



Conroe

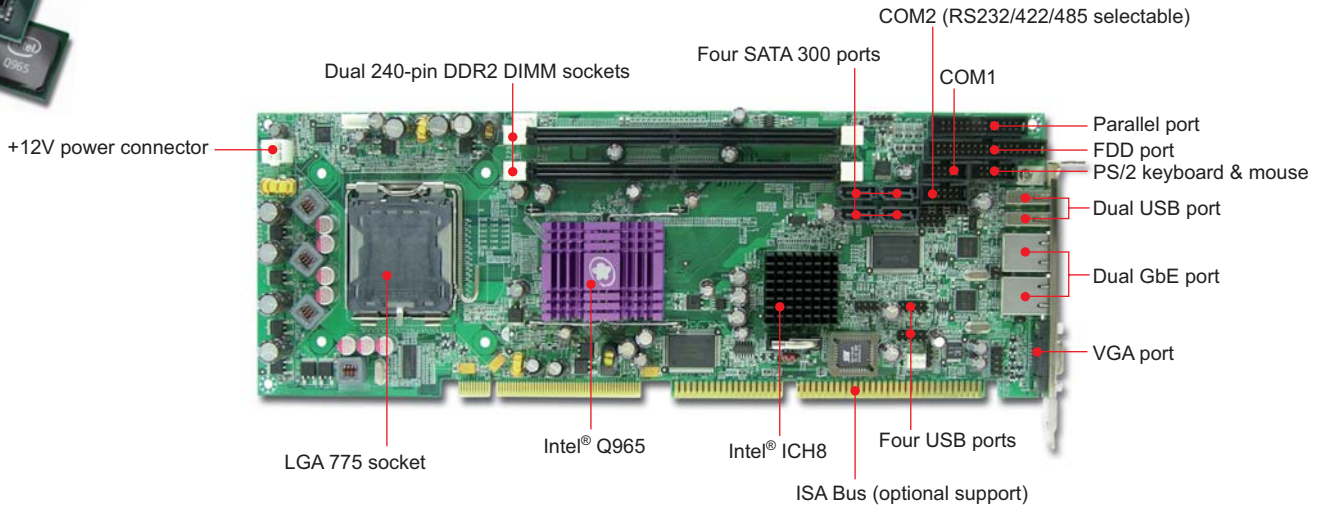
Advanced Industrial Computing

Q965



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 3000 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 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 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 55°C Storage Temperature: -20 to 80°C Relative Humidity: 5% to 90%, non-condensing
MTBF	TBA

I/O

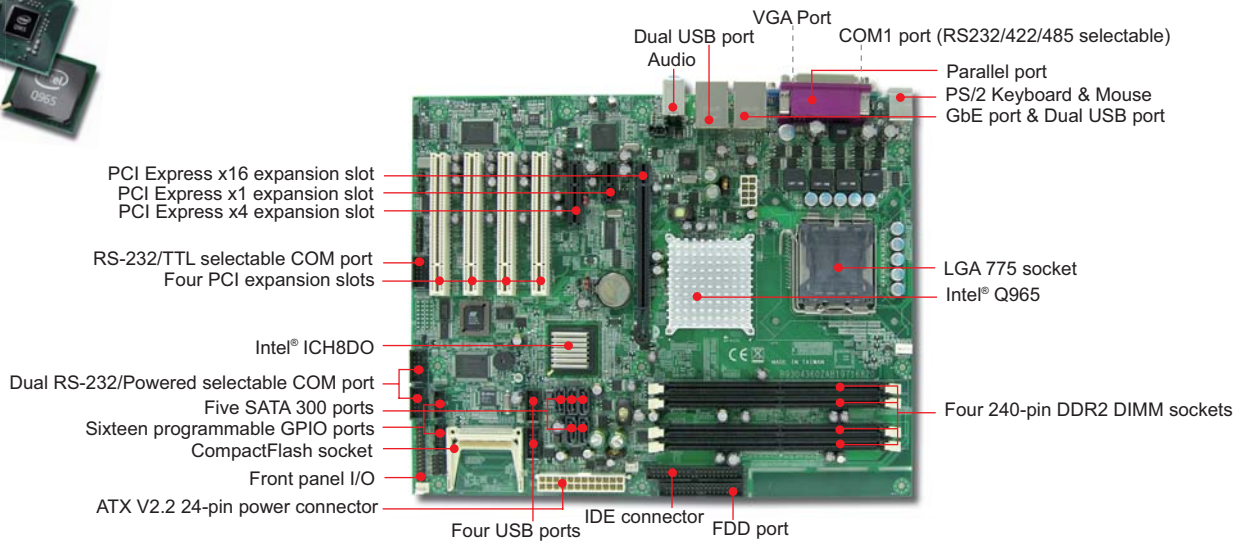
MIO	Two serial (RS-232x1, selectable RS-232/422/485x1), one parallel and one FDD channel
IrDA	IrDA 1.0
Ethernet	-Dual 10BASE-T/100BASE-TX/1000BASE-T Ethernet -PCI Express x1 interface based Gigabit Ethernet -Dual RJ-45 connectors with two LED indicators
Audio	HDA interface, 2-channel Audio
USB	Six USB 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 shares system memory up to 256MB
Display Interface	Support CRT interface up to QXGA 75Hz (2048x1536)

