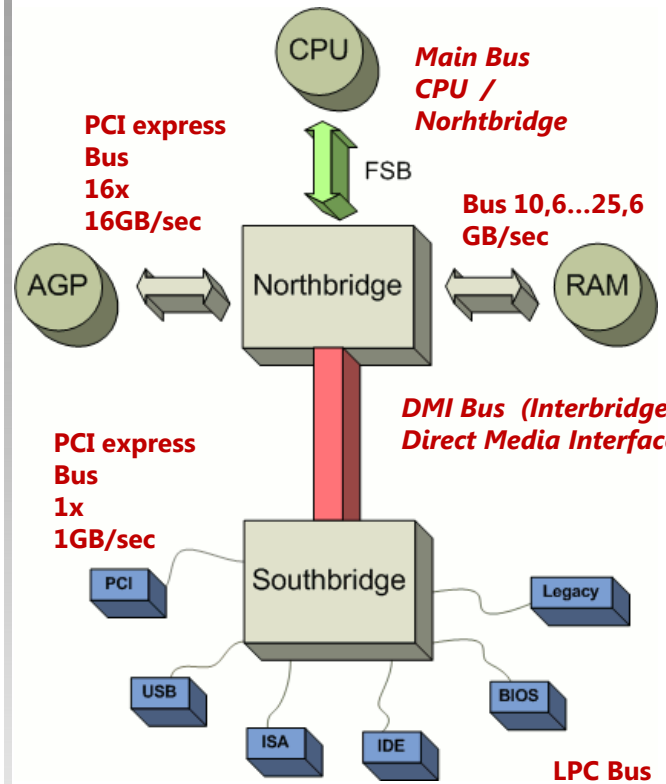
Industrial automation

Industrial PC architecture

Platforms XS7

Industrial automation

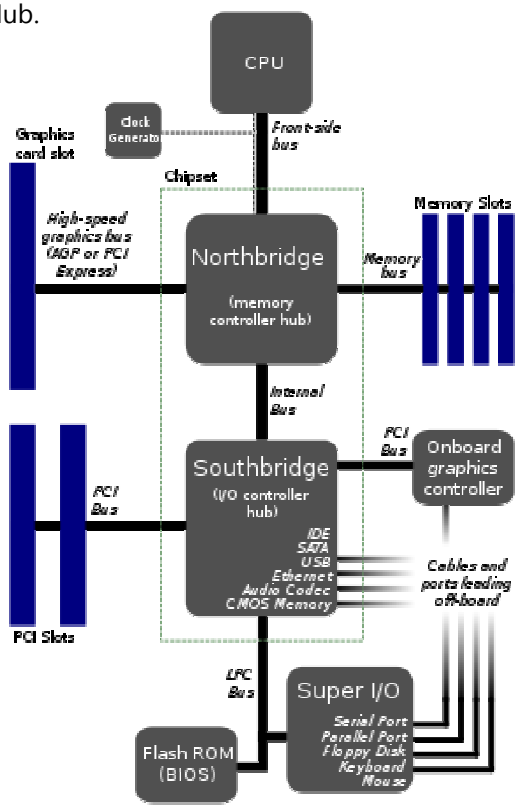
IPC Architecture : CPU - Chipset - Buses



CHIPSET

A group of chips designed to work as a unit to perform a function, it provides the electronic interfaces between all the subsystems.
It enables systems to communicate with each other onto the MB.
Originally composed by several chips, it is now composed by 2 main chips:

- **Northbridge** or memory controller handles transfer data between CPU, RAM memory and the Graphic card AGP. It is also called GMCH, Graphic and memory controller Hub.
- **Southbridge** manages communications between all peripheral devices. It is also called ICH I/O controller Hub.



- CHIPSET is designed for a specific CPU family, for specific RAM and for specific speed of FSB.
- CPU Cache memory (SRAM) L1 + L2 embedded into the chip.

Industrial automation

IPC Architecture - Atom N270

Intel® Atom™ Processor N270 – 1,6GHz

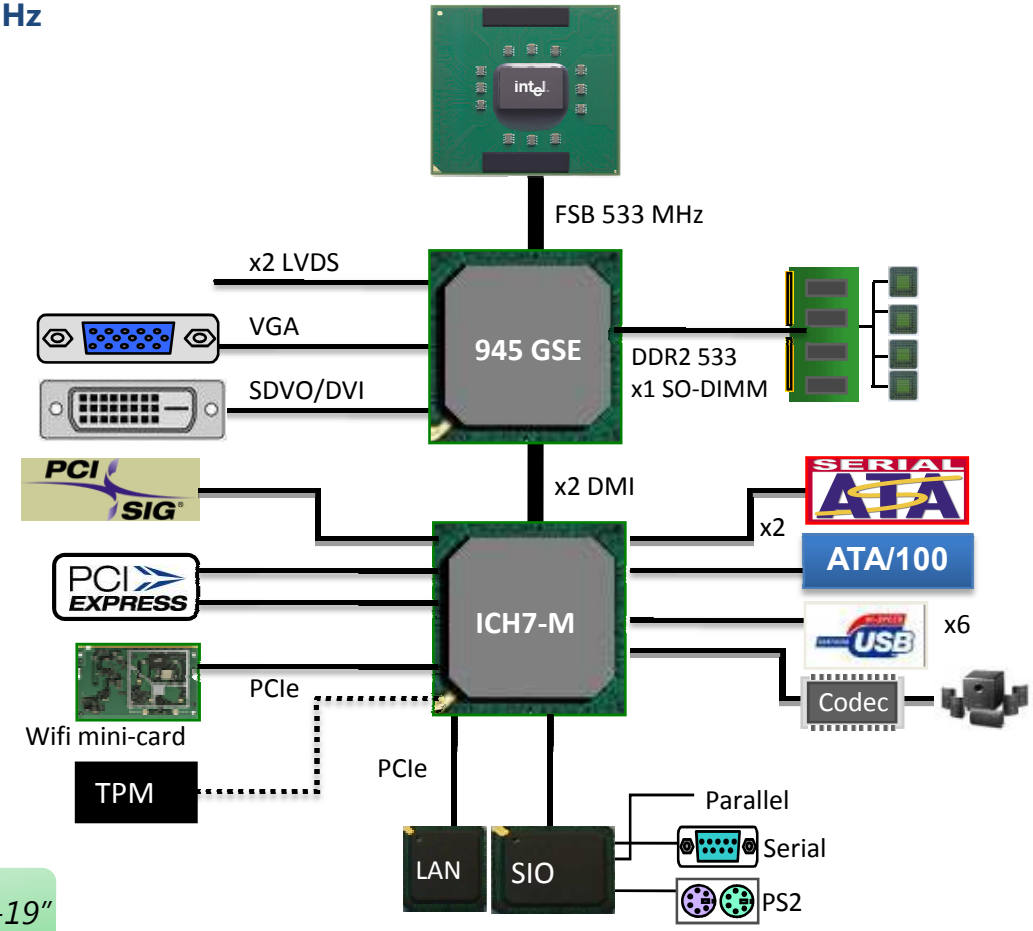
- 45nm technology; 22x22mm package
- TDP ~ 2.5W

