VIPER VP4100 series

PCIe Gen4 x 4 M.2 High Performance SSD

PATRIOT®

www.patriotmemory.com

Why?

- **Take lead on latest SSD technology:** Patriot Viper is not only a brand as we always leading latest technology.
- **New AMD planform co-marketing**: By the new AMD platform grand launch at July 7th, Patriot Viper become the VIP partner provide high-performance memory and SSD.
- **Best in class HS design:** VP4100 series offering new low profile and fancy looking HS design.
- **Designed for enthusiast PC user:** Any enthusiast PC user, only looking for fastest and best computer part.

Spec

- Controller: PCIe NVMe E16
- Form Factor: M.2 2280.
- Interface: PCIe Gen4 x4, supported NVMe 1.3 spec.
  Advance Flash Management:
  1. Advanced Wear Leveling.
  2. Bad Block Management.
  3. TRIM.
  4. SMART
  5. Over-Provision.
- Features Support:
  1. End to end data path protection.
  2. Thermal throttling.
  3. SmartECC.
  4. SmartRefresh.
  5. Drive Log

External Buffer Memory size:
500GB = DDR4 512MB.
1TB = DDR4 1GB.
2TB = DDR4 2GB.
NAND Type: 3D TLC
Power consumption:
Full speed R/W up to 7W, suspend up to 1.65mW.
Temperature Range:
Operation: 0 ~ 70°C (32 ~ 158°F)
Storage: -40 ~ 85 °C (40 ~ 185°F)
CE/FCC/BSMI/VCCI/ROHS Compliant.
Capacity supported up to 2TB.

