acpl

PRODUCT CATALOG

Embedded Storage &
Memory Solutions

CONTENTS

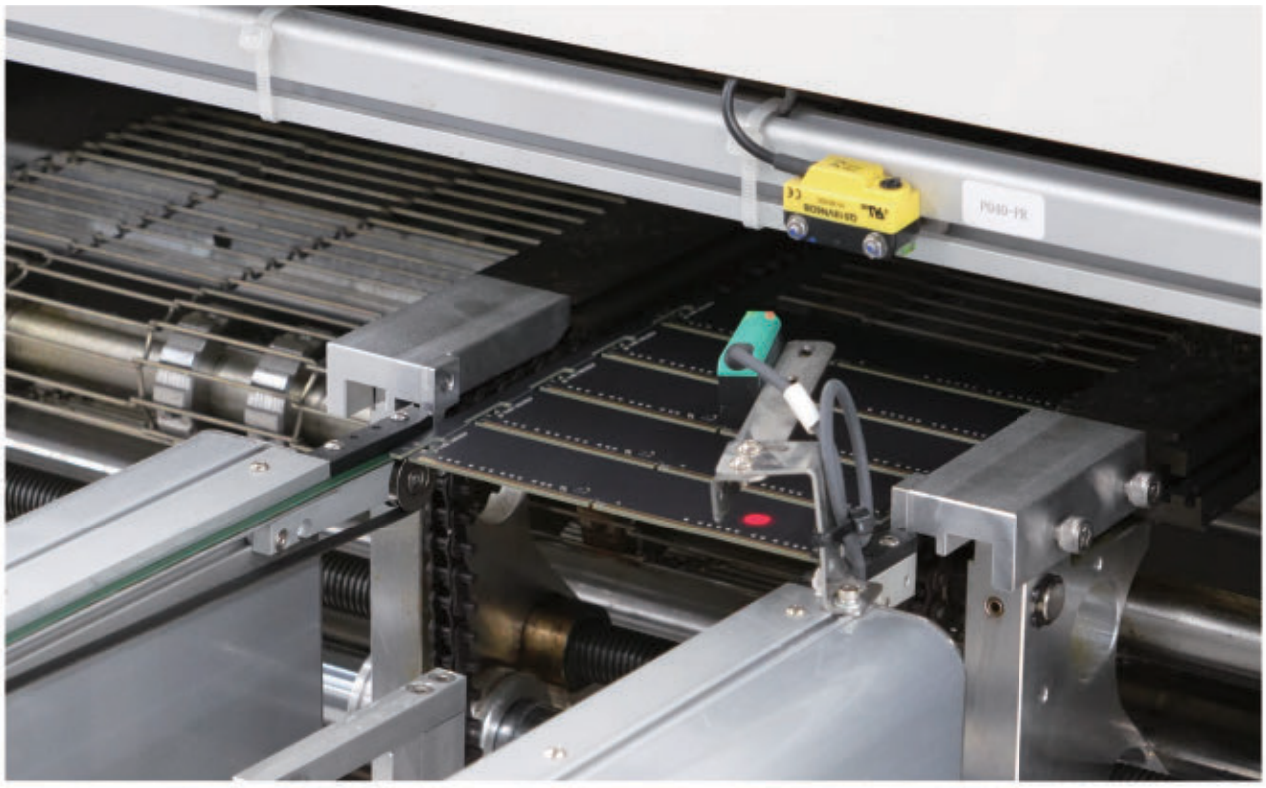
40 YEARS OF COMMITMENT TO EXCELLENCE IN TECHNOLOGY

About ACPI

ACPI is a prominent provider of flash storage devices tailored for industrial applications and embedded systems. Established in April 2003 and rebranded in 2011, ACPI has consistently focused on delivering top-quality products to the B2B market. With extensive expertise in NAND flash memory, we offer a diverse range of innovative solutions designed to meet the specific needs of various industries.

All ACPI products undergo rigorous qualification in our Compatibility Labs, ensuring they meet the highest standards of performance and reliability. Our products are tested and approved by Tier 1 motherboard manufacturers and other industry partners, reinforcing our commitment to quality.

At ACPI, we prioritize customer satisfaction by providing highly reliable products and tailored solutions, supported by professional services and skilled expertise. Our dedication to excellence ensures that we remain a trusted partner for businesses seeking dependable flash storage solutions.



OUR REACH

Headquartered in New Taipei City, Taiwan, Patriot Group builds its global network with a manufacturing center and an R&D center in Taiwan, regional offices in Fremont, California, USA, and Rotterdam, the Netherlands. We sell our products and provide services in more than 100 markets.

HQ / Manufacturing / R&D Center
New Taipei City, Taiwan

Regional Offices
Fremont (Americas)
Rotterdam (EMEA)
New Taipei City (APAC)

Products sold in more than
100+ countries

Staff worldwide
350 persons

Capital
USD 10 Million

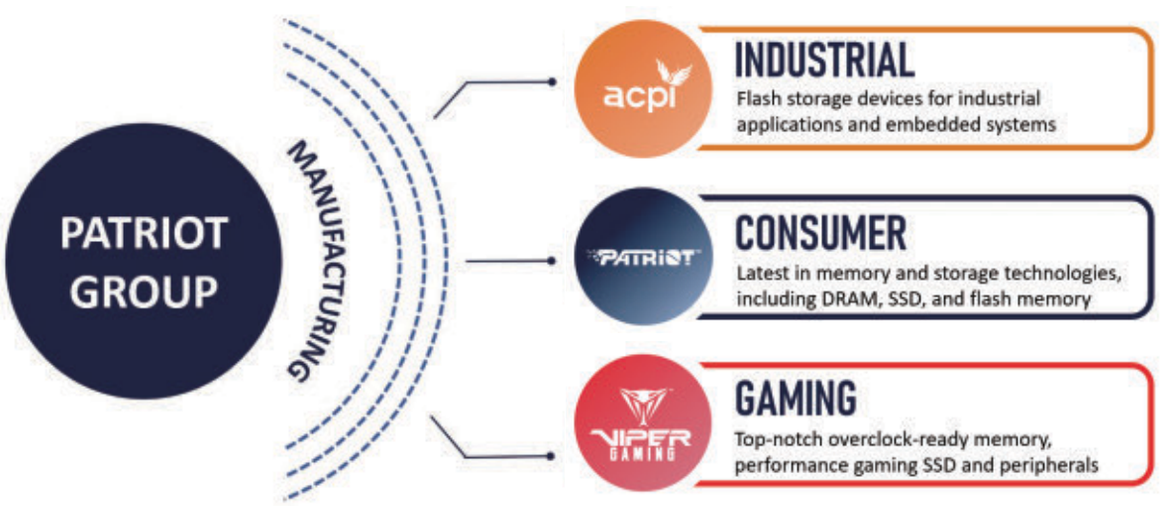
Regional Office Territory Sales

PATRIOT Group

ACPI is one of the leading brands under the umbrella of Patriot Group, a technology company founded in San Francisco, USA, in 1985. For over 40 years, Patriot Group has been at the forefront of technology innovation, delivering high-quality products and solutions that cater to the diverse needs of its customers. ACPI, a key brand within the Patriot Group, specializes in robust storage solutions for industrial applications, ensuring outstanding performance and reliability in challenging environments.

Patriot Group's unwavering dedication to quality and exceptional customer service has established it as a trusted name in the tech industry. Throughout its four-decade journey, the company has designed, developed, manufactured, and marketed high-performance memory and storage products that enhance data applications across multiple sectors.

As Patriot Group reflects on its impressive 40-year history, it remains focused on investing in research and development to keep its products at the cutting edge of technology. With a strong emphasis on quality and innovation, Patriot Group is well-positioned to continue meeting the evolving needs of its customers for many more years to come.



OUR ADVANTAGES

At our company, we deliver exceptional value through comprehensive offerings, manufacturing excellence, and customization capabilities. Our unique advantages set us apart in the competitive technology landscape:

Complete Product Portfolio

We offer an extensive range of products for consumer, gaming, embedded, SI, OEM, and ODM markets. Our one-stop service integrates R&D, manufacturing, and quality control in-house in Taiwan. This vertical integration ensures high quality standards throughout the product lifecycle, complemented by long-term product support.

Manufacturing Excellence

Our in-house manufacturing maintains optimal quality control at every production stage. We offer flexible batch production and customization with fixed BOM solutions, efficiently meeting varied customer needs. Strong relationships with core suppliers ensure reliable component sourcing, contributing to consistent product quality and availability.

Customization Capabilities

We provide flexible customization services tailored to individual needs, with an agile decision-making process to adapt quickly to market changes. Our dedicated R&D team develops custom solutions addressing specific challenges across various technology sectors, ensuring we meet unique customer requirements.

APPLICATIONS

ACPI provides a diverse range of DRAM and flash storage products that deliver high performance and reliability across various industrial applications, designed to meet the unique demands of multiple sectors while enhancing operational efficiency and ensuring data integrity.

Automotive Machines

ATM Machines

Cloud Computing

Workstations/ Data Servers

Digital Signage

Point of Sale Machines

Vending Machines

Medical Equipment

Military Computing

Mobile Devices

Panel PCs

Surveillance

Digital Video Recorders

Embedded Systems

Casino Gaming Machines

Hand-held Scanning Devices

Air Traffic Control Devices

Performance Notebooks

Edge AI

Edge AI applications necessitate efficient data processing at the source to facilitate real-time decision-making. This technology is increasingly deployed in smart cities, autonomous vehicles, and industrial automation, where low latency and high reliability are paramount.

Requirements:

- Limited bandwidth usage to minimize data transmission to central servers and conserve bandwidth
- Real-time data processing for immediate analytics that support timely decision-making
- Data integrity to ensure reliability and accuracy under varying environmental conditions

Solutions:

ACPI's industrial-grade flash storage solutions, such as the Enterprise SSD, are optimized for edge AI applications. These devices offer high endurance and low power consumption, making them ideal for deployment in challenging environments while ensuring fast data processing and reliability.

Industrial PC

Industrial PCs are utilized in various applications, from manufacturing to transportation, requiring durable and reliable storage solutions that can withstand harsh conditions. These systems need to operate continuously and efficiently to maintain productivity.

Requirements:

- Resistance to extreme temperatures, vibrations, and dust
- Data protection against power interruptions or system failures
- Long-term reliability with low maintenance needs

Solutions:

ACPI provides rugged flash storage options, such as the M.2 SATA / PCIe SSDs, specifically designed for industrial PCs. These products feature enhanced durability and data protection mechanisms, ensuring reliable operation in demanding environments while minimizing downtime.

Medical Equipment

Medical equipment relies on high-performance storage solutions to manage critical patient data, imaging, and monitoring systems. These devices must operate reliably in demanding environments, ensuring data integrity and quick access to information for healthcare professionals.

Requirements:

- High data reliability and integrity to protect sensitive patient information
- Fast read/write speeds to facilitate real-time data processing and imaging
- Robustness to withstand various environmental conditions, including temperature fluctuations and potential vibrations

Solutions:

ACPI provides a range of flash storage devices specifically designed for medical applications, including the CFast and Compact Flash (CF) cards. These solutions are engineered to meet stringent industry standards, offering high endurance and reliability. With features such as the Power Shield function, ACPI ensures data protection during power outages, making our products ideal for critical medical environments where data integrity is paramount.

Fleet Management

Embedded systems are crucial for fleet management, enhancing vehicle monitoring and performance analysis. By utilizing advanced flash storage solutions, these systems ensure reliable real-time data collection. This technology empowers fleet managers to access critical information, enabling informed decisions that improve operational efficiency and safety, even in challenging environments.

Requirements:

- Real-time data storage for immediate access to critical fleet information
- Wide temperature tolerance for reliable operation in various environments
- Durability against physical stress to withstand harsh conditions
- Data integrity features to ensure accurate and reliable data collection
- Compact form factor for easy integration into fleet vehicles

Solutions:

For fleet management applications, ACPI's flash storage and memory card solutions provide high-performance data storage and processing capabilities. Designed to operate reliably in extreme conditions with a wide temperature range of -40°C to +85°C, these products ensure data integrity during power interruptions. Utilizing these robust storage options enhances fleet management capabilities, improving operational efficiency and reducing downtime.

