

# C7B75

# USER'S MANUAL

Revision 1.0

The information in this User's Manual has been carefully reviewed and is believed to be accurate. The vendor assumes no responsibility for any inaccuracies that may be contained in this document, makes no commitment to update or to keep current the information in this manual, or to notify any person or organization of the updates. **Please Note: For the most up-to-date version of this manual, please see our web site at www.supermicro.com.**

Super Micro Computer, Inc. ("Supermicro") reserves the right to make changes to the product described in this manual at any time and without notice. This product, including software and documentation, is the property of Supermicro and/or its licensors, and is supplied only under a license. Any use or reproduction of this product is not allowed, except as expressly permitted by the terms of said license.

IN NO EVENT WILL SUPER MICRO COMPUTER, INC. BE LIABLE FOR DIRECT, INDIRECT, SPECIAL, INCIDENTAL, SPECULATIVE OR CONSEQUENTIAL DAMAGES ARISING FROM THE USE OR INABILITY TO USE THIS PRODUCT OR DOCUMENTATION, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGES. IN PARTICULAR, SUPER MICRO COMPUTER, INC. SHALL NOT HAVE LIABILITY FOR ANY HARDWARE, SOFTWARE, OR DATA STORED OR USED WITH THE PRODUCT, INCLUDING THE COSTS OF REPAIRING, REPLACING, INTEGRATING, INSTALLING OR RECOVERING SUCH HARDWARE, SOFTWARE, OR DATA.

Any disputes arising between manufacturer and customer shall be governed by the laws of Santa Clara County in the State of California, USA. The State of California, County of Santa Clara shall be the exclusive venue for the resolution of any such disputes. Supermicro's total liability for all claims will not exceed the price paid for the hardware product.

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

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

California Best Management Practices Regulations for Perchlorate Materials: This Perchlorate warning applies only to products containing CR (Manganese Dioxide) Lithium coin cells. "Perchlorate Material-special handling may apply. See www.dtsc.ca.gov/hazardouswaste/perchlorate".

**WARNING: Handling of lead solder materials used in this product may expose you to lead, a chemical known to the State of California to cause birth defects and other reproductive harm.**

Manual Revision 1.0

Release Date: November 29, 2012

Unless you request and receive written permission from Super Micro Computer, Inc., you may not copy any part of this document. Information in this document is subject to change without notice. Other products and companies referred to herein are trademarks or registered trademarks of their respective companies or mark holders.

Copyright © 2012 by Super Micro Computer, Inc. All rights reserved.
**Printed in the United States of America**

# Preface

This manual is written for system integrators, PC technicians and knowledgeable PC users. It provides information for the installation and use of the SUPERO® C7B75 motherboard.

## About This Motherboard

The SUPERO® C7B75 supports a single 2nd & 3rd generation Intel® Core™ i7/i5/i3, Pentium® and Celeron® processors in an LGA1155 Socket. With the Intel® B75 Express chipset built in, the C7B75 motherboard offers substantial enhancements in system performance and storage capability for intermediate performance system platforms in a sleek package. Please refer to our website (http://www.supermicro.com/products/) for processor and memory support updates. This product is intended to be installed and serviced by professional technicians.

## Manual Organization

**Chapter 1** describes the features, specifications and performance of the motherboard, and provides detailed information on the Intel B75 Express 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 video, memory and system setup stored in the CMOS.

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

**Appendix A** provides BIOS Error Beep Codes.

**Appendix B** lists software program installation instructions**.**

**Appendix C** contains UEFI BIOS Recovery 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:** Critical information to prevent damage to the components or data loss.



**Important:** Important information given to ensure proper system installation or to relay safety precautions.



**Note:** Additional Information given to differentiate various models or provides information for correct system setup.

## 1-4 Contacting Supermicro

**Headquarters**

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

**Europe**

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

**Asia-Pacific**

| | |
|---|---|
| Address: | Super Micro Computer, Inc.<br>4F, No. 232-1, Liancheng Rd<br>New Taipei City 235<br>Taiwan |
| 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)-8226-3990 |

# Table of Contents


***Preface***

About This Motherboard ..... iii
Manual Organization ..... iii
Conventions Used in the Manual: ..... iv
1-4 Contacting Supermicro ..... v

***Chapter 1***

***Introduction***

1-1 Overview ..... 1-1
Checklist ..... 1-1
Motherboard Features ..... 1-6
1-2 Chipset Overview ..... 1-9
Intel B75 Express Chipset Features ..... 1-9
1-3 Special Features ..... 1-10
Recovery from AC Power Loss ..... 1-10
1-4 PC Health Monitoring ..... 1-10
Fan Status Monitor with Firmware Control ..... 1-10
Environmental Temperature Control ..... 1-10
System Resource Alert ..... 1-10
1-5 ACPI Features ..... 1-11
Slow Blinking LED for Suspend-State Indicator ..... 1-11
1-6 Power Supply ..... 1-11
1-7 Super I/O ..... 1-12

***Chapter 2***

***Installation***

2-1 Static-Sensitive Devices ..... 2-1
Precautions ..... 2-1
Unpacking ..... 2-1
2-2 Processor and Heatsink Installation ..... 2-2
Installing the LGA1155 Processor ..... 2-2
Installing an Active CPU Heatsink with Fan ..... 2-5
Removing the Heatsink ..... 2-7
2-3 Installing DDR3 Memory ..... 2-8
DIMM Installation ..... 2-8
Removing Memory Modules ..... 2-8
Memory Support ..... 2-9

Memory Population Guidelines ..... 2-9
2-4 Motherboard Installation ..... 2-11
Tools Needed ..... 2-11
Location of Mounting Holes ..... 2-11
Installing the Motherboard ..... 2-12
2-5 Connectors/IO Ports ..... 2-13
Backplane I/O Panel ..... 2-13
Universal Serial Bus (USB) ..... 2-14
Ethernet Ports ..... 2-15
Back Panel High Definition Audio (HD Audio) ..... 2-15
Front Accessible Audio Header ..... 2-16
DVI Port (DVI) ..... 2-17
VGA Port (VGA) ..... 2-17
Serial Port (COM1,COM2) ..... 2-17
Front Control Panel ..... 2-18
Front Control Panel Pin Definitions ..... 2-19
Power LED ..... 2-19
HDD LED ..... 2-19
NIC1 (LAN1) ..... 2-20
Overheat (OH)/Fan Fail ..... 2-20
Reset Button ..... 2-21
Power Button ..... 2-21
2-6 Connecting Cables ..... 2-22
ATX Main PWR & CPU PWR Connectors (JPW1 & JPW2) ..... 2-22
Fan Headers (Fan 1 ~ Fan 4) ..... 2-23
Chassis Intrusion (JL1) ..... 2-23
Internal Buzzer (SP1) ..... 2-24
Speaker (JD1) ..... 2-24
Onboard Power LED (JLED) ..... 2-25
Serial Ports (COM1 ~ COM4) ..... 2-25
DOM PWR Connector (JSD1) ..... 2-26
Wake-On-LAN (JWOL) ..... 2-26
Wake-On-Ring (JWOR) ..... 2-27
Power LED Header (JLED1) ..... 2-27
TPM Header (JTPM1) ..... 2-28
2-7 Jumper Settings ..... 2-29
Explanation of Jumpers ..... 2-29
CMOS Clear (JBT1) ..... 2-29

PCI Slot SMB Enable (JI2C1/JI2C2) ..... 2-30
ATX Mode (JAT1) ..... 2-30
Manufacturing Mode (JPME2) ..... 2-31
Audio Enable (JPAC1) ..... 2-31
TPM Support Enable (JPT1) ..... 2-32
2-8 Onboard Indicators ..... 2-33
LAN LEDs ..... 2-33
Onboard Power LED (LED1) ..... 2-33
2-9 SATA Connections ..... 2-34
SATA Connections (I-SATA0~I-SATA5) ..... 2-34

***Chapter 3***

***Troubleshooting***

3-1 Troubleshooting Procedures ..... 3-1
Before Power On ..... 3-1
No Power ..... 3-1
No Video ..... 3-2
Memory Errors ..... 3-2
Losing the System's Setup Configuration ..... 3-2
3-2 Technical Support Procedures ..... 3-2
3-3 Frequently Asked Questions ..... 3-3
3-4 Battery Removal and Installation ..... 3-5
Battery Removal ..... 3-5
Proper Battery Disposal ..... 3-5
3-5 Returning Merchandise for Service ..... 3-6
Battery Installation ..... 3-6

***Chapter 4***

***BIOS***

4-1 Introduction ..... 4-1
Starting BIOS Setup Utility ..... 4-1
How To Change the Configuration Data ..... 4-1
How to Start the Setup Utility ..... 4-2
4-2 Main Setup ..... 4-2
System Overview: The following BIOS information will be displayed: ..... 4-3
System Time/System Date ..... 4-3
Supermicro C7B75 ..... 4-3
Version ..... 4-3
Build Date ..... 4-3

Processor ..... 4-3
Type of Processor ..... 4-3
Speed ..... 4-3
System Memory ..... 4-3
Size ..... 4-3
4-3 Advanced Setup Configurations ..... 4-4
▶Boot Feature ..... 4-4
Quiet Boot ..... 4-4
AddOn ROM Display Mode ..... 4-4
Bootup Num-Lock ..... 4-4
Wait For 'F1' If Error ..... 4-4
Interrupt 19 Capture ..... 4-5
Re-try Boot ..... 4-5
Power Configuration ..... 4-5
Watch Dog Function ..... 4-5
Power Button Function ..... 4-5
Restore on AC Power Loss ..... 4-5
▶CPU Configuration ..... 4-5
Active Processor Cores ..... 4-6
Limit CPUID Maximum ..... 4-6
Execute-Disable Bit ..... 4-6
Intel® Virtualization Technology ..... 4-6
Hardware Prefetcher ..... 4-6
Adjacent Cache Line Prefetch ..... 4-6
Clock Spread Spectrum ..... 4-6
▶Chipset Configuration ..... 4-8
▶SATA Configuration ..... 4-11
SATA Mode Selection ..... 4-11
▶PCIe/PCI/PnP Configuration ..... 4-12
VGA Priority ..... 4-12
PCI ROM Priority ..... 4-12
PCI Latency Timer ..... 4-12
Maximum Payload Size ..... 4-12
Maximum Read Request ..... 4-12
ASPM Support ..... 4-12
SLOT4 PCI-E 2.0 x4 (in x16 ) OPROM ..... 4-13
SLOT5 PCI 33MHz OPROM ..... 4-13
SLOT6 PCI-E 2.0 x1 OPROM ..... 4-13

SLOT7 PCI-E 3.0 x16 OPROM ..... 4-13
Load Onboard LAN1 Option ROM ..... 4-13
Network Stack ..... 4-13
IPv4 PXE Support ..... 4-13
IPv6 PXE Support ..... 4-13
▶Super IO Configuration ..... 4-13
NCT6776F ..... 4-13
Serial Port 1, Serial Port 2 ..... 4-13
Serial Port 1 Settings ..... 4-14
Serial Port 2 Settings ..... 4-14
IT8760 ..... 4-14
Serial Port 3, Serial Port 4 ..... 4-14
Serial Port 3 Settings ..... 4-14
Serial Port 4 Settings ..... 4-14
▶Hardware Health Configuration ..... 4-14
Fan Speed Control Mode ..... 4-14
CPU Temperature Display Mode ..... 4-15
System Temperature / Peripheral Temperature ..... 4-15
Fan 1 ~ Fan 4 Speed ..... 4-15
VCORE, 12V, VDIMM, 5VCC, CPU VTT, AVCC, 3.3VCC, VSB, VBAT ..... 4-15
▶ACPI Settings ..... 4-16
High Precision Event Timer ..... 4-16
ACPI Sleep State ..... 4-16
▶Trusted Computing ..... 4-16
Trusted Computing Configuration ..... 4-16
▶PCH-FW Configuration ..... 4-18
Me Firmware Re-Flash ..... 4-18
▶Intel® Ethernet Controller 10 Gigabit ..... 4-18
Blink LEDs (range 1-15 seconds) ..... 4-18
PORT CONFIGURATION INFORMATION ..... 4-18
4-4 Boot Settings ..... 4-19
▶Boot Options Priority ..... 4-19
Boot Option #1, Boot option #2, Boot Option #3, etc ..... 4-19
UEFI Boot Drive BBS Priorities ..... 4-19
Add New Boot Option ..... 4-19
▶Delete Boot Option ..... 4-19
4-3 Security Settings ..... 4-20
Password Check ..... 4-20
Administrator Password ..... 4-20

4-5 Save and Exit Options ..... 4-21
Save Changes and Reset ..... 4-21
Save Options ..... 4-21
Save Changes ..... 4-21
Discard Changes ..... 4-21
Restore Optimized Defaults ..... 4-22
Save as User Defaults ..... 4-22
Restore User Defaults ..... 4-22
Boot Override ..... 4-22

***Appendix A***

***BIOS Error Beep Codes***

A-1 BIOS Error Beep Codes ..... A-1

***Appendix B***

***Software Installation Instructions***

B-1 Installing Drivers ..... B-1
B-2 Configuring SuperDoctor® III ..... B-2

***Appendix C***

***UEFI BIOS Recovery Instructions***

C-1 An Overview to the UEFI BIOS ..... C-1
C-2 How to Recover the UEFI BIOS Image (-the Main BIOS Block) ..... C-1
C-3 To Recover the Boot Sector Using a USB-Attached Device ..... C-1

## Notes

# 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.

Please check that the following items have all been included with your motherboard. If anything listed here is damaged or missing, contact your retailer.

The following items are included in the retail box.

- One (1) Supermicro Motherboard
- Two (2) SATA cables
- One (1) I/O shield
- One (1) Quick Reference Guide



**Note:** For your system to work properly, please follow the links below to download all necessary drivers/utilities and the user's manual for your motherboard.

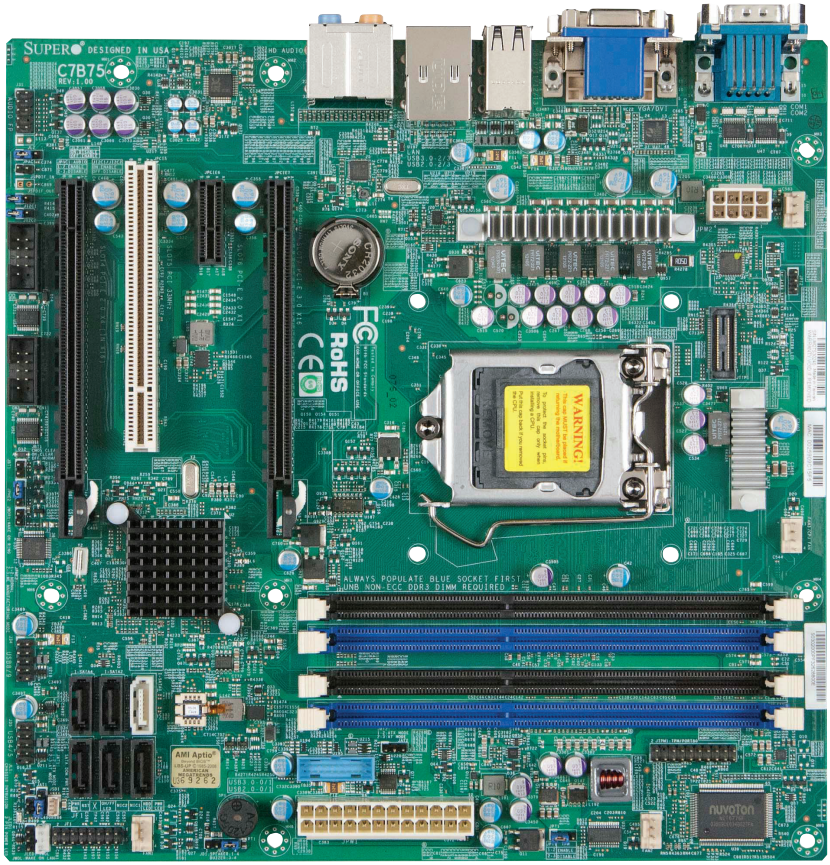
- SMCI product manuals: http://www.supermicro.com/support/manuals/
- Product Drivers and utilities: ftp://ftp.supermicro.com/



**Warning:** For safety considerations, please refer to the complete list of safety warnings posted on the Supermicro website at http://www.supermicro.com/about/policies/safety_information.cfm.

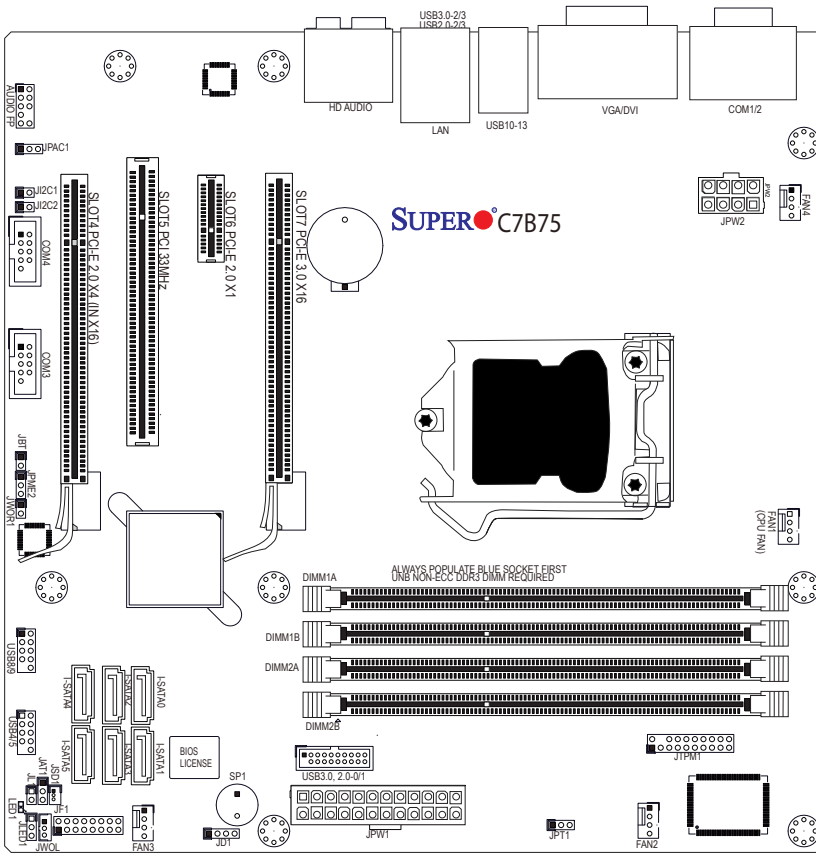
If you have any questions, please contact our support team at support@supermicro.com.

