June 10, 2020

Intel Hybrid Processors: Uncompromised PC Experiences for Innovative Form Factors Like Foldables, Dual Screens

SANTA CLARA, Calif.--(BUSINESS WIRE)-- **What's New:** Today, Intel launched Intel® Core™ processors with Intel® Hybrid Technology, code-named "Lakefield." Leveraging Intel's Foveros 3D packaging technology and featuring a hybrid CPU architecture for power and performance scalability, Lakefield processors are the smallest to deliver Intel Core performance and full Windows compatibility across productivity and content creation experiences for ultra-light and innovative form factors.

This press release features multimedia. View the full release here: https://www.businesswire.com/news/home/20200610005143/en/

In June 2020, Intel launches "Lakefield," Intel Core processors with Intel Hybrid Technology. The processor leverages Intel's Foveros 3D packaging technology and featuring a hybrid CPU architecture for power and performance scalability. Lakefield processors are the smallest to deliver Intel Core performance and full Windows compatibility across productivity and content creation experiences for ultra-light and innovative form factors. (Credit: Intel Corporation)

"Intel Core processors with Intel Hybrid Technology are the touchstone of Intel's vision for advancing the PC industry by taking an experience-based approach to designing silicon with a unique combination of architectures and IPs. Combined with Intel's deepened co-engineering with our partners, these processors unlock the potential for innovative device categories of the future."

–Chris Walker, Intel corporate vice president and general manager of Mobile Client Platforms

Why They're Great for Innovative PC Form Factors: Intel Core processors with Intel Hybrid Technology deliver full Windows 10 application compatibility in up to a 56% smaller package area for up to 47% smaller board size[1] and extended battery life, providing OEMs more flexibility in form factor design across single, dual and foldable screen devices while delivering the PC experiences people expect. They are also:

- The first Intel Core processors shipping with attached package-on-package (PoP) memory, further reducing board size.
- The first Intel Core processors to deliver as low as 2.5mW of standby SoC power – an up to 91% reduction compared to Y-series processors – for more time between charges[2].
- The first Intel processors to feature native dual internal display pipes, making them ideally suited for foldable and dual-screen PCs.

When You Can Get It: Two announced designs powered by the Intel Core processors with Intel Hybrid Technology and co-engineered with Intel include the Lenovo ThinkPad X1 Fold, the first fully functional PC with a folding OLED display unveiled at CES 2020 and expected to ship this year, and the Intel-based Samsung Galaxy Book S expected in select markets starting in June.

About Key Features & Capabilities: Intel Core i5 and i3 processors with Intel Hybrid Technology leverage a 10nm Sunny Cove core to take on more intense workloads and foreground applications, while four power-efficient Tremont cores balance power and performance optimization for background tasks. The processors are fully compatible with 32- and 64-bit Windows applications, helping reach new heights for the thinnest and lightest designs.

- **Smallest package size, enabled by Foveros:** With Foveros 3D stacking technology, processors achieve a dramatic reduction in package area – now only a miniscule 12x12x1 mm, approximately the size of a dime – by stacking two logic dies and two layers of DRAM in three dimensions, also eliminating the need for external memory.
- **Hardware-guided OS scheduling:** Enabling real-time communication between the CPU and the OS scheduler to run the right apps on the right cores, the hybrid CPU architecture helps deliver up to 24% better performance per SOC power[3] and up to 12% faster single-threaded integer compute-intensive application performance[4].
- **More than 2x throughput on Intel UHD for AI-enhanced workloads[5]:** Flexible GPU engine compute enables sustained, high-throughput inference applications – including AI-enhanced video stylization, analytics and image resolution upscaling.
- **Up to 1.7x better graphics performance[6]:** Gen11 graphics delivers seamless media and content creation on the go – the biggest leap in graphics for Intel processor-based 7-watt systems. Convert video clips up to 54% faster[7], and with support for up to four external 4K displays, immerse in rich visuals for content creation and entertainment.
- **Gigabit connectivity**: With support for Intel® Wi-Fi 6 (Gig+) and Intel LTE solutions, experience seamless video conferencing and streaming online.

Processor Number	Graphics	Cores / Threads	Graphics (EUs)	Cache	TDP	Base Freq (GHz)	Max Single Core Turbo (GHz)	Max All Core Turbo (GHz)	Graphics Max Freq (GHz)	Mer
i5-L16G7	Intel UHD Graphics	5/5	64	4MB	7W	1.4	3.0	1.8	Up to 0.5	LPD 426
i3-L13G4	Intel UHD Graphics	5/5	48	4MB	7W	0.8	2.8	1.3	Up to 0.5	LPD 426

More Context: Lakefield Processors: Intel Core Processors with Intel Hybrid Technology (YouTube Video) | Lakefield Press Kit | Lakefield Product Brief | Intel Images: Up Close with Lakefield

About Intel

Intel (Nasdaq: INTC) is an industry leader, creating world-changing technology that enables

global progress and enriches lives. Inspired by Moore's Law, we continuously work to advance the design and manufacturing of semiconductors to help address our customers' greatest challenges. By embedding intelligence in the cloud, network, edge and every kind of computing device, we unleash the potential of data to transform business and society for the better. To learn more about Intel's innovations, go to newsroom.intel.com and intel.com.

Performance results are based on testing as of dates shown in configuration and may not reflect all publicly available updates. See configuration disclosure for details. No product or component 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 complete information visit www.intel.com/benchmarks.

Your costs and results may vary.

Intel technologies may require enabled hardware, software or service activation.

Intel contributes to the development of benchmarks by participating in, sponsoring, and/or contributing technical support to various benchmarking groups, including the BenchmarkXPRT Development Community administered by Principled Technologies.

[1] Up to 56% smaller package area and up to 47% smaller board size: Intel® Core™ i5-L16G7 compared to Intel® Core™ i7 8500Y processor

[2] Up to 91% reduction in standby power: Intel® Core™ i5-L16G7 compared to Intel® Core™ i7-8500Y

[3] Up to 24% better web browsing power efficiency: As measured by WebXPRT3 score per Watt on Intel® Core™ i5-L16G7 vs. Intel® Core™ i7-8500Y

[4] Up to 12% faster single threaded integer compute intensive application performance: As measured by SPEC CPU2006 on Intel® Core™ i5-L16G7 vs. Intel® Core™ i7-8500Y

[5] 2x throughput on Intel UHD graphics for AI-Enhanced Workloads: As measured by MLPerf v0.5 Inference with Offline Scenario using OpenVINO 2020.R2 framework Closed ResNet50-v1.5 offline FP16 GPU (Batch=128) workload on Intel® Core™ i5-L16G7 versus Intel® Core™ i7-8500Y

[6] Up to 1.7x better graphics performance: As measured by 3DMark 11 on Intel® Core™ i5-L16G7 vs. Intel® Core™ i7-8500Y

[7] Up to 54% faster at converting video clips to your favorite format: as measured by Handbrake RUG 1213 on Intel® Core™ i5-L16G7 vs. Intel® Core™ i5-8200Y

© Intel Corporation. Intel, the Intel logo and other Intel marks are trademarks of Intel

Corporation or its subsidiaries. Other names and brands may be claimed as the property of others.

View source version on businesswire.com:
https://www.businesswire.com/news/home/20200610005143/en/

Dan Francisco
916-812-8814
Daniel.Francisco@intel.com

Source: Intel Corporation