倍控®
BKHD

BKHD-2011MATX-4L Motherboard

VER 1.1

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Safety Guide

To ensure optimal use of Beikong products, please review the user manual in its entirety. Before reviewing product-specific information, we kindly request that you carefully read the safety instructions.

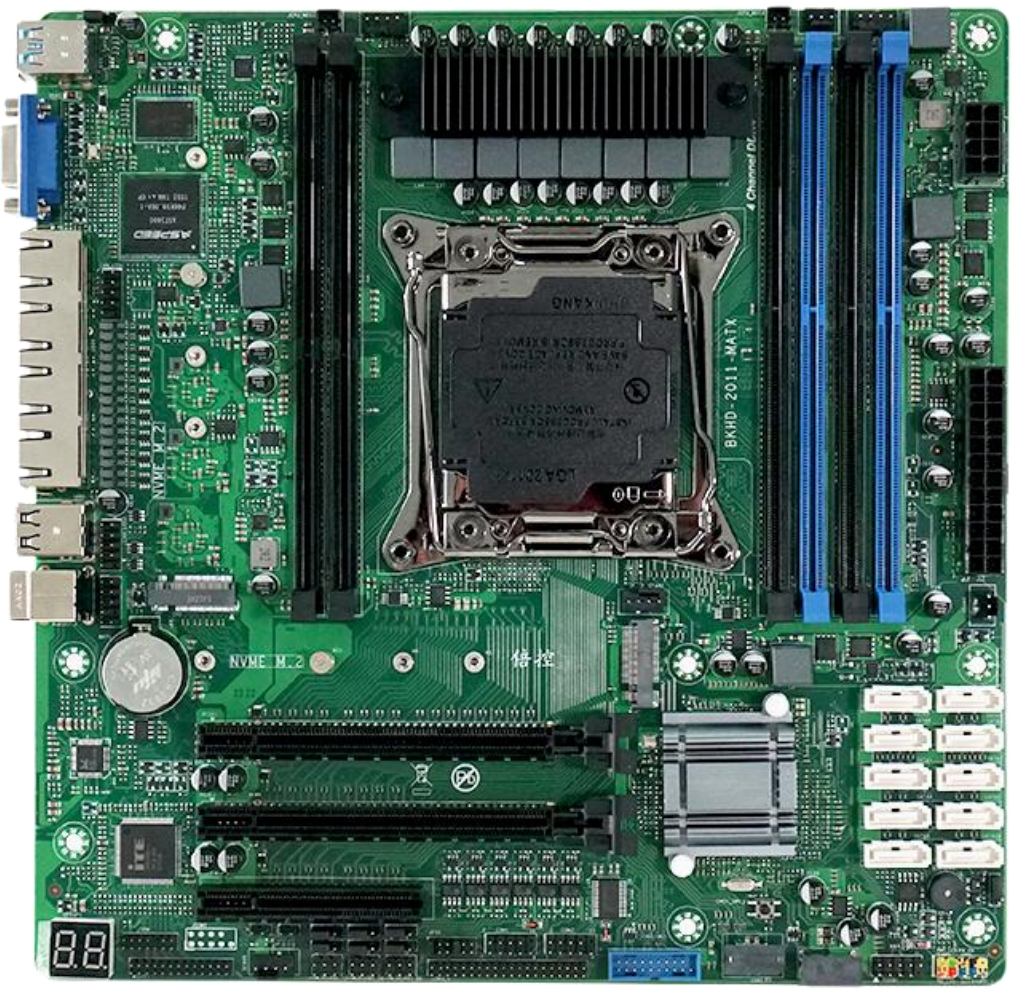
Product Version Identification

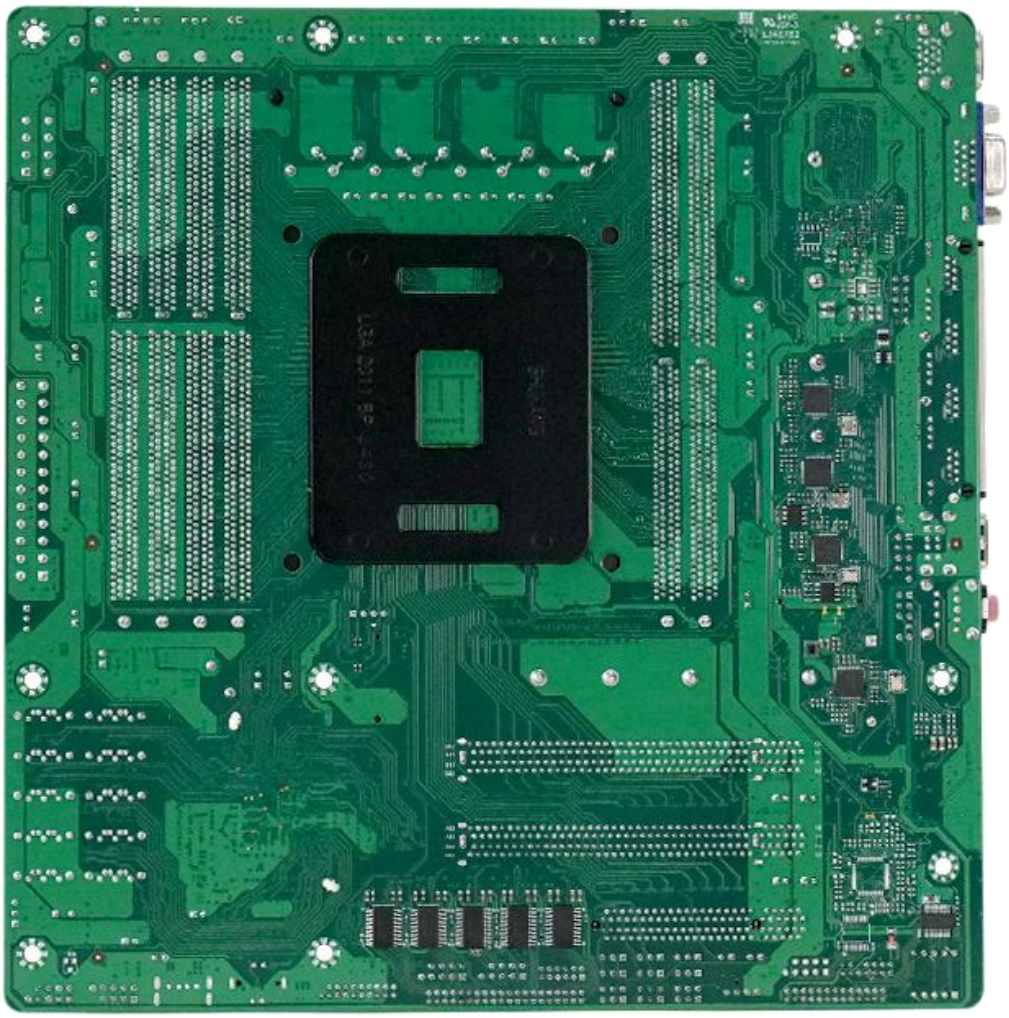
The product version number can be found on the motherboard, where X.X represents a number. For example, if the version is indicated as [VER1.0], it signifies that the current version of the motherboard is 1.0. The BIOS interface homepage provides information such as [XXXXNP-XXXX], which denotes the BIOS version number utilized by the current product. When updating the motherboard's BIOS, driver, or referencing other technical documents, please refer to the product version label for the most up-to-date information.

Catalog

Product Images

Please be advised that products manufactured in different batches may exhibit slight variations in appearance. To ensure the most accurate representation, please refer to the actual received goods.





Product Profile

The 2011MAX-4L is a multi-network port MATX motherboard launched by Beikong Industrial Control. The product supports the LGA2011 socket Intel Xeon E5 v3/v4 processors, and is suitable for various application scenarios such as NAS, servers, firewalls and routers, edge computing, etc.

Key features:

Supports LGA2011 slot and Intel Xeon E5 v3/v4 processor, which can be flexibly selected according to needs to meet the computing needs of different tasks;

Equipped with 4 Intel i226 chips, it provides up to 2.5Gbps network bandwidth, which is suitable for application scenarios with high data transmission requirements and improves network performance.

