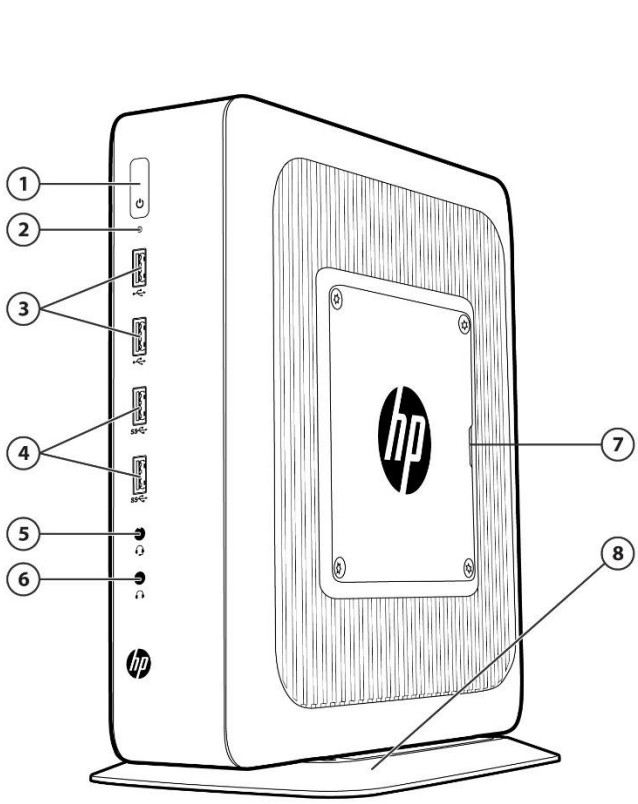
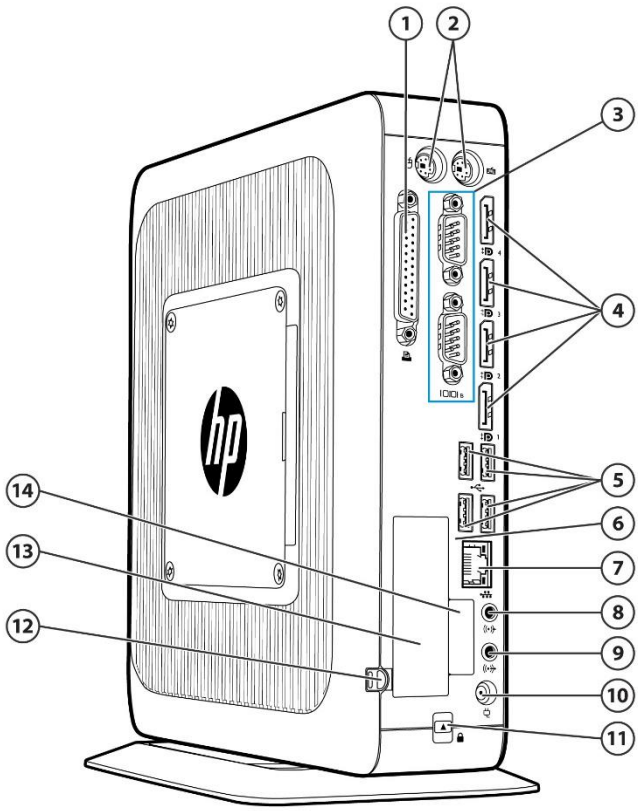
Overview

HP t730 Thin Client





FRONT

1. Power button (with integrated power indicator light)
2. Flash memory activity indicator light
3. Hi-Speed USB 2.0 ports (2)
4. SuperSpeed USB 3.0 ports (2)
5. 3.5 mm headset port
6. 3.5 mm headphone/ microphone port
7. Agency label pull-out tab (on side panel)
8 System stand

BACK

1. Parallel port
2. PS/2 ports for keyboard and mouse
3. Serial ports (2)
4. DisplayPort 1.2 digital video outputs (4)
5. Hi-Speed USB 2.0 ports (4)
6. SuperSpeed USB 3.0 port (1) secured inside
7. Gigabit Ethernet RJ45 connector
8. Audio line in port
9. Audio line out port
10. +19V DC power input
11. Cable lock slot
12. Retractable power cord retention hook
13. PCI Express (low profile) expansion slot
14. Fiber Optic NIC expansion slot

Overview

AT A GLANCE

- AMD R-Series RX-427BB 2.7 GHz – 3.6 GHz quad-core APU with a Radeon HD 9000 based graphics core
- DDR3L SDRAM dual-channel system memory; two SODIMM slots; up to 16 GB supported[1]
- 4 x DisplayPort 1.2 digital video outputs supporting up to Ultra HD/4K (3840 x 2160) resolutions
- Optional AMD FirePro W2100 discrete graphics card installed in PCI Express expansion slot providing an additional 2 x DisplayPort 1.2 digital video outputs for a system total of six outputs
- Solid-state NAND flash memory storage; M.2 form factor modules
- Active thermal management technology monitors component operating temperatures, throttles SOC operation if appropriate, and prevents unit thermal shutdown
- Gigabit Ethernet (GbE) network connection supported via an embedded Realtek GbE NIC module
- Optional Allied Telesis Fiber Optic NICs; Fast Ethernet (100 Mb/s) or Gigabit (1,000 Mb/s)
- Optional Wi-Fi adapters including antennas integrated internally in the chassis

