ASUS PRIME H310M-R R2.0

ASUS PRIME H310M-R R2.0 Motherboard User Manual

Comprehensive guide for installation, operation, and maintenance.

1. Introduction

This manual provides detailed instructions for the installation, configuration, and maintenance of your ASUS PRIME H310M-R R2.0 motherboard. Designed for Intel LGA 1151 processors, this Micro ATX motherboard offers essential features for building a reliable personal computer system.

Key features include:

- **ASUS OptiMem:** Careful routing of traces and vias to preserve signal integrity for improved memory stability.
- **Fan Xpert:** Flexible controls for ultimate cooling and quietness, plus GPU-temperature sensing for cooler gaming.
- **5X Protection III:** Multiple hardware safeguards for all-round protection.

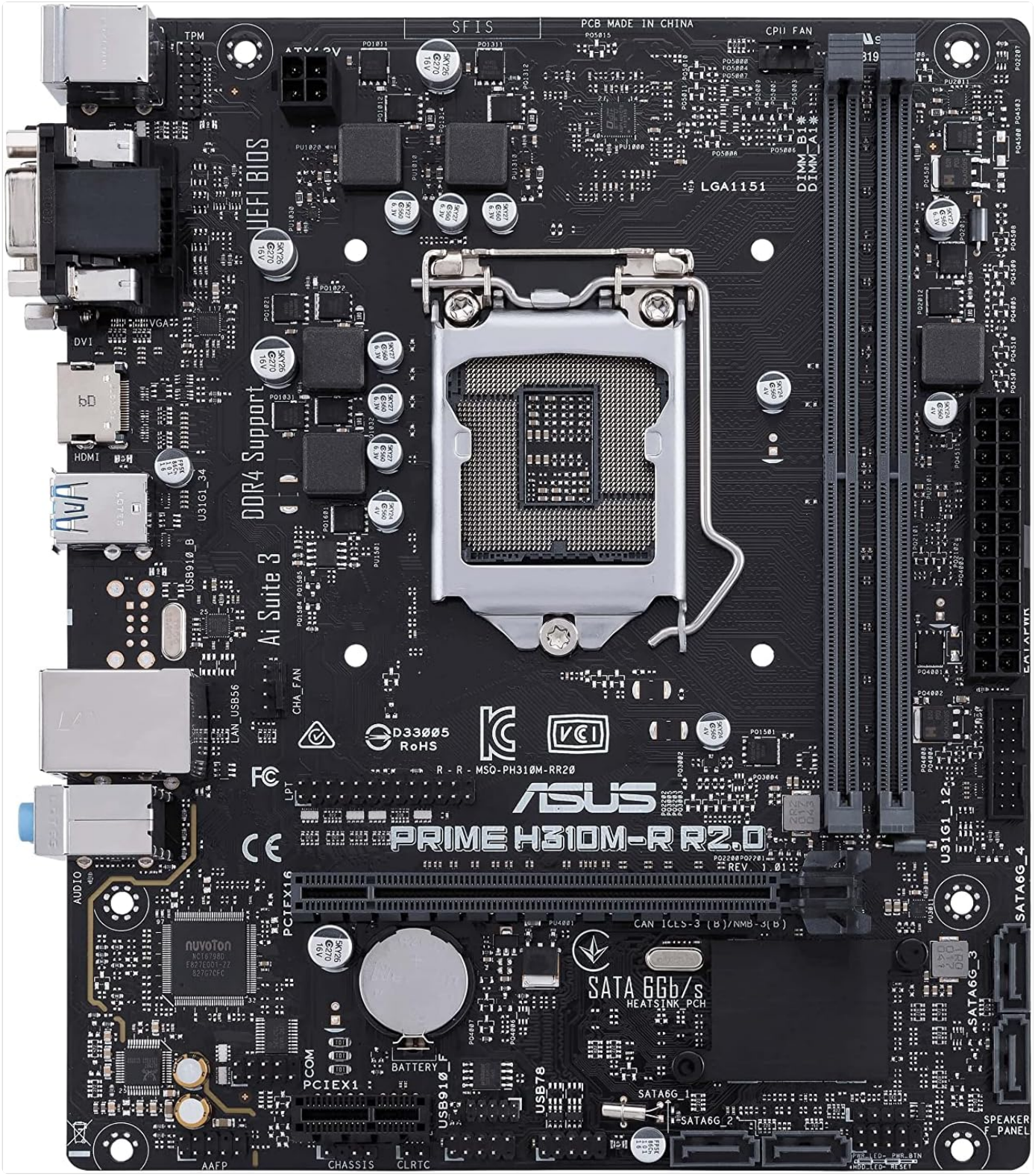


Figure 1.1: Top-down view of the ASUS PRIME H310M-R R2.0 motherboard, showcasing its layout including the CPU socket, RAM slots, and various connectors.

2. Setup and Installation

Before beginning the installation process, ensure you have all necessary components and tools. Always handle the motherboard by its edges to avoid static discharge, and consider wearing an anti-static wrist strap.

2.1 Pre-Installation Checks

- Verify compatibility of your CPU, RAM, and other components with the H310 chipset and LGA 1151 socket.
- Ensure your power supply unit (PSU) has sufficient wattage for all components.

- Prepare your computer case by installing standoffs for the Micro ATX form factor.

2.2 Component Installation

1. **CPU Installation:**
   Carefully open the CPU socket lever. Align the triangular mark on the CPU with the mark on the socket, then gently place the CPU into the socket. Close the lever to secure the CPU. Do not force the CPU into the socket.

