Intel's New Category of SoC Designs, Products

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Today's News

- ✓ Emerging category of smarter, purpose-built SoC Designs. New levels of performance, power efficiency and complexity vs. traditional SoCs
- ✓ Intel's Smart SoC strategy: Intel architecture, advanced process technology, high performance computing, low power, high complexity expertise & R&D investment
- ✓ >15 projects underway; Future SoCs based on Intel® Atom™ processor core; target growth areas
- ✓ Perfectly timed with emerging need for persistently connected Internet devices
- ✓ Introducing our first 8 new products; targeting a broad range of embedded, voice and security applications

Designing Smart SoCs

What is the emerging category that requires Smart SoCs?

How is Intel poised to lead in this category?

How is Intel internally structured for optimal development?

Technology drivers

Internet

New Medium

> 1.2 B Mobile Internet Users in 2012

100M TV households watching internet video on their TV by 2011

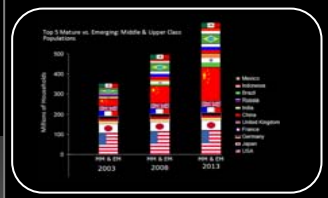
Billions of embedded internet connected devices

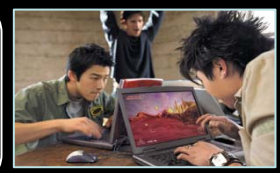


New Users

Explosive emerging market growth

Tech-savvy & Internet generation



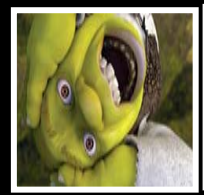
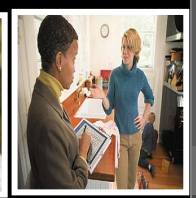


New Uses

Location based services: 100X growth

OTG Interactive Entertainment

Connected in-car infotainment

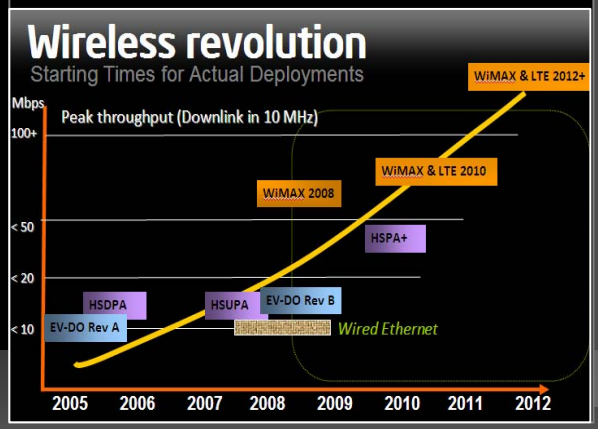
Sources: eMarketeer, The Diffusion Group, In-Stat

