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
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
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
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

Processor/Performance	AMD Geode™ LX800 / 0.5GHz
Chipset	CS5536 AD
Bus	PC/104-Plus: Option
Memory	128-1024 MByte
Video Controller	int. graphic Controller
Video Memory	16MB (UMA)
LCD Interface	24bit, 240 x 320 to 1600 x 1200
CRT Interface	yes
IDE Interface P-ATA	1x EIDE (UDMA-33)
IDE Interface S-ATA (Sil 3132)	-
COM1 / COM2	RS232C / RS232C
COM3 / COM4	-
USB	2x 2.0
Ethernet	10/100 BASE-T
Sound	-
RTC Battery onboard	-
Standard Temperature	0°C to +60°C
Extended Temperature	-
Dimenstions (W x L in mm)	90 x 96 Lan Boot, Watchdog, JIDA-Support, JRC-Support, Dark Boot, 32 MB - 1GB
Special Features	chipDISK

MICROSPACE® MSM800SEL

Processor/Performance	AMD Geode™ LX800 / 0.5 GHz
Chipset	CS5536 AD
Bus	PCI-BUS: Option (3slot)
Memory	128-1024 MByte
Video Controller	int. graphic Controller
Video Memory	16 MByte (UMA)
LCD Interface	24 bit, 240 x 320 to 1600 x 1200
CRT Interface	yes
IDE Interface P-ATA	1x
IDE Interface S-ATA (Sil 3132)	-
COM1 / COM2	RS232C / RS232
COM3 / COM4	-
USB	4x 2.0
Ethernet	10/100 BASE-T
Sound	-
RTC Battery onboard	-
Standard Temperature	0°C to +60°C
Extended Temperature	-25°C to +70°C
Dimenstions (W x L in mm)	90 x 96/99
Special Features	-

MICROSPACE® MSM800SEV

Processor/Performance	AMD Geode™ LX800 / 0.5 GHz
Chipset	CS5536 AD
Bus	PCI-BUS: Option (3slot)
Memory	128-1024 MByte
Video Controller	int. graphic Controller
Video Memory	16 MByte (UMA)
LCD Interface	24 bit, 240 x 320 to 1600 x 1200
CRT Interface	yes
IDE Interface P-ATA	1x
IDE Interface S-ATA (Sil 3132)	-
COM1 / COM2	RS232C / RS232
COM3 / COM4	-
USB	4x 2.0
Ethernet	10/100 BASE-T
Sound	AC97
RTC Battery onboard	400mAh
Standard Temperature	0°C to +60°C
Extended Temperature	-25°C to +70°C
Dimenstions (W x L in mm)	90 x 96/99
Special Features	-

MICROSPACE® MSM800BEV

Processor/Performance	AMD Geode™ LX800 / 0.5 GHz
Chipset	CS5536 AD
Bus	PCI-BUS: Option (3slot)
Memory	128-1024 MByte
Video Controller	int. graphic Controller
Video Memory	16 MByte (UMA)
LCD Interface	24 bit, 240 x 320 to 1600 x 1200
CRT Interface	yes
IDE Interface P-ATA	1x
IDE Interface S-ATA (Sil 3132)	-
COM1 / COM2	RS232C / RS232
COM3 / COM4	-
USB	4x 2.0
Ethernet	10/100 BASE-T
Sound	AC97
RTC Battery onboard	400mAh
Standard Temperature	0°C to +60°C
Extended Temperature	25°C to +70°C,-40°C to +85°C (with large cooler and E48 or with thermo junction and E48)
Dimenstions (W x L in mm)	90 x 96/99
Special Features	-

MICROSPACE® MSM800XEL

Processor/Performance	AMD Geode™ LX800 / 0.5 GHz
Chipset	CS5536 AD
Bus	PCI-BUS: Option (2slot)
Memory	soldered 256 MByte
Video Controller	int. graphic Controller
Video Memory	16 (UMA)
LCD Interface	24 bit, 240 x 320 to 1600 x 1200
CRT Interface	yes
IDE Interface P-ATA	1x
IDE Interface S-ATA (Sil 3132)	-
COM1 / COM2	RS232C / RS232C
COM3 / COM4	-
USB	4x 2.0
Ethernet	10/100 BASE-T
Sound	-
RTC Battery onboard	-
Standard Temperature	0°C to +60°C
Extended Temperature	25°C to +70°C, -40°C to +85°C (with large cooler and E47 or thermo junction and E48
Dimenstions (W x L in mm)	90 x 96/99
Special Features	soldered RAM

MICROSPACE® MSM800XEV

Processor/Performance	AMD Geode™ LX800 / 0.5 GHz
Chipset	CS5536 AD
Bus	PCI-BUS: Option (2slot)
Memory	soldered 256 MByte
Video Controller	int. graphic Controller
Video Memory	16 (UMA)
LCD Interface	24 bit, 240 x 320 to 1600 x 1200
CRT Interface	yes
IDE Interface P-ATA	1x
IDE Interface S-ATA (Sil 3132)	-
COM1 / COM2	RS232C / RS232C
COM3 / COM4	-
USB	4x 2.0
Ethernet	10/100 BASE-T
Sound	AC97
RTC Battery onboard	400mAh (typ. 5 years)
Standard Temperature	0°C to +60°C
Extended Temperature	25°C to +70°C, -40°C to +85°C (with large cooler and E47 or thermo junction and E48
Dimenstions (W x L in mm)	90 x 96/99
Special Features	soldered RAM

MOPS-PM*

Processor/Performance	Intel® Pentium® M / Celeron® M 600MHz up to 1.4 GHz
Chipset	855GME
Bus	PC/104-Plus
Memory	128-1024MB
Video Controller	int. graphic Controller
Video Memory	16-64MB (UMA)
LCD Interface	18bit, 1600 x 1200
CRT Interface	yes
IDE Interface P-ATA	1x
IDE Interface S-ATA (Sil 3132)	-
COM1 / COM2	RS232C / RS232C
COM3 / COM4	-
USB	2x 2.0
Ethernet	10/100 BASE-T
Sound	-
RTC Battery onboard	-
Standard Temperature	0°C to +60°C
Extended Temperature	-
Dimenstions (W x L in mm)	90 x 96
Special Features	Full feature compatibility withhin the MOPS family, low cost, low power

MICROSPACE® MSM855/B2*

Processor/Performance	Intel® Processor ® / 1000MHz / Pentium ® / 1400 / 1800MHz
Chipset	855GME
Bus	ISA-Bus PC/104: 8/16bit +DMA, PCI-Bus: Option (3slot)
Memory	128-1024MB
Video Controller	int. graphic Controller
Video Memory	16-64MB (UMA)
LCD Interface	18bit, 1600 x 1200
CRT Interface	yes
IDE Interface P-ATA	1x
IDE Interface S-ATA (Sil 3132)	-
COM1 / COM2	RS232C / RS232C
COM3 / COM4	-
USB	5x 2.0
Ethernet	2x 10/100 BASE-T (LAN 1 / LAN2)
Sound	AC97-5.1
RTC Battery onboard	80mAh or external 900mAh
Standard Temperature	-25°C to +50°C / +60°C / +70°C
Extended Temperature	-40°C to +50°C / +70°C
Dimenstions (W x L in mm)	90 x 96
Special Features	LAN boot, Watchdog

MICROSPACE® MSM200S

Processor/Performance	Intel® Atom™ Z510/Z530 (1.1/1.6 GHz)
Chipset	US15W
Bus	PCI-BUS:Option, ISA: yes (8 bit / no DMA / no Interrupt)
Memory	soldered 0.5-2 GByte
Video Controller	int. graphic Controller
Video Memory	128 (UMA)
LCD Interface	24 bit LVDS
CRT Interface	yes, up to 1920 x 1200 with reduced blanking
IDE Interface P-ATA	1x
IDE Interface S-ATA (Sil 3132)	2x SATA300
COM1 / COM2	RS232C, RS422/485 / RS232C, RS422/485
COM3 / COM4	-
USB	6x 2.0
Ethernet	1 GByte LAN
Sound	HDA (ALC882-7.1), 2x Stereo, SPDIF
RTC Battery onboard	900mAh (typ. 10 years)
Standard Temperature	-25°C to +70°C
Extended Temperature	-40°C to +85°C
Dimenstions (W x L in mm)	90 x 96 mm
Special Features	-