Supports 6 DDR4 DIMM memory slots, providing higher memory bandwidth and system performance to meet multi-tasking needs.

Provides 2 NVMe interfaces and 10 SATA interfaces, supports flexible configuration of high-speed SSD and multiple HDD to meet large-capacity data storage needs.

Provides 2 PCIe x16 Gen 3 (one of which is x8 rate) slots and 1 PCIe x8 Gen 3 slot, supports high-performance expansion cards such as graphics cards, network accelerators, storage controllers, etc., and enhances the expansion and processing capabilities of the system.

Motherboard Specifications

Item	Description
Processor	LGA2011 Socket Intel Xeon E5 V3/V4
BIOS	AMI BIOS (Legacy or UEFI)
Memory	6*DDR4 DIMM Memory slot, Up to 6*32GB (Depends on the processor)
Display	Onboard display chip; 1*VGA port
Ethernet port	4*Intel i226 2.5Gigabit Ethernet (Backward compatible with 10/100/1000Mbps)
Storage	2*M.2 NVMe 2280 (PCIe Gen3 x4); 10*SATA 6.0Gb/s (Support HDD/SSD)
Expansion slot	1*PCIe x16 Gen3;1*PCIe x8 Gen3(x16 slot); 1*PCIe x8 Gen3
Plane I/O	1*VGA port; 2*USB3.0; 2*USB2.0; 4*RJ45 Ports; 2*Audio (Line Out/MIC-IN)
On-board I/O	1*FUSB2 Pin(can be converted to 2*USB2.0 ports) 1*FUSB3 Pin(can be converted to 2*USB3.0 ports) 1*USB2.0 port
	6*COM Pin 1*LPT Pin 1*TYPE-E port 1*TPM port
	1*9-Pin Built-in Audio port (F_AUDIO) 2*9-Pin LAN LED 1*2-Pin Case Open Pin
	1*9-Pin Front panel switch pin (FPANEL) 1*4-Pin CPU cooling fan (CFAN1) 3*4-Pin System cooling fan (SFAN1) 2*3-Pin System cooling fan (SFAN1) 2*2-Pin System cooling fan (SFAN1)
Power type	ATX 24pin+8pin
I/O Chip	ITE IT8786E-I
Audio	Realtek ALC897, Supports Line-Out & Line-In
Operating Temperature	-20℃ to 55℃
Operating Humidity	0~90% Relative Humidity, No condensation
PCB Size	245mm*245mm

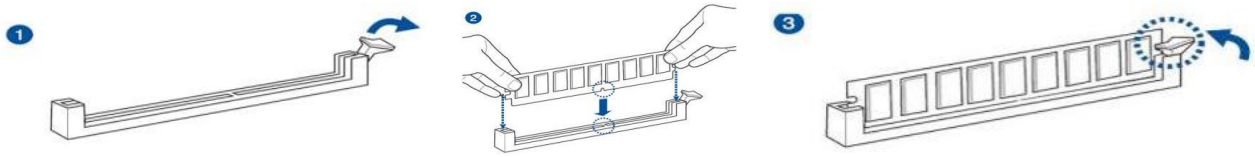
Motherboard Installation

Safety Note

- Please do not remove the serial number and agent warranty sticker from the motherboard prior to installation. Doing so may affect the product's warranty recognition standard.
- Prior to installing or removing the motherboard or other hardware devices, please ensure that the power is turned off and the power cord is unplugged from the socket.
- When installing additional hardware devices on the motherboard interfaces, please ensure that the connectors and sockets are securely fastened.
- When handling the motherboard, please avoid contact with the metal wiring components to prevent the risk of short circuits.
- It is recommended that an anti-static wrist strap be worn when handling the motherboard, central processing unit (CPU), or memory. In the absence of an anti-static wrist strap, it is advisable to ensure that your hands are dry and to touch a metal object first in order to eliminate static electricity.
- Before installing the motherboard, we kindly request that place it on an antistatic mat or in an antistatic bag.
- Make sure the power adapter is turned off before unplugging the motherboard power connector.
- Before turning on the power, make sure the voltage of the adapter is within the standard voltage range.
- Before turning on the power, make sure all hardware device cables and power cords are properly connected.
- Do not allow the fixing screws to collide with the circuits or parts on the motherboard to avoid damage or malfunction of the motherboard.
- Make sure there are no loose screws or metal parts on the motherboard or inside the computer case before using the unit.
- Please secure the computer host in a stable location before starting the device.
- To prevent system failure, do not place the unit in an environment where the temperature is excessive.
- Turning on the power before installation is complete may damage the motherboard, other equipment, or yourself.
- If you are unfamiliar with how to perform the installation, or if you have any technical problems using this product, please contact a professional technician.

