
integration with integrity

# 2807633 User's Manual

## Mini-ITX Mainboard

Version 1.0

## Safety Instructions

1. Always read the safety instructions carefully.
2. Keep this User's Manual for future reference.
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 service personnel:
    - † The power cord or plug is damaged.
    - † Liquid has penetrated into the equipment.
    - † The equipment has been exposed to moisture.
    - † The equipment does 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:
這是甲類的資訊產品，在居住的環境中使用時，可能會造成無線電干擾，在這種情況下，使用者會被要求採取某些適當的對策。

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.

*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.*

# CONTENTS

# Chapter 1
# Getting Started

Thank you for choosing the 2807633 Mini ITX mainboard from GAI.

Based on the innovative **Intel® 945GM & ICH7M** controllers for optimal system efficiency, the 2807633 accommodates the latest **Intel® Core 2 Duo/ Core Duo/Core Solo/Celeron M** processors in Socket M and supports one 240-pin 533/667MHz DDRII DIMM to provide the maximum of 2GB memory capacity.

In the entry-level and mid-range market segment, the 2807633 can provide a high-performance solution for today's front-end and general purpose workstation, as well as in the future.

# Mainboard Specifications

### Processor Support

- Intel® Core 2 Duo/Core Duo/Core Solo/Celeron M CPU in Socket M
- Supports 3 pin CPU Fan Pin-Header with Fan Speed Control
- Supports Intel Dual Core Technology to 533/667MHz and up

### Supported FSB

- 533/667MHz

### Chipset

- North Bridge: Intel® 945GM chipset
- South Bridge: Intel® ICH7M chipset

### Memory Support

- DDRII 533/667 SDRAM (2GB Max)
- 1 DDRII DIMM slot (240pin / 1.8V)

### LAN

- Supports 3 PCI Express Gb Ethernet by Intel 82573L or one Intel 82562GZ 10/100 LAN (optional)

### Audio

- HDA Codec by Realtek® ALC888 7.1 channel
- Compliant with Azalia 1.0 Spec.
- 6 watt amplifier (optional)

### IDE

- 1 IDE port by ICH7M
- Supports Ultra DMA 66/100 mode
- Supports PIO, Bus Master operation mode

### SATA

- SATA ports by ICH7M
- Supports two SATA devices
- Supports storage and data transfers at up to 150MB/s

### Connectors

**Back Panel**

- 3 RJ-45 LAN jacks
- 2 USB 2.0 ports
- 1 D-Sub VGA connector
- 1 serial port

- 1 PS2 keyboard/mouse port
- 1 Line-In/Line-Out/Mic-In stacked audio jack

- **Onboard Pinheaders**
  - 1 USB 2.0 pinheader (2 ports)
  - 1 parallel port pinheader
  - 1 front audio pinheader
  - 1 LVDS connector
  - 1 Digital I/O pinheader (16GPIO)
  - 1 RS232/422/485 COM port header for COM2~COM5 (optional)
  - 1 front panel pinheader

### Slots

- 1 PCI Express x16 slot
- 1 PCI Express x 1 slot
- 1 PCI 32-bit/33MHz slot

### Form Factor

- Mini ITX

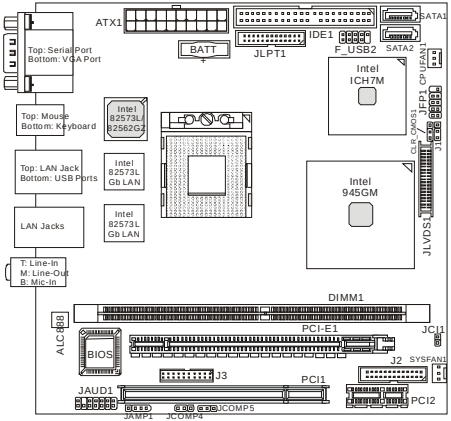
### Mounting

- 4 mounting holes

### Environmental

- **Storage Temperature**
  - Temperature: -10ºC ~ 70ºC
  - Humidity: 10% RH ~ 80% RH
- **Operation Temperature**
  - Temperature: 0ºC ~ 60ºC
  - Humidity: 80% RH

