Hardware Reference Guide

HP t610 Series Flexible Thin Clients

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About This Book

WARNING! Text set off in this manner indicates that failure to follow directions could result in bodily harm or loss of life.

CAUTION: Text set off in this manner indicates that failure to follow directions could result in damage to equipment or loss of information.

NOTE: Text set off in this manner provides important supplemental information.

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1 Product features

Standard features

Thank you for purchasing an HP thin client. We hope you have years of use from our HP t610 Series Flexible Thin Clients. Our goal is to provide you with award-winning clients that are easy to deploy and manage with the power and reliability you expect.

The next sections describe the features of the thin clients. For a complete list of the hardware and software installed on a specific model, visit http://h10010.www1.hp.com/wwpc/us/en/sm/WF04a/12454-12454-321959-338927-89307.html and search for a specific thin client model.

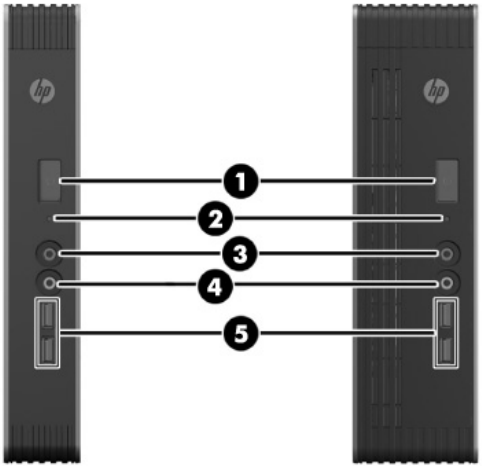
The thin clients exhibit the following features:

- no diskette drives
- 5-minute setup time
- central deployment and management using a broad range of easy and scalable remote management solutions

Various options are available for your thin client. For more information about available options, visit the HP website at http://h10010.www1.hp.com/wwpc/us/en/sm/WF12a/12454-12454-321959.html.

Front panel components

Figure 1-1 HP t610 Thin Client (left) and HP t610 PLUS Thin Client (right) front panel components



(1)	Power button	(4)	Line-out (headphone) audio connector
(2)	Flash activity LED	(5)	Universal serial bus (USB) connectors (2)

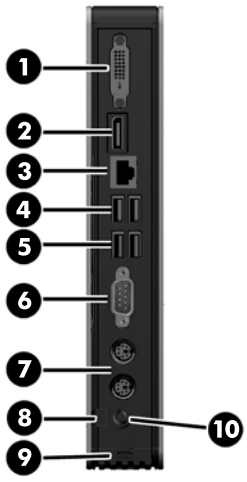
(3)	Line-in (microphone) connector

For more information, refer to the model-specific QuickSpecs at http://h18004.www1.hp.com/products/quickspecs/QuickSpecs_Archives/QuickSpecs_Archives.html.

Rear panel components

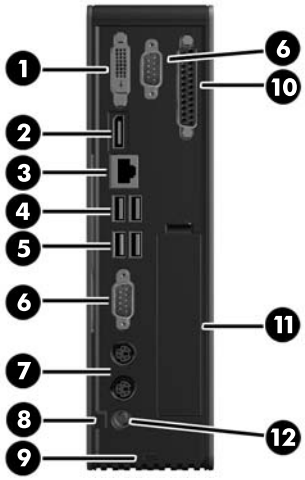
For more information, http://www.hp.com and search for your specific thin client model to find the model-specific QuickSpecs.

Figure 1-2 HP t610 Thin Client rear panel components



(1)	DVI-I connector for DVI-D and VGA output	(6)	Serial connector
(2)	DisplayPort connector	(7)	PS/2 connectors (2)
(3)	Ethernet RJ-45 connector	(8)	Power cord retention slot
(4)	Universal serial bus (USB) connectors (2) 2.0	(9)	Cable lock slot
(5)	Universal serial bus (USB) connectors (2) 3.0	(10)	Power connector

Figure 1-3 HP t610 PLUS Thin Client rear panel components



(1)	DVI-I connector for DVI-D and VGA output	(7)	PS/2 connectors (2)

(2)	DisplayPort connector	(8)	Power cord retention slot
(3)	Ethernet RJ-45 connector	(9)	Cable lock slot
(4)	Universal serial bus (USB) connectors (2) 2.0	(10)	Parallel connector
(5)	Universal serial bus (USB) connectors (2) 3.0	(11)	PCI-Express expansion slot
(6)	Serial connector	(12)	Power connector

Installing the rubber feet

CAUTION: To prevent loss of performance or damage to the thin client, be sure to install the rubber feet before operating the thin client in a horizontal orientation.

To install the rubber feet:

1. As you face the front of the thin client, lay the thin client on its left side.
2. Remove the feet from their backing.
3. Press each foot down securely onto a corner of the right side of the thin client.

Figure 1-4 Installing the rubber feet

Installing the stand

If the thin client will be installed in an vertical orientation and it will not be mounted, the stand should be installed for stability.

To install the stand:

1. Turn unit upside down.
2. Locate the slots on the bottom of the unit into which the tabs on the stand fit.

3. Insert the tabs into the slots, and then slide the stand about 1.26 cm (1/2 inch) toward the front of the unit until it locks into place.

Figure 1-5 Installing the stand

Removing the stand

To remove the stand:

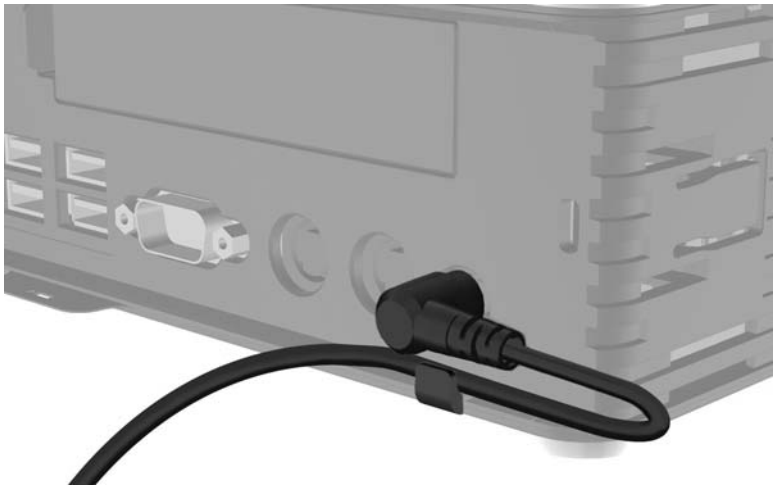
1. Turn unit upside down.
2. Press the tab (1), and then slide the stand about 1.26 cm (1/2 inch) toward the back of the unit and lift the stand off the unit (2).

Figure 1-6 Removing the stand

Using the power cord retention slot

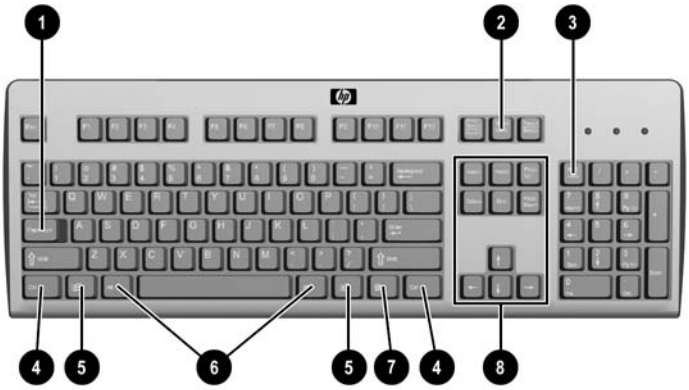
To prevent accidental disconnection, press a loop of the power cord into the power cord retention slot.