Wheel Alignment Machines

Wheel alignment machines are essential tools in the automotive industry, ensuring that vehicles' wheels are set to the optimal angles for proper handling, tire wear, and overall performance. Embedded systems play a crucial role in these machines, providing precise measurements, real-time data processing, and seamless integration with other diagnostic tools.

Requirements:

- High precision sensors
- Real-time data processing
- Durability and reliability
- High-performance memory

Solutions:

ACPI offers high-performance industrial DRAMs and embedded systems designed to meet the rigorous demands of wheel alignment machines. Our solutions provide reliable and efficient memory for real-time data processing and storage, ensuring accurate measurements and seamless operation. With a wide temperature range of -40°C to 80°C, our products are built to withstand harsh workshop environments, ensuring durability and reliability in all conditions.

Rugged Mission Systems

Rugged Mission Systems are designed to operate under the harshest conditions, ensuring mission-critical operations are conducted smoothly and efficiently. These systems provide unwavering reliability and top-tier performance, making them indispensable in challenging environments where failure is not an option.

Requirements:

- Withstands physical stress and rough handling
- Operates in extreme climates with wide temperature tolerance
- Ensures high data integrity and reliability
- Offers secure and fast data access
- Compact design for rugged environments

Solutions:

ACPI provides PCIe Gen4 x4 SSDs for exceptional performance and rapid data transfer, ensuring swift access to critical data. Our DDR4 and DDR5 SODIMMs offer reliable, high-speed memory for efficient operations. Both solutions are built for durability and reliability, maintaining data integrity in extreme conditions.

Casino Gaming

Casino gaming systems demand high-performance storage solutions to efficiently manage the extensive data generated by gaming machines, player tracking systems, and transaction processing. Reliable flash storage is essential for maintaining seamless operations and delivering an exceptional gaming experience.

Requirements:

- Data integrity and security that protect sensitive information
- Low latency that enhances game performance and provides a smooth user experience
- Rapid data retrieval and processing capabilities that ensure uninterrupted gameplay during peak hours

Solutions:

ACPI offers robust flash storage devices designed for casino gaming environments, including the USB flash disc, which provide high read/write speeds and enhanced reliability. These solutions ensure seamless operation and quick access to critical data, helping casinos maintain a competitive edge.

POS Machines

Point of Sale (POS) machines are critical components in retail environments, enabling transactions, inventory management, and customer engagement. These systems require fast and reliable storage solutions to ensure seamless operations and enhance the customer experience.

Requirements:

- High-speed data processing to handle multiple transactions simultaneously
- Robust data security to protect sensitive customer information
- Reliability to minimize downtime and ensure continuous operation

Solutions:

ACPI provides a range of flash storage devices specifically designed for POS applications, including the mSATA SSDs. These solutions offer high read/write speeds and exceptional durability, ensuring that POS systems operate efficiently even during peak hours. With features like data protection mechanisms and power loss protection, ACPI's products help retailers maintain data integrity and enhance overall system reliability.

OUR PRODUCT PORTFOLIO

ACPI offers a versatile range of flash storage products designed to meet the diverse needs of industrial applications. Our flash storage solutions include various form factors such as M.2 PCIe, SATA DOM, and others, ensuring compatibility with a wide array of systems. Additionally, we provide memory cards like CFexpress and CFast, which are specifically engineered to deliver high performance and reliability in demanding environments. This comprehensive selection allows ACPI to effectively address the unique requirements of different industrial sectors.

FLASH STORAGE

DRAM MODULES

USB PEN DRIVES

MEMORY CARDS

Product Offerings

Flash Storage	Memory Cards	DRAM Modules
M.2 PCIe	CFAST	Standard Solution (CKD DIMM / SO-DIMM / U-DIMM)
M.2 SATA III	CF Card / CFexpress	Server / Work Station Solution (SO-DIMM / U-DIMM)
2.5" SATA III	SD Card	
Half Slim	microSD	
mSATA		
SATA DOM		
USB Pen Drives		
U.2		
E1.S		

KEY TECHNOLOGIES

At ACPI, technological innovation is at the heart of our commitment to developing advanced products that meet the diverse needs of various applications and industries. By leveraging cutting-edge technologies, we strive to push the boundaries of performance and reliability, ensuring that our solutions not only address current challenges but also anticipate future demands.

BiCS8

With the advent of Hybrid Bonding (HB) technology, NAND Flash manufacturers are introducing BiCS8 3D TLC NAND, which offers improved performance and memory density. BiCS8 allows stacking up to 218 layers, and the CBA (CMOS Directly Bonded to Array) method enables separate manufacturing of CMOS and cell array wafers before bonding, resulting in better bit density and faster NAND I/O speeds.

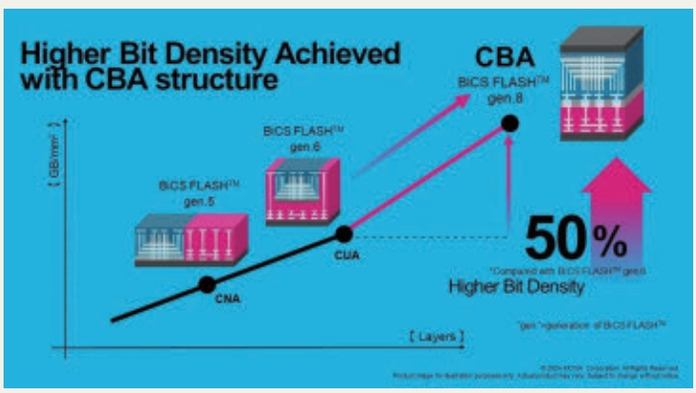
ACPI's adoption of BiCS8 technology enhances capacity, performance, power efficiency, and cost-effectiveness for superior products.

Key Benefits

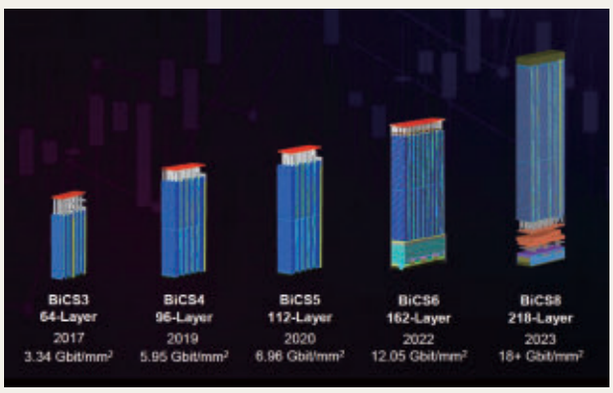
1. **Increased Memory Density:** Higher storage capacity in a compact design.
2. **Improved Performance:** Faster read and write speeds for enhanced responsiveness.
3. **Power Efficiency:** Reduced energy consumption for battery-operated devices.
4. **Cost-Effectiveness:** Advanced manufacturing techniques lower production costs.

Applications

- Data centers
- Consumer electronics
- Automotive systems
- Industrial automation
- Medical devices
- Aerospace and defense



Source: KIOXIA



Source: Western Digital

100K P/E Cycles: Enhanced Flash Storage Durability

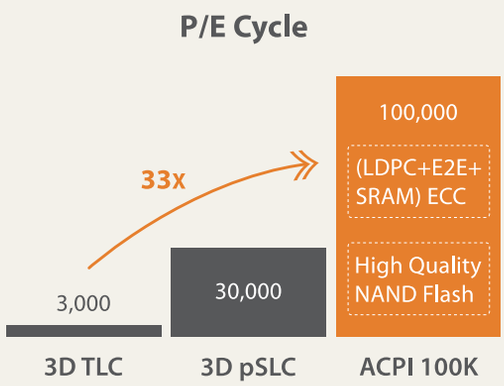
The 100K P/E Cycles technology boosts flash memory endurance by integrating pseudo-Single Level Cell (pSLC) technology with 3D Triple-Level Cell (TLC) NAND Flash. ACPI's custom firmware allows the flash memory to achieve 100,000 Program-Erase (P/E) cycles, significantly surpassing typical NAND flash. This advancement extends the lifespan and reliability of flash storage devices while remaining cost-effective. By combining the durability of SLC with the affordability of TLC NAND Flash, ACPI delivers superior endurance without sacrificing value.

Key Benefits

1. **Extended Lifespan:** 100,000 P/E cycles significantly increase flash storage device durability.
2. **High-Intensity Data Handling:** Ideal for applications requiring frequent data updates and exchanges.
3. **Sustained Performance:** Maintains consistent performance over time, even for demanding applications.
4. **Operational Reliability:** Ensures dependable performance in critical operational environments.

Applications

- Casino gaming
- Industrial IoT devices
- Edge computing systems
- 5G infrastructure
- Smart city applications
- Data center



Form Factor	Interface / Connector	Model Name	Capacity
M.2 2280	SATA / B+M key	M2SCT-8F	16GB~256GB
	PCIe / M key	M2PDCII-8F	32GB~256GB
SATA DOM	SATA DOM vertical + housing	SDM0TU-VF	32GB~128GB
	SATA DOM horizontal	SDM0TU-HRF / SDM0TU-HLF	32GB~128GB

7pin Self-Power Technology: Streamlined Power Delivery for Compact Systems

The SATA DOM 7pin Self-Power Technology marks a major advancement in Disk-on-Module (DOM) storage design. By using Pin 7 on the SATA connector to deliver power directly to the storage device, this technology eliminates the need for extra power cables. This simplification streamlines installation and creates a more compact design, improving airflow within the system's enclosure and reducing potential cable-related issues.

Key Benefits

1. **Compact Design:** Eliminates the need for separate power cables, allowing for a more streamlined and compact system.
2. **Enhanced Airflow:** Improves system cooling by reducing cable clutter within the enclosure.
3. **Simplified Installation:** Facilitates easier and quicker installation with fewer components.
4. **Space Efficiency:** Frees up space on the motherboard, which is particularly beneficial in industrial applications.
5. **Improved Reliability:** Reduces the risk of power-related issues, enhancing overall device stability.

Applications

- Embedded systems
- Industrial automation
- Networking equipment
- Point-of-Sale (POS) systems
- Digital signage
- IoT devices

Form Factor	SATA DOM
Interface / Connector	SATA III / 7pin
Model Name	SDM0TU
Capacity	128GB~1TB

Pin #	Name	Function	Remark
Pin1	GND	Ground	SATA Standard
Pin2	A+	Transmit+	
Pin3	A-	Transmit-	
Pin4	GND	Ground	
Pin5	B-	Receive-	
Pin6	B+	Receive+	
Pin7	GND	Ground	
	VCC(+5V)	Power	7Pin VCC

Power Shield Technology

ACPI's Power Shield technology protects internal NAND flash data during sudden power outages, preventing loss, corruption, or device failure. It activates when external voltage drops to a critical level, using the internal voltage detection circuit (VDT) to stop new write commands to the flash memory.

With up to 220 milliseconds of power protection time, Power Shield allows data in the SSD's DRAM to complete its write cycle to flash storage, enhancing data integrity and reinforcing the reliability of ACPI's solutions in critical applications.

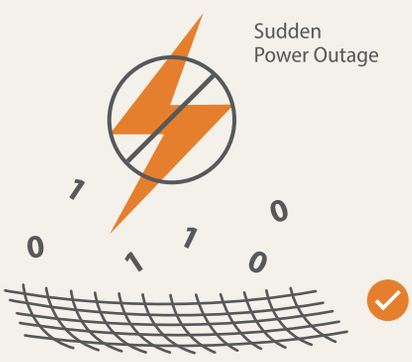
Key Benefits

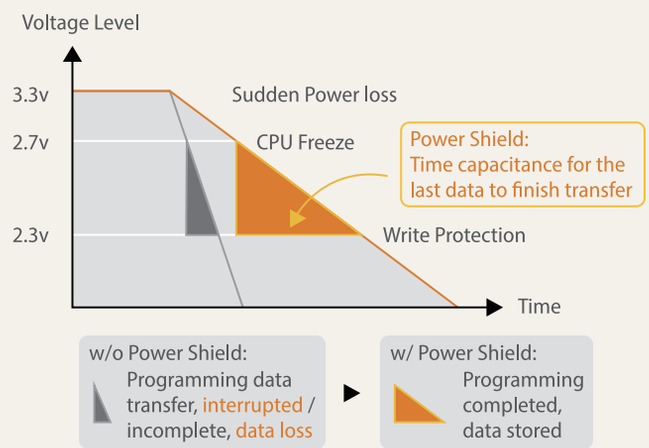
1. **Enhanced Power Efficiency:** Optimizes power consumption for battery-operated devices, extending battery life and lowering energy costs.
2. **Improved Thermal Management:** Generates less heat, enhancing thermal behavior and reducing cooling requirements.
3. **Cost Reduction:** Minimizes the need for larger batteries and power supplies, leading to smaller and more affordable products.
4. **Increased Reliability:** Reduces wear on components, improving longevity and reliability.
5. **Noise Reduction:** Quieter operation due to fewer moving parts and less reliance on active cooling.