## Mainboard Layout

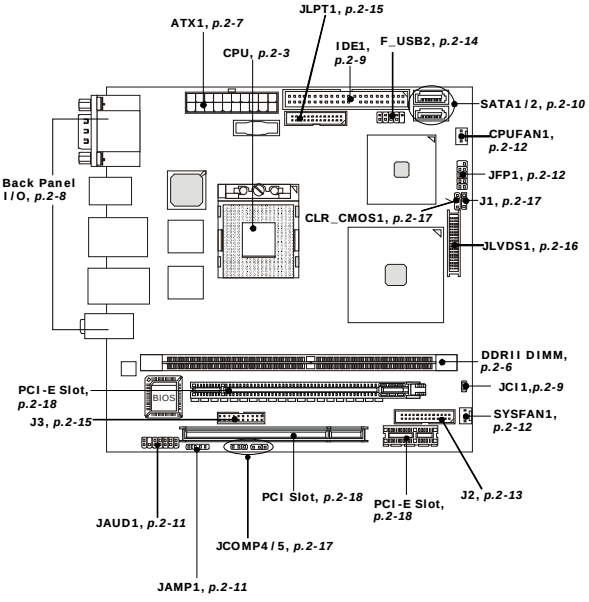



**2807633 Mini ITX Mainboard**

# 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.


JLPT1, p.2-15
ATX1, p.2-7
IDE1, p.2-9
F_USB2, p.2-14
CPU, p.2-3
SATA1/2, p.2-10
CPUFAN1, p.2-12
JFP1, p.2-12
Back Panel I/O, p.2-8
J1, p.2-17
CLR_CMOS1, p.2-17
JLVDS1, p.2-16
DDRII DIMM, p.2-6
JCI1,p.2-9
PCI-E Slot, p.2-18
SYSFAN1, p.2-12
J3, p.2-15
BIOS
J2, p.2-13
PCI Slot, p.2-18
PCI-E Slot, p.2-18
JAUD1, p.2-11
JCOMP4/5, p.2-17
JAMP1, p.2-11

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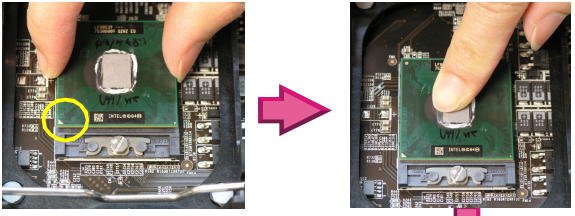
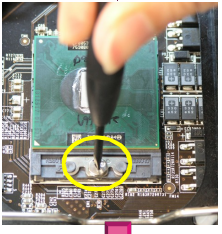
Use a grounded wrist strap before handling computer components. Static electricity may damage the components.

## CPU & Cooler Set Installation

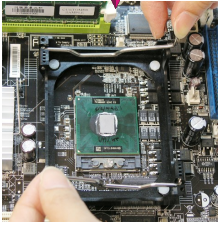
1. Place the CPU on top of the socket. Make sure to align the gold arrow on the CPU with the arrow key on the socket.
2. Push the CPU down until its pins securely fit into the socket.

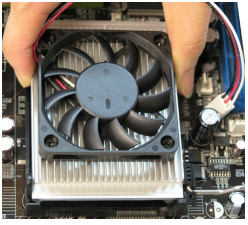


3. On the front end of the CPU socket is a locking mechanism designed into the form of a screw. Make sure that you actuate or deactuate this mechanism with a screwdriver before and after installing the CPU.