Intel® 945 GSE

- 27x27mm package
- TDP >= 3.5 W (depends on config.)
- LVDS, VGA, SDVO
- Single Channel DDR2 400/533 – 1 SO-DIMM

Intel® ICH7

- 31x31mm package
- TDP ~1.5W
- 4 PCIe, 4 PCI
- 2 SATA, 1 PATA
- Intel® High Definition Audio
- 10/100 LAN controller
- 8 USB 2 ports



XS7 *7"W - 8,4" - 12,1" -15" - 17" -19"*

Graphic Accelerator GMA950 - DX9

Industrial automation

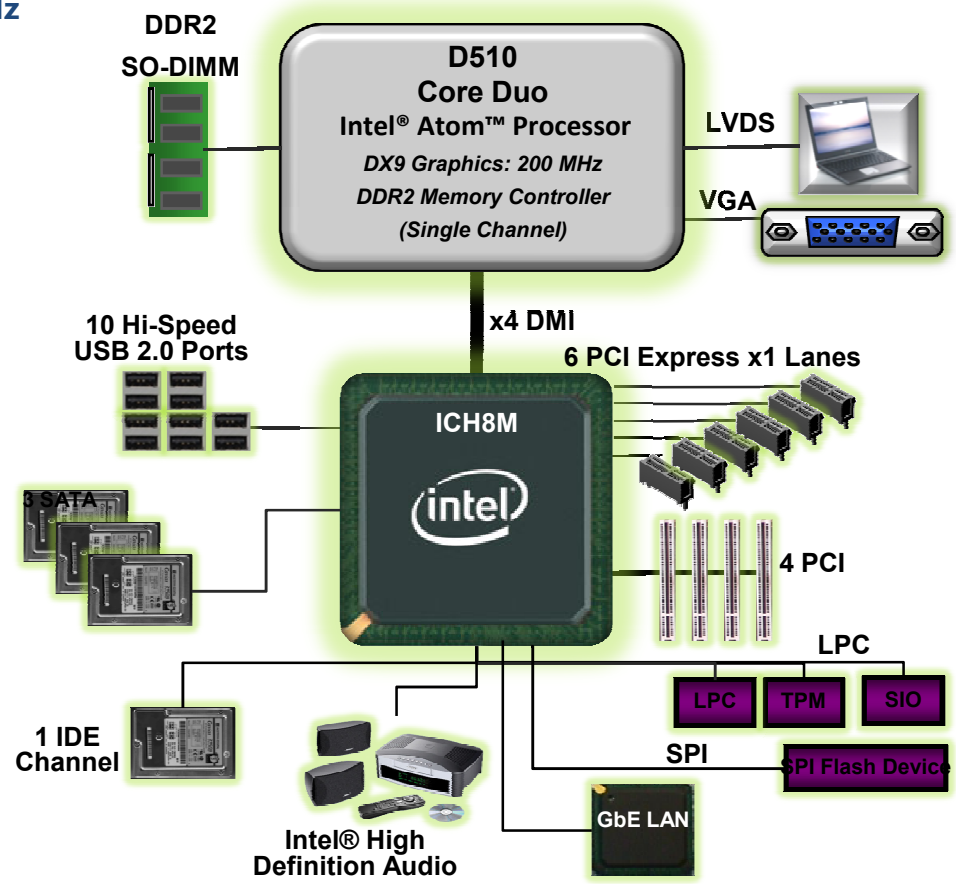
IPC Architecture - Atom D510

Atom D510 Processor Core Duo - 1,66GHz

- 22mm x 22mm package
- TDP ~5.5W
- 512KB cache
- TDP ~ 2.5W2GB Max Memory
- Single Channel DDR2 667
- Integrated Graphics Controller

Intel® ICH8M

- 31x31mm package
- TDP ~2.4W
- 6 PCIe, 4 PCI
- 3 SATA, 1 PATA
- Intel® High Definition Audio
- 10/100/1000 Ethernet MAC
- 10 USB 2.0 ports



XS7 12,1" - 15"

Graphic Accelerator GMA3150 DX9

Industrial automation

IPC Architecture - Core 2 Duo

Intel® Core 2 Duo
Processor P8400 2,26GHz
Intel® Core Duo
Processor T3100 1,90GHz

