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Performance results will be based on testing that is projected to conclude October 4, 2018 and may not reflect all publicly available security updates. See configuration disclosure for details. No product can be absolutely secure.

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Intel will be marketing the Intel® Core™ i9-9900K with the tag line “Performance Unleashed” in certain jurisdictions, including PRC and Vietnam. Intel will be marketing the Intel® Core™ i9-9900K with the tag line “Intel’s Best Gaming Desktop Processor” in certain jurisdictions, including Argentina, Belarus, Belize, Egypt, El Salvador, Guatemala, Honduras, Italy, Japan, Panama, Peru, Saudi Arabia, and Turkey. If you are media or an influencer from these countries, or otherwise communicating directly to residents in these countries (e.g., on local-language social media), please only refer to the tag line Intel will be using in that country in lieu of the claim on this slide/document.

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Tests document performance of components on a particular test, in specific systems. Differences in hardware, software, or configuration will affect actual performance. Consult other sources of information to evaluate performance as you consider your purchase. For more complete information about performance and benchmark results, visit <http://www.intel.com/benchmarks>

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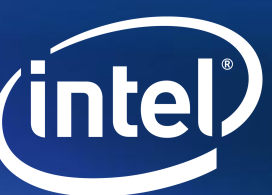
Warning: Altering PC clock or memory frequency and/or voltage may (i) reduce system stability and use life of the system, memory and processor; (ii) cause the processor and other system components to fail; (iii) cause reductions in system performance; (iv) cause additional heat or other damage; and (v) affect system data integrity. Intel assumes no responsibility that the memory, included if used with altered clock frequencies and/or voltages, will be fit for any particular purpose. Check with memory manufacturer for warranty and additional details.

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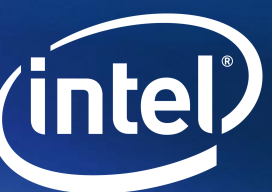
Cost reduction scenarios described are intended as examples of how a given Intel- based product, in the specified circumstances and configurations, may affect future costs and provide cost savings. Circumstances will vary. Intel does not guarantee any costs or cost reduction.

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**ПРОДУКТЫ INTEL 2019 INTEL
NUC И INTEL SSD**