4. Release the metal clips on the retention mechanism.

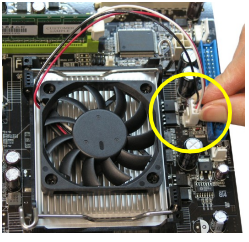




5. Mount the cooler set (fan & heatsink bundled) on top of the CPU and fit it into the retention mechanism.

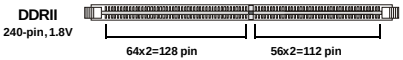
6. Secure the metal clips back to the retention mechanism.

7. Connect the fan power cable from the mounted fan to the 3-pin fan power connector on the mainboard.



## Memory

The mainboard provides one 240-pin non-ECC **DDRII 533/667** DIMM slot and supports up to 2GB system memory.




**Single-Channel**: All DIMMs in GREEN

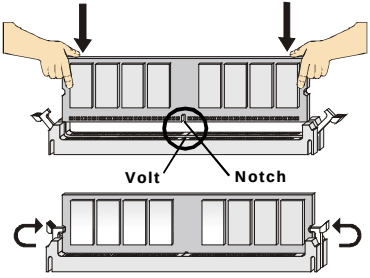
### Installing DDRII Modules

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.*

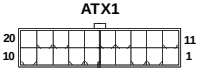
3. The plastic clip at each side of the DIMM slot will automatically close.



# Power Supply

## ATX 20-Pin System Power Connector: ATX1

This connector allows you to connect to an ATX power supply. To connect to the ATX 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.



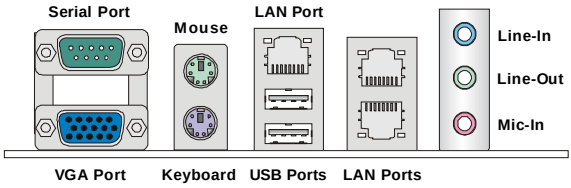

**ATX1 Pin Definition**

| PIN | SIGNAL | PIN | SIGNAL |
|---|---|---|---|
| 1 | 3.3V | 11 | 3.3V |
| 2 | 3.3V | 12 | -12V |
| 3 | GND | 13 | GND |
| 4 | 5V | 14 | PS_ON |
| 5 | GND | 15 | GND |
| 6 | 5V | 16 | GND |
| 7 | GND | 17 | GND |
| 8 | PW_OK | 18 | -5V |
| 9 | 5V_SB | 19 | 5V |
| 10 | 12V | 20 | 5V |

**Important**

*Power supply of **350watts** (and above) is highly recommended for system stability.*

## Back Panel




**▶ Serial Port Connector**
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 Connector**
The DB15-pin female connector is provided for VGA monitors.

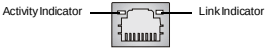
**▶ Mouse/Keyboard Connector**
The standard PS/2® mouse/keyboard DIN connector is for a PS/2® mouse/keyboard.

**▶ USB Connectors**
The OHCI (Open Host Controller Interface) Universal Serial Bus root is for attaching USB devices such as keyboard, mouse, or other USB-compatible devices.

**▶ Audio Port Connectors**
These audio connectors are used for audio devices. You can differentiate the color of the audio jacks for different audio sound effects.

- **Blue audio jack** - Line In is used for external CD player, tapeplayer or other audio devices.
- **Green audio jack** - Line Out, is a connector for speakers or headphones.
- **Pink audio jack** - Mic In, is a connector for microphones.

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




| LED | Color | LED State | Condition |
|---|---|---|---|
| Left | Orange | 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. |

# Connectors

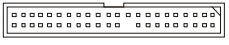
## Chassis Intrusion Switch Connector: JCI1

This connector connects to a 2-pin chassis switch. If the chassis is opened, the switch will be short. 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.

