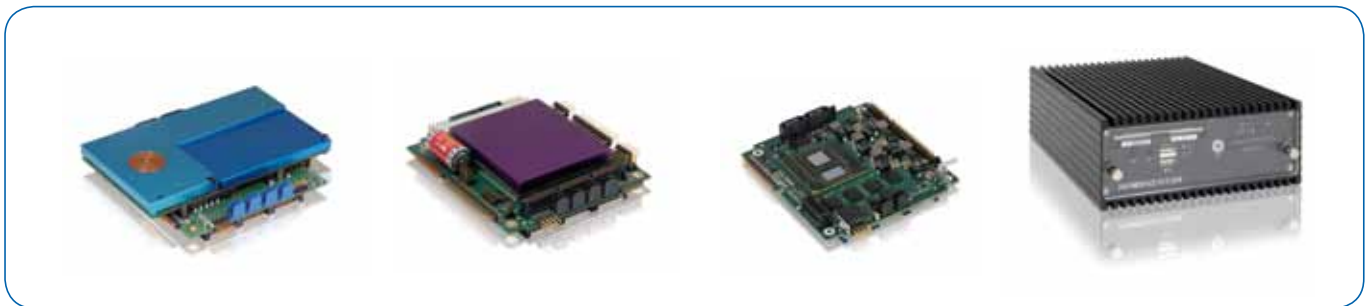


» MICROSPACE® Single Board Computers and Box PCs «

- » PC/104™, PC/104-Plus™,
PCI/104-Express™, PCIe/104™
- » Ruggedized Box PCs



» Content «

**Fast and Easy Modular
PC/104 SBC-based Designs!**3

**PC/104™, PC/104-Plus™,
PCI/104-Express™, PCIE/104™**4

PCIE/104 CPU5
MICROSPACE® MSMST5

PC/104 Power Supply5
MICROSPACE® MSMPS104A5
MICROSPACE® MSMPS104B5

PCI/104-Express CPUs6
MICROSPACE® MSM9456
MICROSPACE® MSM945P6
MICROSPACE® MSM200X6
MICROSPACE® MSM200XP7
MICROSPACE® MSM200XU7

PCI/104-Express Peripherals6
MICROSPACE® MSMGE104EX6
MICROSPACE® MSM4E104EX6
MICROSPACE® MSMEC104EX6
MICROSPACE® MSMMI104EX6
MICROSPACE® MSMSA104EX6
MICROSPACE® MSMFW104EX7
MICROSPACE® MSMG104EX7
MICROSPACE® MSMG104EX-A7
MICROSPACE® MSMGS104EX7
MICROSPACE® MSM8C104EX7

PC/104-Plus CPUs8
MOPSLcdLX8
MICROSPACE® MSM800SEL8
MICROSPACE® MSM800SEV8
MICROSPACE® MSM800BEV9
MICROSPACE® MSM800XEL9
MICROSPACE® MSM800XEV9
MICROSPACE® MSM200S9

PC/104-Plus Peripherals8
MICROSPACE® MSMCA104+8
MICROSPACE® MSMCA104+ISOL8
MICROSPACE® MSMG104+8
MICROSPACE® MSMW104+9
MICROSPACE® MSMX104+9
MICROSPACE® MSME104+9
MICROSPACE® MSMGE104+9

**The MICROSPACE® computer
systems market segment.**10

**The EN50155 certified railway
computer!**12

MICROSPACE® Railway13
MPCX28R13
MPCR50R13

MICROSPACE® Vehicle13
MPCX2813

MICROSPACE® Industrial14
MPC2014
MPC20L14
MPC2114
MPC21A14
MPC21B14
MPC21C15
MPC2515
MPC2615
MPCV80015
MPCF5015
MPCF50A15

