

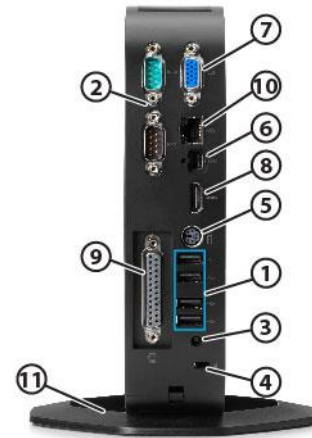
### Overview

### HP t638 Thin Client



#### FRONT

1. Power button
2. Power On indicator
3. (1) USB-A 3.1 Gen 1 Type A port
4. (1) USB-A 2.0 Type A port
5. 3.5 mm combo headset/audio jack
6. System stand
7. Access panel to information labels and VESA 100 mounting holes



#### BACK

1. (4) USB-A 2.0 Type A port
2. (2) Serial port with configurable power
3. (1) 19.5 V DC power input
4. (1) Cable lock slot
5. (1) PS2 Combo Keyboard/Mouse
6. (1) Mini-DP Dual Serial Port
7. (1) VGA analog video output
8. (1) HDMI digital video output
9. (1) Parallel port
10. (1) RJ45 GbE network connector
11. (1) System stand

### Overview

#### AT A GLANCE

- Intel® Celeron® Processor J4125; 2.0 – 2.7 GHz; 4 cores<sup>2</sup>
- DDR4 dual-channel SDRAM system memory; up to 2400 MT/s transfer rate; two SODIMM slots
- Embedded Multi Media Card 16 / 32/ 64 GB
- 1 x HDMI 1.4b supporting up to 3840 x 2160 @ 30 Hz resolutions, 1x VGA video outputs supporting up to 1920 x 1200 @ 60 Hz resolutions
- Solid-state flash memory storage; M.2 form factor modules
- Gigabit Ethernet (GbE) network connection
- Fast Ethernet (100 Mb/s) or Gigabit (1,000 Mb/s)
- Optional Intel® Wi-Fi® AX200 Wi-Fi 6/Bluetooth® 5 adapter<sup>4</sup> including antennas integrated internally in the chassis
- Option Port with a selection of available factory options (see detailed listing later in this document)
- Integrated PC speaker for basic audio playback; 3.5 mm combo headset/audio port on front
- 45W non-PFC external power adapter
- TCG certified TPM version 2.0 (firmware)<sup>3</sup>; other security features include a system UEFI designed to address NIST SP 800-147 guidelines, cable lock slot
- Passive thermal design (no cooling fans) and active thermal management technology that monitors the system operating temperatures, throttles SOC operation if appropriate and prevents unit thermal shutdown.
- Rated for a maximum ambient operating temperature of 40 degree C
- ENERGY STAR® certified and EPEAT® 2019 Silver registered in the United States (except for some models configured with Fiber Optic NIC networking options)<sup>5</sup>.
- Post-consumer recycled plastics content greater than 25% total unit plastics (by weight)
- Low halogen<sup>1</sup> material content
- All models TAA compliant in North America

<sup>1</sup> This product is low halogen except for power cords, cables and peripherals, service parts obtained aftermarket may not be low halogen

<sup>2</sup> Multicore is designed to improve performance of certain software products. Not all customers or software applications will necessarily benefit from use of this technology. Performance and clock frequency will vary depending on application workload and your hardware and software configurations. Intel's numbering, branding and/or naming is not a measurement of higher performance.

<sup>3</sup> In some cases, machines pre-configured with Windows OS might ship with TPM turned off

<sup>4</sup> 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

<sup>5</sup> Based on US EPEAT® registration according to IEEE 1680.1-2018 EPEAT®. Status varies by country. Visit <http://www.epeat.net> for more information.

### 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 ThinPro, including HP Smart Zero Core
- Windows 10 IoT Enterprise LTSC 2019

**PROCESSOR**

Model	CPU Frequency Max/Base	Cores	GPU Type	GPU Frequency
Intel® Celeron® Processor J4125	2.7/2.0 GHz	4	Intel UHD Graphic 600	250 MHz

**GRAPHICS**

**Number of displays supported:** 2

**Video outputs:** Standard: (1) VGA analog output  
(1) HDMI digital output

**Max. screen resolution:** 3840 x 2160 @ 30 Hz (With HDMI Output)

**NOTE:**

HP recommends dual channel memory (two SODIMMs) configurations for optimal display resolution performance

**MEMORY**

**Type:** DDR4 dual channel SDRAM

**Data Transfer Rate:** Up to 2,400 MT/s

**Peak Transfer Rate:** Up to 19,200 MB/s

**Number of Slots** 2 x SODIMM

**Capacities:** 4, 8 GB

**NOTES:**

- 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
- HP recommends dual channel memory (two SODIMMs) configurations for optimal system performance

