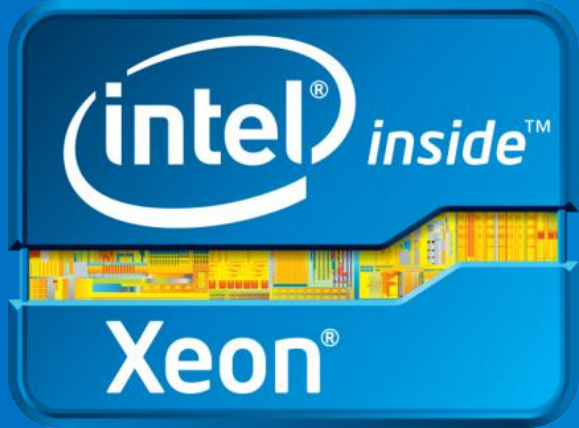




The Heart of a Flexible, Efficient Data Center

Ramzi.abdul.baki@intel.com



Building the Compute Continuum

2B+ Worldwide Internet Users

2B+ Videos Viewed per Day

15B Connected devices

247,000,000,000 More Devices

Emails Sent Every Day

2.5B Images Uploaded / Month



> 1000 Exabyte's

Internet traffic



Desktops

Laptops

Netbooks

Personal
Devices

Smartphones

Smart TVs

Embedded

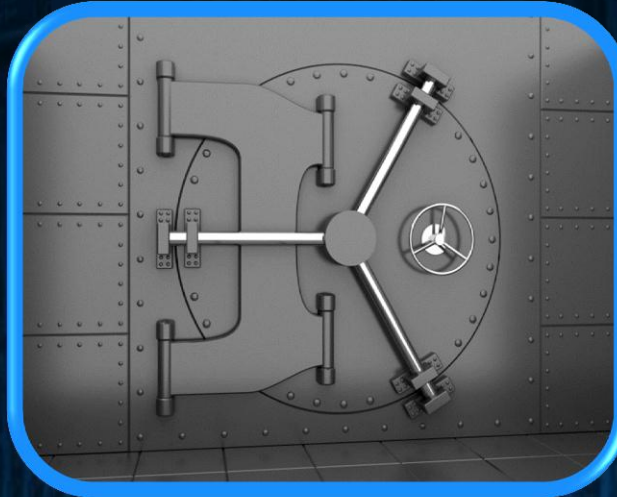


IT Must Scale!

Data Storage



Security



Power Costs



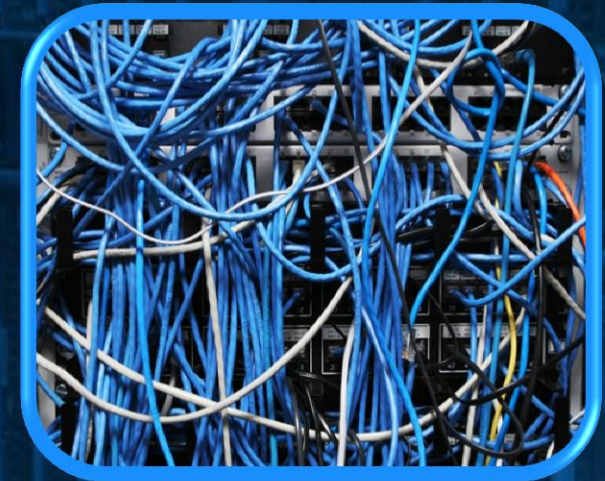
Interoperability



IT Staff Constraints



Network Bottlenecks



On Track For Cloud 2015 Vision



Open, Industry Standards



OPEN
Compute Project



Intel Cloud Builder Partners



Solutions to Help You Scale





**IT Needs the Best Combination of
Performance, Built-in Capabilities,
scalability and Cost-effectiveness**



Mission Critical Workloads

Transaction Processing



- 1,000s – 1,000,000+ online users
- Support large transactional databases
- 24 x 7 operation

Business Intelligence and Analytics



- Enable all users
- Complex queries
- Multiple data sources
- Large data warehouse

