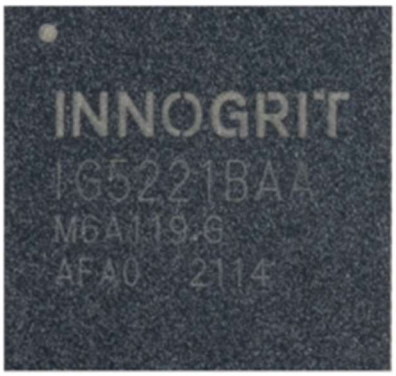
RainierQX/RainierQ (IG5220/IG5221)



RainierQX/Q family includes two members targeting different applications: IG5220 for DRAM-less low-cost client solutions, and IG5221 for high end client applications with DRAM.

The IG5220/IG5221, implemented in advanced 12nm FinFET CMOS process, is an industry-leading PCIe Gen4 x4, NVMe 1.4 SSD controller with capacity size up to 4TB/8TB.

The IG5220 features an enhanced DRAM-less architecture with full support of the HMB function. The IG5221 integrates DDR SDRAM with 16-bit wide data bus and up to 8GB capacity.

RainierQX/Q has four NAND channels, and supports SLC , MLC , TLC and QLC NAND flash with either ONFI or Toggle Mode interface.

The IG5220/IG5221 is built with the highest-level security with multiple data encryption and protection schemes including SM2/3/4, AES, SHA, RSA, ECC, CRC, RAID, and end-to-end data protection

Leveraging InnoGrit's proprietary Gen3 LDPC ECC technology (i.e. the 2nd generation of 4K LDPC), data endurance and retention are largely enhanced to deliver better reliability and ultra-high performance for SSD solutions.

FEATURES

NVMe 1.4, NVM Open Channel	PCIe Gen4 ×4
NAND interface data rate up to 1600MT/s and 2400MT/s	ONFI 5.0 and Toggle 2.0/3.0/4.0/5.0
InnoGrit's proprietary 2nd 4K LDPC ECC	ECC protection for TCM/Cache/SRAM/DDR
IG5221: DDR3L/DDR4/LPDDR4, up to 8GB	AES 128/256,SM 2/3/4,SHA3-256,RSA4096
16 Namespaces	SR-IOV, 8 Virtual Functions

SPECIFICATIONS

Capacity	4TB (IG5220) / 8TB (IG5221)	
	IG5220	IG5221
Package	216-ball, 7.5mm x 11mm TFBGA 361-ball, 12mm x 12mm TFBGA	361-ball, 12mm x 12mm TFBGA
Max Performance	Sequential Read: 5100 MB/s	Sequential Write: 5000 MB/s
	Random Read: 800K IOPs	Random Write: 600K IOPs
Power Consumption	Peak	2.5W
	PS3	10mW
	PS4	< 2mW