

# **IB840**

Socket 478 Pentium 4  
Intel 865G Chipset  
Full Size CPU Card

## **USER'S MANUAL**

Version 1.0

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# Introduction

## Checklist

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Your IB840 Pentium 4 CPU card package should include the items listed below:

- The IB840 CPU Card
- This User's Manual
- 1 IDE Ribbon Cable
- 1 Floppy Ribbon Connector
- SATA Power Cord
- SATA Cable
- 2 Serial Port Ribbon Cable and 1 Parallel Port Attached to a Mounting Bracket
- 1 Y-Cable supporting a PS/2 Keyboard and a PS/2 Mouse
- 1 CD containing the following:
  - Chipset Drivers
  - Flash Memory Utility
- Optional audio cable with bracket (Audio8K)
- Optional USB cable with bracket (USB2K-4)
- Optional Secondary CRT VGA cable with bracket (VGA4K, for use with IBA110)
- Optional TMDS cable with bracket (ID120P, for use with IBA110)
- Optional TV-out cable (TVOUT-6, for use with IBA120)
- Optional MicroAGP cards (IBA120, IBA110)

## Product Description

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The IB840 Pentium 4 CPU card incorporates the Intel 865G chipset that can utilize a single PGA478 processor of up to 3.2GHz or higher and supports FSB frequency of 400/533/800Mhz (100Mhz, 133Mhz, and 200Mhz HCLK respectively).

The 865G chipset comes with a Graphics Memory Controller Hub (GMCH) designed for use with the Pentium 4 processor with 512-KB L2 cache on 0.13 micron process. The GMCH component provides the CPU interface, DDR interface, AGP interface, Hub Interface, and integrated graphics with display interfaces.

Aside from CRT support, the VGA function feature a Micro AGP slot for optional daughter cards:

- IBA120: with Chronitel CH7017 chipset that supports dual channel LVDS, TV-out interface

- IBA110: with ATI M7CSP32, M9CSP64 / M10CSP64 chipset, 64MB/32MB frame buffer and supports dual channel LVDS interface, TMDS and CRT2 display function.

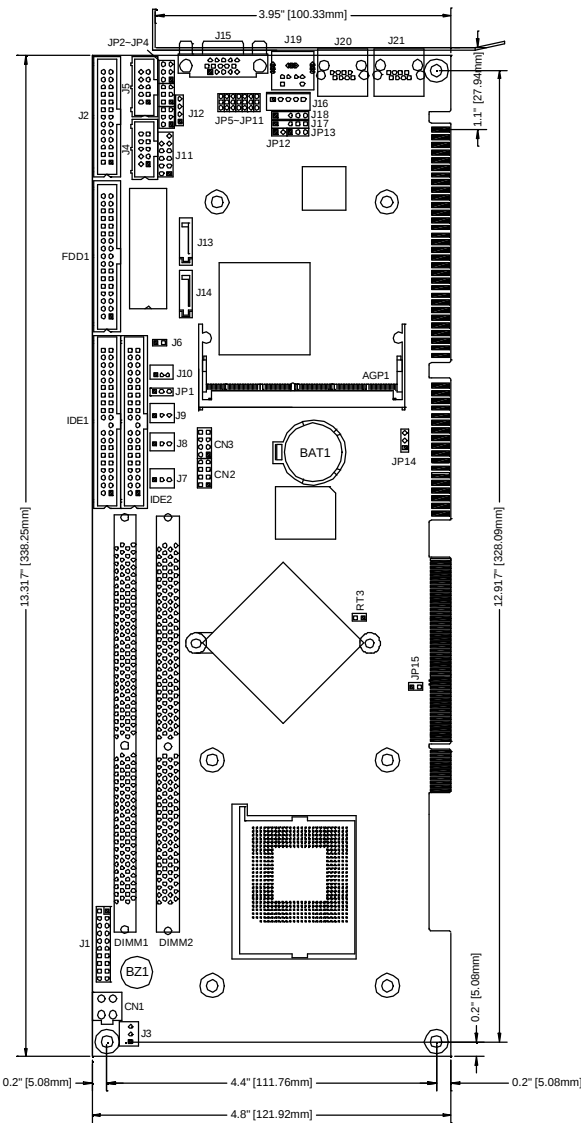
The board also has one Intel 82547EI Gigabit LAN and an Intel 82551 10/100MB fast Ethernet LAN.

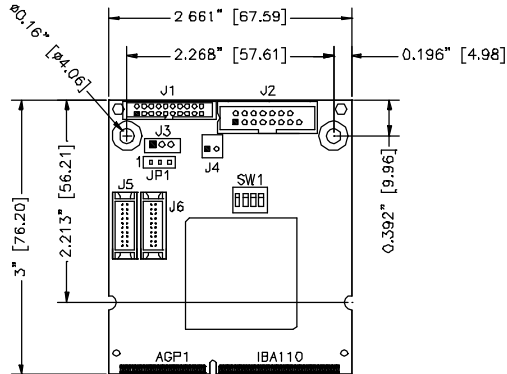
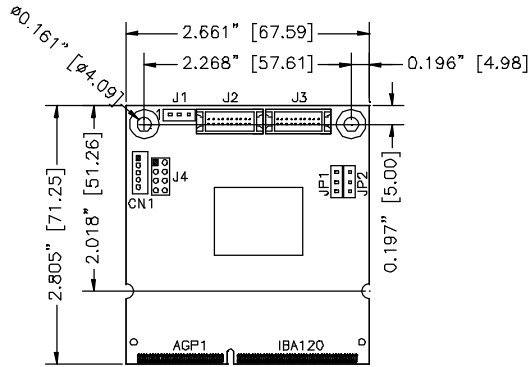
Other advanced features include two Serial ATA ports, four USB 2.0 ports, IrDA interface and audio function.

## Specifications

|                          |                                                                                                                                                                                                                           |
|--------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Product Name</b>      | IB840                                                                                                                                                                                                                     |
| <b>Form Factor</b>       | PICMG (full size CPU card)                                                                                                                                                                                                |
| <b>CPU Type</b>          | Socket 478 (Intel Pentium 4 )                                                                                                                                                                                             |
| <b>CPU Voltage</b>       | 0.8375V~1.6V (VRD 10)                                                                                                                                                                                                     |
| <b>System Speed</b>      | 1.30G~3.2GHz                                                                                                                                                                                                              |
| <b>CPU Frequency</b>     | 400 MHz /533MHz/800MHz                                                                                                                                                                                                    |
| <b>Green /APM</b>        | APM1.2                                                                                                                                                                                                                    |
| <b>CPU Socket</b>        | Socket 478                                                                                                                                                                                                                |
| <b>Chipset</b>           | Intel 865G Chipset<br>GMCH: 82865G 932 pin FC-BGA<br>ICH5: 82801EB 460 pin MBGA                                                                                                                                           |
| <b>BIOS</b>              | Award BIOS, support ACPI Function                                                                                                                                                                                         |
| <b>Cache</b>             | 128K/256K/512K Level 2 (CPU integrated)                                                                                                                                                                                   |
| <b>VGA</b>               | Two selections:<br>1. Embedded 82865G, AGP 4X,support CRT interface only.<br>2. On board ATI Mobility M7/ M9 / M10 graphics controller, embedded 32/64MB Frame buffer (DDR), AGP 4X, support CRT, LVDS, TV-out / 2nd CRT. |
| <b>Primary LAN</b>       | Intel 82551QM LAN controller (10/100Mb)                                                                                                                                                                                   |
| <b>Secondary LAN</b>     | Intel 82547EI (10/100/1000Mb) Gigabit LAN                                                                                                                                                                                 |
| <b>Audio</b>             | ICH5 Built-in Sound controller + AC97 Codec ALC650, 2x6 12 pin header (Line-out, Line-in, MIC.). Supports 5.1 channels.                                                                                                   |
| <b>Memory type</b>       | 2 x DDR 2.5V PC266/333/400 DDR SDRAM (without ECC Function) DIMM Module, Max. capacity - 2GB                                                                                                                              |
| <b>LPC I/O</b>           | Winbond 83627HF: IrDax1 Parallel x1, COM1(RS-232),COM2(RS-232/RS422/RS485), FDC 2.88MB (3 Mode Support), Hardware monitoring                                                                                              |
| <b>RTC/CMOS</b>          | ICH5 Built-in                                                                                                                                                                                                             |
| <b>Battery</b>           | Lithium Battery                                                                                                                                                                                                           |
| <b>PS2 KB/Mouse</b>      | Controller built in Winbond 83627HF                                                                                                                                                                                       |
| <b>Local bus IDE</b>     | ICH5 built in, IDE1, IDE2 (Ultra DMA 33/66/100)                                                                                                                                                                           |
| <b>Serial ATA</b>        | 2 ports                                                                                                                                                                                                                   |
| <b>PCI to ISA Bridge</b> | ITE 8888                                                                                                                                                                                                                  |
| <b>ISA High drive</b>    | Supported by SN74ABT16245                                                                                                                                                                                                 |
| <b>USB</b>               | 4 ports, USB 2.0                                                                                                                                                                                                          |
| <b>IrDA</b>              | Pin header                                                                                                                                                                                                                |
| <b>Disk On Chip</b>      | Supports up to 288MB capacity                                                                                                                                                                                             |
| <b>Watchdog Timer</b>    | Yes ( 256 segments : 0,1,2,...255 sec/min)                                                                                                                                                                                |
| <b>Expansion slots</b>   | MicroAGP VGA socket for IBA120 and IBA110                                                                                                                                                                                 |
| <b>D-type connector</b>  | PS/2 keyboard/mouse, VGA (CRT), RJ-45 x 2                                                                                                                                                                                 |
| <b>Power Connector</b>   | ATX 12V                                                                                                                                                                                                                   |
| <b>System Voltages</b>   | +5V, +12V, -12V, 5VSB                                                                                                                                                                                                     |
| <b>Board Size</b>        | 122 x 338 mm                                                                                                                                                                                                              |
| <b>Other Features</b>    | Modem Wakeup, LAN Wakeup ,                                                                                                                                                                                                |

Board Dimensions





# Installations

This section provides information on how to use the jumpers and connectors on the IB840 in order to set up a workable system. The topics covered are:

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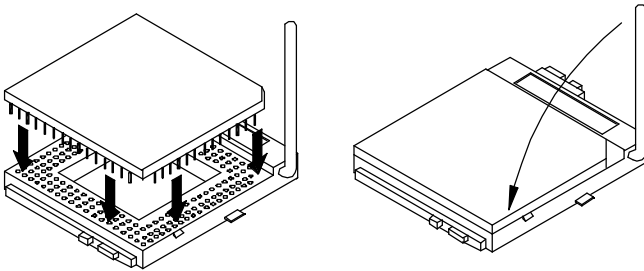
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## Installing the CPU

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The IB840 CPU card supports a Socket 478 processor socket for Intel Pentium 4 processors.

The Socket 478 processor socket comes with a lever to secure the processor. Raise this lever to about a 90° angle to allow the insertion of the processor. Place the processor into the socket by making sure the notch on the corner of the CPU corresponds with the notch on the inside of the socket. Once the processor has slide into the socket, return the lever to the lock position. Refer to the figures below.



After you have installed the processor into the socket, check if the jumpers for the CPU type and speed are correct.

