ROBO-679

User's Manual

P/N: 861106790047 Version 1.1

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Summary

The ROBO-679 all-in-one single board computer is designed to fit a high performance Celeron/Pentium-III based CPU and compatible for high-end computer system with PCI Local Bus architecture. It is made to meet today' s demanding pace, and keep complete compatibility with hardware and software designed for the IBM PC/AT. It is beneficial to build up a high performance system for VARs, or system integrators. The on-board 3D Graphics display, and fast Ethernet interface will bring full functionality and high performance to all segments of the industrial PC market.

This single board computer runs with Intel Celeron/Pentium-III (FC-PGA & FC-PGA2) processor, and supports DIMM up to 512 MB SDRAM. The enhanced on-board PCI IDE interface can support 4 drives up to PIO mode 4 timing and Ultra DMA/33/66/100 synchronous mode feature. The on-board Super I/O Chipset integrates one floppy controller, two serial ports, one keyboard controller, one hardware monitor, one IrDA port and one parallel port. Two high performance 16C550-compatible UARTs provide 16-byte transmit/receive FIFOs, and the multi-mode parallel port supports SPP/EPP/ECP function. Besides, three USB (Universal Serial Bus) ports provide high-speed data communication between peripherals and PC. PCI type daughter board can also be compatible to ROBO-679.

The PICMG standard makes the ROBO-679 work with the legacy ISA, ISA/PCI or multi-slots PCI-bus backplane. The on-board 32-pin DIP socket supports M-systems DiskOnChip 2000 product up to 288MB. The Watch-Dog Timer function can be used to monitor your system status. One 6-pin Mini-DIN connector (with Y-Cable) is provided to connect PS/2 Mouse and Keyboard. The on-board Flash ROM is used to make the BIOS update easier. A standard 5-1/4" drive power connector is reserved to directly get more power energy for big power applications, and the additional 5-pin shrouded connector is reserved for connecting Keyboard interface on the backplane. One 4-pin header is designed to support ATX power function. All of these features make ROBO-679 excellent in stand-alone applications.

Check List

ıe ROBO-679 package should cover the following basic items accompany with this anual.

- ✓ One ROBO-679 single board computer
- ✓ One Parallel Port cable kit
- ✓ One Serial Port cable to support two interfaces
- ✓ One FDC cable
- ✓ One IDE cable
- ✓ One Y-Cable cable for PS/2 Keyboard and Mouse
- ✓ One 5-pin to 5-pin keyboard cable for backplane connection
- ✓ One 4-pin ATX power control cable for backplane connection
- ✓ One CD-Title ROBO-679 to supply Intel 82815 GMCH VGA display driver, Intel 82801BA ICH2 integrated LAN controller driver and the full version manual.

any of these items is damaged or missing, please contact your vendor and keep all ıcking materials for future replacement and maintenance.

Product Specification

- **Main processor**
  Intel Celeron and Pentium-III processors
  - ◆ CPU bus frequency : 66/100/133 MHz
  - ◆ CPU core/bus clock ratio : x2 to x8
  - ◆ Standard socket 370 for FC-PGA/FC-PGA2 CPU (No support for PPGA370 Celeron)

- **BIOS**
  Award system BIOS with 4Mb Firmware Hub to support DMI, PnP, APM, and ACPI

- **Main Memory**
  Two 168-pin DIMM sockets, supporting PC133/PC100 SDRAM up to 512MB (No ECC and Registered DIMM Support)

- **L2 Cache Memory**
  128KB/256KB L2 Cache built in Celeron and 256KB/512KB built in Pentium-III/ Pentium-III-S processor

- **Chipset**
  Intel 815E B-step Chipset

- **Bus Interface**
  Follow PICMG 1.0 Revision 2.0 standard (32-bit PCI and 16-bit ISA)
  Fully complies with PCI Local Bus specification V2.1 (support 4 master PCI slots)

- **PCI IDE Interface**
  Support two enhanced IDE ports up to four HDD devices with PIO mode 4 and Ultra DMA/33/66/100 mode transfer and Bus Master feature

- **Floppy Drive Interface**
  Support one FDD port up to two floppy drives and 5-1/4"(360K, 1.2MB), 3-1/2" (720K, 1.2MB, 1.44MB, 2.88MB) diskette format and 3-mode FDD

- **Serial Ports**
  Support two high-speed 16C550 compatible UARTs with 16-byte T/R FIFOs

- **IR Interface**
  Support one 6-pin header for serial Standard Infrared wireless communication

