

# HP ZBook Firefly 16 inch G11 Mobile Workstation PC

## Step up performance. Not size

Pro-level performance combines with true mobility in this amazingly sleek and powerful laptop. Stay productive wherever you're working with pro-grade graphics and processor, AI-enhanced webcam and audio, and a color-accurate display—everything you need to collaborate and manage projects anywhere.

### Upgrade to pro-level performance

Say goodbye to lags and crashes with fast responsiveness. With up to an Intel® Core™ Ultra 9 CPU with optional Intel vPro®<sup>1,2</sup>, NVIDIA RTX™ A500 Laptop GPU,<sup>3</sup> and 64GB of memory,<sup>4</sup> open large files and run pro apps simultaneously for speedy multitasking.

### Work all day.<sup>6</sup> Anywhere

Starting at 3.88 lbs,<sup>5</sup> our most mobile ZBook is made to move. With a long-lasting battery this sleek yet durable device is small enough to fit in your bag so you can stay productive anywhere. This is high performance workstation power on the go.

### Connect. Communicate. Collaborate

Collaborate effectively wherever you go with ZBook Firefly. The 5MP camera,<sup>7</sup> AI Noise Suppression software<sup>8</sup> to block background noises and Wi-Fi 6E<sup>9</sup> or 5G options<sup>10</sup> let you seamlessly connect from almost anywhere.



\*Product image may differ from actual product

## Sustainability in action

### Help protect our shared future with PCs that drive towards increasing sustainability

At HP, we care about the impact our products have on our people, communities, and the planet. That's why this device is EPEAT® Gold registered<sup>12</sup> and the outer box packaging is 100% sustainably sourced<sup>13</sup>.



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## Featuring

### Windows 11

Work without compromising on performance with Windows 11<sup>1</sup> combined with HP's collaboration and security technology.

### Intel® Core™ Ultra Processor<sup>2</sup>

Unleash productivity with a new architecture that delivers power-efficient performance for complex business workloads and is purpose-built for the next era of AI software by sending the right task to the right engine at the right time.

### NVIDIA® Graphics

Tackle your biggest projects with an optional NVIDIA RTX™ A500 Laptop GPU;<sup>4</sup> certified for pro apps.

### Lightning-Fast Storage

Blitz through multiple tasks and ditch external drives with up to 2 TB local NVMe storage<sup>5</sup>.

### Large Memory Configurations

Power through projects with up to 64 GB RAM<sup>6</sup> for fast editing and design.

### OLED Display

With display technology that lights each pixel separately, you'll get deeper blacks for richer contrast and enhanced color than traditional LED screens.<sup>4</sup>

### 16:10 Aspect Ratio

The 16:10 aspect ratio reduces the need to scroll by showing 11% more vertical content than a 16:9 aspect ratio display. See more of your project without minimizing program menus or toolbars.

### Easy Battery Management

Manage and monitor your battery's performance and condition and customize charging options with the easy-to-use HP Power Manager dashboard.<sup>9</sup>

### HP Fast Charge

Long battery life gets you through a day of meetings without plugging in. Quickly recharge your PC with HP Fast Charge. You'll get up to 50% battery life in just 30 minutes of charging.<sup>10</sup>

### Wi-Fi 6E

Get a fast and reliable connection in dense wireless environments with Wi-Fi 6E.<sup>12</sup>

### 5G WWAN

Connect almost anywhere with optional support for up to 5G wireless broadband technology with 4x4 antennas that can deliver fast download and upload speeds.<sup>13</sup>

### HP Wolf Security

HP Wolf Security for Business creates a hardware-enforced, always-on, resilient defense. From the BIOS to the browser, above, in, and below the OS, these constantly evolving solutions help protect your PC from modern threats.<sup>15</sup>



