Industrial Platform Service

2008 SOLUTION GUIDE

Portwell

Together in Electric Dream!

Ver. 28A

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About Portwell

Who is Portwell?

Portwell, Inc. was founded in Taiwan in 1993 and entered the Industrial PC market in 1995 by developing single-board computers. Today, our continued 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 as a major worldwide supplier of specialty computing application platforms and services. Portwell, Inc. is not only a member of the select group of Intel Applied Computing Platform Providers (IACPP), but also an associate member of Intel Communications Alliance (ICA), as well as Advanced Telecom Computing Architecture (ATCA) and an executive member of PCI Industrial Computer Manufacturing group (PICMG).

In November 2005, Taiwan's Ministry of Economic Affairs honored Portwell for its "Clean Production Project" and commitment to environmental conservation. Portwell award-winning facilities, high-standard manufacturing processos, and sophisticated engineering capability have attracted many top-tier companies to its expanding client portfolio.

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

Why Partner with Portwell?

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 15 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 a host of top-tier companies 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 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, unique computer chassis, and specific computer system configurations. Whether you're working on a Medical Single Board Computer or Internet Security Applicance, Portwell is the perfect partner to help you deliver your products to market on time and stay one step ahead of the competition.

Why Portwell Platforms and Services?

- **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, and 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.

What is Portwell Value Proposition?

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

- One point of contact, 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.

HIGH QUALITY

Portwell is a leading designer and manufacturer of PICMG slot boards.

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.

As an Associate (Silver) Member of Intel® Communications Alliance, Portwell is guaranteed at least five-year availability of the Intel® components contained in the Embedded Intel® Architecture. This helps equipment manufacturers to secure the longevity of products that have gone through long periods of validation.

All the components used in the Portwell SBC are specifically selected to meet the environmental requirements from even the most critical industrial applications. All the boards have to pass strict and complete reliability and compatibility tests in both design and production phases.

In addition to our full-range PICMG 1.0 SBC, Portwell also provides a total solution of PICMG 1.2 system, integrating dual Xeon® processor based SHB, up to four independent PCI/PCI-X buses, single/redundant power supply and industrial chassis. The new PICMG 1.2 standard is characterized by the replacement of the ISA bus with PCI-X bus. Because the PCI-X bandwidth is eight times of a 32-bit / 33MHz PCI bus, many high throughput applications, such as image processing, data storage, and communication appliance, have already adopted this bus architecture. Server board is the application that most utilizes the PCI-X bus. Portwell also provides slot board features in response to growing needs, and to better fit these critical applications.

In pursuit of our commitment to excellence, Portwell operates an ISO 14001 and ISO 9001 qualified system (from initial design, through manufacturing to delivery) to provide high performance industrial computing platforms with satisfying quality. Furthermore, we consistently seek opportunities to collaborate with customers in every vertical market in order to develop the right product in their domains. Through this cooperation, customers can get the core engine or system at the same pace as their product planning.

About ESB

USE ESB IN YOUR NEXT PROJECT

Portwell ESB (Embedded System Board) product line targets the Interactive client market with boards based on 5.25" and Embedded ATX/Micro ATX form factors. Interactive client applications include ATM (Automated Teller Machines), Kiosk, Digital Signage, POD, POS (Point-Of-Sale), Lottery, and Vending and Gaming Machines.

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.

ETHERNET

Highly personalized and customized service is gaining popularity and contributes to the huge customer database growing behind the end nodes. To access this database, a secure and fast communication channel is required. Nowadays, Ethernet is the most popular communication interface in the world. It greatly minimizes construction cost and TTM (Time-To-Market) of the node terminals.

USB

USB (Universal Serial Bus) makes adding peripheral devices extremely easy without worrying about add-in cards or IRQs. With the introduction of USB 2.0, the raw data transmission rate is increased from 12 Mbps of USB 1.1 to 480 Mbps. Therefore, more and more peripherals adopt this interface. Since more USB ports are either embedded in the chipset or can be added by the USB hub, the system capability is expanded without any problems.

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. It also allows users to have a wider display by extending the working space on dual displays.

SBC Reference Table

FULL-SIZE SINGLE BOARD COMPUTER


MODEL	ROBO-8921VG2R	ROBO-8913VG2AR	ROBO-8912VG2AR
CPU	LGA771 Dual/Quad Core™ Xeon® processor	LGA775 Core™ 2 Duo/Celeron® 440	LGA775 Core™ 2 Quad/Core™ 2 Duo/Pentium® D/Pentium® 4/ Celeron® D
System Bus Frequency	1333/1066MHz	1333/1066/800MHz	1066/800/533MHz
Max Memory	4 DIMM/32GB (DDR2)	2 DIMM/4GB (DDR2)	2 DIMM/4GB (DDR2)
ECC	YES	NO	NO
BIOS	AMI	AMI	Award
Chipset	Intel® 5100, ICH9R	Intel® Q35, ICH9DO	Intel® Q965, ICH8DO
SSD	N/A	N/A	N/A
VGA / Panel	XGI Z11	Intel® Q35 GMCH	Intel® Q965 GMCH
HDD Channel	6 SATA 300	6 SATA 300	6 SATA 300
FDD Drives	1	2	2
LAN	Intel® 82575x1	Intel® 82573Lx1, 82566DMx1	Intel® 82573Lx1, 82566DMx1
Expansion Interface	Two PCI-E x8, One PCI-E x4, Four PCI	Four PCI-E x1, One PCI-E x16, Four PCI	Four PCI-E x1, One PCI-E x16, Four PCI
USB Port	10	12	10
ATX Control	YES	YES	YES
On-Board I/O	W83627DHG	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 Monitoring	YES	YES	YES
IrDA	N/A	YES	N/A
Audio	N/A	YES	YES
ISA	NO	NO	NO
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

SBC Reference Table

FULL-SIZE SINGLE BOARD COMPUTER



MODEL	ROBO-8911VG2A	ROBO-8910VG2A	ROBO-8820VG2
CPU	mPGA479M Pentium® M/Celeron® M	mPGA478 Pentium® 4/Celeron® D	Dual/Single mPGA604 Xeon®/LV Xeon®
System Bus Frequency	533/400MHz	800/533MHz	533/400MHz
Max Memory	2 SODIMM/2GB (DDR2)	2 DIMM/2GB (DDR2)	2 DIMM/4GB (DDR)
ECC	NO	NO	YES
BIOS	Award	Award	Award
Chipset	Intel® 915GM, ICH6	Intel® 915GV, ICH6	Intel® E7501, ICH3-S
SSD	CF Max. 1GB	CF Max. 1GB	CF Max. 1GB
VGA / Panel	Intel® 915GM GMCH/YES	Intel® 915GV/NO GMCH	ATI RageXL/NO
HDD Channel	1 EIDE Ultra DMA 100/66/33 & 4 SATA 150	1 EIDE Ultra DMA 100/66/33 & 4 SATA 150	2 EIDE Ultra DMA 100/66/33
FDD Drives	2	2	2
LAN	Marvell 88E8001x2	Marvell 88E8001x2	Intel® 82546x1
Expansion Interface	One PCI-E x16, Four PCI-E x1, Four PCI	Four PCI Express x1, Four PCI	Proprietary HL 2.0 connector
USB Port	8	8	4 (USB 1.1)
ATX Control	YES	YES	YES
On-Board I/O	W83627THF	W83627THF	W83627HF
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	YES	YES	NO
Audio	YES	YES	NO
ISA	NO	NO	NO
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

SBC Reference Table

FULL-SIZE SINGLE BOARD COMPUTER



MODEL	ROBO-8777VG2A	ROBO-8773VG	ROBO-8771VG2
CPU	LGA775 Core™ 2 Quad/Core™ 2 Duo/Pentium® D/Pentium® 4/ Celeron® D	LGA775 Core™ 2 Duo/Pentium® D/ Pentium® 4/ Celeron® D	ULV Celeron® M 600MHz
System Bus Frequency	1066/800/533MHz	1066* (Optional)/800/533MHz	400MHz
Max Memory	2 DIMM/4GB (DDR2)	2 DIMM/2GB (DDR)	1 DIMM/1GB (DDR)
ECC	NO	NO	NO
BIOS	Award	Award	Award
Chipset	Intel® Q965, ICH8	Intel® 865G, ICH5	Intel® 852GM, ICH4
SSD	N/A	N/A	N/A
VGA / Panel	Intel® Q965GMCH/NO	Intel® 865GMCH/NO	Intel® 852GM GMCH/NO
HDD Channel	4 SATA 300	4 EIDE Ultra DMA 100/66/33 & 2 SATA 150	2 EIDE Ultra DMA 100/66/33
FDD Drives	2	2	2
LAN	Realtek RTL 8111B x2	Realtek RTL 8110SC x1	Realtek RTL8110SC x2
Expansion Interface	N/A	NA	N/A
USB Port	6	8	8
ATX Control	YES	YES	YES
On-Board I/O	W83627DHG	W83627THG	W83627THG
Serial Port	2	2	2
Parallel Port	1	1	1
PS/2 K/B	Header	YES	Header
PS/2 Mouse	Header	YES	Header
WDT	YES	YES	YES
H/W Montioring	YES	YES	YES
IrDA	NO	YES	YES
Audio	YES	NO	N/A
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

SBC Reference Table

FULL-SIZE SINGLE BOARD COMPUTER



MODEL	ROBO-8718VG2A	ROBO-8713VGA	ROBO-6711VGA
CPU	mFCPGA Pentium® M / Celeron® M	mPGA478 Pentium®4/ Celeron® D	mPGA478 Pentium® M/Celeron®M
System Bus Frequency	533/400MHz	800/533/400MHz	533/400MHz
Max Memory	2 DIMM/2GB (DDR2)	2 DIMM/2GB (DDR)	1 SODIMM/1GB (DDR)
ECC	NO	NO	NO
BIOS	Award	Award	Award
Chipset	Intel® 915GM, ICH6	Intel® 865G, ICH5	Intel® 852GME, ICH4
SDD	CF Max. 1GB	CF Max. 1GB	CF Max. 1GB
VGA / Panel	Intel® 915GM/YES	Intel® 865GV GMCH/NO	Intel® 852GM GMCH/YES
HDD Channel	1 EIDE Ultra DMA 100/66/33 & 4 SATA 150	2 EIDE Ultra DMA 100/66/33 & 2 SATA 150	2 EIDE Ultra DMA 100/66/33
FDD Drives	2	2	2
LAN	Marvell 88E8053x2	Intel® 82547x1	Intel® 82541x1
Expansion Interface	N/A	Proprietary PCI connector	NO
USB Port	4	4	4
ATX Control	YES	YES	YES
On-Board I/O	W83627THF	W83627HF	W83627HF
Serial Port	2	2	2
Parallel Port	1	1	1
PS/2 K/B	Header	YES	YES
PS/2 Mouse	Header	YES	YES
WDT	YES	YES	YES
H/W Montioring	YES	YES	YES
IrDA	YES	YES	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"	185 x 122 mm 7.3" x 4.8"
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“*“ Over-clocking

SBC Reference Table

HALF-SIZE SINGLE BOARD COMPUTER

MODEL	ROBO-6730VLA
CPU	ULV Celeron® M 600MHz
System Bus Frequency	400MHz
Max Memory	1 SODIMM/1GB (DDR)
ECC	NO
BIOS	Award
Chipset	Intel® 852GM, ICH4
SSD	CF Max. 1GB
VGA / Panel	Intel® 852GM GMCH/YES
HDD Channel	2 EIDE Ultra DMA 100/66/33
FDD Drives	2
LAN	Intel® 82562x1
Expansion Interface	NO
USB Port	4
ATX Control	NO
On-Board I/O	W83627HF
Serial Port	2
Parallel Port	1
PS/2 K/B	YES
PS/2 Mouse	YES
WDT	YES
H/W Montioring	YES
IrDA	YES
Audio	YES
ISA	YES
Dimension (L) x (W)	185 x 122 mm 7.3" x 4.8"
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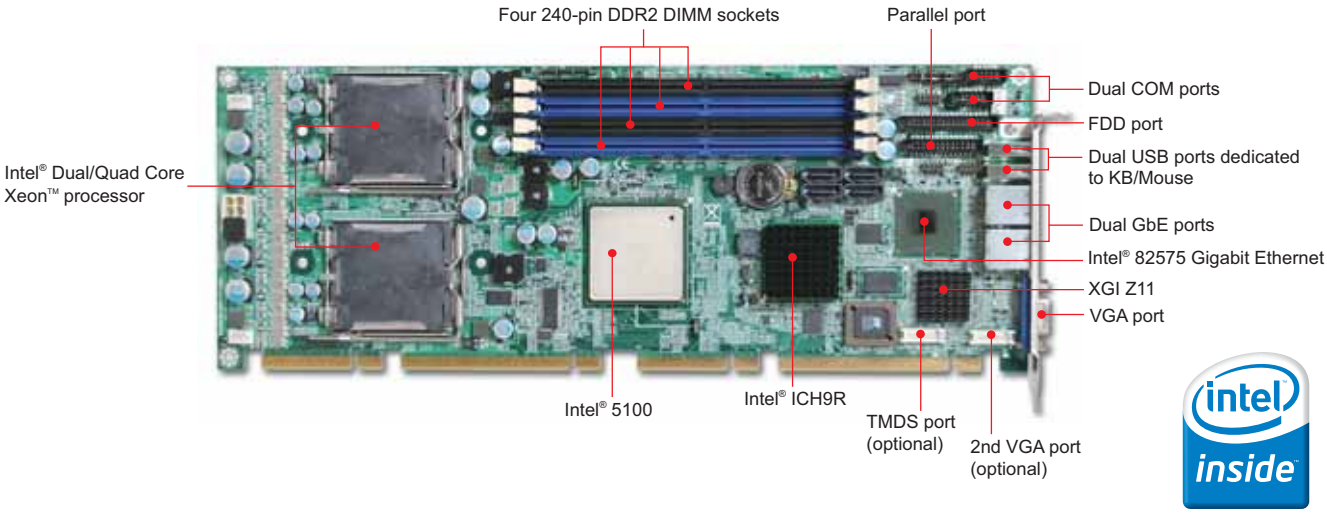
"*" Over-clocking

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
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)
Solid State Disk	N/A
Watchdog Timer	Programmable via software from 0.5 sec. to 254.5 min.
Expansion Interface	- Two PCI Express x8 - One PCI Express x4 - Four PCI devices
Hardware Monitoring	System monitor (fan, temperature, voltage)
Power Requirement	N/A
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 Storage Temperature: -20 to 80°C Relative Humidity: 5% to 90%, non-condensing
MTBF	N/A

I/O

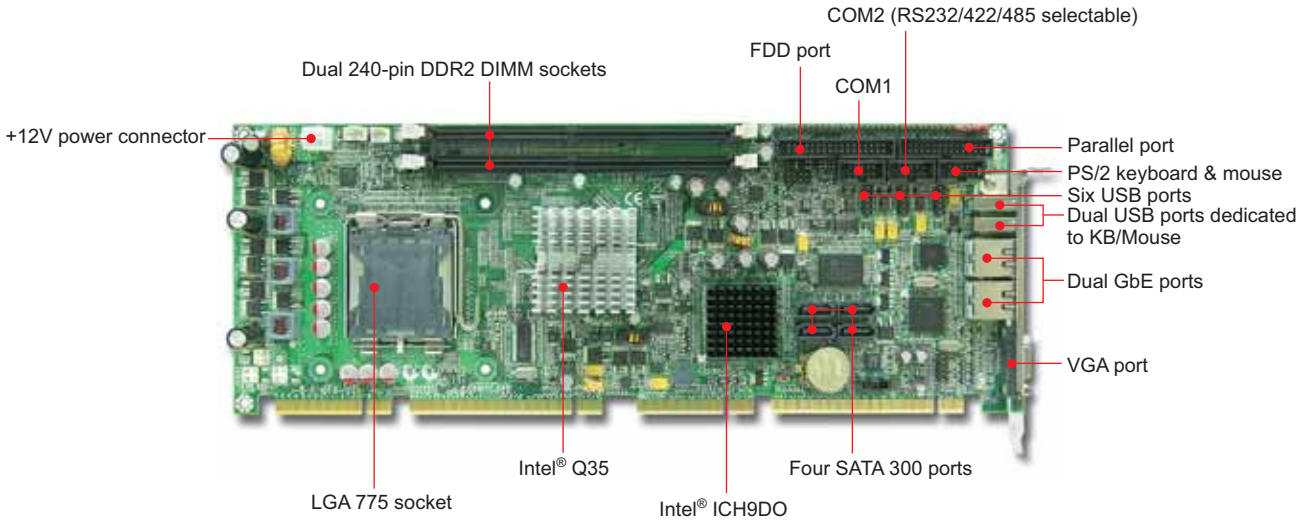
MIO	Two serial (RS232 x1, selectable RS232/485 x1), one parallel, one FDD channel
IrDA	N/A
Ethernet	PCI Express x4 interface based Intel® 82575 dual Gigabit Ethernet controller
Audio	N/A
USB	Ten USB 2.0 ports (Four through backplane)
Keyboard & Mouse	Two USB 2.0 ports on bracket dedicated to keyboard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

DISPLAY

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

ROBO-8913VG2AR

Intel® Core™ 2 Duo processor based PICMG 1.3 SHB 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 775 Pentium® 4 processor makes the vertical mount slot board more reliable
- 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 Duo, Celeron® 440 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)
Solid State Disk	N/A
Watchdog Timer	Programmable via software from 0.5 sec. to 254.5 min.
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 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	91,483 hrs

I/O

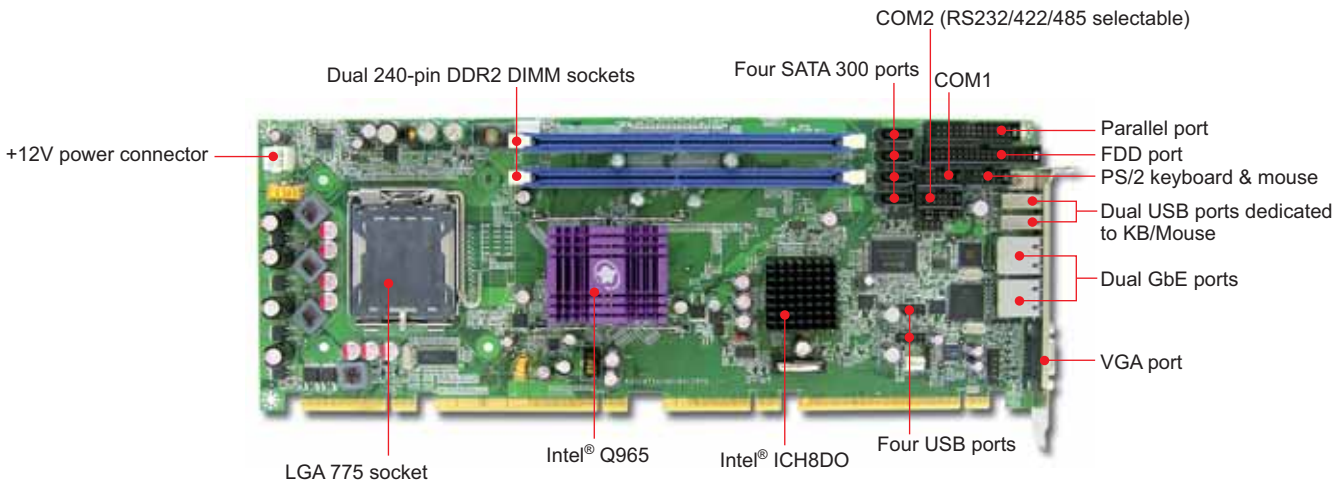
MIO	Two serial (RS232 x1, selectable RS232/422/485 x1), one parallel and one FDD channel
IrDA	IrDA 1.0
Ethernet	- Dual 10BAST-T/100BAST-TX/1000BAST-T Ethernet - PCI Express x1 interface based Gigabit Ethernet - Dual RJ-45 connector with two LED indicators
Audio	HDA interface, 2-channel Audio
USB	Twelve 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	- 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 Quad processor based PICMG 1.3 SHB 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 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 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 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)
Solid State Disk	N/A
Watchdog Timer	Programmable via software from 0.5 sec. to 254.5 min.
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 122(W) mm; 13.33"(L) x 4.8" (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

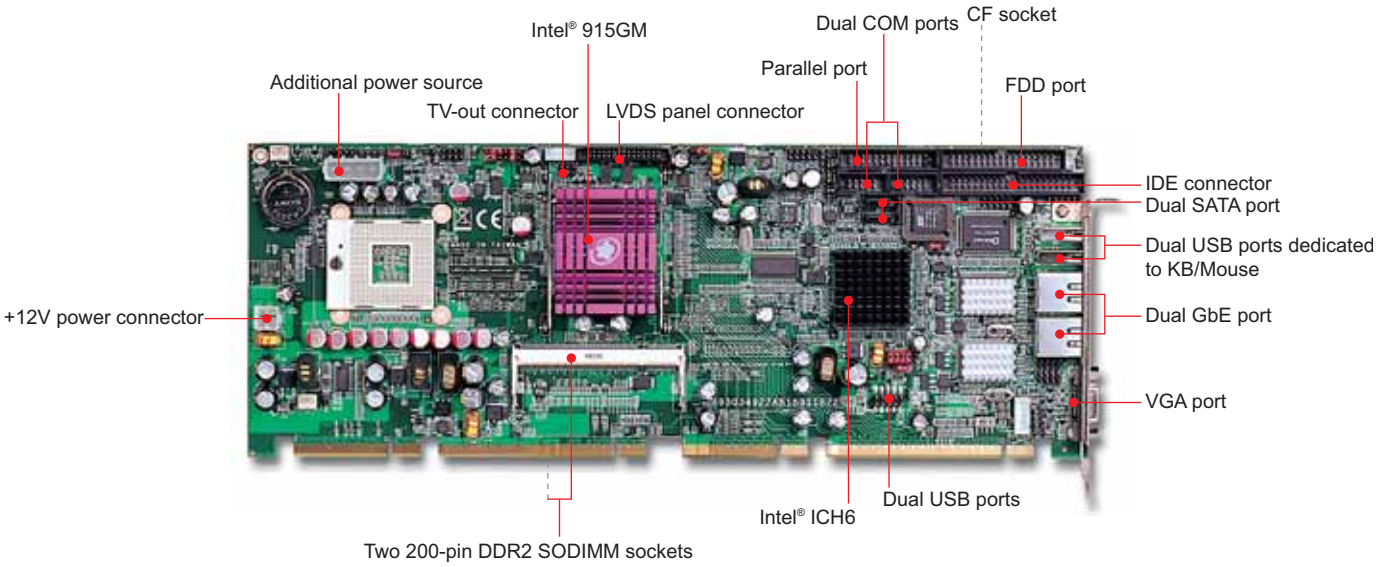
MIO	Two serial (RS232 x1, selectable RS232/422/485 x1), one parallel and one FDD channel
IrDA	N/A
Ethernet	- Dual 10BAST-T/100BAST-TX/1000BAST-T Ethernet - PCI Express x1 interface based Gigabit Ethernet - Dual RJ-45 connector with two LED indicators
Audio	HDA interface, 2-channel Audio
USB	Ten USB 2.0 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-8911VG2A

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



FEATURES

- ROBO-8911 offers flexible 400MHz and 533MHz FSB selection of Intel® Pentium® M / Celeron® M that features high computing power with low heat
- Intel® new integrated engine GMA 900 provides better display quality and effects thru faster engine; SGI OpenGL 1.4 and Microsoft DirectX 9.0 supports latest external PCI Express x16 interface graphic's card via backplane
- Support dual view function via VGA, LVDS and TV interfaces
- Four SATA 150 ports for high speed storage interface and easy cable routing
- Support four PCI Express x1, one PCI Express x16 and four PCI expansion via backplane

ORDERING GUIDE

Standard	**ROBO-8911VG2A** Socket mPGA479M Pentium® M or Celeron® M processor based PICMG 1.3 SHB with DDR2 SDRAM, VGA, Dual Gigabit Ethernet and Audio
Optional	**PA-M1ATU** Multimedia kit with audio, TV-out and USB ports
	PS/2 Keyboard/Mouse with Bracket PS/2 keyboard/mouse connectors on bracket

GENERAL

Processor	CPU & Package: Intel® Pentium® M or Celeron® M processor in mFCPGA package FSB: 533/400MHz
Chipset/Core Logic	Intel® 915GM 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 devices (two through backplane)
Solid State Disk	One Type II CF socket; On Primary EIDE channel
Watchdog Timer	Programmable via software from 0.5 sec. to 254.5 min.
Expansion Interface	- One PCI Express x16 - Four PCI Express x1 - Four PCI
Hardware Monitoring	System monitor (fan, temperature, voltage)
Power Requirement	Typical: +5V@3.1A; +12V@1.2A
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 90%, non-condensing
MTBF	91,855 hrs

I/O

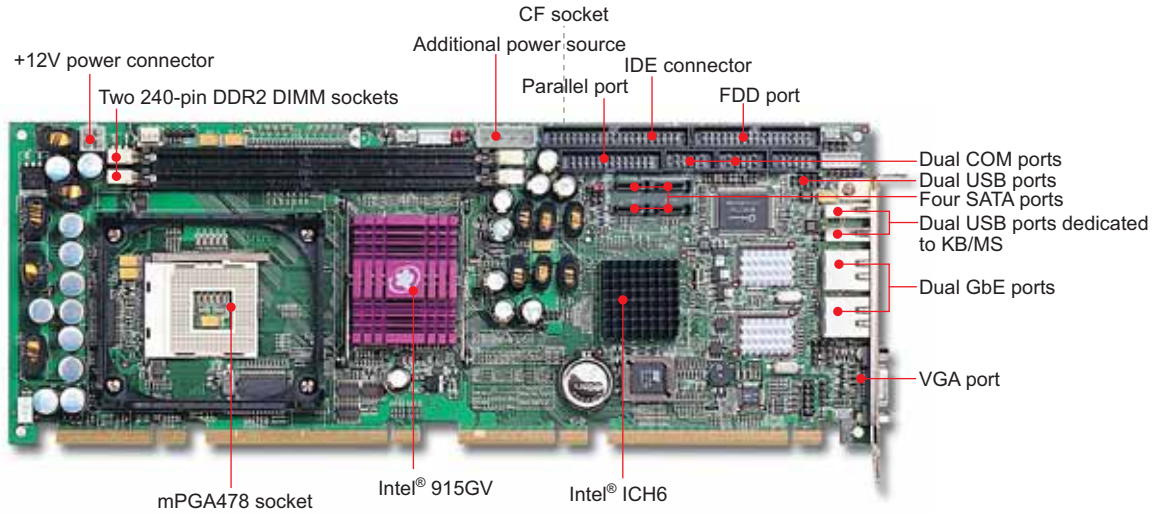
MIO	Two serial (selectable RS232/422/485 x1), one parallel, one FDD channel
IrDA	IrDA 1.0
Ethernet	- Dual 10BASE-T/100BASE-TX/1000BASE-T Ethernet - Dual RJ-45 connector with two LED indicators
Audio	AC'97 2.2 Audio
USB	Eight USB 2.0 ports (four through backplane)
Keyboard & Mouse	Two USB 2.0 ports on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

DISPLAY

Graphic Controller	915GM 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	CRT: Up to 2048 x1536 mode LVDS: Single/Dual 18-bit LVDS channel support TV: Up to 1024 x 768 resolution supported for NTSC/PAL

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 min.
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 60°C Storage Temperature: -20 to 80°C Relative Humidity: 5% to 90%, non-condensing
MTBF	115,533 hrs