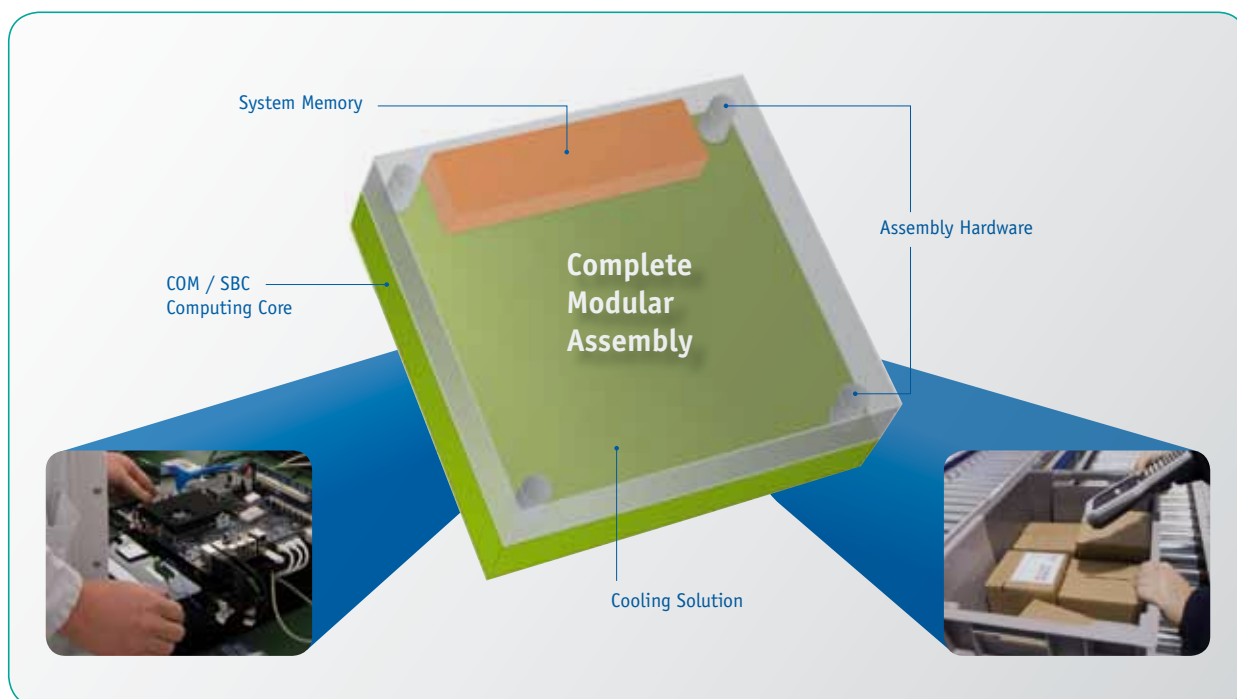
» Fast and Easy Modular PC/104 SBC-based Designs! «

Whether in the design phase or moving into production, Kontron has the tool you need and in the format you need it. Select the SBC with the computing core that matches your application, the memory and cooling solution. You don't have to worry about the memory being seated properly or whether the cooling solution is assembled to the right compression level. Kontron can take care of that for you. The Kontron product will be fully assembled and shipped to you ready to install in your lab bench fixture for quick evaluation right out of the box.

Are you going to use your solution in a harsh environment and have concerns regarding functionality at extreme temperatures? Do you want to take precautions to minimize the negative effects of moisture within your solution? Temperature screening of the entire assembly and appropriate conformal coating can be added to your complete SBC-based application solution.

Do the application-specific features of your solution require a unique splash screen or for the system to boot in a specific way when under designated conditions? Kontron can not only help you with the hardware semi-customization, but also where unique software elements are needed. BIOS, drivers, etc. – Kontron experts are available to advise and/or develop the exact pieces that you need for a perfect application match.

Now, you are ready to move your solution from the design phase and into full production. Kontron can help you simplify production by calling out the Kontron product as a single component in the bill of materials for your finished design. Kontron knows that every second counts. As your partner, we strive to make bringing your finished product to market faster and easier.



» PC/104™, PC/104-Plus™, PCI/104-Express™, PCIe/104™ «



PCIe/104™ SBC with Intel® Atom™ processor E6x5C series

The PCIe/104™ embedded single board computer (SBC) is based on the Intel® Atom™ E600C processor series with industrial temperature range, which pairs an Intel® Atom™ E600 series processor with an Altera Field Programmable Gate Array (FPGA) in a single package. With the Intel® Atom™ E600C processor series, along with IP definable applications, the MICROSPACE® MSMST adds significant flexibility to SBC based applications. OEMs will benefit from a simplified application design, reduced development efforts, faster time to market and lower total cost of ownership.

With flexible FPGA I/O options, it allows OEMs to efficiently develop designs with the exact I/O requirements needed to address applications in markets such as automation, medical, transportation, energy, military and communications. Validated IP cores are available for CAN-bus, serial interfaces (SPI Master / UART) and PCI-Express, I2C and GPIO. This makes configuring the platform a quick and easy task. OEMs only need the required IP core and corresponding High-Speed Mezzanine Cards (HSMC) to carry out the interfaces. For further I/Os, we also offers FPGA programming services. This flexibility, combined with the x86/FPGA technology ecosystem of IP cores and HSMCs, makes it an ideal SBC for dedicated RISC platforms.

PCIe/104 CPU



MICROSPACE® MSMST

Processor/Performance	Intel® Atom™ processor E6x5C series
I/O-Controller	Altera® Arria II GX User programmable FPGA on Intel® Atom™ processor E6x5C package
PCI Express-Bus	yes, on the bottom
HSMC-Bus	yes, on the bottom
DRAM Min-Max	soldered 512 - 2048 MB
Graphics	int. graphic controller
Storage Interface	2x SATA300
USB	2x USB2.0
Standard Temperature	0°C to +70°C
Extended Temperature	-40°C to +85°C available
Dimension	90mm x 102mm
Special Features	Arria FPGA for custom interfaces (GPIO, UART, SPI, I2C, PCI, CAN, LPT, SD, ...) on HSMC.

