



User's Manual

2807631

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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. Rating: 100-127/200-240V~, 4/2A, 60/50Hz.
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.



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.*

Chapter 1

Mainboard Specifications

Processor Support

- Supports Intel® Yonah (Intel® Core™ Duo/ T2000 Sequence) and Merom (Intel® Core™ 2 Duo/ T5000 & T7000 Sequence) processor up to 2.33GHz (Napa Platform) in PGA Package
- 2MB L2 cache (Yonah) / 4MB (Merom)
- Supports 3 pin CPU Fan Pin-Header with Fan Speed Control
- Supports EIST Technology
- Supports Intel® Core™ Microarchitecture

Supported FSB

- 667/533 MHz

Chipset

- North Bridge: Intel® 945GM
- South Bridge: Intel® ICH7-MDH (82801GHM)

Memory Support

- DDRII 533/667 SDRAM (4GB Max)
- 2 DDRII DIMMs (240pin / 1.8V)

LAN

- Supports Dual Intel® 10/100/1000 LAN by two Intel® 82541PI Giga-LAN controller)

Audio

- Chip integrated by Realtek® ALC658
- Flexible 5.1-channel audio
- Compliant with AC97 Spec

IDE

- 1 IDE port by Intel® ICH7-MDH
- Supports Ultra DMA 66/100 mode
- Supports PIO, Bus Master operation mode

SATA

- 2 SATAII ports by Intel® ICH7-MDH
- Supports two SATAII devices
- Supports storage and data transfers at up to 300MB/s

Connectors

● Back Panel

- 1 PS/2 mouse port
- 1 PS/2 keyboard port
- 2 serial ports (COM ports)
- 4 USB 2.0 ports
- 2 LAN jacks 10/100/1000 by Intel® 82541PI Giga-LAN controller
- 3 audio jacks (1 Line-In, 1 Line-Out, 1 Mic-In)
- 1 D-Sub VGA port
- 1 DVI port

● Front Panel

- 2 audio jacks (Mic-In x 1, Headphone-Out x 1)
- 2 USB 2.0 ports

● On-Board Pinheaders

- 1 CD-In
- 2 USB 2.0 pinheaders
- 1 front panel pinheader
- 1 front audio connector

Slots

- 1 PCI v2.3 slot (for standard PCI add-on card)

