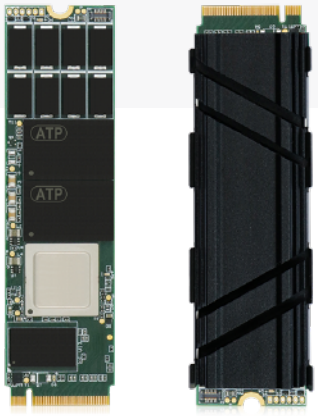
PCIe® Gen 4 NVMe M.2 2280 SSD

The Global Leader in Specialized Storage and Memory Solutions



KEY FEATURES

- Endurance: 1 DWPD (5 years Enterprise workload)
- Sustained Write Performance: Up to 3,000 MB/s
- Data Retention: Up to 10 years at 55°C (pSLC)*
- Power Loss Protection: MCU-based* with data-at-rest and in-flight protection
- PLP Diag* (Self-Diagnosing Capacitor Check)
- Security: Self-Encrypting Drive (SED) with AES 256-bit Encryption, TCG Opal 2.0*
- Hardware Secure Erase / Write Protect*
- End-to-End Data Path Protection

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

ATP NVMe™ M.2 2280 SSDs with the PCI Express® (PCIe®) Gen 4 x4 interface meet the growing need for high-speed data transfer in today's demanding applications.

Up to 4 TB capacity, support for I-Temp (-40°C to 85°C: N651Si) or C-Temp (0°C to 70°C: N601Sc) operation, plus AES 256-bit encryption and TCG Opal 2.0 security make these SSDs ideal for read/write-intensive mission-critical applications, such as data logging, surveillance, and imaging systems.

With twice the bandwidth of the previous generation (8 GT/s), PCIe Gen 4's 16 GT/s data rate translates to a bandwidth of 2 GB/s for every PCIe lane, enabling these SSDs to transfer data faster. ATP's PCIe Gen 4 SSDs use x4 lanes for a maximum bandwidth of 8 GB/s.

Thermal management options for optimal heat dissipation include a nickel-coated copper heat spreader on controller and a 4 mm or 8 mm fin-type heatsink design.

Technologies		S.M.A.R.T./ Life Monitor	PLP Diag	Industrial Temperature	Firmware-Based Power Loss Protection	Hardware-Based Power Loss Protection	Advanced Wear Leveling	AutoRefresh	Dynamic Data Refresh	Auto-Read Calibration	ETEDP	SED	Software Secure Erase	Hardware Secure Erase	Hardware Write Protect
Premium	N751Pi	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Superior	N651Si / N651Sc	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Superior	N601Si / N601Sc	○		○	○	▲	○	○	○		○	▲	▲	▲	▲
Value	N601Vi / N601Vc	○		○	○		○	○	○		○		○		
Momentum	N601Mw	○		▲	○		○	○	○	○	○		○		

▲: Customization option available on a project basis.

Specifications

Product Line	Premium	Superior		Value	Momentum
	N751Pi[1]	N651Si / N651Sc	N601Sc[2]	N601Vi / N601Vc	N601Mw
Interface	PCIe G4 x4				
Flash Type	3D TLC (pSLC mode)	3D TLC			
Form Factor	M.2 2280-D6-M / M.2 2280-D2-M	M.2 2280-D6-M / M.2 2280-D5-M / M.2 2280-D2-M	M.2 2280 M-Key	M.2 2280-S3-M	M.2 2280 S3-M
Operating Temperature	-40°C to 85°C	-40°C to 85°C / 0°C to 70°C	0°C to 70°C	-40°C to 85°C / 0°C to 70°C	-20°C to 75°C
Power Loss Protection Options	Hardware + Firmware Based / Firmware Based[3]	Hardware + Firmware Based / Firmware Based[3]	Hardware + Firmware Based / Firmware Based	Firmware Based	
Optional SED Features	AES 256-bit Encryption, TCG Opal 2.0				-
Capacity	80 GB to 1.28 TB	240 GB to 7.68 TB[4]	480 GB to 3.84 TB	240 GB to 1.92 TB	1 TB to 4 TB
Performance					
Sequential Read (MB/s) up to	6,450		7,000	5,000	7,200
Sequential Write (MB/s) up to	6,050		6,000	4,300	6,500
Random Reads IOPS up to	1,090,000	1,091,000	900,000	800,000	1,000,000
Random Writes IOPS up to	1,107,000	1,245,000	950,000	1,100,000	1,200,000
Endurance and Reliability					
Endurance (TBW)[5] up to	120,000 TB	76,400 TB	5,760 TB	4,170 TB	6,000 TB
Reliability MTBF @ 25°C	>3,000,000 hours			>3,000,000 hours	>3,000,000 hours
Others					
Dimensions (mm)	80 × 22 × 3.85 80 × 22 × 3.6 Optional 8 mm heatsink	80 × 22 × 3.85 80 × 22 × 3.9 80 × 22 × 3.6 Optional 8 mm heatsink	80.0 x 22.0 x 3.6	80.0 x 22.0 x 2.4	80.0 x 22.0 x 2.2
Certifications	CE, FCC, BSMI, UKCA, RoHS, REACH	CE, FCC, BSMI, UKCA, RoHS, REACH, UL			CE, FCC, BSMI, UKCA, RoHS, REACH
Warranty	5 years	3 years			2 years

