Industrial Platform Service

SOLUTION GUIDE

Portwell

Together in Electric Dream!

Ver. 211A

Portwell, Inc. was founded in 1993 and entered the Industrial PC market in 1995 by developing single-board computers. Today, our continuous development of leading-edge products has resulted in strong growth in market share and revenue, a firm place on the Taipei stock exchange (TAISDAQ), and has established Portwell a major worldwide supplier of specialty computing application platforms and services. Portwell, Inc. is not only a member of the selected group of Intel® Applied Computing Platform Providers (IACPP), but also an associate member of Intel® Embedded and Communications Alliance (ECA), as well as Advanced Telecom Computing Architecture (ATCA) and an executive member of PCI Industrial Computer Manufacturing group (PICMG).

Portwell, Inc. has worldwide operation in the U.S.A., Taiwan, Japan, China, Netherland, United Kingdom, and India.

Portwell Engine (PE) Building

Whether you are working on a computer board or turnkey system, Portwell is the perfect partner to help you deliver your products to market on time as well as maintain longevity of product life cycle. With 18 years experience in the design and manufacture of specialty computer boards and systems, Portwell not only provides a one-stop resource for off-the-shelf products, but also supplies custom-built solutions and a global logistics service to suit your needs.

Portwell OEM and ODM solutions satisfy your need in the retail automation, medical equipment, industrial automation, Infotainment, communication, and network security markets. Encouraged by our flexible business support, manufacturing excellence, and compliance with high quality and environmental standards such as ISO 9001/14000/13485, OHSAS and RoHS, customers have taken advantage of our dedicated and sophisticated engineering resource to satisfy their requirements for the design, manufacturing and logistics of application-specific computer boards, customized computer chassis, and specific computer system configurations. No matter what you are working on a Medical Single Board Computer or Internet Security Applicance, Portwell is, again, the perfect partner to help you deliver your products to market on time and stay one step ahead of the competition.

Portwell is famous for her platform service that could offer the following benefits to customers.

Complete Product Portfolio

Select from our full range of both off-the-shelf and versatile custom solutions to scale your products. Portwell provides not only board-level products but also peripheral-level and complete system solutions.

Implement Latest Intel Technology

Partnering with Intel since 1999, and with streamline access to the latest Intel technologies and roadmap, Portwell delivers cutting-edge solutions not only to meet and exceed the demand for the technologies, but also the needs of the long product life cycle.

Faster Time-to-Market

Portwell experienced engineers, complete product solutions, global operation and flexible business service help you meet the time-to-market requirement and reduce your new product introduction cycle as well as costs of conducting business.

Leading Edge Innovator

Portwell is committed to product and solution innovation not only has completed a variety of proof-of-concept designs with Intel but is also a leader in offering the latest technologies to the market.

Committed to Customer Satisfaction

Portwell operates a high standard process in determined pursuit of our commitment to continuously improve our products and services to satisfy and exceed our customers' needs.

Consulting • Design • Product • Manufacturing • Logistics

Portwell emphasizes her technology service which includes from the completed service demand consulting, product development, advanced design, quality production to global logistics to partners

Share for Success

Portwell is eager to share our industrial know-how with customers who has the needs. Our on-air consulting net can help customers to get the suitable or customized solution within short period of time.

Design, Develop, and Deliver

- Design, develop and deliver to meet customer requirements, such as production, reliability, stability, cost-effectiveness, and longevity of product.
- Experienced and sophisticated engineering capability includes electronic, mechanical, firmware and system integration expertise.

Portwell Manufacturing Excellence

- Supply chain and component inventory management with automation.
- In-house SMT lines and PCB assembly and functional testing.
- In-house system integration and testing.
- ISO 14001 and ISO 9001 certified manufacturing facilities (89,000 sq. ft. in Taipei).
- Flexible production capability.

Portwell Global Presence

- Single contact window, global support.
- Sales and technical support teams are available through Portwell worldwide offices in the U.S.A., Taiwan, Japan, China, Netherland, United Kingdom, and India.
- Customer-centric service and support.

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INDUSTRIAL PSU

HIGH QUALITY

Portwell is a leading designer and manufacturer of PICMG 1.3 & 1.0

Portwell, Inc. is a leading designer and manufacturer of PICMG slot boards. Featuring more expansion slots for add-in cards, high integration with versatile backplanes, and ease of upgrading and maintenance, these boards are well suited to critical applied computing applications.

LEADING PICMG 1.3/1.0 SOLUTIONS

In addition to our full-range PICMG 1.0 SBC, Portwell also provides a total solution of PICMG 1.3 system, integrating dual processor based SHB, up to four independent PCI/PCI-X buses, single/redundant power supply and industrial grade chassis. The PICMG 1.3 standard is characterized by the replacement of the ISA bus with PCI-Express bus. The bandwidth of PCI-Express is much better than PCI or ISA bus. PICMG 1.3 is good for many high throughput applications, such as image processing, data storage, and communication appliance, have already adopted this high-speed architecture.
Not only SHB. Portwell also provides versatile backplanes in response to different needs, and to better fit critical applications.

Portwell Embedded Solutions meet your demand perfectly

Portwell Embedded product line targets the Interactive client or industrial market with boards based on 3.5", NANO-ITX, Mini-ITX, CPU Modules or ATX form factors.
The applications include ATM, Kiosk, Digital Signage, POS (Point-Of-Sale), Lottery, Vending, Gaming, Factory automation, Industrial control, Transportation, Medical and Energy.

HIGH SPEED PROCESSOR

All these interactive clients are even more powerful today in order to fulfill the current needs for convenience and entertainment. Richer functions demand the higher speed and hyper-threading/dual core processors we provide for running different applications concurrently.

LOW POWER CONSUMPTION

Energy-saving is the most priority topic to our environment. In terms of power budget and green technology, Portwell endeavors to design products with lower power consumption and optimal performance for dedicated applications. Customers can adopt reliable solutions from Portwell and enjoy all the valuable functions by Portwell design team.

DUAL DISPLAY

Most of the Portwell ESB offers dual display support to display identical or different contents at the same time. The secondary display provides additional information to users when they access or pass information to the interactive clients.

SBC Reference Table

FULL-SIZE SINGLE BOARD COMPUTER



MODEL	ROBO-8120VG2R	ROBO-8921VG2R	ROBO-8110VG2AR
CPU	LGA1366 Dual/Quad Core™ Xeon®	LGA771 Dual/Quad Core™ Xeon®	LGA1155 Dual/Quad Core™
System Bus Frequency	N/A	1333/1066MHz	N/A
Max Memory	4 DIMM/32GB (DDR3)	4 DIMM/32GB (DDR2)	2 DIMM/16GB (DDR3)
ECC	YES	YES	NO
BIOS	AMI	AMI	AMI
Chipset	Intel® 3420	Intel® 5100, ICH9R	Intel® C206
SSD	N/A	N/A	N/A
VGA / Panel	XGI Z11	XGI Z11	Intel® Processor integrated
HDD Channel	6 SATA 300	6 SATA 300	4 SATA 300, 2 SATA 600
FDD Drives	1	1	1
LAN	Intel® 82574L x2	Intel® 82575x1	Intel® 82579LMx1, 82574Lx1
Expansion Interface	Two PCI-E x8, One PCI-E x4, Four PCI	Two PCI-E x8, One PCI-E x4, Four PCI	Four PCI-E x1, One PCI-E x16 or Two PCI-E x8, Four PCI
USB Port	12	10	14
ATX Control	YES	YES	YES
On-Board I/O	W83627DHG	W83627DHG	IT8728F
Serial Port	2	2	2
Parallel Port	1	1	1
PS/2 K/B	Header	Header	Header
PS/2 Mouse	Header	Header	Header
WDT	YES	YES	YES
H/W Monitoring	YES	YES	YES
IrDA	N/A	N/A	N/A
Audio	N/A	N/A	YES
ISA	NO	NO	NO
Dimension (L) x (W)	338.5 mm x 126.39 mm 13.33" x 4.98"	338.5 mm x 126.39 mm 13.33" x 4.98"	338.5 mm x 126.39 mm 13.33" x 4.98"
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"*" Over-clocking

SBC Reference Table

FULL-SIZE SINGLE BOARD COMPUTER



MODEL	ROBO-8914VG2AR	ROBO-8913VG2AR	ROBO-8912VG2AR
CPU	LGA775 Core™ 2 Quad/Core™ 2 Duo/Celeron®	LGA775 Core™ 2 Quad/Core™ 2 Duo/Celeron®	LGA775 Core™ 2 Duo/Pentium® D/ Pentium® 4/ Celeron® D
System Bus Frequency	1333/1066/800MHz	1333/1066/800MHz	1066/800/533MHz
Max Memory	4 DIMM/8GB (DDR3)	2 DIMM/4GB (DDR2)	2 DIMM/4GB (DDR2)
ECC	NO	NO	NO
BIOS	AMI	AMI	Award
Chipset	Intel® Q45, ICH10DO	Intel® Q35, ICH9DO	Intel® Q965, ICH8DO
SSD	N/A	N/A	N/A
VGA / Panel	Intel® Q45 GMCH	Intel® Q35 GMCH	Intel® Q965 GMCH
HDD Channel	6 SATA 300	6 SATA 300	6 SATA 300
FDD Drives	1	2	2
LAN	Intel® 82574Lx1, 82567LMx1	Intel® 82573Lx1, 82566DMx1	Intel® 82573Lx1, 82566DMx1
Expansion Interface	Four PCI-E x1, One PCI-E x16, Four PCI	Four PCI-E x1, One PCI-E x16, Four PCI	Four PCI-E x1, One PCI-E x16, Four PCI
USB Port	12	12	10
ATX Control	YES	YES	YES
On-Board I/O	W83627HG	W83627HG	W83627EHG
Serial Port	2	2	2
Parallel Port	1	1	1
PS/2 K/B	Header	Header	Header
PS/2 Mouse	Header	Header	Header
WDT	YES	YES	YES
H/W Montioring	YES	YES	YES
IrDA	N/A	YES	N/A
Audio	YES	YES	YES
ISA	NO	NO	NO
Dimension (L) x (W)	338.5 mm x 126.39 mm 13.33" x 4.98"	338.5 mm x 126.39 mm 13.33" x 4.98"	338.5 mm x 126.39 mm 13.33" x 4.98"
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"*" Over-clocking

SBC Reference Table

FULL-SIZE SINGLE BOARD COMPUTER



MODEL	ROBO-8210VG2AR	ROBO-8910VG2A	ROBO-8779VG2AR
CPU	rPGA989/Core™ 2 Duo/Celeron®	mPGA478 Pentium® 4/Celeron® D	LGA775 Core™ 2 Quad/Core™ 2 Duo/Celeron®
System Bus Frequency	N/A	800/533MHz	1333/1066/800MHz
Max Memory	2 DIMM/8GB (DDR3)	2 DIMM/2GB (DDR2)	2 DIMM/4GB (DDR3)
ECC	NO	NO	NO
BIOS	AMI	Award	AMI
Chipset	Intel® QM57	Intel® 915GV, ICH6	Intel® G41, ICH7R
SSD	Mini PCIE	CF Max. 1GB	Type II CF
VGA / Panel	Intel® Processor Integated	Intel® 915GV GMCH/NO	Intel® G41 GMCH
HDD Channel	6 SATA 300	1 EIDE Ultra DMA 100/66/33 & 4 SATA 150	4 SATA 300
FDD Drives	1	2	1
LAN	Intel® 82583Vx1, 82577LMx1	Marvell 88E8001x2	Intel® 82574Lx2
Expansion Interface	One PCI -E x4, One PCI-E x16, Four PCI	Four PCI Express x1, Four PCI	N/A
USB Port	12	8	8
ATX Control	YES	YES	YES
On-Board I/O	IT8721F	W83627THF	W83627THG
Serial Port	2	2	2
Parallel Port	1	1	1
PS/2 K/B	Header	Header	Header
PS/2 Mouse	Header	Header	Header
WDT	YES	YES	YES
H/W Montioring	YES	YES	YES
IrDA	N/A	YES	NO
Audio	YES	YES	YES
ISA	NO	NO	YES
Dimension (L) x (W)	338.5 mm x 126.39 mm 13.33" x 4.98"	338.5 mm x 122 mm 13.33" x 4.8"	338.5 mm x 122 mm 13.33" x 4.8"
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"*" Over-clocking

SBC Reference Table

FULL-SIZE SINGLE BOARD COMPUTER



MODEL	ROBO-8777VG2A	ROBO-8719VG2AR	ROBO-8718VG2A
CPU	LGA775 Core™ 2 Duo/Pentium® D/ Pentium® 4/ Celeron® D	45nm Mobile Core™ 2 Quad/Core™ 2 Duo/Celeron® M	mFCPGA Pentium® M / Celeron® M
System Bus Frequency	1066/800/533MHz	1066/800/667MHz	533/400MHz
Max Memory	2 DIMM/4GB (DDR2)	2 DIMM/4GB (DDR2)	2 DIMM/2GB (DDR2)
ECC	NO	NO	NO
BIOS	Award	AMI	Award
Chipset	Intel® Q965, ICH8	Intel® GM45, ICH9ME	Intel® 915GME, ICH6
SSD	N/A	Type II CF	CF Max. 1GB
VGA / Panel	Intel® Q965GMCH/NO	Intel® GM45GMCH/YES	Intel® 915GM/YES
HDD Channel	4 SATA 300	3 SATA 300	1 EIDE Ultra DMA 100/66/33 & 4 SATA 150
FDD Drives	2	1	2
LAN	Realtek RTL 8111B x2	Intel® 82567LM, 82574L	Marvell 88E8053x2
Expansion Interface	N/A	N/A	N/A
USB Port	6	6	4
ATX Control	YES	YES	YES
On-Board I/O	W83627DHG	W83627DHG	W83627THF
Serial Port	2	2	2
Parallel Port	1	1	1
PS/2 K/B	Header	Header	Header
PS/2 Mouse	Header	Header	Header
WDT	YES	YES	YES
H/W Montioring	YES	YES	YES
IrDA	NO	NO	YES
Audio	YES	YES	YES
ISA	YES	YES	YES
Dimension (L) x (W)	338.5 mm x 122 mm 13.33" x 4.8"	338.5 mm x 122 mm 13.33" x 4.8"	338.5 mm x 122 mm 13.33" x 4.8"
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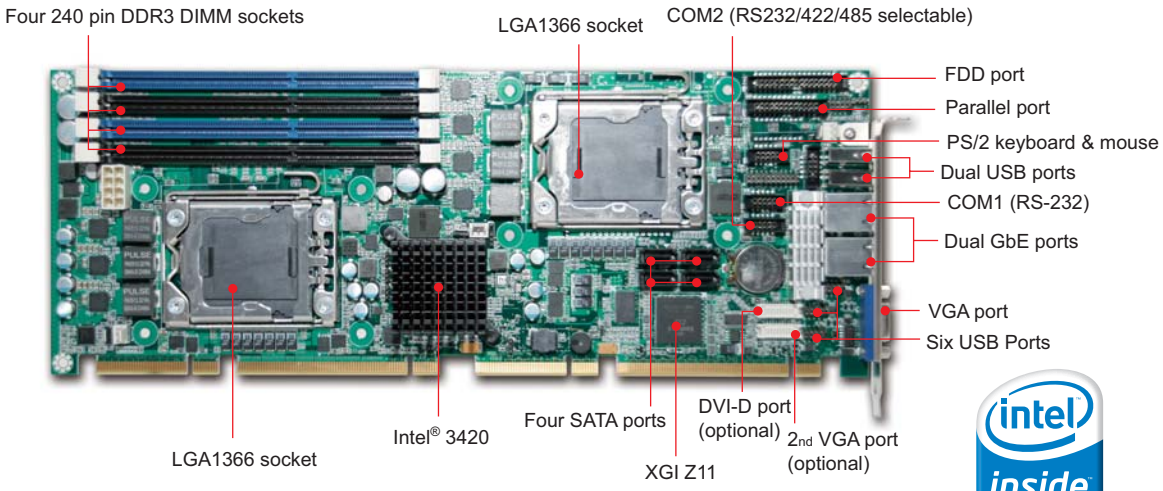
"*" Over-clocking

ROBO-8120VG2R

Intel® Dual/Quad Core™ Xeon® processor based PICMG 1.3 SHB with DDR3 ECC SDRAM, VGA, DVI, Dual Gigabit Ethernet and USB



FEATURES

- Support Intel® Dual/Quad Core™ Xeon® processors with LGA 1366 package
- Delivers up to 32GB DDR3 maximum ECC registered memory assured the computer reliability and benefited the data swapping process
- Adopt XGI Z11 graphic engine offers solid 2D performance
- Support VGA display on bracket and optional 2nd VGA or DVI-D interface
- Rich & powerful I/O expansion covers PCIE Gen 2.0 for one PCI Express x16 or two PCI Express x8 or four PCI Express x4
- High speed dual Gigabit Ethernet based on PCI Express x1 interface provides Wake-On-LAN function
- Rich I/O connections such as FDD, two Gigabit Ethernet, serial ports, parallel port, USB 2.0, and SATA ports

ORDERING GUIDE

Standard	ROBO-8120VG2R Intel® Dual/Quad CoreTM Xeon® processor based PICMG 1.3 SHB with DDR3 ECC SDRAM, VGA, DVI, Dual Gigabit Ethernet and USB
Optional	PS/2 Keyboard/Mouse Cable with Bracket PS/2 keyboard/mouse connectors on bracket USB cable with bracket Two USB ports with bracket DVI-D+ VGA cable with bracket One port DVI-D + one port VGA cable with bracket

GENERAL

Processor	CPU & Package: Intel® Dual/Quad Core™ Xeon® C5500/C3500 series processor in LGA-1366 package
Chipset/Core Logic	Intel® 3420
System Memory	Up to 32GB DDR3 1333/1066/800 SDRAM on four 240-pin DIMM socket Support ECC, registered
BIOS	AMI UEFI BIOS
Storage Devices	EIDE: N/A SATA: Support six SATA 300 drives (dual SATA ports via Backplane) (RAID 0,1,5,10)
Solid State Disk	N/A
Watchdog Timer	Programmable via software from 0.5 sec. to 254.5 sec.
Expansion Interface	- One PCIE x 16 - Two PCIE x 8 - Four PCIE x 4 - Four PCI devices
Hardware Monitoring	System monitor (fan, temperature, voltage)
Power Requirement	Typical: +5V@0.32A; +12V@6.96A
Dimension	Dimension: 338.5(L) x 126.39(W) / 13.33"(L) x 4.98" (W) PCB: 12-layer
Environment	Operating Temperature: 0 to 55ºC (for 85W CPU limitation) Storage Temperature: -20 to 80ºC Relative Humidity: 5% to 90%, non-condensing
MTBF	105,513 hrs

I/O

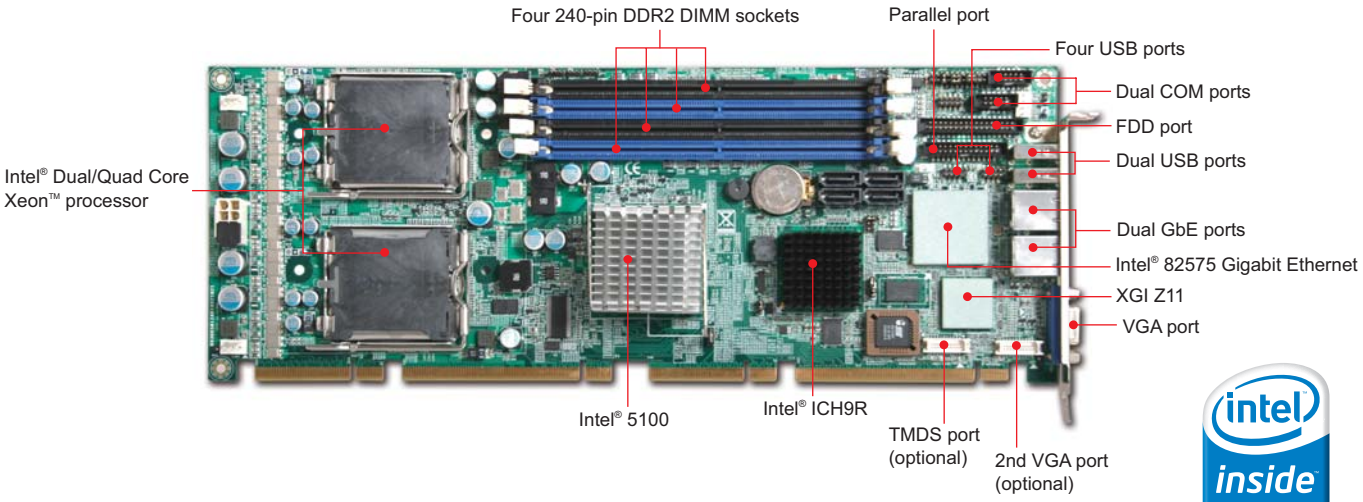
MIO	Two serial (RS-232x1, selectable RS-232/422/485 x1), one parallel and one FDD channel
IrDA	N/A
Ethernet	-Dual 10BASE-T/100BASE-TX/1000BASE-T Ethernet -PCI Express x1 interface based Gigabit Ethernet -Dual RJ-45 connector with two LED indicators
Audio	N/A
USB	Twelve USB 2.0 ports (Four ports through backplane)
Keyboard & Mouse	Two USB 2.0 ports on bracket dedicated to keyboard & mouse

DISPLAY

Graphic Controller	XGI Z11
Graphic Memory	32MB DDR2 Memory
Display Interface	Support CRT on bracket and optional second CRT or DVI-D display interface

ROBO-8921VG2R

Dual/Quad Core™ Xeon® processor based PICMG 1.3 SHB with DDR2 ECC SDRAM, VGA & Dual Gigabit Ethernet



FEATURES

- ROBO-8921 offers flexible 1333/1066 MHz selection of Intel® Dual/Quad Core™ Xeon® processors with LGA771 package
- Flexible design of dual PCI Express x8 could be aggregated as one PCI Express x16 for Graphic card
- Rich & powerful I/O expansion covers dual PCI Express x8, one PCI Express x4 and four PCI devices
- Up to 32GB, ECC registered memory assured the computer reliability and benefited the data swapping process
- Relative high performance graphic engine, XGI Z11 provides solid 2D for server grade market
- Dual PCI Express x4 based Gigabit Ethernet supports IPv4, IPv6 offloading, VLAN, Wake-On-LAN functions

ORDERING GUIDE

Standard	ROBO-8921VG2R Dual Xeon® LV processor based PICMG 1.3 SHB with VGA and Dual Gigabit Ethernet (CPU Cooler included)
Optional	PS/2 Keyboard/Mouse with Bracket PS/2 keyboard/mouse connectors on bracket

GENERAL

Processor	CPU & Package: Dual/Quad Core™ Intel® Xeon® processor (single or dual processor) in LGA-771 package FSB: 1333/1066MHz
Chipset/Core Logic	Intel® 5100 and ICH9R
System Memory	- Up to 32GB DDR2 533/667 SDRAM on four 240-pin DIMM sockets - Support ECC, registered
BIOS	AMI BIOS
Storage Devices	EIDE: N/A SATA: Support Six SATA 300 drives (dual SATA ports via Backplane) (RAID 0, 1, 5, 10)
Solid State Disk	N/A
Watchdog Timer	Programmable via software from 0.5 sec. to 254.5 sec.
Expansion Interface	- One PCI Express x8 - Three PCI Express x4 - Four PCI devices
Hardware Monitoring	System monitor (fan, temperature, voltage)
Power Requirement	Typical: +5V@7.01A; +12V@3.74A
Dimension	Dimension : 338.6(L) x 126.39(W) mm; 13.33"(L) x 4.98" (W) PCB: 12-layer
Environment	Operating Temperature: 0 to 60°C (for 80W CPU limitation) Storage Temperature: -20 to 80°C Relative Humidity: 5% to 90%, non-condensing
MTBF	106,427 hrs

I/O

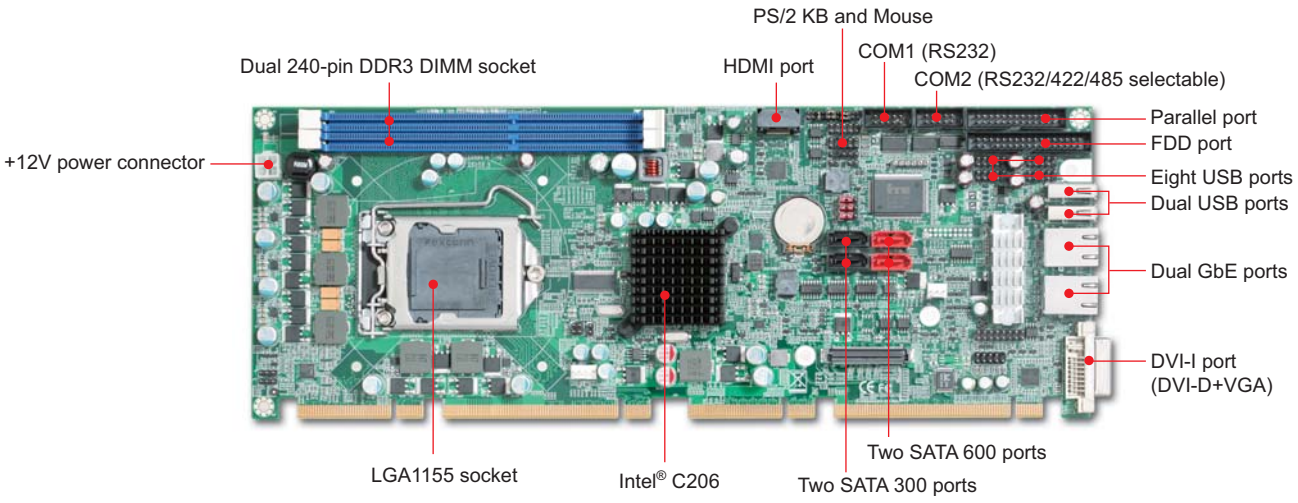
MIO	Two serial (RS232 x1, selectable RS232/485 x1), one parallel, one FDD channel
IrDA	N/A
Ethernet	PCI Express x4 interface based Intel® 82575 dual Gigabit Ethernet controller
Audio	N/A
USB	Ten USB 2.0 ports (Four through backplane)
Keyboard & Mouse	Two USB 2.0 ports on bracket dedicated to keyboard & mouse

DISPLAY

Graphic Controller	XGI Z11
Graphic Memory	32MB DDR2 Memory
Display Interface	Support CRT and optional second CRT or DVI-D display interfaces

ROBO-8110VG2AR

Intel® Core™ 2 Quad processor based PICMG 1.3 SHB with DDR3 SDRAM, VGA, Dual Gigabit Ethernet, Audio and USB



FEATURES

- Support Intel® Xeon® and Core™ i7/i5/i3 processors in LGA 1155 package
- Delivers up to 16GB maximum DDR3 1333/1066 ECC SDRAM on two DIMM sockets
- Support multiple display by DVI-I (DVI-D + VGA) and HDMI
- Support iAMT 7.0 on Xeon® and Core™ i7/i5 processors
- High speed dual Gigabit Ethernet based on PCI Express x1, high bandwidth I/O interface
- Rich I/O connections such as FDD, two Gigabit Ethernet, serial ports, parallel port, USB 2.0
- On-board two SATA 300 and two SATA 600 ports support RAID 0,1,5,10

ORDERING GUIDE

Standard	ROBO-8110VG2AR PICMG 1.3(PCI-E+PCI), Intel Xeon and Core i7/i5/i3 LGA1155 processors, SHB, w/DVI-I/ Dual GbE/Audio/USB
Optional	PA-M1AU Multimedia kit with audio and USB ports
	PS/2 Keyboard/Mouse Cable with Bracket PS/2 keyboard/mouse connectors on bracket
	USB cable with bracket Two USB ports with bracket

GENERAL

Processor	CPU & Package: Intel® Xeon and Core™ i7/i5/i3 processor in LGA-1155 socket
Chipset/Core Logic	Intel® C206
System Memory	- Up to 16GB DDR3 1333/1066 SDRAM on two 240-pin DIMM sockets - Support ECC
BIOS	AMI UEFI BIOS
Storage Devices	EIDE: N/A SATA: Support two SATA 600 and four SATA 300 drives (dual SATA ports via backplane) (RAID 0,1,5,10)
Solid State Disk	N/A
Watchdog Timer	Programmable via software from 0.5 sec. to 254.5 sec.
Expansion Interface	N/A
Hardware Monitoring	System monitor (fan, temperature, voltage)
Power Requirement	N/A
Dimension	Dimension: 338.5(L) x 126.39(W) mm / 13.33"(L) x 4.98" (W) PCB: 8-layer
Environment	Operating Temperature: 0 to 55°C Storage Temperature: -20 to 80°C Relative Humidity: 5% to 90%, non-condensing
MTBF	N/A

I/O

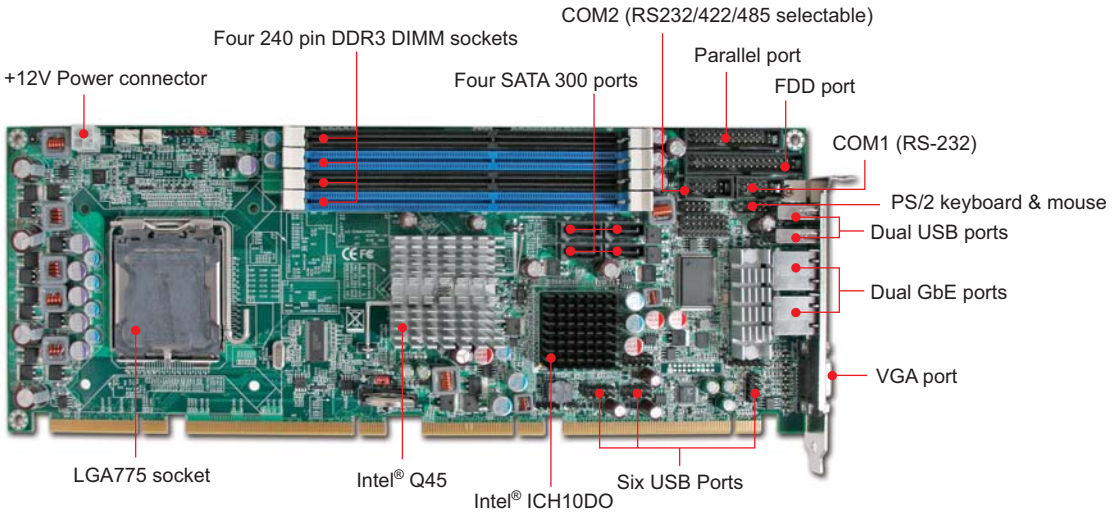
MIO	Two serial (RS-232x1, selectable RS-232/422/485 x1), one parallel and one FDD channel
IrDA	N/A
Ethernet	- Dual 10BASE-T/100BASE-TX/1000BASE-T Ethernet - PCI Express x1 interface based Gigabit Ethernet - Dual RJ-45 connector with two LED indicators
Audio	HDA interface, 5.1-channel Audio (Realtek ALC 662)
USB	Fourteen USB 2.0 ports (Four USB ports via backplane)
Keyboard & Mouse	Two USB 2.0 ports on bracket dedicated to keyboard & mouse

DISPLAY

Graphic Controller	- Intel® Xeon® and Core™ i7/i5/i3 processors integrated graphic engine - Provided improved 3D multimedia capabilities including Microsoft DirectX 10.1, Shader Model 4.0, MPEG-2 and OpenGL 3.0
Graphic Memory	Intel® Dynamic Video Memory Technology (DVMT) 5.0 shares system memory up to1GB
Display Interface	Analog CRT: up to 2048 x 1536 @ 75Hz DVI-D: up to 1920 x 1200 @ 60Hz HDMI: up to 1920 x 1200 @ 60Hz

ROBO-8914VG2AR

Intel® Core™ 2 Quad processor based PICMG 1.3 SHB with DDR3 SDRAM, VGA, Dual Gigabit Ethernet, Audio and USB



FEATURES

- Support Intel® Core™ 2 Duo and Core 2 Quad processors and offers flexible 1333/1066/800 MHz FSB selection
- Delivers up to 8GB maximum DDR3 1066/800 on four long DIMM sockets
- Support Intel® Q45 integrated GMA 4500 graphic engine delivers optimized 3D graphics performance
- Support iAMT 5.0 and iTPM function
- High speed dual Gigabit Ethernet based on PCI Express x1, high bandwidth I/O interface
- Rich I/O connections such as FDD, two Gigabit Ethernet, serial ports, parallel port, USB 2.0
- Four on-board SATA ports support RAID 0,1,5,10

ORDERING GUIDE

Standard	ROBO-8914VG2AR PICMG 1.3(PCI-E+PCI).LGA775.Core 2 Quad.SHB.w/VGA/Dual GbE/Audio
Optional	PA-M1AU Multimedia kit with audio and USB ports
	PS/2 Keyboard/Mouse Cable with Bracket PS/2 keyboard/mouse connectors on bracket
	USB cable with bracket Two USB ports with bracket
	Low profile LGA775 Cooler High efficiency slim cooler increases reliability of system

GENERAL

Processor	CPU & Package: Intel® Core™ 2 Quad, Core 2 Duo, Celeron processor in LGA-775 package FSB: 1333/1066/800MHz
Chipset/Core Logic	Intel® Q45 and ICH10DO
System Memory	Up to 8GB DDR3 1066/800 SDRAM on four 240-pin DIMM socket
BIOS	AMI BIOS
Storage Devices	EIDE: N/A SATA: Support six SATA 300 drives (dual SATA ports via backplane) (RAID 0,1,5,10)
Solid State Disk	N/A
Watchdog Timer	Programmable via software from 0.5 sec. to 254.5 sec.
Expansion Interface	Four PCI Express x1, one PCI Express x16 and four PCI
Hardware Monitoring	System monitor (fan, temperature, voltage)
Power Requirement	Typical: +5V@6.44A; +12V@3.86A
Dimension	Dimension: 338.5(L) x 126.39(W) mm / 13.33"(L) x 4.98" (W) PCB: 8-layer
Environment	Operating Temperature: 0 to 55°C Storage Temperature: -20 to 80°C Relative Humidity: 5% to 90%, non-condensing
MTBF	123,053 hrs

I/O

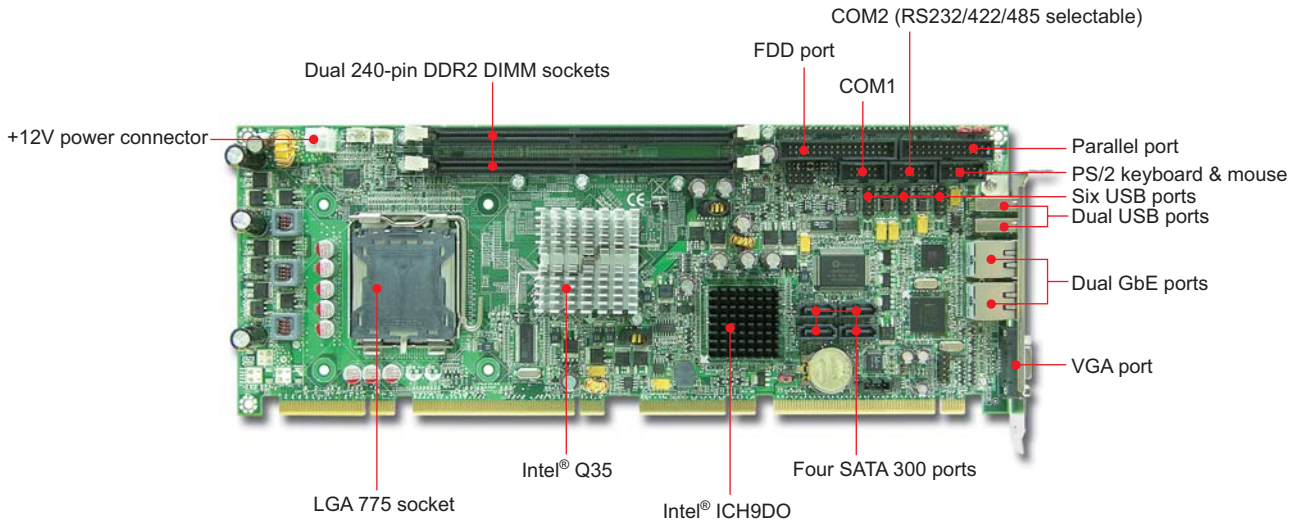
MIO	Two serial (RS-232x1, selectable RS-232/422/485 x1), one parallel and one FDD channel
IrDA	N/A
Ethernet	- Dual 10BASE-T/100BASE-TX/1000BASE-T Ethernet - PCI Express x1 interface based Gigabit Ethernet - Dual RJ-45 connector with two LED indicators
Audio	HDA interface, 5.1-channel Audio (Realtek ALC 662)
USB	Twelve USB 2.0 ports (Four USB ports via backplane)
Keyboard & Mouse	Two USB 2.0 ports on bracket dedicated to keyboard & mouse

DISPLAY

Graphic Controller	- GMCH integrated Intel® Graphics Media Accelerator (GMA) 4500 - Provided improved 3D multimedia capabilities including Microsoft DirectX 10, Shader Model 4.0, MPEG-2 and OpenGL 2.1
Graphic Memory	Intel® Dynamic Video Memory Technology (DVMT) 5.0 shares system memory up to1GB
Display Interface	Analog CRT: up to 2048 x 1536 @ 75Hz

ROBO-8913VG2AR

Intel® Core™ 2 Quad processor based PICMG 1.3 SHB with DDR2 SDRAM, VGA, Dual Gigabit Ethernet, Audio and USB



FEATURES

- Support Intel® Core™ 2 Quad processor up to FSB 1333MHz
- Low profile processor improves stability and reliability of whole system
- Support eSATA that can communicate with multiple drives via port multiplier
- Lockable cable-latched notches of SATA connector secure connection in vibration condition
- Embedded Intel® Active Management Technology (AMT) remotely discovers, heals and protects networked computing assets using third-party management and security applications
- System noise and heat are reduced through more intelligent fan speed control algorithms by integrated Intel® Quiet System Technology
- Flexiblie design of four external PCI Express x1 could aggregate as one PCI Express x4 for storage device thru backplane

ORDERING GUIDE

Standard	ROBO-8913VG2AR LGA-775 Core 2 Quad processor based PICMG 1.3 SHB with DDR2 SDRAM, VGA, Dual Gigabit Ethernet, Audio and USB
Optional	PA-M1AU Multimedia kit with audio and USB ports PS/2 Keyboard/Mouse Cable with Bracket PS/2 keyboard/mouse connectors on bracket Low Profile LGA775 Cooler High efficiency slim cooler that increases reliability of system

GENERAL

Processor	CPU & Package: Intel® Core™ 2 Quad, Core™ 2 Duo, Celeron® processor in the LGA-775 package FSB: 1333/1066/800MHz
Chipset/Core Logic	Intel® Q35 & ICH9DO
System Memory	Up to 4GB DDR2 800/667 SDRAM on dual 240-pin DIMM sockets
BIOS	AMI BIOS
Storage Devices	EIDE: N/A SATA: Support six SATA 300 drives (dual SATA ports via backplane) (RAID 0, 1, 5, 10)
Solid State Disk	N/A
Watchdog Timer	Programmable via software from 0.5 sec. to 254.5 sec.
Expansion Interface	Four PCI Express x1, one PCI Express x16 and four PCI
Hardware Monitoring	System monitor (fan, temperature, voltage)
Power Requirement	Typical: +5V@6.7A; +12V@2.7A
Dimension	Dimension : 338.5(L) x 126.39(W) mm; 13.33"(L) x 4.98" (W) PCB: 8-layer
Environment	Operating Temperature: 0 to 60°C Storage Temperature: -20 to 80°C Relative Humidity: 5% to 90%, non-condensing
MTBF	115,592 hrs

I/O

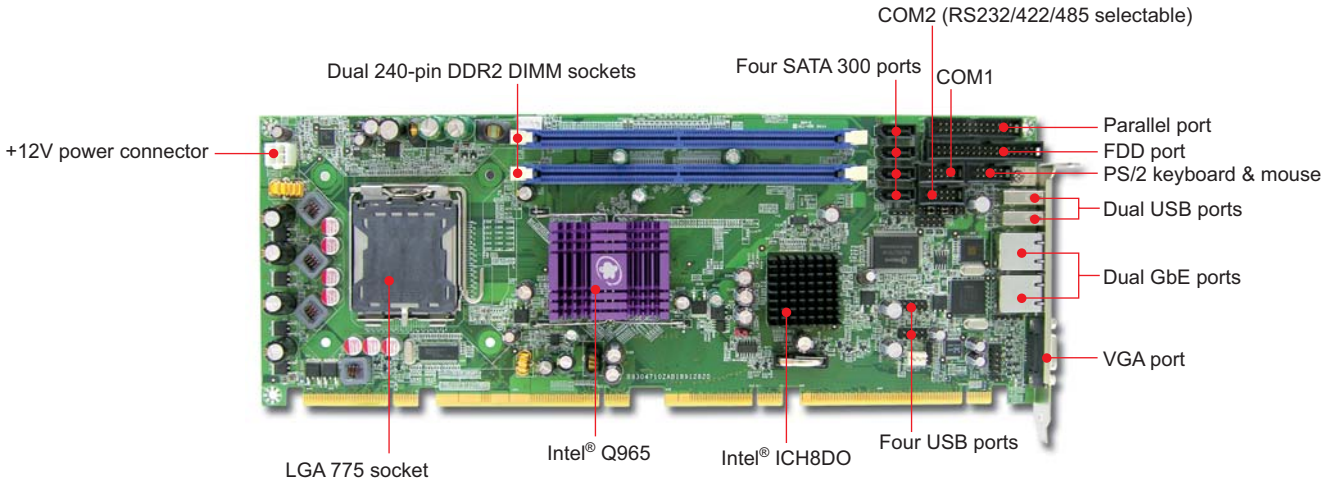
MIO	Two serial (RS232 x1, selectable RS232/422/485 x1), one parallel and one FDD channel
IrDA	IrDA 1.0
Ethernet	- Dual 10BAST-T/100BAST-TX/1000BAST-T Ethernet - PCI Express x1 interface based Gigabit Ethernet - Dual RJ-45 connector with two LED indicators
Audio	HDA interface, 2-channel Audio (Realtek ALC 262)
USB	Twelve USB 2.0 ports (Four USB ports via backplane)
Keyboard & Mouse	Two USB 2.0 ports on bracket dedicated to keyboard & mouse

DISPLAY

Graphic Controller	- GMCH integrated Intel® Graphics Media Accelerator 3100 - Provides improved 3D multimedia capabilities including DirectX 9, Shader Model 2.0, OpenGL 1.4, MPEG-2 hardware acceleration
Graphic Memory	Intel® Dynamic Video Memory Technology (DVMT) 4.0 shares system memory up to 256MB
Display Interface	Support CRT interface up to QXGA 75Hz (2048x1536)

ROBO-8912VG2AR

Intel® Core™ 2 Duo processor based PICMG 1.3 SHB with DDR2 SDRAM, VGA, Dual Gigabit Ethernet, Audio and USB



FEATURES

- Support 45nm Intel® Core™ 2 Duo processor that generates a maximum 65W TDP. Lower TDP than socket 775 Pentium® 4 processor makes the vertical mount slot board more reliable
- Low profile processor improves stability and reliability of whole system
- More features, such as EM64T, EIST, XD & VT, can be easily applied to system by changing processor
- Integrated Intel® GMA 3000 graphics engine built with high grade display capability
- Lockable cable-latched notches of SATA connector secure connection in vibration condition
- Embedded Intel® Active Management Technology (AMT) remotely discovers, heals and protects networked computing assets using third-party management and security applications
- System noise and heat are reduced through more intelligent fan speed control algorithms by integrated Intel® Quiet System Technology
- Flexiblie design of four external PCI Express x1 could aggregate as one PCI Express x4 for storage device thru backplane

ORDERING GUIDE

Standard	ROBO-8912VG2AR LGA-775 Core 2 Duo processor based PICMG 1.3 SHB with DDR2 SDRAM, VGA, Dual Gigabit Ethernet, Audio and USB
Optional	PA-M1AU Multimedia kit with audio and USB ports
	PS/2 Keyboard/Mouse Cable with Bracket PS/2 keyboard/mouse connectors on bracket
	Low Profile LGA775 Cooler High efficiency slim cooler increases reliability of system

GENERAL

Processor	CPU & Package: Intel® Core™ 2 Duo, Pentium® D, Pentium® 4, Celeron® D processor in the LGA-775 package FSB: 1066/800/533MHz
Chipset/Core Logic	Intel® Q965 and ICH8DO
System Memory	Up to 4GB DDR2 800/667/533 SDRAM on dual 240-pin DIMM sockets
BIOS	Award BIOS
Storage Devices	EIDE: N/A SATA: Support six SATA 300 drives (dual SATA ports via backplane) (RAID 0, 1, 5, 10)
Solid State Disk	N/A
Watchdog Timer	Programmable via software from 0.5 sec. to 254.5 sec.
Expansion Interface	Four PCI Express x1, one PCI Express x16 and four PCI
Hardware Monitoring	System monitor (fan, temperature, voltage)
Power Requirement	Typical: +5V@4.5A; +12V@6.3A
Dimension	Dimension : 338.5(L) x 126.39(W) mm; 13.33"(L) x 4.98" (W) PCB: 6-layer
Environment	Operating Temperature: 0 to 60°C Storage Temperature: -20 to 80°C Relative Humidity: 5% to 90%, non-condensing
MTBF	93,332 hrs

I/O

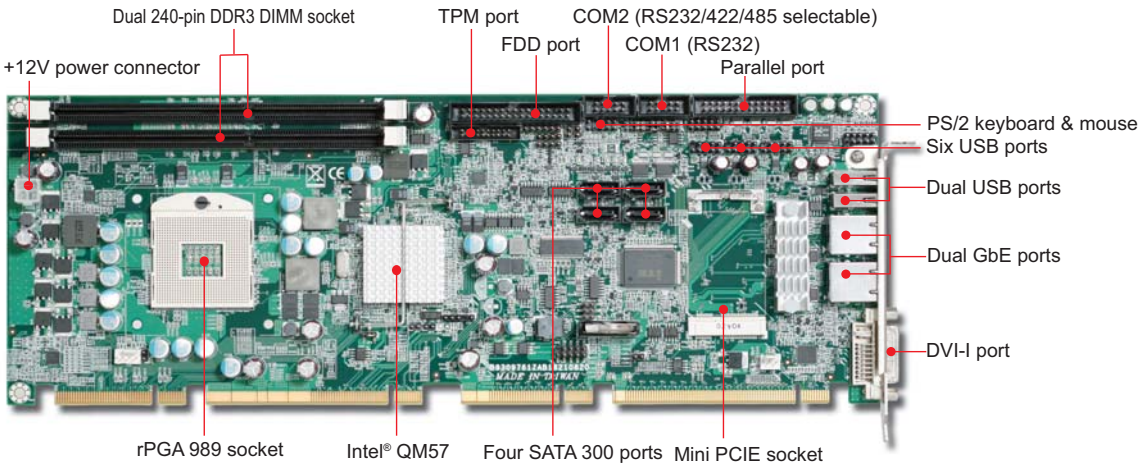
MIO	Two serial (RS232 x1, selectable RS232/422/485 x1), one parallel and one FDD channel
IrDA	N/A
Ethernet	- Dual 10BAST-T/100BAST-TX/1000BAST-T Ethernet - PCI Express x1 interface based Gigabit Ethernet - Dual RJ-45 connector with two LED indicators
Audio	HDA interface, 2-channel Audio (Realtek ALC 262)
USB	Ten USB 2.0 ports (four USB ports via backplane)
Keyboard & Mouse	Two USB 2.0 ports on bracket dedicated to keyboard & mouse

DISPLAY

Graphic Controller	- GMCH integrated Intel® Graphics Media Accelerator 3000 - Provides improved 3D multimedia capabilities including DirectX 9, Shader Model 3.0, OpenGL 1.5, Advanced De-interlacing, MPEG-2 hardware acceleration
Graphic Memory	Intel® Dynamic Video Memory Technology (DVMT) 4.0 shares system memory up to 256MB
Display Interface	Support CRT interface up to QXGA 75Hz (2048x1536)

ROBO-8210VG2AR

Intel® Core™ i7/i5 processor based PICMG 1.3 SHB with DDR3 SDRAM, DVI-I, Dual Gigabit Ethernet, Audio and USB



FEATURES

- Support Intel® i7-620M/i5-520M/P4500 processors in rPGA988 package
- Delivers up to 8GB maximum DDR3 1066/800 on two DIMM sockets
- Support dual display by DVI-I port on bracket
- Support iAMT 6.0 and external TPM via TPM module
- High speed dual Gigabit Ethernet based on PCI Express x1, high bandwidth I/O interface
- Rich I/O connections such as FDD, two Gigabit Ethernet, serial ports, parallel port, USB 2.0
- Four on-board SATA ports support RAID 0,1,5,10

ORDERING GUIDE

Standard	ROBO-8210VG2AR PICMG 1.3(PCI-E+PCI).Intel® Core™ i7/i5 PGA type processors.SHB.w/DVI-I/Dual GbE/ Audio/USB
Optional	PA-M1AU Multimedia kit with audio and USB ports
	PS/2 Keyboard/Mouse Cable with Bracket PS/2 keyboard/mouse connectors on bracket
	USB cable with bracket Two USB ports with bracket

GENERAL

Processor	CPU & Package: Intel® Core™ i7-620M/i5-520M/P4500 processor in rPGA989 socket
Chipset/Core Logic	Intel® QM57
System Memory	Up to 8GB DDR3 1066/800 SDRAM on two 240-pin DIMM sockets
BIOS	AMI UEFI BIOS
Storage Devices	EIDE: N/A SATA: Support six SATA 300 drives (dual SATA ports via backplane) (RAID 0,1,5,10)
Solid State Disk	One Mini-PCIe socket
Watchdog Timer	Programmable via software from 0.5 sec. to 254.5 sec.
Expansion Interface	- One PCIE x 16 - Two PCIE x 8 - Four PCI devices
Hardware Monitoring	System monitor (fan, temperature, voltage)
Power Requirement	Typical: +5V@4.1A; +12V@1.37A
Dimension	Dimension: 338.5(L) x 126.39(W) / 13.33"(L) x 4.98" (W) PCB: 8-layer
Environment	Operating Temperature: 0 to 55oC Storage Temperature: -20 to 80oC Relative Humidity: 5% to 90%, non-condensing
MTBF	100,215 hrs

I/O

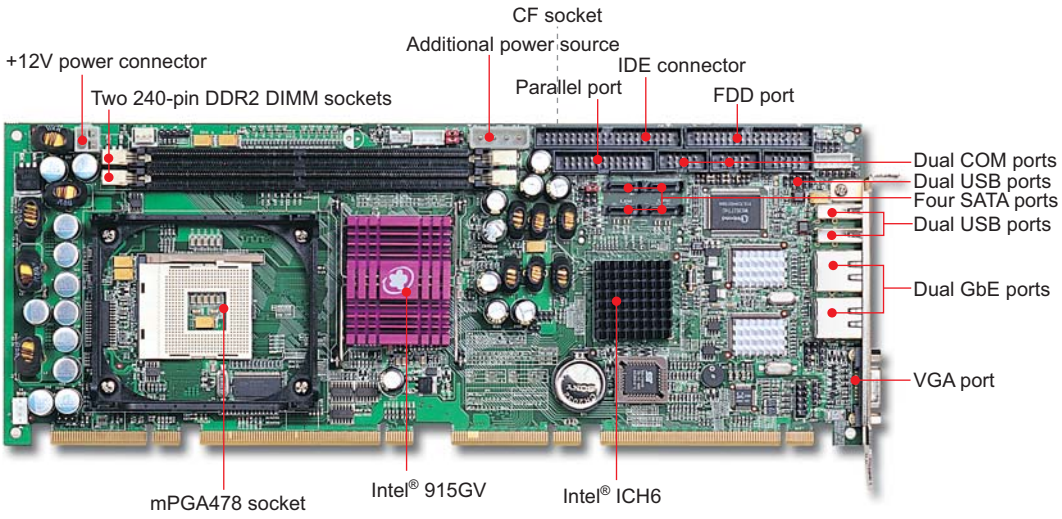
MIO	Two serial (RS-232x1, selectable RS-232/422/485 x1), one parallel and one FDD channel
IrDA	N/A
Ethernet	-Dual 10BASE-T/100BASE-TX/1000BASE-T Ethernet -PCI Express x1 interface based Gigabit Ethernet -Dual RJ-45 connector with two LED indicators
Audio	HAD interface, 5.1-channel Audio (Realtek ALC 662)
USB	Twelve USB 2.0 ports (Four USB ports via backplane)
Keyboard & Mouse	Two USB 2.0 ports on bracket dedicated to keyboard & mouse

DISPLAY

Graphic Controller	- Intel® Core™ i7/i5 processors integrated Gen 5.75 graphic engine - Provided improved 3D multimedia capabilities including Microsoft DirectX 10, Shader Model 4.0, MPEG-2 and OpenGL 2.1
Graphic Memory	Intel® Dynamic Video Memory Technology (DVMT) 5.0 shares system memory up to 1GB
Display Interface	Analog CRT: up to 2048 x 1536 @ 75Hz DVI-D: up to 1920 x 1200 @ 60Hz

ROBO-8910VG2A

Intel® Pentium® 4 or Celeron® D processor based PICMG 1.3 SHB with DDR2 533 SDRAM, VGA, Dual Gigabit Ethernet and Audio



FEATURES

- High quality and reliable design with wider range Intel® Pentium® 4/ Celeron® D processor to support mission critical operation
- Intel® 915GV chipset with high performance integrated graphics, backed up by Intel® IPD's long product life support
- Intel® new GMA 900 integrated provides better display quality and effects thru faster engine; SGI OpenGL 1.4, Microsoft DirectX 9.0 supported
- Four SATA 150 ports for high speed storage interface and easy cable routing
- Support four PCI Express x1, and four PCI expansion via backplane (additional one PCI Express x16 per project spec.)

ORDERING GUIDE

Standard	ROBO-8910VG2A Socket 478 Pentium® 4 or Celeron® D processor based PICMG 1.3 SHB with DDR2 SDRAM, VGA, Dual Gigabit Ethernet and Audio
Optional	PA-M1AU Multimedia kit with audio and dual USB port
	PS/2 Keyboard/Mouse with Bracket PS/2 keyboard/mouse connectors on bracket

GENERAL

Processor	CPU & Package: Intel® Pentium® 4 or Celeron® D processor in mFCPGA package FSB: 800/533MHz
Chipset/Core Logic	Intel® 915GV and ICH6
System Memory	Up to 2GB DDR2 533/400 SDRAM on two 240-pin DIMM sockets
BIOS	Award BIOS
Storage Devices	EIDE: Support two EIDE devices with Ultra DMA 100/66/33 SATA: Support four SATA 150 drives
Solid State Disk	- One type II CF socket; On Primary EIDE channel - Bootable for no drive on primary channel
Watchdog Timer	Programmable via software from 0.5 sec. to 254.5 sec.
Expansion Interface	- Four PCI Express x1 - Four PCI
Hardware Monitoring	System monitor (fan, temperature, voltage)
Power Requirement	Typical: +5V@3.49A; +12V@7.57A
Dimension	Dimension : 338.5(L) x 126.39(W) mm; 13.33"(L) x 4.98" (W) PCB: 8-layer
Environment	Operating Temperature: 0 to 60ºC Storage Temperature: -20 to 80ºC Relative Humidity: 5% to 90%, non-condensing
MTBF	115,533 hrs

I/O

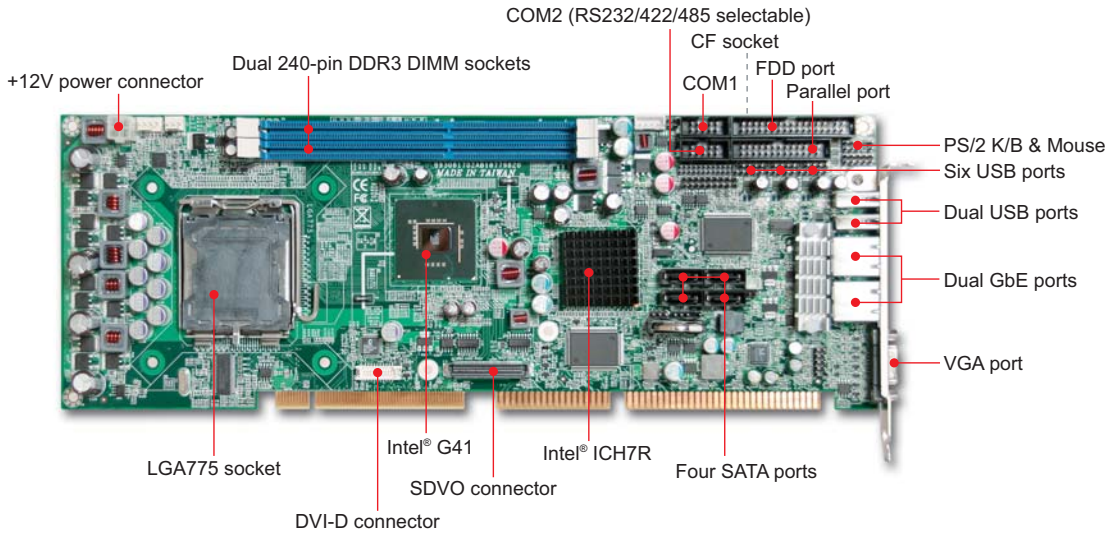
MIO	Two serial (selectable RS232/422/485 x1), one parallel, one FDD channel
IrDA	IrDA 1.0
Ethernet	- Dual 10BASE-T/100BASE-TX/1000BASE-T Ethernet - Dual RJ-45 connectors with two LED indicators
Audio	AC'97 2.2 Audio (Realtek ALC 202A)
USB	Eight USB 2.0 ports (four ports through backplane)
Keyboard & Mouse	Two USB 2.0 ports on bracket for keyboard & Mouse

DISPLAY

Graphic Controller	915GV integrated Graphics Media Accelerator 900 (GMA 900)
Graphic Memory	Dynamic system memory sharing up to 224MB (Intel® DVMT 3.0) or static system memory sharing up to 128MB
Display Interface	Display resolution up to 2048 x 536 @ 85Hz refresh

ROBO-8779VG2AR

Intel® Core™ 2 Quad processor based PICMG 1.0 SBC with DDR3 SDRAM, VGA, DVI, Dual Gigabit Ethernet, Audio and USB



FEATURES

- Support Intel® Core™ 2 Duo and Core™ 2 Quad processors and offers flexible 1333/1066/800Mhz FSB selection
- Delivers up to 4GB maximum DDR3 1066/800 on two long DIMM sockets
- Support Intel® G41 integrated GMA X4500 graphic engine delivers optimized 3D graphics performance
- Support dual display VGA and DVI-D interface, and SDVO connector for other types display by project
- High speed dual Gigabit Ethernet based on PCI Express x1, high bandwidth I/O interface
- Support one CF socket up to UDMA5 mode
- Rich I/O connections such as FDD, two Gigabit Ethernet, serial ports, parallel port, USB 2.0, and SATA ports

ORDERING GUIDE

Standard	ROBO-8779VG2AR Intel® Core™ 2 Quad processor based PICMG 1.0 SBC with DDR3 SDRAM, VGA, DVI, Dual Gigabit Ethernet, Audio and USB
	ROBO-8779VG2A Intel® Core™ 2 Quad processor based PICMG 1.0 SBC with DDR3 SDRAM, VGA, DVI, Dual Gigabit Ethernet, Audio and USB
Optional	PA-M1AU Multimedia kit with audio and USB ports
	PS/2 Keyboard/Mouse Cable with Bracket PS/2 keyboard/mouse connectors on bracket
	USB Cable with bracket Two USB ports with bracket
	PA-G1D DVI output card via board to board SDVO connector
	Low Profile LGA775 Cooler High efficiency slim cooler increases reliability of system

GENERAL

Processor	CPU & Package: Intel® Core™ 2 Quad, Core™ 2 Duo, Celeron® processor in LGA-775 package FSB: 1333/1066/800MHz
Chipset/Core Logic	Intel® G41 and ICH7R
System Memory	Up to 4GB DDR3 1066/800 SDRAM on two 240-pin DIMM socket
BIOS	AMI BIOS
Storage Devices	EIDA: N/A SATA: Support four SATA 300 drives (RAID 0, 1, 5, 10) With RAID on ROBO-8779VG2AR, W/o RAID on ROBO-8779VG2A
Solid State Disk	One Type II CF socket (up to UDMA5 mode)
Watchdog Timer	Programmable via software from 0.5 sec. to 254.5 sec.
Expansion Interface	N/A
Hardware Monitoring	System monitor (fan, temperature, voltage)
Power Requirement	N/A
Dimension	Dimension : 338.5(L) x 122(W) mm; 13.33"(L) x 4.8" (W) PCB: 8-layer
Environment	Operating Temperature: 0 to 55°C Storage Temperature: -20 to 80°C Relative Humidity: 5% to 90%, non-condensing
MTBF	111,844 hrs

I/O

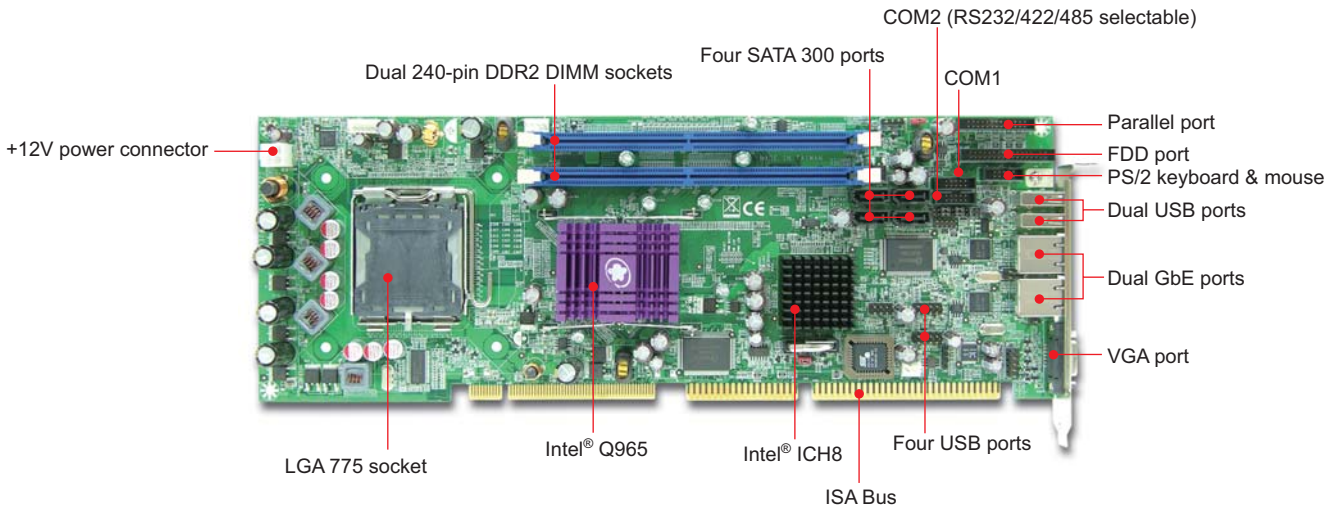
MIO	Two serial (RS232 x1, selectable RS232/422/485 x1), one parallel and one FDD channel
IrDA	N/A
Ethernet	- Dual 10 BASE-T/100 BASE-TX/1000 BASE-T Ethernet - PCI Express x1 interface based Gigabit Ethernet - Dual RJ-45 connectors with two LED indicators
Audio	HDA interface, 2-channel Audio (Realtek ALC 662)
USB	Eight USB 2.0 ports (Dual ports on bracket)
Keyboard & Mouse	Two USB 2.0 ports on bracket dedicated to keyboard & mouse

DISPLAY

Graphic Controller	- GMCH integrated Intel® Graphics Media Accelerator (GMA) x4500 - Provided improved 3D multimedia capabilities including Microsoft DirectX 10, Shader Model 4.0 and OpenGL 2.0
Graphic Memory	Intel® Dynamic Video Memory Technology (DVMT) 5.0 shares system memory up to 1GB
Display Interface	Analog CRT: up to 2048 x 1536 DVI-D: up to 2048 x 1536

ROBO-8777VG2A

Intel® Core™ 2 Duo processor based PICMG SBC with DDR2 SDRAM, VGA, Dual Gigabit Ethernet, Audio and USB



FEATURES

- Support Intel® Core™ 2 Duo processor that generates a maximum 65W TDP. Lower TDP than socket 478 Pentium® 4 processor makes the vertical mount slot board more reliable
- Low profile processor cooler improves stability and reliability of whole system
- More features, such as EM64T, EIST, XD & VT, can be easily applied to system by changing processor
- Integrated Intel® GMA 3000 graphics engine built with high grade display capability
- Lockable cable-latched notches of SATA connector secure connection in vibration condition
- Support ISA expansion

ORDERING GUIDE

Standard	ROBO-8777VG2A LGA-775 Core 2 Duo processor based PICMG 1.0 SBC with DDR2 SDRAM, VGA, Dual Gigabit Ethernet, Audio and USB
Optional	PA-M1AU Multimedia kit with audio and USB ports PS/2 Keyborad/Mouse Cable with Bracket PS/2 keyboard/mouse connectors on bracket Low Profile LGA775 Cooler High efficiency slim cooler increases reliability of system

GENERAL

Processor	CPU & Package: Intel® Core™ 2 Duo, Pentium® D, Pentium® 4, Celeron® D processor in the LGA-775 package FSB: 1066/800/533MHz
Chipset/Core Logic	Intel® Q965 and ICH8
System Memory	Up to 4GB DDR2 800/667/533 SDRAM on dual 240-pin DIMM socket
BIOS	Award BIOS
Storage Devices	EIDE: N/A SATA: Support four SATA 300 drives
Solid State Disk	N/A
Watchdog Timer	Programmable via software from 0.5 sec. to 254.5 sec.
Expansion Interface	N/A
Hardware Monitoring	System monitor (fan, temperature, voltage)
Power Requirement	Typical: +5V@5.6A; +12V@1.3A
Dimension	Dimension : 338.5(L) x 122(W) mm; 13.33"(L) x 4.8" (W) PCB: 6-layer
Environment	Operating Temperature: 0 to 60ºC Storage Temperature: -20 to 80ºC Relative Humidity: 5% to 90%, non-condensing
MTBF	93,788 hrs

I/O

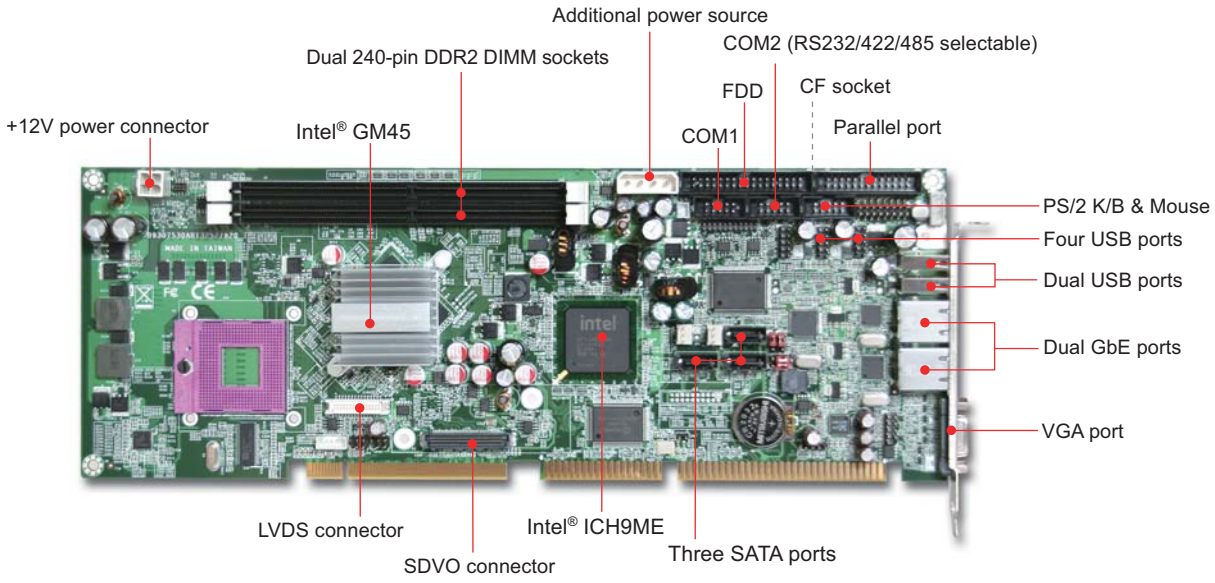
MIO	Two serial (RS-232x1, selectable RS232/422/485x1), one parallel and one FDD channel
IrDA	N/A
Ethernet	- Dual 10BASE-T/100BASE-TX/1000BASE-T Ethernet - PCI Express x1 interface based Gigabit Ethernet - Dual RJ-45 connectors with two LED indicators
Audio	HDA interface, 2-channel Audio (Realtek ALC 262)
USB	Six USB 2.0 ports
Keyboard & Mouse	Two USB 2.0 ports on bracket dedicated to keyboard & mouse

DISPLAY

Graphic Controller	- GMCH integrated Intel Graphics Media Accelerator 3000 (Intel® GMA 3000) - Provides improved 3D multimedia capabilities including DirectX 9, Shader Model 3.0, OpenGL 1.5, Advanced De-interlacing, MPEG-2 hardware acceleration
Graphic Memory	Intel® Dynamic Video Memory Technology (DVMT) 4.0 system memory sharing up to 256MB
Display Interface	Support CRT interface up to QXGA 75Hz (2048 x 1536)

ROBO-8719VG2AR

Intel® latest 45nm Core™ 2 Duo or Celeron® M processor based PICMG SBC with DDR2 SDRAM, VGA, Dual Gigabit Ethernet and Audio



FEATURES

- ROBO-8719VG2A offers flexible FSB up to 1066MHz selection of Intel® 45nm Mobile Core™ 2 Quad, Core™ 2 Duo or Celeron® M processor that features high computing power with low heat
- Integrated 5th generation graphic engine Mobile Intel® GMA 4500MHD built with max. graphics core speeds up to 533MHz to improve graphics and 3D rendering performance
- Support two on-board display output options, including VGA and 24-bit LVDS for flexible display choice. An optional DVI-D output card support via board to board SDVO connector by project
- Support integrated Intel® Trusted Platform Module (iTPM) for more secure plateforms
- Support CF socket by SATA to IDE bridge for more storage application
- High speed dual Gigabit Ethernet support
- Various I/O interface includes three high-speed SATA 300 ports, six USB 2.0 ports, single Parallel port, two COM ports and single FDD port

ORDERING GUIDE

Standard	ROBO-8719VG2AR Intel® latest 45nm Core™ 2 Duo or Celeron® M processor based PICMG SBC with DDR2 SDRAM, VGA, Dual Gigabit Ethernet, and Audio
Optional	PA-M1AU Multimedia kit with audio and USB ports PS/2 Keyboard/Mouse Cable with Bracket PS/2 keyboard/mouse connectors on bracket PA-G1D DVI output card via board to board SDVO connector

GENERAL

Processor	CPU & Package: Intel® 45nm Mobile Core™ 2 Quad, Core™ 2 Duo, Celeron® M processor in mFCPGA package FSB: 1066/800/667MHz
Chipset/Core Logic	Intel® GM45 and ICH9ME
System Memory	Up to 4GB DDR2 800/667 SDRAM on dual 240-pin DIMM socket
BIOS	Award BIOS
Storage Devices	EIDE: N/A SATA: Support three SATA 300 drives (RAID 0, 1)
Solid State Disk	One Type II CF socket (Up to UDMA5 mode)
Watchdog Timer	Programmable via software from 0.5 sec. to 254.5 sec.
Expansion Interface	N/A
Hardware Monitoring	System monitor (fan, temperature, voltage)
Power Requirement	Typical: +5V@5.4A; +12V@2A
Dimension	Dimension : 338.5(L) x 122(W) mm; 13.33"(L) x 4.8" (W) PCB: 8-layer
Environment	Operating Temperature: 0 to 60°C Storage Temperature: -20 to 80°C Relative Humidity: 5% to 95%, non-condensing
MTBF	111,404 hrs

I/O

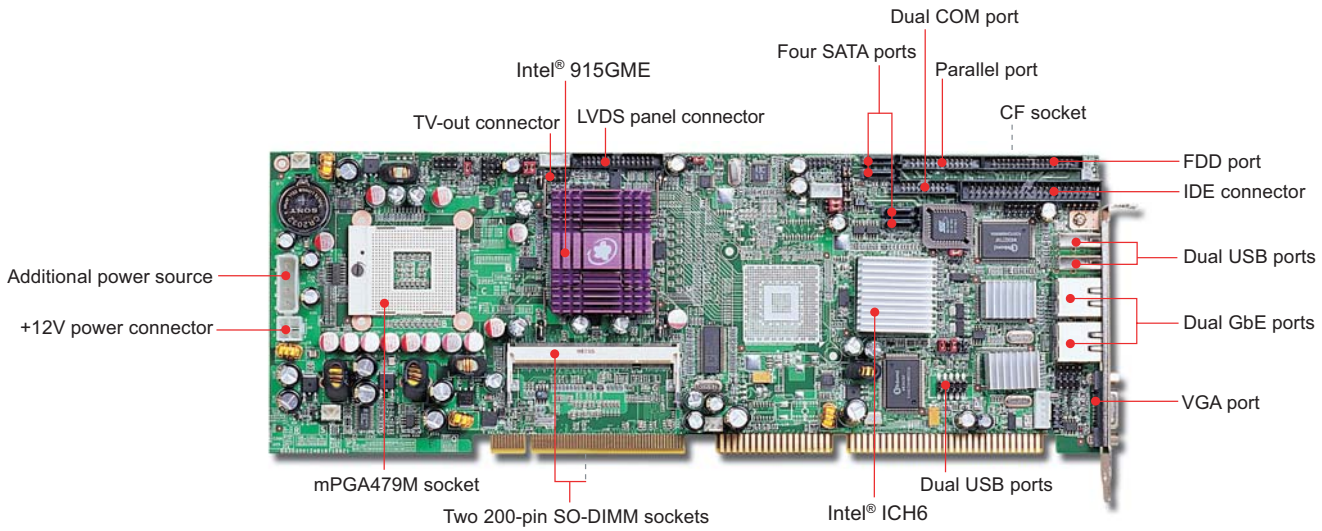
MIO	Two serial (RS232 x1, selectable RS232/422/485 x1), one parallel and one FDD channel
IrDA	N/A
Ethernet	- Dual 10BASE-T/100BASE-TX/1000BASE-T Ethernet - PCI Express x1/GLCI/LCI interface based Gigabit Ethernet - Dual RJ-45 connector with two LED indicators
Audio	HDA interface, 2-channel Audio (Realtek ALC 262)
USB	Six USB 2.0 ports
Keyboard & Mouse	Two USB 2.0 on bracket dedicated to keyboard & mouse

DISPLAY

Graphic Controller	- GMCH integrated Intel® Graphics Media Accelerator 4500MHD - Provides improved 3D multimedia capabilities including DirectX 10, OpenGL 2.0, MPEG-2 hardware acceleration
Graphic Memory	Intel® Dynamic Video Memory Technology (DVMT) 5.0 shares system memory to 256MB
Display Interface	CRT: Up to QXGA (2048x1536 mode) LVDS: Dual channel 24-bit LVDS SDVO: Optional DVI-D output card via SDVO channel (Two display streams supported in above combination)

ROBO-8718VG2A

Intel® Pentium® M or Celeron® M processor based PICMG SBC with DDR2 533 SDRAM, VGA, Dual Gigabit Ethernet and Audio



FEATURES

- ROBO-8718 offers flexible 400MHz and 533MHz FSB selection of Intel® Pentium® M / Celeron® M that features high computing power with low heat
- Scalable graphics support from Intel® 915GM featuring GMA 900 to ATI M22 graphics controller integrated 64MB display memory via PCI Express x16
- ATI M22 graphics support dual display configuration of LCD/CRT, TV/ CRT, LCD/LCD, LCD/TV displays
- High speed dual Gigabit Ethernet based on PCI Express x1, high bandwidth I/O interface
- Four SATA 150 ports for high speed storage interface and easy cable routing

ORDERING GUIDE

Standard	ROBO-8718VG2A Socket mPGA479M Pentium® M or Celeron® M processor based PICMG SBC with DDR2 533 SDRAM, VGA, Dual Gigabit Ethernet and Audio
Optional	PA-M1AU Multimedia kit for P4 SBC with audio and USB ports
	DVI-D Cable TMDS adapter cable for DVI interface flat panel

GENERAL

Processor	CPU & Package: Intel® Pentium® M or Celeron® M processor in mFCPGA package FSB: 533/400MHz
Chipset/Core Logic	Intel® 915GME and ICH6
System Memory	Up to 2GB DDR2 533/400 SDRAM on two 200-pin SODIMM sockets
BIOS	Award BIOS
Storage Devices	EIDE: Support two EIDE devices with Ultra DMA 100/66/33 SATA: Support four SATA 150 drives
Solid State Disk	- One Type II CF socket - On Primary EIDE channel - Bootable for no drives on primary channel
Watchdog Timer	Programmable via software from 0.5 sec. to 254.5 sec.
Expansion Interface	N/A
Hardware Monitoring	System monitor (fan, temperature, voltage)
Power Requirement	Typical: +5V@5.41A; +12V@1.58A
Dimension	Dimension : 338.5(L) x 122(W) mm; 13.33"(L) x 4.8" (W) PCB: 8-layer
Environment	Operating Temperature: 0 to 60°C Storage Temperature: -20 to 80°C Relative Humidity: 5% to 90%, non-condensing
MTBF	77,830 hrs

I/O

MIO	Two serial (selectable RS232/422/485 x1), one parallel, one FDD channel
IrDA	IrDA 1.0
Ethernet	- 10BASE-T/100BASE-TX/1000BASE-T Ethernet - Dual PCI-Express x1 based - Dual RJ-45 connectors with two LED indicators
Audio	AC'97 2.2 Audio (Realtek ALC 202A)
USB	Four USB 2.0 ports
Keyboard & Mouse	Two USB 2.0 ports on bracket dedicated to keyboard & mouse

DISPLAY

Graphic Controller	- ATI Mobility M22 graphics controller [ROBO-8718UG2A] - Intel® 915GM integrated GMA 900 (Graphics Media Accerator) [ROBO-8718VG2A]
Graphic Memory	64MB display memory
Display Interface	- Support CRT, LVDS, TV-out & DVI-D (TMDS) display interfaces [ROBO-8718UG2A] - Support CRT, LVDS & TV-out display interfaces [ROBO-8718VG2A]

PICMG Backplane

PICMG GENERAL DESCRIPTION

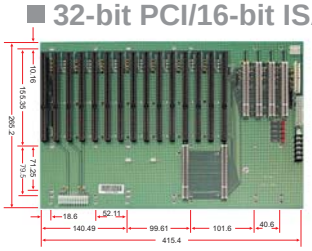
PICMG Backplane in this section are SBC (Single Board Computer)/SHB (Single Host Board) companion that feature expansion slots such as ISA, PCI, PCI-X or PCI Express interface. In addition, backplane also features several power connectors that draw power from power supply to devices on it. Some LEDs are designed on board to indicate status of each power rail.

