

Gaming World



Ver. 212H



As the God of fire and technology, Hephaestus' creations included famous weapons and armors used by Gods and heroes which were beyond comparison. Similarly, Portwell's Gaming products goes through rigorous design, strenuous validation and also backed up by embedded technology which make them highly reliable and long lasting support beyond your expectation.

Q.U.I.E.T.

Q.U.I.E.T. stands for low profile & non-disclosure, just like Portwell's business philosophy. You will always get our best support, and our growth is built on your growth. We complement our products with valuable services enhancing your time-to-market requirements which include consulting, product, design, manufacturing, and logistics service.

— Why Portwell Gaming? —

- Extreme high quality of design validation and production
- Your trusted partner with stable financial structure
- Industrial product with 7-years+ long life span support
- Dedicated in Gaming field for more than 10 years
- With versatile expertise and professional strategic partner, Portwell can provide one-stop-shopping service



Q.U.I.E.T

Quality

We grant our customers the best quality product with professionally designed and completed in-house lab validation. Our labs include EMI/EMC, Highly Accelerated Life Test (HALT), Ingress Protection (Water/Dust Proof, Salty Spray Test), Temperature/Humidity chambers, and other validations. Thus, Portwell has the right equipment to assure its customer a finely tuned product.



Vibration



HALT



Noise Emission

Ur Trusted Partner

Not only our revenue is consistently growing through time, but also we want our partners to grow with our products and services. With almost 20 years of operation, our financial structure is a stamp of confidence for partners who seek a stable and growing relationship. As a publicly-listed company, customers can rest assured of Portwell's financial status which translates into a service that customers can rely on for mutual growth.

Basic Info

Head Quarter : **Taipei, Taiwan**

Founded : **1993**

OTC Listed : **Since 2001 (Stock No. 6105)**

Capital : **NTD\$ 1.1B (~USD\$36M)**

PWG Revenue 2009 : **USD\$98M**

Revenue 2010 : **USD\$136M**

Employee : **>700 in 11 offices WW**



Industrial Feature

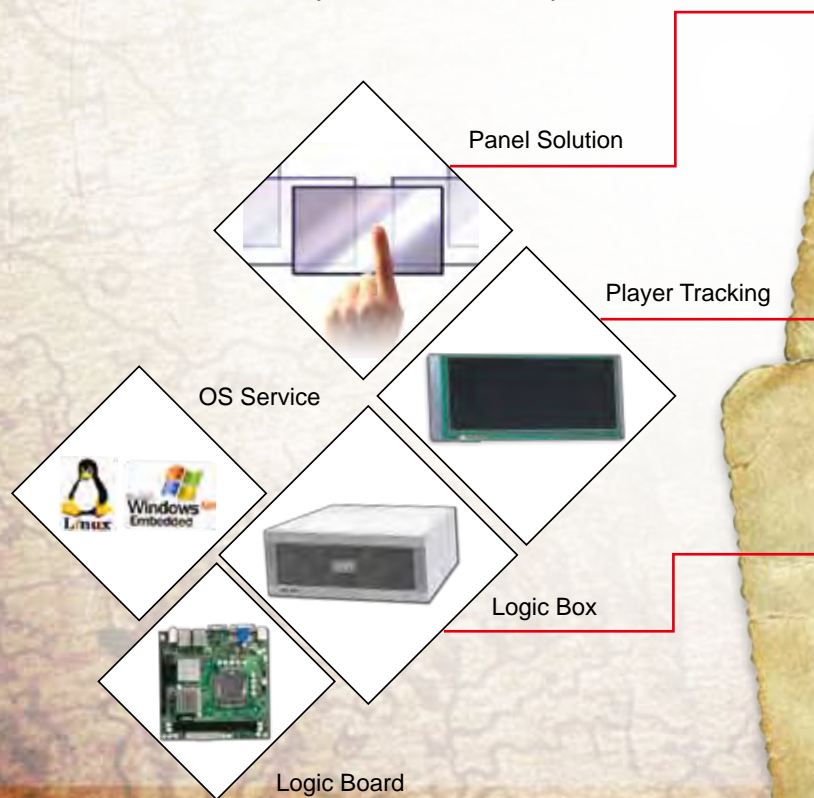
Taking care of your needs is our ultimate goal. Our products are of industrial grade and carry a long-life support of over 7 years which turns into a reliable product accompanied by our extensive experience on component EOL and substitute management.

Experience

We have accumulated experience in the ever-changing environment of the gaming industry for over 10 years. Our deep knowledge includes successful partnerships with worldwide top tier players in slot, roulette, jackpot, lottery, and other gaming applications. Our mutual collaboration will generate deep know-how in the industry and stay ahead of the game.

Total Solution

Having a solid knowledge about the gaming industry, Portwell is the right place where you can find a wide array of solutions and services in order to build your desired end-product.



Industrial Grade Validation

High Flexibility and Customization Service

7+ Years Long Life Span Support



GLI Compliance

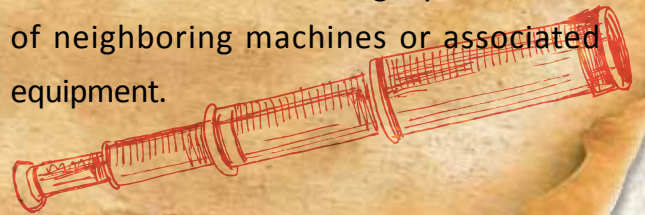
Gaming Labs International (GLI) is a leading gaming testing laboratory and technical consultancy that issues certifications for gaming equipment manufacturers which complies with the latest gaming standards. GLI standards are used as reference for different jurisdictions to set up their own regulations. With in-house laboratory, Portwell can pre-test game integrity to save the time and cost of applying for GLI.



In-house EMI LAB compliance with EN55022

Electro-Magnetic Interference

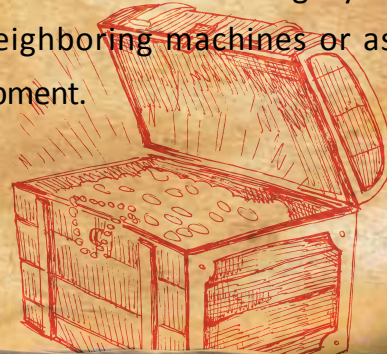
Gaming devices shall not create electronic noise that affect the integrity or fairness of neighboring machines or associated equipment.



In-house Surge/Dips LAB compliance with IEC 61000-4-5/61000-4-11

Electric Surges

Gaming devices shall not create electronic noise that affect the integrity or fairness of neighboring machines or associated equipment.





Electro-Static Interference



In-house ESD LAB compliance with IEC 61000-4-2

Gaming devices may exhibit temporary disruption when subjected to a significant electro-static discharge greater than human body discharge, but they shall exhibit a capacity to recover and complete any interrupted play without loss or corruption of any control or data information associated with the gaming device.



In-house Magnetic Lab compliance with IEC61000-4-8/61000-4-9

Magnetic Interference

Gaming devices shall not be adversely affected by magnetic interference. The manufacturer should supply any documentation if the device has had magnetic interference testing against any recognized standard.

Slot Machine

A slot machine is a casino gambling machine with three or more reels which spin when a button is pushed. Slot machines include a currency detector that validates the coin or bill inserted to play. The machine pays off based on patterns of symbols visible on the front of the machine when it stops. The slots are the most popular gambling method in casinos. Following are the different configurations of logic box and the composition of a slot machine.



COM Express

P.17



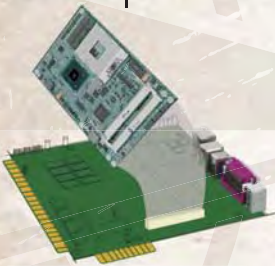
IMB/ Mini-ITX

P.21



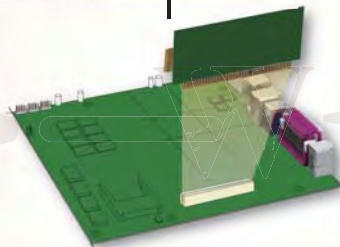
All-in-one Gaming Board

P.13



Baseboard

P.13



**I/O Board
(USB/ PCI/ PCIe)**

P.13



Power Supply

P.37



Chassis

P.14

Composition of Slot Machine

Gaming Display

P.42

- ◆ Capacitive or SAW Touch Panel
- ◆ Water/ Dust Proof
- ◆ High Contrast/ High Luminance

Logic Box

P.14

- ◆ GLI-11 Compliant
- ◆ Jurisdiction BIOS
- ◆ NVRAM
- ◆ Battery Backup
- ◆ Intrusion Detection

Cabinet

P.43

- ◆ Polished Chroming/ Gloss Black
- ◆ 22 inch dual screen
- ◆ Ergonomics design

Player Tracking

P.10

- ◆ SOC or X86 architecture
- ◆ Stretched Touch LCD
- ◆ Card Reader

Payment

P.44

- ◆ Bill Acceptor
- ◆ Coin Acceptor
- ◆ Ticket Printer
- ◆ Hopper



Jackpot

A progressive jackpot is a display showing the highest pay-off for a gaming machine (usually for slot machine) where the value of the jackpot increases a small amount for every game played. The progressive display represents the amount awarded when the top jackpot is hit with a specified amount of money bet. A player who wins the top award receives the amount shown on the display progressing on the machine at the time the jackpot is hit. The top award automatically resets to an established base amount when the trigger combination is hit and the progressive jackpot win is verified. Below are the different types of jackpot.



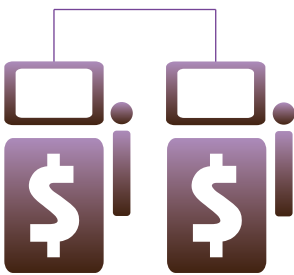
Stand Alone Progressive

The stand alone progressive machine is not linked to any other machines. Instead of having a fixed top jackpot it takes a percentage of the wage and adds that to the award for the highest winning combination.



Wide Area Progressive

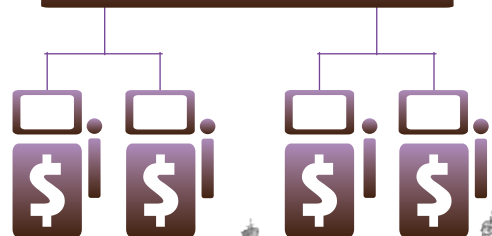
These are the machines that offer the highest pay-off. The machines are linked together from many different casinos. These machines are operated by an independent company rather than a single gaming operator.



Local Area Progressive

These are a group of machines linked together and operated by the casino. They may be just in a single casino or linked together with related establishments if the gaming company owns more than one casino.

\$1,000,000,000



Please refer to page 21 for control boards.

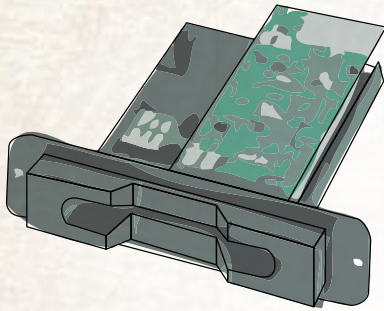


Player Tracking

It is a computer system that runs player tracking software, in order to manage data concerning the wager amount played by casino members. This system has the ability to read, store, process, and display different kind of information useful for casino operator's promotion and enhance player entertainment. The data includes :

- Individual member player tracking features
- Members profile with detailed history log
- Member searches (money won/lost criteria)
- Statistics (winners - losers reports)

Below shows the key components and key features of the player tracking system.



Card Reader

The machine that reads player information through the card and transfers data to back end system to make further analysis.



Stretched LCD

6.2" (640 x 240) touch LCD screen that enables the player to interact by making choices according to displayed information.

Key Features of Player Tracking System

General

| | |
|-----------|--|
| Processor | SoC or X86 |
| Display | 6.2" HVGA touch screen or 4.3" touch screen |
| Audio | Audio w/ Amplifier |
| Power | 12V - 24V DC input or Power Over Ethernet |

I/O

| | |
|----------------|--|
| Digital Input | Optical isolated inputs, 5 - 24 Volts DC |
| Digital Output | Relay driven digital outputs |
| GPIO | 8 bit GPIO |
| UART | Serial Port 232/422/485 |
| USB | • USB 2.0 compatible |
| RJ-45 | Ethernet (10/100 Mbps) |
| LED | Power LED System ON LED Storage activity LED Serial Port activity LED UPS activity (charging/full charge) LED (optional) |

Roulette

Roulette is a game named after a French diminutive for little wheel. In the game, players may choose to place bets on either a single number or a range of numbers, the colors red or black, or whether the number is odd or even. To determine the winning number and color, a croupier spins a wheel in one direction, then spins a ball in the opposite direction around a tilted circular track running around the circumference of the wheel. The ball finally comes to rest in one of the red or black, numbered pockets into which this disk is divided, thus determining the winning bets. Following is the composition of roulette.



Information Display

Capacitive or SAW Touch Panel

Water/ Dust Proof

High Contrast/ High Lumiance

Page

42

Power Supply

ATX Power Supply

DC 5V/12V/24V

DC to DC Converter

Page

37

Logic Board

SAS compliant

Jurisdiction BIOS

NVRAM

Multi-drop

Page

21

Display Board

PCI-Express x16

High definition audio

VGA/DVI/HDMI

Page

32

Payment

Bill Acceptor

Coin Acceptor

Ticket Printer

Page

44

Cabinet

Illumination

12.1/15/17/19 inch screen

Ergonomic design

Proximity sensor

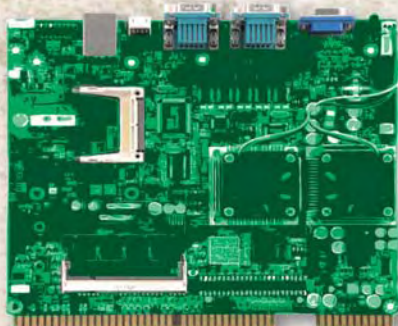
Page

43

Logic Board

Logic board is the board with gaming features, such as NVRAM, JAMMA golden finger, protected input, current sink output, audio amplifier, FPGA, ccTalk, ID003, Multi-drop, etc. Portwell has extensive customization experience and below shows the different types of logic boards.