Memory Installation

The motherboard provides 6*DDR4 DIMM memory slots.



1. Please confirm that the memory you purchased is compatible with the specifications supported by this motherboard.

2. Before installing or removing the memory, please make sure that the power of the computer is turned off to avoid damage.

3. The memory design has a foolproof mark. If you insert the memory in the wrong direction, the memory cannot be installed. Please change the direction.

When installing memory:

1. Before installing or removing memory, please turn off the power and unplug the power cord.

2. Carefully hold the two ends of the Memory Stick and do not touch the metal contacts on the Memory Stick.

3. Align the metal contacts of the memory with the memory slot, making sure that the concave hole is aligned with the convex point of the upper slot.

4. Insert the memory into the slot at an angle of 30 degrees, then press the Memory Stick down until you hear a "click," indicating that the memory has been successfully installed and is ready to use. (Note: Do not press the Memory Stick too hard to avoid damaging the memory).

5. To remove the Memory Stick, push out the tabs at both ends of the memory slot simultaneously, and then remove the Memory Stick.

To remove the memory:

Use two fingers to push the latches at either end of the slot outward, the memory will pop up, then remove the memory.

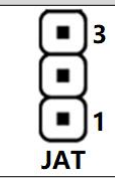
Jumper Setting

Before installing the hardware device, you can set the corresponding jumpers according to your needs based on the following table.

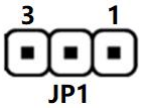
To identify the first pin of a jumper or connector

Look at the marking next to the jumper or connector. The triangle symbol "▲" or "1" or a bold line indicates the first pin; check the pad on the back of the motherboard. The square pad is the first pin. When connecting the connector to the device, be careful to distinguish the first pin. Mixing the pins will damage the motherboard.

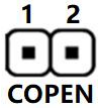
Power-on jumper: JAT

JAT	PIN	Definition
	1-2	Automatic turn on
	2-3 (Default)	ATX Mode

USB Voltage Setting: JP1

JME	PIN	Definition
	1-2 (Default)	USB3_PWR
	2-3	+5VSB

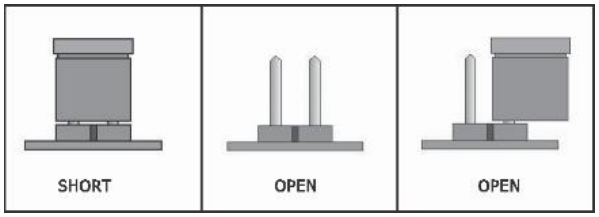
Case open Setting: COPEN

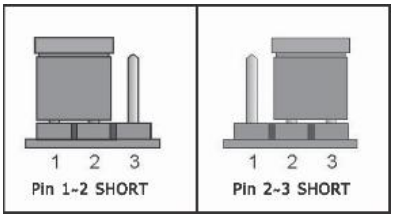
AUTO_ON	PIN	Definition
	1	Case open
	2	GND

Jumper Description

2-pin headers: Insert a jumper cap into both pins turns them off (short).

3-pin headers: Insert a jumper cap into pins 1-2 or pins 2-3 to off (short) them.





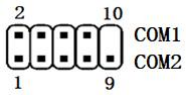
Motherboard Pin Definition

COM port: COM1~COM6.

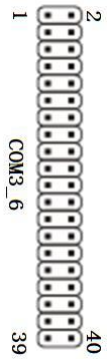
The motherboard provides 2*COM ports (pin spacing 2.54mm); 1*4-IN-1 COM port (pin spacing 2.00mm), i.e. 4 Standard RS232 pins are combined into one pin interface;

COM1-COM6 supports RS232 and RS485 communication modes. Users can set the communication mode of COM1-COM6 via JP4, JP5, JP6, JP7, JP8 and JP9 pins.

