standard following Pin-out Type 1 with respect to the physical positioning of the connector as well as the pin definition.

Advantages

- » Ultra compact COM Express™ compatible module (55 x 84 mm)
- » Based on COM Express™ Pin-out Type 1
- » SerialATA, for highspeed drives
- » Memory and FlashDrive on board
- » Long-term replacement for legacy small form factors

Not bigger than a credit card!

THE THERMAL CONCEPT

nanoETXexpress Heatspreader provides:

- » Identical mechanical size – all nanoETXexpress modules fit in the same system.
- » The only surface that needs cooling is the top of the heatspreader.
- » Additional active and passive Heatsinks are available.

nanoETXexpress	nanoETXexpress-SP
CPU	Intel® Atom™ processor Z5XX series
CPU Clock	1.1 GHz up to 1.6 GHz
Cache	32 kByte Instruction Cache + 24 kByte L1/512 kByte L2
Chipset	Intel® System Controller Hub US15W
Bus Speed	400/533 MHZ FSB
DRAM	onboard up to 1024 MByte (DDR2)
SM Bus Support	yes
Flash Disk	on Board SSD Flash up to 4 GByte
USB	USB 2.0, 8 ports (1 client)
USB Boot/Legacy Support	yes/yes
Ethernet	10/100/1000 MBit Ethernet
Ethernet Controller	on Board Intel® 82574L Hartwell
SATA	1x Serial ATA supporting 1.5 GBit/s
Audio Controller	Intel® High Definition Audio
Graphics Controller	Integrated Intel® Graphics HDTV/HD capable, Decoder for MPEG2(HD)/H.264
Graphics Memory	up to 256 MByte, UMA
Flat Panel Interface	Single Chanel LVDS 18/24 Bit; WXGA 1366x768; SDVO (optional) up to 1920x1080
Power Management	ACPI 2.0 + APM S3 hot and cold support
Wide Range Support	4.75 V - 14,7 V
Power Consumption (typ.)	typ. Idle 4,5 W @12V
Dimensions H x W x D	55 x 84 mm
Additional	1 SDIO port (shared with GPIO); 4x GPI; 4x GPO; I2C Bus; LPC Bus; TPM external on LPC
PCIexpress	1 PCIe x1 lane (opt. 2 PCIe x1 if no onboard LAN)

Ready-to-run Starter Kits

When you're ready to start evaluating the nanoETXexpress platform, make sure to place your order for one of the ready-to-run starter kits that comes complete with all needed accessories as well as a LCD display.

nanoETXexpress-HMI Starterkit

incl. nanoETXexpress-HMI Board, display and more.

nanoETXexpress Human Machine Interface (HMI) Baseboard

is designed to allow embedded application developers to get up and run quickly with the nanoETXexpress module platform, giving them a head start on the total system design.

nanoETXexpress Evaluation carrier board

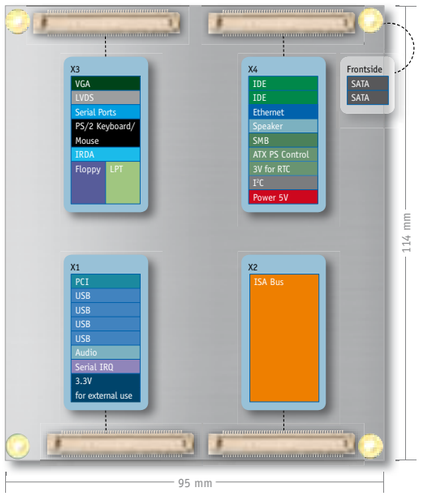
is designed to allow embedded application developers to get up and running quickly on the nanoETXexpress modular platform.

» The ETX® Solution «

ETX® 3.0
Long Term Support

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 500 MHz up to Intel® Core™2 Duo and offer a full complement of PC I/O such as keyboard, serial, parallel and Parallel ATA interfaces. The full-featured ETX® series also includes onboard USB, ethernet, graphics and sound. ETX® modules are installed on the application-specific carrier board much like an integrated circuit component, in a host site comprised of four low profile, surface mount connectors.

- » 2x SerialATA support by connector area on the module
- » ETX® 3.0 is 100 percent backwards pin-to-pin compatible with previous ETX® standard revisions
- » No redesign needed for the ETX® carrier boards
- » Long Term Support



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.
- » Additional active and passive Heatsinks are available.

ETX® Starter-Kit

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

ETX®	 ETX®-LX	 ETX®-CN8	 ETX®-PM/PM3	 ETX®-CD	 ETX®-DC
CPU	AMD Geode™ LX800	VIA C7®, VIA Eden®	Intel® Pentium® M, Intel® Celeron® M	Intel® Core™ 2 Duo, Intel® Core™ Duo, Intel® Celeron® M	Intel® Atom™ N270
CPU Clock	500 MHz	500 MHz up to 1.5 GHz	600 MHz up to 1.8 GHz	1.06 GHz up to 2x 1.66 GHz	1.6 GHz
Cache	128 kB L2	128 kB L2	up to 2 MB L2	up to 4 MB L2	512 kB L2
Chipset	AMD Geode™ CS5536 Companion Device	VIA CN896, VIA VT8237S	Intel® 82855GME/82852GM, ICH4	Intel® 945GME, ICH7M	Intel® 945GSE, ICH7M
Bus Speed	Geode™-Link	400/533/667 MHz	400 MHz	400/533/667 MHz	400/533 MHz
DRAM	up to 1 GB (DDR-RAM)	up to 2 GB (DDR2-RAM)	up to 1 GB (DDR-RAM)	up to 2 GB (DDR2-RAM)	up to 2 GB (DDR2-RAM)
DRAM socket	1x DDR SO-DIMM up to 1 GB	1x DDR2 SO-DIMM up to 2 GB	1x DDR SO-DIMM up to 1 GB	1x DDR2 SO-DIMM socket up to 2 GB	1x DDR2 SO-DIMM socket up to 2 GB
SM Bus Support	yes	yes	yes	yes	yes
Flash Disk	CompactFlash™ Type II socket onboard	-	-	-	-
Hard Disk	2x SerialATA (RAID 0,1), 1x PATA, 1x CompactFlash™ Type II socket on board	2x SerialATA 300 (RAID 0,1), 2x PATA	2x SerialATA w/ RAID (only ETX®-PM3), 2x PATA	2x SerialATA (AHCI), 1x PATA	2x SerialATA (AHCI), 2x PATA
USB	USB 2.0, 4 ports	USB 2.0, 4 ports	USB 2.0, 4 ports; opt. 6 ports	USB 2.0, 4 ports; opt. 6 ports	USB 2.0, 4 ports; opt. 6 ports
USB Boot/Legacy Support	yes/yes	yes/yes	yes/yes	yes/yes	yes/yes
Ethernet	10/100 MBit	10/100 MBit	10/100 MBit	10/100 MBit	10/100 MBit
Ethernet Controller	Intel® 82551ER	VIA VT 6103L	Intel® 82562ET	Intel® 82562EZ	Intel® 82562V
Audio Controller	AL203 AC 97 Rev 2.3 compatible Codec	AC97, Via VT1618	AC97, Codec Crystal CS4299	AC97, Codec Crystal CS4299	AC97, HDA Codec Realtek ALC888
Graphics Controller	LX800, integrated graphic processor	VIA Uni Chrome Pro™ IGP (Chrome 9™ HCDX9 IGP) Dual Independent Display Support	Intel® Extreme Graphics 2 Dual Independent Display Support	Intel® GMA 950	Intel® GMA 950
Graphics Memory	up to 254 MB UMA	up to 256 MB UMA	up to 64 MB UMA	up to 224 MB DVMT 3.0	up to 224 MB DVMT 3.0
Flat Panel Interface	JILI Interface (LVDS) or JIDI (digital) TTL-Interface	JILI-LVDS, TVout	JILI-LVDS, DVO	JILI-LVDS, SDVO	JILI-LVDS, SDVO
Power Management	ACPI 2.0, APM 1.2, S3 support	ACPI, APM 1.2	ACPI, APM 1.2, S3 support	ACPI, APM 1.2, S3 support	ACPI, APM 1.2, S3 support
Temperature/ Humidity	Operation: 0° to 60°C, Extended Temperature -25°C to 75°C on request	Operation: 0° to 60°C	Operation: 0° to 60°C, Extended Temperature -25°C to 75°C on request	operation: 0° to 60°; Extended Temperature -25°C to 75°C on request	operation: 0° to 60°; Extended Temperature -25°C to 75°C on request
Power Consumption (typ.)	typ. Idle: 6.5 W @ AMD Geode™ LX800	typ. Idle 9.3W @ VIA Eden® 500 MHz	typ. Idle 10W @ Intel® Pentium® M 738	typ. Idle 13.8 W @ Intel® Core™2 Duo L7400	typ. Idle ~10.5 W @ Intel® Atom™ N270
Dimensions H x W x D	95 x 114 mm	95 x 114 mm	95 x 114 mm	95 x 114 mm	95 x 114 mm

» Extended Temperature COMs «

According to industry standards, the typical temperature range is 0°C to + 60°C (+32°F to +140°F). However, temperatures in many areas of applications deviate considerably from this norm in both extremes and require boards which are designed for operation or storage temperatures above or below this standard temperature range. For this reason, Kontron offers dedicated modules for E1 Extended Temperature -25°C to +75°C (-13°F to +167°F) or even for the Industrial Temperature range -40°C to +85°C (-40°F to 185°F).

- **The capability of each product to work in a specified environment is proven by Kontron at both the time of engineering as well as in production. Results of the applicable tests are available upon request.**
- **E1 (-25°C to 75°C resp. -13°F to 167°F) and Industrial Temperature Range (-40°C to +85°C resp. -40°F to 185°F) are guaranteed. Test reports are available for all 100 percent screened extended temperature assemblies as well as for "by design" extended temperature solutions.**
- **See the list below for the dedicated standard products.**

Feel free to ask about other modules with wider temperature ranges.

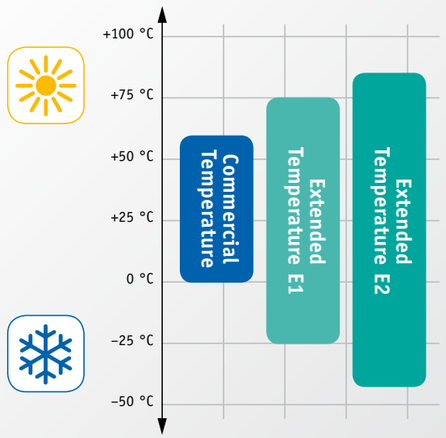
E1 Extended Temperature COMs

ETX®-LX 500 MHz Extended Temp. E1
ETX®-LX 500 MHz digital Extended Temp. E1
ETXexpress®-CD 1.66 GHz Extended Temp. E1
ETXexpress®-PC 1.86 GHz Extended Temp. E1
microETXexpress®-PC 1.2 GHz Extended Temp E1
nanoETXexpress-SP 1.1 GHz Extended Temp. E1
nanoETXexpress-SP 1.6 GHz Extended Temp. E1

E2 Industrial Temperature COMs

microETXexpress®-XL 1.3 GHz

Temperature Ranges



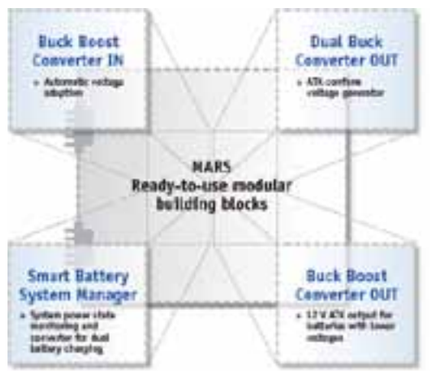
» Value-Adds for COMs «

MARS – Mobile Application platform for Rechargeable Systems for all COM Express™ and ETX® modules

More and more manufacturers are depending on intelligent battery management solutions. MARS allows you to save a great deal of time and effort when developing Smart Battery concepts. Simply adapt the modular building blocks you need and utilize the proven layout and schematics instead of having to develop the whole unit yourself.

- **Easy initial start-up**
- **Broadly scalable: input voltage range 5 to 28 VDC**
- **High flexibility through 2 smart batteries used in parallel**
- **MARS saves effort, time and money!**

Configuration for any application



K-station – One API for all COMs

Different modules, different operating systems and even different development environments make the programmer's life more complicated. Kontron's K-station tool kit overcomes this by establishing an abstraction layer. It provides an easy-to-use programming interface to achieve independence and reuse know-how and code on different hardware module configurations, including hardware, BIOS and software configurations.

K-station is a software tool kit and API designed for:

- Product and software development
- Product support
- Maintenance for application developers and software solution Integrators

K-station's API is identical on all Kontron Computer-on-Modules.

- **Powerful software tool kit and developer library for Computer-on-Modules**
- **Easy-to-use programming interface**
- **Independence, flexibility and on time in the market**

Whitepaper and demo video downloadable from web.

»HMI & Displays «

The scalable product line of the HMI systems offers a wide range of processor capacities (up to Intel® Core Duo™) and display dimensions from 7.0“ up to 19.0“. The 100% industry-capable Panel PCs and displays meet the toughest industrial requirements concerning shock, vibration and temperature resistance. However specific your requirements, we supply you with semi- and full-customized Panel PCs and displays for your control and visualization applications.

- » High performance with embedded multi-core processor technology
- » Fanless cooling at maximum processor performance
- » Scalable display sizes
- » Closed cabinets for use in rugged environments

CONTENTS

» HMI – Human Machine Interface «

V Panel Express

Supreme computing performance with scaleable multi-core processors

» High performance with embedded multi-core processor technology up to Intel® Core™ Duo processors

» Ideal for running real time control and visualization simultaneously on one system or high-end rugged computing applications » Fanless cooling at maximum processor performance

» Scaleable display size: 12“, 15“, 17“ and 19“

V Panel Express

The V Panel Express line based on ETXexpress / COM Express technology offers supreme computing performance at low power consumption. The integrated innovative cooling concept realizes a passive and fanless cooling for highest processor performance up to Intel® Core™ Duo processor technology. This allows critical and highly complex realtime applications to run on one computer with almost twice the performance. The V Panel Express is ideal for running real time control and visualization simultaneously whereas previously these applications had to be run on two or more dedicated systems.

V Panel Express

	V Panel Express 121	V Panel Express 150	V Panel Express 170	V Panel Express 190
Display	12.1“	15.0“	17.0“	19.0“
Resolution	800x600	1024x768	1280x1024	1280x1024
Brightness	350cd/m²	250cd/m²	250cd/m²	250cd/m²
Touch Screen	Resistive analog	Resistive analog	Resistive analog	Resistive analog
Front Bezel	Alu, Stainless steel optional	Alu, Stainless steel optional	Alu, Stainless steel optional	Alu, Stainless steel optional
Dimensions (Panelmount) H x W x D	312 x 380 x 163 mm	354 x 450 x 163 mm	399 x 461 x 168 mm	426 x 516 x 165 mm
Processor	up to Intel® Core™2 Duo	up to Intel® Core™2 Duo	up to Intel® Core™2 Duo	up to Intel® Core™2 Duo
Main Memory	up to 2 GByte	up to 2 GByte	up to 2 GByte	up to 2 GByte
I/Os	5x USB (1x front; 4x rear side), 1x LAN 10/100, 1x LAN 100/1000, 2x RS232, 1x DVI-I	5x USB (1x front; 4x rear side), 1x LAN 10/100, 1x LAN 100/1000, 2x RS232, 1x DVI-I	5x USB (1x front; 4x rear side), 1x LAN 10/100, 1x LAN 100/1000, 2x RS232, 1x DVI-I	5x USB (1x front; 4x rear side), 1x LAN 10/100, 1x LAN 100/1000, 2x RS232, 1x DVI-I
Free Slots	2x PCI	2x PCI	2x PCI	2x PCI
Internal Drives	optional 2x Compact Flash, 2x SATA HDD	optional 2x Compact Flash, 2x SATA HDD	optional 2x Compact Flash, 2x SATA HDD	optional 2x Compact Flash, 2x SATA HDD
Power Supply	24 VDC	24 VDC	24 VDC	24 VDC
Cooling	Fanless	Fanless	Fanless	Fanless
EMC	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)	US: FCC47 CFR PART 15; Class A level CE: EN61000-6-2; EN55022/A (CISPR22)
Approvals	CE, FCC, cULus	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 (3,048m), Storage: 15000 ft (4,622m)	Operating: 10000 ft (3,048m), Storage: 15000 ft (4,622m)	Operating: 10000 ft (3,048m), Storage: 15000 ft (4,622m)	Operating: 10000 ft (3,048m), Storage: 15000 ft (4,622m)
Shock DIN EN 60068-2-27	Operating: 15G, 11ms duration / storage: 30G, 11ms duration (half-sinus)	Operating: 15G, 11ms duration / storage: 30G, 11ms duration (half-sinus)	Operating: 15G, 11ms duration / storage: 30G, 11ms duration (half-sinus)	Operating: 15G, 11ms duration / storage: 30G, 11ms duration (half-sinus)
Vibration DIN EN 60068-2-6	Operating: 10-500 Hz: 1G / 3 axis / Storage: 10-500 Hz: 2G / 3 axis	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 / 20 to 85% non condensing Storage: -20° to +60°C / 5 to 95% non condensing	Operating: 0° to +50°C / 20 to 85% non condensing Storage: -20° to +60°C / 5 to 95% non condensing	Operating: 0° to +50°C / 20 to 85% non condensing Storage: -20° to +60°C / 5 to 95% non condensing	Operating: 0° to +50°C / 20 to 85% non condensing Storage: -20° to +60°C / 5 to 95% non condensing
MTBF	> 40000 h *	> 40000 h *	> 40000 h *	> 40000 h *
Verified OS	Windows XP, Windows XP Embedded, Linux, Linux Embedded	Windows XP, Windows XP Embedded, Linux, Linux Embedded	Windows XP, Windows XP Embedded, Linux, Linux Embedded	Windows XP, Windows XP Embedded, Linux, Linux Embedded
RoHS compliant	yes	yes	yes	yes

*excluding the Backlight Tube

Micro Clients II

By focusing on the intended use as an industrial thin client including touch functionality for operating and monitoring, the Kontron Micro Client II provides all the latest features required for thin client oriented HMI applications in a cost-optimized design that includes a modular IP65 protected front panel with touch screen. The Kontron Micro Clients II can be implemented with either SATA, CompactFlash or Ethernet boot functionality.

