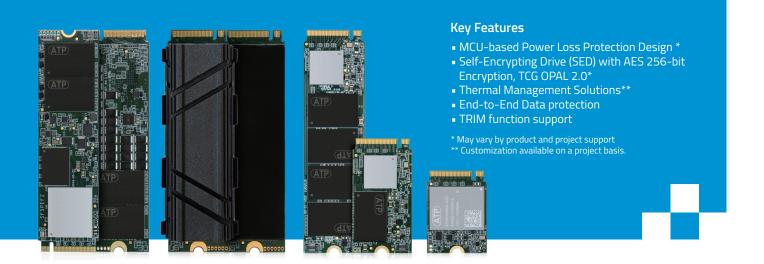


M.2 NVMe

Targeted Product Portfolio, Engineered Specifically for Your Mission Critical Applications



M.2 solid state modules based on the NVMe[™]protocol leverage the blazing-fast PCI Express[®] (PCIe[®]) interface to deliver dramatic improvements in speed and performance to fulfill the increasing demand for responsiveness in enterprise storage systems and to support the growing data-hungry needs of today's enterprise. Delivering 32 Gb/s bandwidth on a PCIe 3.1 x4 slot (8 Gb/s per Iane), ATP NVMe SSDs outperform Serial ATA 6 Gb/s SSDs with 4-6X faster access, over 3X lower latency, and higher Input/Output per Second (IOPS). ATP NVMe SSDs with industrial operating temperature rating deliver stable performance even in extreme temperatures ranging from -40°C to 85°C, while Dynamic Thermal Throttling automatically adjusts the speed to maintain cooler operation under intense and heavy workloads.

Adopting NVMe 1.3 specifications and integrating 3D NAND TLC technology, ATP's M.2 2280 NVMe modules offer up to 1.92TB of storage capacity and deliver boosted performance with sequential read up to 3,420 MB/s, sequential write up to 3,050 MB/s, and random read/write IOPS up to 225,200/179,200.

Designed to move past the limitations of mechanical drives, NVMe was specifically built from the ground up for faster, more efficient access to storage devices with non-volatile memory such as current NAND flash solutions and future non-volatile memory technologies. These SSDs can deliver fast, reliable and durable performance for any demanding application.