Applications

- Industrial automation
- Medical devices
- IoT devices
- Automotive systems
- Consumer electronics

By utilizing Power Shield, embedded systems and industrial solutions achieve significant advancements in power efficiency, cost savings, and reliability, enhancing their competitiveness in the market.





Conformal Coating

ACPI's products feature advanced protection against moisture, corrosion, and stiction, utilizing 3M's Electronic Grade Coating (EGC) solution. This high-performance coating offers exceptional repellency with an IPX3 rating, effectively shielding components from liquids like water, hydrocarbons, silicones, and photoresists. By enhancing reliability and extending device life, the conformal coating ensures that your embedded systems operate effectively in challenging environments.

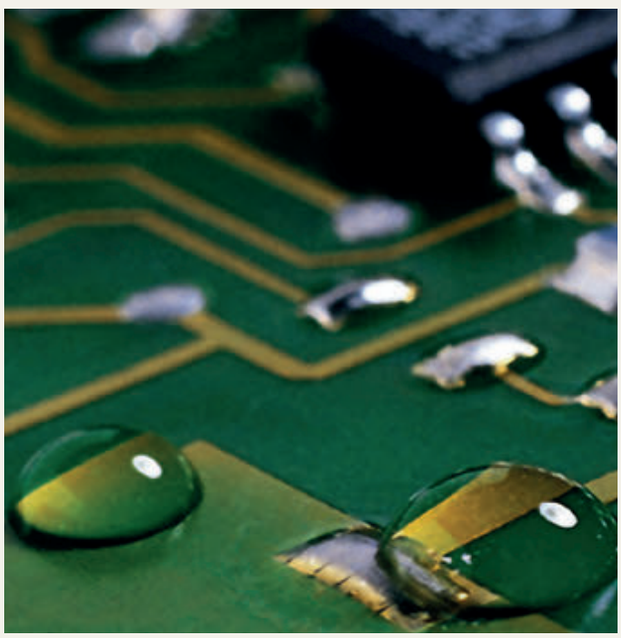
Additionally, the coating solution is environmentally friendly, with low volatile organic compounds (VOCs), is non-ozone depleting, and fully complies with RoHS standards.

Key Benefits

1. **Superior Protection:** Safeguards against moisture, corrosion, and stiction, ensuring long-lasting performance.
2. **Enhanced Reliability:** Increases product reliability and extends the lifespan of devices.
3. **Environmental Compliance:** Low VOCs, non-ozone depleting, and RoHS compliant, making it an eco-friendly choice.
4. **Liquid Repellency:** Provides excellent repellency with an IPX3 rating against various liquids.
5. **Versatile Application:** Suitable for a wide range of environments and conditions.

Applications

- Embedded systems
- Industrial automation
- Networking equipment
- Point-of-Sale (POS) systems
- Digital signage
- IoT devices



Global Wear-Leveling

As NAND Flash technology advances, P/E cycle time remains crucial for device lifespan. While 3D stacking addresses capacity, wear-leveling technology ensures even usage of NAND Flash blocks, maximizing longevity and reliability.

Dynamic Wear-Leveling balances available space, while Static Wear-Leveling considers both spare and occupied blocks. ACPI's Global Wear-Leveling Technology optimizes algorithms across multiple Flash chips.

The Wear-Leveling Table in built-in RAM tracks the erase count of each block. When a wear-leveling threshold is reached, the system swaps static and overused blocks, utilizing spare blocks as needed. This technology allows storage devices to adapt to various usage scenarios, enhancing the overall lifespan and reliability of Flash devices.

Key Benefits

1. **Extended Lifespan:** Maximizes Flash device lifespan by evenly distributing wear.

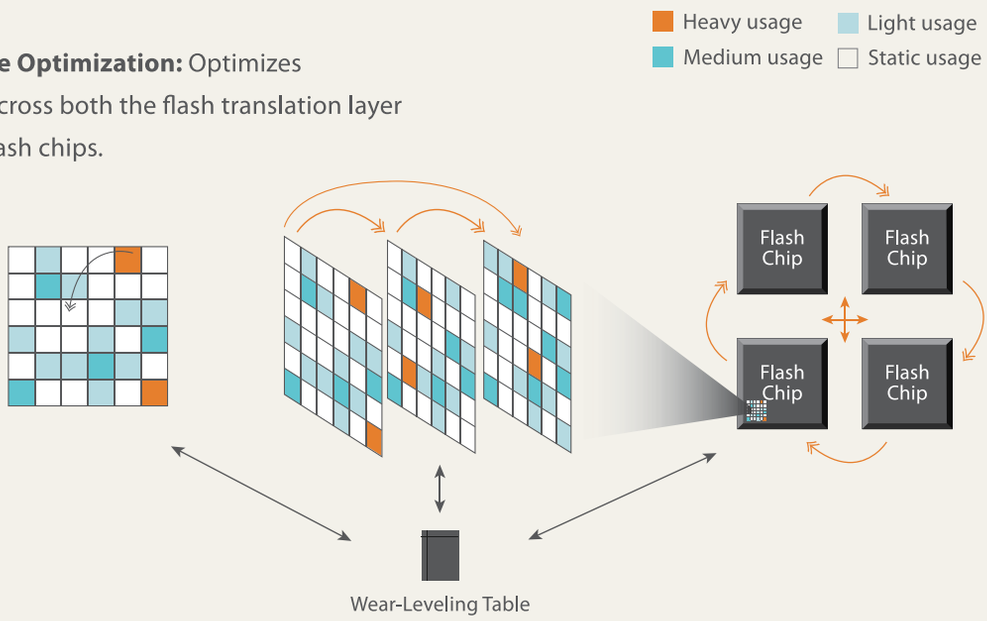
2. **Enhanced Reliability:** Improves overall device reliability through advanced wear-leveling algorithms.

3. **Versatile Adaptability:** LAdapts to different usage scenarios with fine-tuned wear-leveling thresholds.

4. **Comprehensive Optimization:** Optimizes wear-leveling across both the flash translation layer and multiple Flash chips.

Applications

- High-endurance storage solutions
- Enterprise servers
- Automotive systems
- Medical devices
- Aerospace and defense
- Consumer electronics

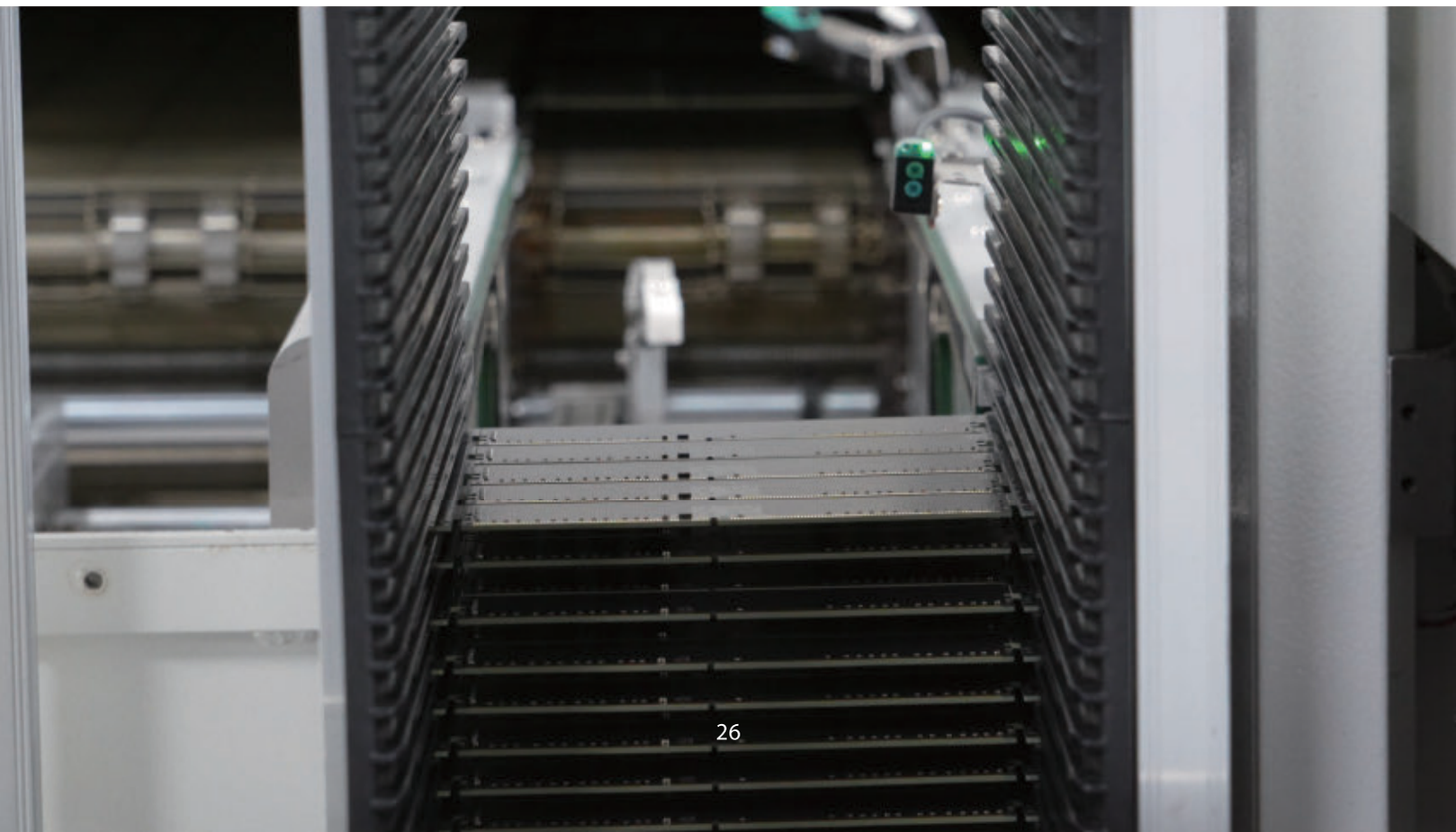


PRODUCT KEY FEATURES

ACPI emphasizes the core attributes that define our technology features, encapsulated in the following key elements: **Reliability, Endurance, Security**, and **Toughness**.

- **Reliability** ensures consistent product performance across various conditions, providing users with peace of mind.
- **Endurance** highlights the longevity of our devices, designed to withstand daily use without sacrificing performance.
- **Security** underscores our commitment to safeguarding user data and maintaining system integrity against potential threats.
- **Toughness** reflects the durability of our products, engineered to thrive in harsh environments and demanding applications.

Together, these elements form the foundation of our technology, enabling us to deliver solutions that meet the highest standards of performance and dependability. With these core attributes, you can trust that our products are crafted for excellence.



Reliability

Power Shield
ACPI's Power Shield protects NAND flash data during power outages, keeping it updated and secure. This feature prevents device failure and improves system reliability.

S.M.A.R.T.
Self-Monitoring, Analysis and Reporting Technology (S.M.A.R.T.) monitors drive health and issues. ACPI's Flash Health Monitors software provides an intuitive interface for tracking Flash device health, allowing users to prepare for data backups.

ECC
ECC (Error Correcting Code) memory is crucial for data integrity. It corrects single-bit memory errors, ensuring reliable performance and minimizing data corruption in critical applications like finance and research.

