# SPEC® CINT2006 Result

**Hewlett-Packard Company**

ProLiant XL170r Gen9
(3.20 GHz, Intel Xeon E5-2667 v3)

<table>
<thead>
<tr>
<th>SPECint®2006</th>
<th>65.9</th>
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<tr>
<td>SPECint_base2006</td>
<td>62.8</td>
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</table>

**CPU2006 license:** 3  
**Test date:** Mar-2015  
**Test sponsor:** Hewlett-Packard Company  
**Hardware Availability:** Mar-2015  
**Tested by:** Hewlett-Packard Company  
**Software Availability:** Sep-2014

## Hardware

<table>
<thead>
<tr>
<th>Feature</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>CPU Name:</strong></td>
<td>Intel Xeon E5-2667 v3</td>
</tr>
<tr>
<td><strong>CPU Characteristics:</strong></td>
<td>Intel Turbo Boost Technology up to 3.60 GHz</td>
</tr>
<tr>
<td><strong>CPU MHz:</strong></td>
<td>3200</td>
</tr>
<tr>
<td><strong>FPU:</strong></td>
<td>Integrated</td>
</tr>
<tr>
<td><strong>CPU(s) enabled:</strong></td>
<td>16 cores, 2 chips, 8 cores/chip</td>
</tr>
<tr>
<td><strong>CPU(s) orderable:</strong></td>
<td>1.2 chip</td>
</tr>
<tr>
<td><strong>Primary Cache:</strong></td>
<td>32 KB I + 32 KB D on chip per core</td>
</tr>
<tr>
<td><strong>Secondary Cache:</strong></td>
<td>256 KB I+D on chip per core</td>
</tr>
<tr>
<td><strong>L3 Cache:</strong></td>
<td>20 MB I+D on chip per chip</td>
</tr>
<tr>
<td><strong>Other Cache:</strong></td>
<td>None</td>
</tr>
<tr>
<td><strong>Memory:</strong></td>
<td>256 GB (16 x 16 GB 2Rx4 PC4-2133P-R)</td>
</tr>
<tr>
<td><strong>Disk Subsystem:</strong></td>
<td>1 x 400 GB SATA SSD, RAID 0</td>
</tr>
<tr>
<td><strong>Other Hardware:</strong></td>
<td>None</td>
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## Software

<table>
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<tbody>
<tr>
<td><strong>Operating System:</strong></td>
<td>Red Hat Enterprise Linux Server release 7.0 (Maipo)</td>
</tr>
<tr>
<td><strong>Compiler:</strong></td>
<td>C/C++: Version 15.0.0.0.90 of Intel C++ Studio XE for Linux</td>
</tr>
<tr>
<td><strong>Auto Parallel:</strong></td>
<td>Yes</td>
</tr>
<tr>
<td><strong>File System:</strong></td>
<td>xfs</td>
</tr>
<tr>
<td><strong>System State:</strong></td>
<td>Run level 3 (multi-user)</td>
</tr>
<tr>
<td><strong>Base Pointers:</strong></td>
<td>32/64-bit</td>
</tr>
<tr>
<td><strong>Peak Pointers:</strong></td>
<td>32/64-bit</td>
</tr>
<tr>
<td><strong>Other Software:</strong></td>
<td>Microquill SmartHeap V10.0</td>
</tr>
</tbody>
</table>

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Standard Performance Evaluation Corporation  
info@spec.org  
http://www.spec.org/
### Results Table

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
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<tbody>
<tr>
<td>Base</td>
<td>233</td>
<td>41.9</td>
<td>233</td>
<td>42.0</td>
<td>233</td>
<td>41.9</td>
<td>203</td>
<td>48.2</td>
<td>203</td>
<td>48.2</td>
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<tr>
<td>Peak</td>
<td>372</td>
<td>26.0</td>
<td>372</td>
<td>25.9</td>
<td>371</td>
<td>26.0</td>
<td>368</td>
<td>26.2</td>
<td>368</td>
<td>26.2</td>
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<tr>
<td>403.mcf</td>
<td>227</td>
<td>35.5</td>
<td>226</td>
<td>35.6</td>
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<td>35.5</td>
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<td>36.1</td>
<td>222</td>
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<td>429.gcc</td>
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<td>64.4</td>
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<td>64.7</td>
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<td>64.1</td>
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<tr>
<td>445.gobmk</td>
<td>353</td>
<td>29.7</td>
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<td>29.7</td>
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<td>29.8</td>
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<tr>
<td>456.hmmer</td>
<td>131</td>
<td>71.3</td>
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<td>458.sjeng</td>
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<td>34.6</td>
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<td>34.8</td>
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<tr>
<td>462.libquantum</td>
<td>3.53</td>
<td>5870</td>
<td>3.52</td>
<td>5880</td>
<td>3.63</td>
<td>5710</td>
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<td>5870</td>
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<td>464.h264ref</td>
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<td>54.3</td>
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<td>54.3</td>
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<td>54.3</td>
<td>408</td>
<td>54.3</td>
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<tr>
<td>471.onetpp</td>
<td>228</td>
<td>27.4</td>
<td>228</td>
<td>27.4</td>
<td>225</td>
<td>27.8</td>
<td>158</td>
<td>39.5</td>
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<td>41.1</td>
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<td>473.astar</td>
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<td>34.2</td>
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<td>34.8</td>
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<td>34.2</td>
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<td>34.8</td>
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<tr>
<td>483.xalancbmk</td>
<td>102</td>
<td>67.6</td>
<td>102</td>
<td>67.5</td>
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<td>67.9</td>
<td>102</td>
<td>67.6</td>
<td>102</td>
<td>67.9</td>
</tr>
</tbody>
</table>