I/O

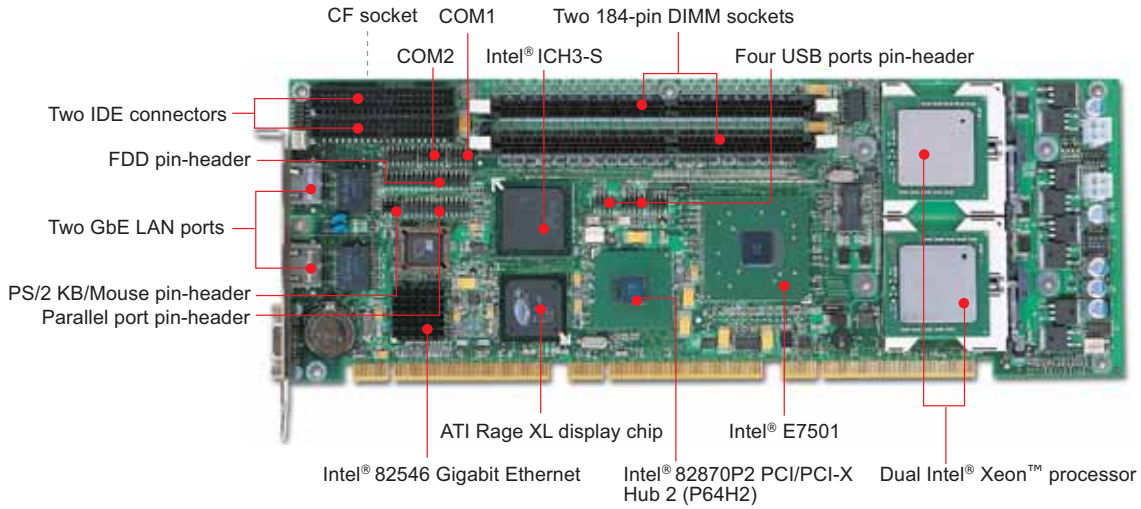
MIO	Two serial (selectable RS232/422/485 x1), one parallel, one FDD channel
IrDA	IrDA 1.0
Ethernet	- Dual 10BASE-T/100BASE-TX/1000BASE-T Ethernet - Dual RJ-45 connectors with two LED indicators
Audio	AC'97 2.2 Audio
USB	Eight USB 2.0 ports (four ports through backplane)
Keyboard & Mouse	Two USB 2.0 ports 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-8820VG2

Dual Intel® Xeon® processor based PICMG 1.2 (ePCI-X) SHB with VGA and Dual Gigabit Ethernet



FEATURES

- Intel® E7501 chipset for optimizing system bus, memory and I/O bandwidth to deliver enhanced performance and scalability
- Dual PICMG 1.2 compliant PCI-X bus for higher expandability
- Intel® 82546 dual port Gigabit Ethernet controller for the best network throughput
- Reliable design for high processing performance with dual Intel® Xeon® processor
- High speed DDR ECC registered SDRAM memory for data sensitive application
- ATI Rage XL graphics chip with 8MB memory provides the best 2D and 3D performance in server-level class
- Rich expansion capability through proprietary HL expansion connector

ORDERING GUIDE

Standard	**ROBO-8820VG2** Dual Xeon™ processor based PICMG 1.2 SHB with VGA and dual Gigabit Ethernet **ROBO-8820VG2H** Dual Xeon™ processor based PICMG 1.2 SHB with VGA, dual Gigabit Ethernet and proprietary Hub Link connector

GENERAL

Processor	CPU & Package: Intel® Xeon®/ LV Xeon® processor (Single or Dual processor) in 604-pin & 603-pin PPGA package FSB: 533/400MHz
Chipset/Core Logic	Intel® E7501 and ICH3-S
System Memory	- Up to 4GB DDR 266/200 SDRAM on two 184-pin DIMM sockets - Support ECC, registered
BIOS	Award BIOS
Storage Devices	Support four EIDE devices with Ultra DMA 100/66/33
Solid State Disk	- One Type II CF socket - On secondary EIDE channel - Bootable for no drives on primary channel
Watchdog Timer	Programmable via software from 0.5 sec. to 254.5 min.
Expansion Interface	- Two independent PCI-X buses - Proprietary Hub Link expansion connector for up to 4 PCI-X buses expansion
Hardware Monitoring	System monitor (fan, temperature, voltage)
Power Requirement	Typical: +5V@3.1A; +12V(CPU)@6.5A; +12V(System)@1.2A; +3.3V@2.9A
Dimension	Dimension : 338.5(L) x 122(W) mm; 13.33"(L) x 4.8" (W) PCB: 12-layer
Environment	Operating Temperature: 0 to 50°C Storage Temperature: -20 to 75°C Relative Humidity: 5% to 90%, non-condensing
MTBF	142,578 hrs

I/O

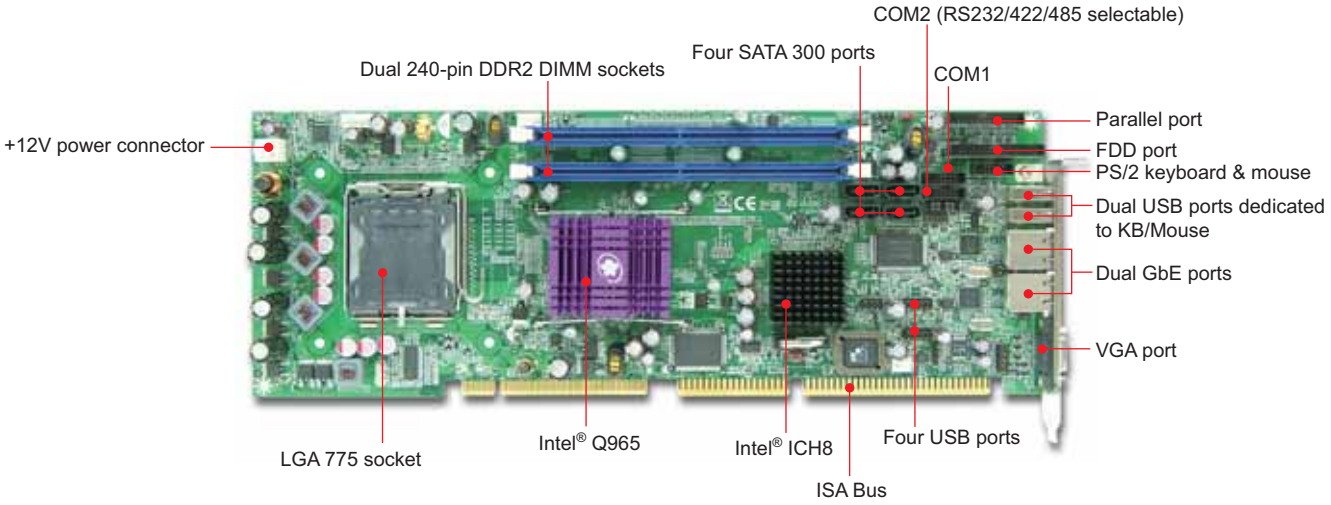
MIO	Two serial (selectable RS232/422/485 x1), one parallel, one FDD channel
IrDA	N/A
Ethernet	- Support teaming function - Intel® 82546 PCI-X dual port Gigabit Ethernet controller - Two RJ-45 connectors with two LED indicators for LAN access and link status
USB	Four USB 1.1 ports
Keyboard & Mouse	One 6-pin header for keyboard and mouse through PA-I1KUC

DISPLAY

Graphic Controller	ATI Rage XL PCI VGA graphics controller
Graphic Memory	8MB display memory
Display Interface	Display resolution up to 1600 x 1200 @85Hz refresh

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 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 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 min.
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 60°C Storage Temperature: -20 to 80°C Relative Humidity: 5% to 90%, non-condensing
MTBF	93,788 hrs

I/O

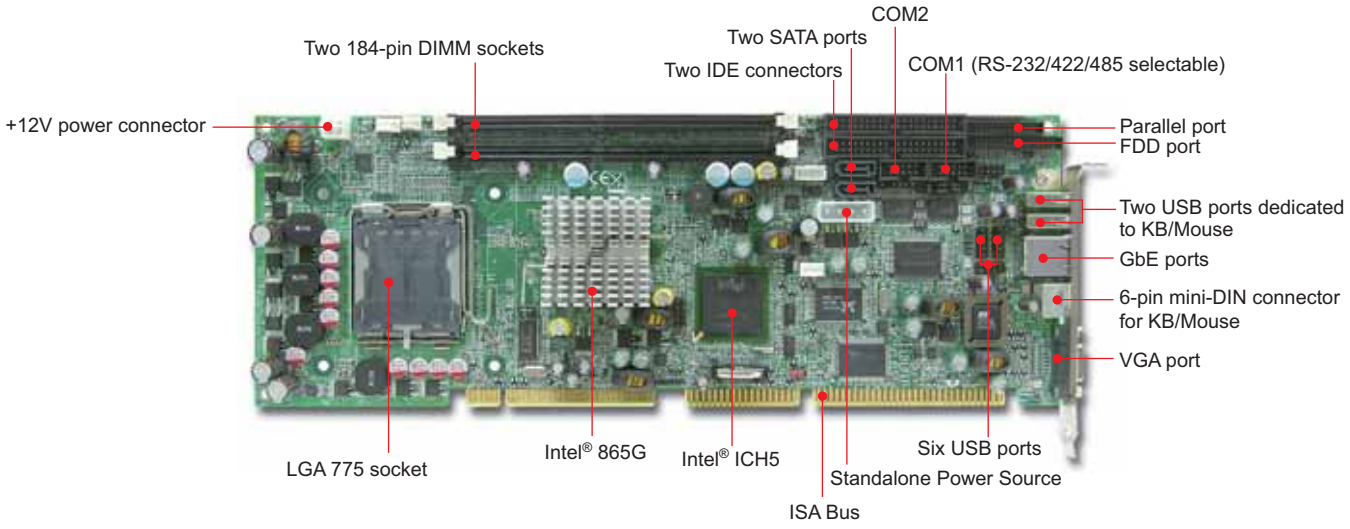
MIO	Two serial (RS-232x1, selectable RS232/422/485x1), one parallel and one FDD channel
IrDA	N/A
Ethernet	- Dual 10BASE-T/100BASE-TX/1000BASE-T Ethernet - PCI Express x1 interface based Gigabit Ethernet - Dual RJ-45 connectors with two LED indicators
Audio	HDA interface, 2-channel Audio
USB	Six USB 2.0 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-8773VG

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



FEATURES

- Extreme cost / performance PICMG 1.0 single board computer supports LGA 775 processor with Gigabit Ethernet controller
- Various I/O interface includes dual IDE channel, dual SATA port, single FDD channel, dual serial and single parallel port
- Over-clocking extended the board supports 2nd generation, lower power consumption / thermal profile Core 2 Duo processor
- Integrated Intel® Extreme Graphics 2 graphics engine offers adequate display quality via VGA interface
- Single side design enhance reliability of production and simplify its process at the same time
- Eight plug-and-play USB 2.0 ports allow enriched expansion of the system built upon the board
- Support ISA expansion

ORDERING GUIDE

Standard	**ROBO-8773VG** LGA-775 processor based PICMG 1.0 SBC with DDR SDRAM, VGA, Gigabit Ethernet and USB
Optional	**USB Cable with bracket** Four USB ports with bracket **Low Profile LGA775 Cooler** High efficiency slim cooler increases reliability of system

"*" Over-clocking Technology Adjustable

GENERAL

Processor	CPU & Package: Intel® Core™ 2 Duo, Pentium® D, Pentium® 4, Celeron® D processor in LGA-775 package FSB: 1066* (optional)/800/533MHz
Chipset/Core Logic	Intel® 865G and ICH5
System Memory	Up to 2GB DDR 400/333/266 SDRAM on dual 184-pin DIMM socket
BIOS	Award BIOS
Storage Devices	EIDE: Support four EIDE devices with Ultra DMA 100/66/33 SATA: Support dual SATA 150 drives
Solid State Disk	N/A
Watchdog Timer	Programmable via software from 0.5 sec. to 254.5 min.
Expansion Interface	N/A
Hardware Monitoring	System monitor (fan, temperature, voltage)
Power Requirement	Typical: +5V@0.8A; +12V@7.5A
Dimension	Dimension : 338.5(L) x 122(W) mm; 13.33"(L) x 4.8" (W) PCB: 6-layer
Environment	Operating Temperature: 0 to 55°C Storage Temperature: -20 to 80°C Relative Humidity: 5% to 90%, non-condensing
MTBF	105,743 hrs

I/O

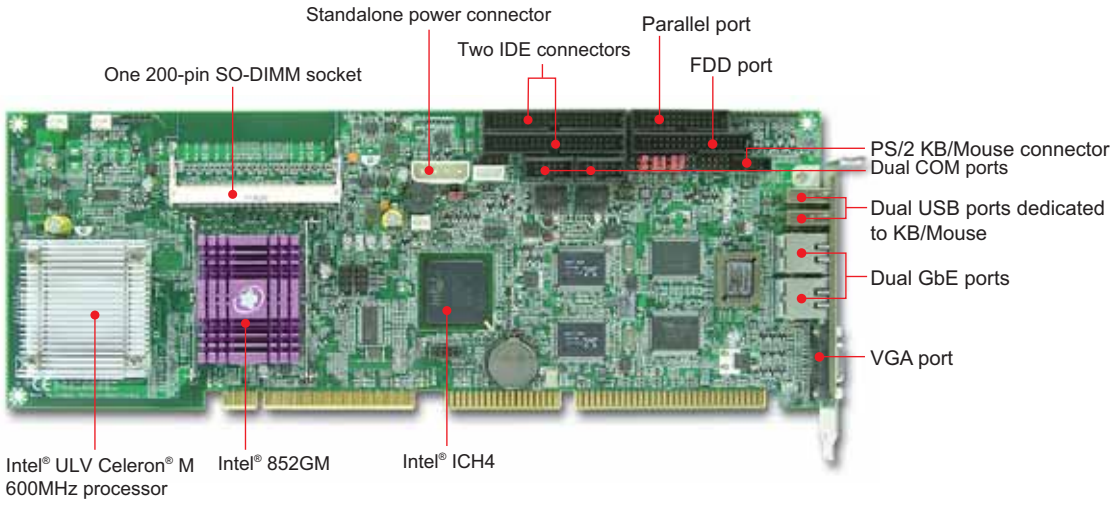
MIO	Two serial (RS232 x1, selectable RS232/422/485 x1), one parallel and one FDD channel
IrDA	IrDA 1.0
Ethernet	- Single 10BASE-T/100BASE-TX/1000BASE-T Ethernet - PCI interface based Gigabit Ethernet - Single RJ-45 connector with two LED indicators
Audio	AC'97 interface reserved
USB	Eight USB 2.0 ports (Dual ports on bracket)
Keyboard & Mouse	One 6-pin mini-DIN connector for Keyboard & Mouse

DISPLAY

Graphic Controller	- GMCH integrated Intel® Extreme graphics 2 technology - High performance 3D setup & render engine and hardware motion compensation for MPEG2
Graphic Memory	Intel® Dynamic Video Memory Technology (DVMT) 2.0 system memory sharing up to 64MB
Display Interface	Support CRT interface up to QXGA 75Hz (2048 x 1536)

ROBO-8771VG2

Ultra Low Voltage Intel® Celeron® M processor based PICMG SBC with VGA and LAN



FEATURES

- On-board Ultra Low Voltage Intel® Celeron® M 600MHz with L2 Cache processor with passive heat sink for misson critical & fanless application
- Ideal replacement in terms of cost, functionality and performance
- Stand alone workable single board computer
- Rich I/O connections such as IDE, Gigabit Ethernet, serial port, parallel port, and USB ports

ORDERING GUIDE

Standard	**ROBO-8771VG2** Ultra Low Voltage Intel® Celeron® M processor based PICMG SBC with VGA and LAN
Optional	**USB Cable with bracket** Four USB ports with bracket
	PS/2 Keyboard/Mouse Cable with Bracket PS/2 keyboard/mouse connectors on bracket

GENERAL

Processor	CPU & Package: Ultra Low Voltage Intel® Celeron® M 600MHz processor FSB: 400MHz
Chipset/Core Logic	Intel® 852GM and ICH4
System Memory	Up to 1GB DDR 200/266 SDRAM on one 200-pin SODIMM socket
BIOS	Award BIOS 184-pin DIMM socket
Storage Devices	Support dual EIDE devices with Ultra DMA 100/66/33
Solid State Disk	N/A
Watchdog Timer	Programmable via software from 0.5 sec. to 254.5 min.
Expansion Interface	N/A
Hardware Monitoring	System monitor (fan, temperature, voltage)
Power Requirement	Typical: +5V@3.96A; +12V@1.78A
Dimension	Dimension : 338.5(L) x 122(W) mm; 13.33"(L) x 4.8" (W) PCB: 6-layer
Environment	Operating Temperature: 0 to 60°C Storage Temperature: -20 to 75°C Relative Humidity: 5% to 95%, non-condensing
MTBF	13,279 hrs

I/O

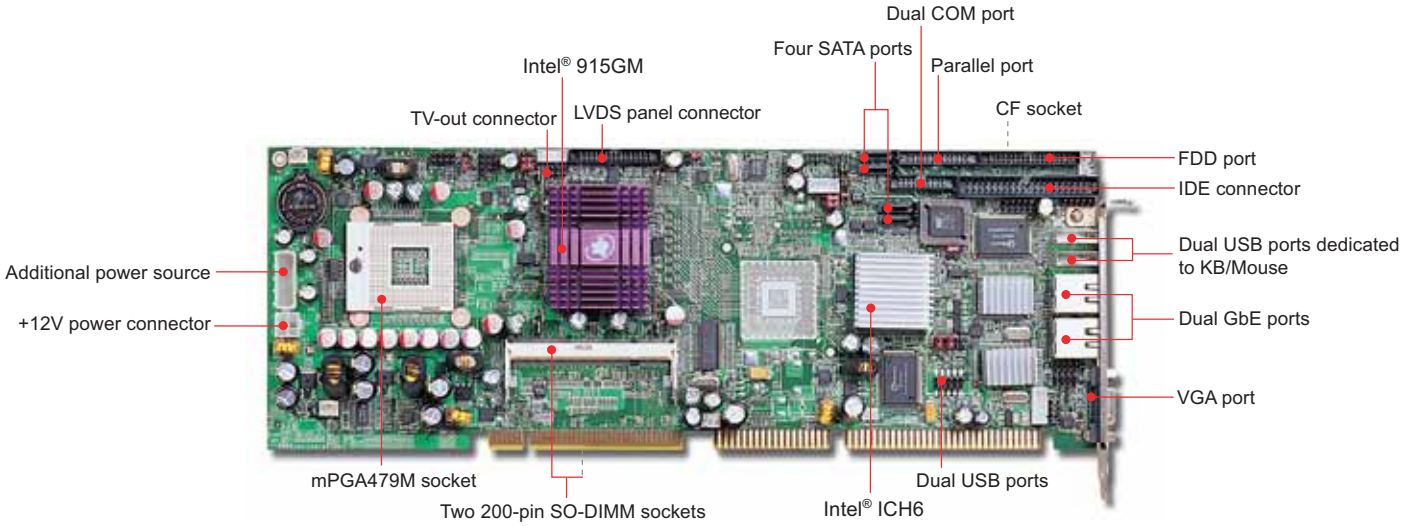
MIO	Two serial (one RS232/422/485 selectable), one parallel, one FDD channel
IrDA	IrDA 1.0
Ethernet	- 10BASE-T/100BASE-TX Ethernet - IEEE 802.3u auto-negotiation - Dual RJ-45 connector with two LED indicators
Audio	AC'97 2.2 interface reserved
USB	Six USB 2.0 ports
Keyboard & Mouse	Two ports USB 2.0 on bracket dedicated to keyboard & mouse

DISPLAY

Graphic Controller	Intel® 852GM mobile optimized graphics controller
Graphic Memory	Dynamically allocates 32/64MB system memory for display
Display Interface	Support VGA (DB15 on bracket) interface

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-M1ATU** Multimedia kit with audio, TV-out and dual USB ports **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® 915GM 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 min.
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

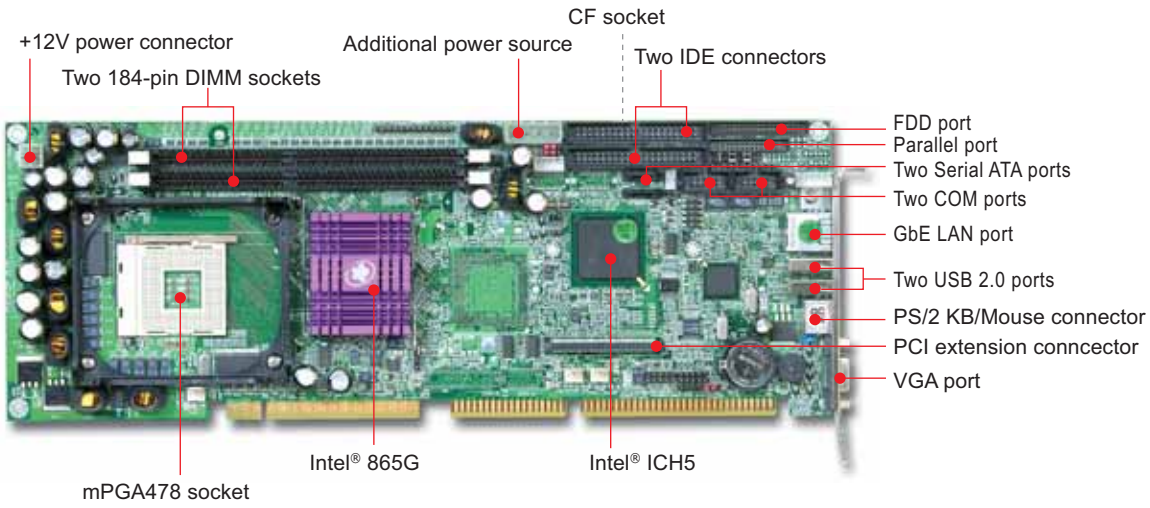
MIO	Two serial (selectable RS232/422/485 x1), one parallel, one FDD channel
IrDA	IrDA 1.0
Ethernet	- 10BASE-T/100BASE-TX/1000BASE-T Ethernet - Dual PCI-Express x1 based - Dual RJ-45 connectors with two LED indicators
Audio	AC'97 2.2 Audio
USB	Four USB 2.0 ports
Keyboard & Mouse	Two USB 2.0 ports on bracket 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 (TMDS) display interfaces [ROBO-8718UG2A] - Support CRT, LVDS & TV-out display interfaces [ROBO-8718VG2A]

ROBO-8713VGA

Intel® Pentium® 4 or Celeron® D processor based PICMG SBC with DDR 400 SDRAM, AGP 8X VGA, Gigabit Ethernet and Audio



FEATURES

- Intel® Pentium® 4 processor with Hyper-Threading technology runs at 800MHz FSB
- Wire-speed Gigabit Ethernet based on Communication Streaming Architecture (CSA) with double throughput than PCI based Ethernet
- Rich expansion capability thru proprietary PCI

ORDERING GUIDE

Standard	**ROBO-8713VGA** Socket 478 Pentium® 4 or Celeron® D processor based PICMG SBC with DDR 400 SDRAM, integrated graphic, Gigabit Ethernet and audio
Optional	**ROBO-U160H** SCSI extension module with Portwell OmniPCI™ connection interface **ROBO-N201G** Single Gigabit Ethernet port extension module with Portwell OmniPCI™ connection interface **ROBO-N201G2** Dual Gigabit Ethernet port extension module with Portwell OmniPCI™ connection interface **ROBO-N100P** Single Fast Ethernet port extension module with Portwell OmniPCI™ connection interface **PA-M1AU** Multimedia kit for P4 SBC with audio and USB ports

GENERAL

Processor	CPU & Package: Intel® Pentium® 4 or Celeron® (D) processor in mPGA478 package FSB: 800/533/400MHz
Chipset/Core Logic	Intel® 865G and ICH5
System Memory	Up to 2GB dual channel DDR 400/333/266 SDRAM on two 184-pin DIMM sockets
BIOS	Award BIOS
Storage Devices	EIDE: Support four EIDE devices with Ultra DMA 100/66/33 SATA: Support two SATA 150 devices
Solid State Disk	- One Type II CF socket - On Secondary EIDE channel
Watchdog Timer	Programmable via software from 0.5 sec. to 254.5 min.
Expansion Interface	Proprietary PCI connection interface
Hardware Monitoring	System monitor (fan, temperature, voltage)
Power Requirement	Typical: +5V@6.0A; +12V(CPU)@5.7A; +12V (system)@0.8A
Dimension	Dimension : 338.5(L) x 122(W) mm; 13.33"(L) x 4.8" (W) PCB: 8-layer
Environment	Operating Temperature: 0 to 50°C Storage Temperature: -20 to 80°C Relative Humidity: 5% to 90%, non-condensing
MTBF	98,733 hrs

I/O

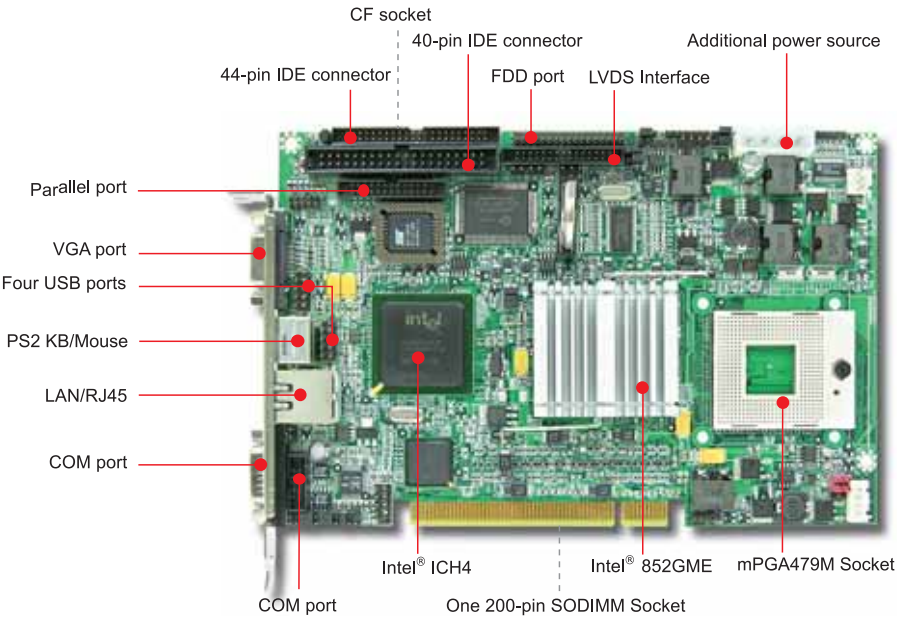
MIO	Two serial (selectable RS232/422/485 x1), one parallel, one FDD channel
IrDA	IrDA 1.0
Ethernet	- 10BASE-T/100BASE-TX/1000BASE-T Ethernet - Gigabit Ethernet via CSA interface - One RJ-45 connector with two LED indicators
Audio	AC'97 2.2 Audio
USB	Four USB 2.0 ports (two on bracket)
Keyboard & Mouse	- One 6-pin mini-DIN connector for keyboard and mouse - One 5-pin header for external keyboard connection

DISPLAY

Graphic Controller	Intel® 865 integrated Extreme Graphics 2.0
Graphic Memory	64MB display memory
Display Interface	Support CRT display interface

ROBO-6711VGA

mPGA479M Pentium® M/Celeron® M processor based half-size PCI SBC with VGA, LCD, GbE and Audio



FEATURES

- Support Intel® low power consumption 533/400MHz FSB Pentium® M/Celeron® M processor for thermal/power limited applications
- One SODIMM socket at the rear that supports up to 1GB ECC system memory for critical applications
- Support dual display function via VGA and LVDS output
- Perfect engine for slim computers with LVDS interface LCD panel
- On-board Intel® 10BASE-T/100BASE-TX/1000BASE-T Gigabit Ethernet
- One Type II Compact Flash at the rear supports up to 1GB flash disk for installation OS without hard drive
- Audio Codec '97 (AC'97) 2.2 for high quality audio architecture
- PCI bus interface for higher flexibility and expandability
- Optional support TV-out by project

