

ROCKY – 3782EVS/EV/IV
Pentium® III, Celeron™, VIA C3® with
Dual Ethernet, VGA, Audio,
Dual Ultra-160 SCSI Port SBC
Ver 2.x

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Introduction

Welcome to the ROCKY-3782EVS Pentium® III, Celeron Single Board Computer. The ROCKY-3782EVS board is a PICMG form factor board, which comes equipped with high performance Pentium® III, Celeron™, VIA C3® Processor and advanced high performance multi-mode I/O, designed for the system manufacturers, integrators, or VARs that want to provide all the performance, reliability, and quality at a reasonable price.

In addition, the ROCKY-3782EVS provides on chip VGA. The VGA which provides up to 1600x1200 resolution. The VGA memory is share main memory.

An advanced high performance super AT I/O chip – ITE IT8712F is used in the ROCKY-3782EVS board. Both on-chip UARTs are compatible with the NS16C550. The parallel port and IDE interface are compatible with IBM PC/AT architecture's.

ROCKY-3782EVS uses Intel 82559 Fast Ethernet Multifunction PCI Controller as LAN controller. The 82559 is a fully integrated 10BASE-T/100BASE-TX LAN solution with high performance networking functions and low power features.

ROCKY-3782EVS uses the advanced INTEL Chipset,810E which is 100% LPC/PCI software compatible chipset.with PCI 2.2 standard.

1.1 Specifications :

- **CPU** : Celeron™ , Pentium® III(FC-PGA) , VIA C3®
- **FBS** : Support 66/100/133 MHz(Auto Detect)
- **Bus** : PICMG Bus
- **DMA channels** : 7
- **Interrupt levels** : 15
- **Chipset** : Intel 810E
- **RAM memory** : Dual 168-pin DIMM sockets support SDRAM module. The max memory is up to 512MB(SDRAM Speed is 100MHz Only).
- **Ultra ATA/33/66 IDE Interface** : Two PCI Enhance IDE hard drives. The south bridge ICH0/ICH supports Ultra ATA/33/66 IDE interface.
- **Floppy disk drive interface** : Single 2.88 MB, 1.44MB, 1.2MB, 720KB, or 360KB floppy disk drive.
- **Two high speed Series ports** : NS16C550 compatible UARTs
- **Bi-directional Parallel Port**
- **Built-in IT8712F to monitor power supply voltage and fan speed status.**
- **IrDA port : Support Serial Infrared(SIR) and Amplitude Shift Keyed IR(ASKIR) interface.**
- **USB port : Support two USB ports for future expansion.**
- **AC'97 Codec** : Support two channel Left/Right Line IN/OUT, MIC IN, CD IN, and PC beep sound for buzzer.
- **Watch-Dog Timer** : can be set by 1,2,3...255 seconds/minutes period. Reset or NMI was generated when CPU did not periodically trigger the timer. Your program use **INT 15** control the watch-dog and generate a system reset(Detail see appendix A).
- **VGA Controller** : Embedded VGA controller, share main memory . Screen Resolution : up to 1600x1200 in 8-bit Color at 85Hz Refresh. 4MB display cache(Option).

- **Dual Intel 82559 Fast Ethernet Multifunction PCI Controller** : IEEE 802.3u Auto-Negotiation support for 10BASE-T/100BASE-TX standard. Fast back-to-back transmission support with minimum interframe spacing. Connected to your LAN through RJ45 connector.
- **SYM53C1010-33/66 PCI-Dual Channel Ultra-160 SCSI Controller**
- **Keyboard connector**
- **IT8888F PCI To ISA Bridge**
- **Mouse** : PS/2 Mouse Port on-board.
- **Power Consumption** : 5V/5A (PIII 500, 64MDRAM, running 3D WINMARK on WIN98)
- **Operating Temperature** : 0° ~ 60° C (CPU needs Cooler)

2

Installation

This chapter describes how to install the ROCKY-3782EVS. At first, the layout of ROCKY-3782EVS is shown, and the unpacking information that you should be careful is described. The jumpers and switches setting for the ROCKY-3782EVS's configuration, such as CPU type selection, system clock setting, and watch dog timer, are also included.

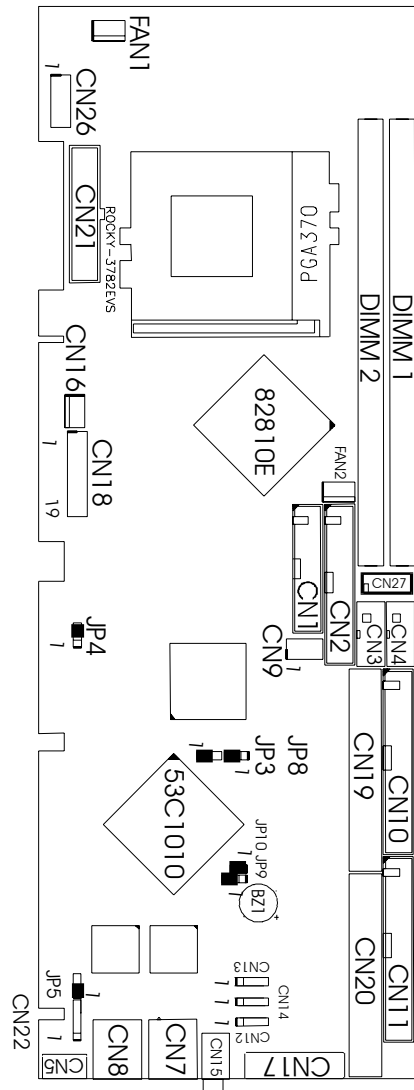
1.2 What You Have

In addition to this *User's Manual*, the ROCKY-3782EVS package includes the following items:

- ROCKY-3782EVS Celeron®, Pentium® III Single Board Computer
- RS-232/Printer Cable x 1
- FDD Cable x 1
- Audio(MIC,LINE IN)/RS-232 x 1
- IDE HDD DMA66 Cable x 1
- Ultra-160 SCSI Cable x 1 (ROCKY-3782EVS Only)
- CD-ROM Driver x 1
- 6-pin Mini-Din to 5-pin Din Keyboard & PS2 Mouse Adapter Cable x 1

If any of these items is missing or damaged, contact the dealer from whom you purchased the product. Save the shipping materials and carton in case you want to ship or store the product in the future.

2.1 ROCKY-3782EV's Layout



2.2 Clear CMOS Setup

If want to clear the CMOS Setup(for example forgot the password you should clear the setup and then set the password again.),you should close the JP3(2-3) about 3 seconds, then open again. Set back to normal operation mode.

- **JP3 : Clear CMOS Setup**

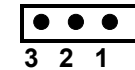


| JP3 | DESCRIPTION |
|-----|------------------------------------|
| 1-2 | Keep CMOS Setup (Normal Operation) |
| 2-3 | Clear CMOS Setup |

2.3 BIOS Protection Setting

To protect the bios from writing, place the cap on the location 2-3.

- **JP4 : Flash Protection Setting**



| JP4 | DESCRIPTION |
|-----|-------------|
| 2-3 | Locked |
| 1-2 | Unlocked |

2.4 CompactFlash Card Master/Slave Mode Setting

The CompactFlash socket is type I, and used IDE 2.

- **JP10 : Master/Slave Mode Setting**

| JP10 | DESCRIPTION |
|-------|-------------|
| SHORT | MASTER |
| OPEN | SLAVE |

3

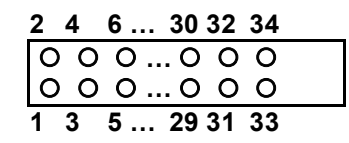
Connection

This chapter describes how to connect peripherals, switches and indicators to the ROCKY-3782EVS board.

3.1 Floppy Disk Drive Connector

ROCKY-3782EVS board is equipped with a 34-pin daisy-chain driver connector cable.

- **CN2 : FDC CONNECTOR**



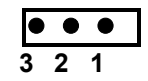
| PIN NO. | DESCRIPTION | PIN NO. | DESCRIPTION |
|---------|-------------|---------|-----------------|
| 1 | GROUND | 2 | REDUCE WRITE |
| 3 | GROUND | 4 | N/C |
| 5 | GROUND | 6 | N/C |
| 7 | GROUND | 8 | INDEX# |
| 9 | GROUND | 10 | MOTOR ENABLE A# |
| 11 | GROUND | 12 | DRIVE SELECT B# |
| 13 | GROUND | 14 | DRIVE SELECT A# |
| 15 | GROUND | 16 | MOTOR ENABLE B# |
| 17 | GROUND | 18 | DIRECTION# |
| 19 | GROUND | 20 | STEP# |
| 21 | GROUND | 22 | WRITE DATA# |
| 23 | GROUND | 24 | WRITE GATE# |
| 25 | GROUND | 26 | TRACK 0# |
| 27 | GROUND | 28 | WRITE PROTECT# |
| 29 | N/C | 30 | READ DATA# |
| 31 | GROUND | 32 | SIDE 1 SELECT# |
| 33 | N/C | 34 | DISK CHANGE# |

2.5 System Power On by Keyboard when use ATX

Power Supply

Use keyboard to turn on the system, if ATX power supply are equipped. Make sure the option in CMOS SETUP is enabled.