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
- » Best price-performance ratio
- » Full PC compatibility
- » Maximum system reliability
- » Extremely robust
- » Vibration resistant
- » Various processor performances
- » Space-saving

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

PCI/104-Express CPUs



MICROSPACE® MSM945



MICROSPACE® MSM945P



MICROSPACE® MSM200X

Processor/Performance	Intel® Core™ Duo L2400 / Intel® Core™2 Duo L7400 (2x 1.6 GHz / 2x 1.5 Ghz)	Intel® Core™ Duo L2400 / Intel® Core™2 Duo L7400 (2x 1.6 GHz / 2x 1.5 GHz)	Intel® Atom™ Z510/Z530 (1.1/1.6 GHz)
Chipset	945GME	945GME	US15W
Bus	PCI-BUS: Option	PCI-BUS: Option, PCI Express-BUS: on the bottom	PCI-BUS: Option, PCI Express-BUS: not assembled
Memory	256-3072 MByte DRAM	512-3072 MByte DRAM	soldered 0.5-2 GByte
Video Controller	i945GME	i945GME	int. graphic Controller
Video Memory	8-224 MByte	8-224 MByte	128 MByte (UMA)
LCD Interface	SDVO	SDVO	24 bit LVDS
CRT Interface	yes	yes	yes, up to 1920 x 1200 with reduced blanking
IDE Interface P-ATA	1x	1x	1x
IDE Interface S-ATA	2x SATA 300	2x SATA 300	2x SATA 300
COM1 / COM2	RS232C / RS232C	RS232C / RS232C	RS232C / RS232C
COM3 / COM4	-	-	RS232C, RS422/485 / RS232C, RS422/485
USB	4x 2.0	4x 2.0, 2x PCI104ex	4x 2.0
Ethernet	10/100 BASE-T	10/100 BASE-T	1 Gbit LAN
Sound	HDA, 2x Stereo, SPDIF	HDA, 2x Stereo, SPDIF	HDA, 2x Stereo, SPDIF
RTC Battery onboard	80mAh (or ext. 900mAh)	80mAh (or ext. 900mAh)	900mAh (typ. 10 years)
Dimensions (W x L in mm)	90/117 x 96/99	90/117 x 96/99	90 x 102 mm
Standard Temperature	-25°C to +60°C/+70°C	-25°C to +60°C/+70°C	-25°C to +70°C
Extended Temperature	-40°C to +70°C	-40°C to +70°C	-40°C to +85°C

PCI/104-Express Peripherals



MICROSPACE® MSMGE104EX



MICROSPACE® MSM4E104EX



MICROSPACE® MSMEC104EX



MICROSPACE® MSMMI104EX



MICROSPACE® MSMSA104EX

Function	1 Gbit LAN	4x 1 Gbit LAN	ExpressCard-Adapter	PCIe MiniCard adapter	pass-through 2x SATA300 1x LAN
PCI-BUS	pass-through	pass-through	pass-through	pass-through	PCI/104-Express
PCI Express-BUS	1x Lane	1x lane	1x lane	1x lane	SIL 3132
BUS Compatibility	PCI/104-Express	PCI/104-Express	PCI/104-Express	PCI/104-Express	2x SATA
Controller	82573L (Intel®)	4x 82574L (Intel®)	-	-	2x USB
1st Interface	1 Gbit LAN (RJ45)	4x 1 Gbit LAN (RJ45)	ExpressCard	PCIe MiniCard	-
2nd Interface	2x USB	-	-	SIM card	5V, 3.3V/2W
3rd Interface	-	-	-	-	-
Power normal (typ.)	5V, 3.3V/4W	5V, 3.3V/4W	5V/3W	5V/8W	90 x 96
Power Management	-	-	yes	yes	65 g
Dimensions (W x L in mm)	90 x 96	90 x 96	90 x 96	90 x 96	XP, VISTA, Linux
Weight	60 g	80 g	65 g	55 g	200'000 h
Software Support	WINXP, Linux, VxWorks, QNX	WINXP, Linux	XP, VISTA	XP, VISTA	Bandwidth: 2x 300MByte/s, RAID 0/1
MTBF	100'000 h	100'000 h	100'000 h	100'000 h	-
Special Features	-	PCI-switch:PLX 8505	Hot plug support: depending on BIOS/OS	-	-
Accessories	-	-	-	WLAN-MC, GSM-MC	-25°C to +70°C
Standard Temperature	-25°C to +70°C	-25°C to +70°C	-25°C to +70°C	-25°C to +70°C	-
Extended Temperature	-	-40°C to +70°C	-	-	-



MICROSPACE® MSM200XP

Intel® Atom™ Z510/Z530 (1.1/1.6 GHz)

