Industrial Platform Service

2007 SOLUTION GUIDE

Portwell

Together in Electric Dream!

Ver. 27A

Table of Contents

SINGLE BOARD COMPUTER

FULL-SIZE SBC


ROBO-8920VG2

13 ROBO-8920VG2
Dual-Core Intel® Xeon® processor LV 2.0 GHz based PICMG 1.3 SHB with DDR2 ECC SDRAM, VGA & Dual Gigabit Ethernet


ROBO-8912VG2A

14 ROBO-8912VG2A
Intel® Core™ 2 Duo processor based PICMG 1.3 SHB with DDR2 SDRAM, VGA, Dual Gigabit Ethernet, Audio and USB


ROBO-8910VG2A

15 ROBO-8910VG2A
Intel® Pentium® 4 or Celeron® D processor based PICMG 1.3 SHB with DDR2 533 SDRAM, VGA, Dual Gigabit Ethernet and Audio


ROBO-8911VG2A

16 ROBO-8911VG2A
Intel® Pentium® M or Celeron® M processor based PICMG 1.3 SHB with DDR2 SDRAM, VGA, Dual Gigabit Ethernet, Audio and USB


ROBO-8820VG2

17 ROBO-8820VG2
Dual Intel® Xeon® processor based PICMG 1.2 (ePCI-X) SHB with VGA and Dual Gigabit Ethernet


ROBO-8717VG2A

18 ROBO-8717VG2A
Intel® Core™ 2 Duo processor based PICMG SBC with DDR2 SDRAM, VGA, Dual Gigabit Ethernet, Audio and USB


ROBO-8718UG2A

19 ROBO-8718UG2A
Intel® Pentium® M or Celeron® M processor based PICMG SBC with DDR2 533 SDRAM, PCI-E x16 VGA, Dual Gigabit Ethernet and Audio


ROBO-8713BVG2

20 ROBO-8713BVG2
Intel® Core™ 2 Duo processor based PICMG SBC with DDR SDRAM, VGA, Dual Gigabit Ethernet and USB


ROBO-8714VG2A

21 ROBO-8714VG2A
Intel® Pentium® 4 or Celeron® D processor based PICMG 64-bit SBC with DDR 400 SDRAM, AGP 4X VGA, Dual Gigabit Ethernet and Audio


ROBO-8713VG2A

22 ROBO-8713VG2A
Intel® Pentium® 4 or Celeron® D processor based PICMG SBC with DDR 400 SDRAM, AGP 8X VGA, Gigabit Ethernet and Audio


ROBO-8771VG

23 ROBO-8771VG
Ultra Low Voltage Intel® Celeron® M processor based PICMG SBC with VGA, and LAN

HALF-SIZE SBC


ROBO-6730VLA

24 ROBO-6730VLA
Ultra Low Voltage Intel® Celeron® M processor based half-size PCI SBC with VGA, LCD, LAN and Audio


ROBO-6711VGA

25 ROBO-6711VGA
mPGA479M Pentium® M/Celeron® M processor based half-sized PCI SBC with VGA, LCD, GbE and Audio

INDUSTRIAL BACKPLANE

INDUSTRIAL MAIN BOARD


RUBY-9716VGAR

30 RUBY-9716VGAR
Intel® Core™ 2 Duo processor based ATX Industrial Mainboard with DDR2 SDRAM, VGA, Gigabit Ethernet, Audio and USB


RUBY-9715VG2AR

31 RUBY-9715VG2AR
Intel® Pentium® D, Pentium® 4 or Celeron® D processor based ATX Industrial Mainboard with DDR2 SDRAM, VGA, Dual Gigabit Ethernet, Audio and USB


RUBY-9713VG2AR

32 RUBY-9713VG2AR
Intel® Core™ Duo/Core Solo processor based uATX Industrial Mainboard with DDR2 SO-DIMM, VGA, Dual Gigabit Ethernet, Audio and USB

Table of Contents

INDUSTRIAL CHASSIS

EMBEDDED COMPUTING PLATFORM

Table of Contents

MINI-ITX FORM FACTOR

MODULAR COMPUTING PLATFORMS

Table of Contents

INDUSTRIAL PSU

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, 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 competitieon.

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, 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 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 tody 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 with out 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-8920VG2	ROBO-8912VG2A	ROBO-8910VG2A
CPU	mPGA478 Xeon® processor LV	LGA775 Core™ 2 Duo/Pentium® D/ Pentium® 4/ Celeron® D	mPGA478 Pentium® 4/Celeron® D
System Bus Frequency	667MHz	1066/800/533MHz	800/533MHz
Max Memory	4 DIMM/8GB (DDR2)	2 DIMM/4GB (DDR2)	2 DIMM/2GB (DDR2)
ECC	YES	NO	NO
BIOS	Award	Award	Award
Chipset	Intel® E7520, 6300ESB	Intel® Q965, ICH8DO	Intel® 915GV, ICH6
SSD	CF Max. 1GB	N/A	CF Max. 1GB
VGA / Panel	ATI RADEON 7000	Intel® Q965 GMCH	Intel® 915GV/NO GMCH
HDD Channel	2 EIDE Ultra DMA 100/66/33 & 2 SATA 150	6 SATA 300	1 EIDE Ultra DMA 100/66/33 & 4 SATA 150
FDD Drives	2	2	2
LAN	Intel® 82571x1	Intel® 82573Lx1, 82566DMx1	Marvell 88E8001x2
Expansion Interface	N/A	N/A	N/A
USB Port	4	8	8
ATX Control	YES	YES	YES
On-Board I/O	SMSC CH5017	W83627EHG	W83627THF
Serial Port	2	2	2
Parallel Port	1	1	1
PS/2 K/B	Header	Header	Header
PS/2 Mouse	Header	Header	Header
WDT	YES	YES	YES
H/W Monitoring	YES	YES	YES
IrDA	N/A	N/A	YES
Audio	N/A	YES	YES
ISA	NO	NO	NO
Dimension (L) x (W)	338.6 mm x 126.4 mm 13.33" x 4.98"	338.5 mm x 122 mm 13.33" x 4.8"	338.5 mm x 122 mm 13.33" x 4.8"
Page	13	14	15

"*" Over-clocking

SBC Reference Table

FULL-SIZE SINGLE BOARD COMPUTER



MODEL	ROBO-8911VG2A	ROBO-8820VG2	ROBO-8717VG2A
CPU	mPGA479M Pentium® M/Celeron® M	Dual/Single mPGA604 Xeon®/LV Xeon®	LGA775 Core™ 2 Duo/Pentium® D/ Pentium® 4/Celeron® D
System Bus Frequency	533/400MHz	533/400MHz	1066/800/533MHz
Max Memory	2 SODIMM/2GB (DDR2)	2 DIMM/4GB (DDR)	2 DIMM/4GB (DDR2)
ECC	NO	YES	NO
BIOS	Award	Award	Award
Chipset	Intel® 915GM, ICH6	Intel® E7501, ICH3-S	Intel® G965 ICH8
SSD	CF Max. 1GB	CF Max. 1GB	CF Max. 1GB
VGA / Panel	Intel® 915GM GMCH/YES	ATI RageXL/NO	Intel® G965 GMCH
HDD Channel	1 EIDE Ultra DMA 100/66/33 & 4 SATA 150	2 EIDE Ultra DMA 100/66/33	4 SATA 300
FDD Drives	2	2	2
LAN	Marvell 88E8001x2	Intel® 82546x1	Realtek RTL8111Bx2
Expansion Interface	N/A	Proprietary HL 2.0 connector	N/A
USB Port	8	4 (USB 1.1)	8
ATX Control	YES	YES	YES
On-Board I/O	W83627THF	W83627HF	W83627EHG
Serial Port	2	2	2
Parallel Port	1	1	1
PS/2 K/B	Header	Header	Header
PS/2 Mouse	Header	Header	Header
WDT	YES	YES	YES
H/W Montioring	YES	YES	YES
IrDA	YES	NO	NO
Audio	YES	NO	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"
Page	16	17	18

"*" Over-clocking

SBC Reference Table

FULL-SIZE SINGLE BOARD COMPUTER



MODEL	ROBO-8718UG2A	ROBO-8718VG2A	ROBO-8713BVG2
CPU	mPGA478 Pentium® 4 / Celeron® D	mPGA478 Pentium® 4 / Celeron® D	LGA775 Core 2 Duo/Pentium® D/ Pentium® 4/Celeron® D
System Bus Frequency	533/400MHz	533/400MHz	1066/800/533MHz
Max Memory	2	2	2 DIMM/2GB (DDR)
ECC	NO	NO	NO
BIOS	Award	Award	Award
Chipset	Intel® 915GM, ICH6	Intel® 915GM, ICH6	Intel® 865, ICH5
SSD	CF Max. 1GB	CF Max. 1GB	CF Max. 1GB
VGA / Panel	ATI Mobility M22/YES	Intel® 915GM/YES	Intel® 865 GMCH/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 & 2 SATA 150
FDD Drives	2	2	2
LAN	Marvell 88E8053x2	Marvell 88E8053x2	Realtek RTL8110SCx2
Expansion Interface	N/A	N/A	N/A
USB Port	4	4	8
ATX Control	YES	YES	YES
On-Board I/O	W83627THF	W83627THF	W83627THG
Serial Port	2	2	2
Parallel Port	1	1	1
PS/2 K/B	Header	Header	Header
PS/2 Mouse	Header	Header	Header
WDT	YES	YES	YES
H/W Montioring	YES	YES	YES
IrDA	YES	YES	YES
Audio	YES	YES	NO
ISA	YES	YES	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"
Page	19	19	20

"*" Over-clocking

SBC Reference Table

FULL-SIZE SINGLE BOARD COMPUTER



MODEL	ROBO-8714VG2A	ROBO-8713VG2A	ROBO-8771VG
CPU	mPGA478 Pentium® 4/Celeron® D	mPGA478 Pentium®4/ Celeron® D	ULV Celeron® M 600MHz
System Bus Frequency	800/533/400MHz	800/533/400MHz	400MHz
Max Memory	2 DIMM/2GB (DDR)	2 DIMM/2GB (DDR)	2 DIMM/2GB (DDR)
ECC	YES	NO	NO
BIOS	Award	Award	Award
Chipset	Intel® 875P, 6300ESB	Intel® 865, ICH5	Intel® 852GM, ICH4
SDD	CF Max. 1GB	CF Max. 1GB	N/A
VGA / Panel	ATI Mobility M9/YES	Intel® 865GV GMCH/NO	Intel® 852GM GMCH/NO
HDD Channel	2 EIDE Ultra DMA 100/66/33 & 2 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	Intel® 82547x1/82541x1	Intel® 82547x1	Realtek RTL8110SCx1
Expansion Interface	N/A	Proprietary PCI connector	N/A
USB Port	4	4	8
ATX Control	YES	YES	YES
On-Board I/O	W83627HF	W83627HF	W83627THG
Serial Port	2	2	2
Parallel Port	1	1	1
PS/2 K/B	YES	YES	YES
PS/2 Mouse	YES	YES	YES
WTD	YES	YES	YES
H/W Montioring	YES	YES	YES
IrDA	YES	YES	YES
Audio	YES	YES	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"
Page	21	22	23

"*" Over-clocking

SBC Reference Table

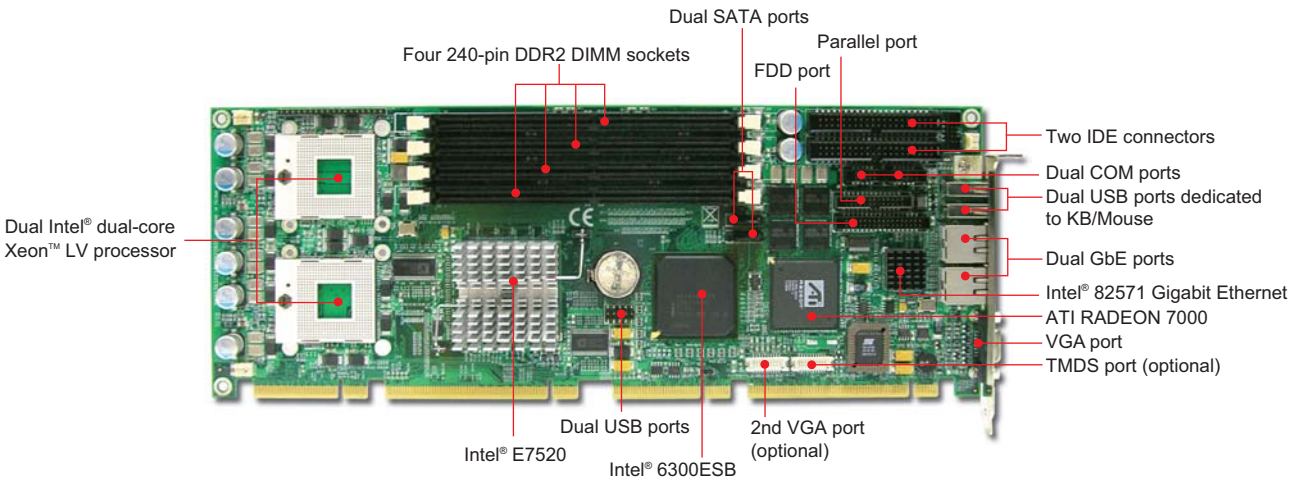
HALF-SIZE SINGLE BOARD COMPUTER

MODEL	ROBO-6730VLA	ROBO-6711VGA
CPU	ULV Celeron® M 600MHz	mPGA478 Pentium® M/Celeron®M
System Bus Frequency	400MHz	533/400MHz
Max Memory	1 SODIMM/1GB (DDR)	1 SODIMM/1GB (DDR)
ECC	NO	NO
BIOS	Award	Award
Chipset	Intel® 852GM, ICH4	Intel® 852GME, ICH4
SSD	CF Max. 1GB	CF Max. 1GB
VGA / Panel	Intel® 852GM GMCH/YES	Intel® 852GM GMCH/YES
HDD Channel	2 EIDE Ultra DMA 100/66/33	2 EIDE Ultra DMA 100/66/33
FDD Drives	2	2
LAN	Intel® 82562x1	Intel® 82562x1
Expansion Interface	NO	NO
USB Port	4	4
ATX Control	NO	YES
On-Board I/O	W83627HF	W83627HF
Serial Port	2	2
Parallel Port	1	1
PS/2 K/B	YES	YES
PS/2 Mouse	YES	YES
WDT	YES	YES
H/W Montioring	YES	YES
IrDA	YES	YES
Audio	YES	YES
ISA	YES	YES
Dimension (L) x (W)	185 x 122 mm 7.3" x 4.8"	185 x 122 mm 7.3" x 4.8"
Page	24	25

"*" Over-clocking

ROBO-8920VG2

Dual-Core Intel® Xeon® processor LV 2.0 GHz based PICMG 1.3 SHB with DDR2 ECC SDRAM, VGA & Dual Gigabit Ethernet



FEATURES

- Extreme power saving with Dual-Core Intel® Xeon® processor LV that only generates 31W and reliability increased with separated small cooler
- Rich & powerful I/O expansion that covers dual PCI Express x8, one PCI Express x4 and four PCI devices
- Up to 8GB, ECC registered memory assured the computer reliability and benefited the data swapping process
- Dual PCI Express x4 based Gigabit Ethernet supports IPv4, IPv6 offloading, VLAN, teaming & Wake-On-LAN functions
- Relative high performance graphic engine, ATI RADEON 7000 provides solid 2D/3D/ video acceleration among server market
- Dual on-board SATA port and dual EIDE channel cover transition of high speed storage drivers

ORDERING GUIDE

Standard	**ROBO-8920VG2** 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-Core Intel® Xeon® processor LV 2.0 GHz (single or dual processor) in mFCPGA package FSB: 667MHz
Chipset/Core Logic	Intel® E7520 and 6300ESB
System Memory	- Up to 8GB DDR2 400 SDRAM on four 240-pin DIMM sockets - Support ECC, registered
BIOS	Award BIOS
Storage Devices	EIDE: Support dual EIDE channel with Ultra DMA 100/66/33 SATA: Support dual SATA 150 drive
Solid State Disk	- One type II CF socket; On Primary EIDE channel - Bootable for embedded application
Watchdog Timer	Programmable via software from 0.5 sec. to 254.5 min.
Expansion Interface	- One PCI Express x8 - Three PCI Express x4 - Four PCI devices
Hardware Monitoring	System monitor (fan, temperature, voltage)
Power Requirement	Typical: +5V@3.6A; +12V@3.4A
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	90,945 hrs

I/O

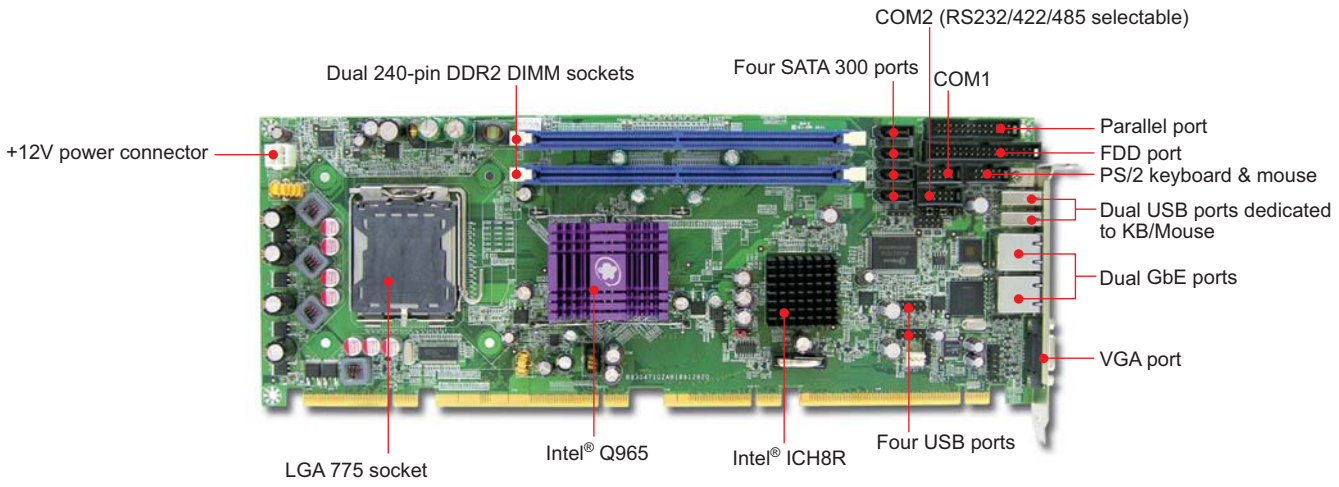
MIO	Two serial (RS232), one parallel, one FDD channel
IrDA	N/A
Ethernet	PCI Express x4 interface based Intel® 82571 dual Gigabit Ethernet controller
Audio	N/A
USB	Four USB 2.0 ports
Keyboard & Mouse	Dual USB port on bracket dedicated to keyboard & mouse

DISPLAY

Graphic Controller	ATI RADEON 7000
Graphic Memory	32MB DDR Memory (up to 64MB based on project)
Display Interface	Support CRT and optional second CRT & TMDS (DVI) display interfaces

ROBO-8912VG2A

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 only generates up to 65W TDP. Lower TDP than socket 775 Pentium® 4 processor makes the vertical mount slot board more reliability
- Low profile processor improve 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 that built with high grade display capability
- Lockable cable latched notches of SATA connector that secure connection in vibration condition
- Embedded Intel Active Management Technology (AMT) that remotely discover, heal and protect networked computing assets using third-party management & 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-8912VG2A** 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 that increases reliability of system

GENERAL

Processor	CPU & Package: Intel® Core 2 Duo, Pentium® D, Pentium® 4, Celeron® D processor in the LGA-775 package FSB: 1066/800/533MHz
Chipset/Core Logic	Intel® Q965 and ICH8DO
System Memory	Up to 4GB DDR2 800/667/533 SDRAM on dual 240-pin DIMM sockets
BIOS	Award BIOS
Storage Devices	EIDE: N/A SATA: Support six SATA 300 drives (dual SATA ports via backplane)
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

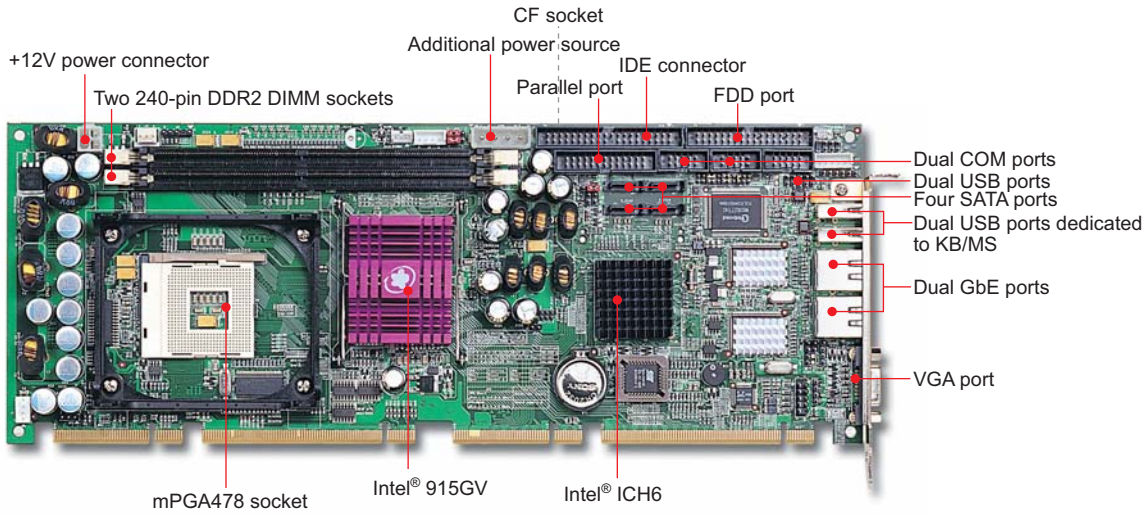
MIO	Two serial (RS232 x1, selectable RS232/422/485 x1), one parallel and one FDD channel
IrDA	N/A
Ethernet	- Dual 10BAST-T/100BAST-TX/1000BAST-T Ethernet - PCI Express x1 interface based Gigabit Ethernet - Dual RJ-45 connector with two LED indicators
Audio	HDA interface, 2-channel Audio
USB	Eight USB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