  NOTE: Fiber optic and Wi-Fi NIC options cannot be supported together[2]
- 2 x SuperSpeed USB 3.0 and 2 x Hi-Speed USB 2.0 on front, 4 x Hi-Speed USB 2.0 on rear and 1 x SuperSpeed USB 3.0 inside the chassis.
- Legacy ports include PS/2 keyboard and mouse, 2 x serial ports and 1 x parallel port
- Integrated PC speaker for basic audio playback; 3.5 mm audio ports on front and rear supporting headphones, microphones and external speaker systems
- Security features include a TCG certified Trusted Platform Module (TPM) 1.2 chipset, BIOS designed to address NIST SP 800-147 guidelines, cable lock slot, and power cord retention clip to prevent accidental disconnects; 1 x internal SuperSpeed USB 3.0 ports for securing USB flash drives inside the chassis
- Low profile PCI Express x8 (physical x16) expansion slot supports a variety of optional sub-systems including discrete graphics and I/O adapter cards
- ENERGY STAR® certified and EPEAT® Gold registered in the United States (except for some models configured with Fiber Optic NIC networking options). See http://www.epeat.net for registration status in other countries
- Post-consumer recycled plastics content greater than 25% total unit plastics (by weight)
- Low halogen[3] material content
- All models TAA compliant (in North America & EMEA); TAA models available in APJ by request

[1] If configured with a Windows Embedded 32-bit operating system, memory above 3.2 GB may not be available due to operating system limitations
[2] Wireless access point and Internet access is required; availability of public wireless access points is limited
[3] This product is low halogen except for power cords, cables and peripherals, as well as the optional Fiber Optic NIC module; service parts obtained aftermarket may not be low halogen

Overview

HP ThinPro / Smart Zero Core Operating Systems:

- HP ThinPro and HP Smart Zero Core are HP's purpose-built Linux® based thin client operating systems
- HP ThinPro offers an easy-to–use, easy-to-configure, locked-down interface -- HP Connection Manager -- that allows administrators to quickly create server connections for end users
- HP Smart Zero clients using Smart Zero Client Core boot directly into a user log-in on the server or portal for which they are configured. No local thin client user interface means the end-user can get to work without special training on the access device. The Smart Zero Core technology reduces the administrative burden by enabling the IT administrator to perform the configuration settings on the server and the settings will be automatically applied to HP thin clients plugged in to the network
- ICA and RDP support for accessing Citrix® and Windows® resources
- VMware® Horizon RDP, PCoIP, Blast Extreme support for accessing VMware® Horizon View™ sessions
- VDI broker support includes VMware™ Horizon View™, Citrix® XenDesktop® (with CDA mode utility)
- Multimedia and USB redirection support
  - Citrix® HDX MediaStream (multimedia redirection)
  - Citrix® HDX Plug-n-Play (USB redirection)
- Improved end user experience with HP Velocity
  - Enables IT managers to monitor network activity and optimize end-user experience
  - Intelligently reduces network retransmissions due to packet loss
  - Built in monitors enable remote debugging and troubleshooting
  - For details visit: http://www.hp.com/go/velocity

Windows® Embedded Standard 7P Operating System:

- Internet Explorer 11 for genuine browsing and web-application interfaces
- A 64-bit operating system for improved performance and support for larger memory installations
- Excellent rich multimedia experience and enhanced USB device support in VDI environments
- Latest protocol support from Citrix® On-Line Plug in (ICA) 4.1, RDP 8.1 w/RemoteFX, and VMware® Horizon Client 2.3.3
- Enhanced Write Filter and File-Based Write Filter provide complete flexibility to protect the entire Flash disk, or configure areas of the disk for persistent access by local applications
- Microsoft Firewall for enhanced data security
- Support 802.1x LAN-based authentication for greater security
- HP Universal Print Driver provides instant access to a range of HP print devices without downloading separate
- Improved end user experience with HP Velocity
  - Enables IT managers to monitor network activity and optimize end-user experience
  - Intelligently reduces network retransmissions due to packet loss
  - Built in monitors enable remote debugging and troubleshooting
  - For details visit: http://www.hp.com/go/velocity

Overview

Windows® 10 IoT Enterprise Operating System:

- The newest Microsoft embedded operating system based on Windows® 10
- A 64-bit operating system for improved performance and support for larger memory installations
- Smooth, immersive experiences with technologies like advanced Multi Touch and Windows® 10 applications
- The latest RDP8.1 and Remote FX client software
- Latest Internet Explorer 11 for genuine browsing, HTML 5 support and web-application interfaces
- Latest protocol support from Citrix®, VMware® and RDP
- Excellent rich multimedia experience and enhanced USB device support in VDI environments
- Improved end-user experience with HP Velocity
    - Enables IT managers to monitor network activity and optimize end-user experience
    - Intelligently reduces network retransmissions due to packet loss, providing a better user experience
    - Built in monitors enable remote debugging and troubleshooting
    - For details visit: http://www.hp.com/go/velocity

Warranty

HP Customer Support: limited three-year hardware limited warranty in most regions; HP Care Packs are extended service contracts that go beyond your standard limited warranties; for more details visit http://www.hp.com/go/cpc

Technical specifications

OPERATING SYSTEMS

HP Smart Zero Core
HP ThinPro
Windows® Embedded Standard 7P**
Windows® 10 IoT Enterprise*

* Not all features are available in all editions or versions of Windows. Systems may require upgraded and/or separately purchased hardware, drivers, software or BIOS update to take full advantage of Windows functionality. Windows 10 is automatically updated, which is always enabled. ISP fees may apply and additional requirements may apply over time for updates. See http://www.microsoft.com.

