ROBO-8712VLA

Pentium 4 processor based PICMG SBC with DDR SDRAM, AGP 4X VGA, LAN, audio and USB 2.0

Highlight

Pentium 4 processor with 400/533 MHz PSB
200/266 MHz DDR SDRAM up to 2 GB
Intel 845GV chipset
Intel DVMT AGP 4X with 64 MB display memory
On-board Intel ICH4 Ethernet

Feature | General Spec | Additional | Ordering Guide

Feature

- High quality and reliable design for wider range Pentium 4/Celeron processor support in mission critical operation
- Intel 845GV chipset with high performance integrated graphics, backed up by Intel EID's long product life support
- Best cost/performance solution, targeting at most of the industrial applications
- Only the most popular functions integrated on board to keep the best layout trace placement for stability
- Rich expansion capability through proprietary PCI and DVO expansion connectors
- Standard features for embedded system deployment like H/W monitoring, WDT, SSD and wake-on-LAN
- Additional external power connector for stand alone operation for rugged embedded system integration

Revision History:

Version	Date	Changes
0.1	4/26/2002	PM Draft
0.9	7/1/2002	RD layout review modified: DVO connector added, delete on board TMDS/LVDS, adding panel convert board as optional items: ROBO-V2DL and ROBO-V2DT
1.0	9/16/2002	RD finalized change Bridge chip to ITE, chipset to 845G/GV and change the template to meet as Marconm's web site database format

Specifications of ROBO-8712VLA

Introduction:

Model Name: ROBO-8712VLA

Advanced PICMG form factor Intel Pentium® 4 Processors Single Board Computer with DDR SDRAM , High Integration AGP 4X VGA, AC 97 Audio and Fast Ethernet

Highlights: (Subtitle)

ROBO-8712VLA is Portwell's answer to cost effective high integration Pentium 4 applied computing platform. It provide innovative, high integration, high quality Single Board Computers in the applied computing market. The board is based on Intel 845GV chipset and latest high performance processor, Intel Socket 478 Pentium® 4 Processor, running at up to 2.4Ghz with 533Mhz Process system bus that built on Intel ® 0.13 micron processor technology. With Intel 845G/GV chipset that support high speed non-ECC DDR SDRAM, high-performance graphic controller AGP 4X controller and Intel fast Ethernet connection enable Portwell's ROBO-8712VLA to provide most versatile SBC in the market.

All in all, ROBO-8712VLA was designed to meet all kind of applied computing application. With Intel most advance mainstream chipset 845G/GV ROBO-8712VLA is aiming the most wide range of Multimedia and networking application in the market.

It's compact design with industry PICMG standard form factor make it the best solution for high density server. High reliability and easy-to-maintain nature (lower MTTR) meet high-availability need of Mission critical application.

Main Features

- Intel 845G/GV based PICMG SBC with VGA/LAN/Audio and optional SCSI 160 or 2nd LAN module through proprietary connector (PCI bus)

- Support mPGA478 socket Pentium 4
- PSB speed 400/533 MHz
- Support DDR200/266 DDR SDRAM memory up to 2GB without ECC support
- Intel GMCH integrated graphic device with analog and optional digital display ports (provides flexibility and scalability in graphics subsystem performance)
- Support CRT and optional dual channel LVDS/TMDS for Panel display (with DVO to LVDS/TMDS (DVI-D) convert board
- ICH4 integrated fast Ethernet controller
- Support two a DMA/33/66/100 IDE
- Support Standard I/O including 2 serial ports, 1parallel port, one IrDA port, 3 USB ports (USB 2.0 compliant) and 8 high driving GPIO.
- Compliant with PCI Bus spec V2.1
- Full-size All-in-one SBC with PICMG 1.0 Rev 2.0 compliant
- Special futures
  - Proprietary socket for optional daughter board (PCI bus) for SCSI or 2nd LAN options.
  - Reserve space around IDE interface connector to fit DOM (Disk-On-Module)
  - Fully support ATX function with WOL, Modem-Ring On, K/B & Mouse wake-up
  - ISA64 driving capability

