

# UNCOMPROMISED PRODUCTIVITY. REMARKABLY THIN AND LIGHT DESIGNS.

## NEW 10<sup>TH</sup> GEN INTEL® CORE™ U-SERIES AND Y-SERIES PROCESSORS



The New 10th Gen Intel® Core™ U-series and Y-series processor families are built with performance and mobility in mind, to power your greatest contribution. Engineered for incredible efficiency in a remarkably thin and light form factors, the New 10th Gen Intel® Core™ processors are delivering performance to handle the things you do regularly – from streaming in HD to getting work done – get the performance that you need without compromising battery life. Be more connected than ever before with the latest incredibly fast wireless and wired standards.<sup>3,4</sup>

# U-SERIES PROCESSORS



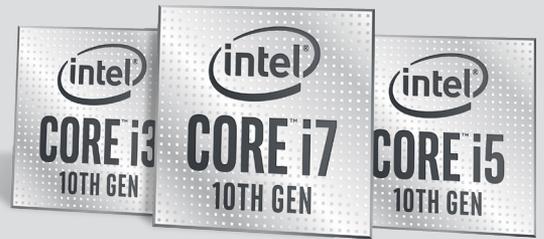
## INCREASED PRODUCTIVITY & PERFORMANCE SCALING

### INTRODUCTION

With the addition of four new SKUs and the first 6-core U-series, we are extending the 10th Gen Intel® Core™ U-series processor line-up. 10th Gen has already delivered intelligent performance, stunning entertainment, and the best connectivity. The new U-series SKU (codenamed “Comet Lake”) extends these benefits by delivering increased productivity and performance scaling for demanding compute intensive projects.

### PERFORMANCE LEADERSHIP

The new U-series processors build upon a great foundation already demonstrated by the initial U-series processors. We deliver over 2x<sup>2</sup> better system overall performance versus a 5 year old PC.



### BREAKTHROUGH CONNECTIVITY

An upgrade to Integrated Intel® Wi-Fi 6\* (Gig+) delivers nearly 3X faster<sup>3</sup> wireless speeds than the last generation Wi-Fi (802.11ac). This will enable you to experience quick file downloads and more responsive performance throughout the connected home. Intel® Gigabit LTE M.2 module can help deliver seamless and reliable connectivity when you are on-the-go.

**MORE  
CONNECTED  
THAN EVER  
BEFORE**

Thunderbolt™ 3 provides up to 8X<sup>4</sup> more bandwidth than USB 3.0, bringing one thin, reversible USB-C port that delivers the fastest, most versatile connection to any dock, display or data device. Power charging through the same port can enable even sleeker devices that you'll be proud to carry.



## STREAM YOUR FAVORITE PREMIUM UHD CONTENT

### ENTERTAINMENT WHENEVER, WHEREVER

Intel® has been working with the PC ecosystem to enable you to stream premium UHD content from your favorite providers such as Netflix\*, YouTube\*, FandangoNow\*, and others.

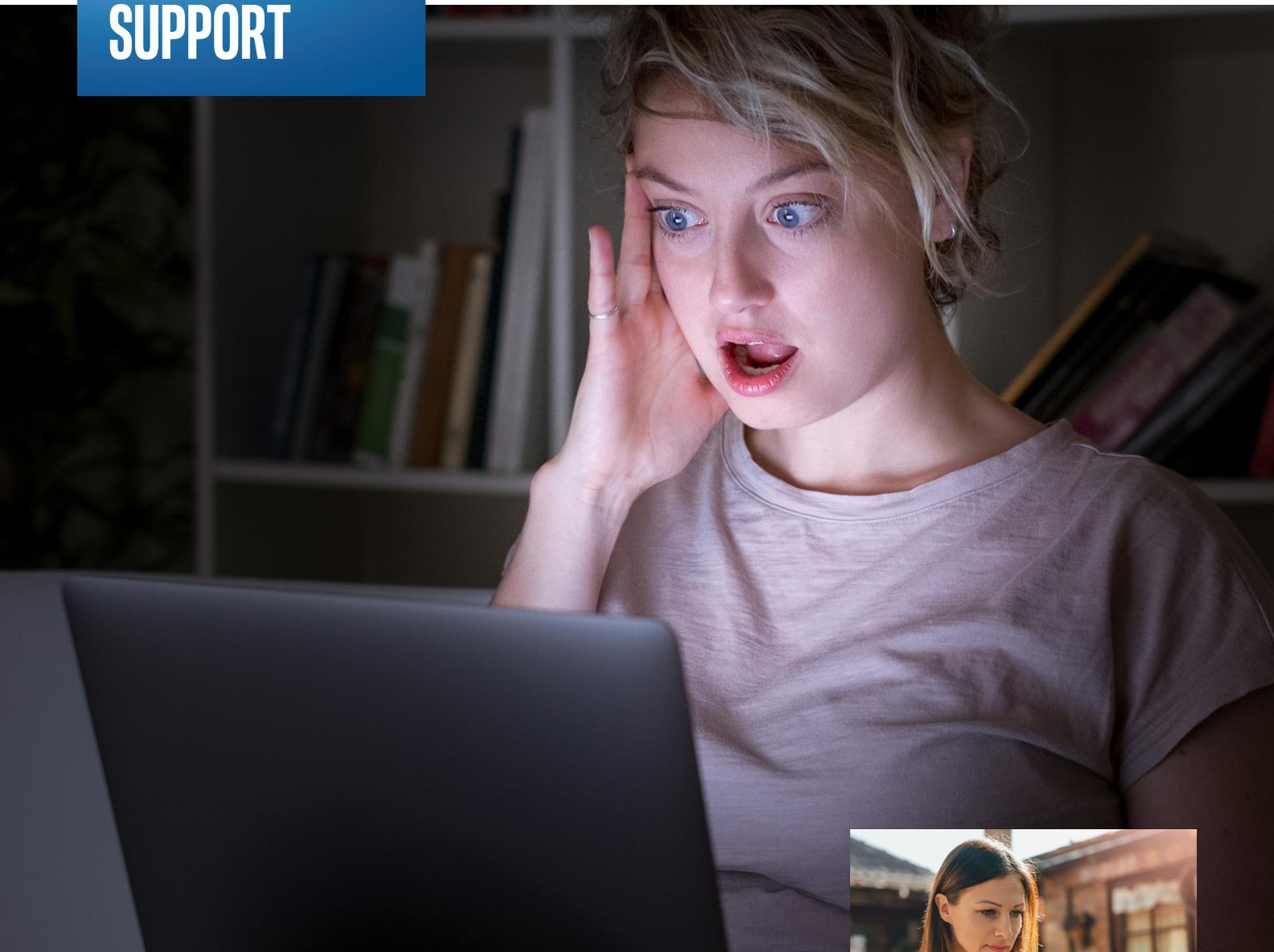
Dolby Vision is supported to provide re-mastered content at a Dolby certified quality level of HDR, with content available on Netflix\*, iQiy\*, Vudu\*, and iTunes\*. Further, Dolby Atmos\* provides 3D surround sound through USB Audio or headphones.

