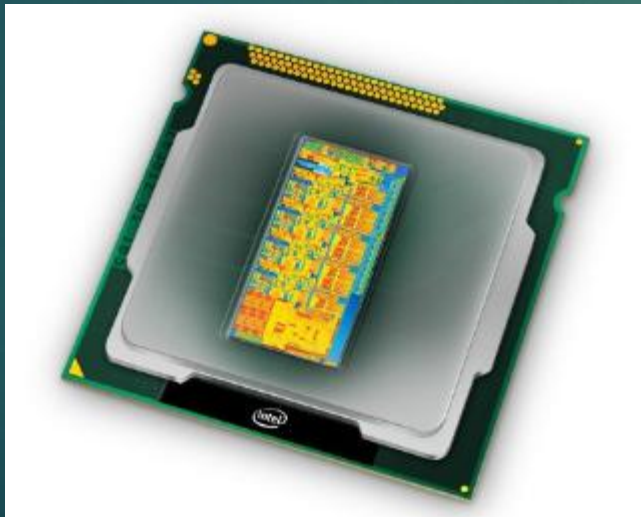


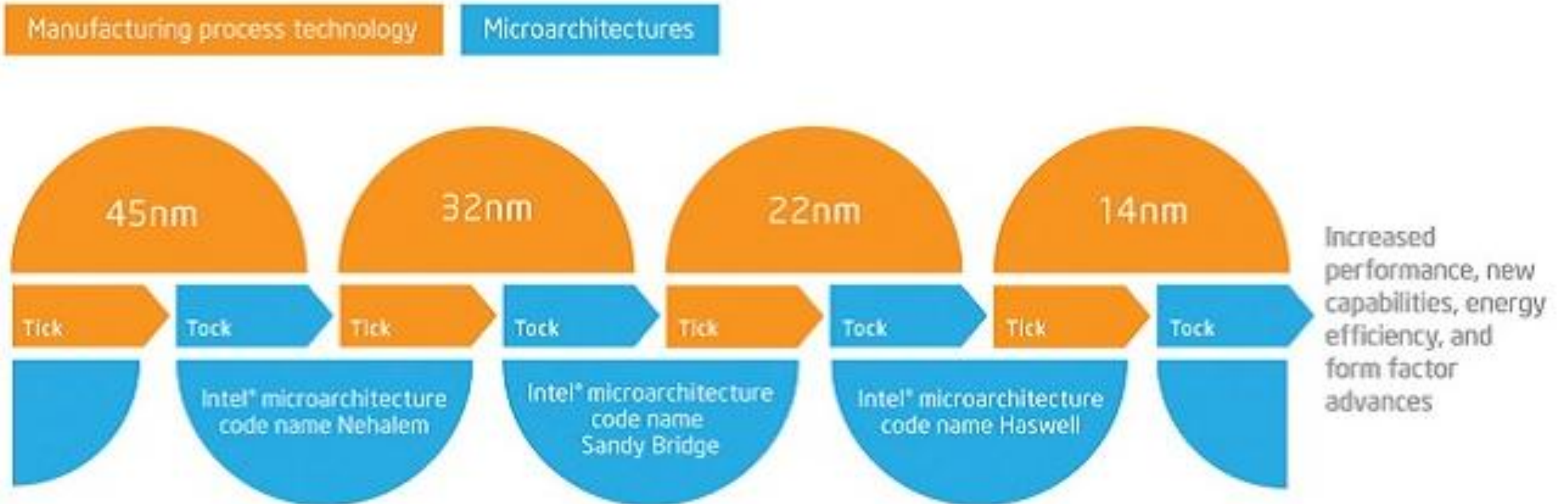
Fourth Generation INTEL Core Processors

