Chapter 1
Getting Started

Thank you for choosing the 750i (V1.X) ATX mainboard. The mainboard is based on NVIDIA® nForce 750i SLI (C72P) & 430i (MCP51) chipsets for optimal system efficiency. Designed to fit the advanced Intel® Core™2 Extreme, Core™2 Quad, Core™2 Duo, Pentium® Dual-Core and Celeron® processors, the mainboard delivers a high performance and professional desktop platform solution.

Mainboard Specifications

Processor
- Intel® Core™2 Extreme, Core™2 Quad, Core™2 Duo, Pentium®
  Dual-Core and Celeron® processors in the LGA775 package
- Supports Intel® SpeedStep Technology (EIST)
- Supports Intel® Hyper-Threading Technology (HT)

FSB
- 400/ 533/ 800/ 1066/ 1333/ 1800 (OC) MHz

Chipset
- North Bridge: NVIDIA® nForce 750i SLI chipset (C72P)
- South Bridge: NVIDIA® nForce 430i chipset (MCP51)

Memory
- DDR2 533/ 667/ 800/ 1200 (OC) SDRAM
- 4 DDR2 DIMM slots (8 GB Max) (240-Pin/ 1.8 V)

LAN
- Supports 10/ 100/ 1000 Fast Ethernet by Realtek® RTL8211BL
- Compliant with PCI 2.2
- Supports ACPI Power Management

IEEE 1394
- Chip integrated by VIA® VT6308P
- Transfer rate is up to 400 Mb/s

Audio
- Chip integrated by Realtek® ALC888S
- Flexible 8-channel audio with jack sensing
- Compliant with Azalia 1.0 spec
- Meet Microsoft® Windows® Vista™ Premium spec

IDE
- 2 IDE ports by NVIDIA® nForce 430i
- Supports four IDE devices
- Supports Ultra DMA 33/ 66/ 100/ 133 mode
- Supports PIO, Bus Master operation mode

SATA
- 4 SATA ports by NVIDIA® nForce 430i
- Supports four SATA devices
- Supports storage and data transfers up to 3 Gb/s
- 1 eSATA port by JMicron® JMB363

RAID

- 4 SATAII ports support RAID 0/ 1/ 0+1/ 5 or JBOD mode by NVIDIA® nForce 430i
- 1 eSATA port support RAID 0/ 1 mode by JMicron® JMB363

Floppy

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

Back Panel

- 1 PS/2 mouse/ keyboard port
- 1 optical S/PDIF-out port
- 1 coaxial S/PDIF-out port
- 1 debug LED
- 1 clear CMOS button
- 1 IEEE 1394 port
- 6 USB ports
- 1 eSATA port
- 1 LAN jack
- 6 audio jacks

Connector

- 1 CD-in connector
- 1 front panel audio connector
- 1 serial port connector
- 1 IEEE 1394 connector
- 1 USB connector
- 1 S/PDIF-out connector

Slots

- 2 PCI express x16 slots
- 1 PCI express x1 slot
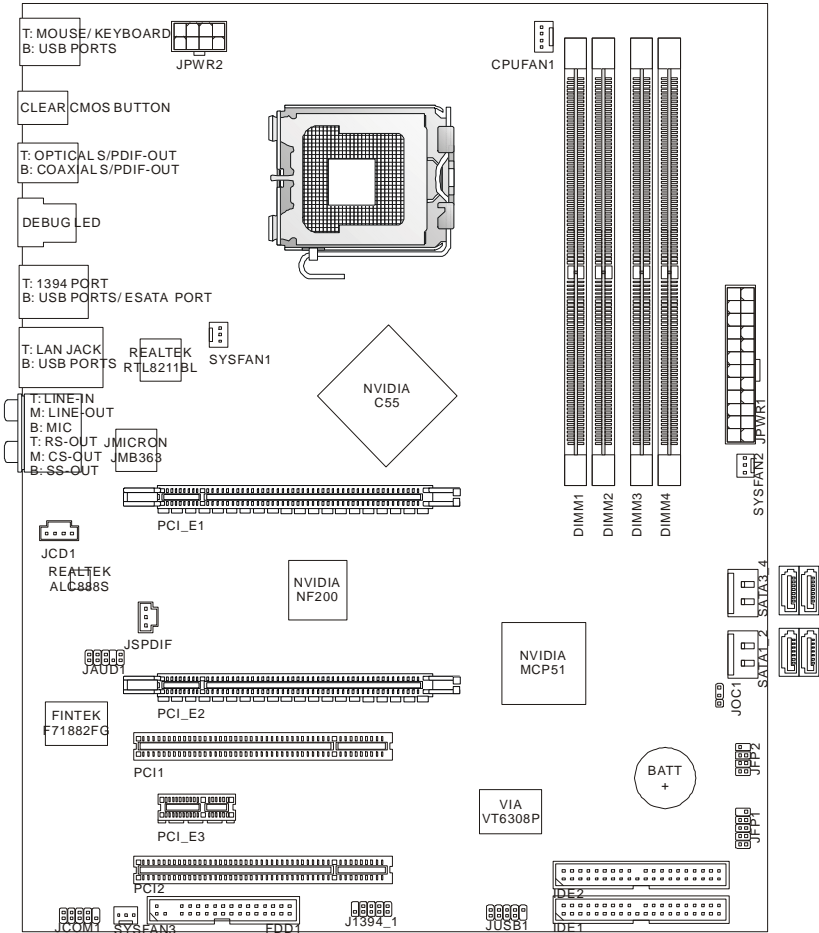- 2 PCI slots support 3.3 V/ 5 V PCI bus interface

