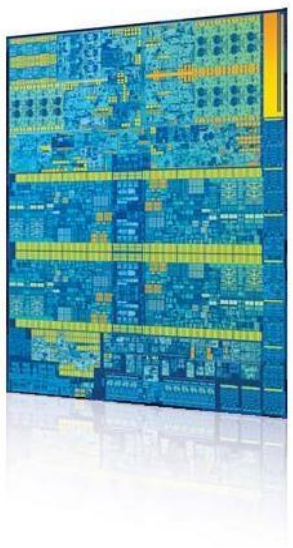
# INTEL NEWS FACT SHEET

## Con la famiglia di processori Intel® Core™ di settima generazione Intel offre esperienze Internet immersive



Intel porta il computing a un livello successivo con la famiglia di processori Intel® Core™ di settima generazione, progettati per l'Internet immersivo e basati sulle solide fondamenta della microarchitettura Skylake. I più recenti processori a 14 nm di Intel offrono prestazioni più reattive che mai[1], intrattenimento e gaming di altissima qualità, elevata sicurezza [2] e interazioni ancora più naturali e intuitive con i PC. Grazie ad incredibili miglioramenti che trasformano l'esperienza di visualizzazione con video 4K UHD, video a 360 gradi, molteplici stream video e riproduzione di contenuti premium[3], i processori Intel Core di settima generazione per piattaforme mobili consentono un nuovo modo di apprezzare contenuti brillanti e coinvolgenti con una vasta gamma di fattori di forma.

- Produttività mobile oltre il 70%[4] più veloce rispetto a un PC di 5 anni fa**
- Prestazioni grafiche 3D fino a 3,5 volte migliori[5] rispetto a un PC di 5 anni fa**

Ciò significa che è possibile

- Creatività: migliorare 1.400 foto in un minuto[6]
- Multitasking: combinare molteplici video 4K UHD in un filmato di 4 minuti e, contemporaneamente, fare shopping e guardare un film[7]
- Gioco: giocare ai videogame preferiti, come Overwatch, in HD quando si è in movimento.

I processori Intel Core di settima generazione abilitano design portatili che consentono di creare più velocemente contenuti 4K UHD e di guardare e fare streaming di filmati 4K UHD più a lungo.

- La nuova funzionalità di decodifica HEVC a 10 bit offre una riproduzione fluida di contenuti premium fino a 4K UHD
- La nuova funzionalità di decodifica VP9 consente una riproduzione fluida ed efficiente di contenuti 4K UHD e 4K a 360 gradi durante il multitasking
- Possibilità di creare, modificare e condividere rapidamente e facilmente video 4K UHD a 360° 8 volte più velocemente[8] rispetto a un PC di 5 anni fa
- Fino a 9,5 ore di riproduzione di video 4K[9]

I processori Intel Core di settima generazione sono scalabili per una varietà di modelli di PC per un'ampia gamma di fasce di prezzo, che possono includere caratteristiche come connessione Thunderbolt™ 3 USB Tipo-C con un unico cavo, audio premium a basso consumo e riconoscimento facciale, come nel caso di Windows* Hello. Gli utenti possono inoltre aspettarsi di trovare modelli di PC basati su processori Intel Core di settima generazione con una varietà di opzioni di input intuitive come il touch, la voce e gli stilo.

** Il software e i carichi di lavoro utilizzati nei test delle prestazioni possono essere stati ottimizzati per le prestazioni solo su microprocessori Intel.
I test delle prestazioni, come SYSmark e MobileMark, sono calcolati utilizzando specifici sistemi computer, componenti, software, operazioni e funzioni. Qualsiasi modifica a uno di questi fattori può generare risultati diversi. Gli acquirenti dovrebbero consultare altre fonti di informazioni e test prestazionali per valutare appieno i prodotti che intendono acquistare, nonché le prestazioni di tali prodotti se abbinati ad altri prodotti. Per informazioni più complete, visitare il sito Web all'indirizzo www.intel.com/benchmarks.
Configurazioni: vedere a pagina 13 per le informazioni sulla configurazione dei sistemi.

## I vantaggi principali della famiglia di processori Intel Core di settima generazione per PC portatili e desktop includono:

**PRESTAZIONI REATTIVE.** I processori Intel Core di settima generazione impiegano una microarchitettura ad efficienza energetica, un'avanzata tecnologia di processo e ottimizzazioni a livello di silicio per offrire prestazioni più veloci rispetto ai processori di generazione precedente.[1]** La navigazione sul Web è scattante e reattiva grazie alla tecnologia Intel® Speed Shift.
Con i processori dotati di tecnologia Intel® Turbo Boost 2.0, le prestazioni e i consumi vengono controllati dinamicamente – per i core e la grafica – potenziando le performance proprio quando sono richieste e risparmiando energia quando serve. Sia i processori serie Y che serie U supportano due core e quattro thread grazie alla tecnologia Intel® Hyper-Threading (tecnologia Intel® HT), consentendo efficaci design di 2 in 1 e di clamshell sottili che offrono un equilibrio unico tra prestazioni e mobilità. I PC abilitati per Modern Standby di Microsoft Windows sono in grado di riavviarsi immediatamente premendo un pulsante, in modo che gli utenti non siano costretti a dover aspettare l'avvio dei sistemi.