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## Technical specifications

<b>Available Operating Systems</b>	Windows 11 Pro <sup>1</sup> Windows 11 Pro Education <sup>1</sup> Windows 11 Home - HP recommends Windows 11 Pro for Business <sup>1</sup> Windows 11 Home Single Language - HP recommends Windows 11 Pro for Business <sup>1</sup> Windows 11 Pro (Windows 11 Enterprise available with a Volume Licensing Agreement) <sup>1</sup> FreeDOS
<b>Processor family<sup>2,3,4,5,6,47</sup></b>	Intel® Core™ Ultra 5 processor Intel® Core™ Ultra 7 processor
<b>Available Processors<sup>2,3,4,5,6,36,39,47</sup></b>	Intel® Core™ Ultra 5 135H (up to 3.6 GHz E-core Max Turbo frequency, up to 4.6 GHz P-core Max Turbo frequency, 18 MB L3 cache, 4 P-cores and 8 E-cores, 18 threads) Intel® Core™ Ultra 7 165H (Up to 3.8 GHz E-core Max Turbo frequency, up to 5.0 GHz P-core Max Turbo frequency, 24 MB L3 cache, 6 P-cores and 8 E-cores, 22 threads), supports Intel® vPro® Technology Intel® Core™ Ultra 7 155H (up to 3.8 GHz E-core Max Turbo frequency, up to 4.8 GHz P-core Max Turbo frequency, 24 MB L3 cache, 6 P-cores and 8 E-cores, 22 threads) Intel® Core™ Ultra 5 125H (up to 3.6 GHz E-core Max Turbo frequency, up to 4.5 GHz P-core Max Turbo frequency, 18 MB L3 cache, 4 P-cores and 8 E-cores, 18 threads) Intel® Core™ Ultra 7 165U (Up to 3.8 GHz E-core Max Turbo frequency, up to 4.9 GHz P-core Max Turbo frequency, 12 MB L3 cache, 2 P-cores and 8 E-cores, 14 threads), supports Intel® vPro® Technology Intel® Core™ Ultra 7 155U (up to 3.8 GHz E-core Max Turbo frequency, up to 4.8 GHz P-core Max Turbo frequency, 12 MB L3 cache, 2 P-cores and 8 E-cores, 14 threads) Intel® Core™ Ultra 5 135U (up to 3.6 GHz E-core Max Turbo frequency, up to 4.4 GHz P-core Max Turbo frequency, 12 MB L3 cache, 2 P-cores and 8 E-cores, 14 threads), supports Intel® vPro® Technology Intel® Core™ Ultra 5 125U (up to 3.6 GHz E-core Max Turbo frequency, up to 4.3 GHz P-core Max Turbo frequency, 12 MB L3 cache, 2 P-cores and 8 E-cores, 14 threads)
<b>Chipset</b>	Intel® Integrated SoC
<b>Maximum memory</b>	64 GB DDR5-5600 non-ECC SDRAM; <sup>8,30</sup>
<b>Memory slots</b>	2 SODIMM; supports dual channel <sup>41</sup>
<b>Internal storage</b>	256 GB up to 2 TB PCIe® Gen4 x4 NVMe™ M.2 2280 TLC SSD <sup>7</sup> 256 GB up to 1 TB PCIe® Gen4 x4 NVMe™ M.2 2280 TLC SED OPAL 2 SSD <sup>7</sup> 256 GB up to 1 TB PCIe® Gen4 x4 NVMe™ M.2 2280 SSD <sup>7</sup>
<b>Display size (diagonal, metric)</b>	40.6 cm (16")
<b>Display<sup>33,37</sup></b>	40.6 cm (16") diagonal, WUXGA (1920 x 1200), IPS, anti-glare, 400 nits, 100% sRGB; 40.6 cm (16") diagonal, WUXGA (1920 x 1200), IPS, anti-glare, 1000 nits, 100% sRGB, HP Sure View Reflect integrated privacy screen; 35.6 cm (14") diagonal, WUXGA (1920 x 1200), IPS, anti-glare, 300 nits, 45% NTSC; 35.6 cm (14") diagonal, WUXGA (1920 x 1200), touch, IPS, anti-glare, 300 nits, 45% NTSC
<b>Available Graphics</b>	Integrated: Intel® Graphics; Intel® Arc™ Pro Graphics <sup>27,28,32,50</sup> Discrete: NVIDIA RTX™ A500 Laptop GPU (4 GB GDDR6 dedicated) <sup>12,32</sup> (Intel® Iris® X® Graphics capabilities require system to be configured with Intel® Core™ Ultra 5 or Ultra 7 processors and dual channel memory. Intel® Iris® X® Graphics with Intel® Core™ Ultra 5 or Ultra 7 processors and single channel memory will only function as UHD graphics.)
<b>Audio</b>	Audio by Poly Studio, dual stereo speakers, HP World Facing Microphone dual array digital microphones, functions keys for volume up and down, combo microphone/headphone jack, HD audio
<b>Ports and connectors</b>	Left side: 2 Thunderbolt™ 4 with USB Type-C® 40Gbps signaling rate (USB Power Delivery, DisplayPort™ 1.4); 1 USB Type-A 5Gbps signaling rate; 1 HDMI 2.1 <sup>25,36,57</sup> ; Right side: 1 USB Type-A 5Gbps signaling rate; 1 headphone/microphone combo ; Optional Ports: 1 External Nano SIM slot for WWAN
<b>Input devices</b>	HP Premium Quiet Keyboard - spill-resistant, full-size keyboard with drain and DuraKeys; HP Premium Quiet Keyboard - spill-resistant, full-size, backlit keyboard with drain and DuraKeys; Clickpad with multi-touch gesture support, taps enabled as default; Microsoft Precision Touchpad with gesture support
<b>Communications</b>	WLAN: Intel® Wi-Fi 6E AX211 (2x2) and Bluetooth® 5.3 wireless card, vPro®; Intel® Wi-Fi 6E AX211 (2x2) and Bluetooth® 5.3 wireless card, non-vPro® <sup>9</sup> ; WWAN: HP 4000 4G LTE Advanced Pro <sup>9,10</sup>
<b>Camera</b>	5MP Camera; IR Camera (optional) <sup>13,14</sup>
<b>Software</b>	Bing Search for IE11; HP Hotkey Support; HP Noise Cancellation Software; HP Recovery Manager; HP Support Assistant <sup>18</sup> , HP Native Miracast Support <sup>22</sup> ; HP Connection Optimizer <sup>26</sup> ; myHP <sup>33</sup> ; HP PC Hardware Diagnostics UEFI; HP PC Hardware Diagnostics Windows; HP Privacy Settings; HP Programmable Key; HP QuickDrop <sup>55</sup> ; HP Touchpoint Customizer; HP Services Scan <sup>48</sup> ; HP Anyware <sup>21</sup> ; Buy Microsoft Office (Sold separately) <sup>19</sup> ; Copilot in Windows with Copilot key <sup>20</sup>
<b>Security management</b>	HP Sure Click <sup>29,43</sup> ; HP Secure Erase <sup>40</sup> ; HP Manageability Integration Kit <sup>38</sup> ; HP Sure Sense <sup>34</sup> ; HP BIOSphere Gen6 <sup>24</sup> ; HP Sure Start Gen6 <sup>45</sup> ; MS Bitlocker Encryption; Nano Security Lock Slot; HP Image Assistant Gen4.6; HP TPM Configuration Utility; HP Sure Run Gen4 <sup>31</sup> ; HP Client Security Manager Gen7 <sup>44</sup> ; HP Sure Recover Gen4 with Embedded Reimaging <sup>42</sup> ; Secured-core PC capable <sup>32</sup> ; TPM 2.0 Embedded Security Chip; Infineon SLB9670; Camera privacy shutter
<b>Fingerprint reader</b>	Fingerprint reader (select models)



