**Hewlett-Packard Company**  
ProLiant DL360 Gen9  
(2.30 GHz, Intel Xeon E5-2699 v3)  

| SPECint®2006 | 66.5 |
| SPECint_base2006 | 63.2 |

---

### Hardware

<table>
<thead>
<tr>
<th>Feature</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>CPU Name</td>
<td>Intel Xeon E5-2699 v3</td>
</tr>
<tr>
<td>CPU Characteristics</td>
<td>Intel Turbo Boost Technology up to 3.60 GHz</td>
</tr>
<tr>
<td>CPU MHz</td>
<td>2300</td>
</tr>
<tr>
<td>FPU</td>
<td>Integrated</td>
</tr>
<tr>
<td>CPU(s) enabled</td>
<td>18 cores, 1 chip, 18 cores/chip</td>
</tr>
<tr>
<td>CPU(s) orderable</td>
<td>1.2 chip</td>
</tr>
<tr>
<td>Primary Cache</td>
<td>32 KB I + 32 KB D on chip per core</td>
</tr>
<tr>
<td>Secondary Cache</td>
<td>256 KB I+D on chip per core</td>
</tr>
<tr>
<td>L3 Cache</td>
<td>45 MB I+D on chip per chip</td>
</tr>
<tr>
<td>Other Cache</td>
<td>None</td>
</tr>
<tr>
<td>Memory</td>
<td>128 GB (8 x 16 GB 2Rx4 PC4-2133P-R)</td>
</tr>
<tr>
<td>Disk Subsystem</td>
<td>1 x 400 GB SAS SSD, RAID 0</td>
</tr>
<tr>
<td>Other Hardware</td>
<td>None</td>
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</table>

### Software

<table>
<thead>
<tr>
<th>Feature</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating System</td>
<td>Red Hat Enterprise Linux Server release 7.0 (Maipo)</td>
</tr>
<tr>
<td>Kernel</td>
<td>3.10.0-123.el7.x86_64</td>
</tr>
<tr>
<td>Compiler</td>
<td>C/C++ Version 14.0.0.080 of Intel C++ Studio XE for Linux</td>
</tr>
<tr>
<td>Auto Parallel</td>
<td>Yes</td>
</tr>
<tr>
<td>File System</td>
<td>xfs</td>
</tr>
<tr>
<td>System State</td>
<td>Run level 3 (multi-user)</td>
</tr>
<tr>
<td>Base Pointers</td>
<td>32/64-bit</td>
</tr>
<tr>
<td>Peak Pointers</td>
<td>32/64-bit</td>
</tr>
<tr>
<td>Other Software</td>
<td>Microquill SmartHeap V10.0</td>
</tr>
</tbody>
</table>
# SPEC CINT2006 Result

## Hewlett-Packard Company

**ProLiant DL360 Gen9**  
(2.30 GHz, Intel Xeon E5-2699 v3)

| SPECint2006 | 66.5 |
| SPECint_base2006 | 63.2 |

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

### Results Table

<table>
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<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>
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</thead>
<tbody>
<tr>
<td>400.perlbench</td>
<td>244</td>
<td>40.0</td>
<td>241</td>
<td>40.5</td>
<td><strong>244</strong></td>
<td><strong>40.0</strong></td>
<td>205</td>
<td>47.7</td>
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<tr>
<td>401.bzip2</td>
<td><strong>382</strong></td>
<td><strong>25.2</strong></td>
<td>382</td>
<td>25.2</td>
<td>382</td>
<td>25.3</td>
<td><strong>382</strong></td>
<td><strong>25.2</strong></td>
</tr>
<tr>
<td>403.gcc</td>
<td>225</td>
<td>35.7</td>
<td>227</td>
<td>35.5</td>
<td><strong>226</strong></td>
<td><strong>35.6</strong></td>
<td>209</td>
<td>38.4</td>
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<tr>
<td>429.gobmk</td>
<td>429</td>
<td>24.4</td>
<td>429</td>
<td>24.5</td>
<td><strong>429</strong></td>
<td><strong>24.5</strong></td>
<td>355</td>
<td>29.5</td>
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<tr>
<td>456.hmmer</td>
<td>133</td>
<td>70.4</td>
<td>130</td>
<td>71.7</td>
<td><strong>130</strong></td>
<td><strong>71.6</strong></td>
<td>133</td>
<td>70.4</td>
</tr>
<tr>
<td>458.sjeng</td>
<td><strong>342</strong></td>
<td><strong>35.4</strong></td>
<td>342</td>
<td>35.3</td>
<td>342</td>
<td>35.4</td>
<td>339</td>
<td>35.7</td>
</tr>
<tr>
<td>462.libquantum</td>
<td>3.63</td>
<td>5700</td>
<td>3.63</td>
<td>5710</td>
<td><strong>3.63</strong></td>
<td><strong>5700</strong></td>
<td>3.63</td>
<td>5700</td>
</tr>
<tr>
<td>464.h264ref</td>
<td>511</td>
<td>43.3</td>
<td><strong>512</strong></td>
<td><strong>43.3</strong></td>
<td>517</td>
<td>42.8</td>
<td>511</td>
<td>43.3</td>
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<tr>
<td>471.omnetpp</td>
<td>132</td>
<td>47.4</td>
<td>141</td>
<td>44.3</td>
<td><strong>133</strong></td>
<td><strong>47.1</strong></td>
<td><strong>115</strong></td>
<td><strong>54.5</strong></td>
</tr>
<tr>
<td>473.astar</td>
<td>210</td>
<td>33.4</td>
<td><strong>207</strong></td>
<td><strong>33.9</strong></td>
<td>206</td>
<td>34.0</td>
<td>210</td>
<td>33.4</td>
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<tr>
<td>483.xalancbmk</td>
<td><strong>98.0</strong></td>
<td><strong>70.4</strong></td>
<td>98.1</td>
<td>70.3</td>
<td>97.8</td>
<td>70.5</td>
<td>97.8</td>
<td>70.6</td>
</tr>
</tbody>
</table>

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

### Submit Notes

The config file option 'submit' was used.

