



BKHD-1700NP-NAS Motherboard User Manual

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Safety Guide

To ensure optimal performance of BKHD products, please read the user manual in its entirety. Before checking product-specific details, we kindly ask that you carefully read these safety instructions.

Product Version Identification

You can find the version of this motherboard on the motherboard itself, marked as "REV: X.X". X.X represents numbers, for example, "REV: 1.0" means the motherboard version is 1.0. When updating the motherboard's BIOS, drivers, or referring to other technical data, please pay attention to the product version marking.

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Product Profile

The BKHD 1700NP-NAS is a compact Mini-ITX storage motherboard based on Intel 12th–14th Gen FCLGA1700 processors. Designed for NAS, private cloud, edge storage, and data servers, it supports up to 96GB DDR5 memory, 8× SATA, and PCIe Gen4 NVMe storage. With 4× Intel I226V 2.5GbE LAN, PCIe 5.0 x8, Mini PCIe, TPM 2.0, GPIO, COM, USB, and dual display outputs, it provides flexible expansion for professional storage and OEM/ODM applications.

Main features:

Intel 12th / 13th / 14th Gen Processor Platform

The 1700NP-NAS adopts the Intel FCLGA1700 processor platform, supporting Intel 12th, 13th, and 14th Generation processors. The platform delivers strong multi-core computing capability for NAS applications, virtualization, data processing, industrial servers, and edge computing workloads.

Eight SATA 3.0 Storage Interfaces

The motherboard integrates 8x SATA 3.0 interfaces supporting up to eight SATA storage devices. This high-density storage design provides flexible configurations for NAS systems, RAID storage solutions, file servers, backup platforms, and local data processing applications.

High-Speed NVMe Storage Support

The onboard M.2 Key-M 2280 slot supports PCIe Gen4 x4 NVMe SSDs, providing high-speed storage performance for operating systems, application acceleration, caching, database workloads, and frequently accessed data.

DDR5 Memory up to 96GB

The motherboard provides 2x DDR5 memory slots supporting up to 96GB total capacity using 2x 48GB memory modules. The high memory capacity allows the system to support demanding storage services, virtualization applications, and multi-user workloads.

Four Intel 2.5GbE Network Interfaces

The board integrates 4x Intel I226V 2.5GbE controllers, providing four independent RJ45 Ethernet ports. The multi-network architecture supports NAS deployment, network segmentation, link aggregation, server communication, remote management, and high-speed data transfer applications.

PCIe 5.0 x8 Expansion Capability

The motherboard provides 1x PCIe x8 expansion slot with PCIe 5.0 x8 signal support. This high-bandwidth expansion interface allows integration of compatible storage controllers, network cards, accelerator cards, and other PCIe expansion devices.

Motherboard Specifications

Processor	Product Collection	Intel 12th/13th/14th Gen Processor
	Sockets Supported	FCLGA1700
Memory specifications	Memory type	2*DDR5 DIMM
	Maximum capacity	2*48GB
	Maximum frequency	4800 MT/s
Storage specifications	SATA	8*SATA 3.0
	M.2	1*M.2 Key-M 2280 (PCIe Gen4 x4)
Network features	Ethernet	4*2.5GbE
	Controller	4*Intel I226V
Extension interface	PCIe	1*PCIe x8 (PCIe 5.0 x8 signal)
	mPCIe	1*mPCIe (USB3.0+PCIe x1 signal)
Display functions	Ports	1*HD/1*DP
	Chip	Intel Graphics (Depends on the processor)
Backplane I/O	USB	4*USB-A 3.0
	Display	1*DP/1*HD
	Button	1*Clear CMOS button
	Ethernet	4*RJ45
	Audio	1*3.5mm Audio Jack
Onboard I/O	SATA	8*SATA Data connector
	Fan	1*CPU_FAN, 1*SYS_FAN
	SIM	1*SIM card slot
	Pins	1*F_PANEL
		2*J_COM
		2*F_USB 2.0 (can expand 4x USB2.0 ports)
		1*J_GPIO
		1*J_TPM 2.0
Power supply mode	Power Connector	1*ATX 24-pin, 1*ATX 4-pin
Motherboard size	Specification	170*170 (mm)
Work Environment	Temperature	0~50℃ (Operating); -20℃~60℃ (Storage)
	Humidity	5%~95% (Relative humidity, no condensation)

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 DDR5 DIMM memory slot.



