# SUPER®

## SUPER® X7DBN

# USER'S MANUAL

Revision 1.1a

# Preface

## Introduction

This manual is written for system integrators, PC technicians and knowledgeable PC users. It provides information for the installation and use of the SUPER● X7DBN motherboard. The SUPER● X7DBN supports dual Intel Xeon 64-bit Quad-Core/Dual-Core processors at a front side bus speed of 1333/1066/667 MHz. With dual Xeon 64-bit Quad-Core/Dual-Core processors, the 5000P Chipset, and eight DDR2 FBD 667/533 memory modules built-in, the X7DBN enhances the performance of the motherboards based on the Core microarchitecture while remaining compatible with the 32-bit based software. Key features supported include Virtualization Technology, Execution Trace Cache, Enhanced Intel SpeedStep technology, Advanced Transfer Cache, Streaming SIMD Extensions 3 (SSE3) and Extended Memory 64 Technology (EM64T). These features allow the motherboard to operate at much higher speeds with better power management in safer environments than the traditional motherboards. The X7DBN is ideal for high performance dual-processor (DP) enterprise server/workstation environments. This product is intended to be professionally installed.

## Manual Organization

**Chapter 1** describes the features, specifications and performance of the mainboard and provides detailed information about the chipset.

**Chapter 2** provides hardware installation instructions.  Read this chapter when installing the processor,  memory modules and other hardware components into the system. If you encounter any problems, see **Chapter 3**, which describes troubleshooting procedures for the video, the memory and the system setup stored in the CMOS.

**Chapter 4** includes an introduction to BIOS and provides detailed information on running the CMOS Setup utility.

**Appendix A** provides BIOS POST Codes. **Appendix B** lists Software Installation instructions.

## Conventions Used in the Manual:

Special attention should be given to the following symbols for proper installation and to prevent damage done to the components or injury to yourself:

**Danger/Caution:** Instructions to be strictly followed to prevent catastrophic system failure or to avoid bodily injury.

**Warning:** Important information given to ensure proper system installation or to prevent damage to the components.

**Note:** Additional Information given to differentiate various models or to ensure correct system setup.

# Table of Contents

## Chapter 3: Troubleshooting

## Chapter 4: BIOS

## Appendices:

# Chapter 1

# Introduction

## 1-1    Overview

### Checklist

Congratulations on purchasing your computer motherboard from an acknowledged leader in the industry.  Supermicro boards are designed with the utmost attention to detail to provide you with the highest standards in quality and performance. Check that the following items have all been included with your motherboard.  If anything listed here is damaged or missing, contact your retailer.

All the following items are included in the retail box.

One (1) Supermicro Mainboard

One (1) ribbon cable for IDE devices (CBL-0036L-02)

One (1) Serial Port cable (CBL-010L-01)

One (1) USB cable (CBL-0083L)

One (1) floppy ribbon cable (CBL-0022L)

Six (6) SATA cables (CBL-0044L)

One (1) I/O backpanel shield (CSE-PT07L)

One (1) Supermicro CD containing drivers and utilities

One (1) User's/BIOS Manual

# Contacting Supermicro

## Headquarters

| | |
|---|---|
| Address: | Super Micro Computer, Inc. |
| | 980 Rock Ave. |
| | San Jose, CA 95131 U.S.A. |
| Tel: | +1 (408) 503-8000 |
| Fax: | +1 (408) 503-8008 |
| Email: | marketing@supermicro.com (General Information) |
| | support@supermicro.com (Technical Support) |
| Web Site: | www.supermicro.com |

## Europe

| | |
|---|---|
| Address: | Super Micro Computer B.V. |
| | Het Sterrenbeeld 28, 5215 ML |
| | 's-Hertogenbosch, The Netherlands |
| Tel: | +31 (0) 73-6400390 |
| Fax: | +31 (0) 73-6416525 |
| Email: | sales@supermicro.nl (General Information) |
| | support@supermicro.nl (Technical Support) |
| | rma@supermicro.nl (Customer Support) |

## Asia-Pacific

| | |
|---|---|
| Address: | Super Micro, Inc. |
| | 4F, No. 232-1 Liancheng Road |
| | Chung-Ho 235, Taipei Hsien, Taiwan, R.O.C. |
| Tel: | +886-(2) 8226-3990 |
| Fax: | +886-(2) 8226-3991 |
| Web Site: | www.supermicro.com.tw |

Technical Support:

| | |
|---|---|
| Email: | support@supermicro.com.tw |
| Tel: | 886-2-8228-1366, ext.132 or 139 |

**SUPER●** **X7DBN Image**
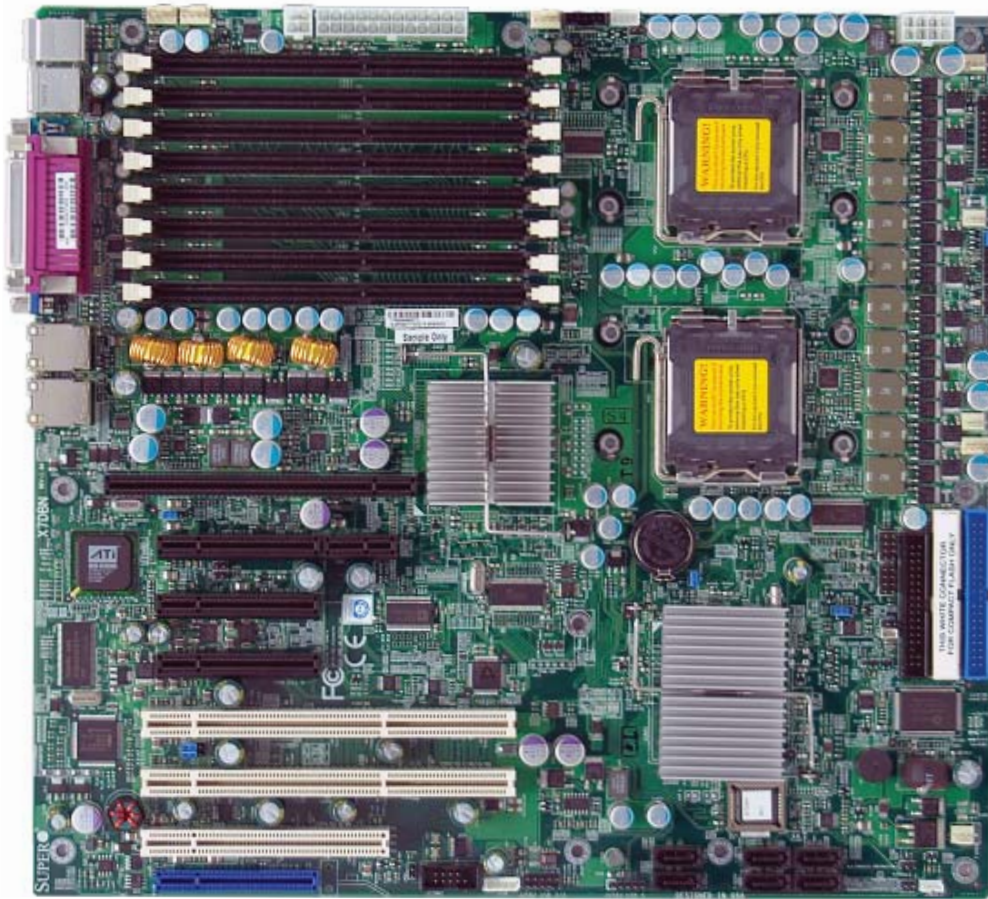


**(Note:** The drawings and pictures shown in this manual were based on the latest PCB Revision available at the time of publishing of the manual. The motherboard you've received may or may not look exactly the same as the graphics shown in the manual.)

## SUPER● X7DBN Motherboard Layout

(not drawn to scale)
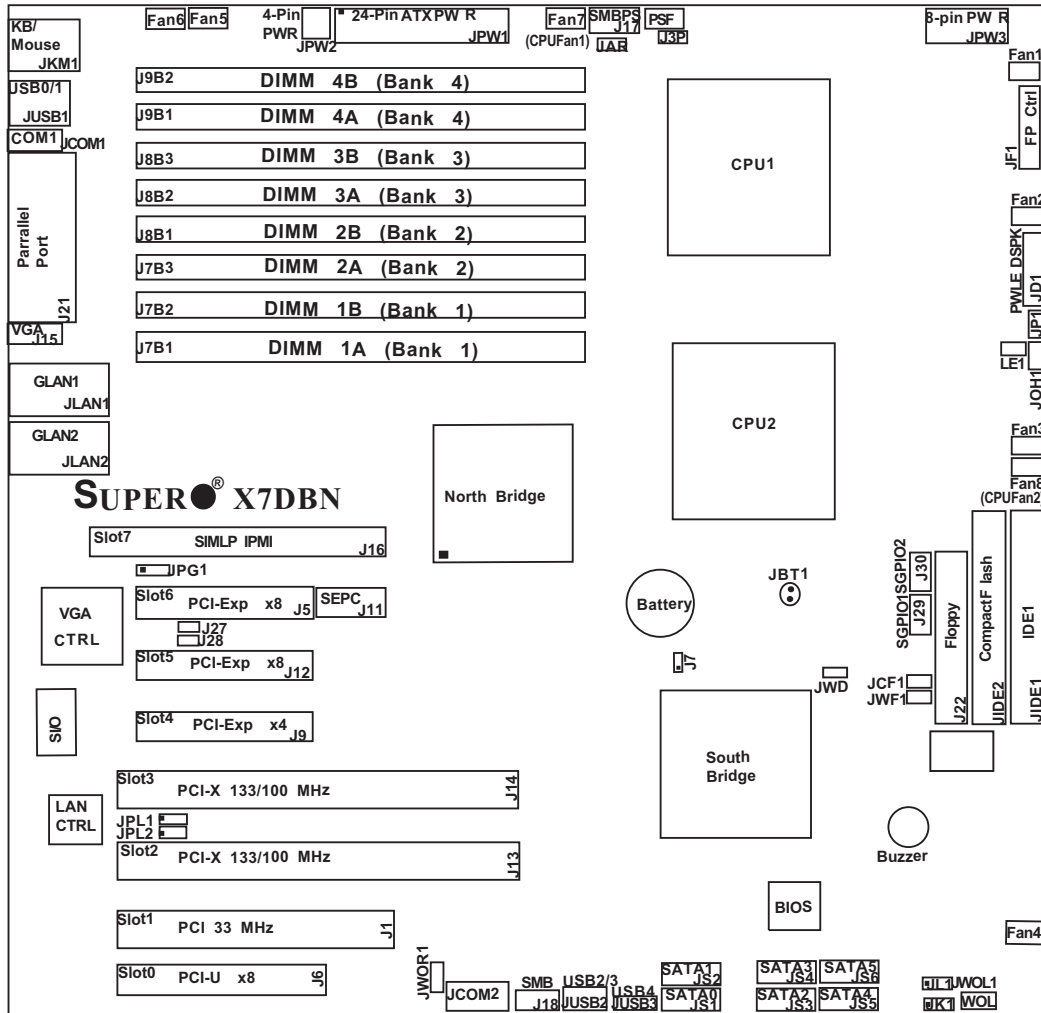


**Notes**

1. Jumpers not indicated are for test purposes only.

2. See Chapter 2 for detailed information on jumpers, I/O ports and JF1 front panel connections.

3. "▪" indicates the location of Pin 1.

4. PCI-X slots can support up to 133 MHz when only one PCI-X card is installed in either Slot 2 or Slot 3. However, when both slots are populated, both Slot 2 and Slot 3 can support up to 100MHz.

5. SEPC: Supermicro Enhanced Power Connector, specially designed to support Supermicro 2U Riser Card only.

6. When LE1 is on, make sure to unplug the power cable before removing or installing components.

# Quick Reference ( X7DBN)

| <u>Jumper</u> | <u>Description</u> | <u>Default Setting</u> |
|---|---|---|
| J27, J28 | $I^2C$ Bus to PCI-X/PCI-E Slots | Open (Disabled) |
| J3P | 3rd PWR Failure Detect | Off (Disabled) |
| JBT1 | CMOS Clear | See Chapter 2 |
| JCF1 | Compact Card Master/Slave Select | Off (Slave) |
| JPG1 | VGA Enable | Pins 1-2 (Enabled) |
| JPL1/ JPL2 | GLAN1/GLAN2 Enable | Pins 1-2 (Enabled) |
| JWD | Watch Dog | Pins 1-2 (Reset) |

| <u>Connector</u> | <u>Description</u> |
|---|---|
| ATX PWR (JPW1) | Primary 24-Pin ATX PWR Connector |
| Aux. PWR/CPU PWR | +12V 4-pin PWR (JWP2)/+12V 8-pin PWR(JPW3) |
| Alarm Reset (JAR) | Alarm Reset Off (Normal) |
| Chassis Intrusion (JL1) | Chassis Intrusion Header |
| COM1/COM2 | COM1(JCOM1)/COM2(JCOM2) Serial Port Connectors |
| Compact PWR (JWF1) | Compact Card PWR Connector (*Used if JCF1 is on.) |
| DIMM#1A-DIMM#4B | Memory FBD DDRII Slots |
| FAN 1-8 | Fans 1-8 (Fans7/8: CPU Fans, Fans1-6: Chassis Fans) |
| Floppy (J22) | Floppy Disk Drive Connector |
| FP CTRL (JF1) | Front Control Panel Connector |
| GLAN 1/2 (JLAN1/2) | G-bit Ethernet Ports 1/2 |
| IDE1/IDE2 (*Note) | IDE1 Hard Drive (JIDE1)/Compact Flash Card (JIDE2) |
| Keylock (JK1) | Keylock Header |
| OH LED (JOH1) | Overheat LED |
| Parallel (J21) | Parallel (Printer) Port |
| PSF | Power Supply Failure (See Chapter 2) |
| PWR LED (LE1) | PWR LED Indicator (*Note 6 on Page 1-4) |
| PWR LED/SPKR (JD1) | PWR LED(pins1-3)/SpeakerHeader (pins 4-7) |
| PWR SMB (J17) | Power System Management ($I^2C$) Header |
| SATA0-SATA5 (JS1-5) | ATA 0-5 Connectors |
| SGPIO 1/2(J29,J30) | Serial General Purpose Input/Output Headers |
| SMB (J18) | System Management Bus Header |
| Slot 0 (J6) | PCI-U x8 Slot |
| Slot 1 (J1) | PCI-33 MHz Slot |
| Slot 2/Slot3 (J13/J14) | PCI-X 133/100MHz (*Note 4 on Page 1-4) |
| Slot 4/Slot 5 (J9/J12) | PCI-Express x4 slot (Slot 4)/PCI-Exp. x8 Slot (Slot 5) |
| Slot 6 (J5) + SEPC (J11) | PCI-Express x8 slot + SMC Enhanced PWR Connector |
| Slot 7 | SIM Low Profile IPMI Slot |
| USB 0/1,USB 2/3, USB4 | Back Panel USB 0/1, Front Panel USB 2/3, FP USB4 |
| VGA (J15) | VGA Connector |
| WOL (JWOL1) | Wake-on-LAN Header |
| WOR (JWOR1) | Wake-on-Ring Header |

**Note:** JIDE2 is for Compact Card Use only. For Compact Card to work properly, please enable JCF1 by putting cap on it  and connect JWF1 to a power supply.

## Motherboard Features

**CPU**

• Dual Intel® 64-bit Xeon LGA 771 Quad-Core/Dual-Core processors at a front side bus speed of  1.333 GHz/1.066 GHz/667 MHz with a system clock speed of 333/267 MHz

**Memory**

• Eight 240-pin DIMM sockets with support up to 32 GB DDR2 Fully Buffered (FBD) ECC 667/533 Memory (*See Section 2-3 in Chapter 2 for DIMM Slot Population.)

**Chipset**

• Intel 5000P Chipset, including: the 5000P  Memory Control Hub (MCH) and the Enterprise South Bridge 2 (ESB2).

**Expansion Slots**

• Three PCI-Express slots (*two slots at x8, one slot x4 slots)
• Two 64-bit PCI-X slots (*two PCI-X-133/100 MHz slots)
• One 32-bit PCI slot (* one PCI 32-bit 33 MHz slot)
• One PCI-U slot


**BIOS**

• 8 Mb Phoenix® Flash ROM
• DMI 2.3, PCI 2.2, ACPI 1.0/2.0, Plug and Play (PnP), USB Keyboard support, SMBIOS 2.3

**PC Health Monitoring**

• Onboard voltage monitors for CPU cores, chipset voltage, +3.3V, +5V, +12V, −12V, +3.3V standby, +5V standby and VBATT.
• Fan status monitor with firmware control
• CPU/chassis temperature monitors
• Platform Environment Control Interface (PECI) ready
• CPU fan auto-off in sleep mode
• CPU slow-down on temperature overheat
• CPU thermal trip support for processor protection, power LED
• Power-up mode control for recovery from AC power loss
• Auto-switching voltage regulator for CPU cores
• System overheat/Fan Fail LED Indicator and control
• Chassis intrusion detection
• System resource alert via Supero Doctor III

### ACPI Features

- Slow blinking LED for suspend state indicator
- Main switch override mechanism
- ACPI/ACPM Power Management
- Keyboard Wakeup from Soft-off

### Onboard I/O

- Six SATA ports (w/support of RAID 0, 1,10 and 5)
- One SIMLP IPMI socket
- Intel 82563 EB Ethernet controller supporting two Giga-bit LAN ports
- Two EIDE Ultra DMA/100 bus master interfaces supporting one IDE (the blue slot) and one Compact Flash card (the blue slot)
- Two SGPIO (Serial General Purpose Input/Output) headers
- One floppy port interface
- Two COM ports (1 header, 1 port)
- One EPP/ECP Parallel Port
- PS/2 mouse and PS/2 keyboard ports
- Up to five USB 2.0 (Universal Serial Bus) (2 ports, 3 Headers)
- ATI ES1000 with 16 MB Graphic Controller
- Super I/O: Winbond W83627HG w/Hardware Monitor support: W83793, HECETA

### Other

- External modem ring-on
- Wake-on-LAN (WOL)
- Wake-on-Ring (WOR)
- Console redirection
- Onboard Fan Speed Control by Thermal Management via BIOS

### CD/Diskette Utilities

- BIOS flash upgrade utility and device drivers

### Dimensions

- 13.00" x 12.00" (330.20 x 304.80 mm)
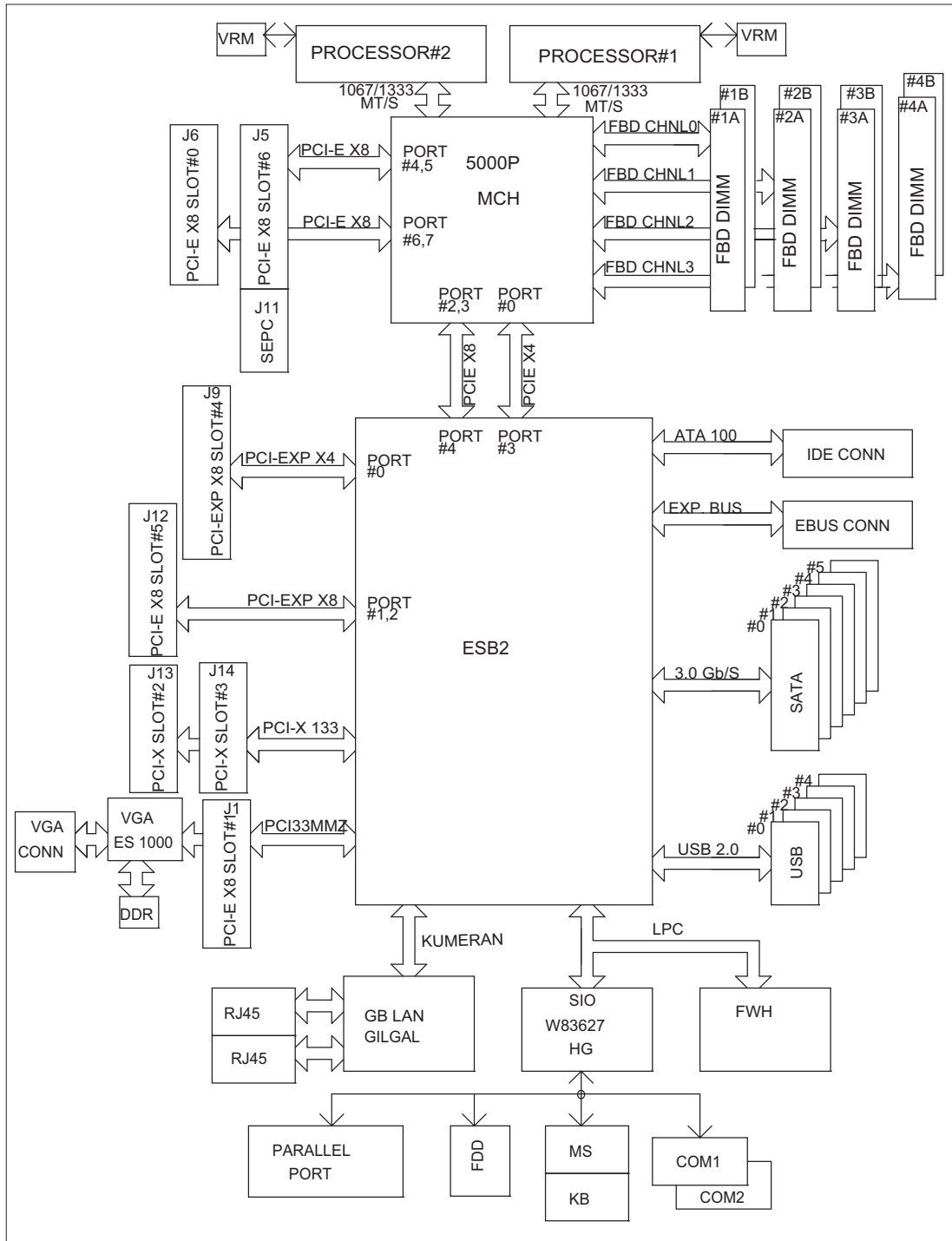
**Block Diagram of the 5000P Chipset**

**Note:** This is a general block diagram. Please see the previous Motherboard Features pages for details on the features of each motherboard.