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 that 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 card that provides TV tuner, video capture in and DVI, TV-out
- One PCI Express x4 slot for storage add-in card which provides reliable and safer data storage with adequate I/O throughput
- One PCI Express x1 and four 32-bit PCI expansion slots for most industrial I/O cards
- Five SATA 300 ports together with one IDE channel and CF socket are perfect 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
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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 8GB DDR2 800/667/533 SDRAM on four 240-pin DIMM sockets
BIOS	Award BIOS
Storage Devices	EIDE: Support single EIDE device with Ultra DMA 100/66/33 SATA: Support five SATA 300 drives
Solid State Disk	One Type II CF socket (only available if no IDE device attached)
Watchdog Timer	Programmable via software from 0.5 sec. to 254.5 min.
Expansion Interface	- Four 32-bit PCI expansion slots - One PCI Express x 4 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 243.8(W) / 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	TBA

I/O

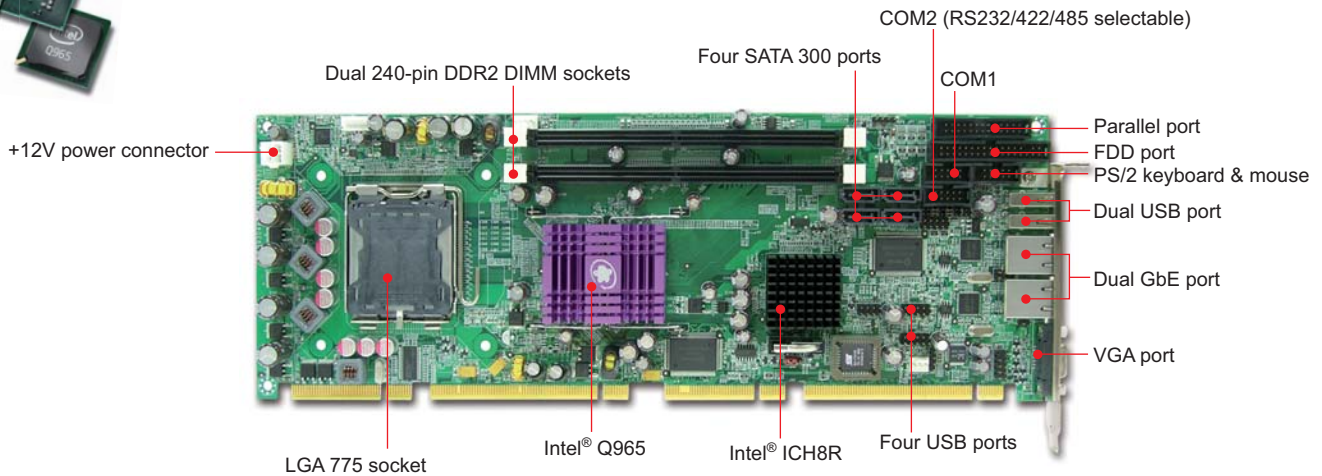
MIO	Four serial (RS-232/TTL selectable x1, RS-232/Powered selectable x2, RS-232/422/485 selectable x1), one at rear I/O panel, one parallel, one FDD channel
IrDA	One IrDA
Ethernet	- Single 10BASE-T/100BASE-TX/1000BASE-T Ethernet - PCI Express x1 interface based Gigabit Ethernet - Single RJ-45 connector 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 controller - Intel GMA 3000 which provides improved 3D multimedia capabilities including DirectX 9, Shader Model 3.0, OpenGL 1.5, Advanced De-interlacing, MPEG-2 hardware acceleration - Support dual independent display with ADD2/+ card
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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 478 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
- Flexible 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 ICH8R
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 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	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 55°C Storage Temperature: -20 to 80°C Relative Humidity: 5% to 90%, non-condensing
MTBF	TBA

