945GCM7 series

MS-7507 (v1.X) Mainboard
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Revision History

<table>
<thead>
<tr>
<th>Revision</th>
<th>Revision History</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>V1.0</td>
<td>First release</td>
<td>November 2007</td>
</tr>
</tbody>
</table>

Technical Support

If a problem arises with your system and no solution can be obtained from the user’s manual, please contact your place of purchase or local distributor. Alternatively, please try the following help resources for further guidance.

- Contact our technical staff at: [http://support.msi.com.tw/](http://support.msi.com.tw/)
Safety Instructions

1. Always read the safety instructions carefully.
3. Keep this equipment away from humidity.
4. Lay this equipment on a reliable flat surface before setting it up.
5. The openings on the enclosure are for air convection hence protects the equipment from overheating. DO NOT COVER THE OPENINGS.
6. Make sure the voltage of the power source and adjust properly 110/220V before connecting the equipment to the power inlet.
7. Place the power cord such a way that people can not step on it. Do not place anything over the power cord.
8. Always Unplug the Power Cord before inserting any add-on card or module.
9. All cautions and warnings on the equipment should be noted.
10. Never pour any liquid into the opening that could damage or cause electrical shock.
11. If any of the following situations arises, get the equipment checked by a service personnel:
   - The power cord or plug is damaged.
   - Liquid has penetrated into the equipment.
   - The equipment has been exposed to moisture.
   - The equipment has not work well or you can not get it work according to User’s Manual.
   - The equipment has dropped and damaged.
   - The equipment has obvious sign of breakage.
12. DO NOT LEAVE THIS EQUIPMENT IN AN ENVIRONMENT UNCONDITIONED, STORAGE TEMPERATURE ABOVE 60°C (140°F), IT MAY DAMAGE THE EQUIPMENT.

CAUTION: Danger of explosion if battery is incorrectly replaced. Replace only with the same or equivalent type recommended by the manufacturer.

警告使用者:
凡是属于本产品的，在危险的环境中使用时，可能会造成无线电信号，使用者应有把握采取某些适当的对策。

廢電池請回收
For better environmental protection, waste batteries should be collected separately for recycling or special disposal.
FCC-B Radio Frequency Interference Statement

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

† Reorient or relocate the receiving antenna.
† Increase the separation between the equipment and 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.

Notice 1
The changes or modifications not expressly approved by the party responsible for compliance could void the user’s authority to operate the equipment.

Notice 2
Shielded interface cables and A.C. power cord, if any, must be used in order to comply with the emission limits.

VOIR LA NOTICE D’INSTALLATION AVANT DE RACCORDER AU RESEAU.

Micro-Star International
MS-7507

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:
(1) this device may not cause harmful interference, and
(2) this device must accept any interference received, including interference that may cause undesired operation.
WEEE (Waste Electrical and Electronic Equipment) Statement

**ENGLISH**

To protect the global environment and as an environmentalist, MSI must remind you that...
Under the European Union ("EU") Directive on Waste Electrical and Electronic Equipment, Directive 2002/96/EC, which takes effect on August 13, 2005, products of "electrical and electronic equipment" cannot be discarded as municipal waste anymore and manufacturers of such equipment will be obligated to take back such products at the end of their useful life. MSI will comply with the product take back requirements at the end of life of MSI-branded products that are sold into the EU. You can return these products to local collection points.

**DEUTSCH**

Hinweis von MSI zur Erhaltung und Schutz unserer Umwelt

**FRANÇAIS**

En tant qu'écologiste et afin de protéger l'environnement, MSI tient à rappeler cela...

Au sujet de la directive européenne (EU) relative aux déchets des équipement électriques et électroniques, directive 2002/96/EC, prenant effet le 13 août 2005, que les produits électriques et électroniques ne peuvent être déposés dans les décharges au travers simplement mis à la poubelle. Les fabricants de ces équipements seront obligés de récupérer certains produits en fin de vie. MSI prendra en compte cette exigence relative au retour des produits en fin de vie au sein de la communauté européenne. Par conséquent vous pouvez retourner localement ces matériels dans les points de collecte.

**РУССКИЙ**

Компания MSI предпринимает активные действия по защите окружающей среды, поэтому напоминаем вам, что...

В соответствии с директивой Европейского Союза (EC) по предотвращению загрязнения окружающей среды использованием электрическими и электронными изделиями (директива WEEE 2002/96/EC), вступающей в силу 13 августа 2005 года, изделия, относящиеся к электрическому и электронному оборудованию, не могут рассматриваться как бытовой мусор, поэтому производители должны держать электро- и электронное оборудование, предназначенное для переработки по окончании срока службы. MSI обязуется соблюдать требования по приему продукции, проданной под маркой MSI на территории EC, и переработке по окончании срока службы. Вы можете вернуть эти изделия в специализированные пункты приема.
ESPÁNOL

MSI como empresa comprometida con la protección del medio ambiente, recomienda:

Bajo la directiva 2002/96/EC de la Unión Europea en materia de desechos y/o equipos electrónicos, con fecha de rigor desde el 13 de agosto de 2005, los productos clasificados como "eléctricos y equipos electrónicos" no pueden ser depositados en los contenedores habituales de su municipio, los fabricantes de equipos electrónicos, están obligados a hacerse cargo de dichos productos al término de su período de vida. MSI estará comprometido con las tareas de recogida de sus productos vendidos en la Unión Europea al final de su período de vida. Unico debe depositar estos productos en el punto limpio establecido por el ayuntamiento de su localidad o entregar a una empresa autorizada para la recogida de estos residuos.

NEDERLANDS

Om het milieu te bewerken, wil MSI u eraan herinneren dat....

De richtlijn van de Europese Unie (EU) met betrekking tot Vervulling van Elektrische en Electromagnetische producten (2002/96/EC), die op 13 Augustus 2005 in zal gaan kunnen niet meer beheuwd worden als vervullig.

Fabrikanten van dit soort producten worden verplicht om producten retour te nemen aan het einde van hun levenscyclus. MSI zal overeenkomstig de richtlijn handelen voor de producten die de merknaam MSI dragen en verkozen zijn in de EU. Deze goederen kunnen gerecyceld worden op lokale inzetminglepuntten.

SRPSKI

Da bi zaštitili prirodu sredine, i kao producent koja vodi računa o okoliši i privatniji sredini, MSI mora da vas podesti da...


POLSKI

Aby chronić zasoby środowiska naturalnego oraz jako firma dbająca o ekologię, MSI przypomina, że...

Zgodne z Dyrektywą Unii Europejskiej ("UE") dotyczącej odpadów produktów elektrycznych i elektronicznych (Dyrektywa 2002/96/EC), która weszła w życie 13 sierpnia 2005, to "produkty oraz wyposażenie elektryczne i elektroniczne" nie mogą być traktowane jako śmieci komunalne, tak więc producent tych produktów będzie zobowiązany do odbierania ich w momencie gdy produkt jest wyczytywany z użytku. MSI wypuszcza wymagania UE, przyjmując produkty (sprzedawane na terenie Unii Europejskiej) wyczytywane z użytku. Produkty MSI będące można zwrot w wyspecjalizowanych punktach zbiorczych.
ČESKÝ
Zdělili nám na ochranu životního prostředí - společnost MSI upozorňuje,...

MAGYAR
Az Európai Unió ("EU") 2005. augusztus 13-án hatályba lépet, az elektromos és elektronikus berendezéseket hulladékkárolat szerint az elektromos és elektronikus berendezésektől többé nem kezelhetőek haladékkontozás nélkül, és az ilyen elektronikus berendezésekre gyártó készülékeként változi az ilyen termékek visszavételére azon hozzájárul a telek tartoznak végén. Az MSI betérlegesség a termékek kivételével kapcsolatos követelményekhez az MSI mértékeknél az EU-s betegkénti vagy termékek végén. Az ilyen termékeket a legnagyobb gyógyítósú viszonyban vethető.

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Thank you for choosing the 945GCM7 Series (MS-7507 v1.X) Micro-ATX mainboard. The 945GCM7 Series mainboards are based on Intel® 945GC & ICH7/ICH7R chipsets for optimal system efficiency. Designed to fit the advanced Intel® Core 2 Duo/Pentium/Celeron LGA775 processor, the 945GCM7 Series deliver a high performance and professional desktop platform solution.
Mainboard Specifications

Processor Support
- Intel® Core2 Duo/ Pentium D/ Pentium 4 / Celeron D Prescott LGA775 processors in LGA775 package.
- Supports 4 pin CPU Fan Pin-Header with Fan Speed Control.
(For the latest information about CPU, please visit http://global.msi.com.tw/index.php?func=cpuform)

Supported FSB
- 533/ 800/1066/1333 MHz

Chipset
- North Bridge: Intel® 945GC chipset
- South Bridge: Intel® ICH7/ ICH7R (optional) chipset

Memory Support
- DDR2 400/533/667 SDRAM (4GB Max)
- 2 DDR2 DIMMs (240pin / 1.8V)
(For more information on compatible components, please visit http://global.msi.com.tw/index.php?func=testreport)

LAN (optional)
- Supports Realtek® RTL8111C 10/100/1000 Mb/s
- Supports Realtek® RTL8101E 10/100 Mb/s (optional)
- Compliance with PCI 2.2
- Supports ACPI Power Management

Audio
- Chip integrated by Realtek® ALC888
- 5.1 channel audio-out (optional)
- 7.1 channel audio-out (optional)
- Compliant with vista premium

IEEE 1394 (optional)
- Chip integrated by JMicron 381
- Transfer rate is up to 400Mbps

IDE
- 1 IDE port by ICH7/ ICH7R (optional)
- Supports Ultra DMA 66/100 mode
- Supports PIO, Bus Master operation mode