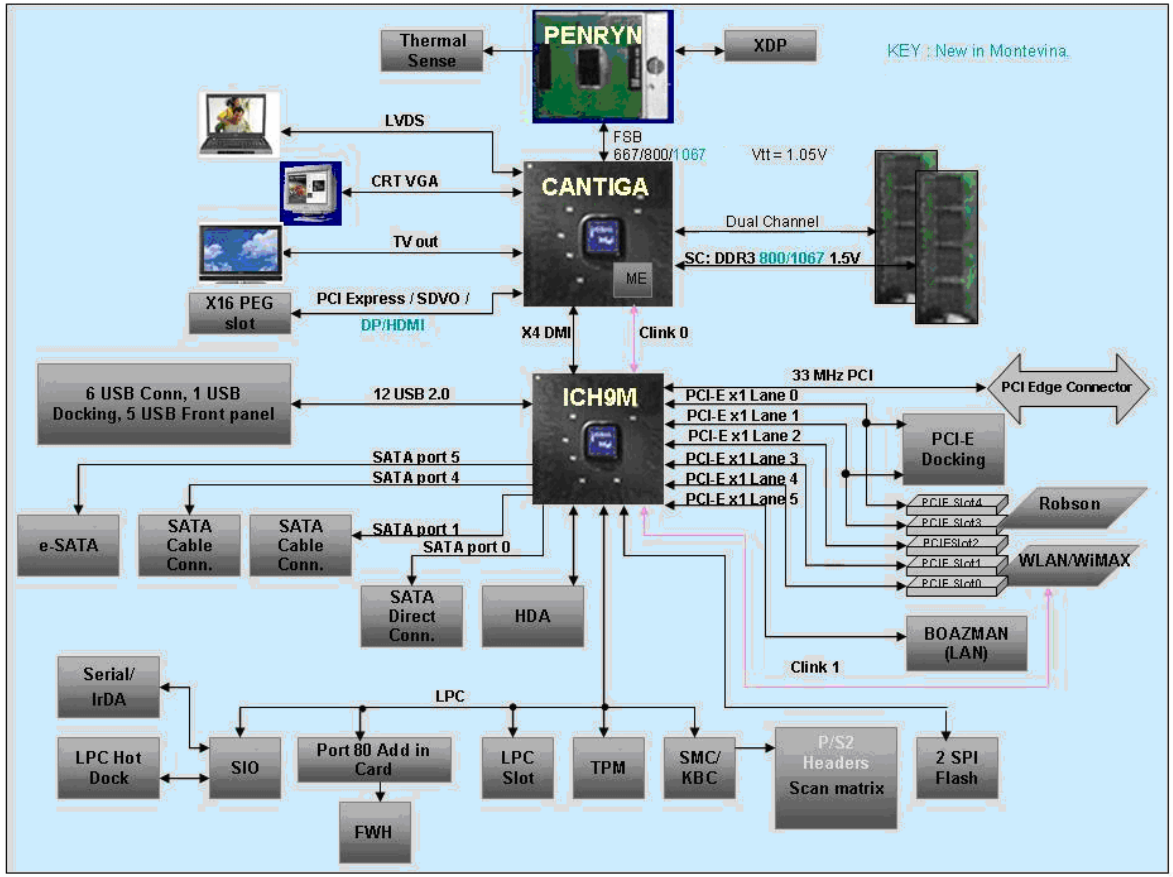
- •45nm technology
- •TDP ~ 25W
- •3MB Cache P8400
- •1 MB Cache T3100
- •FSB 1066 MHz P8400
- •FSB 800 MHz T3100

Intel® GM45 express

- 27x27mm package
- TDP >= 12 W
- LVDS, DVI,VGA,HDMI, SDVO
- DDR3 800/1066 SO-DIMM

Intel® ICH9

- 31x31mm package
- TDP ~2,5W
- 6 PCIe, 4 PCI
- 4 SATA, 1 PATA
- Intel® High Definition Audio
- 10/100/1000 LAN controller
- 12 USB 2.0 ports



XS7 12,1" - 15" – 17" –19"

Graphic Accelerator GMA4500 - DX10

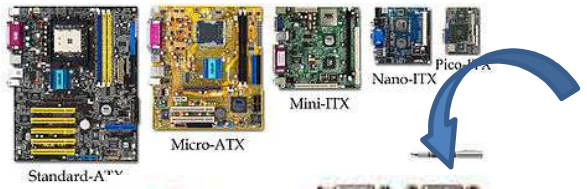
Industrial automation

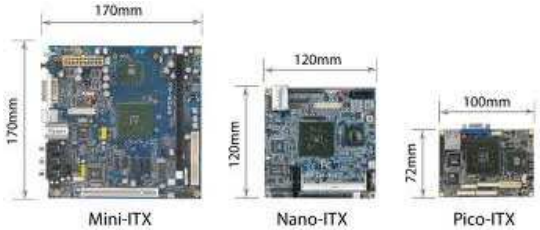
Mother board - Form Factor

It is the main element of a computer.

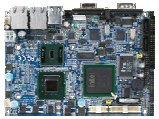
The Mother Board (M.B) is the basic ingredient which allows all the elements to interconnect each other.
The M.B. contains all the necessary chip to activate the process of the data and to manage all the peripherals, on board and external.

The usage of M.B. with a standard Form factor gives the **ESA IPCs** the great advantage to remain open to the fast changes of technology; particularly for what the main ingredients concerns, like CPU,RAM, communication Bus.
It means to minimize R&D time.
Keeping the same HW aspect and mechanical compatibility.

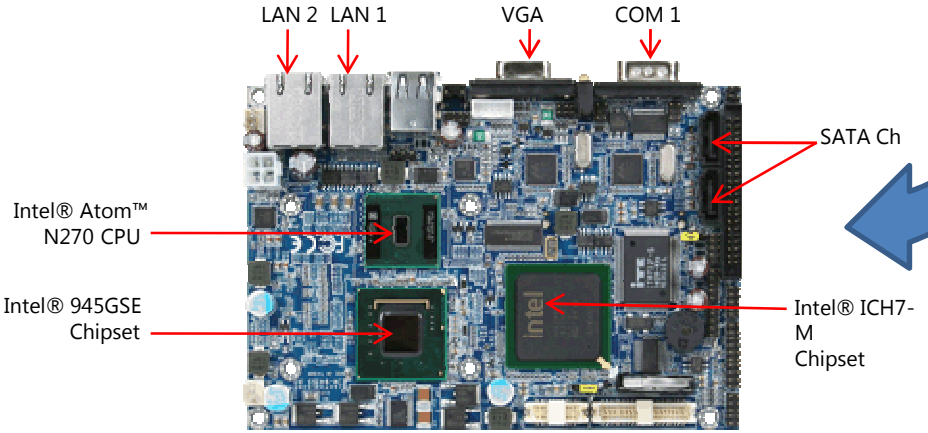




146 x 101 mm



3,5" SBC



Industrial automation

RAM memory modules

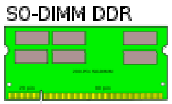
RAM is the main working memory of a PC, it contains programs and data during the process time only.

- Into the RAM, calculations and operations are just executed and not saved.
- Quantity of RAM may affect the performances of a Run-Time SW.
- RAM memories are not retentive and they lose the data if not continuously powered – Volatile memories.
- RAM memories are connected to the M.B. by means of dedicated connectors. **DDR – DDR2 - DDR3 are not compatible each other.**

Ram memories typology		Use	Access Time
▪SRAM	Static RAM	cache L1-L2 embedded into CPU – minimize access time to the RAM	=
▪DRAM	Dynamic RAM	main memory	70 ns
▪SDRAM	Synchronized Dynamic	main memory – synchronized with FSB of the Bus	10 ns

DDR – DDR2- DDR3 → evolution of SDRAM → **D**ouble **D**ata **R**ate, double speed, reduced consumption , density improved.
Dual-channel architecture DDR/DDR2/DDR3 is a new technology used to double the transfer rate of data, from RAM to **Nothbridge**.
M.B. has to support Dual Channel RAM function.

