

IWILL DP533 Series Motherboard User's Manual

**DP533 Series Version 1.0
FB23602200**

Federal Communications Commission (FCC) Statement

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and the receiver.
- Connect the equipment onto an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Shielded interconnect cables and shielded AC power cable must be employed with this equipment to insure compliance with the pertinent RF emission limits governing this device. Changes or modifications not expressly approved by the system's manufacturer could void the user's authority to operate the equipment.

Declaration of Conformity

This device complies with part 15 of the FCC rules. Operation is subject to the following conditions:

- This device may not cause harmful interference, and

This device must accept any interference received, including interference that may cause undesired operation.

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What's In This Chapter:

Introduction
Manual Structure
Manual Features
Critical Topics
Packing List
Pre-Use Checklist

1: Introduction

This is the User's Manual is for the DP533 Series motherboards. Please read this chapter before you use your motherboard and identify which parts of the manual you will need to refer to, if any. Please pay particular attention to the Critical Topics section.

Manual Structure

This manual has seven chapters covering the following topics:

Chapter 1: Introduction

Explains the manual structure and conventions and indicates the most important topics in the manual. In addition, there is a list of what you should find in the motherboard package and some pointers on things to do before you configure or install the board.

Chapter 2: Key Features & Components

Details the motherboard's hardware features and important components and indicates their locations. Describes the support software that comes with the board on the Power Installer II support CD-ROM disc.

Chapter 3: Motherboard Configuration

Lists the motherboard's default configuration and configuration options.

Chapter 4: Installing The Motherboard

Has information on how to prepare and install the motherboard. Includes installing CPUs and system memory and housing installation considerations.

Chapter 5: System Configuration

Covers connecting system peripherals to the motherboard, initial BIOS configuration using the CMOS Setup utility, OS options and software installation.

Chapter 6: Using The Motherboard

Explains system operation features that derive from the motherboard. Has information on performance optimization and troubleshooting.

Chapter 7: Technical Information

Lists the motherboard's technical specifications.

Manual Features

This User's Manual is intended to be useful and informative while also making it easy to quickly find specific information or specifications. The manual has icons and notes in the sidebar to note important topics, indicate warnings or further explain and illustrate points. We suggest that most users review the manual to become familiar with the motherboard. Expert users may want to review topics selectively, as needed.

If The Motherboard Is Already Installed

You may receive the motherboard installed in a working system. If this is the case, you should still probably review the sections on configuring and using the board, especially if an Operating System is not installed yet.

If You Need To Install This Motherboard

We recommend that only experienced users and technicians install this motherboard. Otherwise, we suggest having a qualified computer technician install and configure the system. This service is usually provided at a nominal fee by better computer stores and service companies.

Critical Topics

Many users do not read through the entire User's Manual. While this may not be necessary for experienced users or if the motherboard is already installed, there are some topics which are particularly important and deserve your specific attention. Some topics cover information critical to the proper installation and use of the motherboard.

For the DP533 Series motherboard, please review the sections on the following topics:

- CPU backplate installation
Please see Chapter 4.
- Xeon processor retention module installation
Please see Chapter 4.
- Dual processor installation
Please see Chapter 4.
- System memory installation requirements
Please see Chapter 4.
- Rear I/O Panel Shield
Please see Chapter 4.
- Required BIOS configuration
Please see Chapter 5.
- Support software installation
Please see Chapter 5.

Packing List

The DP533 Series motherboard package includes the following items:

- DP533 Series motherboard
- ATA-66/100 IDE connector cable
Connects IDE devices to one of the onboard IDE connectors.
- Floppy Disk Drive connector cable
Connects floppy disk drives to the onboard floppy disk connector.
- Rear I/O Panel Shield
Covers the area around the rear panel I/O ports when the board is installed in a system housing.
- 2 CPU Back Plates
Mount on the underside of the motherboard and provide mounting points for the heatsink retention modules and a thermal buffer.
- 2 Heatsink Retention Modules
Secure the CPU heatsink on top of the CPU.
- IEEE-1394 Cable
Connects a 1394 connector on the motherboard to an external IEEE-1394 port.
- 3 Jumper Caps
Extra caps in case original caps are lost.
- SCSI Ribbon Cable (DP533-S only)
Connector cable for onboard SCSI connectors.
- SCSI Driver Disk (DP533-S only)
SCSI driver support disk for DP533-S onboard SCSI.
- Power Installer support CD-ROM disc
Includes support software, drivers and bundled software utilities.
- User's Manual

Pre-Use Checklist

Before you install and use the motherboard, please do the following:

- Check Package Contents

Please compare the package contents to the Packing List on the previous page and confirm that all items are present and undamaged.

- Missing or Damaged Accessories

If anything is missing, please contact your vendor.

- Motherboard Damage

If the motherboard has been visibly damaged, return the complete package to your vendor with proof of purchase.

- Prepare Minimum System Components

If you are installing the board in a new system, you'll need at least the following internal components;

- Intel Xeon processor
- At least one DDR memory module
- 1.5V AGP video display card
- Desired storage devices (hard disk, CD-ROM, etc.)

You will also need whatever external system peripherals you intend to use, which will normally include at least a keyboard, a pointing device and a video display monitor.

Chapter Topics:

Hardware Features

Motherboard Layout

Key Features & Components

Software Features

Driver Software

Utility Software

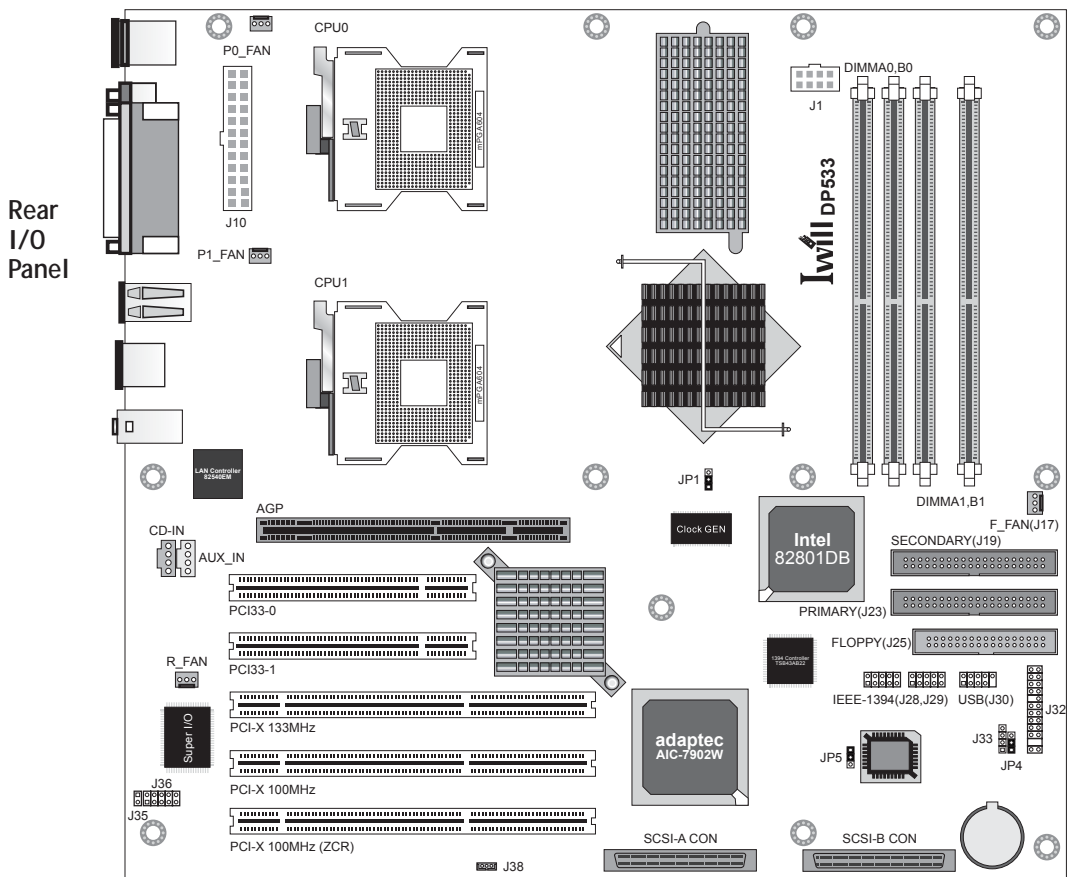
2: Key Features & Components

This chapter explains the location and function of this motherboard's key features and components. In addition, it details the software that comes on the Power Installer II support CD-ROM disc. Please review this chapter if you are installing the motherboard. It is also useful for reference regarding feature functions after the board is installed in a working system.

Motherboard Layout

The diagram and key on these two pages shows the location of key components on the motherboard.

DP533-S Motherboard



Motherboard Layout Key

Component	Function
CPU 0 , CPU 1	mPGA604 CPU sockets
PO_FAN, P1_FAN	CPU0/1 cooling fan power connectors
J10 & J1	Power connectors for EPS 12V power supply
DIMM A0, B0, A1, B1	Memory sockets for DDR SDRAM modules
AGP	AGP slot for 1.5V AGP 4X, 8X or Pro display card
PCI33-1, 2	32-bit 33MHz PCI expansion slots
PCI-X 133MHz	64-bit 133MHz PCI expansion slot
PCI-X 100MHz	64-bit 100MHz PCI expansion slots (one supports ZCR)
PRIMARY, SECONDARY	IDE drive connectors
FLOPPY	Floppy disk drive connector
SCSI-A, SCSI-B CON	SCSI device connectors (DP533-S only)
IEEE-1394 J28, J29	IEEE-1394 port cable connectors
USB (J30)	Dual USB 2.0 port connector
CD-In	CD-ROM drive audio-in connector
AUX_IN	Auxiliary audio-in connector
J36	IR port module connector
J38	Wake-On-LAN connector
J35	Case Intrusion connector
J32	Housing front panel feature connector
F_FAN, R_FAN	Front/Rear housing mounted cooling fan connectors
Jumpers	
JP1	Frontside Bus Frequency Selection jumper
JP4	Clear CMOS jumper
JP5	BIOS Flash Protection jumper
Rear panel I/O ports	See figure on next page

Rear I/O Panel Ports:

This figure show the ports on the rear I/O panel. The ports include, from top to bottom:

- PS/2 ports
- Serial port
- Parallel port
- S/PDIF Out connector

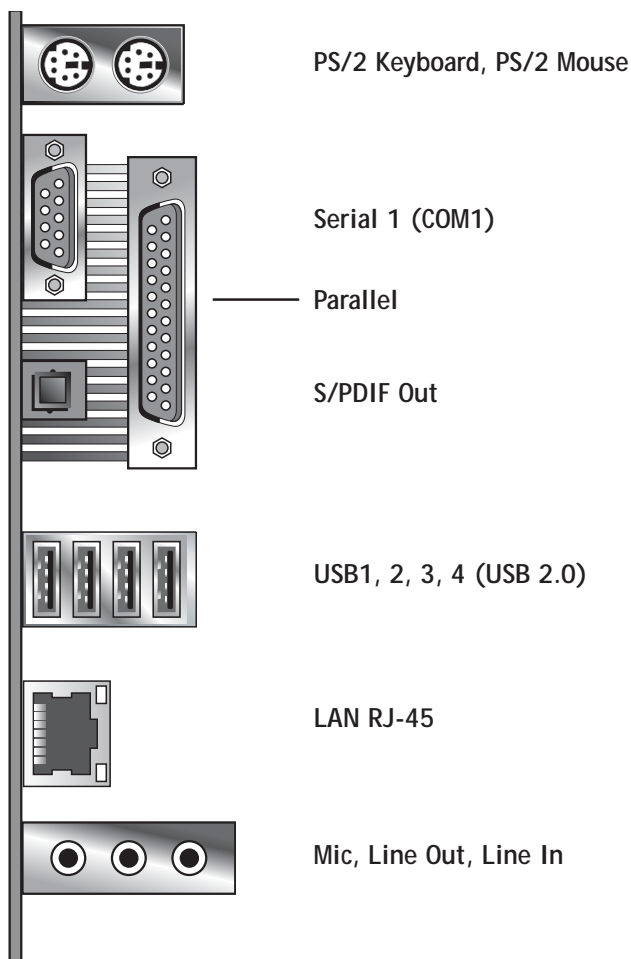
Four USB 2.0 ports

LAN port

Audio ports

The ports have standard color-coding as follows:

- PS/2 Keyboard: Purple
- PS/2 Mouse: Green
- Serial Port: Teal
- Parallel Port: Burgundy
- S/PDIF: Black
- USB ports: Black
- LAN jack: No code
- Mic: Pink
- Line Out: Lime
- Line-In: Light Blue



Key Features & Components

This section explains the function and use of key features and components on the motherboard. It also indicates where to look in the manual for additional information on configuring and using them.

This motherboard uses an extended ATX form factor PCB in a design that integrates many features onto the board including several external ports.

Intel E7505 Chipset

This motherboard uses the Intel E7505 Chipset. It is a high-powered chipset intended for workstation applications. The components of the Intel E7505 Chipset include the following devices mounted on the board:

- E7505 Memory & Graphics Controller Hub (MCH)
- 82801DB I/O Controller Hub (ICH4)
- 82802 AB Firmware Hub (FWH)
- 82806 AA 64-bit Bus Master PCI Expander (P64H2)

The chipset provides host bus, memory, AGP, and I/O interfaces.

Intel Gigabit Ethernet LAN Controller

The DP533 Series motherboards have an Intel Kenai 32 82540EM Gigabit Ethernet controller onboard which includes the following features:

- High-speed 1Gigabit/sec data transfer
- Support for 10-BaseT and 100Base-TX
- Wake On LAN support

TI IEEE-1394 Controller

The DP533 Series motherboards have a Texas Instruments TSB43AB22 IEEE-1394 controller onboard which has the following functions:

- Full 1394a-2000 support
- Data transfer rates of 100, 200 and 400Mb/s

Adaptec AIC-7902 SCSI Controller

The DP533-S motherboard has an Adaptec AIC-7902 SCSI controller onboard which includes the following features:

- High-speed SCSI data transfer
- Two SCSI channel connectors

CPU Sockets

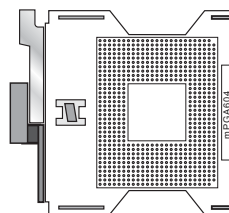
Function: The System CPUs install in these sockets. You can install either one or two CPUs, as needed.

Description: The mPGA604 CPU sockets support all Intel Xeon CPUs that can use this socket. The motherboard comes with hardware to attach the heatsink and fan assembly required by the Xeon CPU.

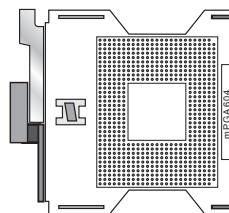
More Information: See the section in Chapter 4 on “Installing CPUs” for information supported CPUs and their installation procedure. Technical specifications are listed in Chapter 7.

CPU Sockets:
Single CPU installs in CPU0 socket only.

CPU0



CPU1



System Memory Sockets

Function: The DIMM system memory sockets are for installing dual channel DDR SDRAM memory modules.

Description: There are four DIMM memory module sockets on the motherboard. These sockets are for 200MHz (PC1600) or 266MHz (PC2100) DDR SDRAM memory modules. The socket configuration allows a variety of memory configurations up to a total of 8GB of system memory.

More Information: See the section on Installing System Memory in Chapter 4 for configuration specifications and installation instructions. Technical specifications are listed in Chapter 7.

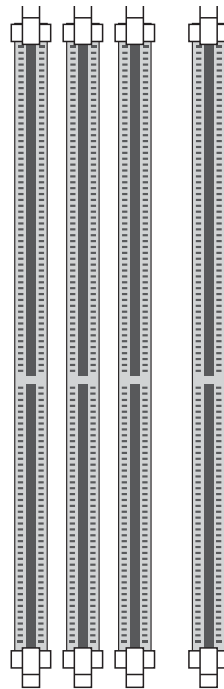
DDR DIMM Sockets:

System memory sockets are for:

- PC2100: 266MHz
- PC1600: 200MHz

unbuffered DDR SDRAM modules.

See Chapter 4 for important installation information.



DIMM A0, B0 DIMM A1, B2

The AGP Slot

Function: The AGP slot is for installing an AGP interface video display card.

Description: The AGP slot is a high-speed slot exclusively designed for an AGP video display card. It is AGP 3.0 compliant. The AGP slot supports three types of AGP card:

- AGP 4X
- AGP 8X
- AGP Pro

The slot only supports 1.5V devices. Do not use a 3.3V AGP card with this motherboard. The AGP slot is extended to include support for AGP Pro cards using up to 50 watts of power.

More Information: See the section “Connecting & Installing Internal Peripherals” in Chapter 4. Technical specifications are listed in Chapter 7. Also, see the Advanced Chipset Features section of “Configuring the CMOS Setup Utility” in Chapter 5 for information on setting the AGP memory aperture size.

