10TH-GEN INTEL® CORE™ MOBILE PROCESSORS (H-SERIES)

Desktop-Caliber Performance in a Laptop

Elevate Your Game

- Game. Stream. Record - up to **45%** faster[1]
- Up to **54%** more FPS when playing Red Dead Redemption 2.[2]
- Nearly **3X** faster wireless speeds[3]
- Accelerate launching & loading of your favorite games with Intel® Optane™ memory.

Conquer Your Content

- Capture. Edit. Share.
- Render videos up to **2X** Faster.[4]
- Photo Editing faster up to **37%**[5]
- Optimize your workflow with Intel® Optane™ memory to accelerate application and content loading.
- Enhance your creative experience with Thunderbolt™ 3 for fast single wire access to external 4K monitors, extended storage, and charging.

NEW Features

- **First** Intel® Core™ i9 mobile processor with up to **5.3GHz**[6] Turbo & 8C/16T
- Intel® Core™ i7 mobile processor with up to 5.1GHz[6] Turbo & 8C/16T
- Memory support up to DDR4-2933
- Intel® Turbo Boost Max Technology 3.0
- **Intel® Speed Optimizer** – A simple, instantaneous method of overclocking[7]
- Integrated Intel® Wi-Fi 6 AX201 (Gig+) support[9] for peak wireless performance
- 2.5G Intel® Ethernet Connection I225 support

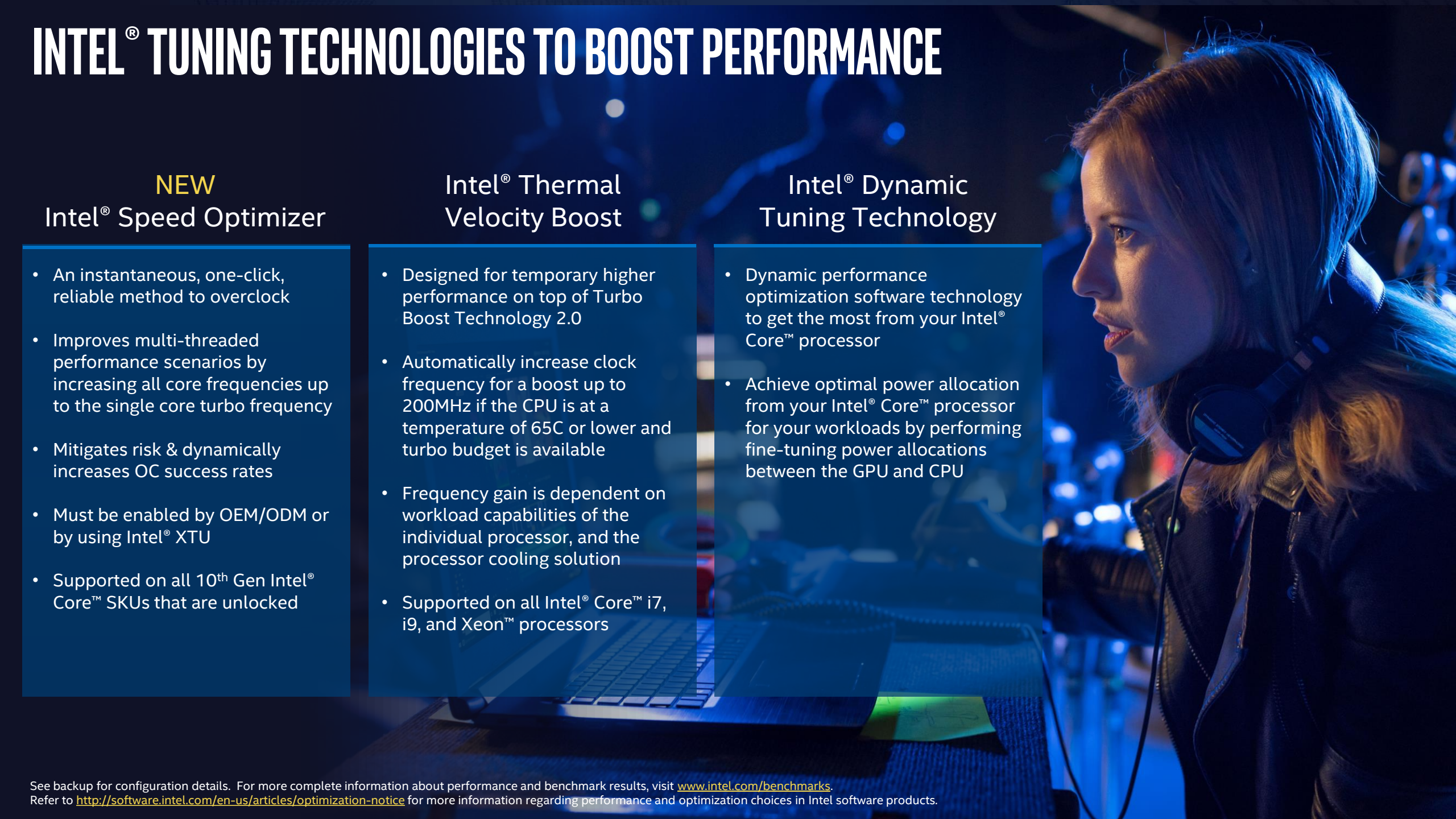
Sell it in...