Lenght 7 cm.

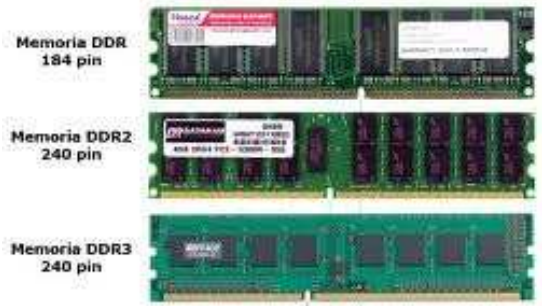


SO-DIMM 200 pin 2,5 Volts

SO-DIMM 200 pin 1,8 Volts

SO-DIMM 204 pin 1,5 Volts

Lenght 10 cm.



DDR(1) 2,5 Volts

DDR2 1,8 Volts

DDR3 1,5 Volts

Memoria	Standard	Clock	Frequenza I/O	Transfer rate	Banda 1CH	Banda 2CH	Cycle Time n/s	Timing n/s
DDR2 667	PC2-5300	166 MHz	333 MHz	667 MT/s	5,3 GB/s	10,6 GB/s	6	4-4-4
DDR2 800	PC2-6400	200 MHz	400 MHz	800 MT/s	6,4 GB/s	12,8 GB/s	5	5-5-5
DDR3 800	PC3-6400	100 MHz	400 MHz	800 MT/s	6,4 GB/s	12,8 GB/s	10	6-6-6
DDR2 1066	PC2-8500	266 MHz	533 MHz	1066 MT/s	8,5 GB/s	17,0 GB/s	3,5	6-6-6
DDR3 1066	PC3-8500	133 MHz	533 MHz	1066 MT/s	8,5 GB/s	17,0 GB/s	7,5	7-7-7
DDR3 1333	PC3-10600	166 MHz	667 MHz	1333 MT/s	10,6 GB/s	21,2 GB/s	6	8-8-8
DDR3 1600	PC3-12800	200 MHz	800 MHz	1600 MT/s	12,8 GB/s	25,6 GB/s	5	9-9-9

Industrial automation

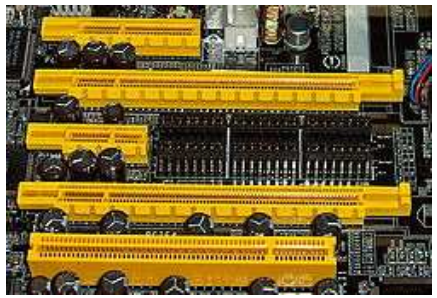
Bus PCI - PCIe - MINI PCI - Mini PCIe

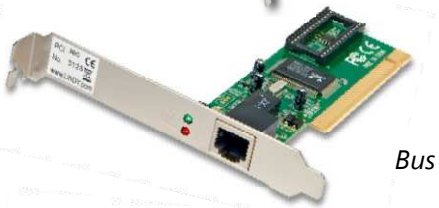
It is the channel where all the data are transmitted, from and to all the system peripherals.
The Bus allows all the components to "converse" each other.

Contrary to the point-to-point connections, one Bus can connect many devices each other.

- **Parallel Bus:** **ISA**, **PCI** e **AGP**.
- **Serial Bus:** **SATA**, **PCI Express**, **LonWorks**, **Konnex**, **PROFIBUS**, **CAN**

Speed c.a. 5MB/sec
Bus ISA (1981)



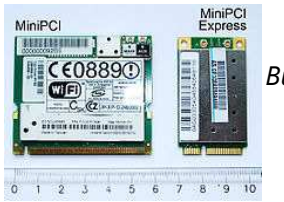


Speed c.a. 133MB/sec
Bus PCI (1993)-(2002)Rev2.3

Speed max. 20GB/sec
Bus PCI express (2004)-(2006)R2 (2011)R3

Speed 133MB/sec

(1983) Parallel ATA (PATA) or IDE is the standard interface for connecting devices like, HDD,SSD,CD-ROM, CF al PC.



Bus miniPCI (2000)

Bus miniPCI express (2004)

SATA2 Speed 380MB/sec

(2003) Serial-ATA (SATA) is the further evolution for connecting devices like, HDD,SSD,CD-ROM, CF to the PC.

Industrial automation

RAID Function

RAID stands for **R**edundant **A**rray of **I**ndependent **D**isks.

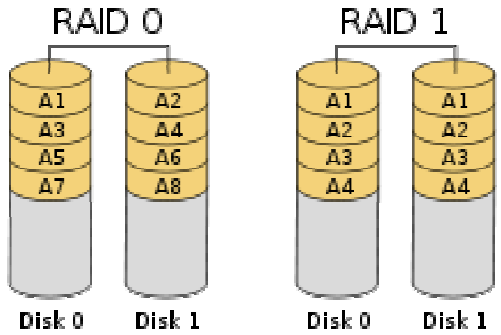
It is an Information Function which uses multiple HDD o SSD to save or sharing information.

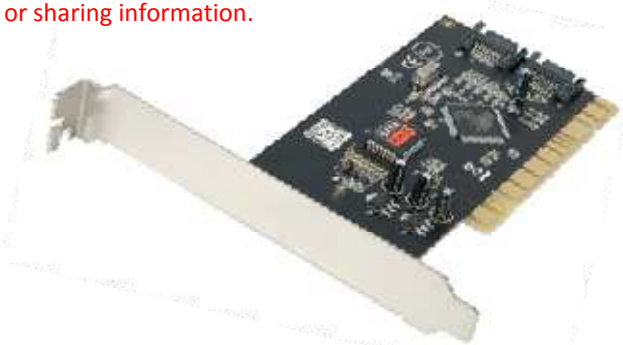
RAID technology was to use an array of hard disks for either better performance or better security against disk failure.
Raid can use 2 or more disks at once to increase data reading and writing speed, It can use 2 or more disks to store the same data so disk failure will not mean that you lose your data.

A RAID Array of disks will appear to an operating system as a single disk as extra storage space is not provided by RAID.

