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ASRock RX 9060 XT Challenger 16GB OC + CL-650B 650W Bronze PSU

ASRock Radeon RX 9060 XT Challenger 16GB OC + CL-650B 650W Bronze PSU Instruction Manual

Brand: ASRock
Model: RX 9060 XT Challenger 16GB OC + CL-650B 650W Bronze PSU

1. Introduction and Overview

This manual provides comprehensive instructions for the ASRock Radeon RX 9060 XT Challenger 16GB OC graphics card and the CL-650B 650W Bronze power supply unit. This bundle is designed to deliver exceptional gaming performance and reliable power for your computing needs. The Radeon RX 9060 XT graphics card features AMD's RDNA 4 architecture, 16GB GDDR6 memory, a 3290 MHz boost clock, and 32 compute units with 3rd-gen ray tracing and AI accelerators, enabling fluid 4K gameplay and DirectX 12 Ultimate support. Advanced cooling is provided by dual striped fans with 0dB silent operation and a durable metal backplate. The CL-650B PSU ensures dependable power with 80 Plus Bronze efficiency, ATX 2.52 compliance, and 130% total power excursion, utilizing all-Taiwanese capacitors and multi-layer protections (OCP/SCP/OVP). It includes two PCIe 6+2pin connectors, perfectly matching the GPU's 8-pin requirement, and flat-sleeved cables for simplified cable management.

2. Product Components

2.1 ASRock Radeon RX 9060 XT Challenger 16GB OC Graphics Card

The ASRock Radeon RX 9060 XT Challenger 16GB OC is a high-performance graphics card built for demanding gaming and content creation. It features a robust cooling solution and a sleek design.



Figure 1: ASRock Radeon RX 9060 XT Challenger 16GB OC Graphics Card and its packaging.



Figure 2: Front view of the graphics card, showcasing the dual fan design.

Key Features:

- **Dual Fan Design:** Optimized cooling efficiency with striped axial fans for balanced performance and silent operation.

- **0dB Silent Operation:** Fans stop spinning during light workloads for complete silence.
- **Stylish Metal Backplate:** Provides structural rigidity to prevent PCB bending and enhances cooling with premium thermal pads.
- **Dual BIOS:** Features a switch for Performance (P) and Quiet (Q) modes, allowing users to prioritize performance or noise levels.



Figure 3: Close-up of the dual fan design for efficient cooling.