**NOTE:** *Ensure that the CPU heat sink and the CPU top surface are in total contact to avoid CPU overheating problem that would cause your system to hang or be unstable.*

### ATX Power Installation

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The system power is provided to the CPU card with the CN1 and J7 ATX power connectors. Please note that the J7 external ATX power connector should be connected to the backplane for IB840 to function. J7 is a 3-pin power connector. CN1 is a 4-pin 12V power connector. CN1 is to be connected to the ATX power supply.

### Installing the Memory

---

The IB840 CPU card supports two DDR memory sockets for a maximum total memory of 2GB in DDR memory type. You can install unbuffered & non-ECC DDR DIMMs. It supports DDR266 when installed with CPUs that have clock speeds of 400MHz. It supports DDR266/333 when installed with CPUs that have clock speeds of 533MHz. It supports DDR266/320/400 when installed with CPUs that have clock speeds of 800MHz. The board provides dual channel functionality for its DIMM slots. DIMM1 for one channel and DIMM2 for the other channel. Enabling dual channels can increase data access rates.

Basically, the system memory interface has the following features:

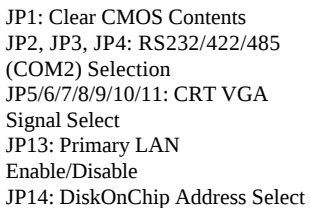
- Supports two 64-bit wide DDR data channels
- Available bandwidth up to 3.2GB/s (DDR400) for single-channel mode and 6.4GB/s (DDR400) in dual-channel mode.
- Supports non ECC DIMMs.
- Supports 128Mb, 256Mb, 512Mb DDR technologies.
- Supports only x8, x16, DDR devices with four banks
- Registered DIMMs not supported
- Supports opportunistic refresh
- Up to 16 simultaneously open pages (four per row, four rows maximum)

## Setting the Jumpers

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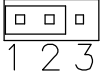
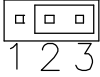
Jumpers are used on IB840 to select various settings and features according to your needs and applications. Contact your supplier if you have doubts about the best configuration for your needs. The following lists the connectors on IB840 and their respective functions.

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### JP1: Clear CMOS Contents

Use P8, a 3-pin header, to clear the CMOS contents. *Note that the ATX-power connector should be disconnected from the CPU card before clearing CMOS.*

| JP1                                                                               | Setting                 | Function   |
|-----------------------------------------------------------------------------------|-------------------------|------------|
|  | Pin 1-2<br>Short/Closed | Normal     |
|  | Pin 2-3<br>Short/Closed | Clear CMOS |

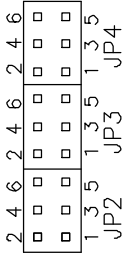
### JP2, JP3, JP4: RS232/422/485 (COM2) Selection

J4, COM1 is fixed for RS-232 use only.

J5, COM2 is selectable for RS232, RS-422 and RS-485.

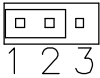
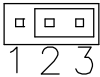
The following table describes the jumper settings for COM2 selection.

| COM2<br>Function                  | RS-232                                                        | RS-422                                                        | RS-485                                                        |
|-----------------------------------|---------------------------------------------------------------|---------------------------------------------------------------|---------------------------------------------------------------|
| Jumper<br>Setting<br>(pin closed) | JP2:<br>1-2<br><br>JP3:<br>3-5 & 4-6<br><br>JP4:<br>3-5 & 4-6 | JP2:<br>3-4<br><br>JP3:<br>1-3 & 2-4<br><br>JP4:<br>1-3 & 2-4 | JP2:<br>5-6<br><br>JP3:<br>1-3 & 2-4<br><br>JP4:<br>1-3 & 2-4 |



### JP5/6/7/8/9/10/11: CRT VGA Signal Select

Use these seven 3-pin headers to select the VGA signal either from the on board VGA or from the MicroAGP VGA.

| JP5/6/7/8/9/10/11                                                                   | Setting                 | Function     |
|-------------------------------------------------------------------------------------|-------------------------|--------------|
|  | Pin 1-2<br>Short/Closed | On board VGA |
|  | Pin 2-3<br>Short/Closed | MicroAGP VGA |

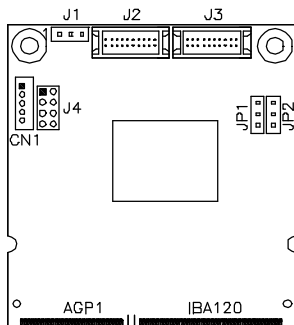
**JP13: Primary LAN Enable/Disable**

| JP13                                                                                       | Function    |
|--------------------------------------------------------------------------------------------|-------------|
| <br>1 2 3 | Enable LAN  |
| <br>1 2 3 | Disable LAN |

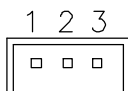
**JP14: DiskOnChip Address Select**

| JP14                                                                                       | Address               |
|--------------------------------------------------------------------------------------------|-----------------------|
| <br>1 2 3 | D0000-D7FFF           |
| <br>1 2 3 | D8000-D9FFF (default) |

## Jumper and Connectors on IBA120



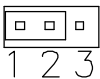
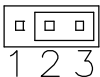
### J1: Panel Inverter Power Connector



| Pin # | Signal Name |
|-------|-------------|
| 1     | +12V        |
| 2     | ENABKL      |
| 3     | Ground      |

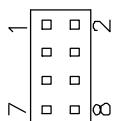
**Remarks:** Maximum current is 1A.

### JP2: Panel Voltage Setting

| JP2                                                                                 | Setting                 | Panel Voltage |
|-------------------------------------------------------------------------------------|-------------------------|---------------|
|   | Pin 1-2<br>Short/Closed | 3.3V          |
|  | Pin 2-3<br>Short/Closed | 5V            |

### J4: TV out Connector

The pin assignments of the TV out connector are as follows:



| Signal Name | Pin | Pin | Signal Name |
|-------------|-----|-----|-------------|
| Ground      | 1   | 2   | Ground      |
| Y           | 3   | 4   | C           |
| NC          | 5   | 6   | NC          |
| COMP        | 7   | 8   | Protect pin |

### JP1: TV Type Select

| JP1                                                                               | Setting                 | TV Type |
|-----------------------------------------------------------------------------------|-------------------------|---------|
|  | Pin 1-2<br>Short/Closed | NTSC    |
|  | Pin 2-3<br>Short/Closed | PAL     |

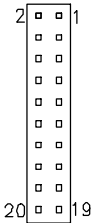
### JP2: LVDS Panel Power Select

| JP2                                                                               | Setting                 | Panel Voltage  |
|-----------------------------------------------------------------------------------|-------------------------|----------------|
|  | Pin 1-2<br>Short/Closed | 3.3V (default) |
|  | Pin 2-3<br>Short/Closed | 5V             |

### J2, J3: LVDS Connectors (2nd channel, 1st channel)

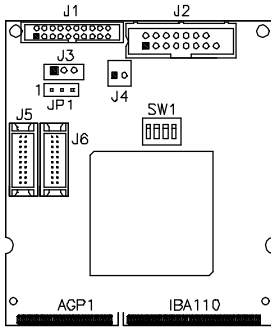
The LVDS connectors, DF13 20-pin mating connectors, are composed of the first channel (J2) and second channel (J3) to support 24-bit or 48-bit.

| Signal Name | Pin # | Pin # | Signal Name |
|-------------|-------|-------|-------------|
| TX0-        | 2     | 1     | TX0+        |
| Ground      | 4     | 3     | Ground      |
| TX1-        | 6     | 5     | TX1+        |
| 5V/3.3V     | 8     | 7     | Ground      |
| TX3-        | 10    | 9     | TX3+        |
| TX2-        | 12    | 11    | TX2+        |
| Ground      | 14    | 13    | Ground      |
| TXC-        | 16    | 15    | TXC+        |
| 5V/3.3V     | 18    | 17    | ENABKL      |
| +12V        | 20    | 19    | +12V        |



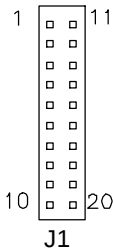
**Remarks:** Maximum current for +12V is 1A.

## Jumper and Connectors on IBA110



### J1: TMDS Panel Connector

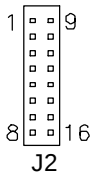
TMDS stands Transition Minimized Differential Signaling.



| Signal Name | Pin # | Pin # | Signal Name |
|-------------|-------|-------|-------------|
| TX1P        | 1     | 11    | TX2P        |
| TXIN        | 2     | 12    | TX2N        |
| GND         | 3     | 13    | GND         |
| GND         | 4     | 14    | GND         |
| TXCP        | 5     | 15    | TX0P        |
| TXCN        | 6     | 16    | TX0N        |
| GND         | 7     | 17    | NC          |
| +5v         | 8     | 18    | NC          |
| HTPG        | 9     | 19    | DDCDATA     |
| NC          | 10    | 20    | DDCLK       |

### J2: CRT2 / TV-Out Connector

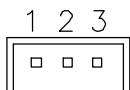
This connector is used for a second CRT monitor or use with a TV output device.



| Signal Name | Pin # | Pin # | Signal Name  |
|-------------|-------|-------|--------------|
| Red / C     | 1     | 9     | +5V          |
| Green / Y   | 2     | 10    | Ground       |
| Blue / COMP | 3     | 11    | N. C.        |
| N.C.        | 4     | 12    | CRT2 DDCCAT  |
| Ground      | 5     | 13    | HSYNC        |
| Ground      | 6     | 14    | VSYSN        |
| Ground      | 7     | 15    | CRT2 DDCCCLK |
| Ground      | 8     | 16    | N.C.         |

## J3: Panel Inverter Power Connector

The connector supports 1A current (maximum).



| Pin # | Signal Name |
|-------|-------------|
| 1     | +12V        |
| 2     | NC          |
| 3     | Ground      |

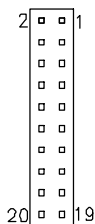
## J4: VGA Chipset Fan Power Connector



| Pin # | Signal Name |
|-------|-------------|
| 1     | +12V        |
| 2     | Ground      |

## J5, J6: LVDS Connectors (2nd channel, 1st channel)

The LVDS connectors, DF13 20-pin mating connectors, are composed of the first channel (J6) and second channel (J5) to support 24-bit or 48-bit.



| Signal Name | Pin # | Pin # | Signal Name |
|-------------|-------|-------|-------------|
| TX0-        | 2     | 1     | TX0+        |
| Ground      | 4     | 3     | Ground      |
| TX1-        | 6     | 5     | TX1+        |
| 5V/3.3V     | 8     | 7     | Ground      |
| TX3-        | 10    | 9     | TX3+        |
| TX2-        | 12    | 11    | TX2+        |
| Ground      | 14    | 13    | Ground      |
| TXC-        | 16    | 15    | TXC+        |
| 5V/3.3V     | 18    | 17    | ENABKL      |
| +12V        | 20    | 19    | +12V        |

**Remarks:** Maximum current for +12V is 1A.

## JP1: LVDS Panel Power Select

| JP1          | Setting                 | Panel Voltage  |
|--------------|-------------------------|----------------|
| <p>1 2 3</p> | Pin 1-2<br>Short/Closed | 3.3V (default) |
| <p>1 2 3</p> | Pin 2-3<br>Short/Closed | 5V             |

**SW1: LVDS Resolution Select**

| SW1-1 | SW1-2 | SW1-3 | Resolution      |
|-------|-------|-------|-----------------|
| OFF   | ON    | ON    | 800x600 18 bit  |
| ON    | OFF   | ON    | 1024x768 18bit  |
| OFF   | OFF   | ON    | 1024x768 24 bit |

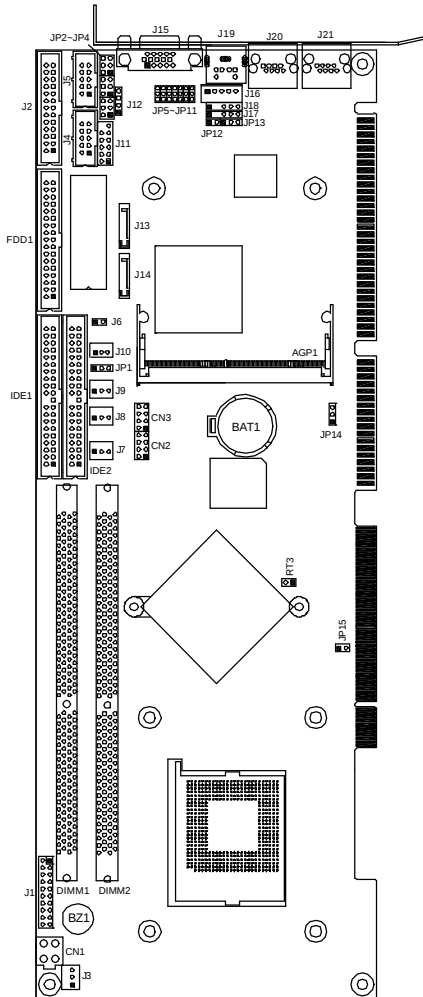
## Connectors on IB840

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The connectors on IB840 allows you to connect external devices such as keyboard, floppy disk drives, hard disk drives, printers, etc. The following table lists the connectors on IB840 and their respective functions.