This makes them the perfect fit for all common server-orientated HMI client technologies. Depending on the application needs, the fanless and scalable Kontron Micro Clients II are equipped with embedded processors ranging from the AMD LX 800 processor with 500MHz up to the 1.0 GHz Intel® Celeron® processor. Shock and vibration resistance, thermal stability and compliance with the strictest EMC standards are standard features for all Micro Clients.

Micro Clients II

	Micro Client II 70	Micro Client II 104	Micro Client II 121	Micro Client II 150
Display	7.0" TFT	10.4" TFT	12.1" TFT	15.0" TFT
Resolution	800x480	800x600	800x600	1024x768
Brightness	330cd/m²	230cd/m²	400cd/m²	350cd/m²
Touch Screen	Resistive analog	Resistive analog	Resistive analog	Resistive analog
Dimensions (Panelmount) H x W x D	168 x 235 x 49 mm	277 x 348 x 50 mm	312 x 380 x 55 mm	354 x 450 x 56 mm
Colour (Front)	black RAL 911	black (Pantone 433c)	black (Pantone 433c)	black (Pantone 433c)
Mounting	Panelmount + VESA opt.	Panelmount + VESA opt.	Panelmount + VESA opt.	Panelmount + VESA opt.
Processor	AMD LX800 500MHz up to Celeron M® 1GHz	AMD LX800 500MHz up to Celeron M® 1GHz	AMD LX800 500MHz up to Celeron M® 1GHz	AMD LX800 500MHz up to Celeron M® 1GHz
Main Memory	up to 1024 MByte	up to 1024 MByte	up to 1024 MByte	up to 1024 MByte
I/Os	2x USB, 2x LAN10/100, 1x RS232, 1x RS232/RS422/ RS485 opt.	2x USB rear, 1x USB front, 2x LAN10/100, 1x RS232, 1x RS232/RS422/RS485 opt.	2x USB rear, 1x USB front, 2x LAN10/100, 1x RS232, 1x RS232/RS422/RS485 opt.	2x USB rear, 1x USB front, 2x LAN10/100, 1x RS232, 1x RS232/RS422/RS485 opt.
Field Buses	CAN bus optional	CAN bus optional	CAN bus optional	CAN bus optional
Internal Drives	Compact Flash	Compact Flash and/or 2.5" HDD	Compact Flash and/or 2.5" HDD	Compact Flash and/or 2.5" HDD
Power Supply	11.4-28.8 VDC	11.4-28.8 VDC	11.4-28.8 VDC	11.4-28.8 VDC
Cooling	Fanless	Fanless	Fanless	Fanless
EMC	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)	US: FCC47 CFR PART 15; Class A level CE: EN61000-6-2 EN55022/A (CISPR22)
Approvals	CE, FCC, cULus	CE, FCC, cULus	CE, FCC, cULus	CE, FCC, cULus
Protection Class	IP 65 front	IP 65 front	IP 65 front	IP 65 front
Altitude	Operating: 10.000 ft (3.048 m); storage: 15.000 ft (4,622 m)	Operating: 10.000 ft (3.048 m); storage: 15.000 ft (4,622 m)	Operating: 10.000 ft (3.048 m); storage: 15.000 ft (4,622 m)	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)	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: 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	Operating: 10-500 Hz: 1G / 3 axis Storage: 10-500 Hz: 2G / 3 axis
Temperature/Humidity	Operating: 0° to +50°C / 20 to 90% non condensing Storage: -20° to +60°C / 5 to 90% non condensing	Operating: 0 °C to +50 °C / 20 to 90% non condensing Storage: -20 °C to +60 °C / 5 to 90% non condensing	Operating: 0 °C to +50 °C / 20 to 90% non condensing Storage: -20 °C to +60 °C / 5 to 90% non condensing	Operating: 0 °C to +50 °C / 20 to 90% non condensing Storage: -20 °C to +60 °C / 5 to 90% non condensing
MTBF	> 40.000 h*	> 40.000 h*	> 40.000 h*	> 40.000 h*
Verified OS	Windows XP Embedded, CE, Linux Embedded	Windows XP Embedded, CE, Linux Embedded	Windows XP Embedded, CE, Linux Embedded	Windows XP Embedded, CE, Linux Embedded

*excluding the Backlight Tube

MicroClient IIA

The fanless and scalable Kontron Micro Client IIA is equipped with Intel® Atom™ processor 1.6 GHz with low TDP(Thermal Design Power) which enables a passive and fanless cooling. By focusing on the intended use as an industrial thin client including touch functionality for operating and monitoring, the new Kontron Micro Client IIA provides all the latest features required for thin client oriented HMI applications in a cost-optimized design that includes a modular IP65 protected front panel with touch screen. The Kontron Micro Client IIA can be implemented with either SATA, CompactFlash or Ethernet boot functionality. This makes it the perfect fit for all common serverorientated HMI client technologies. Shock and vibration resistance, thermal stability and compliance with the strictest EMC standards are standard features for all Micro Clients

Micro Clients IIA

	Micro Client IIA 70	Micro Client IIA 104	Micro Client IIA 121	Micro Client IIA 150
Display	7.0" TFT	10.4" TFT	12.1" TFT	15.0" TFT
Resolution	800x480	800x600	800x600	1024x768
Brightness	330cd/m²	230cd/m²	400cd/m²	350cd/m²
Touch Screen	Resistive analog	Resistive analog	Resistive analog	Resistive analog
Dimensions (Panelmount) H x W x D	168 x 235 x 49 mm	277 x 348 x 50 mm	312x380x55 mm	354x450x56 mm
Colour (Front)	black RAL 911	black (Pantone 433c)	black (Pantone 433c)	black (Pantone 433c)
Mounting	Panelmount + VESA opt.	Panelmount + VESA opt.	Panelmount + VESA opt.	Panelmount + VESA opt.
Processor	Intel® Atom™ 1.6 GHz	Intel® Atom™ 1.6 GHz	Intel® Atom™ 1.6 GHz	Intel® Atom™ 1.6 GHz
Main Memory	up to 2 GB	up to 2 GB	up to 2 GB	up to 2 GB
I/Os	2x USB, 2x LAN10/100/1000, 1x RS232, 1x RS232/RS422/ RS485 opt.	2x USB rear, 1x USB front, 2x LAN10/100/1000, 1x RS232, 1x RS232/RS422/ RS485 opt.	2x USB rear, 1x USB front, 2x LAN10/100/1000, 1x RS232, 1x RS232/RS422/ RS485 opt.	2x USB rear, 1x USB front, 2x LAN10/100/1000, 1x RS232, 1x RS232/RS422/ RS485 opt.
Field Buses	CAN bus and additional field buses optional	CAN bus and additional field buses optional	CAN bus and additional field buses optional	CAN bus and additional field buses optional
Internal Drives	Compact Flash	Compact Flash and/or 2.5" HDD	Compact Flash and/or 2.5" HDD	Compact Flash and/or 2.5" HDD
Power Supply	12 - 24 VDC	12 - 24 VDC	12 - 24 VDC	12 - 24 VDC
Cooling	Fanless	Fanless	Fanless	Fanless
EMC	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)	US: FCC47 CFR PART 15; Class A level CE: EN61000-6-2 EN55022/A (CISPR22)
Approvals	CE, FCC, cULus	CE, FCC, cULus	CE, FCC, cULus	CE, FCC, cULus
Protection Class	IP 65 front	IP 65 front	IP 65 front	IP 65 front
Altitude	Operating: 10.000 ft (3,048 m); storage: 15.000 ft (4,622 m)	Operating: 10.000 ft (3,048 m); storage: 15.000 ft (4,622 m)	Operating: 10.000 ft (3,048 m); storage: 15.000 ft (4,622 m)	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)	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: 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	Operating: 10-500 Hz: 1G / 3 axis Storage: 10-500 Hz: 2G / 3 axis
Temperature/Humidity	Operating: 0° to +50°C / 20 to 90% non condensing Storage: -20° to +60°C / 5 to 90% non condensing	Operating: 0° to +50°C / 20 to 90% non condensing Storage: -20° to +60°C / 5 to 90% non condensing	Operating: 0° to +50°C / 20 to 90% non condensing Storage: -20° to +60°C / 5 to 90% non condensing	Operating: 0° to +50°C / 20 to 90% non condensing Storage: -20° to +60°C / 5 to 90% non condensing
MTBF	> 40.000 h*	> 40.000 h*	> 40.000 h*	> 40.000 h*
Verified OS	Windows XP Embedded, CE, Linux Embedded	Windows XP Embedded, CE, Linux Embedded	Windows XP Embedded, CE, Linux Embedded	Windows XP Embedded, CE, Linux Embedded

*excluding the Backlight Tube

MediClient

Panel PC for Medical Equipment OEMs

Flexible HMI for Every Medical Case
» EN 60601-1 compatible
» Robust, light and easy-to-clean plastic housing
» Fanless cooling
» Scalable processor performance up to Celeron M® 1 GHz

Kontron's MediClient offers medical OEMs a highly reliable platform with flexible mounting options and the longevity required by the medical industry. The touch screen of the medical Panel PC offers sharp graphics on a high contrast TFT display. The front panel of the medical Panel PC offers IP65 protection. The extremely tough and light plastic housing (ABS UL94V0) is scratch proof, corrosion resistant and chemical resistant for long life and easy cleaning. VESA arm mounting makes the Kontron MediClient easy-to-integrate for a wide spectrum of cost-sensitive OEM medical applications that require sharp graphics and intuitive user interfaces in a space-saving, robust design. The Kontron MediClient offers flexible and scalable processor performance up to the Celeron® M with 1 GHz. The dual Ethernet (10/100), dual USB2.0 and serial (RS232 opt. RS422/RS485) interfaces making it the ideal Panel PC for a wide range of medical applications. With its low power consumption and low heat dissipation, the new MediClient is also perfectly suited for mobile, battery driven all-in-one Point-of-Care applications, such as mobile nursing stations and bedside terminals in hospitals or health centers.

MediClient

	MediClient 104	MediClient 150
Display	10.4" TFT	15.0" TFT
Resolution	800x600	1024x768
Brightness	230cd/m²	350cd/m²
Touch Screen	Resistive analog	Resistive analog
Dimensions (H x W x D)	226 x 296 x 58.5 mm	286 x 363 x 62 mm
Weight	ca. 2.2 kg	ca. 3.3 kg
Colour (Front)	light grey (RAL 7035)	light grey (RAL 7035)
Mounting	VESA 75/100 mounting	VESA75/100 mounting
Processor	up to Celeron M® 1 GHz	up to Celeron M® 1 GHz
RAM	up to 1024 MByte	up to 1024 MByte
I/O Standard	2x USB, 2x LAN 10/100, 1x RS232 (RS422/RS485 optional)	2x USB, 2x LAN 10/100, 1x RS232 (RS422/RS485 optional)
Field Buses	CAN bus optional	CAN bus optional
Internal Drives	Compact Flash + HDD opt.	Compact Flash + HDD opt.
Power Supply	11.4 - 28.8 VDC	11.4 - 28.8 VDC
Cooling	Fanless	Fanless
EMC	US:FCC47 CFR PART15; Class A level CE:EN61000-6-2; EN55022/A (CISPR22	US:FCC47 CFR PART15; Class A level CE:EN61000-6-2; EN55022/A (CISPR22)
Certifications	CE, FCC, cULus, EN 60601 compatible	CE, FCC, cULus, EN 60601 compatible
Protection Class	IP65 front	IP65 front
Altitude	Operating: 10000 ft (3.048m), Storage: 15000 ft (4.622m)	Operating: 10000 ft (3.048m), Storage: 15000 ft (4.622m)
Shock DIN EN 60068-2-27	Operating: 15 g 11 ms duration, Storage: 30G, 11ms duration (half-sinus)	Operating: 15 g 11 ms duration, Storage: 30G, 11ms duration (half-sinus)
Vibration DIN EN 60068-2-6	Operating: 10-500 Hz: 1G/3 axis, Storage: 10-500 Hz: 2G/3 axis	Operating: 10-500 Hz: 1G/3 axis, Storage: 10-500 Hz: 2G/3 axis
Temperature/Humidity	Operating: 0 °C to +40 °C / 20 to 85% non condensing Storage: -20 °C to +60 °C / 5 to 95% non condensing	Operating: 0 °C to +40 °C / 20 to 85% non condensing Storage: -20 °C to +60 °C / 5 to 95% non condensing
MTBF	> 40000 h*	> 40000 h*
Verified OS	Windows XP Embedded, CE, Linux Embedded	Windows XP Embedded, CE, Linux Embedded

*excluding the Backlight Tube

Nano Client

Rugged Fanless HMI

The Nano Client offers stainless steel housing (IP66 around) and fanless cooling.
» Closed cabinet (stainless steel, IP66 around)
» Fanless cooling
» Ideally designed for use as a web client / thin client in rugged environments
» Low power management with Intel® Atom™ processor up to 1.6 GHz
» Compact space saving systems with max. 63 mm depth

Kontron's Nano Clients are robust and cost conscious human machine interfaces. With stainless steel housing and all around protection in IP66, the Nano Client is perfectly suited as a client device in rugged environments. Intel's® Atom™ processor with low TDP (Thermal Design Power) enables a passive and fanless cooling in combination with a closed cabinet.

The Nano Clients are scaleable in processor performance to suit individual requirements and applications. Whether as a thin client, a web client, a user terminal or as a controller, a wide variety of requirements can be realized quickly and inexpensively using these rugged, low power HMI systems.

Nano Client

	Nano Client 104	Nano Client 150
Display	10.4" TFT	15.0" TFT
Resolution	800x600	1024x768
Brightness	230cd/m²	350cd/m²
Touch Screen	Resistive analog	Resistive analog
Dimensions (H x W x D)	230 x 292 x 56 mm	299 x 384 x 63 mm
Housing	Stainless steel	Stainless steel
Weight	ca. 3.5 kg	ca. 6 kg
Mounting	VESA 75	VESA 100
Processor	Intel® Atom™ processor up to 1.6 GHz	Intel® Atom™ processor up to 1.6 GHz
RAM	up to 1 GByte	up to 1 GByte
I/O Standard	USB, LAN 10/100/1000	USB, LAN 10/100/1000
Internal Drives	Compact Flash	Compact Flash
Power Supply	24 VDC	24 VDC
Cooling	Fanless	Fanless
EMC	US:FCC47 CFR PART15; Class A level CE:EN61000-6-2; EN55022 / A (CISPR22)	US:FCC47 CFR PART15; Class A level CE:EN61000-6-2; EN55022 / A (CISPR22)
Certifications	CE, FCC, designed to meet cULus	CE, FCC, designed to meet cULus
Protection Class	IP66 all around	IP66 all around
Altitude	Operating: 10000 ft (3.048m); Storage: 15000 ft (4.622m)	Operating: 10000 ft (3.048m); Storage: 15000 ft (4.622m)
Shock DIN EN 60068-2-27	Operating: 15 g 11 ms duration; Storage: 50G, 11ms duration (half-sinus)	Operating: 15 g 11 ms 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	Operating: 10-500 Hz: 1G/3 axis; Storage: 10-500 Hz: 2G/3 axis
Temperature/Humidity	Operating: 0 °C to +45 °C / 20 to 90% non condensing Storage: -20 °C to +65 °C / 5 to 90% non condensing	Operating: 0 °C to +45 °C / 20 to 90% non condensing Storage: -20 °C to +65 °C / 5 to 90% non condensing
MTBF	> 40000 h*	> 40000 h*
Verified OS	Windows XP Embedded, CE, Linux Embedded	Windows XP Embedded, CE, Linux Embedded

*excluding the Backlight Tube

KFM

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.

