

Chapter 1

Getting Started

Thank you for choosing MS-7525 v1.XMicro ATX mainboard. The mainboard is based on **Intel® G31 & ICH7** chipsets for optimal system efficiency. Designed to fit the advanced **Intel® Wolfdale-M, Core 2 Duo, Pentium Dual Core, Celeron Dual Core** and **Celeron** processor, the mainboard delivers a high performance and professional desktop platform solution.

Mainboard Specifications

Processor Support

- Intel® Wolfdale-M, Core 2 Duo, Pentium Dual Core, Celeron Dual Core and Celeron in the LGA775 package.
(For the latest information about CPU, please visit <http://global.msi.com.tw/index.php?func=cpuform>)

Supported FSB

- 1333/1066/ 800 MHz

Chipset

- North Bridge: Intel® G31 chipset
- South Bridge: Intel® ICH7 chipset

Memory Support

- DDR2 800/ 667 SDRAM (4GB Max)
- 2 DDR2 DIMMs (240pin)
- (For more information on compatible components, please visit <http://global.msi.com.tw/index.php?func=testreport>)

LAN

- Supports 10/ 100 Fast Ethernet by Realtek 8101E

Audio

- Chip integrated by Realtek® ALC662
- Azalia 5.1-channel audio with jack sensing

SATA

- SATAI and SATAII ports
- Supports storage and data transfers at up to 3.0 Gbps

Floppy

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

Connectors

- **Back panel**
 - 1 PS/2 mouse port
 - 1 PS/2 keyboard port
 - 1 VGA port
 - 4 USB 2.0 ports
 - 1 LAN jack
 - 3 flexible audio jacks

● **On-Board Pinheaders/ Connectors**

- 2 USB 2.0 pinheaders
- 1 Front Panel Audio pinheader
- 1 SPDIF-Out pinheader
- 1 Debug pinheader

Slots

- 1 PCI Express x16 slot
- 2 PCI Express x1 slots
- 1 PCI slot (support 3.3V/ 5V PCI bus Interface)

Form Factor

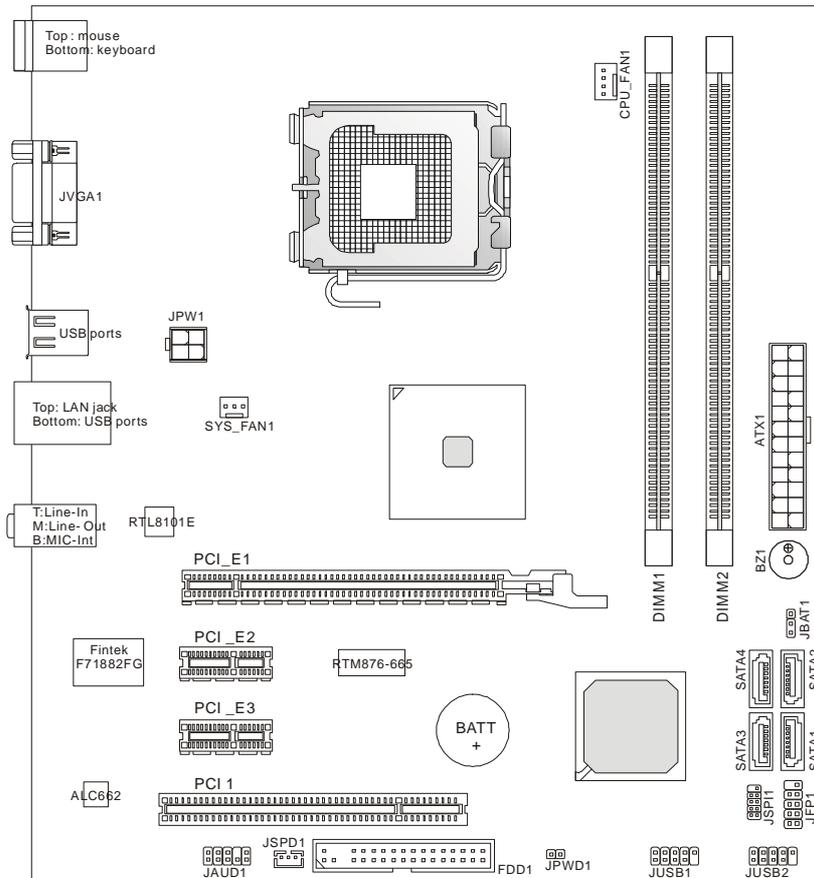
- Micro-ATX (9.6" X 8.6")