PC/104-Plus Peripherals

MICROSPACE® MSMCA104+

Function	CAN
ISA-BUS	-
PCI-BUS	yes
PCI Express-BUS	-
BUS Compatibility	PC/104-Plus
Controller	Peak-CAN
Memory	-
1st Interface	CAN DSUB9, CiA DS102-1
2nd Interface	CAN DSUB9, CiA DS102-1
3rd Interface	-
Power normal (typ.)	3.3V/5V/2W
Power Management	-
Standard Temperature	-25°C to +70°C
Extended Temperature	tbd
Dimensions (W x L in mm)	90 x 96
Weight	80 g
Software Support	Win, Linux
MTBF	200'000 h
Special Features	Reset using software commands
Accessories	-

MICROSPACE® MSMCA104+ISOL

Function	CAN
ISA-BUS	-
PCI-BUS	yes
PCI Express-BUS	-
BUS Compatibility	PC/104-Plus
Controller	Peak-CAN
Memory	-
1st Interface	CAN DSUB9, CiA DS102-1
2nd Interface	CAN DSUB9, CiA DS102-1
3rd Interface	-
Power normal (typ.)	3.3V, 5V/4W
Power Management	-
Standard Temperature	-25°C to +70°C
Extended Temperature	tbd
Dimensions (W x L in mm)	90 x 96
Weight	30 g
Software Support	Win, Linux
MTBF	200'000 h
Special Features	500V isolated, Reset using software commands
Accessories	-

MICROSPACE® MSMG104+

Function	Video frame grabber
ISA-BUS	-
PCI-BUS	yes
PCI Express-BUS	-
BUS Compatibility	PC/104-Plus
Controller	BT878A
Memory	-
1st Interface	1st channel CVBS
2nd Interface	2nd channel CVBS
3rd Interface	3nd channel CVBS /SVideo
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	35 g
Software Support	WIN, CE, Linux
MTBF	200'000 h
Special Features	Digital I/O, PAL, NTSC
Accessories	-

MICROSPACE® MSMW104+

Function	FireWire
ISA-BUS	-
PCI-BUS	yes
PCI Express-BUS	-
BUS Compatibility	PC/104-Plus
Controller	TSB43AB22
Memory	-
1st Interface	IEEE 1394 A
2nd Interface	IEEE 1394 A
3rd Interface	-
Power normal (typ.)	3.3V/3W
Power Management	-
Standard Temperature	-25°C to +70°C
Extended Temperature	-40°C to +70°C
Dimensions (W x L in mm)	90 x 96
Weight	70 g
Software Support	WIN, Linux
MTBF	>200'000 h
Special Features	-
Accessories	-

MICROSPACE® MSMX104+

Function	8x serial
ISA-BUS	-
PCI-BUS	yes
PCI Express-BUS	PC/104-Plus
BUS Compatibility	PCI
Controller	EXAR 17C158
Memory	-
1st Interface	8ch RS232C
2nd Interface	8ch RS422
3rd Interface	8ch RS485
Power normal (typ.)	3.3V/3W
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	70 g
Software Support	WIN, Linux
MTBF	>200'000 h
Special Features	8x 10pin header
Accessories	-

MICROSPACE® MSME104+

Function	Ethernet LAN
ISA-BUS	-
PCI-BUS	yes
PCI Express-BUS	-
BUS Compatibility	PC/104-Plus
Controller	i82551
Memory	32 kByte
1st Interface	RJ45
2nd Interface	-
3rd Interface	-
Power normal (typ.)	3.3V/1W
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	70 g
Software Support	WIN, CE, Linux
MTBF	200'000 h
Special Features	100/10Mbit/sec.
Accessories	-

MICROSPACE® MSMGE104+

Function	1Gigabit-LAN
ISA-BUS	-
PCI-BUS	yes
PCI Express-BUS	-
BUS Compatibility	PC/104-Plus
Controller	i82541
Memory	32 kByte
1st Interface	RJ45
2nd Interface	-
3rd Interface	-
Power normal (typ.)	3.3V/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	70 g
Software Support	WIN, Linux
MTBF	100'000 h
Special Features	-
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 »

« 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

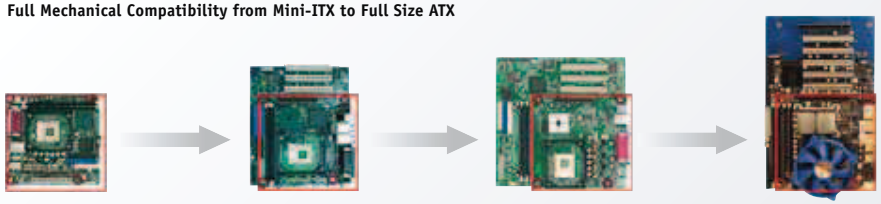
MICROSPACE® MSM8C104EX

	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



Mini-ITX | FLEX-ATX | Micro-ATX | 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)*
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

« Further Embedded Motherboards

Embedded Motherboards	 986LCD-M/FLEX	 986LCD-M/ATXE	 986LCD-M/ATXP	 KTGM45/FLEX	 KTGM45/ATXE
CPU	Intel® Core™ 2 Duo, Intel® Core™ Duo and Intel® Core™ Solo (mPGA478, mBGA479 prepared)	Intel® Core™ 2 Duo, Intel® Core™ Duo and Intel® Core™ Solo (mPGA478, mBGA479 prepared)	Intel® Core™ 2 Duo, Intel® Core™ Duo and Intel® Core™ Solo (mPGA478, mBGA479 prepared)	Intel® Core™ 2 Quad & Intel® Core™ 2 Duo	Intel® Core™ 2 Quad & Intel® Core™ 2 Duo
CPU Clock	Up to 2.16 GHz	Up to 2.16 GHz	Up to 2.16 GHz	Up to 3.06 GHz	Up to 3.06 GHz
Front Side Bus	533 / 667 MHz	533 / 667 MHz	533 / 667 MHz	667 / 800 / 1066 MHz	667 / 800 / 1066 MHz
Chipset	Intel® 945GM + ICH7R	Intel® 945GM + ICH7R	Intel® 945GM + ICH7R	Intel® GM45 + ICH9M-E	Intel® GM45 + ICH9M-E
DRAM	Up to 3 GByte DDR2 533/667, 2x DIMM-240	Up to 3 GByte DDR2 533/667, 2x DIMM-240	Up to 3 GByte DDR2 533/667, 2x DIMM-240	Up to 8 GB DDR3, 2 pcs. DIMM 240 pin	Up to 8 GB DDR3, 2 pcs. DIMM 240 pin
Video Memory	Up to 192 MByte shared video memory	Up to 192 MByte shared video memory	Up to 192 MByte shared video memory	Up to 256 MByte shared video memory	Up to 256 MByte shared video memory
IDE Interface	4x SATA 150/300 w. RAID 0,1,5,10, 1x ATA100	4x SATA 150/300 w. RAID 0,1,5,10, 1x ATA100	4x SATA 150/300 w. RAID 0,1,5,10, 1x ATA100	4x SATA 150/300 w. RAID 0,1, 1x ATA133	4x SATA 150/300 w. RAID 0,1, 1x ATA133
USB	8 x USB 2.0	8 x USB 2.0	8 x USB 2.0	12x USB 2.0	12x USB 2.0
Ethernet	2x GbE LAN	2x GbE LAN	3x GbE LAN	Up to 3x GbE LAN	Up to 3x GbE LAN
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 190.5mm (12" x 7.5")	Flex-ATX 228.6mm x 190.5mm (9" x 7.5")	ATX 300.5mm x 190.5mm (12" x 7.5")
Available I/Os	1x PCI Express x4, 2x PCI, 4x COM	1x PCI Express x4, 5x PCI, 4x COM	1x mini PCI Express, 6x PCI, 4x COM	1x PCI Express x4, 2x PCI, 4x COM	1x PCI Express x4, 5x PCI, 4x COM
Graphic Interface	CRT / LVDS / PCI-Express x16 / SDVO	CRT / LVDS / PCI-Express x16 / SDVO	CRT / LVDS / PCI-Express x16 / SDVO	CRT / LVDS / PCI-Express x16 / SDVO	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	COM1, CRT, Ethernet, USB, line-in, line-out, speaker, PS/2 mouse/keyboard	COM1, CRT, Ethernet, USB, line-in, line-out, speaker, PS/2 mouse/keyboard	COM1, CRT, Ethernet, USB, S-video (Optional), line-in, line-out, speaker, PS/2 mouse/keyboard	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)	IEEE1394, GPIO, HDD RAID 0/1/5/10 support, HD Audio, SPDIF, TV-out (optional)	IEEE1394, GPIO, HDD RAID 0/1/5/10 support, HD Audio, SPDIF, TV-out (optional)	GPIO, HDD RAID 0/1 support, AMT 4.0, TPM 1.2	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	Up to 7 years availability, ADD2-Cards for SDVO Interface for 2nd LCD	Up to 7 years availability, ADD2-Cards for SDVO Interface for 2nd LCD	Up to 7 years availability, ADD2-Cards for SDVO Interface for 2nd LCD	Up to 7 years availability, ADD2-Cards for SDVO Interface for 2nd LCD

