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MSI V510-006R

MSI GeForce RTX 4090 Gaming X Trio 24G Graphics Card User Manual

Model: V510-006R

1. Introduction

This manual provides essential information for the installation, operation, and maintenance of your MSI GeForce RTX 4090 Gaming X Trio 24G Graphics Card. Please read this manual thoroughly before using the product to ensure optimal performance and longevity.
The MSI GeForce RTX 4090 Gaming X Trio 24G is a high-performance graphics card designed for demanding gaming and content creation tasks. It features 24GB GDDR6X memory, a 2595 MHz clock speed, and PCI Express Gen 4 interface, offering exceptional visual fidelity and speed.

2. Key Features

- **TRI FROZR 3 Thermal Design:** Ensures efficient heat dissipation for cool and quiet operation during intense use.
- **TORX FAN 5.0:** Fan blades linked by ring arcs and a fan cowl stabilize and maintain high-pressure airflow for superior cooling.
- **Copper Baseplate:** Captures heat from the GPU and memory modules, rapidly transferring it to Core Pipes.
- **Core Pipe:** Precision-machined heat pipes ensure maximum contact and spread heat along the full length of the heatsink.
- **Airflow Control:** Sections of different heatsink fins disrupt unwanted airflow harmonics and reduce noise.
- **24GB GDDR6X Memory:** Provides ample memory for high-resolution gaming and complex creative applications.
- **PCI Express Gen 4:** Offers high-speed data transfer for optimal performance.
- **Display Outputs:** Includes 3x DisplayPort v1.4a and 1x HDMI 2.1a, supporting 4K & 8K HDR.

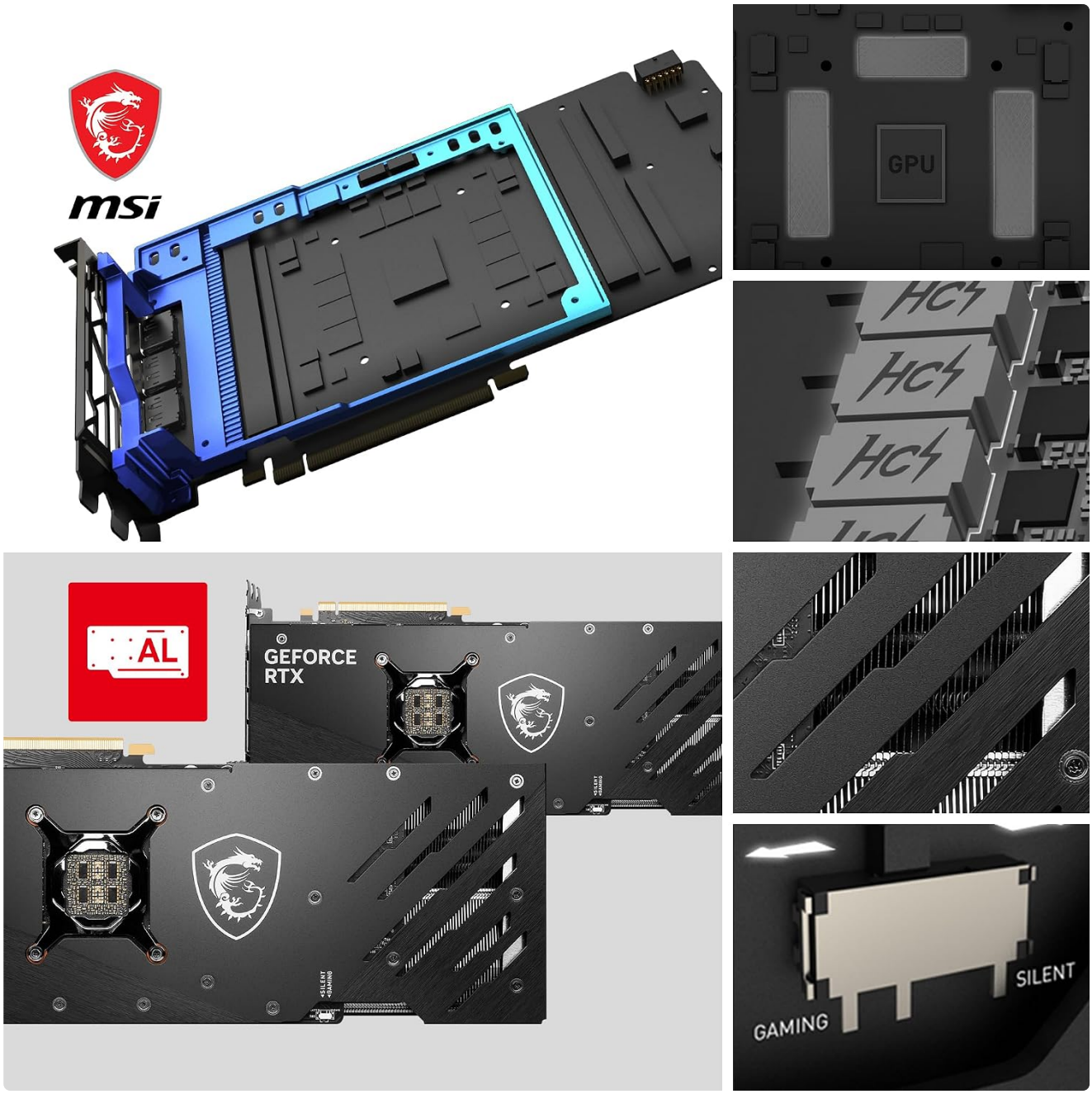


Figure 1: The robust backplate and internal component layout of the MSI GeForce RTX 4090 Gaming X Trio 24G, designed for structural integrity and enhanced cooling.