Specifications

			M.2 NVMe					
Product Line					perior			
i foddet Eine	N750Pi	N700Pi	N700Si	N700Sc	N650Si	N650Sc		
Interface			PCIe G3 x4					
Flash Type	3D TLC (ps		3D TLC (p	SLC mode)	3D TLC			
Form Factor	M.2 228	80-D2-M	M.2 223	30-54-M	M.2 2280-D2-M			
Operating Temperature (Tcase) ¹	-40°C t	:o 85°C	-40°C to 85°C	0°C to 70°C	-40°C to 85°C	0°C to 70°C		
Power Loss Protection Options	Hardware +	Firmware Based		re Based	Hardware + Firmware Based or Firmware Based			
Optional SED Features		AES 256	5-bit Encryption, TCG Op	al 2.0				
Capacity	40 GB to 320 GB	40 GB to 320 GB 40 GB to 640 GB 40 GB / 80 GB / 160 GB				120 GB to 960 GB		
			Performance					
Sequential Read (MB/s) up to	3,*	150	2,0	00	3,420			
Sequential Write (MB/s) up to	2,670	2,820	1,6	00	З,	050		
Random Reads IOPS up to	147,789 (4K, QD32)		135,600) (4K, QD32)	222,700 (4K, QD32)			
Random Writes IOPS up to	114,227	(4K, QD32)	112,000	(4K, QD32)	176,60	0 (4K, QD32)		
		E	ndurance and Reliability					
Endurance (TBW) ² up to	16,000 TB	21,300 TB	4,28	0 TB	4,640 TB			
Reliability MTBF @ 25°C	>2.000.0	000 hours	>1,500,0	00 hours	>2.00	0,000 hours		
			Others			.,		
Dimensions: L x W x H (mm)		1.2 2280 Bare PCBA) 2280 with 8 mm heatsink)	30.0 x 2	2.0 x 2.5	80.0 x 22.0 x 3.5 (M.2 2280 Bare PCBA) 80.0 x 24.4 x 12.5 (M.2 2280 with 8 mm heatsink			
Certifications		CE, FCC	, BSMI, UKCA, RoHS, REA	ΛCH				
Warranty	5 ye	ars		2	years			
			M.2 NVMe					
Product Line	S	uperior	M.2 NVMe	V	'alue			
Product Line	S N600Si	uperior N600Sc	M.2 NVMe N600Vc	V N600Vc	'alue N600Vi	N600Vc		
Product Line Interface						N600Vc		
	N600Si		N600Vc PCle G3 x4					
Interface	N600Si 3D	N600Sc	N600Vc PCle G3 x4	N600Vc	N600Vi	LC Mode)		
Interface Flash Type	N600Si 3D	N600Sc	N600Vc PCle G3 x4 3D M.2 2280 S2-M	N600Vc	N600Vi 3D TLC (T	LC Mode)		
Interface Flash Type Form Factor Operating Temperature	N600Si 3D M.2 228 -40°C to 85°C	N600Sc TLC 80-D2-M	N600Vc PCle G3 x4 3D M.2 2280 S2-M	N600Vc TLC M.2 2242 D5-M o 70°C	N600Vi 3D TLC (T M.2 223(LC Mode) 0-54-M		
Interface Flash Type Form Factor Operating Temperature (Tcase) ¹ Power Loss	N600Si 3D M.2 228 -40°C to 85°C Hardware + Firmware B	N600Sc TLC B0-D2-M O°C to 70°C	N600Vc PCle G3 x4 3D M.2 2280 S2-M	N600Vc TLC M.2 2242 D5-M o 70°C	N600Vi 3D TLC (T M.2 2230 -40°C to 85°C	LC Mode) 0-54-M		
Interface Flash Type Form Factor Operating Temperature (Tcase) ¹ Power Loss Protection Options	N600Si 3D M.2 228 -40°C to 85°C Hardware + Firmware B AES 256-bit Encr	N600Sc TLC B0-D2-M O°C to 70°C ased or Firmware Based	N600Vc PCIe G3 x4 3D M.2 2280 52-M 0°C t	N600Vc TLC M.2 2242 D5-M o 70°C	N600Vi 3D TLC (T M.2 2230 -40°C to 85°C	LC Mode) 0-54-M 0°C to 70°C		
Interface Flash Type Form Factor Operating Temperature (Tcase) ¹ Power Loss Protection Options Optional SED Features	N600Si 3D M.2 228 -40°C to 85°C Hardware + Firmware B AES 256-bit Encr	N600Sc TLC B0-D2-M O°C to 70°C ased or Firmware Based ryption, TCG Opal 2.0	N600Vc PCIe G3 x4 3D M.2 2280 52-M 0°C t	N600Vc TLC M.2 2242 D5-M o 70°C Firmwa	N600Vi 3D TLC (T M.2 223(-40°C to 85°C are Based	LC Mode) 0-54-M 0°C to 70°C		
Interface Flash Type Form Factor Operating Temperature (Tcase) ¹ Power Loss Protection Options Optional SED Features	N600Si 3D M.2 228 -40°C to 85°C Hardware + Firmware B AES 256-bit Encr 120 GB to	N600Sc TLC B0-D2-M O°C to 70°C ased or Firmware Based ryption, TCG Opal 2.0	N600Vc PCIe G3 x4 3D M.2 2280 52-M 0°C t 120 GB t Performance	N600Vc TLC M.2 2242 D5-M o 70°C Firmwa	N600Vi 3D TLC (T M.2 2230 -40°C to 85°C are Based 120GB / 240	LC Mode) 0-54-M 0°C to 70°C		
