

# PCIe® Gen 3 NVMe M.2 2280 / 2242 / 2230 SSD

The Global Leader in Specialized Storage and Memory Solutions





#### **KEY FEATURES**

- MCU-based Power Loss Protection Design with Level 4 (data-in-flight) protection\*
- Self-Encrypting Drive (SED) with AES 256-bit encryption, TCG Opal 2.0\*
- Thermal Heatsink Solutions\*\*

End-to-End Data Path ProtectionTRIM function support

\* May vary by product and project support \*\* Customization available on a project basis

ATP's M.2 2280 NVMe solid state modules based on the NVMe<sup>™</sup> protocol and leveraging the PCI Express<sup>®</sup> (PCIe<sup>®</sup>) Gen3 x4 interface deliver speedy, reliable, and enduring performance to fulfill the increasing data storage demands of today's embedded and industrial applications.

Constructed with 3D triple level cell (TLC) NAND flash, these modules are available in different capacities, ranging from 40 GB to 960 GB, to meet diverse data storage needs.

ATP NVMe SSDs with industrial operating temperature rating deliver stable performance even in extreme temperatures ranging from -40°C to 85°C.

Select ATP M.2 2280 NVMe modules adopt a Customizable Thermal Management Solution. This includes firmware and hardware options, such as copper foil and fin-type heatsink, to effectively dissipate heat and ensure optimal levels of sustained performance.

