

OMEN by HP Laptop 16-b1020nr



Lift Your Play Up. Way Up.

Go forth with our OMEN by HP 16.1 inch Gaming Laptop PC. It's got it all, a high resolution, fast display, a powerful Intel® processor and NVIDIA® graphics, all cooled by OMEN Tempest Cooling. Optimize and customize with the OMEN Gaming Hub. Go beyond.

Product overview

- **Try to play humble:** Play with performance with an 12th Gen Intel® Core™ processor and powerful NVIDIA® graphics. All that power stays cool with our frosty OMEN Tempest Cooling. We can't stop others from feeling a little envy.
- **Gaming shouldn't feel this good:** Feast your eyes on this 16.1 inch diagonal machine, boasting a high resolution, fast refresh rate display. The floating hinge design and Audio by Bang & Olufsen show it off while you go off. And the long battery life lets you play even longer.
- **One Place. All Play.** OMEN Gaming Hub is your one-stop shop to elevating your play. From getting rewards just by gaming, to controlling every little performance and lighting option of your machine, the list goes on. Every game, every play, every moment is now in your control.

Key specifications

- **Operating system:** Windows 11 Home⁽¹⁾
- **Processor:** 12th Generation Intel® Core™ i7-12700H^(2b)
- **Display:** 16.1-inch diagonal, QHD (2560 x 1440), 165 Hz, 3 ms response time, IPS, micro-edge, anti-glare, Low Blue Light⁽³⁸⁾ NVIDIA® G-SYNC® support
- **Memory:** 16 GB DDR5-4800 MHz RAM (2 x 8 GB)
- **Internal storage:** 512 GB PCIe® Gen4 NVMe™ M.2 SSD^{(15)(58e)}
- **Graphics:** NVIDIA® GeForce RTX™ 3070 Laptop GPU (8 GB GDDR6 dedicated)⁽¹³⁾
- **Sound:** Audio by Bang & Olufsen with dual speakers
- **Battery life:** Up to 6 hours and 15 minutes (mixed usage)⁽⁸⁵⁾ Up to 8 hours and 15 minutes (video playback)⁽⁷⁵⁾ Up to 6 hours and 45 minutes (wireless streaming)⁽⁸⁰⁾
- **Wireless:** Wi-Fi 6E (2x2)^(19d) and Bluetooth® combo⁽²⁶⁾ (Supporting Gigabit data rate)^(7e)
- **Camera:** HP Wide Vision 720p HD camera with temporal noise reduction and integrated dual array digital microphones⁽⁸⁹⁾
- **Product weight:** 5.11 lb⁽⁷⁶⁾
- **Keyboard:** Full-size, per key RGB backlit, shadow black keyboard and 26-Key Rollover Anti-Ghosting Key technology

Product features

- **Get a fresh perspective with Windows 11:** 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.⁽¹⁾
- **A dynamic processor that adapts to you for superior multi-tasking performance:** 12th Gen Intel® Core™ processor distributes performance where you need it the most — saving you time and increasing your ability to do the things you actually want.
- **The Ultimate Play:** The GeForce RTX™ 3070 is powered by Ampere—NVIDIA's 2nd gen RTX architecture for power you need to rip through the most demanding games.
- **165Hz QHD anti-glare display:** Reduce frustrating lag and image ghosting with a display that combines a 165Hz refresh rate, NVIDIA® G-SYNC™ support, and 2560 x 1440 resolution for smooth, crisp gameplay.⁽²⁰⁾
- **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.
- **NVIDIA® G-SYNC™:** By synchronizing the refresh rates of your GPU and display, NVIDIA® G-SYNC™ technology delivers gameplay that's sharp, fluid, and stutter-free with minimal input lag.
- **Flicker-free:** Using DC Dimming technology, we can eliminate screen flickering for more comfortable viewing.⁽⁶¹⁾
- **100% sRGB:** Showcase your creations in all their colors on the 100% sRGB display for maximum color broadness and accuracy.
- **HP Fast Charge:** Go from 0 to 50% charge in approximately 30 minutes.⁽⁷²⁾
- **Wi-Fi 6E:** Enjoy faster speeds, improved performance, greater capacity and lower latencies than earlier iterations with Wi-Fi 6E and Bluetooth® combo technology.^{(19c)(26)}

