

GIGABYTE A520M DS3H

GIGABYTE A520M DS3H AC Motherboard User Manual

Model: A520M DS3H AC | Brand: GIGABYTE

1. INTRODUCTION

This manual provides detailed instructions for the installation, setup, and operation of your GIGABYTE A520M DS3H AC motherboard. Please read this manual thoroughly before installing your system components to ensure correct assembly and optimal performance. This motherboard is designed to support AMD Ryzen processors with an AM4 socket, offering a robust foundation for your personal computer.

2. KEY FEATURES

- Supports AMD Ryzen 5000 Series/ 3rd Gen Ryzen and 3rd Gen Ryzen with Radeon Graphics Processors.
- Dual Channel ECC/ Non-ECC Unbuffered DDR4, 4 DIMMs.
- 5+3 Phases Pure Digital VRM Solution with Low RDS(on) MOSFETs for stable power delivery.
- Ultra-Fast NVMe PCIe 3.0 x4 M.2 Connector for high-speed storage.
- Onboard Intel Dual Band 802.11ac Wireless & BT 4.2 with WIFI Antenna for wireless connectivity.
- GIGABYTE Exclusive 8118 Gaming LAN with Bandwidth Management.
- HDMI, DVI-D, Display Ports for Multiple Display configurations.
- RGB FUSION 2.0 Supports Addressable LED & RGB LED Strips for customizable lighting.
- Smart Fan 5 Features Multiple Temperature Sensors, Hybrid Fan Headers with FAN STOP for efficient cooling.
- Q-Flash Plus for updating BIOS without installing the CPU, Memory, and Graphics Card.

3. PACKAGE CONTENTS

Verify that all items listed below are included in your motherboard package. If any items are missing or damaged, please contact your retailer.

- GIGABYTE A520M DS3H AC Motherboard
- User Manual / Quick Installation Guide

- I/O Shield
- SATA Data Cables (x2)
- Wi-Fi Antenna
- M.2 SSD Screws and Standoffs

4. MOTHERBOARD LAYOUT

Familiarize yourself with the various components and connectors on your motherboard.



Figure 4.1: Top-down view of the GIGABYTE A520M DS3H AC motherboard, showing the CPU socket, RAM slots, PCIe slots, and M.2 slot.



Figure 4.2: Rear I/O panel of the GIGABYTE A520M DS3H AC motherboard, featuring USB ports, HDMI, DVI-D, DisplayPort, LAN, Wi-Fi antenna connectors, and audio jacks.

4.1. Key Components Overview

- **CPU Socket (AMD AM4):** Located centrally, this is where your AMD Ryzen processor is installed.
- **DDR4 DIMM Slots (x4):** Positioned to the right of the CPU socket, these slots support up to 128GB of DDR4 memory.
- **PCIe Slots:** Includes a PCIe 3.0 x16 slot for your graphics card and multiple PCIe x1 slots for expansion cards.
- **M.2 Connector:** An Ultra-Fast NVMe PCIe 3.0 x4 M.2 slot for high-speed solid-state drives.
- **SATA Ports (x4):** For connecting traditional SATA hard drives and SSDs.
- **Rear I/O Panel:** Provides various external connectivity options including USB 3.2 Gen 1, USB 2.0, HDMI, DVI-D, DisplayPort, Gigabit LAN, Wi-Fi antenna connectors, and audio jacks.
- **Power Connectors:** 24-pin ATX main power connector and 8-pin ATX 12V power connector.

5. SETUP AND INSTALLATION

Follow these steps carefully to install your motherboard and essential components.

5.1. Preparing the Case

1. Ensure your PC case is compatible with Micro-ATX motherboards.
2. Install the I/O shield into the designated opening at the rear of your PC case.
3. Install the necessary standoffs in your case for the Micro-ATX motherboard.

5.2. CPU Installation

1. Locate the AM4 CPU socket on the motherboard.
2. Lift the load lever on the CPU socket.
3. Carefully align the golden triangle on your AMD Ryzen CPU with the triangle mark on the CPU socket.
4. Gently place the CPU into the socket without applying force.
5. Lower the load lever to secure the CPU in place.
6. Install your CPU cooler according to its manufacturer's instructions.

5.3. RAM (Memory) Installation

1. Open the clips on both ends of the DDR4 DIMM slots.
2. Align the notch on your DDR4 memory module with the notch in the DIMM slot.
3. Press down firmly on both ends of the memory module until the clips snap into place.

4. For dual-channel performance, refer to your motherboard's manual for recommended slot configurations (e.g., A2 and B2).

5.4. M.2 SSD Installation

1. Locate the M.2 slot on the motherboard.
2. Remove the M.2 standoff screw from the motherboard.
3. Insert your M.2 SSD into the slot at an angle.
4. Gently push the SSD down and secure it with the M.2 screw.

5.5. Graphics Card (GPU) Installation

1. Locate the primary PCIe 3.0 x16 slot.
2. Remove the corresponding expansion slot cover from your PC case.
3. Align your graphics card with the PCIe slot and press down firmly until it is seated.
4. Secure the graphics card to the case with a screw.
5. Connect any necessary PCIe power cables from your power supply to the graphics card.