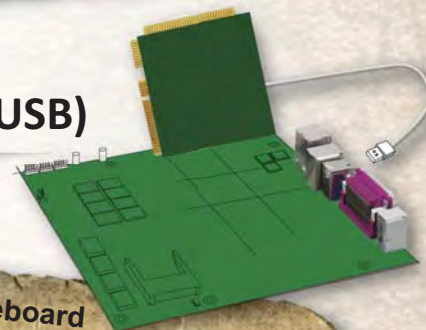
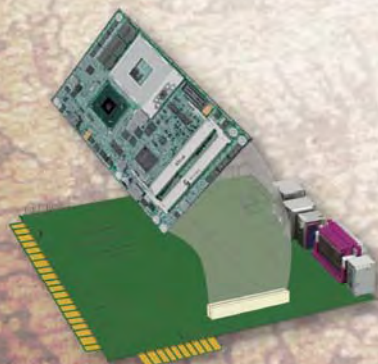
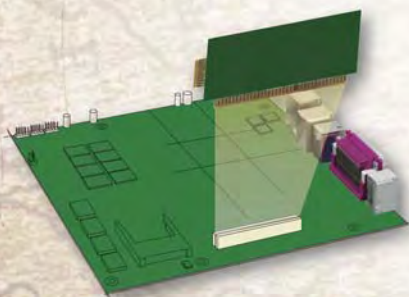
All-in-one Gaming Board



Key Features of All-in-one Gaming Board

| | |
|----------------------|--|
| Protected Input | 24x Photo-coupler Protected Input |
| Sink Current Output | 24x150mA output 2x1A output |
| Intrusion Dection | 7x intrusion detection with re-chargeable battery |
| EEPROM | 1x DIP type EEPROM 32KB |
| Secured RTC NVRAM | 1x Secured RTC 2 to 4 physical banks FRAM or battery backup SRAM |
| I/O Serial Port | 72-pin golden finger + 20-pin golden finger RS-485, ccTalk, RS-232 SAS & Multi-drop compatible |
| Audio | 6W Class A-B Stereo amplifiersAudio |

COM Express Baseboard & IO Board (PCI, PCIe, USB)



Key Features of COM Express Baseboard & IO Board

| | |
|-----------------------|---|
| Button | 16X (Adjustable de-bounce period) |
| Lamp | 16X (500mA sink current) |
| Meter | 8X (500mA sink current) |
| Intrusion Detection | 6X (Adjustable de-bounce period) |
| Secured RTC | 1X |
| Battery Low Detection | 1X |
| SRAM | Up to 4MB (four physical banks) Default 1 x 512K x 8b Battery low detection w/ on-line battery swap |
| Jurisdiction BIOS | SPI NAND Flash |
| RS232 | 4X |
| RS485 | 1X |
| CCTALK | 1X |
| Timer | 16 bit countdown register, sec/ mS/ uS selectable |
| DIP Switch | 16X |
| Audio | 6W Class A-B Stereo amplifiers |

Logic Box

Logic box is the center of control of the gambling machine. It controls gaming parameters, histories, accessory devices(e.g bill acceptor and ticket printer), game display / flow, transferring / receiving signals and lights, monitoring of opening of doors, etc. The game program is stored in the logic box, therefore a boot-up check is performed every time the machine is started up, to ensure the gaming program has not been modified. In the case that the program has been modified, the system is unable to be started. Portwell has rich experience in logic box design and below shows the different types of logic boxes.

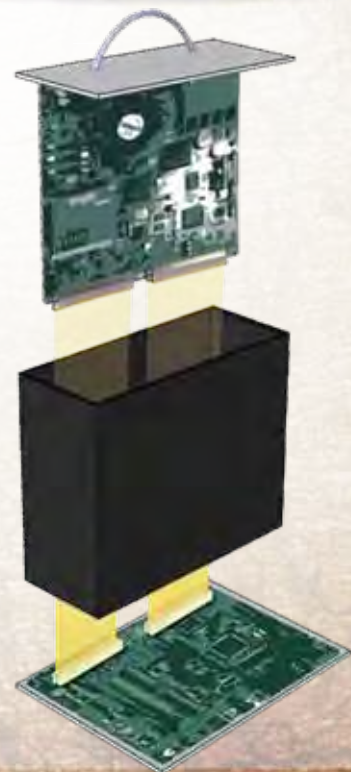
Features

- * 7 Year Product Longevity
- * GLL-11 Compliant
- * Security Lock
- * Power Off Intrusion Detection
- * Fruit pin, Comma 6A or Molex connector applied
- * Easy Maintenance
- * Optional LAN and USB cover

Generic Structured Logic Box



Backplane Structured Logic Box



Key Features of Logic Box

| | |
|-------------------|--|
| Coin Acceptor | ccTalk |
| Hopper | ccTalk |
| Bill Acceptor | ID003 |
| Ticket Printer | 1 |
| Tower Light | 3 (1A sink current) |
| Door Switch | 6 (Adjustable de-bounce period) |
| Meter | 8 (500mA sink current) |
| Button | 16 (Adjustable de-bounce period) |
| Lamp | 16 (500mA sink current) |
| iButton | 1 |
| Jackpot interface | 1 |
| Secured RTC | 1 |
| SRAM | 1 |
| Battery | Up to 4MB (four physical banks) |
| Jurisdiction BIOS | Default 1 x 512K x 8b |
| Audio | Battery low detection SPI ROM 6W Class A-B Stereo amplifiers |

Table of Contents

| | |
|--------------------------------|---------|
| Why Portwell Gaming | 1 - 4 |
| GLI Introduction | 5 - 6 |
| Slot Machine Introduction | 7 - 8 |
| Jackpot Introduction | 9 |
| Player Tracking Introduction | 10 |
| Roulette Introduction | 11 - 12 |
| Logic Board / Box Introduction | 13 - 14 |

COM Express

| | |
|-----------------------------|----|
| COM Express Reference Table | 17 |
| PCOM-B217VG | 18 |
| PCOM-B216VG | 19 |
| PCOM-B213VG | 20 |



PCOM-B217VG p.18



PCOM-B216VG p.19



PCOM-B213VG p.20

Mini ITX

| | |
|----------------------------------|---------|
| Mini ITX Express Reference Table | 21 - 22 |
| WADE-8012 | 23 |
| AMDY-7002 | 24 |
| WADE-8180 | 25 |
| WADE-8170 | 26 |
| WADE-8075 | 27 |
| WADE-8070 | 28 |
| WADE-8067 | 29 |
| AMDY-7001 | 30 |
| AMDY-7000 | 31 |



WADE-8012 p.23



AMDY-7002 p.24



WADE-8180 p.25



WADE-8170 p.26



WADE-8075 p.27



WADE-8070 p.28



WADE-8067 p.29



AMDY-7001 p.30



AMDY-7000 p.31

Table of Contents

Industrial Main Board

| | |
|-----------------|----|
| IMB | 32 |
| Reference Table | |
| RUBY-D712VGAR | 33 |
| RUBY-M710VG2AR | 34 |
| RUBY-9719VG2AR | 35 |
| RUBY-9911 | 36 |



RUBY-D712VG2AR p.33



RUBY-M710VG2AR p.34



RUBY-9719VG2AR p.35



RUBY-9911 p.36

Gaming PSU

| | |
|-----------------|----|
| PSU | 37 |
| Reference Table | |
| ORION-B2001G | 38 |
| ORION-D2401G | 38 |
| ORION-A3001G | 39 |
| ORION-D4001G | 39 |
| ORION-A1501P | 40 |
| ORION-A1801P | 40 |
| GADIWA-P0901 | 41 |
| GADIWA-3161 | 41 |



ORION-B2001G p.38



ORION-D2401G p.38



ORION-A3001G p.39



ORION-A4001G p.39



ORION-A1501P p.40



ORION-A1801P p.40



GADIWA-P0901 p.41



GADIWA-3161 p.41

| | |
|---------------------|---------|
| Display | 42 |
| Cabinet | 43 |
| Payment Peripherals | 44 |
| About Portwell | 45 - 46 |

COM-express Reference Table



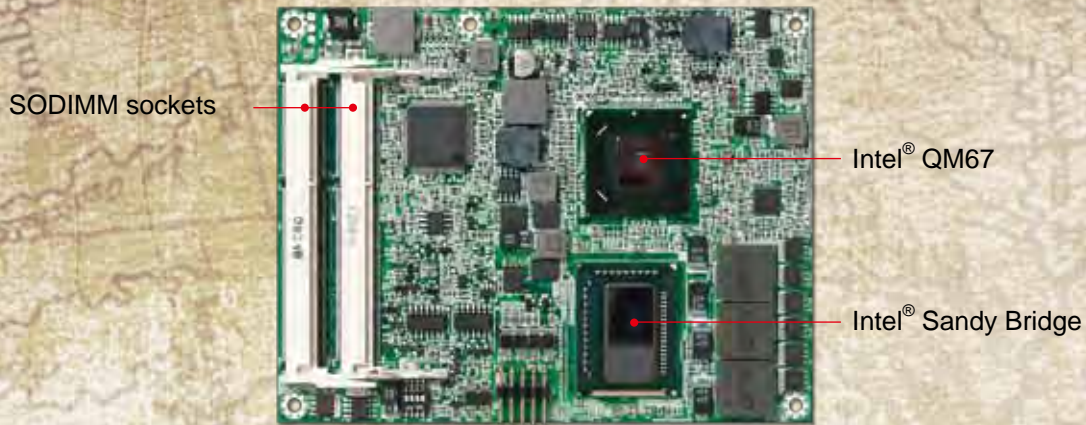
| Model | PCOM-B217VG | PCOM-B216VG | PCOM-B213VG |
|-------------------|--|--|---|
| CPU | Intel® Core™ i7/i5/i3 or Celeron™ M | Intel® Core™ i7/i5/i3 or Celeron™ M | Intel® Core™ 2 Quad/ Core™ 2 Duo or Celeron™ M |
| Chipset | Intel® QM67 PCH | Intel® QM57 PCH | Intel® GM45 & ICH9M-E |
| Memory | Dual channel up to 16GB DDR3 | Dual channel up to 8GB DDR3 | Single channel up to 8GB DDR3 |
| Expansion | 1x PCIe x16 7x PCIe x1 4x PCI LPC Interface | 1x PCIe x16 6x PCIe x1 4x PCI LPC Interface | 1x PCIe x16 4x PCIe x1 4x PCI LPC Interface SPI Interface |
| Display Interface | VGA/LVDS/DP | VGA/LVDS/DP | VGA/LVDS/SDVO/S-video |
| Audio | High Definition Audio 5.1 channels | High Definition Audio 5.1 channels | High Definition Audio 5.1 channels |
| LAN | Gigabit Ethernet x1 | Gigabit Ethernet x1 | Dual Gigabit Ethernet |
| USB | 8x USB 2.0 | 8x USB 2.0 | 8x USB 2.0 |
| Storage Device | 2x SATA 3.0 Gb/s 2x SATA 6.0 Gb/s 1x IDE | 4x SATA 3.0 Gb/s 1x IDE | 4x SATA 3.0 Gb/s 1x IDE |
| Application | Slot | Slot | Slot |

Benchmark Comparison

| | | | |
|------------|---------------------------------|---------------------------------|--------------------------------------|
| Tested GPU | Intel® HD Graphics 3000 | Intel® HD Graphics | Intel® GMA4500MHD |
| Tested CPU | Intel® Core™ i5-2515E 2.5GHz | Intel® Core™ i7-620LE 2.6GHz | Intel® Core™ 2 Duo T9400 2.53 GHz |
| Resolution | 1024*768*32bits | 1024*768*32bits | 1024*768*32bits |
| 3DMark01 | 11893 | 6541 | 6877 |
| 3DMark03 | 6803 | 1941 | 2375 |
| 3DMark06 | 2408 | 970 | 898 |
| Page | 18 | 19 | 20 |

PCOM-B217VG

Intel® Sandy Bridge Mobile based Type VI COM Express with DDR3 SDRAM, VGA, LVDS, Gigabit Ethernet, 6Gbps SATA and USB



General

| | |
|---------------------|--|
| Processor | Intel® Core™ i7/i5/i3 or Celeron™ M processor |
| Chipset | Intel® QM67 PCH |
| Memory | Dual channel up to 16GB DDR3 1333/1066 MHz on two SO-DIMM sockets |
| Storage Devices | - 2x SATA 3.0 Gb/s - 2x SATA 6.0 Gb/s |
| Watchdog Timer | Programmable via S/W from 1sec to 255min |
| Hardware Monitoring | Temperature(CPU & system), Voltage |
| Expansion Interface | - 1x PCI Expressx16 - 6x PCI Expressx1 - 8x USB 2.0 - LPC Interface |
| Audio | High Definition Audio 5.1 channels |
| Ethernet | Gigabit Ethernet x1 |

Features

- 3DMark 06: 2408
- GPU: Intel® HD Graphics 3000
- CPU: Intel® Core™ i5-2515E 2.5GHz
- Resolution: 1024*768*32bits
- 2x SO-DIMM sockets support dual channel DDR3 up to 16GB
- Dual display by VGA/LVDS/DP
- 2x SATA 6.0 Gb/s

Ordering Guide

- AB1-3595 PCOM-B217VG.TYPE II. Basic Form Factor.COM Express Module (PGA type)
- AB1-3738 PCOM-B217VG-ECC-2515E. (Type II with ECC)

Display

| | |
|--------------------|---|
| Graphic Controller | Intel® HD Graphics 2000/3000 integrated GPU support DirectX 10.1 |
| Display Interface | - VGA: up to 2048x1536 (QXGA) - LVDS: up to 1920x1200 (WUXGA) - DP: up to 2560x1600 (WQXGA) |

Mechanical & Environment

| | |
|-------------------|--|
| Dimension | 125mm(L) x 95mm(W), 4.9"(L) x 3.7"(W) |
| Power Requirement | - Typical: 12V, 5VSB, VBAT - Support AT and ATX mode |
| Environment | - Operation Temperature: 0~60 °C - Storage Temperature: -20~80 °C - Relative Humidity: 5~90% |
| MTBF | Over 120,000 hours at 40 Degree Celsius |

PCOM-B216VG

Intel® Arrandale processor based Type II COM Express module with DDR3 SDRAM, VGA, Gigabit Ethernet, 3.0 Gb/s SATA and USB



General

| | |
|---------------------|---|
| Processor | Intel® Core™ i7/i5/i3 or Celeron™ M processor |
| Chipset | Intel® QM57 PCH |
| Memory | Dual channel up to 8GB DDR3 800/1066 MHz on two SO-DIMM sockets |
| Storage Devices | - 4x SATA 3.0 Gb/s - 1x EIDE with Ultra DMA 100/66/33 |
| Watchdog Timer | Programmable via S/W from 1sec to 255min |
| Hardware Monitoring | Temperature(CPU & system), Voltage |
| Expansion Interface | - 1x PCI Expressx16 - 6x PCI Expressx1 - 4x PCI - 8x USB 2.0 - LPC Interface - SPI Interface |
| Audio | High Definition Audio 5.1 channels |
| Ethernet | Gigabit Ethernet x1 |

Display

| | |
|--------------------|--|
| Graphic Controller | Intel® HD Graphics integrated GPU support DirectX 10 |
| Display Interface | - VGA: up to 2048x1536 (QXGA) - LVDS: up to 1920x1200 (WUXGA) - DP: up to 2560x1600 (WQXGA), only supported on PCOM-B216VG-VI-ECC modules |

Mechanical & Environment

| | |
|-------------------|--|
| Dimension | 125mm(L) x 95mm(W), 4.9"(L) x 3.7"(W) |
| Power Requirement | - Typical: 12V, 5VSB, VBAT - Support AT and ATX mode |
| Environment | - Operation Temperature: 0~60 °C - Storage Temperature: -20~80 °C - Relative Humidity: 5~90% |
| MTBF | Over 120,000 hours at 40 Degree Celsius |