Form Factor
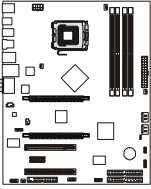
- ATX (30.5 cm X 24.5 cm)

Mounting

- 9 mounting holes

Mainboard Layout

T: MOUSE / KEYBOARD
B: USB PORTS

JPWR2

CPUFAN1

CLEAR CMOS BUTTON

T: OPTICAL S/PDIF-OUT
B: COAXIAL S/PDIF-OUT

DEBUG LED

T: 1394 PORT
B: USB PORTS/ ESATA PORT

T: LAN JACK
B: USB PORTS

REALTEK
RTL8211BL

SYSFAN1

NVIDIA
C55

T: LINE-IN
M: LINE-OUT
B: MIC
T: RS-OUT
M: CS-OUT
B: SS-OUT

JMICRON
JMB363

JPWR1

SYSFAN2

PCI_E1

DIMM1 DIMM2 DIMM3 DIMM4

JCD1

REALTEK
ALC888S

NVIDIA
NF200

SATA3_4

JSPDIF

NVIDIA
MCP51

SATA1_2

JAUD1

JOC1

FINTEK
F71882FG

PCI_E2

JFP2

PCI1

BATT
+

JFP1

PCI_E3

VIA
VT6308P

PCI2

IDE2

JCOM1 SYSFAN3   FDD1   J1394_1   JUSB1   IDE1

750i (V1.X) ATX Mainboard

Packing Checklist

Mainboard

Driver/ Utility CD

Back I/O Shield

Power Cable

SATA Cable

Standard Cable for
IDE Devices

2-Way SLI bridge cable

* The pictures are for reference only. Your packing contents may vary depending on the model you purchased.
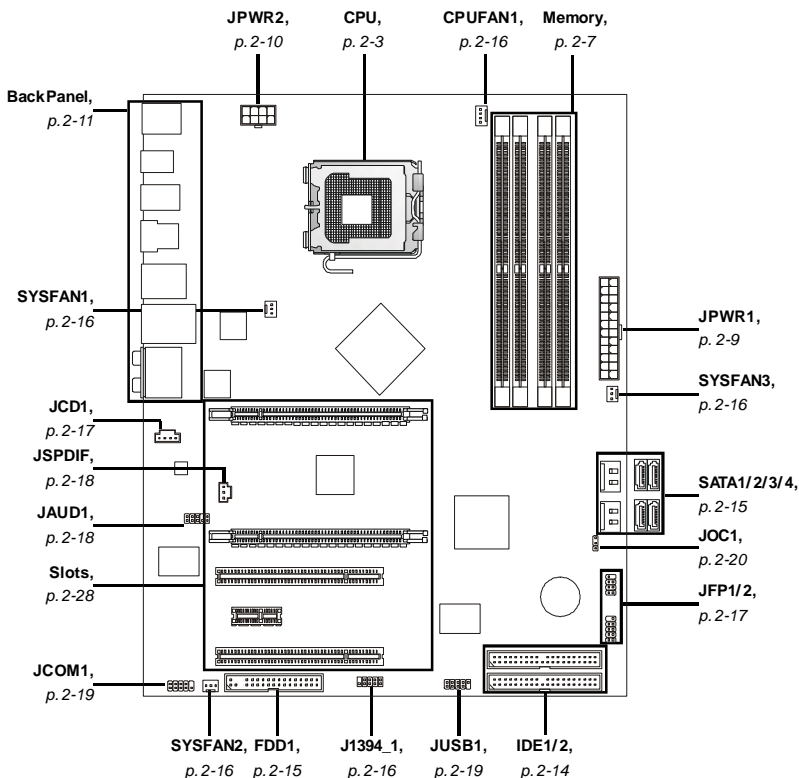
Chapter 2
Hardware Setup

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

JPWR2, *p. 2-10*   CPU, *p. 2-3*   CPUFAN1, *p. 2-16*   Memory, *p. 2-7*

BackPanel, *p. 2-11*

SYSFAN1, *p. 2-16*

JPWR1, *p. 2-9*

SYSFAN3, *p. 2-16*

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JAUD1, *p. 2-18*

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JCOM1, *p. 2-19*

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CPU (Central Processing Unit)

This mainboard supports Intel® processors in the LGA775 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.

Important

1. *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.*
2. *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.*
3. *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 LGA775 CPU.
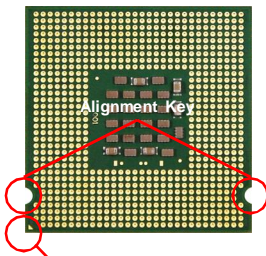
The surface of LGA775 CPU. Remember to apply some thermal paste on it for better heat dispersion.

