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AMD Ryzen Threadripper 1900X

AMD Ryzen Threadripper 1900X Desktop Processor Instruction Manual

Model: Ryzen Threadripper 1900X (YD190XA8AEWOF)

1. PRODUCT OVERVIEW

The AMD Ryzen Threadripper 1900X is an 8-core, 16-thread desktop processor designed for high-performance computing. It features a base clock speed of 3.8 GHz and a max turbo frequency of 4.0 GHz, with Extended Frequency Range (XFR) for dynamic clock speed adjustments. This processor is built on 14nm CMOS technology and utilizes the sTR4 package, supporting quad-channel DDR4 memory.

Key Features:

- 8 Cores and 16 Threads for powerful multi-tasking and demanding applications.
- 4.0 GHz Precision Boost (up to 4.2 GHz with XFR) for enhanced performance.
- 20MB of Cache Memory (4MB L2 + 16MB L3) for faster data access.
- 64 PCIe Gen3 Lanes for extensive connectivity and multi-GPU configurations.
- Quad-Channel DDR4 Memory Support for high memory bandwidth.
- Supported Technologies: AMD SenseMI Technology, AMD Ryzen VR Ready Premium, Virtualization, AES, AVX2, FMA4, XFR.



Figure 1.1: AMD Ryzen Threadripper 1900X Processor in its retail packaging.

2. PACKAGE CONTENTS

Verify that all items are present in the package before proceeding with installation.

- AMD Ryzen Threadripper Processor
- Installation Tool (for sTR4 socket)



Figure 2.1: The AMD Ryzen Threadripper 1900X processor unit.

3. SETUP AND INSTALLATION

This section provides general guidelines for installing your AMD Ryzen Threadripper 1900X processor. Always refer to your motherboard's instruction manual for specific installation steps, as procedures may vary.

3.1. Prerequisites

- Compatible Motherboard: Requires a motherboard with an sTR4 socket (Socket TR4).
- Compatible CPU Cooler: A CPU cooler designed for the sTR4 socket is essential due to the processor's thermal design power (TDP) of 180W.
- Thermal Paste: High-quality thermal paste (often pre-applied to coolers or included).
- Anti-static precautions: Use an anti-static wrist strap or frequently touch a grounded metal object to prevent electrostatic discharge (ESD).

3.2. Installation Steps (General)

1. **Prepare the Motherboard:** Ensure the motherboard is securely mounted in the PC case. Open the sTR4 socket retention mechanism by unscrewing the three captive screws in the specified order (usually indicated on the socket cover).
2. **Insert the Processor:** Carefully align the processor with the socket. The Threadripper processor comes in a tray that guides it into the socket. Use the included installation tool to gently lower the processor into place. **Do not force the processor.**
3. **Secure the Processor:** Once the processor is seated correctly, close the socket retention mechanism by tightening the three captive screws in the reverse order of opening. The included tool is designed to prevent overtightening.
4. **Apply Thermal Paste (if not pre-applied):** Apply a small amount of thermal paste to the center of the processor's integrated heat spreader (IHS). Consult your cooler's instructions for the recommended application method.
5. **Install the CPU Cooler:** Mount the sTR4-compatible CPU cooler according to its manufacturer's instructions. Ensure proper contact between the cooler's base and the processor's IHS. Connect the cooler's fan power

cable to the appropriate header on the motherboard.

6. **Connect Power:** Connect the necessary CPU power cables from your power supply to the motherboard (often 8-pin and 4-pin or dual 8-pin connectors for Threadripper motherboards).

Important: Incorrect installation can damage the processor or motherboard. If you are unsure, seek assistance from a qualified technician.

4. OPERATING THE PROCESSOR

The AMD Ryzen Threadripper 1900X operates automatically once installed and configured within a compatible system. Its performance is managed by the motherboard's BIOS/UEFI and the operating system.

4.1. BIOS/UEFI Configuration

- **Memory Settings:** Ensure your DDR4 memory is running at its advertised speed by enabling the XMP (Extreme Memory Profile) or DOCP (DRAM Overclocking Profile) in the motherboard's BIOS/UEFI.
- **Fan Control:** Configure fan curves for your CPU cooler to maintain optimal temperatures while managing noise levels.
- **Firmware Updates:** Regularly check your motherboard manufacturer's website for the latest BIOS/UEFI updates, which can improve stability, performance, and compatibility.

4.2. Software and Drivers

- **Chipset Drivers:** Install the latest AMD chipset drivers from the official AMD website for optimal system performance and stability.
- **AMD Ryzen Master Utility:** This software allows for advanced monitoring and configuration of your Ryzen processor, including core clock speeds, voltage, and memory timings. Use with caution and refer to AMD's documentation for proper usage.

Supported Technologies:

AMD SenseMI Technology

AMD Ryzen™ VR-Ready Premium

Virtualization

Enmotus FuzeDrive™ for AMD Ryzen™

AES

AVX2

XFR (Extended Frequency Range)

Figure 4.1: Supported technologies for AMD Ryzen Threadripper processors.