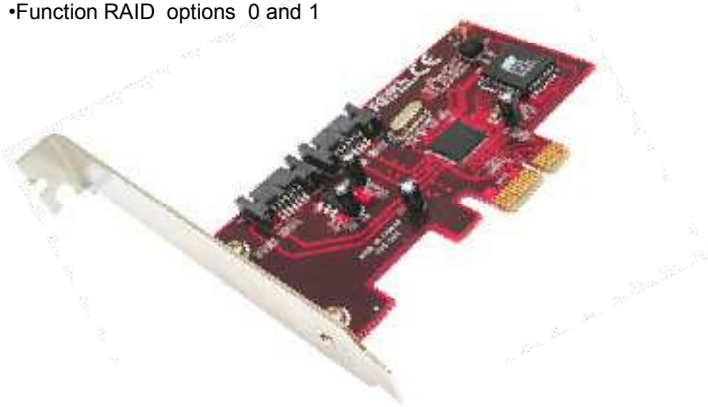
RAID 0 or striping feature. The idea of RAID 0 is to increase performance. When storing information using the striping feature, the data will be split block by block between the two hard disks. Block one will be send to disk one, block two will be sent to disk two. This is much faster than a single disk because when reading the data off the disks the twp of them will be working at the same time to retrieve the same file virtually doubling the speed or retrieval and so virtually halving the time of retrieval

RAID 1 or mirroring gives added security for your data. As with striping this setup uses two hard disk drives to produce a single logical drive. In this instance however the total storage space is only the size of one of the disks (the smallest one).
If you save a file to your machine, it will be saved on both disks at the same time. Data redundancy .





Controller PCI 2 Internal Ports SATA Lite, RAID
•Card PCI SATA 2 Porte
•Conforms to specs PCI, Revision 2.3
•32 Bit, 33/66 MHz PCI
•Function RAID options 0 and 1



Controller PCI Express, 2 internal ports SATA-II, RAID5
•Bus: PCI Express
•RAID 0, 1, 0+1, 5 e JBOD
• Mode RAID5 needs 3 Hard Disk s
•Windows 2000/XP/Vista/2003 Server
•Windows Vista 64 bit / 32 bit

Industrial automation

Compact Flash Industrial Grade

CF is a mass-storage device which uses non-volatile Flash memory

Environment and industrial applications, require reliability, resistance and well-defined lifecycle.

Onto the CF, O.S. and application Data are stored.

	CF Industrial SLC UDMA 0…6	***CF consumer MLC***
T operating :	-40°C +85°C	0°C +70°C
R/ W speed :	42/30MB/s	25/19MB/s
Endurance :	min.2 Mio certified	undeclared

• Current communication Bus: IDE, coming up SATA.

Common basic technology but proprietary algorithm, managed by internal memory controller, differ greatly the benefits for performances, reliability and lifetime. **That is the reason why, not all the CF, available on the MKT, are suitable for Industrial usage.**
A clear separation between Industrial and Consumer Grade; different physical- characteristics for different performance and applications.

Main parameters that define the CF quality and affect memory lifetime

Storage Media	→	Building technology SLC : store1 bit x cell MLC: store 2 bit x cell
Wear leveling	→	Software algorithm used by CF controller for re-mapping the physical address of the memory array. Endurance is definitively improved due to a better usage of all memory cells.
Error correction	→	Correction algorithm. It depends on the manufacturer. (100.000 R/W with1 bit ECC). More ECC bits available in the algorithm , less errors it might occur.
Endurance	→	Declaration about the number of Writings/Cancellations a CF can support without error.
Data retention	→	Indicates the time a CF can retain data readable. (10 years)

Technological trend in moving more and more towards embedded O.S. and fanless IPC systems.
It means, increasing demand for CF and SSD, solid-state storage devices.

Industrial automation

HDD e SSD

HDD / SSD are mass-storage devices which uses non-volatile Flash memory

SSD, respect to the "mechanical" HHD, has no movable parts..
Therefore, more shock resistant, less noisy, no latency and reduced access time.

SSD uses the same HDD interface and are fully replaceable each other.

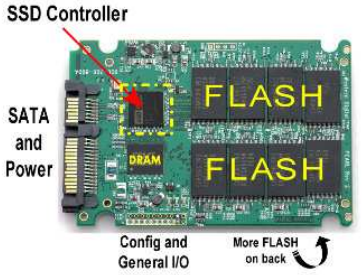
4 standard size: 3,5" - 2,5" - 1,8" - 1"
Recently available HDD/SSD SATA 2 with transfer rate up to 3 Gigabit/s.

Capacity : 160...640 GB
Interface : Serial ATA 1,5 ..3,0 Gb/s
Buffer memory cache : 8..16 MB
Latency: 5,5 ms
Access: 12ms / 5400RPM
Read/Write: 27/30 MBsec
Temp. °C 5-55
Vibration 0,5...2G
Transfer rate Average 54,6 MB/s

Capacity : 8,16,32,64GB
Interface : Serial ATA 3.0 Gb/s
Buffer memory: cache.....64MB
Latency: None
Access time <0,1 ms
Read / Write: 100/80 MBsec
Temp. °C 0-70
Vibration 20G
Transfer rate Average 93,3 MB/s

TOSHIBA 512 GB
SAMSUNG 256 GB

Interface **SATA 3.0 at 5,5 Gb/s** with reading up to **250 MB/s** and writing up to **170 MB/s**



Industrial automation

Opzioni XS7 - Extractable drawer – INOX front

Extractable drawer for HDD /SSD - PCI slot mounting.

Useful and functional option for easy maintenance and/or replacement of HDD a/ SSD, without opening the IPC.
Mechanical installation, it just needs the physical space of an PCI slot.

XS7 7"W - 12,1" -15" - 17" -19"

Frontale INOX con Touch screen *True-Flat*

Ideal solution for Food, Chemical and Pharmaceutical environments. Where INOX finishing is mandatory.

- INOX panel in the same size of the aluminum standard ones.
- INOX surface embedded the touch screen offering a continuous plain surface.
- No grooves to accumulate dust and dirty production residues.
- No USB / LED available.

