



InnoGrit® IG5236/IG5636 implemented in advanced 12nm FinFET CMOS process, is an industry-leading **PCIe Gen4 x4**、**NVMe 1.4** SSD controller supporting capacity size up to 8TB/16TB.

### Stable and Outstanding Performance

- Speed up Sequential Read/Write to 7.4/6.4 GB/s, and Random Read/Write to 100K/800K IOPs.
- Support DDR3L, DDR4, LPDDR3 and LPDDR4, up to 3200 MT/s DDR rate (for all packages except IG5236CAAL).
- Support SLC/MLC/TLC/QLC NAND, with ONFI 4.1 or Toggle 2.0/3.0/4.0 and maximum data rate of 1200 MT/s.

### Data Security and Integrity

- Support multiple data encryption and protection schemes including AES, SHA, RSA, TCG Opal, SM2/3/4 of SCA, ECC, CRC, RAID, and End-to-End data protection.
- Leverage proprietary 4K LDPC ECC technology, to improve reliability, endurance and performance.

### Other Advanced Functions

- Smart Cache
- Thermal throttling protection
- Multiple Namespaces: 4 Namespaces (IG5236) / 32 Namespaces (IG5636)
- IG5636 supports SR-IOV
- Two temperature grade options
- Intelligent PMU with multi-level power management
- Various peripheral interfaces: SPI、SMBus/I2C、UART、JTAG and GPIO

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Please visit the website for more information:

[www.innogritcorp.com](http://www.innogritcorp.com)

For feedback or suggestions on documents:

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\*NOTE 1: Product diagram is only for reference. Real product might have differences in appearance.

## Key Features and Specifications

Full Part Number	IG5236CAA(I)	IG5236CAAL	IG5236FAA(I)	IG5636FAA(I)	IG5636FBAI
Ball Number	528	528	575	575	575
Package	FCCSP	FCCSP	FCBGA	FCBGA	HFCBGA
Dimensions (mm)	14 x 14	14 x 14	15 x 15	15 x 15	15 x 15
NAND CH x CE	8CH x 4CE	8CH x 4CE	8CH x 8CE	8CH x 8CE	8CH x 8CE
DDR Data Bus Bit Width	32-bit	DRAM-less	(32+8)-bit	(32+8)-bit	(32+8)-bit
Max Capacity	8TB			16TB	
Typical Application	High-End Client Computing			Data Centers and Enterprise Applications	
CPU	Four ARM Cortex R5 CPU cores				
Max Read/Write Performance	Sequential Read: 7.4 GB/s Sequential Write: 6.4 GB/s Random Read: 1000K IOPs Random Write: 800K IOPs				
Power Consumption	Peak: 3 W				
Operating Temperature	Commercial grade: 32°F (0°C) ~ 158°F (70°C) Industrial grade: -40°F (-40°C) ~ 185°F (85°C)				
Reliability	UBER $\leq 10^{-17}$ MTBF: 300 million hours				
Interface	PCIe Gen4 x4 interface NAND flash interface DDR interface (for all packages except IG5236CAAL) 1 x UART, 1 x SPI Master, 1 x JTAG 2 x SMBus/I2C Master/Slave 16 GPIOs				
Data Security	TCG Opal 2.01 AES-128/256 SHA3-256 RSA1024/2048/3072/4096 SM2/3/4 published by the State Cryptography Administration of China				
Data Integrity Protection	Programmable RAID operation End-to-End data protection CRC protection Advanced LDPC ECC engine Support ECC protection for TCM, Cache and SRAM, as well as for DDR (for all packages except IG5236CAAL)				

\*NOTE 2: IG5236FAA, IG5636FAA, IG5236CAA and IG5236CAAL are commercial-grade products. IG5236FAAI, IG5636FAAI, IG5636FBAI and IG5236CAAI are industrial-grade products.

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: [www.innogritcorp.com](http://www.innogritcorp.com).

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