

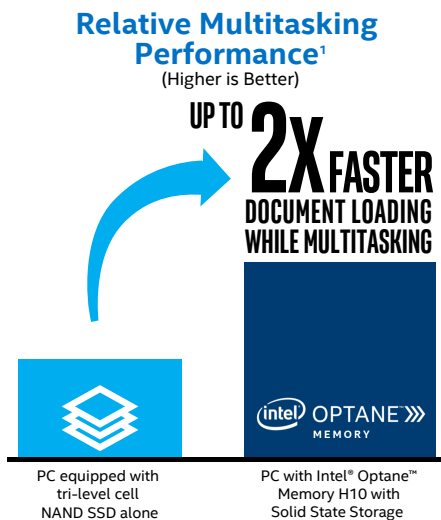
BUSINESS BRIEF

Commercial Client
Intel® Optane™ Memory H10 with Solid State Storage



Keep Up with the Pace of Business

Your PC becomes a trusted business partner that knows what you need, and helps you work faster



Industry strategic challenges

Today's business PC users rely on multitasking as a make-or-break strategy for getting their work done efficiently and on time. They demand more performance to use more applications at once and to run more background programs than ever. In fact, the average business PC user launches about 12 unique applications daily² and opens each of them about eight times.³ They might be working simultaneously in presentations, documents, and spreadsheets, plus using VOIP, video, and desktop sharing. And they are doing all of this while running essential tasks like email, file syncing, security programs and other IT services in the background.

PCs are a critical business tool. To meet increasing performance needs, many companies invest in high-cost DRAM memory. But even this solution doesn't meet the fast-evolving requirements of today's businesses. When PC performance lags, so does users' performance. Deadlines are missed, frustration rises, and the business suffers. Today's business users need responsiveness they can count on, even when their PCs are running many tasks at the same time.

New solution gives business PCs even more responsiveness and capacity

To meet these business challenges, Intel developed Intel® Optane™ memory, an intelligent system acceleration solution. Intel Optane memory allows users to very quickly access the applications and files most important to them. The initial product from the Intel® Optane™ memory family accelerated SATA-based HDDs. Now there is an Intel Optane memory solution with a single-socket space-saver design, ideal for thin and light 2-in-1 notebooks and compact desktops—Intel® Optane™ memory H10 with solid state storage (Intel® Optane™ memory H10).

Intel® Optane™ memory H10 combines Intel® Optane™ memory and Intel® QLC 3D NAND onto a single device. A PC with Intel® Optane™ memory delivers the superior responsiveness needed to work efficiently, plus high-capacity, reliable storage demanded by today's users. This solution delivers:

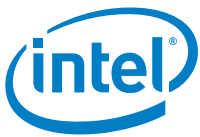
- **Better multitasking performance⁴:** Enables seamless work flow because background tasks have minimal impact on foreground application responsiveness.
- **A personalized SSD experience:** Identifies and accelerates users' most-accessed files and applications, providing performance uniquely tailored to the way they work.
- **Optimized performance for real-world workloads⁵:** Delivers the best real-world performance (compared to NAND SSDs) for the kinds of office and business applications typical PC users run every day.

Business Benefits

- Accomplish more in less time with effective multitasking
- Work with resource-intensive applications with less wait, even those that require more resources and larger files
- Get improved performance and efficiency due to the automatic acceleration of most-frequently used applications and files

Digital transformation and business innovation

These days, business users are rarely working with only one application at a time. And typically, multiple background tasks, whether initiated by the user, the IT administrator, or the OS, are also running. Intel® Optane™ memory H10 is made for this level of multitasking, allowing PCs to stay responsive and keeping background applications from impacting foreground application performance. Businesses can benefit from the capabilities of today's demanding applications—launching and accessing them faster, while working with increasingly larger files. And more responsive multitasking allows users to get more work done faster, which can improve productivity, morale, and the bottom line.



A new level of system responsiveness... and more

- **Outstanding performance plus high-capacity storage:** Provides better responsiveness, even when running demanding applications⁷
- **Smooth multitasking:** Delivers premium performance even when the PC is running multiple applications and background tasks⁸
- **Optimal personalized experience:** Adapts to user needs by accelerating frequently used applications and files
- **Lasting performance:** Maintains performance under load, over time as the drive fills
- **Secured data:** Provides peace of mind with support for Microsoft* BitLocker encryption and other industry-standard security protections like secure erase
- **Easy manageability:**⁹ Shows up to users, OS, and IT utilities as one storage volume, with no special tools needed for deployment and manageability

Intel technology foundation

Intel has been delivering innovative memory and storage solutions to help businesses with digital transformation. This solution builds on the breakthroughs of the Intel Optane technology family and benefits business client PCs with the most demanding multitasking loads.