## SUPER® C7B75 Motherboard Image




**Note**: All graphics shown in this manual were based upon 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 this manual.

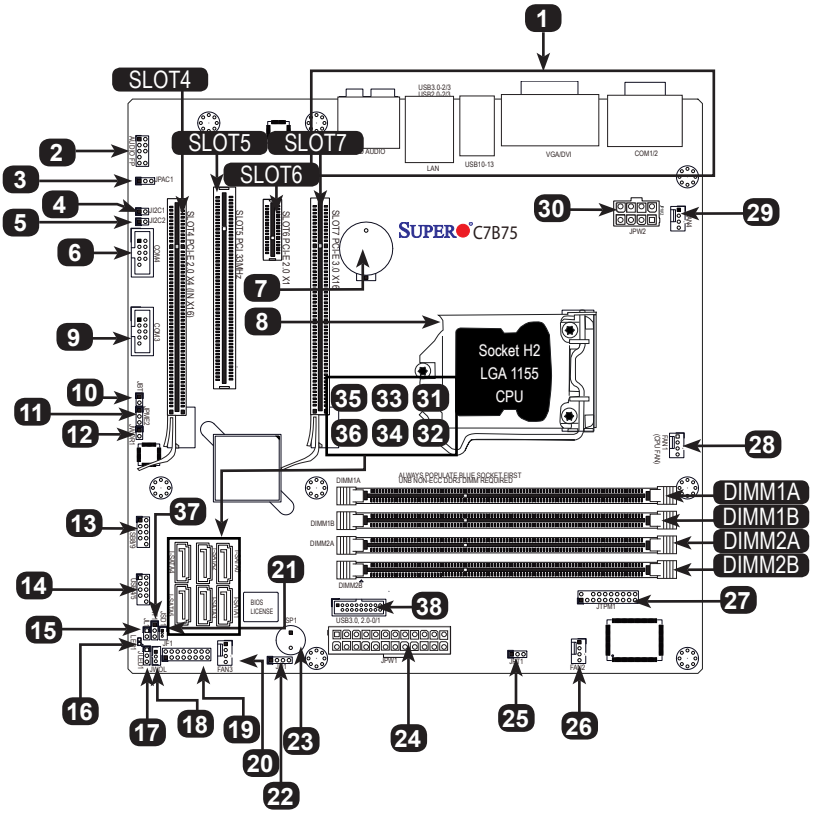
**C7B75 Motherboard Layout**




## Important Notes to the User

- See Chapter 2 for detailed information on jumpers, I/O ports and JF1 front panel connections.
- "■" indicates the location of "Pin 1".
- Jumpers not indicated are for testing only.
- When LED1 (Onboard Power LED Indicator) is on, system power is on. Unplug the power cable before installing or removing any components.

## C7B75 Quick Reference




| C7B75 Jumpers | | | |
|---|---|---|---|
| Number | Name | Description | Default Setting |
| 3 | JPAC1 | Audio Enable | Pins 1-2 (Enabled) |
| 4,5 | JI2C1,JI2C2 | SMB to PCI Slots | Off (Disabled) |
| 10 | JBT1 | CMOS Reset | Off (Disabled) |
| 11 | JPME2 | Intel ME Manufacturing Mode | Pins 1-2 (Disabled) |
| 22 | JD1 | External Speaker | Pins 3-4 (Disabled, Onboad Buzzer Enabled) |
| 25 | JPT1 | TPM Enable | Pins 2-3 (TPM Disabled) |
| 37 | JAT1 | ATX Mode | Pins 1-2 (ATX Mode On) |

| C7B75 Jumpers and Connectors | | |
|---|---|---|
| Number | Name | Description |
| 1 | Backpanel I/O | See "Backpanel I/O Connectors", page 2-13 |
| 2 | AUDIO FP | Front Panel Audio Header |
| 6,9 | COM4,COM3 | Serial Headers for COM4,COM3 |
| 7 | BAT | System Backup Battery |
| 8 | CPU | Socket H2, LGA1155 CPU |
| 12 | JWOR | Wake-On-Ring Header |
| 13,14 | USB 8/9,4/5 | USB Headers 8/9, 4/5 |
| 15 | JL1 | Chassis Intrusion Header |
| 17 | JLED1 | Power LED Header |
| 18 | JWOL | Legacy Wake-On-LAN Header |
| 19 | JF1 | Front Panel Control/LED Header |
| 20,26,28,29 | FAN 3,2,1,4 | Fan Headers 3,2,1 (CPU Fan),4 |
| 21 | JSD1 | Disk On Module (DOM) Power Header |
| 22 | JD1 | Ext Speaker Header (remove jumper and attach speaker cable) |
| 23 | SP1 | Onboard Buzzer |
| 24 | JPW1 | 24-Pin ATX Power Connector |
| 27 | JTPM1 | Trusted Platform Module (TPM) Header |
| 30 | JPW2 | 8-Pin ATX Auxilliary Power Connector |
| 31~36 | I-SATA 0,1,2,3,4,5 | SATA Ports 0~5 (I-SATA 0 supports 6Gb/s) |
| 38 | USB 0/1 | USB 3.0/2.0 Header 0/1 |

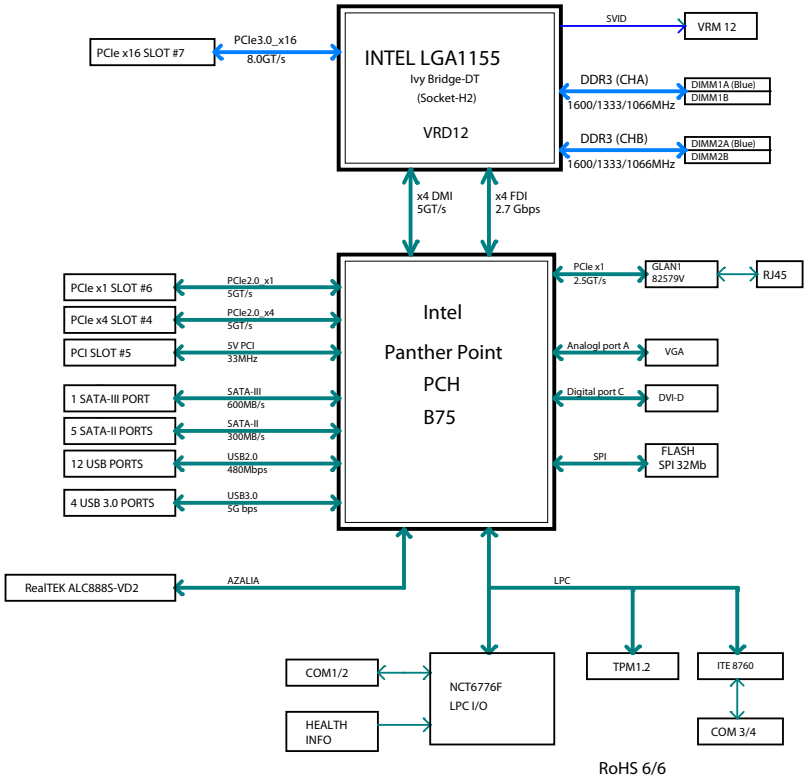
| LED Indicators | | | | |
|---|---|---|---|---|
| Number | Name | Description | LED | Status |
| 16 | LED1 | Onboard Standby PWR LED | Green: Solid on | Power is On |

## Motherboard Features

| | | |
|---|---|---|
| **CPU** | Single 2nd & 3rd generation Intel® Core™ i7/i5/i3, Pentium® and Celeron® processors, LGA1155 Socket. | |
| **Memory** | Four (4) SDRAM slots support up to 32 GB of DDR3 Unbuffered, Non-ECC 1333/1066 memory | |
| | Supports dual-channel memory bus | |
| | **DIMM sizes** | |
| | UDIMM | 1 GB, 2 GB, 4GB, and 8GB |
| **Chipset** | Intel® B75 Express | |
| **Expansion Slots** | One (1) PCI Express 3.0 x1 slot | |
| | One (1) PCI Express 2.0 x4 (in x16) slot | |
| | One (1) PCI Express 3.0 x16 slot | |
| | One (1) PCI 33 MHz slot | |
| **Network Connections** | One (1) Gigabit Ethernet Controller: Intel 82579LM | |
| | One (1) RJ-45 Rear I/O Panel Connector with Link and Activity LEDs | |
| **I/O Devices** | **SATA Connections** | |
| | SATA 3.0 (6Gb/s) | One (1) I-SATA 0 |
| | SATA 2.0 (3Gb/s) | Five (5) I-SATA 1~4 |
| | **USB Devices** | |
| | Four (4) USB 2.0 ports and Two (2) USB 3.0 ports on the rear I/O panel | |
| | Four (4) Front Accessible USB 2.0 ports on two headers, and Two (2) Front Accessible USB 3.0 ports on one header | |
| | **Serial (COM) Ports** | |
| | Two (2) front accessible Serial Port headers (COM3, COM4) and Two (2) COM ports on the Backpanel (COM1, COM2) | |
| | One (1) Serial Port on the back panel (COM1) | |
| | **Audio** | |
| | Five (5) Female Mini Jacks for High Definition Audio on the Back Panel | |
| | Front Panel Audio Header | |
| | One (1) SP/DIF Optical Out on the back panel | |
| | SP/DIF In and SP/DIF Out Headers | |
| | **Super I/O** | |
| | Nuvoton NCT6776F | |

| | |
|---|---|
| | **Video** |
| | One (1) VGA Port, One (1) DVI Port |
| **BIOS** | 64 Mb AMI BIOS® SPI Flash BIOS |
| | Play and Plug (PnP0, DMI 2.3, PCI 2.3, ACPI 1.0/2.0/3.0, USB Keyboard and SMBIOS 2.5 |
| **Power Configuration** | ACPI/ACPM Power Management |
| | Main Switch Override Mechanism |
| | Keyboard Wake-up from Soft-Off |
| | Internal/External Modem Ring-On |
| | Power-on mode for AC power recovery |
| **PC Health Monitoring** | **CPU Monitoring** |
| | Onboard voltage monitors for Vcore, BAT, 3.3V, 3VSB, 5V, 12V, VTT CPU, DIMM |
| | CPU 4-phase switching voltage regulator |
| | CPU/System overheat LED and control |
| | CPU Thermal Trip support |
| | Thermal Monitor 2 (TM2) support |
| | **Fan Control** |
| | Fan status monitoring with firmware 4-pin (Pulse Width Modulation) fan speed control |
| | Low noise fan speed control |
| **System Management** | PECI (Platform Environment Configuration Interface) 2.0 support |
| | System resource alert via SuperDoctor® III |
| | SuperDoctor III, Watch Dog, NMI |
| | Chassis Intrusion header and detection |
| **Utilities (Download)** | BIOS flash upgrade utility |
| | Drivers and software for Intel® B75 Express chipset utilities |
| **Other** | ROHS 6/6 (Full Compliance, Lead Free) |
| | TPM 1.2 on board, Disk On Module (DOM) Support |
| **Dimensions** | ATX form factor (9.6" x 9.6") |

## C7B75 Block Diagram




## System Block Diagram

**Note:** This is a general block diagram and may not exactly represent the features on your motherboard. See the Motherboard Features pages for the actual specifications of each motherboard.

## 1-2 Chipset Overview

Designed for the needs of the small businesses, the Intel® B75 Express Chipset offers ready solutions for increased PC performance, manageability, and security. Following is a short list of features. For a comprehensive overview of the chipset, please visit Intel's website at http://www.intel.com.

### Intel B75 Express Chipset Features

- Supports 3rd Generation Intel Core processors
- Intel Rapid Storage Technology
- Intel Rapid Recover Technology
- Intel Smart Response Technology
- Intel Smart Connect Technology
- Intel Rapid Start Technology
- Universal Serial Bus 3.0
- Serial SATA (SATA) 3.0 (up to 6 Gb/sec)

# 1-3 Special Features

## Recovery from AC Power Loss

Basic I/O System (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 press the power switch to turn it back on), or for it to automatically return to a power-on state. See the Advanced BIOS Setup section to change this setting. The default setting is **Last State**.

# 1-4 PC Health Monitoring

This section describes the PC health monitoring features of the board. All have an onboard System Hardware Monitoring chip that supports PC health monitoring. An onboard voltage monitor will scan these onboard voltages continuously: Vcore, BAT, 3.3V, 3VSB, 5V, 12V, VTT CPU, DIMM. Once a voltage becomes unstable, a warning is given, or an error message is sent to the screen. The user can adjust the voltage thresholds to define the sensitivity of the voltage monitor.

## Fan Status Monitor with Firmware Control

PC health monitoring in the BIOS can check the RPM status of the cooling fans. The onboard CPU and chassis fans are controlled by Thermal Management via BIOS (under the Hardware Monitoring section 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 the thermal sensor detects that the CPU temperature is too high, it will automatically turn on the thermal fans to prevent the CPU from overheating. The onboard chassis thermal circuitry can monitor the overall system temperature and alert the user when the chassis temperature is too high.



**Note**: To avoid possible system overheating, please be sure to provide adequate airflow to your system.

## System Resource Alert

This feature is available when the system is 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 predefined thresholds.

## 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.

In addition to enabling operating system-directed power management, ACPI also 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 Windows XP, Windows Vista, and Windows 2008 Operating Systems.

### Slow Blinking LED for Suspend-State Indicator

When the CPU goes into a suspend state, the chassis power LED will start to blink 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.

## 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.

This motherboard accommodates 24-pin ATX power supplies. Although most power supplies generally meet the specifications required by the CPU, some are inadequate. In addition, the 12V 8-pin power connector located at JPW2 is also required to ensure adequate power supply to the system. Also your power supply must supply 1.5A for the Ethernet ports.



**Note:** Please use a power supply that contains a 24-pin and a 8-pin power connectors. Be sure to connect these connectors to the 24-pin (JPW1) and the 4-pin (JPW2) power connectors on the motherboard.

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. (For more

information, please refer to the web site 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 Super I/O supports 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 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.

# Chapter 2

# Installation

## 2-1 Static-Sensitive Devices

Electrostatic-Discharge (ESD) can damage electronic components. To avoid damaging 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. 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 that the person handling it is static protected.

## 2-2 Processor and Heatsink Installation

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

**Important:**

Always connect the power cable 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.

If you buy a CPU separately, make sure that you use an Intel-certified multi-directional heatsink only.

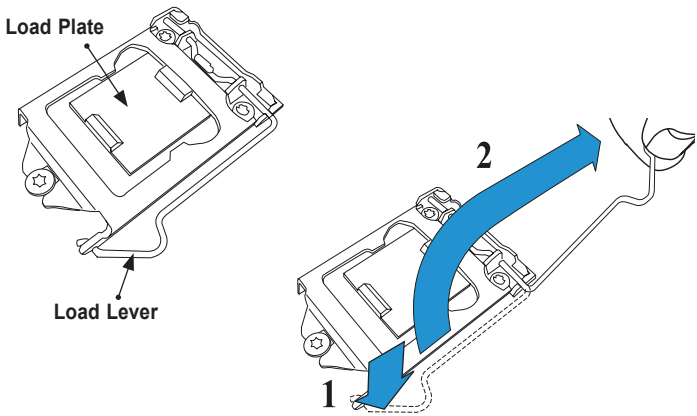
Make sure to install the system board into the chassis before you install the CPU heatsink.

When receiving a server board without a processor pre-installed, make sure that the plastic CPU socket cap is in place and none of the socket pins are bent; otherwise, contact your retailer immediately.

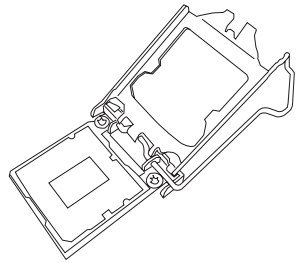
Refer to the Supermicro website for updates on CPU support.

### Installing the LGA1155 Processor

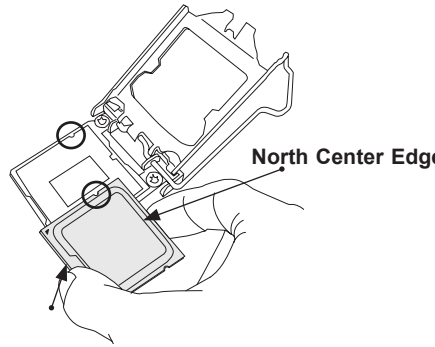
1. Press the load lever to release the load plate, which covers the CPU socket, from its locking position.



2. Gently lift the load lever to open the load plate. Remove the plastic cap.

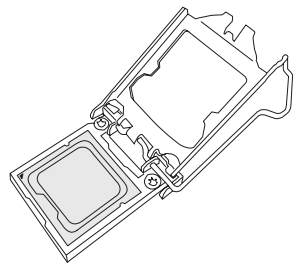


3. Use your thumb and your index finger to hold the CPU at the North center edge and the South center edge of the CPU.

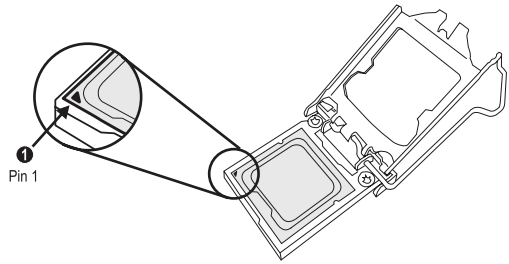



**South Center Edge**

4. Align the CPU key that is the semi-circle cutouts against the socket keys. Once it is aligned, carefully lower the CPU straight down into the socket. (Do not drop the CPU on the socket. Do not move the CPU horizontally or vertically.