#### Specifications

		PCle <sup>®</sup> Gen3									
Product Line	N750Pi	Pri N700Pi	emium N700Pi	i N700Pc		N650Si		Sup 550Sc	Derior	DOSi	
Interface	1975091			PCIe G3 x4	-	1696901		5050			
Flash Type	3D TLC (pSLC mode)					3D TLC					
Form Factor	M.2 2280-D2-M		M.2	M.2 2230-S4-M			M.2 2280-D2-M				
Operating Temperature	-40	-40°C to 85°C -40°C to 85°C 0°C to 70°C		°C -4	°C to 85°C 0°C to 70°C -40°C to 85°C				0°		
Power Loss Protection Options	Hardware	+ Firmware Based	Firn	Firmware Based		Hardware + Firmware Based or Firmware			ware Bas	ed	
Optional SED Features			AES 256-bit E	Encryption, TCG O	pal 2.0						
Capacity	40 GB to 320 GE	40 GB to 640 GB		GB to 160 GB erformance		120 GB to 960 GB 120 G			20 GB to	960 GI	
Sequential Read (MB/s) up to	3,150			2,000		3,420					
Sequential Write (MB/s) up to	2,670	2,670 2,820		1,600		3,050					
Random Reads IOPS up to		147,789		135,600						225,2	00
Random Writes IOPS up to		114,227		112,000		176,600			179,200		
			Enduran	nce and Reliability	1						
Endurance (TBW) <sup>1</sup> up to	16,000 TB	21,300 TB		4,280 TB		4,640 TB 10,			10,60	) ТВ	
Reliability MTBF @ 25°C				)00,000 hours							
			- 2,0	Others							
Dimensions (mm)	80.0 x 22.0 x 3.5 (M. 80.0 x 24.4 x 12.5 (N	2 2280 Bare PCBA) 1.2 2280 with 8 mm heatsiı	nk) 30.	.0 x 22.0 x 2.5			22.0 x 3.5 24.4 x 12				atsink)
Certifications	CE, FCC, BSMI, UKCA, RoHS, REACH						CE, FCC, BSMI, UKCA, RoHS, and are available for SSD models with capacities between 120 GB to 1, RoHS/VCCI/CE/FCC are available 3.84 TB SSD model.				
Warranty			2 years								
	P	Cle <sup>®</sup> Gen3 NVMe M.2	2280 / 2242	/ 2230 SSD							
Product Line	NICOON/										
	N600Vi	N600Vc	N600Vi		00Vc	N	600Vi		N600Vc		
Interface	N600Vi	PCIe G	i3 x4		00Vc	N	600Vi		N600Vc		
Interface Flash Type		PCIe 0 3D 1	i3 x4 TLC	N6	00Vc	N		230-54-1			
Interface Flash Type Form Factor	M.2 22	PCIe 0 3D 1 280 S2-M	i3 x4 TLC M.2	N6 2 2242 D5-M			M.2 2	230-54-1	M		
Interface Flash Type Form Factor Operating Temperature		PCIe C 3D 7 280 52-M 0°C to 70°C	i3 x4 LC M.: -40°C to 85	N6 2 2242 D5-M	00Vc 0 70°C						
Interface Flash Type Form Factor Operating Temperature Fower Loss Protection Options	M.2 22	PCIe 0 3D 1 280 S2-M	i3 x4 LC M.: -40°C to 85	N6 2 2242 D5-M			M.2 2		M		
Interface Flash Type Form Factor Operating Temperature Power Loss Protection Options Optional SED Features	M.2 22	PCIe C 3D 1 280 S2-M 0°C to 70°C Firmward	3 x4 LC -40°C to 85 e Based	N6 2 2242 D5-M			M.2 2 C to 85°C	(	M D°C to 70		
Interface Flash Type Form Factor Operating Temperature Power Loss Protection Options	M.2 22	PCIe C 3D 1 280 52-M 0°C to 70°C Firmward - 120 GB to	3 x4 LC -40°C to 85 e Based 960 GB	N6 2 2242 D5-M			M.2 2 C to 85°C		M D°C to 70		
Interface Flash Type Form Factor Operating Temperature ower Loss Protection Options Optional SED Features Capacity	M.2 22	PCIe C 3D 1 280 52-M 0°C to 70°C Firmward - 120 GB to Perforr	3 x4 LC -40°C to 85 e Based 9 960 GB nance	N6 2 2242 D5-M			M.2 2 C to 85°C	6 B to 480	M D°C to 70		
Interface Flash Type Form Factor Operating Temperature Operating SED Features Optional SED Features Capacity Sequential Read (MB/s) up to	M.2 22	PCIe 0 3D 1 280 52-M 0°C to 70°C Firmward - 120 GB to Perforr 2,60	i3 x4 iLC 	N6 2 2242 D5-M			M.2 2 C to 85°C	iB to 480 2,050	M D°C to 70		
Interface Flash Type Form Factor Operating Temperature Operating Temperature Optional SED Features Capacity Sequential Read (MB/s) up to Sequential Write (MB/s) up to	M.2 22	PCIe 0 3D 1 280 52-M 0°C to 70°C Firmward - 120 GB to Perforr 2,60 1,8	3 x4 1LC -40°C to 85 Based 960 GB nance 00 70	N6 2 2242 D5-M			M.2 2 C to 85°C 120G	6B to 480 2,050 1,550	M D°C to 70		
Interface Flash Type Form Factor Operating Temperature Operating Temperature Optional SED Features Optional SED Features Capacity Sequential Read (MB/s) up to Sequential Write (MB/s) up to	M.2 22	PCI e C 3D 1 280 S2-M 0°C to 70°C Firmward - 120 GB to Perforr 2,60 1,8 184,.	3 x4 .LC .40°C to 85 Based 960 GB nance 00 70 300	N6 2 2242 D5-M			M.2 2 C to 85°C 120G	B to 480 2,050 1,550 38,000	M D°C to 70		
Interface Flash Type Form Factor Operating Temperature Operating Temperature Optional SED Features Capacity Sequential Read (MB/s) up to Sequential Write (MB/s) up to	M.2 22	PCIe 0 3D 1 280 S2-M 0°C to 70°C Firmward - 120 GB to Perforr 2,60 1,8 184, 145,	3 x4 .LC M.: -40°C to 85 e Based 9 960 GB nance 00 70 300	N6 2 2242 D5-M			M.2 2 C to 85°C 120G	6B to 480 2,050 1,550	M D°C to 70		
Interface Flash Type Form Factor Operating Temperature Operating Temperature Capacity Sequential Read (MB/s) up to Sequential Write (MB/s) up to Random Reads IOPS up to Random Writes IOPS up to	M.2 22	PCI e C 3D 1 280 52-M 0°C to 70°C Firmward - 120 GB to Perforr 2,60 1,8 184, 145, 145,	3 x4 12 -40°C to 85 e Based 960 GB nance 20 70 300 900 40 Reliability	N6 2 2242 D5-M			M.2 2 C to 85°C 120G 1 1 1 1	B to 480 2,050 1,550 38,000 12,600	M D°C to 70		
Interface Flash Type Form Factor Operating Temperature Operating Temperature Optional SED Features Optional SED Features Capacity Sequential Read (MB/s) up to Sequential Write (MB/s) up to	M.2 22	PCIe 0 3D 1 280 S2-M 0°C to 70°C Firmward - 120 GB to Perforr 2,60 1,8 184, 145,	3 x4 12 -40°C to 85 e Based 960 GB nance 20 70 300 900 40 Reliability	N6 2 2242 D5-M			M.2 2 C to 85°C 120G 1 1 1 1	B to 480 2,050 1,550 38,000	M D°C to 70		
Interface Flash Type Form Factor Operating Temperature ower Loss Protection Options Optional SED Features Capacity Sequential Read (MB/s) up to Sequential Write (MB/s) up to Random Reads IOPS up to Random Writes IOPS up to	M.2 22	PCI e C 3D 1 280 52-M 0°C to 70°C Firmward - 120 GB to Perforr 2,60 1,8 184, 145, 145,	3 x4 -40°C to 85 e Based 960 GB nance 200 70 300 300 900 900 900 900 900	N6 2 2242 D5-M			M.2 2 C to 85°C 120G 1 1 1 1	B to 480 2,050 1,550 38,000 12,600	M D°C to 70		
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Interface Flash Type Form Factor Operating Temperature Operating Temperature Optional SED Features Optional SED Features Capacity	M.2 2: -40°C to 85°C	PCIe C 3D 7 280 S2-M 0°C to 70°C Firmward - 120 GB tc 2,60 1,8 184, 145, 184, 145, 52,000,00 0th <22.0 × 2.2 CE, FCC, BSMI, UK0	3 x4 .LC M.: -40°C to 85 e Based 960 GB nance 960 GB 00 0300 00 00 00 00 00 00 00	2 2242 D5-M °C   0°C t			M.2 2 C to 85°C 120G 1 1	B to 480 2,050 1,550 38,000 12,600 768 TB	M O°C to 70 GB		on
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Interface Flash Type Form Factor Operating Temperature ower Loss Protection Options Optional SED Features Capacity Capac	M.2 22 -40°C to 85°C 80.0 x SMART. Firmware-based / Power Loss	PCLC 0 3D 1 280 52-M 0°C to 70°C Firmward - 120 GB to Perforr 2,66 1,8 184,: 145,: Endurance ar 2,880 >2,000,00 Oth <22.0 × 2.2 CE, FCC, BSMI, UK( 2 ye	3 x4   12   -40°C to 85   e Based   960 GB   nance   00   70   300 <t< td=""><td>2 2242 D5-M       °C     0 °C t       2.0 x 22.0 x 3.6       H       Column 1       Column 2       Auto-Read       Calibration</td><td>o 70°C</td><td>-40°</td><td>M.2 2 C to 85°C 1200 1 1 1 1 30.0</td><td>B to 480 2,050 1,550 38,000 112,600 768 TB x 22.0 x 2 Anti-Sulfur Resistors</td><td>M O°C to 70 GB 2.5</td><td>°C Joint Validat</td><td>on</td></t<>	2 2242 D5-M       °C     0 °C t       2.0 x 22.0 x 3.6       H       Column 1       Column 2       Auto-Read       Calibration	o 70°C	-40°	M.2 2 C to 85°C 1200 1 1 1 1 30.0	B to 480 2,050 1,550 38,000 112,600 768 TB x 22.0 x 2 Anti-Sulfur Resistors	M O°C to 70 GB 2.5	°C Joint Validat	on