**ESPERIENZE RICCHE E IMMERSIVE.** La Grafica Intel® HD offre prestazioni avanzate e un nuovo motore multimediale per videografica accattivante.[3] Con i processori Intel Core di settima generazione, gli utenti possono guardare, creare, fare editing e giocare con la massima facilità. Grazie alla possibilità di guardare contenuti premium fino a 4K UHD da un maggior numero di fornitori, la famiglia di processori Intel Core di settima generazione permette agli utenti di godersi esperienze multimediali straordinarie e brillanti sugli schermi compatibili. Rende inoltre possibili editing potente di foto e video, molteplici stream video, video a 360 gradi e videochat ad alta risoluzione. Gli utenti possono anche giocare ai loro videogame preferiti per PC quando sono in movimento, con qualità HD e grafica fluida e ricca di texture. Infine, grazie al nuovo motore multimediale con potente accelerazione hardware VP9 e HEVC a 10 bit, la visualizzazione e la creazione di contenuti 4K è drasticamente migliorata rispetto ai processori di precedente generazione.[10]

**SEMPLICITÀ E COMODITÀ.** I notebook dotati della versatile tecnologia Thunderbolt 3, il connettore USB-C che gestisce tutte le connessioni, offrono un'incredibile esperienza di I/O. Un unico cavo supporta comodamente velocità di trasferimento fino a 40 Gbps, due schermi 4K a 60 Hz, ricarica del sistema fino a 100 W, grafica esterna e networking Thunderbolt per potenziare la produttività. Con i processori Intel Core di settima generazione che rendono possibili nuovi design che supportano input tramite touch, voce e stilo, l'interazione intuitiva con i PC diventa sempre più diffusa, consentendo agli utenti di semplificare il loro modo di interagire con i computer e dare libero sfogo alla creatività. Con i notebook dotati di videocamere che supportano il riconoscimento facciale di Windows Hello, gli utenti sono in grado di accedere ai loro PC[2] e siti Web con sicurezza e senza difficoltà.

**DURATA PROLUNGATA DELLA BATTERIA.** Con la famiglia di processori Intel Core di settima generazione, che migliora ulteriormente l'efficienza energetica a livello di processore e piattaforma, i sistemi basati su processori Intel Core di settima generazione hanno una maggiore durata della batteria** e possono utilizzare batterie più piccole per sistemi ancora più sottili e leggeri.[11]
L'accelerazione hardware dedicata riduce notevolmente il consumo di energia, consentendo una durata triplicata della batteria durante la riproduzione locale di video 4K.[12] Con la famiglia di processori serie Y, i 2 in 1 e i clamshell vengono ridefiniti, offrendo design sottili e privi di ventola per il segmento dell'ultra mobilità. Con i processori della serie U, sono possibili livelli superiori di produttività e creatività in fattori di forma sempre più sottili.

**SUPPORTO DI I/O.** L'I/O con i processori Intel Core di settima generazione serie U e Y offre supporto PCIe di terza generazione, per velocità superiori di trasferimento dati di 8 GT/s rispetto ai 5 GT/s con PCIe di seconda generazione. La più recente tecnologia Intel® Rapid Storage supporta unità a stato solido NVMe PCIe x4 ed è in grado di sfruttare velocità PCIe di terza generazione. L'SDK Intel® Context Sensing per Intel® Integrated Sensor Solution permette ai fornitori di software di terze parti di sviluppare entusiasmanti applicazioni potenziate da sensori.

** Il software e i carichi di lavoro utilizzati nei test delle prestazioni possono essere stati ottimizzati per le prestazioni solo su microprocessori Intel.
I test delle prestazioni, come SYSmark e MobileMark, sono calcolati utilizzando specifici sistemi computer, componenti, software, operazioni e funzioni. Qualsiasi modifica a uno di questi fattori può generare risultati diversi. Gli acquirenti dovrebbero consultare altre fonti di informazioni e test prestazionali per valutare appieno i prodotti che intendono acquistare, nonché le prestazioni di tali prodotti se abbinati ad altri prodotti. Per informazioni più complete, visitare il sito Web all'indirizzo www.intel.com/benchmarks.

Configurazioni: vedere a pagina 13 per le informazioni sulla configurazione dei sistemi.

## Linea di prodotti e disponibilità:

Questo annuncio dei nuovi processori Intel® Core™ di settima generazione include

- Processore Intel Core m3
- Processori Intel Core i3, Intel Core i5 e Intel Core i7

Si prevede che gli OEM inizino a consegnare sistemi basati su processori Intel di settima generazione a partire dall'nizio di settembre. Intel si aspetta una grande diffusione di sistemi portatili con processori Intel di settima generazione e la disponibilità sul mercato di un'ampia varietà di dispositivi portatili in tempo per la stagione dello shopping natalizio.[13] Per ulteriori informazioni consultare il sito Web www.intel.it ; in alternativa, i clienti possono contattare gli OEM di PC per le offerte di sistemi, oppure i rivenditori per la disponibilità di tali sistemi.

