**SPEC® CFP2006 Result**

**Hewlett Packard Enterprise**
(Test Sponsor: HPE)
ProLiant DL380 Gen10
(3.50 GHz, Intel Xeon Gold 6144)

**SPECfp®2006 = Not Run**

**SPECfp_base2006 = 151**

<table>
<thead>
<tr>
<th>Test Sponsor</th>
<th>HPE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tested by</td>
<td>HPE</td>
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<table>
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<tr>
<th>CPU2006 license</th>
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<tr>
<td>Test date</td>
<td>Nov-2017</td>
</tr>
<tr>
<td>Hardware Availability</td>
<td>Oct-2017</td>
</tr>
<tr>
<td>Software Availability</td>
<td>Apr-2017</td>
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</table>

**410.bwaves**

| 416.gamess | 54.6 |
| 433.milc   | 91.7 |
| 434.zeusmp | 278  |
| 435.gromacs| 67.6 |
| 436.cactusADM |   |
| 437.leslie3d | 503  |
| 444.namd   | 40.4 |
| 447.dealII | 80.9 |
| 450.soplex | 56.6 |
| 453.povray | 78.7 |
| 454.calculix | 78.4 |
| 459.GemsFDTD | 275  |
| 465.tonto  | 61.6 |
| 470.lbm    | 142  |
| 481.wrf    | 83.9 |
| 482.sphinx3 |       |

**Hardware**

| CPU Name: | Intel Xeon Gold 6144 |
| CPU Characteristics: | Intel Turbo Boost Technology up to 4.20 GHz |
| CPU MHz: | 3500 |
| FPU: | Integrated |
| CPU(s) enabled: | 16 cores, 2 chips, 8 cores/chip |
| CPU(s) orderable: | 1, 2 chip(s) |
| Primary Cache: | 32 KB I + 32 KB D on chip per core |
| Secondary Cache: | 1 MB I+D on chip per core |

**Software**

| Operating System: | Red Hat Enterprise Linux Server release 7.3 (Maipo) |
|                   | Kernel 3.10.0-514.el7.x86_64 |
| Compiler: | 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 |
| Auto Parallel: | Yes |
| File System: | xfs |

**Continued on next page**
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SPECfp2006 = **Not Run**  
SPECfp_base2006 = **151**

<table>
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<tr>
<th>Benchmark</th>
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<th>Ratio</th>
<th>Base</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Peak</th>
<th>Seconds</th>
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<td>1070</td>
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<td>1080</td>
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<td>40.4</td>
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<tr>
<td>454.calculix</td>
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<td>482.sphinx3</td>
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<td>83.3</td>
<td><strong>232</strong></td>
<td>83.9</td>
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</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
IRQ balance service was stop using "service irqbalance stop"
Tuned-adm profile was set to Throughput-Performance

**Platform Notes**

BIOS Configuration:
Intel Hyperthreading set to Disabled
Thermal Configuration set to Maximum Cooling
LLC Prefetcher set to Enabled
LLC Dead Line Allocation set to Disabled

Continued on next page
Platform Notes (Continued)

Stale A to S set to Disabled
Memory Patrol Scrubbing set to disabled
Workload Profile set to General Peak Frequency Compute
Energy/Performance Bias set to Maximum Performance
Workload Profile set to Custom
NUMA Group Size Optimization set to Flat
Sysinfo program /home/cpu2006/config/sysinfo.rev6993
Revision 6993 of 2015-11-06 (b5e8d4b4eb51ed28d7f98696cbe290c1)
running on DL380Gen10 Thu Nov 9 02:32:46 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) Gold 6144 CPU @ 3.50GHz
  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 2 3 9 16 19 26 27
  physical 1: cores 0 2 3 9 16 19 26 27
  cache size : 25344 KB

From /proc/meminfo
  MemTotal:       197574316 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 DL380Gen10 3.10.0-514.el7.x86_64 #1 SMP Wed Oct 19 11:24:13 EDT 2016
  x86_64 x86_64 x86_64 GNU/Linux

  run-level 3 Nov 9 02:31

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SPECfp2006 = Not Run
SPECfp_base2006 = 151

General Notes
Environment variables set by runspec before the start of the run:
KMP_AFFINITY = "granularity=core,compact"
LD_LIBRARY_PATH = "/home/cpu2006/lib/ia32:/home/cpu2006/lib/intel64:/home/cpu2006/sh10.2"
OMP_NUM_THREADS = "16"

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

Base Portability Flags
410.bwaves: -DSPEC_CPU_LP64
416.gamess: -DSPEC_CPU_LP64
433.milc: -DSPEC_CPU_LP64
434.zeusmp: -DSPEC_CPU_LP64

Platform Notes (Continued)
SPEC is set to: /home/cpu2006
Filesystem       Type  Size  Used Avail Use% Mounted on
/dev/mapper/rhel-home xfs   839G   31G  808G   4% /home

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 U30 09/29/2017
Memory:
  24x UNKNOWN NOT AVAILABLE 8 GB 2 rank 2666 MHz

(End of data from sysinfo program)
Hewlett Packard Enterprise
(Test Sponsor: HPE)
ProLiant DL380 Gen10
(3.50 GHz, Intel Xeon Gold 6144)

SPEC CFP2006 Result

SPECfp2006 = Not Run
SPECfp_base2006 = 151

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

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

Base Portability Flags (Continued)

435.gromacs: -DSPEC_CPU_LP64 -nofor_main
436.cactusADM: -DSPEC_CPU_LP64 -nofor_main
437.leslie3d: -DSPEC_CPU_LP64
444.namd: -DSPEC_CPU_LP64 -nofor_main
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-revF.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-revF.xml

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