

## COMPUTEX 2019: Intel Unveils Key Experience Indicators and 1.0 Target Specification for Project Athena

### Intel's Multi-Year Journey with the PC Ecosystem to Enable New Experiences and Capitalize on Next-Generation Technologies to Deliver Advanced Laptops

May 28, 2019 — At [COMPUTEX 2019](#), Intel revealed more details around its laptop innovation program, code name “Project Athena,” including new “key experience indicators” (KEI) aligned with real-world conditions and the 1.0 target specification<sup>1</sup> for the first wave of advanced laptops coming to market this year across Windows\* and Chrome\* operating systems.

Project Athena is a multi-year program that charts a course for the PC ecosystem to raise the bar on laptop innovation. Its goal is to deliver advanced laptops that help people focus, to be always ready and to adapt to different roles throughout the day – from work and education to family interests, passion projects, entertainment and more.

More than 80% of people<sup>2</sup> expect the PC to still be one of the most important technologies 50 years from now, and with Project Athena, Intel is aligning innovation to address people’s needs, challenges and expectations of their devices to deliver better experiences on the laptop for years to come. The innovation program includes:

- New experience targets, called KEIs, defined by real-world usage models
- An annual spec outlining platform requirements
- Extensive co-engineering support and innovation pathfinding
- Ecosystem collaboration to accelerate component development, optimization and availability
- A comprehensive verification process for laptops that are a part of Project Athena

#### Key Experience Indicators

In 2019, Intel is laying the technical foundation to drive more consistent experiences on the laptop. Derived from day-in-the life research of laptop users under real-world conditions<sup>3</sup>, Intel developed a new framework of engineering metrics called KEIs as an experience-focused tool designed to supplement industry-standard benchmarking tools. Intel plans to evolve and introduce new KEI targets year over year.

To better reflect an out-of-the-box laptop experience for consumers, the KEIs are evaluated on OEM devices with representative default settings while standard background tasks and programs are running. Systems are also evaluated both on battery and while plugged in. The first wave of KEI targets are foundational to common laptop workloads and include:

- Consistent responsiveness on battery
- 16 or more hours of battery life in local video playback mode<sup>3</sup> and 9 or more hours of battery life under real-world performance conditions<sup>4</sup>
- Instant resume, including system wake from sleep in less than 1 second<sup>5</sup>

### WHAT ARE KEI'S?

Key Experience Indicators are engineering metrics taken from a user perspective that will impact the user experience in a noticeable way.

Intel will verify device candidates for alignment with the KEI targets using an assessment suite running a minimum set of tasks. Workloads in the assessment suite measure the consistency of responsiveness and performance, as well as battery life achievements, for common tasks such as web browsing or streaming while using productivity and companion apps. KEI targets must be met during the program's verification process.

## 1.0 Target Specification

The 1.0 target specification is foundational to the innovation expected from Project Athena for years to come and incorporates six key areas of innovation. Highlights include:

1. **Instant Action:** Modern Connected Standby and Lucid Sleep\* features implement fast wake with a simple lid-lift, push of a button or quick fingerprint recognition.
2. **Performance and Responsiveness:** Systems based on Intel® Core™ i5 or i7 processors with Intel® Dynamic Tuning Technology, ≥8GB DRAM dual channel mode and ≥256GB NVMe SSD including Intel® Optane™ memory H10 options.
3. **Intelligence:** Including features such as far-field voice services and support for [OpenVINO™](#) and WinML\*. Upcoming designs based on [10th Gen Intel® Core™ processors](#) bring broad scale intelligent performance to the laptop with Intel® Deep Learning Boost for approx. 2.5X AI performance<sup>6</sup>.
4. **Battery Life:** Including fast-charging capabilities over USB Type C, integration and optimization of low-power components and co-engineering support for power efficiency.
5. **Connectivity:** A fast and persistent connection with Intel® Wi-Fi 6 (Gig+) and optional Gigabit LTE. Connect to billions of USB Type C devices with Thunderbolt 3, the fastest<sup>7</sup> and most versatile port available.
6. **Form Factor:** Touch display, precision touchpads and more in sleek, thin-and-light and 2 in 1 designs with narrow bezels for a more immersive experience.

