

Controller

PS5018-E18

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 4.0 • Compliance with NVMe 1.4
Processor	<ul style="list-style-type: none"> • Triple-CPU architecture with built-in Arm Cortex-R5 • TSMC 12nm process technology
Flash Controller	<ul style="list-style-type: none"> • Up to 8 Channels with 32 chips enable (CE) • Flash transfer rate up to 1600MT/s • Capacity up to 8TB • Support 3D TLC and QLC NAND flash memory • Compliance with Toggle 4.0 and ONFi 4.2 • Flash I/O operating voltage supply 1.2V/1.8V
DRAM Controller	<ul style="list-style-type: none"> • DDR4 (32 bit, 2666Mbps)
Data Reliability	<ul style="list-style-type: none"> • Phison 4th generation LDPC ECC & RAID ECC • DDR ECC engine • End-To-End Data Path Protection
Security	<ul style="list-style-type: none"> • Pyrite • AES 256 • SHA 512 • RSA 4096 • TCG Opal
Performance	<ul style="list-style-type: none"> • Sequential Read up to 7000MB/s • Sequential Write up to 7000MB/s • 4K Random Read up to 1000K IOPS • 4K Random Write up to 1000K IOPS
Power Management	<ul style="list-style-type: none"> • L1.2 < 5mW
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"> • 529-ball FCCSP, 12 mm x 12 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

PS5018-E18

Capacity ¹	500 GB	1000 GB	2000 GB
Interface	PCIe Gen4x4 NVMe 1.4		
Form Factor	M2 2280-S2		M2 2280-D2
NAND Flash	3D TLC		
Performance (Up to)^{2,3,4}			
Sequential Read	6500 MB/s	7000 MB/s	7000 MB/s
Sequential Write	2850 MB/s	5500 MB/s	6850 MB/s
4K Random Read	170K IOPS ^(*a)	350K IOPS ^(*a)	650K IOPS ^(*a)
4K Random Write	600K IOPS ^(*a)	700K IOPS ^(*a)	700K IOPS ^(*a)
Power			
Supply Voltage	M.2 3.3V ± 5%		
Active Read (Average) ⁵	6.0W	6.6W	8.2W
Idle			
Low Power PS4 (L1.2)	3mW	3mW	3mW
Temperature			
Operating	0°C - 70°C		
Non-Operating	-40°C - 85°C		
Advanced Features	<ul style="list-style-type: none"> • End-to-End Data Protection • Pyrite Support • Thermal Monitoring 		

¹ 1GB = 1,000,000,000 bytes

² 1MB/s = 1,000,000 bytes / second

³ Sequential Performance is based on Crystal Disk Mark 7.0.0, test size 1GiB, and test drive set as secondary

⁴ Random Performance is based on IOMeter, 1GB range, 4K data size, QD=128, 16 worker, 4K aligned

(*a) Performance is based on AMD Gen4 X570 + 8 Core CPU

⁵ Measured with Crystal Disk Mark