Figure 1-7 Power cord retention slot (HP t610 PLUS Thin Client pictured in horizontal orientation)



Using the keyboard

Figure 1-8 Keyboard features



(1)	Caps Lock key	Activates/deactivates the Caps Lock feature.
(2)	Scroll Lock key	Activates/deactivates the Scroll Lock feature.
(3)	Num Lock key	Activates/deactivates the Num Lock feature.
(4)	Ctrl key	Use in combination with another key; its function depends on the application software you are using.
(5)	Windows Logo Key[1]	Opens the **Start** menu in Microsoft Windows. Use in combination with other keys to perform other functions. For more information, see Windows logo key on page 8.

(6)	Alt key	Use in combination with another key; its function depends on the application software you are using.
(7)	Application key[1]	Similar to the right mouse button, opens pop-up menus in a Microsoft Office application. May perform other functions in other software applications.
(8)	Editing keys	Includes the following: Insert, Home, Page Up, Delete, End, and Page Down. Hold Ctrl and Alt while pressing Delete to restart the thin client.

[1]Available in select geographic regions.

Windows logo key

Use the Windows Logo Key in combination with other keys to perform certain functions available in Windows operating systems.

Windows Logo Key + Tab	Switch between open items.
Windows Logo Key + e	Open My Computer.
Windows Logo Key + f	Search for a file or folder.
Windows Logo Key + Ctrl + f	Search for computers.
Windows Logo Key + m	Minimize all windows.
Windows Logo Key + Shift + m	Undo minimize all.
Windows Logo Key + Break	Display the System Properties dialog box.
Windows Logo Key + r	Open the Run dialog box.

Additional function keys

The following key combinations also work on HP thin clients:

Alt + Esc	Cycles through minimized applications.
Alt + Tab	Cycles through open applications.
Alt + Shift + Tab	Switches to the previous session.

Special mouse functions

Most software applications support the use of a mouse. The functions assigned to each mouse button depend on the software applications you are using.

Serial number location

Every thin client includes a unique serial number located as shown in the following illustration. Have this number available when contacting HP customer service for assistance.

Figure 1-9 Serial number location

2 Hardware changes

General hardware installation sequence

To ensure the proper installation thin client hardware components:

1. Back up any data, if necessary.
2. If the thin client is powered on:
   a. Turn the unit and any other attached devices off.
   b. Disconnect the power cord from the wall outlet.
   c. Disconnect any external devices or cables, such as a cable lock.

WARNING! To reduce the risk of personal injury from electrical shock and/or hot surfaces, be sure to disconnect the power cord from the wall outlet and allow the internal system components to cool before touching.

WARNING! To reduce the risk of electrical shock, fire, or damage to the equipment, do not plug telecommunications or telephone connectors into the network interface controller (NIC) receptacles.

CAUTION: Static electricity can damage the electronic components of the thin client or optional equipment. Before beginning these procedures, ensure that you are discharged of static electricity by briefly touching a grounded metal object. See Electrostatic discharge on page 37 for more information.

3. Remove the stand, if it is installed. See Removing the stand on page 5 for more information.
4. Remove the side access panel and metal side cover, if necessary. See Removing and replacing the side access panel and metal side cover on page 11 for more information.
5. Remove any hardware that you will replace.
6. Install or replace equipment. For removal and replacement procedures, see the following sections:
   - Removing and replacing the battery on page 14
   - Installing a SODIMM on page 16
   - Installing a flash memory module on page 18
   - Replacing an internal hard drive on page 20
   - Installing a PCI-Express card on page 23

NOTE: Option kits include more detailed installation instructions.

7. Replace the side access panel and metal side cover. See Removing and replacing the side access panel and metal side cover on page 11 for more information.

8. Install the stand, if you will be using the thin client unmounted in a vertical orientation. See Installing the stand on page 4 for more information.
9. Reconnect any external devices and power cords.
10. Turn on the monitor, the thin client, and any devices you want to test.
11. Load any necessary drivers.

NOTE: You can download select hardware drivers from HP at http://www.hp.com/country/us/eng/support.html.

12. Reconfigure the thin client, if necessary.

Removing and replacing the side access panel and metal side cover

Removing the side access panel

WARNING! Before removing the side access panel, ensure that the thin client is turned off and the power cord is disconnected from the electrical outlet.

To remove the left or right access panel:

1. Remove the stand, if it is installed. See Removing the stand on page 5 for more information.
2. Press the tab on the bottom cover (1), and then slide the cover back (2) and lift it off the chassis.

Figure 2-1 Removing the bottom cover

3. Lay the thin client on its side on a secure working surface.
   - Remove the right side access panel to remove or install a SODIMM.
   - Remove the left side access panel to:
     - Remove or replace the battery
     - Install or remove a flash memory module

- Install or remove an internal hard drive
- Install or remove a PCI Express card

4. Slide the access panel about 6.35 mm (1/4 inch) toward the bottom of the unit, and then lift the access panel up and off the chassis.

Figure 2-2 Removing the side access panel

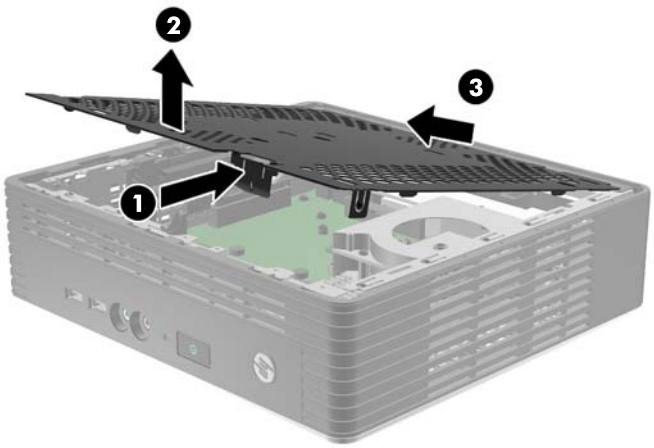
Removing the left metal side cover

NOTE: Do not remove the metal side cover to install a SODIMM. The SODIMM compartment is in the right side of the chassis.

You must remove the metal side cover to access internal components such as the battery or to install a flash memory module, internal hard drive, or PCI-Express card.

1. Push the tab in the front edge of the side cover toward the back to release the sided cover (1).
2. Lift the front edge of the metal side cover (2), then pull the cover to the front and lift it off the chassis (3).

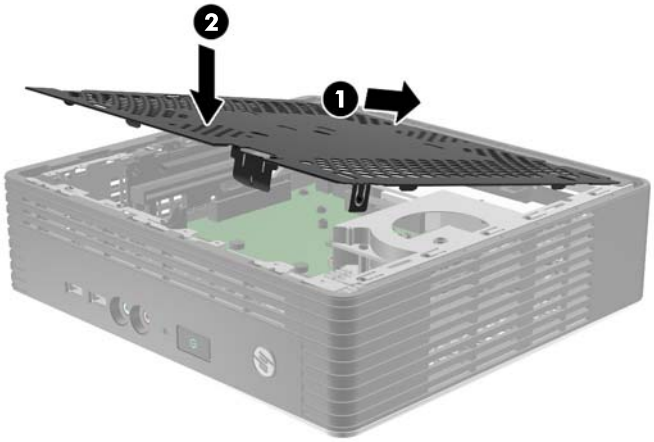
Figure 2-3 Removing the metal side cover



Replacing the left metal side cover

1. Place the metal side cover on the chassis, rear edge first, making sure to insert the two tabs of the rear edge into the notches in the chassis (1).
2. Align the tabs on both sides of the cover and press the front edge down firmly until the latch closes.

