

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 Sequential Read (MB/s) | 3,200 | 3,200 | 3,200 | 3,200 | 3,200 | 3,200 |
| Maximum Sequential 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