

Intel Pre-CES Update

New York & San Francisco

December 14, 2007



Today's Reality... and Opportunity

Internet Evolution -- User Generated, high-definition and other Internet-delivered content growing exponentially

Fueling new devices, designs, experiences... and challenges

Mobile is HOT

Low power and long battery life

Everything is increasingly connected - both inside, outside the home

Full Internet is necessary

Mobile broadband going mainstream...



The Internet Spiral

Drives Need for Performance

User Generated
Content

Videos, HD

Pictures

Graphics

More, New
Mobile Devices

Connected PC &
CE Devices

Powerful Gaming
Systems

Mobile Broadband



The Magic of 45nm

Ultra Low Power
Sufficient Performance
Extreme Integration

Performance
Performance/Watt
User Valued Features

Intel
Architecture

PLATFORMS

MID

CE

Ultra
Low-Cost PC

Notebook

Desktop

Server



Common Element: The Internet



The Next Inflection Points

The Internet in
Your Pocket ...

... and in the
Living Room ...

... and for the
Next Billion Users

INTERNET



INTERNET



Today the Internet Runs on Intel Architecture



Today's Agenda

- **More Mobility**
 - Notebook PC growth
 - Ultra Mobile & Mobile Internet Devices
 - New Flash Solid State Drives
 - Emergence of Mobile broadband - WiMAX
- **Desktop PCs & Consumer Electronics**
 - Desktop Trends, Segments and Products
 - CE Opportunity, TV/Internet Convergence
- **Q&A**





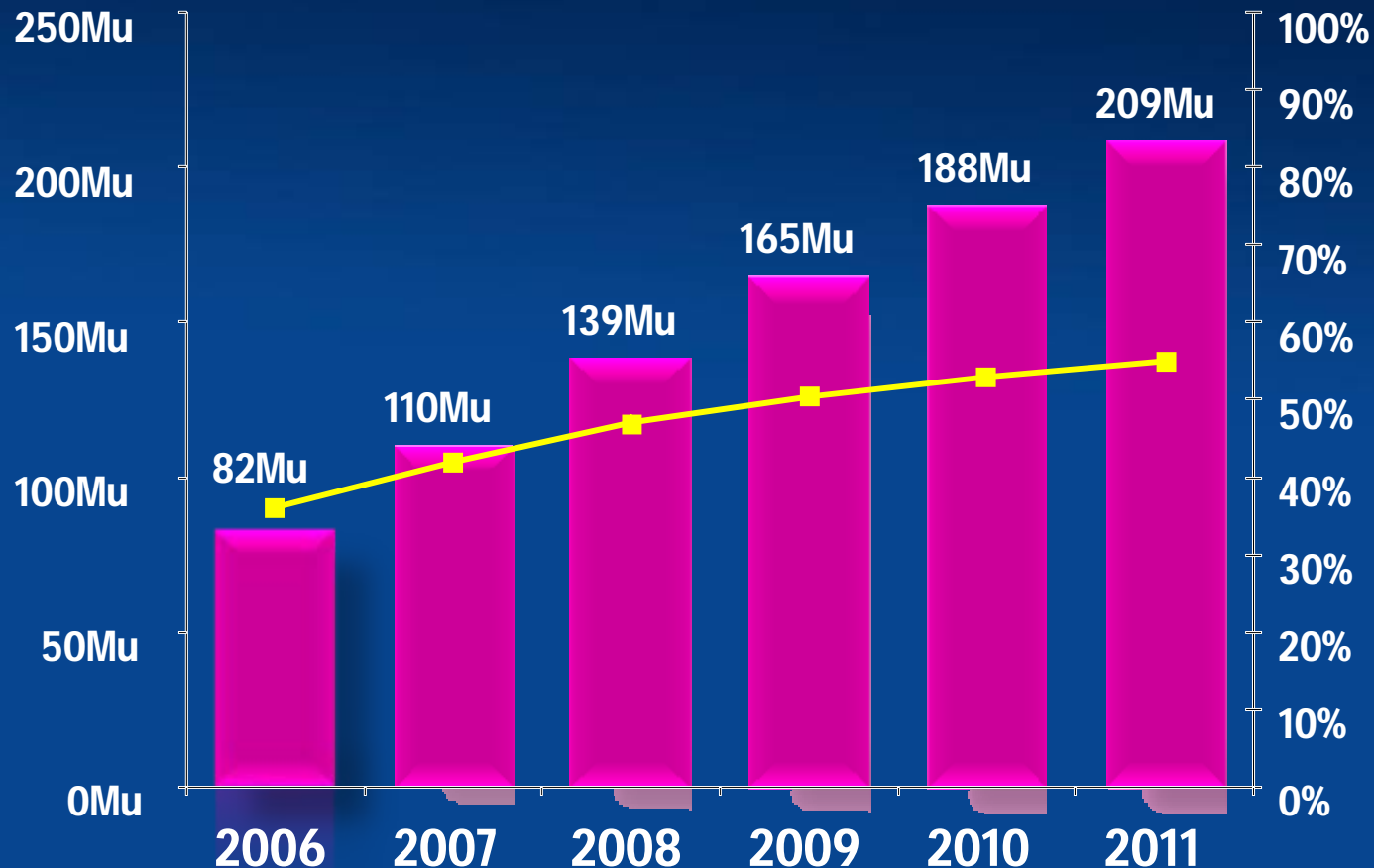
**Next Generation
Intel® Centrino®
Processor Technology
(code name Santa Rosa Refresh)**