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

Four Inputs:
» VGA
» DVI
» S-Video
» Composite Video

KFM

	KFM15_e	KFM19_e	KFM21_e
Display	15.1" XGA	19.0" SXGA	21.3" UXGA
Viewing angle L R U D	75, 75, 50, 75	85, 85, 85, 85	85, 85, 85, 85
Brightness	350 cd/m²	300 cd/m²	250 cd/m²
Touch Screen	resisitive analog optional	resisitive analog optional	resisitive analog optional
Dimensions H x W x D	Panelmount: 334 x 450 x 63 mm Rack Mount: 311 x 483 x 63 mm	Panelmount: 431 x 483 x 75 mm Rack Mount: 400 x 483 x 75 mm	Panelmount: 444 x 559 x 87 mm
Color	black (RAL 7021)	black (RAL 7021)	black (RAL 7021)
Mounting	Panel Mount / Rack Mount	Panel Mount / Rack Mount	Panel Mount
Construction	Anti-corrosion heavy duty steel EN 10215-DX 51D+AZ 150-A-C	Anti-corrosion heavy duty steel EN 10215-DX 51D+AZ 150-A-C	Anti-corrosion heavy duty steel EN 10215-DX 51D+AZ 150-A-C
Interface	VGA SUB-D, DVI, S-Video, Composite Video	VGA SUB-D, DVI, S-Video, Composite Video	VGA SUB-D, DVI, S-Video, Composite Video
Power Supply	24 V DC integrated, AC integrated	24 V DC integrated, AC integrated	230 V AC integrated
Cooling	Fanless	Fanless	Fanless
OSD	yes	yes	yes
Control Panel Indicators	Power LED	Power LED	Power LED
Control Panel Switch	Power On/Off	Power On/Off	Power On/Off
Altitude	10.000 ft	10.000 ft	10.000 ft
Options (Fully Certified with System)	resisitive analog optional	resisitive analog optional	resisitive analog optional
Shock DIN EN 60068-2-27	15 g 11 ms half sine	15 g 11 ms half sine	15 g 11 ms half sine
Vibration DIN EN 60068-2-6	10 - 58 Hz +- 0.075 mm, 58 - 500 Hz 1g	10 - 58 Hz +- 0.075 mm, 58 - 500 Hz 1g	10 - 58 Hz +- 0.075 mm, 58 - 500 Hz 1g
Temperature / Humidity	Operating: 0 °C to +50 °C / 20 to 85% non condensing, Storage: -20 °C to +60 °C / 5 to 95% non condensing	Operating: 0 °C to +50 °C / 20 to 85% non condensing, Storage: -20 °C to +60 °C / 5 to 95% non condensing	Operating: 0 °C to +50 °C / 20 to 85% non condensing, Storage: -20 °C to +60 °C / 5 to 95% non condensing
MTBF	> 40.000 h*	> 40.000 h*	> 40.000 h*
Weight	~ 5.6 kg	~ 9.6 kg	~ 10 kg

*excluding the Backlight Tube

HMI OEM Systems

Meeting Market Demands

Whatever 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

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

Demanding customers select Kontron HMIs for:

» Industrial Automation
» Building Automation
» Medical
» Test and Measurement
» Communications
» Transportation
» Point of Sale / Point of Interest

»Systems & Platforms«

Kontron offers designers a broad variety of industrial rack mount computers and enclosures, industrial chassis, industrial panel PCs, industrial LCD monitors and industrial flat panels, plus a selection of commercial-off-the-shelf open standard AdvancedTCA (p. 28), MicroTCA (p. 36) and CompactPCI (p. 42), VME (p. 56) or VPX pre-integrated platforms (p. 61).

CONTENTS

» CRMS – Communications Rack Mount Servers «

Kontron's Communications Rack Mount Servers are ideally suited for telco and data network applications. They are available in 1U and 2U ruggedized, shallow-depth chassis with long life availability and support. Communication Rack Mount Servers include two product families:

Carrier Grade Servers

Carrier Grade Servers Carrier Grade Servers are NEBS-3 and ETSI compliant standard building blocks used in a variety of telecom applications and are important for satisfying the demanding requirements and limited space of the telecom central office. Available in 1U and 2U chassis.

Key Benefits:
- » NEBS-3 / ETSI compliant
- » Long life support (3–5 years)
- » Short depth (20"), ruggedized chassis
- » Dual, redundant AC or DC power option
- » Telco alarm management
- » Hardware RAID option
- » Industry-leading performance/watt

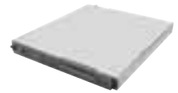
IP Network Servers

IP Network Servers IP Network Servers are optimized for high I/O throughput and compute performance, serving as an excellent choice for data network applications with large I/O requirements. They are well suited for enterprise application acceleration and content caching, and are ideal platforms for running Telco SoIP, including IMS, IPTV, video on demand (VoD), SIP application servers, IP-PBX, and IP-PSTN gateways. Available in 1U and 2U chassis.

Key Benefits:
- » Short depth (20"-24"), ruggedized chassis
- » "Appliance" look and feel
- » Long life product availabiltiy (3-5 years)
- » Dual, redundant AC or DC power option
- » Hardware RAID option (2U servers only)
- » Industry-leading performance/watt

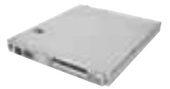
Carrier Grade Servers

Available Q2-2010



	CG2100 Carrier Grade Server	Carrier Grade Server TIGW1U
Form Factor	2U chassis	1U chassis
Processor	Dual socket support for Next Generation Intel® Xeon® processor	Dual socket support for Intel® Xeon® processors L5410 (45nm) OR for Intel® Xeon® processors LV 5148 or LV 5128 (65nm)
Chipset	Intel® 5520 Chipset + ICH10R	Intel® 5000P Memory Controller and ESB2-E I/O Controller chipset; supports front side bus speeds of 1066 MHz and 1333 MHz
Power Supply	Dual-redundant 600W AC or DC hot-swap power supply (2nd power supply optional). PMBus supported.	Dual, redundant 450W AC or DC Hot Swap Power Supply (2nd power supply optional)
Alarm Card	Telco Alarm Management - front-panel feature supports central office alarm systems	Telco Alarm Management - front-panel feature supports central office alarm systems
Rear I/O	Two rear-panel GbE NIC (Cu) ports. Additional I/O expansion available as option (see I/O Expansion Type).	Four rear-panel GbE NIC (Cu) ports, upgradeable to 12 GbE ports (max) based on PCI configuration
PCI Slots	Supports 3 or 5 PCI-E slots, or 3 PCI-E & 2 PCI-X slots. PCI Gen2 supported.	One PCI Super slot supporting either PCI-X 133MHz or optional PCI-Express x8
Main Memory	Twelve RDIMM/UDIMM memory slots (DDR3-800/1066/1333). Maximum 96 GB memory	Six DIMM slots supporting FBDIMM memory; 240-pin DDR2-533 and DDR2-667 FBDIMMs can be used; Maximum 32GB memory
Drive bays internal	Drive trays for up to six hot-swap 2.5-inch SAS or SATA hard disk drives	Drive trays for up to three hot-swap 2.5-in. SAS hard disk drives. DVD-CDR installed.
RAID	Software RAID 0,1,10 supported (std); Hardware RAID 5,6 supported as optional module	Software RAID 0,1 supported (std); Hardware RAID 5 supported as optional module
Flash	Flash storage capability supports specified solid state drives via USB or SATA interface; SD Flash Memory support (optional)	Flash storage capability supports specified solid state drives (purchased separately)
I/O Expansion Type	Optional I/O module enables external SAS storage or additional Quad GbE or Dual 10GbE ports	
Hot Swap	Hot-swap, redundant fans; hot-swap, redundant power supplies; hot-swap hard drives	Hot-swap, redundant power supplies; hot-swap hard drives
Management	Intel® Remote Management Module 3 (RMM3) w/ GCM4 (optional)	Remote Management Module (optional)
Front Bezel	Customizable front bezel adaptable to customer needs and environment	Standard gray bezel; customizable bezel available (optional)
Dimensions (H x W x D)	3.45 x 17.14 x 20 inches (87.6 x 435.3 x 508 mm)	1.70 x 16.93 x 20 inches (43.25 x 430 x 508 mm)

IP Network Servers



	IP Network Server NSN2U	IP Network Server NSW1U
Form Factor	2U chassis	1U chassis
Processor	Two socket support for Intel® Xeon® Processors 5500 Series and Next Generation Intel® Xeon® Processors	Single socket support for the Intel® Xeon® processor 5400 series (L5410 or E5540) (45nm) OR for the Intel® Xeon® processor 5100 series (65nm)
Chipset	Intel® 5520 Chipset + ICH10R	Intel® 5000P Memory Controller and ESB2-E I/O Controller chipset; supports front side bus speeds of 1066 MHz and 1333 MHz
Power Supply	Dual-redundant 600W AC or DC hot-swap power supply (2nd power supply optional). PMBus supported.	Dual, redundant 450W AC or DC Hot Swap Power Supply (2nd power supply optional)
Rear I/O	Two rear-panel GbE NIC (Cu) ports. Additional I/O expansion available as option (see I/O Expansion Type).	Four rear-panel GbE NIC (Cu) ports, upgradeable to 12 GbE ports (max) based on PCI configuration
Front IO	N/A	Optional Four or Eight front-panel GbE NIC ports (copper or fiber), with optional Bypass capability
PCI Slots	Supports 3 or 5 PCI-E slots, or 3 PCI-E & 2 PCI-X slots. PCI Gen2 supported.	One PCI Super slot supporting either PCI-Express x8 or optional PCI-X 133MHz
Main Memory	Twelve RDIMM/UDIMM memory slots (DDR3-800/1066/1333). Maximum 96 GB memory	Six DIMM slots supporting FBDIMM memory; 240-pin DDR2-533 and DDR2-667 FBDIMMs can be used; Maximum 32GB memory
Drive bays internal	Drive trays for up to eight hot-swap 2.5-inch SAS or SATA hard disk drives; Additional bay supports optical drive (purchased separately)	Drive trays for two fixed 3.5-in. SATA hard disk drives
RAID	Software RAID 0,1,10 supported (std); Hardware RAID 5,6 supported as optional module	Software RAID 0,1 supported (std)
Flash	Flash storage capability supports specified solid state drives via USB or SATA interface	Flash storage capability supports specified solid state drives (purchased separately)
I/O Expansion Type	Optional I/O module enables external SAS storage or additional Quad GbE or Dual 10GbE ports	
Hot Swap	Hot-swap, redundant fans; hot-swap, redundant power supplies; hot-swap hard drives	Hot-swap, redundant power supplies
Management	Intel® Remote Management Module 3 (RMM3) w/ GCM4 (optional)	Remote Management Module (optional)
Front Bezel	Customizable front bezel adaptable to customer needs and environment	Customizable front bezel adaptable to customer needs and environment
Dimensions (H x W x D)	3.45 x 17.14 x 24 inches (87.6 x 435.3 x 610 mm)	1.70 x 16.93 x 20 inches (43.25 x 430 x 508 mm)

» Rack Mount Systems «

Multifunctional Kontron Industrial Silent Server – KISS

Kontron offers a large array of Intel® based Industrial PC Rack Mount platforms around two core architectures: passive backplane (SBC) and motherboard. The benefits of the passive backplane are its ability to support a greater number and combination of ISA / PCI and PCI Express expansion slots (up to 14) and to offer longer life cycles, which can be greater than 5 years.

Advantages

» Low noise design
» Configurable with pre-verified options
» Long life time support >5 years
» Newest processor architectures
» Designed for high reliability and easy maintainability
» Shock proof rugged design
» Excellent thermal design
» Hot swap chassis fans
» Designed in Germany

Also available in various colors!

4U Rack Mount Systems

Configurable KISS systems are designed to meet your requirements.

The KISS system has been designed with flexibility in mind and can accommodate PICMG 1.0, PICMG 1.3, 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. Redundant PSUs, RAID Subsystem KISS Stor and Remote Diagnostic Software make the KISS family a highly reliable and continuous-operating industrial Server.

Extra accessories adapt KISS to precisely meet your specific requirements:

» An additional hold down bar for short add-on boards allows the system to withstand higher levels of shock and vibration.
» The extension brackets allows you to put two extra full-size cards into the KISS system.
» Up to three removable HDDs and one additional 5.25“ device are configurable options.
» Extra front I/Os are optionally available.
» Choose from three mounting options: 19“ rack mount, Desktop or Tower
» KISS Stor
» PCCM Remote Diagnostic software

4U Rack Mount Systems

KISS 4U KTQ45 ATX

KISS 4U KTC5520

	KISS 4U KTQ45 ATX	KISS 4U KTC5520
Construction	Anti-corrosion and long term stable heavy duty steel EN 10215-DX 51D+AZ 150-A-C	Anti-corrosion and long term stable heavy duty steel EN 10215-DX 51D+AZ 150-A-C
Mounting	19“ Rack Mount, Desk Top, Tower	19“ Rack Mount, Desk Top, Tower
Paint Color	Flap blue, Body black, others on request (black flap is standard in NA)	Flap blue, Body black, others on request (black flap is standard in NA)
Weight	~ 15 kg	~ 15 kg
Control Panel Indicators	Power LED and HDD LED (others on request)	Power LED and HDD LED (others on request)
Control Panel Switch	ATX Power, Reset	ATX Power, Reset
CPU	Intel® E8400,Intel® QUAD Core Q9400	Intel® Xeon® Processor E5540 (80W), Intel® Xeon® Processor W5580 (130W), Intel® Xeon® Processor L5518 (60W)
Front Side Bus	800/1066/1333 MHz	1066/1333 MHz
DRAM	Up to 8 GB DDR 3	up to 96 GB DDR3 Registered ECC SDRAM
I/O Standard	2x USB 2.0 Front side	2x USB 2.0 Front side
I/Os	Rear I/Os: 3* RS232,1 x RS485, VGA, Audio, 8* USB 2.0, PS/2 M+K, 2* LAN 10/100/1000	Rear I/Os: 2x GB LAN, 4x USB 2.0, PS/2 Mouse and Keyboard, VGA, Sound, 1x RS232C
Drives	accessible: 3x 5.25“, 2x 3.5“, 1x internal 3.5“, KISS Store	accessible: 2x 5.25“, 1x Slim Bay
System Monitoring	By PCCM	KVM over IP and Remote Management; IPMI v2.0
Expansion Slots	4* PCI 32 bit, 1 x PCI_e x 16, 1 x PCI_e x 4	1x PCI 32 Bit, 1x PCIe 2.0 x 8 using x 16 slot, 3x PCIe 2.0 x 8, 1* PCI_e x 4 using x8 Slot
Power Supply	AC wide range 550W(80+) , 24 V DC, 48 V DC, AC redundant	AC 550 W wide range(80+) AC redundant 500 W
Cooling	2x Hot Swap Chassis Fans ultra low noise	2x Hot Swap Chassis Fans ultra low noise
Protection Class	IP 20	IP 20
Options (Fully Certified with System)	KISS Stor 1 or KISS Stor 0/5 RAID Subsystem, Slide Rails	8 x 2,5“ SAS HDDs, KISS Stor 1 or KISS Stor 0/5 RAID Subsystem, Slide Rails
Altitude	0 - 3000 m (0 - 10.000 ft) operating	0 - 3000 m (0 - 10.000 ft) operating
Shock DIN EN 60068-2-27	operating: 15G, 11 ms 6 axis	operating: 15G, 11 ms 6 axis
Vibration DIN EN 60068-2-6	operating: 10 - 500 Hz 1G	operating: 10 - 500 Hz 1G
Humidity rel.	operating: 5 - 95% rel non condensing	operating: 5 - 95% rel non condensing
Operating System	WIN 2000, WIN XP, Linux,	WIN Server 2008, Red Hat Enterprice Linux version 5.2 or later (64 bit)
MTBF	50.000 h* at 25°C (77°F)	50.000 h* at 25°C (77°F)
Noise	< 35 dB at 25°C (77°F)	~ 40 dB at 25°C (77°F)
Dimensions H x W x D	4U x 19“ x 472 mm (18.58 inch)	4U x 19“ x 472 mm (18.58 inch)
Operating Temperature	0°C to 50°C (32°F-122°F)	0°C to 45°C (32°F-11°F)

