GIGABYTE A520M S2H

GIGABYTE A520M S2H Motherboard User Manual

Model: A520M S2H | Brand: GIGABYTE

Introduction

This user manual provides comprehensive instructions for the installation, operation, and maintenance of your GIGABYTE A520M S2H motherboard. Designed to support 3rd Gen AMD Ryzen Processors, this Micro-ATX motherboard features an AMD AM4 Socket, Dual Channel DDR4 memory support, and a 4+3 Phases Digital PWM design for stable power delivery. It includes essential connectivity options such as a PCIe 3.0 x16 slot for graphics cards, an NVMe PCIe 3.0 x4 M.2 slot for high-speed storage, ALC887 Audio Codec, and Blazing Fast 1GbE LAN. Display outputs include D-Sub, DVI, and HDMI. The Q-Flash Plus feature allows for easy BIOS updates without a CPU, memory, or graphics card installed, and RGB Fusion 2.0 provides customizable lighting effects.



Figure 1: GIGABYTE A520M S2H Motherboard and its retail packaging.

Setup and Installation

Before beginning installation, ensure your workspace is clean and static-free. It is recommended to wear an anti-static wrist strap to prevent damage to components.

1. Unpacking and Inspection

Carefully remove all components from the packaging. Verify that all listed accessories are present. Inspect the motherboard for any visible damage before proceeding.

- GIGABYTE A520M S2H Motherboard
- SATA Cables
- I/O Shield
- User Manual (this document)
- Driver CD/DVD (or download instructions)