5. MAINTENANCE

Proper maintenance ensures the longevity and optimal performance of your processor.

- **Dust Removal:** Periodically clean dust from your CPU cooler and PC case fans using compressed air. Dust accumulation can impede airflow and lead to higher temperatures.
- **Thermal Paste Refresh:** After several years, the thermal paste between the CPU and cooler may degrade. Consider reapplying fresh thermal paste if you observe increased operating temperatures.
- **System Monitoring:** Use software like AMD Ryzen Master or other third-party tools to monitor CPU temperatures and ensure they remain within safe operating limits, especially under heavy load.

6. TROUBLESHOOTING

If you encounter issues with your AMD Ryzen Threadripper 1900X processor, consider the following troubleshooting steps:

- **No Display/System Not Booting:**

- Verify all power connections, especially the CPU power cables.
- Reseat the processor and memory modules.
- Check for bent pins on the processor (if removed) or debris in the socket.
- Ensure your motherboard BIOS/UEFI is updated to support the Threadripper 1900X.

- **Overheating:**

- Confirm the CPU cooler is properly installed and making good contact with the processor.
- Check if the CPU cooler fan is spinning.
- Ensure adequate airflow within your PC case.
- Reapply thermal paste if it has dried out or was improperly applied.

- **System Instability/Crashes:**

- Ensure memory is compatible and running at stable speeds (try default speeds if XMP/DOCP is enabled).
- Update motherboard BIOS/UEFI and chipset drivers.
- Check for power supply issues; ensure it provides sufficient wattage for all components.

For further assistance, consult the AMD support website or your motherboard manufacturer's documentation.

7. SPECIFICATIONS

Feature	Specification
Model	AMD Ryzen Threadripper 1900X
Part Number	YD190XA8AEWOF
Core Count	8 Cores
Thread Count	16 Threads
Base Clock Speed	3.8 GHz
Max Turbo Frequency	4.0 GHz (up to 4.2 GHz with XFR)
L1 Cache	768 KB

Feature	Specification
L2 Cache	4 MB
L3 Cache	16 MB
CMOS Technology	14nm
Package	sTR4
PCI Express Version	PCIe 3.0 (64 Lanes)
Default TDP	180 W
Memory Support	DDR4, Quad-Channel, up to 2667MHz (native)
Processor Brand	AMD
Hardware Platform	PC; Unix; Linux
Item Weight	1.9 pounds (approx. 0.86 kg)
Product Dimensions	31 x 2.2 x 0.1 inches (approx. 78.7 x 5.6 x 0.25 cm)

8. WARRANTY AND SUPPORT

AMD processors typically come with a limited warranty. For specific warranty terms and conditions, please refer to the documentation included with your product or visit the official AMD website.

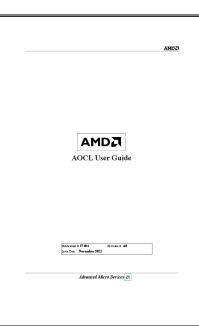
8.1. Technical Support

For technical assistance, driver downloads, and further product information, please visit the official AMD support website:

- **AMD Support Website:** www.amd.com/support
- **AMD Store:** Visit the AMD Store on Amazon

When contacting support, have your processor model (Ryzen Threadripper 1900X) and part number (YD190XA8AEWOF) readily available.

Related Documents - Ryzen Threadripper 1900X

	<p>AMD Ryzen Master 1.5 Quick Reference Guide: Optimize Processor Performance</p> <p>Discover AMD Ryzen Master 1.5, a software utility for enthusiasts to monitor, tune, and optimize AMD Ryzen and Ryzen Threadripper desktop processors for enhanced performance and stability.</p>
	<p>AMD AOCL User Guide: Optimize Performance on Zen Processors</p> <p>The AMD Optimizing CPU Libraries (AOCL) User Guide provides comprehensive instructions for installing, using, and tuning a suite of high-performance numerical libraries optimized for AMD 'Zen'-based processors. It covers AOCL-BLIS, AOCL-libFLAME, AOCL-FFTW, AOCL-LibM, AOCL-ScaLAPACK, AOCL-RNG, AOCL-SecureRNG, AOCL-Sparse, AOCL-LibMem, AOCL-Cryptography, and AOCL-Compression, along with integration with HPL and MUMPS, and performance tuning guidelines.</p>