ORDERING GUIDE

Standard	**ROBO-6711VGA** mPGA479M Pentium® M/Celeron® M processor based half-size PCI SBC with VGA, LCD, GbE and Audio
Optional	**PA-M1AU** Multimedia kit with audio and USB ports on bracket

GENERAL

Processor	CPU & Package: Intel® Pentium® M/Celeron® M processor FSB: 533/400MHz
Chipset/Core Logic	Intel® 852GME and ICH4
System Memory	Up to 1GB DDR 266/333 SDRAM with ECC on one 200-pin SODIMM socket
BIOS	Award BIOS
Storage Devices	- Support dual EIDE channel with Ultra DMA 100/66/33 - One 44-pin and one 40-pin connector
Solid State Disk	- One Type II CF socket - On secondary EIDE channel - Bootable for no drives primary channel
Watchdog Timer	Programmable via software from 0.5 sec. to 254.5 min.
Expansion Interface	N/A
Hardware Monitoring	System monitor (fan, temperature, voltage)
Power Requirement	Typical: +5V@2.0A; +12V(CPU)@1.5A
Dimension	Dimension : 185(L) x 122(W) mm; 7.3"(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	116,027 hrs

I/O

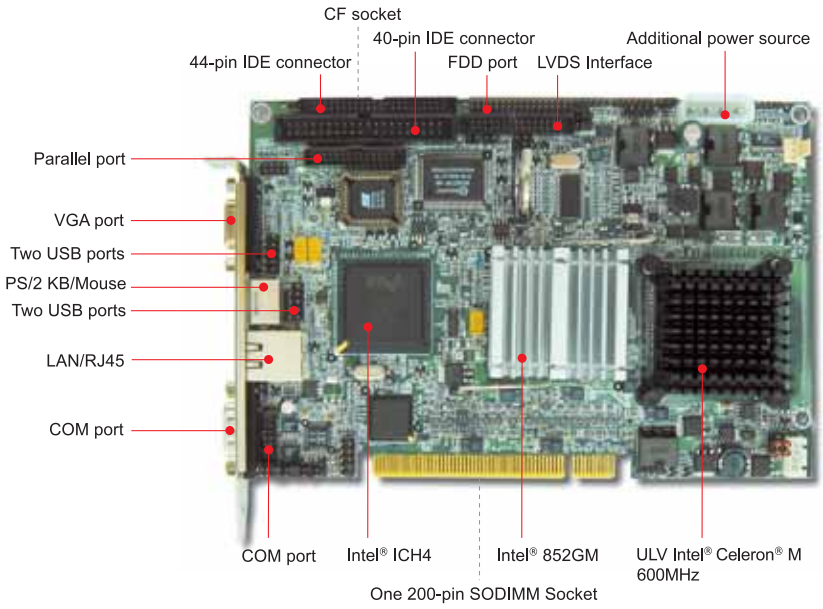
MIO	Two serial (one on bracket; one RS232/422/485 selectable), one parallel, one FDD channel
IrDA	IrDA 1.0
Ethernet	- 10BASE-T/100BASE-TX/1000BASE-T Ethernet - IEEE 802.3u auto-negotiation - One RJ-45 connector with two LED indicators
Audio	AC'97 2.2 Audio
USB	Four USB ports
Keyboard & Mouse	One 6-pin mini-DIN connector for keyboard/mouse

DISPLAY

Graphic Controller	Intel® 852GME mobile optimized graphics controller
Graphic Memory	Dynamical allocates 32/64MB system memory for display
Display Interface	Support VGA (DB15 on bracket) and LVDS interface

ROBO-6730VLA

Ultra Low Voltage Intel® Celeron® M processor based half-size PCI SBC with VGA, LCD, LAN and Audio



FEATURES

- Fanless solution with on-board Ultra Low Voltage Intel® Celeron® M 600MHz processor
- Support dual display function via VGA and LVDS output
- Perfect engine for slim computers with LVDS interface LCD panel
- On-board Intel® 10BASE-T/100BASE-TX Fast Ethernet
- One SODIMM socket at the rear supports up to 1GB system memory
- One Type II Compact Flash at the rear supports up to 1GB flash disk for installation OS wtihout hard drive
- Audio Codec '97 (AC'97) 2.2 for high quality audio architecture
- PCI bus interface for higher flexibility and expandability

ORDERING GUIDE

Standard	**ROBO-6730VLA** Ultra Low Voltage Intel ® Celeron® M processor based half-size PCI SBC with VGA, LCD, LAN and Audio
Optional	**PA-M1AU** Multimedia kit with audio and USB ports on bracket

GENERAL

Processor	CPU & Package: Ultra Low Voltage Intel® Celeron® M 600MHz processor FSB: 400MHz
Chipset/Core Logic	Intel® 852GM and ICH4
System Memory	Up to 1GB DDR 200/266/333 SDRAM on one 200-pin SODIMM socket
BIOS	Award BIOS
Storage Devices	Support dual EIDE devices with Ultra DMA 100/66/33
Solid State Disk	- One Type II CF socket - On secondary EIDE channel - Bootable for no drives primary channel
Watchdog Timer	Programmable via software from 0.5 sec. to 254.5 min.
Expansion Interface	N/A
Hardware Monitoring	System monitor (fan, temperature, voltage)
Power Requirement	Typical: +5V@2.0A; +12V@1.5A
Dimension	Dimension : 185(L) x 122(W) mm; 7.3"(L) x 4.8" (W) PCB: 8-layer
Environment	Operating Temperature: 0 to 55°C Storage Temperature: -20 to 75°C Relative Humidity: 5% to 95%, non-condensing
MTBF	115,787 hrs

I/O

MIO	Two serial (one on bracket; one RS232/422/485 selectable), one parallel, one FDD channel
IrDA	IrDA 1.0
Ethernet	- 10BASE-T/100BASE-TX Ethernet - IEEE 802.3u auto-negotiation support - One RJ-45 connector
Audio	AC'97 2.2 Audio
USB	Four USB ports
Keyboard & Mouse	One 6-pin mini-DIN connector for keyboard/mouse

DISPLAY

Graphic Controller	Intel® 852 mobile optimized graphics controller
Graphic Memory	Dynamically allocates 32/64MB system memory for display
Display Interface	Support VGA (DB15 on bracket) and LVDS interface

PICMG Backplane

PICMG GENERAL DESCRIPTION

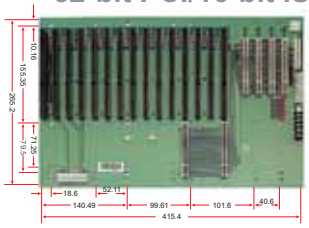
PICMG Backplane in this section are SBC (Single Board Computer)/SHB (Single Host Board) companion that feature expansion slots such as ISA, PCI, PCI-X or PCI Express interface. In addition, backplane also features several power connectors that draw power from power supply to devices on it. Some LEDs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

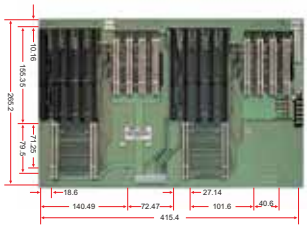
32-bit PCI/16-bit ISA



PBP-19P4

19-slot (4xPCI) PICMG Backplane

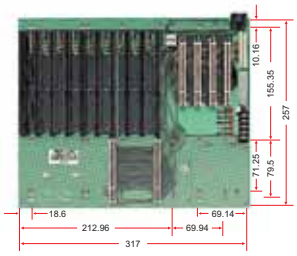
- Fit for 20-slot chassis
- ATX power connector support
- Sufficient ISA slots for CTI application



PBP-18D4

18-slot Dual-system PICMG Backplane

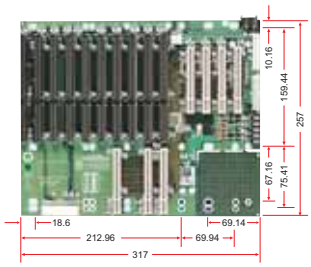
- Fit for 20-slot chassis
- Designed for fault-tolerant computing
- ATX power connector support



PBP-14P4

14-slot (4xPCI) PICMG Backplane

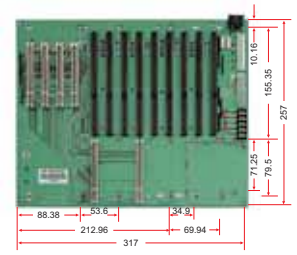
- Fit for 14-slot chassis
- ATX power connector support
- The most popular and reliable PICMG backplane



ACTI-14P4

14-slot (4xPCI) Active PICMG Backplane

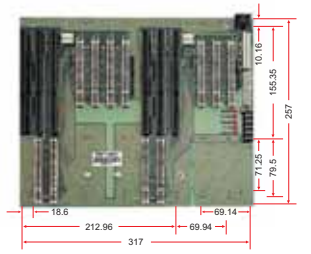
- 2.4 mm PCB thickness
- ATX power connector support
- Fit for 14-slot chassis



PBP-13R4

13-slot (4xPCI) PICMG Backplane

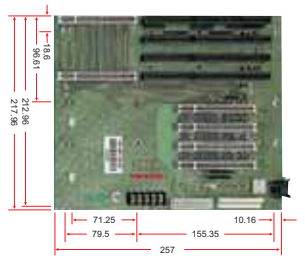
- Fit for 14-slot chassis
- Special design for full-length PCI cards
- ATX power connector support



PBP-13D4

13-slot Dual-system PICMG Backplane

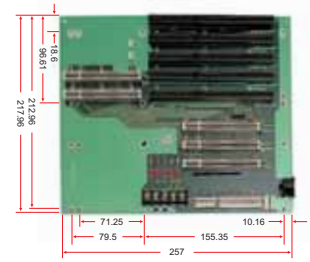
- Fit for 14-slot chassis
- Design for fault-tolerant computing
- ATX power connector support



PBP-08P4

8-slot (4xPCI) PICMG Backplane

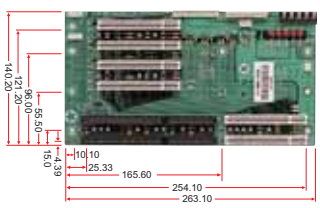
- Fit for node chassis and desktop case
- ATX power connector support



PBP-08P3

8-slot (3xPCI) PICMG Backplane

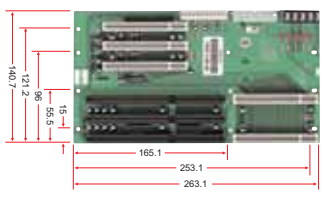
- Fit for node chassis and desktop case



PBP-06P4

6-slot (4xPCI) PICMG Backplane

- Fit for node chassis
- ATX power connector support

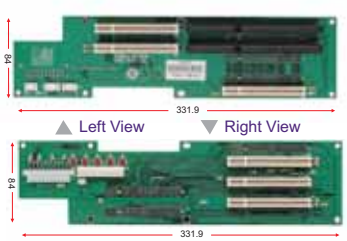


PBP-06P3

6-slot (3xPCI) PICMG Backplane

- Fit for node chassis
- ATX power connector support

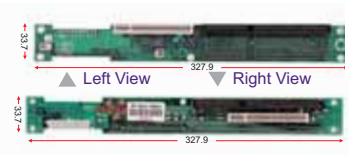
PICMG Backplane



PBP-06V4

Vertical 6-slot (4xPCI) PICMG Backplane

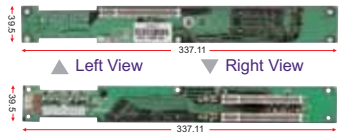
- Fit for 2U chassis
- ATX and AT power connector support



PBP-02V1X

Vertical 2-slot (1xPCI) PICMG Backplane

- Fit for 1U chassis
- ATX power connector support

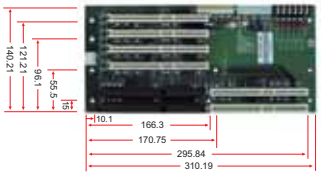


PBP-03P2X

Vertical 3-slot (2xPCI) PICMG Backplane

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

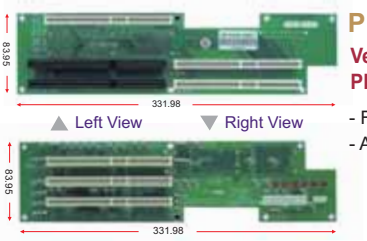
64-bit PCI/16-bit ISA



PBP-06P464

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

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

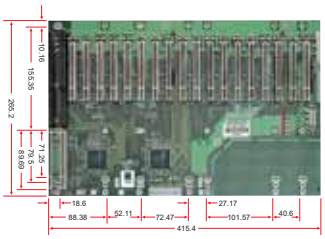


PBP-06V464

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

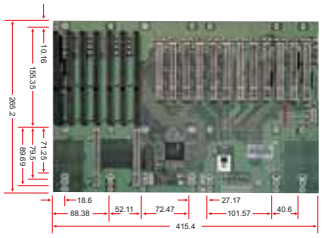
- Fit for 2U chassis
- ATX power connector

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



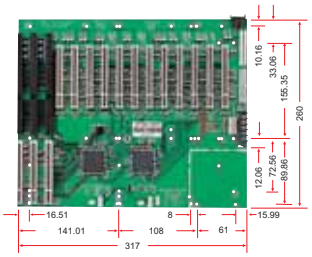
PBP-19AI

19-slot (18xPCI) Active PICMG Backplane



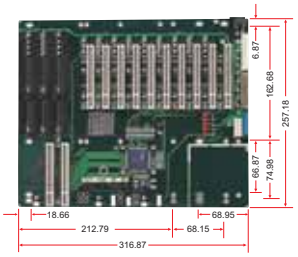
PBP-19AC

19-slot (12xPCI) Active PICMG Backplane



PBP-14AC-B

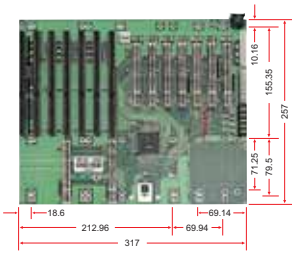
14-slot (12xPCI) Active PICMG Backplane



ACTI-14AA

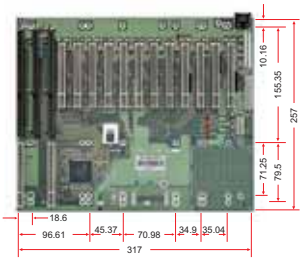
14-slot (10xPCI) Active PICMG Backplane

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



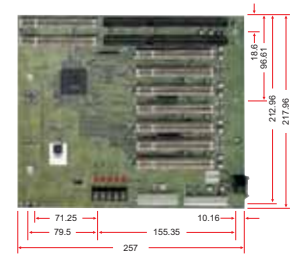
PBP-14A7

14-slot (7xPCI) Active PICMG Backplane



PBP-14AC

14-slot (12xPCI) Active PICMG Backplane

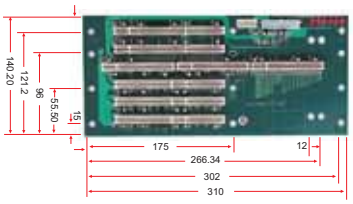


PBP-08A7

8-slot (7xPCI) Active PICMG Backplane

PICMG Backplane

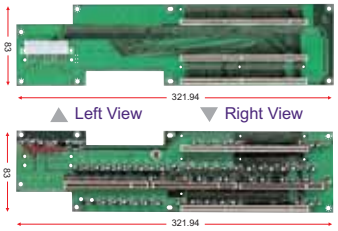
PICMG 1.2 BACKPLANE



PBP-06P564

6-slot (2xPCI-X, 3xPCI)
64-bit PICMG 1.2 Backplane

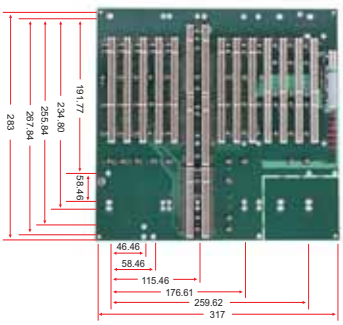
- Fit for 6-slot node chassis
- ATX & aux power connectors support



PBP-06V564

Vertical 6-slot (2xPCI-X, 3xPCI)
64-bit PICMG 1.2 Backplane

- Fit for 2U chassis
- ATX power connector support



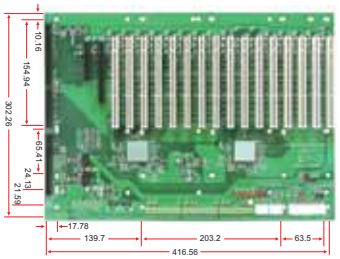
PBP-14PD64

14-slot (8xPCI-X, 4xPCI)
64-bit PICMG 1.2 Backplane

- Support 4 independent buses with ROBO-8820VG2H & PA-B1
- Three PCI-X buses; one PCI bus
- ATX & AUX power connectors support

PICMG 1.3 BACKPLANE

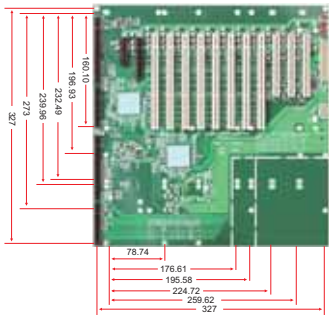
Server Grade Backplane



PBPE-19AG64

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

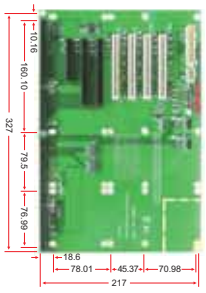
- Fit for 4U up chassis
- Dedicated to ROBO-8920VG2
- Four PCI-X buses support 16 PCI-X expansion slots



PBPE-14AD64

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

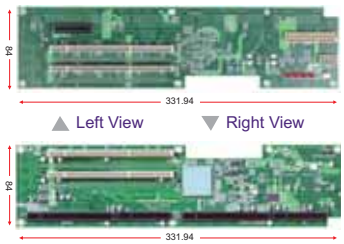
- Fit for 4U chassis
- Dedicated to ROBO-8920VG2
- Four PCI-X buses support eight PCI-X expansion slots



PBPE-08P41

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

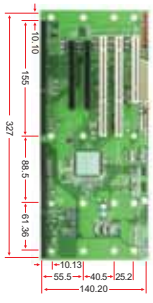
- Fit for Node chassis
- Dedicated to ROBO-8920VG2
- Four USB ports



PBPE-06V464

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

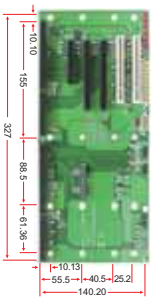
- Fit for 2U chassis
- Dedicated to ROBO-8920VG2
- Dual PCI-X buses support four PCI-X slots



PBPE-06A364

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

- Fit for Node chassis
- Dedicated to ROBO-8920VG2
- Four USB ports
- Dual SATA ports
- Two PCI-X buses support two PCI-X expansion slot



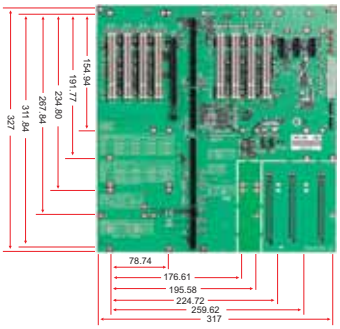
PBPE-06P2

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

- Fit for Node chassis
- Dedicated to ROBO-8920VG2
- Four USB ports

PICMG Backplane

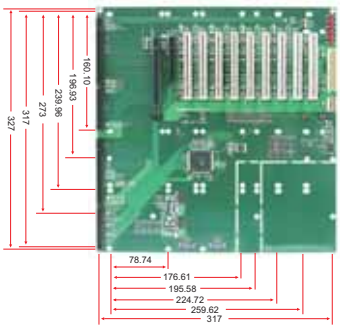
Non-Server Grade Backplane



PBPE-13A8

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

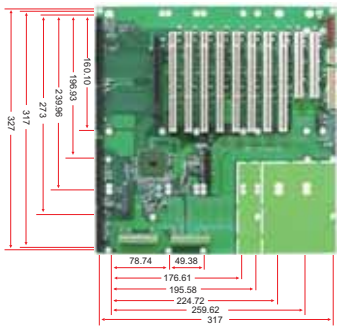
- Fit for 4U chassis
- Dedicated to ROBO-8912VG2AR
- Four USB ports
- Dual SATA ports
- 24-pin ESP12V power connector



PBPE-12A9

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

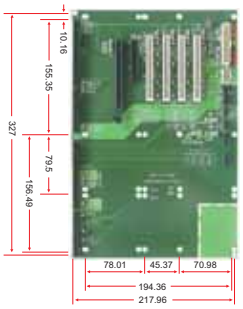
- Fit for 4U chassis
- Dedicated to ROBO-8912VG2AR
- Four USB ports
- Dual SATA ports



PBPE-12AA64

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

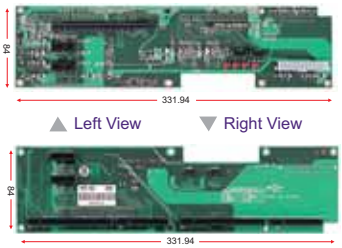
- Fit for 4U chassis
- Dedicated to ROBO-8912VG2AR
- Four USB ports
- Dual SATA ports
- Two PCI-X buses support eight PCI-X expansion slot



PBPE-07P4

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

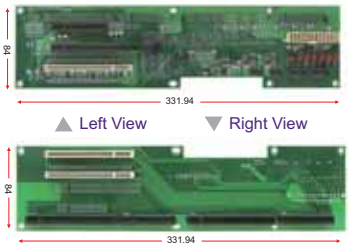
- Fit for Node chassis
- Dedicated to ROBO-8912VG2AR
- Four USB ports
- Dual SATA ports



PBPE-06V

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

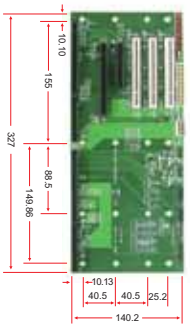
- Fit for 2U chassis
- Dedicated to ROBO-8912VG2AR
- Four USB ports
- Dual SATA ports
- 24-pin ESP 12V power connector



PBPE-06V3

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

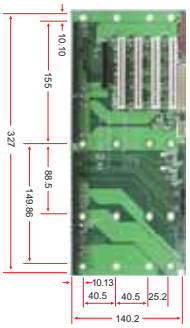
- Fit for 2U chassis
- Dedicated to ROBO-8912VG2AR
- Four USB ports
- Dual SATA ports



PBPE-06P3

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

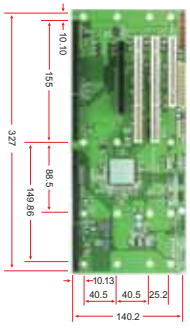
- Fit for Node chassis
- Dedicated to ROBO-8912VG2AR
- Four USB ports
- Dual SATA ports



PBPE-06P4

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

- Fit for Node chassis
- Dedicated to ROBO-8912VG2AR
- Four USB ports
- Dual SATA ports



PBPE-05A364

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

- Fit for Node chassis
- Dedicated to ROBO-8912VG2AR
- Four USB ports
- Dual SATA ports
- Two PCI-X buses support two PCI-X expansion slot

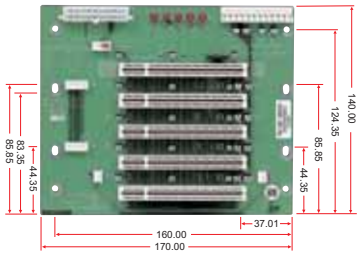
PCI & ISA Backplane

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

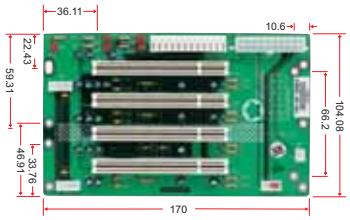
PBP-05P

5-slot Passive PCI Backplane



PBP-04P

4-slot Passive PCI Backplane



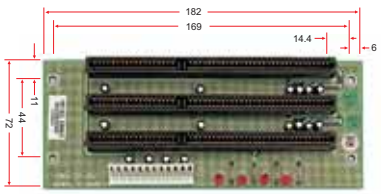
ISA GENERAL DESCRIPTION

- 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

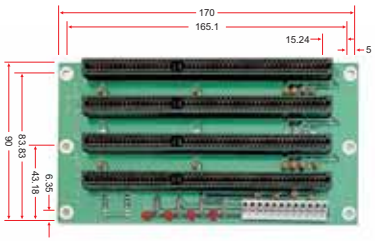
PBP-03I

3-slot Passive ISA Backplane



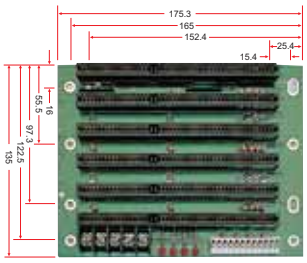
PBP-04I

4-slot Passive ISA Backplane



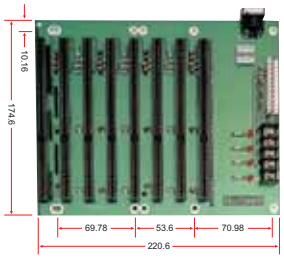
PBP-06I

6-slot Passive ISA Backplane



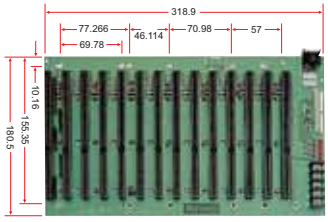
PBP-08I

8-slot Passive ISA Backplane



PBP-14I

14-slot Passive ISA Backplane



IMB Reference Table

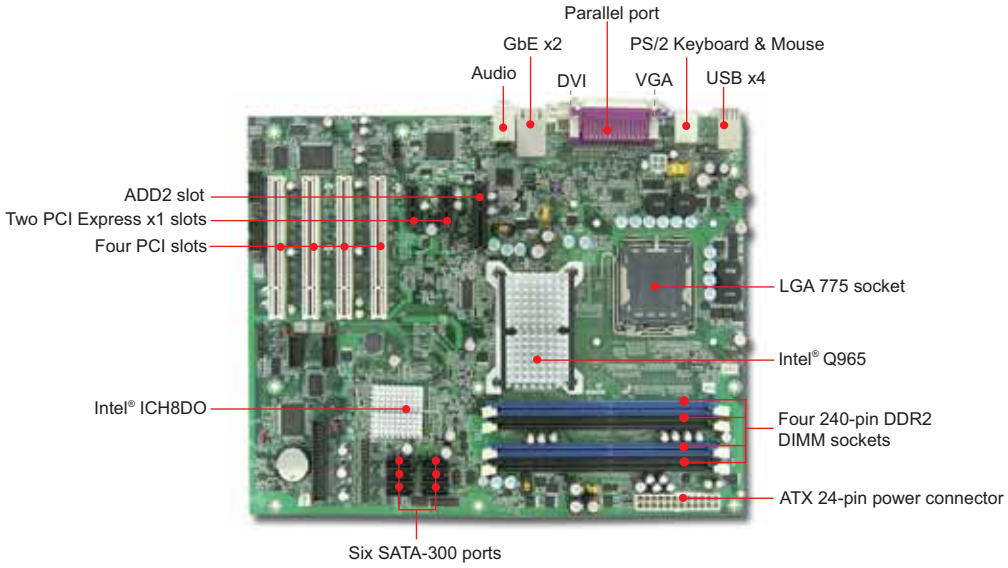




MODEL	RUBY-9718VG2AR	RUBY-9717VGAR	RUBY-9716VGAR	RUBY-9715VG2AR	RUBY-9713VG2AR
Form Factor	ATX	uATX	ATX	ATX	uATX
Chipset	Q965+ICH8DO	Q965+ICH8DO	Q965+ICH8DO	945G+ICH7R	945GM+ICH7R
CPU	Core™ 2 Quad/ Core™ 2 Duo/ Pentium® D/ Pentium® 4/ Celeron® D	Core™ 2 Quad/ Core™ 2 Duo/ Pentium® D/ Pentium® 4/ Celeron® D	Core™ 2 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
Display	VGA/DVI	VGA/DVI	VGA	VGA	VGA/LVDS/TV-out
Memory	DIMM x4 and up to 8G	DIMM x4 and up to 8G	DIMM x4 and up to 8G	DIMM x4 and up to 8G	SO-DIMM x2 and up to 4GB
Expansion	Four PCI slots, Two PCI-E x1 slot, One ADD2 slot	Two PCI slots, One PCI-E x4 slot, One ADD2 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
LAN	GbE x2	GbE x1	GbE x1	GbE x2	GbE x2
Serial	RS232 x3, RS232/422/485 x1	RS232 x3, RS232/422/485 x1	RS232 x3, RS232/422/485 x1	RS232 x1, RS232/422/485 x1	RS232 x1, RS232/422/485 x1
USB	USB 2.0 x10	USB 2.0 x10	USB 2.0 x8	USB 2.0 x8	USB 2.0 x8
SATA	SATA x6	SATA x6	SATA x5	SATA x4	SATA x4
IDE	N/A	N/A	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	RAID 0/1/5/10
SSD	N/A	N/A	CF x1	N/A	N/A
Paralell	LPT x1	LPT x1	LPT x1	LPT x1	LPT x1 (pin header)
FDD	FDD x1	FDD x1	FDD x1	FDD x1	FDD x1
IrDA	N/A	N/A	IrDA 1.0	IrDA 1.0	IrDA 1.0
Audio	HDA 2 channel	HDA 2 channel	HDA 2 channel	AC'97 2.2	AC'97 2.2
Dimension	304.8 x 243.8mm	243.8 x243.8mm	304.8 x 243.8mm	312.8 x243.8mm	243.8 x 243.8mm
Page	32	33	34	35	36