## 7TH GEN INTEL® CORE™ PROCESSOR

| FEATURES[14] | BENEFITS |
|---|---|
| **Intel® Turbo Boost Technology 2.0[15]** | Dynamically increases the processor's frequency, as needed, by taking advantage of thermal and power headroom when operating below specified limits. |
| **Intel® Hyper-Threading Technology[16]** | Delivers two processing threads per physical core. Highly threaded applications can get more work done in parallel, completing tasks sooner. |
| **Intel Built-In Visuals** | **Intel® HD Graphics**—Allows playing of HD videos with exceptional clarity, viewing and editing of even the smallest details of photos, and playing today's modern games.<br><br>**Intel® Quick Sync Video**—Delivers excellent video conferencing capability, fast video conversion, online sharing, and fast video editing and authoring.<br><br>**Intel® Clear Video HD**—Visual quality and color fidelity enhancements for HD playback and immersive web browsing. |
| **Integrated Memory Controller** | Offers stunning memory read/write performance through efficient prefetching algorithms, lower latency, and higher memory bandwidth. |
| **Intel® Smart Cache** | Dynamically allocates shared cache to each processor core, based on workload, reducing latency and improving performance. |
| **Intel® Virtualization Technology[17]** | 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. |
| **Intel® Advanced Encryption Standard New Instructions (Intel® AES-NI) [18]** | Fast, secure AES engine for a variety of encryption apps, including whole disk encryption, file storage encryption, conditional access of HD content, internet security, and VoIP. Consumers benefit from protected internet and email content, plus fast, responsive disk encryption. |
| **Intel® Power Optimizer & Processor C-States** | Intel® Power Optimizer increases periods of silicon sleep state across the platform ingredients, including the CPU, chipset, and third-party system components, to reduce power. Processor C-states (C8-C10) provide low idle power. |
| **Configurable TDP Power** | 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. |

## 7TH GEN INTEL® CORE™ PROCESSOR

| FEATURES[14] | BENEFITS |
|---|---|
| **Intel® Secure Key[19] (formerly Digital Random Number Generator [DRNG])** | 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. |
| **Intel® Transactional Synchronization Extensions New Instructions (TSX-NI) [20]** | TSX-NI is a set of instructions focused on enterprise-level multi-threaded performance scaling, making parallel operations more efficient via improved control of software threads and locks. This offers performance benefits for enterprise-level big data analytics/business intelligence and visualization apps, which involve multi-user collaboration. |
| **Intel® Advanced Vector Extensions (Intel® AVX) 2.0[21]** | AVX 2.0 is an extension of AVX 1.0 with new optimized instructions to deliver enhanced performance on floating point–intensive apps. AVX 2.0 adds 256-bit integer instructions and new instructions for FMA (Fused Multiply Add). FMA delivers better performance on media and floating point computations, including face recognition; professional imaging; high-performance computing; consumer video and imaging; compression; and encryption. |
| **Collaborative Processor Performance Control (CPPC)** | 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. |
| **Intel® Software Guard Extensions (Intel® SGX) [22]** | A processor enhancement designed to help protect application integrity and confidentiality of secrets and withstand software and certain hardware |
| **Intel® Memory Protection Extensions (Intel® MPX)[23]** | Provides hardware accelerated mechanism for memory testing (heap and stack) buffer boundaries in order to identify buffer overflow attacks. |
| **Intel® BIOS Guard[24]** | Intel BIOS Guard is 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. |
| **Intel® Boot Guard[25]** | 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:<br><br>**Measured Boot**—Measures the initial boot block into the platform storage device such as trusted platform module (TPM) or Intel® Platform Trust Technology (PTT).<br><br>**Verified Boot**—Cryptographically verifies the platform initial boot block using the boot policy key. |
| **Intel® Platform Trust Technology[26]** | A trusted element of the platform execution that provides enhanced security by verifying the boot portion of the boot sequence on U-series processors. |
| **VMCS shadowing** | VMCS shadowing allows a Virtual Machine Manager (VMM) running in a guest (nested virtualization) to access a shadow VMCS memory area using the normal VMRead/VMWrite instructions. This technology reduces overhead for a more natural and responsive user experience. It also allows users to take control of their personal and professional data and apps while being protected by game-changing security. |

## 7TH GEN INTEL® CORE™ PROCESSOR

| FEATURES[14] | BENEFITS |
|---|---|
| **Intel® Active Management Technology (Intel® AMT)** [27] | Using built-in platform capabilities and popular third-party management and security applications, Intel AMT allows IT to discover, heal, and protect computing assets on wired and wireless networks. Intel AMT is supported on platforms that have Intel® vPro™. |
| **Intel® Rapid Storage Technology (Intel® RST)** [28] | 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 maximum performance of Solid State Drives (SSD) when multitasking. [28] |
| **Intel® Speed Shift Technology** | 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. |
| **Intel® Smart Response Technology**[29] | Spend less time waiting, with fast access to the files and applications you use the most. |