Figure 2.1: Detailed view of the LGA 1151 CPU socket and surrounding components, including the two DDR4 memory slots.

2. **CPU Cooler Installation:**

Apply thermal paste (if not pre-applied) to the CPU. Mount the CPU cooler according to its manufacturer's instructions, ensuring even pressure and secure attachment. Connect the CPU fan cable to the "CPU_FAN" header on the motherboard.

3. **Memory (RAM) Installation:**
   Open the clips on both ends of the DDR4 memory slots. Align the notch on the memory module with the key in the slot. Press down firmly on both ends of the module until the clips snap into place. This motherboard supports two DDR4 DIMM slots.
4. **Motherboard Installation into Case:**
   Install the I/O shield into the case's rear opening. Carefully place the motherboard onto the standoffs inside the case, aligning the screw holes. Secure the motherboard with screws.
5. **Power Supply Connections:**
   Connect the 24-pin ATX power connector and the 8-pin (or 4-pin) CPU power connector from your PSU to the corresponding ports on the motherboard. Ensure all connections are firm.
6. **Storage Device Installation:**
   Connect SATA data cables from your storage drives (HDDs/SSDs) to the SATA 6Gb/s ports on the motherboard. Connect SATA power cables from your PSU to the drives.
7. **Graphics Card (Optional) Installation:**
   Insert your PCI Express graphics card into the PCIe x16 slot until it clicks into place. Secure the card with a screw to the case. Connect any necessary PCIe power cables from your PSU to the graphics card.

2.3 Front Panel and Peripheral Connections

Connect the front panel headers (power button, reset button, HDD LED, power LED) to the corresponding pins on the motherboard, typically located at the bottom right. Refer to the motherboard's silkscreen labels for correct polarity. Connect USB 2.0, USB 3.0, and front panel audio headers as needed.