* Not all features are available in all editions or versions of Windows. Systems may require upgraded and/or separately purchased hardware, drivers, software or BIOS update to take full advantage of Windows functionality. See http://www.microsoft.com.

PROCESSOR

Model	CPU Frequency Max/Base	Cores	GPU CUs	TDP	L2 Cache	GPU Max/Base	Memory
AMD RX-427BB	3.6/2.7 GHz	4	8	35W	4 MB	686/600 MHz	DDR3

GRAPHICS

AMD Radeon™ HD 9000 Graphics Core

AMD 2nd Generation Embedded R-Series APU delivers graphics performance and power efficiency designed to provide ultra-immersive HD multimedia experiences and parallel processing compute performance with a new graphics core based on the AMD Radeon™ HD 9000 platform

Native support for up to four (4) displays @ Ultra HD/4K (3840 x 2160) resolution. System provides four (4) DisplayPort 1.2 digital video output ports at the back of the unit

The HP t730 Thin Client supports a 60 Hz screen refresh rate for up to two Ultra HD displays set for UHD/4K resolution; when three or four Ultra HD displays set for UHD/4K resolution are connected the maximum screen refresh rate supported for all displays is 30 Hz. All displays set for resolutions lower than UHD/4K support a maximum screen refresh rate of 60 Hz.

NOTE: the screen refresh rate is set by default to 60 Hz. When configuring support for three or four displays @ UHD/4K resolution the screen refresh rate must be changed in the screen resolution settings to 30 Hz. This change should be made by an Administrator after disabling the Write Filter. The Write Filter should then be enabled after making the change.

AMD FirePro™ W2100 2 GB Professional Graphics (optional discrete graphics solution)

The AMD FirePro W2100 graphics board utilizes state-of-the-art professional GPU technologies to deliver outstanding professional 3D performance in a cost effective low profile package.

Performance and Features:

- AMD Graphics Core Next (GCN) architecture designed to effortlessly balance GPU compute and 3D workloads efficiently
- Optimized and certified for leading workstation ISV applications. The AMD FirePro™ professional graphics family is certified on more than 100 different applications for reliable performance.
- AMD PowerTune and AMD ZeroCore Power technologies that allows for state-of-the-art dynamic power management of the GPU
- Two (2) DisplayPort 1.2 outputs

Technical specifications

• PCI Express® 3.0 compliant	
Technical Specifications	
Form Factor	Low profile, half length
Graphics Controller	AMD FirePro W2100 professional graphics based on Oland GPU. GPU: 320 Stream processors organized into 5 Compute Units GPU Frequency: 630 Mhz Power: 26W Cooling: Active
Bus Type	PCI Express, Generation 3.0
Memory	2 GB DDR3 Bandwidth up to 28.8 GB/s Width: 128 bit
Connectors	2 x DisplayPort 1.2 No video cables or adapters are provided. Several aftermarket kits are available (see Options and Accessories section at the end of this document).
Maximum Resolution	DisplayPort 1.2: up to 3840 x 2160 x 24 bpp @ 60 Hz Dual Link DVI-I: up to 2560 x 1600 x 32 bpp @ 60 Hz (requires DP to DL DVI-I adapter) Single Link DVI-I: up to 1920 x 1200 x 32 bpp @ 60 Hz (requires DP to SL DVI-I adapter) VGA: up to 1920 x 1200 x 32 bpp @ 60 Hz (requires DP to VGA adapter)
Image Quality Features	Advanced support for 8-bit, 10-bit and 16-bit per RGB color component. High bandwidth scaler for high quality up and down scaling.
Display Output	Maximum of 2 displays supported
Shading Architecture	Shader Model 5.0
Supported Graphics APIs	OpenCL™ 1.2, DirectX® 11.2/12, OpenGL 4.4 OpenGL 4.4 support with driver release 14.301.xxx OpenCL 1.2 conformance expected with drive release 14.301.xxx
The AMD FirePro W2100 supports a maximum screen refresh rate of 60 Hz for one Ultra HD display set for UHD/4K resolution; when two Ultra HD displays set for UHD/4K resolution are connected the maximum screen refresh rate supported for both displays is 30 Hz. **NOTE:** the screen refresh rate is set by default to 60 Hz. When configuring support for two displays @ UHD/4K resolution the screen refresh rate must be changed in the screen resolution settings to 30 Hz. This change should be made by an Administrator after disabling the Write Filter. The Write Filter should then be enabled after making the change.	