SATA
- 4 SATA II ports by ICH7/ ICH7R (optional)
- Supports transfer rate up to 300 MB/s

RAID (optional)
- SATA1~4 support RAID 0/ 1/ 0+1 (for ICH7R only)

Floppy
- 1 floppy port
- Supports 1 FDD with 360KB, 720KB, 1.2MB, 1.44MB and 2.88MB
## Getting Started

<table>
<thead>
<tr>
<th><strong>TPM (optional)</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>- Supports TPM</td>
</tr>
</tbody>
</table>

### Connectors

- **Back panel**
  - 1 PS/2 mouse port
  - 1 PS/2 keyboard port
  - 1 serial port (COM1)
  - 1 VGA port
  - 1 parallel port supporting SPP/EPP/ECP mode
  - 4 USB 2.0 Ports
  - 1 RJ-45 LAN Jack
  - 1 1394 port (optional)
  - 3/6 flexible audio jacks (optional)

- **On-Board Pinheaders/ Connectors**
  - 2 USB 2.0 pinheaders
  - 1 CD-in pinheader
  - 1 SPDIF-Out pinheader
  - 1 IEEE 1394 pinheader (optional)
  - 1 Front Panel Audio pinheader
  - 1 serial port connector
  - 1 TPM pinheader (optional)

### Slots

- 1 PCI Express x16 slot
- 1 PCI Express x 1 slot
- 2 PCI slots
- Support 3.3V/ 5V PCI bus Interface

### Form Factor

- Micro-ATX (24.4cm X 21.8cm)

### Mounting

- 6 mounting holes
Mainboard Layout

MS-7507 Mainboard

945GCM7 Series
(MS-7507 v1.X) Micro-ATX Mainboard
Packing Checklist

- MSI motherboard
- MSI Driver/Utility CD
- SATA Cable
- Power Cable
- Standard Cable for IDE Devices
- Back IO Shield
- User’s Guide

* The pictures are for reference only and may vary from the packing contents of the product you purchased.
This chapter provides you with the information about hardware setup procedures. While doing the installation, be careful in holding the components and follow the installation procedures. For some components, if you install in the wrong orientation, the components will not work properly.

Use a grounded wrist strap before handling computer components. Static electricity may damage the components.
Hardware Setup

CPU (Central Processing Unit)

When you are installing the CPU, make sure to install the cooler to prevent overheating. If you do not have the CPU cooler, consult your dealer before turning on the computer. For the latest information about CPU, please visit http://global.msi.com.tw/index.php?func=cpuform

Important

Overheating
Overheating will seriously damage the CPU and system. Always make sure the cooling fan can work properly to protect the CPU from overheating. Make sure that you apply an even layer of thermal paste (or thermal tape) between the CPU and the heatsink to enhance heat dissipation.

Replacing the CPU
While replacing the CPU, always turn off the ATX power supply or unplug the power supply's power cord from the grounded outlet first to ensure the safety of CPU.

Overclocking
This mainboard is designed to support overclocking. However, please make sure your components are able to tolerate such abnormal setting, while doing overclocking. Any attempt to operate beyond product specifications is not recommended. We do not guarantee the damages or risks caused by inadequate operation or beyond product specifications.

Introduction to LGA 775 CPU

The pin-pad side of LGA 775 CPU.
The surface of LGA 775 CPU. Remember to apply some thermal paste on it for better heat dispersion.

Yellow triangle is the Pin 1 indicator

Alignment Key

Alignment Key

Yellow triangle is the Pin 1 indicator
CPU & Cooler Installation

When you are installing the CPU, **make sure the CPU has a cooler attached on the top to prevent overheating.** Meanwhile, do not forget to apply some thermal paste on CPU before installing the heat sink/cooler fan for better heat dispersion. Follow the steps below to install the CPU & cooler correctly. Wrong installation will cause the damage of your CPU & mainboard.

1. The CPU socket has a plastic cap on it to protect the contact from damage. Before you install the CPU, always cover it to protect the socket pin.

2. Remove the cap from lever hinge side (as the arrow shows).

3. The pins of socket reveal.

4. Open the load lever.

---

**Important**

1. Confirm if your CPU cooler is firmly installed before turning on your system.
2. Do not touch the CPU socket pins to avoid damaging.
3. The availability of the CPU land side cover depends on your CPU packing.
Hardware Setup

5. Lift the load lever up and open the load plate.

6. After confirming the CPU direction for correct mating, put down the CPU in the socket housing frame. Be sure to grasp on the edge of the CPU base. Note that the alignment keys are matched.

7. Visually inspect if the CPU is seated well into the socket. If not, take out the CPU with pure vertical motion and reinstall.

8. Cover the load plate onto the package.
9. Press down the load lever lightly onto the load plate, and then secure the lever with the hook under retention tab.

10. Align the holes on the mainboard with the heatsink. Push down the cooler until its four clips get wedged into the holes of the mainboard.

11. Press the four hooks down to fasten the cooler. Then rotate the locking switch (refer to the correct direction marked on it) to lock the hooks.

12. Turn over the mainboard to confirm that the clip-ends are correctly inserted.

**Important**

1. Read the CPU status in BIOS (Chapter 3).
2. Whenever CPU is not installed, always protect your CPU socket pin with the plastic cap covered (shown in Figure 1) to avoid damaging.
3. Mainboard photos shown in this section are for demonstration of the CPU/cooler installation only. The appearance of your mainboard may vary depending on the model you purchase.
Memory

These DIMM slots are used for installing memory modules. For more information on compatible components, please visit http://global.msi.com.tw/index.php?func=testreport

DDR2 240-pin, 1.8V

64x2=128 pin 56x2=112 pin

Dual-Channel: Channel A in GREEN; Channel B in ORANGE

Dual-Channel mode Population Rule

In Dual-Channel mode, the memory modules can transmit and receive data with two data bus lines simultaneously. Enabling Dual-Channel mode can enhance the system performance. Please refer to the following illustrations for population rules under Dual-Channel mode.
Installing Memory Modules

1. The memory module has only one notch on the center and will only fit in the right orientation.

2. Insert the memory module vertically into the DIMM slot. Then push it in until the golden finger on the memory module is deeply inserted in the DIMM slot.

Important

You can barely see the golden finger if the memory module is properly inserted in the DIMM slot.

3. The plastic clip at each side of the DIMM slot will automatically close.

Important

- DDR2 memory modules are not interchangeable with DDR and the DDR2 standard is not backwards compatible. You should always install DDR2 memory modules in the DDR2 DIMM slots.
- In Dual-Channel mode, make sure that you install memory modules of the same type and density in different channel DIMM slots.
- To enable successful system boot-up, always insert the memory modules into the DIMM1 first.
Power Supply

ATX 24-Pin Power Connector: ATX1
This connector allows you to connect an ATX 24-pin power supply. To connect the ATX 24-pin power supply, make sure the plug of the power supply is inserted in the proper orientation and the pins are aligned. Then push down the power supply firmly into the connector.

You may use the 20-pin ATX power supply as you like. If you'd like to use the 20-pin ATX power supply, please plug your power supply along with pin 1 & pin 13 (refer to the image at the right hand).

Pin Definition

<table>
<thead>
<tr>
<th>PIN</th>
<th>SIGNAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>+3.3V</td>
</tr>
<tr>
<td>2</td>
<td>+3.3V</td>
</tr>
<tr>
<td>3</td>
<td>GND</td>
</tr>
<tr>
<td>4</td>
<td>+5V</td>
</tr>
<tr>
<td>5</td>
<td>GND</td>
</tr>
<tr>
<td>6</td>
<td>+5V</td>
</tr>
<tr>
<td>7</td>
<td>GND</td>
</tr>
<tr>
<td>8</td>
<td>PWR_OK</td>
</tr>
<tr>
<td>9</td>
<td>5VSB</td>
</tr>
<tr>
<td>10</td>
<td>+12V</td>
</tr>
<tr>
<td>11</td>
<td>+12V</td>
</tr>
<tr>
<td>12</td>
<td>+3.3V</td>
</tr>
<tr>
<td>13</td>
<td>+3.3V</td>
</tr>
</tbody>
</table>

ATX 12V Power Connector: JPW1
This 12V power connector is used to provide power to the CPU.

Pin Definition

<table>
<thead>
<tr>
<th>PIN</th>
<th>SIGNAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>GND</td>
</tr>
<tr>
<td>2</td>
<td>GND</td>
</tr>
<tr>
<td>3</td>
<td>12V</td>
</tr>
<tr>
<td>4</td>
<td>12V</td>
</tr>
</tbody>
</table>

Important

1. Make sure that all the connectors are connected to proper ATX power supplies to ensure stable operation of the mainboard.
2. Power supply of 350 watts (and above) is highly recommended for system stability.
3. ATX 12V power connection should be greater than 18A.
Mouse/Keyboard
The standard PS/2® mouse/keyboard DIN connector is for a PS/2® mouse/keyboard.

Parallel Port
A parallel port is a standard printer port that supports Enhanced Parallel Port (EPP) and Extended Capabilities Parallel Port (ECP) mode.

Serial Port
The serial port is a 16550A high speed communications port that sends/receives 16 bytes FIFOs. You can attach a serial mouse or other serial devices directly to the connector.

VGA Port
The DB15-pin female connector is provided for monitor.

1394 Port (optional)
The IEEE1394 port on the back panel provides connection to IEEE1394 devices.

USB Port
The USB (Universal Serial Bus) port is for attaching USB devices such as keyboard, mouse, or other USB-compatible devices.
Hardware Setup

> **LAN**
The standard RJ-45 LAN jack is for connection to the Local Area Network (LAN). You can connect a network cable to it.