AGP Slot:

For AGP 4X, 8X & Pro 1.5V cards only. Do not use 3.3V cards.



AGP slot is for AGP 4X/8X AGP Pro cards

PCI Expansion Slots

Function: The PCI expansion slots are for installing system expansion or “add-on” cards to add additional system hardware.

Description: This motherboard has five Bus Master capable PCI expansion slots, including two 32-bit 33MHz slots and three 64-bit PCI-X slots operating at 133MHz or 100MHz which are also compatible with 66MHz cards. The slots provide two levels of fast high-bandwidth pathway between the motherboard and expansion cards.

More Information: See the section “Connecting & Installing Internal Peripherals” in Chapter 5. Technical specifications are listed in Chapter 7.

PCI Expansion Slots

All slots are Bus Master capable. One 64-bit slot operates at 133MHz, the other two at 100MHz. They all require 64-bit PCI cards.



PCI33-0



PCI33-1



PCI-X 133MHz



PCI-X 100MHz



PCI-X 100MHz (ZCR)

AGP slot is for AGP 4X/8X AGP Pro cards

Drive Connectors

There are three drive connectors on the motherboard for connecting IDE and floppy disk drives.

IDE Drive Connectors

Function: The two IDE connectors, marked ‘Primary’ and ‘Secondary’, are for connecting IDE drives to the motherboard.

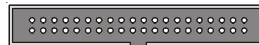
Description: The IDE controller on the motherboard supports IDE devices running in all modes up through ATA-100. There are two IDE drive connectors. Each connector supports two drives, a ‘Master’ and a ‘Slave’ which connect to the motherboard with a ribbon cable. The supplied cable supports transfer modes through ATA-100.

More Information: See the section on “Connecting Internal Peripherals” in Chapter 5 for instructions on connecting IDE drives. Technical specifications are listed in Chapter 7.

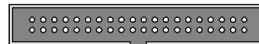
IDE Drive Connectors

The channels are labeled on the board.

Secondary



Primary



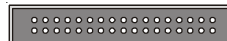
Floppy Disk Drive Connector

Function: The floppy disk drive connector, marked ‘Floppy’, is for connecting one floppy disk drive to the motherboard.

Description: The floppy disk drive connector supports connecting one floppy disk drive to the motherboard. The ‘Floppy’ drive connector uses a standard FDD ribbon cable. The floppy disk drive connected to the end of the cable will function as Drive A:.

More Information: See the section on “Connecting Internal Peripherals” in Chapter 4 for instructions on connecting a floppy disk drive. Technical specifications are listed in Chapter 7.

Floppy Drive Connector



SCSI Controller Connectors (DP533-S Only)

Function: The SCSI device connectors, marked 'SCSI-A' and 'SCSI-B', is for connecting SCSI devices to the motherboard.

Description: The SCSI device connectors support connecting multiple devices to the motherboard. These are controlled by the onboard Adaptec AIC-7902W SCSI controller. The connectors use 68-pin SCSI ribbon cables to connect devices. One cable is provided with the DP533-S. You must purchase a second cable if needed.

More Information: See the section on "Connecting Internal Peripherals" in Chapter 4 for instructions on connecting a floppy disk drive. Technical specifications are listed in Chapter 7.

SCSI Connectors

The connectors are labeled on the board.



Additional Onboard Connectors

There are several other connectors on the motherboard.

EPS 12V Power Connectors

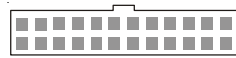
Function: Connectors for leads from the system power supply.

Description: There are two power connectors on the motherboard for the required EPS 12V power supply. The power supply leads plug into the connectors. The connector design prevents incorrect orientation. These are not standard ATX connectors. The 24-pin and 8-pin connectors are for a minimum 460-watt EPS 12V power supply that complies with the Intel Xeon processor power supply design guidelines.

More Information: Please refer to the IWILL web site – <http://www.iwill.net> – for more information on the required power supply specifications.

Power Connectors:

These are for the required EPS 12V power supply.



2x12 24-pin connector



2x4 8-pin connector

CPU & System Cooling Fan Connectors

Function: Power connectors for CPU and system housing cooling fans.

Description: There are two CPU cooling fan connectors and two system housing cooling fan connectors. All connectors are 3-pin headers. The system housing fan connectors support fan tachometer monitoring. The processor heat sink fans are not speed controlled.

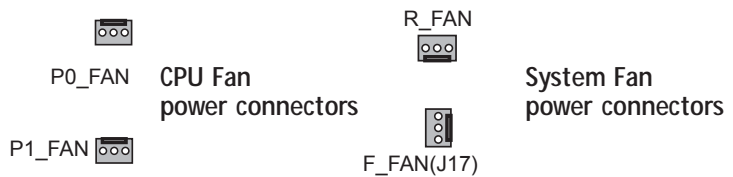
The system fans use the motherboard fan speed control, which consists of three states: Off, Normal speed, and High speed.

In Normal speed mode, the system fans run at normal speed until the thermal sensor senses the temperature exceeds the High speed fan threshold temperature. The system fans then run at High speed when the temperature threshold is exceeded. You can set the threshold temperature in the PC Health section of the CMOS Setup Utility. You can set the threshold to 40°C to force continuous operation of the system fans in high-speed mode in the S0 and S1 sleep states.

More Information: Please see the PC Health Status section of “Configuring the CMOS Setup Utility” in Chapter 5 for information.

Cooling Fan Connectors:

The cooling fan power connectors all use the same 3-pin connector. The System Fan connectors are speed controlled, the CPU Fan connectors are not.



J38: Wake On LAN (WOL)

Function: A connector for the lead from a Network Interface Card that supports the Wake On LAN feature.

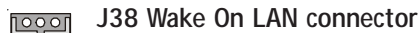
Description: This feature enables the system to “wake up” from Suspend mode when it receives a signal over a LAN it is connected to. It works with the onboard LAN port and will also work with an additional PCI NIC that supports this feature by connecting the card to the WOL connector on the motherboard.

The motherboard supports Wake on LAN through the PCI bus PME# signal and the onboard Intel 82540EM Gigabit Ethernet controller. This signal will wake up the computer only when it is plugged into an AC power source and the system is in a supported sleep state.

More Information: Please see the Power Management Setup section of “Configuring the CMOS Setup Utility” in Chapter 5 for information.

Wake On LAN Connector:

This connector is for an additional NIC. The onboard LAN port supports WOL without using this connector.



J38 Wake On LAN connector

CD-In & AUX_IN Audio Connectors

Function: Connectors for audio-in cables from internal peripherals.

Description: The two audio-in connectors on the motherboard are for audio cables from optical drives such as a CD-ROM or DVD-ROM drive or a modem/telephony device. The connectors provide an audio input connection between a device and the integrated AC '97 audio subsystem.

More Information: Please see the Connecting internal peripherals section in Chapter 5.

Audio-In Connectors:

The CD-In connector is for CD-ROM or other optical drives. Use the AUX connector for an additional drive or a modem/telephony device.

CD-In audio-in connector

CD-IN



AUX_IN AUX audio-in connector

IRDA Connector J36

Function: Connector for an Infrared (IR) port module.

Description: The IRDA connector supports both IrDA and ASKIR infrared port modules. Follow module instructions to install.

More Information: Please see the Integrated Peripherals section of “Configuring the CMOS Setup Utility” in Chapter 5 for information.

IRDA Connector:

The IRDA connector is for both IrDA and ASKIR port modules. You must use the CMOS Setup Utility to configure the board to use the IR feature.



J36 J36 IRDA connector

J35 Chassis Intrusion Switch Connector

Function: Connector for Chassis intrusion switch.

Description: The hardware monitor subsystem supports a chassis security feature that detects if the chassis (system housing) cover is removed. When the cover is removed, a signal is sent to the hardware monitor component. The chassis intrusion circuit is powered by the system power supply when the computer is connected to AC power or by the onboard battery when it is not.

This feature uses a mechanical switch on the chassis that connects to the chassis intrusion connector on the motherboard. When the chassis cover is removed the motherboard circuitry will detect the intrusion.

More Information: See the “System Features” section in Chapter 6.

Chassis Intrusion:

This 2-pin connector connects to the lead from a chassis-mounted chassis intrusion switch.



J35 J35 Chassis Intrusion Switch connector

IEEE-1394 Port Connectors J28 & J29

Function: Connector for the cable from an external, housing mounted 1394 port or port bracket.

Description: Both connectors have the same function and pin-out. The connectors support either 6-pin 1394 ports. One cable is provided with the board.

More Information: Please see the Integrated Peripherals section of “Configuring the CMOS Setup Utility” in Chapter 5 for additional information.

1394 Port Connectors:

These connectors support one external 6-pin IEEE-1394 port each.



J28 & J29 IEEE-1394(J28,J29) 1394 port connectors

USB 2.0 Port Connector J30

Function: Connector for the cable from external, housing mounted USB 2.0 ports or USB 2.0 port bracket.

Description: The 9-pin connector supports two USB 2.0 ports. The connector is for either housing port bracket mounted ports.

More Information: Please see the Integrated Peripherals section of “Configuring the CMOS Setup Utility” in Chapter 5 for additional information.

USB 2.0 Port Connector:

This connector is for the cable from two external USB 2.0 ports.



J30 USB 2.0 port connector
USB(J30)

Battery Connector

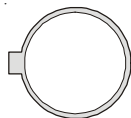
Function: Housing for system support battery.

Description: An external lithium coin-cell battery powers the real-time clock and CMOS memory. When the computer is not plugged into a wall socket, the battery has an estimated life of three years. When the computer is plugged in, the standby current from the power supply extends the life of the battery.

More Information: See the Standard CMOS Features section of “Configuring the CMOS Setup Utility” in Chapter 5 to adjust the real-time clock settings.

Battery & Housing:

The battery is a CR2032 Lithium coin cell.



System support battery

Front Panel Feature Connector J32

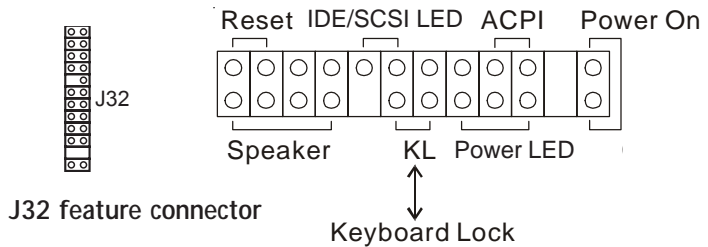
Function: Multifunction pin header connector for system housing front panel features.

Description: This connector supports the following front panel features:

- Reset Switch
- IDE or SCSI device activity LED
- System ACPI Suspend switch
- System Power LED
- Keyboard lock
- Housing-mounted speaker

More Information: See Chapter 4 “Installing the Board In A System Housing” and Chapter 6, “System Features”.

Front Panel Connector:
Leads from the front panel features connect to this header.



I/O Ports

There are several external Input/Output ports on the rear edge of the motherboard. Please refer to the Rear I/O Panel Ports illustration for the port locations. The ports are color-coded for easy identification.

PS/2 Ports

Function: Connecting PS/2 devices to the system.

Description: The PS/2 ports are for a system keyboard and mouse or other pointing device. Do not connect or disconnect PS/2 devices when the system is turned on.

More Information: See the Advanced Boot Options section of “Configuring the CMOS Setup Utility” in Chapter 5 for information on adjusting related settings.

PS/2 Ports:

Do not plug or unplug devices when the system is turned on.



PS/2 Mouse

PS/2 Keyboard

USB Ports

Function: Connecting USB 2.0 or USB 1.1 devices to the system.

Description: These four ports are for USB devices. Each pair of ports is controlled by a separate USB root hub. The ports are for “Type A” USB cable connectors. You can connect or disconnect USB cables when the system is turned on.

More Information: See the Integrated Peripherals section of “Configuring the CMOS Setup Utility” in Chapter 5 for information on adjusting port settings.

USB Ports:

There are four USB ports. Each pair of ports has its own Host Controller and Root Hub.



USB ports are stacked 1, 2, 3, 4

LAN Port

Function: Connecting a CAT 5 LAN cable to the system.

Description: This is an RJ-45 connector for standard CAT 5 LAN cabling with RJ-45 jacks. The connector is for the onboard LAN controller.

More Information: See the System Features section of Chapter 6 for information LED modes.

LAN RJ-45 Jack:

Left-hand LED = Activity

Right-hand LED = Link



RJ-45 LAN jack

Parallel Port

Function: Connecting a device with a parallel interface to the system.

Description: The parallel port is generally used to connect a printer to the system. The port supports common parallel port modes and allows bidirectional communication. Use an IEEE 1284 compliant cable with the default ECP mode configuration.

More Information: See the Integrated Peripherals section of “Configuring the CMOS Setup Utility” in Chapter 5 for information on adjusting port settings.

Parallel port:

The default mode is ECP, configured as EPP 1.9, DMA 3. 1284 compliant.



Front Panel feature connector

Serial (COM1) Port

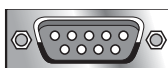
Function: Connecting Serial devices.

The serial port has a 9-pin connector. It can operate at speeds up to 115,200bps. You can configure the port speed in the computer's Operating System. Do not connect or disconnect a serial cable when the system is turned on.

More Information: See the Super I/O Device information in the Integrated Peripherals section of "Configuring the CMOS Setup Utility" in Chapter 5 for information on adjusting port settings.

Serial Port:

The rear I/O panel serial port is COM1. The IR connector uses what would otherwise be COM2.



COM1 Serial Port

Audio Jacks & AC '97 Audio

Function: Jacks for connecting external audio devices to the onboard AC '97 audio subsystem.

Description: There are three audio jacks:

- Line Out
For the two stereo speakers.
- Line In
Audio input connector for an external audio source.
- Mic
Microphone connector for a computer microphone.

More Information: See the Integrated Peripherals section of "Configuring the CMOS Setup Utility" in Chapter 5 for information on AC '97 audio settings.

External Audio Jacks:

The onboard AC '97 audio supports stereo speakers, audio input and a microphone.



Line In (Light Blue)

Line Out (Lime)

Mic

S/PDIF Audio Connector

Function: A digital connector for connecting external 5.1 audio devices to the onboard AC '97 audio subsystem.

Description: The connector has a composite signal which includes the audio channels of a 5.1 speaker system, including:

- Front Left/Right Speakers
- Rear Left/Right Speakers
- Center Channel Speaker
- Subwoofer

The S/PDIF connector must be connected to a digital decoder that splits the audio signal and directs it to the various audio channels.

More Information: See the Integrated Peripherals section of “Configuring the CMOS Setup Utility” in Chapter 5 for information on AC '97 audio settings.

S/PDIF Connector:

The S/PDIF connector directs a combined 5.1 audio signal from the on AC '97 audio to an S/PDIF decoder.



S/PDIF connector

Jumpers

There are two jumper switches on this motherboard. Jumpers function like switches to establish a hardware configuration setting.

JP1 FSB Frequency:
Sets FSB clock speed.



JP1 FSB Frequency

JP4 Clear CMOS:
Clears CMOS Setup Utility configuration from CMOS memory.



JP4
JP4 Clear CMOS

JP5 Flash Protect:
Prevents the accidental overwriting of the system BIOS.



JP5 Flash Protect

JP1 Frontside Bus Clock Frequency

Function: Sets the clock frequency used to generate the FSB speed, 100MHz or 133MHz.

Description: A 3-pin jumper.

More Information: See Chapter 3 for configuration information.

JP4 Clear CMOS

Function: Clears the CMOS Setup Utility configuration record stored in the real-time clock's CMOS memory.

Description: A 3-pin jumper.

More Information: See Chapter 3 for configuration information and the Troubleshooting section in Chapter 6.

JP5 Flash Protect

Function: Sets protection method to prevent accidental overwriting of installed system BIOS.

Description: A 3-pin jumper.

More Information: See Chapter 3 for configuration information.

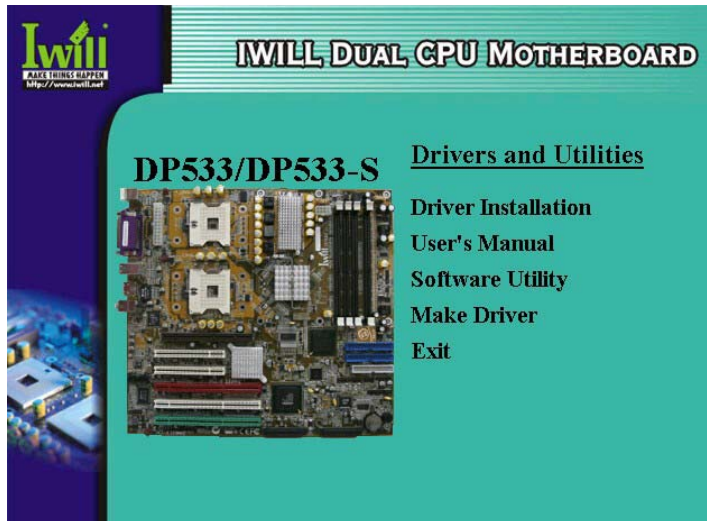
Software Features

This motherboard comes with driver software and bundled utility software on the supplied Power Installer CD-ROM disc. The Installing OS & Support Software section in Chapter 5 explains how to install the software required to support this motherboard and profiles the bundled utilities.