Before installing memory:

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:

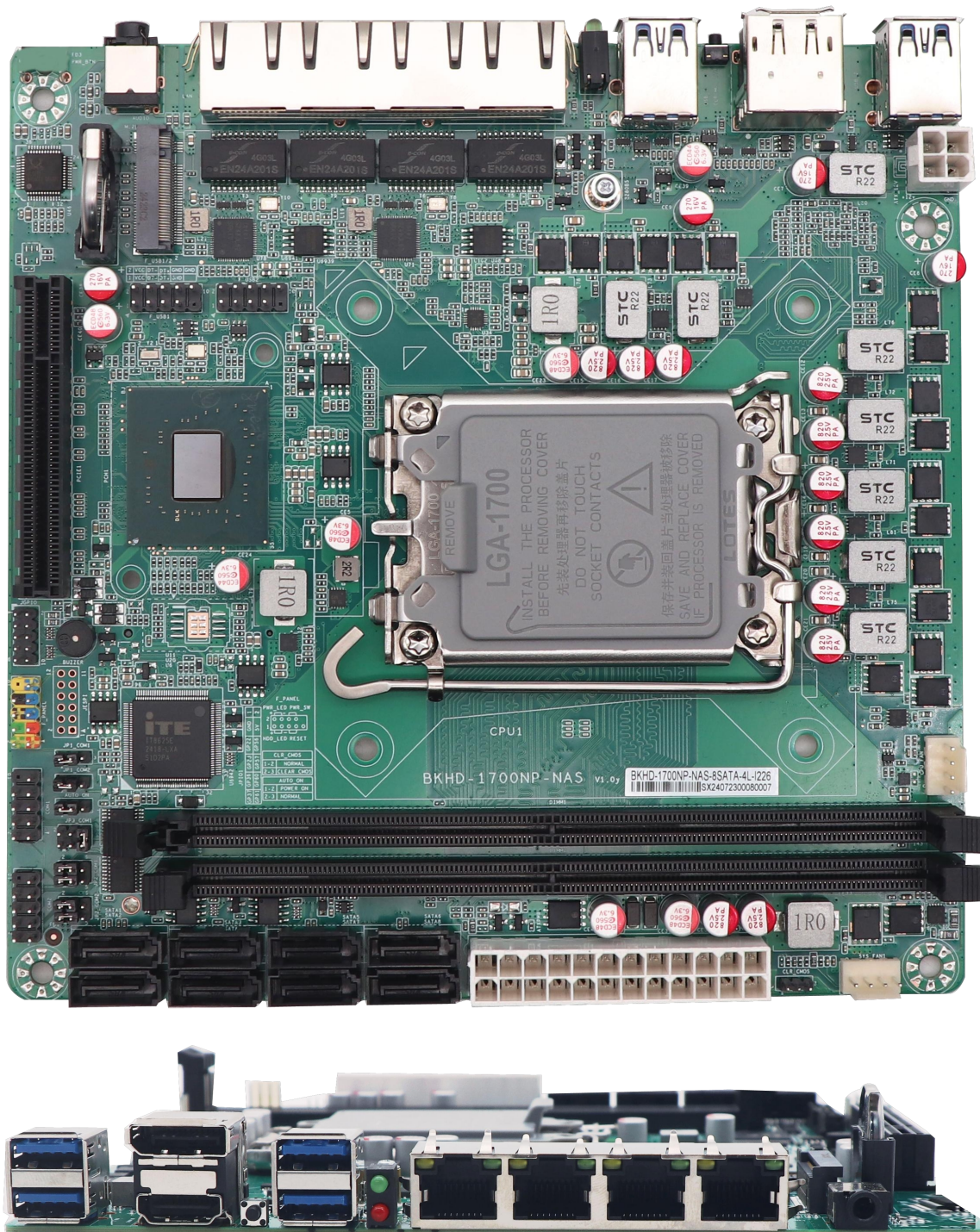
1. Before installing or removing memory, please turn off the power and unplug the power cord.
2. Carefully hold the two ends of the Memory Stick and do not touch the metal contacts on the Memory Stick.
3. Align the metal contacts of the memory with the memory slot, making sure that the concave hole is 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.