Figure 2-4 Replacing the metal side cover

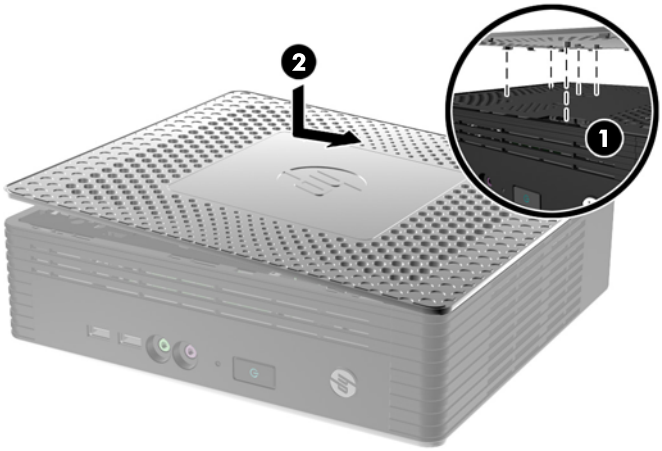


Replacing the side access panel

To replace the access panel:

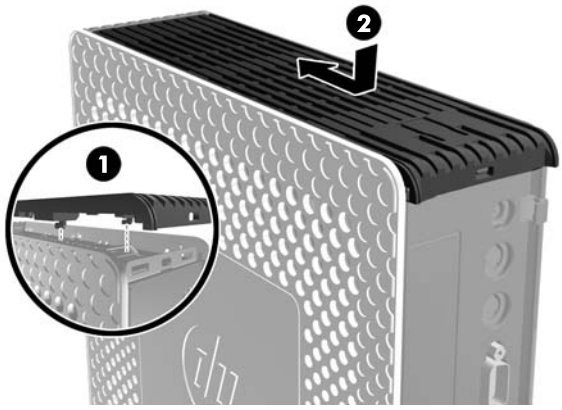
1. Place the access panel on the side of the unit, offset about 6.35 mm (1/4 inch) toward the top of the unit (1), allowing the hooks on the underside of the panel to slip into notches in the side access panel.
2. Slide the panel toward the bottom of the unit until it locks into place (2).

Figure 2-5 Replacing the side access panel



3. Turn the chassis upside down. Align the hooks on the underside of the bottom cover with the slots in the chassis and press the cover down and then forward until it locks in place.

Figure 2-6 Replacing the bottom cover



4. Replace the stand, if the thin client is to be used in the tower orientation.

Removing and replacing the battery

Before beginning the replacement process, review General hardware installation sequence on page 10 for procedures you should follow before and after installing or replacing hardware.

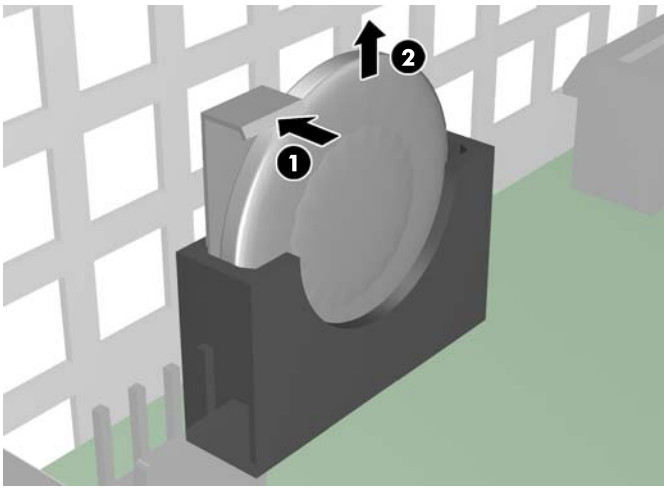
⚠ **WARNING!** You must remove the left side panel to access the battery. Before removing the side access panel, ensure that the thin client is turned off and the power cord is disconnected from the electrical outlet.

To remove and replace the battery:

1. Locate the battery on the system board.

2. To remove the battery, pull the metal clamp extending above the battery aside and lift the battery out (1).

Figure 2-7 Removing and replacing the internal battery



3. To insert the replacement battery, position it with the positive side facing the chassis wall. Slide the battery down into the slot until the clamp snaps over the edge of the battery (2).

HP encourages customers to recycle used electronic hardware, HP original print cartridges, and rechargeable batteries. For more information about recycling programs, go to www.hp.com/recycle.

Batteries, battery packs, and accumulators should not be disposed of together with the general household waste. In order to forward them to recycling or proper disposal, please use the public collection system or return them to HP, an authorized HP partner, or their agents.

The Taiwan EPA requires dry battery manufacturing or importing firms, in accordance with Article 15 or the Waste Disposal Act, to indicate the recovery marks on the batteries used in sales, giveaways, or promotions. Contact a qualified Taiwanese recycler for proper battery disposal.

Installing thin client options

Various options can be installed on the thin client:

- Installing a SODIMM on page 16
- Installing a flash memory module on page 18
- Replacing an internal hard drive on page 20
- Installing a PCI-Express card on page 23
- Installing external drives on page 25

Installing a SODIMM

The computer comes with double data rate 3 synchronous dynamic random access memory (DDR3-SDRAM) small outline dual inline memory modules (SODIMMs).

The memory sockets on the system board can be populated with up to two industry-standard SODIMMs. These memory sockets are populated with at least one preinstalled SODIMM. To achieve the maximum memory support, you can populate the system board with up to 4 GB of memory.

For proper system operation, the SODIMMs must be:

- industry-standard 204-pin
- unbuffered non-ECC PC3-12800 DDR3-1600 MHz-compliant
- 1.5 volt DDR3-SDRAM SODIMMs

The DDR3-SDRAM SODIMMs must also:

- support CAS latency 9 DDR3 1600 MHz (9-9-9 timing)
- contain the mandatory Joint Electronic Device Engineering Council (JEDEC) specification

In addition, the computer supports:

- 2-Gbit non-ECC memory technologies
- single-sided and double-sided SODIMMS
- SODIMMs constructed with x8 and x16 devices; SODIMMs constructed with x4 SDRAM are not supported

NOTE: The system will not operate properly if you install unsupported SODIMMs.

Before beginning the replacement process, review General hardware installation sequence on page 10 for procedures you should follow before and after installing or replacing hardware.

WARNING! You must remove the right side panel to access the SODIMM compartment. Before removing the side access panel, ensure that the thin client is turned off and the power cord is disconnected from the electrical outlet.

CAUTION: You must disconnect the power cord and wait approximately 30 seconds for the power to drain before adding or removing memory modules. Regardless of the power-on state, voltage is always supplied to the memory modules as long as the computer is plugged into an active AC outlet. Adding or removing memory modules while voltage is present may cause irreparable damage to the memory modules or system board.

The memory module sockets have gold-plated metal contacts. When upgrading the memory, it is important to use memory modules with gold-plated metal contacts to prevent corrosion and/or oxidation resulting from having incompatible metals in contact with each other.

Static electricity can damage the electronic components of the computer or optional cards. Before beginning these procedures, ensure that you are discharged of static electricity by briefly touching a grounded metal object. For more information, refer to Electrostatic discharge on page 37.

When handling a memory module, be careful not to touch any of the contacts. Doing so may damage the module.