Using the Power Installer II Disc

You can run the Power Installer II CD-ROM install interface under Microsoft Windows NT 4.0, 2000 or XP. The disc's install interface should load automatically and you then click on the model name of this motherboard.

Power Installer:
DP533/DP533-S
Driver & Utilities



Driver Software

This motherboard requires that you install driver software to support the onboard hardware. You will need to install some or all of the following:

- Intel chipset support software
Various drivers that support the chipset and enhance system performance.
- SCSI Driver Installation Guide
Information on installing and configuring the SCSI feature on the DP533-S.
- Audio Driver
Audio driver for the onboard AC '97 audio.
- USB 2.0 Installation Guide
Information on installing drivers for the onboard USB 2.0 ports.
- LAN driver software
Information on installing drivers for the onboard Intel Gigabit Ethernet controller.

Please see “Installing OS & Support Software” in Chapter 5 for more information.

Power Installer:
DP533/DP533-S
Driver Installation



Utility Software

The Power Installer 2 disc also has two utility programs on it, Adobe Acrobat Reader and McAfee Anti-Virus.

- Acrobat Reader

Acrobat Reader allows you to read documents in the Adobe PDF format, including online documents on the Power Installer 2 disc and a wide range of other content. The reader is free and can be upgraded at the Adobe web site – www.adobe.com – when new versions become available.

- McAfee Anti-Virus

This is anti-virus software from one of the leading vendors.

**Power Installer:
DP533/DP533-S
Software Utility**



In This Chapter:

The Default Configuration

Hardware Configuration: Jumper Settings

Firmware Configuration: The CMOS Setup Utility

Reconfiguring the Motherboard

Hardware Reconfiguration

Firmware Reconfiguration

3: Motherboard Configuration

This chapter details the motherboard's default configuration and configuration options. Please review the contents of this chapter to find out information on the default configuration or alternative configuration options to change the default configuration.

The motherboard will operate properly in the default configuration. Please make certain that any configuration changes you make will not adversely affect system operation.

The Default Configuration

The default configuration is set at the time of manufacture. The configuration is comprised of the hardware configuration settings and the default firmware settings in the BIOS CMOS Setup Utility.

Hardware Configuration: Jumper Settings

This motherboard is mainly configured in firmware, which simplifies configuration. There are very few hardware settings. The hardware settings are configured using standard jumper switches. The motherboard has three jumper switches.

JP5 Flash Protect:
Prevents the accidental overwriting of the system BIOS.



JP5 Flash Protect

Jumper JP5: BIOS Flash Protect

The system BIOS and CMOS Setup Utility are stored in Flash memory on the motherboard, which provides permanent storage, but is rewritable, allowing for BIOS updates. Jumper JP5 controls the protection scheme that prevents accidental damage to or rewriting of the data stored in Flash memory.

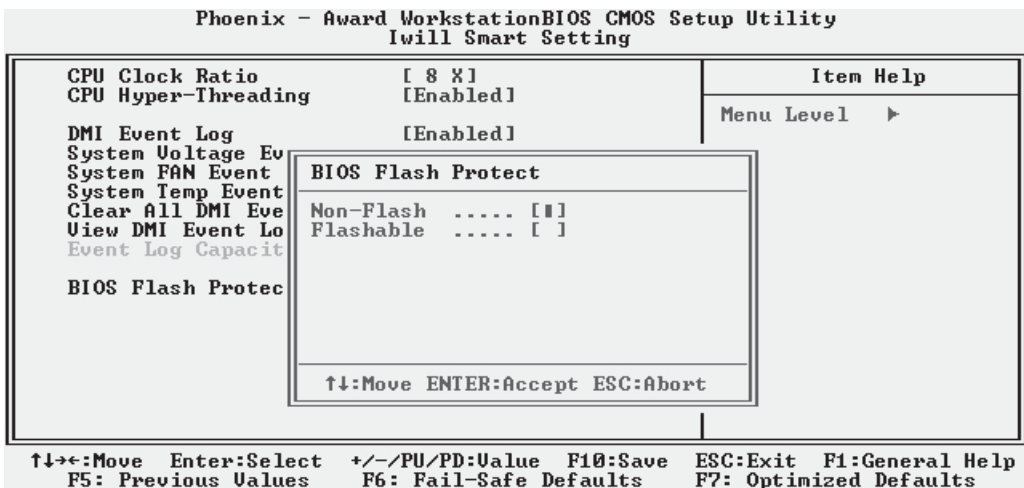
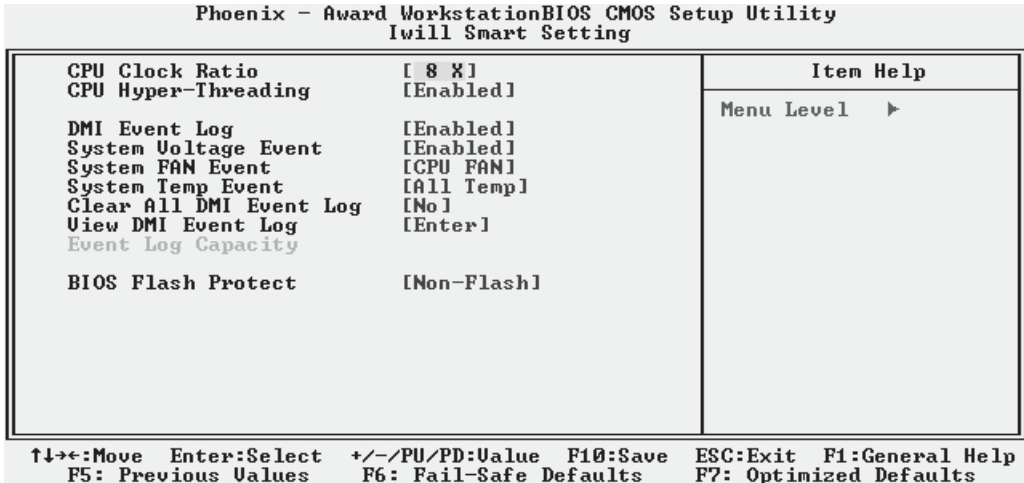
JP5 has three setting options which allow the BIOS to be protected either by a firmware setting in the Security Features section of the CMOS Setup Utility or by the jumper's hardware setting. The firmware setting option is more convenient, so it is the default setting for this jumper. The setting options are listed in the table below.

JP5: BIOS Flash Protect

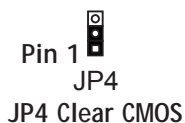
Setting	Function
Short 1-2	Protection mode selected in BIOS CMOS Setup Utility [Default]
Short 2-3	Protection enabled in hardware
Open	No BIOS Flash Protection [Remove Cap]

BIOS CMOS Setup Utility – IWILL Smart Setting

The IWILL Smart Setting section of the CMOS Setup Utility has a BIOS Flash Protect item that controls BIOS flash protection. The default setting is “Non-Flash”. The optional setting is “Flashable”. See the section on “Configuring the CMOS Setup Utility in Chapter 5 for information on how to use this program.



JP4 Clear CMOS:
Clears CMOS Setup Utility configuration from CMOS memory.



Jumper JP4: Clear CMOS Memory

JP4 is a jumper switch, but it does not set a hardware configuration setting. The BIOS CMOS Setup Utility creates a system configuration record that is stored in CMOS memory in the real-time clock chip. If the configuration record data becomes corrupted or is destroyed, or if the CMOS Setup Utility settings are changed to an unusable configuration, the motherboard may not run properly or at all. JP4 provides a means to delete the configuration data stored in CMOS memory and reset the configuration to the CMOS Setup Utility's Optimized Defaults.

JP4: Clear CMOS Memory

Setting	Function
Short 1-2	Normal operation [Default]
Short 2-3	Clear CMOS memory – see instructions

Follow this procedure to clear CMOS memory. The jumper is beside the coin battery. If necessary, refer to the board diagram and key in Chapter 2 for the location of the JP4 jumper.

1. Turn off and unplug the system. Remove the system housing cover (see documentation if necessary).
2. Set JP4 to the Clear CMOS position by placing the jumper cap over pins 2 and 3 for one minute.
3. Return the jumper cap to the Normal position.
4. Replace the system housing cover, plug in the system and turn it on.
5. Run the CMOS Setup utility and load the Optimized Defaults. You can then enter any custom settings you require.
6. Save the settings as you exit the program and restart the computer.

The system should now operate normally.

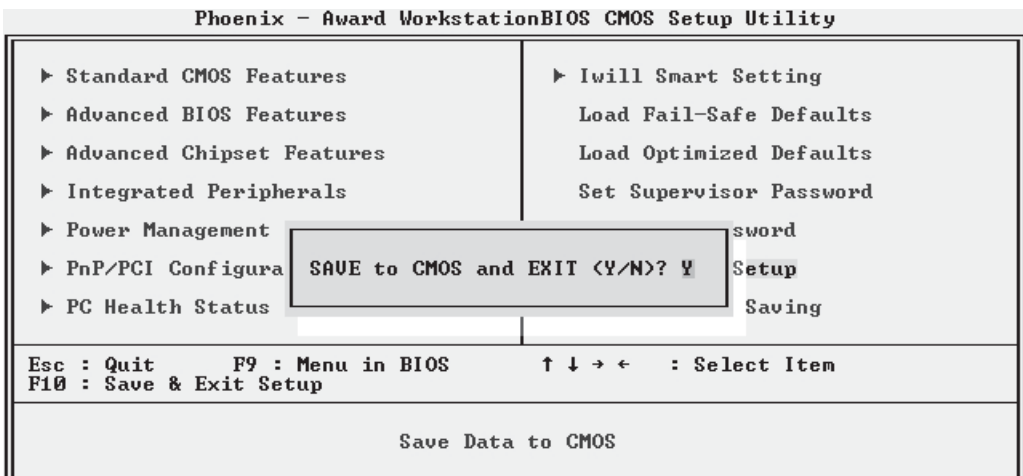
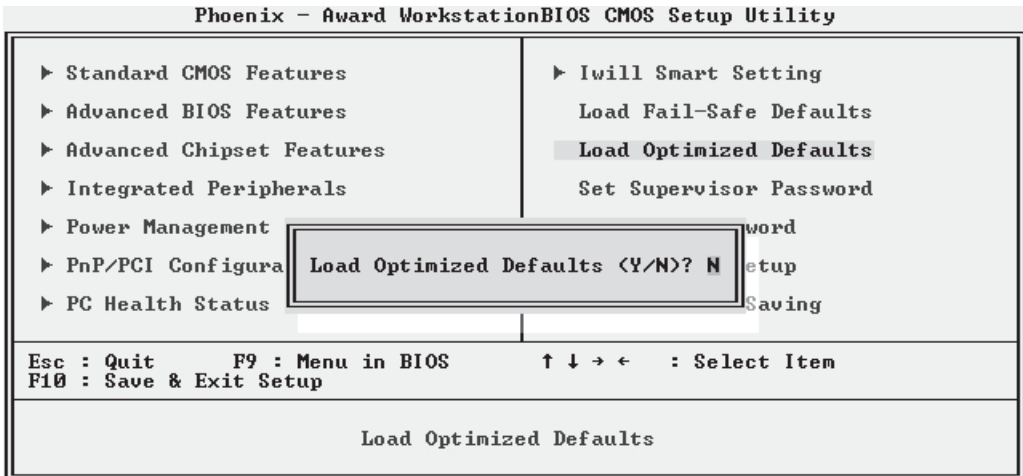
BIOS CMOS Setup Utility – Main Screen

The main screen of the CMOS Setup Utility has a Load Optimized Defaults item that loads the default operation settings. After you perform the Clear CMOS procedure, load the defaults as follows:

1. Select Load Optimized Defaults, press the Enter key.
2. A message will appear asking you to confirm.
3. Type a Y to confirm and press the Enter key again.
4. Make other settings you require.
5. Select Save & Exit Setup and press the Enter key.

The system will restart and use the new settings.

See the section on “Configuring the CMOS Setup Utility in Chapter 5 for more information.



Hardware Configuration Jumpers

Jumper JP1: Frontside Bus Clock Frequency

JP1 FSB Frequency:
Sets FSB clock speed.



JP1 FSB Frequency

This jumper sets the clock speed that is used to generate the Frontside Bus speed (Frequency Setting x 4). The default setting is to detect the default speed of the CPU(s) on the motherboard. You can also manually set the speed to either 100MHz or 133MHz , disregarding the CPU default. For example, 133MHz x 4= 533MHz FSB clock.

JP1: FSB Frequency

Setting	Function
Short 1-2	Use installed CPU default frequency [Default]
Short 2-3	100MHz
Open	133MHz [Remove Cap]

Firmware Configuration: The CMOS Setup Utility

The BIOS CMOS Setup Utility a configuration record of system settings. This record is based on the “Optimized Defaults that are stored with the utility in Flash memory and can be reloaded at any time.

Many of these settings are either recommended or required for the motherboard to operate properly. Other settings are customizable and can be changed to suit your specific system configuration and operation requirements.

A number of the variable settings, such as CPU and IDE device settings are set to be automatically detected in the default configuration. While these settings can also be established manually, automatic detection is more convenient, safe and reliable. We strongly recommend that you leave all auto-detection settings undisturbed unless you have a specific reason not to and you are certain of what you are doing. Incorrect configuration of the CMOS Setup Utility can result in unreliable operation or a failure of the motherboard to work at all.

Using the CMOS Setup Utility

Please refer to the “Configuring the CMOS Setup Utility” section in Chapter 5 for information on using the utility and some settings you might want to customize. The utility does not run under an Operating System. You must load it during the Power On Self Test (POST) while the computer is starting up by press the Delete key or the Del key on the system keyboard’s numeric keypad.

BIOS CMOS Setup Utility – Main Screen

Load the CMOS Setup Utility during the POST by pressing the Delete or Del key. The utility interface commands are explained at the bottom of each screen and “General Help” is available by pressing the F1 key. See the section on “Configuring the CMOS Setup Utility in Chapter 5 for information on how to use this program.

The main screen has a basic list command instructions at the bottom of the screen and displays a function description of the highlighted item.

Phoenix - Award Workstation BIOS CMOS Setup Utility	
<ul style="list-style-type: none"> ▶ Standard CMOS Features ▶ Advanced BIOS Features ▶ Advanced Chipset Features ▶ Integrated Peripherals ▶ Power Management Setup ▶ PnP/PCI Configurations ▶ PC Health Status 	<ul style="list-style-type: none"> ▶ Iwill Smart Setting Load Fail-Safe Defaults Load Optimized Defaults Set Supervisor Password Set User Password Save & Exit Setup Exit Without Saving
Esc : Quit F9 : Menu in BIOS ↑ ↓ → ← : Select Item F10 : Save & Exit Setup	
Time, Date, Hard Disk Type...	

Sections marked by an arrow on the main screen list command instructions at the bottom of the screen.

Phoenix - Award Workstation BIOS CMOS Setup Utility	
Standard CMOS Features	
Date <mm:dd:yy> Fri, Nov 1 2002 Time <hh:mm:ss> 19 : 5 : 49	Item Help
<ul style="list-style-type: none"> ▶ IDE Primary Master ▶ IDE Primary Slave ▶ IDE Secondary Master ▶ IDE Secondary Slave 	Menu Level ▶ Change the day, month, year and century
Drive A [1.44M, 3.5 in.] Drive B [None]	
Video [EGA/UGA] Halt On [All Errors]	
Base Memory 640K Extended Memory 1024K Total Memory 2048K	
↑↓←→:Move Enter:Select +/--/PU/PD:Ualue F10:Save ESC:Exit F1:General Help F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults	

Reconfiguring the Motherboard

You can change the default configuration (as shipped) of this motherboard as needed. However, since this motherboard very few hard configuration options and the CMOS Setup Utility is configuration is mostly either required, recommended or automatic, there will probably be little reason to do so.

Hardware Reconfiguration

We recommend leaving the two jumper settings at the default settings unless you need to perform the Clear CMOS procedure. It is much more convenient to control the BIOS Flash Protection feature using the CMOS Setup Utility.

Firmware Reconfiguraton

You can initially specify or customize the CMOS Setup Utility settings when you first configure the system (as covered in Chapter 5) to meet your requirements. Other than doing this, there should be no need to reconfigure the CMOS Setup Utility unless the system configuration changes or the configuration record stored in CMOS memory becomes corrupted and unusable, which is not common. If you need to completely recreate the system configuration record, follow the Clear CMOS procedure described in this chapter.

In This Chapter:

Pre-Installation Preparation

Installing CPUs

Installing System Memory

Installing the Motherboard in a System Housing

Motherboard Installation Procedure

EEB 3.0 Housing Installation

Completing System Configuration

4: Installing the Motherboard

This chapter covers preparing the motherboard for installation, installing the board in a system housing or “chassis” and installing or connecting other internal system components.

