



## HP Notebook PCs - Guide to Using 2011 and 2012 Business Notebooks with External Displays

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HP EliteBook Notebook PCs, HP EliteBook Mobile Workstations, and HP ProBook Notebook PCs offer a variety of combinations allowing multiple displays to be connected. This document explains the options for the following notebook PCs:

### HP EliteBook Notebook PCs (p-series)

- **2012:** 2170p, 2570p, 8470p, 8570p
- **2011:** 2560p, 2760p, 8460p, 8560p

### HP EliteBook Mobile Workstations (w-series)

- **2012:** 8470w, 8570w, 8770w
- **2011:** 8460w, 8560w, 8760w

### HP ProBook Notebook PCs (b-series)

- **2012:** 6470b, 6475b, 6570b
- **2011:** 6360b, 6460b, 6465b, 6560b, 6565b

## Maximum number of displays

Refer to the following tables for the maximum number of displays for the 2011 and 2012 HP EliteBook Notebook PCs, HP EliteBook Mobile Workstations, and HP ProBook Notebook PCs:

**NOTE:** The maximum number of displays vary based on the product model, the graphics card installed, connection type, and the type of docking station used. For more information, refer to the product specifications on the [HP Business Support Center](#) or the quickspecs on the [HP Product Bulletin](#).

**NOTE:** The LCD monitor native resolution must be less than or equal to the resolution that the notebook can support through its VGA port or DisplayPort or via the DVI-D port on the Docking Station. Otherwise, the image on the monitor will not be optimal. For HP LCD monitor information, see the [2011 HP Business LCD Monitor Quick Reference Guide](#).

### HP EliteBook Notebook PCs

Maximum Number of Displays	2170p	2560p	2570p	2760p	8460p	8470p	8560p	8570p
Two displays		X		X X			X	
Three displays using integrated Intel	X		X			X		X
Five displays using AMD Eyefinity					X X	X X	X X	

**NOTE:** The HP EliteBook 2760p can output up to a maximum of two displays in clone or extended mode via the VGA and DP ports on the HP 2740P Series Docking Station (WA995AA). The notebook screen is counted as one display so if it is used, only one external display can be used. If the notebook screen is not used, two external displays can be used.

### HP EliteBook Mobile Workstations

Maximum Number of Displays	8460w	8470w	8560w	8570w	8760w	8770w
Two displays			X		X	
Four displays using NVIDIA graphics				X		X
Five displays using AMD Eyefinity Technology	X X	X X	X X	X X	X X	X X

### HP ProBook Notebook PCs

Maximum Number of Displays	6360b	6460b	6465b	6470b	6475b	6560b	6565b	6570b
Two displays	X	X	X			X	X	
Three displays using integrated Intel graphics				X				X
Four displays using AMD Eyefinity Technology					X			
Five displays using AMD Eyefinity Technology		X		X		X		X

#### HP USB Graphics Adapter

The [HP USB Graphics Adapter](#) (NL571AA) can be used to connect up to six additional external displays. Please note that the experience in this scenario can be varied, and does not match that of a docking station (auto adjust, discovery, etc.). The HP USB Graphics Adapter specifications are as follows:

- Video interface: VGA or DVI-I
- Supported resolutions: Up to 1920 x 1080 (16x9 widescreen), 1680 x 1050 (16x10 widescreen) or 1600 x 1200 (traditional).

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## Docking station compatibility

The following tables identify which docking stations are compatible with different 2011 and 2012 models of HP EliteBook Notebook PCs, HP EliteBook Mobile Workstations, and HP ProBook Notebook PCs:

**NOTE:** The 2012 HP Docking Stations (A7E32AA, A7E34AA, A7E36AA, A7E38AA, A9B77AA, and B2Q65AV) have USB 3.0 ports, while the 2011 HP Docking Stations (VB041AA, VB043AA, NZ222AA, NZ223AA, and WA995AA) have USB 2.0 ports. The computer, docking station, and monitor must all support USB 3.0 and DisplayPort 1.2 to benefit from the advanced speeds or features that these technologies provide. If one of the devices does not support these technologies, you will still have USB 2.0 and DisplayPort 1.1 functionality. For more information, see the [Docking station components](#) section.