To install the SODIMM:

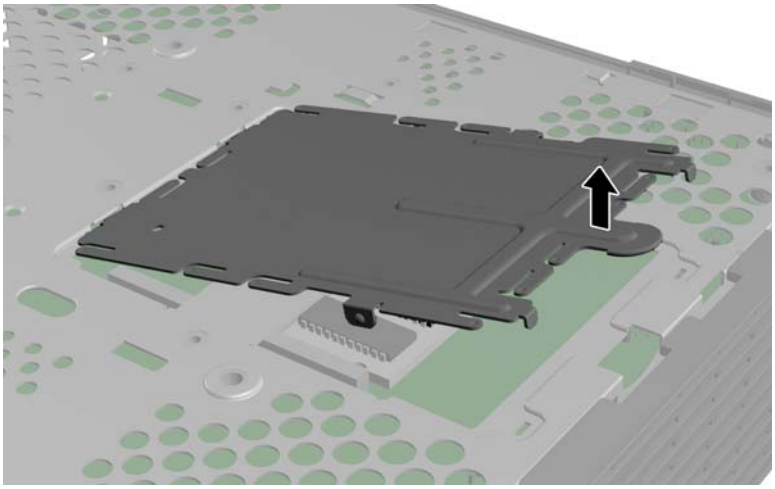
NOTE: Populate the SODIMM sockets in the following order: SODIMM1, then SODIMM2.

1. Slide the serial number tab out of the way.

NOTE: Be sure not to lose this tab.

2. Pull the front of the access plate up, and lift it off the thin client.

Figure 2-8 Removing the SODIMM access plate



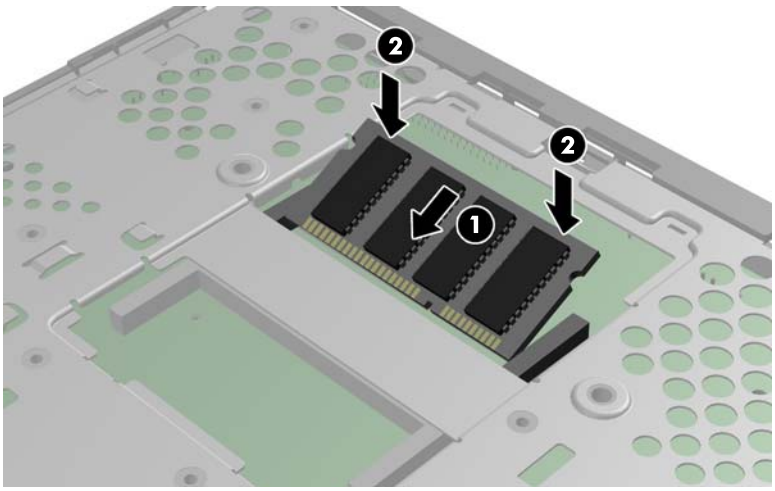
3. Align the notched edge of the SODIMM with the tab in the socket.

CAUTION: To prevent damage to the SODIMM, hold it by the edges only. Do not touch the components on the SODIMM, and do not bend the SODIMM.

4. Hold the SODIMM at approximately a 20-degree angle, and then press the SODIMM into the socket (1) until it is seated. Gently apply pressure to both the left and right edges of the SODIMM until the retention clips snap into place.

NOTE: A SODIMM can be installed in only one way. Match the notch on the SODIMM with the tab on the socket.

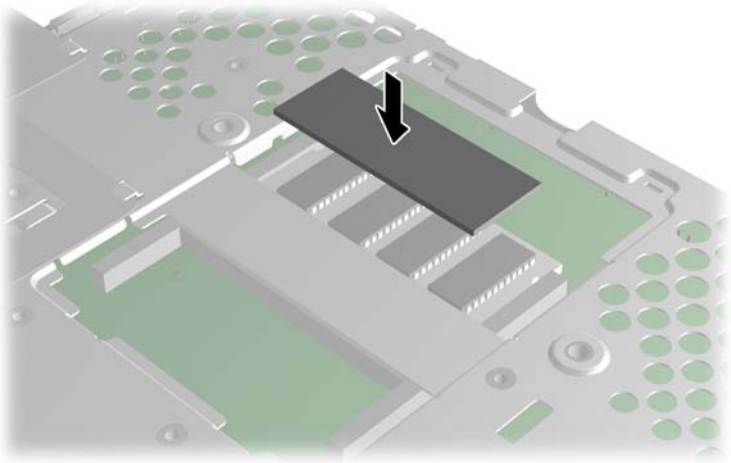
Figure 2-9 Installing a SODIMM



5. Press the SODIMM down into the compartment (2).
6. If you are installing the SODIMM in the HP t610 Thin Client, place a thermal pad on the SODIMM.

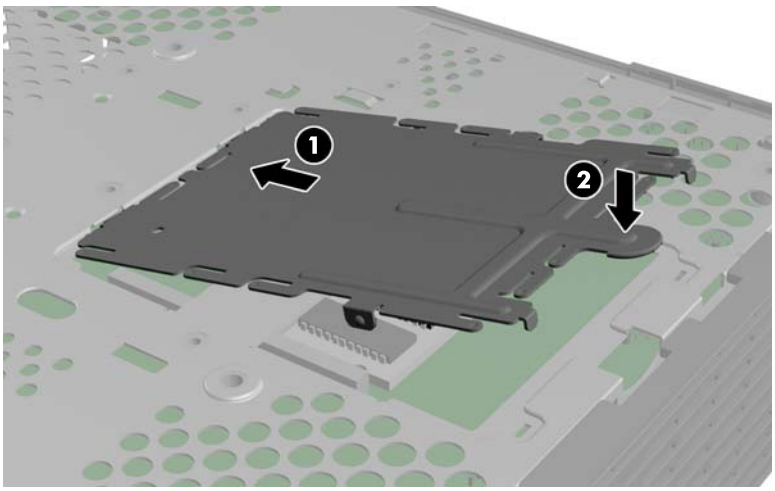
CAUTION: The thermal pad is required to help cool the SODIMM in the HP t610 Thin Client. (The HP t610 PLUS Thin Client does not require a thermal pad.)

Figure 2-10 Installing the thermal pad in the HP t610 Thin Client



7. Insert the tab on the front edge of the access plate into its slot (1) and press the plate down lightly to engage the latch (2).

Figure 2-11 Replacing the SODIMM access plate



8. Slide the serial number tab back to its original position.

Installing a flash memory module

Before beginning the installation process, review General hardware installation sequence on page 10 for procedures you should follow before and after installing or replacing hardware.

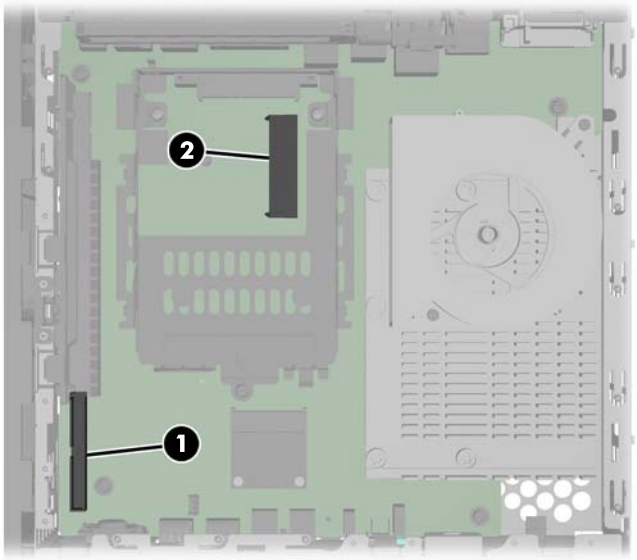
⚠ **WARNING!** You must remove the left side panel to access the system board. Before removing the side access panel, ensure that the thin client is turned off and the power cord is disconnected from the electrical outlet.

⚠ **CAUTION:** Static electricity can damage the electronic components of the computer or optional cards. Before beginning these procedures, ensure that you are discharged of static electricity by briefly touching a grounded metal object. When handling a memory module, be careful not to touch any of the contacts. Doing so may damage the module.

