ARK | Compare Intel® Products
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	Intel® Core™ i7-8700 Processor (12M Cache, up to 4.60 GHz)
Essentials	
Product Collection	8th Generation Intel® Core™ i7 Processors
Code Name	Products formerly Coffee Lake
Vertical Segment	Desktop
Processor Number	i7-8700
Status	Launched
Launch Date	Q4'17
Lithography	14 nm
Use Conditions	PC/Client/Tablet
Recommended Customer Price	$303.00 - $312.00
Performance	
# of Cores	6
# of Threads	12
Processor Base Frequency	3.20 GHz
Max Turbo Frequency	4.60 GHz
Cache	12 MB SmartCache
Bus Speed	8 GT/s DMI3
TDP	65 W
Supplemental Information	
Embedded Options Available	Yes
Datasheet	View now
Memory Specifications	
Max Memory Size (dependent on memory type)	128 GB
Memory Types	DDR4-2666
Max # of Memory Channels	2
Max Memory Bandwidth	41.6 GB/s
ECC Memory Supported ‡	No
Processor Graphics	
Processor Graphics ‡	Intel® UHD Graphics 630
Graphics Base Frequency	350 MHz
Graphics Max Dynamic Frequency	1.20 GHz
Graphics Video Max Memory	64 GB
4K Support	Yes, at 60Hz
Max Resolution (HDMI 1.4)‡	4096x2304@24Hz
Max Resolution (DP)‡	4096x2304@60Hz
Max Resolution (eDP - Integrated Flat Panel)‡	4096x2304@60Hz
DirectX* Support	12
OpenGL* Support	4.5
Intel® Quick Sync Video	Yes
Intel® InTru™ 3D Technology	Yes
Intel® Clear Video HD Technology	Yes
Intel® Clear Video Technology	Yes
# of Displays Supported ‡	3
Device ID	0x3E92
Expansion Options	
Scalability	1S Only

PCI Express Revision	3.0
PCI Express Configurations ‡	Up to 1x16, 2x8, 1x8+2x4
Max # of PCI Express Lanes	16
Package Specifications	
Sockets Supported	FCLGA1151
Max CPU Configuration	1
Thermal Solution Specification	PCG 2015C (65W)
TJUNCTION	100°C
Package Size	37.5mm x 37.5mm
Low Halogen Options Available	No
Advanced Technologies	
Intel® Optane™ Memory Supported ‡	Yes
Intel® Turbo Boost Technology ‡	2.0
Intel® vPro™ Platform Eligibility ‡	Yes
Intel® Hyper-Threading Technology ‡	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® TSX-NI	Yes
Intel® 64 ‡	Yes
Instruction Set	64-bit
Instruction Set Extensions	Intel® SSE4.1, Intel® SSE4.2, Intel® AVX2
Idle States	Yes
Enhanced Intel SpeedStep® Technology	Yes
Thermal Monitoring Technologies	Yes
Intel® Identity Protection Technology ‡	Yes
Intel® Stable Image Platform Program (SIPP)	Yes
Security & Reliability	
Intel® AES New Instructions	Yes
Secure Key	Yes
Intel® Software Guard Extensions (Intel® SGX)	Yes with Intel® ME
Intel® Memory Protection Extensions (Intel® MPX)	Yes
Intel® OS Guard	Yes
Intel® Trusted Execution Technology ‡	Yes
Execute Disable Bit ‡	Yes
Intel® Boot Guard	Yes

1.2 Specifications

Platform	• ATX Form Factor • Solid Capacitor design
CPU	• Supports 8th Generation Intel® Core™ Processors (Socket 1151) • Digi Power design • 10 Power Phase design • Supports Intel® Turbo Boost 2.0 Technology • Supports Intel® K-Series unlocked CPUs • Supports ASRock BCLK Full-range Overclocking
Chipset	• Intel® Z370
Memory	• Dual Channel DDR4 Memory Technology • 4 x DDR4 DIMM Slots • Supports DDR4 4266+(OC)*/4000(OC)/3866(OC)/3800(OC)/3733(OC)/3600(OC)/3200(OC)/2933(OC)/2800(OC)/2666/2400/2133 non-ECC, un-buffered memory * Please refer to Memory Support List on ASRock's website for more information. (http://www.asrock.com/) * 8th Gen Intel® CPU supports DDR4 up to 2666. • Supports ECC UDIMM memory modules (operate in non-ECC mode) • Max. capacity of system memory: 64GB • Supports Intel® Extreme Memory Profile (XMP) 2.0 • 15µ Gold Contact in DIMM Slots
Expansion Slot	• 2 x PCI Express 3.0 x16 Slots (PCIE2: x16 mode; PCIE4: x4 mode)* * Supports NVMe SSD as boot disks * If PCIE5 slot or PCI slot is occupied, PCIE4 slot will run at x2 mode. • 3 x PCI Express 3.0 x1 Slots (Flexible PCIe) • 1 x PCI Slot • Supports AMD Quad CrossFireX™ and CrossFireX™ • 1 x M.2 Socket (Key E), supports type 2230 WiFi/BT module