RUBY-9718VG2AR

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



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
- 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 Dual-Display, 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 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	TBD
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	TBD

I/O

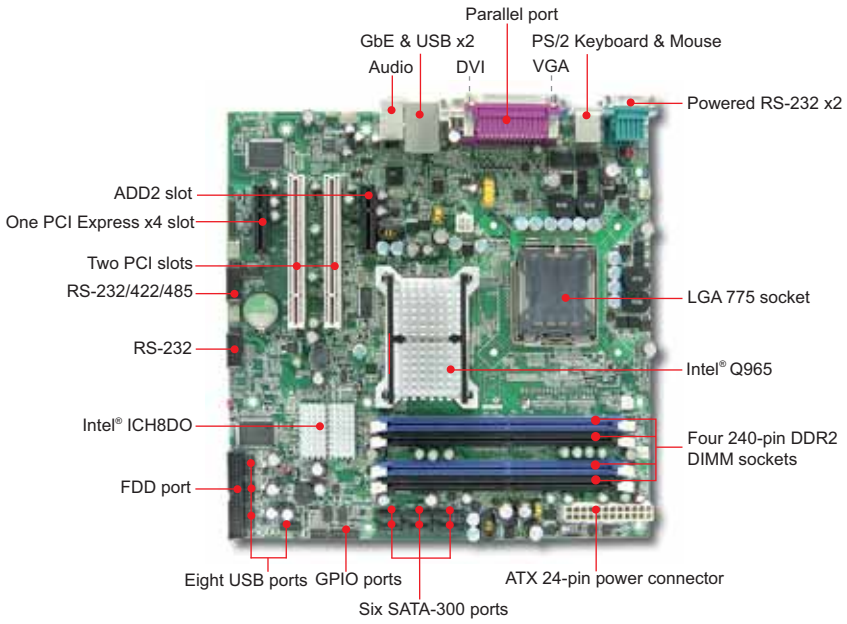
MIO	Four serial ports(RS232/Powered selectable x2, selectable RS232/422/485 x1, RS232 x1), one FDD, 12 GPIO
IrDA	N/A
Ethernet	- Dual 10BASE-T/100BASE-TX/1000BASE-T Ethernet - PCI Express x1 interface based Gigabit Ethernet - Dual RJ-45 connector with two LED indicators at rear I/O panel
Audio	HD Audio 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

RUBY-9717VGAR

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



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
- 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 uATX Industrial Mainboard with onboard dual-display, 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 & 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 55°C Storage Temperature: -20 to 80°C Relative Humidity: 5% to 90%, non-condensing
MTBF	TBD

I/O

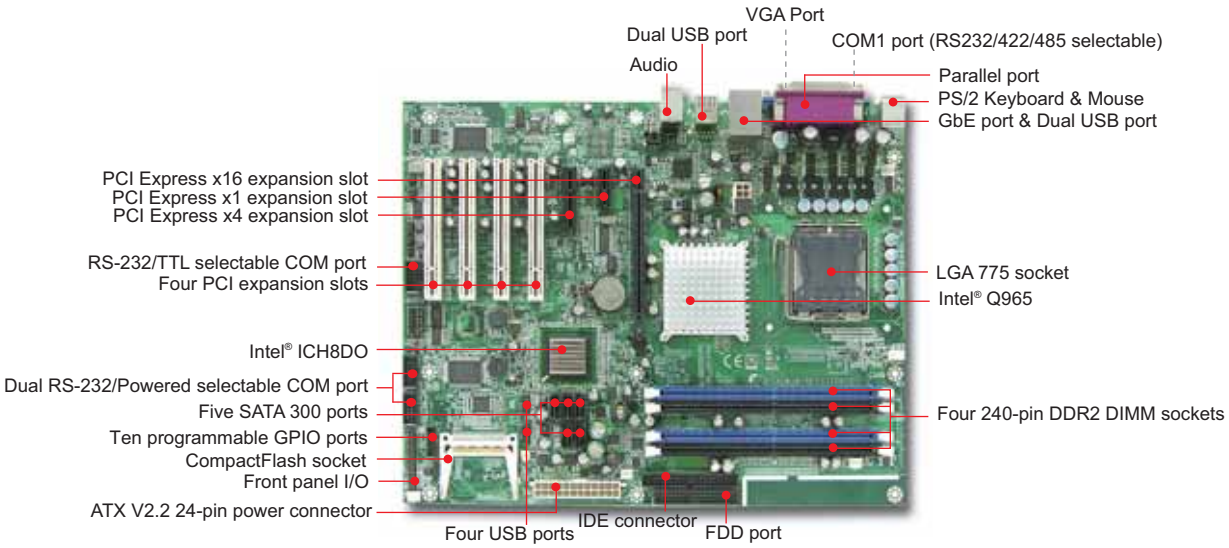
MIO	Four serial ports(RS232, Powered selectable x2 on rear panel, Selectable RS232/422/485 x1, RS-232 x1), one FDD, 12 GPIO
IrDA	N/A
Ethernet	- Single 10BASE-T/100BASE-TX/1000BASE-T Ethernet (Intel® 82566DM) - PCI Express x1 interface based Gigabit Ethernet - Single RJ-45 connector with two LED indicators 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

RUBY-9716VGAR

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



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 cad 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 singl EIDE device with Ultra DMA 100/66/33 SATA: Support five SATA 300 drives
Solid State Disk	One Type II CF cocket (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 or PCI Express x1 card - One PCI Express x1 slot - One PCI Express x16 slot for graphics card, ADD2/+ card or PCI Express x1 (general purpose) 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

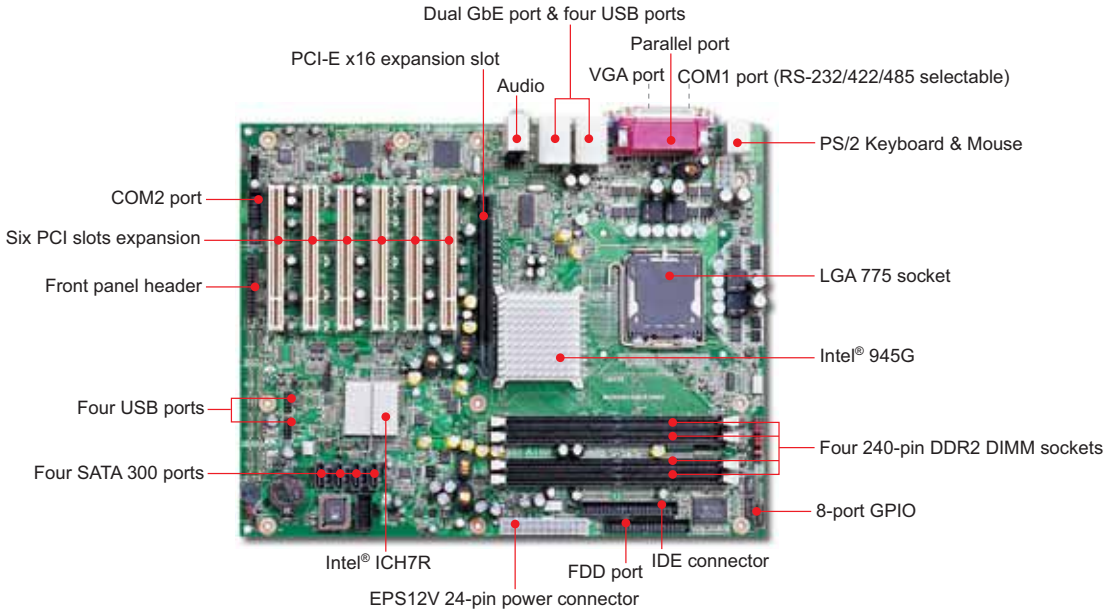
MIO	Four serial (RS232/TTL selectable x1, RS232/Powered selectable x2, RS232/422/485 selectable x1), one at rear I/O panel, one parallel, one FDD channel
IrDA	IrDA 1.0
Ethernet	- Single 10BASE-T/100BASE-TX/1000BASE-T Ethernet - PCI Express x1 interface based Gigabit Ethernet - Single RJ-45 connector 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 controlle - 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



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

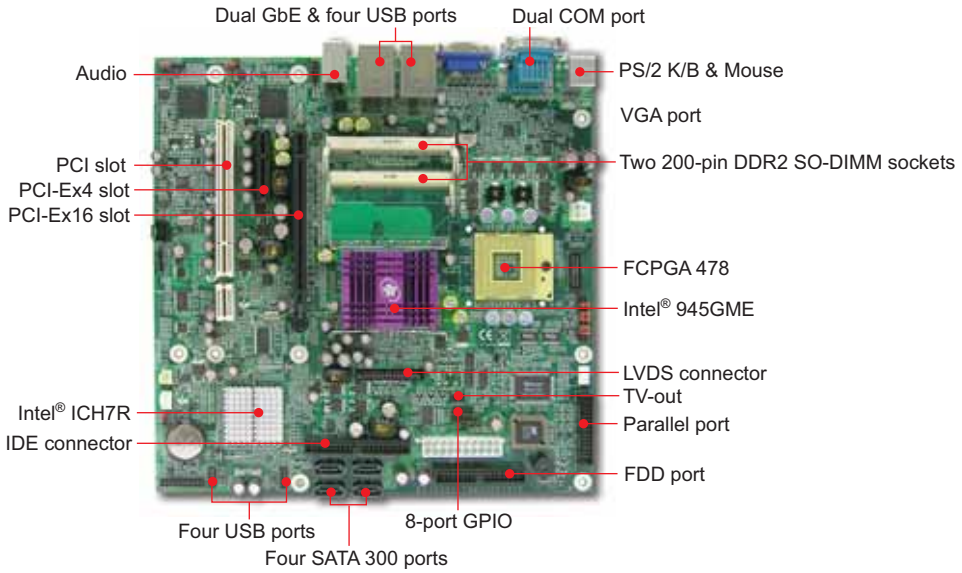
MIO	Two serial (RS232 x1, selectable RS232/422/485 x1) ports, one at rear I/O panel, one parallel, one FDD channel
IrDA	IrDA 1.0
Ethernet	- Dual 10BASE-T/100BASE-TX/1000BASE-T Ethernet - PCI Express x1 interface based Gigabit Ethernet - Dual RJ-45 connectors with two LED indicators at rear I/O panel
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 uATX Industrial Mainboard with DDR2 SO-DIMM, VGA, Dual Gigabit Ethernet, Audio and USB



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, TV-Out 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 uATX, 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 55°C Storage Temperature: -20 to 80°C 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 - 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; TV-Out, LVDS

About Chassis

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

AREMO-4185

TYPE	SLOT	MODEL	ORDERING INFO	BACKPLANE			
				Model Name	ISA	PCI/PCI-X	PICMG
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	--	1	4	1
2U	6-slot	AREMO-2173P	AREMO-2173P-06V4-D3501P	PBP-06V4	1	4	1
			AREMO-2173P-06V4-D3202P		--	4	--
2U	uATX M/B	AREMO-2173MX	AREMO-2173MX-D3501P	--	--	--	--
			AREMO-2173MX-3202P				
3U	ATX M/B	AREMO-3194	AREMO-3194-MX-350X	--	--	7	--
4U	14-slot	AREMO-4185	AREMO-4185-14P4-D3501P	PBP-14P4	9	4	1
			AREMO-4185-14A7-D3501P	PBP-14A7	6	7	1
	ATX M/B		AREMO-4185-MX-D3501P	--	--	--	--
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	--

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	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)	40-42
			ORION-D3202P	320W ATX, PFC, redundant		
	ATX M/B	AREMO-4196-MX	ORION-D4201P	420W ATX, PFC, P4	482(W) x 481(D) x 177(H) mm 19"(W) x 19"(D) x 7"(H)	40-42
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)	43-44
			ORION-D3202P	320W 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)	45-46
			ORION-D3202P	320W 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)	47-48
4U	14-slot	AREMO-4185	ORION-D3501P	350W ATX, PFC, P4	482(W) x 461(D) x 177(H) mm 19"(W) x 18.1"(D) x 7"(H)	49-50
			ORION-D3501P	350W ATX, PFC, P4		
	ATX M/B		ORION-D3202P	320W ATX, redundant		
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)	51-52
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)	53-54
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)	55-56
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)	57-58
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)	60

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

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.

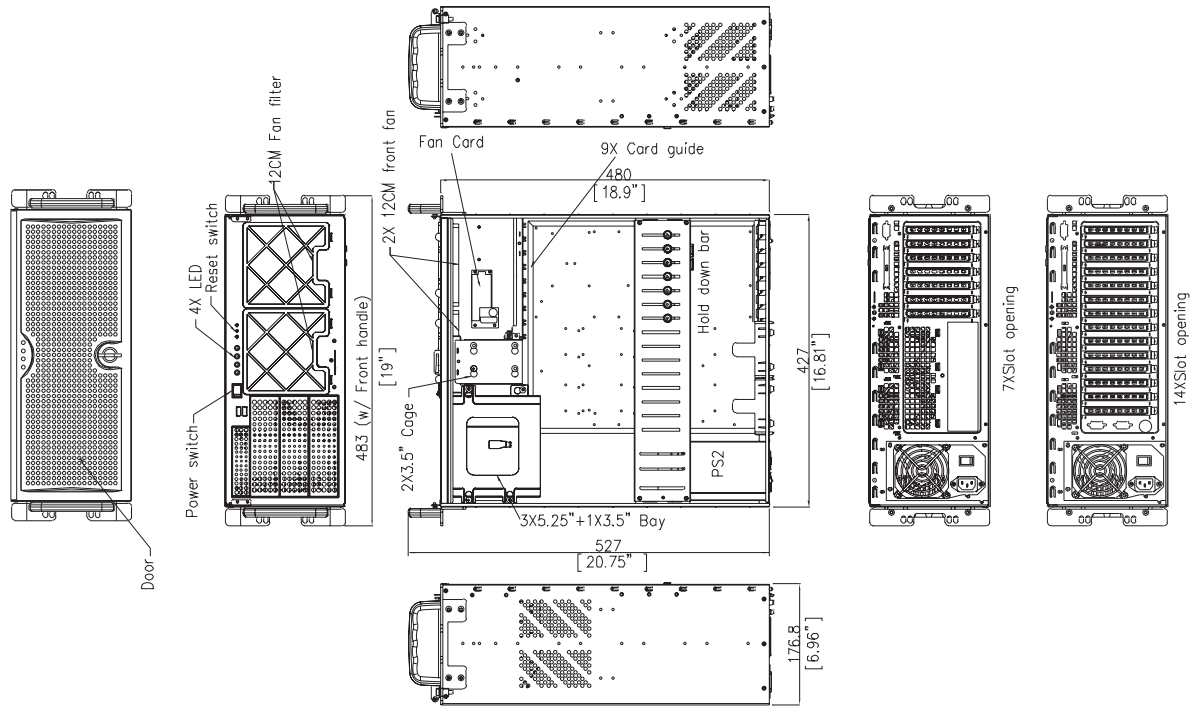
AREMO-4196

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-06V4-3202P**
  19” 2U rack-mount chassis with vertical 6-slot (4x PCI) PICMG backplane and 320W 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

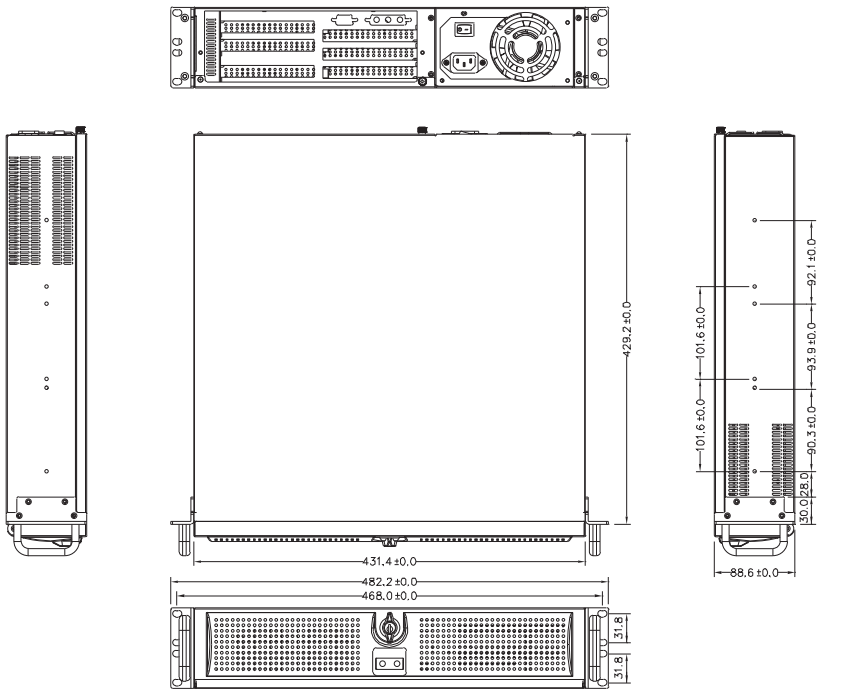
Easy to access HDD drives

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

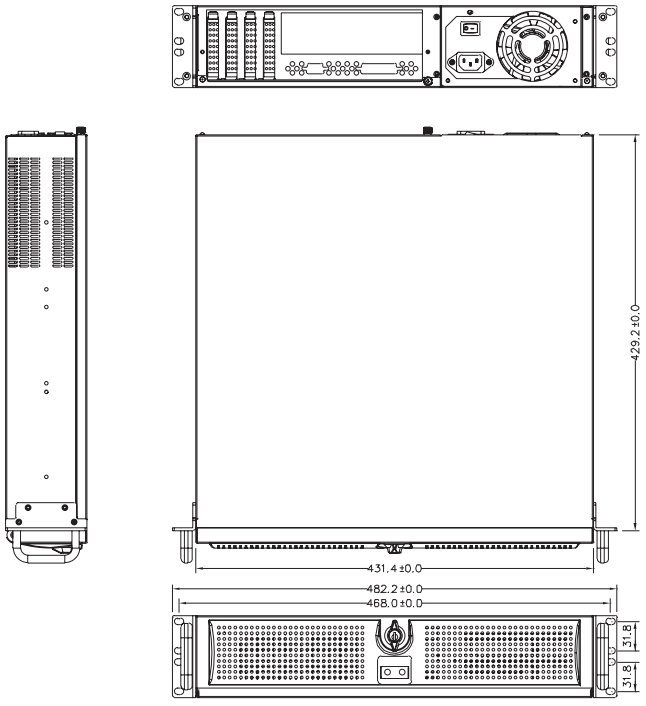
Easy to access HDD drives

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

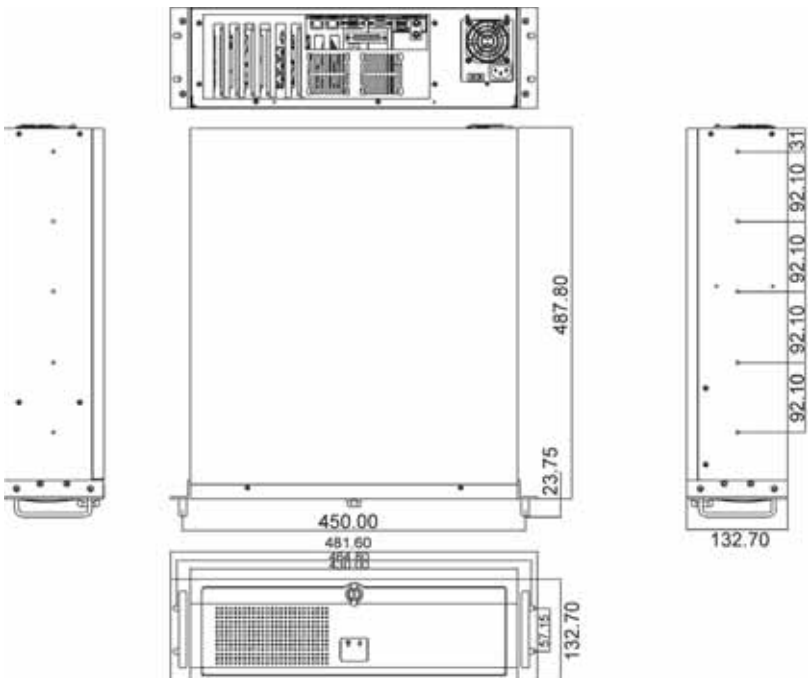
Protection Cap and Touch-Free Reset Switch

Avoid abnormal operation and increase system reliability

Excellent Cooling System

New slot cover and air holes for better ventilation

ENGINEERING DRAWING



Unit: mm

AREMO-4185

19” 4U industrial rack-mount chassis

FEATURES

- Three 5.25” and two internal 3.5” HDD drive bays for RAID 0, 1, 5 & CD-ROM
- Four USB ports on the front panel
- Two ball-bearing cooling fans (12cm x 1+ 8cm x1) for better ventilation
- Three card retainer positions
- One modularized function panel for single (default) or dual (optional) systems
- PS/2 redundant power supply installable
- ATX M/B applicable, especially for large AT size M/B

ORDERING GUIDE

- **AREMO-4185-14P4-D3501P**
  19” 4U rack-mount chassis with 14-slot (4xPCI) PICMG backplane and 350W active PFC ATX power supply
- **AREMO-4185-14A7-D3501P**
  19” 4U rack-mount chassis with 14-slot (7xPCI) PICMG backplane and 350W active PFC ATX power supply
- **AREMO-4185-MX-D3501P**
  19” 4U rack-mount chassis for ATX motherboard with active 350W ATX, PFC power supply
- **AREMO-4185-14A7-D3202P**
  19” 4U rack-mount chassis with 14-slot (7xPCI) PICMG backplane and 320W active PFC redundant power supply

GENERAL

Construction	Heavy-duty steel with aluminum front panel
Drive Bay	External: 5.25”x3 Internal: 3.5” HDD x2
Card Retainer	Three 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
Speaker	One 8Ω speaker
Connector	Four USB ports on the front panel
Standard Color	Silver, Black
Dimension	482(W) x 461(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-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)	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-4185 19” 4U industrial rack-mount chassis

FEATURE	BENEFITS
■ A lockable front door with thumb lock	■ 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
■ Modularized function panel for one or dual systems	■ Easy to manage in stock and flexible for OEM project ■ For installing dual systems
■ Front replaceable air filter	■ Easy cleaning
■ Equipped with two USB ports	■ Efficient access
■ Two ball-bearing cooling fans (12cm and 8cm high speed)	■ 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
■ Three 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 in 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 non-operating power supply ■ Only thirty seconds to change the non-operating PSU module

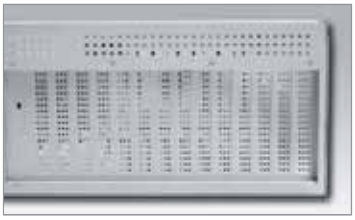
WHAT’S NEW

Three Hot-Swappable HDD Drives

Three 5.25” transferrable hot swappable HDD drives (IDE or S-ATA HDD transfering kit is optional)

One 12cm and one 8cm Cooling Fans

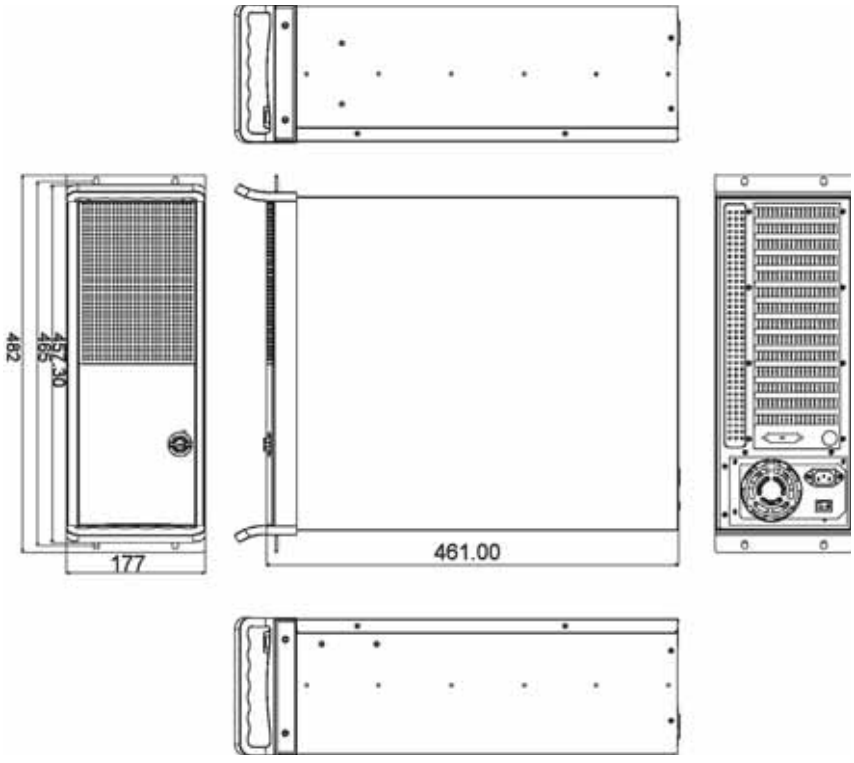
Better ventilation to provide the system with higher reliability



Excellent Cooling System

New slot cover for better ventilation

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
- Both 6-slot ISA and PICMG 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