- **JP5 : Power on by Keyboard**

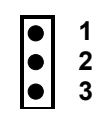


| JP5 | DESCRIPTION |
|-----|-------------|
| 1-2 | Disabled |
| 2-3 | Enabled |

2.6 SCSI Port A/B Terminator Selection Setting

Two SCSI terminators Port A and Port B are supported, JP8 is for Terminator Port A and JP9 is for Terminator Port B

- **JP8, JP9 : Terminator Enable/Disable Setting**



| JP8, JP9 | DESCRIPTION |
|----------|-------------|
| 2-3 | Enable |
| 1-2 | Disable |

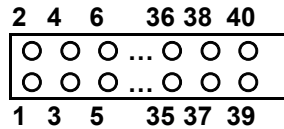
3.2 PCI E-IDE Disk Drive Connector

You can attach four IDE(Integrated Device Electronics) hard disk drives to the ROCKY-3782EVS IDE controller. IDE2 shares the same IDE channel with CompactFlash, so you must refer JP10 before setting the IDE2's device.

CN11 (IDE1) : Primary IDE Connector

CN10 (IDE2) : Secondary IDE Connector

• **CN11/CN10 : IDE Interface Connector**

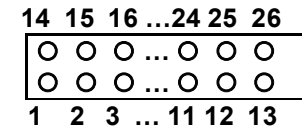


| PIN NO. | DESCRIPTION | PIN NO. | DESCRIPTION |
|---------|-------------|---------|------------------|
| 1 | RESET# | 2 | GROUND |
| 3 | DATA 7 | 4 | DATA 8 |
| 5 | DATA 6 | 6 | DATA 9 |
| 7 | DATA 5 | 8 | DATA 10 |
| 9 | DATA 4 | 10 | DATA 11 |
| 11 | DATA 3 | 12 | DATA 12 |
| 13 | DATA 2 | 14 | DATA 13 |
| 15 | DATA 1 | 16 | DATA 14 |
| 17 | DATA 0 | 18 | DATA 15 |
| 19 | GROUND | 20 | N/C |
| 21 | N/C | 22 | GROUND |
| 23 | IOW# | 24 | GROUND |
| 25 | IOR# | 26 | GROUND |
| 27 | N/C | 28 | BALE - DEFAULT |
| 29 | N/C | 30 | GROUND - DEFAULT |
| 31 | INTERRUPT | 32 | IOCS16#-DEFAULT |
| 33 | SA1 | 34 | N/C |
| 35 | SA0 | 36 | SA2 |
| 37 | HDC CS0# | 38 | HDC CS1# |
| 39 | HDD ACTIVE# | 40 | GROUND |

3.3 Parallel Port

This port is usually connected to a printer, The ROCKY-3782EVS includes an on-board parallel port, accessed through a 26-pin flat-cable connector CN1.

• **CN1 : Parallel Port Connector**



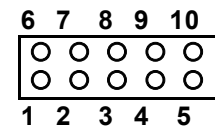
| PIN NO. | DESCRIPTION | PIN NO. | DESCRIPTION |
|---------|--------------------|---------|------------------|
| 1 | STROBE# | 2 | DATA 0 |
| 3 | DATA 1 | 4 | DATA 2 |
| 5 | DATA 3 | 6 | DATA 4 |
| 7 | DATA 5 | 8 | DATA 6 |
| 9 | DATA 7 | 10 | ACKNOWLEDGE |
| 11 | BUSY | 12 | PAPER EMPTY |
| 13 | PRINTER SELECT | 14 | AUTO FORM FEED # |
| 15 | ERROR# | 16 | INITIALIZE |
| 17 | PRINTER SELECT LN# | 18 | GROUND |
| 19 | GROUND | 20 | GROUND |
| 21 | GROUND | 22 | GROUND |
| 23 | GROUND | 24 | GROUND |
| 25 | GROUND | 26 | NC |

3.4 Serial Ports

The ROCKY-3782EVS offers two high speed NS16C550 compatible UARTs with 16 byte Read/Receive FIFO serial ports.

CN3 : COM1

CN4 : COM2



• **CN3/CN4 : Serial Port 10-pin Connector**

| PIN NO. | DESCRIPTION |
|---------|---------------------------|
| 1 | DATA CARRIER DETECT (DCD) |
| 2 | RECEIVE DATA (RXD) |
| 3 | TRANSMIT DATA (TXD) |
| 4 | DATA TERMINAL READY (DTR) |
| 5 | GROUND (GND) |
| 6 | DATA SET READY (DSR) |
| 7 | REQUEST TO SEND (RTS) |
| 8 | CLEAR TO SEND (CTS) |
| 9 | RING INDICATOR (RI) |
| 10 | N/C |

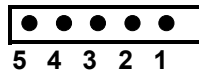
3.5 Keyboard/Mouse Connector

The ROCKY-3782EVS provides 6-pin Min-DIN keyboard/mouse connector.

• **CN5 : 6-pin Mini-DIN Keyboard/Mouse Connector**

| PIN NO. | DESCRIPTION |
|---------|----------------|
| 1 | KEYBOARD DATA |
| 2 | MOUSE DATA |
| 3 | GROUND |
| 4 | +5V |
| 5 | KEYBOARD CLOCK |
| 6 | MOUSE CLOCK |

• **CN22 : 5-pin External Keyboard Connector**



| PIN NO. | DESCRIPTION |
|---------|----------------|
| 1 | KEYBOARD CLOCK |
| 2 | KEYBOARD DATA |
| 3 | NC |
| 4 | GROUND |
| 5 | +5V |

3.6 USB Port Connector

The ROCKY-3782EVS built in two USB(Spec. 1.1) ports for the future new I/O bus expansion.

CN9 : 2 ports USB Connector

Pin 1-4 for USB 0

Pin 5-8 for USB 1

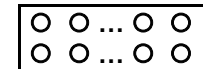
| | | | |
|----|--------|----|--------|
| 1. | VCC | 5. | GROUND |
| 2. | DATA- | 6. | DATA+ |
| 3. | DATA+ | 7. | DATA- |
| 4. | GROUND | 8. | VCC |

3.7 External Switches and Indicators

There are several external switches and indicators for monitoring and controlling your CPU board. All the functions are in the CN18 connector.

CN18 Pin Assignment and Functions :

2 4 ...18 20



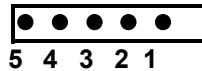
1 3 ... 17 19

| FUNCTION | PIN NO. | DESCRIPTION |
|--------------|---------|---------------|
| SPEAKER | 1 | SPK SIGNAL |
| | 3 | N/C |
| | 5 | N/C |
| | 7 | VCC |
| RESET | 9 | POWER GOOD |
| | 10 | GROUND |
| HDD LED | 13 | LED |
| | 15 | VCC |
| POWER BUTTON | 17 | POWER BUTTON |
| | 19 | GROUND |
| ATX POWER | 12 | GROUND |
| | 14 | N/C |
| | 16 | PS_ON# |
| | 18 | STANDBY VCC5V |
| | 20 | STANDBY VCC5V |
| POWER LED | 2 | VCC5V |
| | 4 | N/C |
| | 6 | GROUND |
| RESERVE | 8 | N/C |
| RESERVE | 11 | GROUND |

3.8 IrDA Infrared Interface Port

The ROCKY-3782EVS built in a IrDA port which supports Serial Infrared(SIR) or Amplitude Shift Keyed IR(ASKIR) interface. When you use the IrDA port, you have to set COM2 as SIR or ASKIR mode in the BIOS's Peripheral Setup. Then the RS-232 mode of COM2 will be disabled.

- **CN6 : IrDA connector**

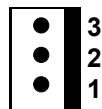


| PIN NO. | DESCRIPTION |
|---------|-------------|
| 1 | VCC |
| 2 | N/C |
| 3 | IR-RX |
| 4 | Ground |
| 5 | IR-TX |

3.9 Fan Connector

The ROCKY-3782EVS provides CPU with cooling fan connector and chassis fan connector. These connectors can supply 12V/500mA to the cooling fan. There is a "rotation" pin in fan connector. This rotation pin is to get the fan's rotation signal to system. So the system BIOS could recognize the fan speed. Please be noted that only specific fan offers the rotation signal.

- **FAN1/FAN2 : CPU/System Fan Connector**



| PIN NO. | DESCRIPTION |
|---------|-----------------|
| 1 | Ground |
| 2 | 12V |
| 3 | Rotation Signal |

3.10 PS-ON Connector

This connector is used to control the ATX power supply.

