



POWER YOUR **CREATIVITY** WITH THE INTEL® CORE™ X-SERIES PROCESSOR FAMILY



The Ultimate Creator PC Platform for Freelancers and Enthusiasts

Designed with the needs of content creators in mind, Intel® Core™ X-series processors offer the power and convenience of a full studio in your PC. Quickly and simultaneously record, edit, and render with up to 4.8 GHz achieved through Intel® Turbo Boost Technology Max 3.0¹, up to 18 cores, and up to 36 threads. Add to this the flexibility offered by up to 72 platform PCIe 3.0 lanes, quad channel memory with up to 256GB of memory capacity, and support for Thunderbolt™ 3 technology.



Intel® Core™ X-Series Processor Family

The Intel® Core™ X-series processor family is built to scale to your content creation needs, starting with 10 cores and going up to 18 for the most extreme performance demands. Along with Intel® Turbo Boost Max Technology 3.0 delivering up to 4.8 GHz¹ of performance and up to 24.75MB of L3 Cache, the Intel® Core™ X-series processor family features four SKUs for a variety of performance needs.

For those that need an extreme level of performance, the Intel® Core™ i9-10980XE Extreme Edition processor features 18 unlocked cores so you can create at the speed of your creative flow.



Your Fastest Path from Creativity to Productivity

Your creativity needs a PC that doesn't place limits on you. Whether working on photo and video editing, visual effects, game development, or 3D animation, a system powered by up to 18 cores and 36 threads makes it possible to do what you like, when you like. When your workflow demands single-threaded performance, Intel® Turbo Boost Max Technology 3.0 automatically directs your most critical workloads to your processor's four fastest cores and enables a seamless creative experience.¹

As you switch between projects and requirements, an Intel® Core™ X-series platform gives you the flexibility for multiple storage, networking, and graphics cards with 48 processor PCIe gen 3.0 lanes. On top of that, support for Thunderbolt™ 3 enables you to connect your docks, displays, and data devices at lightning-fast speeds, providing the ability to create at your pace.

Additionally, for those tech enthusiasts and data scientists working with AI workloads, support for Intel® Deep Learning Boost streamlines a set of Intel® AVX-512 instructions, reducing it from three tasks to just one for efficient inference acceleration.

Intel® X299 Chipset and Intel® Core™ X-Series Processors for the Ultimate Creator Platform

For all the enthusiasts and content creators out there, the Intel® X299 chipset paired with the Intel® Core™ X-series processor family provides the features you need to power your creativity.

- With fully unlocked processors and the tools to experiment, overclocking has never been easier for veterans and newcomers alike.²
- For the newcomers, the Intel® Performance Maximizer takes the guesswork out of overclocking with automated fine tuning based on its performance potential.
- Experienced overclockers can use the Intel® Extreme Tuning Utility, gaining access to a precision toolset to tune their system to their performance needs.
- Support for Intel® XMP enables support for faster memory frequencies.
- Store your most used video, photos, and audio libraries on fast data drives with support for Intel® Optane™ SSDs and Intel® Optane™ Memory technology.

