COLORFUL®

A320M-M.2 PRO V15
B450M-K PRO V14

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.

A320M-M.2 PRO V15/B450M-K PRO V14 motherboard based on AMD A320/B450 Chipset,support AM4 AMD processors, support dual channel DDR4 3200（OC）/3000（OC）/2800（OC）/2666/2400/2133MHz memory, support PCI-E 3.0 standard.

The motherboard provides 1*HDMI port,1*VGA port,2*DDR4 memory slots,4*SATA3.0 6Gb/s ports,4*USB3.0 and 6*USB2.0 ports (include headers),onboard 6-CH audio chipset,onboard 1000M LAN chipset,it's a Cost-effective motherboard！

The motherboard provides 1*PCI Express3.0 x16 slot,1*PCI Express 3.0 x1 slot,1*M.2 slot,it had good extensibility！

1.1.Packing Contents

◆ 1* Colorful A320M-M.2 PRO V15/B450M-K PRO V14 motherboard
◆ 2* SATA cables
◆ 1* Driver/Utility CD
◆ 1* User's Guide
◆ 1* I/O shield

1.2.MOTHERBOARD SPEC

CPU	·Supports Socket AM4 ·Support AMD AM4 CPUs	**Other Connectors**	·1*24-pin ATX Power connector ·1* 4-pin ATX 12V Power connector ·1*Front panel audio connector（F_PANEL） ·1*System panel connector（F_AUDIO） ·1*USB2.0 header (FUSB20_1) ·1*USB3.0 header (FUSB30_1) ·1*PC speaker connector (SPEAK) ·1*Debug header (DEBUG) ·1*SPDIF header (JSPDIF) ·2*Fan header (CPU_FAN、SYS_FAN) ·1*12V 4Pin RGB fan header (FAN_RGB_HEADER) ·1*Flash BIOS header (JBIOS1) ·1*The power off charging and PS2 mouse/keyboard wake up jumper (JKB) ·1*Clear CMOS jumper (CLR_CMOS)
Chipset	·A320M-M.2 PRO V15 uses AMD A320 ·B450M-K PRO V14 uses AMD B450		
Main Memory	·Offer 2 DIMM slots ·Support DDR4 3200 (OC) /3000 (OC) /2800 (OC) /2666/2400 /2133 MHz ·Tips:the frequency of memory overclocking also depends on the performance of matching CPU and memory itself!		
Slots	·1*PCI Express 3.0 x16 slot ·1*PCI Express 3.0 x1 slot ·1*M.2 slot		
Storage	·4*SATA3.0 port		
USB	·4*USB3.0+6*USB2.0(including the headers)	**High Definition Audio**	·Onboard 6-channel High Definition audio chipset ·Support 3D surround sound
Rear IO Connector	·1*PS/2 Mouse or Keyboard port ·1*LAN(RJ45) port ·4*USB 2.0 ports ·2*USB3.0 ports ·3*Audio ports(audio in,audio out, microphone) ·1*VGA port ·1*HDMI port	**Onboard LAN**	·Onboard 1000M LAN ·Provides 10/100/1000Mb Ethernet