US15W
PCI-BUS: Option, PCI Express-BUS: on the bottom
soldered 0.5-2 GByte
int. graphic Controller
128 MByte (UMA)
24 bit LVDS
yes, up to 1920 x 1200 with reduced blanking
1x
2x SATA 300
RS232C / RS232C
RS232C, RS422/485 / RS232C, RS422/485
4x 2.0
1 Gbit LAN
HDA, 2x Stereo, SPDIF
900mAh (typ. 10 years)
90 x 102 mm
-25°C to +70°C
-40°C to +85°C



MICROSPACE® MSM200XU

Intel® Atom™ Z510/Z530 (1.1/1.6 GHz)

US15W
PCI-BUS: Option, PCI Express-BUS: on the top
soldered 0.5-2 GByte
int. graphic Controller
128 MByte (UMA)
24 bit LVDS
yes, up to 1920 x 1200 with reduced blanking
1x
2x SATA 300
RS232C / RS232C
RS232C, RS422/485 / RS232C, RS422/485
4x 2.0
1 Gbit LAN
HDA, 2x Stereo, SPDIF
900mAh (typ. 10 years)
90 x 102 mm
-25°C to +70°C
-40°C to +85°C

PCI/104-Express CPUs

Processor/Performance

Chipset
Bus
Memory
Video Controller
Video Memory
LCD Interface
CRT Interface
IDE Interface P-ATA
IDE Interface S-ATA
COM1 / COM2
COM3 / COM4
USB
Ethernet
Sound
RTC Battery onboard
Dimensions (W x L in mm)
Standard Temperature
Extended Temperature



MICROSPACE® MSMFW104EX



MICROSPACE® MSMG104EX



MICROSPACE® MSMG104EX-A



MICROSPACE® MSMGS104EX



MICROSPACE® MSM8C104EX

PCI/104-Express Peripherals

FireWire, IEEE1394B	4x Frame grabber	4x Frame grabber	GSM-UMTS	8 channel serial port	Function
pass-through	pass-through	pass-through	pass-through	pass-through	PCI-BUS
1x lane	1x lane	1x lane	1x lane	1x lane	PCI Express-BUS
PCI/104-Express	PCI/104-Express	PCI/104-Express	PCI/104-Express	PCI/104-Express	BUS Compatibility
TI	4x BT878A, PAL, NTSC	4x BT878A, PAL, NTSC	HC-25	8 ch. UART	Controller
1x IEEE1394A	16x Video, MCX (90°)	16x Video, MCX (180°)	GSM module	8 ch. RS232C (+/-9V) or	1st Interface
2x IEEE1394B	4x SVideo, MCX	4x SVideo, MCX	SIM card	8 ch. RS422 (1/8 load) or	2nd Interface
-	-	-	Headset	8 ch. RS485 (1/8 load) or	3rd Interface
5V, 3.3V/1W	5V, 3.3V/6W	5V, 3.3V/6W	5V, 3.3V/5W	5V/3W	Power normal (typ.)
12V	-	-	yes	-	Power Management
90 x 96	90 x 96	90 x 96	90 x 96	90 x 96	Dimensions (W x L in mm)
75 g	95 g	95 g	65 g	70 g	Weight
WINXP, Linux	WIN, Linux	WIN, Linux	WINXP, Linux	XP, VISTA	Software Support
200'000 h	100'000 h	100'000 h	100'000 h	200'000 h	MTBF
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: Quad-band, UMTS: 850/1900/2100MHz	RS422/85:TX, RX, CTS, RTS, +/-, 8x onboard termination	Special Features
-	MSMG104EX-Cable (MCX-BNC)	MSMG104EX-Cable (MCX-BNC)	GSM/UMTS	-	Accessories
-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	Standard Temperature
-40°C to +70°C	tbd	tbd	-40°C to +70°C	-40°C to +85°C	Extended Temperature

PC/104-Plus CPUs



MOPSIcdLX



**MICROSPACE®
MSM800SEL**



**MICROSPACE®
MSM800SEV**

Processor/Performance	AMD Geode™ LX800 / 0.5GHz	AMD Geode™ LX800 / 0.5 GHz	AMD Geode™ LX800 / 0.5 GHz
Chipset	CS5536 AD	CS5536 AD	CS5536 AD
Bus	PC/104-Plus: Option	PCI-BUS: Option (3slot)	PCI-BUS: Option (3slot)
Memory	128-1024 MByte	128-1024 MByte	128-1024 MByte
Video Controller	int. graphic Controller	int. graphic Controller	int. graphic Controller
Video Memory	16MB (UMA)	16 MByte (UMA)	16 MByte (UMA)
LCD Interface	24bit, 320x240 to 1600x1200	24 bit, 320x240 to 1600x1200	24 bit, 320x240 to 1600x1200
CRT Interface	yes	yes	yes
IDE Interface P-ATA	1x EIDE (UDMA-33)	1x	1x
IDE Interface S-ATA	-	-	-
COM1 / COM2	RS232C / RS232C	RS232C / RS232C	RS232C / RS232C
USB	2x 2.0	4x 2.0	4x 2.0
Ethernet	10/100 BASE-T	10/100 BASE-T	10/100 BASE-T
Sound	-	-	AC97
RTC Battery onboard	-	-	400mAh
Dimensions (W x L in mm)	90 x 96	90 x 99	90 x 99
Special Features	Lan Boot, Watchdog, JIDA-Support, JRC-Support, Dark Boot, 32 MB - 1GB, chipDISK	-	-
Standard Temperature	0°C to +60°C	0°C to +60°C	0°C to +60°C
Extended Temperature	-	-25°C to +70°C	-25°C to +70°C

