

# » Motherboards & SBCs 2010/2011 «

## Longevity SBCs and Motherboards

- » Pico-ITX 2.5" to 3.5" SBCs
- » Mini-ITX to full size ATX
- » Accessories





## » Single Board Computers «



### Advantages of SBCs

Single Board Computers (SBCs) are designed to work right out of the box, allowing development to begin immediately and the final application to get to market quickly.

Kontron SBCs are highly integrated with all key system interfaces and functionalities already onboard.

This means that only application-specific I/O needs to be added for the complete solution. Readily available standard accessories make customization easy and contributes to the ultimate in fast system set-up an overall fast system development – no specialized R&D knowledge or extra development time required.

#### Just plug and go

SBCs are standard, off-the-shelf computer boards that come in various industry conforming form factors. Some can deliver customized features for the total solution when paired with PCI-104 expansion boards.

Whatever your needs are – low power consumption with passive (fanless) cooling or high CPU speed, excellent

graphics performance or full featured industrial PCs on extremely small footprints – you will find it here. Additionally, all Kontron SBCs offer scalability and a long life-time as well as superior MTBF. These benefits apply both Kontron's JRexplus family of 3.5-inch SBCs as well as the Pico-ITX 2.5-inch SBCs.

Kontron knows that keeping tabs on a designed in element of the application is key to safeguarding the overall investment in the solution. We know that communication between partners is essential and we strive for this at all stages of the product lifecycle. Starting with the availability of prototype Early Field Test Units (EFTs), Kontron gets sample units into the hands of early adopters. As the products go into production, Kontron keeps you informed about HW and SW revision updates with regular Product Change Notifications (PCNs). When it becomes necessary to discontinue a product, you'll receive an official End of Life (EOL) Notification with the last time buy (LTB) and last time delivery (LTD) schedule, as well as guidance from your Kontron representative about recommended replacements and migration options.

**Kontron is your partner every step of the way.**

## JRexplus 3.5" SBCs



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

## Pico-ITX 2.5" SBCs



- » Intel® Atom™ Z510 / Z530 processor up to 1.6 GHz
- » Intel® Chipset US15W
- » Industry standard pico-ITX form factor
- » Extensive onboard features
- » High performance combined with lowest power consumption
- » Ideal for ultra small and mobile applications

## Additional tools for easy and effective platform development

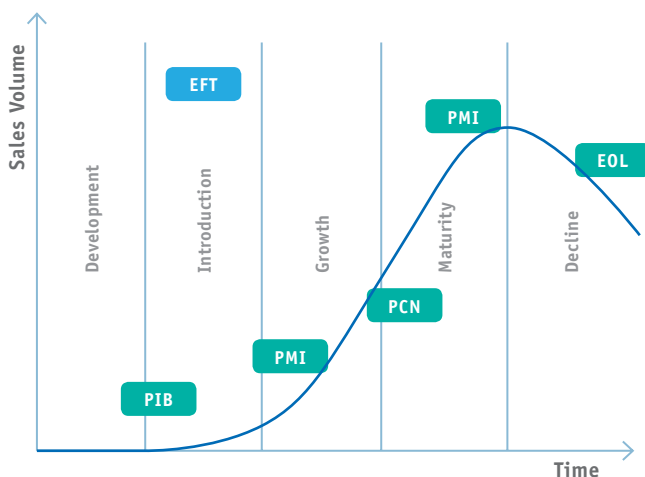


The API Demo offers board status information.



The Display Editor allows easy display integration.

## Complete lifecycle management for all SBCs



- » **PIB** = Product Introduction Bulletin contains regular information about introduction status of new products
- » **EFT** = Early Field Test, means availability of engineering prototypes for interested customers for pre-implementation
- » **PMI** = Product Marketing Information is a regular information about product news, special pricing, etc.
- » **PCN** = Product Change Notification, includes information about technical changes (HW & SW), improvements and restrictions when necessary
- » **EOL** = The End of Life Notification informs customers about LTB (Last Time Buy) and LTD (Last Time delivery) schedule and recommended replacements