## 1-2   Chipset Overview

Built upon the functionality and the capability of the 5000P Chipset, the X7DBN motherboard provides the performance and feature set required for dual processor-based servers with configuration options optimized for communications, presentation, storage, computation or database applications. The 5000P Chipset supports single or dual Xeon 64-bit Quad-Core/Dual-Core processor(s) with front side bus speeds of up to 1.333 GHz. The 5000P Chipset consists of the 5000P Memory Controller Hub (MCH) and the Enterprise South Bridge 2 (ESB2).

The 5000P MCH chip is designed for symmetric multiprocessing across two independent front side bus interfaces. Each front side bus uses a 64-bit wide, 1333 MHz data bus that transfers data at 10.7 GB/sec. In addition, the 5000P chipset offers a wide range of  RAS features, including memory interface ECC, x4/x8 Single Device Data Correction, CRC, parity protection, memory mirroring and memory sparing.

**The Xeon Quad-Core/Dual-Core Processor Features**

Designed to be used with conjunction of the 5000P chipset, the Xeon Quad-Core/Dual-Core Processor provides a feature set as follows:

**The Xeon 5000P Chipset-Core/Dual-Core Processors**

*L1 Cache Size: Instruction Cache (32KB/16KB), Data Cache (32KB/24KB)

*L2 Cache Size: 4MB/2MB (per core)

*Data Bus Transfer Rate: 8.5 GB/s

*Package: FC-LGA6/FC-LGA4, 771 Lands

## 1-3   Special Features

### Recovery from AC Power Loss

BIOS provides a setting for you to determine how the system will respond when AC power is lost and then restored to the system.  You can choose for the system to remain powered off (in which case you must hit the power switch to turn it back on) or for it to automatically return to a power- on state. See the Power Lost Control setting in the Advanced BIOS Setup section. (Default: **Last State**)

## 1-4   PC Health Monitoring

This section describes the PC health monitoring features of the X7DBN.  All have an onboard System Hardware Monitor chip that supports PC health monitoring. CPU cores, chipset voltage, +3.3V, +5V, +12V, −12V, +3.3V standby, +5V standby and VBATT. An onboard voltage monitor will scan these voltages continuously. Once a voltage becomes unstable, a warning is given or an error message is sent to the screen.  Users can adjust the  voltage thresholds to define the sensitivity of the voltage monitor.

### Fan Status Monitor with Firmware Control

The PC health monitor can check the RPM status of the cooling fans. The onboard CPU and chassis fans are controlled by Thermal Management via BIOS (under Hardware Monitoring in the Advanced Setting).

### Environmental Temperature Control

The thermal control sensor monitors the CPU temperature in real time and will turn on the thermal control fan whenever the CPU temperature exceeds a user-defined threshold.  The overheat circuitry runs independently from the CPU.  Once it detects that the CPU temperature is too high, it will automatically turn on the thermal fan control to prevent any overheat damage to the CPU.  The onboard chassis thermal circuitry can monitor the overall system temperature and alert users when the chassis temperature is too high.

### CPU Fan Auto-Off in Sleep Mode

The CPU fan activates when the power is turned on. It continues to operate when the system enters Standby mode. When in sleep mode, the CPU will not run at full power, thereby generating less heat.

### System Resource Alert

This feature is available when used with Supero Doctor III in the Windows OS environment or used with Supero Doctor II in Linux. Supero Doctor is used to notify the user of certain system events.  For example, you can also configure Supero Doctor to provide you with warnings when the system temperature, CPU temperatures, voltages and fan speeds go beyond a pre-defined range.

## 1-5    ACPI Features

ACPI stands for Advanced Configuration and Power Interface. The ACPI specification defines a flexible and abstract hardware interface that provides a standard way to integrate power management features throughout a PC system, including its hardware, operating system and application software. This enables the system to automatically turn on and off peripherals such as CD-ROMs, network cards, hard disk drives and printers. This also includes consumer devices connected to the PC such as VCRs, TVs, telephones and stereos.

In addition to enabling operating system-directed power management, ACPI provides a generic system event mechanism for Plug and Play and an operating system-independent interface for configuration control. ACPI leverages the Plug and Play BIOS data structures while providing a processor architecture-independent implementation that is compatible with both Windows 2000 and Windows Server 2003.

### Slow Blinking LED for Suspend-State Indicator

When the CPU goes into a suspend state, the chassis power LED will start blinking to indicate that the CPU is in suspend mode.  When the user presses any key, the CPU will wake-up and the LED will automatically stop blinking and remain on.

### Main Switch Override Mechanism

When an ATX power supply is used, the power button can function as a system suspend button to make the system enter a SoftOff state.  The monitor will be suspended and the hard drive will spin down. Pressing the power button again will cause the whole system to wake-up.  During the SoftOff state, the ATX power supply provides power to keep the required circuitry in the system alive. In case the system malfunctions and you want to turn off the power, just press and hold the power button for 4 seconds. This option can be set in the Power section of the BIOS Setup routine.

### External Modem Ring-On

Wake-up events can be triggered by a device such as the external modem ringing when the system is in the SoftOff state. Note that external modem ring-on can only be used with an ATX 2.01 (or above) compliant power supply.

### Wake-On-LAN (WOL)

Wake-On-LAN is defined as the ability of a management application to remotely power up a computer that is powered off. Remote PC setup, up-dates and asset tracking can occur after hours and on weekends so that daily LAN traffic is kept to a minimum and users are not interrupted. The motherboard has a 3-pin header (WOL) to connect to the 3-pin header on a Network Interface Card (NIC) that has WOL capability. In addition, an onboard LAN controller can also support WOL

without any connection to the WOL header. The 3-pin WOL header is to be used with a LAN add-on card only.

**Note**: Wake-On-LAN requires an ATX 2.01 (or above) compliant power supply.

## 1-6   Power Supply

As with all computer products, a stable power source is necessary for proper and reliable operation. It is even more important for processors that have high CPU clock rates.

The X7DBN can only accommodate 24-pin  ATX power supplies. Although most power supplies generally meet the specifications required by the CPU, some are inadequate. In addition, the 12V 4-pin power supply - is also required to ensure adequate power supply to the system.  Also your power supply must supply 1.5A for the Ethernet ports.

**NOTE:** The + 12V 8-pin Aux. Power Connector is also required to support Intel 64-bit CPUs. Failure to provide this extra power will result in CPU PWR Failure. See Section 2-5 for details on connecting the power supply.

It is strongly recommended that you use a high quality power supply that meets ATX power supply Specification 2.02 or above. It must also be SSI compliant (info at http://www.ssiforum.org/). Additionally, in areas where noisy power transmission is present, you may choose to install a line filter to shield the computer from noise. It is recommended that you also install a power surge protector to help avoid problems caused by power surges.

## 1-7   Super I/O

The disk drive adapter functions of the Super I/O chip include a floppy disk drive controller that is compatible with industry standard 82077/765, a data separator, write pre-compensation circuitry, decode logic, data rate selection, a clock generator, drive interface control logic and interrupt and DMA logic. The wide range of functions integrated onto the Super I/O greatly reduces the number of components required for interfacing with floppy disk drives. The Super I/O supports 360 K, 720 K, 1.2 M, 1.44 M or 2.88 M disk drives and data transfer rates of 250 Kb/s, 500 Kb/s or 1 Mb/s. It also provides two high-speed, 16550 compatible serial communication ports (UARTs). Each UART includes a 16-byte send/receive FIFO, a programmable baud rate generator, complete modem control capability and a processor interrupt system.  Both UARTs provide legacy speed with baud rate of up to 115.2 Kbps as well as an advanced speed with baud rates of 250 K, 500 K, or 1 Mb/s, which support higher speed modems.

The Super I/O supports one PC-compatible printer port (SPP), Bi-directional Printer Port (BPP) , Enhanced Parallel Port (EPP) or Extended Capabilities Port (ECP).

The Super I/O provides functions that comply with ACPI (Advanced Configuration and Power Interface), which includes support of legacy and ACPI power management through an SMI or SCI function pin.  It also features auto power management to reduce power consumption.

**Notes**

# Chapter 2

# Installation

## 2-1   Static-Sensitive Devices

Electro-Static-Discharge (ESD) can damage electronic components.  To prevent damage to your system board, it is important to handle it very carefully.  The following measures are generally sufficient to protect your equipment from ESD.

### Precautions

• Use a grounded wrist strap designed to prevent static discharge.
• Touch a grounded metal object before removing the board from the antistatic bag.
• Handle the board by its edges only; do not touch its components, peripheral chips, memory modules or gold contacts.
• When handling chips or modules, avoid touching their pins.
• Put the motherboard and peripherals back into their antistatic bags when not in use.
• For grounding purposes, make sure your computer chassis provides excellent conductivity between the power supply, the case, the mounting fasteners and the motherboard.
• Use only the correct type of onboard CMOS battery as specified by the manufacturer. Do not install the onboard battery upside down to avoid possible explosion.

### Unpacking

The motherboard is shipped in antistatic packaging to avoid static damage.  When unpacking the board, make sure the person handling it is static protected.

## 2-2 Processor and Heatsink Fan Installation

⚠️ *When handling the processor package, avoid placing direct pressure on the label area of the fan.*

**(Notes:** 1. Always connect the power cord last and always remove it before adding, removing or changing any hardware components. Make sure that you install the processor into the CPU socket before you install the CPU heatsink.

2. Intel's boxed Xeon CPU package contains the CPU fan and heatsink assembly. If you buy a CPU separately, make sure that you use only Intel-certified multi-directional heatsink and fan.

3. The Intel Xeon LGA 771 heatsink and fan comes with a push-pin design and no tool is needed for installation.

4. Make sure to install the motherboard into the chassis before you install the CPU heatsink and fan.)

5. When purchasing an LGA 771 CPU or when receiving a motherboard with an LGA 771 CPU pre-installed, make sure that the CPU plastic cap is in place and none of the CPU pins are bent; otherwise, contact the retailer immediately.

6. Refer to the MB Features Section for more details on CPU support.

### Installation of the LGA771 Processor

Socket Clip

Load Plate
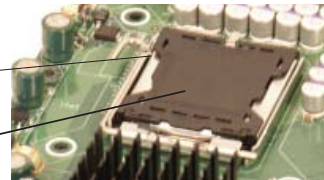
1. Press the socket clip to release the load plate, which covers the CPU socket, from its locking position.

2. Gently lift the socket clip to open the load plate.

Load Plate
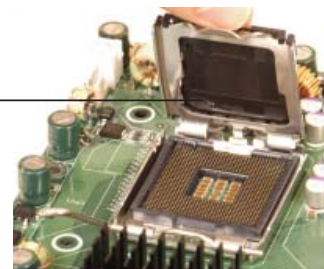
North Center Edge

3. Use your thumb and your index finger to hold the CPU at the north center edge and the south center edge of the CPU.

4. Align CPU Pin1 (the corner marked with a triangle) against the socket corner marked with a triangle cutout.

South Center Edge

gold dot

Socket Key (Socket Notch)

CPU Key (semi-circle cutout) below the circle.

5. Align the CPU key that is the semi-circle cutout below a gold dot against the socket key, the notch on the same side of the triangle cutout on the socket.

6. Once aligned, carefully lower the CPU straight down to the socket. (Do not drop the CPU on the socket or move the CPU horizontally or vertically. Do not rub the CPU against the surface or any pins of the socket to avoid damaging the CPU or the socket.)

Corner with a triangle cutout

CPU Pin1

7. With the CPU inside the socket, inspect the four corners of the CPU to ensure that the CPU is properly installed.

Socket clip

8. Use your thumb to gently push the socket clip down to the clip lock.

CPU in the CPU socket

9. If the CPU is properly installed into the socket, the plastic cap will be automatically released from the load plate when the clip is pushed in the clip lock. Remove the plastic cap from the motherboard.

⚠ (**Warning**: Please save the plastic cap. The motherboard must be shipped with the plastic cap properly installed to protect the CPU socket pins. Shipment without the plastic cap properly installed will cause damage to the socket pins.)
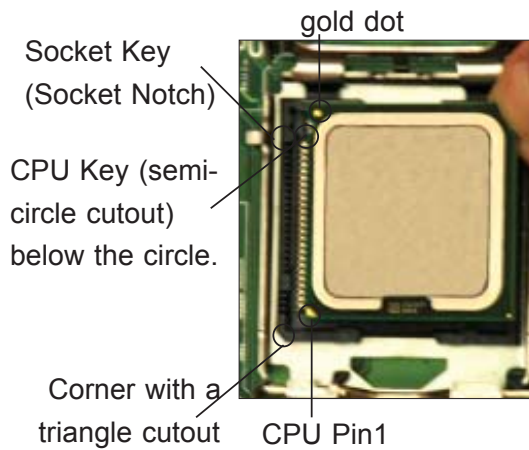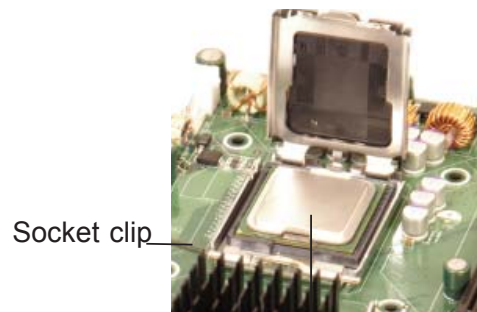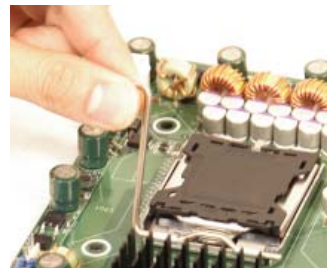
Plastic cap is released from the load plate if the CPU is properly installed.
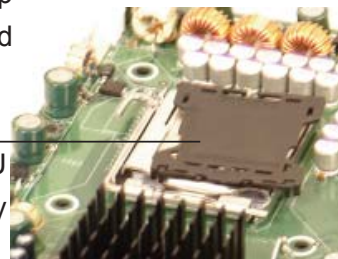
## Installing the Heatsink

**CEK Heatsink Installation**

CEK Passive Heatsink

1. Do not apply any thermal grease to the heatsink or the CPU die-the required amount has already been applied.

2. Place the heatsink on top of the CPU so that the four mounting holes are aligned with those on the retention mechanism.

Screw#1        Screw#2

3. Screw in two diagonal screws (ie the #1 and the #2 screws) until just snug (-do not fully tighten the screws to avoid possible damage to the CPU.)

4. Finish the installation by fully tightening all four screws.
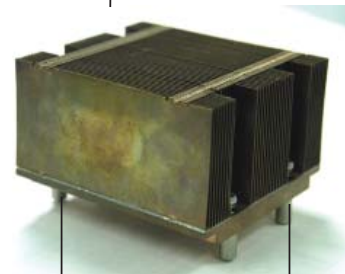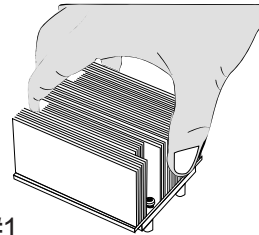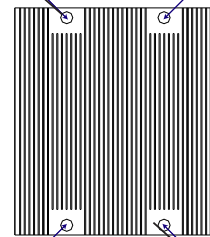
Screw#1

Screw#2

### To Un-install the Heatsink

⚠ **(Warning:** We do not recommend that the CPU or the heatsink be removed. However, if you do need to uninstall the heatsink, please follow the instructions below to uninstall the heatsink to prevent damage done to the CPU or the CPU socket.)

1. Unscrew and remove the heatsink screws from the motherboard in the sequence as show in the picture on the right.
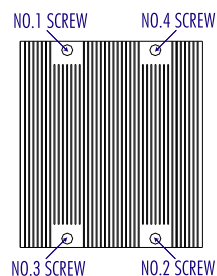


2. Hold the heatsink as shown in the picture on the right and <u>gently</u> wriggle the heatsink to loosen it from the CPU. (Do not use excessive force when wriggling the heatsink!!)

3. Once the CPU is loosened, remove the heatsink from the CPU socket.
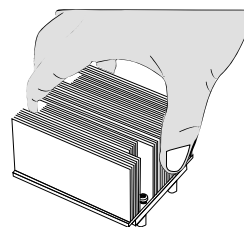


4. Clean the surface of the CPU and the heatsink to get rid of the old thermal grease. Reapply the proper amount of thermal grease on the surface before you re-install the CPU and the heatsink.

### Mounting the Motherboard in the Chassis

All motherboards have standard mounting holes to fit different types of chassis. Make sure that the locations of all the mounting holes for both motherboard and chassis match. Make sure that the metal standoffs click in or are screwed in tightly. Then, use a screwdriver to secure the motherboard onto the motherboard tray. (**Note**: some components are very close to the mounting holes. Please take precautionary measures to prevent damage done to these components when you install the motherboard to the chassis.)

## 2-3   Installing DIMMs

**Note**: Check the Supermicro web site for recommended memory modules.

---

### CAUTION

**STOP**

Exercise extreme care when installing or removing DIMM modules to prevent any possible damage.  Also note that the memory is interleaved to improve performance (see step 1).

---

### DIMM Installation

1. Insert the desired number of DIMMs into the memory slots, starting with DIMM #1A.  The memory scheme is interleaving, so you must install two modules at a time, beginning with DIMM #1A, then DIMM #2A and so on. (See the Memory Installation Table Below.)

2. Insert each DIMM module vertically into its slot.  Pay attention to the notch along the bottom of the module to prevent inserting the DIMM module incorrectly.

3. Gently press down on the DIMM module until it snaps into place in the slot. Repeat for all modules (see step 1 above).

**Memory Support**

The X7DBN supports up to 32 GB fully buffered (FBD) ECC DDR2  533/667 in 8 DIMMs. Populating DIMM modules with pairs of memory modules of the same size and same type **will result in Interleaved Memory which will increase memory performance.**

**\*Note 1**: Due to OS limitations, some operating systems may not show more than 4 GB of memory.

| Optimized DIMM Population Configurations | | | | | | | |
|---|---|---|---|---|---|---|---|
| | **Branch0** | | | | **Branch1** | | |
| **Number of DIMMs** | **Bank 1 (Channel 0)** | | **Bank 2 (Channel 1)** | | **Bank 3 (Channel 2)** | | **Bank 4 (Channel 3)** | |
| 2 DIMMs | 1A | ------ | 2A | ------ | ------ | ------ | ------ | ------ |
| 4 DIMMs | 1A | ------ | 2A | ------ | 3A | ------ | 4A | ------ |
| 6 DIMMs | 1A | 1B | 2A | 2B | 3A | ------ | 4A | ------ |
| 8 DIMMs | 1A | 1B | 2A | 2B | 3A | 3B | 4A | 4B |

(*<u>**Notes: i.**</u> DIMM slot# specified: DIMM slot to be populated; "---": DIMM slot not to be populated. **ii.** Both FBD 533 MHz and 667MHz DIMMs are supported; however, you need to use the memory modules of the same speed and of the same type on a motherboard.  **iii.** Interleaved memory is supported when pairs of DIMM modules are installed. To optimize memory performance, please install pairs of DIMMs in **<u>both Branch 0 and Branch 1</u>**.  **iv.** For memory to work properly, you need to follow the restrictions listed above. )

**Note 2**: Due to memory allocation to system devices, memory  remaining  available for operational use will be reduced when 4 GB of RAM is used. The reduction in memory availability is disproportional. (Refer to the following Memory Availability Table for details.)

| Possible System Memory Allocation & Availability | | |
|---|---|---|
| System Device | Size | Physical Memory Remaining (-Available) (4 GB Total System Memory) |
| Firmware Hub flash memory (System BIOS) | 1 MB | 3.99 |
| Local APIC | 4 KB | 3.99 |
| Area Reserved for the chipset | 2 MB | 3.99 |
| I/O APIC (4 Kbytes) | 4 KB | 3.99 |
| PCI Enumeration Area 1 | 256 MB | 3.76 |
| PCI Express (256 MB) | 256 MB | 3.51 |
| PCI Enumeration Area 2 (if needed) -Aligned on 256-MB boundary- | 512 MB | 3.01 |
| VGA Memory | 16 MB | 2.85 |
| TSEG | 1 MB | 2.84 |
| Memory available to OS and other applications | | 2.84 |

## Installing and Removing DIMMs
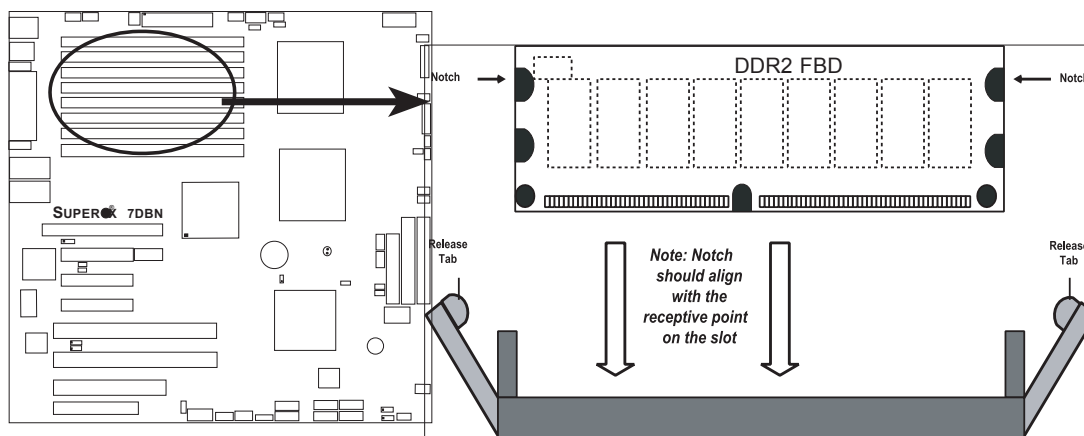


**To Install:** Insert module vertically and press down until it snaps into place.  Pay attention to the alignment notch at the bottom.