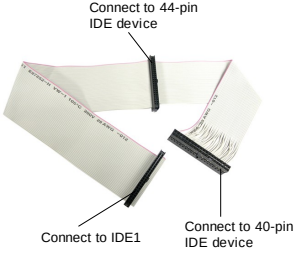

JCI1

## 44-Pin IDE Connector: IDE1

This 44-pin IDE connector connects to an optional converter that enables connection to one 44-pin IDE device and one 40-pin IDE device, such as hard disk drives, CD-ROM and other IDE devices.



IDE1

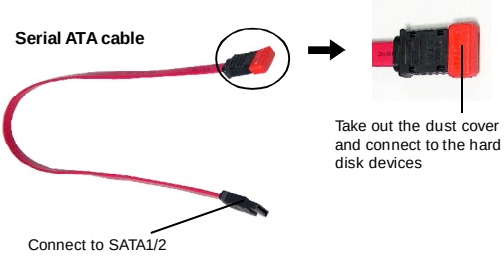



**Important**

*If you install two hard disks on cable, you must configure the second drive to Slave mode by setting its jumper. Refer to the hard disk documentation supplied by hard disk vendors for jumper setting instructions.*

## Serial ATA Connectors: SATA1, SATA2

SATA1~SATA2 are high-speed SATA interface ports and support SATA data rates of 150MB/s. Each SATA connector can connect to 1 hard disk device and is fully compliant with Serial ATA 1.0 specifications.


**Important**

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

## Audio Amplifier Connector: JAMP1

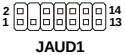
The JAMP1 is used to connect audio amplifiers to enhance audio performance.


**Pin Definition**

| PIN | SIGNAL |
|---|---|
| 1 | AMP_L- |
| 2 | AMP_L+ |
| 3 | AMP_R- |
| 4 | AMP_R+ |

## Front Audio Connector: JAUD1

The JAUD1 connects to an optional audio bracket that provides extra front panel audio IO jacks.



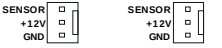


**JAUD1 Pin Definition**

| PIN | SIGNAL | PIN | SIGNAL |
|---|---|---|---|
| 1 | 5V_SB | 2 | VCC3 |
| 3 | SPDF0 | 4 | NA |
| 5 | GND | 6 | SPDF1 |
| 7 | LEF_OUT | 8 | SURR_OUT_R |
| 9 | CEN_OUT | 10 | SURR_OUT_L |
| 11 | AUD_GPIO21 | 12 | AUDIO GND |
| 13 | SIDE_L | 14 | SIDE_R |

## Fan Power Connectors: CPUFAN1, SYSFAN1

The fan power connectors support system cooling fan with +12V. When connecting the wire to the connectors, always take 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.



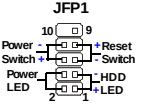

CPUFAN1 SYSFAN1

**Important**

*Please refer to the recommended CPU fans at Intel® / AMD® official website or consult the vendors for proper CPU cooling fan.*

## Front Panel Connector: JFP1

The mainboard provides one front panel connector for electrical connection to the front panel switches and LEDs. The JFP1 is compliant with Intel® Front Panel I/O Connectivity Design Guide.

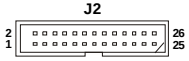



**JFP1 Pin Definition**

| 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. |

## Serial Port Connector: J2

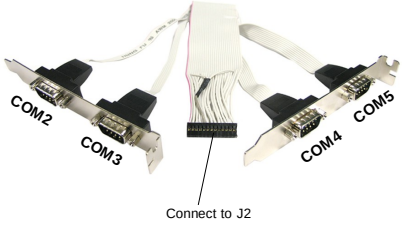
The J2 is a RS232/422/485 COM port pinheader that connects to serial devices.




| | RS232 | RS422 | RS485 |
|---|---|---|---|
| COM2 | X | V | V |
| COM3 | X | V | V |
| COM4 | V | X | X |
| COM5 | V | X | X |