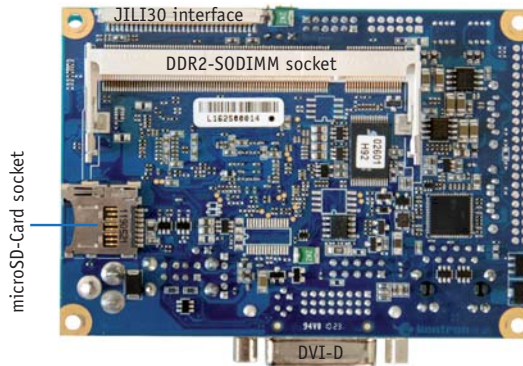
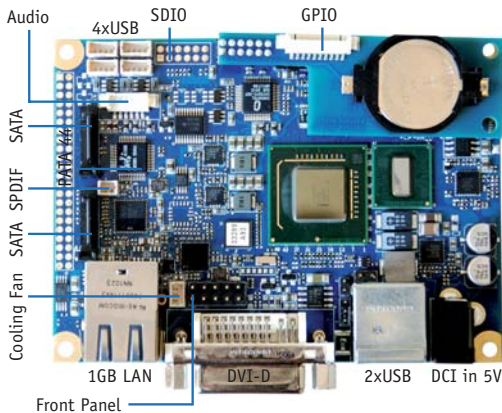
**Safety for your investment decisions!**

reduced  
to the max!

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

With the Pico-ITX form factor, Kontron supports a new definition of small (100 x 72 mm), powerful and very cost-effective 2.5" SBCs. The pITX-SP, Kontron's first 2.5" SBC

based on the Pico-ITX industry standard, features the Intel® Atom™ Z5xx series processors US15W chipset, along with multiple I/O options and microSD-Card boot.



### KONTRON'S Pico-ITX

**ACCESSORY  
KIT  
AVAILABLE**



**Pico™**

### pITX-SP

- » Intel® Atom™ Z5xx series processor up to 1.6 GHz
- » Small Form Factor 10 x 7.2 cm
- » Intel® US15W chipset
- » Low power consumption with the latest energy-saving 45nm technology

## Technical Data

## pITX-SP

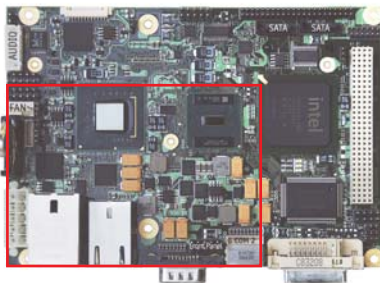


Featureset		Basic	Standard	Plus
<b>Processor</b>	Intel® Atom™ Z510 1.1 GHz	yes	yes	-
	Intel® Atom™ Z530 1.6 GHz	-	yes	yes
<b>Chipset</b>	Intel® US15W	yes	yes	yes
<b>Memory</b>	1x DDR2 SO-DIMM up to 2 GByte	yes	yes	yes
<b>Ethernet</b>	Intel® 82574L Gigabit Ethernet	yes	yes	yes
<b>Graphics Interfaces</b>	DVI	yes	yes	yes
	JILI30 Single Channel, Backlight Support	-	yes	yes
<b>Mass Storage</b>	2x SATA II	-	yes	yes
	1x microSD socket	-	yes	yes
	1x PATA 44 Master / Slave	yes	-	yes
<b>USB</b>	2x USB 2.0 Socket at front panel	yes	yes	yes
	4x USB 2.0 Header on board	-	yes	yes
	1x USB 2.0 Client (Pin Header)	-	yes	yes
<b>Audio</b>	HD Audio analog	yes	yes	yes
	SPDIF	-	yes	yes
<b>I/O Features</b>	8 Bit GPIO TTL	yes	yes	yes
	SDIO	-	-	yes
<b>Special Features</b>	TPM 1.2	-	-	yes
<b>RTC</b>	Integrated	yes	yes	yes
<b>Temperature</b>	Operating 0°C - 60°C (32°F ~140°F)	yes	yes	yes
<b>Power Consumption (typ.)</b>	5V DC, 5W typical	yes	yes	yes

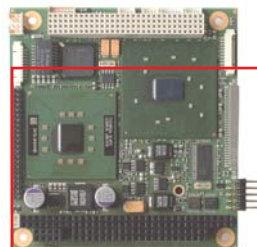
For full technical details including datasheet and manual visit [www.kontron.com](http://www.kontron.com)

## Small Size Embedded SBCs

Highly integrated, compact SBCs support quick time to market for your application