Mounting

- 6 mounting holes

MS-7525 Mainboard

Mainboard Layout



MS-7525 v1.X M-ATX Mainboard

Buzzer (BZ1)

POST Beep Codes

To handle errors happened before the display becomes ready (e.g. memory configuration/init error, invalid CPU detection, no video or video failure, etc.), use a beep-and-pause method as defined in the table below:

Item	Beep Definition	Meaning	Beep Pattern Example
1	1 short beep and 1 long beep followed by long pause	Bad memory or memory configuration error.	Repeat: (short) beep -> (short) pause -> (long) beep -> (long) pause
2	2 short beeps and 1 long beep followed by long pause	No graphics card installed or graphics card initialization failed.	Repeat 5 times, then continue POST: (short) beep -> (short) pause -> (short) beep -> (short) pause -> (long) beep -> (long) pause
3	3 short beeps and 1 long beep followed by long pause	CPU configuration error or invalid CPU detected before graphics card initialized.	Repeat: (short) beep -> (short) pause -> (short) beep -> (short) pause -> (short) beep -> (short) pause -> (long) beep -> (long) pause
4	1 short beep followed by short pause	No legacy floppy drive or optical drive found.	Repeat: (short) beep -> (long) pause
5	2 short beeps followed by long pause	No floppy diskette or CD found	Repeat: (short) beep -> (short) pause -> (short) beep -> (long) pause
6	3 short beeps followed by long pause	Flashing not ready (missing utility or BIOS image file, etc.)	Repeat: (short) beep -> (short) pause -> (short) beep -> (short) pause -> (short) beep -> (long) pause
7	4 short beeps followed by long pause	Flashing operation has failed (checksum error, corrupted image, etc.)	Repeat: (short) beep -> (short) pause -> (short) beep -> (short) pause -> (short) beep -> (short) pause -> (short) beep -> (long) pause
8	5 short beeps followed by long pause	BIOS Recovery was successful.	Repeat: (short) beep -> (short) pause -> (short) beep -> (long) pause

The duration of each beep or pause is defined as follows:

	Beep / Pause Type	Action
1	ShortBeep	Beeps for 1 second.
2	ShortPause	Pauses for 1 second.
3	LongBeep	Beeps for 3 seconds.
4	LongPause	Pauses for 3 seconds.