Features

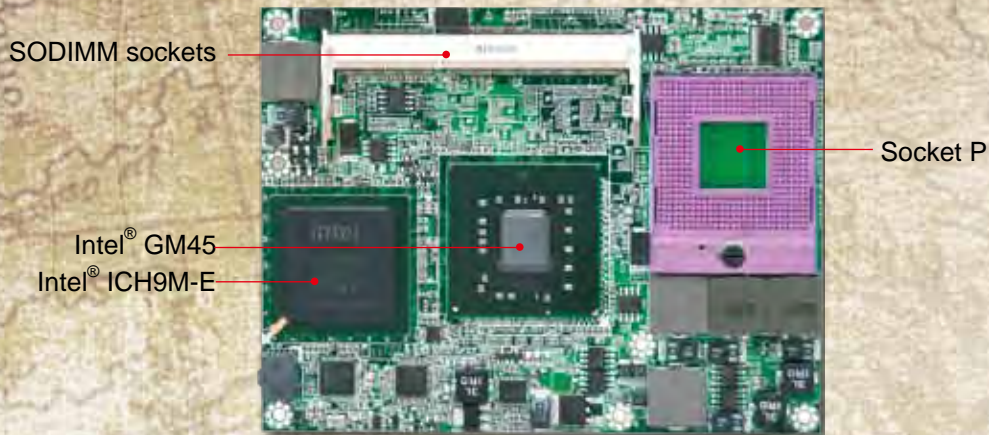
- 3DMark 06: 970
- GPU: Intel® HD Graphics
- CPU: Intel® Core™ i7-620LE 2.0GHz
- Resolution: 1024*768*32bits
- 2x SO-DIMM sockets support dual channel DDR3 up to 8GB
- Intel Calpella platform with turbo boost technology to maximize CPU & Graphic performance
- Dual display by VGA/LVDS/DP

Ordering Guide

- | | |
|----------|--|
| AB1-3511 | PCOM-B216VG (Type II) |
| AB1-3537 | PCOM-B216VG-ECC (Type II with ECC) |
| AB1-3555 | PCOM-B216VG-VI-ECC (Type VI with ECC) Arrandale Core i5-520E (2.4G, 35Watts, w/Turbo boost) |

PCOM-B213VG

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



General

| | |
|---------------------|---|
| Processor | Intel® Core™ 2 Quad/ Core™ 2 Duo or Celeron™ M processor in PGA478 socket |
| Chipset | Intel® GM45 & ICH9M-E |
| Memory | Dual channel up to 8GB DDR3 667/800/1066 MHz on two SO-DIMM sockets |
| Storage Devices | - 4x SATA 3.0 Gb/s - 1x EIDE with Ultra DMA 100/66/33 |
| Watchdog Timer | Programmable via S/W from 1sec to 255min |
| Hardware Monitoring | Temperature(CPU & system), Voltage |
| Expansion Interface | - 1x PCI Expressx16 Gen1 - 4x PCI Expressx1 Gen1 - 4x PCI - 8x USB 2.0 - LPC Interface - SPI Interface |
| Audio | High Definition Audio 5.1 channels |
| Ethernet | Gigabit Ethernet x1 |

Features

- 3DMark 06: 898
- GPU: Intel® GMA4500MHD
- CPU: Intel® Core™ 2 Duo T9400 2.53 GHz
- Resolution: 1024*768*32bits
- 2x SO-DIMM sockets support dual channel DDR3 up to 8GB
- 8x USB 2.0, 4x SATA 3.0 Gb/s
- Dual display by VGA/LVDS and support SDVO/S-video

Ordering Guide

AB1-3264 PCOM-B213VG.TYPE II.GM45/ICH9M

Display

| | |
|--------------------|--|
| Graphic Controller | Intel® GMA4500MHD integrated GPU support DirectX 10 |
| Display Interface | - VGA: up to 2048x1536 (QXGA) - LVDS: up to 1920x1200 (WUXGA) - SDVO: two ports and DVI 1.0 for external digital monitor - S-video: 3x 10 bits DACs to support SDTV 480i/ EDTV 480p/ HDTV 720p& 1080i |

Mechanical & Environment

| | |
|-------------------|--|
| Dimension | 125mm(L) x 95mm(W), 4.9"(L) x 3.7"(W) |
| Power Requirement | - Typical: 12V, 5VSB, VBAT - Support AT and ATX mode |
| Environment | - Operation Temperature: 0~60 °C - Storage Temperature: -20~80 °C - Relative Humidity: 5~90% |
| MTBF | Over 120,000 hours at 40 Degree Celsius |

Mini-ITX Reference Table



| Model | WADE-8012 | AMDY-7002 | WADE-8180 | WADE-8170 |
|-------------------|--------------------------------------|--|------------------------------------|--|
| CPU | Intel® Core™ i5/i7 | AMD® Fusion G-series™ T56N | Intel® Core™ 2 Quad/ Core™ 2 Duo | Intel® Atom™ N270 |
| Chipset | Intel® Q67 PCH | AMD® A55E FCH | Intel® 82Q45 GMCH & ICH10DO | Intel® 82945GSE GMCH & ICH7M |
| Memory | Dual channel up to 8GB DDR3 | Single channel up to 4GB DDR3 | Dual channel up to 4GB DDR3 | Single channel up to 2GB DDR2 |
| Expansion | 1x PCIe x16 slot | 1x PCIe x1 slot 1x PCI slot 1x Half-sized mini-PCIe socket | 1x PCIe x16 slot | 1x PCI slot 1x PCIe x1 slot |
| Display Interface | VGA/HDMI/DVI | VGA/LVDS/DVI | VGA/DVI | VGA/LVDS/DVI |
| Audio | High Definition Audio 5.1 channels | High Definition Audio 7.1 channels | High Definition Audio 5.1 channels | High Definition Audio 5.1 channels |
| LAN | Dual Gigabit Ethernet | Dual Gigabit Ethernet | Dual Gigabit Ethernet | Dual Gigabit Ethernet |
| Serial Port | 1x RS232 1x RS232/422/485 | 4x RS232 4x RS232/422/485 | 2x RS232 | 2x RS232 |
| USB | 8x USB 2.0 | 13x USB 2.0 | 6x USB 2.0 | 8x USB 2.0 |
| Storage Device | 4x SATA 3.0 Gb/s 2x SATA 6.0 Gb/s | 5x SATA 6.0 Gb/s 1x Compact Flash 1x CFAST | 4x SATA 3.0 Gb/s | 2x SATA 3.0 Gb/s 1x IDE 1x Compact Flash |
| GPIO | 16 bit | 8 bit | 8 bit | 8 bit |
| Others | 1x PS/2 Keyboard & Mouse | 1x PS/2 Keyboard & Mouse | 1x PS/2 Keyboard & Mouse | 1x PS/2 Keyboard & Mouse 1x S-video |
| Application | Slot/Jackpot/Roulette | Slot/Jackpot/Roulette | Slot/Jackpot/Roulette | Slot/Roulette |

Benchmark Comparison

| | | | | |
|------------|-----------------------------|-----------------------------------|---------------------------------|--------------------------|
| Tested GPU | Intel® HD Graphics 2000 | AMD® HD6320 | Intel® GMA4500 | Intel® GMA950 |
| Tested CPU | Intel® Core™ i5-2400 3.1GHz | AMD® Fusion G-series™ T56N 1.6GHz | Intel® Core™ 2 Duo E7400 2.8GHz | Intel® ATOM™ N270 1.6GHz |
| Resolution | 1024*768*32bits | 1024*768*32bits | 1024*768*32bits | 1024*768*32bits |
| 3DMark01 | 6232 | 11691 | 8832 | 2812 |
| 3DMark03 | 4155 | 7585 | 2857 | 707 |
| 3DMark06 | 1927 | 2802 | 1266 | 82 |

| | | | | |
|------|----|----|----|----|
| Page | 23 | 24 | 25 | 26 |
|------|----|----|----|----|

Mini-ITX Reference Table



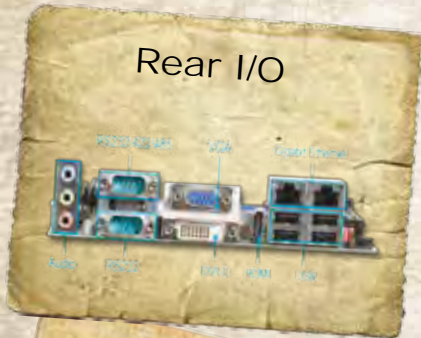
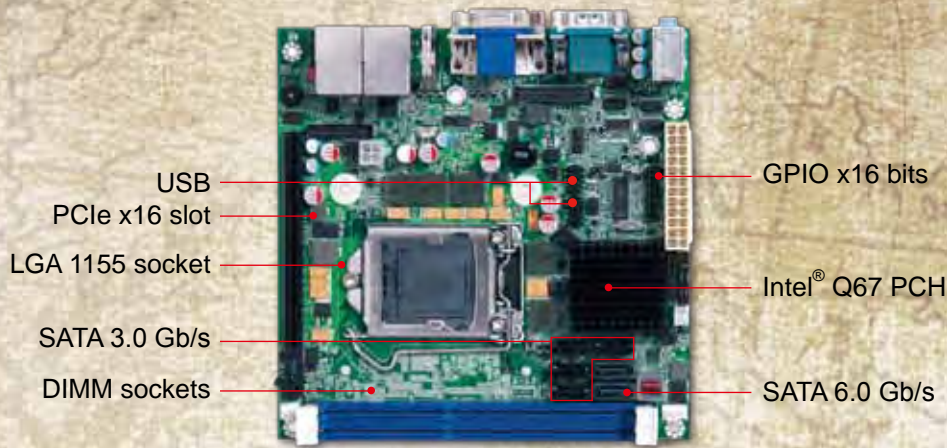
| Model | WADE-8075 | WADE-8070 | WADE-8067 | AMDY-7001 | AMDY-7000 |
|----------------------|---|--|---|--|--|
| CPU | Intel® Atom™ D525 | Intel® Atom™ N270 | Intel® Core™ 2 Duo/ Celeron™ M | AMD® Turion-II Neo™ N54H/ Athlon-II Neo™ N36L& R44L R44L | AMD® Athlon-II Neo™ |
| Chipset | Intel® Atom™ D525 | Intel® 82945GSE GMCH & ICH7M | Intel® 82GM45 GMCH & ICH9ME | AMD® RS785E & SB820M | AMD® RS785E & SB820M |
| Memory | Dual channel up to 4GB DDR3 | Single channel up to 2GB DDR2 | Dual channel up to 8GB DDR3 | Dual channel up to 8GB DDR3 | Dual channel up to 8GB DDR3 |
| Expansion | 1x PCI slot 1x PCIe x1 slot 1x Full-sized mini PCIe socket | 1x PCIe x1 slot 1x Mini PCI socket | 1x PCIe x4 slot | 1x PCIe x16 slot with x8& x4 lanes 1x Half-sized Mini-PCIe socket | 1x PCIe x1 slot 1x Full-sized mini-PCIe socket |
| Display Interface | VGA/LVDS | VGA/DVI/LVDS | VGA/DVI/LVDS/HDMI | VGA/DVI/LVDS/HDMI | VGA/DVI/LVDS |
| Audio | High Definition Audio 5.1 channels | High Definition Audio 5.1 channels | High Definition Audio 5.1 channels | High Definition Audio 7.1 channels | High Definition Audio 7.1 channels |
| LAN | Dual Gigabit Ethernet | Dual Gigabit Ethernet | Dual Gigabit Ethernet | Dual Gigabit Ethernet | Dual Gigabit Ethernet |
| Serial Port | 3x RS232 1x RS232/422/485 | 3x RS232 1x RS232/422/485 | 1x RS232 1x RS232/422/485 | 5x RS232 1x RS232/422/485 | 5x RS232 1x RS232/422/485 |
| USB | 6x USB 2.0 | 8x USB 2.0 | 6x USB 2.0 | 11x USB 2.0 | 8x USB 2.0 |
| Storage Device | 2x SATA 3.0 Gb/s 1x Compact Flash | 2x SATA 3.0 Gb/s 1x IDE 1x Compact Flash | 4x SATA 3.0 Gb/s | 5x SATA 3.0 Gb/s 1x Compact Flash 1x CFAST | 2x SATA 3.0 Gb/s 1x CFAST |
| GPIO | 8 bit | 8 bit | 8 bit | 8 bit | 8 bit |
| Others | 1x PS/2 Keyboard & Mouse | 1x PS/2 Keyboard & Mouse | 1x PS/2 Keyboard & Mouse 1x S-video | 1x PS/2 Keyboard & Mouse | 1x PS/2 Keyboard & Mouse |
| Application | Slot/Roulette | Slot/Roulette | Slot/Roulette | Slot/Jackpot/Roulette | Slot/Roulette |

Benchmark Comparison

| | | | | | |
|------------|-----------------------------|-----------------------------|-------------------------------------|------------------------------------|------------------------------------|
| Tested GPU | Intel® GMA3150 | Intel® GMA950 | Intel® GMA4500MHD | AMD® HD4200 | AMD® HD4200 |
| Tested CPU | Intel® ATOM™ D525 1.8GHz | Intel® ATOM™ N270 1.6GHz | Intel® Core™ 2 Duo P8400 2.26GHz | AMD® Turion II Neo™ N54H 2.2GHz | AMD® Athlon-II Neo™ R44L 1.7GHz |
| Resolution | 1024*768*32bits | 1024*768*32bits | 1024*768*32bits | 1024*768*32bits | 1024*768*32bits |
| 3DMark01 | 3393 | 2748 | 6342 | 7397 | 7695 |
| 3DMark03 | 1073 | 657 | 2173 | 2166 | 2553 |
| 3DMark06 | 230 | 78 | 993 | 1105 | 634 |
| Page | 27 | 28 | 29 | 30 | 31 |

WADE-8012

Intel® Core™ i5/ i7 Processor based Mini-ITX
with Dual displays, DDR3 SDRAM, Two COM
Ports and Eight USB Ports



Rear I/O

Features

- 3DMark 06: 1927
- GPU: Intel® HD Graphics 2000
- CPU: Intel® Core™ i5-2400 3.1GHz
- Resolution: 1024*768*32bits
- Two DIMM sockets support dual channel DDR3 up to 8GB
- Dual display by VGA/DVI/HDMI
- 6x SATA ports, 8x USB ports

Ordering Guide

AB1-3644 WADE-8012 Mini-ITX ESB.Q67 w/ECC
PGA1155 w/DDR3 SDRAM/ VGA/ DVI-D/
HDMI/ Dual GbE/ COM/ Audio/ USB