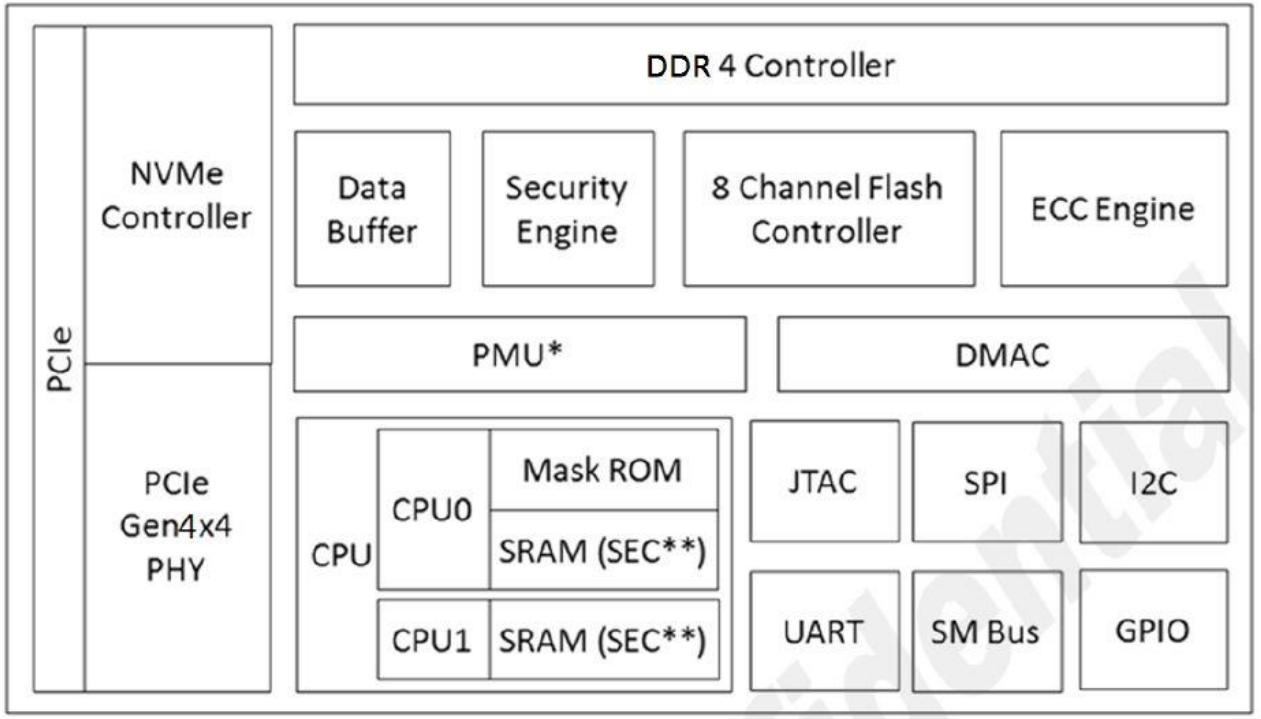
Bullet Point

- Built by new future PCIe NVMe controller E16.
- PCIe Gen4 x4, supported NVMe 1.3 spec.
- Supported LDPC(Low Density Parity Check) of ECC algorithm, helps correct error during read, makes sure data is correct.
- Supported Advanced Wear Leveling to extend the lifespan of NAND Flash.
- SEQ performance read up to 5000MB/s, write up to 4250MB/s.
- Random 4K Write IOPS up to 800K.
- Capacity supported up to 2TB.
- Maximum Power consumption in R/W up to 7W, suspend only 1.65mW
- Exclusive temperature sensor gives you accurate temp report in S.M.A.R.T info.

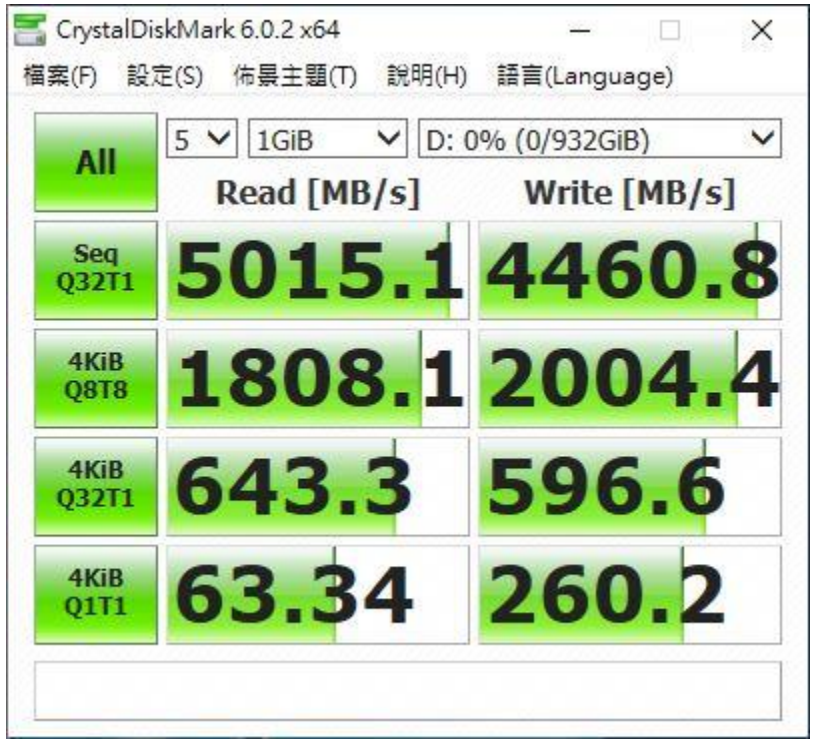
PCIe Gen4 x 4 controller

More faster PCIe Gen4 x4 Phy: Dual-Core ARM base CPU, with built-in PCIe PHY, fulfill high speed I/O Data read and write request.

DDR4 DRAM Buffer cache: Upgrade to DDR4 DRAM cache, higher clock timing compare with PCIe Gen 3 x 3 SSD.