Mobile System TAM

WW Growth Strong at >17% CAGR

Mobile Mix



Notebook Shift Strong Across Mature and Emerging Markets

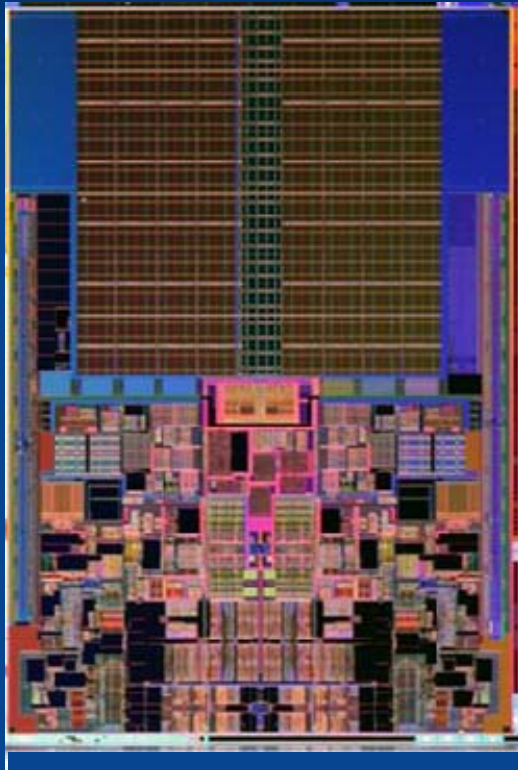


A Series of Firsts...

First (and only) to design
mobile platform targeting
4 vector benefits (Mar. '03))



45nm Intel® Core™2 Duo Processor



45nm process technology in mobile

Enhanced Intel® Core™ micro-architecture delivers increased instructions per clock for greater performance

New Intel® HD Boost technology - SSE4 instructions and Super Shuffle Engine provide performance boost for multi-media, gaming and graphics

Up to 6M L2 Cache

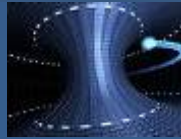
Higher levels of energy efficiency with Deep Power Down Technology for great battery life



Intelligent New Intel® SSE4 Instructions

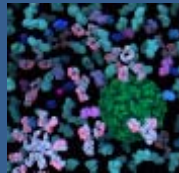
47 New Instructions Improving Multi-Media:

Video Accelerators



- Faster video encoding and decoding

Graphics Building Blocks



- Improved 3D rendering
- Faster physics processing
- Faster photo editing

Data Streaming Improvements



- Faster access to internal graphics memory

DivX*

Applications optimized for Intel Architecture & SSE4 can deliver significant performance improvements#

Windows Media Encoder*

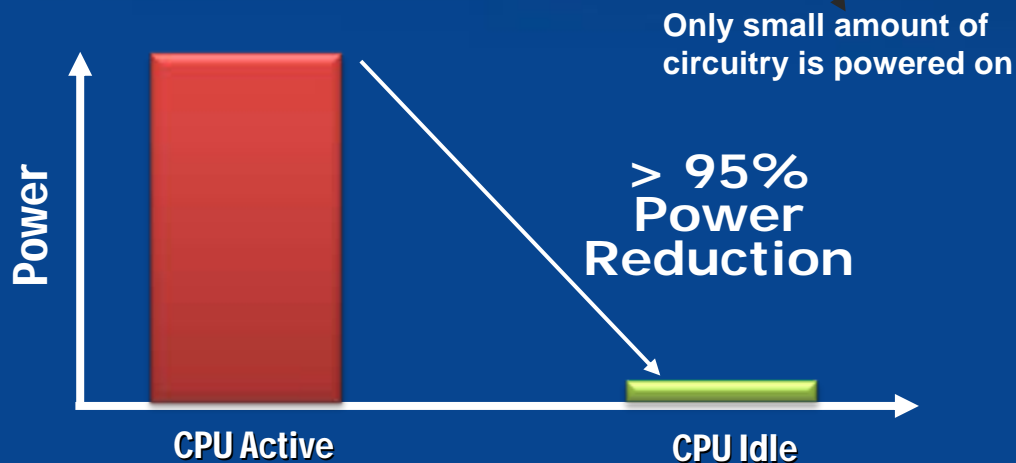
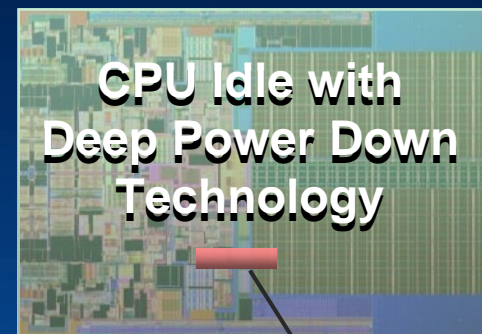
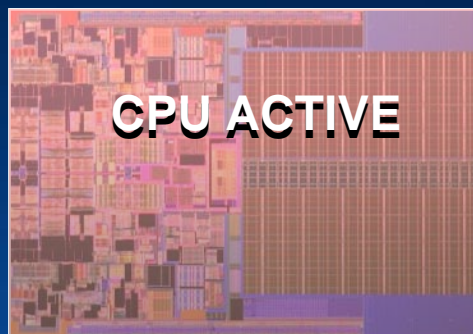
Adobe Premier CS3*