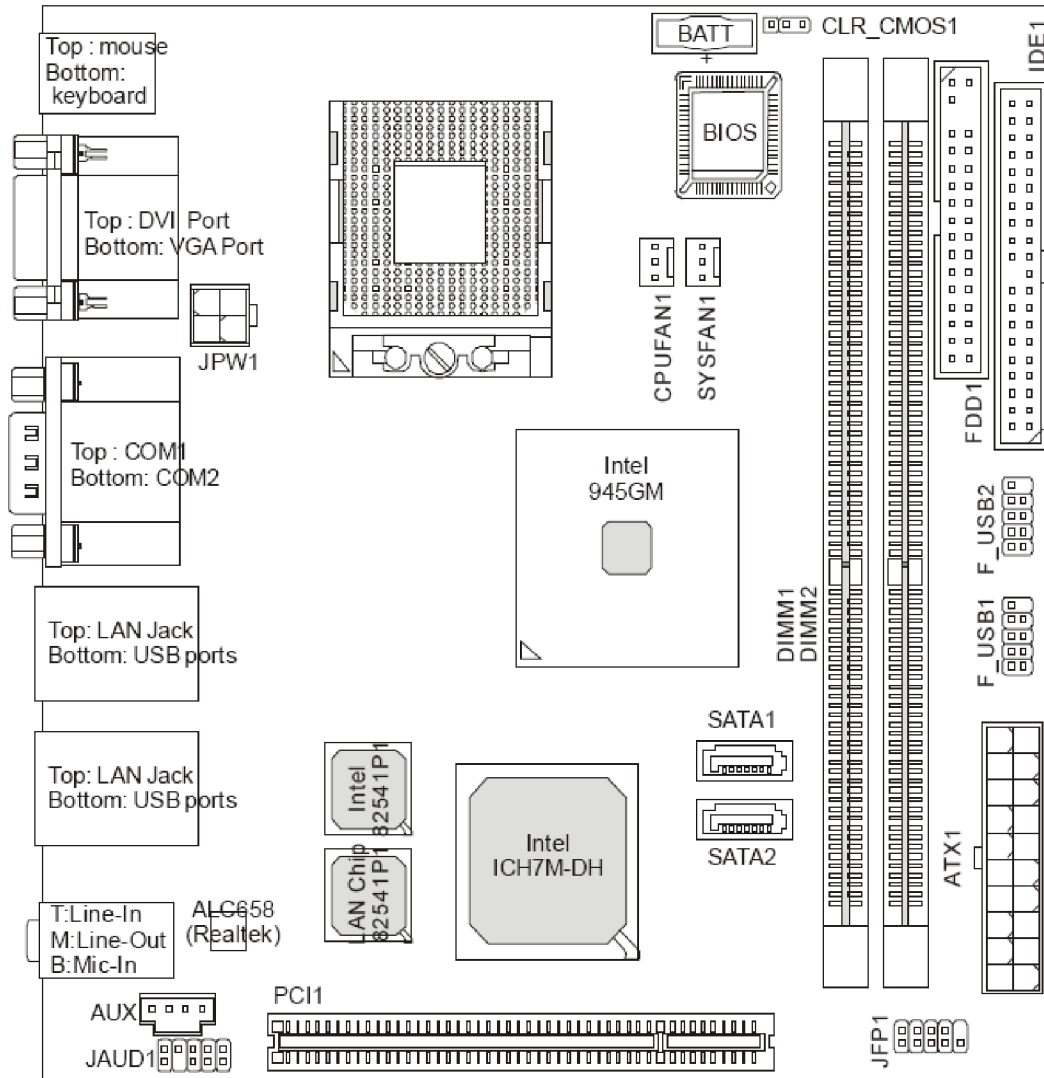
Form Factor

- Mini-ITX form factor size 170mm x 170mm

Mounting

- 4 mounting holes

Mainboard Layout



Chapter 2

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.

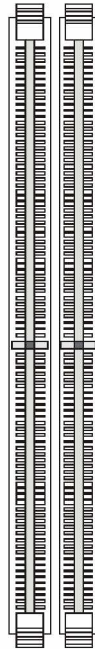
ONLY FOR SERVICE PERSONEL



Always unplug the power cord before inserting any add-on card or module.

Memory

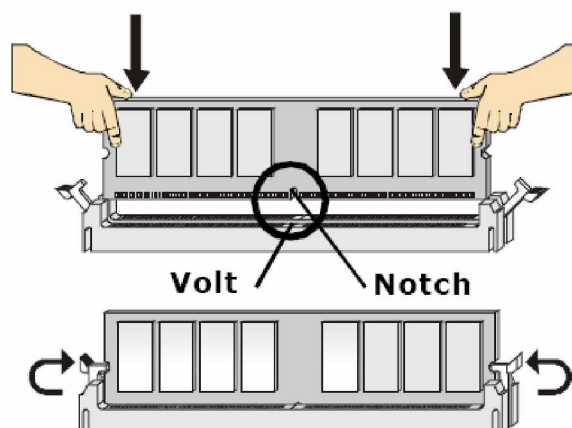
The mainboard provides two slots for 240-pins Dual Channel DDRII 533/667 DIMM, which supports the memory size up to 4GB. Since DDRII modules are not interchangeable with DDRI and the DDRII standard is not backward compatible, you should always install DDRII memory module in the DDRII slot (DIMM1~DIMM2). Otherwise, you are not able to boot up your system and your mainboard might be damaged.