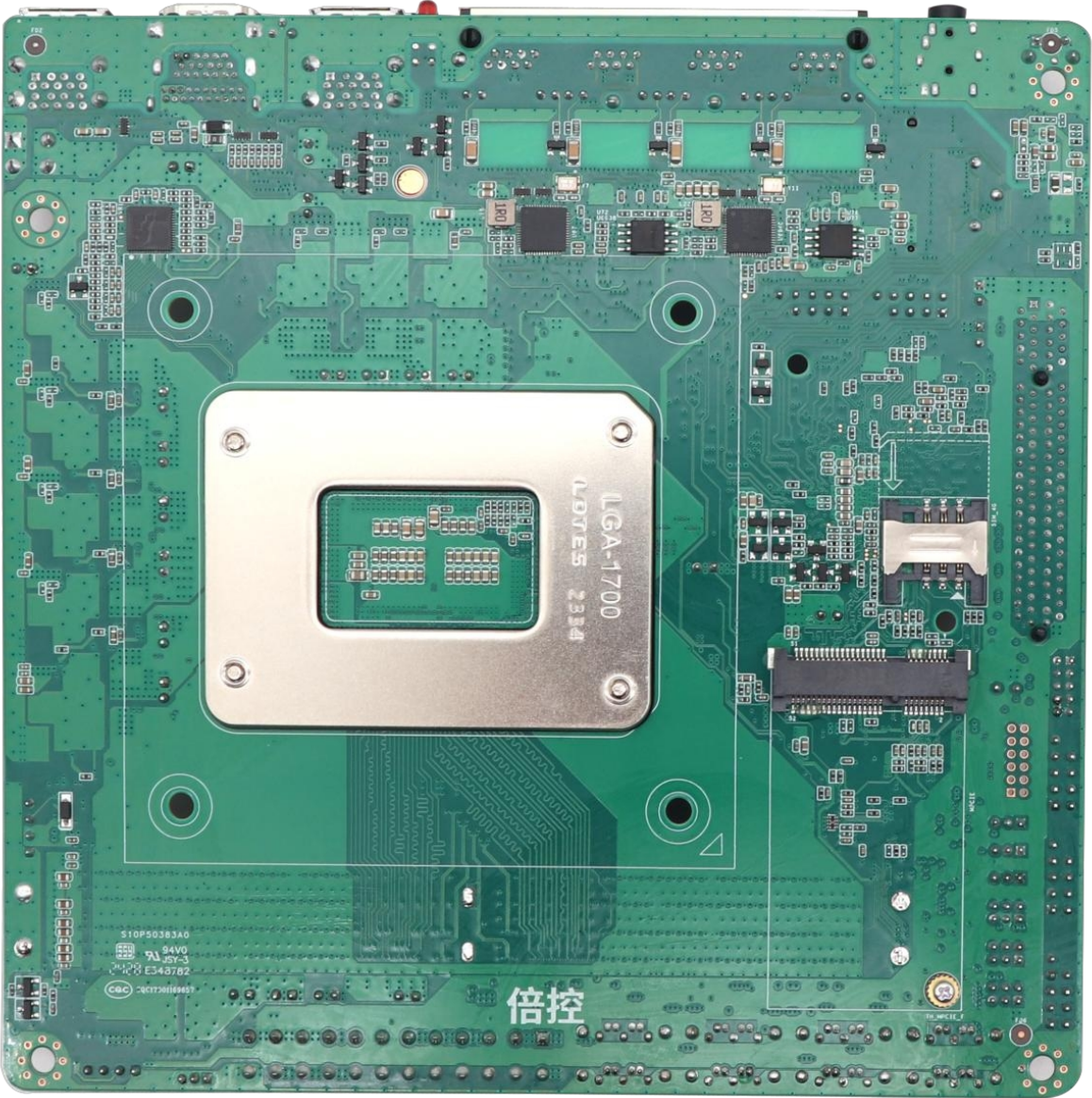
To remove the memory:

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

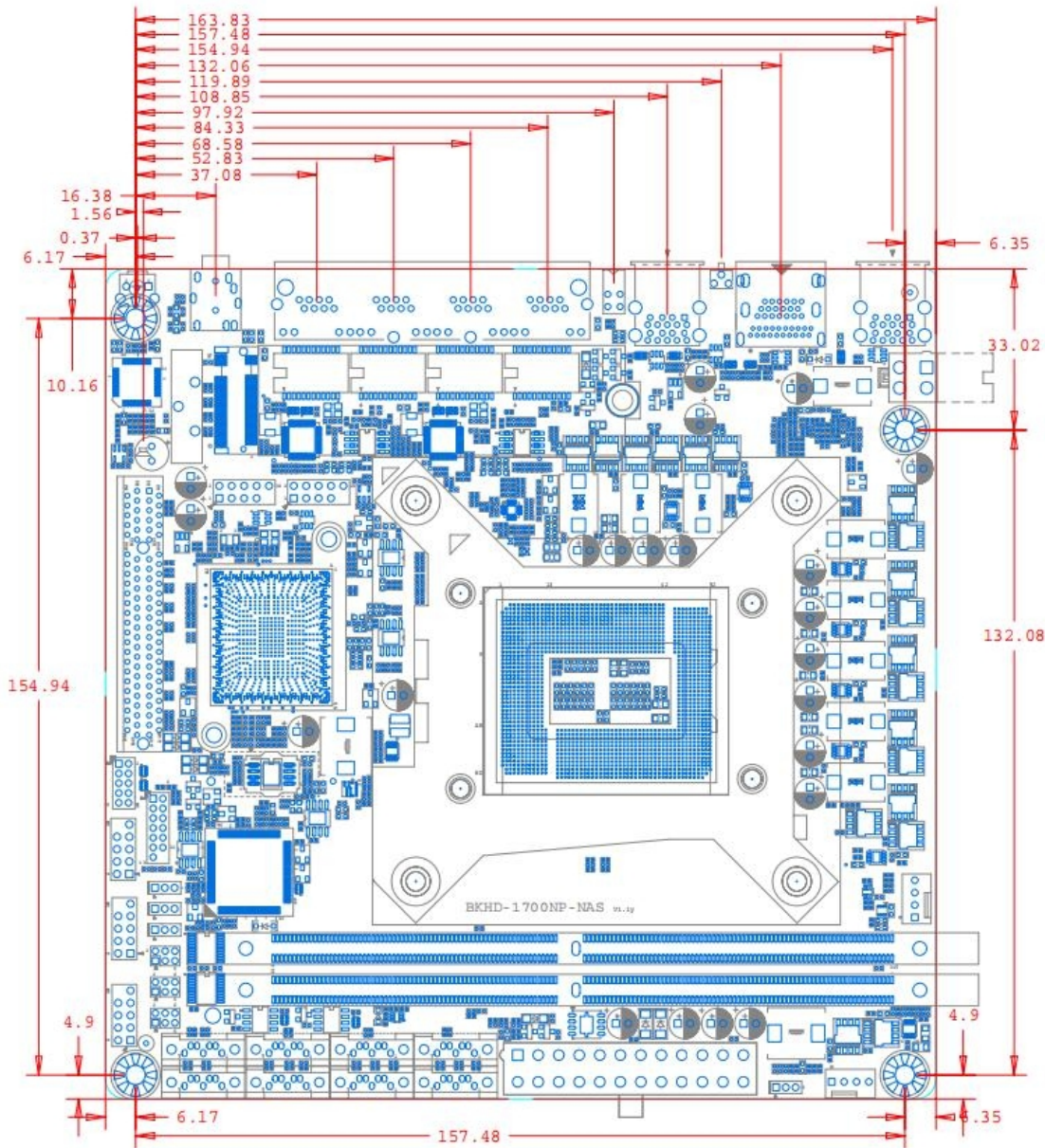
Product Images

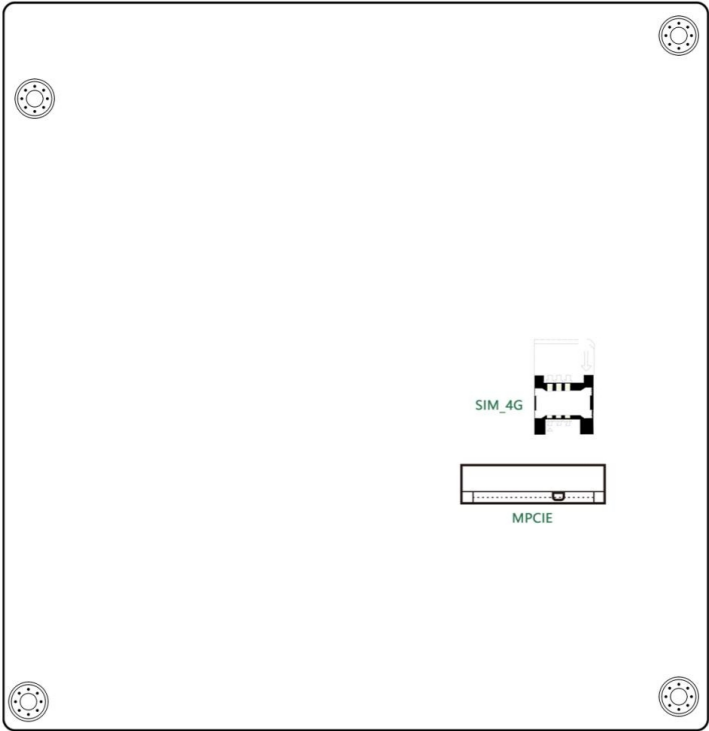
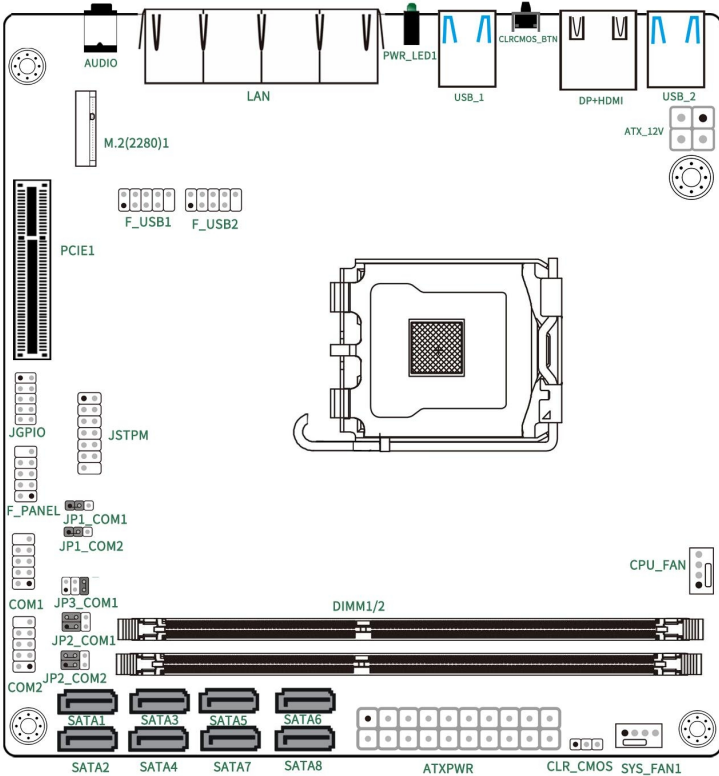
Please be advised that products manufactured in different batches may exhibit slight variations in appearance. To ensure the most accurate representation, please refer to the actual received goods.





Motherboard Layout and Dimensions





Jumper Setting

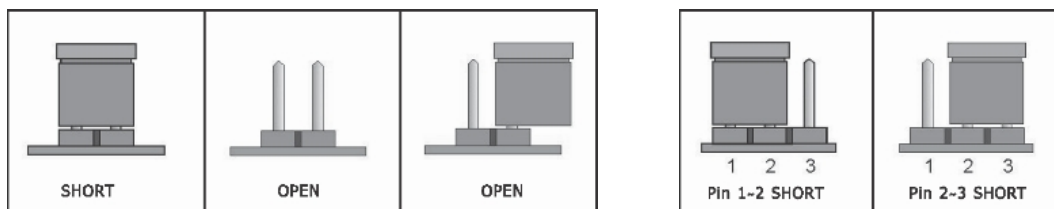
Before installing the hardware device, you can set the corresponding jumpers according to your needs based on the following table.

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.

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.