External DRAM Cache
The External DRAM Cache boosts system performance by acting as a high-speed buffer between the processor and memory. This reduces latency and improves data access speeds, ideal for resource-intensive applications.

Shock & Vibration Resistant
ACPI's products withstand extreme shock and vibration, ensuring reliable performance in harsh environments. They handle vibrations up to 20G Peak at 7-2,000Hz and shocks up to 1,500G in 0.5ms.

Reliability
Security

Security

TCG Opal 2.0 & AES
TCG (Trusted Computing Group) defines international protocols for encrypting Solid State Drives (SSDs) using TCG Opal 2.0 standards. AES (Advanced Encryption Standard) is a leading encryption algorithm that protects sensitive data through symmetric key encryption.

Write Protection
Write protection prevents data modification or deletion on storage devices. By restricting write access, it safeguards important information from unauthorized changes, ensuring data integrity and security.

Endurance

pSLC

pSLC (Pseudo-Single Level Cell) technology enhances NAND flash by using MLC or TLC cells to store one bit per cell, mimicking SLC behavior. This improves read/write speeds and endurance.

Global Wear Leveling

Global wear leveling in SSDs evenly distributes writes and erases across all cells, preventing premature wear and maximizing lifespan. This feature is crucial for maintaining performance and durability.

TRIM

The TRIM feature removes invalid data from SSD blocks, enhancing write performance by preemptively erasing them. This ensures optimal write speeds and allows new data to be written without delays from erase commands.

Endurance

Toughness

Toughness

Wide Temperature

Wide temperature devices operate reliably in extreme environments, functioning from -40°C to 85°C. Their robust design ensures stable performance and data integrity, making them ideal for industrial applications.

Conformal Coating

Conformal coating is a protective layer of polymer film applied to electronic components like PCBs. It guards against moisture, dust, and corrosion, enhancing durability and reliability.

FLASH STORAGE FEATURE COMPARISON MATRIX

	SSD						Card			DOM	USB Pen Drive
	Enterprise	PCIe	SATA	2.5"	Slim	mSATA	CF	CFast	CFexpress	SATA	
	EU2H1 EU2H2 EDSJ2	M2PDH M2PDG M2PDQ M2PDCII M2PDD M2PCR M2PCRII XM2P4I1 XM2N4M4 XM2N3I2 XM2N3M3	M2SCF M2SCFIV M2SCQ M2SCQII M2SCR M2SCT XM2S3MI	SED2FIII SED2FIV SED2QII SED2T XSDS3M1	HSS2F HSS2T	MSS4FIV MSS4FV MSS4Q MSS4T	ECF7D ECF71 ECF7J ECF7K	CFS3F CFS3FIII CFS3FIV	CFEF2 CFEF3	SDM0CU SDM0F SDM0FIII SDM0Q SDM0QU SDM0TU	UFP94 UFP98
Shock & Vibration Resistant	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
85 -40 Wide Temperature	✓	△	△	△	△	△	✓	✓	✗	△	△
MTBF	✓	✓	✓	✓	✓	✓	✗	✓	✓	✓	✓
External DRAM Cache	✗	△	△	△	△	△	✗	✗	✗	✗	✗
TRIM	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✗
S.M.A.R.T.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✗
Power Shield	✓	△	△	△	✗	△	△	△	✗	△	✗
Write Protection	✗	△	△	✗	✗	△	✓	△	✗	△	✗
SLC	✗	✗	✗	△	△	△	✓	△	✗	△	✗
MLC	✗	△	△	△	△	△	△	✓	✗	△	✗
pSLC	✗	✗	△	△	△	△	△	✓	✗	△	✗
3D TLC	✓	✓	△	△	△	△	✗	✗	✓	△	✓
3D pSLC	✗	△	△	△	✗	△	✗	✗	✗	✗	✗

✓ Default △ Partial Support ✗ Not Avilable

FLASH STORAGE

ACPI's proficiency in NAND Flash memory technology ensures the robustness and stability of its industrial-grade Flash Storage products. The products are available in a variety of flash memory form factors such as M.2, 2.5" SSDs, Half Slim, mSATA, SATA-DOM, PATA-DOM, USB-DOM, and USB Pen Drives, each designed to perform seamlessly in demanding environments. These Flash Storage products are well-suited for embedded systems with space constraints across a range of industries, including mobile computing, fanless systems, transportation, and gaming machines.

Enterprise SSD

ACPI's Enterprise SSD series is available for U.2 & E1.S form factor, ensuring low latency and high capacity with advanced power loss protection.
The Enterprise SSD series is designed with a PCIe interface and eTLC NAND Flash. This series supports PCIe Gen4 x4 and Gen5 x4, offering high reliability and endurance through multi-level adjustable power consumption.

U.2

Shock & Vibration Resistant | MTBF | TRIM | S.M.A.R.T.

FEATURES

- PCIe Gen4 (16Gb/s) x4 lane
- NVMe 1.4a register interface and sanitize command supported
- Flash Raid 2.0, supporting multiple die failure without affecting service and performance
- Advanced power loss protection
- Enterprise features, end to end data protection, VSS, Multi namespace, NVMe MI, etc.
- Multi-level adjustable power consumption

Model Name	EU2H1-BL
NAND Flash Type	3D eTLC
Interface	PCIe Gen4 x4
Connector Type	U.2
Capacity	1.92TB~15.36TB
Bytes per Sector	512Byte
Sequential R/W Performance (Max.)	7400/6400 MB/s
Operating Temp.	NT: 0°C~70°C
Dimension (LxWxH)	100.2x69.85x14.8mm
Warranty	3 Years (Limited)
Vibration (Operating)	2.17Grms (5~700Hz)

Shock & Vibration Resistant | MTBF | TRIM | S.M.A.R.T.

FEATURES

- Compliance with PCIe Gen5 x4
- Supports latest NVMe 2.0 key features
- Advanced power loss protection
- Enterprise features, end to end data protection, VSS, Multi namespace, NVMe MI, etc.
- Multi-level adjustable power consumption
- Supports DST, NVMe Sanitize, Secure Boot and other enterprise-level security features to ensure system and data security.
- Supports Advanced Encryption Standard (AES) and
- Trusted Computing Group (TCG) Opal protocol
- RFQ by demand

Model Name	EU2H2-BL
NAND Flash Type	3D eTLC
Interface	PCIe Gen5 x4
Connector Type	U.2
Capacity	3.84TB~15.36TB
Bytes per Sector	512Byte
Sequential R/W Performance (Max.)	14000/6300 MB/s
Operating Temp.	NT: 0°C~70°C
Dimension (LxWxH)	100.2x69.85x14.8mm
Warranty	3 Years (Limited)
Vibration (Operating)	2.17Grms (5~700Hz)

E1.S

Shock & Vibration Resistant | MTBF | TRIM | S.M.A.R.T.

FEATURES

- Compliance with PCIe Gen5 x4
- Supports latest NVMe 2.0 key features
- Supports online upgrade, upgrade process less than 1s impact on IO
- Advanced power loss protection
- Enterprise features, end to end data protection, VSS, Multi namespace, NVMe MI, etc.
- Multi-level adjustable power consumption
- Supports DST, NVMe Sanitize, Secure Boot and other enterprise-level security features to ensure system and data security
- RFQ by demand

Model Name	EDSJ2-L
NAND Flash Type	3D eTLC
Interface	PCIe Gen5 x4
Connector Type	E1.S
Capacity	3.84TB ~ 7.68TB
Bytes per Sector	512Byte
Sequential R/W Performance (Max.)	14000/4800 MB/s
Operating Temp.	NT: 0°C~70°C
Dimension (LxWxH)	118.75x33.75x9.5mm
Warranty	3 Years (Limited)
Vibration (Operating)	2.17Grms (5~700Hz)

M.2

ACPI's M.2 series is available for both PCIe and SATA devices, ensuring low power consumption and efficient heat dissipation that maximizes reliability and endurance.

The M.2 PCIe series is designed with a PCIe interface and TLC NAND Flash in the standard M.2 form factor, offering high reliability and endurance through advanced error detection and correction (ECC) functions. This series supports PCIe Gen3 x4 and Gen4 x4 and is compliant with NVMe 1.3 and NVMe 1.4.

M.2 PCIe (NVMe) Gen4 x4

Shock & Vibration Resistant | MTBF | TRIM | S.M.A.R.T.

FEATURES

- PCIe Gen4 (16Gb/s) x4 lane with L1.2 support
- Compliant with PCIe Express 4.0 NVMe 1.4 register interface and command set
- Supports DDR4/DDR4L External DRAM Buffer
- Performance-optimized LDPC engine provides maximum error correction capability for 3D TLC
- SECDED SRAM ECC error handling and prevention on major memory buffers
- TCG Opal compliant (optional)

Model Name	M2PDH-8L
NAND Flash Type	3D TLC
Interface	PCIe Gen4 x4
Connector Type	M.2 Module notch M
Capacity	512GB~2TB
Bytes per Sector	512Byte
Sequential R/W Performance (Max.)	7430/6900 MB/s
Operating Temp.	NT: 0°C~70°C WT: -40°C ~ 85°C
Dimension (LxWxH)	80.0x22.0x3.5mm
Warranty	3 Years (Limited)
Vibration (Operating)	20G (7~2K, 3xes)
Power Shield	Yes
Write Protection	No

Shock & Vibration Resistant | MTBF | TRIM | S.M.A.R.T.

FEATURES

- PCIe Gen4 x4 lane
- Compliant with NVMe 2.0
- Single side SSD module
- HMB data path protection
- Innovative 4K+ LDPC engine
- Supports Self-Monitoring, Analysis, and Reporting Technology (S.M.A.R.T.)

Model Name	M2PDQ-8L
NAND Flash Type	3D TLC
Interface	PCIe Gen4 x4
Connector Type	M.2 Module notch M
Capacity	1TB~4TB
Bytes per Sector	512Byte
Sequential R/W Performance (Max.)	7400/6000 MB/s
Operating Temp.	NT: 0°C~70°C
Dimension (LxWxH)	80.0x22.0x3.8mm
Warranty	3 Years (Limited)
Vibration (Operating)	20G (7~2K, 3xes)
Power Shield	No
Write Protection	No

Shock & Vibration Resistant | MTBF | TRIM | S.M.A.R.T.

FEATURES

- PCIe Gen4 (16Gb/s) x4 lane with L1.2 support
- Compliant with PCIe Express Revision 4.0 NVMe 1.4 register interface and sanitize command supported
- Innovative 4K LDPC engine provides optimized error correction capacity
- Built-in AES-128/256 Encryption and TCG Opal compliant (optional)
- Supports Bad Blocks Management
- Supports Global Wear-leveling
- Thermal throttling is supported with configurable temperature

Model Name	M2PDG-4L
NAND Flash Type	3D TLC
Interface	PCIe Gen4 x4
Connector Type	M.2 Module notch M
Capacity	256GB~2TB
Bytes per Sector	512Byte
Sequential R/W Performance (Max.)	5250/4710 MB/s
Operating Temp.	NT: 0°C~70°C
Dimension (LxWxH)	42.0x22.0x3.8mm
Warranty	3 Years (Limited)
Vibration (Operating)	20G (7~2K, 3xes)
Power Shield	No
Write Protection	No

Shock & Vibration Resistant | MTBF | TRIM | S.M.A.R.T.

FEATURES

- PCIe Gen 4 16Gb/s interface with up to 4 lanes
- Compliant with PCIe Base Specification Revision 4.0
- Advanced flash management, including wear-leveling, bad block management, and over-provisioning
- Supports Admin and NVM Command Sets

Model Name	XM2P4I1-8T
NAND Flash Type	3D TLC
Interface	PCIe Gen4 x4
Connector Type	PCIe
Capacity	1TB~2TB
Bytes per Sector	512Byte
Sequential R/W Performance (Max.)	7400/6700 MB/s
Operating Temp.	NT: 0°C~70°C
Dimension (LxWxH)	80.0x22.0x3.8mm
Warranty	3 Years (Limited)
Vibration (Operating)	3.1 Grms peak, 2~500Hz

Shock & Vibration Resistant | MTBF | TRIM | S.M.A.R.T.

