Blueprint Series: Project Athena

Josh Newman
Vice President, Client Computing Group
General Manager, Mobile Innovation
Project Athena

Intel’s new approach to innovating the world’s most advanced laptops.
Go-Getter Characteristics

- Use Laptop for Work or Personal
  Passion/Talent

- Independent, Want to Manage
  Their Own Destinies

- The Ability to Make Any Space
  Feel Familiar is Key

- Define ‘Success’ as Finding Meaning and
  Joy In Life vs. Traditional Norms
Project Athena
North Star Experience Target

- It keeps me in the flow and filters out distractions
- Ready for anything, before I am
- It assists me, before I even ask
- It has more battery than I can use in a day
- I am connected automatically and instantly
- It helps me collaborate with ease
- It is my personal cinema
- It immerses me in my projects
- It adapts to my needs throughout the day
- It optimizes itself and helps keep data safe
A Comprehensive Innovation Program

Co-engineering Experiences

Ecosystem Leadership

Marketing Strength
Project Athena
An Innovation Program Inspired By Human Understanding

- Instant Wake
- Incredible Performance and Responsiveness
- Intelligence Built Across Platform Levels
- Focus
- Always Ready
- Adaptive
- Battery Life For The Real World
- Lightning-Fast Connectivity
- Innovative and Engaging Form Factor
New Brand

- Intel evo™ powered by Core™ i5
- Intel evo™ powered by Core™ i7
Driving New Experiences

Real-World Approach Based in Research
On Wi-Fi, unplugged (on battery), OEM retail build with default settings, 250-nit screen brightness, and while running background tasks most common to target audience

Key Experiences
Responsiveness from Anywhere
Long Battery Life (≥9 Hours on FHD) ¹
Instant Wake (<1 sec)
Fast Charge (4 hrs usage ≤30min on FHD) ²
Best in class wireless & wired connectivity with Intel Wi-Fi 6 (Gig+) and Thunderbolt™ 4

Real World Testing
25 Tasks Measured

More Intense Workload Testing
- Web Browsing
- Streaming
- Productivity
- Constant Companions
- Collaboration

See backup for configuration details. For more complete information about performance and benchmark results, visit intel.com/Evo
The Intel® Evo™ Platform
Project Athena Second Edition Minimum Specification Highlights

System and Form Factor Requirements

11th Gen Intel® Core™ i7/i5 Processors with Intel® Iris® Xe® Graphics

>12” - 15.x” ≥FHD Touch Display with Narrow Bezels

≤15mm Fanned / Fanless

Intel® Dynamic Tuning Technology
The Intel® Evo™ Platform
Project Athena Second Edition Minimum Specification Highlights

System Configurations
- Intel® Wi-Fi 6 (Gig+) 802.11ax
- Thunderbolt™ 4
- ≥ 256GB PCIe/NVMe SSD
- ≥ 8GB Dual Channel Memory
- Bluetooth 5 with Audio Offload
- >2 digital microphones of at least 63dB Signal to Noise ratio and +/- 1dB matching
- High fidelity audio codec/speaker tuning and Intel® Smart Sound Technology
- Speaker Sound Pressure Level >78dB @ 50 cm & Bass Frequency <353 Hz
- User-facing camera ≥ HD/720p @ 30 fps
- Voice Assistant with WoV (Cortana Premium Far Field requirements (≥4 m effective))

See backup for configuration details. For more complete information about performance and benchmark results, visit intel.com/Evo
2nd Edition Innovation Items

Intelligence

5G

Incubate and Learn to Support at Scale
Blueprint Series: Project Athena

Jim Johnson
Corporate Vice President, Client Computing Group
General Manager, Client Platform Engineering and Operations
Project Athena
An Innovation Program Inspired By Human Understanding

- Instant Wake
- Incredible Performance and Responsiveness
- Intelligence Built Across Platform Levels

Focus
Always Ready
Adaptive

Battery Life For The Real World
Lightning-Fast Connectivity
Innovative and Engaging Form Factor
Starts With Amazing Silicon

- 11th Gen Intel® Core processors
- Intel® Iris® Xe graphics
- Intel® Wi-Fi 6 (Gig+)
- Thunderbolt™ 4
Building Project Athena-based Platforms

Motherboard Miniaturization

Cooling Technology

Display Technology

Compact Antenna

Intel® Dynamic Tuning Technology

Sensing
Project Athena Ready Reference Designs

Innovation for Co-Engineering

Platform Experiences Proven at Intel First

Fully Integrated and Validated for TTM

Ingredients

- OS Builds
- Bronze Cont. Integration
- Silver Daily System Kit
- Gold Weekly System Kit
- BKC Best Known Config