Intel® UHD graphics gives mainstream gamers the choice to play their favorite games like World of Warcraft\* and World of Tanks\* in a thin, light and portable system.

# IMPROVED VOICE SERVICES SUPPORT

## PERSONAL, AVAILABLE

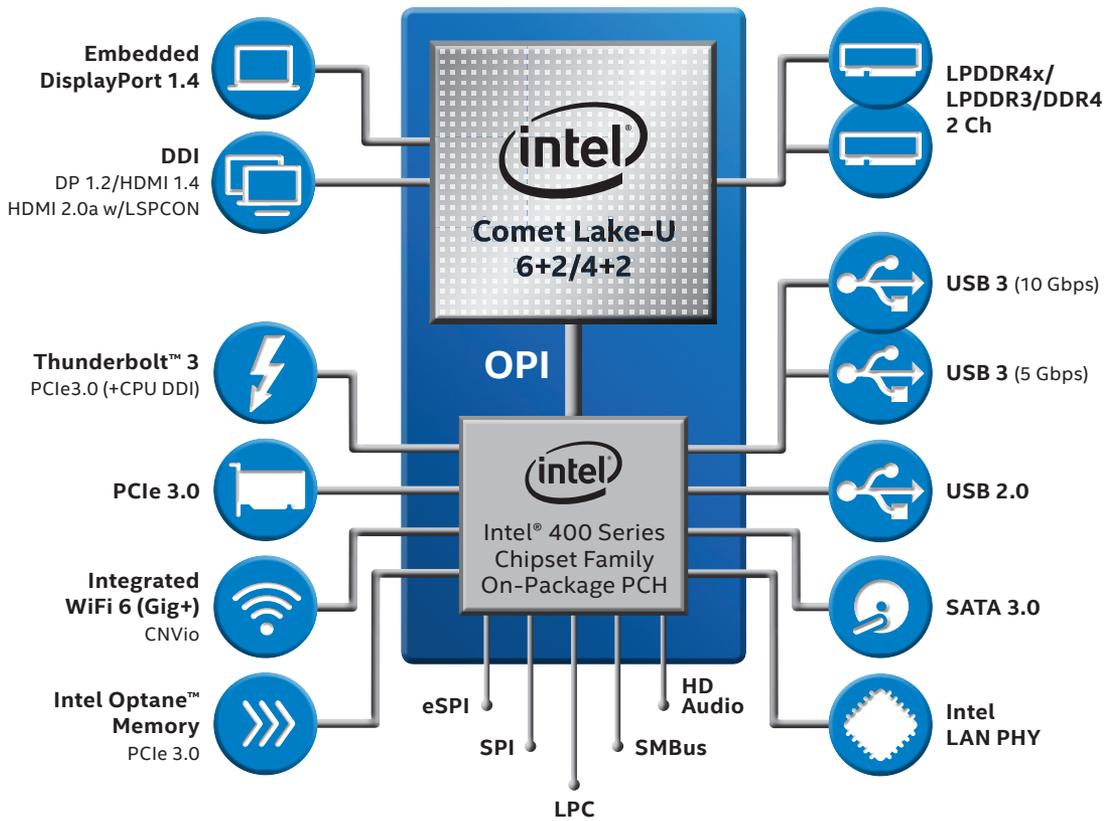
The power optimized quadcore audio DSP provides voice services support. While travelling, you can bring your Amazon Alexa\* experience with you – before you go to bed, you can make sure the lights are off at home, and even have Alexa play your favorite music. When you are at home, Cortana\* can help you with your personal or work schedule and search your PC for the information that you need.



Intel works with the PC ecosystem to deliver systems with incredible performance and long battery life. 10th Gen Intel® Core™ processors will give you long battery life and enable you to cut the cord.