Further 4U Rack Mount Systems »

4U Rack Mount Systems

	KISS 4U KT965 ATXP	KISS 4U 986LCD ATXP	KISS 4U PCI 951	KISS 4U Dual XEON**	KISS 4U PCI 960	KISS 4U PCI 759	KISS 4U PCI 760
Construction	Anti-corrosion and long term stable heavy duty steel EN 10215-DX 51D+AZ 150-A-C	Anti-corrosion and long term stable heavy duty steel EN 10215-DX 51D+AZ 150-A-C	Anti-corrosion and long term stable heavy duty steel EN 10215-DX 51D+AZ 150-A-C	Anti-corrosion and long term stable heavy duty steel EN 10215-DX 51D+AZ 150-A-C	Anti-corrosion and long term stable heavy duty steel EN 10215-DX 51D+AZ 150-A-C	Anti-corrosion and long term stable heavy duty steel EN 10215-DX 51D+AZ 150-A-C	Anti-corrosion and long term stable heavy duty steel EN 10215-DX 51D+AZ 150-A-C
Mounting	19" Rack Mount, Desk Top, Tower	19" Rack Mount, Desk Top, Tower	19" Rack Mount, Desk Top, Tower	19" Rack Mount, Desk Top, Tower	19" Rack Mount, Desk Top, Tower	19" Rack Mount, Desk Top, Tower	19" Rack Mount, Desk Top, Tower
Paint Color	Flap blue, Body black, others on request (black flap is standard in NA)	Flap blue, Body black, others on request (black flap is standard in NA)	Flap blue, Body black, others on request (black flap is standard in NA)	Flap blue, Body black, others on request	Flap blue, Body black, others on request (black flap is standard in NA)	Flap blue, Body black, others on request (black flap is standard in NA)	Flap blue, Body black, others on request (black flap is standard in NA)
Weight	~ 15 kg	~ 15 kg	~ 15 kg	~ 15 kg	~ 15 kg	~ 15 kg	~ 15 kg
Control Panel Indicators	Power LED and HDD LED (others on request)	Power LED and HDD LED (others on request)	Power LED and HDD LED (others on request)	Power LED and HDD LED (others on request)	Power LED and HDD LED (others on request)	Power LED and HDD LED (others on request)	Power LED and HDD LED (others on request)
Control Panel Switch	ATX Power, Reset	ATX Power, Reset	ATX Power, Reset	ATX Power, Reset	ATX Power, Reset	ATX Power, Reset	ATX Power, Reset
CPU	Intel® Core™2 Duo E4300,E6400	Celeron® 440, Intel® Core™ Duo T2500, Intel® Core™2 Duo T7400	Pentium® 4 Celeron® 2.0 GHz, Pentium® 4 2.8 GHz	Up to Intel® Dual Xeon™ 3.4 GHz, Woodcrest	Celeron® 440, Intel® Core™ Duo T2500, Intel® Core™2 Duo T7400	Intel® Core™2 Duo E4300,E6400	Intel® Core™2 Duo E4300,E6400, Quad Core Q9400
Front Side Bus	533/800/1066 MHz	533/667 MHz	400/533 MHz	800 MHz	800 MHz	1066/800/533 MHz	1333/1066/800 MHz
DRAM	Up to 8 GByte DDR2	Up to 4 GByte DDR2	Up to 2 GByte DDR 333	Up to 16 GByte reg ECC	Up to 4 GByte DDR2	Up to 4 GByte DDR2	Up to 8 GByte DDR2
I/O Standard	2x USB 2.0 Front side	2x USB 2.0 Front side	2x USB 2.0 Front side	2x USB 2.0 Front side	2x USB 2.0 Front side	2x USB 2.0 Front side	2x USB 2.0 Front side
I/Os	Rear I/Os: 2x 10/100/1000 LAN, 8x USB 2.0, PS/2 Mouse and Keyboard, VGA, Sound, 2x RS232C, LPT	Rear I/Os: 3x 10/100/1000 LAN, 8x USB 2.0, PS/2 Mouse and Keyboard, VGA, Sound, 4x 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, 1x COM RS232C, 2x USB 2.0	2x LAN 10/100/1000, VGA, PS/2 Mouse and keyboard, 2x COM RS232C, 6x USB 2.0	2x LAN 10/100/1000, VGA, PS/2 Mouse and keyboard, 2x COM RS232C, 6x USB 2.0	2x LAN 10/100/1000, VGA, PS/2 Mouse and keyboard, 2x COM RS232C, 6x USB 2.0
Drives	accessible: 3x 5.25", 2x 3.5", 1x internal 3.5", KISS Store	accessible: 3x 5.25", 2x 3.5", 1x internal 3.5", KISS Store	accessible: 3x 5.25", 2x 3.5", 1x internal 3.5", KISS Store	accessible: 3x 5.25", 2x 3.5", 1x internal 3.5", KISS Store	accessible: 3x 5.25", 2x 3.5", 1x internal 3.5", KISS Store	accessible: 3x 5.25", 2x 3.5", 1x internal 3.5", KISS Store	accessible: 3x 5.25", 2x 3.5", 1x internal 3.5", KISS Store
System Monitoring	By PCCM	on request	No	IPMI	By PCCM	on request	By PCCM
Expansion Slots	6x PCI 32, 1x PEG	6x PCI 32, 1x PEG	4x PCI full size, 3x PCI half size, 5x ISA full size, 2x PICMG, others on request	2x 64 Bit 133/100/66 MHz 3.3 V PCI X, 3x 32 Bit 33 MHz 5 V PCI, no AGP	7x PCI 32 Bit 33 MHz 5 V, 1x PCIe x 16, 4x PCIe x1	7x PCI 32 Bit 33 MHz 5 V, 1x PCI_e x 16, 4x PCIe x1	7x PCI 32 Bit 33 MHz 5 V, 1x PCI_e x 16, 4x PCIe x1
Power Supply	AC 300 W wide range, 460 W AC, 24 V DC, AC redundant	AC 300 W wide range, 460 W AC, 24 V DC, AC redundant	AC 300 W wide range, 460 W AC, 24 V DC, AC redundant	AC 460 W 100-240 V AC 50 - 60 Hz	AC 300 W wide range, 460 W AC, 24 V DC, AC redundant	AC 300 W wide range, 460 W AC, 24 V DC, AC redundant	AC 300 W wide range, 460 W AC, 24 V DC, AC redundant
Cooling	2x Hot Swap Chassis Fans ultra low noise	2x Hot Swap Chassis Fans ultra low noise	2x Hot Swap Chassis Fans ultra low noise	2x Hot Swap Chassis Fans ultra low noise	2x Hot Swap Chassis Fans ultra low noise	2x Hot Swap Chassis Fans ultra low noise	2x Hot Swap Chassis Fans ultra low noise
Protection Class	IP 20	IP 20	IP 20	IP 20	IP 20	IP 20	IP 20
Options (Fully Certified with System)	KISS Stor 1 or KISS Stor 0/5 RAID Subsystem , Slide Rails	KISS Stor 1 or KISS Stor 0/5 RAID Subsystem , Slide Rails	KISS Stor 1 or KISS Stor 0/5 RAID Subsystem , Slide Rails	KISS Stor 1 or KISS Stor 0/5 RAID Subsystem , Slide Rails	KISS Stor 1 or KISS Stor 0/5 RAID Subsystem , Slide Rails	KISS Stor 1 or KISS Stor 0/5 RAID Subsystem , Slide Rails	KISS Stor 1 or KISS Stor 0/5 RAID Subsystem , Slide Rails
Altitude	0 - 3000 m (0 - 10.000 ft) operating	0 - 3000 m (0 - 10.000 ft) operating	0 - 3000 m (0 - 10.000 ft) operating	0 - 3000 m (0 - 10.000 ft) operating	0 - 3000 m (0 - 10.000 ft) operating	0 - 3000 m (0 - 10.000 ft) operating	0 - 3000 m (0 - 10.000 ft) operating
Shock DIN EN 60068-2-27	operating: 15G, 11 ms 6 axis	operating: 15G, 11 ms 6 axis	operating: 15G, 11 ms 6 axis	operating: 15G, 11 ms 6 axis	operating: 15G, 11 ms 6 axis	operating: 15G, 11 ms 6 axis	operating: 15G, 11 ms 6 axis
Vibration DIN EN 60068-2-6	operating: 10 - 500 Hz 1G	operating: 10 - 500 Hz 1G	operating: 10 - 500 Hz 1G	operating: 10 - 500 Hz 1G	operating: 10 - 500 Hz 1G	operating: 10 - 500 Hz 1G	operating: 10 - 500 Hz 1G
Humidity rel.	operating: 5 - 95% rel non condensing	operating: 5 - 95% rel non condensing	operating: 5 - 95% rel non condensing	operating: 5 - 95% rel non condensing	operating: 5 - 95% rel non condensing	operating: 5 - 95% rel non condensing	operating: 5 - 95% rel non condensing
Operating System	WIN 2000, WIN XP, Linux,	WIN 2000, WIN XP, Linux,	WIN 2000, WIN XP, Linux,	WIN 2000, WIN XP, Linux,	WIN 2000, WIN XP, Linux, VISTA	WIN 2000, WIN XP, Linux, VISTA	WIN 2000, WIN XP, Linux, VISTA
MTBF	50.000 h* at 25°C (77°F)	50.000 h* at 25°C (77°F)	50.000 h* at 25°C (77°F)	50.000 h* at 25°C (77°F)	50.000 h* at 25°C (77°F)	50.000 h* at 25°C (77°F)	50.000 h* at 25°C (77°F)
Noise	< 35 dB at 25°C (77°F)	< 35 dB at 25°C (77°F)	< 35 dB at 25°C (77°F)	~ 40 dB at 25°C (77°F)	< 35 dB at 25°C (77°F)	~40 dB at 25 °C (77°F)	< 35 dB at 25°C (77°F)
Dimensions H x W x D	4U x 19" x 472 mm (18.58 inch)	4U x 19" x 472 mm (18.58 inch)	4U x 19" x 472 mm (18.58 inch)	4U x 19" x 472 mm (18.58 inch)	4U x 19" x 472 mm (18.58 inch)	4U x 19" x 472 mm (18.58 inch)	4U x 19" x 472 mm (18.58 inch)
Operating Temperature	0°C to 50°C (32°F-122°F)	0°C to 50°C (32°F-122°F)	0°C to 50°C (32°F-122°F)	0°C to 50°C (32°F-112°F)	0°C to 50°C (32°F-122°F)	0°C to 50°C (32°F-122°F)	0°C to 50°C (32°F-122°F)

* Without FANs

** Not available in NA.

4U Short Rack Mount Systems

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 KISS 4U Short offers the same features in drive space, maintainability and functionality as it's "Big Brother" KISS but is only 300 mm deep. If space is an issue, KISS-Short is the right choice.

4U Short Rack Mount Systems

	KISS 4U Short KTQ45 Flex	KISS 4U Short KT965/Flex	KISS 4U Short 986LCD-M/Flex
Mechanical Dimensions	Rack Mount: 19" x 4U x 300 mm	Rack Mount: 19" x 4U x 300 mm	Rack Mount: 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	Rack Mount	=	=
Paint Color	Flap blue, Body black, others on request (black flap is standard in NA)	=	=
Weight	~12 kg	~12 kg	~12 kg
Control Panel Indicators	Power LED, HDD LED	Power LED, HDD LED	Power LED, HDD LED
Control Panel Switch	PWR On, Reset	PWR On, Reset	PWR On, Reset
CPU	Intel® Core™ 2Duo E8400, Intel® Core™Quad Q9400	Intel® Core™2 Duo E4300, E6400	Celeron® 440, Intel® Core™ Duo T2500, Intel® Core™2 Duo T7400
Front Side Bus	800/1066/1333 MHz	533/800/1066 MHz	533/667 MHz
DRAM	Up to 8 GB DDR 3	Up to 8 GByte DDR 2	Up to 4 GByte DDR 2
I/O Standard	2x USB 2.0 front	=	=
Dimensions (H x W x D)	4U x 19" x 300 mm(11.81 inch)	=	=
I/Os	Rear I/Os: 2* COM,VGA,Line in , Line out,8* USB 2.0, PS/2 M+K,2* LAN 10/100/100	Rear I/Os: 3x 10/100/1000 LAN, 8x USB 2.0, VGA, 2x RS232C	Rear I/Os: 2x 10/100/1000 LAN, 8x USB 2.0, VGA, 4x RS232C
Drives	1x 3.5" internal, 2x 5.25" front accessible, 1* 3,5" front accessible	=	1x 3.5" internal, 3x 5.25" front accessible, 2* 3,5" Front accessible
System Monitoring	By PCCM	By PCCM	on request
Expansion Slots	2x PCI full size 32 Bit, 1x PCIe x16 1 x PCIe x4	2 xPCI 32 Bit, 1x PEG, PCI_e x4	2 free PCI 32 Bit, 1x PEG, 1x PCIe x4
Power Supply	AC 350 W (80+) autoswitching, 24 V DC, 48 V DC	AC 270 W 115/230 Manual switching	AC 270 W 115/230 Manual switching
Cooling	2 Front side hot swap Chassis FANs	2 Hot swap Sensor Controlled Ultra Low Noise Chassis FANs	2 Hot swap Sensor Controlled Ultra Low Noise Chassis FANs, no CPU FAN
Protection Class	IP 20	IP 20	IP 20
Options (Fully Certified with System)	KISS Store 1 or KISS Store 0/5 RAID Subsystem, Slide Rails, additional front IOs	KISS Store 1 or KISS Store 0/5 RAID Subsystem, Slide Rails, additional front IOs	KISS Store 1 or KISS Store 0/5 RAID Subsystem, Slide Rails, additional front IOs
Altitude	0 - 3000 m (0 - 10.000 ft) operating	=	=
Shock DIN EN 60068-2-27	Operating: 15 g 11 ms half sine	Operating: 15 g 11 ms half sine	Operating: 15 g 11 ms half sine
Vibration DIN EN 60068-2-6	Operating: 10-500 Hz 1 g	Operating: 10-500 Hz 1 g	Operating: 10-500 Hz 1 g
Humidity rel.	Operating: 5-95 rel.% non condensing	Operating: 5-95 rel.% non condensing	Operating: 5-95 rel.% non condensing
Operating System	WIN 2000,WIN XP, Linux	WIN XP, Linux, VISTA	WIN XP, Linux, VISTA
MTBF	50.000 h @ 25° C(77°F)	50.000 h @ 25° C(77°F)	50.000 h @ 25° C(77°F)
Noise	< 35 dB @ 25° C(77°F)	< 35 dB @ 25° C(77°F)	< 35 dB @ 25° C(77°F)
Operating Temperature	0°C to 50°C(32°F-122°F)	0°C to 50°C(32°F-122°F)	0°C to 50°C(32°F-122°F)

*) Without FANs

2U Short Rack Mount Systems

The KISS 2U short system has been designed with flexibility in mind and can accomodate FlexATX and MiniITX motherboards, all in a chassis that can be used as a desktop or 19" rack mounted cabinet. The main attraction of KISS 2U short servers is their extremely low noise level, which is inaudible against normal conversation. KISS IPC servers are thus ideal for most noise – sensitive environments such as hospital operating theaters and computer server rooms. The performance and maximum of configuration of KISS servers are based on Kontron´s extensive range of CPU boards.