**To Remove:**
Use your thumbs to gently push the release tabs near both ends of the module.  This should release it from the slot.
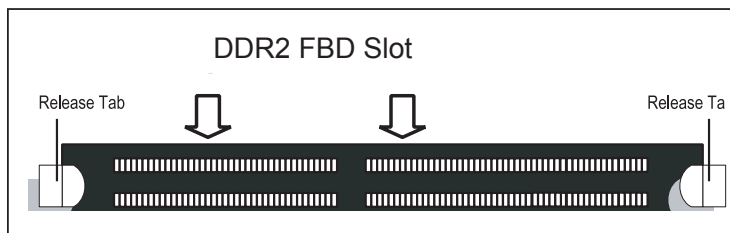
## 2-4   Control Panel Connectors/IO Ports

The I/O ports are color coded in conformance with the PC 99 specification.  See Figure 2-3 below for the colors and locations of the various I/O ports.

### A. Back Panel Connectors/IO Ports
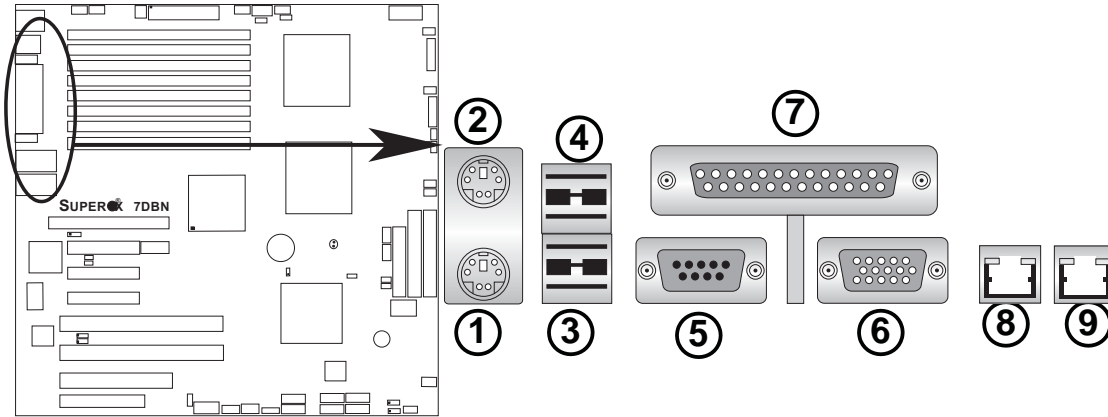


**Back Panel I/O Port Locations and Definitions**

**Back Panel Connectors**

1. Keyboard (Purple)
2. PS/2 Mouse (Green)
3. Back Panel USB Port 0
4. Back Panel USB Port 1
5. COM Port 1 (Turquoise)
6. VGA Port (Blue)
7. Parallel Port (Printer)
8. Gigabit LAN 1
9. Gigabit LAN 2

(*See Section 2-5 for details.)

## B. Front Control Panel

JF1 contains header pins for various buttons and indicators that are normally located on a control panel at the front of the chassis. These connectors are designed specifically for use with Supermicro server chassis. See the drawings below for the descriptions of the various control panel buttons and LED indicators. Refer to the following section for descriptions and pin definitions.

**JF1 Header Pins**

| | 20 | 19 | |
|---|---|---|---|
| Ground | ○ | ○ | NMI |
| X | ○ | ○ | X |
| Power LED | ○ | ○ | Vcc |
| HDD LED | ○ | ○ | Vcc |
| NIC1 LED | ○ | ○ | Vcc |
| NIC2 LED | ○ | ○ | Vcc |
| OH/Fan Fail LED | ○ | ○ | Vcc |
| PWR Fail LED | ○ | ○ | Vcc |
| Ground | ○ | ○ | Reset — Reset Button |
| Ground | ○ | ○ | PWR — Power Button |
| | 2 | 1 | |

SUPER● 7DBN
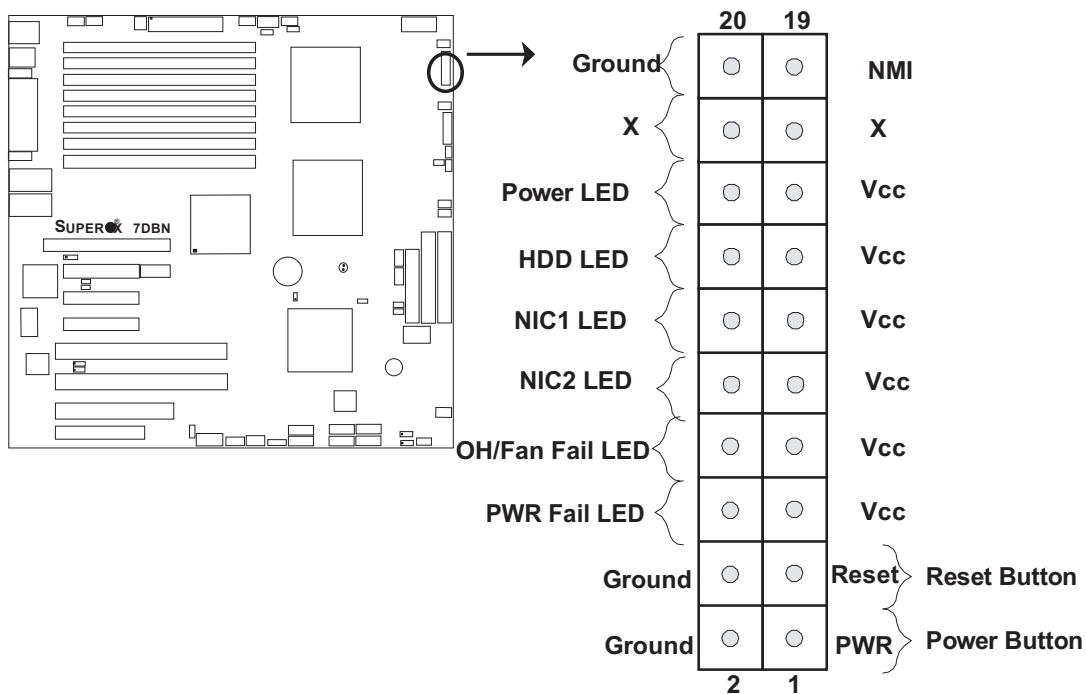
## C. Front Control Panel Pin Definitions

### NMI Button

The non-maskable interrupt button header is located on pins 19 and 20 of JF1. Refer to the table on the right for pin definitions.

| NMI Button Pin Definitions (JF1) | |
|---|---|
| Pin# | Definition |
| 19 | Control |
| 20 | Ground |

### Power LED

The Power LED connection is located on pins 15 and 16 of JF1. Refer to the table on the right for pin definitions.

| Power LED Pin Definitions (JF1) | |
|---|---|
| Pin# | Definition |
| 15 | +5V |
| 16 | Ground |

A. NMI

B. PWR LED
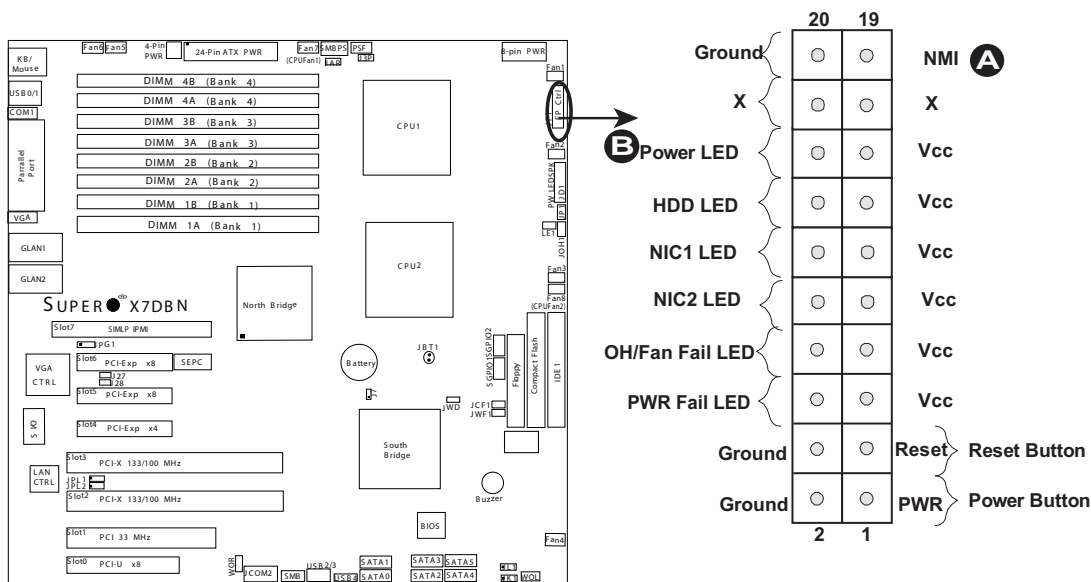
### HDD LED

The HDD LED connection is located on pins 13 and 14 of JF1. Attach the hard drive LED cable here to display disk activity (for any hard drives on the system, including SAS, Serial ATA and IDE). See the table on the right for pin definitions.

| HDD LED Pin Definitions (JF1) | |
|---|---|
| Pin# | Definition |
| 13 | +5V |
| 14 | HD Active |

### NIC1/NIC2 LED Indicators

The NIC (Network Interface Controller) LED connection for GLAN port1 is located on pins 11 and 12 of JF1 and the LED connection for GLAN Port2 is on Pins 9 and 10. Attach the NIC LED cables to display network activity. Refer to the table on the right for pin definitions.

| GLAN1/2 LED Pin Definitions (JF1) | |
|---|---|
| Pin# | Definition |
| 9/11 | Vcc |
| 10/12 | Ground |

A. HDD LED
B. NIC1 LED
C. NIC2 LED
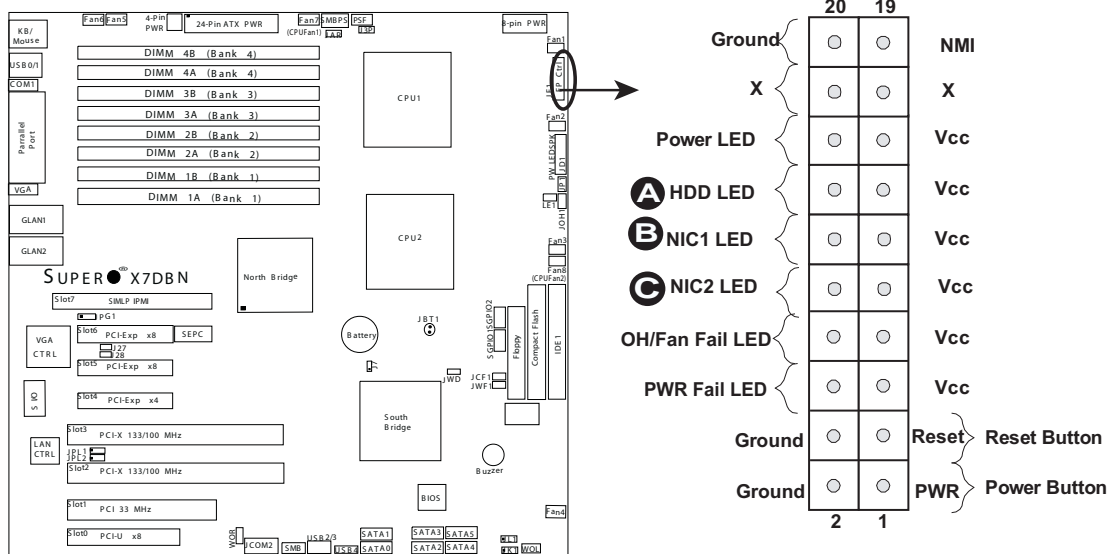
### Overheat/Fan Fail LED (OH)

Connect an LED to the OH/Fan Fail connection on pins 7 and 8 of JF1 to provide advanced warning of chassis overheating or fan failure.  Refer to the table on the right for pin definitions.

| OH/Fan Fail LED Pin Definitions (JF1) | |
|---|---|
| Pin# | Definition |
| 7 | Vcc |
| 8 | Ground |

| OH/Fan Fail Indicator Status | |
|---|---|
| State | Definition |
| Off | Normal |
| On | Overheat |
| Flash-ing | Fan Fail |

### Power Fail LED

The Power Fail LED connection is located on pins 5 and 6 of JF1.  Refer to the table on the right for pin definitions.

| PWR Fail LED Pin Definitions (JF1) | |
|---|---|
| Pin# | Definition |
| 5 | Vcc |
| 6 | Ground |

A. OH/Fan Fail LED

B. PWR Supply Fail

### Reset Button

The Reset Button connection is located on pins 3 and 4 of JF1.  Attach it to the hardware reset switch on the computer case.  Refer to the table on the right for pin definitions.

| Reset Button Pin Definitions (JF1) | |
| --- | --- |
| Pin# | Definition |
| 3 | Reset |
| 4 | Ground |

### Power Button

The Power Button connection is located on pins 1 and 2 of JF1. Momentarily contacting both pins will power on/off the system. This button can also be configured to function as a suspend button (with a setting in the BIOS - see Chapter 4). To turn off the power when set to suspend mode, press the button for at least 4 seconds. Refer to the table on the right for pin definitions.

| Power Button Pin Definitions (JF1) | |
| --- | --- |
| Pin# | Definition |
| 1 | Signal |
| 2 | +3V Standby |

A. Reset Button
B. PWR Button

## 2-5   Connecting Cables

### ATX Power Connector

There are a 24-pin main power sup-
ply connector(JPW1) and an 8-pin
CPU PWR connector (JPW3) on the
motherboard. These power connec-
tors meet the SSI EPS 12V specifica-
tion.  The 4-pin 12V PWR supply is
required to provide adequate power
to the system. See the table on the
right for pin definitions. For the 8-pin
PWR (JPW3), please refer to the item
listed below.

### Processor Power Connector

In addition to the Primary ATX power
connector (above), the 12V 8-pin CPU
PWR connector at JPW3 must also
be connected to your power supply.
See the table on the right for pin
definitions.

| ATX Power 20-pin Connector Pin Definitions | | | |
|------|----------|------|----------|
| Pin# | Definition | Pin # | Definition |
| 13 | +3.3V | 1 | +3.3V |
| 14 | -12V | 2 | +3.3V |
| 15 | COM | 3 | COM |
| 16 | PS_ON | 4 | +5V |
| 17 | COM | 5 | COM |
| 18 | COM | 6 | +5V |
| 19 | COM | 7 | COM |
| 20 | Res (NC) | 8 | PWR_OK |
| 21 | +5V | 9 | 5VSB |
| 22 | +5V | 10 | +12V |
| 23 | +5V | 11 | +12V |
| 24 | COM | 12 | +3.3V |

Required Connection

| 12V 4-pin  Power Con-nector Pin Definitions | |
|------|----------|
| Pins | Definition |
| 1 and 2 | Ground |
| 3 and 4 | +12V |

Required Connection

| 12V 8-pin  Power CPU Connector Pin Definitions | |
|------|----------|
| Pins | Definition |
| 1 through 4 | Ground |
| 5 through 8 | +12V |

A. 24-pin ATX PWR

B. 8-pin Processor PWR

C. 4-pin PWR
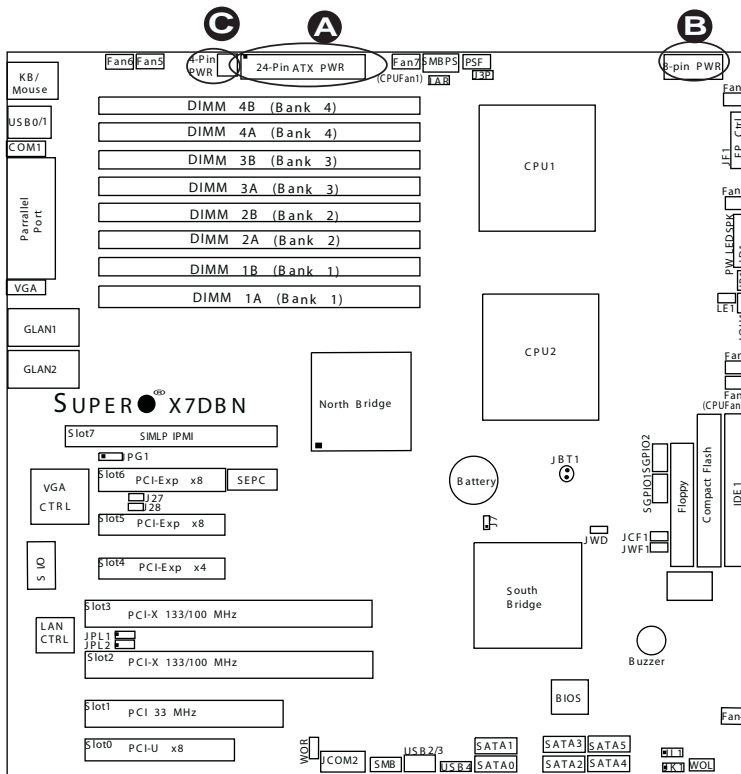
## Universal Serial Bus (USB)

There are five USB 2.0 (Universal Serial Bus) ports/headers on the motherboard. Two of them are Back Panel USB ports (USB#0/1:JUSB1), and the other three are Front Panel USB headers (USB#2/3:JUSB2, USB#4: JUSB3). See the tables on the right for pin definitions.

| Back Panel USB (USB#0/1) | |
|---|---|
| Pin# | Definitions |
| 1 | +5V |
| 2 | PO- |
| 3 | PO+ |
| 4 | Ground |
| 5 | N/A |

| Front Panel USB Pin Definitions | | | |
|---|---|---|---|
| USB#2/4 | | USB#3 | |
| Pin # | Definition | Pin # | Definition |
| 1 | +5V | 1 | +5V |
| 2 | PO- | 2 | PO- |
| 3 | PO+ | 3 | PO+ |
| 4 | Ground | 4 | Ground |
| 5 | Key | 5 | No connection |

## Chassis Intrusion

A Chassis Intrusion header is located at JL1 on the motherboard. Attach the appropriate cable from the chassis to inform you of a chassis intrusion when the chassis is opened.

| Chassis Intrusion Pin Definitions (JL1) | |
|---|---|
| Pin# | Definition |
| 1 | Intrusion Input |
| 2 | Ground |
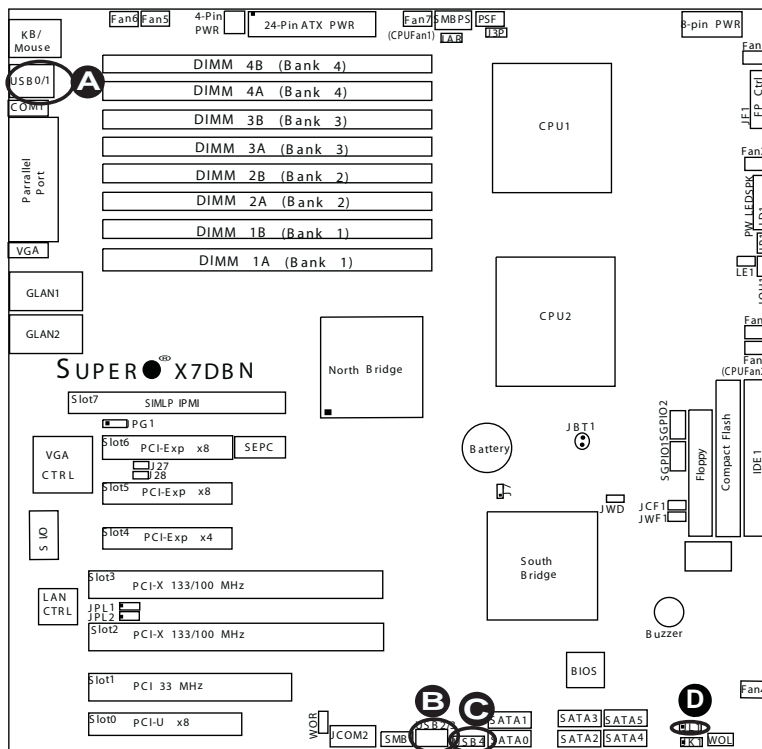


A. Backpanel USB 0-1

B. Front Panel USB 2-3

C. Front Panel USB 4

D. Chassis Intrusion

### Fan Headers

The X7DBN has eight chassis/system fan headers (Fan1 to Fan8) and two CPU Fans (Fans 7/8). (**Note**: all these fans are 4-pin fans. However, Pins 1-3 of the fan headers are backward compatible with the traditional 3-pin fans.) See the table on the right for pin definitions. The onboard fan speeds are controlled by Thermal Management via BIOS Hardware Monitor in the Advanced Setting. **Note**: Default: Disabled, When using Thermal Management setting, please use <u>all</u> 3-pin fans or <u>all</u> 4-pin fans on the motherboard.)

| Fan Header Pin Definitions (Fan1-8) | |
|---|---|
| Pin# | Definition |
| 1 | Ground |
| 2 | +12V |
| 3 | Tachometer |
| 4 | PWR Modulation |

