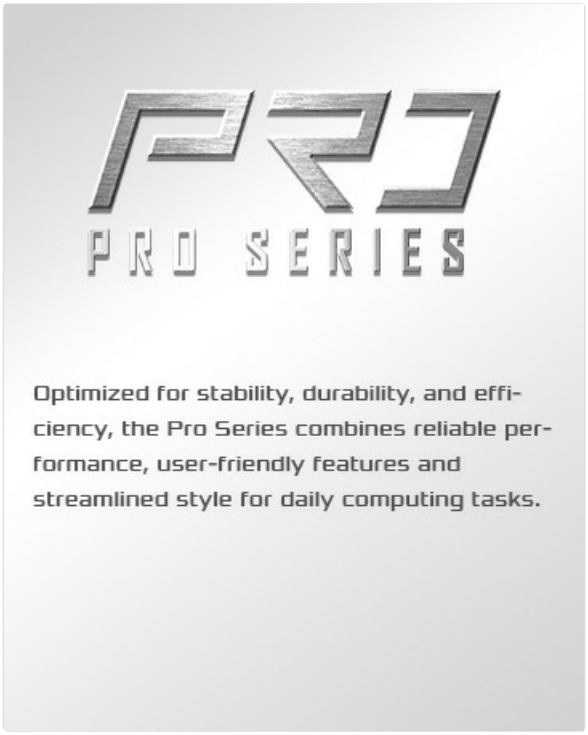
ASRock Z890 PRO-A

ASRock Z890 Pro-A Motherboard Instruction Manual

Model: Z890 PRO-A | Brand: ASRock

1. Product Overview

The ASRock Z890 Pro-A Motherboard is designed for stability, durability, and efficiency, offering reliable performance and user-friendly features for daily computing tasks. It supports Intel Core Ultra Processors (Series 2) with an LGA1851 socket and features 16+1+1+1+1 Power Phase with Dr.MOS for VCore+GT. The motherboard includes four DDR5 DIMM slots, supporting dual-channel memory up to 8666+ MHz (OC) and a maximum capacity of 256 GB. Key features include BIOS Flashback, Memory OC Shield, and durable capacitors. For graphics output, it provides 1 HDMI, 1 DisplayPort, and 1 Thunderbolt 4 Type-C port.



The ASRock Pro Series is optimized for stability, durability, and efficiency, combining reliable performance with user-friendly features and a streamlined style for daily computing tasks.

2. Setup and Installation

2.1 Unboxing and Preparation

Before beginning installation, ensure you are working in a static-free environment. Use an anti-static wrist strap or touch a grounded metal object to discharge static electricity. Carefully remove the motherboard from its packaging and place it on an anti-static mat.

2.2 CPU Installation (LGA1851)

1. Locate the LGA1851 CPU socket on the motherboard.
2. Gently push down the load lever and pull it to the side to open the CPU socket retention frame.
3. Carefully align the notches on your Intel Core Ultra Processor with the keys on the socket. Do not force the CPU into place.
4. Once aligned, gently lower the CPU into the socket.
5. Close the retention frame and push the load lever back into its locked position.

2.3 CPU Cooler Installation

Install your CPU cooler according to its manufacturer's instructions. Ensure it is compatible with the LGA1851 socket. Apply thermal paste as directed by the cooler's manual.

2.4 Memory (RAM) Installation

The ASRock Z890 Pro-A supports DDR5 DIMMs in a dual-channel configuration. For optimal performance, install memory modules in the recommended slots (typically A2 and B2 for two modules, or A1, A2, B1, B2 for four modules) as indicated in the motherboard's printed manual.

1. Open the clips at both ends of the DIMM slot.
2. Align the notch on the DDR5 memory module with the key in the DIMM slot.
3. Press down firmly on both ends of the memory module until the clips snap into place.

2.5 Storage Device Installation

The motherboard supports multiple M.2 SSDs and SATA 6Gb/s drives.

