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MSI Z590APRO

MSI Z590-A PRO Motherboard User Manual

MODEL: Z590APRO

Introduction

This manual provides detailed instructions for the installation, operation, and maintenance of your MSI Z590-A PRO ProSeries Motherboard. Designed for optimal performance and stability, this motherboard supports 11th and 10th Gen Intel Core/Pentium/Celeron processors for LGA 1200 Socket, DDR4 memory up to 5333(OC) MHz, and features PCIe 4.0 for lightning-fast data transfer. Please read this manual thoroughly before beginning installation to ensure proper setup and functionality.

Safety Information

Always observe the following safety precautions when handling computer components:

- Ensure your hands are clean and dry before handling any components.
- Wear an anti-static wrist strap or frequently touch a grounded metal object (like the computer case) to discharge static electricity.
- Unplug the power cord from the wall outlet before installing or removing any components.
- Avoid touching the pins or contacts on the motherboard and other components.
- Keep components away from liquids and extreme temperatures.
- Refer to the specific component manuals for additional safety guidelines.

Package Contents

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

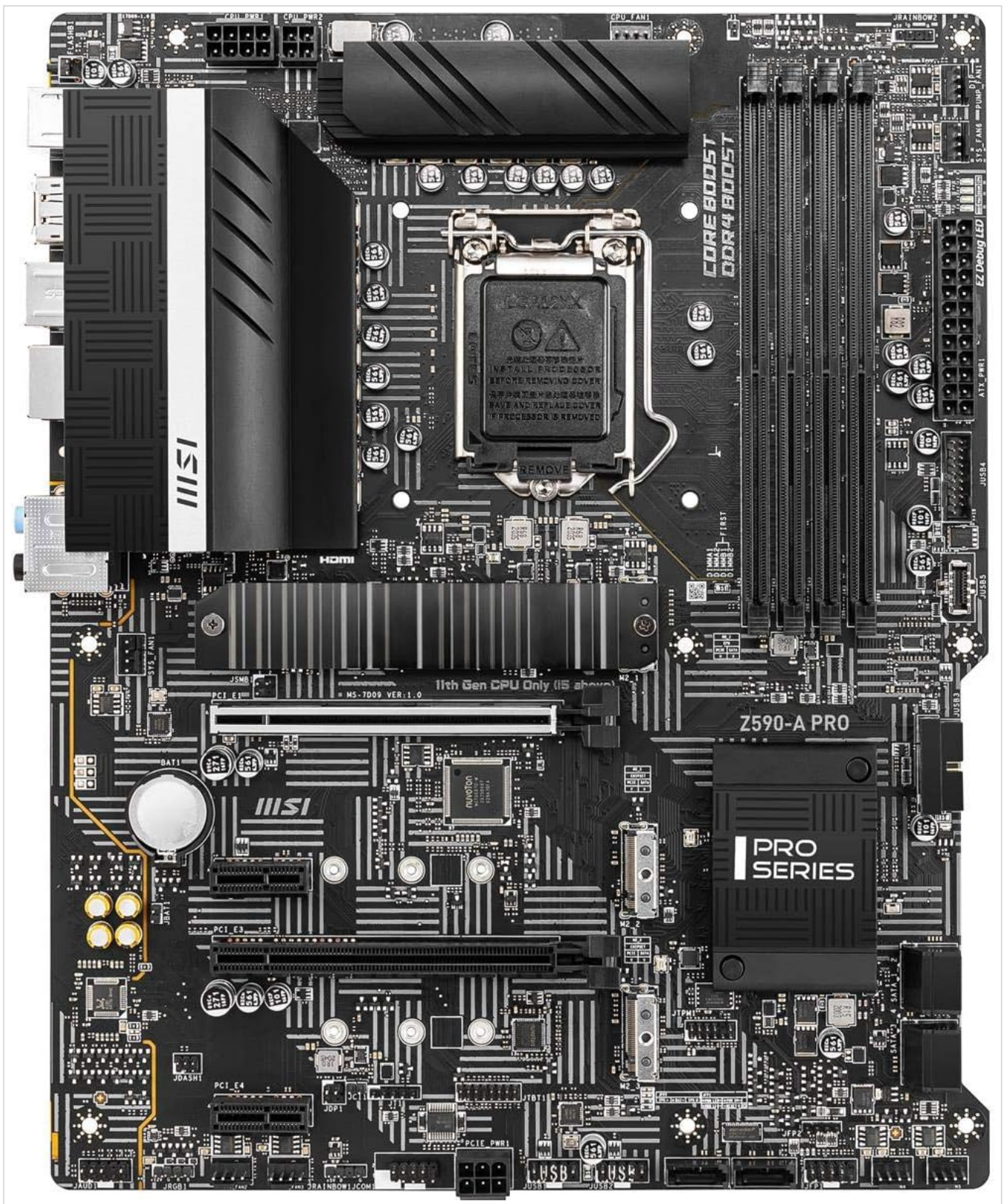


Image showing the MSI Z590-A PRO Motherboard and its included accessories: the motherboard itself, the product box, a Quick Installation Guide, M.2 Screw/Standoff Sets, two SATA Cables, I/O Shielding, a Driver DVD, and a Product Registration Card.

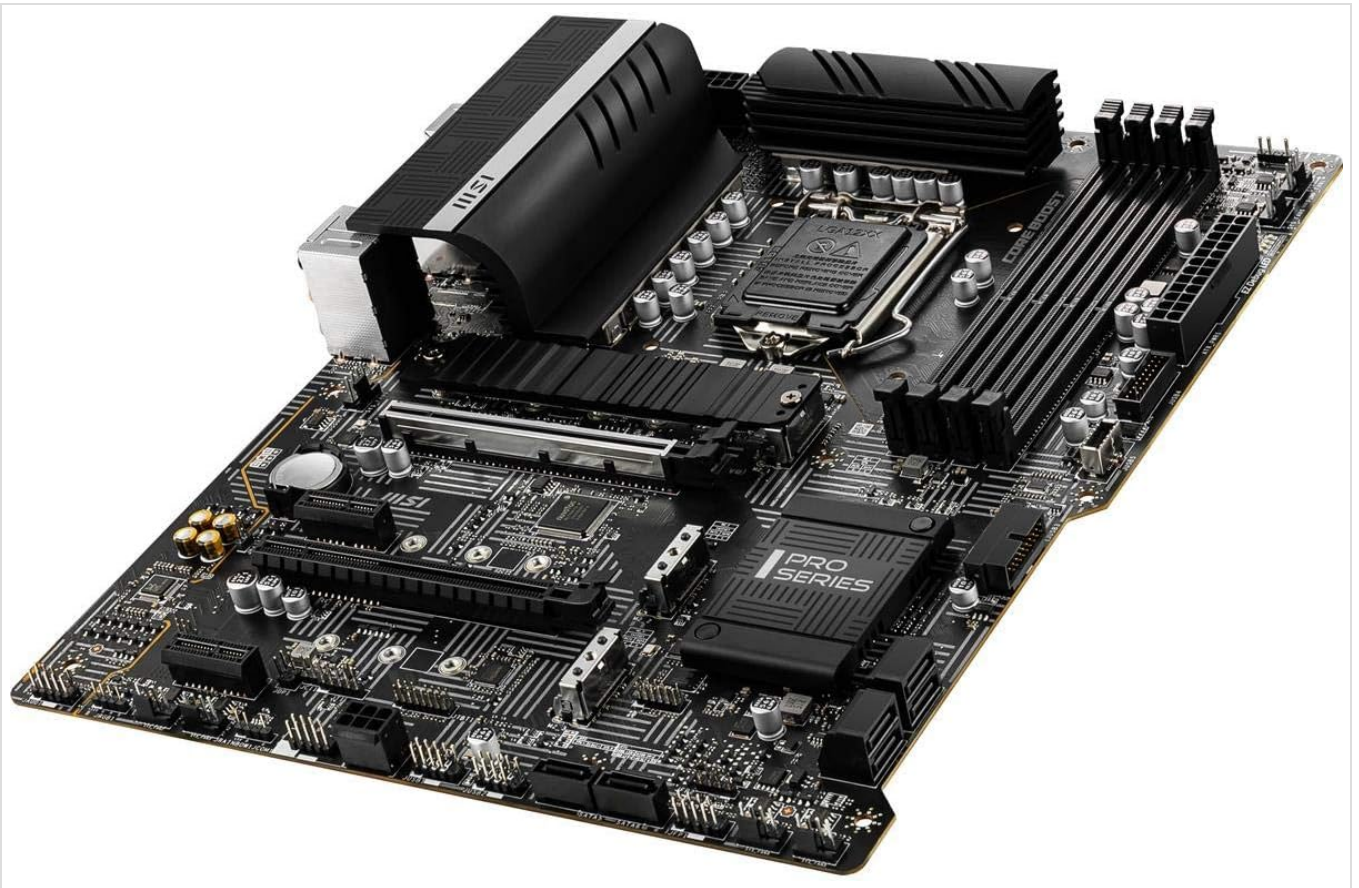
- MSI Z590-A PRO Motherboard
- Quick Installation Guide
- M.2 Screw / Standoff Sets
- 2 x SATA Cables
- I/O Shielding
- Driver DVD
- Product Registration Card

Product Overview

The MSI Z590-A PRO motherboard is designed for robust performance and reliability. Below are key visual representations of the motherboard's layout and features.