MEMORY

Type:	Dual Channel DDR3L SDRAM
Data Transfer Rate:	Up to 1,600 MT/s
Peak Transfer Rate:	12,800 MB/s
Number of Slots	2 x SODIMM
Capacities:	4 GB (1 x 4 GB) 8 GB (2 x 4 GB) 16 GB (2 x 8 GB)
Reserved for Graphics:	256 MB, 512 MB (default) or 1 GB

Technical specifications

NOTE: The system's Graphics Processing Unit (GPU) uses part of the total system memory. System memory dedicated to graphics performance is not available for use by other programs

STORAGE MEMORY

Type:	NAND flash memory; non-volatile
Number of Sockets:	1 x M.2
Capacities:	8 GB, 16 GB, 32 GB, 64 GB, 128 GB

Solid-state flash-based memory modules are the primary operating system storage media for thin clients supporting highly virtualized operating environments. Thin clients display a hosted session from a data center through standard IP networks which minimizes the required size of local flash-based storage. In a traditional thin client environment, data and application files are stored securely in the remote data center and not on the local storage device.

The HP t730 thin client uses three types of flash memory: MLC (2-bits per cell), Ultra MLC (2-bits per cell, but only 1 is utilized) and TLC (3-bits per cell). Because the classic thin client use cases seldom require writing to flash memory storage, a relatively low capacity MLC flash memory module is typically used to provide the best cost and performance. However, when the use case calls for writing to the local flash memory storage module careful consideration should be given to the selection of the proper storage module. A larger capacity and/or the use of Ultra MLC technology could be required to adequately support the usage being planned or expected from the thin client.

Flash Memory Specification	MLC (Multi-level Cell)	UMLC (Ultra MLC)	TLC (Triple-level Cell)
Bits per cell	2	2 (only 1 is used)	3
Terabytes Written (TBW) *	5 TBW* – 8GB 10 TBW* – 16GB 20 TBW* – 32GB	50 TBW* – 16GB 100 TBW* – 32GB	70 TBW* - 128GB

* Terabytes Written (TBW) calculated based on JESD-219 SSD Client workload

INPUT / OUTPUT

Keyboard	USB or PS/2 (varies by region)
Mouse	USB or PS/2 (varies by region)
Printer	Local and/or network printers (RDP, ICA, LPD)
Display / Monitor	All models include four (4) DisplayPort 1.2 digital video outputs supporting up to UHD/4K (3840 x 2160) resolution Models can be configured with an optional AMD FirePro W2100 discrete graphics solution that provides two (2) additional digital video streams for a system total of six (6) video outputs

I/O PORTS, EXPANSION SLOTS & CONNECTORS

6 x Hi-Speed USB 2.0 ports (two in front, four in rear)
2 x SuperSpeed USB 3.0 ports (in front)
1 x SuperSpeed USB 3.0 ports (inside chassis)
4 x DisplayPort 1.2 digital video outputs (rear)
2 x PS/2 keyboard/mouse ports (rear)
2 x serial port (rear)
1 x parallel port (rear)
1 x RJ45 Ethernet port (rear)
1 x 3.5 mm headset port (front)

Technical specifications

1 x 3.5 mm headphone / microphone port (front)
1 x 3.5 mm audio line in port (rear)
1 x 3.5 mm audio line out port (rear)
1 x half height PCI Express expansion slot; x16 physical slot wired as a x8 (rear)

Technical specifications

AUDIO/VIDEO

Audio Subsystem	• Internal amplified speaker system for basic audio playback • 3.5 mm headset socket (front access) • 3.5 mm headphone/microphone socket (front access) • 3.5 mm line out socket (rear access) • 3.5 mm line in socket (rear access)
Audio CODECs	• MP3 • AAC Stereo • HE AAC • Includes hardware acceleration support
Video CODECs	• MPEG-4 part 2 (DivX, Xvid) • MPEG-4 part 10 (H.264, AVC) • WMV 7/8/9 VC-1 & ASF Demuxer • Includes hardware acceleration support

HARDWARE SECURITY

- Security lock slot (cable lock sold separately)
- Power cord retention clip

ETHERNET NETWORKING

Realtek RTL8111HSH-CG Gigabit Ethernet (GbE) Controller:	• 10/100/1000M transceiver • Supports Giga Lite (500M) mode • Auto-Negotiation with Next Page capability • Supports PCI Express 1.1 • Supports pair swap/polarity/skew correction • Crossover Detection and Auto-Correction • Supports 1-Lane 2.5Gbps PCI Express Bus • Embedded OTP memory • Supports hardware Error Correction Code function • Supports hardware Cyclic Redundancy Check function • Transmit/Receive on-ship buffer support • Supports PCI MSI and MSI-X • Supports 25MHz or 48MHz Oscillator • Built-in switching regulator • Supports power down/link down power saving/PHY disable mode	• Supports ECMA-393 ProxZzzy Standard for sleeping hosts • XTAL-Less Wake-On-LAN • Supports Latency Tolerance Reporting • Wake-On-LAN Technology support • Supports 32-set 128-byte Wake-up Frame pattern exact matching • Supports Microsoft Wake Packet Indication • Supports PCIe L1.Off and L1.Snooze • Fully compliant with IEEE 802.3, IEEE 802.3u, IEEE 802.3ab • Supports IEEE 802.1P Layer 2 Priority Encoding • Supports IEEE 802.1Q VLAN tagging • Supports IEEE 802.3az-2010 (EEE) • Supports Full Duplex flow control (IEEE 802.3x)

WI-FI NETWORKING*

Adapter Options:	• Broadcom 802.11n Wi-Fi • Intel® Dual Band Wireless-AC 3168 Wi-Fi/Bluetooth • Intel® Dual Band Wireless-AC 8260 Wi-Fi/Bluetooth

*Wireless access point and internet access required. Availability of public wireless access points limited.