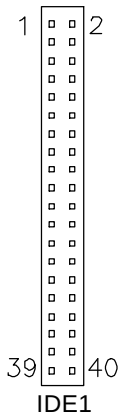
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## Connector Locations on IB840

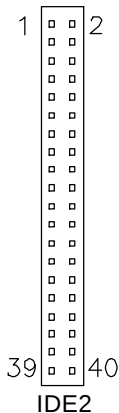


### Connector Locations on IB840:

- IDE1, IDE2: EIDE Connectors
- FDD1: Floppy Drive Connector
- CN1: ATX 12V/+12V Power Connector
- CN2, CN3: USB Connectors
- J3: CPU Fan Power Connector
- J7: External ATX Power Connector
- J8, J9: System Fan Power Connector
- J1: System Function Connector
- J2: Parallel Port Connector
- J4, J5: COM1 and COM2 Serial Ports Connector
- J10: Wake On LAN Connector
- J11: External Audio Connector
- J12: CD-In Audio Connector
- J13, J14: Serial ATA (SATA) Connectors
- J15: VGA CRT Connector
- J16, J18: External PS/2 Mouse and Keyboard Connector
- J17: IrDA Connector
- J19: PS/2 Keyboard and Mouse Connector
- J20: Primary RJ45 Connector
- J21: Gigabit LAN RJ45 Connector
- AGP1: MicroAGP Connector (for IBA110 / IBA120)



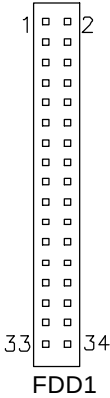
| Signal Name   | Pin # | Pin # | Signal Name   |
|---------------|-------|-------|---------------|
| Reset IDE     | 1     | 2     | Ground        |
| Host data 7   | 3     | 4     | Host data 8   |
| Host data 6   | 5     | 6     | Host data 9   |
| Host data 5   | 7     | 8     | Host data 10  |
| Host data 4   | 9     | 10    | Host data 11  |
| Host data 3   | 11    | 12    | Host data 12  |
| Host data 2   | 13    | 14    | Host data 13  |
| Host data 1   | 15    | 16    | Host data 14  |
| Host data 0   | 17    | 18    | Host data 15  |
| Ground        | 19    | 20    | Protect pin   |
| DRQ0          | 21    | 22    | Ground        |
| Host IOW      | 23    | 24    | Ground        |
| Host IOR      | 25    | 26    | Ground        |
| IOCHRDY       | 27    | 28    | Host ALE      |
| DACK0         | 29    | 30    | Ground        |
| IRQ14         | 31    | 32    | No connect    |
| Address 1     | 33    | 34    | No connect    |
| Address 0     | 35    | 36    | Address 2     |
| Chip select 0 | 37    | 38    | Chip select 1 |
| Activity      | 39    | 40    | Ground        |



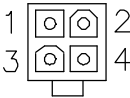
| Signal Name   | Pin # | Pin # | Signal Name   |
|---------------|-------|-------|---------------|
| Reset IDE     | 1     | 2     | Ground        |
| Host data 7   | 3     | 4     | Host data 8   |
| Host data 6   | 5     | 6     | Host data 9   |
| Host data 5   | 7     | 8     | Host data 10  |
| Host data 4   | 9     | 10    | Host data 11  |
| Host data 3   | 11    | 12    | Host data 12  |
| Host data 2   | 13    | 14    | Host data 13  |
| Host data 1   | 15    | 16    | Host data 14  |
| Host data 0   | 17    | 18    | Host data 15  |
| Ground        | 19    | 20    | Protect pin   |
| DRQ1          | 21    | 22    | Ground        |
| Host IOW      | 23    | 24    | Ground        |
| Host IOR      | 25    | 26    | Ground        |
| IOCHRDY       | 27    | 28    | Host ALE      |
| DACK1         | 29    | 30    | Ground        |
| IRQ15         | 31    | 32    | No connect    |
| Address 1     | 33    | 34    | No connect    |
| Address 0     | 35    | 36    | Address 2     |
| Chip select 0 | 37    | 38    | Chip select 1 |
| Activity      | 39    | 40    | Ground        |

**FDD1: Floppy Drive Connector**

FDD1 is a 34-pin header and will support up to 2.88MB floppy drives.



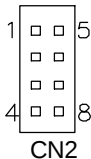
| Signal Name | Pin # | Pin # | Signal Name     |
|-------------|-------|-------|-----------------|
| Ground      | 1     | 2     | RM/LC           |
| Ground      | 3     | 4     | No connect      |
| Ground      | 5     | 6     | No connect      |
| Ground      | 7     | 8     | Index           |
| Ground      | 9     | 10    | Motor enable 0  |
| Ground      | 11    | 12    | Drive select 1  |
| Ground      | 13    | 14    | Drive select 0  |
| Ground      | 15    | 16    | Motor enable 1  |
| Ground      | 17    | 18    | Direction       |
| Ground      | 19    | 20    | Step            |
| Ground      | 21    | 22    | Write data      |
| Ground      | 23    | 24    | Write gate      |
| Ground      | 25    | 26    | Track 00        |
| Ground      | 27    | 28    | Write protect   |
| Ground      | 29    | 30    | Read data       |
| Ground      | 31    | 32    | Side 1 select   |
| Ground      | 33    | 34    | Diskette change |

**CN1: ATX 12V/+12V Power Connector**

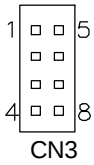
| Pin # | Signal Name |
|-------|-------------|
| 1     | Ground      |
| 2     | Ground      |
| 3     | +12V        |
| 4     | +12V        |

**CN2, CN3: USB Connectors**

The following table shows the pin outs of the USB pin headers connectors. Overall, the two pin headers support four USB ports.



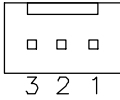
| Signal Name | Pin | Pin | Signal Name |
|-------------|-----|-----|-------------|
| Vcc         | 1   | 5   | Ground      |
| USB0-       | 2   | 6   | USB1+       |
| USB0+       | 3   | 7   | USB1-       |
| Ground      | 4   | 8   | Vcc         |



| Signal Name | Pin | Pin | Signal Name |
|-------------|-----|-----|-------------|
| Vcc         | 1   | 5   | Ground      |
| USB2-       | 2   | 6   | USB3+       |
| USB2+       | 3   | 7   | USB3-       |
| Ground      | 4   | 8   | Vcc         |

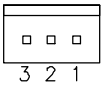
### J3: CPU Fan Power Connector

J3 is a 3-pin header for the CPU fan. The fan must be a 12V fan.



| Pin # | Signal Name        |
|-------|--------------------|
| 1     | Ground             |
| 2     | +12V               |
| 3     | Rotation detection |

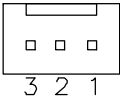
### J7: External ATX Power Connector



| Pin # | Signal Name         |
|-------|---------------------|
| 1     | Ground              |
| 2     | PS-ON (soft on/off) |
| 3     | 5VSB (Standby +5V)  |

### J8, J9: System Fan Power Connector

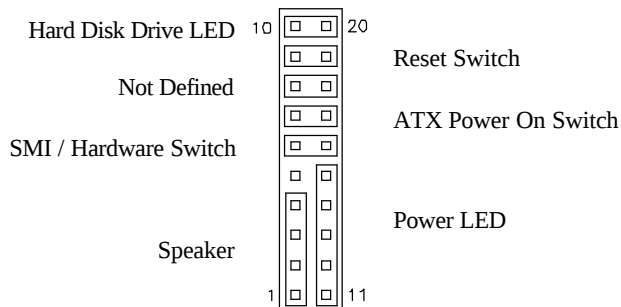
J8 and J9 are 3-pin headers for system fans. The fan must be a 12V fan.



| Pin # | Signal Name        |
|-------|--------------------|
| 1     | Ground             |
| 2     | +12V               |
| 3     | Rotation detection |

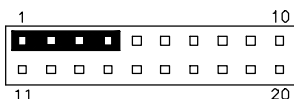
## J1: System Function Connector

J1 provides connectors for system indicators that provide light indication of the computer activities and switches to change the computer status. J1 is a 20-pin header that provides interfaces for the following functions.



### Speaker: Pins 1 - 4

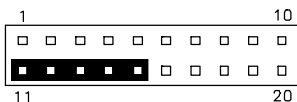
This connector provides an interface to a speaker for audio tone generation. An 8-ohm speaker is recommended.



| Pin # | Signal Name |
|-------|-------------|
| 1     | Speaker out |
| 2     | No connect  |
| 3     | Ground      |
| 4     | +5V         |

### Power LED: Pins 11 - 15

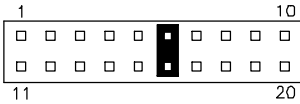
The power LED indicates the status of the main power switch.



| Pin # | Signal Name |
|-------|-------------|
| 11    | Power LED   |
| 12    | No connect  |
| 13    | Ground      |
| 14    | No connect  |
| 15    | Ground      |

### SMI/Hardware Switch: Pins 6 and 16

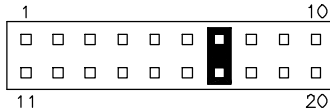
This connector supports the "Green Switch" on the control panel, which, when pressed, will force the system into the power-saving mode immediately.



| Pin # | Signal Name |
|-------|-------------|
| 6     | SMI         |
| 16    | Ground      |

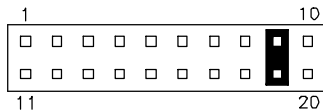
### ATX Power ON Switch: Pins 7 and 17

This 2-pin connector is an "ATX Power Supply On/Off Switch" on the system that connects to the power switch on the case. When pressed, the power switch will force the system to power on. When pressed again, it will force the system to power off.



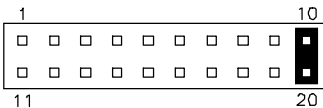
### Reset Switch: Pins 9 and 19

The reset switch allows the user to reset the system without turning the main power switch off and then on again. Orientation is not required when making a connection to this header.