#### HP EliteBook Notebook PCs

Docking Station	Part Number	2170p	2560p	2570p	2760p	8460p	8470p	8560p	8570p
HP 90W Docking Station	A7E32AA	X				X	X	X	X
HP 90W Docking Station	VB041AA	X				X	X	X	X
HP 90W Docking Station TAA (DIB)	B2Q65AV	X				X	X	X	X
HP 120W Advanced Docking Station	A7E36AA	X				X	X	X	X
HP 120W Advanced Docking Station	NZ222AA	X				X	X	X	X
HP 230W Advanced Docking Station	A7E38AA	X				X	X	X	X
HP 230W Advanced Docking Station	NZ223AA	X				X	X	X	X
HP 230W Docking Station	A7E34AA	X				X	X	X	X
HP 230W Docking Station	VB043AA	X				X	X	X	X
HP 2570P Series Docking Station	A9B77AA		X	X					
HP 2740P Docking Station	WA995AA				X				

#### HP EliteBook Mobile Workstations

Docking Station	Part Number	8460w	8470w	8560w	8570w	8760w	8770w
HP 90W Docking Station	A7E32AA	X	X				
HP 90W Docking Station	VB041AA	X	X				
HP 90W Docking Station TAA (DIB)	B2Q65AV	X	X				
HP 120W Advanced Docking Station	A7E36AA	X	X	X	X		
HP 120W Advanced Docking Station	NZ222AA	X	X	X	X		
HP 230W Advanced Docking Station	A7E38AA	X	X	X	X	X	X
HP 230W Advanced Docking Station	NZ223AA	X	X	X	X	X	X
HP 230W Docking Station	A7E34AA	X	X	X	X	X	X
HP 230W Docking Station	VB043AA	X	X	X	X	X	X

#### HP ProBook Notebook PCs

Docking Station	Part Number	6360b	6460b	6465b	6470b	6475b	6560b	6565b	6570b
HP 90W Docking Station	A7E32AA	X	X	X	X	X	X	X	X
HP 90W Docking Station	VB041AA	X	X	X	X	X	X	X	X
HP 90W Docking Station TAA (DIB)	B2Q65AV	X	X	X	X	X	X	X	X
HP 120W Advanced Docking Station	A7E36AA	X	X	X	X	X	X	X	X
HP 120W Advanced Docking Station	NZ222AA	X	X	X	X	X	X	X	X
HP 230W Advanced Docking Station	A7E38AA	X	X	X	X	X	X	X	X
HP 230W Advanced Docking Station	NZ223AA	X	X	X	X	X	X	X	X
HP 230W Docking Station	A7E34AA	X	X	X	X	X	X	X	X
HP 230W Docking Station	VB043AA	X	X	X	X	X	X	X	X

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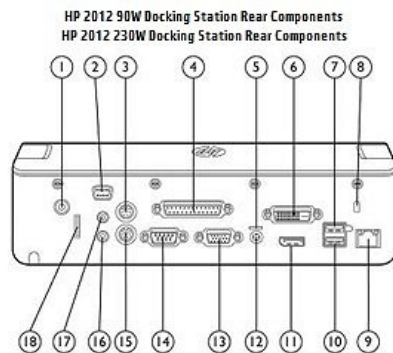
## Docking station components

The following images identify the components of different docking stations for the 2011 and 2012 models of HP EliteBook Notebook PCs, HP EliteBook Mobile Workstations, and HP ProBook Notebook PCs:

**NOTE:** The computer, docking station, and monitor must all support USB 3.0 and DisplayPort 1.2 to benefit from the advanced speeds or features that these technologies provide. If one of the devices does not support these technologies, you will still have USB 2.0 and DisplayPort 1.1 functionality.

**NOTE:** The DVI-D port on the HP 90W Docking Stations (A7E32AA, B2Q65AV, and VB041AA), HP 230W Docking Stations (A7E34AA and VB043AA), HP 120W Advanced Docking Stations (A7E36AA and NZ222AA) and HP 230W Advanced Docking Stations (A7E38AA and NZ223AA) is a single link DVI-D port even though it looks like a dual link DVI-D port. As such, it will only support resolutions up to 1920 x 1200 at reduced blanking. In order to use the 30" LP3065 or the ZR30W monitor, use the HP DisplayPort to Dual Link DVI-D Adapter (NR078AA) via the DP on the notebook (if there is one) or on the docking station.

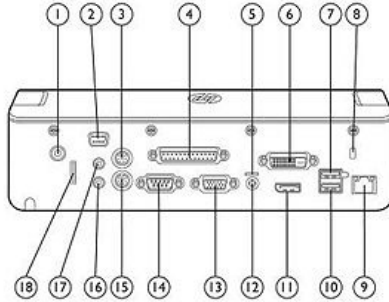
### HP 2012 90W (A7E32AA / B2Q65AV) and 230W (A7E34AA) Docking Station



