NuPRO-841

Full-Size SBC

User's Manual

Manual Rev. 2.00

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Recycled Paper

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1 Introduction

1.1 Unpacking Checklist

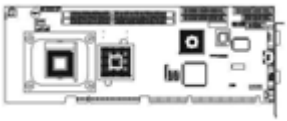
Check the shipping carton for any damage. If the shipping carton and contents are damaged, notify the dealer for a replacement. Retain the shipping carton and packing materials for inspection by the dealer. Obtain authorization before returning any product to ADLINK.

Check the following items are included in the package, if there are any items missing, please contact your dealer:

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Included Items

Single Board Computer



Installation Guide



Floppy ribbon cable



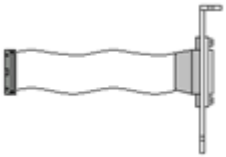
ATA-66/100 HDD ribbon cable



COM2 ribbon cable



Print ribbon cable



Driver CD



K/B & M/S Y type cable



K/B-M/S extend to BP cable
(5-pin to 6-pin)



ATX power control cable
(4-pin to 4-pin)



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USB 2.0 cable (1 Set)



Optional Items

IP-ALCS20 Audio card



Audio 9-pins round cable



Note:	The packaging of the NuPRO-841 OEM version with non-standard configuration, functionality, or package may vary according to different configuration requests.

CAUTION: 	The NuPRO-841 single board computer must be protected from static discharge and physical shock. Never remove any of the socketed parts except at a static-free workstation. Use the anti-static bag shipped with the product to handle the board. Wear a grounded wrist strap when servicing

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1.2 Description

The NuPRO-841 single board computer is optimized for socket 478 FC-PGA Intel Pentium 4 (Northwood) processors up to 3.06GHz and Intel Pentium 4 (Prescott) processors up to 2.8 GHz, supporting 533 / 400MHz Front Side Bus. The memory can accommodate up to 2GB DDR 266 / 333 SDRAM. This board is based on the Intel 845GV chipset and is fully designed for harsh industrial environment. The NuPRO-841 includes an on-die VGA and one 10/100 Mbps Ethernet controller and is ideal for CTI and high-performance applications.

Other I/O functions include two serial ports, one parallel port, two ATA100 IDE interfaces, one FDC interface, four USB 2.0 ports, a Watch Dog Timer, and PS/2 keyboard & mouse.

Key components of the NuPRO-841 are selected for long-term availability, such as Intel's chipset. Availability is guaranteed. Even longer life is possible depending on market situation. Product life cycle can also be extended for OEM contracts.

1.3 Features

- Support Intel Pentium 4 / Celeron (Northwood and Prescott) processors
- Intel® 845GV AGPset
- Support 2GB DDR266/333 SDRAM (Max.) Memory
- Front Side Bus Frequency: 400 / 533MHz
- Chipset integrated graphic controller
- Single 10/100 Mbps Ethernet interface using Intel 82562ET chip
- Software programmable watchdog timer
- Hardware Monitoring
- Support ISA high-drive
- AC97 Audio pin-header (for optional audio card)

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Hardware Monitoring

Hardware monitoring allows you to monitor various aspects of your systems operations and status, including CPU temperature, voltage, and fan RPM.

I/O Shield Connector

The SBC is equipped with an I/O bracket. Please use the appropriate I/O shield (Figure 1.1).

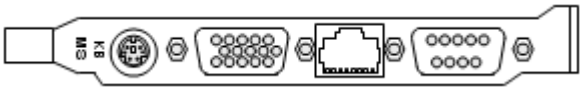


Figure 1-1: I/O Bracket Layout

NuPRO-841Overview

- Chipset: 845GV
- VGA: (845GV)
- Ethernet: 10/100
- AC97 Audio Pin-header (for optional audio card)
- Two EIDE interfaces
- One floppy interface
- One parallel interface
- Two serial ports
- Four USB 2.0 ports

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System Block Diagram

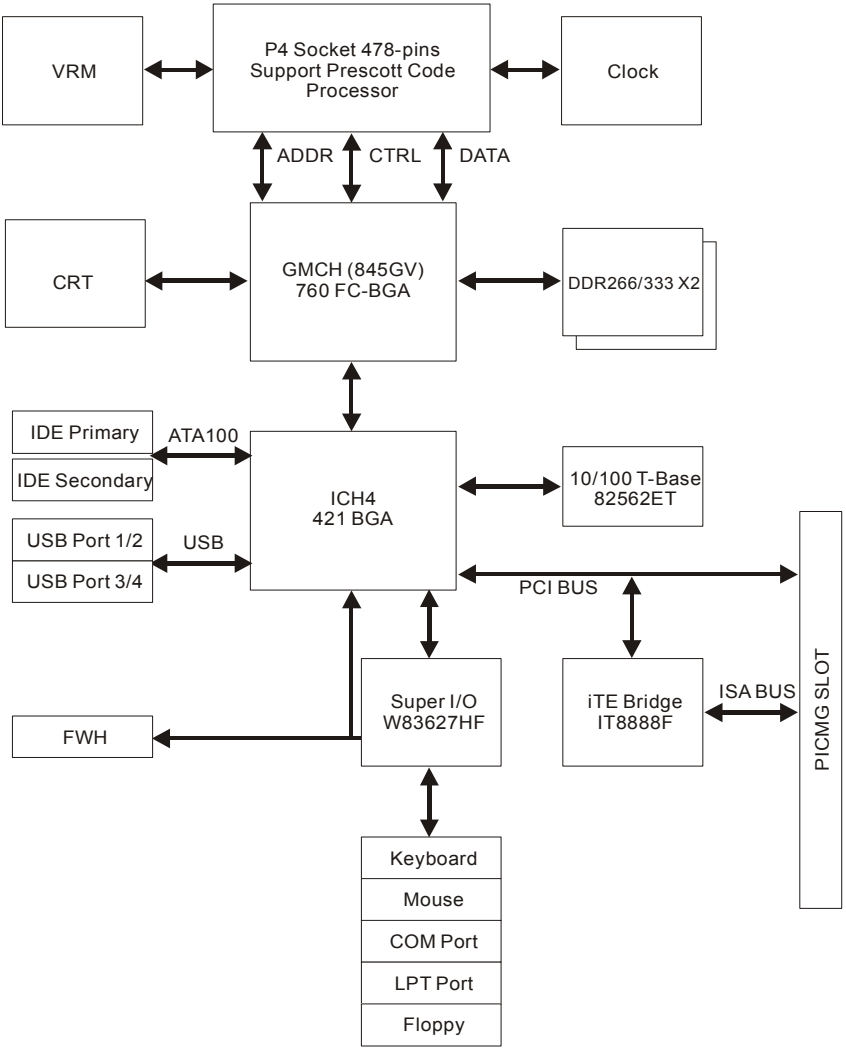


Figure 1-2: System Block Diagram

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1.4 Specifications

- Processor:
  - Socket 478-pins, for Intel Pentium 4/ Celeron processors (Northwood / Prescott)
- Chipset:
  - Intel® 845GV + ICH4 AGPset
- Front Side Bus:
  - 400 / 533 MHz
- DRAM Module:
  - 184-pins DIMM x 2 for DDR SDRAM up to 2GB (max.)
  - Supports 266/333 DDR SDRAM
- VGA:
  - Intel® 845GV chipset integrated graphic controller
- Ethernet:
  - Intel® 82562ET Ethernet controller
  - 10/100Base-TX Ethernet
- Audio Function: (Optional)
  - AC97 audio interface, audio card optional
  - 9-pins (pin-header) interface
- Onboard I/O:
  - On-Chip I/O integrated with K/B, Mouse, FDD, Parallel and Serial controllers
- Onboard PCI / IDE:
  - Intel® ICH4 south bridge controller
  - PCI rev2.2 compliant
  - ACPI Compliant Power Management
  - PCI bus IDE port with PIO / ATA-100 x 2 (up to 4 devices)
- Bracket I/O Connectors:
  - D-Sub serial port (COM1)
  - Single RJ-45 connector
  - 15-pins D-Sub VGA connector

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- PS/2 mouse or PS/2 style keyboard
- USB 2.0 Ports:
  - 4 x USB 2.0 ports (pin-header)
- BIOS:
  - Award Plug and Play BIOS
- Extended Function:
  - Hardware Monitoring
  - IrDA by pin-header
  - Support ISA high-drive
- Form Factor:
  - 13.3” x 4.8” (338 x 122mm)
- Weight:
  - 0.93lb (420g)

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2 Installation

2.1 CPU Installation

Carefully follow the steps below in order to install the CPU:

1. Check and confirm that you are going to install the correct CPU type and pin numbers.
2. Lift the releasing lever of the socket.
3. Align the pins of the CPU against the pinholes of the socket. Be sure to pay attention to the orientation of the CPU.

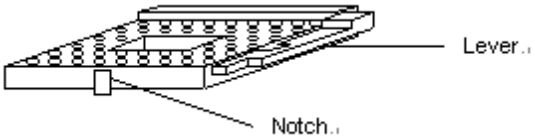


Figure 2-1: CPU Socket

4. Push the CPU into the socket.
5. Push the release lever down and lock it against the key hook.
6. Hook the hole in ZIF clip for the CPU cooling fan onto the notch on the socket.
7. Place the CPU cooling fan on the CPU surface.
8. Push the opposite side of the ZIF clip down and hook it.
9. Slide the head of the clip to left and lock it.
10. Connect the cooling fan cable to the socket. Be careful not to place the cable on the CPU cooling fan.