## 7TH GEN INTEL® CORE™ PROCESSOR

### Y-SERIES & U-SERIES PROCESSORS

| FEATURES[14] | BENEFITS |
|---|---|
| **Intel® High Definition Audio[30]** | Integrated audio support enables premium digital surround sound and delivers advanced features such as multiple audio streams and jack re-tasking. |
| **Intel® Smart Sound Technology[31]** | 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. |
| **Universal Serial Bus 3.0** | Integrated USB 3.0 support enhances performance with a design data rate of up to 5 gigabits per second (Gbps) with up to 6 USB 3.0 ports. [32] |
| **Universal Serial Bus 2.0** | Hi-Speed USB 2.0 support with a design data rate of up to 480 megabits per second (Mbps) with up to 6 USB 2.0 ports in Y-series and 10 USB 2.0 ports in U-series. [32] |
| **Serial ATA (SATA) 6 Gb/s** | Next-generation high-speed storage interface supporting up to 6 Gb/s transfer rates for optimal data access with up to 2 SATA 6Gb/s ports[32] in Y-series and 3 SATA 6Gb/s ports[32] in U-series. The PCH SATA controller also supports SATA 3 Gb/s and 1.5 Gb/s transfer capabilities. |
| **eSATA** | SATA interface designed for use with external SATA devices. Provides a link for 3 Gb/s data speeds to eliminate bottlenecks found with current external storage solutions. |
| **SATA Port Disable** | Enables individual SATA ports to be enabled or disabled as needed. This feature provides added protection of data by preventing malicious removal or insertion of data through SATA ports. Especially targeted for eSATA ports. |
| **PCI Express* 3.0 Interface** | Offers up to 5 GT/s for fast access to peripheral devices and networking with up to 12 lanes and 6 ports.[32] PCI Express ports can be configured as x1, x2 and x4 depending on motherboard designs. |
| **USB Port Disable** | Enables individual USB ports to be enabled or disabled as needed. This feature provides added protection of data by preventing malicious removal or insertion of data through USB ports. |
| **Intel® Integrated 10/100/1000 MAC** | Support for the Intel® I219LM and Intel® I219V Gigabit Network Connection |
| **Green Technology** | Manufactured with lead-free and halogen-free component packages |
| **Conflict Free** | “Conflict-free” means “DRC conflict-free”, which is defined by the Securities and Exchange Commission rules to mean products that do not contain conflict minerals (tin, tantalum, tungsten and/or gold) that directly or indirectly finance or benefit armed groups in the Democratic Republic of the Congo (DRC) or adjoining countries. |

## 7TH GEN INTEL® CORE™ PROCESSOR COMPARISON

| Y-SERIES PROCESSORS | 7TH GEN INTEL® CORE™ i7 PROCESSOR | 7TH GEN INTEL® CORE™ i5 PROCESSOR | 7TH GEN INTEL® CORE™ m3 PROCESSOR |
|---|---|---|---|
| Processor Number | i7-7Y75 | i5-7Y54 | m3-7Y30 |
| Number of Processor Cores/Threads | 2/4 | 2/4 | 2/4 |
| Base Frequency (GHz) | 1.30 | 1.20 | 1.00 |
| Max Single Core Frequency (GHz) | 3.60 | 3.20 | 2.60 |
| Intel® Turbo Boost Technology 2.0[15] | Yes | Yes | Yes |
| Number of Memory Channels | 2 (DDR3L 1600 MHz, up to LPDDR3 1866MHz) | 2 (DDR3L 1600 MHz, up to LPDDR3 1866MHz) | 2 (DDR3L 1600 MHz, up to LPDDR3 1866MHz) |
| Intel® Hyper-Threading Technology[16] | Yes | Yes | Yes |
| Intel® Smart Cache | Yes | Yes | Yes |
| Intel® AES–New Instructions (AES–NI) [18] | Yes | Yes | Yes |
| Intel® Advanced Vector Extensions (AVX) 2.0 | Yes | Yes | Yes |
| Intel® HD Graphics | Yes | Yes | Yes |
| Intel® Quick Sync Video | Yes | Yes | Yes |
| Intel Clear Video HD | Yes | Yes | Yes |
| Intel® Virtualization Technology[17] (Intel® VT) | Yes | Yes | Yes |
| Windows * Modern Standby | Yes | Yes | Yes |
| Intel® Active Management Technology 11.0[27] | Yes | Yes | No |
| Intel® TSX-NI[20] | Yes[20] | Yes[20] | No |
| Intel® Secure Key[19] | Yes | Yes | Yes |
| Intel® Platform Trust Technology[26] | Yes | Yes | Yes |
| Intel® Boot Guard[25] | Yes | Yes | Yes |
| Intel BIOS Guard[24] | Yes | Yes | Yes |
| Conflict Free | Yes | Yes | Yes |
| 1ku Pricing | $393 | $281 | $281 |

