40 YEARS OF CHANGING THE WORLD

Intel Developer FORUM
Invent the new reality.
Intel Developer FORUM
Invent the new reality.

The Heart of A New Generation

Anand Chandrasekher
Senior Vice President, Intel
General Manager, Ultra Mobility Group
Global Internet Growth Continues Unabated

More People
1.3B Internet Users by End 2007

More Places
Google Can Be Queried In 36 Languages

Spending More Time
Average User Spends 32 Hours per Month Online

Doing More Things
140 New Applications are Added Every Day on Facebook

Source: internetworkstats.com; Nielsen; Google; Facebook
China Internet Growth Continues Unabated

More People
Total Internet Users Have More Than Quadrupled To 132M Since 2000

More Places
50M People Have Used A Mobile Phone To Try To Access The Internet

Spending More Time
Average User Spends 18 Hours A Week Online (Doubled In 5 Years)

Doing More Things
~60% Of Internet Users Are Playing Internet Games

Source: China Internet Network Information Center
But Internet Usage is Changing: Example: Social Networking

<table>
<thead>
<tr>
<th>Rank</th>
<th>Web Site</th>
<th>Rank</th>
<th>Web Site</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>yahoo.com</td>
<td>1</td>
<td>yahoo.com</td>
</tr>
<tr>
<td>2</td>
<td>msn.com</td>
<td>2</td>
<td>google.com</td>
</tr>
<tr>
<td>3</td>
<td>google.com</td>
<td>3</td>
<td>live.com</td>
</tr>
<tr>
<td>4</td>
<td>ebay.com</td>
<td>4</td>
<td>youtube.com</td>
</tr>
<tr>
<td>5</td>
<td>amazon.com</td>
<td>5</td>
<td>msn.com</td>
</tr>
<tr>
<td>6</td>
<td>microsoft.com</td>
<td>6</td>
<td>myspace.com</td>
</tr>
<tr>
<td>7</td>
<td>myspace.com</td>
<td>7</td>
<td>facebook.com</td>
</tr>
<tr>
<td>8</td>
<td>google.co.uk</td>
<td>8</td>
<td>wikipedia.org</td>
</tr>
<tr>
<td>9</td>
<td>aol.com</td>
<td>9</td>
<td>hi5.com</td>
</tr>
<tr>
<td>10</td>
<td>go.com</td>
<td>10</td>
<td>orkut.com</td>
</tr>
</tbody>
</table>
Internet Going Mobile?

The Mobile Internet Revolution Starts Here
Tech.co.uk
Jan 6, 2008

Surfing Will Detach
Economist.com
Dec 23, 2007

PC Power In Your Handheld
BusinessWeek
Feb 13, 2008

The battle today for what you can do on your phone tomorrow

Size Matters: Movies on Tiny Screens Demand Striking Ideas
THE WALL STREET JOURNAL
Mar 8, 2008

*Other brand and names are the property of their respective owners.*

Intel Developer FORUM
Most Handheld Devices Today Offer a Poor Internet Experience

**Japan Consumer Satisfaction with Phone Internet Experience**

- Very Satisfied: 1.4%
- Somewhat Satisfied: 11.2%
- Neither Satisfied nor Dissatisfied: 35.3%
- Somewhat Dissatisfied: 34.5%
- Very Dissatisfied: 17.6%

**U.S. Consumer Satisfaction with Phone Internet Experience**

- Waiting for Webpage to Download: 9%
- Readability of Web Pages: 13%
- Size of Screen: 16%
- Variety of Websites Your Phone Can Navigate: 13%
- Overall Browsing: 14%

Source: Mobile Web Metrix: Japan 2007
Source: Parks Associates, Mobile Entertainment Platforms & Services, 2007
What’s Needed to Enable the Best Internet Experience in Your Pocket

Ultra-Mobile Performance + Internet Compatibility & Software Consistency + Wireless Connectivity
The Software Crisis:

A Billion Phones Sold A Year
But They Are Highly Fragmented To The Developer

*Other brand and names are the property of their respective owners.*
Intel Innovation Imperatives

ENABLE Best Internet Experience in Your Pocket

MAINTAIN Performance and Compatibility

MAJOR REDUCTIONS in Power and Form Factor
Intel Innovation
Low Power Compatible Platforms

2007
65nm
Notebook Silicon
Repackaging to Enable Smaller Form Factors

2008
45nm
Responsive Internet Experience
First Grounds Up Low Power CPU and Chipset

2009/2010
45nm
Projected >10x Reduction In Idle Power Compared to 2008 Platform
First Entry Into Phone Form Factors
First SOC for MIDs

Source: Intel Roadmap. All products, computer systems, dates, and figures specified are preliminary based on current expectations, and are subject to change without notice.
How to Find the Best Internet Experience In Your Pocket

**Intel® Centrino® Atom™ Processor Technology**
Enables the best Internet experience that fits in a pocket
Requirements: Silverthorne + Poulsbo + Wireless + Battery + Compact Form Factor