Additional product features

- **HP Wide Vision HD Camera:** The 88-degree, wide-angle field of view lets you video chat with the entire family or group of friends in crystal clear detail.⁽⁸⁹⁾
- **Thunderbolt™ 4 with USB4™ Type-C®:** Power your device or connect up to two 4K displays with a single cable and blazing 40Gbps signaling rate.⁽¹²⁾⁽⁴³⁾
- **PCIe® NVMe™ SSD storage:** Get up to 12.8x faster performance than a SATA SSD.^(58e)
- **An exceptionally rich audio experience:** HP Dual Speakers, HP Audio Boost, and expert tuning by Bang & Olufsen bring audio perfection to your PC.
- **Per Key RGB Keyboard:** This full-size keyboard is precision-designed for competitive gameplay. RGB per-key LED backlighting customization and N-key rollover anti-ghosting technology to never miss a key.

Product design

- **OMEN Tempest Cooling Technology:** Stay cool under pressure with the advanced laptop thermal solution, OMEN Tempest Cooling Technology. 3-sided venting and 5-way airflow ensure optimal system stability and performance when gameplay heats up.⁽⁴⁶⁾
- **Elevated aesthetic:** Designed with an aluminum-finished palm rest for a premium look.
- **Enlarged touchpad:** More room on your touchpad makes controlling your PC effortless and intuitive.
- **Micro-edge display:** The barely visible bezel revolutionizes your display by letting a larger screen fit into a smaller frame.

Created with the planet in mind

HP is dedicated to driving progress toward a more sustainable future and making responsible choices for the environment and our customers. We are innovating new ways to reduce the amount of materials in our products and packaging—and to use more recycled materials in their design. Together we can make a difference.

- Built with the environment in mind, this laptop is designed using sustainable materials like:
 - Ocean-bound plastic in the speaker enclosures^(63d)
 - Keyboard keycaps made from post-consumer recycled plastic^(63b)
 - Keyboard deck and hinge caps made from recycled metal^(63d)
- HP's outer boxes and fiber cushions used in packaging are 100% sustainably sourced and recyclable.^(63a)
- ENERGY STAR® certified⁽⁶²⁾
- EPEAT® Silver registered⁽²⁷⁾

Warranty and support

Our Customer Support Team consistently provides quick, responsive assistance in the U.S., Canada and Latin America.

Included with your product:

- **HP's Hardware Limited Warranty:** Full warranty details are included with your product.
- **Technical Support for Software & initial set-up:** Warranty details are included with your product.

Support Options:

- **HP Support Assistant - HPSA:** Optimized to enhance your support experience. Help for your PC and HP printers whenever you need it.⁽⁵⁶⁾
- **Online Support:** For technical support with this product, visit HP Customer Support <http://support.hp.com>.⁽⁹⁾
- **Social Media Support:** To find solutions, ask questions, and share tips, join us on the HP Support Community at community.hp.com, on Twitter at twitter.com/HPSupport, and Facebook at facebook.com/HPSupport.⁽⁹⁾

Extend your coverage:

- **SmartFriend, part of HP Care:** Experts are available 24/7 to handle any tech issue, on any device, from any brand. Visit www.hp.com/go/smartfriend to learn more or call toll-free 1-844-814-1800 to get started.⁽⁹⁵⁾
- **Care Packs, part of HP Care:** Extend protection beyond the standard limited warranty. For more info, visit www.hp.com/go/carepack-services or call toll-free at 1-877-232-8009.⁽⁶³⁾