2. Motherboard Layout

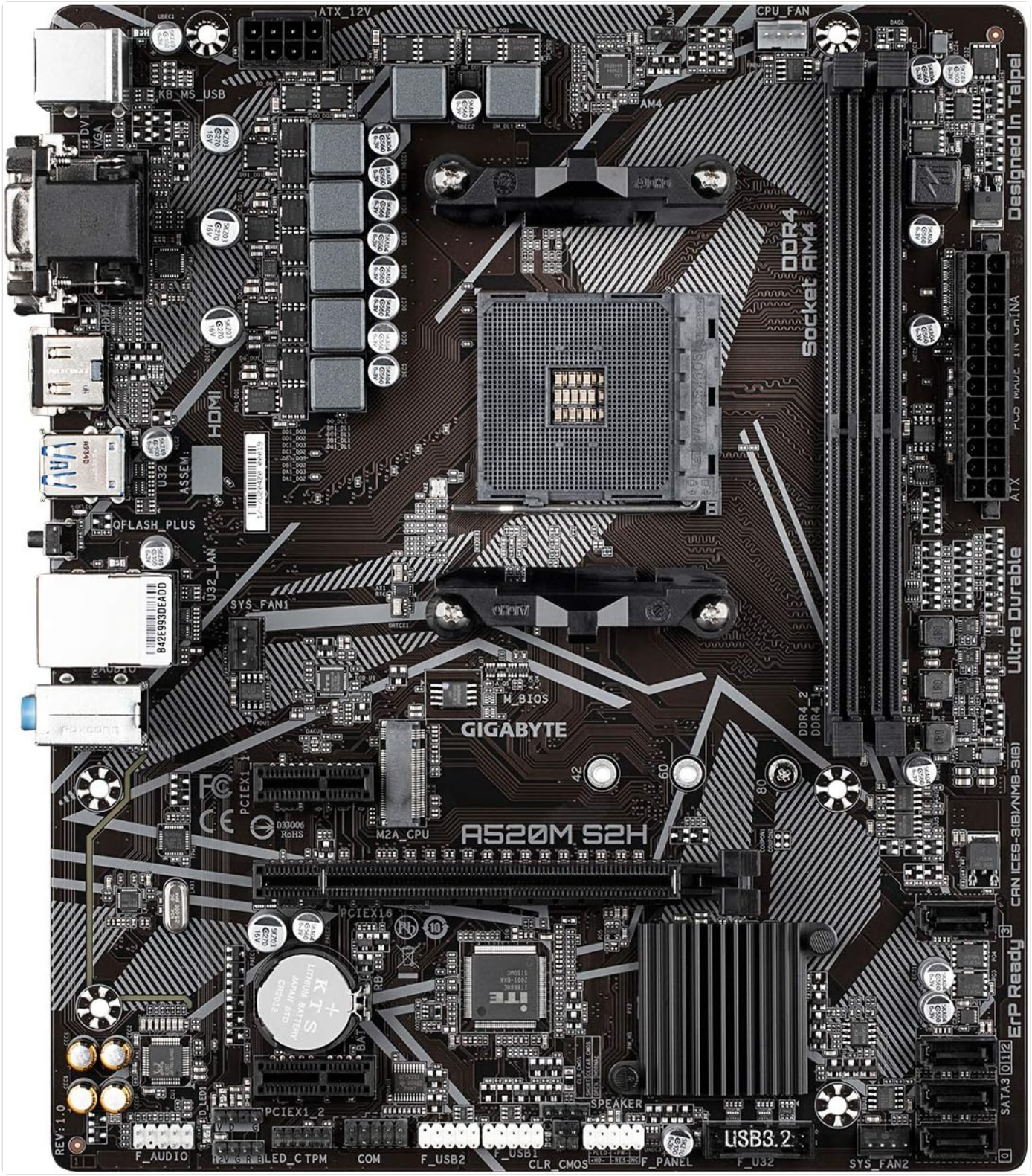


Figure 2: Top-down view of the GIGABYTE A520M S2H motherboard, highlighting key component locations such as the CPU socket, RAM slots, and PCIe slots.

3. Component Installation

1. **CPU Installation:**

   Carefully open the CPU socket lever. Align the triangular mark on the AMD Ryzen processor with the mark on the AM4 socket. Gently place the CPU into the socket without forcing it. Close the lever to secure the CPU.

2. **CPU Cooler Installation:**

   Install your CPU cooler according to its manufacturer's instructions. Ensure proper thermal paste application and secure mounting for optimal cooling.

3. **RAM (Memory) Installation:**

Locate the two DDR4 DIMM slots. Open the clips on both ends of the slot. Align the notch on the memory module with the key in the DIMM slot. Press down firmly on both ends of the memory module until the clips snap into place. For dual-channel performance, install modules in both available slots.

4. **NVMe M.2 SSD Installation:**

   Locate the M.2 slot. Remove the M.2 screw and standoff. Insert the M.2 SSD into the slot at an angle, then gently push it down. Secure the SSD with the screw and standoff.

5. **Graphics Card (PCIe) Installation:**

   Locate the PCIe 3.0 x16 slot. Open the retention clip at the end of the slot. Align your graphics card with the slot and press down firmly until it is fully seated and the clip snaps shut. Secure the card to your PC case with a screw.

6. **Power Supply Connections:**

   Connect the 24-pin ATX power connector and the 8-pin CPU power connector from your power supply to the corresponding ports on the motherboard. Connect SATA power cables to your storage drives.

7. **Storage Drive (SATA) Connections:**

   Connect your SATA storage drives (HDDs/SSDs) to the SATA ports on the motherboard using the provided SATA cables.

8. **Front Panel Connections:**

   Connect the front panel cables (Power SW, Reset SW, HDD LED, Power LED, USB, Audio) from your PC case to the corresponding headers on the motherboard. Refer to the motherboard diagram for exact pinouts.

9. **Rear I/O Connections:**

   Install the I/O shield into your PC case. Connect your peripherals (keyboard, mouse, monitor, speakers, network cable) to the appropriate ports on the rear I/O panel.



Figure 3: Detailed view of the rear I/O panel, showing D-Sub, DVI, HDMI, USB, LAN, and audio ports.

Operating Instructions

1. First Boot and BIOS Configuration

After assembling your system, connect a monitor, keyboard, and mouse. Power on the system. During the boot process, repeatedly press the **DEL** key to enter the BIOS setup utility. Here you can configure boot order, system time, and other advanced settings. Save and exit the BIOS to continue booting into your operating system installation media.