# “COMET LAKE U” PLATFORM OVERVIEW



The latest 10th Gen Intel® Core™ U-series processor, codenamed “Comet Lake,” has the following feature advancements relative to its predecessor released in Q3 2018 codenamed “Whiskey Lake.”

| FEATURES              | WHISKEY LAKE U42 (15W)   | COMET LAKE U42 (15W)   |
|-----------------------|--|--|
| CPU                   | • 14nm CPU / 14nm PCH  | • 14nm CPU / 14nm PCH  |
| GFX                   | • Gen 9 Intel Graphics; up to 24EU   | • Gen 9 Intel Graphics; up to 24EU   |
| Memory                | • DDR4 up to 2400, LPDDR3 up to 2133   | • DDR4 up to 2666, LPDDR3 up to 2133   |
| Imaging               | • None – use USB camera  | • None – use USB camera  |
| Media, Display, Audio | • HDMI1.4/HDCP2.2, DP 1.2<br>• Quad-Core Audio DSP for high fidelity, low power audio and multi-voice services supported Wake on Voice                               | • HDMI1.4/HDCP2.2, DP 1.2<br>• Quad-Core Audio DSP for high fidelity, low power audio and multi-voice services supported Wake on Voice                               |
| I/O & Connectivity    | • CNVi (integrated 802.11ac and Bluetooth* 5.0)<br>• Integrated USB 3 (10 Gbps)<br>• Titan Ridge Thunderbolt w/ USB 3 & DisplayPort* 1.4 or Alpine Ridge Thunderbolt | • CNVi (integrated 802.11ax and Bluetooth* 5.0)<br>• Integrated USB 3 (10 Gbps)<br>• Titan Ridge Thunderbolt w/ USB 3 & DisplayPort* 1.4 or Alpine Ridge Thunderbolt |
| WWAN                  | • XMM 7360 M.2   | • XMM 7560 M.2   |
| Storage               | • Intel® Optane™ SSDs/Memory, PCIe 3.0, SATA, SD 3.0, eMMC 5.14  | • Intel® Optane™ SSDs/Memory, PCIe 3.0, SATA, SD 3.0, eMMC 5.14  |
| Security              | • SGX 1.0 • Secure biometrics • Intel® Runtime BIOS Resilience with attestation via Nifty Rock + Intel® TXT  | • SGX 1.0 • Secure biometrics • Intel® Runtime BIOS Resilience with attestation via Devil's Gate Rock + Intel® TXT   |
| Manageability         | • Intel® Endpoint Management Assistant   | • Intel® Endpoint Management Assistant   |

### U-SERIES PROCESSOR PERFORMANCE FEATURES

| FEATURES <sup>1</sup>   |          |
|---|----------|
| Core/Memory/Graphics Overclocking   | No       |
| Intel® Extreme Tuning Utility (XTU)   | No       |
| Intel® Hyper-Threading Technology   | Yes      |
| Intel® Smart Cache technology with Last Level Cache (LLC) sharing between Processor and GfX cores | Yes      |
| Intel® Turbo Boost Technology 2.0   | Yes      |
| Intel® Speedshift™ Technology   | Yes      |
| Intel® Thermal Velocity Boost   | Yes      |
| Last Level Cache (LLC)  | Up to 8M |

1 Not all features indicated are supported on all SKUs

### PCH-U KEY FEATURES

| FEATURES  |   |
|---|---|
| Total High Speed I/O & Flexibility                            | Up to 16 with high Flexible I/O   |
| Chipset PCI Express* 3.0 Lanes                                | Up to 16 lanes  |
| Integrated USB 3 (10 Gbps) Support                            | Yes   |
| Intel® Smart Sound Technology (Intel® SST)                    | Yes   |
| USB 3 (10 Gbps) and USB 3 (5 Gbps) Ports                      | Up to 6 USB 3 (10 Gbps) ports<br>All USB 3 (10 Gbps) ports configurable to USB 3 (5 Gbps) |
| SATA 3.0 (6 Gbps) Ports                                       | Up to 3 ports   |
| Intel® RST for PCIe* 3.0 Storage Ports                        | Up to 2 x4 ports  |
| Integrated Intel® Wireless-AX (Wi-Fi/Bluetooth* CNVi) Support | Yes   |
| Intel® Optane™ Memory Support                                 | Yes   |
| Thunderbolt™ 3 Controller Support                             | Yes   |
| Integrated SDXC (SDA 3.0) Controller                          | Yes   |

### U-SERIES PROCESSOR POWER & THERMAL MANAGEMENT FEATURES

| FEATURES <sup>1,3</sup>  |           |
|--|-----------|
| Package and Platform (PL1/PsysPL1) level thermal control (enhanced efficiency utilizing Hardware Duty Cycling)   | Yes       |
| Converged Power and Thermal Throttling for DDR memory RAPL   | Yes       |
| Deep S3 platform power support <sup>2</sup>  | No        |
| Intel® Dynamic Tuning including: Dynamic Power Performance Management (DPPM) <sup>3</sup> , Dynamic Battery Power Technology Version 24, Processor Low Power Mode, PCH I/O Throttling and Power Management | Yes       |
| HD Audio D3 State <sup>4</sup>   | Yes       |
| Intel® Display Power Saving Technology (DPST)  | Yes       |
| Intel® Power Optimizer 2 (CPPM, Hardware Controlled P-states, semi-active workload optimization utilizing HW duty Cycling )  | Yes       |
| On die Power Control Unit  | Yes       |
| Panel Self Refresh   | Yes       |
| PECI (Platform Environmental Control Interface) 3.0  | Yes       |
| Power Aware Interrupt Routing (PAIR)   | Yes       |
| Low Power Idle with Processor C-states   | Up to C10 |
| Microsoft Windows* Connected Standby/Modern Standby Support  | Yes       |