### Hard Disk Drive LED Connector: Pins 10 and 20

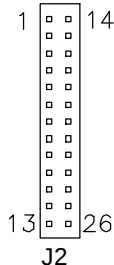
This connector connects to the hard drive activity LED on control panel. This LED will flash when the HDD is being accessed.



| Pin # | Signal Name |
|-------|-------------|
| 10    | HDD Active  |
| 20    | 5V          |

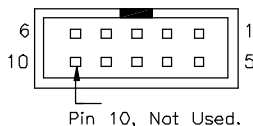
## J2: Parallel Port Connector

The following table describes the pin out assignments of this connector.

|                                                                                   | Signal Name          | Pin # | Pin # | Signal Name |
|-----------------------------------------------------------------------------------|----------------------|-------|-------|-------------|
|                                                                                   |                      |       |       |             |
|  | Line printer strobe  | 1     | 14    | AutoFeed    |
|                                                                                   | PD0, parallel data 0 | 2     | 15    | Error       |
|                                                                                   | PD1, parallel data 1 | 3     | 16    | Initialize  |
|                                                                                   | PD2, parallel data 2 | 4     | 17    | Select      |
|                                                                                   | PD3, parallel data 3 | 5     | 18    | Ground      |
|                                                                                   | PD4, parallel data 4 | 6     | 19    | Ground      |
|                                                                                   | PD5, parallel data 5 | 7     | 20    | Ground      |
|                                                                                   | PD6, parallel data 6 | 8     | 21    | Ground      |
|                                                                                   | PD7, parallel data 7 | 9     | 22    | Ground      |
|                                                                                   | ACK, acknowledge     | 10    | 23    | Ground      |
|                                                                                   | Busy                 | 11    | 24    | Ground      |
|                                                                                   | Paper empty          | 12    | 25    | Ground      |
|                                                                                   | Select               | 13    | N/A   | N/A         |

## J4, J5: COM1 and COM2 Serial Ports Connector

J4 and J5 both 10-pin headers, are the onboard serial port connectors.



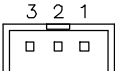
J4  
Fixed as  
RS-232

J5  
Configurable  
as RS-232/  
RS-422/485  
with jumpers  
JP2/JP3/JP4

| Pin # | Signal Name |        |        |
|-------|-------------|--------|--------|
|       | RS-232      | RS-422 | RS-485 |
| 1     | DCD         | TX-    | DATA-  |
| 2     | RX          | TX+    | DATA+  |
| 3     | TX          | RX+    | NC     |
| 4     | DTR         | RX-    | NC     |
| 5     | GND         | GND    | GND    |
| 6     | DSR         | RTS-   | NC     |
| 7     | RTS         | RTS+   | NC     |
| 8     | CTS         | CTS+   | NC     |
| 9     | RI          | CTS-   | NC     |
| 10    | NC          | NC     | NC     |

## J10: Wake On LAN Connector

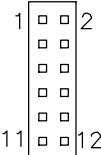
J10 is a 3-pin header for the Wake On LAN function on the motherboard. The following table shows the pin out assignments of this connector. Wake On LAN will function properly only with an ATX power supply with 5VSB that has 1A.



| Pin # | Signal Name |
|-------|-------------|
| 1     | +5VSB       |
| 2     | Ground      |
| 3     | LAN Wakeup  |

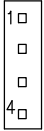
## J11: External Audio Connector

J11 is a 12-pin header that is used to connect to the optional audio cable that integrates jacks for Line In, Line Out and Mic.



| Signal Name | Pin # | Pin # | Signal Name |
|-------------|-------|-------|-------------|
| LINEOUT_R   | 1     | 2     | LINEOUT_L   |
| Ground      | 3     | 4     | Ground      |
| LINEIN_R    | 5     | 6     | LINEIN_L    |
| Ground      | 7     | 8     | Ground      |
| Mic-In      | 9     | 10    | VREFOUT     |
| Ground      | 11    | 12    | Protect pin |

## J12: CD-In Audio Connector



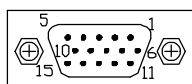
| Pin # | Signal Name |
|-------|-------------|
| 1     | CD Audio R  |
| 2     | Ground      |
| 3     | Ground      |
| 4     | CD Audio L  |

## J13, J14: Serial ATA (SATA) Connectors

The SATA connectors support serial ATA 150. Each connector can only use one serial ATA hard disk. J13 is port 1 and J14 is port 2.

### J15: VGA CRT Connector

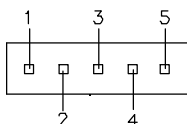
The pin assignments of the J15 VGA CRT connector are as follows:



J15

| Signal Name | Pin | Pin | Signal Name |
|-------------|-----|-----|-------------|
| Red         | 1   | 2   | Green       |
| Blue        | 3   | 4   | N.C.        |
| GND         | 5   | 6   | GND         |
| GND         | 7   | 8   | GND         |
| N.C.        | 9   | 10  | GND         |
| N.C.        | 11  | 12  | N.C.        |
| HSYNC       | 13  | 14  | VSYNC       |
| NC          | 15  |     |             |

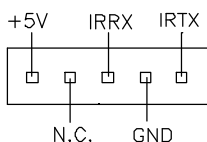
### J16, J18: External PS/2 Mouse and Keyboard Connector



| Pin # | J16      | J18         |
|-------|----------|-------------|
| 1     | KB clock | Mouse data  |
| 2     | KB data  | N.C.        |
| 3     | N.C.     | Ground      |
| 4     | Ground   | Vcc         |
| 5     | Vcc      | Mouse clock |

### J17: IrDA Connector

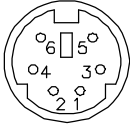
J17 is used for an optional IrDA connector for wireless communication.



| Pin # | Signal Name |
|-------|-------------|
| 1     | +5V         |
| 2     | No connect  |
| 3     | Ir RX       |
| 4     | Ground      |
| 5     | Ir TX       |

### J19: PS/2 Keyboard and Mouse Connector

J19 uses a Y-cable with dual D-connectors for a PS/2 keyboard and a PS/2 mouse.

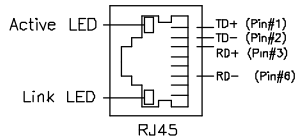


J19

| Pin # | Signal Name    |
|-------|----------------|
| 1     | Mouse data     |
| 2     | Keyboard data  |
| 3     | Ground         |
| 4     | Vcc            |
| 5     | Mouse Clock    |
| 6     | Keyboard Clock |

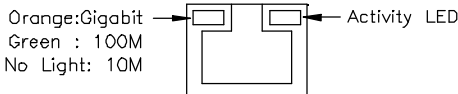
### J20: Primary RJ45 Connector

J20 is the primary RJ-45 connector based on the chipset integrated LAN. The figure below shows the pin out assignments of the connector and its corresponding input jack.



### J21: Gigabit LAN RJ45 Connector

J21 is the Gigabit LAN RJ45 connector.



### AGP1: MicroAGP Connector (for IBA110 / IBA120)

## BIOS Setup

This chapter describes the different settings available in the Award BIOS that comes with the CPU card. The topics covered in this chapter are as follows:

|                                   |    |
|-----------------------------------|----|
| BIOS Introduction .....           | 30 |
| BIOS Setup .....                  | 30 |
| Standard CMOS Setup .....         | 32 |
| Advanced BIOS Features .....      | 35 |
| Advanced Chipset Features .....   | 38 |
| Integrated Peripherals.....       | 41 |
| Power Management Setup.....       | 45 |
| PNP/PCI Configurations .....      | 48 |
| PC Health Status .....            | 49 |
| Frequency/Voltage Control.....    | 50 |
| Load Fail-Safe Defaults .....     | 51 |
| Load Setup Defaults .....         | 51 |
| Set Supervisor/User Password..... | 51 |
| Save & Exit Setup .....           | 51 |
| Exit Without Saving.....          | 51 |

### BIOS Introduction

The Award BIOS (Basic Input/Output System) installed in your computer system's ROM supports Intel Pentium 4 processors. The BIOS provides critical low-level support for a standard device such as disk drives, serial ports and parallel ports. It also adds virus and password protection as well as special support for detailed fine-tuning of the chipset controlling the entire system.

### BIOS Setup

The Award BIOS provides a Setup utility program for specifying the system configurations and settings. The BIOS ROM of the system stores the Setup utility. When you turn on the computer, the Award BIOS is immediately activated. Pressing the <Del> key immediately allows you to enter the Setup utility. If you are a little bit late pressing the <Del> key, POST (Power On Self Test) will continue with its test routines, thus preventing you from invoking the Setup. If you still wish to enter Setup, restart the system by pressing the "Reset" button or simultaneously pressing the <Ctrl>, <Alt> and <Delete> keys. You can also restart by turning the system Off and back On again. The following message will appear on the screen:

Press <DEL> to Enter Setup

In general, you press the arrow keys to highlight items, <Enter> to select, the <PgUp> and <PgDn> keys to change entries, <F1> for help and <Esc> to quit.

When you enter the Setup utility, the Main Menu screen will appear on the screen. The Main Menu allows you to select from various setup functions and exit choices.

## Phoenix - AwardBIOS CMOS Setup Utility

|                               |                           |
|-------------------------------|---------------------------|
| 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... |                           |

The section below the setup items of the Main Menu displays the control keys for this menu. At the bottom of the Main Menu just below the control keys section, there is another section, which displays information on the currently highlighted item in the list.

**Note:** *If the system cannot boot after making and saving system changes with Setup, the Award BIOS supports an override to the CMOS settings that resets your system to its default.*

**Warning:** *It is strongly recommended that you avoid making any changes to the chipset defaults. These defaults have been carefully chosen by both Award and your system manufacturer to provide the absolute maximum performance and reliability. Changing the defaults could cause the system to become unstable and crash in some cases.*

## Standard CMOS Setup

“Standard CMOS Setup” choice allows you to record some basic hardware configurations in your computer system and set the system clock and error handling. If the CPU card is already installed in a working system, you will not need to select this option. You will need to run the Standard CMOS option, however, if you change your system hardware configurations, the onboard battery fails, or the configuration stored in the CMOS memory was lost or damaged.

Phoenix - AwardBIOS CMOS Setup Utility  
Standard CMOS Features

|                      |                      |                                            |
|----------------------|----------------------|--------------------------------------------|
| Date (mm:dd:yy)      | Thu, May 21, 2001    | Item Help                                  |
| Time (hh:mm:ss)      | 00 : 00 : 00         | Menu Level                                 |
| IDE Channel 0 Master | Press Enter 13020 MB | Change the day, month,<br>Year and century |
| IDE Channel 0 Slave  | Press Enter None     |                                            |
| IDE Channel 1 Master | Press Enter None     |                                            |
| IDE Channel 1 Slave  | Press Enter None     |                                            |
| IDE Channel 2 Master |                      |                                            |
| IDE Channel 3 Master |                      |                                            |
| Drive A              | 1.44M, 3.5 in.       |                                            |
| Drive B              | None                 |                                            |
| Video                | EGA/VGA              |                                            |
| Halt On              | All Errors           |                                            |
| Base Memory          | 640K                 |                                            |
| Extended Memory      | 129024K              |                                            |
| Total Memory         | 130048K              |                                            |

At the bottom of the menu are the control keys for use on this menu. If you need any help in each item field, you can press the <F1> key. It will display the relevant information to help you. The memory display at the lower right-hand side of the menu is read-only. It will adjust automatically according to the memory changed. The following describes each item of this menu.