- **CN16 : PS-ON Connector**



1 2 3

| PIN NO. | DESCRIPTION |
|---------|-------------|
| 1 | +5V Standby |
| 2 | PS-ON |
| 3 | Ground |

3.11 LAN RJ45 Connector

ROCKY-3782EVS is equipped with dual Intel 82559 10/100Mbps Ethernet Controllers. You can connect it to your LAN through RJ45 LAN connector. The pin assignments are as follows:

- **CN7/CN8 : LAN RJ45 Connector**

| PIN NO. | DESCRIPTION | PIN NO. | DESCRIPTION |
|---------|-------------|---------|-------------|
| 1 | TX+ | 7. | N/C |
| 2 | TX- | 8. | N/C |
| 3. | RX+ | 9. | Speed + |
| 4. | N/C | 10. | Speed - |
| 5 | N/C | 11. | Active + |
| 6. | RX- | 12. | Active - |

3.12 VGA Connector

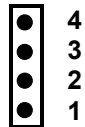
- **CN17 : 15-pin Female Connector**

| | | | |
|----|--------|----|---------|
| 1 | RED | 2 | GREEN |
| 3 | BLUE | 4 | NC |
| 5 | GROUND | 6 | GROUND |
| 7 | GROUND | 8 | GROUND |
| 9 | NC | 10 | GROUND |
| 11 | NC | 12 | DDC DAT |
| 13 | HSYNC | 14 | VSYNC |
| 15 | DDCCLK | | |

3.13 Audio Connectors

The onboard AC'97 Codec supports several audio functions. The audio connectors are described as below.

CN12/CN13/CN14 Connector



CN12 : LINE IN

| | |
|----|--------------|
| 1. | LEFT SIGNAL |
| 2. | GROUND |
| 3. | GROUND |
| 4. | RIGHT SIGNAL |

CN13 : CD IN

| | |
|----|-----------------|
| 1. | CD LEFT SIGNAL |
| 2. | GROUND |
| 3. | GROUND |
| 4. | CD RIGHT SIGNAL |

CN14 : MIC IN

| | |
|----|--------|
| 1. | SIGNAL |
| 2. | GROUND |
| 3. | GROUND |
| 4. | VCC |

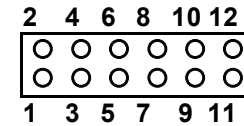
CN15 : Left/Right Audio Output Connector for Speaker or Headphone.

| | |
|----|--------------|
| 1. | GROUND |
| 2. | LEFT SIGNAL |
| 3. | NC |
| 4. | RIGHT SIGNAL |
| 5. | NC |

3.14 External LED Connector

The LED connector includes SCSI active LED, Ethernet Link/Active LED and Ethernet speed LED.

CN26 Connector



| LED + | LED - | LED Function |
|-------|-------|-----------------------|
| 2 | 1 | SCSI Port A active |
| 4 | 3 | SCSI Port B active |
| 6 | 5 | LAN 2 Link/Active LED |
| 8 | 7 | LAN 2 Speed LED |
| 10 | 9 | LAN 1 Link/Active LED |
| 12 | 11 | LAN 1 Speed LED |

| LAN LED Description | | | |
|---------------------|---------|-----------|----------------------|
| Description | LED ON | LED OFF | LED Flashing |
| Speed LED | 100Mbps | 10Mbps | NA |
| Link/Active LED | Link Ok | Link Fail | Sending or Receiving |

3.15 CompactFlash Storage Card Socket

The ROCKY-3782EVS configures CompactFlash Storage Card in IDE Mode(Used IDE 2).

• **CN24 : CompactFlash Storage Card Socket pin assignment**

| PIN NO. | DESCRIPTION | PIN NO. | DESCRIPTION |
|---------|--------------|---------|-------------------------|
| 1 | GROUND | 26 | CARD DETECT1 |
| 2 | D3 | 27 | D11 |
| 3 | D4 | 28 | D12 |
| 4 | D5 | 29 | D13 |
| 5 | D6 | 30 | D14 |
| 6 | D7 | 31 | D15 |
| 7 | CS1# | 32 | CS3# |
| 8 | N/C | 33 | N/C |
| 9 | GROUND | 34 | IOR# |
| 10 | N/C | 35 | IOW# |
| 11 | N/C | 36 | OBLIGATORY TO PULL HIGH |
| 12 | N/C | 37 | IRQ15 |
| 13 | VCC | 38 | VCC |
| 14 | N/C | 39 | MASTER/SLAVE |
| 15 | N/C | 40 | N/C |
| 16 | N/C | 41 | RESET# |
| 17 | N/C | 42 | IORDY |
| 18 | A2 | 43 | N/C |
| 19 | A1 | 44 | OBLIGATORY TO PULL HIGH |
| 20 | A0 | 45 | ACTIVE# |
| 21 | D0 | 46 | PDIAG# |
| 22 | D1 | 47 | D8 |
| 23 | D2 | 48 | D9 |
| 24 | N/C | 49 | D10 |
| 25 | CARD DETECT2 | 50 | GROUND |

3.16 Ultra-160 68pin SCSI Connector

Two 68pin SCSI connectors are described as below.

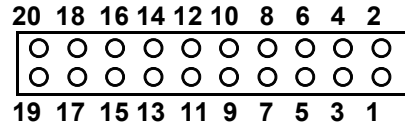
- **CN19: Port A**
- **CN20: Port B**

CN19/CN20 : SCSI pin assignment

| PIN NO. | DESCRIPTION | PIN NO. | DESCRIPTION |
|---------|-------------|---------|-------------|
| 1 | +SD12 | 35 | -SD12 |
| 2 | +SD13 | 36 | -SD13 |
| 3 | +SD14 | 37 | -SD14 |
| 4 | +SD15 | 38 | -SD15 |
| 5 | +SDP1 | 39 | -SDP1 |
| 6 | +SD0 | 40 | -SD0 |
| 7 | +SD1 | 41 | -SD1 |
| 8 | +SD2 | 42 | -SD2 |
| 9 | +SD3 | 43 | -SD3 |
| 10 | +SD4 | 44 | -SD4 |
| 11 | +SD5 | 45 | -SD5 |
| 12 | +SD6 | 46 | -SD6 |
| 13 | +SD7 | 47 | -SD7 |
| 14 | +SDP0 | 48 | -SDP0 |
| 15 | GND | 49 | GND |
| 16 | DIFF SENSE | 50 | NC |
| 17 | VCC | 51 | VCC |
| 18 | VCC | 52 | VCC |
| 19 | NC | 53 | NC |
| 20 | GND | 54 | GND |
| 21 | +SATN | 55 | -SATN |
| 22 | GND | 56 | GND |
| 23 | +SBSY | 57 | -SBSY |
| 24 | +SACK | 58 | -SACK |
| 25 | +SRST | 59 | -SRST |
| 26 | +SMSG | 60 | -SMSG |
| 27 | +SSEL | 61 | -SSEL |
| 28 | +SCD | 62 | -SCD |
| 29 | +SREQ | 63 | -SREQ |
| 30 | +SIO | 64 | -SIO |
| 31 | +SD8 | 65 | -SD8 |
| 32 | +SD9 | 66 | -SD9 |
| 33 | +SD10 | 67 | -SD10 |
| 34 | +SD11 | 68 | -SD11 |

3.17 ATX Connector

The ROCKY-3782EVS offers one standard ATX power connector **CN21**:



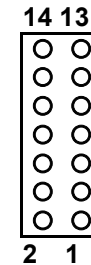
• **CN21: 20-pin Connector**

| PIN NO. | DESCRIPTION |
|---------|-------------|
| 1 | NC |
| 2 | NC |
| 3 | GND |
| 4 | +5V |
| 5 | GND |
| 6 | +5V |
| 7 | GND |
| 8 | Power Good |
| 9 | +5V SB |
| 10 | +12V |
| 11 | NC |
| 12 | -12V |
| 13 | GND |
| 14 | PSON# |
| 15 | GND |
| 16 | GND |
| 17 | GND |
| 18 | -5V |
| 19 | +5V |
| 20 | +5V |

3.18 Smart Card Reader Connector

The Smart Card Reader connector pin define.

CN27 Connector



| PIN NO. | DESCRIPTION |
|---------|--------------------------------------|
| 1 | VCC |
| 2 | NC |
| 3 | NC |
| 4 | NC |
| 5 | Smart Card Power FET Control Output# |
| 6 | Smart Card Reset |
| 7 | Smart Card Clock |
| 8 | NC |
| 9 | NC |
| 10 | Smart Card Serial Data I/O |
| 11 | GND |
| 12 | Smart Card Present Detect# |
| 13 | NC |
| 14 | NC |

4

BIOS Setup

4.1 Introduction

This chapter discusses the Setup program built into the BIOS. The Setup program allows users to configure the system. This configuration is then stored in battery-backed CMOS RAM so that it retains the Setup information while the power is off.