2U Short Rack Mount Systems

	KISS 2U Short 886LCD M/Flex	KISS 2U Short 986LCDM/ITX	KISS 2U Short KT965Flex	KISS 2U Short KTQ45Flex	KISS 2U Short KTQ45Flex low profile
Construction	Anti-corrosion and long term stable heavy duty steel EN 10215-DX 51D+AZ 150-A-C	=	=	=	=
Mounting	Rack Mount, Desktop	=	=	=	=
Paint Color	Flap blue, Body black, others on request (black flap is standard in NA)	Flap blue, Body black, others on request (black flap is standard in NA)	=	=	=
Weight	~ 8kg	=	=	=	=
Control Panel Indicators	Power LED, HDD LED	=	=	=	=
Control Panel Switch	Power ON, reset	=	=	=	=
CPU	Pentium® M Celeron ® 1.5 GHz, Pentium® M 1.8 GHz	Celeron® 440, Intel® Core™ Duo T2500, Intel® Core™2 Duo T7400	Intel® Core™ Duo E4300, Intel® Core™2 Duo E6400	Intel® Core™ 2Duo E8400, Intel® Core™Quad Q9400	=
Front Side Bus	533 MHz	533/667 MHz	533/800/1066 MHz	800/1066/1333 MHz	=
DRAM	Up to 2 GByte DDR	Up to 4 GByte DDR 2	Up to 8 GByte DDR 2	Up to 8 GB DDR 3	=
I/O Standard	Front: 2x USB 2.0	=	=	=	=
Drives	1x 3,5" accessible, 1x 5,25" accessible, 1x 3,5" Internal	1x 3.5" Internal, 1x 3.5" accessible, 1x 5.25" accessible	1x 3.5" Internal, 1x 3.5" accessible, 1x 5.25" accessible	1x 3.5" Internal, 1x 3.5" accessible, 1x 5.25" accessible	1x 3.5" Internal, 1x 3.5" accessible, 1x 5.25" accessible
System Monitoring	No	on request	by PCCM	by PCCM	by PCCM
Expansion Slots	2x PCI 32 Bit 33 MHz max length: 230mm	=	=	=2x PCI full size 32 Bit, or 1x PCIe x16 and PCIe x4 or 1x PCI 32 Bit and 1* PCI_e x 16	=2x PCI full size 32 Bit, 1x PCIe x16 1 x PCIe x4
Power Supply	AC 300 W wide range, 24 V DC	=	=	=	=
Cooling	3 Hot swap low noise chassis fans	=	=	=	=
Altitude	0-3000 m (0-10.000 ft) operating	=	=	=	=
Shock DIN EN 60068-2-27	operating: 5 g 11 ms half sine	=	=	=	=
Vibration DIN EN 60068-2-6	operating: 10 - 500 Hz 1,0 g	=	=	=	=
Humidity rel.	operating: 5 - 95% non condensing	=	=	=	=
Operating System	WIN 2000,WIN XP, Linux	WIN XP, Linux,WIN 2000	WIN XP, Linux,WIN 2000,VISTA	WIN XP, Linux,WIN 2000,Windows 7	=
MTBF	50.000h at 25°C(77°F)	=	=	=	=
Noise	< 35 dBA at 25 °C(77°F)	=	=	=	=
Dimensions H x W x D	2U x 19" x 350 mm (13.78inch)	=	=	=	=
Operating Temperature	0°C to 50°C (32°F-122°F)	0°C to 50°C (32°F-122°F)	0°C to 50°C (32°F-122°F)	0°C to 50°C (32°F-122°F)	0°C to 50°C (32°F-122°F)

*) Without FANs

2U Rack Mount Systems

Versatile 2U Solution for space limited applications

The features of the KISS 2U include an especially low installation height (88.90 mm), extremely quiet (<35 dbA), scalable as desired, RoHs-compliant, long-term available and ruggedized. Ideal Industrial Server solution with redundant AC PSU and integrated hot swappable RAID 1 Subsystem. KISS 2U features PICMG 1.3 and PICMG 1.0 slots boards or Flex ATX motherboards, and is accordingly expandable in an especially flexible fashion, up to multicore and PCI-Express-based systems. In both the Flex ATX and PICMG 1.3 designs, the KISS 2U servers offer performance currenty up to Intel® QUAD Core Q9400 and up to 8 GByte DDR2 memory. The chassis for the KISS 2U is designed either for the desktop or for installation in a 19" cabinet.

2U Rack Mount Systems

	KISS 2U PCI 960	KISS 2U PCI 760	KISS 2U PCI 759	KISS 2U KT965Flex	KISS 2U 986Mini ITX	KISS 2U KTQ45/Flex
Construction	Anti-corrosion and long term stable heavy duty steel EN 10215-DX 51D+AZ 150-A-C	=	=	=	=	=
Mounting	Rack Mount, Desktop	=	=	=	=	=
Paint Color	Flap blue, Body black, others on request (black flap is standard in NA)	=	=	=	=	=
Weight	~ 10 Kg	~ 10 Kg	~ 10 Kg	~ 8 Kg	=	=
Control Panel Indicators	Power LED, HDD LED	=	=	=	=	=
Control Panel Switch	Power ON, reset	=	=	=	=	=
CPU	Celeron® 440, Intel® Core™ Duo T2500, Intel® Core™2 Duo T7400	Intel® Core™ Duo E4300, Intel® Core™2 Duo E6400, Intel® Core™2 Quad Q9400	Intel® Core™ Duo E4300, Intel® Core™2 Duo E6400	Intel® Core™ Duo E4300, Intel® Core™2 Duo E6400	Celeron® 440, Intel® Core™ Duo T2500, Intel® Core™2 Duo T7400	Intel® E8400, Intel® QUAD Core Q9400
Front Side Bus	533/667 MHz	800/1066/1333 MHz	800/1066/1333 MHz	533/800/1066 MHz	533/800/1066 MHz	800/1066/1333 MHz
DRAM	Up to 4 GByte DDR 2	Up to 8 GByte DDR 2	Up to 4 GByte DDR 2	Up to 8 GByte DDR 2	Up to 8 GByte DDR 2	Up to 8 GB DDR 3
I/O Standard	Front: 2x USB 2.0	=	=	=	=	=
Drives	1x 3.5" Internal, 1x 3.5" accessible, 1x 5.25" accessible	=	=	=	=	=
System Monitoring	By PCCM	By PCCM	on request	By PCCM	on request	By PCCM
Expansion Slots	3x PCI full size 32 Bit, 1x PCIe x16, 1x PCIe x4	3x PCI full size 32 Bit, 1x PCIe x16, 1x PCIe x4	4x PCI full size 32 Bit, 1x ISA, 1x PIGMG 1.0	2x PCI 32 Bit 33 MHz full size	=	2x PCI full size 32 Bit, or 1x PCIe x16 and PCIe x4 or 1x PCI 32 Bit and 1x PCI_e x 16
Power Supply	AC 300 W, 24V DC,redundant AC PSU	=	=	=	=	=
Cooling	3 Hot swap low noise chassis fans	=	=	=	=	=
Altitude	0 - 3000 m (0 - 10.000 ft) operating	=	=	=	=	=
Shock DIN EN 60068-2-27	operating: 5 g 11 ms half sine	=	=	=	=	=
Vibration DIN EN 60068-2-6	operating: 10 - 500 Hz 1,0 g	=	=	=	=	=
Humidity rel.	operating: 5 - 95% non condensing	=	=	=	=	=
Operating System	WIN 2000, WIN XP, Linux, VISTA	WIN 2000, WIN XP, Linux, VISTA	WIN 2000, WIN XP, Linux, VISTA	WIN XP, Linux, WIN 2000,VISTA	WIN 2000, WIN XP, Linux, VISTA	WIN 2000, WIN XP, Linux, Windows 7
MTBF	50.000 h at 25°C (77°F)	=	=	=	=	=
Noise	< 35 dB at 25 °C (77°F)	=	< 40 dB at 25 °C (77°F)	< 35 dB at 25 °C (77°F)	=	=
Dimensions H x W x D	2U x 19" x 472 mm(18.58inch)	=	=	=	=	=
Operating Temperature	0°C to 50°C (32°F-122°F)	0°C to 50°C (32°F-122°F), (0°C-45°C (32°F-113°F) for Quad Core CPUs)	=	0°C to 50°C (32°F-122°F)	=	=

*) Without FANs

1U Short Rack Mount Systems

When space is limited, the KISS 1U short systems are designed to provide a solution. Only 350 mm(13,78 inch) deep, these smaller systems can be configured to meet your needs.

1U Short Rack Mount Systems

KISS 1U Short PCI 960

Features	KISS 1U Short 986
Construction	Anti-corrosion and long term stable heavy duty steel EN 10215-DX 51D+AZ 150-A-C
Mounting	Rack Mount, Desktop
Paint Color	Flap blue, Body black, others on request (black flap is standard in NA)
Weight	~6 kg
Control Panel Indicators	Power LED, HDD LED
Control Panel Switch	Power ON, reset
CPU	Celeron® 440, Intel® Core™ Duo T2500, Intel® Core™2 Duo T7400
Front Side Bus	533/667 MHz
DRAM	Up to 4 GByte DDR 2 SDRAM
I/O Standard	Front I/O :4 * USB 2.0 Rear: 2x COM , 2x USB ,VGA and 2* GB LAN
Drives	KISS Stor Slim , SLIM DVD RW, Internal 1 * HDD, CF
System Monitoring	on request
Expansion Slots	2x PCI 32 Bit 33MHz or 1* PCI_e x 16
Power Supply	AC wide range 270 W, 24 V DC, 48 V DC
Cooling	4 chassis FAN
Options (Fully Certified with System)	KISS Stor Slim
Altitude	0 - 3000 m (0 - 10.000 ft) operating
Shock DIN EN 60068-2-27	Operating: 5 g 11 ms half sine
Vibration DIN EN 60068-2-6	Operating: 10-500 Hz 1 g
Humidity rel.	5 - 95% non condensing
Operating System	WIN XP, WIN 2000, Linux
MTBF	30.000h at 25°C (77°F)
Noise	~ 40 dB at 25°C (77°F)
Dimensions H x W x D	1U x 19" x 350 mm (13,78 inch)
Operating Temperature	0° to 50°C (32°F-122°F)

1U Rack Mount Systems

The KISS 1U provides numerous customer options with an especially low installation height (44.45 mm). It is extremely quiet (< 35dbA), scalable, RoHS compliant, has long term availability all in a ruggedized platform. The KISS 1U features PICMG 1.3 single board computer support, and due to the flexible design provides multicore, and PCI-based as well PCI express based solutions. With PICMG 1.3 designs, the KISS 1U offers performance currently up to Intel® Quad Core™ Q9400 and up to 8 GByte DDR2 memory. 2 free fullsize slots, either in PCI or PCI express, options for more drives, and various power supplies enable KISS 1U for different applications.

1U Rack Mount Systems

	KISS 1U PCI 760	KISS 1U PCI 960	KISS 1U Short 986
Construction	Anti corrosion and long term stable heavy duty steel EN 10215-DX 51D+AZ 150-A-C	Anti corrosion and long term stable heavy duty steel EN 10215-DX 51D+AZ 150-A-C	Anti-corrosion and long term stable heavy duty steel EN 10215-DX 51D+AZ 150-A-C
Mounting	Rack Mount, Desktop	Rack Mount, Desktop	Rack Mount, Desktop
Paint Color	Flap blue, Body black, others on request (black flap is standard in NA)	Flap blue, Body black, others on request (black flap is standard in NA)	Flap blue, Body black, others on request (black flap is standard in NA)
Weight	~10 kg	~10 kg	~6 kg
Control Panel Indicators	Power LED, HDD LED	Power LED, HDD LED	Power LED, HDD LED
Control Panel Switch	Power ON	Power ON	Power ON, reset
CPU	Intel® Core™2 Duo E4300, E6400, Q9400	Celeron® 440, Intel® Core™ Duo T2500, Intel® Core™2 Duo T7400	Celeron® 440, Intel® Core™ Duo T2500, Intel® Core™2 Duo T7400
Front Side Bus	533/800/1033 MHz	533/667 MHz	533/667 MHz
DRAM	Up to 8 GByte DDR 2 SDRAM	Up to 4 GByte DDR 2 SDRAM	Up to 4 GByte DDR 2 SDRAM
I/O Standard	Front I/O : 1 x GB LAN, 2 * USB 2.0 Rear: 2x COM , 2x USB ,VGA and 2* GB LAN	Front I/O :1x GB LAN, 2 x USB 2.0 Rear: 2x COM , 2x USB ,VGA and 2* GB LAN	Front I/O :4 * USB 2.0 Rear: 2x COM , 2x USB ,VGA and 2* GB LAN
Drives	KISS Stor Slim , SLIM DVD RW, Internal up to 3 * HDD, CF	KISS Stor Slim , SLIM DVD RW, Internal up to 3 * HDD, CF	KISS Stor Slim , SLIM DVD RW, Internal 1 * HDD, CF
System Monitoring	on request	on request	on request
Expansion Slots	2x PCI 32 Bit 33MHz or 1* PCI_e x 16 and 1* PCI_e x 4	2x PCI 32 Bit 33MHz or 1* PCI_e x 16 and 1* PCI_e x 4	2x PCI 32 Bit 33MHz or 1* PCI_e x 16
Power Supply	AC wide range 270 W, 24 V DC, 48 V DC	AC wide range 270 W, 24 V DC, 48 V DC	AC wide range 270 W, 24 V DC, 48 V DC
Cooling	4 chassis FAN	4 chassis FAN	4 chassis FAN
Options (Fully Certified with System)	KISS Stor Slim	KISS Stor Slim	KISS Stor Slim
Altitude	0 - 3000 m (0 - 10.000 ft) operating	0 - 3000 m (0 - 10.000 ft) operating	0 - 3000 m (0 - 10.000 ft) operating
Shock DIN EN 60068-2-27	Operating: 5 g 11 ms half sine	Operating: 5 g 11 ms half sine	Operating: 5 g 11 ms half sine
Vibration DIN EN 60068-2-6	Operating: 10-500 Hz 1 g	Operating: 10-500 Hz 1 g	Operating: 10-500 Hz 1 g
Humidity rel.	5 - 95% non condensing	5 - 95% non condensing	5 - 95% non condensing
Operating System	WIN XP, WIN 2000, Linux	WIN XP, WIN 2000, Linux	WIN XP, WIN 2000, Linux
MTBF	50.000h at 25°C (77°F)	50.000h at 25°C (77°F)	30.000h at 25°C (77°F)
Noise	~ 40 dB at 25°C (77°F)	~ 40 dB at 25°C (77°F)	~ 40 dB at 25°C (77°F)
Dimensions H x W x D	1U x 19" x 457 mm (18 inch)	1U x 19" x 457 mm (18 inch)	1U x 19" x 350 mm (13,78 inch)
Operating Temperature	0° to 50°C (32°F-122°F)	0° to 50°C (32°F-122°F)	0° to 50°C (32°F-122°F)

1U KVM – 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 offer 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

	RPD-1151	RPD-1158	RPD-1171	RPD-1178
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	OnScreenControl function including: auto adjustment, brightness, contrast, phase, H-V position, frequency, size and display mode	OnScreenControl function including: auto adjustment, brightness, contrast, phase, H-V position, frequency, size and display mode	OnScreenControl function including: auto adjustment, brightness, contrast, phase, H-V position, frequency, size and display mode
Brightness	200 cd/m²	200 cd/m²	260 cd/m²	260 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)	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)	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)	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)
Keyboard	PS/2 84 keys keyboard and trackball (German and US layout)	PS/2 84 keys keyboard and trackball (German and US layout)	PS/2 84 keys keyboard and trackball (German and US layout)	PS/2 84 keys keyboard and trackball (German and US layout)
Display Types	15" TFT XVGA	15" TFT XVGA	17" TFT SXGA	17" TFT SXGA
KVM	1 port	8 port	1 port	8 port
Cascading	-	up to 512 PCs	-	up to 512 PCs
KVM control	-	Port selection through front panel switches	Port selection through front panel switches	Port selection through front panel switches
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	85 V ~ 264 V AC input
Humidity rel.	max. 90% rel.	max. 90% rel.	max. 90% rel.	max. 90% rel.
Dimensions H x W x D	19" x 1U x 492 mm	19" x 1U x 492 mm	19" x 1U x 550 mm	19" x 1U x 550 mm
Additional	-	8 Port KFM for cascading	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 40°C

» PCCM – PC Condition Monitoring «

PC Condition Monitoring For Industrial PCs – Detecting Errors Before They Occur

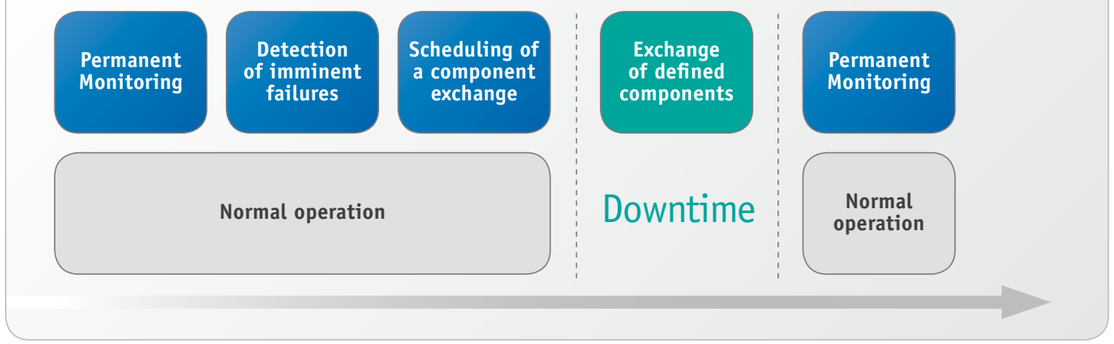
Avoiding system failures with dynamic maintenance intervals

Although previously only costly server systems were automatically monitored, PCCM opens new possibilities for professional monitoring of industrial systems.

Constant monitoring
Only constant monitoring of vital operating parameters such as processor temperature, fan speeds, system voltages, power supply units and hard drive condition allows possible malfunctions in hardware and software to be detected early and suitable measures to be taken.