Removing the CPU:

- Before removing the CPU, turn off the M-875PHR and wait for about 3 minutes until the heat radiation plate of the cooling fan and the CPU cools down.

Note: The CPU and heat radiation plate are hot and may cause

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burns.

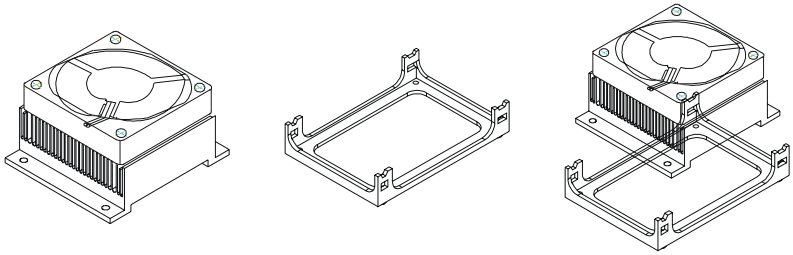
To remove the CPU, reverse the installation steps.

Heat Sink & Retention Module Installation

It is highly recommended that only the NUPRO-841 heat sink and fan designed for use in the chassis is used. The use of other heat sinks, including those boxed with CPUs, may result in damage to the NUPRO-841 SBC.

Make sure that good contact is made between the processor and the heat sink. Insufficient contact, incorrect types of heat sinks, fans, or thermal compound used or improper amount of thermal compound applied on the CPU die can cause the processors to overheat, which may crash the system.

The retention module can prevent the board to bend under the weight of the weight of the heat sink and fan.



Heat Sink & Fan (For P4 processor only) | Retention Module (For P4 Heat Sink & Fan) | Installation

Figure 2-2: Heat Sink & Retention Module Installation

Memory Module Installation

DIMMs have 184 pins and two notches that match with the onboard DIMM socket. DIMM modules are installed by placing the chip firmly into the socket at a 90-degree angle and pressing straight down until it fits tightly into the DIMM socket.

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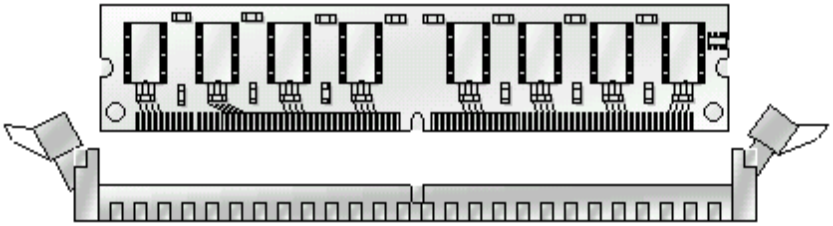


Figure 2-3: DIMM Memory and 184-pins Socket

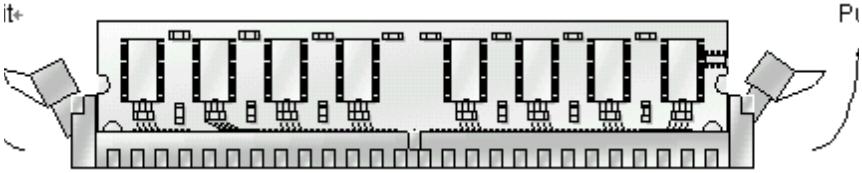


Figure 2-4: Memory Installation

Note: Carefully follow the steps below in order to install the DIMMs:

1. To avoid generating static electricity and damaging the DIMM, ground yourself by touching a grounded metal surface or using a ground scrap before you touch the DIMM.
2. Do not touch the connector of the DIMM. Dirt residue may cause a malfunction.
3. Hold the DIMM with its notch to the front side of the M-875PHR and insert it completely into the socket. A DIMM should be inserted into the inner socket first. Guiding the hole at each end of the DIMM over the retaining post at each end of the DIMM socket.
4. If you install two DIMMs, install the second DIMM using the same procedure.
5. If the DIMM does not go in smoothly, do not force it. Pull it all the way out and try again.

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6. Make sure the DIMM is properly installed and locked by the tabs on both sides of the socket.

Removing a DIMM

To remove the DIMM, use your fingers or a small screwdriver to carefully push away the plastic tabs that secure the DIMM at each end. Lift the DIMM out of the socket.

Note: Make sure you store the DIMM in an anti-static bag and that the system is populated with the same size and manufacturer of memory modules.

Setting Jumpers

There are jumpers and DIP switches on the NuPRO-841. Set the jumpers as needed.

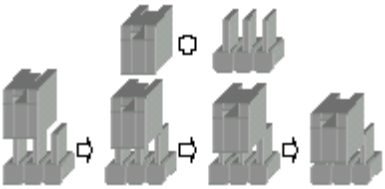


Figure 2-5: Jumper Connector

For any three-pin jumper, the jumper setting is 1-2 when the jumper connects pin 1 and 2. Its setting is 2-3 when pin 2 and 3 are connected. A number “1“ and a “3“ printed on the circuit board to identify these pins. A second way of indication is with a thick line around the “1” pin.

To move a jumper from one position to another, use needle-nose pliers or tweezers to pull the pin cap off the pins and move it to the desired position.

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2.2 Board Layout

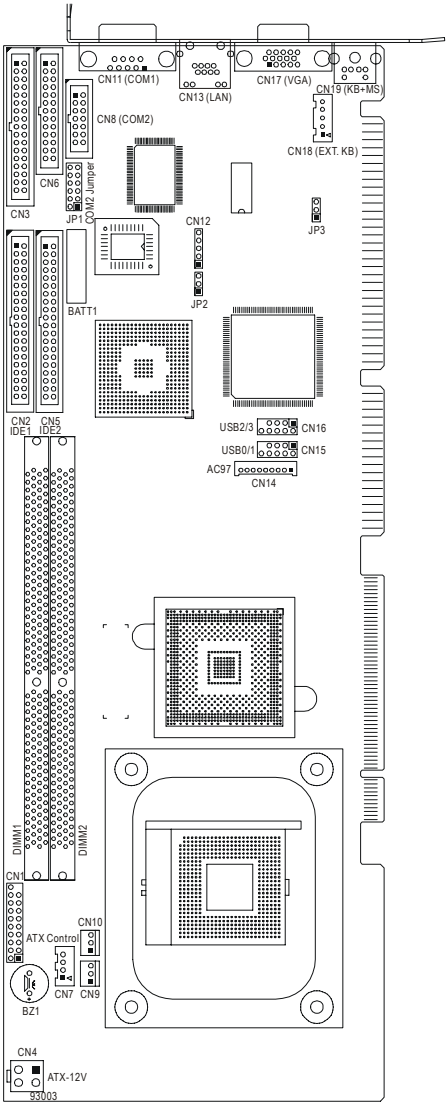


Figure 2-6: Jumper & Connector Locations

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2.3 Jumper Settings

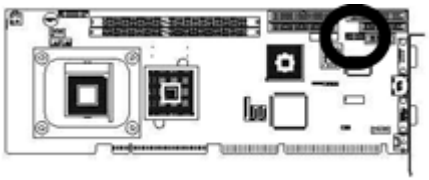
Use the information in the following table to change the jumpers.

Jumpers	Functions
JP1	COM port setting select
JP2	Clear CMOS setting select
JP3	Watchdog Timer setting select

Table 2-1: Jumper Settings

Set up the board configuration by using the jumpers to enable/disable or change functions. All jumper locations are shown in the diagram.

JP1: COM Port Settings

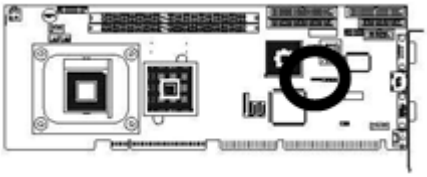


Function	JP1					
	1-2	3-4	5-6	7-8	9-10	11-12
RS-232 (Default)	Off	Off	Off	Off	Off	On
RS-422	On (Term.)	On (Term.)	Off	On	On	Off
RS-485	On (Term.)	On (Term.)	On	Off	On	Off

Table 2-2: JP1: COM Port Setting

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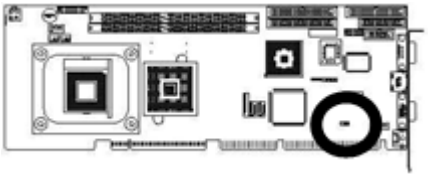
JP2: Clear CMOS