COM1-COM2

COM1/2	PIN	Definition	PIN	Definition
	1	DCD	2	RXD
	3	TXD	4	DTR
	5	GND	6	DSR
	7	RTS	8	CTS
	9	RI	10	NC

COM3-COM6

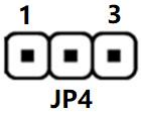
COM 3-6	PIN	Definition	PIN	Definition
	1	MDCD3	2	MSIN3
	3	MS03	4	MDTR3
	5	GND	6	MDSR3
	7	XRTS3	8	MCTS3
	9	XRI3	10	NC
	11	MDCD4	12	MSIN4
	13	MS04	14	MDTR4
	15	GND	16	MDSR4
	17	XRTS4	18	MCTS4
	19	XRI4	20	NC
	21	MDCD5	22	MSIN5
	23	MS05	24	MDTR5

	25	GND	26	MDSR5
	27	XRTS5	28	MCTS5
	29	XRI5	30	NC
	31	MDCD6	32	MSIN6
	33	MS06	34	MDTR6
	35	GND	36	MDSR6
	37	XRTS6	38	MCTS6
	39	XRI6	40	NC

JP4~JP9 Settings:

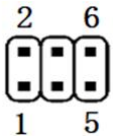
JP4~JP9 Jumpers are used to set the transmission mode of COM1-COM6. Both RS232 and RS485 transmission modes are supported. You can choose the setting according to your needs. The default transmission mode is RS232.

COM_JP4/5/6/7/8/9 (2*3-pin, 2.00mm pitch)

COM JP4~9	PIN	Definition
	1-2	RS-232
	3-4	RS-485

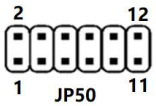
JRS485_12, JRS485_34, JRS485_56 settings:

Used to connect COM1-COM6 RS485 data signal transmission

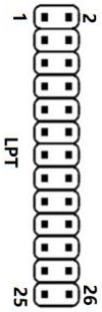
JRS485	PIN	Definition	PIN	Definition
	1	GND	2	5V
	3	TXDN	4	TXDP
	5	TXDN	6	TXDP

JP50 Setting:

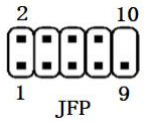
Used to set the 9th pin of COM1 and COM2 to be powered.

JP50	PIN	Definition
	1-2	RS232 (COM1)
	3-4	5V
	5-6	12V
	7-8	RS232 (COM2)
	9-10	5V
	11-12	12V

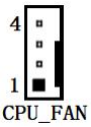
Printer interface: LPT

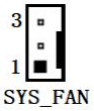
LPT	PIN	Definition	PIN	Definition
	1	R_STB	2	R_AFD-
	3	R_PD0	4	R_ERR-
	5	R_PD1	6	R_INIT-
	7	R_PD2	8	R_SLIN-
	9	R_PD3	10	GND
	11	R_PD4	12	GND
	13	R_PD5	14	GND
	15	R_PD6	16	GND
	17	R_PD7	18	GND
	19	R_ACK-	20	GND
	21	R_BUSY	22	GND
	23	R_PE	24	GND
	25	R_SLCT	26	GND

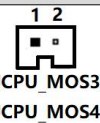
Front panel: JFP

JFP	PIN	Definition	PIN	Definition
	1	HDD_LED+	2	PWR_LED+
	3	HDD_LED-	4	PWR_LED-
	5	GND	6	PW_ON
	7	RTS	8	GND
	9	GND	10	NC

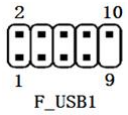
Fan sock: CPU FAN, SYS FAN

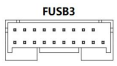
4Pin_CPU FAN	PIN	Definition
	1	GND
	2	+12V
	3	TACH-IN
	4	PWM