PICMG 1.0 supports both ISA & PCI, PICMG 1.2 supports dual PCI or PCI-X, and PICMG 1.3 supports PCI Express and PCI expansion. Some bridges or switches can be applied to backplane to support more devices or different kind of expansion interfaces. However, PICMG 1.0, 1.2, and 1.3 are not compatible with each other.

PICMG 1.0 BACKPLANE

Passive Backplane: Backplane that only support up to four PCI master

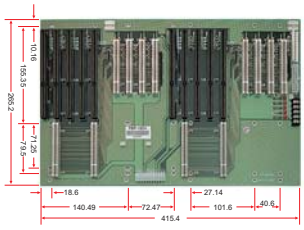
32-bit PCI/16-bit ISA



PBP-19P4

19-slot (4xPCI) PICMG Backplane

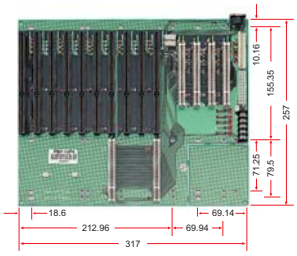
- Fit for 20-slot chassis
- ATX power connector support
- Sufficient ISA slots for CTI application



PBP-18D4

18-slot Dual-system PICMG Backplane

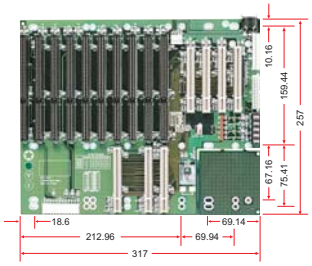
- Fit for 20-slot chassis
- Designed for fault-tolerant computing
- ATX power connector support



PBP-14P4

14-slot (4xPCI) PICMG Backplane

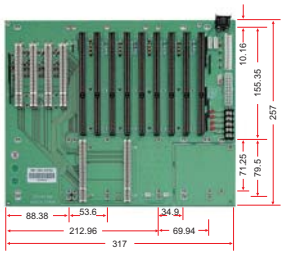
- Fit for 14-slot chassis
- ATX power connector support
- The most popular and reliable PICMG backplane



ACTI-14P4

14-slot (4xPCI) Active PICMG Backplane

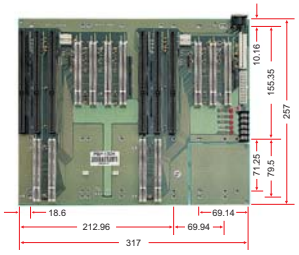
- 2.4 mm PCB thickness
- ATX power connector support
- Fit for 14-slot chassis



PBP-13R4

13-slot (4xPCI) PICMG Backplane

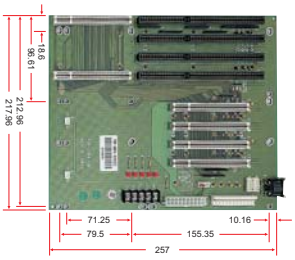
- Fit for 14-slot chassis
- Special design for full-length PCI cards
- ATX power connector support



PBP-13D4

13-slot Dual-system PICMG Backplane

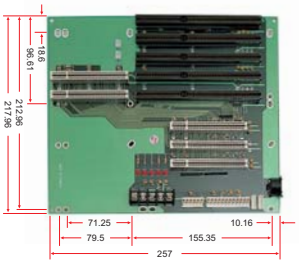
- Fit for 14-slot chassis
- Design for fault-tolerant computing
- ATX power connector support



PBP-08P4

8-slot (4xPCI) PICMG Backplane

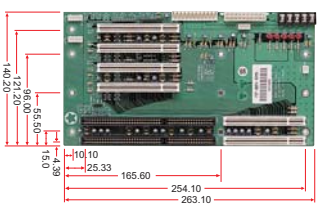
- Fit for node chassis and desktop case
- ATX power connector support



PBP-08P3

8-slot (3xPCI) PICMG Backplane

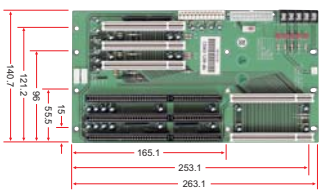
- Fit for node chassis and desktop case



PBP-06P4

6-slot (4xPCI) PICMG Backplane

- Fit for node chassis
- ATX power connector support

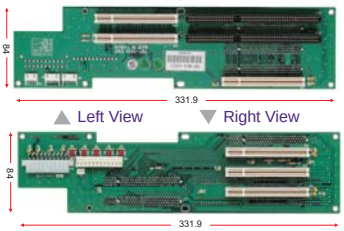


PBP-06P3

6-slot (3xPCI) PICMG Backplane

- Fit for node chassis
- ATX power connector support

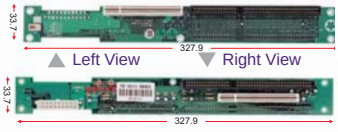
PICMG Backplane



PBP-06V4

Vertical 6-slot (4xPCI) PICMG Backplane

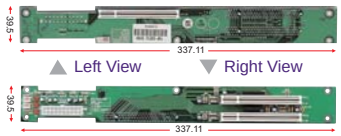
- Fit for 2U chassis
- ATX and AT power connector support



PBP-02V1X

Vertical 2-slot (1xPCI) PICMG Backplane

- Fit for 1U chassis
- ATX power connector support

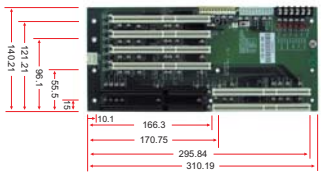


PBP-03P2X

Vertical 3-slot (2xPCI) PICMG Backplane

- Fit for Portwell's 1U chassis
- ATX power connector support

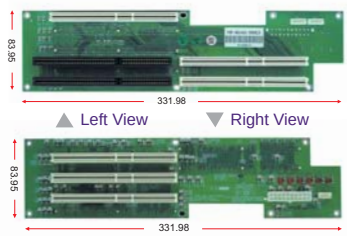
64-bit PCI/16-bit ISA



PBP-06P464

6-slot (4x64-bit PCI) PICMG Backplane

- Fit for node chassis
- ATX and AT power connector support

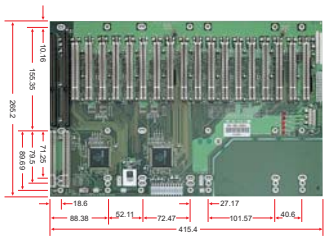


PBP-06V464

Vertical 6-slot (4x64-bit PCI) PICMG Backplane

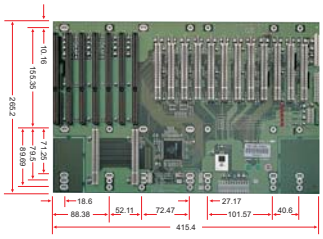
- Fit for 2U chassis
- ATX power connector

Active Backplane: Backplane that using bridge to support PCI master beyond four



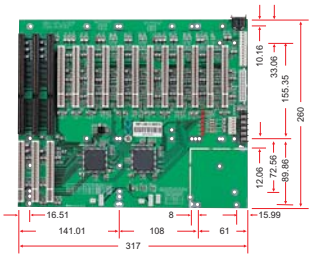
PBP-19AI

19-slot (18xPCI) Active PICMG Backplane



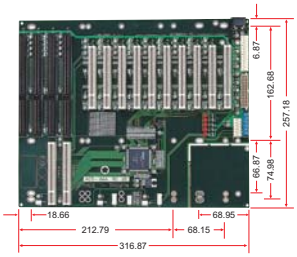
PBP-19AC

19-slot (12xPCI) Active PICMG Backplane



PBP-14AC-B

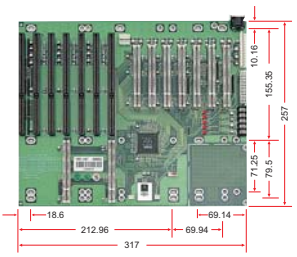
14-slot (12xPCI) Active PICMG Backplane



ACTI-14AA

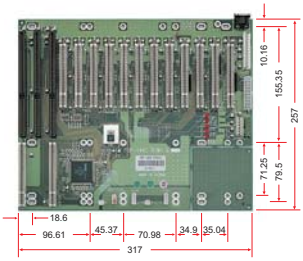
14-slot (10xPCI) Active PICMG Backplane

- 2.4 mm PCB thickness
- ATX power connector support
- Fit for 14-slot chassis



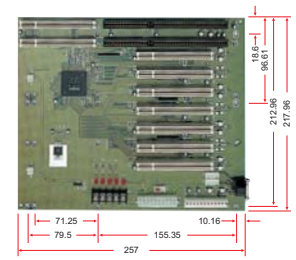
PBP-14A7

14-slot (7xPCI) Active PICMG Backplane



PBP-14AC

14-slot (12xPCI) Active PICMG Backplane



PBP-08A7

8-slot (7xPCI) Active PICMG Backplane

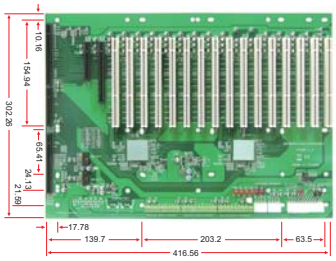
PICMG Backplane

PICMG 1.3 Selection Guide

Model		PCIEx16	PCIEx8	PCIEx4	PCIEx1	PCI-X	PCI	ROBO-8921VG2R	ROBO-8914VG2AR	ROBO-8913VG2AR	ROBO-8912VG2AR
Server Grade	PBPE-19AG64	1 (x8 signal)	1 (x4 signal)			16		✽			
	PBPE-14AD64		1	1		8	3	✽			
	PBPE-06V464			1		4		✽			
	PBPE-08P41	2 (x8 signal)	1 (x4 signal)				4	✽			
	PBPE-06A364	2 (x8 signal)				2	1	✽			
	PBPE-06P2	2 (x8 signal)	1 (x4 signal)				2	✽			
Non-Server Grade	PBPE-13A8	1			3		8	✽	✽	✽	✽
	PBPE-12A9	1	1 (x4 signal)				9	✽	✽	✽	✽
	PBPE-12AA64	1				8	2	✽	✽	✽	✽
	PBPE-06V3	1	1 (x4 signal)				3	✽	✽	✽	✽
	PBPE-06V	1			4			✽	✽	✽	✽
	PBPE-07P4	1		1			4	✽	✽	✽	✽
	PBPE-05A364	1				2	1	✽	✽	✽	✽
	PBPE-06P4		1 (x4 signal)				4	✽	✽	✽	✽
	PBPE-06P3	1		1			3	✽	✽	✽	✽

PICMG 1.3 BACKPLANE

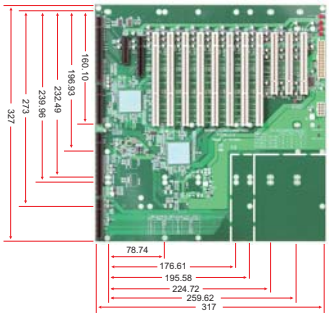
Server Grade Backplane



PBPE-19AG64

19-slot [PCI-E x16 (1, x8 signal), PCI-E x8 (1, x4 signal), PCI-X (16)]

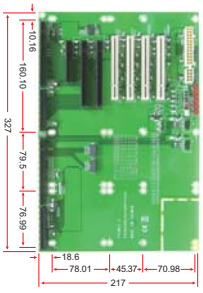
- Fit for 4U up chassis
- Four PCI-X buses support 16 PCI-X expansion slots



PBPE-14AD64

14-slot [PCI-E x4 (1), PCI-E x8 (1), PCI-X (8), PCI (3)]

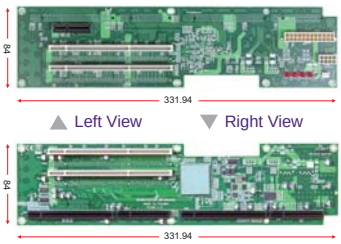
- Fit for 4U chassis
- Four PCI-X buses support eight PCI-X expansion slots



PBPE-08P41

8-slot [PCI-E x8 (1, x4 signal), PCI-E x16 (2, x8 signal), PCI (4)]

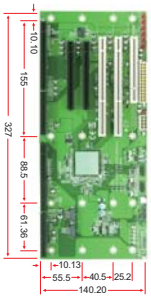
- Fit for Node chassis
- Four USB ports



PBPE-06V464

Vertical 6-slot [PCI-E x4 (1), PCI-X (4)]

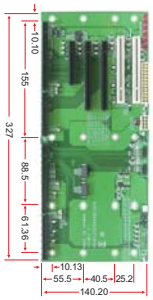
- Fit for 2U chassis
- Dual PCI-X buses support four PCI-X slots



PBPE-06A364

6-slot [PCI-E x16 (2, x8 signal), PCI-X (2), PCI (1)]

- Fit for Node chassis
- Four USB ports
- Dual SATA ports
- Two PCI-X buses support two PCI-X expansion slot

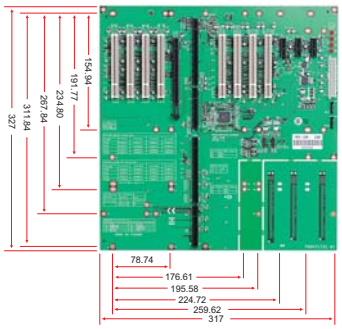


PBPE-06P2

6-slot [PCI-E x8 (1, x4 signal), PCI-E x16 (2, x8 signal), PCI (2)]

- Fit for Node chassis
- Four USB ports

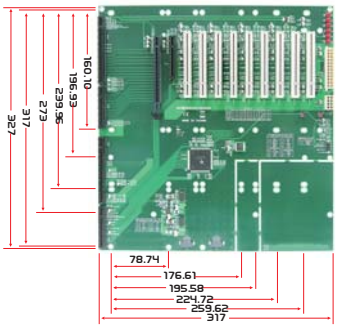
Non-Server Grade Backplane



PBPE-13A8

13-slot [PCI-E x1 (3), PCI-E x16 (1), PCI (8)]

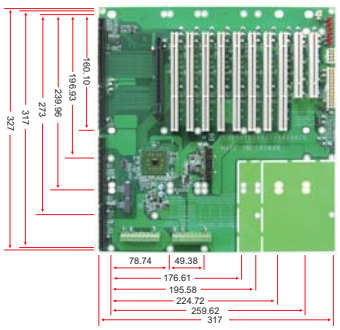
- Fit for 4U chassis
- Four USB ports
- Dual SATA ports
- 24-pin ESP12V power connector



PBPE-12A9

12-slot [PCI-E x16 (1), PCI-E x8 (1, x4 signal), PCI (9)]

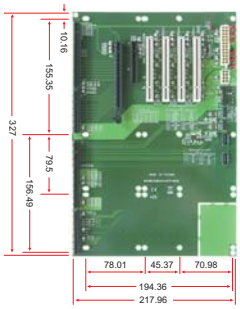
- Fit for 4U chassis
- Four USB ports
- Dual SATA ports



PBPE-12AA64

12-slot [PCI-X (8), PCI-E x16 (1), PCI (2)]

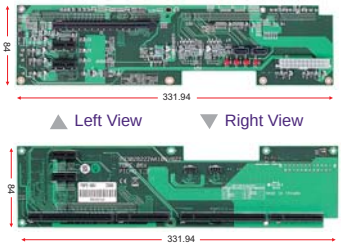
- Fit for 4U chassis
- Four USB ports
- Dual SATA ports
- Two PCI-X buses support eight PCI-X expansion slot



PBPE-07P4

7-slot [PCI-E x4 (1), PCI-E x16 (1), PCI (4)]

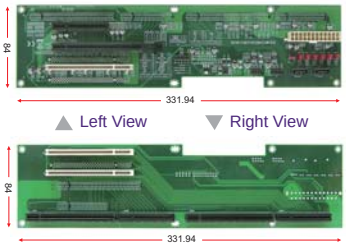
- Fit for Node chassis
- Four USB ports
- Dual SATA ports



PBPE-06V

Vertical 6-slot [PCI-E x1 (4), PCI-E x16 (1)]

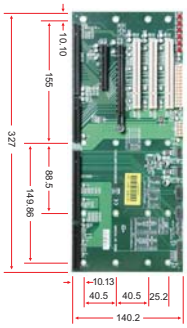
- Fit for 2U chassis
- Four USB ports
- Dual SATA ports
- 24-pin ESP 12V power connector



PBPE-06V3

Vertical 6-slot [PCI-E x8 (1, x4 signal), PCI-E x16 (1), PCI (3)]

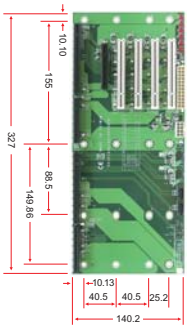
- Fit for 2U chassis
- Four USB ports
- Dual SATA ports



PBPE-06P3

6-slot [PCI-E x16 (1), PCI-E x4 (1), PCI (3)]

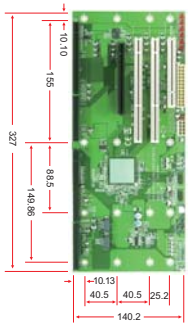
- Fit for Node chassis
- Four USB ports
- Dual SATA ports



PBPE-06P4

6-slot [PCI-E x8 (1, x4 signal), PCI (4)]

- Fit for Node chassis
- Four USB ports
- Dual SATA ports



PBPE-05A364

5-slot [PCI-E x16 (1), PCI-X (2), PCI (1)]

- Fit for Node chassis
- Four USB ports
- Dual SATA ports
- Two PCI-X buses support two PCI-X expansion slot

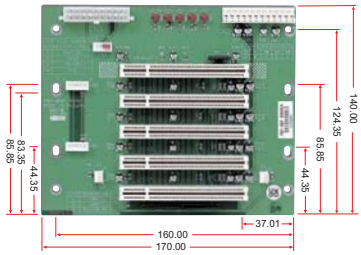
PCI & ISA Backplane

PCI GENERAL DESCRIPTION

- Compact size backplane for half size PCI SBC
- PICMG 1.0 Rev 2.1 Compliant (PCI golden finger only)
- Support AT or ATX type power connector
- 4-layer PCB with power and ground planes to reduce power noise and keep lower impedance
- Frame rated PCB at 94-V0
- User friendly design supports external K/B connector, power for chassis fan and power indicator

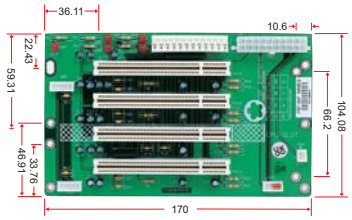
PBP-05P

5-slot Passive PCI Backplane



PBP-04P

4-slot Passive PCI Backplane



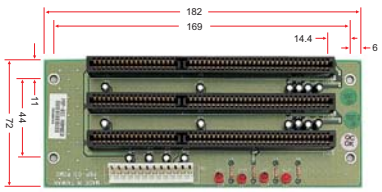
ISA GENERAL DESCRIPTION

- 4-layer PCB with ground and power planes for reducing noise and keeping lower impedance
- Frame Rated PCB at 94-V0
- LED power indicator for +5V, +12V, -5V and 12V
- Heavy duty terminal block connector for industrial power supply wiring(*)
- Equipped with gold-plated socket for good contact
- Easy cut for dual or multi systems(*)
- Plug-in sockets of termination resistors for high-speed signal.(*)

"*"means for most part of products

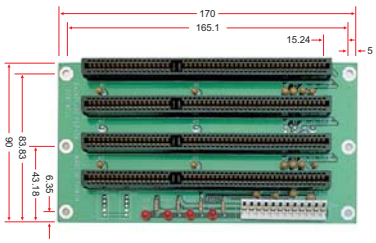
PBP-03I

3-slot Passive ISA Backplane



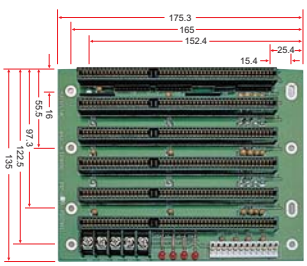
PBP-04I

4-slot Passive ISA Backplane



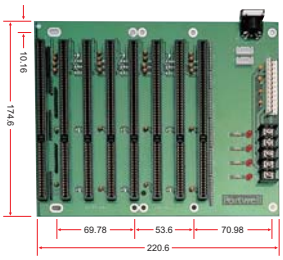
PBP-06I

6-slot Passive ISA Backplane



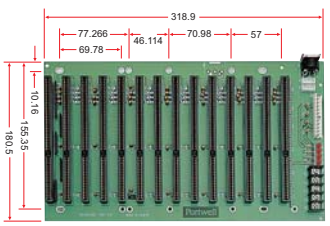
PBP-08I

8-slot Passive ISA Backplane



PBP-14I

14-slot Passive ISA Backplane



IMB Reference Table





MODEL	RUBY-M710VG2AR	RUBY-9911	RUBY-9719VG2AR	RUBY-9718VG2AR	RUBY-9717VGAR
Form Factor	ATX	ATX	ATX	ATX	uATX
Chipset	Intel® QM57 chipset	Q45+ICH10DO	G41+ICH7R	Q965+ICH8DO	Q965+ICH8DO
CPU	Intel® Core™ i5 / i7 processor	Core™ 2 Quad/ Core™ 2 Duo	Core™ 2 Quad/ Core™ 2 Duo	Core™ 2 Quad/ Core™ 2 Duo/ Pentium® D/ Pentium® 4/ Celeron® D	Core™ 2 Quad/ Core™ 2 Duo/ Pentium® D/ Pentium® 4/ Celeron® D
Display	VGA / DVI-D / LVDS / HDMI	VGA/DVI-D	VGA	VGA/DVI-D	VGA/DVI-D
Memory	DIMM x 2 and Up to 8GB	DIMM x2 and up to 4G	DIMM x2 and up to 4GB	DIMM x4 and up to 8GB	DIMM x4 and up to 8GB
Expansion	Four PCI slots, One PCI-E x16 slot, One PCI-E x4 slot, One PCI-E x1 slot,One Mini-PCIE socket	Four PCI slots, One PCI-E x4 slot, One PCI-Ex16 slot	One PCI-E x16 slot, One ISA slot and five PCI slot	Four PCI slots, Two PCI-E x1 slot, One ADD2 slot	Two PCI slots, One PCI-E x4 slot, One ADD2 slot
LAN	GbE x 2	Gbe x2	GbE x2	GbE x2	GbE x1
Serial	One PCI slot, One PCI-E x1 slot,One Mini-PCIE socket	RS232 x3, RS232/422/485*1	RS232 x5, RS232/422/485 x1	RS232 x3, RS232/422/485 x1	RS232 x3, RS232/422/485 x1
USB	USB 2.0*8	USB 2.0*8	USB 2.0 x8	USB 2.0 x10	USB 2.0 x10
SATA	SATA x6	SATA x4	SATA x4	SATA x6	SATA x6
IDE	N/A	IDE x1	IDE x1	N/A	N/A
RAID	RAID 0/1/5/10	RAID 0/1/5/10	RAID 0/1/5/10	RAID 0/1/5/10	RAID 0/1/5/10
SSD	N/A	N/A	CF x1	N/A	N/A
Paralell	N/A	LPT x1	LPT x1	LPT x1	LPT x1
FDD	N/A	FDD x1	N/A	FDD x1	FDD x1
IrDA	N/A	--	N/A	N/A	N/A
Audio	HDA 5.1 channel	HDA 2 channel	HDA 2 channel	HDA 2 channel	HDA 2 channel
Dimension	304.8 x 243.8mm	304.8 x 243.8mm	304.8 x 243.8mm	304.8 x 243.8mm	243.8 x 243.8mm
Page	32	33	34	35	36

IMB Reference Table

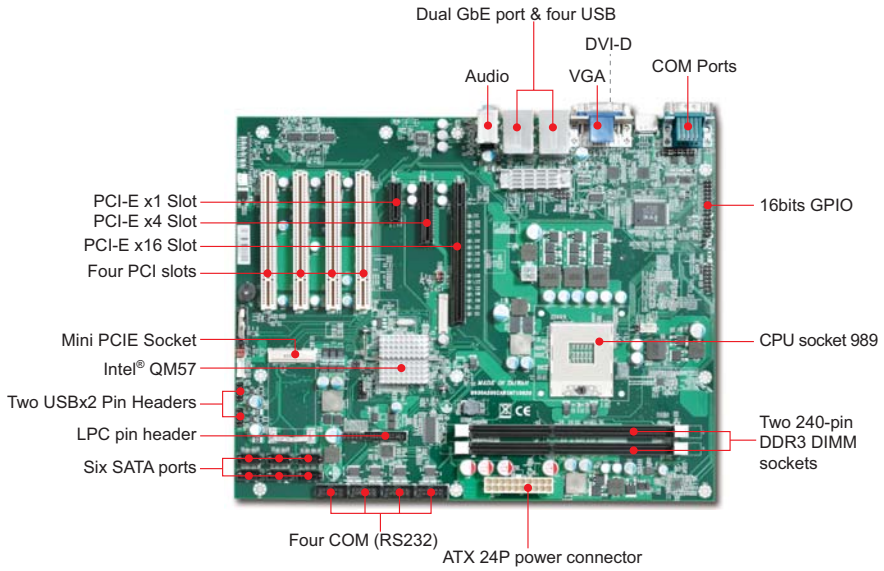


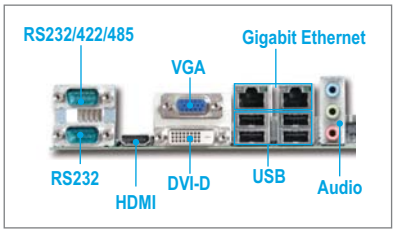


MODEL	RUBY-9716VG2AR	RUBY-9716VGAR	RUBY-9715VG2AR	RUBY-9713VG2AR	RUBY-7720VG2A
Form Factor	ATX	ATX	ATX	uATX	uATX
Chipset	Q965+ICH8DO	Q965+ICH8DO	945G+ICH7R	945GME+ICH7R	915GME+ICH6M
CPU	Core™ 2 Quad/ Core™ 2 Duo/ Pentium® D/ Pentium® 4/ Celeron® D	Core™ 2 Quad/ Core™ 2 Duo/ Pentium® D/ Pentium® 4/ Celeron® D	Core™ 2 Duo/ Pentium® D/ Pentium® 4/ Celeron® D	Core™ 2 Duo/ Core™ Duo/ Core™ Solo	Pentium® M/ Celeron® M
Display	VGA	VGA	VGA	VGA/LVDS	VGA/LVDS
Memory	DIMM x4 and up to 8GB	DIMM x4 and up to 8GB	DIMM x4 and up to 4GB	SO-DIMM x2 and up to 4GB	DIMM x2 and up to 2GB
Expansion	Four PCI slots, One PCI-E x4 slot, One PCI-E x16 slot	Four PCI slots, One PCI-E x4 slot, One PCI-E x1 slot, One PCI-E x16 slot	Six PCI slots, One PCI-E x16 slot	One PCI slot (support up to 4 PCI slots via riser card), One PCI-E x4 slot, one PCI-E x16 slot	Two PCI slots, One PCI-E x16 slot, One PCI-E x1 slot
LAN	GbE x2	GbE x1	GbE x2	GbE x2	GbE x2
Serial	RS232 x3, RS232/422/485 x1	RS232 x3, RS232/422/485 x1	RS232 x1, RS232/422/485 x1	RS232 x1, RS232/422/485 x1	RS232 x3, RS232/422/485 x1
USB	USB 2.0 x8	USB 2.0 x8	USB 2.0 x8	USB 2.0 x8	USB 2.0 x8
SATA	SATA x5	SATA x5	SATA x4	SATA x4	SATA x2
IDE	IDE x1	IDE x1	IDE x1	IDE x1	IDE x1
RAID	RAID 0/1/5/10	RAID 0/1/5/10	RAID 0/1/5/10	RAID 0/1/5/10	N/A
SSD	CF x1	CF x1	N/A	N/A	CF x1
Paralell	LPT x1	LPT x1	LPT x1	LPT x1 (pin header)	LPT x1
FDD	FDD x1	FDD x1	FDD x1	FDD x1	FDD x1
IrDA	IrDA 1.0	IrDA 1.0	IrDA 1.0	IrDA 1.0	IrDA 1.0
Audio	HDA 2 channel	HDA 2 channel	AC'97 2.2	AC'97 2.2	HDA 2 channel
Dimension	304.8 x 243.8mm	304.8 x 243.8mm	312.8 x243.8mm	243.8 x 243.8mm	243.8 x 243.8mm
Page	37	38	39	40	41

RUBY-M710VG2AR

Intel® Core™ i5/i7/P4500 processor based ATX with DDR3 SDRAM, Dual Display, Dual Gigabit Ethernet and USB Ports





Rear I/O

FEATURES

- Intel® Core™ i5/i7/P4500 Processor (Quad Core CPU support)
- Intel® QM57 Chipset
- Two long DIMMs support dual channel DDR3 SDRAM up to 8GB
- Dual Display by VGA / DVI / HDMI / LVDS
- Intel® Active Management Technology (Intel® AMT 6.0)

ORDERING GUIDE

Standard	RUBY-M710VG2AR ATX IMB. QM57 w/o ECC PGA989. w/DDR3 DIMMs / VGA / LVDS / DVI / HDMI / Dual GbE / COM / Audio / USB

GENERAL

Processor	CPU & Package: Intel® Core™ i5/i7/P4500 processor in socket 989
Chipset/Core Logic	Intel® QM57
System Memory	Max. up to 8GB DDR3 800/1066 SDRAM on two 240-pin DIMM sockets with dual channel mode
BIOS	uFEI BIOS
Storage Devices	Six SATA 300 ports (RAID 0/1/5/10)
Watchdog Timer	Programmable via software from 0.5 sec. to 254.5 min.
Expansion Interface	- One PCIe x 16 slot - One PCIe x 4 slot - One PCIe x1 slot - One Mini-PCIe socket - Four PCI slots
Hardware Monitoring	System monitor (fan, temperature, voltage)
Power Requirement	TBA
Dimension	Dimension : 305(L) x 244(W) mm; 12"(L) x 9.6" (W)
Environment	Operating Temperature: 0 to 60°C Storage Temperature: -20 to 80°C Relative Humidity: 5% to 90%, non-condensing
MTBF	TBD

I/O

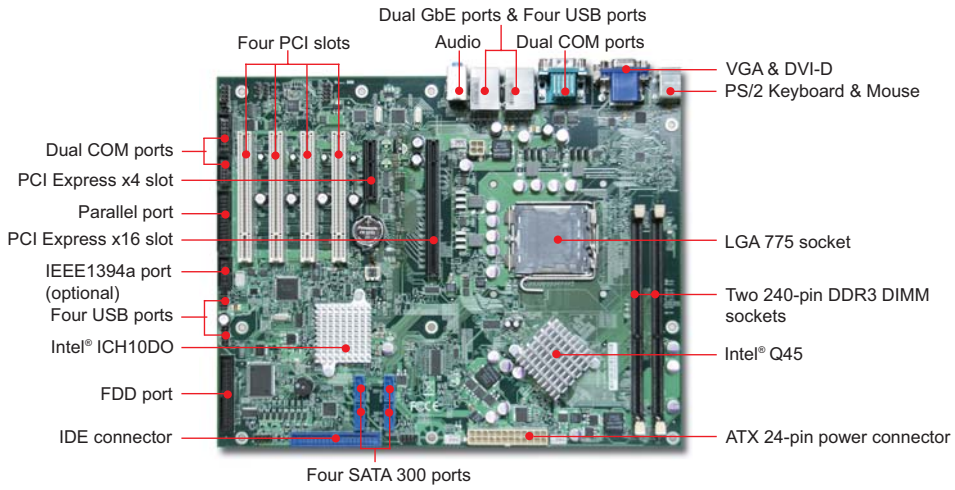
MIO	- Six serial ports: One RS232 & One RS232/422/485 selectable at rear IO, Four RS232 with headers - 16 GPIO internal - LPC pin header
Ethernet	- Dual Gigabyte Ethernet Controller (One can supports iAMT 6.0, Intel® 82574L & 82577LM) - PCI Express x1 interface based Gigabit Ethernet - Dual RJ-45 connectors with two LED indicators
Audio	HD Audio interface, Mic-in, Line-in, Line-out
USB	Eight USB 2.0 ports (Four ports at rear IO, Four ports internal)

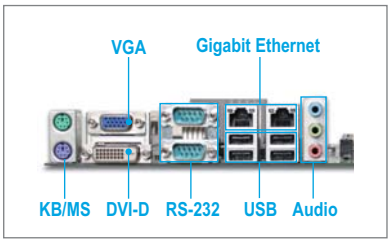
DISPLAY

Graphic Controller	- Intel® Gen. 6.0 integrated Graphics Engine - Onboard dual independent display VGA / DVI / LVDS / HDMI

RUBY-9911

Leading Intel® Core™ 2 Quad / Core™ 2 Duo Processor based ATX motherboard with Dual Display, Dual Gigabit Ethernet, Four SATA Ports, Four COM Ports, and Eight USB Ports





Rear I/O

FEATURES

- Intel® Core™2 Quad / Core™ 2 Duo processor
- Intel® Q45 Express and ICH10DO chipset
- Two 240-pin DIMM sockets support dual channel DDR3 SDRAM up to 4GB
- Dual display: VGA / DVI-D, 3rd display via PCI or PCI-Express expansion slot
- Four SATA ports and One IDE connector
- Support RAID 0, 1, 5, 10 function
- One PCI-Express x16, One PCI-Express x 4 and Four PCI slots
- TPM 1.2 and iAMT 5.0 supported

ORDERING GUIDE

Standard	RUBY-9911 Intel® Core™ 2 Quad / Core™ 2 Duo processor ATX Motherboard

GENERAL

Processor	CPU & Package: Intel® Core™ 2 Quad / Core™ 2 Duo processor in LGA-775 package FSB: 1333/1066/800 MHz
Chipset/Core Logic	Intel® Q45 Express and ICH10DO
System Memory	Up to 4GB DDR3 800/1066MHz SDRAM on Two 240-pin DIMM sockets
BIOS	AMI BIOS
Storage Devices	EIDE: Support one EIDE devices with Ultra DMA 100/66/33 SATA: Support four SATA 300 drivers RAID: RAID 0/1/5/10
Solid State Disk	N/A
Watchdog Timer	Programmable via software from 1 sec. to 255 min.
Expansion Interface	-One PCI-Express x16 slot - One PCI-Express x4 slot -Four 32-bit PCI expansion slots
Hardware Monitoring	System monitor (fan, temperature, voltage)
Power Requirement	TBD
Dimension	Dimension : 308.4(L) x 243.8(W) mm ; 12”(L) x 9.6”(W)
Environment	Operating Temperature: 0 to 60°C Storage Temperature: -20 to 80°C Relative Humidity: 10% to 90%, non-condensing
MTBF	TBD

I/O

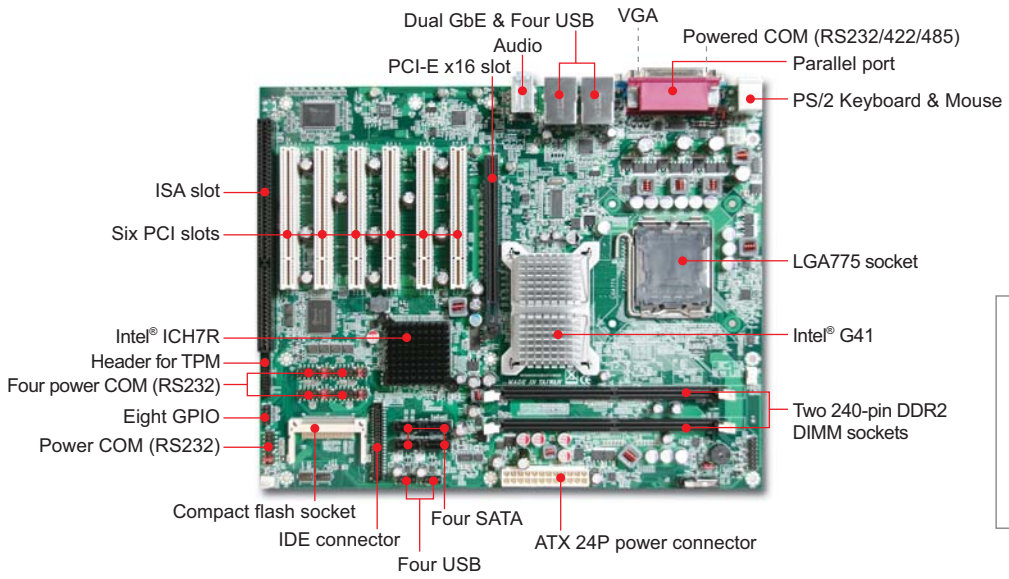
MIO	- Four serial ports(RS232 x 3, selectable RS232/422/485 x 1) - One D-SUB 15-pin and One D-SUB 24-pin at rear I/O panel - One Parallel, One FDD channel, 8 GPIO - One IEEE1394a (Optional)
IrDA	N/A
Ethernet	- Dual 10BASE-T/100BASE-TX/1000BASE-T Ethernet - Dual RJ-45 connector with two LED indicators at rear I/O pannel
Audio	HD Audio interface, 2-channel Audio
USB	Eight USB ports (Four ports at rear I/O panel ; Four ports internal)
Keyboard & Mouse	PS/2 keyboard/mouse at rear I/O panel

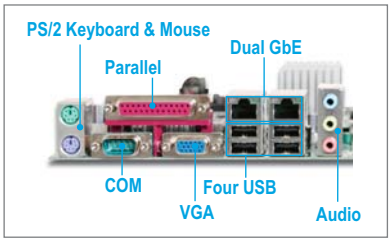
DISPLAY

Chipset	Intel® Q45 Integrated Intel® Gen 5.0 GMA 4500 Graphics
Display Memory	Intel® Dynamic Video Memory Technology (Intel® DVMT 5.0)
Resolution	Up to 2048 x1536 @ 75 Hz (QXGA)
DVI	DVI-D interface

RUBY-9719VG2AR

Intel® Core™ 2 Duo/Core™ 2 Quad Processor based ATX Motherboard with DDR2, VGA, Dual Gigabit Ethernet, Audio and USB





Rear I/O

FEATURES

- Intel® Core™ 2 Quad / Core 2 Duo Processor and Intel® G41 Chipset, FSB up to 1333MHz
- Two 240-pin DIMMs support dual channel DDR2 SDRAM up to 4GB
- Dual Gigabit Ethernet port
- Six 32-bit PCI slots / Five PCI slots and One ISA slot
- Four SATA-300 ports support Intel Matrix Storage Technology with RAID 0, 1, 5, 10
- One 44pin IDE and one Compact flash share the same channel
- PCIE x16 slot can support x1, x4, x8 or x16 cards

GENERAL

Processor	CPU & Package: Intel® Core™ 2 Quad, Intel® Core™ 2 Duo processors in the LGA-775 Land Grid Array package targeted for desktop platforms
Chipset/Core Logic	Intel® G41 and ICH7R
System Memory	Max. up to 4GB DDR2 667/800 SDRAM on two 240-pin DIMM sockets with dual channel mode
BIOS	AMI BIOS
Storage Devices	- Four SATA 300 ports (RAID 0/1/5/10) - One IDE 44-pin connector - One Compact Flash connector (share with IDE channel)
Watchdog Timer	Programmable via software from 1 sec. to 255 min.
Expansion Interface	- One PCI-Express x16 slot - One ISA slot and five 32-bit PCI slots or Six 32-bit PCI slots
Hardware Monitoring	System monitor (fan, temperature, voltage)
Dimension	Dimension : 305(L) x 244(W) mm; 12"(L) x 9.6" (W)
Environment	Operating Temperature: 0 to 60ºC Storage Temperature: -20 to 80ºC Relative Humidity: 5% to 95%, non-condensing
MTBF	TBD

I/O

MIO	- Six Powered serial ports: One RS232/422/485 (5V/12V) selectable at rear I/O and Five RS232 (5V/12V) internal - One Parallel port at rear I/O - 8 GPIO internal - LPC pin header for optional TPM module
Display	VGA
Ethernet	- Dual Gigabit Ethernet Controller (Intel® 82583V x2) - Dual RJ-45 connector with two LED indicator at rear I/O panel
Audio	HD Audio interface (Mic-In, Line-In, Line-Out)
USB	Eight USB ports (Four ports at rear I/O panel; Four ports internal)
Keyboard & Mouse	PS/2 keyboard/mouse at rear I/O panel

DISPLAY

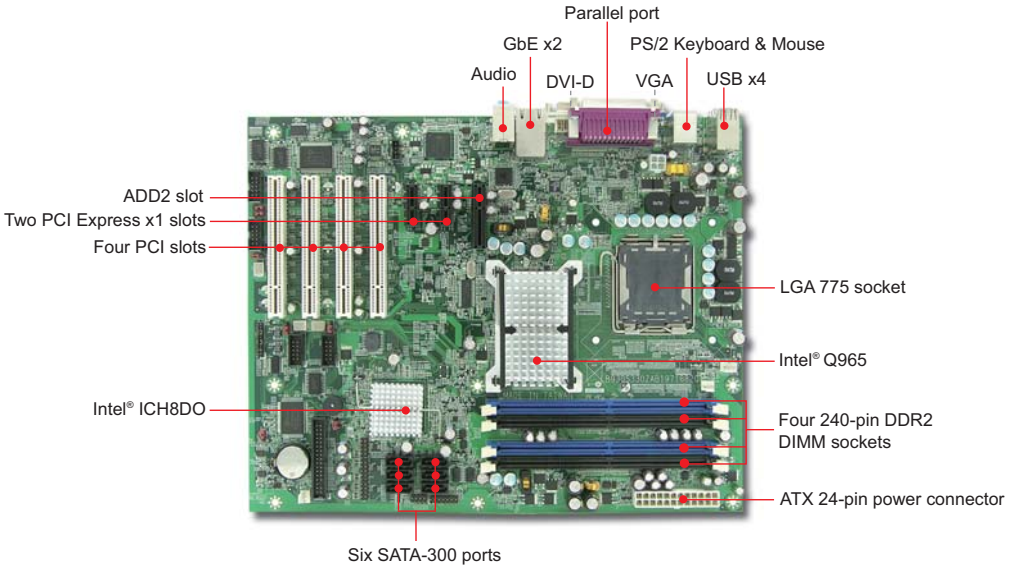
Graphic Controller	- Intel® G41 integrated Intel® Gen. 5.0 GMA 4500 Graphics - Intel® Dynamic Video Memory Technology 5.0 - Onboard display: VGA

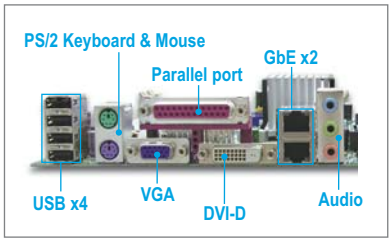
ORDERING GUIDE

Standard	RUBY-9719VG2AR 45nm Intel® Core™ 2 Duo/Core™ 2 Quad Processor based ATX Motherboard with DDR2, VGA, Dual Gigabit Ethernet, Audio and USB RUBY-9719VGA (One LAN, w/o ISA & RAID) 45nm Intel® Core™ 2 Duo/Core™ 2 Quad Processor based ATX Motherboard with DDR2, VGA, One Gigabit Ethernet, Audio and USB, w/o ISA & RAID

RUBY-9718VG2AR

Intel® Core™ 2 Quad processor based ATX Industrial Mainboard with onboard DVI/VGA Dual-Display, DDR2 SDRAM, VGA, Dual Gigabit Ethernet, Audio and USB





Rear I/O

FEATURES

- Industrial mainboard in ATX form factor that supports all Intel® mainstream desktop processors - Core™ 2 Quad, Core™ 2 Duo, Pentium® D, Pentium® 4, Celeron® D processor in LGA-775 package
- Benefits such as Hyper-Threading, EM64T, dual-core, EIST, XD & VT of processor can be easily applied to system by changing processor
- Onboard dual independent display: VGA and DVI-D
- One ADD2 graphics slot for ADD2 card
- Two PCI Express x1 slots and four 32-bit PCI expansion slots
- Six SATA-300 ports, Intel® Matrix Storage Technology with RAID 0, 1, 5, 10 support

ORDERING GUIDE

Standard	RUBY-9718VG2AR Intel® Core™ 2 Quad processor based ATX Industrial Mainboard with onboard DVI/VGA Dual-Display, DDR2 SDRAM, Dual Gigabit Ethernet, Audio and USB

GENERAL

Processor	CPU & Package: Intel® Core™ 2 Quad, Core™ 2 Duo, Pentium® D, Pentium® 4, Celeron® D processor in the LGA-775 package FSB: 1066/800/533MHz
Chipset/Core Logic	Intel® Q965 and ICH8DO
System Memory	Up to 8GB DDR2 800/667/533 SDRAM on four 240-pin DIMM sockets
BIOS	Award BIOS
Storage Devices	Six SATA 300 ports with RAID 0/1/5/10 support by Intel® Matrix Storage Technology
Solid State Disk	N/A
Watchdog Timer	Programmable via software from 1 sec. to 255 min.
Expansion Interface	- One ADD2 slot (single SDVO bus) - Two PCI Express x1 slots - Four 32-bit PCI expansion slots
Hardware Monitoring	System monitor (fan, temperature, voltage)
Power Requirement	+12V(CPU)@8.75A; 12V(System)@3.6A; 5Vsb(System)@0.13A; 5V(System)@5.6A; 3.3V(System)@2.81A
Dimension	Dimension : 304.8(L) x 243.8(W) mm; 12"(L) x 9.6" (W)
Environment	Operating Temperature: 0 to 55ºC Storage Temperature: -20 to 80ºC Relative Humidity: 5% to 90%, non-condensing
MTBF	TBD

I/O

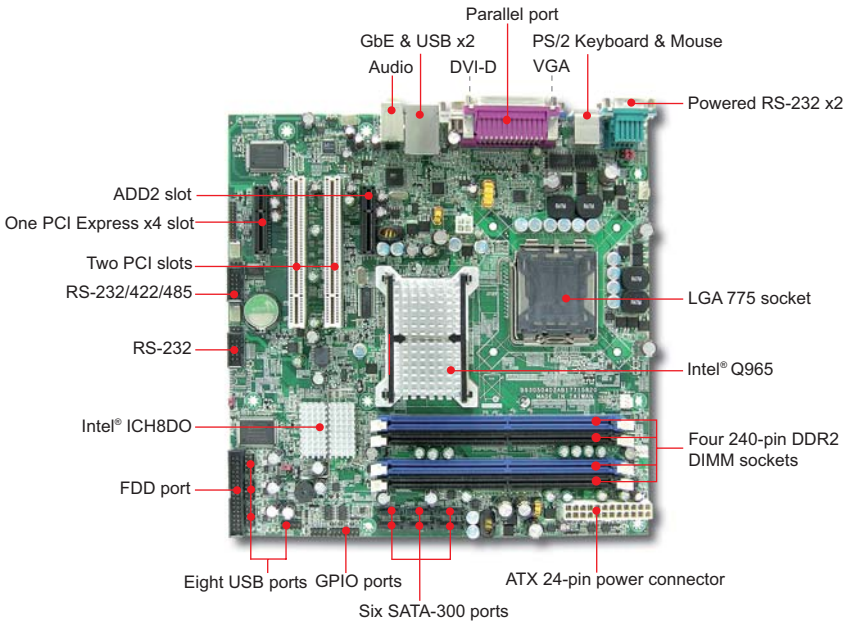
MIO	Four serial ports(RS232/Powered selectable x2, selectable RS232/422/485 x1, RS232 x1), one FDD, 12 GPIO
IrDA	N/A
Ethernet	- Dual 10BASE-T/100BASE-TX/1000BASE-T Ethernet (Intel® 82573L, Intel® 82566DM) - PCI Express x1 interface based Gigabit Ethernet - Dual RJ-45 connector with two LED indicators at rear I/O panel
Audio	HD Audio interface, 2-channel Audio
USB	Ten USB ports (Four ports at rear I/O panel; six ports internal)
Keyboard & Mouse	PS/2 keyboard/mouse at rear I/O panel

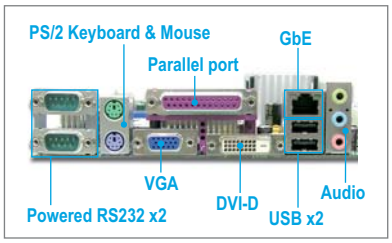
DISPLAY

Graphic Controller	- GMCH integrated Intel® Graphics Media Accelerator 3000 (Intel® GMA 3000) - ADD2 graphics slot (single SDVO bus) for ADD2 card - Onboard dual independent display VGA and DVI-D

RUBY-9717VGAR

Intel® Core™ 2 Quad processor based Micro-ATX Industrial Mainboard with onboard DVI/VGA Dual-display, DDR2 SDRAM, Gigabit Ethernet, Audio and USB





Rear I/O

FEATURES

- Industrial mainboard in uATX form factor that supports all Intel® mainstream desktop processors - Core™ 2 Quad, Core™ 2 Duo, Pentium® D, Pentium® 4, Celeron® D processor in LGA-775 package
- Onboard dual independent display: VGA and DVI-D
- One ADD2 graphics slot for ADD2 card
- One PCI Express x4 slot and two 32-bit PCI expansion slots
- Six 32-bit PCI expansion slots for most industrial I/O cards
- Six SATA-300 ports support Intel® Matrix Storage Technology with RAID 0, 1, 5, 10

ORDERING GUIDE

Standard	RUBY-9717VGAR LGA-775 Core™ 2 Quad processor based Micro-ATX Industrial Mainboard with onboard DVI/VGA dual-display, DDR2 SDRAM, Gigabit Ethernet, Audio and USB

GENERAL

Processor	CPU & Package: Intel® Core™ 2 Quad, Core™ 2 Duo, Pentium® D, Pentium® 4, Celeron® D processor in LGA-775 package FSB: 1066/800/533MHz
Chipset/Core Logic	Intel® Q965 & ICH8DO
System Memory	Up to 8GB DDR2 800/667/533 SDRAM on four 240-pin DIMM sockets
BIOS	Award BIOS
Storage Devices	Six SATA 300 ports with RAID 0/1/5/10 support by Intel® Matrix Storage Technology
Solid State Disk	N/A
Watchdog Timer	Programmable via software from 1 sec. to 255 min.
Expansion Interface	- One ADD2 slot (single SDVO bus) - One PCI Express x4 slot - Two 32-bit PCI expansion slots
Hardware Monitoring	System monitor (fan, temperature, voltage)
Power Requirement	+12V(CPU)@3.31A ; +12V(System)@5.82A ; +5V(System)@5.95A
Dimension	Dimension : 243.8(L) x 243.8(W) mm; 9.6"(L) x 9.6" (W)
Environment	Operating Temperature: 0 to 55ºC Storage Temperature: -20 to 80ºC Relative Humidity: 5% to 90%, non-condensing
MTBF	TBD

I/O

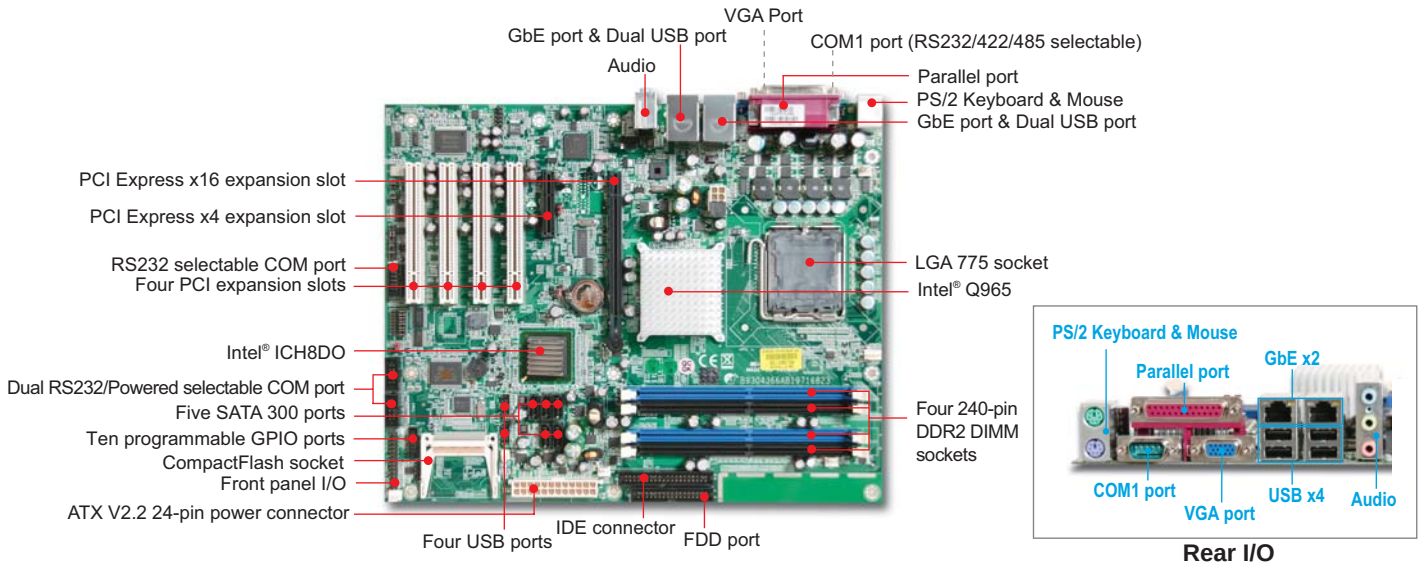
MIO	Four serial ports(RS232/Powered selectable x2 on rear panel, Selectable RS232/422/485 x1, RS-232 x1), one FDD, 12 GPIO
IrDA	N/A
Ethernet	- Single 10BASE-T/100BASE-TX/1000BASE-T Ethernet (Intel® 82566DM) - PCI Express x1 interface based Gigabit Ethernet - Single RJ-45 connector with two LED indicators at rear I/O panel
Audio	HD Audio interface, 2-channel Audio
USB	Ten USB ports (Two ports at rear I/O panel; eight ports internal)
Keyboard & Mouse	PS/2 keyboard/mouse at rear I/O panel

DISPLAY

Graphic Controller	- GMCH integrated Intel® Graphics Media Accelarator 3000 (Intel® GMA 950) - ADD2 graphics slot (single SDVO bus) for ADD2 card - Onboard dual independent display VGA and DVI-D

RUBY-9716VG2AR

Intel® Core™ 2 Quad processor based ATX Industrial Mainboard with DDR2 SDRAM, VGA, Dual Gigabit Ethernet, Audio and USB



Rear I/O

FEATURES

- Industrial mainboard in ATX form factor supports all Intel® mainstream desktop processors - Core™ 2 Quad, Core™ 2 Duo, Pentium® D, Pentium® 4, Celeron® D processor in LGA-775 package
- Benefits such as Hyper-Threading, EM64T, dual-core, EIST, XD & VT of processor can be easily applied to system by changing processor
- Embedded Intel 4th generation graphics engine provides better user experience of display performance
- One PCI Express x16 slot features high-end graphics card connection interface or dual independent display with ADD2+ media card that provides TV tuner, video capture in and DVI, TV-out
- One PCI Express x4 slot for storage add-in card which provides reliable and safer data storage with adequate I/O throughput
- Five SATA 300 ports together with one IDE channel and CF socket are perfect combination to storage interface for all kinds of applications; supports Intel® Matrix Storage Technology

ORDERING GUIDE

Standard	RUBY-9716VG2AR LGA-775 Core™ 2 Quad processor based ATX Industrial Mainboard with DDR2 SDRAM, VGA, Dual Gigabit Ethernet, Audio and USB

GENERAL

Processor	CPU & Package: Intel® Core™ 2 Quad, Core™ 2 Duo, Pentium® D, Pentium® 4, Celeron® D processor in LGA-775 package FSB: 1066/800/533MHz
Chipset/Core Logic	Intel® Q965 and ICH8DO
System Memory	Up to 8GB DDR2 800/667/533 SDRAM on four 240-pin DIMM sockets
BIOS	Award BIOS
Storage Devices	EIDE: Support single EIDE device with Ultra DMA 100/66/33 SATA: Support five SATA 300 drives
Solid State Disk	One Type II CF socket (only available if no IDE device attached)
Watchdog Timer	Programmable via software from 1 sec. to 255 min.
Expansion Interface	- Four 32-bit PCI expansion slots - One PCI Express x4 slot for x1 or x4 card - One PCI Express x16 slot for PCIe x16 or PCIe x1 or ADD2/+ card
Hardware Monitoring	System monitor (fan, temperature, voltage)
Power Requirement	Typical: +5V@4.0A; +12V@6.5A; 3.3V@3A
Dimension	Dimension : 304.8(L) x 243.8(W) mm; 12"(L) x 9.6" (W)
Environment	Operating Temperature: 0 to 55°C Storage Temperature: -20 to 80°C Relative Humidity: 5% to 90%, non-condensing
MTBF	73,803 hrs

I/O

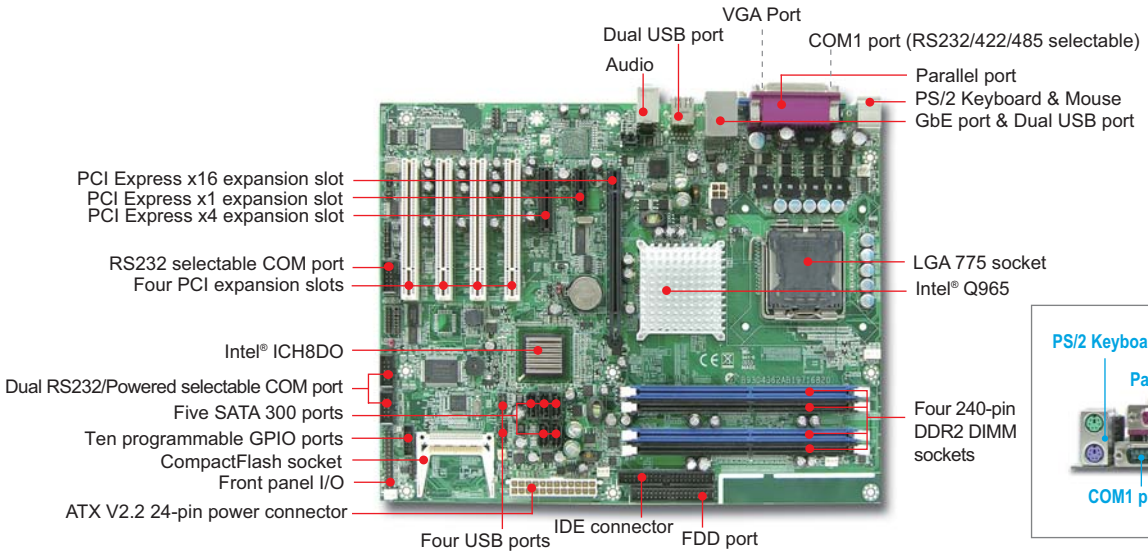
MIO	Four serial (RS232/TTL selectable x1, RS232/Powered selectable x2, RS232/422/485 selectable x1), one at rear I/O panel, one parallel, one FDD channel
IrDA	IrDA 1.0
Ethernet	- Dual 10BASE-T/100BASE-TX/1000BASE-T Ethernet (Intel® 82573L, Intel® 82566DM) - PCI Express x1 interface based Gigabit Ethernet - Dual RJ-45 connector with two LED indicators at rear I/O panel
Audio	HDA interface, 2-channel Audio
USB	Eight USB 2.0 ports (Four ports at rear I/O panel; four ports internal)
Keyboard & Mouse	PS/2 keyboard/mouse at rear I/O panel

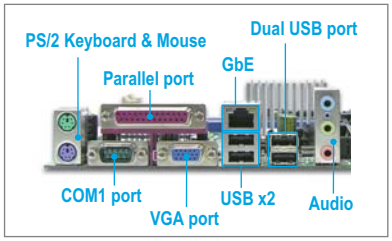
DISPLAY

Graphic Controller	- GMCH integrated Intel® 4th generation Extreme Graphics controller - Intel® GMA 3000 which provides improved 3D multimedia capabilities including DirectX9, Shader Model 3.0, OpenGL 1.5, Advanced De-interlacing, MPEG-2 hardware acceleration - Support dual independent display with ADD2/+ card

RUBY-9716VGAR

Intel® Core™ 2 Quad processor based ATX Industrial Mainboard with DDR2 SDRAM, VGA, Gigabit Ethernet, Audio and USB





Rear I/O

FEATURES

- Industrial mainboard in ATX form factor supports all Intel® mainstream desktop processors - Core™ 2 Quad, Core™ 2 Duo, Pentium® D, Pentium® 4, Celeron® D processor in LGA-775 package
- Benefits such as Hyper-Threading, EM64T, dual-core, EIST, XD & VT of processor can be easily applied to system by changing processor
- Embedded Intel 4th generation graphics engine provides better user experience of display performance
- One PCI Express x16 slot features high-end graphics card connection interface or dual independent display with ADD2+ media card that provides TV tuner, video capture in and DVI, TV-out
- One PCI Express x4 slot for storage add-in card which provides reliable and safer data storage with adequate I/O throughput
- One PCI Express x1 and four 32-bit PCI expansion slots for most industrial I/O cards
- Five SATA 300 ports together with one IDE channel and CF socket are perfect combination to storage interface for all kinds of applications; supports Intel® Matrix Storage Technology

ORDERING GUIDE

Standard	RUBY-9716VGAR LGA-775 Core™ 2 Quad processor based ATX Industrial Mainboard with DDR2 SDRAM, VGA, Gigabit Ethernet, Audio and USB

GENERAL

Processor	CPU & Package: Intel® Core™ 2 Quad, Core™ 2 Duo, Pentium® D, Pentium® 4, Celeron® D processor in LGA-775 package FSB: 1066/800/533MHz
Chipset/Core Logic	Intel® Q965 and ICH8DO
System Memory	Up to 8GB DDR2 800/667/533 SDRAM on four 240-pin DIMM sockets
BIOS	Award BIOS
Storage Devices	EIDE: Support single EIDE device with Ultra DMA 100/66/33 SATA: Support five SATA 300 drives
Solid State Disk	One Type II CF socket (only available if no IDE device attached)
Watchdog Timer	Programmable via software from 1 sec. to 255 min.
Expansion Interface	- Four 32-bit PCI expansion slots - One PCI Express x4 slot for x1 or x4 card - One PCI Express x1 slot - One PCI Express x16 slot for PCIe x16 or PCIe x1 or ADD2/+ card
Hardware Monitoring	System monitor (fan, temperature, voltage)
Power Requirement	Typical: +5V@4.0A; +12V@6.5A; 3.3V@3A
Dimension	Dimension : 304.8(L) x 243.8(W) mm; 12"(L) x 9.6" (W)
Environment	Operating Temperature: 0 to 55°C Storage Temperature: -20 to 80°C Relative Humidity: 5% to 90%, non-condensing
MTBF	73,803 hrs

I/O

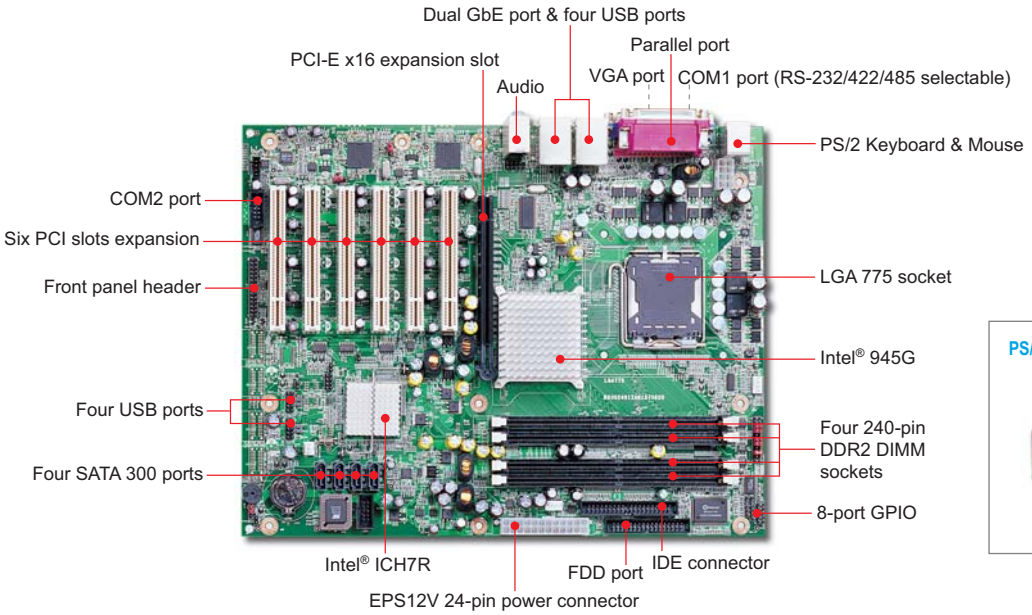
MIO	Four serial (RS232/TTL selectable x1, RS232/Powered selectable x2, RS232/422/485 selectable x1), one at rear I/O panel, one parallel, one FDD channel
IrDA	IrDA 1.0
Ethernet	- Single 10BASE-T/100BASE-TX/1000BASE-T Ethernet (Intel® 82566DM) - PCI Express x1 interface based Gigabit Ethernet - Single RJ-45 connector with two LED indicators at rear I/O panel
Audio	HDA interface, 2-channel Audio
USB	Eight USB 2.0 ports (Four ports at rear I/O panel; four ports internal)
Keyboard & Mouse	PS/2 keyboard/mouse at rear I/O panel

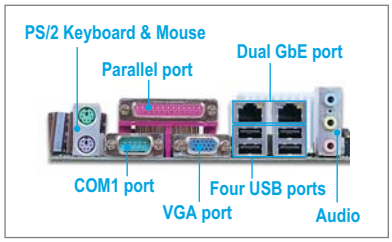
DISPLAY

Graphic Controller	- GMCH integrated Intel® 4th generation Extreme Graphics controller - Intel® GMA 3000 which provides improved 3D multimedia capabilities including DirectX9, Shader Model 3.0, OpenGL 1.5, Advanced De-interlacing, MPEG-2 hardware acceleration - Support dual independent display with ADD2/+ card

RUBY-9715VG2AR

Intel® Core™ 2 Duo processor based ATX Industrial Mainboard with DDR2 SDRAM, VGA, Dual Gigabit Ethernet, Audio and USB