Connectivity

High bandwidth

100 Mbps wireless by 2013

Gigabit Ethernet



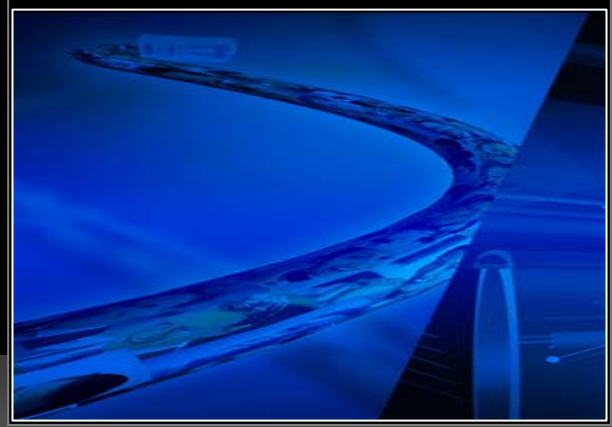
Rich Content

Hi-Def

Encryption

Multi-comms

Uplink + Downlink



Broad Reach

>1.4B subscribers for 3G/4G/WiMAX in 2012

>33% annual growth in Asia/Pacific

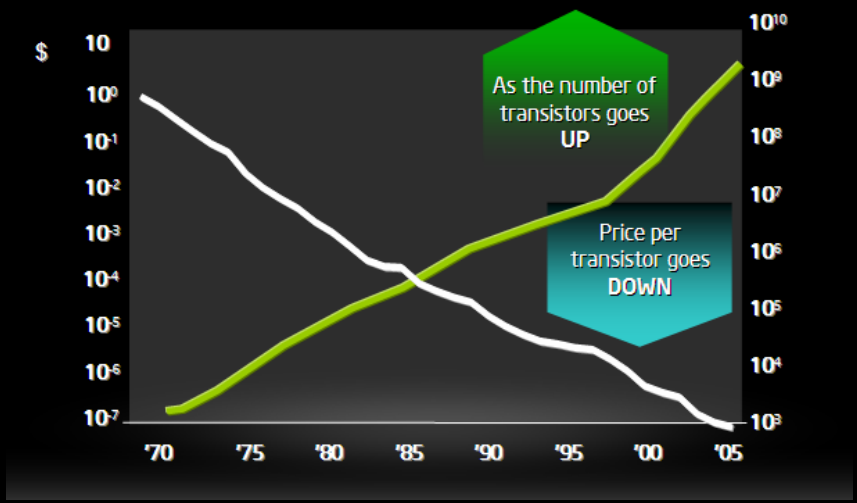
Persistent connectivity

** Source: Intel, ABI Research, 3GPP RAN1. 2010 numbers assume 2x2 MIMO; 2012 assumes 4x4 MIMO.*

** Source: Intel, ABI Research, 3GPP RAN1, In-Stat*

Moore's Law

Economics of Moore's Law



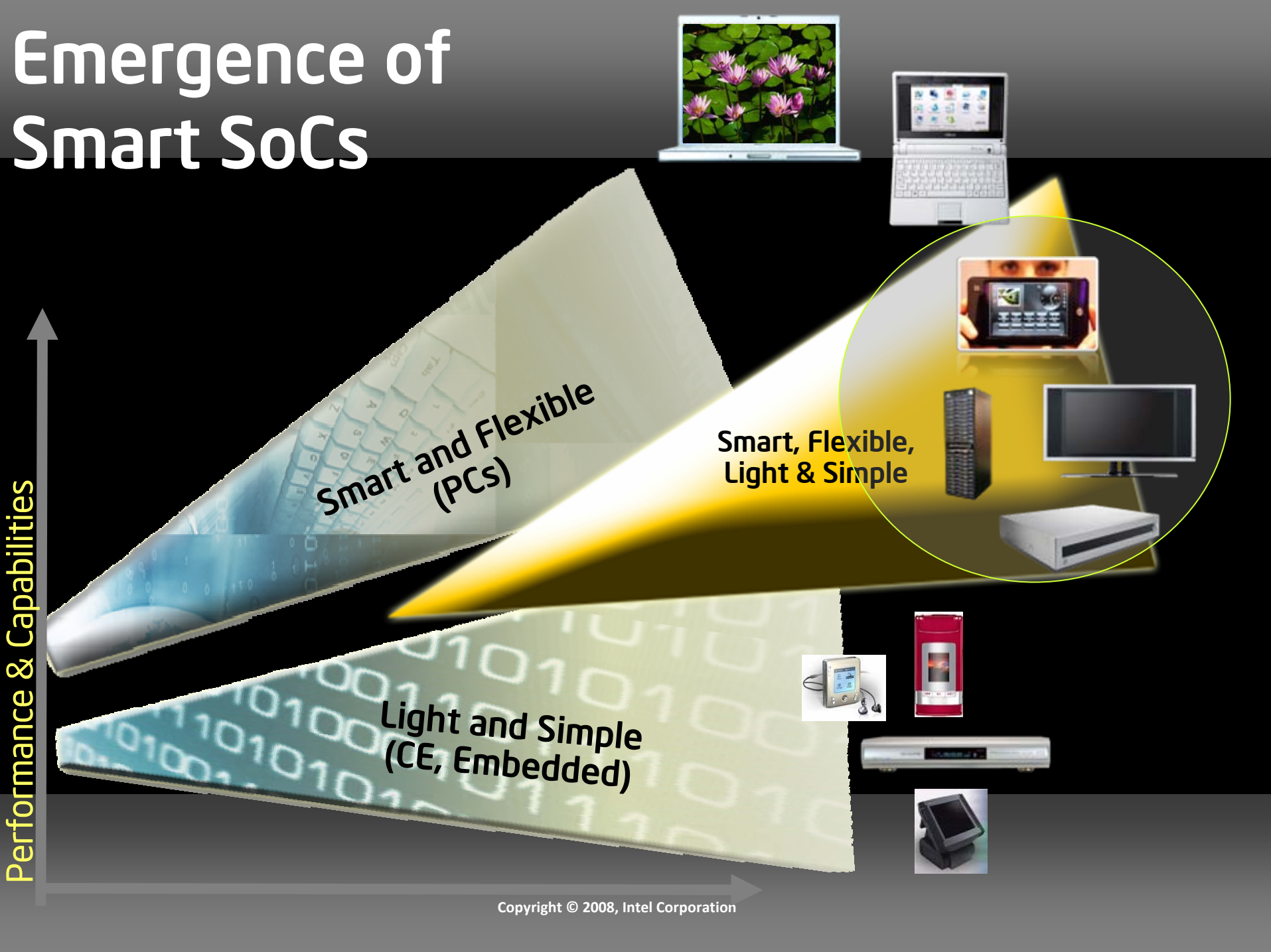
Continue the pace of dimension reduction and feature improvement