### 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 set to Disabled  
HP Power Profile set to Maximum Performance  
Thermal Configuration set to Maximum Cooling  
Collaborative Power Control set to Disabled  
QPI Snoop Configuration set to Early Snoop  
Processor Power and Utilization Monitoring set to Disabled  
Memory Patrol Scrubbing set to Disabled  
Memory Refresh Rate set to 1x Refresh

Sysinfo program /home/cpu2006/config/sysinfo.rev6818  
$Rev: 6818 $ $Date:: 2012-07-17 #$ e86d102572650a6e4d596a3cee98f191  
runtime on localhost.localdomain Mon Aug 11 06:38:19 2014

This section contains SUT (System Under Test) info as seen by some common utilities. To remove or add to this section, see:  
http://www.spec.org/cpu2006/Docs/config.html#sysinfo

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Hewlett-Packard Company
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SPECint2006 = 66.5
SPECint_base2006 = 63.2

CPU2006 license: 3
Test sponsor: Hewlett-Packard Company
Tested by: Hewlett-Packard Company

Platform Notes (Continued)

From /proc/cpuinfo
model name : Intel(R) Xeon(R) CPU E5-2699 v3 @ 2.30GHz
  1 "physical id"s (chips)
  18 "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 : 18
siblings : 18
  physical 0: cores 0 2 3 4 8 9 10 11 16 17 18 19 20 24 25 26 27
cache size : 46080 KB

From /proc/meminfo
MemTotal: 131734548 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 localhost.localdomain 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 Aug 11 00:48

SPEC is set to: /home/cpu2006
  Filesystem Type Size Used Avail Use% Mounted on
  /dev/mapper/rhel-home xfs 318G 4.1G 314G 2% /home

Additional information from dmidecode:
  BIOS HP P89 07/11/2014
  Memory:
    8x HP NOT AVAILABLE 16 GB 2133 MHz 2 rank
    16x UNKNOWN NOT AVAILABLE

(End of data from sysinfo program)
Regarding the sysinfo display about the memory installed, the correct amount of memory is 128 GB and the dmidecode description should have one line reading as:
  8x HP NOT AVAILABLE 16 GB 2133 MHz 2 rank
SPEC CINT2006 Result

Hewlett-Packard Company

ProLiant DL360 Gen9
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Tested by: Hewlett-Packard Company

Test date: Aug-2014
Hardware Availability: Sep-2014
Software Availability: Jun-2014

General Notes

Environment variables set by runspec before the start of the run:
KMP_AFFINITY = "granularity=fine,compact"
LD_LIBRARY_PATH = "/home/cpu2006/libs/32:/home/cpu2006/libs/64:/home/cpu2006/sh"
OMP_NUM_THREADS = "18"

Binaries compiled on a system with 1x Core i7-860 CPU + 8GB memory using RedHat EL 6.4

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

Base Other Flags

C benchmarks:

Continued on next page
Hewlett-Packard Company
ProLiant DL360 Gen9
(2.30 GHz, Intel Xeon E5-2699 v3)

**SPECint2006 =** 66.5  
**SPECint_base2006 =** 63.2

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<tr>
<th>CPU2006 license: 3</th>
<th>Test date: Aug-2014</th>
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<tbody>
<tr>
<td>Test sponsor:</td>
<td>Hewlett-Packard Company</td>
</tr>
<tr>
<td>Tested by:</td>
<td>Hewlett-Packard Company</td>
</tr>
<tr>
<td>Hardware Availability:</td>
<td>Sep-2014</td>
</tr>
<tr>
<td>Software Availability:</td>
<td>Jun-2014</td>
</tr>
</tbody>
</table>

---

**Base Other Flags (Continued)**

403.gcc: -Dalloca=_alloca

---

**Peak Compiler Invocation**

C benchmarks (except as noted below):

```bash
icc  -m64
```

400.perlbench: icc -m32

445.gobmk: icc -m32

C++ benchmarks (except as noted below):

```bash
icpc  -m32
```

473.astar: icpc -m64

---

**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_LINUX

---

**Peak Optimization Flags**

C benchmarks:

```bash
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
```

401.bzip2: basepeak = yes

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

429.mcf: basepeak = yes

---

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SPEC CINT2006 Result

Hewlett-Packard Company
ProLiant DL360 Gen9
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CPU2006 license: 3
Test sponsor: Hewlett-Packard Company
Tested by: Hewlett-Packard Company

Test date: Aug-2014
Hardware Availability: Sep-2014
Software Availability: Jun-2014

Peak Optimization Flags (Continued)

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: -xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch
-ansi-alias -Wl,-z,muldefs -L/sh -lsmartheap

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-ic14.0-official-linux64.20140128.html
http://www.spec.org/cpu2006/flags/HP-Platform-Flags-Intel-V1.2-HSW-revA.html

You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2006/flags/Intel-ic14.0-official-linux64.20140128.xml
http://www.spec.org/cpu2006/flags/HP-Platform-Flags-Intel-V1.2-HSW-revA.xml
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<tr>
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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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