FIBER OPTIC NETWORKING

Adapter Option:	Allied Telesis AT-27M2/SC Fiber Fast Ethernet Network Interface
Form Factor:	M.2
Connector:	SC; compliant with IEC 61754-4

Technical specifications

Features:	• IEEE 802.1p priority encoding/tagging (QoS, CoS) • IEEE 802.1q VLAN tagging • IEEE 802.3x flow control • Buffer/FIFO: 2K transmit and 2K receive • Loopback mode • Descriptor-Based Buffer Management • Wake-on-LAN from S3 (Sleep) and S4 (Hibernate) not supported • Link Detection and PHY interface power; the PHY interface, Link detection and Link LED should be enabled by default at power-up
Performance:	• >= 85 Mbit/s receive, <= 30% CPU utilization • >= 85 Mbit/s transmit, <= 30% CPU utilization • >= 170 Mbit/s total bi-directional, <= 30% C:U utilization The minimum transfer size at 100 Mbit/s is 1 Gbps
External Interface:	Complies with IEEE 802.3 1000BASE-X operation
Power:	• Uses less than 1775 mW of power at full performance • Supports all PCI Express bus states L0, L0s, L1 and L2
Non-volatile Storage:	The MAC address is unique for each system; assigned from the board assembly manufacturer's IEEE registered allocation. The PCI subsystem ID is unique to HP and unique to each design to allow Windows® Update to be finely controlled.

Adapter Option:	Allied Telesis AT-29M2/SC Fiber Gigabit Network Interface
Form Factor:	M.2
Connector:	SC; compliant with IEC 61754-4
Features:	• IEEE 802.1p priority encoding/tagging (QoS, CoS) • IEEE 802.1Q VLAN tagging • IEEE 802.3x flow control • Buffer/FIFO: 22K transmit and 40K receive • Loopback mode • Descriptor-Based Buffer Management • Wake-on-LAN from S3 (Sleep) and S4 (Hibernate) not supported • Link Detection and PHY interface power; the PHY interface, Link detection and Link LED should be enabled by default at power-up
Performance:	• >= 800 Mbit/s receive, <= 30% CPU utilization • >= 800 Mbit/s transmit, <= 30% CPU utilization • >= 1500 Mbit/s total bi-directional, <= 30% C:U utilization The minimum transfer size at 1000 Mbit/s is 1500 Gbps
External Interface:	Complies with IEEE 802.3 1000BASE-X operation
Power:	• Uses less than 2100 mW of power at full performance • Supports all PCI Express bus states L0, L0s, L1 and L2

Technical specifications

Non-volatile Storage:	The MAC address is unique for each system; assigned from the board assembly manufacturer's IEEE registered allocation. The PCI subsystem ID is unique to HP and unique to each design to allow Windows® Update to be finely controlled.

Technical specifications

SOFTWARE SUPPORT

Host Environment	Protocol	HP ThinPro Smart Zero Core	Microsoft Windows® Embedded WES 7P	Microsoft Windows® Embedded WE 10 IoT
Microsoft Remote Desktop Services	Remote FX (RFX), RDP	✓	✓	✓
Citrix®	ICA, HDX	✓	✓	✓
VMware® Horizon	RDP, PCoIP, Blast Extreme	✓	✓	✓

Protocol Clients	HP ThinPro Smart Zero Core	Microsoft Windows® Embedded WES 7P	Microsoft Windows® Embedded WE 10 IoT
Citrix® Receiver	✓	✓	✓
Microsoft Remote Desktop Client	N/A	✓	✓
VMware™ Horizon View™ Client	✓	✓	✓
Remote Graphics Software (RGS)	via add-on	✓	✓
HP TeemTalk Terminal Emulator	✓	via add-on	via add-on
Free RDP	✓	N/A	N/A

Browser Support	HP ThinPro Smart Zero Core	Microsoft Windows® Embedded WES 7P	Microsoft Windows® Embedded WE 10 IoT
Mozilla Firefox	36	N/A	N/A
Internet Explorer	N/A	11	11

Security	HP ThinPro Smart Zero Core	Microsoft Windows® Embedded WES 7P	Microsoft Windows® Embedded WE 10 IoT
Smart Card	✓	✓	✓
Log-on Manager	✓	✓	✓
Read only Operating System	✓	✓	✓
802.1x	✓	✓	✓
Operating System Write Filter	N/A	EWF, FBWF	UWF
Microsoft Firewall	N/A	✓	✓

Technical specifications

Management Tools	HP ThinPro Smart Zero Core	Microsoft Windows® Embedded WES 7P	Microsoft Windows® Embedded WE 10 IoT
HP Device Manager	✓	✓	✓
HP ThinUpdate	✓	✓	✓
HP Easy Tools	✓	via add-on	N/A
HP Smart Zero Client Services	✓	N/A	N/A
Microsoft SCCM/EDM agent	N/A	✓	✓

Additional Components	HP ThinPro Smart Zero Core	Microsoft Windows® Embedded WES 7P	Microsoft Windows® Embedded WE 10 IoT
HP Velocity	✓	✓	✓
HP Easy Shell	✓	✓	✓
HP Universal Print Driver	N/A	✓	✓
Windows Media Player	N/A	12	12
Microsoft Direct Access	N/A	N/A	✓
Microsoft BranchCache	N/A	N/A	✓
Microsoft AppLocker	N/A	N/A	✓
Microsoft Sideloading	N/A	N/A	✓

NOTE: Other add-on software available (see: http://www.hp.com/support for latest list of available add-ons). Software performance and support may vary depending on customer environment and backend.