There are a number of important topics in this chapter and we strongly urge that you review it before attempting to install the motherboard.

Pre-installation Preparation

Before you install the motherboard you will need to do the following:

- Install one or two Intel Xeon CPUs
- Install DDR system memory modules

Both of these require specific procedures that you must follow precisely to insure that the components are successfully installed and work properly. Please review the instructions in this section in detail and follow them carefully. The procedures are not complex.

Installing CPUs

This motherboard uses the Intel Xeon processor. Both single and dual CPU configurations are supported on this motherboard.

To install an Intel Xeon CPU on the motherboard it is very important to precisely and entirely follow the procedure for installing both the CPU and its cooling assembly. Failure to do so can result in either improper operation or damage to the CPU and possibly the motherboard.

To install an Intel Xeon processor on this motherboard you will need to do the following:

- Install the Xeon processor in an mPGA604 socket
- Install the Heatsink Retention Mechanisms
- Install a Xeon-specific Heatsink
- Install the Processor Wind Tunnel assembly

Please follow the procedure detailed below to install one or two Xeon processors on the board. Intel boxed Xeon processors come with full installation instructions. If you have these, please also read and follow those instructions carefully.

Processor Selection

This motherboard supports all Xeon processors and the BIOS automatically detects the required settings and configures the CMOS Setup Utility accordingly. If you install two Xeon processors, they must have identical specifications.

Required Tools:

- Philips-head screw driver (Crosshead)
- Flathead screw driver

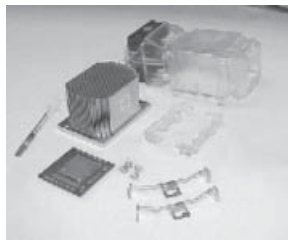
Installing The Processor

Installing a Xeon processor in the mPGA604 socket is the simplest part of the procedure. It is very important, however, to carefully handle the processor by the side edges and always fully observe precautions against electrostatic discharge.

Note:

If you are only installing one CPU, install it in the CPU0 socket.

Please follow the installation procedure as illustrated on the next two pages. The illustrations are generic and do not specifically represent this motherboard.



Xeon Processor package
(Clockwise from lower left):

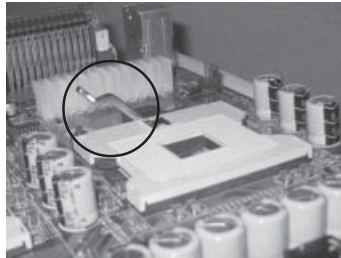
- Xeon processor
- TIM applicator
- Heatsink
- Processor Wind Tunnel
- Retention Mechanisms
- Heatsink clips
- Mounting screws

The processor installation procedure is as follows:

1. Raise the retaining lever of the processor locking mechanism to a perpendicular position.

Step 1:

Raise the retaining lever

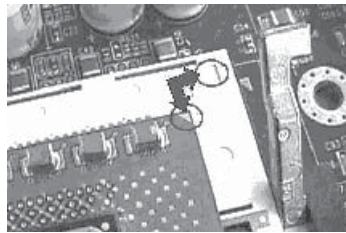


Raise the socket lever to the vertical position

2. Align the processor to the socket by matching the Pin 1 corner of the socket (marked with a triangle) to the Pin 1 corner on the Socket 603 (marked by a triangular hole in the Pin 1 corner).

Step 2:

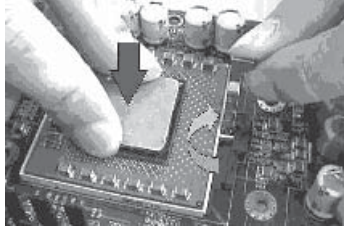
Align the Pin 1 corners



Match the Pin 1 positions on the socket and the processor

- Carefully insert the Xeon processor in the socket receptacles, taking care not to bend any pins.

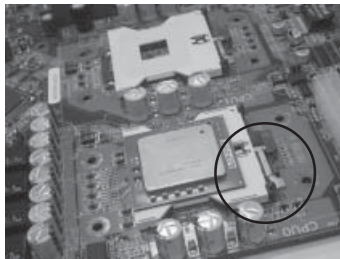
Step 3:
Insert the processor



Gently press the processor into the socket. Make sure the retaining lever is vertical.

- Lower the locking mechanism's retaining lever and secure it in place to secure the processor in the socket. Grasp the processor by the edges and gently pull upwards to insure it is properly inserted. The processor shouldn't move.

Step 4:
Secure the CPU retaining lever



Press the retaining lever back down into the horizontal position and make sure it latches in place.

Installing the Heatsink Retention Mechanisms

The motherboard comes with a set of two Heatsink Retention Mechanisms. You must attach these to the motherboard before installing the processor heatsink. If you are installing a boxed Intel Xeon processor, it will also come with two Retention Mechanisms, you can use either set.

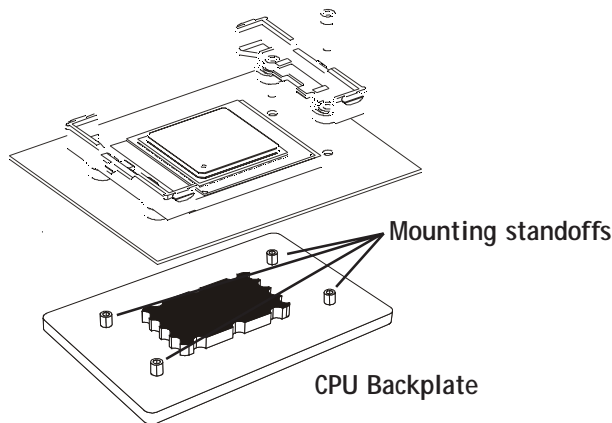
The mechanism attaches to the motherboard with the supplied screws which screw into either a supplied CPU Backplate or into the standoffs of an EEB 3.0-compliant system housing (chassis).

We've assumed here that you are installing the motherboard in a non EEB 3.0 chassis and therefore will use a supplied CPU Backplate. If this is not the case, please first install system memory as described later in this chapter. Then install the Heatsink Retention Mechanisms, Heatsink and Processor Wind Tunnel after the board is installed.

To install the supplied heatsink retention mechanisms, do as follows:

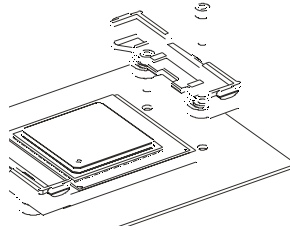
1. Align the four standoffs on a CPU Backplate (mounting nuts attached to the plate) to Retention Mechanism mounting holes around one of the CPU sockets on the motherboard.

Step 1: Align the CPU backplate



2. Align a Retention Mechanism to two of the mounting holes in the board so that the mechanism is facing in towards the CPU socket.

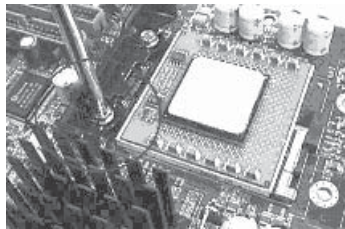
Step 2:
Position the Retention Mechanism



Position the mechanism facing in towards the CPU socket.

3. Insert one of the supplied screws in each hole in the mechanism so that it inserts in a matching standoff on the CPU Backplate. Tighten the screws until they are snug. Don't overtighten the screws.

Step 3:
Attach the mechanism & CPU Backplate with screws



Insert & tighten the mounting screws so that they screw into the CPU backplate

4. Repeat the same procedure to attach the second Retention Mechanism on the opposite side of the CPU socket. The mechanisms should hold the CPU Backplate securely against the underside of the motherboard.

If you are installing two CPUs, repeat this procedure on the CPU1 socket.

Installing the Heatsink

Once you have attached a set of Retention Mechanisms, you must install a Heatsink. The Heatsink attaches to the Retention Mechanisms with the two supplied Heatsink retaining clips.

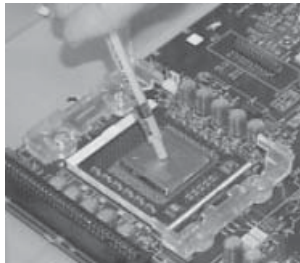
Apply Thermal Interface Material

Before you install the heatsink you must apply the Thermal Interface Material (TIM) that is supplied in an applicator with boxed intel Xeon processors (or an exact equivalent) to the heat spreader on the installed CPU. We assume here that you have TIM in an Intel-supplied applicator. To apply TIM to the CPU do as follows:

1. Apply all of the TIM in the applicator to the center of the square heat spreader plate in the middle of the CPU.
2. Do not spread the TIM around. When you place the Heatsink on top of the CPU the material will disperse evenly.

Apply TIM

Apply all of the Thermal Interface Material to the center of the processor heat spreader plate



Don't spread the TIM out with the applicator tip. The Heatsink will disperse it.

Next, install the processor Heatsink as detailed below.

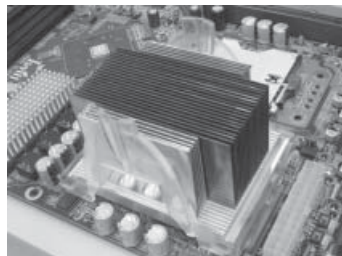
Install the Heatsink

To install a processor Heatsink do as follows:

1. Place the Heatsink on top of the Xeon CPU so that it fits into the recesses in the Retaining Mechanisms. The Heatsink base is rectangular and will only fit into the mechanism frame in the correct orientation.

Position the Heatsink

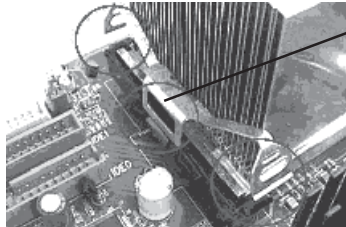
Place the Heatsink on top of the CPU so that it fits into the Retention Mechanisms.



Don't spread the TIM out with the applicator tip. Wiggle the Heatsink a little after you position it to disperse the Thermal Interface Material.

2. Place a heatsink retaining clip on one of the Retention Mechanisms so that the large outer center tab is on the outside and fits over the extension on the Retention Mechanism. The inner center tab should clip over the edge of the Heatsink.

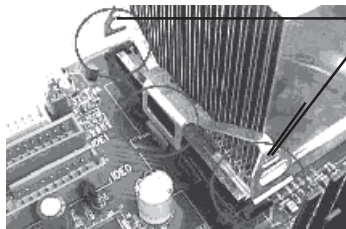
Position Heatsink Clips
Position a clip on each Retention Mechanism.



position the clip so that the large tab is on the outside and fits over the mechanism extension there

3. Hold the clip down against the mechanism and press down on one end of the retaining clip so that the tab on the end clips securely over the extension on that end of the mechanism.
4. Press the other end of the retaining clip down so that it clips securely over the extension at the other end of the mechanism. The spring tension of the clip should now hold that side of the heatsink securely against the Retention Mechanism.

Attach Heatsink Clips
Press the clip ends onto Retention Mechanism.



Hold the clip down in the middle while you press the each end of the clip onto the Retention Mechanism

5. Repeat the procedure above on the Retention Mechanism on the other side of the Heatsink.
After you install the two retaining clips, the Heatsink should be securely attached.

Installing the Processor Wind Tunnel

After you install the Xeon processor and heatsink assembly, you must install the Processor Wind Tunnel (PWT) assembly. The PWT has three parts:

- Shroud
- Fan Assembly (fan with mounting frame)
- PWT End Cap

You install these components separately and in order as follows.

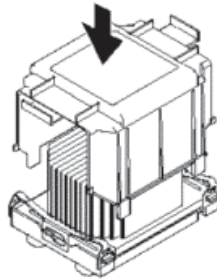
Install Shroud

First install the PWT shroud:

1. Clip the shroud onto the retaining mechanisms at the corners. It should fit onto the mechanism corners and the flexible tabs should snap into place.

Step 1:

Attach the PWT shroud



Press the shroud down onto the Retention Mechanisms until it snaps into place

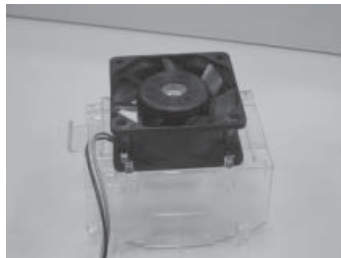
Attach Fan Assembly

Next attach the cooling fan:

1. Clip the fan mounting frame onto the cooling fan. Orient the fan so that it will blow air into the PWT Shroud.

Step 1:

Clip the fan mount onto the fan

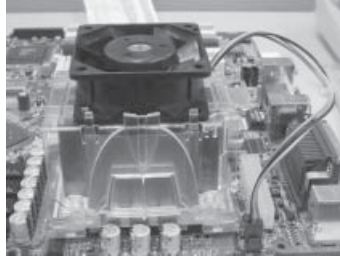


Orient the fan so that it blows toward the Heatsink

2. Insert the fan mounting frame tabs into the holes on the forward side of the PWT Shroud. The plastic tabs should snap securely into place.

Step 2:

Insert the PWT fan mount into the PWT shroud



Press the fan mount into the shroud so that it snaps into place securely

Installing System Memory

This section details the procedure for installing system memory on the motherboard. Correct memory configuration is critical for proper system operation. Please review this section carefully and follow the configuration guidelines precisely.

Memory Specifications

The motherboard has four DIMM module sockets and uses unbuffered DDR SDRAM DIMM modules for system memory. The system memory specifications are:

- Unbuffered DDR SDRAM DIMM modules
- ECC memory support including S4EC-D4ED chipkill technology
- 200MHz PC1600 or 266MHz PC2100 memory only
- Maximum 8GB total system memory

DIMM Sockets:

System memory sockets are for:

- PC2100: 266MHz
- PC1600: 200MHz

unbuffered DDR SDRAM modules only.

Memory Configuration Options

This motherboard has flexible memory configuration options. These include:

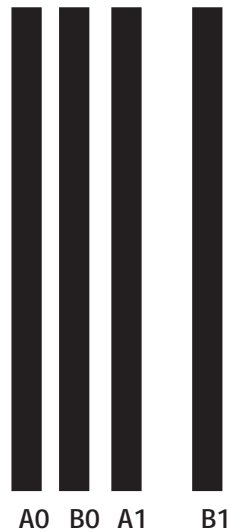
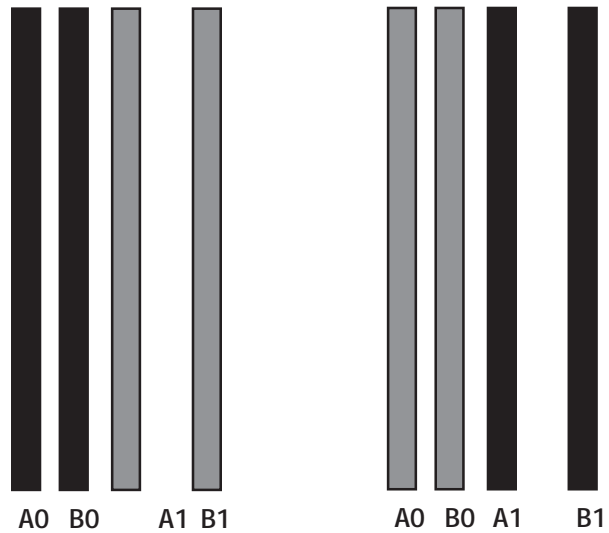
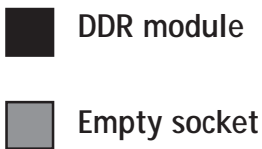
- Supports 64MB, 128MB, 256MB, 512MB, 1GB & 2GB modules.
- Modules must all be the same type and density.

Module Configurations

The figures on the next page illustrate the allowed module configurations. Do not install modules in any other configuration. Please note the configurations indicate module positioning, not capacity. Modules should all be the same type and capacity.

Memory Configurations:

The memory configurations shown here are the only ones allowed. You can install only 1 or 4 modules. A 1 or 3 module configuration is not supported. All module *must* be the same type and density.



Installing Memory Modules

Installing DIMM modules is simple. The modules insert in the sockets and are held in place by the socket retaining arms. The edge connectors on the modules are of different widths and there are key notches in each module. These ensure that you can not insert a module incorrectly.

Before you install any modules, you should choose a configuration. You should then prepare the required number and type of DDR modules.

