COLORFUL®

H510M-K M.2 V20

User’s Manual

Motherboard

Colorful Technology Website:
http://www.colorful.cn

Thanks for purchasing Colorful series motherboard. This series of motherboards provides excellent performance and quality assurance.

H510M-K M.2 V20 motherboard based on Intel H510 Chipset, support Intel LGA1200 processors, support dual channel DDR4 3200/2933/2666/2400 MHz memory, support PCI-E 3.0 standard.

The motherboard provides 1*HDMI port,1*VGA port, 2*DDR4 memory slots,4*SATA3.0 ports,onboard 6-CH audio chipset,onboard 1000M LAN chipset, it’s a Cost-effective motherboard！

The motherboard provides 1*M.2 SSD slot, 1*PCI Express 4.0/3.0 x16 slot,1*PCI Express 3.0 x1 slot ,it had good extensibility！

1.1.Packing Contents

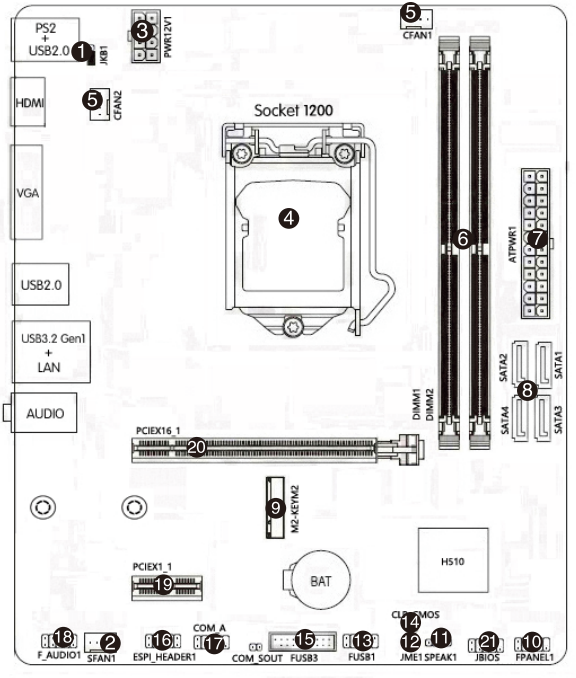
- 1* Colorful H510M-K M.2 V20 motherboard
- 2* SATA cables
- 1* Driver/Utility CD
- 1* User's Guide
- 1* I/O shield

1.2.MOTHERBOARD SPEC

CPU	· Support Intel LGA1200 10th&11th Generation Core Processor Tips:when using 95W processor, please match the professional CPU cooling fan!	**Other Connectors**	·1*24-pin ATX Power connector ·1* 8-pin ATX 12V Power connector ·1*Front panel audio connector (F_AUDIO1) ·1*System panel connector (FPANEL1) ·1*USB2.0 header (FUSB1) ·1*USB3.2 Gen1 header (FUSB3) ·1*PC speaker connector (SPEAK1) ·1*COM header (COM_A) ·1*CMOS jumper (CLR_CMOS) ·2*CPU fan header (CFAN1,CFAN2) ·1*System fan headers (SFAN1) ·1*DEBUG header (ESPI_HEADER1) ·1*ME header (JME1) ·1*PS2 Mouse/Keyboard boot jumper (JKB1) ·1*Flash Bios header (JBIOS)
Chipset	·Intel H510		
Main Memory	·Offer 2 DIMM slots ·Support DDR4 3200/2933/2666/2400 MHz ·Support XMP memory and Dual-Channel Tips:the frequency of memory overclocking also depends on the performance of matching CPU and memory itself!		
Slots	·1*PCI Express 4.0/3.0 x16 slot ·1*PCI Express 3.0 x1 slot ·1*M.2 SSD slot (support PCIE GEN3 x4&SATA)		
Storage	·4*SATA3.0 port		
USB	·4*USB3.2 Gen1+6*USB2.0(including the headers) ·All USB ports support charging in shutdown state		
Rear IO Connector	·1*PS/2 Mouse or Keyboard port ·1*LAN port ·4*USB 2.0 ports ·2*USB3.2 Gen1 ports ·3*Audio ports(audio in,audio out, microphone) ·1*VGA port ·1*HDMI port	**High Definition Audio**	·Onboard 6-channel High Definition audio chipset
		Onboard LAN	·Onboard 1000M LAN ·Provides 10/100/1000Mb Ethernet

