intel experience what's inside™

BIG-TIME ENTERTAINMENT IN REMARKABLY THIN AND LIGHT DESIGNS

NEW 10TH GEN INTEL® CORE™ U-SERIES AND Y-SERIES PROCESSORS

With 10th Gen Intel® Core™ mobile processors, it's now possible to enjoy incredibly immersive entertainment on a remarkably thin and light laptop. 10th Gen Intel® Core™ processor-powered systems featuring the latest Intel® Iris® Plus graphics* take a huge leap forward in gaming, streaming and creativity, pushing a smooth, detailed and vivid experience on highly portable devices. But the entertainment experience isn't the only leap forward for 10th Gen Intel® Core™ processors: they also pack battery life optimized for marathon work and play sessions, built-in intelligence features designed to help you get more done, easier than ever before, and the latest in wireless and wired standards for incredibly fast connectivity. 10th Gen Intel® Core™ mobile processors bring big-time entertainment—and much more—to ultra-portable devices.

*Not available on all SKUs

STUNNING ENTERTAINMENT

For such thin and light devices, systems powered by 10th Gen Intel® Core™ processors with the latest groundbreaking improvements to Intel® Iris® Plus graphics pack hugely immersive entertainment. These systems let you play popular games like [Battlefield V*] at 1080p with smooth frame rates, and stream 4K HDR video in all its vivid and detailed richness. They can even handle 4K video editing and high-res photo-processing like a pro—fast, while retaining high visual quality—both previously a stretch for thin and light devices.

BUILT FOR THE AI SOFTWARE OF THE FUTURE

INTELLIGENT PERFORMANCE

10th Gen Intel® Core™ mobile processors optimize built-in intelligent performance features that make it possible for your PC to quickly learn and adapt to what you do. Built for the AI software of the future, a laptop powered by a 10th Gen Intel® Core™ processor gives you the PC experiences you've always wanted, like automatic photo masking and quick application of video filters. You can get more done on an intelligent PC that's ready for the software of today and tomorrow.

BEST CONNECTIVITY

Systems powered by 10th Gen Intel® Core™ mobile processors feature best in class wireless and wired standards for fast, flexible and easy connectivity. Intel® Wi-Fi 6* (Gig+) PCs and routers enable ultra-fast, ultra-responsive connections for browsing, streaming, gaming, or working, even in environments with many connected devices. Thunderbolt™ 3**—the fastest USB-C available—allows you to connect multiple peripherals, docks, displays and even power using a single cable at lightning-fast speeds.

* Nearly 3x 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.

** As compared to other PC I/O connection technologies including eSATA, USB, and IEEE 1394 Firewire*. Performance will vary depending on the specific hardware and software used. Must use a Thunderbolt-enabled device.

U-SERIES & Y-SERIES PROCESSOR PERFORMANCE FEATURES

FEATURES[1,2]	ICE LAKE U	ICE LAKE Y
CPU/Memory/Graphics Overclocking	No	No
Intel® Extreme Tuning Utility (XTU)	No	No
Intel® Hyper-Threading Technology	Yes	Yes
Intel® Smart Cache technology with Last Level Cache (LLC) sharing between Processor and GFx cores	Yes	Yes
Intel® Smart Sound Technology	Yes	Yes
Intel® Gaussian Neural Accelerator 1.0	Yes	Yes
Intel® Turbo Boost Technology 2.0	Yes	Yes
Intel® Turbo Boost Max Technology	No	No
Intel® SpeedshiftTM Technology	Yes	Yes
Per core p-states	Yes	Yes
Last Level Cache (LLC)	**Up to 8M**	**Up to 8M**

1 NOT ALL FEATURES INDICATED ARE SUPPORTED ON ALL SKUS

2 Level of support may vary by SKU

U-SERIES & Y-SERIES PROCESSOR POWER SPECIFICATIONS

	TDP[3] NOMINAL	cTDP[4] DOWN	cTDP[4] UP
Ice Lake Y	9 W	N/A[1]	12 W
Ice Lake U Iris™ Plus (48EU, 64EU)	15 W	12 W	25 W[2]
Ice Lake U UHD (32EU)	15 W	13 W[3]	25 W[2]

1 8W cTDP down available on ICL Y Core i3

2 Not available on ICL U Core i3 SKUs

3 ICL U UHD SKUs available with 12W cTDP down.

4 TDP workload does not reflect various I/O connectivity cases such as iTBT. Refer to the Platform Design Guide (Doc #572907), Thermal Power Consideration section for adjustments to the base TDP required to preserve base frequency associated to the sustained long-term thermal capability.