	 KT965/FLEX	 KT965/ATXE	 KT965/ATXP	 KTQ45/FLEX	 KTQ45/ATXE
CPU	Intel® Core™ 2 Quad, Intel® Core™ 2 Duo Desktop, Pentium® 4 / D	Intel® Core™ 2 Quad, Intel® Core™ 2 Duo Desktop, Pentium® 4 / D	Intel® Core™ 2 Quad, Intel® Core™ 2 Duo Desktop, Pentium® 4 / D	Intel® Core™ 2 Duo E8400 and Intel® Core™ 2 Quad Q9400	Intel® Core™ 2 Duo E8400 and Intel® Core™ 2 Quad Q9400
CPU Clock	Up to 3.8 GHz	Up to 3.8 GHz	Up to 3.8 GHz	Up to 3.0 GHz	Up to 3.0 GHz
Front Side Bus	533 / 800 / 1066 MHz	533 / 800 / 1066 MHz	533 / 800 / 1066 MHz	800/1066/1333 MHz	800/1066/1333 MHz
Chipset	Intel® Q965 + Intel® ICH8DO	Intel® Q965 + Intel® ICH8DO	Intel® Q965 + Intel® ICH8DO	Intel® Q45 Express	Intel® Q45 Express
DRAM	Up to 8 GByte, DDR2 800, 4x DIMM-240	Up to 8 GByte, DDR2 800, 4x DIMM-240	Up to 8 GByte, DDR2 800, 4x DIMM-240	Up to 8 GB DDR3, 4x DIMM-240	Up to 8 GB DDR3, 4x DIMM-240
Video Memory	Up to 256 MByte Dynamic shared memory	Up to 256 MByte Dynamic shared memory	Up to 256 MByte Dynamic shared memory	Up to 256 MByte Dynamic shared memory	Up to 256 MByte Dynamic shared memory
IDE Interface	6x SATA150/300 w. RAID 0/1/5/10	6x SATA150/300 w. RAID 0/1/5/10	6x SATA150/300 w. RAID 0/1/5/10	5x SATA150/SATA300 w. RAID 0/1/5/10, 1x eSATA	5x SATA150/SATA300 w. RAID 0/1/5/10, 1x eSATA
USB	10x USB 2.0 (2x internal)	10x USB 2.0 (2x internal)	10x USB 2.0 (2x internal)	12x port USB 2.0 (4x internal)	12x port USB 2.0 (4x internal)
Ethernet	2x GbE LAN	2x GbE LAN	2x GbE LAN	2x GbE LAN	2x GbE LAN
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 190.5mm (12" x 7.5")	Flex-ATX 228.6mm x 190.5mm (9" x 7.5")	ATX 300.5mm x 190.5mm (12" x 7.5")
Available I/Os	1x PCI Express x4, 2x PCI, 2x COM	1x PCI Express x4, 5x PCI, 2x COM	1x mini PCI Express, 6x PCI, 2x COM	1x PCI Express x4, 2x PCI, 2x COM	1x PCI Express x4, 4x PCI, 2x COM
Graphic Interface	CRT / PCI-Express x16 / SDVO	CRT / PCI-Express x16 / SDVO	CRT / PCI-Express x16 / SDVO	CRT / PCI-Express x16 / SDVO	CRT / PCI-Express x16 / SDVO
Rear I/O	COM1, CRT, Ethernet, USB, line-in, line-out, speaker, PS/2 mouse/keyboard	COM1, CRT, Ethernet, USB, line-in, line-out, speaker, PS/2 mouse/keyboard	COM1, CRT, Ethernet, USB, line-in, line-out, speaker, PS/2 mouse/keyboard	COM1, CRT, Ethernet, USB, line-in, line-out, speaker, PS/2 mouse/keyboard	COM1, CRT, Ethernet, USB, line-in, line-out, speaker, PS/2 mouse/keyboard
Special Feature	HDD RAID, GPIO, LPT, HD Audio	HDD RAID, GPIO, LPT, HD Audio	HDD RAID, GPIO, LPT, HD Audio	HDD RAID, GPIO, LPT, HD Audio, AMT 5.0	HDD RAID, GPIO, LPT, HD Audio, AMT 5.0
Additional	Up to 7 years availability, ADD2-Cards for SDVO Interface for 2nd LCD	Up to 7 years availability, ADD2-Cards for SDVO Interface for 2nd LCD	Up to 7 years availability, ADD2-Cards for SDVO Interface for 2nd LCD	Up to 7 years availability, ADD2-Cards for SDVO Interface for 2nd LCD	Up to 7 years availability, ADD2-Cards for SDVO Interface for 2nd LCD