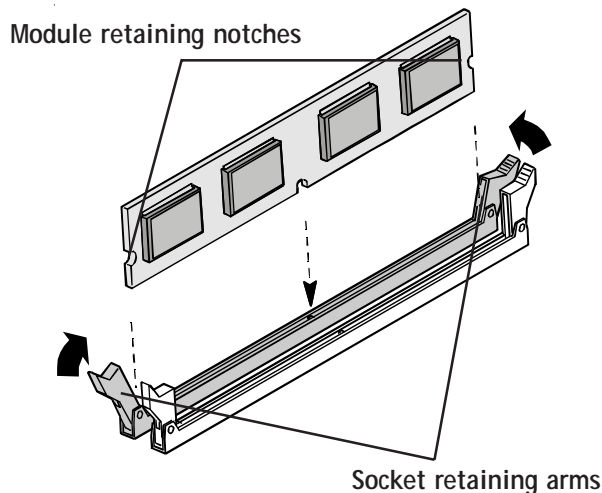
To install either type of module follow this procedure:

1. Align the module to the socket so that the edge connectors on the module match the socket sections.
2. Hold the module perpendicular to the motherboard and press the edge connector into the socket.
3. Press the module fully into the socket so that the socket retaining arms swing up and engage the retention notches at each end of the module.

Following the configuration you have chosen, repeat this procedure if necessary so that all modules are installed. Once the modules are installed, system memory installation is complete.

Module Installation:

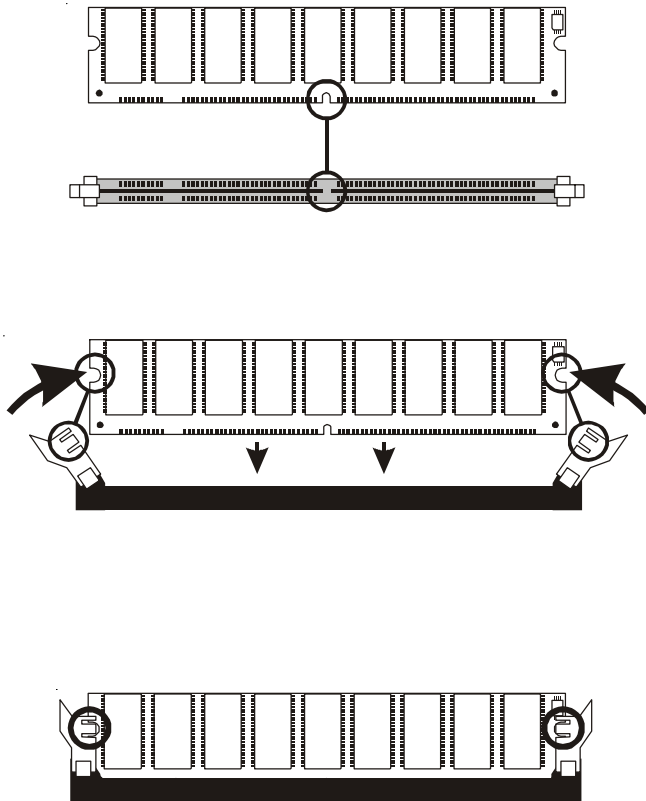
Modules will only insert in one orientation. The width of the two edge connector sections vary slightly and prevent incorrect insertion.



Module Installation:

All modules insert in the DIMM sockets in the same way:

1. Align the module to the socket.
2. The socket retaining arms should rotate up and engage the module's retaining notches as you press it into the socket.
3. The retaining arms must engage for the module to be properly installed.

***System Memory Recognition***

The BIOS will automatically recognize the installed memory configuration and configure the CMOS Setup Utility. No other action is required to complete system memory installation.

Installing the Motherboard in a System Housing

This section explains the basic requirements for installing this motherboard in a system housing or “chassis”. Since housing designs vary widely, you will need to consult the housing documentation for specific information.

This motherboard can be installed in an EEB 3.0-compliant housing that is specific to the board’s CPU layout. Other housings must support the extended ATX form factor, which is larger than other ATX form factors.

To install the motherboard in a system housing you will need to do the following:

- Install a rear I/O panel shield
- Attach the board to the housing
- Connect leads from the housing’s front panel

You can then connect other internal system components as described later in this chapter.

Motherboard Installation Procedure

This section assumes you are installing the board in a non-EEB 3.0 housing and will use the supplied CPU backplates to mount the heatsink retention mechanisms. If you are installing the board in an EEB 3.0 chassis, please see the EEB 3.0 section later in this chapter.

We also assume you have prepared the board for installation as previously described in this manual. If the housing you are using normally stands vertically, place the open housing on it’s side before you start.

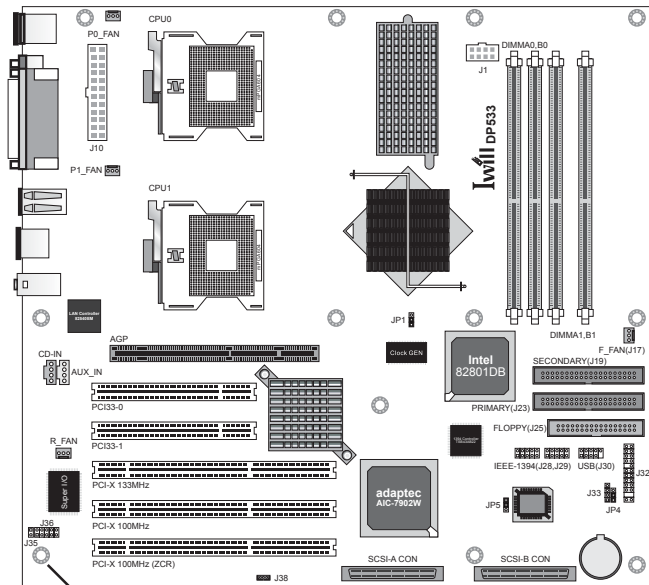
Please follow this procedure to install this motherboard:

1. Review any instructions that came with the system housing and prepare the necessary mounting hardware that came with it.
2. Identify the mounting holes on the board and confirm that the housing has standoffs that match them.
3. Install the rear I/O panel shield in the housing’s I/O panel opening.

4. Insert the board in the housing and align the mounting holes to the standoffs on the housing's motherboard mounting plate. Make sure all of the rear I/O ports are properly aligned with the openings in the I/O panel shield.
5. Attach the board to the housing, inserting mounting screws in all the holes and tightening them snugly.

Mounting Holes

There are 11 mounting holes on the DP533 motherboard that should correspond to mounting standoffs on the system housing's motherboard mounting plate.



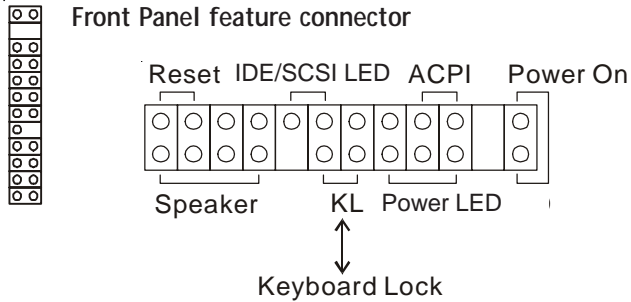
Mounting holes

Connecting Front Panel Components

After the motherboard is installed in the system housing, you should connect whatever front panel components the housing has to the Front Panel feature connector on the motherboard.

The figure below indicates the pin assignments of the connector for your reference.

Front Panel Connector:
Leads from the front panel features connect to this header.



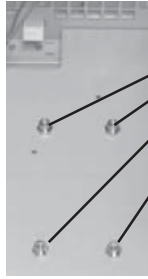
EEB 3.0 Housing Installation

If you install the motherboard in an EEB 3.0 system housing, you should not attach the CPU Backplates. Instead, attach the board to the housing's motherboard mounting plate first. When you do this, the Retention Mechanism mounting holes should line up with the Retention Mechanism mounting standoffs on the housing's motherboard mounting plate. You can then position and install the Retention Mechanisms by screwing them into the mounting standoffs.

Once you have installed the Retention Mechanisms, you can proceed to install the Heatsink and Processor Wind Tunnel assembly as described earlier in this chapter. Please note that the PWT assembly should be oriented so that the fan blows towards the rear of the system housing.

EEB 3.0 Housing

An EEB 3.0 system housing will have four Retention Mechanism mounting standoffs for each CPU socket. The Retention Mechanisms mounting screws screw into the standoffs instead of a CPU Backplate.



There are four Retention Mechanism mounting standoffs for each CPU socket on an EEB 3.0 housing's mother-board mounting plate.

Completing System Configuration

Once the motherboard is installed in the system housing, you can proceed to connect or install whatever internal devices you will use to complete the system. These will at least include an AGP display card and disk drives.

After that, having replaced the system housing cover, you can connect external peripherals to complete the process of preparing the system for use. These will include at least a video display and a keyboard and probably a pointing device. Please see the next chapter for information on completing these final hardware installation steps and installing Operating System and support software.

In This Chapter:

Installing or Connecting Internal Peripherals

 Installing an AGP Card

 Connecting Internal Devices

Connecting External System Peripherals

Configuring the CMOS Setup Utility

Installing an OS & Support Software

5: System Configuration

This chapter explains what you need to do to assemble a complete system after you have installed the motherboard in a system housing. This will include installing or connecting internal devices, connecting external system components. Once the system is assembled, you'll need to check and possibly configure the motherboard's CMOS Setup Utility, install an Operating System and install the support software supplied on the Power Installer 2 CD-ROM disc.

Installing or Connecting Internal Peripherals

To complete the assembly of a working system you will need to at least install an AGP video display card and connect whatever disk drives you will use in the system.

This section covers what you need to know on the motherboard side to do this. You will also need to consult the documentation that comes with your internal system peripherals for additional installation instructions and information. This section covers the minimum components you will need to connect to the motherboard to create a functioning system. You may plan to add other devices as well.

Installing an AGP Card

The AGP universal connector on the board supports AGP 4X/8X and AGP Pro 50 1.5-volt display cards. Follow the instructions that come with the display card for installing the card hardware in the AGP slot.

AGP Configuration

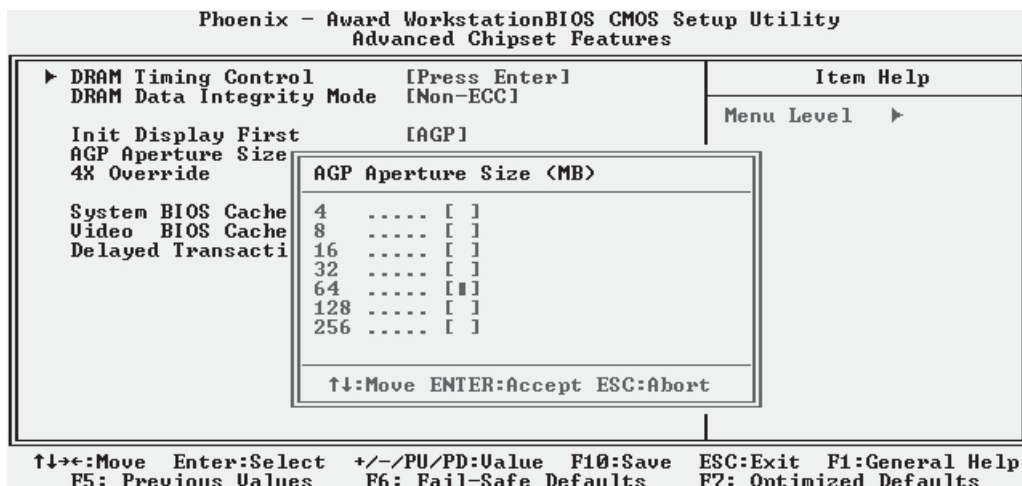
You can configure the amount of system memory the AGP card will use as auxiliary memory by adjusting the AGP Aperture Size setting in the Advanced Chipset Features section of the CMOS Setup Utility. The default aperture setting is 64MB.

Display Drivers

You should install the display card's display driver software according to the instructions that come with the card after you have completed system assembly and have installed an OS and the support software for this motherboard.

AGP Aperture Setting

You can set the AGP aperture size in the Advanced Chipset Features section of the CMOS Setup Utility



Connecting Internal Devices

To assemble a complete system capable of completing the installation of this motherboard you will need to install and connect the following internal devices:

- Hard Disk Drive
- CD-ROM or other optical drive
- Floppy disk drive

The floppy disk drive is not strictly necessary, but is a standard system component and is needed if you will create driver floppy disks from the Power Installer 2.

We assume here, in the absence of an alternative drive controller that any hard disk or optical drives will be IDE devices connected to the motherboard's IDE channels.

Connecting IDE Devices

This motherboard supports two IDE channels, Primary and Secondary. It has two IDE device connectors onboard which support IDE devices running in any data transfer mode up to ATA-100. Each IDE connector supports two drives, a Master and a Slave. The drives connect to the motherboard with an IDE ribbon cable. IDE cables have three connectors on them, one that plugs into a drive connector on the board and the other two that connect to IDE devices. The connector at the end of the cable is for the Master drive. The connector in the middle of the cable is for the Slave drive.

There are three types of IDE ribbon cable, supporting transfer modes up through ATA-33, ATA-66 or ATA-100. You must use a cable that supports the transfer mode of the fastest device connected to it. For example, if both an ATA-66 mode and an ATA-100 mode device are connected to the same cable, the cable must support ATA-100 mode to achieve maximum performance.

To install an IDE drive, connect the drive to one of the drive connectors on a suitable ribbon cable. Plug the board end of the cable into one of the IDE connectors on the motherboard.

IDE Drive Positioning

Normally the system's primary hard disk drive should be in the Primary Master position. If you will use only the supplied ribbon cable, connect a CD-ROM drive to the Primary Slave position.

If you obtain an additional IDE ribbon cable, you can install a second hard disk drive in the Primary Slave position and install the CD-ROM as the Secondary Master. This is a good idea if the CD-ROM drive uses a slower data transfer mode than the hard disk drive.

Follow any instructions that come with the drives to configure and install them. IDE devices generally can be set to one of three operation modes:

- Master
- Slave
- Cable Select

Many drives come set to the Master setting. If you will use the drive in a Slave position, you must reconfigure it as either Slave or use the Cable Select setting to allow the drives position on the cable to define the mode.

Connecting a Floppy Disk Drive

This motherboard has one Floppy Drive connector for connecting one or two floppy disk drives. Most computer systems use one 3.5-inch 1.44MB floppy disk drive. The drive connector is for a standard floppy drive ribbon cable.

To install a floppy disk drive, connect the drive to the end of the cable, which is the Drive A: position. Plug the other end of the cable into the floppy disk drive connector on the motherboard.

Onboard IDE Connectors

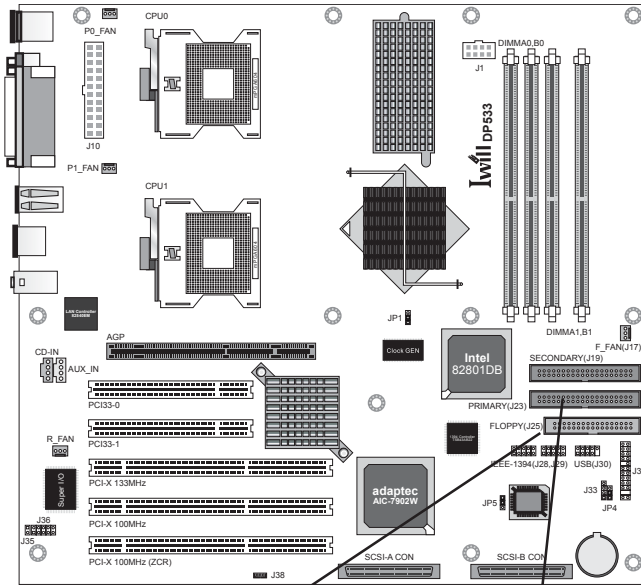
Each channel connector supports one IDE channel with two drives, a Master and a Slave. The Master drive connects to the connector on the end of the ribbon cable. The Slave drive connects to the connector in the middle of the ribbon cable.

Note:

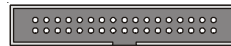
The ribbon cable used must support the transfer mode of the fastest device connected to it to avoid degraded performance.

Floppy Drive Connector

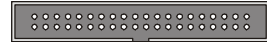
The floppy drive connector supports two floppy disk drives. The first drive, Drive A:, connects to the connector on the end of the floppy drive connector cable. A second drive, Drive B:, would connect to the middle connector on the cable although systems now commonly only have one floppy disk drive.



Floppy connector



IDE Secondary Channel



IDE Primary Channel



Connecting External System Peripherals

To complete the assembly of functioning system you will need at minimum to connect the following external system components to the system housing:

- Video Display Monitor
- Keyboard
- Mouse or other Pointing Device

Connecting a Display Monitor

You can connect any display monitor supported by the AGP display card you installed in the system. This may include either a CRT or LCD monitor, depending on the card's specifications.

Connect the display monitor cable to the appropriate display connector on the AGP card according to the instructions that come with the card and monitor.

Connecting a Keyboard & Mouse

You can use either PS/2 or USB input devices with this motherboard.

Connecting PS/2 Devices

Connect a PS/2 keyboard and mouse to the Keyboard and Mouse PS/2 ports on the rear I/O port panel. Don't connect or disconnect a device while the system is turned on. Doing so can damage the board.