- **M.2 SSDs:** Locate the M.2 slots (some may have heatsinks). Insert the M.2 SSD at an angle into the slot, then gently push it down and secure it with the provided screw or latch.
- **SATA Drives:** Connect SATA data cables from your storage drives (HDDs/SSDs) to the SATA ports on the motherboard. Connect power cables from your power supply to the drives.

2.6 Graphics Card Installation

Insert your graphics card into the primary PCIe 5.0 x16 slot. Ensure it is fully seated and secured with the retention clip and a case screw.

2.7 Power Supply Connections

Connect the 24-pin ATX power connector, 8-pin CPU power connector, and any additional 4-pin CPU power connectors from your power supply to the corresponding ports on the motherboard.

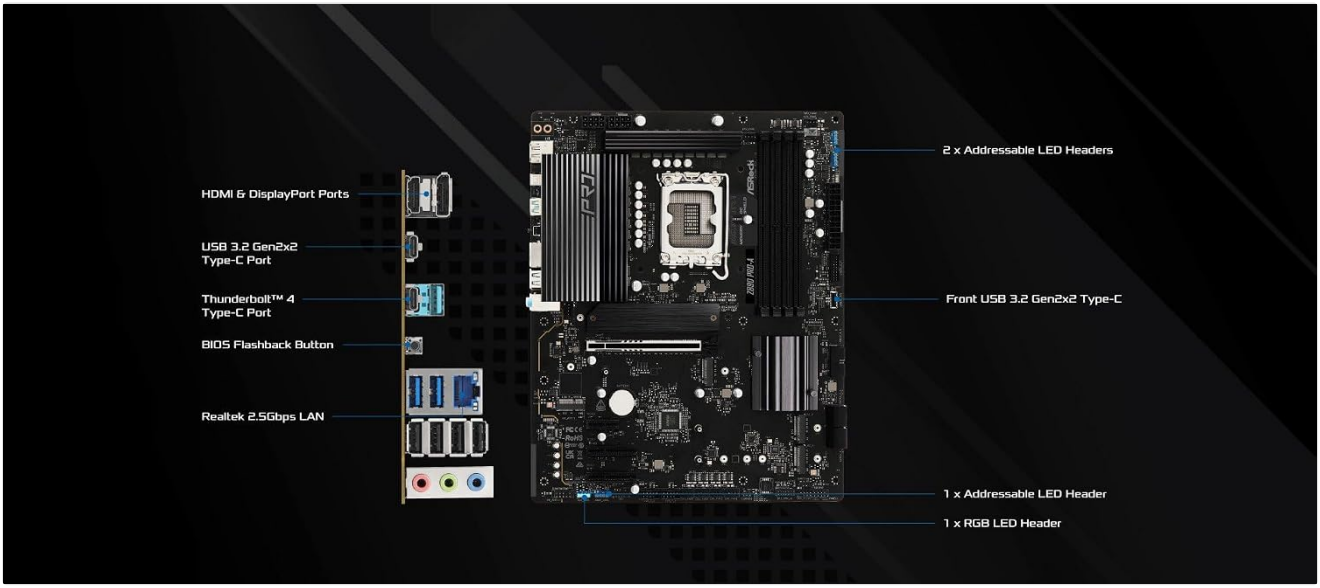
2.8 Front Panel and Peripheral Connections

Connect your case's front panel headers (power button, reset button, USB ports, audio jacks, LED indicators) to the corresponding pins on the motherboard. Refer to the motherboard manual for exact pin layouts. Connect external

peripherals such as monitors, keyboard, and mouse to the rear I/O ports.



The ASRock Z890 Pro-A Motherboard, ready for component installation.



Rear I/O panel of the ASRock Z890 Pro-A Motherboard, showing various connectivity options including HDMI, DisplayPort, USB, Thunderbolt 4 Type-C, and LAN ports.

3. Operating Instructions

3.1 Initial Boot and BIOS Access

After all components are installed and connected, power on your system. During the Power-On Self-Test (POST), press the **F2** or **Delete** key repeatedly to enter the BIOS setup utility. In the BIOS, you can configure various system settings, including boot order, memory profiles (XMP), and fan speeds.