### Date

The date format is:

**Day :** Sun to Sat  
**Month :** 1 to 12  
**Date :** 1 to 31  
**Year :** 1994 to 2079

To set the date, highlight the “Date” field and use the PageUp/ PageDown or +/- keys to set the current time.

**Time**

The time format is:   **Hour**   : 00 to 23  
                              **Minute** : 00 to 59  
                              **Second** : 00 to 59

To set the time, highlight the “Time” field and use the <PgUp>/ <PgDn> or +/- keys to set the current time.

**IDE Primary HDDs / IDE Secondary HDDs**

The onboard PCI IDE connectors provide Primary and Secondary channels for connecting up to four IDE hard disks or other IDE devices. Each channel can support up to two hard disks; the first is the “Master” and the second is the “Slave”.

Press <Enter> to configure the hard disk. The selections include Auto, Manual, and None. Select ‘Manual’ to define the drive information manually. You will be asked to enter the following items.

**CYLS** :           Number of cylinders  
**HEAD** :          Number of read/write heads  
**PRECOMP** :      Write precompensation  
**LANDZ** :        Landing zone  
**SECTOR** :       Number of sectors

The Access Mode selections are as follows:

Auto  
Normal (HD < 528MB)  
Large   (for MS-DOS only)  
LBA     (HD > 528MB and supports  
          Logical Block Addressing)

**Remarks:** The main board supports two serial ATA ports and are represented in this setting as IDE Channel 2 / 3 Master.

**Drive A / Drive B**

These fields identify the types of floppy disk drive A or drive B that has been installed in the computer. The available specifications are:

|          |          |         |         |         |
|----------|----------|---------|---------|---------|
| 360KB    | 1.2MB    | 720KB   | 1.44MB  | 2.88MB  |
| 5.25 in. | 5.25 in. | 3.5 in. | 3.5 in. | 3.5 in. |

### Video

This field selects the type of video display card installed in your system. You can choose the following video display cards:

|         |                                                             |
|---------|-------------------------------------------------------------|
| EGA/VGA | For EGA, VGA, SEGA, SVGA or PGA monitor adapters. (default) |
| CGA 40  | Power up in 40 column mode.                                 |
| CGA 80  | Power up in 80 column mode.                                 |
| MONO    | For Hercules or MDA adapters.                               |

### Halt On

This field determines whether or not the system will halt if an error is detected during power up.

|                   |                                                                                               |
|-------------------|-----------------------------------------------------------------------------------------------|
| No errors         | The system boot will not be halted for any error that may be detected.                        |
| All errors        | Whenever the BIOS detects a non-fatal error, the system will stop and you will be prompted.   |
| All, But Keyboard | The system boot will not be halted for a keyboard error; it will stop for all other errors    |
| All, But Diskette | The system boot will not be halted for a disk error; it will stop for all other errors.       |
| All, But Disk/Key | The system boot will not be halted for a keyboard or disk error; it will stop for all others. |

## Advanced BIOS Features

This section allows you to configure and improve your system and allows you to set up some system features according to your preference.

Phoenix - AwardBIOS CMOS Setup Utility  
Advanced BIOS Features

|                            |             | ITEM HELP                                                                                                                                                                                                                                       |
|----------------------------|-------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Hard Disk Boot Priority    | Press Enter | Menu Level<br><br>Allows you 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 |
| CD-ROM Boot Priority       | Press Enter |                                                                                                                                                                                                                                                 |
| CPU L1 and L2 Cache        | Enabled     |                                                                                                                                                                                                                                                 |
| Quick Power On Self Test   | Enabled     |                                                                                                                                                                                                                                                 |
| First Boot Device          | Floppy      |                                                                                                                                                                                                                                                 |
| Second Boot Device         | Hard Disk   |                                                                                                                                                                                                                                                 |
| Third Boot Device          | CD-ROM      |                                                                                                                                                                                                                                                 |
| Boot Other Device          | Enabled     |                                                                                                                                                                                                                                                 |
| Swap Floppy Drive          | Disabled    |                                                                                                                                                                                                                                                 |
| Boot Up Floppy Seek        | Disabled    |                                                                                                                                                                                                                                                 |
| 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       |                                                                                                                                                                                                                                                 |
| APIC Mode                  | Enabled     |                                                                                                                                                                                                                                                 |
| MPS Version Control for OS | 1.4         |                                                                                                                                                                                                                                                 |
| OS Select For DRAM>64MB    | Non-OS2     |                                                                                                                                                                                                                                                 |
| Report No FDD For WIN 95   | Yes         |                                                                                                                                                                                                                                                 |
| Small Logo (EPA) Show      | Enable      |                                                                                                                                                                                                                                                 |

### Hard Disk / CD-ROM Boot Priority

This item allows you to set the priority for hard disk boot. When you press enter, the selections shows the current hard disks used in your system as well as the "Bootable Add-in Card" that is relevant to other boot sources media such as SCSI cards and LAN cards.

### CPU L1 and L2 Cache

Cache memory is additional memory that is much faster than conventional DRAM (system memory). CPUs from 486-type on up contain internal cache memory, and most, but not all, modern PCs have additional (external) cache memory. When the CPU requests data, the system transfers the requested data from the main DRAM into cache memory, for even faster access by the CPU. These items allow you to enable (speed up memory access) or disable the cache function. By default, these items are Enabled.

### Quick Power On Self Test

When enabled, this field speeds up the Power On Self Test (POST) after the system is turned on. If it is set to *Enabled*, BIOS will skip some items.

### First/Second/Third Boot Device

These fields determine the drive that the system searches first for an operating system. The options available include *Floppy*, *LS/ZIP*, *HDD-0*, *SCSI*, *CDROM*, *HDD-1*, *HDD-2*, *HDD-3*, *LAN* and *Disable*.

### Boot Other Device

These fields allow the system to search for an operating system from other devices other than the ones selected in the First/Second/Third Boot Device.

### Swap Floppy Drive

This item allows you to determine whether or not to enable Swap Floppy Drive. When enabled, the BIOS swaps floppy drive assignments so that Drive A becomes Drive B, and Drive B becomes Drive A. By default, this field is set to **Disabled**.

### Boot Up Floppy Seek

This feature controls whether the BIOS checks for a floppy drive while booting up. If it cannot detect one (either due to improper configuration or its absence), it will flash an error message.

### Boot Up NumLock Status

This allows you to activate the NumLock function after you power up the system.

### Gate A20 Option

This field allows you to select how Gate A20 is worked. Gate A20 is a device used to address memory above 1 MB.

### Typematic Rate Setting

When disabled, continually holding down a key on your keyboard will generate only one instance. When enabled, you can set the two typematic controls listed next. By default, this field is set to **Disabled**.

### Typematic Rate (Chars/Sec)

When the typematic rate is enabled, the system registers repeated keystrokes speeds. Settings are from 6 to 30 characters per second.

### Typematic Delay (Msec)

When the typematic rate is enabled, this item allows you to set the time interval for displaying the first and second characters. By default, this item is set to **250msec**.

**Security Option**

This field allows you to limit access to the System and Setup. The default value is **Setup**. When you select *System*, the system prompts for the User Password every time you boot up. When you select *Setup*, the system always boots up and prompts for the Supervisor Password only when the Setup utility is called up.

**APIC Mode**

APIC stands for Advanced Programmable Interrupt Controller. The default setting is **Enabled**.

**MPS Version Control for OS**

This option specifies the MPS (Multiprocessor Specification) version for your operating system. MPS version 1.4 added extended configuration tables to improve support for multiple PCI bus configurations and improve future expandability. The default setting is **1.4**.

**OS Select for DRAM > 64MB**

This option allows the system to access greater than 64MB of DRAM memory when used with OS/2 that depends on certain BIOS calls to access memory. The default setting is **Non-OS/2**.

**Report No FDD For WIN 95**

If you are using Windows 95/98 without a floppy disk drive, select Enabled to release IRQ6. This is required to pass Windows 95/98's SCT test. You should also disable the Onboard FDC Controller in the Integrated Peripherals screen when there's no floppy drive in the system. If you set this feature to Disabled, the BIOS will not report the missing floppy drive to Win95/98.

**Small Logo (EPA) Show**

The EPA logo appears at the right side of the monitor screen when the system is boot up. The default setting is **Enabled**.

## Advanced Chipset Features

This Setup menu controls the configuration of the chipset.

Phoenix - AwardBIOS CMOS Setup Utility  
Advanced Chipset Features

|                           |              |            |
|---------------------------|--------------|------------|
| DRAM Timing Selectable    | By SPD       | ITEM HELP  |
| CAS Latency Time          | 2.5          | Menu Level |
| Active to Precharge Delay | 6            |            |
| DRAM RAS# to CAS# Delay   | 3            |            |
| DRAM RAS# Precharge       | 3            |            |
| Memory Frequency For      | Auto         |            |
| System BIOS Cacheable     | Enabled      |            |
| Video BIOS Cacheable      | Disabled     |            |
| Memory Hole at 15M-16M    | Disabled     |            |
| Delay Prior to Thermal    | 16 Min       |            |
| AGP Aperture Size (MB)    | 128          |            |
| Init Display First        | PCI Slot     |            |
| ** On-Chip VGA Setting ** |              |            |
| On-Chip VGA               | Enabled      |            |
| On-Chip Frame Buffer Size | 8MB          |            |
| Boot Display              | CRT + LVDS   |            |
| Panel Scaling             | Auto         |            |
| Panel Number              | 800x600 LVDS |            |
| TV Standard               | Off          |            |
| Video Connector           | Automatic    |            |
| TV Format                 | Auto         |            |

### DRAM Timing Selectable

This option refers to the method by which the DRAM timing is selected. The default is **By SPD**.

### CAS Latency Time

You can select CAS latency time in HCLKs of 2/2 or 3/3. 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 are 2 and 3.

### Active to Precharge Delay

The default setting for the Active to Precharge Delay is 6.

### DRAM RAS# to CAS# Delay

This option allows you to insert a delay between the RAS (Row Address Strobe) and CAS (Column Address Strobe) signals. This delay occurs when the SDRAM is written to, read from or refreshed. Reducing the delay improves the performance of the SDRAM.

**DRAM RAS# Precharge**

This option sets the number of cycles required for the RAS to accumulate its charge before the SDRAM refreshes. The default setting for the Active to Precharge Delay is **3**.

**Memory Frequency For**

This field sets the frequency of the DRAM memory installed. The default setting is **Auto**. The other settings are *PC200* and *PC266*.

**System BIOS Cacheable**

The setting of *Enabled* allows caching of the system BIOS ROM at F000h-FFFFh, resulting in better system performance. However, if any program writes to this memory area, a system error may result.

**Video BIOS Cacheable**

The Setting *Enabled* allows caching of the video BIOS ROM at C0000h-F7FFFh, resulting in better video performance. However, if any program writes to this memory area, a system error may result.

**Memory Hole At 15M-16M**

In order to improve performance, certain space in memory can be reserved for ISA cards. This memory must be mapped into the memory space below 16 MB. The choices are *Enabled* and *Disabled*.

**Delay Prior to Thermal**

This field activates the CPU thermal function after the systems boots for the set number of minutes. The options are **16Min** and **64Min**.

**AGP Aperture Size**

The field sets aperture size of the graphics. The aperture is a portion of the PCI memory address range dedicated for graphics memory address space. Host cycles that hit the aperture range are forwarded to the AGP without any translation. The default setting is **128M**.