1 Not all features indicated are supported on all SKUs

2 Deep S3 is a term used to describe several methods Intel plans to promote to minimize S3 power consumption

3 Included features are NOT available on all platforms with Intel® Dynamic Tuning

4 DBPT v2 is the latest version which supports Sustained Peak Power (For setting PL2), in addition to the Max Peak Power (for setting PL4) also supported on v1.

# Y-SERIES PROCESSORS



**DELIVERING  
INCREDIBLE  
EXPERIENCES  
FOR MOBILITY**

## INTRODUCTION

With the addition of four new SKUs, we are extending the 10th Gen Intel® Core™ Y-series processor line-up. 10th Gen has already raised the bar on delivering incredible experiences for mobile form factor computers. The new Y-series SKU (codenamed “Comet Lake Y”) extends these benefits, while taking performance and connectivity to a different level.

# INCREASED PERFORMANCE ON MULTIPLE USAGES

## ULTRAPORTABLE PERFORMANCE

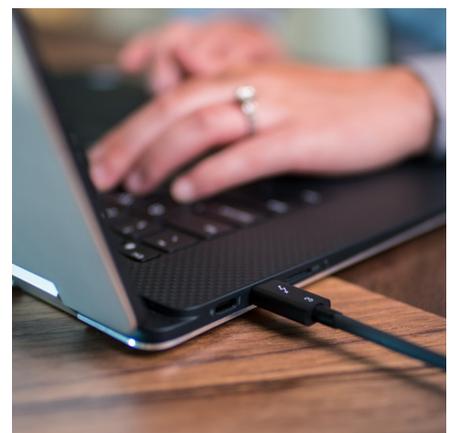
The new Y-series processors build upon a great foundation already demonstrated by the initial Y-series products. We deliver over  $2x^5$  better system overall performance versus a 5 year old PC.



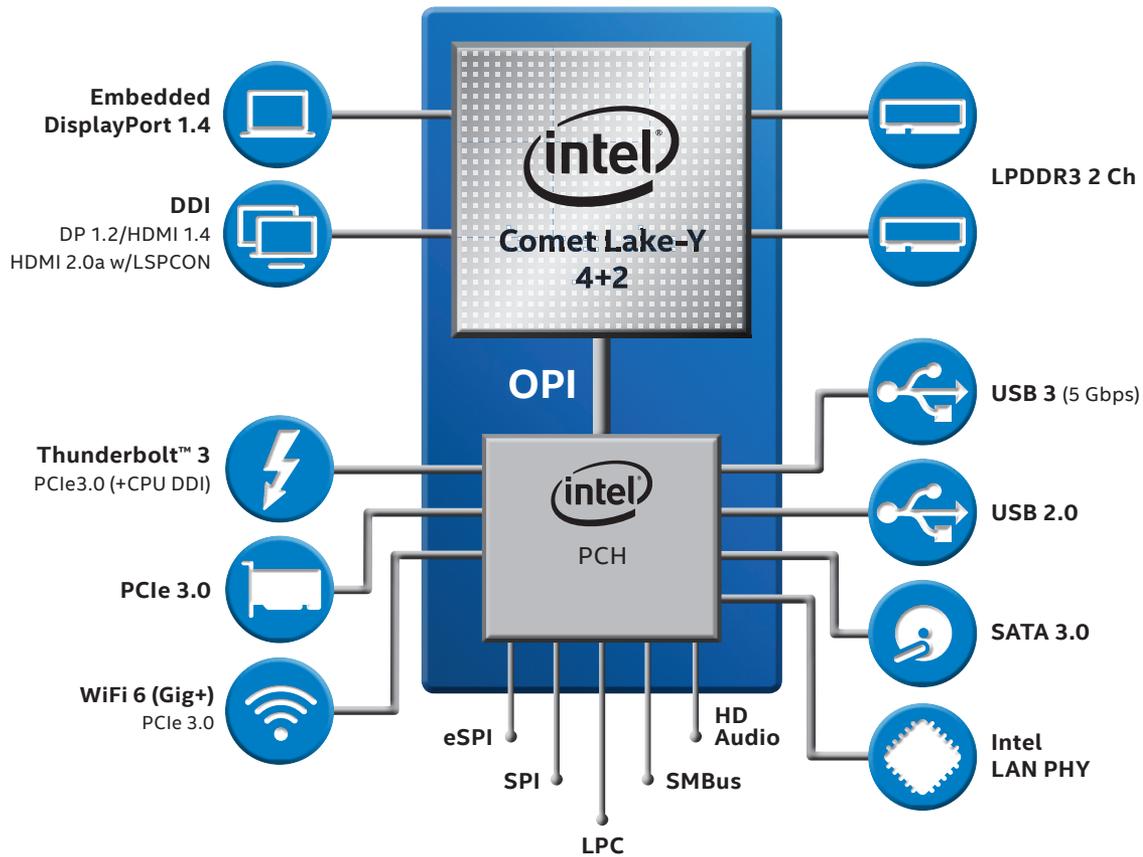
## BEST WIRELESS AND WIRED CONNECTIVITY

An upgrade to discrete Intel® Wi-Fi 6 (Gig+) delivers nearly  $3X^3$  faster wireless speeds than the last generation Wi-Fi (802.11ac). This will enable you to experience quick file downloads and more responsive performance throughout the connected home. Intel® Gigabit LTE M.2 module can help deliver seamless and reliable connectivity when you are on-the-go.