1.3.Motherboard Layout

1、PS/2 Mouse/Keyboard and USB2.0 ports
2、Connect to HDMI monitor
3、Connect to VGA monitor
4、Connect to USB3.0 devices
5、Connect to USB2.0 devices and LAN
6、Connect to audio devices
7、Power off charging and PS2 mouse /keyboard wake up jumper
8、4-pin Power connector
9、AMD AM4 socket
10、CPU fan connector
11、DIMM slots (DDR4)
12、24-pin ATX Power connector
13、SATA3.0 ports
14、Flash Bios header
15、12V 4Pin RGB FAN header
16、System fan connector
17、PCI Express 3.0 X16 slot, for VGA Card
18、DEBUG header
19、Clear CMOS jumper
20、PCI Express 3.0 X1 slot
21、Front panel audio connector
22、SPDIF header
23、Speaker connector
24、USB 3.0 header
25、USB 2.0 headers
26、Front power on / off , restart , indicator light header
27、M.2 slot
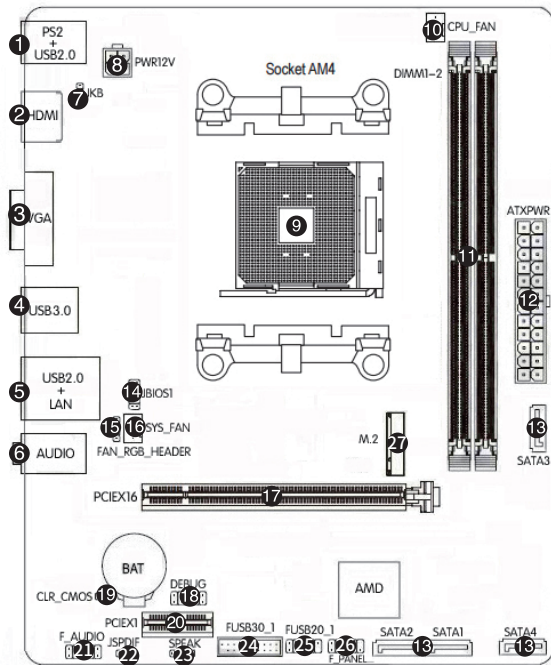
Hardware Installation

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

When installing a CPU, always remember to install a CPU heatsink. An CPU heatsink is necessary to prevent overheating and maintain system stability. Follow the steps below to ensure correct APU and heatsink installation. Wrong installation can damage both the APU and the motherboard.

1. Pull the lever sideways away from the socket. Make sure to raise the lever up to a 90-degree angle.
2. Locate the pin one (denoted by a small triangle) of the CPU socket and the CPU..
3. If the CPU is correctly installed, the pins should be completely embedded into the socket and can not be seen. Please note that any violation of the correct installation procedures may cause permanent damages to your motherboard.
4. Press the CPU down firmly into the socket and close the lever. As the CPU is likely to move while the lever is being closed, always close the lever with your fingers pressing tightly on top of the CPU to make sure the CPU is properly and completely embedded into the socket.
5. Locate the CPU fan connector on the motherboard.
6. Position the cooling set onto the retention mechanism. Hook one end of the clip to hook first.
7. Then press down the other end of the clip to fasten the cooling set on the top of the retention mechanism. Locate the Fix Lever and lift up it.
8. Fasten down the lever.
9. Attach the CPU Fan cable to the CPU fan connector on the motherboard.

A Small Triangle Marking Denotes Pin One of the Socket — AM4 Socket
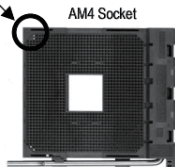
A Small Triangle Marking Denotes CPU Pin One — AM4 CPU

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.

DIMM1
DIMM2

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.

DIMM notch

Unlocked retaining clip

DIMM slot key

Locked Retaining Clip
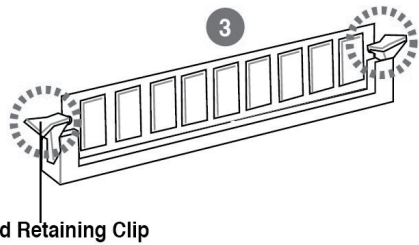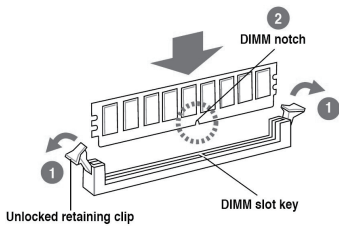
2.4. Installing the Motherboard

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
    - 4-pin ATX 12V power
- Internal Headers
    - Front panel
    - USB Headers
    - Audio
- Serial ATA III
- Chassis Fans
- Rear panel USB 2.0 Adapter
- Expansion slots

2.7.1. ATX power connectors (24-pin ATXPWR, 4-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.
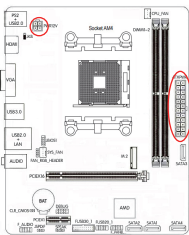
12	24		
+3.3VDC			GND
+12VDC			+5VDC
+12VDC			+5VDC
+5VSB			+5VDC
PWR_OK			NC
GND			GND
+5VDC			GND
GND			GND
+5VDC			PS_ON#
GND			GND
+3.3VDC			-12VDC
+3.3VDC			+3.3VDC
1	13		

1. Ground
2. Ground
3. +12V
4. +12V
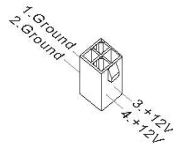
2.7.2. Power off charging and PS2 mouse/keyboard wake up jumper

Only the PS2+USB ports on the back panel can support the shutdown charging function. You can open this function by shorting 2-3pin.