Function	JP2
Normal (Default)	1-2
Clear CMOS	2-3

Table 2-3: JP2: Clear CMOS

JP3: Watchdog Timer



Function	JP3
NMI (Default)	1-2
Reset System	2-3

Table 2-4: JP3: Watchdog Timer

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2.4 Connector Description

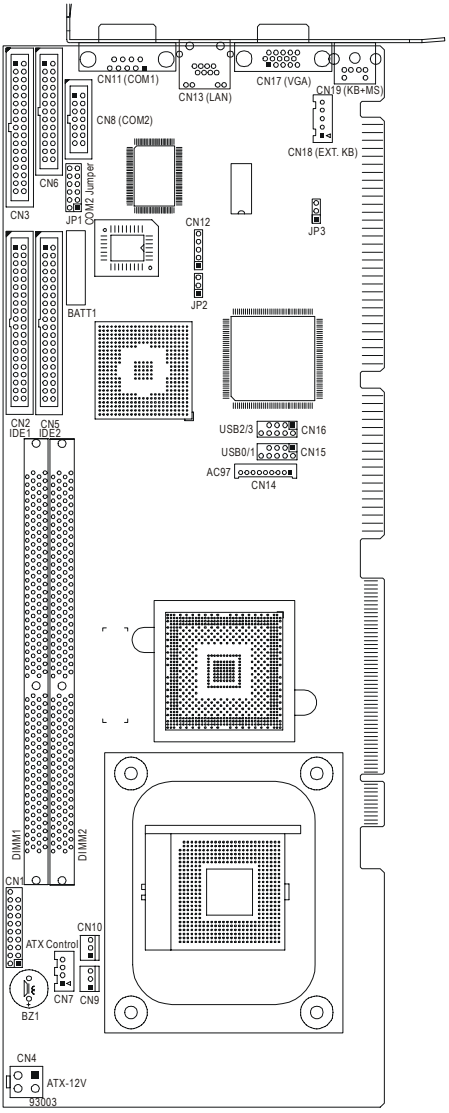


Figure 2-7: Connector Location

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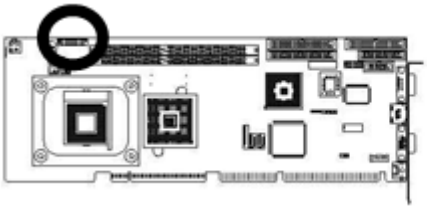
Use the information in the following table to locate connectors.

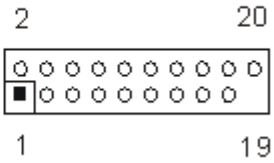
Connector	Function
CN1	System panel indicate connector
CN2	Primary IDE connector
CN3	Floppy disk connector
CN4	ATX 12V power connector
CN5	Secondary IDE connector
CN6	Parallel port connector
CN7	ATX control power connector
CN8	COM2 RS-232/422/485 serial port connector
CN9	FAN2 system (chassis) power connector
CN10	FAN1 CPU power connector
CN11	COM1 RS-232 serial port connector
CN12	IrDA pin-header
CN13	LAN RJ-45 connector
CN14	Extension audio pin-header
CN15	USB0/1 port pin-header
CN16	USB2/3 port pin-header
CN17	CRT VGA port connector
CN18	External keyboard connector
CN19	PS/2 keyboard or mouse connector

Table 2-5: Connector Locations

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CN1: System Panel Indicator Connector





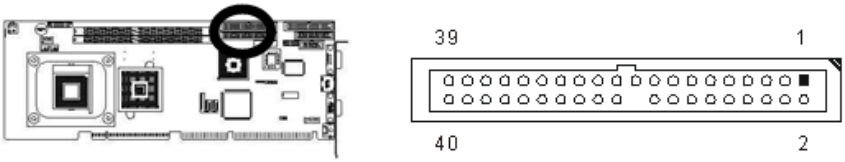
Pin	Assignment	Pin	Assignment
PWR LED		SPEAKER	
1	+5V	2	SPKR (Default)
3	NC	4	BUZZ (Default)
5	PWLED (GND)	6	NC
KEYLOCK		8	+5V
7	KBLOCK	RESET	
9	Ground	10	RESET
ATX PWR ON		12	Ground
11	Ground	HD_LED	
13	NC	14	HDDLED
15	PSON	16	+5V
17	5VSB	PWR ON	
19	---	18	PWRBT+ (5VSB)
		20	PWRBT-

Table 2-6: CN1: System Panel Indicator Connector

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CN2: Primary IDE Connector

40-pin 2.54mm pitch pin-header with housing.



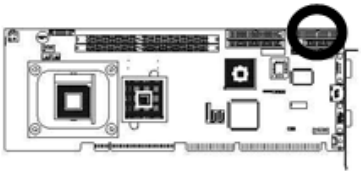
Pin	Assignment	Pin	Assignment
1	Reset IDE	2	Ground
3	Host Data 7	4	Host Data 8
5	Host Data 6	6	Host Data 9
7	Host Data 5	8	Host Data 10
9	Host Data 4	10	Host Data 11
11	Host Data 3	12	Host Data 12
13	Host Data 2	14	Host Data 13
15	Host Data 1	16	Host Data 14
17	Host Data 0	18	Host Data 15
19	Ground	20	---
21	DRQ 0	22	Ground
23	Host IOW	24	Ground
25	Host IOR	26	Ground
27	IOCHRDY	28	Host ALE
29	DACK 0	30	Ground
31	IRQ 14	32	NC
33	Address 1	34	Ground
35	Address 0	36	Address 2
37	Chip Select 0	38	Chip Select 1
39	Activity	40	Ground

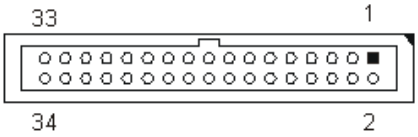
Table 2-7: CN2: Primary IDE Connector

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CN3: Floppy Disk Connector

34-pins 2.54mm pitch pin-header with housing.



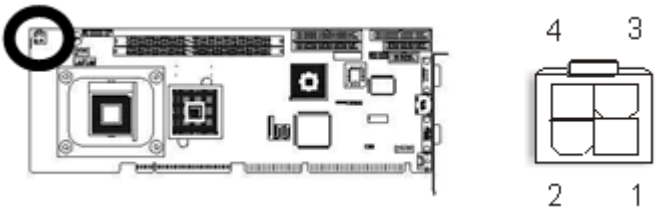


Pin	Assignment	Pin	Assignment
1	Ground	2	Drive Density Selection
3	Ground	4	NC
5	Ground	6	NC
7	Ground	8	Index
9	Ground	10	Motor Enable 0
11	Ground	12	NC
13	Ground	14	Drive Select 0
15	Ground	16	NC
17	Ground	18	Direction
19	Ground	20	Step
21	Ground	22	Write Data
23	Ground	24	Write Gate
25	Ground	26	Track 00
27	Ground	28	Write Protect
29	NC	30	Read Data
31	Ground	32	Side 1 Select
33	NC	34	Diskette Change

Table 2-8: CN3: Floppy Disk Connector

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CN4: ATX 12V Power Connector



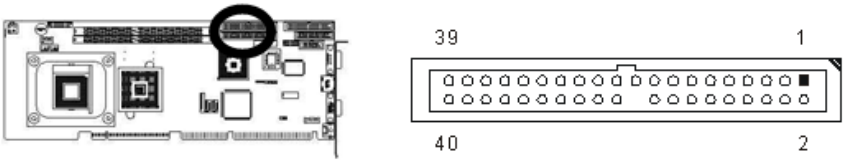
Pin	Assignment	Pin	Assignment
1	Ground	3	+12V
2	Ground	4	+12V

Table 2-9: CN4: ATX 12V Power Connector

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CN5: Secondary IDE Connector

40-pin 2.54mm pitch pin-header with housing.



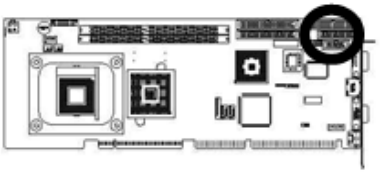
Pin	Assignment	Pin	Assignment
1	Reset IDE	2	Ground
3	Host Data 7	4	Host Data 8
5	Host Data 6	6	Host Data 9
7	Host Data 5	8	Host Data 10
9	Host Data 4	10	Host Data 11
11	Host Data 3	12	Host Data 12
13	Host Data 2	14	Host Data 13
15	Host Data 1	16	Host Data 14
17	Host Data 0	18	Host Data 15
19	Ground	20	---
21	DRQ 0	22	Ground
23	Host IOW	24	Ground
25	Host IOR	26	Ground
27	IOCHRDY	28	Host ALE
29	DACK 0	30	Ground
31	IRQ 14	32	NC
33	Address 1	34	Ground
35	Address 0	36	Address 2
37	Chip Select 0	38	Chip Select 1
39	Activity	40	Ground

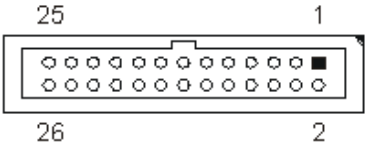
Table 2-10: CN5: Secondary IDE Connector

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CN6: Parallel Port Connector

26-pins 2.54mm pitch pin-header with housing.