PC/104-Plus Peripherals



**MICROSPACE®
MSMCA104+**



**MICROSPACE®
MSMCA104+ISOL**



**MICROSPACE®
MSMG104+**

Function	CAN	CAN	Video frame grabber
PCI-BUS	yes	yes	yes
PCI Express-BUS	-	-	-
BUS Compatibility	PC/104-Plus	PC/104-Plus	PC/104-Plus
Controller	Peak-CAN	Peak-CAN	BT878A
Memory	-	-	-
1st Interface	CAN DSUB9, CiA DS102-1	CAN DSUB9, CiA DS102-1	1st channel CVBS
2nd Interface	CAN DSUB9, CiA DS102-1	CAN DSUB9, CiA DS102-1	2nd channel CVBS
3rd Interface	-	-	3rd channel CVBS /SVideo
Power normal (typ.)	3.3V/5V/2W	3.3V, 5V/4W	5V/2W
Dimensions (W x L in mm)	90 x 96	90 x 96	90 x 96
Weight	80 g	30 g	35 g
Software Support	Win, Linux	Win, Linux	WIN, CE, Linux
MTBF	200'000 h	200'000 h	200'000 h
Special Features	Reset using software commands	500V isolated, Reset using software commands	Digital I/O, PAL, NTSC
Standard Temperature	-25°C to +70°C	-25°C to +70°C	-25°C to +70°C
Extended Temperature	tbd	tbd	-40°C to +85°C



**MICROSPACE®
MSM800BEV**

AMD Geode™ LX800 / 0.5 GHz
CS5536 AD
PCI-BUS: Option (3slot)
128-1024 MByte
int. graphic Controller
16 MByte (UMA)
24 bit, 320x240 to 1600x1200
yes
1x
-
RS232C / RS232C
4x 2.0
10/100 BASE-T
AC97
400mAh
90 x 99
-
0°C to +60°C
25°C to +70°C, -40°C to +85°C (with large cooler and E48 or with thermo junction and E48)



**MICROSPACE®
MSM800XEL**

AMD Geode™ LX800 / 0.5 GHz
CS5536 AD
PCI-BUS: Option (2slot)
soldered 256 MByte
int. graphic Controller
16 (UMA)
24 bit, 320x240 to 1600x1200
yes
1x
-
RS232C / RS232C
4x 2.0
10/100 BASE-T
-
-
90 x 99
soldered RAM
0°C to +60°C
25°C to +70°C, -40°C to +85°C (with large cooler and E48 or with thermo junction and E48)



**MICROSPACE®
MSM800XEV**

AMD Geode™ LX800 / 0.5 GHz
CS5536 AD
PCI-BUS: Option (2slot)
soldered 256 MByte
int. graphic Controller
16 (UMA)
24 bit, 320x240 to 1600x1200
yes
1x
-
RS232C / RS232C
4x 2.0
10/100 BASE-T
AC97
400mAh (typ. 5 years)
90 x 99
soldered RAM
0°C to +60°C
25°C to +70°C, -40°C to +85°C (with large cooler and E48 or with thermo junction and E48)



**MICROSPACE®
MSM200S**

Intel® Atom™ Z510/Z530 (1.1/1.6 GHz)
US15W
PCI-BUS: Option, ISA: yes (8 bit / no DMA / no Interrupt)
soldered 0.5-2 GByte
int. graphic Controller
128 (UMA)
24 bit LVDS
yes, up to 1920x1200 with reduced blanking
1x
2x SATA300
RS232C, RS422/485 / RS232C, RS422/485
6x 2.0
1 GBit LAN
HDA (ALC882-7.1), 2x Stereo, SPDIF
900mAh (typ. 10 years)
90 x 102 mm
-
-25°C to +70°C
25°C to +70°C, -40°C to +85°C

**PC/104-Plus
CPUs**

Processor/Performance
Chipset
Bus
Memory
Video Controller
Video Memory
LCD Interface
CRT Interface
IDE Interface P-ATA
IDE Interface S-ATA
COM1 / COM2
USB
Ethernet
Sound
RTC Battery onboard
Dimensions (W x L in mm)
Special Features
Standard Temperature
Extended Temperature



**MICROSPACE®
MSMW104+**

FireWire
yes
-
PC/104-Plus
TSB43AB22
-
IEEE 1394 A
IEEE 1394 A
-
3.3V/3W
90 x 96
70 g
WIN, Linux
>200'000 h
-
-25°C to +70°C
-40°C to +70°C



