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ASUS ASUS Prime H510M-E

ASUS Prime H510M-E Micro-ATX Motherboard User Manual

Model: ASUS Prime H510M-E

1. Introduction

This manual provides detailed instructions for the installation, operation, and maintenance of your ASUS Prime H510M-E Micro-ATX Motherboard. Designed for Intel 11th/10th Gen Core processors, this motherboard offers robust performance and essential features for a reliable computing experience.



Figure 1: ASUS Prime H510M-E Motherboard and Retail Box.

2. Key Features

- **Intel LGA 1200 Socket:** Compatible with 11th Gen Intel Core processors.

- **5X Protection III:** Enhanced durability with LANGuard, DRAM overcurrent protection, overvoltage protection, SafeSlot Core, and stainless-steel back I/O.
- **ASUS OptiMem:** Proprietary trace layout for improved memory overclocking and stability.
- **Ultrafast Connectivity:** Features PCIe 4.0, a 32Gbps M.2 slot, Intel 1 Gb Ethernet, and USB 3.2 Gen 1 Type-A ports.
- **Comprehensive Cooling:** Equipped with a PCH heatsink and Fan Xpert for efficient thermal management.

3. Setup and Installation

3.1 Unpacking the Motherboard

Carefully remove the motherboard from its packaging. Ensure all components listed in the package contents are present.

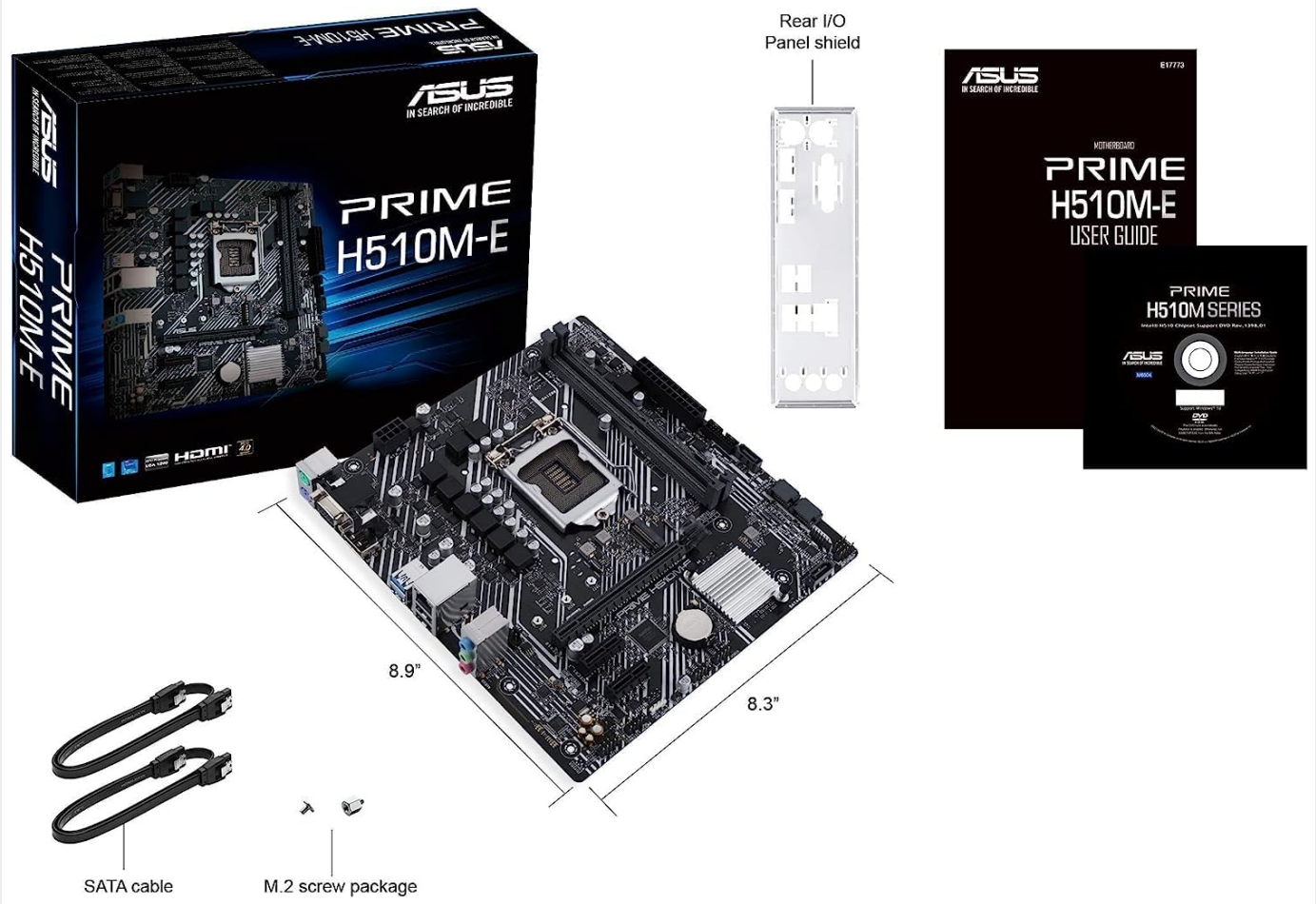


Figure 2: Motherboard and included accessories, including SATA cables and M.2 screw package.

3.2 Component Overview

Familiarize yourself with the various ports and connectors on the motherboard. This includes the CPU socket, RAM slots, PCIe slots, M.2 slot, and I/O panel connectors.



Figure 3: Top-down view of the ASUS Prime H510M-E motherboard, highlighting the CPU socket, RAM slots, and various headers.