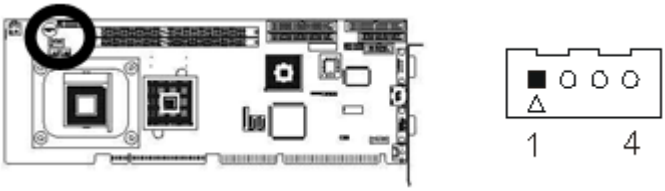


Pin	Assignment	Pin	Assignment
1	Line Printer Strobe	2	Auto Feed
3	PD 0, Parallel Data 0	4	Error
5	PD 1, Parallel Data 1	6	Initialize
7	PD 2, Parallel Data 2	8	Select
9	PD 3, Parallel Data 3	10	Ground
11	PD 4, Parallel Data 4	12	Ground
13	PD 5, Parallel Data 5	14	Ground
15	PD 6, Parallel Data 6	16	Ground
17	PD 7, Parallel Data 7	18	Ground
19	ACK, Acknowledge	20	Ground
21	Busy	22	Ground
23	Paper Empty	24	Ground
25	Select	26	NC

Table 2-11: CN6: Parallel Port Connector

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CN7: ATX Control Power Connector

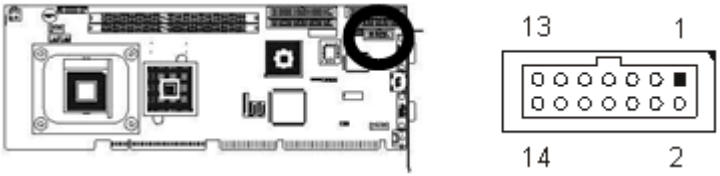


Pin	Assignment
1	NC
2	5VSB
3	PWRON
4	Ground

Table 2-12: CN7: ATX Control Power Connector

CN8: COM2 RS-232/422/485 Serial Port Connector

14-pins 2.54mm pitch pin-header with housing.



Pin	Assignment	Pin	Assignment
1	DCD (Data Carrier Detect)	2	DSR (Data Set Ready)
3	RXD (Receive Data)	4	RTS (Request to Send)
5	TXD (Transmit Data)	6	CTS (Clear to Send)
7	DTR (Data Terminal Ready)	8	RI (Ring Indicator)
9	Ground	10	Ground
11	TXD+ (Transmit Data+)	12	TXD- (Transmit Data-)
13	RXD+ (Receive Data+)	14	RXD- (Receive Data-)

Table 2-13: CN8: COM2 RS-232/422/485 Serial Port

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Note: How to connect an RS-485 device to COM port ribbon cable: Using the COM port ribbon cable for, an RS422/485 device must connect to the bottom D-Sub 5-pin cable as indicated below.

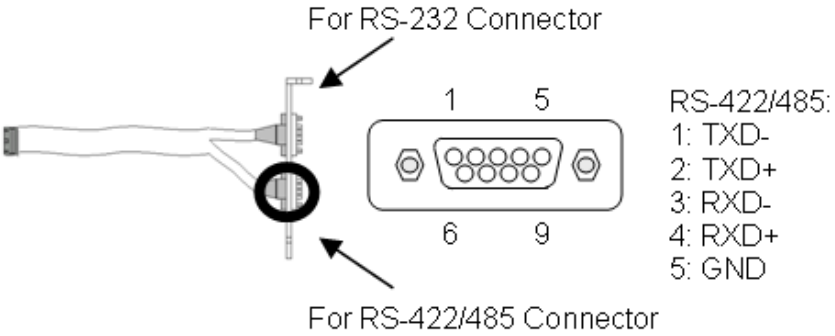
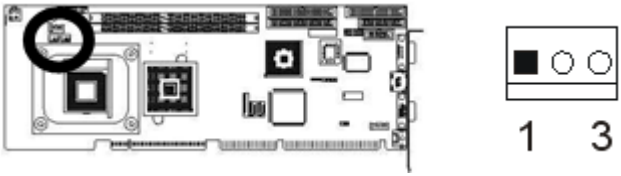


Figure 2-8: COM Port Connection

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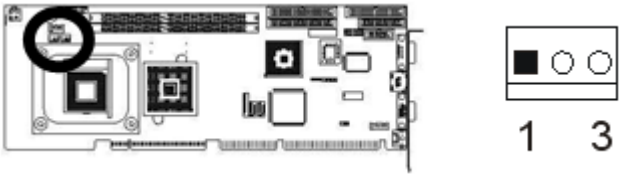
CN9: FAN2 System (Chassis) Power Connector



Pin	Assignment
1	Ground
2	+12V
3	Fan Status Signal

Table 2-14: CN9: System (Chassis) Power Connector

CN10: FAN1 CPU Power Connector



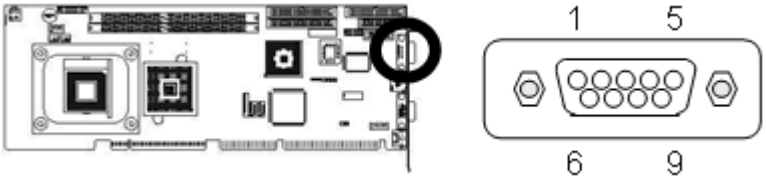
Pin	Assignment
1	Ground
2	+12V
3	Fan Status Signal

Table 2-15: CN10: FAN1 CPU Power Connecto

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CN11: COM1 RS-232 Serial Port Connector

D-Sub 9-pin male.

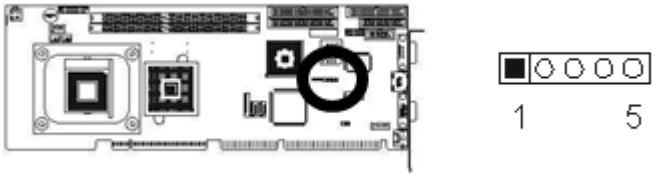


Pin	Assignment	Pin	Assignment
1	DCD (Data Carrier Detect)	6	DSR (Data Set Ready)
2	RXD (Receive Data)	7	RTS (Request to Send)
3	TXD (Transmit Data)	8	CTS (Clear to Send)
4	DTR (Data Terminal Ready)	9	RI (Ring Indicator)
5	Ground		

Table 2-16: CN11: COM1 RS-232 Serial Port Connector

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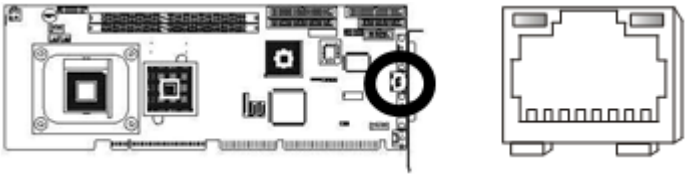
CN12: IrDA Pin Header



Pin	Assignment
1	+5V
2	FIRTX
3	IRRX
4	Ground
5	IRTX

Table 2-17: CN12: IrDA Pin Header

CN13: LAN (82562ET) RJ-45 Connector

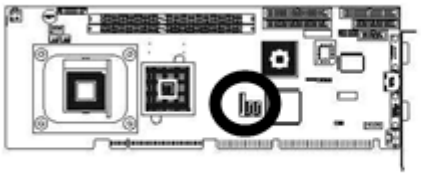


Pin	Assignment	Pin	Assignment
1	Transmit output (+)	5	NC
2	Transmit output (-)	6	Receive input (-)
3	Receive input (+)	7	NC
4	NC	8	NC

Table 2-18: CN13: LAN (82562ET) RJ-45 Connector

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CN14: Audio Extension Pin Header



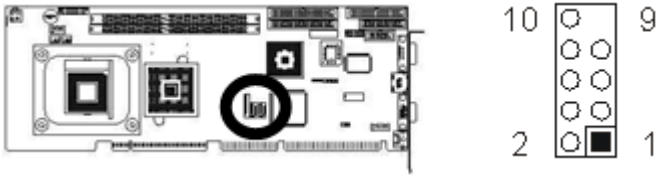


Pin	Assignment
1	+12V
2	3.3V
3	AC_SYNC
4	AC_SDOUT
5	Ground
6	AC_BCLK
7	Ground
8	AC_RST#
9	AC_SDIN0

Table 2-19: CN14: Audio Extension Pin Header

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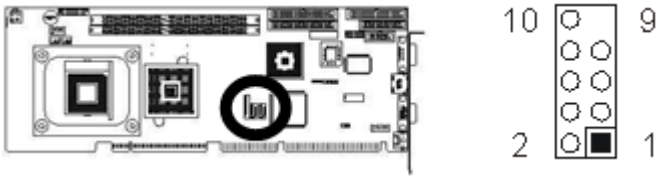
CN15: USB0/1 Port Pin Header



Pin	Assignment	Pin	Assignment
1	VCC	2	VCC
3	USB0 -	4	USB1 -
5	USB0 +	6	USB1 +
7	Ground	8	Ground
9	---	10	NC

Table 2-20: CN15: USB0/1 Port Pin Header

CN16: USB2/3 Port Pin Header



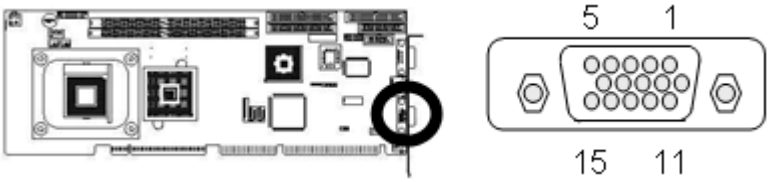
Pin	Assignment	Pin	Assignment
1	VCC	2	VCC
3	USB0 -	4	USB1 -
5	USB0 +	6	USB1 +
7	Ground	8	Ground
9	---	10	NC

Table 2-21: CN16: USB2/3 Port Pin Header

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CN17: CRT VGA Port Connector

D-SUB 15-pins female.