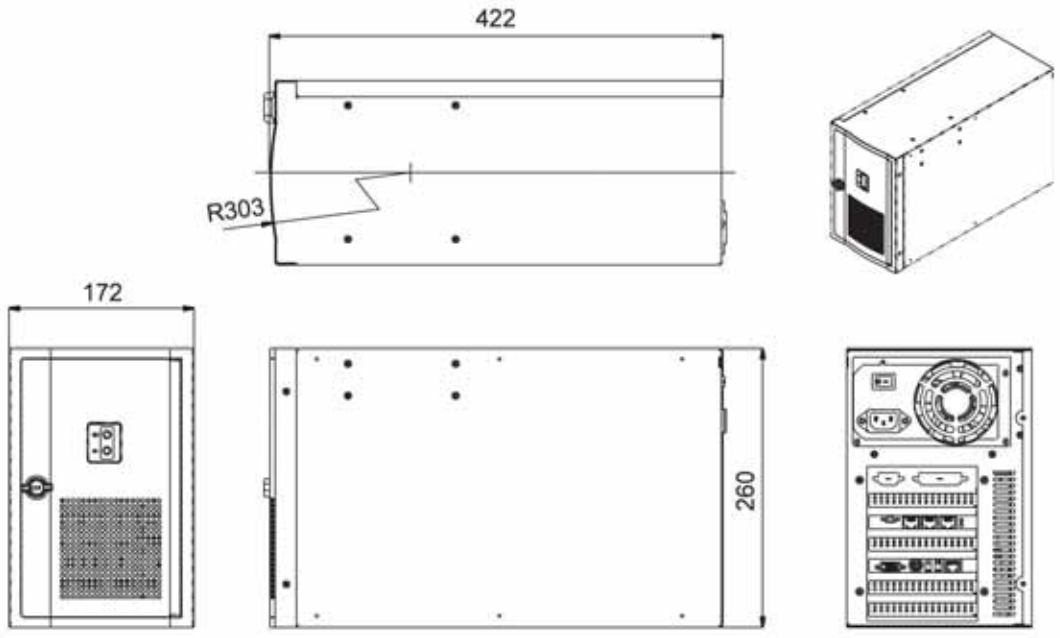
Plastic Fan Filter

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" 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
- Both 8-slot ISA and PICMG 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

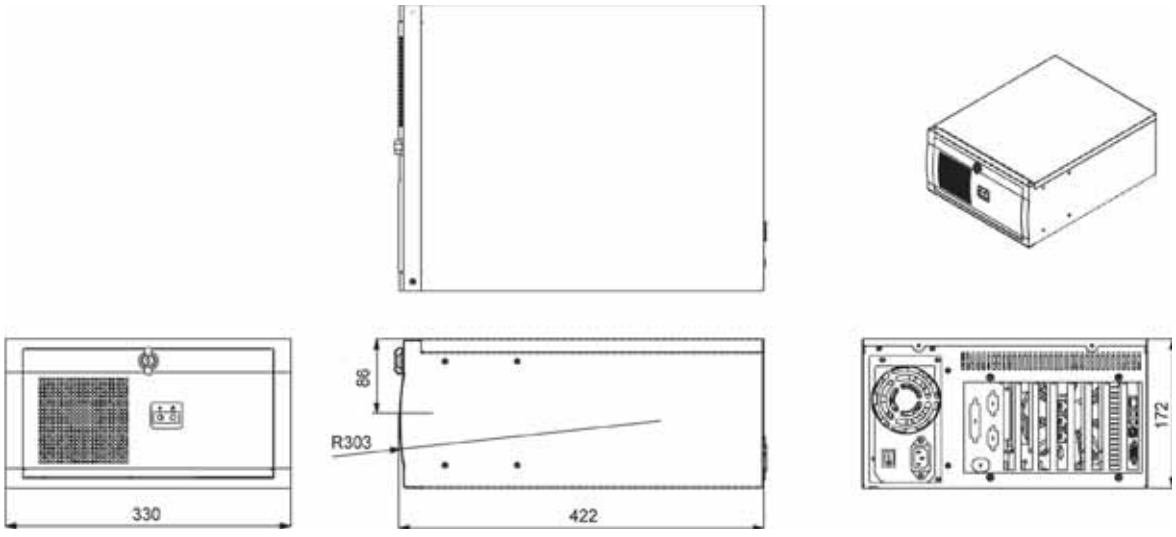
Plastic Fan Filter

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

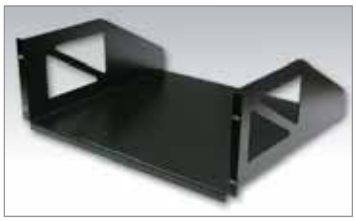
WHAT’S NEW

Special Configuration with EZDRV

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

Easy to Mount

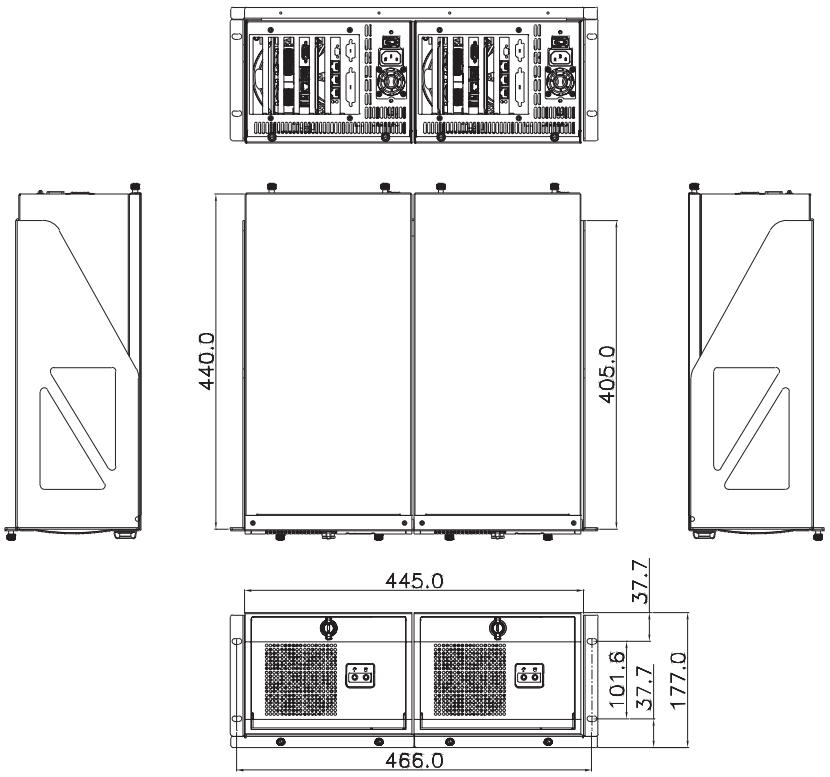
AREMO-6182 can be easily mounted on the supporter



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
- Both 6-slot ISA and PICMG 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-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

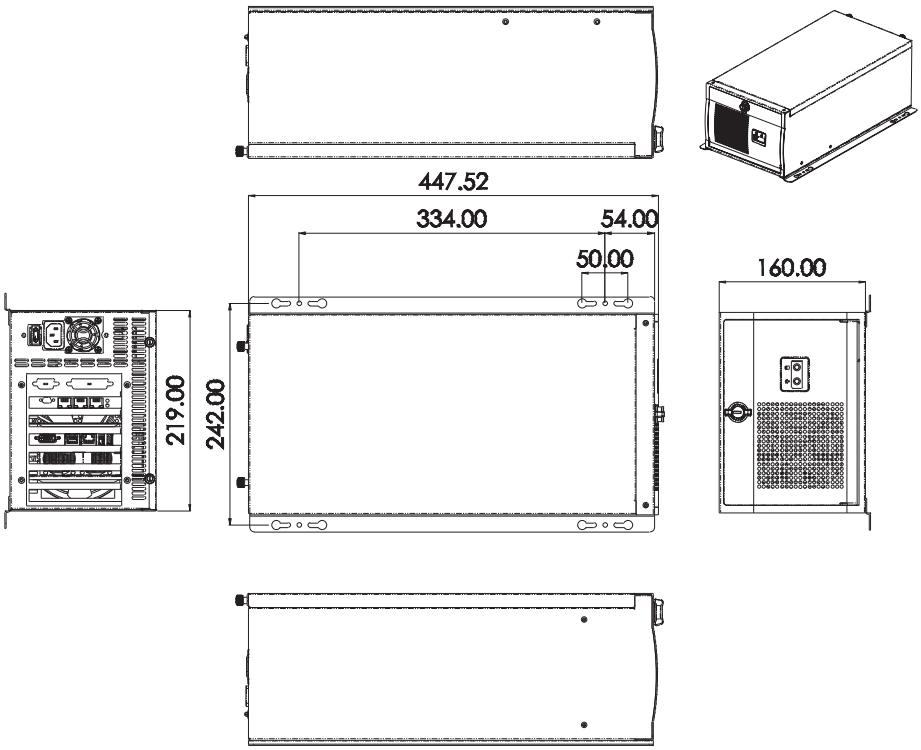
Can be Mounted in Different Styles

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
- 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

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

ORDERING GUIDE

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

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 432(D) x 44(H) mm; 19"(W) x 17"(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

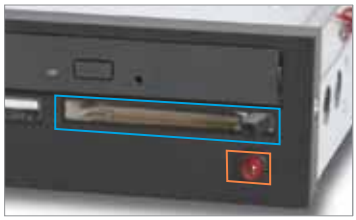
EZDRV-400

5.25" compact drive set with NB CD-ROM, SD/CF reader, 2 USB ports and space for 2.5" HDD

External: 1xNB CD-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 NB CD-ROM, SD/CF readers, 2 USB ports and HDD drives within the standard 5.25” drive bay
- A replaceable drive cover provides more flexibility to install any device
- One LED for internal HDD
- The DVD-ROM version available for special order

GENERAL

Construction	Heavy-duty steel with plastic front cover
Drive Bay	-External: NB CD-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-400**
  5.25” compact drive bracket with NB CD-ROM, SD/CF reader, 2 USB ports and space for 2.5” HDD

ENVIRONMENT

Maximum Output	0 to +55°C
Output Voltage & Current	0 to +70°C
Input Voltage	5% to 95%, non-condensing

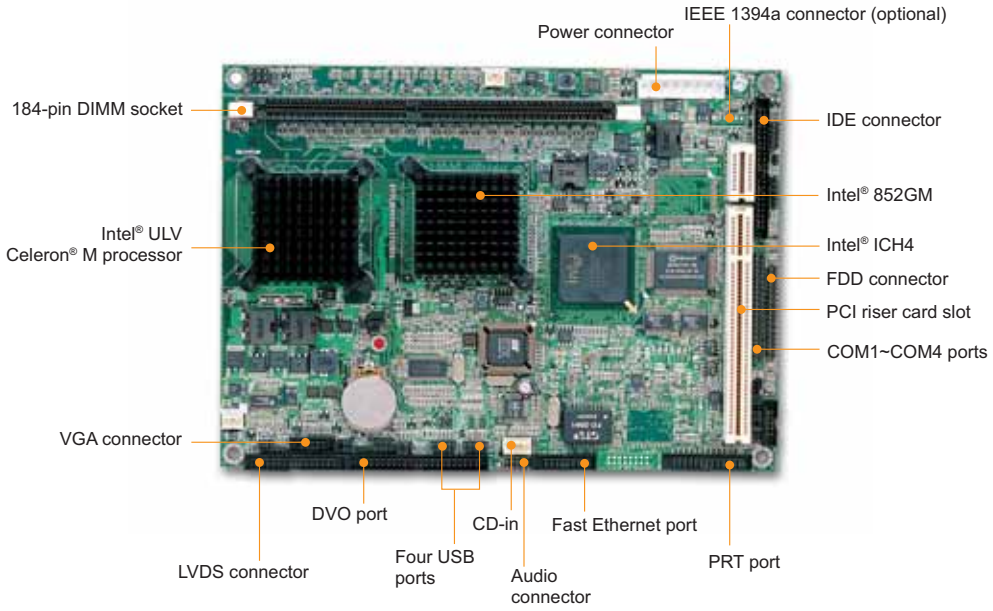
ESB Reference Table




MODEL	PEB-3732VLA	PEB-3730VLA	PEB-3718VG2A	PEB-3715VLA
CPU	Intel® ULV Celeron® M 600MHz processor (on board)	Intel® Pentium® M or Celeron® M processor	Intel® Pentium® M or Celeron® M processor	Intel® Pentium® 4 or Celeron® processor
Chipset	Intel® 852GM	Intel® 855GME	Intel® 915GM	Intel® 852GME
Max Memory	Up to 1GB	Up to 1GB	Up to 1GB	Up to 1GB
Memory Chip Type	DDR-SDRAM	DDR-SDRAM	DDR-SDRAM	DDR-SDRAM
BIOS	Award	Award	Award	Award
SSD	Type II CompactFlash socket	Type II CompactFlash socket	Type II CompactFlash socket	Type II CompactFlash socket
Watchdog Timer	Yes	Yes	Yes	Yes
Hardware Monitoring	Voltage, Fan, Temperature	Voltage, Fan, Temperature	Voltage, Fan, Temperature	Voltage, Fan, Temperature
Expansion Interface	One PCI expansion (1-3 slot, riser card optional)	One PCI expansion (1-3 slot, riser card optional)	One PCI expansion (1-3 slot, riser card optional)	One PCI expansion (1-3 slot, riser card optional)
Power Requirement	ATX 2.03 compliant power	ATX 2.03 compliant power	ATX 2.03 compliant power	ATX 2.03 compliant power
Dimension	203(W) x146(L) mm; 8”(W) x 5.7”(L)	203(W) x 146(L) mm; 8”(W) x 5.7”(L)	203(W) x 146(L) mm; 8”(W) x 5.7”(L)	203(W) x 146(L) mm; 8”(W) x 5.7”(L)
Environment	Operation temperature: 0~55°C Storage temperature: -20~75°C Operation humidity: 5~95%	Operation temperature: 0~55°C Storage temperature: -20~75°C Operation humidity: 5~95%	Operation temperature: 0~55°C Storage temperature: -20~75°C Operation humidity: 5~95%	Operation temperature: 0~55°C Storage temperature: -20~75°C Operation humidity: 5~95%
MIO	RS232 x3; RS232/422/485 (selectable) x1; Parallel port x1	RS232 x3; RS232/422/485 (selectable) x1, Parallel port x1	RS232 x1; RS232/422/485 (selectable) x1; SATA 150 x 2; Parallel port x1	RS232 x5, RS232/422/485 (selectable) x1, Parallel port x1
IrDA	Yes	Yes	Yes	Yes
Ethernet	10/100 Ethernet x1	10/100 Ethernet x1	Dual Gigabit Ethernet	10/100 Ethernet x1
Audio	AC‘97 2.3	AC‘97 2.3	AC‘97 2.3	AC‘97 2.2
USB port	USB 2.0 x4	USB 2.0 x 4	USB 2.0 x 4 (2 with pin header for USB 2.0 ports)	USB 2.0 x 4
Graphic Controller	Intel® 852GM, Extreme Graphics 2	Intel® 855GME Extreme Graphics 2	Intel® 915GM GMA 900 Graphics	Intel® 852GME Extreme Graphics 2
Graphic Memory	DVMT 64MB shared DDR SDRAM	DVMT 64MB shared DDR SDRAM	DVMT 64MB shared DDR SDRAM	DVMT 64MB shared DDR SDRAM
Display Interface	- 1600 x 1200 x 8bpp or 1280 x 1024 x 16bpp - LVDS; DVO; dual display support	- 1600 x 1200 x 8bpp or 1280 x 1024 x 16bpp - LVDS, DVO, dual display support	- 1600 x 1200 x 8 bpp or 1280 x 1024 x 16 bpp - LVDS; dual display support - TV-out	- 1600 x 1200 x 8bpp or 1280 x 1024 x 16bpp - LVDS, DVO, dual display support
Page	64	65	66	67

PEB-3732VLA

5.25" ESB based on Intel® ULV Celeron® M 600MHz processor with DDR SDRAM, AGP 4X, VGA/Panel, Dual Displays, Fast Ethernet and Audio



FEATURES

- Intel® ULV Celeron® M 600MHz on board
- Dual independent displays support LVDS, VGA and DVO
- On-board 10 BASE-T/100 BASE-TX Ethernet
- On-board standard I/O, display, LCD panel, network and audio to meet the requirements of communication and multimedia platforms
- Up to 1GB high performance DDR SDRAM allows to run versatile embedded programs
- PCI expansion (PCI expansion slot defined by EmbATX)

PACKING LIST

- User's manual x1
- Utility CD x1

ORDERING GUIDE

Standard	**PEB-3732VLA** 5.25" ESB based on Intel® ULV Celeron® M 600MHz processor with DDR SDRAM, AGP 4X, VGA/LCD, dual display, Fast Ethernet and audio

OPTIONAL

Part No.	QTY	Description
B6900099		**PEB-3732VLA Cable set with I/O Board**
B6900220	1	IDE 40-pin 2.54mm IDE; 44-pin to 40-pin Adaptor
B6900071	1	FDC Cable
B6901083	1	Serial port cable 2 ports
B6901341	1	1 USB cable, 2 ports
B6901410	1	Parallel port cable
B6901322	1	VGA cable
B6901331	1	PS/2 KB/MS cable
B6901221	1	10/100M LAN cable
B6901420	1	Audio Line In/Out cable
AB9-072	1	I/O Board
B6900062	1	ATX Power Cable
B6901113	1	HDD pw Indicator & Reset Cable

SYSTEM

CPU	Intel® ULV Celeron® M 600MHz processor
Chipset	Intel® 852GM and ICH4
System Memory	Up to 1GB DDR 200/266 SDRAM on one 184-pin DIMM socket
BIOS	Award
SSD	Type II Compact Flash socket
Storage Devices	Two IDE devices at UDMA 66/100; two FDDs
Watchdog Timer	Yes (Up to 4 min.)
Expansion Interface	One PCI expansion directly; up to 3 PCI expansion via riser card
Hardware Monitoring	Voltage, Fan, Temperature
Power Requirement	ATX 2.03 compliant power
Dimension	203(W) x146(L) mm; 8"(W) x 5.7"(L)
Environment	Operation temperature: 0~55°C Storage temperature: -20~80°C Operation humidity: 5~95%

I/O

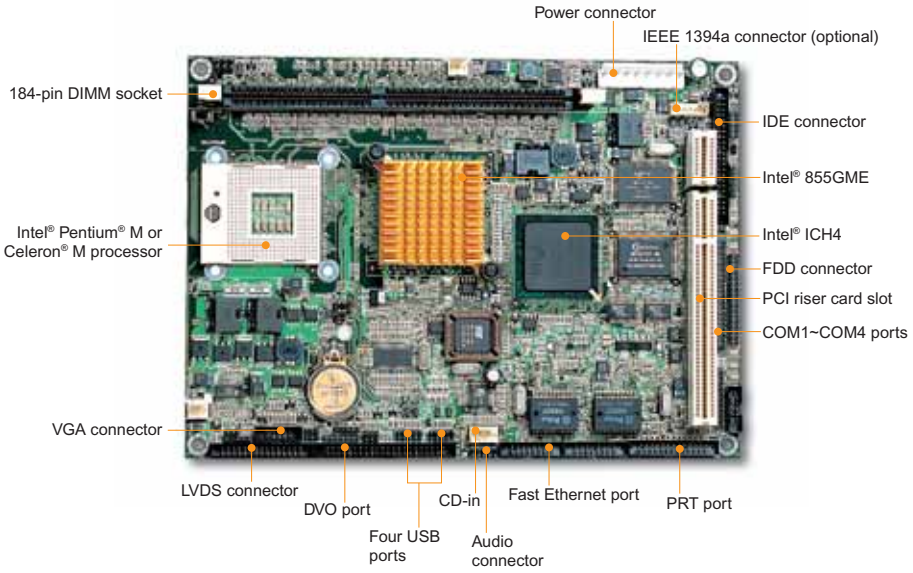
MIO	RS232 x3, RS232/422/485 (selectable) x1, Parallel port x1
IrDA	Yes (shared with one RS232)
Ethernet	10 BASE-T/100 BASE-TX Fast Ethernet (project based support dual Ethernet ports)
Audio	AC'97 2.3
USB	USB 2.0 x 4 (internal)
Keyboard & Mouse	PS/2 Keyboard & Mouse (Header)
IEEE 1394a	Optional

DISPLAY

Graphic Controller	Intel® 852GM, Extreme Graphics 2
Graphic Memory	DVMT 64MB shared DDR SDRAM
Display Interface	- 1600 x 1200 x 8bpp or 1280 x 1024 x 16bpp - LVDS; DVO; dual displays support

PEB-3730VLA

5.25" ESB based on Intel® Pentium® M or Celeron® M processor with DDR SDRAM, AGP 4X, VGA/Panel, Dual Displays, LAN and Audio



FEATURES

- Dual independent displays support LVDS, VGA and DVO
- Intel® Pentium® M or Celeron® M in MicroFC-PGA package (socket 479)
- On-board 10 BASE-T/100 BASE-TX Ethernet
- On-board standard I/O, display, LCD panel, network and audio to meet the requirements of communication and multimedia platforms
- Up to 1GB high performance DDR SDRAM allows to run versatile embedded programs
- PCI expansion (PCI expansion slot defined by EmbATX)

PACKING LIST

- User's manual x1
- Utility CD x1

ORDERING GUIDE

Standard	**PEB-3730VLA** 5.25" ESB based on Intel® Pentium® M or Celeron® M Processor with DDR SDRAM, AGP 4X, VGA/Panel, dual display, LAN and audio

OPTIONAL

Part No.	QTY	Description
B6900099		PEB-3730VLA Cable set with I/O Board
B6900220	1	IDE 44-pin 2 mm IDE; 44-pin to 40-pin Adaptor
B690007I	1	FDC Cable 2.0mm
B6901083	1	Serial port cable 2 ports, 2.0mm
B6901341	1	1 USB cable, 2 ports
B6901410	1	Parallel port cable
B6901322	1	VGA cable
B6901331	1	PS/2 KB/MS cable
B6901221	1	10/100M LAN cable
B6901420	1	Audio Line In/Out cable
AB9-072	1	I/O Board
B6900062	1	ATX Power Cable
B6901113	1	HDD pw Indicator & Reset Cable

SYSTEM

CPU	Intel® socket 479 Pentium® M or Celeron® M processor
Chipset	Intel® 855GME and ICH4
System Memory	Up to 1GB DDR 200/266/333 SDRAM on one 184-pin DIMM socket
BIOS	Award
SSD	Type II Compact Flash socket
Storage Devices	Two IDE devices at UDMA66/100; two FDDs
Watchdog Timer	Yes (Up to 4 min.)
Expansion Interface	One PCI expansion directly; up to 3 PCI expansion via riser card
Hardware Monitoring	Voltage, Fan, Temperature
Power Requirement	ATX 2.03 compliant power
Dimension	203(W) x146(L) mm; 8"(W) x 5.7"(L)
Environment	Operation temperature: 0~55°C Storage temperature: -20~80°C Operation humidity: 5~95%

I/O

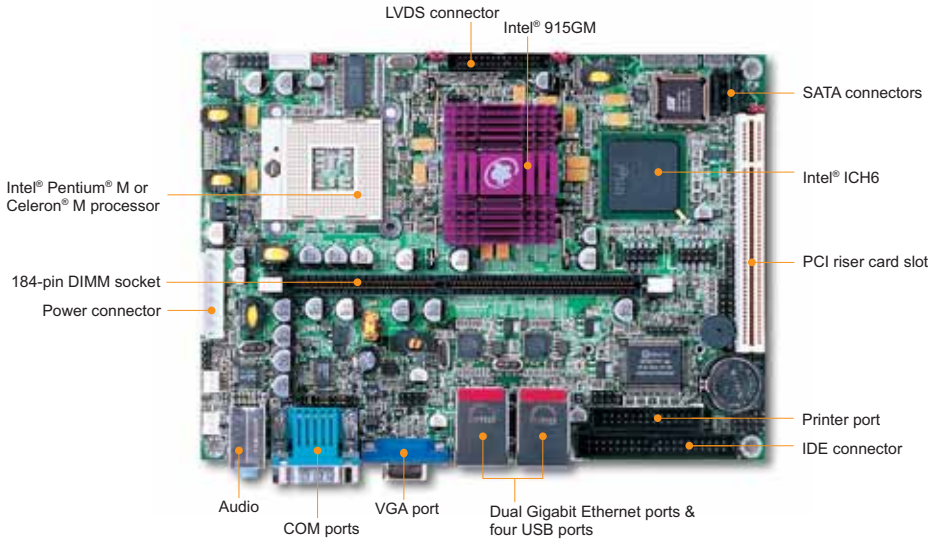
MIO	RS232 x3, RS232/422/485 (selectable) x1, Parallel port x1
IrDA	Yes (shared with one RS232)
Ethernet	10 BASE-T/100 BASE-TX Fast Ethernet (project based support dual Gigabit Ethernet ports)
Audio	AC'97 2.3
USB	USB 2.0 x 4 (internal)
Keyboard & Mouse	PS/2 Keyboard & Mouse (Header)
IEEE 1394a	Optional

DISPLAY

Graphic Controller	Intel® 855GME, Extreme Graphics 2
Graphic Memory	DVMT 64MB shared DDR SDRAM
Display Interface	- 1600 x 1200 x 8bpp or 1280 x 1024 x 16bpp - LVDS; DVO; dual displays support

PEB-3718VG2A

5.25” ESB based on Intel® Pentium® M or Celeron® M Processor with DDR SDRAM, IEG VGA/Panel, Dual Gigabit Ethernet and Audio



FEATURES

- Intel® Pentium® M or Celeron® M in Micro-FCPGA package
- Dual independent displays support LVDS and VGA
- On-board dual Gigabit Ethernet
- On-board standard I/O, display, LCD panel, network and audio to meet the requirements of communication and multimedia platforms
- Up to 1GB high performance DDR SDRAM allows to run versatile embedded programs
- One PCI (with PCI expansion up to 3 PCI)

PACKING LIST

40 pin IDE cable	x1
Printer port cable	x1
PS/2 Keyboard/Mouse cable	x1
ATX power cable	x1
CPU heatsink with Fan	x1
User’s manual	x1
Utility CD	x1

ORDERING GUIDE

Standard	**PEB-3718VG2A** 5.25” ESB based on Intel® Pentium® M or Celeron® M Processor with DDR SDRAM, VGA/Panel, Dual Gigabit Ethernet and Audio

OPTIONAL

Part No.	QTY	Description
B2900260	1	SATA cable

SYSTEM

CPU	Intel® 479 socket Pentium® M or Celeron® M processor
Chipset	Intel® 915GM and ICH6
System Memory	Up to 1GB DDR 266/333 SDRAM on one 184pin DIMM socket
L2 Cache Memory	1MB/2MB (Depending on processor used)
BIOS	Award
SSD	Type II Compact Flash socket
Storage Devices	One IDE device at UMDA100
Watchdog Timer	Yes (Up to 4 min.)
Expansion Interface	One PCI expansion directly; up to 3 PCI expansion via riser card
Hardware Monitoring	Voltage, Fan, Temperature
Power Requirement	ATX 2.03 compliant power
Dimension	203(W) x146(L) mm; 8”(W) x 5.7”(L)
Environment	Operation temperature: 0~55°C Storage temperature: -20~80°C Operation humidity: 5~95%