Mind-blowing entertainment that goes where you go



Save Energy with Deep Power Down Technology

- New low power state
- Both cores and L2 cache can be powered off when processor is idle
- Lowers power leakage & power consumption
- Seamlessly returns CPU to active state



Unmatched energy efficiency
New industry-leading low power state



Eco-Innovation from Intel

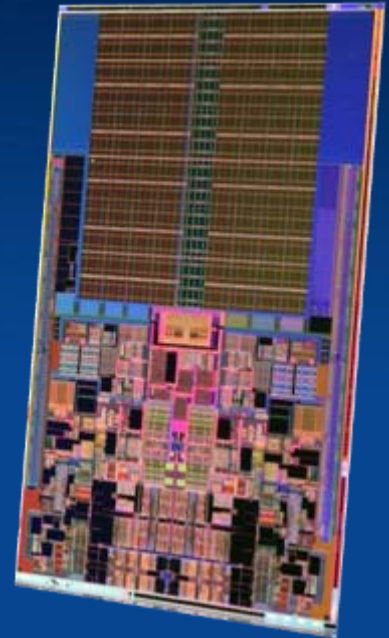
The Power to Use Less and Do More

Power-Friendly Performance

- Innovative Design – Performance AND energy efficiency with unique enabling technologies

The Road to Environmental Sustainability

- 100% Lead Free – Replaced with new high performance materials that are more planet and people friendly
- Engineering Focus – Overcoming scientific and technical challenges, such as using more earth friendly material, is part of Intel's long commitment to the environment



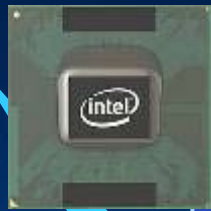
Go farther, do more and use less
with the ultimate in mobile technology

* 45nm product is manufactured on a Lead Free process. Lead-free per EU RoHS directive July, 2006. Some E.U. RoHS exemptions may apply to other components used in the product package.

For additional information about Intel's commitment to the environment, visit www.intel.com/go/responsibility.
View the complete Intel® Processors Go Lead-Free press kit at <http://www.intel.com/pressroom/015/45nm/leadfree>.



Mobile Intel® 965 Express Chipset



45nm Intel® Core™2 Duo Processor Support

Supports Intel's Latest 45nm Mobile CPU



Enhanced 3D Graphics

DirectX 10**
Hardware T&L
Shader Model 3.0



Intel Graphics w/ Vista* Premium

Single Channel Memory



Video and Display Enhancements

HD DVD/Blu-ray Support#
VC-1 Hardware Acceleration



Manageability & Security

Wired/Wireless Intel® AMT2.6 w/System Defense***



Improved Power Savings

Supports C6 Power State
SATA Traffic Monitor on ICH8M



** Note: DX10 not available at launch. Target availability Q1'08.

*** Intel® Active Management Technology requires the platform to have an Intel® AMT-enabled chipset, network hardware and software. The platform must also be connected to a power source and an active LAN port.

Logo capability requires optional 3rd party decoder chip

Next Generation 3D Enhancements

Direct
X10**



Vertex
Shader 3.0



Less Motion Blur



Shader
Model 3.0



DX10 Pictures: <http://www.gamesforwindows.com/en-US/AboutGFW/Pages/DirectX10.aspx>

Enabling more realism and next-generation game compatibility 

** Note: DX10 not available at launch. Target availability Q1'08.

Summary

- **Mobile growth remains strong**
 - Worldwide opportunity
 - Driven by innovation
- **Next generation Intel® Centrino® processor technology extends platform leadership**
 - Intel® Core™2 Duo processor gets even better - greater performance, greater energy efficiency, lead free
 - New Intel® GM965 Express chipset features enhanced gaming and video capabilities
- **Broad industry support to drive ramp**





Ultra Mobility: Full Internet in Your Pocket



1/2 TRILLION Annual Web Searches

2 BILLION Videos Viewed Every Day

1 BILLION Consumer Email Boxes

1 BILLION IM Users

1 BILLION Social Networking Users

100,000 Blogs Created Daily



Source : Intel, Various

User Generated

TV/Movies

Interactive

But You Can't Take These Experiences With You Today...