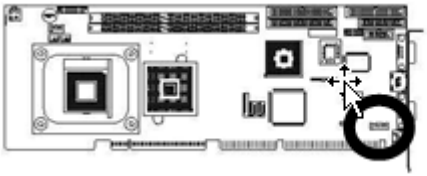


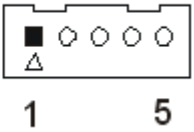
Pin	Assignment	Pin	Assignment
1	Red Color Signal	2	Green Color Signal
3	Blue Color Signal	4	5V
5	Ground	6	Ground
7	Ground	8	Ground
9	5V	10	Ground
11	5V	12	VGA DDA
13	H-Sync.	14	V-Sync.
15	SPCLK		

Table 2-22: CN17: CRT VGA Port Connector

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CN18: External Keyboard Connector

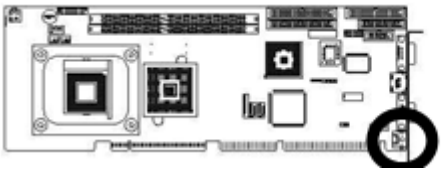


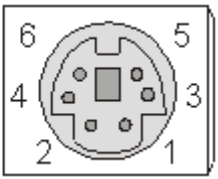


Pin	Assignment
1	Keyboard Clock
2	Keyboard Data
3	NC
4	Ground
5	VCC

Table 2-23: CN18: External Keyboard Connector

CN19: PS/2 Keyboard/Mouse Connector





Pin	Assignment	Pin	Assignment
1	Keyboard Data	2	Mouse Data
3	Ground	4	+5V
5	Keyboard Clock	6	Mouse Clock

Table 2-24: CN19: PS/2 Keyboard/Mouse Connector

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2.5 Optional IP-ALCS20 Audio Card

Thank you for selecting the IP-ALCS20 Audio Card. Here is a description of its connectors and audio functions. Included with the IP-ALCS20 Audio Card is an 9-pin audio cable.

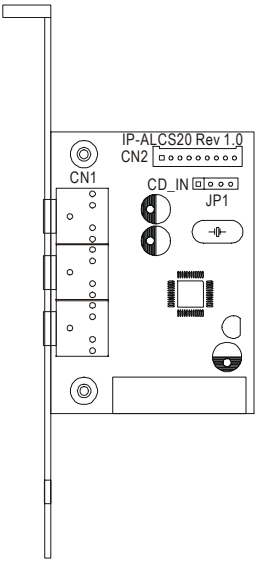


Figure 2-9: IP-ALCS20 Audio Card

Jumpers and Connectors

Connector	Function
JP1	CD_IN connector
CN1	Audio Line_out, Line_in, MIC jack
CN2	Audio signal connector

Table 2-25: IP-ALCS20 Jumpers and Connectors

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JP1: CD_IN Connector

Pin	Assignment
1	Left
2	Ground
3	Ground
4	Right

Table 2-26: JP1: CD_IN Connector

CN1: Audio Line_out, Line_in, MIC Jack

Pin	Assignment
Green	Line_Out
Blue	Line_In
Red	MIC

Table 2-27: CN1: Audio Line_out, Line_in, MIC Jack

CN2: Audio Signal Connector

Pin	Assignment
1	+12V
2	3.3V
3	AC_SYNC
4	AC_SDOUT
5	Ground
6	AC_BCLK
7	Ground
8	AC_RST#
9	AC_SDIN0

Table 2-28: CN2: Audio Signal Connector

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3 AwardBIOS Setup

3.1 BIOS Instructions

Award's ROM BIOS provides a built-in Setup program, which allows user to modify basic system configurations and hardware parameters. The modified data will be stored in a battery-backed CMOS. In general, the information saved in the CMOS RAM will stay unchanged unless there is a configuration change in the system, such as hard drive replacement or a device is added.

It is possible for the CMOS battery to fail. This will cause data loss in the CMOS only. If this does happen you will need to reconfigure your BIOS settings.

3.2 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.

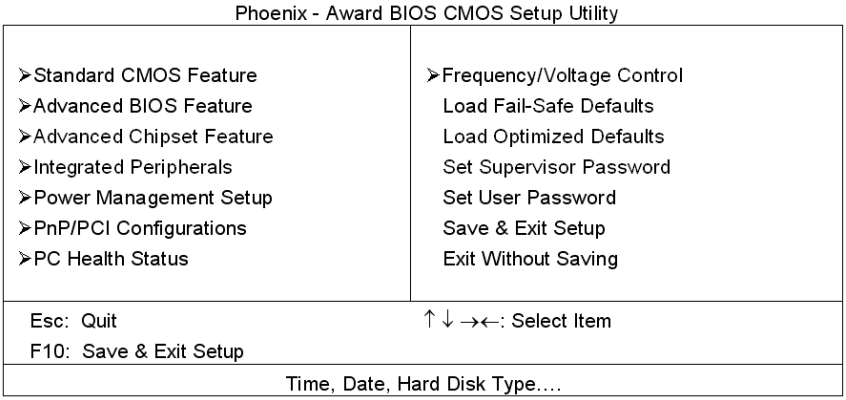


Figure 3-1: Award BIOS Main Screen

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Setup Items

The main menu includes the following main setup categories. Some systems may not include all entries.

Standard CMOS Features

Use this menu for basic system configuration. See 3.3 for details.

Advanced BIOS Features

Use this menu to set the Advanced Features available on the system. See 3.5 for details.

Advanced Chipset Features

Use this menu to change the values in the chipset registers and optimize system performance. See 3.6 for details.

Integrated Peripherals

Use this menu to specify settings for integrated peripherals. See section 3.7 for details.

Power Management Setup

Use this menu to specify settings for power management. See 3.8 for details.

PnP / PCI Configuration

This entry appears if the system supports PnP / PCI. See 3.9 for details.

PC Health Status

Use this menu to show system temperature, speed, and voltage. See 3.10 for details.

Frequency / Voltage Control

Use this menu to specify settings for frequency/voltage control. See 3.11 for details.

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Load Fail-Safe Defaults

Use this menu to load the BIOS default values for the minimal/stable performance for your system to operate. See 3.12 for details.

Load Optimized Defaults

Use this menu to load the BIOS default values that are factory settings for optimal performance system operations. Award has designed the custom BIOS to maximize performance. The factory has the right to change these defaults to meet their needs. See 3.13 for details.

Supervisor / User Password

Use this menu to set User and Supervisor Passwords. See 3.14 for details.

Save & Exit Setup

Save CMOS value changes to CMOS and exit setup. See 3.15 for details.

Exit Without Save

Abandon all CMOS value changes and exit setup. See 3.15 for details.

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3.3 Standard CMOS Features

The items in Standard CMOS Setup Menu are divided into 10 categories. Each category includes zero, 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.

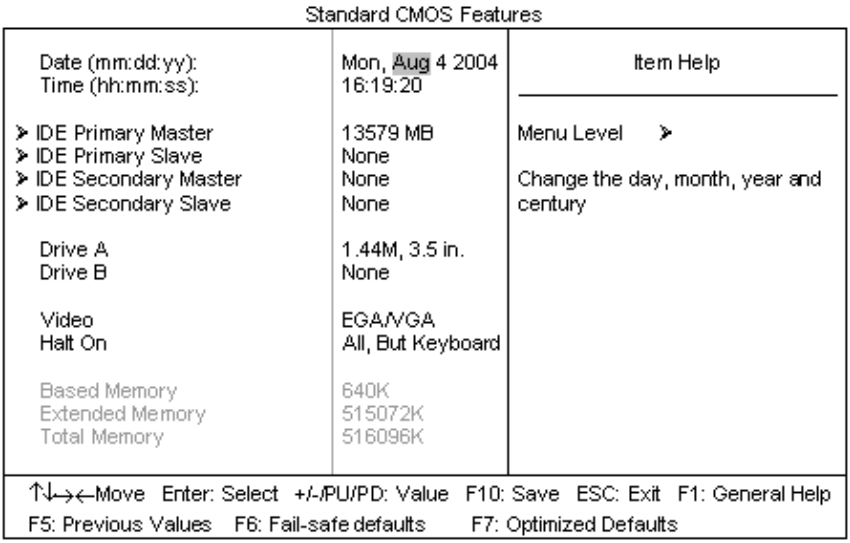


Figure 3-2: Standard CMOS Features

Date

Options: Month/DD/YYYY. Set the system date. Note that the 'Day' automatically changes when you set the date.

Time

Options: HH : MM : SS. Set the system time.

IDE Primary Master

Options are in its sub menu (described in 3.4). Press <Enter> to enter the sub menu of detailed options.

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IDE Primary Slave

Options are in its sub menu (described in 3.4). Press <Enter> to enter the sub menu of detailed options.

IDE Secondary Master

Options are in its sub menu (described in 3.4). Press <Enter> to enter the sub menu of detailed options.

IDE Secondary Slave

Options are in its sub menu (described in 3.4). Press <Enter> to enter the sub menu of detailed options.

