



integration with integrity

2808020 User's Manual

Mini-ITX Mainboard

Version 2.0

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## Safety Instructions

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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.

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## **FCC-B Radio Frequency Interference Statement**

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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 NOTICED'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.*

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# Chapter 1

## Getting Started

Thank you for choosing the **2808020** V2.0 Mini-ITX mainboard. The 2808020 mainboard is based on **VIA® CN700** and **VT8237R+** chipsets for optimal system efficiency. The 2808020 mainboard delivers a high performance and professional desktop platform solution.

## Mainboard Specifications

### Processor Support

- VIA® C7 1/ 1.5/ 2.0 GHz/ 21x21mm nano BGA2 package
- TDP max 1GHz@9W/ 1.5GHz@12W/ 2.0GHz@20W
- Supports VRM mobile (down to 0.7V)
- Thermal design margin up to 100c Tcase
- 3D instructions SSE/ SSE2/ SSE3
- Security Features RGN/ AES/ SHA-1

### Supported FSB

- 400/ 800 MHz for 1.0/ 1.5/ 2.0 GHz

### Chipset

- North Bridge: VIA® CN700 chipset
- South Bridge: VIA® VT8237R+ chipset

### Memory Support

- Supports DDR2 400/ 533 SDRAM (non-ECC 533) (2GB Max)
- 1 DDR2 DIMM (240-pin/ 1.8V)

### LAN

- Supports PCI LAN 1Gb Fast Ethernet by VIA® RTL8110SC

### Audio

- Chip integrated by VIA® VT1618G
- Flexible 8-channel audio with jack sensing
- Compliant with AC97 2.3 spec

### IDE

- 1 IDE port by VT8237R+
- Supports Ultra DMA 66/ 100/ 133 mode
- Supports PIO, Bus Master operation mode

### SATA

- Supports two SATA ports by VT8237R+
- Supports storage and data transfers up to 150MB/s

### RAID

- SATA1~2 supports RAID 0/ 1/ 0+1 or JBOD mode by VT8237R+
- Updated option ROM to support RAID

## Connectors

### ● Back Panel

- 1 PS/2 mouse port
- 1 PS/2 keyboard port
- 2 serial ports (COMA and COMB)
- 2 USB 2.0 ports
- 1 LAN jack
- 3 flexible audio jacks
- 1 S-video port
- 1 DVI port
- 1 VGA port

### ● On-Board Pinheaders

- 3 USB 2.0 pinheaders (6 ports)
- 1 audio pinheader
- 1 CD-In connector
- 1 Chassis Intrusion Switch pinheader

## Slots

- 1 PCI slot
- Supports 3.3V/ 5V PCI bus Interface

## Form Factor

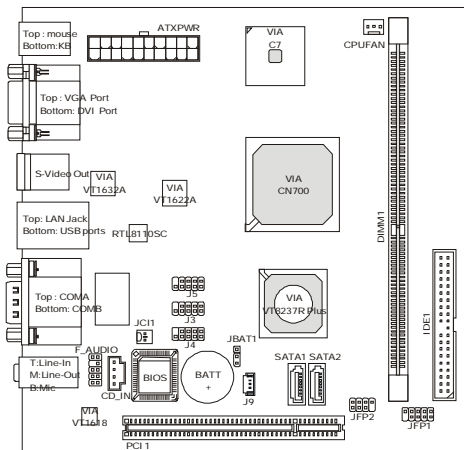
- Mini-ITX (17 cm X 17 cm)

## Mounting

- 4 mounting holes



## Mainboard Layout



**2808020**  
**V2.0 Mini-ITX Mainboard**

## Packing Checklist



Mainboard



Driver/Utility CD



SATA Cable



Power Cable



Standard Cable for  
IDE Devices



User's Guide

\* This picture is for reference only. Your packing contents may vary depending on the model you purchased.