Connecting USB Devices

You can use a USB keyboard and mouse with this motherboard. The Operating System you use must support USB to use any USB devices. If your OS can operate in DOS mode, you should enable USB Keyboard Support in the Integrated Peripherals section of the CMOS Setup Utility. You can plug and unplug USB devices when the system is turned on.

CMOS Setup Utility – Integrated Peripherals

Phoenix - Award WorkstationBIOS CMOS Setup Utility		
Integrated Peripherals		
		Item Help
▶ OnChip IDE Device	[Press Enter]	
▶ SuperIO Device	[Press Enter]	
Onboard 1394 Controller	[Enabled]	Menu Level ▶
Onboard Gigabit Lan	[Enabled]	
Onboard SCSI Controller	[Enabled]	
AC97 Audio	[Auto]	
USB Controller	[Enabled]	
USB 2.0 Controller	[Enabled]	
USB Keyboard Support	[Disabled]	

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

Enable “USB Keyboard Support” if you will use a USB keyboard with an OS that can operate in DOS mode.

Configuring the CMOS Setup Utility

The motherboard Award BIOS includes the CMOS Setup Utility that creates a system configuration record that is stored in CMOS memory on the board and is required by the system to operate properly.

Most of the configuration settings are either predefined by the BIOS Optimized Default settings which are stored with the BIOS or are automatically detected and configured without requiring User action. There are a few settings that you may need to change depending on your system configuration.

This section gives a brief profiles of the several sections of the CMOS Setup Utility and indicates settings you might need to change and those which you should not.

The CMOS Setup Utility User Interface

The CMOS Setup Utility user interface is simple and largely self evident. The utility can only be operated from the keyboard and all commands are keyboard commands. The utility does not support mouse use. The commands are straightforward and those available for the program section you are in are listed at the bottom of the screen. The main screen has few commands, other sections have more. General Help, which lists the commands and their functions is available at any time by pressing the F1 key.

Running the CMOS Setup Utility

The CMOS Setup Utility does not require an operating system to run. You run the utility by typing the Del or Delete key when the computer is starting to boot up. The utility's main screen will then appear.

CMOS Setup Utility – Interface commands

Phoenix – Award WorkstationBIOS CMOS Setup Utility	
<ul style="list-style-type: none"> ▶ Standard CMOS Features ▶ Advanced BIOS Features ▶ Advanced Chipset Features ▶ Integrated Peripherals ▶ Power Management Setup ▶ PnP/PCI Configurations ▶ PC Health Status 	<ul style="list-style-type: none"> ▶ Iwill Smart Setting Load Fail-Safe Defaults Load Optimized Defaults Set Supervisor Password Set User Password Save & Exit Setup Exit Without Saving
Esc : Quit F9 : Menu in BIOS ↑ ↓ → ← : Select Item F10 : Save & Exit Setup	
Time, Date, Hard Disk Type...	

Phoenix – Award WorkstationBIOS CMOS Setup Utility		
Standard CMOS Features		
Date <mm:dd:yy>	Fri, Nov 1 2002	Item Help Menu Level ▶ Change the day, month, year and century
Time <hh:mm:ss>	19 : 5 : 49	
▶ IDE Primary Master		
▶ IDE Primary Slave		
▶ IDE Secondary Master		
▶ IDE Secondary Slave		
Drive A	[1.44M, 3.5 in.]	
Drive B	[None]	
Video	[EGA/UGA]	
Halt On	[All Errors]	
Base Memory	640K	
Extended Memory	1024K	
Total Memory	2048K	
↑↓←→:Move Enter:Select +/-/PU/PD:Ualue F10:Save ESC:Exit F1:General Help F5: Previous Ualues F6: Fail-Safe Defaults F7: Optimized Defaults		

CMOS Setup Utility Program Sections

The CMOS Setup Utility is divided into several subsections and some top level commands including the following sections:

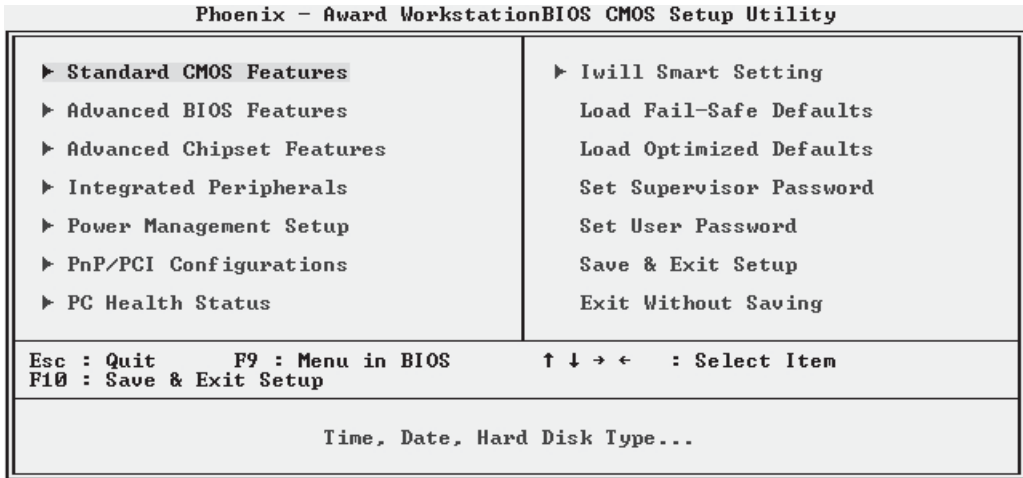
- Standard CMOS Features
- Advanced Boot Options
- Advanced Chipset features
- Integrated Peripherals
- Power Management Setup
- PnP/PCI Configurations
- PC Health Status
- Iwill Smart Setting

The main screen also has these command options:

- Load Fail-Safe Defaults
- Load Optimized Defaults
- Set Supervisor Password
- Set User Password
- Save & Exit Setup
- Exit Without Saving

Please see the following sections for a brief profile of what each section does, information on settings you might want to change and things to leave alone.

To open one of the program sections, highlight the item you want and press the Enter key. To change a setting, highlight an item and use the “Value” keys indicated to change the setting. Alternatively, press the Enter key and all options for that item will display and you can choose from those listed.

CMOS Setup Utility – Main Screen

Standard CMOS Features

Main Section Functions

This section has the real time clock settings, the IDE and floppy device settings.

Default & Autodetected Settings

The IDE device settings are autodetected. You shouldn't need to change this. The floppy and other settings are standard defaults.

Setting Options & Constraints

You can reset the time and date settings if they are not correct for your location.

CMOS Setup Utility – Standard CMOS Features

Phoenix - Award WorkstationBIOS CMOS Setup Utility		
Standard CMOS Features		
Date <mm:dd:yy>	Fri, Nov 1 2002	Item Help
Time <hh:mm:ss>	19 : 5 : 49	Menu Level ▶
▶ IDE Primary Master		Change the day, month, year and century
▶ IDE Primary Slave		
▶ IDE Secondary Master		
▶ IDE Secondary Slave		
Drive A	[1.44M, 3.5 in.]	
Drive B	[None]	
Video	[EGA/UGA]	
Halt On	[All Errors]	
Base Memory	640K	
Extended Memory	1024K	
Total Memory	2048K	

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

Advanced BIOS Features

Main Section Functions

This section mainly configures boot options including boot devices and their boot order and some power functions. There are also some miscellaneous boot configuration settings.

Default & Autodetected Settings

The screen illustration shows the default settings. These do not need to be changed. You can customize the settings to suit your purposes if necessary and you know what you're doing.

Setting Options & Constraints

You can change the boot device assignments and order, the boot options. You can enable the Virus Warning feature to warn of boot sector infection.

CMOS Setup Utility – Advanced BIOS Features

Phoenix - Award WorkstationBIOS CMOS Setup Utility		Item Help
Advanced BIOS Features		
First Boot Device	[Floppy]	Menu Level ▶ Select Your Boot Device Priority
Second Boot Device	[HDD-0]	
Third Boot Device	[SCSI]	
Boot Other Device	[Enabled]	
CPU L1 & L2 Cache	[Enabled]	
CPU L3 Cache	[Enabled]	
MPS Version Control For OS	[1.4]	
Virus Warning	[Disabled]	
Quick Power On Self Test	[Enabled]	
Swap Floppy Drive	[Disabled]	
Boot Up Floppy Seek	[Enabled]	
Boot Up NumLock Status	[On]	
Security Option	[Setup]	

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

Advanced Chipset Features

Main Section Functions

Configures DRAM timing, display features, including the AGP Aperture size, and BIOS caching.

Default & Autodetected Settings

Everything on this screen is an optimized default or is autodetected.

Setting Options & Constraints

Don't change anything in this section except the AGP Aperture, which you can adjust if needed. The default setting will work. If you must use a 2X AGP card, set the 4X Override item to 2X Mode.

CMOS Setup Utility – Advanced Chipset Features

Phoenix - Award Workstation BIOS CMOS Setup Utility Advanced Chipset Features		
		Item Help
▶ DRAM Timing Control	[Press Enter]	
DRAM Data Integrity Mode	[Non-ECC]	
Init Display First	[AGP]	Menu Level ▶
AGP Aperture Size <MB>	[64]	
4X Override	[No override]	
System BIOS Cacheable	[Enabled]	
Video BIOS Cacheable	[Enabled]	
Delayed Transaction	[Enabled]	

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

Integrated Peripherals

Main Section Functions

Configures the peripheral features integrated onto the motherboard.

Default & Autodetected Settings

Everything on this screen is an optimized default. The IDE transfer mode settings are autodetected. The system will work with these defaults. The port settings are standard PC settings.

Setting Options & Constraints

You can disable onboard devices and change port settings. If you install an IR port module, you have to set the “UART Mode Select” item in the Super IO Device section to the appropriate IR setting. You can also reconfigure the parallel port in that section. Enable USB Keyboard Support if you will use a USB keyboard.

CMOS Setup Utility – Integrated Peripherals

Phoenix - Award WorkstationBIOS CMOS Setup Utility		
Integrated Peripherals		
		Item Help
▶ OnChip IDE Device	[Press Enter]	
▶ SuperIO Device	[Press Enter]	
Onboard 1394 Controller	[Enabled]	Menu Level ▶
Onboard Gigabit Lan	[Enabled]	
Onboard SCSI Controller	[Enabled]	
AC97 Audio	[Auto]	
USB Controller	[Enabled]	
USB 2.0 Controller	[Enabled]	
USB Keyboard Support	[Disabled]	

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

Power Management Setup

Main Section Functions

Configures power management settings. These are overridden by ACPI power management.

Default & Autodetected Settings

Everything on this screen is an optimized default.

Setting Options & Constraints

You can select the Minimum or Maximum configurations rather than the User Defined defaults. You can customize all settings in User Defined mode. If your OS supports power management, configure it there. You can also set a date and time for the system to turn on or wake up.

CMOS Setup Utility – Power Management Setup

```

Phoenix - Award WorkstationBIOS CMOS Setup Utility
Power Management Setup

```

ACPI Suspend Type	[S1<POS>]		Item Help
x Run UGABIOS if S3 Resume	Auto		Menu Level ▶
Power Management	[Min Saving]		
Video Off Method	[DPMS]		
Video Off In Suspend	[Yes]		
MODEM Use IRQ	[3]		
Suspend Mode	1 Hour		
HDD Power Down	15 Min		
CPU THRM-Throttling	[50.0%]		
Wake-Up by PCI card	[Enabled]		
Power On by Ring	[Enabled]		
Resume by Alarm	[Disabled]		
x Date<of Month> Alarm	0		
x Time<hh:mm:ss> Alarm	0 : 0 : 0		
** Reload Global Timer Events **			
Primary IDE 0	[Disabled]		
Primary IDE 1	[Disabled]		
Secondary IDE 0	[Disabled]		

```

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

```

PnP/PCI Configurations

Section Function

Configures Plug and Play, PCI bus and IRQ settings.

Default & Autodetected Settings

The default is for the BIOS to control these functions.

Setting Options & Constraints

Don't change the resource settings, they're set to be handled automatically by the BIOS. If you have a problem after you install an expansion card, set "Reset Configuration Data" to Enabled to rewrite the ESCD.

CMOS Setup Utility – PnP/PCI Configurations

Phoenix - Award WorkstationBIOS CMOS Setup Utility		Item Help
PnP/PCI Configurations		
Reset Configuration Data	[Disabled]	
Resources Controlled By	[Auto<ESCD>]	Menu Level ▶
x IRQ Resources	Press Enter	Default is Disabled. Select Enabled to reset Extended System Configuration Data ESCD> when you exit Setup if you have installed a new add-on and the system reconfiguration has caused such a serious conflict that the OS cannot boot
P64H2 Slots.....IRQ	Assign[Auto]	
ONBD LAN Cntl...IRQ	Assign[Auto]	
ONBD 1394/PCI#1.IRQ	Assign[Auto]	
PCI#2.....IRQ	Assign[Auto]	

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

PC Health Status

Section Function

Configures cooling fan settings and displays detected system information.

Default & Autodetected Settings

The Fan startup temperature settings are optimized defaults. The list of system information is autodetected and displayed.

Setting Options & Constraints

You can change the Fan startup temperature settings and range though we don't recommend this unless you know what you're doing.

CMOS Setup Utility – PC Health Status

Phoenix - Award WorkstationBIOS CMOS Setup Utility	
PC Health Status	
Auto FAN1 Startup Temp	[28 °C]
Auto FAN2 Startup Temp	[28 °C]
Auto FAN Startup Range	[5 °C]
Current CPU0 Temp	
Current CPU1 Temp	
Current Remote Temp1	
Current Remote Temp2	
Current CPU0 FAN Speed	
Current CPU1 FAN Speed	
Current FAN1 Speed	
Current FAN2 Speed	
Ucore	
+1.2U	
+3.3U	
+ 5 U	
+12 U	
UBAT(U)	
5USB(U)	
	Item Help
	Menu Level ▶
	Set high limitation of system temperature, when system Temp meets the high limitation, system fans will startup automaticlly

↑↓←→:Move Enter:Select +/~/PU/PD:Uvalue F10:Save ESC:Exit F1:General Help
 F5: Previous Ualues F6: Fail-Safe Defaults F7: Optimized Defaults

Iwill Smart Setting

Section Function

Automatically configures CPU settings, configures warnings and provides DMI Event log controls.

Default & Autodetected Settings

The default setting is to autodetect CPU settings. Other settings are optimised defaults.

Setting Options & Constraints

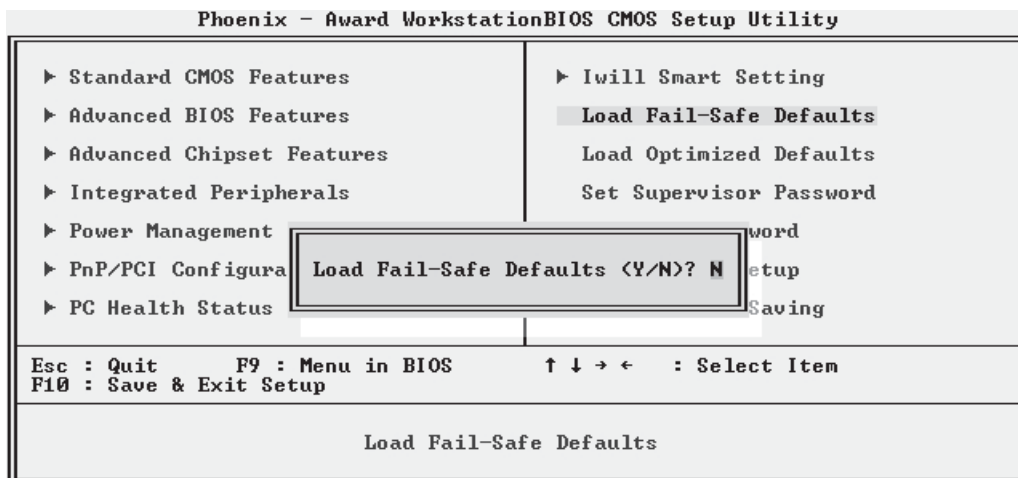
It is possible to set the CPU internal frequency yourself, but we do not recommend this. You can change the other settings as needed. In the default board configuration, you must set BIOS Flash Protect to the Flashable setting before you can install a BIOS update.