Drive A/Drive B

Options: 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

Options: EGA/VGA/CGA 40/CGA 80/MONO. Select the default video device.

Halt On

Options 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

Displays the amount of conventional memory detected during boot up.

Extended Memory

Displays the amount of extended memory detected during boot up.

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Total Memory

Displays the total memory available in the system.

3.4 IDE Adapters

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

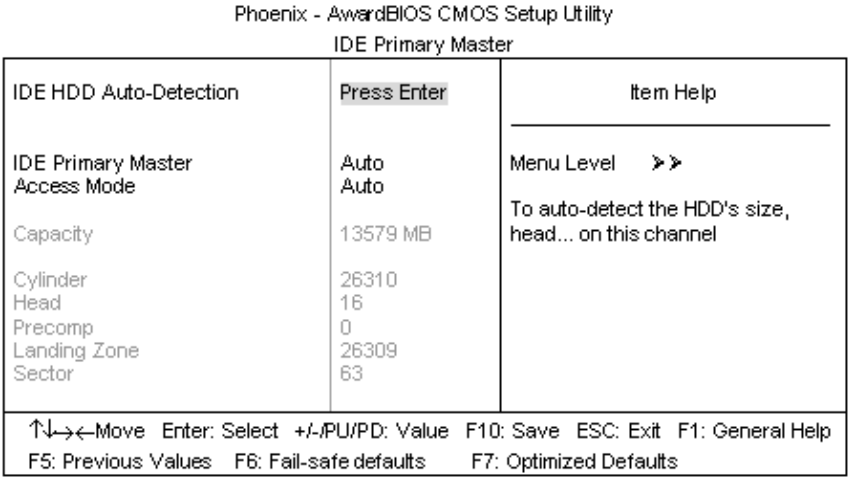


Figure 3-3: IDE Confuration Screen

IDE HDD Auto-detection

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

Options: None, Auto and 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.

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Access Mode

Options: CHS, LBA, Large and Auto. Choose the access mode for this hard disk

Capacity

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.

The following options are selectable only if the 'IDE Primary Master' item is set to "Manual".

Cylinder

Options: Min = 0, Max = 65535. Set the number of cylinders for this hard disk.

Head

Options: Min = 0, Max = 255. Set the number of read/write heads.

Precomp

Options: Min = 0, Max = 65535.

Note: Setting a value of 65535 means no hard disk.

Landing zone

Options: Min = 0, Max = 65535.

Sector

Options: Min = 0, Max = 255. Number of sectors per track.

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3.5 Advanced BIOS Features

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

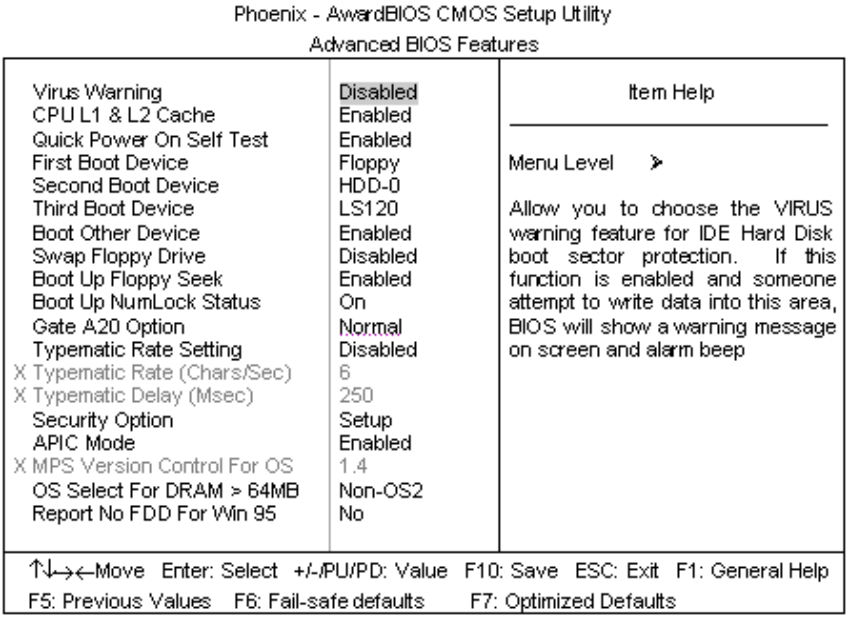


Figure 3-4: Advanced BIOS Features

Virus Warning

Allow you to choose the VIRUS Warning feature for IDE Hard Disk boot sector protection. If this function is enabled and someone attempts to write data into this area, the 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.

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CPU L1& L2 Cache:

These two categories speed up memory access depending on CPU/chipset design.

Enabled: Enable cache.

Disabled: Disable cache.

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, the BIOS will shorten or skip some check items during POST.

Enabled: Enable quick POST.

Disabled: Normal POST.

Press Enter and It shows Bootable add-in Card.

First/Second/Third Boot Device

The BIOS attempts to load the operating system from the devices in the sequence selected in these items. The choices: Floppy, LS/ZIP, HDD, SCSI, CDROM, LAN and Disabled.

Boot Other Device

When enabled, the system searches all other possible locations for an operating system if it fails to find one in the devices specified under the first, second, and third boot devices. The choices: Enabled, Disabled.

Boot Up Floppy Seek

Seeks disk drives during boot up. Disabling speeds boot up. The choices: Enabled, Disabled.

Swap Floppy Drive

If the system has two floppy drives, you can swap the logical drive name assignments. The choices: Enabled, Disabled.

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Boot Up NumLock Status

Select power on state for NumLock. The choices: 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.

Typematic Rate Setting

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

Typematic Rate (Chars/Sec)

Sets the number of times a second to repeat a keystroke when you hold the key down. The choices: 6, 8, 10, 12, 15, 20, 24 and 30.

Typematic Delay (Msec)

Sets the delay time after the key is held down before it begins to repeat the keystroke. The choices: 250, 500, 750 and 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.

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APIC Mode

This item allows you to enable or disable APIC Mode.

MPS Version Control For OS

Select the operating system that is Multi-Processors Version Control for OS. The choices: 1.4, 1.1.

OS Select For DRAM > 64MB

Select the operating system that is running with greater than 64MB of RAM on the system. The choices: Non-OS2, OS2.

Report No FDD For WIN95

Whether report no FDD for Win 95 or not. The choices: Yes, No.

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3.6 Advanced Chipset Features

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. These items should never need to be altered. The default settings have been chosen because they provide the best operating conditions for your system. The only time you might consider making any changes would be if you discovered that data was being lost while using your system.

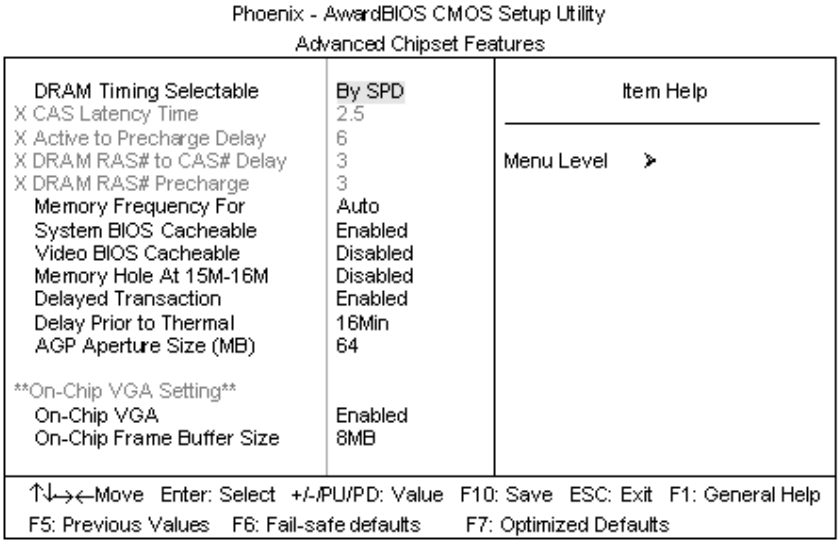


Figure 3-5: Advanced Chipset Screen

DRAM Timing Selectable

Select the operating system that is selecting DRAM timing, so select SPD for setting SDRAM timing by SPD. The choices: Manual, By SPD.

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CAS Latency Time

When synchronous DRAM is installed, the number of clock cycles of CAS latency depends on the DRAM timing. The choices: 1.5, 2, and 2.5.

Active To Precharge Delay

Select the operating system that is active to precharge delay. The choices: 5, 6, 7.

DRAM RAS# to CAS# Delay:

You can select RAS to CAS Delay time in HCLKs of 2/2, 3/3 or 4/4. The system board designer should set the values in this field, depending on the DRAM installed. Do not change the values in this field unless you change specifications of the installed DRAM or the installed CPU. The choices: 2, 3.

DRAM RAS# Precharge:

If an insufficient number of cycles are 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 choices: 2, 3.

Memory Frequency For

You can use this item to select operating frequency for the main system memory. The choices: Auto, DDR266.

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 choices: Enables, Disabled

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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 choices: Enables, Disabled

Memory Hole At 15M-16M

You can reserve this area of system memory for ISA adapter ROM. When this area is reserved, it cannot be cached. The user information of peripherals that need to use this area of system memory usually discusses their memory requirements. The choices: Enables, Disabled

Delayed 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 choices: Enabled, Disabled.