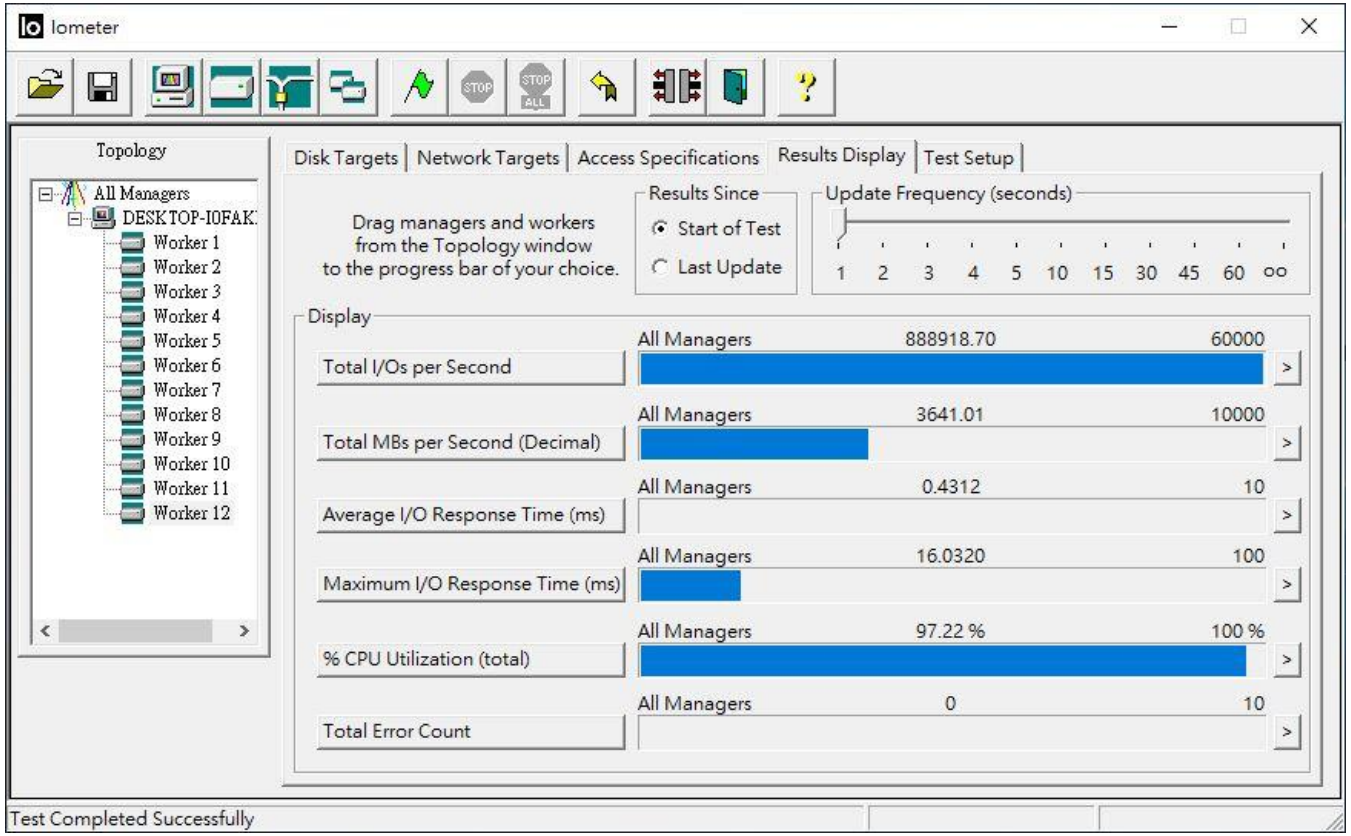


Benchmark result

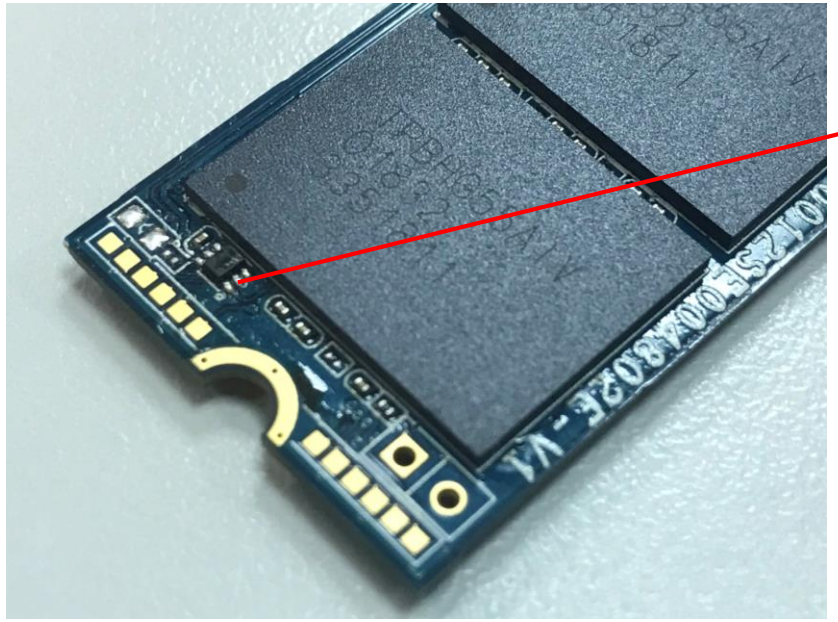


Sequential Read/Write : 5015MB/s, 4460MB/s

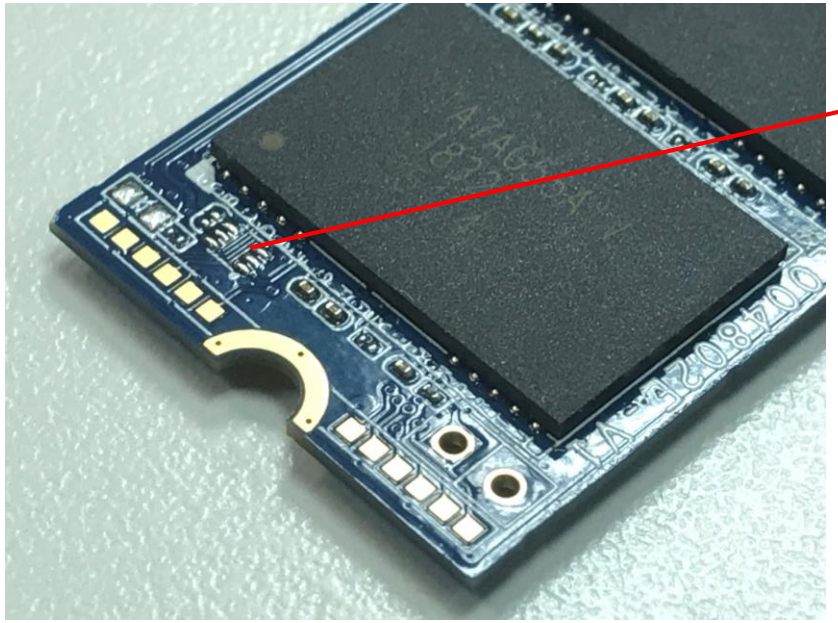
4K Random Write: 888K IOPs



External Thermal Sensor

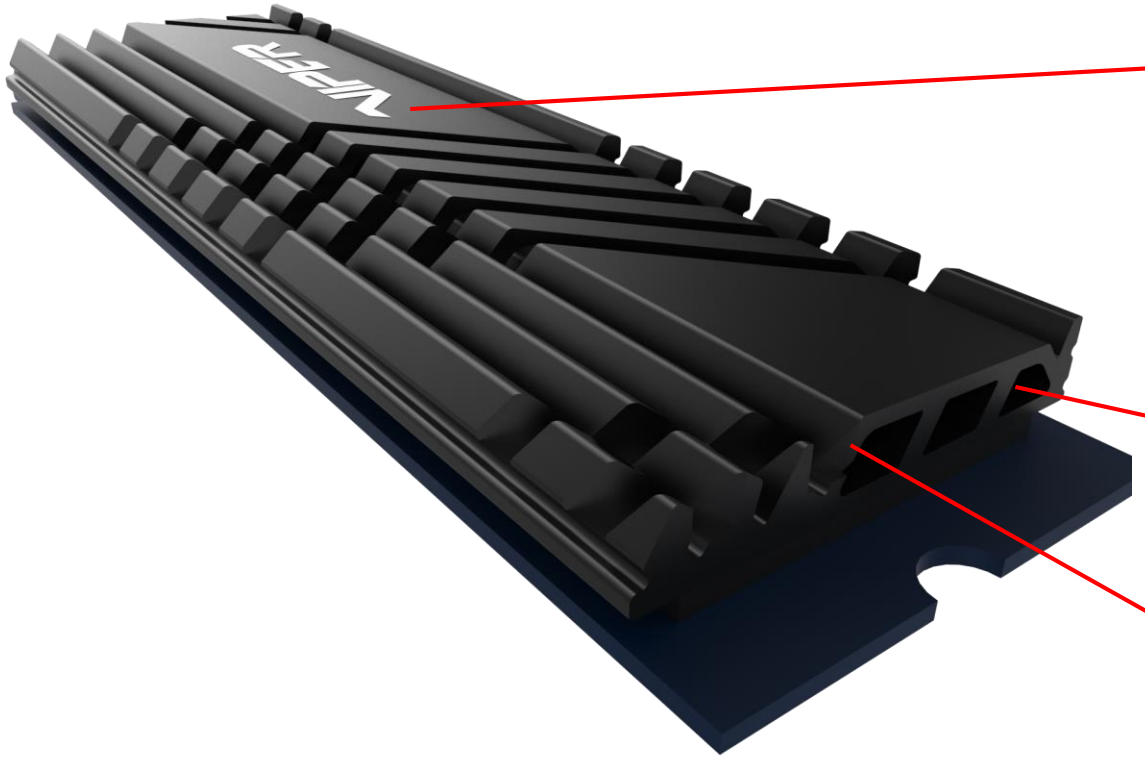


External Thermal Sensor: Location in the rear side of NAND to ensure more accurate temperature reading.



W/O External Thermal Sensor: Empty solder.

Art of Heatshield



Surface: High quality black sand-blast coating, with print Viper Logo.

Aluminum heatshield: excellent thermal conduction with special cutting design, helps to bring heat to the upper surface.