Note: the white silk-screen "1" on the PCB is the first needle of jumper.
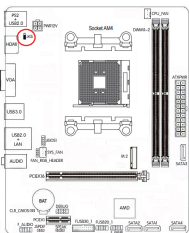
2.7.3.Serial ATA 3.0 6Gb/s connectors (7-pin)

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.



```
GND
RSATA_TXP1
RSATA_TXN1
GND
RSATA_RXP1
RSATA_RXN1
GND
```
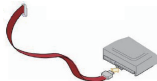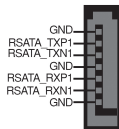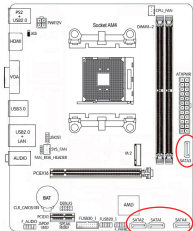
2.7.4.USB2.0 connectors

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.
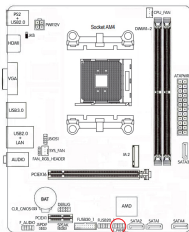


```
USB
VCC   VCC   D-   D+   GND   NC
VCC   D-   D+   GND
```
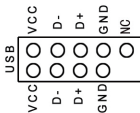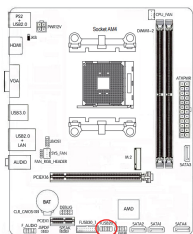
2.7.5.SPEAK header：

This SPEAK header is for Speaker serial devices
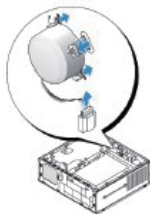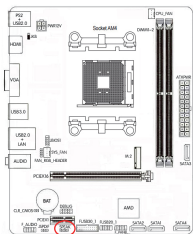
2.7.6.System panel connector
This connector supports several chassis-mounted functions.

PWR_LED   PWR_ON
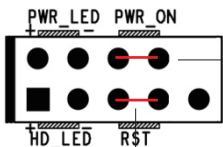
→ Short circuit these two pins to power on

HD_LED   RST

→ Short circuit these two pins to restart

2.7.7.PCI Express3.0 x16 and PCI Express 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.
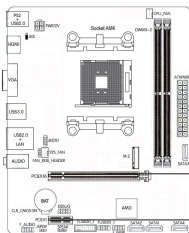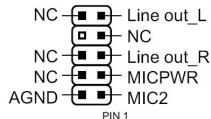
→ PCI Express3.0 x16 Slot

→ PCI Express x1 Slot

2.7.8.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.

SENSE2_RETUR — PORT2 L
— SENSE_SEND
SENSE1_RETUR — PORT2 R
PRESENCE# — PORT1 R
GND — PORT1 L
PIN 1
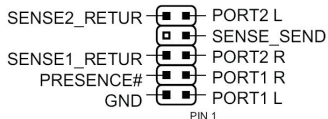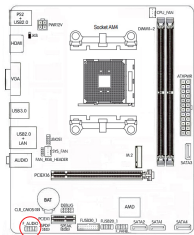
HD-audio-compliant
pin definition

NC — Line out_L
— NC
NC — Line out_R
NC — MICPWR
AGND — MIC2
PIN 1

Legacy AC'97
compliant definition

2.7.9.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.
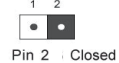
Clear CMOS PROCEDURE

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.