Delay Prior to Thermal:

Select this item allows the delay prior to thermal time. The choices: 4, 8, 16, 32 Min.

AGP Aperture Size (MB)

This field determines the effective size of the Graphic Aperture used for a particular GMCH configuration. It can be updated by the GMCH-specific BIOS configuration sequence before the PCI standard bus enumeration sequence takes place. If it is not updated then a default value will select an aperture of maximum size.The choices: 4, 8, 16, 32, 64, 128 and 256.

On-Chip VGA

Use this item to select on-chip VGA for the main system VGA. The choices: Enabled, Disabled.

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On-Chip Frame Buffer Size

You can use this item to select frame buffer size. The choices: 1MB, 8MB.

3.7 Integrated Peripherals

Phoenix - AwardBIOS CMOS Setup Utility
Integrated Peripherals

On-Chip Primary PCI IDE	Enabled	Item Help
IDE Primary Master PIO	Auto	
IDE Primary Slave PIO	Auto	
IDE Primary Master UDMA	Auto	Menu Level ➤
IDE Primary Slave UDMA	Auto	
On-Chip Secondary PCI IDE	Enabled	
IDE Secondary Master PIO	Auto	
IDE Secondary Slave PIO	Auto	
IDE Secondary Master UDMA	Auto	
IDE Secondary Slave UDMA	Auto	
USB Controller	Enabled	
USB 2.0 Controller	Enabled	
USB Keyboard Support	Disabled	
USB Mouse Support	Disabled	
AC97 Audio	Auto	
Init Display First	PCI Slot	
IDE HDD Block Mode	Enabled	
Onboard Lan Boot ROM	Disabled	
Onboard FDC Controller	Enabled	
Onboard Serial Port 1	3F8/IRQ4	
Onboard Serial Port 2	2F8/IRQ3	
UART Mode Select	Normal	
X RxD, TxD Active	Hi, Lo	
X IR Transmission Delay	Enabled	
X UR2 Duplex Mode	Half	
X Use IR Pins	IR-Rx2Tx2	
Onboard Parallel Port	378/IRQ7	
Parallel Port Mode	SPP	
X EPP Mode Select	EPP1.7	
X ECP Mode Use DMA	3	
PWRON After PWR-Fail	Off	

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

Figure 3-6: Integrated Peripherals Screen

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OnChip Primary/Secondary PCI IDE

The integrated peripheral controller contains an IDE interface with support for two IDE channels. Select “Enabled” to activate each channel separately.

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 choices: Auto, Mode 0, Mode 1, Mode 2, Mode 3 and Mode 4.

IDE Primary/Secondary Master/Slave UDMA

Ultra DMA/33 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, select “Auto” to enable BIOS support. The choices: Auto, Disabled.

USB Controller

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

USB 2.0 Controller

Select “Enabled” if your system contains a Universal Serial Bus 2.0 (USB 2.0) controller and you have USB peripherals.

USB Keyboard Support

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

USB Mouse Support

Select “Enabled” if your system contains a Universal Serial Bus (USB) controller and you have a USB mouse.

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AC97 Audio

This item allows you to decide to auto or disable the chipset family to support AC97 Audio.

Init Display First

This item allows you to decide to active whether PCI Slot or on-chip VGA first. The choices: PCI Slot, Onboard.

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.

Onboard Lan Boot ROM

This item allows you to enable or disable the onboard LAN Boot ROM.

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.

Onboard Serial Port 1/Port 2

Select an address and corresponding interrupt for the first and second serial ports. The choices: 3F8/IRQ4, 2E8/IRQ3, 3E8/IRQ4, 2F8/IRQ3, Disabled and Auto.

UART Mode Select

This item allows you to determine which Infra Red (IR) function of onboard I/O chip. The choices: Normal, IrDA and ASKIR.

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RxD, TxD Active

This item allows you to determine the active of RxD, TxD. The choices: “Hi, Hi”, “Lo, Lo”, “Lo, Hi” and “Hi, Lo”.

IR Transmission Delay

This item allows you to enable/disable IR transmission delay.

UR2 Duplex Mode

This item allows you to select the IR half/full duplex function. The choices: Half, Full.

Use IR Pins

This item allows you to select IR transmission routes, one is RxD2m, TxD2 (COM Port) and the other is IR-Rx2Tx2. The choices: IR-Rx2Tx2, RxD2 and TxD2.

Onboard Parallel Port

This item allows you to determine access onboard parallel port controller with which I/O address. The choices: 3BC/IRQ7, 378/IRQ7, 278/IRQ5 and Disabled.

Parallel Port Mode

Select an operating mode for the onboard parallel (printer) port. Select Normal, Compatible, or SPP unless you are certain your hardware and software both support one of the other available modes. The choice: SPP, EPP, ECP and ECP+EPP, Normal.

EPP Mode Select

Select EPP port type 1.7 or 1.9.

ECP Mode Use DMA

Select a DMA channel for the parallel port for use during ECP mode. The choices: 3, 1.

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PWRON After PWR-Fail

This item allows you to select if you want to power on the system after power failure. The choice: Off, On and Former-Sts

3.8 Power Management Setup

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

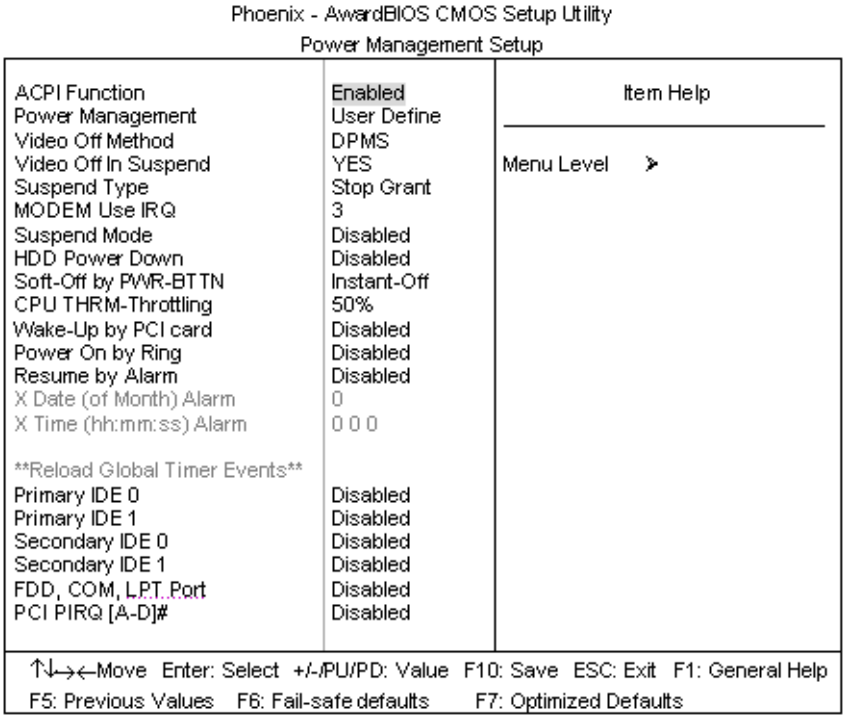


Figure 3-7: Power Management Setup

ACPI Function

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

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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

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 CPUs. Doze Mode = 1 min., Standby Mode = 1 min., Suspend Mode = 1 min., and HDD Power Down = 1 min.

User Defined

Allow you to set each mode individually. When not disabled, each of the ranges is 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 Method

This item allows you to on/off Method function.

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Video Off In Suspend

This determines the manner in which the monitor is blanked.

Suspend Type

Select the Suspend Type. The choices: PwrOn Suspend, Stop Grant.

MODEM Use IRQ

This determines the IRQ in which the MODEM can use. The choices: 3, 4, 5, 7, 9, 10, 11 and NA.

Suspend Mode

When “Enabled” and after the set time of system inactivity. All devices except the CPU will be shut off. The choices: Disabled, 1, 2, 4, 8, 12, 20, 30, 40 Min and 1Hour.

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 choices: Disabled, 1-15 mins.

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 choices: Delay 4 Sec, Instant-Off.

CPU THRM-Throttling

Select the CPU THRM-Throttling rate. The choices: 12.5%, 25.0%, 37.5%, 50.0%, 62.5%, 75.0% and 87.5%.

Wake-Up by PCI card

An input signal from PME on the PCI card awakens the system from a soft off state

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Power On by Ring

An input signal on the serial Ring Indicator (RI) line (in other words, an incoming call on the modem) awakens the system from a soft off state.

Resume by Alarm

When “Enabled”, your can set the date and time at which the RTC (real-time clock) alarm awakens the system from Suspend mode.

Reload Global Timer Events

The 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 PIRQ [A-D] #

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3.9 PnP/PCI Configurations

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.

