

ASRock Z690 Phantom Gaming-ITX/TB4

ASRock Z690 Phantom Gaming-ITX/TB4 Motherboard User Manual

Model: **Z690 Phantom Gaming-ITX/TB4** | Brand: **ASRock**

INTRODUCTION

This manual provides detailed instructions for the installation, operation, and maintenance of your ASRock Z690 Phantom Gaming-ITX/TB4 motherboard. Designed for 12th Gen Intel Core Processors, this Mini ITX motherboard offers advanced features and connectivity for high-performance computing.

WHAT'S IN THE BOX

- Quick Installation Guide
- Support CD
- 2 x SATA Data Cables
- 1 x ASRock WiFi 2.4/5/6 GHz Antenna
- 2 x Screws for M.2 Sockets

KEY FEATURES

- Supports 12th Gen Intel Core Processors (LGA1700)
- 11 Phase SPS Dr.MOS Power Design
- Supports DDR5 6400MHz (OC)
- 1 PCIe 5.0 x16 Slot
- Graphics Output Options: HDMI, DisplayPort, Thunderbolt™ Type-C
- Realtek ALC1220 7.1 CH HD Audio Codec, Nahimic Audio
- 3 SATA3 Ports
- 1 Hyper M.2 (PCIe Gen4 x4) Slot
- 1 Hyper M.2 (PCIe Gen4 x4 & SATA3) Slot
- Thunderbolt™ 4/USB4 Type-C Port
- 1 USB 3.2 Gen2x2 Front Type-C Port
- 4 Rear USB 3.2 Gen2 Type-A Ports

- 3 USB 3.2 Gen1 (1 Rear, 2 Front) Ports
- Killer E3100 2.5G LAN
- Killer AX1675 802.11ax (WiFi 6E) + Bluetooth

SETUP

1. CPU Installation (LGA 1700)

Carefully align your 12th Gen Intel Core Processor with the LGA 1700 socket. Ensure the triangular markers on the CPU and socket match. Gently lower the CPU into the socket without applying force. Close the load plate and secure the retention arm.



Image: Top-down view of the ASRock Z690 Phantom Gaming-ITX/TB4 motherboard, highlighting the LGA 1700 CPU socket.

2. RAM Installation (DDR5)

Insert DDR5 memory modules into the DIMM slots. Ensure the module's notch aligns with the slot's key. Press down firmly on both ends of the memory module until the retention clips snap into place. This motherboard supports DDR5 up to 6400MHz (OC).

3. Storage Installation (M.2 and SATA)

This motherboard features two Hyper M.2 slots (PCIe Gen4 x4, one also supporting SATA3) and three SATA3 ports. For M.2 SSDs, remove the M.2 Thermal Guard heatsink, insert the SSD, and secure it with the provided screw. Reattach the heatsink. Connect SATA drives using the included SATA data cables.



Image: Angled view of the ASRock Z690 Phantom Gaming-ITX/TB4 motherboard, showing the M.2 slots and heatsinks.

4. PCIe Card Installation

Install your graphics card or other PCIe expansion cards into the PCIe 5.0 x16 slot. Ensure the card is fully seated and secured with the case's retention mechanism.

5. Connecting Peripherals and Power

Connect all necessary power cables from your power supply to the motherboard (24-pin ATX, 8-pin CPU). Connect your display to the HDMI, DisplayPort, or Thunderbolt Type-C output. Utilize the various USB ports (Thunderbolt 4/USB4 Type-C, USB 3.2 Gen2x2, USB 3.2 Gen2, USB 3.2 Gen1) for peripherals. Connect to your network via the Killer E3100 2.5G LAN port or use the Killer AX1675 WiFi 6E and Bluetooth for wireless connectivity. Install the included WiFi antenna for optimal wireless performance.



Image: Rear I/O panel of the ASRock Z690 Phantom Gaming-ITX/TB4 motherboard, showing various ports including USB, LAN, and audio.



Image: ASRock Z690 Phantom Gaming-ITX/TB4 motherboard with the WiFi antenna connected to the rear I/O.

BIOS/UEFI Configuration

Upon first boot, access the BIOS/UEFI setup utility by pressing the designated key (usually Del or F2) during startup. The UEFI offers both an "Easy Mode" for basic settings and a "Pro Mode" for advanced configurations. Here you can:

- Configure boot order.
- Enable XMP profiles for optimal memory performance. Manual tuning may be required for stability at higher speeds.
- Adjust fan curves and monitor system temperatures.
- Manage onboard RGB lighting settings. To prevent RGB lights from staying on after shutdown, navigate to "Advanced" -> "Chipset Config" and disable "Turn on onboard LED in S5".
- If using an All-In-One (AIO) liquid cooler, ensure the pump is connected to the correct header (e.g., W_PUMP) and configured in the BIOS to prevent CPU overheating.

Driver Installation

After installing your operating system, ASRock's driver installer may automatically download and prompt for installation of specific drivers. Ensure all necessary drivers, including chipset, LAN, WiFi, and audio drivers, are installed for full system functionality. These can also be found on the ASRock support website.