FEATURES

- PCIe Gen4 x4 lane
- Compliant with NVMe 2.0
- Supports PCIe L1.2 low power mode
- Supports Admin & NVM Command Set
- Supports Self-Monitoring, Analysis, and Reporting Technology (S.M.A.R.T)

Model Name	XM2N4M4-8TE
NAND Flash Type	3D TLC
Interface	PCIe Gen4 x4
Connector Type	M.2 Module notch M
Capacity	250GB~2000GB
Bytes per Sector	512Byte
Sequential R/W Performance (Max.)	7400/6000 MB/s
Operating Temp.	NT: 0°C~70°C
Dimension (LxWxH)	80.0x22.0x3.8mm
Warranty	3 Years (Limited)
Vibration (Operating)	20G (7~2K, 3xes)
Power Shield	No
Write Protection	No

M.2 PCIe (NVMe) Gen3 x4

Shock & Vibration Resistant | Wide Temperature (85 / -40) | MTBF | External DRAM Cache | TRIM | S.M.A.R.T. | Power Shield | Write Protection

FEATURES

- Supports real-time Full Disk Encryption (FDE) with Advanced Encryption Standard (AES)
- Supports Advanced LDPC (Low-Density Parity-Check) error correction technology for improved data accuracy and reliability
- RAID engine provides multi-page protection for NAND flash data
- Programmable driving strength to fit different types of NAND configurations

Model Name	M2PDD-8	M2PCRII-8
NAND Flash Type	3D TLC	
Interface	PCIe	
Capacity	512GB~2TB	64GB~1TB
Sequential R/W Performance (Max.)	3462/2899 MB/s	1926/1777 MB/s
External DRAM Cache	Yes	
Operating Temp.	WT: -40°C~85°C, NT: 0°C~70°C	
Dimension (LxWxH)	80.0x22.0x3.8mm	
Warranty	3 Years (Limited)	
Vibration (Operating)	20 G Peak, 7~2000Hz	
Power Shield	Yes	
Write Protection	Yes	No

Shock & Vibration Resistant | Wide Temperature | MTBF | TRIM | S.M.A.R.T.

FEATURES

- PCIe Gen3 (8Gb/s) x4 lane with L1.2 support
- Compliant with PCIe 3.1
- NVMe 1.3 register interface and command set
- Performance-optimized LDPC engine provides maximum error correction capability for 3D TLC
- SECDED2 SRAM ECC error handling and prevention on major memory buffers
- RAID engine provides multi-page protection for NAND flash data
- Programmable driving strength fits different types of NAND configurations

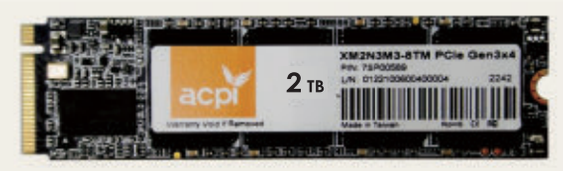
Model Name	**M2PDCII**
NAND Flash Type	3D TLC
Interface	PCIe Gen3 x4
Connector Type	M.2 Module notch M
Capacity	128GB~1TB
Sequential R/W Performance (Max.)	1926/1777 MB/s
External DRAM Cache	No
Operating Temp.	WT: -40°C~85°C, NT: 0°C~70°C
Dimension (LxWxH)	80.0x22.0x3.8mm
Warranty	3 Years (Limited)
Vibration (Operating)	20 G Peak, 7~2000Hz
Power Shield	No
Write Protection	No

Shock & Vibration Resistant | MTBF | TRIM | S.M.A.R.T.

FEATURES

- PCIe Gen3 (8Gb/s) x4 Lane with L1.2 support
- Compliant with PCIe 3.1
- NVMe 1.3 register interface and command set
- Performance-optimized LDPC engine provides maximum error correction capability for 3D TLC
- SECDED2 SRAM ECC error handling and prevention on major memory buffers
- RAID engine provides multi-page protection for NAND flash data
- Programmable driving strength fits different types of NAND configurations

Model Name	XM2P3I1-8T
NAND Flash Type	3D TLC
Interface	PCIe Gen3 x4
Connector Type	PCIe
Capacity	1TB~2TB
Bytes per Sector	512Byte
Sequential R/W Performance (Max.)	7400/6700 MB/s
Operating Temp.	NT: 0°C~70°C
Dimension (LxWxH)	80.0x22.0x3.8mm
Warranty	3 Years (Limited)
Vibration (Operating)	3.1 Grms peak, 2~500Hz



Shock & Vibration Resistant | MTBF | TRIM | S.M.A.R.T.

FEATURES

- PCIe Gen3 x4 lane
- Compliant with NVMe 1.3
- Supports PCIe L1.2 low power mode
- Supports Admin & NVM Command Set
- Supports Self-Monitoring, Analysis, and Reporting Technology (S.M.A.R.T.)

Model Name	XM2N3M3-8TM
NAND Flash Type	3D TLC
Interface	PCIe Gen3 x4
Connector Type	M.2 Module notch M
Capacity	128GB~2TB
Sequential R/W Performance (Max.)	3500/3000 MB/s
External DRAM Cache	No
Operating Temp.	NT: 0°C~70°C
Dimension (LxWxH)	80.0x22.0x3.8mm
Warranty	3 Years (Limited)
Vibration (Operating)	20G (7~2K, 3xes)
Power Shield	No
Write Protection	No

Shock & Vibration Resistant | MTBF | TRIM | S.M.A.R.T.

FEATURES

- PCIe Gen 3 8Gb/s Interface, up to 4 lanes
- Compliant with NVMe Express specification Rev.1.3
- Power Saving Modes
- Supports APST
- Supports L1.2 Mode
- Supports Admin & NVM Command Set

Model Name	XM2N3I2-8TM
NAND Flash Type	3D TLC
Interface	PCIe Gen3 x4
Connector Type	M.2 Module notch M
Capacity	256GB~1TB
Sequential R/W Performance (Max.)	3300/2700 MB/s
External DRAM Cache	No
Operating Temp.	NT: 0°C~70°C
Dimension (LxWxH)	80.0x22.0x3.8mm
Warranty	3 Years (Limited)
Vibration (Operating)	20G (7~2K, 3xes)
Power Shield	No
Write Protection	No

M.2 SATA III Series

FEATURES

- Supports ATA8 security feature set
- Supports data quick erase
- AES-128 and AES-256 support with CBC and XTS modes and hardware RNG
- CRC for additional reliability

Model Name	M2SCF / M2SCFII-4 / M2SCFIV	M2SCFIV-8
NAND Flash Type	MLC, pSLC	
Interface	SATAIII 6.0 Gb/s	
Connector Type	M.2 Module notch B+M	
Capacity	MLC: 16GB~256GB pSLC: 8GB~128GB	MLC: 64GB~512GB pSLC: 32GB~256GB
Sequential R/W Performance (Max.)	494/346 MB/s	500/421 MB/s
External DRAM Cache	Yes (Optional)	
Operating Temp.	WT: -40°C~85°C, NT: 0°C~70°C	
Dimension (LxWxH)	42.0x22.0x3.8mm	80.0x22.0x3.8mm
Warranty	3 Years (Limited)	
Power Consumption (Max.)	1.5W	2.432W
Power Shield	No	Yes
Write Protection	Yes	

FEATURES

- Supports data quick erase
- Hardware LDPC ECC engine with hard-decision and soft-decision decoding
- Early weak block retirement option
- Supports DDR3/DDR3L
- Excellent Power Shield function which can protect the integrity of the data write in case of a sudden power failure

Model Name	M2SCQII-4	M2SCQ-6	M2SCQ-8	M2SCR	M2SCT
NAND Flash Type	3D TLC, 3D pSLC			3D TLC	
Interface	SATAIII 6.0 Gb/s				
Connector Type	M.2 Module notch B+M				
Capacity (Max.)	3D TLC: 32GB~1TB 3D pSLC: 20GB~160GB	3D TLC: 32GB~1TB 3D pSLC: 20GB~320GB	3D TLC: 64GB~2TB 3D pSLC: 20GB~320GB	3D TLC: 256GB~2TB	3D TLC: 128GB~2TB
Sequential R/W Performance (Max.)	563/516 MB/s	558/510 MB/s	563/512 MB/s	550/463 MB/s	522/494 MB/s
External DRAM Cache	Yes (Optional)				No
Operating Temp.	WT: -40°C~85°C, NT: 0°C~70°C				NT: 0°C~70°C
Dimension (LxWxH)	42.0x22.0x3.8mm	60.0x22.0x3.8mm	80.0x22.0x3.8mm	2242: 42.0x22.0x3.8mm 2260: 60.0x22.0x3.8mm 2280: 80.0x22.0x3.8mm	2242: 42.0x22.0x3.8mm 2280: 80.0x22.0x3.8mm
Warranty	3 Years (Limited)				
Power Consumption (Max.)	2.362W				1W
Power Shield	Yes				No
Write Protection	No				

Shock & Vibration Resistant | MTBF | TRIM | S.M.A.R.T.

FEATURES

- SATA Revision 3.0; compatible with STAT 6 GB/S, 3 GB/S,1.5 GB/S interface rates
- ATA/ATAPI Command Set-3 (ACS-3Rev5)
- Includes SCT (Smart Command Transport) And device statistics log support
- Enhanced SMART ATA feature set
- Native Command Queuing (NCQ)
- Command set
- Data set management Trim Command (Windows 7 or above)
- Wear Leveling

Model Name	XM2S3M1-8TE
NAND Flash Type	3D TLC
Interface	SATA 6Gb/s
Connector Type	M.2 Module notch M
Capacity	128GB~1TB
Sequential R/W Performance (Max.)	550/500 MB/s
External DRAM Cache	No
Operating Temp.	NT: 0°C~70°C
Dimension (LxWxH)	80.0x22.0x3.8mm
Warranty	3 Years (Limited)
Vibration (Operating)	20G (7~2K, 3xes)
Power Shield	No
Write Protection	No

2.5" SATA III SSD

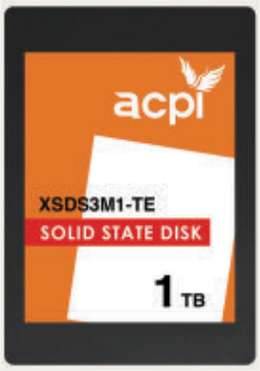
ACPI's SSD series prioritize reliability and stability through our expertise in NAND Flash memory technology. With SATA III interfaces providing high dependability against shock and vibrations, our SSDs are ideal for industrial applications and space-restricted embedded systems, including mobile computing devices, fanless systems, transportation systems, and gaming machines.