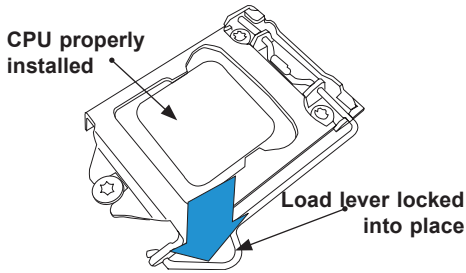


5. Do not rub the CPU against the surface or against any pins of the socket to avoid damaging the CPU or the socket.)




6. With the CPU inside the socket, inspect the four corners of the CPU to make sure that the CPU is properly installed.

7. Use your thumb to gently push the load lever down to the lever lock.




**Warning:** You can only install the CPU inside the socket only in one direction. Make sure that it is properly inserted into the CPU socket before closing the load plate. If it doesn't close properly, do not force it as it may damage your CPU. Instead, open the load plate again and double-check that the CPU is aligned properly.

## Installing an Active CPU Heatsink with Fan

1. Locate the CPU Fan power connector on the motherboard. (Refer to the layout on the right for the CPU Fan location.)

2. Position the heatsink so that the heatsink fan wires are closest to the CPU fan power connector and are not interfered with other components.

3. Inspect the CPU Fan wires to make sure that the wires are routed through the bottom of the heatsink.

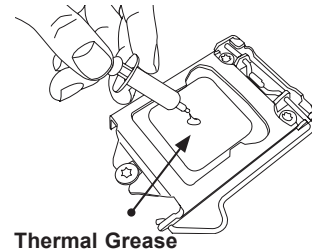
4. Remove the thin layer of the protective film from the heatsink.

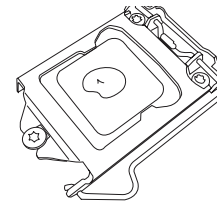
   **Warning**: CPU overheat may occur if the protective film is not removed from the heatsink.

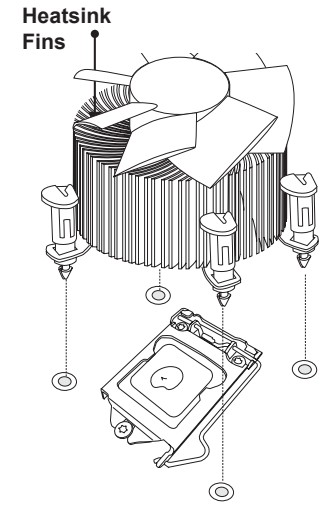
5. Apply the proper amount of thermal grease on the CPU.

   **Note**: if your heatsink came with a thermal pad, please ignore this step.

6. If necessary, rearrange the wires to make sure that the wires are not pinched between the heatsink and the CPU. Also make sure to keep clearance between the fan wires and the fins of the heatsink.



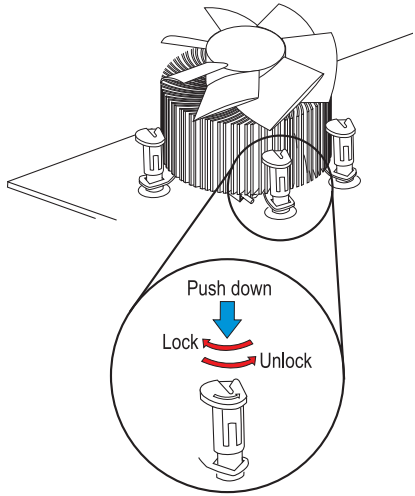


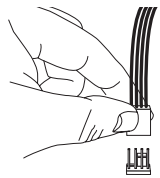

**Recommended Supermicro heatsink:**
**SNK-P0046A4 active heatsink**

7. Align the four heatsink fasteners with the mounting holes on the motherboard. Gently push the pairs of diagonal fasteners (#1 & #2, and #3 & #4) into the mounting holes until you hear a click. Also, make sure to orient each fastener so that the narrow end of the groove is pointing outward.

8. Repeat Step 7 to insert all four heatsink fasteners into the mounting holes.

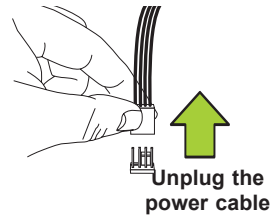
9. Once all four fasteners are securely inserted into the mounting holes, and the heatsink is properly installed on the motherboard, connect the heatsink fan wires to the CPU Fan connector.



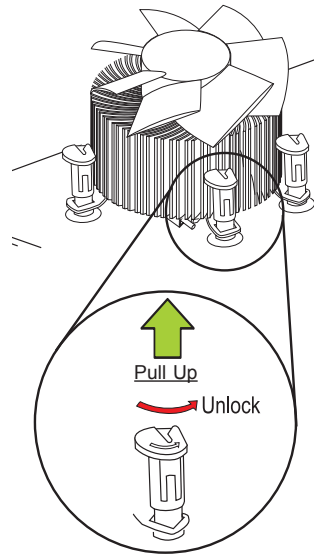
## Removing the Heatsink

**Warning:** We do not recommend that the CPU or the heatsink be removed. However, if you do need to remove the heatsink, please follow the instructions below to remove the heatsink and to prevent damage done to the CPU or other components.




### *Active Heatsink Removal*

1. Unplug the power cable from the power supply.
2. Disconnect the heatsink fan wires from the CPU fan header.
3. Use your finger tips to gently press on the fastener cap and turn it counterclockwise to make a 1/4 ($90^0$) turn, and pull the fastener upward to loosen it.
4. Repeat Step 3 to loosen all fasteners from the mounting holes.
5. With all fasteners loosened, remove the heatsink from the CPU.



## 2-3 Installing DDR3 Memory

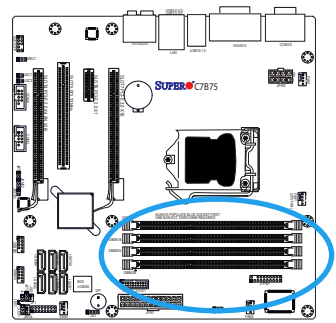
**Note**: Check the Supermicro website for recommended memory modules.

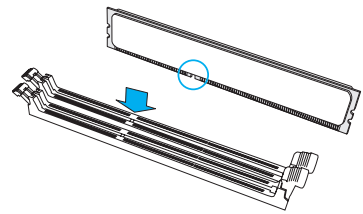
***CAUTION***

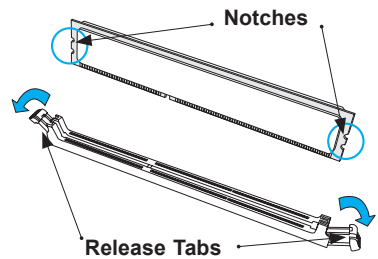
Exercise extreme care when installing or removing DIMM modules to prevent any possible damage.

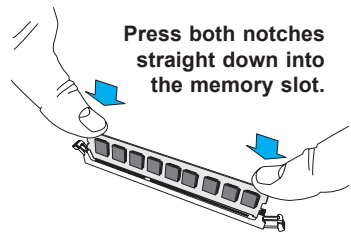
### DIMM Installation

1. Insert the desired number of DIMMs into the memory slots, starting with DIMM1A (Slot A, Channel 1, see the next page for the location). For best performance, please use the memory modules of the same type and speed in the same bank.
2. Push the release tabs outwards on both ends of the DIMM slot to unlock it.
3. Align the key of the DIMM module with the receptive point on the memory slot.
4. Align the notches on both ends of the module against the receptive points on the ends of the slot.
5. Use two thumbs together to press the notches on both ends of the module straight down into the slot until the module snaps into place.
6. Press the release tabs to the lock positions to secure the DIMM module into the slot.





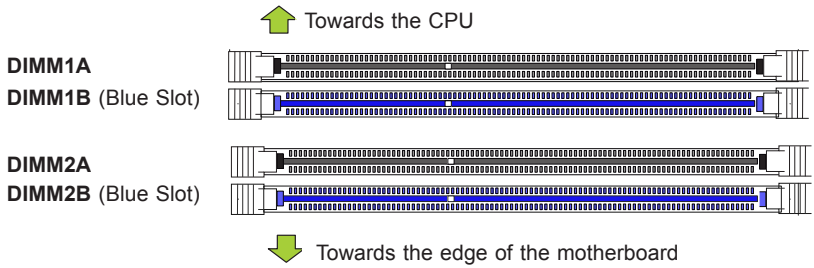




### Removing Memory Modules

Reverse the steps above to remove the DIMM modules from the motherboard.

## Memory Support

The C7B75 Motherboard supports up to 32GB of Unbuffered (UDIMM) non-ECC DDR3 1600/1333/1066 MHz in 4 memory slots. Populating these DIMM modules with a pair of memory modules of the same type and same size will result in interleaved memory, which will improve memory performance. Please refer to the table below:




## Memory Population Guidelines

When installing memory modules, the DIMM slots should be populated in the following order: DIMM1B (blue), DIMM2B (blue), DIMM1A and DIMM2A.

- Always use DDR3 DIMM modules of the same size, type and speed.
- Mixed DIMM speeds can be installed. However, all DIMMs will run at the speed of the slowest DIMM.
- The motherboard will support one DIMM module or three DIMM modules installed. However for best memory performance, install DIMM modules in pairs.

| Recommended Population (Balanced) | | | | |
|---|---|---|---|---|
| DIMM1B Slot | DIMM2B Slot | DIMM1A Slot | DIMM2A Slot | Total System Memory |
| 2GB | 2GB | | | 4GB |
| 2GB | 2GB | 2GB | 2GB | 8GB |
| 4GB | 4GB | | | 8GB |
| 4GB | 4GB | 4GB | 4GB | 16GB |
| 8GB | 8GB | | | 16GB |
| 8GB | 8GB | 8GB | 8GB | 32GB |

**Note:** Due to memory allocation to system devices, the amount of memory that remains available for operational use will be reduced when 4 GB of RAM is used.

| 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 |

## 2-4 Motherboard Installation

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. Although a chassis may have both plastic and metal mounting fasteners, metal ones are highly recommended because they ground the motherboard to the chassis. 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.

### Tools Needed



**Philips Screwdriver**

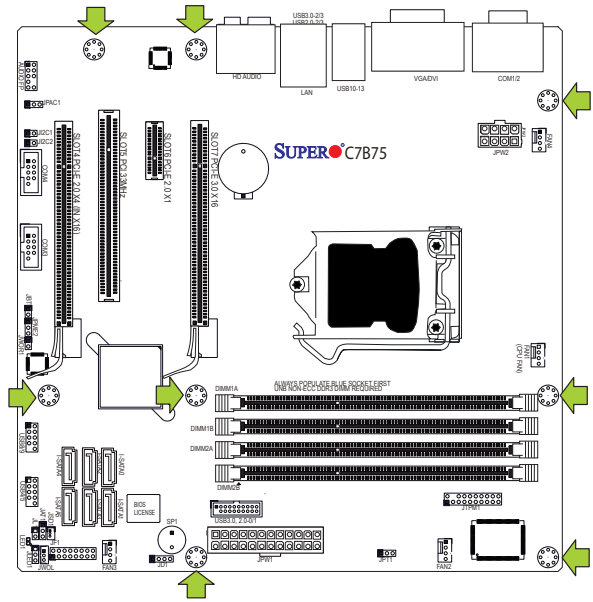


**Philips Screws**



**Standoffs Only if Needed**

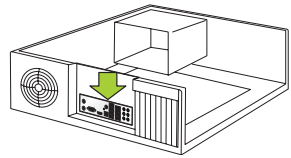
### Location of Mounting Holes




**Caution:** 1) To avoid damaging the motherboard and its components, please do not use a force greater than 8 lb/inch on each mounting screw during motherboard installation. 2) Some components are very close to the mounting holes. Please take precautionary measures to avoid damaging these components when installing the motherboard to the chassis.

## Installing the Motherboard

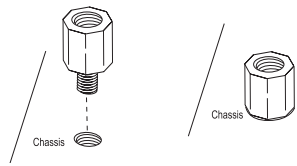
1. Install the I/O shield into the back of the chassis.



2. Locate the mounting holes on the motherboard. (See the previous page.)

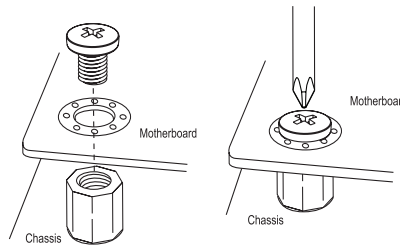
3. Locate the matching mounting holes on the chassis. Align the mounting holes on the motherboard against the mounting holes on the chassis.

4. Install standoffs in the chassis as needed.




5. Install the motherboard into the chassis carefully to avoid damaging other motherboard components.

6. Using the Philips screwdriver, insert a Philips head #6 screw into a mounting hole on the motherboard and its matching mounting hole on the chassis.




7. Repeat Step 5 to insert #6 screws into all mounting holes.

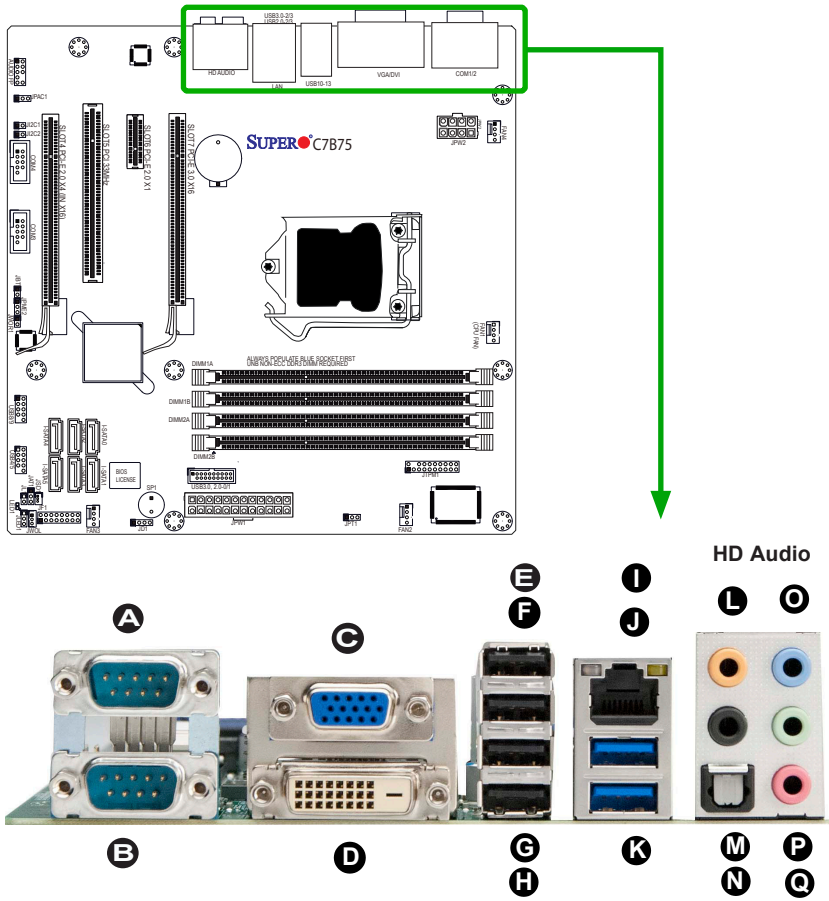
8. Make sure that the motherboard is securely placed in the chassis.

**Note:** Images displayed are is for illustration only. Your chassis or components might look different from those shown in this manual.

## 2-5 Connectors/IO Ports

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

### Backplane I/O Panel




| | |
|---|---|
| A. Serial Port (COM1) | J. USB 3.0 Port 3 / USB 2.0 Port 3 |
| B. Serial Port (COM2) | K. USB 3.0 Port 2 / USB 2.0 Port 2 |
| C. VGA Port | L. Center/LFE Out |
| D. DVI Port | M. Surround Out |
| E. USB13 (2.0) | N. S/PDIF Out (Optical) |
| F. USB12 (2.0) | O. Line In |
| G. USB11 (2.0) | P. Line Out |
| H. USB10 (2.0) | Q. Microphone In |
| I. Gb LAN Port | |

HD Audio

### Universal Serial Bus (USB)

Six Universal Serial Bus (USB 3.0 ports 2,3) and four (USB 2.0 ports 10,11,12,13) are located on the I/O back panel. USB 2.0 headers 4/5,8/9 and USB 3.0 header 0/1 are used to provide front chassis access using USB cables (not included). See the tables below for pin definitions.

**Front Panel USB (2.0) #4/5, 8/9 Pin Definitions**

| Pin # | Definition | Pin # | Definition |
|---|---|---|---|
| 1 | +5V | 2 | +5V |
| 3 | USB_PN2 | 4 | USB_PN3 |
| 5 | USB_PP2 | 6 | USB_PP3 |
| 7 | Ground | 8 | Ground |
| 9 | Key | 10 | Ground |

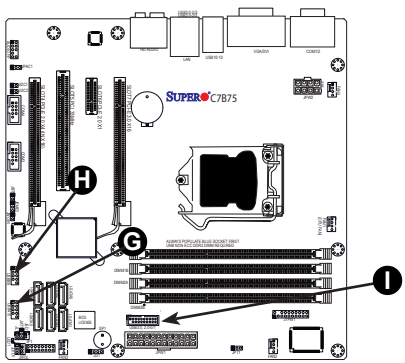
**Back Panel USB #2,3,10,11,12,13 Pin Definitions**

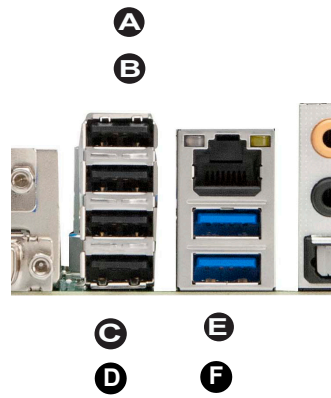
| Pin# | Definition | Pin# | Definition |
|---|---|---|---|
| 1 | +5V | 5 | +5V |
| 2 | USB_PN1 | 6 | USB_PN0 |
| 3 | USB_PP1 | 7 | USB_PP0 |
| 4 | Ground | 8 | Ground |

**Front Panel USB (3.0) #0/1 Pin Definitions**

| Pin# | Pin# | Signal Name | Description |
|---|---|---|---|
| 1 | 10 | VBUS | Power |
| 2 | 11 | D- | USB 2.0 Differential Pair |
| 3 | 12 | D+ | |
| 4 | 13 | Ground | Ground of PWR Return |
| 5 | 14 | StdA_SSRX- | SuperSpeed Receiver |
| 6 | 15 | StdA_SSRX+ | Differential Pair |
| 7 | 16 | GND_DRAIN | Ground for Signal Return |
| 8 | 17 | StdA_SSTX- | SuperSpeed Transmitter |
| 9 | 18 | StdA_SSTX+ | Differential Pair |

A. Backpanel USB 2.0 #10
B. Backpanel USB 2.0 #11
C. Backpanel USB 2.0 #12
D. Backpanel USB 2.0 #13
E. Backpanel USB 3.0 #0
F. Backpanel USB 3.0 #1
G. Front Panel USB 2.0 #4/5
H. Front Panel USB 2.0 #8/9
I. Front Panel USB 3.0 #0/1



### Ethernet Ports

There is one Gigabit Ethernet port (LAN1) located next to the HD Audio Connectors on the I/O Backpanel to provide a network connection. This port accepts RJ45 type cables.