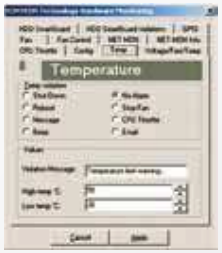
Boards & Mezzanines

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*	886LCD-M/mITX (BGA)*	886LCD-M/mITX*	986LCD-M/mITX (BGA)	986LCD-M/mITX	KT690/mITX	KTUS15/mITX - 1.1	KTUS15/mITX - 1.6	KTGM45/mITX	KT780/mITX (BGA)
CPU	Intel® ULV/LV Celeron®	Intel® Mobile Celeron® on board	Intel® Pentium® M and Celeron® M	Intel® ULV Celeron® M / LV Core Duo	Intel® Core™ 2 Duo, Intel® Core™ Duo and Intel® Core™ Solo (mPGA478, mBGA479 prepared)	Mobile AMD Sempron™ single core and AMD Turion™ dual core	Intel® Atom™ Z510 CPU BGA	Intel® Atom™ Z530 CPU BGA	Intel® Core™2 Quad & Intel® Core™2 Duo	Mobile AMD Sempron™ single core and AMD Turion™ dual core
CPU Clock	Intel® Celeron® 400 MHz ULV / 733 MHz LV	800 MHz (BGA) / Other BGA CPUs available on request	Up to 2.1 GHz	1.06 GHz / 1.66 GHz Other BGA CPU´s available on request	Up to 2.16 GHz	Up to 2.0 GHz	1,1 GHz Basic / 1,1 GHz Std	1.6 GHz Std / 1.6 GHz Plus	Up to 3.06 GHz	Up to 1.6 GHz
Front Side Bus	100 / 133 MHz	400 MHz	400 MHz	533 / 667 MHz	533 / 667 MHz	16 Lane Hyper Transport	400 MHz	533 MHz	667 / 800 / 1066 MHz	16 Lane Hyper Transport
Chipset	Intel® 815 + ICH4	Intel® 855GME + 6300ESB	Intel® 855GME + 6300ESB	Intel® 945GM + ICH7R	Intel® 945GM + ICH7R	AMD M690T + SB600	Intel® US15 Embedded	Intel® US15 Embedded	Intel® GM45 + ICH9M-E	AMD 780E + SB710
DRAM	Up to 256 MByte on board. 1x168pin DIMM socket for extra memory (up to 512 MByte total)	Up to 1 GByte DDR333 SDRAM (PC2700), 1x DIMM	Up to 1 GByte DDR333 SDRAM (PC2700), 1x DIMM	Up to 3 GByte DDR2 533/667	Up to 3 GByte DDR2 533/667, 2x DIMM-240	Up to 8 GByte DDR2 533/667 - 200 Pin, 2x SODIMM	Up to 2 GB, SO-DIMM 200-Pin, 1x SODIMM	Up to 2 GB, SO-DIMM 200-Pin, 1x SODIMM	Up to 8 GB DDR3, 2 pcs. DIMM 240 pin	Up to 8 GB DDR3, 2 pcs. DIMM 240 pin
Video Memory	Up to 12 MByte shared video memory	Up to 96 MByte shared video memory	Up to 96 MByte shared video memory	Up to 192 MByte shared video memory	Up to 192 MByte shared video memory	Up to 256 MByte shared video memory	Up to 256 MByte shared video memory	Up to 256 MByte shared video memory	Up to 256 MByte shared video memory	Up to 256 MByte shared video memory
IDE Interface	2x ATA100, 2x SATA 150 (optional)	2x SATA 150 w. RAID 0,1, 2x ATA100	2x SATA 150 w. RAID 0,1, 2x ATA100	4x SATA 150/300 w. RAID 0,1,5,10, 1x ATA100	4x SATA 150/300, 1x ATA100	4x SATA 150/300 w. RAID 0,1,10, 1x ATA133	1x ATA100 / 1x ATA100, 2x SATA 150/300	1x ATA100, 2x SATA 150/300	4x SATA 150/300 w. RAID 0,1, 1x ATA133	4x SATA 150/300 w. RAID 0,1,10, 1x ATA133
USB	6x USB 2.0	4x USB 2.0	4x USB 2.0	8x USB 2.0	8x USB 2.0	10x USB 2.0	8x USB 2.0	8x USB 2.0	12x USB 2.0	12x USB 2.0
Ethernet	Up to 3x 10/100 BaseT LAN	Up to 3x GbE LAN	Up to 3x GbE LAN	Up to 3x GbE LAN	Up to 3x GbE LAN	Up to 2x GbE LAN	1x GbE Intel® LAN	1x GbE Intel® LAN	Up to 3x GbE LAN	2x GbE Intel® LAN
Form Factor	Mini-ITX 170 x 170 mm (6,7" x 6,7")	Mini-ITX 170 x 170 mm (6,7" x 6,7")	Mini-ITX 170 x 170 mm (6,7" x 6,7")	Mini-ITX 170 x 170 mm (6.7" x 6.7")	Mini-ITX 170 x 170 mm (6.7" x 6.7")	Mini-ITX 170 x 170 mm (6.7" x 6.7")	Mini-ITX 170 x 170 mm (6.7 x 6.7")	Mini-ITX, 170 x 170 mm (6.7 x 6.7")	Mini-ITX 170 x 170 mm (6.7" x 6.7")	Mini-ITX 170 x 170 mm (6.7" x 6.7")
Available I/Os	1x PCI, 4x COM	1x PCI, 4x COM	1x PCI, 4x COM	1x PCI, 4x COM, 1x mini PCI-Express	1x PCI, 4x COM, 1x mini PCI-Express	1x PCI, 2x COM, 1x mini PCI-Express	2x COM / 1x PCI, 4x COM	2x/4x COM / 1x PCI	1x PCI, 4x COM, 1x mini PCI-Express	1x PCI, 2x COM, 1x mini PCI-Express
Graphics Controller	Integrated Intel® Graphics engine, LVDS on board	Intel® Extreme Graphics 2, LVDS on board	Intel® Extreme Graphics 2, LVDS on board	Intel® GMA950, LVDS onboard	Intel® GMA950, LVDS onboard	Radeon X1250, LVDS onboard	Intel® GMA 500, LVDS on board	Intel® GMA 500, LVDS on board	Intel® GMA4500 MHD, LVDS onboard	Radeon HD 3200, LVDS onboard
Graphic Interface	CRT / LVDS / AGP x4 / DVI (optional)	CRT / LVDS / AGP x4 / DVO	CRT / LVDS / AGP x4 / DVO	CRT / LVDS / PCI-Express x16 / SDVO	CRT / LVDS / PCI-Express x16 / SDVO	DVI / CRT / LVDS / TV-Out (optional) / PCI-Express x8	DVI / CRT / LVDS / 2x PCI-Express x1	CRT / DVI / LVDS / 2x PCI-Express x1	CRT / LVDS / PCI-Express x16 / SDVO	DVI / CRT / LVDS / TV-Out (optional) / PCI-Express x16
Rear I/O	COM1, LPT, CRT, line-in, line-out, speaker, PS/2 mouse/keyboard	COM1, LPT, CRT, line-in, line-out, speaker, PS/2 mouse/keyboard	COM1, LPT, CRT, line-in, line-out, speaker, PS/2 mouse/keyboard	COM1, CRT,IEEE1394, Ethernet, USB, line-in, line-out, speaker, PS/2 mouse/keyboard	COM1, CRT,IEEE1394, Ethernet, USB, line-in, line-out, speaker, PS/2 mouse/keyboard	COM1, CRT, DVI, TV-Out (optional), Ethernet, USB, line-in, line-out, speaker, PS/2 mouse/keyboard	DVI or CRT, Ethernet, USB, line-in, line-out, speaker, PS/2 keyboard	DVI or CRT, Ethernet, USB, line-in, line-out, speaker, PS/2 keyboard	COM1, CRT,IEEE1394, Ethernet, USB, line-in, line-out, speaker, PS/2 mouse/keyboard	COM1, CRT, DVI, TV-Out (optional), Ethernet, USB, line-in, line-out, speaker, PS/2 mouse/keyboard
Special Feature	HDD SOFT-RAID 0/1 support, IEEE 1394 optional	GPIO, HDD SOFT-RAID 0/1 support	GPIO, HDD SOFT-RAID 0/1 support	GPIO, IEEE1394, HDD RAID 0/1/5/10 support	GPIO, IEEE1394, HDD RAID 0/1/10 support	GPIO, HDD RAID 0/1/5/10 support, TPM Onboard	GPIO, 2x SDIO	GPIO, 2x SDIO, TPM Onboard (Plus)	GPIO, IEEE1394, HDD RAID 0/1 support, AMT 4.0, TPM 1.2	GPIO, HDD RAID 0/1/10 support, TPM Onboard
Additional	Up to 7 years availability, DVI, Firewire, onboard memory, GPIO	Up to 7 years availability, Available Add-Cards for DVO Interface for 2nd LCD: ADD-LVDS (LVDS), ADD-DVI (DVI), on board audio amplifier	Up to 7 years availability, Available Add-Cards for DVO Interface for 2nd LCD: ADD-LVDS (LVDS), ADD-DVI (DVI), on board audio amplifier	Up to 7 years availability, ADD2-Cards for SDVO Interface for 2nd LCD, S-Video TV-out (optional), HD Audio, SPDIF	Up to 7 years availability, ADD2-Cards for SDVO Interface for 2nd LCD, S-Video TV-out (optional), HD Audio, SPDIF	Up to 7 years availability, S-Video TV-out (optional), HD Audio, SPDIF	Up to 7 years availability	Up to 7 years availability	Up to 7 years availability, ADD2-Cards for SDVO Interface for 2nd LCD, S-Video TV-out (optional), HD Audio, SPDIF	Up to 7 years availability, S-Video TV-out (optional), HD Audio, SPDIF
Partnumber	810046-4500 / 810045-4500	810196-4500	810182-4500	810203-4500 / 810201-4500	810200-4500	810280-4500	810291-4500 / 810293-4500	810290-4500 / 810292-4500	810350-4500	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/ Entertainment, 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

	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

	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

	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

	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 «

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

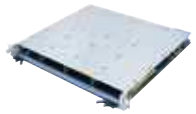
Processor, Switch and Carrier Blades – Choose from a complete Kontron portfolio of AdvancedTCA GbE and 10GbE processor, switch and carrier blades to build your next AdvancedTCA-based carrier grade system.