General

| | |
|---------------------|---|
| Processor | Intel® Core™ i5/i7 Processor in LGA-1155 socket |
| Chipset | Intel® Q67 PCH |
| Memory | Dual channel up to 8GB DDR3 1333/1066 MHz on two DIMM sockets |
| Storage Devices | - 4x SATA 3.0 Gb/s - 2x SATA 6.0 Gb/s |
| Watchdog Timer | Programmable via S/W from 0.5sec to 255min |
| Hardware Monitoring | Fan speed(CPU & system), Temperature(CPU & system), Voltage |
| Expansion Interface | 1x PCIe x16 slot |

I/O Interface

| | |
|------------------|---|
| Audio | High Definition Audio 5.1 channels |
| Ethernet | Dual Gigabit Ethernet |
| Serial Port | - 1x RS232 port on rear I/O - 1x RS232/422/485 selectable port on rear I/O |
| USB | - 4x USB 2.0 on rear I/O - 4x USB 2.0 onboard pin headers |
| Keyboard & Mouse | 1x PS/2 Keyboard & Mouse onboard pin header |
| GPIO | Onboard programmable 16 bit digital I/O |

Display

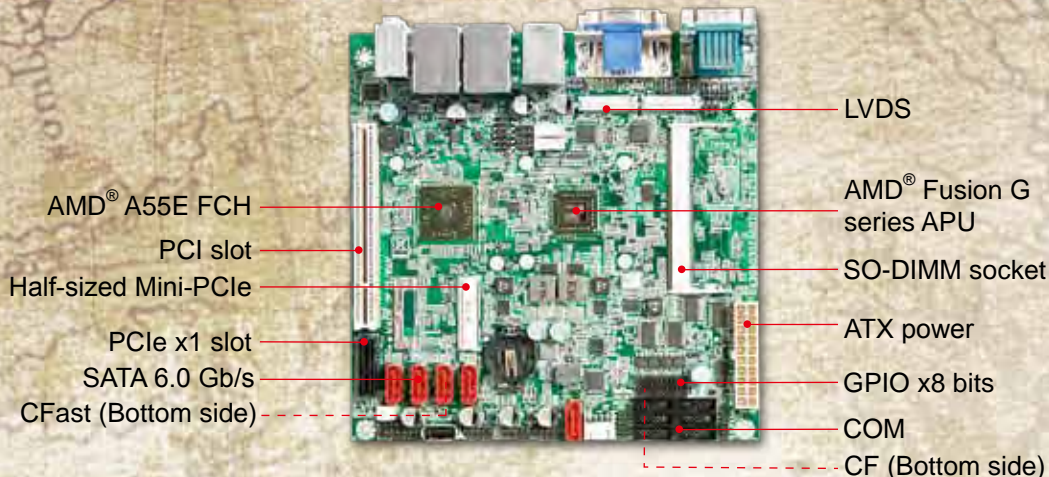
| | |
|--------------------|--|
| Graphic Controller | Intel® HD Graphics 2000/3000 integrated GPU support DirectX 10.1 |
| Display Interface | - VGA: up to 2048x1536 (QXGA) - HDMI: up to 1920x1200 (WUXGA) - DVI-D: up to 1920x1200 (WUXGA) - SDVO: PCIe x1& USBx1 signals |

Mechanical & Environment

| | |
|-------------------|--|
| Dimension | 170mm(L) x 170mm(W), 6.69"(L) x 6.69"(W) |
| Power Requirement | - Typical: +12V, +5V, +3.3V - Support ATX mode |
| Environment | - Operation Temperature: 0~60 °C - Storage Temperature: -20~80 °C - Relative Humidity: 5~95%, non-condensing |
| MTBF | Over 100,000 hours at 40 °C |

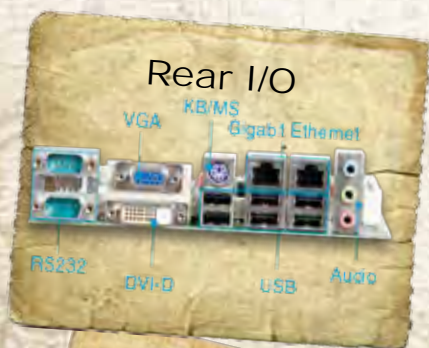
AMDY-7002

AMD® Fusion G-series™ Dual Core processor based Mini-ITX board with DDR3 SDRAM, VGA, DVI, LVDS, Dual Gigabit Ethernet and USB



General

| | |
|---------------------|--|
| Processor | AMD® Fusion G-series™ T56N dual core 1.6GHz processor |
| Chipset | AMD® A55E FCH |
| Memory | Single channel up to 4GB DDR3 1333/1066 on one SO-DIMM socket |
| Storage Devices | - 5x SATA 6.0 Gb/s - 1x Compact Flash - 1x CFAST |
| Watchdog Timer | Programmable via S/W from 0.5sec to 255min |
| Hardware Monitoring | Fan speed(CPU & system), Temperature(CPU & system),voltage |
| Expansion Interface | - 1x PCIe x1 slot - 1x PCI slot - 1x Half-sized mini-PCIe socket |



I/O Interface

| | |
|------------------|---|
| Audio | High Definition Audio 7.1 channels |
| Ethernet | Dual Gigabit Ethernet |
| Serial Port | - 2x RS232 port on rear I/O - 4x RS232/422/485 selectable port w/power onboard pin header - 2x RS232 w/power onboard pin header |
| USB | - 6x USB 2.0 on rear I/O - 6x USB 2.0 onboard pin headers - 1x USB 2.0 onboard vertical connector |
| Keyboard & Mouse | 1x PS/2 Keyboard & Mouse on rear I/O |
| GPIO | Onboard programmable 8 bit digital I/O |

Display

| | |
|--------------------|--|
| Graphic Controller | AMD® HD6320 integrated GPU support DirectX 11 |
| Display Interface | - VGA: up to 2048x1536 (QXGA) - LVDS: up to 1920x1080 (WXSGA+) - DVI: up to 1600x1200 (UXGA) |

Mechanical & Environment

| | |
|-------------------|--|
| Dimension | 170mm(L) x 170mm(W), 6.69"(L) x 6.69"(W) |
| Power Requirement | - Typical: +12V, +5V, +3.3V - Support ATX mode |
| Environment | - Operation Temperature: 0~60 °C - Storage Temperature: -20~80 °C - Relative Humidity: 5~95%, non-condensing |
| MTBF | Over 100,000 hours at 40 °C |

Features

- 3DMark 06: 2802
- GPU: AMD® HD6320
- CPU: AMD® Fusion G-series™ T56N 1.6GHz
- Resolution: 1024*768*32bits
- 1x SO-DIMM socket support single channel DDR3 up to 4GB
- Dual display by VGA/DVI/LVDS
- 5x SATA 6.0 Gb/s ports, 13x USB ports, 8x COM ports

Ordering Guide

AB1-3675 AMDY-7002-T56N.Mini-ITX ESB.AMD Fusion T56N APU and A55E FCH .w/ DDR3 SODIMM/VGA/DVI/LVDS/Dual LAN/Audio

WADE-8180

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



Rear I/O

General

| | |
|---------------------|--|
| Processor | Intel® Core™ 2 Quad/ Core™ 2 Duo processor in LGA-775 socket |
| Chipset | Intel® 82Q45 GMCH& ICH10DO |
| Memory | Dual channel up to 4GB DDR3 1066/800 MHz on two DIMM sockets |
| Storage Devices | 4x SATA 3.0 Gb/s |
| Watchdog Timer | Programmable via S/W from 1sec to 255min |
| Hardware Monitoring | Fan speed(CPU & system), Temperature(CPU & system), voltage |
| Expansion Interface | 1x PCIe x16 slot |

I/O Interface

| | |
|------------------|--|
| Audio | High Definition Audio 5.1 channels |
| Ethernet | Dual Gigabit Ethernet |
| Serial Port | - 1x RS232 port on rear I/O - 1x RS232 onboard pin header |
| USB | - 4x USB 2.0 on rear I/O - 4x USB 2.0 onboard pin headers |
| Keyboard & Mouse | 1x PS/2 Keyboard& Mouse on rear I/O |
| GPIO | Onboard programmable 8 bit digital I/O |

Display

| | |
|--------------------|---|
| Graphic Controller | Intel® GMA4500 integrated GPU support DirectX 10 |
| Display Interface | - VGA: up to 2048x1536 (QXGA) - DVI: up to 2560x1600 (WQXGA) |

Mechanical & Environment

| | |
|-------------------|--|
| Dimension | 170mm(L) x 170mm(W), 6.69"(L) x 6.69"(W) |
| Power Requirement | - Typical: +12V, +5V, +3.3V - Support ATX mode |
| Environment | - Operation Temperature: 0~60 °C - Storage Temperature: -20~80 °C - Relative Humidity: 5~95%, non-condensing |
| MTBF | Over 100,000 hours at 40 °C |

Features

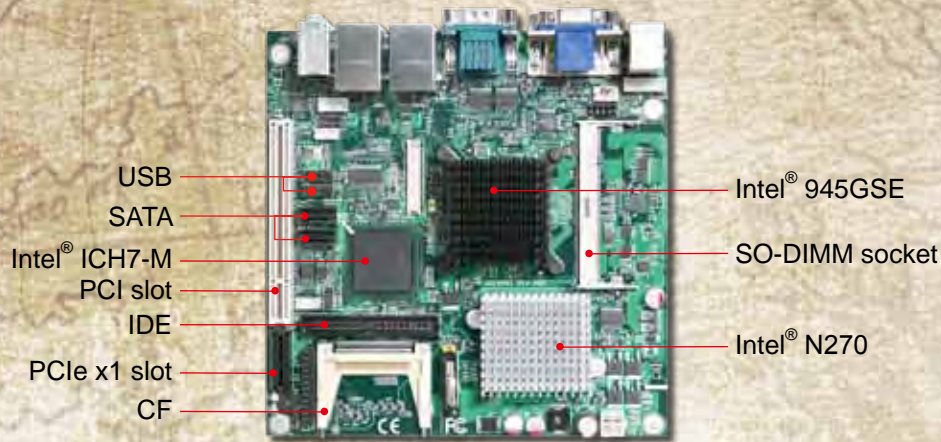
- 3DMark 06: 1266
- GPU: Intel® GMA4500
- CPU: Intel® Core™ 2 Duo E7400 2.8GHz
- Resolution: 1024*768*32bits
- Two DIMM sockets support dual channel DDR3 up to 4GB
- Dual display by VGA/DVI
- 4x SATA ports, 8x USB ports

Ordering Guide

AB1-3255 WADE-8180.Mini-ITX ESB. Intel Core 2 Quad/ Core 2 Duo. w/DDR3 SDRAM / VGA/DVI-D/Dual GbE/Audio

WADE-8170

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



General

| | |
|---------------------|---|
| Processor | Intel® Atom™ N270 Processor |
| Chipset | Intel®82945GSE GMCH & ICH7M |
| Memory | Single channel up to 2GB DDR2 400/533 MHz on one SO-DIMM socket |
| Storage Devices | - 2x SATA 3.0 Gb/s - 1x IDE - 1x Compact Flash |
| Watchdog Timer | Programmable via S/W from 1sec to 255min |
| Hardware Monitoring | Fan speed(CPU & system), Temperature(CPU & system), Voltage, Case open function |
| Expansion Interface | - 1x PCI slot - 1x PCIe x1 slot |



I/O Interface

| | |
|------------------|--|
| Audio | High Definition Audio 5.1 channels |
| Ethernet | Realtek® Dual Gigabit Ethernet |
| Serial Port | 2x RS232 ports on rear I/O |
| USB | - 4x USB 2.0 on rear I/O - 4x USB 2.0 onboard pin headers |
| Keyboard & Mouse | 1x PS/2 Keyboard & Mouse on rear I/O |
| GPIO | Onboard programmable 8 bit digital I/O |
| Other | 1x S-video header |

Features

- 3DMark 06: 82
- GPU: Intel® GMA950
- CPU: Intel® ATOM™ N270 1.6GHz
- Resolution: 1024*768*32bits
- One SO-DIMM socket support single channel DDR2 up to 2GB
- Dual display by VGA/LVDS/DVI/TV-out
- 2x SATA ports, 1x IDE port & 1x Compact Flash socket

Ordering Guide

AB1-3269 WADE-8170. Mini-ITX
ESB.945GSE+N270 Processor. w/DDR2
SDRAM/VGA/LVDS/Dual GbE/Audio/12V
DC input

Display

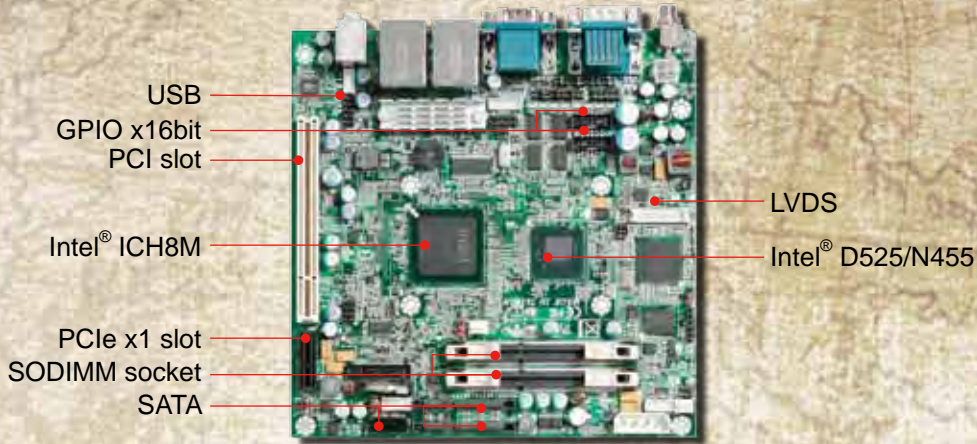
| | |
|--------------------|--|
| Graphic Controller | Intel® GMA950 integrated GPU support DirectX 9.0C |
| Display Interface | - VGA: up to 2048x1536 (QXGA) - LVDS: up to 1600x1200 (UXGA) - DVI: up to 1600x1200 (UXGA) |

Mechanical & Environment

| | |
|-------------------|--|
| Dimension | 170mm(L) x 170mm(W), 6.69"(L) x 6.69"(W) |
| Power Requirement | DC 12V input |
| Environment | - Operation Temperature: 0~60 °C - Storage Temperature: -20~80 °C - Relative Humidity: 5~95%, non-condensing |
| MTBF | Over 140,000 hours at 40 °C |

WADE-8075

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



Rear I/O



Features

- 3DMark 06: 230
- GPU: Intel® GMA3150
- CPU: Intel® ATOM™ D525 1.8GHz
- Resolution: 1024*768*32bits
- Two SO-DIMM sockets support dual channel DDR3 up to 4GB
- PCI, PCIe x1 & Full-sized mini PCIe for expansion
- 3x SATA

Ordering Guide

AB1-3584 WADE-8075. Mini-ITX ESB. Intel Pineview 1.8G D525 on Board+ICH8M. w/DDR3 SO-DIMM/ VGA/ 24bits LVDS/ Dual GbE/ COM/ Audio/ Usb