**MICROSPACE®
MSMX104+**

8x serial
yes
-
PC/104-Plus
EXAR 17C158
-
8ch RS232C
8ch RS422
8ch RS485
3.3V/3W
90 x 96
70 g
WIN, Linux
>200'000 h
8x 10pin header
-25°C to +70°C
-40°C to +85°C



**MICROSPACE®
MSME104+**

Ethernet LAN
yes
-
PC/104-Plus
i82551
32 kByte
RJ45
-
3.3V/1W
90 x 96
70 g
WIN, CE, Linux
200'000 h
10/100 BASE-T
-25°C to + 70°C
-40°C to + 85°C



**MICROSPACE®
MSMGE104+**

1Gigabit-LAN
yes
-
PC/104-Plus
i82541
32 kByte
RJ45
-
3.3V/2W
90 x 96
70 g
WIN, Linux
100'000 h
-
-25°C to + 70°C
-40°C to + 85°C

**PC/104-Plus
Peripherals**

Function
PCI-BUS
PCI Express-BUS
BUS Compatibility
Controller
Memory
1st Interface
2nd Interface
3rd Interface
Power normal (typ.)
Dimensions (W x L in mm)
Weight
Software Support
MTBF
Special Features
Standard Temperature
Extended Temperature



» The MICROSPACE® computer systems market segment «

Kontron manufactures specially designed computer systems for its target markets that optimally and individually satisfy the application profiles of these specific markets. As such, reliable operation with high availability (high MTBF) is a must-have.

Industrial market

The MICROSPACE® computer systems for the industrial market cover applications for measurement engineering, for industrial automation and control, and include data capture for stationary information terminals (POI). Power supply is through the 12V or 24V PLC or with a power adaptor (110/220VAC). Mounting possibilities include desktop, DIN top-hat rails, 19-inch or wall mounts.



MPC20



MPC21B



MPCV800



MPCF50



» Rail market

The MICROSPACE® computer systems for rail applications fulfill the EN50155 rail standard and function on inputs of 24VDC to 110VDC. Additionally, certified and insulated power supply packs are used (voltage code I24-I110). Paired with an appropriate SSD mass storage device, these computers function in extreme environments where temperatures range from -40 to +85 degrees Celsius. All fittings are coded and lockable. The temperatures and voltages are monitored and logged. Redundant supplies, interfaces and battery buffering are options. These computers include optional GPS, GSM/UMTS and WLAN.



MPCX28R



MPCR50R

» Vehicular market

MICROSPACE® computer systems for mobile use in vehicles (battery input of 12V, 24V, 28V, 42V) have E1 certification and function in a broad temperature range. The input power packs coded V1248 are especially protected in vehicular environments (overcurrent, overvoltage, current reduction at motor start, reverse polarity protection). Special automotive hard disks, CompactFlash or solid-state drives are used as mass storage devices. These computers include optional GPS, GSM-UMTS and WLAN.



MPCX28



» The EN50155 certified railway computer! «



Ruggedized and fanless for gateway, passenger entertainment and passenger safety

Designed for the extended temperature range from -25 to 70 °C and in a rugged profiled-aluminum case, the passively-cooled Railway Box-PC is based on the 1.6 GHz Intel® Atom™ processor Z530 with 533 MHz FSB and supports up to 1GB of DDR2 RAM. The integrated graphics chipset offers 256MB of video memory as well as support for DirectX 9 3D and HDTV. Plus, the integrated MPEG2 and H.264 decoders reduce processor load while displaying HD video.

Both the bay for one 2.5-inch SATA 300 hard drive or SSD as well as the slot for Compact Flash media are easily

accessible from the front. This makes this compact and ready to install Box PC system particularly well-suited for passenger infotainment or security applications because saved media can easily be exchanged simply by swapping out the storage device. Furthermore, for customer-specific extensions, the robust Railway Box PC features a PCI/104 expansion slot for ultra-thin and space-saving PCI/104 expansion cards. Application-specific enhancements such as dual-CAN, GPS, GSM/UMTS or WLAN can easily be integrated via two PCI Express® Mini Card slots. An eSATA port also allows for the use of an external data storage medium to further extend storage capacity.

**MICROSPACE®
Railway**

MPCX28R

MPCR50R
Processor/Performance
HDD
CompactFlash
Memory
Graphics/Resolution
Video Interface 1
Video Interface 2
COM1 / COM2
COM3 / COM4
USB
LAN Port A
LAN Port B
Sound
Digital Input/Output
DC voltage input (not isol.), V1248
DC voltage input (1.5kV isol.), 1xx
Expansion
Protection class
Dimensions (W x L x H in mm)
Weight
Special Features
Standard Temperature
Extended Temperature

Intel® Atom™ Z530 (1.6 GHz)

Option: 2.5" 80 GByte or 32 GByte SSD

Option

1 GByte DDR2

1600 x 1200 (UXGA)