НА ПИКЕ ТЕХНОЛОГИЙ

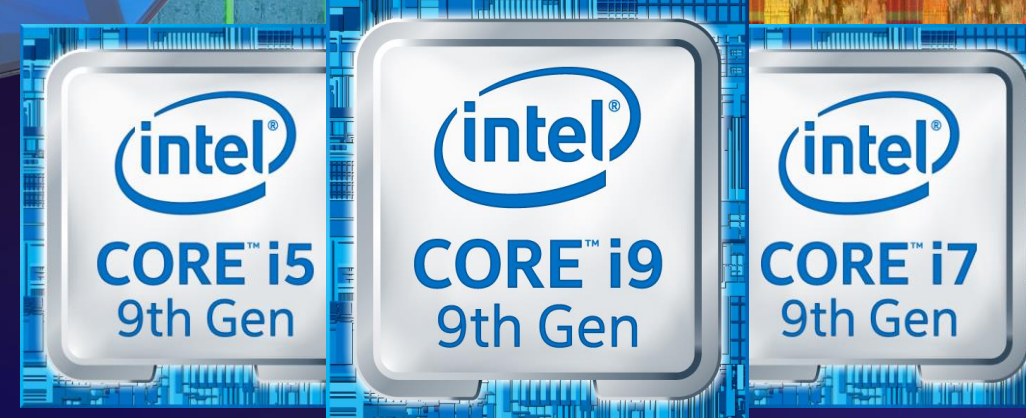


FOR A GREAT EXPERIENCE

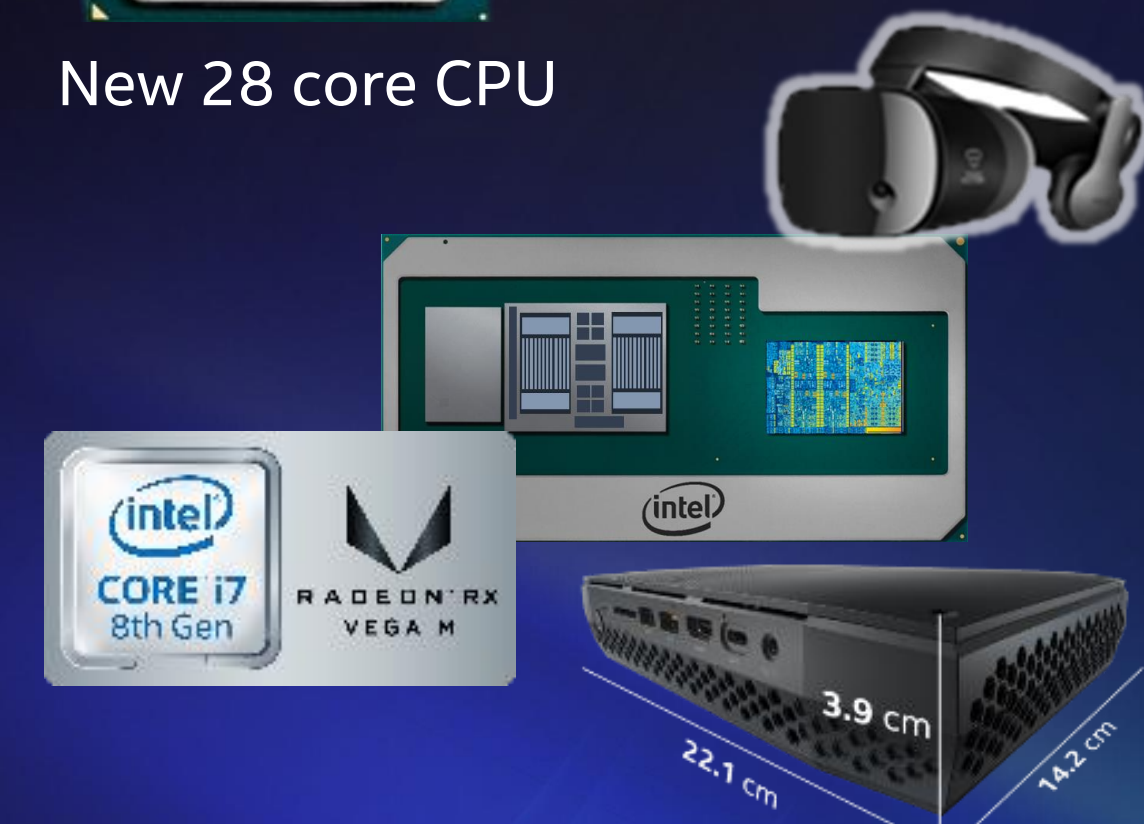
New 28 core CPU



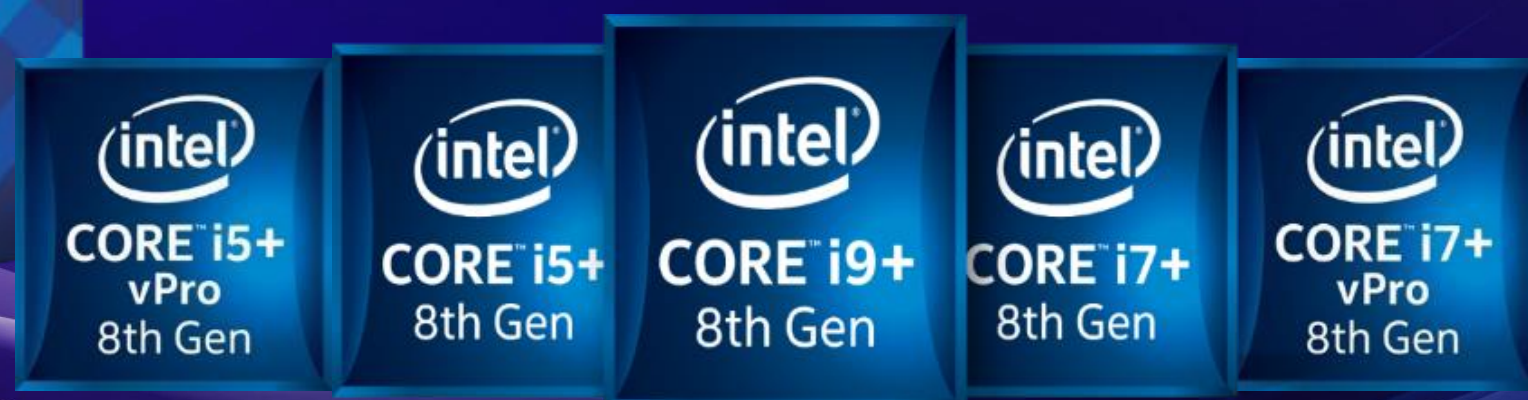
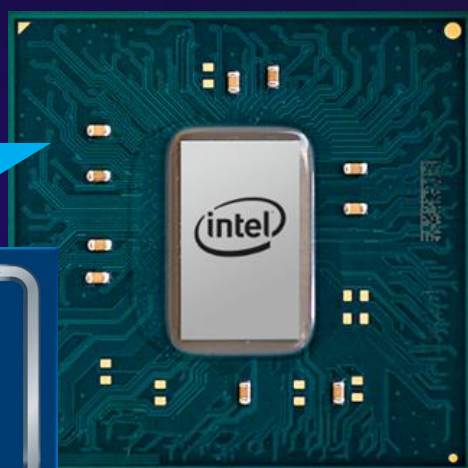
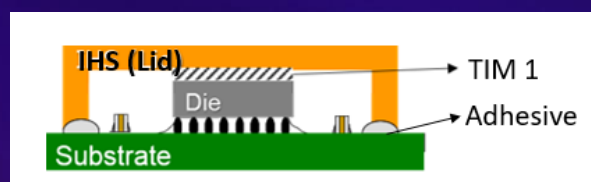
Basin Falls Refresh
New 18 core X-series CPU