Database

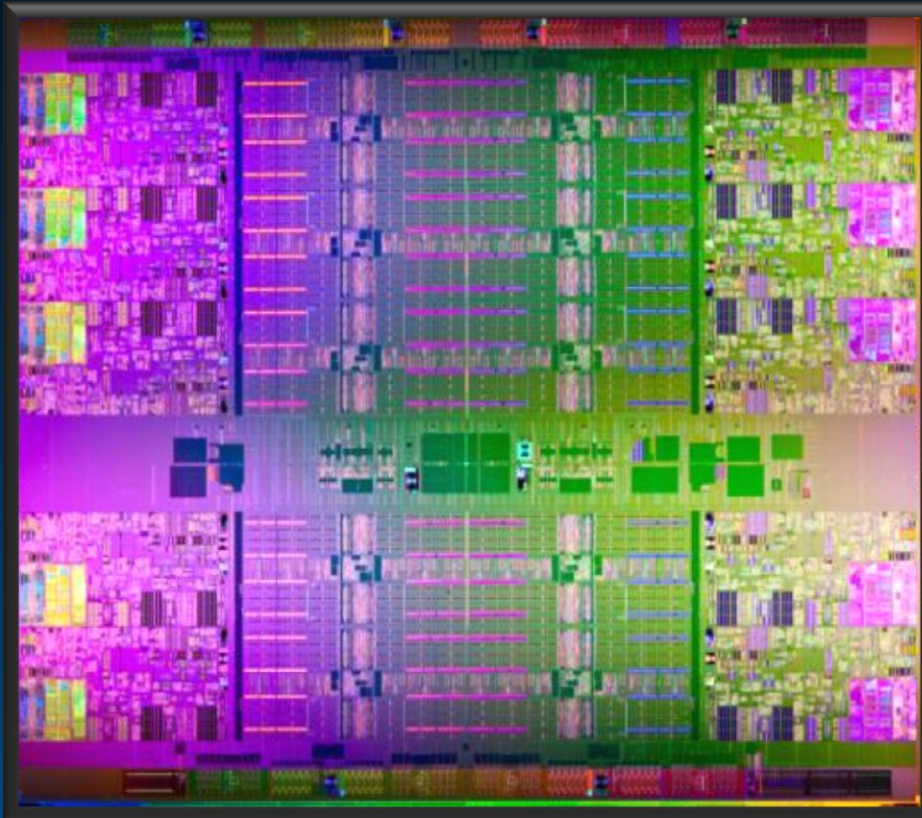


- Large scalable enterprise databases
- No single point of failure
- Extremely fast operational speed

An Hour Of Downtime Can Mean Millions In Lost Revenue

Intel® Xeon® Processor

E7-8800/4800/2800 Product Families



Top of the Line Performance

Up to 10 Cores and 20 Threads
& 30MB of on-die cache

More Scalability

Up to 2 Terabytes of DDR3
Memory¹
and low voltage DIMM support

Innovative Cisco UCS Implementation:

B230 M2 and B440 M2 Blades
C260 M2 and C460 M2 Rack Mount

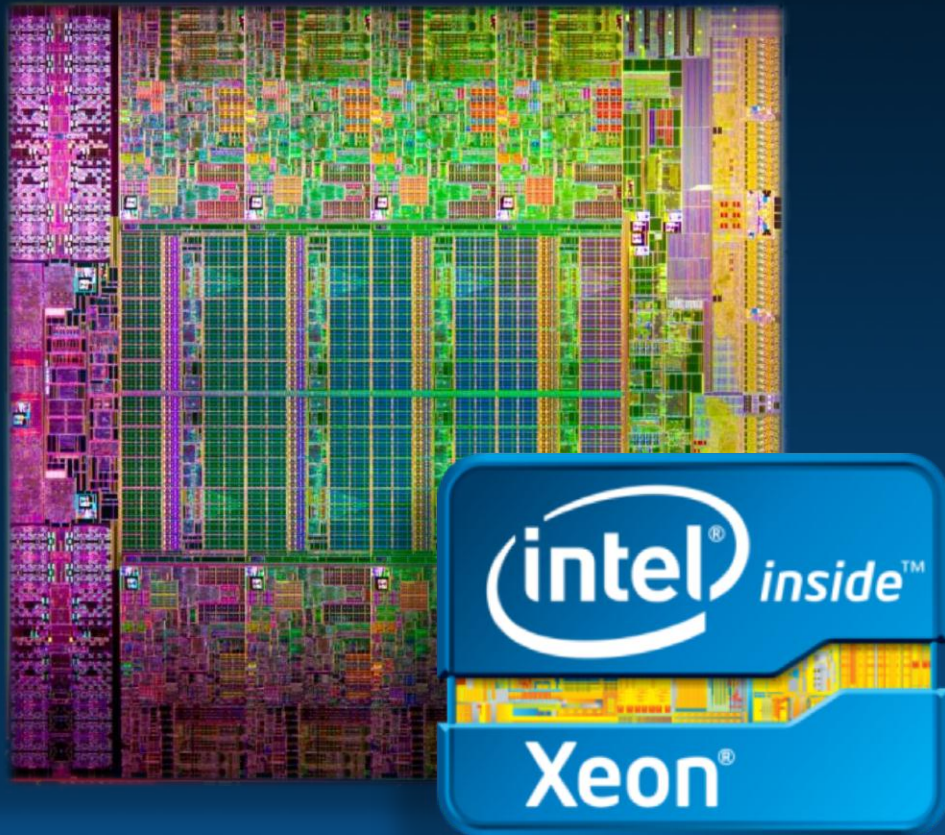
Advanced Data Protection

New reliability features &
Intel® TXT and AES-NI



• 1 Per 4 socket system using 32GB DIMMs

Intel® Xeon® Processor E5 Family



Leadership Performance
Breakthrough I/O Innovation

Trusted Security

Exceptional Energy
Efficiency

*The Heart of a Flexible, Efficient Data
Center Built to Scale*



More Capabilities for the Next-Generation Data Center



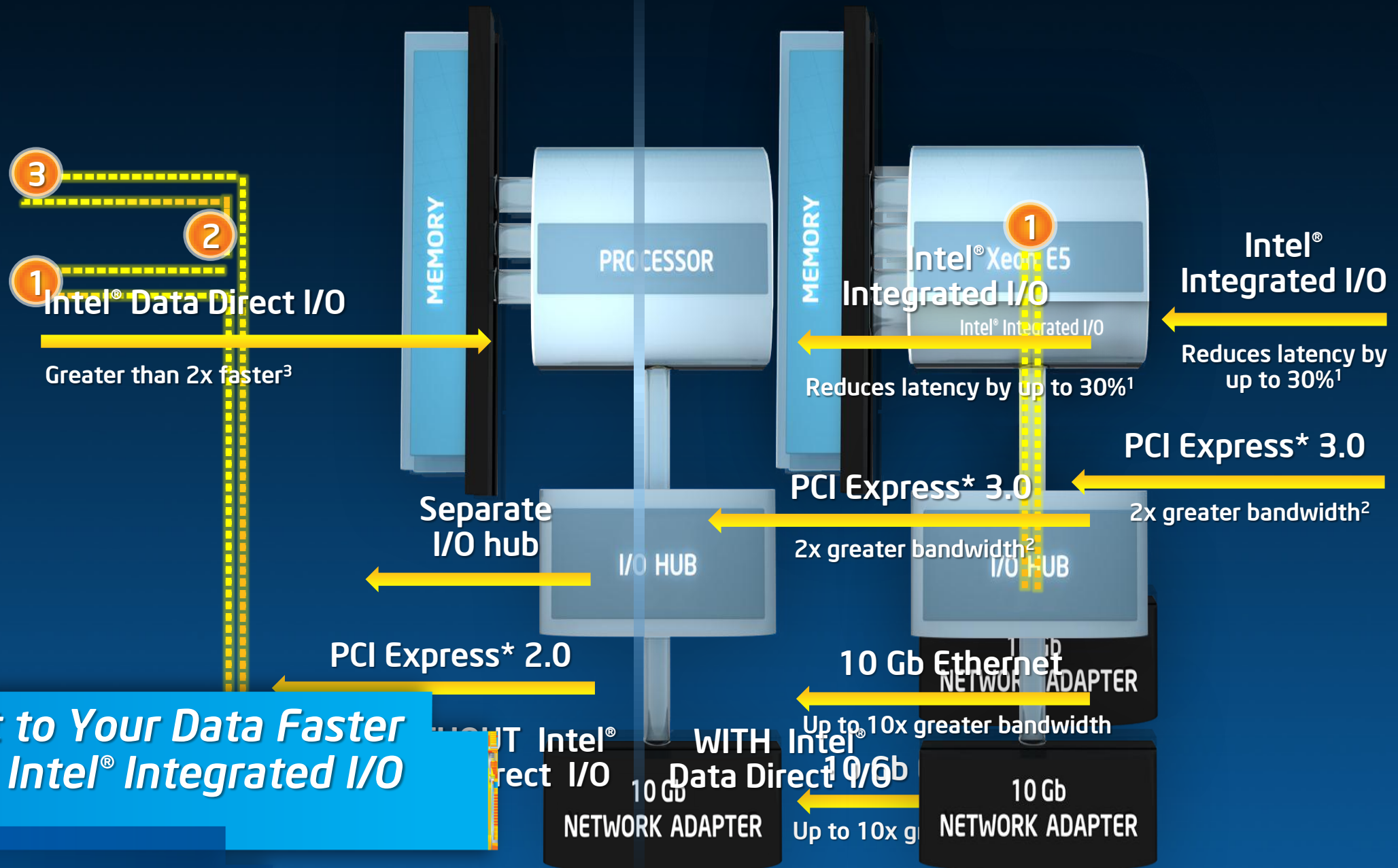
Up to **80% performance boost** vs. prior gen¹ at consistent power level