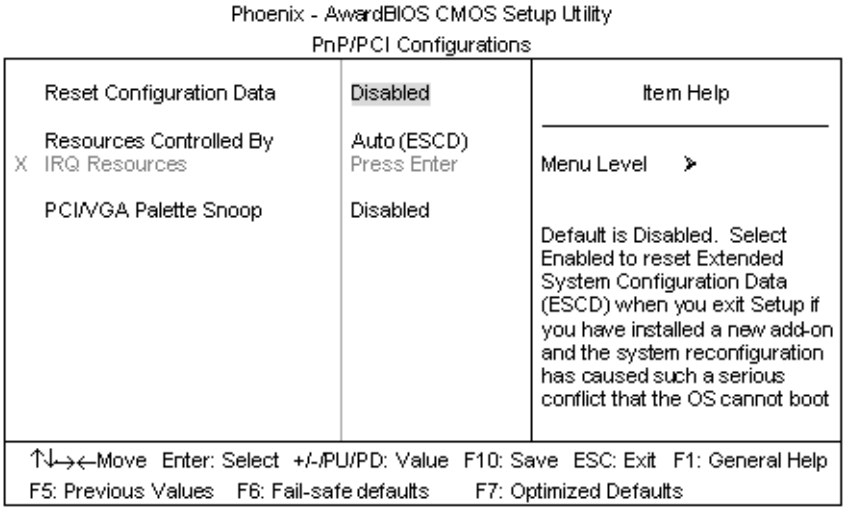


Figure 3-8: PnP/PCI Configurations

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 cannot boot.

Resources 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

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using a Plug and Play operating system. 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 choices: Auto (ESCD), Manual.

IRQ Resources

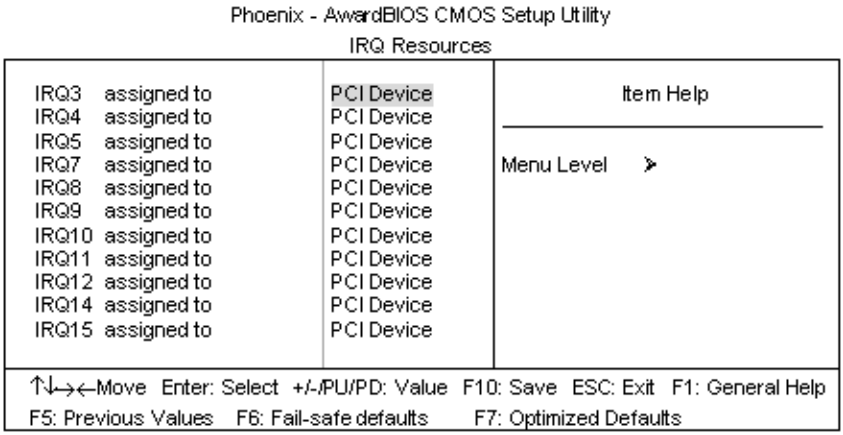


Figure 3-9: IRQ Resources

IRQs

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

PCI/VGA Palette Snoop

Leave this field at "Disabled".

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3.10 PC Health Status

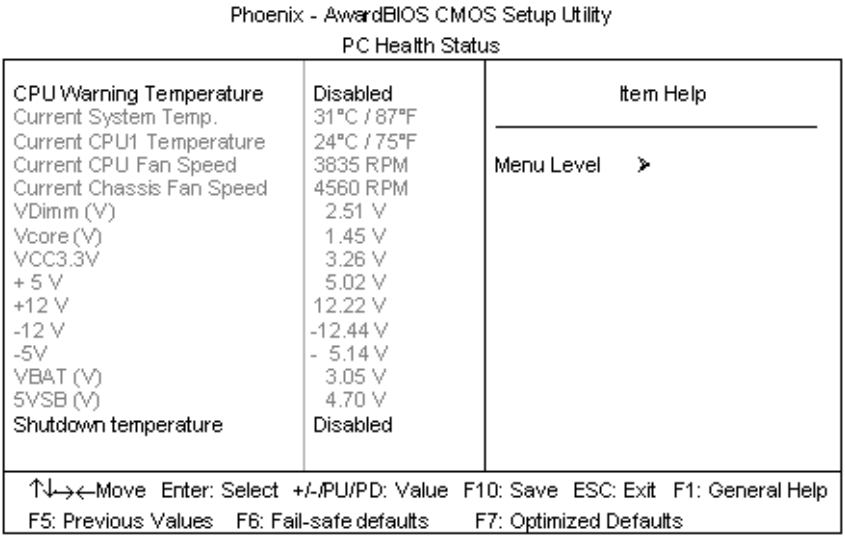


Figure 3-10: PC Health Status

CPU Warning Temperature

This item will prevent CPU from overheating. The choices: 50°C / 122°F - 70°C / 158°F, Disabled.

Current System Temp.

Displays the current system temperature.

Current CPU1 Temperature

Displays the current CPU temperature.

Current CPU Fan Speed

Displays the current CPU fan operating speed.

Current Chassis FAN Speed

Displays the current chassis fan operating speed.

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VDimm (V)

The voltage level of the DRAM.

Vcore

The voltage level of CPU (Vcore).

VCC3.3V/+5V/+12V/-12V/-5V/5VSB (V)

Displays the voltage levels of +3.3V/+5V/+12V/-12V/-5V.

VBAT (V)

Displays the voltage level of the battery.

Shutdown Temperature

This item allows you to set up the CPU shutdown Temperature. This item is only effective under Windows® 98 ACPI mode. The choices: Disabled, 60°C / 140°F, 65°C / 149°F, 70°C / 158°F and 75°C / 167°F.

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3.11 Frequency/Voltage Control

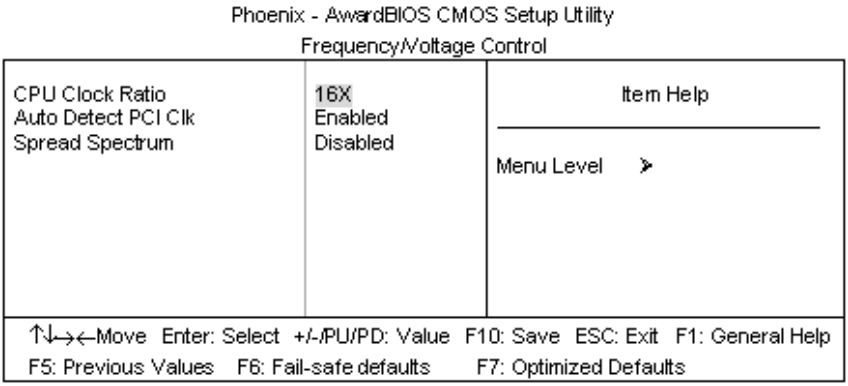


Figure 3-11: Frequency/Voltage Control

CPU Clock Ratio

Use this item to select a multiplier for the system front side bus frequency. The choices: 16X - 22X.

Auto Detect PCI CLK

When “Enabled”, this item will auto detect if the PCI socket have devices and will send clock signal to PCI devices. When disabled, it will send the clock signal to all PCI socket.

Spread Spectrum

This item allows you to set the spread spectrum modulated. The choices: Enabled, Disabled.

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3.12 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.

3.13 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.

3.14 Supervisor/User Password Setting

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

Set Supervisor Password: can enter and change the options of the setup menus.

Set 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.

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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 “System”, the password will be required both at boot and at entry to Setup. If set to “Setup”, prompting only occurs when trying to enter Setup.

3.15 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.

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Warranty Policy

Thank you for choosing ADLINK. To understand your rights and enjoy all the after-sales services we offer, please read the following carefully.

1. Before using ADLINK's products please read the user manual and follow the instructions exactly. When sending in damaged products for repair, please attach an RMA application form which can be downloaded from: http://rma.adlinktech.com/policy/.
2. All ADLINK products come with a two-year guarantee:
   - The warranty period starts from the product's shipment date from ADLINK's factory.
   - Peripherals and third-party products not manufactured by ADLINK will be covered by the original manufacturers' warranty.
   - For products containing storage devices (hard drives, flash cards, etc.), please back up your data before sending them for repair. ADLINK is not responsible for loss of data.
   - Please ensure the use of properly licensed software with our systems. ADLINK does not condone the use of pirated software and will not service systems using such software. ADLINK will not be held legally responsible for products shipped with unlicensed software installed by the user.
   - For general repairs, please do not include peripheral accessories. If peripherals need to be included, be certain to specify which items you sent on the RMA Request & Confirmation Form. ADLINK is not responsible for items not listed on the RMA Request & Confirmation Form.

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3. Our repair service is not covered by ADLINK's two-year guarantee in the following situations:
   - Damage caused by not following instructions in the user's manual.
   - Damage caused by carelessness on the user's part during product transportation.
   - Damage caused by fire, earthquakes, floods, lightening, pollution, other acts of God, and/or incorrect usage of voltage transformers.
   - Damage caused by unsuitable storage environments (i.e. high temperatures, high humidity, or volatile chemicals).
   - Damage caused by leakage of battery fluid during or after change of batteries by customer/user.
   - Damage from improper repair by unauthorized technicians.
   - Products with altered and/or damaged serial numbers are not entitled to our service.
   - Other categories not protected under our warranty.
4. Customers are responsible for shipping costs to transport damaged products to our company or sales office.
5. To ensure the speed and quality of product repair, please download an RMA application form from our company website: http://rma.adlinktech.com/policy. Damaged products with attached RMA forms receive priority.

If you have any further questions, please email our FAE staff: service@adlinktech.com.

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