Based on Intel’s leading-edge 22nm process technology, the Intel® Xeon® processor E5-4600 v2 product family provides a density optimized, energy efficient and compute intensive 4-socket processor solution to extend the value of the Intel® Xeon® processor E5 v2 family to 4-socket.

Up to 40 Percent Higher Average Performance

The Intel® Xeon® processor E5-4600 v2 product family provides 50 percent more cores and cache than the previous generation, along with faster memory and additional hardware features. These innovations deliver up to 40 percent higher performance\(^2\) on average over previous generation Intel® Xeon® processor-based servers across a broad range of benchmarks.

- **New virtualization efficiencies.** Advanced Programmable Interrupt Controller virtualization (API(C)v) takes the value of Intel® Virtualization Technology (Intel® VT) to new heights. By eliminating up to 50 percent of virtual machine exits, it reduces virtualization overhead to 4 percent CPU utilization\(^3\) to further improve performance and scalability.

Security Features for Enhanced Data Integrity

- Improved hardware-embedded security for an even safer environment for your enterprise data

- **Intel® Data Protection Technology with Secure Key\(^4\) for faster and more secure encryption through a chipset-independent digital random number generator (DRNG).**

- **Intel® Platform Protection Technology with OS Guard\(^5\) for improved protection against malware by preventing execution calls to the OS from compromised apps in the user mode or code pages.**

Driving Down Energy Costs at Every Level

Power and cooling costs continue to rise. The Intel Xeon processor E5-4600 v2 product family can help you get more value out of every watt by optimizing performance versus energy consumption, not only for individual servers, but also for racks, rows, and entire data centers.

- **Industry-leading energy efficiency per server.** Intel’s 22nm, 3-D Tri-Gate transistors use just half the power\(^6\) of prior-generation transistors operating at the same performance level. Intel® Intelligent Power Technology\(^7\) adds to these gains by dynamically optimizing performance versus energy consumption across all operating points.

- **Automated control of server power.** Intel® Node Manager lets you monitor and control server power and set maximum limits for each server. Use it to increase rack densities, adjust cooling based on...
actual demand, improve business continuity, and dynamically balance resources to accomplish more while spending less.

- **Power optimization across your data center.** Intel® Data Center Manager plugs into existing management frameworks to enable power and thermal monitoring and management for individual servers and groups of servers. You gain unprecedented insight and control over power, cooling, and performance throughout your data center.

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**Optimized Platform Solutions**

Intel delivers higher value by engineering complete, highly-optimized platform solutions.

- Use Intel® 10 Gigabit Ethernet to improve performance for demanding workloads and to consolidate your data center traffic onto a single, scalable, cloud-ready network.

- Add Intel® Cache Acceleration Software (Intel® CAS) and one or more Intel® Solid-State Drives (Intel® SSDs) per server to dramatically and cost-effectively boost storage performance.

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**INTEL® XEON® PROCESSOR E5-4600 V2 PRODUCT FAMILY SPECIFICATIONS**

<table>
<thead>
<tr>
<th>PROCESSOR NUMBERa</th>
<th>CPU FREQUENCY (GHZ)</th>
<th>INTEL® TURBO BOOST TECHNOLOGY</th>
<th>INTEL® HT TECHNOLOGY</th>
<th>L3 CACHE</th>
<th>NUMBER OF CORES</th>
<th>POWER</th>
<th>INTEL® QPI LINK SPEED</th>
<th>DDR3 MEMORY</th>
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</thead>
<tbody>
<tr>
<td><strong>For 4 Socket Servers - Advanced</strong></td>
<td></td>
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<td></td>
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<tr>
<td>Intel® Xeon® Processor E5-4657L v2</td>
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<td>1866</td>
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<td>â—€</td>
<td>16 MB</td>
<td>8</td>
<td>130 W</td>
<td>7.2 GT/s</td>
<td>1866</td>
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<tr>
<td><strong>For 4 Socket Servers - Standard</strong></td>
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<td>7.2 GT/s</td>
<td>1600</td>
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<tr>
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<td>8</td>
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<td>7.2 GT/s</td>
<td>1600</td>
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<tr>
<td><strong>For 2 Socket Servers - Basic</strong></td>
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<tr>
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<tr>
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<td>6.4 GT/s</td>
<td>1333</td>
</tr>
</tbody>
</table>

a GT/s = giga-transfers/second
### INTEL XEON PROCESSOR E5 V2 FAMILY OVERVIEW

<table>
<thead>
<tr>
<th>Feature</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Advanced multi-core, multi-threaded processing</strong></td>
<td>Up to 12 cores and 24 threads per socket</td>
</tr>
</tbody>
</table>
| **Larger cache and faster memory** | - Up to 30 MB of last level cache for fast access to frequently used data  
- Up to 48 DIMMs per four-socket server  
- Faster maximum memory speeds than the previous generation (1866 MHz versus 1600 MHz) |
| **Higher performance for peak workloads** | Intel® Turbo Boost Technology 2.0\(^8\) takes advantage of power and thermal headroom to increase processor frequencies for peak workloads |
| **Higher performance for HPC applications\(^a,\(^9\)** | Intel® Advanced Vector Extensions (Intel® AVX) speeds vector and floating point computations, with support for 256-bit vectors and accelerated 32/64 bit data conversions |
| **Improved virtualization efficiency** | Advanced Programmable Interrupt Controller virtualization (APICv) enhances Intel Virtualization Technology by eliminating up to 50 percent of virtual machine exits |
| **Integrated storage/server processor** | Supports key storage processor features, including x16 non-transparent bridging (vs. x8 NTB) to increase scalability and accelerated RAID for implementing RAID 5 and 6 without a custom ASIC |
| **Stronger, faster data encryption** | Intel® Data Protection Technology with:  
- Secure Key, which provides high-quality security keys  
- Intel® Advanced Encryption Standard-New Instructions (Intel® AES-NI), which enables encryption to be implemented pervasively without sacrificing application response times |
| **A better foundation for secure-multi tenancy** | Intel® Platform Protection Technology with:  
- Intel® Trusted Execution Technology (Intel® TXT), which enables IT to establish trusted pools of virtualized resources for stronger security and compliance in multi-tenant virtual and cloud environments  
- OS Guard, which protects against escalation of privilege attacks that attempt to gain control of the platform or execute malware |
| **Industry-leading energy-efficiency** | Intel 22 nm, 3-D tri-gate transistors cut power consumption by half versus the prior generation\(^a,\(^6\)**  
- Intel® Intelligent Power Technology\(^7\) dynamically manages CPU and memory energy states to minimize power without slowing performance |
| **Comprehensive monitoring and control** | Intel® Node Manager lets IT monitor and control server power  
- Intel® Data Center Manager lets IT dynamically optimize energy-consumption at every level, from individual servers, racks, and rows to entire data centers |

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To learn more about the Intel Xeon processor E5-4600 v2 product family, visit [www.intel.com/xeonE5](http://www.intel.com/xeonE5).

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Relative performance for each benchmark is calculated by taking the actual benchmark result for the first platform tested and assigning it a value of 1.0 as a baseline. Relative performance for the remaining platforms tested was calculated by dividing the actual benchmark result for the baseline platform into each of the specific benchmark results of each of the other platforms and assigning them a relative performance number that correlates with the performance improvements reported.

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