4.2 Starting Setup

The BIOS is immediately active when you turn on the computer. While the BIOS is in control, the Setup program can be activated in one of two ways:

1. By pressing immediately after switching the system on, or
2. by pressing the key when the following message appears briefly at the bottom of the screen during the POST (Power On Self-Test).

Press DEL to enter SETUP.

If the message disappears before you respond and you still wish to enter Setup, restart the system to try again by turning it OFF then ON or pressing the "RESET" button on the system case. You may also restart by simultaneously pressing <Ctrl>, <Alt>, and <Delete> keys. If you do not press the keys at the correct time and the system does not boot, an error message will be displayed and you will again be asked to...

PRESS F1 TO CONTINUE, DEL TO ENTER SETUP

4.3 Using Setup

In general, you can use the arrow keys to highlight items, press <Enter> to select, use the PageUp and PageDown keys to change entries, press <F1> for help and press <Esc> to quit. The following table provides more details about how to navigate in the Setup program using the keyboard.

| Key | Function |
|-------------|--|
| Up Arrow | Move to the previous item |
| Down Arrow | Move to the next item |
| Left Arrow | Move to the item on the left (menu bar) |
| Right Arrow | Move to the item on the right (menu bar) |
| Esc | Main Menu: Quit without saving changes Submenus: Exit Current page to the next higher level menu |
| Move Enter | Move to the item you desired |
| PgUp key | Increase the numeric value or make changes |
| PgDn key | Decrease the numeric value or make changes |
| + key | Increase the numeric value or make changes |
| - key | Decrease the numeric value or make changes |
| Esc key | Main Menu -- Quit and not save changes into CMOS Status Page Setup Menu and Option Page Setup Menu -- Exit current page and return to Main Menu |
| F1 key | General help on Setup navigation keys |
| F5 key | Load previous values from CMOS |
| F6 key | Load the fail-safe defaults from BIOS default table |
| F7 key | Load the optimized defaults |
| F10 key | Save all the CMOS changes and exit |

4.4 Main Menu

Once you enter the AwardBIOS™ CMOS Setup Utility, the Main Menu will appear on the screen. The Main Menu allows you to select from several setup functions and two exit choices. Use the arrow keys to select among the items and press <Enter> to accept and enter the sub-menu.

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| | |
|---------------------------------------|---------------------------|
| Standard CMOS Features | Frequency/Voltage Control |
| Advanced BIOS Features | Load Fail-Safe Defaults |
| Advanced Chipset Features | Load Optimized Defaults |
| Integrated Peripherals | Set Supervisor Password |
| Power Management Setup | Set User Password |
| PnP/PCI Configurations | Save & Exit Setup |
| PC Health Status | Exit Without Saving |
| Esc : Quit ↑ ↓ ← → : Select Item | |
| F10 : Save & Exit Setup | |
| Time, Date, Hard Disk Type.... | |

Note that a brief description of each highlighted selection appears at the bottom of the screen.

4.4.1 Setup Items

The main menu includes the following main setup categories. Recall that some systems may not include all entries.

Standard CMOS Features

Use this menu for basic system configuration. See Section 4.5 for the details.

Advanced BIOS Features

Use this menu to set the Advanced Features available on your system. See Section 4.6 for the details.

Advanced Chipset Features

Use this menu to change the values in the chipset registers and optimize your system's performance. See section 4.7 for the details.

Integrated Peripherals

Use this menu to specify your settings for integrated peripherals. See section 4.8 for the details.

Power Management Setup

Use this menu to specify your settings for power management. See section 4.9 for the details.

PnP / PCI Configurations

This entry appears if your system supports PnP / PCI. See section 4.10 for the details.

PC Health Status

Use this menu to monitor your hardware.

Frequency/Voltage Control

Use this menu to specify your settings for frequency/voltage control. See section 4.12 for the details.

Load Fail-Safe Defaults

Use this menu to load the BIOS default values for the minimal/stable performance for your system to operate. See section 4.13 for the details.

Load Optimized Defaults

Use this menu to load the BIOS default values that are factory settings for optimal performance system operations. While Award has designed the custom BIOS to maximize performance, the factory has the right to change these defaults to meet their needs. See section 4.13 for the details.

Supervisor / User Password

Use this menu to set User and Supervisor Passwords. See section 4.14 for the detail.

Save & Exit Setup

Save CMOS value changes to CMOS and exit setup. See section 4.15 for the details.

Exit Without Save

Abandon all CMOS value changes and exit setup. See section 4.15 for the details.

4.5 Standard CMOS Setup

The items in Standard CMOS Setup Menu are divided into 10 categories. Each category includes no, one or more than one setup items. Use the arrow keys to highlight the item and then use the <PgUp> or <PgDn> keys to select the value you want in each item.

CMOS Setup Utility - Copyright (C) 1984-2000 Award Software
Standard CMOS Features

| | | Item Help |
|---|---------------------|---|
| Date: | Mon, Feb 8 2000 | |
| Time: | 16:19:20 | |
| ➤ IDE Primary Master | Press Enter 2557 MB | Menu Level ➤ |
| ➤ IDE Primary Slave | Press Enter None | Change the day, month, year and century |
| ➤ IDE Secondary Master | Press Enter None | |
| ➤ IDE Secondary Slave | Press Enter None | |
| Drive A | 1.44M, 3.5 in. | |
| Drive B | None | |
| Video | EGA/VGA | |
| Halt On | All,But Keyboard | |
| Based Memory | 640K | |
| Extended Memory | 64512K | |
| Total Memory | 65536K | |
| ↑↓←→Move Enter: Select +/-/PU/PD: Value F10:Save ESC: Exit F1:General Help F5:Previous Values F6:Fail-safe defaults F7:Optimized Defaults | | |

Figure 1: The Main Menu

Main Menu Selections

| Item | Options | Description |
|----------------------|--|---|
| Date | MM DD YYYY | Set the system date. |
| Time | HH : MM : SS | Set the system time |
| IDE Primary Master | Options are in its sub menu (described in Table 3) | Press <Enter> to enter the sub menu of detailed options |
| IDE Primary Slave | Options are in its sub menu (described in Table 3) | Press <Enter> to enter the sub menu of detailed options |
| IDE Secondary Master | Options are in its sub menu (described in Table 3) | Press <Enter> to enter the sub menu of detailed options |
| IDE Secondary Slave | Options are in its sub menu (described in Table 3) | Press <Enter> to enter the sub menu of detailed options |
| Drive A Drive B | None 360K, 5.25 in 1.2M, 5.25 in 720K, 3.5 in 1.44M, 3.5 in 2.88M, 3.5 in | Select the type of floppy disk drive installed in your system |
| Video | EGA/VGA CGA 40 CGA 80 MONO | Select the default video device |
| Halt On | All Errors No Errors All, but Keyboard All, but Diskette All, but Disk/Key | Select the situation in which you want the BIOS to stop the POST process and notify you |
| Base Memory | N/A | Displays the amount of conventional memory detected during boot up |
| Extended Memory | N/A | Displays the amount of extended memory detected during boot up |
| Total Memory | N/A | Displays the total memory available in the system |

Table 2 Main Menu Selections

IDE Adapters

The IDE adapters control the hard disk drive. Use a separate sub menu to configure each hard disk drive.

Figure 2 shows the IDE primary master sub menu.

CMOS Setup Utility – Copyright © 1984-2000 Award Software
IDE Primary Master

| | | |
|--|-------------|--|
| IDE HDD Auto-Detection | Press Enter | Item Help |
| IDE Primary Master Access Mode | Auto | Menu Level >> |
| Capacity | 2557 MB | To auto-detect the HDD's size, head... on this channel |
| Cylinder | 4956 | |
| Head | 16 | |
| Precomp | 0 | |
| Landing Zone | 4955 | |
| Sector | 63 | |
| ↑↓←→Move Enter: Select +/-PU/PD: Value F10:Save ESC: Exit F1:General Help F5:Previous Values F6:Fail-safe defaults F7:Optimized Defaults | | |

Figure 2 IDE Primary Master sub menu

Use the legend keys to navigate through this menu and exit to the main menu. Use Table 3 to configure the hard disk.

| Item | Options | Description |
|---|---|---|
| IDE HDD Auto-detection | Press Enter | Press Enter to auto-detect the HDD on this channel. If detection is successful, it fills the remaining fields on this menu. |
| IDE Primary Master | None Auto Manual | Selecting 'manual' lets you set the remaining fields on this screen. Selects the type of fixed disk. "User Type" will let you select the number of cylinders, heads, etc. Note: PRECOMP=65535 means NONE! |
| Capacity | Auto Display your disk drive size | Disk drive capacity (Approximated). Note that this size is usually slightly greater than the size of a formatted disk given by a disk checking program. |
| Access Mode | CHS LBA Large Auto | Choose the access mode for this hard disk |
| The following options are selectable only if the 'IDE Primary Master' item is set to 'Manual' | | |
| Cylinder | Min = 0 Max = 65535 | Set the number of cylinders for this hard disk. |
| Head | Min = 0 Max = 255 | Set the number of read/write heads |
| Precomp | Min = 0 Max = 65535 | **** Warning: Setting a value of 65535 means no hard disk |
| Landing zone | Min = 0 Max = 65535 | **** |
| Sector | Min = 0 Max = 255 | Number of sectors per track |

Table 3 Hard disk selections

4.6 Advanced BIOS Features

This section allows you to configure your system for basic operation. You have the opportunity to select the system's default speed, boot-up sequence, keyboard operation, shadowing and security.