Raise the bar of performance for gamers and creators with up to 8C/16T and 5.3GHz[6]. Experience the benefits of additional new features such as integrated Intel® Wi-Fi 6 AX 201 (Gig+), Intel® Turbo Boost Max technology 3.0, and the NEW Intel® speed optimizer for simple & instantaneous overclocking[7].

- First Intel® Core™ i9 mobile processor with up to 5.3 GHz[6] Turbo
- Up to **44%** better overall system performance[8]
- Up to 8C/16T on a Core™ i7
- Integrated Wi-Fi 6 AX201 (Gig+)
- NEW Intel® Speed Optimizer
- Intel® Turbo Boost Max Technology 3.0

See backup for configuration details. For more complete information about performance and benchmark results, visit www.intel.com/benchmarks.
Refer to http://software.intel.com/en-us/articles/optimization-notice for more information regarding performance and optimization choices in Intel software products.

INTEL® TUNING TECHNOLOGIES TO BOOST PERFORMANCE



NEW Intel® Speed Optimizer

- An instantaneous, one-click, reliable method to overclock
- Improves multi-threaded performance scenarios by increasing all core frequencies up to the single core turbo frequency
- Mitigates risk & dynamically increases OC success rates
- Must be enabled by OEM/ODM or by using Intel® XTU
- Supported on all 10th Gen Intel® Core™ SKUs that are unlocked

Intel® Thermal Velocity Boost

- Designed for temporary higher performance on top of Turbo Boost Technology 2.0
- Automatically increase clock frequency for a boost up to 200MHz if the CPU is at a temperature of 65C or lower and turbo budget is available
- Frequency gain is dependent on workload capabilities of the individual processor, and the processor cooling solution
- Supported on all Intel® Core™ i7, i9, and Xeon™ processors

Intel® Dynamic Tuning Technology

- Dynamic performance optimization software technology to get the most from your Intel® Core™ processor
- Achieve optimal power allocation from your Intel® Core™ processor for your workloads by performing fine-tuning power allocations between the GPU and CPU

See backup for configuration details. For more complete information about performance and benchmark results, visit www.intel.com/benchmarks.
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10TH GEN INTEL® CORE™ MOBILE PROCESSORS

PROCESSOR NUMBER	BASE CLOCK SPEED (GHZ)	MAXIMUM SINGLE CORE TURBO FREQUENCY (GHZ)	CORES/ THREADS	THERMAL DESIGN POWER	INTEL® THERMAL VELOCITY BOOST	UNLOCKED	INTEL® SMART CACHE	MEMORY SUPPORT	INTEL® OPTANE™ MEMORY SUPPORT
Intel® Core™ i9-10980HK	2.4	5.3	8/16	45	✓	✓	16 MB	Two channels DDR4-2933	✓
Intel® Core™ i7-10875H	2.3	5.1	8/16	45	✓		16 MB	Two channels DDR4-2933	✓
Intel® Core™ i7-10850H	2.7	5.1	6/12	45	✓	Partial	12 MB	Two channels DDR4-2933	✓
Intel® Core™ i7-10750H	2.6	5.0	6/12	45	✓		12 MB	Two channels DDR4-2933	✓
Intel® Core™ i5-10400H	2.6	4.6	4/8	45			8 MB	Two channels DDR4-2933	✓
Intel® Core™ i5-10300H	2.5	4.5	4/8	45			8 MB	Two channels DDR4-2933	✓