3. Installation and Setup

Before installation, ensure your system's power supply meets the requirements for the RTX 4090. It is recommended to use a power supply with sufficient wattage and appropriate PCIe power connectors.

3.1 Physical Installation

1. **Prepare Your System:** Power off your computer and disconnect all cables. Open your computer case.
2. **Locate PCIe Slot:** Identify an available PCI Express x16 slot on your motherboard. The MSI GeForce RTX 4090 Gaming X Trio 24G is a large card, typically occupying three expansion slots. Ensure adequate clearance within your case.
3. **Remove Slot Covers:** Remove the necessary expansion slot covers from your computer case.

4. **Insert Graphics Card:** Carefully align the graphics card with the PCIe slot and press down firmly until it is securely seated. The retention clip on the PCIe slot should click into place.
5. **Secure the Card:** Fasten the graphics card to the case using screws in the expansion slot brackets.
6. **Connect Power:** Connect the required PCIe power cables from your power supply to the graphics card. The RTX 4090 typically requires multiple 8-pin PCIe power connectors or a 12VHPWR connector. Ensure all connections are firm.
7. **Close Case:** Close your computer case and reconnect all external cables.



Figure 2: MSI GeForce RTX 4090 Gaming X Trio 24G Graphics Card and its packaging, illustrating the card's design.



Figure 3: Included accessories with the MSI GeForce RTX 4090 Gaming X Trio 24G, such as a support bracket and power adapter cables.



Figure 4: Detailed view of the MSI GeForce RTX 4090 Gaming X Trio 24G, showing its dimensions and the layout of DisplayPort 1.4a and HDMI 2.1a outputs.

3.2 Driver Installation

After physical installation, power on your computer. Windows will typically detect new hardware. Install the latest graphics drivers from the official MSI or NVIDIA website for optimal performance and stability.
For driver downloads and utility software, visit the official MSI support page for your specific model.

3.3 Product Demonstration Video

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Video 1: A product demonstration video showcasing the MSI GeForce RTX 4090 Gaming X Trio 24G Graphics Card. This video provides a visual overview of the card's features and design.

4. Operating Your Graphics Card

The MSI GeForce RTX 4090 Gaming X Trio 24G is designed to deliver exceptional performance for gaming and professional applications. Utilize MSI's software utilities to monitor and optimize your card's performance.

4.1 MSI Center

MSI Center is an exclusive software that allows you to monitor, tweak, and optimize MSI products in real-time. It provides control over fan speeds, clock speeds, and other settings to customize your experience.

4.2 MSI Afterburner

MSI Afterburner is a widely recognized and used graphics card overclocking utility. It gives you full control over your graphics card, allowing for fine-tuning of clock speeds, voltage, and fan performance to achieve higher frame rates and improved stability.

5. Maintenance

Regular maintenance helps ensure the longevity and optimal performance of your graphics card.

- **Dust Removal:** Periodically clean dust from the fans and heatsink using compressed air. Ensure the system is powered off and unplugged before cleaning.
- **Driver Updates:** Keep your graphics drivers updated to the latest version from the official NVIDIA or MSI website.
- **Temperature Monitoring:** Use MSI Center or Afterburner to monitor GPU temperatures, especially during heavy loads, to prevent overheating.



Figure 5: Close-up view of the TORX FAN 5.0 design and integrated RGB lighting on the MSI GeForce RTX 4090 Gaming X Trio 24G, highlighting the cooling system.



Figure 6: Visual representation of the TRI FROZR 3 thermal design, showing how the cooling system maintains lower temperatures compared to standard designs.



Figure 7: Detailed view of the heatsink and airflow control features of the MSI GeForce RTX 4090 Gaming X Trio 24G, illustrating its advanced thermal management.

6. Troubleshooting

If you encounter issues with your graphics card, refer to the following common troubleshooting steps:

- **No Display/Boot Issues:**
  - Ensure the graphics card is fully seated in the PCIe slot.
  - Verify all power cables are securely connected to the graphics card and power supply.
  - Check that your monitor cable is connected to the graphics card, not the motherboard's integrated graphics port.
  - Try resetting your motherboard's BIOS/UEFI settings.
- **Overheating:**

- Ensure proper airflow within your computer case.
- Clean any dust buildup on the heatsink and fans.
- Verify fan operation using MSI Center or Afterburner.
- Consider improving case ventilation with additional fans.

- **Coil Whine:**
  - Coil whine is an audible vibration from electrical components, often more noticeable under high load. While generally harmless, it can be reduced by enabling V-Sync or limiting frame rates.
- **Display Port Issues:**
  - If specific display ports are not working, try different cables or ports on the card and monitor to isolate the issue.
  - Ensure drivers are up to date.

7. Specifications

Feature	Detail
Brand	MSI
Model Number	V510-006R
Graphics Coprocessor	NVIDIA GeForce RTX 4090
Graphics RAM Size	24 GB GDDR6X
Max Screen Resolution	8192x4320
Video Output Interface	DisplayPort, HDMI (3x DP v1.4a, 1x HDMI 2.1a)
Product Dimensions (LxWxH)	12.6 x 4.33 x 0.1 inches
Item Weight	1.17 pounds
Cooling System	TRI FROZR 3 with TORX FAN 5.0, Copper Baseplate, Core Pipe, Airflow Control

8. Warranty and Support

For detailed warranty information and technical support, please refer to the official MSI website or contact MSI customer service. Keep your purchase receipt for warranty claims.
MSI Support: www.msi.com

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