Alignment Key

Alignment Key

Yellow triangle is the Pin 1 indicator
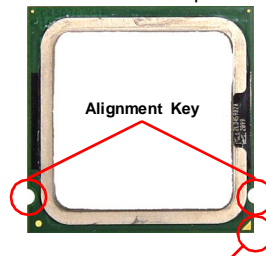
Yellow triangle is the Pin 1 indicator

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.
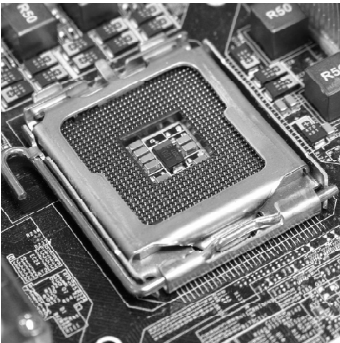
1. The CPU socket has a plastic cap on it to protect the contact from damage. Before you install the CPU, always cover it to protect the socket pin.
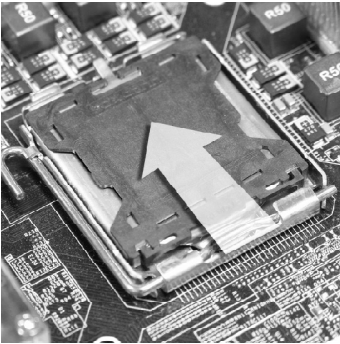
2. Remove the cap from lever hinge side (as the arrow shows).
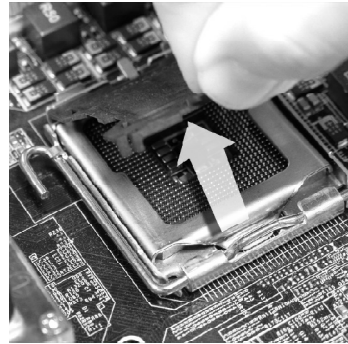
3. The pins of socket reveal.

4. Open the load lever.
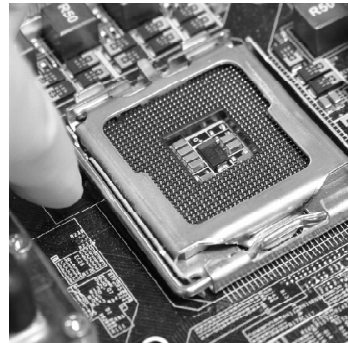
Important

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.*

5. Lift the load lever up and open the load plate.
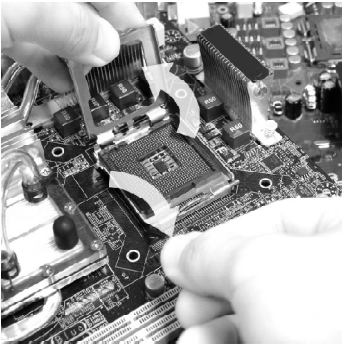
6. After confirming the CPU direction for correct mating, put down the CPU in the socket housing frame. Be sure to grasp on the edge of the CPU base. Note that the alignment keys are matched.

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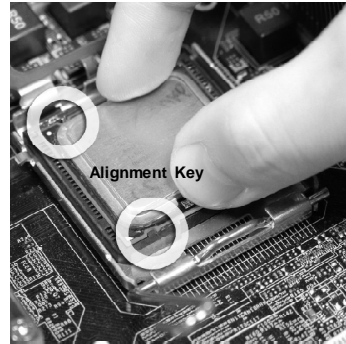
7. Visually inspect if the CPU is seated well into the socket. If not, take out the CPU with pure vertical motion and reinstall.
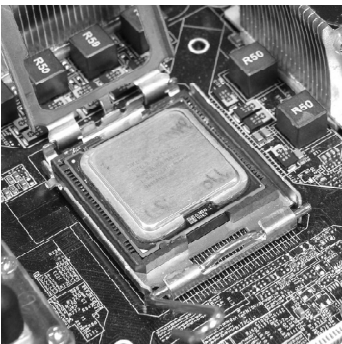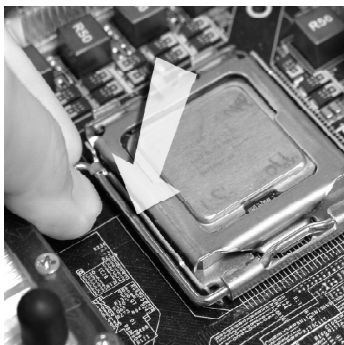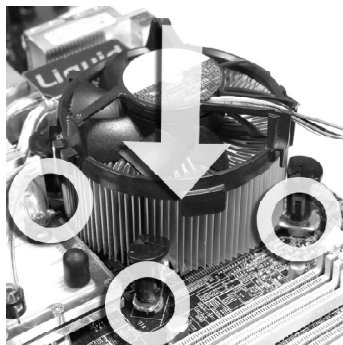

8. Cover the load plate onto the package.
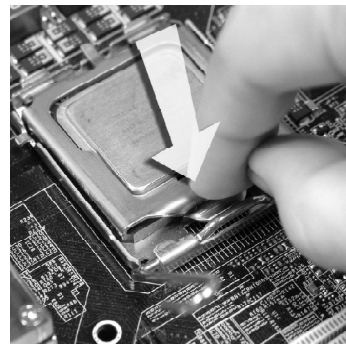
9. Press down the load lever lightly onto the load plate, and then secure the lever with the hook under retention tab.


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.

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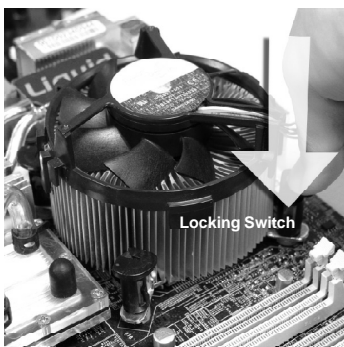
12. Turn over the mainboard to confirm that the clip-ends are correctly inserted.