**JRexplus 3.5"**  
(147 x 102 mm)



**PC/104**  
(90 x 96 mm)



**Pico-ITX 2.5"**  
(100 x 72 mm)

## JRexplus 3.5-inch SBCs – Reduce System Costs!

The Kontron JRexplus family of 3.5-inch SBCs delivers computing performance that fits, a wide range of embedded applications from diagnostics tools to box PC control systems. These highly integrated SBCs make designing simple with features including onboard connectors for up to six 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.**

### JRexplus 3.5" SBCs



**JRexplus-LX**



**JRexplus-690**



**JRexplus-DC**

<b>CPU</b>	AMD® Geode™ LX800	AMD® Turion™ 64 / Sempron™ mobile CPU	Intel® Atom™ N270 processor
<b>CPU Clock</b>	500 MHz	up to 2.1 GHz Dual Core	1.6 GHz
<b>Front Side Bus</b>	-	Hyper Transport Technology	533 MHz
<b>Cache</b>	L2: 128 KByte	L2: 1x 512 KByte / 2x 512 KB	L2: 1 x 512 KByte
<b>BIOS</b>	Phoenix™	AMIBIOS®	AMIBIOS®
<b>Chipset</b>	AMD CS5536	AMD M690E	Intel® 945GSE, Intel® ICH7M
<b>DRAM</b>	1 GByte DDR SDRAM	2 GByte DDR2 SDRAM	2 GByte DDR2 SDRAM
<b>DRAM socket</b>	SDRAM-SODIMM	SDRAM-SODIMM	SDRAM-SODIMM
<b>CompactFlash</b>	yes	yes	yes
<b>Audio</b>	AC'97	HD Audio	HD Audio
<b>Hard Disk</b>	EIDE (UMDA-66)	EIDE (UMDA-133)	EIDE (UMDA-133)
<b>USB</b>	4x USB 2.0 (2 on front panel, two internal)	6x USB 2.0 (2 on front panel, 4 internal)	6x USB 2.0 (2 on front panel, 4 internal)
<b>Ethernet</b>	1x 10/100/1000	2x 10/100/1000	1x 10/100, 1x 10/100/1000
<b>Graphics Controller</b>	AMD on chip graphic	Integrated ATI on chip graphic	Integrated with Intel® GMA950 (DirectX® 9, PS 2.0)
<b>Graphics Memory</b>	on-chip shared 8-256 MByte VRAM	shared memory	shared memory
<b>Graphics</b>	CRT/LCD, JILI30 (LVDS)-interface (optional), TTL (FLEX32)	CRT/LCD, JILI30 (LVDS)-interface	CRT/DVI, JILI30
<b>Supply Voltage</b>	5V single supply	ATX power supply	ATX / 5V single supply
<b>IEEE 1394 Firewire</b>	-	-	-
<b>Serial Channels</b>	1x DSUB RS232, 1x RS232 internal	1x DSUB RS232, 1x RS232 internal	1x DSUB RS232, 1x RS232 internal
<b>Drives</b>	1x 1.44/2.88	-	-
<b>Watchdog</b>	yes	yes	yes
<b>System Monitoring</b>	yes	yes	yes
<b>Expansion</b>	PCI-104 compliant (PCI)	PCI-104 compliant (PCI)	PCI-104 compliant (PCI), MiniPCIe
<b>Special Features</b>	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
<b>Power Management</b>	APM 1.2 / ACPI 2.0	APM 1.2 / ACPI 2.0	APM 1.2 / ACPI 2.0
<b>Cooling</b>	fanless	active	passive / active depending on application
<b>Dimensions H x W x D</b>	102 x 147 mm	102 x 147 mm	102 x 147 mm
<b>I/O Expansion Type</b>	PCI-104 compliant (PCI)	PCI-104 compliant (PCI)	PCI-104 compliant (PCI)
<b>Operating Temperature</b>	0°C to 60°C	0°C to 60°C	0°C to 60°C
<b>RoHS compliant</b>	yes	yes	yes

For full technical details including datasheet and manual visit [www.kontron.com](http://www.kontron.com)

## PC/104

The ultimate low power machine on PC/104-Plus™ – 500 MHz CPU at 0.9 W.

The MOPSlcdLX (Minimized Open PC System) with its 500 MHz AMD™ LX800 processor offers high reliability and performance with low power consumption - only passive cooling if at all - no moving parts. The PC/104-Plus™ (ISA & PCI signals) enables applications with wide choice ISA I/O or high PCI I/O performance requirements.