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

FEATURES[1]	ICE LAKE U	ICE LAKE Y
Package and Platform (PL1/ PsysPL1) level thermal control (enhanced efficiency utilizing Hardware Duty Cycling)	Yes	Yes
Converged Power and Thermal Throttling for DDR memory RAPL	Yes	Yes
Dynamic Platform & Thermal Framework (Intel® Dynamic Tuning) including[3]: Dynamic Power Performance Management (DPPM)[2], Dynamic Battery Power Technology, Processor Low Power Mode, PCH I/O Throttling and Power Management	Yes	Yes
HD Audio D3 State	Yes	Yes
Intel® Display Power Saving Technology (DPST)	Yes	Yes
Intel® Power Optimizer 2 (CPPM, Hardware Controlled P-states, semi-active workload optimization utilizing HW duty Cycling)	Yes	Yes
On die Power Control Unit	Yes	Yes
Panel Self Refresh 2.0	Yes	Yes
PECI (Platform Environmental Control Interface) 3.0	Yes	Yes
Power Aware Interrupt Routing (PAIR)	Yes	Yes
Low Power Idle with Processor C-states	Up to C10	Up to C10
Microsoft Windows* Connected Standby/Modern Standby Support	Yes	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

ICL GRAPHICS FEATURES

	FEATURES[1]	ICE LAKE U	ICE LAKE Y
3D	Intel® Integrated Graphics	Yes	Yes
	Execution Units	Up to 64 EUs	Up to 64 EUs
	3D Architecture Improvements	Yes	Yes
	Open GL 4.5, DirectX 12	Yes	Yes
COMPUTE	OpenCL 2.2	Yes	Yes
PLATFORM HARDWARE	10 nm process	Yes	Yes
	PCIe Configurations for dGFX	1x4	No
	PCIe Gen3.0 Support	Yes	Yes
	Switchable graphics / Hybrid Graphics (muxless solution)[2]	Yes	No

1 NOT ALL FEATURES INDICATED ARE SUPPORTED ON ALL SKUS

2 Switchable Graphics will be referred to as Hybrid Graphics in Windows 8.1, Windows 10 . Not supported Linux

ICL MEDIA

FEATURES[1]	ICE LAKE U & Y
FF Decode	2x 4k60 8b 4:2:0 AVC/VP8 4K60 10b 4:2:2/4:4:4 HEVC/VP9 8K30 10b 4:2:0 HEVC/VP9
FF Encode (VDEnc)	2x 4K60 8b 4:2:0 AVC 4K60 10b 4:4:4 HEVC/VP9 8K30 10b 4:2:0 HEVC/VP9
Programmable Encode (PAK/VME)	4K60 8b 4:2:0 AVC 4K60 10b 4:2:0 HEVC
Post Processing	VEBox 10b DN, HDR Tone Mapping, BT2020 support (constant luminance)
Content Protection	Support Playready SL3000, HDCP 2.2 (wired and wireless)

1 NOT ALL FEATURES INDICATED ARE SUPPORTED ON ALL SKUS

ICL DISPLAY

FEATURES[1]	ICE LAKE U & Y
Displays	3 Display Pipes
eDP	eDP 1.4b HBR3, VDSC 1.1, 2-ports, PSR 2 (only on 1-Port), MSO 2x2
Max Resolution (1 pipe/1 port)	4K120/5K60[2] (10b)
HDMI	HDMI 2.0b 10b formats, HDCP2.2
Max Resolution (1 pipe/1 port)	4K60 (10b)
DP	DP 1.4 HBR3[3], VDSC 1.1, HDCP 2.2
Max Resolution (1 pipe/1 port)	4K120/5K60 (10b[4])
TBT/USB-C*	Integrated Mux (up to 4 ports on ICL-U, up to 3 on ICL-Y) (USB, TBT, DPoC)
HDR Support	HDR10 HW support. (BT.2020 24bpc precision pipeline, Improved HDR tone mapping), FP16[5]
FB Formats	P010, P012, P016, 420/422/444 6b/8b/10b/12b/16b
Visual Quality	5K 7x7 Adaptive Linear Scalers, 4K LACE DPST, 3DLUT HW on 1 pipe