DIMM1 (orange)
DIMM2 (green)

Installing DDRII Modules

1. The DDRII DIMM has only one notch on the center of module. The Module will only fit in the right orientation.
2. Insert the DIMM memory module vertically into the DIMM slot. Then push it in until the golden finger on the memory module is deeply inserted in the socket.
3. The plastic clip at each side of the DIMM slot will automatically close.

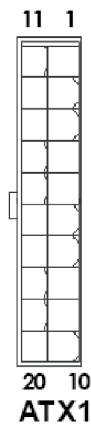


Power Supply

The mainboard supports ATX power supply for the power system. Before inserting the power supply connector, always make sure that all components are installed properly to ensure that no damage will be caused.

ATX 20-Pin Power Connector: ATX1

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

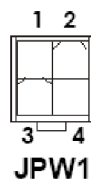


Pin Definition

PIN	SIGNAL	PIN	PINSIGNAL
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

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

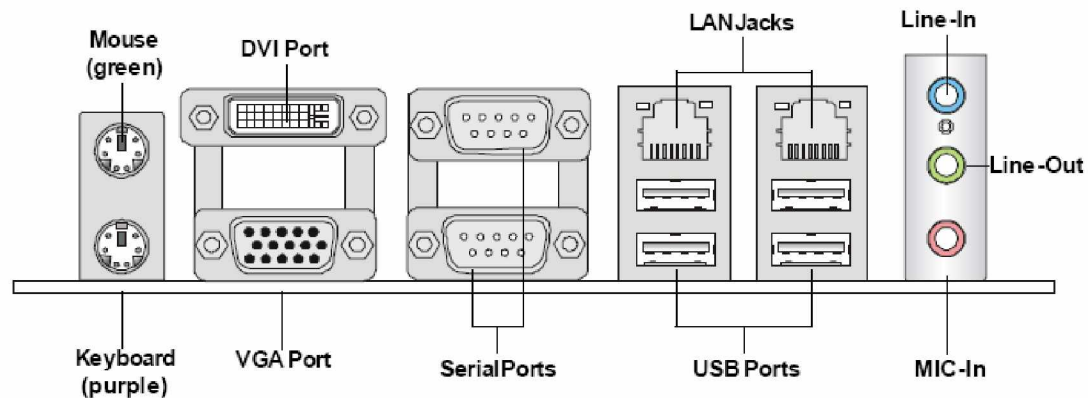


Important

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 130 watts (and above) is highly recommended for system stability.
3. ATX 12V power connection should be greater than 6A.

Back Panel

The Rear Panel provides the following connectors:



► Mouse/Keyboard Connector

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 VGA monitors.

► DVI Port

The DVI (Digital Visual Interface) connector allows you to connect an LCD monitor. It provides a high-speed digital interconnection between the computer and its display device. To connect a LCD monitor, simply plug your monitor cable into the DVI connector, and make sure that the other end of the cable is properly connected to your monitor (refer to your monitor manual for more information).

► Serial Ports

The mainboard offers two 9-pins male DIN connectors as serial ports. The ports are 16550A high speed communication ports that send/receive 16 bytes FIFOs. You can attach a serial mouse or other serial devices directly to the connectors.

► USB Ports

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

► LAN (RJ-45) Jacks

The standard RJ-45 jacks are 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.

► Audio Port Connectors

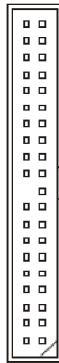
These audio connectors are used for audio devices. You can differentiate the color of the audio jacks for different audio sound effects.

- **Blue audio jack:** Line-In/ Side-Surround Out in 5.1 channel mode, 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/ Center-LEF, is a connector for microphones.

Connectors

IDE Connector: IDE1

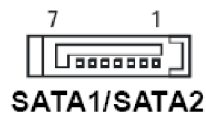
The mainboard has a 32-bit Enhanced PCI IDE and Ultra DMA 66/100 controller that provides PIO mode 0~4, Bus Master, and Ultra DMA 66/100 function. The connectors on the mainboard allows you to connect to the IDE devices: HDD & CD-ROM.