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## Technical specifications

<b>Management features</b>	HP Client Catalog; HP Power Manager <sup>15</sup> ; HP Client Management Script Library (download); HP Driver Packs (download); HP Image Assistant Gen5 (download); HP Patch Assistant (download); HP Cloud Recovery <sup>56</sup> ; HP Connect for Microsoft Endpoint Manager <sup>46</sup>
<b>Memory card device</b>	1 smart card reader (select models)
<b>Power</b>	HP Smart 65 W External AC USB Type-C® power adapter; HP Smart 100 W External AC USB Type-C® power adapter
<b>Battery type</b>	HP Long Life 3-cell, 56 Wh Li-ion polymer; HP Long Life 6-cell, 76 Wh Li-ion polymer <sup>30,49</sup> ;
<b>Battery recharge time</b>	Supports battery fast charge: approximately 50% in 30 minutes <sup>23</sup>
<b>Dimensions</b>	35.87 x 25.13 x 1.92 cm; 552 x 69 x 345 mm (Package)
<b>Weight</b>	Starting at 1.79 kg; (Weight varies by configuration and components.)
<b>Ecolabels</b>	EPEAT® registered configurations available <sup>16</sup>
<b>Energy star certified</b>	ENERGY STAR® certified
<b>Sustainable impact specifications</b>	Ocean-bound plastic in speaker enclosure; 40% post-consumer recycled plastic; External power supply 90% efficiency; Low Halogen; Bulk packaging available; Molded paper pulp cushion inside box is 100% sustainably sourced and recyclable; Outside box and corrugated cushions are 100% sustainably sourced and recyclable <sup>17,51,52,53,54</sup>