1 NOT ALL FEATURES INDICATED ARE SUPPORTED ON ALL SKUS

2 Resolution are supported when VDSC enabled, PSR2 is not supported concurrent with VDSC.

3 Using ModPHY / Type –C. ComboPHY will only support DP 1.4 w HBR2

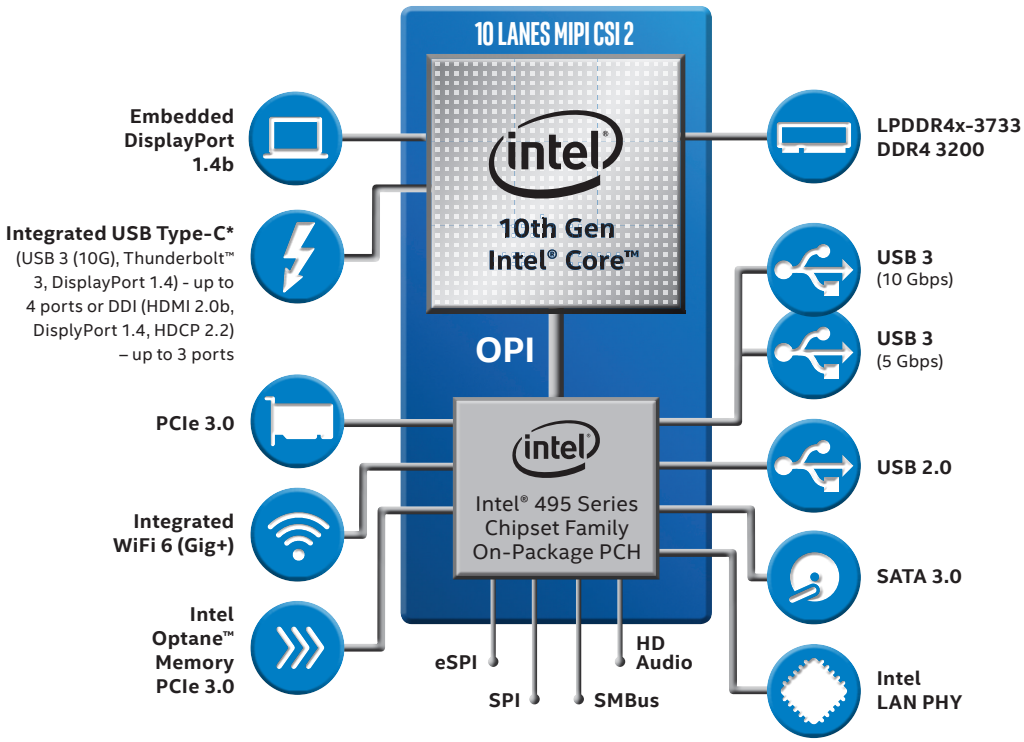
4 For streaming over 4k60 (10bit) content on more than one stream simultaneously, additional thermals need to be considered.

5 May need additional thermal requirements.

U-SERIES PRCESSOR FEATURE BENEFITS

FEATURES	BENEFITS
CPU	• 10nm CPU / 14nm PCH
GFX	• Gen 11 Intel Graphics Engine, up to 64EU
Memory	• DDR4 up to 3200, LPDDR4/x 3733
Imaging	• Enhanced IPU4p: 16Mp, 4k30, 4 Cameras, RGB+IR camera
Media, Display, Audio	• End to end 10b support :Power optimized HEVC 10 bit encode and VP9 10 bit dec/8 bit encode, 444 format support for HEVC & VP9, 10 bit Display. • 3 DDI (+1), eDP 1.4b, DP 1.4, HDMI 2.0b, HW HDR Linear scale & blend, FP16. Outdoor LACE • Programmable Quad-Core Audio DSP, Sound Wire Digital Audio Interface, Intel® GNA for low-power neural network acceleration
I/O & Connectivity	• Integrated Wi-Fi*/BT (CNVi AC/Wi-Fi 6 support) - Intel® Wi-Fi 6 AX201 (2x2/160 MHz, Gig) • Integrated USB Type-C* (USB 3 (10G) , Thunderbolt™ 3 , DisplayPort 1.4) – up to 4 ports
Storage	• Next Gen Intel® Optane™ memory SSDs/Memory, PCIe 3.0, SATA, SD 3.0, eMMC 5.1
Security	• SGX 2.0 with Ecosystem scaling (e.g ROP)
Board Area saving	• Board Savings[3] due to IP Integration FIVR (both CPU and PCH), Type-C sub system , HDMI2.0/ HDCP2.2, Wi-Fi* (CNVi MAC) etc.

10TH GEN INTEL® CORE™ U-SERIES PROCESSOR



PREMIUM PCH-LP

3[1] x SATA 6Gb/s	AHCI, RAID, RST 17 (AHCI and RAID), Intel RST for PCIe Storage, eMMC 5.1, SDXC 3.0
6 PCIe Gen 3 Devices across 16 Lanes[1]	Boot Guard, Integrated Wi-Fi 6 (Wi-Fi/BT),
10 x USB 2[2] 6 x USB 3.2 Gen 1x1 (5 Gb/s) or USB 3.2 Gen 2x1 (10 Gb/s)[1]	6 I2C, 3 UART, SSIC, ISH 5.2
Intel® Smart Sound Technology w/ I2S OR HDA Solution, DMIC, Soundwire Interface	