DVI-D, opt. VGA

-

RS232C, RS422/485 (DSUB9) / RS232, RS422/485 (DSUB9)

-

2x 2.0 front, 2x 2.0 back, 1x 2.0 (M12) back

10/100 BASE-T (M12), with LAN boot, WakeOnLan

10/100 BASE-T (M12), WakeOnLan

2x Stereo (Mic.line)

4x DC-isolated in-/output

10-54VDC/typ.15W

24/36/48/72/110VDC/typ.15W

2x PCIe Mini Card, 1x PCI/104

IP52, EN50155

159 x 190 x 66

1,6 kg

WakeOnLan, RingWake, WakeOnRing, PowerSaveMode

-25°C to +55°C (T1) (with HD)

-25°C to +70°C (T3) (with SSD)

 Intel® Core™ Duo L2400 / Intel® Core™2 Duo L7400
(2x 1.6 GHz / 2x 1.5 Ghz)

80 GByte 2.5" or 32 GByte SSD

yes

up to 3GByte

2048x1536 (QXGA)

VGA

DVI

RS232 (DSUB9) / RS323 (DSUB9)

RS232, CAN (DSUB9) / RS232, CAN (DSUB9)

2x 2.0 front, 1x 2.0 (M12) front

10/100 BASE-T (M12) with LAN boot

1 Gbit-LAN (RJ45) with LAN boot

2x Stereo 10W, 1x Stereo In

4x opto output, 4x opto input

8-58VDC/typ.40W

24/36/48/72/110VDC/typ.40W

2x PCIexpress MiniCard, 1x PCI/104express slot, 1x PCI ExpressCard slot

IP40, EN50155

480 x 132 x 250

6 kg

-

-25°C to +55°C (T1) (with HD)

-40°C to +85°C (TX) (with SSD)

**MICROSPACE®
Vehicle**

MPCX28
Processor/Performance
HDD
CompactFlash
Memory
Graphics/Resolution
Video Interface 1
Video Interface 2
COM1 / COM2
USB
LAN Port A
LAN Port B
Sound
Digital Input/Output
DC voltage input (not isol.), V1248
Expansion
Protection class
Dimensions (W x L x H in mm)
Weight
Special Features
Standard Temperature
Extended Temperature

Intel® Atom™ Z530 (1.6 GHz)

(Option: 2.5" 80 GByte or 32 GByte SSD)

Option

1 GByte DDR2

1600 x 1200 (UXGA)

DVI-D

Customer specific DVI-A

RS232C, RS422/485 (DSUB9) / RS232C, RS422/485 (DSUB9)

2x 2.0 back, 2x 2.0 front

1 Gbit (RJ45) with LAN boot, WakeOnLan

1 Gbit (RJ45)

2x Stereo (Mic. line)

4x DC-isolated in-/output

10-54VDC/typ.15W

2x PCIexpress MiniCard, 1x PCI/104

IP52

159 x 187 x 66

1,5 kg

WakeOnMove, RingWake, WakeOnRing, PowerSaveMode

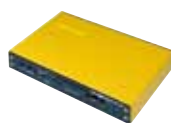
-25°C to +55°C (with HD)

-25°C to +70°C (with SSD, no HD)

**MICROSPACE®
Industrial**

MPC20
MPC20L
MPC21
MPC21A
MPC21B

Processor/Performance	AMD Geode™ LX800 (0.5 Ghz)	AMD Geode™ LX800 (0.5 Ghz)	AMD Geode™ LX800 (0.5 Ghz)	AMD Geode™ LX800 (0.5 Ghz)	AMD Geode™ LX800 (0.5 Ghz)
HDD	Optional	Optional	Optional	Optional	Optional
CompactFlash	CF 256 MByte installed	socket (type I/II)	CF 256 MByte installed	CF 256 MByte installed	CF 256 MByte installed
Memory	256 (max. 1 GByte)	256 (max. 1 GByte)	256 (max. 1 GByte)	256 (max. 1 GByte)	256 (max. 1 GByte)
	int. graphic Controller / UXGA	int. graphic Controller / UXGA	int. graphic Controller / UXGA	int. graphic Controller / UXGA	int. graphic Controller / UXGA
Video Interface 1	CRT	CRT	CRT	CRT	CRT
Video Interface 2	-	-	-	-	-
COM1 / COM2	-	-	RS232C (DSUB9) / -	RS232C (DSUB9) / RS232 (DSUB9)	RS232C (DSUB9) / RS232 (DSUB9)
COM3 / COM4	-	-	-	RS232C (DSUB9) / RS232C (DSUB9)	CAN1 (DSUB9) / CAN2 (DSUB9)
USB	4x 2.0 (1x internal)	4x 2.0 (1x internal)	4x 2.0 (1x internal)	4x 2.0 (1x internal)	4x 2.0 (1x internal)
LAN Port A	10/100 BASE-T	10/100 BASE-T	10/100 BASE-T	10/100 BASE-T	10/100 BASE-T
LAN Port B	10/100 BASE-T	-	10/100 BASE-T	10/100 BASE-T	10/100 BASE-T
Sound	2x Stereo	2x Stereo	2x Stereo	2x Stereo	2x Stereo
Digital Input/Output	-	-	-	4x opto isol. 50V/1A	-
DC voltage input (not isol.), V1248	10V-28V/typ.10W	10V-28V/typ.10W	10V-28V/typ.10W	10V-28V/typ.10W	10V-28V/typ.10W
DC voltage input (1.5kV isol.), Ixx	-	-	-	-	-
Expansion	-	-	-	-	-
Protection class	-	-	-	-	-
Dimensions (W x L x H in mm)	165 x 110 x 27	165 x 110 x 27	165 x 110 x 46	165 x 110 x 46	165 x 110 x 46
Weight	500 g	500 g	700 g	700 g	700 g
Special Features	fanless, incl. DC power cable	fanless	MiniPCI-socket, PCI/104-slot, incl. DC power cable	MiniPCI-socket, incl. DC power cable	MiniPCI-socket, incl. DC power cable
Standard Temperature	0°C to +50°C (with HD)	0°C to +50°C (with HD)	0°C to +50°C (with HD)	0°C to +50°C (with HD)	0°C to +50°C (with HD)
Extended Temperature	-25°C to +70°C (without HD)	-25°C to +70°C (without HD)	-25°C to +70°C (without HD)	-25°C to +70°C (without HD)	-25°C to +70°C (without HD)