- |                                       |                                 |
|---------------------------------------|---------------------------------|
| 1. HP Docking Station Cable Lock slot | 10. Always-On USB 3.0 port      |
| 2. Monitor stand port                 | 11. DisplayPort connector       |
| 3. Mouse connector                    | 12. Power connector             |
| 4. Parallel port                      | 13. External monitor (VGA) port |
| 5. Power light                        | 14. Serial port                 |
| 6. Digital video (DVI-D) port         | 15. Keyboard connector          |
| 7. Powered USB 3.0 port               | 16. Line-In jack                |
| 8. Security cable slot                | 17. Audio-out (headphone) jack  |
| 9. RJ-45 (network) jack               | 18. Security cable tab          |

### HP 2011 90W (VB041AA) and 230W (VB043AA) Docking Station

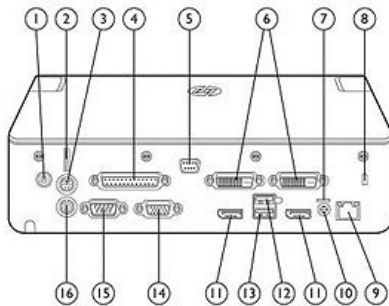
**HP 90W Docking Station Rear Components  
HP 230W Docking Station Rear Components**



- |                                       |                                 |
|---------------------------------------|---------------------------------|
| 1. HP Docking Station Cable Lock slot | 10. Always-On USB 2.0 ports     |
| 2. Monitor stand port                 | 11. DisplayPort connector       |
| 3. Mouse connector                    | 12. Power connector             |
| 4. Parallel port                      | 13. External monitor (VGA) port |
| 5. Power light                        | 14. Serial port                 |
| 6. Digital video (DVI-D) port         | 15. Keyboard connector          |
| 7. Powered USB 2.0 port               | 16. Line-In jack                |
| 8. Security cable slot                | 17. Audio-out (headphone) jack  |
| 9. RJ-45 (network) jack               | 18. Security cable tab          |

**HP 2012 120W (A7E36AA) and 230W (A7E38AA) Advanced Docking Station**

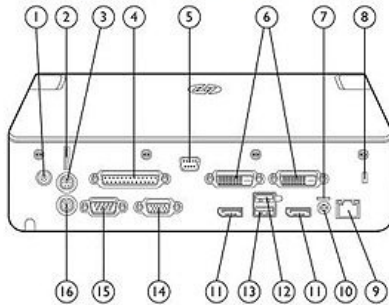
**HP 2012 120W Advanced Docking Station Rear Components  
HP 2012 230W Advanced Docking Station Rear Components**



- |                                       |                                 |
|---------------------------------------|---------------------------------|
| 1. HP Docking Station Cable Lock slot | 9. RJ-45 (network) jack         |
| 2. Security cable tab                 | 10. Power connector             |
| 3. Mouse connector                    | 11. DisplayPort connector       |
| 4. Parallel port                      | 12. Powered USB 2.0 port        |
| 5. Monitor stand port                 | 13. Always-On USB 2.0 port      |
| 6. Digital video (DVI-D) ports        | 14. External monitor (VGA) port |
| 7. Power light                        | 15. Serial port                 |
| 8. Security cable slot                | 16. Keyboard connector          |

**HP 2011 120W (NZ222AA) and 230W (NZ223AA) Advanced Docking Station**

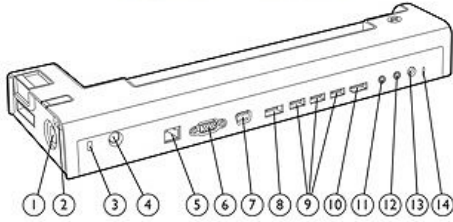
**HP 120W Advanced Docking Station Rear Components  
HP 230W Advanced Docking Station Rear Components**



- |                                       |                                 |
|---------------------------------------|---------------------------------|
| 1. HP Docking Station Cable Lock slot | 9. RJ-45 (network) jack         |
| 2. Security cable tab                 | 10. Power connector             |
| 3. Mouse connector                    | 11. DisplayPort connector       |
| 4. Parallel port                      | 12. Powered USB 2.0 port        |
| 5. Monitor stand port                 | 13. Always-On USB 2.0 port      |
| 6. Digital video (DVI-D) ports        | 14. External monitor (VGA) port |
| 7. Power light                        | 15. Serial port                 |
| 8. Security cable slot                | 16. Keyboard connector          |

**HP 2570P Series Docking Station (A9B77AA)**

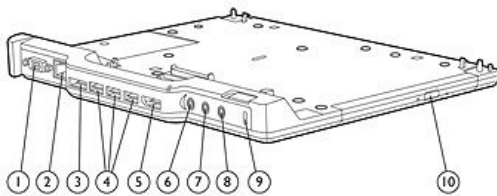
HP 2570p Docking Station Rear/Right Side