Where to get more information

- Intel® Optane™ memory website
- Intel® Optane™ memory Frequently Asked Questions
- Intel® vPro™ platform website

¹ Intel tested. As measured by Document Launch with Background Activity (i.e., 18 GB Video File Copy), comparing 8th Gen Intel® Core™ i7-8565U processor (512 GB TLC SSD) vs. 8th Gen Intel® Core™ i7-8565U processor (32 GB+512 GB Intel® Optane™ Memory H10 with solid state storage).

Configuration 1: Intel® Core™ i7-8565U processor, PL1=15W TDP, 4C8T, Turbo up to 4.6 GHz on Intel® Reference Platform, Graphics: Intel® UHD Graphics 620, Memory: 2x 4 GB DDR4, Storage: 512 GB Intel SSD 760p, OS: Windows® 10 RS5 Version 1809, Build 17763.253, MCU 0x9A.

Configuration 2: Intel® Core™ i7-8565U processor, PL1=15W TDP, 4C8T, Turbo up to 4.6 GHz on Intel® Reference Platform, Graphics: Intel® UHD Graphics 620, Memory: 2x 4 GB DDR4, Storage: 32 GB + 512 GB Intel® Optane™ Memory H10 with solid state storage, OS: Windows® 10 RS5 Version 1809, Build 17763.253, MCU 0x9A.

Source: <https://newsroom.intel.com/news/intel-optane-technology-intel-qlc-nand-technology-come-together-single-drive/#gs.8zn495>. Performance results are based on testing as of March 21, 2019 and may not reflect all publicly available security updates.

² Source: Intel® Computing Improvement Program Q2'19: 131,330 systems, Desktop/Laptop/2 in 1 Windows 10*. Intel® Core™ processors.

Statistic represents an average across distinct applications. Actual number of applications opened per day may be higher. For instance, if Chrome* is opened 5 times a day it is counted only once in this calculation.

³ Source: Intel® Computing Improvement Program Q2'19: 131,330 systems, Desktop/Laptop/2 in 1 Windows 10*.

Intel® Core™ processors. Statistic represents an average across all applications across all systems. This number can vary depending on the application. For instance, this number can be higher for an application like Chrome* and much lower for an application like iTunes* or Calculator, etc.

⁴ See endnote 1

⁵ Intel® Optane™ SSDs are faster as compared to NAND SSDs in the majority of the following use cases: As measured by a collection of benchmarks and real-world workloads with drives at 50% prefill including PCMark* 10 Benchmark (App Startup), PCMark* 8 Benchmark: Storage Bandwidth Test, Presentation Launch, Email Launch, Document Launch, Web Browser Launch, Total War* Warhammer II Game Launch, World of Warcraft* Game Launch, Fortnite* Game Launch, Total War* Warhammer II Level Load, World of Warcraft* Level Load, Multitasking Workload, Adobe Premier Pro* Launch with background activity. The SSDs compared with are 1TB Samsung 970 PRO*, 1TB 970 EVO*, 1TB 970 EVO Plus*, 1TB Western Digital Black*, 1TB Intel SSD 660p, 1TB 760p, 1TB OCZ RD4000*, 1TB HP EX920*, 1TB Toshiba XG5*, and 960GB Corsair MP510*. Configuration: 9th Gen Intel® Core™ i9 9900K Processor, PL1= 95W TDP, 8C16T, Turbo up to 5.0 GHz on ASUS Prime* Z390-A platform, Graphics: NVIDIA GeForce* RTX 2080 TI, Memory: 2x8 GB DDR4, Storage: 32 GB+1TB Intel® Optane™ Memory H10 with Solid State Storage, Storage Driver: Intel® Rapid Storage Technology 17.2.0.1009 driver, OS: Windows® 10 RS5 Version 1809, Build 17763.253, MCU 0xA0; SSD Configurations: Same configuration with the comparison SSD as storage and Microsoft* Inbox NVMe driver as the storage driver. Results: Intel® Optane™ Memory H10 with Solid State Storage prevails for the majority (more than 50%) of all above tests combined.

Performance results are based on testing as of March 22, 2019 and may not reflect all publicly available security updates.

⁶ See endnote 1

⁷ See endnote 5

⁸ See endnote 5

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 complete information visit intel.com/benchmarks. 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. Intel technologies' features and benefits depend on system configuration and may require enabled hardware, software or service activation. Performance varies depending on system configuration. No computer system can be absolutely secure. Check with your system manufacturer or retailer or learn more at intel.com. Intel does not control or audit third-party benchmark data or the web sites referenced in this document. You should visit the referenced web site and confirm whether referenced data are accurate. All information provided here is subject to change without notice. Contact your Intel representative to obtain the latest Intel product specifications and roadmaps.

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