Coffee Lake Refresh 8c



KBL-G



Intel® NUC

INTEL CCG

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



NEW 9TH GEN INTEL[®] CORE[™] DESKTOP PROCESSORS FEATURED TECHNOLOGIES

- **NEW** First performance Intel[®] Core[™] i9 desktop s-series processor.
- **NEW** Up to 8 cores.
- **NEW** Intel[®] Z390 chipset compatible.
- **NEW** Solder Thermal Interface Material (STIM).
- **NEW** Integrated USB 3.1 Gen 2 and integrated Intel[®] Wireless-AC.
- Up to 16 threads, 5.0 GHz, 16 MB cache, and 40 platform PCIe lanes.
- Compatible with all Intel[®] 300 series chipsets.
- Intel[®] Optane[™] memory and Intel[®] Optane[™] SSD support*.
- Thunderbolt[™] 3 support.

* NOT all features available on all SKUs

EXPANDED 9TH GEN INTEL[®] CORE[™] DESKTOP PROCESSOR PORTFOLIO

PROCESSOR NUMBER ¹	BASE CLOCK SPEED (GHZ)	INTEL [®] TURBO BOOST TECHNOLOGY 2.0 MAXIMUM SINGLE CORE TURBO FREQUENCY (GHZ)	CORES/ THREADS	THERMAL DESIGN POWER	PLATFORM PCIE LANES	UNLOCKED ¹	INTEL [®] SMART CACHE	MEMORY SUPPORT	INTEL [®] OPTANE [™] MEMORY SUPPORT ⁸
Socket 1151 95W Unlocked									
i9-9900K	3.6	5.0	8/16	95	Up to 40	√	16 MB	Two channels DDR4-2666 ⁷	√
I9-9900KF	3.6	5.0	8/16	95	Up to 40	√	16 MB	Two channels DDR4-2666⁷	√
i7-9700K	3.6	4.9	8/8	95	Up to 40	√	12 MB	Two channels DDR4-2666 ⁷	√
I7-9700KF	3.6	4.9	8/8	95	Up to 40	√	12 MB	Two channels DDR4-2666⁷	√
i5-9600K	3.7	4.6	6/6	95	Up to 40	√	9 MB	Two channels DDR4-2666 ⁷	√
I5-9600KF	3.7	4.6	6/6	95	Up to 40	√	9 MB	Two channels DDR4-2666⁷	√
I3-9350KF	4	4.6	4/4	91	Up to 40	√	8MB	Two channels DDR4-2466⁷	√
Socket 1151 65W - Standard Power									
I5-9400	2.9	4.1	6/6	65	Up to 40		9MB	Two channels DDR4-2666⁷	√
I5-9400F	2.9	4.1	6/6	65	Up to 40		9MB	Two channels DDR4-2666⁷	√

Intel[®] processor numbers are not a measure of performance. Processor numbers differentiate features within each processor family, not across different processor families.

All processors are lead-free (per EU RoHS directive July 2006) and halogen free (residual amounts of halogens are below November 2007 proposed IPC/JEDEC J-STD-709 standards).