- |                                |                                                            |
|--------------------------------|------------------------------------------------------------|
| 1. HP Lock (Lock not included) | 8. eSATA port                                              |
| 2. Powered USB 2.0 port        | 9. USB 3.0 ports (3)                                       |
| 3. Security lock slot          | 10. DisplayPort 1.2                                        |
| 4. HP Lock slot                | 11. Audio-in jack                                          |
| 5. LAN/Ethernet jack           | 12. Audio-out jack                                         |
| 6. VGA port                    | 13. Power connector                                        |
| 7. Monitor stand port          | 14. Power in LED (indicates docking station is plugged in) |

### HP 2740P Series Docking Station (WA995AA)

HP 2740 Ultra-Slim Expansion Base Rear/Right Side



- |                      |                       |
|----------------------|-----------------------|
| 1. VGA port          | 6. Audio-in jack      |
| 2. LAN/Ethernet port | 7. Audio-out jack     |
| 3. eSATA port        | 8. Power connector    |
| 4. USB 2.0 ports (3) | 9. Notebook lock slot |
| 5. DisplayPort 1.1   | 10. Optical drive     |

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## Docking accessory compatibility

The following docking accessories are compatible with all 2011 and 2012 models of HP EliteBook Notebook PCs, HP EliteBook Mobile Workstations, and HP ProBook Notebook PCs:

Docking Accessory	Part Number
HP Adjustable Display Stand	AW663AA
HP Adjustable Dual Monitor Stand	AW664AA
HP Display and Notebook Stand	AW662AA
HP Dual Hinge Notebook Stand	AW661AA
HP LAN and USB Travel Hub	BM868AA
HP LCD Monitor Stand	QM196AA
HP USB 2.0 Port Replicator	H1L07AA
HP USB 3.0 Port Replicator	H1L08AA

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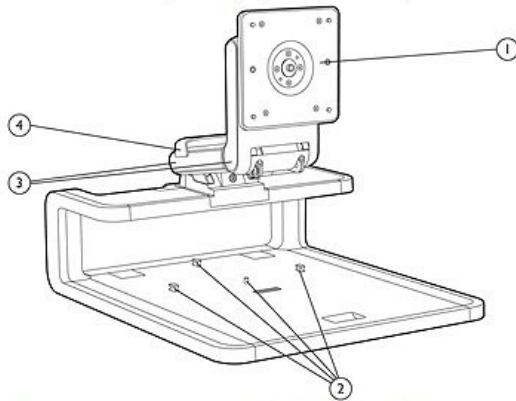
## Docking accessory components

The following images identify the components of different docking accessories for the 2011 and 2012 models of HP EliteBook Notebook PCs, HP EliteBook Mobile Workstations, and HP ProBook Notebook PCs:

### HP Adjustable Display Stand (AW663AA)



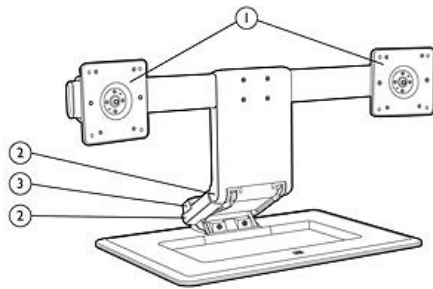
HP Adjustable Display Stand (AW663AA)



- 1. VESA display mount
- 2. Docking posts
- 3. Dual-hinged display stand
- 4. Cable management channel

HP Adjustable Dual Display Stand (AW664AA)

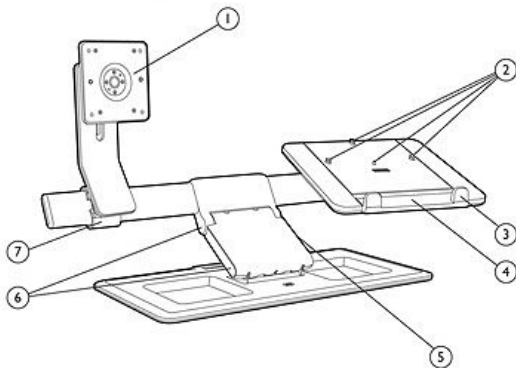
HP Adjustable Dual Display Stand (AW664AA)



- 1. VESA display mounts
- 2. Dual-hinged display stand
- 3. Cable management channel

HP Display and Notebook Stand (AW662AA)