1.3.Motherboard Layout

1、PS2 Mouse/Keyboard boot jumper
2、System fan connector
3、8-pin Power connector
4、Intel LGA1200 socket
5、CPU fan connector
6、DIMM slots (DDR4)
7、24-pin ATX Power connector
8、SATA3.0 ports
9、M.2 SSD slot
10、Front power on / off , restart , indicator light header
11、Speaker connector
12、ME header
13、USB 1.1/2.0 port
14、Clear CMOS jumper
15、USB 3.2 Gen1 header
16、DEBUG header
17、COM header
18、Front panel audio connector
19、PCI Express 3.0 x1 slot
20、PCI Express 3.0 x16 slot
21、Flash Bios header



Hardware Installation

This section will guide you through the installation of the motherboard. The topics covered in this section are:

- Preparing the motherboard
  - Installing the CPU
  - Installing the CPU fan
  - Installing the memory
- Installing the motherboard
- Connecting cables and setting switches

2.1.Safety Instructions

To reduce the risk of fire, electric shock, and injury, always follow basic safety precautions.
Remember to remove power from your computer by disconnecting the AC main source before removing or installing any equipment from/to the computer chassis.

2.2.Preparing the Motherboard

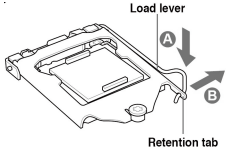
The motherboard shipped in the box does not contain a CPU or memory. You need to purchase a CPU, a CPU fan assembly, and memory to complete this installation.

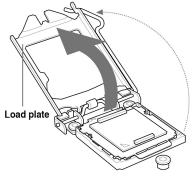
2.2.1.Installing the CPU

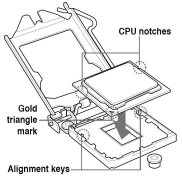
Be very careful when handling the CPU. Make sure not to bend or break any pins on the back. Hold the processor only by the edges and do not touch the bottom of the processor.
Use the following procedure to install the CPU onto the motherboard.
1.Unhook the socket lever by pushing down and away from the socket.
2.Lift the load plate. There is a protective socket cover on the load plate to protect the socket when there is no CPU installed.
3.Remove the protective socket cover from the load plate.
4.Remove the processor from its protective cover, making sure you hold it only by the edges.
It is a good idea to save the cover so that whenever you remove the CPU, you have a safe place to store it.
5.Align the notches in the processor with the notches on the socket.
6.Lower the processor straight down into the socket with out tilting or sliding it into the socket

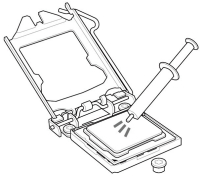
Make sure the CPU is fully seated and level in the socket.

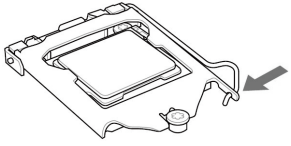
7.Close the load plate over the CPU and press down while you close and engage the socket lever.
8.There are many different fan types that can be used with this motherboard. Follow the instruction that came with you fan assembly. Be sure that the fan orientation is correct for your chassis type and your fan assembly.

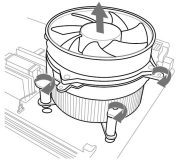












The CPU fits in only one correct orientation. DO NOT force the CPU into the socket to prevent bending the connectors on the socket and damaging the CPU!