**Init Display First**

This field allows the system to initialize first the VGA on chip or the display card on the PCI Slot.

### On-Chip VGA

By default, the On-Chip VGA or 865G chipset-integrated VGA is **Enabled**.

### On-Chip Frame Buffer Size

The On-Chip Frame Buffer Size can be set us 1MB, 8MB or 16MB. This memory is shared with the system memory.

### Boot Display

Boot Display determines the display output device where the system boots. The default setting is **LVDS**.

### Panel Scaling

With the default setting of Auto, this item automatically displays the resolution of the panel used in the system to 'full' screen.

### Panel Number

By default, this item is set to **800 x 600 LVDS**. If you are using other kinds of panel, enter this field to select the one that suits your panel.

### TV Standard

By default, this item is set to **off**.

### Video Connector

By default, this item is set to **Automatic**.

### TV Format

By default, this item is set to **Auto**.

## Integrated Peripherals

This section sets configurations for your hard disk and other integrated peripherals. The first screen shows three main items for user to select. Once an item selected, a submenu appears. Details follow.

### Phoenix - AwardBIOS CMOS Setup Utility Integrated Peripherals

|                            |             |            |
|----------------------------|-------------|------------|
| On-Chip Primary IDE Device | Press Enter | ITEM HELP  |
| Onboard Device             | Press Enter | Menu Level |
| SuperIO Device             | Press Enter |            |

### Phoenix - AwardBIOS CMOS Setup Utility OnChip IDE Device

|                                    |              |            |
|------------------------------------|--------------|------------|
| IDE Block Mode                     | Enabled      | ITEM HELP  |
| On-Chip Primary PCI IDE            | Enabled      | Menu Level |
| IDE Primary Master PIO             | Auto         |            |
| IDE Primary Slave PIO              | Auto         |            |
| IDE Primary Master UDMA            | Auto         |            |
| 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         |            |
| *** On-Chip Serial ATA Setting *** |              |            |
| On-Chip Serial ATA                 | Auto         |            |
| Serial ATA Port0 Mode              | SATA0 master |            |
| Serial ATA Port1 Mode              | SATA1 master |            |

### Phoenix - AwardBIOS CMOS Setup Utility Onboard Device

|                      |          |            |
|----------------------|----------|------------|
| USB 2.0 Controller   | Enabled  | ITEM HELP  |
| USB Controller       | Disabled | Menu Level |
| USB Keyboard Support | Disabled |            |
| USB Mouse Support    | Disabled |            |
| AC97 Audio           | Auto     |            |
| CSA LAN (Giga-LAN)   | Enable   |            |

Phoenix - AwardBIOS CMOS Setup Utility  
SuperIO Device

|                        |          |            |
|------------------------|----------|------------|
| Onboard FDC Controller | Enabled  | ITEM HELP  |
| Onboard Serial Port 1  | 3F8/IRQ4 | Menu Level |
| Onboard Serial Port 2  | 2F8/IRQ3 |            |
| UART Mode Select       | Normal   |            |
| Onboard Parallel Port  | 378/IRQ7 |            |
| Parallel Port Mode     | SPP      |            |

### **IDE HDD Block Mode**

This field allows your hard disk controller to use the fast block mode to transfer data to and from your hard disk drive.

### **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**

These fields allow your system hard disk controller to work faster. Rather than have the BIOS issue a series of commands that transfer to or from the disk drive, PIO (Programmed Input/Output) allows the BIOS to communicate with the controller and CPU directly.

The system supports five modes, numbered from 0 (default) to 4, which primarily differ in timing. When Auto is selected, the BIOS will select the best available mode.

### **IDE Primary/Secondary Master/Slave UDMA**

These fields allow your system to improve disk I/O throughput to 33Mb/sec with the Ultra DMA/33 feature. The options are *Auto* and *Disabled*.

### **On-Chip Serial ATA**

The default setting of *Auto* allows the Serial ATA drive to be enabled, when the system detects one.

**USB Controller**

The options for this field are *Enabled* and *Disabled*. By default, this field is set to **Enabled**.

**USB 2.0 Controller**

The options for this field are *Enabled* and *Disabled*. By default, this field is set to **Disabled**. In order to use USB 2.0, necessary OS drivers must be installed first.

**USB Keyboard Support**

The options for this field are *Enabled* and *Disabled*. By default, this field is set to **Disabled**.

**USB Mouse Support**

The options for this field are *Enabled* and *Disabled*. By default, this field is set to **Disabled**.

**AC97 Audio**

The default setting of the AC97 Audio is **Auto**.

**CSA LAN (Giga-LAN)**

The default setting of the onboard Gigabit LAN is enabled.

**Onboard FDC Controller**

Select *Enabled* if your system has a floppy disk controller (FDC) installed on the CPU card and you wish to use it. If you install an add-in FDC or the system has no floppy drive, select *Disabled* in this field. This option allows you to select the onboard FDD port.

**Onboard Serial/Parallel Port**

These fields allow you to select the onboard serial and parallel ports and their addresses. The default values for these ports are:

|               |           |
|---------------|-----------|
| Serial Port 1 | 3F8/IRQ4  |
| Serial Port 2 | 2F8/IRQ3  |
| Parallel Port | 378H/IRQ7 |

**UART Mode Select**

This field determines the UART 2 mode in your computer. The default value is **Normal**. Other options include *IrDA* and *ASKIR*.

### **Parallel Port Mode**

This field allows you to determine parallel port mode function.

|     |                            |
|-----|----------------------------|
| SPP | Standard Printer Port      |
| EPP | Enhanced Parallel Port     |
| ECP | Extended Capabilities Port |

## Power Management Setup

The Power Management Setup allows you to save energy of your system effectively.

Phoenix - AwardBIOS CMOS Setup Utility  
Power Management Setup

| Power Management Setup           |                | ITEM HELP                |
|----------------------------------|----------------|--------------------------|
| Power-Supply Type                | ATX            | Menu Level<br>Menu Level |
| ACPI Function                    | Enabled        |                          |
| ACPI Suspend Type                | S1 (POS)       |                          |
| Power Management                 | User Define    |                          |
| Video Off Method                 | V/H SYNC+Blank |                          |
| 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    |                          |
| CPU THRM-Throttling              | 50%            |                          |
| Wake-Up by PCI Card              | Disabled       |                          |
| Power On by Ring                 | Disabled       |                          |
| Wake Up on CSA Lan               | Disabled       |                          |
| Resume by Alarm                  | Disabled       |                          |
| Date (of Month) Alarm            | 0              |                          |
| Time (hh:mm:ss) Alarm            | 0 : 0 : 0      |                          |
| ** Reload Global Timer Events ** |                |                          |
| Primary IDE 0                    | Enabled        |                          |
| Primary IDE 1                    | Enabled        |                          |
| Secondary IDE 0                  | Enabled        |                          |
| Secondary IDE 1                  | Enabled        |                          |
| FDD, COM, LPT Port               | Enabled        |                          |
| PCI PIRQ[A-D] #                  | Enabled        |                          |

### Power Supply Type

This field sets the power supply type that is in your system. By default, the setting is set to **ATX**.

### ACPI Function

Enable this function to support ACPI (Advance Configuration and Power Interface).

### ACPI Suspend Type

This field sets the ACPI Power Management standby state. The default setting is **S1 (POS)**.

## Power Management

This field allows you to select the type of power saving management modes. There are four selections for Power Management.

|                   |                                                                                                               |
|-------------------|---------------------------------------------------------------------------------------------------------------|
| Min. Power Saving | Minimum power management                                                                                      |
| Max. Power Saving | Maximum power management.                                                                                     |
| User Define       | Each of the ranges is from 1 min. to 1hr.<br>Except for HDD Power Down which<br>ranges from 1 min. to 15 min. |

## Video Off Method

This field defines the Video Off features. There are three options.

|                  |                                                                                     |
|------------------|-------------------------------------------------------------------------------------|
| V/H SYNC + Blank | Default setting, blank the screen and turn off<br>vertical and horizontal scanning. |
| DPMS             | Allows BIOS to control the video display.                                           |
| Blank Screen     | Writes blanks to the video buffer.                                                  |

## Video Off In Suspend

When enabled, the video is off in suspend mode. The default setting is **Yes**.

## Suspend Type

The default setting for the Suspend Type field is **Stop Grant**.

## Modem Use IRQ

This field sets the IRQ used by the Modem. By default, the setting is **3**.

## Suspend Mode

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

## 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.

## Soft-Off by PWRBTN

This field defines the power-off mode when using an ATX power supply. The *Instant Off* mode allows powering off immediately upon pressing the power button. In the *Delay 4 Sec* mode, the system powers off when the power button is pressed for more than four seconds or enters the suspend mode when pressed for less than 4 seconds.

**CPU THRM-Throttling**

When the system enters Doze mode, the CPU clock runs only part of the time. You may select the percent of time that the clock runs.

**Wake-Up by PCI Cards**

Enable this field to allow wake up function through a PCI card.

**Power On by Ring**

This field enables or disables the power on of the system through the modem connected to the serial port or LAN.

**Wake Up On CSA Lan**

Enable this field to allow wake up function through the onboard CSA LAN.

**Resume by Alarm**

This field enables or disables the resumption of the system operation. When enabled, the user is allowed to set the *Date* and *Time*.

**Reload Global Timer Events**

The HDD, FDD, COM, LPT Ports, and PCI PIRQ are I/O events which can prevent the system from entering a power saving mode or can awaken the system from such a mode. When an I/O device wants to gain the attention of the operating system, it signals this by causing an IRQ to occur. When the operating system is ready to respond to the request, it interrupts itself and performs the service.

## PNP/PCI Configurations

This option configures the PCI bus system. All PCI bus systems on the system use INT#, thus all installed PCI cards must be set to this value.

Phoenix - AwardBIOS CMOS Setup Utility  
PnP/PCI Configurations

|                          |             |                                                                                                                                                                                                                                                                          |
|--------------------------|-------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| PNP OS Install           | No          | ITEM HELP                                                                                                                                                                                                                                                                |
| Reset Configuration Data | Disabled    | Menu Level                                                                                                                                                                                                                                                               |
| Resources Controlled By  | Auto (ESCD) | Default is Disabled.<br>Select Enabled to<br>reset Extended<br>System Configuration<br>Data (ESCD) when you<br>exit Setup if you have<br>installed a new add-on<br>and the system<br>reconfiguration has<br>caused such a serious<br>conflict that the OS<br>cannot boot |
| IRQ Resources            | Press Enter |                                                                                                                                                                                                                                                                          |
| DMA Resources            | Press Enter |                                                                                                                                                                                                                                                                          |
| PCI/VGA Palette Snoop    | Disabled    |                                                                                                                                                                                                                                                                          |
| INT Pin 1 Assignment     | Auto        |                                                                                                                                                                                                                                                                          |
| INT Pin 2 Assignment     | Auto        |                                                                                                                                                                                                                                                                          |
| INT Pin 3 Assignment     | Auto        |                                                                                                                                                                                                                                                                          |
| INT Pin 4 Assignment     | Auto        |                                                                                                                                                                                                                                                                          |
| INT Pin 5 Assignment     | Auto        |                                                                                                                                                                                                                                                                          |
| INT Pin 6 Assignment     | Auto        |                                                                                                                                                                                                                                                                          |
| INT Pin 7 Assignment     | Auto        |                                                                                                                                                                                                                                                                          |
| INT Pin 8 Assignment     | Auto        |                                                                                                                                                                                                                                                                          |

### PNP OS Install

Enable the PNP OS Install option if it is supported by the operating system installed. The default value is **No**.

