## SPEC® CFP2006 Result

**Test Sponsor:** HPE  
**CPU2006 license:** 3  
**Test date:** Oct-2017

### Hardware

<table>
<thead>
<tr>
<th>CPU Characteristics</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>CPU Name</td>
<td>Intel Xeon Platinum 8158</td>
</tr>
<tr>
<td>CPU Characteristics</td>
<td>Intel Turbo Boost Technology up to 3.70 GHz</td>
</tr>
<tr>
<td>CPU MHZ</td>
<td>3000</td>
</tr>
<tr>
<td>FPU</td>
<td>Integrated</td>
</tr>
<tr>
<td>CPU(s) enabled</td>
<td>48 cores, 4 chips, 12 cores/chip</td>
</tr>
<tr>
<td>CPU(s) orderable</td>
<td>1, 2, 4 chip(s)</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>1 MB I+D on chip per core</td>
</tr>
</tbody>
</table>

### Software

<table>
<thead>
<tr>
<th>Operating System</th>
<th>Red Hat Enterprise Linux Server release 7.3 (Maipo)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Compiler</td>
<td>C/C++: Version 17.0.3.191 of Intel C/C++ Compiler for Linux; Fortran: Version 17.0.3.191 of Intel Fortran Compiler for Linux</td>
</tr>
<tr>
<td>Auto Parallel</td>
<td>Yes</td>
</tr>
<tr>
<td>File System</td>
<td>xfs</td>
</tr>
</tbody>
</table>

### Test Results

- **SPECfp_base2006 = 137**

### Test Details

- **Test Sponsor:** HPE
- **Hardware Availability:** Oct-2017
- **Software Availability:** Apr-2017

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### Test Summary

<table>
<thead>
<tr>
<th>Test Name</th>
<th>Result</th>
</tr>
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<tbody>
<tr>
<td>410.bwaves</td>
<td>50.1</td>
</tr>
<tr>
<td>416.gamess</td>
<td>80.8</td>
</tr>
<tr>
<td>433.milc</td>
<td>239</td>
</tr>
<tr>
<td>434.zeusmp</td>
<td>60.0</td>
</tr>
<tr>
<td>435.gromacs</td>
<td>807</td>
</tr>
<tr>
<td>436.cactusADM</td>
<td>349</td>
</tr>
<tr>
<td>437.leslie3d</td>
<td>35.7</td>
</tr>
<tr>
<td>444.namd</td>
<td>72.2</td>
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<tr>
<td>447.dealII</td>
<td>51.8</td>
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<tr>
<td>450.soplex</td>
<td>69.3</td>
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<td>453.povray</td>
<td>74.3</td>
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<tr>
<td>454.calculix</td>
<td>169</td>
</tr>
<tr>
<td>459.GemsFDTD</td>
<td>52.4</td>
</tr>
<tr>
<td>465.tonto</td>
<td>134</td>
</tr>
<tr>
<td>470.lbm</td>
<td>81.9</td>
</tr>
<tr>
<td>481.wrf</td>
<td></td>
</tr>
<tr>
<td>482.sphinx3</td>
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</table>

**SPECfp_base2006 = 137**
**SPEC CFP2006 Result**

**Hewlett Packard Enterprise**
(Test Sponsor: HPE)

ProLiant DL560 Gen10
(3.00 GHz, Intel Xeon Platinum 8158)