### Technical Specifications

#### UEFI

<b>UEFI Specification Revision</b>	2.3.1
<b>TPM 2.0 (firmware)</b>	Meets requirements for Common Criteria, an independent third-party certification of trustworthiness Meets requirements for FIPS 140-2, a standard for cryptographic integrity
<b>Security features</b>	System UEFI designed to address NIST SP 800-147 guidelines

#### STORAGE

<b>Type:</b>	NAND flash memory; non-volatile
<b>Number of Sockets:</b>	1 x M.2
<b>Capacities:</b>	16 GB M.2 eMMC flash module 32 GB M.2 eMMC flash module 64 GB M.2 eMMC flash module 128 GB M.2 SATA flash module

#### Input/Output

<b>USB:</b>	Front access: (1) USB-A 3.1 Gen 1 port (1) USB-A 2.0 port Type A port Rear access: (4) USB-A 2.0 Type A port
<b>Video Outputs:</b>	Standard: (1) VGA analog output (1) HDMI digital output
<b>I/O Interfaces:</b>	Standard: (1) RJ45 network connector (1) 3.5 mm combo headset/audio jack (front) (2) serial port with configurable power (2) serial ports enabled with an included cable adapter (1) parallel port
<b>Option Port:</b>	The rear I/O panel includes an Option Port that can be configured with one of the following factory options: <ul style="list-style-type: none"><li>1 Mini-DP Dual serial port enabled with an included cable adapter</li><li>Combo PS/2 port with an included cable adapter</li></ul>

#### AUDIO/VIDEO

<b>Audio Subsystem</b>	<ul style="list-style-type: none"><li>Internal amplified speaker system for basic audio playback</li><li>3.5 mm combo headset/headphone/analog MIC in (front access)</li></ul>
<b>Audio CODECs</b>	<ul style="list-style-type: none"><li>MP3</li><li>AAC Stereo</li><li>HE AAC</li></ul>

### Technical Specifications

- Includes hardware acceleration support
- Video CODECs**
- MPEG-4 part 2 (DivX, Xvid)
  - MPEG-4 part 10 (H.264, AVC), Advanced Video Coding (AVC) (H.264 encode)
  - MPEG-H part 2, High Efficiency Video Coding (HEVC) (H.265 decode)
  - WMV 7/8/9 VC-1 & ASF Demuxer
  - Includes hardware acceleration support

### NETWORKING

**Local Area Networking** Realtek RTL8111 EPH-CG Gigabit Ethernet (GbE) Controller

**Wi-Fi Networking** Intel® AX 200 Wi-Fi 6/Bluetooth® 5

#### NOTES:

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

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

### SOFTWARE SUPPORT

Host Environment	Protocol	HP	Microsoft
		ThinPro	Windows 10 IoT Enterprise 2019
Remote Desktop Services	Remote FX (RFX), RDP	✓	✓
Citrix®	ICA, HDX	✓	✓
VMware® Horizon	RDP, PCoIP, Blast Extreme	✓	✓

Protocol Clients	HP	Microsoft
	ThinPro	Windows 10 IoT Enterprise 2019
Citrix® Workspace app	✓	✓
Microsoft Remote Desktop Client		✓
Free Remote Desktop Client	✓	
VMware™ Horizon View™ Client	✓	✓
HP Remote Graphics Software (RGS)	via add-on	
TurboSoft TTerm for Linux® Terminal emulation Software	via add-on	
TurboSoft TTWin Terminal emulation software		via add-on

### Technical Specifications

Browser Support	HP	Microsoft
	ThinPro	Windows 10 IoT Enterprise 2019
Mozilla Firefox	✓	
Internet Explorer		✓

Security	HP	Microsoft
	ThinPro	Windows 10 IoT Enterprise 2019
Smart Card	✓	✓
Log-on Manager	✓	✓
Read only Operating System	✓	✓
802.1x	✓	✓
Microsoft Firewall		✓
HP Write Manager		✓
Microsoft Unified Write Filter		✓
<b>NOTE:</b> the HP Write Manager is the default active write filter. The Microsoft Unified Write Filter is disabled by default but can be enabled by the user if required.		

Management Tools	HP	Microsoft
	ThinPro	Windows 10 IoT Enterprise 2019
HP Device Manager	✓	✓
HP ThinUpdate		✓
HP Easy Tools	✓	
HP Smart Zero Client Services	✓	
Microsoft SCCM/EDM agent		✓
HP USB Port Manager		✓

Additional Windows Components	HP	Microsoft
	ThinPro	Windows 10 IoT Enterprise 2019
HP Easy Shell		✓
Windows Media Player		✓
Microsoft Direct Access		✓
Microsoft BranchCache		✓

