HP Thunderbolt 2 PCIe Card installation

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Table of contents

Thunderbolt 2 PCIe Card Installation 1
Introduction 1
Kit contents 1
Warnings and cautions 2
Step 1—Preparing for component installation 3
Accessing the internal components of the computer 3
Step 2—Installing the Thunderbolt add-in card 3
Step 3—Reassembling the computer 9
Step 4—Loading the Thunderbolt add-in card driver 9

Thunderbolt 2 PCIe Card Installation

Introduction

This installation guide explains how to install the Thunderbolt™ 2 PCIe card into HP workstations.

Kit contents

- HP Thunderbolt 2 PCIe Card
- GPIO (General-Purpose Input/Output) cable for use with HP Zx40 models (part number 751366-001)
- GPIO (General-Purpose Input/Output) cable for use with HP Zx20 models (part number 751363-001)
- GPIO (General-Purpose Input/Output) cable for use with HP Z230 model (part number 751364-001)
- DisplayPort cable
- Extra bulkhead
- Installation instructions (this document)
- Warranty information

IMPORTANT: Use of the Thunderbolt add-in card requires installation of a PCI Express graphics card. Go to http://www.hp.com/support for the System Quick Specs, including a list of supported graphics cards.

Warnings and cautions

WARNING! Any surface or area of the equipment marked with this symbol indicates the presence of a hot surface or hot component. If this surface is contacted, the potential for injury exists. To reduce the risk of injury from a hot component, enable the surface to cool before touching.

WARNING! Any surface or area of the equipment marked with this symbol indicates the presence of an electrical shock hazard. To reduce the risk of injury from electrical shock, do not open any enclosed area marked with this symbol.

WARNING! To reduce the risk of electric shock or damage to your equipment:

— Do not disable the power cord grounding plug. The grounding plug is an important safety feature.

— Plug the power cord in a grounded (earthed) outlet that is easily accessible at all times.

— Disconnect power from the equipment by unplugging the power cord from the electrical outlet.

WARNING! To reduce the risk of serious injury, read the *Safety & Comfort Guide*. It describes proper computer setup, posture, health, and work habits for computer users, and provides important electrical and mechanical safety information. This guide is located at http://www.hp.com/ergo and on the documentation CD (if one is included with the product).

WARNING! If a product is shipped in packaging marked with this symbol, the product must always be lifted by two persons to avoid personal injury due to product weight.

CAUTION: Static electricity can damage the electronic components of the computer. Before beginning these procedures, be sure you discharge static electricity by briefly touching a grounded metal object.

CAUTION: To prevent damage to the computer, observe the following Electrostatic Discharge (ESD) precautions while performing the system parts removal and replacement procedures:

— Work on a static-free mat.

— Wear a static strap to ensure that any accumulated electrostatic charge is discharged from your body to the ground.

— Create a common ground for the equipment you are working on by connecting the static-free mat, static strap, and peripheral units to that piece of equipment.

NOTE: HP accessories are for use in HP computer products. They have been extensively tested for reliability and are manufactured to high quality standards.

Step 1—Preparing for component installation

Accessing the internal components of the computer

1. If you need help preparing the workstation for this installation, consult the removal and replacement procedures in the HP Customer Self Repair Services Media Library at http://www.hp.com/go/sml.
2. Load the correct BIOS onto the workstation, as follows:.
   a. Go to http://www.hp.com/drivers.
   b. Enter the product number (such as Z820, Z620, Z420, Z230).
   c. Select the model.

   NOTE: Any model selection takes you to the correct BIOS.

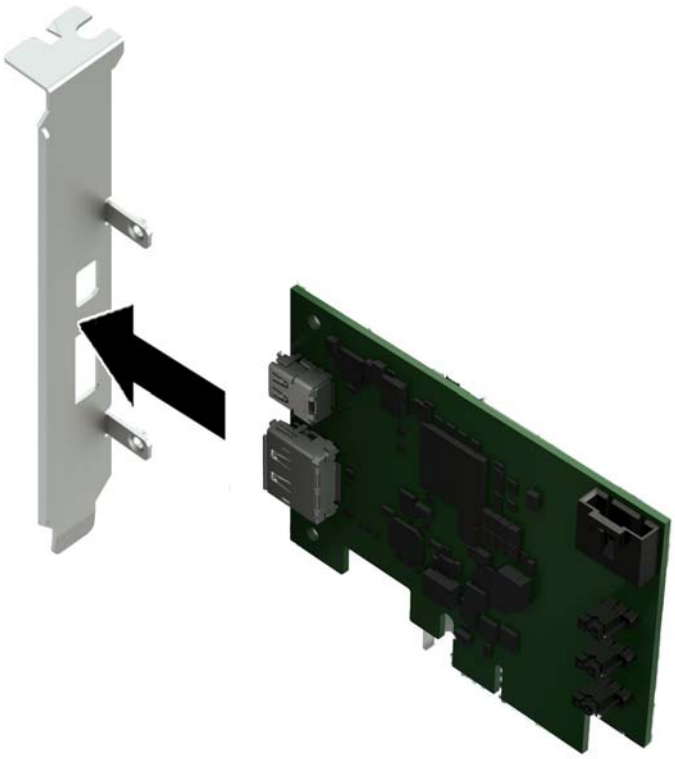
   d. Select the correct language and operating system.
   e. In **Download Index** click **BIOS**.
   f. Download and install the most recent BIOS.
3. Power down the workstation, and then disconnect the power cord.
4. Power down all external devices, and then disconnect them from the workstation.
5. Open the chassis.