The MOPSlcdLX is a high integrated CPU board which includes standard interfaces, a PCI graphic, a 10/100 MBit Ethernet and 2x USB interfaces. A watchdog timer and a realtime clock are standard. The SO-DIMM socket enables this board to be equipped with up to 1 GByte of DDR-RAM.

The lower socket is used as JILI (LVDS) interface for connecting LCD flatpanels. The on chip Graphics+ Controller supports CRT and TFT. A Kontron chipDISK (IDE compatible flash disk) with capacity up to 1 GByte can be plugged directly onto the 2.5" harddisk interface. If you're transitioning from a previous MOPS solution, it's easy. All MOPS PC/104 SBCs provide the same pinout for keyboard, COM1 and COM2, 44pin IDE, 2x USB, LPT as well as LAN. Additional PC/104 products are available as part of Kontron's MICROSPACE product family.

### Advantages

- » Short development time
- » Reduction of manufacturing costs
- » Best price-performance ratio
- » Maximum system reliability
- » Space-saving



### PC/104 Plus CPUs



**MOPSlcdLX**

See MICROSPACE product family for additional PC/104 products.

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

Find more PC/104 boards in the Kontron Brochure » MICROSPACE® Single Board Computers and Box PCs «

### Kontron's COST EFFICIENT FLAT PANEL CABLES FOR SBCs

#### KAB-FLEX32

Low cost TTL flat panel cable type for JRExplus-LX

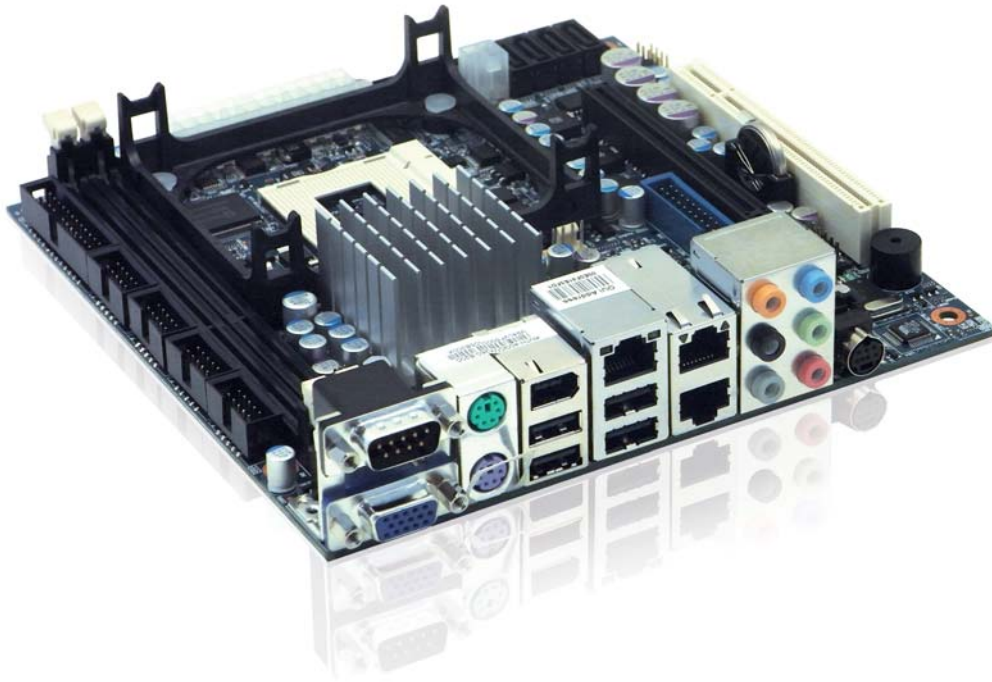


#### JILI30

Low cost LVDS flat panel cable type for all JRExplus and pITX boards (for TTL Displays please use KAB-ADAPT-LVDS to TTL P/N 61029 + KAB-FLEX32-xxx)



# » Longlife Motherboards «



## Embedded Motherboards

Full Mechanical Compatibility from Mini-ITX to Full Size ATX



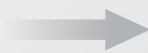
Mini-ITX



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 value-added services like product longevity, detailed documentation, display support and complete life cycle management. The embedded motherboards offer up to seven years product availability from the release date, based on embedded key components.