Special solutions can in principle also be drawn up for OEMs in order to satisfy the OEM product range and the special needs of its clientele. The OEM user thus gets increased reliability without additional expense.

Planned maintenance = reduced downtime with PCCM



Uncalculable downtime without PCCM

Monitoring

- System temperatures
- Fan speed
- Hard drives
- KISS Stor RAID status
- All supply voltages
- Redundant power supply units

Reporting

- SNMP
- SMS
- POPup
- Mail
- Local: acoustically and visually

Evaluation

- Access to historical data
- Memory: min/max / average values
- Graphic representation

» Fanless Box PCs – CB Series «

Embedded Box PCs

Starting from the smallest dimensions of 75 x 250 x 160 mm (H x W x D), OEMs can use the “form follows function” principle to configure their individual Embedded Box PCs with respect to size, system components and feature set in order to meet their application-specific requirements. From the outset, the flexible assembly and interface capabilities of these standard products have been designed to meet different configuration requirements with pre-verified options. This significantly reduces initial development costs for OEMs. Box PCs are used in the automation, transportation, medical, energy and infotainment sectors.

» High performance with low power consumption

» Future ready with Intel® Atom™ technology

» Variable in form and function

Fanless Box PCs – CB Series

As a robust and fanless embedded box, Kontron´s CB Series is suitable for demanding industrial environments and also for applications in vertical markets such as medical, transportation, digital signage and infotainment. Through documented testing, lifecycle management, excellent thermal values and design "Engineered in Germany", the CB series ensures the highest quality and reliability.

Advantages

» Fanless, maintenance free

» Lifecycle management

» Long-term availability

» Documented testing

» Excellent thermal design

» Engineered in Germany

CB SERIES TECHNOLOGY

The new fanless Kontron CB series is designed for a broad spectrum of applications which require long-term availability, lifecycle management and extreme reliability, for example, in medical technology, transportation, automation, P.O.S. and digital signage applications.

Kontron's Embedded CB series, which comes in a rugged aluminum chassis, excels thanks to its high performance-per-watt with fully passive-cooling which makes it more robust than other designs available to date in the same performance class. The ready-to-run embedded box PC is ideal for rugged application areas, which require interfaces for various deployments like RS232, RS422/485, digital I/Os, CAN interface, NVRAM, Firewire, and up to three gigabit Ethernet interfaces besides the standard PC interfaces. Additional cabling work can be eliminated due to the WiFi option. Customer-specific extensions can be carried out via PCI Express Mini Card slot.

Due to the flexible design, nearly all form factors and functionality can be achieved.

Concept Box (CB) - Series

Designed for your demand » CB Series Technology

The new fanless Kontron CB standard product series is designed for a broad spectrum of OEM applications which require long-term availability, lifecycle management and extreme reliability. Let our concept box line be your next system platform for medical technology, transportation, automation, infotainment, P.O.S. and digital signage applications. Kontron's Embedded CB series, which comes in a rugged aluminum chassis, excels thanks to its high performance per- watt with fully passive-cooling which makes it more robust and reliable than other designs available to date in the same performance class. The ready-to-run embedded box PC is ideal for rugged application areas, which require interfaces for various deployments like RS232, RS422/485, digital I/Os, CAN interface, NVRAM, Firewire, and up to two gigabit Ethernet interfaces besides the standard PC interfaces. Additional cabling work can be eliminated due to the WiFi option. Customer-specific extensions can be carried out via PCI Express Mini Card slot. Due to the flexible design, nearly all form factors and functionality can be realized by OEMs looking for a fast go-to-market system solution.

Concept Box (CB) - Series

CB 751

CB-752

CB 753

	CB 751	CB-752	CB 753
Construction	designed in an ultra low profile aluminum chassis	designed in an ultra low profile aluminum housing	designed in an ultra low profile aluminum housing
Mounting	Wall mount, Desktop, Front mount	Wall mount, Desktop, Front mount	Wall mount, Desktop, Front mount
Paint Color	Blue	Blue	Blue
Weight	~ 5 kg	~ 3 kg	~ 7 kg
Control Panel Indicators	Power LED, HDD LED	Power LED, HDD LED	Power LED, HDD LED
Control Panel Switch	PWR on	PWR on	PWR on
CPU	Intel® Celeron® M Processor ULV, 1.06 GHz (mBGA479), Intel® Celeron® M Processor, LV, 1.66GHz (mBGA479)	Intel® Atom N270 1,60 GHz	Intel® Core™ 2 Duo Mobile P8400 2.26GHz; FSB1066 3MB mPGA478
DRAM	3 GB DDR memory support (2+1)	2 GB DDR2	2xDIMM-240 up to 8GB
I/O Standard	Front: 4x USB, 3x GB LAN, PS/2 M+K, VGA, Line in, Line out, Firewire, RS232, Rear: 3x RS232, 2x USB	Front: 2x GB LAN, 2x COM, VGA, 4x USB Rear: 2x USB, Audio, GPIO	Front: 4x USB, 3x GB LAN, PS/2 M+K, VGA, Line in, Line out, Firewire, RS232 Rear: 3x RS232
Dimensions (H x W x D)	75 mm x 250 mm x 260 mm (2,95 inch x 9,84 inch x 10,23 inch)	75 mm x 250 mm x 160 mm (2,95 inch x 9,84 inch x 6,3 inch)	75 mm x 350 mm x 300 mm (2,95 inch x 13,78 inch x 11,81 inch)
Free Slots	PCI Express mini Card	PCI Express mini Card	2x PCI slot or 1x PCIexpress
Drives	2,5" HDD/SSD, CF	2,5" HDD/SSD, CF	2,5" HDD/SSD, CF
Compliance	CE compliant, Designed to meet UL, Shock and Vibration proofed	CE compliant, Designed to meet UL, Shock and Vibration proofed	CE compliant, Designed to meet UL, Shock and Vibration proofed
Power Supply	24 VDC (10-32V) external AC adapter	24 VDC (6,5 VDC to 30 VDC), optional external AC adapter	24 VDC (10-32V) external AC adapter
Cooling	Fanless	Fanless	Fanless
Options (Fully Certified with System)	DVI	CAN Bus, RS 422/485, 18-bit DVI, 3rd COM,NVRAM	DVI
Shock DIN EN 60068-2-27	operating: 5G 11ms duration, 6 directions (half-sine)	operating: 5G 11ms duration, 6 directions (half-sine)	operating: 5G 11ms duration, 6 directions (half-sine)
Vibration DIN EN 60068-2-6	operating: 10-150 Hz Hz: 0,5G sine / 3 axis	operating: 10-500 Hz: 0,5G sine / 3 axis	operating: 10-500 Hz: 0,5G sine / 3 axis
Temperature/Humidity	operating: 0°C to 50°C according IEC 60068-2-1, 60068-2-2, 60068-2-14 operating: 5 to 95 % @ 40°C not condensing	operating: 0°C to 50°C according IEC 60068-2-1, 60068-2-2, 60068-2-14, operating: 5 to 95 % @ 40°C not condensing	operating: 0°C to 50°C according IEC 60068-2-1, 60068-2-2, 60068-2-14, operating: 5 to 95 % @ 40°C not condensing
Operating System	WIN XP, Linux, WIN XP embedded	WIN CE 6.0, WIN XP embedded, Linux embedded, WIN XP pro	WIN XP, Linux, WIN XP embedded
MTBF	~40.000 h	~40.000 h	~40.000 h
Noise	0 db if only CF used	0 db if only CF used	0 db if only CF used

Industrial Box PCs

Kontron's V Box Express PCs are powerful and robust industrial box PCs, designed especially for rugged use in close proximity to machinery. RoHS-compliant, equipped with a scalable ETXexpress module and high-performance processors up to Intel® Pentium® M 2.0 GHz or with the new Intel® Core™2 DuoTM the V Box Express series is optimally equipped for every task in measurement, controls, operation and visualization.

The integrated innovative cooling concept of the V Box Express II realizes a passive and fanless cooling.

With small dimensions the compact box PCs are used primarily where little space is available, such as in enclosures, consoles, or directly on machines. The high electromagnetic compatibility and the resistance to shock and vibration make the systems ideal for use in robust environments.

Industrial Box PCs

V Box Express

V Box Express II

	V Box Express	V Box Express II
Construction	heavy duty steel	heavy duty steel
Mounting	Wall Mount, Desk Top	Wall Mount
Weight	~ 6.1 kg	~ 5.5 kg
CPU	Pentium® M 2.0 GHz or Intel® Core™2 Duo up to 2.0 GHz	Pentium® M 2.0 GHz, Intel® Core™2 Duo 2.16 GHz
DRAM	Up to 2 GByte DDR2	Up to 2 GByte DDR2
Drive bays internal	1x or 2x 2.5" removable HDD SATA optional (PCI Slot mounted), 1x Compact Flash + 1x Compact Flash optional	1-2x 2.5" HDD SATA opt., 1-2x CF
I/O Standard	3x RS232, 1x RS232/422/485 opt., 1x DVI-I, 1x DVD-D opt., 4x USB 2.0 + 2x USB 2.0 opt.	3x RS232, 1x RS232/422/485 opt., 1x DVI-I, 1x DVD-D opt., 4x USB 2.0 + 2x USB 2.0 opt.
Ethernet	1x LAN 10/100 (Pentium® M), 1x LAN 10/100/1000 (Intel® Core™2 Duo)	1x LAN 10/100 (Pentium® M), 1x LAN 10/100/1000 (Intel® Core™2 Duo)
Expansion Slots	4x PCI half size or 2x PCI + 2x PCI Express x1	2x PCI, 2x PCI Express x1 opt. instead of CF slot
Power Supply	24 V DC	24 V DC
Cooling	2 Chassis FAN	Fanless
Protection Class	IP 20	IP 20
Certifications	CF, FCC A, cULus	CE, FCC A, cULus, GOST, CB
Altitude	Operating: 10000 ft (3.048m) Storage: 15000 ft (4.622m)	Operating: 10000 ft (3.048m) Storage: 15000 ft (4.622m)
Shock DIN EN 60068-2-27	Operating: 15G, 11ms Storage: 30G, 11ms duration	Operating: 15G, 11ms Storage: 30G, 11ms duration
Vibration DIN EN 60068-2-6	Operating: 10-500 Hz, 1G/3 axis	Operating: 10-500 Hz, 1G/3 axis
Humidity rel.	5 - 95% @ 40°C not condensing	5 - 95% @ 40°C not condensing
Operating System	WIN XP (embedded), LINUX (embedded)	WIN XP (embedded), LINUX (embedded)
MTBF	> 25000 h	> 40.000 h
Dimensions H x W x D	270 x 145 x 218 mm (10.63 x 5.70 x 8.58 inch)	235 x 330 x 130 mm (9.25 x 13.00 x 5.12 inch)
Operating Temperature	0°C to 50°C	0°C to 50°C

ThinkIO – Compact and Rugged Embedded IPC

The ThinkIO family is dedicated to OEMs acting in industrial, building and energy automation markets. The open and adaptable ThinkIO is utilized either as Industrial PC (IPC) with software development on different operating systems, or optionally as an IEC61131-3 compliant SoftPLC. The integrated platform significantly reduces time to market, allowing OEMs to focus on their core competence and save resources.

SoftPLC CoDeSys
- » Supports all five IEC 61131-3 languages
- » Integrated Visualization
- » Integrated OPC Server
- » Integrated WAGO-I/O configuration
- » Integrated field bus configuration
- » Integrated Modbus TCP
- » Configuration of network, clock, graphics, security and backup via Web browser
- » About 100 renowned companies belong to the CoDeSys Automation Alliance

WAGO-I/O-SYSTEM 750 and 753
- » 1, 2, 4 or 8 channels per module
- » Modules digital, analog, AS-I, RS232, RS485, counter, ...
- » 0°C to +55°C, several modules available: -20°C to +60°C
- » 753 series – connection part removable from electronics
- » Pre-wiring possible
- » Increased maintainability
- » Intermixable with 750 series

ThinkIO and HMI
- » Control and visualization in one unit
- » Easy process data display with CoDeSys Target and Web Visualization
- » Panel connection via DVI/VGA
- » Touch function via USB drivers integrated in software for Kontron Touch Panels
- » Distant monitoring with Kontron MicroClient

ThinkIO

ThinkIO-P

ThinkIO-Duo

	ThinkIO-P	ThinkIO-Duo
Construction	No ventilation slots, no rotating mass storage, no fan, aluminium chassis, soldered components	Maintenance free: no ventilation slots, no batteries, no fan, aluminium chassis, soldered components
Mounting	DIN Rail	DIN Rail
Weight	~ 1.100 g	~ 1.100 g
CPU	Intel® Celeron® M 600 MHz to Intel® Pentium® M 1.4 GHz	Intel® Core™Duo 1.2 GHz, Intel® Celeron® M 1.06 GHz
DRAM	256 MByte standard, up to 1 GByte max.	1 GByte standard
Flash	512 MByte/2 GByte onboard standard, external CF socket	512 MByte/2 GByte onboard standard, external CF socket
NVRAM	1 MByte standard, battery backed	512 kByte standard
I/O Standard	2x LAN 10/100, 2x USB 2.0, RS232, DVI-I, 2x digital in, 2x digital out, watchdog relay out, RUN/STOP switch, reset, RTC	2x LAN 10/100/1000, 2x USB 2.0, RS232, DVI-I, 7x digital in, 2x digital out, watchdog relay out, RUN/STOP switch, reset, RTC
Dimensions (H x W x D)	100 mm x 236 mm x 65* mm (*from upper edge of DIN 35 rail)	100 mm x 236 mm x 65* mm (*from upper edge of DIN 35 rail)
Power Supply	24 V DC (-25%/+30%) / typ. 600 MHz: 17 W, 1.4 GHz: 24 W, 1 GHz: 16 W	24 V DC (-25%/+30%) / typ. 30 W
Cooling	passive, no fan	passive, no fan
Protection Class	IP 20	IP 20
Options (Fully Certified with System)	WAGO-I/O System, Profibus-DP Master/Slave, CANopen Master/ Slave, DeviceNet Master/Slave (DeviceNet only with BSPs)	WAGO-I/O System, 3rd LAN 10/100, Profinet Controller, Profibus Master, CANopen Master
Shock DIN EN 60068-2-27	15 g acceleration, 11 ms duration, 3 shocks per direction (18 total)	15 g acceleration, 11 ms duration, 3 shocks per direction (18 total)
Vibration DIN EN 60068-2-6	5-9 Hz 3.5 mm amplitude, 9-150 Hz 4g, 1 octave/min, 10 sweeps/axis	5-9 Hz 3.5 mm amplitude, 9-150 Hz 4g, 1 octave/min, 10 sweeps/axis
Humidity rel.	93% RH at 40°C, non-condensing	93% RH at 40°C, non-condensing
Operating System	Embedded real-time Linux 2.6 distribution independent (preinstalled), Windows XP embedded	Embedded real-time Linux 2.6 distribution independent (preinstalled), Windows XP embedded
Accessories	10ms holdup module acc. IEC61131-2/PS2	10ms holdup module acc. IEC61131-2/PS2
Standard	Emission: EN55022/B, EN61000-6-3, DNV SfC/B, FCC part 15/B, / Immission: EN55024, EN61000-6-2 / Electrical Safety: EN60950-1 / Temperature Cold: IEC60068-2-1 / Temperature Dry Heat: IEC60068-2-2 / DIN 35 Rail: EN50022	Emission: EN55022/B, EN61000-6-3 / Immission: EN55024, EN61000-6-2 / Electrical Safety: EN60950-1 / Temperature Cold: IEC60068-2-1 / Temperature Dry Heat: IEC60068-2-2 / DIN 35 Rail: EN50022
Operating Temperature	0°C to +55°C, extended temperature (Intel® Celeron® M 1 GHz): -40°C to +70°C max.	0°C to +55°C

KIM

Light Industrial Box PCs

Kontron's KIM wall mount / Table Top Box PCs can be used for various applications including Medical, Gaming, Process Control, and in Embedded Applications. The KIM Box PC is specifically designed for use within light industrial environments. Supporting up to the Intel® Core™2 Duo processors expands the limits of performance, while high speed graphics enable precise 3D pictures and brilliant view. Due to the huge amount of on board I/Os like 3x LAN, 6x USB, 4x COM, KIM enables connectivity for most applications. The long term availability, easy maintenance, and serviceability protect your investment and since KIM is based on Kontron's Mini ITX-Board, it offers flexible and scalable configurations.