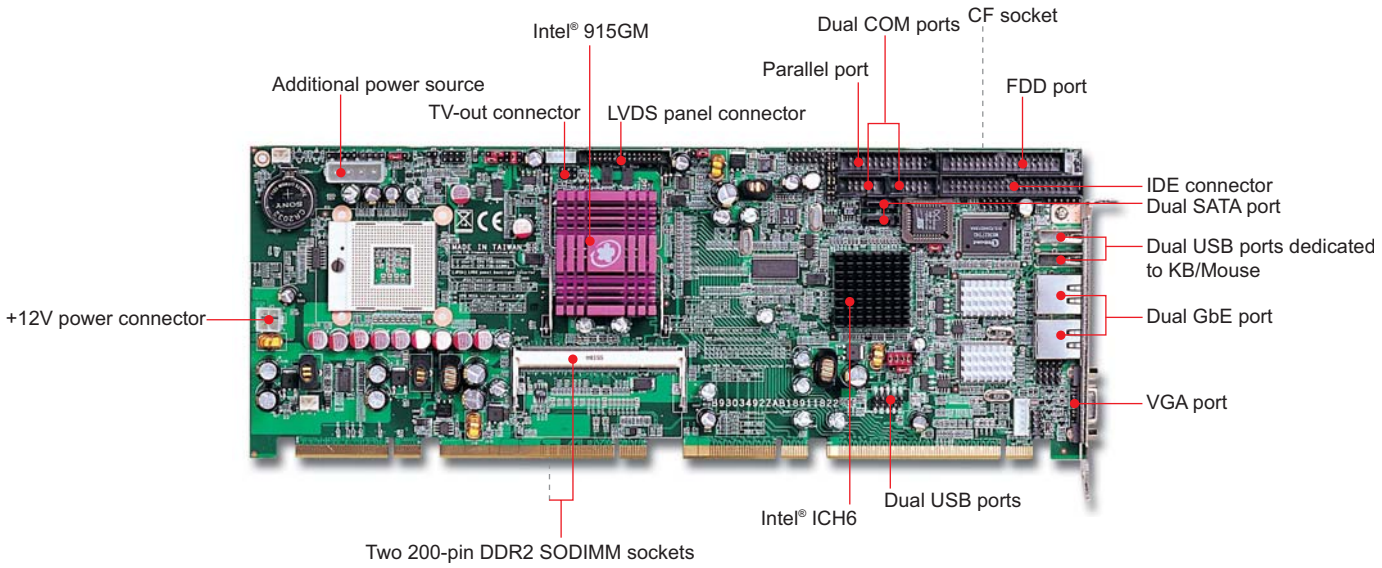
MIO	Two serial (selectable RS232/422/485 x1), one parallel, one FDD channel
IrDA	IrDA 1.0
Ethernet	- Dual 10BASE-T/100BASE-TX/1000BASE-T Ethernet - Dual RJ-45 connectors with two LED indicators
Audio	AC'97 2.2 Audio
USB	Eight USB 2.0 ports (four ports through backplane)
Keyboard & Mouse	Two USB 2.0 ports 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-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 (RAID 0 & 1 or Intel® Matrix Storage)
- 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

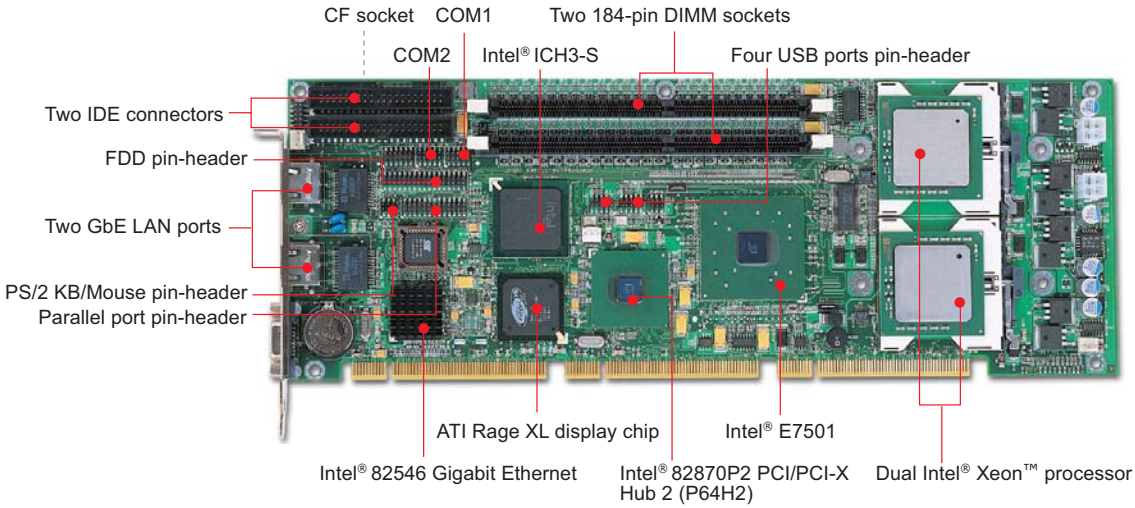
MIO	Two serial (selectable RS232/422/485 x1), one parallel, one FDD channel
IrDA	IrDA 1.0
Ethernet	- Dual 10BASE-T/100BASE-TX/1000BASE-T Ethernet - Dual RJ-45 connector with two LED indicators
Audio	AC'97 2.2 Audio
USB	Eight USB 2.0 ports (four through backplane)
Keyboard & Mouse	Two USB 2.0 ports on 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-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: -40 to 75°C Relative Humidity: 5% to 90%, non-condensing
MTBF	142,578 hrs

I/O

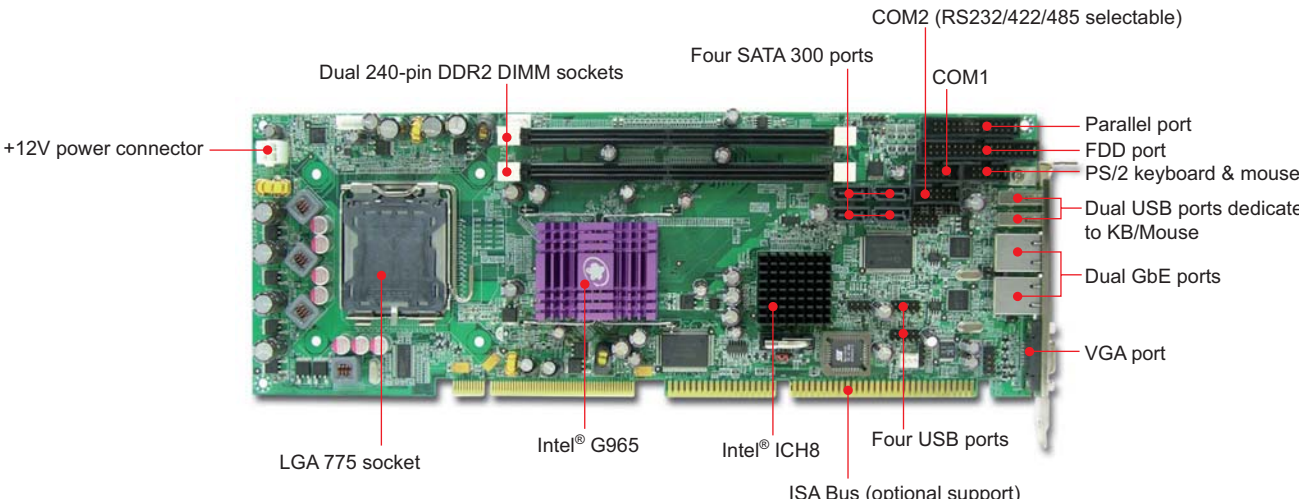
MIO	Two serial (selectable RS232/422/485 x1), one parallel, one FDD channel
IrDA	N/A
Ethernet	- Support teaming function - Intel® 82546 PCI-X dual port Gigabit Ethernet controller - Two RJ-45 connectors with two LED indicators for LAN access and link status
USB	Four USB 1.1 ports
Keyboard & Mouse	One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

ROBO-8717VG2A

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 only generates up to 65W TDP. Lower TDP than socket 478 Pentium® 4 processor makes the vertical mount slot board more reliability
- Low profile processor cooler improve 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 X3000 graphics engine that built with high grade display capability
- Lockable cable latched notches of SATA connector that secure connection in vibration condition

ORDERING GUIDE

Standard	**ROBO-8717VG2A** 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 that increases reliability of system

GENERAL

Processor	CPU & Package: Intel® Core™ 2 Duo, Pentium® D, Pentium® 4, Celeron® D processor in the LGA-775 package FSB: 1066/800/533MHz
Chipset/Core Logic	Intel® G965 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: +3.3V@3.7A; +5V@3.4A; +12V@4.7A
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	95,766 hrs

I/O

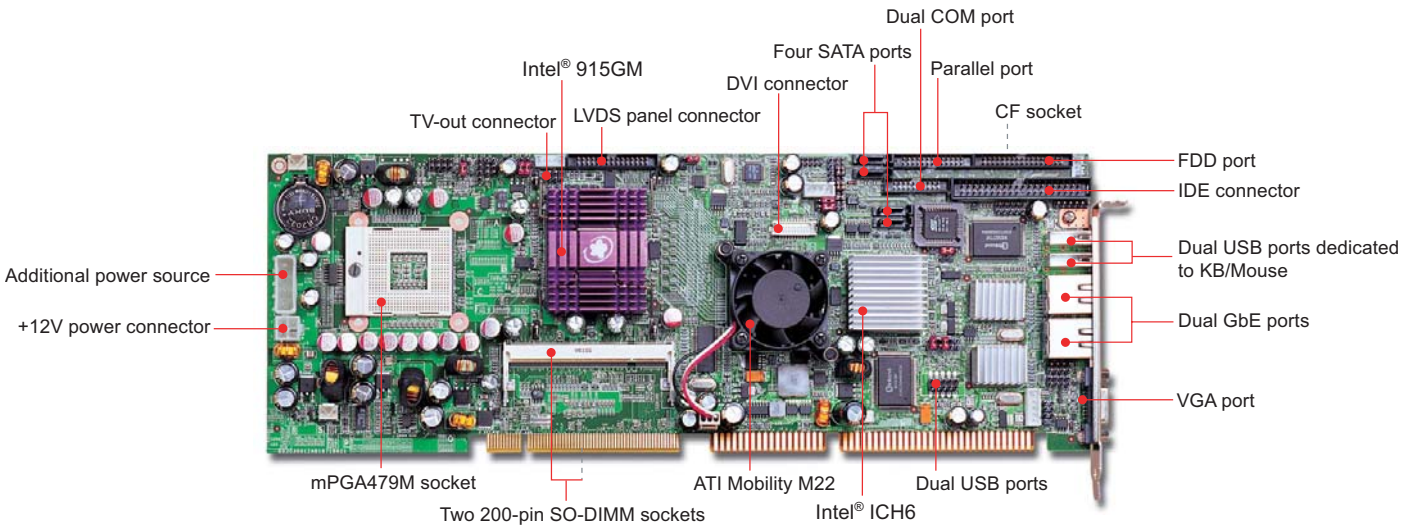
MIO	Two serial (RS-232x1, selectable RS232/422/485x1), one parallel and one FDD channel
IrDA	N/A
Ethernet	- Dual 10BASE-T/100BASE-TX/1000BASE-T Ethernet - PCI Express x1 interface based Gigabit Ethernet - Dual RJ-45 connectors with two LED indicators
Audio	HDA interface, 2-channel Audio
USB	Six USB 2.0 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-8718UG2A

Intel® Pentium® M or Celeron® M processor based PICMG SBC with DDR2 533 SDRAM, PCI-E x16 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 supports 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 (RAID 0 & 1 or Intel® Matrix Storage)

ORDERING GUIDE

Standard	**ROBO-8718UG2A** Socket mPGA479M Pentium® M or Celeron® M processor based PICMG SBC with DDR2 533 SDRAM, M22 w/64MB via PCI-E x16, Dual Gigabit Ethernet and Audio
	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

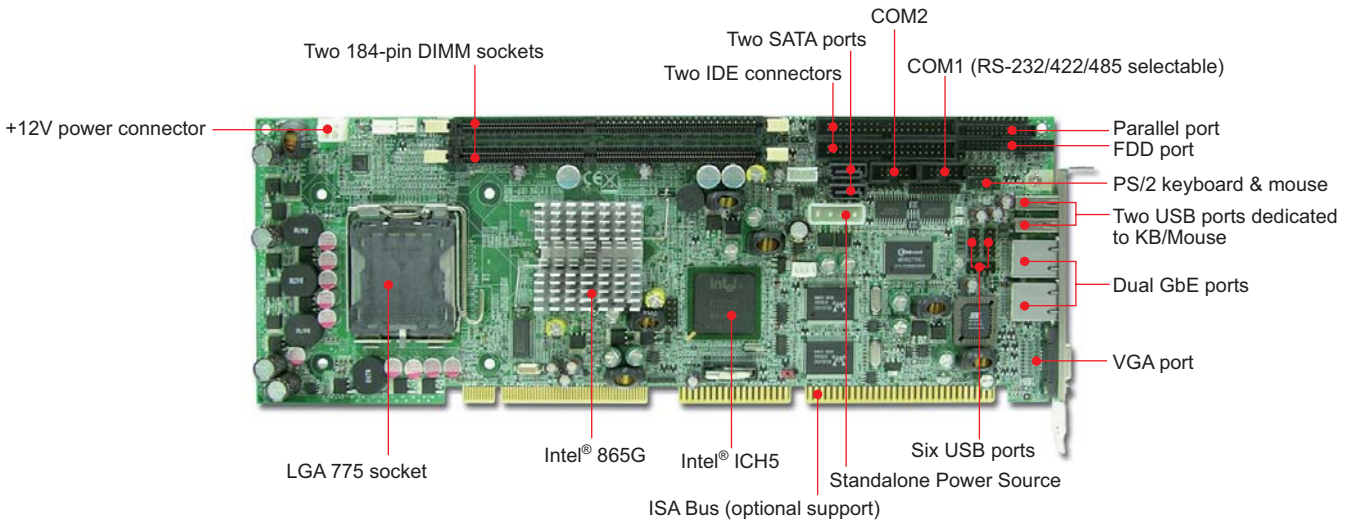
MIO	Two serial (selectable RS232/422/485 x1), one parallel, one FDD channel
IrDA	IrDA 1.0
Ethernet	- 10BASE-T/100BASE-TX/1000BASE-T Ethernet - Dual PCI-Express x1 based - Dual RJ-45 connectors with two LED indicators
Audio	AC'97 2.2 Audio
USB	Four USB 2.0 ports
Keyboard & Mouse	Two USB 2.0 ports on bracket 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-8713BVG2

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



FEATURES

- Extreme cost / performance PICMG 1.0 single board computer that support LGA 775 processor with dual Gigabit Ethernet controller
- Verities I/O interface that 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 that offers adequate display quality via VGA interface
- Single side design (standard model witout ISA support) enhance reliability of production and simplify its process at the same time
- Eight plug-and-play USB 2.0 ports allows enriched expansion of the system that build upon the board

ORDERING GUIDE

Standard	**ROBO-8713BVG2** LGA-775 processor based PICMG 1.0 SBC with DDR SDRAM, VGA, Dual Gigabit Ethernet and USB
Optional	**USB Cable with bracket** Four USB ports with bracket **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

"*" Over-clocking

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® 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	10,1670 hrs

I/O

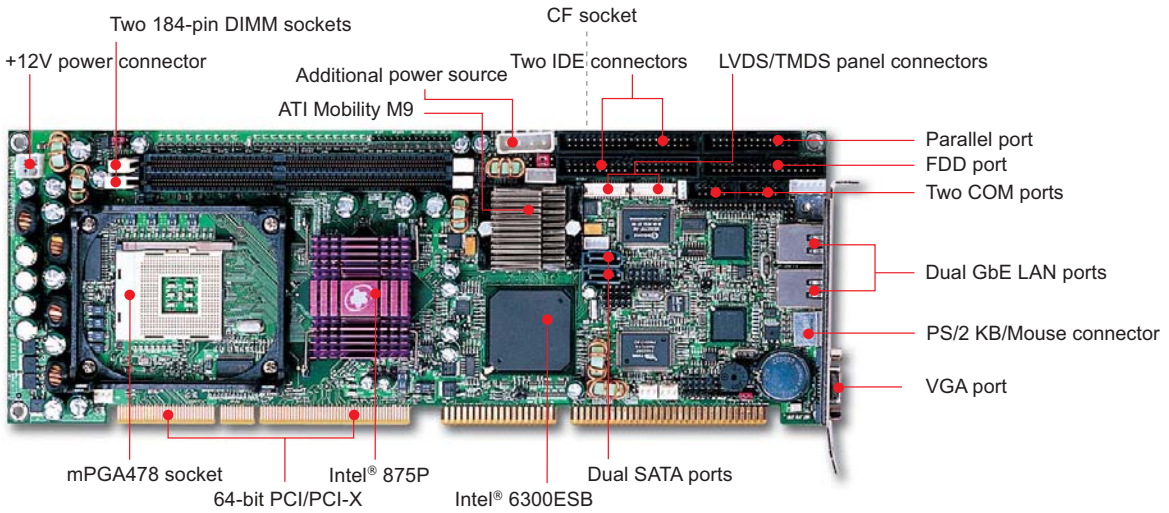
MIO	Two serial (RS232 x1, selectable RS232/422/485 x1), one parallel and one FDD channel
IrDA	IrDA 1.0
Ethernet	- Dual 10BASE-T/100BASE-TX/1000BASE-T Ethernet - PCI interface based Gigabit Ethernet - Dual RJ-45 connector with two LED indicators
Audio	AC'97 interface reserved
USB	Eight USB 2.0 ports
Keyboard & Mouse	Two ports USB 2.0 on bracket dedicated to 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-8714VG2A

Intel® Pentium® 4 or Celeron® D processor based PICMG 64-bit SBC with DDR 400 SDRAM, AGP 4X VGA, Dual Gigabit Ethernet and Audio



FEATURES

- Intel® Pentium® 4 processor with Hyper-Threading technology runs at 800MHz FSB
- ECC function for data sensitive application
- ATI M9 graphics controller support dual display configuration of LCD/CRT, TV/CRT, LCD/LCD and LCD/TV
- Wire-speed Gigabit Ethernet based on Communication Streaming Architecture (CSA) with double throughput than PCI based Ethernet

ORDERING GUIDE

Standard	**ROBO-8714VG2A** Socket 478 Pentium® 4 or Celeron® D processor based PICMG SBC with DDR 400 SDRAM, M9 w/64MB via AGP 4X, dual Gigabit Ethernet and Audio
Optional	**DVI-D Cable** TMDS adapter cable for DVI interface flat panel
	PA-M1ATU Multimedia kit for P4 SBC with audio, TV out and dual USB ports

GENERAL

Processor	CPU & Package: Intel® Pentium® 4 or Celeron® D processor in the mPGA478 package FSB: 800/533/400MHz
Chipset/Core Logic	Intel® 875P and 6300ESB
System Memory	- Up to 2GB dual channel DDR 400/333/266 SDRAM on two 184-pin DIMM sockets - ECC support
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	N/A
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 to55°C Storage Temperature: -20 to 80°C Relative Humidity: 5% to 90%, non-condensing
MTBF	93,735 hrs

I/O

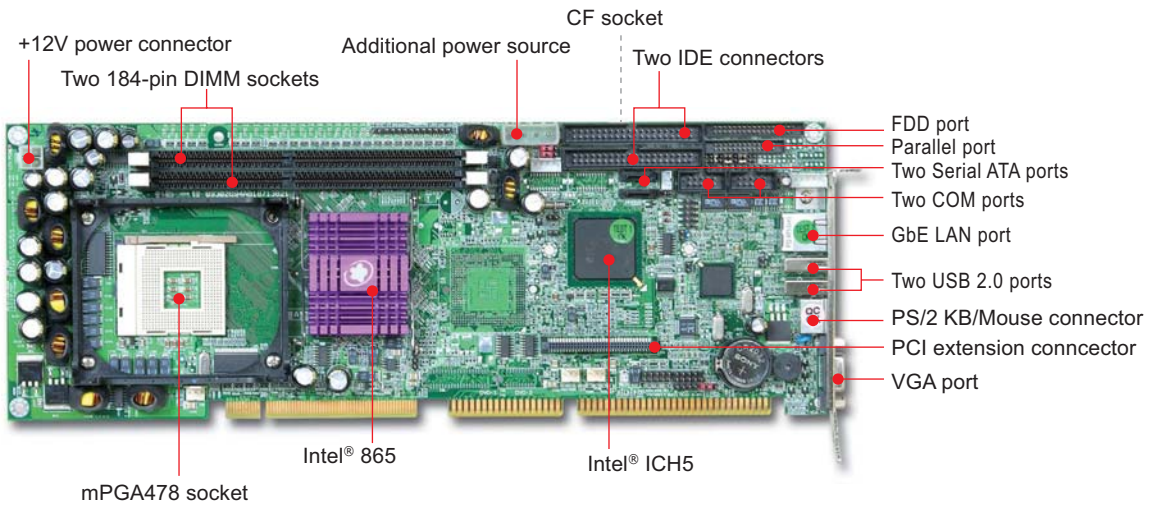
MIO	Two serial (selectable RS232/422/485 x1), one parallel, one FDD channel
IrDA	IrDA 1.0
Ethernet	- Dual 10BASE-T/100BASE-TX/1000BASE-T Ethernet ports - Gigabit Ethernet controller based on CSA & PCI interfaces - Two RJ-45 connectors with two LED indicators on bracket
Audio	AC'97 2.2 Audio
USB	Four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

