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Intel 6348

Intel Xeon Gold 6348 Processor User Manual

Model: 6348

1. INTRODUCTION

This manual provides essential information for the installation, operation, and maintenance of the Intel Xeon Gold 6348 Processor. The Intel Xeon Gold 6348 is a high-performance processor designed for demanding server and workstation environments, featuring 28 cores, a base clock speed of 2.6 GHz, and a 42 MB cache. It is part of the Ice Lake generation of processors and has a Thermal Design Power (TDP) of 235W.

2. SPECIFICATIONS

The following table details the key specifications of the Intel Xeon Gold 6348 Processor:

Feature	Detail
Processor Model	Intel Xeon Gold 6348
CPU Manufacturer	Intel
Core Count	28 Cores
Thread Count	56 Threads
Base Clock Speed	2.6 GHz
Cache Memory	42 MB
Thermal Design Power (TDP)	235 Watts
CPU Socket	FCLGA4189
Platform Compatibility	Windows 7 (and compatible server operating systems)
Generation	Ice Lake



Figure 1: Bottom view of the Intel Xeon Gold 6348 Processor, illustrating the pin grid array for socket FCLGA4189.

3. SETUP AND INSTALLATION

Proper installation is crucial for the stability and performance of your system. Always handle the processor with care, touching only the edges to avoid damaging the contacts or integrated heat spreader (IHS).

3.1. Prerequisites

- Compatible motherboard with an FCLGA4189 socket.
- Compatible CPU cooler designed for 235W TDP or higher.
- Thermal paste.
- Anti-static wrist strap or other grounding measures.
- Clean, well-lit workspace.

3.2. Installation Steps

1. **Prepare the Motherboard:** Ensure the motherboard is securely mounted in the chassis. Open the CPU socket retention mechanism by releasing the lever(s).
2. **Handle the Processor:** Carefully remove the processor from its packaging. Hold it by the edges. *Do not touch the gold contacts on the bottom or the top surface.*
3. **Align the Processor:** Locate the alignment notches or triangles on the processor and the socket. Gently place the processor into the socket, ensuring it sits perfectly without force. If it does not drop in easily, re-check alignment.
4. **Secure the Processor:** Close the socket retention mechanism, ensuring the lever(s) lock into place. This will secure the processor firmly in the socket.
5. **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 method (e.g., pea-sized dot, line, or spread).
6. **Install CPU Cooler:** Mount the CPU cooler according to its manufacturer's instructions. Ensure even pressure is applied and that the cooler is securely fastened. Connect the CPU cooler's fan cable to the designated CPU fan header on the motherboard.

Caution: Incorrect installation can cause permanent damage to the processor and/or motherboard. If unsure, consult a qualified technician.

4. OPERATING GUIDELINES

Once installed, the Intel Xeon Gold 6348 Processor operates automatically within your system. Optimal performance and longevity depend on proper system configuration and environmental conditions.

4.1. System Requirements

- Adequate power supply unit (PSU) to support the processor's 235W TDP and other system components.
- Sufficient system memory (RAM) for your intended workload.
- Compatible operating system (e.g., Windows Server, Linux distributions).
- Properly configured BIOS/UEFI settings for the processor and memory.

4.2. Thermal Management

Maintaining appropriate operating temperatures is critical. Ensure your system has:

- An effective CPU cooler.
- Good airflow within the chassis, with properly installed intake and exhaust fans.
- A clean environment to prevent dust buildup, which can impede cooling.

Monitor CPU temperatures using system monitoring software to ensure they remain within safe operating limits as specified by Intel.

5. MAINTENANCE

The Intel Xeon Gold 6348 Processor itself requires no direct maintenance. However, maintaining the surrounding system components is essential for its long-term performance and reliability.

- **Dust Removal:** Periodically clean dust from CPU coolers, case fans, and heatsinks using compressed air. Dust buildup can significantly reduce cooling efficiency.
- **Thermal Paste:** If the CPU cooler is removed for any reason, the thermal paste must be cleaned off both the CPU and the cooler, and fresh thermal paste applied before reinstallation.
- **Software Updates:** Keep your operating system, drivers (especially chipset drivers), and BIOS/UEFI firmware updated to ensure optimal compatibility and performance.

6. TROUBLESHOOTING

If you encounter issues after installing or during operation of your Intel Xeon Gold 6348 Processor, consider the following troubleshooting steps:

6.1. No Display / System Fails to Boot

- **Check CPU Installation:** Ensure the processor is correctly seated in the socket and the retention mechanism is fully locked.
- **Check Power Connections:** Verify that all power cables, especially the 8-pin (or 4+4-pin) CPU power connector, are securely connected to the motherboard.
- **Check RAM:** Ensure RAM modules are properly seated in their slots. Try booting with only one RAM stick if multiple are installed.
- **Clear CMOS:** Reset the motherboard's BIOS/UEFI settings to default by clearing the CMOS. Refer to your motherboard manual for instructions.
- **BIOS/UEFI Compatibility:** Confirm your motherboard's BIOS/UEFI version supports the Intel Xeon Gold 6348 processor. An update may be required (often needing an older, compatible CPU to perform).

6.2. System Instability / Crashes

- **Monitor Temperatures:** Use monitoring software to check CPU temperatures. Overheating can cause instability. Ensure proper cooling and thermal paste application.
- **Check Power Supply:** An insufficient or failing power supply can lead to instability under load.
- **Run Diagnostics:** Utilize built-in motherboard diagnostics or third-party tools to test CPU and memory stability.
- **Driver Issues:** Ensure all system drivers, especially chipset drivers, are up to date.

6.3. Performance Issues

- **Background Processes:** Close unnecessary applications running in the background.
- **Thermal Throttling:** High temperatures can cause the CPU to reduce its clock speed. Verify cooling is adequate.
- **Power Settings:** Ensure your operating system's power plan is set to "High Performance" or equivalent.
- **BIOS/UEFI Settings:** Check for any power-saving features or clock speed limitations enabled in the BIOS/UEFI that might be impacting performance.

7. WARRANTY AND SUPPORT

The Intel Xeon Gold 6348 Processor is typically covered by a manufacturer's warranty. Warranty terms and duration

may vary depending on the region and point of purchase (e.g., OEM tray processor vs. retail boxed). Please retain your proof of purchase.

For technical support, warranty claims, or further information, please refer to the official Intel support website or contact your system integrator/reseller. You can find detailed support resources, drivers, and documentation at www.intel.com/support.