Rear I/O

FEATURES

- Industrial mainboard in ATX form factor supports Intel® Pentium® 4 processor with Hyper-Threading technology, Core™ 2 Duo, Pentium® D and Celeron® D processor in LGA-775 package up to 1066MHz front side bus
- Support DDR2 667/533 SDRAM up to 4GB in dual channel architecture
- Intel® new GMCH integrated graphics engine increases 9% ~ 25% performance of GMA 900 of Intel 915GV
- One PCI Express x16 slot features high-end graphics card connection interface or dual independent displays with ADD2+ media card that provides TV tuner, video capture in and DVI, TV-out
- Six 32-bit PCI expansion slots for most industrial I/O cards
- Dual Gigabit Ethernet ports based on PCI Express x1 interface without sharing bandwidth of PCI expansion bus
- Four ports for SATA RAID controller providing benefits of Intel Matrix Storage Technology RAID 0, 1, 5, 10

ORDERING GUIDE

Standard	RUBY-9715VG2AR Intel® Core™ 2 Duo processor based ATX Industrial Mainboard with DDR2 SDRAM, VGA, Dual Gigabit Ethernet, Audio and USB

GENERAL

Processor	CPU & Package: Intel® Core™ 2 Duo, Pentium® D, Pentium® 4, Celeron® D processor in LGA-775 package FSB: 1066/800/533MHz
Chipset/Core Logic	Intel® 945G & ICH7R
System Memory	Up to 4GB DDR2 667/533 SDRAM on four 240-pin DIMM sockets
BIOS	Award BIOS
Storage Devices	EIDE: Support two EIDE devices with Ultra DMA 100/66/33 SATA: Support four SATA 300 drives
Solid State Disk	N/A
Watchdog Timer	Programmable via software from 1 sec. to 255 min.
Expansion Interface	- Six 32-bit PCI expansion slots - One PCI Express x16 slot for graphics card, ADD2/+ card or PCI Express x1 (general purpose) card - Up to four PCI Express x1 external interface per (project spec.)
Hardware Monitoring	System monitor (fan, temperature, voltage)
Power Requirement	Typical: +5V@2.69A ; +12V@5.37A
Dimension	Dimension : 312.8(L) x 243.8(W) mm; 12.3"(L) x 9.6" (W)
Environment	Operating Temperature: 0 to 55°C Storage Temperature: -20 to 80°C Relative Humidity: 5% to 90%, non-condensing
MTBF	105,889 hrs

I/O

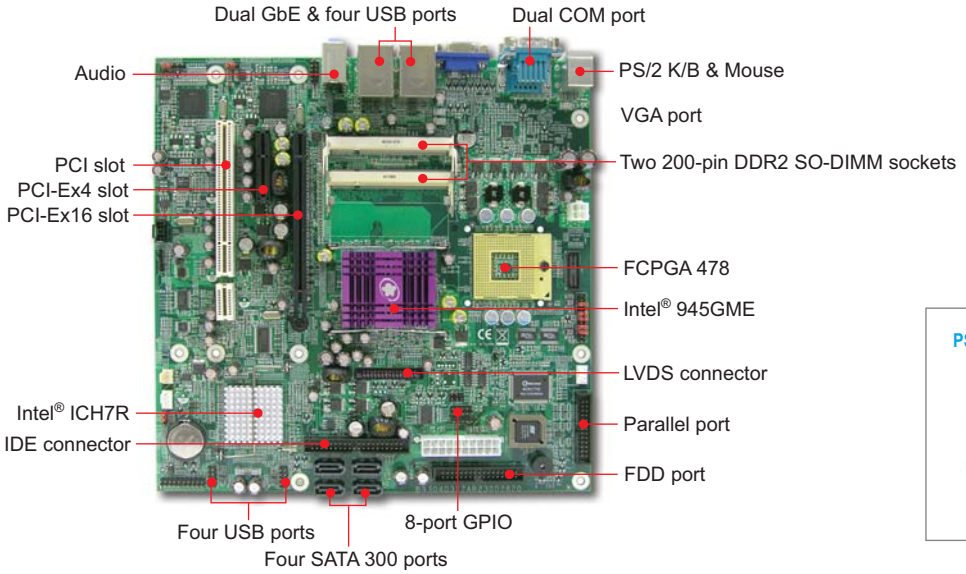
MIO	Two serial (RS232 x1, selectable RS232/422/485 x1) ports, one at rear I/O panel, one parallel, one FDD channel
IrDA	IrDA 1.0
Ethernet	- Dual 10BASE-T/100BASE-TX/1000BASE-T Ethernet (Intel® 82573L x2) - PCI Express x1 interface based Gigabit Ethernet - Dual RJ-45 connectors with two LED indicators at rear I/O panel
Audio	AC'97 2.2 Audio
USB	Eight USB 2.0 ports (Four ports at rear I/O panel; four ports internal)
Keyboard & Mouse	Dual 6-pin mini-DIN connectors at rear I/O panel for PS/2 keyboard/mouse

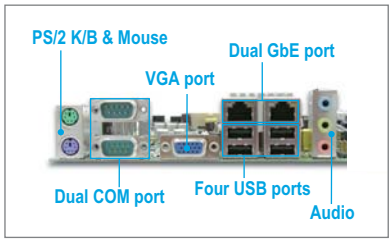
DISPLAY

Graphic Controller	GMCH integrated Intel® Graphics Media Accelarator 950 (Intel® GMA 950)
Graphic Memory	Dynamic system memory sharing up to 224MB (Intel® DVMT 3.0) or static system memory sharing up to 128MB
Display Interface	Display resolution up to 2048 x 1536

RUBY-9713VG2AR

Intel® Core™ 2 Duo processor based Micro-ATX Industrial Mainboard with DDR2 SO-DIMM, VGA, Dual Gigabit Ethernet, Audio and USB





Rear I/O

FEATURES

- Industrial mainboard in uATX form factor supports all Intel® Core™ 2 Duo, Core™ Duo, Core™ Solo processor for MoDT (Mobile on Desktop) application
- One 32-bit PCI expansion slot or supports up to four PCI slots by riser card
- One PCI-Express x4 slot or supports up to four PCI Express x1 slot by riser card
- Support GPIO and LVDS on board
- Adopts Intel Matrix Storage Technology to support RAID 0/1/5/10
- Dual Gigabit Ethernet ports based on PCI Express x1 interface without sharing bandwidth of PCI expansion bus

ORDERING GUIDE

Standard	RUBY-9713VG2AR Intel® Core™ 2 Duo processor based Micro-ATX, Industrial Mainboard with DDR2 SODIMM, VGA, Dual Gigabit Ethernet, Audio and USB
Optional	PEP-541L PCI-E x4 to PCI-E x4 riser card
	PEP-544L PCI-E x4 to four PCI-E x1 riser card
	PEP-554L PCI to four PCI slots riser card
	PEP-553L PCI to three PCI slots riser card
	B9970540 Pentium® M 1U Active Heat Sink

GENERAL

Processor	CPU & Package: Intel® Core™ 2 Duo, Core™ Duo, Core™ Solo processor FSB: 667/533MHz
Chipset/Core Logic	Intel® 945GME and ICH7R
System Memory	Up to 4GB DDR2 667/533 SDRAM on two 200pin SODIMM sockets
BIOS	Award BIOS
Storage Devices	EIDE: Support two EIDE devices with Ultra DMA 100/66/33 SATA: Support four SATA 300 drives RAID: RAID 0/1/5/10
Solid State Disk	N/A
Watchdog Timer	Programmable via software from 1 sec. to 255 min.
Expansion Interface	- One 32-bit PCI expansion slot or support up to four PCI slots by riser card - One PCI-Express x4 slot or support up to four PCI Express x1 slot by riser card - One PCI-Express x16 slot
Hardware Monitoring	System monitor (fan, temperature, voltage)
Power Requirement	Standby +5@1.7A; +12V(CPU)@3A, +12V(System)@1A, +5V(System)@2.5A, +3.3V(System)@1.5A
Dimension	Dimension : 243.8(L) x 243.8(W) mm; 9.6"(L) x 9.6" (W)
Environment	Operating Temperature: 0 to 55ºC Storage Temperature: -20 to 80ºC Relative Humidity: 5% to 90%, non-condensing
MTBF	86,705 hrs

I/O

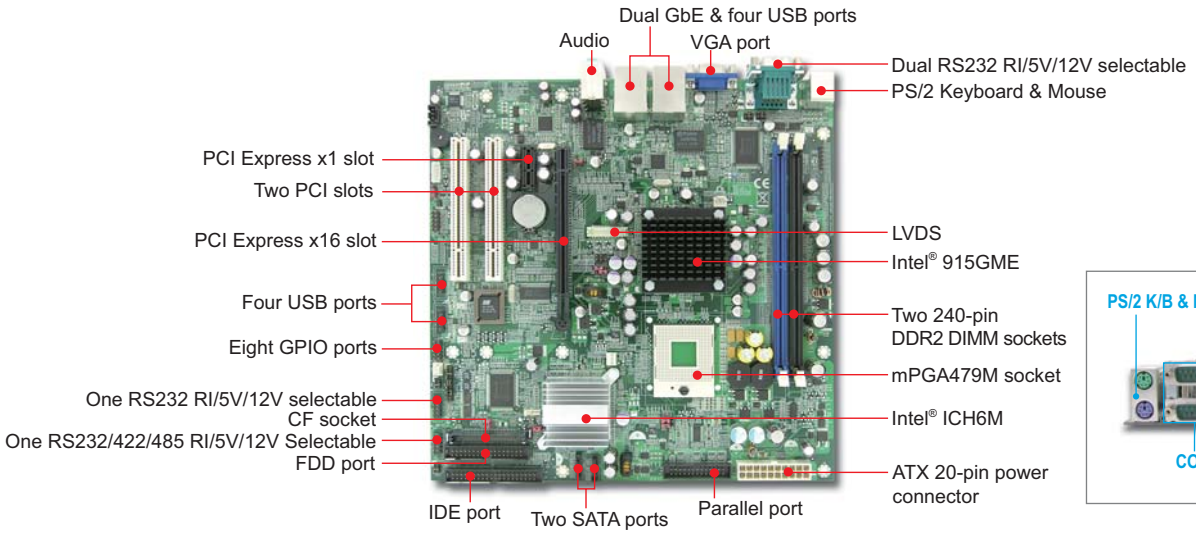
MIO	Two serial (RS232 x1, selectable RS232/422/485 x1) One parallel, one FDD channel, eight GPIO
IrDA	IrDA 1.0
Ethernet	- Dual 10BASE-T/100BASE-TX/1000BASE-T Ethernet (Intel® 82573L x2) - PCI Express x1 interface based Gigabit Ethernet - Dual RJ-45 connectors with two LED indicators at rear I/O panel
Audio	AC'97 2.2 Audio
USB	Eight USB 2.0 ports (Four ports at rear I/O panel; four ports internal)
Keyboard & Mouse	Dual 6-pin mini-DIN connector at rear I/O panel for PS/2 keyboard/mouse

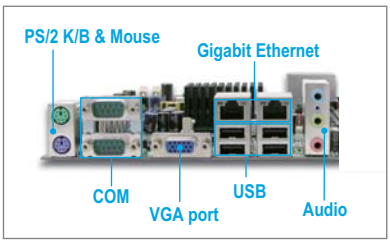
DISPLAY

Graphic Controller	GMCH integrated Intel® Graphics Media Accelerator 950 (Intel® GMA 950)
Graphic Memory	Dynamic share system memory up to 224MB (Intel DVMT 3.0) or static share system memory up to 128MB
Display Interface	Display resolution up to 2048x1536; LVDS

RUBY-7720VG2A

Intel® Pentium® M or Celeron® M processor based Micro-ATX Motherboard with DDR2 SDRAM, VGA, Dual Gigabit Ethernet, Audio and USB





Rear I/O

FEATURES

- Industrial mainboard in Micro-ATX form factor with 915GME chipset that supports Intel® Pentium® M and Celeron® M processor up to 2.0GHz
- Maximum 2GB DDR2-533 system memory
- Onboard dual display: VGA and LVDS, 3rd display via PCI-E x16 Graphic card
- One PCI-Express x16 slot for high-end graphics card or ADD2 card
- Dual Gigabit Ethernet ports based on PCI-Express x1 interface
- Two 32-bit PCI expansion slots with riser card supported
- Fanless cooler for Intel® ULV processor

ORDERING GUIDE

Standard	RUBY-7720VG2A Intel® Pentium M or Celeron M processor based Micro-ATX Motherboard with DDR2 SDRAM, VGA, Dual Gigabit Ethernet, Audio and USB

GENERAL

Processor	CPU & Package: Intel® mPGA479M socket support uFC-PGA Pentium® M or Celeron® M up to 2.0GHz FSB: 533/400MHz
Chipset/Core Logic	Intel® 915GME and ICH6M
System Memory	Up to 2GB DDR2-400/533 memory on two 240-pin DIMM sockets with dual channel mode
BIOS	Award BIOS
Storage Devices	- Two SATA ports - One IDE port
Solid State Disk	One Type I/II Compact Flash socket
Watchdog Timer	Programmable via software from 1 sec. to 255 min.
Expansion Interface	- Two 32-bit PCI expansion slots (supports one riser card) - One PCI-Express x1 slot - One PCI-Express x16 slot
Hardware Monitoring	System monitor (fan, temperature, voltage)
Power Requirement	TBD
Dimension	Dimension : 243.8(L) x 243.8(W) mm; 9.6"(L) x 9.6" (W)
Environment	Operating Temperature: 0 to 55°C Storage Temperature: -20 to 80°C Relative Humidity: 5% to 90%, non-condensing
MTBF	TBD

I/O

MIO	Four serial ports [Two RS232(RI/5V/12V) Selectable at Rear IO, One RS232 & One RS232/422/485 (RI/5V/12V) Selectable internaly] One parallel, one FDD, eight GPIO
IrDA	One IrDA
Ethernet	- Dual 10BASE-T/100BASE-TX/1000BASE-T Ethernet (Realtek 8111B-GR x2) - PCI Express x1 interface based Gigabit Ethernet - Two RJ-45 connector with two LED indicators at rear I/O panel
Audio	HD Audio interface, 2-channel Audio
USB	Eight USB 2.0 ports (Four ports at rear I/O panel; four ports internal)
Keyboard & Mouse	PS/2 keyboard/mouse at rear I/O panel

DISPLAY

Graphic Controller	- Intel® 915GME integrated GMA 900 - One VGA (rear panel) and one LVDS (onboard) - Dual independent display by VGA and LVDS, 3rd display via PCIE x16 Graphic Card

FLEXIBLE AND UNIQUE

At Portwell, we take care of our customers' needs. Portwell is pledged to remain customer centric -- even amid the relative challenges of the rack-mount chassis market,. Unlike most chassis suppliers, whose focus is cost-down, our priority is quality, and this is reflected in the concepts of our newly developed chassis designs.

1. NEW INDUSTRIAL DESIGN (ID)

Our new industrial design is definitely an eye-catcher, and the chassis has pleasing lines that make it easy to work with. We have invested heavily in our industrial design. Consequently, our rack-mount chassis is not just attractive, but is also built practically, so that it enhances the product outlook and strengthens the unity of our customers' systems.

2. ADVANCED FUNCTIONALITY INSIDE

Since they first evolved from the PC, the growing new technologies have changed the applications of the rack-mount chassis tremendously. New devices, such as USB and IEEE1394, have been completely adopted in the market. The advanced functionality inside of a Portwell chassis is consistently updated in order to meet changing trends, and assures Portwell of our continuing place as a market leader.

3. MODULIZED DESIGN TO ENABLE SYSTEM DIFFERENTIATION AND SUITABILITY FOR FUTURE DEMANDS

The modularized, state-of-the-art design of our chassis enables Portwell to meet system differentiation and the suitability for future demands. At Portwell, we understand that our rack-mount chassis are not for use by application controllers alone. They could also be fault-tolerant systems. Therefore, some hot-swappable devices, such as Mirror or RAID disks, might be integrated into the system. Portwell keeps an eye on future demands to build the capability inside the chassis to work with your system now and in the future.

Contact your local Portwell office for more information on the state-of-the-art design of all new Portwell chassis

AREMO®-The First Priority for Customers

Advanced
Ruggedized
Enhanced
Modulized
Optimized

PORTWELL engineers custom-make products for customers quickly and efficiently.

Our Expertise:

- Experienced and well-trained design team.
- Integration of Industrial Design(ID), flexibility, and functionality.
- Fast sample offering for customer classification and approval.
- Collaborative design with customers.
- Fast response to customers' urgent demands:
  Concept Design (3D): 2 working days
  Mechanical Design: 5 working days
  Samples Building: 14 working days

AREMO® An outstanding chassis for all your needs.

Chassis Reference Table


AREMO-4196


AREMO-2173P


AREMO-3194


PRC-4207

TYPE	SLOT	MODEL	ORDERING INFO	BACKPLANE			
				Model Name	ISA	PCI/PCI-X	PICMG
4U	14-slot	RPC-500NC	RPC-500NC-14P4-3501P	PBP-14P4	9	4	1
4U	ATX M/B	RPC-500NC-MX	RPC-500NC-MX-D3501P	--	--	7	--
4U	14-slot	AREMO-4196	AREMO-4196-14P4-D3501P	PBP-14P4	9	4	1
			AREMO-4196-14P4-D3202P		9	4	1
	ATX M/B	AREMO-4196-MX	AREMO-4196-MX-D3501P	--	--	7	--
2U	6-slot	AREMO-2173P	AREMO-2173P-06V4-D3501P	PBP-06V4	1	4	1
			AREMO-2173P-06V4-D3502P		--	4	--
2U	uATX M/B	AREMO-2173MX	AREMO-2173MX-D3501P	--	--	--	--
			AREMO-2173MX-3502P				
3U	ATX M/B	AREMO-3194	AREMO-3194-MX-350X	--	--	7	--
4U	ATX M/B	PRC-4207	PRC-4207-MX	--	--	--	--
FS	6-slot	AREMO-6163	AREMO-6163-06P4-D3501P	PBP-06P4	1	4	1
FS	8-slot	AREMO-8164	AREMO-8164-08P4-D3501P	PBP-08P4	3	4	1
FS	12-slot	AREMO-4184	AREMO-4184-06P3-350X	PBP-06P3	4	6	2
FS	6-slot	AREMO-6182	AREMO-6182-06P3-350X	PBP-06P3	2	3	1
			AREMO-6182-06P4-350X	PBP-06P4	1	4	1
1U	uATX	PRS-1174	PRS-1174-MX-270X	--	--	1	--
1U	3-slot	RPC-1194	RPC-1194	PBP-03P2X	--	2	1

Chassis Reference Table

AREMO-6163

AREMO-8164

AREMO-4184

AREMO-6182

PRS-1174

TYPE	SLOT	MODEL	PSU		Dimension (W)x (D)x(H)	Page
			Model Name	Power Range		
4U	14-slot	RPC-500NC	ORION-D3501P ORION-D4201P ORION-D3502P	350W ATX, PFC, P4 420W ATX, PFC, P4	482(W) x 450(D) x 177(H) mm 19”(W) x 18”(D) x 7”(H)	45-46
4U	ATX M/B	RPC-500NC-MX				
4U	14-slot	AREMO-4196	ORION-D3501P	350W ATX, PFC, P4	482(W) x 481(D) x 177(H) mm 19”(W) x 19”(D) x 7”(H)	47-49
			ORION-D3202P	320W ATX, PFC, redundant		
	ATX M/B	AREMO-4196-MX	ORION-D4201P	420W ATX, PFC, P4		
2U	6-slot	AREMO-2173P	ORION-D3501P	350W ATX, PFC, P4	482(W) x 441.6(D) x 88.4(H) mm 19”(W) x 17.4”(D) x 3.5”(H)	50-51
			ORION-D3502P	350W ATX, redundant		
2U	uATX M/B	AREMO-2173MX	ORION-D3501P	350W ATX, PFC, P4	482(W) x 441.6(D) x 88.4(H) mm 19”(W) x 17.4”(D) x 3.5”(H)	52-53
			ORION-D3502P	350W ATX, PFC, redundant		
3U	ATX M/B	AREMO-3194	ORION-B3501P	350W ATX, PFC, P4	482(W) x 456(D) x 132(H) mm 19”(W) x 18.0”(D) x 5.25”(H)	54-55
4U	ATX M/B	PRC-4207	ORION-D4601P	460W ATX, PFC, P4	482(W) x 519(D) x 177(H) mm 19”(W) x 20.4”(D) x 7”(H)	56-57
FS	6-slot	AREMO-6163	ORION-D3501P	350W ATX, PFC, P4	260(W) x 420.8(D) x 172(H) mm 10.24”(W) x 16.56”(D) x 6.77”(H)	58-59
FS	8-slot	AREMO-8164	ORION-D3501P	350W PFC, ATX, P4	330(W) x 420.8(D) x 17(H) mm 12.99”(W) x 16.56”(D) x 6.77”(H)	60-61
FS	12-slot	AREMO-4184	FSP350-601UA	350W PFC, ATX, P4	482(W) x 448(D) x 177(H) mm 19”(W) x 17.6”(D) x 7”(H)	62-63
FS	6-slot	AREMO-6182	FSP350-601UA	350W PFC, ATX, P4	219(W) x 448(D) x 160(H) mm 8.6”(W) x 17.6”(D) x 6.3”(H)	64-65
1U	uATX	PRS-1174	PRS-1174-MX-270X	270W ATX PFC, P4	482(W) x 510(D) x 44(H) mm 19”(W) x 20”(D) x 1.75”(H)	67
1U	3-slot	PRC-1194	PRC-1194-03P2X-A2501	250W ATX PFC, P4	482(W) x 474(D) x 44(H) mm 19”(W) x 18.7”(D) x 1.75”(H)	68

RPC-500NC/L

19” 4U industrial rack-mount chassis

FEATURES

- 5.25” x3 + 3.5” x2 drive bays for RAID 0, 1, 5 & CD-ROM
- Two ball-bearing cooling fans for better ventilation
- Traditional rack-mount handles
- Two card retainer positions
- Two USB ports on the control panel
- One PS/2 K/B connector cap included
- One modularized function panel for single (default) and dual (optional) systems
- ATX M/B applicable, especially for big-AT sized M/B (RPC-500L)
- PS/2 reduncant power supply installable

RPC-500NC/L

Except the rack-mount handle, RPC-500N is the same as RPC-500NC. It’s the best selling 4U rack-mount chassis for CTI, industrial, scientific, engineering and server applications.

ORDERING GUIDE

- **RPC-500NC**
  19” 4U rack-mount chassis for PICMG backplane
- **RPC-500NC-MX**
  19” 4U rack-mount chassis for ATX M/B
- **RPC-500L**
  19” 4U rack-mount chassis for PICMG backplane (Long size)
- **RPC-500L-MX**
  19” 4U rack-mount chassis for server board

GENERAL

Construction	Heavy-duty steel with aluminum front panel
Drive Bay	External: 5.25” x3, 3.5” FDD x1 Internal: 3.5” HDD x1
Card Retainer	Two locations for one card retainer
Air Filter	One replaceable filter
Cooling Fan	One 12cm and one 8cm ball-bearing cooling fans
Indicator	Power on/off x1, HDD x1
Switch	Power on/off x1, System reset x1, K/B lock x1
Connector	One 5-pin K/B connector on the front panel with a cap
Standard Color	Beige, Black
Dimension	RPC-500N: 482(W) x 450(D) x 177(H) mm; 19”(W) x 17.7”(D) x 7”(H) RPC-500L: 482(W) x 515(D) x 177(H) mm; 19”(W) x 20.3”(D) x 7”(H)
Weight	RPC-500N: Net: 14 kg (30.9 lb); Gross: 15 kg (33.1 lb) RPC-500L: Net: 17.5 kg (38.6 lb); Gross: 18.5 kg (40.8 lb)
Backplane	PBP-14I: 14-slot ISA backplane PBP-14AC: 14-slot (12xPCI) active PICMG backplane PBP-14A7: 14-slot (7xPCI) active PICMG backplane PBP-14P4: 14-slot (4xPCI) PICMG backplane PBP-13D4: 13-slot dual-system PICMG backplane

POWER SUPPLY

ORION-D3501P optional

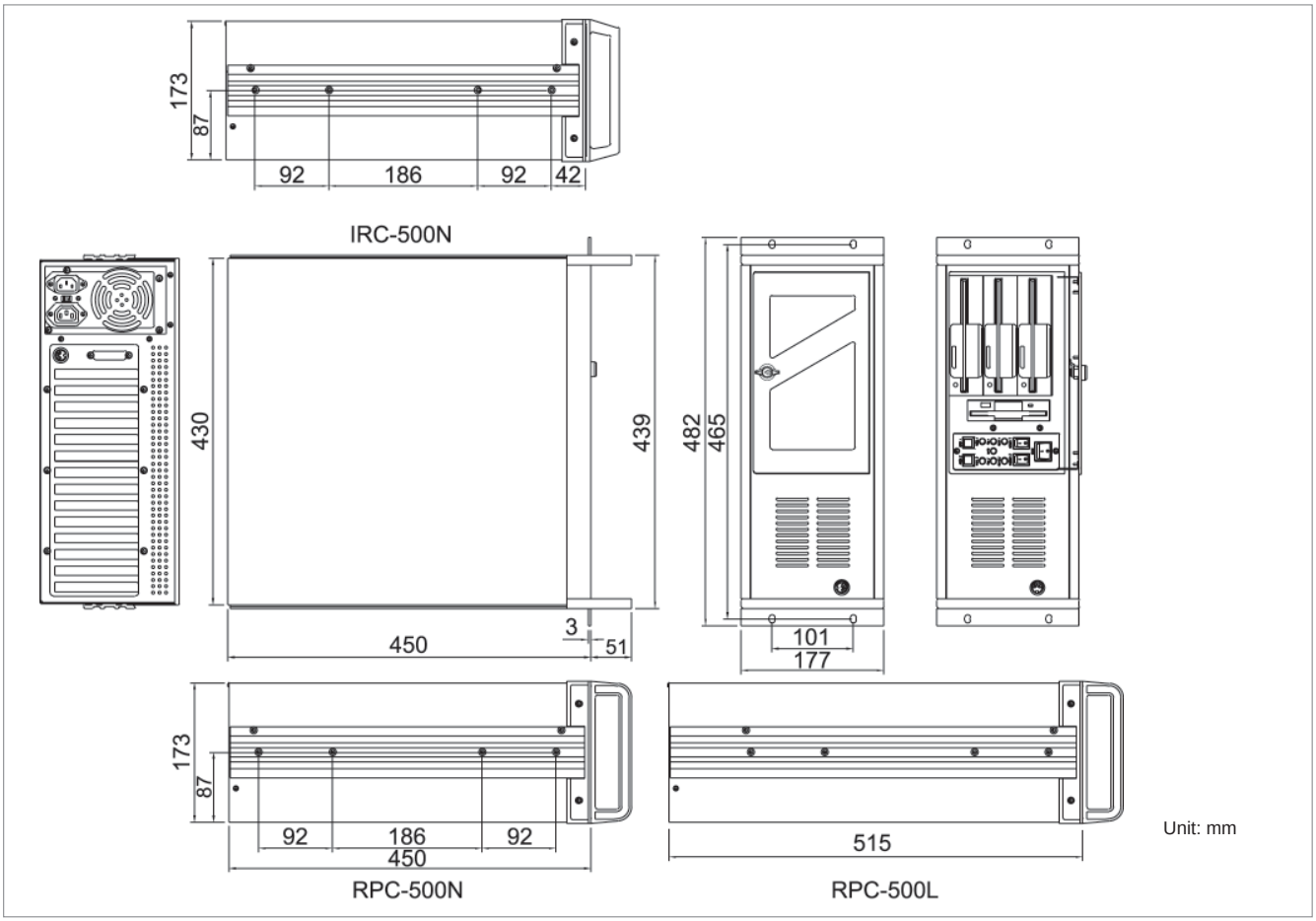
Maximum output	350W active PFC
Output Voltage & Current	+5V@40A; +12V@18A; +3.3V@30A; -5V@0.3A, -12V@1.0A, +5Vsb@2A
Input Voltage	90V ~ 264V AC, full range
Input Frequency	47 ~ 63Hz
Input Current	10A@115V, 5V@230V
Efficiency	> 68%
MTBF	75,145 hrs
EMI & Safety Approval	UL, cUL, TUV, CE, FCC
Temperature/Humidity	Operating: 0 ~ 50°C, 20 ~ 85%RH Storage: -40 ~ 70°C, 10 ~ 90%RH
Dimension (WxDxH)	150 x 140 x 86 mm; 5.9” x 5.5” x 3.4”

ENVIRONMENT

Operating Temperature Range	0 to +55°C
Storage Temperature Range	0 to +70°C
Relative Humidity	5% to 95%, non-condensing
Vibration	5~7 Hz: 0.5” double amplitude displacement 7~2000 Hz: 1.5g acceleration

FEATURE	BENEFITS
■ A lockable front door with thumb lock	■ Good for dust-proof & Running status visible
■ One power on/off switch with LED indicator, one reset and one K/B lock switches inside the lockable door	■ Avoid accidental reset for better running security
■ Front replaceable air filter	■ For installing dual systems and redundant power supplies more easily
■ Two USB ports on the front panel	■ For easy access
■ One PS/2 K/B connector on the front panel	■ Convenient to connect to the keyboard
■ One K/B connector cap	■ Good for dust-proof for the front accessible K/B connector
■ Two ball-bearing cooling fans	■ Better ventilation to provide the system with higher reliability
■ Enhanced drive bracket to hold 3 x 5.25” + 1 x 3.5” (external) and 1 x 3.5” drives (internal)	■ For integrating varied systems with higher flexibility
■ Shock-resistant cushion for the drive bracket	■ Suitable for installing RAID and CD-ROM drive
■ Two adjustable positions for hold-down card retainers	■ For fixing all the cards more flexibly and tightly
■ Changeable modularized back panel for 14-slot ISA/PICMG backplane or ATX M/B	■ Only one minutes to change the back panel ■ Easy to change to different backplanes and keep stock
■ Field replaceable power supply bracket for both normal PS/2 power supply and PS/2 type redundant power supply	■ Only three minutes to change defective power supply ■ Only 30 seconds to change the defective PSU module

ENGINEERING DRAWING



AREMO-4196

The Best Cost-Performance 19” 4U Height Pentium® 4 Processor Based Rack-mount Computer

FEATURES

- Three 5.25” and one external 3.5” HDD drive bays for RAID 0, 1, 5 & CD-ROM
- Two USB ports on the front panel
- Dual 12cm ball-bearing cooling fans for better ventilation
- Two card retainer positions
- PS/2 or redundant power supply installable
- ATX M/B applicable, especially for big-ATX size M/B
- Easily detached and washable air filter
- Equipped with fan control card to detect fan failure

ORDERING GUIDE

- **AREMO-4196**
  19” 4U rack-mount chassis for PICMG version
- **AREMO-4196-MX**
  19” 4U rack-mount chassis for M/B version
- **AREMO-4196-MX-4201P**
  19” 4U rack-mount chassis for ATX motherboard with active 420W ATX, Active PFC power supply
- **AREMO-4196-00-4201P**
  19” 4U rack-mount chassis for PICMG version and 420w ATX, Active PFC power supply (3-in-2 mobile rack Drive is optional)

GENERAL

Construction	Heavy-duty steel with aluminum front panel
Drive Bay	External: 5.25” x3, 3.5” HDD x1
Card Retainer	Three locations for one card retainer
Air Filter	Two replaceable air filter
Cooling Fan	Two 12cm 8cm ball-bearing cooling fans
Indicator	Power on/off x1, HDD x1
Switch	Power on/off x1, System reset x1
Speaker	One 8Ω speaker
Connector	Two USB ports on the front panel
Standard Color	Silver, Black
Dimension	482(W) x 481(D) x 177(H) mm; 19”(W) x 18.1”(D) x 7”(H)
Weight	Net: 13.5 kg (29.8 lb); Gross: 14.5 kg (32 lb)
Backplane	PBP-14I: 14-slot ISA backplane PBP-14AC: 14-slot (12xPCI) active PICMG backplane PBP-14A7: 14-slot (7xPCI) active PICMG backplane PBP-14P4: 14-slot (4xPCI) PICMG backplane PBP-13D4: 13-slot dual-system PICMG backplane

POWER SUPPLY

ORION-D4201P optional

Input Voltage	90V ~ 264V AC, full range
Input Frequency	47 ~ 63 Hz
Input Current	5A@230V; 10A@115V
Efficiency	> 70%
Holdup Time	17 ms. at full load @25°C
Over Voltage Protection	+5V@7V; +3.3V@4.5V; +12V@15.6V
Over Power/Load Protection	Output power over to 110%~140%
MTBF	100,000 hrs
EMI & Safety Approval	UL, TUV
Temperature/Humidity	Operating: 0 ~ 50°C, 20 ~ 85%RH Storage: -40 ~ 70°C, 10 ~ 90%RH
Dimension (WxDxH)	150 x 140 x 86 mm; 5.9” x 5.5” x 3.4”

ENVIRONMENT

Operating Temperature Range	0 to +55°C
Storage Temperature Range	-20 to +80°C
Relative Humidity	5% to 95%, non-condensing
Vibration	5~7 Hz: 0.5” double amplitude displacement 7~2000 Hz: 1.5g acceleration

AREMO-4196

The Best Cost-Performance 19” 4U Height Pentium® 4 Processor Based Rack-mount Computer

FEATURE	BENEFITS
■ A lockable front door with thumb lock	■ Good for dust-proof & security
■ One power on/off switch and one system reset botton on the front panel behind the lockable door	■ Avoid accidental reset for better running security
■ Fan control board	■ Detect fan fail and Alarm
■ Front replaceable air filter	■ For easy cleaning and install
■ Equipped two USB ports	■ Efficient Access
■ Dual 12cm ball-bearing cooling fans	■ Better ventilation to provide the system with higher reliability
■ Enhanced drive bracket to hold three 5.25” and two 3.5” HDD drives (internal)	■ For integrating varied systems with higher flexibility ■ Suitable for installing RAID and CD-ROM drive
■ Shock-resistant cushion for the drive bracket	■ Suitable for harsh industrial environment
■ Two adjustable positions for hold-down card retainers	■ For fixing all the cards more flexibly and tightly
■ Changeable modularized back panel for 14-slot ISA/PICMG backplane or ATX motherboard	■ Only one minute to change the back panel ■ Easy to change to different backplanes and keep stock
■ Field replaceable power supply bracket for both normal PS/2 power supply and PS/2 type redundant power supply	■ Only three minutes to change the defective power supply ■ Only thirty seconds to change the defective PSU module

WHAT’S NEW

PCI based RAID kits, supporting up to three SATA HDDs with RAID 0, 1, 5 selections. The Disk bus is E-IDE with Ultra DMA support. The RAID kits provide a GUI manager for installation and maintenance. Hot-swap and hot-spare capabilities are also supported.

Friendly design of handles, you can lift and unstall AREMO-4196 comfortably and easily.

Power switch, RESET switch, HDD / Power / Fan-fail / LAN LEDs and two USB 2.0 ports are on the front panel.

Flexible design to install power supply, the bracket can be adapt to PS/2 type or mini-redundant power supply.

AREMO-4196 enhances the drive bracket to integrate up to three 5.25” and one 3.5” disk drives within a limited space. (extra two 3.5” HDD drives for AREMO-4196-MX)

Equipped with dual 12cm ball bearing fans, AREMO-4196 provides the best ventilation up to 208CFM to expire heat from the system.

AREMO-4196 adopts the newly designed card retainer to hold both the PCI and ISA type add-on-cards more tightly.

AREMO-4196 is equipped with two USB 2.0 connectors on the front panel to have a better security control.

The washable fan filter can be easily taken off to make an easier maintenance.

LED indicators include power, HDD, Fan-fail and LAN functions.

The thumb lock offers easy operation. Users can choose to lock it or not.

The washable fan filter can be easily taken out for easier maintenance.

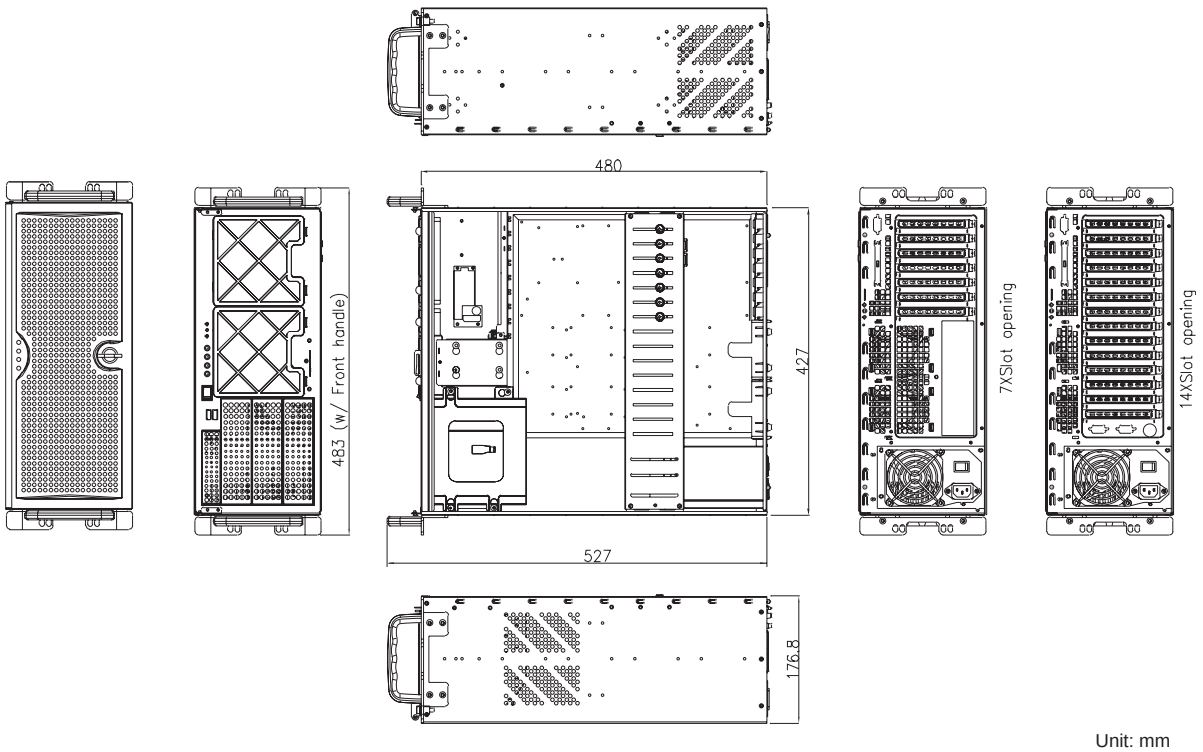
AREMO-4196

The Best Cost-Performance 19” 4U Height Pentium® 4 Processor Based Rack-mount Computer

AREMO-4196

AREMO-4196-MX

ENGINEERING DRAWING



AREMO-2173P

19” 2U industrial rack-mount chassis for PICMG backplane

FEATURES

- One slim CD-ROM and two hot-swap 3.5” HDD (SATA) Drive bays
- Two USB ports on the front panel
- Two 7cm ball-bearing cooling fans for better ventilation
- One power On/Off switch with protection cap and one touch free reset for secure access

ORDERING GUIDE

- **AREMO-2173P-06V4-D3501P**
  19” 2U rack-mount chassis with vertical 6-slot (4x PCI) PICMG backplane and 350W ATX, active PFC power supply
- **AREMO-2173P-06V4**
  19” 2U rack-mount chassis with vertical 6-slot (4x PCI) PICMG backplane
- **AREMO-2173P-06V4-3502P**
  19” 2U rack-mount chassis with vertical 6-slot (4x PCI) PICMG backplane and 350W active PFC redundant power supply

GENERAL

Construction	Heavy-duty steel
Drive Bay	External: Slim type CD-ROM x1, Hot-swap 3.5” HDD x2
Air Filter	One external replaceable air filter
Cooling Fan	Two 7cm ball-bearing fans
Indicator	HDD x1+ Power on/off x1
Switch	Power on/off (with a protection cap) x1, System reset x1
Speaker	One 8Ω speaker
Connector	Two USB ports equipped on the front panel
Standard Color	Silver, Black
Dimension	482(W) x 441.6(D) x 88.4(H) mm; 19”(W) x 17.4”(D) x 3.5”(H)
Weight	Net: 11.0 kg (23.1 lb); Gross: 12.0 kg (25.3 lb)

POWER SUPPLY

ORION-D3501P optional

Input Voltage	90V ~ 264V AC, full range
Input Frequency	47 ~ 63 Hz
Input Current	6A@90V
Efficiency	> 68%
Holdup Time	17 ms. at full load@25°C
Over Voltage Protection	+5V@7V; +3.3V@4.3V; +12V@15.6V
Over Power/Load Protection	Output power over 110%~140%
MTBF	75,145 hrs
EMI & Safety Approval	UL, TUV, CE, FCC, CB, CSA, SEMKO, FIMKO, NEMCO, DIMCO
Temperature/Humidity	Operating: 0 ~ 50°C, 20 ~ 85%RH Storage: -20 ~ 70°C, 10 ~ 90%RH
Dimension (WxDxH)	150x140x86 mm; 5.9”x5.5”x3.4”

ENVIRONMENT

Operating Temperature Range	0 to +55°C
Storage Temperature Range	-20 to +80°C
Relative Humidity	5% to 95%, non-condensing
Vibration	5~7 Hz: 0.5” double amplitude displacement 7~2000 Hz: 1.5g acceleration

AREMO-2173P

19” 2U industrial rack-mount chassis for PICMG backplane

FEATURE	BENEFITS
■ 350W Active PFC power supply	■ Sufficient power source for Intel® Pentium® 4 processor
■ Two 7cm high speed fans	■ Better ventilation to enhance system reliability
■ Two swappable SATA HDD drive bays	■ Easy to access HDD drives
■ Four Low profile PCI expansion slots	■ For system function expansion
■ Front replaceable air filters	■ Easy cleaning

WHAT’S NEW

Thumb Lock

Convenient to operate or protect the system

Two Swappable SATA HDD Drives

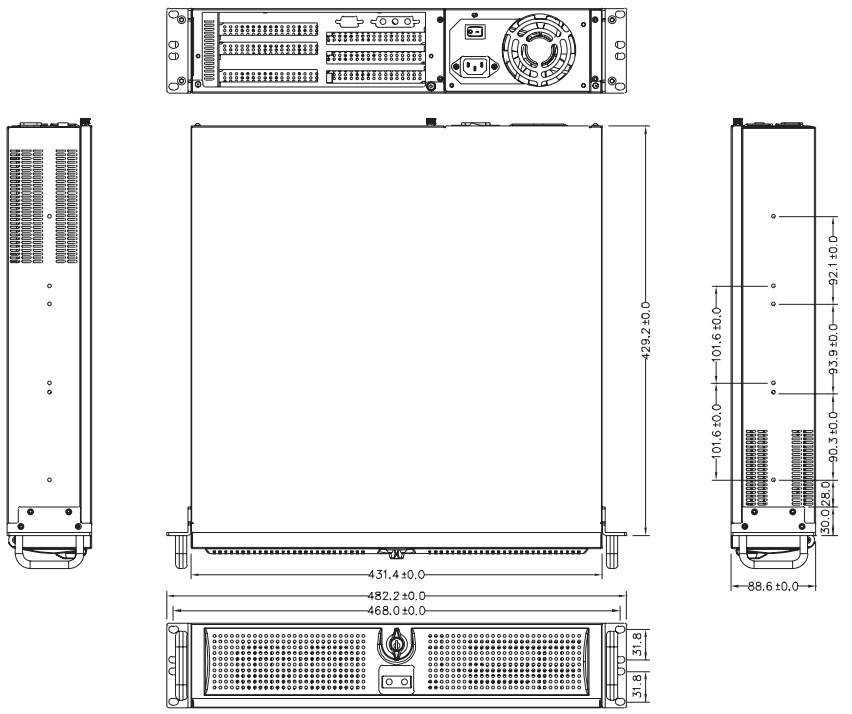
Easy to access HDD drives

Front Replaceable Air Filters/Fans

Convenient to change air filters or fans when needed

Rear View

ENGINEERING DRAWING



Unit: mm

AREMO-2173MX

19” 2U industrial rack-mount chassis for Micro-ATX or mini-ITX mother board

FEATURES

- One slim CD-ROM and two hot-swap 3.5” HDD (SATA) Drive bays
- Two USB ports on the front panel
- Two 7cm ball-bearing cooling fans for better ventilation
- One power On/Off switch with protection cap and one touch free reset for secure access

ORDERING GUIDE

- **AREMO-2173MX-D3501P**
  19” 2U rack-mount chassis for micro-ATX or mini-ITX M/B with 350W ATX, active PFC power supply
- **AREMO-2173MX**
  19” 2U rack-mount chassis for micro-ATX or mini-ITX M/B

GENERAL

Construction	Heavy-duty steel
Drive Bay	External: Slim type CD-ROM x1, Hot-swap 3.5” HDD x2
Air Filter	One external replaceable air filter
Cooling Fan	Two 7cm ball-bearing fans
Indicator	HDD x1+ Power on/off x1
Switch	Power on/off (with a protection cap) x1, System reset x1
Speaker	One 8Ω speaker
Connector	Two USB ports equipped on the front panel
Standard Color	Silver, Black
Dimension	482(W) x 441.6(D) x 88.4(H) mm; 19”(W) x 17.4”(D) x 3.5”(H)
Weight	Net: 11.0 kg (23.1 lb); Gross: 12.0 kg (25.3 lb)

POWER SUPPLY

ORION-D3501P optional

Input Voltage	90V ~ 264V AC, full range
Input Frequency	47 ~ 63 Hz
Input Current	6A@90V
Efficiency	> 68%
Holdup Time	17 ms. at full load@25°C
Over Voltage Protection	+5V@7V; +3.3V@4.3V; +12V@15.6V
Over Power/Load Protection	Output power over 110%~140%
MTBF	75,145 hrs
EMI & Safety Approval	UL, TUV
Temperature/Humidity	Operating: 0 ~ 50°C, 20 ~ 85%RH Storage: -40 ~ 70°C, 10 ~ 90%RH
Dimension (WxDxH)	150x140x86 mm; 5.9”x5.5”x3.4”

ENVIRONMENT

Operating Temperature Range	0 to +55°C
Storage Temperature Range	-20 to +80°C
Relative Humidity	5% to 95%, non-condensing
Vibration	5~7 Hz: 0.5” double amplitude displacement 7~2000 Hz: 1.5g acceleration

AREMO-2173MX

19” 2U industrial rack-mount chassis for Micro-ATX or mini-ITX mother board

FEATURE	BENEFITS
■ 350W Active PFC power supply	■ Sufficient power source for Intel® Pentium® 4 processor
■ Two 7cm high speed fans	■ Better ventilation to enhance system reliability
■ Two swappable SATA HDD drive bays	■ Easy to access HDD drives
■ Four Low profile PCI expansion slots	■ For system function expansion
■ Front replaceable air filters	■ Easy cleaning

WHAT’S NEW

Thumb Lock

Convenient to operate or protect the system

Two Swappable SATA HDD Drives

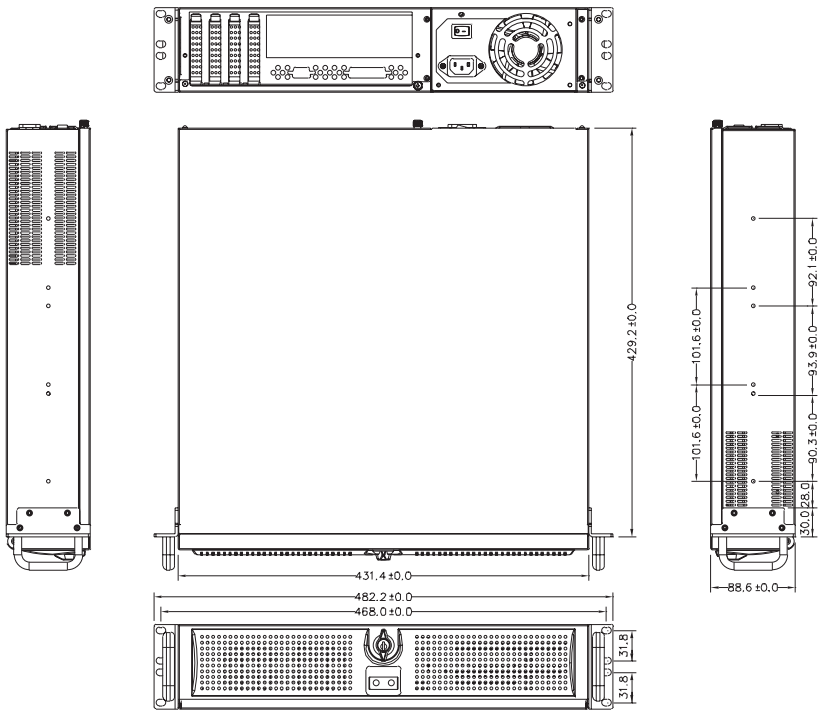
Easy to access HDD drives

Front Replaceable Air Filters/Fans

Convenient to change air filters or fans when needed

Rear View

ENGINEERING DRAWING



Unit: mm

AREMO-3194

19” 3U rack-mount chassis for ATX M/B platform

FEATURES

- IEEE 1394 port and two USB ports on the front panel
- Dedicated cooling fans for expiring the heat on the hot spots within the chassis
- Dustproof front-access air filter for easy cleaning and replacing
- Lockable front door provides greater security
- Thumb lock for greater security and to operate system more easily

ORDERING GUIDE

- **AREMO-3194-MX-B3501P**
  19” 3U rack-mount chassis with 2U 350W ATX, W/active PFC power supply for ATX M/B
- **AREMO-3194E-MX-D3501P**
  19” 3U rack-mount chassis with PS/2 350W ATX, with active PFC power supply for ATX M/B

GENERAL

Construction	Heavy-duty steel
Drive Bay	External: 5.25”x2+3.5”x1; Internal: 3.5”x1
Air Filter	Two replaceable air filters at the front
Cooling Fan	Two 8 cm ball-bearing cooling fans
Indicator	Power on/off x1, HDD x1
Switch	Power on/off x1, System reset x1
Speaker	One 8Ω speaker
Connector	Two USB ports and 1 IEEE 1394 port on the front panel
Standard Color	Silver, Black
Dimension	481.6(W) x 487.8(D) x 132.7(H) mm ; 19”(W) x 19.2”(D) x 5.22”(H)
Weight	Net: 16 kg (35.3 lb) ; Gross: 18 kg (39.7 lb)
M/B	Micro-ATX, ATX

POWER SUPPLY

ORION-B3501P optional

Input Voltage	90V ~ 264V AC, full range
Input Frequency	47 ~ 63 Hz
Input Current	10A@115V, 6A@230V
Efficiency	> 65%
Holdup Time	16 ms. at full load
Over Voltage Protection	+5V@5.5~7.0V; 3.3V@3.7~4.5V; +12V@13.6~14.6V
Over Power/Load Protection	Output power over 110%~150%
MTBF	100,000 hrs
EMI & Safety Approval	UL, cUL, TUV, CE, FCC
Temperature/Humidity	Operating: 0 ~ 40°C, 20 ~ 90%RH Storage: -20 ~ 60°C, 5 ~ 95%RH
Dimension (WxDxH)	100x200x70 mm; 3.94”x8.3”x2.8”

ENVIRONMENT

Operating Temperature Range	0 to +55°C
Storage Temperature Range	-20 to +80°C
Relative Humidity	5% to 95%, non-condensing
Vibration	5~7 Hz: 0.5” double amplitude displacement 7~2000 Hz: 1.5g acceleration

AREMO-3194

19” 3U rack-mount chassis for ATX M/B platform

FEATURE	BENEFITS
■ Two USB and one IEEE 1394 ports on the front panel	■ Sufficient power source for Intel® Pentium® 4 processor
■ Cooling tunnel design	■ Better ventilation to enhance system reliability
■ More expansion slots	■ Support up to six expansion and one AGP slots for higher expansibility
■ Thumb lock	■ Easy to operate the system
■ Lockable front door	■ Provide better security
■ Front replaceable air filters	■ For easy cleaning

WHAT’S NEW

Excellent In-System Cooling

Two 8cm ball-bearing fans provide better ventilation and keep smooth airflow

PCI and AGP Expansion

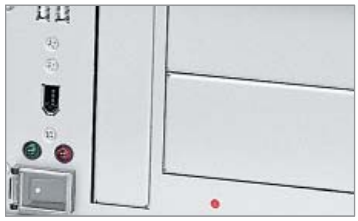
Six PCI and one AGP expansion slots for adding more functions to the system

Front Replaceable Air Filters

Convenient to change air filters when needed

Lockable Front Door and Thumb Lock

Provide better security and operate the system more easily



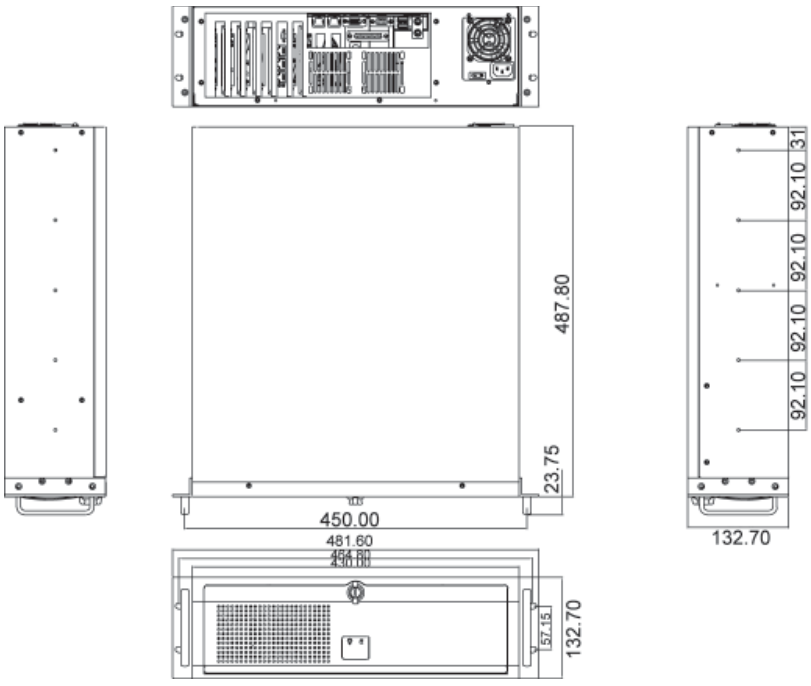
Protection Cap and Touch-Free Reset Switch

Avoid abnormal operation and increase system reliability

Excellent Cooling System

New slot cover and air holes for better ventilation

ENGINEERING DRAWING



Unit: mm

PRC-4207

19” 4U industrial rack-mount chassis for server grade mother board

FEATURES

- 5.25” x3 + 3.5” x4 drive bays for RAID 0, 1, 5 & CD-ROM
- Two ball-bearing cooling fans for better ventilation
- Traditional rack-mount handles
- Two card retainer positions
- Two USB ports on front panel
- ATX M/B applicable, especially for server grade M/B
- PS/2 reduncant power supply installable

ORDERING GUIDE

- **PRC-4207**
  19” 4U rack-mount chassis for PICMG backplane
- **PRC-4207-MX**
  19” 4U rack-mount chassis for ATX M/B

GENERAL

Construction	Heavy-duty steel
Drive Bay	External: 5.25” x3 Internal: 3.5” HDD x4
Card Retainer	Two locations for one card retainer
Air Filter	One replaceable air filter
Cooling Fan	One 12cm and one 8cm ball-bearing cooling fans
Indicator	Power on/off x1, HDD x1
Switch	Power on/off x1, System reset x1, K/B lock x1
Connector	Two USB ports on the front panel
Standard Color	Beige, Black
Dimension	482(W) x 519(D) x 177(H) mm; 19”(W) x 20.4”(D) x 7”(H)
Weight	Net: 14 kg (30.9 lb); Gross: 15 kg (33.1 lb)
Backplane	PBP-14I: 14-slot ISA backplane PBP-14AC: 14-slot (12xPCI) active PICMG backplane PBP-14A7: 14-slot (7xPCI) active PICMG backplane PBP-14P4: 14-slot (4xPCI) PICMG backplane PBP-13D4: 13-slot dual-system PICMG backplane

POWER SUPPLY

ORION-D4601P optional

Maximum output	460W
Output Voltage & Current	+5V@20A; +12V@32A; +3.3V@22A, -12V@0.5A, +5Vsb@2.5A
Input Voltage	90V ~ 264V AC selectable
Input Frequency	47 ~ 63Hz
Input Current	6A@115V, 3V@230V
Efficiency	> 70%
MTBF	100,000 hrs at 25ºC
EMI & Safety Approval	UL, TUV, CE, FCC
Temperature/Humidity	Operating: 0 ~ 50ºC, 20 ~ 85%RH Storage: -40 ~ 60ºC, 5 ~ 95%RH
Dimension (WxDxH)	150 x 140 x 86 mm; 5.9” x 5.5” x 3.4”

ENVIRONMENT

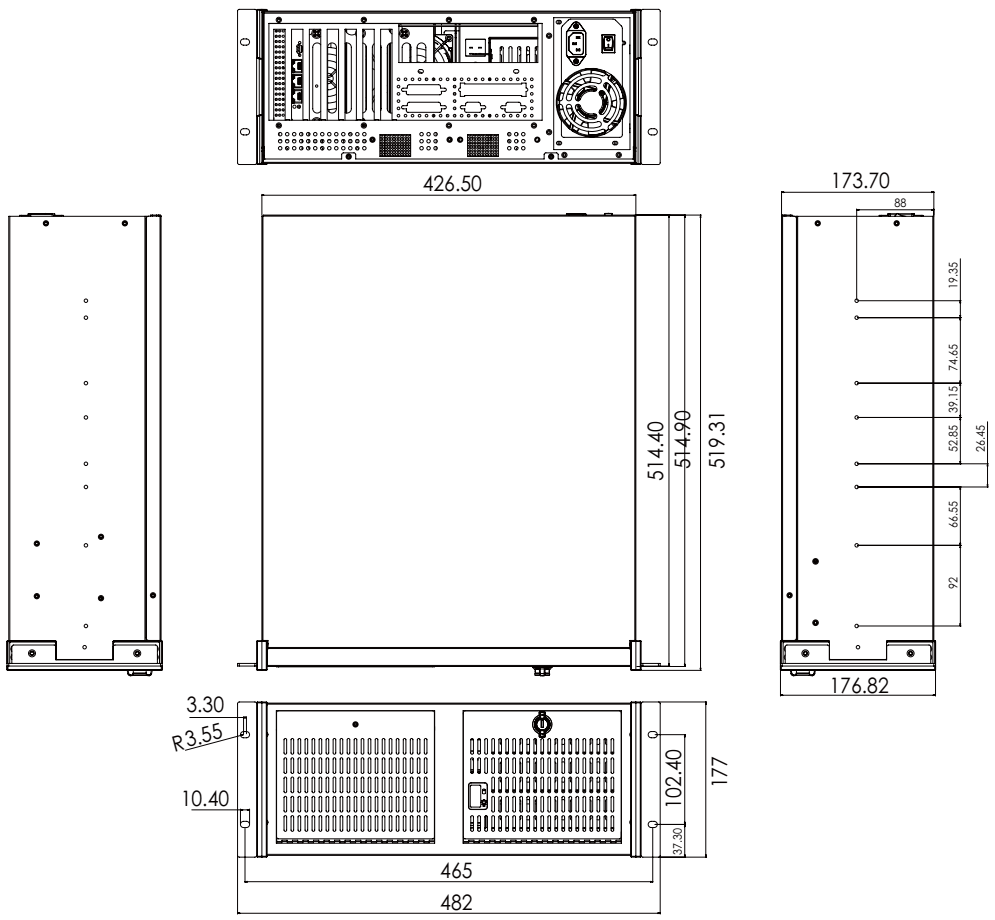
Operating Temperature Range	0 to +55°C
Storage Temperature Range	-20 to +70°C
Relative Humidity	5% to 95%, non-condensing
Vibration	5~7 Hz: 0.5” double amplitude displacement 7~2000 Hz: 1.5g acceleration

PRC-4207

19” 4U industrial rack-mount chassis for server grad

FEATURE	BENEFITS
■ A lockable front door with acrylic windows	■ Good for dust-proof & Running status visible
■ One power on/off switch with LED indicator, one reset and one K/B lock switches inside the lockable door	■ Avoid accidental reset for better running security
■ Front replaceable air filter	■ For installing dual systems and redundant power supplies more easily
■ Two USB ports on the front panel	■ For easy access
■ Two ball-bearing cooling fans	■ Better ventilation to provide the system with higher reliability
■ Enhanced drive bracket to hold 3 x 5.25” + 4 x 3.5” drives (internal)	■ For integrating varied systems with higher flexibility
■ Shock-resistant cushion for the drive bracket	■ Suitable for installing RAID and CD-ROM drive
■ Two adjustable positions for hold-down card retainers	■ For fixing all the cards more flexibly and tightly
■ Changeable modularized back panel for 14-slot ISA/PICMG backplane or ATX M/B	■ Only one minutes to change the back panel ■ Easy to change to different backplanes and keep stock
■ Field replaceable power supply bracket for both normal PS/2 power supply and PS/2 type redundant power supply	■ Only three minutes to change the defective power supply ■ Only 30 seconds to change the defective PSU module

ENGINEERING DRAWING



Unit: mm

AREMO-6163

6-slot full-size industrial node chassis (Shoe-box)

FEATURES

- One external 5.25” and two internal 3.5” HDD drive bays
- Two USB ports on the front panel
- Can be vertically or horizontally mounted, easy to fit into space limited environment
- One 12cm ball-bearing cooling fan for better ventilation
- One replaceable air filter for easy cleaning
- Two adjustable positions for hold-down card retainers provide better protection from vibration
- Wall-mounting bracket equipped
- Both 6-slot ISA and PICMG 1.0 or 1.3 backplane applicable; easy to change different backplanes
- Field replaceable power supply bracket for both normal PS/2 and PS/2 redundant power supply, easy for changing defected power supply

ORDERING GUIDE

- **AREMO-6163-06P3-D3501P**
  6-slot full-size industrial node chassis with 6-slot (3xPCI) PICMG backplane and 350W active PFC ATX power supply
- **AREMO-6163-06P4-D3501P**
  6-slot full-size industrial node chassis with 6-slot (4xPCI) PICMG backplane and 350W active PFC ATX power supply

GENERAL

Construction	Heavy-duty steel
Drive Bay	External: 5.25” x1 Internal: 3.5” HDD x2
Card Retainer	Two locations for one card retainer
Air Filter	One replaceable air filter at the front door
Cooling Fan	One 12cm ball-bearing fan
Indicator	Power on/off x1, HDD x1
Switch	Power on/off x1, System reset x1
Speaker	One 8Ω speaker
Connector	Two USB ports on the front panel
Standard Color	Silver, Black
Dimension	260(W) x 420.8(D) x 172(H) mm; 10.24”(W) x 16.56”(D) x 6.77”(H)
Weight	Net: 8.5 kg (18.7 lb); Gross: 9.5 kg (20.9 lb)
Backplane	PBP-06I: 6-slot PISA bus PICMG backplane PBP-06P4: 6-slot (4xPCI) PICMG backplane PBP-06P3: 6-slot (3xPCI) PICMG backplane

POWER SUPPLY

ORION-D3501P optional

Input Voltage	90V ~ 264V AC, full range
Input Frequency	47 ~ 63 Hz
Input Current	6A@90V
Efficiency	> 68%
Holdup Time	17 ms. at full load @25°C
Over Voltage Protection	+5V@ 7V; +3.3V@ 4.3V; +12V@ 15.6V
Over Power/Load Protection	Output power over to 110%~140%
MTBF	75,145 hrs
EMI & Safety Approval	UL, TUV
Temperature/Humidity	Operating: 0 ~ 50°C, 20 ~ 85%RH Storage: -40 ~ 70°C, 10 ~ 90%RH
Dimension (WxDxH)	150x140x86 mm; 5.9”x5.5”x3.4”

ENVIRONMENT

Operating Temperature Range	0 to +55°C
Storage Temperature Range	-20 to +80°C
Relative Humidity	5% to 95%, non-condensing
Vibration	5~7 Hz: 0.5” double amplitude displacement 7~2000 Hz: 1.5g acceleration

AREMO-6163 6-slot full-size industrial node chassis (Shoe-box)

FEATURE	BENEFITS
■ 5.25” drive space for CD-ROM or mobile rack	■ Easy to install software
■ Two USB ports at the front	■ Easy to operate the system
■ One replaceable air filter	■ Easy cleaning ■ Two USB ports equipped
■ Can be vertically or horizontally mounted	■ Easy to fit into different space limited environments
■ Two adjustable positions for hold-down card retainer	■ For fixing all the cards more flexibly and tightly
■ Both 6-slot ISA and PICMG backplane applicable	■ Easy to change to different backplane and keep in stock
■ Field replaceable power supply bracket for both normal PS/2 power supply and PS/2 type redundant power supply	■ Easy maintenance

WHAT’S NEW

Two Adjustable Card Retainer Positions

For fixing all the cards more flexibly and tightly

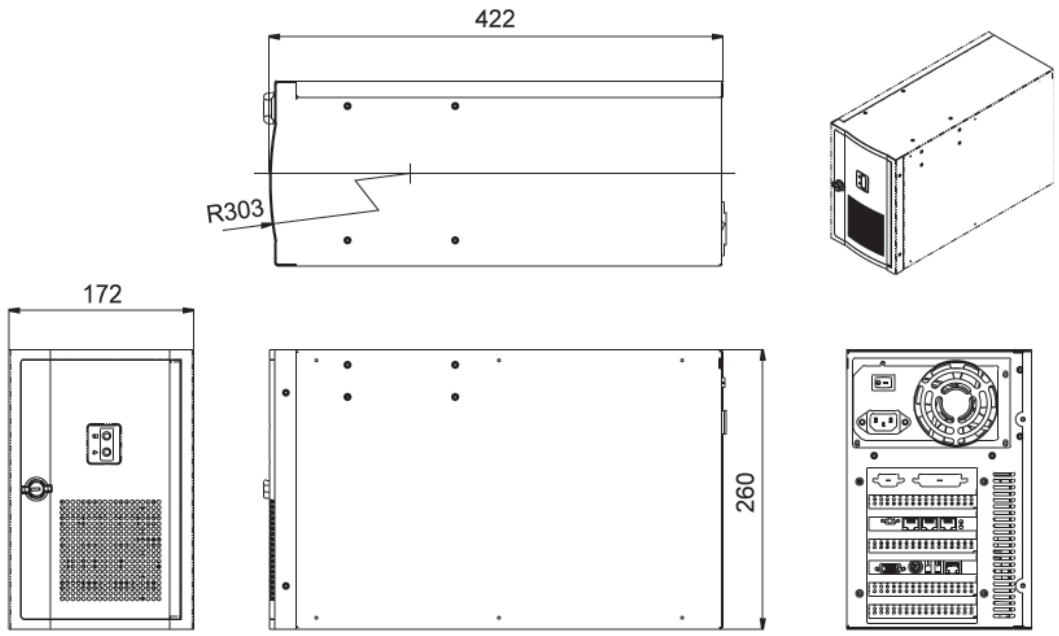
Plastic Fan Filter

For easy cleaning and replace

New HDD Drive Design

Easy to install HDD drives

ENGINEERING DRAWING



Unit: mm

AREMO-8164

8-slot full-size industrial node chassis (Shoe-box)

FEATURES

- Two 5.25” and two internal 3.5” HDD drive bays for CD-ROM or mobile rack, easy to install software and mirror disk (RAID1)
- Two USB ports on the front panel
- Can be vertically or horizontally mounted, easy to fit into space limited environment
- One 12cm ball-bearing cooling fan for better ventilation
- One replaceable air filter for easy cleaning
- Two adjustable positions for hold-down card retainers provide better protection from vibration
- Wall-mounting bracket equipped
- Both 8-slot ISA and PICMG 1.0 or 1.3 backplane applicable; easy to change different backplanes
- Field replaceable power supply bracket for both normal PS/2 and PS/2 redundant power supply, easy for changing defected power supply

ORDERING GUIDE

- **AREMO-8164**
  8-slot full-size industrial node chassis
- **AREMO-8164-08P4-00**
  8-slot full-size industrial node chassis with 8-slot (4xPCI) PICMG backplane
- **AREMO-8164-08P4-D3501P**
  8-slot full-size industrial node chassis with 8-slot (4xPCI) PICMG backplane and 350W active PFC ATX power supply

GENERAL

Construction	Heavy-duty steel
Drive Bay	External: 5.25” x2 Internal: 3.5” HDD x2
Card Retainer	Two locations for one card retainer
Air Filter	One replaceable air filter at the front door
Cooling Fan	One 12cm ball-bearing fan
Indicator	Power on/off x1, HDD x1
Switch	Power on/off x1, System reset x1
Speaker	One 8Ω speaker
Connector	2 USB ports on the front panel
Standard Color	Silver, Black
Dimension	330(W) x 420.8(D) x 172(H) mm; 12.99”(W) x 16.56”(D) x 6.77”(H)
Weight	Net: 10 kg (22.1 lb); Gross: 9.5 kg (20.9 lb)
Backplane	PBP-08I: 8-slot ISA backplane PBP-08P4: 8-slot (4xPCI) PICMG backplane PBP-08P3 : 8-slot (3xPCI) PICMG backplane

POWER SUPPLY

ORION-D3501P optional

Input Voltage	90V ~ 264V AC, full range
Input Frequency	47 ~ 63 Hz
Input Current	6A@90V
Efficiency	> 68%
Holdup Time	17 ms. at full load @25°C
Over Voltage Protection	+5V@ 7V; +3.3V@ 4.3V; +12V@ 15.6V
Over Power/Load Protection	Output power over 110%~140%
MTBF	75,145 hrs
EMI & Safety Approval	UL, TUV
Temperature/Humidity	Operating: 0 ~ 50°C, 20 ~ 85%RH Storage: -40 ~ 70°C, 10 ~ 90%RH
Dimension (WxDxH)	150x140x86 mm; 5.9”x5.5”x3.4”

ENVIRONMENT

Operating Temperature Range	0 to +55°C
Storage Temperature Range	-20 to +80°C
Relative Humidity	5% to 95%, non-condensing
Vibration	5~7 Hz: 0.5” double amplitude displacement 7~2000 Hz: 1.5g acceleration

AREMO-8164

8-slot full-size industrial node chassis (Shoe-box)

FEATURE	BENEFITS
■ 5.25” drive bays for CD-ROM or mobile rack	■ Easy to install software and mirror disk (RAID 1)
■ Two USB ports on the front panel	■ Easy to operate the system
■ One replaceable air filter	■ Easy cleaning
■ Can be vertically or horizontally mounted	■ Easy to fit into different space limited environments
■ Two adjustable positions for hold-down card retainer	■ For fixing all the cards more flexibly and tightly
■ Both 8-slot ISA and PICMG backplane applicable	■ Easy to change to different backplane and keep in stock
■ Field replaceable power supply bracket for both normal PS/2 power supply and PS/2 type redundant power supply	■ Easy maintenance

WHAT’S NEW

Two Adjustable Card Retainer Positions

For fixing all the cards more flexibly and tightly

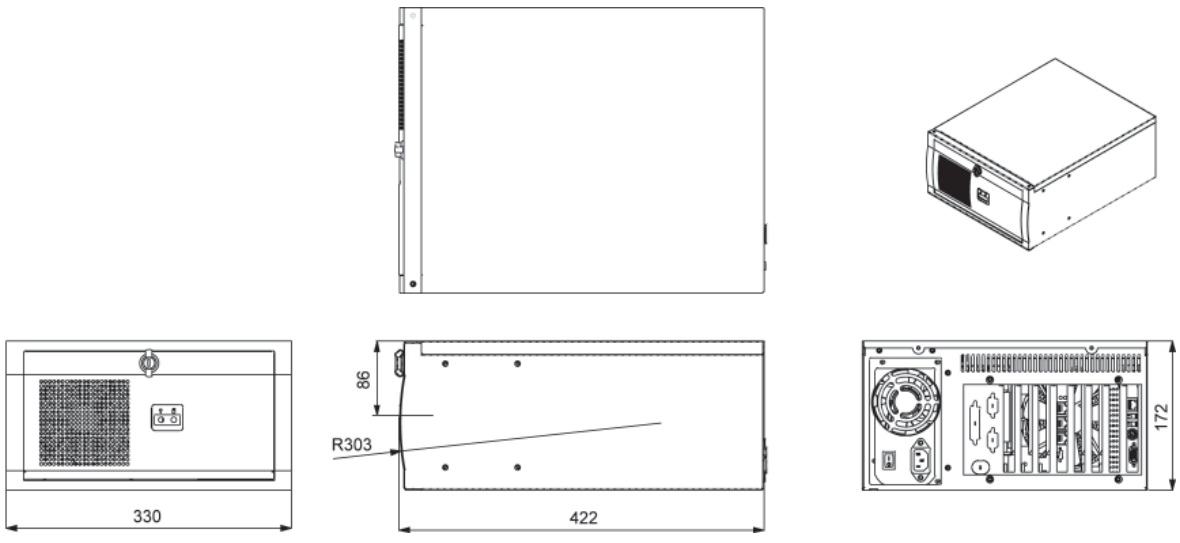
Plastic Fan Filter

For easy cleaning and replacing

Excellent Cooling System

New slot cover for better ventilation

ENGINEERING DRAWING



Unit: mm

AREMO-4184

19" 4U Height rack-mount chassis with dual AREMO-6182 node chassis

AREMO-4184

FEATURES

- Magic design for wall-mount, desk-top and rack-mount application
- Ruggedized steel node chassis suitable for harsh environment
- One built-in 12cm ball-bearing fan for better ventilation
- Built-in 1U ATX type power supply
- Support one external 5.25” and one internal 3.5” disk drive
- Optional one external 5.25” and one internal 3.5” disk drive
- Optional kit to combine two AREMO-6182 for the rack-mount application, AREMO-4184