<p>AMD Ryzen™ 5 5600X Processor Technical Product Manual & Installation Guide</p> <p>Product Overview</p> <p>Processor</p> <table border="1"> <tr><td>Architecture</td><td>AMD Zen™ 3 Architecture</td></tr> <tr><td>Cores/Threads</td><td>6 Cores / 12 Threads</td></tr> <tr><td>Base Frequency</td><td>3.7 GHz (TDP 65W)</td></tr> <tr><td>Max Boost Frequency</td><td>4.6 GHz (TDP 65W)</td></tr> <tr><td>L1 Cache</td><td>64 KB (x4)</td></tr> <tr><td>L2 Cache</td><td>512 KB (x4)</td></tr> <tr><td>Processor Cache</td><td>1 MB (x4)</td></tr> <tr><td>L3 Cache</td><td>32 MB (x1)</td></tr> <tr><td>Socket Type</td><td>Socket AM4 (Pin 1101)</td></tr> <tr><td>Power Support</td><td>100W (100W, 120W)</td></tr> <tr><td>PCIe Version</td><td>PCIe 4.0 (x16)</td></tr> <tr><td>Integrated Graphics</td><td>AMD Radeon™ 680 (1280 x 1280)</td></tr> <tr><td>Georging Solution</td><td>AM4 (Pin 1101)</td></tr> </table>	Architecture	AMD Zen™ 3 Architecture	Cores/Threads	6 Cores / 12 Threads	Base Frequency	3.7 GHz (TDP 65W)	Max Boost Frequency	4.6 GHz (TDP 65W)	L1 Cache	64 KB (x4)	L2 Cache	512 KB (x4)	Processor Cache	1 MB (x4)	L3 Cache	32 MB (x1)	Socket Type	Socket AM4 (Pin 1101)	Power Support	100W (100W, 120W)	PCIe Version	PCIe 4.0 (x16)	Integrated Graphics	AMD Radeon™ 680 (1280 x 1280)	Georging Solution	AM4 (Pin 1101)	<p>AMD Ryzen 5 5600X Processor: User Manual and Installation Guide</p> <p>Comprehensive user manual and installation guide for the AMD Ryzen 5 5600X processor, covering product specifications, compatible motherboards, installation steps, optimization tips, and troubleshooting.</p>		
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<p>AMD AM5 Prozessoren Optimierungsanleitung Optimierung Anleitung, 20.11.2024 Version 1.0</p> <p>AMD Optimierungsanleitung</p> <p>Um die Leistung Ihres Prozessors zu maximieren, folgen Sie diesen Anweisungen. Diese Anleitung enthält Informationen über die optimale Konfiguration von BIOS-Einstellungen und Benchmarking, um die Leistung und Stabilität Ihres Systems zu verbessern.</p> <p>Um die Anleitung zu verwenden, drucken Sie sie aus und legen Sie sie neben Ihren Computer an. Sie können sie jederzeit während des Optimierungsprozesses ansehen.</p>	<p>AMD AM5 Prozessoren Optimierungsanleitung: Maximale Leistung und Stabilität</p> <p>Umfassende Anleitung zur Optimierung von AMD AM5 Prozessoren (Ryzen 7000er und 9000er Serie) durch BIOS-Einstellungen und Benchmarking zur Steigerung von Leistung und Stabilität.</p>																												
<p>AMD Ryzen™ 5 5600 Processor User Manual and Installation Guide</p> <p>Product Overview</p> <p>Processor</p> <p>Der AMD Ryzen™ 5 5600 processor is designed for high performance computing and productivity. With 6 cores and 12 threads, this processor offers excellent performance for demanding applications.</p> <p>Specifications</p> <table border="1"> <tr><td>Specifications</td><td>Details</td></tr> <tr><td>Core Count</td><td>6</td></tr> <tr><td>Threads</td><td>12</td></tr> <tr><td>Base Clock</td><td>3.6 GHz</td></tr> <tr><td>Max Boost Clock</td><td>4.6 GHz</td></tr> <tr><td>Serial L1 Cache</td><td>64 KB</td></tr> <tr><td>Serial L2 Cache</td><td>512 KB</td></tr> <tr><td>Processor Cache</td><td>1 MB</td></tr> <tr><td>L3 Cache</td><td>32 MB</td></tr> <tr><td>Socket Type</td><td>AM4</td></tr> <tr><td>Power Support</td><td>100W</td></tr> <tr><td>PCIe Version</td><td>PCIe 4.0</td></tr> <tr><td>Integrated Graphics</td><td>AMD Radeon™ 680 (1280 x 1280)</td></tr> <tr><td>Georging Solution</td><td>AM4 (Pin 1101)</td></tr> </table> <p>Compatible Components</p>	Specifications	Details	Core Count	6	Threads	12	Base Clock	3.6 GHz	Max Boost Clock	4.6 GHz	Serial L1 Cache	64 KB	Serial L2 Cache	512 KB	Processor Cache	1 MB	L3 Cache	32 MB	Socket Type	AM4	Power Support	100W	PCIe Version	PCIe 4.0	Integrated Graphics	AMD Radeon™ 680 (1280 x 1280)	Georging Solution	AM4 (Pin 1101)	<p>AMD Ryzen 5 5600 Processor: User Manual and Installation Guide</p> <p>Official user manual and installation guide for the AMD Ryzen 5 5600 processor. Provides detailed specifications, recommended compatible components, step-by-step installation instructions, and troubleshooting tips for optimal performance.</p>
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