**Note**

Please refer to the LED Indicator Section for LAN LED information.

A. LAN1

| LAN Ports Pin Definition | | | |
|---|---|---|---|
| Pin# | Definition | | |
| 1 | P2V5SB | 10 | SGND |
| 2 | TD0+ | 11 | Act LED |
| 3 | TD0- | 12 | P3V3SB |
| 4 | TD1+ | 13 | Link 100 LED (Green, +3V3SB) |
| 5 | TD1- | 14 | Link 1000 LED (Yellow, +3V3SB) |
| 6 | TD2+ | 15 | Ground |
| 7 | TD2- | 16 | Ground |
| 8 | TD3+ | 17 | Ground |
| 9 | TD3- | 88 | Ground |

(NC: No Connection)

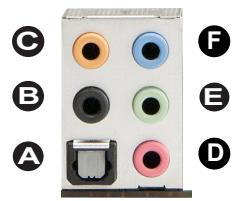



### Back Panel High Definition Audio (HD Audio)

This motherboard features a 7.1+2 Channel High Definition Audio (HDA) codec that provides 10 DAC channels. The HD Audio connections simultaneously supports multiple-streaming 7.1 sound playback with 2 channels of independent stereo output through the front panel stereo out for front, rear, center and subwoofer speakers.

| (BP) HD Audio | |
|---|---|
| Conn# | Signal |
| A | SPDIF_Out |
| B | Surround_Out |
| C | CEN/LFE_Out |
| D | Mic_In |
| E | Line_Out |
| F | Line_In |

**HD Audio**



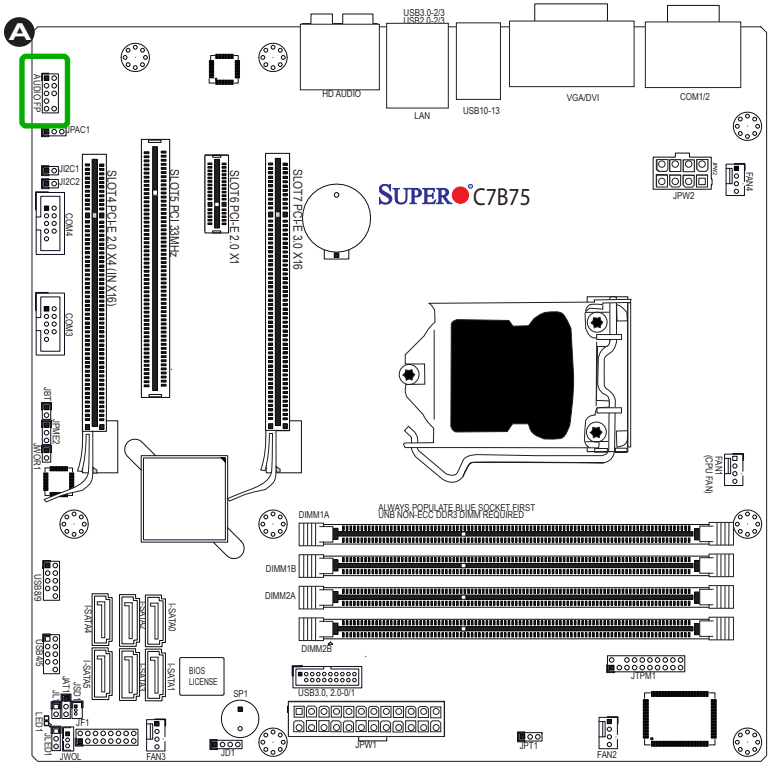

A.SPDIF_Out
B. Surround_Out
C. CEN/LFE_Out
D. Mic_In
E. Line-Out
F. Line_In

### Front Accessible Audio Header

A 10-pin Audio header is also located on the motherboard. This header allows you to use the on-board sound for audio playback. Connect an audio cable to the audio header to use this feature. See the tables at right for pin definitions for these headers.

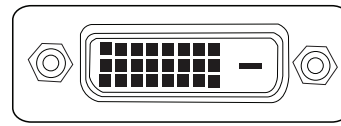
| 10-in Audio Pin Definitions | |
|---|---|
| Pin# | Signal |
| 1 | Microphone_Left |
| 2 | Audio_Ground |
| 3 | Microphone_Right |
| 4 | Audio_Detect |
| 5 | Line_2_Right |
| 6 | Ground |
| 7 | Jack_Detect |
| 8 | Key |
| 9 | Line_2_Left |
| 10 | Ground |

A. Audio Header



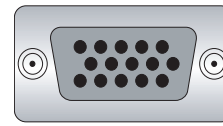
### DVI Port (DVI)

One DVI Port (Digital Visual Interface) is located next to the VGA port on the I/O backpanel. This connector is used to display both high definition video and digital sound through an HDMI-capable display, using a single HDMI cable (not included).



### VGA Port (VGA)

A VGA port is located next to the USB ports on the I/O backpanel. Use this port to connect to a compatible VGA display.



### Serial Port (COM1,COM2)

Serial ports COM1 and COM2 are located on the I/O back panel. There are two other Serial port headers on the motherboard for COM3 and COM4. See the table on the right for pin definitions.

**Serial Ports-COM2/COM3/COM4 Pin Definitions**

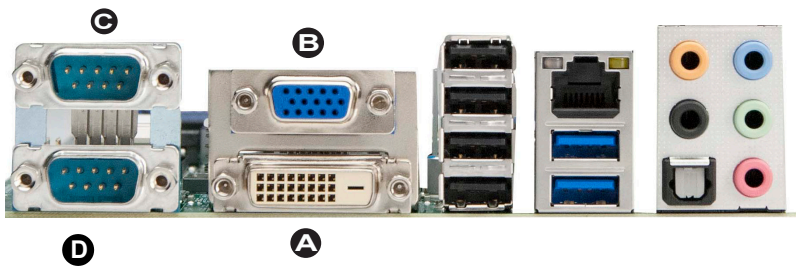
| Pin # | Definition | Pin # | Definition |
|---|---|---|---|
| 1 | DCD | 6 | DSR |
| 2 | RXD | 7 | RTS |
| 3 | TXD | 8 | CTS |
| 4 | DTR | 9 | RI |
| 5 | Ground | 10 | N/A |

A. DVI Port

B. VGA Port

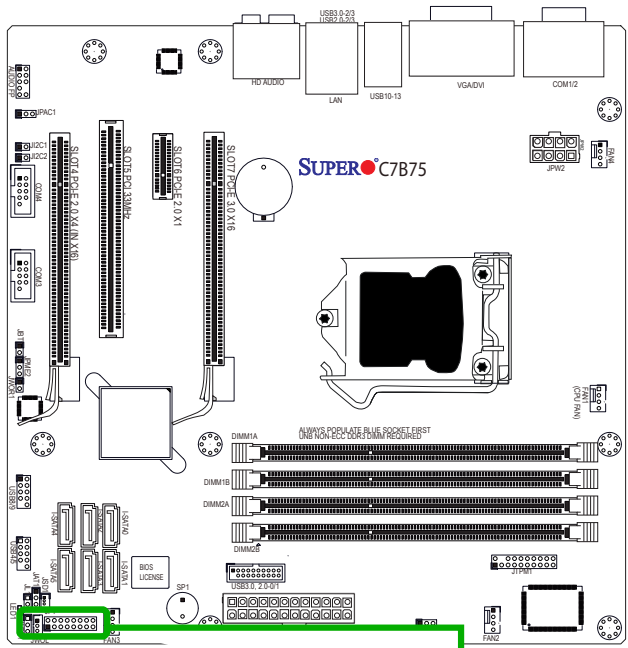
C. COM1

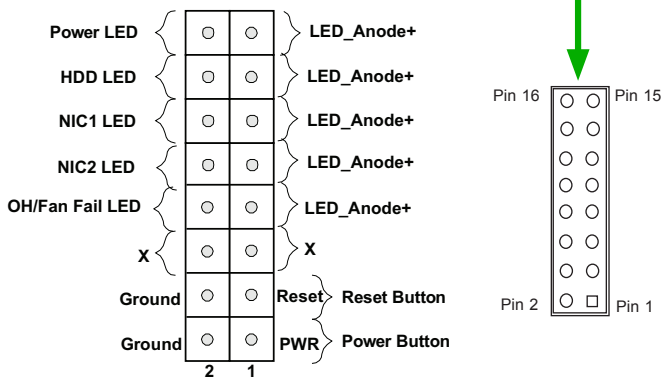
D. COM2



## 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 chassis. See the figure below for the descriptions of the front control panel buttons and LED indicators. Refer to the following section for descriptions and pin definitions.




**JF1 Header Pins**

## Front Control Panel Pin Definitions

### 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.

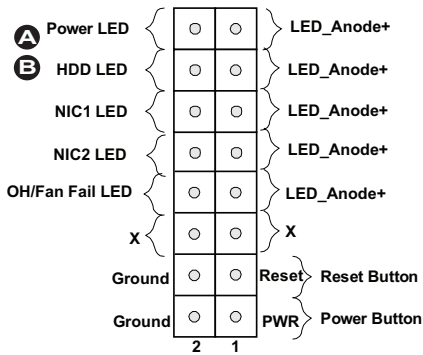
| Power LED Pin Definitions (JF1) | |
|---|---|
| Pin# | Definition |
| 15 | +5V |
| 16 | Ground |

### HDD LED

The HDD LED connection is located on pins 13 and 14 of JF1. Attach a cable here to indicate the status of HDD-related activities, including IDE, SATA activities. See the table on the right for pin definitions.

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

A. PWR LED
B. HDD LED



### NIC1 (LAN1)

The NIC (Network Interface Controller) LED connection for LAN port 1 is located on pins 11 and 12 of JF1. NIC1 LED is a 2-pin NIC LED header. Attach NIC LED cables to NIC1 LED indicators to display network activity. Refer to the table on the right for pin definitions.

**LAN1/LAN2 LED Pin Definitions (JF1)**

| Pin# | Definition |
|---|---|
| 9/11 | Vcc |
| 10/12 | Ground |

### Overheat (OH)/Fan Fail

Connect an LED cable to OH/Fan Fail connections on pins 7 and 8 of JF1 to provide warnings for chassis overheat/fan failure. Refer to the table on the right for pin definitions.

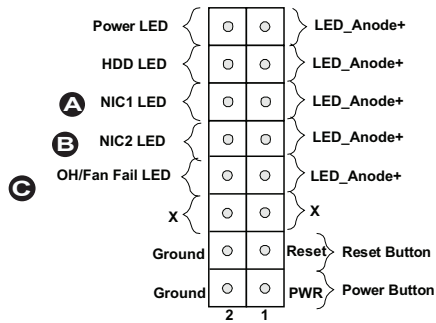
**OH/Fan Fail LED Pin Definitions (JF1)**

| Pin# | Definition |
|---|---|
| 7 | Vcc/Blue UID LED |
| 8 | OH/Fan Fail LED |

**OH/Fan Fail Indicator Status**

| State | Definition |
|---|---|
| Off | Normal |
| On | Overheat |
| Flash-ing | Fan Fail |

A. NIC1 LED
B. NIC2 LED
C. OH/Fan Fail



### Reset Button

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

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

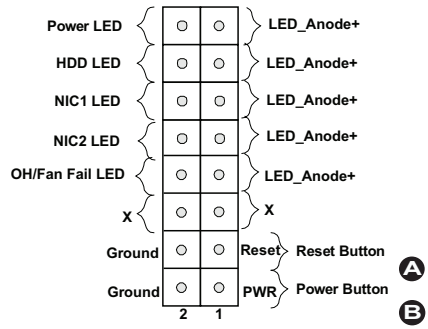
### Power Button

The Power Button connection is located on pins1 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 in the 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



# 2-6 Connecting Cables

This section provides brief descriptions and pin-out definitions for onboard headers and connectors. Be sure to use the correct cable for each header or connector.

### ATX Main PWR & CPU PWR Connectors (JPW1 & JPW2)

The 24-pin main power connector (JPW1) is used to provide power to the motherboard. The 8-pin CPU PWR connector (JPW2) may be required for the processor. These power connectors meet the SSI EPS 12V specification. See the table on the right for pin definitions.

**12V 8-pin Power Connector Pin Definitions**

| Pins | Definition |
|---|---|
| 1 through 4 | Ground |
| 5 through 8 | +12V |

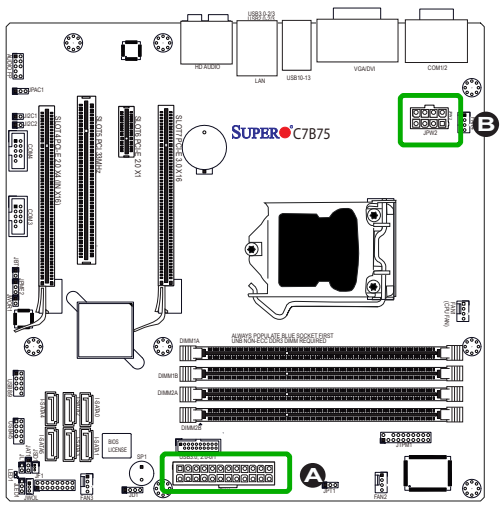
(Required)

**ATX Power 24-pin Connector Pin Definitions (JPW1)**

| 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 |

A. 24-Pin ATX Main PWR

B. 8-Pin Processor PWR



### Fan Headers (Fan 1 ~ Fan 4)

The C7B75 has four fan headers (Fan 1~Fan 4). These fans are 4-pin fan headers. Although pins 1-3 of the fan headers are backward compatible with the traditional 3-pin fans, we recommend the use 4-pin fans to take advantage of the fan speed control in the BIOS Hardware Monitoring section. This allows the BIOS to automatically adjust fan speeds based on the motherboard's detected system temperature. Refer to the table on the right for pin definitions.

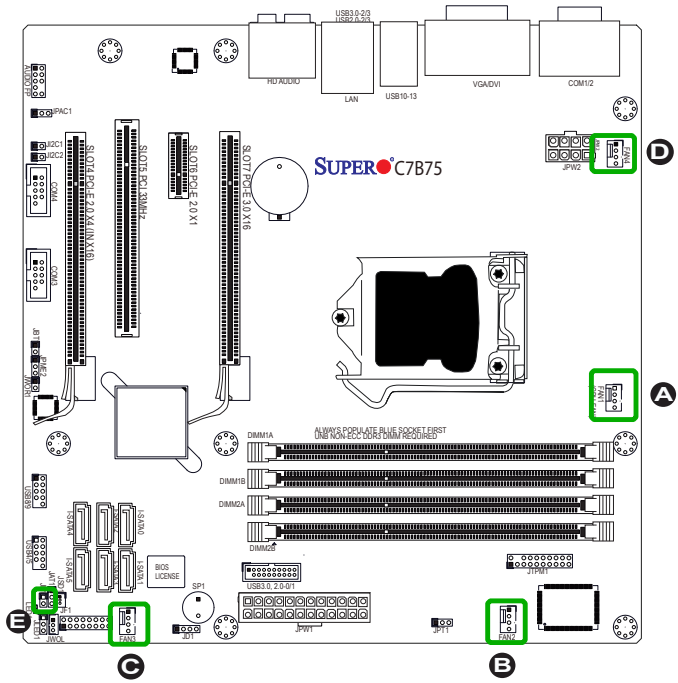
| Fan Header Pin Definitions | |
|---|---|
| Pin# | Definition |
| 1 | Ground (Black) |
| 2 | 2.5A/+12V (Red) |
| 3 | Tachometer |
| 4 | PWM_Control |

### Chassis Intrusion (JL1)

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. Fan 1 (CPU Fan)
B. Fan 2
C. Fan 3
D. Fan 4
E. Chassis Intrusion



### Internal Buzzer (SP1)

The Internal Buzzer (SP1) can be used to provide audible indications for various beep codes. See the table on the right for pin definitions.

| Internal Buzzer Pin Definition | | |
|---|---|---|
| Pin# | | Definitions |
| Pin 1 | Pos. (+) | Beep In |
| Pin 2 | Neg. (-) | Alarm Speaker |

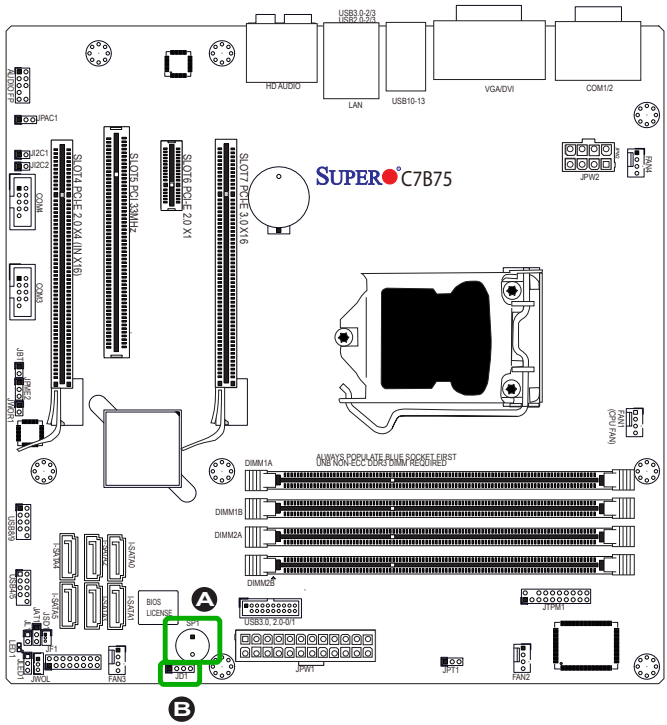
### Speaker (JD1)

On the JD1 header, Pins 3~4 are used for internal speaker. Close Pins 3~4 with a jumper to use the onboard speaker. If you wish to use an external speaker, attach the external speaker cable to Pins 1~4. See the table on the right for pin definitions.

| Speaker Connector Pin Definitions | |
|---|---|
| Pin Setting | Definition |
| Pins 3~4 | Internal Speaker |
| Pins1~4 | External Speaker |

A. Internal Buzzer

B. Speaker Header



### Onboard Power LED (JLED)

An onboard Power LED header is located at JLED. This Power LED header is connected to Front Control Panel located at JF1 to indicate the status of system power. See the table on the right for pin definitions.