AREMO-6182

ORDERING GUIDE

- **AREMO-4184-06P4-350X/B**
  Two sets of AREMO-6182 with rack-mount kit, 6-slot (3xPCI) PICMG backplane and 350W 1U ATX, active PFC power supply
- **AREMO-6182-06P4-350X/B**
  6-slot node chassis with 6-slot (3xPCI) PICMG backplane and 350W 1U ATX, active PFC power supply

GENERAL

Construction	Heavy-duty steel
Drive Bay	External: 5.25” x1 (each system) Internal: 3.5” x1 (each system)
Card Retainer	Two locations for one card retainer
Air Filter	One replaceable air filter at the front door
Cooling Fan	One 12cm ball-bearing fan
Indicator	Power on/off x1, HDD x1
Switch	Power on/off (with a protection cap) x1, System reset x1
Speaker	One 8Ω speaker
Connector	2 USB ports
Standard Color	Black, Silver
Dimension	AREMO-4184: 482(W) x 448(D) x 177(H) mm; 19”(W) x 17.6”(D) x 7”(H)
Weight	AREMO-6182: Net: 6.5 kg (14.3 lb); Gross: 8.0 kg (17.6 lb) AREMO-4184: Net: 15.5 kg (34.2 lb); Gross: 17.5 kg (38.6 lb)
Backplane	PBP-06P3: 6-slot (3xPCI) PICMG backplane PBP-06P4: 6-slot (4xPCI) PICMG backplane PBP-06I: 6-slot (6xISA) PICMG backplane

POWER SUPPLY

FSP350-601UA optional

Input Voltage	90V ~ 135V, 180V ~ 265V AC
Input Frequency	47 ~ 63 Hz
Input Current	6A@115V, 3A@230V
Efficiency	> 65%
Holdup Time	18m Sec
Over Voltage Protection	+3.3V: 4.5V; +5V: 6.5V; +12V: 15.6V
Over Power/Load Protection	+3.3V: 45A; +5V: 45A; +12V: 20A
MTBF	100,000 hrs
EMI & Safety Approval	UL, CSA, VDE, FCC, CE, NEMKO
Temperature/Humidity	Operating: 0 ~ 50°C, 20 ~ 80%RH Storage: -40 ~ 70°C, 10 ~ 90%RH
Dimension (WxDxH)	150x140x86 mm; 5.9”x5.5”x3.4”

ENVIRONMENT

Operating Temperature Range	0 to +50°C
Storage Temperature Range	-20 to +80°C
Relative Humidity	5% to 95%, non-condensing
Vibration	5~7 Hz: 0.5” double amplitude displacement 7~2000 Hz: 1.5g acceleration

AREMO-4184

19" 4U Height rack-mount chassis with dual AREMO-6182 node chassis

FEATURE	BENEFITS
■ One 5.25” drive bay for EZDRV	■ For both CD-ROM and FDD support or Hot-swappable HDD
■ Front replaceable air filter	■ Easy cleaning & replacing
■ Two adjustable positions for hold-down card retainer	■ For fixing all the cards more flexibly and tightly
■ Both 6-slot ISA and PICMG backplane applicable	■ Easy to change to different backplane and keep in stock
■ 350W micro-ATX power supply	■ Save the space inside the chassis
■ Special kit to combine dual systems into 4U space	■ Can be integrated as a fault tolerant system

WHAT’S NEW

Special Configuration with EZDRV

AREMO-6182 adopts EZDRV-300NCF or mobile rack for 3.5” HDD

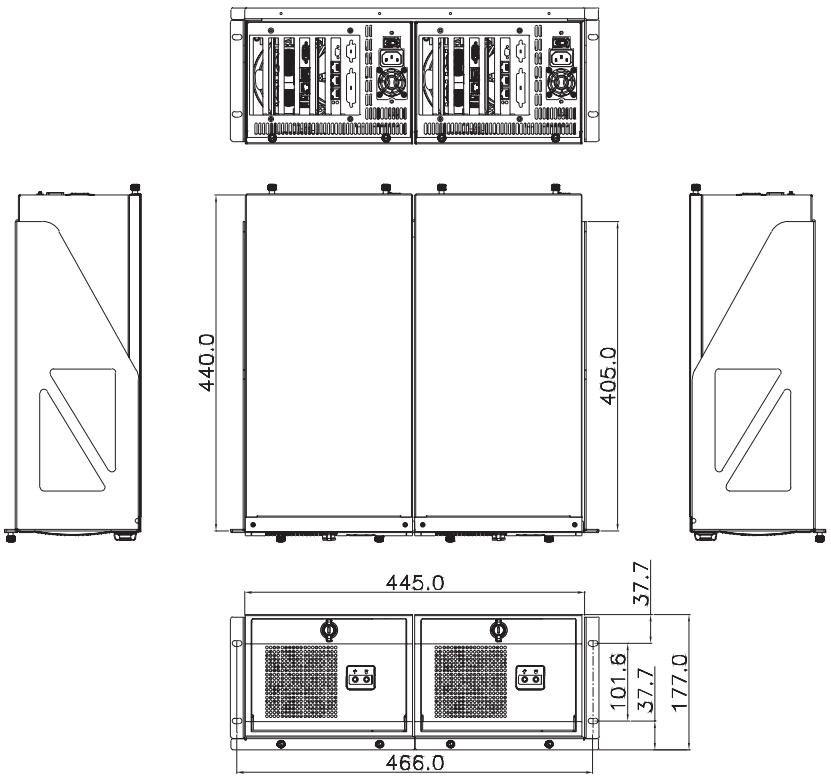
Easy to Mount

AREMO-6182 can be easily mounted on the supporter

Two become One

Combine two AREMO-6182 as a dual system 4U chassis

ENGINEERING DRAWING



Unit: mm

AREMO-6182

6-slot full-size industrial node chassis (Shoe-box)

FEATURES

- One external 5.25” and one internal HDD drive bay
- One replaceable air filter for easy cleaning
- Can be vertically or horizontally mounted, easy to fit into space limited environment
- One 12cm ball-bearing cooling fan for better ventilation
- The fan filter panel can be installed in different directions
- Two adjustable positions for hold-down card retainers provide better protection from vibration
- Wall-mounting bracket equipped
- Both 6-slot ISA and PICMG 1.0 or 1.3 backplane applicable; easy to change different backplanes

ORDERING GUIDE

- **AREMO-6182-06P3-350X**
  6-slot full-size industrial node chassis with 6-slot (3xPCI) PICMG backplane and 1U 350W ATX, Active PFC power supply
- **AREMO-6182-06P4-350X**
  6-slot full-size industrial node chassis with 6-slot (4xPCI) PICMG backplane and 350W active PFC ATX power supply

GENERAL

Construction	Heavy-duty steel
Drive Bay	External: 5.25” x1 Internal: 3.5” HDD x1
Card Retainer	Two locations for one card retainer
Air Filter	One replaceable air filter at the front door
Cooling Fan	One 12cm ball-bearing fan
Indicator	Power on/off x1, HDD x1
Switch	Power on/off x1, System reset x1
Speaker	One 8Ω speaker
Connector	2 USB ports
Standard Color	Black, Silver
Dimension	219(W) x 448(D) x 160(H) mm; 8.6”(W) x 17.6”(D) x 6.3”(H)
Weight	Net: 8.5 kg (18.7 lb); Gross: 9.5 kg (20.9 lb)
Backplane	6-slot PISA bus PICMG backplane

POWER SUPPLY

FSP350-601UA optional

Input Voltage	90V ~ 132V, 180V ~ 265V AC
Input Frequency	47 ~ 63 Hz
Input Current	6A@115V, 3A@230V
Efficiency	> 65%
Holdup Time	18m Sec
Over Voltage Protection	+3.3V: 4.5V; +5V: 6.5V; +12V: 15.6V
Over Power/Load Protection	+3.3V: 45A; +5V: 45A; +12V: 20A
MTBF	100,000 hrs
EMI & Safety Approval	UL, CSA, VDE, FCC, CE, NEMKO
Temperature/Humidity	Operating: 0 ~ 50°C, 20 ~ 80%RH Storage: -40 ~ 70°C, 10 ~ 90%RH
Dimension (WxDxH)	150x140x86 mm; 5.9”x5.5”x3.4”

ENVIRONMENT

Operating Temperature Range	0 to +50°C
Storage Temperature Range	-20 to +80°C
Relative Humidity	5% to 95%, non-condensing
Vibration	5~7 Hz: 0.5” double amplitude displacement 7~2000 Hz: 1.5g acceleration

AREMO-6182

6-slot full-size industrial node chassis (Shoe-box)

FEATURE	BENEFITS
■ 5.25” drive bay for CD-ROM or mobile rack	■ Easy to install software and mirror disk (RAID 1)
■ One replaceable air filter	■ Easy to operate the system
■ Can be vertically or horizontally mounted	■ For easy cleaning
■ Two adjustable positions for hold-down card retainer	■ Easy to fit into different space limited environment
■ Both 6-slot ISA and PICMG backplane applicable	■ For fixing all the cards more flexibly and tightly
■ Field replaceable power supply bracket for both normal PS/2 power supply and PS/2 type redundant power supply	■ Easy to change to different backplane and keep stock
■ Field replaceable bracket for both normal PS/2 and redundant power supply	■ For ease of maintenance
■ Removable fan kit	■ Easy to replace the broken fan

WHAT’S NEW

Removable Fan Kit

Easy to replace the fan when broken

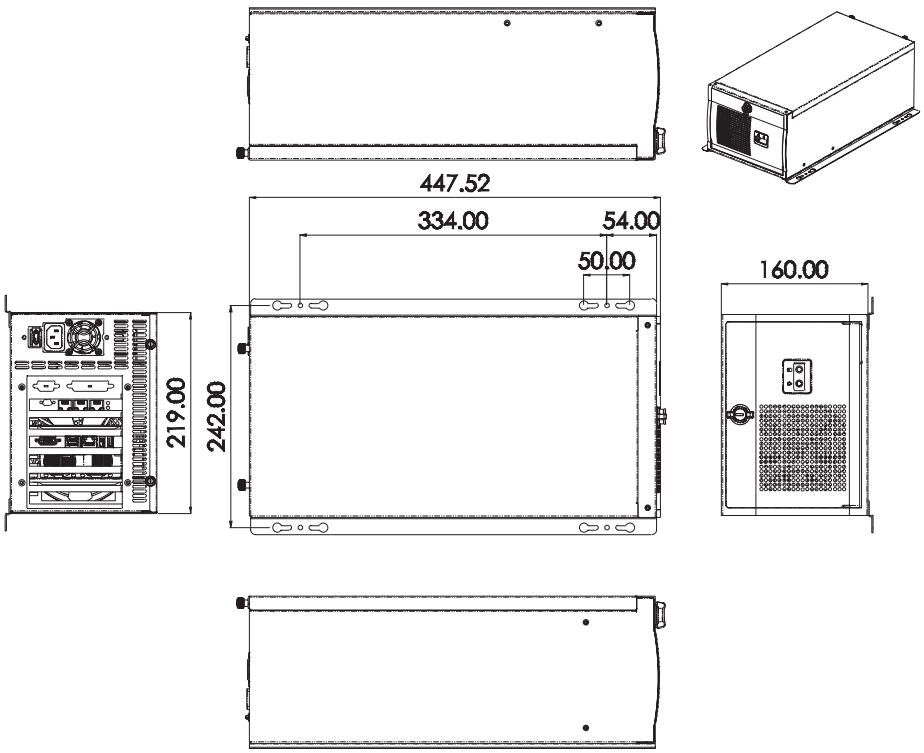
Can be Mounted in Different Styles

AREMO-6182 can be either vertically or horizontally installed

Dual Card Retainers

It has two positions for card clamps to hold both PCI and ISA cards tightly

ENGINEERING DRAWING



Unit: mm

PNC-5063

6-slot industrial node chassis for half-size PCI cards

FEATURES

- One NB CD-ROM, one NB FDD and one 3.5" HDD drive bays
- Can be vertically or horizontally mounted, easy to fit into space limited environment
- Replaceable air filter for easy cleaning
- One power on/off switch protection cap and one touchfree reset for secure access
- Two front accessible USB ports
- Wall-mounting bracket equipped
- One 12cm ball-bearing cooling fan provides better ventilation to enhance the system reliability
- Built-in 150W ATX active PFC power supply

ORDERING GUIDE

- **PNC-5063-05P-150X**
  6-slot node chassis with 5-slot PCI backplane, 150W ATX active PFC, power supply, 24X NB CD-ROM and NB FDD

GENERAL

Construction	Heavy-duty steel
Drive Bay	External: NB CD-ROM x1 + NB FDD x1 (devices built in) Internal: 3.5" HDD x1
Air Filter	One replaceable air filter at the front door
Cooling Fan	One 12cm ball-bearing fan
Indicator	HDD x1
Switch	Power on/off (with a protection cap) x1, System reset x1
Speaker	One 8Ω speaker
Connector	Two USB ports on the front panel
Standard Color	Industrial dark gray
Dimension	196(W) x 262(D) x 196(H) mm; 7.7"(W) x 10.3"(D) x 7.2"(H)
Weight	Net: 6.5 kg (14.3 lb); Gross: 7 kg (15.4 lb)
Backplane	PBP-05P: 5-slot PCI backplane

POWER SUPPLY

ORION-A1501

Input Voltage	90V ~ 264V AC, full range
Input Frequency	47 ~ 63 Hz
Input Current	4A@115V, 2A@230V
Efficiency	> 65%
Holdup Time	16 ms. at full load @25°C
Over Voltage Protection	+5V@ 5.6~6.6V; +3.3V@ 3.6~4.2V; +12V@ 13.2~14.6V
Over Power/Load Protection	Output power over to 110%~160%
MTBF	84,228 hrs
EMI & Safety Approval	UL, CSA, TUV, FCC, CE
Temperature/Humidity	Operating: 0 ~ 50°C, 20 ~ 90%RH Storage: -20 ~ 70°C, 5 ~ 95%RH
Dimension (WxDxH)	150x140x86 mm; 5.9"x5.5"x3.4"

ENVIRONMENT

Operating Temperature Range	0 to +55°C
Storage Temperature Range	-20 to +80°C
Relative Humidity	5% to 95%, non-condensing
Vibration	5~7 Hz: 0.5" double amplitude displacement 7~2000 Hz: 1.5g acceleration

PRS-1174

19" 1U Height rack-mount micro-ATX based server with four drives

FEATURES

- Four external 3.5” HDD drive bays
- One PCI expansion slot
- Three 4cm ball-bearing cooling fans for better ventilation
- Adopt standard micro-ATX M/B
- Support Hot-swappable mobile rack
- Easy maintenance and installation

ORDERING GUIDE

- **PRS-1174-MX-270X**
  1U barebone RAID server with four drive bays, 270w active PFC power supply

GENERAL

Construction	Heavy-duty steel
Drive Bay	Internal: 3.5” HDD x4
Cooling Fan	One 4cm ball-bearing fan
Indicator	Power on/off x1, HDD x1
Switch	Power on/off x1, System reset x1
Speaker	One 8Ω speaker
Connector	Two USB ports on the front panel
Standard Color	Silver
Dimension	432(W) x 510(D) x 44(H) mm; 10.24”(W) x 16.56”(D) x 6.77”(H)
Weight	Net: 8.5 kg (18.7 lb); Gross: 9.5 kg (20.9 lb)

POWER SUPPLY

FSP270-50PLA optional

Input Voltage	90V ~ 264V AC, full range
Input Frequency	47 ~ 63 Hz
Input Current	10A@250V
Efficiency	> 68%
Holdup Time	17 ms. at full load @25°C
Over Voltage Protection	+5V@5.7~6.5V; +3.3V@3.7~4.5V; +12V@13.3~+5.6V
Over Power/Load Protection	Output power over to 110%~140%
MTBF	100,000 hrs
EMI & Safety Approval	UL, TUV, CE, FCC, CB, CSA, SEMKO, FIMKO, NEMCO, DIMCO
Temperature/Humidity	Operating: 0 ~ 50°C, 20 ~ 85%RH Storage: -40 ~ 70°C, 10 ~ 90%RH
Dimension (WxDxH)	150x81.6x40.6 mm; 5.9”x5.5”x3.4”

ENVIRONMENT

Operating Temperature Range	0 to +55°C
Storage Temperature Range	-20 to +80°C
Relative Humidity	5% to 95%, non-condensing
Vibration	5~7 Hz: 0.5” double amplitude displacement 7~2000 Hz: 1.5g acceleration

PRC-1194

19" 1U Height industrial rack-mount P4 chassis

FEATURES

- Single power supply with higher +12V output for Pentium® 4 processor
- Cooling tunnel design for expiring heat generated by CPU
- Power cable routed beneath the cooling tunnel to avoid disturbance of air path
- Two PCI expansion slots for adding more functions to system

ORDERING GUIDE

- **PRC-1194-03P2X-2501**
  19" 1U rack-mount chassis with 3-slot (2xPCI) PICMG backplane and 250W PFC power supply

GENERAL

Construction	Heavy-duty steel
Drive Bay	External: NB CD-ROM x1 (or equivalent CD-RW / DVD-ROM) + NB FDD x1 Internal: 3.5" HDD x2
Air Filter	N/A
Cooling Fan	One 12cm ball-bearing fan
Indicator	Power on/off x1, HDD x1
Switch	Power on/off x1, System reset x1
Speaker	N/A
Connector	Two USB connectors on the front panel, reserved one COM port cutout
Standard Color	Black
Dimension	480.4(W) x 474(D) x 44(H) mm; 19"(W) x 18.7"(D) x 1.7"(H)
Weight	Net: 10 kg (22.05 lb); Gross: 13 kg (28.67 lb)
Backplane	PBP-03P2X: 3-slot (2xPCI) PICMG backplane

POWER SUPPLY

ORION-A2501 optional

Input Voltage	90V ~ 264V AC, full range
Input Frequency	47 ~ 63 Hz
Input Current	6A@115V, 3A@230V
Efficiency	> 65%
Holdup Time	16 ms. at full load @25°C
Over Voltage Protection	+5V@5.4~6.5A; +3.3V@3.9~4.4V; +12V@13.6~15.6V
Over Power/Load Protection	Output power over to 110%~160%
MTBF	105,405 hrs
EMI & Safety Approval	UL, cUL, TVU, CE, FCC
Temperature/Humidity	Operating: 0 ~ 50°C, 20 ~ 85%RH Storage: -20 ~ 70°C, 10 ~ 90%RH
Dimension (WxDxH)	100x190x40.5 mm; 5.9"x5.5"x3.4"

ENVIRONMENT

Operating Temperature Range	0 to +55°C
Storage Temperature Range	-20 to +80°C
Relative Humidity	5% to 95%, non-condensing
Vibration	5~7 Hz: 0.5" double amplitude displacement 7~2000 Hz: 1.5g acceleration

EZDRV-400

5.25" compact drive set with slim type DVD-ROM, SD/CF card reader, 2 USB ports and space for 2.5" HDD

External: 1xslim type DVD-ROM

Internal: 1xNB 2.5” HDD

SD Reader and 2 USB ports

CF Reader and LED for HDD

FEATURES

- All-in-one drive set can hold:
  - one slim type DVD-ROM
  - SD card reader
  - CF card reader
  - 2 USB ports
  - 2.5” HDD (internal)
- One LED for internal HDD

GENERAL

Construction	Heavy-duty steel with plastic front cover
Drive Bay	-External: Slim type DVD-ROM x1 + 2-in-1 reader + USB ports x2 -Internal: NB 2.5” HDD x1
Indicator	HDD x1
Standard Color	Black
Dimension	149(W) x 185(D) x 43(H) mm; 5.9”(W) x 7.3”(D) x 1.7”(H)
Weight	Net: 0.9 kg (2 lb); Gross: 1.3 kg (2.9 lb)

ORDERING GUIDE

- **EZDRV-400DR**
  5.25” compact drive bracket with slim type DVD-ROM, SD/CF reader, 2 USB ports and space for 2.5” HDD
- **EZDRV-400DRW**
  5.25” compact drive bracket with slim type DVD-RW, SD/CF reader, 2 USB ports and space for 2.5” HDD

ENVIRONMENT

Operating Temperature Range	0 to +55°C
Storage Temperature Range	0 to +70°C
Relative Humidity	5% to 95%, non-condensing

ESB Reference Table



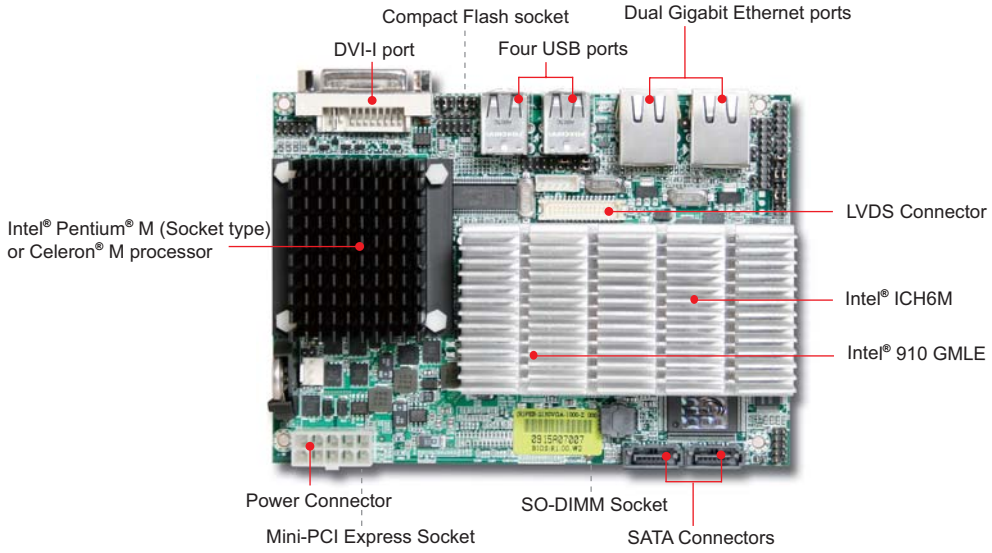


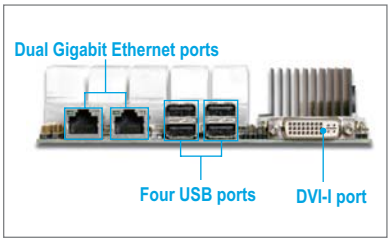


MODEL	PEB-2130	PEB-2131VG2A	PEB-2737VLA	PEB-2738	PEB-2739I	PEB-2770/ 2780	PEB-2771VG2A
Form Factor	3.5" Embedded	3.5" Embedded	3.5" Embedded	3.5" Embedded	3.5" Embedded	3.5" Embedded	3.5" Embedded
CPU	Intel® Celeron® M	Intel® ATOM™ N270	Intel® ATOM™ Z510 / Z530	Intel® ATOM™ Z510PT / Z520PT	Intel® ATOM™ Z510PT / Z520PT	Intel® ATOM™ processor D510/ N450	Intel® ATOM™ processor D525
Chipset	910GMLE + ICH6-M	945GSE + ICH7-M	US15W	US15WPT	US15WPT	Intel® ICH8M	Intel® ICH8M
FSB	400MHz	533MHz / 667MHz	400MHz / 533MHz	400MHz / 533MHz	400MHz / 533MHz	1.6GHz	1.8GHz
Max Memory	One SO-DIMM / 1GB	One SO-DIMM / 2GB	One SO-DIMM / 2GB	One SO-DIMM / 2GB	One SO-DIMM/2GB	One SO-DIMM/2GB	One SO-DIMM/2GB
Memory Chip Type	DDR2	DDR2	DDR2	DDR2	DDR2	DDR2	DDR3
Display	DVI-I / LVDS	VGA / LVDS	VGA / LVDS	SDVO / LVDS	SDVO/LVDS	VGA/18bit LVDS	VGA/18/24bit LVDS
Expansion Interface	One Mini-PCI Express socket	One Mini-PCI Express socket	N/A	SDVO (with PCI-E x1 + USB) connector / SDIO / TPM header	SDVO (with PCI-E x1 + USB) connector / SDIO / TPM header	N/A	Mini-PCIE socket
LAN	GbE x2	GbE x2	GbE x1	GbE x1	GbE x1	Gbe x2	GbE x2
Serial	RS232 x1, RS232 / 422 / 485 x1	RS232 x4	RS232 x1, RS232 / 422 / 485 x1	RS232 x1, RS232 / 422 / 485 x1	RS232 x1, RS232 / 422 / 485 x1	RS232 x3, RS232 / 422 / 485	RS232 x3, RS232 / 422 / 485
USB	USB 2.0 x6	USB 2.0 x7	USB 2.0 x8	USB 2.0 x6	USB 2.0 x6	USB 2.0 x6	USB 2.0 x6
SATA	SATA x2	SATA x2	SATA x2	N/A	SATA x1	SATA x2	SATA x2
IDE	N/A	N/A	One 44-pin IDE connector	One 44-pin IDE connector	N/A	One 44-pin IDE connector	N/A
SSD	Compact Flash socket x1	Compact Flash socket x1	Compact Flash socket x1	Compact Flash socket x1	Compact Flash socket x1	Compact Flash socket x1	Compact Flash socket x1
Parallel	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Audio	High Definition Audio 2.1 channel	High Definition Audio 2.1 channel	High Definition Audio 2.1 channel	High Definition Audio 2.1 channel	High Definition Audio 2.1 channel	High Definition Audio 2.1 channel	High Definition Audio 2.1 channel
Dimension	146(W) x 102(L) mm; 5.75"(W) x 4.02"(L)	146(W) x 102(L) mm; 5.75"(W) x 4.02"(L)	146(W) x 102(L) mm; 5.75"(W) x 4.02"(L)	146(W) x 102(L) mm; 5.75"(W) x 4.02"(L)	146(W) x 102(L) mm; 5.75"(W) x 4.02"(L)	146(W) x 102(L) mm; 5.75"(W) x 4.02"(L)	146(W) x 105(L) mm; 5.75"(W) x 4.13"(L)
Page	71	72	73	74	75	76	77

PEB-2130

3.5" Embedded size, Intel® Pentium® M or Celeron® M processor based on Embedded Board with DVI, LVDS, Dual Gigabit Ethernet, Audio and USB





Rear I/O

FEATURES

- Intel® Pentium® M or Celeron® M in Micro-FCPGA/ FCBGA package
- One 200-pin SO-DIMM supports DDR2 SDRAM up to 1GB
- One Type II Compact Flash and two SATA ports
- Dual independent display: DVI and 18bit LVDS
- On board dual Gigabit Ethernet
- Wireless application can be accomplished by adding Mini-PCI Express form factor wireless adapter

PACKING LIST

ATX Power cable	x1
CPU heatsink	x1
Utility CD	x1

ORDERING GUIDE

Standard	PEB-2130VGA-1000-Z 3.5" ESB based on Intel® Celeron® M 1GHz processor with DVI / LVDS, LAN, COM, USB and Audio
Optional	PEB-2130VGA-600 3.5" ESB based on Intel® Celeron® M 600MHz processor with DVI / LVDS, LAN, COM, USB and Audio PEB-2130VGA 3.5" ESB based on socket type with DVI / LVDS, LAN, COM, USB and Audio

OPTIONAL

Part No.	QTY	Description
B2900260	1	SATA cable

SYSTEM

CPU	Intel® Celeron® M or Pentium® M(socket type) processor
Chipset	Intel® 910GMLE and ICH6M
System Memory	One 200-pin SO-DIMM supports DDR2 400 up to 1GB
BIOS	Award
SSD	Type II CompactFlash socket
Storage Devices	One CF socket and two SATA ports
Watchdog Timer	Programmable via S/W from 1 sec. to 255 min.
Expansion Interface	One Mini-PCI Express socket
Hardware Monitoring	- FAN Speed (CPU and System) - Temperature (CPU and System) - Voltage (CPU Vcore, VBAT, 5VSB, 12V, 5V, 3.3V) - Support case open function
Power Requirement	ATX compliant power
Dimension	146(W) x102(L) mm; 5.75"(W) x 4.0"(L)
Environment	Operation temperature: 0~55°C Storage temperature: -20~80°C Operation humidity: 5~95%, non-condension

I/O

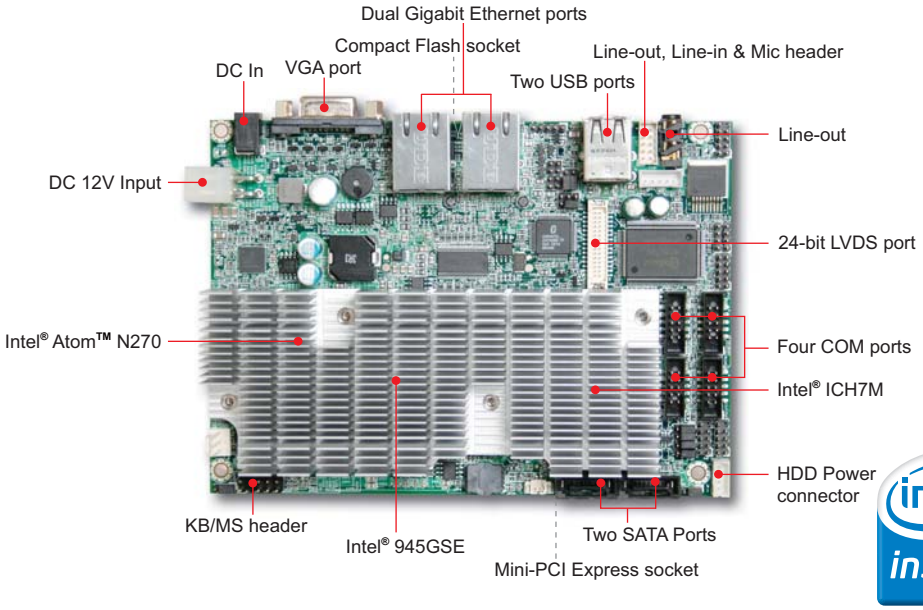
MIO	SATA x2, RS232 x1 and RS232/422/485(selectable) x1, 8-bit Digital I/O x1
Ethernet	Dual Gigabit Ethernet (Realtek RTL 8111B)
Audio	Mic in, Line out
USB	4 x USB 2.0 ports & 2 x USB 2.0 with header
Keyboard & Mouse	PS/2 Keyboard & Mouse (Header)

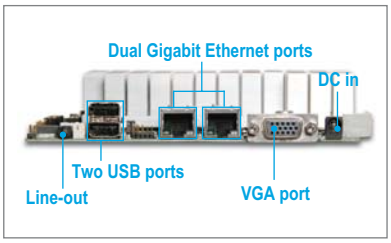
DISPLAY

Graphic Controller	Intel® 910GMLE GMA900
Graphic Memory	Intel® DVMT 3.0 supports up to 128MB video memory
Display Interface	DVI (Chrontel 7307C) / 18bit LVDS

PEB-2131VG2A

3.5” Embedded size, based on Intel® Atom™ N270 Processor with DDR2 SDRAM, Dual Display by VGA/LVDS, Gigabit Ethernet, Four Power COM Ports and Audio





Rear I/O

FEATURES

- Intel® Atom™ N270 and 945GSE platform that provides cost effective solution technology
- SATA and CF interface provide best cost effective storage for market
- Support one SODIMM socket and up to 2GB memory size
- Mini-PCI Express and power COM ports bring flexible usage model
- Dual Gigabit Ethernet (10/100/1G) with RJ-45 connector
- High Definition audio with 2-channel amplifier@6W
- Low profile rear I/O supports thin client application

PACKING LIST

3 in 1 Heatsink	x1
SATA cable	x1
SATA power cable	x1
Utility CD	x1

ORDERING GUIDE

Standard	PEB-2131VG2A (R). PEB-2131VG2A. ESB. N270. 945GSE. ICH7-M. w/ DDRII SDRAM/VGA/LVDS/Dual GbE/Audio

OPTIONAL

Part No.	QTY	Description
B6901970	1	USB cable
B7866130	1	COM port cable

SYSTEM

CPU	Intel® Atom™ N270 1.6GHz in FCBGA package FSB: 533MHz
Chipset	Intel® 945GSE and ICH7-M
System Memory	Up to 2GB DDR2 533 SDRAM on one SODIMM socket
BIOS	Award
SSD	CF: Support one Compact Flash socket
Storage Devices	SATA: Support two SATA 150 drives
Watchdog Timer	Programmable via S/W from 1 sec. to 255 min.
Expansion Interface	One Mini-PCI Express socket
Hardware Monitoring	FAN Speed(System), Temerature (CPU and System) Vcore, 12V, 5V, 3.3V, VBAT
Power Requirement	12V DC In
Dimension	146(L) x102(W) mm; 5.75”(L) x 4.0”(W)
Environment	Operation temperature: 0~60°C Storage temperature: -20~80°C Operation humidity: 5~95%, non-condension

I/O

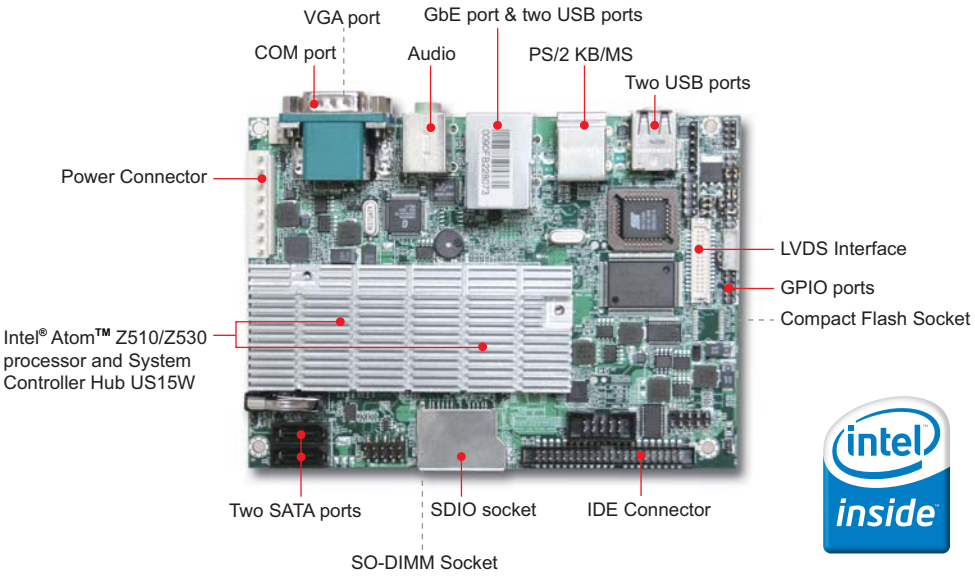
MIO	Two SATA ports and RS232 x4 with power as pin header type
Ethernet	Two Gigabit Ethernet with RJ45 connectors, IEEE802.3 10/100/1000 BASE-T Compliant (Realtek RTL 8111D)
Audio	High Definition Audio with Audio Amplifier (one Line-out jack and Line-out/ Line-in/Mic-in header)
USB	USB 2.0 x 2 ports & USB 2.0 with header x5
Keyboard & Mouse	PS/2 Keyboard & Mouse with on board pin header

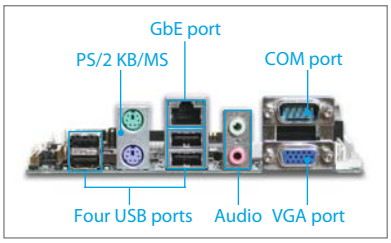
DISPLAY

Graphic Controller	Intel® 945GSE integrated Graphics Media Accelerator (Intel® GMA 950)
Graphic Memory	Dynamic share system memory up to 224MB (Intel® DVMT 3.0) or static share System memory up to 128MB
Display Interface	- Support CRT, 18bit/24bit LVDS (Chrontel 7308B-TF), display interfaces - CRT display resolution up to 2048x1596 @ 85Hz refresh

PEB-2737VLA

Intel® 45nm Ultra Low Power Atom™ processor based ECX embedded board with VGA, LVDS, Gigabit Ethernet, Audio, USB and SDIO





Rear I/O

FEATURES

- Intel® Atom™ processor Z510 / Z530 and System Controller Hub US15W (TDP≦5W)
- One 200-pin SO-DIMM supports DDR2 SDRAM up to 2GB
- One Type II CompactFlash, one IDE & two SATA ports
- Dual independent display: VGA and 24bit LVDS
- One Gigabit Ethernet

PACKING LIST

ATX Power cable	x1
CPU heatsink	x1
Utility CD	x1

ORDERING GUIDE

Standard	PEB-2737VLA-1100 3.5" ESB based on Intel® Atom™ 1.1G processor with processor with VGA/LVDS, LAN, COM, USB and Audio
Optional	PEB-2737VLA-1600 3.5" ESB based on Intel® Atom™ 1.6G processor with VGA/LVDS, LAN, COM, USB and Audio

OPTIONAL

Part No.	QTY	Description
B6900262	1	SATA cable
B690004S	1	IDE cable

SYSTEM

CPU	Intel® Atom processor Z510 / Z530 FSB: 400/533 MHz
Chipset	Intel® System Controller Hub US15W
System Memory	One 200-pin SO-DIMM support DDR2 533/400 up to 2GB
BIOS	AMI
SSD	Type II CompactFlash socket
Storage Devices	One 44-pin IDE connector & two SATA ports
Watchdog Timer	Programmable via S/W from 1 sec. to 255 min
Expansion Interface	N/A
Hardware Monitoring	- Temerature (CPU and System) - Voltage (CPU Vcore, VBAT, 5VSB, 12V, 5V, 3.3V)
Power Requirement	ATX compliant power
Dimension	102(W) x146(L) mm; 4.01"(W) x 5.74"(L)
Environment	Operation temperature: 0~60°C Storage temperature: -20~80°C Operation humidity: 5~95%, non-condension

I/O

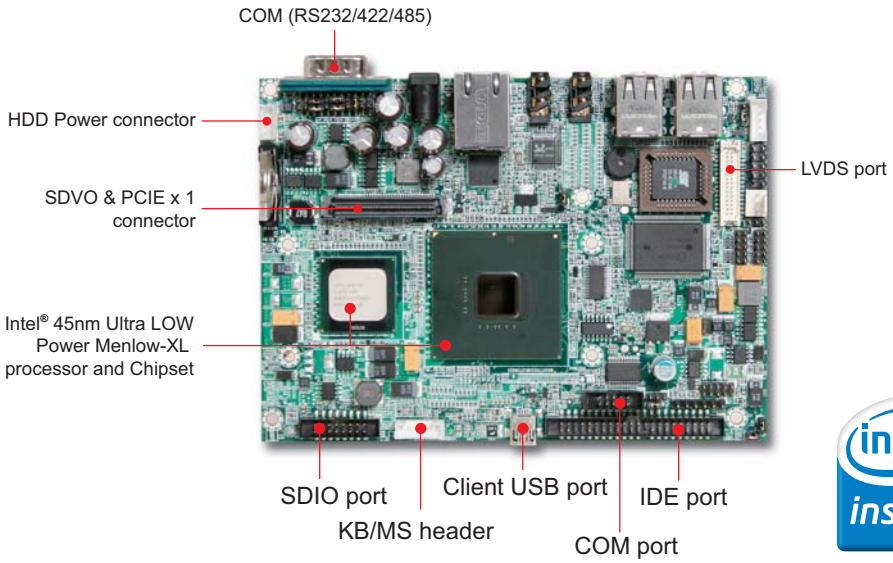
MIO	IDE x1, SATA x2, RS232/422/485 x2: One DB9 & one pin header, SDIO x1, K/B x1, Mouse x1, GbE x1
Ethernet	One Gigabit Ethernet (Realtek RTL 8111C)
Audio	Mic in, Line out
USB	USB 2.0 x 4 ports & USB 2.0 with header x4

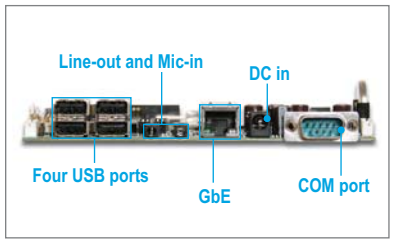
DISPLAY

Graphic Controller	Intel® System Control Hub US15W integrated graphics
Graphic Memory	Intel® GMA 500
Display Interface	VGA (Chrontel 7317A-TF) / 24bit LVDS

PEB-2738

Intel® 45nm Ultra Low Power Menlow-XL processor and chipset based ECX embedded board with dual display, Audio, USB and SDIO





Rear I/O

FEATURES

- Intel® Atom™ processor Z500PT series and System Controller Hub US15WPT
- One 200-pin SO-DIMM support DDR2 SDRAM up to 2GB
- Dual independent display: SDVO(by VGA/DVI/LVDS daughter card) and 24bit LVDS
- One Gigabit Ethernet
- TPM (Trusted Platform Module) could be added on board (optional)
- Customization (Extension card): BTB connector with SDVO/USB/PCI-E x1 signal and SDIO pin header
- Storage: One SATA / One CompactFlash / One USB Flash / One SDIO
- 12V DC input

PACKING LIST

■ CPU heatsink	x1
■ Utility CD	x1

ORDERING GUIDE

Standard	PEB-2738IVA-1100 3.5" ESB based on Intel® Atom™ wide temperature 1.1G processor with LVDS/SDVO, COM, USB and Audio
Optional	PEB-2738IVA-1300 3.5" ESB based on Intel® Atom™ wide temperature 1.3G processor with LVDS/SDVO, COM, USB and Audio

OPTIONAL

Part No.	QTY	Description
B6900262	1	IDE cable
AB9-3050Z	1	SDIO daughter board
AB9-3049Z	1	VGA daughter board

SYSTEM

CPU	Intel® Atom™ processor Z510P / Z520PT
Chipset	Intel® System Controller Hub US15WPT
System Memory	One 200-pin SO-DIMM support DDR2 533 up to 2GB
BIOS	AMI
SSD	Type II Compact Flash socket
Storage Devices	One 44-pin IDE connector
Watchdog Timer	Programmable via S/W from 1sec. to 255min.
Expansion Interface	- SDVO/PCI-E x1/USB signals on one connector for daughter board - SDIO header
Hardware Monitoring	- Temperature (CPU and System) - Voltage (CPU Vcore, VBAT, 5VSB, 12V, 5V, 3.3V)
Power Requirement	DC 12V input
Dimension	102(W) x146(L) mm; 4.01"(W) x 5.7"(L)
Environment	- PEB-2738I Operation temperature: -40~80°C Storage temperature: -40~80°C Operation humidity: 5~95%, non-condensing

I/O

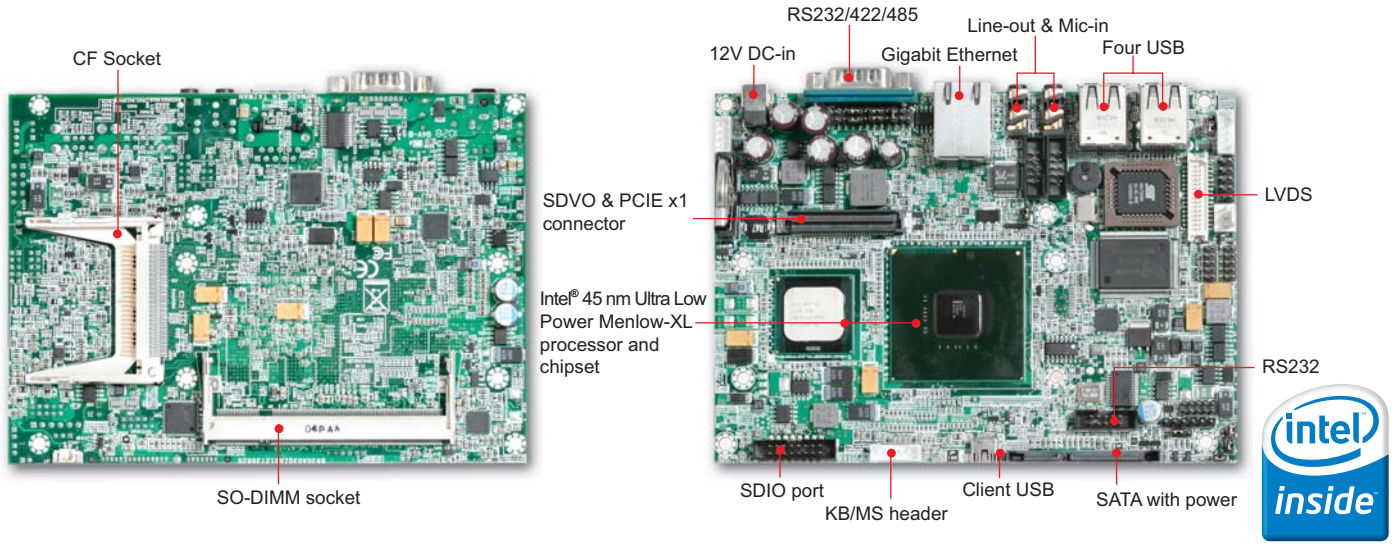
MIO	IDE x1, One RS232/422/485 selectable at rear IO and one RS232 internal, SDIO pin header x1, SDVO connector x1, Client USB port x1
Ethernet	One RJ45 Gigabit Ethernet (Intel® 82574IT)
Audio	Line-out and Mic-in
USB	USB 2.0 x 4 & USB 2.0 with header x2
Keyboard & Mouse	One K/B & M/S pin header

DISPLAY

Graphic Controller	Intel® System Control Hub US15WPT integrated graphics
Graphic Memory	Intel® GMA 500
Display Interface	24bit LVDS / SDVO

PEB-2739I

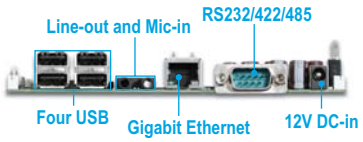
Intel® 45nm Ultra Low Power Menlow-XL processor and chipset based ECX embedded board with dual display, Audio, USB, SDIO and SATA



FEATURES

- Intel® Atom™ processor Z500PT series and System Controller Hub US15WPT
- One 200-pin SO-DIMM support DDR2 SDRAM up to 2GB
- Dual independent display: SDVO(by VGA/DVI/LVDS daughter card) and 24bit LVDS
- One Gigabit Ethernet
- TPM (Trusted Platform Module) could be added on board (optional)
- Customization (Extension card): BTB connector with SDVO/USB/PCI-E x1 signal and SDIO pin header
- Storage: One SATA / One CompactFlash / One USB Flash / One SDIO
- 12V DC input

REAR/IO



PACKING LIST

CPU heatsink	x1
Utility CD	x1
SATA Cable	x1

ORDERING GUIDE

Standard	PEB-2739IVA-1100 3.5" ESB based on Intel® Atom™ wide temperature 1.1G processor with LVDS/SDVO, COM, USB and Audio
Optional	PEB-2739IVA-1300 3.5" ESB based on Intel® Atom™ wide temperature 1.3G processor with LVDS/SDVO, COM, USB and Audio

OPTIONAL

Part No.	QTY	Description
AB9-3050Z	1	SDIO daughter board
AB9-3049Z	1	VGA daughter board

SYSTEM

CPU	Intel® Atom™ processor Z510PT / Z520PT
Chipset	Intel® System Controller Hub US15WPT
System Memory	One 200-pin SO-DIMM support DDR2 533 up to 2GB
BIOS	AMI
SSD	Type II Compact Flash socket
Storage Devices	One SATA port with power support
Watchdog Timer	Programmable via S/W from 1sec. to 255min.
Expansion Interface	- SDVO/PCI-E x1/USB signals on one connector for daughter board - SDIO header
Hardware Monitoring	- Temperature (CPU and System) - Voltage (CPU Vcore, VBAT, 5VSB, 12V, 5V, 3.3V)
Power Requirement	DC 12V input
Dimension	102(W) x146(L) mm; 4.01"(W) x 5.7"(L)
Environment	Operation temperature: -40~80°C Storage temperature: -40~80°C Operation humidity: 5~95%, non-condensing

I/O

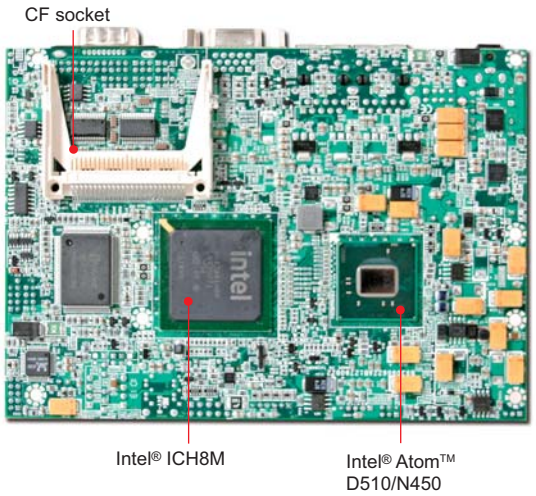
MIO	SATA x1, One RS232/422/485 selectable at rear IO and one RS232 internal, SDIO pin header x1, SDVO connector x1, Client USB port x1
Ethernet	One RJ45 Gigabit Ethernet (Intel® 82574IT)
Audio	Line-out and Mic-in
USB	USB 2.0 x 4 & USB 2.0 with header x2
Keyboard & Mouse	One K/B & M/S pin header

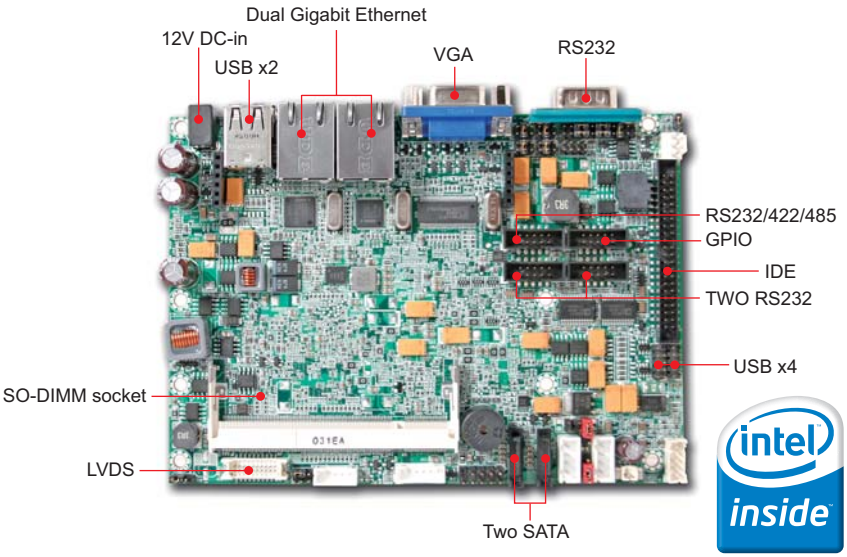
DISPLAY

Graphic Controller	Intel® System Control Hub US15WPT integrated graphics
Graphic Memory	Intel® GMA 500
Display Interface	24bit LVDS / SDVO interface

PEB-2770/2780

3.5” Embedded size, Based on Intel® 45nm Low Power Pineview processor with DDR2 SODIMM, dual display by VGA/LVDS, Dual GbE, Audio, COM and USB

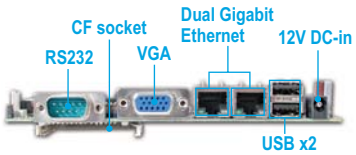




FEATURES

- Intel® Atom™ processor D510/N450 and ICH8M chipset
- One 200-pin SO-DIMM support DDR2 667 SDRAM up to 2GB
- MPEG2 Decode in HW; independent display: VGA/18 bit LVDS
- Dual independent display: VGA/18bit LVDS
- Dual Gigabit Ethernet
- Customization (Extension card): BTB connector with PCIE x1 signal
- Storage: One SATA/One Compact Flash/Two SATA ports
- 12V DC input

REAR/IO



PACKING LIST

CPU heatsink	x1
Utility CD	x1
SATA cable	x1
SATA power cable	x1

ORDERING GUIDE

Standard	PEB-2770VG2A 3.5” Embedded size, Based on Intel 45nm Low Power Pineview processor D510 with DDR2 SODIMM, Dual display by VGA/LVDS, Dual GbE, Audio, COM and USB PEB-2780VG2A 3.5” Embedded size, Based on Intel 45nm Low Power Pineview processor N450 with DDR2 SODIMM, Dual display by VGA/LVDS, Dual GbE, Audio, COM and USB

OPTIONAL

Part No.	QTY	Description
B690004S	1	IDE Cable
B6901970	1	USB Cable
B7866130	1	COM Cable

SYSTEM

CPU	Intel® Atom™ processor D510/N450
Chipset	Intel® ICH8M
System Memory	One 200-pin SO-DIMM support DDR2 667 up to 2GB
BIOS	AMI
SSD	Type II CompactFlash socket
Storage Devices	One 44-pin IDE connector and two SATA ports
Watchdog Timer	Programmable via S/W from 1sec. to 255min.
Expansion Interface	One connector with PCIE x1 signal for daughter board
Hardware Monitoring	- Temperature (CPU and System) - Voltage (CPU Vcore, VBAT, 5VSB, 12V, 5V, 3.3V)
Power Requirement	12V DC Input
Dimension	146(L) x 105(W) mm; 5.75”(L) x 4.0”(W)
Environment	Operation temperature: 0~60°C Storage temperature: -20~80°C Operation humidity: 5~95%, non-condension

I/O

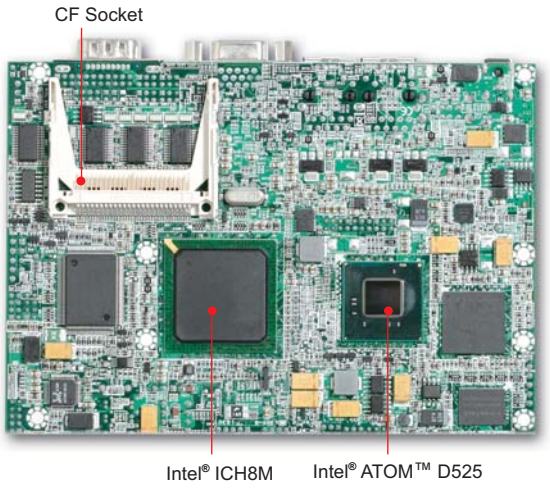
MIO	One IDE, two SATA ports, four serial ports: One DB9 & three box headers, one CF socket and one PCIE x1 header
Ethernet	Dual RJ45 Gigabit Ethernet
Audio	High Definition Audio with one Line-out/Mic-in header
USB	2 x USB 2.0 ports and 4 x USB 2.0 with header
Keyboard & Mouse	One K/B & M/S pin header

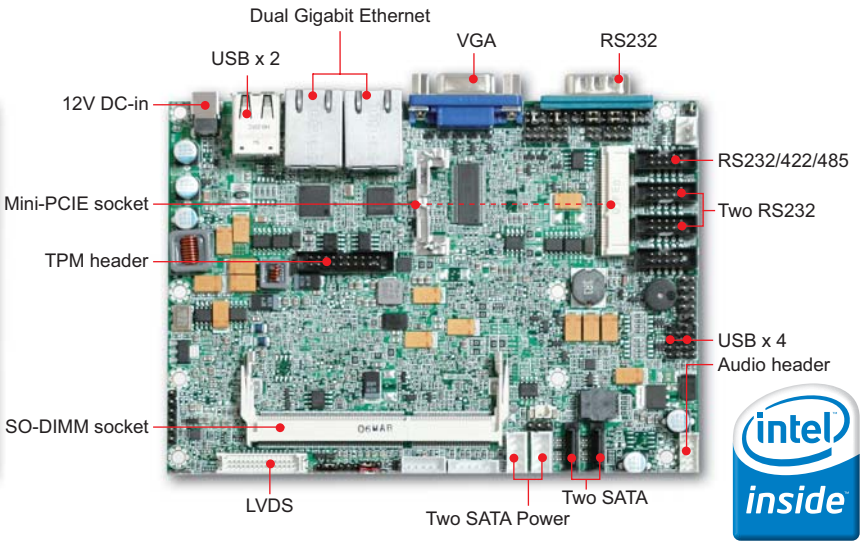
DISPLAY

Graphic Controller	Intel® Atom™ processor (D510/N450) Integrated Intel® DX9 graphics
Graphic Memory	Intel® Dynamic Video Memory Technology 4.0
Display Interface	18bit LVDS/VGA

PEB-2771VG2A

3.5” Embedded size, Based on Intel® 45nm Low Power Pineview processor with DDR3 SODIMM, dual display by VGA/LVDS, Dual GbE, Audio, COM and USB

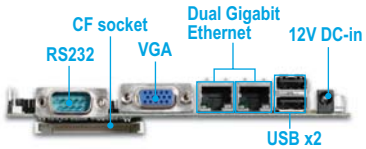




FEATURES

- Intel® Atom™ processor D525 and ICH8M chipset
- One 204-pin SO-DIMM support DDR3 800 SDRAM up to 2GB
- Dual independent display: VGA/24bit LVDS
- Dual Gigabit Ethernet
- Storage: One Compact Flash/Two SATA ports
- 12V DC input
- One Mini-PCIE socket

REAR/IO



PACKING LIST

CPU heatsink	x1
Utility CD	x1
SATA cable	x1
SATA power cable	x1

ORDERING GUIDE

Standard	PEB-2771VG2A 3.5” Embedded size, Based on Intel 45nm Low Power Pineview processor D525 with DDR3 SODIMM, Dual display by VGA/LVDS, Dual GbE, Audio, COM and USB

OPTIONAL

Part No.	QTY	Description
B6901970	1	USB Cable
B7866130	1	COM Cable

SYSTEM

CPU	Intel® Atom™ processor D525 1.8GHz
Chipset	Intel® ICH8M
System Memory	One 204-pin SO-DIMM support DDR3 800 up to 2GB
BIOS	AMI
SSD	Type II CompactFlash socket
Storage Devices	Two SATA ports
Watchdog Timer	Programmable via S/W from 1sec. to 255min.
Expansion Interface	One Mini-PCIE socket
Hardware Monitoring	- Temperature (CPU and System) - Voltage (CPU Vcore, VBAT, 5VSB, 12V, 5V, 3.3V)
Power Requirement	12V DC Input
Dimension	146(L) x 105(W) mm; 5.75”(L) x 4.0”(W)
Environment	Operation temperature: 0~60°C Storage temperature: -20~80°C Operation humidity: 5~95%, non-condension

I/O

MIO	Two SATA ports, four serial ports: One DB9 & three box headers, one CF socket and one Mini-PCIE socket
Ethernet	Dual RJ45 Gigabit Ethernet
Audio	High Definition Audio with one Line-out/Mic-in header
USB	2 x USB 2.0 ports and 4 x USB 2.0 with header
Keyboard & Mouse	One K/B & M/S pin header

DISPLAY

Graphic Controller	Intel® Atom™ processor (D525) Integrated Intel® DX9 graphics
Graphic Memory	Intel® Dynamic Video Memory Technology 4.0
Display Interface	Dual Channel 24bit LVDS/VGA

NANO-8044

Intel® Ultra Low Power Atom™ Processor based NANO-ITX Board with dual display, Gigabit Ethernet, Audio, USB and SDIO

FEATURES

- Intel® Atom™ processor Z510 / Z530 and System Controller Hub US15W
- One 200-pin SO-DIMM supports DDR2 SDRAM up to 2GB
- Dual independent display: VGA and 24bit LVDS
- One Type II Compact Flash & one IDE connector
- One Intel® Gigabit Ethernet

NANO-8044 takes advantage of the latest Intel® Atom™ technologies. It supports DDR2 SDRAM, dual displays, one Gigabit Ethernet and one expansion PCI-Express x1 slot.Base on leading Intel® Atom™ solution, NANO-8044 is a compact and ultra low power dissipation board for Medical, Mobile Gaming and DSS applications.

SYSTEM	
CPU	Intel® Atom™ processor Z510 / Z530
FSB	400/533 MHz
BIOS	AMI BIOS
System Chipset	Intel® System Controller Hub US15W
System Memory	One 200pin SO-DIMM support DDR2 400/533MHz up to 2GB
Storage	- 1x 44 pin IDE - 1 x CF (up to UDMA5 mode) - 1 x SD
Watchdog Timer	Programmable via S/W from 1sec. to 255sec.
H/W Monitor	- Temperature (CPU and System) - Voltage (CPU Vcore, VBAT, 5VSB, 12V, 5V, 3.3V)
GPIO	On board programmable 8-bit Digital I/Os
Expansion	One PCI-Express x1 slot

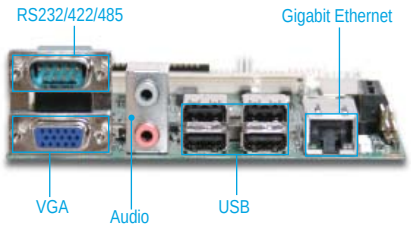
On Board I/O	
USB	Two USB 2.0 ports, Pitch 2.00mm
Others	One 24 bits LVDS, 8bit GPIO pin header, one SD

Rear I/O	
Serial Port	One RS232/422/485 port
Display	One VGA (by Chrontel CH 7317A)
Gigabit Ethernet	One RJ-45 LAN port
USB	Four USB 2.0 ports
Audio Interface	Line-out and Mic-in

DISPLAY	
Graphic Controller	Intel® System Controller Hub US15W integrated GMA 500 Graphics device
Display Interface	VGA / single channel 24-bit LVDS

MECHANICAL & ENVIRONMENTAL	
Operating Temperature	0~55°C
Storage Temperature	-20~80°C
Operating Humidity	5%~95% non-condensing
Dimension	4.72" x 4.72" (120 mm x 120 mm)

REAR I/O

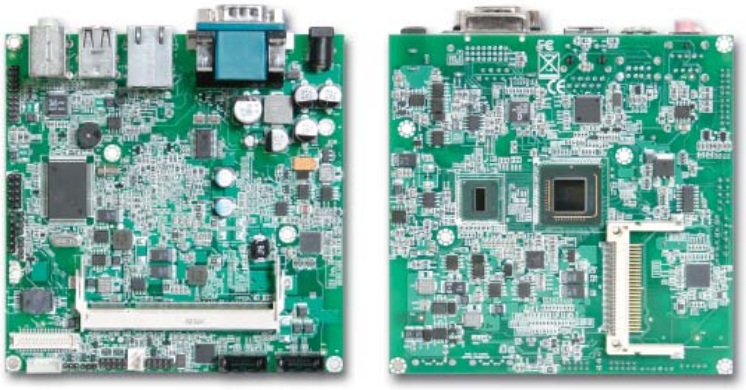


ORDERING GUIDE

- **NANO-8044-1100**
  Intel® Atom™ processor Z510 Nano-ITX Board
- **NANO-8044-1600**
  Intel® Atom™ processor Z530 Nano-ITX Board
- **PER-4110R**
  One slot PCI-E x1 riser card

NANO-8045

Intel® Ultra Low Power Atom™ Processor based NANO-ITX Board with dual display, Gigabit Ethernet, Audio, USB and SATA



FEATURES

- Intel® Atom™ processor Z510 / Z530 and System Controller Hub US15W
- One 200-pin SO-DIMM supports DDR2 SDRAM up to 2GB
- Dual independent display: DVI-D and 24bit LVDS
- One Type II Compact Flash & two SATA ports
- One Realtek Gigabit Ethernet
- Support DC 12V input

NANO-8045 takes advantage of the latest Intel® Atom™ technologies. It supports DDR2 SDRAM, dual displays and one Gigabit Ethernet. Base on leading Intel® Atom™ solution, NANO-8045 is a compact and ultra low power dissipation board for Medical, Mobile Gaming and DS applications.

SYSTEM	
CPU	Intel® Atom™ processor Z510 / Z530
FSB	400/533 MHz
BIOS	AMI BIOS
System Chipset	Intel® System Controller Hub US15W
System Memory	One 200pin SO-DIMM support DDR2 400/533MHz up to 2GB
Storage	- 2 x SATA II - 1 x CF (up to UDMA5 mode)
Watchdog Timer	Programmable via S/W from 1sec. to 255sec.
H/W Monitor	- Temperature (CPU and System) - Voltage (CPU Vcore, VBAT, 5VSB, 12V, 5V, 3.3V)
GPIO	On board programmable 8-bit Digital I/Os
Expansion	N/A

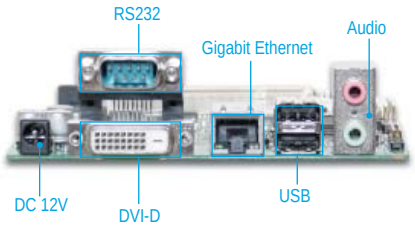
On Board I/O	
USB	Four USB 2.0 ports, Pitch 2.00mm, one can support client USB
Others	One 24 bits LVDS, 8 bit GPIO pin header, Line-out and Mic-in pin header

Rear I/O	
Serial Port	One RS232 port
Display	One DVI-D (by Chrontel CH7307C)
Gigabit Ethernet	One RJ-45 LAN port
USB	Two USB 2.0 ports
Audio Interface	Line-out and Mic-in

DISPLAY	
Graphic Controller	Intel® System Controller Hub US15W integrated GMA 500 Graphics device
Display Interface	DVI-D / single channel 24-bit LVDS

MECHANICAL & ENVIRONMENTAL	
Operating Temperature	0~60°C
Storage Temperature	-20~80°C
Operating Humidity	5%~95% non-condensing
Dimension	4.72" x 4.72" (120 mm x 120 mm)

REAR I/O



ORDERING GUIDE

- **NANO-8045-1100**
  Intel® Atom™ processor Z510 Nano-ITX Board
- **NANO-8045-1600**
  Intel® Atom™ processor Z530 Nano-ITX Board

NANO-8045L

Intel® Ultra Low Power Atom™ Processor based NANO-ITX Board with dual display, Gigabit Ethernet, Audio, USB and SATA

FEATURES

- Intel® Atom™ processor Z510 / Z530 and System Controller Hub US15W
- One 200-pin SO-DIMM supports DDR2 SDRAM up to 2GB
- Dual independent display: DVI-D and 24bit LVDS
- One Type II Compact Flash & two SATA ports
- One Realtek Gigabit Ethernet
- Support DC 12V input
- Only 17mm height for rear I/O

NANO-8045L takes advantage of the latest Intel® Atom™ technologies. It supports DDR2 SDRAM, dual displays, one Gigabit Ethernet. Base on leading Intel® Atom™ solution, NANO-8045L is a compact and ultra low power dissipation board for Medical, Mobile Gaming and DS applications.

SYSTEM	
CPU	Intel® Atom™ processor Z510 / Z530
FSB	400/533 MHz
BIOS	AMI BIOS
System Chipset	Intel® System Controller Hub US15W
System Memory	One 200pin SO-DIMM support DDR2 400/533MHz up to 2GB
Storage	- 2 x SATA II - 1 x CF (up to UDMA5 mode)
Watchdog Timer	Programmable via S/W from 1sec. to 255sec.
H/W Monitor	- Temperature (CPU and System) - Voltage (CPU Vcore, VBAT, 5VSB, 12V, 5V, 3.3V)
GPIO	On board programmable 8-bit Digital I/Os
Expansion	N/A

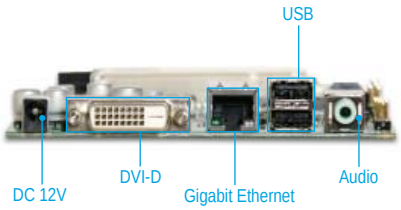
On Board I/O	
USB	Four USB 2.0 ports, Pitch 2.00mm, one can support client USB
Others	One 24 bits LVDS, 8 bit GPIO pin header, Line-out and Mic-in pin header

Rear I/O	
Display	One DVI-D (by Chrontel CH7307C)
Gigabit Ethernet	One RJ-45 LAN port
USB	Two USB 2.0 ports
Audio Interface	Line-out

DISPLAY	
Graphic Controller	Intel® System Controller Hub US15W integrated GMA 500 Graphics device
Display Interface	DVI-D / single channel 24-bit LVDS

MECHANICAL & ENVIRONMENTAL	
Operating Temperature	0~60°C
Storage Temperature	-20~80°C
Operating Humidity	5%~95% non-condensing
Dimension	4.72" x 4.72" (120 mm x 120 mm)

REAR I/O

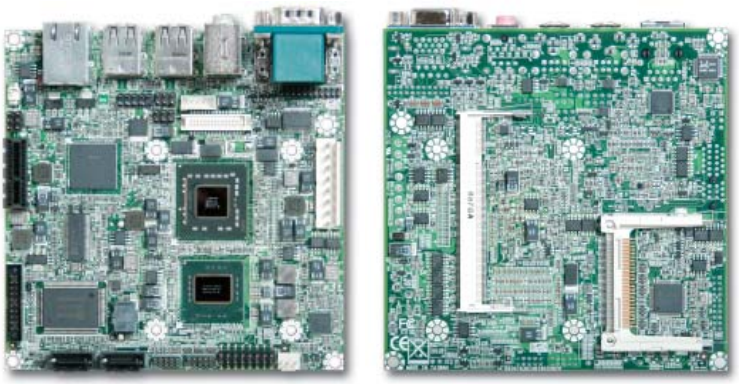


ORDERING GUIDE

- **NANO-8045L-1100**
  Intel® Atom™ processor Z510 Nano-ITX Board
- **NANO-8045L-1600**
  Intel® Atom™ processor Z530 Nano-ITX Board

NANO-8050

Leading Intel® latest ULV Mobile SFF 45nm Core™ 2 Duo or Celeron® M Processor based NANO-ITX with DDR2 SODIMM, Dual Displays, Gigabit Ethernet, Audio, USB



FEATURES

- Intel® latest Ultra Low Voltage Mobile SFF 45nm Core™ 2 Duo or Celeron® M Processor
- Intel® GS45 SFF and ICH9M SFF Chipset
- One 200-pin SO-DIMM support DDR2 800/667MHz up to 2GB
- Dual Display: VGA and 24-bit LVDS
- One Intel® Gigabit Ethernet port
- One PCI-Express x1 expansion slot
- One Type II Compact Flash
- Support iTPM function for more secure platforms

NANO-8050 adopts Intel® latest Small Form Factor(SFF) mobile chipset and takes advantage of leading Intel® latest SFF Core™ 2 Duo / Celeron® M technologies with high performance. It can support one DDR2 SODIMM memory, one Intel® Gigabit Ethernet port, one Type II Compact Flash, and one expansion PCI-Express x1 slot. Built in graphic media accelerator (GMA) 4500MHD graphic engine, NANO-8050 can support 3D performance and dual display by VGA and LVDS. This is a compact size with low-heat solution for versatile applications such as Medical and DS.

SYSTEM	
CPU	Intel® latest ULV Mobile SFF 45nm Core™ 2 Duo or Celeron® M processor
FSB	800/1066 MHz
BIOS	AMI BIOS
System Chipset	Intel® GS45 SFF and ICH9M SFF Chipset
System Memory	One 200-pin SO-DIMM support DDR2 800/667MHz up to 2GB
SSD	One Type II Compact Flash (up to UDMA5 mode)
Watchdog Timer	Programmable via S/W from 1sec. to 255sec.
H/W Monitor	- Temperature (CPU and System) - Voltage (CPU Vcore, VBAT, 5VSB, 12V, 5V, 3.3V)
GPIO	Onboard programmable 8-bit Digital I/Os
Expansion	One PCI-Express x1 slot

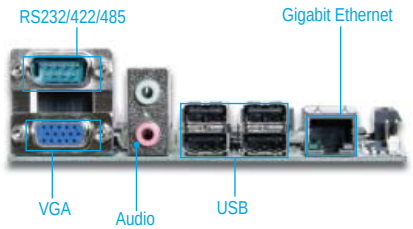
On Board I/O	
USB	Two USB 2.0 ports
SATA	Two SATA 300 ports
Display	One 24 bit LVDS connector
Others	8bit GPIO pin header

Rear I/O	
Serial Port	One selectable RS232/422/485 port
Display	One VGA
Ethernet	One 10BASE-T/100BASE-TX/1000BASE-T Ethernet port with RJ45 connector
USB	Four USB 2.0 ports
Audio Interface	Line-out and Mic-in

DISPLAY	
Graphic Controller	GMCH Integrated Intel® Graphics Media Accelerator (GMA) 4500MHD
Display Interface	- VGA : Up to 2048 x 1536 (QXGA) - LVDS: Dual channel 24-bit LVDS support

MECHANICAL & ENVIRONMENTAL	
Operating Temperature	0~60°C
Storage Temperature	-20~80°C
Operating Humidity	5%~95% non-condensing
Dimension	4.72" x 4.72" (120 mm x 120 mm)

REAR I/O



ORDERING GUIDE

- **NANO-8050-2260**
  NANO-ITX Board with Intel® Core™ 2 Duo SP9300 2.26GHz CPU
- **NANO-8050-1200**
  NANO-ITX Board with Intel® Core™ 2 Duo SU9300 1.2GHz CPU
- **NANO-8050-C1203**
  NANO-ITX Board with Intel® Celeron® ULV723 1.2GHz CPU
- **NANO-8050-C1202**
  NANO-ITX Board with Intel® Celeron® ULV722 1.2GHz CPU
- **PER-4110R**
  One slot PCIEx1 riser card

About Mini-ITX

The Mini-ITX form factor, was defined by the chipset manufacturers in Taiwan, is a highly integrated, all-in-one x86-based embedded computer board that measures a mere 170mm x 170mm. Its compact size and all-in-one design simplifies and accelerates the implementation of an embedded PC system. Portwell's Mini-ITX computer boards and barebones systems offer a wide selection of microprocessors, power consumption, peripheral I/Os, expansion and mechanical form factors.