System Specifications

- Chipset
  - Intel 845G/GV
  - Intel GMCH and Intel ICH4

- CPU
  - Support one mPGA478 socket Pentium 4 Processor up to 2.4GHz
  - PSB speed 400/533 MHz

- Main memory
  - Two 184-pin DIMM sockets
  - Supports 200/266Mhz DDR SDRAM up to 2GB
  - Available bandwidth up to 2.1GB/s (DDR266)
  - 64/128/256/512 Mb SDRAM technologies
  - 2.5V DDR SDRAM support
  - Registered DIMM not supported
  - Do not support ECC functionality

- System BIOS
  - Award BIOS with PC'98 support
  - 4Mbit flash ROM (Intel FWH) for easy upgrade
  - Support DMI, PnP, Green function and ACPI (default support)
  - ACPI support suspend to RAM, USB wake up.

- On Board I/O
  - IDE Interface
    - Support two enhanced IDE channel up to four HDDs with PIO mode 4, Ultra DMA/33/66/100 and Bus master feature.

  - FDC, I/O
    - Support 360KB, 720KB, 1.2MB, 1.44MB and 2.88MB Floppy Disk interface up to two drivers
    - Support two serial ports for UART
    - Parallel port support SPP/EPP/ECP
    - Support three USB Ports (one on Bracket, two with pin header)
    - Support one IrDA (share one serial port)

  - Hardware Monitoring
    - Support CPU voltage, temperature and FAN monitoring

  - Watch Dog Timer
    - Support Watch-Dog Timer

- Intel GMCH Integrated Graphics controller
  - IGD with analog and optional digital display ports
  - Analog Display Support up to 2048 x 1536 @ 60Hz refresh
  - Multiplexed Digital Display Channels supports flat panels up to 2048x1536 @ 60Hz or dCRT/HDTV at 1920 x 1080 @ 85Hz (with optional convert board)
  - AGP 2.0, AGP 4X. 1.5V
  - Software DVD at 30 fps, full screen
  - Motion Video Acceleration
  - Support LVDS Panel Display (Factory Optional)
  - Support TMDS for 2nd Display (Factory Optional)
  - Panel Signal voltage must be 3.3V or 5V
  - Inverter voltage: 12V

- On Board PCI to ISA Bridge (National PC87200 PCI to ISA chipset)
  - Support ISA Bus mastering
  - Support standard ISA slot
  - 64mA high driving
  - Support M-system DOC

- One On Board Ethernet (one ICH4 Integrated MAC controller with external 10/100 Mb phy)
  - Support 10/100 MB Base-TX
  - One RJ-45 phone jack.
  - Support two LEDs to indicator LAN access and link status on RJ45 jack
  - Support Wake-on-LAN
- ACPI compliant support the full-on (S0), Stop Grant (S1), Suspend to RAM (S3), Suspend to Disk (S4), and soft-off (S5) power management states.
- Real Time Clock/Calendar (RTC)
  - Compatible for 7 years of data retention to support real Y2K
  - An external Li battery

- Wake On LAN & modem Ring On
  - Support ATX function with 4-pin header connect to back plane

- Keyboard and PS/2 Mouse interface
  - Support one mini-DIN 6-pin connectors for keyboard and mouse, one 5-pin header connector for external keyboard connection.