DISPLAY

Graphic Controller	ATI Mobility M9 graphics controller
Graphic Memory	64MB display memory
Display Interface	Support CRT, LVDS, TV-out & DVI(TMDS) display interfaces

ROBO-8713VG2A

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® 865 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

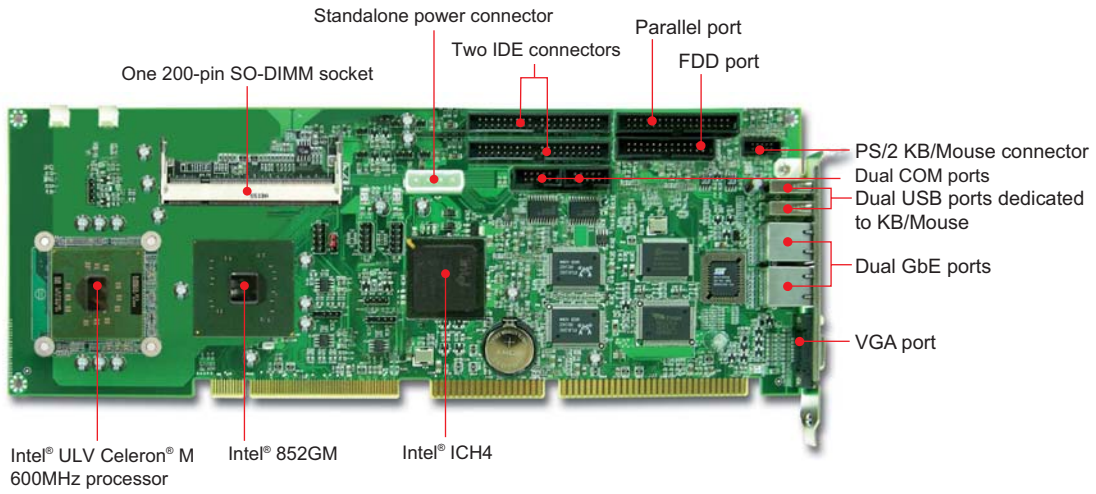
MIO	Two serial (selectable RS232/422/485 x1), one parallel, one FDD channel
IrDA	IrDA 1.0
Ethernet	- 10BASE-T/100BASE-TX/1000BASE-T Ethernet - Gigabit Ethernet via CSA interface - One RJ-45 connector with two LED indicators
Audio	AC'97 2.2 Audio
USB	Four USB 2.0 ports (two on bracket)
Keyboard & Mouse	- 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-8771VG

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 lost, 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-8771VG** 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
	Low Profile LGA775 Cooler High efficiency slim cooler that increases reliability of system

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 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	TBA
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	TBA

I/O

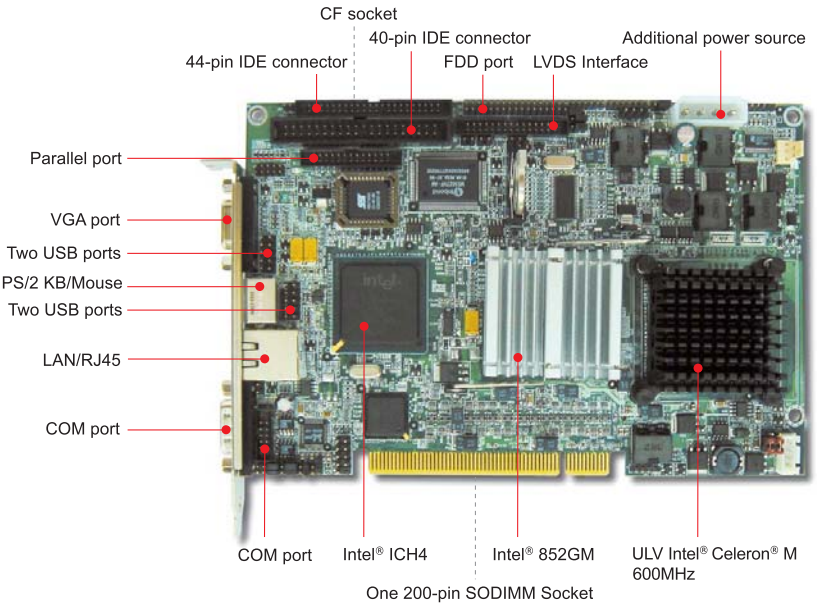
MIO	Two serial (one RS232/422/485 selectable), one parallel, one FDD channel
IrDA	IrDA 1.0
Ethernet	- 10BASE-T/100BASE-TX Ethernet - IEEE 802.3u auto-negotiation - One RJ-45 connector with two LED indicators
Audio	AC'97 2.2 interface reserved
USB	Six USB 2.0 ports
Keyboard & Mouse	Two ports USB 2.0 on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

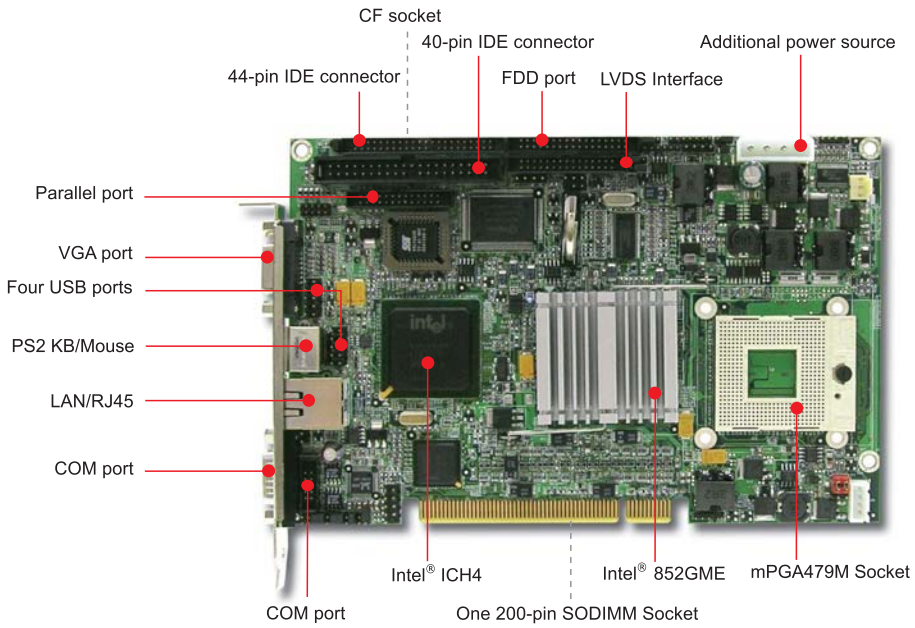
MIO	Two serial (one on bracket; one RS232/422/485 selectable), one parallel, one FDD channel
IrDA	IrDA 1.0
Ethernet	- 10BASE-T/100BASE-TX Ethernet - IEEE 802.3u auto-negotiation support - One RJ-45 connector
Audio	AC'97 2.2 Audio
USB	Four USB ports
Keyboard & Mouse	One 6-pin mini-DIN connector for keyboard/mouse

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

ROBO-6711VGA

mPGA479M Pentium® M/Celeron® M processor based half-sized 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

PICMG Backplane

PICMG GENERAL DESCRIPTION

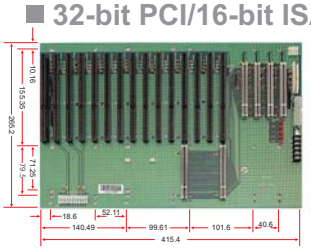
PICMG Backplane in this section are SBC (Single Board Computer)/SHB (Single Host Board) companion that feature expansion slots such as ISA, PCI, PCI-X or PCI Express interface. In addition, backplane also features several power connectors that drawn power from power supply to devices on it. Some LEDs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

PICMG 1.0 support both ISA & PCI, PICMG 1.2 support dual PCI or PCI-X, and PICMG 1.3 support PCI Express and PCI expansion. However, 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 each other. Please watch out the category of backplane that you are choosing for the project.

PICMG 1.0 BACKPLANE

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

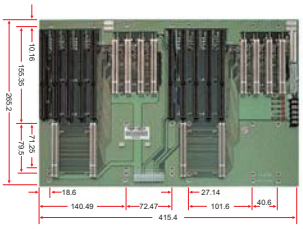
32-bit PCI/16-bit ISA



PBP-19P4

19-slot (4xPCI) PICMG Backplane

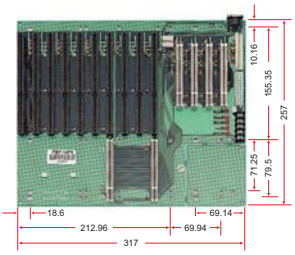
- Fit for 20-slot chassis
- ATX power connector support
- Sufficient ISA slots for CTI application



PBP-18D4

18-slot Dual-system PICMG Backplane

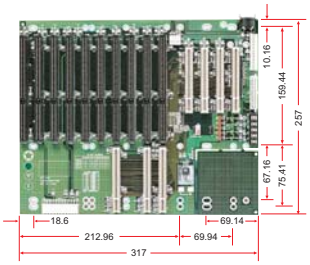
- Fit for 20-slot chassis
- Designed for fault-tolerant computing
- ATX power connector support



PBP-14P4

14-slot (4xPCI) PICMG Backplane

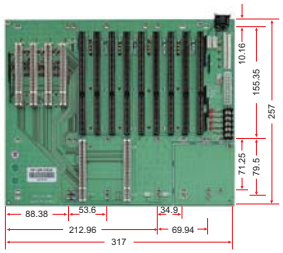
- Fit for 14-slot chassis
- ATX power connector support
- The most popular and reliable PICMG backplane



ACTI-14P4

14-slot (4xPCI) Active PICMG Backplane

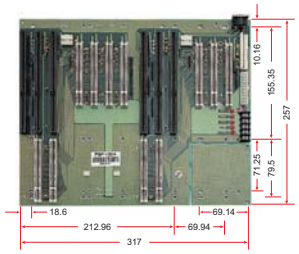
- 2.4 mm PCB thickness
- ATX power connector support
- Fit for 14-slot chassis



PBP-13R4

13-slot (4xPCI) PICMG Backplane

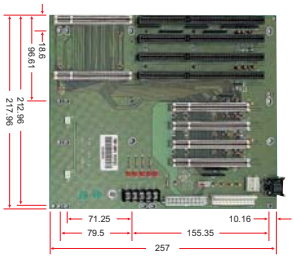
- Fit for 14-slot chassis
- Special design for full-length PCI cards
- ATX power connector support



PBP-13D4

13-slot Dual-system PICMG Backplane

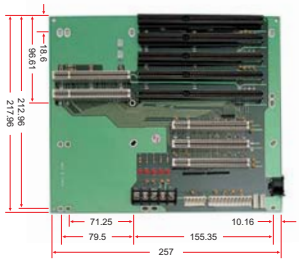
- Fit for 20-slot chassis
- Design for fault-tolerant computing
- ATX power connector support



PBP-08P4

8-slot (4xPCI) PICMG Backplane

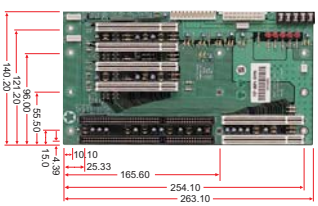
- Fit for node chassis and desktop case
- ATX power connector support



PBP-08P3

8-slot (3xPCI) PICMG Backplane

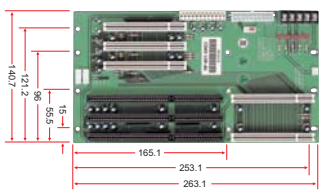
- Fit for node chassis and desktop case



PBP-06P4

6-slot (4xPCI) PICMG Backplane

- Fit for node chassis
- ATX power connector support

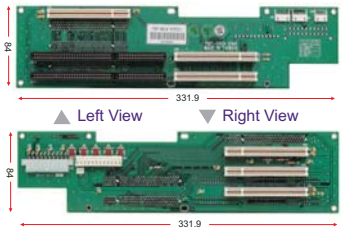


PBP-06P3

6-slot (3xPCI) PICMG Backplane

- Fit for node chassis
- ATX power connector support

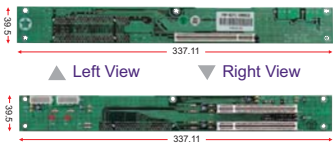
PICMG Backplane



PBP-06V4

Vertical 6-slot (4xPCI) PICMG Backplane

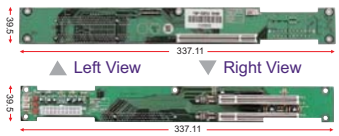
- Fit for 2U chassis
- ATX and AT power connector support



PBP-03P2

Vertical 3-slot (2xPCI) PICMG Backplane

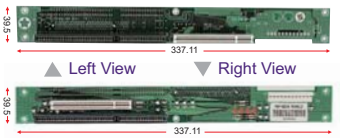
- Fit for Portwell's 1U chassis
- ATX power connector support



PBP-03P2X

Vertical 3-slot (2xPCI) PICMG Backplane

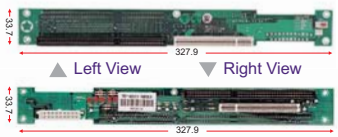
- Fit for Portwell's 1U chassis
- ATX power connector support



PBP-02V1

Vertical 2-slot (1xPCI) PICMG Backplane

- Fit for 1U chassis
- AT power connector support

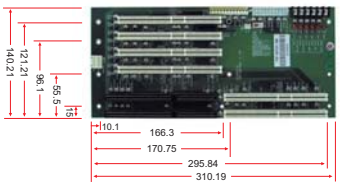


PBP-02V1X

Vertical 2-slot (1xPCI) PICMG Backplane

- Fit for 1U chassis
- ATX power connector support

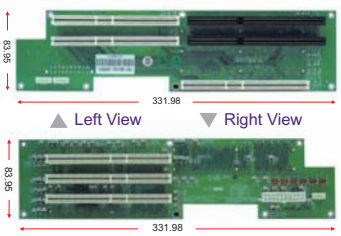
64-bit PCI/16-bit ISA



PBP-06P464

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

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

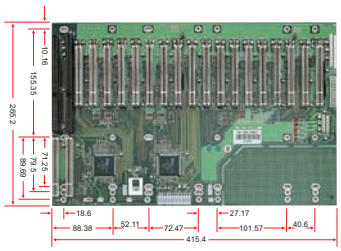


PBP-06V464

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

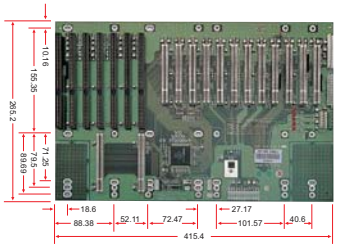
- Fit for 2U chassis
- ATX power connector

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



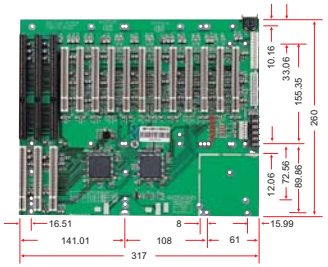
PBP-19AI

19-slot (18xPCI) Active PICMG Backplane



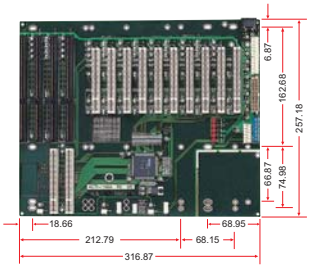
PBP-19AC

19-slot (12xPCI) Active PICMG Backplane



PBP-14AC-B

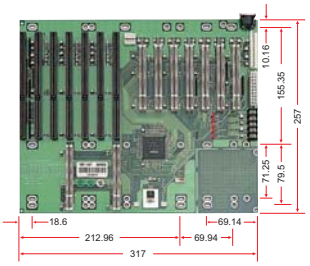
14-slot (12xPCI) Active PICMG Backplane



ACTI-14AA

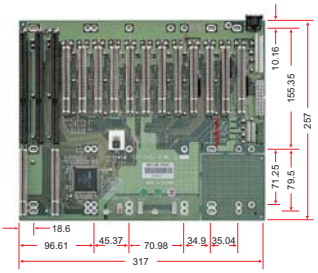
14-slot (10xPCI) Active PICMG Backplane

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



PBP-14A7

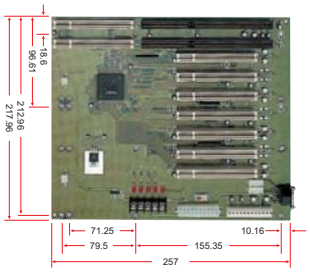
14-slot (7xPCI) Active PICMG Backplane



PBP-14AC

14-slot (12xPCI) Active PICMG Backplane

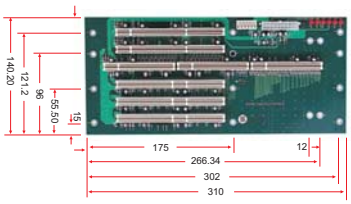
PICMG Backplane



PBP-08A7

8-slot (7xPCI) Active PICMG Backplane

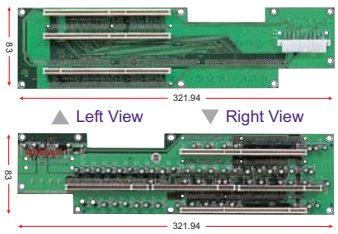
PICMG 1.2 BACKPLANE



PBP-06P564

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

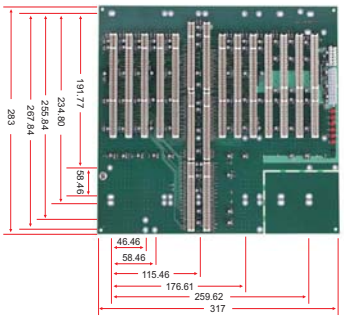
- Fit for 6-slot node chassis
- ATX & aux power connectors support



PBP-06V564

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

- Fit for 2U chassis
- ATX power connector support

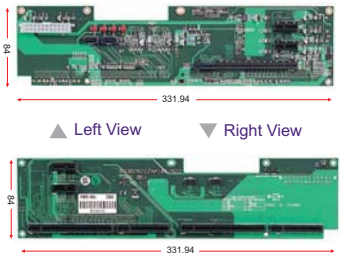


PBP-14PD64

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

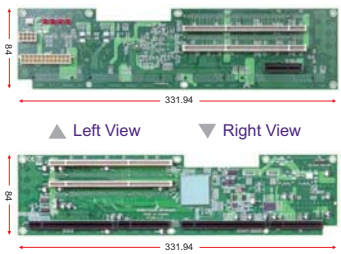
PICMG 1.3 BACKPLANE



PBPE-06V

Vertical 5-slot [PCI-E x1 (4), PCI-E x16 (1)]
PICMG 1.3 Backplane

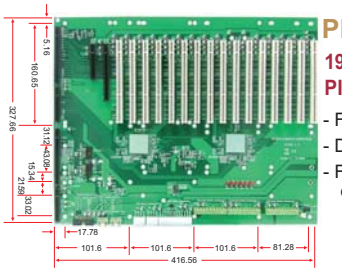
- Fit for 2U chassis
- Four USB ports
- Dual SATA ports
- 24-pin ESP12V power connector



PBPE-06V464

Vertical 5-slot [PCI-E x4 (1), PCI-X (4)]
PICMG 1.3 Backplane

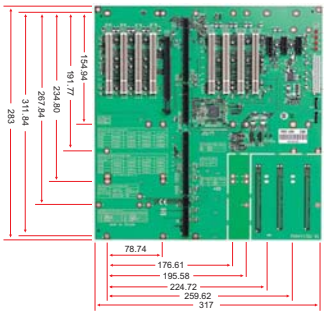
- Fit for 2U chassis
- Dedicated to ROBO-8920VG2
- Dual PCI-X buses support four PCI-X slots



PBPE-19AG64

19-slot [PCI x4 (1), PCI-E x8 (1), PCI-X (16)]
PICMG 1.3 Backplane

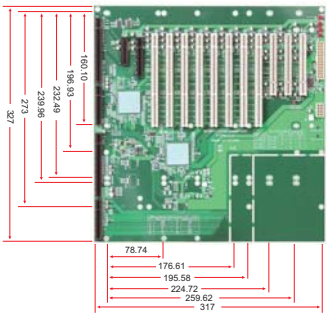
- Fit for 4U up chassis
- Dedicated to ROBO-8920VG2
- Four PCI-X buses support 16 PCI-X expansion slots