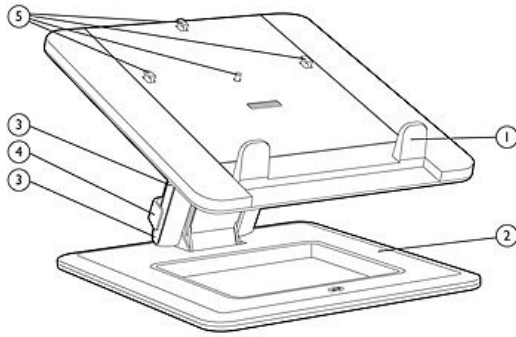
HP Display and Notebook Stand (AW662AA)



- 1. VESA display mounts
- 2. Docking posts
- 3. Adjustable shelf
- 4. Notebook platform
- 5. Cable management channel (not shown)
- 6. Dual-hinged display stand
- 7. Horizontal adjustment bracket

HP Dual Hinge Notebook Stand (AW661AA)

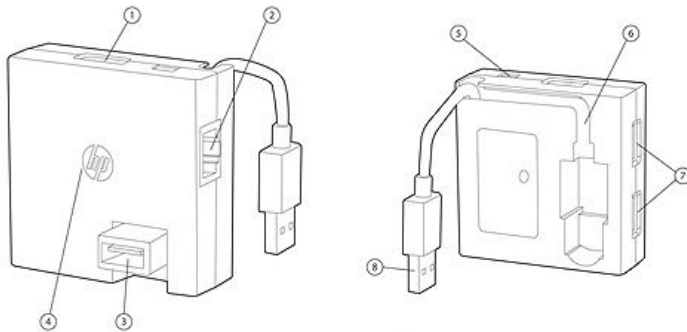
HP Dual Hinge Notebook Stand (AW661AA)



- 1. Adjustable shelf
- 2. Base
- 3. Dual-hinged display stand
- 4. Cable management channel
- 5. Docking posts

HP LAN and USB Travel Hub (BM868AA)

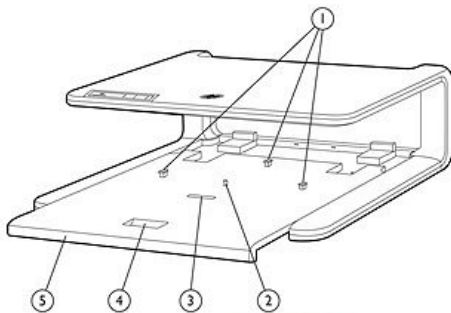
HP LAN and USB Travel Hub



- 1. USB 2.0 Port
- 2. LAN or RJ-45 Port
- 3. (1) USB 2.0 port with swivel feature for larger USB devices
- 4. Connection Indicator Light
- 5. DC Power Port
- 6. Upstream cable storage slot
- 7. (2) USB 2.0 Ports
- 8. USB 2.0 upstream cable

HP LCD Monitor Stand (QM196AA)

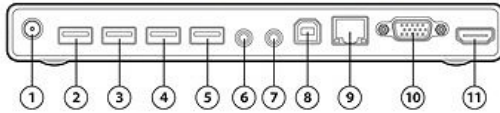
HP LCD Monitor Stand (QM196AA)



- 1. Docking posts
- 2. Docking release post
- 3. Eject button
- 4. Sliding tray button
- 5. Sliding tray

HP 2005pr USB 2.0 Port Replicator (H1L07AA)

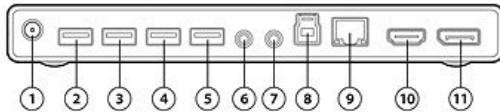
HP 2005pr USB 2.0 Port Replicator (H1L07AA) back view



- |                             |                                            |
|-----------------------------|--------------------------------------------|
| 1. Power connector          | 7. Audio-out headphone jack                |
| 2. USB 2.0 port             | 8. USB 2.0 port for connecting notebook PC |
| 3. USB 2.0 port             | 9. RJ-45 network jack                      |
| 4. USB 2.0 port             | 10. VGA port                               |
| 5. USB 2.0 port             | 11. HDMI port                              |
| 6. Audio-in microphone jack |                                            |

#### HP 3005pr USB 3.0 Port Replicator (H1L08AA)

HP 3005pr USB 3.0 Port Replicator (H1L08AA) back view



- |                             |                                            |
|-----------------------------|--------------------------------------------|
| 1. Power connector          | 7. Audio-out headphone jack                |
| 2. USB 2.0 port             | 8. USB 3.0 port for connecting notebook PC |
| 3. USB 2.0 port             | 9. RJ-45 network jack                      |
| 4. USB 3.0 port             | 10. HDMI port                              |
| 5. USB 3.0 port             | 11. DisplayPort                            |
| 6. Audio-in microphone jack |                                            |

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## Display resolution specifications

The following tables show display resolutions specific to each notebook and docking station:

**NOTE:** Resolutions are dependent upon monitor capability, resolution, connection type, color depth settings, and type of graphics card.