<table>
<thead>
<tr>
<th>LED</th>
<th>Color</th>
<th>LED State</th>
<th>Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Left</td>
<td>Orange</td>
<td>Off</td>
<td>LAN link is not established.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>On (steady state)</td>
<td>LAN link is established.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>On (brighter &amp; pulsing)</td>
<td>The computer is communicating with another computer on the LAN.</td>
</tr>
<tr>
<td>Right</td>
<td>Green</td>
<td>Off</td>
<td>10 Mbit/sec data rate is selected.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>On</td>
<td>100 Mbit/sec data rate is selected.</td>
</tr>
<tr>
<td></td>
<td>Orange</td>
<td>On</td>
<td>1000 Mbit/sec data rate is selected.</td>
</tr>
</tbody>
</table>

> **Audio Ports (Type A)**
These audio connectors are used for audio devices. You can differentiate the color of the audio jacks for different audio sound effects.
- **Line-In (Blue)** - Line In is used for external CD player, tapeplayer or other audio devices.
- **Line-Out (Green)** - Line Out, is a connector for speakers or headphones.
- **Mic (Pink)** - Mic, is a connector for microphones.
- **RS-Out (Black)** - Rear-Surround Out in 4/ 5.1/ 7.1 channel mode.
- **CS-Out (Orange)** - Center/ Subwoofer Out in 5.1/ 7.1 channel mode.
- **SS-Out (Gray)** - Side-Surround Out 7.1 channel mode.

> **Audio Ports (Type B)**
These audio connectors are used for audio devices. You can differentiate the color of the audio jacks for different audio sound effects.
- **Line-In / RS-Out (Blue)** - Line In is used for external CD player, tapeplayer or other audio devices. Rear-Surround Out in 4/ 5.1 channel mode.
- **Line-Out (Green)** - Line Out, is a connector for speakers or headphones.
- **Mic / CS-Out (Pink)** - Mic, is a connector for microphones. Center/ Subwoofer Out in 5.1 channel mode.
Connectors

Floppy Disk Drive Connector: FDD1
This connector supports 360KB, 720KB, 1.2MB, 1.44MB or 2.88MB floppy disk drive.

IDE Connector: IDE1
This connector supports IDE hard disk drives, optical disk drives and other IDE devices.

Important
If you install two IDE devices on the same cable, you must configure the drives separately to master / slave mode by setting jumpers. Refer to IDE device’s documentation supplied by the vendors for jumper setting instructions.
Serial ATA Connector: SATA1 ~ SATA4
This connector is a high-speed Serial ATA interface port. Each connector can connect to one Serial ATA device.

Important
Please do not fold the Serial ATA cable into 90-degree angle. Otherwise, data loss may occur during transmission.
Fan Power Connectors: CPUFAN1, SYSFAN1~2
The fan power connectors support system cooling fan with +12V. When connecting the wire to the connectors, always note that the red wire is the positive and should be connected to the +12V; the black wire is Ground and should be connected to GND. If the mainboard has a System Hardware Monitor chipset on-board, you must use a specially designed fan with speed sensor to take advantage of the CPU fan control.

Important
1. Please refer to the recommended CPU fans at processor's official website or consult the vendors for proper CPU cooling fan.
2. CPUFAN1 / SYSFAN1 / SYSFAN2 supports fan control. You can adjust fan speed in H/W Monitor menu of BIOS and install Dual Core Center utility that will automatically control the CPU fan speed according to the actual CPU temperature.
3. Fan cooler set with 3 or 4 pins power connector are both available for CPUFAN.

Chassis Intrusion Connector: JCI1
This connector connects to the chassis intrusion switch cable. If the chassis is opened, the chassis intrusion mechanism will be activated. The system will record this status and show a warning message on the screen. To clear the warning, you must enter the BIOS utility and clear the record.
**IEEE1394 Connector: J1394_1 (optional)**
This connector allows you to connect the IEEE1394 device via an optional IEEE1394 bracket.

**Pin Definition**

<table>
<thead>
<tr>
<th>PIN</th>
<th>SIGNAL</th>
<th>PIN</th>
<th>SIGNAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>TPA+</td>
<td>2</td>
<td>TPA-</td>
</tr>
<tr>
<td>3</td>
<td>Ground</td>
<td>4</td>
<td>Ground</td>
</tr>
<tr>
<td>5</td>
<td>TPB+</td>
<td>6</td>
<td>TPB-</td>
</tr>
<tr>
<td>7</td>
<td>Cable power</td>
<td>8</td>
<td>Cable power</td>
</tr>
<tr>
<td>9</td>
<td>Key (no pin)</td>
<td>10</td>
<td>Ground</td>
</tr>
</tbody>
</table>

**IEEE1394 Bracket (Optional)**

**S/PDIF-Out Connector: JSPD1**
This connector is used to connect S/PDIF (Sony & Philips Digital Interconnect Format) interface for digital audio transmission.

**S/PDIF Bracket (Optional)**
Front Panel Connectors: JFP1, JFP2
These connectors are for electrical connection to the front panel switches and LEDs. The JFP1 is compliant with Intel® Front Panel I/O Connectivity Design Guide.

<table>
<thead>
<tr>
<th>PIN</th>
<th>SIGNAL</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>HD_LED+</td>
<td>Hard disk LED pull-up</td>
</tr>
<tr>
<td>2</td>
<td>FP_PWR1SLP</td>
<td>MSG LED pull-up</td>
</tr>
<tr>
<td>3</td>
<td>HD_LED-</td>
<td>Hard disk active LED</td>
</tr>
<tr>
<td>4</td>
<td>FP_PWR1SLP</td>
<td>MSG LED pull-up</td>
</tr>
<tr>
<td>5</td>
<td>RST_SW-</td>
<td>Reset Switch low reference pull-down to GND</td>
</tr>
<tr>
<td>6</td>
<td>PWR_SW+</td>
<td>Power Switch high reference pull-up</td>
</tr>
<tr>
<td>7</td>
<td>RST_SW+</td>
<td>Reset Switch high reference pull-up</td>
</tr>
<tr>
<td>8</td>
<td>PWR_SW-</td>
<td>Power Switch low reference pull-down to GND</td>
</tr>
<tr>
<td>9</td>
<td>RSVD_DNU</td>
<td>Reserved. Do not use.</td>
</tr>
</tbody>
</table>

JFP2 Pin Definition

<table>
<thead>
<tr>
<th>PIN</th>
<th>SIGNAL</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>GND</td>
<td>Ground</td>
</tr>
<tr>
<td>2</td>
<td>SPK-</td>
<td>Speaker-</td>
</tr>
<tr>
<td>3</td>
<td>SLED</td>
<td>Suspend LED</td>
</tr>
<tr>
<td>4</td>
<td>BUZ+</td>
<td>Buzzzer+</td>
</tr>
<tr>
<td>5</td>
<td>PLED</td>
<td>Power LED</td>
</tr>
<tr>
<td>6</td>
<td>BUZ-</td>
<td>Buzzzer-</td>
</tr>
<tr>
<td>7</td>
<td>NC</td>
<td>No connection</td>
</tr>
<tr>
<td>8</td>
<td>SPK+</td>
<td>Speaker+</td>
</tr>
</tbody>
</table>

CD-In Connector: CD_IN1
This connector is provided for external audio input.
Hardware Setup

Front Panel Audio Connector: JAUD1
This connector allows you to connect the front panel audio and is compliant with Intel® Front Panel I/O Connectivity Design Guide.

<table>
<thead>
<tr>
<th>PIN</th>
<th>SIGNAL</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>MIC_L</td>
<td>Microphone - Left channel</td>
</tr>
<tr>
<td>2</td>
<td>GND</td>
<td>Ground</td>
</tr>
<tr>
<td>3</td>
<td>MIC_R</td>
<td>Microphone - Right channel</td>
</tr>
<tr>
<td>4</td>
<td>PRESENCE#</td>
<td>Active low signal signals BIOS that a High Definition Audio dongle is connected to the analog header. PRESENCE# = 0 when a High Definition Audio dongle is connected</td>
</tr>
<tr>
<td>5</td>
<td>LINE_out_R</td>
<td>Analog Port - Right channel</td>
</tr>
<tr>
<td>6</td>
<td>MIC_JD</td>
<td>Jack detection return from front panel microphone JACK1</td>
</tr>
<tr>
<td>7</td>
<td>Front_JD</td>
<td>Jack detection sense line from the High Definition Audio CODEC jack detection resistor network</td>
</tr>
<tr>
<td>8</td>
<td>NC</td>
<td>No control</td>
</tr>
<tr>
<td>9</td>
<td>LINE_out_L</td>
<td>Analog Port - Left channel</td>
</tr>
<tr>
<td>10</td>
<td>LINEout_JD</td>
<td>Jack detection return from front panel JACK2</td>
</tr>
</tbody>
</table>

TPM Module connector: JTPM1 (optional)
This connector connects to a TPM (Trusted Platform Module) module (optional). Please refer to the TPM security platform manual for more details and usages.

