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 specification¹ 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 people² 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 conditions³, 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 mode³ and 9 or more hours of battery life under real-world performance conditions⁴
- Instant resume, including system wake from sleep in less than 1 second⁵
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 ≥265GB 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 performance6.

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 fastest7 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.
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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1 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.


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

4 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.

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


7 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.