Specifications

Operating system	• Windows 11 Home ⁽¹⁾
Processor	• 12th Generation Intel® Core™ i7-12700H ^(2b) • 14-Core
Processor speed	• Up to 4.7 GHz with Intel® Turbo Boost Technology ^(2g)
Processor cache	• 24 MB L3 cache
Memory	• 16 GB DDR5-4800 MHz RAM (2 x 8 GB)
Accessible memory slots	• 2
Video graphics	• NVIDIA® GeForce RTX™ 3070 Laptop GPU (8 GB GDDR6 dedicated) ⁽¹³⁾
Internal storage	• 512 GB PCIe® Gen4 NVMe™ M.2 SSD ^{(15)(58a)}
Finish and features	• Top cover: Shadow black • Keyboard deck: Shadow black aluminum with a sandblasted finish
Camera	• HP Wide Vision 720p HD camera with temporal noise reduction and integrated dual array digital microphones ⁽⁶⁹⁾
Display	• 16.1-inch diagonal, QHD (2560 x 1440), 165 Hz, 3 ms response time, IPS, micro-edge, anti-glare, Low Blue Light, 300 nits, 100% sRGB ⁽²⁰⁾⁽³⁸⁾ • NVIDIA® G-SYNC® support
Screen to body ratio	• 80.6% ⁽⁴⁰⁾
Network card	• Integrated 10/100/1000 GbE LAN ⁽²⁰⁾
Wireless connectivity	• Wi-Fi 6E (2x2) ^(19c) and Bluetooth® combo ⁽²⁶⁾ (Supporting Gigabit data rate) ^(7a) • MU-MIMO supported
Digital media	• 1 Multi-format SD media card reader
Sound	• Audio by Bang & Olufsen with dual speakers
Integrated keyboard	• Full-size, per key RGB backlit, shadow black keyboard and 26-Key Rollover Anti-Ghosting Key technology • HP Imagepad with multi-touch gesture support
External notebook ports	• 1 Thunderbolt™ 4 with USB4™ Type-C® 40Gbps signaling rate (DisplayPort™ 1.4, HP Sleep and Charge) ⁽⁴²⁾⁽⁵⁰⁾⁽⁵¹⁾⁽⁵⁹⁾⁽⁶⁴⁾ • 1 SuperSpeed USB Type-A 5Gbps signaling rate (HP Sleep and Charge) ⁽⁶⁴⁾ • 2 SuperSpeed USB Type-A 5Gbps signaling rate • 1 RJ-45 • 1 Headphone/microphone combo (DTS: X® Ultra) ⁽⁴⁷⁾ • 1 AC Smart pin • 1 Mini DisplayPort™ • 1 HDMI 2.1
Dimensions	• Unpackaged: 14.54 in (W) x 9.76 in (D) x 0.91 in (H) • Packaged: 21.73 in (L) x 2.72 in (W) x 13.58 in (H)
Weight	• Unpackaged: 5.11 lb ⁽⁷⁶⁾ • Packaged: 8.86 lb
Power	• 6-cell, 83 Wh Li-ion polymer battery ⁽²¹⁾ • 230 W AC power adapter
Battery life	• Up to 6 hours and 15 minutes (mixed usage) ⁽⁸⁵⁾ • Up to 8 hours and 15 minutes (video playback) ⁽⁷⁵⁾ • Up to 6 hours and 45 minutes (wireless streaming) ⁽⁸⁰⁾
Warranty and support	• 1-year limited hardware warranty. Additional information available at www.support.hp.com ⁽⁹⁾ • 1-year limited technical support for software and initial setup (from date of purchase) ⁽⁵³⁾

Learn more at hp.com

Software

Help and support	• myHP: myHP provides a simple setup and registration experience that welcomes you to your new HP PC. Customize, optimize, and secure your device with tips and tricks and easy-to-access settings, and receive helpful messages and information to keep things running smoothly. • HP Support Assistant: Included with your computer, this free self-help tool makes it easier than ever to get help with your HP PC and printers. ⁽⁵⁶⁾
Security and protection	• HP BIOS Protection: Get peace of mind knowing your PC BIOS is protected. HP BIOS Protection automatically checks its health and recovers itself. ⁽²³⁾
Partner offers	• McAfee LiveSafe™: Protect your operating system with a free 30-day McAfee LiveSafe™ trial. ⁽⁸⁾ • Dropbox cloud storage: Store and synchronize your content online with Dropbox. Get 100GB of storage for one year to access, manage, and share your photos, music, and files from anywhere with Internet access. ⁽⁹⁾⁽²²⁾
System performance	• HP Audio Switch: Easily switch between speaker and microphone sources with intuitive controls and a consistent app experience. • HP Connection Optimizer: Get consistent and reliable Wi-Fi performance with software that automatically switches between the most efficient wireless access points. ⁽⁹⁾
Work and lifestyle	• HP QuickDrop: Wirelessly transfer photos, videos, documents and more between your PC and mobile device. Easily snap a photo to share, send addresses for directions on-the-go, and view texts on your PC's screen. With HP QuickDrop, file transfers are easy, fast and reliable. ⁽⁹⁾ • AI Noise Removal: Artificial intelligent technology automatically removes background noise for clearer than ever video chats, audio calls, and recordings.
Gaming and entertainment	• OMEN Gaming Hub: Your one place for everything to make your gaming experience better. From software enhancements to hardware control, and live services, OMEN Gaming Hub elevates play in an easy and simple way. • 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. ⁽⁴⁷⁾