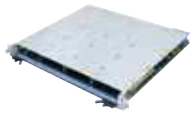
Each platform element provides System High Availability (HA) and high levels of modularity and configurability. This permits an ease of integration of multiple functions and new features, all on the same platform. There are major spin-off benefits for mobile-telco service providers, who can expect reductions 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
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

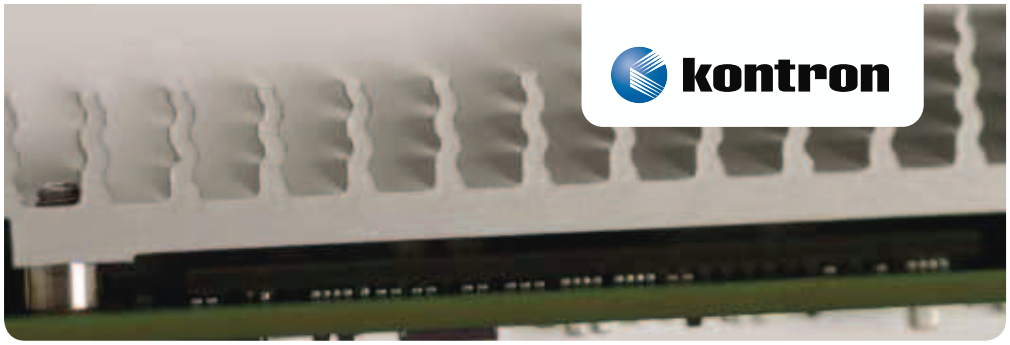




	AT8404 Quad AMC Carrier (mid-size)	AT8402 Quad AMC Carrier (mid-size)
Base Interface Support	Two Gigabit Ethernet	Two Gigabit Ethernet
Fabric Interface Support	Two 10 Gigabit Ethernet	Two Quad Gigabit Ethernet
AMC Slots	4 mid-size bays OR 2 mid-size bays + 1 mid-size double-bay, OR, 2 mid-size double-bays (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)
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



kontron

» 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 «

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

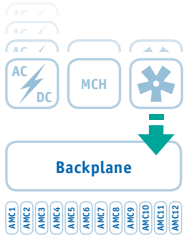
HIGH

LEVEL OF REQUIREMENTS

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

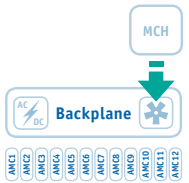
LOW

Fully-Featured



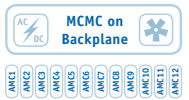
» Completely redundant
» Fully featured MCH
» Power Modules
» Cooling Units

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

	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

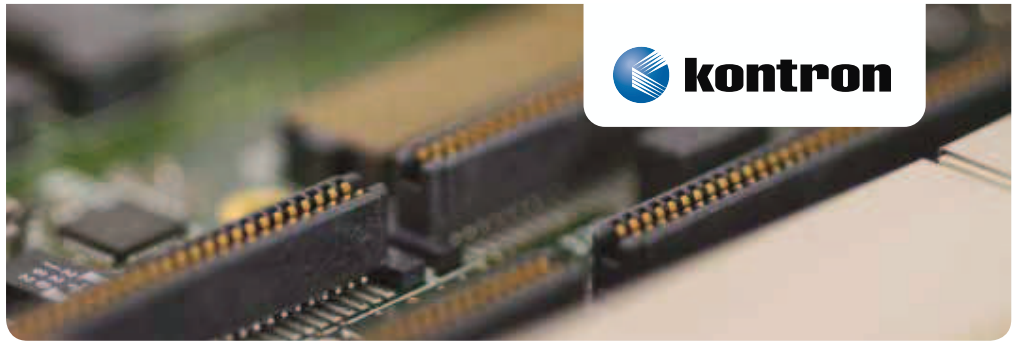
» Rugged, conduction cooled single AMC
» Intel® Core™ Duo 1.5 GHz

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 «

CompactPCI® PICMG®

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

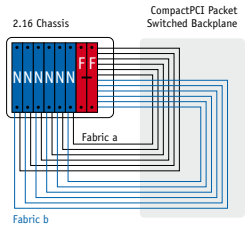
6U x86 Processor Boards

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

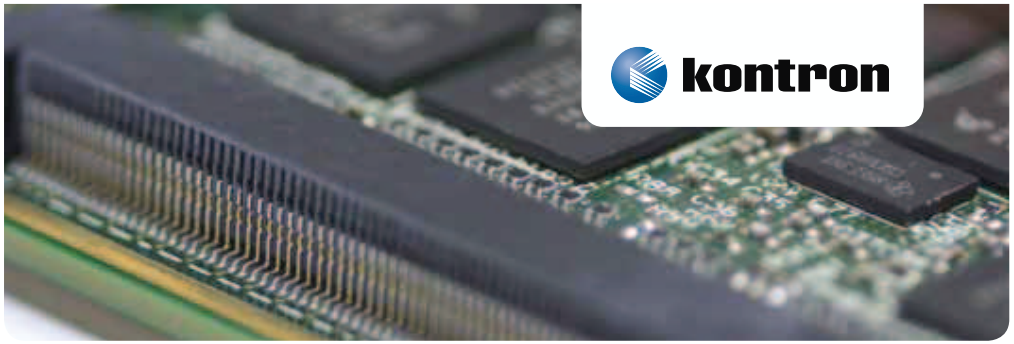
CP690HS

	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

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

CP930

Function	unmanaged
Form Factor	3U / 4HP
Power Consumption (typ.)	5 V / 1.5 Watt
Ports	Five Fast Ethernet
Connection	RJ45 / MT-RJ
Operating Temperature	-40°C to +85°C

3U Ethernet and Fieldbus Controller Boards

CP342

Frontpanel	2x RJ45 or 2x SFP
Function	two 10/100/1000 Base-Tx or two 1000 BaseFX
Data Rate	Up to Gigabit Ethernet
Channels	2
Isolation	-
Controller	Intel® 82546GB
Operating Temperature	-40°C to +85°C

CP353

Frontpanel	9 pin D-sub for fieldbus connection, 9 pin D-sub fieldbus configuration
Function	Profibus DP V1 Master
Data Rate	up to 12 MBit/sec.
Channels	1
Isolation	opto-isolated
Controller	EC-1 System on Chip
Operating Temperature	0°C to +60°C

3U Controller Boards

CP332 (Graphics Controller)

Frontpanel	Dual DVI-I with DVI and CRT signals
Form Factor	3U / 4HP
Channels	Dual head
Characteristics	Ultra High res. VGA
Controller	ATI Radeon Mobility M9, 64MB
Operating Temperature	-25°C to +75°C

CP346 (Serial Controller)

Frontpanel	37-pin DSUB Connector
Form Factor	3U / 4HP
Channels	4 independent serial channels, RS232, RS422, RS485 configurable
Characteristics	16550 UART compatible
Controller	Quad UART OX16PCI954
Operating Temperature	-40°C to +85°C