Clear CMOS Jumper (CLR_CMOS)

Image	Status	Setting
	1-2	Normal (Default)
	2-3	Clear CMOS

Motherboard Pin Definition

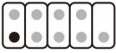
SATA Data

The motherboard provides 7-pin SATA data socket

Image	PIN	Definition	PIN	Definition
	1	GND	2	SATA_TXP
	3	SATA_TXN	4	GND
	5	SATA_RXN	6	SATA_RXP
	7	GND	-	

Front Panel Connectors (F_PANEL)

The motherboard provides F_PANEL pins (2*5-pin, 2.54 mm pitch, 10th pin is empty)

Image	PIN	Definition	PIN	Definition
	1	HDD LED+	2	PWR LED+
	3	HDD LED-	4	GND
	5	GND	6	PWR BTN#
	7	RESET BTN#	8	GND
	9	GND		

HDD LED (Pins 1, 3 - Pin 1 is Positive/Anode)

Function: Blinks during hard drive read/write activities to indicate disk operation.

Power LED (Pins 2, 4 - Pin 2 is Positive/Anode)

Function: Remains solid on when the system is powered on, and turns off when the system is powered down.

Reset Button (Pins 5, 7)

Function: Connects to the chassis reset switch. Pressing this button reboots the system in the event of a system crash or freeze.

Power Button (Pins 6, 8)

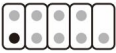
Function: Connects to the chassis power switch to power the system on or off.

Serial Port Header (COM)

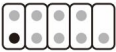
The motherboard features 2x COM headers. (2*5-pin, 2.54 mm pitch, 10th pin is empty)

Both COM1 and COM2 can be independently configured as either RS232 or RS485 using jumper caps.

Status RS232 (Default)

Image	PIN	Definition	PIN	Definition
	1	DCD#	2	RXD
	3	TXD	4	DTR#
	5	GND	6	DSR#
	7	RTS#	8	CTS#
	9	RI#		

Status RS485

Image	PIN	Definition	PIN	Definition
	1	DATA-	2	DATA+
	3	N/C	4	N/C
	5	GND	6	N/C
	7	N/C	8	N/C
	9	N/C		

RS232/RS485 Selection Jumper (JP1_COM1 / JP1_COM1; JP2_COM1 / JP2_COM2)

Jumpers are used to configure the transmission mode for COM1 and COM2. Both headers support RS232 and RS485 modes (Default: RS232). Configure the jumpers based on your application requirements.

JP1_COM1 / JP1_COM2 (1*3-pin, 2.00mm pitch)

Image	Status	Definition
	1-2	RS-232
	2-3	RS-485

JP2_COM1 / JP2_COM2 (2*3-pin, 2.00mm pitch)

Image	Status	Definition
	1-3, 2-4	RS-232
	3-5, 4-6	RS-485

PIN 9 Voltage Selection (JP3_COM1)

Image	Status	Definition
	1-2	+5V
	3-4	+12V
	5-6	RI (Default)

USB Expansion pin (F_USB)

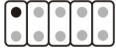
Before connecting the USB expansion board, be sure to turn off the computer and unplug the power cord from the socket to avoid damaging the USB expansion board.

The motherboard provides F_USB pins (2*5-pin, 2.00 mm pitch, 9th pin is empty)

Image	PIN	Definition	PIN	Definition
	1	+5V	2	+5V
	3	USB1_DATA-	4	USB2_DATA-
	5	USB1_DATA+	6	USB2_DATA+
	7	GND	8	GND
			10	GND

General Purpose Input/Output (JGPIO)

The motherboard provides JGPIO (2*5-pin pitch 2.00mm)

Image	PIN	Definition	PIN	Definition
	1	GND	2	VCC
	3	GPIO 1	4	GPIO 5
	5	GPIO 2	6	GPIO 6
	7	GPIO 3	8	GPIO 7
	9	GPIO 4	10	GPIO 8

Trusted Platform Module (JTPM)

The motherboard provides JTPM pins (2*7-pin, 2.00mm pitch)

Image	PIN	Definition	PIN	Definition
	1	N/A	2	IRQ#
	3	PLTRST#	4	SPI0_CS2#
	5	N/A	6	WP#
	7	+3.3V	8	GND
	9	N/A	10	SPI0_CLK
	11	SPI0_MISO	12	SPI0_MOSI
	13	HOLD#	14	N/A

Cooling Fan Power Socket (CPU_FAN/SYS_FAN)

The motherboard provides CPU/SYS_FAN pins (1*4-pin, 2.54mm pitch)

Image	PIN	Definition
	1	Ground
	2	+12V
	3	FAN_TAC
	4	FAN_PWM

- Be sure to connect the fan header to avoid the CPU and system operating in an overheated environment. Excessive temperature may cause the system to crash.
- These fan headers are not jumpers; do not place jumpers on the pins.