MPC21C

MPC25

MPC26

MPCV800

MPCF50

MPCF50A

AMD Geode™ LX800
(0.5 GHz)

Intel® Atom™ Z510
(1.1 GHz)

Intel® Atom™ Z510
(1.1 GHz)

AMD Geode™ LX800
(0.5 GHz)

Intel® Core™ Duo L2400
/ Intel® Core™2 Duo
L7400 (2x 1.6 GHz /
2x 1.5 Ghz)

Intel® Core™ Duo L2400
/ Intel® Core™2 Duo
L7400 (2x 1.6 GHz /
2x 1.5 Ghz)

Optional

Optional

Optional

160 GByte, 2.5"

320 GByte (SATA)

320 GByte (SATA)

CF 256 MByte installed

CF 256MB installed

CF 256MB installed

-

-

-

256 (max. 1 GByte)

1GB soldered

1GB soldered

512 MByte

1 GByte (max. 2 GByte),
(max. 3 GByte)

1 GByte (max. 2 GByte),
(max. 3 GByte)

int. graphic Controller
/ UXGA

Int. graphic Controller
/ UXGA

Int. graphic Controller
/ UXGA

int. graphic Controller
/ UXGA

int. graphic Controller
/ QXGA

int. graphic Controller
/ QXGA

CRT

DVI-D

DVI-D

CRT

CRT

CRT

-

-

-

-

DVI

DVI

RS232C (DSUB9) / RS232
(DSUB9)

-

RS232/RS232

RS232C / RS232C

-

-

-

-

-

-

-

-

4x 2.0 (1x internal)

6x 2.0
(of which 1x internal)

6x 2.0
(of which 1x internal)

4x 2.0

6x 2.0

6x 2.0

10/100 BASE-T

1Gbit (PCIe)

1Gbit (PCIe)

10/100 BASE-T

10/100 BASE-T (RJ45)
with LAN boot

10/100 BASE-T (RJ45)
with LAN boot

10/100 BASE-T

10/100 BASE-T

10/100 BASE-T

1 Gbit

1x 1 Gbit

3x 1 Gbit

2x Stereo

2x Stereo

2x Stereo

-

2x Stereo

-

-

-

-

24 programmable I/O

-

-

-

10V-28V/typ.12W

10V-28V/typ.12W

-

-

-

-

-

-

-

-

-

-

PCIexpress MiniCard

PCIexpress MiniCard

MiniPCI, PC/104-Plus
(max. 2 cards)

MiniPCI

PCIexpress MiniCard

-

-

-

IP40

IP40

IP40

165 x 110 x 46

165 x 110 x 27

165 x 110 x 46

292 x 146 x 83

310 x 256 x 42

310 x 256 x 42

700 g

500 g

500 g

3 kg

3 kg

3 kg

MiniPCI-socket, PCI/104-
slot, incl. DC power cable

fanless

fanless

Videointerface 3: LVDS,
18 bit

3D-Support: DirectX9

3D-Support: DirectX9

0°C to +50°C (with HD)

0°C to +40°C (with HD)

0°C to +40°C (with HD)

+5°C to +50°C (with HD)

+5°C to +50°C (with HD)

+5°C to +50°C (with HD)

-25°C to +70°C
(without HD)

-25°C to +50°C
(without HD)

-25°C to +50°C
(without HD)

-25°C to +70°C
(with SSD/CF)

-25°C to +70°C
(with SSD)

-25°C to +70°C (with
SSD)