Intel® Integrated I/O with Intel® Data Direct I/O **cuts latency**² while adding capacity & bandwidth

Dramatically reduce compute time with Intel® Advanced Vector Extensions

Performance when you need it with Intel® Turbo Boost Technology 2.0

Previous Generation Intel® Integrated I/O



Software and workloads used in performance tests may have been optimized for performance only on Intel microprocessors. Performance tests, such as SYSmark and MobileMark, are measured using specific computer systems, components, software, operations and functions. Any change in any of those factors may cause the results to vary. You should consult other information and performance tests to assist you in fully evaluating your contemplated purchases, including the performance of that product when combined with other products.

1 Source: Intel internal measurements of average time for an I/O device read to local system memory under idle conditions comparing Intel® Xeon® processor E5-2600 product family (230 ns) vs. Intel® Xeon® processor 5500 series (340 ns). See notes in backup for configuration details.

2 Source: www.PcIsig.Com/news_room/november_18_2010_press_release

3 Up to 2.3x I/O performance is 1S with a Xeon processor 5600 series vs. 1S Xeon Processor E5-2600 data for L2 forwarding test using 8x10GbE ports. See notes in backup for configuration details.



Intel® Advanced Vector eXtensions



"The new Xeon processor E5-2600 with Intel® AVX allowed us to enable full stereo dual stream video processing in real time at high frame rates required for surgery."

— Alex Chanin, President and CEO, Visionsense

"Facial recognition solutions must process huge amounts of digital photo uploads accurately and at manageable costs. Using the Intel® Xeon® processor E5 family with Intel® AVX, we were able to reach a photo processing throughput unmatched by any world-class facial recognition solution."