ATX Power Connector (Power Supply)

Before connecting the power cord to the outlet, ensure the power supply is turned off and all components are properly installed. The connector features a mistake-proof (keyed) design; please verify the correct orientation before plugging it in.

Image	PIN	Definition
	1	GND
	2	GND
	3	+12V
	4	+12V

Image	PIN	Definition	PIN	Definition
	1	+3.3V	2	+3.3V
	3	GND	4	+5V
	5	GND	6	+5V
	7	GND	8	PW_OK
	9	+V5SB	10	+12V
	11	+12V	12	+3.3V
	13	+3.3V	14	-12V
	15	GND	16	PS_ON
	17	GND	18	GND
	19	GND	20	N/A
	21	+5V	22	+5V
	23	+5V	24	GND

BIOS User Guide

BIOS Description

This motherboard features an AMI BIOS (Basic Input/Output System). Stored on a ROM chip on the motherboard, the BIOS contains essential low-level programs, including the power-on self-test (POST), system boot routines, and basic I/O configurations. It reads and writes system setting data via the CMOS, with the primary function of providing immediate, fundamental hardware control for the computer.

When the computer is powered on, the BIOS is the first program to run, performing the following core functions:

- Executes the Power-On Self-Test (POST): Checks and verifies that all essential hardware components are functioning properly.
- Initializes System Hardware: Tests peripheral devices and loads the operating system during bootup.
- Provides Low-Level Control: Delivers the most fundamental, direct control over the computer hardware.
- Manages Configuration: Allows users to configure and customize system parameters via the BIOS Setup utility.

BIOS data is stored in the CMOS RAM chip on the motherboard and maintained by a 3.3V coin cell battery (CR2032). It contains critical system configuration and the BIOS Setup utility used to adjust system parameters. Under normal operating conditions, modifying the BIOS is unnecessary. However, if CMOS data is lost or corrupted due to unforeseen factors, the BIOS settings must be reconfigured.

Note:

Incorrect BIOS configurations can cause severe hardware damage or motherboard failure. Users unfamiliar with system settings are strongly advised to proceed with caution. Because the motherboard BIOS is continuously updated, the screenshots and descriptions in this manual are for reference only. We cannot guarantee that the information herein will perfectly match your motherboard's actual BIOS version.

BIOS Settings

When the computer powers on or reboots, the following prompt will appear on the POST screen: Press "DEL" to enter BIOS Setup.



If the prompt disappears before you can respond, you may restart the system to try again by using one of the following methods: Press <Ctrl> + <Alt> + simultaneously. Press the Reset button on the chassis. Power off the system and turn it on again.

Keyboard keys	Functional Description
← / →	Move the Left and Right arrows to select the screen.
↑ / ↓	Move the Up and Down arrows to select the item.
+ / -	Increase/Decrease value or Change selection
<Enter>	Select, Confirm this option or Enter the submenu
<ESC>	Return to Main page, or End the setup process from Main page
<F1>	Show related Help instructions
<F2>	Restore previous settings
<F9>	Load the optimized settings (BIOS defaults)
<F10>	Save the changed settings and reboot

Common fault analysis and solutions

We have compiled some frequently asked questions for your reference. Please check <https://bkminipc.com/frequently-asked-questions-and-answers/>

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.

Useful Links

Submit your suggestions and ideas in the community	https://www.reddit.com/r/bkminipc/	
Watch our new product demos	https://www.youtube.com/@BKHD-PCs	
Corporate News and Cooperation	https://www.linkedin.com/company/beikong/	
Get our latest news on Meta	https://www.facebook.com/people/%E5%80%8D%E6%8E%A7/61558406109357/	