# HP ZBook Firefly 16 inch G11 Mobile Workstation PC

## Footnotes

## Messaging Footnotes

- <sup>1</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. Optional, configurable feature that must be configured at purchase.
- <sup>2</sup> Intel vPro™ requires Windows 10 Pro 64 bit or higher, or vPro supported processor, vPro enabled chipset, vPro enabled wired LAN and/or Wi-Fi 6E WLAN and TPM 2.0. Some functionality requires additional 3rd party software in order to run. Features of vPro™ Essentials and Enterprise vary. See <http://intel.com/vpro>
- <sup>3</sup> Optional feature that must be configured at purchase.
- <sup>4</sup> Up to 64GB memory is an optional, configurable feature.
- <sup>5</sup> Lowest weight. Weight will vary by configuration.
- <sup>6</sup> Battery life will vary depending on the product model, configuration, loaded applications, features, use, wireless functionality and power management settings. The maximum capacity of the battery will naturally decrease with time and usage. See MobileMark25 battery benchmark <https://hp.com/products/mobilemark2018/https://hp.com/products/mobilemark25/> for additional details.
- <sup>7</sup> Requires the myHP application and Windows OS.
- <sup>8</sup> AI Noise Suppression is delivered automatically through Windows update or can be downloaded from <https://support.hp.com/us-en/drivers>. Requires Windows 10 or higher, compatible with internal PC speakers, microphone and analog headsets. The AI Noise Suppression setting can be configured through the Application HP Audio Control.
- <sup>9</sup> Wi-Fi 6E is an optional feature that must be configured at purchase. Wi-Fi 6E requires a Wi-Fi 6E router, sold separately, to function in the 6GHz band. Availability of public wireless access points limited. Wi-Fi 6E is backwards compatible with prior 802.11 specs. And available in countries where Wi-Fi 6E is supported.
- <sup>10</sup> HP 5G module is optional and must be configured at the factory. Module designed for 5G NR NSA (non-standalone) networks as carriers deploy Evolved-Universal Terrestrial Radio Access New Radio Dual Connectivity (ENDC) with both 100MHz of 5G NR and LTE channel bandwidth, using 256QAM 4x4 as defined by 3GPP. Module requires activation and separately purchased service contract. Check with service provider for coverage and availability in your area. Data connection, upload and download speeds will vary due to network, location, environment, network conditions, and other factors. Backwards compatible to 4G LTE and 3G HSPA technologies. 5G module planned to be available in select platforms and select countries, where carrier supported.
- <sup>11</sup> Based on US EPEAT™ registration according to IEEE 16901-2018 EPEAT™. EPEAT™ status varies by country. Visit [www.epeat.net](http://www.epeat.net) for more information.
- <sup>12</sup> 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 is automatically updated and enabled. High speed internet and Microsoft account required. ISP fees may apply, and additional requirements may apply over time for updates. See <http://www.windows.com>.
- <sup>13</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. Optional feature that must be configured at purchase.
- <sup>14</sup> Optional feature that must be configured at purchase.
- <sup>15</sup> Optional, configurable feature. For storage drives, GB = 1 billion bytes, TB = 1 trillion bytes. Actual formatted capacity is less. Up to 35GB (for Windows) is reserved for system recovery software.
- <sup>16</sup> Up to 64GB memory is an optional, configurable feature.
- <sup>17</sup> HP Power Manager requires Windows 10 and higher and can be downloaded from the Microsoft Store.
- <sup>18</sup> Recharges your battery up to 50% within 30 minutes when the system is off or in standby mode. Power adapter with a minimum capacity of 65 watts is required. After charging has reached 50% capacity, charging will return to normal. Charging time may vary +/-10% due to System tolerance.
- <sup>19</sup> Wi-Fi 6E requires a Wi-Fi 6E router, sold separately, to function in the 6GHz band. Availability of public wireless access points limited. Wi-Fi 6E is backwards compatible with prior 802.11 specs. And available in countries where Wi-Fi 6E is supported.
- <sup>20</sup> Intel 5G module is optional and must be configured at the factory. Module designed for 5G NR NSA (non-standalone) networks as carriers deploy Evolved-Universal Terrestrial Radio Access New Radio Dual Connectivity (ENDC) with both 100MHz of 5G NR and LTE channel bandwidth, using 256QAM 4x4 as defined by 3GPP. Module requires activation and separately purchased service contract. Check with service provider for coverage and availability in your area. Data connection, upload and download speeds will vary due to network, location, environment, network conditions, and other factors. Backwards compatible to 4G LTE and 3G HSPA technologies. 5G module planned to be available in select platforms and select countries, where carrier supported.
- <sup>21</sup> HP Work Security for Business requires Windows 10 or higher, includes various HP security features and is available on HP Pro, Elite and Workstation products. See product details for included security features and OS requirement.