2.3.Installing Memory DIMMs

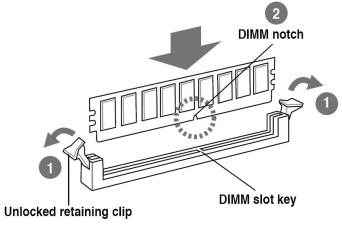
Your new motherboard has 2 slots for DDR4 memory. They support dual channel DDR4 memory technology. There must be at least one memory bank populated to ensure normal operation. Use the following the recommendations for installing memory.

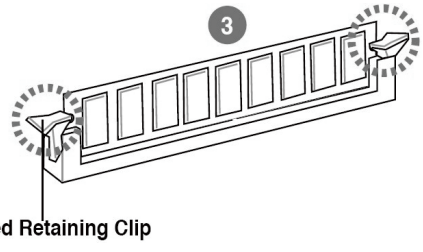
- ✓ One DIMM: Install into DIMM1 or DIMM2. You can install the DIMM into any slot, however, slot 1 is preferred.
- ✓ Two DIMMs: Install into DIMM1 & DIMM2,to build dual channel.



Use the following procedure to install memory DIMMs into the slots on the motherboard. Note that there is only one gap near the center of the DIMM slot. This slot matches the slot on the memory DIMM to ensure the component is installed properly.

- ✓ Unlock a DIMM slot by pressing the module clips outward.
- ✓ Align the memory module to the DIMM slot, and insert the module vertically into the DIMM slot. The plastic clips at both sides of the DIMM slot automatically lock the DIMM into the connector.





2.4.Installing the Motherboard

The sequence of installing the motherboard into the chassis depends on the chassis you are using and if you are replacing an existing motherboard or working with an empty chassis. Determine if it would be easier to make all the connections prior to this step or to secure the motherboard and then make all the connections. Use the following procedure to install the I/O shield and secure the motherboard into the chassis.

Be sure that the CPU fan assembly has enough clearance for the chassis covers to lock into place and for the expansion cards. Also make sure the CPU Fan assembly is aligned with the vents on the covers.

2.5.Installing the I/O Shield

The motherboard kit comes with an I/O shield that is used to block radio frequency transmissions, protects internal components from dust and foreign objects, and promotes correct airflow within the chassis.

Before installing the motherboard, install the I/O shield from the inside of the chassis. Press the I/O shield into place and make sure it fits securely. If the I/O shield does not fit into the chassis, you would need to obtain the proper size from the chassis supplier.

2.6.Securing the Motherboard into the Chassis

Most computer chassis have a base with mounting studs or spacers to allow the mother board to be secured to the chassis and help to prevent short circuits. If there are studs that do not align with a mounting hole on the motherboard, it is recommended that you remove that stud to prevent the possibility of a short circuit.

1.Carefully place the motherboard onto the studs/spacers located inside the chassis.

2.Align the mounting holes with the studs/spacers.

3.Align the connectors to the I/O shield.

4.Ensure that the fan assembly is aligned with the chassis vents according to the fan assembly instruction.

5.Secure the motherboard with a minimum of eight-to-ten screws.

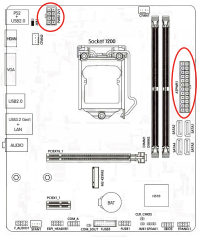
2.7.Connecting Cables and Setting Switches

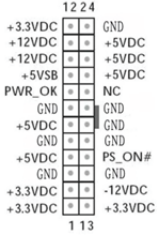
This section takes you through all the connections and switch settings necessary on the motherboard. This will include:

- Power Connections
  - 24-pin ATX power
  - 8-pin ATX 12V power
- Internal Headers
  - Front panel
  - USB Headers
  - Audio
- Serial ATA III
- Chassis Fans
- Rear panel USB Adapter
- Expansion slots

·ATX power connectors (24-pin ATXPWR, 8-pin ATX12V)

These connectors are for an ATX power supply. The plugs from the power supply are designed to fit these connectors in only one orientation. Find the proper orientation and push down firmly until the connectors completely fit.