### Keylock

The keyboard lock connection is designated JK1. Utilizing this header allows you to inhibit any actions made on the keyboard, effectively "locking" it.

| Keylock Pin Definitions | |
|---|---|
| Pin# | Definition |
| 1 | Ground |
| 2 | Keylock R-N |



A. Fan 1

B. Fan 2

C. Fan 3

D. Fan 4

E. Fan 5

F. Fan 6

G. Fan 7 (CPU Fan 1)

H. Fan 8 (CPU Fan 2)

I. Keylock
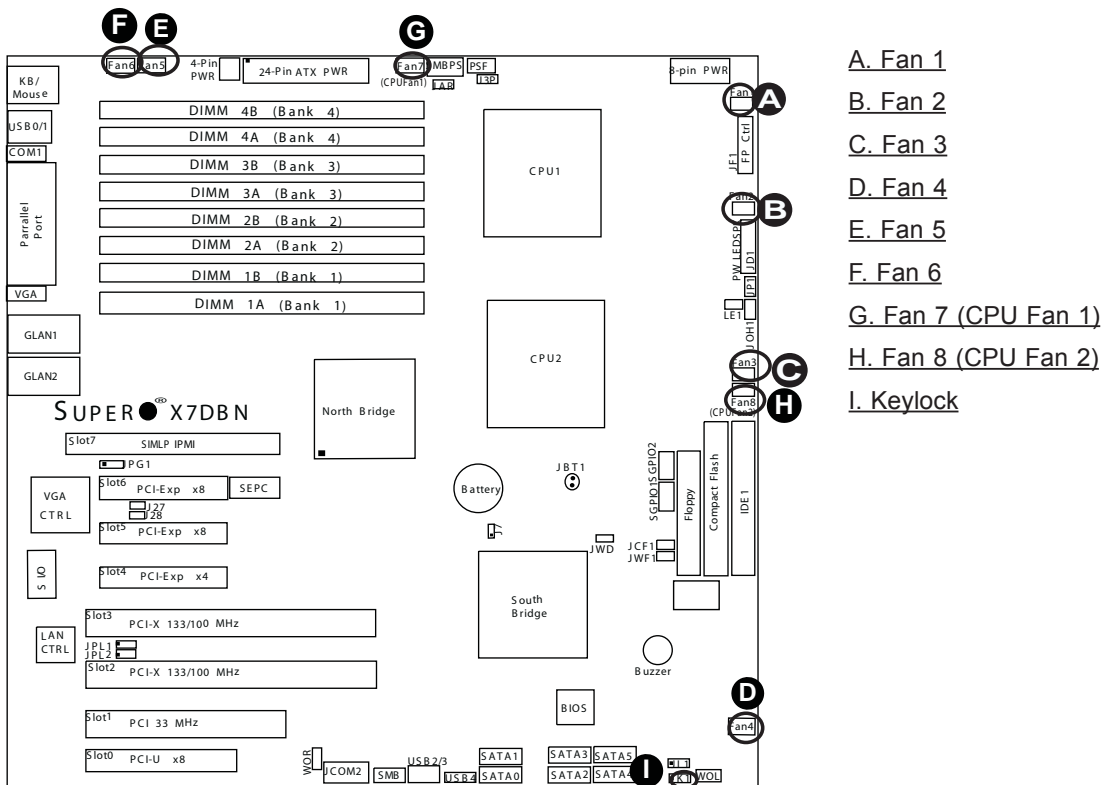
## ATX PS/2 Keyboard and PS/2 Mouse Ports

The ATX PS/2 keyboard and the PS/2 mouse are located at JKM1.  See the table on the right for pin definitions. (The mouse port is above the key-board port.  See the table on the right for pin definitions.)

| Pin# | Definition |
|------|------------|
| **PS/2 Keyboard and Mouse Port Pin Definitions** |
| 1 | Data |
| 2 | NC |
| 3 | Ground |
| 4 | VCC |
| 5 | Clock |
| 6 | NC |

## Serial Ports

COM1 is a connector located on the IO Backpanel and COM2 is a header located  at JCOM2. See the table on the right for pin definitions.

| Pin # | Definition | Pin # | Definition |
|-------|------------|-------|------------|
| **Serial Port Pin Definitions (COM1/COM2)** |
| 1 | CD | 6 | DSR |
| 2 | RD | 7 | RTS |
| 3 | TD | 8 | CTS |
| 4 | DTR | 9 | RI |
| 5 | Ground | 10 | NC |

(Pin 10 is available on COM2 only. NC: No Connection.)
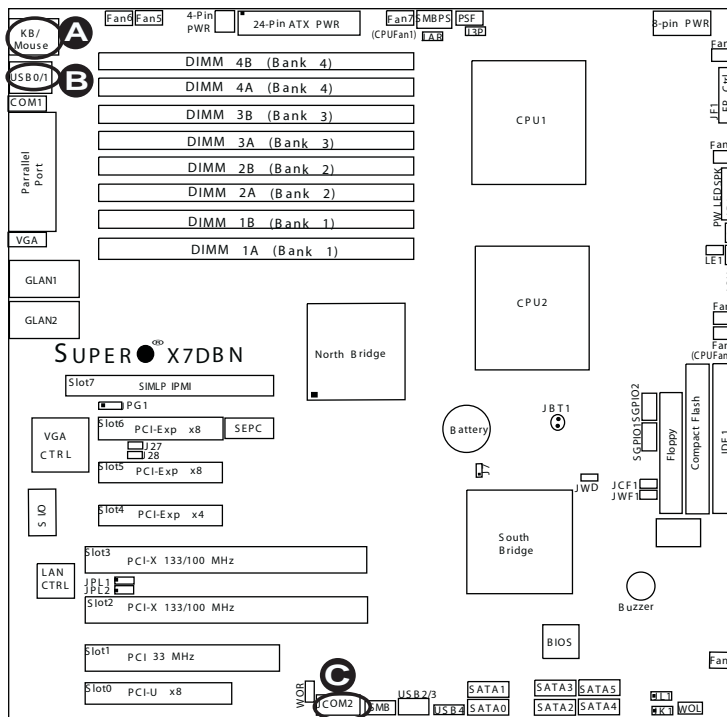
A. Keyboard/Mouse

B. COM1

C. COM2

2-17

## Wake-On-Ring

The Wake-On-Ring header is desig-
nated JWOR1. This function allows
your computer to "wake up" when it re-
ceives an incoming call to the modem
while in the suspend state. See the
table on the right for pin definitions.
You must have a Wake-On-Ring card
and cable to use this feature.

| Wake-On-Ring Pin Definitions | |
|---|---|
| Pin# | Definition |
| 1 | Ground |
| 2 | Wake-up |

## Wake-On-LAN

The Wake-On-LAN header is located
at JWOL1 on the motherboard.  See
the table on the right for pin defini-
tions. (You must also have a LAN card
with a Wake-On-LAN connector and
cable to use this feature.)

| Wake-On-LAN Pin Definitions | |
|---|---|
| Pin# | Definition |
| 1 | +5V Standby |
| 2 | Ground |
| 3 | Wake-up |

A. WOR

B. WOL

2-18
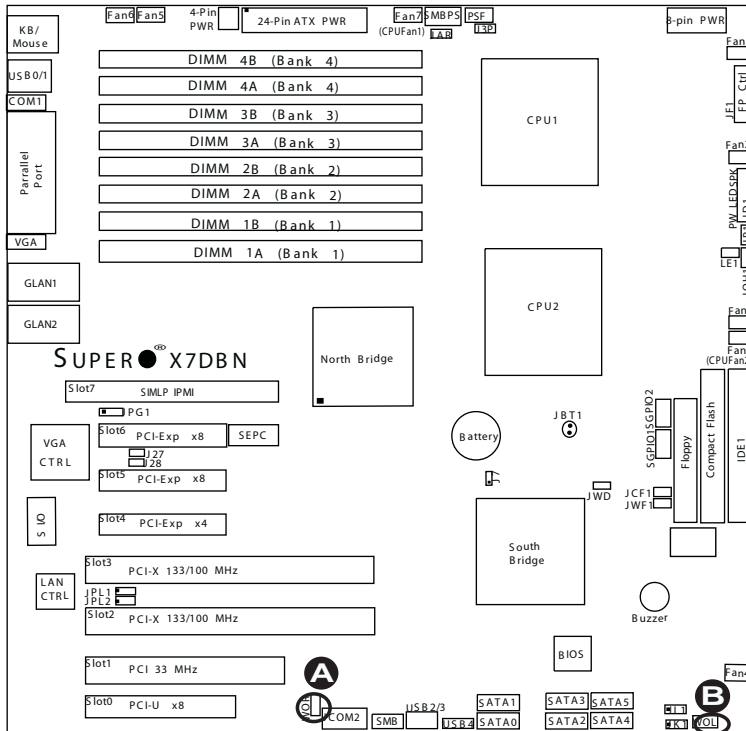
## GLAN 1/2 (Giga-bit Ethernet Ports)

Two G-bit Ethernet ports are desig-
nated JLAN1 and JLAN2 on the IO
backplane. This port accepts RJ45
type cables.

GLAN1        GLAN2

## Power LED/Speaker

On the JD1 header, pins 1-3  are for
a power LED and pins 4-7 are for the
speaker.  See the table on the right
for speaker pin definitions.  **Note**:
The speaker connector pins are for
use with an external speaker.  If you
wish to use the onboard speaker, you
should close pins 6-7 with a jumper.

| Speaker Connector | |
| --- | --- |
| Pin Setting | Definition |
| Pins 6-7 | Internal Speaker |
| Pins 4-7 | External Speaker |

A. GLAN1/2
B. PWR LED/Speaker



2-19
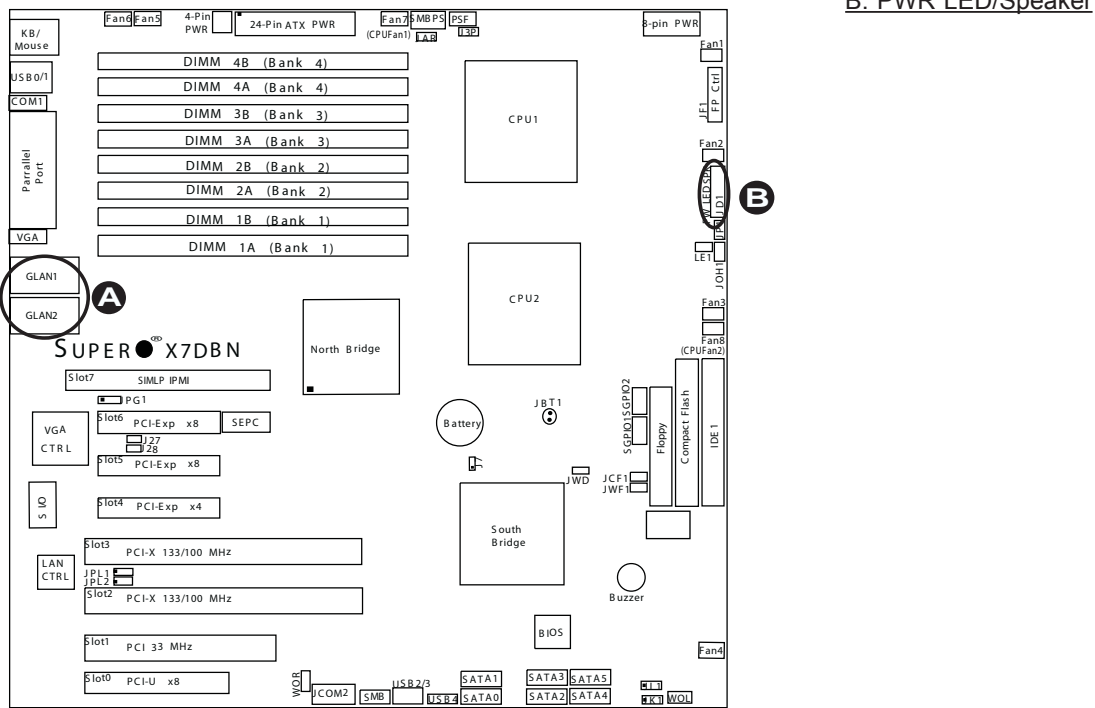
## Power Fault (PWR Supply Failure)

Connect a cable from your power supply to the Power Fail (PSF) header to provide a warning of power supply failure. This warning signal is passed through the PWR_LED pin to indicate of a power failure on the chassis. See the table on the right for pin definitions.

| PWR Supply Fail LED Pin Definitions | |
|---|---|
| Pin# | Definition |
| 1 | PWR 1: Fail |
| 2 | PWR 2: Fail |
| 3 | PWR 3: Fail |
| 4 | Signal: Alarm Reset |

**Note:** This feature is only available when using Supermicro redundant power supplies.

## Alarm Reset

If three power supplies are installed and Alarm Reset (JAR) is enabled, the system will notify you when any of the three power modules fails. Connect JAR to a micro-switch to enable you to turn off the alarm that is activated when a power module fails. See the table on the right for pin definitions.

| Alarm Reset | |
|---|---|
| Pin Setting | Definition |
| Pin 1 | Ground |
| Pin 2 | +5V |
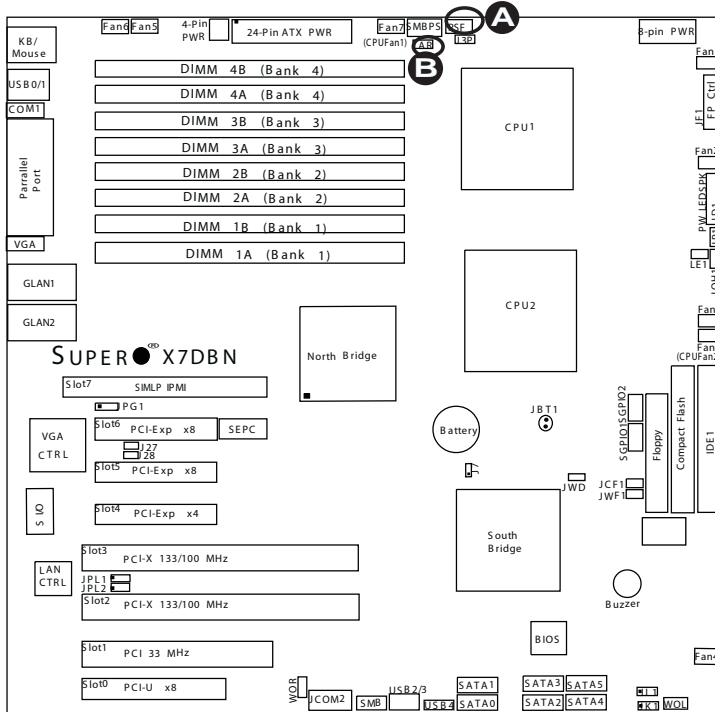


A. Power Fault
B. Alarm Reset

## Overheat LED/Fan Fail (JOH1)

The JOH1 header is used to connect an LED to provide warning of chassis overheating. This LED will blink to indicate a fan failure. Refer to the table on right for pin definitions.

| Overheat LED Pin Definitions | |
|------|------------|
| Pin# | Definition |
| 1 | 5vDC |
| 2 | OH Active |

| OH/Fan Fail LED | |
|----------|----------|
| State | Message |
| Solid | Overheat |
| Blinking | Fan Fail |

## SMB

A System Management Bus header is located at J18. Connect the appropriate cable here to utilize SMB on your system.

| SMB Header Pin Definitions | |
|------|---------------|
| Pin# | Definition |
| 1 | Data |
| 2 | Ground |
| 3 | Clock |
| 4 | No Connection |
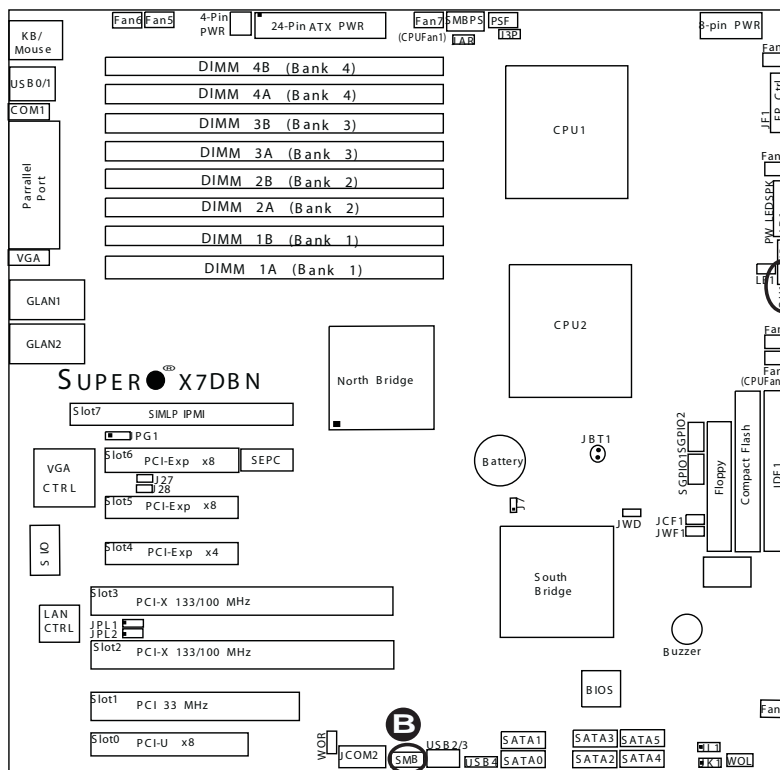


A. OH/Fan Fail LED

B. SMB

## Power SMB (I²C) Connector

Power SMB (I²C) Connector (J17) monitors the status of PWR supply, fan and system temperature. See the table on the right for pin definitions.

| PWR SMB Pin Definitions | |
|---|---|
| Pin# | Definition |
| 1 | Clock |
| 2 | Data |
| 3 | PWR Fail |
| 4 | Ground |
| 5 | +3.3V |

## VGA Connector

A VGA connector (J15) is located next to the COM1 port on the IO backplane. Refer to the board layout below for the location.
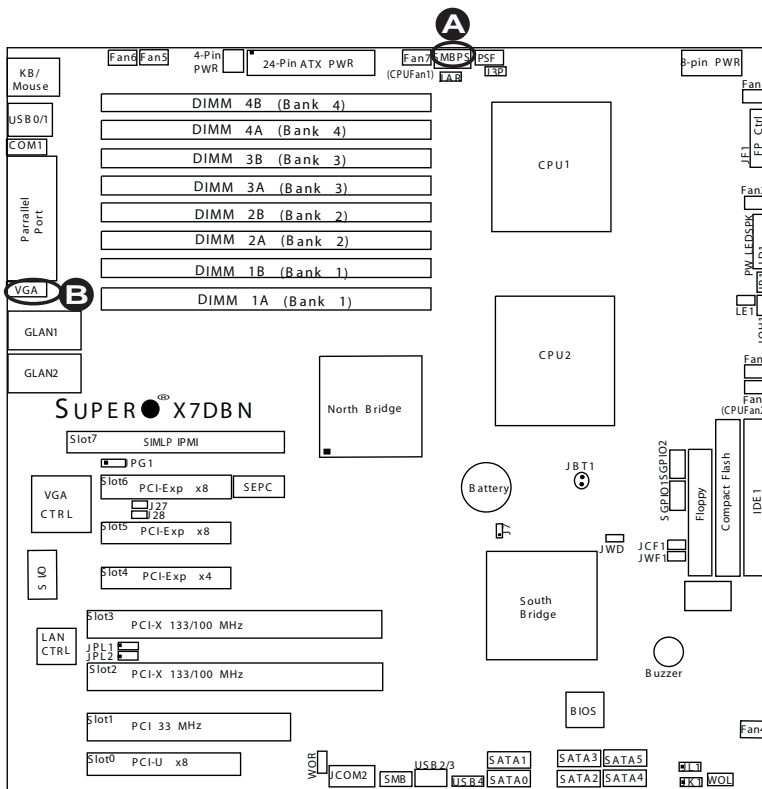
A. PWR SMB

B. VGA

## Compact Flash Card PWR Connector

A Compact Flash Card Power Connector is located at JWF1. For the Compact Flash Card to work properly, you will need to connect the Compact Flash Card power cable to JWF1 first and then enable the Compact Flash Connector by closing JCF1. Refer to the board layout below for the location.

| Compact Flash Card PWR Connector | |
|---|---|
| Jumper | Definition |
| On | Compact Flash Power On |
| Off | Compact Flash Power Off |

## SGPIO Headers

There are two SGPIO (Serial General Purpose Input/Output) headers (J29, J30) located on the motherboard. These headers support serial link interfaces for the onboard SATA and SAS connectors. See the table on the right for pin definitions. Refer to the board layout below for the location.

| SGPIO Pin Definitions | | | |
|---|---|---|---|
| Pin# | Definition | Pin | Definition |
| 1 | *NC | 2 | *NC |
| 3 | Ground | 4 | Data |
| 5 | Load | 6 | Ground |
| 7 | *NC | 8 | *NC |

**\*Note:** NC= No Connections
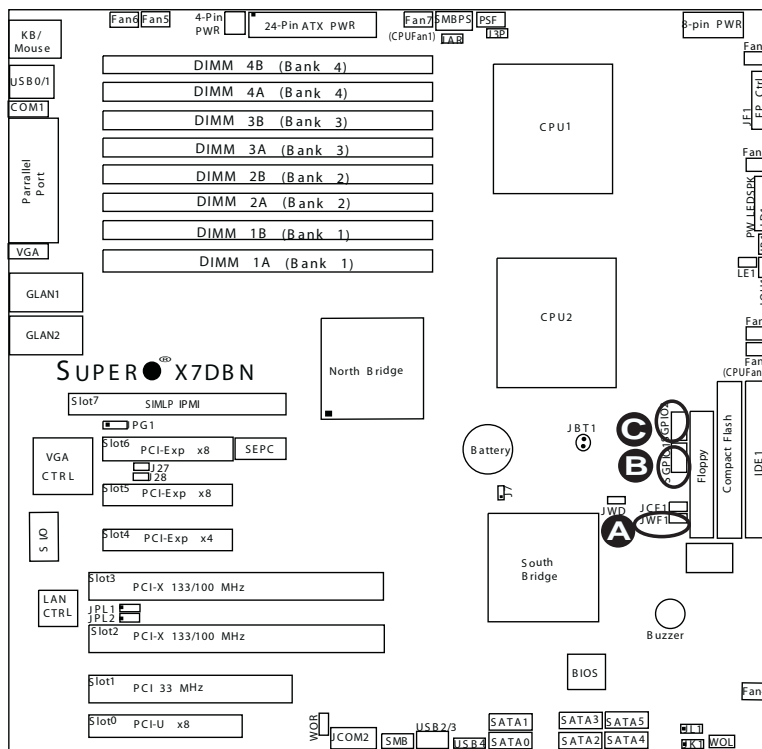


A. Compact Flash PWR

B. SGPIO1

B. SGPIO2

# 2-6   Jumper Settings

## Explanation of Jumpers

To modify the operation of the motherboard, jumpers can be used to choose between optional settings. Jumpers create shorts between two pins to change the function of the connector. Pin 1 is identified with a square solder pad on the printed circuit board. See the motherboard layout pages for jumper locations.