3.2 BIOS Update

Keeping your BIOS updated is crucial for system stability, compatibility with new hardware, and access to the latest features. The ASRock Z890 Pro-A supports two primary methods for BIOS updates: USB BIOS Flashback and Instant Flash.

3.2.1 USB BIOS Flashback

This method allows you to update the BIOS without a CPU, RAM, or graphics card installed. It requires a USB drive formatted to FAT32 with the renamed BIOS file (e.g., CREATIVE.ROM) in its root directory. Connect the USB drive to the designated USB BIOS Flashback port on the rear I/O panel, then press the BIOS Flashback button for approximately three seconds until the LED light begins to blink. The update process will take a few minutes. Once the LED stops blinking, the update is complete.

3.2.2 Instant Flash

This method updates the BIOS from within the BIOS setup utility. Prepare a FAT32-formatted USB drive containing the downloaded BIOS ROM file. Insert the USB drive into any USB port on the motherboard. Enter the BIOS setup utility (press F2 or Delete during POST), navigate to the 'Tool' menu, and select 'Instant Flash'. The utility will detect compatible BIOS files. Select the appropriate file and confirm the update. The system will reboot after a successful update.

Official ASRock tutorial demonstrating how to update your motherboard's BIOS using USB BIOS Flashback and Instant Flash methods.

4. Maintenance

- **Cleaning:** Regularly clean dust from the motherboard and components using compressed air. Ensure the system is powered off and unplugged before cleaning.
- **BIOS Updates:** Periodically check the ASRock website for new BIOS versions to ensure optimal performance and compatibility. Refer to Section 3.2 for detailed instructions.
- **Driver Updates:** Keep your system drivers (chipset, audio, LAN, graphics) updated by downloading the latest versions from the ASRock website or component manufacturers.

5. Troubleshooting

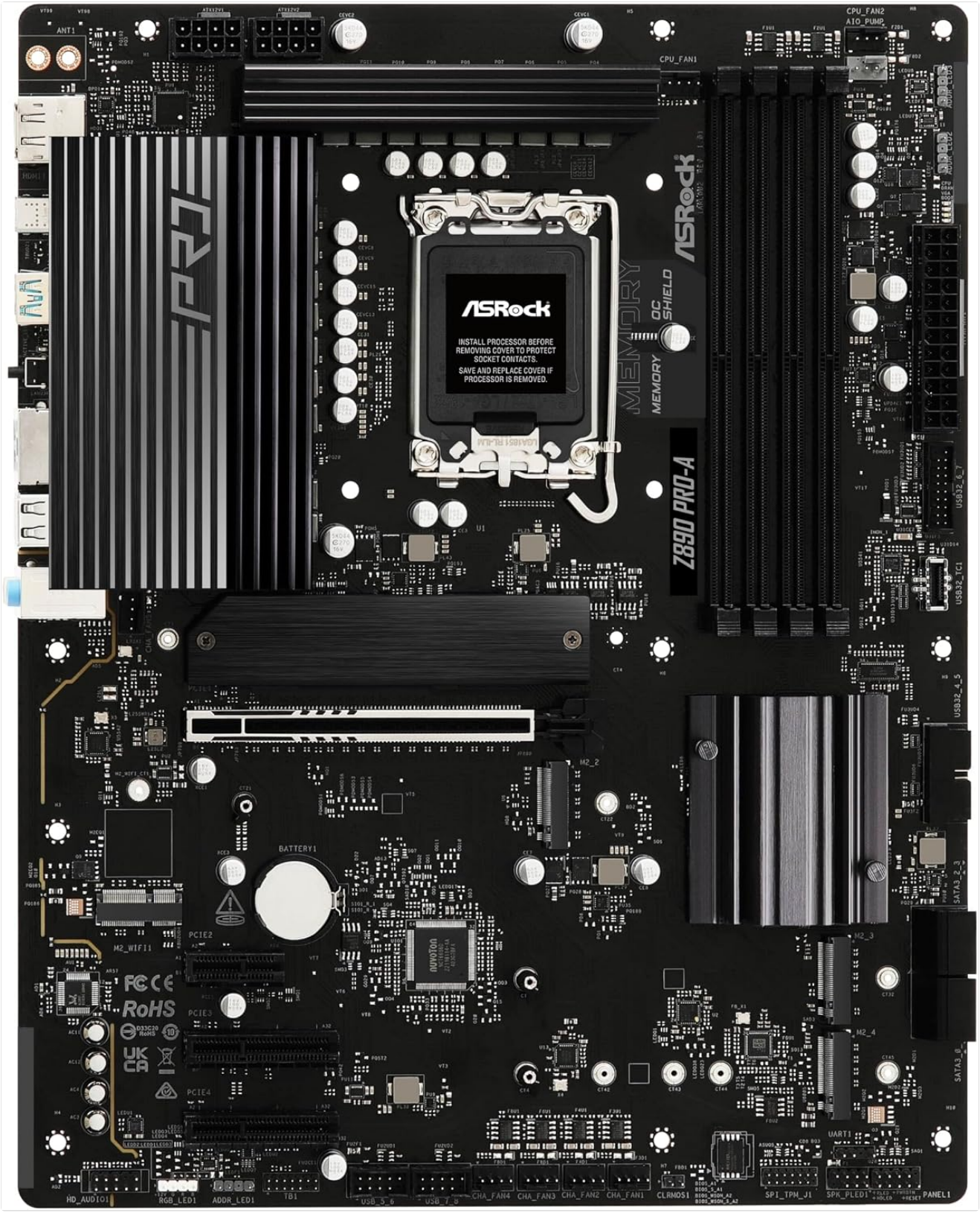
- **No Power/No Boot:**
  - Check all power connections (24-pin ATX, 8-pin CPU, GPU).