PBPE-13A8

13-slot [PCI (8), PCI-E x16 (1), PCI-E x1 (3)]
PICMG 1.3 Backplane

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



PBPE-14AD64

14-slot [PCI x4 (1), PCI-E x8 (1), PCI-X (8), PCI (3)]
PICMG 1.3 Backplane

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

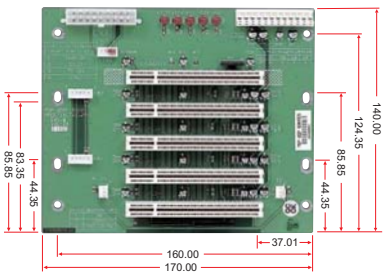
PCI & ISA Backplane

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

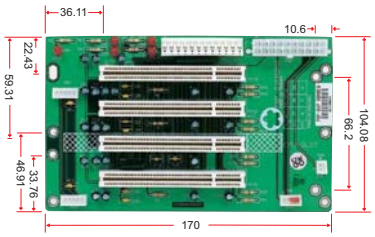
PBP-05P

5-slot Passive PCI Backplane



PBP-04P

4-slot Passive PCI Backplane



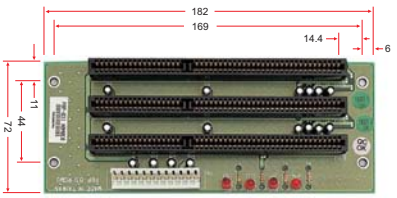
ISA GENERAL DESCRIPTION

- 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

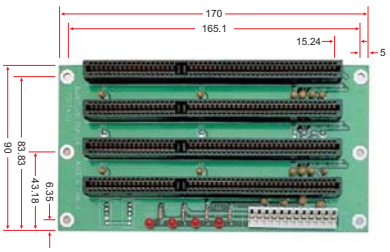
PBP-03I

3-slot Passive ISA Backplane



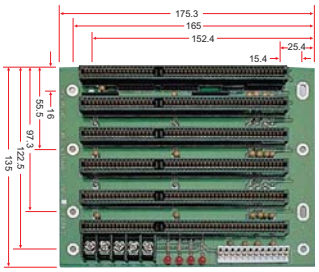
PBP-04I

4-slot Passive ISA Backplane



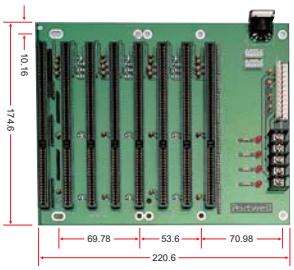
PBP-06I

6-slot Passive ISA Backplane



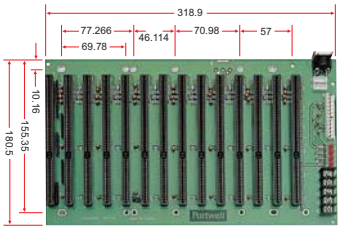
PBP-08I

8-slot Passive ISA Backplane



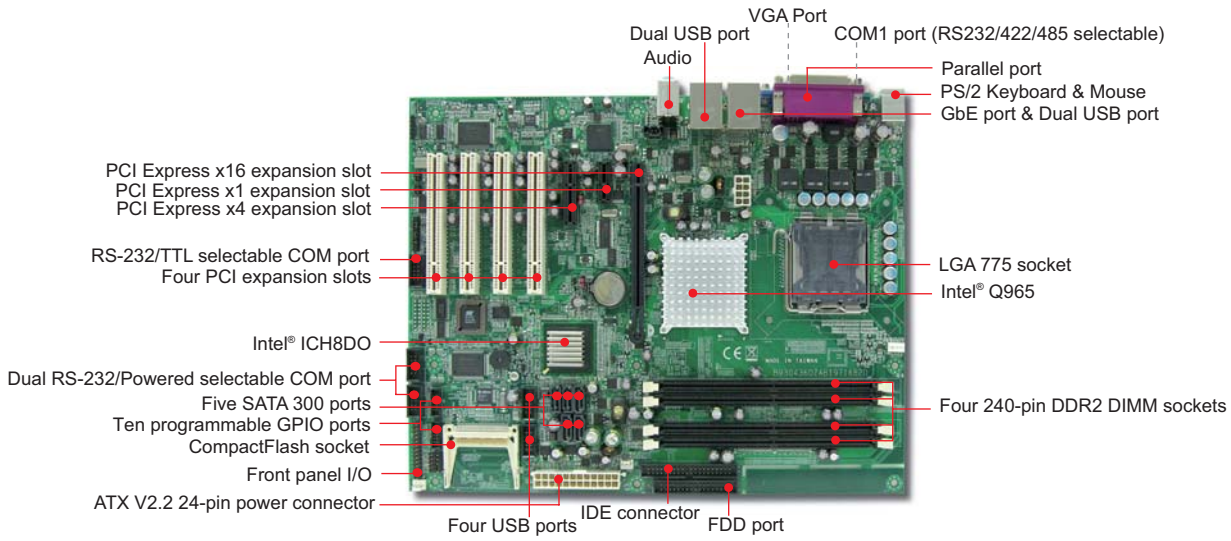
PBP-14I

14-slot Passive ISA Backplane



RUBY-9716VGAR

Intel® Core™ 2 Duo 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 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 that 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 meet to storage interface that all kind of applications; supports Intel® Matrix Storage Technology

ORDERING GUIDE

Standard	**RUBY-9716VGAR** LGA-775 Core™ 2 Duo processor based ATX Industrial Mainboard with DDR2 SDRAM, VGA, 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® 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 254.5 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 : 312.8(L) x 304.8(W) mm; 12"(L) x 9.6" (W) PCB: 4-layer
Environment	Operating Temperature: 0 to 50°C Storage Temperature: -20 to 80°C Relative Humidity: 5% to 90%, non-condensing
MTBF	73,803 hrs

I/O

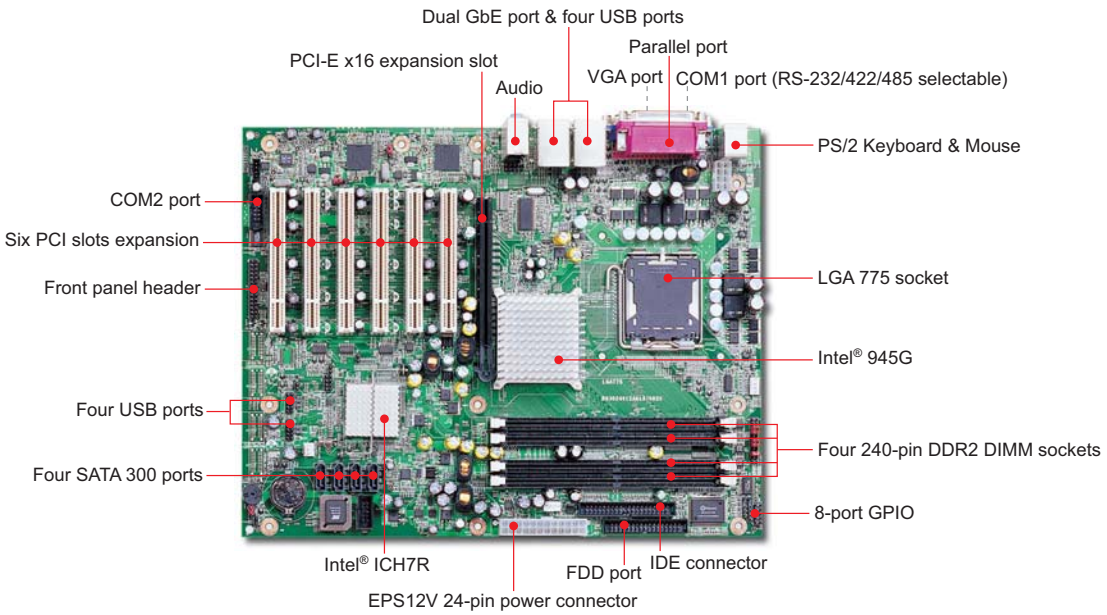
MIO	Four serial (RS232/TTL selectable x1, RS232/Powered selectable x2, RS232/422/485 selectable x1), one at rear I/O panel, one parallel, one FDD channel
IrDA	IrDA 1.0
Ethernet	- Single 10BASE-T/100BASE-TX/1000BASE-T Ethernet - PCI Express x1 interface based Gigabit Ethernet - Single RJ-45 connector 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® Pentium® D, Pentium® 4 or Celeron® D 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, Dual-core 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 controlle providing benefits of Intel Matrix Storage Technology RAID 0, 1, 5, 10

ORDERING GUIDE

Standard	**RUBY-9715VG2AR** LGA-775 Pentium® D, Pentium® 4 or Celeron® D processor based ATX Industrial Mainboard with DDR2 SDRAM, VGA, Dual Gigabit Ethernet, Audio and USB

GENERAL

Processor	CPU & Package: Intel® Pentium® D, Pentium® 4 or 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 254.5 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) PCB: 4-layer
Environment	Operating Temperature: 0 to 50°C Storage Temperature: -20 to 80°C Relative Humidity: 5% to 90%, non-condensing
MTBF	105,889 hrs

I/O

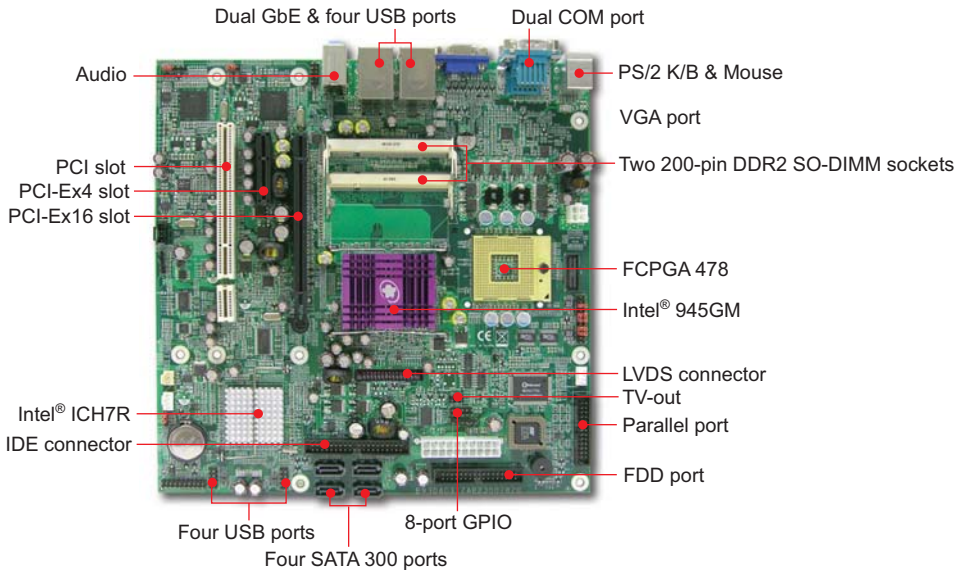
MIO	Two serial (RS232 x1, selectable RS232/422/485 x1) ports, one at rear I/O panel, one parallel, one FDD channel
IrDA	IrDA 1.0
Ethernet	- Dual 10BASE-T/100BASE-TX/1000BASE-T Ethernet - PCI Express x1 interface based Gigabit Ethernet - Dual RJ-45 connectors with two LED indicators at rear I/O panel
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 @ 75Hz refresh

RUBY-9713VG2AR

Intel® Core™ Duo/Core Solo processor based uATX Industrial Mainboard with DDR2 SO-DIMM, VGA, Dual Gigabit Ethernet, Audio and USB



FEATURES

- Industrial mainboard in uATX form factor that supports all Intel® Core™ Duo/Core Solo processor for MoDT (Mobile on Desktop) application
- 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
- Support GPIO, TV-Out and LVDS on board
- Adopts Intel Matrix Storage Technology to support RAID 0/1/5/10
- Dual Gigabit Ethernet ports that based on PCI Express x1 interface without sharing bandwidth of PCI expansion bus
- Optional function: TPM (Trusted Platform Module) 1.2, AMT (Active Management Technology) 1.0

ORDERING GUIDE

Standard	**RUBY-9713VG2AR** Intel® Core™ Duo/Core Solo 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™ Duo / Core Solo processor FSB: 667/533MHz
Chipset/Core Logic	Intel® 945GM 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 254.5 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) PCB: 6-layer
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				
2U	uATX M/B	AREMO-2173MX	AREMO-2173MX-D3501P	--	--	4	--
			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	--	--	--	--
4U	14-slot	AREMO-4205	AREMO-4205-14P4-D3501P	PBP-14P4	9	4	1
			AREMO-4205-14A7-D3501P	PBP-14A7	6	7	1
			AREMO-4205-14AC-D3501P	PBP-14AC	--	12	1
	ATX M/B		AREMO-4205-MX-D3501P	--	--	7	--
			AREMO-4205-MX-D3501P				
4U	20-slot	AREMO-4265	AREMO-4265-19AC-D4601NP	PBP-19AC	6	12	1
			AREMO-4265-19P4-D4601NP	PBP-19P4	14	4	1
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 ORION-D3202P	350W ATX, PFC, P4 320W ATX, PFC, redundant	482(W) x 481(D) x 177(H) mm 19”(W) x 19”(D) x 7”(H)	36-38
	ATX M/B	AREMO-4196-MX	ORION-D3501P	350W ATX, PFC, P4	482(W) x 481(D) x 177(H) mm 19”(W) x 19”(D) x 7”(H)	36-38
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)	39-40
			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)	41-42
			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)	43-44
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)	45-46
			ORION-D3501P	350W ATX, PFC, P4		
	ATX M/B		ORION-D3202P	320W ATX, redundant		
4U	14-slot	AREMO-4205	ORION-D3501P	350W ATX, PFC, P4	482(W) x 526(D) x 177(H) mm 19”(W) x 20.7”(D) x 7”(H)	–
			ORION-D3501P	350W ATX, PFC, P4		
	ATX M/B		ORION-D3202P	320W ATX, redundant		
4U	20-slot	AREMO-4265	ORION-D4601NP	460 ATX, PFC, P4	482(W) x 646(D) x 177(H) mm 19”(W) x 25.4”(D) x 7”(H)	–
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)	47-48
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)	49-50
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)	51-52
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)	53-54
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)	56

AREMO-4196

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

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
- 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 fail

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, PFC power supply
- **AREMO-4196-00-4201P**
  19" 4U rack-mount chassis for PICMG version and 420w ATX, PFC 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
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, 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"

ENVIRONMENT

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

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 bottom 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 thumn lock offers the easy operation. Users can choose to lock it or not.

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

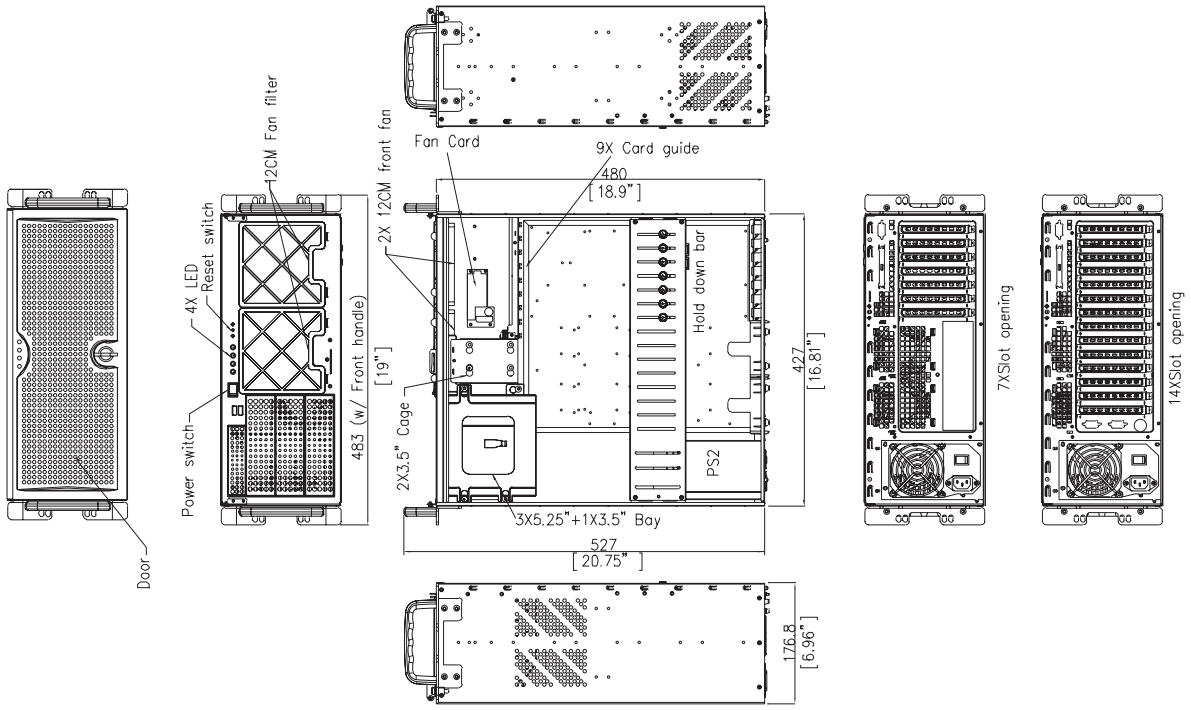
AREMO-4196

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)
- 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 +70°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

Tumb Lock

Convenient to operate or protect the system

Two Swappable SATA HDD Drives

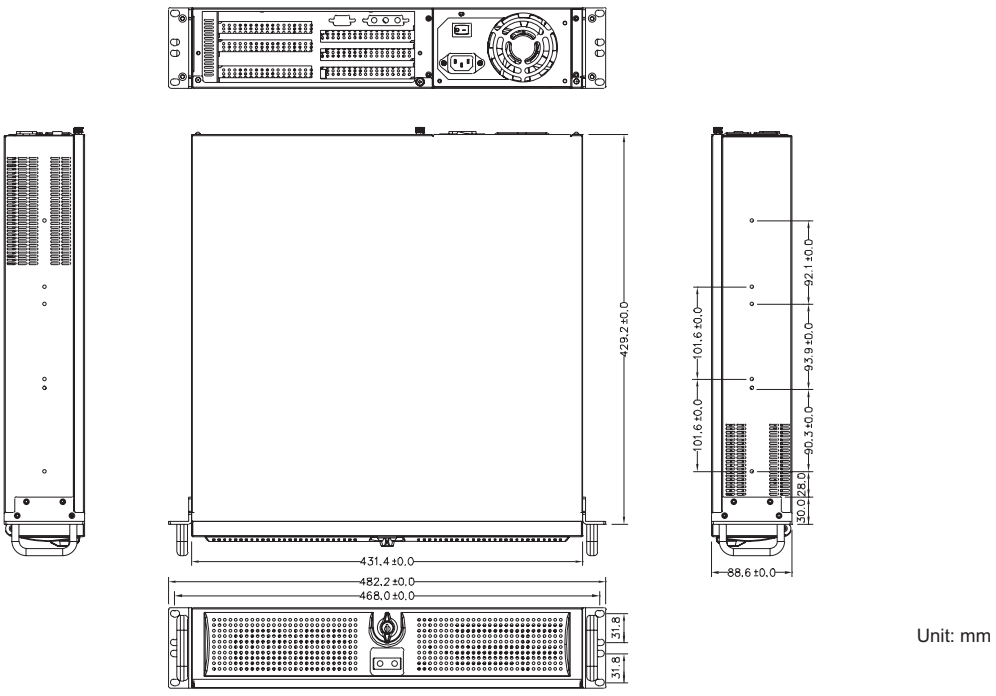
Easy to access HDD drives

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)
- 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, 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)	150x140x86 mm; 5.9”x5.5”x3.4”

ENVIRONMENT

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

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

Tumb Lock

Convenient to operate or protect the system

Two Swappable SATA HDD Drives

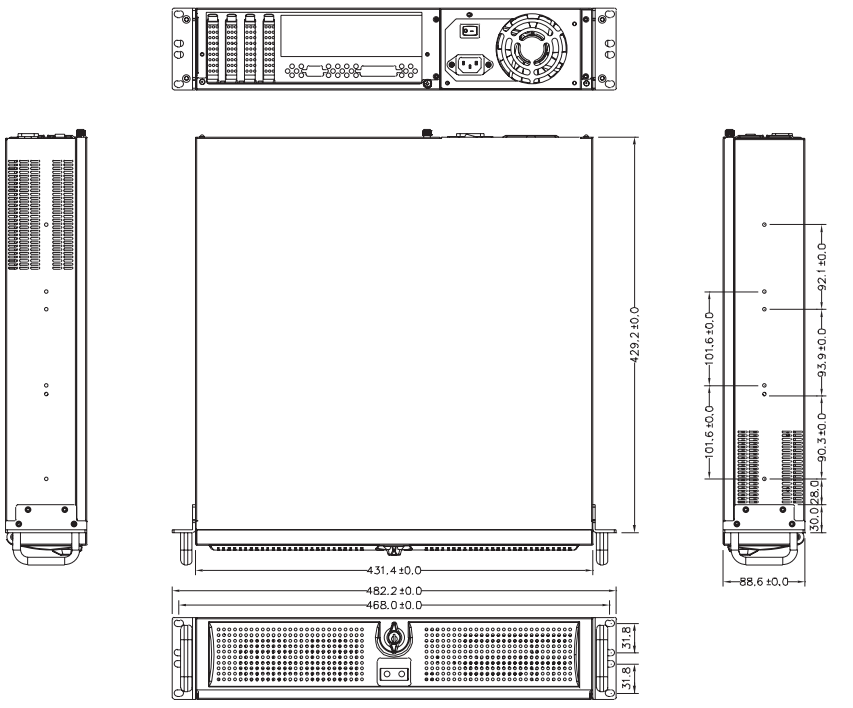
Easy to access HDD drives

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 350W ATX, W/active PFC power supply for ATX M/B
- **AREMO-3194E-MX-D3501P**
  19” 3U rack-mount chassis with 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, Beige, Black
Dimension	482(W) x 495(D) x 132.6(H) mm ; 19”(W) x 19.4”(D) x 5.25”(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 +70°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