<table>
<thead>
<tr>
<th>Pin</th>
<th>Signal</th>
<th>Description</th>
<th>Pin</th>
<th>Signal</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>LCLK</td>
<td>LPC clock</td>
<td>2</td>
<td>3V dual/3V_STB</td>
<td>3V dual or 3V standby power</td>
</tr>
<tr>
<td>3</td>
<td>LRST#</td>
<td>LPC reset</td>
<td>4</td>
<td>VCC3</td>
<td>3.3V power</td>
</tr>
<tr>
<td>5</td>
<td>LAD0</td>
<td>LPC address &amp; data pin0</td>
<td>6</td>
<td>IRQ3</td>
<td>Serial IRQ</td>
</tr>
<tr>
<td>7</td>
<td>LAD1</td>
<td>LPC address &amp; data pin1</td>
<td>8</td>
<td>VCC5</td>
<td>5V power</td>
</tr>
<tr>
<td>9</td>
<td>LAD2</td>
<td>LPC address &amp; data pin2</td>
<td>10</td>
<td>KEY</td>
<td>No pin</td>
</tr>
<tr>
<td>11</td>
<td>LAD3</td>
<td>LPC address &amp; data pin3</td>
<td>12</td>
<td>GND</td>
<td>Ground</td>
</tr>
<tr>
<td>13</td>
<td>LFRAME#</td>
<td>LPC Frame</td>
<td>14</td>
<td>GND</td>
<td>Ground</td>
</tr>
</tbody>
</table>
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Front USB Connector: JUSB1 ~ 2

These connectors, compliant with Intel® I/O Connectivity Design Guide, are ideal for connecting high-speed USB interface peripherals such as USB HDD, digital cameras, MP3 players, printers, modems and the like.

<table>
<thead>
<tr>
<th>PIN</th>
<th>SIGNAL</th>
<th>PIN</th>
<th>SIGNAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>VCC</td>
<td>2</td>
<td>VCC</td>
</tr>
<tr>
<td>3</td>
<td>USB0-</td>
<td>4</td>
<td>USB1-</td>
</tr>
<tr>
<td>5</td>
<td>USB0+</td>
<td>6</td>
<td>USB1+</td>
</tr>
<tr>
<td>7</td>
<td>GND</td>
<td>8</td>
<td>GND</td>
</tr>
<tr>
<td>9</td>
<td>Key(no pin)</td>
<td>10</td>
<td>USBOC</td>
</tr>
</tbody>
</table>

Note that the pins of VCC and GND must be connected correctly to avoid possible damage.

Serial Port Connector: JCOM 1

This connector is a 16550A high speed communication port that sends/receives 16 bytes FIFOs. You can attach a serial device.

<table>
<thead>
<tr>
<th>PIN</th>
<th>SIGNAL</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>DCD</td>
<td>Data Carry Detect</td>
</tr>
<tr>
<td>2</td>
<td>S/IN</td>
<td>Serial In or Receive Data</td>
</tr>
<tr>
<td>3</td>
<td>SOUT</td>
<td>Serial Out or Transmit Data</td>
</tr>
<tr>
<td>4</td>
<td>DTR</td>
<td>Data Terminal Ready</td>
</tr>
<tr>
<td>5</td>
<td>GND</td>
<td>Ground</td>
</tr>
<tr>
<td>6</td>
<td>DSR</td>
<td>Data Self Ready</td>
</tr>
<tr>
<td>7</td>
<td>RTS</td>
<td>Request To Send</td>
</tr>
<tr>
<td>8</td>
<td>CTS</td>
<td>Clear To Send</td>
</tr>
<tr>
<td>9</td>
<td>RI</td>
<td>Ring Indicate</td>
</tr>
</tbody>
</table>
Hardware Setup

Jumper

Clear CMOS Jumper: JBAT1
There is a CMOS RAM onboard that has a power supply from an external battery to keep the data of system configuration. With the CMOS RAM, the system can automatically boot OS every time it is turned on. If you want to clear the system configuration, set the jumper to clear data.

Important

You can clear CMOS by shorting 2-3 pin while the system is off. Then return to 1-2 pin position. Avoid clearing the CMOS while the system is on; it will damage the mainboard.
MS-7507 Mainboard

Slots

PCI (Peripheral Component Interconnect) Express Slots
The PCI Express slot supports the PCI Express interface expansion card. The PCI Express x 16 supports up to 4.0 GB/s transfer rate. The PCI Express x 1 supports up to 250 MB/s transfer rate.

<table>
<thead>
<tr>
<th>PCI Express x16 Slot</th>
</tr>
</thead>
<tbody>
<tr>
<td>PCI Express x1 Slot</td>
</tr>
</tbody>
</table>

PCI (Peripheral Component Interconnect) Slots
The PCI slots support LAN cards, SCSI cards, USB cards, and other add-on cards that comply with PCI specifications. At 32 bits and 33 MHz, it yields a throughput rate of 133 MBps.

| 32-bit PCI Slot |

Important
When adding or removing expansion cards, make sure that you unplug the power supply first. Meanwhile, read the documentation for the expansion card to configure any necessary hardware or software settings for the expansion card, such as jumpers, switches or BIOS configuration.
Hardware Setup

PCI Interrupt Request Routing

The IRQ, acronym of interrupt request line and pronounced I-R-Q, are hardware lines over which devices can send interrupt signals to the microprocessor. The PCI IRQ pins are typically connected to the PCI bus pins as follows:

<table>
<thead>
<tr>
<th>Order 1</th>
<th>Order 2</th>
<th>Order 3</th>
<th>Order 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>PCI Slot 1</td>
<td>INT A#</td>
<td>INT B#</td>
<td>INT C#</td>
</tr>
<tr>
<td>PCI Slot 2</td>
<td>INT B#</td>
<td>INT C#</td>
<td>INT D#</td>
</tr>
</tbody>
</table>
Chapter 3

BIOS Setup

This chapter provides information on the BIOS Setup program and allows you to configure the system for optimum use.

You may need to run the Setup program when:

- An error message appears on the screen during the system booting up, and requests you to run SETUP.
- You want to change the default settings for customized features.
Entering Setup

Power on the computer and the system will start POST (Power On Self Test) process. When the message below appears on the screen, press <DEL> key to enter Setup.

Press DEL to enter SETUP

If the message disappears before you respond and you still wish to enter Setup, restart the system by turning it OFF and On or pressing the RESET button. You may also restart the system by simultaneously pressing <Ctrl>, <Alt>, and <Delete> keys.

Important

1. The items under each BIOS category described in this chapter are under continuous update for better system performance. Therefore, the description may be slightly different from the latest BIOS and should be held for reference only.

2. Upon boot-up, the 1st line appearing after the memory count is the BIOS version. It is usually in the format:

A7507IMS V1.0 101007 where:

1st digit refers to BIOS maker as A = AMI, W = AWARD, and P = PHOENIX.
2nd - 5th digit refers to the model number.
6th digit refers to the chipset as I = Intel, N = nVidia, and V = VIA.
7th - 8th digit refers to the customer as MS = all standard customers.
V1.1 refers to the BIOS version.
101007 refers to the date this BIOS was released.
Getting Help

After entering the Setup menu, the first menu you will see is the Main Menu.

Main Menu

The main menu lists the setup functions you can make changes to. You can use the arrow keys (↑↓) to select the item. The on-line description of the highlighted setup function is displayed at the bottom of the screen.

Sub-Menu

If you find a right pointer symbol (as shown in the right view) appears to the left of certain fields that means a sub-menu can be launched from this field. A sub-menu contains additional options for a field parameter. You can use arrow keys (↑↓) to highlight the field and press <Enter> to call up the sub-menu. Then you can use the control keys to enter values and move from field to field within a sub-menu. If you want to return to the main menu, just press the <Esc>.

General Help <F1>

The BIOS setup program provides a General Help screen. You can call up this screen from any menu by simply pressing <F1>. The Help screen lists the appropriate keys to use and the possible selections for the highlighted item. Press <Esc> to exit the Help screen.
MS-7507 Mainboard

The Main Menu

► Standard CMOS Features
Use this menu for basic system configurations, such as time, date etc.

► Advanced BIOS Features
Use this menu to setup the items of AMI® special enhanced features.

► Integrated Peripherals
Use this menu to specify your settings for integrated peripherals.

► Power Management Setup
Use this menu to specify your settings for power management.

► PNP/PCI Configurations
This entry appears if your system supports PnP/PCI.

► H/W Monitor
This entry shows your PC health status.

► Cell Menu
Use this menu to specify your settings for frequency/voltage control and overclocking.

► Load Fail-Safe Defaults
Use this menu to load the default values set by the BIOS vendor for stable system performance.
Load Optimized Defaults
Use this menu to load the default values set by the mainboard manufacturer specifically for optimal performance of the mainboard.

BIOS Setting Password
Use this menu to set the password for BIOS.

Save & Exit Setup
Save changes to CMOS and exit setup.

Exit Without Saving
Abandon all changes and exit setup.
The items in Standard CMOS Features Menu includes some basic setup items. Use the arrow keys to highlight the item and then use the <PgUp> or <PgDn> keys to select the value you want in each item.

**Date (MM:DD:YY)**
This allows you to set the system to the date that you want (usually the current date). The format is <day> <month> <year>.
- **day**: Day of the week, from Sun to Sat, determined by BIOS. Read-only.
- **month**: The month from Jan. through Dec.
- **date**: The date from 1 to 31 can be keyed by numeric function keys.
- **year**: The year can be adjusted by users.

**Time (HH:MM:SS)**
This allows you to set the system time that you want (usually the current time). The time format is <hour> <minute> <second>.

**IDE Primary Master/Slave, Serial-ATA 1/2/3/4 Channel**
Press <Enter> to enter the sub-menu, and the following screen appears.
**Device / Vender / Size**
It will showing the device information that you connected to the SATA connector.

**LBA/Large Mode**
This allows you to enable or disable the LBA Mode. Setting to Auto enables LBA mode if the device supports it and the devices is not already formatted with LBA mode disabled.

**DMA Mode**
Select DMA Mode.

**Hard Disk S.M.A.R.T.**
This allows you to activate the S.M.A.R.T. (Self-Monitoring Analysis & Reporting Technology) capability for the hard disks. S.M.A.R.T is a utility that monitors your disk status to predict hard disk failure. This gives you an opportunity to move data from a hard disk that is going to fail to a safe place before the hard disk becomes offline.