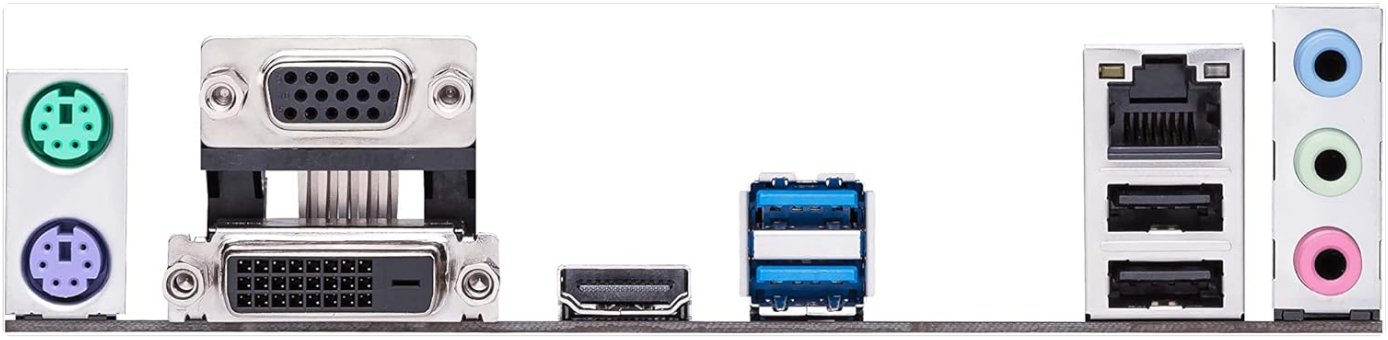


Figure 2.2: Rear I/O panel of the ASUS PRIME H310M-R R2.0 motherboard, showing ports for PS/2 keyboard/mouse, VGA, DVI-D, HDMI, USB 2.0, USB 3.0, LAN, and audio jacks.

3. Operating Your Motherboard

3.1 Initial Boot-Up and BIOS/UEFI Setup

After completing all hardware installations, connect your monitor, keyboard, and mouse. Power on your system. During the initial boot sequence, press the `DEL` or `F2` key repeatedly to enter the BIOS/UEFI setup utility. Here you can configure boot order, system time, and other advanced settings.

- **Boot Order:** Set your primary boot device (e.g., SSD or HDD with OS).
- **System Time:** Adjust the date and time.
- **Fan Control:** Utilize Fan Xpert settings to optimize cooling and noise levels.

3.2 Driver Installation

Once your operating system is installed, it is crucial to install the latest drivers for your motherboard's components. These include chipset drivers, LAN drivers, audio drivers, and any other specific drivers for integrated peripherals. You can find these drivers on the ASUS support website for your specific motherboard model.

3.3 Operating System Installation

Insert your operating system installation media (USB drive or DVD). Follow the on-screen prompts to install your preferred operating system. Ensure your system meets the minimum requirements for the OS.

4. Maintenance

Regular maintenance helps ensure the longevity and optimal performance of your motherboard and PC system.

4.1 Cleaning

- Periodically clean dust from inside your PC case, especially around fans and heatsinks, using compressed air.
- Ensure the system is powered off and unplugged before cleaning.
- Avoid using liquid cleaners directly on components.

4.2 BIOS/UEFI Updates

ASUS periodically releases BIOS/UEFI updates to improve compatibility, stability, and performance. Check the ASUS support website for your model for the latest BIOS versions and follow the provided update instructions carefully. Incorrect BIOS updates can damage your motherboard.

4.3 Driver Updates

Keep your system drivers updated to ensure optimal performance and compatibility with new software and hardware. Regularly check the ASUS support website and component manufacturers' websites for the latest driver releases.

5. Troubleshooting

This section provides solutions to common issues you might encounter.

5.1 Common Issues and Solutions

Problem	Possible Cause	Solution
No Power / System Not Booting	Loose power connections, faulty PSU, incorrect front panel wiring.	Check 24-pin ATX and 8-pin CPU power connectors. Verify front panel power switch wiring. Test PSU.
No Display Output	Incorrect monitor connection, faulty graphics card, RAM not seated correctly.	Ensure monitor cable is connected to the correct port (motherboard or graphics card). Reseat RAM modules. Test with a known good graphics card if applicable.
Component Not Detected (e.g., HDD/SSD, RAM)	Loose data/power cables, incorrect BIOS settings, faulty component.	Check SATA data and power connections. Verify BIOS settings for storage detection. Reseat RAM.
System Instability / Crashes	Overheating, outdated drivers, faulty RAM, unstable overclock.	Monitor temperatures. Update drivers. Run memory diagnostic tests. Reset BIOS to default settings.

If issues persist, consult the ASUS support website or contact technical support.

6. Specifications

Detailed technical specifications for the ASUS PRIME H310M-R R2.0 motherboard.