To install the flash memory module:

1. If an internal hard drive is installed, remove it. See Removing an internal hard drive on page 21 for instructions.
2. Locate the correct flash memory module socket on the system board.
   a. The PATA socket (1) is populated by default.
   b. The SATA socket (2) can be populated with an optional SATA flash memory module.

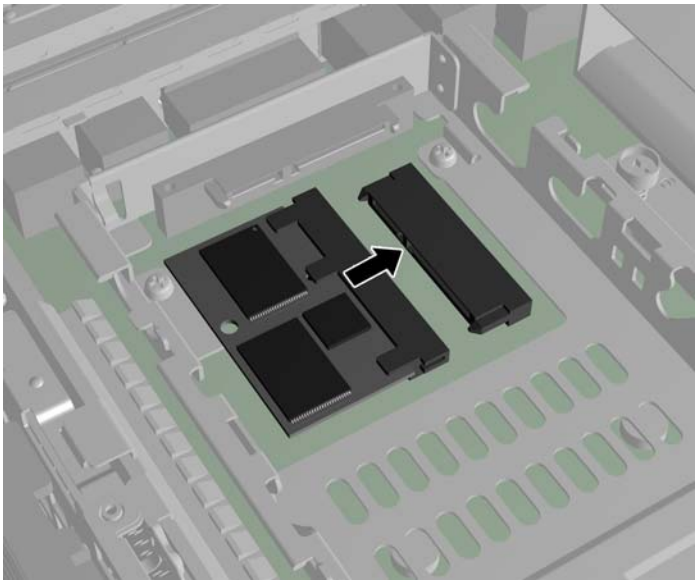
Figure 2-12 Identifying the Flash Memory Module sockets



3. Align the connector on the flash memory module with the socket on the system board and press the flash memory module into the socket.

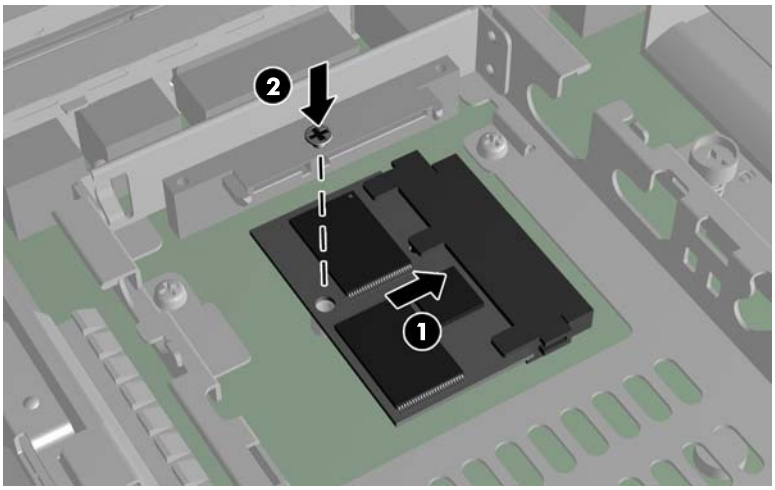
NOTE: A flash memory module can be installed in only one way. Line up the hole in the flash memory module with the retention post on the system board.

Figure 2-13 Inserting the flash memory module



4. Press the module connectors firmly into the flash memory module socket (1), making sure that the retention post on the system board is aligned with the hole in the module.

Figure 2-14 Securing the flash memory module



5. Insert the screw provided in the flash memory module option kit through the hole in the module into the retention post (2) and tighten to secure the module.

Replacing an internal hard drive

Before beginning the replacement process, review General hardware installation sequence on page 10 for procedures you should follow before and after installing or replacing hardware.

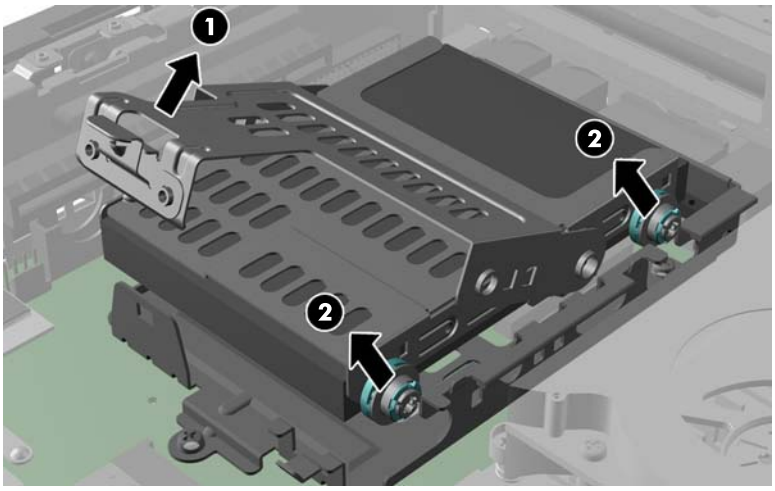
WARNING! You must remove the left side panel to access the system board. Before removing the side access panel, ensure that the thin client is turned off and the power cord is disconnected from the electrical outlet.

Removing an internal hard drive

To remove an internal hard drive:

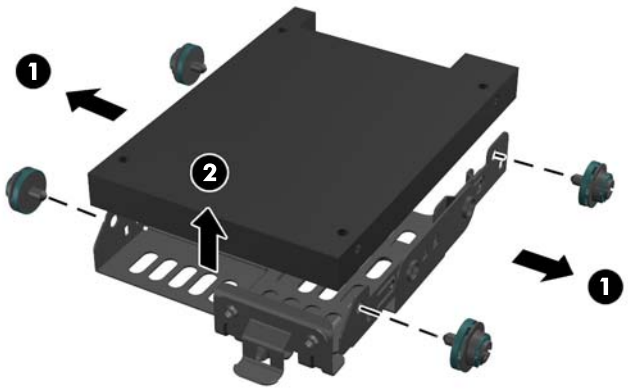
1. If a PCI-Express card is installed, remove it.
2. Lift the drive bracket latch (1) and slide the drive bracket out of the retention bracket (2).

Figure 2-15 Removing the hard drive bracket from the retention assembly



3. Remove the four screws that secure the hard drive in the drive bracket (1) and remove the hard drive from the bracket (2).

Figure 2-16 Removing the hard drive from the drive bracket



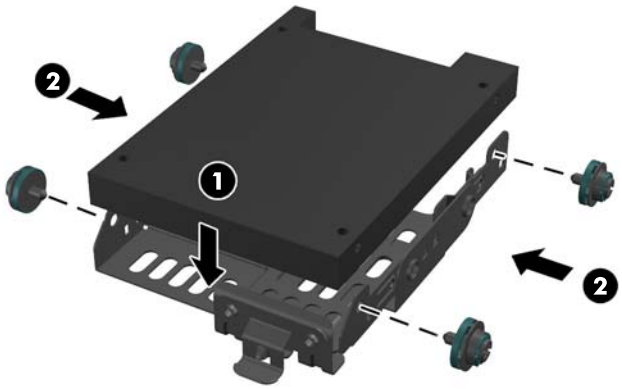
NOTE: Keep the four screws to use to install another hard drive.

