NVMe IP Product Selection Guide

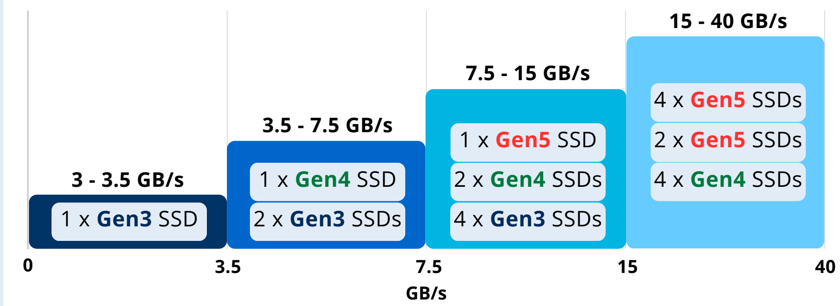
Common Features

- No CPU/OS/DDR
- High performance
- Low-resource usage
- Rich document

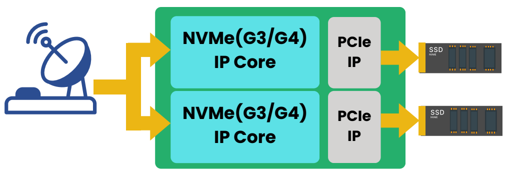
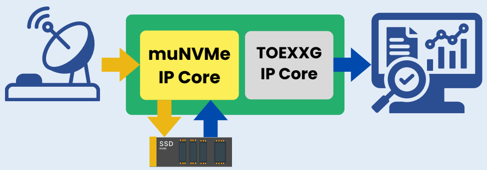
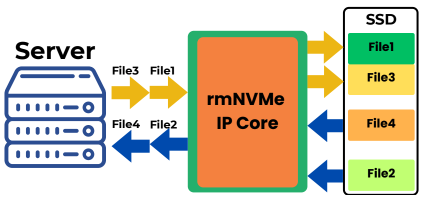
Supported FPGA Devices

AMD	altera
Versal HBM / Versal Premium / Versal AI / Alveo Accelerator / Virtex UltraScale+ / Zynq UltraScale+ / Kintex UltraScale+ / Kintex UltraScale / Artix-7 / Kintex-7 / Virtex-7 / Zynq-7000	Agilex7 I-Series / Agilex7 F-Series / Agilex5 E-Series / Stratix10 GX / Arria10 SoC / Arria10 GX / Cyclone10 GX / StratixV GX / ArriaV GX

NVMe Speed Guide



Application-Based NVMe IP Core Selection

Application	Key Feature	Suitable IP Core	Available Demo	Optional/Extension IP	Link
High-Speed Data Backup System 	• PCIe Hard IP required • **Lowest** resource usage	NVMe IP core	• NVMe Performance Test • NVMe Sustain Rate Test • RAID0x2 / 0x4 • 10G/25GbE FTP Server	• **NVMe IP Switch** • **FAT32 IP Core** • **exFAT IP Core**	Click for AMD / Click for Altera
	• **PCIe Soft IP** (No PCIe Hard IP required)	built-in PCIe Gen3/4 Soft IP NVMe G4 G3 IP core	• NVMe Performance Test • RAID0x2 / 0x4 • DMA on Petalinux	• **NVMe IP Switch** • **FAT32 IP Core** • **exFAT IP Core**	Click for AMD / Click for Altera
Data Logging with Real-Time Monitoring 	• **Multi-user** sequential access	muNVMe MULTI USER IP core	• NVMe Performance Test • RAID0x2 / 0x4 • 100GbE FTP Server	• **NVMe IP Switch** • **FAT32 IP Core** • **exFAT IP Core**	Click for AMD / Click for Altera
Data Center Application (Search Engine, Shared Storage) 	• **Multi-user** random access	Random Access & Multi User rmNVMe IP core	• NVMe Performance Test	-	Click for AMD / Click for Altera
	• **Single-user** random access	raNVMe Random Access IP core	• NVMe Performance Test • Continuous Data Logging	-	Click for AMD / Click for Altera

NVMe IP Product Selection Guide

	NVMe IP Core (Standard)	NVMe IP Core with PCIe Soft IP	muNVMe IP Core	rmNVMe IP Core	raNVMe IP Core
User access	Single user	Single user	2-4 users	2 users	Single user
PCIe IP	PCIe Hard IP	PCIe Soft IP	PCIe Hard/Soft IP	PCIe Hard/Soft IP	PCIe Hard/Soft IP
LBA Size unit support	512 Byte / 4K Byte	512 Byte / 4K Byte	512 Byte / 4K Byte	512 Byte	512 Byte
Sequential access	✓	✓	✓	✓	✓
Random access	-	-	-	✓	✓
Multi-SSDs access via external PCIe switch	-	-	-	-	-
Simultaneous Write/Read	-	-	✓	✓	-
Add-on IP Core support (File system IP Core)	✓	✓	✓	-	-
Link	AMD Click for AMD / altera Click for Altera	AMD Click for AMD / altera Click for Altera	AMD Click for AMD / altera Click for Altera	AMD Click for AMD / altera Click for Altera	AMD Click for AMD / altera Click for Altera