## 7TH GEN INTEL® CORE™ PROCESSOR

| U-SERIES PROCESSORS | 7TH GEN INTEL® CORE™ i7 PROCESSOR | 7TH GEN INTEL® CORE™ i5 PROCESSOR | 7TH GEN INTEL® CORE™ i3 PROCESSOR |
|---|---|---|---|
| Processor Number | i7-7500U | i5-7200U | i3-7100U |
| Number of Processor Cores/Threads | 2/4 | 2/4 | 2/4 |
| Base Frequency (GHz) | 2.70 | 2.50 | 2.40 |
| Max Single Core Frequency (GHz) | 3.50 | 3.10 | N/A |
| Intel® Turbo Boost Technology 2.0[15] | Yes | Yes | No |
| Number of Memory Channels | 2 (DDR3L 1600 MHz, up to LPDDR3 1866MHz, up to DDR4 2133 MHz) | 2 (DDR3L 1600 MHz, up to LPDDR3 1866MHz, up to DDR4 2133 MHz) | 2 (DDR3L 1600 MHz, up to LPDDR3 1866MHz, up to DDR4 2133 MHz) |
| Intel® Hyper-Threading Technology[16] | Yes | Yes | Yes |
| Intel® Smart Cache | Yes | Yes | Yes |
| Intel® AES–New Instructions (AES–NI) [18] | Yes | Yes | Yes |
| Intel® Advanced Vector Extensions (AVX) 2.0 | Yes | Yes | Yes |
| Intel® HD Graphics | Yes | Yes | Yes |
| Intel® Quick Sync Video | Yes | Yes | Yes |
| Intel Clear Video HD | Yes | Yes | Yes |
| Intel® Virtualization Technology[17] (Intel® VT) | Yes | Yes | Yes |
| Windows Modern Standby | Yes | Yes | Yes |
| Intel® Active Management Technology 11.0[27] | Yes | Yes | No |
| Intel® TSX-NI[20] | Yes[20] | Yes[20] | No |
| Intel® Secure Key[19] | Yes | Yes | Yes |
| Intel® Platform Trust Technology[26] | Yes | Yes | Yes |
| Intel® Boot Guard[25] | Yes | Yes | Yes |
| Intel BIOS Guard[24] | Yes | Yes | Yes |
| Conflict Free | Yes | Yes | Yes |
| 1ku Pricing | $393 | $281 | $281 |

## Y-SERIES & U-SERIES PROCESSOR PLATFORM INPUT/OUTPUT CONFIGURATION

**Y-series & U-series processors have integrated platform input/output. The following table summarizes the two configurations supported.**

| FEATURE[13] | PREMIUM (U/Y-Series) | BASELINE (U-Series) |
|---|---|---|
| **Independent Displays Supported[33]** | 3 | 3 |
| **Intel® Rapid Storage Technology[28]** | RAID, AHCI support | AHCI support |
| **Intel® Smart Response Technology[29]** | Yes | No |
| **Intel® High Definition Audio[30]** | Yes | Yes |
| **Intel® Smart Sound Technology[31]** | Yes | Yes |
| **USB 3.0 Ports** | Up to 6 | Up to 4 |
| **USB 2.0 Ports** | 6 (for Y-series) & 10 (for U-series) | 8 |
| **PCIe Express*** | Up to 10 Gen 3 lanes[32] for Y-series and Up to 12 Gen 3 lanes[32] for U-series | Up to 10 Gen 2 lanes[32] |
| **SATA Ports** | Up to 4 SATA 6Gbps[32] | 2 SATA 6Gbps[32] |
| **I2C** | 6[32] | 6[32] |
| **UART** | 3 | 3 |
| **SDXC** | 1 | 1 |