Interface Flash Type Form Factor Operating Temperature (Tcase) ¹ Power Loss Protection Options Optional SED Features Capacity Sequential Read	N600Si 3D M.2 228 -40°C to 85°C Hardware + Firmware B AES 256-bit Encr 120 GB to 3	N600Sc TLC 30-D2-M 0°C to 70°C ased or Firmware Based ryption, TCG Opal 2.0 o 1,920 GB	N600Vc PCle G3 x4 3D M.2 2280 52-M 0°C t 120 GB t Performance 2,	N600Vc TLC M.2 2242 D5-M o 70°C Firmwa	N600Vi 3D TLC (T M.2 2230 -40°C to 85°C are Based 120GB / 240 2,	LC Mode) D-S4-M 0°C to 70°C GB / 480GB		
Interface Flash Type Form Factor Operating Temperature (Tcase) ¹ Power Loss Protection Options Optional SED Features Capacity Sequential Read (MB/s) up to Sequential Write	N600Si 3D M.2 226 -40°C to 85°C Hardware + Firmware B AES 256-bit Encr 120 GB to 3 3	N600Sc TLC B0-D2-M 0°C to 70°C ased or Firmware Based ryption, TCG Opal 2.0 o 1,920 GB	N600Vc PCIe G3 x4 3D M.2 2280 52-M 0°C t 120 GB Performance 2,1 1,1	N600Vc TLC M.2 2242 D5-M o 70°C Firmwa to 960 GB	N600Vi 3D TLC (T M.2 223(-40°C to 85°C are Based - 120GB / 240 2, 1,	LC Mode) D-S4-M 0°C to 70°C GB / 480GB		
Interface Flash Type Form Factor Operating Temperature (Tcase) ¹ Power Loss Protection Options Optional SED Features Capacity Capacity Sequential Read (MB/s) up to	N600Si 3D M.2 226 -40°C to 85°C Hardware + Firmware B AES 256-bit Enci 120 GB ti 3 3 3 225,20	N600Sc TLC B0-D2-M 0°C to 70°C assed or Firmware Based ryption, TCG Opal 2.0 o 1,920 GB ,420	N600Vc PCIe G3 x4 3D M.2 2280 52-M 0°C t 0°C t 120 GB Performance 2, 1, 1, 184,300	N600Vc TLC M.2 2242 D5-M o 70°C Firmwa to 960 GB 500	N600Vi 3D TLC (T M.2 223(-40°C to 85°C are Based 120GB / 240 2, 1, 135,600	LC Mode) 0-54-M 0°C to 70°C GB / 480GB 000 570		
Interface Flash Type Form Factor Operating Temperature (Tcase) ¹ Power Loss Protection Options Optional SED Features Capacity Sequential Read (MB/s) up to Sequential Write (MB/s) up to	N600Si 3D M.2 226 -40°C to 85°C Hardware + Firmware B AES 256-bit Enci 120 GB ti 3 3 3 225,20	N600Sc TLC B0-D2-M 0°C to 70°C ased or Firmware Based ryption, TCG Opal 2.0 o1,920 GB ,420 ,050 00 (4K, QD32) 00 (4K, QD32)	N600Vc PCIe G3 x4 3D M.2 2280 52-M 0°C t 0°C t 120 GB Performance 2, 1, 1, 184,300	N600Vc TLC M.2 2242 D5-M o 70°C Firmwa co 960 GB 500 370 (4K, QD32)	N600Vi 3D TLC (T M.2 223(-40°C to 85°C are Based 120GB / 240 2, 1, 135,600	LC Mode) 0-54-M 0°C to 70°C GB / 480GB 000 570 (4K, QD32)		
Interface Flash Type Form Factor Operating Temperature (Tcase)' Power Loss Protection Options Optional SED Features Capacity Sequential Read (MB/s) up to Sequential Write (MB/s) up to Random Reads IOPS up to	N600Si 3D M.2 228 -40°C to 85°C Hardware + Firmware B AES 256-bit Encr 120 GB ti 3 3 3 225,20 179,20	N600Sc TLC B0-D2-M 0°C to 70°C ased or Firmware Based ryption, TCG Opal 2.0 o 1,920 GB ,420 ,050 00 (4K, QD32) 00 (4K, QD32)	N600Vc PCle G3 x4 3D M.2 2280 52-M 0°C t 2, 120 GB Performance 2, 1, 184,300 145,900	N600Vc TLC M.2 2242 D5-M o 70 °C Firmwa co 960 GB 500 (4K, QD32) (4K, QD32)	N600Vi 3D TLC (T M.2 223(-40°C to 85°C are Based 120GB / 240 120GB / 240 1, 135,600 112,000	LC Mode) O-S4-M 0°C to 70°C GB / 480GB 000 570 (4K, QD32) (4K, QD32)		
Interface Flash Type Form Factor Operating Temperature (Tcase) ¹ Power Loss Protection Options Optional SED Features Capacity Capacity Sequential Read (MB/s) up to Sequential Write (MB/s) up to Random Reads IOPS up to Random Writes IOPS up to	N600Si 3D M.2 228 -40°C to 85°C Hardware + Firmware B AES 256-bit Encr 120 GB ti 225,20 179,20	N600Sc TLC B0-D2-M 0°C to 70°C ased or Firmware Based ryption, TCG Opal 2.0 o 1,920 GB ,420 ,050 00 (4K, QD32) 00 (4K, QD32) Er 85 TB	N600Vc PCIe G3 x4 3D M.2 2280 52-M 0°C t 120 GB Performance 2,1 1,1 184,300 145,900 ndurance and Reliability 1,53	N600Vc TLC M.2 2242 D5-M O 70 °C Firmwa co 960 GB 500 (4K, QD32) (4K, QD32) 36 TB	N600Vi 3D TLC (T M.2 223 -40°C to 85°C are Based - 120GB / 240 13100000000000000000000000000000000000	LC Mode) 0-S4-M 0°C to 70°C GB / 480GB 000 570 (4K, QD32) (4K, QD32) 8 TB		