Chipsets and Motherboards



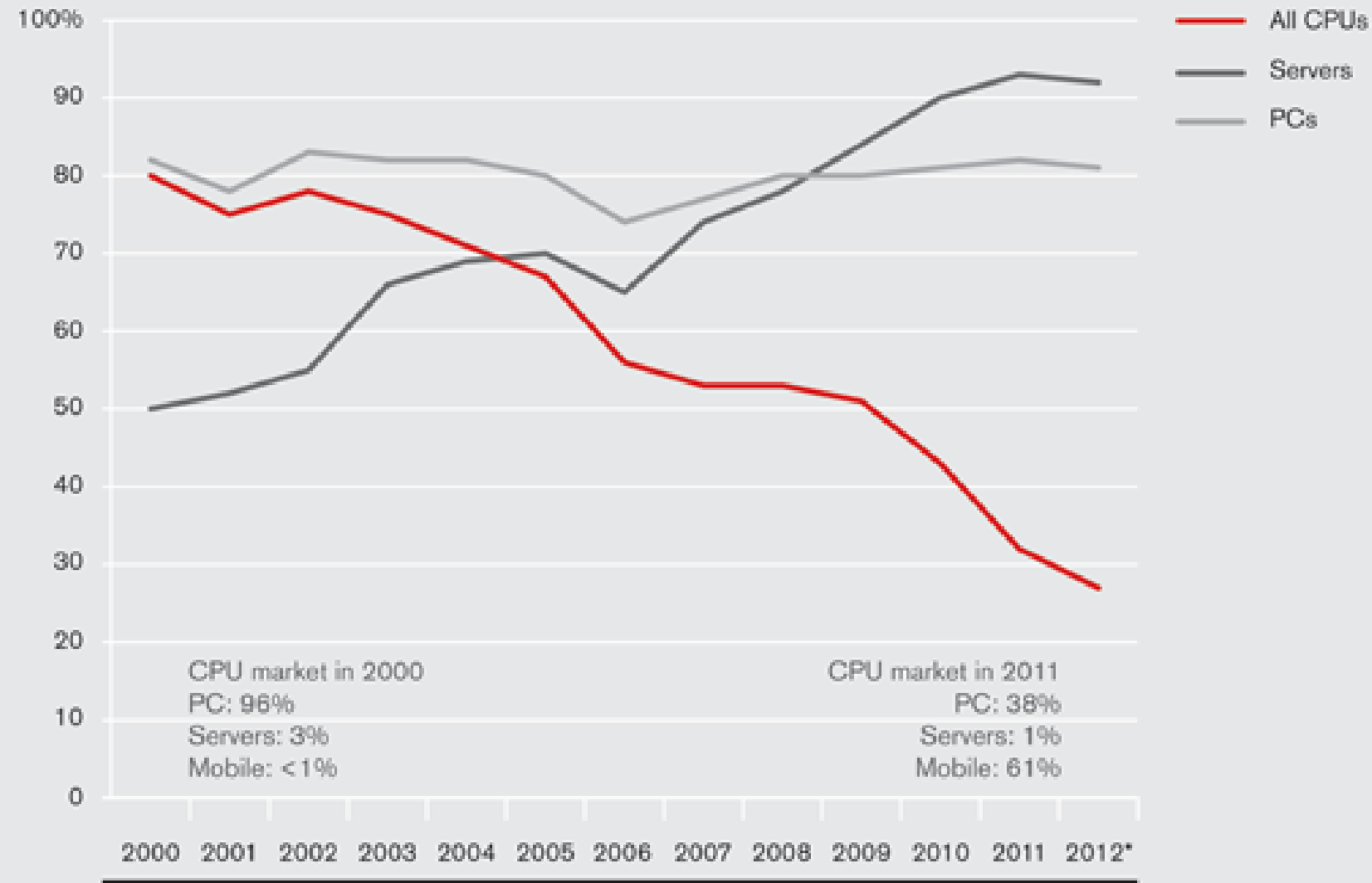
Kelvin Cording
May 2013

Intel Development Process (Tick – Tock)