### Reset Configuration Data

This field allows you to determine whether to reset the configuration data or not. The default value is **Disabled**.

### Resources Controlled by

This PnP BIOS can configure all of the boot and compatible devices automatically with the use of a use a PnP operating system such as Windows 95.

### PCI/VGA Palette Snoop

Some non-standard VGA display cards may not show colors properly. This field allows you to set whether or not MPEG ISA/VESA VGA cards can work with PCI/VGA. When this field is enabled, a PCI/VGA can work with an MPEG ISA/VESA VGA card. When this field is disabled, a PCI/VGA cannot work with an MPEG ISA/VESA card.

## PC Health Status

This section shows the parameters in determining the PC Health Status. These parameters include temperatures, fan speeds and voltages.

Phoenix - AwardBIOS CMOS Setup Utility  
PC Health Status

|                          |            | ITEM HELP |
|--------------------------|------------|-----------|
| CPU Warning Temperature  | 80°C/176°F |           |
| Current CPU Temp.        | 34°C/93°F  |           |
| Current System Temp.     | 35°C/95°F  |           |
| Current Chassis Temp.    | 34°C/93°F  |           |
| CPU FAN Speed            | 4166 RPM   |           |
| System FAN Speed         | 5625PM     |           |
| Chassis FAN Speed        | 0 RPM      |           |
| Vcore (V)                | 1.63V      |           |
| Vcc3(V)                  | 3.37V      |           |
| +5(V)                    | 5.05V      |           |
| +12(V)                   | 12.09V     |           |
| -12(V)                   | (-)12.03V  |           |
| VBAT                     | 3.21V      |           |
| 5VSB(V)                  | 5.05V      |           |
| Shutdown Temperature     | Disabled   |           |
| Temperature Warning Beep | Enabled    |           |
| CPU Fan Failure Warning  | Disabled   |           |
| Sys FAN Failure Warning  | Disabled   |           |
| Aux FAN Failure Warning  | Disabled   |           |

### CPU Warning Temperature

This field allows the user to set the temperature so that when the temperature is reached, the system sounds a warning. This function can help prevent damage to the system that is caused by overheating.

### Temperatures/Fan Speeds/Voltages

These fields are the parameters of the hardware monitoring function feature of the CPU card. The values are read-only values as monitored by the system and show the PC health status.

### Shutdown Temperature

This field allows the user to set the temperature by which the system automatically shuts down once the threshold temperature is reached. This function can help prevent damage to the system that is caused by overheating.

### Temperature/CPU/Chassis Fan Failure Warning

When enabled, this field lets the system sounds an audible warning to the user that the CPU fan or chassis fan has malfunctioned.

## Frequency/Voltage Control

This section shows the user how to configure the processor frequency.

Phoenix - AwardBIOS CMOS Setup Utility  
Frequency/Voltage Control

|                     |          |            |
|---------------------|----------|------------|
| Auto Detect PCI Clk | Disabled | ITEM HELP  |
| Spread Spectrum     | Disabled | Menu Level |
|                     |          |            |

### Auto Detect PCI Clk

This field enables or disables the auto detection of the PCI clock.

### Spread Spectrum

This field sets the value of the spread spectrum. The default setting is **Disabled**. This field is for CE testing use only.

### **Load Fail-Safe Defaults**

This option allows you to load the troubleshooting default values permanently stored in the BIOS ROM. These default settings are non-optimal and disable all high-performance features.

### **Load Setup Defaults**

This option allows you to load the default values to your system configuration. These default settings are optimal and enable all high performance features.

### **Set Supervisor/User Password**

These two options set the system password. Supervisor Password sets a password that will be used to protect the system and Setup utility. User Password sets a password that will be used exclusively on the system. To specify a password, highlight the type you want and press <Enter>. The Enter Password: message prompts on the screen. Type the password, up to eight characters in length, and press <Enter>. The system confirms your password by asking you to type it again. After setting a password, the screen automatically returns to the main screen.

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

### **Save & Exit Setup**

This option allows you to determine whether or not to accept the modifications. If you type “Y”, you will quit the setup utility and save all changes into the CMOS memory. If you type “N”, you will return to Setup utility.

### **Exit Without Saving**

Select this option to exit the Setup utility without saving the changes you have made in this session. Typing “Y” will quit the Setup utility without saving the modifications. Typing “N” will return you to Setup utility.

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## Drivers Installation

This section describes the installation procedures for software and drivers under the Windows 98, Windows NT 4.0 and Windows 2000. The software and drivers are included with the CPU card. If you find the items missing, please contact the vendor where you made the purchase. The contents of this section include the following:

|                                                       |    |
|-------------------------------------------------------|----|
| Intel 865G Chipset Software Intallation Utility ..... | 54 |
| Intel 865G Chipset Graphics Driver.....               | 57 |
| Realtek AC97 Codec Audio Driver Installation .....    | 59 |
| Intel PRO LAN Drivers Installation.....               | 60 |
| ATI M7 VGA Driver Installation.....                   | 61 |
| ATI M9/M10 VGA Driver Installation .....              | 63 |

### **IMPORTANT NOTE:**

After installing your Windows operating system (Windows 98/98SE/ME/2000/XP), you must install first the Intel Chipset Software Installation Utility before proceeding with the drivers installation.

## Intel 865G Chipset Software Intallation Utility

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The Intel 865G Chipset Drivers should be installed first before the software drivers to enable Plug & Play INF support for Intel chipset components. Follow the instructions below to complete the installation under Windows 98/98SE/ME/2000/XP.

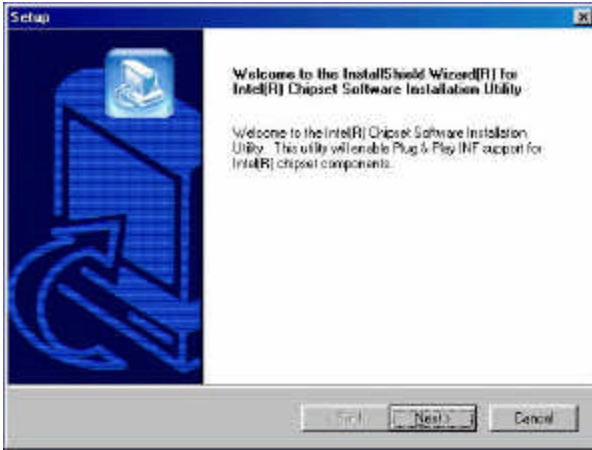
1. Insert the CD that comes with the CPU card and the screen below would appear. Click Intel Chipsets and then Intel 865G Chipset Family Drivers.



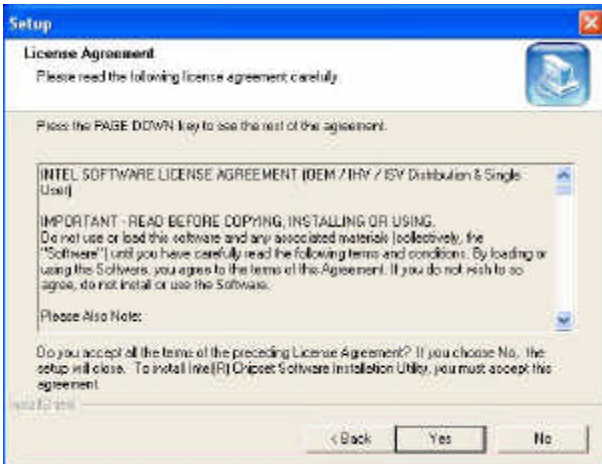
2. Click Intel 865G Chipset Software Intallation Utility.



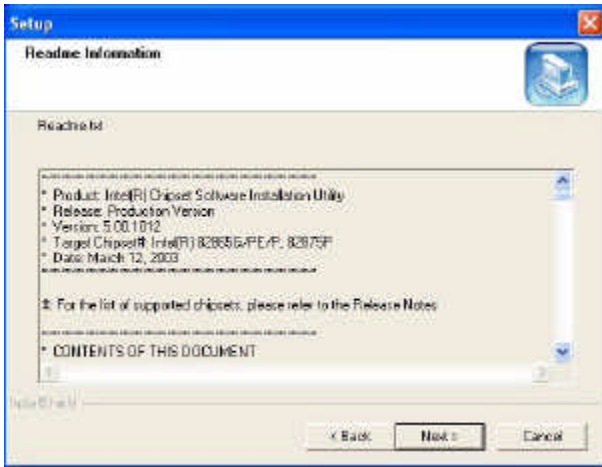
3. When the Welcome screen appears, click Next to continue.



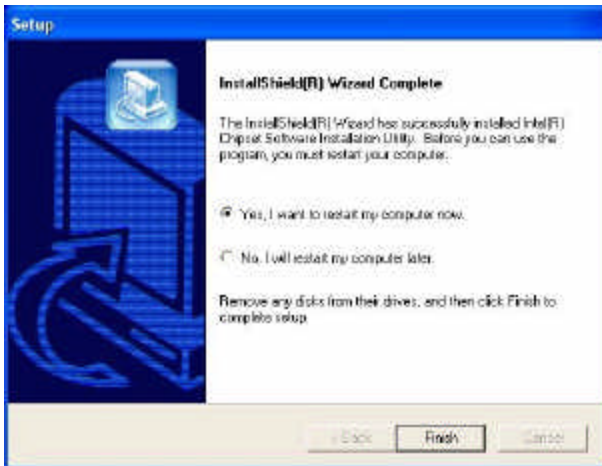
4. Click Yes to accept the software license agreement and proceed with the installation process.



5. On Readme Information screen, click Next to continue the installation.



6. The Setup process is now complete. Click Finish to restart the computer and for changes to take effect. When the computer has restarted, the system will be able to find some devices. Restart your computer when prompted.



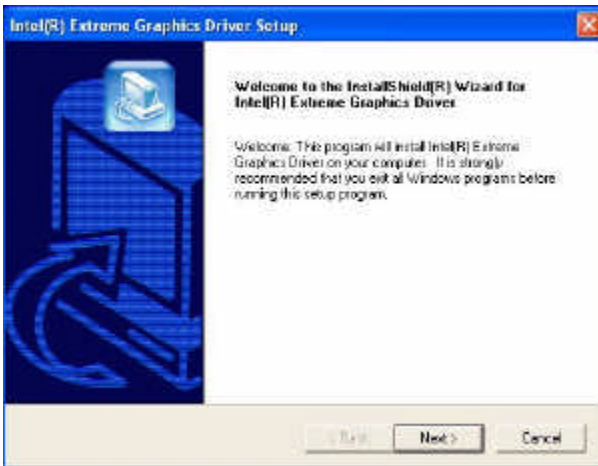
## Intel 865G Chipset Graphics Driver

The Intel 865G Chipset Family Graphics Drivers come in the CD with the CPU card . Follow the instructions below to complete the installation under Windows 98/98SE/ME/2000/XP.