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Advanced BIOS Features

| | | |
|---|----------|---|
| Virus Warning | Disabled | Item Help Menu Level ➤ Allows you to choose the VIRUS warning feature for IDE Hard Disk boot sector protection. If this function is enabled and someone attempt to write data into this area, BIOS will show a warning message on screen and alarm beep |
| CPU Internal Cache | Enabled | |
| External Cache | Enabled | |
| CPU L2 Cache ECC Checking | Enabled | |
| Processor Number Feature | Enabled | |
| Quick Power On Self Test | Enabled | |
| First Boot device | Floppy | |
| Second Boot device | HDD-0 | |
| Third Boot device | SCSI | |
| Boot other device | Enabled | |
| Swap Floppy Drive | Disabled | |
| Boot Up Floppy Seek | Disable | |
| Boot Up NumLock Status | On | |
| Gate A20 Option | Fast | |
| Typematic Rate Setting | Disabled | |
| Typematic Rate (Chars/Sec) | 6 | |
| Typematic Delay (Msec) | 250 | |
| Security Option | Setup | |
| OS Select For DRAM > 64MB | Non-OS2 | |
| Report NO FDD For Win 95 | No | |
| ↑↓←→Move Enter: Select +/-/PU/PD: Value F10:Save ESC: Exit F1:General Help F5:Previous Values F6:Fail-safe defaults F7:Optimized Defaults | | |

| | |
|----------|-------------------|
| Enabled | Enable quick POST |
| Disabled | Normal POST |

First/Second/Third/Other Boot Device

The BIOS attempts to load the operating system from the devices in the sequence selected in these items.

The Choice: Floppy, LS120, HDD0-3, SCSI, CDROM, ZIP100, LAN, Disabled.

Swap Floppy Drive

If the system has two floppy drives, you can swap the logical drive name assignments.

The choice: Enabled/Disabled.

Boot Up Floppy Seek

Seeks disk drives during boot up. Disabling speeds boot up.

The choice: Enabled/Disabled.

Boot Up NumLock Status

Select power on state for NumLock.

The choice: On/Off.

Gate A20 Option

Select if chipset or keyboard controller should control GateA20.

| | |
|--------|---|
| Normal | A pin in the keyboard controller controls GateA20 |
| Fast | Lets chipset control GateA20 |

Virus Warning

Allows you to choose the VIRUS Warning feature for IDE Hard Disk boot sector protection. If this function is enabled and someone attempt to write data into this area, BIOS will show a warning message on screen and alarm beep.

| | |
|----------|---|
| Enabled | Activates automatically when the system boots up causing a warning message to appear when anything attempts to access the boot sector or hard disk partition table. |
| Disabled | No warning message will appear when anything attempts to access the boot sector or hard disk partition table. |

CPU Internal Cache/External Cache

These two categories speed up memory access. However, it depends on CPU/chipset design.

| | |
|----------|---------------|
| Enabled | Enable cache |
| Disabled | Disable cache |

CPU L2 Cache ECC Checking

This item allow you to enabled/disabled CPU L2 Cache ECC checking. The choice: Enabled, Disabled.

Processor Number Feature

This item allows you to enable/disable support KLAMATH.

The choice: Enabled, Disabled.

Quick Power On Self Test

This category speeds up Power On Self Test (POST) after you power up the computer. If it is set to Enable, BIOS will shorten or skip some check items during POST.

Typematic Rate Setting

Keystrokes repeat at a rate determined by the keyboard controller. When enabled, the typematic rate and typematic delay can be selected.

The choice: Enabled/Disabled.

Typematic Rate (Chars/Sec)

Sets the number of times a second to repeat a key stroke when you hold the key down.

The choice: 6, 8, 10, 12, 15, 20, 24, 30.

Typematic Delay (Msec)

Sets the delay time after the key is held down before it begins to repeat the keystroke.

The choice: 250, 500, 750, 1000.

Security Option

Select whether the password is required every time the system boots or only when you enter setup.

| | |
|--------|---|
| System | The system will not boot and access to Setup will be denied if the correct password is not entered at the prompt. |
| Setup | The system will boot, but access to Setup will be denied if the correct password is not entered at the prompt. |

Note: To disable security, select PASSWORD SETTING at Main Menu and then you will be asked to enter password. Do not type anything and just press <Enter>, it will disable security. Once the security is disabled, the system will boot and you can enter Setup freely.

OS Select For DRAM > 64MB

Select the operating system that is running with greater than 64MB of RAM on the system.

The choice: Non-OS2, OS2.

Report No FDD For Win 95

Whether report no FDD for Win 95 or not.

The choice: Yes, No.

4.7 Advanced Chipset Features

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Advanced Chipset Features

| | | |
|---------------------------|----------|--------------|
| SDRAM CAS Latency Time | 3 | Item Help |
| SDRAM Cycle Time Tras/Trc | 6/8 | |
| SDRAM RAS-to-CAS Delay | 3 | Menu Level ➤ |
| SDRAM RAS Precharge Time | 3 | |
| System BIOS Cacheable | | |
| Disabled | | |
| Video BIOS Cacheable | Disabled | |
| Delay Transaction | Disabled | |
| On-Chip VGA | Enabled | |
| Power-Supply Type | AT | |
| Special NT4.0 DRAM Report | Disabled | |

↑↓←→Move Enter: Select +/-/PU/PD: Value F10:Save ESC: Exit
F1:General Help
F5:Previous Values F6:Fail-safe defaults F7:Optimized Defaults

This section allows you to configure the system based on the specific features of the installed chipset. This chipset manages bus speeds and access to system memory resources, such as DRAM and the external cache. It also coordinates communications between the conventional ISA bus and the PCI bus. It must be stated that these items should never need to be altered. The default settings have been chosen because they provide the best operating conditions for your system.

DRAM Settings

The first chipset settings deal with CPU access to dynamic random access memory (DRAM). The default timings have been carefully chosen and should only be altered if data is being lost. Such a scenario might well occur if your system had mixed speed DRAM chips installed so that greater delays may be required to preserve the integrity of the data held in the slower memory chips.

SDRAM CAS Latency Time

When synchronous DRAM is installed, the number of clock cycles of CAS latency depends on the DRAM timing.

The Choice: 2, 3

SDRAM Cycle Time Tras/Trc

Select the number of SCLKs for an access cycle.

The Choice: 5/7, 6/8.

SDRAM RAS-to-CAS Delay

This field lets you insert a timing delay between the CAS and RAS strobe signals, used when DRAM is written to, read from, or refreshed. *Fast* gives faster performance; and *Slow* gives more stable performance. This field applies only when synchronous DRAM is installed in the system.

The Choice: 2, 3.

SDRAM RAS Precharge Time

If an insufficient number of cycles is allowed for the RAS to accumulate its charge before DRAM refresh, the refresh may be incomplete and the DRAM may fail to retain data. *Fast* gives faster performance; and *Slow* gives more stable performance. This field applies only when synchronous DRAM is installed in the system.

The Choice: 2, 3.

System BIOS Cacheable

Selecting *Enabled* allows caching of the system BIOS ROM at F0000h-FFFFFh, resulting in better system performance. However, if any program writes to this memory area, a system error may result.

The choice: Enabled, Disabled.

Video BIOS Cacheable

Select Enabled allows caching of the video BIOS, resulting in better system performance. However, if any program writes to this memory area, a system error may result.

The Choice: Enabled, Disabled.

CPU Latency Timer

Enabled :CPU cycle will only be Deferred after in has been in a “Snoop Stall” for 31 clocks and another ADS# has arrived.

Disabled: CPU cycle will only be Deferred immediately after the GMCH receives another ADS#.

The Choice: Enabled, Disabled.

Delay Transaction

The chipset has an embedded 32-bit posted write buffer to support delay transactions cycles. Select *Enabled* to support compliance with PCI specification version 2.1.

The Choice: Enabled, Disabled.

On-Chip VGA

This item controls the On-Chip VGA to enabled or disabled.

The Choice: Enabled,Disabled.

Power-Supply Type

This item controls the power-supply type to AT or ATX.