3Pin_SYS FAN	PIN	Definition
	1	GND
	2	+12V
	3	TACH-IN

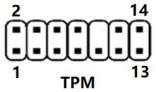
JCPU_MOS	PIN	Definition
	1	+5V
	2	GND

USB interface: FUSB1, FUSB3

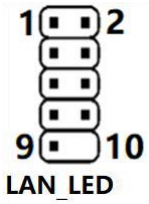
F_USB1	PIN	Definition	PIN	Definition
 F_USB1	1	VCC	2	VCC
	3	USB1_DATA-	4	USB2_DATA-
	5	USB1_DATA+	6	USB2_DATA+
	7	GND	8	GND
	9	NC	10	GND

F_USB3	PIN	Definition	PIN	Definition
	1	VBUS	11	D+
	2	SSRX1-	12	D-
	3	SSRX1+	13	GND
	4	GND	14	SSTX2+
	5	SSTX1-	15	SSTX2-
	6	SSTX1+	16	GND
	7	GND	17	SSRX2+
	8	D-	18	SSRX2-
	9	D+	19	VBUS
	10	NC	20	NC

Trusted Platform Module: TPM

TPM	PIN	Definition	PIN	Definition
	1	TPM_CLK	2	3.3VSB
	3	PLTRST_PCIE SLOTS_N	4	3.3V
	5	LAD0	6	SER_IRQ
	7	LAD1	8	5V
	9	LAD2	10	NC
	11	LAD3	12	GND
	13	LFRAME#	14	GND

Network indicator: LAN_LED1, LAN_LED2

LAN_LED	PIN	Definition	PIN	Definition
	1	LAN2_LED0_ACT	2	3.3V
	3	LAN2_LINK_1000 #	4	3.3V
	5	LAN1_LED0_ACT	6	3.3V
	7	LAN1_LINK_1000 #	8	3.3V
	9	/	10	NC

BIOS User Guide

This motherboard uses AMI BIOS. BIOS stands for Basic Input Output System. It is a set of programs stored on a ROM chip on the computer's motherboard. It stores the computer's most important basic I/O programs, the power-on self-test program, and the system startup program. It can read and write specific information about system settings from the CMOS. Its primary function is to provide the most basic and immediate hardware settings and control for the computer.

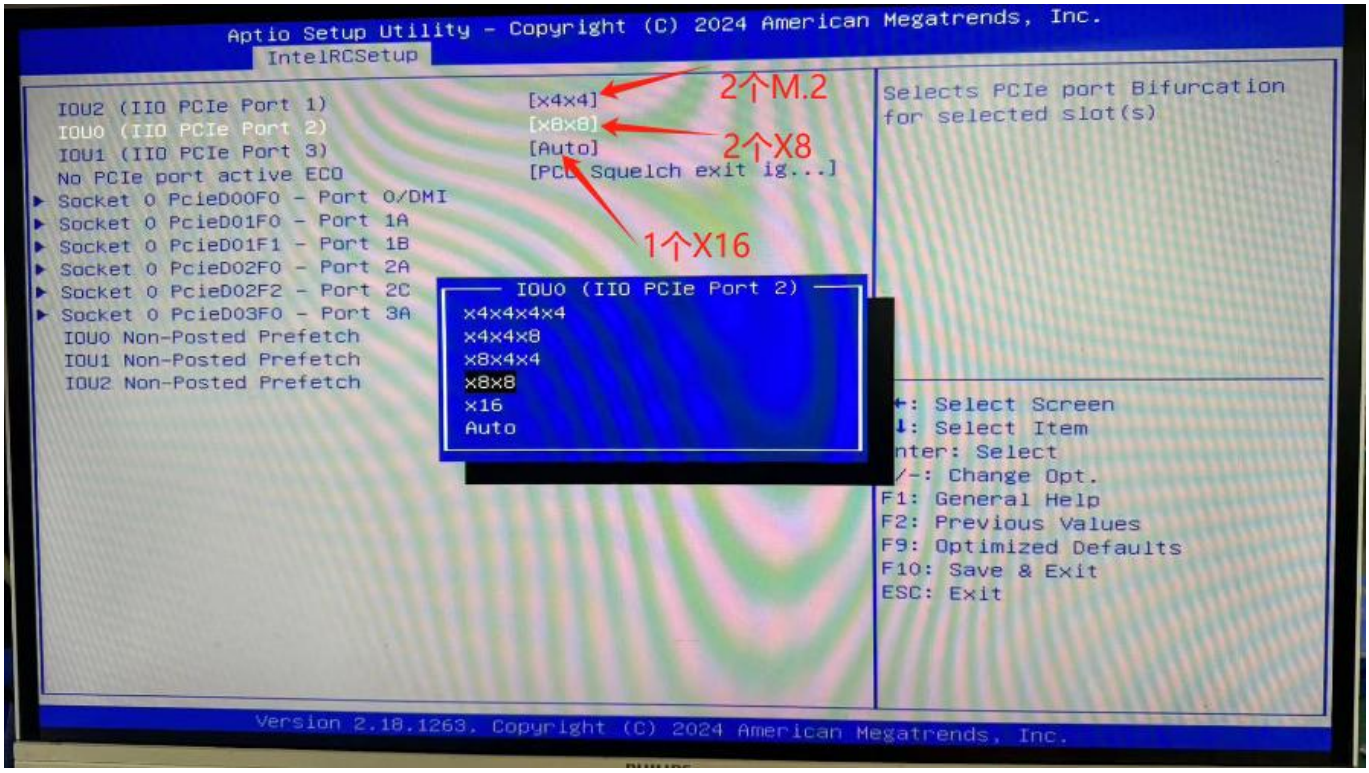
Note: Because the BIOS version of the motherboard is constantly updated, the BIOS information in this manual is for reference only.