**Important**
*Primary IDE Master/ Slave, Serial-ATA 1/2/3/4 Channel* are appearing when you connect the HD devices to the IDE/ SATA connector on the mainboard.

**Floppy A**
This item allows you to set the type of floppy drives installed. Available options: [None], [360K, 5.25 in.], [1.2M, 5.25 in.], [720K, 3.5 in.], [1.44M, 3.5 in.], [2.88M, 3.5 in.].
**System Information**

Press <Enter> to enter the sub-menu, and the following screen appears.

This sub-menu shows the CPU information, BIOS version and memory status of your system (read only).
Advanced BIOS Features

► Full Screen LOGO Display
This item enables you to show the company logo on the bootup screen. Settings are:
[Enabled] Shows a still image (logo) on the full screen at boot.
[Disabled] Shows the POST messages at boot.

► Quick Booting
Setting the item to [Enabled] allows the system to boot within 10 seconds since it will skip some check items.

► Boot Up Num-Lock LED
This setting is to set the Num Lock status when the system is powered on. Setting to [On] will turn on the Num Lock key when the system is powered on. Setting to [Off] will allow users to use the arrow keys on the numeric keypad.

► IOAPIC Function
This field is used to enable or disable the APIC (Advanced Programmable Interrupt Controller). Due to compliance with PC2001 design guide, the system is able to run in APIC mode. Enabling APIC mode will expand available IRQ resources for the system.
MS-7507 Mainboard

- **MPS Table Version**
  This field allows you to select which MPS (Multi-Processor Specification) version to be used for the operating system. You need to select the MPS version supported by your operating system. To find out which version to use, consult the vendor of your operating system.

- **CPU Feature**
  Press <Enter> to enter the sub-menu:
  - **Hyper-Threading Technology**
    This field appears only when the CPU supports Hyper-Threading. The processor uses Hyper-Threading technology to increase transaction rates and reduces end-user response times. The technology treats the two cores inside the processor as two logical processors that can execute instructions simultaneously. In this way, the system performance is highly improved. If you disable the function, the processor will use only one core to execute the instructions.
  - **Set Limit CPUID MaxVal to 3**
    The Max CPUID Value Limit is designed to limit the listed speed of the processor to older operating systems.

- **Chipset Feature**
  Press <Enter> to enter the sub-menu:
  - **HPET**
    The HPET (High Precision Event Timers) is a component that is part of the chipset. You can enable it, and it will provide you with the means to get to it via the various ACPI methods.
  - **VGA Share Memory Size**
    The system shares memory to the onboard VGA card. This setting controls the exact memory size shared to the VGA card.

- **Boot Sequence**
  Press <Enter> to enter the sub-menu:
  - **1st/ 2nd Boot Device**
    The items allow you to set the first/ second/ third boot device where BIOS attempts to load the disk operating system.
  - **Boot From Other Device**
    Setting the option to [Yes] allows the system to try to boot from other device. If the system fails to boot from the 1st/ 2nd boot device.

- **Trusted Computing**
  Press <Enter> to enter the sub-menu:
TCG/TPM SUPPORT
This setting allows you to enable/disable the TCG/TPM.

Excute TPM Command
This item allows you to enable or disable the TPM security chip.

Clearing the TPM
This item allows you to clear the user information saved in the TPM security chip. When you press <Enter>, a warning message will appear to ask if you want to clear the user information in the security chip. Use the left / right arrow key to select between [OK] and [Cancel], then press <Enter> to confirm your choice.

TPM Enable/Disable Status
This item is not configurable.

TPM Owner Status
This item is not configurable.
**Integrated Peripherals**

- **USB Controller**
  This setting allows you to enable/disable the onboard USB controller.

- **USB Device Legacy Support**
  Select [Enabled] if you need to use a USB-interfaced device in the operating system.

- **Onboard LAN Controller**
  This item is used to enable/disable the onboard LAN controller.

- **LAN Option ROM**
  This item is used to decide whether to invoke the Boot ROM of the LAN controller.

- **Onboard IEEE1394 Controller**
  This item allows you to enable/disable the onboard IEEE1394 controller.

- **Audio Controller**
  This setting is used to enable/disable the onboard audio controller.

- **On-Chip ATA Devices**
  Press <Enter> to enter the sub-menu:

  - **On-Chip IDE Controller**
    These items allow users to enable or disable the IDE controller.

  - **PCI IDE BusMaster**
    This item allows you to enable/ disable BIOS to used PCI bus mastering for reading/ writing to IDE drives.
On-Chip SATA Controller
These items allow users to enable or disable the SATA controller.

RAID Mode
This item is used to enable/disable the RAID function for SATA devices.

AHCI Devices Group
Press <Enter> to enter the AHCI settings sub-menu. The submenu displays the status of auto detection of IDE devices.

AHCI Port0~3
Press <Enter> to enter the sub-menu. These submenu allow users to select the type of devices connected to the system.

I/O Device Configuration
Press <Enter> to enter the sub-menu:

COM Port 1/2
Select an address and corresponding interrupt for the first serial port.

Parallel Port
There is a built-in parallel port on the on-board Super I/O chipset that provides Standard, ECP, and EPP features. It has the following options:

- [Disabled]
- [3BC] Line Printer port 0
- [278] Line Printer port 2
- [378] Line Printer port 1

Parallel Port Mode
This item allows you to select the parallel port mode.
Power Management Setup

ACPI Function
This item is to activate the ACPI (Advanced Configuration and Power Management Interface) Function. If your operating system is ACPI-aware, such as Windows 2000/ XP, select [Enabled].

ACPI Standby State
This item specifies the power saving modes for ACPI function. If your operating system supports ACPI, such as Windows 2000/ XP, you can choose to enter the Standby mode in S1(POS) or S3(STR) fashion through the setting of this field. Settings are:

- **S1**
  - The S1 sleep mode is a low power state. In this state, no system context is lost (CPU or chipset) and hardware maintains all system context.

- **S3**
  - The S3 sleep mode is a lower power state where the information of system configuration and open applications/files is saved to main memory that remains powered while most other hardware components turn off to save energy. The information stored in memory will be used to restore the system when a "wake up" event occurs.

Important
S3-related functions described in this section are available only when your BIOS supports S3 sleep mode.

ACPI Function
This item is to activate the ACPI (Advanced Configuration and Power Management Interface) Function. If your operating system is ACPI-aware, such as Windows 2000/ XP, select [Enabled].

ACPI Standby State
This item specifies the power saving modes for ACPI function. If your operating system supports ACPI, such as Windows 2000/ XP, you can choose to enter the Standby mode in S1(POS) or S3(STR) fashion through the setting of this field. Settings are:

- **S1**
  - The S1 sleep mode is a low power state. In this state, no system context is lost (CPU or chipset) and hardware maintains all system context.

- **S3**
  - The S3 sleep mode is a lower power state where the information of system configuration and open applications/files is saved to main memory that remains powered while most other hardware components turn off to save energy. The information stored in memory will be used to restore the system when a "wake up" event occurs.
**Suspend Time Out (Minute)**
If system activity is not detected for the length of time specified in this field, all devices except CPU will be shut off.

**Power Button Function**
This feature sets the function of the power button. Settings are:
- [On/ Off]: The power button functions as normal power off button.
- [Suspend]: When you press the power button, the computer enters the suspend/sleep mode, but if the button is pressed for more than four seconds, the computer is turned off.

**Restore On AC Power Loss**
This item specifies whether your system will reboot after a power failure or interrupt occurs. Settings are:
- [Off]: Always leaves the computer in the power off state.
- [On]: Always leaves the computer in the power on state.
- [Last State]: Restores the system to the status before power failure or interrupt occurred.

**Wakeup Event Setup**
Press <Enter> and the following sub-menu appears.

- **Resume From S3 By USB Device**
The item allows the activity of the USB device to wake up the system from S3 (Suspend to RAM) sleep state.

- **Resume From S3 By PS/2 Keyboard**
This setting determines whether the system will be awakened from what power saving modes when input signal of the PS/2 keyboard is detected.

- **Resume From S3 By PS/2 Mouse**
This setting determines whether the system will be awakened from what power saving modes when input signal of the PS/2 mouse is detected.

- **Resume by PCI Device (PME#)**
When set to [Enabled], the feature allows your system to be awakened from the power saving modes through any event on PME (Power Management Event).

- **Resume by PCI-E Device**
When set to [Enabled], the feature allows your system to be awakened from the power saving modes through any event on PCIE device.

- **Resume by RTC Alarm**
The field is used to enable or disable the feature of booting up the system on a scheduled time/date.
MS-7507 Mainboard

PNP/PCI Configurations

This section describes configuring the PCI bus system and PnP (Plug & Play) feature. PCI, or Peripheral Component Interconnect, is a system which allows I/O devices to operate at speeds nearing the speed the CPU itself uses when communicating with its special components. This section covers some very technical items and it is strongly recommended that only experienced users should make any changes to the default settings.

► Primary Graphic’s Adapter
This setting specifies which graphics card is your primary graphics adapter.

► PCI Latency Timer
This item controls how long each PCI device can hold the bus before another takes over. When set to higher values, every PCI device can conduct transactions for a longer time and thus improve the effective PCI bandwidth. For better PCI performance, you should set the item to higher values.

► PCI Slot 1/2 IRQ
These items specify the IRQ line for each PCI slot.
**BIOS Setup**

**Press <Enter> to enter the sub-menu.**

**_IRQ Resource Setup_

Press <Enter> to enter the sub-menu.