The Choice: AT,ATX.

Special NT4.0 DRAM Report

Fix NT4.0 can not find FDD if 511MB installed(511MB Main Memory + 1M Shared Memory).

The Choice: Enabled, Disabled.

4.8 Integrated Peripherals

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Integrated Peripherals

| | | |
|--|-------------|--|
| On-Chip Primary PCI IDE | Enabled | Item Help |
| On-Chip Secondary PCI IDE | Enabled | |
| IDE Primary Master PIO | Auto | Menu Level ➤ If your IDE hard drive supports block mode select Enabled for automatic detection of the optimal number of block read/write per sector the drive can support |
| IDE Primary Slave PIO | Auto | |
| IDE Secondary Master PIO | Auto | |
| IDE Secondary Slave PIO | Auto | |
| IDE Primary Master UDMA | Auto | |
| IDE Primary Slave UDMA | Auto | |
| IDE Secondary Master UDMA | Auto | |
| IDE Secondary Slave UDMA | Auto | |
| USB Controller | Disabled | |
| USB Keyboard Support | Disabled | |
| Init Display First | PCI Slot | |
| AC97 Audio | Auto | |
| Onboard SCSI Device | Enabled | |
| Onboard LAN(CN7/UP) | Enabled | |
| Onboard LAN(CN8/DOWN) | Enabled | |
| IDE HDD Block Mode | Enabled | |
| POWER ON Function | BUTTON ONLY | |
| x KB Power On Password | Enter | |
| x Hot Key Power ON | Ctrl-F1 | |
| Onboard FDC Controller | Enabled | |
| ↑↓←→ Move Enter: Select +/-/PU/PD: Value F10:Save ESC: Exit F1:General Help F5:Previous Values F6:Fail-safe defaults F7:Optimized Defaults | | |

There are more items not show in this screen. These items will appear when you move down them the last item on screen.

On-Chip Primary/Secondary PCI IDE

The integrated peripheral controller contains an IDE interface with two IDE channels. Select *Enabled* to activate each channel separately.

The choice: Enabled, Disabled.

IDE Primary/Secondary Master/Slave PIO

The four IDE PIO (Programmed Input/Output) fields let you set a PIO mode (0-4) for each of the four IDE devices that the onboard IDE interface supports. Modes 0 through 4 provide successively increased performance. In Auto mode, the system automatically determines the best mode for each device.

The Choice: Auto, Mode 0, Mode 1, Mode 2, Mode 3, Mode 4.

IDE Primary/Secondary Master/Slave UDMA

Ultra DMA-33/66 implementation is possible only if your IDE hard drive supports it and the operating environment includes a DMA driver (Windows 95 OSR2 or a third-party IDE bus master driver). If your hard drive and your system software both support Ultra DMA-33/66, select Auto to enable BIOS support.

The Choice: Auto, Disabled.

USB Controller

Select *Enabled* if your system contains a Universal Serial Bus (USB) controller and you have USB peripherals.

The choice: Enabled, Disabled.

USB Keyboard Support

Select *Enabled* if your system contains a Universal Serial Bus (USB) controller and you have a USB keyboard.

The choice: Enabled, Disabled.

Init Display First

This item allows you to decide to active whether PCI Slot or on-chip VGA first

The choice: PCI Slot, Onboard .

AC97 Audio

This item allows you to decide to enable/disable the 810E chipset family to support AC97 Audio.

The choice: Auto, Disabled.

Onboard SCSI Device(ROCKY-3782EVS Only)

This item allows you to decide to enable/disable the onboard SCSI Device.

The choice: Enabled, Disabled.

Onboard LAN(CN7/UP)

This item allows you to decide to enable/disable the onboard LAN(CN7).

The choice: Enabled, Disabled.

Onboard LAN(CN8/DOWN)

This item allows you to decide to enable/disable the onboard LAN(CN8).

The choice: Enabled, Disabled.

IDE HDD Block Mode

Block mode is also called block transfer, multiple commands, or multiple sector read/write. If your IDE hard drive supports block mode (most new drives do), select Enabled for automatic detection of the optimal number of block read/writes per sector the drive can support.

The choice: Enabled, Disabled

POWER ON Function

This POWER On Function allows you to select following items.

The choice: Password, Hot KEY, Mouse Move, Mouse Click, Any Key, BUTTON ONLY, Keyboard 98

Onboard FDC Controller

Select Enabled if your system has a floppy disk controller (FDC) installed on the system board and you wish to use it. If you install and-in FDC or the system has no floppy drive, select Disabled in this field.

The choice: Enabled, Disabled.

Onboard Serial Port 1/Port 2

Select an address and corresponding interrupt for the first and second serial ports.

The choice: 3F8/IRQ4, 2E8/IRQ3, 3E8/IRQ4, 2F8/IRQ3, Disabled, Auto.

UART Mode Select

Select a serial port 2 operation mode.

The choice: Normal, IrDA, ASKIR, SCR

Onboard Parallel Port

Select an address and corresponding interrupt for the parallel ports.

The choice: 378/IRQ7, 278/IRQ5, 3BC/IRQ7, Disabled,

Parallel Port Mode

Select a parallel operation mode.

The choice: SPP, EPP, ECP, ECP+EPP

Watch-Dog Timer Unit Select

Select the Watch-Dig Timer unit.

The choice: Second, Minute

4.9 Power Management Setup

The Power Management Setup allows you to configure you system to most effectively save energy while operating in a manner consistent with your own style of computer use.

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Power Management Setup

| | | Item Help |
|---|-------------|--------------|
| ACPI function | Disabled | |
| ACPI Suspend Type | S1(POS) | |
| Power Management | User Define | Menu Level ➤ |
| Video Off Method | DPMS | |
| Video Off In Suspend | Yes | |
| Suspend Type | Stop Grant | |
| MODEM Use IRQ | 3 | |
| Suspend Mode | Disabled | |
| HDD Power Down | Disabled | |
| Soft-Off by PWR-BTTN | Instant-Off | |
| Power On by Ring | Disabled | |
| Resume by Alarm | Disabled | |
| x Date(of month)Alarm | 0 | |
| x Time(hh:mm:ss)Alarm | 0 0 0 | |
| ** Reload Global Timer Events ** | | |
| Primary IDE 0 | Disabled | |
| Primary IDE 1 | Disabled | |
| Secondary IDE 0 | Disabled | |
| ↑↓←→Move Enter: Select +/-/PU/PD: Value F10:Save ESC: Exit F1:General Help F5:Previous Values F6:Fail-safe defaults F7:Optimized Defaults | | |

There are more items not show in this screen. These items will appear when you move down them the last item on screen.

ACPI Function

This item allows you to enable/disable the Advanced Configuration and Power Management (ACPI).

The choice: Enabled, Disabled.

ACPI Suspend Type

This item allows you to S1(Power ON Suspend)/S3(Suspend To RAM) the Advanced Configuration and Power Management (ACPI).

The choice: S1(POS), S3(STR).

Power Management

This category allows you to select the type (or degree) of power saving and is directly related to the following modes:

1. HDD Power Down
2. Doze Mode
3. Suspend Mode

There are four selections for Power Management, three of which have fixed mode settings.

| | |
|-------------------|---|
| Disable (default) | No power management. Disables all four modes |
| Min. Power Saving | Minimum power management. Doze Mode = 1 hr. Standby Mode = 1 hr., Suspend Mode = 1 hr., and HDD Power Down = 15 min. |
| Max. Power Saving | Maximum power management -- ONLY AVAILABLE FOR SL CPU's . Doze Mode = 1 min., Standby Mode = 1 min., Suspend Mode = 1 min., and HDD Power Down = 1 min. |
| User Defined | Allows you to set each mode individually. When not disabled, each of the ranges are from 1 min. to 1 hr. except for HDD Power Down which ranges from 1 min. to 15 min. and disable. |

Video Off Method

This determines the manner in which the monitor is blanked.

| | |
|----------------|--|
| V/H SYNC+Blank | This selection will cause the system to turn off the vertical and horizontal synchronization ports and write blanks to the video buffer. |
| Blank Screen | This option only writes blanks to the video buffer. |
| DPMS | Initial display power management signaling. |

Video Off In Suspend

This determines the manner in which the monitor is blanked.

The choice: Yes, No.

SuspendType

Select the Suspend Type.

The choice: PWRON Suspend, Stop Grant.

MODEM Use IRQ

This determines the IRQ in which the MODEM can use.

The choice: 3, 4, 5, 7, 9, 10, 11, NA.

Suspend Mode

When enabled and after the set time of system inactivity, all devices except the CPU will be shut off.

The choice: 1Min, 2Min, 4Min, 8Min, 12Min, 20Min, 30Min, 40Min, 1Hour, Disabled.

HDD Power Down

When enabled and after the set time of system inactivity, the hard disk drive will be powered down while all other devices remain active.