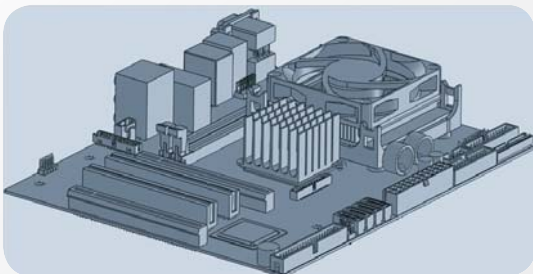
- » Up to seven years lifecycle and long term service and support
- » Extensive validation, verification and testing
- » Extended technical support and documentation
- » Flat panel display support expertise including LVDS, DVI, CRT, HDMI and ADD2/PCIe Cards
- » Quick time-to-market with standard form factors
- » Remote hardware and hard disk monitoring/control by original API software
- » Advanced technologies such as solid capacitors and up to 12 multilayer PCBs
- » Boards are tested and approved to UL 60950 – Information Technology Equipment (ITE) for easy validation efforts on behalf of customers and system integrators when system-level products must go through UL / CE safety testing

### The use of Solid CAPs offers the following advantages:

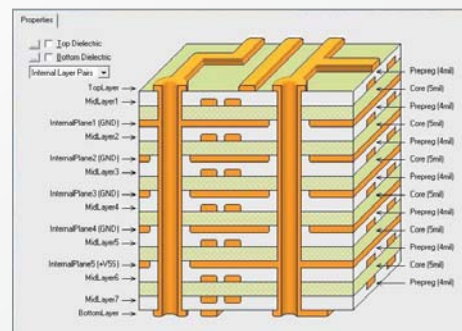
- » Long-life cycle – enhanced MTBF
- » Liquid free – no drying out
- » Improved resistance against higher ambient temperature
- » Optimized electric strength



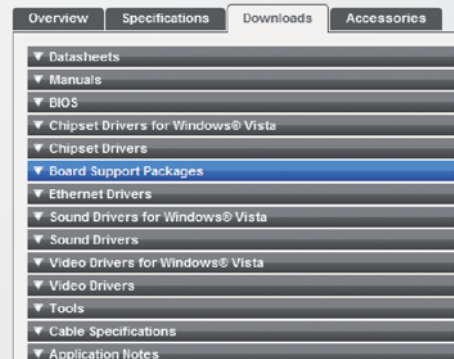
### The availability of 3D-Drawings at early introduction for all available boards allows an instant start of housing design



### Up to 12 Multilayer PCBs support more features on smaller form factors with the highest signal quality



### Extended Documentation and Drivers – ready for download via Website



## 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 many applications. The very compact and space-saving footprint (17 cm x 17 cm) meets the growing need for a small form factor board-level solution and allows the customer to design a 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 SBCs (i.e. 3.5" SBCs) and full-size Flex and ATX motherboards.

Whatever your needs are – low power consumption with passive (fanless) cooling or high CPU speed, excellent graphics performance, TCO reduction by Intel® AMT remote control or a wide range of extension slots and accessories – you will find it here. Additionally, all Kontron MiniITX boards offer longevity, low to high-end performance and high MTBF.