I/O

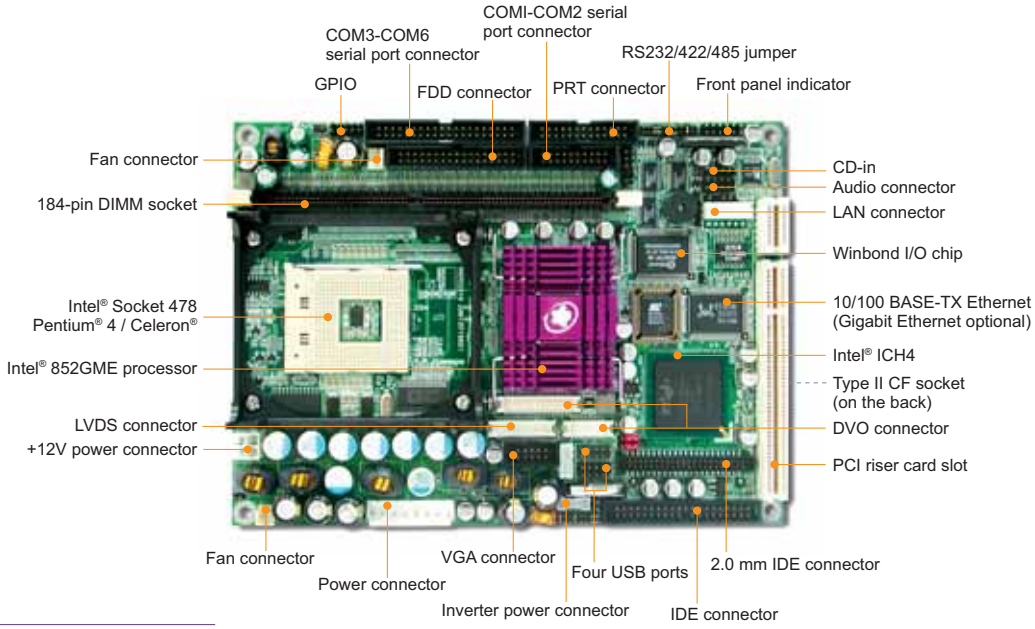
MIO	RS232 x1, RS232/422/485 (selectable) x1, SATA 150 x 2, Parallel port x1
IrDA	Yes
Ethernet	Dual Gigabit Ethernet
Audio	AC’97 2.3
USB	USB 2.0 x 4 (Four at rear I/O panel; four parts internal)
Keyboard & Mouse	PS/2 Keyboard & Mouse (Header)

DISPLAY

Graphic Controller	Intel® 915GM GMA 900
Graphic Memory	DVMT 64MB shared DDR SDRAM
Display Interface	- 1600 x 1200 x 8bpp or 1280 x 1024 x 16bpp - LVDS; dual display support - Support NTSC, PAL and HDTV

PEB-3715VLA

5.25” ESB based on Intel® Pentium® 4 or Celeron® processor with DDR, AGP 4X VGA/ Panel, Dual Displays, Fast Ethernet and Audio



FEATURES

- On-board Intel® 852GME based ESB, powered by Pentium® 4 processor
- On-board dual independent displays, support VGA, LVDS and DVO
- On-board 10BASE-T/100BASE-TX Ethernet
- Up to 1 GB DDR on one 184-pin DIMM socket allows to run versatile embedded programs
- Up to 6 serial port and 4 USB ports for specified applications including POS, Kiosk, transaction terminals, gaming and ATM

PACKING LIST

User’s manual	x1
Utility CD	x1

ORDERING GUIDE

Standard	**PEB-3715VLA** 5.25” ESB based on Intel® Pentium® 4 or Celeron® processor with AGP 4X VGA/Panel, dual displays, Fast Ethernet and audio

OPTIONAL

Part No.	QTY	Description
B6900095		**PEB-3715VLA cable set with I/O Board**
B690036A	1	IDE cable
B690004S	1	44-pin IDE cable
B6900940	1	FDC cable
B6901070	1	Serial port cable, 4 ports
B6900061	1	ATX power cable
AB9-072	1	I/O board
B6901310	1	Parallel port cable to I/O board
B6901300	1	COM port x 2 cable to I/O board
B6901320	1	VGA cable to board
B6901330	1	K/M cable to I/O board
B6901340	1	USB cable to I/O board
B6901350	3	LED and switch cable to I/O board
B6901111	1	LAN LED cable to I/O board
B6901220	1	LAN cable to I/O board
B6901000	1	Audio cable to I/O board

SYSTEM

CPU	Intel® socket 478 Pentium®4 or Celeron® processor
Chipset	Intel® 852GME
System Memory	Up to 1GB DDR 200/266/333 SDRAM on one 184-pin DIMM socket
BIOS	Award
SSD	Type II Compact Flash socket
Storage Devices	Four IDE devices at UDMA66/100; two FDDs
Watchdog Timer	Yes
Expansion Interface	One PCI expansion directly; up to 3 PCI expansion via riser card
Hardware Monitoring	Voltage, Fan, Temperature
Power Requirement	ATX 2.03 compliant power
Dimension	203(W) x146(L) mm; 8”(W) x 5.7”(L)
Environment	Operation temperature: 0~55°C Storage temperature: -20~75°C Operation humidity: 5~95%

I/O

MIO	RS232 x5, RS232/422/485 (selectable) x1, Parallel port x1
Ethernet	10 BASE-T/100 BASE-TX Fast Ethernet (project based support Gigabit Ethernet)
Audio	AC‘97 2.3
USB	USB 2.0 x 4 (internal)
Keyboard & Mouse	PS/2 Keyboard & Mouse (Header)

DISPLAY

Graphic Controller	Intel® 852GME Extreme Graphics 2
Graphic Memory	DVMT 64MB shared DDR SDRAM
Display Interface	- 1600 x 1200 x 8bpp or 1280 x 1024 x 16bpp - LVDS x 1; DVO x1, support dual displays

ARTO-220

1.5U slim size chassis for 5.25” SBC with 3.5” storage and up to two PCI slots

Flexible Stylish Bezel

Proof of Concept Design
Customized Project Welcome

SYSTEM

Chassis Dimension	347(W) x 240(L) x 73(H)mm
Board Support	PEB-3715VLA / 3730VLA / 3718VG2A / 3732ZVLA
CPU	Intel® Pentium® 4 / Pentium® M / Celeron® M 600 for PEB-3732Z (on board)
System Memory (Option)	256 or 512 MB (Up to 1GB)
PSU	ATX type 250W
Storage Device	3.5” HDD and compact flash card
I/O	RS232 x2, 10/100 Ethernet x1, Audio (AC’97 2.2/2.3), VGA, USB x2, 2 PCI expansion slots (One PCI only for PEB-3718)
Expansion	Up to two PCI (one for PEB-3718 only)
Riser card	PEB-5222R (for 3715 / 3732 / 3730) PEB-501R (for 3718)
Indicator	Power and HDD
Color	Silver

POWER SUPPLY

Maximum Output	250W
Output Voltage & Current	+5V@20A, +12V@12A, -12V@0.5A, -5V@0.2A, +3.3V@14A, +5V@2A
Input Voltage	100~240V AC (With 10% tolerance)
Input Frequency	50~60Hz
Input Current	4A @ 100V ; 2A @ 230V
Efficiency	>90%
MTBF	113,000 hrs
Certification	UL, cUL, TUV, CE, FCC

ENVIRONMENT

Operating Temperature	0 to 40°C
Storage Temperature	-20 to 70°C
Relative Humidity	5% to 95%, non-condensing

FEATURES

- Advanced, Reliable, Trusted, Optimized embedded computing platform
- Modularized carrier design and corresponding carrier for Mini-ITX form factor
- Support Portwell 5.25” and Mini-ITX form factor embedded board
- Expansion for up to two PCI supporting versatile function
- Detachable design for easy maintenance and upgrading

WHAT’S NEW

Tool Free Modularized Carrier Design

I/O Connection
Multiple I/O connector and up to two PCI slots

PACKING LIST

- SBC user manual
- Utility CD

ORDERING GUIDE

Standard	**ARTO-220-ITX** Adopt WADE mini-ITX series M/B **ARTO-220-3715 (socket 478 Pentium® 4, Intel® 852GME+ICH4 chipset)** 256 or 512MB Memory / Pentium® 4 2.0 or Celeron® 2.0 GHz **ARTO-220-3732 (CPU on board; Celeron® M 600 MHz, Intel® 852GM+ICH4 chipset)** 256 or 512MB Memory **ARTO-220-3730 (socket 479 Pentium® M; Intel® 855GME+ICH4 chipset)** 256 or 512MB Memory **ARTO-220-3718 (socket 479 Pentium® M or Celeron® M, Intel® 915GM+ICH6 chipset)** 256 or 512MB Memory / Pentium® M 1.6 or Celeron® M 1.3/1.5 GHz

PEC-5100

Chassis for 5.25” embedded system board with high flexibility

FEATURES

- One 3.5” HDD
- One power on/off switch with protection cap and one touch free reset for secure access
- Two-slot raiser card for PCI add-on card
- Two ball-bearing cooling fans (6cm x 2) for better ventilation

SYSTEM

Chassis Dimension	220(W) x 251(D) x 111.2(H) mm; 8.7”(W) x 9.9”(D) x 4.38”(H)
Board Support	PEB-3715 / PEB-3732 / 3730 series
CPU	Depending on Main Board
System Memory (Option)	Depending on Main Board
PSU	1U 250W Active PFC, ATX power supply
Storage Device	3.5” HDD x1
I/O	Refer to the picture
Expansion	N/A
Riser card	PEP-5222R: 2-slot PCI riser card
Indicator	HDD LED x1, Power LED x1
Color	Black

POWER SUPPLY

Maximum Output	250W Active PFC, ATX power supply
Input Voltage	90V ~ 265V AC, full range
Input Frequency	47~63 Hz
Input Current	4.0A(RMS)@115V, 2.0A(RMS)@230V
Efficiency	>70%
MTBF	121,330 hrs
Certification	UL, cUL, TUV, CE, FCC

ENVIRONMENT

Operating Temperature	0 to 55°C
Storage Temperature	-20 to 70°C
Relative Humidity	5% to 95%, non-condensing

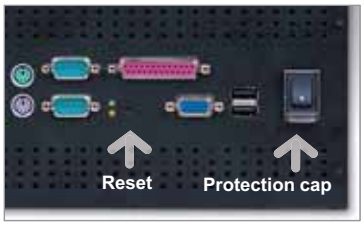
WHAT’S NEW

PCI Expansion

One PCI expansion slot for adding more functions to the system

Two 6cm Cooling Fans

Better ventilation to enhance system reliability



Touch Free On/Off & Reset Switch

For security concern, a switch protection cap is provided to prevent unintended reset

ORDERING GUIDE

Standard	**PEC-5100-5222R-25X/B** Embedded chassis with 2-slot PCI riser card, 250W ATX power supply for PEB-3730VLA/PEB-3715VLA/PEB-3732VLA

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 (inch^2)
	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-8066	Page
	■ Intel® Core™ 2 Duo processor ■ Intel® GME965 Chipset ■ Max. DDR2 4GB memory in dual SO-DIMM sockets ■ Dual PCI Express x1 interface Gigabit Ethernet ports ■ One PCI Express x4 and one PCI expansion slot via riser card ■ Dual Display by VGA/LVDS/DV/TV-out	73

Model	WADE-8056	
	■ 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	74

Model	WADE-8556	
	■ Intel® Core™ 2 Quad processors 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	75

Model	WADE-8656	
	■ 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	76

Model	WADE-8065	
	■ Intel® Core™ 2 Duo processor ■ Intel® 945GME Chipset ■ Max. 4GB, DDR2 SDRAM ■ Dual Display by VGA/LVDS, VGA/DVI, LVDS/DVI ■ Three GbE-LAN ports and one PCI slot ■ Max. two COM ports and six USB 2.0 ports	77

Model	WADE-8055	
	■ Intel® Core™ 2 Duo processor ■ Intel® 945G GMCH chipset ■ Max. 4GB, DDR2 SDRAM ■ 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	78

Model	WADE-8044	Page
	■ Intel® Pentium® M/Celeron® M processor ■ Intel® 915GME/910GMLE and ICH6M Chipset ■ Two 240-pin DIMMs supports DDR2 SDRAM up to 2GB ■ Dual Display by VGA/LVDS, DVI (optional) ■ One Type II Compact Flash ■ Two GbE LAN ports	79

Model	WADE-8041	
	■ Ultra Low Voltage Intel® Celeron® M processors ■ Max. 1GB, DDR SDRAM ■ Dual Display by VGA/LVDS ■ AC'97 Audio interface ■ Two 10/100Mbps LANs and one PCI slot ■ Max. four COM and six USB 2.0 ports	80

Model	WADE-2221	
	■ Integrated with various Mini-ITX board ■ One PCI expansion slot ■ Rugged design with stylish ID design ■ Tool-free design for quick release top cover ■ Unique top-cover design for quick 2.5" HDD installation ■ VGA/LAN/USB/COM ports ■ Two side-by-side units to form two systems in 2U rackmount form factor	81

Model	WADE-1120A	
	■ Integrated with WADE-8041 or similar Mini-ITX board ■ Small form factor with fan-less ventilation mechanism ■ VGA, 2 LAN, 3 COM and 4 USB ports ■ Rugged design for harsh environment ■ Unique tool-free design for quick top cover release	82

Model	WADE-2231	
	■ Bare-bone Chassis for Mini-ITX board ■ Tool-free design for quick release top cover ■ Rugged and stylish design ■ Quick 3.5" HDD installation by releasing the top cover	83

Model	ARTO-220-ITX	
	■ Bare-bone Chassis for Mini-ITX board ■ Compact, slim and stylish ID design ■ One 3.5" HDD bay and 250W PSU ■ One PCI expansion slot	84

Mini-ITX Reference Table

Model	WADE-1042	Page
	■ Bare-bone chassis for Mini-ITX board ■ Compact, slim and stylish ID design ■ Four 3.5” HDD bays and 180W PSU ■ Two PCI expansion slot	**85**
Model	**WADE-1181**	
	■ Support Mini-ITX embedded board ■ Hard drive bay for internal 2.5” hard drive (project based to support 3.5” hard drive without PCI expansion) ■ Include 150W Active PFC Power supply ■ Customized label of front panel and rear I/O bracket are welcome ■ Dual USB ports and Power LED indication on front panel	**86**
Model	**WADE-1141**	
	■ Support Mini-ITX embedded board ■ Hard drive bay for internal 2.5” hard drive (3.5” drive bay by project) ■ Include 150W Active PFC Power supply ■ Customized label of front panel and rear I/O bracket are welcome ■ Dual USB ports and Power LED indication on front panel	**87**
Model	**WADE-2110**	
	■ 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	**88**

WADE-8066

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

FEATURES

- Intel® Core™ 2 Duo processor
- Intel® GME965 Chipset
- Max. DDR2 4GB memory in dual SO-DIMM sockets
- Dual PCI Express x1 interface Gigabit Ethernet ports
- One PCI Express x4 and one PCI expansion slot via riser card
- Dual Display by VGA/LVDS/DVI/TV-Out

Built with Intel® latest mobile chipset GME965, WADE-8066 takes advantage of Intel® Core™ 2 Duo technologies. The graphic media accelerator X3100 provides both fast video response time and high quality images via the two-channel memory architecture. WADE-8066 supports dual display by VGA, DVI, LVDS and TV-Out. With its display-enriched interface, WADE-8066 can support various multimedia devices.

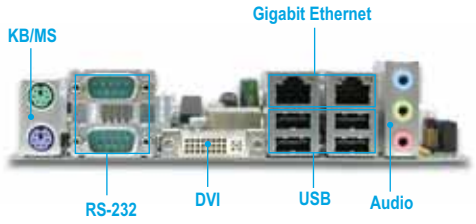
SYSTEM	
CPU	Intel® Core™ 2 Duo and Intel® Celeron® M processor (Socket P)
FSB	FSB 800/533 MHz
BIOS	Award BIOS
System Chipset	Intel® GME965 & ICH8ME
System Memory	2 x 200-pin dual channel DDR2 SDRAM DIMM 533/667 MHz supports up to 4 GB
Storage	2 x Serial ATA connector high-speed data transfers at up to 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 x4 slot via riser card

I/O	
MIO	1 x RS-232, 1 x RS-232/422/485 selectable, 1 x K/B, 1 x Mouse, 2 x GbE
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, High Definition Audio 5.1 channel
Ethernet Interface	IEEE 802.3 10/100/1000BASE-T Gigabit Ethernet compliant

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)
LVDS	Dual Channel 24-bit

MECHANICAL & ENVIRONMENTAL	
Power Requirement	TBD
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



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-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

The WADE-8056 is an advanced mini-ITX embedded system board (ESB) that takes advantage of Intel® Core™ 2 Duo technologies. With its GPIO, WADE-8065 offers robust computing power and reliability for embedded applications that need a digital control interface. Dual video outputs can drive two displays simultaneously at a high speed, while maintaining superior image quality. The expansion slots, based on PCI technologies and support up to two PCI slots, which provide the highly flexibility necessary for functional expansion.

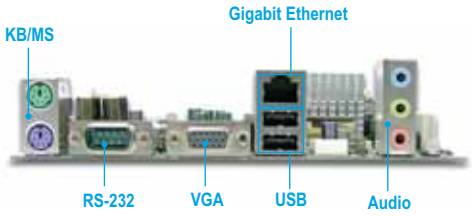
SYSTEM	
CPU	Intel® Core™ 2 Quad / Core™ 2 Duo and Pentium® 4 / Celeron® D processor
FSB	FSB 1066/800/533 MHz
BIOS	Award BIOS
System Chipset	Intel® Q965 GMCH & 82801HB ICH8DO
System Memory	2 x 240-pin dual channel DDR2 SDRAM DIMM 533/667/800 MHz supports up to 4 GB
Storage	4 x Serial ATA connector high-speed 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 RS-232, 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

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 2048 x 1536 (QXGA)
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)

REAR I/O



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

WADE-8556 is an advanced mini-ITX embedded system board (ESB) that takes advantage of Intel® Core™ 2 Quad technologies. With its Mini-PCI slot, WADE-8556 offers the availability of an extra wireless LAN card which is suitable for Kiosk application. VGA & DVI dual video output can drive two displays simultaneously, especially suitable for Digital Signage usage. The expansion slots, based on PCI technologies and support up to two PCI slots, which provide the highly flexibility necessary for functional expansion.

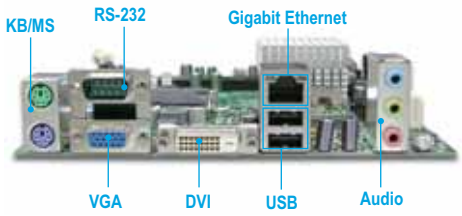
SYSTEM	
CPU	Intel® Core™ 2 Quad / Core™ 2 Duo and Pentium® 4 / Celeron® D processor
FSB	FSB 1066/800/533 MHz
BIOS	Award BIOS
System Chipset	Intel® Q965 GMCH & 82801HB ICH8DO
System Memory	2 x 240-pin dual channel DDR2 SDRAM DIMM 533/667/800 MHz support up to 4GB
Storage	4 x Serial ATA connector high-speed 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 RS-232, 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

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 1600 x 1200 (UXGA)
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



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

WADE-8656 is an advanced mini-ITX embedded system board (ESB) that takes advantage of Intel Core 2 Quad technologies. With its PCI-E x16 slot, WADE-8656 gets the availability of extra graphic card which can offer powerful graphic processing ability and suitable for gaming application. Six SATA Ports enrich the system capacity, especially suitable for Storage usage. Two Gigavit Ethernet ports provide high performance for networking transmission.

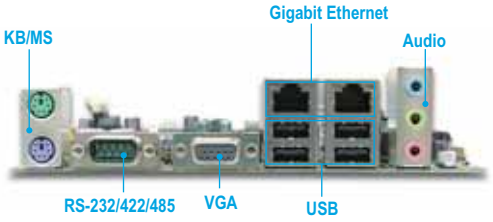
SYSTEM	
CPU	Intel® Core™ 2 Quad / Core™ 2 Duo and Pentium® 4 / Celeron® D processor
FSB	FSB 1066/800/533 MHz
BIOS	Award BIOS
System Chipset	Intel® Q965 GMCH & 82801HB ICH8DO
System Memory	2 x 240-pin dual channel DDR2 SDRAM DIMM 533/667/800 MHz supports up to 4GB
Storage	6 x Serial ATA connector high-speed 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 RS-232, 1 x RS-232/422/485 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

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



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-8065

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

FEATURES

- Intel® Core™ 2 Duo processor
- Intel® 945GME Chipset
- Max. 4GB, DDR2 SDRAM
- Dual Display by VGA/LVDS, VGA/DVI, LVDS/DVI
- Three GbE-LAN ports and one PCI slot
- Max. two COM ports and six USB 2.0 ports

WADE-8065 is a network bandwidth-enriched solution. With a low power consumption mobile processor, it not only provides more than adequate computing power, but also eliminates any heat issues. Dual video outputs are supported by two-channel memory structure that enhances graphic performance. Three GbE LAN ports provide the wide bandwidth necessory for communication or network related applications. WADE-8065 is the preferred choice where high price/performance ratio is a criterion.

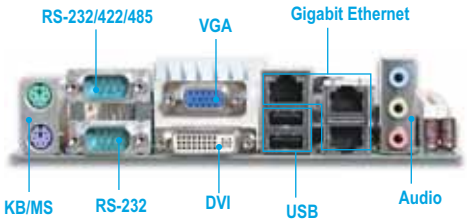
SYSTEM	
CPU	Intel® Core™ 2 Duo / Core™ Duo / Core™ Solo processor
FSB	667/533 MHz
BIOS	Award BIOS
System Chipset	Intel® 945GME + ICH7-M
System Memory	2 x 200-pin dual channel DDR2 SDRAM DIMM 667/533 MHz support up to 4GB
Storage	- 1 x IDE - 2 x SATA
SSD	1 x Compact Flash
Watchdog Timer	Reset:1 sec.~255 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 RS-232, 1 x RS-232/422/485 selectable, 1 x K/B, 1 x Mouse, 3 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

DISPLAY	
Chipset	Intel® 945GME Integrated 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
LVDS	Dual Channel 18-bit

MECHANICAL & ENVIRONMENTAL	
Power Requirement	TBD
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



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-8055

Network Enriched Intel® Pentium® M Processor based Mini-ITX Board with Dual Displays, Three GbE

FEATURES

- Intel® Core™ 2 Duo processor
- Intel® 945G GMCH Chipset
- Max. 4GB, DDR2 SDRAM in dual SO-DIMM sockets
- 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

WADE-8055 is an industrial–grade Mini-ITX board with best C/P ratio. The LGA775 CPU socket enables WADE-8055 to support wide range processors, such as Intel® Core™ 2 Duo, Pentium® 4 or Celeron® CPUs. With special heatsink design, WADE-8055 can run with Celeron® 440 35W processor without any fan. Moreover, all solid type capacitors enhance the durability, stability and reliability of the board as well.

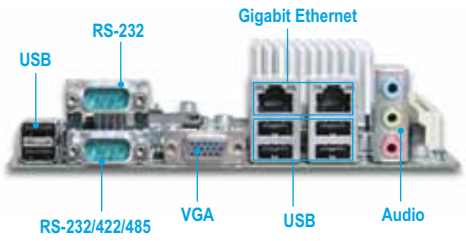
SYSTEM	
CPU	Intel® Core™ 2 Duo / Pentium® 4 / Celeron® D processor
FSB	FSB 1066/800/533 MHz
BIOS	Award BIOS
System Chipset	Intel® 945G + ICH7
System Memory	2 x 200-pin DDR2 SO-DIMM socket support up to 4GB dual channel 667/533 MHz
Storage	Support 4 SATA 300 drives
SSD	1 x Compact Flash
Watchdog Timer	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	4 x SATA, 1 x RS-232, 1 x RS-232/422/485 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

DISPLAY	
Chipset	Intel® 915GMCH
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	TBD
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



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-8044

Ultra Low Voltage Intel® Celeron® M Processor Mini-ITX with Dual Display, Gigabit Ethernet, Audio and USB

FEATURES

- Intel® Pentium® M / Celeron® M processor
- Intel® 915GME / 910GMLE and ICH6M chipset
- Two 240-pin DIMMs support dual channel DDR2 SDRAM up to 2GB
- Dual Display by VGA / LVDS, DVI (optional)
- One Type II Compact Flash
- Two GbE LAN ports

The WADE-8044 is cost effective Mini-ITX embedded board for applications that need Dual channel DDR2 memory, Gigabit Ethernet. With low power Intel® Pentium® M / Celeron® M processor, Intel® 915GME/910GMLE and ICH6M chipset, WADE-8044 not only a fanless solution but also can provide triple display for diversity applications such as Lottery, Medical, Gaming and Digital Signage.

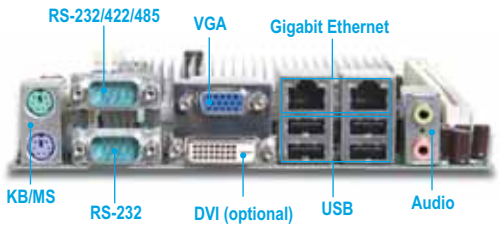
SYSTEM	
CPU	Intel® Pentium® M / Celeron® M processor
FSB	- 400 MHz (910MLE) - 400/533MHz (915GME)
BIOS	Award BIOS
System Chipset	Intel® 915GME / 910GMLE GMCH and ICH6-M
System Memory	Two 240-pin DIMMs support dual channel DDR2 SDRAM up to 2GB
Storage	- 2 x SATA - 1 x IDE
SSD	1 x Compact Flash
Watchdog 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 RS-232, 1 x RS-232/422/485 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 out
Ethernet Interface	IEEE 802.3 10/100/1000BASE-T Gigabit Ethernet compliant

DISPLAY	
Chipset	- Intel® 915GME / 910GMLE GMCH Integrated - Intel GMA 900 graphics
Display Memory	Intel® DVMT 3.0 supports up to 128MB video memory
Resolution	Analog Display: Up to 2048 x1536 (QXGA) Digital LVDS: Up to 1600 x 1200 (UXGA)
LVDS	Dual Channel 18-bit

MECHANICAL & ENVIRONMENTAL	
Power Requirement	TBD
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



ORDERING GUIDE

- **WADE-8044**
  Intel® Pentium® M / Celeron® M processors Mini-ITX Board with DVI, VGA, LVDS
- **WADE-8044-600**
  Intel® Celeron® M 600MHz Mini-ITX Board with VGA, LVDS

WADE-8041

Cost-effective Ultra Low Voltage Intel® Celeron® M Processor based Mini-ITX Board with Dual Displays, Four COM Ports

FEATURES

- Ultra Low Voltage Intel® Celeron® M processors
- Max. 1GB, DDR SDRAM
- Dual Display by VGA/LVDS
- AC97 Audio interface
- Two 10/100Mbps LANs and one PCI slot
- Max. four COM and six USB 2.0 ports

The WADE-8041 is a cost-effective Mini-ITX embedded board for applications that need low power consumption. Built with Ultra Low Voltage Intel® Celeron® M processors, WADE-8041 generates the computing power necessary for most embedded applications. Its dual video feature also enables the use of two displays simultaneously. Its four COM and Six USB ports provide an immediate interface to a range of peripherals.

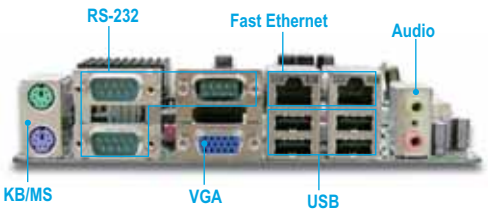
SYSTEM	
CPU	Ultra Low Voltage Intel® Celeron® M 600MHz (512KB cache) processor
FSB	400 MHz
BIOS	Award BIOS
System Chipset	Intel® 82852GM & 82801DB ICH4
System Memory	1 x 184-pin DDR 266 DIMM socket supports up to 1 GB
Storage	2 x Ultra DMA133/100/66/33 support four IDE devices by one 40-pin and one 44-pin IDE connector
SSD	1 x CompactFlash Type I/II socket
Watchdog Timer	Reset/IRQx; 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	2 x EIDE, 1 x LPT, 3 x RS-232, 1 x RS-232/422/485 selectable, 1 x K/B, 1 x Mouse
IrDA	IrDA 1.0 compliant
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 BASE-T Ethernet compliant

DISPLAY	
Chipset	Intel® 82852GM (MCH)
Display Memory	Integrated Intel® Graphics share system memory to 64 MB
Resolution	Analog Display: Up to 2048 x1536 (QXGA) Digital LVDS: Up to 1600 x 1200 (UXGA)
LVDS	Dual Channel 24-bit

MECHANICAL & ENVIRONMENTAL	
Power Requirement	16W (Intel® Celeron® M 1GHz CPU with 256MB system memory in DOS 6.22)
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



ORDERING GUIDE

- **WADE-8041-600**
  Intel® Celeron® M 600MHz (512KB cache) Based Mini-ITX Board with VGA, LVDS, Audio, Dual LANs and Six USB 2.0 ports
- **WADE-8041**
  Intel® Celeron® M processors Based Mini-ITX Board with VGA, LVDS, Audio, Dual LANs and Six USB 2.0 ports
- **WADE-8041-1G**
  Intel® Celeron® M 1GHz (zero cache) Based Mini-ITX Board with VGA, LVDS, Audio, Dual LANs and Six USB 2.0 ports
- **PEB-581R/582R**
  One/Two slots PCI riser card
- **B9970540**
  1U active heatsink

WADE-2221

Rugged and Stylish Industrial Mini-ITX Bare Bone System

The WADE-2221 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 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.