The choice: 1Min, 2Min, 3Min, 4Min, 5Min, 6Min, 7Min, 8Min, 9Min, 10Min, 11Min, 12Min, 13Min, 14Min, 15Min, Disabled.

Soft-Off by PWR-BTTN

Pressing the power button for more than 4 seconds forces the system to enter the Soft-Off state when the system has "hung."

The choice: Delay 4 Sec, Instant-Off.

Power On by Ring

This item is Disabled or Enabled. This function can power on by ring.

The choice: Enabled, Disabled.

Resume by Alarm

This item is Disabled or Enabled. This function can wake-up system by date or time.

PM Events

PM events are I/O events whose occurrence can prevent the system from entering a power saving mode or can awaken the system from such a mode. In effect, the system remains alert for anything which occurs to

a device which is configured as *Enabled* , even when the system is in a power down mode.

- Primary IDE 0
- Primary IDE 1
- Secondary IDE 0
- Secondary IDE 1
- FDD, COM, LPT Port
- PCI IRQ[A-D] #

4.10 PnP/PCI Configuration Setup

This section describes configuring the PCI bus system. PCI, or **Personal Computer Interconnect**, is a system which allows I/O devices to operate at speeds nearing the speed the CPU itself uses when communicating with its own special components. This section covers some very technical items and it is strongly recommended that only experienced users should make any changes to the default settings.

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PnP/PCI Configurations

| | | |
|--|-------------|-------------------------|
| PnP OS Installed | No | Item Help |
| Reset Configuration Data | Disabled | ----- Menu Level > |
| Resources Controlled By | | |
| Auto(ESCD) | | Default is Disabled. |
| x IRQ Resources | Press | Select Enabled to reset |
| Enter | | Extended System |
| x DMA Resources | Press Enter | Configuration |
| | | Data(ESCD) when you |
| | | exit Setup if you have |
| | | installed a new add-on |
| PCI/VGA Palette Snoop | Disabled | and the system |
| | | reconfiguration has |
| | | caused such a serious |
| | | conflict that the OS |
| | | cannot boot |
| ↑↓←→Move Enter: Select +/-/PU/PD: Value F10:Save ESC: Exit F1:General Help F5:Previous Values F6:Fail-safe defaults F7:Optimized Defaults | | |

PnP OS Installed

This item allows you to determine install PnP OS or not.

The choice: Yes, No.

Reset Configuration Data

Normally, you leave this field Disabled. Select Enabled to reset Extended System Configuration Data (ESCD) when you exit Setup if you have installed a new add-on and the system reconfiguration has caused such a serious conflict that the operating system can not boot.

The choice: Enabled, Disabled .

Resource controlled by

The Award Plug and Play BIOS has the capacity to automatically configure all of the boot and Plug and Play compatible devices. However, this capability means absolutely nothing unless you are using a Plug and Play operating system such as Windows®95. If you set this field to “manual” choose specific resources by going into each of the sub menu that follows this field (a sub menu is preceded by a “>”).

The choice: Auto(ESCD), Manual.

IRQ Resources

When resources are controlled manually, assign each system interrupt a type, depending on the type of device using the interrupt.

IRQ3/4/5/7/9/10/11/12/14/15 assigned to

This item allows you to determine the IRQ assigned to the ISA bus and is not available to any PCI slot. Legacy ISA for devices compliant with

the original PC AT bus specification, PCI/ISA PnP for devices compliant with the Plug and Play standard whether designed for PCI or ISA bus architecture.

The Choice: PCI Device, Reserved.

DMA Resource

When resources are controlled manually, assign each system DMA channel a type, depending on the type of device using the DM channel.

DMA 0/1/3/5/6/7 assigned to

Legacy ISA for devices compliant with the original PC AT bus specification, PCI/ISA PnP for devices compliant with the Plug and Play standard whether designed for PCI or ISA bus architecture.

Choices are Legacy ISA and PCI/ISA PnP.

PCI/VGA Palette Snoop

Leave this field at *Disabled*.

Choices are Enabled, Disabled.

4.11 PC Health Status

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PC Health Status

| | | |
|--|------------|--------------|
| CPU V-Core | 1.58V | Item Help |
| CPU VTT | 1.49V | ----- |
| System 3.3V | 3.32V | Menu Level > |
| System 5V | 4.99V | |
| System 12V | 12.40V | |
| System -5V | (-) 5.03V | |
| System -12V | (-) 12.31V | |
| System 5V-SB | 4.92V | |
| | | |
| CPU Die temperature | 46°C | |
| System Temperature | 0°C | |
| CPU Fan Speed | 0RPM | |
| System Fan Speed | 5353RPM | |
| ↑↓←→ Move Enter: Select +/-/PU/PD: Value F10:Save ESC: Exit F1:General Help F5:Previous Values F6:Fail-safe defaults F7:Optimized Defaults | | |

4.12 Frequency/Voltage Control

CMOS Setup Utility – Copyright © 1984-2000 Award Software
Frequency/Voltage Control

| | | |
|--|----------|--------------|
| Auto Detect DIMM/PCI Clk | Disabled | Item Help |
| Spread Spectrum | Disabled | ----- |
| CPU Clock Ratio | X 5.5 | Menu Level > |
| ↑↓←→ Move Enter: Select +/-/PU/PD: Value F10:Save ESC: Exit F1:General Help F5:Previous Values F6:Fail-safe defaults F7:Optimized Defaults | | |

Auto Detect DIMM/PCI Clk

This item allows you to enable/disable auto detect DIMM/PCI Clock.

The choice: Enabled, Disabled.

Spread Spectrum

This item allows you to enable/disable the spread spectrum modulate.

The choice: Enabled, Disabled.

CPU Clock Ratio

This item allows you to select CPU clock ratio.

The choice: 3, 3.5, 4, 4.5, 5, 5.5, 6, 6.5, 7, 7.5, 8.

4.13 Defaults Menu

Selecting “Defaults” from the main menu shows you two options which are described below

Load Fail-Safe Defaults

When you press <Enter> on this item you get a confirmation dialog box with a message similar to:

Load Fail-Safe Defaults (Y/N) ? **N**

Pressing ‘Y’ loads the BIOS default values for the most stable, minimal-performance system operations.

Load Optimized Defaults

When you press <Enter> on this item you get a confirmation dialog box with a message similar to:

Load Optimized Defaults (Y/N) ? **N**

Pressing ‘Y’ loads the default values that are factory settings for optimal performance system operations.

4.14 Supervisor/User Password Setting

You can set either supervisor or user password, or both of them. The differences between are:

supervisor password :

can enter and change the options of the setup menus.

user password :

just can only enter but do not have the right to change the options of the setup menus. When you select this function, the following message will appear at the center of the screen to assist you in creating a password.

ENTER PASSWORD:

Type the password, up to eight characters in length, and press <Enter>. The password typed now will clear any previously entered password from CMOS memory. You will be asked to confirm the password. Type the password again and press <Enter>. You may also press <Esc> to abort the selection and not enter a password.

To disable a password, just press <Enter> when you are prompted to enter the password. A message will confirm the password will be disabled. Once the password is disabled, the system will boot and you can enter Setup freely.

PASSWORD DISABLED.

When a password has been enabled, you will be prompted to enter it every time you try to enter Setup. This prevents an unauthorized person from changing any part of your system configuration.

Additionally, when a password is enabled, you can also require the BIOS to request a password every time your system is rebooted. This would prevent unauthorized use of your computer.

You determine when the password is required within the BIOS Features Setup Menu and its Security option (see Section 3). If the Security option is set to password will be required both at boot and at entry to Setup. If set to "Setup", prompting only occurs when trying to enter Setup.

4.15 Exit Selecting

Save & Exit Setup

Pressing <Enter> on this item asks for confirmation:

Save to CMOS and EXIT (Y/N)? Y

Pressing "Y" stores the selections made in the menus in CMOS – a special section of memory that stays on after you turn your system off. The next time you boot your computer, the BIOS configures your system according to the Setup selections stored in CMOS. After saving the values the system is restarted again.

Exit Without Saving

Pressing <Enter> on this item asks for confirmation:

Quit without saving (Y/N)? Y

This allows you to exit Setup without storing in CMOS any change. The previous selections remain in effect. This exits the Setup utility and restarts your computer.

Appendix A. WatchDog Timer

The WatchDog Timer is provided to ensure that standalone systems can always recover from catastrophic conditions that cause the CPU to crash. This condition may have occurred by external EMI or a software bug. When the CPU stops working correctly, hardware on the board will either perform a hardware reset (cold boot) or a Non-Maskable Interrupt (NMI) to bring the system back to a known state.