IDE1

Serial ATAII Connectors: SATA1/SATA2

SATA1/SATA2 are dual high-speed Serial ATAII interface ports. Each supports data rates of 300MB/s. All connectors are fully compliant with Serial ATA specification. Each Serial ATA connector can connect to 1 hard disk device.



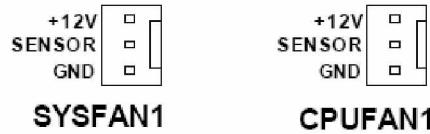
SATA1/SATA2


Pin Definition

PIN	SIGNAL	PIN	SIGNAL
1	GND	2	TXP
3	TXN	4	GND
5	RXN	6	RXP
7	GND		

Fan Power Connectors: SYSFAN1/CPUFAN1

The Fan Power Connectors support system cooling fan with +12V. It supports 3-pins head connector. 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 the advantage of the CPU fan control.



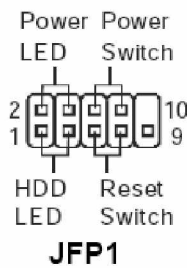


Important

Always consult the vendors for proper CPU cooling fan.

Front Panel Connector: JFP1

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



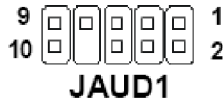
Pin Definition

PIN	SIGNAL	DESCRIPTION
1	HD_LED_P	Hard disk LED pull-up
2	FPPWR/SLP	MSG LED pull-up
3	HD_LED_N	Hard disk active LED
4	FPPWR/SLP	MSG LED pull-up
5	RST_SW_N	Reset Switch low reference pull-down to GND
6	PWR_SW_P	Power Switch high reference pull-up
7	RST_SW_P	Reset Switch high reference pull-up
8	PWR_SW_N	Power Switch low reference pull-down to GND
9	RSVD_DNU	Reserved. Do not use.

Front Panel Audio Connector: JAUD1

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

Pin Definition

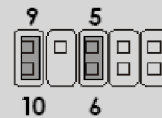


PIN	SIGNAL	DESCRIPTION
1	N/C	N/C
2	AUD_GND	Ground used by analog audio circuits
3	AUD_MIC	Microphone power
4	AUD_VCC	Filtered +5V used by analog audio circuits
5	AUD_FPOUT_R	Right channel audio signal to front panel
6	AUD_RET_R	Right channel audio signal return from front panel
7	N/C	N/C
8	KEY	No pin
9	AUD_FPOUT_L	Left channel audio signal to front panel
10	AUD_RET_L	Left channel audio signal return from front panel



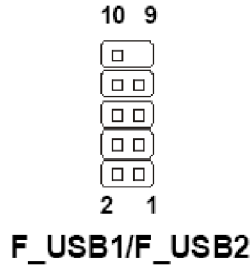
Important

If you don't want to connect to the front audio header, pins 5 & 6, 9 & 10 have to be jumpered in order to have signal output directed to the rear audio ports. Otherwise, the Line-Out connector on the back panel will not function.



Front USB Connectors: F_USB1/F_USB2

The mainboard provides two standard USB 2.0 pinheaders. 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.



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

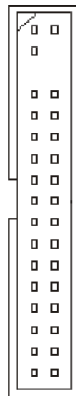


Important

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

Floppy Disk Drive Connector: FDD1

The mainboard provides a standard floppy disk drive connector that supports 1.44M floppy disk types.



FDD1

Jumper

The motherboard provides the following jumpers for you to set the computer's function. This section will explain how to change your motherboard's function through the use of jumpers.

Clear CMOS Jumper: CLR_CMOS1

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 CLR_CMOS (Clear CMOS Jumper) to clear data. Follow the instructions below to clear the data:



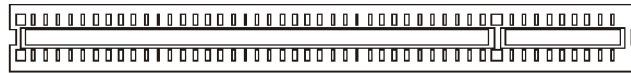
Important

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.

Slot

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.

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

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 you for your products, projects and business.

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