Product Line	Superior	
	N601Sc[2]	N601Si[2]
Interface	PCIe G4 x4	
Flash Type	3D TLC	
Form Factor	M.2 2242 M-Key	M.2 2230 M-Key
Operating Temperature	0°C to 70°C	-40°C to 85°C
Power Loss Protection Options	Hardware + Firmware Based / Firmware Based	Firmware Based
Optional SED Features	AES 256-bit Encryption, TCG Opal 2.0	
Capacity	480 GB to 1.92 TB	240 GB to 960 GB
Performance		
Sequential Read (MB/s) up to	7,000	3,500
Sequential Write (MB/s) up to	6,000	3,400
Random Reads IOPS up to	900,000	600,000
Random Writes IOPS up to	950,000	750,000
Endurance and Reliability		
Endurance (TBW)[5] up to	2,880 TB	1,440 TB
Reliability MTBF @ 25°C	>3,000,000 hours	
Others		
Dimensions (mm)	42.0 x 22.0 x 3.6	30.0 x 22.0 x 3.6
Certifications	CE, FCC, BSMI, UKCA, RoHS, REACH, UL	
Warranty	3 years	

1. 150K P/E cycle configuration drive available on a project basis
2. Product specifications may be subject to change
3. M.2 2280-D6-M (max height: 3.85mm) offers hardware-based power loss protection, while M.2 2280-D5-M (max height: 3.9mm) and M.2 2280-D2-M (max height: 3.6mm) provide firmware-based power loss protection.
4. The 7,680 GB capacity is rated for commercial temperature operation only (0°C to 70°C)
5. Under highest Sequential write value. May vary by density, configuration and applications.

Hot Items Ordering Information					
Product Line	Capacity[1]	Operating Temperature[2]	Power Loss Protection[3]	SED[4]	P/N
N651Si	240GB	-40°C to 85°C	Hardware + Firmware Based	-	FT240GP48APHBPI
N651Si	480GB	-40°C to 85°C	Hardware + Firmware Based	-	FT480GP48APHBPI
N651Si	960GB	-40°C to 85°C	Hardware + Firmware Based	-	FT960GP48APHBPI
N651Si	1920GB	-40°C to 85°C	Hardware + Firmware Based	-	FT1T92P48APHBPI
N651Si	240GB	-40°C to 85°C	Hardware + Firmware Based	√	FT240GP48APHBSI
N651Si	480GB	-40°C to 85°C	Hardware + Firmware Based	√	FT480GP48APHBSI
N651Si	960GB	-40°C to 85°C	Hardware + Firmware Based	√	FT960GP48APHBSI
N651Si	1920GB	-40°C to 85°C	Hardware + Firmware Based	√	FT1T92P48APHBSI