**Intel Atom™ Processor**
Low-power processors for Internet-centric usage models
Example: Silverthorne
Launching Today
Intel® Centrino® Atom™ Processor Technology
(Formerly Codenamed Menlow)
FENG JUN
Chief Executive Officer

aigo

*Other brand and names are the property of their respective owners.
Intel® Atom™ Processor
Intel’s Smallest Processor Built on World’s Smallest Transistors
Establishing New Performance/Power Efficiencies

Hyperthreading Performance Increase In An In Order Machine*

Source*: Intel Testing. SPECint2K and EEMBC run in Single Threaded / Hyper Threaded Mode on Linux. For Performance the score for each binary is calculated based on the runtime. For Power, the effective efficiency or Cycles measured per binary run time of the benchmark with running INST and HT modes. Make Reference to dynamic thermal power differences calculated for ST and HT modes. Performance tests and rating parameters are not using same CPU core systems and/or components and reflect the approximate performance of Intel products as measured by those tests. Any differences in typographical errors in any software used to report configuration may affect actual performance. Users should consider their use of information to evaluate the performance of the system or components they are considering purchasing. For more information on performance tests and on the performance of Intel products, visit Intel Performance Benchmark Limitations.

Hyperthreading Demo

Intel Developer FORUM

Invent the new reality.
Architecting for Low Power
Establishing New Thresholds: Intel Deep Power Down C6*

**Power Consumption**

- C0: Core Clock ON
  - PLL ON
  - L1 Cache
  - L2 Cache
  - 1X
- C1: Core Clock OFF
  - PLL ON
  - L1 Flushed
  - L2 Cache
  - 32%
- C4: Core Clock OFF
  - PLL OFF
  - L1 Flushed
  - L2 Partial Flushed
  - 12%
- C6: Core Clock OFF
  - PLL OFF
  - L1 Flushed
  - L2 Flushed
  - 6%

Power Consumption 100 mW*

**Core Voltage**

- C0: 1.05 Vcc
- C1: 1.05 Vcc
- C4: 0.3 Vcc
- C6: 0.3 Vcc

* Absolute Power numbers show results of average power measurements of MM05 benchmark. Results for each state will vary based on the type of part and SKU. Example shown is measured data from 1.86GHz Silverthorne Part – all states at 50C. ** Core Voltage shown is measured data from 1.86GHz Silverthorne Part. Performance tests and ratings are measured using specific computer systems and/or components and reflect the approximate performance of Intel products as measured by those tests. Any difference in system hardware or software design or configuration may affect actual performance. Buyers should consult other sources of information to evaluate the performance of systems or components they are considering purchasing. For more information on performance tests and on the performance of Intel products, visit Intel Performance Benchmark Limitations.
Intel® Centrino® Atom™ Processor Technology: System Controller Hub

**Ground Up, Highly Integrated Low Power Solution**
- North + South bridge single chip solution
- Ultra Low Power 3D Graphics

**HD Video**
- More HD content, with support for 1080i & 720p formats**
- Supports more video players & codecs
- Intel High Definition Audio

**Delivers Handheld I/O while maintaining PC Compatibility**
- 2 PCI-Express x1 Ports
- 3 SDIO / MMC Ports
- DDR2 400/533 MHz, 1GB Max

**Best Graphics**
- 400M pixels/sec peak fill rate
- DX9L & OpenGL support
- HW accelerated full HD video decode
- External display at HDTV resolution¹

---
1. Lead-free in second level interconnect (2L) per EU RoHS Directive (2002/95/EC). Some RoHS exemptions apply
2. Applies to components containing flame retardants & PVC only. Halogens are below 900 PPM bromine, 900 PPM chlorine, and 1500 PPM combined bromine and chlorine.
Mobile Internet Devices
Fostering a Standards-Based Moblin Linux Environment

Moblin.Org

intel

ubuntu

Asianux

Compelling Apps and Content

*Other brand and names are the property of their respective owners.
Liu Jie
General Manager
Consumer Business Unit
Greater China Region
Announcing Today
Range of Linux and Windows Based MIDs

*Other brand and names are the property of their respective owners.*
Moblin-based ISV Ecosystem
Resulting in Compelling User Experiences

Entertainment  Communication  Information  Productivity

*Other brand and names are the property of their respective owners.
Announcing Today
RealPlayer for MID

One Stop Shop Media Solution for Moblin-based MIDs
(Player, Codecs)

Supports Popular Media Formats
(RealMedia, Windows Media, MP3, MPEG4, H.264, AAC, AAC+, VC-1, Ogg)

Simplified Business Model
(Distribution, Licensing)

*Other brand and names are the property of their respective owners.
One More Thing ...
Moorestown

Lincroft

Langwell

More at Fall IDF...
Summary
The Heart of A New Generation

- Mobile internet device category establishing
- Big opportunity for developers in this transition
- Intel Atom™ processor establishing new thresholds for low power computing
- Intel® Centrino® Atom™ processor technology first grounds up low power technology for MIDS

Enabling The Best Internet Experience In Your Pocket
40 YEARS OF CHANGING THE WORLD

Intel Developer FORUM

Invent the new reality.