Datasheet

OMEN Gaming Laptop 16-ap0502na

Bold performance that doesn't burn out

The new OMEN 16 not only has the power of the latest next-gen AMD[1] and NVIDIA® components, but it also has the proper thermal innovations to keep them from burning out. Pair that with OMEN AI for maximum possible FPS at the click of a button and Unleashed Mode for that extra boost in performance, and you have our most reliably powerful laptop yet.



*Product image may differ from actual product

Cooling that keeps up

Handle the heat with high efficiency fans that reduce noise and keeps your laptop cool while you game on.

Instantly raise your game

Get maximum possible FPS with OMEN AI and boost your power beyond its base limits with Unleashed Mode.

Next generation of performance

Get the best possible performance with the latest next-gen NVIDIA® GPUs and AMD Processors[1].

Sustainability in action

Steady connection, even steadier aim

Never miss a call or headshot with a high refresh rate display[2] and built-in FHD webcam[3].

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Featuring

Get a fresh perspective
From a rejuvenated Start menu, to new ways to connect to your favorite people, news, games, and content—Windows 11 is the place to think, express, and create in a natural way.[4]

AMD Ryzen™ AI 300 Series processors with AMD Radeon™ graphics
Unlock transformational AI PC experiences with AMD Ryzen™ AI 300 series processors. Designed for users to experience pure speed, responsiveness, and power efficient AI processing for Copilot+ PCs.[5]

AMD FreeSync™ technology
See and feel the difference of fluid, responsive gameplay. By synchronizing the refresh rate with your GPU, AMD FreeSync™ makes display stutter, input lag, and screen tears ancient history.[6]

Wide Quad Extended Graphics Array Display
Get lost in the captivating definition with 2560 × 1600 pixels.[7]

Eyesafe® Certified Display
Eyesafe® certified displays meet TÜV low blue light requirements and Eyesafe® standards for protecting your eyes from harmful blue light without distorting colors to reduce eyestrain when working for long periods of time.[8]

3ms response time
How fast your display's pixels respond is crucial for a smooth picture. With a 3-millisecond response time, your action-filled content will look crisp and fluid without motion blur.[9]

Flicker-free
Using DC Dimming technology that controls brightness by adjusting direct current rather than cycling the backlight, we can eliminate screen flickering for more comfortable viewing.[10]

16:10 aspect ratio
A 16:10 aspect ratio lets you see more of your content with less scrolling.

Incorporating ocean-bound plastics
HP incorporates increasing amounts of recycled, renewable, and non-virgin raw materials. Built with the environment in mind, this product includes a percentage of ocean-bound plastic in the design.[11]

Keyboard contains post-consumer recycled plastic
We're bringing a more thoughtful design to our keyboards by using post-consumer recycled plastic in the design.[12]

ENERGY STAR®
This product meets the criteria that require computers to operate efficiently to get ENERGY STAR certification.[13]

Effortlessly connected
Enjoy faster speeds, improved performance, greater capacity and lower latencies than earlier iterations with Wi-Fi 6E technology.[14]

HP True Vision FHD
Video chat in vibrant clarity with Full HD resolution, even in low light, and make every conversation a face-to-face experience for a better way to stay in touch.[15]

USB Type-A 5Gbps signaling data rate
Plug in your external storage with this USB Type-A port, featuring 5Gbps signaling data rate.[16]

McAfee® LiveSafe™
Protect your operating system with a free 30-day McAfee® LiveSafe™ subscription.[17]

512 GB PCIe® Gen4 NVMe™ M.2 SSD
With high-speed data transfer, the 512 GB PCIe Gen4 NVMe M.2 SSD offers lightning fast speed and efficient storage.[18]

Audio tuned by HyperX
Immerse yourself in the sweet sounds of audio mixed and tuned by HyperX.

HP Audio Boost
Take your audio experience to the next level with smart amplification technology giving you loud, clear and dynamic sound.

DTS: X® Ultra Technology
By producing authentic, spatially accurate 3D sound through any headset, this technology offers specially tuned audio modes for different game types to provide immersion for the best entertainment experience possible.[19]

Dual speakers
Pump up the volume to your favorite music, movie or game with dual-stereo speakers.

DDR5 RAM
Designed to run efficiently and reliably at faster speeds, DDR5 is the latest RAM standard. With higher bandwidth, you get more of a boost in performance.