General

| | |
|---------------------|--|
| Processor | Intel® Atom™ D525 Processor |
| Chipset | Intel® ICH8M |
| Memory | Dual channel up to 4GB DDR3 533/667 MHz on two SO-DIMM sockets |
| Storage Devices | - 3x SATA 3.0 Gb/s - 1x Compact Flash |
| Watchdog Timer | Programmable via S/W from 1sec to 255min |
| Hardware Monitoring | Fan speed(CPU & system), Temperature(CPU & system), Voltage, Auto throttling control when CPU overheat |
| Expansion Interface | - 1x PCI slot - 1x PCIe x1 slot - 1x Full-sized mini PCIe socket |

I/O Interface

| | |
|------------------|--|
| Audio | High Definition Audio 5.1 channels |
| Ethernet | Dual Gigabit Ethernet |
| Serial Port | - 2x RS232 ports w/power on rear I/O - 1x RS232/422/485 selectable port w/power on rear I/O - 1x RS232 port w/power onboard pin header |
| USB | - 4x USB 2.0 on rear I/O - 2x USB 2.0 onboard pin headers |
| Keyboard & Mouse | 1x PS/2 Keyboard & Mouse on rear I/O |
| GPIO | Onboard programmable 8 bit digital I/O |

Display

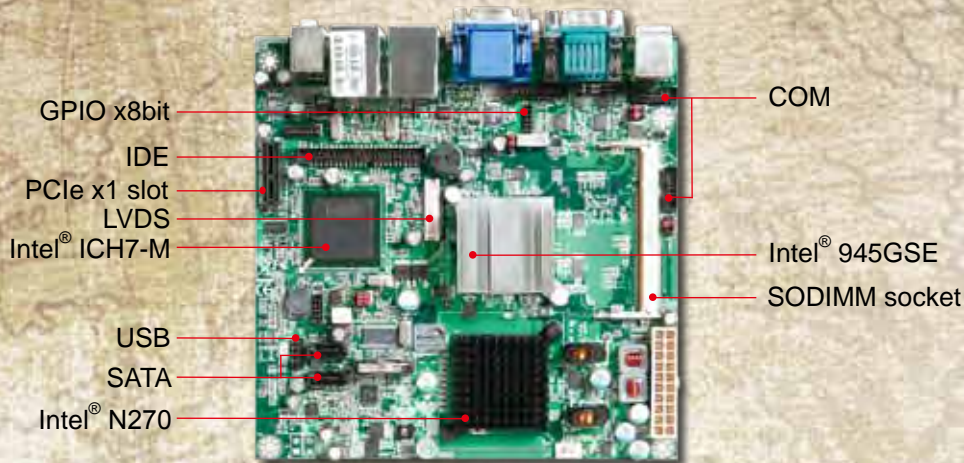
| | |
|--------------------|---|
| Graphic Controller | Intel® GMA3150 integrated GPU support DirectX 9.0C |
| Display Interface | - VGA: up to 2048x1536 (QXGA) - LVDS: up to 1280x1024 (SXGA) |

Mechanical & Environment

| | |
|-------------------|--|
| Dimension | 170mm(L) x 170mm(W), 6.69"(L) x 6.69"(W) |
| Power Requirement | DC 12V input |
| Environment | - Operation Temperature: 0~60 °C - Storage Temperature: -20~80 °C - Relative Humidity: 5~95%, non-condensing |
| MTBF | Over 140,000 hours at 40 °C |

WADE-8070

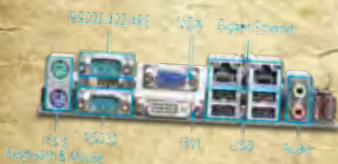
Intel® Low Power Atom™ N270 1.6GHz Processor based Mini-ITX Board with Dual display, Gigabit Ethernet, Two SATA Ports, Four COM ports and Six USB Ports



General

| | |
|---------------------|---|
| Processor | Intel® Atom™ N270 Processor |
| Chipset | Intel® 82945GSE GMCH & ICH7M |
| Memory | Single channel up to 2GB DDR2 400/533 MHz on one SO-DIMM socket |
| Storage Devices | - 2x SATA 3.0 Gb/s - 1x IDE - 1x Compact Flash |
| Watchdog Timer | Programmable via S/W from 1sec to 255min |
| Hardware Monitoring | Fan speed(CPU & system), Temperature(CPU & system), Voltage, case open function |
| Expansion Interface | - 1x PCIe x1 slot - 1x Mini PCI socket |

Rear I/O



I/O Interface

| | |
|------------------|---|
| Audio | High Definition Audio 5.1 channels |
| Ethernet | Dual Gigabit Ethernet |
| Serial Port | - 1x RS232 port on rear I/O - 1x RS232/422/485 selectable port on rear I/O - 2x RS232 ports onboard pin headers |
| USB | - 4x USB 2.0 on rear I/O - 2x USB 2.0 onboard pin headers |
| Keyboard & Mouse | 1x PS/2 Keyboard & Mouse on rear I/O |
| GPIO | Onboard programmable 8 bit digital I/O |

Features

- 3DMark 06: 78
- GPU: Intel® GMA950
- CPU: Intel® ATOM™ N270 1.6GHz
- Resolution: 1024*768*32bits
- One SO-DIMM socket support single channel DDR2 up to 2GB
- Dual display by VGA/LVDS/DVI
- PCIe x1 & Mini PCI for expansion
- 2x SATA ports, 1x IDE port & 1x Compact Flash socket

Ordering Guide

AB1-3242 WADE-8070. Mini-ITX ESB.
945GSE+N270 Processor. w/DDR2
SDRAM/ VGA/ LVDS/ Dual GbE/ Audio

Display

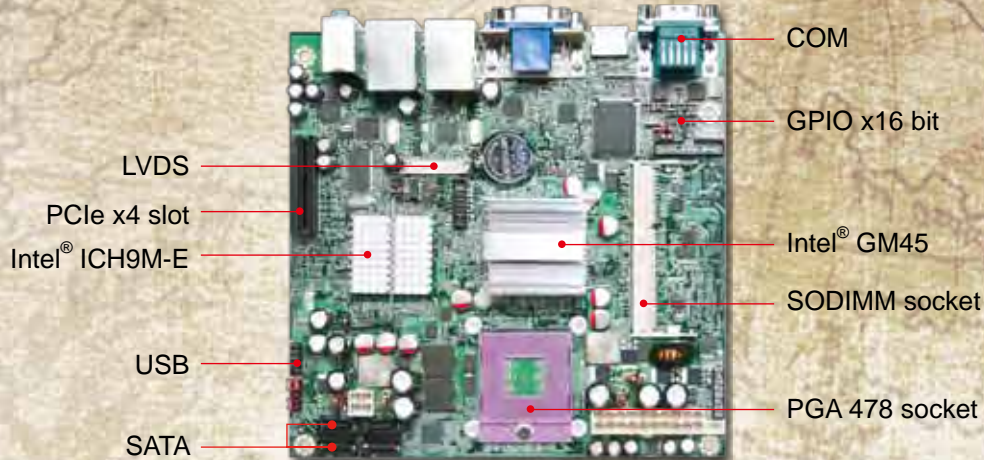
| | |
|--------------------|--|
| Graphic Controller | Intel® GMA950 integrated GPU support DirectX 9.0C |
| Display Interface | - VGA: up to 2048x1536 (QXGA) - LVDS: up to 1600x1200 (UXGA) - DVI: up to 1600x1200 (UXGA) |

Mechanical & Environment

| | |
|-------------------|---|
| Dimension | 170mm(L) x 170mm(W), 6.69"(L) x 6.69"(W) |
| Power Requirement | - Typical: +12V, +5V, +3.3V - Support ATX mode |
| Environment | - Operation Temperature: 0~60 °C - Storage Temperature: -20~80 °C - Relative Humidity: 10~90%, non-condensing |
| MTBF | Over 140,000 hours at 40 °C |

WADE-8067

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



Rear I/O

Features

- 3DMark 06: 993
- GPU: Intel® GMA4500MHD
- CPU: Intel® Core™ 2 Duo P8400 2.26GHz
- Resolution: 1024*768*32bits
- Two SO-DIMM sockets support dual channel DDR3 up to 8GB
- Dual display by VGA/DVI/HDMI/LVDS/TV-out
- PCIe x4 expansion slot

Ordering Guide

AB1-3164 WADE-8067PE.Mini-ITX ESB Socket type, Intel Core 2 Duo(Penryn).w/VGA/DVI/ HDMI/ Dual GbE/ Audio/ PCIe x4

General

| | |
|---------------------|---|
| Processor | Intel® Core™ 2 Duo/ Celeron™ M processor in PGA-478 socket |
| Chipset | Intel® 82GM45 GMCH& ICH9ME |
| Memory | Dual channel up to 8GB DDR3 1066/800 MHz on two SO-DIMM sockets |
| Storage Devices | 4x SATA 3.0 Gb/s |
| Watchdog Timer | Programmable via S/W from 1sec to 255min |
| Hardware Monitoring | Fan speed(CPU & system), Temperature(CPU & system), Voltage, Case open function |
| Expansion Interface | 1x PCIe x4 slot |

I/O Interface

| | |
|------------------|---|
| Audio | High Definition Audio 5.1 channels |
| Ethernet | Dual Gigabit Ethernet |
| Serial Port | - 1x RS232 port on rear I/O - 1x RS232/422/485 selectable port on rear I/O |
| USB | - 4x USB 2.0 on rear I/O - 4x USB 2.0 onboard pin headers |
| Keyboard & Mouse | 1x PS/2 Keyboard & Mouse onboard pin header |
| GPIO | Onboard programmable 8 bit digital I/O |
| Other | 1x S-video header |

Display

| | |
|--------------------|---|
| Graphic Controller | Intel® GMA4500MHD integrated GPU support DirectX 10 |
| Display Interface | - VGA: up to 2048x1536 (QXGA) - DVI: up to 2560x1600 (WQXGA) - LVDS: up to 1920x1200(WUXGA) - HDMI: up to 1920x1200(WUXGA) |

Mechanical & Environment

| | |
|-------------------|--|
| Dimension | 170mm(L) x 170mm(W), 6.69"(L) x 6.69"(W) |
| Power Requirement | - Typical: +12V, +5V, +3.3V - Support ATX mode |
| Environment | - Operation Temperature: 0~60 °C - Storage Temperature: -20~80 °C - Relative Humidity: 5~95%, non-condensing |
| MTBF | Over 120,000 hours at 40 °C |

AMDY-7001

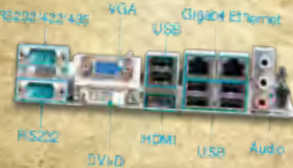
AMD® Turion/ Athlon-II Neo™ Single and Dual Core processor based Mini-ITX board with DDR3 SDRAM, VGA, DVI, LVDS, HDMI, Dual Gigabit Ethernet and USB



General

| | |
|---------------------|---|
| Processor | AMD®Turion-II Neo N54H/ Athlon-II Neo N36L& R44L single and dual core processor |
| Chipset | AMD®RS785E& SB820M |
| Memory | Dual channel up to 8GB DDR3 1066/1333 MHz on two SO-DIMM sockets |
| Storage Devices | - 5x SATA 3.0 Gb/s - 1x Compact Flash - 1x CFAST |
| Watchdog Timer | Programmable via S/W from 1sec to 255min |
| Hardware Monitoring | Fan speed(CPU & system), Temperature(CPU & system), voltage |
| Expansion Interface | - 1x PCIe x16 slot with x8& x4 lanes - 1x Half-sized Mini-PCIe socket |

Rear I/O



I/O Interface

| | |
|-------------|---|
| Audio | High Definition Audio 7.1 channels |
| Ethernet | Dual Gigabit Ethernet |
| Serial Port | - 1x RS232 port on rear I/O - 1x RS232/422/485 selectable port on rear I/O - 4x RS232 ports w/power onboard pin headers |
| USB | - 6x USB 2.0 on rear I/O - 4x USB 2.0 onboard pin headers - 1x USB 2.0 onboard vertical connector |
| GPIO | Onboard programmable 8 bit digital I/O |

Features

- 3DMark 06: 1105
- GPU: AMD® HD4200
- CPU: AMD® Turion II Neo™ N54H 2.2GHz
- Resolution: 1024*768*32bits
- 2x SO-DIMM sockets support dual channel DDR3 up to 8GB
- Dual display by VGA/DVI/LVDS/HDMI
- PCIe x16 expansion slot

Ordering Guide

- AB1-3604 AMDY-7001-N54H.Mini-ITX ESB.AMD Turion II Neo N54H.w/DDR3 SODIMM/VGA/LVDS/DVI/HDMI/Dual LAN/Audio
- AB1-3605 AMDY-7001-N36L.Mini-ITX ESB.AMD Athlon II Neo N36L.w/DDR3 SODIMM/VGA/LVDS/DVI/HDMI/Dual LAN/Audio
- AB1-3606 AMDY-7001-R44L.Mini-ITX ESB.AMD Athlon II Neo R44L.w/DDR3 SODIMM/VGA/LVDS/DVI/HDMI/Dual LAN/Audio

Display

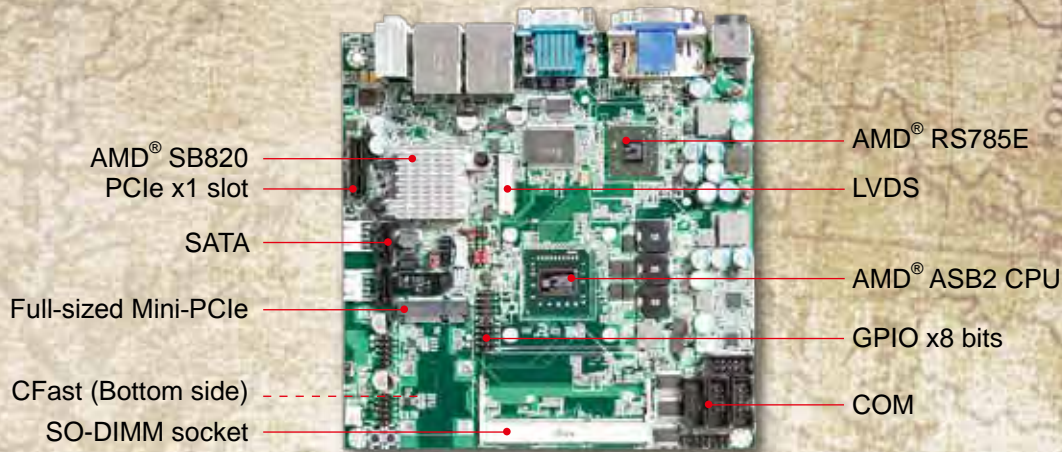
| | |
|--------------------|--|
| Graphic Controller | AMD® HD4200 integrated GPU support DirectX 10.1 |
| Display Interface | - VGA: up to 2048x1536 (QXGA) - LVDS: up to 1680x1050 (WSXGA+) - DVI: up to 1600x1200 (UXGA) - HDMI: up to 1920x1200(WUXGA) |