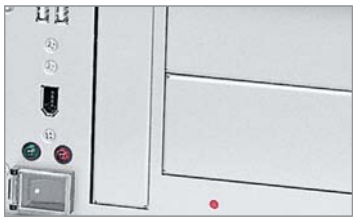
Six PCI and one AGP expansion slots for adding more functions to the system

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



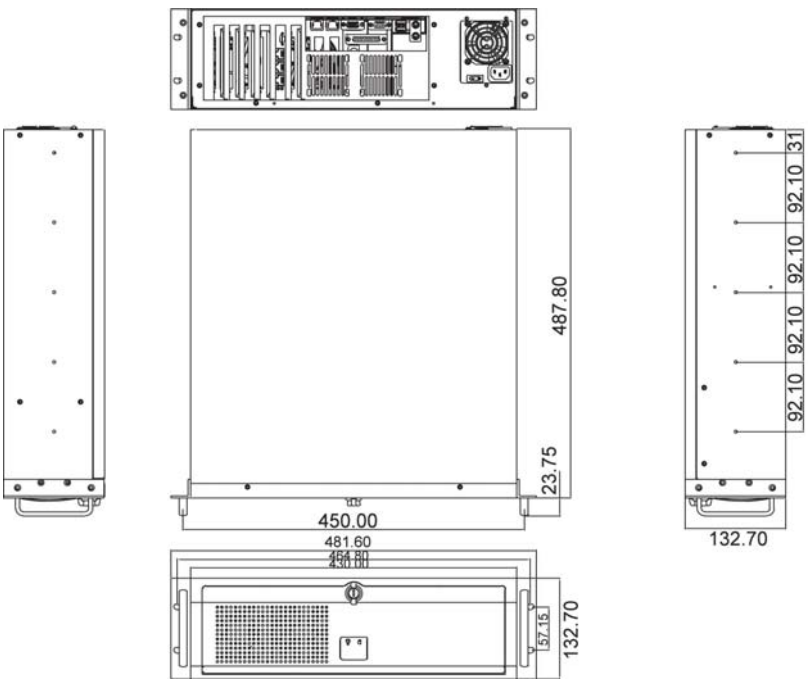
Protection Cap and Touch-Free Reset Switch

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
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, 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”

ENVIRONMENT

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

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 bottom 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

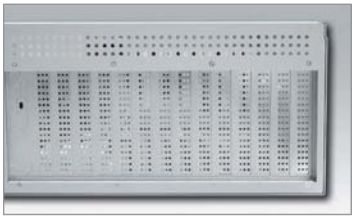
WHAT’S NEW

Three Hot-Swappable HDD Drives

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

One 12cm and one 8cm Cooling Fans

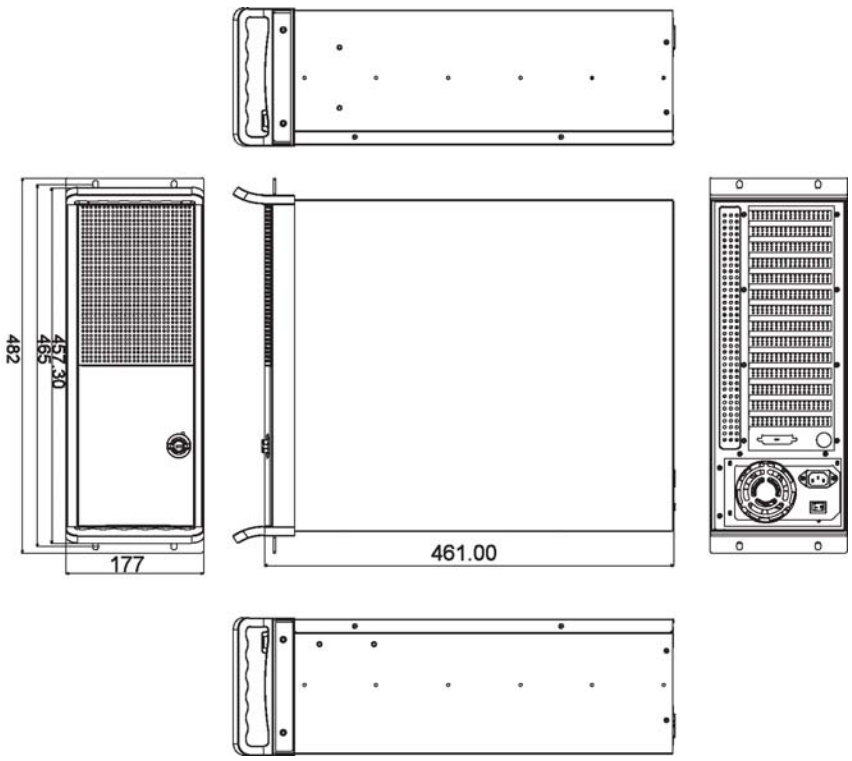
Better ventilation to provide the system with higher reliability



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
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, 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)	150x140x86 mm; 5.9”x5.5”x3.4”

ENVIRONMENT

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

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

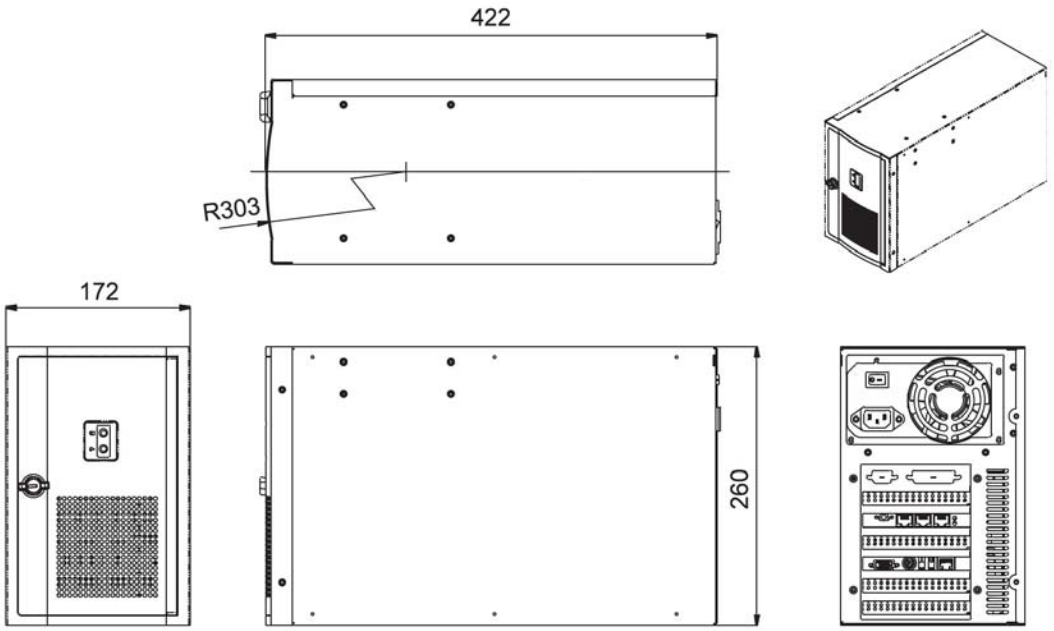
Plastic Fan Filter

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-8164-08P4-00**
  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
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, 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)	150x140x86 mm; 5.9”x5.5”x3.4”

ENVIRONMENT

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

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

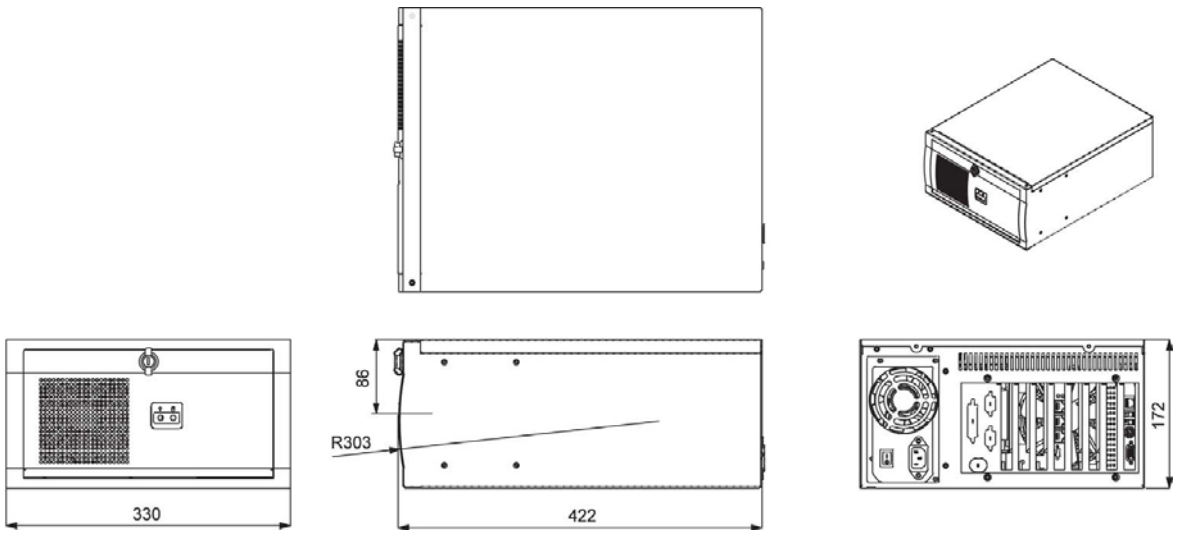
Plastic Fan Filter

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-4184-06P3-35X**
  Two sets of AREMO-6182 with rack-mount kit, 6-slot (3xPCI) PICMG backplane and 350W 1U ATX, active PFC power supply
- **AREMO-6182-06P3-35**
  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 +70°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 midro-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

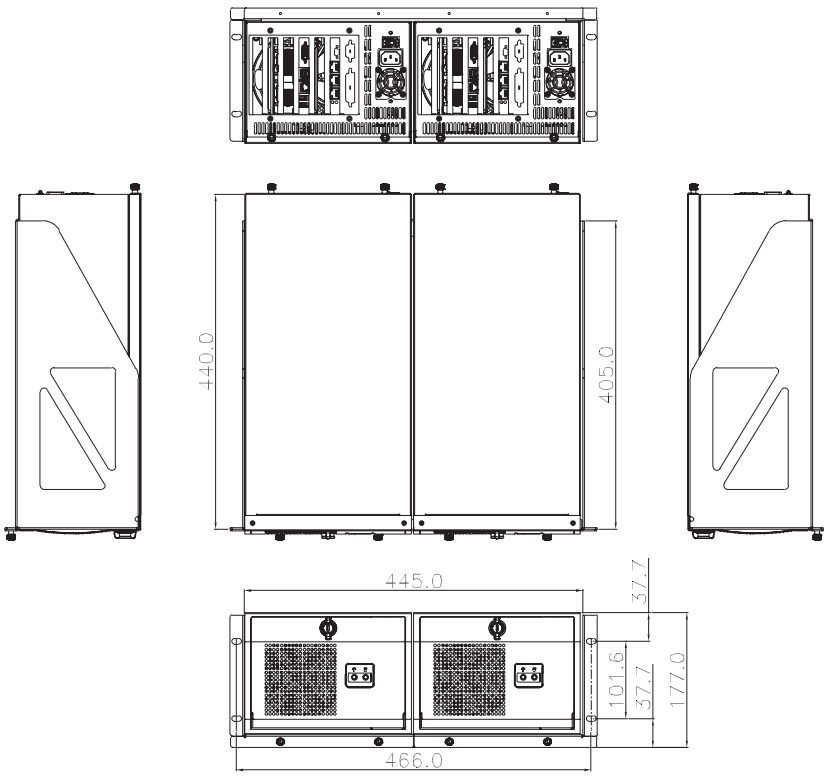
Easy to Mount

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 +70°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

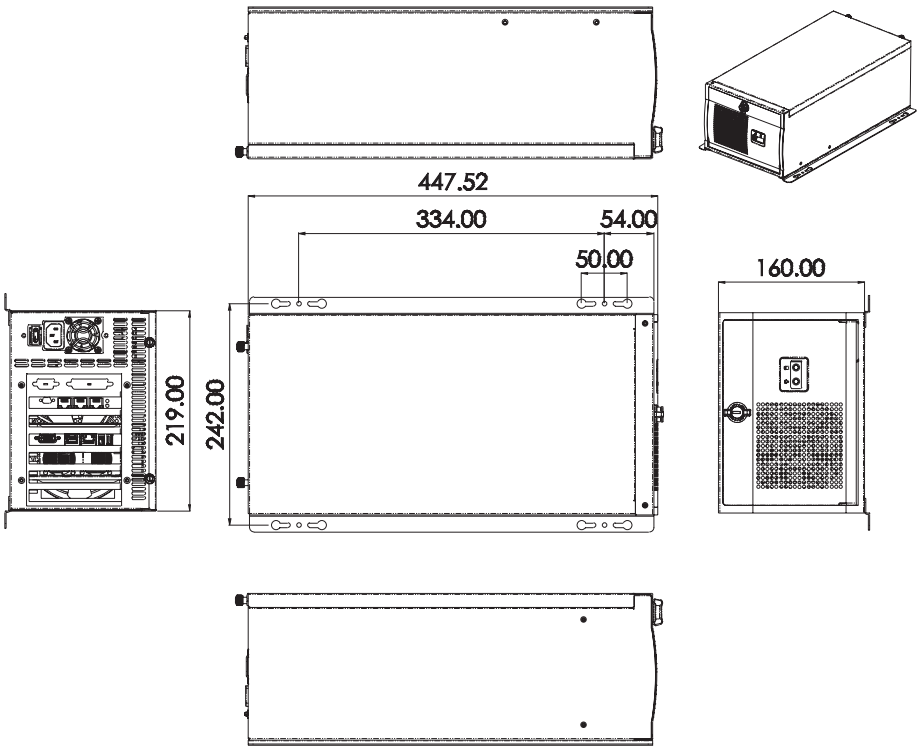
Can be Mounted in Different Styles

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 reliabiliry
- 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 +70°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 maitance 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 +70°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

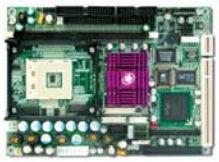
Input Voltage	90V ~ 264V AC, full range
Input Frequency	47 ~ 63 Hz
Input Current	6A@115V, 3A@230V
Efficiency	> 65%
Holdup Time	16 ms. at full load @25°C
Over Voltage Protection	+5V@5.4~6.5A; +3.3V@3.9~4.4V; +12V@13.6~15.6V
Over Power/Load Protection	Output power over to 110%~160%
MTBF	105,405 hrs
EMI & 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 +70°C
Relative Humidity	5% to 95%, non-condensing
Vibration	5~7 Hz: 0.5" double amplitude displacement 7~2000 Hz: 1.5g acceleration

ESB Reference Table

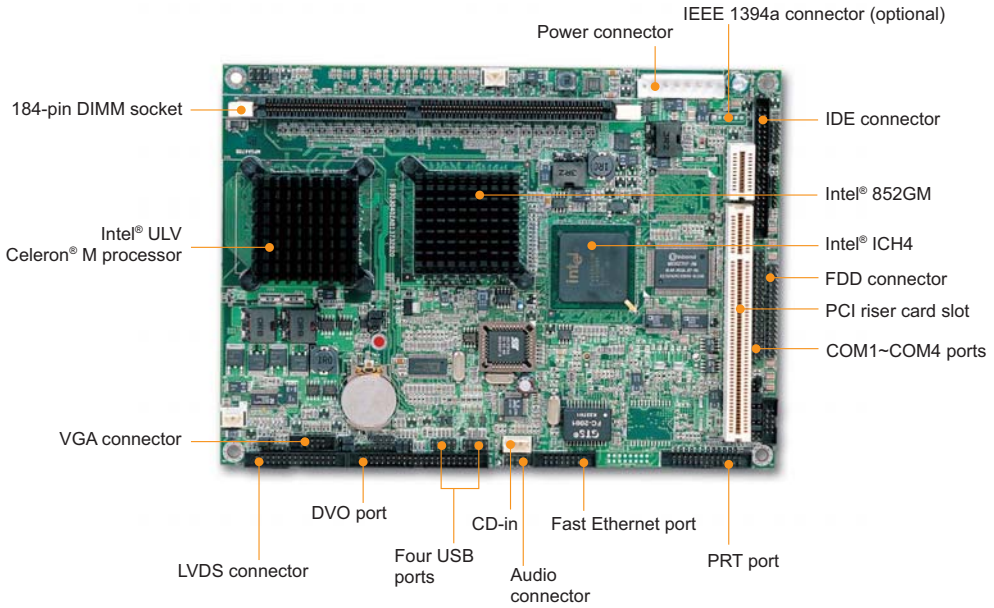


MODEL	PEB-3732VLA	PEB-3730VLA	PEB-3718VG2A	PEB-3715VLA
CPU	Intel® ULV Celeron® M 600MHz processor (on board)	Intel® Pentium® M or Celeron® M processor	Intel® Pentium® M or Celeron® M processor	Intel® Pentium®4 or Celeron® processor
Chipset	Intel® 852GM	Intel® 855GME	Intel® 915GM	Intel® 852GME
Max Memory	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	59	60	61	62

PEB-3732VLA

5.25" ESB based on Intel® ULV Celeron® M 600MHz processor with DDR SDRAM, AGP 4X, VGA/LCD, 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 requirments 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
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
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

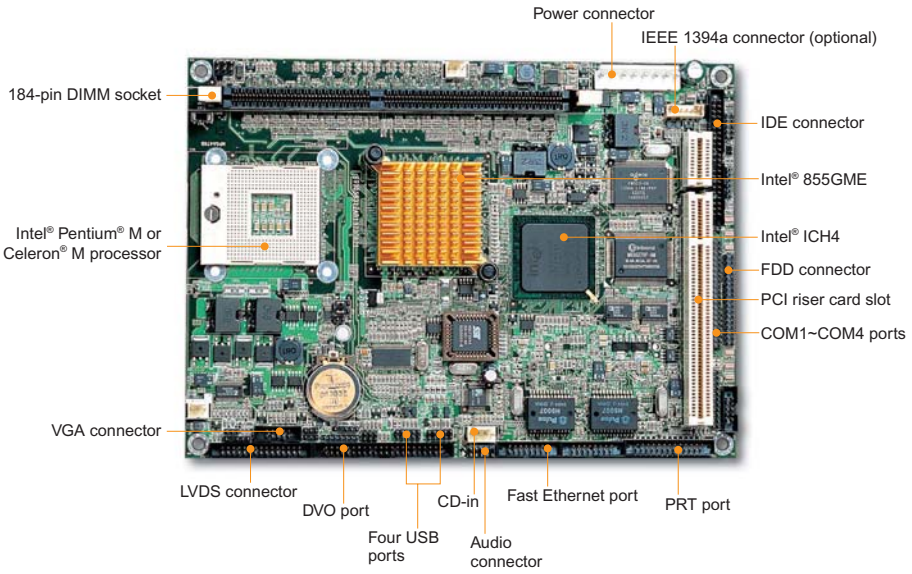
MIO	RS232 x3, RS232/422/485 (selectable) x1, Parallel port x1
IrDA	Yes (shared with one RS232)
Ethernet	10 BASE-T/100 BASE-TX Fast Ethernet (project based support dual Ehternet ports)
Audio	AC'97 2.3
USB	USB 2.0 x 4
Mouse & K/B	1
IEEE 1394a	Optional

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 display 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
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
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

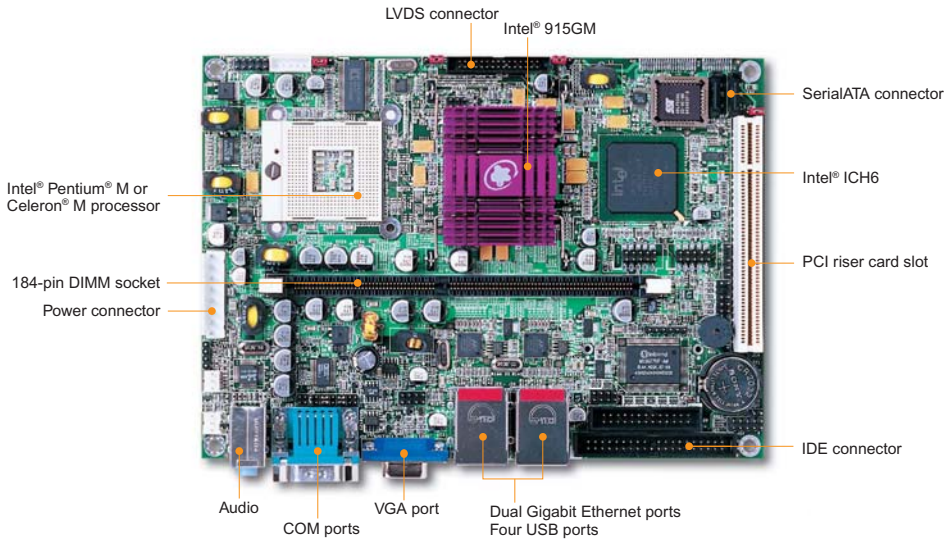
MIO	RS232 x3, RS232/422/485 (selectable) x1, Parallel port x1
IrDA	Yes (shared with one RS232)
Ethernet	10 BASE-T/100 BASE-TX Fast Ethernet (project based support dual Gigabit Ehternet ports)
Audio	AC'97 2.3
USB	USB 2.0 x 4
Mouse & K/B	1
IEEE 1394a	Optional