A BIOS function call (INT 15H) is used to control the WatchDog Timer:

INT 15H:

| |
|--|
| AH – 6FH |
| <u>Sub-function:</u> |
| AL – 2 : Set the Watchdog Timer's period |
| BL : Time-out value(Its unit--second or minute, is dependent on the item "WatchDog Timer unit select" in CMOS setup). |

You have to call sub-function 2 to set the time-out period of Watchdog Timer first. If the time-out value is not zero, the Watchdog Timer will start counting down. While the timer value reaches zero, the system will reset. To ensure that this reset condition does not occur, the WatchDog Timer must be periodically refreshed by calling sub-function 2. However the Watchdog timer will be disabled if you set the time-out value to be zero.

A tolerance of at least 10% must be maintained to avoid unknown routines within the operating system (DOS), such as disk I/O that can be very time-consuming.

Note: when exiting a program it is necessary to disable the WatchDog Timer, otherwise the system will reset.

Example program:

```

; INITIAL TIMER PERIOD COUNTER
;
W_LOOP:
    MOV AX, 6F02H    ;setting the time-out value
    MOV BL, 30      ;time-out value is 48 seconds
    INT 15H
;
; ADD YOUR APPLICATION PROGRAM HERE
;
    CMP EXIT_AP, 1  ;is your application over?
    JNE W_LOOP      ;No, restart your application

    MOV AX, 6F02H   ;disable Watchdog Timer
    MOV BL, 0
    INT 15H
;
; EXIT
;

```

Appendix B. Address Mapping

IO Address Map

| I/O address Range | Description |
|-------------------|---|
| 000-01F | DMA Controller #1 |
| 020-021 | Interrupt Controller #1, Master |
| 040-05F | 8254 timer |
| 060-06F | 8042 (Keyboard Controller) |
| 070-07F | Real time Clock, NMI Mask |
| 080-09F | DMA Page Register |
| 0A0-0BF | Interrupt Controller #2 |
| 0C0-0DF | DMA Controller #2 |
| 0F0 | Clear Math Coprocessor Busy |
| 0F1 | Reset Math Coprocessor |
| 0F2 | Core logic programming configuration |
| 0F8-0FF | Math Coprocessor |
| 1F0-1F8 | Fixed Disk |
| 200-207 | Game I/O |
| 278-27F | Parallel Printer Port 2 (LPT3) |
| 2E8-2EF | Serial Port 4 |
| 2F8-2FF | Serial Port 2 |
| 300-31F | Prototype Card |
| 360-36F | Reserved |
| 378-37F | Parallel Printer Port 1 (LPT2) |
| 3B0-3BF | Monochrome Display and Printer Adapter (LPT1) |
| 3C0-3CF | Reserved |
| 3D0-3DF | Color/Graphics Monitor Adapter |
| 3E8-3EF | Serial Port 3 |
| 3F0-3F7 | Diskette Controller |
| 3F8-3FF | Serial Port 1 |

1st MB Memory Address Map

| Memory address | Description |
|----------------|---------------|
| 00000-9FFFF | System memory |
| A0000-BFFFF | VGA buffer |
| C0000-C7FFF | VGA BIOS |
| C8000-CBFFF | SCSI |
| F0000-FFFFF | System BIOS |
| 1000000- | Extend BIOS |

*Default setting

IRQ Mapping Table

| | | | |
|------|---------------------------|-------|---------------|
| IRQ0 | System Timer | IRQ8 | RTC clock |
| IRQ1 | Keyboard | IRQ9 | Available |
| IRQ2 | Cascade to IRQ Controller | IRQ10 | Available |
| IRQ3 | COM2 | IRQ11 | Available |
| IRQ4 | COM1 | IRQ12 | PS2 mouse |
| IRQ5 | Available | IRQ13 | FPU |
| IRQ6 | FDC | IRQ14 | Primary IDE |
| IRQ7 | Printer | IRQ15 | Secondary IDE |

DMA Channel Assignments

| Channe | Function |
|--------|--------------------------------|
| 0 | Available |
| 1 | Available |
| 2 | Floppy disk (8-bit transfer) |
| 3 | Available |
| 4 | Cascade for DMA controller 1 |
| 5 | Available |
| 6 | Available |
| 7 | Available |

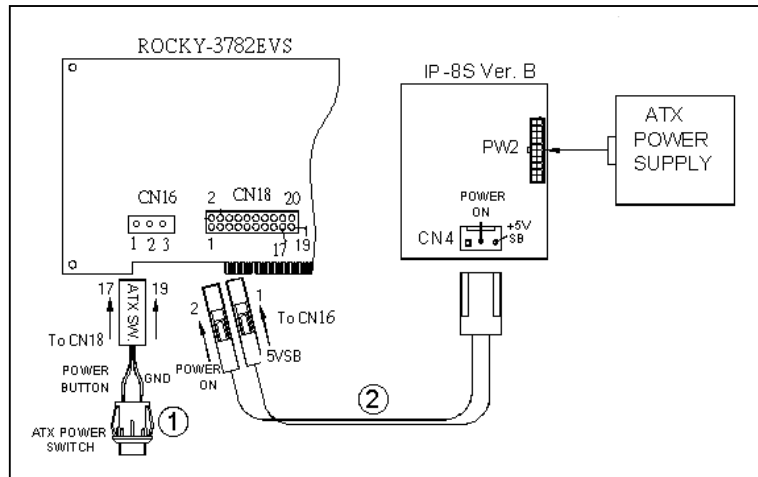
Appendix C. ATX Power Supply

The following notes show how to connect ATX Power Supply to the backplanes and / or the ISBC card.

A. For backplanes with ATX Connector

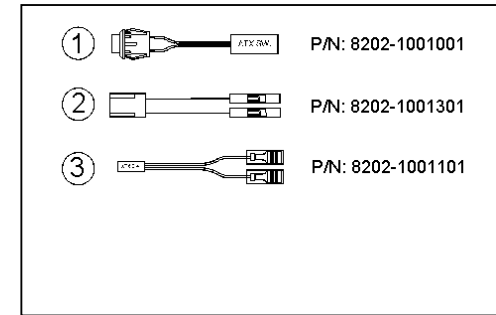
1. Please, disconnect the AC cord of the Power Supply from the AC source to prevent sudden electric surge to the board.
2. Please, check the type of your CPU board. All CPU board listed on the next page support ATX power supply but has two types of power switch connection:

2.1. ROCKY-3782EVS (through Power Button & GND):



Connect the ATX power button switch to the pin 17 (power button) and pin 19 (+5VSB) of CN18 on the board. And connect the power cable from CN4 of backplane to CN16 of CPU card.

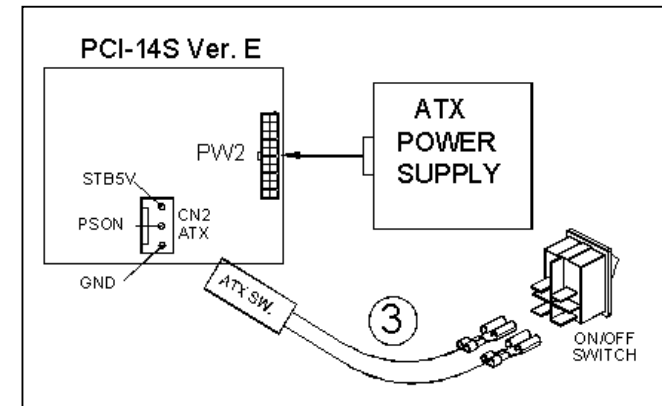
If you want to turn ON the system, just press the button once. And if you want to turn off the power supply, please press the ATX power switch button for about 4 seconds.



B. For the backplanes with ATX power supply connector

For some SBC without ATX power ON/OFF function, then you can control the ATX power supply through backplane's PS ON connector. Refer to the figure below: for the backplanes with ATX connector, the connection can be made simply as following:

1. Connect the ON/OFF (ordinary one) switch to Pin 2 (PS ON) and Pin 3 (GND) of connector CN2
2. You may now turn the power ON/OFF by the power switch



Note

If you have used ATX power supply, and want to change to AT power supply, you must clear CMOS data (JP3). Otherwise the board may not work while applying the AT power supply to it.

Appendix D. How to use Wake-Up Function

The ROCKY-3782EVS provides two kind of Wake Up Function. This page describes how to use Modem Wake-Up and LAN Wake-Up function.

Wake-Up function is working while you use ATX power supply,

Wake-Up By Modem Ring On:

You must set the option **Power On By Ring** of CMOS SETUP to be enabled. The ATX power supply will be switched on when there is a ring signal detected on pin "RI" of serial port.

Wake-Up On LAN:

When your computer is in power-down status, you can see LAN Link/Active LED is flashing. This status indicates that the LAN chip has entered standby mode and waits for Wake-Up signal. You can use other computers to wake up your computer by sending ID to it.

ID: ID is the address of your system LAN. Every LAN chip has a factory-set ID which you can find it from network information in WINDOWS.

ID's format is xx-xx-xx-xx-xx-xx

Example ID: 00905C21D4