KIM

	KIM 986 LCD/mITX	KIM KT690
Mounting	Desktop, Wall Mount	Desktop, Wall Mount
Paint Color	Blue	Blue
Weight	~ 5 kg	~ 5 kg
Control Panel Indicators	Power LED, HDD LED	Power LED, HDD LED
Control Panel Switch	ATX Switch	ATX Switch
CPU	Celeron® 440, Core™ Duo T2500, Core™ 2 Duo T7400	AMD Turion64™ dual core / AMD Sempron CPU
Front Side Bus	533/667 MHz	533/667 MHz
RAM	up to 2 GByte DDR 2	up to 2 GByte DDR 2
CompactFlash	Internal Dual CF	Internal Dual CF
I/O Standard	3* LAN 10/100/1000, 8x USB, 4x COM, LPT,PS/2 M+K	2* LAN 10/100/1000, 8x USB, 2x COM, LPT,PS/2 M+K
Dimensions (H x W x D)	153mm x 214 mm x 196 mm	153mm x 214 mm x 196 mm
Drives	HDD SATA up to 1TB	HDD SATA up to 1TB
Expansion Slots	1x PCI 32 Bit Half size	1x PCI 32 Bit Half size
Power Supply	AC 300 W wide range,optional 24 V DC	AC 300 W wide range,optional 24 V DC
Cooling	CPU Fan less, one PSU Fan	CPU Fan less, one PSU Fan
Protection Class	IP20	IP20
Options (Fully Certified with System)	Dual DVI	Dual DVI
Operating Temperature	0° to 50°C	0° to 50°C

KIC – Kontron Intelligent Control

The KIC is designed for applications where the IPC due to decreasing demand for space and energy moves into it away from the 19-inch cabinet into the machine itself. KIC stands next to its compact dimensions (200mm x 200mm x 86mm) with a very comprehensive feature set and very service-friendly rear mount, similar to ATX power supplies. In analogy to the ATX power supply, the integrated temperature-controlled fan blows the warm air outwards. For small automation systems it can also take over the cooling of the entire chassis.

The hardware of KIC can be flexibly configured corresponding to the customized requirements. The small and rugged design offers excellent mechanical stability and mounting flexibility. The dual access provides easier access to the multitude of interface options.

The KIC accommodates an ETX Express baseboard. The user interfaces of all KIC system configurations are always the user interfaces of this installed baseboard. They are accessible from two oppositely positioned sides. The front interface has all interfaces for integration of the small automation system into a plant management system. The rear interfaces are intended to communicate with Soft-PLC and field bus interfaces using real time Ethernet protocols like EtherCAT, Sercos etc. The on-board available ETX Express module connector allows the equipping with an ETX or µETX module (depending on the system configuration ordered).

Using Kontron ETXexpress and µETXexpress CPU modules the KIC can be adapted to a wide range of CPU processing power. The first KIC system is equipped with the ETXexpress-MC CPU module.

The KIC has a non-volatile memory (NVRAM) of either 32Kbyte or 128Kbyte.

KIC

KIC-MC Box

System	KIC-MC
Product Line	KIC series
Paint color	Front blue, body black
Weight	~ 3 kg
CPU Module	ETXexpress®-MC
CPU	T7500
DRAM	Up to 4 GB DDR2
Non volatile memory (NVRAM)	32KByte or 128KByte
Interfaces Front	LVDS, RS232, 2x LAN 10/100/1000 MBit, 3x USB 2.0, Audio, mono, 8x GPIO, DC-In, Power Control signals (Power Button, Power LED)
Interfaces Rear	DVI-I, RS232, 2x LAN 10/100/1000 MBit, 6x USB 2.0, Line out, Stereo
Controls on the frontside	Remote On/Off, Remote LED
Drives	2x 2,5" HDD/SSD
Expansion slots	1 x PCI_e x1
Power supply	24 V DC
Cooling	1 chassis FAN
Vibration	Operating: 10 to 500 Hz Random
Humidity	20% to 80%
Dimensions (H x W x D)	87 x 200 x 199
Approvals	CE
MTBF	50.000 h
Temperature	Operating: 0°C to 50°C
Dimensions H x W x D	270 x 145 x 218 mm (10.63 x 5.70 x 8.58 inch)
Operating Temperature	0°C to 50°C (32°F-122°F)

MICROSPACE® Medical

MPC50M

Processor/Performance	Intel® Core™ Duo L2400 / Intel® Core™2 Duo L7400 (2x 1.6 GHz / 2x 1.5 GHz)
HDD	1x 250 GByte-SATA (max. 2x 1 TByte-SATA)
CompactFlash	-
Memory	2 GByte (max. 3 GByte) / (max. 4 GByte)
Graphics/Resolution	int. graphic Controller / QXGA
Video Interface 1	CRT
Video Interface 2	DVI
COM1 / COM2	DSUB9 Dsub / DSUB9 DSub (galv. isolated on request)
COM3 / COM4	-
USB	1x 2.0 front , 4x 2.0 back, 2x 2.0 internal (galv. isolated on request)
LAN Port A	10/100 BASE-T (RJ45) with LAN boot
LAN Port B	1 GByte LAN (RJ45)
Sound	ALC882-7.1
Expansion	MiniPCI, 2x PCI32Bit slot, PCI Express
Protection class	IP40, medical ground contact
Standard Temperature	+5°C to +35°C
Extended Temperature	tbd
Dimensions (W x L x H in mm)	300 x 280 x 160
Weight	6 kg
Special Features	Optical drive: (PATA) DVD-R/W, CD-R/W, Video interface 3 LVDS

MICROSPACE® Defense

MPCX27MIL

Processor/Performance	Intel® Atom™ 510 / 1.1 GHz
HDD	32 GByte (SSD)
CompactFlash	-
Memory	1 GByte
Graphics/Resolution	int. graphic Controller / UXGA
Video Interface 1	MIL
Video Interface 2	intern
COM1 / COM2	RS232C (MIL) / RS232C or GPS (MIL)
COM3 / COM4	-
USB	4x 2.0 (MIL)
LAN Port A	100/10 MByte-LAN (MIL) with LAN boot (LAN wake)
LAN Port B	100/10 MByte-LAN (MIL)
Sound	3x Stereo ALC882 (MIL)
Digital Input/Output	-
DC voltage input (not isol.), V1248	8V-58VDC / typ. 15W (MIL)
DC voltage input (1.5kV isol.), Ixx	-
Expansion	PCI/104ex
Protection class	IP67
Standard Temperature	-40°C to +85°C @ 1.1 GHz MIL810
Extended Temperature	-
Dimensions (W x L x H in mm)	110 x 150 x 60
Weight	2,55 kg

MICROSPACE® Industrial

	MPC20	MPC20L	MPC21	MPC21A	MPC21B	MPC21C	MPCV800	MPCV800I	MPCF50	MPCF50A	MPCR50
Processor/Performance	AMD Geode™ LX800 / 0.5 GHz	AMD Geode™ LX800 / 0.5 GHz	AMD Geode™ LX800 / 0.5 GHz	AMD Geode™ LX800 / 0.5 GHz	AMD Geode™ LX800 / 0.5 GHz	AMD Geode™ LX800 / 0.5GHz	AMD Geode™ LX800 / 0.5 GHz	AMD Geode™ LX800 / 0.5 GHz	Intel® Core™ Duo L2400 / Intel® Core™2 Duo L7400 (2x 1.6 GHz / 2x 1.5 GHz)	Intel® Core™ Duo L2400 / Intel® Core™2 Duo L7400 (2x 1.6 GHz / 2x 1.5 GHz)	Intel® Core™ Duo L2400 / Intel® Core™2 Duo L7400 (2x 1.6 GHz / 2x 1.5 GHz)
HDD	Optional	Optional	Optional	Optional	Optional	Optional	160 GByte, 2.5"	160 GByte, 2.5"	320 GByte (SATA)	320 GByte (SATA)	1x 250 GByte to 2x 1 TByte in 3.5"-BAY
CompactFlash	CF 256 MByte installed	socket (type I/II)	CF 256 MByte installed	CF 256 MByte installed	CF 256 MByte installed	CF 256 MByte installed	-	-	-	-	1x
Memory	256 (max. 1 GByte)	256 (max. 1 GByte)	256 (max. 1 GByte)	256 (max. 1 GByte)	256 (max. 1 GByte)	256 (max. 1 GByte)	512 MByte (max. 1 GByte)	512 MByte (max. 1 GByte)	1 GByte (max. 2 GByte), (max. 3 GByte)	1 GByte (max. 2 GByte), (max. 3 GByte)	2 GByte (max. 3 GByte)
Graphics/Resolution	int. graphic Controller / UXGA	int. graphic Controller / UXGA	int. graphic Controller / UXGA	int. graphic Controller / UXGA	int. graphic Controller / UXGA	int. graphic Controller / UXGA	int. graphic Controller / UXGA	int. graphic Controller / UXGA	int. graphic Controller / QXGA	int. graphic Controller / QXGA	int. graphic Controller / QXGA
Video Interface 1	CRT	CRT	CRT	CRT	CRT	CRT	CRT	CRT	CRT	CRT	CRT
Video Interface 2	-	-	-	-	-	-	-	-	DVI	DVI	DVI
COM1 / COM2	-	-	RS232C (DSUB9) / -	RS232C (DSUB9) / RS232 (DSUB9)	RS232C (DSUB9) / RS232 (DSUB9)	RS232C (DSUB9) / RS232 (DSUB9)	RS232C / RS232C	RS232C / RS232C	-	-	DB DSUB9, RS232 / DB DSUB9, RS232
COM3 / COM4	-	-	-	RS232C (DSUB9) / RS232C (DSUB9)	CAN1 (DSUB9) / CAN2 (DSUB9)	-	-	RS232C, option RS422/485/ RS232C, option RS422/485	-	-	-
USB	4x 2.0 (1x internal)	4x 2.0 (1x internal)	4x 2.0 (1x internal)	4x 2.0 (1x internal)	4x 2.0 (1x internal)	4x 2.0 (1x internal)	4x 2.0	4x 2.0	6x 2.0	6x 2.0	4x 2.0
LAN Port A	10/100 BASE-T	10/100 BASE-T	10/100 BASE-T	10/100 BASE-T	10/100 BASE-T	10/100 BASE-T	10/100 BASE-T (RJ45)	10/100 BASE-T (RJ45)	10/100 BASE-T (RJ45) with LAN boot	10/100 BASE-T (RJ45) with LAN boot	10/100 BASE-T (M12) RJ45 with LAN boot
LAN Port B	10/100 BASE-T	-	10/100 BASE-T	10/100 BASE-T	10/100 BASE-T	-	1 GByte (RJ45)	1 GByte (RJ45)	1x 1 GByte LAN (RJ45)	3x 1 GByte LAN	1 GByte-LAN-RJ45
Sound	Stereo In/Out	Stereo In/Out	Stereo In/Out	Stereo In/Out	Stereo In/Out	Stereo In/Out	-	AC97-2.3	ALC882-7.1	ALC882-7.1	ALC882-7.1
Digital Input/Output	-	-	-	4x opto isol. 50V/1A	-	-	24 programmable I/O	24 programmable I/O	-	-	4x opto output, 4x opto input
DC voltage input (not isol.), V1248	10V-28V/typ.10W	10V-28V/typ.10W	10V-28V/typ.10W	10V-28V/typ.10W	10V-28V/typ.10W	10V-28V/typ.10W	-	-	-	-	-
DC voltage input (1.5kV isol.), Ixx	-	-					-	-	-	-	-
Expansion	-	-					MiniPCI, PC/104-Plus (max. 2 cards)	MiniPCI, PC/104-Plus (max. 2 cards)	MiniPCI	PCIexpress MiniCard	2x PCIexpress MiniCard, 2x PCI/104express slot 1x PCI ExpressCard slot
Protection class	-	-					IP40	IP40	IP40	IP40	IP40
Standard Temperature	0°C to +50°C (with HD)	0°C to +50°C (with HD)	0°C to +50°C (with HD)	0°C to +50°C (with HD)	0°C to +50°C (with HD)	0°C to +50°C (with HD)	+5°C to +50°C (with HD)	+5°C to +50°C (with HD)	+5°C to +50°C (with HD)	+5°C to +50°C (with HD)	-20°C bis +50°C (with HD)
Extended Temperature	-25°C to +70°C (without HD)	-25°C to +70°C (without HD)	-25°C to +70°C (without HD)	-25°C to +70°C (without HD)	-25°C to +70°C (without HD)	-25°C to +70°C (without HD)	-25°C to +70°C (with SSD/CF)	-25°C to +60°C (with SSD/CF)	-25°C to +70°C (with SSD)	-25°C to +70°C (with SSD)	-40°C bis +70°C (SSD, no HD)
Dimensions (W x L x H in mm)	165 x 110 x 27	165 x 110 x 27	165 x 110 x 46	165 x 110 x 46	165 x 110 x 46	165 x 110 x 46	292 x 146 x 83	292 x 146 x 83	310 x 256 x 42	310 x 256 x 42	480 x 132 x 250
Weight	500 g	500 g	700 g	700 g	700 g	700 g	3 kg	3 kg	3 kg	3 kg	6 kg
Special Features	fanless, incl. DC power cable	fanless	MiniPCI-socket, PCI/104-slot, incl. DC power cable	MiniPCI-socket, incl. DC power cable	MiniPCI-socket, incl. DC power cable	MiniPCI-socket, PCI/104-slot, incl. DC power cable	Videointerface 3: LVDS, 18 bit	Videointerface 3: LVDS, 18 bit	3D-Support: DirectX9	3D-Support: DirectX9	Option: WLAN, GSM-UMTS CAN, IBIS, GPS

MICROSPACE® Vehicle

	MPCX28	MPCX50
Processor/Performance	Intel® Atom™ Z530 / 1.6 GHz	Intel® Core™ Duo L2400 / Intel® Core™2 Duo L7400 (2x 1.6 GHz / 2x 1.5 GHz)
HDD	(Option: 2.5" 80 GByte or 32 GByte SSD)	SATA - E38, 80 GByte (opt. 32 GByte SSD)
CompactFlash	Option	yes
Memory	1 GByte DDR2	2 GByte (max. 3 GByte)
Graphics/Resolution	int. graphic Controller / UXGA	int. graphic Controller / QXGA
Video Interface 1	DVI-D	CRT
Video Interface 2	Customer specific DVI-A	DVI
COM1 / COM2	RS232C, RS422/485 (DSUB9) / RS232, RS422/485 (DSUB9)	RS232C, RS422/485 (DSUB9) / RS232, RS422/485 (DSUB9)
COM3 / COM4	-	RS232C, RS422/485, intern / RS232, RS422/485, intern
USB	2x 2.0 back, 2x 2.0 front	2x 2.0 front, 1x 2.0 (M12) front
LAN Port A	1 Gbit/s (RJ45) with LAN boot, WakeOnLan	10/100 BASE-T (RJ45), with LAN boot
LAN Port B	1 Gbit/s (RJ45)	1 GByte-LAN, with LAN boot, WakeOnLan
Sound	2x Stereo (ALC882-7.1)	2x Stereo (ALC882-7.1), of which 1x 10W
Digital Input/Output	DC-isolated in/output	4x output, 4x opto input
DC voltage input (not isol.), V1248	10-54VDC/typ.15W	8-58VDC, 35W
DC voltage input (1.5kV isol.), Ixx	-	24/36/48/72/110VDC/typ.35W
Expansion	2x PCIexpress MiniCard, 1x PCI/104	2x PCIexpress MiniCard, 1x PCI/104express slot, 1x ExpressCard
Protection class	IP52	IP40
Standard Temperature	-25°C to +55°C (with HD)	-25°C up to +55°C (with HD)
Extended Temperature	-25°C to +70°C (with SSD, no HD)	-40°C up to +70°C (with SSD)
Dimensions (W x L x H in mm)	159 x 187 x 66	320 x 132 x 250
Weight	1,5 kg	5 kg
Special Features	WakeOnMove, RingWake, WakeOnRing, PowerSaveMode	Option: WLAN, GSM-UMTS/GPRS, CAN, IBIS, GPS