Asymmetric thermal heatsink: asymmetric structure thermal fins more efficiency way to dissipate heat from the PCBA.

Competitor analysis

- Compared most high-end SKU in the market

Brand	Series	Heats hield	SEQ Read	SEQ Write	4K IOPs write	Capacity	Warranty	Special Feature
Viper	VP4100	Y	5000MB/s	4400MB/s	800K	1TB/2TB	5Y	Extremal Thermal Sensor
Galax	HOF Pro PCIe M.2	Y	4800MB/s	4000MB/s	?	1TB/2TB	5Y	White color PCB
GIGABYTE	AORUS Gen4	Y	5000MB/s	4400MB/s	750K	1TB/2TB	5Y	GIGABYTE Toolbox
Corsair	MP600	Y	4950MB/s	4250MB/s	?	1TB/2TB	5Y	N/A

SKU launch plan

Launch period	Series	Heatsink	PN	Capacity
Q4 2019	VP4100	BLACK	VP4100-1TBM28H	1TB
			VP4100-2TBM28H	2TB

Which platform can work on PCIe Gen 4 x 4?

Only work on
AMD Ryzen 3000 series CPU
with X570 motherboard.

*X470 and old model will be up to PCIe Gen3 x 4.

AMD SOCKET AM4 MOTHERBOARD CHIPSET SOLUTIONS

	AMD Ryzen™ 1000 Series	AMD Ryzen™ 2000 Series		AMD Ryzen™ 3000 Series	
	Processors	Processors with Graphics	Processors	Processors with Graphics	Processors
	COMPATIBLE WITH	COMPATIBLE WITH	COMPATIBLE WITH	COMPATIBLE WITH	COMPATIBLE WITH
X570		●	●	●	●
X470	●	●	●	●	●
B450	●	●	●	●	●
X370	●	●	●	●	Select beta BIOS updates available
B350	●	●	●	●	Select beta BIOS updates available
A320	●	●	●	●	

Does it support PCIe Gen 3 x 4?

Yes, backward to PCIe Gen 3 x 4 platform, user can check out Transfer mode: PCIe Gen3 x 4.
This is currently drive mode, but future support PCIe Gen4 x 4.