Product Brief

Intel® Xeon® E-2400 Processors for Servers
Small Business

Essential Performance, Reliability, and Security for Businesses

Achieve more with Intel Xeon E processors, which are designed to intelligently support the growth of small businesses and entry-level cloud services.

Technology investments and business outcomes are increasingly interconnected. The workplace and workforce have changed rapidly in recent years, and organizations have responded by accelerating their digital transformations. Small businesses are no exception. These businesses have specialized needs for their technologies, especially those that can help them run multi-user applications such as email, messaging and videoconferencing, print servers, scheduling programs, databases, and enterprise resource planning (ERP) and customer relationship management (CRM) software.

Small businesses and entry-level cloud services can run daily operations smoothly in today's digital-first marketplace with business-ready, server-grade Intel Xeon E-2400 processors. These processors are built from the ground up with these businesses' needs in mind. Intel Xeon E-2400 processors are specifically designed with server-grade reliability and manageability features using criteria and testing standards that are more stringent than those for desktop processors. They also feature numerous improvements over the previous generation, including support for two channels of DDR5 memory, the capability of delivering speeds up to 4,800 megatransfers per second (MT/s), and 16-lane PCIe 5.0 for more bandwidth. PCIe 5.0 doubles the throughput of the previous generation, making it ideal for fast networking and storage.

Power- and cost-efficient Intel Xeon E-2400 processors are designed for single-processor server platforms with the features and capabilities needed for entry-level hardware solutions.

> In one study, 85 percent of small businesses said they have accelerated technology adoption and investments due to the COVID-19 pandemic, and those businesses were about 1.6x more likely to anticipate increased revenues in their next fiscal year than those who decelerated or made no changes.[1]

An enterprise-grade solution for on-premises deployments

Small businesses and entry-level cloud services require server solutions with professional-grade reliability, expandability, and enhanced security capabilities that can help control costs. Intel Xeon E-2400 processors are ideal for on-premises servers that provide a foundation of essential capabilities while complementing bare-metal cloud-based services and other IT investment options.

Meet a wide variety of needs

A dedicated, on-premises server can help address a number of the challenges facing businesses with limited infrastructure and IT resources, including:

- Bandwidth constraints, application latency, or heavy data usage that can cause performance issues
- Uncertainty and inability to plan for setup and ongoing costs of cloud services
- Preference for up-front payment over extended payment schedules
- Legacy applications that cannot be migrated to the cloud
- Regulatory, compliance, or data-sovereignty requirements that can mandate data must be secured on-premises

37 percent of surveyed small and medium-sized businesses (SMBs) have lost customers, and 17 percent have lost revenue due to downtime.[2]

Servers powered by Intel Xeon E processors support the latest operating systems, which can help small businesses and entry-level cloud services integrate their new applications and tools and benefit from up-to-date security patches that can help protect sensitive business data from cyberthreats. A server based on Intel Xeon E processors can deliver improved performance for any device on the network, which allows fast access to information and shorter customer response times.

The latest memory and I/O interconnect features

The latest generation of Intel Xeon E processors features DDR5 support for higher performance, in addition to support for error correction code (ECC). ECC helps avoid business interruptions with automatic correction of memory data errors that cause inadvertent data changes or system crashes. DDR5 memory delivers continued scaling of bandwidth, capacity, and power efficiency compared to DDR4 memory.

Like the latest top-of-the-line server-grade Intel Xeon Scalable processors, Intel Xeon E-2400 processors also support PCIe 5.0, which doubles the input/output (I/O) bandwidth of PCIe 4.0. PCIe 5.0 provides opportunities to enable the highest possible throughput between the CPU and connected devices while maintaining backward compatibility with previous generations of PCIe. Entry-level, bare-metal servers can now take advantage of high-speed I/O for faster storage and network connectivity.

Intel Xeon E-2400 processor specifications

Intel Xeon E-2400 processors are available in eight SKUs, including options with 4, 6, or 8 cores and thermal design power (TDP) ranging from 55 W up to 95 W. With Intel® Turbo Boost Technology frequencies as high as 5.6 GHz, these processors can outperform prior Intel Xeon E processors by up to 30 percent.[3] The Intel Xeon E-2400 processor platform supports Serial ATA (SATA) 3.0 and, when coupled with Intel® C260 Series Chipsets, offers more I/O bandwidth and speed and more USB 3.2 Gen 2x2 (20 Gb) ports than the previous generation.

The platform is validated for compatibility with the latest server operating systems, including Windows Server 2022, and it supports Intel® Server Platform Services (Intel® SPS). Intel SPS provides a suite of tools to control and monitor power, thermal, and resource utilization, with support for Intel® Node Manager.