•Frame INOX V2A - Brushed.
•Polycarbonate smooth type.
•Norms to conform with: FDA 21 CFR 177.2006
•DIN reference: EN 1672-2
•Chemical aggressive on foil: DIN 42115 part2

Industrial automation

IPC ESA
Product Line XS7

Industrial automation

XS7W7

Panel Industrial PC

Size 228x155x80 mm
CUT-OUT 219x145 mm

Aluminium bezel	•LCD 7" Wide 800x480 •LED backlite 262Kcolor •Touch screen – resistive 4 wires •LED green on/off •USB frontal •IP65 frontal
CPU	•ATOM N270 1,60 GHz Fanless
Chipset	•945GSE + ICH7M FSB 533 MHz
RAM	•RAM upto 2 GB DDR2
I/O	•RS232 - 1 sub-D 9pin rear •RS485 - 1 sub-D 9pin rear •USB ver. 2.0 - 2 rear + 1 front •Ethernet 10/100/1000 Mbps - 2xRJ45 •VGA •CF slot internal/external •1 x mini PCIe slot
Mechanical options	•none
Drives	•HDD/SSD/CF
Power supply	• 18...30 VDC 50W • External adapter 220VAC/24VDC 120W
Operating T	• 0...50 °C
Storage T	• -20...65 °C
Humidity	• 85% no condensing
Weight	• 2,5 Kg

Windows Embedded CE
Windows Embedded Standard
Windows 7
Windows xp Professional for Embedded Systems
CE

Industrial automation

XS708

Panel Industrial PC

Size 250x190x80 mm
CUT-OUT 241x180 mm

Windows Embedded CE
Windows Embedded Standard
Windows 7
Windows xp Professional for Embedded Systems
CE

Aluminium bezel	•LCD 8,4" 800x600 •LED backlite 262Kcolor •Touch screen – resistive 4 wires •LED green on/off •USB frontal •IP65 frontal
CPU	•ATOM N270 1,60 GHz Fanless
Chipset	•945GSE + ICH7M FSB 533 MHz
RAM	•RAM upto 2 GB DDR2
I/O	•RS232 - 1 sub-D 9pin rear •RS485 - 1 sub-D 9pin rear •USB ver. 2.0 - 2 rear + 1 front •Ethernet 10/100/1000 Mbps - 2xRJ45 •VGA •CF slot internal/external •1 x mini PCIe slot
Mechanical options	•none
Drives	•HDD/SSD/CF/DVD
Power supply	• 18...30 VDC 50W • External adapter 220VAC/24VDC 120W
Operating T	• 0...50 °C
Storage T	• -20...65 °C
Humidity	• 85% no condensing
Weight	• 3 Kg

Industrial automation

XS712

Panel Industrial PC

Size 336,3x256x80,7mm
CUT-OUT 322x240 mm

Windows Embedded CE
Windows Embedded Standard
Windows 7
Windows xp Professional for Embedded Systems
CE

Aluminium bezel	•LCD 12,1" 800x600 •CCFL backlite - 262Kcolor •Touch screen – resistive 4 wires •LED green on/off •USB frontal •IP65 frontal
CPU	•ATOM N270 1,60 GHz Fanless •ATOM D510 Dual Core 1,66 GHz Fan •CELERON Dual C T3100 1,90 GHz Fan •Core2Duo P8400 2,26 GHz Fan
Chipset	•945GSE + ICH7M FSB 533 MHz •ICH8M FSB 667 MHz •GM45 + ICH9M FSB 800 MHz •GM45 + ICH9M FSB 1066 MHz
RAM	•RAM upto 2 GB DDR2 - for ATOM •RAM upto 8 GB DDR3 - for Core2duo/Celeron
I/O	•RS232 /RS485 2/1 sub-D 9pin rear •USB ver 2.0 4 rear + 1 front •Ethernet 10/100/1000 Mbps - 2xRJ45 •PS2 mouse/keyboard ports •CF slot internal/external •VGA + DVI ports (noD510) •Mic+Line in/out
Mechanical options	•0-1-2 slot PCI half-size •0-1 slot PCIe 1x
Drives	•HDD/SSD/CF/DVD •RAID with 2 x HDD •Extractable drawer for HDD/SSD
Power supply	• 18...30 VDC 75W • External adapter 220VAC/24VDC 120W
Operating T	• 0...50 °C
Storage T	• -20...65 °C
Humidity	• 85% no condensing
Weight	• 5 Kg

Industrial automation

XS715

Panel Industrial PC

Size 425x300x85,5 mm
CUT-OUT 393x275 mm

Windows Embedded CE
Windows Embedded Standard
Windows 7
Windows xp Professional for Embedded Systems
CE

Aluminium bezel	•LCD 15" 1024x768 •CCFL backlite - 262Kcolor •Touch screen – resistive 5 wires •LED green on/off •USB frontal •IP65 frontal
CPU	•ATOM N270 1,60 GHz Fanless •ATOM D510 Dual Core 1,66 GHz Fan •CELERON Dual C T3100 1,90 GHz Fan •Core2Duo P8400 2,26 GHz Fan
Chipset	•945GSE + ICH7M FSB 533 MHz •ICH8M FSB 667 MHz •GM45 + ICH9M FSB 800 MHz •GM45 + ICH9M FSB 1066 MHz
RAM	•RAM upto 2 GB DDR2 - for ATOM •RAM upto 8 GB DDR3 - for Core2duo/Celeron
I/O	•RS232 /RS485 2/1 sub-D 9pin rear •USB ver 2.0 4 rear + 1 front •Ethernet 10/100/1000 Mbps - 2xRJ45 •PS2 mouse/keyboard ports •CF slot internal/external •VGA + DVI ports (no D510) •Mic+Line in/out
Mechanical options	•0-1-2 slot PCI half-size •0-1 slot PCIe 1x
Drives	•HDD/SSD/CF/DVD •RAID with 2 x HDD •Extractable drawer for HDD/SSD
Power supply	• 18...30 VDC 75W • External adapter 220VAC/24VDC 120W
Operating T	• 0...50 °C
Storage T	• -20...65 °C
Humidity	• 85% no condensing
Weight	• 6,5 Kg

Industrial automation

XS717

Panel Industrial PC

Size 446x346x83,8mm
CUT-OUT 426x326 mm

Windows Embedded CE
Windows Embedded Standard
Windows 7
Windows xp Professional for Embedded Systems
CE

Aluminium bezel	•LCD 17" 1280x1024 •CCFL backlite- 16,7Mcolor •Touch screen – resistive 5 wires •LED green on/off •USB Frontal •IP65 Frontal
CPU	•ATOM N270 1,60 GHz Fanless •CELERON Dual C T3100 1,90 GHz Fan •Core2Duo P8400 2,26 GHz Fan
Chipset	•945GSE + ICH7M FSB 533 MHz •GM45 + ICH9M FSB 800 MHz •GM45 + ICH9M FSB 1066 MHz
RAM	•RAM upto 2 GB DDR2 - for ATOM •RAM upto 8 GB DDR3 - for Core2duo/Celeron
I/O	•RS232 2 sub-D 9pin rear •RS485 1 sub-D 9pin rear (noN270) •USB ver 2.0 4 rear + 1 front •Ethernet 10/100/1000 Mbps - 2xRJ45 •PS2 mouse/keyboard ports •CF slot internal/external •VGA + DVI ports (no N270) •Mic+Line in/out
Mechanical options	•0-1-2 slot PCI half-size •0-1 slot PCIe 1x
Drives	•HDD/SSD/CF/DVD •RAID with 2 x HDD •Extractable drawer for HDD/SSD
Power supply	• 18...30 VDC 95W • External adapter 220VAC/24VDC 120W
Operating T	• 0...50 °C
Storage T	• -20...65 °C
Humidity	• 85% no condensing
Weight	• 9 Kg