Additional Information

Product number	• 641KSUA#ABA
Ad embargo date	• 07/10/2022
UPC Code	• 196548056385
Country of origin	• China
Pallet information	• Dimensions: 46.18 in (L) x 38.03 in (W) x 45.84 in (H) • Total weight: 808.3 lb • Layers: 3 • Products per layer: 29
Battery regulatory data	• Transportation or storage regulations: Y • UN# and proper shipping name: UN3481 - Lithium ion batteries packed with equipment • Number of batteries: 1 • Primary battery regulated material: 315g • Primary battery watt hours: 83 • Applicable CPSC regulations: N

⁽¹⁾ 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>. ^(2b) 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. Intel's numbering, branding and/or naming is not a measurement of higher performance. Intel, Pentium, Intel Core, Celeron, Iris Xe, Intel logo and the Intel Inside logo are trademarks of Intel Corporation in the U.S. and other countries. ^(2g) Intel® Turbo Boost performance varies depending on hardware, software and overall system configuration. See intel.com/technology/turboboost for more information. GHz refers to internal clock speed of the processor. Other factors besides clock speed may impact system and application performance. ^(7a) Wi-Fi 6E is designed to support gigabit data rate when transferring files between two devices connected to the same router. Requires a wireless router, sold separately. ⁽⁸⁾ Internet access required and not included. Subscription required after 30 days trial period. McAfee, LiveSafe and the McAfee logo are trademarks or registered trademarks of McAfee, Inc. in the United States and other countries. ⁽⁹⁾ Wireless access point and internet service required and sold separately. Availability of public wireless access points limited. ⁽¹²⁾ Graphics output may be limited based on the maximum resolution of the display. ⁽¹³⁾ ©2022 NVIDIA Corporation. NVIDIA, the NVIDIA logo, GeForce, and GeForce RTX are registered trademarks and/or trademarks of NVIDIA Corporation in the United States and other countries. All other trademarks and copyrights are the property of their respective owners. ⁽¹⁵⁾ Actual formatted capacity is less. Portion of internal storage is reserved for preloaded content. ^(19c) 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. ⁽²⁰⁾ All performance specifications represent the typical specifications provided by HP's component manufacturers; actual performance may vary either higher or lower. ⁽²¹⁾ 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. ⁽²²⁾ 100GB of free online storage for one year from date of registration. For complete details and terms of use, including cancellation policies, visit the website at dropbox.com. Internet service required and not included. ⁽²³⁾ HP BIOS Protection works with Windows 11 that ships with your PC. ⁽²⁶⁾ Bluetooth® is a trademark owned by its proprietor and used by HP Inc. under license. ⁽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. ⁽²⁹⁾ Actual speeds may vary. ⁽³⁸⁾ Quad High-definition (QHD) content required to view QHD images. ⁽⁴⁰⁾ Percent of active plus nonactive viewing area to active viewing area plus border. Measure with lid vertical to the desk. ⁽⁴²⁾ USB Type-C® and USB-C® are trademarks of USB Implementers Forum. ⁽⁴³⁾ Actual throughput may vary. ⁽⁴⁶⁾ Thermal solution varies by configuration. ⁽⁴⁷⁾ 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. ⁽⁵⁰⁾ DisplayPort™ and the DisplayPort™ logo are trademarks owned by the Video Electronics Standards Association (VESA®) in the United States and other countries. ⁽⁵¹⁾ Thunderbolt is a trademark of Intel Corporation or its subsidiaries in the U.S. and/or other countries. ⁽⁵³⁾ Call 1.800.474.6836 or support.hp.com for more information on Care Packs available after standard warranty expires. After standard warranty expires, an incident fee may apply. ⁽⁵⁶⁾ For more information visit hp.com/go/hpsupportassistant. (Link will vary outside of the U.S.) HP Support Assistant is only available on Windows-based PCs. Internet connection