Whether you're working on medical instruments, thin network devices or digital media systems, Portwell's Mini-ITX boards and barebones systems are the perfect solutions to help you to deliver your products on time and stay one step ahead of the competition.

With 15-year experience in the design and manufacture of single board computers, Portwell not only provides one-stop shopping for the off-the-shelf products, but also custom-built solutions, tailor-made to suit your needs.

Form factor comparison of embedded computer boards

Form Factor	Board Size (inch/mm)				Expansion	Board Size (inch²)
	L (inch)	W (inch)	L (mm)	W (mm)		
PC/104	3.55	3.78	90.17	95.89	Module	13.42
PC/104+	3.55	3.78	90.17	95.89	Module	13.42
STX	3.78	3.55	95.89	90.17	Carrier Board	13.42
ETX	4.49	3.74	114.00	95.00	Carrier Board	16.79
COM Express	4.92	3.74	125.00	95.00	Carrier Board	18.40
3.5" Embedded	5.75	4.02	146.00	102.00	Cables	23.12
3.5" ECX	5.75	4.13	146.00	105.00	Module	23.75
EPIC	6.50	4.53	165.00	115.00	Module	29.45
PICMG 1.3 Half-size	6.60	4.98	167.64	126.39	Backplane	32.87
PCI Half-size	7.28	4.80	185.00	122.00	Backplane	34.94
ISA Half-size	7.28	4.80	185.00	122.00	Backplane	34.94
PICMG 1.2 Half-size	7.52	4.80	191.03	121.92	Backplane	36.10
Mini-ITX	6.69	6.69	170.00	170.00	On Board	44.76
5.25" Embedded	5.75	8.00	146.05	203.20	Cables	46.00
EBX	5.75	8.00	146.05	203.20	Module	46.00
PICMG 1.0 Full-size	13.33	4.80	338.58	121.92	Backplane	63.98
PICMG 1.2 Full-size	13.33	4.80	338.58	121.92	Backplane	63.98
PICMG 1.3 Full-size	13.33	4.98	338.58	126.39	Backplane	66.38
Flex ATX	9.00	7.50	228.60	190.50	On Board	67.50
Micro-ATX	9.60	9.60	243.84	243.84	On Board	92.16
Embedded ATX	9.60	9.60	243.84	243.84	On Board	92.16
ATX	12.00	9.60	304.80	243.84	On Board	115.20
SSI	12.00	13.00	330.20	330.20	On Board	156.00

Mini-ITX Reference Table




MODEL	WADE-8020	WADE-8067	WADE-8066	WADE-8068
Form Factor	MINI-ITX	MINI-ITX	MINI-ITX	MINI-ITX
CPU	Intel® Core™ i5 / i7 processor	Core™ 2 Duo/ Celeron® M	Core™ 2 Duo/ Celeron® M	Core™ 2 Duo/ Celeron® M
Chipset	Intel® QM57 chipset	GM45 + ICH9ME	GME965 + ICH8ME	GME965 + ICH8ME
FSB	1333/1066/800 MHz	1066/800/667 MHz	800/533 MHz	800/533 MHz
Max Memory	Two SO-DIMMs / 8GB	Two SO-DIMMs / 8GB	Two SO-DIMMs / 4GB	Two SO-DIMMs / 4GB
Memory Chip	DDR3	DDR3	DDR2	DDR2
Display	VGA / DVI-D / LVDS / HDMI	VGA / DVI-D / LVDS / HDMI / TV-OUT	DVI-I / TV-OUT	VGA / LVDS
Expansion	One PCI slot, One PCI-E x1 slot,One Mini-PCIE socket	One PCI-E x4 slot	One PCI slot, One PCI-E x1 slot with PCI-E x4 interface	One PCI slot, One PCI-E x1 slot with PCI-E x4 interface
LAN	GbE x 2	GbE x 2	GbE x 2	GbE x 2
Serial	RS232 x 3, RS232/422/485 x1	RS232 x 1, RS232/422/485 x1	RS232 x 1, RS232/422/485 x1	RS232 x 3, RS232/422/485 x1
USB	USB 2.0 x 8	USB 2.0 x 6	USB 2.0 x 8	USB 2.0 x 8
SATA	SATA x 6	SATA x 4	SATA x 2	SATA x 2
IDE	N/A	N/A	N/A	N/A
SSD	N/A	N/A	Compact Flash socket x1	Compact Flash socket x1
Parallel	N/A	N/A	N/A	LPT header x 1
Audio	High Definition Audio 5.1 channel	High Definition Audio 2.1 channel	High Definition Audio 5.1 channel	High Definition Audio 5.1 channel
Dimension	6.69" x 6.69"	6.69" x 6.69"	6.69" x 6.69"	6.69" x 6.69"
Page	88	89	90	91

Mini-ITX Reference Table




MODEL	WADE-8046	WADE-8065	WADE-8075/76	WADE-8071
Form Factor	MINI-ITX	MINI-ITX	MINI-ITX	MINI-ITX
CPU	Core™ 2 Duo/ Core™ Solo / Core™ Duo and Celeron® M	Core™ 2 Duo/ Core™ Solo / Core™ Duo and Celeron® M	Intel® Atom™ D525 1.8GHz (N455 1.67GHz) Processor	Intel® ATOM™ N270 1.6GHz
Chipset	945GME + ICH7-M	945GME + ICH7-M	Intel® ICH8M Chipset	945GSE + ICH7-M
FSB	667/ 533 MHz	667/533 MHz	800/667 MHz (667 MHz)	533/667 MHz
Max Memory	Two SO-DIMMs / 4GB	Two SO-DIMMs / 4GB	Two SO-DIMMs / 4GB (One SO-DIMM / 2GB)	One SO-DIMM/ 2GB
Memory Chip	DDR2	DDR2	DDR3	DDR2
Display	VGA / LVDS / DVI	VGA / LVDS / DVI	VGA/ Dual Channel 24bits LVDS (VGA/ Singel Channel 18bits LVDS)	VGA/LVDS
Expansion	One PCI-E x1 slot, One Mini PCI-E socket	One PCI slot	One PCI slot, One PCI-E x1 slot,One Mini-PCIE socket	One PCI-E x1 slot
LAN	GbE x 2	GbE x 3	GbE x 2	Gbe x 1
Serial	RS232 x 3, RS232/422/485 x1	RS232 x 1, RS232/422/485 x1	RS232 x 3, RS232/422/485 x1	RS232 x 2
USB	USB 2.0 x 6	USB 2.0 x 6	USB 2.0 x 6	USB 2.0 x 6
SATA	SATA x 2	SATA x 2	SATA x 3	SATA x 2
IDE	One 44pin IDE connector	One 44pin IDE connector	N/A	One 44pin IDE Connector
SSD	Compact Flash socket x1	Compact Flash socket x1	compact flash socket x1	Compact Flash Socket*1
Parallel	LPT header x 1	N/A	N/A	N/A
Audio	High Definition Audio 5.1 channel	High Definition Audio 5.1 channel	High Definition Audio 5.1 channel	High Definition Audio 2.1 channel
Dimension	6.69" x 6.69"	6.69" x 6.69"	6.69" x 6.69"	6.69"x 6.69"
Page	92	93	94	95

Mini-ITX Reference Table




MODEL	WADE-8070	WADE-8072	WADE-8170	WADE-8044
Form Factor	MINI-ITX	MINI-ITX	MINI-ITX	MINI-ITX
CPU	Intel® ATOM™ N270 1.6GHz	Intel® ATOM™ N270 1.6GHz	Intel® ATOM™ N270 1.6GHz	Celeron® M
Chipset	945GSE + ICH7-M	945GSE + ICH7-M	945GSE + ICH7-M	910GMLE+ICH6-M
FSB	533 MHz	533 MHz	533 MHz	400 MHz
Max Memory	One SO-DIMM / 2GB	One SO-DIMM / 2GB	One SO-DIMM/ 2GB	Two 240pin DIMMs / 2GB
Memory Chip	DDR2	DDR2	DDR2	DDR2
Display	VGA / LVDS / DVI	VGA / LVDS	VGA/DVI-D	VGA / LVDS / DVI (Optional)
Expansion	One PCI-E x1 slot, One Mini PCI-E socket	One PCI slot, One PCI-E x1 slot and One Mini-PCI-E socket	One PCI slot, One PCI-E x1 slot	One PCI slot
LAN	GbE x 2	GbE x 2	Gbe x 2	GbE x 2
Serial	RS232 x 3, RS232/422/485 x1	RS232 x 3, RS232/422/485 x1	RS232 x 2	RS232 x 3, RS232/422/485 x1
USB	USB 2.0 x 6	USB 2.0 x 6	USB 2.0 x 8	USB 2.0 x 8
SATA	SATA x 2	SATA x 2	SATA x 2	SATA x 2
IDE	One 44pin IDE connector	One 44pin IDE connector	One 44pin IDE Connector	One 44pin IDE connector
SSD	Compact Flash socket x1	Compact Flash socket x1	Compact Flash Socket*1	Compact Flash socket x1
Parallel	LPT header x 1	LPT header x 1	N/A	LPT header x 1
Audio	High Definition Audio 5.1 channel	High Definition Audio 2.1 channel	High Definition Audio 5.1 channel	High Definition Audio 2.1 channel
Dimension	6.69" x 6.69"	6.69" x 6.69"	6.69"x 6.69"	6.69" x 6.69"
Page	96	97	98	99

Mini-ITX Reference Table




MODEL	WADE-8047	WADE-8180	WADE-8056	WADE-8556
Form Factor	MINI-ITX	MINI-ITX	MINI-ITX	MINI-ITX
CPU	Celeron® M	Core™ 2 Quad/ CoreT™ 2 Duo	Core™ 2 Uuad / Core™ 2 Duo / Pentium® 4 and Celeron® D	Core™ 2 Uuad / Core™ 2 Duo / Pentium® 4 and Celeron® D
Chipset	910GMLE+ICH6-M	Q45+ICH10DO	Q965+ICH8DO	Q965+ICH8DO
FSB	400 MHz	1333/1066/800 MHz	1066 / 800 / 533 MHz	1066 / 800 / 533 MHz
Max Memory	Two 240pin DIMMs / 2GB	Two 240pin DIMMs / 2GB	Two 240pin DIMMs / 4GB	Two 240pin DIMMs / 4GB
Memory Chip	DDR2	DDR3	DDR2	DDR2
Display	Dual VGA / LVDS	VGA/DVI-D	VGA / LVDS	VGA / DVI-D
Expansion	One PCI slot	One PCI-E x16 slot	One PCI slot, One Mini PCI-E socket	One PCI slot, One Mini PCI-E socket
LAN	Fast Ethernet x 2	Gbe x 2	GbE x 1	GbE x 1
Serial	RS232 x 3, RS232/422/485 x1	RS232 x 2	RS232 x 4	RS232 x 4
USB	USB 2.0 x 8	USB 2.0 x 8	USB 2.0 x 6	USB 2.0 x 6
SATA	SATA x 2	SATA x 4	SATA x 4	SATA x 4
IDE	One 44pin IDE connector	N/A	N/A	N/A
SSD	Compact Flash socket x1	N/A	N/A	N/A
Parallel	LPT header x 1	N/A	N/A	N/A
Audio	High Definition Audio 2.1 channel	High Definition Audio 5.1 channel	High Definition Audio 2.1 channel	High Definition Audio 2.1 channel
Dimension	6.69" x 6.69"	6.69"x 6.69"	6.69" x 6.69"	6.69" x 6.69"
Page	100	101	102	103

Mini-ITX Reference Table

MODEL	WADE-8656	WADE-8055
Form Factor	MINI-ITX	MINI-ITX
CPU	Core™ 2 Uuad / Core™ 2 Duo / Pentium® 4 and Celeron® D	Core™ 2 Duo/ Pentium® 4 and Celeron® D
Chipset	Q965+ICH8DO	945G + ICH7
FSB	1066 / 800 / 533 MHz	1066 / 800 / 533 MHz
Max Memory	Two 240pin DIMMs / 4GB	Two SO-DIMMs / 4GB
Memory Chip	DDR2	DDR2
Display	VGA	VGA
Expansion	One PCI-E x16 slot	One PCI slot
LAN	GbE x 2	GbE x 2
Serial	RS232 x 1, RS232/422/485 x1	RS232 x 1, RS232/422/485 x1
USB	USB 2.0 x 8	USB 2.0 x 8
SATA	SATA x 6	SATA x 4
IDE	N/A	N/A
SSD	N/A	Compact Flash socket x1
Parallel	N/A	N/A
Audio	High Definition Audio 2.1 channel	High Definition Audio 5.1 channel
Dimension	6.69" x 6.69"	6.69" x 6.69"
Page	104	105

WADE-8020

Intel® Core™ i5/ i7 processor based Mini-ITX with DDR3 SDRAM, Dual Display, Dual Gigabit Ethernet and USB Ports

FEATURES

- Intel® Core™ i5 / i7 processor (Quad-Core CPU support)
- Intel® QM57 chipset
- Two 204 pin SO-DIMMs support dual channel DDR3 SDRAM up to 8GB
- One PCI-Express x1 and one PCI Expansion slot
- One Mini-PCIe socket (with USB + PCIE x1 signal)
- Three RS232 ports and one RS232/422/485 port
- Six SATA ports
- Dual Display by VGA / DVI / HDMI / LVDS (24bits)
- Intel® Active Management Technology (Intel® AMT) 6.0

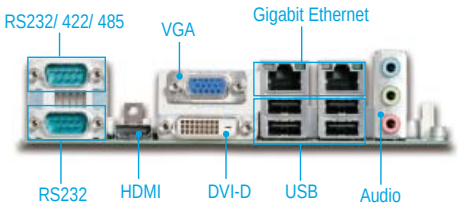
SYSTEM	
CPU	Intel® Core™ i5 / i7 processor (PGA 989)
BIOS	AMI uEFI BIOS (SPI ROM)
System Chipset	Intel® QM57
System Memory	Two 204-pin SO-DIMM support dual channel DDR3 SDRAM up to 8GB
Storage	6 x Serial ATA connector high-speed data transfers at up to 3 Gb/s. RAID 0, 1, 5, 10
Watchdog Timer	Programmable via S/W form 1 sec.~255min.
H/W Status Monitor	Monitoring Temperature, Voltage, and cooling fan status.
GPIO	Onboard programmable 16-bit Digital I/Os
Expansion	-One PCI slot and One PCI-E x1 slot -One Mini-PCIE slot

I/O	
MIO	-1 x RS232 port, 1 x RS232/422/485: (external) -2 x RS232 with header: (internal)
USB	4 x USB 2.0 ports and 4 x USB 2.0 with header
Audio Interface	Mic-in, Line-in, Line-out
Ethernet Interface	Dual Gigabit Ethernet (Intel® 82574L, Intel® 82577LM supports iAMT 6.0)

DISPLAY	
Chipset	Intel® QM57
Graphic Engine	Intel® Gen 6.0 integrated Graphics Engine
Resolution	Analog Display: Up to 2048 x 1536 (QXGA) Digital LVDS: Up to 1600 x 1200 (UXGA) HDMI: Up to 1920 x 1200 (WUXGA) DVI: Up to 1920 x 1200 (WUXGA)
Multi Display	VGA / DVI / HDMI / LVDS

MECHANICAL & ENVIRONMENTAL	
Power Requirement	TBD
Operating Temperature	0~60°C
Operating Humidity	5%~95% non-condensing
Size (L x W)	6.69" x 6.69" (170 mm x 170 mm)
Weight	0.94 lbs (0.43 Kg)

REAR I/O



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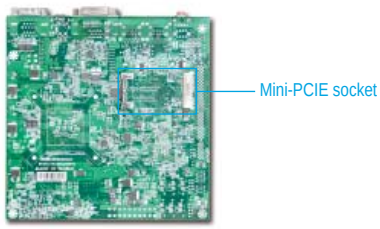


ORDERING GUIDE

- **WADE-8020**
  Intel® Core™ i5 / i7 processor Based Mini-ITX Board with VGA, 24-bit LVDS, HDMI, Dual GbE LAN, Four COM ports and Eight USB 2.0 ports

WADE-8067

Leading Intel® 45nm Core™ 2 Duo processor or Celeron® M processor based Mini-ITX with DDR3 SDRAM, HDMI, Dual Gigabit Ethernet, Audio and USB

FEATURES

- Intel® Core™ 2 Duo / Celeron® M processors
- Intel® GM45 and ICH9M-E Chipset
- Two SO-DIMMs support dual channel DDR3 SDRAM up to 8GB
- Dual Display: VGA / DVI / HDMI / LVDS / TV-out, 3rd Display via PCI-Express graphic card
- Support Intel® Active Management Technology 4.0
- Integrated latest Trusted Platform Module (iTPM)

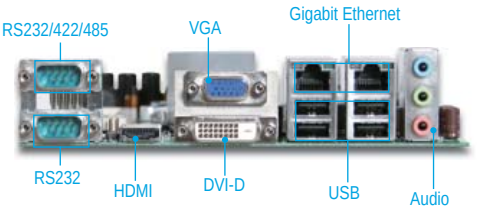
SYSTEM	
CPU	Intel® Core™ 2 Duo processor (Socket P 478pin)
FSB	667/800/1066MHz
BIOS	AMI BIOS
System Chipset	Intel® GM45 and ICH9M-E Chipset
System Memory	Two 204pin SO-DIMMs support dual channel DDR3 SDRAM up to 8GB
Storage	4 x SATA
Watchdog Timer	Programmable via S/W from 1sec. to 255min
H/W Monitor	FAN Speed(CPU and System), Temperature(CPU and System),Voltage, Case open function
GPIO	On board programmable 8-bit Digital I/Os
Expansion	One PCI-E x 4 slot

I/O	
MIO	1 x RS232, 1 x RS232/422/485, 1 x TV-out header
USB	4 x USB 2.0 ports and 2 x USB 2.0 with header
Audio Interface	Mic-in, Line-in and Line-out
Ethernet Interface	IEEE 802.3 10/100/1000BASE-T Gigabit Ethernet compliant (Intel® 82567 and 82574L)

DISPLAY	
Chipset	Intel® GM45 GMCH Integrated Intel® Graphics Media Accelerator (GMA) 4500MHD
Display Memory	Intel® Dynamic Video Memory Technology (Intel® DVMT 5.0)
Multi Display	LVDS / DVI-D (Chrontel CH7318B) / HDMI (Chrontel CH7318B) / VGA / TV-out

MECHANICAL & ENVIRONMENTAL	
Power Requirement	+12V(CPU) @ 0.53A; +12V(System) @ 0.2A; +5V @ 1.96A; +3.3V @ 0.16A
Operating Temperature	0~60°C
Storage Temperature	-20~80°C
Operating Humidity	5~95% non-condensing
Dimension	6.69" x 6.69" (170 mm x 170 mm)

REAR I/O



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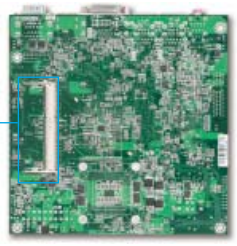


ORDERING GUIDE

- **WADE-8067PE**
  Intel® Core™ 2 Duo and Intel® Celeron® M processor Based Mini-ITX Board with VGA, DVI, HDMI, TV-out, Dual GbE LAN, Audio and USB
- **PEP-5A1X1**
  One PCI-E x4 riser card
- **B6931170**
  Active cooler

WADE-8066

Leading Intel® Core™ 2 Duo processor based Mini-ITX Board with DDR2 SDRAM, Dual Displays, Two GbE LAN ports, Audio and USB

FEATURES

- Intel® Core™ 2 Duo and Celeron® M processor
- Intel® GME965 and ICH8ME chipset
- Two 200pin SO-DIMMs support dual channel DDR2 SDRAM up to 4GB
- Dual Display :DVI-I / LVDS / TV-Out, 3rd Display via expansion slot
- One PCI slot and one PCI-E x 1 slot with PCI-E x 4 signal

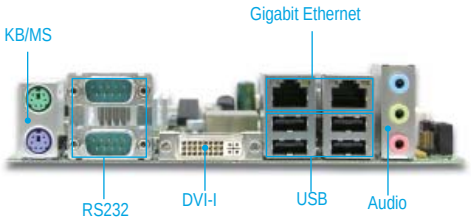
SYSTEM	
CPU	Intel® Core™ 2 Duo and Intel® Celeron® M processor (Socket P 478pin)
FSB	FSB 800/533 MHz
BIOS	Award BIOS
System Chipset	Intel® GME965 and ICH8ME Chipset
System Memory	Two 200pin SO-DIMMs support dual channel DDR2 SDRAM up to 4GB
Storage	2 x Serial ATA connector high-speed data transfers at up to 3 Gb/s
SSD	1 x Compact Flash
Watchdog Timer	Reset; 1 sec.~255 min. and 1 sec. or 1 min./step
H/W Status Monitor	Monitoring system temprature, voltage, and cooling fan status. Auto throttling control when CPU overheats
GPIO	On-board programmable 16 Digital I/O interface
Expansion	One PCI slot and One PCI-E x 1 slot (with PCI-E x 4 signal)

I/O	
MIO	1 x RS232, 1 x RS232/422/485 selectable, 1 x K/B, 1 x Mouse
IrDA	IrDA 1.0
USB	4 x USB 2.0 ports and 4 x USB 2.0 with header
Audio Interface	Mic in, Line in, Line out
Ethernet Interface	IEEE 802.3 10/100/1000BASE-T Gigabit Ethernet compliant (Intel® 82566MM and Mavell88E8053)

DISPLAY	
Chipset	Intel® GME965 Integrated GMA x3100 Graphics device
Display Memory	Intel® DVMT 4.0 supports up to 384 MB video memory
Resolution	Analog Display: Up to 2048 x 1536 (QXGA) Digital DVI Display: Up to 1600 x 1200 (UXGA)
Multi Display	24-bit, dual Channel LVDS / TV-out / VGA / DVI (Silicon Image Sil 1362)

MECHANICAL & ENVIRONMENTAL	
Power Requirement	+12V(System) @ 2.59A; +5V @ 2.96A; +3.3V @ 1.31A
Operating Temperature	0~55°C
Operating Humidity	0%~90% relative humidity, noncondensing
Size (L x W)	6.69" x 6.69" (170 mm x 170 mm)
Weight	0.94 lbs (0.43 Kg)

REAR I/O



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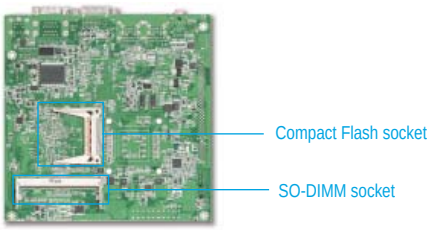


ORDERING GUIDE

- **WADE-8066**
  Intel® Core™ 2 Duo and Celeron® M processors Main Board with DVI, Audio, GbE LANs, 8 x USB 2.0
- **PEP-581R/582R**
  One/Two slots PCI riser card
- **PEP-592R**
  One PCI and one PCI-E x4 slot riser card
- **PER-4210R**
  One slot PCI-E x4 riser card
- **B9970540**
  1U active heatsink

WADE-8068

Leading Mobile Intel® Core™ 2 Duo Processor Mini-ITX with DDR2 SDRAM, Dual Displays, Two GbE LAN ports, Four COM Ports, LPT and USB

FEATURES

- Intel® Core™ 2 Duo and Celeron® M processors
- Intel® GME965 and ICH8M-E Chipset
- Two 200-pin SO-DIMMs support dual channel DDR2 SDRAM up to 4GB
- Dual Display: VGA / 24bit LVDS, 3rd Display via expansion slot Dual Gigabit Ethernet ports
- Two SATA ports and One Type II Compact Flash
- One PCI slot and one PCI-E x 1 slot with PCI-E x 4 signal
- Three RS232 ports and one RS232/422/485 port

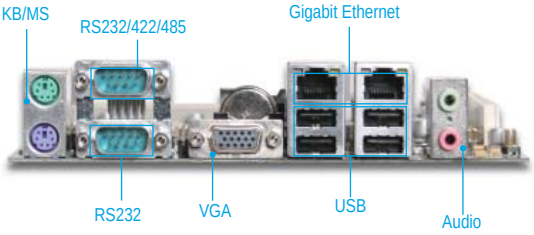
SYSTEM	
CPU	Intel® Core™ 2 Duo and Intel® Celeron® M processor (Socket P 478pin)
FSB	800/533 MHz
BIOS	Award BIOS
System Chipset	Intel® GME965 & ICH8ME Chipset
System Memory	Two 200-pin SO-DIMM support dual channel DDR2 SDRAM up to 4GB
Storage	2 xSerial ATA connector high-speed data transfers at up to 3Gb/s
SSD	1 x Compact Flash
Watchdog Timer	Programmable via S/W from 1sec. to 255min.
H/W Monitor	FAN Speed(CPU and System), Temperature(CPU and System), Voltage, Case open function
GPIO	On board programmable 16-bit Digital I/Os
Expansion	One PCI slot and one PCI-E x 1 slot (with PCI-E x 4 signal)

I/O	
MIO	1 x LPT, 3 x RS232 port, 1 x RS232/422/485 selectable, 1 x K/B, 1 x Mouse
USB	4 x USB 2.0 ports and 4 x USB 2.0 ports with header
Audio Interface	Mic-in, Line-out
Ethernet Interface	IEEE 802.3 10/100/1000BASE-T Gigabit Ethernet compliant (Intel® 82566MM and Realtek 8111C)

DISPLAY	
Chipset	Intel® GME965 GMCH Integreated Intel® GMA x3100
Display Memory	Intel® DVMT 4.0 supports up to 384MB video memory
Resolution	Analog Display: Up to 2048 x 1536 (QXGA) Digital LVDS: Up to 1600 x 1200 (UXGA)
Multi Display	24bit, dual channel LVDS / VGA

MECHANICAL & ENVIRONMENTAL	
Power Requirement	+12V(System) @ 2.66A; +5V @ 3.74A; +3.3V @ 0.83A
Operating Temperature	0~55°C
Operating Humidity	5%~95% noncondensing
Size (L x W)	6.69" x 6.69" (170 mm x 170 mm)
Weight	0.94 lbs (0.43 Kg)

REAR I/O



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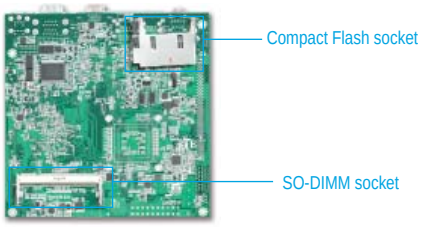


ORDERING GUIDE

- **WADE-8068**
  Intel® Core™ 2 Duo and Intel® Celeron® M processor Based Mini-ITX Board with VGA, 24-bit LVDS, Dual GbE LAN, Four COM Ports and Eight USB 2.0 Ports
- **PEP-581R/582R**
  One/Two slots PCI riser card
- **PEP-592R**
  One PCI and one PCI-E x4 slot riser card
- **PER-4210R**
  One slot PCI-E x4 riser card
- **B9970540**
  1U active heatsink

WADE-8046

Intel® Core™ 2 Duo processor based Mini-ITX Board with DDR2 SDRAM, VGA/ LVDS / DVI, Gigabit Ethernet, Audio and USB

FEATURES

- Intel® Core™ 2 Duo / Core™ Duo / Celeron® M processor
- Intel® 945GME and ICH7-M chipset
- Two 200-pin SO-DIMMs support dual channel DDR2 SDRAM up to 4GB
- Dual display: VGA / LVDS / DVI, 3rd display via PCI-Express x1 graphic card
- One PCI-Express x 1 expansion slot and one Mini PCI socket
- One Compact Flash socket & high definition audio

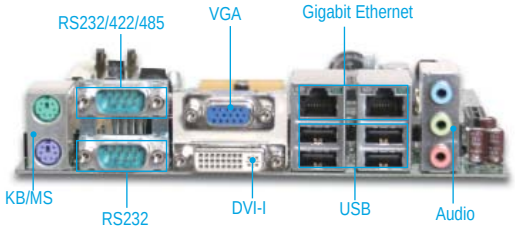
SYSTEM	
CPU	Intel® Core™ 2 Duo / Core™ Duo / Celeron® M processor (mPGA 478m)
FSB	533/667 MHz
BIOS	Award BIOS
System Chipset	Intel® 945GME GMCH and ICH7-M
System Memory	Two 200pin SO-DIMM support dual channel DDR2 SDRAM up to 4GB
Storage	- 2 x SATA - 1 x 44 pin IDE connector
SSD	1 x Compact Flash share the same channel with IDE and support UDMA
Watchdog Timer	Programmable via S/W from 1sec. to 255min
H/W Status Monitor	FAN Speed(CPU and System), Temperature(CPU and System), Voltage, Case open function
GPIO	Onboard programmable 8-bit Digital I/Os
Expansion	1 x PCI-Express x1 slot, 1 x Mini PCI socket

I/O	
MIO	Two RS232 ports, one Parallel port
IrDA	N/A
USB	4 x USB 2.0 ports and 2 x USB 2.0 ports with header
Audio Interface	Line-out , Line-in and Mic-in
Ethernet Interface	IEEE 802.3 10/100/1000BASE-T Gigabit Ethernet compliant (Realtek 8111C)

DISPLAY	
Chipset	- Intel® 945GME GMCH Integrated - Intel® GMA 950 graphics
Display Memory	Intel® DVMT 3.0 supports up to 224MB video memory
Resolution	Analog Display: Up to 2048 x 1536 (QXGA) Digital LVDS: Up to 1600 x 1200 (UXGA) Digital DVI: Up to 1600 x 1200 (UXGA)
Multi Display	Dual Channel 18-bit LVDS / VGA / DVI (Chrontel CH7307)

MECHANICAL & ENVIRONMENTAL	
Power Requirement	+12V(CPU) @ 1.33A; +12V(System) @ 0.33A; +5V @ 1.74A; +3.3V @ 0.72A
Operating Temperature	0~60°C
Storage Temperature	-20~80°C
Operating Humidity	5~95% non-condensing
Size (L x W)	6.69" x 6.69" (170 mm x 170 mm)

REAR I/O



※DVI-I connector support DVI-D signal only

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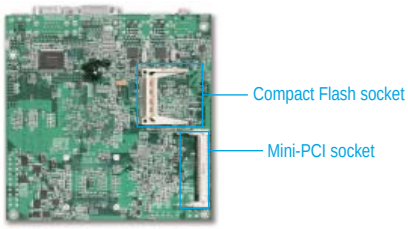


ORDERING GUIDE

- **WADE-8046**
  Intel® Core™ 2 Duo / Core™ Duo / Celeron® M processors Mini-ITX Board
- **PEP-5B1X1**
  One PCI-E x1 riser card
- **B9970542**
  Active cooler

WADE-8065

Network Enriched Intel® Core™ 2 Duo Processor based Mini-ITX Board with Dual Displays, Three GbE LAN ports, Audio and USB

FEATURES

- Intel® Core™ 2 Duo / Core™ solo / Core™ Duo and Celeron® M processors
- Intel® 945GME and ICH7-M Chipset
- Two 200-pin SO-DIMMs support dual channel DDR2 SDRAM up to 4GB
- Dual Display: VGA / DVI / LVDS, 3rd Display via expansion slot
- Three Intel® Gigabit Ethernet

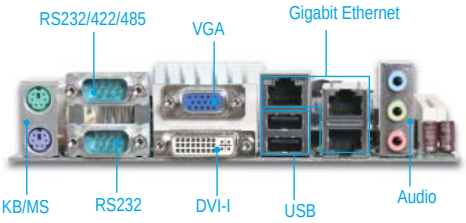
SYSTEM	
CPU	Intel® Core™ 2 Duo / Core™ Duo / Core™ Solo processor (mPGA 478m)
FSB	667/533 MHz
BIOS	Award BIOS
System Chipset	Intel® 945GME and ICH7-M Chipset
System Memory	2 x 200-pin dual channel DDR2 SDRAM DIMM 667/533 MHz support up to 4GB
Storage	- 1 x IDE - 2 x SATA
SSD	1 x Compact Flash
Watchdog Timer	Reset:1 sec.~255 min. and 1 sec. or 1 min./step
H/W Status Monitor	Monitoring system temperature, voltage, and cooling fan status. Auto throttling control when CPU overheats
GPIO	On-board programmable 8-bit Digital I/O interface
Expansion	1 x PCI slot

I/O	
MIO	1 x RS232, 1 x RS232/422/485 selectable, 1 x K/B, 1 x Mouse, 3 x GbE
USB	2 x USB 2.0 ports and 4 x USB 2.0 with header
Audio Interface	Mic-in, Line-in, Line-out
Ethernet Interface	IEEE 802.3 10/100/1000BASE-T Gigabit Ethernet compliant (Intel® 82574L)

DISPLAY	
Chipset	Intel® 945GME Integreated Intel® GMA 950 graphics
Display Memory	Integrated Intel® Graphics Media Accelerator GMA 950, and share system memory to 224 MB
Resolution	Analog Display Port: QXGA 2048 x 1536 Digital LVDS Port: UXGA 1600 x 1200
Multi Display	18-bit, dual Channel LVDS / VGA / DVI (Chrontel CH7307)

MECHANICAL & ENVIRONMENTAL	
Power Requirement	+12V(CPU) @ 1.16A; +12V(System) @ 0.32A; +5V @ 1.58A; +3.3V @ 0.74A
Operating Temperature	0~55°C
Operating Humidity	0%~90% relative humidity, noncondensing
Size (L x W)	6.69" x 6.69" (170 mm x 170 mm)
Weight	0.94 lbs (0.43 Kg)

REAR I/O



※DVI-I connector support DVI-D signal only

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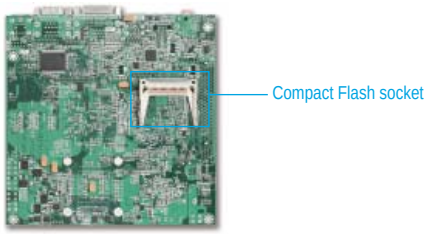


ORDERING GUIDE

- **WADE-8065**
  Intel® Core™ 2 Duo processor Mini-ITX Board with VGA, LCD, Audio, three GbE LANs and 6 USB 2.0 ports
- **PEP-581R/582R**
  One/Two slots PCI riser card
- **B9970540**
  1U active cooler

WADE-8075/76

Intel® Dual Core Atom™ D525 1.8GHz / N455 1.67GHz Processor based Mini-ITX with DC12V input, DDR3 SDRAM, Dual display, Dual Gigabit Ethernet, Three SATA, Four COM and Six USB

FEATURES

- Intel® Atom™ D525 1.8GHz / N455 1.67GHz Processor
- Intel® ICH8M Chipset
- Two 204-pin SO-DIMMs support single channel DDR3 SDRAM up to 4GB
- Dual Display by VGA / LVDS(24bits or 18bits)
- One PCI-Express x 1, one PCI expansion slot and one Mini-PCIe socket (with USB + PCIEx1 signal)
- Three RS232 ports and one RS232/422/485 port

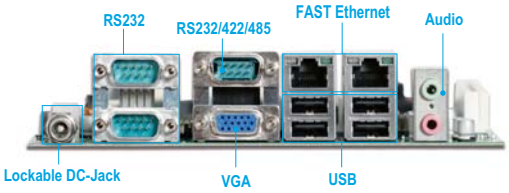
SYSTEM	
CPU	Intel® Atom™ D525/N455 processor
BIOS	AMI uEFI BIOS (SPI ROM)
System Chipset	Intel® ICH8M
System Memory	Two 204pin SO-DIMM support single channel DDR3 SDRAM up to 4GB
Storage	- One SATA port - Two SATA ports with power support
SSD	One compact flash socket
Watchdog Timer	Programmable via S/W from 1sec. ~ 255min.
H/W Status Monitor	Monitoring Temperature, Voltage, and cooling fan status Auto throttling control when CPU overheats
GPIO	Onboard programmable 16-bit Digital I/Os
Expansion	- One PCI slot and One PCI-Ex1 slot - One Mini-PCIE slot - LPC header

I/O	
MIO	- 2 x RS232 5V/12V selectable - 1 x RS232 5V/12V selectable, with header - 1 x RS232/422/485 5V/12V selectable - 1x KB/MS with header
IrDA	N/A
USB	4 x USB 2.0 ports and 2 x USB 2.0 with header
Audio Interface	Mic-in, Line-in/out, Line out with header
Ethernet Interface	Dual Gigabit Ethernet(RTL8111D*2)

DISPLAY	
Chipset	Intel® ICH8M GMCH Integrated Intel® GMA 3150
Display Memory	Intel® DVMT 4.0
Resolution	- Analog Display: Up to 2048 x 1536 - Digital LVDS: Up to 1280 x 1024
LVDS	- Dual Channel 24-bit (WADE-8075) - Single Channel 18-bit(WADE-8076)

MECHANICAL & ENVIRONMENTAL	
Power Requirement	DC-In: Single 12V DC-IN (One onboard 12V DC-IN for internals PSU) DC-Out: One 4-pin 5V/12V DC-out onboard connector
Operating Temperature	0~60°C
Operating Humidity	5~95% non-condensing
Size (L x W)	6.69" x 6.69" (170 mm x 170 mm)
Weight	0.95lbs (0.43 Kg)

REAR I/O



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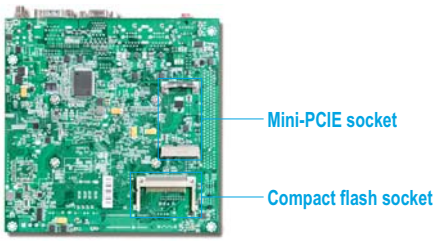
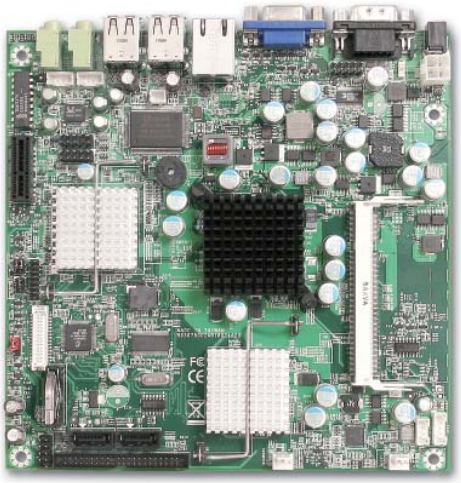


ORDERING GUIDE

- **WADE-8075**
  Intel® Atom™ D525 1.8GHz Processor based Mini-ITX with DC12V input, DDR3 SDRAM, VGA and 24bits LVDS, Dual Gigabit Ethernet, Three SATA, Four COM and Six USB ports
- **WADE-8076**
  Intel® Atom™ N455 1.67GHz Processor based Mini-ITX with DC12V input, DDR3 SDRAM, VGA and 18bits LVDS, Dual Gigabit Ethernet, Three SATA, Four COM and Six USB ports

WADE-8071

Intel® Low Power Atom™ N270 1.6GHz Processor based Mini-ITX Board with DC12V input, dual display, Gigabit Ethernet, Two SATA Ports, Two COM ports and Six USB Ports support thin client application



FEATURES

- Intel® ATOM™ N270 1.6GHz processor
- Intel® 945GSE and ICH7-M chipset
- One 200-pin SO-DIMM supports single channel DDR2 SDRAM up to 2GB
- Dual display: VGA / LVDS, 3rd display via PCI-Express x1 graphic card
- One PCI-Express x1 expansion slot
- 12V DC Input
- 20mm height supports thin client application

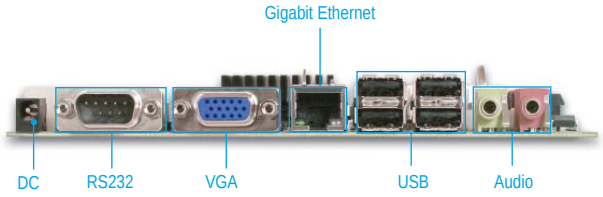
SYSTEM	
CPU	Intel® Atom™ N270 1.6GHz processor
FSB	533/667 MHz
BIOS	Award BIOS
System Chipset	Intel® 945GSE GMCH and ICH7-M
System Memory	One 200-pin SO-DIMM supports single channel DDR2 SDRAM up to 2GB
Storage	2 x SATA, 1 x IDE
SSD	1 x Compact Flash share the same channel with IDE and support UDMA
Watchdog Timer	Programmable via S/W from 1sec. to 255min.
H/W Status Monitor	FAN Speed(CPU and System), Temperature (CPU and System),Voltage, Case open function
GPIO	Onboard programmable 8-bit Digital I/Os
Expansion	1 x PCI-Express slot

I/O	
MIO	1 x IDE, 2 x RS232 ports, 1x K/B, 1 x Mouse, 1 x CF
USB	4 x USB 2.0 ports and 2 x USB 2.0 with header
Audio Interface	Mic-in, Line-out
Ethernet Interface	IEEE 802.3 10/100/1000 BASE-T Gigabit Ethernet compliant

DISPLAY	
Chipset	Intel® 9945GSE GMCH Integrated Intel® GMA 950 graphics
Display Memory	Intel® DVMT 3.0 share system memory up to 128MB
Multi Display	- Analog Display: Up to 2048 x 1536 (QXGA) - Digital LVDS: Up to 1600 x 1200(UXGA)
LVDS	Dual Channel 18-bit and 24-bit output

MECHANICAL & ENVIRONMENTAL	
Power Requirement	DC Input
Operating Temperature	0~60°C
DC Input	10%~90% non-condensing
Dimension	6.69" x 6.69" (170mm x 170mm)

REAR I/O



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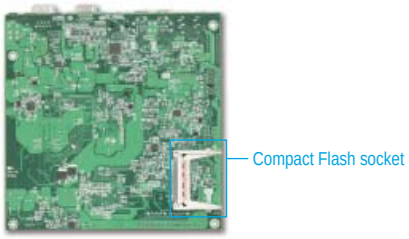


ORDERING GUIDE

- **WEDE-8071**
  Intel® Low Power Atom™ N270 1.6GHz Processor based Mini-ITX Board with DC12V input, dual display, Gigabit Ethernet, Two SATA Ports, Two COM ports and Six USB Ports support thin client application.

WADE-8070

Intel® Low Power Atom™ N270 1.6GHz Processor based Mini-ITX Board with dual display, Gigabit Ethernet, Two SATA Ports, Four COM ports and Six USB Ports

FEATURES

- Intel® Atom™ N270 1.6GHz processor
- Intel® 945GSE and ICH7-M chipset
- One 200-pin SO-DIMM supports single channel DDR2 SDRAM up to 2GB
- Dual display: VGA / LVDS / DVI, 3rd display via PCI-Express x1 graphic card
- One Mini-PCI and one PCI-Express x1 expansion slot
- Two SATA, one Compact Flash socket & one IDE connector

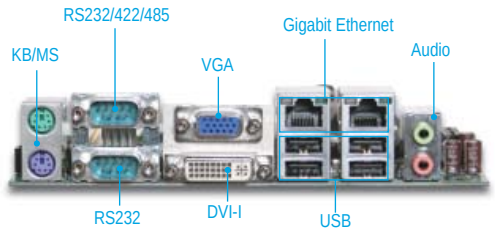
SYSTEM	
CPU	Intel® Atom™ N270 1.6GHz processor
FSB	533 MHz
BIOS	Award BIOS
System Chipset	Intel® 945GSE GMCH and ICH7-M Chipset
System Memory	One 200-pin SO-DIMM supports single channel DDR2 SDRAM up to 2GB
Storage	- 2 x SATA - 1 x IDE
SSD	1 x Compact Flash share the same channel with IDE and support UDMA
Watchdog Timer	Programmable via S/W from 1sec. to 255min
H/W Status Monitor	FAN Speed(CPU and System), Temperature(CPU and System), Voltage, Case open function
GPIO	Onboard programmable 8-bit Digital I/Os
Expansion	1 x Mini-PCI socket, 1 x PCI-Express x1 slot

I/O	
MIO	1 x EIDE, 3 x RS232 port, 1x K/B, 1 x Mouse, 1 x RS232/422/485 selectable
USB	4 x USB 2.0 ports and 2 x USB 2.0 with header
Audio Interface	Mic in and Line-out
Ethernet Interface	IEEE 802.3 10/100/1000BASE-T Gigabit Ethernet compliant (Realtek 8111C)

DISPLAY	
Chipset	Intel® 945GSE GMCH Integrated Intel® GMA 950 graphics
Display Memory	Intel® DVMT 3.0 share system memory up to 128MB
Resolution	Analog Display: Up to 2048 x 1536 (QXGA) Digital LVDS: Up to 1600 x 1200(UXGA)
Multi Display	18-bit, dual Channel LVDS / VGA / DVI-D (Chrontel CH7307)

MECHANICAL & ENVIRONMENTAL	
Power Requirement	+12V(CPU) @ 0.17A; +12V(System) @ 0.24A; +5V @ 1.31A; +3.3V @ 0.55A
Operating Temperature	0~60°C
Operating Humidity	10%~90% non-condensing
Size (L x W)	6.69" x 6.69" (170 mm x 170 mm)

REAR I/O



※DVI-I connector support DVI-D signal only

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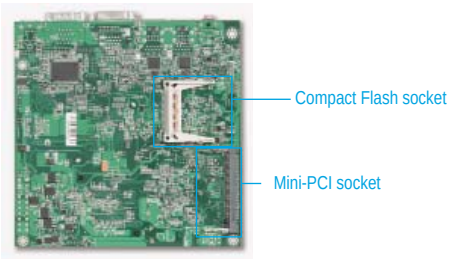


ORDERING GUIDE

- **WADE-8070**
  Intel® Atom™ N270 1.6GHz processor based Mini-ITX Board with VGA, 18bit LVDS, DVI, Dual LAN, Four COM Ports and Six USB 2.0 Ports
- **PEP-5B1X1**
  One PCI-E x1 riser card

WADE-8072

Intel® Low Power Atom™ N270 1.6GHz Processor based Mini-ITX Board with dual display, Gigabit Ethernet, Two SATA Ports, Four COM ports and Six USB Ports

FEATURES

- Intel® Atom™ N270 1.6GHz processor
- Intel® 945GSE and ICH7-M chipset
- One 200-pin SO-DIMM supports single channel DDR2 SDRAM up to 2GB
- Dual display: VGA / LDVS, 3rd display via expansion slot
- Two SATA, one Compact Flash socket & one IDE connector
- One PCI slot, one PCI-E x1 expansion slot and one Mini-PCIE socket
- Three RS232 ports and one RS232/422/485 port

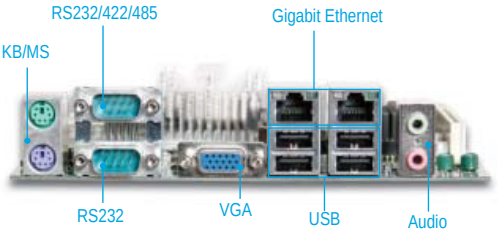
SYSTEM	
CPU	Intel® Atom™ N270 1.6GHz processor
FSB	533 MHz
BIOS	Award BIOS
System Chipset	Intel® 945GSE GMCH and ICH7-M Chipset
System Memory	One 200-pin SO-DIMM supports single channel DDR2 SDRAM up to 2GB
Storage	- 2 x SATA - 1 x IDE
SSD	1 x Compact Flash share the same channel with IDE and support UDMA 5 (At bottom side board edge)
Watchdog Timer	Programmable via S/W from 1sec. to 255min.
H/W Status Monitor	FAN Speed(CPU and System), Temperature(CPU and System), Voltage, Case open function
GPIO	Onboard programmable 8-bit Digital I/Os
Expansion	- 1 x PCI slot and one PCI-E x 1 slot - 1 x TPM pin header - 1 x Mini-PCIE socket

I/O	
MIO	1 x IDE, 1 x LPT, 3 x RS232 ports, 1 x RS232/422/485 selectable, 1 x K/M, 1 x Mouse
USB	4 x USB 2.0 ports and 2 x USB 2.0 with header
Audio Interface	Mic-in, Line-out
Ethernet Interface	IEEE 802.3 10/100/1000BASE-T Gigabit Ethernet compliant (Realtek 8111D)

DISPLAY	
Chipset	Intel® 945GSE GMCH Integrated Intel® GMA 950 graphics
Display Memory	Intel® DVMT 3.0 share system memory up to 128MB
Resolution	Analog Display: Up to 2048 x 1536 (QXGA) Digital LVDS: Up to 1600 x 1200(UXGA)
Multi Display	Dual Channel 24-bit output (Chrontel CH7308B) / VGA

MECHANICAL & ENVIRONMENTAL	
Power Requirement	+12V(System) @ 0.35A; +5V(System) @ 2.44A; +3.3V(System) @ 0.82A
Operating Temperature	0~60°C
Operating Humidity	5%~95% non-condensing
Size (L x W)	6.69" x 6.69" (170 mm x 170 mm)

REAR I/O



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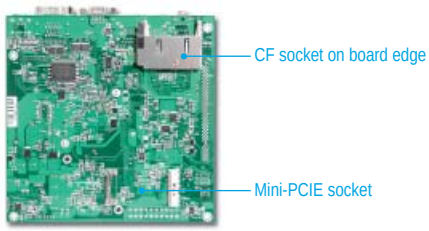

ORDERING GUIDE

- **WADE-8072**
  Intel® Low Power Atom™ N270 1.6GHz processor based Mini-ITX Board with dual display, Gigabit Ethernet, Two SATA ports, Four COM ports and Six USB ports

WADE-8170

Intel® Atom™ N270 Processor based Mini-ITX Board with Dual Display, Dual Gigabit Ethernet, Two SATA Ports, Two COM ports and Eight USB Ports

FEATURES

- Intel® ATOM™ N270 1.6GHz processor
- Intel® 945GSEand ICH7-M chipset
- 12V, 15V~24V DC Power Input
- One 200-pin SO-DIMM supports single channel DDR2 SDRAM up to 2GB
- Dual display: VGA / LVDS / DVI / TV-Out , 3rd display via riser card
- One PCI expansion slot (Two PCI & one PCI-Expansion x 1 slots via riser card)
- Two SATA, one Compact Flash socket & one IDE connector

SYSTEM	
CPU	Intel® Atom™ N270 1.6GHz processor
FSB	533 MHz
BIOS	Award BIOS
System Chipset	Intel® 945GSE GMCH and ICH7-M
System Memory	One 200-pin SO-DIMM supports single channel DDR2 SDRAM up to 2GB
Storage	- 2 x SATA - 1 x 40 pin IDE
SSD	1 x Compact Flash share the same channel with IDE and support UDMA
Watchdog Timer	Programmable via S/W from 1sec. to 255min.
H/W Status Monitor	FAN Speed(CPU and System), Temperature(CPU and System), Voltage, Case open function
GPIO	Onboard programmable 8-bit Digital I/Os
Expansion	1 x PCI slot, 1 x PCI-Ex1 slot through Riser card

I/O	
MIO	1 x EIDE, 2 x RS-232 ports, 1 x K/B, 1 x Mouse, 1 x S-Video header
IrDA	N/A
USB	4 x USB 2.0 ports and 4 x USB 2.0 with header
Audio Interface	Mic-in, Line-out, Line-in
Ethernet Interface	IEEE 802.3 10/100/1000BASE-T Gigabit Ethernet compliant

DISPLAY	
Chipset	Intel® 945GSE GMCH Integrated Intel® GMA 950 graphics
Display Memory	Intel® DVMT 3.0 share system memory up to 128MB
Resolution	-Analog Display: Up to 2048 x 1536 (QXGA) -Digital LVDS: Up to 1600 x 1200(UXGA) -Digital DVI: Up to 1600 x 1200(UXGA)
LVDS	Dual Channel 18-bit
DVI	DVI-D interface

MECHANICAL & ENVIRONMENTAL	
Power Requirement	DC Input
Operating Temperature	0~60°C
Operating Humidity	5%~95% non-condensing
Size (L x W)	6.69" x 6.69" (170mm x 170mm)

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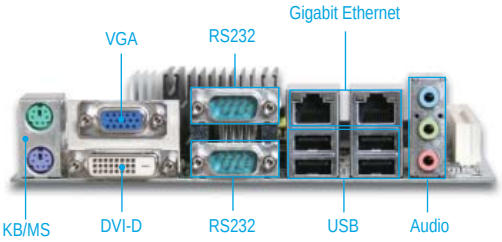

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ORDERING GUIDE

- **WEDE-8170**
  Intel® Atom™ N270 1.6GHz processor Based Mini-ITX Board with VGA, 18bit LVDS, DVI, Dual LAN, Two COM Ports and Eight USB 2.0 Ports

WADE-8044

Ultra Low Voltage Intel® Celeron® M Processor Mini-ITX with DDR2 SDRAM, Dual Displays, Four COM Ports and USB

FEATURES

- Intel® Pentium® M / Celeron® M processor
- Intel® 910GMLE and ICH6-M chipset
- Two 240-pin DIMMs support dual channel DDR2 SDRAM up to 2GB
- Dual Display: VGA / 18bit LVDS / DVI
- Dual Gigabit Ethernet ports and one PCI slot
- One Type II Compact Flash, Four COM Ports and Eight USB Ports

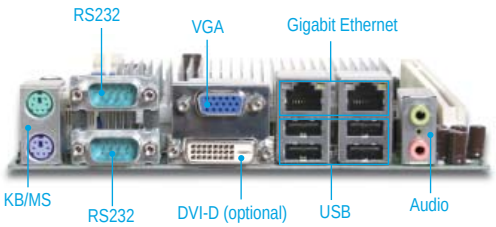
SYSTEM	
CPU	Intel® Pentium® M / Celeron® M processor
FSB	400 MHz
BIOS	Award BIOS
System Chipset	Intel® 910GMLE GMCH and ICH6-M
System Memory	Two 240-pin DIMMs support dual channel DDR2 SDRAM up to 2GB
Storage	- 2 x SATA - 1 x IDE
SSD	1 x Compact Flash share the same channel with IDE and support UDMA
Watchdog Timer	Programmable via S/W from 1sec. to 255min.
H/W Status Monitor	FAN Speed (CPU and System), Temperature (CPU and System), Voltage, Case open function
GPIO	On-board programmable 8-bit Digital I/O interface
Expansion	1 x PCI slot

I/O	
MIO	1 x EIDE, 1 x LPT, 3 x RS232 port, 1 x RS232/422/485 selectable, 1 x K/B, 1 x Mouse
IrDA	N/A
USB	4 x USB 2.0 ports and 4 x USB 2.0 with header
Audio Interface	Mic in, Line out
Ethernet Interface	IEEE 802.3 10/100/1000BASE-T Gigabit Ethernet compliant (Realtek 8111B)

DISPLAY	
Chipset	Intel® 910GMLE GMCH Integrated Intel® GMA 900 graphics
Display Memory	Intel® DVMT 3.0 share system memory up to 128MB
Resolution	Analog Display: Up to 2048 x1536 (QXGA) Digital LVDS: Up to 1400 x 1050 (SXGA+) Digital DVI (Optional): Up to 1600 x 1200 (UXGA) (Chrontel CH7307)
LVDS	Dual Channel 18-bit

MECHANICAL & ENVIRONMENTAL	
Power Requirement	+12V(System) @ 0.48A; +5V @ 2.85A; +3.3V @ 0.63A
Operating Temperature	0~55°C
Operating Humidity	5%~95%, noncondensing
Size (L x W)	6.69" x 6.69" (170 mm x 170 mm)
Weight	0.94 lbs (0.43 Kg)

REAR I/O



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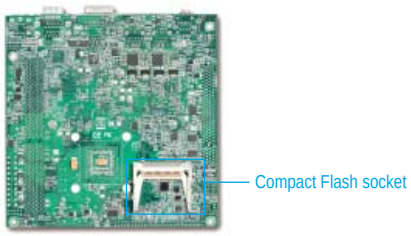

ORDERING GUIDE

- **WADE-8044**
  Intel® Pentium® M / Celeron® M processors Based Mini-ITX Board with VGA, 18-bit LVDS, DVI, Dual GbE LAN, Four COM Ports and Eight USB 2.0 Ports
- **WADE-8044-600**
  Intel® Celeron® M 600MHz (512KB Cache) Based Mini-ITX Board with VGA, 18-bit LVDS, Dual GbE LAN, Four COM Ports and Eight USB 2.0 Ports
- **WADE-8044-1G**
  Intel® Celeron® M 1.0GHz (Zero Cache) Based Mini-ITX Board with VGA, 18-bit LVDS, Dual GbE LAN, Four COM Ports and Eight USB 2.0 Ports

WADE-8047

On board Dual VGA Intel® Celeron® M / Pentium® M Processor Mini-ITX with DDR2 SDRAM, LVDS, Four COM Ports and USB

FEATURES

- Intel® Pentium® M / Celeron® M processor
- Intel® 910GMLE and ICH6-M chipset
- Two 240-pin DIMMs support dual channel DDR2 SDRAM up to 2GB
- Dual Display: Dual VGA / 18-bit LVDS
- Two 10/100mbps LAN and one PCI slot
- Two SATA ports, One IDE connector and One Type II Compact Flash
- Four COM Ports and Eight USB Ports

SYSTEM	
CPU	Intel® Pentium® M / Celeron® M processor
FSB	400 MHz
BIOS	Award BIOS
System Chipset	Intel® 910GMLE GMCH and ICH6-M Chipset
System Memory	Two 240-pin DIMMs support dual channel DDR2 SDRAM up to 2GB
Storage	- 2 x SATA - 1 x IDE
SSD	1 x Compact Flash share the same channel with IDE and support UDMA
Watchdog Timer	Programmable via S/W from 1sec. to 255min
H/W Status Monitor	FAN Speed(CPU and System), Temperature(CPU and System), Voltage, Case open function
GPIO	On board programmable 8-bit Digital I/Os
Expansion	1 x PCI slot

I/O	
MIO	1 x EIDE, 1 x LPT, 3 x RS232 port, 1 x RS232/422/485 selectable, 1 x K/B, 1 x Mouse
IrDA	N/A
USB	4 x USB 2.0 ports and 4 x USB 2.0 ports with header
Audio Interface	Mic-in, Line-in
Ethernet Interface	IEEE 802.3 10/100BASE-T Ethernet compliant (Realtek 8111)

DISPLAY	
Chipset	Intel® 910GMLE GMCH Integrated Intel® GMA 900 graphics
Display Memory	Intel® DVMT 3.0 share system memory up to 128MB
Resolution	Analog Display: Up to 2048 x 1536 (QXGA) Digital LVDS: Up to 1400 x 1050 (SXGA+)
Second VGA	SDVO interface (CH7317)
LVDS	18-bit, dual Channel

MECHANICAL & ENVIRONMENTAL	
Power Requirement	+12V(System) @ 2.40A; +5V @ 2.97A; +3.3V @ 0.45A
Operating Temperature	0~55°C
Operating Humidity	5%~95% non-condensing
Size (L x W)	6.69" x 6.69" (170 mm x 170 mm)
Weight	0.95 lbs (0.43 Kg)

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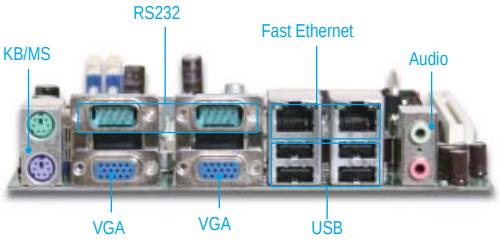

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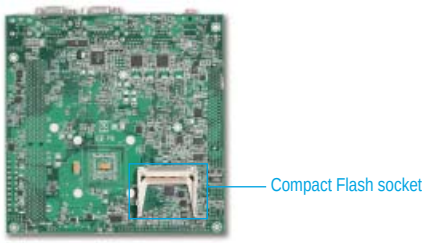

ORDERING GUIDE

- **WADE-8047**
  Intel® Pentium® M / Celeron® M processors Based Mini-ITX Board with Dual VGA, 18-bit LVDS, Dual LAN, Four COM Ports and Eight USB 2.0 Ports
- **WADE-8047-600**
  Intel® Celeron® M 600MHz (512KB Cache) Based Mini-ITX Board with Dual VGA, 18-bit LVDS, Dual GbE LAN, Four COM Ports and Eight USB 2.0 Ports
- **WADE-8047-1G**
  Intel® Celeron® M 1.0GHz (Zero Cache) Based Mini-ITX Board with Dual VGA, 18-bit LVDS, Dual GbE LAN, Four COM Ports and Eight USB 2.0 Ports

WADE-8180

Leading Intel® Core™ 2 Quad / Core™ 2 Duo Processor based Mini-ITX embedded board with Dual Display, Dual Gigabit Ethernet, SATA, COM and USB

FEATURES

- Intel® Core™ 2 Quad / Core™ 2 Duo processor Intel® Q45 Express and ICH10DO chipset
- Two 240-pin DIMM sockets support dual channel DDR3 SDRAM up to 4GB
- Dual display: VGA / DVI-D, 3rd display via PCI-Express x16 slot
- Four SATA ports
- Two GbE LAN ports and One PCI-E x16 slot
- RAID 0 / 1 / 5 / 10
- TPM 1.2 and iAMT 5.0 supported

SYSTEM	
CPU	Intel® Core™ 2 Quad / Core™ 2 Duo processor (LGA 775)
FSB	1333/1066/800 MHz
BIOS	AMI BIOS
System Chipset	Intel® Q45 Express and ICH10DO chipset
System Memory	Two 240-pin DIMM sockets support dual channel 800/1066MHz DDR3 SDRAM up to 4GB
Storage	4 x SATA-300
Watchdog Timer	Reset; 1 sec.~255 min. and 1 sec. or 1 min./step
H/W Monitor	Monitoring CPU and system temperature, voltage and cooling fan status
GPIO	Onboard programmable 8-bit Digital I/O interface (4 input / 4 output)
Expansion	One PCI-Express x16 Slot

I/O	
MIO	1 x D-SUB 15-pin & 1 x D-SUB 24-pin connector, 2 x RS232 ports, 1 x K/B & Mouse
IrDA	N/A
USB	4 x USB 2.0 ports and 4 x USB 2.0 ports with header
Audio Interface	Line out, Line-in and Mic-in
Ethernet Interface	IEEE 802.3 10/100/1000BASE-T Gigabit Ethernet compliant

DISPLAY	
Chipset	Intel® Q45 Integrated Intel® Gen 5.0 GMA 4500 Graphics
Display Memory	Intel® Dynamic Video Memory Technology (Intel® DVMT 5.0)
Resolution	Up to 2048 x1536 @ 75 Hz (QXGA)
DVI	DVI-D interface

MECHANICAL & ENVIRONMENTAL	
Power Requirement	TBD
Operating Temperature	0~60°C
Operating Humidity	10%~90%, noncondensing
Dimension	6.69" x 6.69" (170mm x 170mm)

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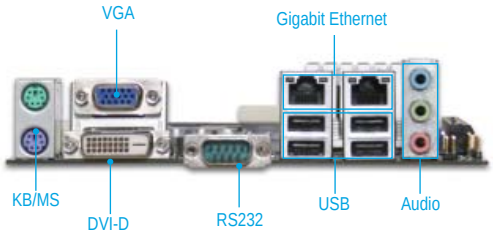

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ORDERING GUIDE

- **WEDE-8180**
  Intel® Core™ 2 Quad / Core™ 2 Duo processor Mini-ITX Motherboard

WADE-8056

Leading Intel® Core™ 2 Quad processor based Mini-ITX Board with Dual Displays and One GbE

FEATURES

- Intel® Core™ 2 Quad processors
- Intel® Q965 GMCH Chipset
- Max. 4GB memory, DDR2 SDRAM
- Dual Display by VGA/LVDS
- One GbE LAN ports and one PCI slot
- Max. four COM and six USB 2.0 ports
- RAID 0/1/5/10

SYSTEM	
CPU	Intel® Core™ 2 Quad / Core™ 2 Duo and Pentium® 4 / Celeron® D processor (LGA 775)
FSB	FSB 1066/800/533 MHz
BIOS	Award BIOS
System Chipset	Intel® Q965 GMCH & 82801HB ICH8DO
System Memory	2 x 240-pin dual channel DDR2 SDRAM DIMM 533/667/800 MHz supports up to 4 GB
Storage	4 x Serial ATA connector high-speed data transfers at up to 3 Gb/s
Watchdog Timer	Reset; 1 sec.~255 min. and 1 sec. or 1 min./step
H/W Status Monitor	Monitoring system temperature, voltage, and cooling fan status. Auto throttling control when CPU overheats
GPIO	On-board programmable 8-bit Digital I/O interface
Expansion	1 x PCI slot; 1 x Mini-PCI

I/O	
MIO	4 x RS232, 1 x K/B, 1 x Mouse, 1 x GbE
IrDA	N/A
USB	2 x USB 2.0 ports and 4 x USB 2.0 with header
Audio Interface	Mic in, Line in, Line out
Ethernet Interface	IEEE 802.3 10/100/1000BASE-T Gigabit Ethernet compliant (Intel® 82566DM)

DISPLAY	
Chipset	Intel® Q965 GMCH Integrated GMA 3000 Graphics device
Display Memory	Intel® DVMT 4.0 supports up to 384 MB video memory
Resolution	Analog Display: Up to 2048 x 1536 (QXGA) Digital LVDS Display: Up to 1920 x 1200
LVDS	Dual Channel 24-bit

MECHANICAL & ENVIRONMENTAL	
Power Requirement	+5V @ 5.1A; +12V(CPU) @ 2.8A; +12V(system) @ 0.7A; +3.3V @ 4.4A
Operating Temperature	0~55°C
Operating Humidity	0%~90% relative humidity, noncondensing
Size (L x W)	6.69" x 6.69" (170 mm x 170 mm)
Weight	0.94 lbs (0.43 Kg)

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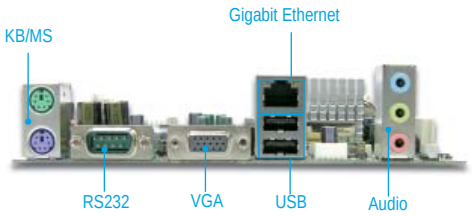

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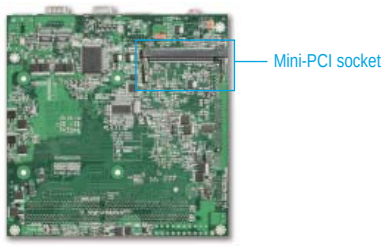


ORDERING GUIDE

- **WADE-8056**
  Intel® Core™ 2 Quad / Core™ 2 Duo and Pentium® 4 / Celeron® D processors Main Board with VGA, Audio, GbE LANs, 6 USB 2.0
- **EZCool**
  Compact 1U active heatsink suitable for Intel® Core™ 2 Duo processor (blow 65W)
- **PEP-581R/582R**
  One/Two slots PCI riser card
- **PEP-582L**
  Two slots PCI riser card

WADE-8556

Leading Intel® Core™ 2 Quad processor based Mini-ITX Board with Dual Displays and One GbE

FEATURES

- Intel® Core™ 2 Quad processors
- Intel® Q965 GMCH Chipset
- Dual Display by VGA/DVI
- One GbE LAN ports, one PCI and one Mini-PCI slot
- Max. four COM and six USB 2.0 ports
- RAID 0/1/5/10

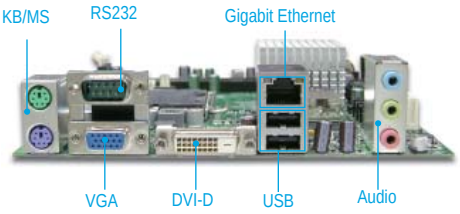
SYSTEM	
CPU	Intel® Core™ 2 Quad / Core™ 2 Duo and Pentium® 4 / Celeron® D processor (LGA 775)
FSB	FSB 1066/800/533 MHz
BIOS	Award BIOS
System Chipset	Intel® Q965 GMCH & 82801HB ICH8DO
System Memory	2 x 240-pin dual channel DDR2 SDRAM DIMM 533/667/800 MHz support up to 4GB
Storage	4 x Serial ATA connector high-speed data transfers at up to 3 Gb/s
Watchdog Timer	Reset:1 sec.~255 min. and 1 sec. or 1 min./step
H/W Status Monitor	Monitoring system temperature, voltage, and cooling fan status. Auto throttling control when CPU overheats
GPIO	On-board programmable 8-bit Digital I/O interface
Expansion	1 x PCI slot; 1 x Mini-PCI

I/O	
MIO	4 x RS232, 1 x K/B, 1 x Mouse, 1 x GbE
IrDA	N/A
USB	2 x USB 2.0 ports and 4 x USB 2.0 with header
Audio Interface	Mic in, Line in, Line out
Ethernet Interface	IEEE 802.3 10/100/1000BASE-T Gigabit Ethernet compliant (Intel® 82566DM)

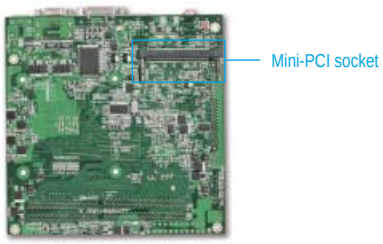
DISPLAY	
Chipset	Intel® Q965 GMCH Integreated GMA 3000 Graphics device
Display Memory	Intel® DVMT 4.0 supports up to 384 MB video memory
Resolution	Analog Display: Up to 2048 x 1536 (QXGA) Digital DVI Display: Up to 1920 x 1200
DVI	DVI-D interface

MECHANICAL & ENVIRONMENTAL	
Power Requirement	+5V @ 5.1A; +12V(CPU) @ 2.8A; +12V(system) @ 0.7A; +3.3V @ 4.4A
Operating Temperature	0~55°C
Operating Humidity	0%~90% relative humidity, noncondensing
Size (L x W)	6.69" x 6.69" (170 mm x 170 mm)
Weight	0.94 lbs (0.43 Kg)

REAR I/O



SOLDER SIDE



ORDERING GUIDE

- **WADE-8556**
  Intel® Core™ 2 Quad / Core™ 2 Duo and Pentium® 4 / Celeron® D processors Main Board with VGA, Audio, GbE LANs, 6 USB 2.0
- **EZCool**
  Compact 1U active heatsink suitable for Intel® Core™ 2 Duo processor (blow 65W)
- **PEP-581R/582R**
  One/Two slots PCI riser card
- **PEP-582L**
  Two slots PCI riser card

WADE-8656

Leading Intel® Core™ 2 Quad processor based Mini-ITX Board with PCI-E expansion and Two GbE

FEATURES

- Intel® Core™ 2 Quad processors
- Intel® Q965 GMCH chipset
- Six SATA ports support
- Two GbE LAN ports, one PCI-E x16 slot
- Max. two COM and eight USB 2.0 ports
- RAID 0/1/5/10

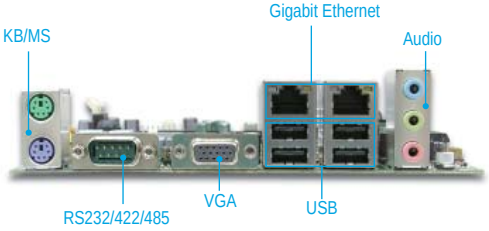
SYSTEM	
CPU	Intel® Core™ 2 Quad / Core™ 2 Duo and Pentium® 4 / Celeron® D processor (LGA 775)
FSB	FSB 1066/800/533 MHz
BIOS	Award BIOS
System Chipset	Intel® Q965 GMCH & 82801HB ICH8DO
System Memory	2 x 240-pin dual channel DDR2 SDRAM DIMM 533/667/800 MHz supports up to 4GB
Storage	6 x Serial ATA connector high-speed data transfers at up to 3 Gb/s
Watchdog Timer	Reset; 1 sec.~255 min. and 1 sec. or 1 min./step
H/W Status Monitor	Monitoring system temperature, voltage, and cooling fan status. Auto throttling control when CPU overheats
GPIO	On-board programmable 8-bit Digital I/O interface
Expansion	One PCI-E x16 slot

I/O	
MIO	1 x RS232, 1 x RS232/422/485 selectable, 1 x K/B, 1 x Mouse, 2 x GbE
IrDA	N/A
USB	4 x USB 2.0 ports and 4 x USB 2.0 with header
Audio Interface	Mic in, Line in, Line out
Ethernet Interface	IEEE 802.3 10/100/1000BASE-T Gigabit Ethernet compliant (Intel® 82566DM, Realtek 8111B)

DISPLAY	
Chipset	Intel® Q965 GMCH Integrated GMA 3000 Graphics device
Display Memory	Intel® DVMT 4.0 supports up to 384 MB video memory
Resolution	Analog Display: Up to 2048 x 1536 (QXGA)
LVDS	N/A

MECHANICAL & ENVIRONMENTAL	
Power Requirement	+5V @ 5.1A; +12V(CPU) @ 2.8A; +12V(system) @ 0.7A; +3.3V @ 4.4A
Operating Temperature	0~55°C
Operating Humidity	0%~90% relative humidity, noncondensing
Size (L x W)	6.69" x 6.69" (170 mm x 170 mm)
Weight	0.94 lbs (0.43 Kg)

REAR I/O



SOLDER SIDE

ORDERING GUIDE

- **WADE-8656**
  Intel® Core™ 2 Quad / Core™ 2 Duo and Pentium® 4 / Celeron® D processors Main Board with VGA, Audio, GbE LANs, 8 USB 2.0
- **EZCool**
  Compact 1U active heatsink suitable for Intel Core 2 Duo processor (blow 65W)
- **PER-4410R**
  One slot PCI-E x16 riser card

WADE-8055

Network Enriched Intel® Core™ 2 Duo Processor based Mini-ITX Board with Dual Displays and Two GbE

FEATURES

- Intel® Core™ 2 Duo / Pentium® 4 / Celeron® D Processor
- Intel® 945G and ICH7 Chipset
- Two 200pin SO-DIMMs support dual channel DDR2 SDRAM up to 4GB
- Four SATA ports support
- Two GbE-LAN ports and one PCI slot
- Max. two COM and eight USB 2.0 ports
- All capacitors are solid type

SYSTEM	
CPU	Intel® Core™ 2 Duo / Pentium® 4 / Celeron® D processor (LGA 775)
FSB	FSB 1066/800/533 MHz
BIOS	Award BIOS
System Chipset	Intel® 945G and ICH7 Chipset
System Memory	2 x 200-pin DDR2 SO-DIMM socket support up to 4GB dual channel 667/533 MHz
Storage	Support 4 SATA 300 drives
SSD	1 x Compact Flash
Watchdog Timer	Reset:1 sec.~255 min. and 1 sec. or 1 min./step
H/W Status Monitor	Monitoring system temperature, voltage, and cooling fan status. Auto throttling control when CPU overheats
GPIO	On-board programmable 8-bit Digital I/O interface
Expansion	1 x PCI slot

I/O	
MIO	1 x RS232, 1 x RS232/422/485 selectable
IrDA	N/A
USB	6 x USB 2.0 ports and 2 x USB 2.0 with header
Audio Interface	Mic in, Line in, CD Audio in, Line out
Ethernet Interface	IEEE 802.3 10/100/1000BASE-T Gigabit Ethernet compliant (Realtek 8111C x2)

DISPLAY	
Chipset	Intel® 945G GMCH
Display Memory	Integrated Intel® Graphics Media Accelerator GMA 950, and share system memory to 224 MB
Resolution	Analog Display: Up to 2048 x 1536 (QXGA)
LVDS	N/A

MECHANICAL & ENVIRONMENTAL	
Power Requirement	+5V@2.35A ; +12V@2.46A ; +12V(system)@0.48A ; +3.3V@3.65A
Operating Temperature	0~55°C
Operating Humidity	0%~90% relative humidity, noncondensing
Size (L x W)	6.69" x 6.69" (170 mm x 170 mm)
Weight	0.94 lbs (0.43 Kg)

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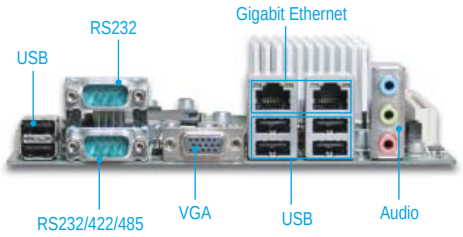


SOLDER SIDE

ORDERING GUIDE

- **WADE-8055**
  Intel® Core™ 2 Duo / Pentium® 4 / Celeron® D processors Mini-ITX Board
- **PEP-581R/582R**
  One/Two slots PCI riser card
- **PEP-582L**
  Two slots PCI riser card
- **EZCool**
  Compact 1U active heatsink suitable for Intel® Core™ 2 Duo processor (blow 65W)

WADE-2221A

Rugged and Stylish Industrial Mini-ITX Bare Bone System

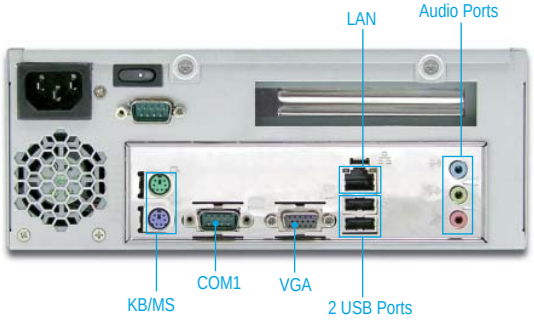
The WADE-2221A is a rugged and stylish barebone system suitable for embedded applications that stand alone or are rackmounted. Its effective ventilation is achieved by the mesh design of the front panel. No actual tool is needed to release the top cover of chassis, simplifying integration and field service.