Mechanical & Environment

| | |
|-------------------|--|
| Dimension | 170mm(L) x 170mm(W), 6.69"(L) x 6.69"(W) |
| Power Requirement | - Typical: +12V, +5V, +3.3V - Support ATX mode |
| Environment | - Operation Temperature: 0~60 °C - Storage Temperature: -20~80 °C - Relative Humidity: 5~95%, non-condensing |
| MTBF | Over 100,000 hours at 40 °C |

AMDY-7000

AMD® Athlon-II Neo™ Single Core processor based Mini-ITX board with DDR3 SDRAM, VGA, DVI, LVDS, Dual Gigabit Ethernet and USB



- ### Features
- 3DMark 06: 634
 - GPU: AMD® HD4200
 - CPU: AMD® Athlon-II Neo™ R44L 1.7GHz
 - Resolution: 1024*768*32bits
 - 2x SO-DIMM sockets support dual channel DDR3 up to 8GB
 - Dual display by VGA/DVI/LVDS
 - 1x Full-sized mini-PCIe socket

Ordering Guide

AB1-3594 AMDY-7000-R44L.ESB.AMD ASB2 R44L 1.7GHz Processor. 785E/820M Chipset. w/DDR3 SDRAM/VGA/DVI/LVDS/GbE/Audio

General

| | |
|---------------------|---|
| Processor | AMD® Athlon-II Neo™ R44L single Core 1.7GHz processor |
| Chipset | AMD® RS785E& SB820M |
| Memory | Dual channel up to 8GB DDR3 1066 MHz on two SO-DIMM sockets |
| Storage Devices | - 2x SATA 3.0 Gb/s - 1x CFAST |
| Watchdog Timer | Programmable via S/W from 0.5sec to 1024sec |
| Hardware Monitoring | Temperature(CPU & system), Voltage |
| Expansion Interface | - 1x PCIe x1 slot - 1x Full-sized mini-PCIe socket |

I/O Interface

| | |
|-------------|---|
| Audio | High Definition Audio 7.1 channels |
| Ethernet | Dual Gigabit Ethernet |
| Serial Port | - 1x RS232 port on rear I/O - 1x RS232/422/485 selectable port on rear I/O - 4x RS232 ports onboard pin headers |
| USB | - 4x USB 2.0 on rear I/O - 4x USB 2.0 onboard pin headers |
| GPIO | Onboard programmable 8 bit digital I/O |

Display

| | |
|--------------------|--|
| Graphic Controller | AMD® HD4200 integrated GPU support DirectX 10.1 |
| Display Interface | - VGA: up to 2048x1536 (QXGA) - LVDS: up to 1680x1050 (WSXGA+) - DVI: up to 1600x1200 (UXGA) |

Mechanical & Environment

| | |
|-------------------|--|
| Dimension | 170mm(L) x 170mm(W), 6.69"(L) x 6.69"(W) |
| Power Requirement | DC 12V input by power jack |
| Environment | - Operation Temperature: 0~60 °C - Storage Temperature: -20~80 °C - Relative Humidity: 5~95%, non-condensing |
| MTBF | Over 100,000 hours at 40 °C |

IMB Reference Table



| Model | RUBY-D712VG2AR | RUBY-M710VG2AR | RUBY-9719VG2AR | RUBY-9911 |
|-------------------|--|--|---|--|
| CPU | Intel® Core™ i3/ i5/ i7 | Intel® Core™ i5/i7 or Celeron™ P4500 | Intel® Core™ 2 Quad/ Core™ 2 Duo | Intel® Core™ 2 Quad/ Core™ 2 Duo |
| Chipset | Intel® Q67 PCH | Intel® QM57 PCH | Intel® G41 GMCH& ICH7R | Intel® Q45 GMCH& ICH10DO |
| Memory | Dual channel up to 16GB DDR3 | Dual channel up to 8GB DDR3 | Dual channel up to 4GB DDR2 | Dual channel up to 4GB DDR3 |
| Expansion | 4x PCI slots 1x PCIe x16 slot 1x PCIe x8 slot 1x PCIe x4 slot | 4x PCI slots 1x PCIe x16 slot 1x PCIe x8 slot 1x PCIe x1 slot 1x Full-sized Mini-PCIe socket | 1x PCIe x16 slot 5x PCI slots+ 1x ISA slot or 6x PCI slots | 1x PCIe x16 slot 1x PCIe x4 slot 4x PCI slots" |
| Display Interface | VGA/HDMI/DVI | VGA/DVI/LVDS/HDMI | VGA | VGA/DVI |
| Audio | High Definition Audio 5.1 channels | High Definition Audio 7.1 channels | High Definition Audio 5.1 channels | High Definition Audio 7.1 channels |
| LAN | Dual Gigabit Ethernet | Dual Gigabit Ethernet | Dual Gigabit Ethernet | Dual Gigabit Ethernet |
| Serial Port | 4x RS232 2x RS232/422/485 | 5x RS232 1x RS232/422/485 | 5x RS232 1x RS232/422/485 | 3x RS232 1x RS232/422/485 |
| USB | 8x USB 2.0 | 8x USB 2.0 | 8x USB 2.0 | 8x USB 2.0 |
| Storage Device | 4x SATA 3.0 Gb/s 2x SATA 6.0 Gb/s | 6x SATA 3.0 Gb/s | 4x SATA 3.0 Gb/s 1x IDE 1x Compact Flash | 4x SATA 3.0 Gb/s 1x IDE 1x FDD |
| GPIO | 16 bit | 16 bit | 8 bit | 8 bit |
| Others | N/A | 1x PS/2 Keyboard & Mouse | 1x PS/2 Keyboard & Mouse 1x parallel | 1x PS/2 Keyboard& Mouse 1x parallel 1x IEEE1394a |
| Application | Slot/Jackpot/Roulette | Slot/Jackpot/Roulette | Slot/Jackpot/Roulette | Slot/Jackpot/Roulette |

Benchmark Comparison

| | | | | |
|------------|-----------------------------|-------------------------------|----------------------------------|--------------------------------|
| Tested GPU | Intel® HD Graphics 2000 | Intel® HD Graphics | Intel® GMAX4500 | Intel® GMA4500 |
| Tested CPU | Intel® Core™ i5-2400 3.1GHz | Intel® Celeron™ P4500 1.86GHz | Intel® Core 2 Quad Q9400 2.66GHz | Intel® Core 2 Duo E7400 2.8GHz |
| Resolution | 1024*768*32bits | 1024*768*32bits | 1024*768*32bits | 1024*768*32bits |
| 3DMark01 | 13239 | 8289 | 8310 | 8832 |
| 3DMark03 | 6155 | 3187 | 2764 | 2857 |
| 3DMark06 | 1963 | 1400 | 852 | 1266 |
| Page | 33 | 34 | 35 | 36 |

RUBY-D712VG2AR

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



Features

- 3DMark 06: 1963
- GPU: Intel® HD Graphic 2000
- CPU: Intel® Core™ i5-2400 3.1GHz
- Resolution: 1024*768*32bits
- 4x DIMM sockets support dual channel DDR3 up to 16GB
- Dual display by VGA/DVI/HDMI
- PCI & PCIe slots for expansion, support SATA 6.0 Gb/s

Ordering Guide

AB1-3634 RUBY-D712VG2AR. ATX IMB. LGA1155 CPU. Q67. DDR3/VGA/DVI/HDMI/ Dual GbE/ COM/ Audio/ USB

General

| | |
|---------------------|--|
| Processor | Intel® Core™ i3/ i5/ i7 processor in LGA-1155 socket |
| Chipset | Intel® Q67 PC |
| Memory | Dual channel up to 16GB DDR3 1333/1066 MHz on four DIMM sockets |
| Storage Devices | - 4x SATA 3.0 Gb/s - 2x SATA 6.0 Gb/s |
| Watchdog Timer | Programmable via S/W from 0.5sec to 255min |
| Hardware Monitoring | Fan speed(CPU & system), Temperature(CPU & system), voltage |
| Expansion Interface | - 4x PCI slots - 1x PCIe x16 slot - 1x PCIe x8 slot - 1x PCIe x4 slot |

I/O Interface

| | |
|-------------|--|
| Audio | High Definition Audio 5.1 channels |
| Ethernet | Dual Gigabit Ethernet |
| Serial Port | - 3x RS232 ports onboard pin headers - 1x RS232/422/485 selectable port onboard pin header - 1x RS232 port on rear I/O - 1x RS232/422/485 selectable port on rear I/O |
| USB | - 4x USB 2.0 on rear I/O - 4x USB 2.0 onboard pin headers |
| GPIO | Onboard programmable 16 bit digital I/O |

Display

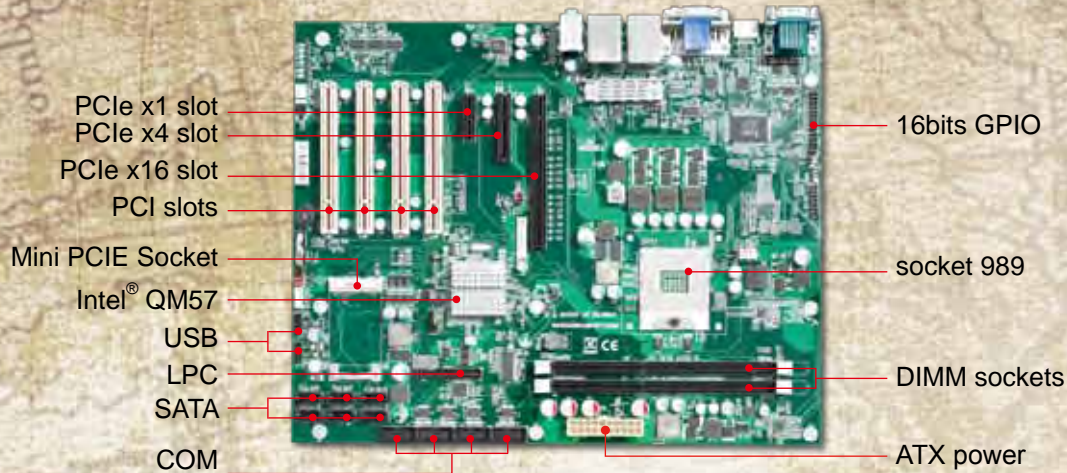
| | |
|--------------------|--|
| Graphic Controller | Intel® HD Graphics 2000/3000 integrated GPU support DirectX 10.1 |
| Display Interface | - VGA: up to 2048*1536 (QXGA) - HDMI: up to 1920*1200 (WUXGA) - DVI: up to 1920*1200 (WUXGA) |

Mechanical & Environment

| | |
|-------------------|--|
| Dimension | 243.8mm(L) x 304.8mm(W), 9.76"(L) x 12"(W) |
| Power Requirement | - Typical: +12V, +5V, +3.3V - Support ATX mode |
| Environment | - Operation Temperature: 0~60 °C - Storage Temperature: -20~80 °C - Relative Humidity: 5~95%, non-condensing |
| MTBF | Over 120,000 hours at 40 °C |

RUBY-M710VG2AR

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



Features

- 3DMark 06: 1400
- GPU: Intel® HD Graphics
- CPU: Intel® Celeron™ P4500 1.86GHz
- Resolution: 1024*768*32bits
- 2x DIMM sockets support dual channel DDR3 up to 8GB
- Dual display by VGA/DVI/HDMI/LVDS
- PCI, PCIe, Mini-PCIE slots & sockets for expansion

Ordering Guide

AB1-3586 RUBY-M710VG2AR. ATX IMB. QM57 w/ ECC PGA989. w/DDR3 DIMMs/ VGA/ LVDS/ DVI/ HDMI/ Dual GbE/ COM/ Audio/ USB

General

| | |
|---------------------|--|
| Processor | Intel® Core™ i5/i7 or Celeron™ P4500 processor in rPGA 989 socket |
| Chipset | Intel® QM57 PCH |
| Memory | Dual channel up to 8GB DDR3 1066/800 MHz on two DIMM sockets |
| Storage Devices | 6x SATA 3.0 Gb/s |
| Watchdog Timer | Programmable via S/W from 0.5sec to 255min |
| Hardware Monitoring | Fan speed(CPU & system), Temperature(CPU & system), voltage |
| Expansion Interface | - 4x PCI slots - 1x PCIe x16 slot - 1x PCIe x8 slot - 1x PCIe x1 slot - 1x Full-sized Mini-PCIE socket |

I/O Interface

| | |
|------------------|---|
| Audio | High Definition Audio 7.1 channels |
| Ethernet | Dual Gigabit Ethernet |
| Serial Port | - 4x RS232 ports onboard pin headers - 1x RS232 port on rear I/O - 1x RS232/422/485 selectable port on rear I/O |
| USB | - 4x USB 2.0 on rear I/O - 4x USB 2.0 onboard pin headers |
| Keyboard & Mouse | 1x PS/2 Keyboard & Mouse onboard pin header |
| GPIO | Onboard programmable 16 bit digital I/O |

Display

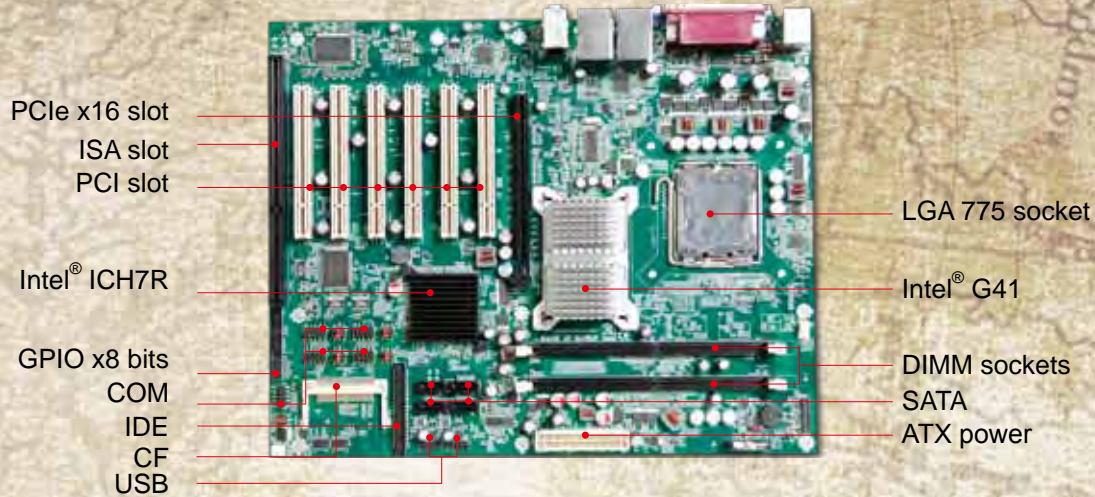
| | |
|--------------------|--|
| Graphic Controller | Intel® HD Graphics integrated GPU support DirectX 10 |
| Display Interface | - VGA: up to 2048x1536 (QXGA) - DVI: up to 1920*1200 (WUXGA) - LVDS: up to 1600x1200 (UXGA) - HDMI: up to 1920*1200 (WUXGA) |