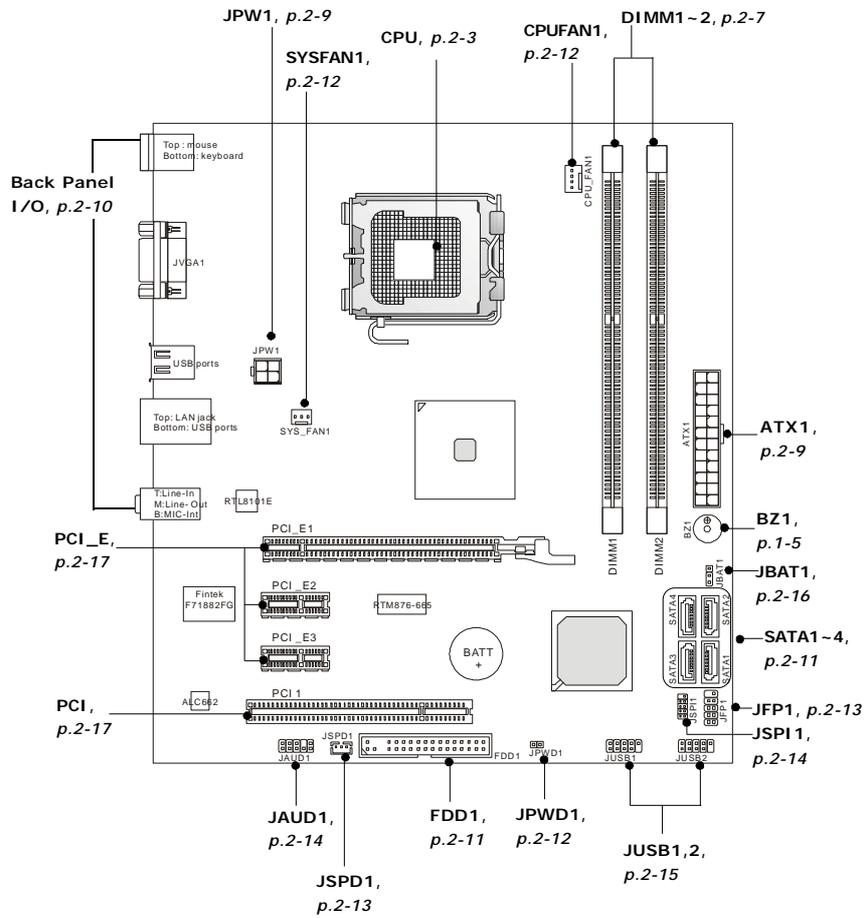
Chapter 2

Hardware Setup

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.

Quick Components Guide



CPU (Central Processing Unit)

This mainboard supports Intel® processor in LGA 775 package. 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

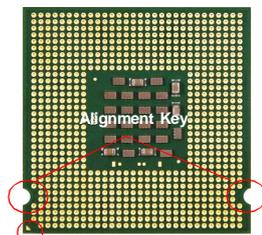
While replacing the CPU, always turn off the ATX power supply or unplug the power supply's power cord from the grounded outlet first to ensure the safety of CPU.

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.**

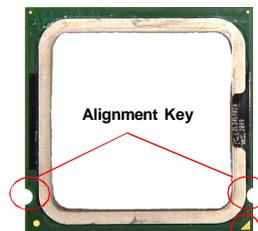
Introduction to LGA 775 CPU

The pin-pad side of LGA 775 CPU.



Yellow triangle is the Pin 1 indicator

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

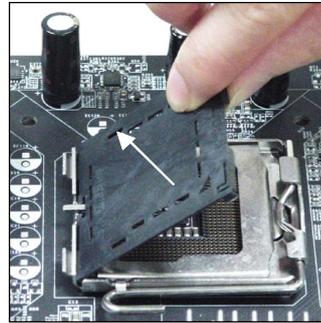
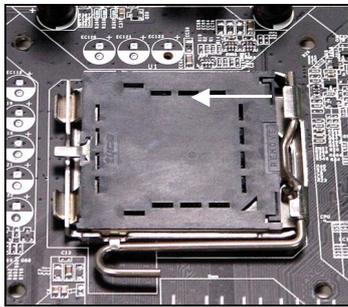


Yellow triangle is the Pin 1 indicator

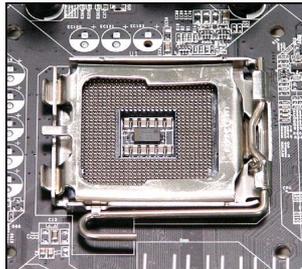
CPU & Cooler Installation

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.

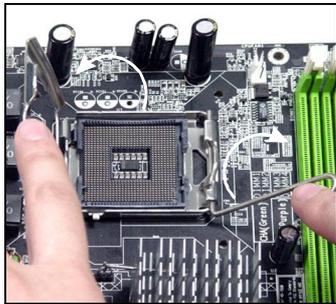


Important

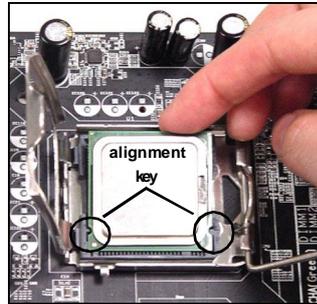
1. Confirm if your CPU cooler is firmly installed before turning on your system.
2. Do not touch the CPU socket pins to avoid damaging.
3. The availability of the CPU land side cover depends on your CPU packing.

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.

