PHISON

World's Fist PCIe Gen 5 Mainstream SSD

Phison E31T is the world's-first DRAM-less PCIe Gen5 SSD controller IC solution that pushes for true PCIe Gen5 bandwidth above 10GB/s while taking cost-centric SSD performance to new heights. On top of its refined power efficiency and advanced cost-effective DRAM-less design, Phison E31T practically eliminates the need to choose between high-performance and affordable pricing for PC builders and consumers.

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PS5031-E31T

Application

High-performance PCs and workstations

Gaming PCs/gaming consoles

Product Features

Market-leading Performance

Manufactured using TSMC's 7nm process technology, the E31T is optimized for a PCIe Gen5x4 interface, enabling SSDs with maximized bandwidths and link efficiency. Paired with state-of-the-art 3D NAND flash memory chips, the PS5031-E31T handles application payloads immaculately with minimal latency.

Superb Power Efficiency

Through its DRAM-less configuration and a range of design enhancements, the E31T offers up to 15% reduction in power consumption compared to DRAM-equipped solutions. With advanced power management measures such as support of the L1.2 low power state, E31T is able to effectively help motherboards with power reduction during idle periods.

Outstanding Cost-effectiveness

As a cutting-edge DRAM-less solution, the E31T not only saturates the PCIe Gen5 interface bandwidth as well as any DRAM-boosted solution does, but it does so while retaining compelling cost-savings, creating invaluable design-in opportunities in cost-sensitive consumer markets.

Phison 7th Generation LDPC ECC Engine

Phison's proprietary seventh-generation ECC engine based on the LDPC coding scheme effectively maintains NAND flash data reliability. Relative to the prior generation, the 7th Gen engine is added with multiple advanced features for increased performance and flexibility to accommodate state-of-the-art NAND flash memory devices.

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PS5031-E31T

Features	Specifications
Host Interface	- PCIe 5.0 x4 (Bandwidth: 32GT/s x4) - Backward compatible with existing PCIe generation transfer rates - Compliance with PCI Express Base Specification Revision 3.1 - Compliance with NVMe 2.0 - Host Memory Buffer (HMB) support
Processor	- Single-CPU architecture with built-in 32-bit microcontroller - TSMC 7nm process technology
Flash Controller	- Up to 4 Channels with 16 chip enable (CE) counts - Flash transfer rate up to 3600MT/s - Capacity up to 8TB - Support 3D TLC and QLC NAND flash memory - Compliance with Toggle 5.0 and ONFi 5.1 - Flash I/O operating voltage supply 1.2V
Data Reliability	- Phison 7th generation LDPC ECC & RAID ECC engine - End-To-End Data Path Protection
Security	- AES256 - SHA384 - SHA512 - RSA4096 - TCG OPAL 2.01 - Pyrite 2.01
Performance	- Sequential Read up to 10,800MB/s - Sequential Write up to 10,800MB/s - 4K Random Read up to 1,500K IOPS - 4K Random Write up to 1,500K IOPS
Power Management	- ASPM + APST Supported
Temperature Range	- Operating range: 0~70 °C - Storage range: -40~85 °C
Package	- 228-ball HSFCCSP, 8.0mm x 12.5mm
Peripheral	- Built-in internal thermal sensor - GPIO pins - Built-in UART function - I3C, I2C and SPI for external ROM - Support of SMBus

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Find more information and resources at: **phisonblog.com** and **phison.com**