- Ensure the power supply switch is on.
- Verify front panel power button connection.

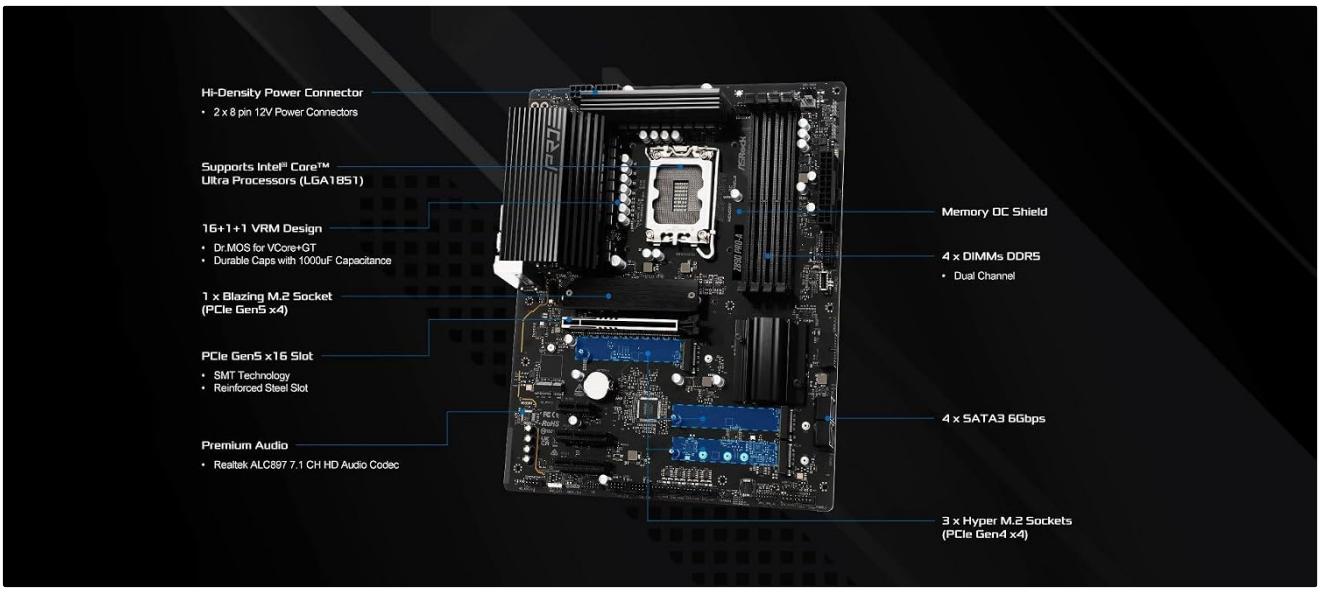
- **No Display:**
  - Ensure the monitor is connected to the graphics card (or integrated graphics if no discrete GPU).
  - Reseat the graphics card and memory modules.
  - Try booting with a single RAM stick.
- **Memory Instability:**
  - Ensure RAM modules are fully seated in the correct slots for dual-channel operation.
  - Update BIOS to the latest version (see Section 3.2).
  - Disable XMP/EXPO profiles in BIOS and test with default memory speeds.
- **Peripheral Not Detected:**
  - Check cable connections.
  - Install the latest drivers for the peripheral and motherboard chipset.
  - Test the peripheral on a different port or system.

