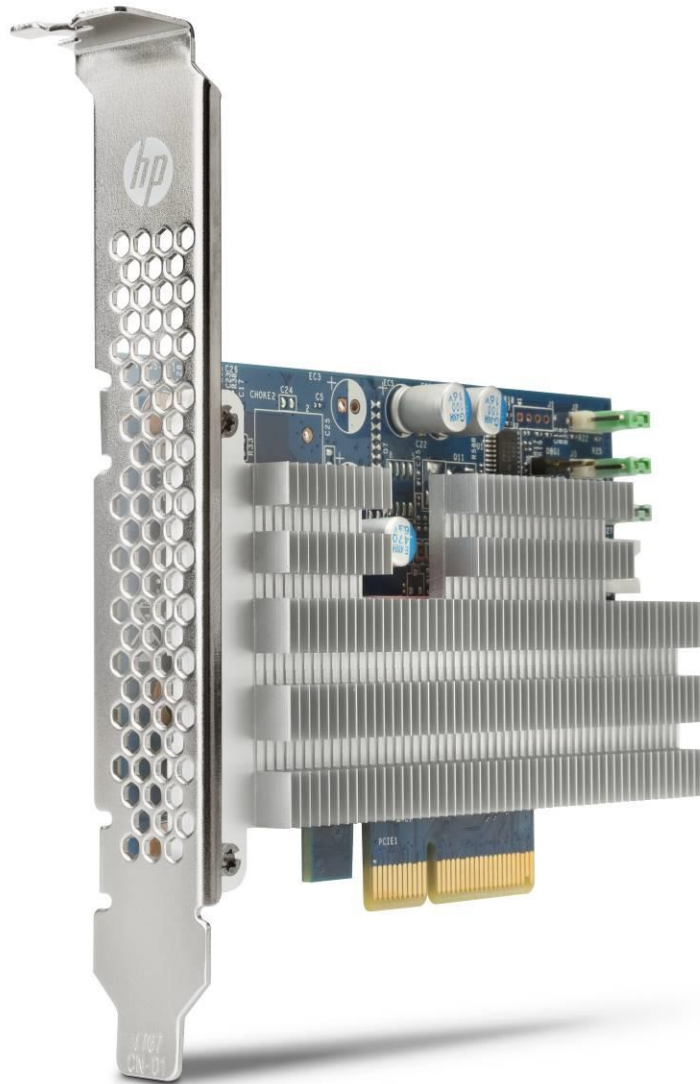


Overview

HP Z Turbo Drive



Introduction

Storage technology with NAND media is outgrowing the bandwidth limitations of the SATA bus. New high performance storage solutions will connect directly to the PCIe bus for revolutionary performance improvements. These components will be available in a variety of form factors and performance levels, designed specifically for certain market segments, and ultimately the costs will continue to decline as the technology evolves.

Performance

Overview

HP Z Turbo Drive G2

The new HP Z Turbo Drive G2 features the next generation PCIe SSD. This M.2 form factor device uses PCIe Gen3 x4 which enables performance levels greater than 2GB/s. The Random Read performance is significantly improved also, due to the NVMe controller technology used on the device. This performance is available at a price that is comparable to commercial SATA SSDs.

The HP Z Turbo Drive G2 will be supported on desktop platforms of HP Z Workstations. It will support storage configurations as a Boot device and as a Data device. It also can be configured with other storage components including SATA and SAS drives and controllers. Not all configurations are available from the factory.

Overview

HP Z Turbo Drive G2 256GB PCIe SSD

Capacity:	256GB SSD
NAND Type:	MLC
Read Bandwidth (128KB):	2150 MB/s
Write Bandwidth (1MB):	1260 MB/s
Random Read IOPS (4KB):	300K
Random Write IOPS (4KB):	100K
Endurance (Total Bytes Written):	146 TB
Weight:	3.9oz (111g)
Form Factor:	Half-height, half-length*

*roughly, actual length is 4 inches (100cm)

HP Z Turbo Drive G2 512GB PCIe SSD

Capacity:	512GB SSD
NAND Type:	MLC
Read Bandwidth (128KB):	2150 MB/s
Write Bandwidth (1MB):	1550 MB/s
Random Read IOPS (4KB):	300K
Random Write IOPS (4KB):	100K
Endurance (Total Bytes Written):	292 TB
Weight:	4.0oz (113g)
Form Factor:	Half-height, half-length*