All processors support Intel[®] Virtualization Technology (Intel[®] VT-x).

1. 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.

2. Intel[®] Optane[™] memory requires specific hardware and software configuration. Visit www.intel.com/Optanememory for configuration requirements.

3. DDR4 maximum speed support is 1 and 2 DPC for UDIMMs but only 1 DPC for SODIMMs. DDR4 2DPC UDIMM 2666 is capable when same UDIMM part number are populated with in each channel.

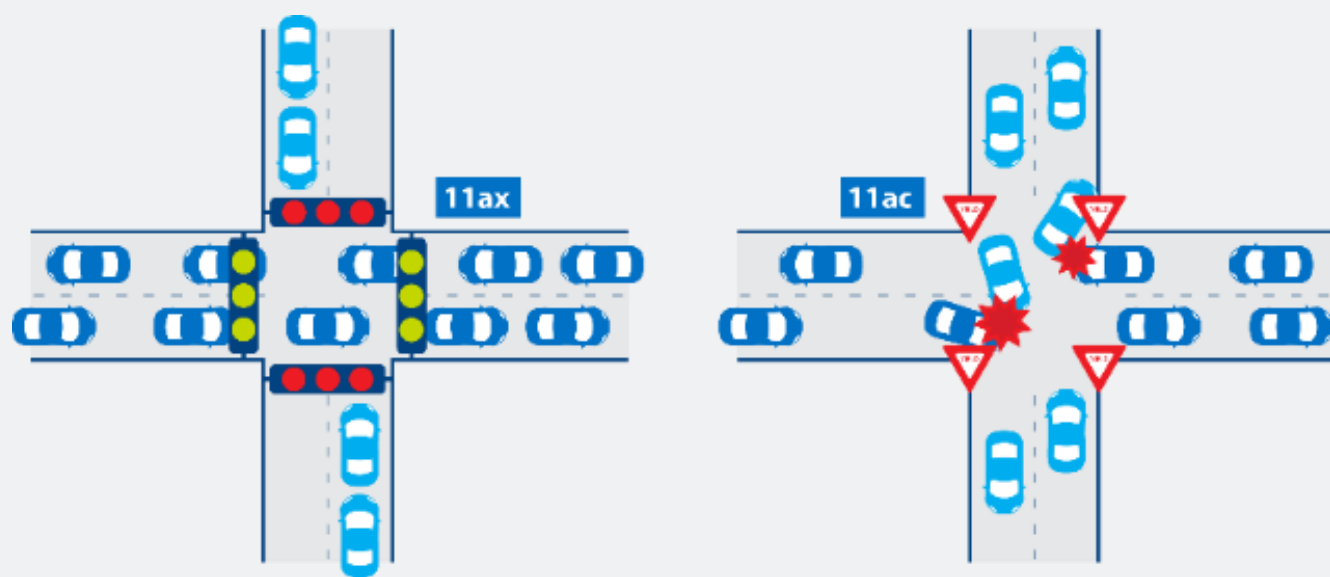


INTEL® WI-FI 6 (AX200)