Enabling

- Supporting unprecedented complexity
- 45nm -> 32nm -> 22nm
- 100s of millions of transistor SoCs

Source: WSTS/Dataquest/Intel

Emergence of Smart SoCs



Intel Smart SoC

Characteristics of Smart SoC Design

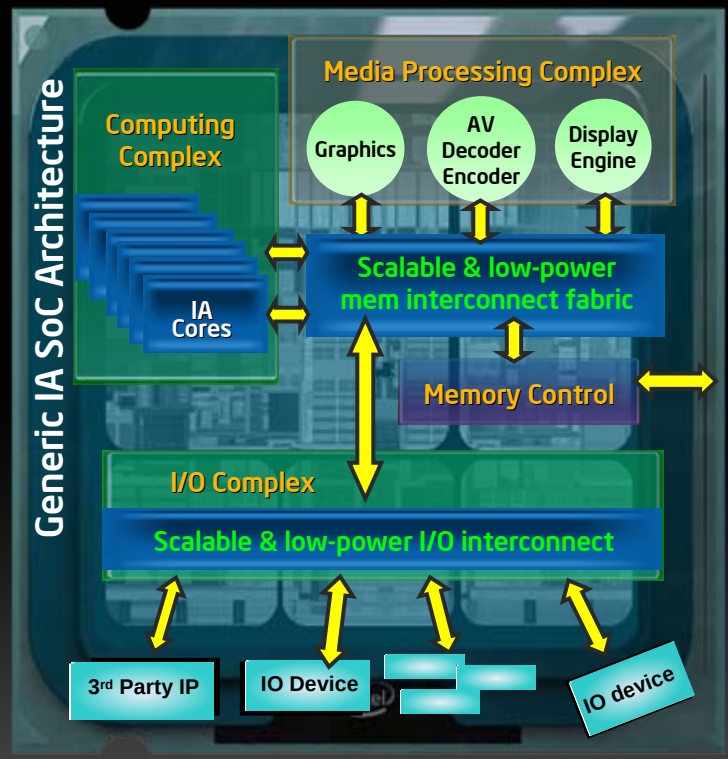
High performance, Low power: *Fast CPU; Dynamic range; Performance per watt*

Multiple sophisticated sub-systems; Workload acceleration. Examples: Hi-def video, Security

High complexity & integration on die: >100M transistors

Support of full operating systems and multi-source complex software

Simplified platform implementation



*All information, dates, and figures specified are preliminary based on current expectations, and are subject to change without notice