**Note:** On two pin jumpers, "Closed" means the jumper is on and "Open" means the jumper is off the pins.

Connector Pins

Jumper Cap

Setting

```
3   2   1
```

```
3   2   1
```
Pin 1-2 short
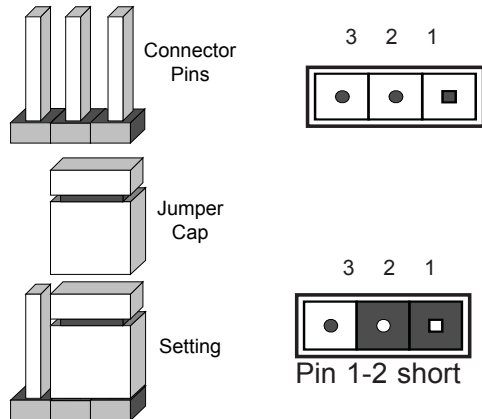
## GLAN Enable/Disable

JPL1/JPL2 enable or disable the GLAN Port1/GLAN Port2 on the motherboard. See the table on the right for jumper settings. The default setting is enabled.

| GLAN Enable | |
|---|---|
| Pin# | Definition |
| 1-2 | Enabled (*default) |
| 2-3 | Disabled |
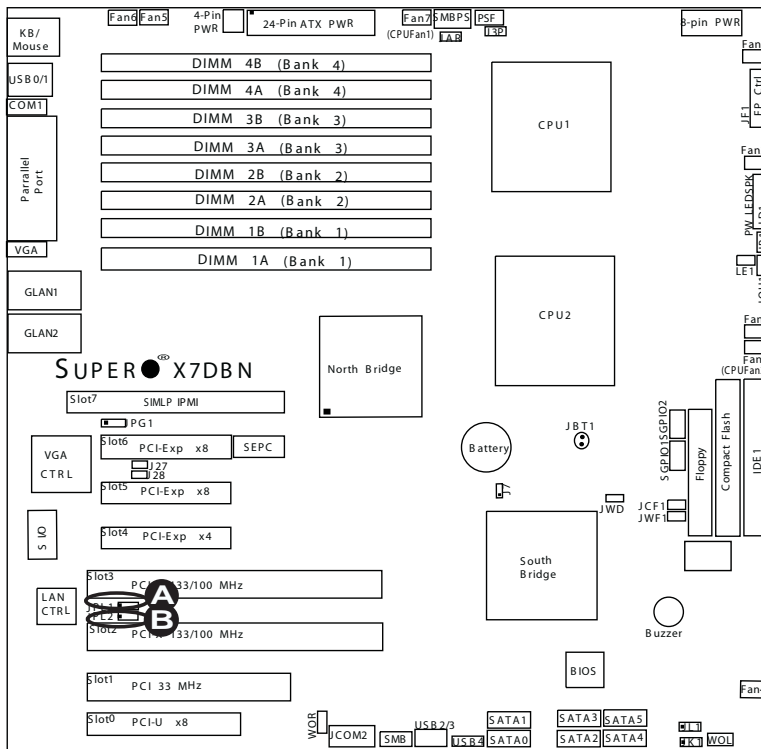
A. GLAN Port1 Enable
B. GLAN Port2 Enable

## CMOS Clear

JBT1 is used to clear CMOS. Instead of pins, this "jumper" consists of contact pads to prevent the accidental clearing of CMOS. To clear CMOS, use a metal object such as a small screwdriver to touch both pads at the same time to short the connection. Always remove the AC power cord from the system before clearing CMOS. **Note:** For an ATX power supply, you must completely shut down the system, remove the AC power cord and then short JBT1 to clear CMOS.

## Watch Dog Enable/Disable

Watch Dog is a system monitor that can reboot the system when a software application hangs. Close pins 1-2 to reset the system if an application hangs. Close pins 2-3 to generate a non-maskable interrupt signal for the application that hangs. See the table on the right for jumper settings. Watch Dog must also be enabled in the BIOS.

**Note:** When enabled, the user needs to write his/her own application software in order to disable the Watch Dog Timer.

| Watch Dog Jumper Settings (JWD) | |
|---|---|
| Jumper Setting | Definition |
| Pins 1-2 | Reset (*default) |
| Pins 2-3 | NMI |
| Open | Disabled |
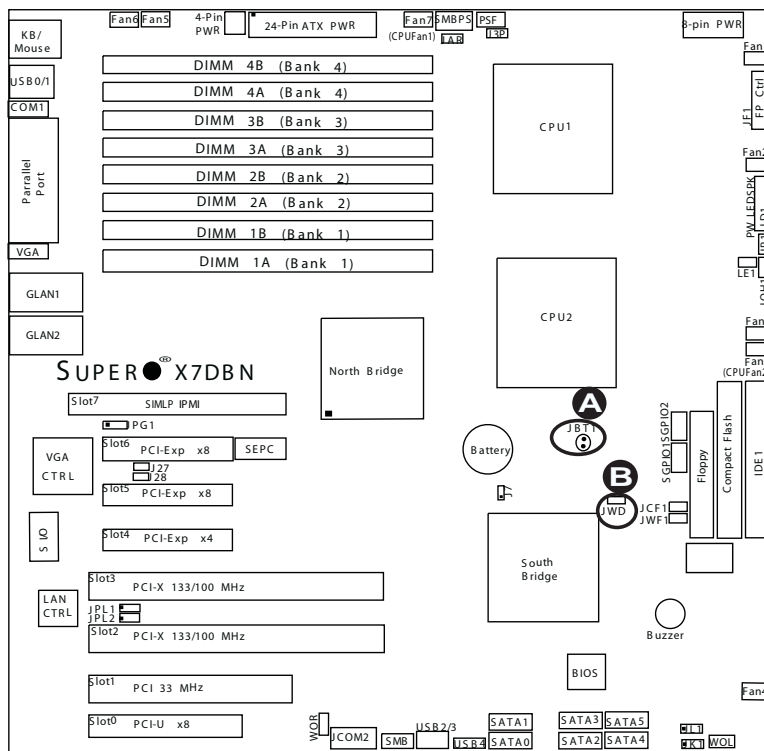
A. Clear CMOS

B. Watch Dog Enable

## 3rd PWR Supply PWR Fault Detect (J3P)

The system can notify you in the event of a power supply failure. This feature available when three power supply units are installed in the chassis with one acting as a backup. If you only have one or two power supply units installed, you should disable this (the default setting) with J3P to prevent false alarms.

| 3rd PWR Supply PWR Fault Jumper Settings | |
|---|---|
| Jumper Setting | Definition |
| Closed | Enabled |
| Open | Disabled (*Default) |

## VGA Enable/Disable

JPG1 allows you to enable or disable the VGA port. The default position is on pins 1 and 2 to enable VGA. See the table on the right for jumper settings.

| SCSI Enable/Disable Jumper Settings (JPA1) | |
|---|---|
| Both Jumpers | Definition |
| Pins 1-2 | Enabled |
| Pins 2-3 | Disabled |
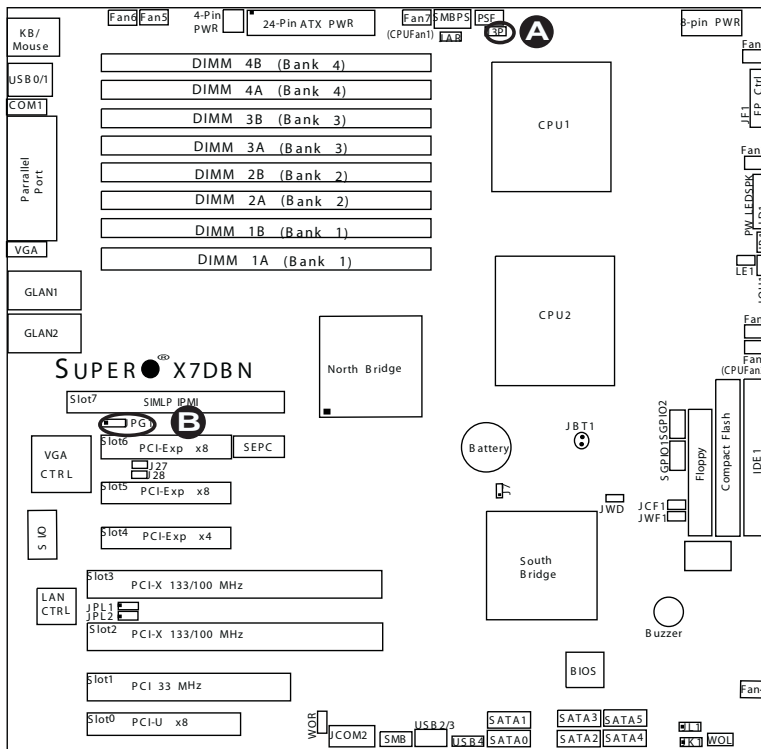
A. 3rd PWR Fail

B. VGA Enabled

## Compact Flash Master/Slave Select

A Compact Flash Master (Primary)/Slave (Secondary) Select Jumper is located at JCF1. Close this jumper to enable Compact Flash Card. For the Compact Flash Card or the Compact Flash Jumper (JCF1) to work properly, you will need to connect the Compact Flash Card power cable to JWF1 first. Refer to the board layout below for the location.

| Compact Flash Card Master/ Slave Select | |
|---|---|
| Jumper | Definition |
| Open | Slave (Secondary) |
| Closed | Master (Primary) |

## I²C Bus to PCI-X/PCI-Exp. Slots

Jumpers J27, J28 allow you to connect the System Management Bus (I²C) to PCI-X/PCI-E slots. The default setting is "Open" to disable the connection. See the table on the right for jumper settings.

| I²C to PCI-S/PCI/Exp Jumper Settings | |
|---|---|
| Jumper Setting | Definition |
| Closed | Enabled |
| Open | Disabled (*Default) |
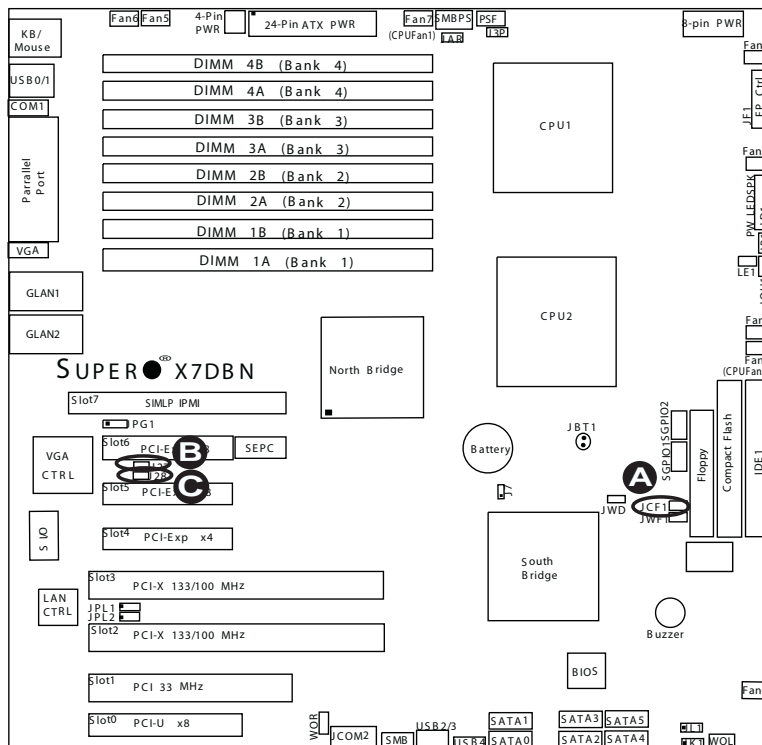
A. Compact Flash Master/
Slave Select
B.SMBus to PCI slots
(J27)
C.SMBus to PCI slots
(J28)

## 2-7   Onboard Indicators

### GLAN LEDs

There are two GLAN ports on the motherboard. Each Gigabit Ethernet LAN port has two LEDs. The Amber LED indicates activity, while the power LED may be green, amber or off to indicate the speed of the connection.  See the tables at right for more information.

(<u>Rear View</u>: When viewing from the rear side of system.)

Link LED          Activity LED
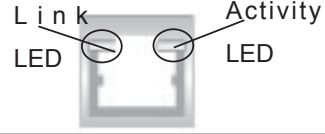
| GLAN Activity Indicator | | |
|---|---|---|
| Color | Status | Definition |
| Amber | Flashing | Active |

| GLAN  Link  Indicator | |
|---|---|
| LED Color | Definition |
| Off | No Connection or 10 Mbps |
| Green | 100 Mbps |
| Amber | 1 Gbps |

### Onboard Power LED

There is an Onboard Power LED located on the motherboard. When this LED is lit, the system is on. Be sure to turn off the system and unplug the power cord before removing or installing components.  See the layout below for the LED location.
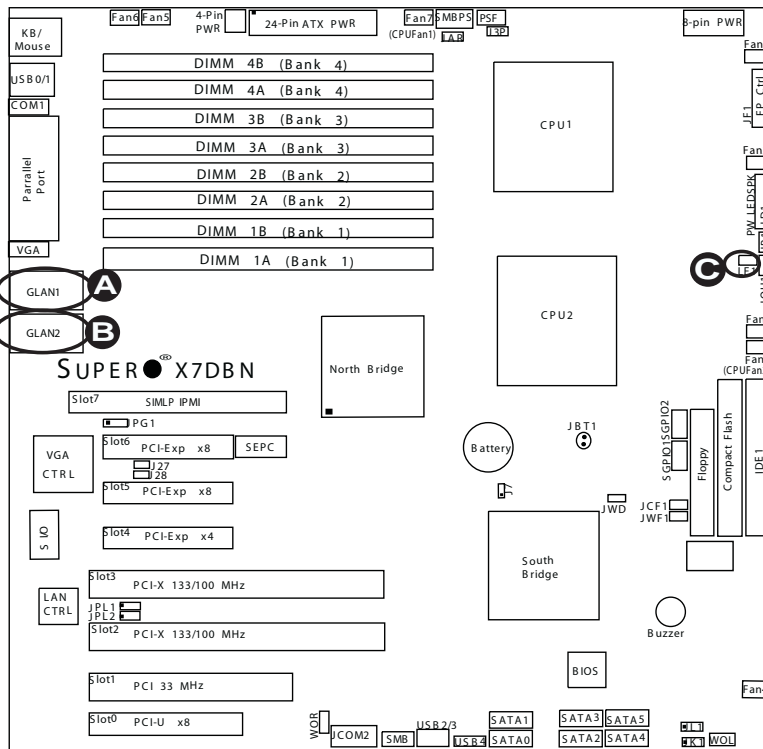
A. GLAN Port1 LEDs
B. GLAN Port2 LEDs
C. Onboard PWR LED

# 2-8   Parallel Port, Floppy Drive, SIMLP IPMI and Hard Disk Drive Connections

Note the following when connecting the floppy and hard disk drive cables:

*   The floppy disk drive cable has seven twisted wires.

*   A red mark on a wire typically designates the location of pin 1.

*   A single floppy disk drive ribbon cable has two connectors to provide for two floppy disk drives. The connector with twisted wires always connects to drive A, and the connector that does not have twisted wires always connects to drive B.

### Parallel (Printer) Port Connector

The parallel (printer) port is located on the IO Back Panel. See the table on the right for pin definitions.

| Parallel (Printer) Port Connector Pin Definitions | | | |
|---|---|---|---|
| Pin# | Definition | Pin # | Definition |
| 1 | Strobe- | 2 | Auto Feed- |
| 3 | Data Bit 0 | 4 | Error- |
| 5 | Data Bit 1 | 6 | Init- |
| 7 | Data Bit 2 | 8 | SLCT IN- |
| 9 | Data Bit 3 | 10 | GND |
| 11 | Data Bit 4 | 12 | GND |
| 13 | Data Bit 5 | 14 | GND |
| 15 | Data Bit 6 | 16 | GND |
| 17 | Data Bit 7 | 18 | GND |
| 19 | ACK | 20 | GND |
| 21 | BUSY | 22 | Write Data |
| 23 | PE | 24 | Write Gate |
| 25 | SLCT | 26 | NC |
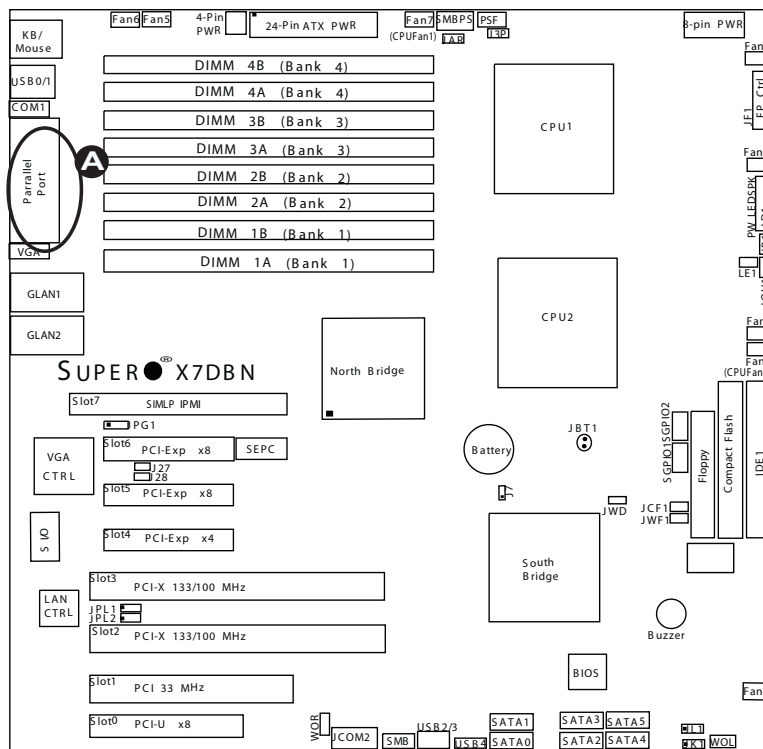


A. Parallel Port

## Floppy Connector

The floppy connector is located next to the compact flash card slot. See the table below for pin definitions.

| Floppy Drive Connector Pin Definitions (Floppy) | | | |
|---|---|---|---|
| Pin# | Definition | Pin # | Definition |
| 1 | Ground | 2 | FDHDIN |
| 3 | Ground | 4 | Reserved |
| 5 | Key | 6 | FDEDIN |
| 7 | Ground | 8 | Index |
| 9 | Ground | 10 | Motor Enable |
| 11 | Ground | 12 | Drive Select B |
| 13 | Ground | 14 | Drive Select B |
| 15 | Ground | 16 | Motor Enable |
| 17 | Ground | 18 | DIR |
| 19 | Ground | 20 | STEP |
| 21 | Ground | 22 | Write Data |
| 23 | Ground | 24 | Write Gate |
| 25 | Ground | 26 | Track 00 |
| 27 | Ground | 28 | Write Protect |
| 29 | Ground | 30 | Read Data |
| 31 | Ground | 32 | Side 1 Select |
| 33 | Ground | 34 | Diskette |

## SIMLP IPMI Slot

There is a SIM Low Profile IPMI Slot on the motherboard. Refer to the layout below for the IPMI Slot location.
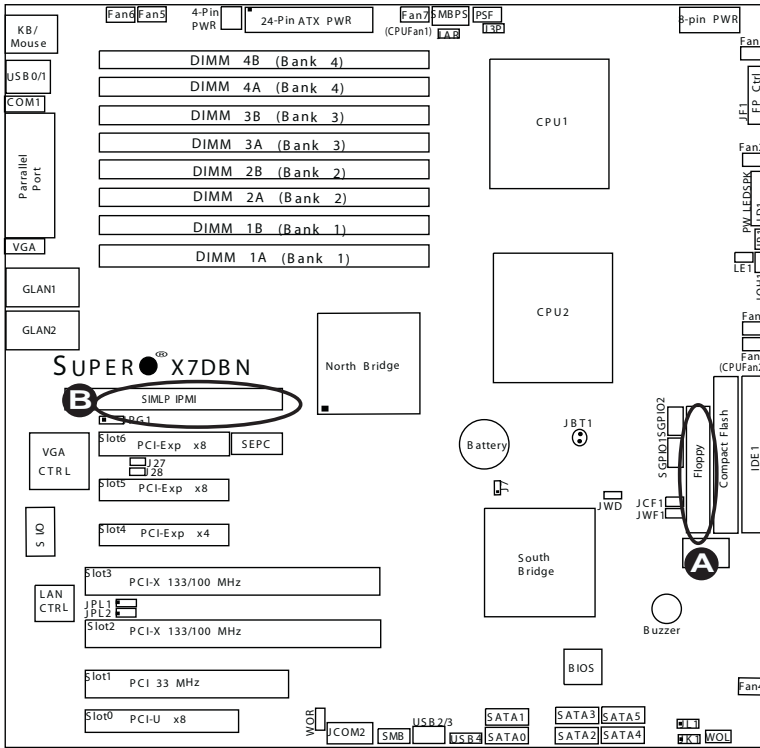
A. Floppy

B. SIMLP IPMI

## IDE Connectors

There are two IDE Connectors (JIDE1: Blue,JIDE2: White) on the mother-board. The blue IDE connector (JIDE1) is designated as the Primary IDE Drive. The white IDE connector (JIDE2) is designated as the Secondary IDE Drive, reserved for Compact Flash Card use only. (See the note below.) See the table on the right for pin definitions.