Graphics

* Intel® UHD Graphics Built-in Visuals and the VGA outputs can be supported only with processors which are GPU integrated.

- Supports Intel® UHD Graphics Built-in Visuals : Intel® Quick Sync Video with AVC, MVC (S3D) and MPEG-2 Full HW Encode1, Intel® InTru™ 3D, Intel® Clear Video HD Technology, Intel® Insider™, Intel® UHD Graphics
- DirectX 12
- HWAEncode/Decode: VP9 8-bit, VP9 10- bit (Encode only), VP8, HEVC (MPEG-H Part2, h.265), AVC (MPEG4, h.264), MPEG2-Part2 (h.262), JPEG/MJPEG, VC-1
- Max. shared memory 1024MB

* The size of maximum shared memory may vary from different operating systems.

- Three graphics output options: D-Sub, DVI-D and HDMI
- Supports Triple Monitor
- Supports HDMI with max. resolution up to 4K x 2K (4096x2160) @ 30Hz
- Supports DVI-D with max. resolution up to 1920x1200 @ 60Hz
- Supports D-Sub with max. resolution up to 1920x1200 @ 60Hz
- Supports Auto Lip Sync, Deep Color (12bpc), xvYCC and HBR (High Bit Rate Audio) with HDMI Port (Compliant HDMI monitor is required)
- Supports HDCP with DVI-D and HDMI Ports
- Supports 4K Ultra HD (UHD) playback with HDMI Port

Audio

- 7.1 CH HD Audio with Content Protection (Realtek ALC892 Audio Codec)

* To configure 7.1 CH HD Audio, it is required to use an HD front panel audio module and enable the multi-channel audio feature through the audio driver.

- Premium Blu-ray Audio support
- Supports Surge Protection
- ELNA Audio Caps

LAN	• Gigabit LAN 10/100/1000 Mb/s • Giga PHY Intel® I219V • Supports Wake-On-LAN • Supports Lightning/ESD Protection • Supports Energy Efficient Ethernet 802.3az • Supports PXE
Rear Panel I/O	• 2 x Antenna Ports • 1 x PS/2 Mouse/Keyboard Port • 1 x D-Sub Port • 1 x DVI-D Port • 1 x HDMI Port • 5 x USB 3.1 Gen1 Type-A Ports (Supports ESD Protection) • 1 x USB 3.1 Gen1 Type-C Port (Supports ESD Protection) • 1 x RJ-45 LAN Port with LED (ACT/LINK LED and SPEED LED) • HD Audio Jacks: Line in / Front Speaker / Microphone
Storage	• 6 x SATA3 6.0 Gb/s Connectors, support RAID (RAID 0, RAID 1, RAID 5, RAID 10, Intel Rapid Storage Technology 15), NCQ, AHCI and Hot Plug* * If M2_1 is occupied by a SATA-type M.2 device, SATA_5 will be disabled. * If M2_2 is occupied by a SATA-type M.2 device, SATA_0 will be disabled. • 2 x Ultra M.2 Sockets (M2_1 and M2_2), supports M Key type 2230/2242/2260/2280 M.2 SATA3 6.0 Gb/s module and M.2 PCI Express module up to Gen3 x4 (32 Gb/s)** ** Supports Intel® Optane™ Technology ** Supports NVMe SSD as boot disks ** Supports ASRock U.2 Kit
Connector	• 1 x COM Port Header • 1 x TPM Header • 1 x Chassis Intrusion Header • 1 x Power LED and Speaker Header • 1 x CPU Fan Connector (4-pin)