Intel driving the transition to Wi-Fi 802.11ax standard

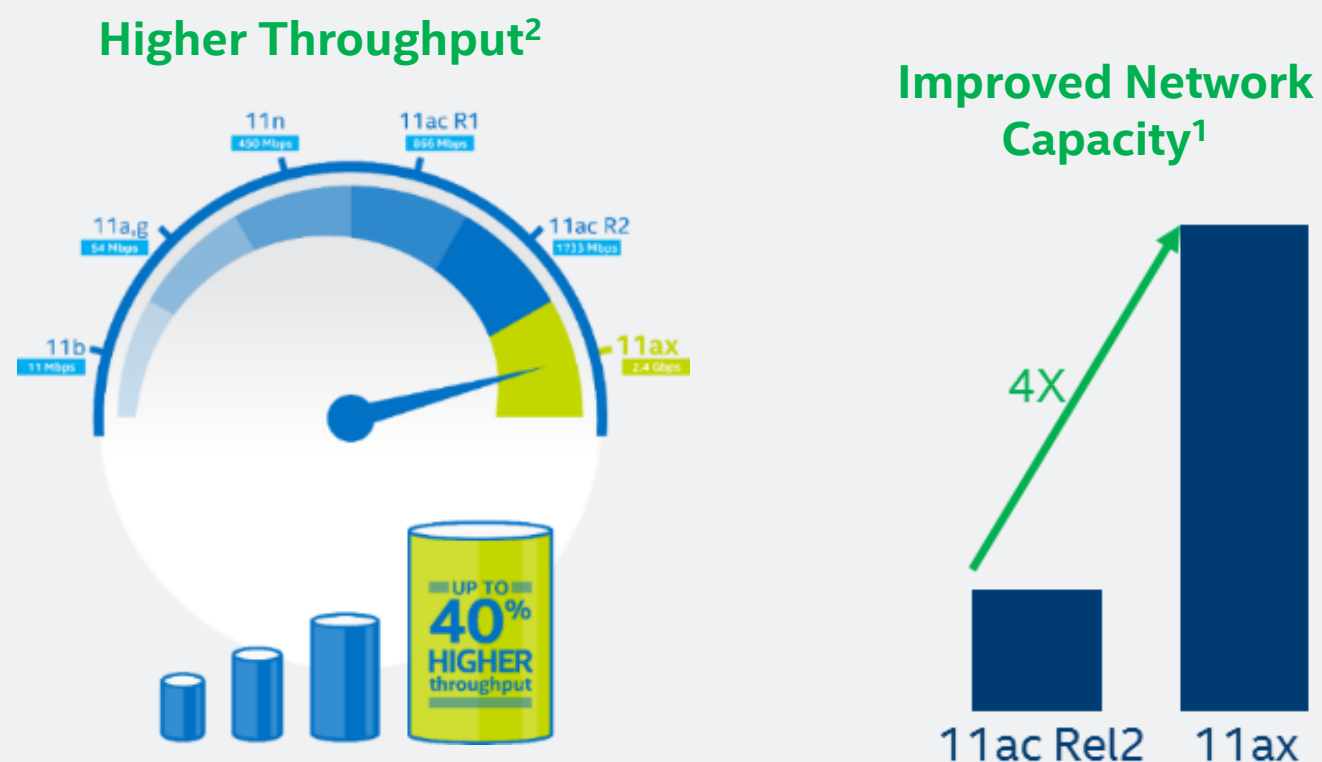
Key WI-FI 6 Features

- UL/DL OFDMA
- 1024 QAM
- DL MU-MIMO
- Target Wake Time; 11ax power save features



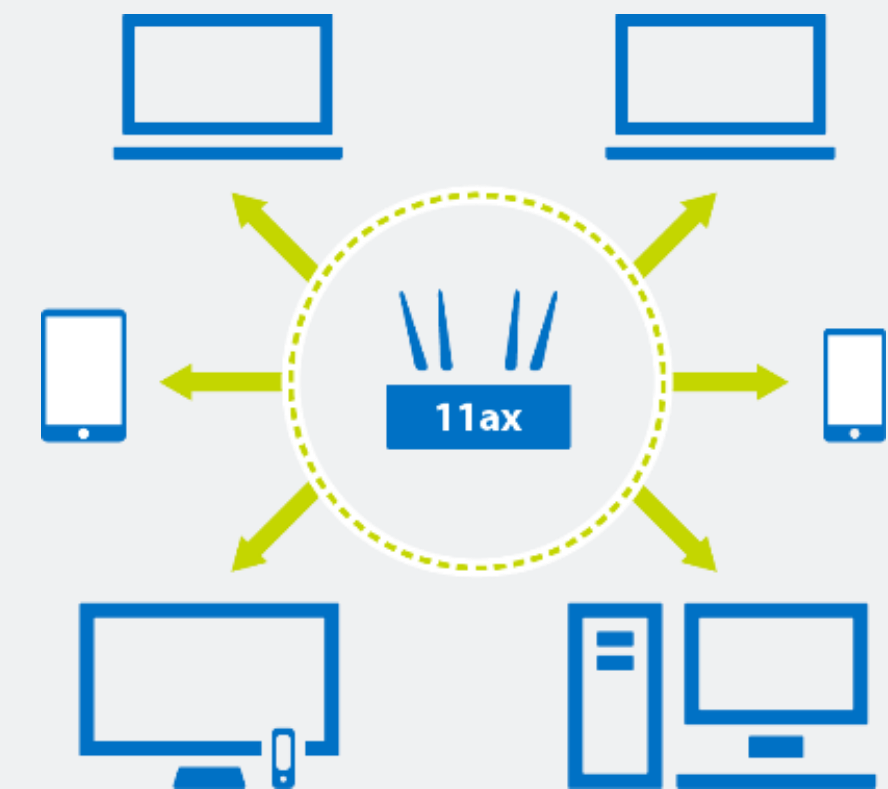
Core WI-FI 6 Benefits

- Up to 4X Network capacity improvement¹
- Better in Dense Environments
- Close to 40% Higher Throughput²
- Improved Battery Life