**\*Note**: JIDE2 (the white slot) is reserved for Compact Flash Card only. Do not use it for other devices. If JIDE2 is populated with a Compact Flash Card, JIDE1 (the blue slot) will be available for one device only. For the Compact Flash Card to work properly, you will need to connect a power cable to JWF1 first.

| IDE Drive Connectors Pin Definitions | | | |
|---|---|---|---|
| Pin# | Definition | Pin # | Definition |
| 1 | Reset IDE | 2 | Ground |
| 3 | Host Data 7 | 4 | Host Data 8 |
| 5 | Host Data 6 | 6 | Host Data 9 |
| 7 | Host Data 5 | 8 | Host Data 10 |
| 9 | Host Data 4 | 10 | Host Data 11 |
| 11 | Host Data 3 | 12 | Host Data 12 |
| 13 | Host Data 2 | 14 | Host Data 13 |
| 15 | Host Data 1 | 16 | Host Data 14 |
| 17 | Host Data 0 | 18 | Host Data 15 |
| 19 | Ground | 20 | Key |
| 21 | DRQ3 | 22 | Ground |
| 23 | I/O Write | 24 | Ground |
| 25 | I/O Read | 26 | Ground |
| 27 | IOCHRDY | 28 | BALE |
| 29 | DACK3 | 30 | Ground |
| 31 | IRQ14 | 32 | IOCS16 |
| 33 | Addr1 | 34 | Ground |
| 35 | Addr0 | 36 | Addr2 |
| 37 | Chip Select 0 | 38 | Chip Select 1 |
| 39 | Activity | 40 | Ground |
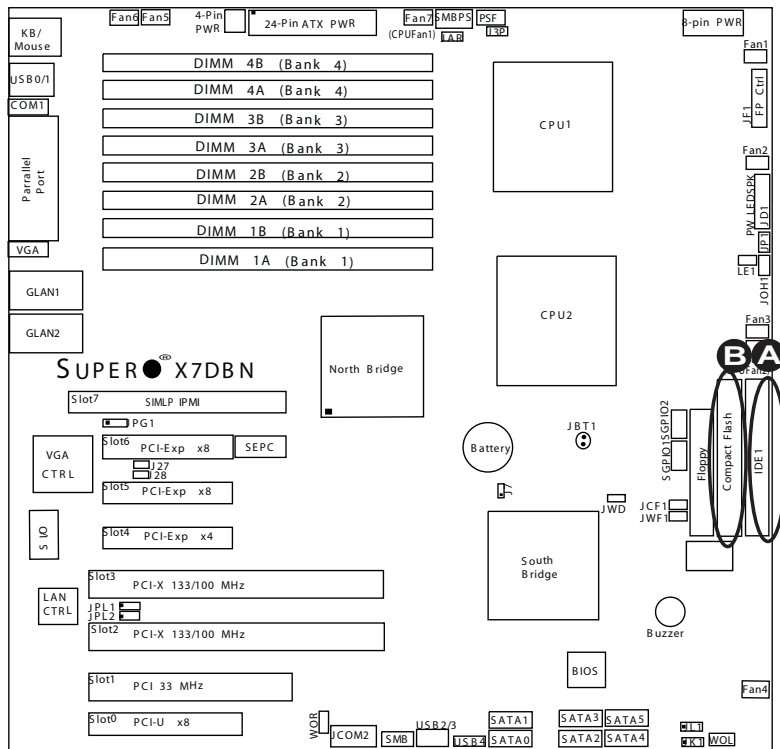
A. IDE#1

B. Compact Flash Card

**Notes**

# Chapter 3

# Troubleshooting

## 3-1 Troubleshooting Procedures

Use the following procedures to troubleshoot your system. If you have followed all of the procedures below and still need assistance, refer to the 'Technical Support Procedures' and/or 'Returning Merchandise for Service' section(s) in this chapter. **Note: Always disconnect the power cord before adding, changing or installing any hardware components.**

### Before Power On

1. Make sure no short circuits between the motherboard and chassis.

2. Disconnect all ribbon/wire cables from the motherboard, including those for the keyboard and mouse.

3. Remove all add-on cards.

4. Install one CPU (-making sure it is fully seated) and connect the chassis speaker and the power LED to the motherboard. (Check all jumper settings as well.)

### No Power

1. Make sure no short circuits between the motherboard and the chassis.

2. Verify that all jumpers are set to their default positions.

3. Check that the 115V/230V switch on the power supply is properly set.

4. Turn the power switch on and off to test the system.

5. The battery on your motherboard may be old. Check to verify that it still supplies ~3VDC. If it does not, replace it with a new one.

### No Video

1. If the power is on but you have no video, remove all the add-on cards and cables.

2. Use the speaker to determine if any beep codes exist. Refer to the Appendix for details on beep codes.

### Losing the System's Setup Configuration

1. Ensure that you are using a high quality power supply. A poor quality power supply may cause the system to lose the CMOS setup information. Refer to Section 1-6 for details on recommended power supplies.

2. The battery on your motherboard may be old. Check to verify that it still supplies ~3VDC. If it does not, replace it with a new one.

3. If the above steps do not fix the Setup Configuration problem, contact your vendor for repairs.

---

### *NOTE*

If you are a system integrator, VAR or OEM, a POST diagnostics card is recommended.  For I/O port 80h codes, refer to App. B.

---

### Memory Errors

1. Make sure the DIMM modules are properly and fully installed.

2. Check if different speeds of DIMMs have been installed and that the BIOS setup is configured for the fastest speed of RAM used.  It is recommended to use the same RAM speed for all DIMMs in the system.

3. Make sure you are using the correct type of DDR2 Fully Buffered (FBD) ECC 533/667 SDRAM (*recommended by the manufacturer.)

4. Check for bad DIMM modules or slots by swapping a single module between four slots and checking the results.

5. Make sure all memory modules are fully seated in their slots.  <u>As an interleaved memory scheme is used, you must install two modules at a time</u>, beginning with Bank 1, then Bank 2, and so on (see Section 2-3).

6. Check the position of the 115V/230V switch on the power supply.

## 3-2   Technical Support Procedures

<u>Before contacting Technical Support, please take the following steps.</u>  Also, note that as a motherboard manufacturer, Supermicro does not sell directly to end-users, so it is best to first check with your distributor or reseller for troubleshooting services.  They should know of any possible problem(s) with the specific system configuration that was sold to you.

1. Please go through the 'Troubleshooting Procedures' and 'Frequently Asked Question' (FAQ) sections in this chapter or see the FAQs on our  web site http://www.supermicro.com/support/faqs/ before contacting Technical Support.

2. BIOS upgrades can be downloaded from our web site at
   http://www.supermicro.com/support/bios/

***Note:  Not all BIOS can be flashed depending on the modifications to the boot block code.***

3. If you still cannot resolve the problem, include the following information when contacting Super Micro for technical support:

   •Motherboard model and PCB revision number

   •BIOS release date/version (this can be seen on the initial display when your system first boots up)

---

•System configuration

An example of a Technical Support form is on our web site at http://www. supermicro.com/support/contact.cfm/

4. Distributors: For immediate assistance, please have your account number ready when placing a call to our technical support department.  We can be reached by e-mail at support@supermicro.com or by fax at:  (408)  503-8000,  option 2.

## 3-3    Frequently Asked Questions

**Question: What are the various types of memory that my motherboard can support?**

**Answer:** The X7DBN has eight 240-pin DIMM slots that support DDR2 FDB ECC 533/667 SDRAM modules.  It is strongly recommended that you do not mix memory modules of different speeds and sizes.  (See Chapter 2 for detailed Information.)

**Question: How do I update my BIOS?**

**Answer:** It is recommended that you **do not** upgrade your BIOS if you are experiencing no problems with your system. Updated BIOS files are located on our web site at http://www.supermicro.com/support/bios/. Please check our BIOS warning message and the information on how to update your BIOS on our web site.  Also, check the current BIOS revision and make sure that it is newer than your BIOS before downloading. Select your motherboard model and download the BIOS file to your computer. You can choose from the zip file and the .exe file. If you choose the zip BIOS file, please unzip the BIOS file onto a bootable device or a USB pen. Run the batch file using the format flash.bat filename.rom from your bootable device or USB pen to flash the BIOS. Then, your system will automatically reboot. If you choose the .exe file, please run the .exe file under Windows to create the BIOS flash floppy disk. Insert the floppy disk into the system you wish to flash the BIOS. Then, bootup the system to the floppy disk. The BIOS utility will automatically flash the BIOS without any prompts. Please note that this process may take a few minutes to complete. Do not be concerned if the screen is paused for a few minutes.

(**Warning**: Do not shut down or reset the system while updating BIOS to prevent possible system boot failure!)

**Question: What's on the CD that came with my motherboard?**

**Answer:** The supplied compact disc has several drivers and programs that will greatly enhance your system.  We recommend that you review the CD and install the applications you need.  Applications on the CD include chipset drivers for the Windows OS, security and audio drivers.

**Question: How do I handle the used battery?**

**Answer:** Please handle used batteries carefully. Do not damage the battery in any way; a damaged battery may release hazardous materials into the environment. Do not discard a used battery in the garbage or a public landfill. Please comply with the regulations set up by your local hazardous waste management agency to dispose of your used battery properly.

## 3-4     Returning Merchandise for Service

A receipt or copy of your invoice marked with the date of purchase is required before any warranty service will be rendered. You can obtain service by calling your vendor for a Returned Merchandise Authorization (RMA) number. You can also request a RMA authorization online (http://www.supermicro.com/support/rma/). When returning to the manufacturer, the RMA number should be prominently displayed on the outside of the shipping carton, and mailed prepaid or hand-carried.  Shipping and handling charges will be applied for all orders that must be mailed when service is complete.

This warranty only covers normal consumer use and does not cover damages incurred in shipping or from failure due to the alternation, misuse, abuse or improper maintenance of products.

During the warranty period, contact your distributor first for any product problems.

# Chapter 4

# BIOS

## 4-1 Introduction

This chapter describes the Phoenix BIOS™ Setup utility for the X7DBN. The Phoenix ROM BIOS is stored in a flash chip and can be easily upgraded using a floppy disk-based program.

**Note:** Due to periodic changes to the BIOS, some settings may have been added or deleted and might not yet be recorded in this manual.  Please refer to the Manual Download area of the Supermicro web site <http://www.supermicro.com> for any changes to the BIOS that may not be reflected in this manual.

### System BIOS

The BIOS is the Basic Input Output System used in all IBM® PC, XT™, AT®, and PS/2® compatible computers. The Phoenix BIOS stores the system parameters, types of disk drives, video displays, etc. in the CMOS. The CMOS memory requires very little electrical power. When the computer is turned off, a backup battery provides power to the CMOS logic, enabling it to retain system parameters. Each time when the computer is powered on, the computer is configured with the values stored in the CMOS logic by the system BIOS, which gains control at boot up.

### How To Change the Configuration Data

The CMOS information that determines the system parameters may be changed by entering the BIOS Setup utility. This Setup utility can be accessed by pressing the <Delete> key at the appropriate time during system boot. (See below.)

### Starting the Setup Utility

Normally, the only visible POST (Power On Self Test) routine is the memory test.  As the memory is being tested, press the <Delete> key to enter the main menu of the BIOS Setup utility.  From the main menu, you can access the other setup screens, such as the Security and Power menus. Beginning with Section 4-3, detailed descriptions are given for each parameter setting in the Setup utility.

**Warning:** Do not shut down or reset the system while updating BIOS to prevent possible boot failure.

## 4-2   Running Setup

*\*Default settings are in bold text unless otherwise noted.*

The BIOS setup options described in this section are selected by choosing the appropriate text from the main BIOS Setup screen.  All displayed text is described in this section, although the screen display is often all you need to understand how to set the options (see the next page).

When you first power on the computer, the Phoenix BIOS™ is immediately acti-vated.

While the BIOS is in control, the Setup program can be activated in one of two ways:

1.    By pressing <Delete> immediately after turning the system on, or

2.    When the message shown below appears briefly at the bottom of the screen during the POST (Power On Self-Test),  press  the <Delete> key to activate the main Setup menu:

**Press the <Delete> key to enter Setup**

## 4-3 Main BIOS Setup

All main Setup options are described in this section. The main BIOS Setup  screen is displayed below.

Use the Up/Down arrow keys to move among the different settings in each menu. Use the Left/Right arrow keys to change the options for each setting.

Press the <Esc> key to exit the CMOS Setup Menu. The next section describes in detail how to navigate through the menus.

Items that use submenus are indicated with the ►icon.  With the item highlighted, press the <Enter> key to access the submenu.

# Main BIOS Setup Menu

```
        PhoenixBIOS Setup - Copyright 1985-2004 Phoenix Technologies Ltd.
   Main    Advanced    Security    Boot    Exit

                                                          Item Specific Help
     System Time:                [16:03:55]
     System Date:                [10-14-2009]
                                                       <Tab>, <Shift-Tab>, or
     BIOS Version                                      <Enter> selects field.
     BIOS Date
     Legacy Diskette A:          [1.44/1.25 MB   3½"]

   ▶ IDE Channel 0 Master        [CD ROM]
     IDE Channel 0 Slave         [None]
   ▶ IDE Channel 1 Master        [None]
     IDE Channel 1 Slave         [None]
     SATA Port 2
     SATA Port 3

     Parallel ATA:               [Channel 0]
     Serial ATA:                 [Enabled]
     Native Mode Operation:      [Auto]
     SATA Controller Mode Option: [Compatible]
     SATA RAID Enable            [Disabled]
     ICH Raid CodeBase           [Intel]
     SATA AHCI Enable            [Disabled]

     System Memory:              [XXXX KB]

   F1   Help   ↑↓ Select Item    -/+   Change Values    F9   Setup Defaults
   Esc  Exit   ↔  Select Menu    Enter Select ▶ Sub-Menu  F10  Previous Values
```

## Main Setup Features

### System Time

This feature displays the system time.

### System Date

This feature displays the system date.

### BIOS Version

This feature displays the current BIOS version number.

### BIOS Date

The item displays the date that the BIOS was built.

### Legacy Diskette A

This setting allows the user to set the type of floppy disk drive installed as diskette A. The options are Disabled, 360Kb 5.25 in, 1.2MB 5.25 in, 720Kb 3.5 in, 1.44/1.25MB, 3.5 in and **2.88MB 3.5 in**.

## ▶IDE Channel 0 Master/Slave, IDE Channel 1 Master/Slave, SATA Port2, SATA Port3

These settings allow the user to set the parameters of slots specified. Press <Enter> to activate the following submenu items. Set the correct configurations accordingly.

```
        PhoenixBIOS Setup - Copyright 1985-2004 Phoenix Technologies Ltd.
 ┌─────────┐
 │  Main   │
 └─────────┘
                                                   Item Specific Help
    Type:
    CHS Format
    Cylinders:                                 User = you enter
                                               parameters of hard-disk
                                               drive installed at this
    Cylinders:                                 connection.
    Heads:                      [  1]          Auto = autotypes
    Heads:                                     hard-disk drive
    Sectors:                                   installed here.
                                               CD-ROM = a CD-ROM drive
                                               is installed here.
    Sectors:                                   ATAPI Removable =
    Maximum Capacity:                          removable disk drive is
    Maximum Capacity:                          installed here.
    LBA Format
    Total Sectors:
    Maximum Capacity:

    Multi-Sector Transfers:     [Disabled]
    LBA Mode Control:           [Disabled]
    32 Bit I/O:                 [Disabled]
    Transfer Mode:              [Standard]
    Ultra DMA Mode:             [Disabled]


 F1   Help  ↑↓ Select Item   -/+   Change Values   F9   Setup Defaults
 Esc  Exit  ↔  Select Menu   Enter Select ▶ Sub-Menu  F10 Previous Values
```

### Type

This option allows the user to select the type of IDE hard drive. Select Auto to allow BIOS to automatically configure the hard drive's settings. Enter a number from 1 to 39 to select a predetermined type of hard drive, CDROM and ATAPI Removable Drive. Select User to allow the user to specify the parameters of the HDD installed at this connection. Select CDROM if a CDROM drive is installed. Select ATAPI if a removable disk drive is installed.

### CHS Format

The following items will be displayed by the BIOS:

### Type

This item displays the type of IDE or SATA drive.

### Cylinders

This item indicates the number of Cylinders.

### Headers

This item indicates the number of headers

### Sectors

This item displays the number of sectors.

### Maximum Capacity

This item displays the maximum storage capacity of the system.

### LBA Format

The feature displays BIOS items in the LBA format:

### Total Sectors

This item displays the number of total sectors available in the LBA Format.

### Multi-Sector Transfer

This item allows the user to specify the number of sectors per block to be used in multi-sector transfer. The options are Disabled, 4 Sectors,8 Sectors, and 16 Sectors.

### Maximum Capacity

This item displays the maximum capacity in the LBA Format.

### LBA Mode Control

This item determines whether the Phoenix BIOS will access the IDE Channel devices via the LBA mode. The options are Enabled and Disabled.

### 32 Bit I/O

This option allows the user to enable or disable the function of 32-bit data transfer. The options are Enabled and Disabled.

### Transfer Mode

This option allows the user to set the transfer mode. The options are Standard, Fast PIO1, Fast PIO2, Fast PIO3, Fast PIO4, FPIO3/DMA1 and FPIO4/DMA2.

### Ultra DMA Mode

This option allows the user to select Ultra DMA Mode. The options are Disabled, Mode 0, Mode 1, Mode 2, Mode 3, Mode 4, and Mode 5.

### Parallel ATA

This setting allows the user to enable or disable Parallel ATA. The Default setting is **Channel 0.**

### Serial ATA

This setting allows the user to enable or disable Serial ATA. The options are Disabled and **Enabled.**

### Native Mode Operation

Select Serial ATA to enable SATA support for your HDDs. Select Auto to enable Native Mode support for your HDDs. The options are: Serial ATA and **Auto**.

### SATA Controller Mode

Select Compatible to allow the SATA and PATA drives to be automatically-detected and be placed in the Legacy Mode by the BIOS. Select Enhanced to allow the SATA and PATA drives to be to be automatically-detected and be placed in the Native IDE Mode. (**Note**: The Enhanced mode is supported by the Windows 2000 OS or a later version.) The default setting is **Enhanced**.

When the SATA Controller Mode is set to "Enhanced", the following items will display:

#### Serial ATA (SATA) RAID Enable

Select Enable to enable Serial ATA RAID support. (*For the Windows OS environment, use the RAID driver if this feature is set to Enabled. When this item is set to Enabled, the item: "ICH RAID Code Base" will be available for you to select Intel or Adaptec Host RAID firmware. If this item is set to **Disabled**, the item-SATA AHCI Enable will be available.) The options are Enabled and **Disabled**.

#### ICH RAID Code Base

Select Intel to enable Intel's SATA RAID firmware. Select Adaptec to use Adaptec's HostRAID firmware. The options are  **Intel** and Adaptec**.**

#### SATA AHCI

Select Enable to enable the function of Serial ATA Advanced Host Interface. (Take caution when using this function. This feature is for advanced programmers only. The options are Enabled and **Disabled**.)

### System Memory

This display informs you how much memory is detected in the system.

### Extended Memory

This display informs you how much extended memory is detected in the system.

## 4-4    Advanced Setup

Choose Advanced from the Phoenix BIOS Setup Utility main menu with the arrow keys. You should see the following display.  The items with a triangle beside them have sub menus that can be accessed by highlighting the item and pressing <Enter>.

```
PhoenixBIOS Setup - Copyright 1985-2004 Phoenix Technologies Ltd.
 Main   Advanced   Security   Boot   Exit

                                              Item Specific Help
   ▶ Boot Features
   ▶ Memory Cache
   ▶ PCI Configuration                     Select Boot features
   ▶ Advanced Chipset Control
   ▶ Advanced Processor Options
   ▶ I/O Device Configuration
   ▶ DMI Event Logging
   ▶ Console Redirection
   ▶ Hardware Monitor
   ▶ IPMI




 F1  Help   ↑↓ Select Item   -/+   Change Values    F9  Setup Defaults
 Esc Exit   ↔ Select Menu   Enter Select ▶ Sub-Menu F10 Previous Values
```

### ▶Boot Features

Access the submenu to make changes to the following settings.

#### QuickBoot Mode

If enabled, this feature will speed up the POST (Power On Self Test) routine by skipping certain tests after the computer is turned on. The settings are **Enabled** and Disabled. If Disabled, the POST routine will run at normal speed.

#### QuietBoot Mode

This setting allows you to **Enable** or Disable the graphic logo screen during boot-up.