Four Zone RGB keyboard
Allows you to backlight 4 independent zones with different RGB lighting. WASD keys are outlined to highlight key controls. It's all easily controlled through the OMEN Gaming Hub.

HP Imagepad with multi-touch gesture
This true multi-touch touchpad supports four finger gestures and lets you scroll, zoom, and navigate with a simple touch.

Recommended accessories and services (not included)



3-year pickup and return
UM963E

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Specifications





Performance

Operating system
Windows 11 Home
Processor
AMD Ryzen™ AI 7 350 (up to 5.0 GHz max boost clock, 16 MB L3 cache, 8 cores, 16 threads)[6,7]
Processor family: AMD Ryzen™ AI 7 processor
Neural Processing Unit (NPU): AMD Ryzen™ AI (50 NPU TOPS)
Chipset
AMD integrated SoC
Memory
16 GB DDR5-5600 MT/s (2 x 8 GB)
Transfer rates up to 5600 MT/s.
Number of User-accessible Memory Slots: 2
Storage
512 GB PCIe® Gen4 NVMe™ M.2 SSD
25 GB Dropbox storage for 12 months[1]
Graphics
Discrete: NVIDIA GeForce RTX™ 5060 Generation Laptop GPU (8 GB GDDR6 dedicated) ;
Audio
DTS:X® Ultra; Dual speakers; HP Audio Boost; HyperX
Display
40.6 cm (16") diagonal, WQXGA (2560 x 1600), 60-240 Hz, 3 ms response time, IPS, micro-edge, anti-glare, Low Blue Light, 500 nits, 100% sRGB[17,21,28]
Screen-to-body ratio
87.49%[18]
Power
230 W AC power adapter;
Battery type
6-cell, 83 Wh Li-ion polymer[23]
Battery and Power
Supports battery fast charge: approximately 50% in 30 minutes[5]

Connectivity

Network interface
Integrated 10/100/1000 GbE LAN
Wireless connectivity
MediaTek Wi-Fi 6E MT7922 (2x2) and Bluetooth® 5.3 wireless card
Modern Standby (Connected)[11,46]
Ports
1 USB Type-A 10Gbps signaling rate; 2 USB Type-A 5Gbps signaling rate; 1 AC smart pin; 1 HDMI 2.1; 1 headphone/microphone combo; 1 RJ-45; 1 USB Type-C® 10Gbps signaling rate (USB Power Delivery 3.0, DisplayPort™ 1.4, HP Sleep and Charge)[19,42]
Expansion slots
2 M.2 (SSD)
Webcam
HP True Vision 1080p FHD camera with temporal noise reduction and integrated dual array digital microphones

Sustainability

Ecolabels
EPEAT® Gold with Climate+[27]
Energy star certified
ENERGY STAR® certified
Sustainable impact specifications
Ocean-bound plastic in bezel; Keyboard keycaps and scissors contain post-consumer recycled plastic[39,41]

Design

Product color
Shadow black
Paint finish

Software

HP apps
HP Support Assistant; HP Connection Optimizer; OMEN Gaming Hub
Software
Otter.ai;
1 month trial for new Microsoft 365 customers[24]
Service & support
McAfee Online Protection 30-day trial; 1-month Adobe free trial offer; PC Game Pass 3-month trial [2,25]

Additional information

Part Number
P/N: BK6A4EA #ABU
UPC/EAN code: 199251185113
Weight
2.44 kg;
Packed: 3.19 kg
Dimensions
35.75 x 26.9 x 2.37 cm (front); 35.75 x 26.9 x 2.54 cm (rear);
Packed: 6.3 x 56.7 x 30.5 cm
Manufacturer Warranty
1 year (1/1/0) limited warranty includes 1 year of parts and labor. No on-site repair. Terms and conditions vary by country. Certain restrictions and exclusions apply.
Keyboard
Full-size, 4-zone RGB backlit, shadow black keyboard with numeric keypad and 26-Key Rollover Anti-Ghosting Key technology
HP Imagepad
Features
AMD FreeSync™[29]
Security management
Camera privacy shutter; Trusted Platform Module (Firmware TPM) support
Sensors
IR thermal sensor

