ASUS TUF GAMING A520M-PLUS WIFI

ASUS TUF Gaming A520M-PLUS (WiFi) Motherboard User Manual

Model: TUF GAMING A520M-PLUS WIFI

Product Overview

The ASUS TUF GAMING A520M-PLUS WiFi motherboard is designed for AMD AM4 (3rd Gen Ryzen™) microATX systems. It features M.2 support, 802.11ac Wi-Fi, DisplayPort, HDMI, D-Sub, USB 3.2 Gen 1 Type-A, and Aura Addressable Gen 2 headers. This motherboard is built with military-grade components for durability and offers comprehensive cooling options, ensuring stable performance for gaming and demanding tasks.

Figure 1: Top-down view of the ASUS TUF Gaming A520M-PLUS WiFi Motherboard, showcasing its layout and key components.

Package Contents

Verify that all items are present in the package:

- ASUS TUF Gaming A520M-PLUS WiFi Motherboard
- User Manual
- I/O Shield
- 2 x SATA 6Gb/s cables
- M.2 SSD screw package
- 1 x ASUS Wi-Fi moving antenna
- 1 x TUF Gaming sticker

Figure 2: The motherboard packaging and its contents, including the manual, I/O shield, cables, and antenna.

Setup

1. Motherboard Layout and Connectors

Familiarize yourself with the various components and connectors on the motherboard before installation.