“Exceptional user experience”-on-chip

Enhanced Visual Computing

Higher Security & Manageability

New IOs

Multi-cores

Next 5 years

Complex accelerators

Low power

Sensors

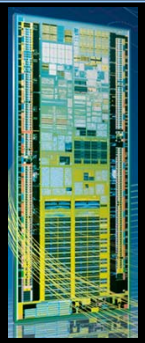
Higher CPU performance

DFM, DFT

1B Transistors On-The-Go

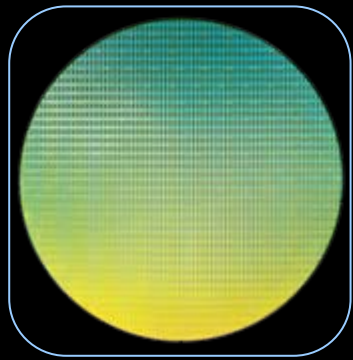
1B Transistors Embedded

Intel advantage



Intel Architecture

High performance computing leadership



Process technology & high volume manufacturing

High HW & SW complexity handling expertise

Extensive R&D investment

SoCs For Multiple Market Segments, Growth

Multiple markets

IA Core + SoC Collateral + IP blocks

Process technology & manufacturing capability

Intel® Atom™ Processor Core

- Ground-up new IA architecture design for low-power operation
- 10X lower power

- 2008: Powering Silverthorne, Diamondville
- Future: Powering next-generation of Intel's Smart SoCs

SoC technology layer benefits

Fast Turn-Around-Time

Flexibility & Customization

Cost/Power/Size optimization

High Performance

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Today: Billions of Connected Devices

Notebook

Desktop

Server

Embedded

CE

Nettop
Netbook

MID

Common Element: The Internet

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The Next Billions of Connected Devices

Common Element: The Embedded Internet

Intel Architecture for Embedded Delivering Applied Computing Beyond the PC & Server

> 3500 customers serving 30 segments for 30 years

Intel Architecture Processors for Embedded

•Traditional Intel Architecture for Embedded

Desktop Mobile Server

•Low Power Intel Architecture

- Fan-less
- Ultra Low Power
- Small Footprint
- Launched Q2'08

•Smart SoCs for Embedded

- 45% Smaller Footprint with 34% Lower Power*
- Full Feature SoC
- Embedded Requirements
- Integrated Accelerators support with Intel® QuickAssist Technology

Smaller – Cooler - Faster

*Assumptions: Compares Intel® Pentium® M processor platform with external PCI crypto accelerator to EP80579 256 byte packets with 2048 IPsec VPN tunnels

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Intel® EP80579 Integrated Processor Product Line

Smart IA System-On-a-Chip

45% Smaller Footprint with 34% Lower Power*
- 4 chips to 1 for smaller form factors
- 11 to 21 watts
- 600MHz to 1.2GHz

Full-Feature SoC
- Integrated memory controller
- Flexible integrated I/O
- TDM & analog voice connectivity

Embedded Requirements
- 7 year extended life cycle support
- Industrial temp
- Intel Architecture compatible
- Multiple operating systems

Intel® QuickAssist Technology
- Integrated accelerators
- Software for security & VoIP
- > 1Gbps security processing

*Compared to previous platform containing the Intel® Pentium® M processor, Intel® 915GME GMCH, Intel® ICH6-M and Intel® IXP465 network processor