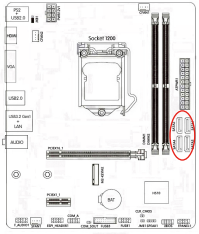


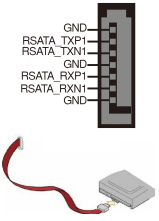




· Serial ATA 3.0 6Gb/s connectors (7-pin)

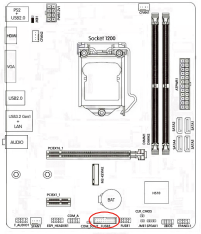
These connectors connect to Serial ATA 3.0 6Gb/s hard disk drives and optical drives via Serial ATA 3.0 6Gb/s signal cables.

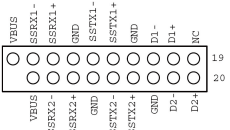




· USB 3.2 Gen1 connectors

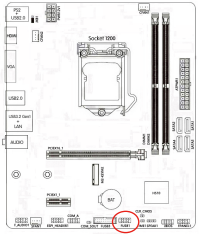
This connector is for USB 3.0 devices.

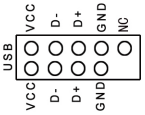




· USB2.0 connectors

These connectors are for USB 2.0 ports. Connect the USB module cable to any of these connectors, then install the module to a slot opening at the back of the system chassis. These USB connectors comply with the USB 2.0 specification that supports up to 480Mbps connection speed.

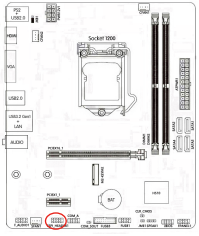






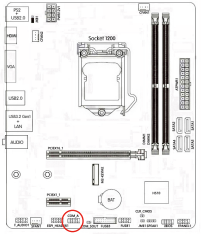
· Debug header:

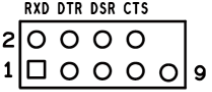
This Debug header is for Debug serial devices.

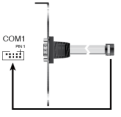


· COM header:

This COM header is for COM serial devices

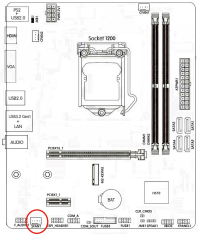


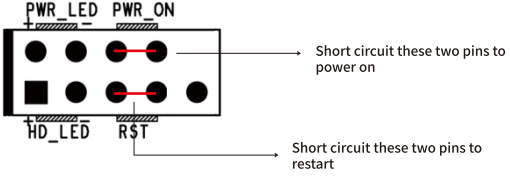




·System panel connector

This connector supports several chassis-mounted functions.



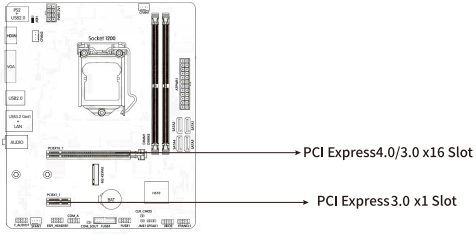


·PCI Express 4.0/3.0 x16 and PCI Express3.0 x1 slots

The PCI Express x1 slots that are designed to accommodate less bandwidth-intensive cards, such as a modem or LAN card. The x1 slot provides 250 MB/sec bandwidth.

The PCI Express3.0 x16 slot is reserved for a graphics or video card. The bandwidth of the x16 slot is up to 4GB/sec (8GB/sec concurrent).

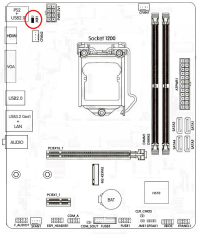
When installing a PCI Express3.0 x16 card, be sure the retention clip snaps and locks the card into place. If the card is not seated properly, it could cause a short across the pins. Secure the card’s metal bracket to the chassis back panel with the screw used to hold the blank cover.