### Technical Specifications

Microsoft AppLocker		✓
Microsoft Sideload		✓
CyberLink		✓

**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	Microsoft Windows 10 IoT Enterprise 2019
MP3	✓	✓
WMA stereo	✓	✓
AAC stereo & HE AAC	✓	
Microsoft AC3 encoder		✓
MPEG-1	✓	
MPEG-4 part 2 (DivX, Xvid, H.263)	✓	✓
MPEG-4 part 10 (H.264, AVC)	✓	✓
WMV 7/8/9/ VC-1 & ASF Demuxer	✓	✓

### Recommended TC config for Microsoft Teams media optimization

	TC CPU	VMware Teams Optimization	Citrix Teams Optimization
t430	1.10 GHz 2 Core	-	-
t530	1.50 GHz 2 Core	-	-
t540	1.50 GHz 2 Core	-	-
t630	2.00 GHz 4 Core	✓	✓
t628	1.99 GHz 4 Core	-	✓
t638	2.00 GHz 4 Core	✓	✓
t640	2.40 GHz 2 Core	✓	✓
t730	2.70 GHz 4 Core	✓	✓
t740	3.25 GHz 4 Core	✓	✓
mt21	1.80 GHz 2 Core	-	✓
mt22	1.90 GHz 2 Core	-	✓
mt31	1.80 GHz 2 Core	-	✓
mt32	2.70 GHz 4 Core	✓	✓
mt45	2.10 GHz 4 Core	✓	✓

*Technical Specifications*

mt46	2.50 GHz 4 Core	✓	✓
- Not recommended, ✓ recommended			

**WEIGHTS & DIMENSIONS****W x D x H:**

(vertical orientation,  
without stand) 50 x 210 x 210 mm

**Volume:** 2.2 liter

**W x D x H:**

(vertical orientation,  
with stand) 152 x 210 x 210 mm

**Volume** 6.7 liter

**System Weight  
(unit with stand)**

1231 g

**Shipping Weight**

3238.5 g

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

**EXTERNAL POWER SUPPLY**

45W non-PFC Smart external power adapter

Worldwide auto-sensing 100 - 240 VAC; nominal voltage is 120 VAC; 50 - 60 Hz

Entergy saving automatic power-down; surge tolerant

1.8m output cable

External power adapters are sourced from several suppliers in order to ensure adequate supply and availability is maintained. The actual dimensions of the power brick will vary by supplier.

HP P/N	Vendor	Dimensions:
L25296-001	Lite-On	94 x 40 x 26.5 mm
L25296-002	Chicony	95 x 40 x 26.5 mm
L25296-003	Delta	94 x 39 x 26.5 mm
L25296-004	AcBel	91.4 x 44 x 26.8 mm

**COMPLIANCE/CERTIFICATIONS****Accessibility:**

Section 508 Accessibility; VPAT report available.



### Technical Specifications

<b>Environmental Stewardship:</b>	Worldwide (ENERGY STAR®, EPEAT® 2019 Silver registered in the United States (except for some models configured with Fiber Optic NIC networking options) <sup>1</sup> , RoHS2, ERP, CECP& SEPA, HP GSE, WEEE, Low Halogen <sup>2</sup> , etc.)
<b>Product Safety:</b>	Worldwide (UL, CB, CCC, BSMI, etc.)
<b>Electromagnetic Compliance (EMC):</b>	Worldwide (EN/CNS/KCC) "Class B" EMI regulations
<b>International Medical Safety Standard:</b>	EN60601-1-2 (Medical Equipment EMC)

<sup>1</sup>Based on US EPEAT® registration according to IEEE 1680.1-2018 EPEAT®. Status varies by country. Visit <http://www.epeat.net> for more information.

<sup>2</sup>External power supplies, power cords, cables and peripherals are not Low Halogen. Service parts obtained after purchase may not be Low Halogen.

### ENVIRONMENTAL

<b>Operating Temperature Range:</b>	50° to 104° F 10° to 40° C
<b>Non-operating Temperature Range:</b>	-22° to 140° F -30° to 60° C
<b>Humidity:</b>	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.

### Basic Configuration :

<b>Energy Consumption (in accordance with US ENERGY STAR® test method)</b>	<b>115 V ac, 60 Hz</b>	<b>230 V ac, 50 Hz</b>	<b>100 V ac, 60 Hz</b>
Normal Operation (Short idle)	5.436	5.784	5.388
Normal Operation (Long idle)	4.02	4.356	4.14
Sleep	0.84	0.852	0.854
Off	0.838	0.828	0.852
<b>Heat Dissipation*</b>	<b>115 V ac, 60 Hz</b>	<b>230 V ac, 50 Hz</b>	<b>100 V ac, 60 Hz</b>
Normal Operation (Short idle)	19	20	18
Normal Operation (Long idle)	14	15	14
Sleep	3	3	3
Off	3	3	3

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

System configuration includes: Thin Pro - 64bit, 128 GB primary storage and 8 GB of system memory, USB keyboard & USB mouse

### *Summary of Changes*

Date of change:	Version History:	Type of change	Description of change:
January 14, 2021	From v1 to v2	Changed	SOFTWARE SUPPORT section

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