When the computer starts, the BIOS enters the power-on self-test (post) program. The self-test program is a series of diagnostic programs built into the BIOS. When the self-test program is complete, the following message appears: Press DEL to run Setup

If this message disappears before you respond, you can press <Ctrl> + <Alt> + <Del> at the same time to restart the computer, or shut down and then restart the computer, or press the power button on the case to restart the computer.

- Use the <↑><↓><←><→ arrow keys to move the item you want to change
- Press the <Enter> key to enter the sub-interface of the item.
- Use the <Enter> key to select the item to be changed and press the <Enter> key to change it.
- <Page Up/+>Increase value or change
- <Page Down/->Decrease value or change
- <F1>Set submenu help
- <F3>Set to default value (restore factory settings)
- <F4>Save BIOS settings

PCIE Channel Split



Common fault analysis and solutions

Error	Inspection Method
Unable to start after power on	Make sure the power cord is properly connected. Make sure that the power supply you are using meets the power supply requirements of the motherboard. Try to reinsert the Memory Stick. Try to replace the Memory Stick. Try to clear the CMOS of the main board. Please confirm if there is an external expansion card and if it is normal after removing the external card.
Unable to display after power on	Make sure the monitor is turned on. Make sure the monitor and host power cables are properly connected. Make sure the monitor and host cables are properly connected. Check to see if the monitor is in "Sleep" mode. Try changing the monitor interface or replacing the monitor.
BIOS Setup cannot be saved	Check that the CMOS battery is installed Try to replace the CMOS battery (CR2032) Adjust the time and date in BIOS setup
Unable to find a bootable device	Make sure the drive's power and data cables are properly connected. Make sure the operating system is installed on the drive. Make sure the hard drive is not physically damaged.
Blue screen or freeze when logging on to the system	Check if the Memory Stick and External Card are loose. Try removing the newly installed hardware and uninstalling the newly installed driver or software. Try replacing the memory with a different specification.
Slow entry into the operating system	Check if the CPU cooling fan is running normally. Check if the remaining space of the system partition is insufficient. Use software to check for bad sectors on the hard drive.
System restarts automatically	Confirm that the CPU cooling fan is rotating normally. Confirm that the switch/reset button has not been accidentally touched. Confirm that the Memory Stick and external card are loose. Confirm that the power supply has sufficient load capacity, try to replace the power supply Check if the system is infected with viruses.
Unable to detect USB device	Confirm that the USB device requires separate power. Confirm that the USB interface has poor contact. Confirm that the USB controller is enabled in the BIOS setup.