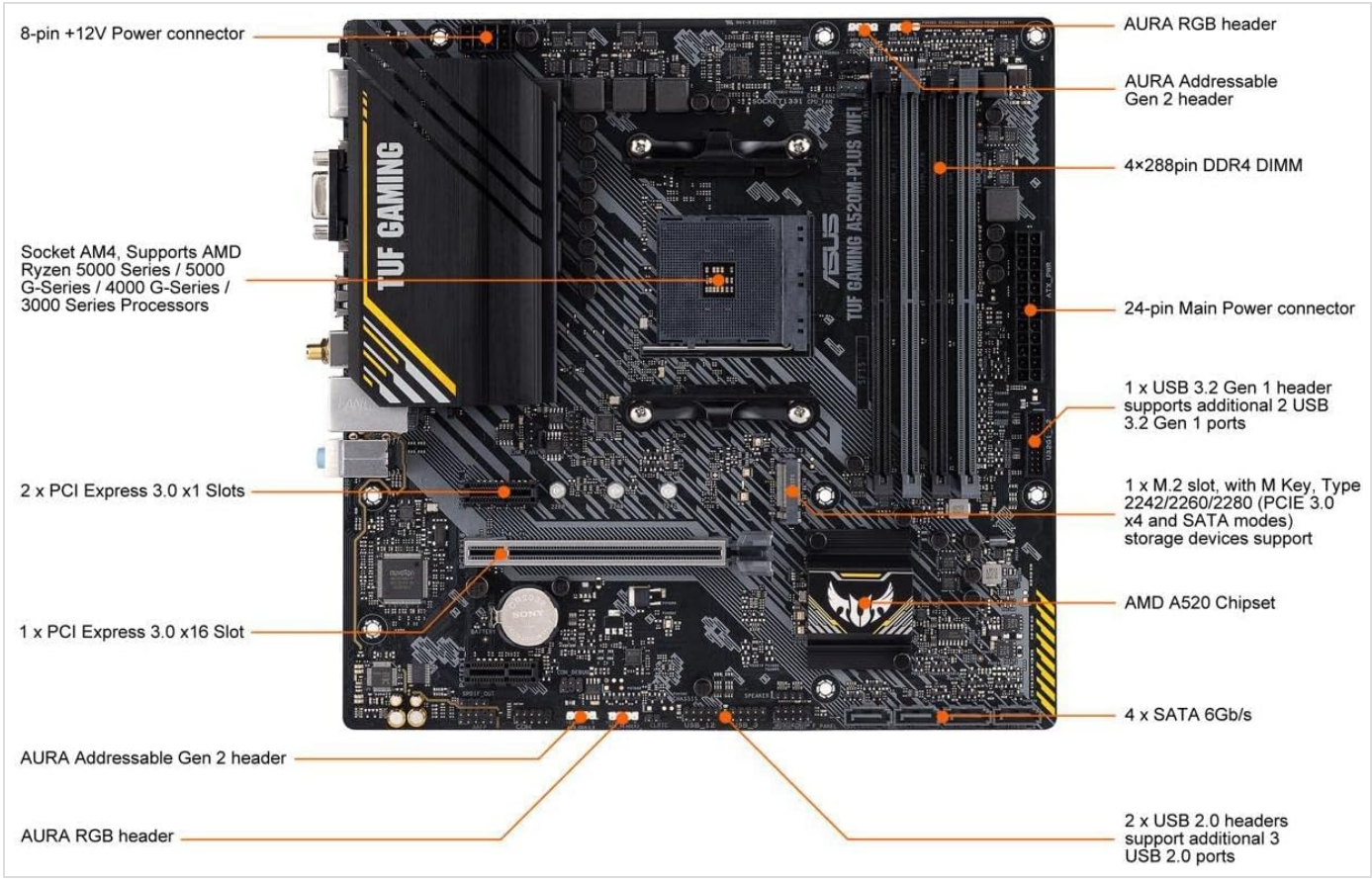

Figure 3: Detailed diagram of the motherboard, highlighting key connectors such as the AM4 socket, DDR4 DIMM slots, M.2 slot, SATA ports, and various headers.

- **CPU Socket (AM4):** Supports AMD Ryzen 5000 Series/ 4000 G-Series/ 3000 Series Desktop Processors.
- **DDR4 DIMM Slots:** Four slots for DDR4 memory modules.
- **M.2 Slot:** Supports M Key, Type 2242/2260/2280 (PCIe 3.0 x4 and SATA modes) storage devices.
- **PCI Express Slots:** Includes 1 x PCI Express 3.0 x16 Slot and 2 x PCI Express 3.0 x1 Slots.
- **SATA 6Gb/s Ports:** Four ports for connecting SATA storage devices.
- **USB Headers:** USB 3.2 Gen 1 Type-A and USB 2.0 headers for front panel connectivity.
- **AURA RGB Headers:** For connecting compatible RGB lighting devices.
- **Power Connectors:** 24-pin Main Power connector and 8-pin +12V Power connector.

2. Installation Steps

1. **Prepare the Case:** Install the I/O shield into the case's rear opening.
2. **Install the CPU:** Carefully place the AMD AM4 processor into the CPU socket, aligning the triangle marker on the CPU with the marker on the socket. Secure the retention arm.
3. **Install the CPU Cooler:** Attach the compatible CPU cooler according to its manufacturer's instructions.
4. **Install Memory Modules:** Insert DDR4 memory modules into the DIMM slots. Ensure they are fully seated by pressing down until the clips on both ends lock into place. Note that some boards may have only one movable clip per slot.
5. **Install Storage Devices:**
    - **M.2 SSD:** Insert the M.2 SSD into the M.2 slot and secure it with the provided screw.
    - **SATA Drives:** Connect SATA data cables from your storage drives (HDDs/SSDs) to the SATA 6Gb/s ports on the motherboard. Connect power cables from your power supply to the drives.
6. **Install Graphics Card (Optional):** If using a dedicated graphics card, insert it into the PCI Express 3.0 x16 slot until it clicks into place. Secure it with the case screw and connect any necessary PCIe power cables from the power supply.

7. **Connect Case Cables:** Connect the front panel connectors (power button, reset button, HDD LED, power LED), USB headers, and audio headers from your case to the corresponding pins on the motherboard. Refer to the motherboard manual for exact pin locations.
8. **Connect Power Supply:** Connect the 24-pin Main Power connector and the 8-pin +12V Power connector from your power supply to the motherboard.
9. **Install Wi-Fi Antenna:** Attach the ASUS Wi-Fi moving antenna to the antenna connectors on the rear I/O panel.

Operating

1. Initial Boot-up

1. Ensure all components are securely connected and the power supply is plugged in and switched on.
2. Press the power button on your computer case.
3. The system should power on and display the ASUS logo. If not, refer to the Troubleshooting section.
4. Access the BIOS/UEFI setup by pressing the `DEL` or `F2` key during boot-up.

2. BIOS/UEFI Configuration

The UEFI BIOS provides an intuitive interface for system configuration.

- **EZ Mode:** Provides a quick overview of system information, fan profiles, boot priority, and XMP settings.
- **Advanced Mode:** Offers detailed configuration options for CPU, memory, storage, and peripherals.
- **BIOS FlashBack:** Allows updating the BIOS without a CPU or memory installed. Refer to the specific instructions in the full manual for this feature.
- **Secure Boot:** For Windows 11 installation, ensure TPM (Trusted Platform Module) is enabled in the BIOS.

3. Driver Installation

After installing the operating system, install the necessary drivers for optimal performance. Drivers can be found on the ASUS support website or the included support DVD (if applicable).