Intel® processor numbers are not a measure of performance. Processor numbers differentiate features within each processor family, not across different processor families.
All processors are lead-free (per EU RoHS directive July 2006) and halogen free (residual amounts of halogens are below November 2007 proposed IPC/JEDEC J-STD-709 standards)
All processors support Intel® Virtualization Technology (Intel® VT-x)

Includes the effect of Intel® Thermal Velocity Boost (Intel® TVB), a feature that opportunistically and automatically increases clock frequency above single-core and multi-core Intel® Turbo Boost Technology frequencies based on how much the processor is operating below its maximum temperature and whether turbo power budget is available. The frequency gain and duration is dependent on the workload, capabilities of the processor and the processor cooling solution.

LEGAL DISCLAIMERS

Software and workloads used in performance tests may have been optimized for performance only on Intel microprocessors.

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

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

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.

Results have been estimated or simulated.

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

Intel does not control or audit third-party data. You should consult other sources to evaluate accuracy.

PERFORMANCE DISCLAIMERS

Testing by Intel as of March 24, 2020

1. As measured by PUBG mega-tasking workload on Intel® Core™ i7-10750H vs. Intel® Core™ i7-7700HQ

2. As measured by Red Dead Redemption 2 on Intel® Core™ i9-10980HK vs. Intel® Core™ i7-7820HK

3. Nearly 3X Faster: ~3X Faster: Intel Wi-Fi 6 claims are based on internal Intel testing at 3M distance with Wi-Fi 6 (160MHz) average throughput of 1521Mbps verses 802.11ac (80MHz) average throughput of 541 for an improvement of 2.8X. Testing at a range of 68M yields a 4.2X improvement from 102Mbps average throughput for 802.11ac (80MHz) to 432Mbps average throughput for Wi-Fi 6 (160MHz). Throughput measured in Intel lab with a Dell* Latitude 5491 running Windows 10* on a rotating table (1 revolution per minute) taking the average throughput over multiple tests. Access points used were Asus* AX88U FW: 3.0.0.4.384_5640 (Wi-Fi 6) and Asus* AC66U FW: 3.0.0.4.382_50470. Wi-Fi 6 improvements requires use of similarly configured Wi-Fi 6 network routers.

4. As measured by Power Director 4K video export workload RUG 1006 on Intel® Core™ i9-10980HK vs. Intel® Core™ i7-7820HK

5. As measured by Adobe Lightroom Classic workload RUG 1010 on Intel® Core™ i9-10980HK vs. Intel® Core™ i7-7820HK

6. Includes the effect of Intel® Thermal Velocity Boost (Intel® TVB), a feature that opportunistically and automatically increases clock frequency above single-core and multi-core Intel® Turbo Boost Technology frequencies based on how much the processor is operating below its maximum temperature and whether turbo power budget is available. The frequency gain and duration is dependent on the workload, capabilities of the processor and the processor cooling solution.

7. Altering clock frequency or voltage may damage or reduce the useful life of the processor and other system components, and may reduce system stability and performance. Product warranties may not apply if the processor is operated beyond its specifications. Check with the manufacturers of system and components for additional details.

8. As measured by SYSMark*2018 on Intel® Core™ i9-10980HK vs. Intel® Core™ i7-7820HK

9. *Intel® WiFi 6 AX201 requires specific hardware configurations.