Hot Items Ordering Information					
Product Line	Capacity[1]	Operating Temperature[2]	Power Loss Protection[3]	SED[4]	P/N
N651Sc	240GB	0°C to 70°C	Hardware + Firmware Based	-	FT240GP48APHBPC
N651Sc	480GB	0°C to 70°C	Hardware + Firmware Based	-	FT480GP48APHBPC
N651Sc	960GB	0°C to 70°C	Hardware + Firmware Based	-	FT960GP48APHBPC
N651Sc	1920GB	0°C to 70°C	Hardware + Firmware Based	-	FT1T92P48APHBPC
N651Sc	240GB	0°C to 70°C	Hardware + Firmware Based	√	FT240GP48APHBSC
N651Sc	480GB	0°C to 70°C	Hardware + Firmware Based	√	FT480GP48APHBSC
N651Sc	960GB	0°C to 70°C	Hardware + Firmware Based	√	FT960GP48APHBSC
N651Sc	1920GB	0°C to 70°C	Hardware + Firmware Based	√	FT1T92P48APHBSC
N651Si	240GB	-40°C to 85°C	Firmware Based	-	FT240GP48APHBFI
N651Si	480GB	-40°C to 85°C	Firmware Based	-	FT480GP48APHBFI
N651Si	960GB	-40°C to 85°C	Firmware Based	-	FT960GP48APHBFI
N651Si	1920GB	-40°C to 85°C	Firmware Based	-	FT1T92P48APHBFI
N651Si	3840GB	-40°C to 85°C	Firmware Based	-	FT3T84P48APHBFI
N651Si	240GB	-40°C to 85°C	Firmware Based	√	FT240GP48APHBYI
N651Si	480GB	-40°C to 85°C	Firmware Based	√	FT480GP48APHBYI
N651Si	960GB	-40°C to 85°C	Firmware Based	√	FT960GP48APHBYI
N651Si	1920GB	-40°C to 85°C	Firmware Based	√	FT1T92P48APHBYI
N651Si	3840GB	-40°C to 85°C	Firmware Based	√	FT3T84P48APHBYI
N651Sc	240GB	0°C to 70°C	Firmware Based	-	FT240GP48APHBFC
N651Sc	480GB	0°C to 70°C	Firmware Based	-	FT480GP48APHBFC
N651Sc	960GB	0°C to 70°C	Firmware Based	-	FT960GP48APHBFC
N651Sc	1920GB	0°C to 70°C	Firmware Based	-	FT1T92P48APHBFC
N651Sc	3840GB	0°C to 70°C	Firmware Based	-	FT3T84P48APHBFC
N651Sc	240GB	0°C to 70°C	Firmware Based	√	FT240GP48APHBYC
N651Sc	480GB	0°C to 70°C	Firmware Based	√	FT480GP48APHBYC
N651Sc	960GB	0°C to 70°C	Firmware Based	√	FT960GP48APHBYC
N651Sc	1920GB	0°C to 70°C	Firmware Based	√	FT1T92P48APHBYC
N651Sc	3840GB	0°C to 70°C	Firmware Based	√	FT3T84P48APHBYC
N601Sc	240GB	0°C to 70°C	Firmware Based	-	AF240GSTJA-HBAXX
N601Sc	480GB	0°C to 70°C	Firmware Based	-	AF480GSTJA-HBAXX
N601Sc	960GB	0°C to 70°C	Firmware Based	-	AF960GSTJA-HBAXX
N601Sc	1920GB	0°C to 70°C	Firmware Based	-	AF1T92STJA-HBAXX
N601Sc	240GB	0°C to 70°C	Firmware Based	√	AF240GSTJA-HBBXX
N601Sc	480GB	0°C to 70°C	Firmware Based	√	AF480GSTJA-HBBXX
N601Sc	960GB	0°C to 70°C	Firmware Based	√	AF960GSTJA-HBBXX
N601Sc	1920GB	0°C to 70°C	Firmware Based	√	AF1T92STJA-HBBXX

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.

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

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ATP TAIWAN (HQ)
TEL: +886-2-2659-6368
sales-apac@atpinc.com

ATP USA
TEL: +1-408-732-5000
sales@atpinc.com

ATP EUROPE
TEL: +49-89-374-9999-0
sales-europe@atpinc.com

ATP JAPAN
TEL: +81-3-6260-0797
sales-japan@atpinc.com

ATP CHINA
TEL: +86-21-5080-2220
sales@cn.atpinc.com

ATP INDIA
sales-india@atpinc.com