Industrial automation

XS719

Panel Industrial PC

Size 508x384x92,5 mm
CUT-OUT 477x355 mm

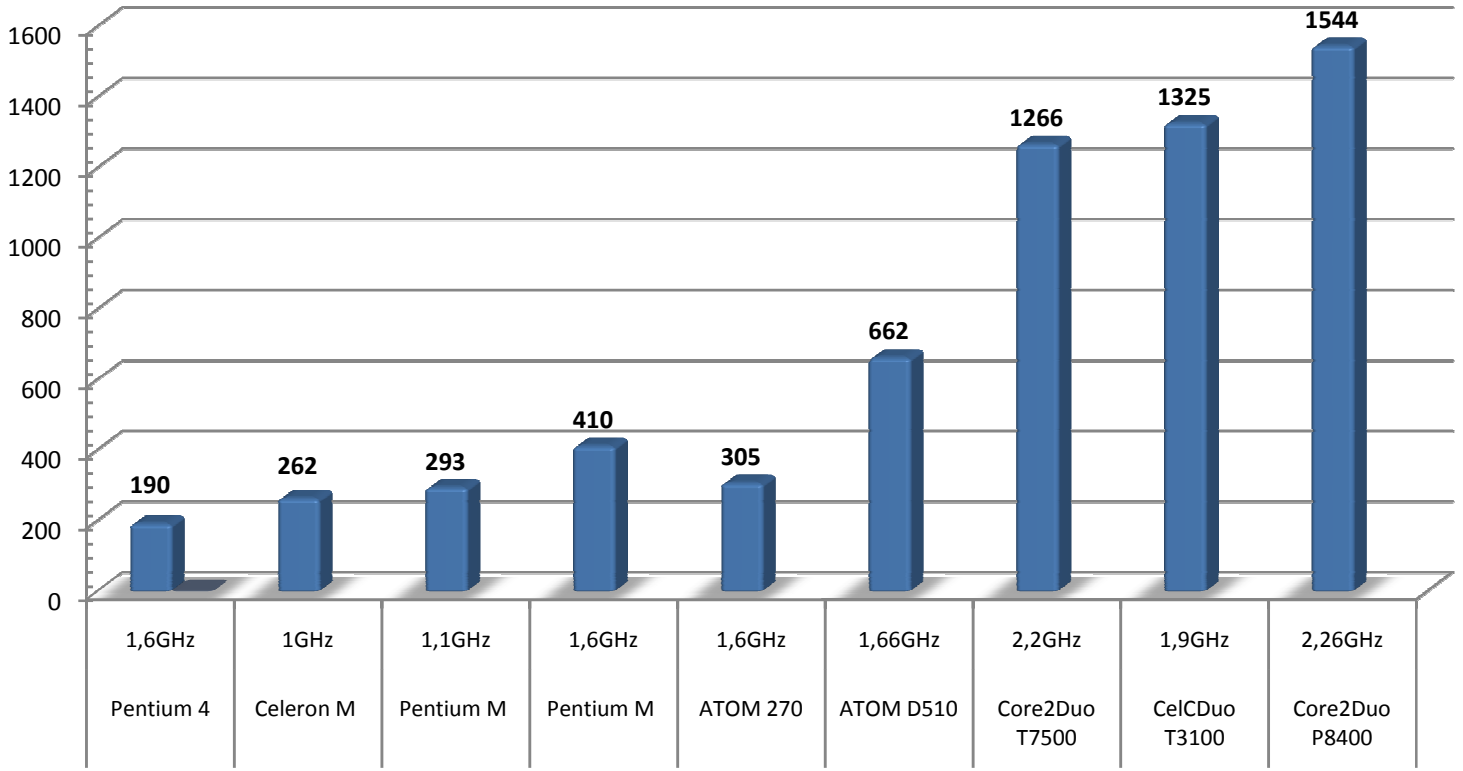
Aluminium bezel	•LCD 19" 1280x1024 •CCFL backlite- 16,7Mcolor •Touch screen – resistive 5 wires •LED green on/off •USB Frontal •IP65 Frontal
CPU	•ATOM N270 1,60 GHz Fanless •CELERON Dual CT3100 1,90 GHz Fan •Core2Duo P8400 2,26 GHz Fan
Chipset	•945GSE + ICH7M FSB 533 MHz •GM45 + ICH9M FSB 800 MHz •GM45 + ICH9M FSB 1066 MHz
RAM	•RAM upto 2 GB DDR2 - for ATOM •RAM upto 8 GB DDR3 - for Core2duo/Celeron
I/O	•RS232 2 sub-D 9pin rear •RS485 1 sub-D 9pin rear (noN270) •USB ver 2.0 4 rear + 1 front •Ethernet 10/100/1000 Mbps - 2xRJ45 •PS2 mouse/keyboard ports •CF slot internal/external •VGA + DVI ports (no D510) •Mic+Line in/out
Opzioni meccaniche	•0-1-2 slot PCI half-size •0-1 slot PCIe 1x
Drives	•HDD/SSD/CF/DVD •RAID with 2 x HDD •Extractable drawer for HDD/SSD
Power supply	• 18...30 VDC 95W • External adapter 220VAC/24VDC 120W
Operating T	• 0...50 °C
Storage T	• -20...65 °C
Humidity	• 85% no condensing
Weight	• 11 Kg

Windows Embedded CE
Windows Embedded Standard
Windows 7
Windows xp Professional for Embedded Systems
CE

Industrial automation

CPUs benchmark

PASSMARK® SOFTWARE

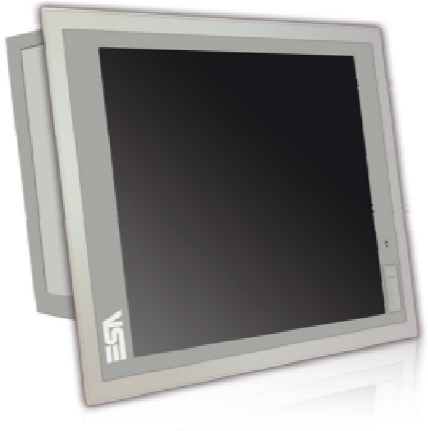


Test Maths – Test Compression – Test Prime Number – Test Encryption – Test floating point
Test Image Rotation – Test String Sorting