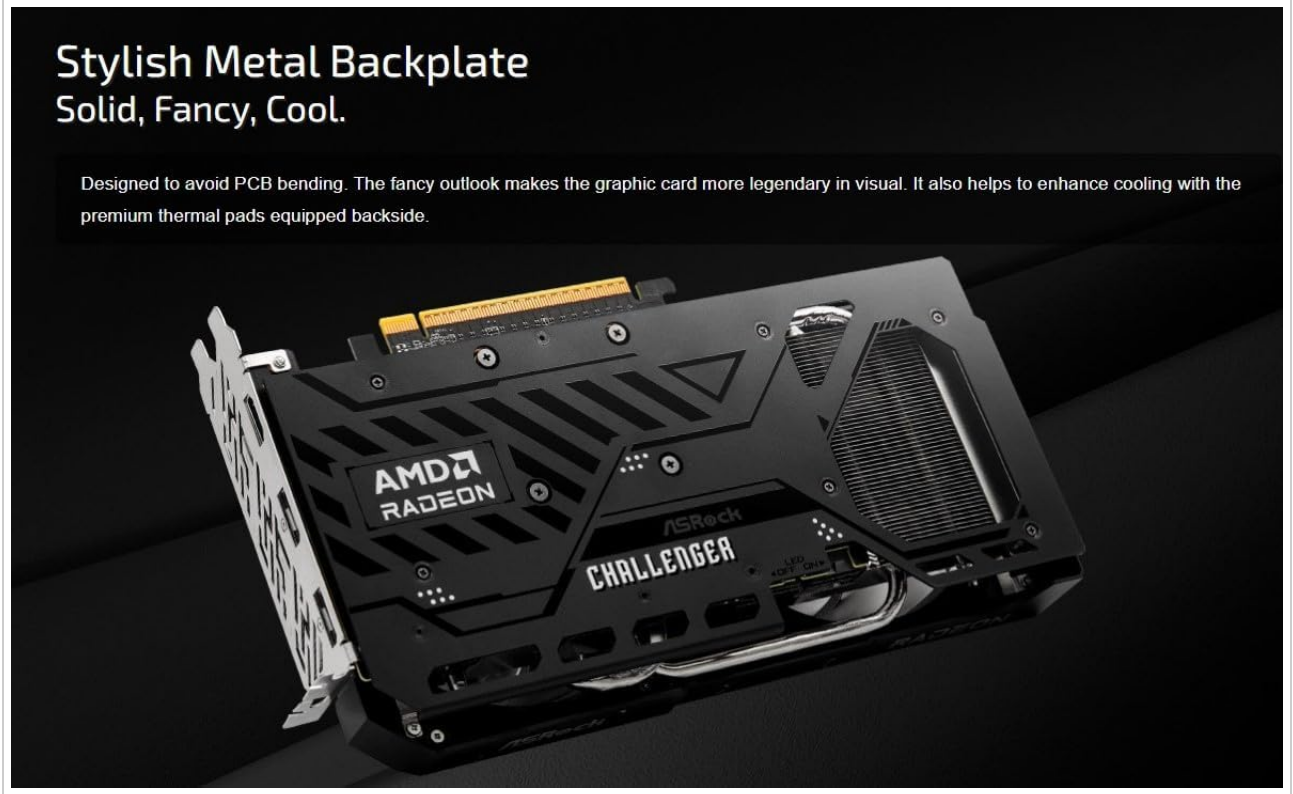

Figure 4: The durable metal backplate of the graphics card.

2.2 ASRock CL-650B 650W Bronze Power Supply Unit

The ASRock CL-650B is a reliable 650W power supply with 80 Plus Bronze efficiency, providing stable power to your system.



Figure 5: ASRock CL-650B 650W Bronze Power Supply Unit and its packaging.

Key Features:

- **80 Plus Bronze Certified:** Ensures high power efficiency, reducing heat and operating costs.
- **ATX 2.52 Compliance:** Meets modern power supply standards.
- **Multi-layer Protections:** Includes Over Current Protection (OCP), Short Circuit Protection (SCP), and Over Voltage Protection (OVP) for system safety.
- **Flat-sleeved Cables:** Simplifies cable management for a cleaner build.
- **Dedicated PCIe Connectors:** Two PCIe 6+2pin connectors are included, perfectly matching the GPU's 8-pin requirement.



Figure 6: Top view of the PSU showing the 120mm golf-blade fan and flat-sleeved cables.