Pin 1-2 Closed

1-2 clear CMOS
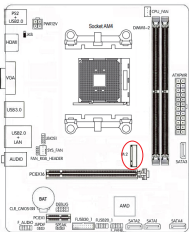
Pin 2 Closed
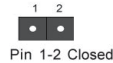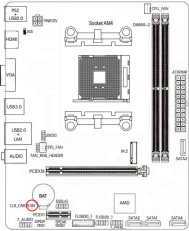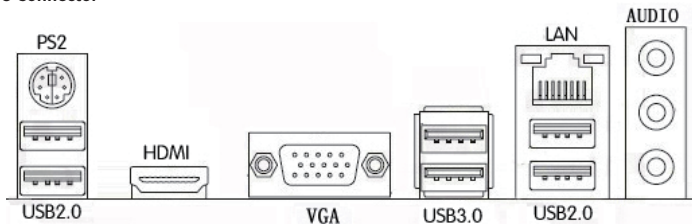
1or2 normal

Clear CMOS settings

2.7.10.M.2 slot

The motherboard has one M.2 slot,support PCI-e x4 and SATA SSD,support 2242/2280 size 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 first 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.

2.7.11. 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.

2.7.12. 12V 4-pin RGB Fan/ LED header

The motherboard offer two 12V 4-pin RGB LED Fan/Strip headers. During installation, the 12V pin on the RGB fan is aligned with the 12V pin on the motherboard.

*Note: RGB LED Fan/Strip is optional equipment, please purchase separately.

FAN_RGB_HEADER

2.7.13. USB 3.0 connectors

This connector is for USB 3.0 devices.

2.7.14.Back Panel IO Connector

<Backboard of A320M-M.2 PRO V15/B450M-K PRO V14>

Parts	Use
PS/2 Mouse or Keyboard Connector	This connector is 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.BIOS setup

The chapter contains the following:
· Main （System Information）
· Advanced （Advanced BIOS Features）
· Chipset （Chipset Settings）
· Security （Security Settings）
· Boot （Startup Settings）
· OC Drive （OverClock Settings）

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

(Press the <F1> key to enter BIOS Setup,press the <F2> key to load default values and continue)

If the boot self test (POST) program information is disappeared before you respond,you can turn it off and then turn on,or press the Reset button on the chassis to restart your computer, can also press < Ctrl > + < Alt > + < Delete > to restart the computer.

BIOS Setup Program Function Keys
< ↑ ↓ >   Upward and downward move to select a setup menu
< ← → >   To the left and right move to select a setup menu
< Enter >   Execute command or enter a menu
< Esc >   Main Menu: Exit the BIOS Setup program
           Submenus: Exit current submenu
< F1 >   Help topic(Only the status display menu and select Settings menu are valid)
< F7 >   Restore the previous CMOS settings
< F9 >   Load Optimized Defaults
< F10 >   Save all the changes and exit the BIOS setup program
The BIOS settings can be operated with the mouse.

BIOS Main Menu
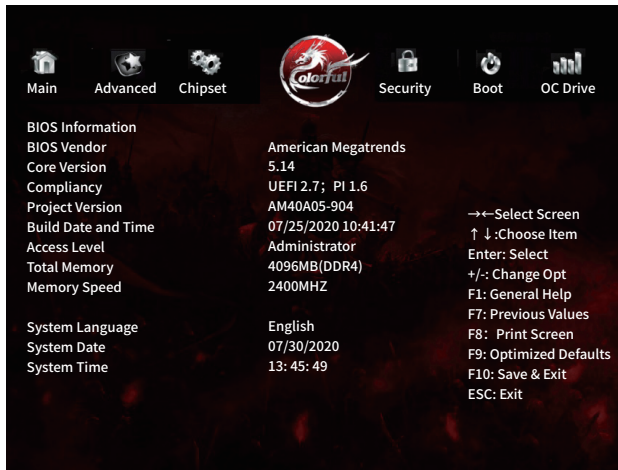
Boot（Startup Settings）
Boot Option Priorities（how to install operating system）
Boot device Priority Setting.If user will install operating system, please put "Boot Option #1" set to your CD-ROM or your USB device, After setting, press "F10" key to save and exit,System boot from CD-ROM or U disk.

4.Copyright Notice

Copyright

Trademarks

5.Technical Support

If a problem arises with your system and no solution can be obtained from the user's manual, please contact your place of purchase or local distributor. Or our engineer, send the follow information to us!

Customer name_____   Purchase date_____

Contacts _____   Contact phone_____

Contact address_____   Product model_____

Product SN _____   Dealer name_____

Dealer phone _____   Dealer address _____

Website: www.colorful.cn   Service hotline: +86400-678-5866