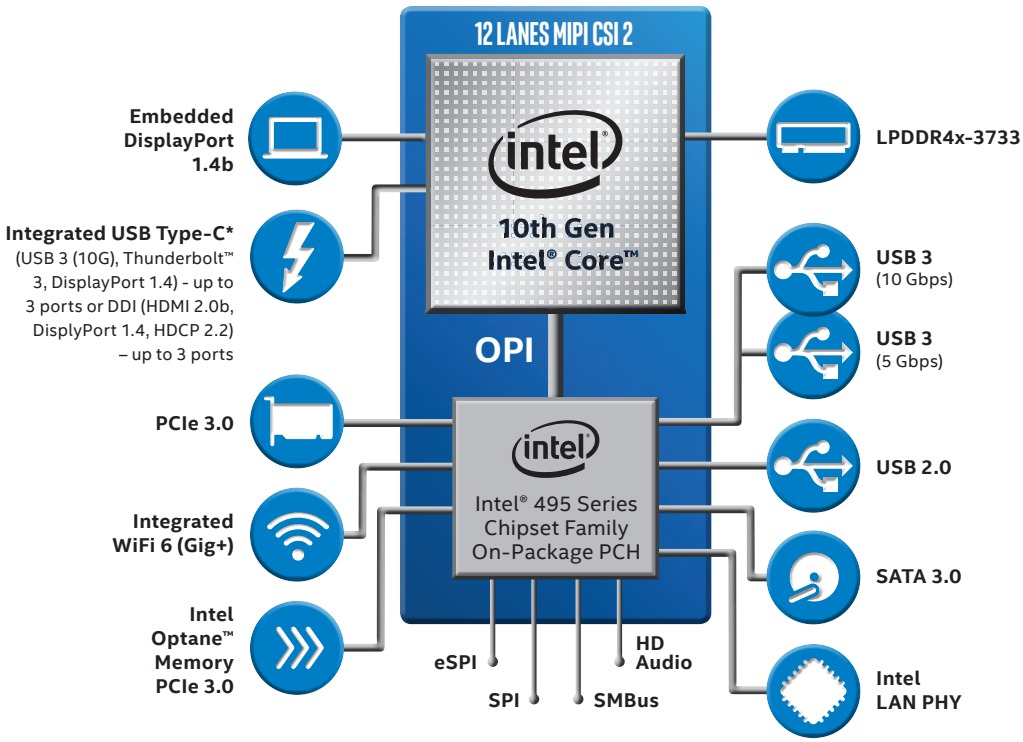
1 Enabled with I/O Port Flexibility

2 The total USB 2.0 port availability will also take into account the USB 2.0 port requirement for integrated Bluetooth* functionality.

Y-SERIES PRCESSOR FEATURE BENEFITS

FEATURES	BENEFITS
CPU	• 10nm Quad Core CPU / 14nm PCH
GFX	• Gen 11 Intel Graphics Engine • GFX: GT2 = up to 64EU2
Memory	• LPDDR4/x-3733
Imaging	• IPU4p: 16Mp, 4k30, 4 Cameras, RGB+IR camera
Media, Display, Audio	• 444 format support for HEVC & VP9, 10 bit Display, • eDP 1.4b, DP 1.4, HDMI 2.0b, HW HDR Linear scale & blend, FP16. Outdoor LACE • Intel® GNA
I/O & Connectivity	• Integrated Wi-Fi*/BT (CNVi AC/Wi-Fi 6 support) - Intel® Wi-Fi 6 AX201 (2x2/160 MHz, Gig+) • Integrated USB Type-C* (USB 3.2 Gen 2x1, Thunderbolt™ 3 , DisplayPort 1.4) – up to 3 ports
WWAN	• XMM7360 & XMM7560 M.2
Security	• SGX 2.0 with Ecosystem scaling (e.g ROP)
Board Area Saving	• Additional Board Savings[3] with PCH FIVR integration and the above integrations.

10TH GEN INTEL® CORE™ Y-SERIES PROCESSOR



PREMIUM PCH-LP

2[1] x SATA 6Gb/s	AHCI, RAID, RST 17 (AHCI and RAID), Intel RST for PCIe Storage, eMMC 5.1, SDXC 3.0
5 PCIe Gen 3 Devices across 14 Lanes[1]	Intel® Smart Sound Technology w/I2S or HDA Solution, DMIC, Soundwire Interface
6 x USB 2[2]	Boot Guard, Integrated Wi-Fi 6 (Wi-Fi/BT), FIVR
6 x USB 3.2 Gen 1x1 (5 Gb/s)[1] or USB 3.2 Gen 2x1 (10 Gb/s)[1]	6 I2C, 3 UART , USB Dual Mode, SSIC, ISH 5.2

1 Enabled with I/O Port Flexibility

2 The total USB 2.0 port availability will also take into account the USB 2.0 port requirement for integrated Bluetooth* functionality.

For more information on the new 10th Gen Intel® Core™ mobile processors, visit **www.intel.com/products/mobile/processors.**

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 about performance and benchmark results, visit http://www.intel.com/benchmarks

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