HP EliteBook Notebook PCs, HP EliteBook Mobile Workstations, and HP ProBook Notebook PCs with discrete graphic processing units can support resolutions up to 2560 x 2048 using DisplayPort 1.2 and resolutions up to 2560 x 1600 using DisplayPort 1.1.

#### HP EliteBook Notebook PCs

Internal display native resolution	2170p	2560p	2570p	2760p	8460p	8470p	8560p	8570p
11.6" diagonal LED-backlit HD anti-glare (1366 x 768)	X							
12.1-inch diagonal LED-backlit WXGA ultra wide viewing angle anti-glare (1280 x 800)				X				
12.5-inch diagonal LED-backlit HD anti-glare (1366 x 768)		X	X					
14.0-inch diagonal LED-backlit HD anti-glare (1366 x 768)					X			
14.0-inch diagonal LED-backlit HD+ anti-glare (1600 x 900)					X			
14.0-inch diagonal LED-backlit HD 16:9 widescreen anti-glare (1366 x 768)						X		
14.0-inch diagonal LED-backlit HD+ 16:9 widescreen anti-glare (1600 x 900)						X		
15.6-inch diagonal LED-backlit HD anti-glare (1366 x 768)							X	
15.6-inch diagonal LED-backlit HD+ WVA anti-glare (1600 x 900)							X	
15.6-inch diagonal LED-backlit FHD WVA anti-glare (1920 x 1080)							X	
15.6-inch diagonal LED-backlit HD 16:9 anti-glare (1366 x 768)								X
15.6-inch diagonal LED-backlit HD+ 16:9 WVA anti-glare (1600 x 900)								X
15.6-inch diagonal LED-backlit FHD WVA anti-glare (1920 x 1080)								X



External maximum resolution via VGA on notebook or docking station	2170p	2560p	2570p	2760p	8460p	8470p	8560p	8570p
2048 x 1536 at 75 Hz, and lower resolutions at up to 100 Hz	X	X	X	X	X	X	X	X
External maximum resolution via DisplayPort on notebook or docking station	2170p	2560p	2570p	2760p	8460p	8470p	8560p	8570p
No DisplayPort on notebook				X				
2560 x 1600, 30-bit color depth at 60 Hz, and full HD (1920 x 1080) monitors, 24-bit color depth at 120 Hz	X	X	X	X				
2560 x 2048, 30-bit color depth at 60 Hz, and full HD (1920 x 1080) monitors, 24-bit color depth at 120 Hz					X	X	X	X
External maximum resolution via DVI port on docking station only	2170p	2560p	2570p	2760p	8460p	8470p	8560p	8570p
No DVI port	X	X	X	X				
DVI-D (single link) video signal available through DVI port in optional HP Docking Station or HP Advanced Docking Station (sold separately)					X	X	X	X
Supports resolutions up to 1600 x 1200 at both full and reduced blanking, and 1920 x 1200 at reduced blanking					X	X	X	X

#### HP EliteBook Mobile Workstations

Internal display native resolution	8460w	8470w	8560w	8570w	8760w	8770w
14.0-inch diagonal LED-backlit HD anti-glare (1366 x 768)	X					
14.0-inch diagonal LED-backlit HD+ anti-glare (1600 x 900)	X					
14.0-inch diagonal LED-backlit HD 16:9 widescreen anti-glare (1366 x 768)		X				
14.0-inch diagonal LED-backlit HD+ 16:9 widescreen anti-glare (1600 x 900)		X				
15.6-inch diagonal LED-backlit HD+ WVA anti-glare (1600 x 900)			X	X		
15.6-inch diagonal LED-backlit FHD WVA anti-glare (1920 x 1080)			X	X		
15.6-inch diagonal LED-backlit FHD UWVA anti-glare DreamColor (1920 x 1080)			X	X		
17.3-inch diagonal LED-backlit HD+ WVA anti-glare (1600 x 900)					X	X
17.3-inch diagonal LED-backlit FHD WVA anti-glare (1920 x 1080)					X	X
17.3-inch diagonal LED-backlit FHD UWVA anti-glare DreamColor* (1920 x 1080)					X	X

**NOTE:** \* HP EliteBook 8760w Mobile Workstations with DreamColor technology are not available with HP Mobile Broadband.