— Yaniv Taigman, CTO of face.com



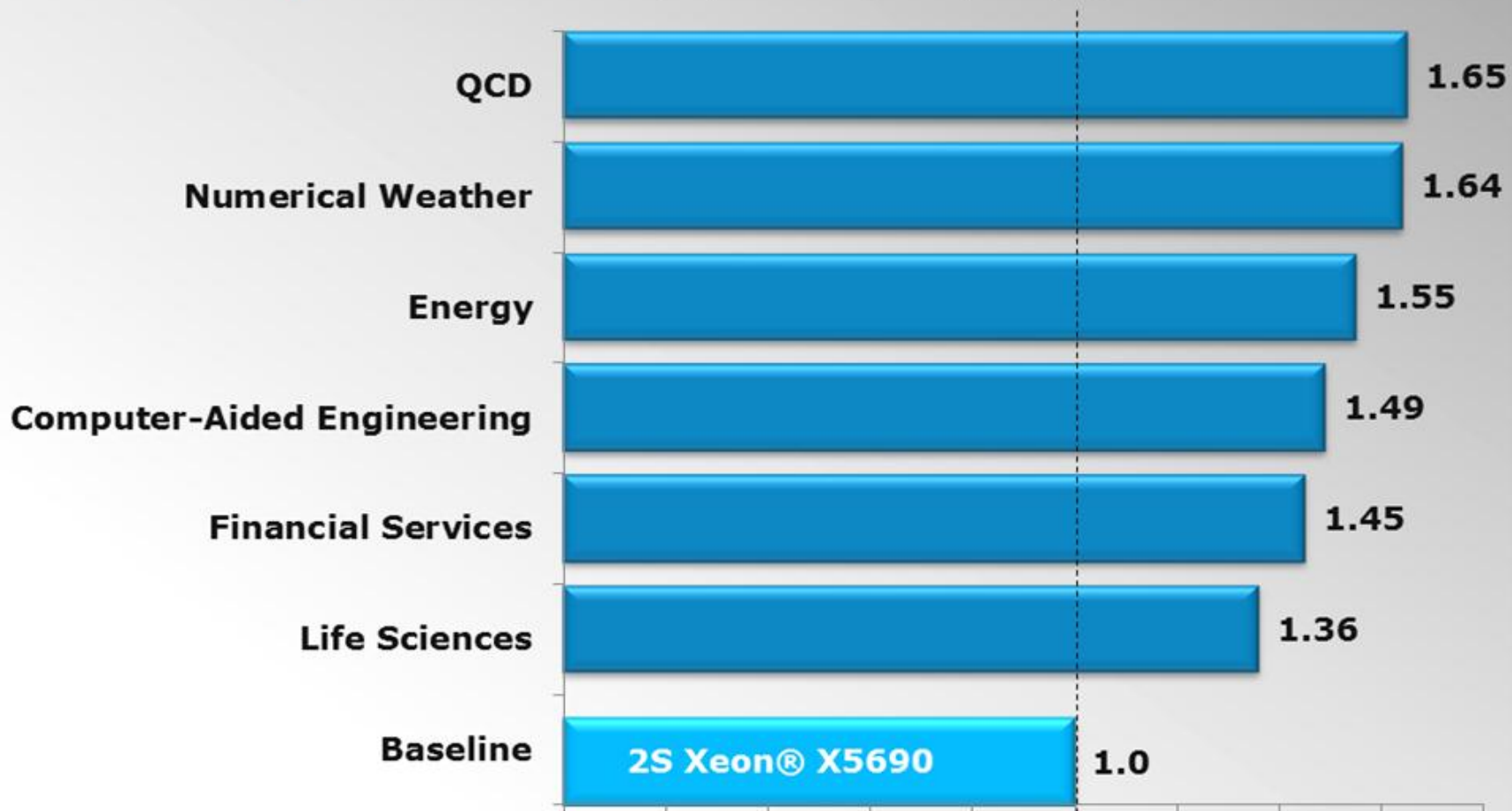
Intel® Advanced Vector eXtensions

HPC Benchmark Suite

Relative Geometric Mean Scores by segment
Actual performance will vary by workload
Higher is better

■ 2S SNB-EP 2.7GHz, 8C, DDR3-1333, 130W

■ Intel® Xeon X5690 (6C, 3.46GHz, 12M, 6.4QPI, 130W)



