



Product image is only for reference.

InnoGrit® IG5222, implemented in advanced 12nm FinFET CMOS process, is an industry-leading **PCIe Gen4 x4, NVMe 2.0** SSD controller supporting capacity size up to 8TB.

Stable and Outstanding Performance

- Speed up Sequential Read/Write to 7.4/6.8 GB/s, and Random Read/Write both to 1200K IOPS
- Support SLC/MLC/TLC/QLC NAND, with ONFI 5.0 or Toggle 2.0/3.0/4.0/5.0 at data rate up to 2400 MT/s
- Adopt an enhanced DRAM-less architecture with full support of HMB

Comprehensive Data Security and Integrity Protection

- Support multiple data encryption and protection schemes including AES, SHA, RSA, SM2/3/4, ECC, CRC, RAID, General-Purpose Cipher Engine and End-to-End data protection
- Apply the third generation of proprietary 4K LDPC ECC technology, to improve reliability, endurance and performance

Other Advanced Functions

- Smart Cache
- Support NVMe Multi-stream write
- Thermal throttling protection
- Multi-Namespace: 16 Namespaces
- Intelligent PMU with multi-level power management
- Various peripheral interfaces: SPI, SMBus/I2C/I3C, UART, JTAG and GPIO
- Support NVMe-MI
- Support Standard (Single) SPI mode, Dual SPI mode and Quad SPI mode

Please visit the website for more information:

<http://www.innogritcorp.com/>

For feedback or suggestions on documents:

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Key Features and Specifications

Full Part Number	IG5222CAA/IG5222CAAO
Ball Number	187
Package Type	FCCSP
Dimensions	7.1mm × 11mm
NAND CH# × CE#	4CH × 4CE
Typical Application	Low-cost client computing
Max Capacity	8TB
CPU	Multiple CPU cores
Max Read/Write Performance	Sequential Read 7.4 GB/s Sequential Write 6.8 GB/s Random Read 1200K IOPS Random Write 1200K IOPS
Peak Power Consumption	1.7W
Operating Temperature	Commercial grade 32°F (0°C) ~ 158°F (70°C)
Reliability	UBER ≤ 10 ⁻¹⁷ , MTBF 3 million hours
Interface	PCIe Gen4 ×4 interface NAND flash interface, 4CH × 4CE 1 × UART, 1 × SPI Master, 1 × JTAG 2 × SMBus/I2C Master/Slave + 1 × SMBus/I2C/I3C Master/Slave (I3C only supports Slave mode) 11 dedicated GPIOs + PMA_PWR_STL/PMA_PWR_EN/4 SPI pins which can act as GPIO function
Data Security	TCG Opal 2.02 (Only IG5222CAAO) AES-128/256 SHA3-256/384/512, SHA256 RSA1024/2048/3072/4096 SM2/3/4 General-Purpose Cipher Engine (support AES/SM4 with ECB/XTS/CBC/CTR mode)
Data Integrity Protection	Programmable RAID operation Advanced LDPC ECC engine Support ECC protection for TCM, Cache and SRAM End-to-End data protection CRC protection

InnoGrit, a fabless IC design company, is focused on advancing storage technology to solve the data storage and data transport problems in AI and big data applications. Our innovation in system performance, efficiency, reliability and security is the foundation that supports our mission to unleash the potential limited by traditional data processing architectures and enable a new class of products to consumers, data centers, and enterprises.

For more product and technology information, please visit: <http://www.innogritcorp.com/>.