<table>
<thead>
<tr>
<th>IRQ 3/4/5/7/9/10/11/14/15</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Help Item</strong></td>
</tr>
<tr>
<td>Options</td>
</tr>
<tr>
<td>Available</td>
</tr>
<tr>
<td>Reserved</td>
</tr>
</tbody>
</table>

**Important**

IRQ (Interrupt Request) lines are system resources allocated to I/O devices. When an I/O device needs to gain attention of the operating system, it signals this by causing an IRQ to occur. After receiving the signal, when the operating system is ready, the system will interrupt itself and perform the service required by the I/O device.
The field enables or disables the feature of recording the chassis intrusion status and issuing a warning message if the chassis is once opened. To clear the warning message, set the field to [Reset]. The setting of the field will automatically return to [Enabled] later.

CPU Smart FAN Target
The mainboard provides the Smart Fan function which can control the CPU fan speed automatically depending on the current temperature to keep it within a specific range. You can select a fan target value here. If the current CPU fan temperature reaches the target value, the smart fan function will be activated. It provides several sections to speed up for cooling down automatically.

CPU Min.FAN speed(%) This item allows users to select how percentage of minimum speed limit for the CPU fan.

PC Health Status
CPU/ System Temperature, CPU FAN/ SYS FAN1/ SYS FAN2 Speed, CPU Vcore, 3.3V, 5V, 12V
These items display the current status of all of the monitored hardware devices/components such as CPU voltage, temperatures and all fans' speeds.
Cell Menu

- **Current CPU / DRAM Frequency**
  These items show the current clocks of CPU and Memory speed. Read-only.

- **Adjust CPU FSB Frequency**
  This item allows you to set the CPU FSB frequency (in MHz).

- **Adjust CPU Ratio**
  This field appears only when the CPU supports this function. This item allows you to set the CPU ratio.

- **Adjusted CPU Frequency**
  It shows the adjusted CPU frequency (FSB x Ratio). Read-only.

- **Advance DRAM Configuration**
  Press <Enter> to enter the sub-menu.

  - **Configuration DRAM Timing by SPD**
    Setting to [Enabled] enables DRAM CAS# Latency automatically to be determined by BIOS based on the configurations on the SPD (Serial Presence Detect) EEPROM on the DRAM module.

**Important**

Change these settings only if you are familiar with the chipset.

- **Current CPU / DRAM Frequency**
  These items show the current clocks of CPU and Memory speed. Read-only.

- **Adjust CPU FSB Frequency**
  This item allows you to set the CPU FSB frequency (in MHz).

- **Adjust CPU Ratio**
  This field appears only when the CPU supports this function. This item allows you to set the CPU ratio.

- **Adjusted CPU Frequency**
  It shows the adjusted CPU frequency (FSB x Ratio). Read-only.

- **Advance DRAM Configuration**
  Press <Enter> to enter the sub-menu.

  - **Configuration DRAM Timing by SPD**
    Setting to [Enabled] enables DRAM CAS# Latency automatically to be determined by BIOS based on the configurations on the SPD (Serial Presence Detect) EEPROM on the DRAM module.
MS-7507 Mainboard

► DRAM CAS# Latency
When the Configuration DRAM Timing by SPD sets to [Disabled], the field is adjustable. This controls the CAS latency, which determines the timing delay (in clock cycles) before SDRAM starts a read command after receiving it.

► DRAM RAS# to CAS# Delay
When the Configuration DRAM Timing by SPD sets to [Disabled], the field is adjustable. When DRAM is refreshed, both rows and columns are addressed separately. This setup item allows you to determine the timing of the transition from RAS (row address strobe) to CAS (column address strobe). The less the clock cycles, the faster the DRAM performance.

► DRAM RAS# Precharge
When the Configuration DRAM Timing by SPD sets to [Disabled], this field is adjustable. This setting controls the number of cycles for Row Address Strobe (RAS) to be allowed to precharge. If insufficient time is allowed for the RAS to accumulate its charge before DRAM refresh, refresh may be incomplete and DRAM may fail to retain data. This item applies only when synchronous DRAM is installed in the system.

► DRAM RAS# Activate to Precharge
When the Configuration DRAM Timing by SPD sets to [Disabled], the field is adjustable. This setting determines the time RAS takes to read from and write to a memory cell. This item applies only when synchronous DRAM is installed in the system.

► FSB/Memory Ratio
This item will allow you to adjust the FSB/Ratio of the memory.

► Adjusted DRAM Frequency
It shows the adjusted DDR Memory frequency. Read-only.

► Adjust PCI Express Frequency
This field allows you to select the PCIE frequency (in MHz).

► Auto Disable DIMM/PCI Frequency
When set to [Enabled], the system will remove (turn off) clocks from empty DIMM and PCI slots to minimize the electromagnetic interference (EMI).

► Spread Spectrum, System / PCIE Spread Spectrum
When the motherboard’s clock generator pulses, the extreme values (spikes) of the pulses create EMI (Electromagnetic Interference). The Spread Spectrum function reduces the EMI generated by modulating the pulses so that the spikes of the pulses are reduced to flatter curves. If you do not have any EMI problem, leave the setting at Disabled for optimal system stability and performance. But if you are plagued by EMI, set to Enabled for EMI reduction. Remember to disable Spread Spectrum if you are overclocking because even a slight jitter can introduce a temporary boost in clock speed which may just cause your overclocked processor to lock up.

3-20
1. If you do not have any EMI problem, leave the setting at [Disabled] for optimal system stability and performance. But if you are plagued by EMI, select the value of Spread Spectrum for EMI reduction.

2. The greater the Spread Spectrum value is, the greater the EMI is reduced, and the system will become less stable. For the most suitable Spread Spectrum value, please consult your local EMI regulation.

3. Remember to disable Spread Spectrum if you are overclocking because even a slight jitter can introduce a temporary boost in clock speed which may just cause your overclocked processor to lock up.
The two options on the main menu allow users to restore all of the BIOS settings to the default Fail-Safe or Optimized values. The Optimized Defaults are the default values set by the mainboard manufacturer specifically for optimal performance of the mainboard. The Fail-Safe Defaults are the default values set by the BIOS vendor for stable system performance.

When you select Load Fail-Safe Defaults, a message as below appears:

Pressing Y loads the BIOS default values for the most stable, minimal system performance.

When you select Load Optimized Defaults, a message as below appears:

Pressing Y loads the default factory settings for optimal system performance.
BIOS Setup

**BIOS Setting Password**

When you select this function, a message as below will appear on the screen:

![Enter New Password]

Type the password, up to six characters in length, and press <Enter>. The password typed now will replace any previously set password from CMOS memory. You will be prompted to confirm the password. Retype the password and press <Enter>. You may also press <Esc> to abort the selection and not enter a password.

To clear a set password, just press <Enter> when you are prompted to enter the password. A message will show up confirming the password will be disabled. Once the password is disabled, the system will boot and you can enter Setup without entering any password.

When a password has been set, you will be prompted to enter it every time you try to enter Setup. This prevents an unauthorized person from changing any part of your system configuration.
Dual CoreCenter, the most useful and powerful utility that MSI has spent much research and efforts to develop, helps users to monitor or configure the hardware status of MSI Mainboard & MSI Graphics card in windows, such as CPU/GPU clock, voltage, fan speed and temperature.

Before you install the Dual CoreCenter, please make sure the system has meet the following requirements:

1. Intel Pentium4 / Celeron, AMD Athlon XP/ Sempron or compatible CPU with PCI Express slot.
2. 256MB system memory.
3. CD-ROM drive for software installation.
4. Operation system: Windows XP.
5. DotNet Frame Work 2.0
MS-7507 Mainboard

Activating Dual Core Center

Once you have your Dual Core Center installed (locate the setup source file in the setup CD accompanying with your mainboard, path: Utility --> MSI Utility --> Dual Core Center), it will have an icon in the system tray, a short cut icon on the desktop, and a short cut path in your "Start-up" menu. You may double-click on each icon to enable Dual Core Center.

![short-cut icon in the system tray](image)

![short-cut path in the start-up menu](image)

(path: Start-->Programs-->MSI-->DualCoreCenter-->DualCoreCenter)
Before using this utility, we have to remind you: only when installing the MSI V044 (V044 has to install with the version 8.26 or newer driver)/ V046 or V060 graphics card can activate the full function of this utility. If you install a graphics card of other brand, only hardware status of the MSI mainboard would be available.

**Introduction:**
Click each button appearing above to enter sub-menu to make further configuration or to execute the function.

**MB**
Click MB button to read current CPU temperature, FSB and CPU clock of mainboard will show below.

**VGA**
Click VGA button to read current GPU temperature, GPU clock and memory clock of graphics card will show below.

**DOT**
Click DOT button to enable or disable the Dynamic Overclocking Technology.
MS-7507 Mainboard

**AV/ Game/ Office/ Silence/ Cool**
MSI provides five common settings for different environments. The settings had been set to optimal values to reach better performance in each environment. Click the button you need.

### Important

**Before clicking the AV/ Game/ Office/ Silence or Cool button, select Smooth mode or Sharp mode to decide whether you want the system to reach the optimal values smoothly or quickly.**

**Sharp mode** | **Smooth mode**
---|---

**Clock**
In this sub-menu, you can adjust and monitor the clocks of MB and graphics card.

**Voltage**
In this sub-menu, you can adjust and monitor the voltages of MB and graphics card.

**FAN Speed**
In this sub-menu, you can adjust and monitor the fan speeds of MB and graphics card.

**Temperature**
In this sub-menu, you can monitor the temperatures of MB and graphics card.

**User Profile**
In this sub-menu, you can set the values of clock, voltage and fan speed by your need and save them in a profile. You can save 3 profiles for further use.