Results appear in the order in which they were run. Bold underlined text indicates a median measurement.

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### Submit Notes

The config file option 'submit' was used.

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### Operating System Notes

Stack size set to unlimited using "ulimit -s unlimited"

Transparent Huge Pages enabled with:

echo always > /sys/kernel/mm/transparent_hugepage/enabled

---

### Platform Notes

BIOS Configuration:
- Intel Hyperthreading Options set to Disabled
- HP Power Profile set to Custom
- HP Power Regulator set to HP Static High Performance Mode
- Minimum Processor Idle Power Package C-State set to No Package State
- Energy/Performance Bias set to Maximum Performance
- QPI Snoop Configuration set to Early Snoop
- Thermal Configuration set to Maximum Cooling
- Processor Power and Utilization Monitoring set to Disabled
- Memory Refresh Rate set to 1x Refresh

Sysinfo program /cpu2006/config/sysinfo.rev6914

$Rev: 6914 $ $Date:: 2014-06-25 $$ e3fbb8667b5a285932ceab81e28219e1

running on R110-xl170-A Mon Mar 30 17:41:27 2015

This section contains SUT (System Under Test) info as seen by some common utilities. To remove or add to this section, see:

Continued on next page
SPEC CINT2006 Result

Hewlett-Packard Company
ProLiant XL170r Gen9
(3.20 GHz, Intel Xeon E5-2667 v3)

SPECint2006 = 65.9
SPECint_base2006 = 62.8

CPU2006 license: 3
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Tested by: Hewlett-Packard Company

Test date: Mar-2015
Hardware Availability: Mar-2015
Software Availability: Sep-2014

Platform Notes (Continued)

http://www.spec.org/cpu2006/Docs/config.html#sysinfo

From /proc/cpuinfo
   model name : Intel(R) Xeon(R) CPU E5-2667 v3 @ 3.20GHz
   2 "physical id"s (chips)
   16 "processors"
   cores, siblings (Caution: counting these is hw and system dependent. The
   following excerpts from /proc/cpuinfo might not be reliable. Use with
   caution.)
   cpu cores : 8
   siblings : 8
   physical 0: cores 0 1 2 3 4 5 6 7
   physical 1: cores 0 1 2 3 4 5 6 7
   cache size : 20480 KB

From /proc/meminfo
   MemTotal:       263847148 kB
   HugePages_Total:       0
   Hugepagesize:       2048 kB

From /etc/*release* /etc/*version*
   os-release:
      NAME="Red Hat Enterprise Linux Server"
      VERSION="7.0 (Maipo)"
      ID="rhel"
      ID_LIKE="fedora"
      VERSION_ID="7.0"
      PRETTY_NAME="Red Hat Enterprise Linux Server 7.0 (Maipo)"
      ANSI_COLOR="0;31"
      CPE_NAME="cpe:/o:redhat:enterprise_linux:7.0:GA:server"
      redhat-release: Red Hat Enterprise Linux Server release 7.0 (Maipo)
      system-release: Red Hat Enterprise Linux Server release 7.0 (Maipo)
      system-release-cpe: cpe:/o:redhat:enterprise_linux:7.0:ga:server

      uname -a:
         Linux R110-xl170-A 3.10.0-123.el7.x86_64 #1 SMP Mon May 5 11:16:57 EDT 2014
         x86_64 x86_64 x86_64 GNU/Linux

      run-level 3 Mar 30 17:40

      SPEC is set to: /cpu2006

      Filesystem  Type  Size  Used Avail Use% Mounted on
      /dev/sda4    xfs   307G  166G  141G  55%  /

      Additional information from dmidecode:

      Warning: Use caution when you interpret this section. The 'dmidecode' program
      reads system data which is "intended to allow hardware to be accurately
      determined", but the intent may not be met, as there are frequent changes to
      hardware, firmware, and the "DMTF SMBIOS" standard.