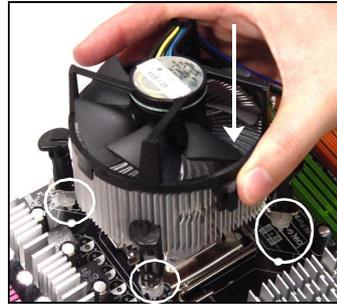


MS-7525 Mainboard

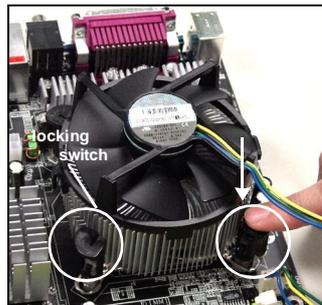
9. Press down the load lever lightly onto the load plate, and then secure the lever with the hook under retention tab.



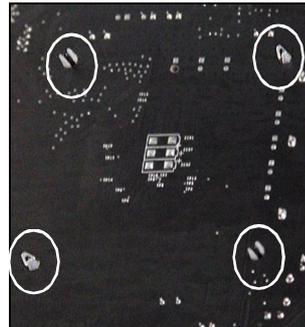
10. Align the holes on the mainboard with the heatsink. Push down the cooler until its four clips get wedged into the holes of the mainboard.



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.



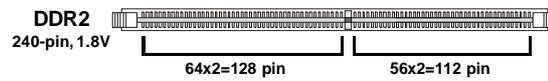
Important

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>



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

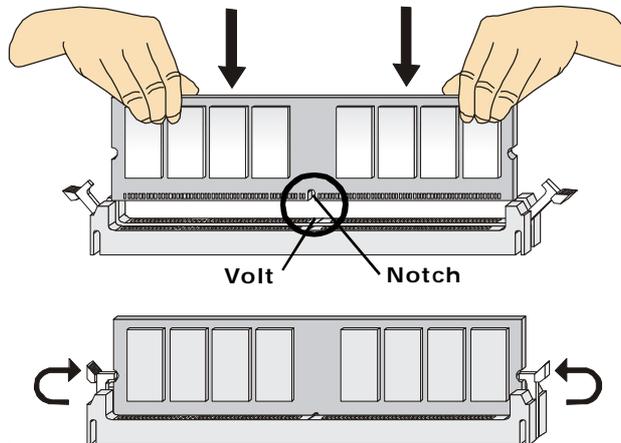
1. The memory module has only one notch on the center and will only fit in the right orientation.
2. Insert the memory module vertically into the DIMM slot. Then push it in until the golden finger on the memory module is deeply inserted in the DIMM slot.



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**.
- Due to the chipset resource deployment, the system density will only be detected up to 1+GB (not full 2GB) when each DIMM is installed with a 1GB memory module.

Power Supply

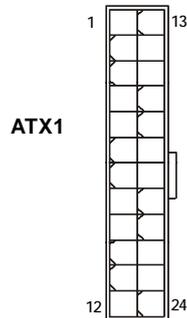
ATX 24-Pin Power Connector: ATX1

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).

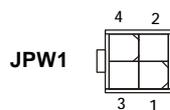


Pin Definition			
PIN	SIGNAL	PIN	SIGNAL
1	+3.3V	13	+3.3V
2	+3.3V	14	-12V
3	GND	15	GND
4	+5V	16	PS-ON#
5	GND	17	GND
6	+5V	18	GND
7	GND	19	GND
8	PWROK	20	Res
9	5VSB	21	+5V
10	+12V	22	+5V
11	+12V	23	+5V
12	+3.3V	24	GND



ATX 12V Power Connector: JPW1

This 12V power connector is used to provide power to the CPU.



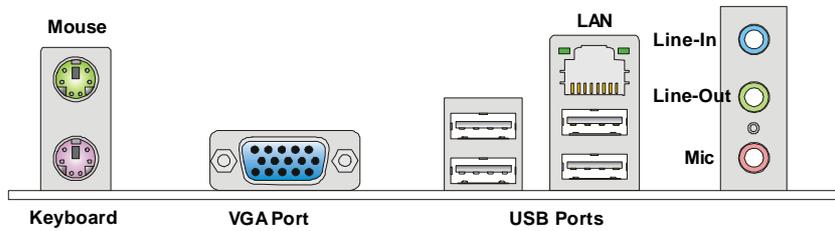
Pin Definition	
PIN	SIGNAL
1	GND
2	GND
3	12V
4	12V



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.