### Embedded Mini-ITX Motherboards



**986LCD-M/mITX (BGA)**



**986LCD-M/mITX**



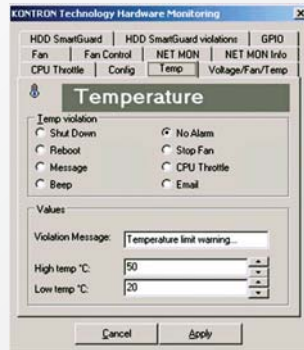
**KT690/mITX (BGA)**

**NEW: BGA-version with improved price performance ratio!**

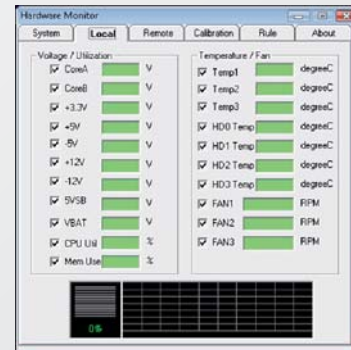
	<b>986LCD-M/mITX (BGA)</b>	<b>986LCD-M/mITX</b>	<b>KT690/mITX (BGA)</b>
<b>CPU</b>	Intel® ULV Celeron® M / LV Core Duo	Intel® Core™ 2 Duo, Intel® Core™ Duo and Intel® Core™ Solo (mPGA478, mBGA479 prepared)	Mobile AMD Sempron™ single core U210 / AMD Athlon™ X2 Neo dual core L325
<b>CPU Clock</b>	1.06 GHz / 1.66 GHz Other BGA CPU's available on request	Up to 2.16 GHz	1.5 GHz single core / 2x 1.5 GHz dual core
<b>Front Side Bus</b>	533 / 667 MHz	533 / 667 MHz	16 Lane Hyper Transport
<b>Chipset</b>	Intel® 945GM + ICH7R	Intel® 945GM + ICH7R	AMD M690T + SB600
<b>DRAM</b>	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
<b>Video Memory</b>	Up to 192 MByte shared video memory	Up to 192 MByte shared video memory	Up to 256 MByte shared video memory
<b>IDE Interface</b>	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
<b>USB</b>	8x USB 2.0	8x USB 2.0	10x USB 2.0
<b>Ethernet</b>	Up to 3x GbE LAN	Up to 3x GbE LAN	Up to 2x GbE Intel® LAN
<b>Form Factor</b>	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")
<b>Available I/Os</b>	1x PCI, 4x COM, 1x mini PCI-Express	1x PCI, 4x COM, 1x mini PCI-Express	1x PCI, 2x COM, 1x mini PCI-Express
<b>Graphics Controller</b>	Intel® GMA950, LVDS onboard	Intel® GMA950, LVDS onboard	Radeon X1250, LVDS onboard
<b>Graphic Interface</b>	CRT / LVDS / PCI-Express x16 / SDVO	CRT / LVDS / PCI-Express x16 / SDVO	DVI / CRT / LVDS / TV-Out (optional) / PCI-Express x8
<b>Rear I/O</b>	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
<b>Special Feature</b>	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
<b>Additional</b>	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

## Additional tools for an easy and effective handling, monitoring and integration

### Temperature monitoring example



API's and sample code for Hardware Monitoring, GPIO, Watchdog Timer, Fan Speed Control and SMBUS access



### KT690/mITX

Mobile AMD Sempron single core and AMD Turion dual core

Up to 2.0 GHz

16 Lane Hyper Transport

AMD M690T + SB600

Up to 8 GByte DDR2 533/667 - 200 Pin, 2x SODIMM

Up to 256 MByte shared video memory

4x SATA 150/300 w. RAID 0,1,10, 1x ATA133

10x USB 2.0

Up to 2x GbE Intel® LAN

Mini-ITX 170 x 170 mm (6.7" x 6.7")

1x PCI, 2x COM, 1x mini PCI-Express

Radeon X1250, LVDS onboard

DVI / CRT / LVDS / TV-Out (optional) / PCI-Express x8

COM1, CRT, DVI, TV-Out (optional), Ethernet, USB, line-in, line-out, speaker, PS/2 mouse/keyboard

GPIO, HDD RAID 0/1/5/10 support, TPM Onboard

Up to 7 years availability, S-Video TV-out (optional), HD Audio, SPDIF



### KTUS15/mITX

Intel® Atom™ Z510 CPU BGA

1.1 GHz Basic / 1.1 GHz Std  
1.6 GHz Std / 1.6 GHz Plus

400 MHz

Intel® US15 Embedded

Up to 2 GByte, SO-DIMM 200-Pin, 1x SODIMM

Up to 256 MByte shared video memory

1x ATA100 / 2x SATA 150/300

8x USB 2.0

1x GbE Intel® LAN

Mini-ITX 170 x 170 mm (6.7" x 6.7")

2x COM / 1x PCI, 4x COM

Intel® GMA 500, LVDS on board

DVI / CRT / LVDS / 2x PCI-Express x1

DVI or CRT, Ethernet, USB, line-in, line-out, speaker, PS/2 keyboard

GPIO, 2x SDIO, Wide range DC/DC PSU, 5-25 VDC direct input

Up to 7 years availability

Supports Intel AMT 4.0



### KTGM45/mITX

Intel® Core™2 Quad and Intel® Core™2 Duo

Up to 3.06 GHz

667 / 800 / 1066 MHz

Intel® GM45 + ICH9M-E

Up to 8 GByte DDR3, 2 pcs. DIMM 240 pin

Up to 256 MByte shared video memory

4x SATA 150/300 w. RAID 0,1, 1x ATA133

12x USB 2.0

Up to 3x GbE LAN

Mini-ITX 170 x 170 mm (6.7" x 6.7")