Today's Handheld Devices



FOR THE USER

- Subset of the Internet
- Multiple Errors (plug-ins, codecs, etc)
- Difficult to Enjoy Latest Trends
 - Social Networking
 - User Generated Content
 - Video
- Scrolling Left-Right and Up-Down
- Inadequate Performance

FOR THE DEVELOPER

- Fragmented Hardware
- Fragmented OS and Apps Landscape
- Inadequate Tools

"In General The Whole Mobile Space is a big mess. The whole mobile development thing feels like 1984". Tom Conrad, CTO Pandora

Full Internet in Your Pocket



FOR THE USER

- The Full PC-like Internet
- Rich, Immediate, Real
- Access to ALL Websites
- Enjoy Latest Trends
 - Social Networking
 - User Generated Content
 - Video
- The Performance You Need

FOR THE DEVELOPER

- Common Hardware
- Unified Software
- Wealth of Tools
- Write Once, Access Anywhere



Target Segments & Usages

Information



Directions, POI, LBS
News, Sports
Shopping,
Browsing

Digital Parents
Mobile Professionals

Communication



Social Networking
VoIP, Chat, IM,
Browsing, Video
Conf, Blog

GenY
Mobile Professionals

Entertainment



Video, TV, Games
Pictures
Music
Browsing

Gen Y
Digital Parents

Productivity



Collaboration
Communication
Pers Productivity
Enterprise Apps

Enterprise Verticals
K-12 Education



2008 Menlow Platform Intel's 1st Generation CPU + Chipset



Aigo
Asus
BenQ
Clarion
Compal
EB
Inventec
Lenovo
Quanta

·
·
·



Intel Low Power Roadmap



1H'07

- Optimized ULV notebook CPU and Chipset
- 2x smaller CPU thermal power*
- 3x smaller CPU package*



1H'08

- 1st Generation Low Power Platform
- Designed from the ground up
- Silverthorne CPU + Poulsbo Chipset
- 10x lower CPU Power*
- 5x smaller CPU package*



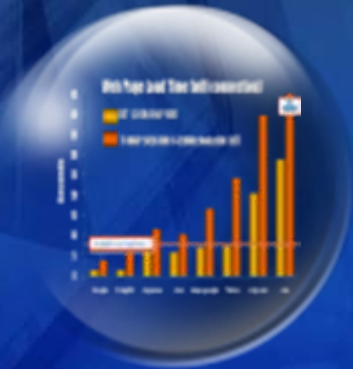
2009/10

- 2nd Generation Low Power Platform
- Optimized Partitioning: SoC + I/O Hub
- Further 10x lower Platform Idle Power**
- Smaller, Sleeker Form Factor
- Longer battery life

* Compared to '06 product

** Compared to Menlow platform

Full Internet in Your Pocket Recipe for Success



**Mobile
Performance**

+

A screenshot of a web application interface showing a table with columns for "Name", "Status", and "Action". The table contains several rows of data, with some cells highlighted in red and green, indicating different states or actions.

**Internet
Compatibility**

+



**Software
Consistency**

+



**Wireless
Connectivity**

Intel Well-Positioned to Meet These Requirements

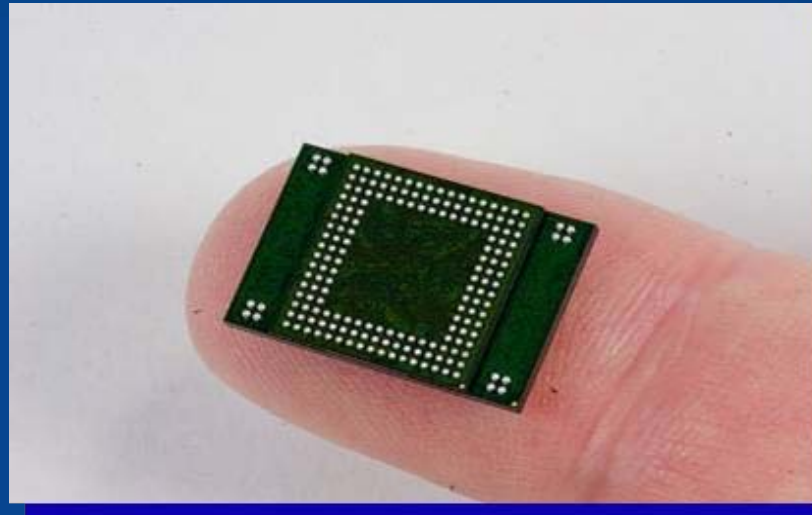


NAND Flash Memory Solid State Drive Solutions



Introducing The Intel® Z-P140 PATA Solid-State Drive

The Intel® Z-P140 PATA Solid-State Drive is Ultra-Small, Low-Power and Rugged, with the Right Features and Performance for Mobile Internet Devices, Digital Entertainment and Embedded Applications



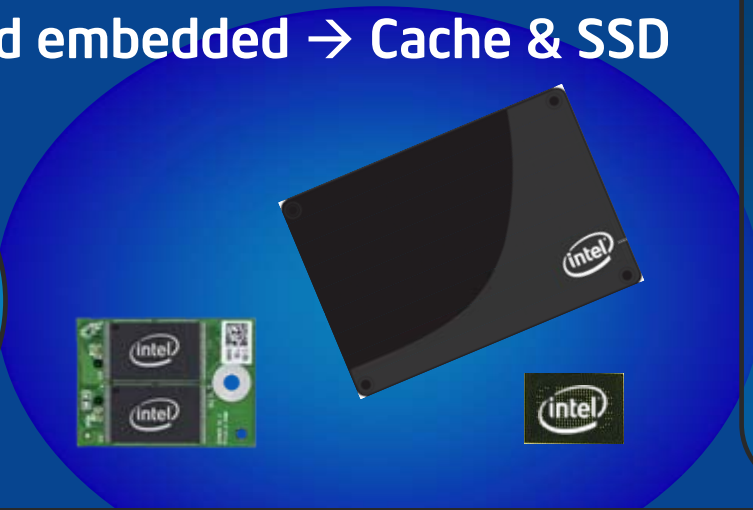
Ultra-Small Solid-State Storage Solution