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Footnotes

Messaging Footnotes

[1] Multi-core 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. AMD's numbering is not a measurement of clock speed.
[2] All performance specifications represent the typical specifications provided by HP's component manufacturers; actual performance may vary either higher or lower.
[3] Camera resolution refers to the image sensor active pixels. The actual image capture pixels and aspect ratio depend on the app selected.
[4] 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.
[5] Multi-core 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. AMD's numbering is not a measurement of clock speed. 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. Potential NPU inferencing performance varies by use, configuration, and other factors. Copilot+ in Windows requires Windows 11. Some features require an NPU. Timing of feature delivery and availability varies by market and device. Requires Microsoft account to log in. Where Microsoft in Windows is not available, the Copilot key will lead to the Bing search engine. See aka.ms/copilotpluspcs.
[6] FreeSync™ is only available when it is connected on Display Port or HDMI port. FreeSync™ is an AMD technology enabled on FHD or QHD displays and is designed to eliminate stuttering and/or tearing in games and videos by locking a display's refresh rate to the frame rate of the graphics card. Monitor, AMD Radeon™ Graphics and/or AMD A-Series APU compliant with DisplayPort™ Adaptive-Sync required. AMD Catalyst™ 15.2 Beta (or newer) required. Adaptive refresh rates vary by display.
[7] WQXGA content is required to view WQXGA images.
[8] All performance specifications represent the typical specifications provided by HP's component manufacturers; actual performance may vary either higher or lower. Eyesafe® Display for Low Blue Light is the Display Compliance Test Specification quality. See https://eyesafe.com for more details. Display measured diagonally
[9] All performance specifications represent the typical specifications provided by HP's component manufacturers; actual performance may vary, either higher or lower.
[10] The flicker-free capability eliminates screen flickering through integrating DC-dimming LED backlights.
[11] Percentage of ocean-bound plastic contained in each component varies by product.
[12] Keyboard components contain post-consumer recycled plastic. Percentage of post consumer recycled contained in each component varies by product.
[13] Based on U.S. EPEAT® registration according to IEEE 1680.1-2018 EPEAT®. EPEAT® status varies by country. Visit www.epeat.net for more information.
[14] Wireless access point and internet service required and sold separately. Availability of public wireless access points limited. Wi-Fi 6 is backwards compatible with prior 802.11 specs. Wi-Fi 6 is designed to support gigabit data rate when transferring files between two devices connected to the same router. Requires a wireless router, sold separately, that supports 80MHz and higher channels. Wi-Fi 6 (802.11ax) is not supported in Belarus where Wi-Fi settings will be optimized to local regulatory requirements (802.11ac).
[15] Features may require software or other 3rd party applications to provide the described functionality.
[16] Actual throughput may vary.
[17] Internet service required and not included. Subscription required after 30 days.
[18] For hard drives, GB = 1 billion bytes. TB = 1 trillion bytes. Actual formatted capacity is less. Up to 35GB of system disk is reserved for system recovery software.
[19] Listening to personal stereo equipment at full volume for long periods can damage the user's hearing. To reduce the risk of hearing damage, lower the volume and amount of time listening at full volume.