For more information, visit www.intel.com/core

1. 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 visithttp://www.intel.com/performance. For Y-Series, performance/battery life comparison based on measurement of Intel® Core™ i7-7Y75 vs. Intel® Core™ m7-6Y75 using SYSmark* 2014. System configuration info for 7th Gen processor: Intel reference platform running Intel® Core™ i7- 7Y75 processor, PL1=4.5W TDP, 2C4T, Turbo up to 3.6GHz/3.4GHz, Memory: 2x2GB LPDDR3-1600, Storage: Intel® SSD, Display Resolution: 1920x1080, Windows 10 Build 10586 (Intel® Speed Shift Technology mode set to Autonomous), 35Whr Battery. SYSmark 2014 is measured in BAPCo power plan. Graphics driver: 15.45.4471. System configuration for 6th Gen processor: Intel reference platform running Intel® Core™ m7- 6Y75 processor, PL1=4.5W TDP, 2C4T, Turbo up to 3.1GHz/2.9GHz, Memory: 2x2GB LPDDR3-1600, Storage: Intel® SSD, Display Resolution: 1920x1080, Windows 10 Build 10586 (Intel® Speed Shift Technology mode set to Autonomous), 35Whr battery. SYSmark 2014 is measured in BAPCo power plan. Graphics driver: 15.45.4471 for CPU benchmarks, 15.40.4256 for 3D graphics benchmarks. For U-Series, performance/battery life comparison based on measurement of Intel® Core™ i7-7500U vs. Intel® Core™ i7-6500U using SYSmark* 2014. System configuration info for 7th Gen processor: Intel reference platform running Intel® Core™ i7-7500U processor, PL1=15W TDP, 2C4T, Turbo up to 3.5GHz/3.5GHz, Memory: 2x4GB DDR4-2133, Storage: Intel® SSD, Display Resolution: 1920x1080, Windows 10 Build 10586 (Intel® Speed Shift Technology mode set to Autonomous), 40Whr battery. SYSmark 2014 is measured in BAPCo power plan. Graphics driver: 15.45.4471. System configuration info for 6th generation processor: Intel® reference platform running Intel® Core i7-6500U processor, PL1=15W TDP, 2C4T, Turbo up to 3.1GHz/3.0GHz, Memory: 2x4GB DDR4-2133, Storage: Intel® SSD, Display Resolution: 1920x1080, Windows 10 Build 10586 (Intel® Speed Shift Technology mode set to Autonomous), 40Whr battery. SYSmark 2014 is measured in BAPCo power plan. Graphics driver: 15.45.4471 for CPU benchmarks, 15.40.4256 for 3D graphics benchmarks
2. No system can provide absolute security. Consult your system manufacturer for more information.
3. Intel technologies' features and benefits depend on system configuration and may require enabled hardware, software or service activation. Performance varies depending on system configuration. No computer system can be absolutely secure. Check with your system manufacturer or retailer or learn more at [intel.com].
4. Based on SYSmark* 2014 Overall Score (Intel® Core™ i5-7200U vs. Intel® Core™ i5-2467M).
5. Based on 3DMark Cloud Gate Graphics (Intel® Core™ i5-7200U vs. Intel® Core™ i5-2467M).
6. WebXPRT* 2015 is a benchmark from Principled Technologies* that measures the performance of web applications using six usage scenarios: Photo Enhancements, Organize Album, Local Notes, Stock Option Pricing, Sales Graphs, and Explore DNA Sequencing. WebXPRT tests modern browser technologies such as HTML5 Canvas 2D, HTML5 Table, HTML5 Local Storage, as well as JavaScript*. Reported
metrics: elapsed time in seconds (lower is better) for each scenario, plus an overall score (higher is better). Scaling efficiencies: CPU dominant (newer browsers are GPU accelerated), sensitive to frequency. WebXPRT is very sensitive to browser type and version. OS support: Any OS that supports an HTML5 browser.
7. Based on Content Creation Multitasking Workload Video Subtest (Intel® Core™ i5-7200U vs. Intel® Core™ i5-2467M).

   Content Creation Multitasking Workflow Workload: Using Adobe* Photoshop Elements Organizer 14 (20150827.m.80115), Adobe* Photoshop Elements 14, Cyberlink* PowerDirector 14, Windows* Movie& TV app; Windows* Media Player on 2nd Gen System - The workflow has one video playing in the background. Adobe Photoshop Elements Organizer is used to view the photos. Adobe Photoshop Elements is then opened to preview different effects on the photos, then goes back to Adobe Photoshop Elements Organizer in order to do a batch "Smart Fix". Cyberlink* Powerdirector* is then open and videos taken on a GoPro HERO4 Black camera is imported and added to the timeline. A video is then produced using the H.264 AVC MPEG-4 4K 3840x2160/30p profile. The details of the 2 subtests used are listed below:

   - Photo editing workload description:

     The photos are 50 20.3-Megapixel photos ranging in size from 5.75-13.4 MB. Adobe Photoshop Elements Organizer 14 and Photoshop Elements 14 are used to apply various effects and "InstantFix" edits.
   - Video creation workload description:

     The videos are a 1 min. 46 sec. and 30 sec. 3840x2160, ~60Mbps, 29.97 fps, H.264, .MP4 videos from a GoPro Hero4 Black camera. The videos are added to the Cyberlink* PowerDirector project timeline and produced into a 2 min. 16 sec. video file using the H.264 AVC MPEG- 4 4K 3840 x 2160/30p profile.
8. Based on 4K 360 Video Creation Workload (Intel® Core™ i5-7200U vs. Intel® Core™ i5-2467M).

   4K 360 Video Creation for Upload Workload: Using Cyberlink* Gear 360 ActionDirector (1.0.0.1622) - The workload consists of four source 3840x1920, ~32 Mbps, 29.97 fps, H.264, .MP4 videos that were stitched from a Samsung Gear 360 camera. The videos are added to the project timeline and produced into a single file using the "YouTube - MPEG-4 4K 3840 x 1920/30p" profile.
9. Based on 4K to 1080p H.26 Transcode Workload (Intel® Core™ i5-7200U vs. Intel® Core™ i5-2467M).