## Specification Footnotes

- <sup>1</sup> 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 is automatically updated and enabled. High speed internet and Microsoft account required. ISP fees may apply and additional requirements may apply over time for updates. See <http://www.windows.com>.
- <sup>2</sup> Features and software that require a NPU may require software purchase, subscription or enablement by a software or platform provider, and third party software may have specific configuration or compatibility requirements. Performance varies by use, configuration, and other factors.
- <sup>3</sup> Processor speed denotes maximum performance mode; processors will run at lower speeds in battery optimization mode.
- <sup>4</sup> Intel™ Turbo Boost performance varies depending on hardware, software and overall system configuration. See [www.intel.com/technology/turboboost](http://www.intel.com/technology/turboboost) for more information.
- <sup>5</sup> In accordance with Microsoft's support policy, HP does not support the Windows 8 or Windows 7 operating system on products configured with Intel and AMD 7th generation and forward processors or provide any Windows 8 or Windows 7 drivers on <http://www.support.hp.com>.
- <sup>6</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>7</sup> For storage drives, GB = 1 billion bytes, TB = 1 trillion bytes. Actual formatted capacity is less. Up to 35GB (for Windows) is reserved for system recovery software.
- <sup>8</sup> The term "10/100/1000" or "Gigabit" Ethernet indicates compatibility with IEEE standard 802.3ab for Gigabit Ethernet, and does not connote actual operating speed of 1 Gb/s. For high-speed transmission, connection to a Gigabit Ethernet server and network infrastructure is required.
- <sup>9</sup> Wi-Fi 6E requires a Wi-Fi 6E router, sold separately, to function in the 6GHz band. Availability of public wireless access points limited. Wi-Fi 6E is backwards compatible with prior 802.11 specs. And available in countries where Wi-Fi 6E is supported.
- <sup>10</sup> WWAN is an optional feature and requires factory configuration and separately purchased service contract. Check with service provider for coverage and availability in your area. Connection speeds will vary due to location, environment, network conditions, and other factors. 4G LTE not available on all products, and in all regions.
- <sup>11</sup> Actual brightness will be lower with HP Sure View or touch-screen.
- <sup>12</sup> Both Luma & Discrete configurations support 3 independent displays when on the HP UltraSlim Dock (sold separately) - Max resolution = 25K @60Hz (DP1) & 25K @60Hz (DP2) & FHD (VGA) OR 4K @60Hz (one DP Port) & 4K @60Hz (Type-C output port using a Type-C to DP adapter).
- <sup>13</sup> HD content required to view HD images.
- <sup>14</sup> Windows Hello face authentication utilizes a camera specially configured for near infrared (IR) imaging to authenticate and unlock Windows devices as well as unlock your Microsoft Passport.
- <sup>15</sup> Manage and monitor your battery's performance and condition and customize charging options with the easy-to-use HP Power Manager dashboard.
- <sup>16</sup> EPEAT™ registered where applicable. EPEAT registration varies by country. See [www.epeat.net](http://www.epeat.net) for registration status by country. Search keyword generator on HP's 3rd party option store for solar generator accessories at [www.hp.com/go/options](http://www.hp.com/go/options).
- <sup>17</sup> External power supplies, WWAN modules, power cords, cables and peripherals excluded. Service parts obtained after purchase may not be Low Halogen.
- <sup>18</sup> HP Support Assistant - Requires Windows and Internet Access.
- <sup>19</sup> Microsoft Office sold separately and requires Internet access for activation.
- <sup>20</sup> Requires Windows 11 and an NPU. Timing of feature delivery and availability varies by market and device. Requires Microsoft account to log in, where Copilot in Windows is not available, the Copilot key will lead to the Bing search engine. See <http://aka.ms/WindowsAIFeatures>.
