



Demo Cheat Sheet

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'Don't Miss' Projects at Intel's Research Day

Intel has its finger on the pulse of global innovation and through its collaboration with partners and academia pulls it all together here at the company's annual Research @ Intel Day to demonstrate break-through research touching on the innovation and challenges ahead. The top categories include:

- **Eco-Innovation** – Attempting to better the environment through smarter computer energy consumption and applying technology to address real-world problems
- **3D Graphics on the Internet** – Researching ultra-realistic graphics, natural human-computer interfaces, 3-D Internet, rich social media, and the tera-scale architectural and programming technologies
- **Mobility** – Developing technologies that will help you stay powered and connected for continuous computing as you move about your day.
- **Enterprise** – Pursuing projects aimed at developing a scalable, general purpose Internet infrastructure that can help to preserve privacy and security

Here's a guide to help you explore some of the top projects on display:

Eco-Innovation

Future Atom-based MIDs and Smartphones to Implement New Platform Power Management Techniques

Map Demo ID: ECO301

Platform power management is one of the innovative power management technologies behind Moorestown, the name of future Mobile Internet Device (MID) platform from Intel, helping to enable up to 50x reduction in the platform idle power compared to today's MID platforms, which translates to much longer battery life.

- The power reduction technique is a fundamentally new approach that introduces changes to silicon for hardware to play a role in reducing power consumption.

- In this new approach, hardware works cooperatively with the operating system to manage power at faster speeds and at much finer granularity.
- The computer will be able to quickly, aggressively and intelligently reduce power or even power down portions of the system not in use like wireless radios or display screens, and immediately power back on when needed with zero impact to the user experience.
- Platform power management could someday benefit the full range of Intel products, from mobile Internet devices all the way to high performance servers.

Common Sense: Individuals and Communities Contributing to Help the Environment ECO302

The rise of social networking and the ubiquity of mobile devices offer unique opportunities to create new usage models and drive innovative new services. Intel researchers are exploring how mobile devices can be extended to include environmental sensors so that large amounts of data can be collected and shared by everyday users throughout the world. This new data could influence environmental policy and regulations as well as enabling significant new scientific and medical research. This demo showcases our new prototype personal mobile device that everyday users can carry to collect air quality data and a website that allows everyday users to visualize and discuss environmental data.

Immersive Connected Experiences, 3D Internet Graphics:

Virtual Light Saber Dueling

Map Demo ID: ICE108

Last year, Intel and Microsoft funded the establishment of a Universal Parallel Computing Research Center (UPCRC) at the University of Illinois at Urbana-Champaign with the goal of bringing parallel computing applications to the mainstream. Researchers demonstrate an application in which attendees can participate in a tele-immersive 3D environment. Participants in two separate spaces engage and interact in a 3D virtual environment to complete tasks or play games such as Tele-Immersive Saber Fencing or Tele-Immersive Jump Rope.

Dispute Finder: Are You Being duped?

Map Demo ID: ICE107

"The web" is nearly synonymous with "information." While much of this information is useful, a significant amount could be characterized as false, misleading, or biased. [Dispute finder](#) is an early research effort from Intel Labs that makes it easier for readers surfing the internet to pick through this minefield of contradicting information. [The tool is public and available today](#) for users to download and participate:

- When using the tool, while a user is surfing the internet, text snippets are automatically highlighted if there is information found elsewhere that contradicts a given claim in a news article, on blogs or in informational websites.
- Clicking on the highlighted snippet, like "a glass of wine a day is good for you", reveals an argument graph showing sources on either side of the issue.
- Every single claim and evidence has been user generated, similar to how Wikipedia works, and are [maintained in a central venue online where anyone can contribute](#).