Mechanical & Environment

| | |
|-------------------|--|
| Dimension | 243.8mm(L) x 304.8mm(W), 9.76"(L) x 12"(W) |
| Power Requirement | - Typical: +12V, +5V, +3.3V - Support ATX mode |
| Environment | - Operation Temperature: 0~60 °C - Storage Temperature: -20~80 °C - Relative Humidity: 5~95%, non-condensing |
| MTBF | Over 80,000 hours at 40 °C |

RUBY-9719VG2AR

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



General

| | |
|---------------------|---|
| Processor | Intel® Core™ 2 Quad/ Core™ 2 Duo Processor in LGA-775 socket |
| Chipset | Intel® G41 GMCH& ICH7R |
| Memory | Dual channel up to 4GB DDR2 667/800 MHz on two DIMM sockets |
| Storage Devices | - 4x SATA 3.0 Gb/s - 1x IDE - 1x Compact Flash |
| Watchdog Timer | Programmable via S/W from 1sec to 255min |
| Hardware Monitoring | Fan speed(CPU & system), Temperature(CPU & system), voltage |
| Expansion Interface | - 1x PCIe x16 slot - 5x PCI slots+ 1x ISA slot or 6x PCI slots |



I/O Interface

| | |
|------------------|--|
| Audio | High Definition Audio 5.1 channels |
| Ethernet | Dual Gigabit Ethernet |
| Serial Port | - 5x RS232 ports w/power onboard pin headers - 1x RS232/422/485 selectable port on rear I/O |
| USB | - 4x USB 2.0 on rear I/O - 4x USB 2.0 onboard pin headers |
| Keyboard & Mouse | 1x PS/2 Keyboard & Mouse on rear I/O |
| GPIO | Onboard programmable 8 bit digital I/O |
| Others | 1x parallel port on rear I/O |

Features

- 3DMark 06: 852
- GPU: Intel® GMAX4500
- CPU: Intel® Core 2 Quad Q9400 2.66GHz
- Resolution: 1024*768*32bits
- 2x DIMM sockets support dual channel DDR2 up to 4GB
- 5x PCI + 1x ISA + 1x PCIe x16

Ordering Guide

AB1-3364 RUBY-9719VG2AR. ATX. LGA775. Intel Core 2 Quad/Duo. G41 w/VGA/ Dual GbE/ Audio

Display

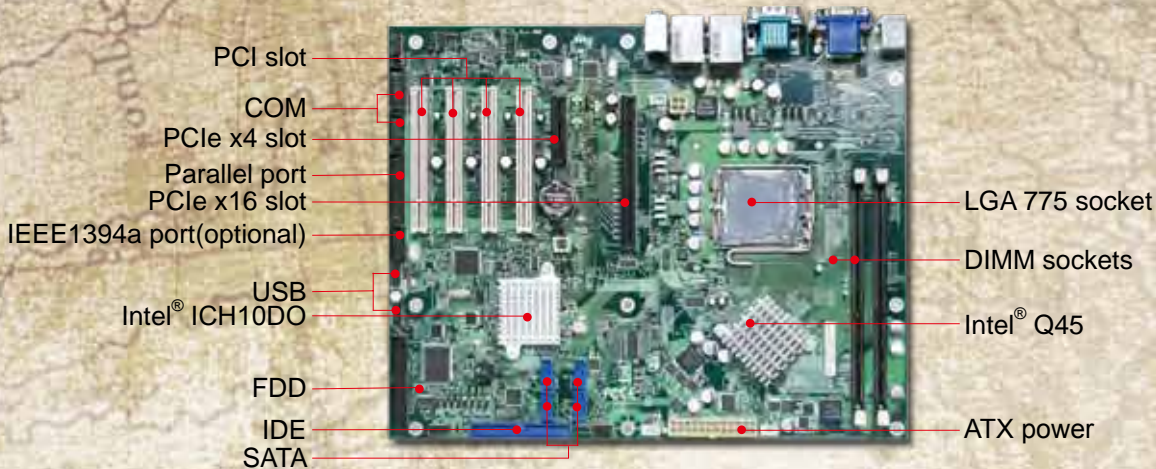
| | |
|--------------------|---|
| Graphic Controller | Intel® GMAX4500 integrated GPU support DirectX 10.1 |
| Display Interface | VGA: up to 2048*1536 (QXGA) |

Mechanical & Environment

| | |
|-------------------|--|
| Dimension | 243.8mm(L) x 304.8mm(W), 9.76"(L) x 12"(W) |
| Power Requirement | - Typical: +12V, +5V, +3.3V - Support ATX mode |
| Environment | - Operation Temperature: 0~60 °C - Storage Temperature: -20~80 °C - Relative Humidity: 5~95%, non-condensing |
| MTBF | Over 120,000 hours at 40 °C |

RUBY-9911

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



General

| | |
|---------------------|--|
| Processor | Intel® Core™ 2 Quad/ Core™ 2 Duo Processor in LGA-775 socket |
| Chipset | Intel® Q45 GMCH& ICH10DO |
| Memory | Dual channel up to 4GB DDR3 1066/800 MHz on two DIMM sockets |
| Storage Devices | - 4x SATA 3.0 Gb/s - 1x IDE - 1x FDD |
| Watchdog Timer | Programmable via S/W from 1sec to 255min |
| Hardware Monitoring | Fan speed(CPU & system), Temperature(CPU & system), voltage |
| Expansion Interface | - 1x PCIe x16 slot - 1x PCIe x4 slot - 4x PCI slots |

I/O Interface

| | |
|------------------|---|
| Audio | High Definition Audio 7.1 channels |
| Ethernet | Dual Gigabit Ethernet |
| Serial Port | - 2x RS232 ports on rear I/O - 1x RS232 port onboard pin header - 1x RS232/422/485 selectable port onboard pin header |
| USB | - 4x USB 2.0 on rear I/O - 4x USB 2.0 onboard pin headers |
| Keyboard & Mouse | 1x PS/2 Keyboard & Mouse on rear I/O |
| GPIO | Onboard programmable 8 bit digital I/O |
| Others | - 1x parallel port onboard pin header - 1x IEEE1394a port onboard pin header |

Display

| | |
|--------------------|---|
| Graphic Controller | Intel® GMA4500 integrated GPU support DirectX 10.1 |
| Display Interface | - VGA: up to 2048x1536 (QXGA) - DVI: up to 2560x1600 (WQXGA) |

Mechanical & Environment

| | |
|-------------------|---|
| Dimension | 243.8mm(L) x 304.8mm(W), 9.76"(L) x 12"(W) |
| Power Requirement | - Typical: +12V, +5V, +3.3V - Support ATX mode |
| Environment | - Operation Temperature: 0~60 °C - Storage Temperature: -20~80 °C - Relative Humidity: 10~90%, non-condensing |
| MTBF | Over 170,000 hours at 40 °C |

PSU Reference Table



ORION-B2001G



ORION-D2401G



ORION-A3001G

| Model | Power Type | Dimension | Power Input | Power Output | Page |
|--------------|------------|--|-------------------------------|---|------|
| ORION-B2001G | AC/DC | 199 x 99 x 50 mm; 7.84" x 3.90" x 1.97" | 85~264V AC | 200W/ Single Output 12V@ 16.7A | 38 |
| ORION-D2401G | AC/DC | 150 x 140 x 86 mm; 5.90" x 5.51" x 3.38" | 100~132V AC or 200~240V AC | 244W/Triple Output 5V@8A, 12V@8A, 24V@4.5A | 38 |
| ORION-A3001G | AC/DC | 81.5 x 150 x 40.5 mm; 3.2" x 5.9" x 1.6" | 100~240V AC | 300W/ATX Output 3.3V@22A, 5V@16A, 12V@16A | 39 |
| ORION-D4001G | AC/DC | 150 x 140 x 86 mm; 5.90" x 5.51" x 3.38" | 100~132V AC or 200~240V AC | 400W/ Four Output 3.3V@24A, 5V@24A, 12V@20A, 24V@9A | 39 |
| ORION-A1501P | AC/DC | 81.5 x 150 x 40.5 mm; 3.2" x 5.9" x 1.6" | 90V~264V AC | 150W/ATX Output 3.3V@10A, 5V@13A, 12V@10A | 40 |
| ORION-A1801P | AC/DC | 81.5 x 150 x 40.5 mm; 3.2" x 5.9" x 1.6" | 90V~264V AC | 180W/ATX Output 3.3V@14A, 5V@16A, 12V@14A | 40 |
| GADIWA-P0901 | DC/DC | 60 x 45 x 15 mm; 2.36" x 1.77" x 0.59" | 12V DC | 120W/ATX Output 3.3V@6A, 5V@6A, 12V@6.5A | 41 |
| GADIWA-3161 | DC/DC | 100 x 45 x 22.5 mm; 3.94" x 1.77" x 0.86" | 9~29V DC | 128W/ATX Output 3.3V@6A, 5V@6A, 12V@6A | 41 |



ORION-D4001G



ORION-A1501P



ORION-A1801P

ORION-B2001G

200W power supply with 12V Single Output



Features

- Universal AC input/ Full range
- Protections: Short circuit/ Overload/ Overvoltage/ Over temperature
- Built-in cooling fan speed control
- Built-in constant current limiting circuit
- LED indicator for power on
- Active PFC supported

Specification

| | |
|-----------------------------|---|
| Input Voltage | 85V~264V AC, 120~370V DC |
| Input Frequency | 47~63Hz |
| Input Current | 3.5A@115V, 1.7A@230V |
| Efficiency | >79% |
| Holdup Time | 20ms at full load |
| Over Voltage Protection | 105~120% rated output voltage Protection type: Shut down o/p voltage, re-power on to recover |
| Over Power/ Load Protection | 105%~150% rated output power Protection type: Constant current limiting, recovers automatically after fault condition is removed |
| MTBF | >183,800hrs |
| EMI & Safety Approval | TUV, UL/ cUL, CE, FCC |
| Temperature/ Humidity | Operation: -10~60 °C, 20~90%RH Storage: -20~85 °C, 10~95%RH |
| Dimension | 199 x 99 x 50 mm; 7.84" x 3.90" x 1.97" |

ORION-D2401G

244W PS/2 power supply with 5V/12V/24V Triple Output



Features

- Universal AC input/ Full range
- Protections: Short circuit/ Overload/ Overvoltage/ Over temperature
- Built-in cooling fan speed control
- Built-in constant current limiting circuit
- LED indicator for power on
- Active PFC supported

Specification

| | |
|-----------------------------|---|
| Input Voltage | 100~132V AC/ 200V~264V AC selected by switch |
| Input Frequency | 47~63Hz |
| Input Current | 8A@115V, 4.5A@230V |
| Efficiency | >76% |
| Holdup Time | 12ms at full load |
| Over Voltage Protection | 105~140% rated output voltage Protection type: Shut down o/p voltage, re-power on to recover |
| Over Power/ Load Protection | 105%~200% rated output power Protection type: Shut down o/p voltage, re-power on to recover |
| MTBF | >267,000hrs |
| EMI & Safety Approval | TUV, UL/ cUL, CE, FCC |
| Temperature/ Humidity | Operation: -10~50 °C, 20~90%RH Storage: -20~85 °C, 10~95%RH |
| Dimension | 150 x 140 x 86 mm; 5.90" x 5.51" x 3.38" |

ORION-A3001G

300W Flex form factor power supply



Features

- 300W switching power supply
- FLEX-ATX form factor
- Protections: Short circuit/ Overload/ Over voltage
- Active PFC supported

Specification

| | |
|-----------------------------|--|
| Input Voltage | 90V~264V AC, full range |
| Input Frequency | 47~63Hz |
| Input Current | 7A@115V, 3.5A@230V |
| Efficiency | >80% |
| Holdup Time | 17ms at 70% full load |
| Over Voltage Protection | +3.3V: 3.6~4.2V +5V: 5.8~6.3V +12V: 13.5~16.0V |
| Over Power/ Load Protection | Output power over 110%~150% |
| MTBF | >100,000hrs |
| EMI & Safety Approval | TUV, UL, CE, FCC |
| Temperature/ Humidity | Operation: 0~50 °C, 20~80%RH Storage: -25~85 °C, 10~90%RH |
| Dimension | 81.5 x 150 x 40.5 mm; 3.2" x 5.9" x 1.6" |

ORION-D4001G

400W PS/2 power supply with 24V Output



Features

- Switching power supply with 24V output
- Protections: Short circuit/ Overload/ Over voltage
- Active PFC supported

Specification

| | |
|-----------------------------|--|
| Input Voltage | 100~132V AC or 200~240V AC selected by switch |
| Input Frequency | 47~63Hz |
| Input Current | 7.5A@115V, 3.5A@230V |
| Efficiency | >75% |
| Holdup Time | 16ms at full load |
| Over Voltage Protection | +3.3V: 3.76~4.3V +5V: 5.74~7.0V +12V: 13.4V~15.6V +24V: 26.6~31.2V |
| Over Power/ Load Protection | 110%~150% rated output power Protection type: Shut down o/p voltage, re-power on to recover |
| MTBF | >100,000hrs |
| EMI & Safety Approval | TUV, UL/ cUL, CE, FCC |
| Temperature/ Humidity | Operation: 0~50 °C, 20~80%RH Storage: -25~85 °C, 10~90%RH |
| Dimension | 150 x 140 x 86 mm; 5.90" x 5.51" x 3.38" |

ORION-A1501P

150W Flex form factor power supply



Features

- Flex form factor power supply
- Full-range input with active PFC
- Max. 5V output is 13A
- Low noise

Specification

| | |
|-----------------------------|---|
| Input Voltage | 90V~264V AC, full range |
| Input Frequency | 47~63Hz |
| Input Current | 7.5A@115V, 3.5A@230V |
| Efficiency | >71% |
| Holdup Time | 16ms at full load |
| Over Voltage Protection | +3.3V: 3.7~4.5V +5V: 5.7~6.5V +12V: 13.3V~15.6V |
| Over Power/ Load Protection | Output power over 110%~150% |
| MTBF | >160,000hrs |
| EMI & Safety Approval | TUV, UL / cUL |
| Temperature/ Humidity | Operation: 0~40 °C, 20~90%RH Storage: -20~60 °C, 5~95%RH |
| Dimension | 81.5 x 150 x 40.5 mm; 3.2" x 5.9" x 1.6" |

ORION-A1801P

180W Flex form factor power supply



Features

- Flex form factor power supply
- Full-range input with active PFC
- Max. 5V output is 16A
- Low noise

Specification

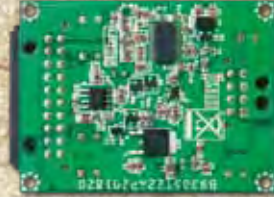
| | |
|-----------------------------|---|
| Input Voltage | 90V~264V AC, full range |
| Input Frequency | 47~63Hz |
| Input Current | 6A@115V, 3A@230V |
| Efficiency | >75% |
| Holdup Time | 16ms at full load |
| Over Voltage Protection | +3.3V: 3.9~4.3V +5V: 5.7~6.5V +12V: 13.6V~15V |
| Over Power/ Load Protection | Output power over 110%~150% |
| MTBF | >130,000hrs |
| EMI & Safety Approval | UL, TUV, BSMI, NEMCO, CCC, CE |
| Temperature/ Humidity | Operation: 0~40 °C, 20~90%RH Storage: -20~60 °C, 5~95%RH |
| Dimension | 81.5 x 150 x 40.5 mm; 3.2" x 5.9" x 1.6" |

GADIWA-P0901

120W DC/DC Converter (12V/input, ATX/output)

12V / Mini-Fit 8 pin input power connector

Main / Mini-Fit 20 pin output power connector



Features

- 12V DC/input, plug into the ATX connector with board output
- Compact and user-friendly design for installation and maintenance
- Fan-less design for mission-critical application
- Small size for 1U or higher system to save space.

