GMKtec M7 Ultra

GMKtec M7 Ultra Mini PC User Manual

Model: M7 Ultra (Ryzen 7 PRO 6850U)

1. INTRODUCTION

This manual provides essential information for setting up, operating, maintaining, and troubleshooting your GMKtec M7 Ultra Mini PC. Please read this manual thoroughly before using your device to ensure optimal performance and longevity.

The GMKtec M7 Ultra Mini PC is a compact desktop computer featuring an AMD Ryzen 7 PRO 6850U processor, designed for demanding tasks including gaming, multimedia, and professional applications. Its small form factor and robust connectivity options make it a versatile solution for various environments.

2. WHAT'S IN THE BOX

Verify that all items are present in your package:

- GMKtec Nucbox M7 Ultra AMD Ryzen 7 PRO 6850U Mini PC Computer
- Power Supply & Cable
- HDMI Cable
- VESA Mount and Screws
- User Manual

Image: Retail Boxed Packaging showing the GMKtec Nucbox M7 Ultra Mini PC and its accessories.

3. SETUP

3.1 Initial Connection

1. Connect your monitor(s) to the HDMI 2.1, DisplayPort 2.0, or USB4 ports.
2. Connect your keyboard and mouse to the available USB ports.
3. For wired network access, connect an Ethernet cable to one of the 2.5GbE LAN ports.
4. Connect the power supply to the DC IN port and then to a power outlet.
5. Press the power button on the front of the Mini PC to turn it on.

The system comes with Windows 11 Pro pre-installed, allowing for quick setup and immediate use.

3.2 BIOS Settings

To optimize performance, you may adjust BIOS settings. Access the BIOS by pressing the appropriate key (usually Del or F2) during startup.

- **Power Mode Select:** Navigate to the 'Advanced' tab and set 'Power Mode Select' to 'Performance' for maximum power output (up to 65W-70W TDP).
- **UMA Frame Buffer Size:** Under 'GFX Configuration', adjust the 'UMA Frame buffer Size' to 4GB or higher for improved integrated graphics performance.

Video: This video demonstrates how to access and adjust BIOS settings for power mode and UMA frame buffer size on the GMKtec M7 Ultra Mini PC, along with system diagnostics and game benchmarks.

4. OPERATING INSTRUCTIONS

4.1 Performance Modes

The M7 Ultra Mini PC offers three performance modes configurable in the UEFI BIOS:

- **Quiet (35W):** For silent operation and reduced power consumption during light tasks.
- **Balance (50W):** A balanced mode for everyday computing and moderate workloads.
- **Performance (65W-70W):** Maximizes CPU and GPU performance for demanding applications and gaming.

4.2 Connectivity

The Mini PC features extensive connectivity options:

- **Dual USB4 (Type-C):** Supports video output, data transfer, and power delivery.
- **HDMI 2.1 & DisplayPort 2.0:** For high-resolution display output, supporting up to 8K@60Hz.
- **Dual 2.5GbE LAN:** Provides high-speed wired network connections, suitable for servers or advanced networking.
- **Wi-Fi 6E & Bluetooth 5.2:** For fast wireless internet and peripheral connections.
- **Oculink Port:** Enables higher bandwidth for external GPU setups (PCIe x4 speeds). Note: Oculink does not support hot-plugging; always power off before connecting/disconnecting.

Image: Rich Interface diagram of the GMKtec M7 Ultra Mini PC.

Video: This short video highlights the front and rear ports of the GMKtec Nucbox M7 Mini PC, including USB, Type-C, audio jack, Ethernet, HDMI, and DisplayPort connections.

4.3 Multi-Display Support

The Mini PC supports simultaneous quad-screen display, utilizing its Dual USB4, HDMI 2.1, and DisplayPort 2.0 outputs. This allows for flexible workstation setups and immersive gaming experiences.
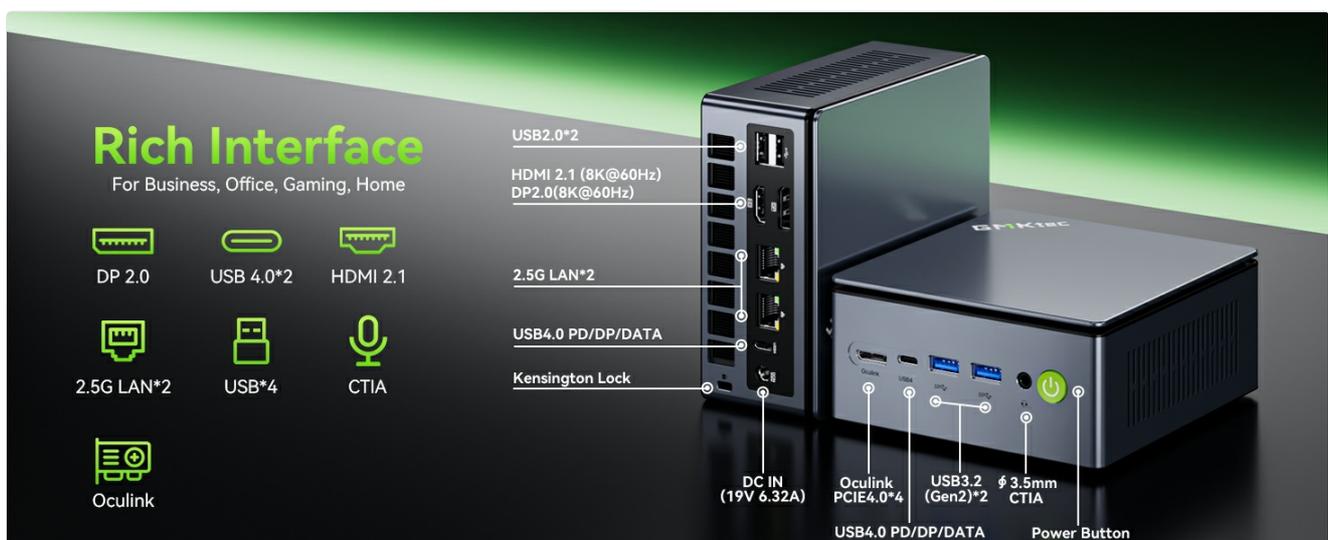