Advanced Technology

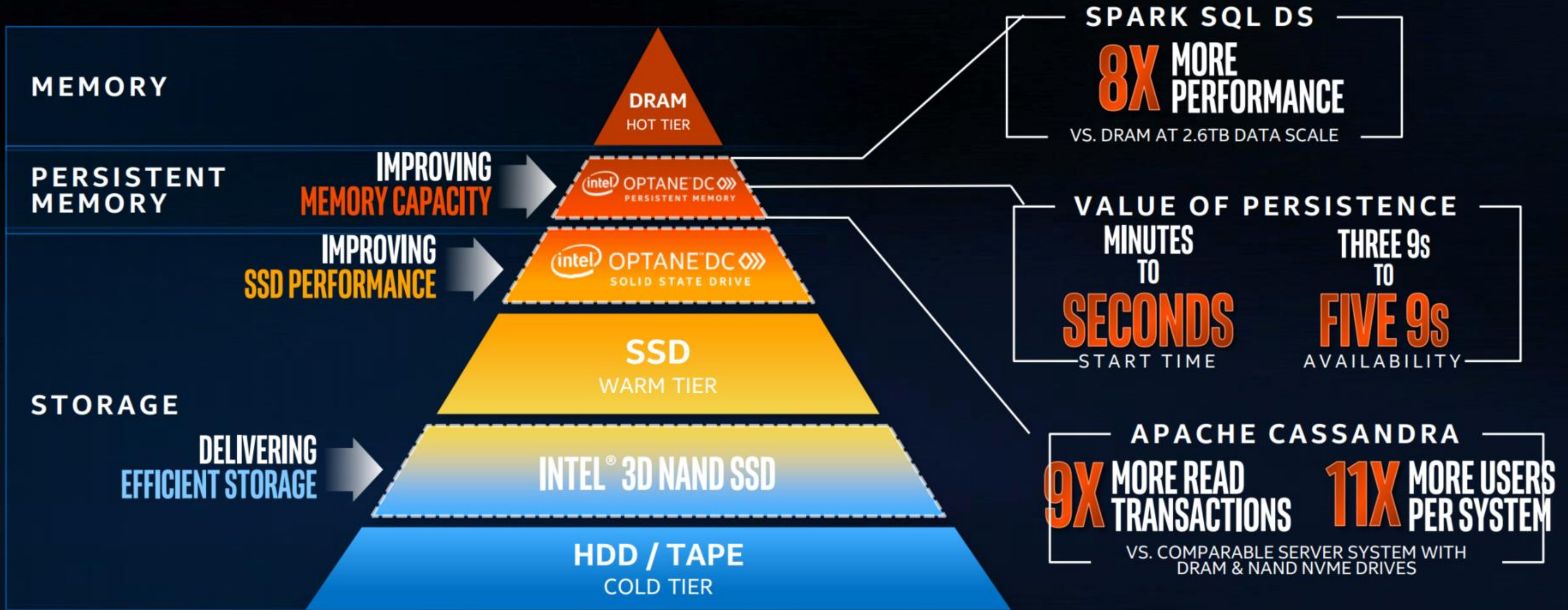
- Enabling leading technology in client market
- Intel drives interoperability and industry certification with WFA
- E2E 11ax offering



1. This amendment defines standardized modifications to both the IEEE 802.11 physical layers (PHY) and the IEEE 802.11 Medium Access Control layer (MAC) that enable at least one mode of operation capable of supporting at least four times improvement in the average throughput per station (measured at the MAC data service access point) in a dense deployment scenario, while maintaining or improving the power efficiency per station. For additional details visit: <https://mentor.ieee.org/802.11/dcn/14/11-14-0165-01-0hew-802-11-hew-sg-proposed-par.docx>

2. "Nearly 40% higher peak data rates" Intel® Wireless-AX claims are based on the comparison of the expected maximum theoretical data rates for dual spatial stream 802.11ax 80Mhz (1201 Mbps) vs. dual spatial stream 802.11ac 80Mhz (867 Mbps) Wi-Fi solutions as documented in IEEE 802.11ax draft 2.0 spec and IEEE 802.11 wireless standard specifications, and require the use of similarly configured 802.11ax wireless network routers.