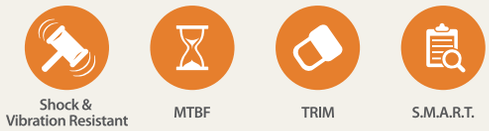
2.5" SATA III

FEATURES

- External DRAM cache buffer
- Management for long data retention
- Health Monitor Tool (customizable)
- Global wear-leveling and ECC
- Supports S.M.A.R.T. & Trim command
- Supports wide temperature

Model Name	SED2FIII	SED2FIV	SED2QII	SED2T
NAND Flash Type	MLC, pSLC	SLC, MLC, pSLC	3D TLC, 3D pSLC	
Interface	SATAIII 6.0 Gb/s			
Connector Type	7+15pin			
Capacity	MLC: 64GB~1TB pSLC: 32GB~512GB	SLC: 4GB~128GB MLC: 64GB~512GB pSLC: 32GB~256GB	3D TLC: 32GB~2TB 3D pSLC: 10GB~320GB	
Sequential R/W Performance (Max.)	525/415 MB/s	495/367 MB/s	563/521 MB/s	
Operating Temp.	WT: -40°C~85°C, NT: 0°C~70°C			NT: 0°C~70°C
Dimension (LxWxH)	100x69.85x7mm			
Warranty	3 Years (Limited)	SLC: 5Years (Limited) MLC / pSLC: 3 Years (Limited)	3 Years (Limited)	
Power Consumption (Max.)	4.5W	5W	6.4W	
Power Shield	Yes	No	Yes	
Write Protection	No			





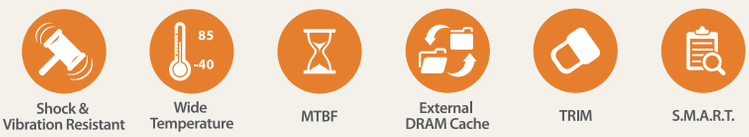
FEATURES

- SATA Revision 3.0; compatible with STAT 6 GB/S, 3 GB/S,1.5 GB/S interface rates
- ATA/ATAPI Command Set-3 (ACS-3Rev5)
- Includes SCT (Smart Command Transport) and device statistics log support
- Enhanced SMART ATA feature set
- Native Command Queuing (NCQ)
- Command set
- Data set management Trim Command (Windows 7 or above)
- Wear Leveling

Model Name	XSDS3M1-TE
NAND Flash Type	3D TLC
Interface	SATA 6Gb/s
Connector Type	7+15pin
Capacity	128GB~1TB
Sequential R/W Performance (Max.)	550/500 MB/s
External DRAM Cache	No
Operating Temp.	NT: 0°C~70°C
Dimension (LxWxH)	69.85mm x 100mm x 7mm
Warranty	3 Years (Limited)
Vibration (Operating)	20G (7~2K, 3xes)
Power Shield	No
Write Protection	No

HALF SLIM

Embedded Half Slim SSD Series



FEATURES

- JEDEC standard MO-297 dimension
- Noiseless and stable installation to system
- External DRAM cache buffer
- Global wear-leveling & ECC
- Management for long data retention
- Supports S.M.A.R.T. & Trim Command
- Health Monitor Tool (customizable)

Model Name	HSS2F	HSS2T
NAND Flash Type	SLC, MLC, pSLC	3D TLC
Interface	SATAIII 6.0 Gb/s	
Connector Type	SATA	
Capacity	SLC: 4GB~32GB pSLC: 4GB~64GB MLC: 8GB~128GB	3D TLC: 128GB~2TB
Sequential R/W Performance (Max.)	491/177 MB/s	553/480 MB/s
Operating Temp.	WT: -40°C~85°C, NT: 0°C~70°C	NT: 0°C~70°C
Dimension (LxWxH)	54.1x39.83x3.98mm	
Warranty	SLC: 5 Years (Limited) pSLC / MLC: 3 Years (Limited)	3 Years (Limited)
Vibration (Operating)	20 G Peak, 7~2000Hz	

mSATA

Embedded mSATA SSD Series

FEATURES

- External DRAM cache buffer
- Global wear-leveling & ECC
- Management for long data retention
- Supports S.M.A.R.T. & Trim Command
- Health Monitor Tool (customizable)
- Supports wide temperature

Model Name	MSS4FIV	MSS4FV	MSS4Q	MSS4T
NAND Flash Type	SLC, MLC, pSLC	MLC, pSLC	3D TLC, 3D pSLC	3D TLC
Interface	SATAIII 6.0 Gb/s			
Connector Type	mSATA			
Capacity	SLC: 4GB~32GB MLC: 8GB~128GB pSLC: 4GB~64GB	MLC: 64GB~512GB pSLC: 32GB~256GB	3D TLC: 32GB~2TB 3D pSLC: 20GB~320GB	128GB~2TB
Sequential R/W Performance (Max.)	485/300 MB/s	548/453 MB/s	560/510 MB/s	550/485 MB/s
External DRAM Cache	Yes (optional)			No
Operating Temp.	WT: -40°C~85°C, NT: 0°C~70°C			NT: 0°C~70°C
Dimension (LxWxH)	50.95x30x3.9mm			
Warranty	SLC: 5Years (Limited) MLC / pSLC: 3 Years (Limited)	3 Years (Limited)		
Power Consumption (Max.)	1.973W	2.976W	2.5W	1.15W
Power Shield	Yes			No
Write Protection	Yes			No

SATA DOM

ACPI provides industrial-grade SATA and PATA (IDE) DOM, undergoing extensive testing and offering extended temperature solutions to ensure operation under harsh environments. They are ideal solutions for ultra small embedded applications such as medical panel PCs, traffic control systems, rugged computers, and Point of Sale machines.

SATA DOM 1U SDM0CU Series

FEATURES

- High performance and 100% reliability
- Compliant with SATA II 3.0 Gb/s
- Operating as boot disk
- Global wear-leveling & ECC
- Supports bad block management
- Supports wide temperature

Model Name	1U SDM0CU Series
NAND Flash Type	SLC, MLC
Interface	SATAII 3.0 Gb/s
Connector Type	V: SATA 7 pin Vertical Type HL/HR: SATA 7 pin Horizontal Type
Capacity	SLC: 512MB~16GB MLC: 8GB~32GB
Sequential R/W Performance (Max.)	SLC: 42/35 MB/s MLC: 101/49 MB/s
Operating Temp.	WT: -40°C~85°C, NT: 0°C~70°C
Dimension (LxWxH)	V: 30.0x28.0x7.25mm HL/HR: 28.0x26.0x15.0mm
Warranty	SLC: 5 Years (Limited) MLC: 3 Years (Limited)
Power Consumption (Max.)	0.6W

SATA DOM SDM0F Series

SATA DOM SDM0FIII Series

Shock & Vibration Resistant | Wide Temperature (85 / -40) | MTBF | TRIM | S.M.A.R.T. | Power Shield | Write Protection

FEATURES

- Shell optional
- Supports SATA Revision 3.1
- ATA/ATAPI-8 and ACS-2 command set
- Supports Write Protection
- Supports Device Sleep (DevSleep)
- Supports S.M.A.R.T. & Trim command

FEATURES

- Supports Write Protection
- Supports SATA Revision 3.1
- Supports data quick erase
- Backward compatible with SATA1 (1.5Gb/s) and SATA2 (3Gb/s) interface
- Supports S.M.A.R.T. & Trim command

Model Name	SDM0F	SDM0FIII
Interface	SATA III 6.0 Gb/s	
Connector Type	SATA (7 pin)	
Capacity	SLC: 4GB~32GB MLC: 8GB~64GB pSLC: 4GB~32GB	MLC: 16GB~128GB pSLC: 32GB~64GB
Sequential R/W Performance (Max.)	349/101 MB/s	354/297 MB/s
Operating Temp.	WT: -40°C~85°C, NT: 0°C~70°C	
TRIM	Yes	
S.M.A.R.T. (Heath Monitor)	Yes	
MTBF	>2,000,000hrs	
Vibration (Operating)	20G Peak, 7~2000Hz	
Shock	1500G, 0.5ms	
Dimension (LxWxH)	V: 41.06x22.90x5.98mm HL/HR: 32.00x23.00x16.61mm	V: 41.06x16.86x6.10mm HL/HR: 32.33x14.86x18.85mm
Warranty	SLC: 5 Years (Limited) MLC / pSLC: 3 Years (Limited)	3 Years (Limited)
Power Consumption (Max.)	1.25W	1.6W
Power Shield	No	Yes
Write Protection	Yes	

SATA DOM SDM0QU / SDM0TU Series

Shock & Vibration Resistant | MTBF | TRIM | S.M.A.R.T. | Power Shield | Write Protection

FEATURES

- Shell optional
- Excellent Power Shield function, data integrity protected under the circumstances of sudden power outage
- ATA8 security feature set
- Data endurance enhanced by internal data shaping technique
- Supports Device Sleep (DevSleep)
- Supports S.M.A.R.T. & Trim command

Model Name	SDM0Q / SDM0QU	SDM0TU
Interface	SATA III 6.0 Gb/s	
Connector Type	SATA (7 pin)	
Capacity	3D TLC: 32GB~256GB	3D TLC: 128GB~512GB
Sequential R/W Performance (Max.)	520/478 MB/s	560/480 MB/s
Operating Temp.	NT: 0°C~70°C	
TRIM	Yes	
S.M.A.R.T. (Heath Monitor)	Yes	
MTBF	>2,000,000hrs	
Vibration (Operating)	20G Peak, 7~2000Hz	
Shock	1500G, 0.5ms	
Dimension (LxWxH)	V: 28.05x30.00x7.25mm HL: 26.01x27.80x17.75mm HR: 26.01x27.80x15.97mm	
Warranty	3 Years (Limited)	
Power Consumption (Max.)	1.595W	0.97W
Power Shield	Yes	No
Write Protection	Yes	No

USB PEN DRIVES

Shock & Vibration Resistant

MTBF

FEATURES

- Compliant with USB 3.2 Specification Rev 1.0
- Configurable ECC engine with correction capability
- Supports Windows ReadyBoost function
- Supports LED indicator to indicate the access status

Model Name	UFP94
NAND Flash Type	3D TLC
Interface	USB 3.2
Connector Type	USB 3.0 A Type
Capacity	32GB~512GB
Sequential R/W Performance (Max.)	155/100 MB/s
Operating Temp.	NT: 0°C~70°C
Dimension (LxWxH)	60.65x17.5x8.4mm
Warranty	3 Years
Vibration (Operating)	20G (7~2K, 3xes)

Shock & Vibration Resistant

MTBF

FEATURES

- Compliant with USB 3.2 Specification Rev 1.0
- Performance-optiimized LDPC engine
- End-to-end data path protection
- Low power consumption
- Thermal throttling is supported with configurable temperature

Model Name	UFP98
NAND Flash Type	3D TLC
Interface	USB 3.2
Connector Type	USB 3.1 A Type
Capacity	256GB~1TB
Sequential R/W Performance (Max.)	900/800 MB/s
Operating Temp.	NT: 0°C~70°C
Dimension (LxWxH)	73.0x17.5x8.4mm
Warranty	3 Years
Vibration (Operating)	20G (7~2K, 3xes)

SOFTWARE TOOLS

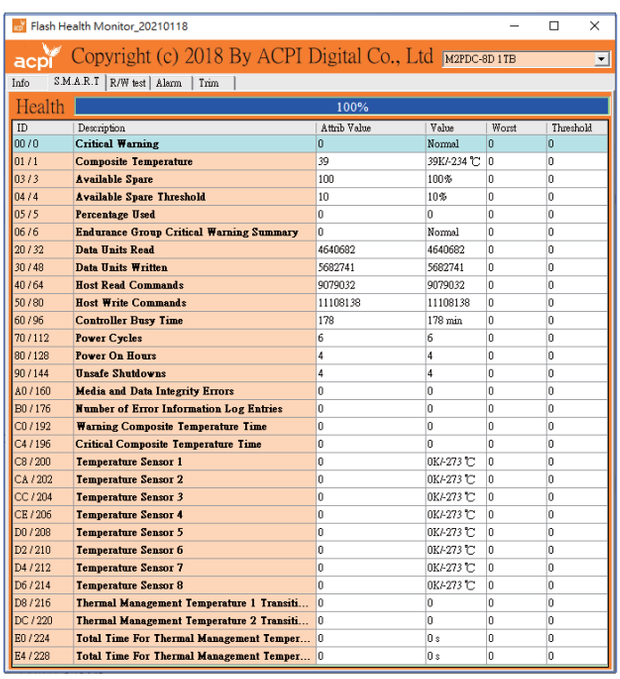
Patriot's expertise in flash properties has led to the development of two innovative software tools - the Flash Health Monitor and Flash Health Remoter. These user-friendly tools provide advanced health monitoring solutions for your storage devices, reflecting our commitment to product longevity. For reliable and efficient storage solutions, Patriot is the brand to trust.

Flash Health Monitor

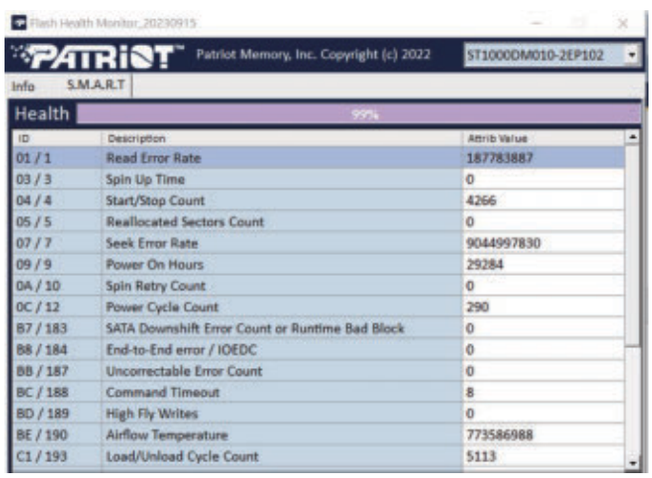
The Flash Health Monitor is an advanced tool that offers a user-friendly interface for monitoring the detailed status of storage devices and sending reminders if any actions are needed.