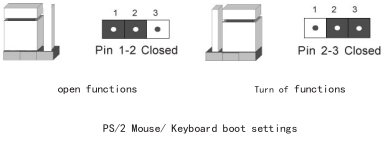


·PS2 Mouse/ Keyboard boot jumper:JKB

These jumpers set PS2 Mouse/ Keyboard to start up functions(you also need to open this function in Bios system)

Note: the white silk screen "1" printing on PCB board is the first pin of jumper.





PS/2 Mouse/ Keyboard boot settings

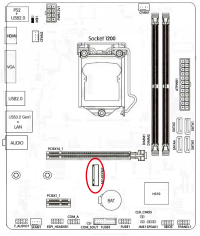
·M.2 SSD slot

The motherboard has one M.2 slot,support PCIE x4&SATA SSD,support 2242/2260/2280 size SSD.

There are two sets of switchers on the motherboard which are used to switch PCIE x4&SATA SSD.

Please install M.2 SSD correctly in the slot following the following steps:

1. please use a screwdriver to remove the screws and studs in order, and then lock the stud fifirst when the actual M.2 SSD is found to be suitable for the screw hole position.
2. insert the M.2 SSD into the slot in a inclined angle.
3. press M.2 SSD, then lock the screw.





·Clear CMOS Jumper: CLR_CMOS

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 Jumper to clear data.

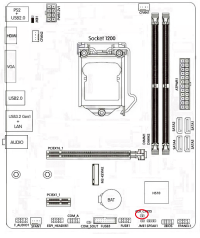
Clear CMOS PROCEDURE

You can clear CMOS by shorting 1-2 pin. Before you clearing the CMOS, following next procedure:

1.Turn off the AC power supply and connect pins 1 and 2 together using the jumper cap.

2.Return the jumper setting to normal (pin 1 or 2) or Remove the jumper cap

3.Turn the AC power supply back on.



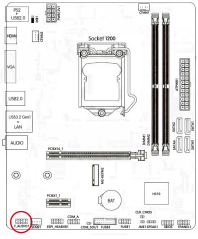


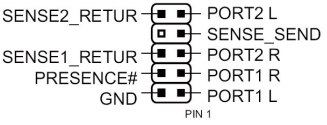
1-2 clear CMOS 1or2 normal

Clear CMOS settings

· Front panel audio connector

This connector is for a chassis-mounted front panel audio I/O module that supports either High Definition Audio or AC`97 audio standard. Connect one end of the front panel audio I/O module cable to this connector.



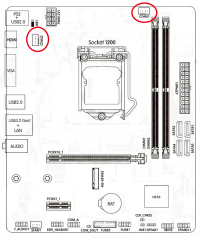


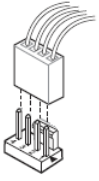
HD-audio-compliant pin definition

Legacy AC'97 compliant definition

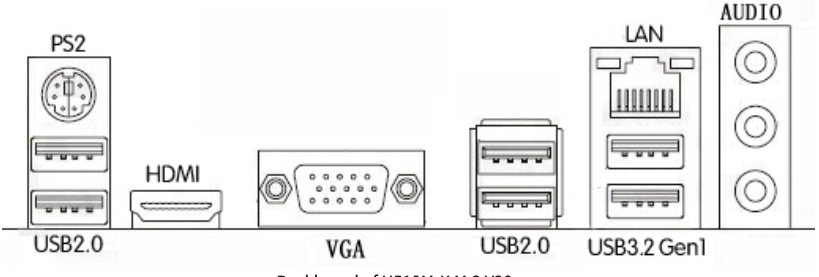
· CPU, Chassis, and Power fan connectors

Connect the fan cables to the fan connectors on the motherboard, making sure that the black wire of each cable matches the ground pin of the connector.