RE-ARCHITECTING THE MEMORY / STORAGE HIERARCHY

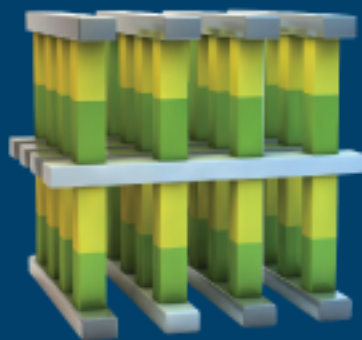


Note: Performance results are based on testing: 8X (8/2/2018), 9X Reads/11X Users (5/24/2018), Minutes to Seconds (5/30/2018) and may not reflect all publicly available security updates. No product can be absolutely secure. See configuration disclosure for details. Software and workloads used in performance tests may have been optimized for performance only on Intel microprocessors. Performance tests, such as SYSmark and MobileMark, are measured using specific computer systems, components, software, operations and functions. Any change to any of those factors may cause the results to vary. You should consult other information and performance tests to assist you in fully evaluating your contemplated purchases, including the performance of that product when combined with other products. For more information go to www.intel.com/benchmarks. Other names and brands may be claimed as the property of others.

WHAT IS INTEL® OPTANE™ MEMORY?

3D XPOINT™ MEMORY MEDIA

High Performance
↑
Breakthrough Material Advances



Scalability
↑
Cross Point Structure

IN A STANDARD M.2 CONNECTOR MODULAR FORM FACTOR



PCIe* 3.0 x2
M.2 2280 and 2242
Single-sided

INTEL® RAPID STORAGE TECHNOLOGY



The two physical devices are paired into a single volume



Files needed for important tasks are immediately recognized and accelerated



Over time, frequently used files and applications are monitored and accelerated

INTEL® OPTANE™ MEMORY



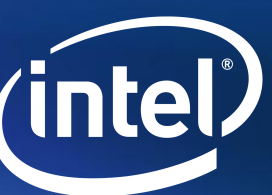
= M.2 2280 and 2242¹

16GB 32GB 64GB

**FOR 7TH GEN AND 8TH GEN
INTEL® CORE™ PROCESSOR FAMILY**

Intel® Optane™ memory requires specific hardware and software configuration. Visit www.intel.com/OptaneMemory for configuration requirements.

(1) M.2 2242 only available with 16GB Intel® Optane™ memory M10 modules



INTEL® OPTANE™ MEMORY: VALUE PROPOSITIONS

INTEL® OPTANE™ MEMORY



PROVIDES BETTER RESPONSIVENESS WITHOUT COMPROMISING STORAGE CAPACITY

ADAPTS TO USER NEEDS BY PRELOADING AND ACCELERATING FREQUENTLY USED APPLICATIONS AND FILES

WORK

EVERYDAY TASKS ARE UP TO

 2.1x¹

 2.2x²

FASTER

Compared to a system with an HDD alone

PLAY

LOAD LEVELS UP TO

 3.9x³

 4.7x⁴

FASTER

Compared to a system with an HDD alone

CREATE

OPEN LARGE MEDIA FILES UP TO

 3.0x⁵

 1.7x⁶

FASTER

Compared to a system with an HDD alone

The benchmark results reported above may need to be revised as additional testing is conducted. The results depend on the specific platform configurations and workloads utilized in the testing, and may not be applicable to any particular user's components, computer system or workloads. The results are not necessarily representative of other benchmarks and other benchmark results may show greater or lesser impact from mitigations.