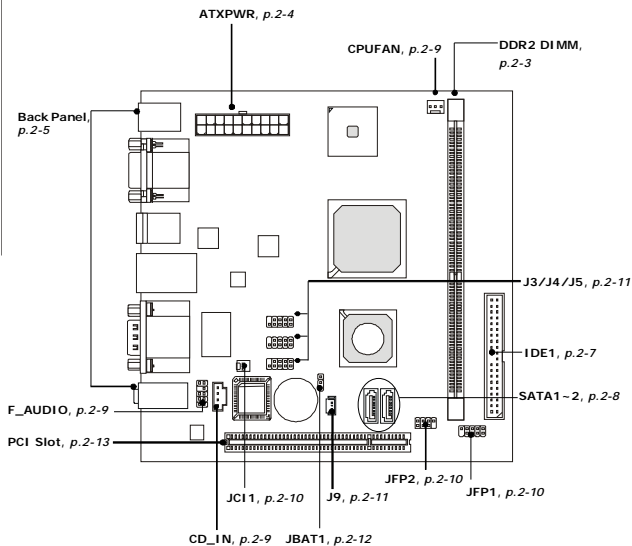
## Chapter 2

# 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.

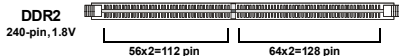
Use a grounded wrist strap before handling computer components. Static electricity may damage the components.

## Quick Components Guide



## Memory

This DIMM slot is used for installing memory modules.



### Installing Memory Modules

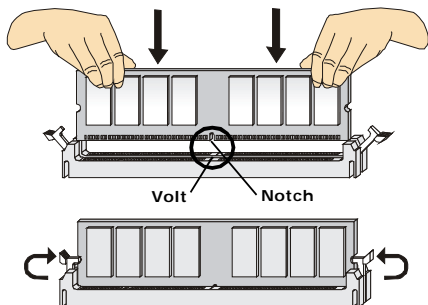
1. The memory module has only one notch on the center and will only fit in the right orientation.
2. Insert the memory module vertically into the DIMM slot. Then push it in until the golden finger on the memory module is deeply inserted in the DIMM slot.



#### Important

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

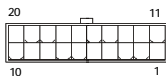
3. The plastic clip at each side of the DIMM slot will automatically close.



## Power Supply

### ATX 20-Pin Power Connector: ATXPWR

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

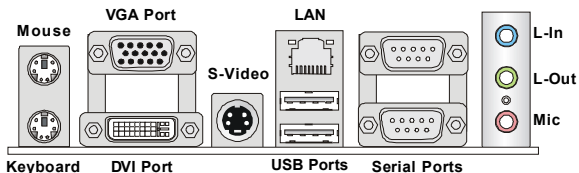


ATXPWR

ATXPWR 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

## Back Panel



### ► Mouse/Keyboard

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

### ► VGA Port

The DB15-pin female connector is provided for monitor.

### ► DVI Port

The DVI (Digital Visual Interface) connector allows you to connect a LCD monitor. It provides a high-speed digital interconnection between the computer and its display device. To connect an 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.)

### ► S-Video Connector

The S-Video connector allows users to connect display devices for **component** video output.

S-Video (Super-Video, sometimes referred to as Y/C Video, or component video) is a video signal transmission in which the luminance signal and the chrominance signal are transmitted separately to achieve superior picture clarity. The luminance signal (Y) carries brightness information, which defines the black and white portion, and the chrominance signal (C) carries color information, which defines hue and saturation. An S-Video connection brings better video quality than a composite/RCA connection.