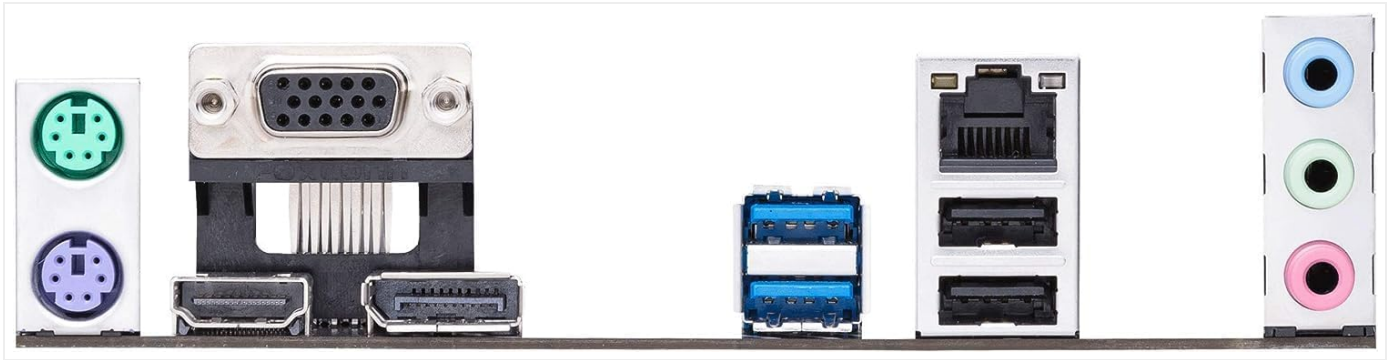


Figure 4: Rear I/O panel showing PS/2 ports, D-Sub, HDMI, DisplayPort, USB 3.2 Gen 1, USB 2.0, Ethernet, and audio jacks.

3.3 CPU Installation

Open the CPU socket lever, align your Intel LGA 1200 processor with the socket, and gently place it in. Close the lever to secure the CPU. Refer to the CPU manufacturer's instructions for specific cooler installation.

3.4 Memory (RAM) Installation

This motherboard supports DDR4 memory. Open the clips on the DIMM slots, align the memory module's notch with the slot's key, and press down firmly until the clips snap into place.

3.5 Storage Device Installation (M.2 and SATA)

Install M.2 SSDs into the dedicated M.2 slot and secure with the provided screw. Connect SATA drives to the SATA 6Gb/s ports using SATA cables.

3.6 Graphics Card (PCIe) Installation

Insert your PCIe 4.0 compatible graphics card into the primary PCIe x16 slot. Ensure it is seated correctly and secured with the case latch or screw.

3.7 Power Connections

Connect the 24-pin ATX power connector and the 8-pin ATX 12V power connector from your power supply to the motherboard.

4. Operating Instructions

4.1 First Boot and BIOS Setup

Upon first power-on, enter the BIOS/UEFI setup by pressing the DEL key during POST. Configure boot order, enable XMP for memory, and set up other system preferences.

4.2 Driver Installation

Install all necessary drivers for the chipset, LAN, audio, and any other integrated components from the ASUS support website or the provided driver CD/USB.

4.3 Software Utilities

ASUS provides various utilities such as Fan Xpert for fan control and Armoury Crate for system monitoring and RGB lighting control. Install these for optimal system management.

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Video 1: An overview of ASUS B550 AMD Ryzen WiFi 6 Gaming Motherboard Series, demonstrating features relevant to ASUS motherboard operation and software utilities.

5. Maintenance

5.1 BIOS Updates

Regularly check the ASUS support website for BIOS updates to ensure compatibility with new hardware and improved system stability. Follow the provided instructions carefully for BIOS flashing.

5.2 Cleaning

Keep your motherboard and PC case clean from dust. Use compressed air to remove dust from fans, heatsinks, and other components. Ensure the system is powered off and unplugged before cleaning.

6. Troubleshooting

6.1 No Power/No Display

- Verify all power cables (24-pin ATX, 8-pin ATX 12V) are securely connected.
- Ensure the CPU and RAM are correctly seated.
- Check monitor connections and power.
- If using integrated graphics, ensure no discrete GPU is installed or that the BIOS is configured to use integrated graphics.

6.2 System Instability/Crashes

- Update BIOS and all drivers to the latest versions.
- Test memory modules individually to identify faulty RAM.
- Monitor CPU and GPU temperatures to prevent overheating.
- Reset BIOS settings to default.

6.3 Peripheral Detection Issues

- Ensure peripherals are correctly connected to the appropriate ports.
- Install or update USB drivers.
- Check BIOS settings for USB port enablement.

7. Specifications

Feature	Detail
Brand	ASUS
Model Name	Prime H510M-E
CPU Socket	LGA 1200
Compatible Processors	10th and 11th Generation Intel Core
Chipset Type	Intel H510
RAM Memory Technology	DRAM (DDR4)
Memory Clock Speed	Up to 4600 MHz (OC)
PCIe Version	4.0
M.2 Slot	1 x 32Gbps
Ethernet	Intel 1 Gb Ethernet
USB Ports	USB 3.2 Gen 1 Type-A, USB 2.0
Video Outputs	DisplayPort, HDMI, D-Sub (VGA)
Form Factor	Micro-ATX
Product Dimensions	2.13 x 10.4 x 10.75 inches
Item Weight	1.79 pounds

8. Warranty and Support

For warranty information and technical support, please visit the official ASUS support website. You can find drivers, FAQs, and contact information for customer service.

- **ASUS Support Website:** www.asus.com/support/
- **Protection Plans:** Additional protection plans may be available for purchase. Refer to your retailer for details.

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