#### POST Errors

Select **Enabled** to temporarily halt system boot and display POST (Power-On-Self Testing) error messages when errors occur during bootup. Select Disable to continue with system boot even when an error occurs. The options are **Enabled** and Disabled.

#### ACPI Mode

Use the setting to determine if you want to employ ACPI (Advanced Configuration and Power Interface) power management on your system. The options are **Yes** and No.

### Power Button Behavior

If set to **Instant-Off**, the system will power off immediately as soon as the user hits the power button. If set to 4-sec., the system will power off when the user presses the power button for 4 seconds or longer. The options are instant-off and 4-sec override.

### Resume On Modem Ring

Select On to "wake your system up" when an incoming call is received by your modem. The options are On and **Off**.

### Power Loss Control

This setting allows you to choose how the system will react when power returns after an unexpected loss of power. The options are Stay Off, Power On, and **Last State**.

### Watch Dog

If enabled, this option will automatically reset the system if the system is not active for more than 5 minutes. The options are Enabled and **Disabled**.

### Summary Screen

This setting allows you to **Enable** or Disable the summary screen which displays the system configuration during bootup.

### ▶Memory Cache

### Cache System BIOS Area

This setting allows you to designate a reserve area in the system memory to be used as a System BIOS buffer to allow the BIOS to write (cache) its data into this reserved memory area. Select "**Write Protect**" to enable this function, and this area will be reserved for BIOS ROM access only. Select "Uncached" to disable this function and make this area available for other devices.

### Cache Video BIOS Area

This setting allows you to designate a reserve area in the system memory to be used as a Video BIOS buffer to allow the BIOS to write (cache) its data into this reserved memory area.  Select "**Write Protect**" to enable the function and this area will be reserved for Video BIOS ROM access only. Select "Uncached" to disable this function and make this area available for other devices.

### Cache Base 0-512K

If enabled, this feature will allow the data stored in the base memory area: block 0-512K to be cached (written) into a buffer, a storage area in the Static DROM (SDROM) or to be written into L1, L2  cache inside the CPU to speed up CPU operations.

Select Uncached to disable this function. Select Write Through to allow data to be cached into the buffer and written into the system memory at the same time. Select Write Protect to prevent data from being written into the base memory area of Block 0-512K. Select Write Back to allow the CPU to write data back directly from the buffer without writing data to the System Memory for fast CPU data processing and operation. The options are Uncached, Write Through, Write Protect, and **Write Back**.

### Cache Base 512K-640K

If enabled, this feature will allow the data stored in the memory area: 512K-640K to be cached (written) into a buffer, a storage area in the Static DROM (SDROM) or written into L1, L2, L3 cache inside the CPU to speed up CPU operations . Select Uncached to disable this function. Select Write Through to allow data to be cached into the buffer and written into the system memory at the same time. Select Write Protect to prevent data from being written into the base memory area of Block 512K-640K. Select Write Back to allow the CPU to write data back directly from the buffer without writing data to the System Memory for fast CPU data processing and operation. The options are Uncached, Write Through, Write Protect, and **Write Back**.

### Cache Extended Memory

If enabled, this feature will allow the data stored in the extended memory area to be cached (written) into a buffer, a storage area in the Static DROM (SDROM) or written into L1, L2, L3 cache inside the CPU to speed up CPU operations. Select Uncached to disable this function. Select Write Through to allow data to be cached into the buffer and written into the system memory at the same time. Select Write Protect to prevent data from being written into the extended memory area above 1 MB. Select Write Back to allow the CPU to write data back directly from the buffer without writing data to the System Memory for fast CPU data processing and operation. The options are Uncached, Write Through, Write Protect, and **Write Back**.

### Discrete MTRR Allocation

If enabled, MTRRs (-Memory Type Range Registers) are configured as distinct, separate units and cannot be overlapped. If enabled, the user can achieve better graphic effects when using a Linux graphic driver that requires the write-combining configuration with 4GB or more memory. The options are Enabled and **Disabled**.

### ▶PCI Configuration

Access the submenu to make changes to the following settings for PCI devices.

### Onboard GLAN1/Onboard GLAN2 (Gigabit- LAN) OPROM Configure

Enabling this option provides the capability to boot from GLAN. The options are **Disabled** and Enabled.

**IPMI 3rd LAN OPROM Configure (Available if the 3rd LAN on an IPMI card is detected.)**

Select **Enable** to allow the user to boot from the 3rd LAN on an IPMI card. The options are **Enabled** and Disabled.

**AOC-UTG Boot ROM Select (Available if Supermicro's UTG Add-On Card is installed.)**

Select PXE to boot from a device installed in a PCI-E slot. Select iSCSI to boot from a device installed in an iSCSI slot. The options are **PXE** and iSCSI.

**Default Primary Video Adapter**

Use this feature to select the default primary video adaptor for the system. The options are Other and **Onboard Video**.

**Emulated IRQ Solution**

All PCI-E devices are required to support MSI (Message Signaled Interrupt); however, some legacy operating systems do not support MSI. When this feature is set to Enabled, a PCI-E device will generate a device-specific address and interrupt vector number stored in the device's MSI and data registers which will be initialized by BIOS before a "non-MSI-aware" OS boots up in order to enhance system performance. The options are Enabled and **Disabled**.

**PCI-Exp. I/O Performance**

Some add-on cards perform faster with the coalesce feature, which limits the payload size to 128 Bytes; while others, with a payload size of 256 Bytes which inhibits the coalesce feature. Please refer to your add-on card user guide for the desired setting. The options are Payload 256 Bytes and **Coalesce** (**128 Bytes)**.

**PCI Parity Error Forwarding**

The feature allows  SERR and PERR errors detected in PCI slots to be sent (forwarded) to the BIOS DMI Event Log for the user to review. The options are Enabled and **Disabled**.

**ROM Scan Ordering**

This feature allows the user to decide which  Option ROM to be activated first. The options are **Onboard first** and Add-On first.

**Reset Configuration Data**

If set to Yes, this setting clears the Extended System Configuration Data- (ESCD) area.  The options are Yes and **No**.

**Frequency for PCI-X#2-PCI-X#3/Frequency for PCI-X#1 On Riser/
Frequency for PCI-X#2~#3 On Riser**

This option allows the user to change the bus frequency for the devices installed in the slot indicated. The options are **Auto**, PCI 33 MHz, PCI 66 MHz, PCI-X 66 MHz, PCI-X 100 MHz, and PCI-X 133 MHz.

▶**Slot0 PCI-U x8, Slot#1 PCI 33 MHz, Slot#2 PCI-X 133MHz, Slot#3 PCI-X 133MHz, Slot#4 PCI-Exp. x4, Slot#5 PCI-Exp. x8 and Slot#6 PCI-Exp. x8**

Access the submenu for each of the settings above to make changes to the following:

### Option ROM Scan

When enabled, this setting will initialize the device expansion ROM.  The options are **Enabled** and Disabled.

### Enable Master

This setting allows you to enable the selected device as the PCI bus master. The options are **Enabled** and Disabled.

### Latency Timer

This setting allows you to set the clock rate for Bus Master. A high-priority, high-throughout device may benefit from a greater clock rate.  The options are **Default**, 0020h, 0040h, 0060h, 0080h, 00A0h, 00C0h, and 00E0h. For Unix, Novelle and other Operating Systems, please select the option: other. If a drive fails after the installation of a  new software, you might want to change this setting and try again. A different OS requires a different Bus Master clock rate**.**

## Large Disk Access Mode

his feature is available for systems with a hard drive disk capacity larger than 137GB. If your HDD capacity is larger than 137 GB, select DOS for a system based on DOS; otherwise, select Other for system based on other operating systems. The options are **DOS** or Other (for Unix, Novelle NetWare and other operating systems)

## ▶Advanced Chipset Control

Access the submenu to make changes to the following settings.

⚠ **Warning**: Take Caution when changing the Advanced settings. An incorrect setting, a very high DRAM frequency or an incorrect DRAM timing may cause the system to become unstable. When this occurs, reset the setting to the default setting.

### SERR Signal Condition

This setting specifies the ECC Error conditions that an SERR# is to be asserted. The options are None, **Single Bit**, Multiple Bit, and Both.

### PCI-E Link Width Workaround

Select Enabled to reset the system which will allow the BIOS to detect the correct PCI-E link width for PCI-E 2.0 support. The options are: **Enabled** and Disabled.

### 4GB PCI Hole Granularity

This feature allows you to select the granularity of the PCI hole for PCI slots. If MTRRs are not enough, this option may be used to reduce MTRR occupation. The options are: **256 MB**, 512 MB, 1GB and 2GB.

### Memory Branch Mode

This feature allows you to decide how memory branches operate. System address space can either be interleaved between the two branches or Sequential from one branch to another. Mirror mode enhances data security by maintaining two copies of data in two branches. Single Channel 0 allows a single DIMM population. The options are **Interleaved,** Sequential, Mirroring, and Single Channel 0.

### Branch 0 Rank Sparing/Branch 1 Rank Sparing

Select **Enable** to enable memory sparing support for Branch 0 or Branch 1. The options are Enabled and **Disabled**.

### Branch 0 Rank Interleaving/Branch 1 Rank Interleaving

This feature allows the user to configure Interleaved Memory settings for Branch 0 Rank or Branch 1 Rank. The options are 1:1, 2:1 and **4:1**.

### Enhanced x8 Detection

Select **Enabled** to enable Enhanced x8 DRAM UC Error Detection . The options are Disabled and **Enabled**.

### High Bandwidth FSB

Select Enabled to enable high bandwidth Front Side Bus (FSB). The options are **Enabled** and Disabled.

### High Temperature DRAM Operation

When set to Enabled, the BIOS will refer to the SPD table to set the maximum DRAM temperature. If disabled, the BIOS will set the maximum DRAM temperature based on a predefined value. The options are Enabled and **Disabled**.

### AMB Thermal Sensor

Select Enabled to enable the thermal sensor embedded in the Advanced Memory Buffer on a fully buffered memory module for thermal monitoring. The options are **Disabled** and Enabled.

### Thermal Throttle

Select Enabled to enable the function of closed-loop thermal throttling on the fully buffered (FBD) memory modules. In the closed-loop thermal environment, thermal throttling will be activated when the temperature of the FBD DIMM device exceeds a predefined threshold. The options are Enabled and **Disabled**.

### Global Activation Throttle

Select Enabled to enable the function of open-loop global thermal throttling on the fully buffered (FBD) memory modules and allow global thermal throttling to become active when the number of activate control exceeds a predefined number. The options are Enabled and **Disabled**.

### Crystal Beach Features

This feature cooperates with Intel I/O AT (Acceleration Technology) to accelerate the performance of TOE devices. (**Note**: A TOE device is a specialized, dedicated processor that is installed on an add-on card or a network card to handle some or all packet processing of this add-on card. For the X7DBN, the TOE device is built inside the ESB 2 South Bridge chip.)  The options are **Enabled** and Disabled.

### Route Port 80h Cycles to

This feature allows the user to decide which bus to send debug information to. The options are Disabled, PCI and **LPC**.

### Clock Spectrum Feature

If Enabled, the BIOS will  monitor the level of Electromagnetic Interference caused by the components and will attempt to decrease the interference whenever needed. The options are Enabled and **Disabled**.

### High Performance Event Timer

Select Enabled to activate the High Performance Event Timer (HPET) that produces periodic interrupts at a higher frequency than a Real-time Clock (RTC) in synchronizing multimedia streams, providing smooth playback and reducing the dependency on other devices. The HPET is used to replace the 8254 Programmable Interval Timer. The options are **Enabled** and Disabled.

### USB Function

Select Enabled to enable the function of USB devices specified. The settings are **Enabled** and Disabled.

### Legacy USB Support

This setting allows you to enable support for Legacy USB devices. The settings are **Enabled** and Disabled.

### ▶Advanced Processor Options

Access the submenu to make changes to the following settings.

### CPU Speed

This is a display that indicates the speed of the installed processor.

### Frequency Ratio (Available when supported by the CPU.)

The feature allows the user to set the internal frequency multiplier for the CPU. The options are: Default, x12, x13, x14, x15, x16, x17 and x18. (**Note**: The settings can differ, depending on the CPU speed.)

### Hyperthreading (Available when supported by the CPU.)

Set to Enabled to use the Hyperthreading Technology, which will result in increased CPU performance. The options are Disabled and **Enabled.**

### Core-Multi-Processing (Available when supported by the CPU.)

Set to Enabled to use a processor's Second Core and beyond. (Please refer to Intel's web site for more information.) The options are Disabled and **Enabled.**

### Machine Checking (Available when supported by the CPU.)

Set to Enabled to activate the function of Machine Checking and allow the CPU to detect and report hardware (machine) errors via a set of model-specific registers (MSRs). The options are Disabled and **Enabled**.

### C1 Enhanced Mode (Available when supported by the CPU.)

Set to Enabled to enable Enhanced Halt State to lower CPU voltage/frequency to prevent overheat. The options are Enabled and **Disabled**.

### Execute Disable Bit (Available if supported by the CPU.)

Set to Enabled to enable Execute Disable Bit and allow the processor to classify areas in memory where an application code can execute and where it cannot, and thus preventing a worm or a virus from inserting and creating a flood of codes to overwhelm the processor or damage the system during an attack.

(**Note**: this feature is available when your OS and your CPU support the function of Execute Disable Bit.) The options are **Disabled** and Enabled.

### Adjacent Cache Line Prefetch (Available when supported by the CPU.)

The CPU fetches the cache line for 64 bytes if this option is set to Disabled. The CPU fetches both cache lines for 128 bytes as comprised if Enabled. The options are Disabled and **Enabled**.

### Hardware Prefetch (Available if supported by the CPU.)

Set to this option to **enabled** to enable the hardware components that are used in conjunction with software programs to prefetch data in order to shorten execution cycles and maximize data processing efficiency. The options are Disabled and **Enabled**.

### Direct Cache Access (Available if supported by the CPU.)

Set to Enable to route inbound network IO traffic directly into processor caches to reduce memory latency and improve network performance. The options are **Disabled** and Enabled.

### DCA Delay Clocks (Available if supported by the CPU.)

This feature allows the user to set the clock delay setting from snoop to prefetch for Direct Cache Access. Select a setting from 8 (bus cycles) to 120 (bus cycles) (in 8-cycle increment). The default setting is **32 (bus cycles)**.

### Intel <R> Virtualization Technology (Available if supported by the CPU.)

Select Enabled to enable Virtualization Technology support to allow one platform to run multiple operating systems and applications in independent partitions, creating multiple "virtual" systems in one physical computer. The options are Enabled and **Disabled**. (**Note**: If there is any change to this setting, you will need to power off and restart the system for the change to take effect.) Please refer to Intel's web site for detailed information.

### Intel EIST Support (Available if supported by the CPU.)

Select Enabled to use the Enhanced Intel SpeedStep Technology and allow the system to automatically adjust  processor voltage and core frequency in an effort to  reduce power consumption and heat dissipation.  The options are Enabled and **Disabled**. **Please refer to Intel's web site for detailed information.**

### C-State package limit setting

If set to Auto, the AMI BIOS will automatically set the limit on the C-State package register. The options are **C1**, C2, C3, and C4.

## ▶I/O Device Configuration

Access the submenu to make changes to the following settings.

### KBC Clock Input

This feature allows you to select clock frequency for the keyboard controller. The options are 6MHz, 8MHz, **12MHz,** and 16MHz.

### Serial Port A

This feature allows you to decide how Serial Port A is managed in the system. The options are **Enabled** (user defined), Disabled, and Auto (BIOS- or OS-controlled).

### Base I/O Address

This feature allows you to select the base I/O address for Serial Port A. The options are **3F8**, 2F8, 3E8, and 2E8.

### Interrupt

This feature allows you to select the IRQ (interrupt request) for Serial Port A. The options are IRQ3 and **IRQ4**.

### Serial Port B

This feature allows you to decide how Serial Port B is managed in the system. The options are **Enabled** (user defined), Disabled, Auto (BIOS controlled) and OS Controlled.

### Mode

This feature allows you to set the type of device that will be connected to Serial Port B. The options are **Normal** and IR (for an infrared device).

### Base I/O Address

This feature allows you to select the base I/O address for Serial Port B. The options are 3F8, **2F8**, 3E8 and 2E8.

### Interrupt

This feature allows you to select the IRQ (interrupt request) for Serial Port B. The options are **IRQ3** and IRQ4.

### Parallel Port

This feature allows you to decide how Parallel Port is managed in the system. The options are **Enabled** (user defined), Disabled and Auto (BIOS-or OS- controlled).

### Base I/O Address

This feature allows you to select the base I/O address for Parallel Port. The options are **378**, 278 and 3BC.

**Interrupt**

This feature allows you to select the IRQ (interrupt request) for the parallel port. The options are IRQ5 and **IRQ7**.

**Mode**

This feature allows you to specify the parallel port mode. The options are Output only, Bi-Directional, EPP and **ECP**.

**DMA Channel**

This item allows you to specify the DMA channel for the parallel port. The options are DMA1 and **DMA3**.

**Floppy Disk Controller**

This feature allows you to decide how Floppy Disk Controller is managed in the system. The options are **Enabled** (user defined), Disabled, and Auto (BIOS and OS controlled).

**Base I/O Address**

This feature allows you to select the base I/O address for the floppy drive. The options are **Primary** and Secondary.

**▶DMI Event Logging**

Access the submenu to make changes to the following settings.

**Event Log Validity**

This is a display to inform you of the event log validity. It is not a setting.

**Event Log Capacity**

This is a display to inform you of the event log capacity. It is not a setting.

**View DMI Event Log**

Highlight this item and press <Enter> to view the contents of the event log.

**Event Logging**

This setting allows you to **Enable** or Disable event logging.

**ECC Event Logging**

This setting allows you to **Enable** or Disable ECC event logging.

**Mark DMI Events as Read**

Highlight this item and press <Enter> to mark the DMI events as read.

**Clear All DMI Event Logs**

Select Yes and press <Enter> to clear all DMI event logs. The options are Yes and **No**.

▶**Console Redirection**

Access the submenu to make changes to the following settings.

### COM Port Address

This item allows you to specify which COM port to direct the remote console to: Onboard COM A or Onboard COM B. This setting can also be **Disabled**.

### BAUD Rate

This item allows you to set the BAUD rate for Console Redirection. The options are 300, 1200, 2400, 9600, **19.2K**, 38.4K, 57.6K, and 115.2K.

### Console Type

This item allows you to choose the console redirection type. The options are VT100, VT100,8bit, PC-ANSI, 7bit, **PC ANSI**, VT100+, and VT-UTF8.

### Flow Control

This item allows you to set the flow control for the console redirection. The options are: None, XON/XOFF, and **CTS/RTS**.

### Console Connection

This item allows you to decide how the console redirection is to be connected: either **Direct** or Via Modem.

### Continue CR after POST

This item allows you to decide if you want to continue with console redirection after POST routines. The options are On and **Off**.

## ▶Hardware Monitor Logic

**Note:** The Phoenix BIOS will automatically detect the type of CPU(s) and hardware monitoring chip used on the motherboard and will display the Hardware Monitoring Screen accordingly.

### CPU Temperature Threshold

This option allows the user to set a CPU temperature threshold that will activate the alarm system when the CPU temperature reaches this pre-set temperature threshold. The options are 70°C, 75°C, **80°C** and 85°C. (See the note below.)

Highlight this and hit <Enter> to see the status of each item below:

**CPU1 Temperature/CPU1 Second Core**/**CPU2 Temperature/CPU2 Second Core**

**PECI Agent 1 Temperature/PECI Agent 2 Temperature**/**PECI Agent 3 Temperature/ PECI Agent 4 Temperature**

**System Temperature**

**Fan1-Fan8 Speeds**: If the feature of Auto Fan Control is enabled, the BIOS will automatically display the status of the fans indicated in this item.

**Fan Speed Control Modes**

This feature allows the user to decide how the system controls the speeds of the onboard fans. The CPU temperature and the fan speed are correlative. When the CPU on-die temperature increases, the fan speed will also increase, and vice versa. If set to "Server",  the fan speed will be set to optimize server performance.  If the option is set to "Workstation",  the fan speed is set to optimize workstation perfor- mance. Select "Quiet" for the fans to operate as quiet as possible.  Select "Disable" to disable  the fan speed control function to allow the onboard fans to constantly run at full speed (12V). The Options are: 1. Full Speed at 12V, 2. Optimized Server with 3-pin, 3. Optimized Workstation with 3-pin, 4. Optimized Server with 4-pin, and 5. Optimized Workstation with 4-pin.

### Voltage Monitoring

The following items will be monitored and displayed:

Vcore A/Vcore B/-12V/P1V5/+3.3V/+12V/5Vsb/5VDD/P_VTT/Vbat

**Note:** In the Windows OS environment, the Supero Doctor III settings take prece- dence over the BIOS settings. When first installed, Supero Doctor III adopts the temperature threshold settings previously set in the BIOS. Any subsequent changes to these thresholds must be made within Supero Doctor, since the SD III settings override the BIOS settings. For the Windows OS to adopt the BIOS temperature threshold settings, please change the SDIII settings to be the same as those set in the BIOS.