Back Panel



► Mouse/Keyboard

The standard PS/2® mouse/keyboard DIN connector is for a PS/2® mouse/keyboard.

► VGA Port

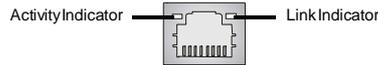
The DB15-pin female connector is provided for monitor.

► USB Port

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

► LAN

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



LED	Color	LED State	Condition
Left	Yellow	Off	LAN link is not established.
		On (steady state)	LAN link is established.
		On (brighter & pulsing)	The computer is communicating with another computer on the LAN.
Right	Green	On	10 Mbit/sec data rate is selected.
		On	100 Mbit/sec data rate is selected.

► Audio Ports

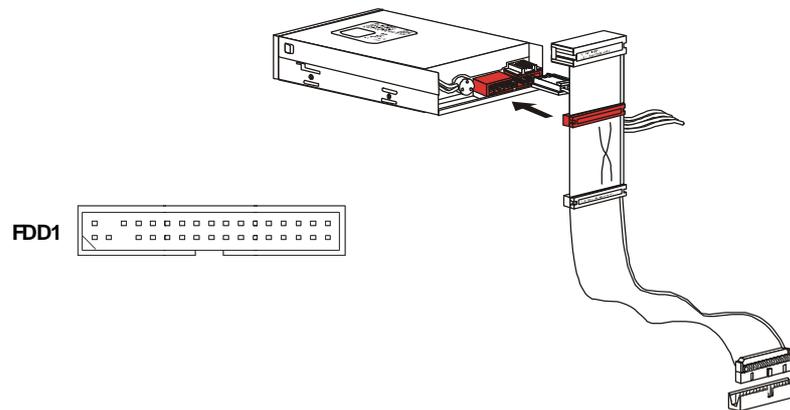
These audio connectors are used for audio devices. You can differentiate the color of the audio jacks for different audio sound effects.

- **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.

Connectors

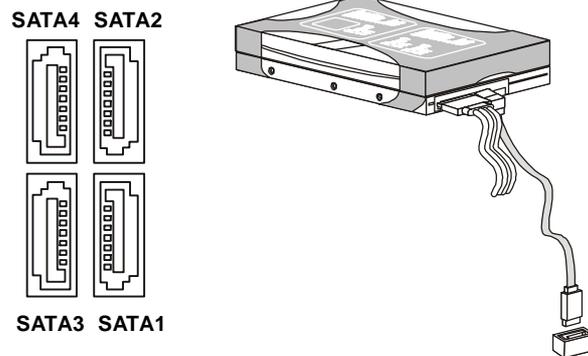
Floppy Disk Drive Connector: FDD1

This connector supports 360KB, 720KB, 1.2MB, 1.44MB or 2.88MB floppy disk drive.



Serial ATA Connector: SATA1/ SATA2/ SATA3/ SATA4

This connector is a high-speed Serial ATA interface port. Each connector can connect to one Serial ATA device.

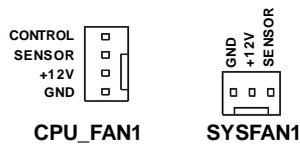


Important

Please do not fold the Serial ATA cable into 90-degree angle. Otherwise, data loss may occur during transmission.

Fan Power Connectors: CPUFAN1, SYSFAN1

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 supports fan control. You can install **Dual Core Center** utility that will automatically control the CPU fan speed according to the actual CPU/System temperature.
3. Fan cooler set with 3 or 4 pins power connector are both available for CPUFAN/SYSFAN.

BIOS Password Clear: JPWD1

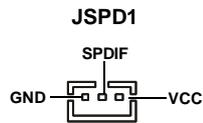


The BIOS password protects the BIOS from undesired changes. If you need to clear the BIOS password, use the following steps:

1. Turn off the PC and unplug the power cord.
2. Remove the JPWD1 jumper cap.
3. connect the power cord and turn on the PC.
4. Enter BIOS Setup Menu, you will find the previous password is cleared.
5. Turn off the PC and unplug the power cord.
6. Replace the JPWD1 jumper cap.
7. Turn on the PC and set a new password if necessary.