Mainboard

Hook
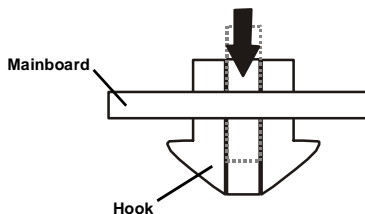
Important

1. Whenever CPU is not installed, always protect your CPU socket pin with the plastic cap covered (shown in Figure 1) to avoid damaging.

2. 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.

DDR2
240-Pin/ 1.8 V

64x2=128-Pin   **56x2=112-Pin**
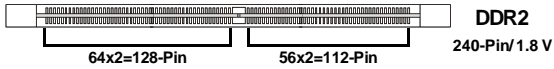
Single-Channel: All DIMMs in GREEN.
Dual-Channel: Channel A in GREEN; Channel B in Black.

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. The following illustrations explain the population rules for Dual-Channel mode.
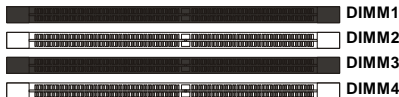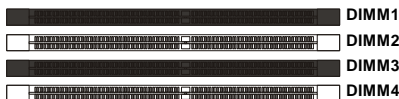
❶

DIMM1
DIMM2
DIMM3
DIMM4

❷

DIMM1
DIMM2
DIMM3
DIMM4

❸

DIMM1
DIMM2
DIMM3
DIMM4

❹

DIMM1
DIMM2
DIMM3
DIMM4

Installed
Empty

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. The plastic clip at each side of the DIMM slot will automatically close when the memory module is properly seated.

Important

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

3. Manually check if the memory module has been locked in place by the DIMM slot clips at the sides.

Volt   **Notch**
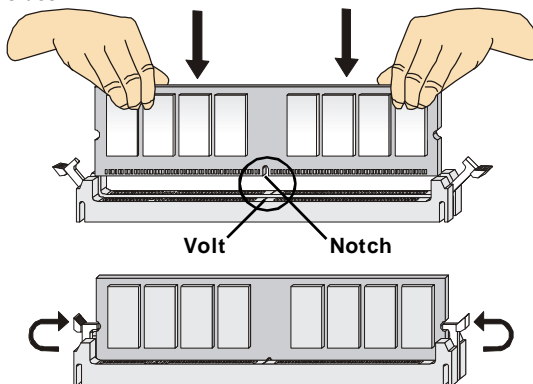
Important

1. 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.
2. In Dual-Channel mode, make sure that you install memory modules of the same type and density in different channel DIMM slots.
3. To enable successful system boot-up, always insert the memory modules into the DIMM1 first.
4. Due to the chipset resource deployment, the system density will only be detected up to 7+ GB (not full 8 GB) when each DIMM is installed with a 2 GB memory module.

Power Supply

ATX 24-Pin Power Connector: JPWR1

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).
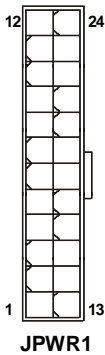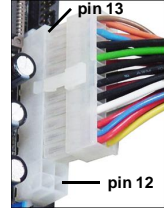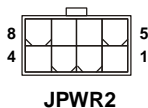
Pin Definition

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

JPWR1

SSI 8-Pin CPU Power Connector: JPWR2

This connector provides 12V power output to the CPUs.

Pin Definition

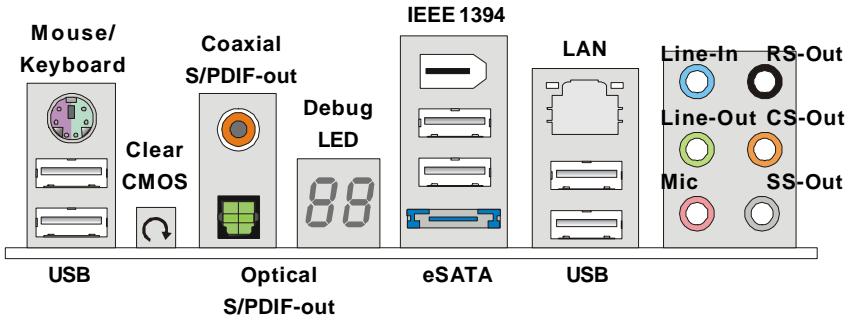| PIN	SIGNAL	PIN	SIGNAL
1	GND	5	+12V
2	GND	6	+12V
3	GND	7	+12V
4	GND	8	+12V

```
8 [  ] 5
4 [  ] 1
  JPWR2
```

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 450 watts (and above) is highly recommended for system stability.*

3. *nForce chipset is very sensitive to ESD (Electrostatic Discharge), therefore this issue mostly happens while the users intensively swap memory modules under S5 (power-off) states, and the power code is plugged while installing modules. Due to several pins are very sensitive to ESD, so this kind of memory-replacement actions might cause system chipset unable to boot. Please follow the following solution to avoid this situation: Unplug the AC power cable or unplug the power connectors before the 1st installation or during system upgrade procedure.*

Back Panel

Mouse/ Keyboard, **Coaxial S/PDIF-out**, **Debug LED**, **IEEE 1394**, **LAN**, **Line-In**, **RS-Out**, **Line-Out**, **CS-Out**, **Mic**, **SS-Out**, **Clear CMOS**, **USB**, **Optical S/PDIF-out**, **eSATA**, **USB**

▶ **Mouse/ Keyboard**

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

▶ **USB Port**

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

▶ **Optical S/PDIF-Out**

This SPDIF (Sony & Philips Digital Interconnect Format) connector is provided for digital audio transmission to external speakers through an optical fiber cable.