External maximum resolution via VGA on notebook or docking station	8460w	8470w	8560w	8570w	8760w	8770w
2048 x 1536 at 75 Hz, and lower resolutions at up to 100 Hz	X	X	X	X	X	X
External maximum resolution via DisplayPort on notebook or docking station	8460w	8470w	8560w	8570w	8760w	8770w
2560 x 1600, 30-bit color depth at 60 Hz, and full HD (1920 x 1080) monitors, 24-bit color depth at 120 Hz			X	X	X	X
2560 x 2048, 30-bit color depth at 60 Hz, and full HD (1920 x 1080) monitors, 24-bit color depth at 120 Hz	X	X				

External maximum resolution via DVI port on docking station only	8460w	8470w	8560w	8570w	8760w	8770w
DVI-D (single link) video signal available through DVI port in optional HP Docking Station or HP Advanced Docking Station (sold separately)	X	X	X	X	X	X
Supports resolutions up to 1600 x 1200 at both full and reduced blanking, and 1920 x 1200 at reduced blanking	X	X	X	X	X	X

#### HP ProBook Notebook PCs

Internal display native resolution	6360b	6460b	6465b	6470b	6475b	6560b	6565b	6570b
13.3-inch diagonal LED-backlit HD anti-glare (1366 x 768)	X							
14.0-inch diagonal LED-backlit HD anti-glare (1366 x 768)		X	X					
14.0-inch diagonal LED-backlit HD+ anti-glare (1600 x 900)		X	X					
14.0-inch diagonal LED-backlit HD 16:9 anti-glare (1366 x 768)				X	X			
14.0-inch diagonal LED-backlit HD+ 16:9 anti-glare (1600 x 900)				X	X			
15.6-inch diagonal LED-backlit HD anti-glare (1366 x 768)						X	X	
15.6-inch diagonal LED-backlit HD+ WVA anti-glare (1600 x 900)						X	X	
15.6-inch diagonal LED-backlit HD 16:9 anti-glare (1366 x 768)								X
15.6-inch diagonal LED-backlit HD+ 16:9 anti-glare (1600 x 900)								X
External maximum resolution via VGA on notebook or docking station	6360b	6460b	6465b	6470b	6475b	6560b	6565b	6570b
2048 x 1536 at 75 Hz, and lower resolutions at up to 100 Hz	X	X	X	X	X	X	X	X
External maximum resolution via DisplayPort on notebook or docking station	6360b	6460b	6465b	6470b	6475b	6560b	6565b	6570b
2560 x 1600, 30-bit color depth at 60 Hz, and full HD (1920 x 1080) monitors, 24-bit color depth at 120 Hz	X		X	X			X	X
2560 x 2048, 30-bit color depth at 60 Hz, and full HD (1920 x 1080) monitors, 24-bit color depth at 120 Hz		X				X		
4096 x 2160, 30-bit color depth at 60 Hz, and full HD (1920 x 1080) monitors, 24-bit color depth at 120 Hz					X			
External maximum resolution via DVI port on docking station only	6360b	6460b	6465b	6470b	6475b	6560b	6565b	6570b
DVI-D (single link) video signal available through DVI port in optional HP Docking Station or HP Advanced Docking Station (sold separately)	X	X	X	X	X	X	X	X
Supports resolutions up to 1600 x 1200 at both full and reduced blanking, and 1920 x 1200 at reduced blanking	X	X	X	X	X	X	X	X

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## Types of connections

The following images identify the types of connections which are compatible with different docking stations for the 2011 and 2012 models of HP EliteBook Notebook PCs, HP EliteBook Mobile Workstations, and HP ProBook Notebook PCs:

## DisplayPort

The HP DisplayPort provides high performance digital connectivity for use at work or home. Designed to replace the DVI, VGA, and HDMI connectors, DisplayPort can accommodate audio, video, Blu-ray Disc content, WQXGA+ Resolution, and other support features. The DisplayPort is also designed to be a space saving tool that can still deliver high resolution digital display, digital audio, and bi-directional communications.



## HDMI

HDMI stands for High-Definition Multimedia Interface. An HDMI connection is used to transfer high definition digital video and high definition audio signals. Ideal for HDTV, HDMI supports standard, enhanced, or high-definition video and audio in a smaller cable size than DVI. To use an HDMI connection, simply attach the HDMI cable to the first possible HDMI connectors on the TV and source device.



## DVI

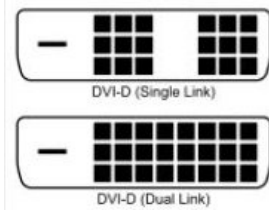
DVI stands for Digital Visual Interface. A DVI connection is used to transfer high definition digital video signals without audio. A separate audio connection must be used. DVI cables have been used primarily in monitors but can also be found in HDTV receivers, DVD players, computers, or other video equipment that demand better signal quality over standard.



## DVI-D

DVI-D single link is designed for digital video signals and can support high-definition display resolutions up to 1,920 x 1,080.