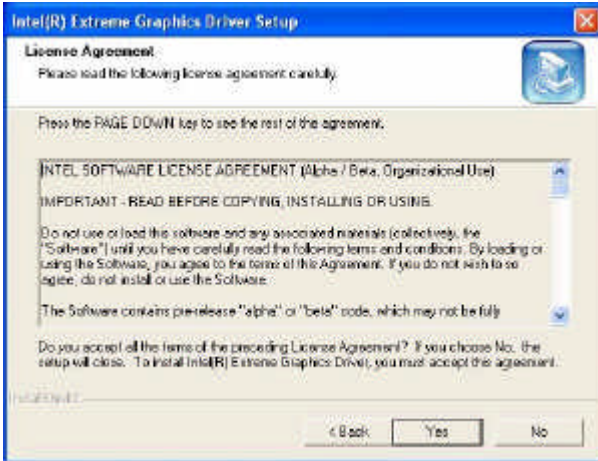
1. Insert the CD that comes with the CPU card and the screen below would appear. Click Intel Chipsets and then Intel 865G Chipset Family Drivers.



2. When the Welcome screen appears, click Next to continue.



3. Click Yes to accept the software license agreement and proceed with the installation process.



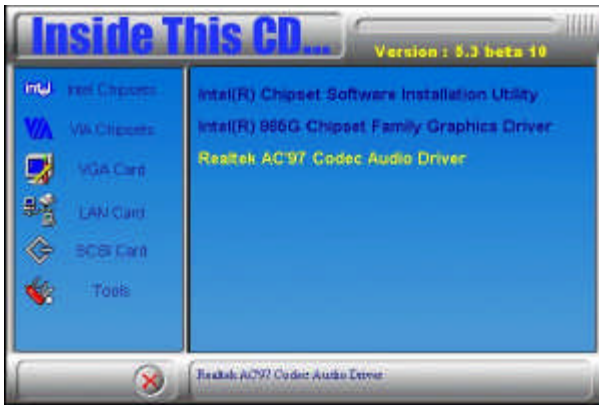
4. The Setup process is now complete. Click Finish to restart the computer and for changes to take effect. When the computer has restarted, the system will be able to find some devices. Restart your computer when prompted.



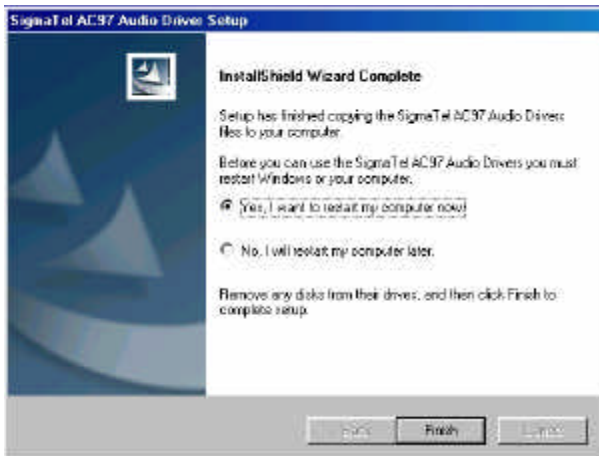
## Realtek AC97 Codec Audio Driver Installation

Follow the steps below to install the Realtek AC97 Codec Audio Drivers.

1. Insert the CD that comes with the CPU card and the screen below would appear. Click Intel Chipsets, then Intel 865G Chipset Family Drivers. Click Realtek AC97 Codec Audio Drivers to start installation.



2. Click Finish to restart the computer and for changes to take effect. .



## Intel PRO LAN Drivers Installation

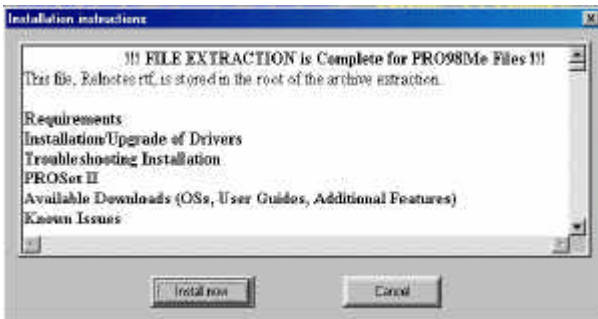
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The Intel PRO LAN drivers support both Intel® PRO/100 and PRO/1000 drivers. Follow the steps below to complete the installation.

1. Insert the CD that comes with the CPU card and the screen below would appear. Click on LAN Card on the left side to make the LAN drivers selection. Click on Intel(R) PRO LAN Drivers.



2. Click Install Now.



3. Click Restart to restart the computer and new settings to take effect.

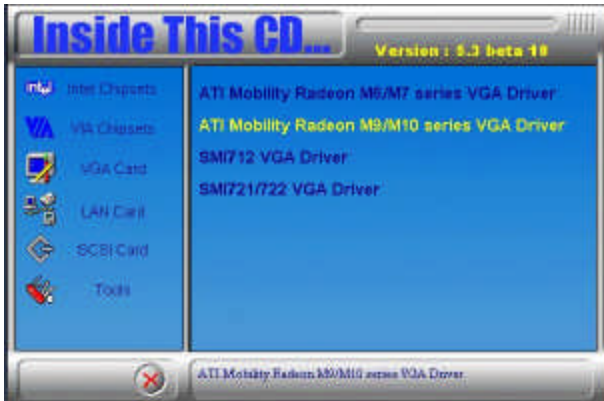


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## ATI M7 VGA Driver Installation

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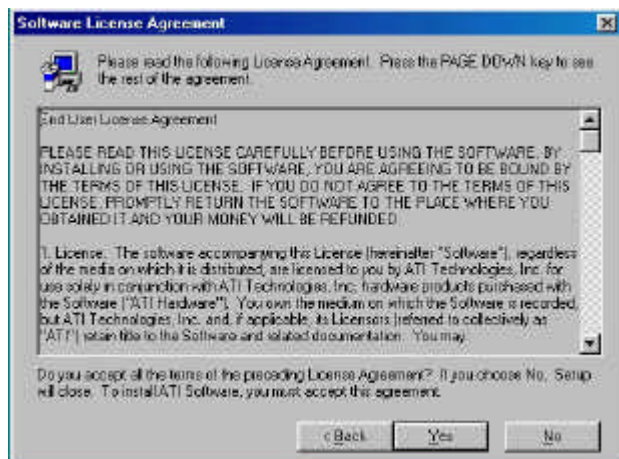
1. Insert the CD that comes with the CPU card. On the initial screen, click VGA Card on the left side and the screen below would appear. Click ATI Mobility Radeon M6/M7 series VGA Driver.



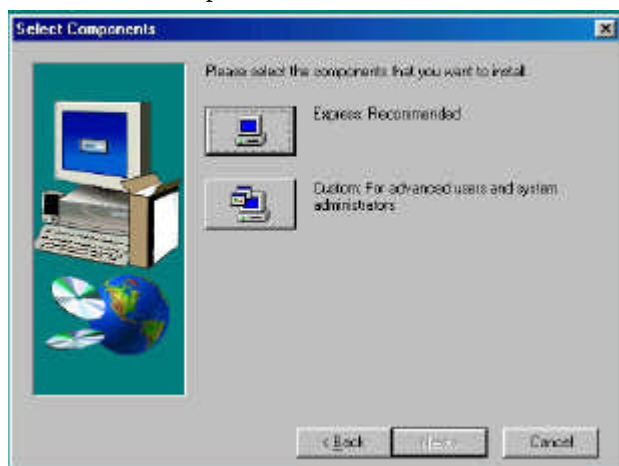
2. When the Welcome screen appears, click Next to continue.



3. Click Yes to accept the software license agreement and proceed with the installation process.



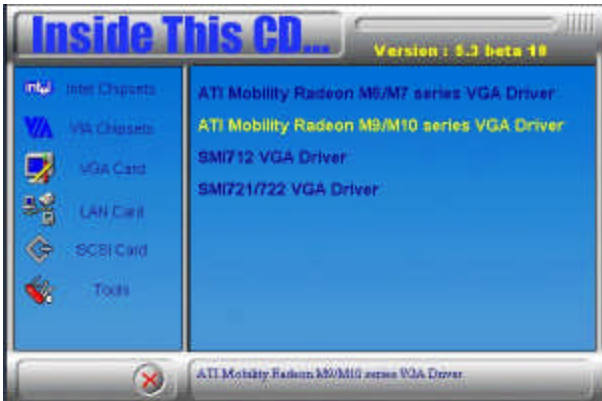
4. Select on the Express icon and click Next to continue.



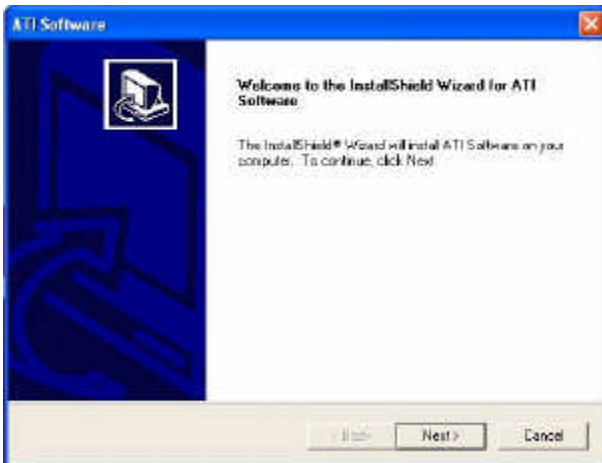
**Remarks:** The ATI M7 VGA controller is supported by the optional MicroAGP VGA card.

## ATI M9/M10 VGA Driver Installation

1. Insert the CD that comes with the CPU card. On the initial screen, click VGA Card on the left side and the screen below would appear. Click ATI Mobility Radeon M9/M10 series VGA Driver.

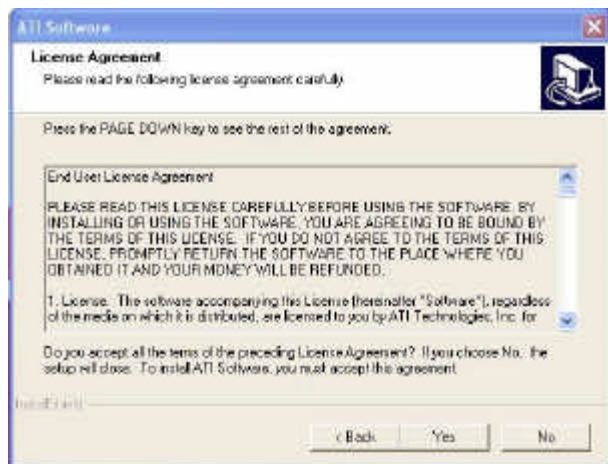


2. When the Welcome screen appears, click Next to continue.

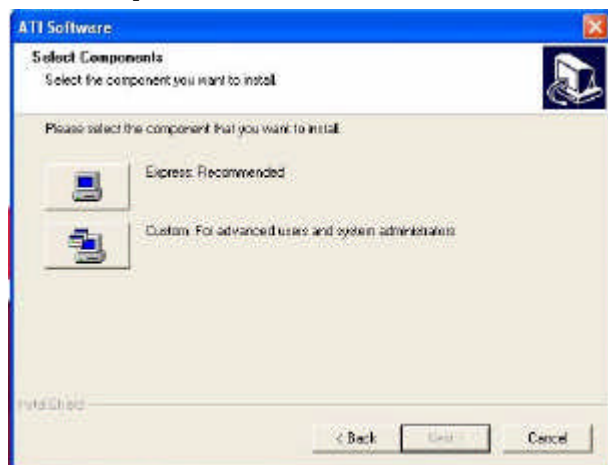


**Remarks:** The ATI M9 VGA controller is supported by the optional MicroAGP VGA card.

3. Click Yes to accept the software license agreement and proceed with the installation process.



4. Click the Express icon and click Next to continue the drivers installation process.



5. When the “Setup Complete” window appears, Click Finish to restart the computer and for changes to take effect.