World's Best/Highest Performing Processor for ultra thin and light laptops

The 11th Gen Intel Core™ processor is a paradigm shift in intelligent performance and surpasses everything in its class, from a new CPU core and graphics architecture to great AI acceleration and the fast connectivity. It does offer unmatched capabilities in productivity, collaboration, graphics performance and rich media, AI, and battery life – helping people focus, create, and engage at new levels. It is a complete PC platform engineered from the ground up to ensure critical compute functions work together in harmony for the real workflows people do every day – enabling faster, simpler, and richer experiences.

As measured by industry benchmarks, Representative Usage Guide testing and unique features of the Intel® Core™ i7-1185G7 processor, including in comparison to AMD Ryzen 7 4800U, across 5 key usages: productivity, creation, gaming, collaboration, and entertainment. For more complete information about performance and benchmark results, visit www.intel.com/11thgen.
11th Gen Intel® Core™ Processors Key/New Features*

- **NEW** CPU architecture delivers a leap in overall performance
- **NEW** Intel® Iris® Xe Graphics delivers disruptive 3D, Media, Display, and AI
  - New Media Engine supporting AV1 hardware decode
  - New Display Engine supporting up to 8K HDR
  - New DLBoost (DP4a) support for advanced AI usages
- **NEW** Integrated Thunderbolt™ 4
- **INTEGRATED** Intel® Wi-Fi 6 AX201 (Gig+)
- **NEW** Intel 5G solution (Q1’21) for always/anywhere connectivity
- **NEW** Integrated Image Processing Unit (IPU 6)
- **NEW** CPU-attached PCIe Gen 4 Interface
- **NEW** Gaussian & Neural Accelerator (GNA) 2.0 for Audio/Voice AI
- **NEW** HW-hardened security in silicon
- **IMPROVED** Intel® Adaptix™ Technologies for optimized system performance
- **IMPROVED** battery life
- **NEW** Intel® Optane™ memory H10 with SSD for amazing system responsiveness

*Not supported on all SKUs

Helping people focus, create, and engage at new levels.
The 11\textsuperscript{TH} Gen Intel\textsuperscript{®} Core™ mobile processors are the best processors for thin and light laptops, delivering breakthrough intelligent performance, the best productivity, AI-enhanced creation, unmatched HDR entertainment, up to 1080p60 gaming on battery, the ultimate remote collaboration experience, and best-in-class wired and wireless connectivity, eclipsing everything that’s in market today.

REVOLUTIONIZING THE WAY REAL PRODUCTIVITY GETS DONE AND OUTPACES ANYTHING ELSE IN THIS CLASS.

- 1\textsuperscript{ST} Mainstream processor family supporting 7-28W operation
- 1\textsuperscript{ST} AV1 hardware decode acceleration
- 1\textsuperscript{ST} Support for 8K 12b HDR, up to 4 simultaneous 4K HDR displays
- 1\textsuperscript{ST} DLBoost (DP4a) support for advanced AI usages
- 1\textsuperscript{ST} Native support for INT8 data type (optimized AI performance)
- 1\textsuperscript{ST} Processor with integrated Thunderbolt\textsuperscript{™} 4 (superset of USB4)
- 1\textsuperscript{ST} Image processing solution enabling vision sensing, adaptive dimming
- 1\textsuperscript{ST} Mainstream client SoC with CPU-attached PCIe Gen 4 Interface
- 1\textsuperscript{ST} Client SoC with integrated CET, TME HW-hardened security
- 1\textsuperscript{ST} Client SoC supporting memory scanning off-load to graphics
- ONLY INTEL - Integrated Wi-Fi 6 (Gig+) with ~3X throughput of std 802.11ac
- ONLY INTEL - Integrated GNA 2.0 for Neural Noise Cancellation CPU-offload
- ONLY INTEL - ML-enhanced predictive performance optimization
- ONLY INTEL - Intel\textsuperscript{®} Optane™ memory H10 for amazing system responsiveness
- ONLY INTEL - Dolby Vision (incl. on ext. monitors), Dolby Atmos, and Dolby IQ

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INTELLIGENT PERFORMANCE THAT SCALES

A Performance Leap for 12” Ultra-Thin Fanless to 15” Thin Gaming & Creation. The 11TH Gen Intel® Core™ mobile processors deliver class-leading mobile productivity for consumers, students, and workers. Intel is introducing UP3 and UP4 that each support broader, usable power range leading to expanded platform design advocacies including fanless and fanned designs.

See backup for configuration details. For more complete information about performance and benchmark results, visit www.intel.com/benchmarks.