I/O

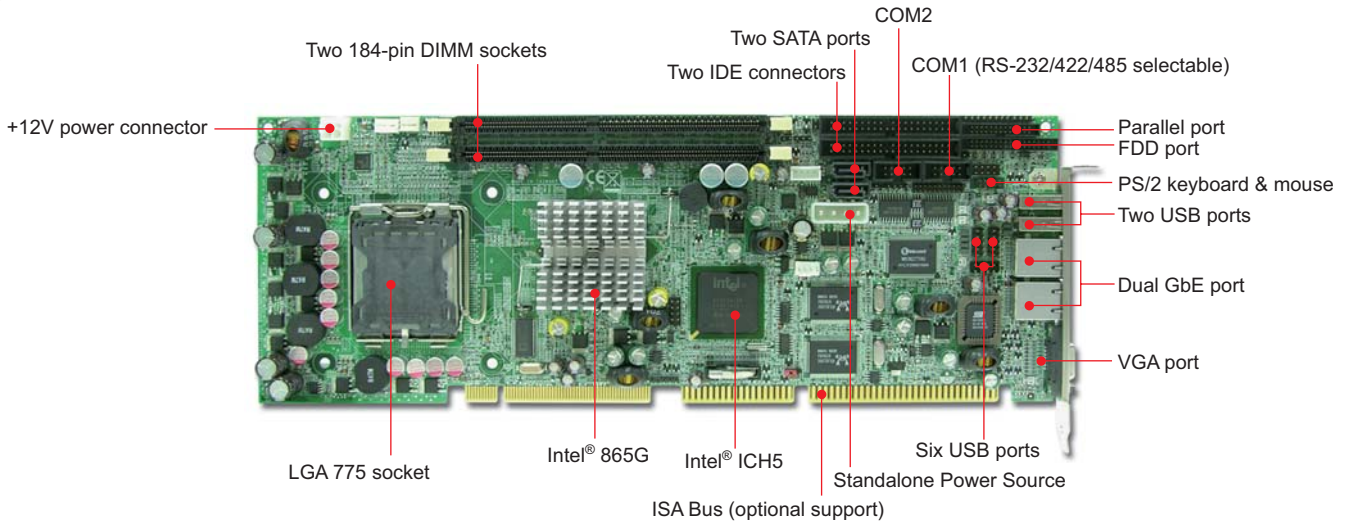
MIO	Two serial (RS-232x1, selectable RS-232/422/485x1), one parallel and one FDD channel
IrDA	IrDA 1.0
Ethernet	-Dual 10BASE-T/100BASE-TX/1000BASE-T Ethernet -PCI Express x1 interface based Gigabit Ethernet -Dual RJ-45 connector with two LED indicators
Audio	HDA interface, 2-channel Audio
USB	Eight USB 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-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 without 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

"*" Represents to be "over-clocking"

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® 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	TBA