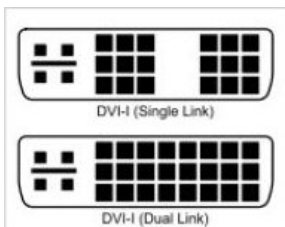
DVI-D dual link is designed for digital video signals and can support high-definition display resolutions up to 2,048 x 1,536.



## DVI-I

DVI-I single link is designed for digital and analog video signals and can support high-definition display resolutions up to about 1,920 x 1,080 @ 60Hz.

DVI-I dual link is designed for digital video signals and can support high-definition display resolutions up to 2,048 x 1,536 @ 60Hz.



## VGA

VGA stands for Video Graphics Array and is primarily used by PCs to deliver VGA compatible analog display resolutions. A VGA connector has three rows of five pins. To use, connect into the VGA video connector on the back of the computer or other VGA device. A separate audio cable must be used. Once connected, set the computer or source device to a display resolution that is compatible for both the TV and the PC.



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## Types of adapters


The following images identify the types of adapters which are compatible with different docking stations for the 2011 and 2012 models of HP EliteBook Notebook PCs, HP EliteBook Mobile Workstations, and HP ProBook Notebook PCs:

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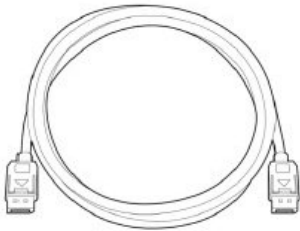
**NOTE:** The DVI-D port on the HP 90W Docking Stations (A7E32AA, B2Q65AV, and VB041AA), HP 230W Docking Stations (A7E34AA and VB043AA), HP 120W Advanced Docking Stations (A7E36AA and NZ222AA) and HP 230W Advanced Docking Stations (A7E38AA and NZ223AA) is a single link DVI-D port even though it looks like a dual link DVI-D port. As such, it will only support resolutions up to 1920 x 1200 at reduced blanking. In order to use the 30" LP3065 or the ZR30w monitor, one needs to use the HP DisplayPort to Dual Link DVI-D Adapter (NR078AA) via the DP on the notebook (if there is one) or on the docking station.

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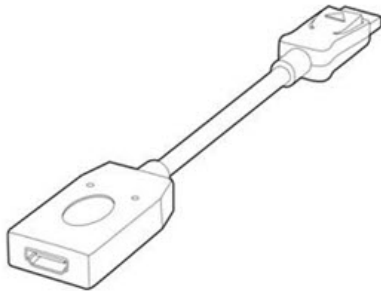
### HP USB Graphics Adapter (NL571AA)

 Image of the HP USB Graphics Adapter.

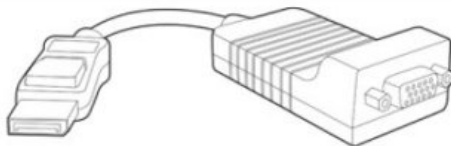
### HP DisplayPort Cable Kit (VN567AA)



### DisplayPort to HDMI Adapter (BP937AA)



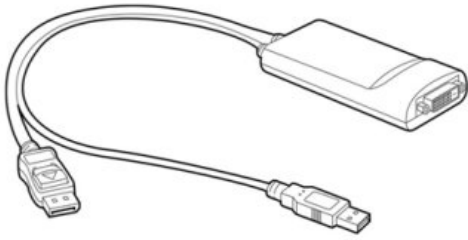
### HP DisplayPort to VGA Adapter (AS615AA)



### HP DisplayPort to DVI-D Adapter (FH973AA)

 Image of the HP DisplayPort to DVI-D Adapter.

### HP DisplayPort to Dual Link DVI-D Adapter (NR078AA)



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**NOTE:** The USB cable of the DisplayPort to Dual Link DVI-D adapter (NR078AA) is for power only and should be connected to one of the system's USB ports. USB hubs may not provide sufficient power and are not recommended for use with this adapter.

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## See also

[HP Notebook PCs - Connecting a Monitor, Projector or TV \(Windows 8\)](#)

[HP Notebook PCs - Connecting a Monitor, Projector or TV \(Windows 7\)](#)

[HP Notebook PCs - Connecting to a Monitor, Projector or TV in Windows Vista](#)

[2011 HP Business LCD Monitor Quick Reference Guide](#)

[HP Product Bulletin](#)

[HP Notebook Quick Spec Directory](#)

[HP Docking Station Quick Spec Directory](#)

[List of HP Monitors](#)

[All About Digital Visual Interface \(DVI\)](#) 

[How to Set Up Dual Monitors](#) 