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 display 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 requirments 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
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
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

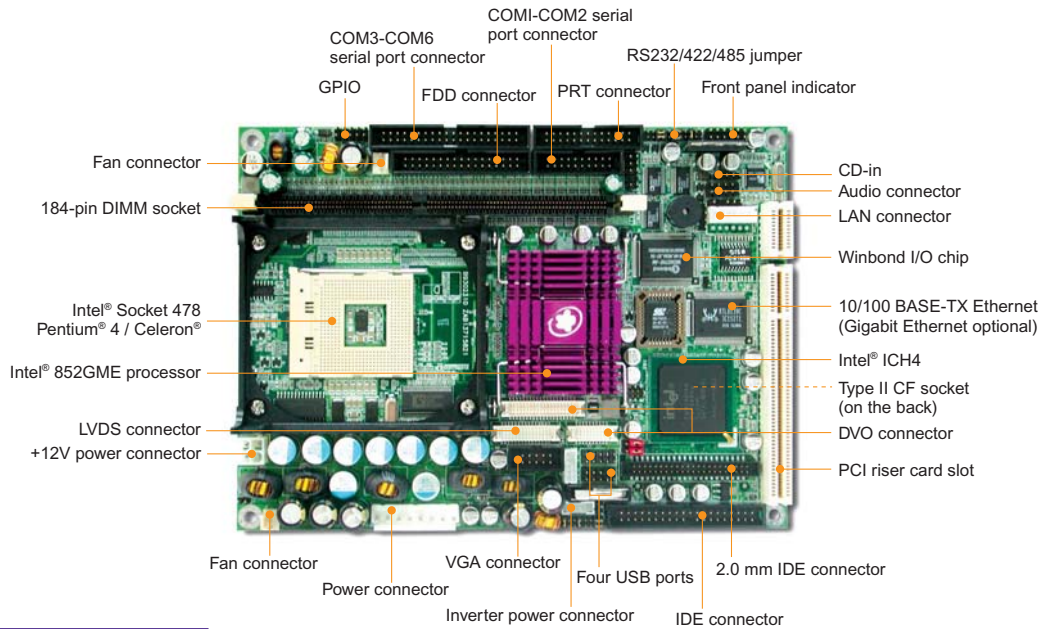
MIO	RS232 x1, RS232/422/485 (selectable) x1, SATA 150 x 2, Parallel port x1
IrDA	Yes
Ethernet	Dual Gigabit Ethernet
Audio	AC‘97 2.3
USB	USB 2.0 x 4, two pin header for USB 2.0 ports
Mouse & K/B	1

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 2.2
USB	USB 2.0 x 4
Mouse & K/B	1

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 SB@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-220-3732Z (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 serial
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

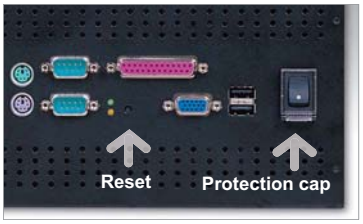
WHAT’S NEW

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-2730VLA/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 cpmpact 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 concumption, 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 deliver your products on time and stay one step ahead of the competition.

With 15 years experience in the design and manufacture of single board computers, Portwell not only provides a one-stop source for the off-the-shelf products, but also supplies 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-8056	Page
	■ Intel® Core™ 2 Duo processors ■ Q965 & ICH8DO ■ Max. 4GB memory ■ Support dual independent displays by VGA/LVDS ■ One Gb-LANs and six USBs	67

Model	WADE-8156	
	■ Intel® Core™ 2 Duo processors ■ G965 & ICH8 ■ Max. 4GB memory ■ Support dual independent displays by VGA/DVI ■ Two Gb-LANs and eight USBs	68

Model	WADE-8144	
	■ Intel® Pentium® M or Celeron® M processors ■ 915GM & ICH6M ■ Max. 2GB memory ■ Support dual independent displays by VGA/LVDS, VGA/DVI, LVDS/DVI ■ Three Gb-LANs and six USBs	69

Model	WADE-8134	
	■ Intel® Pentium® 4 or Celeron® D processors ■ 915GV & ICH6 ■ Max. 2GB memory ■ Support dual independent displays by VGA/DVI ■ Two Gb-LANs and eight USBs	70

Model	WADE-8141	
	■ Ultra Low Voltage Intel® Celeron® M processors ■ 852GM & ICH4 ■ Max. 1GB memory ■ Support dual independent displays by VGA/LVDS ■ Two LANs and six USBs	71

Model	WADE-6010	
	■ VIA C7™ processor ■ VIA CX700 ■ Support dual independent displays by VGA/LVDS, VGA/DVI, LVDS/DVI ■ Max. 2GB memory ■ One LAN and six USBs	72

Model	WADE-9041	Page
	■ Ultra Low Voltage Intel® Celeron® M processors ■ 852GM & ICH4 ■ Max. 1GB memory ■ Support dual independent displays by VGA/LVDS ■ Two LANs and six USBs	73

Model	WADE-2121	
	■ Integrated with WADE-6010 or similar Mini-ITX board ■ Rugged design with stylish ID ■ 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 ■ Dimension (W x L x H): 223 x 212 x 86.2 (mm)	74

Model	WADE-1120	
	■ Integrated with WADE-8141 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 ■ Dimension (W x L x H): 190 x 170 x 50 (mm)	75

Model	ARTO-220-ITX	
	■ One 3.5” HD bay and 250W PSU ■ VGA/LAN/USB/COM/Parallel ports ■ One PCI expansion slot ■ Dimension (W x L x H): 374 x 241 x 74 (mm)	76

Model	WADE-1042	
	■ Two PCI expansion slots ■ Drive bays for RAID configuration ■ VGA/LAN/USB/COM ports ■ Modular rear plate configuration ■ Dimension (W x L x H): 432 x 380 x 44 (mm)	77

WADE-8056

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

FEATURES

- Intel® Core™ 2 Duo 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

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.

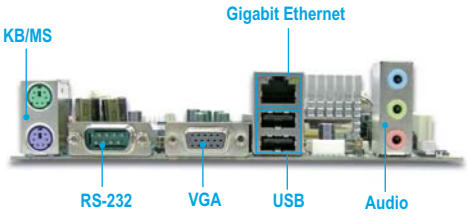
SYSTEM	
CPU	Intel® Core 2 Duo and Pentium® 4 / Celeron® D processor
FSB	FSB 1066/800/533 MHz
BIOS	Award BIOS
System Chipset	Intel® Q965 GMCH & 82801HB ICH8DO
System Memory	2 x 240-pin dual channel DDR2 SDRAM DIMM 533/667/800 MHz supports up to 4 GB
Storage	4 x Serial ATA connector high-speed data transfers 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 temprature, 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 Port : QXGA 2048 x 1536@75HzLCD/Digital Display : Flat panels up to 2048x1536@60 Hz or digital CRT/ HDTV at 1920x1080@85Hz
VGA/LCD Interface	Intel® Graphics Gen4 Media Accelerator GMA 3000, and supports widescreen LCD displays and accelerated DirectX* 9.0c
LVDS	1 x 24-bit

MECHANICAL & ENVIRONMENTAL	
Power Requirment	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-8056**
  Intel® LGA775 Intel® Core™ 2 Duo and Pentium® 4 / Celeron® D processors Main Board with VGA, Audio, Dual GbE LANs, 8 USB 2.0
- **1U Heat Sink**
  Copper made heat sink to expire the system heat with 40 CFM fans
- **PEP-571R/572R**
  One/Two slots riser card

WADE-8156

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

FEATURES

- Intel® Core™ 2 Duo processors
- Intel® G965 GMCH Chipset
- Max. 4GB memory DDR2 SDRAM
- Optional Dual Display by VGA/DVI or VGA/LVDS via ADD2+ Media Card
- On-board 5.1 CH Audio
- Two GbE LAN ports and one PCI Express x16 slot
- Max. two COM and eight USB 2.0 ports

The WADE-8156 includes the latest Intel® G965 GMCH chipset. It is designed to operate with the latest Intel Core 2 Duo microprocessors. Working with Intel®'s latest multi-core technologies, WADE-8156 not only increases computing poser, but also reduces power consumption in applications. The graphic media accelerator x3000 provides both fast video response time and high quality images via the two-channel memory architecture. One PCI-Express x16 expansion slot provides the high bandwidth necessary to expand the system functions.

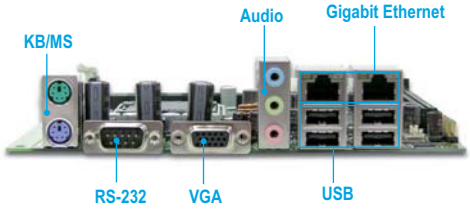
SYSTEM	
CPU	Intel® Core 2 Duo and Pentium® 4 / Celeron® D processor
FSB	FSB 1066/800/533 MHz
BIOS	Award BIOS
System Chipset	Intel® G965 GMCH & 82801HB ICH8
System Memory	2 x 240-pin dual channel DDR2 SDRAM DIMM 533/667/800 MHz supports up to 4 GB
Storage	4 x Serial ATA connector high-speed data transfers 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 Express x16 Interface

I/O	
MIO	2 x RS-232, 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, CD Audio in, Line out, Rear out and Center/ Subwoofer out
Ethernet Interface	IEEE 802.3 10/100/1000BASE-T Gigabit Ethernet compliant

DISPLAY	
Chipset	Intel® G965 GMCH Integrated GMA X3000 Graphics device
Display Memory	Intel® DVMT 4.0 supports up to 384 MB video memory
Resolution	Analog Display Port : QXGA 2048 x 1536@75HzLCD/Digital Display : Flat panels up to 2048x1536@60 Hz or digital CRT/ HDTV at 1920x1080@85Hz
VGA/LCD Interface	Intel® Graphics Gen4 Media Accelerator GMA X3000, and supports widescreen LCD displays and accelerated DirectX* 9.0c
LVDS	Optional by ADD2+ Media Card

MECHANICAL & ENVIRONMENTAL	
Power Requirment	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-8156**
  Intel® Core™ 2 Duo and Pentium® 4 / Celeron® D processors Main Board with VGA, Audio, Dual GbE LANs, 8 USB 2.0
- **1U Heatsink**
  Copper made heat sink to expire the system heat with 40 CFM fans

WADE-8144

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

FEATURES

- Intel® Pentium® M or Celeron® M processors
- Intel® 915GM Chipset
- Max. 2GB, DDR2 SDRAM
- Dual Display by VGA/LVDS, VGA/DVI, LVDS/DVI
- On-board 5.1 CH Audio
- Three GbE-LAN ports and one PCI slot
- Max. two COM ports and one PCI slot

WADE-8144 is a network bandwidth-enriched solution. With a low power consumption Pentium® M 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 necessary for communication or network related applications. WADE-8144 is the preferred choice where high price/performance ratio is a criterion.

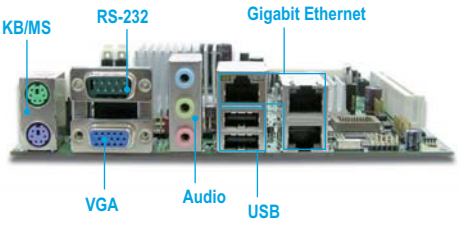
SYSTEM	
CPU	Intel® Pentium® M/ Celeron® M processor
FSB	533/400 MHz
BIOS	Award BIOS
System Chipset	Intel® 915GM + ICH6M
System Memory	2 x 240-pin dual channel DDR2 SDRAM DIMM 400/533 MHz support up to 2GB
Storage	1 x Ultra DMA100/66 support two IDE devices by 40-Pin IDE connector ; 2 x Serial ATA connector high-speed data transfers at up to 150 MB/s
SSD	1x CompactFlash Type I/II Socket
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 32-bit PCI slot

I/O	
MIO	2 x RS-232, 1 x K/B, 1 x Mouse, 3 x GbE
IrDA	IrDA 1.0
USB	2 x USB 2.0 ports and 4 x USB 2.0 with header
Audio Interface	Mic in, Line in, CD Audio in, Line out, Rear out and Center/ Subwoofer out
Ethernet Interface	IEEE 802.3 10/100/1000BASE-T Gigabit Ethernet compliant

DISPLAY	
Chipset	Intel® 915GM Integreated Intel® GMA 900 graphics
Display Memory	Intel® DVMT 3.0 supports up to 128 MB video memory
Resolution	Analog Display Port: QXGA 2048 x 1536 @ 75Hz Digital LVDS Port: UXGA 1600 x 1200
VGA/LCD Interface	Intel® Graphics Media Accelerator GMA 900, and supports widescreen LCD displays and accelerated DirectX* 9.0
LVDS	2 x 18-bit LVDS

MECHANICAL & ENVIRONMENTAL	
Power Requirment	TBA
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-8144**
  Intel® Pentium® M/Celeron® M processors 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
- **B7868860/B7868650**
  20cm/40cm DVI cable
- **B9970540**
  1U active cooler

WADE-8134

High Performanced Intel® Pentium® 4 Processor based Mini-ITX Board with Dual Displays, Eight USB Ports

FEATURES

- Intel® Pentium® 4 or Celeron® D processors
- Intel® 82915GV GMCH chipset
- Max. 2GB, DDR2 SDRAM
- Dual Display by VGA/DVI
- On-board 5.1 CH Audio
- Two GbE-LAN ports and one PCI slot
- Max. two COM and eight USB 2.0 ports

WADE-8134 is a USB-enriched, industrial-grade embedded board. The LGA775 CPU socket enables WADE-8134 to support a greater selection of Intel® Pentium® 4 or Celeron® CPUs. Dual video outputs are also supported by a two-channel memory structure that enhances graphic performance. Capable of operating in a temperature range from 0°C to 55°C, WADE-8134 is a valuable solution for applications functioning in a harsh environment.

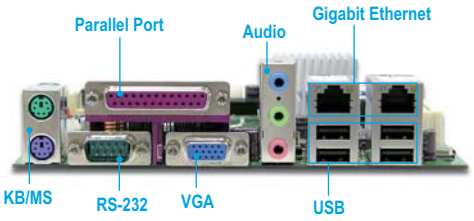
SYSTEM	
CPU	Intel® Pentium® 4 / Celeron® D processor
FSB	800/533 MHz
BIOS	Award BIOS
System Chipset	Intel® 82915GV GMCH & 82801FB ICH6
System Memory	2 x 184-pin DDR DIMM socket support up to 2 GB, 6.5GB/s dual-channel interleaved mode assuming DDR 400 MHz
Storage	1 x Ultra DMA133/100/66/33 support two IDE devices by 40-Pin IDE connector ; 4 x Serial ATA connector high-speed data transfers at up to 150 MB/s
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 32-bit PCI slot

I/O	
MIO	4 x SATA, 1 x EIDE, 1 x LPT, 2 x RS-232, 1 x K/B, 1 x Mouse
IrDA	IrDA 1.0 compliant
USB	4 x USB 2.0 ports and 4 x USB 2.0 with header
Audio Interface	Mic in, Line in, CD Audio in, Line out, Rear out and Center/ Subwoofer out
Ethernet Interface	IEEE 802.3 10/100/1000BASE-T Gigabit Ethernet compliant

DISPLAY	
Chipset	Intel® 82915GV GMCH
Display Memory	Integrated Intel® Graphics Media Accelerator GMA 900, and share system memory to 224 MB
Resolution	CRT mode: 2048 x 1536@85 Hz LCD/Simultaneous mode: 2048 x 1536@16 bpp (85Hz)
VGA/LCD Interface	Intel® Graphics Media Accelerator GMA 900, and supports widescreen LCD displays and accelerated DirectX* 9
LVDS	N/A

MECHANICAL & ENVIRONMENTAL	
Power Requirment	76W (Intel® 3.2GHz CPU with 1GB system memory in DOS V 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-8134**
  Intel® Pentium® 4 / Celeron® D processors Mini-ITX Board with VGA, DVI, Audio, Dual GB LANs, and 8 USB 2.0 ports
- **1U Heat Sink**
  Copper made heat sink to expire the system heat with 40 CFM fans
- **PEP-581R/582R**
  One/Two slots PCI riser card
- **B7868860/B7868650**
  20cm/40cm DVI cable

WADE-8141

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, DDR2 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-8141 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-8141 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.

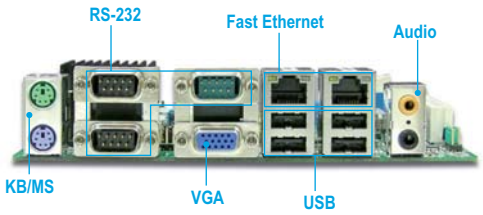
SYSTEM	
CPU	Ultra Low Voltage Intel® Celeron® M 600Mhz(512KB cache) or 1GHz (zero cache) processor
FSB	400 MHz
BIOS	Award BIOS
System Chipset	Intel® 82852GM & 82801DB ICH4
System Memory	1 x 184-pin DDR 333/266 DIMM socket supports up to 1 GB
Storage	2 x Ultra DMA133/100/66/33 support four IDE devices 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 32-bit PCI slot

I/O	
MIO	2 x EIDE, 1 x LPT, 1 x FDD, 4 x RS-232, 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	CRT mode: 2048 x 1536@85 Hz LCD/Simultaneous mode: 1600 x 1200 (85 Hz)
VGA/LCD Interface	Up to 64 MB of dynamic video memory allocation
LVDS	2x 24-bit

MECHANICAL & ENVIRONMENTAL	
Power Requirment	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-8141-600**
  Intel® Celeron® M 600MHz(512KB cache) Based Mini-ITX Board with VGA, LVDS, Audio, Dual LANS and Six USB 2.0 ports
- **WADE-8141**
  Intel® Celeron® M 1G(zero cache) Based Mini-ITX Board with VGA, LVDS, Audio, Dual LANS and Six USB 2.0 ports
- **PEP-571R/572R**
  One/Two slots PCI riser card

WADE-6010

Optimized VIA C7 based Mini-ITX Board with Dual Display, Six USB Ports and Six COM Ports

FEATURES

- VIA C7 1.5GHz processor
- Max. 2GB, DDR2 SDRAM, Error Correction Checking support
- Dual Display by VGA/LVDS, VGA/DVI, LVDS/DVI
- One 10/100 Mbps LAN and one PCI slot
- Max. six COM and six USB 2.0 ports

The WADE-6010 is a standard mini-ITX embedded board optimized with the VIA C7 processor. It provides the necessary computing power and peripheral support to drive a wide range of applications. Its efficient heat dissipation makes WADE-6010 the perfect choice space-constrained chasses. Six USB ports and six COM ports make it a snap to connect peripherals for functional expansion.

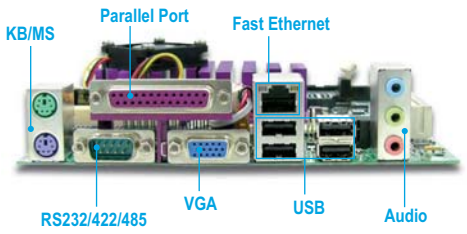
SYSTEM	
CPU	VIA C7 1.5GHz processor
FSB	400 MHz
BIOS	Award BIOS
System Chipset	VIA CX700
System Memory	Up to 2GB DDR2 400 SDRAM on dual 240-pin DIMM socket, support ECC
Storage	Support one EIDE channel with Ultra DMA 100/66/33 and dual SATA 300 drives
SSD	1 x Type II CF socket on EIDE channel
Watchdog Timer	Programmable via software from 30 sec. to 250 sec.
H/W Status Monitor	System monitor (fan, temperature, voltage)
GPIO	On-board programmable 8-bit Digital I/O interface
Expansion	1 x PCI expansion slot supports up to three PCI devices via riser card

I/O	
MIO	5 x RS-232, 1 x Selectable RS232/422/485, 1 x LPT, 1 x FDD, 1 x K/B, 1 x Mouse
IrDA	IrDA 1.0
USB	4 x USB 2.0 ports and 2 x USB 2.0 with header
Audio Interface	Mic in, Audio in, Line out
Ethernet Interface	Single Fast Ethernet port (project based Gigabit Ethernet upgradeable)

DISPLAY	
Chipset	VIA CX700 integrated graphic controller
Display Memory	Share system memory up to 128MB
Resolution	CRT mode: 1920 x 1440 LCD/Simultaneous mode: 1600 x 1200
VGA/LCD Interface	VIA CX700 integrated UniChrome Pro II 3D/2D Graphics & Video processor
LVDS	1x 24-bit

MECHANICAL & ENVIRONMENTAL	
Power Requirment	TBA
Operating Temperature	0~55°C
Operating Humidity	5%~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

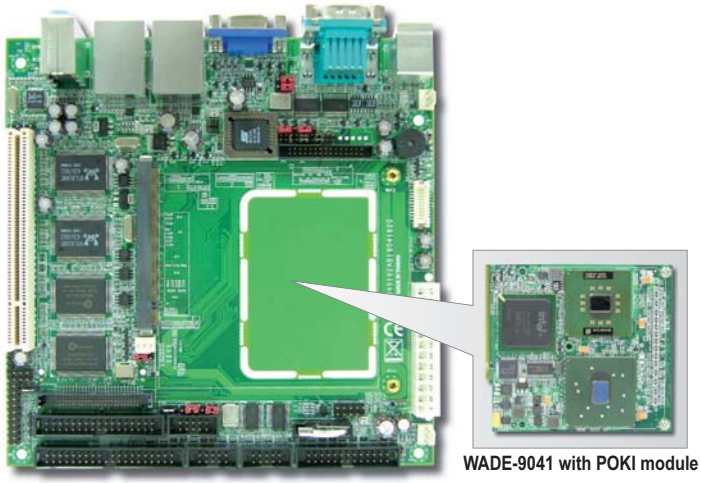


ORDERING GUIDE

- **WADE-6010**
  VIA C7 1.5GHz processor with DDR2 SDRAM, VGA/Panel, Dual display, LAN and Audio
- **PEP-5013R**
  Three slots PCI riser card
- **PEP-5022R**
  Two slots PCI riser card
- **PEP-562L (Cable)**
  Two slots PCI riser card (cable type)
- **B7864461**
  DVI Cable

WADE-9041

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



WADE-9041 with POKI module

FEATURES

- Ultra Low Voltage Intel® Celeron® M processors
- Max. 1GB, DDR2 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-9041 is a Modulized Mini-ITX embedded board for applications that need low power consumption. Built with POKI module, WADE-9041 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.