▶ **Coaxial S/PDIF-Out**

This SPDIF (Sony & Philips Digital Interconnect Format) connector is provided for digital audio transmission to external speakers through a coaxial cable.

▶ **Clear CMOS**

There is a CMOS RAM on board that has a power supply from external battery to keep the system configuration data. With the CMOS RAM, the system can automatically boot OS every time it is turned on. If you want to clear the system configuration, use the button to clear data. Press the button to clear the data.

Important

Make sure that you power off the system before clearing CMOS data.

2-11

▶ **IEEE 1394 Port**

The IEEE 1394 port on the back panel provides connection to IEEE 1394 devices.

▶ **eSATA**

This eSATA (External Serial ATA) port is used to connect the external SATA device. You can also use the optional external SATA cable to connect SATA device and eSATA port.

▶ **LAN**

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

Activity Indicator ———— ———— **Link Indicator**

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	Off	10 Mbit/ sec data rate is selected.
		On	100 Mbit/ sec data rate is selected.
	Orange	On	1000 Mbit/ sec data rate is selected.

▶ **Audio Ports**

These audio connectors are used for audio devices. It is easy to differentiate between audio effects according to the color of audio jacks.

- **Line-In (Blue) -** Line In/ Side-Surround Out in 7.1 channel mode, 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.

▶ **Debug LED**

Please refer to the table below to get more information about the Debug LED message.

Post	Status
FF	Power on and first initialize CPU.
D0, D4, D5	Initialize memory port device.
08	Initialize keyboard.
C0, C1, C2	Early CPU Initialize Start - Disable Cache, Set up boot strap processor information.
C4, C6	Initialize HT (FSB).
2A, 31	Initialize onboard devices. Load Option ROM (VGA and RAID option ROM) form BIOS to memory.
37	Displaying sign-on message, CPU information, setup key message and any OEM specific information.
38	Initialize USB device and different devices.
3C	Mid POST initialization of chipset registers. Detect different devices (parallel ports, serial ports and coprocessor in CPU…etc.)
75, 78	Initialize INT 13 devices and IPL devices. (include SATA/ PATA HDD and CD ROM).
87	Enter setup screen. BIOS setup if needed/ requested.
A7	Display the system configuration screen if enabled.
A9	Wait for user input at configuration display if needed.
B1	Save system context for ACPI (Advanced Configuration and Power Interface). Prepare give control to OS loader (INT 19H).
00	Pass control to OS Loader (typically INT 19H).
AA	Enter OS (Vista or Windows XP).

Connectors

IDE Connector: IDE1/ 2

This connector supports IDE hard disk drives, optical disk drives and other IDE devices.
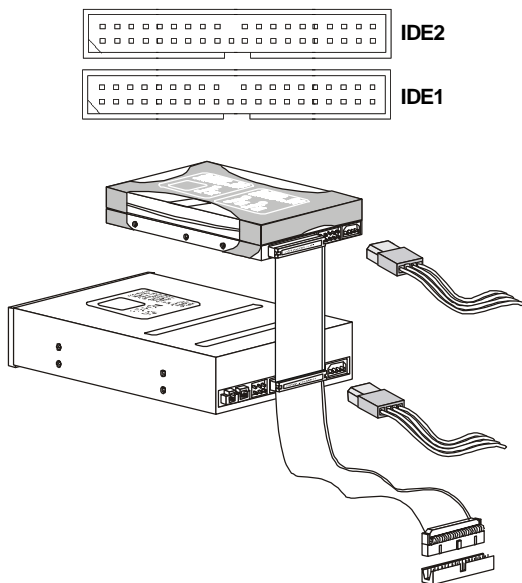
IDE1 (Primary IDE Connector)

The first hard drive should always be connected to IDE1. IDE1 can connect a master and a slave drive.

IDE2 (Secondary IDE Connector)

IDE2 can also connect a master and a slave drive.

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.
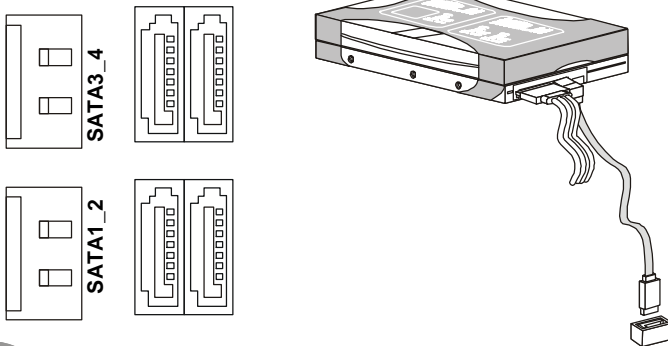
Floppy Disk Drive Connector: FDD1