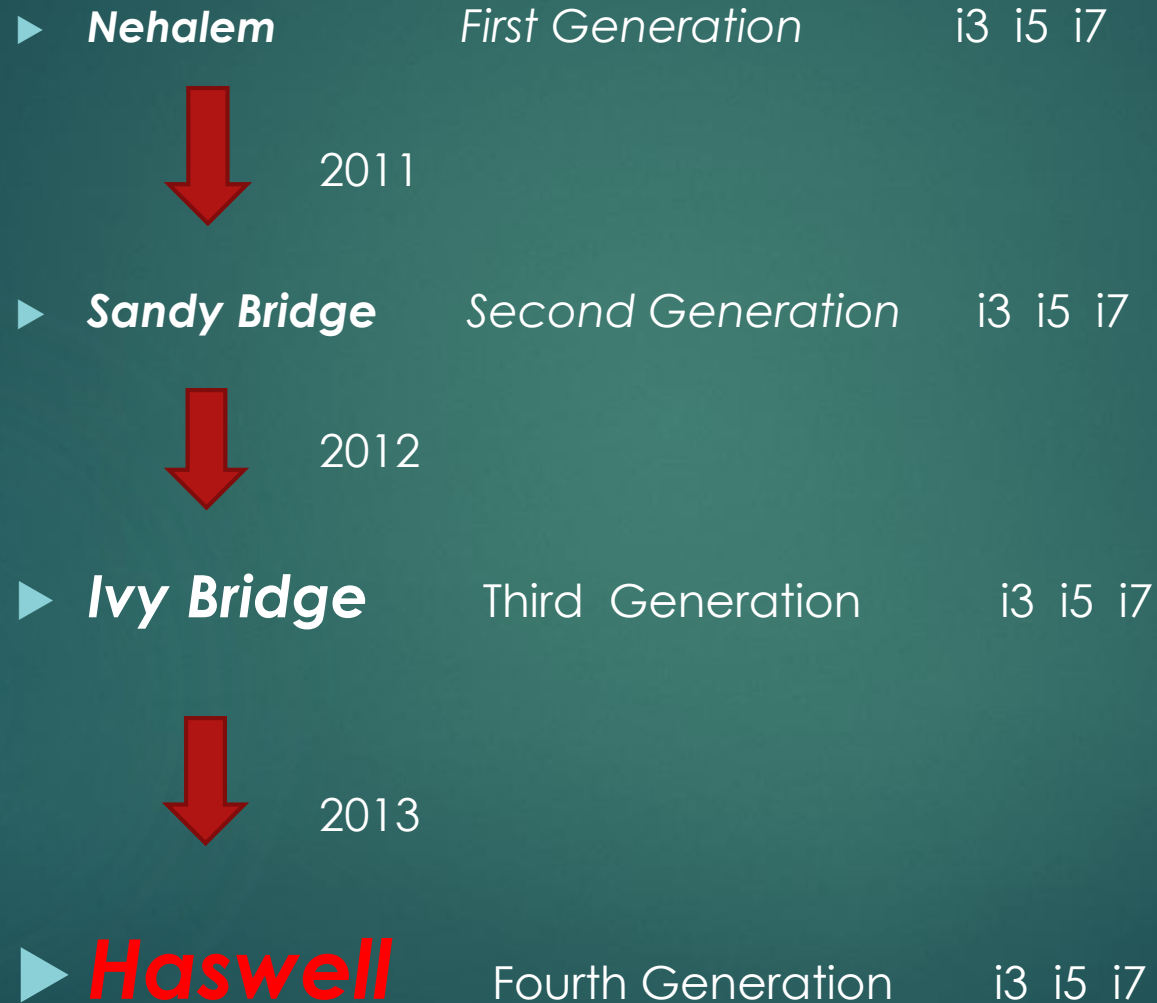


A Shrinking Share of the Computing Market

Intel's annual share of the