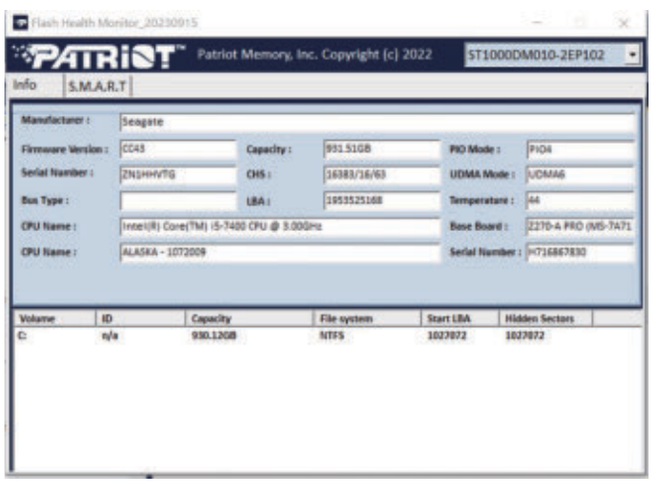
FEATURES

- Device overview
- S.M.A.R.T. information



• Device overview

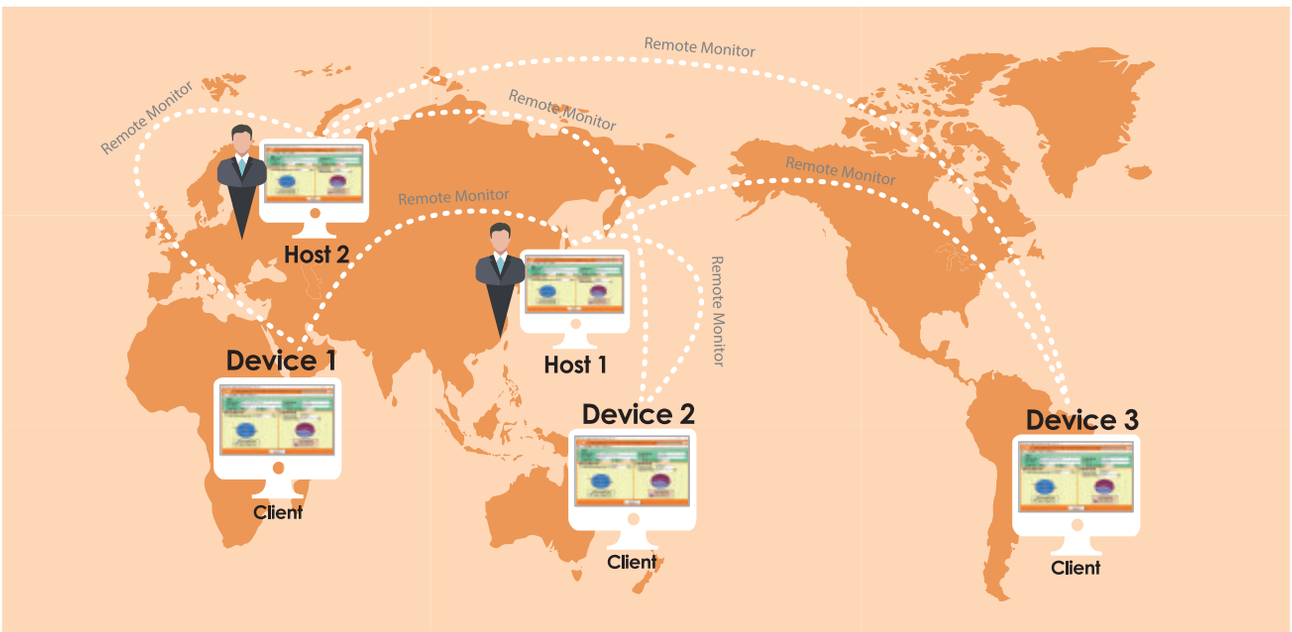




• S.M.A.R.T. information

Flash Health Remoter

ACPI's Flash Health Remoter is an intelligent health monitoring management tool based on Internet of Things technology. It enables simultaneous monitoring from multiple hosts to many clients through a simple file execution, without requiring any software installation. With a user-friendly interface, it provides remote S.M.A.R.T. monitoring of your storage devices.



MEMORY CARDS

ACPI offers a range of industrial-grade Compact Flash (CF) and CFast Cards that comply with CF 6.0, CF 4.1, and SATA II/III standards. These cards come in various specifications to meet the specific needs of industrial users. Designed to deliver high reliability and safety, our CF and CFast Cards are ideal for a wide range of industrial applications, including medical instruments, robot control systems, embedded automation computers, and server applications.

CFexpress

FEATURES

- NVMe 1.4a register interface and command set1
- Data Protection and Reliability
  End to end data protection
- SRAM SECDED protection
- Advanced LDPC 4KB error correction engine
  provides best in-class latency, quality of service
- Plane-based/Die-base RAID

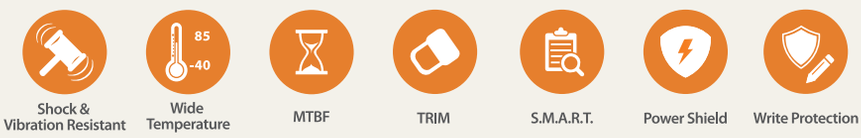
Model Name	CFEF2-L
NAND Flash Type	3D TLC
Interface	PCIe Gen3 x2
Form factor	Type B
Capacity	256GB ~ 1TB
Sequential R/W Performance (Max.)	1755/1670 MB/s
Operating Temp.	NT: 0°C ~ 70°C
Dimension (LxWxH)	38.5x29.6x3.8mm
Warranty	3 Years
Vibration (Operating)	20G (7~2K, 3xes)

FEATURES

- NVMe 1.4c register interface and command set1
- Data Protection and Reliability
  End to end data protection
- SRAM SECDED protection
- Advanced LDPC 4KB error correction engine
  provides best in-class latency, quality of service
- Plane-based/Die-base RAID

Model Name	CFEF3-L
NAND Flash Type	3D TLC
Interface	PCIe Gen4 x2
Form factor	Type B
Capacity	2TB ~ 4TB
Sequential R/W Performance (Max.)	3730/2885 MB/s
Operating Temp.	NT: 0°C ~ 70°C
Dimension (LxWxH)	38.5x29.6x3.8mm
Warranty	3 Years
Vibration (Operating)	20G (7~2K, 3xes)

CFAST



FEATURES

- Compliant with CFast 2.0
- Health Monitor tool (customizable)
- Supports S.M.A.R.T & Trim command
- Management for long data retention
- Global wear-leveling & ECC
- Supports wide temperature

Model Name	CFS3F	CFS3FIII	CFS3FIV
NAND Flash Type	SLC, MLC, pSLC		MLC, pSLC
Interface	SATAIII 6.0 Gb/s		
Connector Type	SATA 7+17pin		
Capacity	SLC: 4GB~32GB MLC: 8GB~128GB pSLC: 4GB~64GB		MLC: 64GB~256GB pSLC: 32GB~128GB
Sequential R/W Performance (Max.)	545/206 MB/s	535/195 MB/s	531/331 MB/s
Operating Temp.	WT: -40°C~85°C, NT: 0°C~70°C		
Dimension (LxWxH)	42.8x36.3x3.4mm		
Warranty	SLC: 5 Years (Limited) MLC / pSLC: 3 Years (Limited)		3 Years (Limited)
Power Consumption (Max.)	1.32W		2.07W
Power Shield	No		Yes
Write Protection	No	Yes	No

CF CARD

FEATURES

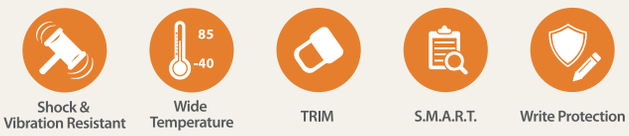
- CFA 4.1/3.0/6.0 PCMCIA ver. 2.1
- PC Card ATA ver. 2.01
- Global wear-leveling & ECC
- Supports Write Protection
- Excellent Power Shield function
- Supports wide temperature

Model Name	ECF71	ECF7J
NAND Flash Type	SLC	SLC, MLC, pSLC
Interface	PATA	
Connector Type	50 pin CF connector	
Capacity	128MB~8GB	SLC: 4GB~32GB MLC: 8GB~128GB pSLC: 4GB~64GB
Sequential R/W Performance (Max.)	51/25 MB/s	113/31 MB/s
Operating Temp.	WT: -40°C~85°C NT: 0°C~70°C	
Dimension (LxWxH)	42.8x36.4x3.3mm	
Warranty	5 Years (Limited)	SLC: 5 Years (Limited) MLC / pSLC: 3 Years (Limited)
Power Consumption (Max.)	0.6W	1.42W
Power Shield	No	Yes
Write Protection	Yes	

SD CARD

SD Card ESDB Series

microSD ESDB Series



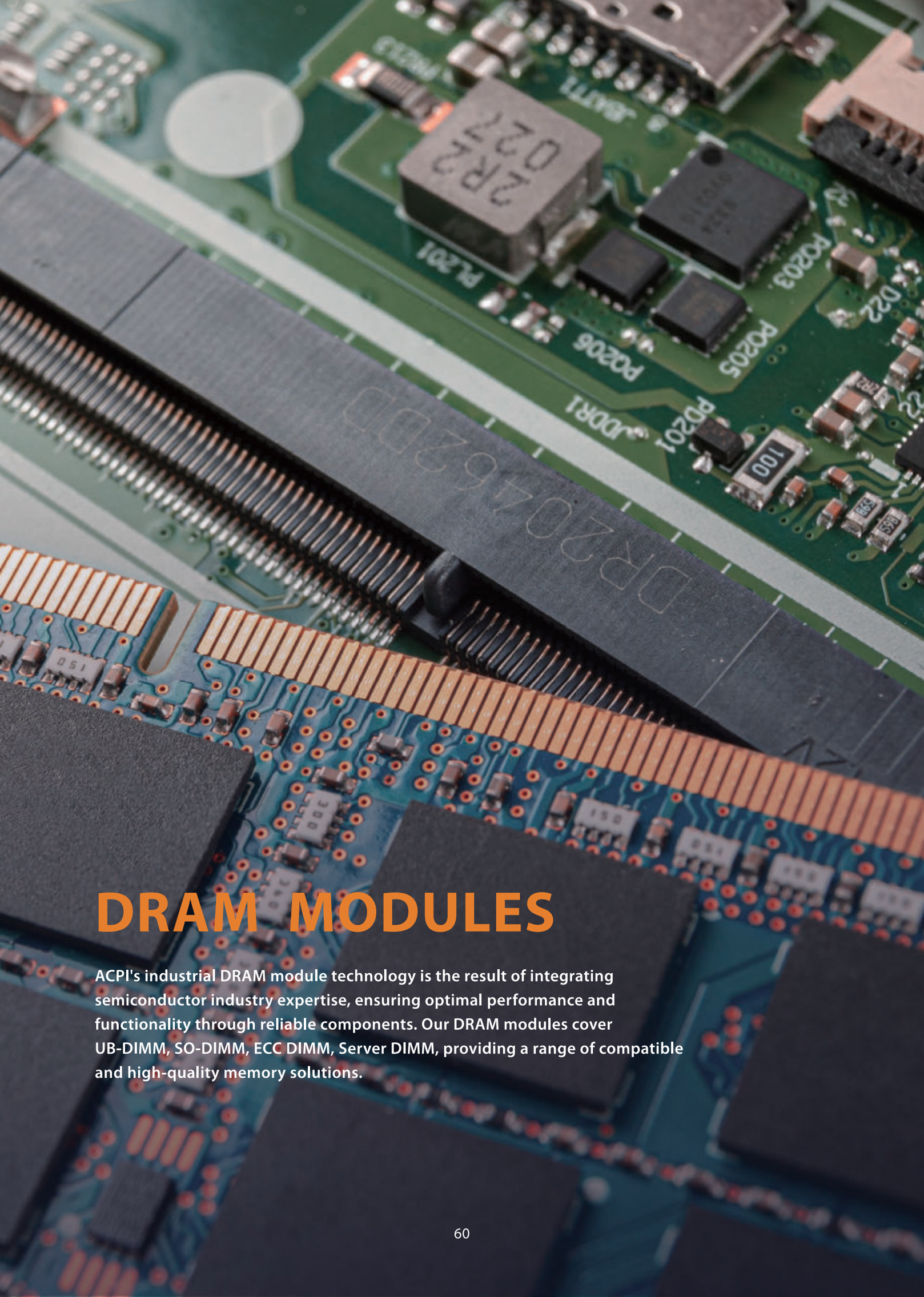
FEATURES

- Adaptive power management control
- Built-in power-on reset, oscillator, PLL, voltage regulators, and voltage detector
- Global wear-leveling algorithm