Audio/Video CODECs	HP ThinPro Smart Zero Core	Microsoft Windows® Embedded WES 7P	Microsoft Windows® Embedded WE 10 IoT
MP3	✓	✓	✓
WMA stereo	✓	✓	✓
AAC stereo & HE AAC	✓	N/A	N/A
Microsoft AC3 encoder	N/A	✓	✓
MPEG-1	✓	N/A	N/A
MPEG-4 part 2 (DivX, Xvid, H.263)	✓	✓	✓
MPEG-4 part 10 (H.264, AVC)	✓	✓	✓
WMV 7/8/9/ VC-1 & ASF Demuxer	✓	✓	✓

TEXT AND GRAPHICS TERMINAL EMULATIONS

(provided by HP TeemTalk 7 in HP ThinPro & WES 7 operating systems)

Emulation	Terminal ID
HP 700-92/96	70092, 70094, 70096, 2392A, 2622A
IBM3151	Mod11, Mod31
IBM3270	3278-2 (24x80), 3278-3 (32x80), 3278-4 (43x80), 3278-5 (27x132), 3278-2-E (24x80), 3278-3-E (32x80), 3278-4-E (43x80), 3278-5-E (27x132), 3279-2 (24x80), 3279-3 (32x80), 3279-4 (43x80), 3279-5 (27x132), 3287-1
IBM5250	5291-1, 5292-2, 5251-11, 3179-2, 3196-A1, 3180-2, 3477-FC (27x132), 3477-FG (24x80), 3486-BA, 3487-HA, 3487-HC, 3812-1
VT52, VT100, VT100+, VT500 (7- or 8-bit)	VT100, VT101, VT102, VT125, VT131, VT132, M2200, VT220, VT240, VT320, VT340, VT420, VT510, VT520, VT525
VT HP220, VT UTF8	VT100, VT101, VT102, VT125, VT220, VT240, VT320, VT340, VT420, VT131, VT132, M2200, VT510, VT520, VT525

NOTE: Wireless features, performance and support may vary depending on environmental variables such placement, settings and firmware of your access points. Please contact your wireless vendor for support of your wireless environment

LANGUAGES (local user interface)

Available for Windows® Embedded:	English, French, German, Spanish, Dutch, Norwegian, Korean, Simplified Chinese, Traditional Chinese, Japanese, Russian, and Arabic
Available for HP ThinPro / Smart Zero Core:	English, French, German, Spanish, Korean, Simplified Chinese, Traditional Chinese, and Japanese

Technical specifications

WEIGHTS & DIMENSIONS

W x D x H: **(vertical orientation)**	67 x 221 x 240 mm 2.6 x 8.7 x 9.4 in
Volume:	3.6 liters
System Weight	1.8 kg 3.9 lb
Shipping Weight	4.5 kg 9.9 lb

NOTE: All measurements are approximate; the addition of optional modules will increase the weight

EXTERNAL POWER SUPPLY

85W external power adapter Worldwide auto-sensing 100-240 VAC, 50-60 Hz Energy-saving automatic power-down Surge-tolerant	
External power adapters are sourced from a number of suppliers in order to ensure adequate supply and availability is maintained. The actual dimensions of the power brick will vary by supplier.	
Delta LiteOn	132 x 58 x 31.1 mm 146 x 55 x 31 mm

ENVIRONMENTAL

Operating Temperature Range:	Standard 50° to 104° F (10° to 40° C Using Quick Release with a flat panel monitor 50° to 95° F (10° to 35° C) Using PCIe Expansion Card 50° to 104° F (10° to 40° C) **t730 with Fiber NIC:** 50° to 95° F (10° to 35° C)
Non-operating Temperature Range:	-22° to 140° F (-30° to 60° C)
Humidity:	Condensing: 20% to 80% Non-condensing: 10% to 90%

NOTE: Specifications are at sea level with altitude derating of 1° C/300m (1.8° F/1000ft) to a maximum of 3 Km (10,000 ft), with no direct, sustained sunlight. Upper limit may be limited by the type and number of options installed.