- <sup>21</sup> HP Anyware software and licensing are available through a 1- or 3-year subscription. Network access required. Renewal is required after the subscription term. HP Anyware subscriptions are based on the number of concurrent PCoIP connections used (pay for the number of host connections, not the software) with a minimum order quantity of 5. For a limited time, on HP Anyware Professional subscription also includes access and support for ZCentral Remote Boost and ZCentral Connect and is available for purchase through an HP reseller or contact sales at [hp.com/Anyware](http://hp.com/Anyware). ZCentral Remote Boost Sender requires Windows 10 and 11, RHEL/CentOS (7 or 8), or UBUNTU 18.04 or 20.04 LTS operating systems, macOS (10.14 or newer) operating system and ThinPro 7.2 are only supported on the receiver side. ZCentral Connect requires Windows (10 or 11) or Windows Server (2016 or 2019) operating system, Microsoft Active Directory and Intel Active Management Technology for select features. For system requirements and to install HP Anyware and Anyware Manager, refer to the Admin Guides at: <https://docs.teradici.com/find/product/hp-anyware>.
- <sup>22</sup> Miracast is a wireless technology your PC can use to project your screen to TVs, projectors, and streaming media players that also support Miracast. You can use Miracast to share what you're doing on your PC and present a slide show. For more information: <http://windows.microsoft.com/en-us/windows-8/project-wireless-screen-miracast>.
- <sup>23</sup> Recharges up to 50% within 30 minutes when the system is off or in standby mode when used with the power adapter provided with the notebook. Power adapter minimum of 65 watts required for battery capacities 56Whr or less. Power adapter minimum of 100 watts required for battery capacities greater than 56Whr and less than 83Whr. Power adapter minimum of 120 watts required for battery capacities greater than 83Whr and less than 100Whr. After charging has reached 90% capacity, charging speed will return to normal. Charging time may vary +/-10% due to System tolerance.
- <sup>24</sup> HP BIOSphere Gen8 features may vary depending on the platform and configuration.
- <sup>25</sup> SuperSpeed USB 20Gbps is not available with Thunderbolt™ 4.
- <sup>26</sup> HP Connection Optimizer requires Windows 10.
- <sup>27</sup> Support HD decode, DX12, HDMI 1.4, HDCP 2.2 via DP up to 4K @ 60Hz and via HDMI up to 4K @ 30Hz
- <sup>28</sup> Shared video memory (UMA) uses part of the total system memory for video performance. System memory dedicated to video performance is not available for other use by other programs.
- <sup>29</sup> HP Sure Click requires Windows 10 Pro or higher or Enterprise. See <https://bit.ly/2PrLT6A>, SureClick for complete details.
- <sup>30</sup> For systems configured with more than 3 GB of memory and a 32-bit operating system, all memory may not be available due to system resource requirements. Addressing memory above 4 GB requires a 64-bit operating system. Memory modules support data transfer rates up to 4800 MT/s; actual data rate is determined by the system's configured processor. See processor specifications for supported memory data rate.
- <sup>31</sup> HP Sure Run is available on select HP PCs and requires Windows 10 and higher.
- <sup>32</sup> Secured-core PC requires an Intel™ vPro™ or AMD Ryzen™ Pro processor. Requires 8 GB or more system memory. Secured-core PC functionality can be enabled from the factory.
- <sup>33</sup> HP Sure View Reflect integrated privacy screen is an optional feature that must be configured at purchase and is designed to function in landscape orientation.
- <sup>34</sup> HP Sure Sense is available on select HP PCs with Windows 10 Pro, Windows 10 Enterprise, Windows 11 Pro, or Windows 11 Enterprise OS.
- <sup>35</sup> myHP requires Windows OS.
- <sup>36</sup> HDMI cable sold separately.
- <sup>37</sup> Resolutions are dependent upon monitor capability, and resolution and color depth settings.
- <sup>38</sup> HP Manageability Integration Kit can be downloaded from <http://www.hp.com/go/clientmanagement>.
- <sup>39</sup> Intel vPro™ requires Windows 10 Pro 64 bit or higher, a vPro supported processor, vPro enabled chipset, vPro enabled wired LAN and/or Wi-Fi 6E WLAN and TPM 2.0. Some functionality requires additional 3rd party software in order to run. Features of vPro™ Essentials and Enterprise vary. See <http://intel.com/vpro>
- <sup>40</sup> HP Secure Erase for the methods outlined in the National Institute of Standards and Technology Special Publication 800-88 "Clear" sanitation method. HP Secure Erase does not support platforms with Intel® Optane™.
- <sup>41</sup> Due to the non-industry standard nature of some third-party memory modules, we recommend HP branded memory to ensure compatibility. If you mix memory speeds, the system will perform at the lower memory speed.