NAND – Taking the industry by storm

- Fastest-growing silicon market segment...
- Disruptive Technology....
 - Camera Film → NAND Flash Cards
 - Floppy Drives → USB NAND Flash Keys
 - Hard Disk Drives in MP3/CE → NAND TSOP
 - Data NOR in Cell phones → NAND Flash
 - HDDs in computing and embedded → Cache & SSD



Solid State Drives (SSD) are the next big thing

*WSTS, 2007 forecast

Trends in Computing

Full performance and connectivity anytime, anywhere

- **Performance:** New level of responsiveness
- **Connectivity:** Taking your data with you
- **Battery life:** Going longer and farther
- **Form Factor:** New innovations



Solid State Solutions - the new trend

- **Performance:** Faster
- **Ruggedness:** Solid-state
- **Power:** Lower power
- **Form Factor:** Ultra-small

Why Now – Why Intel® SSDs

- Intel SSDs deliver the capacity and features to accelerate computing trends
- Intel is uniquely positioned to deliver industry leading solid-state solutions
 - Two decades of flash memory experience
 - World-class NAND silicon from IMFT
 - Optimized innovative solutions for Intel Architecture platforms
 - Worldwide customer and distribution base

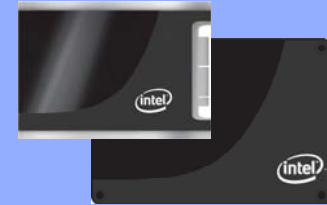
Innovative SSD solutions from the computing leader



Intel® NAND Solid State Solutions



Intel High Performance SATA SSD
technology (2008)
1.8" & 2.5" SATA 3.0Gb/s



System Performance
Acceleration - Cache



Intel® Turbo Memory



Small Form Factor
Right-Sized
Solid State Drives



Intel® Z-U130
USB SSD



Intel® Z-P140
PATA SSD



Intel® Z-P140 PATA SSD – Delivering a solution

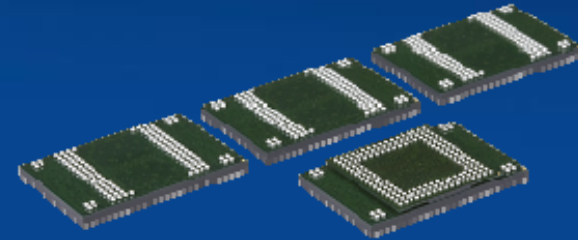
Right Fit – smallest form-factor PATA SSD solution

- PATA (IDE) – based Platforms
- Chipscale Package-on-package technology
- 12x18x1.8mm ; 0.6 grams



Right Capacity – Storage for mobile computing

- 2, 4, 8 and 16GB Capacities
- Most operating systems fit in 1GB or 2GB
- Headroom for Apps and Data













Right Performance – Speed, power and reliability

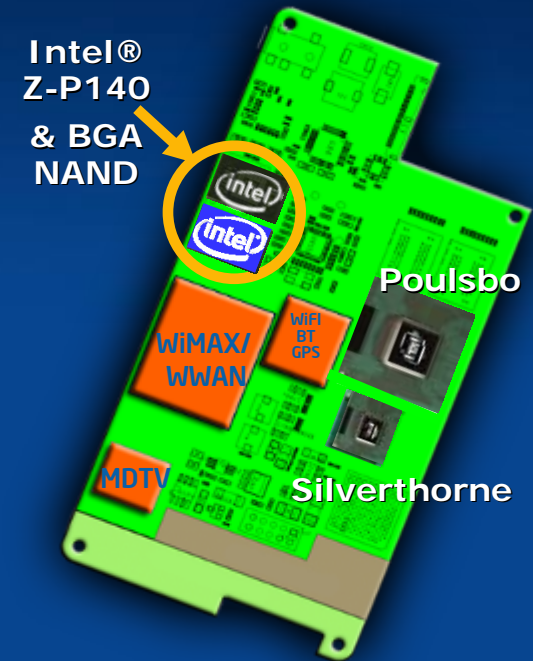
- Fast to boot, load, and run applications
- Low power to extend battery life
- 100% solid state: no moving parts



Where will you see the Intel® Z-P140 PATA SSD?

				Application
				2-4 GB Linux, WinCE/XPe/XP
				4-8 GB Larger App + Data
				16GB High Density Solid State
		+		4-8 GB with Removable Storage

Menlow Applications



WHEN YOU THINK OF SSDs – THINK INTEL!