Intel's First Integrated x86 SoC with QuickAssist Technology

Intel EP80579 Integrated Processor Product Line

Lower Power

Smaller Footprint

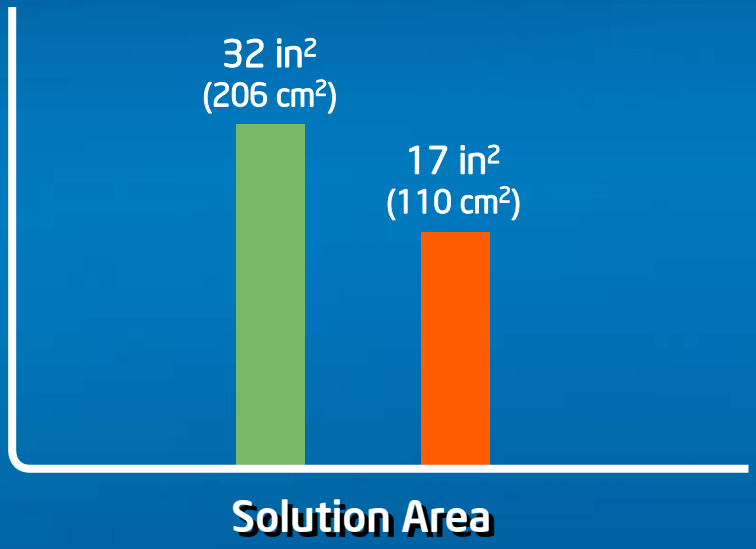
Comprehensive I/O

Integrated Acceleration

Intel® EP80579 with Intel® QuickAssist

Example - IPSec VPN Appliance

45% Footprint Reduction



34% Power Savings

EP80579 1-chip Solution

Traditional IA 4-chip Solution
(CPU + MCH + ICH + PCI Crypto Accelerator)

Assumptions: Compares Intel® Pentium® M processor platform with external PCI crypto accelerator to EP80579 256 byte packets with 2048 IPsec VPN tunnels.

Rich SoC Ecosystem for Embedded and Communications

SoC Development Continues

Increased Performance and Performance per Watt

Embedded

- Smart SoCs for embedded
- Future Roadmap of increased data and control plane performance

CE

- Bringing the Internet to TV
- IA performance, with CE features
- Optimized for CE Internet content compatibility

MIDs

- Projected >10X Reduction In Idle Power Compared to 2008 Platform
- First Entry Into Phone Form Factors
- First SoC for MIDs Intel Atom Architecture

Source : Intel Roadmap. All products, computer systems, dates, and figures specified are preliminary based on current expectations, and are subject to change without notice.

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Summary

Intel is creating a new category of smarter, purpose-built SoC designs and products based on Intel architecture

