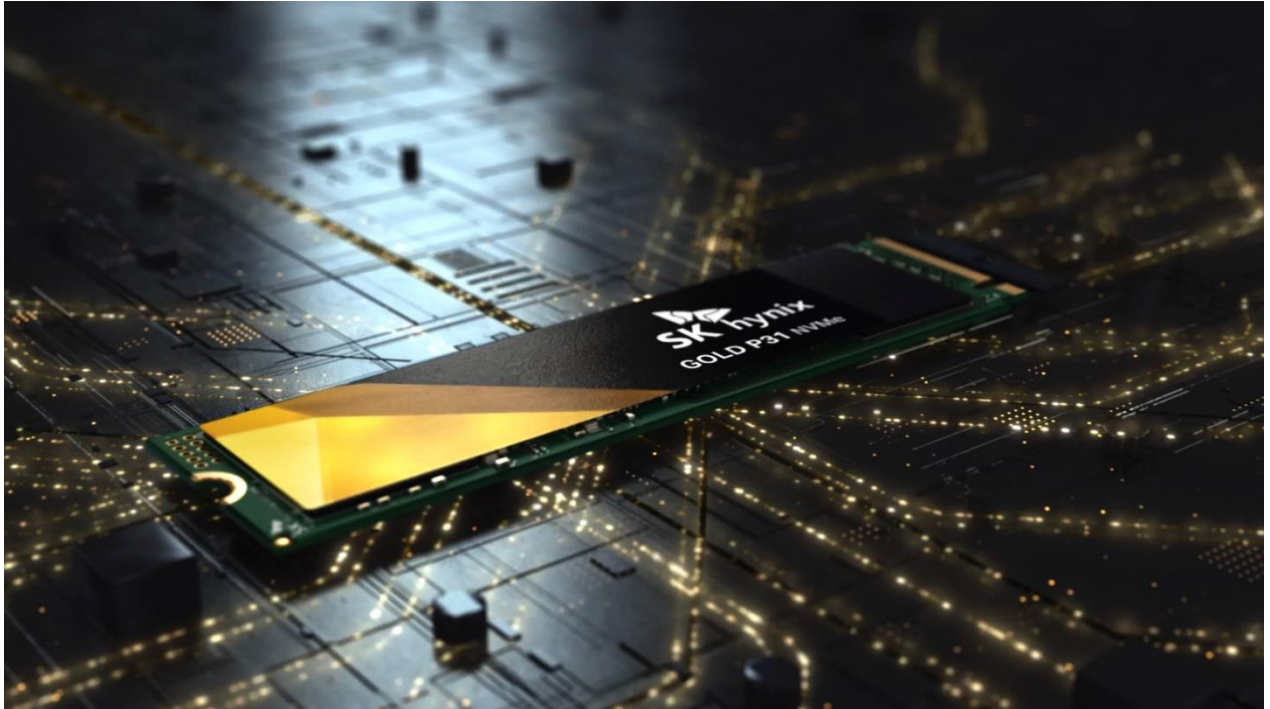


SK hynix Gold P31 SSD

PRODUCT BRIEF



Product Highlight

Breakthrough Technology

- The most innovative consumer SSD, sporting the latest technology from SK hynix
- The world's first 128-layer NAND flash-based consumer SSD

Striking Performance

- Best-in-class read speeds of up to 3,500 MB/s and write speeds of up to 3,200 MB/s

Ultimate Support & 5-year Warranty

- SK hynix 5-year warranty
- 1,000 hours of high-temperature operating life test (HTOL) with Mean Time between Failures (MTBF) reaching 1.5 million hours

Gold P31 Series Product Specification

Capacity		1TB	500GB
Form Factor		M.2 2280 Single Side	
NAND Technology		4D NAND	
Interface		PCIe NVMe Gen3, up to 4 lanes	
Sequential Performance 1) 3) 4)	Read (up to)	3,500 MB/s 3,500 MB/s (TLC)	3,500 MB/s 3,500 MB/s (TLC)
	Write (up to)	3,200 MB/s 1,700 MB/s (TLC)	3,100 MB/s 950 MB/s (TLC)
Random Performance 2) 3) 5)	Read (up to)	570K IOPS 500K IOPS (TLC)	570K IOPS 500K IOPS (TLC)
	Write (up to)	600K IOPS 370K IOPS (TLC)	600K IOPS 220K IOPS (TLC)
Latency ⁶⁾		Read	Write
		90us	45us
Power Consumption ⁷⁾		Active ⁸⁾	Idle(Slumber)
		6.3W	<50mW
Queue Support		- Support up to 256 queues - Support up to 1,024 queue depth for each queue	
Temperature Range Operation ⁹⁾		- 0°C to 70°C - Temperature Sensor (SMART Attributes Bytes 02:01h)	
Reliability ¹⁰⁾		MTBF ¹¹⁾	1.5M hours
		BER ¹²⁾	1 error in 10 ¹⁵ bits transferred
Dimension		(22.00±0.15) x (80.00±0.15) x (Max. 2.23) mm	
Weight		Max 7.0g	
Voltage		3.3V±5%	

Notes

- May not be compatible with BIOS that supports Pyrite 1.0 and OPAL
- For cloning, use USB-PCIe M.2 adapter with JMicron JMS583, ASMedia ASM2362, or Realtek RTL9210.
- May not be compatible with Macbook Pro, Macbook Air

- 1) Measured using IOMeter1.1 with QD(queue depth) 32. Set to 128KiB alignment. (1MB/sec = 1,000,000 bytes/sec)
- 2) Measured using IOMeter1.1 with 4 threads, QD 32 each. Set to 4KiB alignment.
- 3) IOMeter1.1 is used for measuring. Measurements are performed on 1GB of LBA range with a queue depth 32 & 8 worker system. System variations may affect results. (Test Pre-condition : Secure erased and NTFS formatted of a secondary drive)
- 4) Set to 128KiB alignment /1MB/sec = 1,000,000 bytes/sec was used in sequential performances.
- 5) Set to 4KiB alignment, 8 threads condition
- 6) Device measured by IOMeter1.1 with queue depth 1 workload and Read latency measured on random 4KiB transfers.
- 7) All numbers are average data measured out of more than 3 times
- 8) Active power is measured during execution of sequential write 128KB with queue depth 32.
- 9) Measured w/o condensation. And Operating mode is measured by temperature sensor, SMART Attributes Bytes 02:01h.
- 10) The SSD incorporate advanced technology for defect and error management, they use various combinations of hardware-based error correction algorithms and firmware based static and dynamic wear-leveling algorithms.
- 11) 1.5M Mean Time Between Failures is estimated based on population. statistics not relevant to individual units through
- 12) Reliability demonstration Test (RDT).
- 13) Bit error rate will not exceed one sector in the specified number of bits read. In the unlikely event of a read error, the SSD will report it as a read failure to the host; the sector in error is considered corrupt and is not returned to the host.