- **Parallel Port**
  Support one parallel port with SPP, EPP and ECP modes

- **USB Interface**
  Support three USB (Universal Serial Bus) ports for high speed I/O peripheral devices

- **PS/2 Mouse and Keyboard Interface**
  Support one 6-pin Mini-DIN connector and one 5-pin shrouded connector for PS/2 mouse/keyboard connection through Y Cable and backplane connection

- **ATX Power Control Interface**
  One 4-pin header to support ATX power control with Modem Ring-On and Wake-On-LAN function

- **Auxiliary I/O Interfaces**
  System reset switch, external speaker, Keyboard lock and HDD active LED

- **Real Time Clock/Calendar (RTC)**
  Support Y2K Real Time Clock/calendar with battery backup for 7-year data retention

- **Watchdog Timer**
  Support 255 intervals from 0.5 sec./min. to 254.5 sec./min. by software programming

- **Disk-On-Chip (DOC) Feature**
  Reserved one 32-pin socket for M-systems Flash Disk up to 288MB
  DOS, Windows, Win95, NT (bootable) drivers and Utility supported

- **On-board VGA**
  Intel 82815 GMCH integrated graphics controller with 4MB memory

- **On-board Ethernet LAN**
  Intel 82801BA ICH2 integrated LAN controller to support RJ-45 interface at 10/100 Base-T speed

- **On-board 68-pin PCI device connector**
  Support one additional PCI device daughter board

- **High Driving Capability**
  Support 64mA high driving capability for multi-slots ISA-bus

- **External Power Connector**
  Support one standard 5-1/4" disk drive power connectors to enhance power driving

- **Power Good**
  On-board power good generator with reset time, 300ms ~ 500ms

- **CPU Cooling Fan**
  Support two 3-pin headers with wafer

- **System Monitoring Feature**
  Monitor CPU and system temperature, operating voltage, and fan status

- **Bracket**
  Support one Mini-DIN, one-port USB, one Ethernet port and one VGA port

- **Physical and Environmental Requirements**
  - ◆ Outline Dimension (L X W) : 338.5mm (13.33") X 122mm (4.8")
  - ◆ PCB layout : 6 layer
  - ◆ Power Requirements : +5V @10A , +12V @200mA, -12V @30mA
    Test Configuration:
    CPU: Intel PIII 1GHz/ 133MHz FSB, 256KB L2 Cache
    Memory : PC133 SDRAM 256MBx2
    Primary Master IDE HDD : Seagate ST33232A
    O.S. : Microsoft Windows 98 Second Edition
    Test Program : Intel HIPWR30.exe
  - ◆ Operating Temperature : 0°C ~ 55°C (32°F ~ 131°F)
  - ◆ Storage Temperature : -20°C ~ 75°C
  - ◆ Relative Humidity : 5% 95%, non-condensing

Jumper Setting

Please refer to figure 1 for the Jumper locations. △ represents the default factory settings.

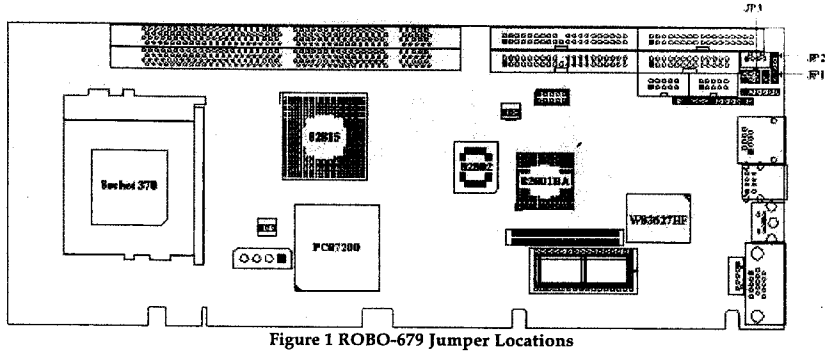

Figure 1 ROBO-679 Jumper Locations

Safe Mode Jumper (JP1)

JP1	Function
Short	Enabled
NC	Disabled △

Note: Enable JP1 will force system to run with X2 core/bus ratio.

RTC CMOS Clear Jumper Setting (JP2)

JP2	Function
1-2	Normal Operation △
2-3	Clear CMOS Contents

AT/ATX Power Selection (JP3)

JP3	Function
3-5, 4-6	Select ATX Power Supply △
1-3, 2-4	Select AT Power Supply

Connector Location

ease refer to figure 2 for the Connector locations.