Image: 8K Quad Screens Display setup with the GMKtec M7 Ultra Mini PC.

4.4 Gaming Performance

Equipped with an AMD Radeon 680M integrated GPU and support for FSR 3.0+ technology, the M7 Ultra is capable of handling AAA gaming and heavy computing tasks. The Oculink port further enhances gaming by allowing

connection to external GPUs for higher bandwidth and better frame rates.

Image: 4K Gaming OCuLink Delivers, showing the Mini PC connected to an eGPU.

4K Gaming OCuLink Delivers

OCuLink delivers full PCIe 4.0 bandwidth (64Gbps) for near-lossless eGPU performance

OCuLink vs. Other Interfaces

Feature	OCuLink	Thunderbolt 4	USB4
Max Bandwidth	64Gbps	40Gbps	40Gbps
GPU Efficiency	95%+	~85%	~80%
Best For	Pro Workloads	Casual Use	Storage/Displays

Note: OCuLink does NOT support hot-plugging. Always power off before connecting/ disconnecting devices.

5. MAINTENANCE & UPGRADES

5.1 Cooling System

The M7 Ultra features a Hyper Ice Chamber 2.0 design with larger top and bottom cooling fans and a copper base. This system provides 360-degree airflow, keeping the unit cool and maintaining fan noise at approximately 35dB in Quiet mode.

Image: GMKtec UPGRADED HYPER ICE CHAMBER 2.0 diagram.

5.2 RAM and SSD Expansion

The Mini PC is designed for easy upgrades. The cover lid can be rotated counter-clockwise and removed to access the internal components.

- **RAM:** Supports dual-channel DDR5 4800MHz SO-DIMM, expandable up to 64GB.
- **SSD:** Features dual M.2 2280 PCIe 3.0 SSD slots, supporting up to 2x PCIe 4.0 2TB SSDs for a total of 4TB storage.

Image: Easy Installation diagram for RAM and SSD upgrades.

6. SPECIFICATIONS

Feature	Description
Brand	GMKtec
Series	M7 Ultra
Model Number	M7 Ultra
Operating System	Windows 11 Pro
Processor	AMD Ryzen 7 PRO 6850U (8 Cores, 16 Threads, up to 4.7 GHz)
Graphics Coprocessor	AMD Radeon 680M (Integrated)
RAM	32GB DDR5 4800MHz (Dual Channel, expandable to 64GB)
Hard Drive	512GB PCIe 3.0 M.2 2280 SSD (Dual Slot, Max. 4TB)
Max Screen Resolution	4096x2160 Pixels (8K@60Hz via HDMI/DP)
Wireless Type	Wi-Fi 6E, Bluetooth 5.2
USB Ports	2x USB 4.0 (Type-C), 2x USB 3.0, 2x USB 2.0
LAN Ports	Dual Intel NIC 2.5GbE
Other Ports	HDMI 2.1, DisplayPort 2.0, Oculink (PCIe 4.0 x4), 3.5mm Audio Jack
Item Weight	3.61 pounds
Dimensions	7.36 x 7.28 x 4.8 inches

Video: This video provides a detailed overview of the GMKtec M7 Ultra Mini PC's specifications, including CPU, GPU, RAM, and storage details, as well as BIOS settings and gaming benchmarks.

7. TROUBLESHOOTING

7.1 Common Issues & Solutions

- **No Display:** Ensure all display cables (HDMI, DisplayPort, USB4) are securely connected to both the Mini PC and the monitor. Verify the monitor is set to the correct input source.
- **No Power:** Check that the power adapter is correctly connected to the Mini PC and a working power outlet. Try a different outlet if necessary.
- **Slow Performance:** Verify that the power mode in BIOS is set to 'Balance' or 'Performance'. Close unnecessary background applications. Ensure drivers are up to date.
- **Network Connectivity Issues:** For wired connections, check Ethernet cable integrity and router status. For Wi-Fi, ensure the Wi-Fi 6E module is enabled and connected to the correct network.
- **Oculink Device Not Detected:** Power off the Mini PC completely before connecting or disconnecting any Oculink devices. Ensure the Oculink cable is securely attached.

7.2 Advanced Troubleshooting

For persistent issues or advanced diagnostics, refer to the GMKtec support resources or consult a qualified technician.

8. WARRANTY & SUPPORT

GMKtec offers comprehensive support for your Mini PC:

- **Warranty:** A 1-year limited warranty covers defects due to design and workmanship from the date of purchase.
- **Technical Support:** For assistance, you can contact the professional after-sales team via email at support@gmktec.com.
- **Online Resources:** Visit the official GMKtec website or Amazon store for additional FAQs, driver downloads, and product information.

Image: Warranty & Support contact details.