required for updating and connecting to HP Support. ^(58a) Based on HP internal testing using CrystalDiskMark benchmarking software. Performance is sequentially read compared to SATA SSD. ⁽⁵⁹⁾ SuperSpeed USB 20Gbps is not available. ⁽⁶¹⁾ The Flicker-free capability eliminates screen flickering through integrating DC-dimming LED backlights. ⁽⁶²⁾ ENERGY STAR and the ENERGY STAR mark are registered trademarks owned by the U.S. Environmental Protection Agency. ^(63a) Percentage of post-consumer recycled plastic contained in keycaps varies by product. ^(63b) Percentage of ocean-bound plastic contained in each component varies by product. ^(63d) Percentage of recycled metal varies by product. ^(63d) 100% outer box/corrugate cushion packaging made from sustainably sourced certified and recycled fibers. Fiber cushions made from 100% recycled wood fiber and organic material. Excludes plastic bags and plastic foam sheeting. ⁽⁶⁴⁾ For best results with HP Sleep and Charge, use a USB charging protocol standard cable or cable adapter with an external device. ⁽⁷²⁾ Recharges your battery up to 50% within 30 minutes when the system is off (using "shut down" command). Recommended for use with the HP adapter provided with the notebook, not recommended with a smaller capacity battery charger. After charging has reached 50% capacity, charging speed will return to normal speed. Charging time may vary +/-10% due to system tolerance. ⁽⁷⁵⁾ Battery life tested by HP using continuous FHD video playback, 1080p (1920x1080) resolution, 150 nits brightness, system audio level at 17%, player audio level at 100%, played full-screen from local storage, headphone attached, wireless on but not connected. Actual battery life will vary depending on configuration and maximum capacity will naturally decrease with time and usage. ⁽⁷⁶⁾ Weight and system dimensions may fluctuate due to configuration and manufacturing variances. ⁽⁸⁰⁾ Battery life tested by HP using continuous Netflix video playback, Microsoft Edge Browser, 150 nits brightness, system audio level 17%, headphone attached, played full-screen, wireless on. Actual battery life will vary depending on configuration and maximum capacity will naturally decrease with time and usage. ⁽⁸³⁾ Service levels and response times for Care Packs may vary depending on your geographic location. Restrictions and limitations apply. Service starts at date of hardware purchase. HP Care Packs are sold separately. For details, visit hp.com/go/carepack-services. ⁽⁸⁵⁾ Windows MobileMark 18 battery life will vary depending on various factors including 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 bapco.com/products/mobilemark-2018/ for additional details. ⁽⁸⁹⁾ Features may require software or other 3rd party applications to provide the described functionality. Internet service required and not included. ⁽⁹⁵⁾ HP SmartFriend will support any major brand of computer and tablet running Microsoft Windows, OSX, iOS, Android, and Chrome OS. 24x7 support is available in English and in the US & Canada (excluding the Province of Quebec) only. Service availability varies by country/region. Internet connection required for remote support. Remote support not available for tablets. Not all service plans cover support for tablets. HP SmartFriend sold separately or as an add-on feature. Actual product may vary from image shown on datasheet. © Copyright 2022 HP Development Company, L.P. The information contained herein is subject to change without notice. The only warranties for HP products and services are set forth in the express warranty statements accompanying such products and services. Nothing shall be construed as constituting an additional warranty. HP shall not be liable for technical or editorial errors or omissions contained herein. Microsoft and Windows are either registered trademarks or trademarks of Microsoft Corporation in the United States and/or other countries. All other trademarks are property of their respective owners. 06/11/2022_r6 jr