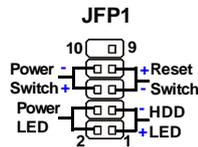
S/PDIF-Out Connector: JSPD1

This connector is used to connect S/PDIF (Sony & Philips Digital Interconnect Format) interface for digital audio transmission.



Front Panel Connectors: JFP1

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.



JFP1 Pin Definition

PIN	SIGNAL	DESCRIPTION
1	HD_LED +	Hard disk LED pull-up
2	FPPWR/SLP	MSG LED pull-up
3	HD_LED -	Hard disk active LED
4	FPPWR/SLP	MSG LED pull-up
5	RST_SW -	Reset Switch low reference pull-down to GND
6	PWR_SW+	Power Switch high reference pull-up
7	RST_SW +	Reset Switch high reference pull-up
8	PWR_SW-	Power Switch low reference pull-down to GND
9	RSVD_DNU	Reserved. Do not use.

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.



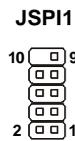
HD Audio Pin Definition

PIN	SIGNAL	DESCRIPTION
1	MIC_L	Microphone - Left channel
2	GND	Ground
3	MIC_R	Microphone - Right channel
4	PRESENCE#	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
5	LINEout_R	Analog Port - Right channel
6	MIC_JD	Jack detection return from front panel microphone JACK1
7	Front_JD	Jack detection sense line from the High Definition Audio CODEC jack detection resistor network
8	NC	No control
9	LINEout_L	Analog Port - Left channel
10	LINEout_JD	Jack detection return from frontpanel JACK2

JSPI Debugging Pin Header: JSPI1

The pin header is for internal debugging only.

JSPI1 Pin Definition



PIN	SIGNAL	PIN	SIGNAL
1	VCC3_SB	2	VCC3_SB
3	SPI_MISO	4	SPI_MOSI_F
5	SPI_CS0_F#	6	SPI_CLK_F
7	GND	8	GND
9	Reserved	10	NC

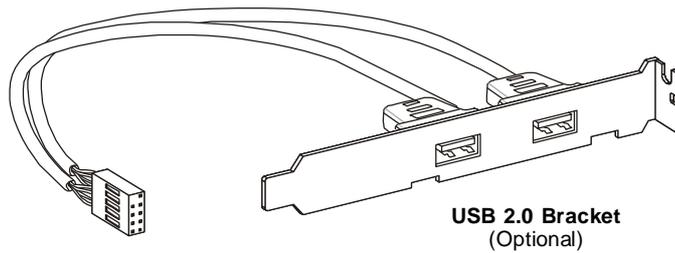
Front USB Connector: JUSB1 / JUSB2

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



Pin Definition

PIN	SIGNAL	PIN	SIGNAL
1	VCC	2	VCC
3	USB0-	4	USB1-
5	USB0+	6	USB1+
7	GND	8	GND
9	Key (no pin)	10	USBOC



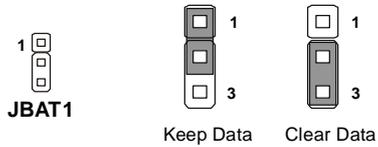
Important

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

Jumpers

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.



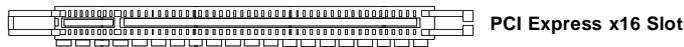
Important

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.

Slots

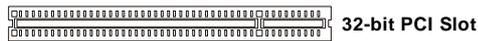
PCI (Peripheral Component Interconnect) Express Slot

The PCI Express slot supports the PCI Express interface expansion card.
 The PCI Express x 16 slot supports up to 4.0 GB/s transfer rate.
 The PCI Express x 1 slot supports up to 250 MB/s transfer rate.



PCI (Peripheral Component Interconnect) Slot

The PCI slot supports LAN card, SCSI card, USB card, and other add-on cards that comply with PCI specifications.



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.

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:

	Order 1	Order 2	Order 3	Order 4
PCI Slot 1	INT A#	INT B#	INT C#	INT D#