total number of CPUs shipped



Intel Core Processors

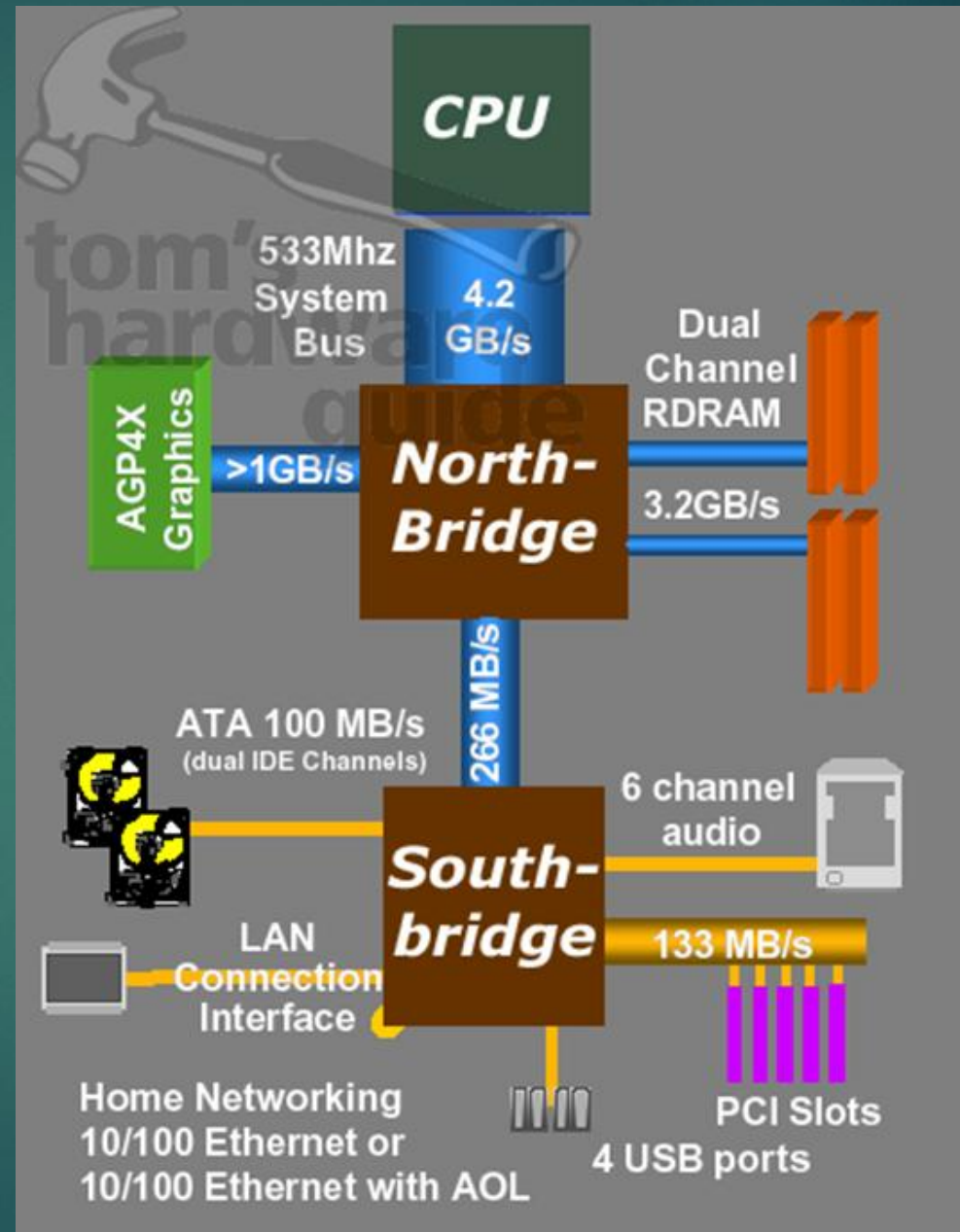


Intel CPU and Chip Architecture