**Onboard PWR LED Pin Definitions**

| Pin# | Definition |
|---|---|
| 1 | VCC |
| 2 | No Connection |
| 3 | Connection to PWR LED in JF1 |

### Serial Ports (COM1 ~ COM4)

In addition to COM1 and COM2, which are located on the I/O back panel, there are two Serial port headers on the motherboard for COM3 and COM4. See the table on the right for pin definitions.

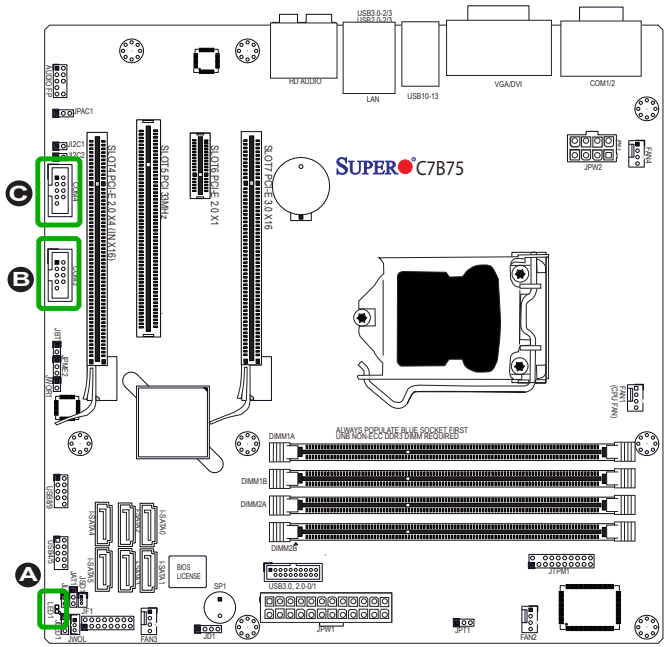
**Serial Ports-COM3/COM4 Pin Definitions**

| Pin # | Definition | Pin # | Definition |
|---|---|---|---|
| 1 | DCD | 6 | DSR |
| 2 | RXD | 7 | RTS |
| 3 | TXD | 8 | CTS |
| 4 | DTR | 9 | RI |
| 5 | Ground | 10 | N/A |

A. PWR LED

B. COM3

C. COM4



### DOM PWR Connector (JSD1)

The Disk-On-Module (DOM) power connector, located at JSD1, provides 5V (Gen1/Gen) power to a solid state DOM storage device connected to one of the SATA ports. See the table on the right for pin definitions.

| DOM PWR Pin Definitions | |
|---|---|
| Pin# | Definition |
| 1 | 5V |
| 2 | Ground |
| 3 | Ground |

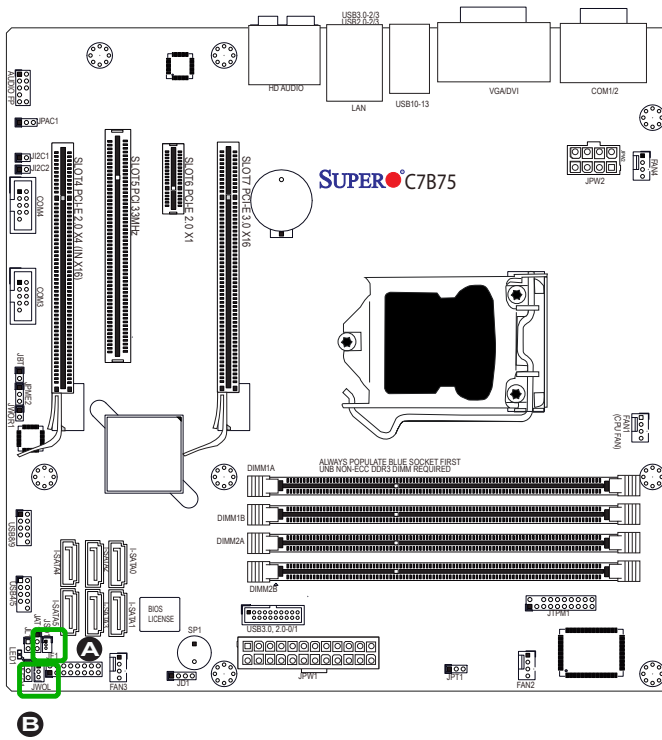
### Wake-On-LAN (JWOL)

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

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

A.DOM PWR

B. JWOL



### Wake-On-Ring (JWOR)

The Wake-On-Ring header is located at JWOR. This function allows your computer to wake up when receiving an incoming call to the modem while in the suspend state. This header is provided to support legacy devices. See the table on the right for pin definitions.

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

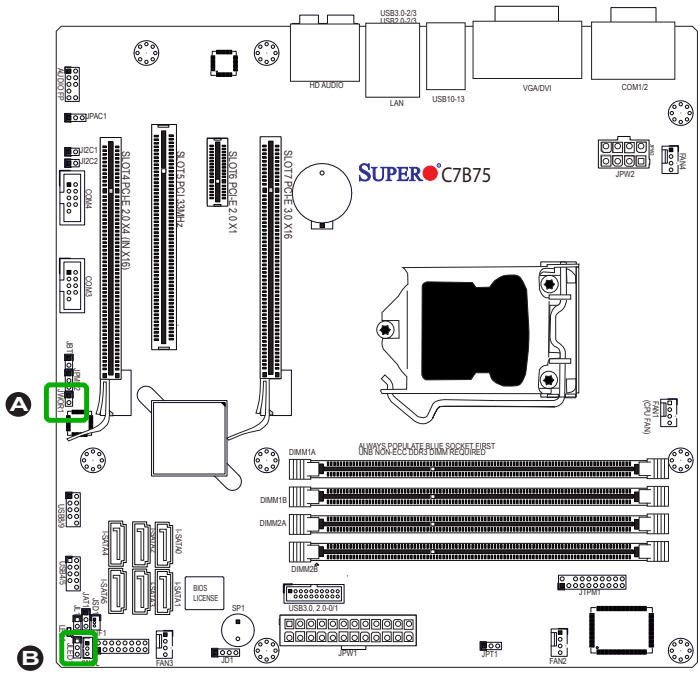
### Power LED Header (JLED1)

The Wake-On-Ring header is located at JWOR. This function allows your computer to wake up when receiving an incoming call to the modem while in the suspend state. This header is provided to support legacy devices. See the table on the right for pin definitions.

| Power LED Pin Definitions | |
|---|---|
| Pin# | Definition |
| 1 | Vcc |
| 2 | NC |
| 3 | PWR_LED |

A.JWOR

B. Power LED Header



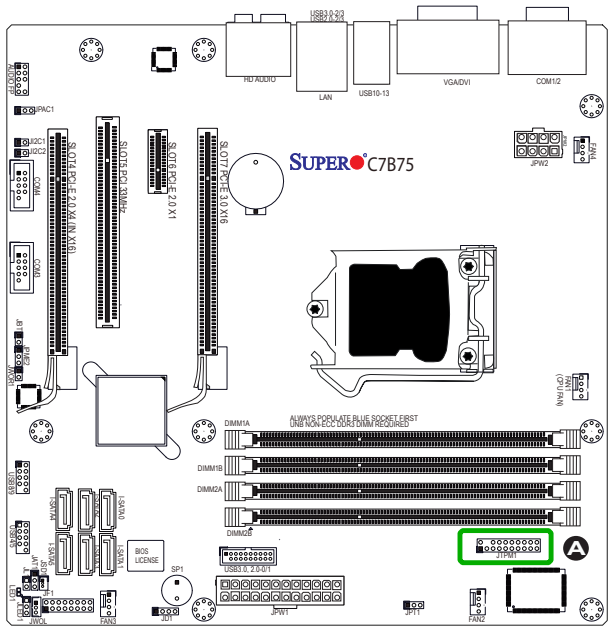
### TPM Header (JTPM1)

This header is used to connect a Trusted Platform Module (TPM), which is available from a third-party vendor. A TPM is a security device that supports encryption and authentication in hard drives. It enables the motherboard to deny access if the TPM associated with the hard drive is not installed in the system. See the table on the right for pin definitions.

**Trusted Platform Module Header Pin Definitions**

| Pin # | Definition | Pin # | Definition |
|---|---|---|---|
| 1 | LCLK | 2 | GND |
| 3 | LFRAME | 4 | No Pin |
| 5 | LRESET | 6 | VCC5 |
| 7 | LAD3 | 8 | LAD2 |
| 9 | VCC3 | 10 | LAD1 |
| 11 | LAD0 | 12 | GND |
| 13 | SMBCLK | 14 | SMBDAT |
| 15 | SB3V | 16 | SERIRQ |
| 17 | GND | 18 | CLKRUN |
| 19 | LPCPD | 20 | LDRQ1 |

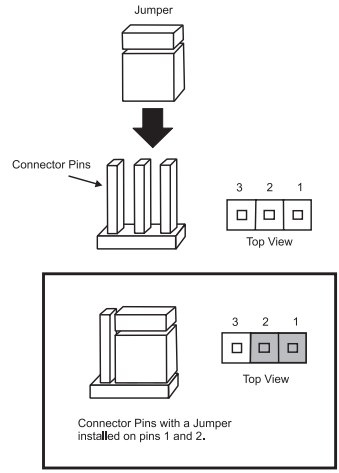
A. JTPM1



# 2-7 Jumper Settings

## Explanation of Jumpers

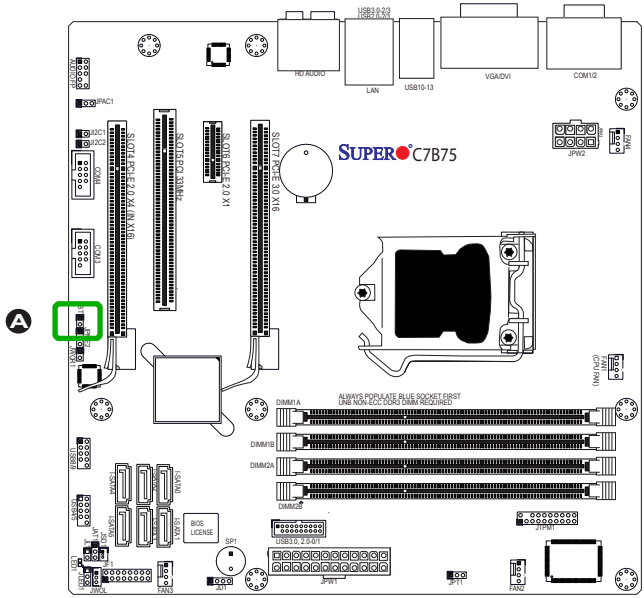
To modify the operation of the motherboard, jumpers can be used to choose between optional settings. Jumpers create shorts between two pins to change the function of the connector. Pin 1 is identified with a square solder pad on the printed circuit board.




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

### CMOS Clear (JBT1)

JBT1 is used to clear the saved system setup stored in the CMOS chip. To clear the contents of the CMOS, completely shut down the system, remove the AC power cable and then short JBT1 with a jumper. Remove the jumper before powering on the system again. This will erase all user settings and revert everything to their factory-set defaults.



### PCI Slot SMB Enable (JI2C1/JI2C2)

Use Jumpers JI2C1/JI2C2to enable PCI SMB (System Management Bus) support to improve system management for the PCI slots. See the table on the right for jumper settings.

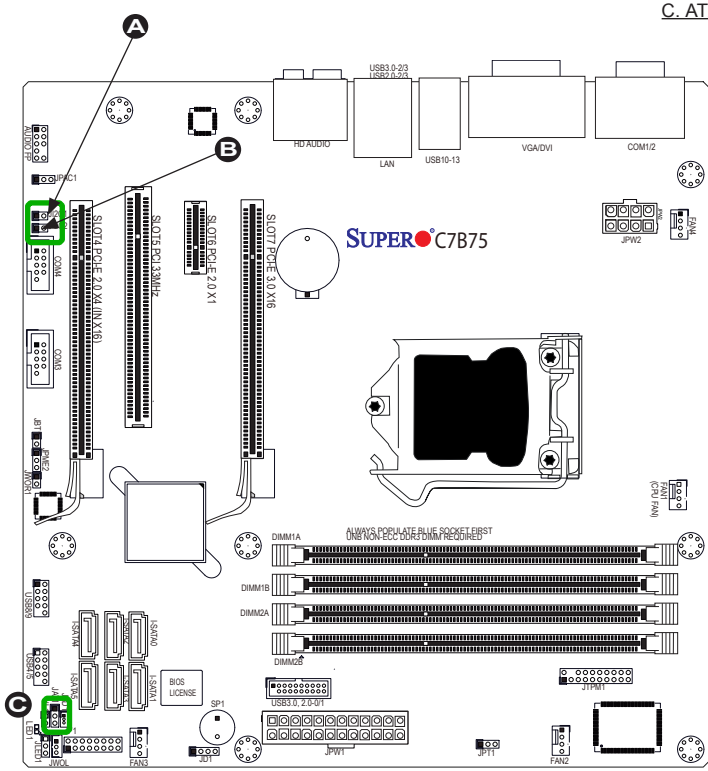
| PCI Slot_SMB Enable Jumper Settings | |
|---|---|
| Jumper Setting | Definition |
| Short | Enabled |
| Open (Default) | Disabled |

### ATX Mode (JAT1)

This jumper provides the ability to select between AT and ATX mode. AT mode provides the ability to bypass the "soft switch" so the system boots immediately without waiting for a user to physically push the soft siwtch. This is useful with remote applications.

| ATX Mode Jumper Settings | |
|---|---|
| Jumper Setting | Definition |
| 1-2 (Default) | ATX Mode |
| 2-3 | AT Mode |

A. JI2C1
B. JI2C2
C. ATX Mode



### Manufacturing Mode (JPME2)

Close pins 2-3 to enable Manufacturing Mode. See the table on the right for jumper settings.

| Manufacturing Mode Jumper Settings | |
|---|---|
| Pin# | Definition |
| 1-2 | Normal (Default) |
| 2-3 | Manufacturing Mode |

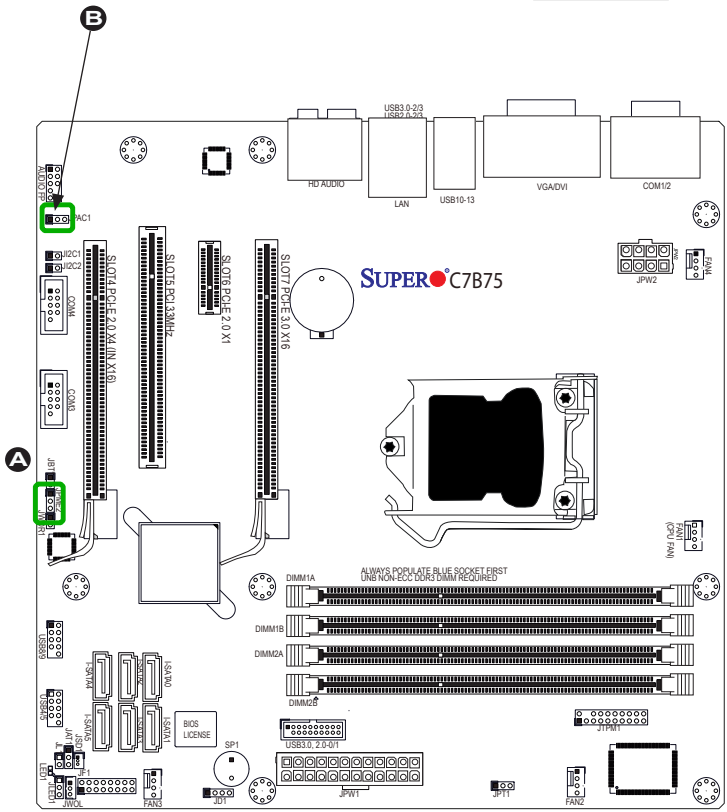
### Audio Enable (JPAC1)

JPAC1 allows you to enable or disable the onboard audio support. The default position is on pins 1 and 2 to enable on-board audio connections. See the table on the right for jumper settings.

| Audio Enable/Disable Jumper Settings | |
|---|---|
| Both Jumpers | Definition |
| Pins 1-2 | Enabled |
| Pins 2-3 | Disabled |

A. Manufacturing Mode

B. Audio Enable

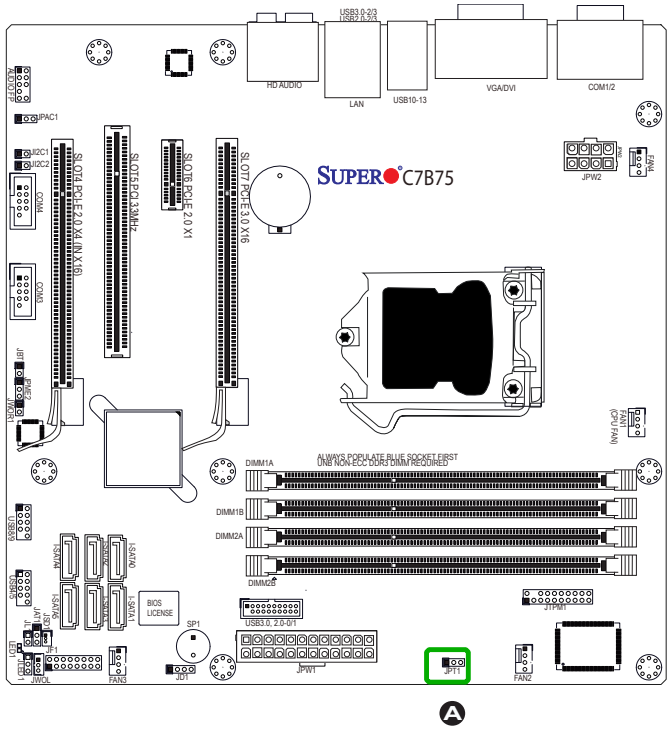


### TPM Support Enable (JPT1)

JPT1 allows the user to enable TPM (Trusted Platform Module) support to improve data integrity and system security. See the table on the right for jumper settings. The default setting is **Enabled**.