WiMAX

Why WiMAX: The ideal wireless broadband solution

Today you go to the internet - tomorrow the internet comes to you

- Integrated, affordable, devices
- Interoperable equipment
- Global scale

- Superior Performance
- Diverse Ecosystem
- Global Momentum

- Meeting market demand with the true internet
- Real mobile broadband



Global Progress

- **Global WiMAX adoption is growing**

- Carrier and infrastructure plans at an all time high
 - +120 mobile trials today
- US carriers leading - Asia, Latin America and EMEA are next, IMT-2000 major victory for WiMAX
- WiMAX ecosystem continues to grow - Google, Cisco

- **Technology Status**

- Network testing: Performance is real with data rates: 4MB down, 1MB up today
- Very low latency & proven mobile video delivery
- 2 years ahead of LTE

- **Intel accelerating invest in products/ecosystem globally**

- The risks are real - regulatory, incumbents, IPR, execution
- We are moving forward - silicon and committed OEM and device partners starting in 2008
- Increasing focus in emerging markets

Global Spectrum Environment

- **WiMAX inclusion in IMT-2000 major victory!**
 - Technology approved: IMT-2000 in Oct. '07, Australia
- **Licensed Issues: Taiwan, Canada**
- **Russia to move in 2008: Comstar**
- **Japan announcement expected this month**
- **Auctions about to occur: Germany, UK, Italy Spain, Eastern Europe, Japan, Mexico, Brazil**
- **India and Pakistan: all major Indian service providers running WiMAX trials**



Likely Global Deployment View



WiMAX Trials & Networks	10	25	250	400			
<i>Mobile trials today</i>			~10	120			
Projected Population Covered					150M	750M	1.3B
	'04	'05	'06	'07	'08	'10	'12



Intel WiMAX Products & Designs

WiMAX/Wi-Fi Combo Modules



Echo Peak*

- 1st integrated Wi-Fi + WiMAX module
- Montevina* 2008 platform for notebooks
- MIDs

WiMAX Modules



Approx indication of size

Baxter Peak*

- Simple two chip solution
- Small size & low power
- Being designed in now for 2008 mobile devices

WiMAX Add-in Cards



Dana Point*

- Baxter Peak reference design for ODMs

* Internal code names for projects in development - product names and productization plans are subject to change.



What will you see with WiMAX in 2008?

First Products and Use Cases:

- Cards, notebooks, home modems
- Use case: uber hotpots – launch cities in 2008 with wide range coverage evolving to full mobility similar to development and deployment of new cellular networks.
- Interaction with Wi-Fi

Real Growth Opportunity for the Industry starting next year:

- New revenue sources → growth in new services
- New products → new solutions
- New platforms/devices → new mobile devices
- New investment opportunities → spectrum