- Chipset Drivers
- LAN Drivers
- Wi-Fi Drivers
- Audio Drivers
- Graphics Drivers (if using integrated graphics)
- ASUS Utilities (e.g., Armoury Crate for driver updates and system management)

Maintenance

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

- **Dust Removal:** Periodically clean dust from the motherboard and components using compressed air. Ensure the system is powered off and unplugged before cleaning.
- **BIOS Updates:** Check the ASUS support website for the latest BIOS updates. Updates can improve stability, compatibility, and performance. Follow the update instructions carefully.
- **Driver Updates:** Keep all drivers updated to ensure compatibility and optimal performance with your operating system and hardware.
- **Cable Management:** Ensure internal cables are neatly routed to improve airflow and prevent interference.

Troubleshooting

This section provides solutions to common issues you might encounter.

Problem	Possible Solution
System does not power on.	Check power supply connections to the motherboard (24-pin and 8-pin). Ensure the power supply switch is ON. Verify front panel power button connection to the motherboard. Test power supply with another system or a power supply tester.
No display on monitor.	Ensure monitor is connected to the correct video output (motherboard or graphics card). Check RAM modules are properly seated in their slots. If using a dedicated graphics card, ensure it is fully seated and has adequate power. Try clearing CMOS (refer to motherboard manual for jumper location).
System reboots unexpectedly or crashes.	Check CPU and case fan connections and ensure proper cooling. Verify memory stability (run memory diagnostic tools). Ensure all drivers are correctly installed and updated. Check for loose power or data cables.
Wi-Fi or LAN not working.	Install or update Wi-Fi/LAN drivers. Ensure Wi-Fi antenna is securely connected. Check network cable connection for LAN. Verify network adapter is enabled in Device Manager.

SPECIFICATIONS

Feature	Detail
Brand	ASUS
Model Name	TUF GAMING A520M-PLUS WIFI
CPU Socket	Socket AM4
Compatible Processors	AMD 3rd Generation Ryzen, Ryzen 5000 Series/ 4000 G-Series/ 3000 Series Desktop Processors
Chipset Type	AMD 785E
RAM Memory Technology	DDR4
Memory Clock Speed	2133 MHz (Supports higher speeds via OC)
Max Memory Storage Capacity	32 GB (per DIMM, total depends on configuration)
Wireless Connectivity	802.11ac Wi-Fi
Video Output Ports	DisplayPort, HDMI, D-Sub
USB Ports	USB 3.2 Gen 1 Type-A, USB 2.0

Feature	Detail
Storage Interfaces	32Gb/s M.2 onboard, SATA 6Gb/s
Product Dimensions	2.75 x 10.75 x 11 inches
Item Weight	1.27 pounds

Warranty and Support

For detailed warranty information and technical support, please refer to the official ASUS website or contact ASUS customer service.

- **Online Support:** Visit the ASUS Support Website for drivers, manuals, FAQs, and troubleshooting guides.
- **Product Registration:** Register your product on the ASUS website to receive updates and support.
- **Contact Support:** Contact ASUS customer service for technical assistance or warranty claims.

Related Documents - TUF GAMING A520M-PLUS WIFI

	ASUS TUF GAMING X870-PLUS WIFI Motherboard User Manual Detailed user manual for the ASUS TUF GAMING X870-PLUS WIFI motherboard, covering installation, setup, BIOS, specifications, and safety information. Learn about AMD Ryzen™ 9000/8000/7000 series processors, DDR5 memory, PCIe 5.0, and Wi-Fi 7 connectivity.
	ASUS TUF B350M-PLUS GAMING Motherboard User Manual Comprehensive user manual for the ASUS TUF B350M-PLUS GAMING motherboard. Includes installation guides, BIOS setup, technical specifications, and safety information for AMD Ryzen processors.
	ASUS TUF GAMING B550-PLUS WIFI II Motherboard User Manual This document is the user manual for the ASUS TUF GAMING B550-PLUS WIFI II motherboard. It provides detailed information on installation, component connections, BIOS settings, features, safety guidelines, compliance, warranty, and support.

	[ASUS TUF GAMING X570-PLUS (WI-FI) Motherboard User Manual] Comprehensive user guide for the ASUS TUF GAMING X570-PLUS (WI-FI) motherboard. Learn about installation, BIOS setup, specifications, and features for AMD Ryzen processors.
	[ASUS TUF GAMING A520M-PLUS Motherboard User Manual] Comprehensive user manual for the ASUS TUF GAMING A520M-PLUS motherboard, covering installation, specifications, BIOS setup, safety information, and compliance details. Includes detailed hardware descriptions and operational guides.
	[ASUS TUF GAMING B550M-PLUS (WI-FI) Motherboard User Manual and Specifications] Detailed user manual for the ASUS TUF GAMING B550M-PLUS (WI-FI) motherboard, covering package contents, comprehensive specifications, installation guides for CPU, DIMM, and M.2, BIOS features, and RAID support.