Industrial automation

XS715SP421012

Panel Industrial PC



Size 425x300x85,5 mm
CUT-OUT 393x275 mm

Windows Embedded Standard

Windows 7

Windows xp Professional for Embedded Systems

CE

Aluminium bezel	•LCD 15" 1024x768 •CCFL backlite - 262Kcolor •Touch screen – resistive 5 wires •LED green on/off •USB frontal •IP65 frontal
CPU	•Core2Duo P8400 2,26 GHz Fan •FSB Front side bus 1066 MHz •Threads 2 •Cache L2 3 MB
Chipset	•GM45 + ICH9M •Graphic embedded GMA4500
RAM	•RAM 2 GB DDR3 SO-DIMM 204pin
I/O	•RS232 1 sub-D 9pin rear •RS485 1 sub-D 9pin rear •USB ver 2.0 4 rear + 1 front •Ethernet 10/100/1000 Mbps - 2xRJ45 •PS2 mouse/keyboard ports •VGA + DVI ports •Mic+Line in/out
Mechanical options	•1 slot PCI half-size
Drives	•HDD 160GB Sata •DVD-RW Sata
Power supply	• 18...30 VDC 85W
Operating T	• 0...50 °C
Storage T	• -20...65 °C
Humidity	• 85% no condensing
Weight	• 7 Kg

Industrial automation

XS719SP421012

Panel Industrial PC

Size 508x384x92,5 mm
CUT-OUT 477x355 mm

Aluminium bezel	•LCD 19" 1280x1024 •CCFL backlite – 16,7 M color •Touch screen – resistive 5 wires •LED green on/off •USB frontal •IP65 frontal
CPU	•Core2Duo P8400 2,26 GHz Fan •FSB Front side bus 1066 MHz •Threads 2 •Cache L2 3 MB
Chipset	•GM45 + ICH9M •Graphic embedded GMA4500
RAM	•RAM 2 GB DDR3 SO-DIMM 204pin
I/O	•RS232 1 sub-D 9pin rear •RS485 1 sub-D 9pin rear •USB ver 2.0 4 rear + 1 front •Ethernet 10/100/1000 Mbps - 2xRJ45 •PS2 mouse/keyboard ports •VGA + DVI ports •Mic+Line in/out
Mechanical options	•1 slot PCI half-size
Drives	•HDD 160GB Sata •DVD-RW Sata
Power supply	• 18...30 VDC 95W
Operating T	• 0...50 °C
Storage T	• -20...65 °C
Humidity	• 85% no condensing
Weight	• 7 Kg

Windows Embedded Standard

Windows 7

Windows xp Professional for Embedded Systems

CE

Industrial automation

XS715SF111002

Panel Industrial PC

Size 425x300x85,5 mm
CUT-OUT 393x275 mm

Microsoft Windows xp Professional for Embedded Systems

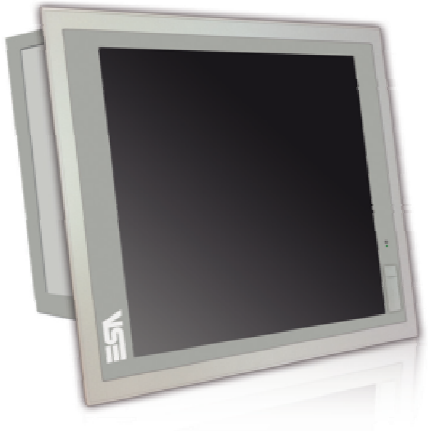
CE

Aluminium bezel	•LCD 15" 1024x768 •CCFL backlite- 262Kcolor •Touch screen – resistive 5 wires •LED green on/off •USB Frontal •IP65 Frontal	**Pro-Face PS3710-T42**
CPU	•ATOM N270 1,60 GHz Fanless •FSB Front side Bus 533 MHz •Threads 2 •Cache L2 512 KB •Hyper-Threading yes	**PM1.6 GHz Fan** **FSB 400MHz** **1** **1GB** **No**
Chipset	•945GSE + ICH7M FSB 533 MHz •Graphic embedded GMA950	**855GME ExtremeGraphic 2**
RAM	•RAM 1 GB DDR2 SDRAM 533MMHz	**DDR 333MHz**
I/O	•RS232 2 sub-D 9pin rear •RS485 1 sub-D 9pin rear •USB ver. 2.0 - 4 rear+ 1 front •Ethernet 10/100/1000 Mbps - 2xRJ45 rear •PS2 mouse/keyboard •VGA + DVI ports rear •Mic+Line in/out	**3x RS232** **1x RS485** **1 x10/100+1 GB**
External drive	•1 x DVD-RW	
Drives	•HDD 160 GB SATA 2,5"	
Power supply **Operating T** **Storage T** **Humidity** **Weight**	• 18...30 VDC 85W • 0...50 °C • -20...65 °C • 85% no condensing • 7 Kg abt.	

Industrial automation

XS715SF111002

Panel Industrial PC



Size 425x300x85,5 mm
CUT-OUT 393x275 mm

Aluminium bezel	•LCD 15" 1024x768 •CCFL backlite- 262Kcolor •Touch screen – resistive 5 wires •LED green on/off •USB Frontal •IP65 Frontal
CPU	•ATOM N270 1,60 GHz Fanless •FSB Front side Bus 533 MHz •Threads 2 •Cache L2 512 KB •Hyper-Threading yes
Chipset	•945GSE + ICH7M FSB 533 MHz •Graphic embedded GMA950
RAM	•RAM 1 GB DDR2 SDRAM 533MMHz
I/O	•RS232 2 sub-D 9pin rear •RS485 1 sub-D 9pin rear •USB ver. 2.0 - 4 rear+ 1 front •Ethernet 10/100/1000 Mbps - 2xRJ45 rear •PS2 mouse/keyboard •VGA + DVI ports rear •Mic+Line in/out
External drive	•1 x DVD-RW
Drives	•HDD 160 GB SATA 2,5"
Power supply **Operating T** **Storage T** **Humidity** **Weight**	• 18...30 VDC 85W • 0...50 °C • -20...65 °C • 85% no condensing • 7 Kg abt.

Microsoft Windows xp Professional for Embedded Systems

CE