I/O

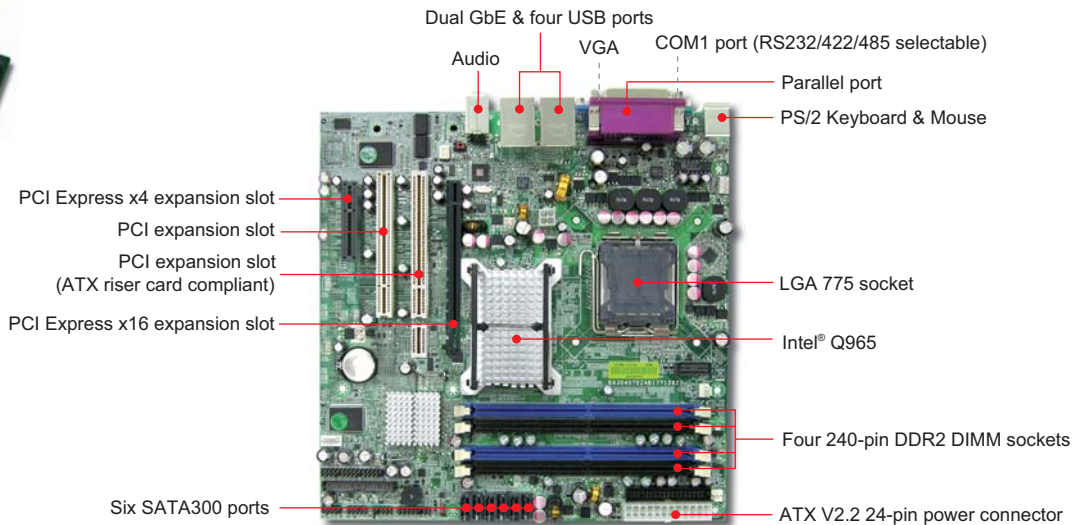
MIO	Two serial (RS-232x1, selectable RS-232/422/485x1), one parallel and one FDD channel
IrDA	IrDA 1.0
Ethernet	-Dual 10BASE-T/100BASE-TX/1000BASE-T Ethernet -PCI interface based Gigabit Ethernet -Dual RJ-45 connectors with two LED indicators
Audio	AC'97 interface reserved
USB	Eight USB 2.0 ports
Keyboard & Mouse	Two USB 2.0 ports 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 shares system memory up to 64MB
Display Interface	Support CRT interface up to QXGA 75Hz (2048x1536)

RUBY-9717VG2AR

Intel® Core 2 Duo processor based Micro-ATX Industrial Mainboard 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 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

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 8GB DDR2 800/667/533 SDRAM on dual 240-pin DIMM socket
BIOS	Award BIOS
Storage Devices	EIDE: N/A SATA: Support six SATA 300 drives and Intel Matrix Storage Technology
Solid State Disk	N/A
Watchdog Timer	Programmable via software from 0.5 sec. to 254.5 min.
Expansion Interface	One PCI Express x16, one PCI (ATX riser card compliant), one PCI and one PCI Express x4
Hardware Monitoring	System monitor (fan, temperature, voltage)
Power Requirement	TBA
Dimension	Dimension: 243.84 (L) x 243.84(W) / 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	TBA

I/O

MIO	Two serial (RS-232x1, selectable RS-232/422/485x1), one parallel and one FDD channel
IrDA	IrDA 1.0
Ethernet	-Dual 10BASE-T/100BASE-TX/1000BASE-T Ethernet -PCI Expressx1 interface based Gigabit Ethernet -Dual RJ-45 connectors with two LED indicators
Audio	HDA interface, 2-channel Audio
USB	Eight USB 2.0 ports (four USB ports at rear I/O panel)
Keyboard & Mouse	PS/2 keyboard & mouse at rear I/O panel

ORDERING GUIDE

Standard	RUBY-9717VG2AR LGA-775 Core 2 Duo processor based Micro-ATX Industrial Mainboard with DDR2 SDRAM, VGA, Dual Gigabit Ethernet, Audio and USB
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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)



WADE-8156

Leading Intel® Core 2 Duo / Pentium® 4 LGA775 based Mini-ITX Board with Dual Display & GbE LAN ports