**SPECfp2006 = Not Run**

**SPECfp_base2006 = 137**

<table>
<thead>
<tr>
<th>Benchmark</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>410.bwaves</td>
<td>9.01</td>
<td>1510</td>
<td>9.24</td>
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<td>416.gamess</td>
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<td>84.8</td>
<td>114</td>
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<td>80.8</td>
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<tr>
<td>434.zeusmp</td>
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<tr>
<td>435.gromacs</td>
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<td>59.6</td>
<td>119</td>
<td>60.0</td>
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<tr>
<td>436.cactusADM</td>
<td>15.2</td>
<td>14.5</td>
<td>14.5</td>
<td>825</td>
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<td>807</td>
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<tr>
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<td>444.namd</td>
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<tr>
<td>459.GemsFDTD</td>
<td>63.0</td>
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<td>63.7</td>
<td>167</td>
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<tr>
<td>465.tonto</td>
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<tr>
<td>470.lbm</td>
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<td>1440</td>
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<tr>
<td>481.wrf</td>
<td>83.5</td>
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<td>136</td>
<td>83.2</td>
<td>134</td>
</tr>
<tr>
<td>482.sphinx3</td>
<td>238</td>
<td>82.1</td>
<td>238</td>
<td>81.9</td>
<td>238</td>
<td>81.9</td>
</tr>
</tbody>
</table>

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

**Operating System Notes**

Stack size set to unlimited using "ulimit -s unlimited"
Transparent Huge Pages enabled by default
Filesystem page cache cleared with:
shell invocation of 'sync; echo 3 > /proc/sys/vm/drop_caches' prior to run
irqbalance disabled with "systemctl stop irqbalance"
tuned profile set with "tuned-adm profile throughput-performance"

**Platform Notes**

BIOS Configuration:
Intel Hyperthreading set to Disabled
Thermal Configuration set to Maximum Cooling
Memory Patrol Scrubbing set to Disabled
LLC Prefetcher set to Enabled

Continued on next page
Hewlett Packard Enterprise
(Test Sponsor: HPE)
ProLiant DL560 Gen10
(3.00 GHz, Intel Xeon Platinum 8158)

SPECfp2006 = Not Run
SPECfp_base2006 = 137

Platform Notes (Continued)

LLC Dead Line Allocation set to Disabled
Stale A to S set to Enabled
Workload Profile set to General Peak Frequency Compute
  Energy/Performance Bias set to Maximum Performance
Uncore Frequency Scaling set to Auto
Workload Profile set to Custom
NUMA Group Size Optimization set to Flat

Sysinfo program /cpu2006/config/sysinfo.rev6993
Revision 6993 of 2015-11-06 (b5e8d4b4eb51ed28d7f98e96cbe290c1)
running on DL560-Gen10 Mon Oct 9 19:16:45 2017

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

From /proc/cpuinfo
model name : Intel(R) Xeon(R) Platinum 8158 CPU @ 3.00GHz
  4 "physical id"s (chips)
  48 "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 : 12
siblings : 12
  physical 0: cores 0 1 2 3 4 8 9 11 17 18 19 20
  physical 1: cores 0 1 2 3 4 9 10 16 18 19 25 26
  physical 2: cores 0 1 3 9 10 16 18 19 24 25 26 27
  physical 3: cores 0 1 2 3 4 8 10 11 18 24 25 27
  cache size : 25344 KB

From /proc/meminfo
MemTotal: 792074900 kB
HugePages_Total: 0
Hugepagesize: 2048 kB

From /etc/*release* /etc/*version*
os-release:
  NAME="Red Hat Enterprise Linux Server"
  VERSION="7.3 (Maipo)"
  ID="rhel"
  ID_LIKE="fedora"
  VERSION_ID="7.3"
  PRETTY_NAME="Red Hat Enterprise Linux Server 7.3 (Maipo)"
  ANSI_COLOR="0;31"
  CPE_NAME="cpe:/o:redhat:enterprise_linux:7.3:GA:server"
redhat-release: Red Hat Enterprise Linux Server release 7.3 (Maipo)
system-release: Red Hat Enterprise Linux Server release 7.3 (Maipo)

uname -a:
Linux DL560-Gen10 3.10.0-514.e17.x86_64 #1 SMP Wed Oct 19 11:24:13 EDT 2016
Continued on next page
SPEC CFP2006 Result

Hewlett Packard Enterprise
(Test Sponsor: HPE)
ProLiant DL560 Gen10
(3.00 GHz, Intel Xeon Platinum 8158)

SPECfp2006 = Not Run
SPECfp_base2006 = 137

CPU2006 license: 3
Test sponsor: HPE
Tested by: HPE
Test date: Oct-2017
Hardware Availability: Oct-2017
Software Availability: Apr-2017