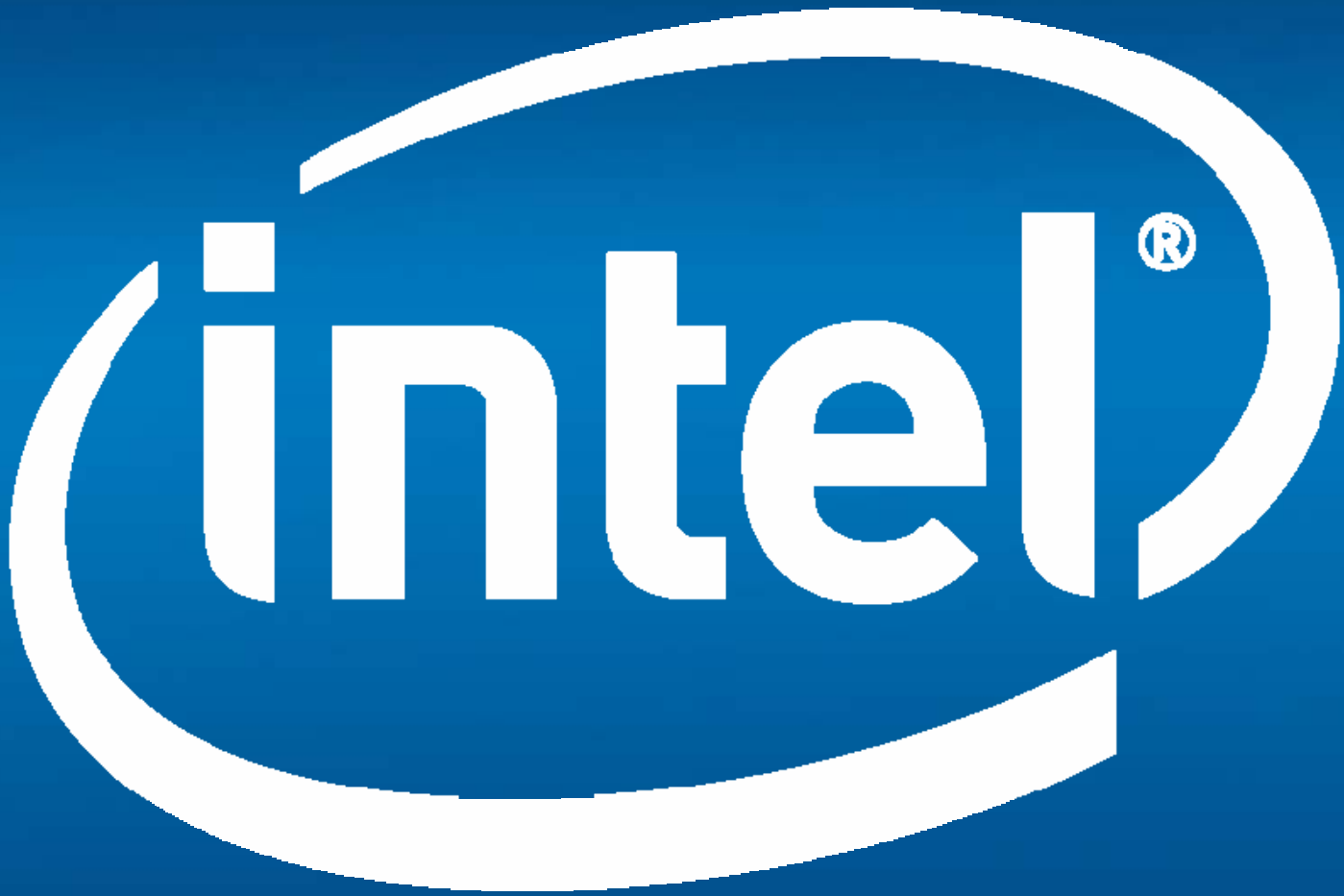
Intel unveiled 8 chips for embedded

Intel chip design, factory, manufacturing and R&D expertise and investment enables SoC development

