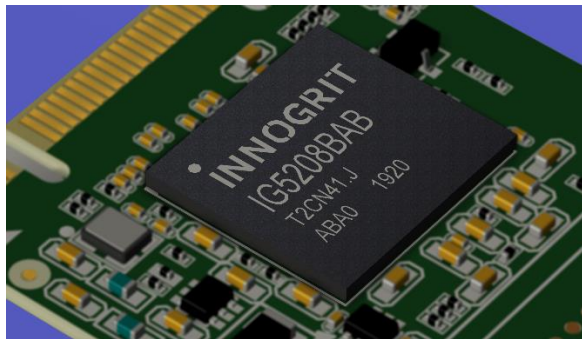


INNOGRIT



SHASTA IG5208

Industry-leading PCIe Gen3 x2, DRAM-less SSD Controller supporting 800MT/s NAND interface with proprietary 2K LDPC



OVERVIEW

The IG5208 is a PCIe Gen3 x2, NVMe 1.3 SSD controller with capacity up to 2TB.

Featuring a DRAM-less architecture with HMB (Host Memory Buffer), the IG5208 delivers high performance at low cost by removing expensive DRAM in SSDs.

In terms of its flash memory support, the IG5208 supports, through its four NAND channels, SLC, MLC, TLC and QLC NAND with ONFI 4.0 and Toggle 3.0.

Additionally, the IG5208 supports multiple advanced features, including Smart Cache, multiple data encryption and protection schemes, integrated POR (Power-On Reset), multi-level power management, NAND boot partition, and simplified PCB design.

By virtue of its small size, high performance and low power, the IG5208 supports mainstream BGA and M.2 SSD form factors. It targets devices and applications that require ultra-thin and light form factor, ultra-long battery lifespan, and outstanding performance without the need of complicated thermal solutions.

TYPICAL APPLICATIONS



KEY FEATURES & SPECIFICATIONS

NVMe	Compliant with NVMe 1.3 Support NVM Open Channel
CPU	One ARM Cortex R5 CPU core
DRAM-less	DRAM-less architecture with full support of HMB
NAND Flash Control	4CH x 4CE Support SLC/MLC/TLC/QLC NAND ONFI 4.0 and Toggle 3.0 Proprietary 2K LDPC Auto Retry Read and Extended Retry Read Out-of-Order read data transfer within the same channel Support VIQ (Very Important Queue) for fast 4K random read access
Interface	PCIe Gen3 x2 at 8GT/s 4-channel NAND flash interface up to 800 MT/s 1 x SPI 1 x SMBus/I2C 1 x UART 1 x JTAG 10 or 7 GPIOs (depending on the package)
Power Management	Integrated POR (Power-On Reset) block Internal LDO regulators Power loss detector PMU (Power Management Unit) with programmable functions High-precision and low-power junction temperature sensor
Clock	Two internal PLLs 25MHz reference clock
Timer	Four 16-bit general purpose timers One 64-bit general purpose system clock timer
Interrupt	Vectored Interrupt Controller with improved interrupt latency 32 vectored IRQ sources
Data Security	TCG Opal 2.01 AES 128/256 China state key SM 2/3/4 SHA 3-256
Data Integrity Protection	Programmable RAID operation SRAM ECC, LDPC ECC HMB data integrity protection End-to-End data protection CRC protection

Capacity	Up to 2TB	
Package	195-ball, 9mm x 10mm VFBGA 187-ball, 7mm x 10.5mm TFBGA	
Data Read/Write Max Performance	Sequential Read	1750 MB/s
	Sequential Write	1500 MB/s
	Random Read	250K IOPS
	Random Write	200K IOPS
Temperature Support	Operating: 0°C ~ 70°C (Commercial grade), -40°C ~ 85°C (Industrial grade) Storage: -40°C ~ 85°C Thermal throttling supported	
Power Consumption	Peak: 0.9W PS3: 50mW PS4: < 1mW	
Reliability	UBER (Uncorrectable Bit Error Rate): 1 sector per 10 ¹⁵ bits read MTBF (Mean Time Between Failures): 1.5 million hours	

ORDER INFORMATION

IG5208BAB	Commercial grade, 195-ball, 9mm x 10mm VFBGA Packaged Controller
IG5208BABI	Industrial grade, 195-ball, 9mm x 10mm VFBGA Packaged Controller
IG5208BBA	Commercial grade, 187-ball, 7mm x 10.5mm TFBGA Packaged Controller
IG5208BBAI	Industrial grade, 187-ball, 7mm x 10.5mm TFBGA Packaged Controller
ShastaA0-CP	Known Good Die