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See Appendix I for configuration and workload details
All testing done internally by Intel



NUC8i7HVK

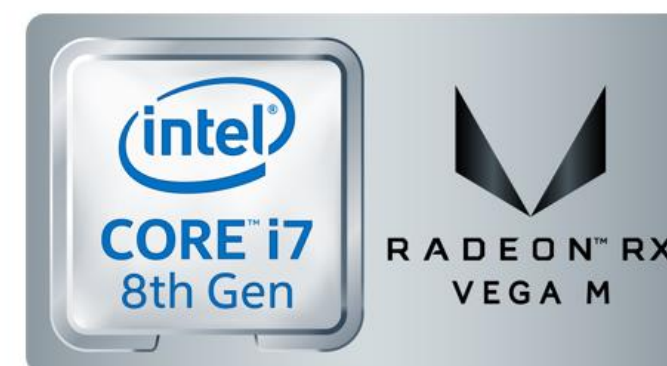
8th Generation Intel® Core™ i7-8809G
 3.1 GHz - 4.2 GHz Turbo, Quad Core, 8MB Cache, **100W**
Radeon™ RX Vega M GH graphics, 1063 MHz – 1190 MHz
Unlocked and VR-capable

NUC8i7HNK

8th Generation Intel® Core™ i7-8705G
 3.1 GHz - 4.1 GHz Turbo, Quad Core, 8MB Cache, **65W**
Radeon™ RX Vega M GL graphics, 931 MHz – 1011 MHz

- **Dual channel DDR4-2400+ SODIMMs**, 1.2V, 32GB maximum
- **2x M.2 22x42/80 key M** slots for PCIe x4 Gen3 NVMe / AHCI or SATA3 SSD, **RAID-0 and RAID-1 capable**
- **Front and rear HDMI 2.0b** connectors
- **2x Mini DisplayPort 1.2** ports
- **2x Thunderbolt™ 3** ports
- **2x Intel® 10/100/1000 Mbps (i219-LM and i210-AT) Ethernet ports**
- **Intel® Wireless-AC 8265** M.2 22x30 card, IEEE 802.11ac 2x2 + **Bluetooth v4.2**, internal antennas
- **Front USB 3.1 Gen2** via **USB-C™** and **front USB type-A** connectors
- Front charging USB 3.0, 4x rear USB 3.0, 2x internal USB 3.0 and 2x USB 2.0 via headers
- Front Consumer Infrared port
- SDXC slot with UHS-I support
- Up to 7.1 multichannel digital audio via HDMI or DisplayPort signals
- 3.5mm front stereo headset jack, 3.5mm rear speaker / TOSLINK combo jack
- **Beam-forming, far-field, quad-mic array**
- Plastic with metal inner frame, replaceable lid, Kensington lock with base security
- **221 x 142 x 39 mm (1.2 L)**
- 19V_{DC} 230W power supply with geo-specific AC cords
- Common I/O header with Front Panel, CEC, 2x USB 3.0, 2x USB2.0 signals
- **Replaceable lid with customizable RGB LED illumination and front panel status RGB LEDs**
- Microsoft Windows* 10 logo'd, compatible with Windows Server 2016
- VESA mounting plate included
- Individual retail packaging
- **Three-year Warranty**

[Click Here for Ordering Codes](#)



INTEL® NUC HOME

A CUSTOMIZABLE MINI PC WITH THE POWER OF A DESKTOP PC

- Choose Intel® Core™ i3, i5+, or i7+
- 5th, 7th & 8th Gen options
- Triple Display Support
- Space saving @ 0.35L or 0.65L
- Windows® 10 Home preinstalled*
- 4K @ 60 Hz with UHD*
- Intel® Optane™ memory supported or preinstalled*

**Varies by product*



Target Usage Scenarios

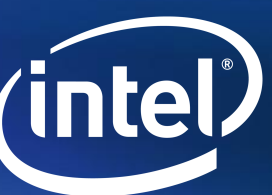
Home Office

Home Theater PC

Casual Gaming

Products

Generation	Code Name	Mini PC	Kit
8 th Gen	Bean Canyon	X	X
7 th Gen	Baby Canyon	X	X
5 th Gen	Rock Canyon		X



INTEL® NUC BUSINESS

ENGINEERED FOR YOUR BUSINESS AND COMMERCIAL NEEDS



- Based on Intel® Core™ i7 vPro™, Core™ i5 vPro™ and Intel® Core™ i3
- 3 year Product Life Cycle
- Space saving @ 0.35L or 0.65L
- Dual HDMI 4K @ 60 Hz + 4K eDP
- Validated for 24/7 operation* and other industry-leading Intel reliability tests
- Functional lid designs, adding additional display and connectivity options.

**Varies by product*

Products

Generation	Code Name	Mini PC	Kit	Board
8 th Gen	Dawson Canyon		X	X
7 th Gen	Dawson Canyon	X	X	X
5 th Gen	Maple Canyon		X	X

Target Usage Scenarios

Digital Signage

SMB / Corporate

Embedded