   4K to 1080p H.264 Transcode Workload: Using Cyberlink* MediaEspresso v7.5 - The workload file is a 12 minute and 14 second, ~1.5 GB, 3840x2160p, 17561 kbps, H.264 MP4 video file. The file is transcoded to a smaller 1920x1080, 8 Mbps, H.264, .m2ts file for reduced file size during internet transfers or for viewing on a portable device.
10. Based on measurement of Intel® Core™ i7-7Y75 vs. Intel® Core™ m7-6Y75 and Intel® Core™ i7-7500U vs. Intel® Core™ i7-6500U. System configurations from footnote 25 using SEG0596 4K HEVC Content Creation benchmark.
11. Based on measurement of Intel® Core™ i7-7Y75 vs. Intel® Core™ m7-6Y75 and Intel® Core™ i7-7500U vs. Intel® Core™ i7-6500U. System configurations using the following procedure: Disconnect all USB devices, connect to a local WiFi access point and set the screen brightness to 200 nits (disable DPST, set brightness to 200 nits on a white background and enable DPST). Wait for 10 mins for the OS to completely idle. Launch Tears of Steel (1080p H264 10MBps) video using the Universal Windows player. Measure and calculate average power for the duration of the video. Report 3 run median.

12. Based on measurement of Intel® Core™ i7-7Y75 vs. Intel® Core™ m7-6Y75 and Intel® Core™ i7-7500U vs. Intel® Core™ i7-6500U. System configurations on the next page running Tears of Steel (4K 10b HEVC 24fps) video using the Universal Windows player. Measure and calculate average power for the duration of the video. Report 3 run median
13. All information provided here is subject to change without notice. Contact your Intel representative to obtain the latest Intel product specifications and roadmaps.
14. Not all features available on all systems.
15. Requires a system with Intel® Turbo Boost Technology. Intel Turbo Boost Technology and Intel Turbo Boost Technology 2.0 are only available on select Intel® processors. Consult your system manufacturer. Performance varies depending on hardware, software, and system configuration. For more information, visit http://www.intel.com/go/turbo.
16. Available on select Intel® Core™ processors. Requires an Intel® HT Technology-enabled system. Consult your PC manufacturer. Performance will vary depending on the specific c hardware and software used. For more information, including details on which processors support HT Technology, visit http://www.intel.com/info/hyperthreading.
17. Intel® Virtualization Technology requires a computer system with an enabled Intel® processor, BIOS, and virtual machine monitor (VMM). Functionality, performance or other benefits will vary depending on hardware and software configurations. Software applications may not be compatible with all operating systems. Consult your PC manufacturer. For more information, visit http://www.intel.com/go/virtualization.
18. Intel® AES-NI requires a computer system with an AESNI enabled processor, as well as non-Intel software to execute the instructions in the correct sequence. AES-NI is available on select Intel® processors. For availability, consult your reseller or system manufacturer. For more information, see Intel® Advanced Encryption Standard Instructions (AES-NI).
19. No system can provide absolute security. Requires an Intel® Secure Key-enabled platform, available on select Intel processors, and software optimized to support Intel Secure Key. Consult your system manufacturer for more information.
20. Available on select processor models enabled for Intel® vPro™ Technology. For details, see ark.intel.com.
21. Intel® Advanced Vector Extensions (Intel® AVX)* are designed to achieve higher throughput to certain integer and floating point operations. Due to varying processor power characteristics, utilizing AVX instructions may cause a) some parts to operate at less than the rated frequency and b) some parts with Intel® Turbo Boost Technology 2.0 to not achieve any or maximum turbo frequencies. Performance varies depending on hardware, software, and system configuration and you should consult your system manufacturer for more information. *Intel® Advanced Vector Extensions refers to Intel® AVX, Intel® AVX2 or Intel® AVX-512. For more information on Intel® Turbo Boost Technology 2.0, visit http://www.intel.com/go/turbo
22. No system can provide absolute security. Requires an Intel® Software Guard Extensions –enabled platform, available on select Intel processors, and an enabled operating system. Consult your system manufacturer for more information
23. No system can provide absolute security. Requires an Intel® Memory Protection Extensions–enabled platform, available on select Intel processors, and an enabled operating system. Consult your system manufacturer for more information.
24. No system can provide absolute security. Requires an Intel® BIOS Guard–enabled platform, available on select Intel processors, and an enabled operating system. Consult your system manufacturer for more information.
25. No system can provide absolute security. Requires an Intel® Boot Guard–enabled platform, available on select Intel processors, and an enabled operating system. Consult your system manufacturer for more information.
26. No system can provide absolute security. Requires an Intel® Platform Trust Technology–enabled platform, available on select Intel processors, and an enabled operating system. Consult your system manufacturer for more information.
27. Requires activation and a system with a corporate network connection, an Intel® AMT–enabled chipset, network hardware, and software. For notebooks, Intel AMT may be unavailable or limited over a host OS-based VPN, when connecting wirelessly, on battery power, sleeping, hibernating, or powered off. Results dependent upon hardware, setup, and configuration. For more information, visit Intel® Active Management Technology.
28. Requires a select Intel® Core™ processor, an enabled chipset, Intel® Rapid Storage Technology software, and a properly configured storage device. PCIe and SATA storage supported.
29. Requires an Intel® Core™ processor, an enabled chipset, Intel® Rapid Storage Technology software, and a properly configured dual drive (HDD + small SSD). Depending on system configuration, your results may vary. Contact your system manufacturer for more information
30. Requires an Intel® HD Audio enabled system. Consult your PC manufacturer for more information. Sound quality will depend on equipment and actual implementation. For more information about Intel HD Audio, refer to Intel® High Definition Audio.
31. Intel® Smart Sound Technology (SST) requires the use of an I2S based CODEC for operation. Intel SST cannot be used concurrently with Intel High Definition Audio. Not available on all systems. Consult your PC manufacturer for more information. Sound quality will depend on equipment and actual implementation.
32. Actual number of ports available may vary by processor number and system configuration. Please refer to the specifications corresponding to the processor number of interest or consult your system vendor for more information.
33. Display performance may vary depending on SoC power, resolution, and application.

