



Intel Xeon E5-2680 v4 Processor Installation Guide

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Xeon E5-2680 v4 Processor

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Specifications

Specification	Details
Processor Series	Intel Xeon E5 v4 Family
Code Name	Broadwell-EP
Total Cores	14
Total Threads	28
Base Clock Speed	2.4 GHz

Product Overview

The Intel Xeon E5-2680 v4 processor is a high-performance server/workstation CPU designed for demanding computational tasks. Part of Intel’s Broadwell-EP family, this 14-core processor offers excellent multi-threading performance, making it ideal for virtualization, data analysis, rendering, and other intensive workloads.

Installation Guide

Warning: Always handle the processor by its edges. Avoid touching the pins on the CPU or socket. Static electricity can damage the processor, so use an anti-static wrist strap when handling components.

Product Usage Instructions

Compatible Components

This processor requires specific server/workstation components and is not compatible with consumer desktop parts.

Recommended Motherboards

- Intel C612 (Server chipset)
- Intel X99 (Workstation chipset) – Note: Not all X99 boards support Xeon processors

Memory Requirements

This processor requires DDR4 Registered ECC memory (RDIMMs):

- Type: DDR4 Registered ECC (RDIMM)
- Speeds: 2133MHz, 2400MHz (native support)

Cooling Solutions

Due to the 120W TDP, a capable cooling solution is required:

- Server-grade air coolers with adequate heatsinks

Power Supply Requirements

Recommended power supply specifications:

- Minimum 600W for single CPU configurations

Other Considerations

- This CPU does not include integrated graphics – a discrete GPU is required

FAQ

Q: Can the Intel Xeon E5-2680 v4 processor be

used with consumer desktop motherboards?

A: No, this processor is not compatible with consumer desktop motherboards as it requires specific server/workstation components.

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Intel Xeon E5-2680 v4 Processor

User Manual and Installation Guide Download as Word Document

Product Overview

The Intel Xeon E5-2680 v4 processor is a high-performance server/workstation CPU designed for demanding computational tasks. Part of Intel's Broadwell-EP family, this 14-core processor offers excellent multi-threading performance, making it ideal for virtualization, data analysis, rendering, and other intensive workloads.

Important Note: This is a server/workstation-grade processor that requires specific motherboard chipsets and registered ECC memory. It is not compatible with consumer desktop motherboards.

Specifications

Specification

Details

Processor Series

Intel Xeon E5 v4 Family

Code Name

Broadwell-EP

Total Cores

14

Total Threads

28

Base Clock Speed

2.4 GHz

Max Turbo Frequency 3.3 GHz

Cache

35 MB SmartCache

Bus Speed

9.6 GT/s QPI

TDP

120 W

Socket

LGA 2011-3 (Socket R3)

Max Memory Size

1.5 TB (Dependent on motherboard)

Memory Types

DDR4 1600/1866/2133/2400 MHz

Max Memory Channels 4

ECC Memory Supported

Yes (Required)

PCI Express Revision

3.0

Max PCI Express Lanes

40

Instruction Set

64-bit

Instruction Extensions

AVX 2.0

Virtualization Technology

Intel VT-x with Extended Page Tables (EPT)

Advanced Technologies

Turbo Boost Technology 2.0, Hyper-Threading Technology, vPro Technology

Compatible Components

Warning: This processor requires specific server/workstation components and is not compatible with consumer desktop parts.

Recommended Motherboards

Intel Xeon E5-2680 v4 requires motherboards with the following chipsets:

Intel C612 (Server chipset) Intel X99 (Workstation chipset) – Note: Not all X99 boards support Xeon processors Server boards from Supermicro, ASUS, Gigabyte, Tyan, etc. Popular compatible motherboards include: Supermicro X10SRA-F ASUS Z10PE-D16 WS Gigabyte GA-7PESH3 ASRock X99 Taichi (with BIOS update) Various dual-socket server boards for multi-processor configurations

Memory Requirements

This processor requires DDR4 Registered ECC memory (RDIMMs): Type: DDR4 Registered ECC (RDIMM) Speeds: 2133MHz, 2400MHz (native support) Recommended configuration: Install in multiples of 4 for optimal performance Check motherboard QVL for compatible memory modules

Cooling Solutions

Due to the 120W TDP, a capable cooling solution is required:

Server-grade air coolers with adequate heatsinks Liquid cooling solutions with LGA

2011-3 compatibility Ensure proper case airflow for optimal thermal performance

Power Supply Requirements

Recommended power supply specifications: Minimum 600W for single CPU

configurations 800W+ for dual CPU configurations or systems with high-end GPUs 80

Plus Gold certification or better recommended Ensure adequate EPS12V connectors (8-pin or dual 8-pin for high-end boards)

Other Considerations

This CPU does not include integrated graphics – a discrete GPU is required

Ensure your case supports the form factor of your chosen motherboard (ATX, EATX, SSI-EEB, etc.)