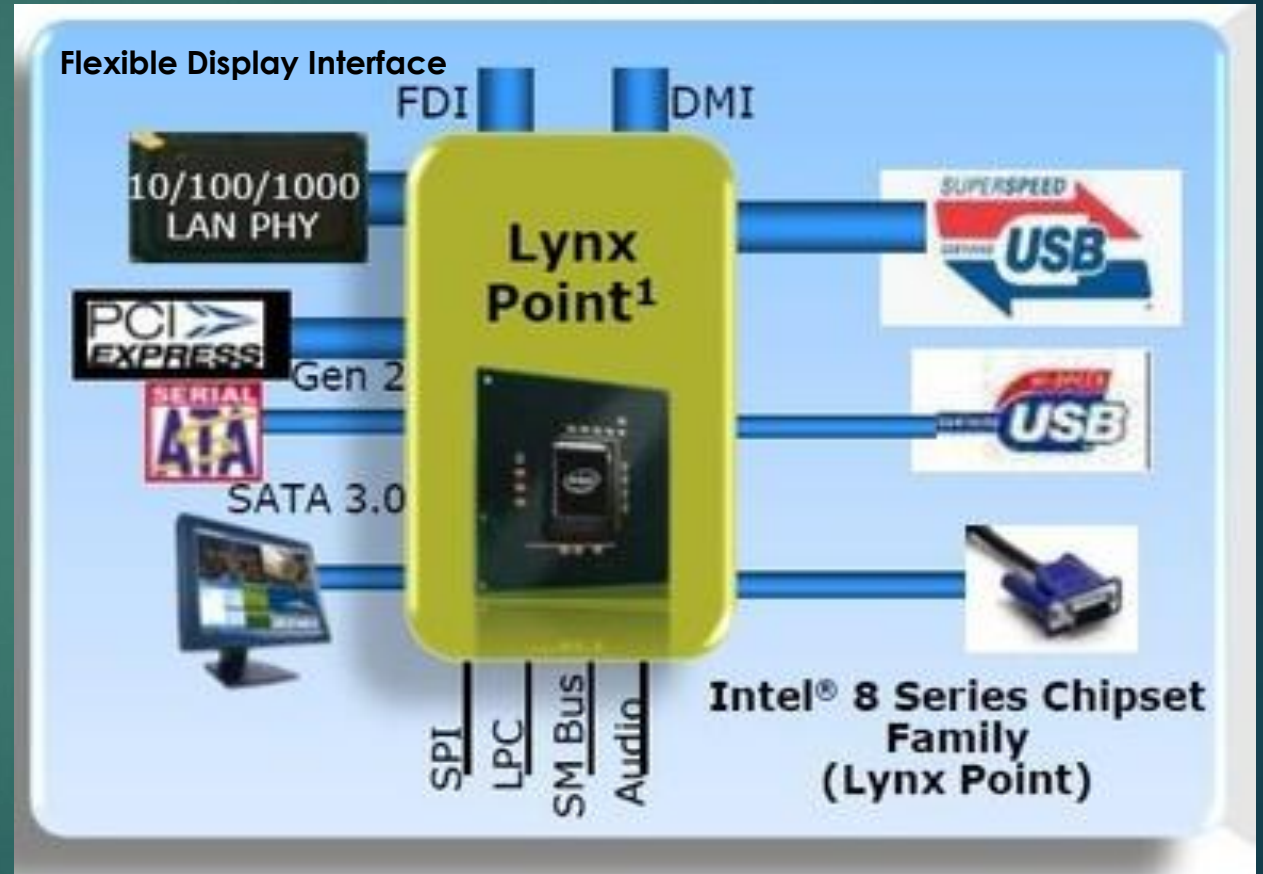
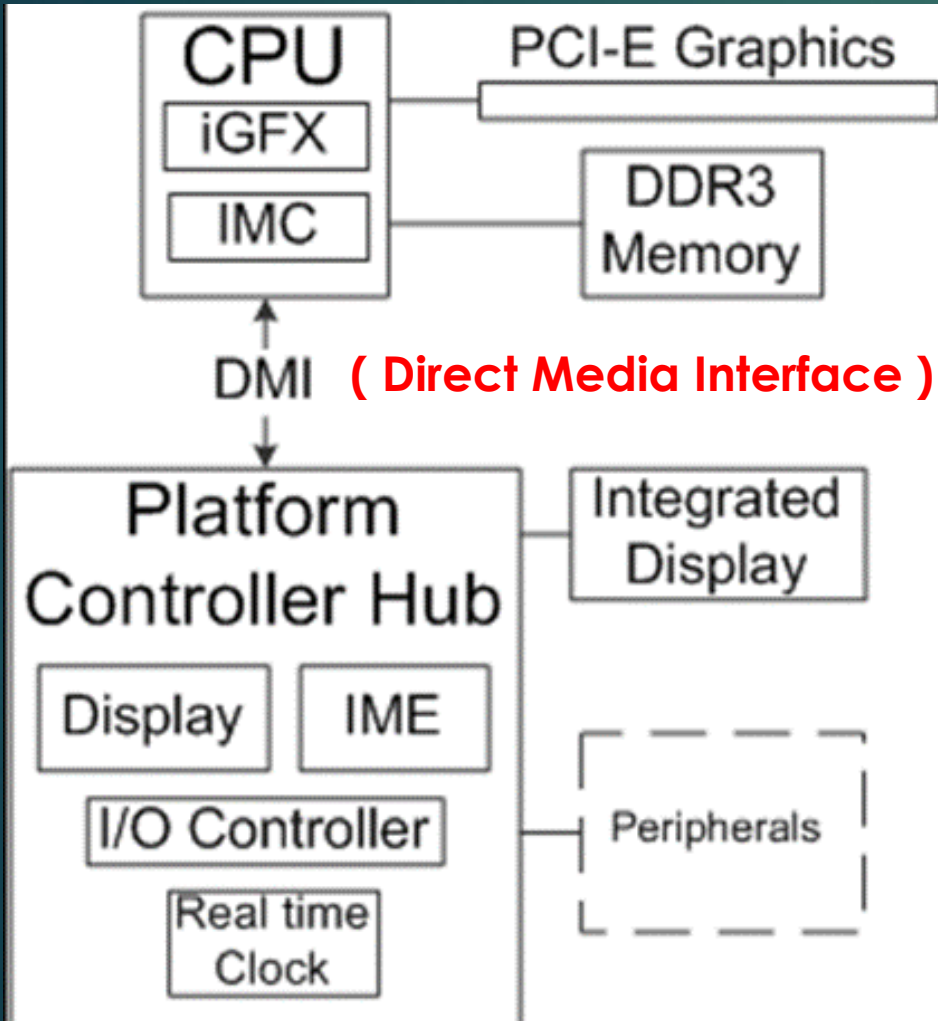
We are here today

