

Controller

PS5019-E19T

| Features | Specifications |
|--------------------------|--|
| Host Interface | <ul style="list-style-type: none"> • PCIe Gen 4x4 (Bandwidth: 16GT/s x4) • Compatible with PCIe Gen I(2.5Gbps), Gen II(5Gbps), Gen III(8Gbps), Gen IIII(16Gbps) • Compliance with PCI Express Base Specification Revision 3.1 • Compliance with NVMe 1.4 • Host Memory Buffer (HMB) support |
| Processor | <ul style="list-style-type: none"> • Single-CPU architecture with built-in 32-bit microcontroller • TSMC 28nm process technology |
| Flash Controller | <ul style="list-style-type: none"> • Up to 4 Channels with 16 chips enable (CE) • Flash Transfer rate up to 1400MT/s • Capacity up to 2TB • Support 3D TLC NAND flash memory • Compliance with Toggle 3.0 and ONFi 4.2 • Flash I/O operating voltage supply 1.2V |
| DRAM Controller | <ul style="list-style-type: none"> • DRAM-less |
| Data Reliability | <ul style="list-style-type: none"> • Phison 4th generation LDPC ECC & RAID ECC • End-To-End Data Path Protection |
| Security | <ul style="list-style-type: none"> • AES 256 • TCG Opal • Pyrite |
| Performance | <ul style="list-style-type: none"> • Sequential Read up to 3700MB/s • Sequential Write up to 3000MB/s • 4K Random Read up to 440K IOPS • 4K Random Write up to 630K IOPS |
| Power Management | <ul style="list-style-type: none"> • L1.2 < 3.6mW |
| Temperature Range | <ul style="list-style-type: none"> • Operating range: 0~70°C • Storage range: -40~85°C • Operating junction temperature: -40~125°C |
| Package | <ul style="list-style-type: none"> • 198-ball HSTFBGA, 7 mm x 11 mm |
| Peripheral | <ul style="list-style-type: none"> • Built-in internal thermal sensor • GPIO pins • Built-in UART function • I2C and SPI for external ROM |

Solutions

PS5019-E19T

| | | |
|--|--|-----------|
| Capacity ¹ | 512 GB | 1024 GB |
| Interface | PCIe Gen4x4 NVMe 1.3 | |
| Form Factor | M.2 2280/2230 | |
| NAND Flash | WDC Bics 4.5 | |
| Performance (Up to)^{2,3} | | |
| Sequential Read | 3500 MB/s | 3600 MB/s |
| Sequential Write | 2000 MB/s | 3000 MB/s |
| 4K Random Read | 380K MB/s | 500K MB/s |
| 4K Random Write | 450K MB/s | 550K MB/s |
| Power | | |
| Supply Voltage | 3.3V ± 5% | |
| Active (Average) ⁴ | 4.7W | 4.7W |
| Idle | | |
| Low Power PS4 (L1.2) | 2.7mW | 2.7mW |
| Temperature | | |
| Operating | 0°C - 70°C | |
| Non-Operating | -40°C - 85°C | |
| Advanced Features | <ul style="list-style-type: none"> • DRAM-Less • Pyrite/OPAL Support • End-to-End Data Protection • Thermal Monitoring | |

¹ 1GB = 1,000,000,000 bytes

² 1MB/s = 1,000,000 bytes / second

³ Performance is based on Crystal Disk Mark 6.0.0, test size 1GiB, and test drive set as secondary

⁴ Measured with MobileMark 2014

⁵ Host memory buffer enabled