Table 1. Intel Xeon E-2400 processor details

Feature	Specifications
Maximum core count	Up to 8 cores
Maximum base frequency	3.5 GHz
Processor cache memory	Up to 24 MB Intel® Smart Cache Technology
Processor performance technologies	Intel® Turbo Boost Max Technology 3.0 Intel® Hyper-Threading Technology (Intel® HT Technology)
Intel Turbo Boost Max Technology 3.0 frequency	Up to 5.6 GHz
Maximum socket number	One socket per server
Socket type	LGA 1700 socket
Thermal design power (TDP)	Up to 95 watts
System memory	2 channels of DDR5 ECC Up to 4,800 MT/s 2 DPC, UDIMMs only
Maximum system memory	Up to 128 GB
Supported chipset	Intel® C262 Chipset or Intel® C266 Chipset
I/O	PCIe 5.0—Up to 16 lanes (CPU) PCIe 4.0—Up to 20 lanes (PCH) and up to 4 lanes (CPU) PCIe 3.0—Up to 8 lanes (PCH) USB 3.2 Gen2x2 (20G)—Up to 5 ports USB 3.2 Gen2x1 (10G)—Up to 10 ports SATA 3.0—Up to 8 ports Direct Media Interface (DMI)—8 lanes, Gen 4
Intel SPS	Intel SPS 6.0 with Intel Node Manager

Intel® Virtual RAID on Chip (Intel® VROC)	SATA RAID
Support for Intel Ethernet	1 gigabit Ethernet (GbE) Intel® Ethernet Controller I210 (LOM/AIC) 10 GbE Intel® Ethernet Network Adapter X710 (AIC) 25 GbE Intel Ethernet Network Adapter E810 (AIC)
Manufacturing process	Intel 7 process technology

Note: Contact your hardware or equipment manufacturer for a full list of supported features and capabilities.
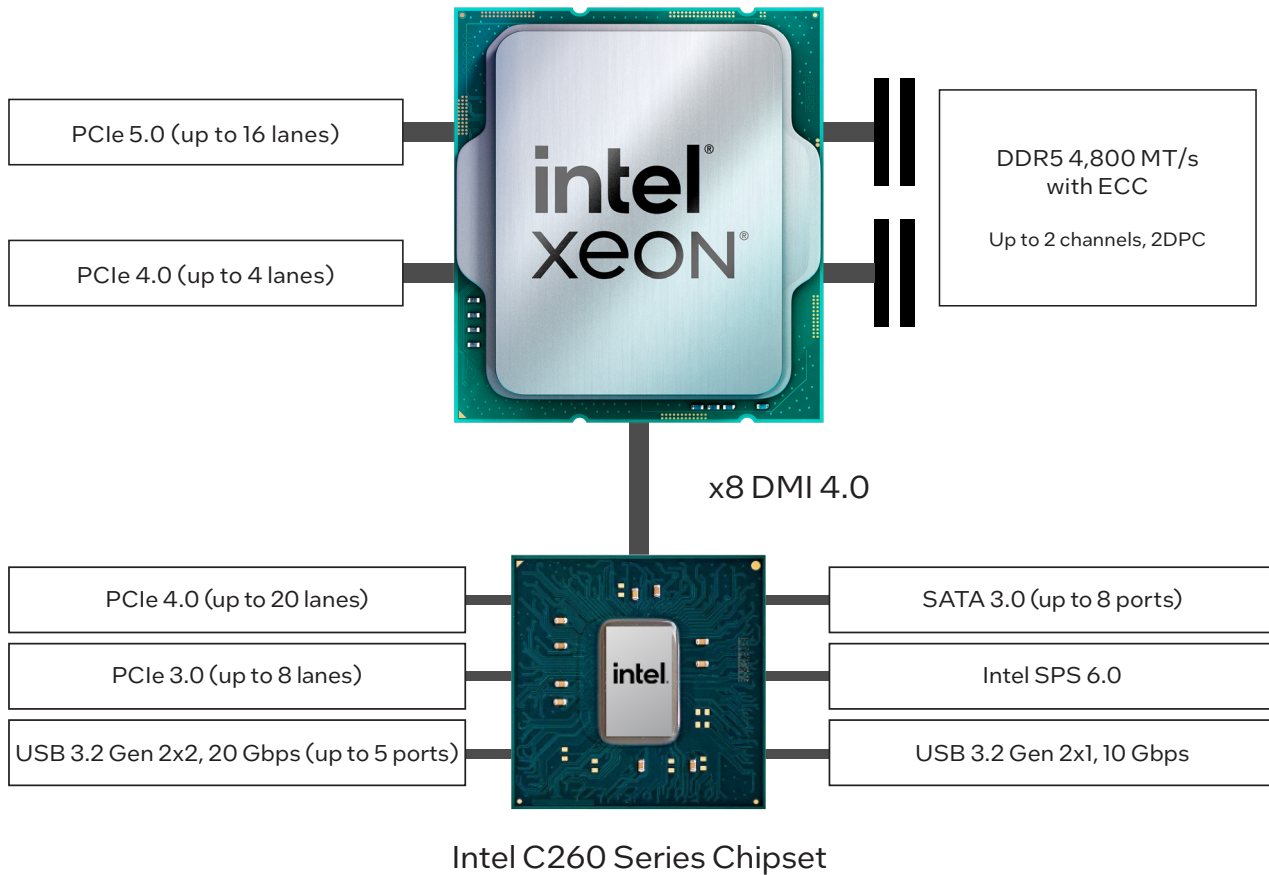
Note: Available in single-socket configurations only. Processors, chipsets, and diagram are provided for illustration purposes only; this is not a comprehensive list of all features and capabilities.