5.6. Motherboard Installation in Case

1. Carefully place the motherboard into the PC case, aligning the screw holes with the installed standoffs.
2. Ensure the rear I/O ports align correctly with the I/O shield.
3. Secure the motherboard to the case using the appropriate screws. Do not overtighten.

6. OPERATING INSTRUCTIONS

6.1. Initial Boot-Up

1. Connect your monitor, keyboard, and mouse to the rear I/O panel.
2. Connect the power supply to the motherboard and other components.
3. Press the power button on your PC case.
4. The system should boot to the BIOS/UEFI interface or begin the operating system installation process.

6.2. BIOS/UEFI Setup

To enter the BIOS/UEFI setup, press the **DEL** key during the boot-up process. Here you can configure various system settings, including:

- Boot Order
- Memory Frequency (XMP Profile)
- Fan Control (Smart Fan 5)
- Storage Configuration
- Q-Flash Plus for BIOS updates

Refer to the detailed BIOS/UEFI manual available on the GIGABYTE website for advanced settings.

6.3. Driver Installation

After installing your operating system, install the necessary drivers for optimal performance. Drivers can be found on the included support CD or downloaded from the official GIGABYTE website for your specific

motherboard model.

- Chipset Drivers
- LAN Drivers
- Audio Drivers
- Wi-Fi/Bluetooth Drivers
- USB Drivers

7. SPECIFICATIONS

Feature	Specification
CPU Socket	AMD AM4
Compatible Processors	AMD Ryzen 5000 Series/ 3rd Gen Ryzen and 3rd Gen Ryzen with Radeon Graphics Processors
Chipset	AMD A520
Memory (RAM)	4 x DDR4 DIMM sockets supporting up to 128 GB (32 GB single DIMM capacity) of system memory; Dual Channel architecture; Support for DDR4 2133 MHz to 4733 MHz (OC)
Expansion Slots	1 x PCI Express x16 slot (PCIe 3.0); 2 x PCI Express x1 slots (PCIe 3.0)
Storage Interface	1 x M.2 connector (Socket 3, M key, type 2242/2260/2280/22110 SATA and PCIe 3.0 x4/x2 SSD support); 4 x SATA 6Gb/s connectors
LAN	Realtek GbE LAN chip (1 Gbit/100 Mbit)
Wireless Communication	Intel Dual Band 802.11ac Wi-Fi & Bluetooth 4.2
Audio	Realtek ALC887 codec, High Definition Audio, 2/4/5.1/7.1-channel
USB Ports	4 x USB 3.2 Gen 1 ports (2 on back panel, 2 via internal header); 8 x USB 2.0/1.1 ports (4 on back panel, 4 via internal headers)
Internal I/O Connectors	1 x 24-pin ATX main power connector; 1 x 8-pin ATX 12V power connector; 1 x CPU fan header; 2 x system fan headers; 1 x M.2 Socket 3 connector; 4 x SATA 6Gb/s connectors; 1 x front panel header; 1 x front panel audio header; 1 x USB 3.2 Gen 1 header; 2 x USB 2.0/1.1 headers; 1 x Trusted Platform Module (TPM) header (2x6 pin, for GC-TPM2.0_S module only); 1 x speaker header; 1 x Clear CMOS jumper; 1 x chassis intrusion header; 1 x RGB LED strip header; 1 x Addressable LED strip header
Back Panel Connectors	1 x PS/2 keyboard/mouse port; 1 x DVI-D port; 1 x HDMI port; 1 x DisplayPort; 4 x USB 3.2 Gen 1 ports; 2 x USB 2.0/1.1 ports; 1 x RJ-45 port; 2 x SMA antenna connectors (1T1R); 3 x audio jacks
Form Factor	Micro ATX (24.4cm x 24.4cm)

8. MAINTENANCE

- **Keep it Clean:** Regularly clean dust from inside your PC case, especially from fans and heatsinks, using compressed air.
- **BIOS Updates:** Periodically check the GIGABYTE website for BIOS updates to ensure system stability and compatibility with new hardware. Use Q-Flash Plus for safe updates.
- **Driver Updates:** Keep your drivers updated to the latest versions for optimal performance and security.
- **Cable Management:** Ensure cables are neatly routed to improve airflow and prevent interference.

9. TROUBLESHOOTING

- **No Power:** Check all power connections (24-pin ATX, 8-pin CPU, GPU). Ensure the power supply is switched on.
- **No Display:** Verify monitor connection, ensure graphics card is properly seated, and check if integrated graphics are enabled in BIOS if using an APU.
- **System Instability/Crashes:** Check RAM seating, run memory diagnostic tools, ensure CPU cooler is properly installed, and update drivers/BIOS.
- **BIOS Issues:** Use the Clear CMOS jumper to reset BIOS settings to default. Utilize Q-Flash Plus for BIOS recovery or updates.
- **Peripheral Not Detected:** Ensure USB devices are connected to the correct ports. Check device manager for driver issues.

10. WARRANTY AND SUPPORT

Your GIGABYTE A520M DS3H AC motherboard comes with a limited warranty. Please refer to the warranty card included in your package or visit the official GIGABYTE website for detailed warranty terms and conditions specific to your region.

For technical support, driver downloads, BIOS updates, and FAQs, please visit the official GIGABYTE support website. You can also contact GIGABYTE customer service for further assistance.

Website: www.gigabyte.com