MICROSPACE® Railway

	MPCX27R	MPCX27RL	MPCX28R	MPCR50R	MPCF50R
Processor/ Performance	Intel® Atom™ 510 / 1.1 GHz	Intel® Atom™ 510 / 1.1 GHz	Intel® Atom™ Z530 / 1.6 GHz	Intel® Core™ Duo L2400 / Intel® Core™2 Duo L7400 (2x 1.6 GHz / 2x 1.5 GHz)	Intel® Core™ Duo L2400 / Intel® Core™2 Duo L7400 (2x 1.6 GHz / 2x 1.5 GHz)
HDD	SSD-Drive (2.5") SATA2, 32 GByte	SSD-Drive (2.5") SATA2, 32 GByte	Option: 2.5" 80 GByte or 32 GByte SSD	80 GByte 2.5" or 32 GByte SSD	80 GByte 2.5" or 32 GByte SSD
CompactFlash	-	-	Option	yes	yes
Memory	1 GByte	1 GByte	1 GByte DDR2	2 GByte	2 GByte (max. 3 GByte)
Graphics/Resolution	int. graphic Controller / UXGA	int. graphic Controller / UXGA	int. graphic Controller / UXGA	-	2048 x 1536 (@ 75 Hz)
Video Interface 1	MDSub	MDSub	DVI-D	QXGA	QXGA
Video Interface 2	intern	3.5"-LCD 640x 480	Customer specific DVI-A	DVI	DVI
COM1 / COM2	RS232C (M12) / RS232C or GPS (M12)	RS232C (M12) / RS232C or GPS (M12)	RS232C, RS422/485 (DSUB9) / RS232, RS422/485 (DSUB9)	RS232 (DSUB9) / RS323 (DSUB9)	RS232 (DSUB9) / RS323 (DSUB9)
COM3 / COM4	-	-	-	RS232, CAN (DSUB9) / RS232, CAN (DSUB9)	RS232, CAN (DSUB9) / RS232, CAN (DSUB9)
USB	2x 2.0 (M12)	2x 2.0 (M12)	2x 2.0 front, 2x 2.0 back, 1x 2.0 (M12) back	2x 2.0 front, 1x 2.0 (M12) front	2x 2.0 front, 1x 2.0 (M12) front
LAN Port A	100/10 MB-LAN (M12), with LAN boot, WakeOnLan	100/10 MByte-LAN (M12), with LAN boot, WakeOnLan	100/10 MByte-LAN (M12), with LAN boot, WakeOnLan	10/100 BASE-T (M12) with LAN boot	10/100 BASE-T (M12)
LAN Port B	100/10 MByte-LAN (M12)	100/10 MByte-LAN (M12)	100 BASE-T (M12), WakeOnLan	1 GByte-LAN (RJ45) with LAN boot	1 GByte-LAN (RJ45)
Sound	ALC882-7.1 (intern)	ALC882-7.1 (intern)	2x Stereo (ALC882-7.1)	2x Stereo (ALC882-7.1), of which 1x 10W (DSUB9)	AC97-2.3
Digital Input/Output	-	-	DC-isolated in/output	4x opto output, 4x opto input	4x opto output, 4x opto input
DC voltage input (not isol.), V1248	8-58VDC/typ.15W	8-58VDC/typ.15W	10-54VDC/typ.15W	8-58VDC/typ.40W	8-58VDC/typ.35W
DC voltage input (1.5kV isol.), Ixx	24/36/48/72/110VDC, 15W	24/36/48/72/110VDC, 15W	24/36/48/72/110VDC/ typ.15W	24/36/48/72/110VDC/ typ.40W	24/36/48/72/110VDC/ typ.35W
Expansion	2x PCIe Mini Card, PCI/104ex	2x PCIe Mini Card, PCI/104ex	2x PCIe Mini Card, 1x PCI/104	2x PCIexpress MiniCard, 1x PCI/104express slot, 1x PCI ExpressCard slot	2x PCIexpress MiniCard, 2x PCI/104express slot 1x PCI ExpressCard slot
Protection class	IP65, EN50155	IP65, EN50155	IP52, EN50155	IP40, EN50155	IP40, EN50155
Standard Temperature	-25°C to +55°C (T1) (with HD)	-25°C to +55°C (T1) (with HD)	-25°C to +55°C (T1) (with HD)	-25°C to +55°C (T1) (with HD)	-25°C to +55°C (T1) (with HD)
Extended Temperature	-25°C to +70°C (T3) (with SSD)	-25°C to +70°C (T3) (with SSD)	-25°C to +70°C (T3) (with SSD)	-25°C to +70°C (T3) (with SSD)	-25°C to +70°C (T3) (with SSD)
Dimensions (W x L x H in mm)	130 x 180 x 68	130 x 180 x 68	159 x 190 x 66	480 x 132 x 250	300 x 320 x 60
Weight	2,4 kg	2,4 kg	1,6 kg	6 kg	3 kg
Special Features	Option: WLAN PCIe MiniCard, GSM PCIe MiniCard, GPS A1080	Option: WLAN PCIe MiniCard, GSM PCIe MiniCard, GPS A1080	WakeOnMove, RingWake, WakeOnRing, PowerSaveMode	-	-

» Turnkey Systems «

Kontron's full-line of Turnkey Systems are ideally suited for radar, sonar, image computing, data control, and electronic warfare in ships, aircraft, and ground vehicles.

There is a Kontron Turnkey Systems for each phase of design – from application development and integration to deployment and support.

Key Benefits:

» High-performance

» Low-cost

» COTS based solution

» 3U cPCI, 3U/6U VPX or 6U VME format

» Built for Customization

3U CompactPCI

3U cPCI	Easy ITC
CPU	Intel® Core™2 Duo 1.5 GHz
CPU L2 Cache	4 MB
Chipset	Intel® 3100
DRAM	1GB DDR2− 400 SDRAM with ECC
Operating System Preinstalled	Linux Fedora9, Windows XP Pro
Hard Disk	SATA 40 GB Hard Disk Drive
Ethernet	2x Gigabit Ethernet configurable front or rear
Graphics Controller	XGI Z11 with 32 MB SDRAM
Dimensions (H x W x D)	191 x 169.64 x 298.1 mm
Front IO	3x USB, VGA, PS2 Keyboard/Mouse, 2x Gigabit Ethernet (configurable on front or rear), 2x Serial Lines
Rear IO	2x USB, 2x Serial Lines, 2x Gigabit Ethernet (configurable on front or rear)
Accessories	3U cPCI Rear Transition Module

3U VPX

Kontron Evaluation and Development systems designed to make the first contact with the VPX standard as easy as possible. EZ3-VPX is the quickest route to the VPX technology. It comes ready a PowerPC or Intel® SBC running Linux or VxWorks. It can accomodate 3U VPX I/O Cards in 4 3U VPX slots (full mesh). Start with VPX TODAY with Kontron.

3U VPX	EZ3-VX3020	EZ3-VX3230
CPU	Intel® Core™2 Duo processor at 1.5 GHz	Freescale MPC8544 @ 1 GHz, low power CPU
CPU L2 Cache	4 MB	256 KB
Chipset	Intel® 3100	Single Chip Design (SOC)
DRAM	Soldered 1 GB DDR2-400 SDRAM with ECC	Soldered 1 GB DDR2-533 SDRAM with ECC
Flash Disk	USB 2.0 Flash Disk socket	USB 2.0 Flash Disk socket
Operating System Preinstalled	Linux Fedora 9	Linux Fedora 9 or VxWorks 6.6
Hard Disk	SATA Hard Disk Drive of 80 GB or more	-
Ethernet	2x Gigabit Ethernet configurable front or rear	2x Gigabit Ethernet configurable front or rear
Graphics Controller	XGI Z11 with 32 MB SDRAM	Not Applicable
Dimensions (H x W x D)	191 x 169.64 x 298.1 mm	191 x 169.64 x 298.1 mm
Front IO	2x COM, VGA, PS2 Mouse/Keyboard, LEDs, Reset	2x GigEthernet, Serial, USB 2.0, LEDs
Rear IO	1x USB 2.0, 2x Gigabit Ethernet, 1x COM	2x USB 2.0, 2x GigEthernet, 2x SATA, 2x COM, PCIe 4x1, GPIO
Accessories	VPX 3U Rear Transition Module	VPX 3U Rear Transition Module, USB Mass Storage Cards

6U VPX

6U VPX board open a new era for embedded performance computing. Designed to replace existing backplane standards used in rugged application, 6U VPX opens a way forward for hi speed serial fabrics such as RapidIO, PCIe, 10Geth and more in the Military and Aerospace application domains.

As for 3U VPX, Kontron Evaluation and Development systems are designed to make the first contact with the VPX standard as easy as possible. EZ2-VX6060 VPX is the quickest route to the 6U VPX technology.
It comes ready a dual Intel® Core i7 SBC running Linux or VxWorks. Start with VPX TODAY with Kontron.

6U VPX

EZ2-VX6060

CPU	Dual Intel® Core™ i7
CPU L2 Cache	256 KB per core
Chipset	Two Intel® Platform Controller Hub PCH QM 57
DRAM	8 GB
OS Preinstalled	Linux 2.6.x or VxWorks 6
Hard Disk	250 GB SATA Hard Disk Drive
Ethernet	6x Gigabit Ethernet (2x Front Panel, 4x Rear Panel)
Dimensions (HxWxD)	88.9 x 482.6 x 440 mm
Options	None
Front I/O	2x Gigabit Ethernet, 2x USB, 1x Serial Line, 4x LEDs, 1x VGA, 1x Display Port
Rear I/O	4x Gigabit Ethernet, 4x Serial ATA, 2 PCI-E, 4x Serial Ports, 2x Display Ports, 1x Audio Port
Audio Port	
Open Slots	One VPX slot for user extension
Accessories	Rear Transition Module

6U VME

Although VME is still the most popular board form factor for markets such as MAG (Military, Aerospace, Government), finding a simple and complete VME platform is becoming a real challenge for software teams involved in application development. Kontron 6U VME turnkey systems offer the right solution, powered by a PowerPC or x86 single board computer.

6U VME

EZ1-VM6250

EasyPC1

CPU	Freescale Dual-Core MPC8640D @1.25 GHz with Altivec	Dual-Core Intel® Xeon® ULV @ 1.67 GHz
CPU L2 Cache	2 MB	2 MB
Chipset	Single Chip Design (SOC)	Intel® E7520 Server Class MCH
DRAM	2 GB DDR2 with ECC	1 GB DDR2-400 SDRAM with ECC
Operating System Preinstalled	Linux Fedora 9	Red Hat Enterprise Linux (RHEL)
Hard Disk	250 GB SATA Hard Disk Device	80 GB IDE Hard Disk Device
Ethernet	3x Gigabit Ethernet	2x Gigabit Ethernet or 6x Gigabit Ethernet (cf. Options)
Dimensions (H x W x D)	44.64 x 443.5 x 254.3 mm	44.64 x 443.5 x 254.3 mm
Options	None	Quad Gigabit Ethernet XMC
Front IO	-	1x USB, 2x Gigabit Ethernet, 1x Serial Line, 3x LEDs
Rear IO	2x USB, 3x Gigabit Ethernet, 1x Serial	None
Open Slots	One VME64X slot for user extensions	Can be customised with a different XMC mezzanine
Accessories	Rear Transition Module	None

Kontron Turnkey Systems for each phase of design

»About Kontron«

Kontron, the global leader of embedded computing technology, designs and manufactures standards-based and custom embedded and communications solutions for OEMs, systems integrators, and application providers in a variety of markets. Kontron engineering and manufacturing facilities, located throughout Europe, Americas, and Asia-Pacific, work together with streamlined global sales and support services to help customers reduce their time-to-market and gain a competitive advantage.

Kontron's diverse product portfolio includes:

» Boards & Mezzanines

» Computer-on-Modules

» HMIs & Displays

» Systems

» Custom Capabilities

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» Custom Design & Manufacturing Service / ODM Services

At Kontron, our strength in Design and Manufacturing Services comes from our roots of being an innovative leader in open standards for embedded computers. While Original Design & Manufacturing (ODM) suppliers typically do not place in-house engineering resources on open standards, we at Kontron understand the importance of this ground-work. With over 890 highly qualified engineers, Kontron has one of the **world's largest R&D teams for embedded computing**.

Our strategy is to create a portfolio of COTS products which are then applied to custom designs and solutions. The re-use of existing technology **optimizes costs**. OEMs also receive the benefit of utilizing open-standard COTS products without having to pay for the functional specification. **Shorter development time** speeds up time-to-market. As OS support, BSPs and middleware – which are one of the most important cost and competition factors - become increasingly more complex, Kontron standard products are financing basic functionality. They are already **proving their worth in countless applications**, therefore helping to reduce total cost of ownership. Our capabilities then come full circle with our high-quality production site in Malaysia – a manufacturing facility for high-volumes of boards and systems up to approx. 30,000 pieces.

» Gain a Competitive Advantage

Bringing New Applications to Market First

Kontron helps leading OEMs and systems integrators significantly reduce their time-to-market and gain a competitive edge. Kontron designs and manufactures innovative building blocks capable of supporting numerous applications for today's networked infrastructure. Our broad portfolio of products includes all major form factors and platforms from Computer-on-Modules (COMs), embedded motherboards/blades, SBCs, open-platform communications servers, industrial-grade rack mount and Box-PC solutions, Human-Machine Interface (HMI) systems up to application ready platforms. We also offer a host of embedded hardware as well as application specific technology and custom engineered & manufactured solutions.

Providing Custom Design and Integration

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

Delivering Superior Global Service & Support

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

» Driving Industry Standards

In addition to designing products based on industry standard form factors including PC/104, PICMG 1.x, COM Express, VME, VPX, CompactPCI, AdvancedTCA, AdvancedMC and MicroTCA board-level solutions and featuring the latest technology advancements, Kontron's engineers are **embedded computer innovators**.

Kontron creates benchmark standards for cutting-edge embedded solutions, such as ETX (Embedded Technology eXtended), which has become the **global standard** for custom-designed solutions based on Computer-on-Modules. Kontron's latest COM Express, microETXexpress and nanoETXexpress based on PCI-Express are blazing new trails in embedded computer technology.

» Strategic Partners / Memberships

Together with **our major industry partners**, such as Intel®, Freescale, Microsoft and Wind River, we are working to reduce the time-to-market for our OEM customers.

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.

» Kontron – Your Preferred Outsourcing Partner

Kontron's years of experience with global production and logistics capabilities offer our customers high-quality, innovative products that are delivered on time. We are dedicated to OEM's business and we strongly believe that system and software integration is the key for success.

Kontron offers OEMs:
- » Reduced Time-To-Market
- » Open Standards
- » Rugged COTS Products
- » Customization & ODM Services
- » Superior Technical Support
- » Extended Product Lifecycle Management
- » Reduced Total-Cost-Of-Ownership

Kontron's System Integration Includes:
- » Application-ready platforms
- » HMI, TouchPanelPCs, ThinClients
- » Communication servers/HA systems
- » Third-party hardware
- » SW, middleware, protocol stacks
- » Ruggedization
- » Certification
- » Validation

Customization and Building Blocks:
Kontron has an experienced knowledge base in many different technology areas:
- » **Processor platforms** – Intel® Core™i7, Core™2 Quad, Core™2 Duo, Xeon™, Atom™ processor, Pentium® M, Mobile AMD Sempron™ single core and AMD Turion™ dual core, PowerPC, Cavium OCTEON etc.
- » **Operating systems** – Embedded XP, Windows CE, Windows 7, Windows 2008 Server, Linux, VxWorks, QNX
- » **Form Factors** – COM Express™, ETX® 3.0, microETXexpress, nanoETXexpress, CompactPCI, VME, VPX, MicroTCA, AdvancedTCA, AdvancedMC, PICMG 1.X, PC/104, PC/104-Plus, PC/104-Express, 3.5" SBCs, ATX, Micro-/Flex-ATX, Mini-ITX, Pico-ITX
- » **Housings** – 1U, 2U, 3U, 4U, 6U, ...
- » **Connectivity** – Fieldbus interfaces, Industrial Ethernet, network interfaces, switches/hubs, WLAN and Bluetooth, MIL-SCD 1553
- » Industrial I/O boards – digital, analog, serial
- » BIOS, Board support packages (BSPs)
- » Unified Extensible Interface (UEFI)
- » Driver software, middleware, virtualization, hypervisor
- » Intel® Active Management Technology (Intel® AMT)
- » Intel® Trusted Execution Technology (Intel® TXT)
- » Security Trusted Platform Module (TPM)

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 partial or fully customized design including carrier-boards, SBCs and integrated systems, including all the value-added services you need, right down the delivery chain.

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
- » Design & engineering services
- » Design customization services
- » Manufacturing services
- » Certifications
- » Support and maintenance
- » Life cycle management

Technical Support

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

Project Management

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

Individual Training

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

Longevity

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

Ruggedization

Kontron has advanced testing and manufacturing facilities that are ISO 9001:2000, ISO 3485:2004, ISO 14001:1997, and ISO 18001:1997 certified, ensuring that our products are designed, built and tested to meet the most stringent requirements throughout the world. We offer our customers ruggedization of our products for extreme environmental conditions in: industrial automation, transportation, defense and avionics applications. Many of our products are available for use in an extended temperature range of -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.

For more information, visit **www.kontron.com/custom**

About Kontron

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Kontron is a Premier member of the Intel® Embedded Alliance.

For half-a-decade now, Kontron has been named a VDC *Platinum Embedded Board Vendor*. Based entirely on user feedback, industry professionals evaluate vendors on over 45 non-product related criteria. Kontron is only one of two companies to receive the Platinum award 5-years running.

Kontron is listed on the German TecDAX stock exchange under the symbol "KBC".

For more information, please visit: **www.kontron.com**

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