**V** = supported **X** = not supported

**Serial Port Bracket**
(Optional)




**J2 Pin Definition**

| Voltage Select | Serial Port | PIN | SIGNAL | PIN | SIGNAL | Serial Port | Voltage Select |
|---|---|---|---|---|---|---|---|
| N/A | COM2 | 1 | 422 RXD1# | 2 | 422 RXD2# | COM3 | N/A |
| | | 3 | 422 RXD1 | 4 | 422 RXD2 | | |
| | | 5 | 422 TXD1 | 6 | 422 TXD2 | | |
| | | 7 | 422 TXD1# | 8 | 422 TXD2# | | |
| | | 9 | GND | 10 | GND | | |
| JCOMP4 (page 2-17) | COM4 | 11 | NDCD3# | 12 | NDCD4# | COM5 | JCOMP5 (page 2-17) |
| | | 13 | NSIN3 | 14 | NSIN4 | | |
| | | 15 | NSOUT3 | 16 | NSOUT4 | | |
| | | 17 | NDTR3 | 18 | NDTR4 | | |
| | | 19 | NDSR3# | 20 | NDSR4# | | |
| | | 21 | NRTS3 | 22 | NRTS4 | | |
| | | 23 | NCTS3# | 24 | NCTS4# | | |
| | | 25 | 0V/5V/12V | 26 | 0V/5V/12V | | |

## Front USB Connector: F_USB2

The mainboard provides one USB 2.0 pinheader (optional USB 2.0 bracket available) that is compliant with Intel® I/O Connectivity Design Guide. USB 2.0 technology increases data transfer rate up to a maximum throughput of 480Mbps, which is 40 times faster than USB 1.1, and is ideal for connecting high-speed USB interface peripherals such as **USB HDD**, **digital cameras**, **MP3 players**, **printers**, **modems and the like**.

**F_USB2**


**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.*

## Digital IO Connector: J3

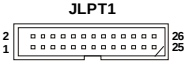
The J3 connects to the General-Purpose Input/Output (GPIO) peripheral module.

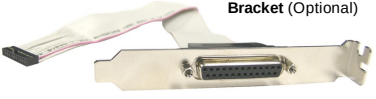

**J3 Pin Definition**

| PIN | SIGNAL | PIN | SIGNAL |
|---|---|---|---|
| 1 | VCC3 | 2 | VCC5 |
| 3 | N_GPIO10 | 4 | N_GPIO20 |
| 5 | N_GPIO11 | 6 | N_GPIO21 |
| 7 | N_GPIO12 | 8 | N_GPIO22 |
| 9 | N_GPIO13 | 10 | N_GPIO23 |
| 11 | N_GPIO14 | 12 | N_GPIO24 |
| 13 | N_GPIO15 | 14 | N_GPIO25 |
| 15 | N_GPIO16 | 16 | N_GPIO26 |
| 17 | N_GPIO17 | 18 | N_GPIO27 |
| 19 | GND | 20 | NC |

## Parallel Port Header: JLPT1

The mainboard provides a 26-pin header for connection to an optional parallel port bracket. The parallel port is a standard printer port that supports Enhanced Parallel Port (EPP) and Extended Capabilities Parallel Port (ECP) mode.



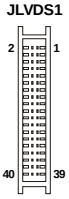



**Parallel Port Bracket** (Optional)

| Pin | Signal Name | Pin | Signal Name |
|---|---|---|---|
| 1 | RSTB# | 2 | AFD# |
| 3 | PRND0 | 4 | ERR# |
| 5 | PRND1 | 6 | PINIT# |
| 7 | PRND2 | 8 | LPT_SLIN# |
| 9 | PRND3 | 10 | GND |
| 11 | PRND4 | 12 | GND |
| 13 | PRND5 | 14 | GND |
| 15 | PRND6 | 16 | GND |
| 17 | PRND7 | 18 | GND |
| 19 | ACK# | 20 | GND |
| 21 | BUSY | 22 | GND |
| 23 | PE | 24 | GND |
| 25 | SLCT | 26 | GND |