This barebone system includes a WADE series board, 150-watt or 180-watt power supply, 2.5" drive bay and one PCI expansion slot. A 2U rackmount tray is specially designed to hold two units side-by-side and converts them to the rackmount platform.

FEATURES

- **Integrated with various Mini-ITX board**
- **One PCI expansion slot**
- **Tool-free mechanism to open the top cover**
- **Rugged and stylish design**
- **Quick 2.5" HDD installation by releasing the top cover**
- **Built-in VGA/LAN/USB/COM ports**
- **Two side-by-side units to form two systems in 2U rackmount form factor**

REAR I/O



POWER SUPPLY	FSP150-50PLA optional
Input Voltage	90V ~ 264V AC, full range
Input Frequency	47 ~ 63 Hz
Input Current	5A@115V, 3A@230V
Efficiency	>68%
Holdup Time	20ms. at full load@25°C
Over Voltage Protection	+5V@5.7~6.5V; +3.3V@3.7~4.5V; +12V@13.3~+5.6V
Over Power/Load Protection	Output power over to 110%~140%
MTBF	100,000 hrs
EMI & Safety Approval	UL, TUV, CE, FCC, CB, CSA, SEMKO, FIMKO, NEMCO, DIMCO
Temperature/Humidity	Operating: 0 ~ 50°C, 20 ~ 85%RH Storage: -40 ~ 70°C, 10m ~ 90%RH
Dimension (WxDxH)	150x81.6x40.6 mm; 5.9"x3.2"x1.6"

MECHANICAL & ENVIRONMENTAL	
Operation Temperature	0~50°C
Storage Temperature	-20~80°C
Relative Humidity	5~95% non-condensing
Dimension	251 x 221.8 x 86.3 (mm)
Weight	3.5 Kg

ORDERING GUIDE

- **WADE-2221A-150X**
  Rugged and stylish industrail Mini-ITX Bare-bones Chassis with 150W active PFC PSU
- **WADE-2221A-180X**
  Rugged and stylish industrail Mini-ITX Bare-bones Chassis with 180W active PFC PSU

WADE-1120A

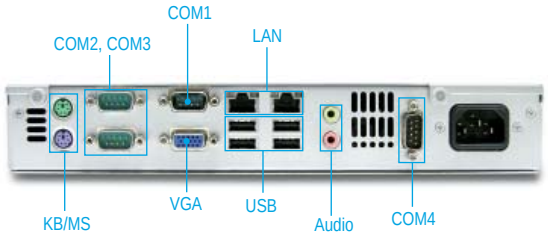
The fan-less compact bare bone system with Intel® Celeron® M Mini-ITX board

The WADE-1120A is designed to efficiently dissipate any internal heat, eliminating the need for a ventilation fan. It is the perfect system solution for any embedded application that operates in a harsh environment. WADE-1120A is designed with either a built-in WADE-8041 board or similar Mini-ITX board as the barebone system. Its unique tool-free design allows the integrator or field service professional to release the top cover easily and quickly. Complete with memory, DOM or Compact flash, WADE-1120A is ready to go to work.

FEATURES

- **Integrated with WADE-8041 or similar Mini-ITX board**
- **Small form factor with fan-less ventilation mechanism**
- **Rugged design for harsh environment**
- **Unique tool-free design for quick top cover release**

REAR I/O



POWER SUPPLY	FSP055-50LM optional
Maximum Output	55W ATX power supply
Input Voltage	90V ~ 265V AC, full range
Input Frequency	47 ~ 63 Hz
Input Current	2.0A(RMS)@115V, 1.0A(RMS)@230V
Efficiency	>74%
Holdup time	17ms. at 115V/60Hz or 230V/50Hz
Over Voltage Protection	3.3V@3.5~4.5V; 5V@5.5~6.82V; 12V@13.4~16.5V
MTBF	121,330 hrs
Certification	UL, cUL, TUV, CE, FCC
Dimension (WxDxH)	183x50x37.6 mm; 7.2"x2"x1.5"

MECHANICAL & ENVIRONMENTAL	
Operation Temperature	0~50°C
Storage Temperature	-20~80°C
Relative Humidity	5~95% non-condensing
Dimension	278 x 200 x 44 (mm)
Weight	2~2.5 Kg

ORDERING GUIDE

- **WADE-1120A-40X**
  The Fan-free Designed Compact Node Chassis built with 40W ATX PSU
- **WADE-1120A-55X**
  The Fan-free Designed Compact Node Chassis built with 55W ATX PSU

WADE-2231Q

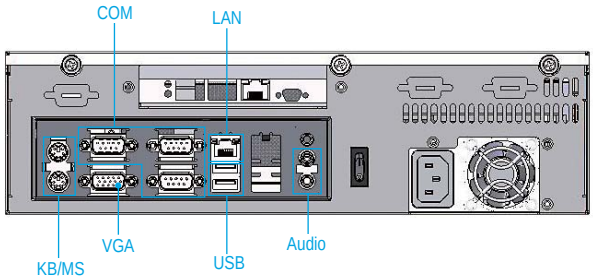
Rugged and Stylish Industrial Mini-ITX Bare-Bones Chassis with 180W Active PFC PSU

The WADE-2231Q is a rugged and stylish barebones system suitable for embedded applications that stand alone or are rackmounted. Its effective ventilation is achieved by the mesh design of the front panel. No actual tool is needed to release the top cover of chassis, simplifying integration and field service. This barebone system includes a WADE series board, 180-watt power supply, 3.5" drive bay and one PCI expansion slot.

FEATURES

- **Bare-bones Chassis for Mini-ITX board**
- **Tool-free mechanism to open the top cover**
- **Rugged and stylish design**
- **Quick 3.5” HDD installation by releasing the top cover**

REAR I/O



POWER SUPPLY	FSP180-50PLA optional
Input Voltage	90V ~ 264V AC, full range
Input Frequency	47 ~ 63 Hz
Input Current	5A@115V, 3A@230V
Efficiency	>68%
Holdup Time	20ms. at full load@25°C
Over Voltage Protection	+5V@5.7~6.5V; +3.3@3.7~4.5V; +12V@13.3~+5.6V
Over Power/Load Protection	Output power over to 110%~140%
MTBF	100,000 hrs
EMI & Safety Approval	UL, TUV, CE, FCC, CB, CSA, SEMKO, FIMKO, NEMCO, DIMCO
Temperature/Humidity	Operating: 0 ~ 50°C, 20 ~ 85%RH Storage: -40 ~ 70°C, 10m ~ 90%RH
Dimension (WxDxH)	150x81.6x40.6 mm; 5.9”x3.2”x1.6”

MECHANICAL & ENVIRONMENTAL	
Operation Temperature	0~50°C
Storage Temperature	-20~80°C
Relative Humidity	5~95% non-condensing
Dimension	310 x 252 x 86.3 (mm)
Weight	3.5 Kg

ORDERING GUIDE

- **WADE-2231Q-150X**
  Rugged and stylish industrail Mini-ITX Bare-bones Chassis with 150W active PFC PSU
- **WADE-2231Q-180X**
  Rugged and stylish industrail Mini-ITX Bare-bones Chassis with 180W active PFC PSU (Core™ 2 Quad Solution)

WADE-2232Q

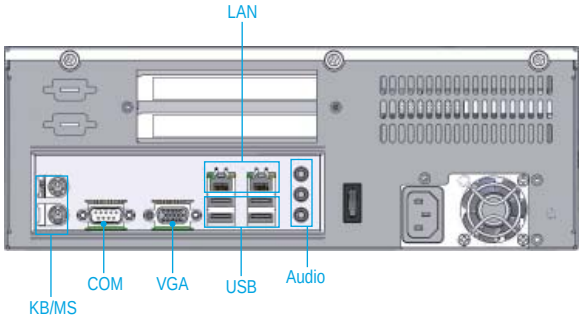
Rugged and Stylish Industrial Mini-ITX Bare-Bones Chassis with 220W Active PFC PSU

The WADE-2232Q is a rugged and stylish barebones system suitable for embedded applications that stand alone or are rackmounted. Its effective ventilation is achieved by the mesh design of the front panel. No actual tool is needed to release the top cover of chassis, simplifying integration and field service. This barebone system includes a WADE series board, 220-watt power supply, 3.5" drive bay and two PCI expansion slot.

FEATURES

- **Bare-bones Chassis for Mini-ITX board**
- **Tool-free mechanism to open the top cover**
- **Rugged and stylish design**
- **Quick 3.5" HDD installation by releasing the top cover**
- **Two expansion slots**

REAR I/O



POWER SUPPLY	FSP220-60LE
Input Voltage	90V ~ 264V AC, full range
Input Frequency	47 ~ 63 Hz
Input Current	5A@115V, 3A@230V
Efficiency	>80%
Holdup Time	17ms. at full load@25°C
Over Voltage Protection	+5V@5.5~6.82V; +3.3@3.5~4.8V; +12V@13.4~15.6V
Over Power/Load Protection	Output power over to 110%~140%
MTBF	100,000 hrs
EMI & Safety Approval	UL, TUV, CE, FCC, CB, CSA, SEMKO, FIMKO, NEMCO, DIMCO
Temperature/Humidity	Operating: 0 ~ 50°C, 20 ~ 85%RH Storage: -20 ~ 80°C, 10m ~ 90%RH
Dimension (WxDxH)	150x81.5x40.5 mm; 5.9"x3.2"x1.6"

MECHANICAL & ENVIRONMENTAL	
Operation Temperature	0~50°C
Storage Temperature	-20~80°C
Relative Humidity	5~95% non-condensing
Dimension	310 x 252 x 86.3 (mm)
Weight	3.5 Kg

ORDERING GUIDE

- **WADE-2232Q-220X**
  Rugged and stylish industrail Mini-ITX Bare-bones Chassis with 180W active PFC PSU (Core™ 2 Quad Solution with 2 expansion slots)

ARTO-220-ITX

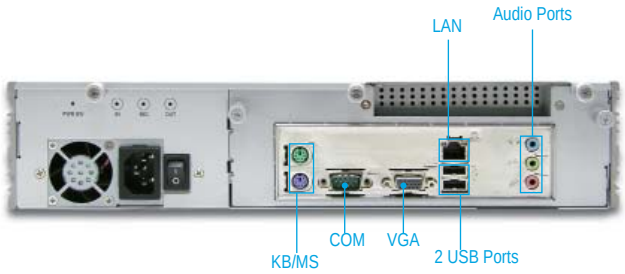
1.5U Advanced Mini-ITX based chassis for Mini-ITX M/B application

The compact and slim ARTO-220-ITX is design to fit Mini-ITX MB applications operating where space is at a premium. It also features a tool-free mechanical design to quickly release the top cover of the chassis for ease of integration and field service. The barebone system includes a WADE series board, 3.5" drive bay, one PCI expansion slot and a 250-watt power supply.

FEATURES

- **Bare-bones chassis for Mini-ITX board**
- **Comptact, slim and stylish ID design**
- **One 3.5" HDD bay and 250W PSU**
- **One PCI expansion slot**

REAR I/O



POWER SUPPLY	FSP250-50PLB optional
Input Voltage	90V ~ 264V AC, full range
Input Frequency	47 ~ 63 Hz
Input Current	5A@115V, 3A@230V
Efficiency	>68%
Holdup Time	17ms. at full load@25°C
Over Voltage Protection	+5V@5.7~6.5V; +3.3@3.7~4.5V; +12V@13.3~+5.6V
Over Power/Load Protection	Output power over to 110%~160%
MTBF	105,405 hrs
EMI & Safety Approval	UL, cUL, TVU, CE, FCC
Temperature/Humidity	Operating: 0 ~ 50°C, 20 ~ 85%RH Storage: -20 ~ 70°C, 10m ~ 90%RH
Dimension (WxDxH)	100x190x40.5 mm; 3.9"x7.5"x1.6"

MECHANICAL & ENVIRONMENTAL	
Operation Temperature	0~50°C
Storage Temperature	-20~80°C
Relative Humidity	5~95% non-condensing
Dimension	374 x 241 x 74 (mm)
Weight	6.5 Kg

ORDERING GUIDE

- **ARTO-220-ITX-250X**
  1.5U Advanced Mini-ITX based Chassis with 250W Active PFC PSU

WADE-1042

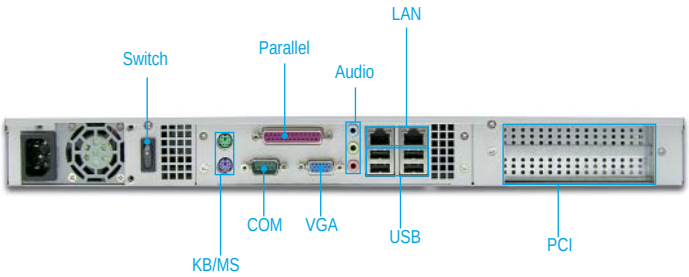
1U Height bare bone server with four drive bays for RAID and two expansion slots

The WADE-1042 uses a 1U rack-mount form factor and is designed for network or communication applications. Its four drive bays support RAID configuration through the SATA interfaces on the board. Applications will benefit from WADE-1042's compact size, expansion capability, RAID configuration and 250-watt power supply.

FEATURES

- **Bare-bones chassis for Mini-ITX board**
- **Comptact, slim and stylish ID design**
- **Four 3.5" HDD bays and 180W PSU**
- **Two PCI expansion slot**

REAR I/O



POWER SUPPLY	FSP220-60LE optional
Input Voltage	90V ~ 264V AC, full range
Input Frequency	47 ~ 63 Hz
Input Current	5A@115V, 3A@230V
Efficiency	>68%
Holdup Time	20ms. at full load@25°C
Over Voltage Protection	+5V@5.5~6.8V; +3.3@3.7~4.8V; +12V@13.4~15.6V
Over Power/Load Protection	Output power over to 110%~140%
MTBF	100,000 hrs
EMI & Safety Approval	UL, TUV, CE, FCC, CB, CSA, SEMKO, FIMKO, NEMCO, DIMCO
Temperature/Humidity	Operating: 0 ~ 50°C, 20 ~ 85%RH Storage: -40 ~ 70°C, 10m ~ 90%RH
Dimension (WxDxH)	150x81.6x40.6 mm; 5.9"x3.2"x1.6"

MECHANICAL & ENVIRONMENTAL	
Operation Temperature	0~50°C
Storage Temperature	-20~80°C
Relative Humidity	5~95% non-condensing
Dimension	432 x 380 x 44 (mm)
Weight	8.5 Kg

ORDERING GUIDE

- **WADE-1042-220X**
  Advance Mini-ITX based Chassis for Rack-Mount with 180W Active PFC PSU

WADE-2110

Cubic Mini-ITX Bare Bone Chassis with Front Accessable Hard Drive Bay

Install hard drive or maintance is terrible work for system assembly or field maintance technicians. To easy their works and minimumized down time of valueable running system, the WADE-2110 provides one front accessable 3.5" hard drive bay to get away from the nightmare.

The 2U height barebone chassis can be fix in 19" cabinet with special carrier for having dual systems in 2U space.

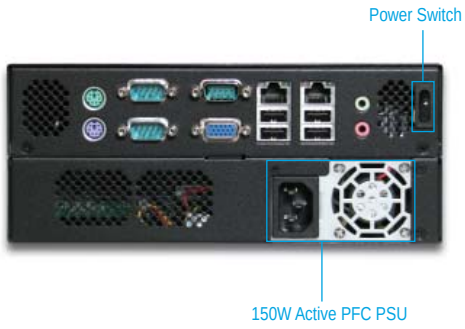
FEATURES

- **Support Mini-ITX embedded board**
- **Front accessable 3.5" SATA hard drive bay**
- **Include 150W Active PFC power supply**
- **Able to install dual systems in 19" rack with special carrier**
- **Dual USB ports and Power LED indication on front panel**

POWER SUPPLY	FSP150-50PLA optional
Input Voltage	90V ~ 264V AC, full range
Input Frequency	47 ~ 63 Hz
Input Current	5A@115V, 3A@230V
Efficiency	>68%
Holdup Time	20ms. at full load@25°C
Over Voltage Protection	+5V@5.7~6.5V; +3.3@3.7~4.5V; +12V@13.3~+5.6V
Over Power/Load Protection	Output power over to 110%~140%
MTBF	100,000 hrs
EMI & Safety Approval	UL, TUV, CE, FCC, CB, CSA, SEMKO, FIMKO, NEMCO, DIMCO
Temperature/Humidity	Operating: 0 ~ 50°C, 20 ~ 85%RH Storage: -40 ~ 70°C, 10m ~ 90%RH
Dimension (WxDxH)	150x81.6x40.6 mm; 5.9"x3.2"x1.6"

MECHANICAL & ENVIRONMENTAL	
Operation Temperature	0~50°C
Storage Temperature	-20~80°C
Relative Humidity	5~95% non-condensing
Dimension	215 x 231 x 88.5 (mm)
Weight	3.0 Kg

REAR I/O



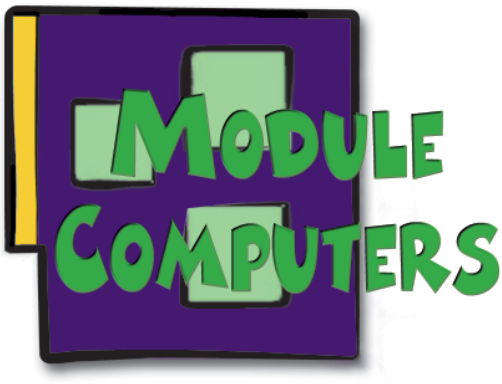
***Flexible rear I/O panel design**

ORDERING GUIDE

- **WADE-2110-150X**
  Advance Mini-ITX based Chassis with front accessable hard drive bay and 150W Active PFC PSU

Riser Card Selection Guide

WADE ESB	Riser Card	WADE-2221A	ARTO-220-ITX	WADE-2232Q
WADE-8066	PER-4210R	✓		
	PEP-581R	✓	✓	
	PEP-582R			✓
	PEP-5311R			
WADE-8056	PEP-581R	✓	✓	
	PEP-582R			✓
	PEP-5311R			
WADE-8556	PEP-581R	✓	✓	
	PEP-582R			✓
	PEP-5311R			
WADE-8656	PER-4410R	✓		
WADE-8065	PEP-581R	✓	✓	
	PEP-582R			✓
	PEP-5311R			
WADE-8055	PEP-581R	✓	✓	
	PEP-582R			✓
	PEP-5311R			
WADE-8044	PEP-581R	✓	✓	
	PEP-582R			✓
	PEP-5311R			



Modular computing platforms

Compact size, computing power options, reliability, ease of use, and function expansion are the key design considerations for every embedded application. Modular computing boards have been defined and developed in order to satisfy these design needs. The modular computing approach is to condense the fundamental computer functions into a compact module that includes an interface for additional function expansion.

The PC/104, PC/104+, and EBX (Embedded Board eXpandable) are some traditional form factors of modular computing boards in the market place. The ETX (Embedded Technology eXtended) form factor has been created in recent years with greater computing power, smaller size, and extended expansion capability. In 2005, the ETX was imbued with latest interface technologies such as PCI Express and SATA. Due to the simplicity of its circuit design, balanced computing power, and I/O bandwidth, the ETX standard evolved into COM Express -- one of the PICMG (PCI Industrial Computer Manufacturer Group) standards.

▪ COM Express

The COM Express form factor includes a bootable host computer modular board that is connected with its carrier board through the PCI Express interconnection. The PCI Express Technology enables the data transmission from parallel to serial. The advantage of such architecture is higher I/O density and greater performance.

The module, bootable host computer "engine" is packaged as an off-the-shelf board and plugged into a "carrier board," which is implemented with I/Os and also connects to the power supply. The application-specific system functions and peripheral expansion are all built on the carrier board.

▪ QSEVEN

The QSEVEN form factor measures a mere 70 x 70 mm, making it smaller than most of other modules in the market place. The QSEVEN Consortium defined the mechanical and electrical interfaces so that hardware vendors and system integrators can build and integrate compliant components, signal devices, and systems.

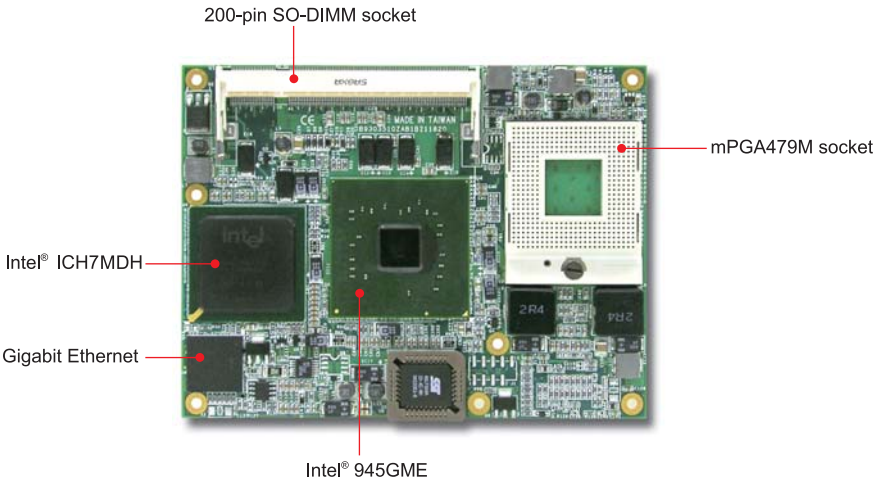
The high density, compact size and latest interfaces -- as well as the expandability to meet the latest serial transmission interface, such as PCI Express, SATA, Gigabit Ethernet and SDVO interface - benefit many applications in the embedded market, including industrial control and small form factor applications.

▪ ETX

The ETX form factor is build from early 2000 for standardized module computing purpose. It includes the common PC functions such as VGA, USB, Keyboard, Mouse, Serial/Parallel Port, IDE and Fast Ethernet. In addition, its PCI and ISA interfaces are industrial standard that can support versatile applications and different kinds of peripheral devices. While it is an early modular concept and has been adopted for a long time, the latest and powerful chipsets technology still brings this form factor higher performance.

PCOM-B211VG

Intel® Core™ Duo & Solo processor based Type II COM Express module with DDR2 SDRAM, VGA, Gigabit Ethernet, SATA 300 and USB



Active Heat Sink

Passive Heat Sink

FEATURES

- Intel® 945GME based module supports Core Solo or Core Duo processors
- Accept both Intel® socket type and BGA type processors for intensive computing power or fan-less applications
- Plug-n-run with the carrier boards and speeds up time-to market
- SATA interface to support faster transfer rate in storage devices
- Maximum 2GB DDR2 memory

ORDERING GUIDE

Standard	PCOM-B211VG Intel® Core™ Duo or Solo processor based Type II COM Express module with DDR2 SDRAM, VGA, Gigabit Ethernet and USB
Optional	Active Heat Sink Heat sink for both PCOM-210/211 with socket type processor
	Passive Heat Sink Heat sink for both PCOM-210/211 with low power consumption on-board processor

GENERAL

Processor	CPU & Package: Intel® Core™ Duo or Solo processor in FCPGA-478 package FSB: 667/533MHz
Chipset/Core Logic	Intel® 945GME and ICH7MDH
System Memory	Up to 2GB DDR2 667/533/400 SDRAM on one 200-pin DIMM socket
BIOS	Award BIOS
Storage Devices	EIDE: Support one EIDE channel with Ultra DMA 100/66/33 SATA: Support Two SATA 150 drives
Solid State Disk	N/A
Watchdog Timer	N/A
Expansion Interface	- One PCI Express x16, multiplexed with SDVO interface - Five PCI Express x1 - Four PCI devices - LPC interface - High definition audio interface
Hardware Monitoring	CPU temperature
Dimension	Dimension : 125(L) x 95(W) mm; 4.9"(L) x 3.7" (W)
Environment	Operating Temperature: 0 to 60°C Storage Temperature: -20 to 80°C Relative Humidity: 5% to 90%, non-condensing

I/O

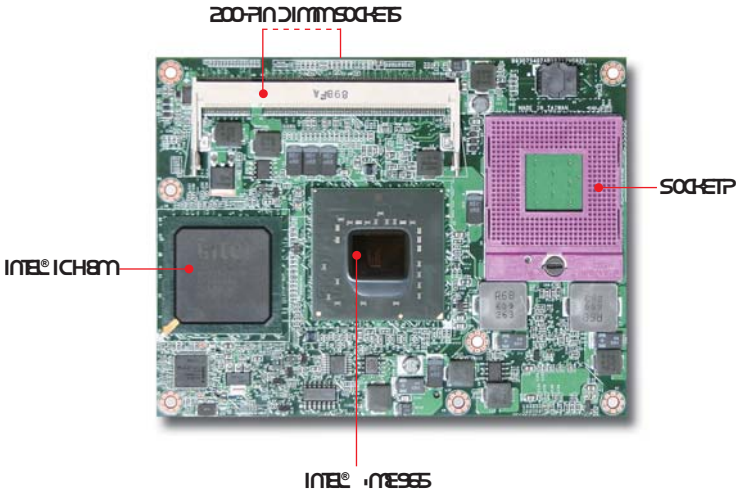
MIO	N/A
IrDA	N/A
Ethernet	One Gigabit Ethernet (Intel® PC82573L)
Audio	N/A
USB	USB 2.0 x 8
Keyboard & Mouse	N/A

DISPLAY

Graphic Controller	Intel® 945GME integrated Intel® Graphics Media Accelerator 950 (Intel® GMA 950)
Graphic Memory	Dynamic share system memory up to 224MB (Intel® DVMT 3.0) or static share system memory up to 128MB
Display Interface	- Support CRT, LVDS and TV-out display interfaces - CRT display resolution QXGA

PCOM-B212VG

Intel® Core™ 2 Duo or Celeron® M processor based Type II COM Express module with DDR2 SDRAM, VGA, Gigabit Ethernet and USB



Active Heat Sink

Passive Heat Sink

FEATURES

- The Intel® Core™ 2 Duo processor brings dual-core technology and provides significant performance improvement.
- The Intel® GME965 integrated GMA X3100 graphic provides better performance and variable display interfaces.
- Design to comply with both socket type and BGA type Core™ 2 Duo & Celeron® M processor for intensive computing
- Architecture of module and carrier boards speeds up time-to-market of tailor-made equipment
- Equipped with single PCI Express x1 interface based Gigabit Ethernet

ORDERING GUIDE

Standard	PCOM-B212VG Intel® Core™ 2 Duo or Celeron® M processor based Type II COM Express module with DDR2 SDRAM, VGA, Gigabit Ethernet and USB

GENERAL

Processor	CPU & Package: Intel® Core™ 2 Duo or Celeron® M processor FCPGA-478 package FSB: 533/800MHz
Chipset/Core Logic	Intel® GME965 and ICH8M
System Memory	Up to 4GB DDR2 533/667 SDRAM on two 200-pin DIMM sockets
BIOS	Award BIOS
Storage Devices	EIDE: Support one EIDE channel with Ultra DMA 100/66/33 SATA: Support three SATA 300 drives
Solid State Disk	N/A
Watchdog Timer	N/A
Expansion Interface	- One PCI Express x16, multiplexed with SDVO interface - Five PCI Express x1 - Four PCI devices - LPC interface - High definition audio interface
Hardware Monitoring	CPU Voltage and Temperature
Dimension	Dimension : 125(L) x 95(W) mm; 4.9"(L) x 3.7" (W)
Environment	Operating Temperature: 0 to 60ºC Storage Temperature: -20 to 80ºC Relative Humidity: 5% to 90%, non-condensing

I/O

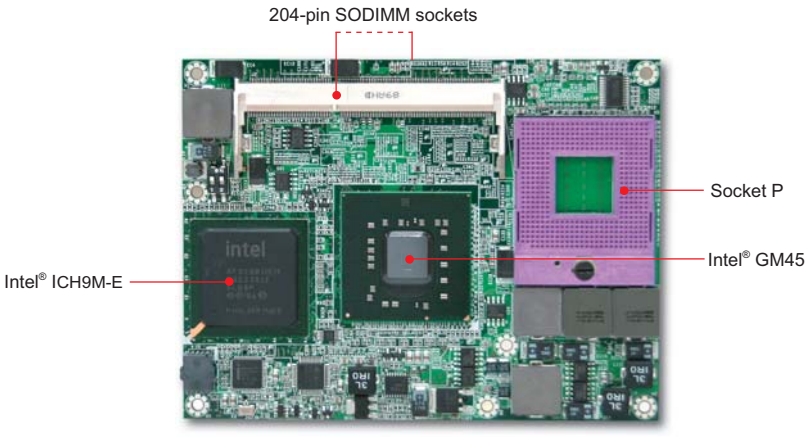
MIO	N/A
IrDA	N/A
Ethernet	One Gigabit Ethernet Controller (Intel® WG82574L)
Audio	N/A
USB	Eight USB ports
Keyboard & Mouse	N/A

DISPLAY

Graphic Controller	Intel® GME965 integrated Graphics Media Accelerator X3100 (Intel® GMA X3100)
Graphic Memory	Dynamic share system memory up to 384MB (Intel® DVMT 4.0)
Display Interface	- Support CRT, LVDS, TV-out, and SDVO display interfaces - CRT display resolution up to 2048x1536 @ 85Hz refresh

PCOM-B213VG

Intel® GM45 platform based Type II COM Express module with DDR3 SDRAM, VGA, Gigabit Ethernet, SATA and USB



Active Heat Sink

Passive Heat Sink

FEATURES

- The Intel® 45nm Core™ 2 Quad/Core™ 2 Duo processor features dual core/quad core technology that provides latest semiconductor technology
- Intel® GM45 integrated GMA 4500MHD graphic provides extreme 3D performance for media applications
- Intel® GM45 platform brings latest iAMT 4.0 and ITPM for powerful management and cryptal functions
- Architecture of module and carrier boards speeds up time-to-market of tailor-made equipment
- Support two SODIMM sockets and up to 8GB memory size

ORDERING GUIDE

Standard	PCOM-B213VG Intel® GM45 platform based Type II COM Express module with DDR3 SDRAM, VGA, Gigabit Ethernet and USB

GENERAL

Processor	CPU & Package: Intel® 45nm Core™ 2 Quad/Core 2 Duo FSPGA-478 package FSB: 667/800/1066MHz
Chipset/Core Logic	Intel® GM45 and ICH9M-E
System Memory	Up to 8GB DDR3 667/800/1066 SDRAM on two SODIMM sockets
BIOS	AMI BIOS
Storage Devices	EIDE: Support one EIDE channel with Ultra DMA 100/66/33 SATA: Support Four SATA 300 drives
Solid State Disk	N/A
Watchdog Timer	N/A
Expansion Interface	- One PCI Express x16, multiplexed with SDVO interface - Four PCI Express x1 - Four PCI devices - LPC interface - High definition audio interface
Hardware Monitoring	CPU Voltage and Temperature
Power Requirement	TBA
Dimension	Dimension : 125(L) x 95(W) mm; 4.9"(L) x 3.7" (W)
Environment	Operating Temperature: 0 to 60°C Storage Temperature: -20 to 80°C Relative Humidity: 5% to 90%, non-condensing

I/O

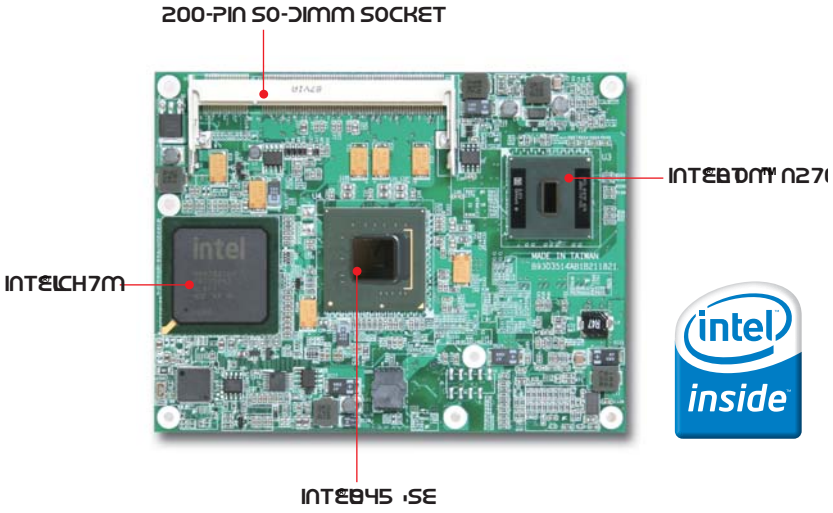
MIO	N/A
IrDA	N/A
Ethernet	One Gigabit Ethernet Controller (Intel® WG82567LM)
Audio	N/A
USB	Eight USB ports
Keyboard & Mouse	N/A

DISPLAY

Graphic Controller	Intel® GM45 integrated Graphics Media Accelerator 4500MHD (Intel® GMA 4500MHD)
Graphic Memory	Dynamic share system memory (Intel® DVMT 5.0)
Display Interface	- Support CRT, LVDS, TV-out and SDVO display interfaces - CRT display resolution up to 2048x1536 @ 85Hz refresh

PCOM-B214VG

Intel® Atom™ based Type II COM Express module with DDR2 SDRAM, VGA, Gigabit Ethernet, SATA and USB



Active Heat Sink

Passive Heat Sink

FEATURES

- The Intel® Atom™ N270 and 945GSE platform that provides cost effective solution technology
- Intel® Atom™ N270 + 945GSE + ICH7M platform brings under 10W TDP solution for easy fan-less applications
- SATA and IDE interface provide best cost effective functions for market
- Architecture of module and carrier boards speeds up time-to-market of tailor-made equipment
- Support one SODIMM socket and up to 2GB memory size

ORDERING GUIDE

Standard	PCOM-B214VG Intel® Atom™ processor based Type II COM Express module with DDR2 SDRAM, VGA, Gigabit Ethernet and USB

GENERAL

Processor	CPU & Package: Intel® Atom™ N270 1.6GHz in FCPGA package FSB: 533MHz
Chipset/Core Logic	Intel® 945GSE and ICH7M
System Memory	Up to 2GB DDR2 533 SDRAM on one SO-DIMM socket
BIOS	Award BIOS
Storage Devices	EIDE: Support one EIDE channel with Ultra DMA 100/66/33 SATA: Support two SATA 150 drives
Solid State Disk	N/A
Watchdog Timer	N/A
Expansion Interface	- One SDVO port - Three PCI Express x1 - Four PCI devices - LPC interface - AC'97/High definition audio interface
Hardware Monitoring	CPU temperature
Dimension	Dimension : 125(L) x 95(W) mm; 4.9"(L) x 3.7" (W)
Environment	Operating Temperature: 0 to 60°C Storage Temperature: -20 to 80°C Relative Humidity: 5% to 90%, non-condensing

I/O

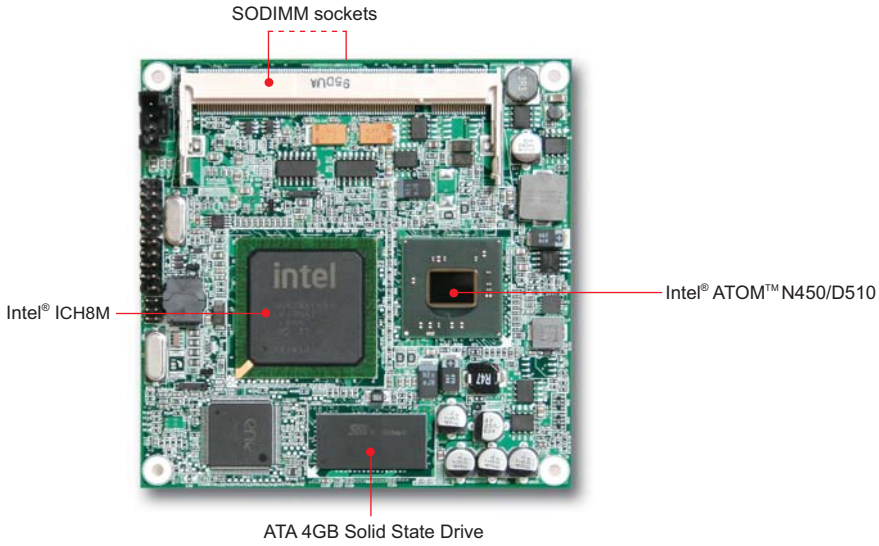
MIO	N/A
IrDA	N/A
Ethernet	One Gigabit Ethernet Controller (Intel® WG82574L)
Audio	N/A
USB	Eight USB ports
Keyboard & Mouse	N/A

DISPLAY

Graphic Controller	Intel® 945GSE integrated Graphics Media Accelerator (Intel® GMA 950)
Graphic Memory	Dynamic share system memory up to 224MB (Intel® DVMT 3.0) or static share system memory up to 128MB
Display Interface	- Support CRT, LVDS, TV-out and SDVO display interfaces - CRT display resolution up to 2048x1536@85Hz refresh

PCOM-B215VG

Intel® ATOM based Type II micro-COM Express module with DDR2 SDRAM, VGA, Gigabit Ethernet, SATA, USB and NAND Flash



FEATURES

- The Intel® ATOM N450(Pineview-M) / D410 (Pineview-D, Single core) D510(Pineview-D, Duo core) and ICH8M platform that provides cost effective solution with low power and duo core processor technology
- Intel® Pineview-M / Pineview-D can be supported on the same compact board
- Support five PCI Express lanes, four x1 lanes can be configured to one x4 lane
- On-board ATA 4GB Solid State Drive, up to 8G Byte
- Support one DDR2 667MHz SDRAM, up to 4GB memory size
- Support MPEG2 Decode in HW

ORDERING GUIDE

Standard	PCOM-B215VG Intel® ATOM based Type II micro-COM Express module with DDR2 SDRAM, VGA, Gigabit Ethernet, SATA, USB and NAND Flash

GENERAL

Processor	CPU: Intel® ATOM N450/D510 in FCBGA package - N450 - D510
Chipset/Core Logic	Intel® ICH8M
System Memory	Supports up to 4GB DDR2 667 SDRAM on two SODIMMs
BIOS	AMI BIOS
Storage Devices	IDE: Support one IDE channel with Ultra DMA 100/66/33 SATA: Support three SATA 300 drives
Solid State Disk	On-board ATA 4GB Solid State Drive, up to 8G Byte
Watchdog Timer	N/A
Expansion Interface	- Five PCI Express x1 lanes of which four x1 lanes can be configured to one x4 lane - Four PCI devices - LPC Interface - AC97 / High definition audio interface
Hardware Monitoring	CPU Temperature
Power Requirement	TBA
Dimension	Dimension : 95(L) x 95(W) mm; 3.7"(L) x 3.7" (W)
Environment	Operating Temperature: 0 to 60°C Storage Temperature: -20 to 80°C Relative Humidity: 5% to 90%

I/O

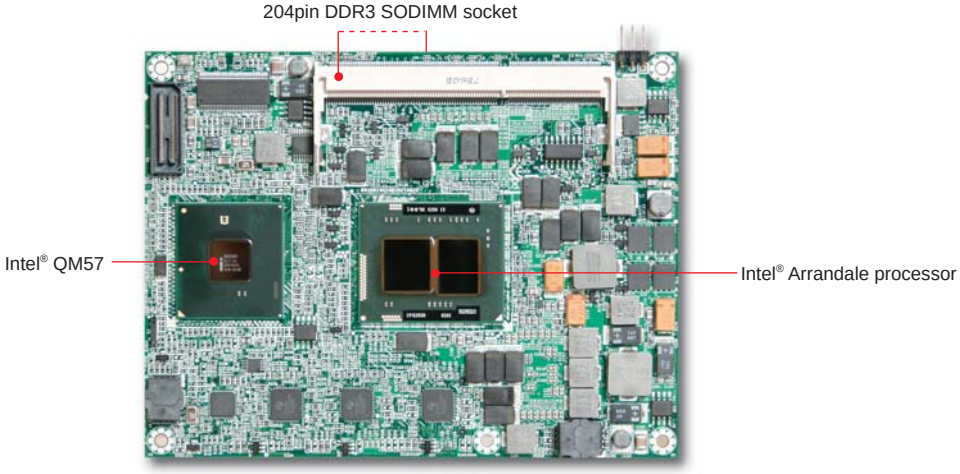
MIO	N/A
IrDA	N/A
Ethernet	One Intel® 82567V Gigabit Ethernet Controller
Audio	N/A
USB	Eight USB ports
Keyboard & Mouse	N/A

DISPLAY

Graphic Controller	- N450 integrated Generation 2.5 graphics, supports DX9 Graphics up to 200MHz - D510 integrated Generation 3.5 graphics, supports DX9 Graphics up to 400MHz
Graphic Memory	Dynamic share system memory up to 256MB (Intel® DVMT 4.0)
Display Interface	- Support CRT, 1x 18bit LVDS display interfaces - Resolution: CRT display: Pineview-M: up to 1400 x 1050 @ 60Hz refresh Pineview-D: up to 2048 x 1536 @ 60Hz refresh LVDS display: Pineview-M: up to 1280 x 800 Pineview-D: up to 1366 x 768

PCOM-B216VG

Intel® Arrandale processor based Type II COM Express module with DDR3 SDRAM, VGA Gigabit Ethernet 3. 0 GT/s SATA and USB



FEATURES

- The Intel® Arrandale and QM57 platform with turbo boost technology to maximize CPU & Graphic performance
- Intel® Arrandale platform support variously powerful processor from ultra low power to mainstream performance type
- Supports Intel® intelligent power sharing technology to reduce TDP (Thermal Design Power)
- Enhance Intel® vPro efficiency by Intel® 82577LM GbE PHY and AMT6.0 technology
- Support two DDR3 800/1066 SDRAM on two SODIMM sockets, up to 8GB memory size

ORDERING GUIDE

Standard	PCOM-B216VG Intel® Arrandale processor based Type II COM Express module with DDR3 SDRAM, VGA, Gigabit Ethernet, 3.0GT/s SATA and USB PCOM-B216VG-ECC Intel® Arrandale processor based Type II COM Express module with ECC DDR3 SDRAM ONLY PCOM-B216VG-VI-ECC Intel® Arrandale processor based Type VI COM Express module with ECC DDR3 SDRAM ONLY
CPU Support List	Intel® Core i7-610E SV (4M Cache, 2.53 GHz) Intel® Core i7-620LE LV (4M Cache, 2.00 GHz) Intel® Core i7-620UE ULV (4M Cache, 1.06 GHz) Intel® Core i5-520E SV (3M Cache, 2.40 GHz) Intel® Core i3-330E SV (3M Cache, 2.13 GHz) Intel® Celeron P4505 SV (2M Cache, 1.86 GHz)

GENERAL

Processor	CPU & Package: Intel® 45nm Arrandale Core i7/i5/i3 or Celeron P4505 processor up to 2.53 GHz with 4MB Cache in FC-BGA package DMI x4 Link: 4.8GT/s (Full-Duplex)
Chipset/Core Logic	Intel® QM57
System Memory	Up to 8GB DDR3 800/1066 SDRAM on two SODIMM sockets
BIOS	UEFI AMI BIOS
Storage Devices	SATA: Four SATA 300 drivers; IDE:one EIDE channel with Ultra DMA 100/66/33
Solid State Disk	N/A
Watchdog Timer	N/A
Expansion Interface	- One PCI Express x16 - Four PCI devices - Six PCI Express x1 - LPC & SPI Interface - High definition audio interface
Hardware Monitoring	CPU Voltage and Temperature
Power Requirement	TBA
Dimension	Dimension: 125(L) x 95(W) mm
Environment	Operation Temperature: 0~60 °C Storage Temperature: -20~80 °C Operation Humidity: 5~90%

I/O

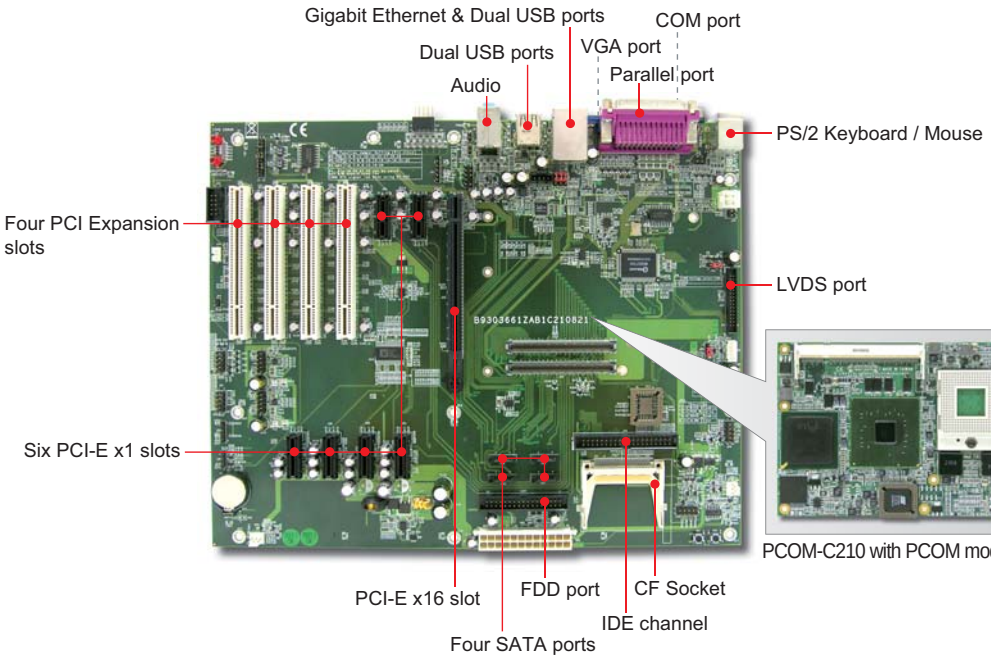
MIO	N/A
IrDA	N/A
Ethernet	One Intel® 82577LM Gigabit Ethernet PHY
Audio	N/A
USB	Eight USB ports
Keyboard & Mouse	N/A

DISPLAY

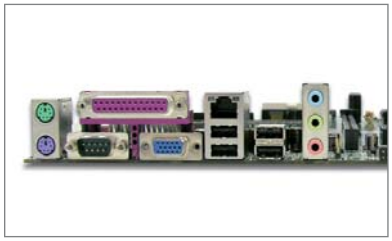
Graphic Controller	Intel® Arrandale integrated Graphics Media Accelerator (Gen 5.75 with 12 execution units)
Graphic Memory	Dynamic share system memory over 512MB (Intel® DVMT 5.0)
Display Interface	- Support CRT, LVDS, and PEG interfaces - CRTdisplay resolution up to 2048x1536@85Hz refresh

PCOM-C210

ATX Form Factor Evaluation Carrier Board For COM Express Type II Module



PCOM-C210 with PCOM module



Rear I/O

FEATURES

- COM Express carrier board accepts Portwell Type II COM Express modules
- ATX form factor to meet most standard mounting space and provide more expansions slots
- On-board power and reset switches benefit engineering testing or evaluation without a chassis
- 2 EIDE, 4 SATA, 4 PCI, 6 PCI-E x1 and 1 PCI-E x16
- Allow user to select master BIOS on board or from CPU module

ORDERING GUIDE

Standard	PCOM-C210 ATX Form Factor Evaluation Board For COM Express Type II Module

GENERAL

Com Express Module	Portwell Type II COM Express Module
BIOS	Award BIOS (or BIOS on COM Express Module)
Storage Devices	EIDE: Two EIDE devices with Ultra DMA 100/66/33 SATA: Four SATA ports
Solid State Disk	One Type II CF socket
Watchdog Timer	Programmable via software from 0.5 sec. to 254.5 min.
Expansion Interface	Four PCI, six PCI Express x1 and one PCI Express x16 expansion slots (availability based on COM Express module)
Dimension	Dimension : 304.8(L) x 243.8(W) mm; 12"(L) x 9.6" (W)
Environment	Operating Temperature: 0 to 60°C Storage Temperature: -20 to 80°C Relative Humidity: 5% to 90%, non-condensing

I/O

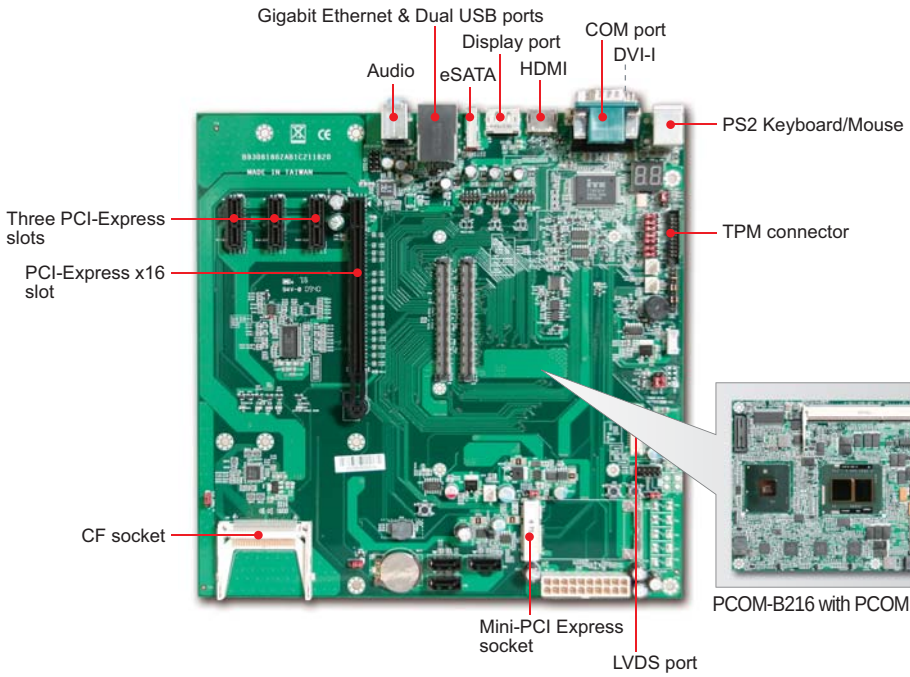
MIO	RS232 x1, one FDD channel and one parallel port
IrDA	N/A
Ethernet	- Single 10BASE-T/100BASE-TX/1000BASE Ethernet - Single RJ-45 connector with two LED indicators at rear I/O panel
Audio	High Definition Audio
USB	USB 2.0 x 6 (Dual ports at rear I/O panel; four ports internal)
Keyboard & Mouse	PS/2 keyboard & mouse

DISPLAY

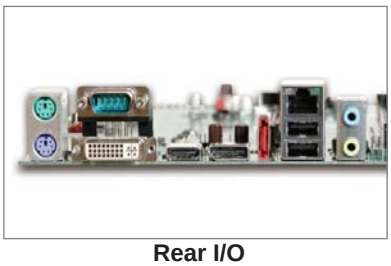
Graphic Controller	Depends on selected PCOM Module
Graphic Memory	Depends on selected PCOM Module
Display Interface	Support VGA, LVDS interfaces with dual display capability

PCOM-C211

Micro-ATX Form Factor Evaluation Carrier Board For COM-Express Type VI Module



PCOM-B216 with PCOM module



Rear I/O

FEATURES

- COM Express carrier board accepts Portwell Type VI COM Express modules
- Micro-ATX form factor to meet most standard mounting space and provide more expansions displays
- On-board power and reset switches benefit engineering testing or evaluation without a chassis
- One DVI-I, one HDMI, one Display Port, three PCI-E x1 and one PCI-E x16
- Allow user to select master BIOS on board or from CPU module

ORDERING GUIDE

Standard	PCOM-C211 Micro-ATX Form Factor Evaluation Board For COM-Express Type VI Module

GENERAL

Com Express Module	Portwell Type VI COM Express Module
BIOS	AMI Aptio BIOS (or BIOS on COM Express Module)
Storage Devices	SATA: Three SATA ports eSATA: One SATA port
Solid State Disk	One Type II CF socket
Watchdog Timer	Programmable via software from 0.5 sec. to 254.5 min.
Expansion Interface	One Mini-Card, three PCI Express x1 and one PCI Express x16 expansion slots (availability based on COM Express module)
Dimension	Dimension : 243.8(L) x 243.8(W) mm; 9.6"(L) x 9.6" (W)
Environment	Operating Temperature: 0 to 60oC Storage Temperature: -20 to 80oC Relative Humidity: 5% to 90%, non-condensing

I/O

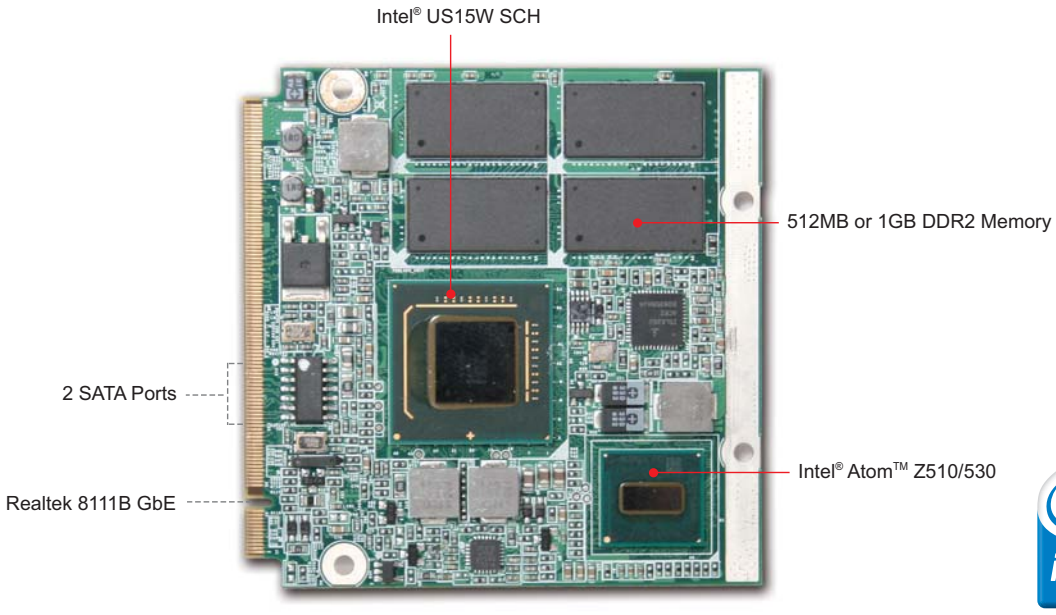
MIO	One channel HDA, one TPM Header, and one SMBus header
IrDA	N/A
Ethernet	- Single 10BASE-T/100BASE-TX/1000BASE Ethernet - Single RJ-45 connector with two LED indicators at rear I/O panel
Audio	High Definition Audio
USB	USB 2.0 x 7 (Dual ports at rear I/O panel; Five ports internal)
Keyboard & Mouse	PS/2 keyboard & mouse

DISPLAY

Graphic Controller	Depends on selected PCOM Module
Graphic Memory	Depends on selected PCOM Module
Display Interface	Support Display Play port, HDMI, DVI-I and LVDS interfaces

PQ7-M101G

Qseven, based on Intel® Atom™ Processor with DDR2 SDRAM, LVDS Display, Gigabit Ethernet, SDVO and SATA



*** Actual Size**

FEATURES

- Atom™ Z510 (1.1GHz) or Z530 (1.6GHz)
- Intel® US15W integrated GMA 500 Graphic, full hardware acceleration of H.264, MPEG2, VC1 and WMV9 is supported
- Support Two SATA Ports from Qseven Golden Finger
- Ultra Low CPU and SCH TDP (Under 5W) for fan-less application
- Full Hardware acceleration of H.264, MPEG2, VC1 and WM V9 is supported
- On board 512MB DDR2 supported
- 4Mbit flash ROM for easy BIOS upgrade and video BIOS for DFP

ORDERING GUIDE

Standard	PQ7-M101G-1100-0512 Intel® Atom™ Z510 Processor based Qseven module with 512MB DDR2 SDRAM, LVDS Display, Gigabit Ethernet SDVO and SATA
	PQ7-M101G-1600-0512 Intel® Atom™ Z530 Processor based Qseven module with 512MB DDR2 SDRAM, LVDS Display, Gigabit Ethernet SDVO and SATA
	PQ7-M101G-1600-1024 Intel® Atom™ Z530 Processor based Qseven module with 1024MB DDR2 SDRAM, LVDS Display, Gigabit Ethernet SDVO and SATA

GENERAL

Processor	Intel® Atom™ Processor Z510/Z530
Chipset/Core Logic	Intel® System Control Hub US15W
System Memory	Memory down, 512MB DDR2 400/533 SDRAM
BIOS	AMI
Storage Devices	SDIO Interface, support boot from SD (SDIO 1.1); 2 x SATA
Solid State Disk	N/A
Watchdog Timer	N/A
Expansion Interface	- One SDVO interface - One PCI Express x1 - LPC Interface - High definition audio interface
Hardware Monitoring	CPU Voltage and Temperature Sensing
Dimension	Dimension : 70(L) x 70(W) mm; 2.75"(L) x 2.75" (W)
Environment	Operating Temperature: 0 to 60ºC Storage Temperature: -20 to 80ºC Relative Humidity: 5% to 90%, non-condensing

I/O

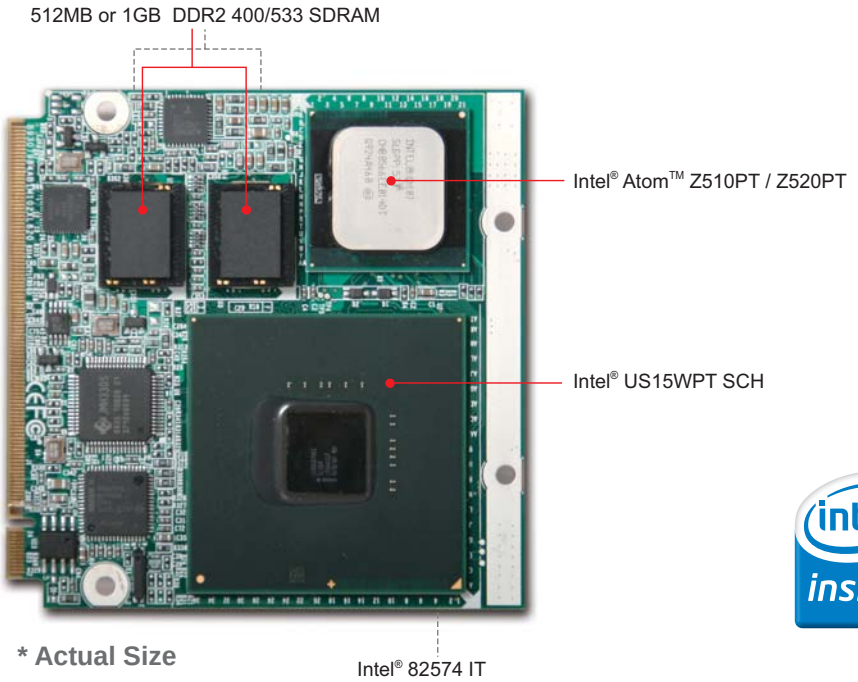
MIO	N/A
IrDA	N/A
Ethernet	One Gigabit Ethernet Controller (Realtek RTL8111B-GR)
Audio	Intel® HDA
USB	USB 2.0 x 8
Keyboard & Mouse	N/A

DISPLAY

Graphic Controller	Intel® US15W SCH
Graphic Memory	Intel® GMA 500
Display Interface	LVDS / SDVO

PQ7-M102XL

Qseven, Intel® Embedded Menlow-XL Platform with DDR2 SDRAM, LVDS Display, Gigabit Ethernet, SDVO and SATA



* Actual Size

FEATURES

- Atom™ Z510PT (1.1GHz) or Z520PT (1.33GHz)
- Intel® US15WPT integrated GMA 500 Graphic, full hardware acceleration of H.264, MPEG2, VC1 and WMV9 is supported
- Support Two SATA Ports from Qseven Golden Finger
- Ultra Low CPU and SCH TDP (Under 5W) for fan-less application
- Internal LVDS and SDVO interface for dual independent display
- On board 512MB DDR2 supported
- 4Mbit flash ROM for easy BIOS upgrade and video BIOS for DFP

GENERAL

Processor	Intel® Atom™ Processor Z510PT/Z520PT
Chipset/Core Logic	Intel® System Control Hub US15WPT
System Memory	Memory down, 512MB 400/533 SDRAM
BIOS	AMI
Storage Devices	SDIO Interface, support boot from SD (SDIO 1.1); 2 x SATA
Solid State Disk	N/A
Watchdog Timer	N/A
Expansion Interface	- One Port SDVO interface - One PCI Express x1 - LPC Interface - High definition audio interface
Hardware Monitoring	CPU Voltage and Temperature Sensing
Dimension	Dimension : 70(L) x 70(W) mm; 2.75"(L) x 2.75" (W)
Environment	Operating Temperature: -40 to 85°C Storage Temperature: -40 to 85°C Relative Humidity: 5% to 95%, non-condensing

I/O

MIO	N/A
IrDA	N/A
Ethernet	One Gigabit Ethernet Controller (Intel® 82574 IT)
Audio	Intel® HDA
USB	USB 2.0 x 8
Keyboard & Mouse	N/A

DISPLAY

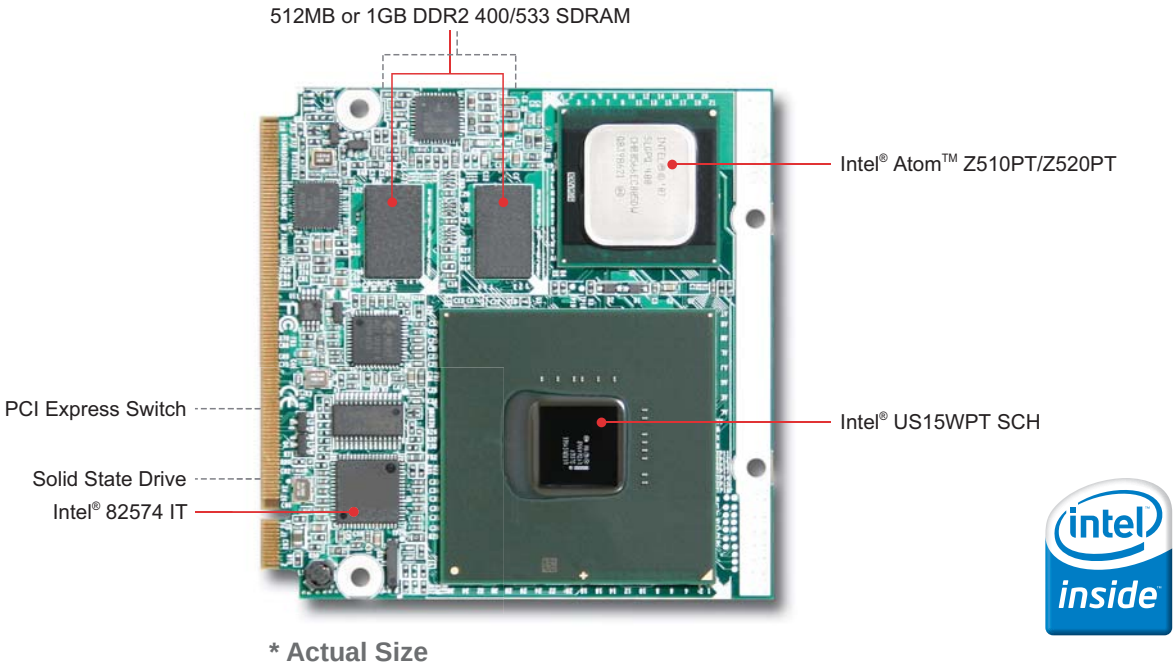
Graphic Controller	Intel® US15WPT SCH
Graphic Memory	Intel® GMA 500
Display Interface	LVDS / SDVO

ORDERING GUIDE

Standard	PQ7-M102XL-1100-0512 Intel® Atom™ Z510PT Processor based Qseven module with 512MB DDR2 SDRAM, LVDS Display, Gigabit Ethernet SDVO and SATA PQ7-M1102XL-1330-0512 Intel® Atom™ Z520PT Processor based Qseven module with 512MB DDR2 SDRAM, LVDS Display, Gigabit Ethernet SDVO and SATA

PQ7-M103XL

Qseven, Based on Intel® eMenlow XL Platform with DDR2 SDRAM,SATA LVDS Display, Gigabit Ethernet, SDVO and NANDrive



*** Actual Size**

FEATURES

- Atom™ Z510PT (1.1GHz) or Z520PT (1.33GHz)
- Intel® US15WPT integrated GMA 500 Graphic
- Ultra Low CPU and SCH TDP (Under 5W) for fan-less application
- LVDS and SDVO interface for dual independent display
- Full Hardware acceleration of H.264, MPEG2, VC1 and WMV9 is supported
- On board DDR2 supported up 1GB
- 4Mbit flash ROM for easy BIOS upgrade and video BIOS for DFP

ORDERING GUIDE

Standard	PQ7-M103XL-1100-0512 Intel® Atom™ Z510PT Processor based Qseven module with 512MB DDR2 SDRAM, LVDS Display, Gigabit Ethernet, SDVO and No SSD PQ7-M103XL-1100-1024-4G SSD Intel® Atom™ Z510PT Processor based Qseven module with 1GB DDR2 SDRAM, LVDS Display, Gigabit Ethernet, SDVO and 4GB SSD PQ7-M103XL-1330-0512-4G SSD Intel® Atom™ Z520PT Processor based Qseven module with 512MB DDR2 SDRAM, LVDS Display, Gigabit Ethernet, SDVO and 4GB SSD PQ7-M103XL-1330-1024-4G SSD Intel® Atom™ Z520PT Processor based Qseven module with 1GB DDR2 SDRAM, LVDS Display, Gigabit Ethernet, SDVO and 4GB SSD
Optional	Heat Spreader 70x62x8mm for PQ7-M103XL with 512MB DDR2 SDRAM Heat Spreader 70x62x8mm for PQ7-M103XL with 1GB DDR2 SDRAM

GENERAL

Processor	Intel® Atom™ Processor Z510PT / Z520PT (with Hyper-Threading Technology)
Chipset/Core Logic	Intel® System Control Hub US15WPT
System Memory	Memory down, Up to 1 GB DDR2 400/533 SDRAM, single channel (64 bits wide), 1 rank
BIOS	AMI
Storage Devices	SATA x2, SSD on module
Solid State Disk	On-borad ATA 4GB Solid State Drive, up to 8G Byte support (optional)
Watchdog Timer	Customization
Expansion Interface	- Two PCI Express x1 lanes (3rd lane is available if no GbE support) - One SDVO interface - LPC Interface - High definition audio interface
Hardware Monitoring	EMC 1402 for Voltage and Temperature Sensing
Dimension	Dimension : 70(W) x 70(L) mm; 2.75"(W) x 2.75" (L)
Environment	Operation Temperature:-40 to 85°C Storage Temperature: -40 to 85°C Operation Humidity: 5 to 90%

I/O

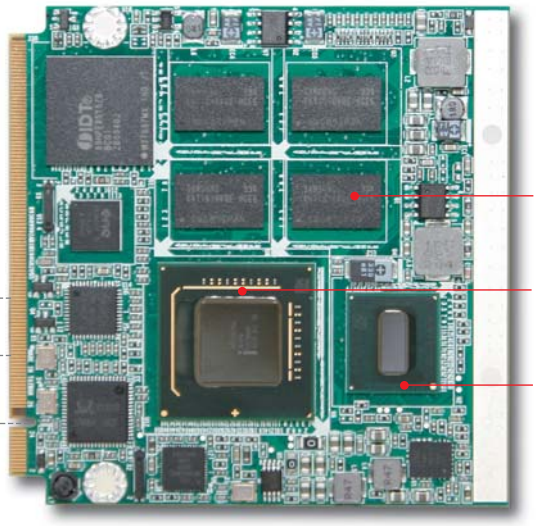
MIO	N/A
IrDA	N/A
Ethernet	One Gigabit Ethernet Controller (Intel® 82574 IT)
Audio	Intel® High Definition Audio (Intel® HD Audio)
USB	USB 2.0 x 8
Keyboard & Mouse	N/A