This connector supports 360KB, 720KB, 1.2MB, 1.44MB or 2.88MB floppy disk drive.
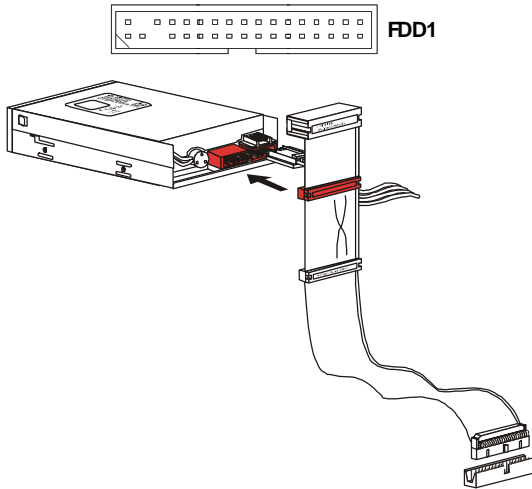
Serial ATA Connector: SATA1/ 2/ 3/ 4

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/ 3

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. ISf 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.



```
CONTROL                          GND
SENSOR                           +12V
  +12V                           SENSOR
   GND
  CPUFAN1        SYSFAN1
```

```
GND
+12V
SENSOR
  SYSFAN2
```

```
   NC
 +12V
  GND
 SYSFAN3
```

Important

Please refer to the recommended CPU fans at processor's official website or consult the vendors for proper CPU cooling fan.
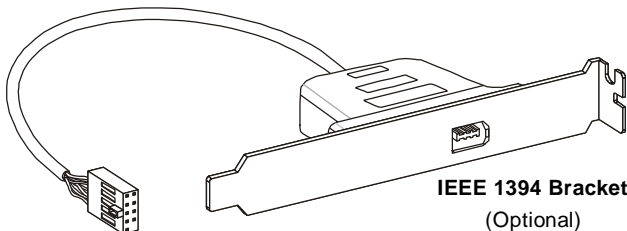
IEEE 1394 Connector: J1394_1

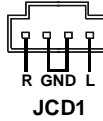This connector allows you to connect the IEEE 1394 device via an optional IEEE 1394 bracket.

Pin Definition

```
9  □□□□□  1
10 □□□□□  2
   J1394_1
```
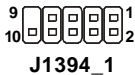
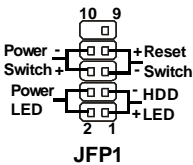| PIN	SIGNAL	PIN	SIGNAL
1	TPA+	2	TPA-
3	Ground	4	Ground
5	TPB+	6	TPB-
7	Cable power	8	Cable power
9	Key (no pin)	10	Ground

IEEE 1394 Bracket
(Optional)

CD-In Connector: JCD1

This connector is provided for external audio input.

R GND L

JCD1

## Front Panel Connectors: JFP1/ 2

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.

Pin Definition

10 9

Power - **+Reset**
Switch + **- Switch**
Power **- HDD**
LED **+ LED**

2 1

JFP1

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.

Pin Definition

8 7

+
Speaker **+** Power
- LED

2 1

JFP2
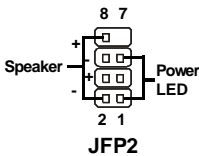
PIN	SIGNAL	DESCRIPTION
1	GND	Ground
2	SPK-	Speaker-
3	SLED	Suspend LED
4	BUZ+	Buzzer+
5	PLED	Power LED
6	BUZ-	Buzzer-
7	NC	No connection
8	SPK+	Speaker+

Front Panel Audio Connector: JAUD1

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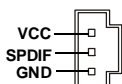Intel® Front Panel I/O Connectivity Design Guide.

2 ⬚⬚⬚⬚⬚ **10** **JAUD1**
1 ⬚⬚⬚⬚⬚ **9**

HD Audio Pin Definition

| PIN	SIGNAL	DESCRIPTION
1	MIC_L	Microphone - Left channel
2	GND	Ground
3	MIC_R	Microphone - Right channel
4	NC	No Connection
5	LINE out_R	Line Out Right Channel
6	MIC_JD	Microphone Jack detection
7	Front_JD	Front Panel Jack Detection Sense Line
8	Key	No pin
9	LINE out_L	Line Out Left Channel
10	LINE out_JD	Line Out Jack Detection

AC'97 Audio Pin Definition

PIN	SIGNAL	DESCRIPTION
1	MIC	Microphone input signal
2	GND	Ground
3	MIC_PWR	Microphone power
4	NC	No Control
5	LINE out_R	Right channel audio signal to front panel
6	NC	No Control
7	NC	No Control
8	Key	No pin
9	LINE out_L	Left channel audio signal to front panel
10	NC	No Control

SPDIF-Out Connector: JSPDIF

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

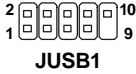**VCC**
**SPDIF**
GND
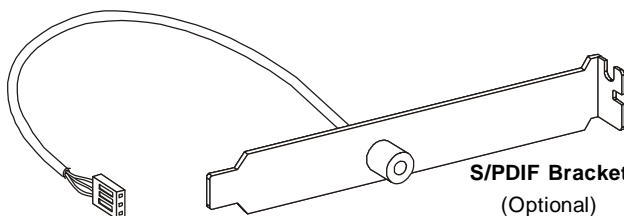
JSPDIF

S/PDIF Bracket
(Optional)