| TPM Support Enable Jumper Settings | |
|---|---|
| Jumper Setting | Definition |
| 1-2 (Default) | Enabled |
| 2-3 | Disabled |

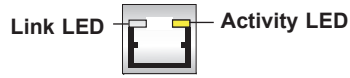
A. TPM Enable



## 2-8 Onboard Indicators

### LAN LEDs

One LAN port (LAN1) is located on the I/O backpanel of the motherboard. The Ethernet LAN port has two LEDs. The yellow LED indicates activity, while the Link LED may be green, amber, or off to indicate the speed of the connection. See the tables at right for more information.




| LAN 1<br>Link LEDs (Green/Amber/Off) | |
|---|---|
| LED Color | Definition |
| Off | No Connection or 10 Mbps |
| Green | 100 Mbps |
| Amber | 1 Gbps |

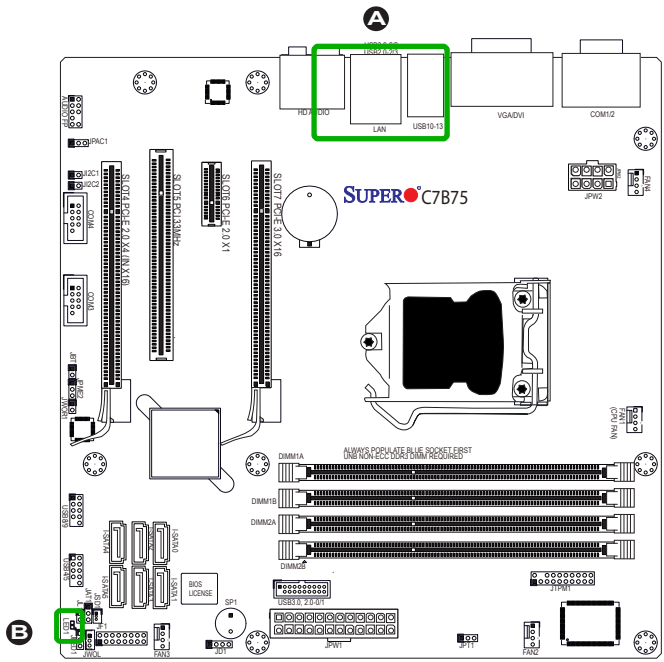
### Onboard Power LED (LED1)

An Onboard Power LED is located at LED1 on the motherboard. When LED1 is on, the AC power cable is connected. Make sure to disconnect the power cable before removing or installing any component. See the layout below for the LED location.

| Onboard PWR LED Indicator<br>LED Status | |
|---|---|
| Status | Definition |
| Off | System Off |
| On | System on, or<br>System off and PWR Cable Connected |

A. LAN Port 1

B. PWR LED



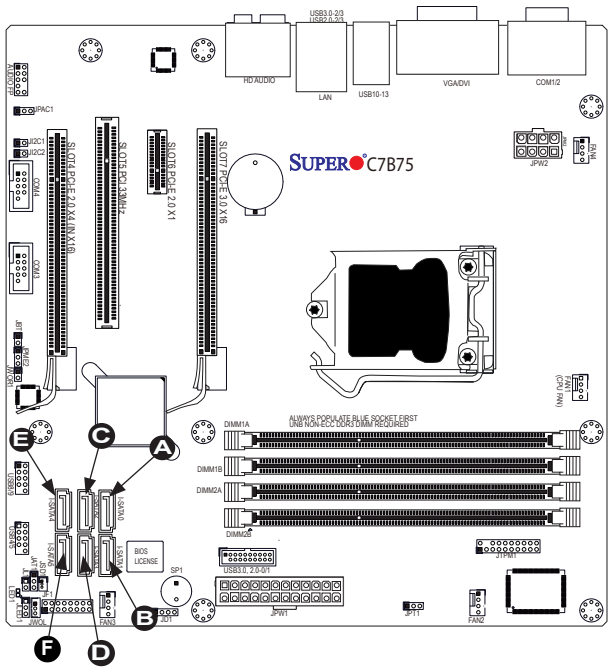
## 2-9 SATA Connections

### SATA Connections (I-SATA0~I-SATA5)

One Serial ATA (SATA) 3.0 connector (I-SATA 0) is located on the motherboard. In addition, five SATA 2.0 (I-SATA 1~5) connectors are also located on the board. These SATA ports are supported by the Intel B75 Express Chipset and provide faster data transmission than legacy Parallel ATA. See the table on the right for pin definitions.

| SATA 2.0/3.0 Connectors Pin Definitions | |
|---|---|
| Pin# | Signal |
| 1 | Ground |
| 2 | SATA_TXP |
| 3 | SATA_TXN |
| 4 | Ground |
| 5 | SATA_RXN |
| 6 | SATA_RXP |
| 7 | Ground |

| C7B75 SATA Connector Types | |
|---|---|
| Port# | Connection Type |
| I-SATA 0 | SATA 3.0 |
| I-SATA 1/2/3/4 | SATA 2.0 |




A. I-SATA 3.0 #0
B. I-SATA 2.0 #1
C. I-SATA 2.0 #2
D. I-SATA 2.0 #3
E. I-SATA 2.0 #4
F. I-SATA 2.0 #5

# 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. Always disconnect the AC power cable before adding, changing or installing any hardware components.

### Before Power On

1. Make sure that the Standby PWR LED is not on. (**Note:** If it is on, the onboard power is on. Be sure to unplug the power cable before installing or removing the components.)

2. Make sure that there are no short circuits between the motherboard and chassis.

3. Disconnect all ribbon/wire cables from the motherboard, including those for the keyboard and mouse. Also, be sure to remove all add-on cards.

4. Install a CPU and heatsink (-be sure that it is fully seated) and then connect the chassis speaker and the power LED to the motherboard. Check all jumper settings as well.

### No Power

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

2. Make sure that all jumpers are set to their default positions.

3. Check if 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 make sure 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--in this case, you will need to remove all the add-on cards and cables first.

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

3. Remove all memory modules and turn on the system. (If the alarm is on, check the specs of memory modules, reset the memory or try a different one.)

### Memory Errors

1. Make sure that the DIMM modules are properly installed and fully seated in the slots.

2. You should be using unbuffered Non-ECC DDR3 (1.5V) 1333/1066 MHz memory (recommended by the manufacturer). Also, it is recommended that you use the memory modules of the same type and speed for all DIMMs in the system. Do not use memory modules of different sizes, different speeds and different types on the same motherboard.

3. Check for bad DIMM modules or slots by swapping modules between slots to see if you can locate the faulty ones.

4. Check the switch of 115V/230V power supply.

### Losing the System's Setup Configuration

1. Please be sure to use a high quality power supply. A poor quality power supply may cause the system to lose CMOS setup information. Refer to Section 1-5 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.

## 3-2 Technical Support Procedures

Before contacting Technical Support, please make sure that you have followed all the steps listed below. 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 website (http://www.supermicro.com/support/faqs/) before contacting Technical Support.

2. BIOS upgrades can be downloaded from our website at (http://www.supermicro.com/support/bios/).

   **Note:** Not all BIOS can be flashed. Some cannot be flashed; it depends on the boot block code of the BIOS.

3. If you've followed the instructions above to troubleshoot your system, and still cannot resolve the problem, then contact Supermicro's technical support and provide them with the following information:

- 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 website 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, by phone at: (408) 503-8000, option 2, or by fax at (408)503-8019.

## 3-3 Frequently Asked Questions

**Question:** What type of memory does my motherboard support?

**Answer:** The C7B75 supports up to 32GB of unbuffered Non-ECC DDR3 SDRAM (1.5V, 1333/1066 MHz). See Section 2-3 for details on installing memory.

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

**Answer:** We do NOT recommend that you upgrade your BIOS if you are not experiencing any problems with your system. Updated BIOS files are located on

our website 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. Select your motherboard model and download the BIOS ROM file to your computer. Also, check the current BIOS revision to make sure that it is newer than your BIOS before downloading. You may choose the zip file or the .exe file. If you choose the zipped BIOS file, please unzip the BIOS file onto a bootable device or a USB pen/thumb drive. To flash the BIOS, run the batch file named "ami.bat" with the new BIOS ROM file from your bootable device or USB pen/thumb drive. Use the following format:

F:\> ami.bat BIOS-ROM-filename.xxx <Enter>

**Note:** Always use the file named "ami.bat" to update the BIOS, and insert a space between "ami.bat" and the filename. The BIOS-ROM-filename will bear the motherboard name (i.e., C7B75) and build version as the extension. For example, "C7B750.115".When completed, 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, boot 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.

When the BIOS flashing screen is completed, the system will reboot and will show "Press F1 or F2". At this point, you will need to load the BIOS defaults. Press <F1> to go to the BIOS setup screen, and press <F9> to load the default settings. Next, press <F10> to save and exit. The system will then reboot.

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

**Important:** The SPI BIOS chip installed on this motherboard is not removable. To repair or replace a damaged BIOS chip, please send your motherboard to RMA at Supermicro for service.

**Question:** I think my BIOS is corrupted. How can I recover my BIOS?

**Answer:** Please see Appendix C-BIOS Recovery for detailed instructions.

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

**Answer:** The supplied compact disc has quite a few 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 Windows, security programs, and audio drivers.

**Question:** Why do I get an error message “IASTOR.SYS read error” and "press F6 to install Intel RAID driver" when installing Windows on my motherboard?

**Answer:** To solve this issue, disable the IPMI jumper. Another solution is to use a USB floppy drive instead of the onboard floppy drive. For the IPMI jumper location, please check Chapter 1.

**Question:** What is the heatsink part number for my C7B75 motherboard?

**Answer:** For the 1U passive heatsink, ask for SNK-P0046P (back plate is included). For the 2U active heatsink, use SNK-P0046A4.

**Question:** Why can't I recover the BIOS even when I’ve followed the instructions in the user’s manual for the motherboard?

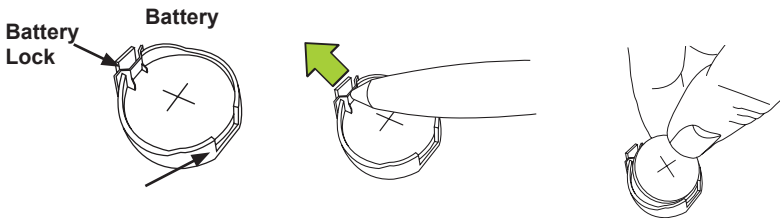
**Answer:** Please disable the IPMI jumper and try it again. For the jumper location, please check Chapter 1.

## 3-4 Battery Removal and Installation

### Battery Removal

To remove the onboard battery, follow the steps below:

1. Power off your system and unplug your power cable.
2. Locate the onboard battery as shown below.
3. Using a tool such as a pen or a small screwdriver, push the battery lock outwards to unlock it. Once unlocked, the battery will pop out from the holder.
4. Remove the battery.




### Proper Battery Disposal

**Warning!** 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.

### Battery Installation

1. To install an onboard battery, follow the steps 1& 2 above and continue below:

2. Identify the battery's polarity. The positive (+) side should be facing up.

3. Insert the battery into the battery holder and push it down until you hear a click to ensure that the battery is securely locked.

**Warning:** When replacing a battery, be sure to only replace it with the same type.

**Battery Holder**




## 3-5 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. For faster service, you may also obtain RMA authorizations online (http://www.supermicro.com/support/rma/). When you return the motherboard 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 alteration, 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 AMI BIOS Setup Utility for the C7B75. The ROM BIOS is stored in a Flash EEPROM and can be easily updated. This chapter describes the basic navigation of the AMI BIOS Setup Utility setup screens.



**Note:** For AMI BIOS Recovery, please refer to the UEFI BIOS Recovery Instructions in Appendix C.

### Starting BIOS Setup Utility

To enter the AMI BIOS Setup Utility screens, press the <Delete> key while the system is booting up.



**Note**: In most cases, the <Delete> key is used to invoke the AMI BIOS setup screen. There are a few cases when other keys are used, such as <F1>, <F2>, etc.

Each main BIOS menu option is described in this manual. The Main BIOS setup menu screen has two main frames. The left frame displays all the options that can be configured. Grayed-out options cannot be configured. Options in blue can be configured by the user. The right frame displays the key legend. Above the key legend is an area reserved for a text message. When an option is selected in the left frame, it is highlighted in white. Often a text message will accompany it. (**Note**: the AMI BIOS has default text messages built in. Supermicro retains the option to include, omit, or change any of these text messages.)

The AMI BIOS Setup Utility uses a key-based navigation system called "hot keys". Most of the AMI BIOS setup utility "hot keys" can be used at any time during the setup navigation process. These keys include <F1>, <F10>, <Enter>, <ESC>, arrow keys, etc.



**Note**: Options printed in **Bold** are default settings.

### How To Change the Configuration Data

The configuration data that determines the system parameters may be changed by entering the AMI BIOS Setup utility. This Setup utility can be accessed by pressing <Del> at the appropriate time during system boot.

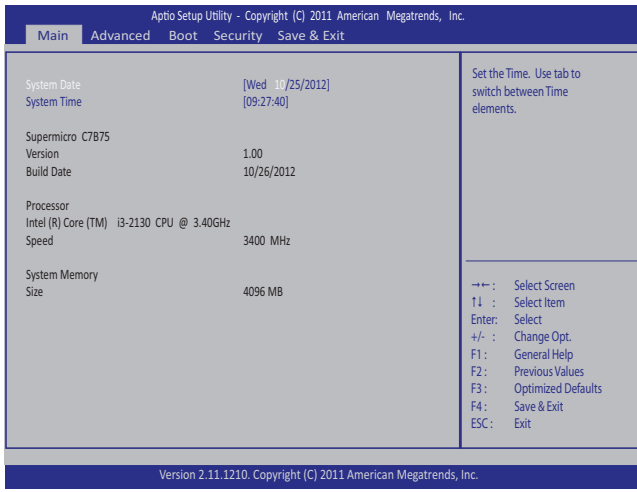
### How to Start the Setup Utility

Normally, the only visible Power-On Self-Test (POST) routine is the memory test. As the memory is being tested, press the <Delete> key to enter the main menu of the AMI BIOS Setup Utility. From the main menu, you can access the other setup screens. An AMI BIOS identification string is displayed at the left bottom corner of the screen, below the copyright message.

**Warning!** Do not upgrade the BIOS unless your system has a BIOS-related issue. Flashing the wrong BIOS can cause irreparable damage to the system. In no event shall Supermicro be liable for direct, indirect, special, incidental, or consequential damages arising from a BIOS update. If you have to update the BIOS, do not shut down or reset the system while the BIOS is updating. This is to avoid possible boot failure.

## 4-2 Main Setup

When you first enter the AMI BIOS Setup Utility, you will enter the Main setup screen. You can always return to the Main setup screen by selecting the Main tab on the top of the screen. The Main BIOS Setup screen is shown below.



**System Overview:** The following BIOS information will be displayed:

**System Time/System Date**

Use this option to change the system time and date. Highlight *System Time* or *System Date* using the arrow keys. Enter new values through the keyboard. Press the <Tab> key or the arrow keys to move between fields. The date must be entered in Day MM/DD/YY format. The time is entered in HH:MM:SS format.



**Note:** The time is in the 24-hour format. For example, 5:30 P.M. appears as 17:30:00.

The following BIOS items will also be displayed:

**Supermicro C7B75**

**Version**

**Build Date**

**Processor**

The AMI BIOS will automatically display the status of the processor used in the motherboard as shown below:

**Type of Processor**

**Speed**

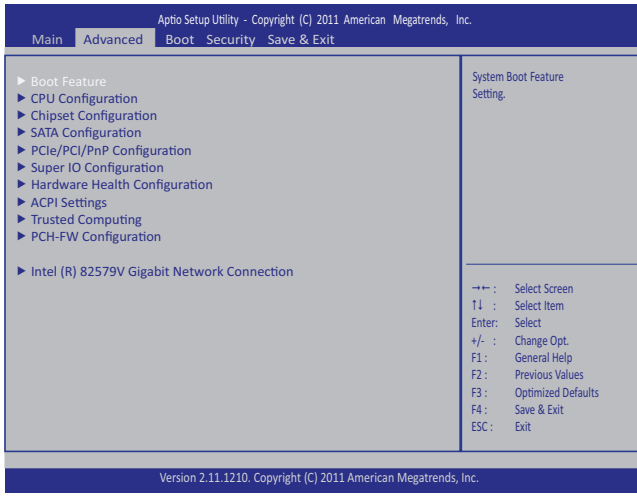
**System Memory**

This displays the size of memory available in the system:

**Size**

## 4-3 Advanced Setup Configurations

Use the arrow keys to select Boot Setup and press <Enter> to access the submenu items:




### ▶Boot Feature

#### Quiet Boot

Use this feature to select the screen display between POST messages or the OEM logo at bootup. Select Disabled to display the POST messages. Select Enabled to display the OEM logo instead of the normal POST messages. The options are **Enabled** and Disabled.

#### AddOn ROM Display Mode

Use this feature to set the display mode for Option ROM. The options are **Force BIOS** and Keep Current.

#### Bootup Num-Lock

This feature selects the Power-on state for the Numlock key. The options are Off and **On**.

#### Wait For 'F1' If Error

This forces the system to wait until the 'F1' key is pressed if an error occurs. The options are Disabled and **Enabled**.

**Interrupt 19 Capture**

Interrupt 19 is the software interrupt that handles the boot disk function. When this item is set to Enabled, the ROM BIOS of the host adaptors will "capture" Interrupt 19 at bootup and allow the drives that are attached to these host adaptors to function as bootable disks. If this item is set to Disabled, the ROM BIOS of the host adaptors will not capture Interrupt 19, and the drives attached to these adaptors will not function as bootable devices. The options are **Enabled** and Disabled.

**Re-try Boot**

When set to Enabled, the BIOS will continuously retry to boot from the selected boot type. The options are **Disabled**, Legacy Boot, and EFI Boot.

