CPU INTEL Desktop Core i7 i7-12700KF Alder Lake 3600 MHz Cores 12 25MB Socket LGA1700 125 Watts BOX BX8071512700KFSRL4P

Model: BX8071512700KFSRL4P

Manufacturer: INTEL

EAN: 5032037234054

Product Code: 552635

R6,867

Intel® Virtualization Technology for Directed I/O (VT-d)

Intel® Virtualization Technology for Directed I/O (VT-d) continues from the existing support for IA-32 (VT-x) and Itanium® processor (VT-i) virtualization adding new support for I/O-device virtualization. Intel VT-d can help end users improve security and reliability of the systems and also improve performance of I/O devices in virtualized environments.

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Intel® Virtualization Technology (VT-x)

Intel® Virtualization Technology (VT-x) allows one hardware platform to function as multiple “virtual” platforms. It offers improved manageability by limiting downtime and maintaining productivity by isolating computing activities into separate partitions.

Intel® 64

Intel® 64 architecture delivers 64-bit computing on server, workstation, desktop and mobile platforms when combined with supporting software.[1] Intel 64 architecture improves performance by allowing systems to address more than 4 GB of both virtual and physical memory.

Cache

CPU Cache is an area of fast memory located on the processor. Intel® Smart Cache refers to the architecture that allows all cores to dynamically share access to the last level cache.

Intel® AES New Instructions

Intel® AES New Instructions (Intel® AES-NI) are a set of instructions that enable fast and secure data encryption and decryption. AES-NI are valuable for a wide range of cryptographic applications, for example: applications that perform bulk encryption/decryption, authentication, random number generation, and authenticated encryption.

Idle States

Idle States (C-states) are used to save power when the processor is idle. C0 is the operational state, meaning that the CPU is doing useful work. C1 is the first idle state, C2 the second, and so on, where more power saving actions are taken for numerically higher C-states.

Intel® Turbo Boost Technology

Intel® Turbo Boost Technology dynamically increases the processor's frequency as needed by taking advantage of thermal and power headroom to give you a burst of speed when you need it, and increased energy efficiency when you don’t.

Max Turbo Frequency

Max Turbo Frequency is the maximum single-core frequency at which the processor is capable of operating using Intel® Turbo Boost Technology and, if present, Intel® Turbo Boost Max Technology

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3.0 and Intel® Thermal Velocity Boost. Frequency is typically measured in gigahertz (GHz), or billion cycles per second.

Execute Disable Bit

Execute Disable Bit is a hardware-based security feature that can reduce exposure to viruses and malicious-code attacks and prevent harmful software from executing and propagating on the server or network.

Intel® Hyper-Threading Technology

Intel® Hyper-Threading Technology (Intel® HT Technology) delivers two processing threads per physical core. Highly threaded applications can get more work done in parallel, completing tasks sooner.

Instruction Set

An instruction set refers to the basic set of commands and instructions that a microprocessor understands and can carry out. The value shown represents which Intel’s instruction set this processor is compatible with.

Intel® VT-x with Extended Page Tables (EPT)

Intel® VT-x with Extended Page Tables (EPT), also known as Second Level Address Translation (SLAT), provides acceleration for memory intensive virtualized applications. Extended Page Tables in Intel® Virtualization Technology platforms reduces the memory and power overhead costs and increases battery life through hardware optimization of page table management.

Intel® Optane™ Memory Supported

Intel® Optane™ memory is a revolutionary new class of non-volatile memory that sits in between system memory and storage to accelerate system performance and responsiveness. When combined with the Intel® Rapid Storage Technology Driver, it seamlessly manages multiple tiers of storage while presenting one virtual drive to the OS, ensuring that data frequently used resides on the fastest tier of storage. Intel® Optane™ memory requires specific hardware and software configuration.

Enhanced Intel SpeedStep® Technology

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Enhanced Intel SpeedStep® Technology is an advanced means of enabling high performance while meeting the power-conservation needs of mobile systems. Conventional Intel SpeedStep® Technology switches both voltage and frequency in tandem between high and low levels in response to processor load. Enhanced Intel SpeedStep® Technology builds upon that architecture using design strategies such as Separation between Voltage and Frequency Changes, and Clock Partitioning and Recovery.

Intel® Secure Key

Intel® Secure Key includes instructions RDRAND and RDSEED and the underlying the hardware implementation used to generate high-quality keys for cryptographic protocols.

Intel® Speed Shift Technology

Intel® Speed Shift Technology uses hardware-controlled P-states to deliver dramatically quicker responsiveness with single-threaded, transient (short duration) workloads, such as web browsing, by allowing the processor to more quickly select its best operating frequency and voltage for optimal performance and power efficiency.

Intel® Deep Learning Boost (Intel® DL Boost) on CPU

A new set of embedded processor technologies designed to accelerate AI deep learning use cases. It extends Intel AVX-512 with a new Vector Neural Network Instruction (VNNI) that significantly increases deep learning inference performance over previous generations.

Instruction Set Extensions

Instruction Set Extensions are additional instructions which can increase performance when the same operations are performed on multiple data objects. These can include SSE (Streaming SIMD Extensions) and AVX (Advanced Vector Extensions).

Intel® Turbo Boost Max Technology 3.0 Frequency

Intel® Turbo Boost Max Technology 3.0 identifies the best performing core(s) on a processor and provides increased performance on those cores through increasing frequency as needed by taking advantage of power and thermal headroom. Intel® Turbo Boost Max Technology 3.0 frequency is the clock frequency of the CPU when running in this mode.