- <sup>42</sup> HP Sure Recover is available on select HP PCs and requires Windows 10 or Windows 11 and an open network connection. You must back up important files, data, photos, videos, etc. before using HP Sure Recover to avoid loss of data. Network based recovery using Wi-Fi is only available on select PCs.
- <sup>43</sup> HP Tamper Lock is an optional feature that must be configured at the factory and requires a supervisor password be established prior to use.
- <sup>44</sup> HP Client Security Manager Gen7 requires Windows and is available on the select HP Elite and Pro PCs.
- <sup>45</sup> HP Sure Start is available on select HP PCs and requires Windows 10 and higher.
- <sup>46</sup> HP Connect for Microsoft Endpoint Management is available from the Azure Market Place for HP Pro, Elite, Z and Point-of-Sale PCs managed with Microsoft Endpoint Manager. Subscription to Microsoft Endpoint Manager required and sold separately. Network connection required. HP Sure Admin requires Windows 10 or newer, and HP BIOS.
- <sup>47</sup> Features and software that require a NPU may require software purchase, subscription or enablement by a software or platform provider, and third party software may have specific configuration or compatibility requirements. Performance varies by use, configuration, and other factors.
- <sup>48</sup> HP Services Scan is provided with Windows Update on select products and will check entitlement on each hardware device to determine if an HP TechPulse-enabled service has been purchased, and will download applicable software automatically. HP TechPulse is a telemetry and analytics platform that provides critical data around devices and applications. For full system requirements or to disable this feature, please visit <http://www.hpdaas.com/requirements>. Not applicable in China.
- <sup>49</sup> For new batteries, actual battery Watt-hours (Wh) may differ from the design capacity and may have a full charge capacity that differs by up to 10, which is typical for lithium-ion batteries. Battery capacity naturally decreases over time and with use, depending on several factors such as battery health management settings, shelf life, temperature, environment, loaded apps, features, system configuration, and power settings.
- <sup>50</sup> Intel™ Arc™ graphics only available on select Intel™ Core™ Ultra H-series processor-powered systems with at least 16GB of system memory in dual channel configuration.
- <sup>51</sup> Percentage of ocean-bound plastic contained in each component varies by product.
- <sup>52</sup> Recycled plastic content percentage is based on the definition set in the IEEE 16901-2018 standard.
- <sup>53</sup> Fiber cushions made from 100% recycled wood fiber and organic materials.
- <sup>54</sup> 100% outer box packaging and corrugated cushions made from sustainably sourced certified and recycled fibers.
- <sup>55</sup> HP Quick Drop requires Internet access and Windows 10 PC preinstalled with HP QuickDrop app and either an Android device (phone or tablet) running Android 7 or higher with the Android HP QuickDrop app, and/or an iOS device (phone or tablet) running iOS 12 or higher with the iOS HP QuickDrop app.
- <sup>56</sup> HP Cloud Recovery is available for Z by HP, HP Elite and Pro desktops and laptops PCs with Intel™ or AMD processors and requires an open, wired network connection. Note: You must back up important files, data, photos, videos, etc. before use to avoid loss of data. Detail please refer to: <https://support.hp.com/us-en/document/c05115630>.
- <sup>57</sup> Thunderbolt™ 4 and USB4™ maximum speed of 40Gbps will be divided between the different data workstreams.
- <sup>58</sup> Depending on the version available for your device and the setting you select, HP Battery Health Manager (BHM) will use a proprietary set of algorithms to optimize battery health during the life of the battery. New Commercial Notebooks come equipped with BHM set to "Let HP Manage My Battery Health" as the default. This setting will reduce charge capacity over time to optimize battery health and mitigate factors that can accelerate battery degradation. As a result of this reduction, battery runtime will decrease over time as available charge capacity is reduced. HP may, at any time, update HP Battery Health Manager to improve available settings, functionality, and performance. Refurbished products may have customized default settings to optimize user experience. For additional information on updating or modifying HP Battery Health Manager settings, please go to [HP.COM/SUPPORT/BATTERY](https://hp.com/SUPPORT/BATTERY).

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