2. Driver Installation

Once your operating system is installed, install the necessary drivers for the motherboard's components. These typically include chipset drivers, LAN drivers, audio drivers, and any other specific drivers for integrated peripherals. Drivers can be found on the GIGABYTE official website for your specific model.

3. RGB Fusion 2.0

If you have compatible RGB components connected to your motherboard, you can use the GIGABYTE RGB Fusion 2.0 software to customize lighting effects and synchronization. Download the software from the GIGABYTE website.

Maintenance

1. Cleaning

Regularly clean your computer's interior to prevent dust buildup, which can lead to overheating and component failure. Use compressed air to remove dust from fans, heatsinks, and other components. Ensure the system is powered off and unplugged before cleaning.

2. BIOS Updates (Q-Flash Plus)

GIGABYTE provides BIOS updates to improve system stability, compatibility, and performance. The A520M S2H features Q-Flash Plus, allowing you to update the BIOS without installing the CPU, memory, or graphics card. Download the latest BIOS file from the GIGABYTE website, rename it to GIGABYTE.bin, save it to a USB flash drive (FAT32 formatted), and follow the Q-Flash Plus instructions in the full manual or on the GIGABYTE support page.

3. Driver Updates

Keep your system drivers updated to ensure optimal performance and compatibility with new software and hardware. Visit the GIGABYTE official website periodically to check for the latest drivers for your motherboard.

Troubleshooting

If you encounter issues with your GIGABYTE A520M S2H motherboard, consider the following common troubleshooting steps:

- **No Power/No Boot:**

  Ensure all power cables (24-pin ATX, 8-pin CPU) are securely connected. Verify your power supply is functioning correctly. Check front panel connections for power button functionality.
- **No Display:**

  Confirm your monitor is connected to the correct display output (on the graphics card or integrated graphics if applicable). Reseat your graphics card and RAM modules. Test with a different monitor or cable if possible.
- **Component Not Detected:**

  Reseat the component (e.g., RAM, M.2 SSD, SATA drive). Check cable connections for SATA drives. Ensure the component is compatible with the motherboard and its drivers are installed.
- **System Instability/Crashes:**

  Check CPU and GPU temperatures. Ensure all drivers are up to date. Run memory diagnostic tools to check for RAM issues. Verify power supply stability.

For more detailed troubleshooting guides or persistent issues, please visit the official GIGABYTE support website or contact their customer service.

Specifications

Feature	Detail
Brand	GIGABYTE
Model Name	A520M S2H
CPU Socket	Socket AM4
Compatible Processors	AMD 3rd Generation Ryzen
Chipset Type	AMD A520
RAM Memory Technology	DDR4

Feature	Detail
Memory Speed	2133 MHz (Supports higher via XMP)
Max RAM	Up to 64GB (2 x 32GB) DDR4 (check GIGABYTE QVL for specific speeds)
PCIe Slots	1x PCIe 3.0 x16, 1x PCIe 3.0 x1
M.2 Slot	1x NVMe PCIe 3.0 x4 M.2 Slot
LAN	1GbE LAN
Audio Codec	ALC887 Audio Codec
Display Interfaces	D-Sub, DVI, HDMI
USB Ports	Multiple USB 2.0 and USB 3.2 Gen1 ports
Form Factor	MicroATX
Dimensions (LxWxH)	10.43 x 9.25 x 2.04 inches

Note: Specifications are subject to change without notice. For the most up-to-date information, please refer to the official GIGABYTE product page.

Warranty Information

GIGABYTE products are covered by a limited warranty. The duration and terms of the warranty may vary by region and product type. Please retain your proof of purchase. For detailed warranty information, including coverage, limitations, and the process for making a warranty claim, please visit the official GIGABYTE website's support section.

Support and Resources

For further assistance, driver downloads, BIOS updates, FAQs, and additional product information, please visit the official GIGABYTE support website:

GIGABYTE Official Support Website

You may also find helpful community forums and video tutorials online for PC building and troubleshooting.

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Question

Example: How do I reset this device or fix this error?

Details

Model number, symptoms, what you tried, or the section of the manual you are using.

Submit question