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Intel® Turbo Boost Max Technology 3.0

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Thermal Monitoring Technologies

Thermal Monitoring Technologies protect the processor package and the system from thermal failure through several thermal management features. An on-die Digital Thermal Sensor (DTS) detects the core's temperature, and the thermal management features reduce package power consumption and thereby temperature when required in order to remain within normal operating limits.

Intel® Volume Management Device (VMD)

Intel® Volume Management Device (VMD) provides a common, robust method of hot plug and LED management for NVMe-based solid state drives.

Intel® Gaussian & Neural Accelerator

Intel® Gaussian & Neural Accelerator (GNA) is an ultra-low power accelerator block designed to run audio and speech-centric AI workloads. Intel® GNA is designed to run audio based neural networks at ultra-low power, while simultaneously relieving the CPU of this workload.

Mode-based Execute Control (MBEC)

Mode-based Execute Control can more reliably verify and enforce the integrity of kernel level code.

Intel® Boot Guard

Intel® Device Protection Technology with Boot Guard helps protect the system’s pre-OS environment from viruses and malicious software attacks.

Intel® Control-Flow Enforcement Technology

CET - Intel Control-flow Enforcement Technology (CET) helps protect against the misuse of legitimate code snippets through return-oriented programming (ROP) control-flow hijacking attacks.
Summary: Intel Core i7-12700KF. Processor family: Intel® Core™ i7, Processor socket: LGA 1700, Package type: Box. Memory channels: Dual-channel, Maximum internal memory supported by processor: 128 GB, Memory types supported by processor: DDR4-SDRAM, DDR5-SDRAM. Market

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segment: Desktop, Use conditions: PC/Client/Tablet, PCI Express slots version: 5.0, 4.0. Intel® Turbo Boost Max Technology 3.0 frequency: 5 GHz. Processor package size: 45 x 37.5 mm | Vendor Homepage: https://www.intel.com/ | Processor manufacturer: Intel | Processor generation: 12th gen Intel® Core™ i7 | Processor model: i7-12700KF | Processor family: Intel® Core™ i7 | Processor cores: 12 | Processor socket: LGA 1700 | Component for: PC | Processor threads: 20 | Processor operating modes: 64-bit | Performance cores: 8 | Efficient cores: 4 | Processor boost frequency: 5 | Performance-core boost frequency: 4.9 | Performance-core base frequency: 3.6 | Efficient-core boost frequency: 3.8 | Efficient-core base frequency: 2.7 | Processor cache: 25 | Processor cache type: Smart Cache | Package type: Box | Cooler included: No | Maximum turbo power: 190 | Processor base power: 125 | Bus type: DMI4 | Maximum number of DMI lanes: 8 | Memory bandwidth supported by processor (max): 76.8 | Processor codename: Alder Lake | Processor ARK ID: 134595 | Maximum internal memory supported by processor: 128 | Memory types supported by processor: DDR4-SDRAM/DDR5-SDRAM | Memory channels: Dual-channel | ECC: No | Non-ECC: Yes | Memory bandwidth (max): 76.8 | Discrete graphics card: No | On-board graphics card: No | On-board graphics card model: Not available | Discrete graphics card model: Not available | Execute Disable Bit: Yes | Idle States: Yes | Thermal Monitoring Technologies: Yes | Market segment: Desktop | Use conditions: PC/Client/Tablet | Maximum number of PCI Express lanes: 20 | PCI Express slots version: 4.0/5.0 | PCI Express configurations: 1x16+1x4/2x8+1x4 | Supported instruction sets: AVX 2.0/SSE4.1/SSE4.2 | CPU configuration (max): 1 | Direct Media Interface (DMI) Revision: 4.0 | Embedded options available: No | Scalability: 1S | Thermal solution specification: PCG 2020A | Export Control Classification Number (ECCN): 5A992.C | Commodity Classification Automated Tracking System (CCATS): G167599 | Enhanced Intel SpeedStep Technology: Yes | Intel® AES New Instructions (Intel® AES-NI): Yes | Intel® Hyper Threading Technology (Intel® HT Technology): Yes | Intel® Speed Shift Technology: Yes | Intel® Turbo Boost Technology: 2.0 | Intel® Turbo Boost Max Technology 3.0 frequency: 5 | Intel® Gaussian & Neural Accelerator (Intel® GNA) 3.0: Yes | Intel® Control-flow Enforcement Technology (CET): Yes | Intel® Thread Director: Yes | Intel 64: Yes | Intel Enhanced Halt State: Yes | Intel Turbo Boost Max Technology 3.0: Yes | Intel Virtualization Technology (VT-x): Yes | Intel Virtualization Technology for Directed I/O (VT-d): Yes | Intel VT-x with Extended Page Tables (EPT): Yes | Intel® Boot Guard: Yes | Intel® Deep Learning Boost (Intel® DL Boost) on CPU: Yes | Intel® Optane™ Memory Ready: Yes | Intel® OS Guard: Yes | Intel® Secure Key: Yes | Intel® Standard Manageability (ISM): Yes | Intel® Volume Management Device (VMD): Yes | Mode-based Execute Control (MBE): Yes | Maximum operating temperature: 100 | Tjunction: 100 | Target market: Gaming, Content Creation | Launch date: Q4'21 | Status: Launched | Harmonized

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System (HS) code: 85423119 | Processor package size: 45 x 37.5 | L2 cache: 12288 | Maximum internal memory: 128 | Unit Calculated Weight: 0.2 | Product Net Weight: 0.03 | Unit Calculated Volume: 0.00052 | Units per Shipping Box: 1 | Unit Width: 4 | Shipping Box Height: 10 | Unit Depth: 13 | Unit Height: 10 | Name: CPU CORE I7-12700KF S1700 BOX/3.6G BX8071512700KF S RL4P IN | CPU Family name: Intel Core i7 | Model number: i7-12700KF

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