CMOS Setup Utility – Iwill Smart Setting

Phoenix - Award WorkstationBIOS CMOS Setup Utility			
Iwill Smart Setting			
CPU Clock Ratio	[8 X]	Item Help Menu Level ▶	
CPU Hyper-Threading	[Enabled]		
DMI Event Log	[Enabled]		
System Voltage Event	[Enabled]		
System FAN Event	[CPU FAN]		
System Temp Event	[All Temp]		
Clear All DMI Event Log	[No]		
View DMI Event Log	[Enter]		
Event Log Capacity			
BIOS Flash Protect	[Non-Flash]		
↑↓←→:Move Enter:Select +/~/PU/PD:Ualue F10:Save ESC:Exit F1:General Help F5: Previous Ualues F6: Fail-Safe Defaults F7: Optimized Defaults			

Load Fail-Safe Defaults

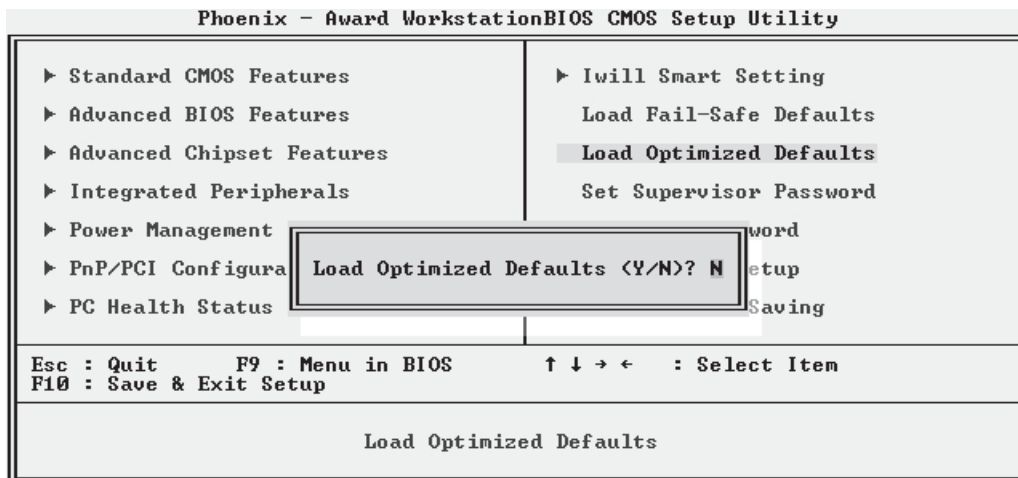
This loads a set of minimum configuration defaults. It is used to allow the system to start and then troubleshoot hardware problems. You shouldn't need to use this, it's mainly for technicians.



Load Optimized Defaults

This loads the Optimized Defaults. You only need to do this if the configuration record has been corrupted or mistakenly configured and after the Clear CMOS procedure has been performed. See Chapter 3 for more information on this procedure.

To load the defaults, select this item, press the Enter key, type a Y and then press Enter again.



Set Supervisor/User Password

These two items set passwords for system access.

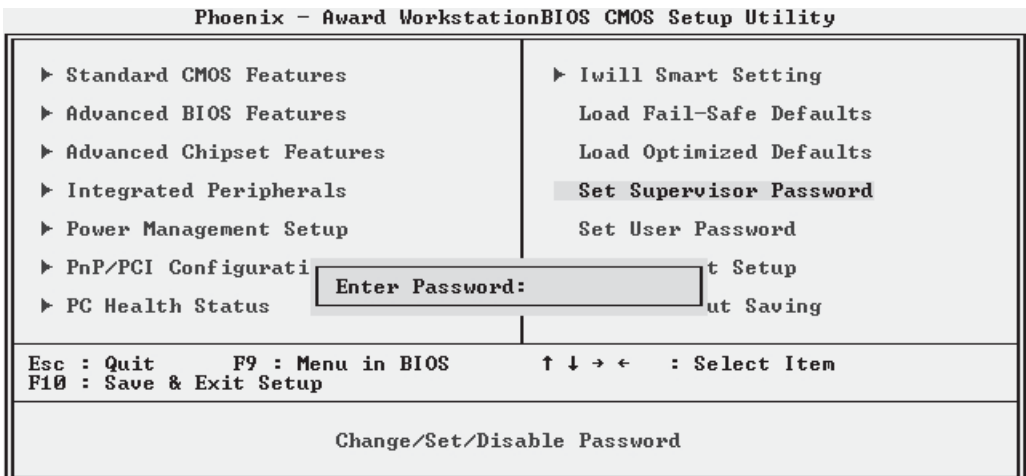
Setting a Password

You can install a Supervisor or User Password. The password prevents access to the CMOS Setup Utility (Supervisor) or the entire system (User).

To install a password, follow these steps:

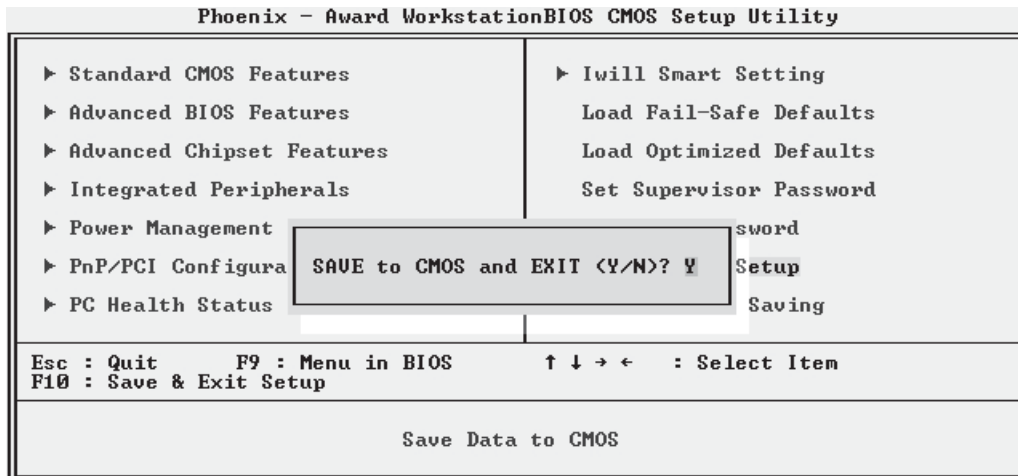
1. Highlight either Set Password item in the main menu and press Enter.
2. The password dialog box will appear.
3. If you are entering a new password, carefully type in the password. You cannot use more than eight characters or numbers. Passwords are case-sensitive. Press Enter after you have typed in the password. If you are deleting a password that is already installed just press Enter when the password dialog box appears.
4. The system will ask you to confirm the new password by asking you to type it in a second time. Carefully type the password again and press Enter, or just press Enter if you are deleting a password that is already installed.
5. If you have used the correct format, the password will be recorded.

If you decide not to set a password after bringing up the password entry window, press the Enter key, not Esc to exit the password entry window.



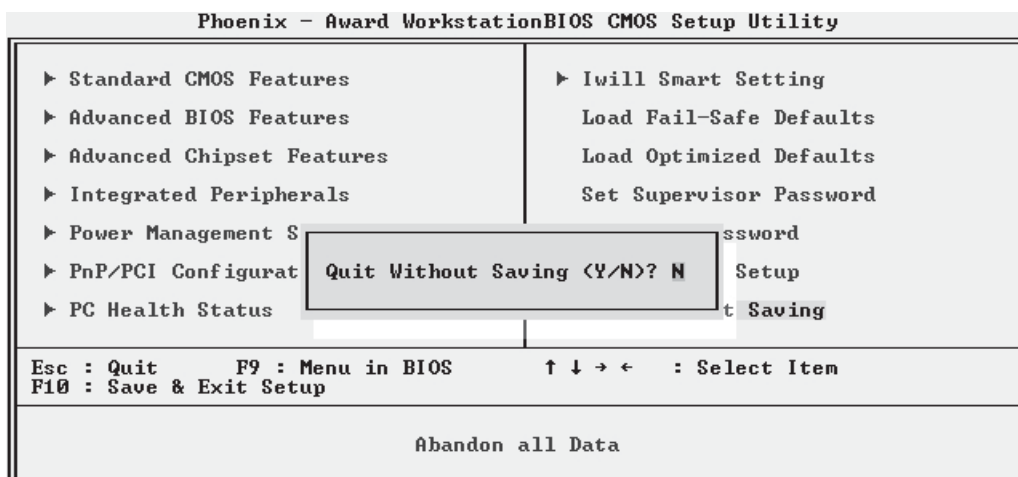
Save & Exit Setup

This saves the current utility configuration as a new configuration record, exits the utility and restarts the system using the saved configuration record.



Exit Without Saving

Exits the utility and restarts the system without changing the saved configuration record.



In general, it should not be necessary to use the CMOS Setup Utility once you have fully configured it. In the event you do need to change or re-establish the settings, always make sure to save the settings when you exit the utility or the new settings will not be stored.

Installing an OS & Support Software

This section covers installing Operating System software and the support software on the Power Installer CD-ROM disc. Once you have configured the CMOS Setup Utility, you should install an OS. If you install a supported Microsoft OS, you should also install the driver software on the Power Installer disc.

Installing an Operating System

This motherboard is intended to use the following Operating Systems:

- Microsoft Windows NT 4.0
- Microsoft Windows 2000
- Microsoft Windows XP Professional
- Red Hat Linux (or compatible distribution)

Prepare the hard disk drive and install an OS according to the instructions that come with the OS you will use.

Installing the Support Software

The Power Installer CD-ROM disc comes with required hardware drivers for Microsoft Windows and some additional utility software, as noted in Chapter 2. If you have installed a supported Microsoft OS, you must install the required drivers. If you have install Linux, you will need to create support disks using the Make Driver utility.

Installing Windows Drivers

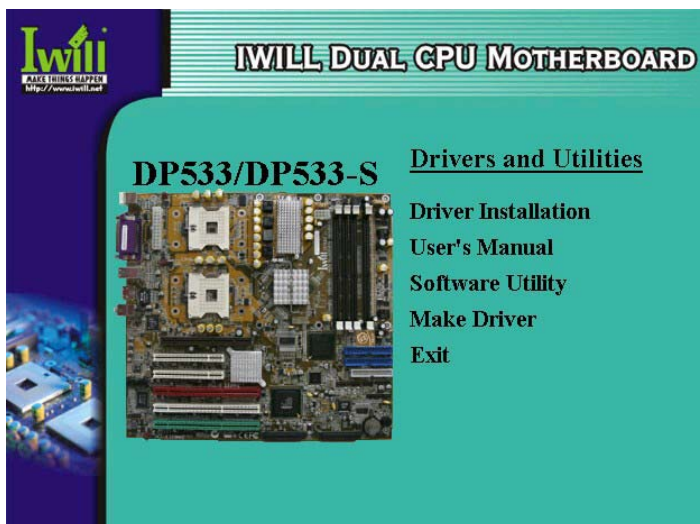
This section assumes you have installed one of the supported Microsoft Operating Systems on the system hard disk drive.

To install Windows drivers, insert the Power Installer II CD-ROM disc in the system's CD-ROM (or other optical drive) and wait for the Power Installer interface to automatically load. If it doesn't start, run the Power Installer interface directly from the disc by running Setup.

The Power Installer main screen will appear. Click on this motherboard's model number to open the section for this board. The "Driver and Utilities" screen will appear. Click on "Driver Installation" and the Driver Installation screen will appear.

Power Installer:
DP533/DP533-S
Driver & Utilities

Click on Driver Installation to access the driver install programs.



Install the first two items for the Intel Chipset in sequence by clicking on them and following the install program instructions.

**Power Installer:
DP533/DP533-S
Driver Installation**



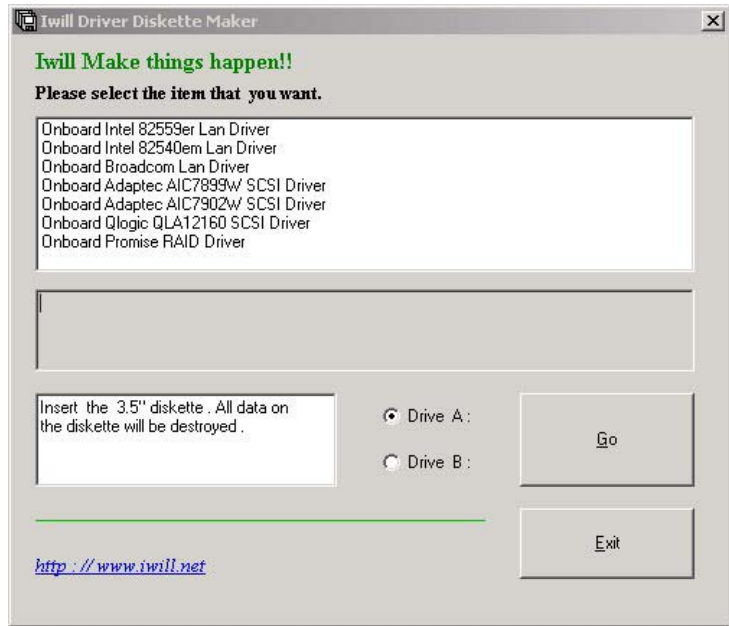
Next install the “Onboard Audio Driver” in the same way. Finally, review the “USB 2.0 Driver Installation Guide” and “LAN Driver Installation Guide” for the OS you have installed and install the appropriate drivers for that OS as needed.

The Adobe Acrobat reader install program will run when you try to view the installation guides if you have not already installed it. Install the program and then repeat the procedure to read the guide information.

Making Driver Discs

You can make driver floppy disks by running the “Make Driver” utility from the Drivers and Utilities screen. Follow the screen interface, which is self-evident to make driver installation disks if needed. The DP533-S comes with a driver disk for the Adaptec AIC7902W controller.

Power Installer:
DP533/DP533-S
Make Driver Disk



Making & Installing Linux Drivers

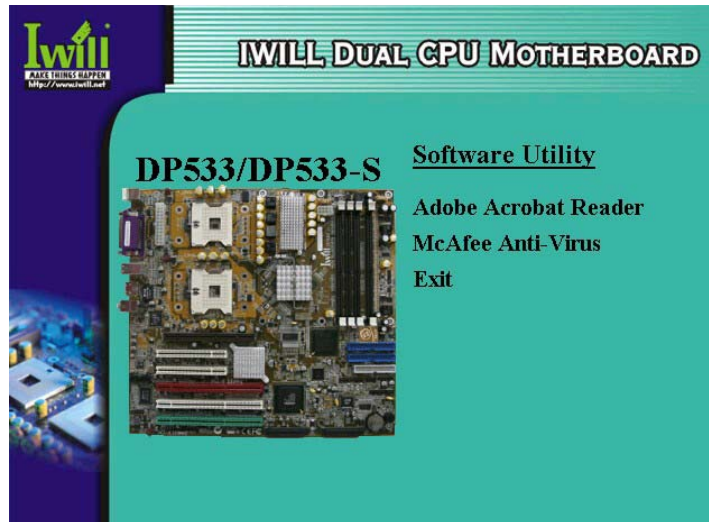
You can boot the system from the Power Installer disc. The system will boot from the Linux kernel on the disc and you can use the driver disk creator that loads to create Linux driver disks. You can then install these drivers according to the instructions for driver installation from your Linux distribution.

Installing the Utility Software

To install the utility software bundled on the Power Installer CD-ROM disc, click on “Software Utility” in the Drivers and Utilities screen to open the Software Utility window.

To install the Adobe Acrobat reader or McAfee Anti-Virus software packages, click on the item you want to install and follow the install program’s instructions.

**Power Installer:
DP533/DP533-S
Software Utility**



In This Chapter:

Using System Features

Front Panel Controls & Indicators

Additional System Features

Installing & Configuring An IR Port

Performance Optimization

Troubleshooting

6: Using the Motherboard

This chapter covers several topics related to using this motherboard once it is installed in a working system. These include external system features that connect to the motherboard, things you can do to optimize the performance of a system based on this board and some troubleshooting tips you can review in the event any problems arise.

Using System Features

This section explains the system controls and indicators that connect to the motherboard. It also explains how the other system level features on the board work.

Front Panel System Controls & Indicators

The front panel of the system housing will have some or all of the front panel features that connect to the motherboard. These enable the User to determine some information on the systems operational status and provide some system controls.

System Controls

The front panel connector on the motherboard supports several system controls that mount on the front panel of the system housing.

Power Button

Function: Turns the system On and Off.

Use: You can also configure the mouse or keyboard to turn the system on in the CMOS Setup Utility by setting the “POWER-ON Function” line in the Super IO section of the Integrated Peripherals section. You can also set how the system responds to power restoration after an accidental power outage in the “PWRON After PWR-Fail” line.

Reset Switch

Function: Restarts the system to cold boot.

Use: Press the button to restart the system. This forces a restart under all conditions. Don't use the Reset button if you can shut the system down from within the Operating System.

Note On Reset & Rebooting:

You should always restart or shut down the system by using the OS command for this. This procedure allows the OS to shut down properly, minimizing the possibility of hard disk drive problems or data loss. If the system crashes or “hangs”, you may have to restart the system at the hardware level. There are two hardware reboot options, a keyboard command and the Reset button.

You can effect a “warm” reboot with a key command if the OS supports it. For example, all versions of Microsoft Windows support restarting the computer with the Ctrl-Alt-Del (Delete) command. You can try this command first if it is supported. Otherwise, you will need to use the Reset button.

Suspend Button

Function: Toggles system in and out of Suspend mode.

Use: Press the button to cause the system to enter or resume from Suspend mode.

Note: The front panel feature connector supports a system Suspend button (the ACPI connector) but not all system housings have this button. The same function can be performed at the Operating System level if the OS supports the feature.