	* The CPU Fan Connector supports the CPU fan of maximum 1A (12W) fan power. • 2 x Chassis Fan Connectors (4-pin) (Smart Fan Speed Control) • 1 x Chassis Optional/Water Pump Fan Connector (4-pin) (Smart Fan Speed Control) * The Chassis Optional/Water Pump Fan supports the water cooler fan of maximum 1.5A (18W) fan power. * CHA_FAN2 and CHA_FAN3/W_PUMP can auto detect if 3-pin or 4-pin fan is in use. • 1 x 24 pin ATX Power Connector • 1 x 8 pin 12V Power Connector • 1 x Front Panel Audio Connector • 1 x Thunderbolt AIC Connector (5-pin) • 3 x USB 2.0 Headers (Support 5 USB 2.0 ports) (Supports ESD Protection) • 1 x USB 3.1 Gen1 Header (Supports 2 USB 3.1 Gen1 ports) (Supports ESD Protection)
BIOS Feature	• AMI UEFI Legal BIOS with multilingual GUI support • ACPI 6.0 Compliant wake up events • SMBIOS 2.7 Support • DRAM, PCH 1.0V, VCCIO, VCCST, VCCSA, VPPM Voltage Multi-adjustment
Hardware Monitor	• Temperature Sensing: CPU, Chassis, Chassis Optional/Water Pump Fans • Fan Tachometer: CPU, Chassis, Chassis Optional/Water Pump Fans • Quiet Fan (Auto adjust chassis fan speed by CPU temperature): CPU, Chassis, Chassis Optional/Water Pump Fans • Fan Multi-Speed Control: CPU, Chassis, Chassis Optional/Water Pump Fans • CASE OPEN detection • Voltage monitoring: +12V, +5V, +3.3V, CPU Vcore, DRAM, VPPM, PCH 1.0V, VCCSA, VCCST
OS	• Microsoft® Windows® 10 64-bit

Certifications	• FCC, CE • ErP/EuP ready (ErP/EuP ready power supply is required)

** For detailed product information, please visit our website: http://www.asrock.com*

Please realize that there is a certain risk involved with overclocking, including adjusting the setting in the BIOS, applying Untied Overclocking Technology, or using third-party overclocking tools. Overclocking may affect your system's stability, or even cause damage to the components and devices of your system. It should be done at your own risk and expense. We are not responsible for possible damage caused by overclocking.

Общие особенности

Применение
Клиентские ПК

Ёмкость
512 млрд байт * Фактически используемая емкость может быть меньше (в результате форматирования, использования операционной системой, приложениями и др.)

Форм-фактор
M.2 (2280)

Интерфейс
PCIe Gen 3.0 x4, NVMe 1.3

Размеры (ШхВхГ)
80,15 x 22,15 x 2,38 (мм)

Вес (г.)
макс. 8.0 г.

Основная память
Samsung V-NAND 2-bit MLC

Контроллер
Контроллер Samsung Phoenix

Буферная память
Samsung 512MB Low Power DDR4 SDRAM

Особенности

Поддержка TRIM
Поддерживается

Поддержка S.M.A.R.T
Поддерживается

GC (сборка мусора)
Поддержка алгоритма автоматической сборки мусора

Поддержка шифрования
AES 256-битное шифрование (Class 0), TCG/Opal, IEEE1667 (Шифрованный привод)

Поддержка WWN
Не поддерживается

Поддержка режима сна
Да

Характеристики

Последовательное чтение
До 3500 млн байт / сек *Это значение может зависеть от аппаратной конфигурации системы

Последовательная запись
До 2300 млн байт / сек*Это значение может зависеть от аппаратной конфигурации системы

Случайное чтение (4 КБ, QD32)
До 370 000 IOPS *Это значение может зависеть от аппаратной конфигурации системы

Случайная запись (4 КБ, QD32)
До 500 000 IOPS *Это значение может зависеть от аппаратной конфигурации системы

Случайное чтение (4KB, QD1)
До 15 000 IOPS *Это значение может зависеть от аппаратной конфигурации системы

Случайная запись (4KB, QD1)
До 55 000 IOPS *Это значение может зависеть от аппаратной конфигурации системы

Условия эксплуатации

Среднее энергопотребление (на системном уровне)
*Средняя потребляемая мощность: 5,2 Вт. *Максим: 8,5 Вт. (режим Burst) *Фактическое энергопотребление может зависеть от конфигурации системы

Энергопотребление в ждущем режиме
Макс. 30 мВт. * Фактическое энергопотребление может зависеть от конфигурации системы

Напряжение питания
3.3 В ± 5 % Допустимые колебания напряжения

Надежность (MTBF)
1.5 млн. часов (ср. время наработки на отказ, сокр. MTBF)

Диапазон рабочих температур
0 - 70 °C

Устойчивость к ударам
1500 G в течение 0.5 мс (полусинус)