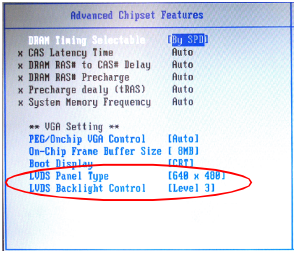
## LVDS Flat Panel Connector: JLVDS1

The LVDS (Low Voltage Differential Signal) connector provides a digital interface typically used with flat panels. After connecting an LVDS interfaced flat panel to the JLVDS1, be sure to check the panel datasheet and set the J1 LVDS Power Selection Jumper to a proper voltage.




| SIGNAL | PIN | | SIGNAL |
|---|---|---|---|
| +12V | 2 | 1 | +12V |
| +12V | 4 | 3 | +12V |
| GND | 6 | 5 | +12V |
| GND | 8 | 7 | +3V |
| LCDVCC | 10 | 9 | LCDVCC |
| DDC DATA | 12 | 11 | DDC CLK |
| VDD ENABLE | 14 | 13 | BKLTCTL |
| GND | 16 | 15 | BKLTEN |
| LVDS A0+ | 18 | 17 | LVDS A0- |
| LVDS A1+ | 20 | 19 | LVDS A1- |
| LVDS A2+ | 22 | 21 | LVDS A2- |
| LVDS ACLK+ | 24 | 23 | LVDS ACLK- |
| NC | 26 | 25 | NC |
| GND | 28 | 27 | GND |
| LVDS B0+ | 30 | 29 | LVDS B0- |
| LVDS B1+ | 32 | 31 | LVDS B1- |
| LVDS B2+ | 34 | 33 | LVDS B2- |
| LVDS BCLK+ | 36 | 35 | LVDS BCLK- |
| NC | 38 | 37 | NC |
| GND | 40 | 39 | GND |

*After hardware installation is done, select the LVDS panel type and tune the LVDS backlight in the BIOS Setup Utility.*



# Jumpers

## LVDS Power Selection Jumper: J1

Use this jumper to specify the LVDS power.


J1

| Pin | Signal Name |
|---|---|
| 1 | VCC3 |
| 2 | LCD_SRC (default VCC3) |
| 3 | VCC5 |

## COM Port Power Jumpers: JCOMP4, JCOMP5

These jumpers specify the operation voltage of the serial port COM4 & COM5.


JCOMP4


+5V


+12V


JCOMP5


+5V


+12V

## Clear CMOS Jumper: CLR_CMOS1

There is a CMOS RAM onboard that has a power supply from 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 CLR_CMOS1 (Clear CMOS Jumper ) to clear data.


CLR_CMOS1


Clear Data


Keep Data

**Important**

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

# Slots

## PCI (Peripheral Component Interconnect) Express Slot

PCI Express architecture provides a high performance I/O infrastructure for Desktop Platforms with transfer rates starting at 2.5 Giga transfers per second over a PCI Express x1 lane for Gigabit Ethernet, TV Tuners, 1394 controllers, and general purpose I/O. Also, desktop platforms with PCI Express Architecture will be designed to deliver highest performance in video, graphics, multimedia and other sophisticated applications. Moreover, PCI Express architecture provides a high performance graphics infrastructure for Desktop Platforms doubling the capability of existing AGP 8x designs with transfer rates of 4.0 GB/s over a PCI Express x16 lane for graphics controllers, while PCI Express x1 supports transfer rate of 250 MB/s.

**PCI Express x16 Slot**

**PCI Express x1 Slot**

## PCI (Peripheral Component Interconnect) Slot

The PCI slot supports 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**

## 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 |
|---|---|---|---|---|
| 32-bit PCI1 | INT A# | INT B# | INT C# | INT D# |

**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.*

Any advice or comments about our products and service, or anything we can help you with please don't hesitate to contact with us. We will do our best to support your products, projects and business.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