PI3, PI4

Exascend Industrial PCIe NVMe Product Series

In addition to reliability and stability, the proliferation of IoT and Industry 4.0 further necessitate the adoption of high performance data-intensive storage solutions. Requirements for flash storage in industrial systems are as diverse as the applications, depending on the environment in which they will be used and the usage model, as well as the overall cost and durability of the entire system. Criteria to consider in products selection include endurance, extended temperature, performance, capacity, latency, reliability, and power consumption; Exascend can assist with identifying and customizing the right storage product for your application.

One new arising application in the industrial field is the 5G technology. 5G technology is used in the daily communication field, Internet of Things, remote operation, automatic and collaborative driving, and set to replace or supplement existing connection technologies. Storage in the 5G era requires higher transmission rate and a lower latency to be used in data centers, transportation facilities, and mobile connectivity.

Exascend is offering high endurance PCIe NVMe solution with varies specification: Gen3x2, Gen3x4, and Gen4x4, in different form factors: U.2, M.2 2280, and CFexpress. The next generation of IoT and self-driving vehicles specifically will require faster, more reliable and cost-effective solid-state storage. The performance of PCIe, combined with the reliability structure of 3D NAND FLASH, provides high data retention, lower cost, and higher capacity operating in wide temperature.

Target Applications

- Factory Automation
- IoT Gateway, Transportation
- Medical Equipment
- Telemetry Devices
- 5G Telecommunication
- Autonomous Driving
- Surveillance

Key Features

- Extended Endurance/Lifespan
- Wide Temperature Range
- Enterprise Performance, High QoS, Low Latency
- Fix Major BOM (Controller/Flash/Firmware)
- Highly Customizable (Hardware / Software / Configuration and Testing)

ENGINEERING INSPIRATION TO INNOVATION

Optional Value Added Features

- Adjustable TBW/DWPD for long life support (DWPD=1,1.5,3, or specified value)
- Fix major component and optional fix for all components
- Integrated LED light indication for production monitoring
- Write protect or read-only mode for security purpose
- Exclusive factory data recovery service
- Optional leaded production process
- Self-define form factor or interface
- Support integration of life monitoring program

Product Series	PI3			PI4		
Sub-Series	**Standard**	**Extended**	**pSLC**	**Standard**	**Extended**	**pSLC**
Physical Information						
Form Factor	M.2 2280; U.2					
Interface	PCIe 3.0 (NVMe 1.2)			PCIe 4.0 (NVMe 1.3)		
Capacity	480GB~7680TB	480GB~3840GB	240GB~1920GB	480GB~7680TB	480GB~3840GB	240GB~1920GB
Flash Type	3D TLC					
Input Voltage	3.3V±5%; 12V±5%					
Power Consumption	Active<8W; Idle<0.5W			Active<6W; Idle<0.3W		
Performance						
Maximum Sequencial Read (MB/s)	3,200	3,200	3,200	3,200	3,200	3,200
Maximum Sequencial Write (MB/s)	1,800	1,800	1,800	2,000	2,000	2,000
Max. 4K Random Read (IOPS)	330,000	330,000	330,000	450,000	450,000	450,000
Max. 4K Random Write (IOPS)	250,000	250,000	250,000	400,000	400,000	400,000
Reliability/ Endurance						
Operational Temperature (°C)	-40 - 85°					
Storage Temperature (°C)	-45 - 90°					
UBER	1 sector per 10^{17} bits read					
TBW (max.)**	4,800	4800	12,000	2,400	2,400	6,000
MTBF (hours)	2,000,000					
Warranty (years)	3	3	3	3	3	3
Planned Schedule	MP	Upon Request		2021 Q1	Upon Request	

■ M.2 2280 ■ U.2

Product Series	Standard	Extended	pSLC	Standard	Extended	pSLC
240GB			■ ■			■ ■
480GB	■ ■	■ ■	■ ■	■ ■	■ ■	■ ■
960GB	■ ■	■ ■	■ ■	■ ■	■ ■	■ ■
1920GB	■ ■	■ ■	■	■ ■	■ ■	■
3840GB	■ ■	■		■ ■	■	
7680GB	■			■		

- Warranty is until the sataed warranty years or reached the guaranteed TBW
- 「—」 Usage does not typically request such information
- DWPD stands for Drive Writes Per Day. TBW = DWPD * capacity * warranty * 365 / 1000

** TBW and DWPD are JESD47 Compliant