Platform Alpha → Beta → Production Quality
A Re-Invigorated PC Ecosystem

Intel Investment

Platform Planning

Open Labs

Ecosystem Symposium
Co-Engineering with Our Customers

Intel Reference Platform

Award Winning Designs
- Best-Ever PCB Area Reduction
- Greater Battery Capacity
- Better Sound Quality
- Increased Cooling
- Performance

Logos of various companies including Acer, ASUS, Dell, dynabook, Fujitsu, Google, HP, Lenovo, LG, Microsoft, MSI, Razer, and Samsung.
Intel’s New Approach to Innovation

- Research
- Experience Definition
- Technical Innovation
- Key Experience Indicators
Blueprint Series: Project Athena

Melissa Gregg
Chief Technologist, UX and Sustainability
Client Platform and Silicon Architecture
Intel’s New Approach to Innovation
People-Led Design

Project Athena was born out of deep research into people’s changing needs and expectations.
Research Insights: Project Athena

**Students**

*Who:* Juggling work and study.  
*Why:* How laptop preferences begin.

**Entrepreneurs + Small Business**

*Who:* Working from a temporary office and co-working space.  
*Why:* High pressure, little IT support.

**Live Streamers + Creatives**

*Who:* Using digital platforms for making, editing + hosting content.  
*Why:* Cross-device integration needs.

**Freelancers**

*Who:* Gig workers with multiple + changeable clients.  
*Why:* White collar gig work is growing.
Life in the Browser

“I have an app that automatically remembers and organizes all my Chrome tabs for different projects”

Christoffer, 26, Malmö
Consumer

Mia quit her corporate job to become a freelancer, partly because she enjoyed the freedom offered by cloud services she experienced as a consumer.

Student

Simona expected to collaborate on assignments with other students in the cloud; they adopt free Google services.

Freelancer

As Christoffer embarked on his freelance career he adopted more specialized cloud services that enabled him to stay organized, flexible and professional with clients.

Small Business Owner

David now pays for enterprise Cloud solutions as his business of 15 scales, including upgrading the freemium services he adopted as a consumer and student.

Cloud attractive because...

- Device + OS agnostic
- Secure, instant storage and syncing
- Collaborative as default
- Freemium pricing
- Reliable and trusted
- Can outsource compute

Student Freelancer Small Business Owner
Annual cadence of research

2019: Independent professionals + students

2020: Enterprise employees working from home
The new work world

Work Done Off Laptop...

...Is Now Done On The Laptop
Traditional Enterprise vs. Agile Companies

Traditional Enterprise
‘Organizations as Machines’

- Work More On Desktop Apps (<5 Tabs Open)
- Use Company-provided Apps
- Use Company-provided Devices

Agile Worker

Agile Company
‘Organizations as Living Organisms’

- Work More On Web Apps (~20 Tabs Open)
- Use Additional Apps
- Use Additional Personal Devices
Blueprint Series: Project Athena

Wendy March
Principal Engineer, User Experience
Client Platform and Silicon Architecture
Usage Development Process

Ethnographic Research

Personas and Day in the Life

Uses Documents

Usage Development Process

Ethnographic Research

Personas and Day in the Life

Uses Documents
Evelyn’s “Day in the Life”

Evelyn
Co-Working Journalist

There’s no IT support when she’s at work; the co-working space has WiFi, but nothing else. She has to be independent and self-reliant.

Finding the right space is a constant challenge, when she has to interview someone on the phone or by video there is a rush to find a quiet space.

She gets the Subway into the city, and mostly uses the time to read books. She'll move around the city by foot, or subway or Uber – whichever seems like it might be fastest.

Her daughter splits her time between parents, and there is a lot of negotiation around schedule and checking in remotely because Evelyn's work day can be so unpredictable.