A comprehensive top-down view of the MSI Z590-A PRO motherboard, highlighting the CPU socket, RAM slots, PCIe slots, and various headers.



An angled perspective of the MSI Z590-A PRO motherboard, showcasing its heatsinks and overall design.



Illustration indicating support for 11th Gen Intel Core processors and the Intel Z590 Chipset.



Detailed view of the motherboard's power delivery system, featuring a 4+8 pin power connector for stable power to the CPU.

Setup

1. Pre-Installation Checks

- Ensure your power supply is compatible and provides sufficient wattage.
- Prepare your computer case by installing standoffs in the correct positions for an ATX motherboard.
- Gather all necessary tools: Phillips head screwdriver, anti-static wrist strap, thermal paste.

2. Motherboard Installation

- Install the I/O shield into the rear opening of your computer case.
- Carefully align the motherboard with the standoffs in the case and gently lower it into place.
- Secure the motherboard with screws, ensuring it is firmly seated but not overtightened.

3. CPU Installation (LGA 1200 Socket)

- Open the CPU socket lever and lift the load plate.
- Carefully align the triangular mark on the CPU with the mark on the socket.
- Gently place the CPU into the socket without forcing it.
- Close the load plate and push down the lever until it clicks into place.
- Apply thermal paste to the CPU and install your CPU cooler according to its manufacturer's instructions.

4. Memory (DDR4) Installation

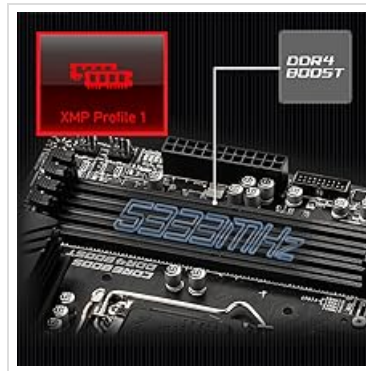
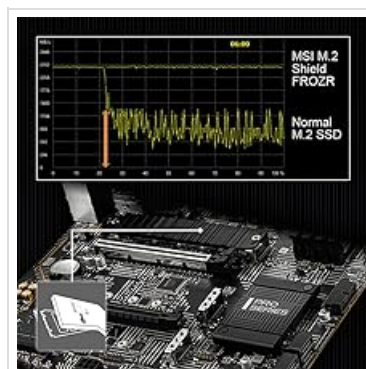


Illustration highlighting DDR4 Boost technology, supporting memory speeds up to 5333MHz (OC) and XMP Profile 1.

- Open the clips at both ends of the DIMM slots.
- Align the notch on the DDR4 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 operation, install memory modules in the recommended slots (refer to the motherboard's silkscreen or full manual).

5. Storage (M.2, SATA) Installation



Graph demonstrating the thermal benefits of MSI M.2 Shield Frozr, showing stable performance compared to a normal M.2 SSD under load.

- **M.2 SSD:** Locate the M.2 slots. Remove the M.2 Shield Frozr heatsink if present. Insert the M.2 SSD into the slot at an angle, then push it down and secure it with the provided M.2 screw/standoff. Reinstall the M.2 Shield Frozr.
- **SATA Drives:** Connect one end of the SATA data cable to a SATA port on the motherboard and the other end to your SATA SSD/HDD. Connect the SATA power cable from your power supply to the drive.

6. Expansion Card (PCIe) Installation



Diagram illustrating the various PCIe slots available on the motherboard, including PCIe 4.0/3.0 x16 and PCIe 3.0 x1 slots.

- Locate the appropriate PCIe slot for your expansion card (e.g., graphics card, network card).
- Remove the corresponding slot cover from your computer case.
- Align the card with the slot and press down firmly until it is fully seated. Secure the card with a screw to the case.