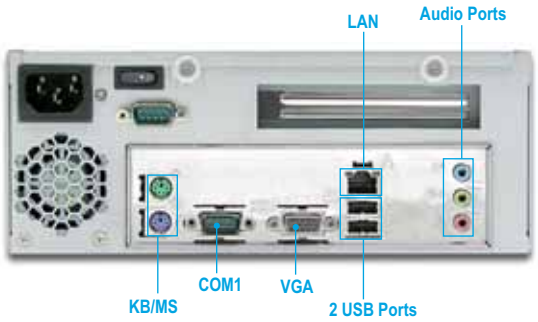
FEATURES

- 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

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"x55.5"x3.4"

MECHANICAL & ENVIRONMENTAL	
Operation Temperature	0~50°C
Storage Temperature	-20~80°C
Relative Humidity	5~95% non-condensing
Dimension	226 x 221.8 x 86.3 (mm)
Weight	3.5 Kg

REAR I/O



ORDERING GUIDE

- **WADE-2221-150X**
  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 150W active PFC PSU

WADE-1120A

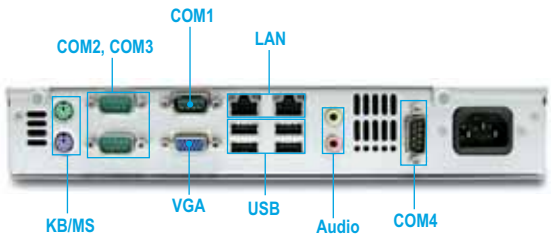
The fan-less compact bare bone system with Intel® Celeron® M Mini-ITX board

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	FSP040-5P03B optional
Maximum Output	40W ATX power supply
Input Voltage	90V ~ 265V AC, full range
Input Frequency	47 ~ 63 Hz
Input Current	4.0A(RMS)@115V, 2.0A(RMS)@230V
Efficiency	>70%
MTBF	121,330 hrs
Certification	UL, cUL, TUV, CE, FCC
Dimension (WxDxH)	150x81.6x40.6 mm; 5.9"x55.5"x3.4"

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-1120B-90X

- The Fan-free Designed Compact Node Chassis built with 90W DC/DC ATX PSU

WADE-2231

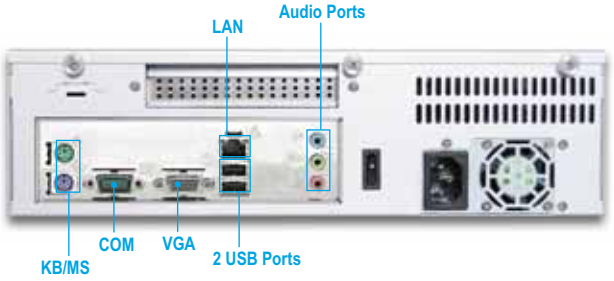
Rugged and Stylish Industrial Mini-ITX Bare Bone Chassis with 180W Active PFC PSU

The WADE-2231 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”x55.5”x3.4”

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

ARTO-220-ITX

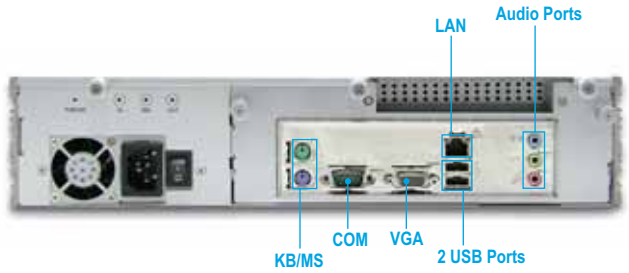
1.5U Advanced Mini-ITX based chassis for Mini-ITX M/B application

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; 5.9"x5.5"x3.4"

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

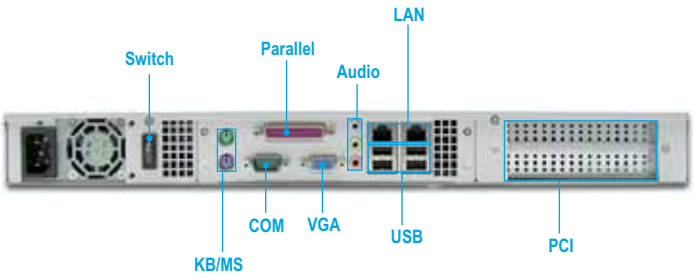
1U Height bare bone server with four drive bays for RAID and two expansion slots

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	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"x55.5"x3.4"

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

WADE-1181

Compact Low Profile Mini-ITX Bare Bone Chassis with 1-slot PCI Expansion

A wider version Mini-ITX barebone chassis that provides essential expansion capability for function that is not covered by the embedded Mini-ITX board. The provided 1-slot PCI expansion could be capture card for DSS application or serial port card for data acquisition in factory.

FEATURES

- Support Mini-ITX embedded board
- Hard drive bay for internal 2.5" hard drive (project based to support 3.5" hard drive without PCI expansion)
- Include 150W Active PFC power supply
- Customized label of front panel and rear I/O bracket are welcome
- 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"x55.5"x3.4"

MECHANICAL & ENVIRONMENTAL	
Operation Temperature	0~50°C
Storage Temperature	-20~80°C
Relative Humidity	5~95% non-condensing
Dimension	370 x 231 x 44.4 (mm)
Weight	3.2 Kg

REAR I/O

*Flexible rear I/O panel design

ORDERING GUIDE

- **WADE-1181-150X**
  Advance Mini-ITX based Chassis with 1-slot PCI expansion for Desktop (1U High) with 150W Active PFC PSU

WADE-1141

Compact Low Profile Mini-ITX Bare Bone Chassis

Mini-ITX adoption of embedded applications is non stop trend of industries. A compact, easy installation and low price demanding barebone chassis is urgently inquiry. WADE-1141, not fancy but durable Mini-ITX barebone chassis meets the request perfectly. Standard chassis yet customerized front panel label makes it special for your project.

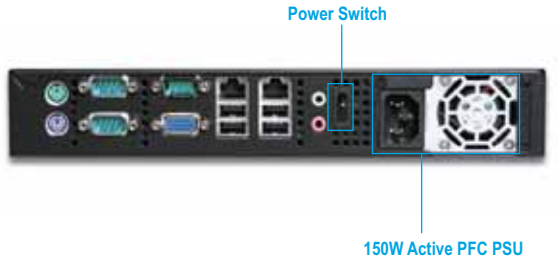
FEATURES

- Support Mini-ITX embedded board
- Hard drive bay for internal 2.5" hard drive (3.5" drive bay by project)
- Include 150W Active PFC power supply
- Customized label of front panel and rear I/O bracket are welcome
- 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"x55.5"x3.4"

MECHANICAL & ENVIRONMENTAL	
Operation Temperature	0~50°C
Storage Temperature	-20~80°C
Relative Humidity	5~95% non-condensing
Dimension	275 x 231 x 50(mm)
Weight	2.5 Kg

REAR I/O



*Flexible rear I/O panel design

ORDERING GUIDE

- **WADE-1141-150X**
  Advanced Mini-ITX based Chassis for Desktop (1U High) with 150W 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.

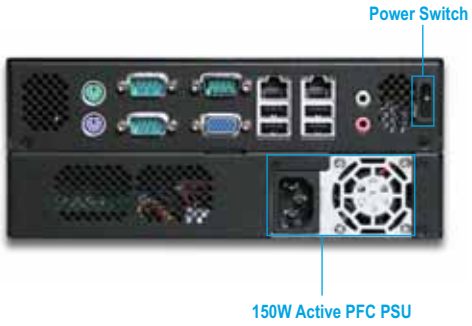
FEATURES

- 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"x55.5"x3.4"

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



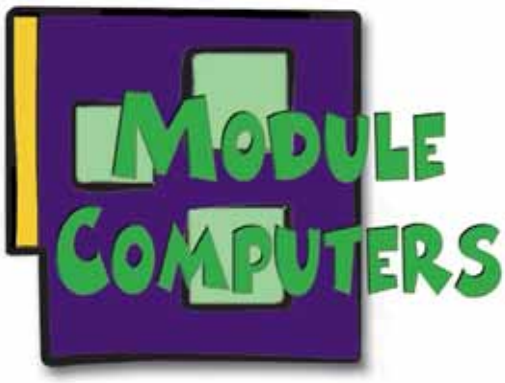
*Flexible rear I/O panel design

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-2121	WADE-2221	WADE-2231	ARTO-220-ITX
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	✓			✓
WADE-8041	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. In addition to COM Express, the ECX (Embedded Compact eXtended) form factor is defined by Intel to be a 3.5" computer board with specific placement of mounting holes and expansion connector.

▪ 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. By combining this configuration with a standard engine module and application-oriented carrier board, COM Express delivers the following benefits:

- Fast Time-to-Market/Fast Time-to-Revenue: For OEM engineering's focus, only the carrier board needs to be designed and implemented. The engineering efforts dedicated to processor and interface revolution can be minimized. This helps shorten the development time so the product can be delivered faster.
- Focus on core business and competence: The approach of separating the module and carrier board design enables the module board vendor and OEM engineers to dedicate their expertise and resource to the focused area.
- Upgradeable and scaleable: With the modular approach, the application can be easily upgraded or scaled up for future CPUs. This increases the flexibility of microprocessor supply now and in the future.

▪ ECX Overview

The ECX form factor measures a mere 105 x 146mm, making it smaller than all other SBCs in the market place. Intel defined the mechanical, electrical interfaces, and placement of major components so that hardware vendors and system integrators can build and integrate compliant components, signal devices, and systems.

The ECX's high density, computing performance, and legacy interfaces -- as well as the expandability to meet the PCI Express standards - benefit many applications in the embedded market, including car infotainment (vehicle PC). Fitting within a one DIN height vehicle enclosure standard, the system is able to operate in a fanless environment with just an Intel Ultra Low Voltage microprocessor. Wireless functions such as GPS and Ethernet can be added through the expansion region defined in the specification.

▪ PCM from Portwell

The PCM (Portwell Computing Module) is the module board defined by Portwell with MXM* socket and proprietary pin definition. The architecture is able to reduce the cost of high-density board-to-board connector by about 10 percent compared with ETX or COM Express. In addition to cost savings, PCM is more compact than both ETX and COM Express boards, measuring around 85 percent of the ETX board. With the requisite I/Os, the PCM can be implemented on a less-layer PCB board.

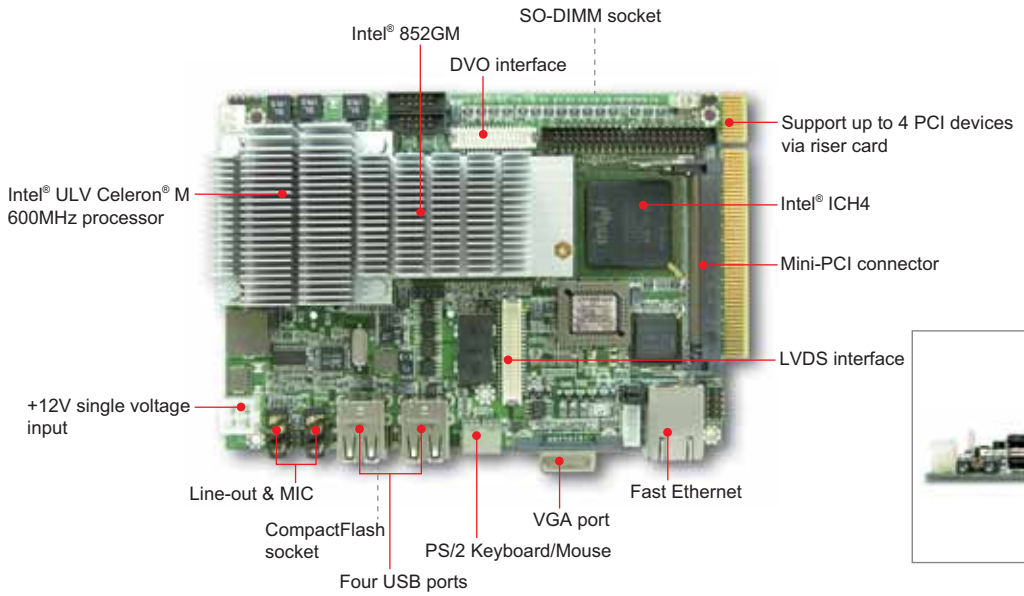
Portwell has built the first module based on Intel 852GM chipset with an Ultra Low Voltage Celeron M processor to feature the lowest power consumption and very affordable price. By separating the module and carrier board design, the development time of a system is much less than a traditional SBC development.

Cost saving, time saving, and design flexibility are key attributes of PCM, the ideal alternative solution to COM Express and ECX.

*MXM (Mobile PCI Express Module) is the protocol defined by NVIDIA and some leading notebook manufactures for mobile PCI Express graphics expansion.

PEB-2731VLA

3.5" Floppy-size, Ultra Low Voltage Intel® Celeron® M 600MHz processor based Embedded Board with VGA, LCD, LAN and Audio



Rear I/O

FEATURES

- 3.5" compact computing engine equipped with Ultra Low Voltage Intel® Celeron® M 600MHz processor for fanless requirement
- Wireless application can be accomplished by adding Mini-PCI form factor wireless adapter
- Display interface cover VGA, LVDS and DVO to fulfill common graphic needs
- Gold finger along short edge of board allows up to four PCI devices expansion that increases capability of the platform
- +12V powered embedded board makes the platform smaller and lighter with portable power adapter
- Equipped IrDA port enables wireless platform remote control

ORDERING GUIDE

Standard	**PEB-2731VLA** 3.5" Floppy-size, Ultra Low Voltage Intel® Celeron® M 600MHz processor based Embedded Board with VGA, LCD, LAN and Audio

GENERAL

Processor	CPU & Package: Ultra Low Voltage Intel® Celeron® M processor FSB: 400MHz L2 Cache: 512KB
Chipset/Core Logic	Intel® 852GM and ICH4
System Memory	Up to 1GB DDR 266/200 SDRAM on one 200-pin SODIMM socket
BIOS	Award BIOS
SSD	- One Type II CF socket - On secondary EIDE channel
Storage Devices	One 44-pin IDE connector
Watchdog Timer	Yes
Expansion Interface	- 4 PCI master expansion via riser card - One Mini-PCI socket
Hardware Monitoring	Voltage, Fan, Temperature
Power Requirement	+12V only
Dimension	Dimension : 105.0(W) x 154.3(L) mm; 4.13"(W) x 6.07" (L)
Environment	Operating Temperature: 0 to 60°C Storage Temperature: -20 to 80°C Relative Humidity: 5% to 90%, non-condensing

I/O

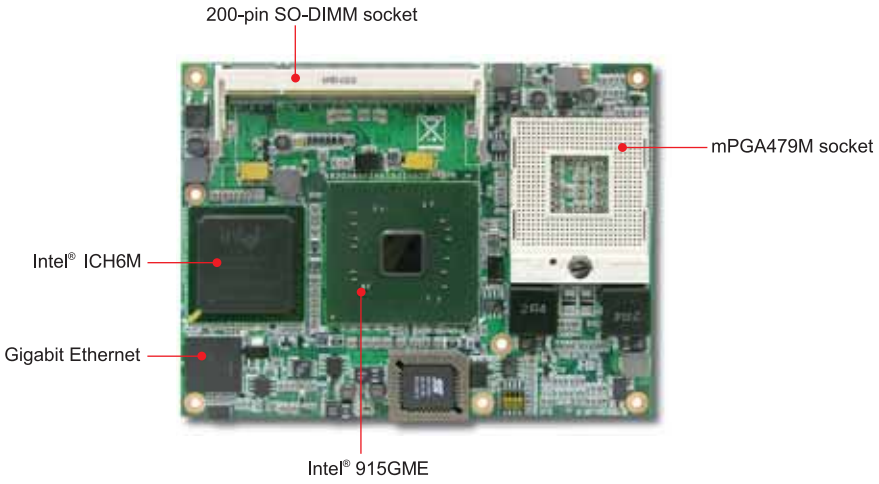
MIO	RS232 x2
IrDA	Yes (shared with one RS232)
Ethernet	10 BASE-T/100 BASE-TX Fast Ethernet
Audio	AC'97 2.3 Audio
USB	USB 2.0 x 6 (Four ports at rear I/O panel; dual ports internal)
Keyboard & Mouse	PS/2 Keyboard/Mouse

DISPLAY

Graphic Controller	Intel® 852GM mobile optimized graphics controller
Graphic Memory	Dynamically allocates 32/64MB system memory for display
Display Interface	Support VGA, LVDS and DVO ports

PCOM-B210VG

Intel® Pentium® M 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

- Intel® 915GME based COM Express module supports high bandwidth serial type I/O interfaces, such as PCI Express, SDVO & SATA
- Plug-n-run with the carrier boards and save time to market
- Accept both socket type and BGA type Pentium® M and Celeron® M processors for low power or fan-less applications
- Maximum 1GB DDR2 memory
- Equipped with single PCI Express x1 interface based Gigabit Ethernet that could change to Fast Ethernet by project

GENERAL

Processor	CPU & Package: Intel® Pentium® M or Celeron® M processor in mFCPGA package FSB: 533/400MHz
Chipset/Core Logic	Intel® 915GME and ICH6M
System Memory	Up to 1GB DDR2 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 four SATA 150 drives
Solid State Disk	N/A
Watchdog Timer	N/A
Expansion Interface	- One PCI Express x16, multiplexed with SDVO interface - Three PCI Express x1 - Four PCI devices - LPC interface - High definition audio interface
Hardware Monitoring	CPU temperature
Dimension	Dimension : 95(L) x 114(W) mm; 3.7"(L) x 4.5" (W)
Environment	Operating Temperature: 0 to 60°C Storage Temperature: -20 to 80°C Relative Humidity: 5% to 90%, non-condensing

ORDERING GUIDE

Standard	**PCOM-B210VG** Intel Pentium® M or Celeron® M 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

I/O

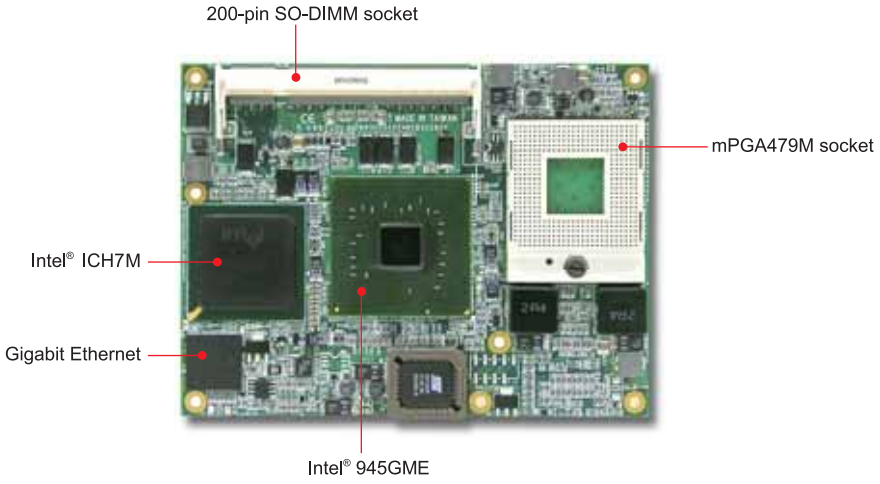
MIO	N/A
IrDA	N/A
Ethernet	One Gigabit Ethernet
Audio	N/A
USB	USB 2.0 x 8
Keyboard & Mouse	N/A

DISPLAY

Graphic Controller	Intel® 915GM integrated Intel® Graphics Media Accelerator 900 (Intel® GMA 900)
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 and LVDS display interfaces - CRT display resolution up to 2048x1536 @ 85Hz refresh

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

GENERAL

Processor	CPU & Package: Intel® Core™ Duo or Solo processor in mFCPGA package FSB: 667/533MHz
Chipset/Core Logic	Intel® 945GME and ICH7M
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 four 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 temperature
Dimension	Dimension : 95(L) x 114(W) mm; 3.7"(L) x 4.5" (W)
Environment	Operating Temperature: 0 to 60°C Storage Temperature: -20 to 80°C Relative Humidity: 5% to 90%, non-condensing

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

I/O

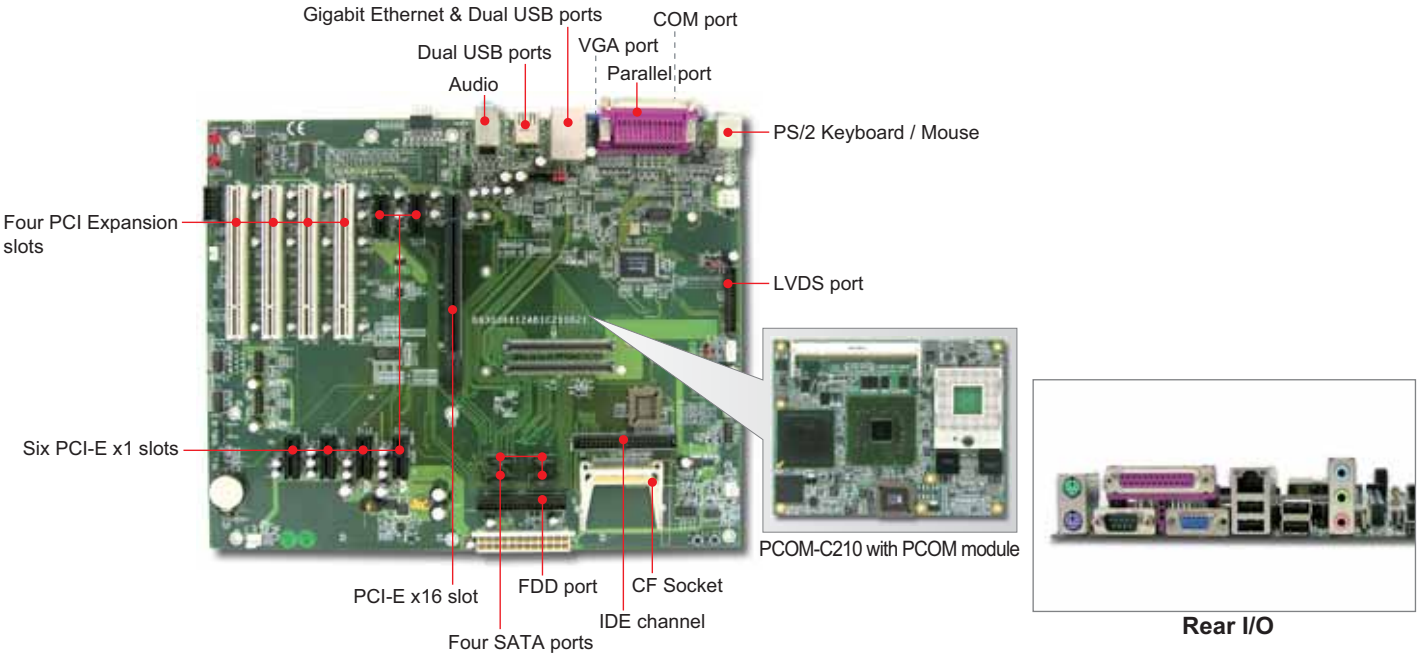
MIO	N/A
IrDA	N/A
Ethernet	One Gigabit Ethernet
Audio	N/A
USB	USB 2.0 x 8
Keyboard & Mouse	N/A

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-C210

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



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	Type II COM Express Module PCOM-B210VG or PCOM-B211VG
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	Intel® 915GME integrated GMA 900 for PCOM-B210; 945GME integrated GMA 950 for PCOM-B211
Graphic Memory	Dynamic share system memory up to 224MB (Intel® DVMT 3.0) or static share system memory up to 128MB
Display Interface	Support VGA, LVDS interfaces with dual display capability

POKI-1731

Intel® ULV Celeron® M based PCM (Portwell Computing Module) with DDR SDRAM, Dual-Display and USB

* Actual Size

Fan Less

Active Cooler

FEATURES

- Portwell computing module (PCM) saves time and cost to the market
- Compact size to save space on carrier board for more I/O integration
- On-board Intel® Ultra Low Voltage Celeron® M processor and Intel® 852GM chipset to deliver quiet and powerful engine with fanless heatsink
- VGA, LVDS and DVI-D and TV interfaces support dual displays
- PCI & LPC are the flexible expansion interfaces that enable a variety of I/Os to be implemented on the carrier board

GENERAL

Processor	CPU & Package: On-board Intel® ULV Celeron® M 600MHz 512KB L2 cache FSB: 400MHz
Chipset/Core Logic	Intel® 852GM and ICH4
System Memory	Up to 1GB DDR 266 SDRAM on one 200-pin SODIMM socket
Expansion Interface	- Six PCI 2.2 devices - Low Pin Count (LPC interface) - One IDE channel - AC' 97 interface - Six USB 2.0 ports - Power Management & SMBus
Dimension	Dimension : 90(L) x 100(W) mm; 3.54"(L) x 3.94" (W) PCB: 8-layer
Environment	Operating Temperature: 0 to 60°C Storage Temperature: -20 to 80°C Relative Humidity: 0% to 90%, non-condensing

ORDERING GUIDE

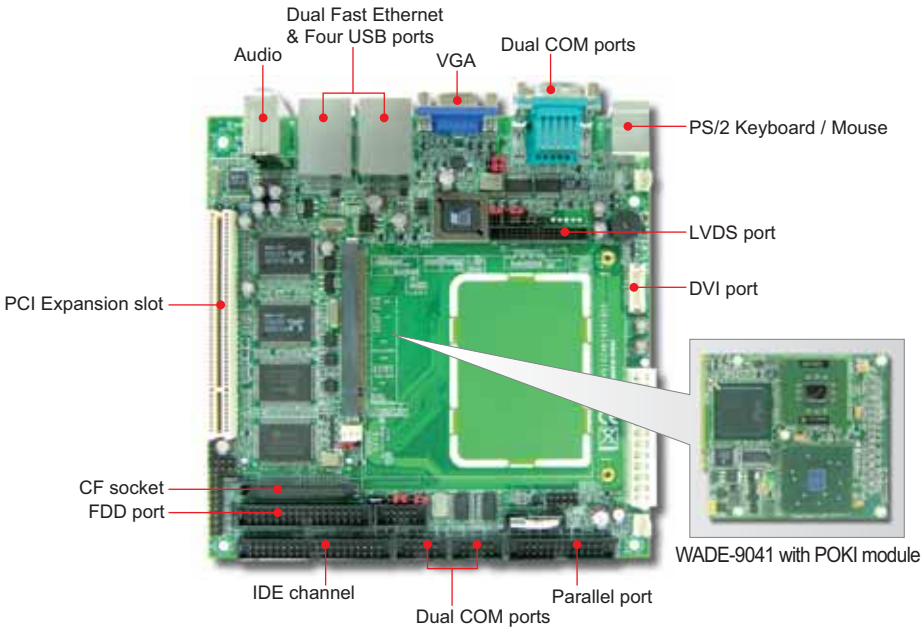
Standard	**POKI-1731** Intel® ULV Celeron® M processor based PCM with DDR SDRAM, Dual-display and USB