ENVIRONMENTAL DATA

Eco-Label Certifications & declarations	This product has received or is in the process of being certified to the following approvals and may be labeled with one or more of these marks: • US ENERGY STAR® • EPEAT <Gold> registered in the United States. See http://www.epeat.net for registration status in your country. • IT ECO declaration		
Energy Consumption (in accordance with US ENERGY STAR® test method)	**115VAC, 60Hz**	**230VAC, 50Hz**	**100VAC, 60Hz**
Normal Operation (Short idle)	20.49 W	20.49 W	20.33 W
Normal Operation (Long idle)	19.52 W	19.72 W	19.44 W
Sleep	2.52 W	2.57 W	2.51 W
Off	1.99 W	2.03 W	1.99 W
Heat Dissipation*	**115VAC, 60Hz**	**230VAC, 50Hz**	**100VAC, 60Hz**
Normal Operation (Short idle)	70 BTU/hr	70 BTU/hr	70 BTU/hr
Normal Operation (Long idle)	67 BTU/hr	67 BTU/hr	66 BTU/hr
Sleep	9 BTU/hr	9 BTU/hr	9 BTU/hr
Off	7 BTU/hr	7 BTU/hr	7 BTU/hr
	*__NOTE__: Heat dissipation is calculated based on the measured watts, assuming the service level is attained for one hour.		
Additional Information	• This product is in compliance with the Restrictions of Hazardous Substances (RoHS) directive -2011/65/EC. • This HP product is designed to comply with the Waste Electrical and Electronic Equipment (WEEE) Directive – 2002/96/EC. • This product is in compliance with California Proposition 65 (State of California; Safe Drinking Water and Toxic Enforcement Act of 1986). • This product is in compliance with the IEEE 1680 (EPEAT) standard at the <gold> level, see www.epeat.net • Plastics parts weighing over 25 grams used in the product are marked per ISO 11469 and ISO1043. • This product contains 17.2% post-consumer recycled plastic (by wt.) • This product is 93.6% recycle-able when properly disposed of at end of life.		
Packaging Materials	**External:**	PAPER/Corrugated	860 g
	Internal:	PLASTIC/EPE (Expanded Polyethylene)	67.5 g
		PLASTIC/Polyethylene low density	9.5 g
RoHS Compliance	HP Inc. is committed to compliance with all applicable environmental laws and regulations, including the European Union Restriction of Hazardous Substances (RoHS) Directive. HP's goal is to exceed compliance obligations by meeting the requirements of the RoHS Directive on a worldwide basis. By July 1, 2006, RoHS substances will be virtually eliminated (virtually = to levels below legal limits) for all HP electronic products subject to the RoHS Directive, except where it is widely recognized that there is no technically feasible alternative (as indicated by an exemption under the EU RoHS Directive).		

Technical specifications

Material Usage	This product does not contain any of the following substances in excess of regulatory limits (refer to the HP General Specification for the Environment at http://www.hp.com/hpinfo/globalcitizenship/environment/supplychain/gen_specifications.html): • Asbestos • Certain Azo Colorants • Certain Brominated Flame Retardants – may not be used as flame retardants in plastics • Cadmium • Chlorinated Hydrocarbons • Chlorinated Paraffins • Formaldehyde • Halogenated Diphenyl Methanes • Lead carbonates and sulfates • Lead and Lead compounds • Mercuric Oxide Batteries • Nickel – finishes must not be used on the external surface designed to be frequently handled or carried by the user. • Ozone Depleting Substances • Polybrominated Biphenyls (PBBs) • Polybrominated Biphenyl Ethers (PBBEs) • Polybrominated Biphenyl Oxides (PBBOs) • Polychlorinated Biphenyl (PCB) • Polychlorinated Terphenyls (PCT) • Polyvinyl Chloride (PVC) – except for wires and cables, and certain retail packaging has been voluntarily removed from most applications. • Radioactive Substances • Tributyl Tin (TBT), Triphenyl Tin (TPT), Tributyl Tin Oxide (TBTO)
Packaging	HP follows these guidelines to decrease the environmental impact of product packaging: • Eliminate the use of heavy metals such as lead, chromium, mercury and cadmium in packaging materials. • Eliminate the use of ozone-depleting substances (ODS) in packaging materials. • Design packaging materials for ease of disassembly. • Maximize the use of post-consumer recycled content materials in packaging materials. • Use readily recyclable packaging materials such as paper and corrugated materials. • Reduce size and weight of packages to improve transportation fuel efficiency. • Plastic packaging materials are marked according to ISO 11469 and DIN 6120 standards.
End-of-life Management and Recycling	HP Inc. offers end-of-life HP product return and recycling programs in many geographic areas. To recycle your product, please go to: http://www.hp.com/go/reuse-recycle or contact your nearest HP sales office. Products returned to HP will be recycled, recovered or disposed of in a responsible manner. The EU WEEE directive (2002/95/EC) requires manufacturers to provide treatment information for each product type for use by treatment facilities. This information (product disassembly instructions) is posted on the Hewlett Packard web site at: http://www.hp.com/go/recyclers. These instructions may be used by recyclers and other WEEE treatment facilities as well as HP OEM customers who integrate and re-sell HP equipment.