Trusted Security

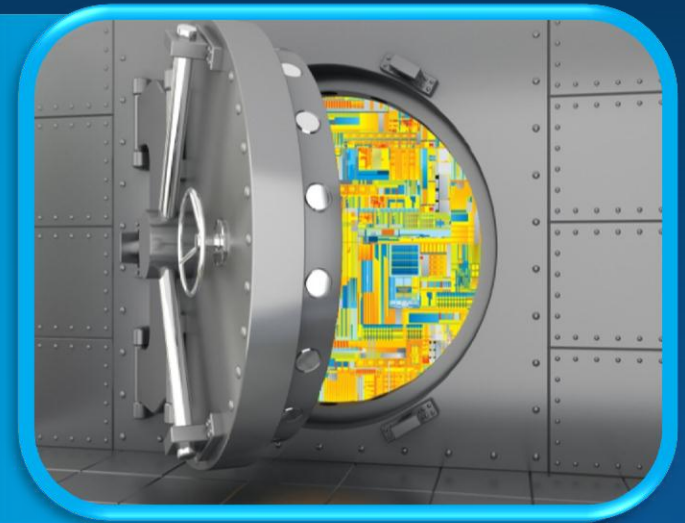


Intel® Trusted Execution Technology

Average organizational costs of a data breach over \$7M per incident²

Intel® Advanced Encryption Standard New Instructions

Use of AES encryption¹ has nearly tripled in the last 10 quarters



¹ AES Instructions refers to AES128-SHA1. Source: Akamai Second Quarter 2011 'State of the Internet' Report. See details and report at:

² Source: Ponemon Institute - 2010 Annual Study: Cost of a Data Breach . March 2011



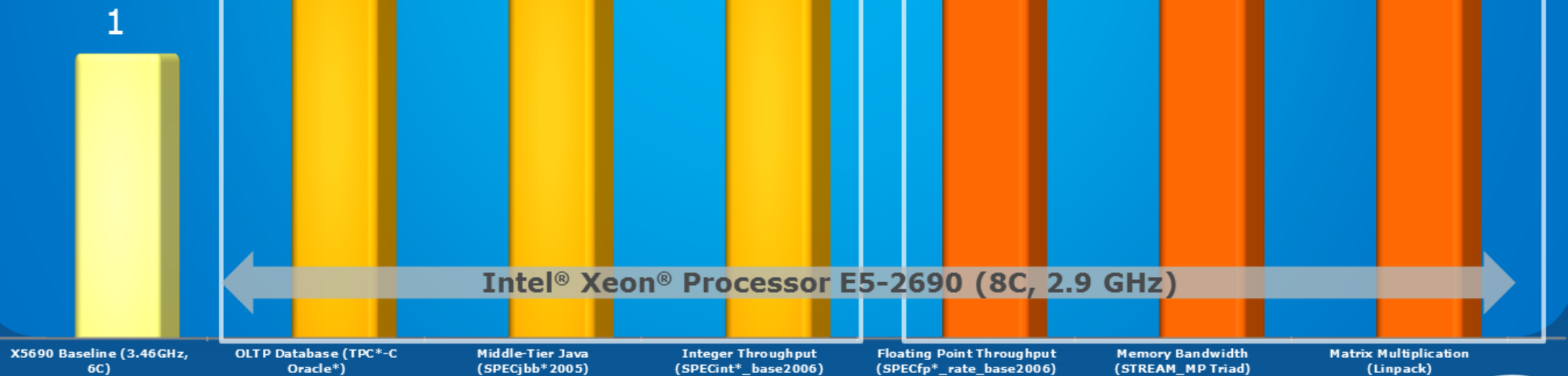
Intel® Xeon® Processor E5 Family

Intel® Xeon® Processor E5-2690

↑
Higher
is better

Enterprise

Technical Computing



Xeon® Processor Energy Efficiency

Up to 80% Performance boost vs. prior gen¹ at consistent power level

Intel® Integrated I/O with Intel® Data Direct I/O **cuts latency**² while adding capacity, bandwidth and scalability

Dramatically reduce data center **space** constraints

Reduces Management overload
Performance when you need it with Intel® Turbo Boost Technology 2.0



~50%¹

higher Performance
At Same Power

Relative Performance and System Power



■ Peak power under load
■ Performance



X5675

E5-2660

Best Data Center Performance per Watt¹

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¹ Performance comparison using SPEC_Power results published as of March 6th, 2012. See back up for configuration details. For more information go to intel.com/performance



Xeon® Summary

Xeon® Processor E5 / E7 within UCS

- Performance Power efficiency & Scalability
- Open standards

Xeon® AVX Technology

Xeon® AES Technology

Intel BDMs for up to date product developments.



Thank You

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