HDD/SSD Carrier

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

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

CP372

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

3U Digital I/O Boards

CP384

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

CP383

Channels	16 digital in, 16 digital out
Input Voltage	Low Range: -3-5 V, High Range: 11-30 V
Input Current	5 mA
Output Current	max. 500 mA per channel
Isolation	2 kV
Operating Temperature	-40°C to +85°C

CP382

Channels	24 digital out
Input Voltage	-
Input Current	-
Output Current	max. 500 mA per channel
Isolation	2 kV
Operating Temperature	-40°C to +85°C

CP381

Channels	30 digital in
Input Voltage	Low Range: -3-5 V, High Range: 11-30 V
Input Current	5 mA
Output Current	-
Isolation	2 kV
Operating Temperature	-40°C to +85°C

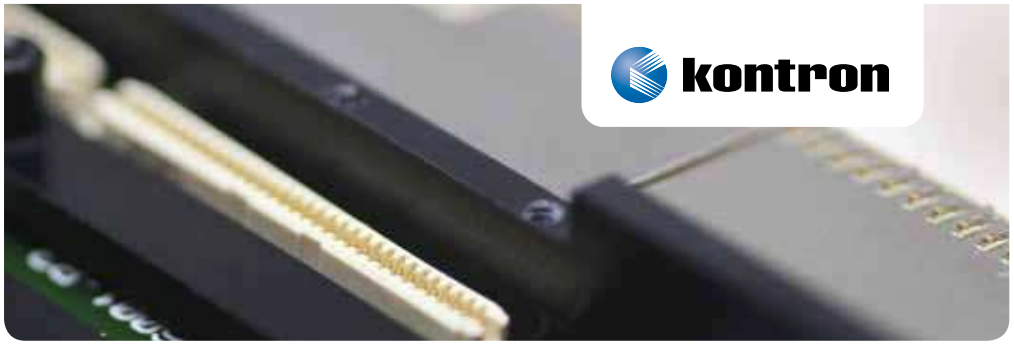
3U PMC Carrier Boards

CP390

Height	3U
PCI Bus	32 Bit/33 MHz
PMC	1x 32 Bit
Rear I/O	-
Hot Swap	optional
Operating Temperature	-25°C to +85°C

CPMC1

Height	3U
PCI Bus	32 Bit/33 MHz
PMC	1x 32 Bit
Rear I/O	64 rear I/O of the PMC P4 connector routed to the cPCI J2 backplane connector
Hot Swap	-
Operating Temperature	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)

Frontpanel	2x SFP+
Interface	Host: PCIe x8; ETH to front
Function	2 independent 1/10 Gigabit Ethernet channels at front panel
Data Rate	Copper: 10 GbE, Fiber: 1/10 GbE
Signals	Copper & Fiber
Controller	Intel® 82599ES
Operating Temperature	Standard Commercial: 0°C to +55°C

XMC-ETH2 (Dual Gigabit Ethernet)

Frontpanel	2x RJ-45
Interface	Host: PCIe x4; ETH to front or rear (P4)
Function	1 or 2 independent Gigabit Ethernet channels selectable to front or rear
Data Rate	Copper: 10 Base-T, 100 Base-Tx, 1000 Base-T
Signals	Copper
Controller	Intel® 82571
Operating Temperature	Standard Commercial: 0°C to +55°C Rugged Air-Cooled: -40°C to +70°C Rugged Conduction-Cooled: -40°C to +85°C

XMC-G72 (Graphics)

Frontpanel	Digital DVI and CRT or dual CRT
Interface	Host: PCIe x4; front or rear (P4)
Function	Dual Head Graphics XMC; video to front or rear
Data Rate	High throughput interface to host: x8 PCI-Express up to 2.5 GB/s
Signals	DVI-I and 15-pin VGA
Controller	M72-CSP128 graphics controller from ATI-AMD
Operating Temperature	Standard Commercial: 0°C to +55°C Rugged Conduction-Cooled: -40°C to +85°C

PMC Mezzanines

PMC-6L (Avionics I/O)

Frontpanel	MIL-STD-1553-B Connector, ARINC429, Serial Lines and GPIO Lines Connector
Interface	Host: PCI 64 / 66MHz
Function	ARINC-429 Interface, MIL-STD-1553, Up to 6 Serial Lines, Up to 16 GPIO
Data Rate	-
Signals	-
Controller	T/T ARINC 429, T/R EIA 485/232
Operating Temperature	Standard Commercial: 0°C to +55°C

PMC240 (Dual Gigabit Ethernet)

Frontpanel	2x RJ45 copper or 2x SC-type connector fiber or mixed
Interface	Host: 32/64 bit, 33/66MHz; copper or fiber to front
Function	1 or 2 independent Gigabit Ethernet channels
Data Rate	Copper: 10Base-T, 100 Base-Tx, 1000 Base-T, Fiber: 1000 Base-SX
Signals	Copper or Fiber or mixed
Controller	Intel® 82546EB or Intel® 82545EM
Operating Temperature	0°C to +55°C

PMC253 (Profibus)

Frontpanel	9 pin D-Sub for Fieldbus connection
Interface	Host: 32 bit, 33MHz; Profibus to front opto isolated
Function	Profibus DP V1 Master
Data Rate	up to 12 MBit/s
Signals	RS485
Controller	EC-1 System on Chip
Operating Temperature	0°C to +60°C

» VME Standard and Rugged Products «

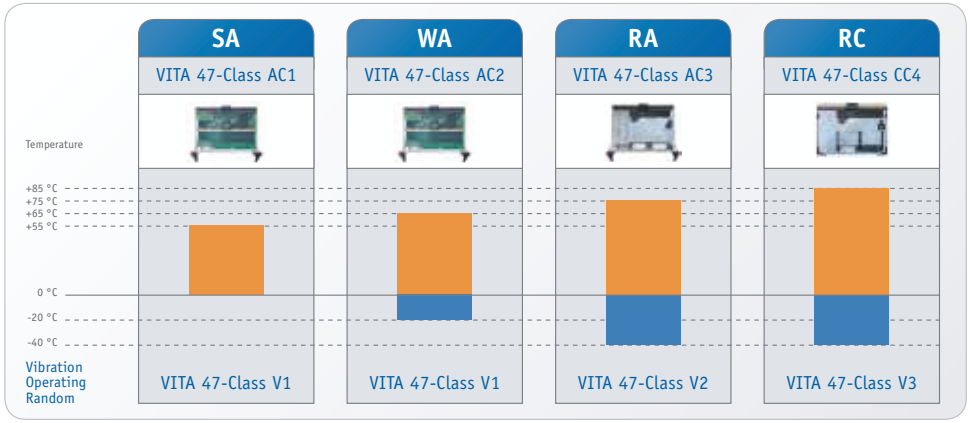
VMEbus is an open and flexible slot-card computer architecture which supports up to 21 cards in 3U, 6U or 9U Eurocard format. First standardized in the early '80s, the VMEbus has ever been improved by addition of new features and by the integration of new technologies while keeping backward compliance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

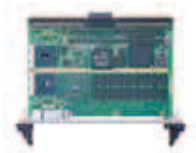
Kontron is one of the pioneering **companies of VMEbus** and is an active member of the **VMEbus International Trade Association (VITA)** which gathers more than 130 members. Kontron designs and markets a wide range of 3U and 6U VMEbus products and leads the improvement of the features of VMEbus products 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
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