Front USB Connector: JUSB1

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

JUSB1

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

USB 2.0 Bracket
(Optional)
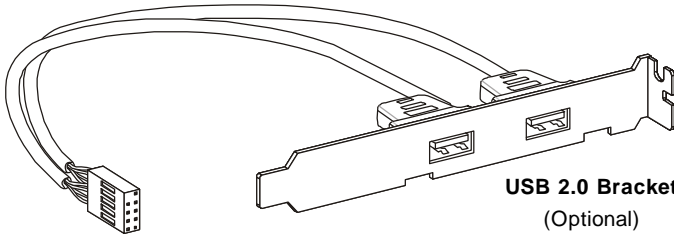
Important

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

Serial Port Connector: JCOM1

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

Pin Definition

JCOM1
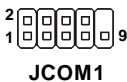
PIN	SIGNAL	DESCRIPTION
1	DCD	Data Carry Detect
2	SIN	Serial In or Receive Data
3	SOUT	Serial Out or Transmit Data
4	DTR	Data Terminal Ready
5	GND	Ground
6	DSR	Data Set Ready
7	RTS	Request To Send
8	CTS	Clear To Send
9	RI	Ring Indicate

Jumpers

Overclock Jumper: JOC1

This connector is provided for system overclock, follow the step to set up the jumper for safe/ overclock mode.

3
1
JOC1

3 — *LED light is off*   **3** — *LED light is on*
1   **1**
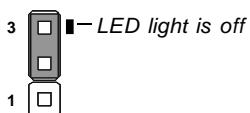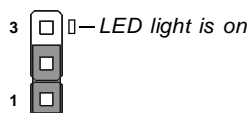
Safe Mode   **Overclock**
(Default)   **Mode**

Important

You can overclock by shorting 1-2 pin while the system is off. Then return to 2-3 pin position. Avoid overclocking while the system is on; it will damage the mainboard.

BIOS Setup

```
CMOS Setup Utility - Copyright (C) 1985-2005, American Megatrends, Inc.
                              Cell Menu

   Current CPU Frequency        1.99GHz(333x6)          Help Item
   Current FSB Frequency        1333 Mhz
   Current DRAM Frequency       667 Mhz            Enabled: CPU speed
                                                   controlled by
   Intel EIST                   [Disabled]         Operating system.
                                                   Disabled: Default CPU
 ▶ XFX JOC1 Over Clock Function  [Press Enter]     speed.

 ▶ Advance DRAM Configuration    [Press Enter]

   Spread Spectrum              [Enabled]




 ↑↓←→:Move  Enter:Select  +/-/:Value  F10:Save  ESC:Exit  F1:General Help
        F6:Load Optimized Defaults         F7 :Load Fail-Safe Defaults
```

Important

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

▶ **Current CPU/ FSB/ DRAM Frequency**

These items show the current clocks of CPU and Memory speed. Read-only.

▶ **Intel EIST**

The Enhanced Intel SpeedStep technology allows you to set the performance level of the microprocessor whether the computer is running on battery or AC power. This field will appear after you installed the CPU which support speedstep technology.

2-21

- Safe Mode -

▶ XFX JOC1 Over Clock Function
Press <Enter> and the following sub-menu appears.
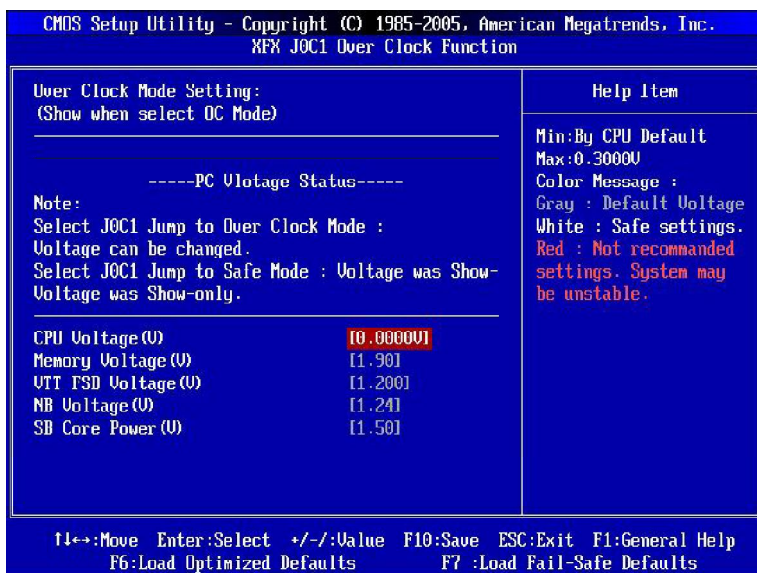
CPU Voltage (V)

This item shows you the CPU voltage. Read-only.

Memory Voltage (V)

This item shows you the memory voltage. Read-only.

VTT FSB Voltage (V)

This item shows you the VTT FSB voltage. Read-only.

NB Voltage (V)

This item shows you the North Bridge chipset voltage. Read-only.

SB Core Power (V)

This item shows you the South Bridge chipset voltage. Read-only.

