

### Overview

## HP Thunderbolt-2 PCIe 1-port I/O Card

### Models

HP Thunderbolt-2 PCIe 1-port I/O Card

F3F43AA

---

### Introduction

This high speed serial interface enables fast data transfer from external peripherals such as external hard disks, digital cameras and video cameras. Nearly four times the transfer rate of USB3, it features one external Thunderbolt output port, one Display Port input port and one internal header. Thunderbolt™ 2 technology is a transformational high-speed, dual protocol I/O that provides unmatched performance over current I/O technologies with 20Gbps bi-directional transfer speeds. It provides flexibility and simplicity by supporting both data (PCIe) and video (DisplayPort) on a single cable connection that can daisy-chain up to six devices.

The HP Thunderbolt™ 2 PCIe Card is backward compatible to allow your Thunderbolt™ devices to operate with no cable adapters needed.

Thunderbolt technology dramatically increases the data transfer rate enabling faster backup, editing and file sharing, significantly reducing the time to complete key tasks. Thunderbolt technology was specifically designed with inherently low latency and highly accurate time synchronization capabilities. These features enable extremely accurate audio and video creation, playback and editing that no other standard interconnect technology can match.

---

### Performance

The HP Thunderbolt™ 2 PCIe Card performs with data rates of up to 20 Gb/s.

**NOTE:** Actual performance will be lower based on protocol overhead and the peripherals attached.

---

### Key Benefits

Data transfer between digital electronic devices that support the Thunderbolt™ or Thunderbolt™ 2 standard.

- 20Gbps bi-directional, dual channel data transfer
  - Data & Video on single cable with Dual-protocol (PCI Express and DisplayPort)
  - Daisy chain up to six devices
  - Compatible with existing DisplayPort devices
  - Low latency with highly accurate time synchronization
  - Uses native PCIe and DisplayPort protocol software drivers
  - Power over cable for bus-powered devices (electrical cables only)
- 

### Compatibility

The HP Thunderbolt™ 2 PCIe Card is compatible with the HP Z230, Z440, Z420, Z640, Z620, Z840 and Z820 Workstations.

**NOTE:** Not all models are available in all regions.

The HP Thunderbolt™ 2 PCIe Card requires a DisplayPort input to enable downstream DisplayPort devices on the Thunderbolt™ daisy chain.

The HP Thunderbolt™ 2 PCIe Card is offered as a Certified System Solution with the compatible workstation platforms and select graphics cards only. Additional cards may perform well, but have not been fully tested to the full standards to confirm a Certified System Solution.

Z820: nVidia K600, K2000, K4000, and K5000\*

### Overview

Z840: nVidia K620, K2200, K4200, K5200\*, K6000\*, M6000\*

Z620 and Z420 :nVidia K600, K2000, K4000, and K5000\*

Z640 and Z440: nVidia K620, K2200, K4200

Z230 TWR: nVidia K600, K620, K2000, K2200, and K4000

Z230 SFF: nVidia K600, K620, and K2200

\* Denotes double-wide card

The HP Thunderbolt™ 2 PCIe Card has specific PCIe slot requirements for correct operation.

Z820: slot #5

Z840: slot #5

Z620 and Z420: slot #3

Z640 and Z440: slot #3

Z230 TWR: slot #4

Z230 SFF: slot #4

\*When using K5000 in Z4xx and Z6xx, use slot #5 for the K5000, and use slot #3 for the Thunderbolt™ 2 PCIe Card.

---

### Service and Support

The HP Thunderbolt™ 2 PCIe Card has a one-year Limited Warranty or the remainder of the warranty of the HP supported product in which it is installed. Technical support is available seven days a week, 24 hours a day, by phone, as well as online support forums. Certain restrictions and exclusions apply.

### Technical Specifications

<b>Data Transfer Rate</b>	Supports up to 20 Gb/s (20,000 Mb/s)
<b>Devices Supported</b>	Thunderbolt™ certified devices
<b>Bus Type</b>	PCIe card, full or half height PCIe slots
<b>Ports</b>	One Thunderbolt™ 2 external 20-Pin output connectors (Rear) One full size DisplayPort input connector (Rear)
<b>Internal Connectors</b>	One 5-Pin header connector
<b>System Requirements</b>	Genuine Windows 7 Professional 64-bit, Genuine Windows 8.1 64-bit, Intel i5 series or higher processor, 4-GB RAM, 20-GB Hard Drive, available PCIe slot.
<b>Temperature - Operating</b>	50° to 131° F (10° to 55° C)
<b>Temperature - Storage</b>	-22° to 140° F (-30° to 60° C)
<b>Relative Humidity - Operating</b>	20% to 80%
<b>Compliances</b>	FCC Part 15B, cULus 60950, CE Mark EN55022B(1995)/EN55024-1998 STD, Taiwan BSMI CNS13438, Korea MIC
<b>Operating Systems Supported</b>	Genuine Windows 7 Professional 64-bit, Genuine Windows 8.1 64-bit.
<b>Kit Contents</b>	HP Thunderbolt™ 2 PCIe 1-port I/O Card, full height and half height bulkhead bracket, DisplayPort cable, GPIO (General-Purpose Input/Output) cables(2), Installation documentation and warranty card.

---

### Summary of Changes

<b>Date of change:</b>	<b>Version History:</b>		<b>Description of change:</b>
	From v1 to v2		
June 1	From v3 to v4	Added	IdNumber
January 1, 2015	From v4 to v5	Changed	Compatibility section, Ports and Sys Requirements from Technical Specifications
March 1, 2015	From v5 to v6	Added	K5200 compatibility
April 3, 2015	From v6 to v7	Added	K6000 compatibility
September 1, 2015	From v7 to v8	Added	M6000 for Z840
		Removed	K5200, K6000 from Z440/640

© Copyright 2015 Hewlett-Packard Development Company, L.P.

The only warranties for HP products and services are set forth in the express warranty statements accompanying such products and services. Nothing herein should be construed as constituting an additional warranty. HP shall not be liable for technical or editorial errors or omissions contained herein. The information contained herein is subject to change without notice.