PowerEngine7

VCE405

PowerNode5

PowerNode3

PowerNode3+

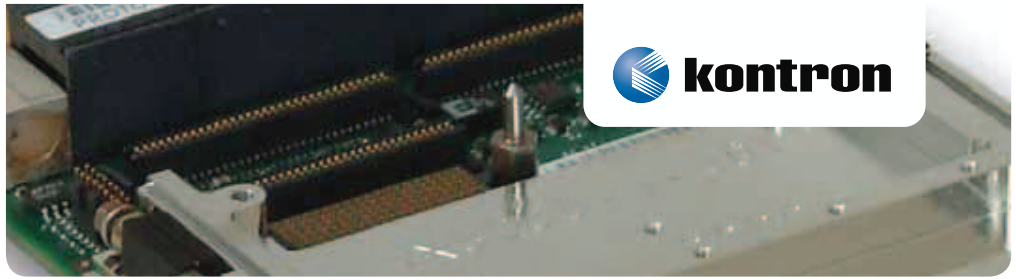
	VM6250	PowerEngine7	VCE405	PowerNode5	PowerNode3	PowerNode3+
CPU	Single or Dual Core MPC864x with AltiVec	Single or Dual PowerPC 750FX/GX	PowerPC 405GPr	Dual PowerPC 970FX with Altivec	Single or Dual PowerPC 7457 with Altivec	Single or Dual PowerPC 7448 with Altivec
CPU Clock	1 GHz to 1.33 GHz	700 MHz to 1 GHz	400 MHz	1.6 GHz	1 GHz	1 to 1.4 GHz
CPU MIPS	4706 DMIPS @1.33GHz	2508 DMIPS @1GHz	608 DMIPS	6500 DMIPS	2488 DMIPS	3484 DMIPS
CPU L2 Cache	1 MB with ECC	512 KByte	32KB	512 KByte	512 KByte	1 MByte
Chipset	Freescale MPC864x	CPC710 Host Bridge	Memory Bridge integrated in PowerPC 405GPr	CPC925 Host Bridge	CPC710 Host Bridge	CPC710 Host Bridge
DRAM	Up to 2 GB DDR2 with ECC	Up to 512 MByte with ECC	Up to 128 MB with ECC	Up to 1 GByte with ECC	Up to 1 GByte with ECC	Up to 1 GByte with ECC
Flash Onboard	Up to 16 GB USB Flash modules	Up to 128 MByte of User Flash	8 MB Flash EPROM	128 MByte of User Flash	Up to 64 MByte of User Flash	Up to 64 MByte of User Flash
NVRAM	128 KB	8 KByte	1 MB UVEPROM socket	32 Kbyte	8 KByte	8 KByte
USB	3 x USB 2	1 x USB	-	2 x USB 1.0	-	-
Ethernet	4 x 10/100/1000 BaseT	1 x 10/100/100 BaseT, 1 x 10/100 BaseT	1x 10/100 Base-T (Front Panel or Rear I/O)	2 x 10/100/100 BaseT	2 x 10/100/100 BaseT	2 x 10/100/100 BaseT
Serial Channels	2 x UART	4 x UART, 2 x ESCC sync/asynchronous	2x async. serial lines (Front Panel and Rear I/O), 4x sync./async. serial lines (Rear I/O)	2 x EIA-232	4 asynchronous EIA-232 serial lines on front panel & 2 EIA-422/485 on rear	4 asynchronous EIA-232 serial lines on front panel & 2 EIA-422/485 on rear
PMC	2 x PMC/XMC + 1 FMC	PCI-64-bit @66MHz and PCI-32bit @33MHz PMC slots	2x 64-bit PMC sites	PMC slot 64/32-bit PCI/PCI-X @133MHz	PCI-64-bit @66MHz and PCI-32bit @33MHz PMC slots	PCI-64-bit @66MHz and PCI-32bit @33MHz PMC slots
Rear I/O	2 x GBE, 1 x 4xPCIe, 2 x USB2, 2 x SATA, 2x UART, 3x GPIO, Mezzanine I/O	PMC I/O, Serial Lines, Ethernets, GPIO, USB, SCSI	Ethernet, Serial Lines, IIC Bus	PMCs I/O, EIDE interface, Ethernets, EIA-232, 4x RapidIO & SFPDP links	PMCs I/O, Gigabit & 10/100 Ethernets, EIA-232, GPIO	PMCs I/O, Giga-bit & 10/100 Ethernets, EIA-232, GPIO
Connectivity	4x PCIe, VME 2eSST, Gigabit Ethernet, Serial Lines, USB, SATA	VME 2eSST, Gigabit Ethernet, Serial Lines, USB, SCSI	VME, Ethernet	Serial FPDP, Serial RapidIO, VME 2eSST, Gigabit Ethernet, Serial Lines, USB, EIDE	VME 2eSST, Gigabit Ethernet, Serial Lines	VME 2essT, Gigabit Ethernet, Serial Lines
SCSI Controller	-	Up to 40MB/s in Wide Ultra SCSI Mode	-	-	-	-
Available Extensions	Rear Transition Module, PMCs Carrier Board, FMC support	Rear Transition Module, PMCs Carrier Board	Rear Transition Module	Rear Transition Module	Rear Transition Module	Rear Transition Module
Watchdog	Dual stage Watchdog Timer available	Hardware Watchdog Timer available	Hardware Watchdog Timer available	Hardware Watchdog Timer available	Hardware Watchdog Timer available	Hardware Watchdog Timer available
Expansion Slots	VME Carrier Board for 2 PMCs	VME Carrier Board for 2 PMCs	-	-	-	-
Cooling	Standard Air, Extended Temperature, Rugged Convection-Cooled, Rugged Conduction-Cooled	Standard Air, Extended Temperature, Rugged Convection-Cooled, Rugged Conduction-Cooled	Standard Air, Rugged Convection-Cooled, Rugged Conduction-Cooled	Standard Air, Rugged Conduction-Cooled	Standard Air, Rugged Convection-Cooled, Rugged Conduction-Cooled	Standard Air, Rugged Conduction-Cooled
Operating System	Linux kernel 2.6.25, VxWorks 6.6, LynxOS5, ElinOS	LynxOS 4.0.0, Linux kernel 2.6.9, VxWorks 6.2, VxW 5.5.1	LynxOS 4.0, VxWorks 5.4, Linux 2.4	Linux kernel 2.6.9 SMP, VxWorks 6.2	LynxOS 4.0.0, Linux kernel 2.6.9 SMP, VxWorks 6.2, VxW 5.5.1	LynxOS 4.0.0, Linux kernel 2.6.9 SMP, VxWorks 6.2, VxW 5.5.1
Power Consumption (typ.)	27 to 45W	17.5W Single, 29W Dual	7 W	75W	23W Single, 35W Dual	35W Single, 57W Dual
Front IO	Gigabit Ethernet, Serial Lines, USB	Gigabit Ethernet, Serial Lines, USB	1x Async. Serial Line, 1x Ethernet 10/100 BASE-T	2x Gigabit Ethernet, 2x Serial Lines, 1x USB 1.0	Gigabit Ethernet, Serial Lines	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



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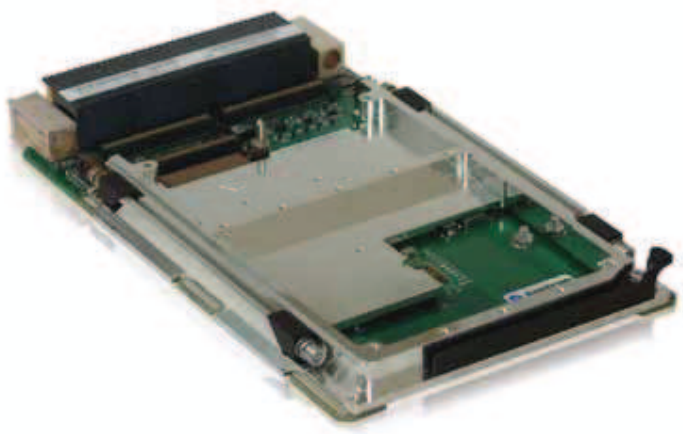
» VPX Standard and Rugged Products «



VPX OpenVPX™

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
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
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