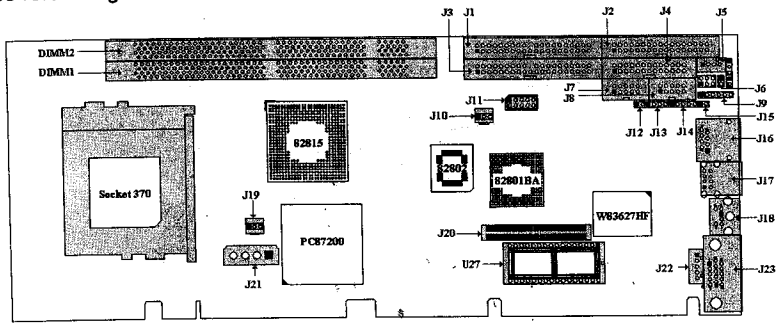

Figure 2-2 ROBO-679 Connector Locations

CONNECTOR	FUNCTION	REMARK
J1	IDE1 (Primary) interface	
J2	Floppy connector	
J3	IDE2 (Secondary) interface	
J4	Parallel port connector	
J5	ATX power control interface	Connect to Backplane
J6	ATX power button interface	Connect to Chassis
J7	COM1 serial port	2 x 5 shrouded header
J8	COM2 serial port	2 x 5 shrouded header
J9	IrDA (infrared) port	Reserve 6-pin for SIR
J10	Reserved for system FAN power connector	
J11	Two-port USB interface	2 x 5 pin header
J12	System reset	
J13	External speaker interface	
J14	Keyboard lock and power indicator	
J15	IDE1/IDE2 active status report	LED indicator
J16	On-board Ethernet (Intel 82801BA) interface connector	RJ-45
J17	One-port USB interface	
J18	One PS/2 keyboard/mouse connector	6-pin Mini-DIN
J19	CPU FAN power connector	
J20	68 pin PCI Connector	
J21	Standard 5-1/4" disk drive power connector	4-pin connector (pitch : 0.2 inch)
J22	External keyboard interface	Connect to backplane
J23	On-board VGA connector	2 x 5 shrouded header
U13	Socket 370	Celeron/PIII CPU
U27	M-systems Flash Disk	DIP 32-pin socket
DIMM1 – 2	DIMM socket	3.3V SDRAM

ATX Power Setting

This part of the Quick Installation Guide provides you a few useful tips to quickly get your ROBO-679 running without failure. As jumper configuration has been addressed in the earlier paragraphs, this section will basically focus on the ATX power setting.

Backplane

ROBO-679 is a full-sized SBC, and therefore is able to run on any PICMG backplane, active or passive.

ATX power

ROBO-679 is designed to support both AT and ATX powering. The following instruction demonstrates how the ATX function can be applied.

ROBO-679 adapts its ATX power through its ATX power control connector (J5). This ATX power interface can be connected to a supported backplane. Such a backpane is required to have a 4 pin connector for feeding the ATX power to ROBO-679. An example is illustrated in figure.3 below:

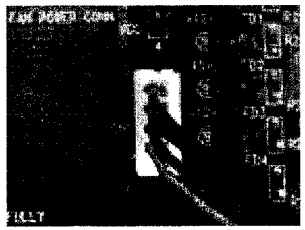

Figure. 3 ATX power control connection on backplane

Figure.4 shows how the jumpers and connectors are set for using ATX function on ROBO-679.

Please short both 3-5 and 4-6 pin of JP3 to enable its ATX function. Besides connecting the 4 pin ATX power control cable to J5. A TOGGLE SWITCH should be used to switch the ATX Power on/off for SBC. Usually the TOGGLE SWITCH is located on the chassis front panel. By pressing the switch button once, the power will be on, and press again to turn it off. It should be connected to J6.

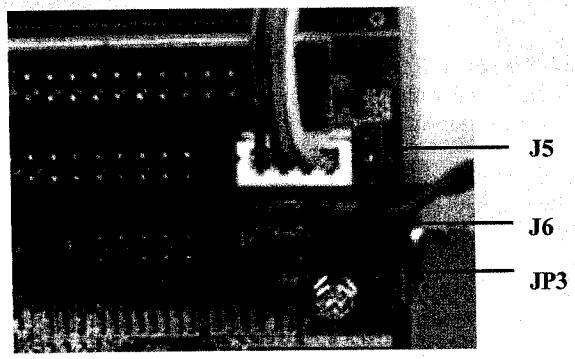

Figure. 4 ATX setting on ROBO-679

last thing to do before your ROBO679 system can be ATX powered is to nect 20-pin power cable of the ATX POWER to the backplane. By switching ATX power on, the system goes into power standby. Clicking your ROBO-ATX power button should successfully turn the system on.