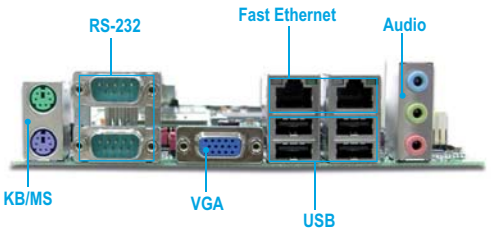
SYSTEM	
CPU	POKI-1730
FSB	400 MHz
BIOS	Award BIOS
System Chipset	Intel® 82852GM & 82801DB ICH4
System Memory	1 x 200-pin DDR 266 SODIMM socket supports up to 1 GB
Storage	1 x Ultra DMA100/66/33 support two IDE devices by one 40-pin IDE connector
SSD	1 x CompactFlash Type I/II socket
Watchdog Timer	Reset/IRQx; 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 32-bit PCI slot

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
USB	4 x USB 2.0 ports and 2 x USB 2.0 with header
Audio Interface	Mic in, Line out, Line in
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	CRT mode: 2048 x 1536@85 Hz LCD/Simultaneous mode: 1600 x 1200 (85 Hz)
VGA/LCD Interface	Up to 64 MB of dynamic video memory allocation
LVDS	1 x 24-bit

MECHANICAL & ENVIRONMENTAL	
Power Requirment	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-9041**
  Mini-ITX Carrier Board for Portwell Computing Module with Dual Fast Ethernet Ports, Six USB Ports and Four Serial Ports

WADE-2121

Rugged and Stylish Industrial Mini-ITX Bare Bones System

FEATURES

- Integrated with WADE-6010 or similar Mini-ITX board
- 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

The WADE-2121 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 barebones 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.

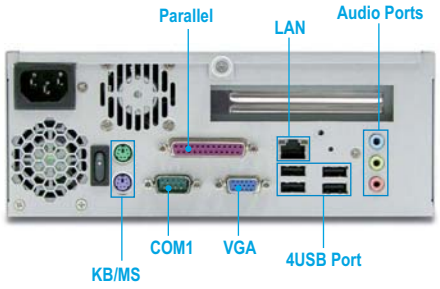
SYSTEM	
ESB	Adopts WADE-6010 Mini-ITX ESB. (Optional for other Mini-ITX based ESB)
CPU	Support various kind of Mini-ITX board, (VIA C7 1.5GHz processor)
System Memory	Up to 2GB DDR2 400 SDRAM on dual 240-pin DIMM socket, support ECC
Display	VIA CX700 integrated graphic controller, share system memory up to 128MB
Audio	Reversed audio interface for system use
Ethernet	Single 10/100/1000 Mbps support
System Indicators	Power and HDD
HDD	2.5" HDD
CD/DVD-ROM	N/A
Expansion	One PCI slot

I/O	
COM Port	1 selection RS-232/422/485
LAN Port	Single fast Ethernet Port (Project based Gigabit Ethernet upgraded)
VGA/LCD	1xDB15
Audio Port	Line-in/Line-out/MIC
USB Port	Dual USB portsx2
IEEE 1394 Port	N/A
Parallel Port	1xDB-25
Mouse & KB	2 x PS/2 mini DIN

DISPLAY	
Power Input	100~240Vac/50~60Hz (full range)
Power Output	180 Watt

MECHANICAL & ENVIRONMENTAL	
Operation Temperature	0~50°C
Storage Temperature	-20~80°C
Relative Humidity	5~95% non-condensing
Dimension	223 x 212 x 86.2 (mm)
Weight	3.5 Kg

REAR I/O



ORDERING GUIDE

- **WADE-2121**
  Advance Mini-ITX based Chassis for Embedded application
- **WADE-2121-6010**
  Advance Mini-ITX based Chassis with WADE-6010 of integrated system
- **WADE-2121-8141**
  Advance Mini-ITX based Chassis with WADE-8141 of integrated system
- **WADE-2121-8156**
  Advance Mini-ITX based Chassis with WADE-8156 of integrated system
- **WADE-2121-8165**
  Advance Mini-ITX based Chassis with WADE-8165 of integrated system
- **WADE-2121-8134**
  Advance Mini-ITX based Chassis with WADE-8134 of integrated system
- **WADE-2121-8144**
  Advance Mini-ITX based Chassis with WADE-8144 of integrated system

WADE-1120

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

FEATURES

- Integrated with WADE-8141 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

The WADE-1120 is designed to efficiently dissipate any internal heat, eliminating the need for a ventilation fan. It is the perfact system solution for any embedded application that operates in a harsh environment. WADE-1120 is designed with either a built-in WADE-8141 board or similar Mini-ITX board as the barebones 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-1120 is ready to go to work.

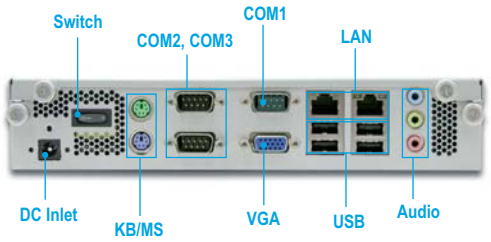
SYSTEM	
ESB	Adopts WADE-8141 Mini-ITX ESB. (Optional for other Mini-ITX based ESB)
CPU	Supports various kind of Mini-ITX board, (Intel® ULV Celeron® M 600MHz with 512KB cache processor)
System Memory	1 x 184-pin DDR 333/266 DIMM socket supports up to 1 GB
Display	Intel® 82852GM (MCH), integrated Intel® Graphics share system memory to 64 MB
Audio	MIC in and Line out
Ethernet	Dual 10/100 Mbps support
System Indicators	Power / Storage / LAN
HDD	N/A
CD/DVD-ROM	N/A
Expansion	N/A

I/O	
COM Port	3 x RS-232
LAN Port	2 x RJ45
VGA/LCD	1 x DB15
Audio Port	Line-in / Line-out / MIC
USB Port	4 x USB ports
IEEE 1394 Port	N/A
Parallel Port	N/A
Mouse & KB	2 x PS/2 mini DIN

DISPLAY	
Power Input	100~240Vac/50~60Hz (full range)
Power Output	90 Watt

MECHANICAL & ENVIRONMENTAL	
Operation Temperature	0~45°C
Storage Temperature	N/A
Relative Humidity	5~95% non-condensing
Dimension	190 x 170 x 50 (mm)
Weight	2~2.5 Kg

REAR I/O



ORDERING GUIDE

- **WADE-1120**
  The Fan-free Designed Compact Node Chassis built with Intel® Celeron® M Mini-ITX based board
- **WADE-1120-8141**
  Advance Mini-ITX based Chassis with WADE-8141 of integrated system
- **WADE-1120-6010**
  Advance Mini-ITX based Chassis with WADE-6010 of integrated system

ARTO-220-ITX

1.5U Compact and Slim Mini-ITX Bare Bones System

FEATURES

- Integrated with WADE-6010 or similar mini-ITX board
- Compact, slim and stylish ID design
- One 3.5" HD bay and 250W PSU
- VGA/LAN/USB/COM/Parallel ports
- One PCI expansion slot
- Dimension (L x W x H): 374 x 241 x 74 (mm)

The compact and slim ARTO-220-ITX is design to fit embedded 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 barebones system includes a WADE-6010 board, 3.5" drive bay, one PCI expansion slot and a 250-watt power supply.

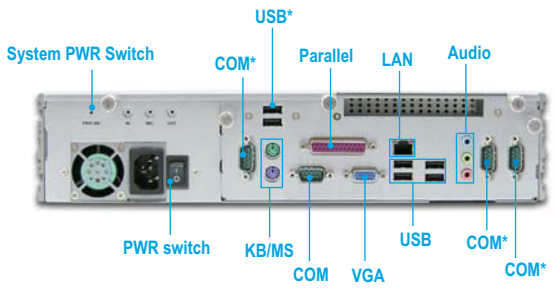
SYSTEM	
ESB	Adopts WADE-6010 Mini-ITX ESB. (Optional for other Mini-ITX based ESB)
CPU	Support various kind of Mini-ITX board
System Memory	Up to 2GB DDR2 400 SDRAM on dual 240-pin DIMM socket, support ECC
Display	VIA CX700 integrated graphic controller, share system memory up to 128MB
Audio	Reversed audio interface for system use
Ethernet	Single 10/100/1000 Mbps support
System Indicators	Power, HDD, LAN
HDD	3.5" HDD
CD/DVD-ROM	N/A
Expansion	One PCI slot

I/O	
COM Port	1 selection RS-232/422/485
LAN Port	Single fast Ethernet Port (Project based Gigabit Ethernet upgraded)
VGA/LCD	1xDB15
Audio Port	Line-in/Line-out/MIC
USB Port	Dual USB portsx2
IEEE 1394 Port	N/A
Parallel Port	1xDB-25
Mouse & KB	2 x PS/2 mini DIN

DISPLAY	
Power Input	100~240Vac/50~60Hz (full range)
Power Output	250 Watt

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

REAR I/O



"*" Represents Optional

ORDERING GUIDE

- **ARTO-220-ITX**
  Advance Mini-ITX based Chassis for Embedded application
- **ARTO-220-ITX-6010**
  Advance Mini-ITX based Chassis with WADE-6010 of integrated system
- **ARTO-220-ITX-8141**
  Advance Mini-ITX based Chassis with WADE-8141 of integrated system
- **ARTO-220-ITX-8156**
  Advance Mini-ITX based Chassis with WADE-8156 of integrated system
- **ARTO-220-ITX-8165**
  Advance Mini-ITX based Chassis with WADE-8165 of integrated system
- **ARTO-220-ITX-8134**
  Advance Mini-ITX based Chassis with WADE-8134 of integrated system
- **ARTO-220-ITX-8144**
  Advance Mini-ITX based Chassis with WADE-8144 of integrated system

WADE-1042

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

FEATURES

- Two PCI expansion slots
- Fore drive bays enable RAID configurable
- VGA/LAN/USB/COM ports
- Great performance/cubic-foot ratio
- Module rear I/O plates for easy and quick integration

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.

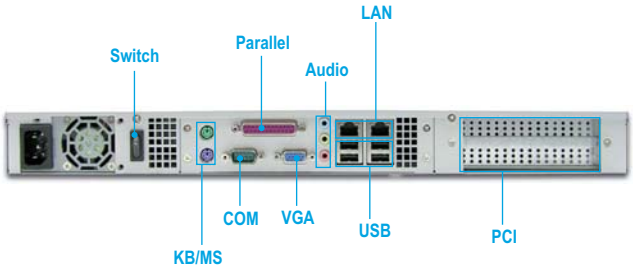
SYSTEM	
ESB	Adopts WADE-8141 Mini-ITX ESB. (Optional for other Mini-ITX based ESB)
CPU	90 nm Intel® LGA775 Pentium® 4 / Celeron® D
System Memory	1 x 184-pin DDR 333/266 DIMM socket supports up to 1 GB
Display	Intel® 82852GM (MCH), integrated Intel® Graphics share system memory to 64 MB
Audio	Reversed audio interface for system use
Ethernet	Dual 10/100/1000 Mbps support
System Indicators	Power LED
HDD	Mounting Kits for 4 sets of 3.5" HDD with SATA interface
CD/DVD-ROM	N/A
Expansion	Two PCI slot

I/O	
COM Port	1 selection RS-232/422/485
LAN Port	Dual fast Ethernet Port
VGA/LCD	1 x DB15 interface
Audio Port	Line-in/Line-out/MIC
USB Port	Four USB ports
IEEE 1394 Port	N/A
Parallel Port	1xDB-25
Mouse & KB	2 x PS/2 mini DIN

DISPLAY	
Power Input	100~240Vac/50~60Hz (full range)
Power Output	250 Watt

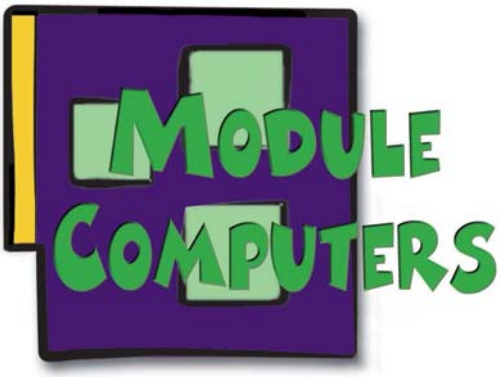
MECHANICAL & ENVIRONMENTAL	
Operation Temperature	0~50°C
Storage Temperature	-20~80°C
Relative Humidity	5~95% non-condensing
Dimension	432 x 380 x 44 (mm)
Weight	8.5 Kg

REAR I/O



ORDERING GUIDE

- **WADE-1042**
  Advance Mini-ITX based Chassis for Rack-Mount
- **WADE-1042-6010**
  Advance Mini-ITX based Chassis with WADE-6010 of integrated system
- **WADE-1042-8141**
  Advance Mini-ITX based Chassis with WADE-8141 of integrated system



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 eXtend) 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 enable 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.

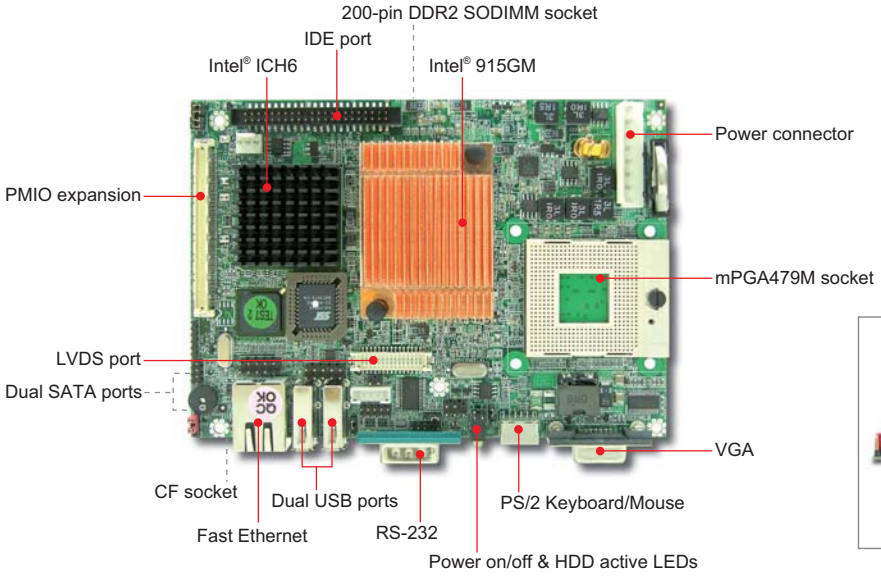
Portwell has built the first module based on Intel 852GM chipset with an Ultra Low Voltage Celeron M processor to feature the lowest power consumption and very affordable price. By separating the module and carrier board design, the development time of a system is much less than a traditional SBC development.

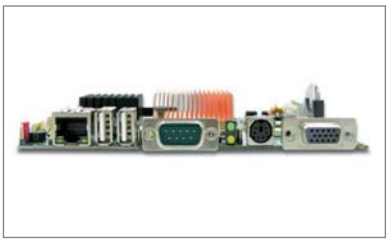
Cost saving, time saving, and design flexibility are key attributes of PCM, the ideal alternative solution to COM Express and ECX.

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

PECX-2710VL

Intel® Pentium® M or Celeron® M processor based Intel® ECX SBC with DDR2 SDRAM, VGA/Panel and Fast Ethernet





Rear I/O

FEATURES

- Intel® defined ECX form factor (4" x 5.7") to fit in wide range of embedded systems
- Intel® 915GM chipset to support scalable high performance uFC-PGA Pentium® M processors up to 2.0Ghz
- Maximum 1GB SODIMM memory
- Supports dual displays via VGA and LVDS interfaces or display interface that transformed from SDVO signal
- One PMIO expansion connector includes PCI, PCI Express x1, I²C, LPC, AC' 97, USB and SDVO signals

ORDERING GUIDE

Standard	**PECX-2710VL** 3.5" ECX base on Intel® Pentium® or Celeron® M processor with DDR2 SDRAM, VGA/Panel and LAN

GENERAL

Processor	CPU & Package: Intel® mPGA479M to support uFC-PGA Pentium® M up to 2.0GHz FSB: 533/400MHz L2 Cache: 256KB to 2MB depends on processor
Chipset/Core Logic	Intel® 915GM and ICH6
System Memory	Up to 1GB DDR2 400/533 SDRAM on one SODIMM socket
BIOS	Award BIOS
SSD	Type II Compact Flash socket (Support 8~320MB)
Storage Devices	IDE: Two IDE devices at UMDA 33/66/100 SATA: Dual SATA Ports
Watchdog Timer	Yes
Expansion Interface	PMIO expansion x1 (including PCI, PCI Express x1, I2C, SDVO, LPC, AC' 97, USB)
Hardware Monitoring	Yes
Power Requirement	ATX compliant power
Dimension	Dimension : 146(W) x 102(L) mm; 5.75"(W) x 4.0" (L)
Environment	Operating Temperature: 0 to 55°C Storage Temperature: -20 to 75°C Relative Humidity: 5% to 95%, non-condensing

I/O

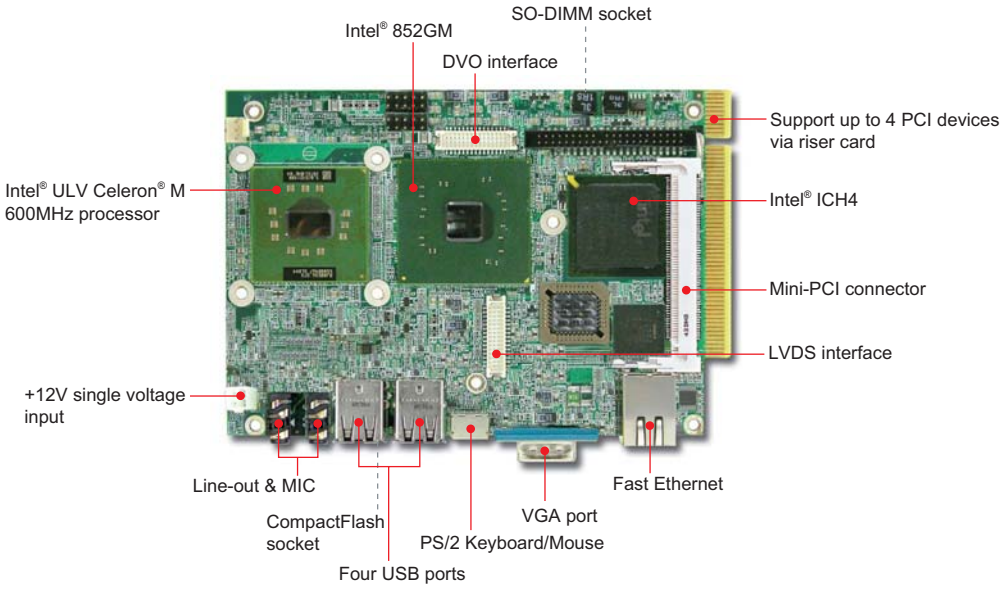
MIO	RS232 x1
IrDA	Yes
Ethernet	One Fast Ethernet
Audio	AC'97 2.3
USB	USB 2.0 x 4 (dual ports via pin header)
Keyboard & Mouse	PS/2 Keyboard/Mouse

DISPLAY

Graphic Controller	Intel® 915GM integrated GMA 900
Graphic Memory	DVMT 3.0 share system memory up to 128MB
Display Interface	- LVDS x1, CRT x1, TV-out - Dual Independent Display support

PEB-2731VLA

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



FEATURES

- 3.5” compact computing engine that equipped 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 which fulfill common graphic needs
- Gold finger along short edge of board allows up to four PCI devices expansion that increase 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 package FSB: 400MHz L2 Cache: 512KB
Chipset/Core Logic	Intel® 852GM and ICH4
System Memory	Up to 1GB DDR 333/266/200 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