Technical specifications

HP Inc. Corporate Environmental Information	For more information about HP's commitment to the environment: Global Citizenship Report http://www.hp.com/hpinfo/globalcitizenship/gcreport/index.html Eco-label certifications http://www.hp.com/hpinfo/globalcitizenship/environment/productdesign/ecolabels.html ISO 14001 certificates: http://www.hp.com/hpinfo/globalcitizenship/environment/operations/envmanagement.html

REGULATORY COMPLIANCE

Ergonomics:	Approved
Safety:	UL 1950, CSA 950; TÜV-GS (EN60 950); approved
RF Interference:	FCC Class B; CE Mark; EN55022B; VCCI

Basic Configuration (does not include a graphics card or fiber optic NIC):				
Energy Consumption: *(in accordance with US ENERGY STAR® test method)*		**115VAC, 60Hz**	**230VAC, 50Hz**	**100VAC, 60Hz**
	Normal Operation: *(short idle)*	10.223	10.322	10.224
	Normal Operation: *(long idle)*	9.1272	9.2312	9.3098
	Sleep	0.706	0.7435	0.7018
	Off	0.5293	0.566	0.5285
Heat Dissipation		**115VAC, 60Hz**	**230VAC, 50Hz**	**100VAC, 60Hz**
	Normal Operation: *(short idle)*	35 BTU/hr	35 BTU/hr	35 BTU/hr
	Normal Operation: *(long idle)*	31 BTU/hr	32 BTU/hr	32 BTU/hr
	Sleep	2 BTU/hr	3 BTU/hr	2 BTU/hr
	Off	2 BTU/hr	2 BTU/hr	2 BTU/hr
System configuration includes WES 7P, 4 GB (1 x 4 GB) DDR3L SDRAM, 16 GB MLC M.2 flash and USB keyboard & mouse Heat dissipation is calculated based on the measured watts, assuming the service level is attained for one hour.				

Optional Configuration (includes a graphics card and fiber optic NIC):				
Energy Consumption: *(in accordance with US ENERGY STAR® test method)*		**115VAC, 60Hz**	**230VAC, 50Hz**	**100VAC, 60Hz**
	Normal Operation: *(short idle)*	19.037 W	19.456 W	19.1 W

Technical specifications

	Normal Operation: *(long idle)*	18.659W	18.935 W	18.935W
	Sleep	2.5002 W	2.5568 W	2.5088 W
	Off	2.0953 W	2.1497W	2.0982W
Heat Dissipation		**115VAC, 60Hz**	**230VAC, 50Hz**	**100VAC, 60Hz**
	Normal Operation: *(short idle)*	65 BTU/hr	66 BTU/hr	65 BTU/hr
	Normal Operation: *(long idle)*	64 BTU/hr	64 BTU/hr	64 BTU/hr
	Sleep	9 BTU/hr	9 BTU/hr	9 BTU/hr
	Off	7 BTU/hr	7 BTU/hr	7 BTU/hr

System configuration includes WES 7P, 16 GB (2 x 8 GB) DDR3L SDRAM, 128 GB TLC M.2 flash, USB keyboard & mouse, AMD FP W2100 graphics card and AT-29M2/SC Fiber NIC

Heat dissipation is calculated based on the measured watts, assuming the service level is attained for one hour.

Options and Accessories (sold separately)

Category	Description	Part Number
Accessories	HP Quick Release Kit	EM870AA
	HP Integrated Work Center Stand	LH526AA E8H16AA
Memory Upgrade	HP 4 GB DDR3L (PC3-12800) SODIMM Kit	P2N46AA
	HP 8 GB DDR3L (PC3-12800) SODIMM Kit	P2N47AA
Communications	Intel® Ethernet I210-T1 GbE NIC (PCI Express card)	E0X95AA
	Broadcom 802.11n Wi-Fi/Bluetooth® Adapter (PCI Express card)	N4M64AA
	Intel®Q 8260 802.11ac Wi-Fi/Bluetooth® Adapter (PCI Express card)	N0S95AA
Input Devices	HP PS/2 Keyboard	N3R86AA
	HP USB Keyboard	N3R87AA
	HP USB CCID Smartcard Keyboard	BV813AA
	HP USB CCID Smartcard Keyboard (bulk pack)	BT824A6
	HP Wireless Keyboard & Mouse (note: function keys do not operate with Smart Zero Core)	N3R88AA
	HP PS/2 Optical Mouse	EY703AA
	HP USB Optical Scroll Mouse	DC172B
Graphics	AMD FirePro W2100 Professional Graphics (PCI Express card)	J3G91AA
	DisplayPort to DVI-D Adapter	FH973AA
	DisplayPort to VGA Adapter	AS615AA
	Display Port to HDMI adapter	BP937AA
	DisplayPort Cable Kit	VN567AA
Storage	HP 64GB MLC M.2 Flash Memory	F3V79AA
Security	HP Keyed Cable Lock	BV411AA

Summary of Changes

Date of change:	Version History:	Type of change	Description of change:
December 12, 2015	From v1 to v2	Changed	Maximum resolution, slot support, updated OS support
		Added	Environmental Data section
January 25, 2016	From v2 to v3	Added	Windows® 10 IoT Enterprise Operating System in At a Glance and Overview sections
April 24, 2017	From v3 to v4	Changed	The Hardware Networking subsection was changed for The Realtek RTL8111HSH-CG Gigabit Ethernet (GbE) Controller subsection and its supports, In the Wi-Fi Networking section changed adapter options to Intel Dual Band Wireless-AC 3168 & AC 8260 Wi-Fi/Bluetooth instead of Intel 802.11ac.
August 20; 2018	From v4 to v5	Changed	Software support for VMware Horizon