### Important

**Click on the icon , the clock, voltage, fan, and temperature buttons will appear beside the icon.**
Dynamic Overclocking Technology is an automatic overclocking function, included in the MSI™’s newly developed Dual CoreCenter Technology. It is designed to detect the loading of CPU/ GPU while running programs, and to over-clock automatically. When the motherboard detects that the loading of CPU is exceed the default threshold for a time, it will speed up the CPU and fan automatically to make the system run smoother and faster. When the graphics card detects that the loading of GPU is exceed the default threshold for a time, it will speed up the GPU, memory, fan and voltage automatically to make the system run smoother and faster. When the CPU/ GPU is temporarily suspending or staying in low loading balance, it will restore the default settings instead. Usually the Dynamic Overclocking Technology will be powered only when users’ PC runs huge amount of data, like 3D games or video process, and the motherboard/ graphic card need to be boosted up to enhance the overall performance. There will be several selections when you click the DOT rate button (include increase rate and decrease rate buttons), to select the DOT level, then you have to click the DOT button to apply the DOT function.

Important

Even though the Dynamic Overclocking Technology is more stable than manual overclocking, basically, it is still risky. We suggest user to make sure that your CPU can afford to overclock regularly first. If you find the PC appears to be unstable or reboot incidentally, it’s better to lower the level of overclocking options. By the way, if you need to conduct overclocking manually, please do not to apply the DOT function.
In the **Clock** sub-menu, you can see clock status (including FSB/ CPU clock of mainboard and GPU/ memory clock of graphics card) of your system. And you can select desired value for overclocking. There will be several items for you to select for overclocking after you click button. You can click the plus sign button to increase the clock, or click the minus sign button to decrease the clock. And finally, click the Apply button to apply the values adjusted. If you do not want to apply the adjustments, click the Cancel button to cancel. Or click the Default button to restore the default values.

On the underside, it shows the graphs of the clocks. Only the curves of the item which the button is lit up with red color will be shown.

**Important**

*In the user profile, clicking the **Save** button can save the changes to it. In the default profile, the **Save** button is not available.*
In the **Voltage** sub-menu, you can see voltage status (including Vcore, memory, GPU voltage... etc.) of your system, and you can select desired value for overclocking. It will show several items to select for overclocking after you click the button. You can click the plus sign button to increase the voltage, or click the minus sign button to decrease. And finally, click the Apply button to apply the adjustments. If you do not want to apply the adjustments, click the Cancel button to cancel. Or click the Default button to restore the default values.

On the underside, it shows the graphs of the voltages. Only the curves of the item which the button is lit up with red color will be shown.

**Important**

*In the user profile, clicking the Save button can save the changes to it. In the default profile, the Save button is not available.*
FAN Speed

In the FAN Speed sub-menu, you can read fan status of your system. Select higher speed for better cooling effect. There are several sections for you to change the fan speed to a section after clicking [button]. Click the plus sign button [button] to increase the fan speed to a section, or click the minus sign button [button] to decrease. Or click the Default button to restore the default values.

On the underside, it shows the graphs of the fan speed. Only the curves of the item which the button is lit up with red color will be shown.

Important

1. When you set the fan speed manually, please make sure to disabled the "CPU Smart FAN Target" item in the BIOS.
2. In the user profile, clicking the Save button can save the changes to it. In the default profile, the Save button is not available.
In the **Temperature** sub-menu, you can see temperature status of your system.

On the underside, it shows the graphs of the temperatures. Only the curves of the item which the button is lit up with red color will be shown.
In the **User Profile** sub-menu, click the setting button that besides the user profile bar, and the next screen will appear.

Here you can define the clock/ fan speed/ voltage by your need, click the button to choose a value quickly, or click the plus / minus sign button to increase/ decrease the value.
Use the draw bar to set the max system temperature. When the system temperature exceeds the threshold you defined, the system will pop up a warning message and shut down the system.

Use the draw bar to set the minimal fan speed. When the fan speed is lower than the threshold you defined, the system will pop up a warning message.

After setting all values you need, you can change the user profile name in the box then click the save button to save all changes in a profile.

Finally, you can choose the user profile by click the button in the left side and click the Apply button to load the user profile.
Appendix B

Intel ICH7R SATA RAID

The ICH7R provides a hybrid solution that combines four independent SATAII ports for support of up to four Serial ATAII (Serial ATAII RAID) drives. It offers RAID level 0 (Striping), RAID level 1 (Mirroring and Duplexing), RAID level 5 (Block Interleaved Distributed Parity), RAID level 10 (A Stripe of Mirrors) and Intel® Matrix Storage Technology.
ICH7R Introduction

The ICH7R provides a hybrid solution that combines four independent SATAII ports for support of up to four Serial ATAII (Serial ATAII RAID) drives.

Serial ATAII (SATAII) is the latest generation of the ATA interface. SATA hard drives deliver blistering transfer speeds up to 300MB/sec. Serial ATA uses long, thin cables, making it easier to connect your drive and improving the airflow inside your PC. The most outstanding features are:

1. Supports 300MB/s transfers with CRC error checking.
2. Supports Hot-plug-n-play feature.
3. Data handling optimizations including tagged command queuing, elevator seek and packet chain command.

Intel® ICH7R offers RAID level 0 (Striping), RAID level 1 (Mirroring and Duplexing), RAID level 5 (Block Interleaved Distributed Parity), RAID level 10 (A Stripe of Mirrors) and Intel® Matrix Storage Technology.

RAID 0 breaks the data into blocks which are written to separate hard drives. Spreading the hard drive I/O load across independent channels greatly improves I/O performance. RAID 1 provides data redundancy by mirroring data between the hard drives and provides enhanced read performance. RAID 5 Provides data striping at the byte level and also stripe error correction information. This results in excellent performance and good fault tolerance. Level 5 is one of the most popular implementations of RAID. RAID 10 Not one of the original RAID levels, multiple RAID 1 mirrors are created, and a RAID 0 stripe is created over these. Intel Matrix RAID Technology is the advanced ability for two RAID volumes to share the combined space of two hard drives being used in unison.

Important

The least number of hard drives for RAID 0, RAID 1 or Matrix mode is 2. The least number of hard drives for RAID 10 mode is 4. And the maximum number of hard drives for RAID 5 mode is 3.

All the information/volumes listed in your system might differ from the illustrations in this appendix.
BIOS Configuration

The Intel Matrix Storage Manager Option ROM should be integrated with the system BIOS on all motherboards with a supported Intel chipset. The Intel Matrix Storage Manager Option ROM is the Intel RAID implementation and provides BIOS and DOS disk services. Please use <Ctrl> + <I> keys to enter the "Intel(R) RAID for Serial ATA" status screen, which should appear early in system boot-up, during the POST (Power-On Self Test). Also, you need to enable the RAID function in BIOS to create, delete and reset RAID volumes.

Using the Intel Matrix Storage Manager Option ROM

1. Creating, Deleting and Resetting RAID Volumes:
The Serial ATA RAID volume may be configured using the RAID Configuration utility stored within the Intel RAID Option ROM. During the Power-On Self Test (POST), the following message will appear for a few seconds:

![Intel(R) RAID for Serial ATA](image)

After the above message shows, press <Ctrl> and <I> keys simultaneously to enter the RAID Configuration Utility.

Important

The following procedure is only available with a newly-built system or if you are reinstalling your OS. It should not be used to migrate an existing system to RAID.
After pressing the <Ctrl> and <I> keys simultaneously, the following window will appear:

(1) Create RAID Volume
1. Select option 1 "Create RAID Volume" and press <Enter> key. The following screen appears. Then in the Name field, specify a RAID Volume name and then press the <TAB> or <Enter> key to go to the next field.
2. Use the arrow keys to select the RAID level best suited to your usage model in RAID Level.
3. In the Disk field, press <Enter> key and the following screen appears. Use <Space> key to select the disks you want to create for the RAID volume, then click <Enter> key to finish selection.

4. Then select the strip value for the RAID array by using the "upper arrow" or "down arrow" keys to scroll through the available values, and pressing the <Enter> key to select and advance to the next field. The available values range from 4KB to 128 KB in power of 2 increments. The strip value should be chosen based on the planned drive usage. Here are some typical values:
   - RAID0 – 128KB
   - RAID10 – 128KB
   - RAID5 – 64KB

5. Then select the capacity of the volume in the Capacity field. The default value is the maximum volume capacity of the selected disks.
6. Then the following screen appears for you to confirm if you are sure to create the RAID volume. Press <Y> to continue.

7. Then the following screen appears to indicate that the creation is finished.
(2) Delete RAID Volume
Here you can delete the RAID volume, but please be noted that all data on RAID drives will be lost.

---

**Important**

If your system currently boots to RAID and you delete the RAID volume in the Intel RAID Option ROM, your system will become unbootable.

Select option 2 Delete RAID Volume from the main menu window and press <Enter> key to select a RAID volume for deletion. Then press <Delete> key to delete the selected RAID volume. The following screen appears.

![Screen shot of RAID deletion process](image)

Press <Y> key to accept the volume deletion.
(3) Reset Disks to Non-RAID

Select option 3 Reset Disks to Non-RAID and press <Enter> to delete the RAID volume and remove any RAID structures from the drives. The following screen appears:

Press <Y> key to accept the selection.

**Important**

1. You will lose all data on the RAID drives and any internal RAID structures when you perform this operation.
2. Possible reasons to 'Reset Disks to Non-RAID' could include issues such as incompatible RAID configurations or a failed volume or failed disk.
Installing Software

Install Driver in Windows XP / 2000

**New Windows XP / 2000 Installation**
The following details the installation of the drivers while installing Windows XP / 2000.