▶**IPMI (The option is available only when an IPMI card is installed in the system.)**

```
                    PhoenixBIOS Setup Utility
         Advanced

              IPMI                          Item Specific Help

 IPMI Specification Version   2.0          Enable/Disable IPMI
 Firmware Version             1.60.0       event logging. Disabling
                                           will still log events
 System Event Logging        [Enabled]     received via the system
 Clear System Event Log      [Disabled]    interface.
 Existing Event Log number   126
 Event Log Control
    SYS Firmware Progress    [Disabled]
    BIOS POST Errors         [Enabled]

 BIOS POST Watchdog          [Disabled]
 OS boot Watchdog            [Disabled]
    Timer for loading OS (min) [ 10]
    Time out action          [No Action]

 F1   Help   ↑↓  Select Item  -/+   Change Values    F9   Setup Defaults
 Esc  Exit    ·  Select Menu   Enter Select ▶ Sub-Menu F10  Save and Exit
```

**IPMI Specification Version:** This item displays the current IPMI Version.

**Firmware Version:** This item displays the current Firmware Version.

### System Event Logging

Select Enabled to enable IPMI Event Logging. When this function is set to Disabled, the system will continue to log events received via system interface. The options are **Enabled** and Disabled.

### Clear System Event Logging

Select Enabled to force the BIOS to clear the system event logs during the next cold boot. The options are Enabled and **Disabled**.

### Existing Event Log Number

This item displays the number of the existing event log.

### Event Log Control

#### System Firmware Progress

Select Enabled to log POST progress. The options are Enabled and **Disabled**.

#### BIOS POST Errors

Select Enabled to log POST errors. The options are Enabled and **Disabled**.

### BIOS POST Watch Dog

Select Enabled to enable POST Watch Dog. The options are Enabled and **Disabled**.

## OS Boot Watch Dog

Set to Enabled to enable OS Boot Watch Dog. The options are Enabled and **Disabled**.

### Timer for Loading OS (Minutes)

This feature allows the user to set the time value (in minutes) for the previous item: OS Boot Watch Dog by keying-in a desired number in the blank. The default setting is **10 (minutes.)** (Please ignore this option when OS Boot Watch Dog is set to "Disabled".)

### Time Out Option

This feature allows the user to determine what action to take in an event of a system boot failure. The options are **No Action**, Reset, Power Off and Power Cycles.

## ▶System Event Log/System Event Log (List Mode)

These options display the System Event (SEL) Log and System Event (SEL) Log in List Mode. Items include: SEL (System Event Log) Entry Number, SEL Record ID, SEL Record Type, Time Stamp, Generator ID, SEL Message Revision, Sensor Type, Sensor Number, SEL Event Type, Event Description, and SEL Event Data.

```
                      PhoenixBIOS Setup Utility
         Advanced

                      System Event Log (list mode)


     Event ID   Sensor Name       Sensor Type      Date/Time Stamp
     ---------------------------------------------------------------
  ▶  0001       Fan2              Fan              04.27.2009  10:51:36
               Lower Non-critical Going Low. Assertion
  ▶  0002       Fan2              Fan              04.27.2009  10:51:36
               Lower Critical Going Low. Assertion
  ▶  0003       Fan2              Fan              04.27.2009  10:51:36
               Lower Non-recoverable Going Low. Assertion
  ▶  0004       Fan3              Fan              04.27.2009  10:51:36
               Lower Non-critical Going Low. Assertion
  ▶  0005       Fan3              Fan              04.27.2009  10:51:36
               Lower Critical Going Low. Assertion
  ▶  0006       Fan3              Fan              04.27.2009  10:51:36
               Lower Non-recoverable Going Low. Assertion



     F1   Help  ↑↓  Select Item   -/+   Change Values   F9   Setup Defaults
     Esc  Exit   ←  Select Menu  Enter  Select ▶ Sub-Menu  F10  Save and Exit
```

**▶Realtime Sensor Data**

This feature display information from motherboard sensors, such as temperatures, fan speeds and voltages of various components.

**▶IPMI LAN Configuration**

The following features allow the user to configure and monitor IPMI LAN settings.
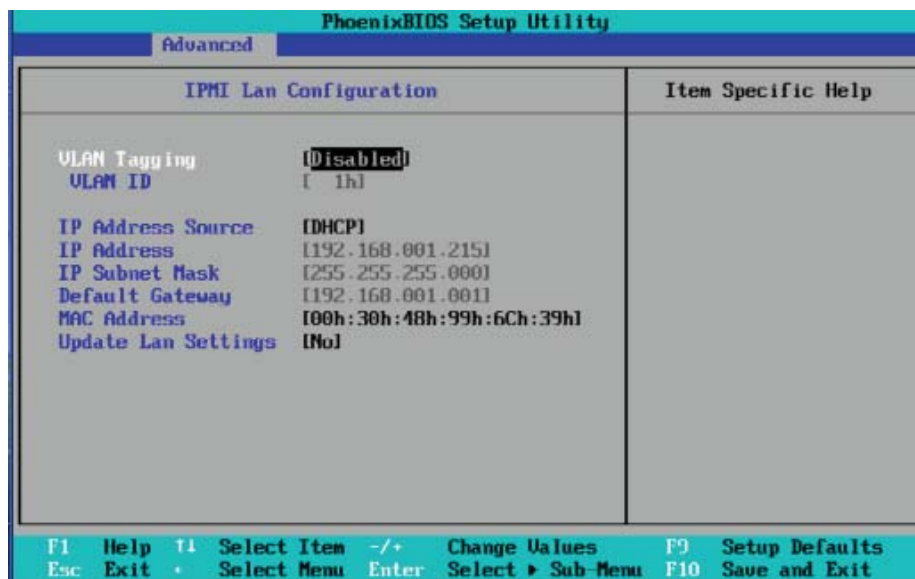


**VLAN Tagging**

Select Enabled to enable Virtual LAN(s) for IPMI connections and allow the user to configure VLAN settings. The options are Enabled and **Disabled**.

**VLAN ID**

If VLAN Tagging above is set to Enabled, this item allows the user to change the VLAN ID. If VLAN Tagging is disabled, this item will be ignored by the firmware.

**IP Address Source**

This item allows the user to select the IP address source for the connection. The options are **DHCP** and Static.

**IP Address**

This item displays the IP address for the IPMI connection detected.

**IP Subnet Mask**

This item displays the IP Subnet Mask for the IPMI connection detected.

**Default Gateway**

This item displays the Default Gateway for the IPMI connection detected.

**MAC Address**

This item displays the MAC Address for the IPMI connection detected.

**Update LAN Settings**

Select Yes to allow BIOS update LAN setting. The options are Yes and **No**.

## 4-5    Security Settings

Choose Security from the Phoenix BIOS Setup Utility main menu with the arrow keys. You should see the following display. All Security BIOS settings are described in this section.

```
           PhoenixBIOS Setup - Copyright 1985-2004 Phoenix Technologies Ltd.
    Main    Advanced    Security    Boot    Exit

                                                        Item Specific Help
       Supervisor Password Is:
       User Password Is:

       Set Supervisor Password
       Set User Password

       Set Default Password          [Disabled]
       Supervisor Default Password

                                     [Disabled]









    F1   Help   ↑↓ Select Item   -/+    Change Values     F9   Setup Defaults
    Esc  Exit   ↔ Select Menu    Enter  Select ▶ Sub-Menu F10  Previous Values
```
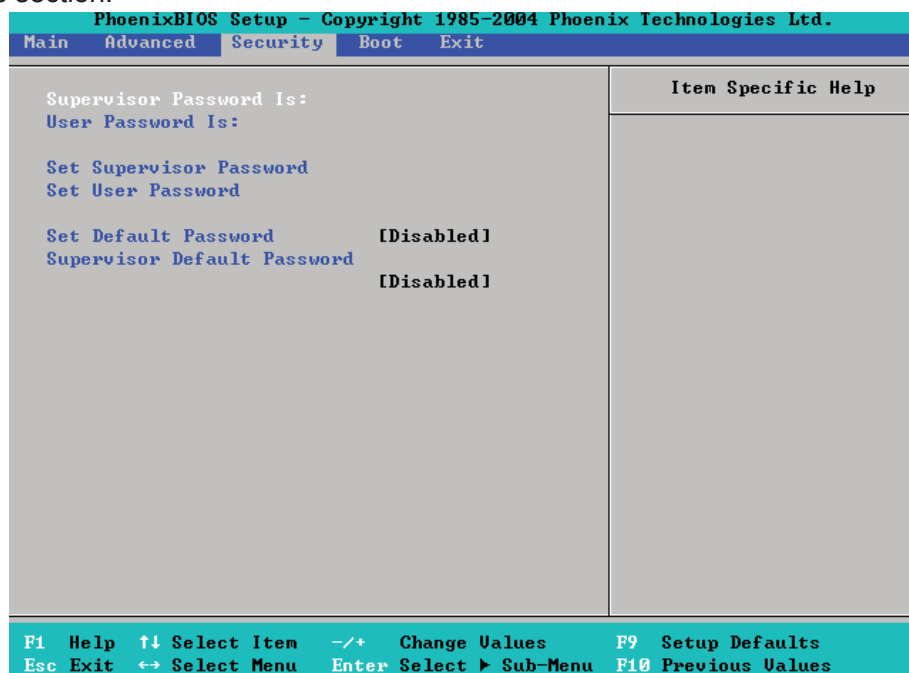
**Supervisor Password Is:**

This item indicates if a supervisor password has been entered to the system.  Clear means such a password has not been used and Set means a supervisor password has been entered for the system.

**User Password Is:**

This item indicates if a user password has been entered to the system. Clear means such a password has not been used and Set means a user password has been entered for the system.

**Set Supervisor Password**

When the item "Set Supervisor Password" is highlighted, press the <Enter> key. When prompted, enter the Supervisor's password in the dialogue box to set or to change supervisor's password, which allows access to the BIOS.

**Set User Password**

When the item "Set User Password" is highlighted, press the <Enter> key. When prompted, enter the user's password in the dialogue box to set or to change the user's password, which allows access to the system at boot-up.

### Password on Boot

This setting allows you to decide if a password is required for a user to enter the system at boot-up. The options are Enabled (password required) and Disabled (password not required).

# 4-6 Boot Settings

Choose Boot from the Phoenix BIOS Setup Utility main menu with the arrow keys. You should see the following display. See details on how to change the order and specs of boot devices in the Item Specific Help window. All Boot BIOS settings are described in this section.
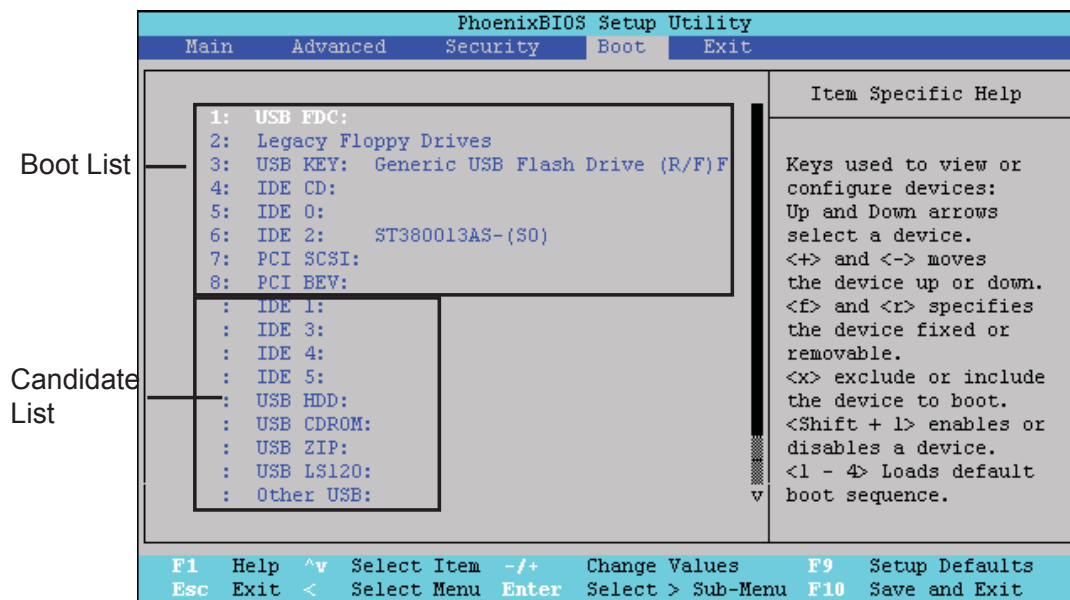
```
                        PhoenixBIOS Setup Utility
     Main      Advanced      Security      Boot      Exit

                                               Item Specific Help
     1:  USB FDC:
     2:  Legacy Floppy Drives
     3:  USB KEY:   Generic USB Flash Drive (R/F)F   Keys used to view or
     4:  IDE CD:                                     configure devices:
     5:  IDE 0:                                      Up and Down arrows
     6:  IDE 2:        ST380013AS-(S0)               select a device.
     7:  PCI SCSI:                                   <+> and <-> moves
     8:  PCI BEV:                                    the device up or down.
      :  IDE 1:                                      <f> and <r> specifies
      :  IDE 3:                                      the device fixed or
      :  IDE 4:                                      removable.
      :  IDE 5:                                      <x> exclude or include
      :  USB HDD:                                    the device to boot.
      :  USB CDROM:                                  <Shift + 1> enables or
      :  USB ZIP:                                    disables a device.
      :  USB LS120:                                  <1 - 4> Loads default
      :  Other USB:                              v   boot sequence.


     F1   Help   ^v   Select Item   -/+   Change Values   F9    Setup Defaults
     Esc  Exit   <    Select Menu   Enter Select > Sub-Menu  F10  Save and Exit
```

Boot List — points to items 1-8

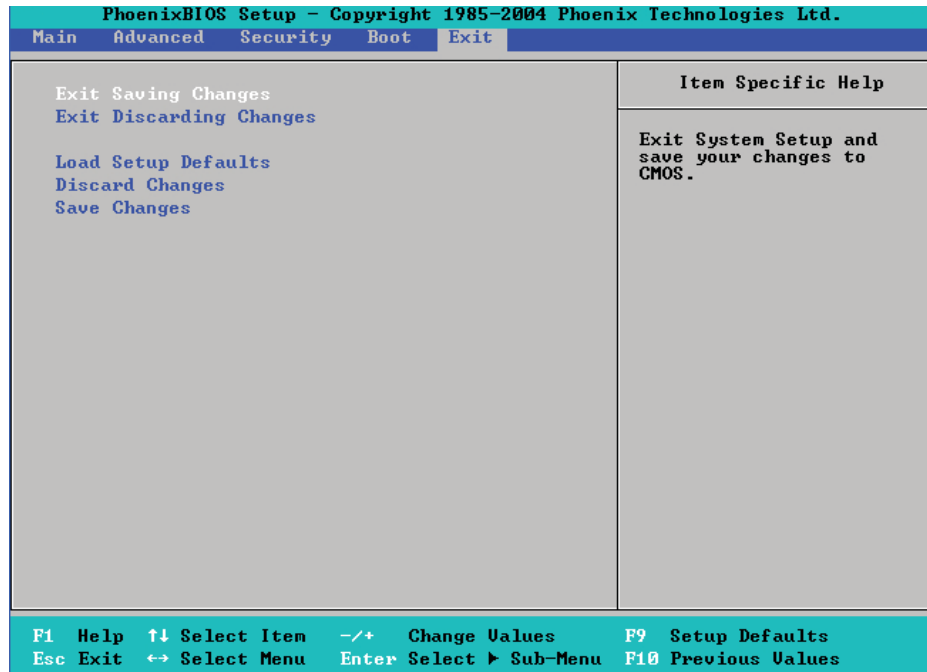Candidate List — points to the lower items

### Boot Priority Order/Excluded from Boot Orders

The devices included in the boot list section (above) are bootable devices listed in the sequence of boot order as specified. The boot functions for the devices included in the candidate list (above) are currently disabled. Use a <+> key or a <-> key to move the device up or down. Use the <f> key or the <r> key to specify the type of an USB device, either fixed or removable. You can select one item from the boot list and hit the <x> key to remove it from the list of bootable devices (to make its resource available for other bootable devices). Subsequently, you can select an item from the candidate list and hit the <x> key to remove it from the candidate list and put it in the boot list. This item will then become a bootable device. See details on how to change the priority of boot order of devices in the "Item Specific Help" window.

## 4-7    Exit

Choose Exit from the Phoenix BIOS Setup Utility main menu with the arrow keys. You should see the following display. All Exit BIOS settings are described in this section.

```
        PhoenixBIOS Setup - Copyright 1985-2004 Phoenix Technologies Ltd.
   Main    Advanced    Security    Boot    Exit

                                                        Item Specific Help
     Exit Saving Changes
     Exit Discarding Changes
                                                    Exit System Setup and
     Load Setup Defaults                            save your changes to
     Discard Changes                                CMOS.
     Save Changes




   F1   Help   ↑↓ Select Item    -/+    Change Values     F9   Setup Defaults
   Esc  Exit   ↔  Select Menu    Enter  Select ▶ Sub-Menu  F10  Previous Values
```

### Exit Saving Changes

Highlight this item and press <Enter> to save any changes you made and to exit the BIOS Setup utility.

### Exit Discarding Changes

Highlight this item and press <Enter> to exit the BIOS Setup utility without saving any changes you may have made.

### Load Setup Defaults

Highlight this item and press <Enter> to load the default settings for all items in the BIOS Setup. These are the safest settings to use.

### Discard Changes

Highlight this item and press <Enter> to discard (cancel) any changes you made. You will remain in the Setup utility.

### Save Changes

Highlight this item and press <Enter> to save any changes you made. You will remain in the Setup utility.

# Appendix A

# POST Error Beep Codes

This section lists POST (Power On Self Test) error beep codes for the Phoenix BIOS. POST error beep codes are divided into two categories: recoverable and terminal. This section lists  Beep Codes for recoverable POST errors.

## Recoverable POST Error Beep Codes

When a recoverable type of error occurs during POST, BIOS will display a POST code that describes the problem. BIOS may also issue one of the following beep codes:

1 long and two short beeps - video configuration error
1 repetitive long beep - no memory detected
1 continuous beep (with the front panel OH LED on) - system overheat

# Notes

# Appendix B

# Installing Other Software Programs and Drivers

## B-1    Installing Software and Drivers

After you've installed the Windows Operating System, a screen as shown below will appear. You are ready to install software programs and  drivers that have not yet been installed. To install these software programs and  drivers, click the icons to the right of these items.

**Note:** To install the Windows OS, please refer to the Windows OS Installation Guide posted at http://www.supermicro.com/support/manuals/.
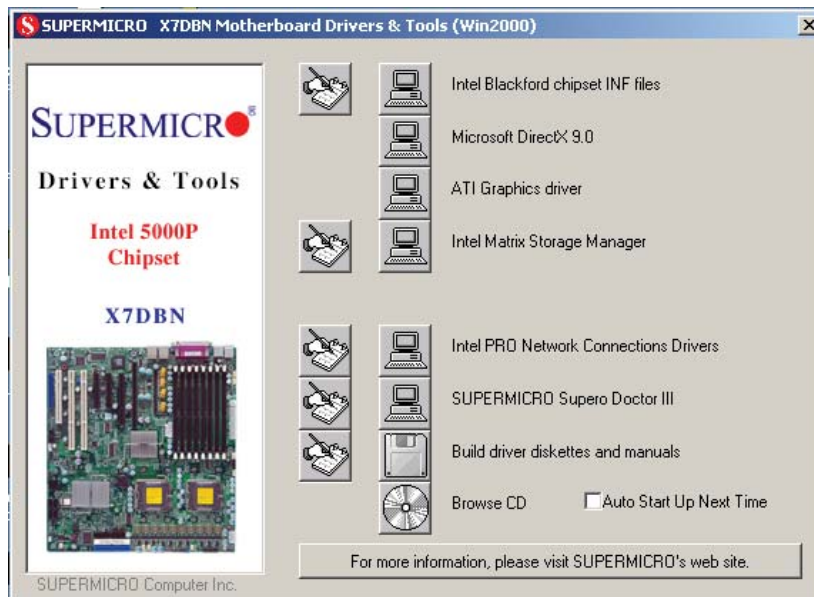


**Driver/Tool Installation Display Screen**

**Note 1**: Click the icons showing a hand writing on the paper to view the readme files for each item.  Click a computer icon to the right of an item to install an item (from top to the bottom) one at a time.  **After installing each item, you must re-boot the system before proceeding with the next item on the list.** The bottom icon with a CD on it allows you to view the entire contents of the CD.

**Note 2.** When making a storage driver diskette by booting into a Driver CD, please set the SATA Configuration to "Compatible Mode" and configure SATA as IDE in the BIOS Setup. After making the driver diskette, be sure to change the SATA settings back to your original settings.

## B-2    Configuring Supero Doctor III

The Supero Doctor III program is a Web-base management tool that supports remote management capability. It includes Remote and Local Management tools. The local management is called the SD III Client. The Supero Doctor III program included on the CDROM that came with your motherboard allows you  to monitor the environment and operations of your system.  Supero Doctor III displays crucial system information such as CPU temperature, system voltages and fan status.  See the Figure below for a display of the Supero Doctor III interface.

**Note 1:** The default user name and password are ADMIN.

**Note 2:** In the Windows OS environment, the Supero Doctor III settings take precedence over the BIOS settings. When first installed, Supero Doctor III adopts the temperature threshold settings previously set in the BIOS. Any subsequent changes to these thresholds must be made within Supero Doctor, since the SD III settings override the BIOS settings. For the Windows OS to adopt the BIOS temperature threshold settings, please change the SDIII settings to be the same as those set in the BIOS.

**Supero Doctor III Interface Display Screen-I (Health Information)**

**Supero Doctor III Interface Display Screen-II  (Remote Control)**



**Note**: SD III Software Revision 1.0 can be downloaded from our Web site at: ftp://
ftp.supermicro.com/utility/Supero_Doctor_III/.  You can also download SDIII User's
Guide at: http://www.supermicro.com/PRODUCT/Manuals/SDIII/UserGuide.pdf. For
Linux, we will still recommend that you use Supero Doctor II.

**Notes**

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