*roughly, actual length is 4 inches (100cm)

HP Z Turbo Drive G2 1TB PCIe SSD

Capacity:	1TB SSD, NVMe Controller
NAND Type:	NAND Type: MLC
Read Bandwidth (128KB):	Read Bandwidth (128KB): 2500 MB/s
Write Bandwidth (1MB):	Write Bandwidth (1MB): 1550 MB/s
Random Read IOPS (4KB):	Random Read IOPS (4KB): 210K
Random Write IOPS (4KB):	Random Write IOPS (4KB): 130K
Endurance (Total Bytes Written):	Endurance (Total Bytes Written): 600 TB
Weight:	Weight: 4.0oz (113g)
Form Factor:	Form Factor: Half-height, half-length*

*roughly, actual length is 4 inches (100cm)

Overview

The HP Z Turbo Drive G2 is supported on the current desktop workstation platforms, including Z240, Z440, Z640, and Z840. It is supported as a boot device and a data device(s). It is also supported by our current offering of Operating Systems, including Linux, and may require a separate driver, depending on OS. It does require a BIOS update for any system shipped prior to the Z Turbo Drive G2 launch. It can be configured with additional hard drives, both SATA and SAS, and with multiple Z Turbo drives per system. All supported configurations are not available as factory options in all regions.

NVMe devices require a driver for proper detection and operation. Microsoft Windows 8 and higher have an inbox NVMe driver. For Windows 7, HP recommends the Microsoft hotfix which provides an NVMe driver (listed below). In addition, the Samsung NVMe driver, version 1.4.7.6, can be used with specific Samsung M.2 devices. (available at <http://www.hp.com>). Also note that the new NVMe driver will not support the original HP Z Turbo Drive, which requires an AHCI driver.

Supported Operating Systems:

Microsoft Windows 7, Microsoft Windows 8

Other OS may be supported by the card for use in other systems.

Support for OPAL hardware encryption: No

Support for Secure Erase: Yes

Supported in HP Performance Advisor: yes (includes wear gauge)

Approved PCIe slots:

Recommended slot order for:

Recommended slot order for Z840

1. Slot 1
2. Slot 6
3. Slot 3 (Requires 2nd CPU)
4. Slot 4 (Requires 2nd CPU)

Z640 – Slot 4, Slot 5, Slot 3 (in order of preference)

Z440 – Slot 4, Slot 5, Slot 3 (in order of preference)

Z240 – Native Motherboard slot first, then available PCIe Gen3 slot (either #1 or #4)

RAID is supported using the OS Disk Management software provided with Windows and Linux.

Performance levels can be greatly increased by using multiple devices and RAID 0. The performance scales linearly, and has been tested to levels greater than 4GB/s for Sequential performance with 2 devices.

RAIDed boot of OS partitions can be created based on the limitations of the SW RAID capability supported in the OS. RAIDing of the boot partition is not supported.

Models

HP Z Turbo Drive G2 256GB SSD

M1F73AA

HP Z Turbo Drive G2 512GB SSD

M1F74AA

HP Z Turbo Drive G2 1TB SSD

T9H98AA

Technical Specifications

Storage / Hard Drives	HP Z Turbo Drive G2 256GB PCIe SSD	Capacity	256GB
		Interface	PCI Express 3.0 x4 electrical x4 physical
		Operating Temperature	32° to 158° F (0° to 70° C)
	HP Z Turbo Drive G2 512GB PCIe SSD	Capacity	512GB
		Interface	PCI Express 3.0 x4 electrical x4 physical
		Operating Temperature	32° to 158° F (0° to 70° C)
	HP Z Turbo Drive G2 1TB SSD	Capacity	1TB
		Interface	PCI Express 3.0 x4 electrical x4 physical
		Operating Temperature	32° to 158° F (0° to 70° C)

Summary of Changes

Date of change:	Version History:		Description of change:
March 31, 2016	From v1 to v2	Added	HP Z Turbo Drive G2 1TB for all current platforms, Support Z240 and G2 product picture.

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