Step 2—Installing the Thunderbolt add-in card

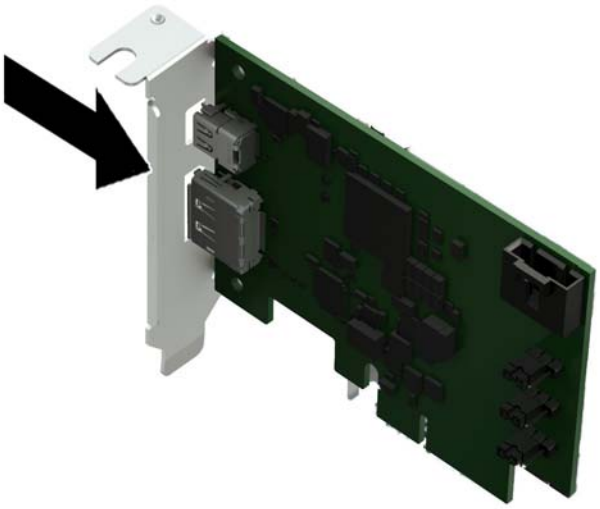
Follow these steps to install the Thunderbolt add-in card into the workstation.

1. Ground yourself, and then remove the Thunderbolt add-in card from the package.
2. Place the unit on a flat, clean, static-free surface.
3. If you are installing the Thunderbolt add-in card into an HP Z230 SFF, it requires a small-form factor bracket. Otherwise, go to step 4. To install this bracket:
   a. Remove the two screws securing the bracket to the add-in card.

b. Remove the bracket by horizontally sliding it away from the connectors.



c. With the bracket labels facing away from the add-in card, horizontally slide the small-form factor bracket onto the add-in card until the connectors fit in their housing.

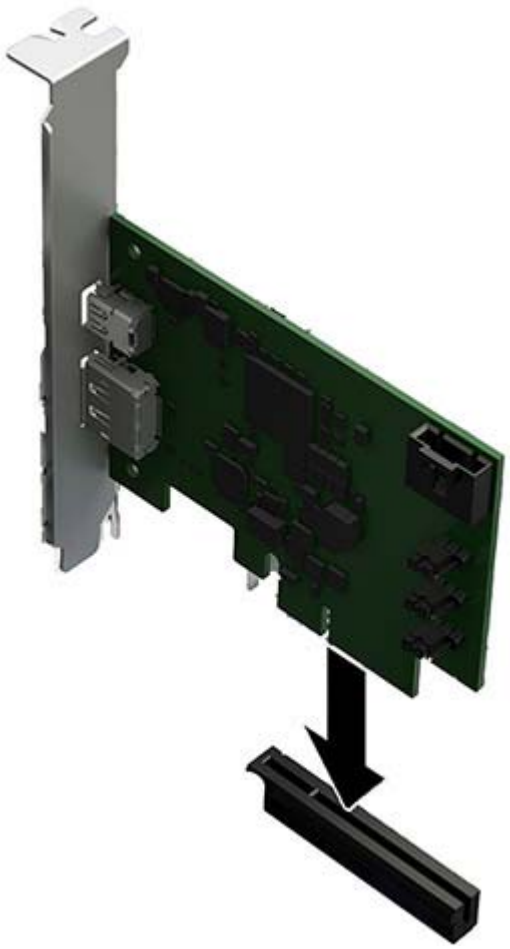


d. Screw the bracket to the add-in card with the two screws.

4. Install the add-in card into the correct PCIe socket in the workstation by sliding the bracket on the end of the card down into the slot on the back of the chassis, and then press the card down firmly into the socket on the system board.

NOTE: You must install the card into the correct PCIe socket for your workstation as indicated below. The socket closest to the processor is socket 1.

- HP Z8x0: PCIe socket 5
- HP Z6x0/Z4x0: PCIe socket 3
- HP Z230: PCIe socket 4



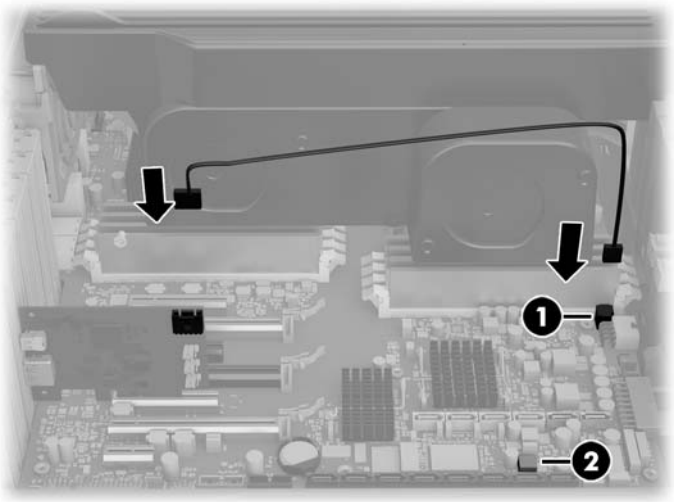
5. Plug the cable into the connector on the upper right corner of the card, and then plug the other end of the cable into the system board connector(s).