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. Pay attention to heatsinks and fan areas.
- **BIOS Updates:** Check the ASRock website for BIOS updates. Updates can improve stability, add new features, and enhance compatibility. Follow the update instructions carefully.
- **Driver Updates:** Keep all drivers updated to ensure compatibility and performance with new software and hardware.
- **Temperature Monitoring:** Utilize monitoring software to keep track of CPU, chipset, and M.2 SSD temperatures to prevent overheating. The MOSFET heatsinks and M.2 Thermal Guard 3 are designed to assist with cooling.

TROUBLESHOOTING

If you encounter issues, consider the following common troubleshooting steps:

- **System Not Booting:**
 - Verify all power connections (24-pin ATX, 8-pin CPU) are secure.
 - Reseat RAM modules. Try booting with only one RAM stick.
 - Ensure the CPU is correctly seated in the LGA 1700 socket.
 - Clear CMOS (refer to your motherboard's quick installation guide for jumper location or use the CMOS clear button on the rear I/O if available).
- **Missing Network/WiFi Drivers:** If the operating system does not automatically install network drivers, use the provided support CD or download them from the ASRock website on another device and transfer via USB.
- **RGB Lights Stay On After Shutdown:** As mentioned in the Operating section, disable "Turn on onboard LED

in S5" in the BIOS under "Advanced" -> "Chipset Config".

- **Overheating CPU with AIO Cooler:** Ensure the AIO pump is connected to the dedicated W_PUMP header and configured correctly in the BIOS to run at full speed.
- **SATA Drive Detection Issues:** If using multiple M.2 drives, some SATA ports may be disabled. Consult the motherboard manual for specific port sharing details.
- **XMP Profile Instability:** If enabling XMP causes system instability, try manually adjusting memory timings and voltage or selecting a lower XMP profile.

SPECIFICATIONS

Feature	Detail
Brand	ASRock
Model Name	Z690 PHANTOM GAMING-ITX/TB4
CPU Socket	LGA 1700
Compatible Processors	12th Gen Intel Core
Chipset Type	Intel Z690
RAM Memory Technology	DDR5 (Supports up to 6400MHz OC)
PCIe Slots	1 x PCIe 5.0 x16
M.2 Slots	2 x Hyper M.2 (PCIe Gen4 x4, one also SATA3)
SATA Ports	3 x SATA3 6Gb/s
USB Ports	Thunderbolt 4/USB4 Type-C, USB 3.2 Gen2x2 Front Type-C, 4 Rear USB 3.2 Gen2 Type-A, 3 USB 3.2 Gen1 (1 Rear, 2 Front)
LAN	Killer E3100 2.5G LAN
Wireless	Killer AX1675 802.11ax (WiFi 6E) + Bluetooth
Audio	Realtek ALC1220 7.1 CH HD Audio Codec, Nahimic Audio
Form Factor	Mini ITX
Product Dimensions	8.98 x 7.32 x 3.66 inches
Item Weight	2.2 pounds

OFFICIAL PRODUCT VIDEOS

The following videos provide additional information and demonstrations of the ASRock Z690 Phantom Gaming-ITX/TB4 motherboard.

Product Overview Video

Your browser does not support the video tag.

Video: An overview of the ASRock Z690 Phantom Gaming-ITX/TB4 motherboard, showcasing its design and key features.

Product Demonstration Video

Your browser does not support the video tag.




Video: A demonstration highlighting the functionalities and user experience of the ASRock Z690 Phantom Gaming-ITX/TB4 motherboard.

WARRANTY AND SUPPORT

For detailed warranty information and technical support, please refer to the official ASRock website or the documentation included with your product. ASRock provides resources for driver downloads, BIOS updates, and troubleshooting assistance.

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Related Documents - Z690 Phantom Gaming-ITX/TB4

	<p>ASRock Z690 Phantom Gaming 4/D5 Motherboard User Manual</p> <p>Comprehensive user manual for the ASRock Z690 Phantom Gaming 4/D5 ATX motherboard. Includes installation guides, specifications, component layouts, and technical details for optimal system building.</p>
	<p>ASRock B550 Phantom Gaming-ITX/ax Motherboard User Manual - Installation & Features Guide</p> <p>Comprehensive user manual for the ASRock B550 Phantom Gaming-ITX/ax motherboard. Covers installation, specifications, software utilities, BIOS setup, and features for AMD Ryzen processors.</p>
	<p>ASRock Z490 Phantom Gaming-ITX/TB3 Motherboard Specifications and Manual</p> <p>Detailed specifications, package contents, connector pinouts, and technical details for the ASRock Z490 Phantom Gaming-ITX/TB3 motherboard.</p>



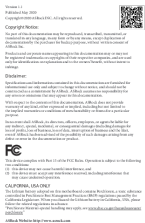
[ASRock Z390 Phantom Gaming-ITX/AC Motherboard User Manual](#)

User manual for the ASRock Z390 Phantom Gaming-ITX/AC motherboard, detailing specifications, installation, software, and UEFI setup. Learn about components, connectivity, and system configuration.



[ASRock B365M Phantom Gaming 4 User Manual - Installation and Setup Guide](#)

Comprehensive user manual for the ASRock B365M Phantom Gaming 4 motherboard, detailing package contents, specifications, installation procedures, software utilities, and UEFI BIOS configuration.



[ASRock Z490 Phantom Gaming 4 Motherboard User Manual](#)

User manual for the ASRock Z490 Phantom Gaming 4 motherboard. Contains detailed specifications, installation guides, connector information, and feature explanations for optimal system building and operation.