Thunderbolt™ 3 provides up to  $8X^4$  more bandwidth than USB 3, bringing one thin, reversible USB-C port that delivers the fastest, most versatile connection to any dock, display or data device. Power charging enabled through the same port can enable even sleeker devices that you'll be proud to carry.



# “COMET LAKE Y” PLATFORM OVERVIEW



The latest 10th Gen Intel® Core™ Y-series processor, codenamed “Comet Lake,” has the following feature advancements relative to its predecessor released in Q3’2018 formerly codenamed “Amber Lake.”

| FEATURES              | AMBER LAKE Y22 (5W)  | COMET LAKE Y42 (7W)   |
|-----------------------|--|---|
| CPU                   | • 14nm CPU (up to 2 cores) / 22nm PCH  | • 14nm CPU (up to 4 cores) / 22nm PCH   |
| GFX                   | • Gen 9 Intel Graphics; up to 24EU   | • Gen 9 Intel Graphics; up to 24EU  |
| Memory                | • LPDDR3 up to 1866  | • LPDDR3 up to 2133   |
| Imaging               | • 4 Cameras, up to 13MP  | • 4 Cameras, up to 13MP   |
| Media, Display, Audio | • HDMI1.4/HDCP2.2, DisplayPort* 1.2<br>• Dual-Core Audio DSP for high fidelity, low power audio and multi-voice services supported Wake on Voice | • HDMI1.4/HDCP2.2, DisplayPort* 1.2, PCIe Gen 3 support for graphics<br>• Dual-Core Audio DSP for high fidelity, low power audio and multi-voice services supported Wake on Voice |
| I/O & Connectivity    | • Windstorm Peak (802.11AC Wi-Fi 867 Mbps)<br>• Thunder Peak2 (Gigabit Wi-Fi 1.73 Gbps)<br>• Alpine Ridge Thunderbolt                            | • Cyclone Peak (802.11AX 2.4Gbps)<br>• Titan Ridge Thunderbolt w/ USB 3.1 Gen 2 & DisplayPort* 1.4 or Alpine Ridge Thunderbolt  |
| WWAN                  | • XMM 7360 M.2   | • XMM 7560 M.2  |
| Storage               | • Intel® Optane™ SSDs/Memory, PCIe 3.0, SATA, SDXC 3.01, eMMC 5.0  | • Intel® Optane™ SSDs/Memory, PCIe 3.0, SATA, SD 3.0, eMMC 5.14   |

### Y-SERIES PROCESSOR PERFORMANCE FEATURES

| FEATURES <sup>1</sup>   |          |
|---|----------|
| Core/Memory/Graphics Overclocking   | No       |
| Intel® Extreme Tuning Utility (XTU)   | No       |
| Intel® Hyper-Threading Technology   | Yes      |
| Intel® Smart Cache technology with Last Level Cache (LLC) sharing between Processor and GfX cores | Yes      |
| Intel® Turbo Boost Technology 2.0   | Yes      |
| Intel® Speedshift™ Technology   | Yes      |
| Intel® Thermal Velocity Boost   | Yes      |
| Last Level Cache (LLC)  | Up to 8M |

1 Not all features indicated are supported on all SKUs

### PCH-Y KEY FEATURES

| FEATURES                                   |                                 |
|--|---------------------------------|
| Total High Speed I/O & Flexibility         | Up to 16 with high Flexible I/O |
| Chipset PCI Express* 3.0 Lanes             | Up to 10 lanes                  |
| Integrated USB 3 (5 Gbps) Support          | Yes                             |
| Intel® Smart Sound Technology (Intel® SST) | Yes                             |
| USB 3 (5 Gbps) Ports                       | Up to 6 USB 3 (5 Gbps) ports    |
| SATA 3.0 (6 Gbps) Ports                    | Up to 2 ports                   |
| Intel® RST for PCIe* 3.0 Storage Ports     | Up to 2 x4 ports                |
| Intel® Optane™ Memory Support              | Yes                             |
| Thunderbolt™ 3 Controller Support          | Yes                             |
| Integrated SDXC (SDA 3.0) Controller       | Yes                             |

### Y-SERIES PROCESSOR POWER & THERMAL MANAGEMENT FEATURES

| FEATURES <sup>1,3</sup>  |           |
|--|-----------|
| Package and Platform (PL1/PsysPL1) level thermal control (enhanced efficiency utilizing Hardware Duty Cycling)   | Yes       |
| Converged Power and Thermal Throttling for DDR memory RAPL   | Yes       |
| Deep S3 platform power support <sup>2</sup>  | Yes       |
| Intel® Dynamic Tuning including: Dynamic Power Performance Management (DPPM) <sup>3</sup> , Dynamic Battery Power Technology Version 24, Processor Low Power Mode, PCH I/O Throttling and Power Management | Yes       |
| HD Audio D3 State <sup>4</sup>   | Yes       |
| Intel® Display Power Saving Technology (DPST)  | Yes       |
| Intel® Power Optimizer 2 (CPPM, Hardware Controlled P-states, semi-active workload optimization utilizing HW duty Cycling )  | Yes       |
| On die Power Control Unit  | Yes       |
| Panel Self Refresh   | Yes       |
| PECI (Platform Environmental Control Interface) 3.0  | Yes       |
| Power Aware Interrupt Routing (PAIR)   | Yes       |
| Low Power Idle with Processor C-states   | Up to C10 |
| Microsoft Windows* Connected Standby/Modern Standby Support  | Yes       |