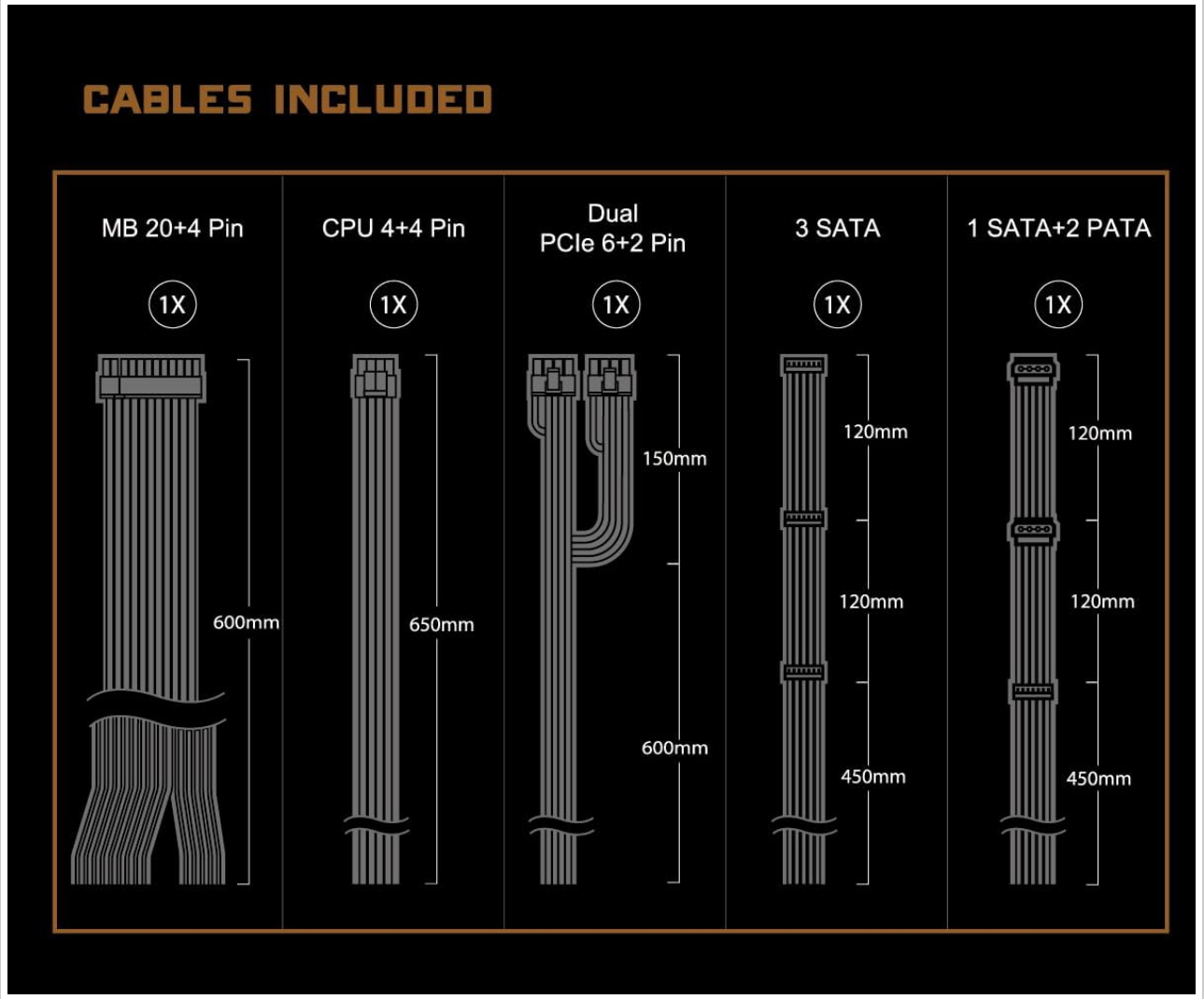

Figure 7: Diagram illustrating the types and lengths of cables included with the PSU.

3. Setup and Installation

3.1 Graphics Card Installation

1. **Prepare Your System:** Ensure your computer is completely unplugged from the power source. Remove the side panel of your PC case.
2. **Locate PCIe Slot:** Identify an available PCIe x16 slot on your motherboard.
3. **Insert Graphics Card:** Carefully align the graphics card with the PCIe slot and press down firmly until it is securely seated. Ensure the retention clip locks into place.
4. **Secure the Card:** Use screws to fasten the graphics card bracket to the PC case.
5. **Connect Power:** Connect the 8-pin PCIe power connector from your power supply to the graphics card. Ensure a firm connection.
6. **Connect Display:** Connect your monitor to one of the graphics card's display outputs (DisplayPort or HDMI).

3.2 Power Supply Unit Installation

1. **Mount PSU:** Install the CL-650B PSU into the designated power supply bay in your PC case and secure it with screws.
2. **Connect Motherboard Power:** Connect the 20+4 pin ATX power connector and the 4+4 pin CPU power connector to your motherboard.
3. **Connect Peripherals:** Use the SATA and PATA connectors to power your storage drives and other peripherals as needed.
4. **Connect Graphics Card Power:** Utilize the two PCIe 6+2pin connectors to provide power to your graphics card.
5. **Cable Management:** Use the flat-sleeved cables to route and organize your wiring for optimal airflow and aesthetics.