Specification

| | |
|----------------------|--|
| Input Voltage | 12V(+5%/-4%) |
| Line Regulation | 11.52V/ 12.6V |
| Output | 120Watts/ 150Watts peak |
| Efficiency | >96% |
| MTBF | 836407hrs@45 °C, 592361hrs@55 °C |
| EMI& Safety Approval | CE, FCC |
| Input Connector | Mini-Fit 8 pin (P/N: B6902040) |
| Output Connector | Mini-Fit 20 pin (P/N: B6902071) |
| Dimension | 60 x 45 x 15 mm; 2.36" x 1.77" x 0.59" |

GADIWA-3161

128W DC/DC 9V~29V/wide-input, ATX/output

Main / ATX 20 pin output power connector

9V~29V / 3 pin input power connector



12V / ATX 4 pin output power connector

Thermal Pad

Features

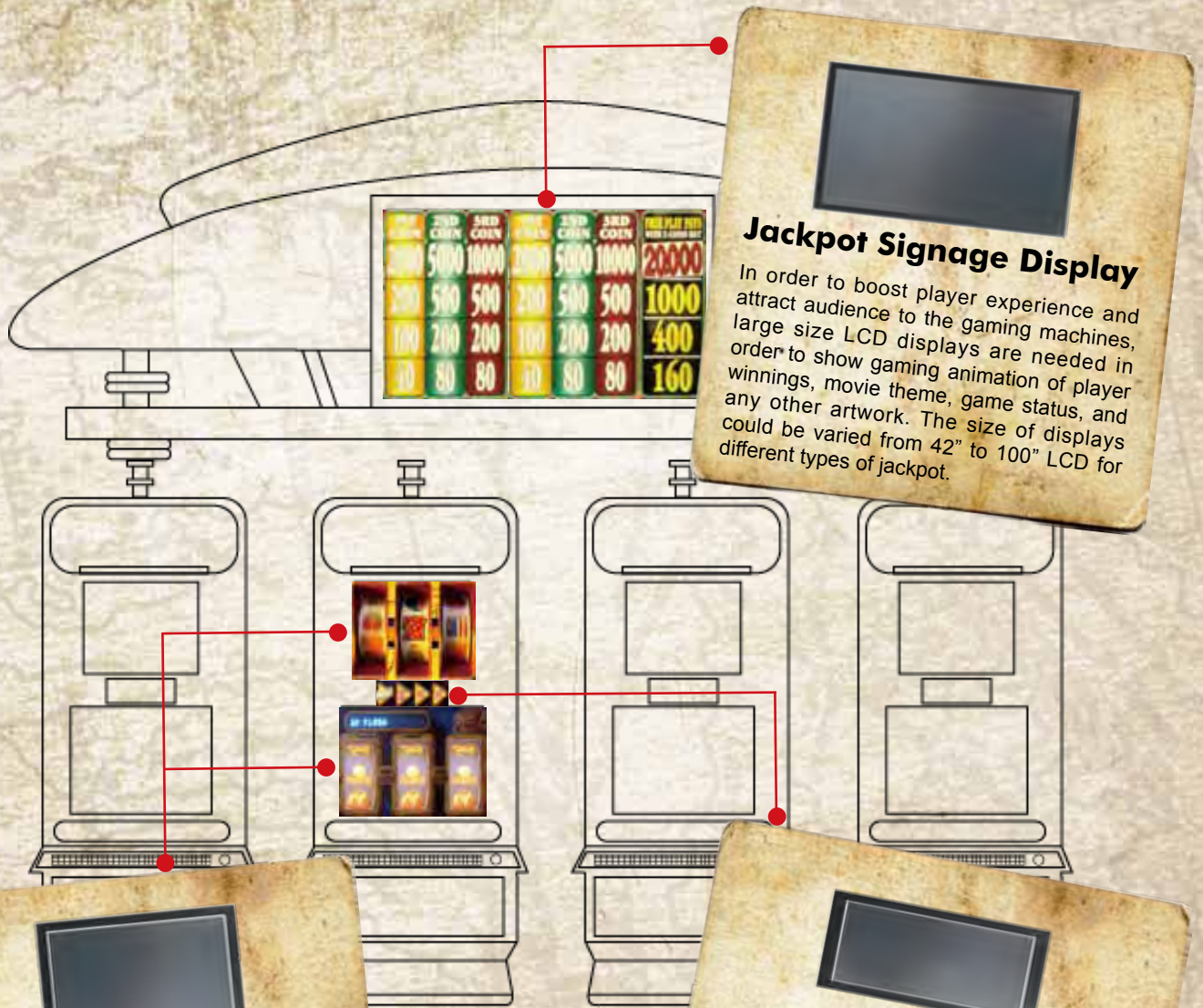
- 9~29V/Wide-input, plug into the ATX connector with board output
- Compact and user-friendly design for installation and maintenance
- Fan-less design for mission-critical application
- Small size for 1U or higher system to save space
- Socket type fuse protection

Specification

| | |
|----------------------|---|
| Input Voltage | 9V~29V, 6~9V workable with derating |
| Line Regulation | 9V~29V input |
| Output | 128Watts/ 160Watts peak |
| Efficiency | >85% |
| MTBF | 836407hrs@45 °C, 592361hrs@55 °C |
| EMI& Safety Approval | CE, FCC |
| Input Connector | 9V~29V/ 3 pin |
| Output Connector | Main/ ATX 20 pin |
| Dimension | 100 x 45 x 22.5 mm; 3.94" x 1.77" x 0.86" |

Gaming Display

In the new era of EGM's, player experience is the added value that slot manufacturers try to capitalize on to grab player's attention. Instead of using mechanical reels, video reels displayed on LCD panels is the most common solution. In order to maximize the user player entertainment, multiple LCD's are necessary to show different animations and information to the player. The most common are jackpot signage display, player tracking display, and the EGM's primary display.



Jackpot Signage Display

In order to boost player experience and attract audience to the gaming machines, large size LCD displays are needed in order to show gaming animation of player winnings, movie theme, game status, and any other artwork. The size of displays could be varied from 42" to 100" LCD for different types of jackpot.

Primary (Main) Display

In order to enhance player entertainment and gaming experience, high-resolution/high-contrast LCD displays are commonly used. Mainstream size of the display are from 17" to 22" capable of displaying HD graphics.

Player Tracking Display

Player Tracking is a mainstream feature that casino operators nowadays use to provide useful information to enhance user interaction. This information is primarily displayed by using industry standard 6.2" LCD touchscreen displays with 640 x 240 resolution.

Cabinet & Payment Peripherals

For the gaming application, the most popular form of payment for EGM's include bill acceptor and coin acceptor/hopper. As cashless payment become mainstream, ticket printers (TITO) are becoming industry standard for quick payments and new marketing channel to enhance interaction with players in real time. In addition, we have strategic partnership with the manufacturers of payment peripherals and cabinet which provides our customers a total solution service that meets time-to-market requirements.



Slot Machine

- 22 inch dual screen and twin door cabinet
- Polished chroming or gloss black
- Reliable and high security platform
- Embedded with ergonomic design
- Available player tracking panel
- Universal card reader bracket

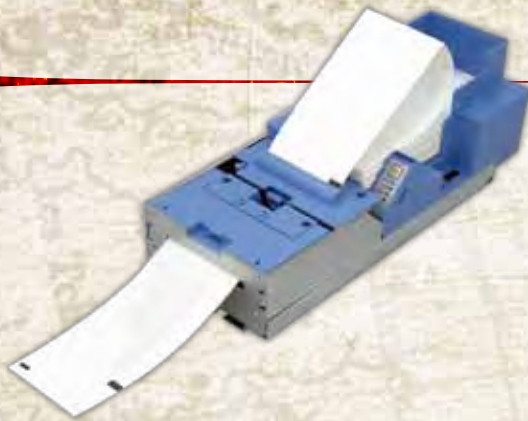
Roulette

- 24/7 setting with multi-denomination
- Player information display support
- Modular design offers a variety of functionality
- Foil liquid-proof
- Severe LED lights with 24-bit color depth offer various illumination effects
- Infra-red proximity sensor to detect approaching player
- Biometric fingerprint identification increases the security



Bill Acceptor

| | |
|-----------------------|---|
| Operating Voltage | 12V DC |
| Power Saving Mode | 40µA |
| Bill Direction | 4 - way acceptance |
| Bill Stacker Capacity | 100, 200, 400 and 800 |
| Protocol | Pulse, RS-232, MDB and Parallel |
| Bill Width Accepted | 62~72 mm |
| Acceptance Rate | 96% or greater |
| Dimension | 94 x 115 x 239 mm; 3.70 x 4.53. x 9.41 inches |



Ticket Printer

| | |
|----------------|--|
| Printing Speed | Up to 120±5 mm/sec; 4.72±0.2 inches/sec |
| Paper Size | Length: 156±1 mm; 6.14±0.0039 inches Width: 65±1 mm; 2.59±0.0039 inches Thickness: 0.1 mm; 0.0039 inches |
| Resolution | 8 dots/mm (203 dpi) |
| Capacity | 200 tickets / 400 tickets |
| Sensors | Paper Low/Out, Printer Drawer Open, Ticket Taken, Ticket Jam, Cover Open |
| Interface | RS232 |
| Power Source | DC 24V |
| Dimension | 112 x 105 x 286 mm; 4.41 x 4.13 x 11.26 inches |

Coin Acceptor

| | |
|-----------------------|---|
| Acceptance Rate | 96% or greater |
| Coin Accepted | Diameter: 17~28 mm/ 0.67~1.14 inches Thickness: 1.5~2.4 mm/ 0.06~0.09 inches |
| Acceptance Speed | Up to 2 coins/sec |
| Coin Entry and Reject | Top entry, Bottom reject |
| Interface | Parallel, Pulse, RS232 |
| Power Source | DC 10V~16V |
| Dimension | Top entry: 102.0 x 98.8 x 55.0 mm; 4.02 x 3.89 x 2.17 inches |



Hopper

| | |
|-------------------|---|
| Operating Voltage | 12V DC and 24V AC |
| Coin Capacity | approx. 500 coins |
| Protocol | RS-232, Pulse, ccTalk and Hopper |
| Dimension | 105 x 152 x 150 mm; 4.13 x 5.98 x 5.90 inches |

About Portwell

Portwell, Inc. was founded in 1993 and entered the Industrial PC market in 1995 by developing single-board computers. Today, our continuous development of leading-edge products has resulted in strong growth in market share and revenue, a firm place on the Taipei stock exchange (TAISDAQ), and has established Portwell a major worldwide supplier of specialty computing application platforms and services. Portwell, Inc. is not only a member of the selected group of Intel®

Applied Computing Platform Providers (IACPP), but also an premier member of Intel® Embedded Alliance (EA), as well as Association of Gaming Equipment Manufacturer (AGEM).

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



Portwell Engine (PE) Building

Working on a logic board/box or turnkey EGM, 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 10 years of experience in the design and manufacture of gaming products, Portwell not only provides you logic board/box service, but also our strategic partnership with payment peripherals and cabinet manufacturers makes us experts in the field providing you one- stop shopping service.

Accompanied by our flexible business support, manufacturing excellence, and compliance with high quality and environmental standards such as ISO 9001/14001, OHSAS and RoHS, our customers can take advantage of our dedicated and sophisticated engineering resource to satisfy numerous requirements for the design, manufacturing, and logistics of logic board. Portwell is the perfect partner to help you deliver your products on time and stay one step ahead of the competition.



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

Share for Success

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

Design, Develop, and Deliver

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

Portwell Manufacturing Excellence

- Supply chain and component inventory management with

automation.

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

Portwell Global Presence

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



Consulting • Design • Product • Manufacturing • Logistics



Completed Technical Service-In order to ensure that customers can get the right and speedy service from Portwell, we do offer the following services to meet your needs.

Consulting Service

Our engineering experts provide a free service to discuss with you the projects or technologies that you need in a short period of time. Please visit Portwell web and click the button, then the on-line service will appear for you.

Product Service

We have the experienced product managers who can help you to get the right products in our list and also the related information to complete your solution.

Design Service

If our existing products cannot meet your requirements, a customized design service can be initiated to build the exact products that you demand.

Manufacturing Service

Portwell has the most advanced manufacturing facilities to produce the quality product for your application or business. Please pay a visit to our Portwell engine, you will know how best that we can do for you.

Logistics Service

It is not only for the scalable or world-grade customers, we offer the service to our partners who need the world-wide delivery to save time and expense.



Portwell, Inc. Headquarters

No. 242, Bo-Ai St., Shu-Lin Dist.,
New Taipei City 238, Taiwan
Tel: +886-2-77318888
Fax: +886-2-77319888
E-mail: info@portwell.com.tw
<http://www.portwell.com.tw>

American Portwell (Fremont, California)

44200 Christy St.
Fremont, CA 94538, USA
Tel: +1-510-403-3399
Fax: +1-510-403-3184
E-mail: info@portwell.com
<http://www.portwell.com>

Portwell Japan, Inc. (Tokyo)

〒101-0042 ShowaKanda Build 9F, 10-2
Kanda Higashi Matsushita-cho
Chiyoda-ku, Tokyo, Japan
Tel: +81-3-5298-8071
Fax: +81-3-5298-8072
E-mail: info@portwell.co.jp
<http://www.portwell.co.jp>

Beijing Portwell

4F, Building 5, Qunying Zone,
Chuangye Rd. 8, Shangdi, Haidian
District, Beijing 100085, China
Tel: +86-10-8270-1616
Fax: +86-10-8270-0606
E-mail: info@portwell.com.cn
<http://www.portwell.com.cn>

European Portwell

Haverstraat 6, Nieuw-Vennep,
2153 GB, Netherlands
Tel: +31-252-620790
Fax: +31-252-621325
E-mail: info@portwell.nl
<http://www.portwell.nl>

Portwell (UK) Ltd.

Unit 15, Moorbrook,
Southmead Industrial Estate,
Didcot OX11 7HP, UK
Tel: +44(0)1235-750760
Fax: +44(0)1235-750761
E-mail: info@portwell.co.uk
<http://www.portwell.co.uk>