· Back Panel IO Connector



<Backboard of H510M-K M.2 V20>

Parts	Use
PS/2 Mouse or Keyboard Connector	This connector is for a PS/2 mouse or Keyboard.
LAN Jack	The standard RJ-45 jack is for connection to single Local Area Network (LAN). You can connect a network cable to it
Lie-In(Blue)	Used for external CD player, tape player or other audio devices.
Line Out(Green)	This connector for speakers or headphones.
Side R/L(Gray)	Side surround speakers connector
VGA	Onboard VGA, connect to Monitor
HDMI	Onboard HDMI port, connect to HDMI Monitor
USB Ports	These connectors are for attaching USB devices such as keyboard, mouse, or other USB-compatible devices.

3.Driver Installation

The drive disc can automatically detect the chipset model, sound card model, on-board video card model or on-board network card model used by the main board, and click the corresponding button to install the corresponding driver.

Warm tip:

The drive disc can automatically detect the chipset model, sound card model, on-board video card model or on-board network card model used by the main board, and click the corresponding button to install the corresponding drive.

At present, the drive disc only contains sound card drive, and the sound card drive control panel can be obtained free of charge through the following two ways:

1. Win10 automatic update.
2. Win10 app store obtains Realtek audio control for free, download the website: https://www.microsoft.com/zh-cn/p/realtek-audio-control/9p2b8mcsvpln.

CAUTION:After installing the hardware, you must install the corresponding driver to play the strong performance of the motherboard.

4.BIOS setup

Entering BIOS Setup

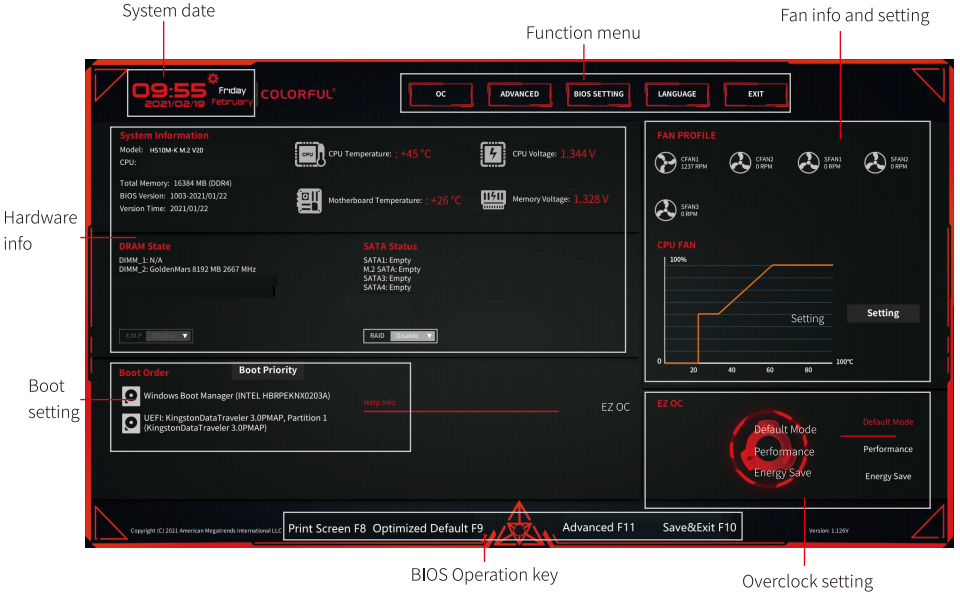
Power on the computer and the system will start the Power On Self Test (POST)process. When the message below appears on the screen, press <DEL> key to enter BIOS:

Press F1 to Run Setup

Press F2 to Load default values and continue

Boot Option Priorities（how to install operating system）

Boot device Priority Setting.If user will install operating system, please put “Boot Option #1” set to your CD-ROM or your USB device, After setting, press "F10" key to save and exit,System boot from CD-ROM or U disk.



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