Features at a Glance

FEATURES	BENEFITS
Intel® Turbo Boost Max Technology 3.0	Identifies the four fastest cores on the processor to provide improved lightly-threaded performance on X-series processors. The driver allows users to set preferred applications that will direct workloads to the fastest cores. ¹
Intel® Turbo Boost Technology 2.0^{1,5}	Dynamically increases the processor's frequency, as needed, by taking advantage of thermal and power headroom when operating below specified limits.
Intel® Hyper-Threading Technology¹	Delivers two processing threads per physical core. Highly threaded applications can be configured to take advantage of these additional threads to assign workloads to be completed in parallel.
Integrated Memory Controller	Supports up to four channels of DDR4-2933 memory with up to 2 DIMMs per channel and support for 32GB density, for a maximum 256GB of total memory capacity. Support for the Intel® Extreme Memory Profile (Intel® XMP) specification, revision 2.0 for DDR4.
Intel® Optane™ Memory Support	Support for Intel® Optane™ memory technology, which provides performance improvements as well as fast application response times for system acceleration.
Intel® Smart Cache	Up to 24.75MB of shared cached allows fast access to your data by enabling dynamic and efficient allocation of the cache to match the needs of each core reducing latency to frequently used data.
Overclocking Enabled^{2,3}	Fully unlocked core multipliers, power, base clock, and DDR4 memory ratios for amazing flexibility with overclocking.
Chipset/Motherboard Compatibility	Supported by the Intel® X299 Chipset.
Intel® Advanced Encryption Standard New Instructions (Intel® AES-NI)	A fast, secure AES engine for a variety of encryption apps, including whole disk encryption, file storage encryption, conditional access of HD content, internet security, and VOIP. Consumers benefit from protected internet and email content, plus fast, responsive disk encryption. ⁶
Intel® Virtualization Technology¹	Allows one hardware platform to function as multiple “virtual” platforms. Offers improved manageability by limiting downtime and maintaining productivity by isolating computing activities into separate partitions.
Intel® AVX-512¹	Intel® Advanced Vector Extensions 512 (Intel® AVX-512) is a set of instructions that can accelerate performance for workloads and usages such as scientific simulations, financial analytics, artificial intelligence (AI)/deep learning, 3D modeling and analysis, image and audio/video processing, cryptography, and data compression.
Intel® Deep Learning Boost¹	Intel® Deep Learning Boost, formerly called Vector Neural Network Instructions (VNNI), is a new set of Intel® AVX-512 instructions. These instructions accomplish in a single instruction what formerly required three instructions for INT8 operations, significantly accelerating inference performance for deep-learning workloads optimized to use VNNI. For more info, visit: intel.ai/intel-deep-learning-boost/ .
PCI Express* 3.0 Interface⁴	Offers up to 8GT/S for fast access to peripheral devices such as: networking cards, graphic accelerators, and storage.
Green Technology	Manufactured with lead-free and halogen-free ⁷ component packages.



Processor Comparison

	Intel® Core™ i9-10980XE Extreme Edition Processor	Intel® Core™ i9-10940X Processor	Intel® Core™ i9-10920X Processor	Intel® Core™ i9-10900X Processor
Cores / Threads	18/38	14/28	12/24	10/20
Base Clock Speed (GHz)	3.0	3.3	3.5	3.7
Intel® Turbo Boost 2.0 Frequency ² (GHz)	4.6	4.6	4.6	4.5
Intel® Turbo Boost Max Technology 3.0	4.8	4.8	4.8	4.7
L3 Cache	24.75 MB	19.25 MB	19.25 MB	19.25 MB
Platform PCI Express* 3.0 Lanes	72	72	72	72
Memory Support	Four Channels DDR4-2933	Four Channels DDR4-2933	Four Channels DDR4-2933	Four Channels DDR4-2933
TDP	165W	165W	165W	165W
Socket	LGA 2066	LGA 2066	LGA 2066	LGA 2066

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- 1 Intel technologies' features and benefits depend on system configuration and may require enabled hardware, software or service activation. Performance varies depending on system configuration. Check with your system manufacturer or retailer or learn more at www.intel.com.
- 2 Altering clock frequency or voltage may damage or reduce the useful life of the processor and other system components, and may reduce system stability and performance. Product warranties may not apply if the processor is operated beyond its specifications. Check with the manufacturers of system and components for additional details.
- 3 Intel® Core™ i7 & i9 processors designated by "K" and "X" in the processor number are unlocked for performance tuning.
- 4 Actual number of ports available may vary by processor number and system configuration. Please refer to the specifications corresponding to the processor number of interest or consult your system vendor for more information.
- 5 Intel® Turbo Boost Technology: Requires a system with Intel® Turbo Boost Technology. Intel Turbo Boost Technology and Intel Turbo Boost Technology 2.0 are only available on select Intel® processors. Consult your PC manufacturer. Performance varies depending on hardware, software, and system configuration. For more information, visit <http://www.intel.com/go/turbo>
- 6 No product or component can be absolutely secure.
- 7 "Halogen Free" applies only to brominated and chlorinated flame retardants (BFRs/CFRs) and PVC in the final product. Intel components as well as purchased components on the finished assembly meet JS-709A requirements, and the PCB/Substrate meet IEC 61249-2-21 requirements. The replacement of halogenated flame retardants and/or PVC may not be better for the environment.

* Other names and brands may be claimed as the property of others.

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