Over 15 SoC designs planned
Most will be based on the Intel Atom® processor



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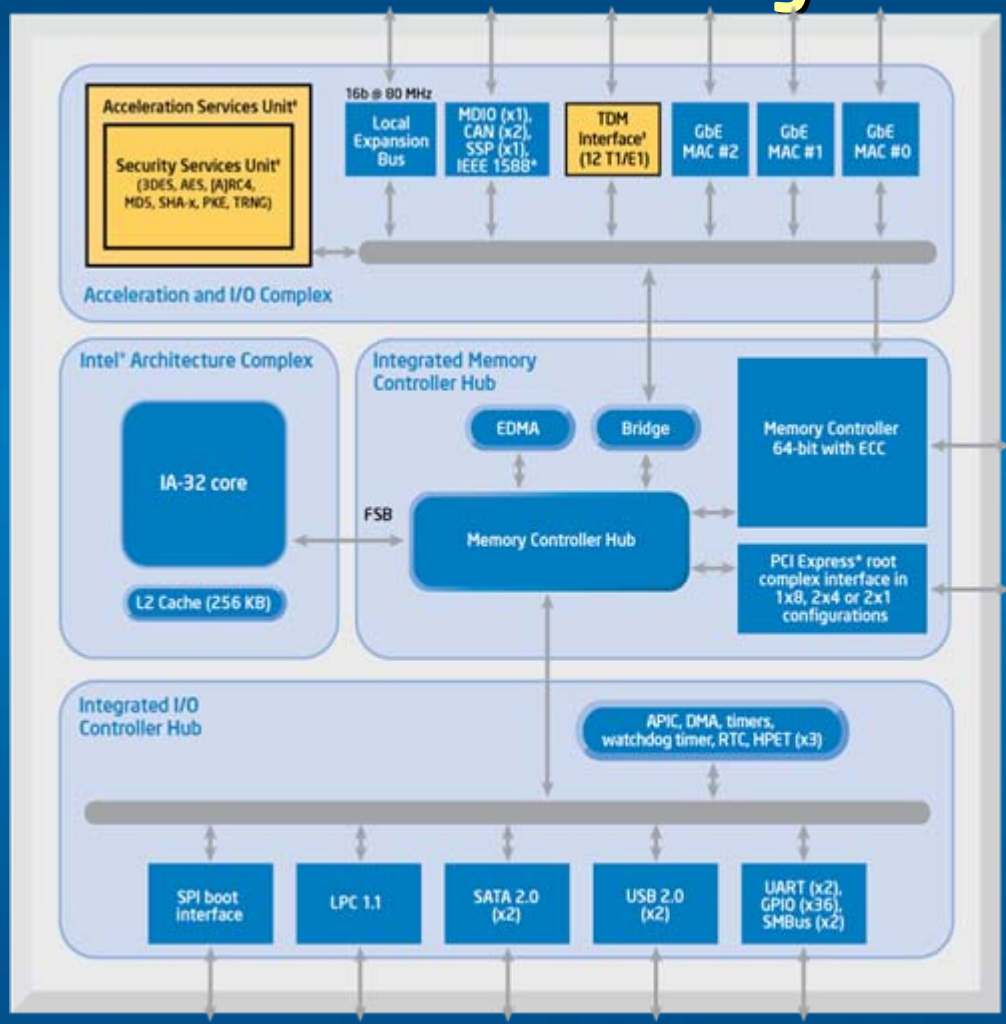
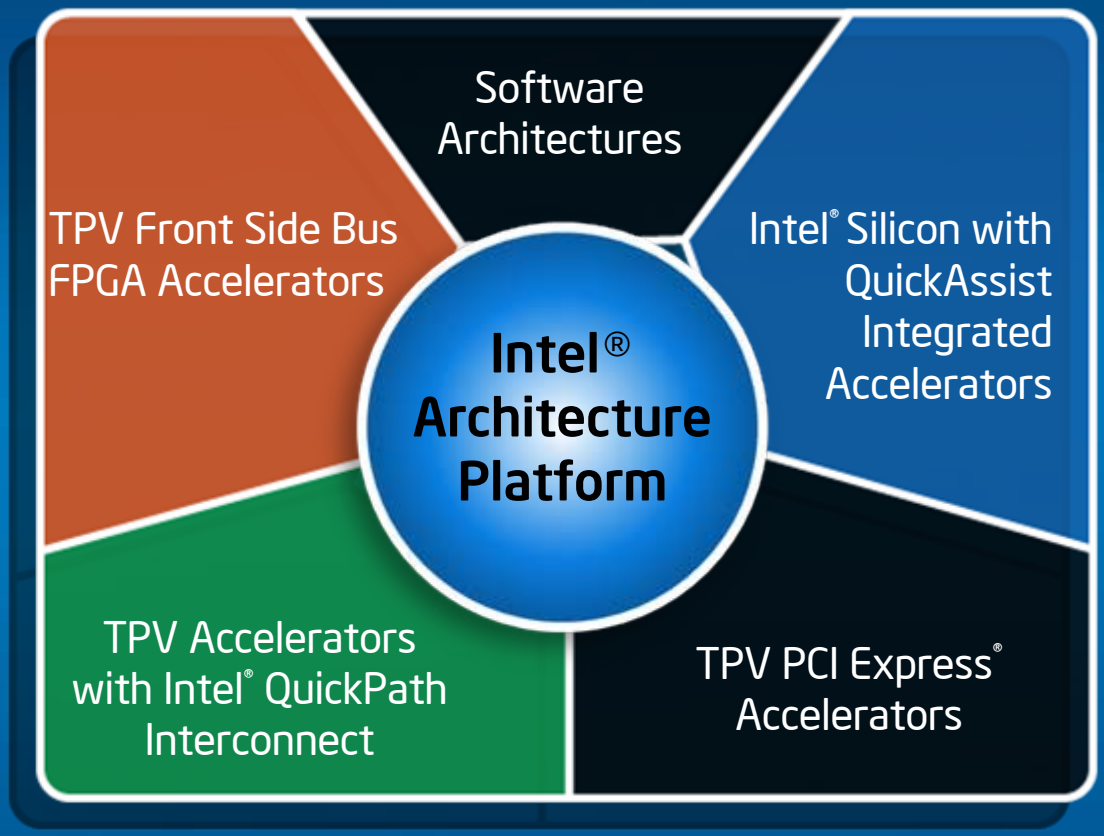
Intel EP80579 Integrated Processor Product Family



Block Diagram for the Intel® EP80579 Integrated Processor and Intel® EP80579 Integrated Processor with Intel® QuickAssist Technology

Intel® QuickAssist Technology

Comprehensive Approach to Acceleration



- Multiple accelerator and attach options with software and ecosystem support
- Performance and scalability based on ***customer*** needs and priorities
- More news at IDF

Comprehensive Initiative to simplify the use and deployment of accelerators on Intel® architecture platforms.