Interface Flash Type Form Factor Operating Temperature (Tcase) ¹ Power Loss Protection Options Optional SED Features Capacity Capacity Sequential Read (MB/s) up to Sequential Write (MB/s) up to Random Reads IOPS up to Random Writes IOPS up to	N600Si 3D M.2 228 -40°C to 85°C Hardware + Firmware B AES 256-bit Encr 120 GB ti 225,20 179,20	N600Sc TLC B0-D2-M 0°C to 70°C ased or Firmware Based ryption, TCG Opal 2.0 o 1,920 GB ,420 ,050 00 (4K, QD32) 00 (4K, QD32)	N600Vc PCIe G3 x4 3D M.2 2280 52-M 0°C t 120 GB Performance 2,1 1,1 184,300 145,900 ndurance and Reliability 1,53 >2,000,0	N600Vc TLC M.2 2242 D5-M o 70 °C Firmwa co 960 GB 500 (4K, QD32) (4K, QD32)	N600Vi 3D TLC (T M.2 223 -40°C to 85°C are Based - 120GB / 240 13100000000000000000000000000000000000	LC Mode) D-S4-M 0°C to 70°C GB / 480GB 000 570 (4K, QD32) (4K, QD32)		
Interface Flash Type Form Factor Operating Temperature (Tcase)' Power Loss Protection Options Optional SED Features Capacity Sequential Read (MB/s) up to Sequential Write (MB/s) up to Random Reads IOPS up to	N600Si 3D M.2 228 -40°C to 85°C Hardware + Firmware B AES 256-bit Encr 120 GB to 120 GB to 225,20 179,20 179,20 5,5 >2,000,0	N600Sc TLC B0-D2-M 0°C to 70°C ased or Firmware Based ryption, TCG Opal 2.0 o 1,920 GB ,420 ,050 00 (4K, QD32) 00 (4K, QD32) Er 85 TB	N600Vc PCIe G3 x4 3D M.2 2280 52-M 0°C t 120 GB Performance 2,1 1,1 184,300 145,900 ndurance and Reliability 1,53	N600Vc TLC M.2 2242 D5-M O 70 °C Firmwa co 960 GB 500 (4K, QD32) (4K, QD32) 36 TB	N600Vi 3D TLC (T M.2 2230 -40°C to 85°C are Based 2 120GB / 240 1120GB / 240 1120GB / 240 1120GB / 240 3000000000000000000000000000000000000	LC Mode) 0-S4-M 0°C to 70°C GB / 480GB 000 570 (4K, QD32) (4K, QD32) 8 TB		
Interface Flash Type Form Factor Operating Temperature (Tcase)' Power Loss Protection Options Optional SED Features Capacity Capacity Sequential Read (MB/s) up to Sequential Write (MB/s) up to Sequential Write (MB/s) up to Random Reads IOPS up to Random Writes IOPS up to Random Writes IOPS up to Random Writes IOPS up to Readom Writes IOPS up to Readom Writes IOPS up to Capacity Capacity	N600Si 3D M.2 228 -40°C to 85°C Hardware + Firmware B AES 256-bit Encr 120 GB to 120 GB to 225,20 179,20 179,20 5,5 >2,000,0	N600Sc TLC B0-D2-M 0°C to 70°C ased or Firmware Based ryption, TCG Opal 2.0 o 1,920 GB ,420 ,050 00 (4K, QD32) 00 (4K, QD32) Er 85 TB 000 hours 1.2 2280 Bare PCBA) 2280 with 8 mm heatsink)	N600Vc PCle G3 x4 3D M.2 2280 52-M 0°C t 2,1 120 GB 1 Performance 2,1 1,1 184,300 145,900 145,900 145,900 145,900 145,900 145,900	N600Vc TLC M.2 2242 D5-M o 70°C Firmwa to 960 GB 500 370 (4K, QD32) (4K, QD32) (4K, QD32) 36 TB 200 hours 42.0 x 22.0 x 3.6	N600Vi 3D TLC (T M.2 2230 -40°C to 85°C are Based 2 120GB / 240 1120GB / 240 1120GB / 240 1120GB / 240 3000000000000000000000000000000000000	LC Mode) 0-54-M 0°C to 70°C GB / 480GB 000 570 (4K, QD32) (4K, QD32) (4K, QD32) 8 TB ,000 hours		

1 Case Temperature, the composite temperature as indicated by SMART temperature attributes. 2 Under highest Sequential write value. May vary by density, configuration and applications.

Technologies & Add-On Services	S.M.A.R.T.	Hardware-based Power Loss Protection	AutoRefresh	Advanced Wear Leveling	Dynamic Data Refresh	End-to End Data Protection	Secure Erase	P TCG Opal 2.0	Industrial Temperature	Anti-Sulfur Resistors	Conformal Coating
Premium	0	0	0	0	0	0	A	0	0		
Superior	0	0	0	0	0	0	A	0			
Value	0	0	0	0	0	0	-	-	-		

▲: Customization option available on a project basis.