Installing an internal hard drive

To install an internal hard drive:

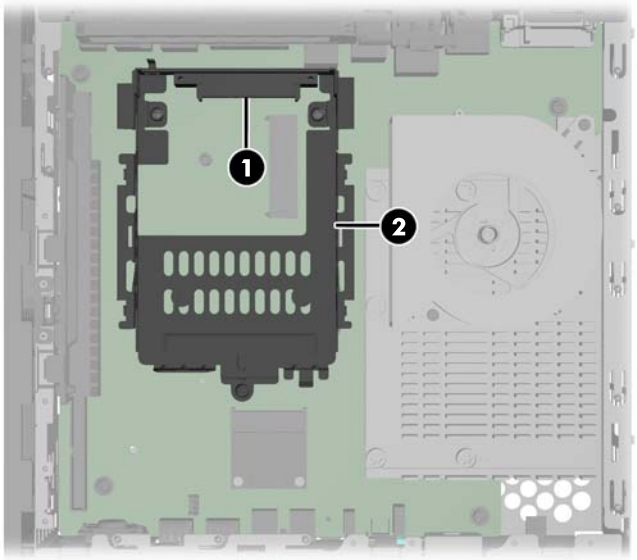
1. If a PCIe card is installed, remove it.
2. Insert the hard drive into the drive bracket (1) and secure it by fastening the four screws provided in the kit (2).

Figure 2-17 Inserting the hard drive into the drive bracket



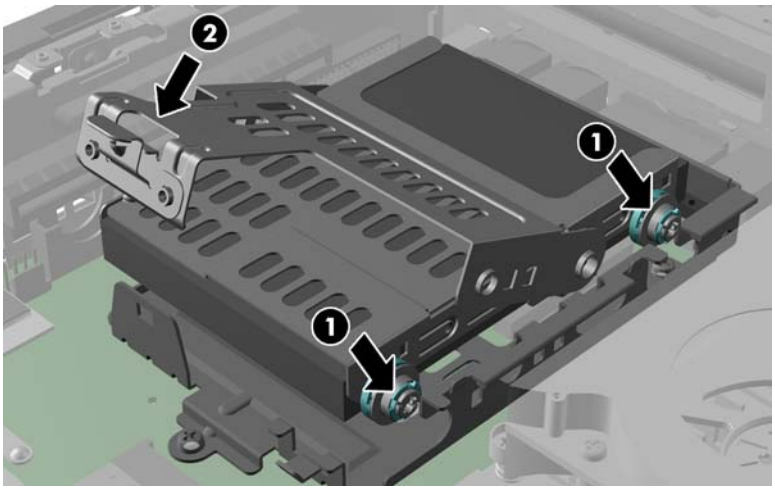
3. Locate the internal hard drive connector (1) and retention bracket (2) on the system board.

Figure 2-18 Locating the hard drive connector and retention bracket on the system board



4. Align the screws on the side of the drive bracket with the slots inside the retention bracket and slide the drive bracket into the retention bracket (1).

Figure 2-19 Securing the hard drive in the drive bracket



5. Press the drive bracket latch down firmly to push the drive onto the internal hard drive connector and secure the drive assembly (2).
6. Reinstall the PCIe card, if necessary. See Installing a PCI-Express card on page 23 for instructions.

Installing a PCI-Express card

You may install an optional PCI-Express (PCIe) card in the HP t610 PLUS Thin Client, which has a PCIe riser card installed.

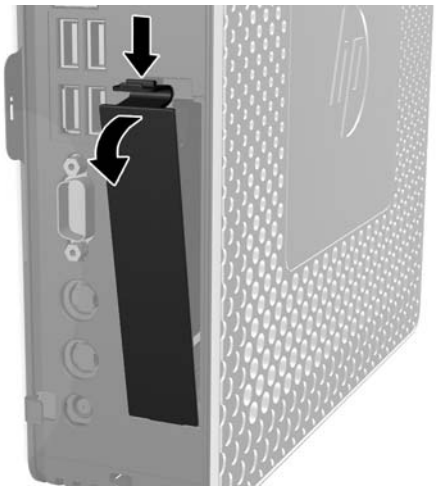
Before beginning the replacement process, review General hardware installation sequence on page 10 for procedures you should follow before and after installing or replacing hardware.

⚠ **WARNING!** You must remove the left side panel to access the system board. Before removing the side access panel, ensure that the thin client is turned off and the power cord is disconnected from the electrical outlet.

To install a PCIe card:

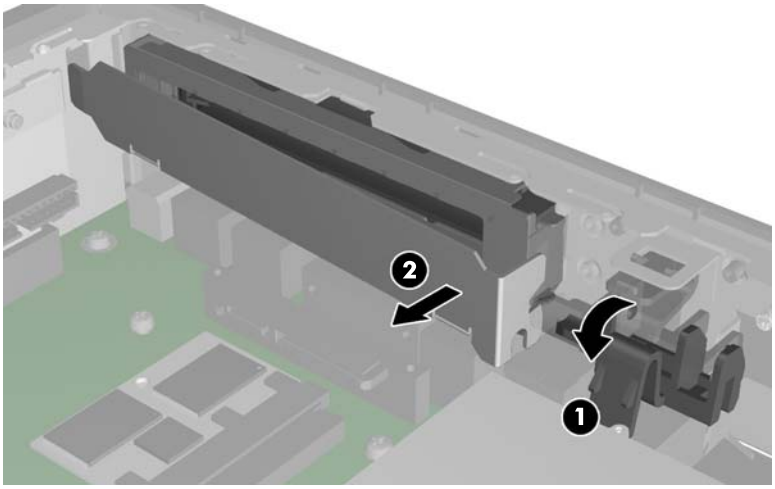
1. Press down on the plastic blank tab and pull it out of the chassis.

Figure 2-20 Removing the expansion slot blank



2. Open the metal latch securing the expansion slot cover on the inside of the thin client (1) and remove the expansion slot cover (2).

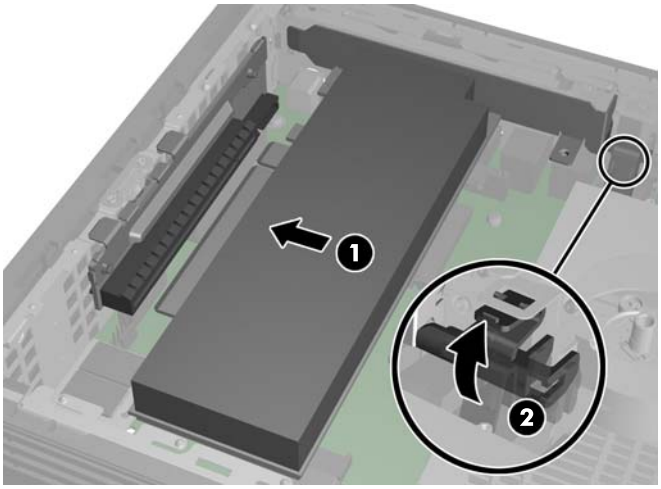
Figure 2-21 Removing the expansion slot cover



⚠ **CAUTION:** Do not lose this expansion slot cover. If you remove an expansion card, you must replace it with a new card or expansion slot cover for proper cooling of internal components during operation.

3. Align the PCIe card connector with the PCI riser card socket and the expansion slot. Press the PCIe card firmly into the socket to ensure that the PCIe card is seated correctly and that the connector fits the expansion slot properly (1).

Figure 2-22 Installing the PCIe card



4. Close the metal latch to secure the PCIe card (2).

Installing external drives

Various external USB drives are available as options for the t610 Series Thin Clients. For more information about these drives, visit http://h10010.www1.hp.com/wwpc/us/en/sm/WF12a/12454-12454-321959.html, or refer to the instructions that accompany the option.

For more information about available options, visit the HP website at http://h10010.www1.hp.com/wwpc/us/en/sm/WF12a/12454-12454-321959.html.