Consumers ready for Broadband on the Go

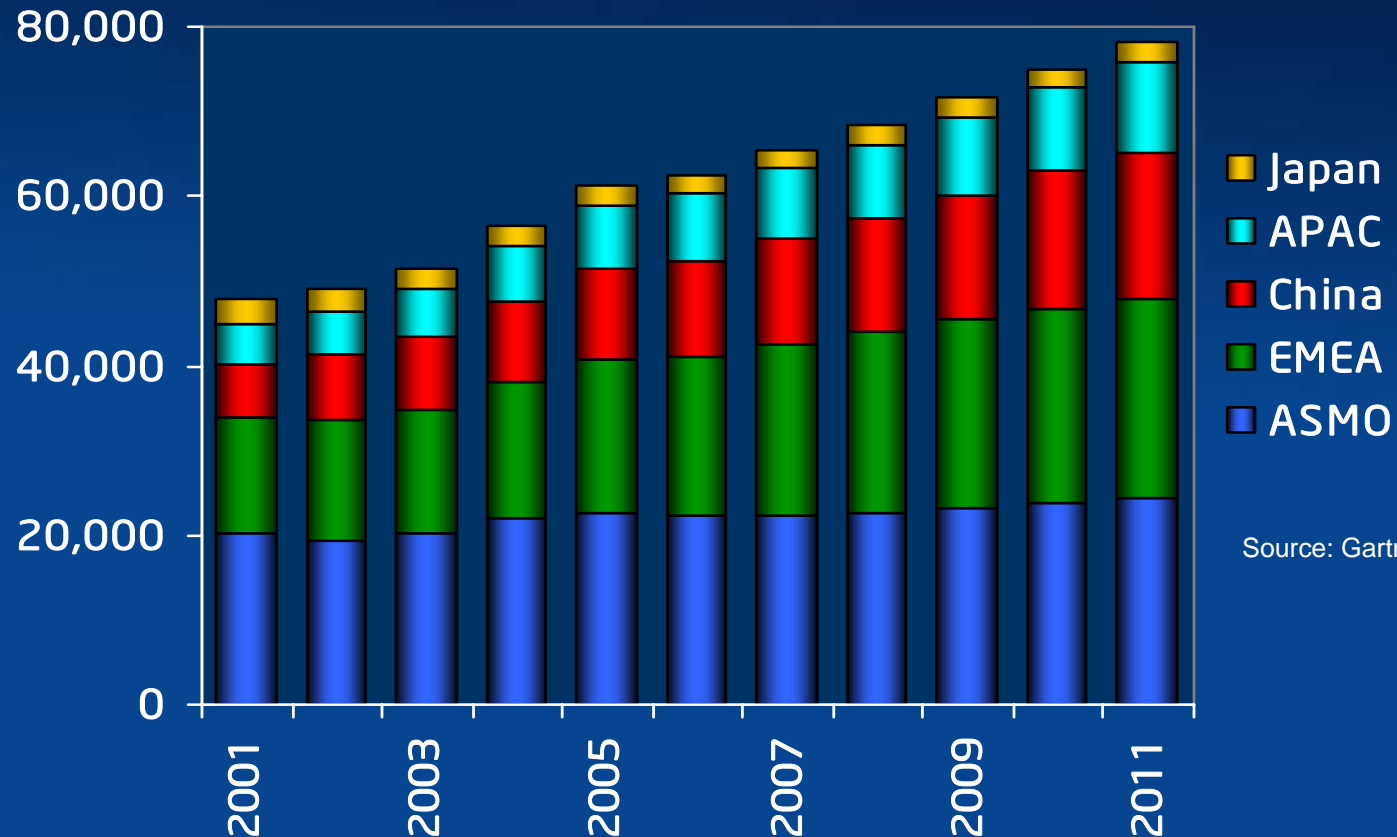


Consumer Desktop PC



Consumer Desktop PC Market Opportunity

Consumer Desktop TAM



Source: Gartner 2007

Desktop is still a large and growing segment
5% CAGR projected through 2011



Market Trends



HDTVs < \$250



HD DVD players < \$200 with
5 free HD DVD movies



HD Camcorder <\$150

- The World is Going HD
- Internet content spiral continues
- High performance PCs needed
 - Consumers storing, managing, creating, sharing, etc..
- 'Green' and style matter

Fueling demand for high performance,
energy efficient PCs



New 45nm Processors



What's New on 45nm

Consumer Benefit

Enhanced Intel® Core™ Microarchitecture

- Improved overall performance

Intel® HD Boost

- Improved multimedia editing/encoding performance

New Levels of Energy Efficiency

- Same power envelope with more performance

Higher Frequencies, Larger Caches,
Faster Front-Side Bus

- Improved single & multi-threaded apps performance
(More throughput, less waiting!)

More performance and energy efficiency than ever before!



Consumer PC Market Segmentation

ENTHUSIAST

Ultimate Performance



LIFESTYLE

Breakaway performance
meets power-saving in style



MAINSTREAM

Built for sensational high
definition experience

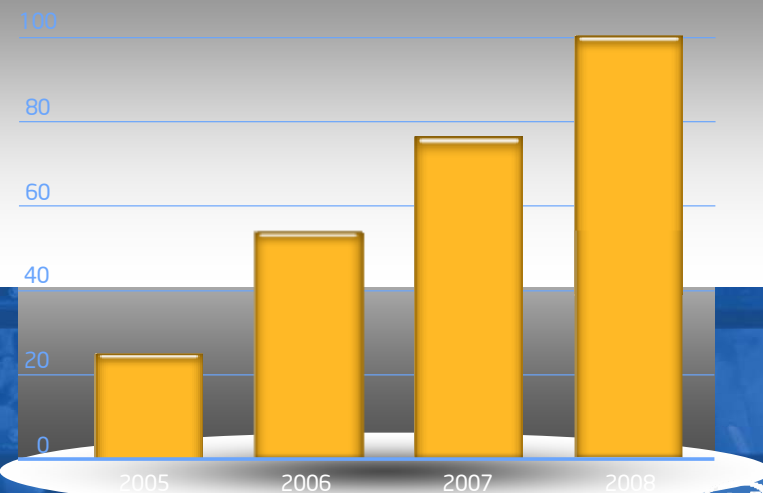


Delivering performance leadership with desktop PCs



Intel® Viiv™ Technology Update

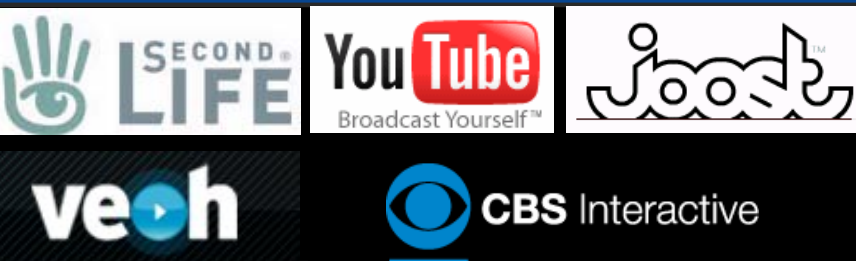
Video Streams Served (Billions)



Source: Accustream iMedia Research, Intel Estimates



- Internet content increased dramatically since 2005
- Viiv provides a powerful PC with great audio and video
- Media server proliferation with Vista Home Premium



Intel® Core™2 Processor with Viiv Technology Focus Areas

Perform



Connect



Manage



Protect



Future capabilities to help consumers
better manage their digital life



Summary

- 45nm Processors = Performance + Energy Efficiency
- Lifestyle PC provides new growth
- Intel® Core™2 Processor with Viiv Technology Focus:
 - Perform, Connect, Manage, Protect