- ISA64 High ISA-Bus Driving Capability
  Support 64mA high driving capability for ISA-Bus slots on back plane

- Power Good
  - On-Board power good generator with 200 ms to 300 ms reset duration

- CPU Cooling Fan
  - Support one 3-pin header with wafer

- Auxiliary I/O
  - One 2-pin system reset switch
  - One 4-pin external speaker interface

- One 5-pin key-lock header
- One 2-pin HDD active indicator interface
- One 8-pin USB dual port interface
- One 4-pin ATX power control interface
- One 10-pin connector for GPIO (4 GPI and 4 GPO)

- Bracket
  - Support one RJ45 connectors (LAN)
  - One VGA connector
  - One USB Port (Two port USB for stand alone operation is available if put two port USB connector on same location)
  - One PS/2 Keyboard/mouse connector (Mini din)

- Optional daughter Board Ultra 160 SCSI (AIC 7892 chipset)
  - Support one 68-pin SCSI interface
  - SCSI data transfers up to 160 MB/sec
- Optional panel display Board (ROBO-V2DL, and ROBO-V2DT)
  - ROBO-V2DL: DVO to LVDS panel convert board
  - ROBO- V2DT: DVO to TMDS/DVI-D convert board
  - With mounting holes for fixing on chassis (mainly for ROBO-V2DL)
  - With PCI bracket and golden finder for plug in free PCI slot (mainly for ROBO-V2DT)
  - Could adopt same PCB design (PCB as a common part)
- Physical and Environmental requirements
  - Outline Dimension (L x W) 338.5 mm X 122mm
  - Power requirements TBD
  - Operating temperature 0 to 55 degree C
  - Relative Humidity 5% to 90%, non-condensing

BIOS Private Labeling guide line:

1st line
Award BIOS ROBO-8712 series Rev.: R1. xx.xx.xx (2002/9/18)

2nd line
Intel 845G/GV

Bottom line

Portwell ROBO-8712 series

General

CPU	Intel Pentium 4 processor in mPGA 478 package
System Bus Frequency	400/533 MHz
Chipset	Intel 845G/GV
Memory	Up to 2 GB 2.5V 200/266 MHz DDR SDRAM on two 184-pin DIMM sockets
L2 Cache Memory	Built-in CPU (256/512 KB)
BIOS	Award advanced first BIOS
On-Board I/O	Support for four EIDE devices with Ultra DMA/100 Up to two floppy disk drives Two serial, one parallel, one IrDA, and three USB 2.0 ports 8 high driving GPIO (4GPI, 4GPO)
Watchdog Timer	Programmable via software from 0.5 sec. to 254.5 min. Can be enabled/disabled by jumper
Keyboard/Mouse	One mini-DIN 6-pin connector for keyboard and mouse One 5-pin header for external keyboard connection
Expansion Interface	Proprietary PCI expansion connector for SCSI and 2nd LAN and DVO connector (factory optional) for panel support
ISA Bus	64mA high driving ISA Bus interface to backplanes for legacy ISA slots
Hardware Monitoring	System monitor (fan, temperature, voltage)
ATX Power Control	ATX function with 4-pin header connect to backplane
Power Consumption	
Approval	FCC, CE class A
Dimension	338.5(L) x 122(W) mm 13.33"(L) x 4.8"(W) 8-layer PCB
Operating Temperature	0 to 55 °C
Storage Temperature	-20 to 75 °C
Relative Humidity	5% to 90%, non-condensing

Additional Functionality

Display	Intel GMCH integrated graphics controller Dynamic 8~64 MB shared display memory (Intel DVMT) Display resolution up to 2048 x 1536 @ 60 Hz TMDS/LVDS Interface support (factory optional) Superior 2D, 3D and video performance
Ethernet	10BASE-T/100BASE-TX Ethernet with IEEE 802.3u auto-negotiation support One RJ-45 connector with two LED indicators for LAN access and link status Modem-Ring-On and Wake-On-LAN 2nd LAN available thru daughter board (ROBO-N100)
Audio	AC '97 2.0
Solid State Disk	DOC socket for up to 288 MB
SCSI	Adaptec AIC 7892 single channel Ultra 160 SCSI controller (optional)

Ordering Guide

ROBO-8712VLA	Pentium 4 processor based PICMG SBC with DDR SDRAM, AGP 4X VGA, LAN, audio and USB 2.0
ROBO-V2DL	DVO to LVDS panel convert board
ROBO-V2DT	DVO to TMDS/DVI-D convert board

Accessory

ROBO-U160 ROBO-N100

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