   - **HP Zx40 models:**

     The cable has five wires from end to end. Connect the cable header to the connector labeled E72 as follows:

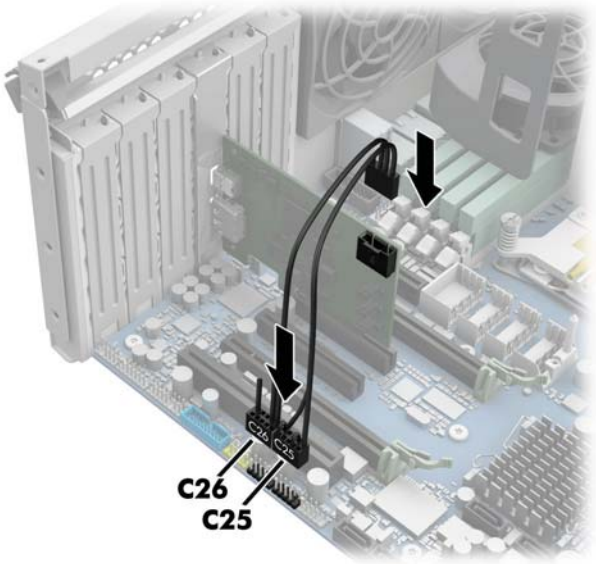
     NOTE: System board appearance may vary. See the *System Board Overview* located on the service panel to determine the location of the header.

     - **(1)** HP Z840
     - **(2)** HP Z640 and Z440



- **HP Zx20 models:**

  The cable splits into two cables that plug into the system board. The cable header with three wires labeled C26 plugs into the blue connector labeled P26 USB 2.0 DASH next to the yellow connector. The cable header labeled C25 plugs into the connector labeled P25 USB 2.0 which is closest to the USB 2.0 DASH connector.



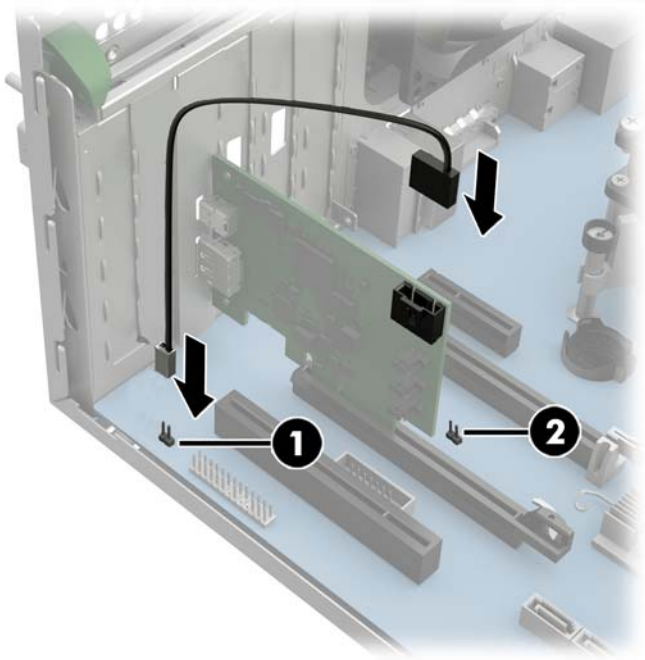
- **HP Z230 models:**

  Plug the cable into the system board connector labeled E102 as follows:

  (1) Small form factor models (near edge of board)

  (2) Tower models (between slots 3 and 4)

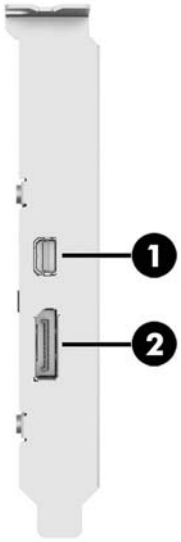
NOTE: System board appearance may vary.



6. The back of the Thunderbolt add-in card includes two connectors:

   (1): Thunderbolt cable connector

   (2): DisplayPort cable connector



Attach the DisplayPort cable and the Thunderbolt cable to the back of the add-in card.

NOTE: Plug the other end of the Thunderbolt cable into a Thunderbolt device.

Plug the other end of the DisplayPort cable into a graphics card.

Step 3—Reassembling the computer

1. Close the chassis.
2. Reconnect external devices and power cord.
3. Restore power to the workstation and all external devices.

Step 4—Loading the Thunderbolt add-in card driver

1. Go to http://www.hp.com/support.
2. Select the correct language.
3. Select **Drivers & Downloads**.
4. Type your workstation model number and click **Go**.
5. Select your workstation.
6. Select the correct operating system.
7. Select **Driver – Controller**.
8. Click **Download** and follow the on-screen instructions.