Figure 1. A typical Intel Xeon E-2400 platform configuration

Table 2. Intel Xeon E-2400 processor SKUs

Processor number	Base clock speed (GHz)	Intel Turbo Boost Technology frequency (GHz)*	Cores/threads	Intel Smart Cache Technology cache (MB)	PCIe 5.0, 4.0, and 3.0 lanes (CPU + chipset)	Memory support	Thermal design power (TDP)	Socket (LGA)
Intel Xeon E-2488 processor	3.2	5.6	8/16	24 MB	48	Two channels DDR5-4800	95 W	1700
Intel Xeon E-2478 processor	2.8	5.2	8/16	24 MB	48	Two channels DDR5-4800	80 W	1700
Intel Xeon E-2468 processor	2.6	5.2	8/16	24 MB	48	Two channels DDR5-4800	65 W	1700

Processor number	Base clock speed (GHz)	Intel Turbo Boost Technology frequency (GHz)*	Cores/ threads	Intel Smart Cache Technology cache (MB)	PCIe 5.0, 4.0, and 3.0 lanes (CPU + chipset)	Memory support	Thermal design power (TDP)	Socket (LGA)
Intel Xeon E-2486 processor	3.5	5.6	6/12	18 MB	48	Two channels DDR5-4800	95 W	1700
Intel Xeon E-2456 processor	3.3	5.1	6/12	18 MB	48	Two channels DDR5-4800	80 W	1700
Intel Xeon E-2436 processor	2.9	5.0	6/12	18 MB	48	Two channels DDR5-4800	65 W	1700
Intel Xeon E-2434 processor	3.4	5.0	4/8	12 MB	48	Two channels DDR5-4800	55 W	1700
Intel Xeon E-2414 processor**	2.6	4.5	4/4	12 MB	48	Two channels DDR5-4800	55 W	1700

* Intel Turbo Boost Max Technology 3.0 might not be available on all SKUs.

** Intel Xeon E-2414 processors do not support Intel HT Technology.

A strong foundation for growth

Help your employees be more productive, serve customers faster, and keep valuable business data safe with powerful and affordable small business servers based on Intel Xeon E processors.

For more information on Intel Xeon E processors, visit intel.com/xeone.

[1] SMB Group. "SMB Directions for the Future of Work." January 2022. smb-gr.com/reports/smb-directions-for-the-future-of-work/.

[2] Infrascale. "Infrascale Survey Highlights the Heavy Costs of Business Downtime." May 2020. infrascale.com/press-release/infrascale-survey-highlights-the-heavy-costs-of-business-downtime/.

[3] "Up to a 30 percent performance improvement compared to the prior generation": **Configurations: Baseline:** 1-node, 1 x Intel Xeon E-2314 processor (2.80 GHz, 4 cores), Intel HT Technology off, Intel Turbo Boost Technology on, NUMA 1, 128 GB total memory (4 x 32 GB DDR4 3,200 MT/s [2,933 MT/s]), BIOS RKLSE211.R00.2124.A18.2303010847, microcode 0x59, 1 x Intel Ethernet Controller I210 gigabit network connection, 1 x 894.3 GB Intel SSDSC2KG96, Red Hat Enterprise Linux 8.9 (Ootpa), 4.18.0-504.el8.x86_64, est_SPEC CPU2017, Intel IC20232.3; tested by Intel as of November 2023. **New:** 1-node, 1 x Intel Xeon E E-2414 processor (4 cores), Intel HT off, Intel Turbo Boost Technology on, NUMA 1, 128 GB total memory (4 x 32 GB DDR5 4800 MT/s [3,600 MT/s]), BIOS CTLSFWI1.R00.3240.A00.2306111911, microcode 0x118, 2 x Intel Ethernet Controller I210 gigabit network connection, 1 x Ethernet interface, 1 x 894.3 GB Intel SSDSC2KG96, Red Hat Enterprise Linux 8.9 (Ootpa), 4.18.0-504.el8.x86_64, est_SPEC CPU2017, Intel IC20232.3; tested by Intel as of November 2023.