Technical Specifications Footnotes

[1] 25 GB of free Dropbox storage for 12 months from date of registration. For complete details and terms of use, including cancellation policies, visit the Dropbox website at https://www.dropbox.com/help/space/hp-promotion. Internet service required and not included.
[2] Internet access required and not included. McAfee is pre-installed on your PC and an account is required for activation. Subscription renewal required after trial period. VPN feature is not available in India, China, Syria or North Korea. McAfee is not compatible with Windows 11 in S mode. You'll need to permanently switch out of S mode. There's no charge to switch out of S mode, but you won't be able to turn it back on.
[5] Recharges your battery up to 50% within 30 minutes when the system is off using "shut down" command, using HP adapter provided with the notebook or recommended power adapter disclosed in specifications (see http://store.hp.com). After charging has reached 50% capacity, charging speed will return to normal speed. Charging time may vary +/-10% due to System tolerance. Available on select HP products.
[6] Multi-core 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. AMD s numbering is not a measurement of clock speed.
[7] Max Boost clock frequency performance varies depending on hardware, software and overall system configuration.
[11] 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 6GHz is supported.
[17] All performance specifications represent the typical specifications provided by HP's component manufacturers; actual performance may vary either higher or lower.
[18] Percent of active plus nonactive viewing area to active viewing area plus border. Measure with lid vertical to the desk.
[19] For best results with HP Sleep and Charge, use a USB charging protocol standard cable or cable adapter with an external device.
[21] TUV Low Blue Light is the Display Compliance Test Specification quality. See https://www.certipedia.com/?locale=en#search for more details.
[23] Actual battery Watt-hours (Wh) will vary from design capacity. Battery capacity will naturally decrease with shelf life, time, usage, environment, temperature, system configuration, loaded apps, features, power management settings and other factors.
[24] Must activate within 180 days of Windows activation.
[25] Offer available worldwide (excluding China and embargoed countries or other countries identified as restricted by applicable law or regulation) to new and existing subscribers who are 18+. Click on the Adobe icon in the start menu to redeem a 1-month free trial membership for select Adobe software. The software is tied to the device and is not transferrable. If you would like to sign up for an auto-renewing subscription, you can provide your payment method at sign-up. By adding a payment method, your subscription will automatically renew at the then current rate on your renewal date until you cancel. If you cancel before the end of the one-month free trial, you won't be charged. You can cancel your subscription anytime via your Adobe Account page or by contacting Customer Support. Please see current prices for Adobe products available in this offer. Offer not available to Education, OEM, or volume licensing customers. Subject to availability where the recipient resides. Additional terms and conditions may apply. VOID WHERE PROHIBITED OR RESTRICTED BY LAW.
[27] Based on U.S. EPEAT® registration according to IEEE 1680.1-2018 EPEAT®. EPEAT® status varies by country. Visit www.epeat.net for more information.
[28] Eyesafe® Display for Low Blue Light is the Display Compliance Test Specification quality. See https://eyesafe.com for more details.
[29] AMD FreeSync™ /FreeSync™ Premium/FreeSync™/FreeSync™ Replay Premium Pro is enabled on FHD or higher resolution displays, with the additional requirements, such as at least 120Hz refresh rate, low framerate compensation, and HDR to support AMD FreeSync™ Premium/ FreeSync™ Premium Pro/FreeSync™ Replay. AMD Radeon Graphics and/or AMD A-Series APU-compliant monitors with DisplayPort/HDMI Adaptive-Sync required. AMD 15.11 Crimson driver (or newer) required to support FreeSync over HDMI. Adaptive refresh rates vary by monitor. AMD FreeSync™ /FreeSync™ Premium/FreeSync™/FreeSync™ Replay Premium Pro technology requires AMD Radeon graphics and a display certified by AMD. See www.amd.com/freesync for complete details. GD-127 © 2023 Advanced Micro Devices, Inc. All rights reserved. AMD, the AMD Arrow logo, Radeon, FreeSync, and combinations thereof are trademarks of Advanced Micro Devices, Inc.
[37] Weight and system dimensions may fluctuate due to configuration and manufacturing variances.
[39] Percentage of ocean-bound plastic contained in each component varies by product.
[41] Keyboard components contain post-consumer recycled plastic. Percentage of post consumer recycled contained in each component varies by product.
[42] For optimal performance and battery chargeability while gaming and rendering, use the power adapter that ships with the PC. You can use the 100W/20V Type-C adapter or power bank when running light loading tasks. System-off charging is only supported on 20V Type-C adapter or power bank.
[45] The Flicker-free capability is eliminating screen flickering through integrating DC-dimming LED backlights or LED emissions. OLED panel is functional with DC-DIMMING when above 100nits.
[46] Bluetooth® 5.3 operation requires Microsoft OS/Chrome OS support. Until Microsoft OS/Chrome OS support is available, Bluetooth® 5.3 will function as Bluetooth® 5.2 or lower.
[50] Copilot in Excel requires AutoSave to be enabled, meaning the file must be saved to OneDrive; it doesn't function with unsaved files. Copilot features in Outlook apply to accounts with @outlook.com, @hotmail.com, @live.com, or @msn.com email addresses and are available in Outlook.com, Outlook built into Windows, Outlook on Mac, and iOS and Android apps. AI features only available to Microsoft 365 Family subscription owner and cannot be shared; usage limits apply. Learn more Learn more Understanding AI credits - Microsoft Support . Microsoft Copilot features in Microsoft 365 are not available in China or Macao SAR.

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