4. Operating the Graphics Card

4.1 Performance Modes (Dual BIOS)

The ASRock Radeon RX 9060 XT Challenger 16GB OC features a dual BIOS switch, allowing you to select between two operating modes:

- **Performance Mode (P):** This is the default mode, offering maximum clock speeds and fan performance for the highest frame rates.
- **Quiet Mode (Q):** This mode prioritizes lower fan speeds and reduced noise output, ideal for users who prefer a quieter computing experience with minimal performance impact.

To switch between modes, locate the small switch on the side of the graphics card (refer to Figure 4 for general location on the backplate). Ensure your system is powered off before changing the BIOS mode.

4.2 Gaming Performance and Upscaling

The 16GB GDDR6 memory and RDNA 4 architecture make this GPU suitable for fluid 4K gaming. For an optimal experience, pairing with a 1440p monitor is recommended. However, thanks to AMD's FSR 4 (FidelityFX Super Resolution) upscaling technology, you can achieve excellent performance even on 4K or ultrawide 3440x1440p monitors by rendering at a lower resolution and intelligently upscaling to your display's native resolution.

5. Maintenance

To ensure the longevity and optimal performance of your ASRock components, regular maintenance is recommended:

- **Dust Removal:** Periodically clean dust from the graphics card fans, heatsink fins, and PSU fan using

compressed air. Ensure the system is powered off and unplugged before cleaning.

- **Airflow:** Ensure your PC case has adequate airflow. Keep the case free from obstructions and maintain a clean environment around your computer.
- **Driver Updates:** Regularly update your graphics card drivers from the official ASRock or AMD website to ensure compatibility and performance improvements.

6. Troubleshooting

If you encounter issues with your ASRock Radeon RX 9060 XT Challenger bundle, consider the following troubleshooting steps:

- **No Display Output:**
  - Ensure all power cables (8-pin PCIe, 20+4 pin ATX, 4+4 pin CPU) are securely connected.
  - Verify the graphics card is fully seated in the PCIe slot.
  - Check that your monitor cable is correctly connected to the graphics card and the monitor is powered on.
  - Try a different display output port or cable.
- **System Instability/Crashes:**
  - Ensure your power supply is sufficient for your system's components. The CL-650B 650W PSU is rated for this bundle.
  - Update your graphics drivers to the latest version.
  - Monitor GPU temperatures during operation. Excessive heat can cause instability.
- **Excessive Noise:**
  - Switch the graphics card to Quiet Mode (Q) using the dual BIOS switch.
  - Ensure fans are free from dust and obstructions.
  - Check case airflow and fan configurations.
- **Performance Issues:**
  - Ensure the graphics card is in Performance Mode (P) if maximum performance is desired.
  - Verify that FSR is enabled and configured correctly in game settings for resolution upscaling.
  - Check for background applications consuming system resources.

7. Specifications

Feature	Specification
Graphics Coprocessor	AMD Radeon RX 9060 XT
Brand	ASRock
Graphics RAM Size	16 GB GDDR6
GPU Clock Speed	3290 MHz (Boost)
Video Output Interface	DisplayPort, HDMI
Power Supply Wattage	650W (CL-650B)

Feature	Specification
PSU Efficiency	80 Plus Bronze
PSU Compliance	ATX 2.52
PSU Protections	OCP/SCP/OVP
PSU Capacitors	All-Taiwanese

8. Warranty and Support

The ASRock Radeon RX 9060 XT Challenger 16GB OC graphics card and CL-650B 650W Bronze PSU bundle is backed by a **5-year warranty**, ensuring long-term reliability and peace of mind. For technical support, driver downloads, or warranty claims, please visit the official ASRock website or contact their customer service department. Refer to the warranty card included in your product packaging for specific terms and conditions.

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