## Power Configuration

**Watch Dog Function**

If enabled, the Watch Dog timer will allow the system to automatically reboot when a non-recoverable error occurs that lasts for more than five minutes. The options are Enabled and **Disabled.**

**Power Button Function**

This feature controls how the system shuts down when the power button is pressed. Select 4 Seconds Override for the user to power off the system after pressing and holding the power button for 4 seconds or longer. Select Instant Off to instantly power off the system as soon as the user presses the power button. The options are 4 Seconds Override and **Instant Off.**

**Restore on AC Power Loss**

Use this feature to set the power state after a power outage. Select Power-Off for the system power to remain off after a power loss. Select Power-On for the system power to be turned on after a power loss. Select Last State to allow the system to resume its last power state before a power loss. The options are Power-On, Stay-Off and **Last State**.

## ▶CPU Configuration

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

## ▶CPU Information

This submenu displays information regarding the installed CPU.

**Active Processor Cores**

Enables selection of the number of the processor's core to activate. (Please refer to Intel's web site for more information.) The options are **All,** 1, 2, and 3.

**Limit CPUID Maximum**

This feature allows the user to set the maximum CPU ID value. Enable this function to boot the legacy operating systems that cannot support processors with extended CPUID functions. The options are Enabled and **Disabled** (for the Windows OS).

**Execute-Disable Bit (Available when supported by the OS and the CPU)**

Set to Enabled to enable the Execute Disable Bit which will allow the processor to designate areas in the system memory where an application code can execute and where it cannot, thus preventing a worm or a virus from flooding illegal codes to overwhelm the processor or damage the system during an attack. The default is **Disabled**. (Refer to Intel and Microsoft Web Sites for more information.)

**Intel® Virtualization Technology (Available when supported by the CPU)**

Select Enabled to use the Intel Virtualization Technology 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.

**Hardware Prefetcher (Available when supported by the CPU)**

If set to Enabled, the hardware prefetcher will prefetch streams of data and instructions from the main memory to the L2 cache to improve CPU performance. The options are Disabled and **Enabled**.

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

Select Enabled for the CPU to prefetch both cache lines for 128 bytes as comprised. Select Disabled for the CPU to prefetch both cache lines for 64 bytes. The options are Disabled and **Enabled**.

**Clock Spread Spectrum**

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**.

## ▶CPU PPM Configuration

Use this feature to select a power-saving scheme for the motherboard. The options are Disabled, Energy Efficient and Custom. If Custom is selected, the following options become available:

**EIST**

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

**Turbo Mode**

This feature allows processor cores to run faster than marked frequency in specific conditions. The options are Disabled and **Enabled.**

**CPU C3 Report**

Select Enabled for the CPU to report C3 (ACPI C2) state to the operating system. The options are Disabled and **Enabled**.

**CPU C6 Report**

Select Enabled for the CPU to report C6 (ACPI C3) state to the operating system. The options are Disabled and **Enabled**.

**Config TDP Lock**

Select Enabled to lock the config TDP control register. The options are **Disabled** and Enabled.

**ACPI T State**

Use this feature to enable ACPI T (throttling) state support. The options are **Disabled** and Enabled.

## ▶Chipset Configuration

**WARNING**: Setting the wrong values in the following sections may cause the system to malfunction.

### ▶System Agent (SA) Configuration

Use this section to modify System Agent (SA) parameters.

### ▶Graphics Configuration

**Internal Graphics**

Use this item to keep IGD (Internal Graphics Device) enabled based on the setup options. The settings are **Auto**, Disabled, and Enabled.

**IGFX Boot Display**

Use this item to select which video device will be activated during POST. The options are **Auto**, CRT, DVI-D, and CRT+DVI-D

**GTT Size**

Use this item to determine the GTT (Graphics Translation Table) size. The options are 1MB and **2MB**.

**Aperture Size**

Use this item to select the Aperture size. The options are 128MB, **256MB**, and 512MB.

**DVMT Pre-Allocated**

Use this item to select the pre-allocated DVMT (Dynamic Video Memory Technology) graphics memory size used by the IGD (Internal Graphics Device). The options are 32M, **64M**, 96M, 128M, 160M, 192M, 224M, 256M, 288M, 320M, 352M, 384M, 416M, 448M, 480M, 512M, and 1024M.

**DVMT Total Gfx Mem**

Use this item to select the pre-allocated DVMT (Dynamic Video Memory Technology) graphics memory size used by the IGD (Internal Graphics Device). The options are 128M, **256M**, and MAX.

**Gfx Low Power Mode**

If set to Enabled, the graphics render clock speed is reduced to save power. The options are **Enabled** and Disabled.

**Graphics Performance Analyzers**

Use this feature to enable or disable the Intel graphics performance analyzers counters. The options are Enabled and **Disabled**.

## ▶NB PCIe Configuration

**PEG0 - Gen X**

Use this item to configure the desired Generation support for PEG0. The options are **Auto**, Gen1, Gen2, and Gen3.

**VT-d**

Select Enabled to enable Intel's Virtualization Technology support for Direct I/O VT-d by reporting the I/O device assignments to VMM through the DMAR ACPI Tables. This feature offers fully-protected I/O resource-sharing across the Intel platforms, providing the user with greater reliability, security and availability in networking and data-sharing. The settings are **Enabled** and Disabled.

## ▶Memory Configuration

Use this section to view memory information and configure memory settings.

**Memory Frequency Limiter**

Use this item to select the maximum memory frequency (in MHz). The settings are **Auto**, 1067, 1333, 1600, 1867, 2133, 2400, 2667.

**Max TOLUD**

Use this item to set the maximum value of TOLUD. Select Dynamic to allow TOLUD to adjust automatically based on the largest MMIO length of the installed graphic controller. The options are **Dynamic**, 1GB, 1.25GB, 1.5GB, 1.75GB, 2GB, 2.25GB, 2.5GB. 2.75GB, 3GB, 3.25GB.

**NMode Support**

Use this item to select the desired NMode support. The options are **Auto**, 1N Mode, and 2N Mode.

**Memory Scrambler**

Use this item to enable memory scrambler support. The options are **Enabled** and Disabled.

**MRC Fast Boot**

Select Enabled to speed up boot times by bypassing long memory training routines. The options are **Enabled** and Disabled.

**Scrambler Seed Generation Off**

Use this item to control memory scrambler seed generation. Select Enabled to prevent generating scrambler seed. Select Disabled to always generate scrambler seed. The options are Enabled and **Disabled**.

**Memory Remap**

Select Enabled to enable memory remap above 4G. The options are **Enabled** and Disabled.

**Memory Alias Check**

Select Enabled to enable memory alias check. The options are **Enabled** and Disabled.

## ▶South Bridge Configuration

This item displays the current South Bridge configuration.

**GbE Controller**

Select Enabled to enable the onboard gigabit Ethernet controller. The settings are **Enabled** and Disabled.

**Wake on LAN from S5**

Select Enabled to enable the capability to 'wake-up' the system from the S5 power state (Soft Off State) through the Ethernet controller. The settings are **Enabled** and Disabled.

**Deep Sx**

Select Enabled to enable Deep Sleep State support. The settings are **Disabled**, Enabled in S5, Enabled in S4-S5.

**USB Functions**

This feature will enable or disable the motherboard's USB functions. The options are **Enabled** and Disabled.

**Legacy USB Support**

This feature enables support for legacy USB devices. Select Auto to disable legacy support if USB devices are not present. Select Disable to have USB devices available only for EFI applications. The options are **Enabled,** Disabled and Auto.

**Port 60/64 Emulation**

This feature enables or disables I/O port 60h/64h emulation support. This should be enabled for complete USB keyboard legacy support for non-USB-aware Operating Systems. The options are Disabled and **Enabled**.

**BIOS EHCI Hand-Off**

This item is for Operating Systems that do not support Enhanced Host Controller Interface (EHCI) hand-off. When enabled, EHCI ownership change will be claimed by the EHCI driver. The settings are **Enabled** and Disabled.

**XHCI Pre-Boot Driver**

Select Enabled to enable driver support for XHCI pre-boot. The options are **Enabled** and Disabled.

**Azalia HD Audio**

Select Enabled to enable the Azalia High Definition Audio feature. The settings are **Enabled** and Disabled.

## ▶SATA Configuration

When this submenu is selected, the AMI BIOS automatically detects the presence of the IDE Devices and displays the following items:

**SATA Mode Selection**

Use this item to select the mode for the installed drives. The options are IDE Mode, and **AHCI Mode**.

**AHCI Mode**

The following items are displayed when AHCI Mode is selected:

**Port0~Port5 Hot Plug**

Select Enabled to enable hot-plug support for a particular port, which will allow the user to change a hardware component or device without shutting down the system. The options are Enabled and **Disabled**.

**Mechanical Presence Switch (Available when Port0~Port5 Hot Plug is set to Enabled)**

Use this item to control reporting if the port is connected to a device with a Mechanical Presence switch (hardware support required). The options are Enabled and **Disabled**.

**IDE Mode**

The following items are displayed when IDE Mode is selected:

**IDE Legacy / Native Mode Selection**

Use this item to select Native Mode or IDE Legacy support. The options are **Native** and Legacy.

## ▶PCIe/PCI/PnP Configuration

This feature allows the user to set the PCI/PnP configurations for the following items:

**VGA Priority**

This feature allows the user to select the graphics adapter to be used as the primary boot device. The options are **Auto**, Onboard, and Offboard.

**PCI ROM Priority**

When there are multiple Option ROMs (Legacy and EFI compatible), this feature specifies what Option ROM to launch. The options are **Legacy ROM** and UEFI Compatible ROM.

**PCI Latency Timer**

This feature sets the latency Timer of each PCI device installed on a PCI bus. Select 64 to set the PCI latency to 64 PCI bus clock cycles. The options are 32 PCI Bus Clocks, **64 PCI Bus Clocks**, 96 PCI Bus Clocks, 128 PCI Bus Clocks, 160 PCI Bus Clocks, 192 PCI Bus Clocks, 224 PCI Bus Clocks and 248 PCI Bus Clocks.

**Maximum Payload Size**

Select Auto to allow the system BIOS to automatically set the maximum payload value for a PCI-E device to enhance system performance. The options are **Auto**, 128 Bytes and 256 Bytes.

**Maximum Read Request**

Select Auto to allow the system BIOS to automatically set the maximum Read Request size for a PCI-E device to enhance system performance. The options are **Auto**, 128 Bytes, 256 Bytes, 512 Bytes, 1024 Bytes, 2048 Bytes, and 4096 Bytes.

**ASPM Support**

Select Enabled to enable Active-State Power Management for signal transactions between L0 and L1 Links on the PCI Express Bus in order to maximize power-saving and transaction speeds. The options are **Disabled**, Auto, and Force L0s.

**SLOT4 PCI-E 2.0 x4 (in x16 ) OPROM**

Select Enabled to enable Option ROM support to boot the computer using a device installed on the slot specified above. The options are **Enabled** and Disabled.

**SLOT5 PCI 33MHz OPROM**

Select Enabled to enable Option ROM support to boot the computer using a device installed on the slot specified above. The options are **Enabled** and Disabled.

**SLOT6 PCI-E 2.0 x1 OPROM**

Select Enabled to enable Option ROM support to boot the computer using a device installed on the slot specified above. The options are **Enabled** and Disabled.

**SLOT7 PCI-E 3.0 x16 OPROM**

Select Enabled to enable Option ROM support to boot the computer using a device installed on the slot specified above. The options are **Enabled** and Disabled.

**Load Onboard LAN1 Option ROM**

This feature enables or disables the onboard ROM option for LAN1. The options are **Disabled** and Enabled.

**Network Stack**

Select Enabled enable PXE (Preboot Execution Environment) or UEFI (Unified Extensible Firmware Interface) for network stack support. The options are Enabled and **Disabled**.

**IPv4 PXE Support (Available when Network Stack is set to Enabled)**

Set this item to Enabled to activate IPv4 PXE Support. The options are **Enabled** and Disabled.

**IPv6 PXE Support (Available when Network Stack is set to Enabled)**

Set this item to Enabled to activate IPv6 PXE Support. The options are Enabled and **Disabled**.

## ▶Super IO Configuration

**NCT6776F**

**Serial Port 1, Serial Port 2**

Select Enabled to enable a serial port specified by the user. The options are **Enabled** and Disabled.

**Serial Port 1 Settings**

This option specifies the base I/O port address and the Interrupt Request address of Serial Port 1. Select Disabled to prevent the serial port from accessing any system resources. When this option is set to Disabled, the serial port becomes unavailable. The options are **Auto**, IO=3F8h; IRQ=4; IO=3F8h; IRQ=3, 4, 5, 6, 7, 9, 10, 11, 12; IO=2F8h; IRQ=3, 4, 5, 6, 7, 9, 10, 11, 12; IO=3E8h; IRQ=3, 4, 5, 6, 7, 9, 10, 11, 12; and IO=2E8h; IRQ=3, 4, 5, 6, 7, 9, 10, 11, 12;

**Serial Port 2 Settings**

This option specifies the base I/O port address and the Interrupt Request address of Serial Port 1. The options are **Auto**, IO=2F8h; IRQ=3; IO=3F8h; IRQ=3, 4, 5, 6, 7, 9, 10, 11, 12; IO=2F8h; IRQ=3, 4, 5, 6, 7, 9, 10, 11, 12; IO=3E8h; IRQ=3, 4, 5, 6, 7, 9, 10, 11, 12; and IO=2E8h; IRQ=3, 4, 5, 6, 7, 9, 10, 11, 12;

**IT8760**

**Serial Port 3, Serial Port 4**

Select Enabled to enable a serial port specified by the user. The options are **Enabled** and Disabled.

**Serial Port 3 Settings**

This option specifies the base I/O port address and the Interrupt Request address of Serial Port 3. The options are: **Auto**, IO=3E8h;IRQ=11; IO=3D0h;IRQ=11; IO=3D8h;IRQ=11; IO=3E0h;IRQ=11;

**Serial Port 4 Settings**

This option specifies the base I/O port address and the Interrupt Request address of Serial Port 4. The options are: **Auto,** IO=2E8h;IRQ=11; IO=2D0h;IRQ=11; IO=2D8h;IRQ=11; IO=2E0h;IRQ=11;

## ▶Hardware Health Configuration

**Fan Speed Control Mode**

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 for effective system cooling. Select "Full Speed" to allow the onboard fans to run at full speed (of 100% Pulse Width Modulation Duty Cycle) for maximum cooling. This setting is recommended for special system configuration or debugging. Select "Standard" for the onboard fans to run at 50% of the Initial PWM Cycle in order to balance the

needs between system cooling and power saving. This setting is recommended for regular systems with normal hardware configurations. The options are Full Speed (@100% of PWM Cycle), and **Standard** (@50% of PWM Cycle).

**CPU Temperature Display Mode**

This feature displays the CPU temperature detected by DTS (i.e., +34$^{o}$C) or temperature status in text ("Low", "Medium" or "High"). The options are **Text Mode** or DTS Mode.

If Text Mode is selected, the CPU Temperature Display Mode will show the CPU temperature status as follows:

Low – This level is considered as the 'normal' operating state. The CPU temperature is well below the CPU 'Temperature Tolerance'. The motherboard fans and CPU will run normally as configured in the BIOS (Fan Speed Control).

User intervention: No action required.

Medium – The processor is running warmer. This is a 'precautionary' level and generally means that there may be factors contributing to this condition, but the CPU is still within its normal operating state and below the CPU 'Temperature Tolerance'. The motherboard fans and CPU will run normally as configured in the BIOS. The fans may adjust to a faster speed depending on the Fan Speed Control settings.

User intervention: No action is required. However, consider checking the CPU fans and the chassis ventilation for blockage.

High – The processor is running hot. This is a 'caution' level since the CPU's 'Temperature Tolerance' has been reached (or has been exceeded) and may activate an overheat alarm:

The information provided above is for your reference only. For more information on thermal management, please refer to Intel's Web site at www.Intel.com.

**System Temperature / Peripheral Temperature**

This feature displays the temperature readings from the system sensor (chassis) and peripheral devices.

**Fan 1 ~ Fan 4 Speed**

This feature displays the fan speed readings from fan interfaces Fan1 through Fan4.

**VCORE, 12V, VDIMM, 5VCC, CPU VTT, AVCC, 3.3VCC, VSB, VBAT**

This feature displays the current voltages of the above voltage monitors.

## ▶ACPI Settings

Use this feature to configure Advanced Configuration and Power Interface (ACPI) power management settings for your system.

### High Precision Event Timer

Select Enabled to activate the High Performance Event Timer (HPET) that produces periodic interrupts at a much higher frequency than a Real-time Clock (RTC) does in synchronizing multimedia streams, providing smooth playback and reducing the dependency on other timestamp calculation devices, such as an x86 RDTSC Instruction embedded in the CPU. The High Performance Event Timer is used to replace the 8254 Programmable Interval Timer. The options are **Enabled** and Disabled.

### ACPI Sleep State

This setting allows you to configure the ACPI (Advanced Configuration and Power Interface) sleep state for your system when it is in the Suspend mode. The options are Suspend Disabled, **S1 only (CPU Stop Clock)**, and S3 only (Suspend to RAM).

## ▶Trusted Computing

### Trusted Computing Configuration

#### TPM Support

Select Enabled on this item and enable the TPM jumper on the motherboard to enable TPM support to improve data integrity and network security. The options are **Enabled** and Disabled.

#### TPM State

Select Enabled to enable TPM security settings to improve data integrity and network security. The options are **Disabled** and Enabled.

#### Pending Operation

Use this item to schedule an operation for the security device. The options are **None**, Enable Take Ownership, Disable Take Ownership, and TPM Clear.

**Note:** During restart, the computer will reboot in order to execute the pending operation and change the state of the security device.

**Current Status Information:** This item displays the information regarding the current TPM status.

**TPM Enable Status**

This item displays the status of TPM Support to indicate if TPM is currently enabled or disabled.

**TPM Active Status**

This item displays the status of TPM Support to indicate if TPM is currently active or deactivated.

**TPM Owner Status**

This item displays the status of TPM Ownership.

## ▶Intel TXT (LT) Configuration

**Intel TXT (LT-SX) Hardware Support**

This feature indicates if the following hardware components support the Intel Trusted Execution Technology.

**CPU**: TXT (Trusted Execution Technology) Feature

**Chipset**: TXT (Trusted Execution Technology) Feature

**Intel TXT (LT) Configuration**

This feature displays the following TXT configuration setting.