Consumer Electronics

Internet Leaps to the Living Room



The Evolution of CONSUMER ELECTRONICS

1.0 ANALOG



2.0 DIGITAL



3.0 INTERNET



THE INTERNET CHANGES THE GAME



Applications & Services

Examples

In-Home Content

Internet Content

Community

E-Learning

Video Conferencing

Targeted Advertising

Content Cataloging & Search

Gaming



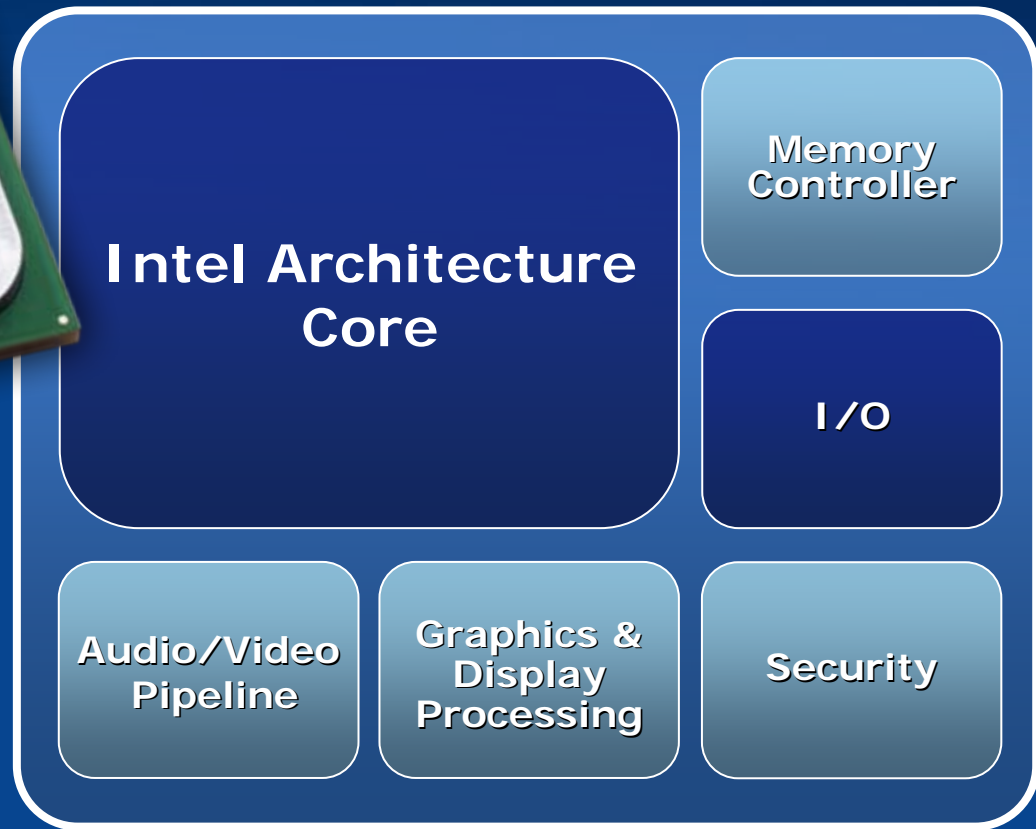
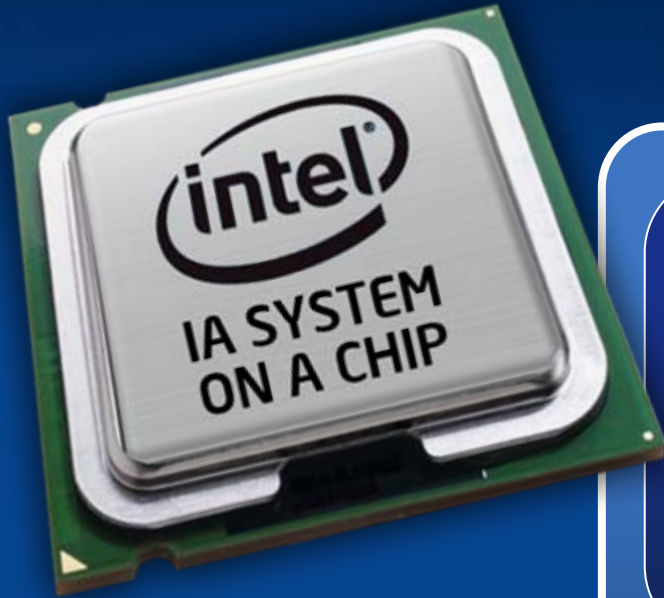
Intel Architecture



Performance
Internet Compatibility
Software Ecosystem



What is Intel doing in CE?

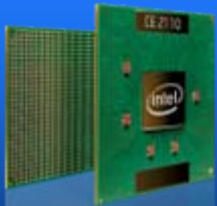


CE-Optimized SOC

2007

IA CPU & Chipset

*Performance
Internet Compatibility
Software Ecosystem*



Intel CE 2110

*Cost-Effective
Integration
AV Pipeline*

2008

Canmore

Multiple Segments



2009+

Low Power IA

Optimized for Segments



Delivering solutions

Services

Ecosystem

CE Devices

Silicon/Software

Internet on the TV is driving new business and usage models

Next generation CE devices require processor performance

Intel delivers ecosystem for end-to-end solutions





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