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**Evelyn’s Day**

**Weekday**

<table>
<thead>
<tr>
<th>Time</th>
<th>Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>6:30</td>
<td>Get up, prep breakfast and wake up my daughter. I check emails, see my schedule for the day and update my to-do list. I try and fit in some stretching before getting ready for the day.</td>
</tr>
<tr>
<td></td>
<td>I check Slack and social media for news updates while waiting for the subway. Reply to texts. I read a book during the journey.</td>
</tr>
<tr>
<td>10:30</td>
<td>Arrive at the office, and look for a good place to sit. It’s a busy morning, so I have to sit in a less favorite place. Start doing research for a new article. Book a meeting room to do a phone interview.</td>
</tr>
<tr>
<td></td>
<td>Text my daughter to check in. I check Slack, and social media for news updates while waiting for the subway. Reply to texts. I read a book during the journey.</td>
</tr>
<tr>
<td>12:30</td>
<td>Go out to grab coffee with a colleague. Go into the office, and BART to meetings by video. Back into the office.</td>
</tr>
<tr>
<td>13:00</td>
<td>After the interview, check for new email and start to organize notes from the interview.</td>
</tr>
<tr>
<td>15:00</td>
<td>Text my daughter to check in. Take an Uber to an interview.</td>
</tr>
<tr>
<td>15:30</td>
<td>Take the subway home from the interview.Reply to texts.</td>
</tr>
<tr>
<td>16:00</td>
<td>Prep and eat dinner with daughter while watching TV.</td>
</tr>
<tr>
<td>17:00</td>
<td>After the interview, check for new email and start to organize notes from the interview.</td>
</tr>
<tr>
<td>18:00</td>
<td>Have to do a quick call with California.</td>
</tr>
<tr>
<td>19:00</td>
<td>Get ready to go to bed. Last minute social media check.</td>
</tr>
</tbody>
</table>

**Devices**

<table>
<thead>
<tr>
<th>Device</th>
<th>Weekday</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phone</td>
<td></td>
</tr>
<tr>
<td>Laptop</td>
<td></td>
</tr>
</tbody>
</table>

**Evelyn’s Day**

The weekdays include lots of switching between different activities and different projects.

Weekends are more time for friends and family but work often overlaps too.

- **Personal**
- **Work**
- **Social**
- **Family**
- **Commuting**
Jackie’s Corner Desk
Paula | Global Health Lead, Pharma | France

<table>
<thead>
<tr>
<th>Previous remote working frequency</th>
<th>1-2 days per month</th>
</tr>
</thead>
<tbody>
<tr>
<td>Company size</td>
<td>100,000</td>
</tr>
</tbody>
</table>

### Lenovo + Windows OS

**Chrome Tabs (always open)**

- x 1 company intranet
- x 1 personal Gmail

**App usage (always open)**

- x 9
- x 1
- x 1
- x 1

**Occasional software usage:**

- x 1

*Not company provided

Laptop on at night

---

*Not company provided
Research with Users Who Are Independent and in Corporations: Four Core Computing Modes

- **Communication + Sharing**
  - Interfacing With Co-workers, Friends and Contacts Online and Face-to-face

- **Casual Creation**
  - Creating, Updating and Collaborating on Professional Content

- **Organization**
  - Organizing Work and Optimizing Productivity

- **Expert Production**
  - Crafting Complex, Original, Mentally Taxing Work
The Laptop is Incorporating New Activities in the Remote Setting

- Expert Production
- Workshops
- Design Sprints
- Collaborative Working Sessions
- Teaching / Demonstration
- Casual Creation
- Team Meetings
- 1:1 Meetings
- Spontaneous Hallway / Shared Office Space Conversations
- Phone Calls
- Town Halls
- Team Meetings
- Conversations Pre and Post Meetings
- Organization
- Expert Production
- Locating Team Files

The Laptop Now Encompasses More Work, Especially for the Communication and Sharing and Casual Creation Modes
Dealing with interruptions has taken on new meaning.
Sound Used to be a Shared Problem

Please keep in mind that the louvered doors let in fresh air - but also let out sound.

Please be thoughtful when having enthusiastic conversations.
"I live in a city across from a park and I keep my windows open most of the time. I hear cars and buses passing by, birds chirping, the occasional siren, and since I live by the zoo I sometimes hear a few animals (the wolves howl in response to sirens). It’s pretty consistent throughout the day. I like the background noise. But when it’s really hot I have to close my windows and use AC, I can hear my window AC unit blasting. I have to turn AC off during video meetings so I can hear and be heard.” – Allie

“No one has told me that my video quality is bad...I do think about audio. That’s why I actually wear the headphones because I feel like maybe the quality is a little bit better... some of my other coworkers, their audio is a little muffled. And I have heard how that impacts the group ... Their point is maybe not heard all the way.”
– Mia
What’s next?
Blueprint Series: Project Athena

Sudha Ganesh
Sr. Director, Client Platform and Silicon Architecture
Vision • Implementation • Verification
Realistic   Meaningful   Key Experiences
Realistic ^ Meaningful ^ Key Experiences

Unplugged
Realistic AND Meaningful AND Key Experiences
Realistic AND Meaningful AND Key Experiences
KEI #1: Instant Resume
KEI #2: Uncompromising Responsiveness
KEI #3: Long Battery Life
Unplugged
KEI #1:
Instant Resume