Feature	Detail
Brand	ASUS
Model Name	ASUS PRIME H310M-R R2.0
Form Factor	Micro ATX
CPU Socket	LGA 1151
Compatible Processors	Intel 8th Generation, Intel 9th Generation, Intel 10th Generation (Note: H310 chipset officially supports 8th/9th gen, 10th gen compatibility might require specific BIOS updates or be limited)
Chipset Type	Intel H310
Memory Technology	DDR4 SDRAM
Memory Slots	2 x DIMM
Maximum Memory Supported	6 GB (Note: This value appears to be an error in the provided data; H310 chipsets typically support up to 32 GB or 64 GB depending on DIMM configuration. User should verify with official ASUS specs.)
Memory Clock Speed	2666 MHz
Graphics Card Interface	PCI Express
SATA Ports	SATA 6Gb/s (Number not specified, but typically 4 for H310)
USB 2.0 Ports	2 (Rear I/O) + Internal Headers
HDMI Ports	1
DVI-D Ports	1
VGA Ports	1
Ethernet Ports	1
Audio Jacks	3 (Rear I/O)
Product Dimensions	23.01 x 24.99 x 5.99 cm
Item Weight	400 g

Note: Specifications are subject to change without notice. For the most accurate and up-to-date information, please refer to the official ASUS product page. The "Maximum Memory Supported" value of 6 GB appears to be an error in the provided data; H310 chipsets typically support up to 32 GB or 64 GB depending on DIMM configuration.

7. Warranty and Support

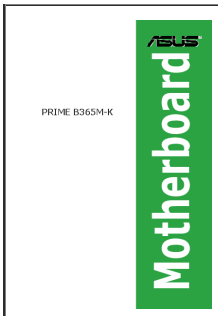
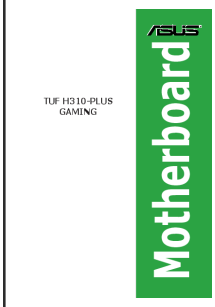
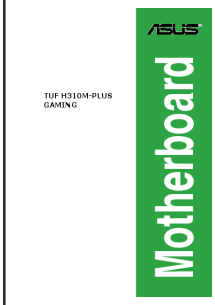
ASUS provides comprehensive support for its products. For warranty information, technical assistance, driver downloads, and BIOS updates, please visit the official ASUS support website.

ASUS Support Website: www.asus.com/support/

When contacting support, please have your motherboard's model name (PRIME H310M-R R2.0) and serial number ready.

Related Documents - PRIME H310M-R R2.0

	ASUS PRIME H310M-R R2.0 Motherboard User Manual This user manual provides comprehensive information for the ASUS PRIME H310M-R R2.0 motherboard, covering product introduction, specifications, safety guidelines, BIOS setup, and component installation. It details motherboard features, connectors, rear panel I/O, CPU and memory installation, and BIOS configuration.
	ASUS PRIME H310M-E R2.0 Motherboard User Manual This user guide provides comprehensive information for the ASUS PRIME H310M-E R2.0 motherboard, covering safety precautions, product introduction, detailed specifications, BIOS setup procedures, and contact information for support.
	ASUS PRIME H310M-C R2.0 Motherboard User Guide Comprehensive user guide for the ASUS PRIME H310M-C R2.0 motherboard, detailing installation, BIOS setup, specifications, and safety information. Learn about components, connectors, and system configuration for optimal performance.

	[ASUS PRIME B365M-K Motherboard User Manual] This user manual provides comprehensive information for the ASUS PRIME B365M-K motherboard, covering installation, BIOS setup, and specifications. It details component connections, safety precautions, and system configuration options.
	[ASUS TUF H310-PLUS GAMING Motherboard User Manual] Comprehensive user manual for the ASUS TUF H310-PLUS GAMING motherboard, covering installation, BIOS setup, specifications, safety information, and compliance details.
	[ASUS TUF H310M-PLUS GAMING Motherboard User Manual] User manual for the ASUS TUF H310M-PLUS GAMING motherboard, detailing specifications, installation, BIOS setup, safety guidelines, and regulatory compliance.