CPU Node	65nm		45nm		32nm		22nm		14nm	
CPU Architecture	Intel® Core™2 Duo processors		Intel® Core Processors (Nehalem)		2 nd and 3 rd Generation Intel Core Processors (Sandy Bridge and Ivy Bridge)		Next Generation Microarchitecture (Haswell)			
Intel® Chipset	965 Series	3-Series	4-Series	5-Series	5-Series	6-Series	7-Series			
Chipset Architecture	Northbridge			Platform Controller Hub (PCH)					Multi Chip Package (MCP)	
Chipset Node	90nm		65nm				32nm			

Old Chip Architecture



Platform Controller Hub (PCH)



Haswell Processor



Shark Bay Client Platform Partitioning



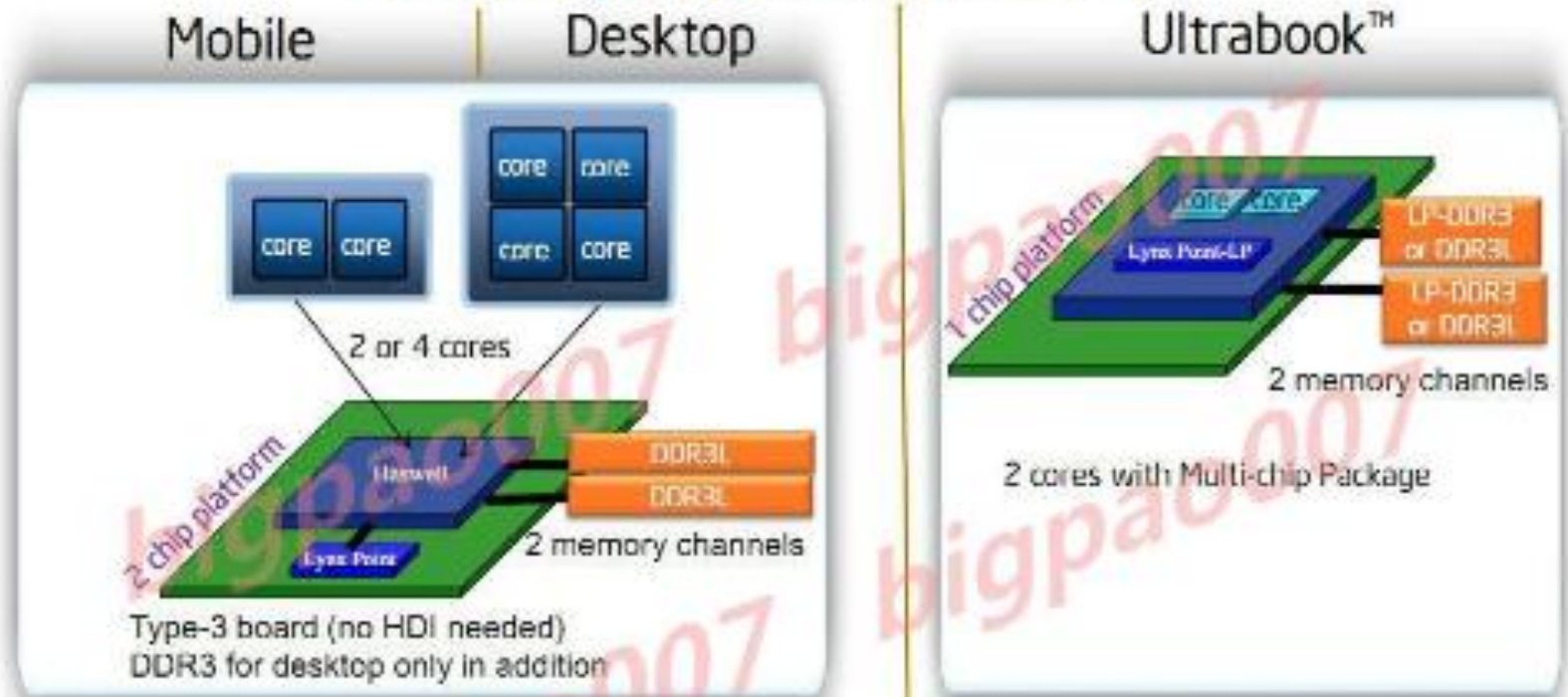
Shark Bay Offers Scalable Platform for All Client Segments