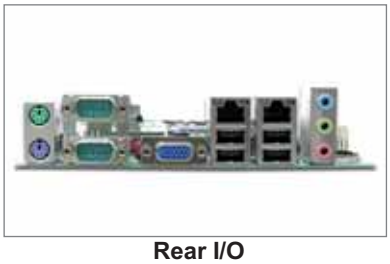
DISPLAY

Graphic Controller	Intel® 852GM integrated Extreme Graphics 2 graphics engine that support DirectX 8.0 and OpenGL 1.1
Graphic Memory	Dynamic Video Memory Technology 2.0 allocates up to 64MB system memory
Display Interface	Support VGA, LVDS and DVI-D and TV interfaces with dual display capability

WADE-9041

Mini-ITX Carrier Board for Portwell Computing Module with Dual Fast Ethernet Ports, Six USB Ports and Four COM Ports





Rear I/O

FEATURES

- Ultra Low Voltage Intel® Celeron® M processors
- Max. 1GB, DDR2 SDRAM
- Dual Display by VGA/LVDS, VGA/DVI, DVI/LVDS
- AC'97 Audio interface
- Two 10/100Mpbs LANs and one PCI slot
- Max. four COM and six USB 2.0 ports

GENERAL

CPU	POKI-1731
BIOS	Award BIOS
Storage Devices	1 x Ultra DMA 100/66/33 support two IDE devices by one 40-pin IDE connector
Solid State Disk	1 x CompactFlash Type I/II socket
Watchdog Timer	Yes (Up to 4 min.)
Expansion Interface	1 x 32-bit PCI slot
Dimension	Dimension : 6.69" x 6.69" (170mm x 170mm)
Environment	Operating Temperature: 0 to 60°C Storage Temperature: -20 to 80°C Relative Humidity: 0% to 90% relative humidity, noncondensing

I/O

MIO	2 x EIDE, 1 x LPT, 1 x FDD, 1 x RS-232/422/485, 3 x RS-232, 1 x K/B, 1 x Mouse
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	Mic in, Line out, Line in
USB	USB 2.0 x 6 (Four ports at rear I/O panel; dual ports internal)
Keyboard & Mouse	PS/2 keyboard & mouse

ORDERING GUIDE

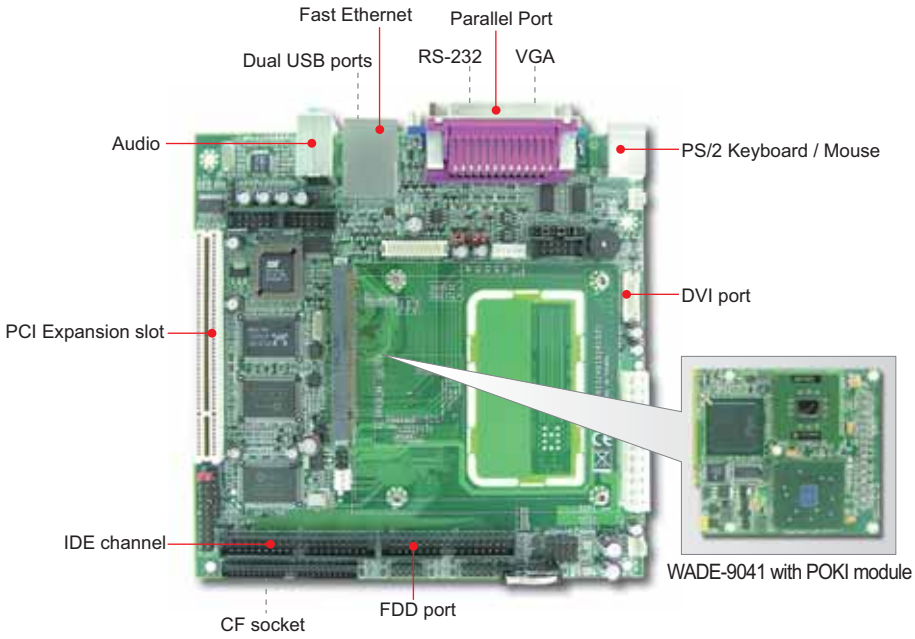
Standard	**WADE-9041** Portwell Computing Module Evaluation board in Mini-ITX Form Factor

DISPLAY

Graphic Controller	Intel® 82852GM (MCH)
Graphic Memory	Integrated Intel® Graphics share system memory to 64 MB
Display Interface	Support VGA, LVDS interfaces with dual display capability

WADE-9241

Mini-ITX Carrier Board for Portwell Computing Module with TV-out, Dual display, Fast Ethernet, Six USB Ports and Four Serial Ports



Rear I/O

FEATURES

- Ultra Low Voltage Intel® Celeron® M processors
- Max. 1GB, DDR SDRAM
- Dual Display by VGA/LVDS/DVI/TV
- AC'97 Audio interface
- Single 10/100Mbps Fast Ethernet
- Max. four Serial and six USB 2.0 ports

ORDERING GUIDE

Standard	**WADE-9041** Portwell Computing Module Evaluation board in Mini-ITX Form Factor

GENERAL

CPU	POKI-1731
FSB	400 MHz
BIOS	Award BIOS
System Chipset	Intel 82852GM & 82801DB ICH4
System Memory	1 x 200-pin DDR 266 SODIMM socket supports up to 1 GB
Storage	1 x Ultra DMA100/66/33 support two IDE devices by one 40-pin IDE connector
SSD	1 x CompactFlash Type I/II socket
Watchdog Timer	Reset/IRQ; 1sec.~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
Watchdog Timer	Reset/IRQ; 1sec.~255 min. and 1 sec. or 1 min./step
Dimension	Dimension : 6.69" x 6.69" (170mm x 170mm)
Environment	Operating Temperature: 0 to 60°C Storage Temperature: -20 to 80°C Relative Humidity: 0% to 90% relative humidity, noncondensing

I/O

MIO	1 x EIDE, 1 x LPT, 1 x FDD, 1 x RS-232/422/485, 3 x RS-232, 1 x K/B, 1 x Mouse
IrDA	N/A
Ethernet	IEEE 802.3 10/100 BASE-T Ethernet compliant
Audio	Mic in, Line out, Line in
USB	2 x USB 2.0 ports and 4 x USB 2.0 with headers

DISPLAY

Graphic Controller	Intel® 82852GM (MCH)
Graphic Memory	Dynamic Video Memory Technology 2.0 allocates up to 64MB system memory
Display Interface	Dual display by VGA/LVDS/DVI/TV

ARTO-1070

Embedded system with Fan-Less solution

ARTO-1070A

ARTO-1070B

FEATURES

- Comply with Embedded Compact Extended (ECX) form factor Board
- Simplicity of Embedded platform with Fan Less technology
- Low power consumption and no noise/ vibration for special environment
- Built-in VGA/LAN/USB/COM ports
- Rugged and Tool Free assembled design for easily maintenance

GENERAL

CPU	Support various kind of ECX board (Ultra Low Voltage Intel® Celeron® 1GHz processor)
System Memory	Depends on the kind of ECX inside (Up to 1GB DDRII 400/533 one SD-DIMM socket)
Display	On board graphic capability from ECX ESB (Intel 915 GM integrate GMA 900 controller)
Audio	Reversed audio interface for system use (depends on expansion daughter board)
Ethernet	Single 10/100 Mbps support
System indicators	Power/Storage/LAN
Storage	Compact Flash Card
Expansion	PB-M1A dedicates Mini-PCI, Audio, USB x2 by PMIO (Portwell Modules I/O) interface
COM port	1x RS232
LAN port	1x RJ45
VGA port	1x DB15
Audio port	Line-in/Line-out/MIC
USB port	4x USB
Mouse & KB	1x PS/2 mini DIN
Dimension	ARTO-1070A: 196 x 170 x 71 mm (7.7" x 6.7" x 2.8") ARTO-1070B: 196 x 170 x 53 mm (7.7" x 6.7" x 2.1")
Weight	2~2.5 Kg

ORDERING GUIDE

- **ARTO-1070A**
  Advance ECX based Fan-Less Chassis for embedded application
- **ARTO-1070B**
  Advance ECX based Chassis with one 4cm system fan for embedded application

POWER SUPPLY

Power input	AC Power adapter (100~240Vac:input; 19V/4.7A:output)
Power output	DC to DC Converter (90 Watts)

ENVIRONMENT

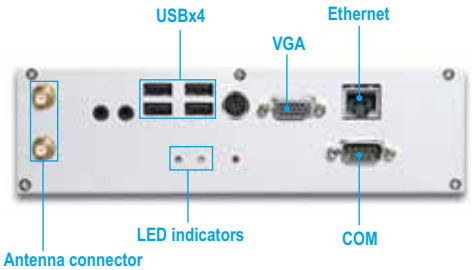
Operating Temperature	0 to 45°C
Storage Temperature	-20°C to 70°C
Relative Humidity	5% to 95%, non-condensing

PCS-8270

Compact In-Vehicle Application System

FEATURES

- 3.5” Compact Computing Engine
- Bluetooth/WiFi or GPS/GSM integrated
- Dual-display supported (VGA or LVDS)
- Open architecture for easy customization
- Fan-less design
- 9~27V / input



ORDERING GUIDE

- **PCS-8270**
  Compact In-Vehicle Infotainment System

GENERAL

CPU	Onboard Intel® Celeron® M Processor Ultra Low Voltage 600MHz, L2 Cache 512KB
Chipset	Intel® 852GM and ICH4
System Memory	One DDR2 SO-DIMM socket support up to 1GB SDRAM
Display	- LVDS, onboard connector (Display for front touch screen) - VGA on rear panel (Display for rear seat)
Audio	AC’97 Codec Realtek AIC 203
Ethernet	Single 10/100 Mbps support
System indicators	HDD/Power
Storage	One Compact Flash* socket
Expansion	One PMIO expansion board for multiple expansion support
COM port	2x RS232
LAN port	1x RJ45
VGA port	1x DB15
Audio port	AC'97 2.2 Audio
USB port	USB 2.0 x6 (4 ports at rear I/O panel; 2 ports internal)
Mouse & KB	1x PS/2 mini DIN
Dimension	Host system: 146(L) x 196(W) x 54(H) mm
Weight	2~2.5 Kg

POWER SUPPLY

Power input	DC 9~27V

ENVIRONMENT

Operating Temperature	-20°C to 80°C
Storage Temperature	-40°C to 80°C
Relative Humidity	5% to 95%, non-condensing

PSU Reference Table

ORION-A2501

ORION-D5601P

ORION-D3202P

ORION-D4602P

ORION-B3502

MPM-840P

MPI-815H

MPI-810H

MPI-806H

TYPE	MODEL	FORM FACTOR	DIMENSION	POWER RANGE	PAGE
Single	GADIWA-P0901	DC/DC	60 x 45 x 12 mm	90W / ATX	101
Single	GADIWA-1120	DC/DC	48 x 39.3 x 13.6 mm	120W / ATX	101
Single	GADIWA-R9271	DC/DC Regulator	60 x 45 x 16 mm	DC / Regulator	102
Single	GADIWA-3160	DC/DC	150 x 50 x 15 mm	160W / 8~36V DC / input	102
Single	ORION-A2501	1U	100 x 190 x 40.5 mm 3.93" x 7.48" x 1.60"	250W / PFC / P4	103
Single	ORION-A1501	1U	100x 190 x 40 mm 3.9" x 7.48" x 1.57"	150W / PFC / P4	103
Single	ORION-B3501P	2U	190 x 100 x 70 mm 7.48" x 3.94" x 2.8"	350W / PFC / P4	104
Single	ORION-D3501P	PS/2	150 x 140 x 86 mm 5.9" x 5.5" x 3.4"	350W / PFC / P4	104
Single	ORION-D4601NP	PS/2	150 x 140 x 86 mm 5.9" x 5.5" x 3.4"	460W / PFC / P4	105
Single	ORION-D5601P	PS/2	150 x 140 x 86 mm 5.9" x 5.5" x 3.4"	560W / PFC / P4	105
Redundant	ORION-300DX/24/48	PS/2	150 x 140 x 86 mm 5.9" x 5.5" x 3.4"	330W / DC / ATX	106
Single	ORION-D4201P	PS/2	150 x 140 x 86 mm 5.9" x 5.5" x 3.4"	420W / PFC / P4	106
Redundant	ORION-D3202P	mini-redundant	150 x 183 x 86 mm 5.9" x 7.2" x 3.4"	320W / PFC / P4	107
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	107
Redundant	ORION-D4602P	mini-redundant	153 x 214 x 187 mm 6" x 8.4" x 7.4"	400W / PFC / P4	108
Redundant	ORION-B3502	2U	101 x 300 x 82 mm 4" x 11.8" x 3.2"	350W / PFC / P4	108
Single	MPM-842P	PS/2	150 x 140 x 86 mm 5.9" x 5.5" x 3.4"	400W / Medical / ATX	109
Single	MPI-815H	OPEN FRAME	198 x 93 x 40.5 mm 7.8" x 3.66" x 1.6"	150W / Fanless / ATX	109
Single	MPI-810H	OPEN FRAME	83.8 x 152.4 x 38.1 mm 3.3" x 6" x 1.5"	120W / ATX	110
Single	MPD-810H	OPEN FRAME DC TO DC	83.8 x 152.4 x 38.1 mm 3.3" x 6" x 1.5"	120W / DC / ATX	110
Single	MPE-8071	OPEN FRAME	76.2 x 127 x 38.6 mm 3" x 5" x 1.5"	70W / AT	111
Single	MPI-806H	OPEN FRAME	128 x 81 x 40 mm 5.0" x 3.2" x 1.55"	60W / ATX	111
Configuration Matrix					112

GADIWA-P0901

90W DC/DC PSU (12V/input, ATX/output), cable type

FEATURES

- 12V DC/input
- For 1U or higher system
- Fanless design
- Plug into the ATX connector with Cable

SPECIFICATION

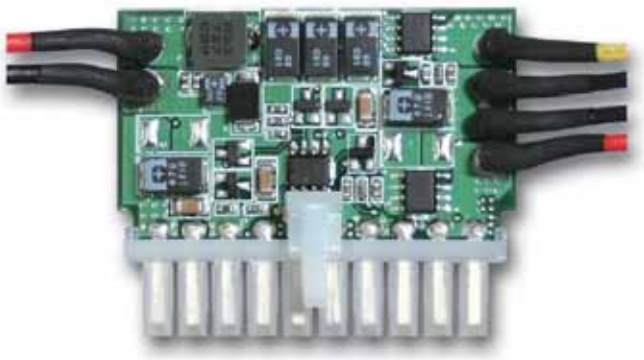
Input	12V +8% / -2%
Connector	4-pin connector for CPU
Output	• 3.3V : 9A • 5Vsb : 2A • 5V : 6A • 12V : 7A • -12V : 0.1A
Total Output	160W, unused 5V or 5Vsb can be delivered to others
Dimension (WxDxH)	60 x 45 x 12 mm

ORDERING GUIDE

- **GADIWA-P0901**
  90W DC/DC PSU, 12V/input, ATX/output

GADIWA-1120

120W DC/DC PSU (12V/input, ATX/output), socket type



FEATURES

- 12V DC/input
- Fanless design
- Plug directly into the ATX connector

SPECIFICATION

Input	12V +8% / -2%
Connector	4-pin connector for CPU
Output	• 3.3V : 9A • 5Vsb : 2A • 5V : 6A • 12V : 7A • -12V : 0.1A
Total Output	160W, unused 5V or 5Vsb can be delivered to others
Dimension (WxDxH)	48 x 39.3 x 13.6 mm

ORDERING GUIDE

- **GADIWA-1120**
  120W DC/DC PSU, 12V/input, ATX/output

GADIWA-R9271

DC/DC 9V to 27V/wide-input, 12V/output Regulator

FEATURES

- 9~27V DC/input
- Small size to save space
- Suitable for steamer, Car, Truck, Boat, Adaptor
- Special Design for Car PC
- Delay-time design

SPECIFICATION

Input	9 ~ 27V continuous@input 120W 9.8A
Output	12V/0 ~ 9.8A@output
Dimension (WxDxH)	60 x 45 x 16 mm

ORDERING GUIDE

- **GADOWA-R9271**
  12V/output, 9V~27V/input wide-input Regulator

GADIWA-3160

160W DC/DC 8V to 36V/wide-input , ATX/output

FEATURES

- 8~36VDC operation
- For 1U or higher system
- Fanless design
- Plug directly into the ATX connector
- 8 options of Delay-time design

SPECIFICATION

Input	8 ~ 36V DC
Connector	4-pin connector for CPU
Output	• 3.3V : 9A • 5Vsb : 2A • 5V : 6A • 12V : 7A • -12V : 0.1A
Total Output	160W, unused 5V or 5Vsb can be delivered to others
Dimension (WxDxH)	150 x 50 x 15 mm

ORDERING GUIDE

- **GADIWA-3160**
  160W DC/DC PSU, 8V~36V/input, ATX/output

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-B3501P

300W 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	40A	30A	18A	0.5A	1A	2A
Min. Load	0.3A	0.3A	0A	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-D4601NP

460W 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 standby output is 30A

ORDERING GUIDE

- **ORION-D4601NP**
  460W PS/2 ATX power supply with active PFC

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 ~ 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"

DC OUTPUT

	+5V	+3.3V	+12V	-5V	-12V	+5Vsb
Max. Load	50A	28A	30A	1A	1A	2A
Min. Load	2.5A	0.2A	0.5A	0A	0A	0.1A
Load Reg.	±5%	±5%	±5%	±5%	±5%	±5%
Line Reg.	±1%	±1.5%	±0.4%	±1%	±0.4%	±1%
Ripple	50mv	50mv	120mv	130mv	200mv	50mv
Noise	100mv	100mv	150mv	200mv	200mv	100mv

ORION-D5601P

560W 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 38A

ORDERING GUIDE

- **ORION-D5601P**
  560W 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"

DC OUTPUT

	+5V	+3.3V	+12V	-5V	-12V	+5Vsb
Max. Load	50A	28A	38A	1A	1A	2A
Min. Load	2.5A	0.2A	0.5A	0A	0A	0.1A
Load Reg.	±5%	±5%	±5%	±5%	±5%	±5%
Line Reg.	±1%	±1.5%	±0.4%	±1%	±0.4%	±1%
Ripple	50mv	50mv	120mv	130mv	150mv	100mv
Noise	100mv	100mv	150mv	200mv	200mv	150mv

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-D4201P

420W auto-range PS/2 ATX power supply with active PFC

FEATURES

- PS/2 ATX power supply suitable for 4U chassis
- Support for Intel® Pentium® 4 processor
- Auto-range AC input
- Active PFC

ORDERING GUIDE

- **ORION-D4201P**
  420W auto-range PS/2 ATX power supply with active PFC

SPECIFICATION

Input Voltage	100V ~ 264V AC Auto-range
Input Frequency	47 ~ 63 Hz
Input Current	10A@115V, 5A@230V
Efficiency	> 70%
Holdup Time	17 ms. at full load
Over Voltage Protection	+3.3V: 4.5V; +5V: 7.0V; +12V: 15.6V
Over Circuit Protection	Shut down power supply when before 240VA of each output power (include +5V, +3.3V, +12V1, +12V2, and -12V)
Over Power/Load Protection	+15V, +12V, output power over 110% ~ 140%
MTBF	>100,000 hrs
EMI & Safety Approval	UL, TUV
Temperature/Humidity	Operating: 5 ~ 40°C, 20 ~ 85%RH Storage: -40 ~ 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	+5Vsb	-12V
Max. Load	30A	30A	30A	2A	0.3A
Min. Load	0.3A	0.5A	1A	0A	0A
Load Reg.	±5%	±5%	±5%	±5%	±10%
Cross Reg.	±5%	±5%	±6%	±10%	±5%
Line Reg.	±1%	±1%	±1%	±1%	±1%
Ripple	±1.2%	±1%	±1%	±1.2%	±1%
Noise	±1.2%	±1%	±1%	±1.2%	±2%

ORION-D3202P

320W ATX mini-redundant with active PFC power supply

FEATURES

- Mini-redundant ATX power supply suitable for 2U and larger chassis
- 320W output
- Active PFC, full-range input

SPECIFICATION

Input Voltage	100V~240V AC
Input Frequency	47 ~ 63 Hz
Input Current	7A@115V, 3A@230V
Efficiency	> 58%
Holdup Time	16 ms. at full load
Over Voltage Protection	3.3@4.5V; 5V@7V; 12V@16V
MTBF	116,858 hrs
EMI & Safety Approval	UL, cUL, TUV
Temperature/Humidity	Operating: 0 ~ 40°C, 10 ~ 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"

ORDERING GUIDE

- **ORION-D3202P**
  320W PS/2, w/active PFC, ATX power supply

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	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	50mv	80mv	120mv	130mv	150mv	50mv
Noise	100mv	100mv	150mv	200mv	200mv	100mv

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

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"

ORDERING GUIDE

- **ORION-D3002DDP**
  300W DC-DC W/Active PFC, redundant power supply

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-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

ORDERING GUIDE

- **ORION-D4602P**
  460W+460W mini-redundant power supply with active PFC

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"

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%

ORION-B3502

350W 2U ATX redundant power supply with active PFC

FEATURES

- Low profile power supply suitable for 2U and node chassis
- Dual ATX 12V power connector for dual Intel® Xeon® processor based server board ROBO-8820VG2
- Active PFC, full-range input
- Total output power of +5V,+3.3V and +12V is 328W

ORDERING GUIDE

- **ORION-B3502**
  350W 2U ATX redundant power supply with active PFC

SPECIFICATION

Input Voltage	90V ~ 264V AC, full range
Input Frequency	47 ~ 63 Hz
Input Current	8A@115V, 5A@230V
Efficiency	> 63%
Holdup Time	16 ms at full load
Over Voltage Protection	+5V: 5.7 ~ 6.7V; +3.3V: 3.7 ~ 4.7V; +12V: 13.0 ~ 15.0V
Over Power/Load Protection	Output power over 110% ~ 160%
MTBF	112,77 hrs
EMI & Safety Approval	UL, TUV
Temperature/Humidity	Operating: 0 ~ 40°C, 20 ~ 80%RH Storage: -20 ~ 80°C, 10 ~ 90%RH
Dimension (WxDxH)	101 x 300 x 82 mm; 3.97" x 11.81" x 3.23"

DC OUTPUT

	+5V	+3.3V	+12V	-5V	-12V	+5Vsb
Max. Load	35A	20A	22	0.5A	0.8A	2A
Min. Load	5A	1A	2A	0.1A	0.1A	0.1A
Load Reg.	±5%	±5%	±5%	±10%	±10%	±5%
Line Reg.	±1%	±1.5%	±1%	±2.4%	±1%	±1%
Ripple & Noise	50mv	50mv	100mv	150mv	150mv	50mv

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**
  350W 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-8071

70W universal input open-frame power supply

FEATURES

- 3” x 5” open-frame power supply suitable for node chassis
- Three rails outputs (+5V, +12V & -12V)
- Universal AC input
- Higher +5V output (10A)

SPECIFICATION

Input Voltage	90V ~ 132V, 180V ~ 264V AC Auto-range
Input Frequency	47 ~ 63 Hz
Input Current	2A@115V; 1A@230V
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, cUL, TUV, CE, FCC
Temperature/Humidity	Operating: 0 ~ 50°C, 20 ~ 90%RH Storage: -40 ~ 85°C, 5 ~ 95%RH
Dimension (WxDxH)	76.2 x 127 x 38.6 mm; 3” x 5” x 1.5”

ORDERING GUIDE

- **MPE-8071**
  70W universal input open-frame power supply

DC OUTPUT

	5V	+12V	-12V
Max. Load	12A	2.5A	0.3A
Min. Load	0A	0A	0A
Load Reg.	±3%	±4%	±5%
Line Reg.	±2%	±2%	±2%
Ripple	±1%	±1%	±1%
Noise	±1%	±1%	±1%

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%

Configuration Matrix

Model	AREMO-2173-MX	AREMO-2173P	AREMO-2173EB	AREMO-3194	AREMO-3194E	AREMO-4196	AREMO-4185	AREMO-4185B	AREMO-4205	AREMO-4265	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			V	
PBP-14R4						V	V		V			
PBP-18D4										V		
PBP-19AC										V		
PBP-19AI										V		
PBP-19P4										V		
PBPE-06V		V										
PBPE-13A8									V			
ORION-D4602P		V	V		V	V	V	V	V		V	V
ORION-300DX/24/48	V	V	V		V	V	V	V	V	V	V	V
ORION-D4201P						V	V	V	V	V	V	V
ORION-B3501P				V								
ORION-B3502				V								
ORION-D3202P		V	V		V	V	V	V	V		V	V
ORION-D3501P	V	V	V		V	V	V	V	V	V	V	V
ORION-D4601NP		V	V		V	V	V	V	V		V	V
ORION-D5601NP		V	V		V	V	V	V	V		V	V
FSP350-60GLC	V	V	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
PEB-4700	AL1-078	AL1-077	AL1-079	AL1-080	AL1-081	AL1-082	AL1-083
PEB-2710/2730	AL1-052	AL1-050	AL1-051	AL1-047	x	x	x

Brand	Model	Size	Resolution	Brightness	Contrast	Supply Voltage	Interface
AUO	G08SNS05 V0	8.4"	800 x 600	350	500 : 1	3.3V	1ch LVDS
AUO	G104SN03 V0	10.4"	800 x 600	230	500 : 1	3.3V	1ch LVDS
AUO	G121SN01 V0	12.1"	800 x 600	400	500 : 1	3.3V	1ch LVDS
AUO	G150XG01 V0	15"	1024 x 768	350	400 : 1	3.3V	1ch LVDS
AUO	M170EG01 V0	17"	1280 x 1024	260	450 : 1	5V	2ch LVDS
AUO	M190EN04 V1	19"	1280 x 1024	400	500 : 1	5V	2ch LVDS
AUO	M201UN02 V2	20.1"	1600 x 1200	250	700 : 1	5V	2ch LVDS

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	Φ 55.5x11.3 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

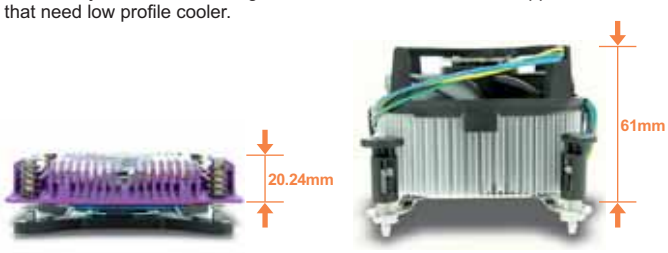
Part #	Model Name & Description
B9970620	**EZCool** High efficiency and low profile cooler for Core™ 2 Duo processor

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.

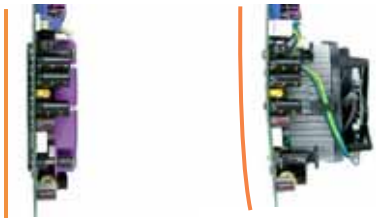
Compact Size

EZCool is just one of third height of boxed cooler that benefits applications that need low profile cooler.



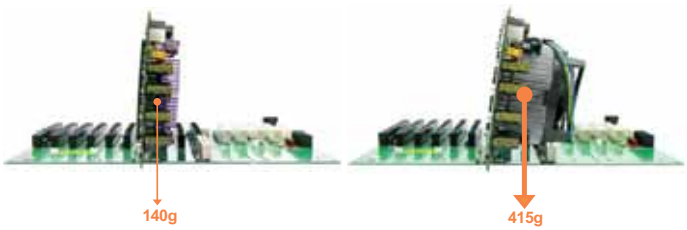
Bending Prevention

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.

IPS SOLUTION GUIDE

Together in Electric Dream!

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