Intel BX80633I74960X

Intel Core i7-4960X Extreme Edition Processor User Manual

Model: BX80633I74960X

1. INTRODUCTION

The Intel Core i7-4960X Extreme Edition Processor (Model BX80633I74960X) is a high-performance central processing unit designed for demanding computing tasks, including advanced gaming, content creation, and professional applications. This processor features 6 cores and 12 threads, providing robust multitasking capabilities and exceptional processing power. It is built on the Ivy Bridge-E architecture and utilizes the LGA 2011 socket.

Key features include:

- **SSSE3** (Supplemental Streaming SIMD Extensions 3) for enhanced multimedia and signal processing.
- **AES** (Advanced Encryption Standard instructions) for faster and more secure data encryption and decryption.
- **EM64T** (Extended Memory 64 technology/Intel 64) enabling 64-bit computing.
- Lower power consumption compared to previous generation i7-39xx microprocessors.

Figure 1: The Intel Core i7-4960X Extreme Edition Processor in its retail box. This image shows the processor packaging, highlighting the product's branding and model number.

2. SETUP AND INSTALLATION

Proper installation of your Intel Core i7-4960X processor is crucial for optimal performance and system stability. Always

handle the processor by its edges to avoid touching the gold contacts or the top surface.

2.1. Compatibility Check

- Ensure your motherboard supports the **LGA 2011 socket**.
- Verify that your motherboard's BIOS/UEFI firmware is updated to a version that supports the Intel Core i7-4960X processor. Refer to your motherboard manufacturer's website for the latest BIOS updates and compatibility lists.
- Confirm your power supply unit (PSU) provides sufficient wattage for your entire system, including the processor and other components.

2.2. Processor Installation Steps

1. **Prepare the Motherboard:** With the system powered off and unplugged, open the CPU socket retention mechanism on your LGA 2011 motherboard.
2. **Insert the Processor:** Carefully align the processor with the socket, ensuring the triangular alignment marks on the processor and socket match. Gently place the processor into the socket without forcing it.
3. **Secure the Processor:** Close the CPU socket retention mechanism until it clicks into place, securing the processor firmly.
4. **Apply Thermal Paste:** Apply a small amount of high-quality thermal paste to the center of the processor's integrated heat spreader (IHS). Follow the thermal paste manufacturer's instructions for application.
5. **Install CPU Cooler:** Attach your chosen CPU cooling solution (heatsink and fan, or liquid cooler) according to its manufacturer's instructions. Ensure the cooler is firmly seated and making good contact with the processor's IHS. This processor can run hotter, so a robust cooling solution, such as a liquid cooling system, is highly recommended.
6. **Connect Cooler Fan:** Connect the CPU cooler's fan cable to the designated CPU_FAN header on your motherboard.

3. OPERATING THE PROCESSOR

Once installed, the Intel Core i7-4960X processor operates automatically within your system. Its 3.6 GHz base clock speed, combined with Intel Turbo Boost Technology, allows it to dynamically increase frequency up to 4.0 GHz for single-core loads, optimizing performance for various applications.

- **Performance:** This processor excels in tasks requiring significant computational power, such as video editing, 3D rendering, and high-fidelity gaming.
- **Multitasking:** With 6 physical cores and 12 logical threads (via Intel Hyper-Threading Technology), the processor efficiently handles multiple applications simultaneously.
- **Power Management:** The processor incorporates advanced power management features to optimize energy efficiency, resulting in lower power consumption compared to earlier generations while maintaining high performance.

4. MAINTENANCE

Regular maintenance helps ensure the longevity and stable performance of your processor and system.

- **Cooling System:** Periodically inspect and clean your CPU cooler (heatsink fins and fan blades) to prevent dust buildup, which can impede airflow and lead to higher temperatures. For liquid cooling systems, check coolant levels and pump operation.
- **Thermal Paste:** Over several years, thermal paste can degrade. If you observe consistently high CPU temperatures, consider reapplying fresh thermal paste. This typically involves carefully removing the CPU cooler, cleaning off old paste, and applying new paste.
- **BIOS/UEFI Updates:** Keep your motherboard's BIOS/UEFI firmware updated. Manufacturers often release updates that improve stability, add compatibility, or enhance performance.
- **System Cleanliness:** Maintain a clean computing environment to minimize dust ingress into your PC case, which can affect all components, including the CPU.

5. TROUBLESHOOTING

If you encounter issues with your processor or system, refer to the following troubleshooting tips:

- **System Not Booting / No Display:**
  - Ensure the processor is correctly seated in the LGA 2011 socket and the retention mechanism is fully closed.
  - Verify that all power cables (24-pin ATX, 8-pin EPS/CPU) are securely connected to the motherboard.
  - Check RAM modules for proper seating.
  - Confirm your motherboard BIOS supports the i7-4960X. An outdated BIOS can prevent the system from booting.

- **Overheating / High CPU Temperatures:**
  - Ensure the CPU cooler is properly installed and making firm contact with the processor's IHS.
  - Verify that thermal paste was applied correctly and is evenly spread.
  - Check if the CPU cooler fan is spinning and connected to the correct header.
  - Clean any dust buildup from the heatsink fins and fan blades.
  - Ensure adequate airflow within your PC case.

- **System Instability / Crashes (Blue Screen of Death):**
  - This can often be related to an unstable overclock. If you have overclocked the CPU, revert to default settings to test stability.
  - Ensure your power supply unit (PSU) is sufficient and stable.
  - Run memory diagnostic tools to check for RAM issues.
  - Update motherboard drivers and chipset drivers.

6. SPECIFICATIONS

Feature	Detail
Processor Model	Intel Core i7-4960X Extreme Edition
Item Model Number	BX80633I74960X
CPU Socket	LGA 2011
CPU Cores	6
CPU Threads	12
Base Clock Speed	3.6 GHz
Max Turbo Frequency	4.0 GHz
Processor Brand	Intel
Computer Memory Type	DDR3 SDRAM
Item Weight	5.6 ounces (approx. 158.7 grams)
Product Dimensions (LxWxH)	9.5 x 5.6 x 6 inches (approx. 24.1 x 14.2 x 15.2 cm)

7. WARRANTY AND SUPPORT

The Intel Core i7-4960X Extreme Edition Processor typically comes with a **three-year manufacturer's warranty**. This warranty covers defects in materials and workmanship under normal use.

For warranty claims, technical assistance, or further support, please contact Intel Customer Support directly. You can find contact information and additional resources on the official Intel website:

Intel Official Support Website

Note: Modifying the processor, such as delidding for improved cooling, may void the manufacturer's warranty. Always refer to Intel's official warranty terms and conditions.