A Specifications

Table A-1 HP t610 Thin Client

Dimensions		
Width (front to back)	220 mm	8.66 in.
Height (top to bottom, without stand)	240 mm	9.45 in
Depth (side to side)	40 mm	1.57 in.
Approximate Weight	1.53 kg	3.37 lb
Temperature Range (fanless design)*		
Operating**	10° to 40° C	50° to 104° F
(max. rate of change is 10° C per hour or 18° F per hour)		
Nonoperating	-30° to 60° C	-22° to 140° F
(max. rate of change is 20° C per hour or 36° F per hour)		
*Specifications are at sea level with altitude derating of 1° C/300m (1.8° F/1000ft) to a maximum of 3km (10,000ft), with no direct, sustained sunlight. Upper limit may be limited by the type and number of options installed.	** The operating temperature range when the thin client is attached to a flat panel using the HP Quick Release is 50° to 95° F (10° to 35° C).	
Relative Humidity (non-condensing)		
Operating	10–90%	10–90%
(max. wet bulb temperature is 28° C or 84.2° F)		
Nonoperating	5–95%	5–95%
(max. wet bulb temperature is 38.7° C or 101.6° F)		
Maximum Altitude (unpressurized)		
Operating	3048 m	10,000 ft
(max. allowed rate of change is 457 m per minute or 1500 ft per minute)		
Nonoperating	9,144 m	30,000 ft
(max. allowed rate of change is 457 m per minute or 1500 ft per minute)		
Power Supply		
Operating Input Voltage Range	100–240 VAC	100–240 VAC
Rated Line Frequency	50–60 Hz	50–60 Hz
Power Output (maximum)	65 W	65 W

Table A-1 HP t610 Thin Client (continued)

Rated Output Current (maximum)	3.33 A	3.33 A
Output Voltage	+19.5 V DC	+19.5 V DC

Table A-2 HP t610 PLUS Thin Client

Dimensions		
Width (front to back)	220 mm	8.66 in.
Height (top to bottom, without stand)	240 mm	9.45 in
Depth (side to side)	65 mm	2.56 in.
Approximate Weight	1.53 kg	3.37 lb
Temperature Range (fanless design)*		
Operating**	10° to 40° C	50° to 104° F
(max. rate of change is 10° C per hour or 18° F per hour)		
Nonoperating	-30° to 60° C	-22° to 140° F
(max. rate of change is 20° C per hour or 36° F per hour)		
*Specifications are at sea level with altitude derating of 1° C/300m (1.8° F/1000ft) to a maximum of 3km (10,000ft), with no direct, sustained sunlight. Upper limit may be limited by the type and number of options installed.	** The operating temperature range when the thin client is attached to a flat panel using the HP Quick Release is 50° to 95° F (10° to 35° C).	
Relative Humidity (non-condensing)		
Operating	10–90%	10–90%
(max. wet bulb temperature is 28° C or 84.2° F)		
Nonoperating	5–95%	5–95%
(max. wet bulb temperature is 38.7° C or 101.6° F)		
Maximum Altitude (unpressurized)		
Operating	3048 m	10,000 ft
(max. allowed rate of change is 457 m per minute or 1500 ft per minute)		
Nonoperating	9,144 m	30,000 ft
(max. allowed rate of change is 45 7m per minute or 1500 ft per minute)		
Power Supply		
Operating Input Voltage Range	100–240 VAC	100–240 VAC
Rated Line Frequency	50–60 Hz	50–60 Hz
Power Output (maximum)	85 W	85 W

Table A-2 HP t610 PLUS Thin Client (continued)

Rated Output Current (maximum)	4.35 A	4.35 A
Output Voltage	+19.5 V DC	+19.5 V DC

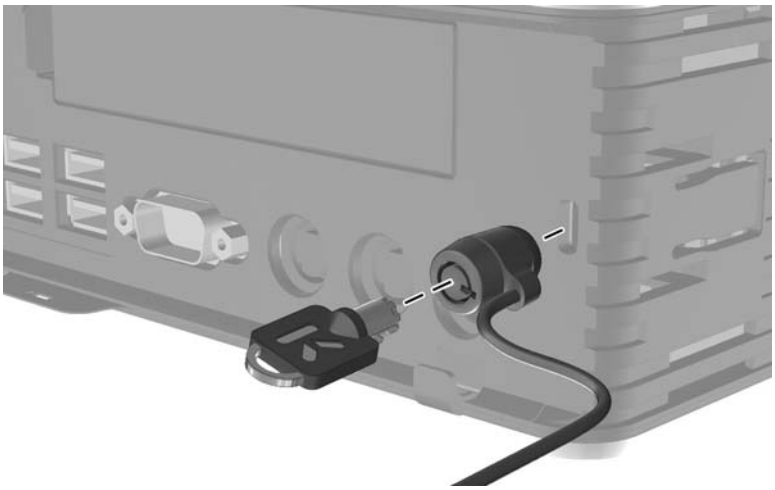
B Security provisions

Securing the thin client

The HP t610 Series Flexible Thin Clients are designed to accept a security cable lock. This cable lock prevents unauthorized removal of the thin client, as well as locking the case. To order this option, visit the HP website at http://h30094.www3.hp.com/product.asp?sku=2563044&pagemode=ca.

1. Locate the cable lock slot on the back panel.
2. Insert the cable lock into the slot, and then use the key to lock it.

Figure B-1 Securing the thin client



C Mounting the thin client

HP Quick Release

The HP t610 Series Flexible Thin Clients incorporate four mounting points on one side of the unit. These mounting points follow the VESA (Video Electronics Standards Association) standard, which provides industry-standard mounting interfaces for Flat Displays (FDs), such as flat panel monitors, flat displays, and flat TVs. The HP Quick Release connects to the VESA-standard mounting points, allowing you to mount the thin client in a variety of orientations.

NOTE: When mounting to a thin client, use the 15 mm screws supplied with the Quick Release Kit.

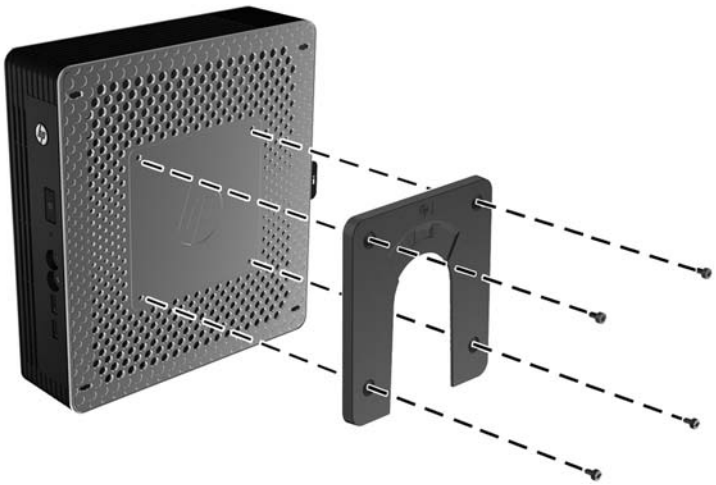
Figure C-1 HP Quick Release

To order this option, visit the HP website at http://h10010.www1.hp.com/wwpc/us/en/sm/WF06c/A10-51210-347116-329242-347116-1838057-1838058-1838059.html.

To use the HP Quick Release with a VESA-configured thin client:

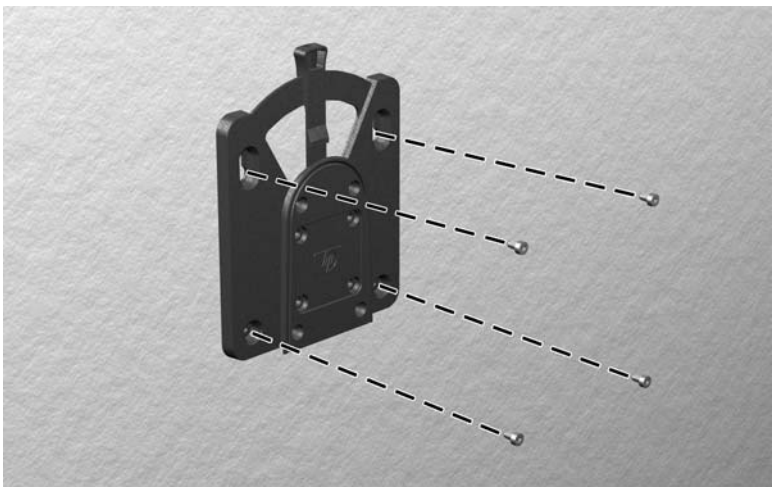
1. Using four 15 mm screws included in the mounting device kit, attach one side of the HP Quick Release to the thin client as shown in the following illustration.