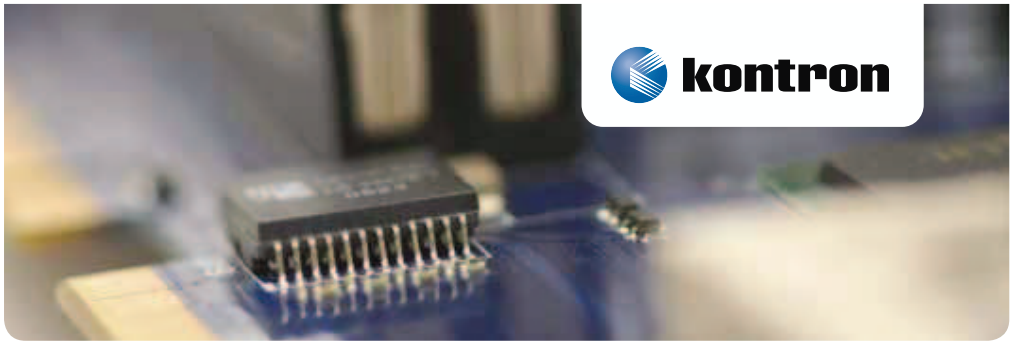
3U VITA 46.7 fully managed switch	 VX3910
Ports	28x GbE according OpenVPX/VITA65 and VITA 46.x, 4 front panel 1GbE RJ45
Routing Protocols	Include OSPFv2, RIPv2, VRRP, IGMP Snooping, DiffServ, ARP, ICMP, ACLs
Ethernet/Bridging Protocols	Include VLANs (802.1Q), Link Aggregation (802.3ad), Spanning Tre (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

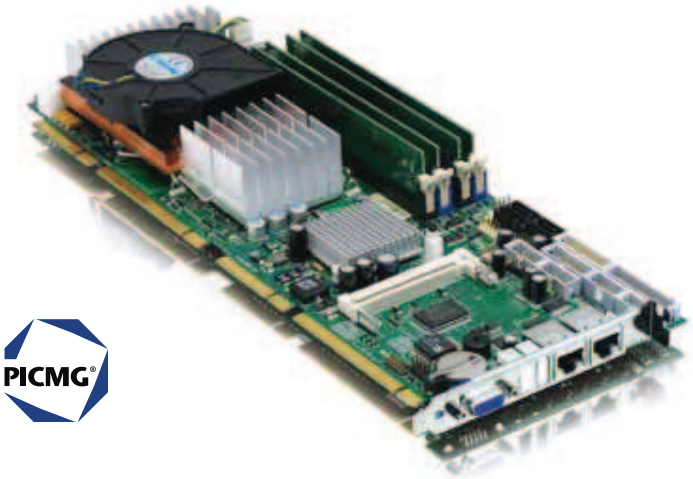
3U VPX Rugged COTS Line Systems

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

	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

	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*

	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

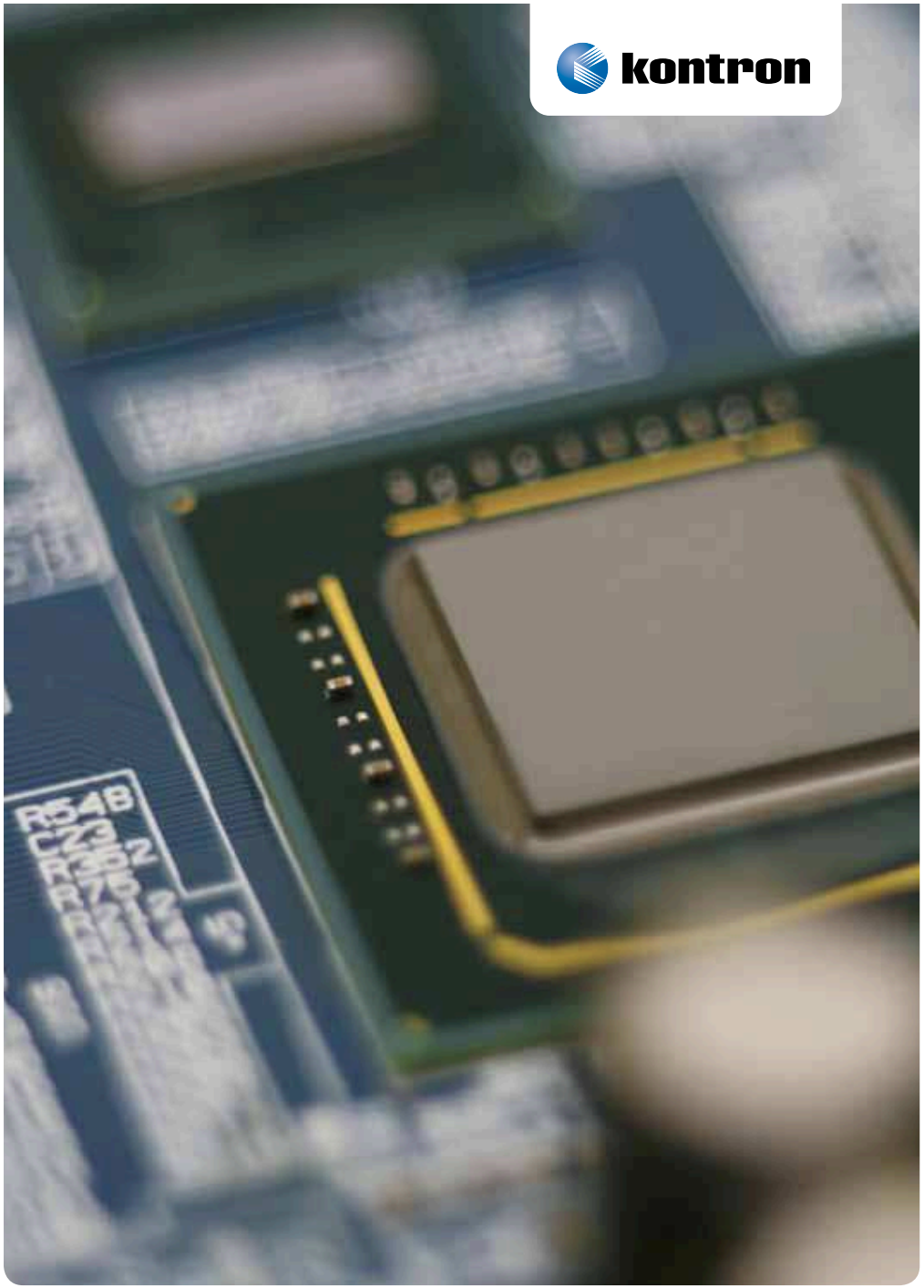
PISA-2

PISA-2P3I

PISA-3P4I

PISA-B441A

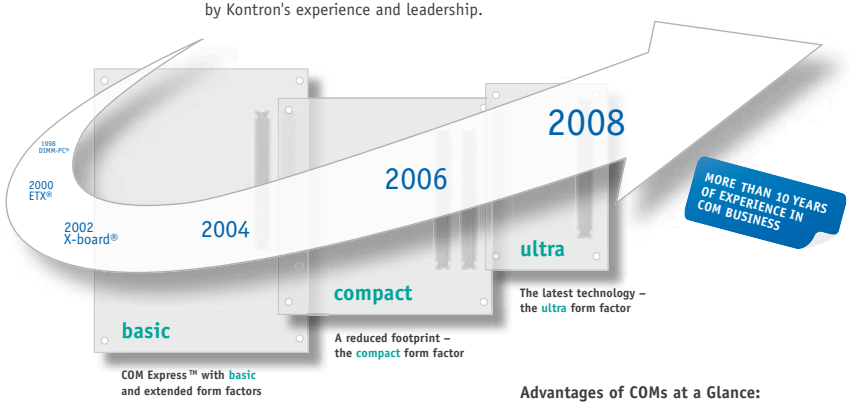
	PISA-2	PISA-2P3I	PISA-3P4I	PISA-B441A
Keyboard	-	-	yes	yes
Power connector	AT	AT	AT	AT
Dimensions H x W	170 x 51 mm (6.7 x 2.0")	170 x 101 mm	170 x 146 mm (6.7 x 5.8")	220 x 170 mm (8.7 x 6.7")
PISA	1x	2x (1x shared)	4x (1x shared)	1x
ISA	1x	1x	1x	4x
PCI	-	2x (1x shared)	3x (1x shared)	4x
RoHS compliant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



»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.



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