Platform Notes (Continued)

x86_64 x86_64 x86_64 GNU/Linux

run-level 3 Oct 9 16:57

SPEC is set to: /cpu2006
Filesystem     Type  Size  Used Avail Use% Mounted on
/dev/sdb1      xfs   447G   11G  437G   3% /

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 HPE U34 09/29/2017
Memory:
48x UNKNOWN NOT AVAILABLE 16 GB 2 rank 2666 MHz

(End of data from sysinfo program)

General Notes

Environment variables set by runspec before the start of the run:
KMP_AFFINITY = "granularity=fine,compact"
LD_LIBRARY_PATH = "/cpu2006/lib/ia32:/cpu2006/lib/intel64:/cpu2006/sh10.2"
OMP_NUM_THREADS = "48"

Binaries compiled on a system with 1x Intel Core i7-4790 CPU + 32GB RAM
memory using Redhat Enterprise Linux 7.2

Base Compiler Invocation

C benchmarks:
  icc -m64

C++ benchmarks:
  icpc -m64

Fortran benchmarks:
  ifort -m64

Benchmarks using both Fortran and C:
  icc -m64 ifort -m64
Hewlett Packard Enterprise
(Test Sponsor: HPE)
ProLiant DL560 Gen10
(3.00 GHz, Intel Xeon Platinum 8158)

CPU2006 license: 3
Test sponsor: HPE
Tested by: HPE

SPECCpu2006 = Not Run
SPECCpu_base2006 = 137

Test date: Oct-2017
Hardware Availability: Oct-2017
Software Availability: Apr-2017

Base Portability Flags

410.bwaves: -DSPEC_CPU_LP64
416.gamess: -DSPEC_CPU_LP64
433.milc: -DSPEC_CPU_LP64
434.zeusmp: -DSPEC_CPU_LP64
435.gromacs: -DSPEC_CPU_LP64 -nofor_main
436.cactusADM: -DSPEC_CPU_LP64 -nofor_main
437.leslie3d: -DSPEC_CPU_LP64
444.namd: -DSPEC_CPU_LP64
447.dealII: -DSPEC_CPU_LP64
450.soplex: -DSPEC_CPU_LP64
453.povray: -DSPEC_CPU_LP64
454.calculix: -DSPEC_CPU_LP64 -nofor_main
459.GemsFDTD: -DSPEC_CPU_LP64
465.tonto: -DSPEC_CPU_LP64
470.lbm: -DSPEC_CPU_LP64
481.wrf: -DSPEC_CPU_LP64 -DSPEC_CPU_CASE_FLAG -DSPEC_CPU_LINUX
482.sphinx3: -DSPEC_CPU_LP64

Base Optimization Flags

C benchmarks:
-xCORE-AVX2 -ipo -O3 -no-prec-div -parallel -qopt-prefetch

C++ benchmarks:
-xCORE-AVX2 -ipo -O3 -no-prec-div -qopt-prefetch

Fortran benchmarks:
-xCORE-AVX2 -ipo -O3 -no-prec-div -parallel -qopt-prefetch

Benchmarks using both Fortran and C:
-xCORE-AVX2 -ipo -O3 -no-prec-div -parallel -qopt-prefetch

The flags files that were used to format this result can be browsed at
http://www.spec.org/cpu2006/flags/Intel-ic17.0-official-linux64-revF.html
http://www.spec.org/cpu2006/flags/HPE-Platform-Flags-Intel-V1.2-SKX-revD.html

You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2006/flags/Intel-ic17.0-official-linux64-revF.xml
http://www.spec.org/cpu2006/flags/HPE-Platform-Flags-Intel-V1.2-SKX-revD.xml
**Hewlett Packard Enterprise**  
(Test Sponsor: HPE)  
ProLiant DL560 Gen10  
(3.00 GHz, Intel Xeon Platinum 8158)

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</table>

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For questions about this result, please contact the tester.  
For other inquiries, please contact webmaster@spec.org.

Tested with SPEC CPU2006 v1.2.  