SYSTEM CONFIGURATION & BENCHMARK DETAILS

Launch Product:
Processor: Intel® Core™ ***i9-10980HK*** processor (CML-H) PL1=45W TDP, 8C16T, Memory: 32 GB DDR4-2666 DDR4 SDRAM, Storage: Samsung SSD 970 EVO Plus 500GB, Display Resolution: 1920x1080, OS: Microsoft Windows 10 Pro 10.0.18363.476, Graphics card: NVIDIA RTX 2080 Super, Graphics driver: 26.21.14.4174 - NVIDIA Detonator 41.74 measured on pre-production MSI system

Processor: Intel® Core™ ***i7-10750H*** processor (CML-H) PL1=45W TDP, 6C12T, Memory: 32 GB DDR4-2666 DDR4 SDRAM, Storage: Samsung SSD 970 EVO Plus 500GB, Display Resolution: 1920x1080, OS: Microsoft Windows 10 Pro 10.0.18363.476, Graphics card: NVIDIA GeForce RTX 2070 Super, Graphics driver: 26.21.14.4174 - NVIDIA Detonator 41.74 measured on pre-production MSI system

7th Gen:
Processor: Intel® Core™ ***i7-7820HK*** processor (KBL-H) PL1=45W TDP, 4C8T, Memory: 16 GB DDR4-2400 DDR4 SDRAM, Storage: Samsung SSD 970 EVO Plus 500GB, Display Resolution: 1920x1080, OS: Microsoft Windows 10 10.0.18363.657, Graphics card: NVIDIA GeForce GTX 1080, Graphics driver: 23.21.13.8863 - NVIDIA ForceWare 388.63 41.74 measured on MSI GT75VR TITAN PRO system

Processor: Intel® Core™ ***i7-7700HQ*** processor (KBL-H) PL1=45W TDP, 4C8T, Memory: 32 GB DDR4-2400 DDR4 SDRAM, Storage: Samsung SSD 970 EVO Plus 500GB, Display Resolution: 1920x1080, OS: Microsoft Windows 10 Home 10.0.18363.657, Graphics card: NVIDIA GeForce GTX 1070, Graphics driver: 24.21.13.9901 - NVIDIA ForceWare 399.01 measured on MSI GE73VR Raider VR Ready Gamer Notebook GTX 1070 system

SYSmark* 2018 is a benchmark from the BAPCo* consortium that measures the performance of Windows* platforms. SYSmark 2018 tests three usage scenarios: Productivity, Creativity and Responsiveness. SYSmark contains real applications from Independent Software Vendors such as Microsoft* and Adobe*.

PLAYER UNKNOWN'S BATTLEGROUNDS (PUBG) mega-tasking workload uses a “SOLO | TPP” game mode on the ‘Erangel’ map to create a replay that is used to evaluate game performance while streaming to Twitch using OBS and recording gameplay using OBS; with the “Software(x264)” and “veryfast” presets. FPS is recorded using PresentMon. This workload will report: 1. The average FPS of game play as reported by PresentMon a. 5min of the game replay is captured with PresentMon using this workload. 2. Version number used of both PUBG & OBS Studio. **PUBG** is a battle royale shooter that pits 100 players against each other in a struggle for survival. Gather supplies and outwit your opponents to become the last person standing.

Red Dead Redemption 2 is a 2018 action-adventure game developed and published by Rockstar Games. The game is the third entry in the Red Dead series and is a prequel to the 2010 game Red Dead Redemption.

Adobe Lightroom Classic (RUG 1010) workload measures the time it takes Adobe Lightroom Classic to export 50 photos at a reduced file size in a jpeg format. The workload consists of 50 .jpeg photos shot on a Nikon D800 camera ranging in size of 11.3 MB – 29.8 MB.

PowerDirector PiP Encode (RUG 1006) measures the time it takes to export a project containing 4K 360 video using PowerDirector 365. The exported video is a 4K, HEVC, 30p, .MP4 @ 37Mbps using the CPU only. It does NOT use HW acceleration to complete the render. This source material is 4K 360° video footage from a Nikon KeyMission 360 camera edited into an HEVC/H.265 1080P 2D PIP movie. The 2D PIP video is an ideal way to show two different time correlated portions of the 360° video that will be of interest to the viewing audience.

Blender (RUG 1013) workload measures the time to Render scene 2472 from the Gooseberry Project, which is a 230MB file provided by the Blender* Foundation for benchmarking. Blender is the free and open source 3D creation suite. It supports the entirety of the 3D pipeline—modeling, rigging, animation, simulation, rendering, compositing and motion tracking, even video editing and game creation.