www.chiphell.com



INTEL CONFIDENTIAL

Shark Bay Platforms At a Glance



- Up to GT3 Graphics
- rPGA, BGA(37.5 mm X 32 mm)
- Up to C7
- S0ix
- 37/47/57W

- Up to GT2 Graphics
- LGA
- Up to C6
- 35/45/65/95W

- GT3 Graphics
- BGA (40mm x 24mm), thickness 1.5mm
- Up to C10
- S0ix
- 15W

Shark Bay Offers Platform for All Client Segments
www.chiphell.com



Haswell MCM
 (Multi Chip Module)

ChipHell: Intel 22nm Haswell single-chip (MCM) mobile architecture overview (right)

Key Benefits of Latest Graphics

Intel® Iris™
Pro Graphics

&

Intel® Iris™
Graphics

- Up to 2X performance vs 3rd gen - comparable to discrete GPU
- Faster Intel® Quick Sync Video, JPEG/MPEG Decode & transcoding
- Broader support: DX11.1, OpenCL 1.2, OpenGL 4.0, 3 screen collage display, enhanced 4Kx2K

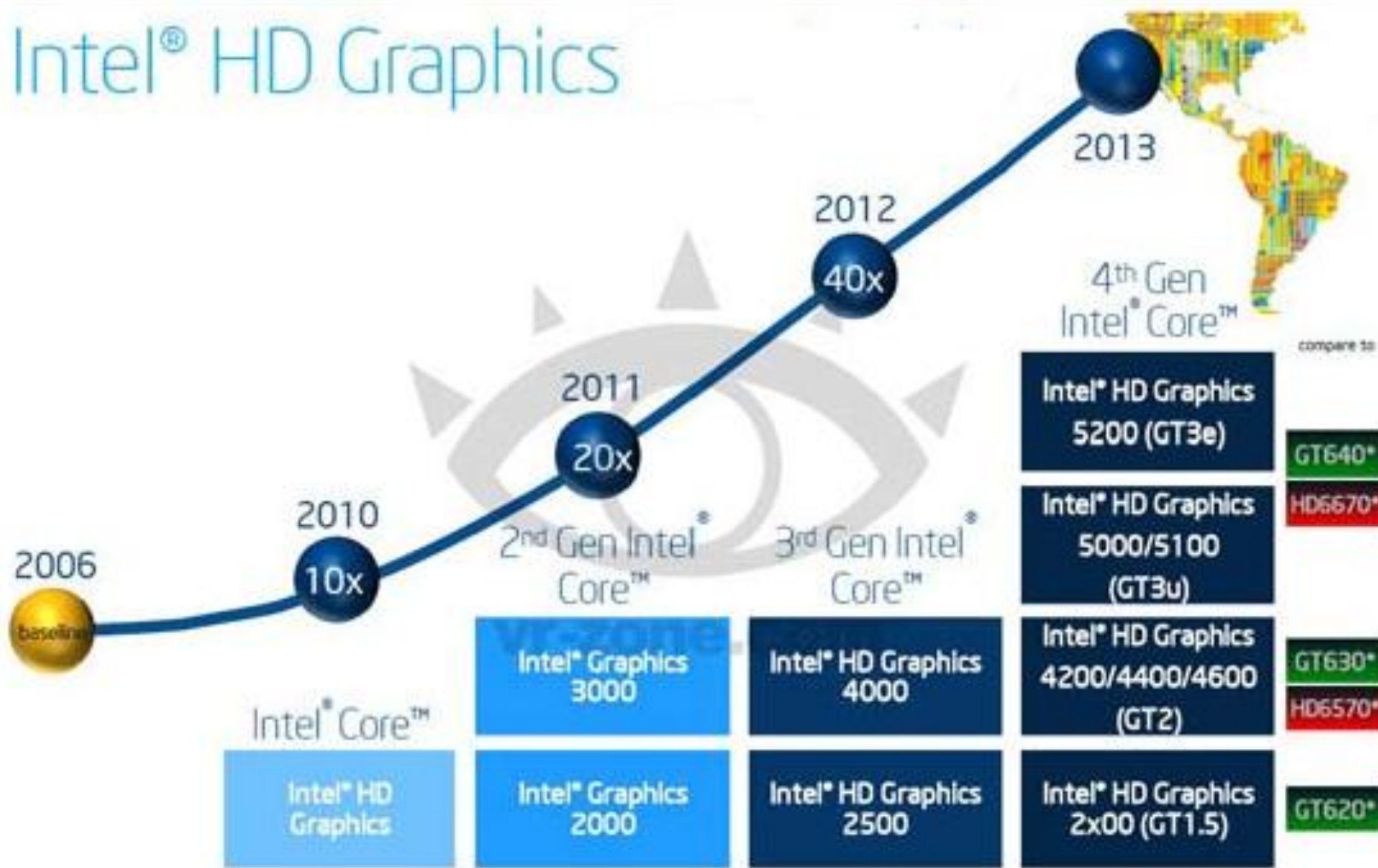
**Multiple level of graphics that scale based on performance.
New Intel® Iris™ graphics will co-exist with Intel® HD graphics.**