### ► USB Port

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

### ► Serial Port

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



## ► LAN

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



B Type		Left LED	Right LED
100M Cable Plug-in	No Transmission	Green Lighting	Green Lighting
	Transition	Green Blinking	Green Lighting
1000M Cable Plug-in	No Transmission	Green Lighting	Yellow Lighting
	Transition	Green Blinking	Yellow Lighting

## ► Audio Ports

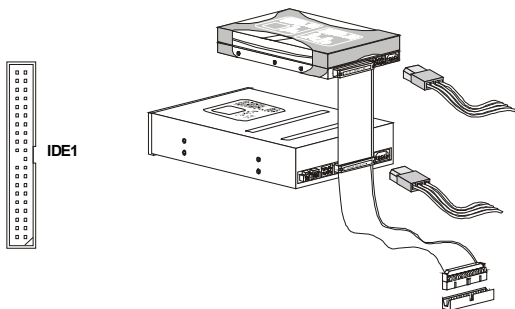
These audio connectors are used for audio devices. You can differentiate the color of the audio jacks for different audio sound effects.

- **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

### IDE Connector: IDE1

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

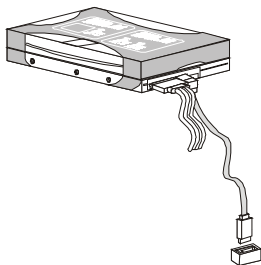
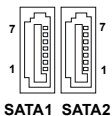


### Important

*If you install two IDE devices on the same cable, you must configure the drives separately to master / slave mode by setting jumpers. Refer to IDE device's documentation supplied by the vendors for jumper setting instructions.*

## Serial ATA Connector: SATA1~SATA2

These connectors are high-speed Serial ATA interface ports. Each connector can connect to one Serial ATA device.

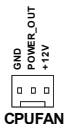


### Important

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

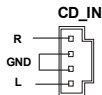
## Fan Power Connector: CPUFAN

The fan power connector supports system cooling fan with +12V. When connecting the wire to the connector, 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.



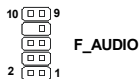
## CD-In Connector: CD\_IN

This connector is provided for CD-ROM audio.



## Front Panel Audio Connector: F\_AUDIO

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



Pin Definition

PIN	SIGNAL	DESCRIPTION
1	AUD_MIC	Front panel microphone input signal
2	AUD_GND	Ground used by analog audio circuits
3	AUD_MIC_BIAS	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	HP_ON	Reserved for future use to control headphone amplifier
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

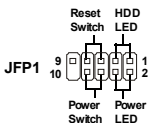
If you don't want to connect to the front audio header, pins 5 & 6, 9 & 10 have to be jumpered in order to have signal output directed to the rear audio ports. Otherwise, the Line-Out connector on the back panel will not function.



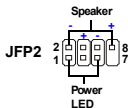
## Front Panel Connectors: JFP1, JFP2

These connectors are for electrical connection to the front panel switches and LEDs. The JFP1 is compliant with Intel® Front Panel I/O Connectivity Design Guide.

JFP1 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.



JFP2 Pin Definition

PIN	SIGNAL	PIN	SIGNAL
1	GND	2	SPK-
3	SLED	4	BUZ+
5	PLED	6	SPK
7	NC	8	BUZ+

## Chassis Intrusion Connector: JCI1

This connector connects to the chassis intrusion switch cable. If the chassis is opened, the chassis intrusion mechanism will be activated. The system will record this status and show a warning message on the screen. To clear the warning, you must enter the BIOS utility and clear the record.

JCI1



### Front USB Connector: J3, J4, J5

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.

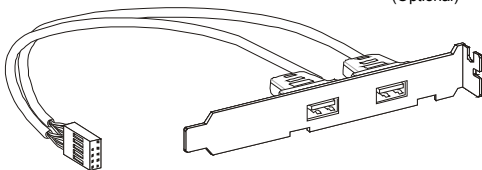


**J3/J4/J5**  
(USB 2.0)

**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

**USB 2.0 Bracket**  
(Optional)

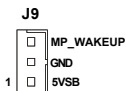


### Important

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

### Wake On LAN Connector: J9

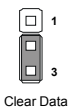
This connector allows you to connect to a LAN card with Wake On LAN function. You can wake up the computer via remote control through a local area network.



## 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.*

## 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.



### 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
PCISlot 1	INT B#	INT C#	INTD#	INT A#



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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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