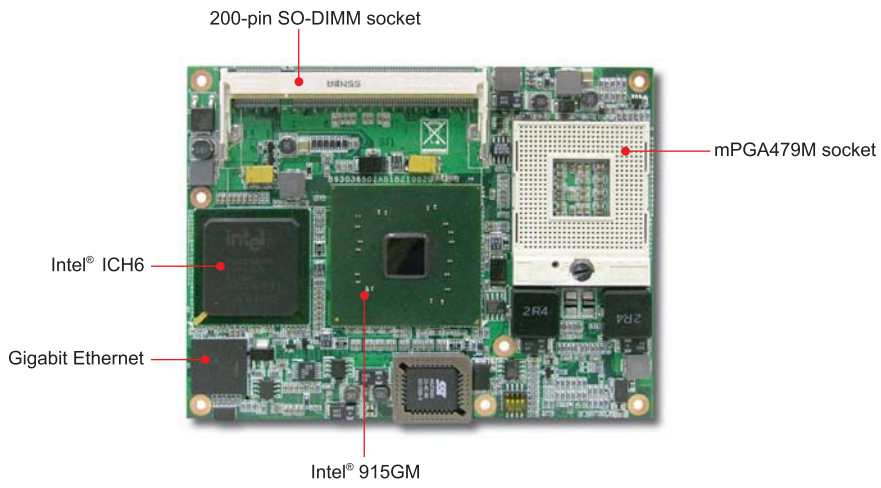
MIO	RS232 x2, Parallel x1, FDD x1
IrDA	Yes (shared with one RS232)
Ethernet	10 BASE-T/100 BASE-TX Fast Ethernet
Audio	AC'97 2.2 Audio
USB	USB 2.0 x 6
Keyboard & Mouse	1

DISPLAY

Graphic Controller	Intel® 852GM mobile optimized graphics controller
Graphic Memory	Dynamical 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 Cooler

Passive Cooler

FEATURES

- Intel® 915GM 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

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 Cooler** Cooler for both PCOM-210/211 with socket type processor

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 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
Power Requirement	TBA
Dimension	Dimension : 95(L) x 114(W) mm; 3.7"(L) x 4.5" (W) PCB: 10-layer
Environment	Operating Temperature: 0 to 60°C Storage Temperature: -20 to 80°C Relative Humidity: 5% to 90%, non-condensing
MTBF	TBA

I/O

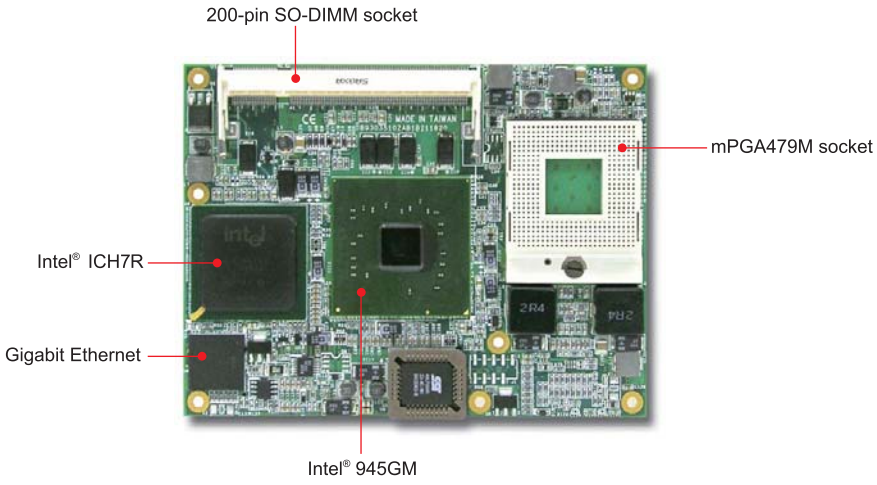
MIO	N/A
IrDA	N/A
Ethernet	One Gigabit Ethernet
Audio	N/A
USB	Eight USB ports
Keyboard & Mouse	N/A

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, LVDS and TV-out 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 Cooler

Passive Cooler

FEATURES

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

ORDERING GUIDE

Standard	**PCOM-B211VG** Intel® Core™ Duo or Solo processor based Type II COM Express module with DDR2 SDRAM, VGA, Gigabit Ethernet and USB
Optional	**Active Cooler** Cooler for both PCOM-210/211 with socket type processor

GENERAL

Processor	CPU & Package: Intel® Core™ Duo or Solo processor in mFCPGA package FSB: 667/533MHz
Chipset/Core Logic	Intel® 945GM and ICH7R
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
Power Requirement	TBA
Dimension	Dimension : 95(L) x 114(W) mm; 3.7"(L) x 4.5" (W) PCB: 10-layer
Environment	Operating Temperature: 0 to 60°C Storage Temperature: -20 to 80°C Relative Humidity: 5% to 90%, non-condensing
MTBF	TBA

I/O

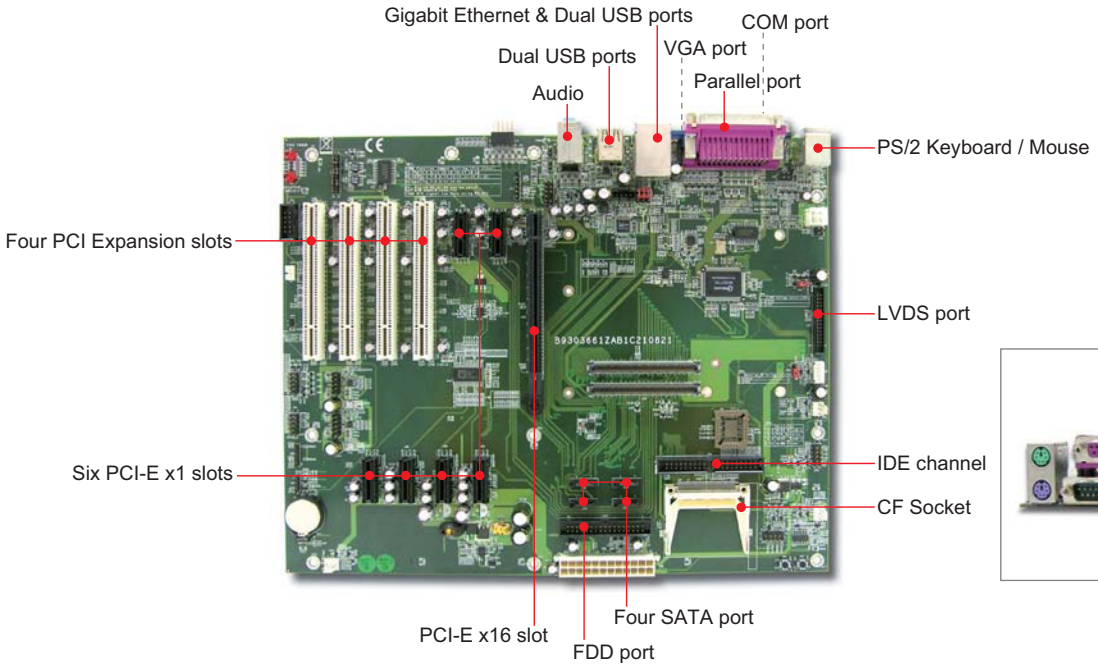
MIO	N/A
IrDA	N/A
Ethernet	One Gigabit Ethernet
Audio	N/A
USB	Eight USB ports
Keyboard & Mouse	N/A

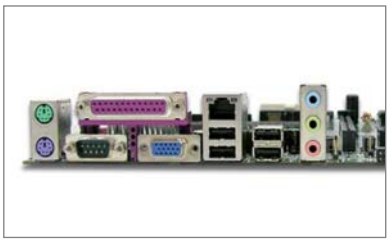
DISPLAY

Graphic Controller	Intel® 945GM 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





Rear I/O

FEATURES

- COM Express carrier board accepts Portwell Type II COM Express modules
- ATX form factor to meet most standard mounting space and provide more expansions slots
- On-board power and reset switches benefits engineering testing or evaluate 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

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) PCB: 10-layer
Environment	Operating Temperature: 0 to 60°C Storage Temperature: -20 to 80°C Relative Humidity: 5% to 90%, non-condensing

I/O

MIO	One serial port, 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	Six USB ports (dual ports at rear I/O panel; four ports internal)
Keyboard & Mouse	PS/2 keyboard & mouse

DISPLAY

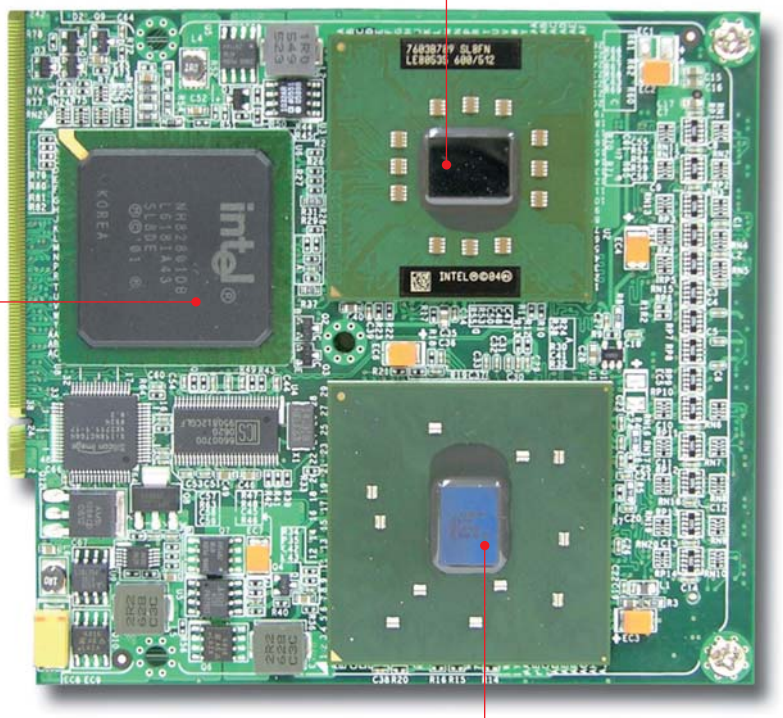
Graphic Controller	Intel® 915GM integrated GMA 900 for PCOM-B210; 945GM integrated GMA 950 for PCOM-B211
Graphic Memory	DVMT 3.0 share system memory up to 128MB
Display Interface	Support VGA, LVDS interfaces with dual display capability

ORDERING GUIDE

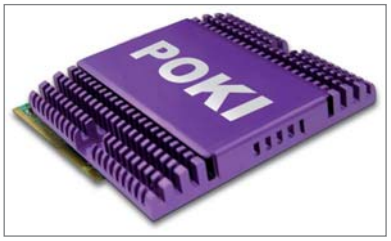
Standard	**PCOM-C210** ATX Form Factor Evaluation Board For COM Express Type II Module

POKI-1730

Intel® ULV Celeron® M based PCM module with DDR SDRAM, Display and USB



* Actual Size



Fan Less

Active Cooler

FEATURES

- Portwell computing module (PCM) to save 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
- VGA, LVDS and DVI-D video 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
Power Requirement	TBA
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: 5% to 90%, non-condensing
MTBF	TBA

ORDERING GUIDE

Standard	**POKI-1730** Intel® ULV Celeron® M processor based PCM module with DDR SDRAM, 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 for display
Display Interface	Support VGA, LVDS and DVI-D interfaces with dual display capability

ARTO-1070

Embedded system with Fan-Less solution

FEATURES

- Comply with Embedded Compact Extended (ECX) form factor Board
- Simplicity of Embedded platform with Fan Less technology
- Low power consumption and none noise/ vibration for special environment
- Built 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 what kind of ECX inside (Up to 1GB DDRII 400/533 one SD-DIMM socket)
Display	On board graphic capability form 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	190 x 170 x 50 mm
Weight	2~2.5 Kg

POWER SUPPLY

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

ENVIRONMENT

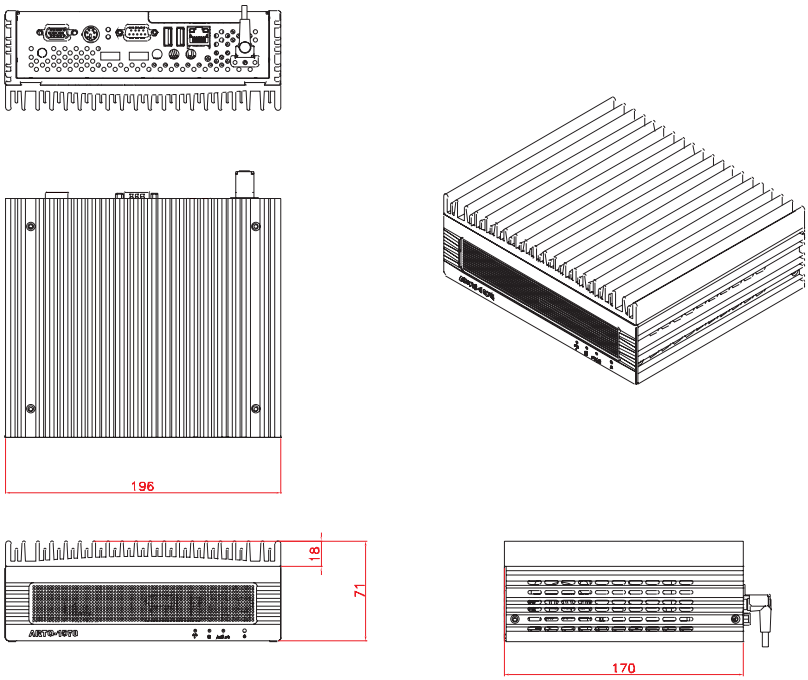
Operating Temperature	0 to 60°C
Storage Temperature	-20°C to 70°C
Relative Humidity	5% to 95%, non-condensing

ORDERING GUIDE

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

ENGINEERING DRAWING

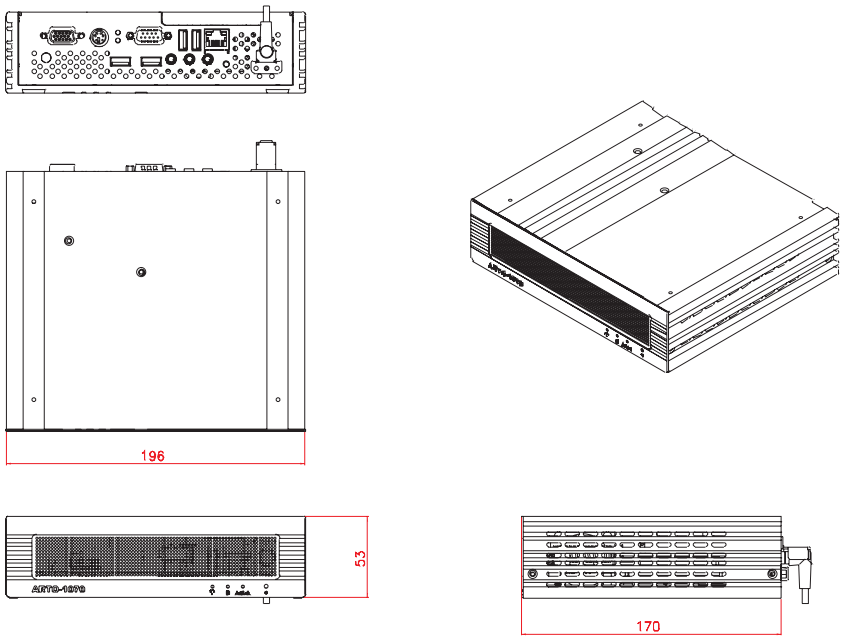
ARTO-1070-A



Unit: mm

ENGINEERING DRAWING

ARTO-1070-B



Unit: mm

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	ORION-A2501	1U	100 x 190 x 40.5 mm 3.93" x 7.48" x 1.60"	250W / PFC / P4	88
Single	ORION-A1501	1U	100x 190 x 40 mm 3.9" x 7.48" x 1.57"	150W / PFC / P4	88
Single	ORION-B3501P	2U	190 x 100 x 70 mm 7.48" x 3.94" x 2.8"	350W / PFC / P4	89
Single	ORION-D3501P	PS/2	150 x 140 x 86 mm 5.9" x 5.5" x 3.4"	350W / PFC / P4	89
Single	ORION-D4601NP	PS/2	150 x 140 x 86 mm 5.9" x 5.5" x 3.4"	460W / PFC / P4	90
Single	ORION-D5601P	PS/2	150 x 140 x 86 mm 5.9" x 5.5" x 3.4"	560W / PFC / P4	90
Redundant	ORION-300DX/24/48	PS/2	150 x 140 x 86 mm 5.9" x 5.5" x 3.4"	330W / DC / ATX	91
Single	ORION-D4201P	PS/2	150 x 140 x 86 mm 5.9" x 5.5" x 3.4"	420W / PFC / P4	91
Redundant	ORION-D3202P	mini-redundant	150 x 183 x 86 mm 5.9" x 7.2" x 3.4"	320W / PFC / P4	92
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	92
Redundant	ORION-D4602P	mini-redundant	153 x 214 x 187 mm 6" x 8.4" x 7.4"	400W / PFC / P4	93
Redundant	ORION-B3502	2U	101 x 300 x 82 mm 4" x 11.8" x 3.2"	350W / PFC / P4	93
Single	MPM-842P	PS/2	150 x 140 x 86 mm 5.9" x 5.5" x 3.4"	400W / Medical / ATX	94
Single	MPI-815H	OPEN FRAME	198 x 93 x 40.5 mm 7.8" x 3.66" x 1.6"	150W / Fanless / ATX	94
Single	MPI-810H	OPEN FRAME	83.8 x 152.4 x 38.1 mm 3.3" x 6" x 1.5"	120W / ATX	95
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	95
Single	MPE-8071	OPEN FRAME	76.2 x 127 x 38.6 mm 3" x 5" x 1.5"	70W / AT	96
Single	MPI-806H	OPEN FRAME	128 x 81 x 40 mm 5.0" x 3.2" x 1.55"	60W / ATX	96
Configuration Matrix					97

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

	+5	+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

	+5	+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

	+5	+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, cUL, TUV, CE, FCC
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

	+5	+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

	+5	+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, cUL, TUV, CE, FCC
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

	+5	+3.3V	+12V	-5V	-12V	+5Vsb
Max. Load	30A	28A	15A	0.3A	0.8A	2A
Min. Load	2A	0.3A	0.5A	0A	0A	0A
Max. Watt.	180W	180W	180W	1.5W	9.6W	10W
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	16.7 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	80,000 hrs
EMI & Safety Approval	UL, cUL, TUV, CE, FCC
Temperature/Humidity	Operating: 0 ~ 40°C, 10 ~ 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

	+5	+3.3V	+12V	-5V	-12V
Max. Load	30A	30A	30A	0.5A	0.3A
Min. Load	0.3A	0.5A	0.2A	0A	0A
Max. Watt.	150W	100W	360W	2.5W	12W
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	+5V: 5.6 ~ 6.5V
Over Voltage Protection	116,858 hrs
Over Power/Load Protection	0 ~ 70°C (-20°C can start up) The maximum output power should be under the cabinet temperature of 30°C
MTBF	116,858 hrs
EMI & Safety Approval	UL, cUL, TUV, CE, FCC
Temperature/Humidity	Operating: 0 ~ 40°C, 10 ~ 90%RH Storage: -40 ~ 70°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

	+5	+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 -48V & 24V DC input DC/DC PS/2 ATX power supply

FEATURES

- Mini-redundant DC to DC power supply suitable for 2U and larger chassis
- Active PFC, full-range input
- -36V DC to 72V DC output for telecommunication applications
- Test equipment for telecommunication applications

SPECIFICATION

Input Voltage	-36~-72V DC
Input Current	11A
Efficiency	> 58%
Holdup Time	16 ms. at full load
Over Voltage Protection	-48V: -52 ~ 60V
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

	+5	+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

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, cUL, TUV, CE, FCC
Temperature/Humidity	Operating: 0 ~ 50°C, 20 ~ 90%RH Storage: -20 ~ 60°C, 5 ~ 95%RH
Dimension (WxDxH)	150 x 190 x 86 mm; 5.9" x 7.5" x 3.4"

ORDERING GUIDE

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

DC OUTPUT

	+5	+3.3V	+12V	-5V	-12V	+5Vsb
Max. Load	45A	30A	18A	0.3A	0.8A	2A
Min. Load	3A	0A	1A	0A	0A	0A
Max. Watt.	370W	370W	370W	1.5W	9.6W	10W
Load Reg.	±5%	±5/-3%	±5%	±5%	±5%	±10%
Cross Reg.	±5%	±5/-3%	±5%	±10%	±5%	±5%
Line Reg.	±1%	±1%	±1%	±1%	±1%	±1%
Ripple	±1%	±1%	±1%	±1%	±1%	±1%
Noise	±1%	±1%	±1%	±2%	±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

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	75,145 hrs
EMI & Safety Approval	UL, cUL, TUV, CE, FCC
Temperature/Humidity	Operating: 0 ~ 40°C, 20 ~ 80%RH Storage: -20 ~ 70°C, 10 ~ 90%RH
Dimension (WxDxH)	101 x 300 x 82 mm; 3.97" x 11.81" x 3.23"

ORDERING GUIDE

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

DC OUTPUT

	+5	+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
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

	+5	+3.3V	+12V	-12V	+5Vsb
Max. Load	21A	22A	22A	1.5A	2A
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 PS/2 ATX power supply with active PFC

FEATURES

- 1U ATX power supply
- Full-range input
- Support Intel® Pentium® 4 processor
- Max. +5V standby output is 14A
- Fanless

SPECIFICATION

Input Voltage	85V ~ 264V AC, full range
Input Frequency	47 ~ 63 Hz
Input Current	6A@115V, 3A@230V
Efficiency	> 71%
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	98,302 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

	+5	+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	18A@10VDC
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, TUV
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 V DC 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 universal 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

	+5	+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-2253		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
PW-330ATXE-12V	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 work 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

UPS SOLUTION GUIDE

Together in Electric Dream!

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