DISPLAY

Graphic Controller	Intel® US15WPT SCH
Graphic Memory	Intel® GMA 500
Display Interface	- Single channel 112MHz LVDS transmitter, supports display with 1x18 and and 1x24 bit data mapping up to resolutions of 1366x768 pixel - Single channel SDVO interface, supports resolutions up to 1280x1024 pixel - Dual independent display support

PQ7-M104G

Qseven, based on Intel® Atom™ Processor with DDR2 SDRAM, LVDS Display, Gigabit Ethernet, SDVO and NANDrive



* Actual Size

FEATURES

- Atom™ Z510 (1.1GHz) or Z530 (1.6GHz)
- Intel® US15W integrated GMA 500 Graphic, full hardware acceleration of H.264, MPEG2, VC1 and WMV9 is supported
- Support two SATA and three PCI Express lanes from Qseven Golden Finger
- Ultra Low CPU and SCH TDP (Under 5W) for fan-less application
- Internal LVDS and SDVO interface for dual independent display
- On board up to 2GB DDR2 supported

ORDERING GUIDE

Standard	PQ7-M104G-1100-0512 Intel® Atom™ Z510 Processor based Qseven module with 512MB DDR2 SDRAM, LVDS Display, Gigabit Ethernet, SDVO PQ7-M104G-1100-1024 Intel® Atom™ Z510 Processor based Qseven module with 1GB DDR2 SDRAM, LVDS Display, Gigabit Ethernet, SDVO 4G SSD PQ7-M104G-1100-2048 Intel® Atom™ Z510 Processor based Qseven module with 2GB DDR2 SDRAM, LVDS Display, Gigabit Ethernet, SDVO PQ7-M104G-1600-0512 Intel® Atom™ Z530 Processor based Qseven module with 512MB DDR2 SDRAM, LVDS Display, Gigabit Ethernet, SDVO PQ7-M104G-1600-1024 Intel® Atom™ Z530 Processor based Qseven module with 1GB DDR2 SDRAM, LVDS Display, Gigabit Ethernet, SDVO and 4G SSD PQ7-M104G-1600-2048 Intel® Atom™ Z530 Processor based Qseven module with 2GB DDR2 SDRAM, LVDS Display, Gigabit Ethernet, SDVO and 4G SSD

GENERAL

Qseven Module	Intel® Atom™ Processor Z510/Z530
Chipset/Core Logic	Intel® System Control Hub US15W
System Memory	Memory down, up to 2GB DDR2 400/533 SDRAM
BIOS	AMI
Storage Devices	SDIO Interface
Solid State Disk	On-board ATA 4GB Solid State Drive, up to 8G Byte support (optional)
Watchdog Timer	N/A
Expansion Interface	- One Port SDVO Interface - Three PCI Express x1 lanes (fourth lanes is available if no SATA support) - Two Ports SATA Interface - LPC Interface - High Definition Audio Interface
Hardware Monitoring	CPU Voltage and Temperature Sensing
Dimension	Dimension : 70(W) x 70(L) mm; 2.75"(W) x 2.75" (L)
Environment	Operating Temperature: 0 to 60°C Storage Temperature: -20 to 80°C Relative Humidity: 5 to 90%

I/O

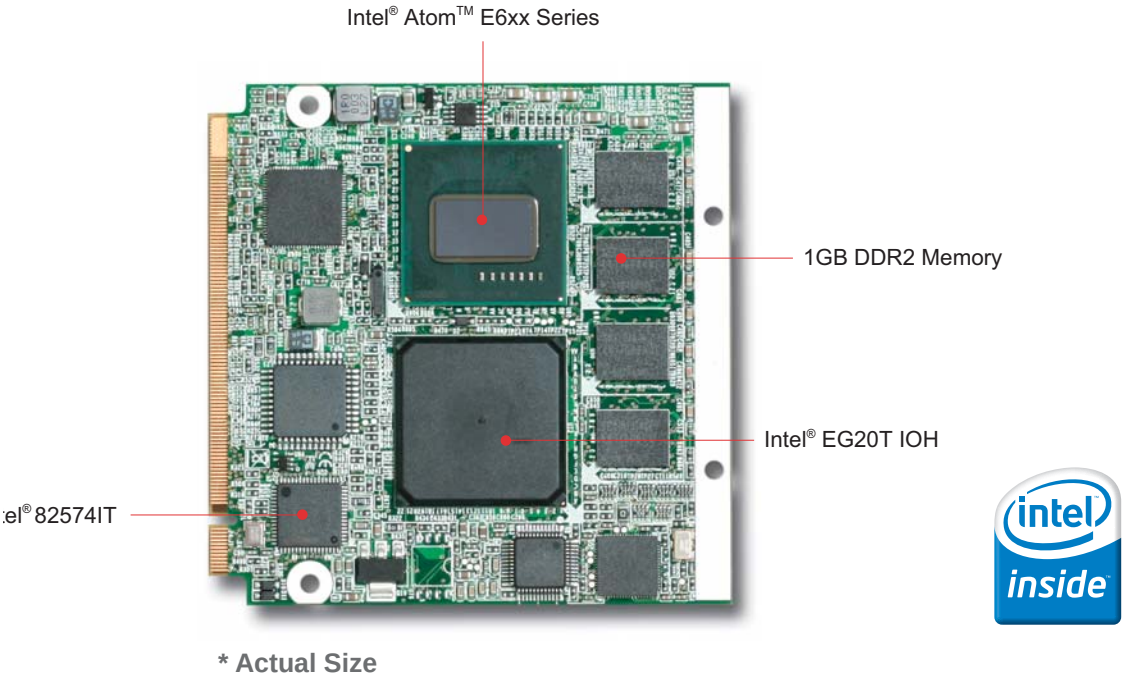
MIO	N/A
IrDA	N/A
Ethernet	One Realtek Gigabit Ethernet Controller (RTL8111D)
Audio	Intel® HDA
USB	USB 2.0 x 8
Keyboard & Mouse	N/A

DISPLAY

Graphic Controller	Intel® US15W SCH
Graphic Memory	Intel® GMA 500
Display Interface	LVDS / SDVO

PQ7-M105IT

Qseven module based on Intel® Atom™ E620T/ E640T/E660T/E680T platform with DDR2 SDRAM, four PCI Express lanes, 24bit LVDS, SDVO,CAN bus, NANDrive



* Actual Size

FEATURES

- Atom™ ultra low power CPU (E620T E640T/ E660T/E680T) and IOH (EG20T) total TDP is under 5W fan-less application
- Full Hardware acceleration of H.264, MPEG2/4, VC1 and WMV9 supported
- On board 512MB DDR2 supported up to 2GB
- Four PCI Express lanes supported
- CAN Bus interface supported
- SATA 4GB Solid State Drive, onboard (optional)
- Trusted Platform Module 1.2, onboard (optional)

ORDERING GUIDE

Standard	PQ7-M105IT-600-0512 Intel® Atom™ E620T Processor based Qseven module with 512MB DDR2 SDRAM, LVDS Display, Four PCI-Express x1 lanes, CAN, SDVO and without SSD PQ7-M105IT-1100-1024 Intel® Atom™ E640T Processor based Qseven module with 1GB DDR2 SDRAM, LVDS Display, Four PCI-Express x1 lanes, CAN,SDVO and without SSD PQ7-M105IT-1330-1024 Intel® Atom™ E660T Processor based Qseven module with 1GB DDR2 SDRAM, LVDS Display, Four PCI-Express x1 lanes , CAN,SDVO and without SSD PQ7-M105IT-1600-1048 Intel® Atom™ E680T Processor based Qseven module with 2GB DDR2 SDRAM, LVDS Display, Four PCI-Express x1 lanes , CAN,SDVO and without SSD
Optional	Heat Spreader

GENERAL

Processor	Intel® Atom™ Processor E620T/E640T/E660T/E680T
Chipset/Core Logic	Intel® IO Hub EG20T
System Memory	Memory down, up to 1 GB DDR2 667/800 SDRAM, single channel and two rank
BIOS	AMI
Storage Devices	SATA x1 (up to 2x SATA if no SSD) SSD (onboard;4GB/8GB/16GB/32GB)
Solid State Disk	On-borad ATA 4GB Solid State Drive, up to 8G Byte support (optional)
Watchdog Timer	Customization
Expansion Interface	- Four PCI Express x1 lanes - One Port SDVO interface - One Port CAN BUS Interface - LPC interface - High definition audio interface
Hardware Monitoring	EMC 1402 for Voltage and Temperature Sensing
Dimension	Dimension : 70(W) x 70(L) mm; 2.75"(W) x 2.75" (L)
Environment	Operating Temperature: -40 to 85oC Storage Temperature: -40 to 85oC Operation Humidity: 5 to 90%

I/O

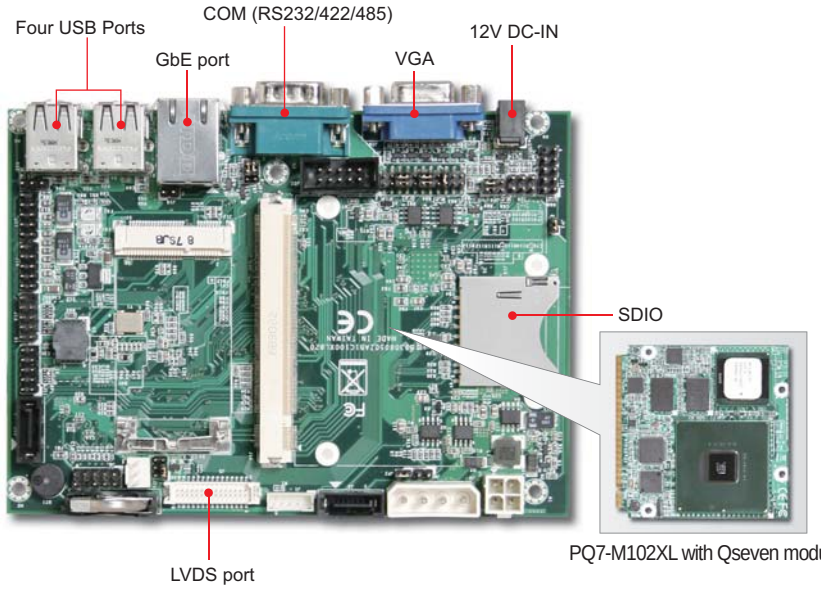
MIO	N/A
IrDA	N/A
Ethernet	One Gigabit Ethernet Controller Intel® WG82574IT
Audio	Intel® High Definition Audio (Intel® HD Audio)
USB	USB 2.0 x 8
Keyboard & Mouse	N/A

DISPLAY

Graphic Controller	IIntel® E620T/E640T/E660T/E680T ATOMTM processor integrated
Graphic Memory	TBA
Display Interface	- Single channel 112MHz LVDS transmitter, supports display with 1x18 and and 1x24 bit data mapping up to resolutions of 1280x768 pixel - Single channel SDVO interface, supports resolutions up to 1280x1024 pixel - Dual independent display support

PQ7-C100XL

3.5" ESB Form Factor Carrier Board For Qseven Module



PQ7-M102XL with Qseven module

Rear I/O

FEATURES

- Qseven carrier board accept Portwell Qseven modules
- 3.5" ESB form factor to embedded applications
- On Board DC to DC circuit for DC in application
- Mini-PCIe support
- Support boot from SD (SDIO 1.1)

ORDERING GUIDE

Standard	PQ7-C100XL Qseven Module in 3.5" ESB Form Factor Carrier Board with Wide range temperature support

GENERAL

Qseven module	Portwell Qseven module PQ7-M102XL Series
BIOS	AMI BIOS (or BIOS and Qseven Module)
Storage Devices	SATA x 2
Solid State Disk	One SD socket (Support boot from SD)
Watchdog Timer	Programmable via software from 0.5 sec. to 254.4 min.
Expansion Interface	One mini-PCIe connector
Dimension	Dimension : 146(L) x 105(W) mm; 5.75"(L) x 4.13" (W)
Environment	Operating Temperature: -40 to 85ºC Storage Temperature: -20 to 80ºC Relative Humidity: 5% to 90%, non-condensing

I/O

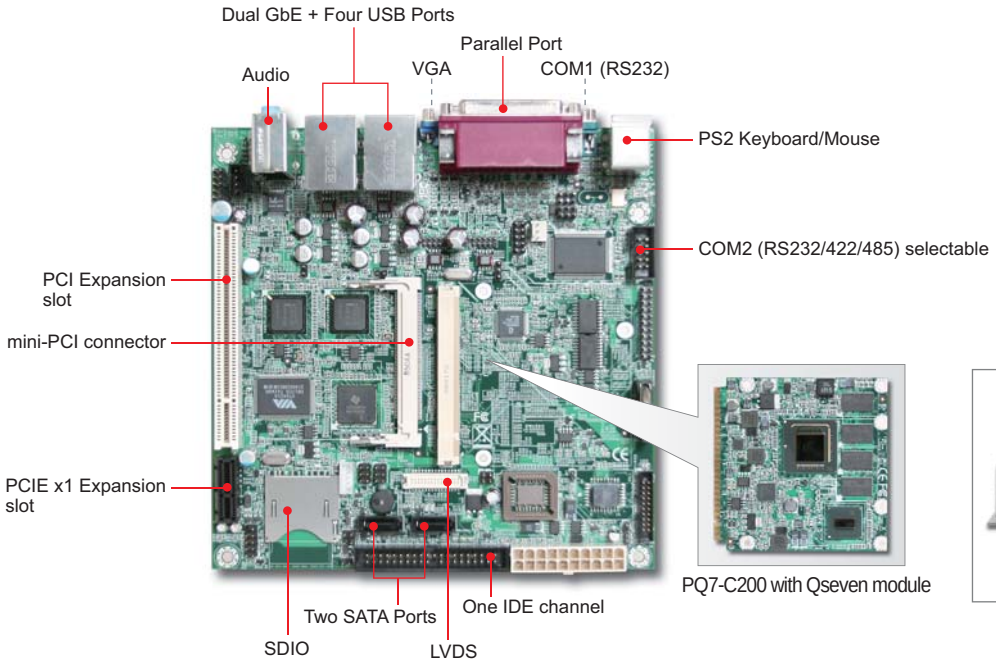
MIO	RS232 x1, Client USB x1, Mic-in/Line-out
IrDA	Yes
Ethernet	IEEE802.3 10/100/1000 BASE-T Gigabit Ethernet compliant
Audio	Mic-in, Line-out
USB	USB 2.0 x 7
Keyboard & Mouse	N/A

DISPLAY

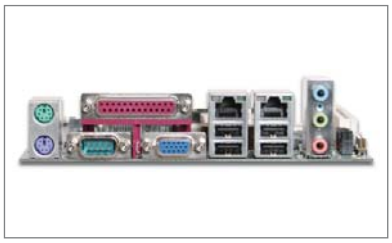
Graphic Controller	Intel® US15WPT SCH
Graphic Memory	Intel® GMA 500
Display Interface	LVDS / VGA

PQ7-C200

Mini-ITX Form Factor Carrier Board For Qseven Module with Dual Displays and Two GbE



PQ7-C200 with Qseven module



Rear I/O

FEATURES

- Qseven carrier board accept Portwell Qseven modules
- Mini-ITX form factor for embedded applications
- Dual PCI interface Gigabit Ethernet ports
- One IDE channel and Two SATA 150 Ports
- One PCI and PCIE x1 expansion slot via riser card

GENERAL

Qseven Module	Portwell Qseven module PQ7-M100 Series
BIOS	Award BIOS (or BIOS on Qseven Module)
Storage Devices	IDE x1, SATA x2
Solid State Disk	One SD socket
Watchdog Timer	Programmable via software from 0.5 sec. to 254.5 min.
Expansion Interface	- One mini-PCI connector - One PCI expansion connector - One PCIE x1 expansion connector by riser card
Hardware Monitoring	CPU temperature
Dimension	Dimension : 170(L) x 170(W) mm; 6.69"(L) x 6.69" (W)
Environment	Operating Temperature: 0 to 60°C Storage Temperature: -20 to 80°C Relative Humidity: 5% to 90%, non-condensing

I/O

MIO	RS232 x1, RS232/422/485 selectable x1, LPT x1, K/B x1, Mouse x1, GbE x2
IrDA	N/A
Ethernet	IEEE802.3 10/100/1000BASE-T Gigabit Ethernet compliant
Audio	Mic in, Line in, Line out
USB	USB 2.0 x 4 ports and USB 2.0 x2 with header
Keyboard & Mouse	PS/2 Keyboard & Mouse

ORDERING GUIDE

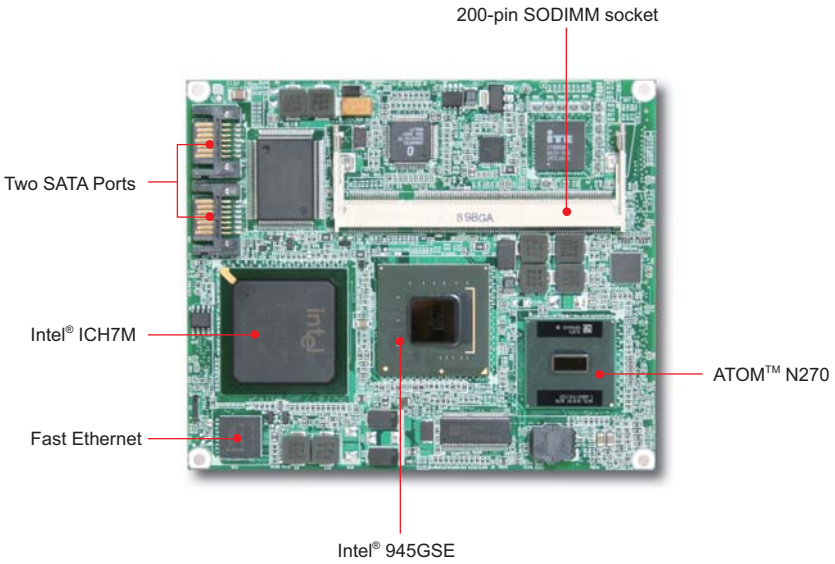
Standard	PQ7-C200 Qseven Module in Mini-ITX Form Factor Carrier Board with Dual Displays and Two GbE

DISPLAY

Graphic Controller	Intel® US15W SCH
Graphic Memory	Intel® GMA 500
Display Interface	LVDS / VGA

PEM-E200VLA

Intel® Atom™ based Type ETX module with DDR2 SDRAM, VGA, Fast Ethernet, SATA and USB



FEATURES

- The Intel® Atom™ N270 and 945GSE platform that provides cost effective solution and technology
- The Intel® platform brings under 10W TDP solution for easy fan-less design
- SATA and IDE interface provide best cost effective functions for market
- Architecture of module and carrier boards speeds up time-to-market of tailor-made equipment
- Support one SODIMM socket and up to 2GB memory size

ORDERING GUIDE

Standard	PEM-E200VLA Intel® Atom™ N270, 945GSE platform based ETX module with DDR2 SDRAM, VGA, Fast Ethernet and USB

GENERAL

Processor	CPU & Package: Intel® Atom™ N270 1.6GHz in FCBGA package FSB: 533MHz
Chipset/Core Logic	Intel® 945GSE and ICH7M
System Memory	Up to 2GB DDR2 533 SDRAM on one 200-pin SODIMM socket
BIOS	Award BIOS
Storage Devices	EIDE: Support two EIDE channel with Ultra DMA 100/66/33 SATA: Support two SATA 150 drives
Solid State Disk	N/A
Watchdog Timer	Programmable via software from 1 sec. to 255 min.
Expansion Interface	- Two IDE channels - Four PCI devices - ISA Bus - Two COM Ports - One Printer Port - PS/2 Keyboard and Mouse - Line Out, Line In and MIC
Hardware Monitoring	CPU temperature
Dimension	Dimension : 114(L) x 95(W) mm; 4.5"(L) x 3.7" (W)
Environment	Operating Temperature: 0 to 60°C Storage Temperature: -20 to 80°C Relative Humidity: 5% to 90%, non-condensing

I/O

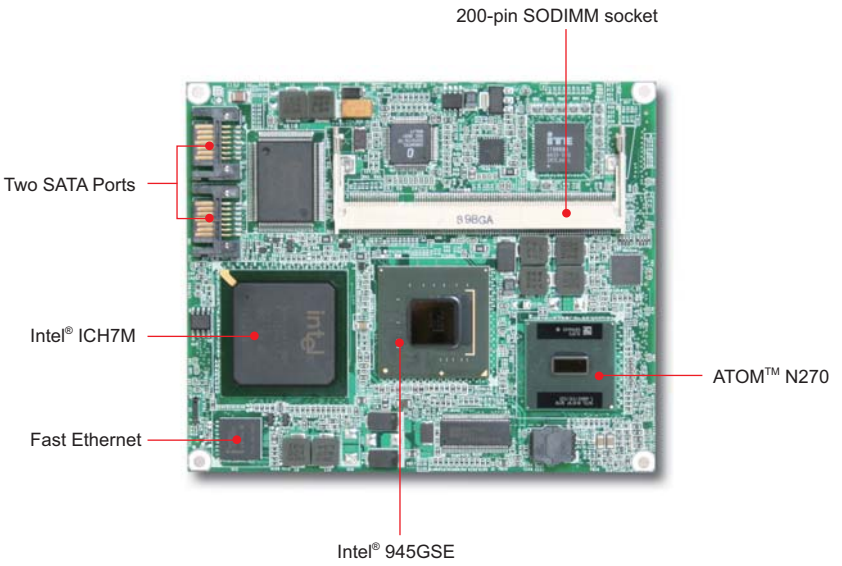
MIO	Two serial ports (TTL Level)
IrDA	Yes
Ethernet	One Fast Ethernet Controller (Realtek RTL8102EL)
Audio	One HDA Audio Codec
USB	Four USB ports
Keyboard & Mouse	PS/2 Keyboard and Mouse

DISPLAY

Graphic Controller	Intel® 945GSE integrated Graphics Media Accelerator (Intel® GMA 950)
Graphic Memory	Dynamic share system memory up to 224MB (Intel® DVMT 3.0) or static share system memory up to 128MB
Display Interface	- Support dual VGA (2nd supported by Chrontel CH7317A), LVDS and TV-out (optional) - CRT display resolution up to 2048x1536@85Hz refresh

PEM-E202VLA

Intel® Atom™ based Type ETX module with DDR2 SDRAM, 2x24 bit LVDS, VGA, SATA, Fast Ethernet and USB



FEATURES

- The Intel® Atom™ N270 and 945GSE platform that provides cost effective solution and technology
- The Intel® platform brings under 10W TDP solution for easy fan-less design
- SATA and IDE interface provide best cost effective functions for market
- Architecture of module and carrier boards speeds up time-to-market of tailor-made equipment
- Support one SODIMM socket and up to 2GB memory size

ORDERING GUIDE

Standard	PEM-E202VLA Intel® Atom™ N270, 945GSE platform based ETX module with DDR2 SDRAM, 2x24 bit LVDS, VGA, SATA, Fast Ethernet and USB

GENERAL

Processor	CPU & Package: Intel® Atom™ N270 1.6GHz in FCBGA package FSB: 533MHz
Chipset/Core Logic	Intel® 945GSE and ICH7M
System Memory	Up to 2GB DDR2 533 SDRAM on one 200-pin SODIMM socket
BIOS	Award BIOS
Storage Devices	EIDE: Support two EIDE channel with Ultra DMA 100/66/33 SATA: Support two SATA 150 drives
Solid State Disk	N/A
Watchdog Timer	Programmable via software from 1 sec. to 255 min.
Expansion Interface	- Two IDE channels - Four PCI devices - ISA Bus - Two COM Ports - One Printer Port - PS/2 Keyboard and Mouse - Line Out, Line In and MIC
Hardware Monitoring	CPU temperature
Dimension	Dimension : 114(L) x 95(W) mm; 4.5"(L) x 3.7" (W)
Environment	Operating Temperature: 0 to 60ºC Storage Temperature: -20 to 80ºC Relative Humidity: 5% to 90%, non-condensing

I/O

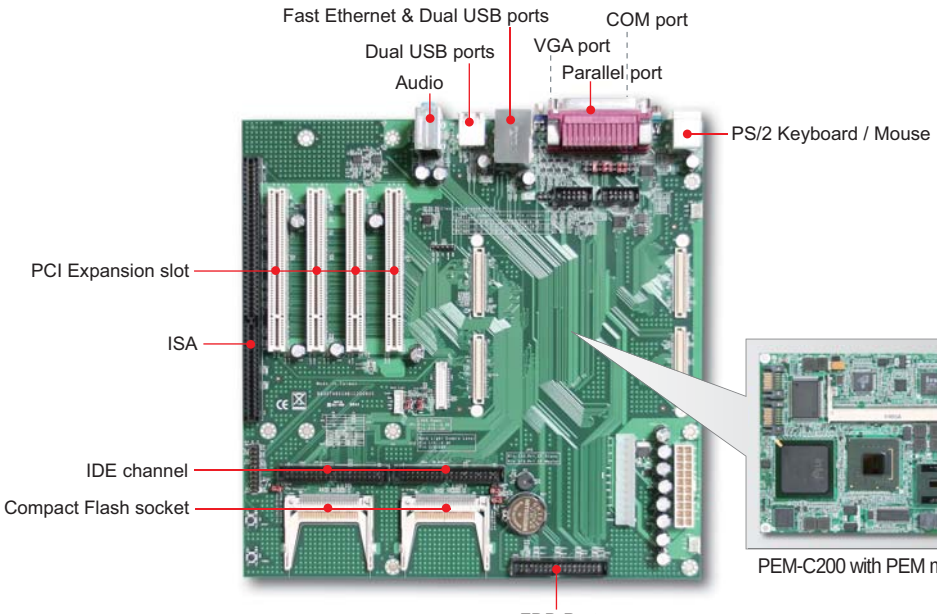
MIO	Two serial ports (TTL Level)
IrDA	Yes
Ethernet	One Fast Ethernet Controller (Realtek RTL8102EL)
Audio	One HDA Audio Codec
USB	Four USB ports
Keyboard & Mouse	PS/2 Keyboard and Mouse

DISPLAY

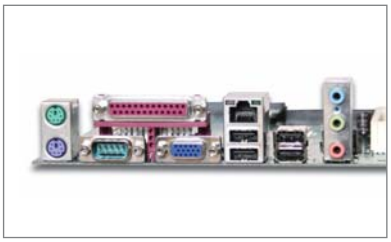
Graphic Controller	Intel® 945GSE integrated Graphics Media Accelerator (Intel® GMA 950)
Graphic Memory	Dynamic share system memory up to 224MB (Intel® DVMT 3.0) or static share system memory up to 128MB
Display Interface	- Support CRT, Dual channel 24bit LVDS and TV-out display interfaces - CRT display resolution up to 2048x1536@85Hz refresh

PEM-C200

Micro-ATX Form Factor Evaluation Carrier Board for ETX Module



PEM-C200 with PEM module



Rear I/O

FEATURES

- ETX carrier board accept ETX modules
- Micro-ATX form factor to meet most standard mounting space
- On board power and reset switches benefit engineering testing
- Two EIDE, four PCI slots and one ISA slot
- Brings all ETX module function out for evaluation

GENERAL

ETX	Micro-ATX form factor ETX carrier board
BIOS	BIOS on ETX Module
Solid State Disk	Two Type II CF socket
Watchdog Timer	Programmable via software from 0.5 sec. to 254.5 min.
Expansion Interface	- Four PCI connector - One ISA connector
Hardware Monitoring	CPU Voltage and Temperature
Dimension	Dimension : 243.8(L) x 243.8(W) mm; 9.6"(L) x 9.6" (W)
Environment	Operating Temperature: 0 to 60°C Storage Temperature: -20 to 80°C Relative Humidity: 5% to 90%, non-condensing

I/O

MIO	N/A
IrDA	N/A
Ethernet	IEEE802.3 10/100BASE-T Fast Ethernet compliant
Audio	Mic in, Line in, Line out
USB	4 x USB 2.0 ports

DISPLAY

Graphic Controller	Intel® 945GSE integrated Graphics Media Accelerator (Intel® GMA X3100) when using with PEM-E200VLA
Graphic Memory	Dynamic share system memory up to 224MB (Intel® DVMT 3.0) or static share system memory up to 128MB when using with PEM-E200VLA
Display Interface	- Support CRT, LVDS and TV-out display interfaces - CRT display resolution up to 2048x1536 @ 85Hz refresh when using with PEM-E200VLA

ORDERING GUIDE

Standard	PEM-C200 Micro-ATX Form Factor ETX Carrier Board

WEBS: Portwell Intelligent Fan-less System

Compact, Flexible, Rugged Computing Systems

With the capability of leading embedded computing technology, Portwell developed the industrial grade WEBS fan-less computing systems for harsh environment applications such as factory automation, transportation, facility management, networking and public works.

To meet these harsh environmental parameters, each WEBS computing system was designed by precise thermal simulation and verification to make the system stable and user friendly.

The all-aluminum chassis design provides effective heat dissipation and transfers the heat out of the system quickly and easily.

Built with the latest Intel® chipsets, the WEBS systems feature not only superior performance but also low power consumption. They are suitable for energy-critical applications and idea for environmental protection.

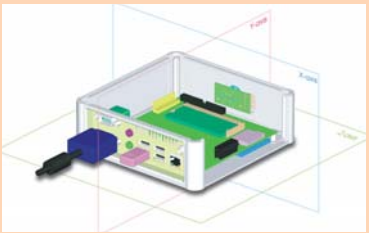
Quality Assurance

1 Design & Analysis

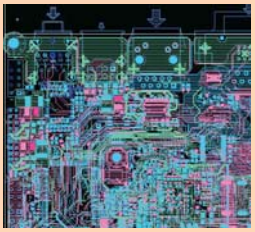
Portwell WEBS systems use quality assurance reviewing procedures in the critical early stages of development. Designing a stable product makes it easy for quality checking and complies with Design for Quality (DFQ).

At the development stage the product design also involves the material and assembly important for production, with the focus on Design for Manufacturability (DFM). This develops simple, consistent and efficient system structures and endows the product with a stable quality.

With its experienced engineering team, plus the complete development facility with 3D, circuit and layout design equipments, Portwell is able to supply more efficient system development to support its customers in “Design Win”.



Design & analysis is performed by 3D workstation. (WEBS-2120)

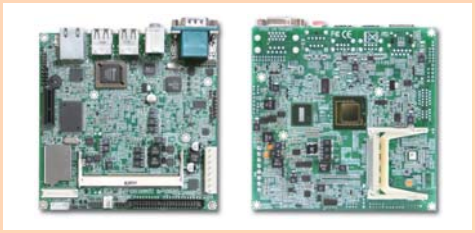


Circuit design & layout by advanced tools (NANO-8044)

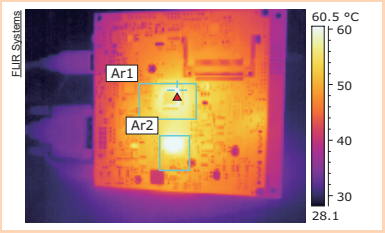
2 Thermal Design

Since there is no fan and airflow inside the fan-less WEBS systems, handling the thermal output becomes one of the most important concerns. System heat comes from ICs on the embedded board and this is pre-determined by Intel®. Therefore, the key to developing a reliable fan-less system is determined by two major factors.

First is to balance the heat on the embedded board and make sure it does not accumulat. Determining the thermal balance for the hot components is a prime concern. The picture below shows the heat situation of the NANO-8044, NANO-ITX embedded board used in the WEBS-2120 system. The heat in this example is arranged and balanced for superior dissipation in a fan-less system design.

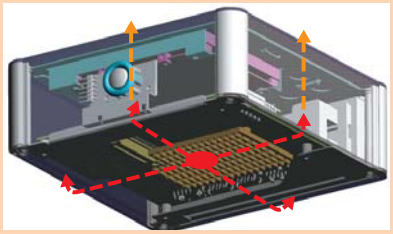


NANO-8044 M/B

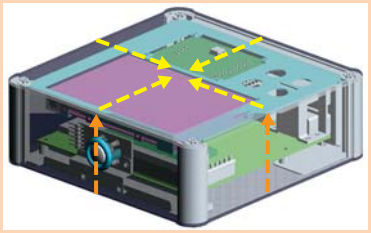


Thermal image of NANO-8044 M/B

Second is to maximize the arrangement of heat dissipation by system design. WEBS Systems are designed with an all-aluminum chassis that is ideal for heat dissipation. Heat sinks link the ICs on the embedded board and the aluminum chassis for direct heat transference. The heat transfers from the bottom up so the lower temperature is at the chassis top for greater ease of use and protection. The pictures below illustrate the heat flow of a WEBS system. Balancing the heat of the product in this way makes the perfect fan-less system.



WEBS-2120 Heat-flow (Bottom)

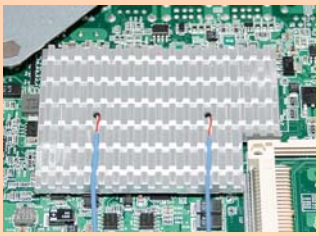


WEBS-2120 Heat-flow (Top)

Quality Assurance

3 Thermal Validation

After completing the thermal design, the WEBS system starts the thermal validation by following Intel's thermal guide and the system is tested inside the calibrated chamber with defined temperatures. The efficacy of the WEBS system is further improved when the temperature of any component is over specification. Thermal tests are conducted until all the major ICs are below thermal specification.



Holes are made on the heat sink and thermal sensor cables are added for measuring the temperature

Holes are made on the heat sink and thermal sensor cables are added for measuring the temperature

4 Safety & Reliability Validation

In addition to the thermal validation, the WEBS systems undergo safety assessment and tests and achieve CE and FCC certification. Testings include ESD, EMI and EMC.

To ensure product quality, complete quality assurance tests are performed during both the development and the manufacturing phases for all system-level products. Portwell WEBS systems are tested and comply with safety regulations, and are reliable to be used in the harsh environments.

-Based on customer's requirements, Portwell can do additional tests with a NRE (non-recurring engineering) charge.

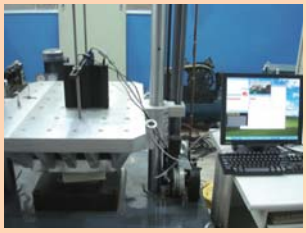
ESD Test

EMC Test

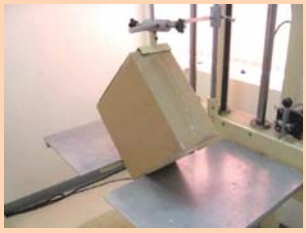
EMC Test

Vibration Test

Packing Vibration Test



Shock Test

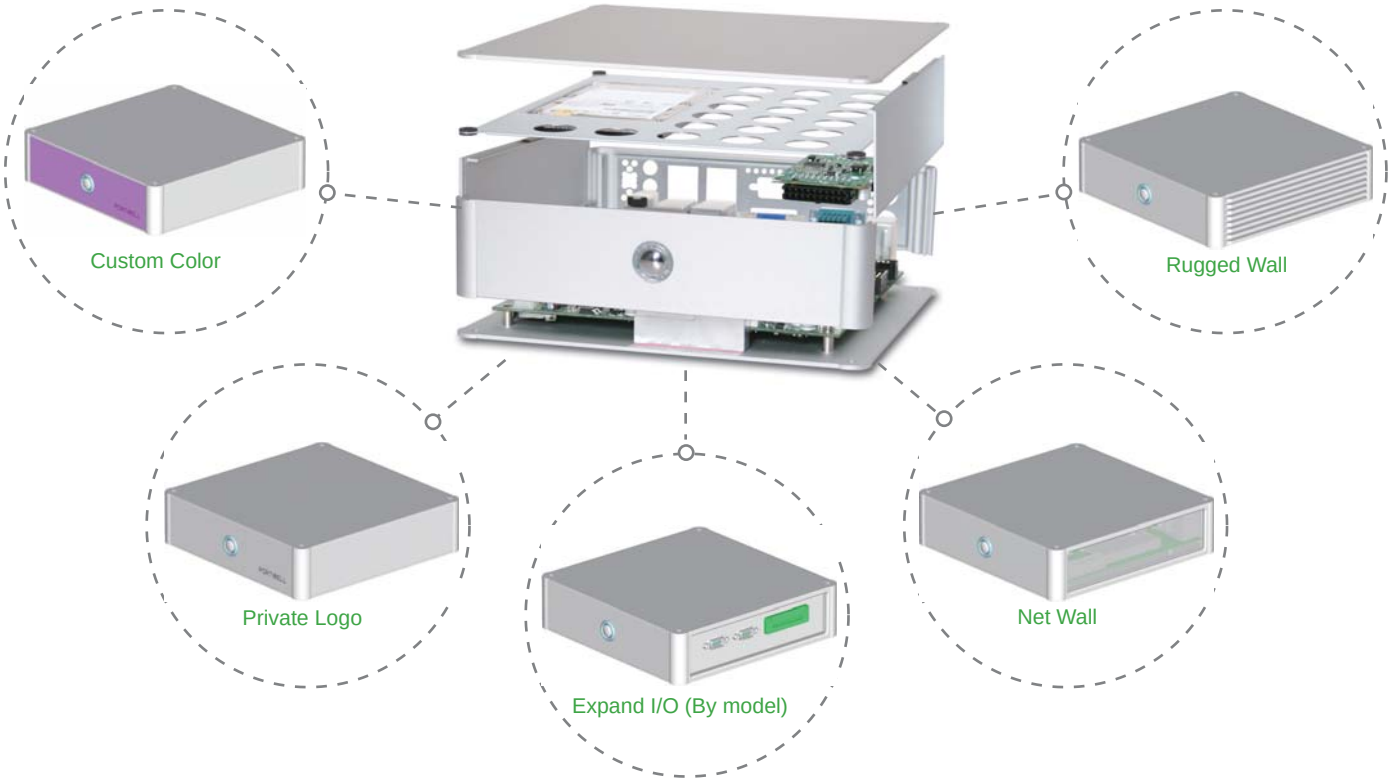


Packing Drop Test

Brick Concept

As well as stable quality requirements, users are always looking for a unique product to differenciate them from their competitors. To simplify system customization, Portwell created the Brick concept, an intelligent structure for the WEBS systems that builds the WEBS chassis using three simple elements: wall, pillar and cover. This makes the chassis flexible and easy for customization by following customer's requirements. The illustation below shows the segments for customization.

* May necessitate extra cost and MOQ for an individual customization.



With its flexible structure, a Portwell WEBS system can adjust the size of its form-factor to supply a customized chassis for customer. The three system sizes below illustrate the standard WEBS system form-factors. Customer can adapt any model to suit their applications. (Size unit is mm)

Configuration

- **Full System:** Chassis + (Power Module) + Adaptor + Cable + Embedded Board + Memory + HDD/CF
- **Bare System (By requuest only):** Chassis + (Power Module) + Adaptor + Cable + Embedded Board

WEBS Reference Table





		Wide Temp. Range & Low Power	Low Power	Compact & Low Power	Low Power	Slim & Cable-less
Model		**WEBS-3330**	**WEBS-2120**	**WEBS-2121**	**WEBS-1320**	**WEBS-3331**
Embedded Board		WADE-8070	NANO-8044	NANO-8045	PEB-2737	WADE-8071
Platform	Form Factor	MINI-ITX	NANO-ITX	NANO-ITX	3.5" ECX	MINI-ITX
	Intel® Processor	Atom™ N270 1.6GHz	Atom™ Z510 1.1GHz Atom™ Z530 1.6GHz	Atom™ Z510 1.1GHz Atom™ Z530 1.6GHz	Atom™ Z510 1.1GHz Atom™ Z530 1.6GHz	Atom™ N270 1.6GHz
	Intel® Chipset	945GSE+ICH7-M	US15W	US15W	US15W	945GSE+ICH7-M
	FSB	533MHz	400MHz / 533MHz	400MHz / 533MHz	400MHz / 533MHz	533MHz
	BIOS	Award BIOS	AMI BIOS	AMI BIOS	AMI BIOS	Award BIOS
Memory	Socket	200-pin SO-DIMM	200-pin SO-DIMM	200-pin SO-DIMM	200-pin SO-DIMM	200-pin SO-DIMM
	Max. Memory	DDR2 2GB	DDR2 2GB	DDR2 2GB	DDR2 2GB	DDR2 2GB
Storage	Solid State	CF Socket	CF Socket	CF Socket	CF Socket	CF Socket
	HDD	2.5" SATA HDD	2.5" PATA	2.5" SATA HDD	2.5" SATA HDD	N/A
Networking	Controller (interface)	RTL8111C-VB (PCIE x1)	Intel® 82574L (PCIE x1)	RTL8111C-VC (PCIE x1)	RTL8111C-VC (PCIE x1)	RTL8111C-VC (PCIE x1)
Video	Controller	GMA 950	GMA 500	GMA 500	GMA 500	GMA 950
Audio	Codec	Realtek ALC662-GR	Realtek ALC262	Realtek ALC262	Realtek ALC262-VC2-GR	Realtek ALC662-GR
H/W Monitor	Controller	Winbond W83627UHG	Winbond W83627DHG	Winbond W83627DHG	Winbond W83627DHG	Winbond W83627HG-AW
	WDT	Programable (1sec. to 255min.)	Programable (1sec. to 255min.)	Programable (1sec. to 255min.)	Programable (1sec. to 255min.)	Programable (1sec. to 255min.)
I/O	COM Ports	1x RS232 1x RS232/422/485	1x RS232/422/485	1x RS232	1x RS232	1x RS232
	Digital I/O	N/A	N/A	N/A	N/A	N/A
	USB 2.0	4	2	2	4	4
	VGA	1 x VGA	1 x VGA	N/A	1 x VGA	1 x VGA
	DVI	N/A	N/A	1 x DVI	N/A	N/A
	LAN	1 x Gigabit Ethernet	1 x Gigabit Ethernet	1 x Gigabit Ethernet	1 x Gigabit Ethernet	1 x Gigabit Ethernet
	PS/2	1 x KB; 1 x Mouse	N/A	N/A	1 x KB; 1 x Mouse	N/A
	Audio	Line-out and Mic-in	Line-out and Mic-in	Line-out and Mic-in	Line-out and Mic-in	Line-out and Mic-in
	Internal CF	1 x CF Socket	1 x CF Socket	1 x CF Socket	1 x CF Socket	1 x CF Socket
	Expansion	1 x Mini-PCI socket	N/A	N/A	SDIO socket (Internal onboard)	N/A
Power	System	12V DC-in	12V DC-in	12V DC-in	12V DC-in	12V DC-in
	Adaptor	100 ~ 240V	100 ~ 240V	100 ~ 240V	100 ~ 240V	100 ~ 240V
OS Supported		XP, Vista, CE, Linux	XP, XPe, CE, Linux	XP, XPe, CE, Linux	XP, Vista, CE, Linux	XP, Vista, CE, Linux
Environmental Parameters	Temperature	-5 ~ 45°C	-5 ~ 45°C	-5 ~ 45°C	-5 ~ 45°C	-5 ~ 45°C
	Hmidity (RH)	5 ~ 95%, non-condensing	5 ~ 95%, non-condensing	5 ~ 95%, non-condensing	5 ~ 95%, non-condensing	10 ~ 90%, non-condensing
Size (mm)		200 x 200 x 51	150 x 150 x 51	150 x 150 x 51	200 x 150 x 51	200 x 200 x 36

WEBS Reference Table





		Wide Range Power Input	Wide Temp. Range	Wide Temp. Range	Rich Function	Rich Function
Model		**WEBS-4330**	**WEBS-1310**	**WEBS-1312**	**WEBS-1330**	**WEBS-1340**
Embedded Board		WADE-8170	PEB-2738	PEB-2739	PEB-2131VG2A	PEB-2770/2780
Platform	Form Factor	MINI-ITX	3.5" ECX	3.5" ECX	3.5" ECX	3.5" ECX
	Intel® Processor	Atom™ N270 1.6GHz	Atom™ Z510 1.1GHz Atom™ Z520 1.3GHz	Atom™ Z510 1.1GHz Atom™ Z520 1.3GHz	Atom™ N270 1.6GHz	Atom™ N450/D510 1.6GHz
	Intel® Chipset	945GSE+ICH7-M	US15W PT	US15W PT	945GSE+ICH7-M	ICH8-M
	FSB	533MHz	400MHz / 533MHz	400MHz / 533MHz	533MHz / 667MHz	667MHz
	BIOS	Award BIOS	AMI BIOS	AMI BIOS	Award BIOS	Award BIOS
Memory	Socket	200-pin SO-DIMM	200-pin SO-DIMM	200-pin SO-DIMM	200-pin SO-DIMM	200-pin SO-DIMM
	Max. Memory	DDR2 2GB	DDR2 2GB	DDR2 2GB	DDR2 2GB	DDR2 2GB
Storage	Solid State	CF Socket	CF Socket	CF Socket	CF Socket	CF Socket
	HDD	2.5" SATA HDD	2.5" SSD	2.5" SSD	2.5" SATA HDD	2.5" SATA HDD
Networking	Controller (interface)	ALC8111C (PCIE x1)	Intel® 82574IT (PCIE x1)	Intel® 82574IT (PCIE x1)	RTL8111D-VB-GR (PCIE x1)	1x Intel® 82567V 1x Intel® 82583V (PCIE x1)
Video	Controller	GMA 950	GMA 500	GMA 500	GMA 950	GMA 950
Audio	Codec	Realtek ALC655	Realtek ALC662-GR	Realtek ALC662-GR	Realtek ALC662	Realtek ALC262
H/W Monitor	Controller	ITE IT8712	Winbond W83627DHG	Winbond W83627DHG	Winbond W83627UHG	Winbond W83627UHG
	WDT	Programable (1sec. to 255min.)	Programable (1sec. to 255min.)	Programable (1sec. to 255min.)	Programable (1sec. to 255min.)	Programable (1sec. to 255min.)
I/O	COM Ports	2x RS232	1x RS232 1x RS232/422/485	1x RS232 1x RS232/422/485	4x RS232	3x RS232 1x RS232/422/485
	Digital I/O	8-bit Digital I/O	8-bit Digital I/O	8-bit Digital I/O	N/A	N/A
	USB 2.0	4	4	4	2	4
	VGA	1 x VGA	1 x VGA	1 x VGA	1 x VGA	1 x VGA
	DVI	1 x DVI-D	N/A	N/A	N/A	N/A
	LAN	2 x Gigabit Ethernet	1 x Gigabit Ethernet	1 x Gigabit Ethernet	2 x Gigabit Ethernet	2 x Gigabit Ethernet
	PS/2	1 x KB; 1 x Mouse	N/A	N/A	N/A	N/A
	Audio	Line in, Line-out and Mic-in	Line-out and Mic-in	Line-out and Mic-in	Line-out	N/A
	Internal CF	1 x CF Socket	1 x CF Socket	1 x CF Socket	1 x CF Socket	1 x CF Socket
	Expansion	N/A	1 x Mini-PCIExpress	1 x Mini-PCIExpress	1 x Mini-PCIExpress	N/A
Power	System	12V DC-in or 9~27V DC-in(optional)	12V DC-in	12V DC-in	12V DC-in	12V DC-in
	Adaptor	100 ~ 240V	100 ~ 240V	100 ~ 240V	100 ~ 240V	100 ~ 240V
OS Supported		XP, Vista, CE, Linux	XP, Vista, CE, Linux	XP, Vista, CE, Linux	XP, Vista, CE, Linux	XP, Vista, CE, Linux
Environmental Parameters	Temperature	-5 ~ 45°C	-25 ~ 70°C	-25 ~ 70°C	-5 ~ 45°C	-5 ~ 45°C
	Hmidity (RH)	10 ~ 90%, non-condensing	5 ~ 95%, non-condensing	5 ~ 95%, non-condensing	10 ~ 90%, non-condensing	10 ~ 90%, non-condensing
Size (mm)		200 x 200 x 62	200 x 150 x 51	200 x 150 x 51	200 x 150 x 51	200 x 150 x 51

WEBS Reference Table


		Rich Function	Slim & Cable-less
Model		**WEBS-1341**	**WEBS-3332**
Embedded Board		PEB-2771/2781	WADE-8071
Platform	Form Factor	3.5" ECX	Mini-ITX
	Intel® Processor	Atom™ N455 1.6GHz Atom™ D525 1.8GHz	Atom™ N270 1.6GHz
	Intel® Chipset	ICH8-M	945GSE+ICH7-M
	FSB	667MHz	533MHz
	BIOS	Award BIOS	Award BIOS
Memory	Socket	200-pin SO-DIMM	200-pin SO-DIMM
	Max. Memory	DDR3 2GB	DDR2 2GB
Storage	Solid State	CF Socket	CF Socket
	HDD	2.5" SATA HDD	N/A
Networking	Controller (interface)	1x Intel® 82567V 1x Intel® 82583V (PCIE x1)	RTL8111C-VC (PCIE x1)
Video	Controller	GMA 950	GMA 950
Audio	Codec	Realtek ALC892	Realtek ALC662-GR
H/W Monitor	Controller	Winbond W83627UHG	Winbond W83627HG-AW
	WDT	Programable (1sec. to 255min.)	Programable (1sec. to 255min.)
I/O	COM Ports	3x RS232 1x RS232/422/485	1x RS232
	Digital I/O	N/A	N/A
	USB 2.0	4	4
	VGA	1 x VGA	1 x VGA
	DVI	N/A	N/A
	LAN	2 x Gigabit Ethernet	1 x Gigabit Ethernet
	PS/2	N/A	N/A
	Audio	N/A	Line-out and Mic-in
	Internal CF	1 x CF Socket	1 x CF Socket
	Expansion	N/A	N/A
Power	System	12V DC-in	12V DC-in
	Adaptor	100 ~ 240V	100 ~ 240V
OS Supported		XP, Vista, CE, Linux	XP, Vista, CE, Linux
Environmental Parameters	Temperature	-5 ~ 45°C	-5 ~ 50°C
	Hmidity (RH)	10 ~ 90%, non-condensing	10 ~ 90%, non-condensing
Size (mm)		200 x 150 x 51	200 x 200 x 40

WEBS-3330

Embedded compact fan-less system with Intel® Atom™ N270 based MINI-ITX board

FEATURES

- Intel® Atom™ N270 1.6GHz processor and Intel® 945GSE + ICH7-M chipset
- One 200-pin SO-DIMM supports DDR2 SDRAM up to 2GB
- Dual display (VGA / DVI), Dual Gigabit Ethernet and Dual serial ports
- Fan-less design is ideal for enviromnent-critical application
- Optional DVD module
- Optional PCI/e x1 expansion slot for additional peripheral card
- Versatile mounting solutions such as Wall and Panel mount (Optional)
- Single DC 12V power input for easy system intergation

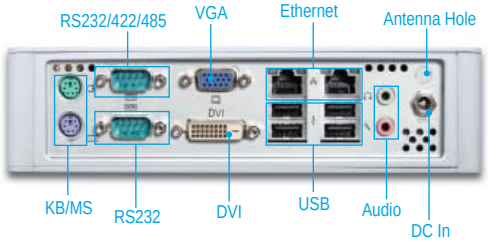
SYSTEM	
CPU	Intel® Atom™ N270 1.6GHz processor
FSB	533 MHz
BIOS	Award BIOS
System Chipset	Intel® 945GSE GMCH and ICH7-M
System Memory	One 200-pin SO-DIMM support DDR2 400/533 up to 2GB
Storage	- 1 x SATA 2.5" HDD - 1 x CF
Watchdog Timer	Programmable via S/W from 1sec. to 255min.
H/W Status Monitor	Temperature (CPU and System), Voltage, Case open function
Expansion	1 x Mini-PCI socket

REAR PANEL	
Serial Port	1 x RS232; 1 x RS232/422/485 selectable
Display	1 x VGA; 1 x DVI
USB	4 x USB 2.0
KB/MS	1 x K/B; 1 x Mouse
Audio Interface	Line-out and Mic-in
Ethernet	2 x Gigabit Ethernet

Power Supply Unit	
Power Input	DC 12V
Adaptor	AC 100~240V

MECHANICAL & ENVIRONMENTAL	
Operation Temperature	-5~45°C
Storage Temperature	-20~80°C
Relative Humidity	10~90% non-condensing
Dimension (WxDxH)	200x200x51 mm; 7.9"x7.9"x2" 200x200x83 mm; 7.9"x7.9"x3.3" (with optional module)
Weight	1.8 kg

REAR I/O



WEBS-3330-1602

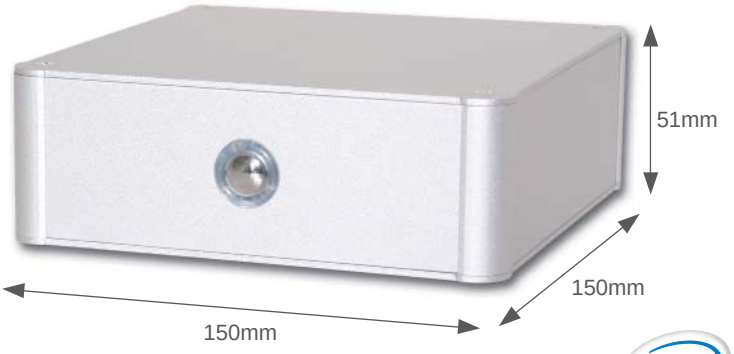
WEBS-3330-1603

ORDERING GUIDE

- **WEBS-3330-1600**
  System with WADE-8070 (Atom™ N270 1.6GHz) + 2GB DDR2 + 120GB HDD
- **WEBS-3330-1602**
  System with WADE-8070 (Atom™ N270 1.6GHz) + 2GB DDR2 + 120GB HDD + DVD Module
- **WEBS-3330-1603**
  System with WADE-8070 (Atom™ N270 1.6GHz) + 2GB DDR2 + 120GB HDD + PCI/e x 1 expansion

WEBS-2120

Embedded compact fan-less system with Intel® Atom™ Z510/Z530 based NANO-ITX board



FEATURES

- Intel® Atom™ processor Z510/Z530 and System Controller Hub US15W
- Ultra low power and fan-less design
- One 200-pin SO-DIMM supports DDR2 SDRAM up to 2GB
- Versatile interfaces such as Compact Flash and 2.5” HDD
- Compact and user-friendly design for easy installation and maintenance
- Versatile mounting solutions such as Wall, Panel and DIN mount (Optional)
- Vibration test (5grms/5~500Hz/operation) - Compact Flash
- Shock test (50g peak acceleration - 11msec. duration) - Compact Flash

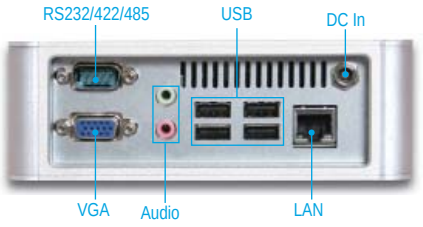
SYSTEM	
CPU	Intel® Atom™ processor Z510 / Z530
FSB	400/533 MHz
BIOS	AMI BIOS
System Chipset	Intel® System Controller Hub US15W integrated GMA 500 Graphics
System Memory	One 200-pin SO-DIMM support DDR2 400/533 up to 2GB
Storage	- 1 x SATA 2.5” HDD - 1 x CF
Watchdog Timer	Programmable via S/W from 1sec. to 255min.
H/W Status Monitor	- Temperature (CPU and System) - Voltage (CPU Vcore, VBAT, 5VSB, 12V, 5V, 3.3V)

REAR PANEL	
Serial Port	1 x RS232/422/485
Display	1 x VGA
USB	4 x USB 2.0
Audio Interface	Line-out and Mic-in
Ethernet	Ethernet 1 x Gigabit Ethernet

Power Supply Unit	
Power Input	DC 12V
Adaptor	AC 100~240V

MECHANICAL & ENVIRONMENTAL	
Operation Temperature	-5~45°C
Storage Temperature	-20~80°C
Relative Humidity	5~95% non-condensing
Dimension (WxDxH)	150x150x51 mm; 5.9”x5.9”x2”
Weight	1 kg

REAR I/O



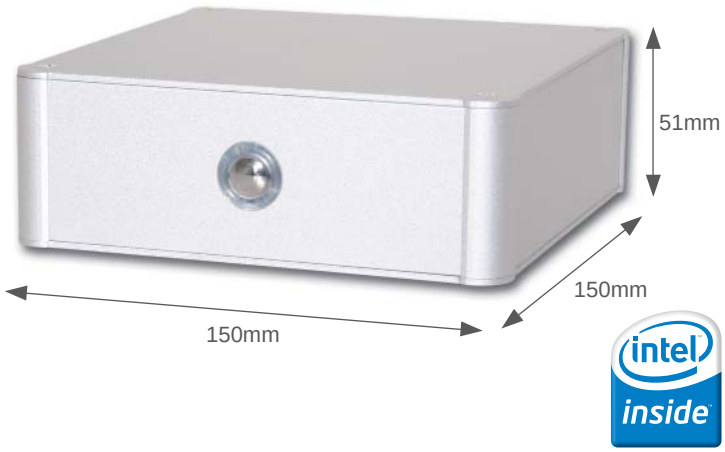
Brick Concept

ORDERING GUIDE

- **WEBS-2120-1100**
  System with NANO-8044 (Atom™Z510 1.1GHz) + 1GB DDR2 + 120GB HDD
- **WEBS-2120-1600**
  System with NANO-8044 (Atom™ Z530 1.6GHz) + 2GB DDR2 + 120GB HDD

WEBS-2121

Embedded compact fan-less system with Intel® Atom™ Z510/Z530 based NANO-ITX board



FEATURES

- Intel® Atom™ processor Z510/Z530 and System Controller Hub US15W
- Ultra low power and fan-less design
- One 200-pin SO-DIMM supports DDR2 SDRAM up to 2GB
- Versatile interfaces such as Compact Flash and SATA 2.5”HDD
- Compact and user-friendly design for easy installation and maintenance
- Versatile mounting solutions such as Wall, Panel and DIN mount (Optional)
- Vibration test (5grms/5~500Hz/operation) - Compact Flash
- Shock test (50g peak acceleration - 11msec. duration) Compact Flash

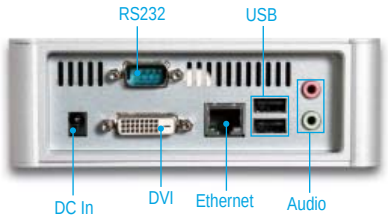
SYSTEM	
CPU	Intel® Atom™ processor Z510 / Z530
FSB	400/533 MHz
BIOS	AMI BIOS
System Chipset	Intel® System Controller Hub US15W integrated GMA 500 Graphics
System Memory	One 200-pin SO-DIMM support DDR2 400/533 up to 2GB
Storage	- 1 x SATA 2.5” HDD - 1 x CF
Watchdog Timer	Programmable via S/W from 1sec. to 255min.
H/W Status Monitor	- Temperature (CPU and System) - Voltage (CPU Vcore, VBAT, 5VSB, 12V, 5V, 3.3V)

REAR PANEL	
Serial Port	1 x RS232
Display	1 x DVI
USB	2 x USB 2.0
Audio Interface	Line-out and Mic-in
Ethernet	1 x Gigabit Ethernet

Power Supply Unit	
Power Input	DC 12V
Adaptor	AC 100~240V

MECHANICAL & ENVIRONMENTAL	
Operation Temperature	-5~45°C
Storage Temperature	-20~80°C
Relative Humidity	5~95% non-condensing
Dimension (WxDxH)	150x150x51 mm; 5.9”x5.9”x2”
Weight	1 kg

REAR I/O



Brick Concept

ORDERING GUIDE

- **WEBS-2121-1100**
  System with NANO-8045 (Atom™ Z510 1.1GHz) +1GB DDR2 + 120GB HDD
- **WEBS-2121-1600**
  System with NANO-8045 (Atom™ Z530 1.6GHz) +2GB DDR2 + 120GB HDD

WEBS-1320

Embedded compact fan-less system with Intel® Atom™ Z510/Z530 based 3.5" ECX board

FEATURES

- Intel® Atom™ processor Z510/Z530 and System Controller Hub US15W
- Ultra low power and fan-less design
- One 200-pin SO-DIMM supports DDR2 SDRAM up to 2GB
- Versatile interfaces such as Compact Flash and SATA 2.5" HDD
- Compact and user-friendly design for easy installation and maintenance
- Versatile mounting solutions such as Wall, Panel and DIN mount (Optional)
- Single DC 12V power input for easy system intergation

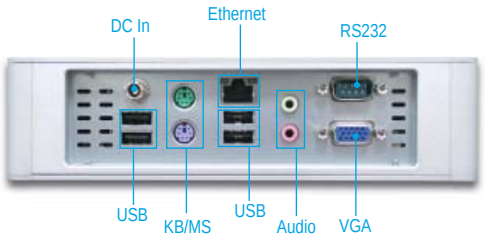
SYSTEM	
CPU	Intel® Atom™ processor Z510 / Z530
FSB	400/533 MHz
BIOS	AMI BIOS
System Chipset	Intel® System Controller Hub US15W integrated GMA 500 Graphics
System Memory	One 200-pin SO-DIMM support DDR2 400/533 up to 2GB
Storage	- 1 x SATA 2.5" HDD - 1 x CF
Watchdog Timer	Programmable via S/W from 1sec. to 255min.
H/W Status Monitor	- Temperature (CPU and System) - Voltage (CPU Vcore, VBAT, 5VSB, 12V, 5V, 3.3V)

REAR PANEL	
Serial Port	1 x RS232
Display	1 x VGA
USB	4 x USB 2.0
KB/MS	1 x K/B; 1 x Mouse
Audio Interface	Line-out and Mic-in
Ethernet	1 x Gigabit Ethernet

Power Supply Unit	
Power Input	DC 12V
Adaptor	AC 100~240V

MECHANICAL & ENVIRONMENTAL	
Operation Temperature	-5~45°C
Storage Temperature	-20~80°C
Relative Humidity	5~95% non-condensing
Dimension (WxDxH)	200x150x51 mm; 7.9"x5.9"x2"
Weight	1.2 kg

REAR I/O



Brick Concept

ORDERING GUIDE

- **WEBS-1320-1100**
  System with PEB-2737 (Atom™ Z510 1.1GHz) +1GB DDR2 + 120GB HDD
- **WEBS-1320-1600**
  System with PEB-2737 (Atom™ Z530 1.6GHz) +2GB DDR2 + 120GB HDD

WEBS-3331

Embedded slim fan-less system with Intel® Atom™ N270 based MINI-ITX board

FEATURES

- Intel® Atom™ N270 1.6GHz processor and Intel® 945GSE + ICH7-M chipset
- One 200-pin SO-DIMM supports DDR2 SDRAM up to 2GB
- Analog Display: Up to 2048 x 1536 (QXGA)
- 36mm height supports thin client and DS application
- Fan-less and optional cable-less design for easy maintenance
- Versatile mounting solutions such as Wall and Panel mount (optional)
- Single DC 12V power input for easy system intergation
- CF socket for storage

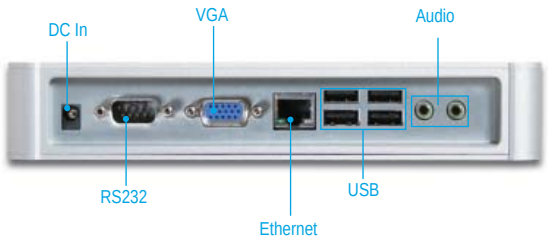
SYSTEM	
CPU	Intel® Atom™ N270 1.6GHz processor
FSB	533 MHz
BIOS	Award BIOS
System Chipset	Intel® 945GSE GMCH integrated GMA 950 Graphics and ICH7-M
System Memory	One 200-pin SO-DIMM supports DDR2 400/533 up to 2GB
SSD	1 x CF
Watchdog Timer	Programmable via S/W from 1sec. to 255min.
H/W Status Monitor	Temperature (CPU and System), Voltage, Case open function

REAR PANEL	
Serial Port	1 x RS232
Display	1 x VGA
USB	4 x USB 2.0
Audio Interface	Line-out and Mic-in
Ethernet	1 x Gigabit Ethernet

Power Supply Unit	
Power Input	DC 12V
Adaptor	AC 100~240V

MECHANICAL & ENVIRONMENTAL	
Operation Temperature	-5~45°C
Storage Temperature	-20~80°C
Relative Humidity	10~90% non-condensing
Dimension (WxDxH)	200x200x36 mm; 7.9"x7.9"x1.4"
Weight	1.1 kg

REAR I/O



Brick Concept

ORDERING GUIDE

- **WEBS-3331-1600**
  System with WADE-8071 (Atom™ N270 1.6GHz) + 2GB DDR2 + 4GB CF
- **WEBS-3331-1601**
  System with WADE-8071 (Atom™ N270 1.6GHz) + 1GB DDR2 + 512MB CF

WEBS-4330

Embedded rugged compact fan-less system with Intel® Atom™ N270 based MINI-ITX board

FEATURES

- Intel® Atom™ N270 1.6GHz processor and Intel® 945GSE+ICH7-M chipset
- Dual display (VGA / DVI-D), Dual Gigabit Ethernet and Dual RS232
- Optional GADIWA-R9271 (9~27V) for IVI application
- Rugged and Fan-less design is ideal for Environment-critical application
- External GPIO (4 in, 4 out) for digital control
- Versatile mounting solutions such as Wall and Panel mount (Optional)
- Single DC 12V power input for easy system intergation
- Two interfaces of DC power input by adaptor plug or wiring type

SYSTEM	
CPU	Intel® Atom™ N270 1.6GHz processor
FSB	533 MHz
BIOS	AMI BIOS
System Chipset	Intel® 945GSE GMCH integrated GMA 950 Graphics and ICH7-M
System Memory	One 200-pin SO-DIMM support DDR2 400/533 up to 2GB
Storage	1 x CF, 1x HDD
Watchdog Timer	Programmable via S/W from 1sec. to 255min.
H/W Status Monitor	Temperature (CPU and System), Voltage

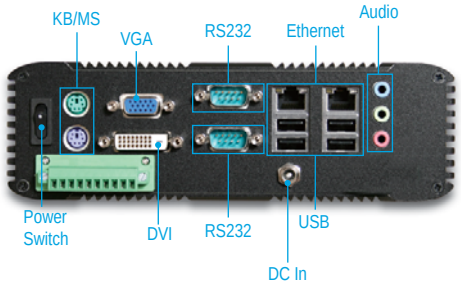
REAR PANEL	
Serial Port	2 x RS232
Display	1 x VGA + 1 x DVI-D
USB	4 x USB 2.0
KB/MS	1 x K/B; 1 x Mouse
Audio Interface	Line-in, Line-out and Mic-in
Ethernet	2 x Gigabit Ethernet
PS/2	1 x Keyboard. 1 x Mouse
Digital IO	8-bit Digital IO

Power Supply Unit	
Power Input	DC 12V
Adaptor	AC 100~240V
Optional wire type DC-IN	DC 9V~27V

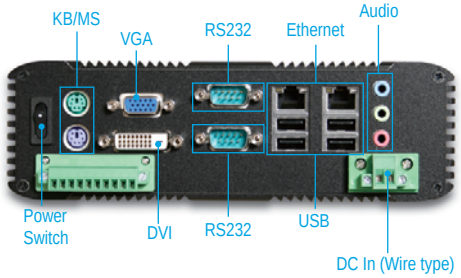
MECHANICAL & ENVIRONMENTAL	
Operation Temperature	-5~45°C
Storage Temperature	-20~80°C
Relative Humidity	10~90% non-condensing
Dimension (WxDxH)	200x200x62 mm; 7.9"x7.9"x2.4"
Weight	1.9 kg

REAR I/O

WEBS-4330-1600



WEBS-4330-1603

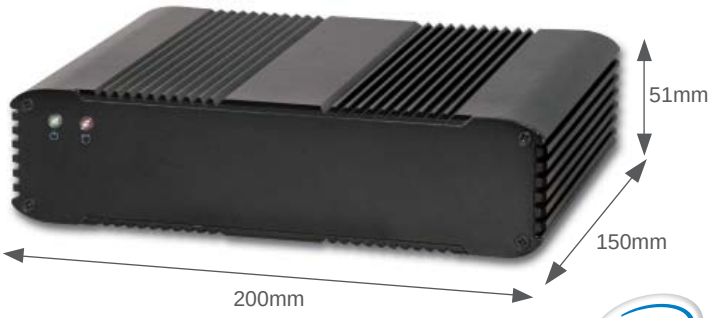


ORDERING GUIDE

- **WEBS-4330-1600**
  System with WADE-8170 (Atom™ N270 1.6GHz) with DC Jack + Adaptor + 2GB DDR2 + 160GB HDD
- **WEBS-4330-1603**
  System with WADE-8170 (Atom™ N270 1.6GHz) + GADIWA-R9271 with wire type power input interface

WEBS-1310

Embedded rugged fan-less system with Intel® Atom™ Z510PT/Z520PT based 3.5" ECX board



FEATURES

- Intel® Atom™ processor Z510PT/Z520PT and System Controller Hub US15WPT
- Wide temperature range and fan-less design are perfect for environment-critical applications
- One Mini-PCIExpress expansion and Antenna hole
- GPIO and rich I/O and good for versatile applications
- Rugged and compact are good for using at harsh environment
- Versatile mounting solutions such as Wall and Panel mount (Optional)
- Single DC 12V power input for easy system intergation

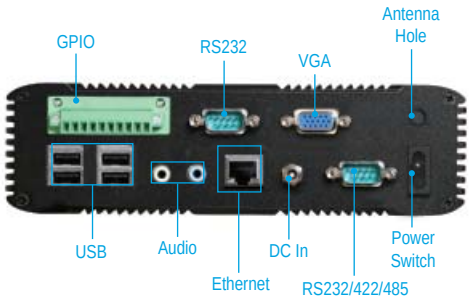
SYSTEM	
CPU	Intel® Atom™ Z510PT(1.1GHz)/Z520PT(1.3GHz)
FSB	400/533 MHz
BIOS	AMI BIOS
System Chipset	Intel® US15WPT
System Memory	One 200-pin SO-DIMM support DDR2 400/533 up to 2GB
Storage	1 x CF, 1 x SSD
Watchdog Timer	Programmable via S/W from 1sec. to 255min.
H/W Status Monitor	Temperature (CPU and System), Voltage

REAR PANEL	
Serial Port	1 x RS232 + 1 x RS232/422/485
Display	1 x VGA
USB	4 x USB 2.0
Audio Interface	Line-out and Mic-in
Ethernet	1 x Gigabit Ethernet
Digital IO	8-bit Digital IO

Power Supply Unit	
Power Input	DC 12V
Adaptor	AC 100~240V

MECHANICAL & ENVIRONMENTAL	
Operation Temperature	-25~70°C
Storage Temperature	-40~80°C
Relative Humidity	5~95% non-condensing
Dimension (WxDxH)	200x150x51 mm; 7.9"x5.9"x2"
Weight	1.6 kg

REAR I/O

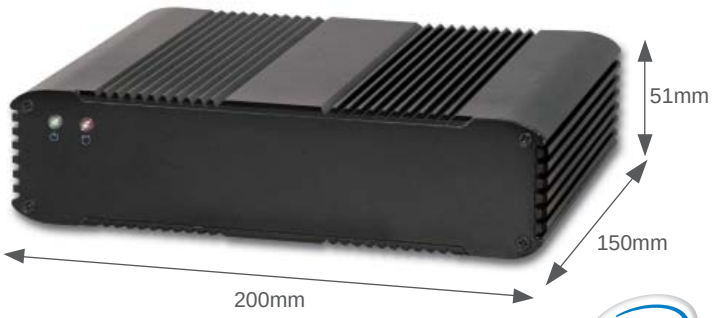


ORDERING GUIDE

- **WEBS-1310-1100**
  System with PEB-2738 (Atom™ Z510PT 1.1GHz) + 1GB DDR2 + 512MB CF
- **WEBS-1310-1300**
  System with PEB-2738 (Atom™ Z520PT 1.3GHz) + 2GB DDR2 + 4GB CF

WEBS-1312

Embedded rugged fan-less system with Intel® Atom™ Z510PT/Z520PT based 3.5" ECX board



FEATURES

- Intel® Atom™ processor Z510PT/Z520PT and System Controller Hub US15WPT
- Wide temperature range and fan-less design are perfect for environment-critical applications
- One Mini-PCIExpress expansion and Antenna hole
- GPIO and rich I/O and good for versatile applications
- Rugged and compact are good for using at harsh environment
- Versatile mounting solutions such as Wall and Panel mount (Optional)
- Single DC 12V power input for easy system intergation
- SATA HDD support