2013 Graphics Naming by Level



Graphics Level	PC Clients	Server / Workstation
GT3e*	Intel® Iris™ Pro graphics 5200	-----
GT3* (28W)	Intel® Iris™ graphics 5100	-----
GT3* (15W)	Intel® HD graphics 5000	-----
GT2*	Intel® HD graphics 4600 / 4400 / 4200	Intel® HD graphics P4700 / P4600
GT1*	Intel® HD graphics	-----

Intel® HD Graphics



New Haswell Desktop Processor Package/Socket

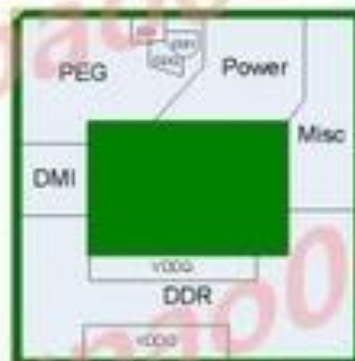
Socket H3, 1150pin

Ivy Bridge
LGA1155



37.5mm x 37.5mm x 4.516mm

Haswell
LGA1150



37.5mm x 37.5mm x 4.476mm

Planned socket transition
maximizes design reuse

- Socket Contact
- Independent Loading Mechanism (ILM)
- Heatsink Keep In Zone

Heat sinks from Ivy Bridge can be used with Haswell CPU,s

NEW - Z87 Motherboards

- ▶ To be released 2/3rd June

Concurrently with Haswell CPU's

- ▶ ASUS
- ▶ Gigabyte
- ▶ And others

Gigabyte Z87x Motherboard



ASUS Z87 Motherboard



4th Generation Intel® Core™ Processors

Enhanced Graphics

3D Graphics



NEW Up to 2x performance AGAIN

NEW Integrated on-package
EDRAM Memory

NEW API Support: DX11.1,
OpenCL 1.2, OpenGL 4.0

Display



NEW 3 Screen Collage Display

NEW Enhanced 4k x 2k support

NEW 2x bandwidth with
Display Port 1.2

Media



NEW Faster Intel® Quick Sync Video

NEW Faster JPEG & MPEG Decode

NEW OpenCL 1.2 Support

Haswell CPU Improved performance

- ▶ Intel has introduced TSX, or transactional memory, an incredibly powerful programming model for concurrency and multi-threaded programming. TSX improves performance and efficiency of software by better utilizing the underlying multi-core hardware.

More detail about Haswell CPU performance and operations

<http://www.realworldtech.com/haswell-cpu/>



View Intel 2013 Presentation at [intel 2013](#)

Conclusion

- ▶ “In summary, Haswell is a superb new architecture that will carry Intel into new markets and a new era of competition, not only from AMD, but also the ARM ecosystem. Ultimately, products will reveal the performance and efficiency advantages of the Haswell family, but the architecture looks quite promising, a testament to Intel’s design team. “

David Kanter
Real World Technologies