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PRODUCTIVITY & CONNECTIVITY

11<sup>th</sup> Gen Intel® Core™ mobile processors deliver class-leading mobile productivity for consumers, students, and workers using the most popular applications like Microsoft Office, web browsers, and e-mail. The 11<sup>th</sup> Gen Intel® Core™ processors with Intel® Iris™ Xe graphics also brings best-in-class Wi-Fi 6 (Gig+) and support new Thunderbolt™ 4 and a single-cable connection to up to 4 simultaneous 4K displays for even better productivity and fast charging when not on-the-go.

**WHAT'S NEW**

**THUNDERBOLT™ 4**

- **40Gb/s** Industry Leading Performance<sup>1</sup>
- **2X** The Minimum Video & Data Requirements of Thunderbolt™ 3
  - VIDEO: Support for two 4K displays or one 8K display
  - DATA: PCIe at 32 Gb/s for storage speeds up to 3,000 MB/s
- **EXPANDED** End-to-End Solution Capabilities
  - Accessories with four Thunderbolt ports
  - Universal 40Gb/s cables up to 2 meters long
  - Required PC charging on at least one computer port<sup>2</sup>
  - Required PC wake from sleep when computer is connected to a Thunderbolt dock
  - Required Intel VT-d based direct memory access (DMA) protection
- **USB4** Specification Compliant

**WI-FI 6 (GIG+)**

- **4X** Better Performance in Dense Environments<sup>3</sup>
  - Improve average throughput per user by at least 4 times in dense or congested environments
- **3X Faster Than A 3 Year Old PC On Wi-Fi 5**
  - Faster, more responsive Intel®-based Wi-Fi 6 routers and gateways<sup>5</sup>
- **COMPATIBLE** With Today’s Wi-Fi Standards
- **75% Lower Latency<sup>6</sup>**
  - More responsive gaming
  - Seamless video conferencing
- **SECURITY** Further Improved<sup>7</sup>
  - Simplified passwords<sup>8</sup>
  - Improved protection vs. wireless hacking

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As measured by industry benchmarks, Representative Usage Guide testing and unique features of the Intel® Core™ i7-1185G7 processor, including in comparison to AMD Ryzen 7 4800U, across 5 key usages: productivity, creation, gaming, collaboration, and entertainment. For more complete information about performance and benchmark results, visit [www.intel.com/11thgen](http://www.intel.com/11thgen).
## Quick Reference Guide

<table>
<thead>
<tr>
<th>TECHNOLOGY</th>
<th>BENEFIT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Willow Cove</td>
<td>New CPU architecture based on 10nm SuperFin technology in 11th gen Intel® Core™ mobile processors that delivers a leap in overall performance</td>
</tr>
<tr>
<td>Intel® Iris® Xe Graphics</td>
<td>The all new Intel® Iris® Xe graphics enables discrete-level mainstream graphics performance, support for up to 4K HDR external displays. Intel® Iris® Xe graphics enable FHD gameplay at up to 60 fps and revolutionize modern creative workflows with Intel® Deep Learning Boost AI acceleration and the latest AV1 media encode/decode for next-generation work and play experiences previously unimaginable in a sleek, thin and light laptop.</td>
</tr>
<tr>
<td>Intel® Deep Learning Boost: VNNI</td>
<td>CPU (AVX) instruction set that efficiently handles INT8 convolutions for Deep Learning inference workloads (required 3 separate instructions in previous generations)</td>
</tr>
<tr>
<td>Intel® Deep Learning Boost: DP4A</td>
<td>DP4a is an instruction set running on integrated graphics to accelerate NN (neural network) inferencing with INT8 data type.</td>
</tr>
<tr>
<td>Intel® Gaussian &amp; Neural Accelerator (GNA) 2.0</td>
<td>Low power accelerator that offloads noise suppression algorithms off of CPU to reduce power and enable CPU headroom.</td>
</tr>
<tr>
<td>Image Processing Unit (IPU 6)</td>
<td>A powerful engine integrated in the SOC that delivers pleasing image quality by making hazy images better and preserving details, by delivering great quality even in brightly lit background, by making images excellent in dark environment, and recovering color information from IR contamination</td>
</tr>
<tr>
<td>AV1</td>
<td>AV1 CODEC is a video format standard for improved video call stability and higher quality, even at low-bandwidth. It provides great video conferencing experience at low bandwidths.</td>
</tr>
<tr>
<td>PCIe Gen 4 Interface</td>
<td>PCIe 4.0 is the fourth generation of the Peripheral Component Interconnect Express (PCIe) motherboard interface. It doubles the maximum throughput from PCIe Gen 3.0 going from a maximum data transfer rate of ~16 GB/s to ~32 GB/s</td>
</tr>
<tr>
<td>Thunderbolt™ 4</td>
<td>Thunderbolt™ 4 is the most advanced single-cable connection available with up to 40 GB/s for data and video transfer (it doubles the minimum video and data requirements of Thunderbolt™ 3). Its single-cable docks are up to 2 meters long with charging, external graphics, and built-in networking capabilities and support up to 4 simultaneous 4K displays.</td>
</tr>
<tr>
<td>WI-FI 6 (Gig+)</td>
<td>Intel® Wi-Fi 6 (Gig+) delivers nearly 3X4 faster downloads, and more reliable connections. Delivers best-in-class wireless experiences with the freedom and flexibility to be productive anywhere throughout the home or office.</td>
</tr>
<tr>
<td>Intel® Adaptix™ Technologies</td>
<td>Intel® Adaptix™ technology is a collection of 4 advanced software packages designed to optimize performance and hence enhance the experience of Intel® processors-based PCs and form factors. Using these free tools, consumers win by experiencing better performance and enjoyment with their PC by customizing it to their needs while OEMs can access some of the best PC performance tuning tools in the industry.</td>
</tr>
<tr>
<td>Intel® Control-Flow Enforcement Technology (Intel® CET)</td>
<td>Intel® CET provides protection in hardware to defend against control flow subversion techniques. Intel CET is designed to protect against the misuse of legitimate code through control-flow hijacking attacks – widely used techniques in large classes of malware.</td>
</tr>
<tr>
<td>Intel® Total Memory Encryption</td>
<td>Intel® Total Memory Encryption (Intel® TME) helps protect against data exposure via physical attack on memory. Total Memory Encryption (TME) – provides the capability to encrypt the entirety of the physical memory of a system.</td>
</tr>
</tbody>
</table>