- Overclock Mode -

▶ XFX JOC1 Over Clock Function
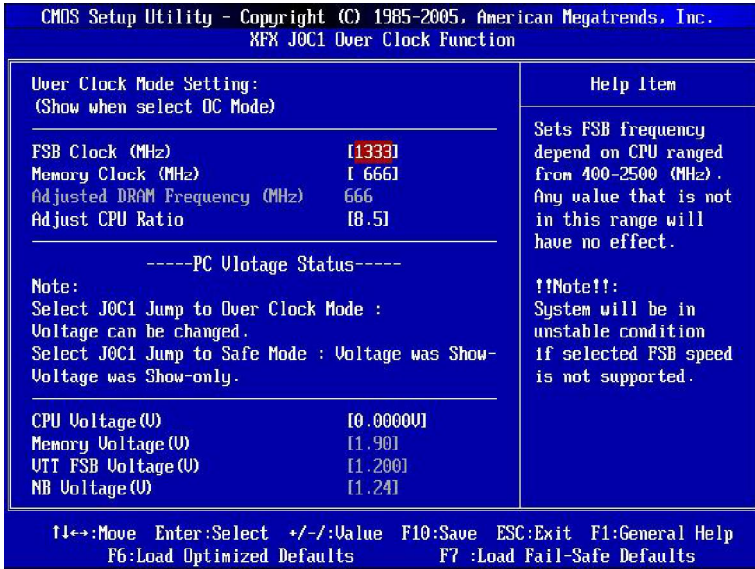Press <Enter> and the following sub-menu appears.

FSB Clock (MHz)
When the System Clock Mode sets to [Manual], the field is adjustable. This item allows you to select the CPU Front Side Bus clock frequency (in MHz).

Memory Clock (MHz)
When the System Clock Mode sets to [Manual], the field is adjustable.This item allows you to select the memory clock frequency (in MHz).

Adjusted DRAM Frequency (MHz)
It shows the adjusted DDR Memory frequency. Read-only.

Adjust CPU Ratio
This item is used to adjust CPU clock multiplier (ratio). It is available only when the processor supports this function.

CPU Voltage (V)
This item allows you to increase the CPU voltage.

2-23

Memory Voltage (V)

This item allows you to adjust the memory voltage that can increase the memory speed.

VTT FSB Voltage (V)

This item allows you to adjust the VTT FSB voltage.

NB Voltage (V)

This item allows you to adjust the North Bridge chipset voltage.

► Advance DRAM Configuration

Press <Enter> and the following sub-menu appears.

Memory Timings

This field has the capacity to automatically detect all of the DRAM timing. If you set this field to [Manual], some fields will appear and selectable.

CAS Latency (CL)

When the Memory Timings sets to [Manual], 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.

tRCD

When the Memory Timings sets to [Manual], 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.

tRP

When the Memory Timings sets to [Manual], 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.

tRAS

When the Memory Timings sets to [Manual], this field is adjustable. This setting determines the time RAS takes to read from and write to memory cell.

tRRD

When the Memory Timings sets to [Manual], the field is adjustable. Specifies the active-to-active delay of different banks. Time interval between a read and a precharge command.

tRC

When the Memory Timings sets to [Manual], the field is adjustable. The rowcycle time determines the minimum number of clock cycles a memory row takesto complete a full cycle, from row activation up to the precharging of the activerow.

tWR

When the Memory Timings sets to [Manual], the field is adjustable. Minimum time interval between end of write data burst and the start of a precharge command. Allows sense amplifiers to restore data to cells.

tWTR

When the Memory Timings sets to [Manual], the field is adjustable. Minimum time interval between the end of write data burst and the start of a column-read command. It allows I/O gating to overdrive sense amplifiers before read command starts.

tREF

When the Memory Timings sets to [Manual], the field is adjustable. Specifies the refresh rate of the DIMM requiring the most frequent refresh.

1T/ 2T Memory Timing

This item controls the SDRAM command rate. Select [1T] makes SDRAM signal controller to run at 1T (T=clock cycles) rate. Selecting [2T] makes SDRAM signal controller run at 2T rate.

▶ **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.

Important

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.

CPU and Memory Clock Overclocking

The **FSB Clock/ Memory Clock** are the items for you to overclock the CPU and the Memory. Please refer to the descriptions of these fields for more information.

Important

This motherboard supports overclocking greatly. However, please make sure your peripherals and components are bearable for some special settings. Any operation that exceeds product specification is not recommended. Any risk or damge resulting from improper operation will not be under our product warranty.

Two ways to save your system from failed overclocking...

Reboot

1. Press the Power button to reboot the system three times. Please note that, to avoid electric current to affect other devices or components, we suggest an interval of more than 10 seconds among the reboot actions.

2. At the fourth reboot, BIOS will determine that the previous overclocking is failed and restore the default settings automatically. Please press any key to boot the system normally when the following message appears on screen.

Warning!!! The previous performance of overclocking is failed, and the system is restored to the defaults setting.
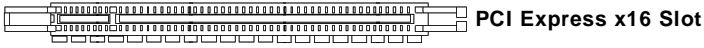
Slots

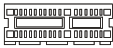## PCI (Peripheral Component Interconnect) Express Slot

The PCI Express slot supports the PCI Express interface expansion card.

The PCI Express x16 slot supports up to 4.0 GB/s transfer rate.

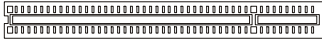The PCI Express x1 slot supports up to 250 MB/s transfer rate.

PCI Express x16 Slot

PCI Express x1 Slot

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.

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.

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 E#	INT F#	INT G#	INT H#
PCI Slot 2	INT F#	INT G#	INT H#	INT E#