1. Start the installation:
   Boot from the CD-ROM. Press F6 when the message "Press F6 if you need to install third party SCSI or RAID driver" appears.
2. When the Windows XP Setup window is generated, press S to specify an Additional Device(s).
3. Insert the driver diskette Intel IAA RAID XP Driver For ICH7R (NH82801GR) into drive A: and press <Enter>.
4. Choose the driver Intel(R) 82801GR SATA RAID Controller from the drop-down list that appears on Windows XP Setup screen, and press the <Enter> key.
5. Press <Enter> to continue with installation or if you need to specify any additional devices to be installed, do so at this time. Once all devices are specified, press <Enter> to continue with installation.
6. From the Windows XP/2000 Setup screen, press the <Enter> key. Setup will now load all device files and then continue the Windows XP/2000 installation.

**Important**

Please follow the instruction below to make an “Intel IAA RAID XP Driver For ICH7R (NH82801GR)” for yourself.

1. Insert the MSI CD into the CD-ROM drive.
2. Click the "Browse CD" on the Setup screen.
3. Copy all the contents in the: \IDE\Intel\ICH7R\Floppy to a formatted floppy disk.
4. The driver disk for ICH7R RAID controller is done.

7. Choose the driver Intel(R) 82801GR SATA RAID Controller from the drop-down list that appears on Windows XP Setup screen, and press the <Enter> key.
5. Press <Enter> to continue with installation or if you need to specify any additional devices to be installed, do so at this time. Once all devices are specified, press <Enter> to continue with installation.
6. From the Windows XP/2000 Setup screen, press the <Enter> key. Setup will now load all device files and then continue the Windows XP/2000 installation.

**Existing Windows XP/2000 Driver Installation**

1. Insert the MSI CD into the CD-ROM drive.
2. The CD will auto-run and the setup screen will appear.
4. The drivers will be automatically installed.

**Confirming Windows XP/2000 Driver Installation**

1. From Windows XP/2000, open the Control Panel from My Computer followed by the System icon.
2. Choose the Hardware tab, then click the Device Manager tab.
3. Click the "*" in front of the SCSI and RAID Controllers hardware type. The driver Intel(R) NH82801GR SATAII RAID Controller should appear.
Installation of Intel Matrix Storage Console

The Intel Application Accelerator RAID Edition driver may be used to operate the hard drive from which the system is booting or a hard drive that contains important data. For this reason, you cannot remove or un-install this driver from the system after installation; however, you will have the ability to un-install all other non-driver components.

Insert the MSI CD and click on the Intel IAA RAID Edition to install the software.

Click on this item
The InstallShield Wizard will begin automatically for installation showed as following:

Click on the Next button to proceed the installation in the welcoming window.
The window shows the components to be installed. Click **Next** button to continue.

After reading the license agreement in the following window, click **Yes** button to continue.
Select the folder in which you want the program to be installed in the following window, and click **Next** button to start installation.

Select a program folder in the following window where you want Setup to add the program icon.
The following window appears to show the Intel Application Accelerator RAID Edition Setup installation status.

Once the installation is complete, the following window appears.
RAID Migration Instructions

The Intel Matrix Storage Console offers the flexibility to upgrade from a single Serial ATA (SATA) hard drive to RAID configuration when an additional SATA hard drive is added to the system. This process will create a new RAID volume from an existing disk. However, several important steps must be followed at the time the system is first configured in order to take advantage of RAID when upgrading to a second SATA hard drive:

1. BIOS must be configured for RAID before installing Windows XP on the single SATA hard drive. Refer to On Chip SATA Setting for properly setting of the BIOS.
2. Install the Intel Application Accelerator RAID Driver during Windows Setup. Refer to Installing Software for instructions on installing the driver during Windows Setup.
3. Install the Intel Matrix Storage Console after the operating system is installed.

To create a volume from an existing disk, complete the following steps:

A Create from Existing Disk operation will delete all existing data from the added disk and the data cannot be recovered. It is critical to backup all important data on the added disk before proceeding. However, during the migration process, the data on the source disk is preserved.

After the Intel Matrix Storage Console has been successfully installed and the system has rebooted, click on the Intel Application Accelerator shortcut link (Start --> All Programs --> Intel Matrix Storage Manager --> Intel Matrix Storage Console) and the following window will appear:
Create RAID Volume from Existing Disk

To create a RAID volume from an existing disk, choose Action --> Create RAID Volume from Existing Hard Drive.

The Create RAID Volume from Existing Hard Drive Wizard pops up to lead you for the following procedure. Click Next to continue.
(1) Step 1: Configure Volume
Here you can configure the new RAID volume by entering the volume name, selecting the RAID level and strip size.

**RAID Volume Name:**
A desired RAID volume name needs to be typed in where the ‘RAID_Volume1’ text currently appears above. The RAID volume name has a maximum limit of 16 characters. The RAID volume name must also be in English alphanumeric ASCII characters.

**RAID Level:**
Select the desired RAID level:
- **RAID 0 (Performance)** – A volume optimized for performance will allow you to access your data more quickly.
- **RAID 1 (Redundancy)** – A volume optimized for data redundancy will provide you with a realtime duplicate copy of your data. Note: Only half of the available volume space will be available for data storage.
- **RAID 5 (Useful)** – RAID 5 can be used on three or more disks, with zero or more spare-disks. The resulting RAID-5 device size will be (N-1)*S, where N is the how many drive, S is the size of the smallest drive in the array. If one of the disks fail, all data are still intact. It can rebuild the disk from the parity information. If spare disks are available, reconstruction will begin immediately after the device failure. If two disks fail simultaneously, all data are lost. RAID-5 can survive one disk failure, but not two or more. Both read and write performance usually increase, but can be hard to predict how much. Reads are similar to RAID-0 reads, writes can be either rather
expensive (requiring read-in prior to write, in order to be able to calculate the correct parity information), or similar to RAID-1 writes. The write efficiency depends heavily on the amount of memory in the machine, and the usage pattern of the array. Heavily scattered writes are bound to be more expensive.

**RAID 10 (Mirrored Stripes)** – A RAID 1 array of two RAID 0 arrays.

### Strip Sizes:
Select the desired strip size setting. As indicated, the optimal setting is 128KB. Selecting any other option may result in performance degradation. Even though 128KB is the recommended setting for most users, you should choose the strip size value which is best suited to your specific RAID usage model. The most typical strip size settings are:

- **4KB**: For specialized usage models requiring 4KB strips
- **8KB**: For specialized usage models requiring 8KB strips
- **16KB**: Best for sequential transfers
- **32KB**: Good for sequential transfers
- **64KB**: Good general purpose strip size
- **128KB**: Best performance for most desktops and workstations

**2) Select the source disk**
Then select the source disk that you wish to use and then click “--->” to move it to the **Selected** field. Then click **Next** to continue.

It is very important to note which disk is the source disk (the one containing all of the information to be migrated) and which one is the target disk. On a RAID Ready system, this can be determined by making a note during POST of which port (e.g. Port 0 or Port 1) the single disk is attached to.

You can also use the Intel Application Accelerator RAID Edition utility before the second disk is installed to verify the Port and serial number of the drive that contains all the data.

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*MS-7507 Mainboard*
(3) Select Member Hard Drive(s)
Then select the member disk (the target disk) that you wish to use and then click “--->” to move it to the Selected field. Then click Next to continue.
Please note that the existing data on the selected hard drive(s) will be deleted permanently. Do not forget to back up all the important data before continuing.
(4) Specify Volume Size
Specify the amount of available array space to be used by the new RAID volume. You may enter the amount in the space or use the slider to specify. It is recommended you use 100% of the available space for the optimized usage. For RAID 0 volume, if you do not specify 100% of the hard drive space, the rest hard drive space will be worked as RAID 1 volume, which is the new technology called Intel Matrix RAID. Then click Next to continue.

(5) Start Creating RAID Volume from Existing Hard Drive Wizard
Before you continue the procedure of RAID volume creation from existing hard drive, read the dialogue box below carefully. Please note that once you click Finish, the existing data on the selected hard drive(s) will be deleted permanently and this operation cannot be undone. It is critical that you backup all important data before selecting Finish to start the migration process.
(6) Start Migration
The migration process may take up to two hours to complete depending on the size of the disks being used and the strip size selected. A dialogue window will appear stating that the migration process may take considerable time to complete, meanwhile a popup dialogue at the taskbar will also show the migration status. While you can still continue using your computer during the migration process, once the migration process starts, it cannot be stopped. If the migration process gets interrupted and your system is rebooted for any reason, it will pick up the migration process where it left off. You will be provided with an estimated completion time (the remaining time will depend on your system) once the migration process starts.

The following screen appears if the migration process is completed successfully. Then you have to reboot your system to use the full capacity of the new volume.
A RAID 1, RAID 5 or RAID 10 volume is reported as degraded when one of its hard drive members fails or is temporarily disconnected, and data mirroring is lost. As a result, the system can only utilize the remaining functional hard drive member. To re-establish data mirroring and restore data redundancy, refer to the procedure below that corresponds to the current situation.

**Missing Hard Drive Member**
1. Make sure the system is powered off.
2. Reconnect the hard drive.
3. Reboot the system to Windows; the rebuild will occur automatically.

**Failed Hard Drive Member**
1. Make sure the system is powered off.
2. Replace the failed hard drive with a new one that is of equal or greater capacity.
3. Reboot the system to Intel RAID Option ROM by press <Ctrl> and <I> keys simultaneously during the Power-On Self Test (POST).

4. Select the port of the destination disk for rebuilding, and then press ENTER.
5. Exit Intel RAID Option ROM, and then reboot to Windows system.
6. When prompted to rebuild the RAID volume, click 'Yes'.
7. The Intel(R) Storage Utility will be launched. Right-click the new hard drive and select 'Rebuild to this Disk'. The 'Rebuild Wizard' will be launched which will guide you through the process of rebuilding to the new hard drive.