**TXT (LT-SX) Support:** This item indicates if the Intel TXT support is enabled or disabled. The default setting is **Disabled**.

**Note**: Be sure to format your TPM module before enabling TXT (LT-SX) support for this feature to work properly.

**Note 2**: Intel TXT (LT-SX) Dependencies

For Trusted Execution Technology to work properly, be sure to enable the features displayed below:

**VT-d Support**: Intel Virtualization Technology with Direct I/O support

**VT Support**: Intel Virtualization Technology support

**TPM Support**: Trusted Platform support

**TPM State**: Trusted Platform state

## ▶PCH-FW Configuration

This feature displays ME configuration settings.

**Me Firmware Re-Flash**

Use this feature to enable re-flashing of the ME firmware. The options are **Disabled** and Enabled.

## ▶Intel® Ethernet Controller 10 Gigabit

This item displays the following information on the Intel 82579V Gigabit Network Connection.

### ▶NIC Configuration

**Link Speed**

Use this feature to change the link speed and duplex for the current port. The options are **AutoNeg**, 10 Mbps Half, 10 Mbps Full, 100 Mbps Half, and 100 Mbps Full.

**Wake on LAN**

Select Enabled to wake the system with a magic packet. The options are Disabled and **Enabled**.

**Blink LEDs (range 1-15 seconds)**

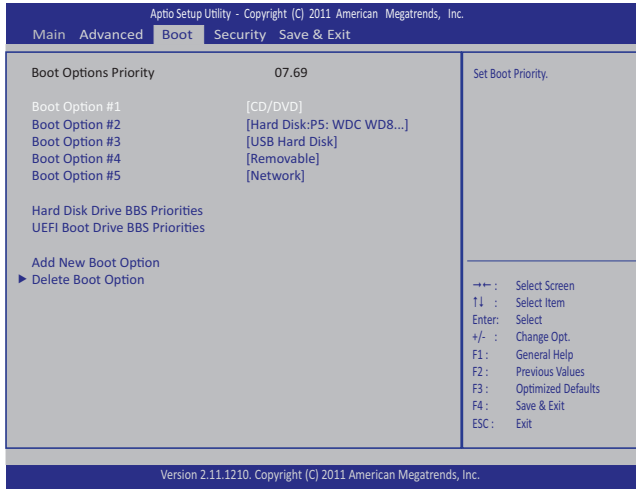
This feature allows the user to specify the duration for LEDs to blink. The range is from 0 ~ 15 seconds. The default setting is **0**.

**PORT CONFIGURATION INFORMATION**

This section displays the following port information:

- UEFI Driver
- Adapter PBA
- Chip Type
- PCI Device ID
- PCI Bus:Device:Function
- Link Status
- Factory MAC Address

# 4-4 Boot Settings




## ▶Boot Options Priority

This feature allows the user to specify which devices are boot devices and the order of priority from which the systems boots from during startup.

**Boot Option #1, Boot option #2, Boot Option #3, etc**

The settings are **Built-in EFI Shell**, [any detected boot device] and Disabled.

**UEFI Boot Drive BBS Priorities**

Use this setting to specify the boot device priority sequence from UEFI boot drives.

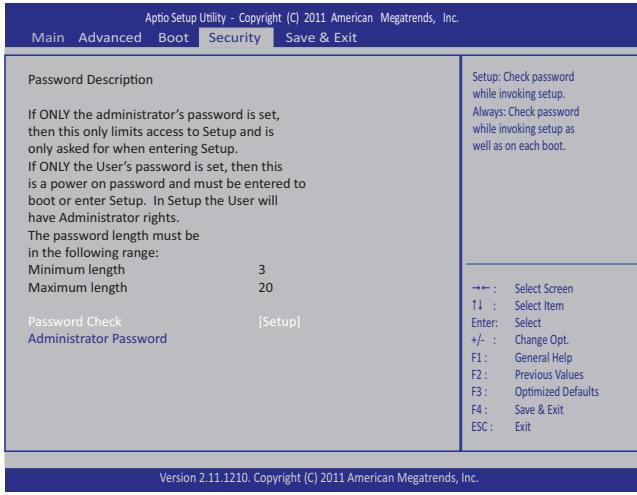
## Add New Boot Option

Use this feature to add a new boot device to the priority list.

## ▶Delete Boot Option

This feature allows the removal of a boot device and the order of priority from which the systems boots from during startup.

# 4-3 Security Settings




- If the Administrator password is defined ONLY - this controls access to the BIOS setup ONLY.
- If the User's password is defined ONLY - this password will need to be entered during each system startup or boot, and will also have Administrator rights in the setup.
- Passwords must be at least 3 and up to 20 characters long.

### Password Check

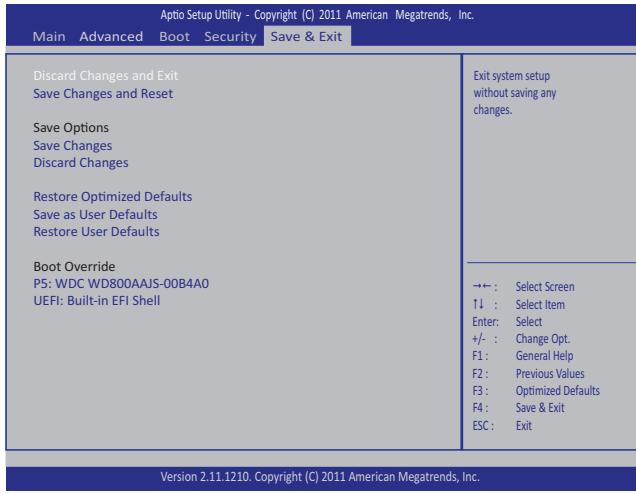
Use this feature to determine when a password entry is required. Select Setup to require the password only when entering setup. Select Always to require the password when entering setup and on each boot. The options are **Setup** and Always.

### Administrator Password

Press Enter to create a new, or change an existing Administrator password.

## 4-5 Save and Exit Options

Select the Exit tab from the BIOS Setup Utility screen to enter the Exit BIOS Setup screen.




### Discard Changes and Exit

Select this option to quit the BIOS Setup without making any permanent changes to the system configuration, and reboot the computer. Select Discard Changes and Exit, and press <Enter>.

### Save Changes and Reset

When you have completed the system configuration changes, select this option to save the changes and reboot the computer so that the new system configuration settings can take effect. Select Save Changes and Exit, and press <Enter>.

### Save Options

### Save Changes

Select this option and press <Enter> to save all changes you've done so far and return to the AMI BIOS utility Program.

### Discard Changes

Select this feature and press <Enter> to discard all the changes and return to the BIOS setup.

**Restore Optimized Defaults**

To set this feature, select Restore Optimized Defaults from the Exit menu and press <Enter>. These are factory settings designed for maximum system stability, but not for maximum performance.

**Save as User Defaults**

To set this feature, select Save as User Defaults from the Exit menu and press <Enter>. This enables the user to save any changes to the BIOS setup for future use

**Restore User Defaults**

To set this feature, select Restore User Defaults from the Exit menu and press <Enter>. Use this feature to retrieve user-defined settings that were saved previously.

**Boot Override**

This feature allows the user to override the Boot Option Priorities setting in the Boot menu, and instead immediately boot the system with one of the listed devices. This is a one-time override.

# Appendix A

# BIOS Error Beep Codes

During the POST (Power-On Self-Test) routines, which are performed each time the system is powered on, errors may occur.

**Non-fatal errors** are those which, in most cases, allow the system to continue with bootup. The error messages normally appear on the screen.

**Fatal errors** will not allow the system to continue to bootup. If a fatal error occurs, you should consult with your system manufacturer for possible repairs.

These fatal errors are usually communicated through a series of audible beeps. The numbers on the fatal error list correspond to the number of beeps for the corresponding error.

## A-1 BIOS Error Beep Codes

| BIOS Error Beep Codes | | |
|---|---|---|
| **Beep Code/LED** | **Error Message** | **Description** |
| 1 beep | Refresh | Circuits have been reset. (Ready to power up) |
| 5 short beeps + 1 long beep | Memory error | No memory detected in the system |
| 5 beeps | Display memory read/write error | Video adapter missing or with faulty memory |
| OH LED On | System OH | System Overheat |

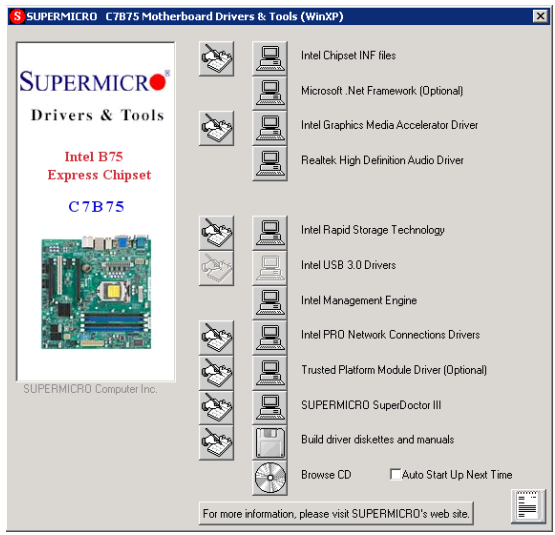
## Notes

# Appendix B

# Software Installation Instructions

## B-1 Installing 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 Operating System, please refer to the instructions posted on our website 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 on a computer icon to the right of an item to install this item (from top to the bottom), one at a time. After installing each item, you must reboot 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.

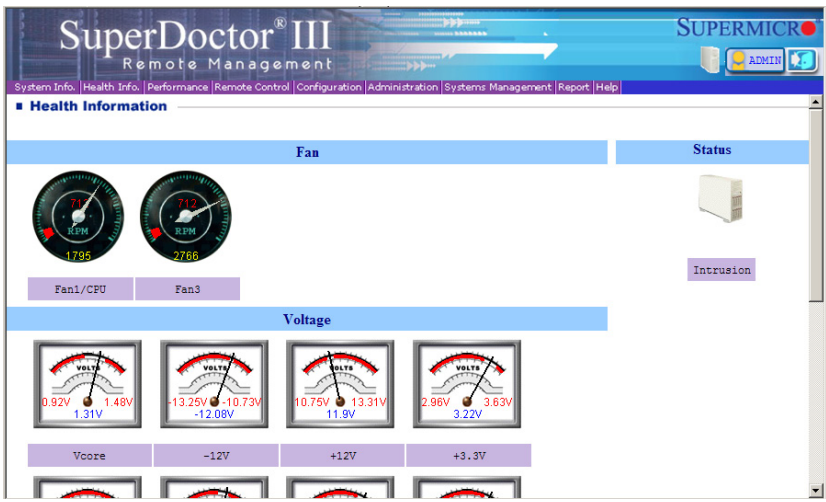
## B-2 Configuring SuperDoctor® III

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

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

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

**SuperDoctor III Interface Display Screen-I (Health Information)**



**SuperDoctor III Interface Display Screen-II (Remote Control)**




**Note**: The SuperDoctor III software and manual may be downloaded from our Website at:

http://www.supermicro.com/products/accessories/software/SuperDoctorIII.cfm.

For Linux, we still recommend that you use SuperDoctor II, this version is also available for download at the link above.

# Notes

# Appendix C

# UEFI BIOS Recovery Instructions

**Warning!** Do not upgrade the BIOS unless your system has a BIOS-related issue. Flashing the wrong BIOS can cause irreparable damage to the system. In no event shall Supermicro be liable for direct, indirect, special, incidental, or consequential damages arising from a BIOS update. If you need to update the BIOS, do not shut down or reset the system while the BIOS is updating to avoid possible boot failure.

## C-1 An Overview to the UEFI BIOS

The Unified Extensible Firmware Interface (UEFI) specification provides a software-based interface between the operating system and the platform firmware in the pre-boot environment. The UEFI specification supports an architecture-independent mechanism for add-on card initialization to allow the UEFI OS loader, which is stored in the add-on card, to boot up the system. UEFI offers a clean, hand-off control to a computer system at bootup.

## C-2 How to Recover the UEFI BIOS Image (-the Main BIOS Block)

An AMIBIOS flash chip consists of a boot sector block and a main BIOS code block (a main BIOS image). The boot sector block contains critical BIOS codes, including memory detection and recovery codes for the user to flash a new BIOS image if the original BIOS image is corrupted. When the system power is on, the boot sector codes execute first. Once it is completed, the main BIOS code will continue with system initialization and bootup.



**Note:** Follow the BIOS Recovery instructions below for BIOS recovery when the main BIOS block crashes. However, when the BIOS Boot sector crashes, you will need to send the motherboard back to Supermicro for RMA repair.

## C-3 To Recover the Boot Sector Using a USB-Attached Device

This feature allows the user to recover a BIOS image using a USB-attached device without additional utilities used. A USB flash device such as a USB Flash Drive, or

a USB CD/DVD ROM/RW device can be used for this purpose. However, a USB Hard Disk drive cannot be used for BIOS recovery at this time.

To perform UEFI BIOS recovery using a USB-attached device, follow the instructions below.

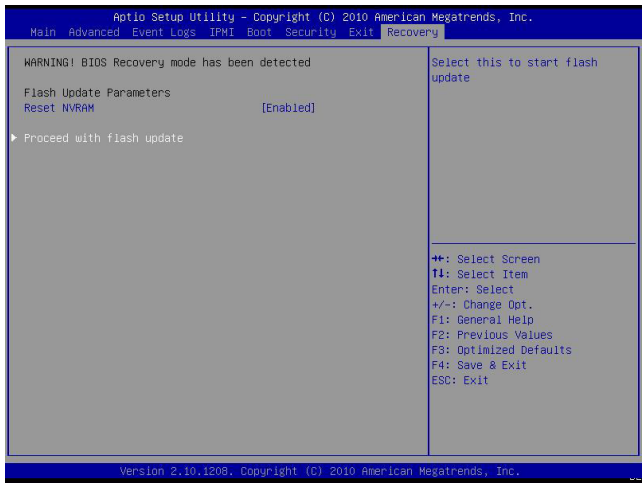
1. Using a different machine, copy the "Super.ROM" binary image file into the disc Root "\" Directory of a USB device or a writeable CD/DVD.

**Note:** If you cannot locate the "Super.ROM" file in your driver disk, visit our website at www.supermicro.com to download the BIOS image into a USB flash device and rename it to "Super ROM" for BIOS recovery use.

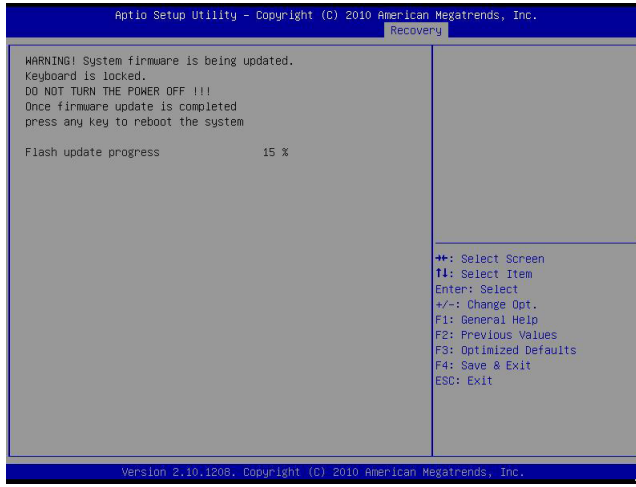
2. Insert the USB device that contains the new BIOS image ("Super.ROM") into your USB drive and power on the system

3. While powering on the system, keep pressing <Ctrl> and <Home> simultaneously on your PS2 keyboard until your hear two short beeps. This may take from a few seconds to one minute.

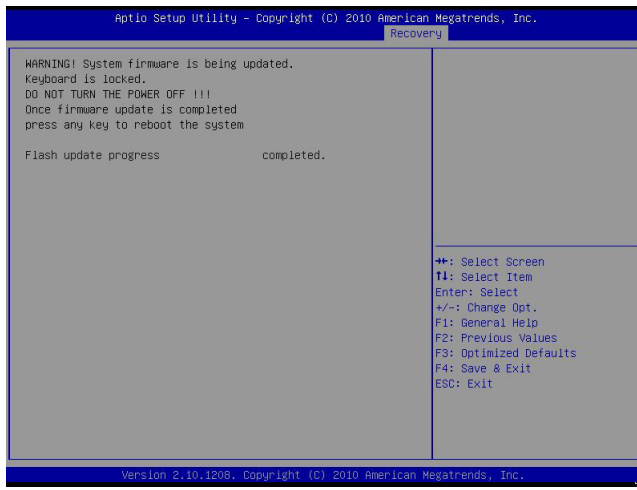
4. After locating the new BIOS binary image, the system will enter the BIOS Recovery menu as shown below.




**Note**: At this point, you may decide if you want to start with BIOS Recovery. If you decide to proceed with BIOS Recovery, follow the procedures below.




5. When the screen as shown above displays, using the arrow key, select the item- "Proceed with flash update" and press the <Enter> key. You will see the progress of BIOS Recovery as shown in the screen below.




**Note:** *Do not interrupt* the process of BIOS flashing until it is completed.

6. After the process of BIOS Recovery is complete, press any key to reboot the system.

7. Using a different system, extract the BIOS package into a bootable USB flash drive.

8. When a DOS prompt appears, enter AMI.BAT BIOSname.### at the prompt.



**Note:** *Do not interrupt this process* until BIOS flashing is completed.

9. After seeing the message that BIOS update is completed, unplug the AC power cable from the power supply to clear CMOS, and then plug the AC power cable in the power supply again to power on the system.

10. Press <Del> continuously to enter the BIOS Setup utility.

11. Press <F3> to load default settings.

12. After loading default settings, press <F4> to save the settings and exit the BIOS Setup utility.

(Disclaimer Continued)

The products sold by Supermicro are not intended for and will not be used in life support systems, medical equipment, nuclear facilities or systems, aircraft, aircraft devices, aircraft/emergency communication devices or other critical systems whose failure to perform be reasonably expected to result in significant injury or loss of life or catastrophic property damage. Accordingly, Supermicro disclaims any and all liability, and should buyer use or sell such products for use in such ultra-hazardous applications, it does so entirely at its own risk. Furthermore, buyer agrees to fully indemnify, defend and hold Supermicro harmless for and against any and all claims, demands, actions, litigation, and proceedings of any kind arising out of or related to such ultra-hazardous use or sale.