6. Specifications

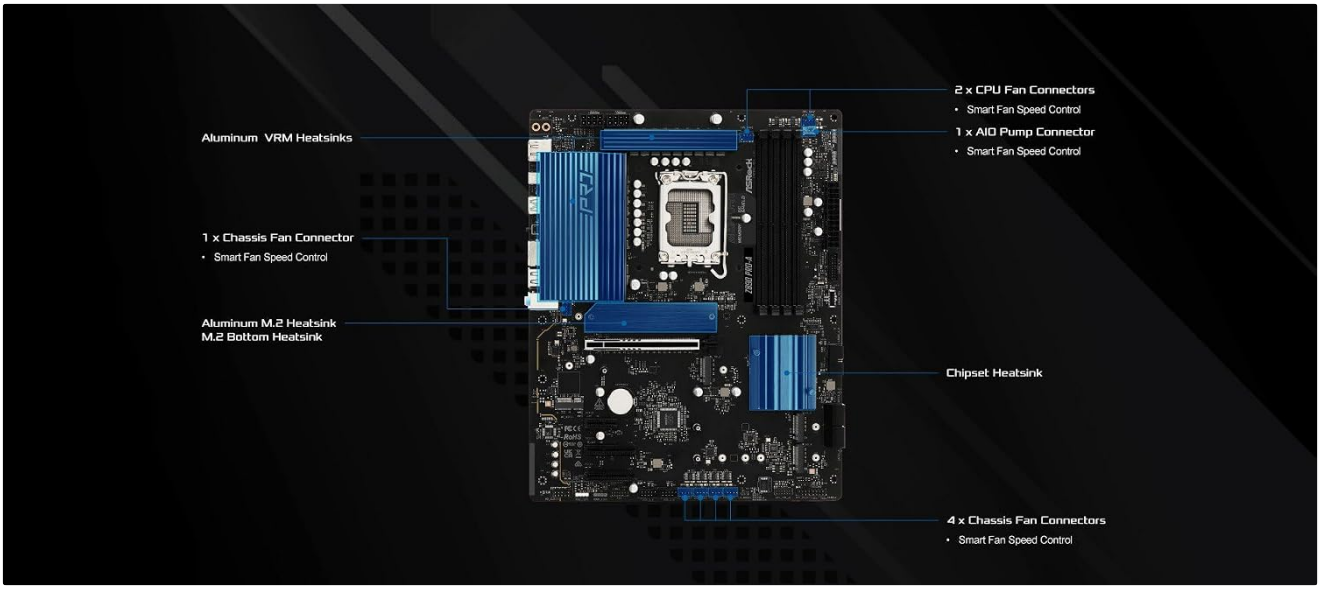
Brand	ASRock
Model Name	Z890 PRO-A
CPU Socket	LGA 1851
Compatible Processors	Intel Core Ultra (Series 2)
Chipset Type	Intel Z890
RAM Memory Technology	DDR5
Memory Clock Speed	8666 MHz (OC)
Memory Storage Capacity	256 GB (Max)
Graphics Output Options	1 HDMI, 1 DisplayPort, 1 Thunderbolt 4 Type-C
PCIe Slots	PCIe 5.0 x16
M.2 Slots	Multiple (PCIe Gen4/Gen5)
LAN	2.5 Gigabit LAN
Product Dimensions	14 x 11 x 3 inches
Item Weight	2.2 pounds
Platform	Windows 11



Dimensions of the ASRock Z890 Pro-A Motherboard.



