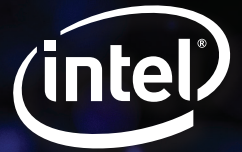


## PRODUCT BRIEF

Intel® Optane™ SSD 905P  
PCIe\* (P)



# Breakthrough Performance for Demanding Storage Workloads

Intel® Optane™ SSD 905P delivers breakthrough performance to meet the most demanding storage workloads in your desktop or client single-user workstations.



The Intel® Optane™ SSD 905P is designed for the most demanding storage workloads in client systems, delivering high random read/write performance coupled with low latency and industry-leading endurance.<sup>1</sup> Built with Intel® Optane™ technology, a revolutionary class of non-volatile memory, the Intel® Optane™ SSD 905P is empowering professional users, content creators, and enthusiasts to extract greater platform performance.

### Breakthrough Performance for Workstations

The Intel® Optane™ SSD 905P delivers read/write performance optimized for client workstations. The performance and responsiveness of the SSD 905P means the processor can spend less time waiting and more time computing, resulting in greatly increased efficiency.

With exceptional random storage performance of up to 575K/550K IOPs (4K random reads/writes), and low latency of less than 11 $\mu$ s,<sup>2</sup> these key capabilities make the SSD 905P a highly responsive client storage solution. The SSD 905P also enables software developers to optimize applications to take advantage of the unique attributes of Intel® Optane™ technology: low latency, and high throughput at low queue depth.

### High Endurance Ensures Storage Reliability

The ability to deliver these levels of performance with large and demanding workstation workloads also requires high endurance to ensure storage reliability.

The Intel® Optane™ SSD 905P provides an industry-leading 10 DWPD, making it the highest endurance client SSD in the market today.<sup>1</sup> Professionals with the most demanding storage workloads can now tackle even bigger projects with peace of mind, counting on years of performance without the need for frequent drive replacements.

### New Possibilities with Higher Capacity

The Intel® Optane™ SSD 905P U.2 and AIC form factors introduce high capacities allowing users to handle large data sets to better extract the value of Intel® Optane™ technology with workloads that place heavy demands on the storage I/O subsystem. The slim new M.2 form factor offers increased versatility.

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| Features At-a-Glance <sup>2</sup>                       |   |             |             |             |       |
|---|---|-------------|-------------|-------------|-------|
| Model Name  | Intel® Optane™ SSD 905P   |             |             |             |       |
| Capacity  | Half Height Half Length (HHHL) Add-in-Card: 960GB, 1.5TB  |             |             |             |       |
|   | 2.5" x 15mm, Small Form Factor U.2: 480GB, 960GB, 1.5TB   |             |             |             |       |
|   | 22x110mm, M.2, 380GB  |             |             |             |       |
| Memory Media  | Intel® 3D XPoint™ memory media  |             |             |             |       |
| Bandwidth: Sustained Sequential Read/Write <sup>3</sup> | Up to 2,700 / 2,200 MB/s  |             |             |             |       |
| IOPS: Random 4KB Random Read/Write <sup>3</sup>         | Up to 575,000 / 550,000 IOPS  |             |             |             |       |
| Read / Write Latency                                    | <10 µs / <11 µs   |             |             |             |       |
| Interface   | PCIe* 3.0 X4, NVMe*   |             |             |             |       |
| Form Factors, Height and Weight                         | HHHL AIC<br>68.9mm / 17.2mm / 168mm up to 230 grams   |             |             |             |       |
|   | 2.5" U.2<br>15mm / 70mm / 101mm / up to 140 grams   |             |             |             |       |
|   | M.2<br>22mm / 110mm / 3.88mm / up to 13 grams   |             |             |             |       |
| Life Expectancy   | 1.6 million hours Mean Time Between Failures (MTBF)   |             |             |             |       |
| Lifetime Endurance <sup>4</sup>                         | 10 Drive Writes per Day (DWPD)  |             |             |             |       |
| Power Consumption Typical                               | 380GB (M.2)   | 480GB (AIC) | 960GB (AIC) | 1.5TB (AIC) |       |
|   | <i>Active Sequential Read:</i>  | 6.5W        | 8.6W        | 10.8W       | 13.1W |
|   | <i>Active Write:</i>  | 11.7W       | 13.0W       | 14.8W       | 17.7W |
|   | <i>Idle:</i>  | 2.7W        | 4.1W        | 6.0W        | 6.7W  |
| Operating Temperature <sup>5</sup>                      | 0° C to 85° C   |             |             |             |       |
| RoHS Compliance   | Meets the requirements of European Union (EU) RoHS Compliance Directives                          |             |             |             |       |
| Warranty  | 5-year limited warranty; warranty void if used in a multi-user, multi-CPU data center environment |             |             |             |       |



- Endurance defined as the total amount of data that can be written to the SSD in drive writes per day (DWPD). Intel® Optane™ 905P 960GB @ 10DWPD = 17.52 petabytes written (PBW). Market leading drives compared based on specs: Adata® XPG SX8200 (480GB) 320 terabytes written (TBW), Samsung 860 Pro\* (1TB) 1,200 TBW, Samsung 970 Pro\* (1TB) 1,200 TBW, Crucial MX500\* (500GB) 180 TBW, Western Digital Black\* (1TB) 600 TBW.
- System configuration: Motherboard: X299 ASUS Tiachi ASROCK\*; Processor: Intel® Core i9-7900X; BIOS Version 2.0; Windows® 10 (x64), version 17134.228; Graphics card: ASUS® ROG STRIX GTX1080 with NVIDIA® GeForce® GTX 1080; Memory: Corsair Vengeance® DDR4 32GB (4x8GB) Frequency 3000 MHz CMR32GX4M4C3000C15; Benchmark: IOMeter 1.01. Measured on 480GB AIC.
- Sequential performance was measured at queue depth 32 and 1 worker and random performance was measured at queue depth 64 and 8 workers
- Based upon the product specification of Intel® Optane™ SSD 905P 480GB with an endurance of 8760GB written.
- Operating temperature is measured by SMART.

For best sustained performance, a thermal solution is recommended under heavy workloads and benchmarking to prevent thermal throttling.

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Performance results are based on testing as of August 30, 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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