1 Not all features indicated are supported on all SKUs

2 Deep S3 is a term used to describe several methods Intel plans to promote to minimize S3 power consumption

3 Included features are NOT available on all platforms with Intel® Dynamic Tuning

4 DBPT v2 is the latest version which supports Sustained Peak Power (For setting PL2), in addition to the Max Peak Power (for setting PL4) also supported on v1.

## 10<sup>TH</sup> GEN INTEL® CORE™ U-SERIES PROCESSOR AND INTEL® 400 SERIES CHIPSET FAMILY ON-PACKAGE PCH FEATURES AT A GLANCE

| FEATURES <sup>2</sup>  | BENEFITS  |
|--|---|
| Intel® Turbo Boost Technology 2.0                                    | <ul style="list-style-type: none"> <li>• Dynamically increases the processor's frequency, as needed, by taking advantage of thermal and power headroom when operating below specified limits.</li> </ul>  |
| Intel® Hyper-Threading Technology                                    | <ul style="list-style-type: none"> <li>• Delivers two processing threads per physical core. Highly threaded applications can get more work done in parallel, completing tasks sooner.</li> </ul>  |
| Intel® UHD Graphics  | <ul style="list-style-type: none"> <li>• Play 4K UHD videos with exceptional clarity, view and edit even the smallest details of photos, and play today's modern games.</li> <li>• Intel® Quick Sync Video—Delivers excellent video conferencing capability, fast video conversion, online sharing, and fast video editing and authoring.</li> </ul>  |
| Integrated Memory Controller   | <ul style="list-style-type: none"> <li>• Offers stunning memory read/write performance through efficient prefetching algorithms, lower latency, and higher memory bandwidth.</li> </ul>   |
| Intel® Thermal Velocity Boost  | <ul style="list-style-type: none"> <li>• Intel® Thermal Velocity Boost opportunistically and automatically increases core clock frequency by up to 100 MHz whenever the processor is at a temperature of 50°C or lower and turbo budget allows. The frequency gain and duration is dependent on the workload, capabilities of the individual processor and the processor cooling solution.</li> </ul>   |
| Intel® Smart Cache   | <ul style="list-style-type: none"> <li>• Dynamically allocates shared cache to each processor core, based on workload, reducing latency and improving performance.</li> </ul>   |
| Intel® Virtualization Technology                                     | <ul style="list-style-type: none"> <li>• Allows one hardware platform to function as multiple “virtual” platforms. Offers improved manageability by limiting downtime and maintaining productivity by isolating computing activities into separate partitions.</li> </ul>   |
| Intel® Advanced Encryption Standard New Instructions (Intel® AES-NI) | <ul style="list-style-type: none"> <li>• A set of instructions that can be used to accelerate a variety of encryption apps, including whole disk encryption, file storage encryption, conditional access of 4K UHD content, Internet security, and VoIP. Consumers benefit from protected Internet and email content, plus fast, responsive disk encryption.</li> </ul>   |
| Intel® Power Optimizer and Processor C-States                        | <ul style="list-style-type: none"> <li>• Intel® Power Optimizer increases periods of silicon sleep state across the platform ingredients, including the processor, chipset, and third-party system components, to reduce power. Processor C-states (C8-C10) provide low idle power.</li> </ul>  |
| Configurable TDP Power   | <ul style="list-style-type: none"> <li>• With Configurable TDP, the processor is now capable of modulating the maximum sustained power vs. performance. Configurable TDP thus provides design and performance flexibility to control system performance based on the cooling capability and usage scenarios. For example, a detachable Ultrabook™ may need more performance when used in a full clamshell mode (vs. tablet mode), or when balanced performance is needed in a quiet conference room setting.</li> </ul> |
| Intel® Secure Key  | <ul style="list-style-type: none"> <li>• Security hardware-based random number generator that can be used for generating high-quality keys for cryptographic (encryption and decryption) protocols. Provides quality entropy that is highly sought after in the cryptography world for added security.</li> </ul>   |
| Intel® Advanced Vector Extensions 2 (Intel® AVX2)                    | <ul style="list-style-type: none"> <li>• A set of 256-bit instructions to deliver enhanced performance on floating point- and integer-intensive apps. Includes instructions for FMA (Fused Multiply Add) which can deliver better performance on media and floating point computations, including face recognition, professional imaging, high-performance computing, consumer video and imaging, compression, and encryption.<sup>5</sup></li> </ul>   |
| Collaborative Processor Performance Control (CPPC)                   | <ul style="list-style-type: none"> <li>• A technology based on the ACPI 5.0 specification that dynamically modulates performance vs. active application power. It reduces active power to deliver better battery life and allows deep low power states to be reached.</li> </ul>  |
| Intel® Software Guard Extensions (Intel® SGX)                        | <ul style="list-style-type: none"> <li>• A collection of instructions, APIs, libraries, and tools to help protect select code and data from disclosure or modification through the use of enclaves, which are protected areas of execution in memory.</li> </ul>  |