Future of the Internet: No More Text

Map Demo ID: ICE 106

As future Intel chips scale from a few cores to many, researchers at Intel Labs believe the transition to mainstream parallel computing will lead to a future internet that is rich in graphics and will rely on a lot less text, making possible a more immersive Internet experience with ultra-realistic 3D graphics and natural human-computer interfaces. You could imagine a travel web site that allows you to check out your vacation destination, like New York City, before you actually get there. So in addition to a virtual around the hotel room, people could also check out Times Square, restaurants and theaters that are close by and even walk the route to estimate how far they are from the hotel. Intel has begun prototyping the 3D internet in the scientific world first, using a tool called ScienceSim. This is a common place where scientists can create visual simulations online and collaborate more effectively, using the capabilities to advance research through visualizations.

Mobility:

VoIP Capacity Improvement for Next-Generation WiMAX Networks

Map Demo ID: MOB209

Next-generation mobile networks will significantly improve both data and VoIP capacities over 3G systems. With increased use of data and VoIP services on 4G networks such as WiMAX, VoIP capacity may become a challenge for service providers and end users may be unable to make calls. Intel researchers have demonstrated:

- Group scheduling technique that can provide up to a 40% increase in VoIP capacity before considering additional spectral efficiency gains achieved in the 802.16m specification.
- This technique has been adopted in IEEE 802.16m, the next-generation WiMAX standard
- This demonstration will be an Intel-first prototype showcasing the technology.

Wireless Power

Map Demo ID: MOB201

In the past few years, we have experienced a dramatic rise in the number of electronic devices, like cell phones, digital cameras, and laptops that we use in our everyday lives. Most of these devices are powered by batteries which need to be recharged very often. Costs, resources and management of multiple, incompatible power cords, bricks, and other equipment are already a nightmare for the typical user. Intel researchers have demonstrated a wireless power technique called wireless resonate energy link (WREL). In contrast to surface-based systems, like an electrical toothbrush, this demonstrates wireless power transfer whose efficiency can be nearly independent of orientation, distance, and load over a wide range of operating conditions. This technology could allow people to cut that last cord, the power cord and become truly wireless.

Carry Small, Live Large: Enriching the Living Room, Classroom, Office and Automobile

Map Demo ID: MOB202, MOB203, MOB204, MOB208

The concept called Carry small, live large, is Intel Lab's vision to deliver an enhanced mobile device experience by using wireless connectivity to locate and utilize nearby resources such as remote displays and storage devices, while using embedded sensors and personal profile information to deliver a personal, context-driven user experience.

- **In the living room:** Mobile computing devices and CE equipment can be used together in a living room to deliver an entertainment experience not otherwise possible when used

alone. The living room demonstration shows how MIDs and notebooks can be used with an STB/HDTV to wirelessly show photos and videos, interact with applications, and play games.

- **In the classroom:** Sustained technology use in classrooms is hampered by difficult moments of transitions, which take time and distract from the core activity of learning. These transitions happen between, lessons, individuals, study groups, and classroom-wide activities. The classroom environment of the future will allow mobile devices such as the Intel Classmate PC to dynamically share their clipboard and storage for collaborative learning, and then seamlessly transition to front-of-the-class presentations using wireless display.
- **At the office:** Conference room presentations today are hampered by passing projector cables between presenters and sharing information among participants. The office environment shows how dynamic composition capabilities and processing embedded in the physical infrastructure enables users to seamlessly integrate their mobile devices with a collaborative work space.
- **In the car:** The automobile environment of the future will enable personal information contained in MIDs to be customized for the in-car entertainment experience while WiMAX-based internet services link drivers with the world around them.

Enterprise IT

Creating a More Flexible Internet on the General Purpose Computer

Map Demo ID: ENT408

The Internet's original designers never anticipated its astounding success. Consequently, traditional networks use specialized equipment with hard coded support for a pre-defined set of capabilities. This presents challenges given the rapidly-evolving demands of new applications. Intel researchers propose Router Bricks as a simple but radical solution – that networks be built from general-purpose computers rather than specialized equipment. The prototype demonstrated builds high-speed routers from clusters of Intel Core i7-based servers running open-source software. You can imagine everyday programmers in the future could cheaply and rapidly program networks to execute new tasks using the familiar general purpose computer as their platform.

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