Key features and component layout of the ASRock Z890 Pro-A Motherboard.



Cooling features including VRM heatsinks, M.2 heatsink, and chipset heatsink on the ASRock Z890 Pro-A Motherboard.

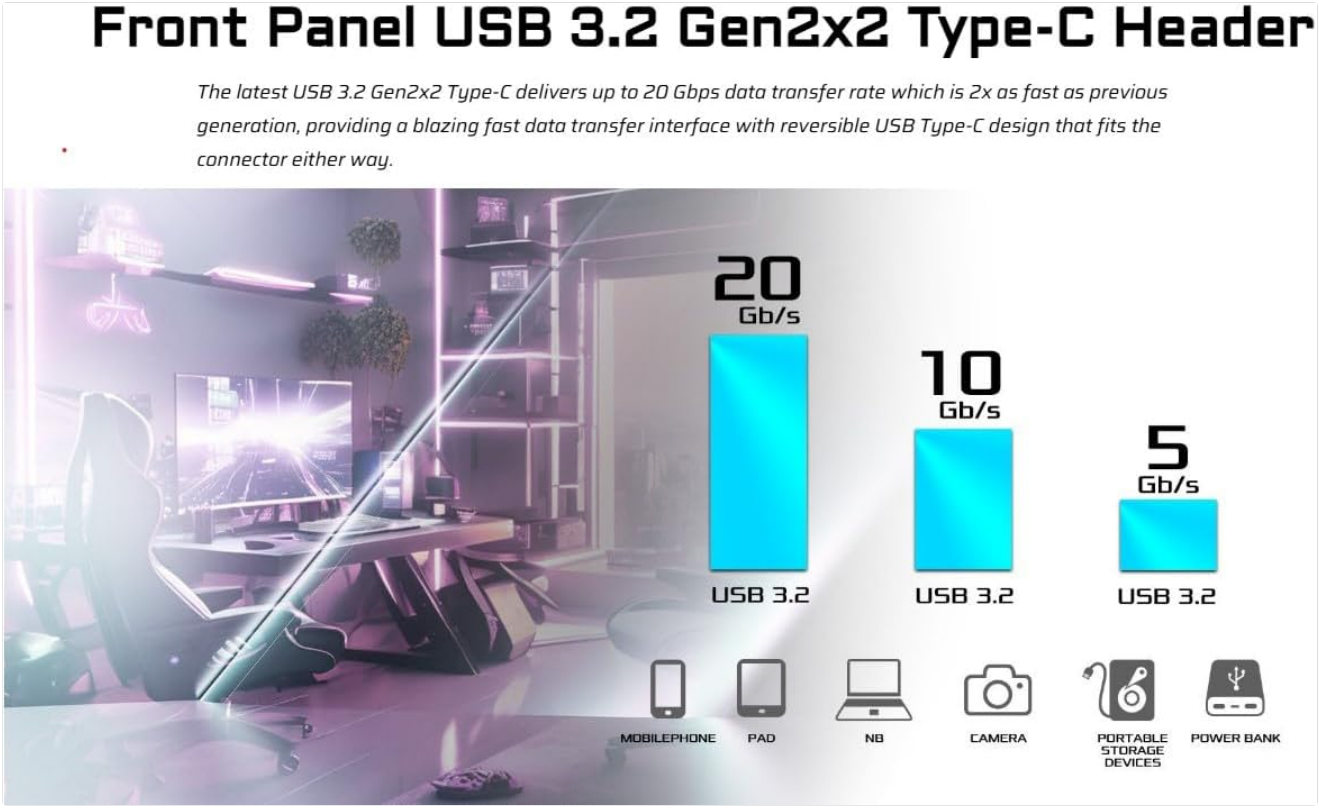


Diagram illustrating the data transfer rates of USB 3.2 Gen2x2 Type-C compared to other USB versions.