CONTINUED >

## 10<sup>TH</sup> GEN INTEL® CORE™ U-SERIES PROCESSOR AND INTEL® 400 SERIES CHIPSET FAMILY ON-PACKAGE PCH FEATURES AT A GLANCE

| FEATURES <sup>2</sup>                        | BENEFITS   |
|--|--|
| Intel® BIOS Guard                            | <ul style="list-style-type: none"> <li>• An augmentation of existing chipset-based BIOS flash protection capabilities targeted to address the increasing malware threat to BIOS flash storage. It helps protect the BIOS flash from modification without platform manufacturer authorization, helps defend the platform against low-level DOS (denial of service) attacks, and restores BIOS to a known good state after an attack.</li> </ul>   |
| Intel® Boot Guard                            | <ul style="list-style-type: none"> <li>• Hardware-based boot integrity protection that helps prevent unauthorized software and malware takeover of boot blocks critical to a system's function, thus providing added level of platform security based on hardware. Configurable boot types include: <ul style="list-style-type: none"> <li>• <b>MEASURED BOOT</b>—Measures the initial boot block into the platform storage device such as trusted platform module (TPM) or Intel® Platform Trust Technology.</li> <li>• <b>VERIFIED BOOT</b>—Cryptographically verifies the platform initial boot block using the boot policy key.</li> </ul> </li> </ul> |
| Intel® Platform Trust Technology             | <ul style="list-style-type: none"> <li>• A trusted element of the platform execution that provides enhanced security by verifying the boot portion of the boot sequence which helps protect against viruses and malicious software attacks.</li> </ul>   |
| Intel® Rapid Storage Technology (Intel® RST) | <ul style="list-style-type: none"> <li>• Offers excellent levels of performance, responsiveness, and expandability. Take advantage of the enhanced performance and lower power consumption available with Intel® RST with one or more SATA or PCIe storage drives. With additional SATA drives, Intel RST provides quicker access to digital photo, video, and data files with RAID 0, 5, and 10, and greater data protection against a storage disk drive failure with RAID 1, 5, and 10. Dynamic Storage Accelerator unleashes the incredible performance of Solid State Drives (SSD) when multitasking.</li> </ul>                                      |
| Intel® Speed Shift Technology                | <ul style="list-style-type: none"> <li>• Delivers dramatically quicker responsiveness with single-threaded, transient (short duration) workloads, such as web browsing, by allowing the processor to more quickly select its best operating frequency and voltage for optimal performance and power efficiency.</li> </ul>   |
| Intel® High Definition Audio                 | <ul style="list-style-type: none"> <li>• Integrated audio support enables premium digital surround sound and delivers advanced features such as multiple audio streams and jack re-tasking.</li> </ul>   |
| Intel® Smart Sound Technology                | <ul style="list-style-type: none"> <li>• A dedicated audio Digital Signal Processor designed to process audio for media playback and voice for PC interactions like Cortana*, Nuance Dragon*, or Skype*. Enables long battery life while providing new usages and maintaining high-end audio playback.</li> </ul>  |
| Universal Serial Bus 3                       | <ul style="list-style-type: none"> <li>• Integrated USB 3 supports enhanced performance with a design data rate of up to 5 Gb/s with up to 6 USB 3 ports.</li> </ul>   |
| Serial ATA (SATA) 6 Gb/s                     | <ul style="list-style-type: none"> <li>• High-speed storage interface supporting up to 6 Gb/s transfer rates for optimal data access with up to 3 SATA 6 Gb/s ports.</li> </ul>  |
| SATA Port Disable                            | <ul style="list-style-type: none"> <li>• Enables individual SATA ports to be enabled or disabled as needed. This feature helps provide added protection of data by preventing malicious removal or insertion of data through SATA ports.</li> </ul>  |
| PCI Express* 3.0 Interface                   | <ul style="list-style-type: none"> <li>• Offers up to 8 GT/s for fast access to peripheral devices and networking with support for up to 6 devices across 16 lanes configurable as x1, x2, and x4 depending on motherboard designs.</li> </ul>   |
| USB Port Disable                             | <ul style="list-style-type: none"> <li>• Enables individual USB ports to be enabled or disabled as needed. This feature helps provide added protection of data by helping to prevent malicious removal or insertion of data through USB ports.</li> </ul>  |
| Intel® Integrated 10/100/1000 MAC            | <ul style="list-style-type: none"> <li>• Support for the Intel® Ethernet Connection I219-LM and I219-V.</li> </ul>   |

# Product Brief

## Mobile 10<sup>TH</sup> Gen Intel® Core™ U-Series and Y-Series Processors

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Performance results are based on testing as of Aug. 9, 2019 and may not reflect all publicly available security updates. See configuration disclosure for details. No product can be absolutely secure.

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 information go to [www.intel.com/benchmarks](http://www.intel.com/benchmarks).

Results have been estimated or simulated using internal Intel analysis or architecture simulation or modeling and provided to you for informational purposes. Any differences in your system hardware, software or configuration may affect your actual performance.