KEI #2:
Uncompromising Responsiveness

KEI #3:
Long Battery Life
- Identified 25 interactions most pressing to solve

- Each interaction is associated with a unique expectation

- Unique targets for each interaction to meet expectations

---

**Example Interactions**

- Open Sheets (Google Drive)
- Publish Word PDF (OneDrive)
- Start Video Conference (Zoom)
- View Sent Emails (Outlook)
- Select Picture Menu (PowerPoint)

---

**Improve Response Times To Keep Users In Flow**
Setting Targets to Meet Expectations

MOS Methodology

User Feedback

Map Expectation To Target

Example Interactions

- Open Sheets (Google Drive)
- Publish Word PDF (OneDrive)
- Start Video Conference (Zoom)
- View Sent Emails (Outlook)
- Select Picture Menu (PowerPoint)

MOS Scale

- Excellent: 5.0
- Good: 4.0
- Fair: 3.0
- Poor: 2.0
- Bad: 1.0

Raising the bar – Minimum MOS > 4.0
KEI #1: Instant Resume
KEI #2: Uncompromising Responsiveness
KEI #3: Long Battery Life
Raising the Bar - Stringent Battery Life Goals

1st Edition
Wireless Web Browsing
In Realistic Test Conditions

Resume, Login, Authenticate
Connect
Realistic Concurrent Applications
Web Browsing

2nd Edition
Expanded Flow, Telemetry Usage Ratio In Realistic Test Conditions

KEI #1: Instant Resume
KEI #2: Uncompromising Responsiveness
KEI #3: Long Battery Life

First of Its Kind In the Industry!
Rigorous Design Verification Process

AND

Realistic

AND

Meaningful

AND

Key Experiences

WITH

Rigorous Design Verification Process
Welcome

The Intel Assessment Tool measures the test system’s performance and battery life while running a test. For more information, please refer to the Intel Assessment Tool User Guide.

Select Assessment Tool Mode
- Release Mode
- Engineering Mode

Test selection

Select a Workload from the list
- Responsiveness
- Battery Life
- Modern
- Local

Checking the environment

2nd Edition
KEI Tool Released
To Partners!
Verify Key Experience Indicators

Early Engagement
Co-Engineering
Platform Optimization
Delivering On the Program’s Long-term Commitment

2019
- Set the Foundational Experiences
- Define the Program

2020
- Incubate New Innovations
- Perfect The Foundation
- Deliver New Innovations

2021+
- Incubate New Experiences
- Scale The Foundation

Define the Program
What We Are Excited About

Intel® Evo™ Platforms Arriving This Year

Evolving KEIs with New Usages Based On Research

Aligning the Industry to the Vision of the Future Laptop Experiences

Continued Innovation

Best of 11th Gen Intel® Core™ Processors with Intel® Iris® Xe Graphics Based Laptops

Co-engineered Designs Verified to Deliver

Responsiveness on Battery
Real World Battery Life
Instant Wake
Fast Charging

See backup for configuration details. For more complete information about performance and benchmark results, visit intel.com/Evo
For more information visit:

newsroom.intel.com/11thGenLaunch
All product plans and roadmaps are subject to change without notice.

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. For testing details and system configurations, please contact your Intel representative or visit www.intel.com/Evo.

Intel's comprehensive laptop innovation program ensures designs are tested, measured and verified against a premium specification and key experience indicators. Testing as of August 2020 does not guarantee individual laptop performance. Actual performance will vary with use and system settings. For more complete information about performance and benchmark results, visit Intel.com/Evo.

Results that are based on pre-production systems and components as well as results that have been estimated or simulated using an Intel Reference Platform (an internal example new system), internal Intel analysis or architecture simulation or modeling are provided to you for informational purposes only.

Footnotes (For more complete information about performance and benchmark results, visit intel.com/Evo):

1. Battery life (> 9 hours on FHD): Time taken to drain from 100% to 2% while performing workflows in a realistic environment.
2. Fast charge (4 hours usage <30 minutes on FHD): Charge when powered off from OEM-default shutdown level.
3. Best in class wireless & wired connectivity: Based on integrated Intel® Wi-Fi 6 (Gig+) and Thunderbolt™ 4 technology.

Responsiveness on Intel® Evo™ platform-based designs: Measured speed of premium Windows OS-based laptop while performing workflows in a realistic environment.

Comparative responsiveness on Intel® Evo™ platform-based designs: Measured speed of premium Windows OS-based laptop while performing workflows in a realistic environment compared to 2-year-old, similarly configured laptop.

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Your costs and results may vary.

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