Building a Continuum of Computing
Spectrum of Computing on Intel Architecture

INTERNET-CONNECTED DEVICES
- Intel’s Smallest Processor Built with the World’s Smallest Transistors
- Intel Atom

PC CLIENTS
- The Fastest Processor on the Planet
- Intel Core

SERVERS
- The Greatest Intel® Xeon® Performance Leap In History
- Intel Xeon

DEVICES
- CE
- Embedded
- Handheld
- Netbook
- Laptop
- Desktop
- Enterprise Server
- High-Performance Computing
- Internet Data Center
CONTINUUM

Moving Seamlessly Throughout the Computing Spectrum
IDF: Established 1997
Opportunity for Developers

Creating the Continuum

Technology
Technology

SOFTWARE

PLATFORM ARCHITECTURE

MOORE'S LAW
Intel’s Relentless Pursuit of Moore’s Law

- 180 nm in 1999
- 130 nm in 2001
- 90 nm in 2003
- 65 nm in 2005
- 45 nm in 2007
- 32 nm in 2009
- 22 nm in 2011
Intel Platform Architecture
Mainstream PC and Server

Tick

Tock

Tick

Tock

45nm

32nm

Penryn

Nehalem

Westmere

Sandybridge
Revolutionary Change for Intel SoCs at 32nm

- **Leakage**
  - 65nm: 1x
  - 45nm: 0.1x
  - 32nm: 0.01x
  - 32nm: 0.001x

- **Transistor Performance (switching speed)**
  - 65nm: +25%
  - 45nm: 10X
  - 32nm: 10X
  - 32nm: +22%

Software Compatibility
Modular Integration
Bridge to External Ecosystem Fabrics
Opportunity for Developers

Creating the Continuum

Technology

Opportunity for Developers

IDF2009
INTEL DEVELOPER FORUM
New Intel® Core™ Processors Entering Mainstream

INTERNET-CONNECTED DEVICES

PC CLIENTS

SERVERS

Windows® 7
Enterprise Clients
Intel™ vPro™ Technology Shipments

Smarter, Energy-Efficient Performance
Expanded Manageability
Enhanced, Proactive Security
Mainstream Consumer Computing
Create and Share Content across the Continuum
Internet Connected Devices
The Impact of Intel® Atom™ Processor

Average Power
(Watts)

Size
(mm²)

CPU Cost
($)

2006
2009
2006
2009
2006
2009

MORE THAN
90% REDUCTION
MORE THAN
85% REDUCTION
MORE THAN
65% REDUCTION

Source: Intel

INTERNET-CONNECTED DEVICES
PC CLIENTS
SERVERS

MORE THAN
90% REDUCTION
MORE THAN
85% REDUCTION
MORE THAN
65% REDUCTION

Best-in-Category IA Platform

Average Power
(Watts)

Size
(mm²)

CPU Cost
($)

2006
2009
2006
2009
2006
2009

Source: Intel
The Atom Software Environment
Netbooks Take Off
Cumulative Volume (Millions of Units)

Quarters Since Launch
Source: Intel, ABI, Future Source

Intel® Atom® Processor-based Netbooks (2008)
Wii (2006)
iPhone (2007)
Enabling Cross-Platform Applications
Introducing …
The Intel® Atom™
Developer Program
appdeveloper.intel.com
Connecting the Embedded World

- Subway Ticket Station
- Biometrics Finger Print Reader
- Point of Sale
- Digital Weight Scale
- ATM
- Hotel Concierge System
- Handheld Barcode Reader
- Handheld Wireless Spectrum Tester
- Handheld Ultrasound
- Hospital Bedside Terminal
- Voting Machine
- Lottery Machine
- Network Security Appliance
- VoIP PBX
- Test and Measurement Appliance
- Education Terminal
- Communications Gateway
- Programmable Logic Controller
- Computer Numeric Controllers
- Industrial HMI Panel
- Industrial PC
- Avionics System
- Wearable PC
- Connected Soldier Device
- Military Soldier Training Device
In-Vehicle Infotainment

IVI TAM (M) Units

Source: TRG/iSuppli March 2009, IMS June 2009
“Harman International® is able to offer fully integrated, energy efficient infotainment solutions based on the Intel® Atom™ processor in order to respond to the continuously increasing processing requirements for new media formats and connectivity in multi-seat environments. This enables us to accelerate the development and to provide leading-edge infotainment technologies for an uncompromised end-user experience at highest level.”

Marek Neumann
Vice President Advanced Engineering
Harman International Automotive Division
Progress Towards Handhelds
Major Reductions in Power and Form Factor

2008

Menlow
Board Size 8,500 sq mm
Standby Power 1.6W

2010

Moorestown
Board Size - Reduced 2x
Standby Power Up to 50x

2011

Medfield
Board Size - Reduced
Standby Power - Lower

Forecast
Moblin v2.1 User Interface

Claire Alexander
Moblin User Interaction and User Experience Design Lead
Server: The Democratization of Data

Worldwide Growth Projections 2008 - 2012

Users: 1.24B (3X)
Data (Exabytes): ~2.5E (4.5X)
Devices (Units): 416M (7.7X)
Interactions (B-per day): 475B (8.5X)

Source: IDC Directions '09, iSuppli '09, Forrester 2'09

INTERNET-CONNECTED DEVICES
PC CLIENTS
SERVERS
Intel Architecture Scales the Server Spectrum

Small Business/Remote Office  Comms  Cloud Services  Infrastructure  HPC  Mission Critical
Continuum = Opportunity
In the future I want...
I want a time machine.

Sponsors of Tomorrow: Intel

TEXT YOUR VISION OF THE FUTURE TO "INTEL" (46835)
AND SEE IT APPEAR RIGHT HERE.
STANDARD MESSAGE RATES APPLY

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