Optimization Notice: Intel's compilers may or may not optimize to the same degree for non-Intel microprocessors for optimizations that are not unique to Intel microprocessors. These optimizations include SSE2, SSE3, and SSSE3 instruction sets and other optimizations. Intel does not guarantee the availability, functionality, or effectiveness of any optimization on microprocessors not manufactured by Intel. Microprocessor dependent optimizations in this product are intended for use with Intel microprocessors. Certain optimizations not specific to Intel microarchitecture are reserved for Intel microprocessors. Please refer to the applicable product User and Reference Guides for more information regarding the specific instruction sets covered by this notice.

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\*Other names and brands may be claimed as the property of others.

### U-Series

1. Battery Life estimated based on measurements of average power on an Intel reference platform for a local video playback of a 1080p 24fps h.264 7Mbps 12min 14 sec content using the Windows Movie & TV App. Intel Preproduction Processor: Intel® Core™ i7 -10710U (CML-U 6+2) PL1=15W, 6C12T, Turbo up to 4.7GHz, Memory: 2x16GB DDR4-2667 2Rx8, Storage: Intel® 760p M.2 PCIe NVMe SSD with AHCI Microsoft driver, Display Resolution: 3840x2160 eDP Panel 12.5", OS: Windows\* 10 19H1-18362.ent.rx64-Appx59. Power policy set to AC/Balanced mode for all benchmarks except SYSmark 2014 SE which is measured in AC/BAPCo mode for Performance. Power policy set to DC/Balanced mode for power with UX Slider set to Better Performance. All benchmarks run in Admin mode & Tamper Protection Disabled / Defender Disabled, Graphics driver: PROD-HC-RELEASES-GFX-DRIVER-CI-MASTER-2334-REVENUE-PR-1006952-WHQL vs Intel® Core™ i7-8565U PL1=15W, 4C8T, Memory: 2x16GB DDR4-2667 2Rx8, Storage: Intel® 760p M.2 PCIe NVMe SSD with AHCI Microsoft driver, Display Resolution: 3840x2160 eDP Panel 12.5", OS: Windows\* 10 19H1-18362.ent.rx64-Appx59. Power policy set to AC/Balanced mode for all benchmarks except SYSmark 2014 SE which is measured in AC/BAPCo mode for Performance. Power policy set to DC/Balanced mode for power. All benchmarks run in Admin mode & Tamper Protection Disabled / Defender Disabled, Graphics driver: 2019-1006577-WHQL.
2. Over 2X Better Performance Vs. 5yo Laptop as measured by SYSmark2018 Overall Score. Intel Preproduction Processor: Intel® Core™ i7 -10710U (CML-U 6+2) PL1=25W, 6C12T, Turbo up to 4.7GHz, Memory: 2x16GB DDR4-2667 2Rx8, Storage: Intel® 760p M.2 PCIe NVMe SSD with AHCI Microsoft driver, Display Resolution: 3840x2160 eDP Panel 12.5", OS: Windows\* 10 19H1-18362.ent.rx64-Appx59. Power policy set to AC/Balanced mode for all benchmarks except SYSmark 2014 SE which is measured in AC/BAPCo mode for Performance. Power policy set to DC/Balanced mode for power. All benchmarks run in Admin mode & Tamper Protection Disabled / Defender Disabled, Graphics driver: PROD-HC-RELEASES-GFX-DRIVER-CI-MASTER-2334-REVENUE-PR-1006952-WHQL vs Processor: Intel(R) Core(TM) i7-5550U CPU @ 2.00GHz PL1=15W, Memory: 2 x 8 GB DDR3-1600, Storage: INTEL 545s 512GB SSDSC2KW512G8, Display Resolution: 1920 x 1080, OS: Microsoft Windows 10 Enterprise 44.18362.1.0. Power policy set to AC/Balanced mode for all benchmarks except SYSmark 2014 SE which is measured in AC/BAPCo mode for Performance. Power policy set to DC/Balanced mode for power with UX Slider set to Better Performance. All benchmarks run in Admin mode & Tamper Protection Disabled / Defender Disabled, Graphics driver: 20.19.15.5058.
3. Nearly 3X faster wireless speeds: 802.11ax 2x2 160MHz enables 2402Mbps maximum theoretical data rates, ~3X (2.8X) faster than standard 802.11ac 2x2 80MHz (867Mbps) as documented in IEEE 802.11 wireless standard specifications, and require the use of similarly configured 802.11ax wireless network routers.
4. 8X more bandwidth than USB 3.0: Data transfer rates, different from total available bandwidth for data and display traffic, depend on system configuration. 8X improvement over USB 3.0 refers to total available bandwidth for data and display, not data transfer rates. Data transfer rates depend on system configuration.

### Y-Series

5. Over 2X better overall performance vs. 5YO as measured by SYSMark\*2018 on: Intel® Core™ i7-10510Y processor (CML-Y42) PL1=7W TDP, 4C8T, Turbo up to 4.2GHz/3.6GHz, Memory: 2X4GB LPDDR3- 2133MHz, Storage: Intel® Harris Harbor 512GB PCIe SSD, Display Resolution: 2560x1440 eDP Panel, OS: Windows 10 19H1 (18362.30), Graphics driver: 26.20.100.6860. Intel® Broadwell 5Y51, PL1=5.0W TDP, 2C4T, Turbo up to 4.2GHz/3.6GHz, Memory: 2x4GB LPDDR3-1866MHz, Storage: Intel® 760p m.2 PCIe NVMe SSD, Display Resolution: 2560x1440 eDP Panel, OS: Windows 10 Build 19H1 18362.30, Graphics driver: 26.20.100.6860.