FEATURES

- Compliant SD Card Specification 3.0
- Powerful LDPC ECC to enhance flash reliability and endurance
- Supports Content Protection for Record able Media (CPRM)
- Supports password protection for cards

Model Name	SD Card ESDB	microSD ESDB
NAND Flash Type	SLC, MLC, pSLC, 3D TLC	
Capacity	SLC: 4GB~32GB MLC: 8GB~256GB pSLC: 4GB ~128GB 3D TLC: 32GB~512GB	SLC: 256MB~8GB MLC: 8GB~128GB pSLC: 4GB~128GB 3D TLC: 32GB~512GB
Sequential R/W Performance (Max.)	90/70 MB/s	100/95 MB/s
Operating Temp.	WT: -40°C~85°C, NT: 0°C~70°C	
Dimension (LxWxH)	24.0x32.0x2.1mm	11.0x15.0x1.0mm
Warranty	SLC: 5 Years (Limited) MLC / TLC / pSLC: 3 Years (Limited)	



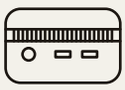
DRAM MODULES

ACPI's industrial DRAM module technology is the result of integrating semiconductor industry expertise, ensuring optimal performance and functionality through reliable components. Our DRAM modules cover UB-DIMM, SO-DIMM, ECC DIMM, Server DIMM, providing a range of compatible and high-quality memory solutions.

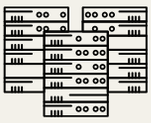
Applications


Desktop


Notebook


Mini PC

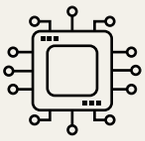

Printer


Server


POS


Casino Gaming Machines


Networking


Embedded System


Cloud Computing

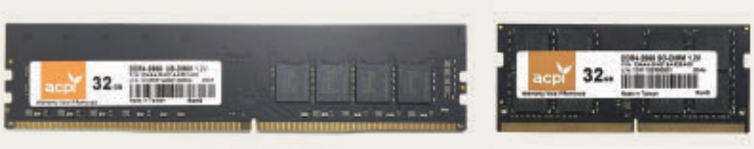
FEATURES

- Compliance with JEDEC standard
- Basic read/write function test
- Function test with mostly strict test condition
- High performance and reliability
- 100% module on system board testing
- RoHS compliant

Type	DDR2	DDR3	DDR4	DDR5	
Speed (MT/s)	400/533/667/800	800/1066/1333/ 1600/1866	2133/2400/2666/ 2933/3200	4800/5600	6400
Voltage	1.8V (1.7V~1.9V)	1.5V (1.425V~1.575V) 1.35V (1.28V~1.45V)	1.2V (1.14V~1.26V)	1.1V (1.067V-1.167V)	
Chip Package	FBGA				
DIMM Pins	240pin DIMM 200pin SO-DIMM	240pin DIMM 204pin SO-DIMM	288pin DIMM 260pin SO-DIMM	288pin DIMM 262pin SO-DIMM	
Module Type	UB-DIMM SO-DIMM	UB-DIMM SO-DIMM ECC DIMM ECC SO-DIMM RDIMM	UB-DIMM SO-DIMM ECC DIMM ECC SO-DIMM RDIMM	UB-DIMM SO-DIMM ECC DIMM ECC SO-DIMM	CUDIMM CSODIMM
Density	512MB~2GB	1GB~8GB	2GB~32GB	8GB~48GB	
Operating Temperature	Tcase 0°C~ +85°C (normal) / Tcase -40°C~+85°C (wide temperature)				
Storage Temperature	-55°C ~ +100°C				

STANDARD SOLUTION

DDR5 CKD DIMM



Type	Speed	Pin	Density	I/O Width	Operating Voltage	PCB Height
CUDIMM	6400 MT/s (CKD)	288	8GB~48GB	64bit	1.1V (1.067V~1.167V)	30.00mm
CSODIMM		262				

Unbuffered DIMM

Type	Speed	Pin	Density	I/O Width	Operating Voltage	PCB Height
DDR2	400~800 MT/s	240	512MB~2GB	64bit	1.8V (1.7V~1.9V)	30.00mm
DDR3	800~1866 MT/s		1GB~8GB		1.5V (1.425V~1.575V) 1.35V (1.28V~1.45V)	
DDR4	2133~3200 MT/s	288	2GB~32GB		1.2V (1.14V-1.26V)	31.25mm
DDR5	4800~5600 MT/s		8GB~48GB		1.1V (1.067V~1.167V)	30.00mm

Unbuffered SO-DIMM

Type	Speed	Pin	Density	I/O Width	Operating Voltage	PCB Height
DDR2	400~800 MT/s	200	512MB~2GB	64bit	1.8V ± 0.1V	30.00mm
DDR3	800~1866 MT/s	204	1GB~8GB		1.5V (1.425V~1.575V) 1.35V (1.28V~1.45V)	
DDR4	2133~3200 MT/s	260	2GB~32GB		1.2V (1.14V~1.26V)	
DDR5	4800~5600 MT/s	262	8GB~48GB		1.1V (1.067V~1.167V)	

SERVER / WORK STATION SOLUTION

Unbuffered DIMM w/ ECC

Type	Speed	Pin	Density	I/O Width	Operating Voltage	PCB Height
DDR3	800~1866 MT/s	288	1GB~8GB	72bit	1.5V (1.425V~1.575V) 1.35V (1.28V~1.45V)	30.00mm
DDR4	2133~3200 MT/s	240	2GB~32GB		1.2V (1.14V~1.26V)	31.25mm
DDR5	4800~5600 MT/s		8GB~48GB		1.1V (1.067V~1.167V)	

Unbuffered SO-DIMM w/ ECC

Type	Speed	Pin	Density	I/O Width	Operating Voltage	PCB Height
DDR3	800~1866 MT/s	204	1GB~8GB	72bit	1.5V (1.425V~1.575V) 1.35V (1.28V~1.45V)	30.00mm
DDR4	2133~3200 MT/s	260	2GB~32GB		1.2V (1.14V~1.26V)	
DDR5	4800~5600 MT/s	262	8GB~48GB		1.1V (1.067V~1.167V)	

Registered DIMM w/ ECC

Type	Speed	Pin	Density	I/O Width	Operating Voltage	PCB Height
DDR3	800~1866 MT/s	204	1GB~8GB	72bit	1.5V (1.425V~1.575V) 1.35V (1.28V~1.45V)	31.25mm
DDR4	2133~3200 MT/s	260	8GB~32GB		1.2V (1.14V~1.26V)	
DDR5	4800~5600 MT/s	262	8GB~48GB		1.1V (1.067V~1.167V)	

Product Lineup Supplement

This supplement features the latest additions to our product portfolio and key specification enhancements for existing models. Use this guide alongside our current catalog to ensure you have the most up-to-date technical data for your project requirements.

M.2 PCIe (NVMe) Gen5 x4

S.M.A.R.T. TRIM MTBF Shock & Vibration Resistant

FEATURES

- 3D TLC: 1TB ~ 4TB (NT)
- R/W Speeds (Max): 14,000/13,000 MB/s
- Compliant with PCIe Gen5 x4
- SSD module with DRAM
- Performance-optimized LDPC engine
- Compliant with TCG Opal
- Supports Flash Health Monitor for S.M.A.R.T. function
- Supports Power Shield function
- Low power consumption
- Thermal throttling management

Shock & Vibration Resistant MTBF TRIM S.M.A.R.T.

FEATURES

- 3D TLC: 1TB ~ 4TB (NT)
- R/W Speeds (Max): 10,000/8,500 MB/s
- Compliant with PCIe Gen5 x4
- Slim single side module
- Innovative 4K LDPC
- Supports Flash Health Monitor for S.M.A.R.T. function
- Low power consumption

Model Name	M2PDR-8L	XM2N5M6-8TE
NAND Flash Type	3D TLC	
Interface	PCIe Gen5 x4	
Connector Type	M.2 Module notch M	
Capacity	1TB~4TB	
Bytes per Sector	512Byte	
Sequential R/W Performance (Max.)	14000/13000 MB/s	10000/8500 MB/s
External DRAM Cache	Yes	No
Operating Temp.	NT: 0°C~70°C	
Dimension (LxWxH)	80.0x22.0x3.8mm	80.0x22.0x3.5mm
Warranty	3 Years (Limited)	
Vibration (Operating)	20G (7~2K, 3xes)	
Power Shield	Yes	No
Write Protection	No	

M.2 PCIe (NVMe) Gen3 x4

S.M.A.R.T. TRIM MTBF Shock & Vibration Resistant Wide Temperature (85 / -40)

FEATURES

- 3D TLC: 128GB ~ 1TB (NT/WT)
- R/W Speeds (Max): 2,400 / 1,650 MB/s
- Supports wide temperature: -40°C ~ +85°C
- Hardware LDPC ECC engine with hard-decision and soft-decision decoding
- Supports Flash Health Monitor for S.M.A.R.T. function

Model Name	M2PD3-4L
NAND Flash Type	3D TLC
Interface	PCIe Gen3 x4
Connector Type	M.2 Module notch M
Capacity	128GB~1TB
Sequential R/W Performance (Max.)	2400/1650 MB/s
External DRAM Cache	No
Operating Temp.	NT: 0°C~70°C WT: -40°C ~ 85°C
Dimension (LxWxH)	42.0x22.0x3.8mm
Warranty	3 Years (Limited)
Vibration (Operating)	20G (7~2K, 3xes)
Power Shield	No
Write Protection	No

USB PEN DRIVE

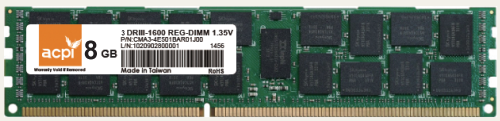
MTBF Shock & Vibration Resistant S.M.A.R.T.

FEATURES

- 3D TLC: 256GB~1TB (NT)
- R/W Speeds (Max): 940/860 MB/s
- Compliant with USB 3.2 Specification Rev 1.0
- Flexible: Type A & Type C connector
- Excellent data transfer speed
- Performance-optimized LDPC engine
- Low power consumption
- Thermal throttling with adjustable temperature control

Model Name	UFPM8
NAND Flash Type	3D TLC
Interface	USB 3.2
Connector Type	USB 3.1 Type A & Type C
Capacity	256GB ~ 1TB
Sequential R/W Performance (Max.)	940/860 MB/s
Operating Temp.	NT: 0°C~70°C
Dimension (LxWxH)	82.1 x 17.2 x 10.0 mm
Warranty	3 Years (Limited)
Vibration (Operating)	20G (7~2K, 3xes)

Registered DIMM w/ ECC



Type	Speed	Pin	Density	I/O Width	Operating Voltage	PCB Height
DDR4	2133~3200 MT/s	260	8GB~32GB	72bit	1.2V (1.14V~1.26V)	31.25mm
DDR5	4800~6400 MT/s	262	32GB~64GB		1.1V (1.067V~1.167V)	

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