Feature

- Support 65 nm Intel® Core™ 2 Duo (Conroe) processors
- Built with Intel® G965 GMCH Chipset
- Adopts Dual-channel DDR2 memory architecture
- Supports Dual View display by VGA & DVI/VGA & LVDS/ LVDS & DVI
- On-board 5.1 CH Audio capability
- Dual GbE LAN ports supported
- One PCI Express x16 slot reserved for expansion
- Supports total up to two COM and eight USB 2.0 ports

The WADE-8156 is a leading design of the advanced mini-ITX ESB with the newest Intel G965 GMCH chipset. With the computing power of dual cores technology, it can offer you the dramatic energy to drive your application quick and reliable. The graphic media accelerator x3000 shows the wonderful display

speed and quality via the dual channels memory support, The expansion slot based on PCI-Express x16 design give you the best exibility to expand your system. No wonder, the WADE-8156 is really leading among competitors.

Specification

System

CPU	Intel® LGA775 Core 2 Duo and Pentium® 4 / Celeron® D processors (E6000, 600, 500, 300 series)
FSB	FSB 1066/800/533 MHz
BIOS	Award BIOS with 8Mb Flash ROM
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
RAID	Optional ICH8R supports RAID 0, 1, 5, 10 function
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 x4 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 Codec	HDAC codec with Realtek ALC883 7.1 +2CH 3D audio interface
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

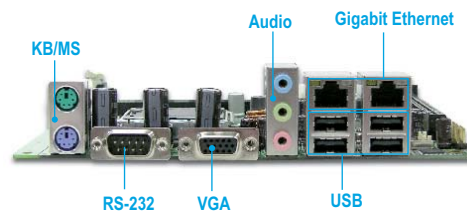
Display

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 Chrontel CH7308 LVDS transmitter

Mechanical & Environmental

Power Requirement	TBD
Operating Temperature	0~60°C (32~140°F)
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 Information

■ WADE-8156

Intel® LGA775 Intel® Core™ 2 Duo and Pentium® 4 / Celeron® D processors
Main Board with VGA, Audio, Dual GbE LANs, 8 USB 2.0

What is Conroe?



Conroe is desktop processor of Intel® which build based on its innovative Core Microarchitecture, so called Core 2 Duo Desktop processor. Design changes in the Intel® Core 2 Duo processors that improve performance also increase processor energy efficiency by operating at lower frequencies that require less power to run. A new feature, Intel® Intelligent Power Capability, optimizes energy-efficient processor support smaller, more capable, and quieter computing platform to conserve critical power resources.

With following new innovative features, the dual-core processor is the most impressive one that developed for an increasingly multimedia-centered, high-definition world.

- Wide Dynamic Execution
- Smart Memory Access
- Advanced Smart Cache
- Digital Media Boost
- Virtualization Technology
- Extended Memory 64 Technology
- Execute Disable Bit

What is G/Q965 chipset?



965 Express Chipset family continues the Intel® chipset legacy and extends it to new levels with purpose-built capabilities designed specifically to address the key needs of manageability, graphics, stability, data protection and optimizations.

- Support the Intel® Core 2 Duo, Pentium® D, Pentium® 4 and Celeron® D processor in LGA775 socket.
- Updated Graphics Memory Controller Hub (GMCH) backbone architecture that improves system performance by optimizing the use of available memory bandwidth and reducing the latency of the memory access.
- Delivers richer visual color and picture clarity without the need for additional discrete graphics cards. Delivers performance for advanced operating systems like Microsoft Windows Vista. Dual Independent Display expands the viewable workspace to two monitors.

- PCI Express x16 graphics interface supports the latest high-performance graphics cards. And the PCI Express x1 I/O ports offer up to 35X the bandwidth over traditional PCI architecture, delivering faster access to peripheral I/O devices.
- Active Management Technology enables remote, down-the-wire management of out-of-band networked systems regardless of system state, helping improve IT efficiency, asset management and system security and availability. The System Defense feature can help block incoming software attacks, isolate a client from the network if infected, and proactively alert IT if critical software agents are missing.



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