1x PCI, 4x COM, 1x mini PCI-Express

Intel® GMA4500 MHD, LVDS onboard

CRT / LVDS / PCI-Express x16 / SDVO

COM1, CRT, IEEE1394, Ethernet, USB, line-in, line-out, speaker, PS/2 mouse/keyboard

GPIO, IEEE1394, HDD RAID 0/1 support, AMT 4.0, TPM 1.2

Up to 7 years availability, ADD2-Cards for SDVO Interface for 2nd LCD, S-Video TV-out (optional), HD Audio, SPDIF

## Embedded Motherboards

### Embedded Motherboards



986LCD-M/FLEX



986LCD-M/ATXE



986LCD-M/ATXP



KTGM45/FLEX

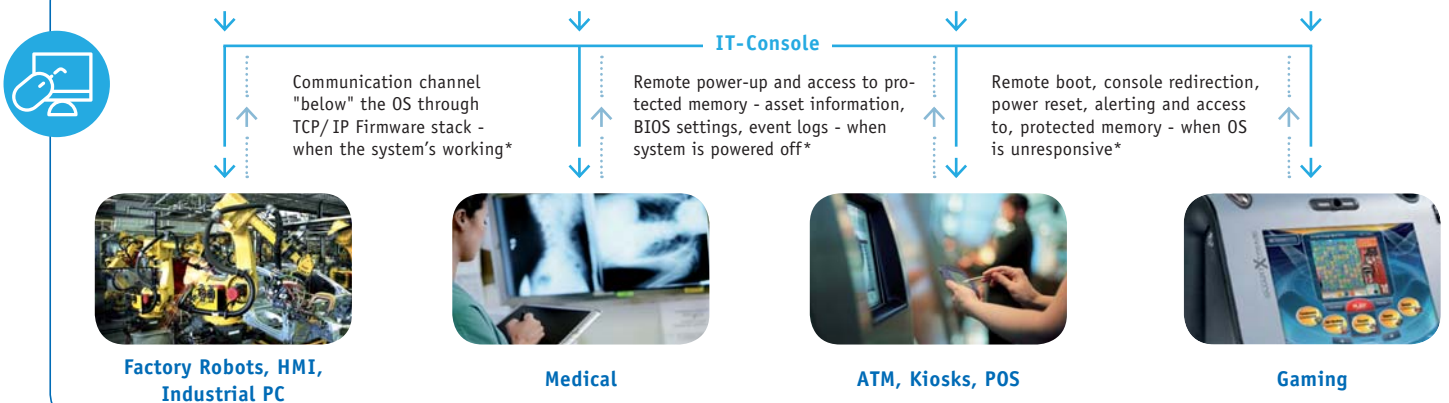


KTGM45/ATXE

	986LCD-M/FLEX	986LCD-M/ATXE	986LCD-M/ATXP	KTGM45/FLEX	KTGM45/ATXE
<b>CPU</b>	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
<b>CPU Clock</b>	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
<b>Front Side Bus</b>	533 / 667 MHz	533 / 667 MHz	533 / 667 MHz	667 / 800 / 1066 MHz	667 / 800 / 1066 MHz
<b>Chipset</b>	Intel® 945GM + ICH7R	Intel® 945GM + ICH7R	Intel® 945GM + ICH7R	Intel® GM45 + ICH9M-E	Intel® GM45 + ICH9M-E
<b>DRAM</b>	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 GByte DDR3, 2 pcs. DIMM 240 pin	Up to 8 GByte DDR3, 2 pcs. DIMM 240 pin
<b>Video Memory</b>	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
<b>IDE Interface</b>	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
<b>USB</b>	8x USB 2.0	8x USB 2.0	8x USB 2.0	12x USB 2.0	12x USB 2.0
<b>Ethernet</b>	2x GbE LAN	2x GbE LAN	3x GbE LAN	Up to 3x GbE LAN	Up to 3x GbE LAN
<b>Form Factor</b>	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")
<b>Available I/Os</b>	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
<b>Graphic Interface</b>	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
<b>Rear I/O</b>	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
<b>Special Feature</b>	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
<b>Additional</b>	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