      BIOS HP U14 03/05/2015
      Memory:
Hewlett-Packard Company

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Platform Notes (Continued)

5x HP 752369-081 16 GB 2 rank 2133 MHz
11x UNKNOWN NOT AVAILABLE 16 GB 2 rank 2133 MHz

General Notes

Environment variables set by runspec before the start of the run:
KMP_AFFINITY = "granularity=fine,scatter"
LD_LIBRARY_PATH = "/cpu2006/libs/32:/cpu2006/libs/64:/cpu2006/sh"
OMP_NUM_THREADS = "16"

Binaries compiled on a system with 1x Core i5-4670K CPU + 16GB memory using RedHat EL 7.0

Base Compiler Invocation

C benchmarks:
  icc  -m64

C++ benchmarks:
  icpc -m64

Base Portability Flags

400.perlbench: -DSPEC_CPU_LP64 -DSPEC_CPU_LINUX_X64
  401.bzip2: -DSPEC_CPU_LP64
  403.gcc: -DSPEC_CPU_LP64
  429.mcf: -DSPEC_CPU_LP64
  445.gobmk: -DSPEC_CPU_LP64
  456.hmmer: -DSPEC_CPU_LP64
  458.sjeng: -DSPEC_CPU_LP64
  462.libquantum: -DSPEC_CPU_LP64 -DSPEC_CPU_LINUX
  464.h264ref: -DSPEC_CPU_LP64
  471.omnetpp: -DSPEC_CPU_LP64
  473.astar: -DSPEC_CPU_LP64
  483.xalancbmk: -DSPEC_CPU_LP64 -DSPEC_CPU_LINUX

Base Optimization Flags

C benchmarks:
  -xCORE-AVX2 -ipo -O3 -no-prec-div -parallel -opt-prefetch -auto-p32

C++ benchmarks:
  -xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch -auto-p32
  -Wl,-z,muldefs -L/sh -lsmartheap64
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Base Other Flags

C benchmarks:
403.gcc: -Dalloca=_alloca

Peak Compiler Invocation

C benchmarks (except as noted below):
icc -m64

400.perlbench: icc -m32 -L/opt/intel/composer_xe_2015/lib/ia32
445.gobmk: icc -m32 -L/opt/intel/composer_xe_2015/lib/ia32

C++ benchmarks (except as noted below):
icpc -m64

471.omnetpp: icpc -m32 -L/opt/intel/composer_xe_2015/lib/ia32

Peak Portability Flags

400.perlbench: -DSPEC_CPU_LINUX_IA32
401.bzip2: -DSPEC_CPU_LP64
403.gcc: -DSPEC_CPU_LP64
429.mcf: -DSPEC_CPU_LP64
456.hmmer: -DSPEC_CPU_LP64
458.sjeng: -DSPEC_CPU_LP64
462.libquantum: -DSPEC_CPU_LP64 -DSPEC_CPU_LINUX
464.h264ref: -DSPEC_CPU_LP64
473.astar: -DSPEC_CPU_LP64
483.xalancbmk: -DSPEC_CPU_LP64 -DSPEC_CPU_LINUX

Peak Optimization Flags

C benchmarks:

400.perlbench: -xCORE-AVX2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2) -opt-prefetch -ansi-alias

Continued on next page
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Peak Optimization Flags (Continued)

403.gcc: -xCORE-AVX2 -ipo -O3 -no-prec-div -inline-calloc
-opt-malloc-options=3 -auto-ilp32

429.mcf: -xCORE-AVX2 -ipo -O3 -no-prec-div -parallel
-opt-prefetch -auto-p32

445.gobmk: -xCORE-AVX2(pass 2) -prof-gen(pass 1) -prof-use(pass 2)
-ansi-alias

456.hmmer: basepeak = yes

458.sjeng: -xCORE-AVX2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
-O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2)
-unroll4

462.libquantum: basepeak = yes

464.h264ref: basepeak = yes

C++ benchmarks:

471.omnetpp: -xCORE-AVX2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
-O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2)
-opt-ra-region-strategy=block -ansi-alias
-Wl,-z,muldefs -L/sh -lsmartheap

473.astar: basepeak = yes

483.xalancbmk: basepeak = yes

Peak Other Flags

C benchmarks:

403.gcc: -Dalloca=_alloca

The flags files that were used to format this result can be browsed at
http://www.spec.org/cpu2006/flags/Intel-ic15.0-official-linux64.html
http://www.spec.org/cpu2006/flags/HP-Platform-Flags-Intel-V1.2-HSW-revE.html

You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2006/flags/Intel-ic15.0-official-linux64.xml
http://www.spec.org/cpu2006/flags/HP-Platform-Flags-Intel-V1.2-HSW-revE.xml
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For questions about this result, please contact the tester.
For other inquiries, please contact webmaster@spec.org.

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