1 Under highest Sequential write value. May vary by density, configuration and applications.

▲: Customization option available on a project basis.

Hot Items Ordering Information										
Product Line	Capacity <sub>1</sub>	Operating Temperature <sub>2</sub>	Power Loss Protection <sub>3</sub>	$SED_4$	P/N					
N650Si	120GB	-40°C to 85°C	Hardware + Firmware Based	-	FT120GP38AG8BPI					
N650Si	240GB	-40°C to 85°C	Hardware + Firmware Based	-	FT240GP38AG8BPI					
N650Si	480GB	-40°C to 85°C	Hardware + Firmware Based	-	FT480GP38AG8BPI					
N650Si	960GB	-40°C to 85°C	Hardware + Firmware Based	-	FT960GP38AG8BPI					
N650Sc	120GB	0°C to 70°C	Hardware + Firmware Based	-	FT120GP38AG8BPC					
N650Sc	240GB	0°C to 70°C	Hardware + Firmware Based	-	FT240GP38AG8BPC					
N650Sc	480GB	0°C to 70°C	Hardware + Firmware Based	-	FT480GP38AG8BPC					
N650Sc	960GB	0°C to 70°C	Hardware + Firmware Based	-	FT960GP38AG8BPC					
N600Vc (M.2 2280)	120GB	0°C to 70°C	Firmware Based	-	FT120GP38ANDBFC					
N600Vc (M.2 2280)	240GB	0°C to 70°C	Firmware Based	-	FT240GP38ANDBFC					
N600Vc (M.2 2280)	480GB	0°C to 70°C	Firmware Based	-	FT480GP38ANDBFC					
N600Vc (M.2 2242)	120GB	0°C to 70°C	Firmware Based	-	FT120GP34ANDBFC					
N600Vc (M.2 2242)	240GB	0°C to 70°C	Firmware Based	-	FT240GP34ANDBFC					
N600Vc (M.2 2242)	480GB	0°C to 70°C	Firmware Based	-	FT480GP34ANDBFC					
N600Vc (M.2 2242)	960GB	0°C to 70°C	Firmware Based	-	FT960GP34ANDBFC					

1 Amount of actual usable storage that can be utilized.

2 Refers to Case Temperature range during device operation, as indicated by SMART temperature attributes.

3 Hardware + Firmware-based power loss protection design with Level 4 (data-in-flight) protection; Firmware-based power loss protection design with Level 1 (data-at-rest) protection.

4 Allows data written to and read from the SSD to be constantly and automatically encrypted and decrypted. Conforms to TCG Opal 2.0 and uses AES 256-bit HW encryption.

Product spec and its related information are subject to change without advance notice. Please refer to <u>www.atpinc.com</u> for latest information

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