## Hardware-based remote Diagnosis and Repair with Intel® vPro™ Technology with Intel® Active Management Technology:

IT OR SERVICE PROVIDER CAN POWER ON, REMOTELY ACCESS AND FIX INOPERABLE EMBEDDED SYSTEMS



\* Different examples for remote management and security capabilities depending on system status



KT965/FLEX



KT965/ATXE



KT965/ATXP



KTQ45/FLEX



KTQ45/ATXE

Supports  
Intel AMT 5.0Supports  
Intel AMT 5.0

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

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

533 / 800 / 1066 MHz

533 / 800 / 1066 MHz

533 / 800 / 1066 MHz

800/1066/1333 MHz

800/1066/1333 MHz

Intel® Q965 + Intel® ICH8DO

Intel® Q965 + Intel® ICH8DO

Intel® Q965 + Intel® ICH8DO

Intel® Q45 Express

Intel® Q45 Express

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 GByte DDR3, 4x DIMM-240

Up to 8 GByte DDR3, 4x DIMM-240

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

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

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)

2x GbE LAN

2x GbE LAN

2x GbE LAN

2x GbE LAN

2x GbE LAN

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")

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

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

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

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

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

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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

Intel® AMT is part of the Intel® Management Engine, which is built into PCs with Intel® vPro™ technology. Intel® AMT is running in a ME integrated into the PCH (Platform Controller Hub) and is independent of the host CPU. This deep level hardware-based AMT Remote Troubleshooting and Recovery for distributed applications offers:

- » Remote monitoring, maintenance and installation via existing network connections
- » Hardware-based management does not depend on the presence of the OS or the power state of the system.
- » Remote power up / power down
- » Support of full KVM remote control

- » Remote boot and BIOS Update
- » Remote status information
- » Remote BIOS parameter changes and firmware updates
- » Proactive Alerting
- » For enhanced security HW-based encryption is included

#### This means:

- » Significant reduction of on-site-findings and field work
- » Decrease of downtime and minimized time-to-repair
- » Increased efficiency of IT technical staff
- » **Reduced TCO (Total Cost of Ownership)**

Currently available for KTM45 and KTQ45-Motherboard families.

## Special Embedded ATX and ATXU Motherboards

After the successful launch of the KT780/ATX motherboard, Kontron extends its family of motherboards to include a high-performance variant based on the 45nm Intel® Core™2 Quad processor, the Kontron KTG41/ATXU motherboard. Compared to standard Micro-ATX motherboards, the new Kontron Micro-ATX embedded 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.

These embedded 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 embedded motherboards are extremely cost-effective, making them a good match for high-volume applications with fast innovation cycles such as Gaming/ Entertainment, Digital Signage, POS/POI, Hospitality (check-in terminals, ticketing machines, hotel multimedia terminals) and even industrial shop floor applications managing quality control.

### Embedded Motherboards



**KT780/ATX**



**KTG41/ATXU**

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

## Embedded Server Class Motherboards

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, 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**

<b>CPU</b>	Dual socket Intel® Xeon® 5500 series; New for Q2;10 – Dual socket support for the Next Generation Intel® Xeon® processor
<b>Chipset</b>	Intel® 5520 I/O Hub (36D) and I/O Controller Hub (ICH10R)
<b>DRAM</b>	96 GByte DDR3 Registered ECC SDRAM; 12 (twelve) DIMM sockets
<b>IDE Interface</b>	Interface 6 SATA ports (3Gb/s)
<b>USB</b>	4x USB 2.0
<b>Form Factor</b>	Server System Infrastructure (SSI) EBB Form factor
<b>Available I/Os</b>	Two 10/100/1000 Mbps Ethernet (Intel® 82576EB); 1x 10/100/1000 Mbps Mangement; Integrated VGA XGI Volari Z9
<b>Rear I/O</b>	VGA; PS/2 Mouse and PS/2 Keyboard; Serial (DB-9); Audio In, Out Speaker Out; 2 X Gbe RJ-45
<b>Available Extensions</b>	4 PCIe2 x8, 1 PCIe x4, 1 PCI 32/33 5V
<b>Special Features</b>	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