## 1.0 TARGET SPECIFICATION FOR PROJECT ATHENA LAPTOP INNOVATION ROOTED IN HUMAN UNDERSTANDING

**READY TO GO BEFORE YOU ARE**

- Modern Connected Standby/Lucid Sleep
- Biometric Login –fingerprint/face recognition
- Wake from sleep in <1 sec

**PERFORMANCE & RESPONSIVENESS**

- Core™ i5 or i7
- Consistent responsiveness on battery
- > 8GB DRAM dual channel mode
- > 256GB NVMe SSD
- Intel® Optane™ option

**ADAPTIVE INTELLIGENCE**

- Far Field voice services
- OpenVINO AI on PC
- WinML support

**WORRY-FREE BATTERY LIFE**

- 16+ hours of local video playback<sup>1</sup>
- 9+ hours of real-world performance<sup>2</sup>
- Charge to 4 hours of battery in <30mins<sup>3</sup>

**ALWAYS FAST, RELIABLY CONNECTED**

- Thunderbolt™ 3
- Wi-Fi 6 Gig+
- Gigabit LTE option

**FORM FACTOR & INTERACTION**

- Ultra Slim 2 in 1/Clamshell
- 12-15.x" at 1080P or better, touch display, 3 Side Narrow Bezel
- Backlit keyboard, precision touchpad, pen support

<sup>1</sup>Simulated to replicate in-transit local video playback scenario: 150nit screen brightness, in airplane mode

<sup>2</sup>Real-world performance testing conditions include out-of-box OEM default settings along with respective value add software, display brightness set to 250nits and always connected to internet with commonly used applications installed and with multiple tabs open and resident in the background. Project Athena targets are preliminary and subject to change. Intel does not guarantee performance of any third-party system

<sup>3</sup>When powered off, from 0% battery

Onstage at [COMPUTEX 2019](#), Gregory Bryant, senior vice president and general manager of the Client Computing Group, previewed some of the first designs expected from partners based on the upcoming 10th Gen Intel Core mobile processors and aligned with the 1.0 specification, including:

- **Acer Swift 5\*** is an ultralight magnesium alloy design for mobile professionals offering powerful performance and long battery life with fast charging for maximum productivity on the go.
- **Dell XPS\* 13" 2 in 1** delivers more performance in an 8% thinner form than previous gen with 10th Gen Intel Core processors. It has a modern and beautiful design with premium materials, a refined InfinityEdge\* display and a 2.5mm top-mounted webcam.
- **HP Envy\* 13" Wood Series** includes features like Amazon Alexa\*, wake on voice and fingerprint reader, along with privacy and peace-of-mind with HP Sure View\* and the HP Webcam Kill Switch\* solution.
- **Lenovo Yoga S940\*** is Lenovo's flagship ultra-slim consumer laptop packed with Lenovo Smart Assist\* features that can detect presence and recognize voice commands for greater security and convenience. Contour Glass\* wraps around its bezels for a more streamlined design.

Laptops qualifying under the 1.0 target specification span both consumer and commercial categories and are expected to include designs based Intel® Core™ i5 and i7 processors from the [8th Gen Intel® Core™ vPro™](#), [8th Gen Intel® Core™](#) and [10th Gen Intel Core](#) families. More than a dozen designs from Intel's OEM partners are expected this year.

Intel's innovation [partners](#) for Project Athena include Acer\*, Asus\*, Dell, Google\*, HP\*, Innolux\*, Lenovo\*, Microsoft\*, Samsung\* and Sharp\*, among many others.

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<sup>1</sup> Intel's verification process ensures that certain product specifications for user experience are included. Intel does not guarantee specific performance of any system. Actual performance will vary with use, system configurations, and settings.

<sup>2</sup> Intel "Next 50" Study <https://newsroom.intel.com/news-releases/consumers-see-world-contradictions-emerging-technologies/#gs.dn9fmo>

<sup>3</sup> Simulated to replicate in-transit local video playback scenario: 150nit screen brightness, in airplane mode

<sup>4</sup> Real-world testing conditions include out-of-box OEM default settings along with respective value add software, display brightness set to 250nits and always connected to internet with commonly used applications installed such as Office 365\*, Microsoft One Drive\* and Google Chrome\* and with multiple tabs open and resident in the background. Project Athena targets are preliminary and subject to change. Intel does not guarantee performance of any third-party system.

<sup>5</sup> From button press, lid open, or voice, to display on and ready for authentication. Based on Modern Connected Standby.

<sup>6</sup> Approx. 2.5x Ice Lake AI Performance: Workload: images per second using AIXPRT Community Preview 2 with Int8 precision on ResNet-50 and SSD-Mobilenet-v1 models. Intel preproduction system, ICL-U, PL1 15w, 4C/8T, Turbo TBD, Intel Gen11 Graphics, GFX driver preproduction, Memory 8GB LPDDR4X-3733, Storage Intel SSD Pro 760P 256GB, OS Microsoft Windows 10, RS5 Build 475, preprod bios. Vs. Config – HP spectre x360 13t 13-ap0038nr, Intel® Core™ i7-8565U, PL1 20w, 4C/8T, Turbo up to 4.6Ghz, Intel UHD Graphics 620, Gfx driver 26.20.100.6709, Memory 16GB DDR4-2400, Storage Intel SSD 760p 512GB, OS – Microsoft Windows 10 RS5 Build 475 Bios F.26. Measured by Intel as of April 2019.

<sup>7</sup> 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.