DapuStor DP600 Series Enterprise SSD Controller

PCIe Gen4.0 and 16 Channel NAND Flash Controller

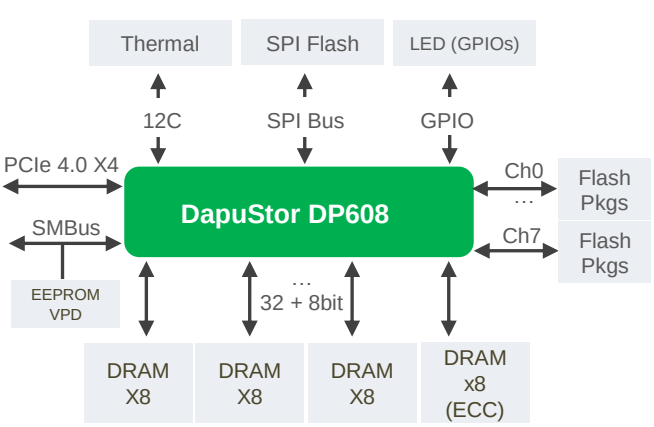
Overview

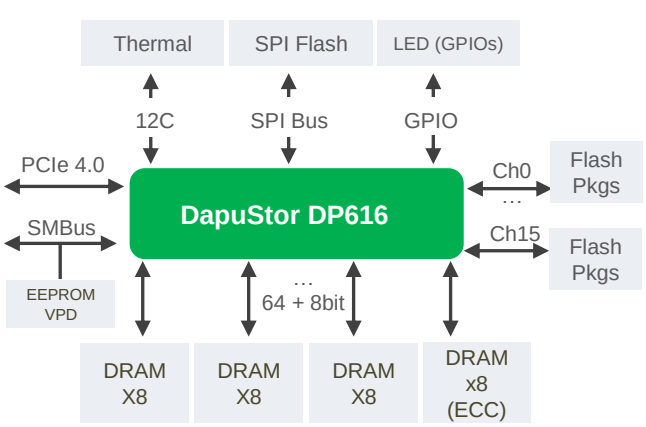
DapuStor DP600 Series Enterprise SSD Controller supports enterprises and data centers to leverage next-generation NAND technology for high performance and large-capacity SSDs.

The DP600 series comes in two models, DP616 and DP608. Both support standard NVMe (NVM Express) and high-performance 4K random read and write IOPS, as well as flash management operations with minimum host processing and memory resource. Combining ultra-high capacity, flexibility and security, DP600 is the reliable choice.

Item	DP616	DP608
Flash Channels	16	8
DDR4	3200	2666
Package	23 mm X 23 mm 1151-ball FCBGA	17 mm X 17 mm 625-ball FCBGA

Block Diagram





Application Scenarios

PCI Express-based SSDs, with NVM Express host control, promise to enhance enterprise and data center storage performance with faster random access to data and faster transfer rates to alleviate interface bottlenecks.

DapuStor DP600 is PCIe/NVMe enterprise SSD controller, highly improving read/write performance, reducing latency and power consumption. It brings innovation for storage computing system architecture and create more value for users.

Key Features

Interface and protocol

- PCIe 4.0
- Support Dual port
- SR-IOV, up to 64 VFs
- NVMe1.4a, NVMe MI 1.1
- Support up to 32 namespace

High capacity and extensible

- 32TB @ single DP600
- Higher capacity with cascade chained DP600 controllers

High performance

- SR 14GB/s, SW 10GB/s
- RR 2.1 M IOPS
- RW 700K IOPS (sustained, with 20% OP)
- 4K RW less than 5us latency

Security

- TCG/AES/RSA/SHA/TRNG
- SM2/SM3/SM4
- Secure boot
- Support off-chip FPGA/ASIC for specific encryption algorithm

Enhanced data integrity

- DDR4/3 DRAM with ECC (correctable 1 bit per 32/64bits)
- Support DIF protection (external and internal)
- Full internal data path protection (DPP)
- SRAM protection with ECC/CRC
- Strong correction capability LDPC with 4KB code word
- RAID5 for Die level protection
- Power fault and abrupt shutdown without data loss or corruption
- On-chip temperature detection

Flexible Flash support

- SLC/MLC/TLC/3D-TLC/QLC/XL-Flash and Toggle/ONFI flash
- Support hybrid of two flash types(e.g. QLC & SLC flash) for tiered storage at channel/ CE level
- Up to 16 channels @1600MTS I/O speed

Optimized storage management engine

- On-chip RNN neural network (LSTM)
- Smart IO/ Smart ECC technology