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### Feature Table: 11th Gen UP3 & UP4 Processors

<table>
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<tr>
<th>Core Set</th>
<th>11th Gen UP3</th>
<th>11th Gen UP4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model</td>
<td>i7-1185G7</td>
<td>i7-1160G7</td>
</tr>
<tr>
<td></td>
<td>i7-1165G7</td>
<td>i5-1130G7</td>
</tr>
<tr>
<td></td>
<td>i5-1135G7</td>
<td>i3-1120G4</td>
</tr>
<tr>
<td></td>
<td>i3-1125G4</td>
<td>i3-1115G4</td>
</tr>
<tr>
<td></td>
<td>i3-1110G4</td>
<td>i3-1110G4</td>
</tr>
<tr>
<td><strong>Cores/Threads</strong></td>
<td>4C/8T</td>
<td>4C/8T</td>
</tr>
<tr>
<td><strong>Graphics (EUs)</strong></td>
<td>96</td>
<td>96</td>
</tr>
<tr>
<td><strong>Cache (MB)</strong></td>
<td>12</td>
<td>12</td>
</tr>
<tr>
<td><strong>Operating Range (W)</strong></td>
<td>12-28</td>
<td>12-28</td>
</tr>
<tr>
<td><strong>Base Block Speed (GHz)</strong></td>
<td>3.0</td>
<td>1.2</td>
</tr>
<tr>
<td><strong>Maximum Single Core Turbo Freq. (GHz)</strong></td>
<td>4.8</td>
<td>4.4</td>
</tr>
<tr>
<td><strong>Maximum All Core Turbo Freq. (GHz)</strong></td>
<td>4.3</td>
<td>3.6</td>
</tr>
<tr>
<td><strong>Graphics Max Freq. (GHz)</strong></td>
<td>1.35</td>
<td>1.1</td>
</tr>
<tr>
<td><strong>Memory Support</strong></td>
<td>DDR4-3200</td>
<td>LPDDR4x-4266</td>
</tr>
<tr>
<td></td>
<td>LPDDR4x-4266</td>
<td></td>
</tr>
</tbody>
</table>

Software and workloads used in performance tests may have been optimized for performance only on Intel microprocessors. Performance tests, such as SYSmark and MobileMark, are measured using specific computer systems, components, software, operations and functions. Any change to any of those factors may cause the results to vary. You should consult other information and performance tests to assist you in fully evaluating your contemplated purchases, including the performance of that product when combined with other products. For more complete information visit www.intel.com/benchmarks.

Performance results are based on testing as of dates shown in configurations and may not reflect all publicly available updates. See www.intel.com/11thgen for configuration details. No product or component can be absolutely secure.

Results that are based on pre-production systems and components as well as results that have been estimated or simulated using an Intel Reference Platform (an internal example new system), internal Intel analysis or architecture simulation or modeling are provided to you for informational purposes only. Results may vary based on future changes to any systems, component specifications or configurations. Intel’s compilers may or may not optimize to the same degree for non-Intel microprocessors and certain optimizations are not specific to Intel microarchitecture but are reserved for Intel microprocessors. Performance results are based on testing as of dates shown in configurations and purchases, including the performance of that product when combined with other components.

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