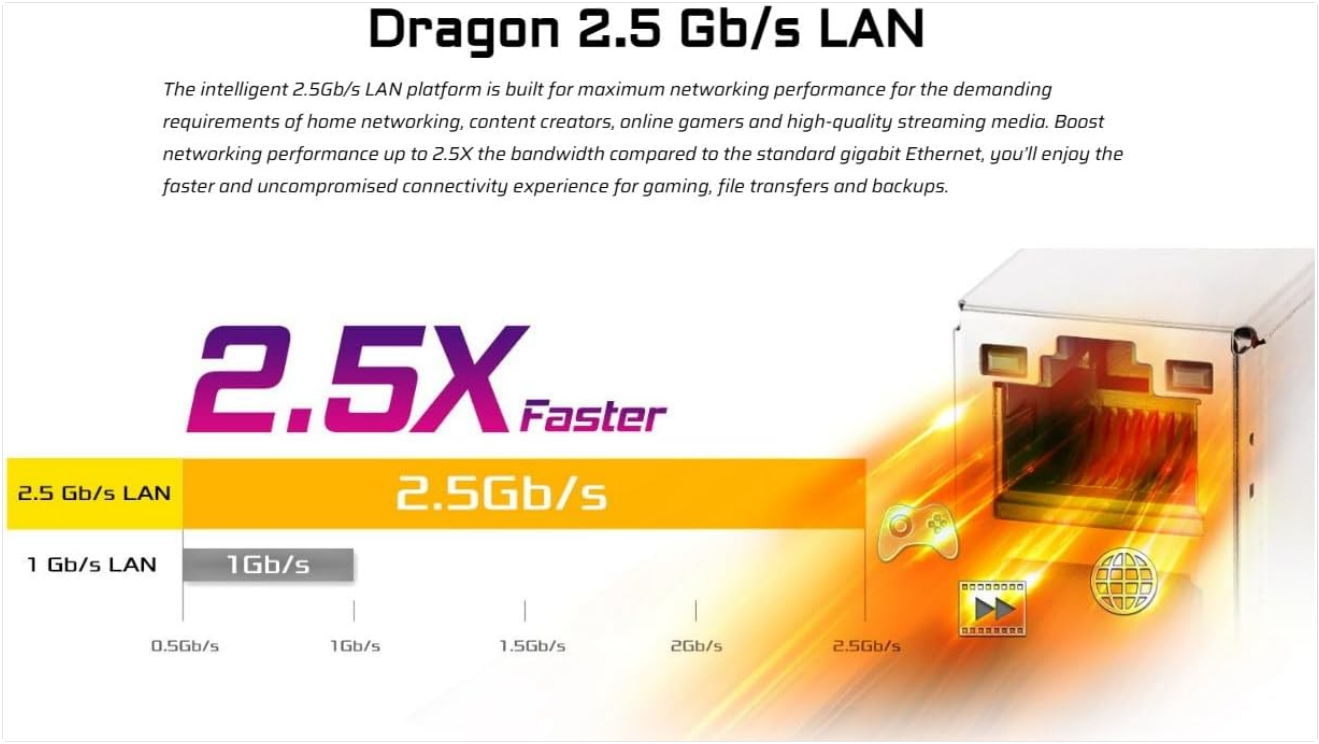


Diagram comparing the speed of Dragon 2.5 Gb/s LAN to standard 1 Gb/s LAN.

7. Warranty and Support

For warranty information, please refer to the documentation included with your product or visit the official ASRock website. ASRock provides technical support and resources to assist with product inquiries, troubleshooting, and driver downloads. Keep your purchase receipt for warranty claims.

This product is eligible for a 30-day refund/replacement return policy through Amazon. Additional protection plans are

available for purchase, including 3-Year and 4-Year Protection Plans, and a Complete Protect monthly plan.