## System Configurations:

Battery life and performance measurements on Intel Reference Platform unless otherwise noted (ie. YouTube 4K Streaming, Overwatch FPS, LoL FPS is the exception).

Intel Reference Platform is an example new system. Products available from systems manufacturers will not be identical in design, and performance will vary.

System power management policy: DC balanced for battery life measurements, AC balanced for performance measurements on 2nd Generation system and AC High Performance on 7th and 6th Generation systems. Wireless: On and connected.

**7th Generation Measurements:**

Intel® Core™ i7-7Y75 Processor, PL1=4.5W TDP, 2C4T, Turbo up to 3.6GHz, Memory: 2x2GB LPDDR3-1600, Storage: Intel SSD, Display Resolution:1920x1080, Intel HD Graphics 615, OS: Windows* 10 TH2.

Intel® Core™ m3-7Y30 Processor, PL1=4.5W TDP, 2C4T, Turbo up to 2.6GHz, Memory: 2x2GB LPDDR3-1600, Storage: Intel SSD, Display Resolution:1920x1080, Intel HD Graphics 615, OS: Windows* 10 TH2.

Intel® Core™ i5-7200U Processor, PL1=15W TDP, 2C4T, Turbo up to 3.1GHz, Memory: 2x4GB DDR4-2133, Storage: Intel SSD, Display Resolution:1920x1080. Intel HD Graphics 620, OS: Windows* 10 TH2.

Intel® Core™ i7-7500U Processor, PL1=15W TDP, 2C4T, Turbo up to 3.5GHz, Memory: 2x4GB DDR4-2133, Storage: Intel SSD, Display Resolution: 1920x1080, Intel HD Graphics 620, OS: Windows* 10 TH2.

**6th Generation Measurements:**

Intel® CRB, Intel® Core™ M7-6Y75 Processor, PL1=4.5W TDP , 2C4T, Turbo up to 3.1GHz, Memory: 2x2GB LPDDR3-1600, Storage: Intel SSD, Display Resolution:1920x1080, OS: Windows* 10 TH2.

Intel® CRB, Intel® Core™ i7-6500U Processor, PL1=15W TDP, 2C4T, Turbo up to 3.1, Memory: 2x4GB DDR4-2133, Storage: Intel SSD, Display Resolution: 1920x1080. Graphics Driver: 15.40.4254, OS: Windows* 10 TH2.

**7th Generation 4K Measurements:**

Windows 10* 4K 24fps 10bit HEVC Local Video Playback Component Average Power on 66 WHr battery Disconnect all USB devices, connect to a local WiFi access point and set the screen brightness to 200 nits (disable DPST, set brightness to 200 nits on a white background and enable DPST). Wait for 10 mins for the OS to completely idle. Launch Tears of Steel (4K H265 24fps) video using the Windows Movie & TV App. Measure and calculate average power for the duration of the video. Report 3 run

median. Battery life and performance measurements on Intel Reference Platform

Intel Reference Platform is an example new system. Products available from systems manufacturers will not be identical in design, and performance will vary.

System power management policy: DC balanced for battery life measurements, AC balanced for performance measurements on 2nd Generation system and AC High Performance on 7th generation systems. Wireless: On and connected.

**7th Generation system configuration:**

Intel® Core™ i5-7200U Processor, PL1=15W TDP, 2C4T, Turbo up to 3.1GHz, Memory: 2x4GB DDR4-2133, Storage: Intel SSD, Display Resolution:4K. Intel HD Graphics 620, OS: Windows* 10 TH2, Battery Size: 66WHr

Intel® Core™ i5-7200U Processor

Intel® Core™ i7-6500U Processor,

**Refresh Comparison**

**Measurements:**

Intel® Core™ i5-2467M Processor (1.6 GHz base, up to 2.3GHz 2C4T, 17W TDP) measured on Dell* XPS13-40002sLV 13” Ultrabook, RAM: 4GB DDR3, Storage: 128GB SSD, Display: 13.3” 1366x768 resolution, Battery: 46WHr, OS: Windows* 7

Intel® CRB, Intel® Core™ M-5Y10, PL1=4.5W TDP, 2C4T, Turbo up to 2GHz, Memory: 2x2GB LPDDR3-1600, Storage: Intel SSD, Display Resolution:1920x1080, OS: Windows* 10

**Competitive Systems**

Apple* iPad Pro* - Apple* A9X (2T2C, 2.2 GHz) Wi-Fi Model, Storage: 128GB OS: IOS 9, Screen: 12.9-inch Resolution: 2732x2048

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