For multi-processor configurations, ensure both CPUs are identical

Installation Guide

Warning: Always handle the processor by its edges. Avoid touching the pins on the CPU or socket. Static electricity can damage the processor, so use an anti-static wrist strap when handling components.

1 Prepare the Motherboard Place the motherboard on a flat, non-conductive surface. Remove the socket cover if present.

2 Open the Socket Lift the socket lever to the fully open position (approximately 135 degrees). Then lift the load plate.

3 Align the Processor Hold the processor by its edges and align it with the socket. The CPU has notches and a golden triangle that match indicators on the socket.

4 Install the Processor Gently place the processor into the socket. Do not force it – if properly aligned, it should drop into place easily. Do not press down on the CPU.

5 Close the Socket Close the load plate, then lower the socket lever and secure it under the retention clip.

6 Apply Thermal Interface Material Apply a pea-sized amount of quality thermal paste to the center of the processor's heat spreader.

7 Install the Cooler Align the cooler with the mounting brackets and secure it according to the cooler's instructions. Connect the cooler's power cable to the appropriate header on the motherboard.

8 Install Memory Install DDR4 Registered ECC memory modules according to your motherboard's recommended configuration (usually starting with slots farthest from the CPU).

Note: Before powering on the system, ensure that all connections are secure, including power cables to the motherboard and CPU, memory modules are fully seated, and the CPU cooler is properly installed.

Troubleshooting

System Won't Power On

Possible causes: Incorrect power connections, faulty power supply, motherboard compatibility issue.

Solutions: Check all power connections (24-pin ATX, 8-pin EPS), verify PSU functionality, ensure motherboard compatibility with Xeon E5 v4 processors.

No Display Output

Possible causes: No discrete graphics card installed, graphics card not properly seated, monitor connected to wrong port.

Solutions: Install a discrete graphics card (this CPU has no integrated graphics), reseal the graphics card, ensure monitor is connected to the graphics card outputs.

Memory Not Detected or Errors

Possible causes: Using non-ECC or unbuffered memory, memory not fully seated, incompatible memory.

Solutions: Ensure you're using DDR4 Registered ECC memory, reseal memory modules, try different memory slots, check motherboard QVL for compatible memory.

BIOS Doesn't Recognize CPU

Possible causes: Outdated BIOS, incompatible motherboard.

Solutions: Update motherboard BIOS to latest version (may require a compatible CPU for flashing), verify motherboard compatibility with Xeon E5 v4 processors.

System Instability or Overheating

Possible causes: Inadequate cooling, improper thermal paste application, insufficient power delivery.

Solutions: Ensure CPU cooler is properly installed, reapply thermal paste, check temperatures in BIOS, verify PSU adequacy.

PCIe Devices Not Recognized

Possible causes: BIOS settings, incompatible devices, insufficient PCIe lanes.

Solutions: Check BIOS settings for PCIe configuration, try different slots, ensure devices are compatible with the system.

Note: For dual-processor configurations, ensure both CPUs are identical and that all required power connections are made (additional EPS12V connectors may be required).

Performance Optimization

BIOS Settings

For optimal performance, consider these BIOS settings: Enable Turbo Boost Technology
Enable Hyper-Threading Technology Set memory speed to highest supported frequency (2133MHz or 2400MHz) Enable XMP profiles if supported by your memory and motherboard Configure power settings for performance (disable power-saving features if maximum performance is desired)

Operating System Configuration

For server/workstation use: Use Windows Server or Windows 10/11 Pro for Workstations Install latest chipset drivers from motherboard manufacturer Set power plan to “High performance” For virtualization, enable VT-d in BIOS and install appropriate hypervisor

Cooling Considerations

To maintain optimal performance: Ensure adequate case airflow Monitor temperatures using utilities like HWMonitor or Open Hardware Monitor

Consider upgrading cooling solution if temperatures exceed 80 C under load

Documents / Resources

	Intel Xeon E5-2680 v4 Processor [pdf] Installation Guide E5-2680 V4, Xeon E5-2680 v4 Processor, Xeon E5-2680 v4, Xeon, Processor
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References

- [User Manual](#)

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