Indicator LEDs

The motherboard front panel features connector supports three system status indicator LEDs:

- Power Status LED Indicator
Lights when the system is turned on.
- Hard Disk Drive Activity LED Indicator
Flashes during hard disk drive access.
- ACPI LED Indicator
Lights to indicate the system is in a Suspend state power conservation mode.

Most system housings will have all of these LEDs mounted in the housing's front panel.

Additional System Features

There are two additional system features, LAN LED indicators and Wake On LAN.

LAN Indicator LEDs

The RJ-45 LAN jack on the rear I/O panel has two indicator LEDs mounted above it.

Activity Link



RJ-45 LAN jack

- Activity LED (on left)
Flashes when the LAN connection is active.
- Link LED (on right)
Lights to indicate the LAN is connected.

Wake-on LAN (WOL)

Function: The system “wakes up”, i.e. resumes from a Suspend state, in response to a signal arriving over a LAN that it is connected to.

Use: The onboard LAN interface supports the WOL feature. In addition, the onboard WOL connector supports connection to an additional PCI Network Interface Card. The WOL cable from the card connects to the WOL connector on the board.

The feature is enabled by default in the Power Management section of the CMOS Setup Utility and functions automatically.

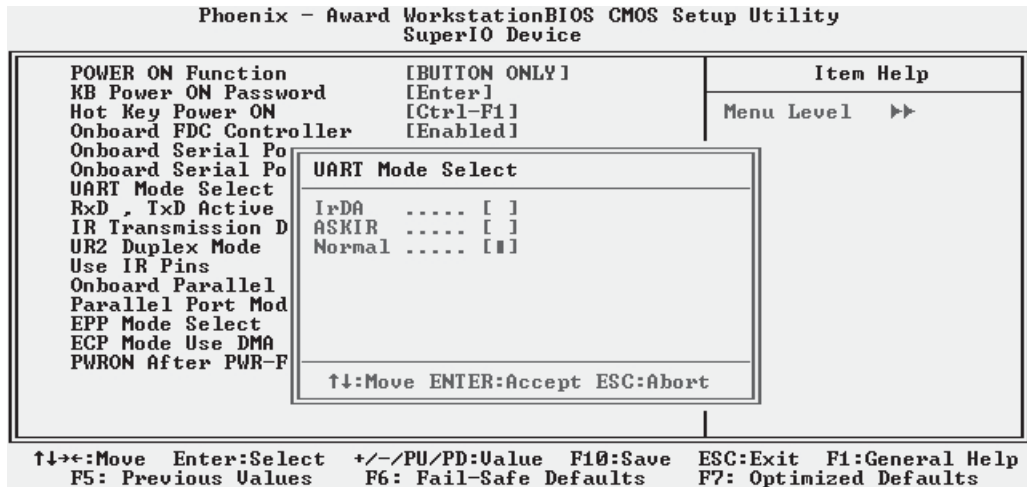
Installing & Configuring An IR Port

There is a pin header connector for an Infrared communications port module on the motherboard. An IR port enable wireless communication between the system and another device with IR capability. Common examples of such devices are a PDA or notebook computer.

Installing an IR port module requires an expansion slot opening unless the system housing has a built-in IR port with a cable to connect to the motherboard.

Follow the instructions that come that come with the port module you want to install. The basic installation procedure is as follows if the module installs in an expansion slot opening:

1. Turn off and unplug the system if necessary.
2. Remove the system housing cover.
3. Locate the IR pin header connector on the motherboard. It is beside the PCI2 expansion slot.
4. Remove the expansion slot cover in the system housing that corresponds to the PCI2 slot. There may be a slot cover retaining screw to remove and put aside for later use.
5. Insert the port module in the open expansion slot cover and align the module's mounting bracket with the screw hole for the retaining screw (if there is one). Insert the screw and tighten it to secure the port module in place.
6. Plug the module's connector cable on to the IR connector on the motherboard.
7. Replace the system housing cover.
8. Plug in and turn on the computer.
9. Run the CMOS Setup Utility and pen the Integrated Peripherals section. Set the "UART Mode Select" to the required mode, IrDA or ASKIR, and configure the port settings below it if necessary. Save the settings and reboot.

CMOS Setup Utility – Integrated Peripherals**UART Mode Select – IR mode selection**

The supported Microsoft Operating Systems should automatically detect and configure the port module after you restart the system. Consult the OS documentation or online Help for more information if necessary. You may also need to install support software that came with the IR port module in order to use it. Consult the installation instructions that came with the module for additional instructions.

Performance Optimization

This section covers things you can do to increase the performance of a system based on this motherboard. The topics covered include system memory, disk subsystems and processor upgrades or adjustments.

System Memory

Adding system memory will increase system performance and capability under any of the supported Operating System. This motherboard supports a total of 8GB of system memory. If you have not installed the maximum, you can consider increasing the amount of installed system memory. Additional system memory speeds up system operation and in some cases produces additional stability in the Operating System.

Disk Subsystems

This motherboard supports IDE drives using data transfer modes up through ATA-100. If you use IDE drives as the primary disk subsystem, selecting drives that support ATA-100 and have a high rotation speed (at least 7,200rpm) will maximize performance.

If you need even better performance from a disk subsystem, you can consider adding a SCSI controller card and SCSI disk drive to the DP533 or using the onboard SCSI controller on the DP533-S. A SCSI disk controller with high-speed SCSI hard disk drives will provide a substantial performance enhancement. You can also use the bottom PCI slot which has support for an Adaptec Zero Channel RAID (ZCR) card to create a RAID array.

Processor Upgrades & Adjustments

Processor speed has a significant effect on overall system performance. To increase system performance, you can consider using or upgrading to a faster processor. The Intel Xeon processors used by this motherboard come in a variety of clock speeds. If you install dual processors, they must have the same specification. If you upgrade one, you must upgrade both.

The CMOS Setup Utility's Iwill Smart Setting feature will automatically detect and configure whatever processors are installed. The Intel Xeon processor should not be set to operating parameters other than its defaults.

Troubleshooting

This section details some things you can do to evaluate problems that could possibly occur in the course of using this motherboard. The topics covered include possible hardware problems and problems with the CMOS Setup Utility's system configuration record.

Hardware Problems

A hardware problem may occur either after you install additional hardware or because some existing hardware has failed or has a disconnected or loose connection. This section has some pointers on things you can check before seeking assistance.

General Hardware Troubleshooting

If the motherboard does not operate properly when you first try to use it in the system, it is likely that it is either configured incorrectly, there are problems with external connections. It is also possible the board or some other system component is defective. Always check the most obvious possibilities first.

First check the external components:

- Make sure the system, the monitor and any other external peripherals are plugged in and turned on. Confirm that the system and the power LEDs on any external peripherals are on.
- Check that the monitor, keyboard and mouse are properly connected.

Next check the CMOS Setup Utility:

- Run the CMOS Setup Utility and load the Optimized Defaults. Reset any other custom settings. Remember to "Save & Exit Setup" to restart the computer.

If there is still a problem, check the internal components. Turn off and unplug the system before you remove the system housing cover.

- Press all installed DIMMs into the module sockets to make sure they're fully inserted.
- Make sure you used the correct cables to connect the internal peripherals and that the peripherals are properly connected to the motherboard. Check the Master/Slave positions on all IDE cables. If you installed a device that uses ATA-100 mode, make sure it is connected to the motherboard with an ATA-100 cable to ensure maximum performance.
- Check that all expansion cards are correctly installed and fully inserted in the expansion slots. Pay particular attention to the AGP display card.
- Make sure the processor and its cooling assembly are properly installed.
- Check all the hardware settings on the motherboard and make sure they are correct.

When you're done, reassemble the system and try again. If the problem persists after you have checked all of the above, there may be a hardware conflict or bug. See the next section for additional information.

Hardware Configuration Problems

It is possible for system hardware components to conflict with each other. While all the components and subsystems on the motherboard are designed and tested to work together, expansion cards and peripheral devices can be a problem.

Assuming you have gone through the general troubleshooting procedures and the system still will not start, if you have just added new hardware to your system, there may be a hardware conflict or bug or a problem with a device driver. Try removing the new hardware and see if the system will start. If it does, consult with the device manufacturer for information on solving the problem. In some cases, a firmware or driver upgrade may resolve the problem.

Plug and Play Problems

This motherboard supports the automatic recognition and configuration of expansion cards that support the Plug and Play (PnP) specification. Most currently available expansion cards support PnP. PnP simplifies card installation by allowing the system to handle system resource allocation. If you install an expansion card that is not PnP compliant, you may still need to configure the card manually. Consult the card's documentation for instructions or other information.

Replacing the System Configuration Record

As noted previously, the CMOS Setup Utility creates a system configuration record and stores it in CMOS memory on the motherboard. This record must be correct and uncorrupted for the system to operate properly.

It is possible for the system configuration record can become corrupted or lost. If this occurs, the system will not operate properly or at all. This is not a serious problem. You can restore a working configuration using the CMOS Setup Utility to create a new configuration record by loading the Optimized Defaults and reentering any other settings you had made.

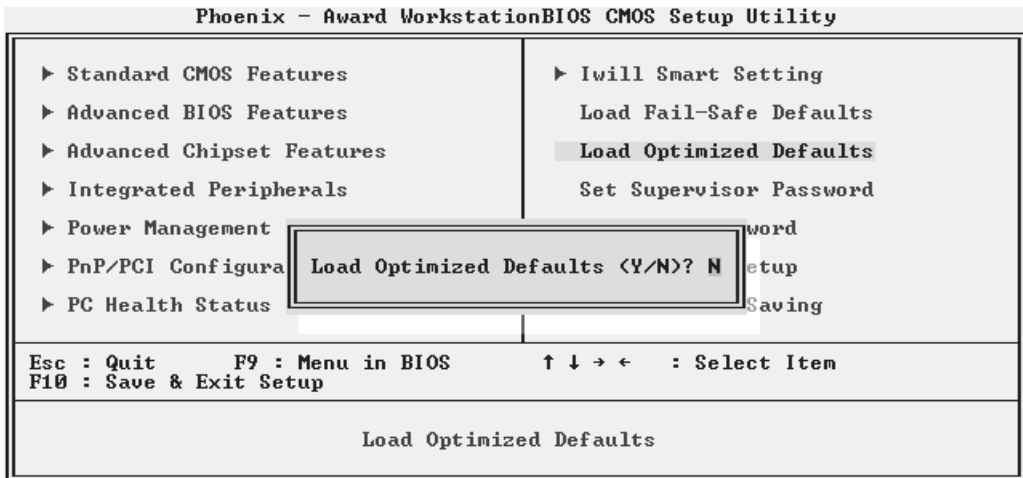
Loading Optimized Defaults

The BIOS Setup Utility does not require an operating system to run. You run the utility by typing the Del or Delete key while the system is starting up to brings up the utility's main screen.

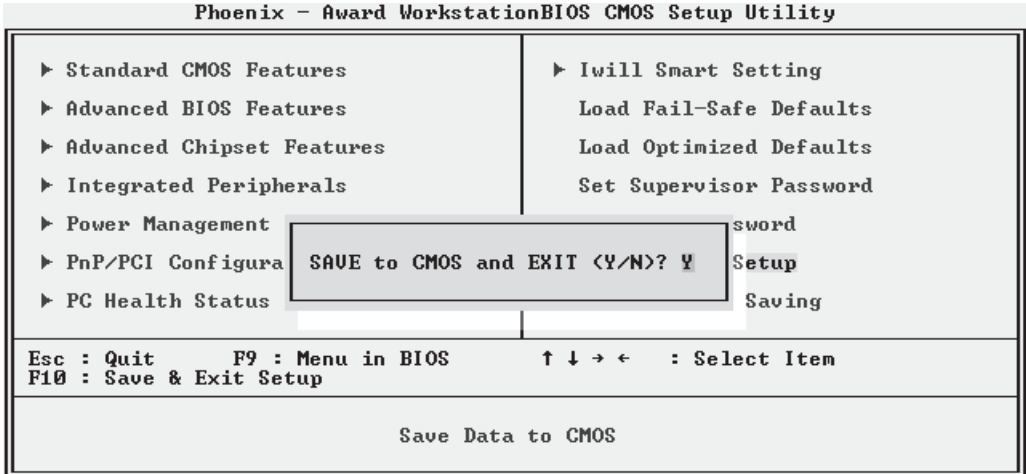
There are two sets of defaults listed, Optimized and Fail-Safe. The Fail-Safe Defaults are a minimum configuration set for use by technicians when troubleshooting system problems. The Optimized Defaults are what the system normally operates on. If a corrupted system configuration record caused the problem you experienced, once you load the Optimized Defaults and reboot, the system should function normally. The instructions on the next page illustrate this procedure.

You can easily restore a working system configuration record from the main screen of the CMOS Setup Utility. To do so, do as follows:

1. Select the “Load Optimized Defaults” item.
2. Press the Enter Key. A confirmation message will appear on the screen. Type a “Y” to accept loading the Optimized Default settings. Now make any other settings you need to.



3. Select “Save & Exit Setup” and press the Enter key. A confirmation message will appear. Press the Enter key again to confirm.



The CMOS Setup Utility will close and the system will reboot. The system should then start properly and run normally.

In This Chapter:
Technical Specifications**7: Technical Specifications**

This chapter lists some technical information about this motherboard.

Processor

Dual Xeon mPGA603/604 processors at 400/533 FSB

System Bus: 100MHz or 133MHz

Autodetects CPU type to set external clock and multiplier

Memory

Dual channel PC2100/PC1600 DDR SDRAM

Two pair DIMMs (Four rows)

Support S4EC-D4ED chipkill technology ECC

Unbuffer DIMM

Supports 128Mb/256Mb/512Mb/1Gb/2Gb memory

Supports maximum up to 8GB

Peak memory bandwidth of 4.2GB/s

Chip Set

MCH : E7505, 133 MHz

ICH4 : 266 MB/s

P64H2: 1 GB/s

Graphics

AGP 8X/4X at 1.5V only

AGP 3.0 specification

AGP Pro

PCI

P64H2 to control

Two 64bit PCI-X/100MHz slots (one ZCR)

One 64bit PCI-X/133MHz slots

Two 32bit PCI/33MHz slots

PCI 2.1/2.2 Compliant

PCI Hot Plug 1.0 compliant

PCI-X 1.0 specification compliant

SCSI (DP533-S)

Adaptec AIC-7902 Ultra 320 on board

Zero Channel RAID adapter : Updates onboard SCSI to RAID function after adding Adaptec Nighthawk2 or Skyhawk in the PCI-X 64/100 (ZCR) slot

LAN

Onboard Gigabit LAN

Intel Kenai32(82540EM)

RJ-45 connector

Wake On LAN

IEEE-1394

TI TSB43AB22

Fully support IEEE Std 1394a-2000

Cable port data rate of 100Mbps, 200Mbps and 400Mbps

Two connectors for the supplied port bracket

USB

Four USB 2.0 external ports on the back panel

One internal connector for two front panel USB 2.0 ports

Audio

AC'97 software Sound

Analog Device AD1981A

Support S/PDIF out

General I/O

Two 68-pin SCSI connectors

Two IDE connectors support Ultra DMA 33/ATA66/ATA100

One RJ-45 LAN connector

One Floppy Controller

One COM1 UART connector

One Printer Port

One PS/2 Keyboard

One PS/2 Mouse

One S/PDIF Out

One audio connector to support LINE IN/LINE OUT/MIC IN

One internal IR connector to support SIR

One internal WOL connector

Power

Follows VRM 9.1 spec

VRD design

support Vcore up to 120A

24-Pin system Power Connector, 8-Pin 12V to support VRD

Thermal

Two CPU Fan/thermal

Two System Fan

Other

Supports AC power failure

EATX Form Factor

Support EEB 3.0

8 Layer

Certification

EMI

FCC class B

CE

WHQL:

Windows NT 4.0

Windows 2000

Windows XP

Connector Pinouts**CPU & System Fan Headers:****Pin Assignment**

- 1 Ground
- 2 +12V
- 3 Sense

Front USB Headers:

Pin	Assignment	Pin	Assignment
1	+5V(fused)	2	+5V(fused)
3	USB Data (-)	4	USB Data (-)
5	USB Data (+)	6	USB Data (+)
7	Ground	8	Ground
9	KEY	10	NA

CD-ROM Audio-In Header:

Pin	Assignment
1	Left Channel Input
2	Ground
3	Ground
4	Right Channel Input

Front Audio Header:

Pin	Assignment	Pin	Assignment
1	Mic In	2	Ground
3	Mic Power	4	Audio Power
5	RT Line Out	6	RT Line Out
7	Reserved	8	Key
9	LFT Line Out	10	LFT Line Out

Auxiliary Audio Header:

Pin No.	Assignment
1	Left channel AUX_IN
2	Ground
3	Ground
4	Right channel AUX_IN

IR Header:

Pin No.	Assignment
1	Voltage 5V
2	Key
3	IR_RX
4	GND
5	IR_TX