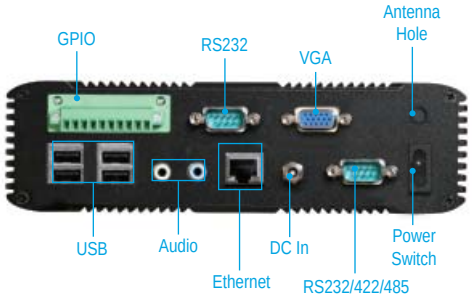
SYSTEM	
CPU	Intel® Atom™ Z510PT(1.1GHz)/Z520PT(1.3GHz)
FSB	400/533 MHz
BIOS	AMI BIOS
System Chipset	Intel® US15WPT
System Memory	One 200-pin SO-DIMM support DDR2 400/533 up to 2GB
Storage	1 x CF, 1 x SSD SATA HDD
Watchdog Timer	Programmable via S/W from 1sec. to 255min.
H/W Status Monitor	Temperature (CPU and System), Voltage

REAR PANEL	
Serial Port	1 x RS232 + 1 x RS232/422/485
Display	1 x VGA
USB	4 x USB 2.0
Audio Interface	Line-out and Mic-in
Ethernet	1 x Gigabit Ethernet
Digital IO	8-bit Digital IO

Power Supply Unit	
Power Input	DC 12V
Adaptor	AC 100~240V

MECHANICAL & ENVIRONMENTAL	
Operation Temperature	-25~70°C
Storage Temperature	-40~80°C
Relative Humidity	5~95% non-condensing
Dimension (WxDxH)	200x150x51 mm; 7.9"x5.9"x2"
Weight	1.6 kg

REAR I/O

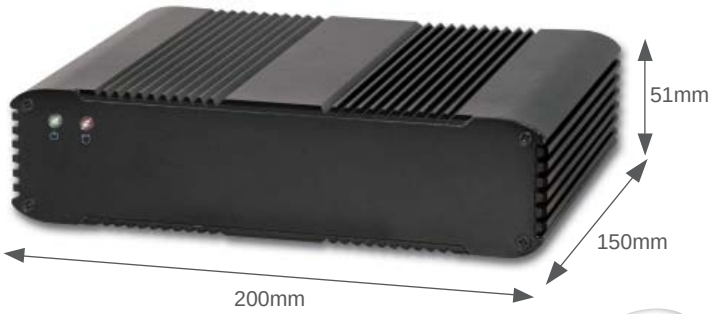


ORDERING GUIDE

- **WEBS-1312-1100**
  System with PEB-2739 (Atom™ Z510PT 1.1GHz) + 2GB DDR2 + 64GB SSD HDD

WEBS-1330

Embedded rugged fan-less system with Intel® Atom™ N270 based 3.5" ECX board



FEATURES

- Intel® Atom™ N270 1.6GHz processor and Intel® 945GSE+ ICH7-M chipset
- Analog Display: Up to 2048 x 1536 (QXGA)
- One Mini-PCIExpress expansion with an Antenna hole
- Dual LAN and 4 COMs (5V/12V selectable) are good for networking, POS and automation applications
- Rugged and compact design for harsh environment
- Versatile mounting solutions such as Wall and Panel mount (Optional)
- Single DC 12V power input for easy system intergation

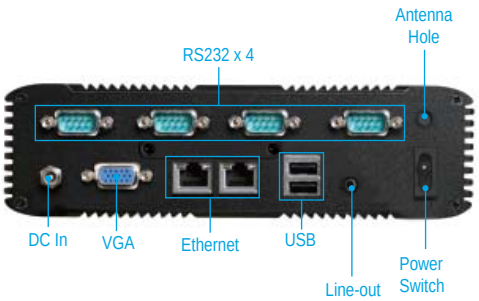
SYSTEM	
CPU	Intel® Atom™ N270 1.6GHz processor
FSB	533 MHz
BIOS	AMI BIOS
System Chipset	Intel® 945GSE GMCH integrated GMA 950 Graphics and ICH7-M
System Memory	One 200-pin SO-DIMM support DDR2 400/533 up to 2GB
Storage	1 x CF, 1x HDD
Watchdog Timer	Programmable via S/W from 1sec. to 255min.
H/W Status Monitor	Temperature (CPU and System), Voltage

REAR PANEL	
Serial Port	4 x Powered RS232 (5V/12V)
Display	1 x VGA
USB	2 x USB 2.0
Audio Interface	Line-out
Ethernet	2 x Gigabit Ethernet

Power Supply Unit	
Power Input	DC 12V
Adaptor	AC 100~240V

MECHANICAL & ENVIRONMENTAL	
Operation Temperature	-5~45°C
Storage Temperature	-20~80°C
Relative Humidity	10~90% non-condensing
Dimension (WxDxH)	200x150x51 mm; 7.9"x5.9"x2"
Weight	1.6 kg

REAR I/O

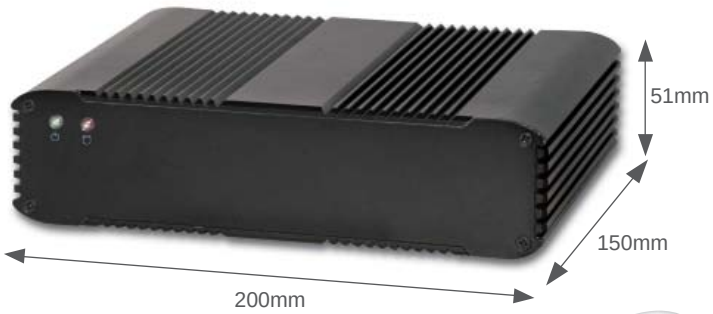


ORDERING GUIDE

- **WEBS-1330-1600**
  System with PEB-2131 (AtomTM N270 1.6GHz) + 1GB DDR2 + 512MB CF

WEBS-1340

Embedded rugged fan-less system with Intel® Atom™ N450/D510 based 3.5" ECX board



FEATURES

- Fan-less solution with Dual-Core CPU
- Intel® Atom™ N450/D510 1.6GHz processor and Intel® ICH8-M chipset
- Dual Gigabit Ethernet
- Rich I/O is good for versatile applications
- Rugged and compact design for harsh environment
- Versatile mounting solutions such as Wall and Panel mount (Optional)
- Single DC 12V power input for easy system intergation
- Three RS232 and one RS232/422/485 serial ports

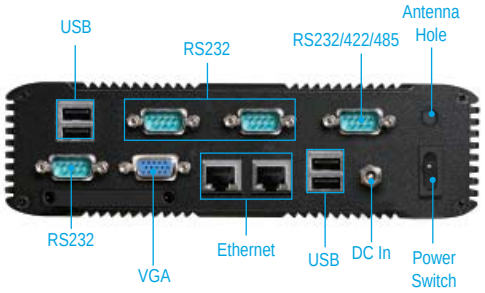
SYSTEM	
CPU	Intel® Atom™ N450/D510 1.6GHz processor
FSB	667 MHz
BIOS	AMI BIOS
System Chipset	Intel® ICH8-M
System Memory	One 200-pin SO-DIMM support DDR2 up to 2GB
Storage	1 x CF, 1 x HDD
Watchdog Timer	Programmable via S/W from 1sec. to 255min.
H/W Status Monitor	Temperature (CPU and System), Voltage

REAR PANEL	
Serial Port	3 x RS232 + 1 x RS232/422/485
Display	1 x VGA
USB	4 x USB 2.0
Audio Interface	N/A (internal header only)
Ethernet	2 x Gigabit Ethernet

Power Supply Unit	
Power Input	DC 12V
Adaptor	AC 100~240V

MECHANICAL & ENVIRONMENTAL	
Operation Temperature	-5~45°C
Storage Temperature	-20~80°C
Relative Humidity	10~90% non-condensing
Dimension (WxDxH)	200x150x51 mm; 7.9"x5.9"x2"
Weight	1.6 kg

REAR I/O

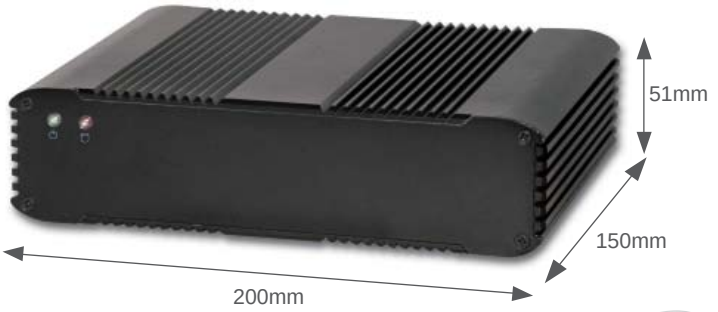


ORDERING GUIDE

- **WEBS-1340-1600**
  System with PEB-2780 (Atom™ N450 1.6GHz) + 1GB DDR2 + 512MB CF
- **WEBS-1340-3200**
  System with PEB-2770 (Atom™ D510 1.6GHz) + 2GB DDR2 + 4GB CF

WEBS-1341

Embedded rugged fan-less system with Intel® Atom™ N455/D525 based 3.5" ECX board



FEATURES

- Fan-less solution with Dual-Core CPU
- Intel® Atom™ N455/D525 1.6GHz processor and Intel® ICH8-M chipset
- Dual Gigabit Ethernet
- Rich I/O is good for versatile applications
- Rugged and compact design for harsh environment
- Versatile mounting solutions such as Wall and Panel mount (Optional)
- Single DC 12V power input for easy system intergation
- Three RS232 and one RS232/422/485 serial ports
- One Mini-PCI Express expansion

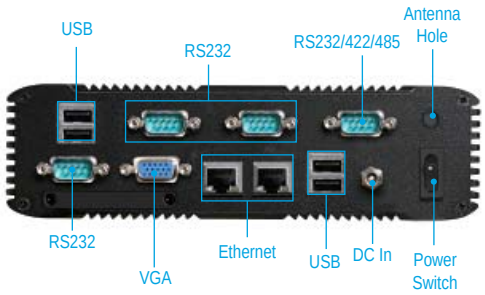
SYSTEM	
CPU	Intel® Atom™ N455 (1.6GHz) / D525 (1.8GHz) processor
FSB	667 MHz
BIOS	AMI BIOS
System Chipset	Intel® ICH8-M
System Memory	One 204-pin SO-DIMM support DDR3 up to 2GB
Storage	1 x CF, 1 x HDD
Watchdog Timer	Programmable via S/W from 1sec. to 255min.
H/W Status Monitor	Temperature (CPU and System), Voltage

REAR PANEL	
Serial Port	3 x RS232 + 1 x RS232/422/485
Display	1 x VGA
USB	4 x USB 2.0
Audio Interface	N/A (internal header only)
Ethernet	2 x Gigabit Ethernet

Power Supply Unit	
Power Input	DC 12V
Adaptor	AC 100~240V

MECHANICAL & ENVIRONMENTAL	
Operation Temperature	-5~45°C
Storage Temperature	-20~80°C
Relative Humidity	10~90% non-condensing
Dimension (WxDxH)	200x150x51 mm; 7.9"x5.9"x2"
Weight	1.6 kg

REAR I/O



ORDERING GUIDE

- **WEBS-1341-1600**
  System with PEB-2781 (Atom™ N455 1.6GHz) + 1GB DDR3 + 512MB CF
- **WEBS-1341-3200**
  System with PEB-2771 (Atom™ D525 1.8GHz) + 2GB DDR3 + 4GB CF

WEBS-3332

Embedded rugged fan-less system with Intel® Atom™ N455/D525 based 3.5" ECX board

FEATURES

- Intel® Atom™ N270 1.6GHz processor and Intel® 945GSE + ICH7-M chipset
- One 200-Pin SO-DIMM supports DDR2 SDRAM up to 2GB
- Analog Display: Up to 2048 x 1536 (QXGA)
- 40mm height supports thin client and DS application
- Fan-less and optional cable-less design for easy maintenance
- Rugged and slim design is ideal for environment-critical application
- Versatile mounting solutions such as Wall and Panel mount (Optional)
- Vibration test (5grms/5~500Hz/operation)
- Shock test (50g peak acceleration - 11msec. duration)

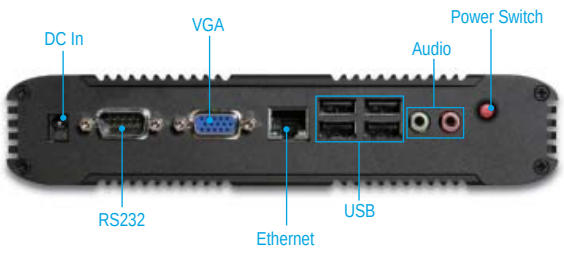
SYSTEM	
CPU	Intel® Atom™ N270 1.6GHz processor
FSB	533 MHz
BIOS	Award BIOS
System Chipset	Intel® 945GSE GMCH integrated GMA 950 Graphics and ICH7-M
System Memory	One 200-pin SO-DIMM support DDR2 400/533 up to 2GB
SSD	1 x CF
Watchdog Timer	Programmable via S/W from 1sec. to 255min.
H/W Status Monitor	Temperature (CPU and System), Voltage

REAR PANEL	
Serial Port	1 x RS232
Display	1 x VGA
USB	4 x USB 2.0
Audio Interface	Line-out and Mic-in
Ethernet	1 x Gigabit Ethernet

Power Supply Unit	
Power Input	DC 12V
Adaptor	AC 100~240V

MECHANICAL & ENVIRONMENTAL	
Operation Temperature	-5~50°C
Storage Temperature	-20~80°C
Relative Humidity	10~90% non-condensing
Dimension (WxDxH)	200x200x40 mm; 7.9"x7.9"x1.6"
Weight	1.4 kg

REAR I/O



ORDERING GUIDE

- **WEBS-3332-1600**
  System with WADE-8071 (Atom™ N270 1.6GHz) + 2GB DDR2 + 4GB CF
- **WEBS-3332-1601**
  System with WADE-8071 (Atom™ N270 1.6GHz) + 1GB DDR2 + 512MB CF

WEBS Mounting Solution

Wall Mount Kit

WEBS-2120 / 2121 / 1320

System Size	150/200(W) x 150(D) x 51(H)mm
Ordering	WEBS-2120 Wall Mount Kit

WEBS-3330 / 3331

System Size	200(W) x 200(D) x 51/36(H)mm
Ordering	WEBS-3330 Wall Mount Kit

WEBS-3332 / 4330

System Size	200(W) x 200(D) x 40/62(H)mm
Ordering	WEBS-3332 Wall Mount Kit

WEBS-1310 / 1330 / 1340

System Size	200(W) x 150(D) x 51(H)mm
Ordering	WEBS-1310 Wall Mount Kit

DIN Mount Kit

WEBS-2120 / 2121 / 1320

System Size	150/200(W) x 150(D) x 51(H)mm
Ordering	WEBS-2120 Wall Mount Kit
Remark	DIN Rail H=35mm (w/o Rail)

Panel Mount Kit

WEBS-2120 / 2121

System Size	150(W) x 150(D) x 51(H)mm
Ordering	WEBS-2120 Panel Mount Kit
Remark	VESA 75/100

WEBS-1320

System Size	200(W) x 150(D) x 51(H)mm
Ordering	WEBS-1320 Panel Mount Kit
Remark	VESA 75/100

WEBS-3330 / 3331

System Size	200(W) x 200(D) x 51/36(H)mm
Ordering	WEBS-3330 Panel Mount Kit
Remark	VESA 75/100

WEBS-3332 / 4330

System Size	200(W) x 200(D) x 40/62(H)mm
Ordering	WEBS-3332 Panel Mount Kit
Remark	VESA 75/100

WEBS-1310 / 1330 / 1340

System Size	200(W) x 150(D) x 51(H)mm
Ordering	WEBS-1310 Panel Mount Kit
Remark	VESA 75/100

PSU Reference Table

ORION-A2501

ORION-D5501P

ORION-D3202P

ORION-D4601P

ORION-D4602P

MPM-842P

MPI-815H

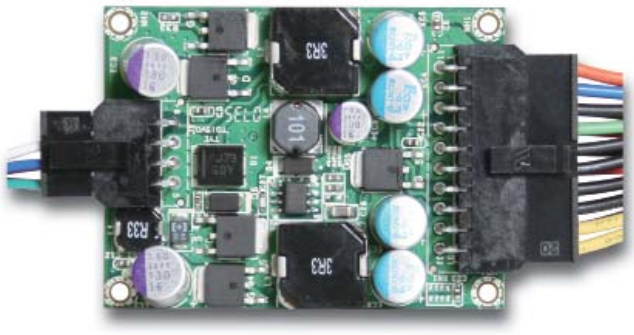
MPI-810H

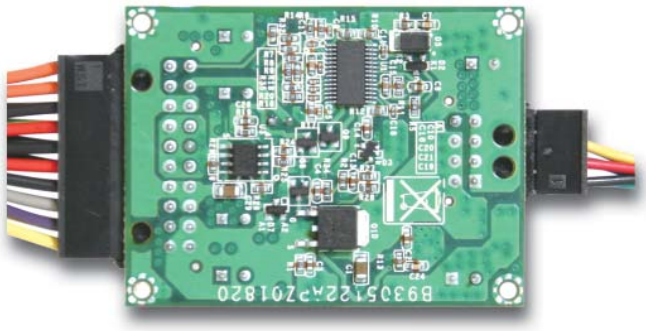
MPI-806H

TYPE	MODEL	FORM FACTOR	DIMENSON	POWER RANGE	PAGE
Single	GADIWA-P0901	DC/DC	60 x 45 x 15 mm	120W / ATX Output	154
Wide-Range	GADIWA-P9271	Regulator	60 x 45 x 22 mm	9-27V DC / Regulator	155
Wide-Range	GADIWA-3160	DC/DC	150 x 51 x 22.5 mm	128W / 12~36V DC / Input	156
Wide-Range	GADIWA-3161	DC/DC	100 x 45 x 22.5 mm	128W / 9-29V DC / Input	157
Single	ORION-A2501	1U	100 x 190 x 40.5 mm 3.93” x 7.48” x 1.60”	250W / PFC / P4	158
Single	ORION-A1501	1U	100 x 190 x 40 mm 3.93” x 7.48” x 1.57”	150W / PFC / P4	158
Single	ORION-A1501P	Low-Noise	81.5 x 150 x 40.5 mm 3.2” x 5.9” x 1.6”	150W / ATX	159
Single	ORION-A1801P	Low-Noise	81.5 x 150 x 40.5 mm 3.2” x 5.9” x 1.6”	180W / ATX	159
Single	ORION-B3501P	2U	190 x100 x 70 mm 7.48” x 3.94” x 2.8”	350W / PFC / P4	160
Single	ORION-D3501P	PS/2	150 x 140 x 86 mm 5.9” x 5.5” x 3.4”	350W / PFC / P4	160
Single	ORION-D4601P	PS/2	150 x 140 x 86 mm 5.9” x 5.5” x 3.4”	460W / PFC / P4	161
Single	ORION-D5501P	PS/2	150 x 140 x 86 mm 5.9” x 5.5” x 3.4”	550W / PFC / P4	161
Redundant	ORION-300DX/24/48	PS/2	150 x 140 x 86 mm 5.9” x 5.5” x 3.4”	330W / DC / ATX	162
Redundant	ORION-D3002DDP	mini-redundant DC TO DC	150 x 183 x 86 mm 5.9” x 7.2” x 3.4”	300W / PFC / DC / P4	162
Redundant	ORION-D3502P	mini-redundant	150 x 190 x 84 mm 5.9” x 7.2” x 3.4”	320W / PFC / P4	163
Redundant	ORION-D4602P	mini-redundant	150 x 140 x 86 mm 5.9” x 5.5” x 3.4”	400W / PFC / P4	163
Single	MPM-842P	PS/2	150 x140 x 86 mm 5.9” x 5.5” x 3.4”	400W / Medical / ATX	164
Single	MPI-815H	OPEN FRAME	198 x 93 x 40.5 mm 7.8” x 3.66” x 1.6”	150W / Fanless / ATX	164
Single	MPI-810H	OPEN FRAME	83.9 x 152.4 x 38.1 mm 3.3” x 6” x 1.5”	120W / ATX	165
Single	MPD-810H	OPEN FRAME DC TO DC	83.9 x 152.4 x 38.1 mm 3.3” x 6” x 1.5”	120W / DC / ATX	165
Single	MPE-008A-P	OPEN FRAME	50.8 x 127 x 40 mm 2” x 5” x 1.57”	80W / ATX	166
Single	MPI-806H	OPEN FRAME	128 x 81 x 40 mm 5.0” x 3.2” x 1.55”	60W / ATX	166
Adapter					167
Configuration Matrix					168

GADIWA-P0901

120W DC/DC Converter (12V/input, ATX/output), Board Type





GADIWA-P0901 is a DC-DC converter for board type. It normally support 120Watts and maximum can reach to 150Watts. GADIWA-P0901 can save more space and cost, it's not only capability for fan-less system but also suitability for different application. Moreover, the converter is made and tested by automatic production line; therefore, it can provide high quality and performance.

FEATURES

- 12V DC/input, plug into the ATX connector with board output
- Compact and user-friendly design for installation and maintenance
- Fan-less design for mission-critical application
- Small size for 1U or higher system to save space

SPECIFICATION

Input Voltage	12V (+5%/-4%)
Line Regulation	11.52V / 12.6V
Output	120Watts/ 150Watts peak
Efficiency	>96% @ 12.3V
MTBF	836,407hrs @45°C, 592,361hrs @55°C
EMI & Safety Approval	CE, FCC
Input Connector	Mini-Fit 8 pin (P/N: B6902040)
Output Connector	Mini-Fit 20 pin (P/N: B6902071)
Dimension (WxDxH)	60 x 45 x 15 mm

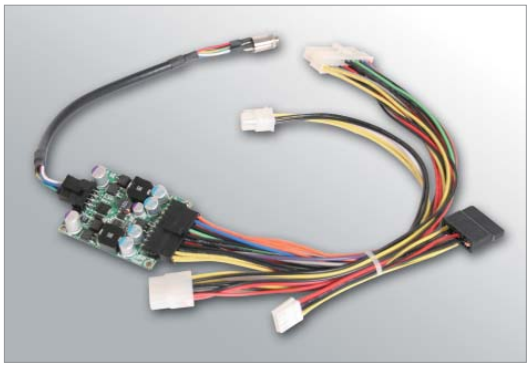
CHARACTERISTICS

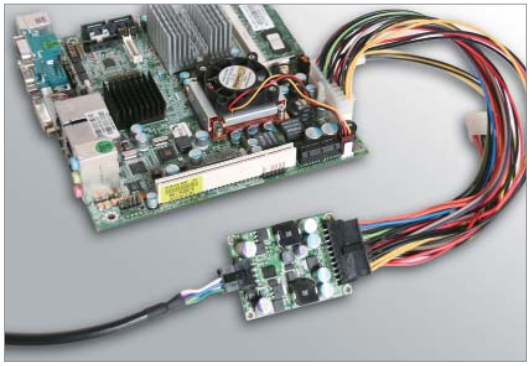
Output Voltage	Load Regulation	Cross Regulation
+12V	0~7A	6.5A
+5V	0~6A	6A
+3.3V	0~6A	6A
+5Vsb	0~2A	1A
-12V	0~0.1A	0.1A

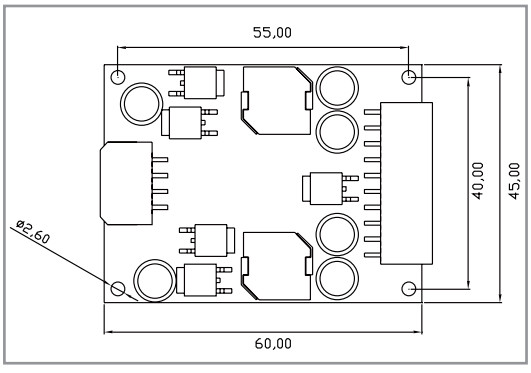
ORDERING GUIDE

- **GADIWA-P0901**
  120W DC/DC Converter (12V/input, ATX/output), Board Type

Installation Image

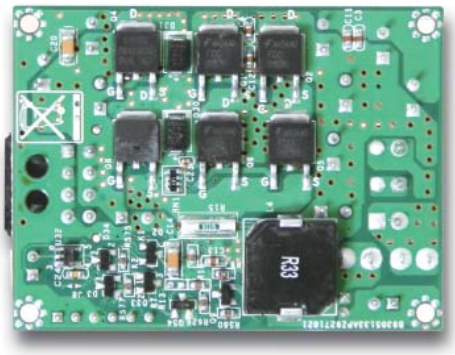






GADIWA-R9271

9V~27V/wide-input, 12V/output Regulator, Board Type

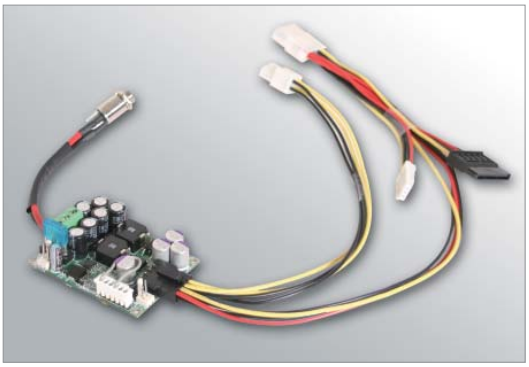


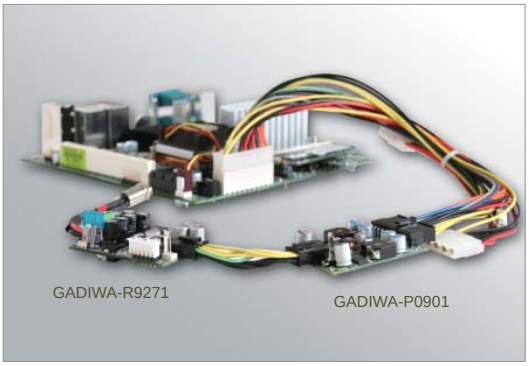
GADIWA- R9271 is a wide input regulator for board type. GADIWA-R9271 can collocate with GADIWA-P0901 and GADIWA-1120 which are DC-DC converters; it's easily to deploy critical application. The converter is made and tested by automatic production line; therefore, it can provide high quality and performance. GADIWA-R9271 has special design for socket type fuse protection.

FEATURES

- Compact and user-friendly design for installation and maintenance
- Small size for 1U or higher system to save space
- Suitable for Car PC, Steamer, Truck, Boat and Adapter
- Special Design for Delay-Time
- Socket Type Fuse Protection

Installation Image



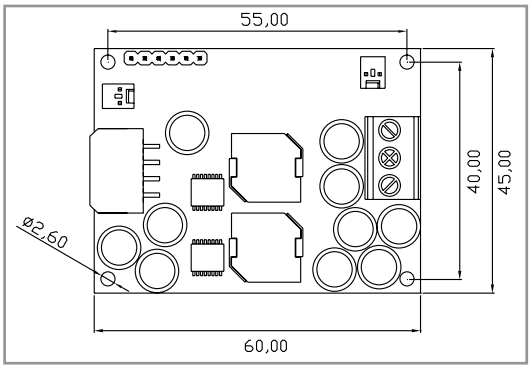


SPECIFICATION

Input Voltage	9V~27V
Line Regulation	9V~27V continuous, 7~30V<10 sec@cold start
Efficiency	>95% @ 14V input
MTBF	577,768hrs @45°C, 409,990hrs @55°C
EMI & Safety Approval	CE, FCC
Input Connector	Mini-Fit 3 pin (P/N: B6902060)
Output Connector	Mini-Fit 8 pin (P/N: B6902042)
Dimension (WxDxH)	60 x 45 x 22 mm

CHARACTERISTICS

Output Voltage	Load Regulation	Cross Regulation
+12V	12.3V @ 0~8.5A	12.3V @ 0~8.5A

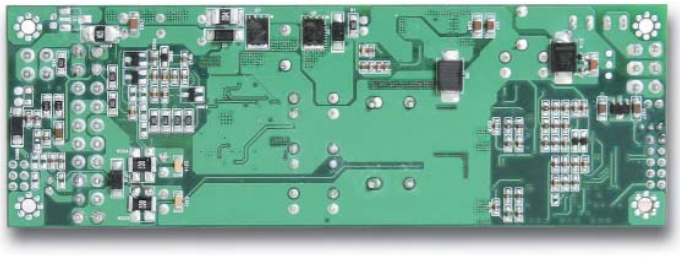


ORDERING GUIDE

- **GADIWA-R9271**
  9V to 27V/Wide-input, 12V/output Regulator, Board Type

GADIWA-3160

128W DC/DC 12V~36V/wide-input, ATX/output, Board Type Converter



GADIWA- 3160 is a wide input converter for board type. It normally support 128Watts and maximum can reach to 160Watts. GADIWA-3160 can save more space and cost, it's not only capability for fan-less system but also suitability for different application. Gadiwa-3610 also have UL certification and watch dog function design, it'll be easy to deploy any critical application.

FEATURES

- 12~36V/Wide-input, plug into the ATX connector with board output
- Compact and user-friendly design for installation and maintenance
- Fan-less design for mission-critical application
- Small size for 1U or higher system to save space
- Watchdog Timer function

SPECIFICATION

Input Voltage	12V~36V
Line Regulation	11.5V~36V/input
Output	128Watts / 160Watts Peak
Efficiency	>85% @ 12V
MTBF	245.000hrs @45°C, 192,000hrs @55°C
EMI & Safety Approval	UL, CE, FCC
Input Connector	Mini-Fit 6 pin (P/N: B6902400)
Output Connector	- Mini-Fit 20 pin (P/N: B6902410) - 12V output (P/N: B6902420)
Dimension (WxDxH)	150 x 51 x 22.5 mm

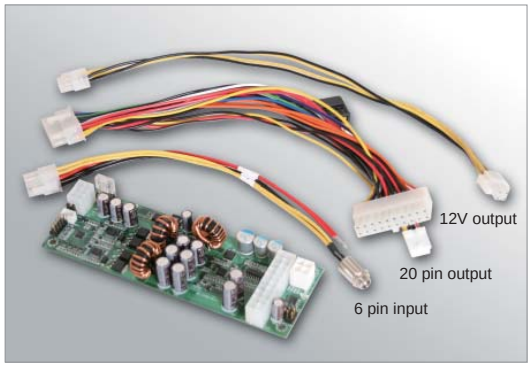
CHARACTERISTICS

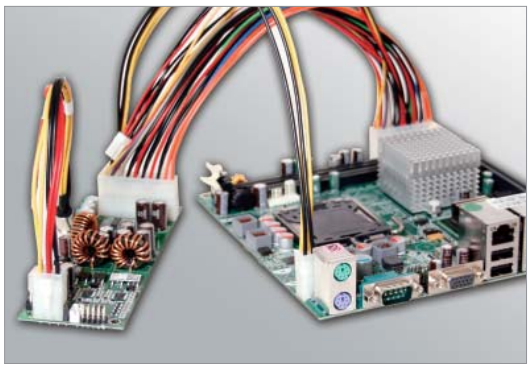
Output Voltage	Current Range (forced air 10cfm)	Current Range (convection or high temperatures)
+12V	0~8A	0~6A
+5V	0~8A	0~6A
+3.3V	0~7A	0~5.25A
+5Vsb	0~2A	0~1.5A
-12V	0~0.15A	0~0.12A

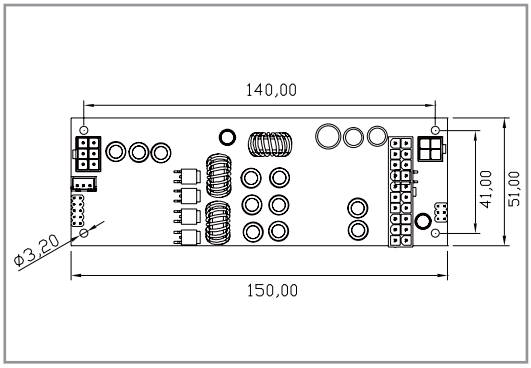
ORDERING GUIDE

- **GADIWA-3160**
  128W DC/DC 12V~36V/wide-input, ATX/output, Board Type Converter

Installation Image







GADIWA-3161

128W DC/DC 9V~29V/wide-input, ATX/output, Board Type Converter

GADIWA- 3161 is a wide input board type converter. It normally support 128Watts and maximum can reach to 160Watts. GADIWA-3160 can save more space and cost, it's not only capability for fan-less system but also suitability for different application. Besides, the converter is made and tested by automatic production line; therefore, it can provide high quality and performance.

FEATURES

- 9~29V/Wide-input, plug into the ATX connector with board output
- Compact and user-friendly design for installation and maintenance
- Fan-less design for mission-critical application
- Small size for 1U or higher system to save space
- Socket Type Fuse Protection

SPECIFICATION

Input Voltage	9V~29V, 6~9V workable with derating
Line Regulation	9V~29V/input
Output	128Watts / 160 Watts Peak
Efficiency	>85% @ 12V input @ 120W output
EMI & Safety Approval	CE, FCC
Input Connector	Mini-Fit 6 pin (P/N: B6902430)
Output Connector	- Mini-Fit 20 pin (P/N: B6902410) - 12V output (P/N: B6902420)
Dimension (WxDxH)	100 x 45 x 22.5 mm

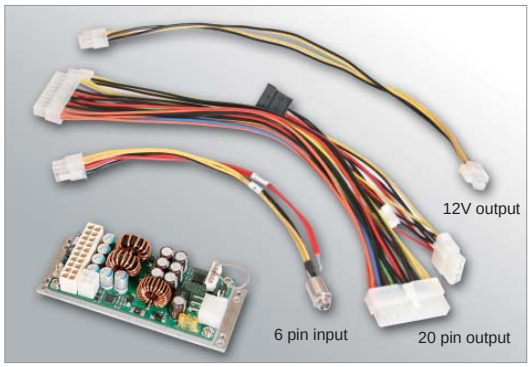
CHARACTERISTICS

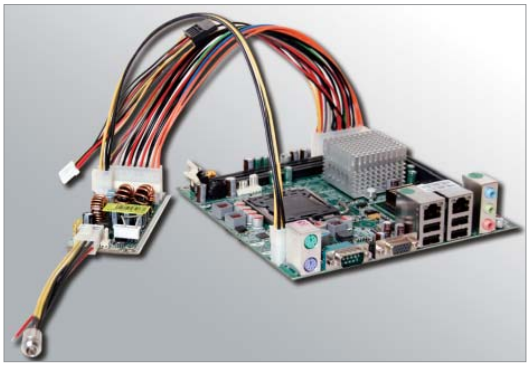
Output Voltage	Load Regulation	Cross Regulation
+12V	0~6A	6A
+5V	0~6A	6A
+3.3V	0~6A	6A
+5Vsb	0~2A(Share with +5V)	2A(Share with +5V)
-12V	0~0.1A	0.1A

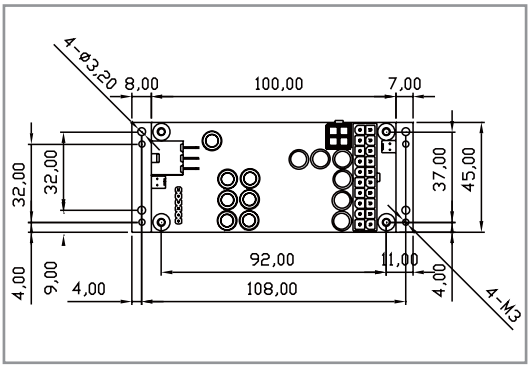
ORDERING GUIDE

- **GADIWA-3161**
  128W DC/DC 9V~29V/wide-input, ATX/output, Board Type Converter

Installation Image







ORION-A2501

250W 1U ATX power supply with active PFC

FEATURES

- Low profile power supply suitable for 1U and node chassis
- Active PFC, full-range input
- Support for Intel® Pentium® 4 processor
- Total output power of +5V, +3.3V and +12V is 234W

SPECIFICATION

Input Voltage	90V ~ 264V AC, full range
Input Frequency	47 ~ 63 Hz
Input Current	6A@115V, 3A@230V
Efficiency	> 65%
Holdup Time	16 ms at full load
Over Voltage Protection	+5V: 5.4 ~ 6.5V; +3.3V: 3.9 ~ 4.4V; +12V: 13.6 ~ 15.6V
Over Power/Load Protection	Output power over 110% ~ 160%
MTBF	105,405 hrs
EMI & Safety Approval	UL, cUL, TUV, CE, FCC
Temperature/Humidity	Operating: 5 ~ 40°C, 20 ~ 90%RH Storage: -20 ~ 60°C, 5 ~ 95%RH
Dimension (WxDxH)	100 x 190 x 40.5 mm; 3.93" x 7.48" x 1.59"

ORDERING GUIDE

- **ORION-A2501**
  250W 1U ATX power supply with active PFC

DC OUTPUT

	+5V	+3.3V	+12V	-5V	-12V	+5Vsb
Max. Load	24A	20A	12A	0.5A	0.5A	1.5A
Min. Load	3A	1A	2A	0A	0A	0.1A
Load Reg.	±5%	±5%	±8%	±10%	±10%	±5%
Line Reg.	±1%	±1%	±1%	±1%	±1%	±1%
Ripple & Noise	80mv	80mv	120mv	150mv	150mv	80mv

ORION-A1501

150W 1U ATX power supply with active PFC

FEATURES

- Low profile power supply suitable for 1U and node chassis
- Active PFC, full-range input
- Higher +5V and +3.3 V output
- Max. +5V standby output is 1.5A

SPECIFICATION

Input Voltage	90V ~ 264V AC, full range
Input Frequency	47 ~ 63 Hz
Input Current	4A@115V, 2A@230V
Efficiency	> 65%
Holdup Time	16 ms. at full load
Over Voltage Protection	+5V: 5.6~6.6V; +3.3V: 3.6~4.2V; +12V: 13.2~14.6V
Over Power/Load Protection	Output power over 110% ~ 160%
MTBF	84,228 hrs
EMI & Safety Approval	UL, cUL, TUV, CE, FCC
Temperature/Humidity	Operating: 0 ~ 40°C, 20 ~ 90%RH Storage: -20 ~ 60°C, 5 ~ 95%RH
Dimension (WxDxH)	100 x 190 x 40 mm; 3.9" x 7.48" x 1.57"

ORDERING GUIDE

- **ORION-A1501**
  150W 1U ATX power supply with active PFC

DC OUTPUT

	+5V	+3.3V	+12V	-5V	-12V	+5Vsb
Max. Load	14A	10A	6A	0.5A	0.8A	1.5A
Min. Load	2A	1A	1A	0.1A	0.1A	0.1A
Max. Watt.	135W	135W	135W	2.5W	9.6W	7.5W
Load Reg.	±5%	±5%	±5%	±5%	±10%	±5%
Cross Reg.	±5%	±5%	±5%	±5%	±10%	±5%
Line Reg.	±1%	±1.5%	±0.8%	±1%	±1%	±1%
Ripple	±1%	±1.8%	±1%	±2%	±1%	±1.2%
Noise	±1.4%	±2.1%	±1%	±2%	±1%	±1.4%

ORION-A1501P

150W Flex form factor power supply with active PFC

FEATURES

- 1U Flex form factor power supply
- Full-range input with active PFC
- Max. 5V output is 13A
- Low noise

SPECIFICATION

Input Voltage	90V ~ 264V AC, full range
Input Frequency	47 ~ 63 Hz
Input Current	7.5A@115V, 3.5A@230V
Efficiency	> 71%
Holdup Time	16 ms at full load
Over Voltage Protection	+5V: 4.75 ~ 5.25V; +3.3V: 3.14 ~ 3.47V; +12V: 11.4V ~ 12.6V
Over Power/Load Protection	Output power over 110% ~ 150%
MTBF	>160,000 hrs
EMI & Safety Approval	TUV, UL/cUL
Temperature/Humidity	Operating: 0 ~ 40°C, 20 ~ 90%RH Storage: -20 ~ 60°C, 5 ~ 95%RH
Dimension (WxDxH)	81.5 x 150 x 40.5 mm; 3.2" x 5.9" x 1.6"

ORDERING GUIDE

- **ORION-A1501P**
  150W PSU. Active PFC. Low Noise

DC OUTPUT

	+5V	+3.3V	+12V	-12V	+5Vsb
Max. Load	13A	10A	10A	0.5A	2A
Min. Load	0.3A	0.3A	1A	0A	0A
Load Reg.	±5%	±5%	±5%	±10%	±5%
Line Reg.	±1%	±1%	±1%	±1%	±1%
Ripple	50mv	50mv	120mv	120mv	50mv
Noise	50mv	50mv	120mv	120mv	50mv

ORION-A1801P

180W Flex form factor power supply with active PFC

FEATURES

- 1U Flex form factor power supply
- Full-range input with active PFC
- Max. +5V output is 16A
- Low noise

SPECIFICATION

Input Voltage	90V ~ 264V AC, full range
Input Frequency	47 ~ 63 Hz
Input Current	6A@115V, 3A@230V
Efficiency	> 75%
Holdup Time	16 ms at full load
Over Voltage Protection	+5V: 5.7 ~ 6.5V; +3.3V: 3.9 ~ 4.3V; +12V: 13.6 ~ 15V
Over Power/Load Protection	Output power over 110% ~ 150%
MTBF	>130,000 hrs
EMI & Safety Approval	UL
Temperature/Humidity	Operating: 0 ~ 40°C, 20 ~ 90%RH Storage: -20 ~ 60°C, 5 ~ 95%RH
Dimension (WxDxH)	81.5 x 150 x 40.5 mm; 3.2" x 5.9" x 1.6"

ORDERING GUIDE

- **ORION-A1801P**
  180W PSU. Active PFC. Low Noise

DC OUTPUT

	+5V	+3.3V	+12V	-12V	+5Vsb
Max. Load	16A	14A	14A	0.5A	2A
Min. Load	0.3A	0.3A	1.5A	0A	0A
Load Reg.	±5%	±5%	±5%	±10%	±5%
Line Reg.	±1%	±1%	±1%	±1%	±1%
Ripple	50mv	50mv	120mv	120mv	50mv
Noise	50mv	50mv	120mv	120mv	50mv

ORION-B3501P

350W 2U ATX power supply with active PFC

FEATURES

- 2U ATX power supply suitable for 2U and larger chassis
- Active PFC, full-range input
- Support Intel® Pentium® 4 processor
- Max. +5V standby output is 2A
- Max. +12V output is 18A

SPECIFICATION

Input Voltage	90V ~ 264V AC, full range
Input Frequency	47 ~ 63 Hz
Input Current	10A@115V, 6A@230V
Efficiency	> 67%
Holdup Time	16 ms at full load
Over Voltage Protection	+5V: 6.5 ~ 7.0V; +3.3V: 4.5V; +12V: 14.5V
Over Power/Load Protection	Output power over 110% ~ 150%
MTBF	100,000 hrs
EMI & Safety Approval	UL, CB, TUV, CE, FCC
Temperature/Humidity	Operating: 0 ~ 40°C, 20 ~ 90%RH Storage: -20 ~ 60°C, 5 ~ 95%RH
Dimension (WxDxH)	200 x 100 x 70 mm; 3.94" x 8.3" x 2.8"

ORDERING GUIDE

- **ORION-B3501P**
  350W 2U ATX power supply with active PFC

DC OUTPUT

	+5V	+3.3V	+12V	-12V	+5Vsb
Max. Load	25A	17A	25A	0.5A	2A
Min. Load	1.0A	1.0A	1.0A	0.25A	0A
Load Reg.	±5%	±5%	±5%	±10%	±5%
Line Reg.	±1%	±1.5%	±0.4%	±0.4%	±1%
Ripple	50mv	50mv	120mv	120mv	50mv
Noise	100mv	100mv	150mv	200mv	100mv

ORION-D3501P

350W ATX power supply with active PFC

FEATURES

- PS/2 ATX power supply, suitable for 2U, node chassis, and larger chassis
- Active PFC, full-range input
- Total output power of +5V,+3.3V and +12V is 326W
- Max. +12V standby output is 18A
- Max. +5V load output is 40A

SPECIFICATION

Input Voltage	90V ~ 264V AC, full range
Input Frequency	47 ~ 63 Hz
Input Current	6A@90V
Efficiency	> 68%
Holdup Time	17 ms. at full load @25°C
Over Voltage Protection	+5V@ 7V; +3.3V@ 4.3V; +12V@ 15.6V
Over Power/Load Protection	Output power over to 110%~140%
MTBF	75,145 hrs
EMI & Safety Approval	UL, TUV, CE, FCC, CB, CSA, SEMKO, FIMKO, NEMCO, DIMCO
Temperature/Humidity	Operating: 0 ~ 50°C, 20 ~ 85%RH Storage: -40 ~ 70°C, 10 ~ 90%RH
Dimension (WxDxH)	150 x 140 x 86 mm; 5.9" x 5.5" x 3.4"

ORDERING GUIDE

- **ORION-D3501P**
  350W PS/2 ATX power supply with active PFC

DC OUTPUT

	+5V	+3.3V	+12V	-5V	-12V	+5Vsb
Max. Load	18A	20A	18A	0.3A	0.5A	2.5A
Min. Load	1A	1A	1A	0A	0A	0A
Load Reg.	±5%	±5%	±5%	±10%	±10%	±5%
Line Reg.	±1%	±1.5%	±1%	±2.4%	±1%	±1%
Ripple	±1%	±1.5%	±0.8%	±3%	±1.25%	±1%
Noise	±1%	±1.5%	±0.8%	±3%	±1.25%	±1%

ORION-D4601P

460W PS/2 ATX power supply with active PFC

80 PLUS

SPECIFICATION

Input Voltage	90V ~ 264V AC, full range
Input Frequency	47 ~ 63 Hz
Input Current	9A@115V, 5A@230V
Efficiency	> 60%
Holdup Time	16 ms at full load
Over Voltage Protection	+5V: 5.7 ~ 7.0V; +3.3V: 3.9 ~ 4.5V; +12V: 13.6 ~ 16.0V
Over Power/Load Protection	Output power over 110% ~ 150%
MTBF	100,000 hrs
EMI & Safety Approval	UL, TUV
Temperature/Humidity	Operating: 0 ~ 40°C, 20 ~ 85%RH Storage: -20 ~ 60°C, 5 ~ 95%RH
Dimension (WxDxH)	150 x 140 x 86 mm; 5.9" x 5.5" x 3.4"

FEATURES

- PS/2 ATX power supply suitable for 2U and larger chassis
- Active PFC, full-range input
- Support Intel® Pentium® 4 processor
- Max. +12V standby output is 30A

ORDERING GUIDE

- **ORION-D4601P**
  460W PS/2 ATX power supply with active PFC

DC OUTPUT

	+5V	+3.3V	+12V	-12V	+5Vsb
Max. Load	20A	22A	16A	0.5A	2.5A
Min. Load	0.5A	0.3A	1A	0A	0A
Reg.	±5%	±5%	±5%	±10%	±5%
Ripple	50mv	50mv	120mv	120mv	50mv
Noise	50mv	50mv	120mv	120mv	50mv

ORION-D5501P

550W PS/2 ATX power supply with active PFC

SPECIFICATION

Input Voltage	90V ~ 264V AC, full range
Input Frequency	47 ~ 63 Hz
Input Current	9.5A@115V, 5.5A@230V
Efficiency	> 60%
Holdup Time	16 ms at full load
Over Voltage Protection	+5V: 5.7 ~ 7.0V; +3.3V: 3.9 ~ 4.5V; +12V: 13.6 ~ 16
Over Power/Load Protection	Output power over 110% ~ 150%
MTBF	100,000 hrs
EMI & Safety Approval	UL, cUL, TUV, CE, FCC
Temperature/Humidity	Operating: 0 ~ 40°C, 20 ~ 90%RH Storage: -20 ~ 60°C, 5 ~ 95%RH
Dimension (WxDxH)	150 x 165 x 86 mm; 5.9" x 6.5" x 3.4"

FEATURES

- PS/2 ATX power supply suitable for 2U and larger chassis
- Active PFC, full-range input
- Support Intel® Pentium® 4 processor
- Max. +12V output is 38A

ORDERING GUIDE

- **ORION-D5501P**
  550W PS/2 ATX power supply with active PFC

DC OUTPUT

	+5V	+3.3V	+12V	-5V	-12V	+5Vsb
Max. Load	29A	27A	18A	0.3A	0.8A	2A
Min. Load	3A	0.4A	1A	0A	0A	0A
Reg.	+5% -4%	+5% -4%	+5% -4%	±10%	+9% -5%	+5% -4%
Ripple	50mv	50mv	120mv	120mv	120mv	50mv
Noise	50mv	50mv	120mv	120mv	120mv	50mv

ORION-300DX/24/48

300W -48V/24V DC input DC/DC PS/2 ATX power supply

FEATURES

- PS/2 ATX power supply suitable for 2U and larger chassis
- ORION-300DX/24 for +24V DC input, suitable for vehicle applications
- ORION-300DX/48 for -48V DC input, suitable for telecommunication applications
- Max. -12V output is 2A, suitable for CTI application

ORDERING GUIDE

- **ORION-300DX/48**
  300W -48V DC input DC/DC PS/2 ATX power supply
- **ORION-300DX/24**
  300W 24V DC input DC/DC PS/2 ATX power supply

SPECIFICATION

Input Voltage	-40V~-72V DC for ORION-300DX/48 19V~32V DC for ORION-300DX/24
Input Current	10A@-48V, 20A@24V DC input
Efficiency	> 65%
Holdup Time	16 ms
Over Voltage Protection	+5V: 5.7 ~ 7.0V
MTBF	100,000 hrs
EMI & Safety Approval	UL, TUV, CSA
Temperature/Humidity	Operating: 0 ~ 40°C, 10 ~ 90%RH Storage: -60 ~ 70°C, 5 ~ 95%RH
Dimension (WxDxH)	150 x 140 x 86 mm; 5.9" x 5.5" x 3.4"

DC OUTPUT

	+5V	+3.3V	+12V	-5V	-12V	+5Vsb
Max. Load	30A	15A	15A	2A	2A	1.2A
Min. Load	2A	0.3A	0.5A	0A	0A	0A
Load Reg.	±5%	±3%	±5%	±10%	±5%	±5%
Cross Reg.	±5%	±3%	±5%	±10%	±5%	±5%
Line Reg.	±1%	±1%	±1%	±1%	±1%	±1%
Ripple	±1%	±1.5%	±1%	±2%	±1%	±1%
Noise	±1%	±1.5%	±1%	±2%	±1%	±1%

ORION-D3002DDP

300W -38VDC to -72VDC input DC/DC mini-redundant ATX power supply

FEATURES

- Mini-redundant DC to DC power supply suitable for 2U and larger chassis
- Active PFC, full-range input
- -38VDC to -72VDC input for telecommunication applications
- Test equipment for telecommunication applications

ORDERING GUIDE

- **ORION-D3002DDP**
  300W DC-DC W/Active PFC, redundant power supply

SPECIFICATION

Input Voltage	-38~-72VDC
Input Current	11A
Efficiency	> 58%
Holdup Time	16 ms. at full load
Over Voltage Protection	3.3V@4.5V; 5V@7V; 12V@16V
Temperature/Humidity	Operating: 0 ~ 40°C, 20 ~ 90%RH Storage: -20 ~ 60°C, 5 ~ 95%RH
Dimension (WxDxH)	150 x 183 x 86 mm; 5.9" x 7.2" x 3.4"

DC OUTPUT

	+5V	+3.3V	+12V	-5V	-12V	+5Vsb
Max. Load	30A	22A	11A	1A	1A	1.5A
Min. Load	2A	0.3A	0.5A	0.05A	0.05A	0A
Load Reg.	±5%	±5%	±5%	±10%	±10%	±5%
Line Reg.	±5%	±5%	±5%	±10%	±10%	±5%
Ripple	50mv	50mv	120mv	130mv	100mv	50mv
Noise	100mv	100mv	150mv	200mv	200mv	100mv

ORION-D3502P

350W ATX mini-redundant with active PFC power supply

FEATURES

- Mini-redundant ATX power supply suitable for 2U and larger chassis
- 350W output
- Active PFC, full-range input

SPECIFICATION

Input Voltage	100V~240V AC
Input Frequency	47 ~ 63 Hz
Input Current	6A@115V, 3A@230V
Efficiency	> 80%
Holdup Time	16 ms. at full load
Over Voltage Protection	3.3@4.5V; 5V@6.5V; 12V@14.5V
MTBF	> 100,000 hrs
EMI & Safety Approval	UL, cUL, TUV, CE, FCC
Temperature/Humidity	Operating: 0 ~ 40°C, 20 ~ 90%RH Storage: -20 ~ 60°C, 5 ~ 95%RH
Dimension (WxDxH)	150 x 190 x 84 mm; 5.9" x 7.2 x 3.4"

ORDERING GUIDE

- **ORION-D3502P**
  350W PS/2, w/active PFC, ATX power supply

DC OUTPUT

	+5V	+3.3V	+12V	-5V	-12V	+5Vsb
Max. Load	20A	20A	18A	0.5A	0.8A	2A
Min. Load	0.5A	0.5A	0.5A	0A	0A	0A
Load Reg.	±5%	±5%	±5%	±10%	±5%	±5%
Cross Reg.	±5%	±5%	±5%	±10%	±5%	±5%
Line Reg.	±1%	±1%	±1%	±1%	±1%	±1%
Ripple	50mv	50mv	120mv	200mv	200mv	50mv
Noise	50mv	50mv	120mv	200mv	200mv	50mv

ORION-D4602P

460W+460W mini-redundant switching power supply with active PFC

FEATURES

- Mini-redundant power supply suitable for 2U/4U and larger chassis
- Active PFC, full-range input
- Two independent AC inputs

SPECIFICATION

Input Voltage	90V ~ 264V AC, full range
Input Frequency	47 ~ 63 Hz
Input Current	9A@115V, 5A@230V
Efficiency	> 65%
Holdup Time	20 ms. at full load
Over Voltage Protection	+5V: 5.6 ~ 6.5V; +3.3V: 3.8 ~ 4.3V; +12V: 13.6 ~ 15.6V
Over Power/Load Protection	Output power over 110% ~ 130% on +3.3V/+5V; 120% ~ 150% on +12V
MTBF	100,000 hrs
EMI & Safety Approval	UL, TUV
Temperature/Humidity	Operating: 0 ~ 40°C, 20 ~ 90%RH Storage: -40 ~ 70°C, 5 ~ 95%RH
Dimension (WxDxH)	150 x 190 x 86 mm; 5.9" x 7.5" x 3.4"

ORDERING GUIDE

- **ORION-D4602P**
  460W+460W mini-redundant power supply with active PFC

DC OUTPUT

	+5V	+3.3V	+12V	-12V	+5Vsb
Max. Load	25A	25A	30A	0.8A	2A
Min. Load	2A	2A	2.5A	0A	0A
Max. Watt.	370W	370W	370W	9.6W	10W
Load Reg.	±5%	±5/-3%	±5%	±5%	±10%
Cross Reg.	±5%	±5/-3%	±5%	±5%	±5%
Line Reg.	±1%	±1%	±1%	±1%	±1%
Ripple	±1%	±1%	±1%	±1%	±1%
Noise	±1%	±1%	±1%	±2%	±1%

MPM-842P

400W PS/2 ATX power supply with active PFC

FEATURES

- PS/2 ATX power supply suitable for 2U and larger chassis
- Active PFC, full-range input
- Support Intel® Pentium® 4 processor
- Max. 12V output is 22A
- Medical level power supply

SPECIFICATION

Input Voltage	90V ~ 264V AC, full range
Input Frequency	47 ~ 63 Hz
Input Current	7.5A@115V, 3.5A@230V
Efficiency	> 71%
Holdup Time	16 ms at full load
Over Voltage Protection	+5V: 4.75 ~ 5.25V; +3.3V: 3.14 ~ 3.47V; +12V: 11.4V ~ 12.6V
Over Power/Load Protection	Output power over 110% ~ 150%
MTBF	>160,000 hrs
EMI & Safety Approval	TUV, UL/cUL
Temperature/Humidity	Operating: 0 ~ 40°C, 20 ~ 90%RH Storage: -20 ~ 60°C, 5 ~ 95%RH
Dimension (WxDxH)	150 x 140 x 86 mm; 5.9" x 5.5" x 3.4"

ORDERING GUIDE

- **MPM-842P**
  400W PS/2 ATX power supply with active PFC

DC OUTPUT

	+5V	+3.3V	+12V	-12V	+5Vsb
Max. Load	21A	22A	22A	0.8A	1.5A
Min. Load	0.3A	0.5A	1A	0A	0.1A
Load Reg.	±5%	±5%	±5%	±5%	±5%
Line Reg.	±1%	±1%	±1%	±1%	±1%
Ripple & Noise	50mv	50mv	120mv	120mv	50mv

MPI-815H

150W 1U ATX power supply with active PFC

FEATURES

- 1U ATX power supply
- Full-range input
- Max. +5V standby output is 14A
- Thermal protection
- +5V standby & remote On/Off

SPECIFICATION

Input Voltage	90V ~ 264V AC, full range
Input Frequency	47 ~ 63 Hz
Input Current	6A@115V, 3A@230V
Efficiency	> 75%
Holdup Time	16 ms at full load
Over Voltage Protection	+5V: 5.7 ~ 6.5V; +3.3V: 3.9 ~ 4.3V; +12V: 13.6 ~ 15
Over Power/Load Protection	Output power over 110% ~ 150%
MTBF	>130,000 hrs
EMI & Safety Approval	UL
Temperature/Humidity	Operating: 0 ~ 40°C, 20 ~ 90%RH Storage: -20 ~ 60°C, 5 ~ 95%RH
Dimension (WxDxH)	198 x 93 x 40.5 mm; 7.8" x 3.66" x 1.6"

ORDERING GUIDE

- **MPI-815H**
  150W fanless, 1U, ATX power supply

DC OUTPUT

	+5V	+3.3V	+12V	-12V	+5Vsb
Max. Load	14A	12A	10A	1A	1.5A
Min. Load	1A	0A	0A	0A	0A
Load Reg.	±2%	±5%	±5%	±5%	±5%
Line Reg.	±1%	±1%	±1%	±1%	±1%
Ripple & Noise	50mv	50mv	100mv	150mv	100mv

MPI-810H

120W universal input open-frame power supply

FEATURES

- 3.3” x 6” open-frame power supply suitable for node chassis
- Five rails outputs (+5V, +12V, -12V, +3.3V & +5Vsb)
- Universal AC input
- Higher +5V output (14A)

SPECIFICATION

Input Voltage	90 ~ 260V AC
Input Frequency	47 ~ 63 Hz
Input Current	3A@115VAC or 1.5A@230VAC
Efficiency	> 70%
Holdup Time	16 ms at full load
Over Voltage Protection	+5V: 5.6 ~ 6.6V; +3.3V: 3.6 ~ 4.2V; +12V: 13.2 ~ 14.6V
Over Power/Load Protection	Output power over 110% ~ 160%
MTBF	130,000 hrs
EMI & Safety Approval	UL, VDE, CSA
Temperature/Humidity	Operating: 0 ~ 50°C, 20 ~ 90%RH Storage: -20 ~ 70°C, 5 ~ 95%RH
Dimension (WxDxH)	83.8 x 152.4 x 38.1 mm; 3.3” x 6” x 1.5”

ORDERING GUIDE

- **MPI-810H**
  120W universal input open-frame power supply

DC OUTPUT

	+5V	+3.3	+12V	-12V	+5Vsb
Max. Load	14A	12A	6A	1A	0.75A
Min. Load	1A	0A	0A	0A	0A
Load Reg.	±3%	±5%	±5%	±5%	±5%
Line Reg.	±1%	±1%	±1%	±1%	±1%
Ripple	50mv	50mv	120mv	200mv	

MPD-810H

120W universal input open-frame, DC to DC power supply

FEATURES

- Open-frame DC to DC power supply suitable for node chassis
- Five rails outputs (+5V, +12V, -12V, +3.3V & +5Vsb)
- 10~30 VDC input
- Higher +5V output (10A)

SPECIFICATION

Input Voltage	10V ~ 30V DC
Input Frequency	47 ~ 63 Hz
Input Current	18A@10V DC
Efficiency	> 70%
Holdup Time	16 ms at full load
Over Voltage Protection	+5V: 5.6 ~ 6.6V; +3.3V: 3.6 ~ 4.2V; +12V: 13.2 ~ 14.6V
Over Power/Load Protection	Output power over 110% ~ 160%
MTBF	130,000 hrs
EMI & Safety Approval	UL
Temperature/Humidity	Operating: 0 ~ 50°C, 20 ~ 90%RH Storage: -20 ~ 70°C, 5 ~ 95%RH
Dimension (WxDxH)	83.8 x 152.4 x 38.1 mm; 3.3” x 6” x 1.5”

ORDERING GUIDE

- **MPD-810H**
  120W 10~30VDC input open-frame power supply

DC OUTPUT

	+5V	+3.3	+12V	-12V	+5Vsb
Max. Load	10A	8A	4A	1A	0.75A
Min. Load	1A	0A	0A	0A	0A
Load Reg.	±2%	±5%	±5%	±5%	
Line Reg.	±2.5%	±2.5%	±2.2%	±2.5%	±2.5%
Ripple	100mv	100mv	120mv	200mv	

MPE-008A-P

80W universal input open-frame power supply

FEATURES

- 60W convection cooling and 80W forced air-cooling
- Conductive EMI Meets CISPR/FCC Class B
- 2" x 5" compact size dual output
- A ray leakage current <100uA

SPECIFICATION

Input Voltage	90V ~ 264V AC
Input Frequency	47 ~ 63 Hz
Input Current	2A@115V; 1A@230V
Efficiency	> 80%
Holdup Time	16 ms at full load
Over Voltage Protection	Automatic recovery up on of over voltage condition. Trigger point is at about 5.8V ~ 6.8V
MTBF	130,000 hrs
EMI & Safety Approval	UL, cUL, TUV, CE, CCC
Temperature/Humidity	Operating: -20 ~ 50°C, 5 ~ 95%RH Storage: -20 ~ 85°C, 5 ~ 95%RH
Dimension (WxDxH)	50.8 x 127 x 40 mm; 2.0" x 5" x 1.57"

ORDERING GUIDE

- **MPE-008A-P**
  80W universal input open-frame power supply

DC OUTPUT

	5V	+12V
Max. Load	5A	5A
Min. Load	0A	0A
Load Reg.	±3%	±3%
Line Reg.	±1%	±1%
Ripple	50mv	120mv
Noise	50mv	120mv

MPI-806H

60W universal input open-frame power supply

FEATURES

- 80W with 8.6CFM forced air-cooling
- Compact size with ATX output
- PG/PF signal
- +5V standby & remote on/off

SPECIFICATION

Input Voltage	90V ~ 264V AC
Input Frequency	47 ~ 63 Hz
Input Current	2A@115V, 1A@230V
Efficiency	> 70%
Holdup Time	20 ms. at full load
Over Voltage Protection	+5V: 5.15 ~ 6.45V; +3.3V: 3.7 ~ 4.5V; +12V: 12.6 ~ 15.6V
Over Power/Load Protection	Output power over 120%
MTBF	130,000 hrs
EMI & Safety Approval	UL, TUV
Temperature/Humidity	Operating: 0 ~ 40°C, 20 ~ 90%RH Storage: -20 ~ 60°C, 5 ~ 95%RH
Dimension (WxDxH)	128 x 81 x 40 mm; 5.0" x 3.2" x 1.55"

ORDERING GUIDE

- **MPI-806H**
  60W ATX, open-frame power supply

DC OUTPUT

	+5V	+3.3V	+12V	-12V	+5Vsb
Max. Load	8A	6A	3A	0.5A	0.75A
Min. Load	1A	0A	0A	0A	0A
Load Reg.	±2%	±4%	±4%	±5%	±4%
Line Reg.	±1%	±1%	±1%	±1%	±1%
Ripple	50mv	50mv	120mv	120mv	120mv
Noise	±1%	±1%	±1%	±2%	±1%

Adapter

APH-3019-40W

SPECIFICATION	
AC Input Voltage	90V ~ 264V
DC Output Voltage	12V
Output Load	3.33A
Output Regulation	11.4V~12.6V
Efficiency	>83.1%, 115V@60Hz, 230V@50Hz
MTBF	100,000 hrs@25°C
EMI & Safety Approval	UL, cUL, TUV, CE, FCC, CB
Dimension	110(w) x 50(d) x 32(h) mm

APH-3020-60W

SPECIFICATION	
AC Input Voltage	90V ~ 264V
DC Output Voltage	12V
Output Load	5A
Output Regulation	11.4V~12.6V
Efficiency	>87%, 115V@60Hz, 230V@50Hz
MTBF	60,000 hrs@25°C
EMI & Safety Approval	UL, cUL, TUV, CE, FCC, CB
Dimension	110(w) x 62(d) x 32(h) mm

APH-3023-96W

SPECIFICATION	
AC Input Voltage	90V ~ 264V
DC Output Voltage	12V
Output Load	8A
Output Regulation	11.4V~12.6V
Efficiency	>81%, 100V@60Hz, 240V@50Hz
MTBF	100,000 hrs@25°C
EMI & Safety Approval	UL, cUL, TUV, CE, FCC, CB
Dimension	174(w) x 65(d) x 37(h) mm

APH-3028-150W

SPECIFICATION	
AC Input Voltage	90V ~ 264V
DC Output Voltage	12V
Output Load	12.5A
Output Regulation	11.4V~12.6V
Efficiency	>86%, 100V@60Hz, 240V@50Hz
MTBF	43,800 hrs@25°C
EMI & Safety Approval	UL, cUL, TUV, CE, FCC, CB
Dimension	171(w) x 72(d) x 40(h) mm

Configuration Matrix

Model	AREMO-2173-MX	AREMO-2173P	AREMO-2173EB	AREMO-3194	AREMO-3194E	AREMO-4196	RPC-500NC	PRC-4207	AREMO-6163	AREMO-8164
ATX M/B				V	V	V	V	V		
Micro ATX	V			V	V	V	V	V		
Server Board						V		V		
PEB-7710	V									
PBP-05V464/J			V							
PBP-06P3									V	
PBP-06P4										
PBP-06P564		V							V	
PBP-06V4		V								
PBP-08A7										V
PBP-08P3										V
PBP-08P4										V
PBP-13D4						V	V	V		
PBP-14A7						V	V	V		
PBP-14AC						V	V	V		
PBP-14AC-B						V	V	V		
PBP-14P4						V	V	V		
PBP-14PD64						V			V	
PBP-14R4						V	V	V		
PBP-18D4										
PBP-19AC										
PBP-19AI										
PBP-19P4										
PBPE-06V		V								
PBPE-13A8								V		
ORION-D4602P		V	V		V	V	V	V	V	V
ORION-300DX/24/48	V	V	V		V	V	V	V	V	V
ORION-D4201P						V	V	V	V	V
ORION-B3501P				V						
ORION-B3502				V						
ORION-D3502P		V	V		V	V	V	V	V	V
ORION-D3501P	V	V	V		V	V	V	V	V	V
ORION-D4601P		V	V		V	V	V	V	V	V
ORION-D5501P		V	V		V	V	V	V	V	V
FSP350-60GLC	V	V	V		V	V	V	V	V	V

Accessory

Embedded System Integration Service

In order to help improve our customer's product time to market, Portwell provides the following services for the Embedded Computing Platform.

These services are provided for both board support and system integration, and are available to our valued customers who work with our world-class ecosystem and alliance program for embedded computing.

The three main services include:

1. Panel Kit service

This service focuses on the Interactive Client segment -- defined by Intel IPD as users of display-oriented applications such as POS/ ATM/KIOSK/Medical/Gaming/E-payment -- and is supplemented by the 2001 Portwell Alliances with a first tier LCD maker in Taiwan to provide three year longevity support, panel kit for most of Portwell embedded system boards, with customized video BIOS, and Intel Embedded Graphic Driver (IEGD) by customer request.

2. Embedded OS board support package

Portwell joins the Microsoft Windows Embedded Partner (WEP) program and works with chipset and device silicon venders to provide customers with this board support package (BSP). Customers can now focus their application software to shorten the system developing cycle and still maintain a lower total cost of ownership (TCO).

3. Peripherals integration and system level thermal solution

Portwell can provide consulting service and deliverable solution for peripherals integration upon customer's request. Our customer service engineering team can even be your window to leverage the IT infrastructure of the greater China area.

Display Solution

Panel Kit service

Portwell focus on AUO Industrial Flat Panel Display featuring high brightness, 3-year longevity and great price competition. We manage standard kits in stock to fulfill customers' time-critical orders. We also provide panel kit by different makers like Sharp, Toshiba, NEC and LG to meet different requirements per specific applications. To order, customers may fill out a special panel support request form and send it through to our account sales.

Standard Panel Kit for Power Embedded System Board for AUO LCD

Panel / Model	AUO 8.4" G084SN05 V0	AUO 10.4" G104SN03 V0	AUO 12.1" G121SN01 V0	AUO 15" G150XG01 V0	AUO 17" M170EG01 V0	AUO 19" M190EN04 V1	AUO 20.1" M201UN02 V2
PEB-3715	AL1-052	AL1-050	AL1-051	AL1-047	AL1-053	AL1-062	AL1-061
PEB-3730/32	AL1-056	AL1-054	AL1-055	AL1-048	AL1-057	AL1-069	AL1-060
PEB-3718	AL1-070	AL1-071	AL1-072	AL1-073	x	x	x

Touch Screen service

Portwell works with worldwide touch screen makers like Elo/Tyco and 3M. For cost effective solution, Portwell provides feasibility for

1. Required communication interface for Touch board, like RS232 or USB
2. Required size of Touch screen
3. Required actual application for suitable touch screen model, like resistive or capacitive

EZCool

A reliable thermal solution of processor is always highly appreciated for most applications. The reliable solution is not only about whether the processor over its thermal specification or keep its temperature under protection point but also noise and weight related. EZCool is the reliable thermal solution for Intel® Core™ 2 Duo processor, Pentium® 4 651 and Celeron® D 352 and so on that Thermal Design Power (TDP) does not over 65W because of it's compact size, silent cooling fan and fixing mechanism.

SPECIFICATION

Socket Type	Socket LGA 775 (Core™ 2 Duo, Celeron® 440)
Heat Sink Dimension	90 x 90 x 18mm (L x W x H)
Fan Dimension	Φ55.5x11.3 mm (compatible with 80mm fan)
Heat Sink Material	Aluminum extrusion base and fins
Fan Speed	5.76 CFM (At zero pressure and 25°C, rated speed)
Fan Air Pressure	9.11 mmH2O (At zero static pressure and 25°C, rated speed)
Fan Life Expectancy	40,000 hours at 45°C
Bearing Type	Ball Bearing
Voltage Rating	12 VDC
Input Current	0.3 A Max. (At 25°C, in free air rated voltage)
Noise Level	39.3 dBA
Connector	3 pin
Heat Sink Weight	136.4 g (included fasteners)
Fan Weight	13.6 g
Thermal Interface Material	SC102

ORDERING GUIDE

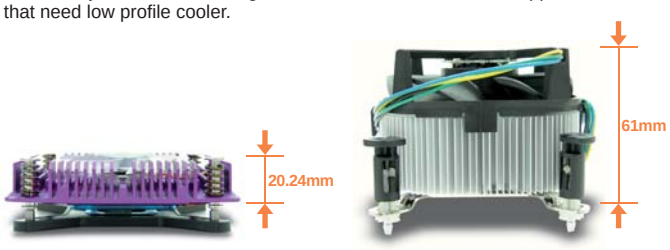
Part #	Model Name & Description
B9970620	EZCool High efficiency and low profile cooler for Core™ 2 Duo processor

FEATURES

Along with Intel®'s Core™ Mircoarchitecture and advanced manufacturing technologies, processor Thermal Design Power (TDP) was lower from 85~130W to 65W only, and even lower for single core processor in Q3 this year. As a result, Portwell is able to design a reliable cooler that can fits most applications demanding.

Compact Size

EZCool is just one of third height of boxed cooler that benefits applications that need low profile cooler.

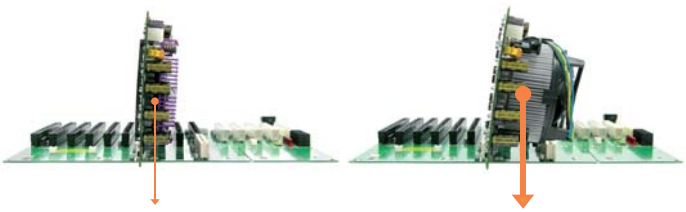


Bending Prevention

Larger preload of cooler causes the main board bending and it could introduce permanent damage to the PCB (Print Circuit Board) and traces on it. With back plate conjunction, EZCooler makes no defection of board.

Twist Avoidance

Main board fixed vertically in chassis instead of horizontally such as PICMG 1.X SBC/SHB can be twisted because of the weight of cooler. It damages SBC/SHB badly once the platform vibrates or shakes in the same direction.



Semi-symmetric Design

The semi-symmetric heat sink design allows air flow thru dual directions that can help ventilation of other key components nearby and fully leverage system air flow that draw from outside of the chassis.

WE LEAD THE TREND

Vivid Portwell

Together in Electric Dream!

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