   Figure C-2 Connecting the HP Quick Release to the thin client

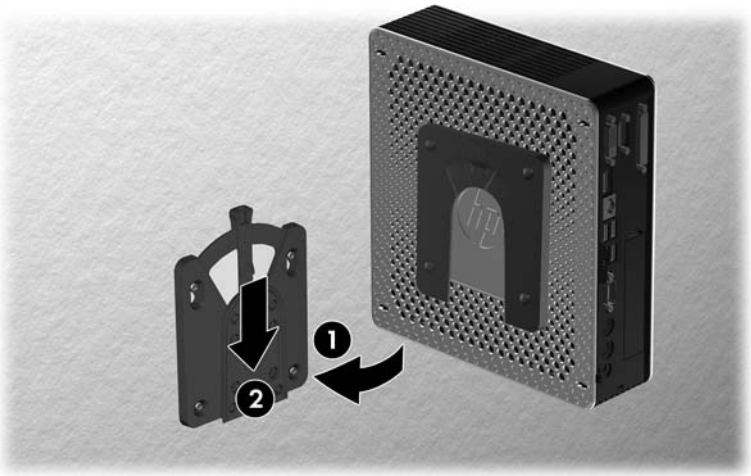
2. Using four screws included in the mounting device kit, attach the other side of the HP Quick Release to the device to which you will mount the thin client. Make sure the release lever points upward.

   Figure C-3 Connecting the HP Quick Release to another device

3. Slide the side of the mounting device attached to the thin client (1) over the other side of the mounting device (2) on the device on which you want to mount the thin client. An audible 'click' indicates a secure connection.

Figure C-4 Connecting the thin client



NOTE: When attached, the HP Quick Release automatically locks in position. You only need to slide the lever to one side to remove the thin client.

CAUTION: To ensure proper function of the HP Quick Release and a secure connection of all components, make sure both the release lever on one side of the mounting device and the rounded opening on the other side face upward.

Supported mounting options

The following illustrations demonstrate some of the supported mounting options for the mounting bracket.

- You can mount the thin client on the back of a flat panel monitor stand.

Figure C-5 Thin client mounted on back of monitor stand

- You can mount the thin client on a wall.

Figure C-6 Thin client mounted on wall

- You can mount the thin client under a desk with at least one inch of clearance.

Figure C-7 Thin client mounted under desk

D Thin client operation

Routine thin client care

Use the following information to properly care for your thin client:

- Never operate the thin client with the outside panel removed.
- Keep the thin client away from excessive moisture, direct sunlight, and extreme heat and cold. For information about the recommended temperature and humidity ranges for the thin client, see Specifications on page 26.
- Keep liquids away from the thin client and keyboard.
- Turn off the thin client and wipe the exterior with a soft, damp cloth as needed. Using cleaning products may discolor or damage the finish.

Supported orientations

HP supports the following orientations for the thin client.

⚠ **CAUTION:** You must adhere to HP-supported orientations to ensure your thin clients function properly.

- You can place the thin client vertically using the supplied stand.

Figure D-1 Vertical orientation

- You can lay the thin client horizontally on its rubber feet.

Figure D-2 Horizontal orientation

- You can lay the thin client under a monitor stand with at least one inch of clearance.

Figure D-3 Under monitor stand

Non-supported orientation

HP does not support the following orientation for the thin client.

CAUTION: Non-supported placement of thin clients could result in operation failure and/or damage to the devices.

CAUTION: Thin clients require proper ventilation to maintain operating temperature. Do not block the vents.

Do not put thin clients in drawers or other sealed enclosures. Do not place a monitor or other object on top of the thin client. Thin clients require proper ventilation to maintain operating temperatures.

Figure D-4 Do not put thin clients in drawers or other sealed enclosures

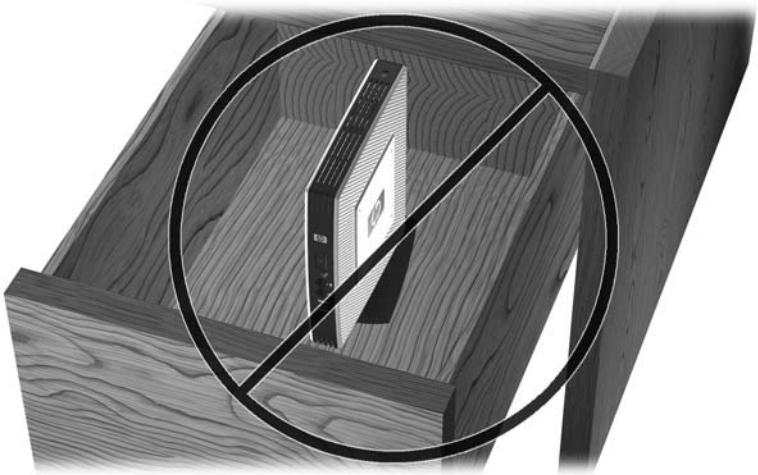


Figure D-5 Do not place a monitor on the thin client

E Electrostatic discharge

A discharge of static electricity from a finger or other conductor may damage system boards or other static-sensitive devices. This type of damage may reduce the life expectancy of the device.

Preventing electrostatic damage

To prevent electrostatic damage, observe the following precautions:

- Avoid hand contact by transporting and storing products in static-safe containers.
- Keep electrostatic-sensitive parts in their containers until they arrive at static-free workstations.
- Place parts on a grounded surface before removing them from their containers.
- Avoid touching pins, leads, or circuitry.
- Always be properly grounded when touching a static-sensitive component or assembly.

Grounding methods

There are several methods for grounding. Use one or more of the following methods when handling or installing electrostatic-sensitive parts:

- Use a wrist strap connected by a ground cord to a grounded Thin Client chassis. Wrist straps are flexible straps of 1 megohm +/- 10 percent resistance in the ground cords. To provide proper grounding, wear the strap snug against the skin.
- Use heelstraps, toestraps, or bootstraps at standing workstations. Wear the straps on both feet when standing on conductive floors or dissipating floor mats.
- Use conductive field service tools.
- Use a portable field service kit with a folding static-dissipating work mat.

If you do not have any of the suggested equipment for proper grounding, contact an HP authorized dealer, reseller, or service provider.

NOTE: For more information about static electricity, contact an HP authorized dealer, reseller, or service provider.

F Shipping information

Shipping preparation

Follow these suggestions when preparing to ship the thin client:

1. Turn off the thin client and external devices.
2. Disconnect the power cord from the electrical outlet, then from the thin client.
3. Disconnect the system components and external devices from their power sources, then from the thin client.
4. Pack the system components and external devices in their original packing boxes or similar packaging with sufficient packing material to protect them.

NOTE: For environmental nonoperating ranges, see Specifications on page 26.

Important service repair information

In all cases, remove and safeguard all external options before returning the thin client to HP for repair or exchange.

In countries that support customer mail-in repair by returning the same unit to the customer, HP makes every effort to return the repaired unit with the same internal memory and flash modules that were sent.

In countries that do not support customer mail-in repair by returning the same unit to the customer, all internal options should be removed and safeguarded in addition to the external options. The thin client should be restored to the **original configuration** before returning it to HP for repair.

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