7. Connecting Peripherals and Power



Close-up view of the rear input/output (I/O) panel of the MSI Z590-A PRO motherboard, showing various ports including USB, LAN, audio jacks, and display outputs.

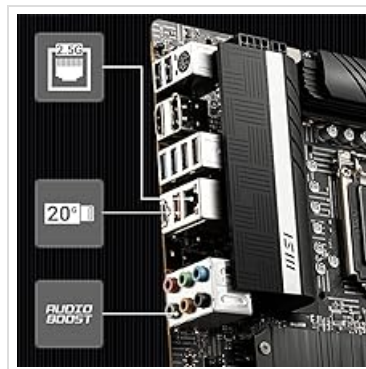


Illustration highlighting key features of the rear I/O panel, such as the 2.5G LAN port, USB ports, and Audio Boost technology.

- Connect the 24-pin ATX power connector and the 8-pin (or 4+8 pin) CPU power connector from your power supply to the motherboard.
- Connect front panel headers (power button, reset button, USB, audio) to their respective pins on the motherboard.

Refer to the motherboard manual for pin layouts.

- Connect your monitor, keyboard, mouse, and other peripherals to the rear I/O panel ports.

Operating

1. First Boot

- After all components are installed and connected, plug in the power cord and turn on your power supply.
- Press the power button on your computer case.
- The system should power on and display the MSI logo or BIOS screen.

2. BIOS/UEFI Settings

- During startup, repeatedly press the **Del** key to enter the BIOS/UEFI setup utility.
- In the BIOS, you can configure boot order, system time, fan speeds, and other advanced settings.
- Save changes and exit the BIOS to continue booting.

3. Driver Installation

- After installing your operating system, install the necessary drivers for the motherboard components (chipset, LAN, audio, etc.).
- Drivers can be found on the included Driver DVD or downloaded from the official MSI website.
- Ensure all drivers are up-to-date for optimal performance and stability.

Maintenance

- **Cleaning:** Regularly clean dust from inside your computer case using compressed air. Pay attention to heatsinks and fan blades. Ensure the system is powered off and unplugged before cleaning.
- **Firmware Updates:** Periodically check the MSI website for BIOS/UEFI firmware updates. Updates can improve compatibility, stability, and performance. Follow the update instructions carefully to avoid system damage.
- **Cable Management:** Ensure cables inside the case are neatly routed to improve airflow and prevent interference.

Troubleshooting

This section provides solutions to common issues you might encounter.

Problem	Possible Cause	Solution
System does not power on.	Loose power connections, faulty PSU, incorrect front panel wiring.	Check 24-pin and CPU power cables. Verify front panel power switch connection. Test PSU.
No display output.	Graphics card not seated, monitor cable loose, incorrect display output selected.	Reseat graphics card. Check monitor cable connections. Ensure monitor is on correct input. Try integrated graphics if available.
System reboots unexpectedly.	Overheating, unstable power, faulty RAM.	Check CPU/GPU temperatures. Ensure proper cooling. Test RAM modules individually.

Problem	Possible Cause	Solution
Operating system not found.	Incorrect boot order, loose storage drive connection, corrupted OS.	Check boot order in BIOS. Reseat SATA/M.2 cables. Reinstall OS if necessary.

Specifications

Detailed technical specifications for the MSI Z590-A PRO Motherboard.

Feature	Detail
Brand	MSI
Series	Z590-A PRO
Model Name	Z590-A PRO
Item Model Number	Z590APRO
CPU Socket	LGA 1200
Compatible Processors	11th and 10th Gen Intel Core/Pentium/Celeron
Chipset Type	Intel Z590
RAM Memory Technology	DDR4
Memory Speed	Up to 5333(OC) MHz
PCIe Slots	PCIe 4.0, PCIe 3.0
M.2 Slots	Yes, with M.2 Shield Frozr
USB	USB 3.2 Gen 2
LAN	2.5G LAN
Dimensions (LxWxH)	12 x 9.6 x 2.5 inches
Item Weight	3.08 pounds
Platform	Windows 10

Warranty and Support

For detailed warranty information, please refer to the warranty card included in your product package or visit the official MSI website. MSI provides technical support to assist with any issues you may encounter.

- **Official User Manual (PDF):** For a more comprehensive guide, you can download the official user manual [here](#).
- **Product Registration:** Register your product to receive support and warranty benefits. You can register your product at [register.msi.com](https://www.msi.com/register).

- **MSI Support:** Visit the MSI support website for drivers, FAQs, and contact information.