### SPEC® CFP2006 Result

#### Hewlett Packard Enterprise

**Test Sponsor:** HP

**ProLiant DL380 Gen10**

(2.20 GHz, Intel Xeon Gold 5120)

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<table>
<thead>
<tr>
<th>Test Sponsor</th>
<th>HP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hardware Availability</td>
<td>Oct-2017</td>
</tr>
<tr>
<td>Software Availability</td>
<td>Apr-2017</td>
</tr>
</tbody>
</table>

#### CPU2006 Details:

- **CPU Name:** Intel Xeon Gold 5120
- **CPU Characteristics:**
  - Intel Turbo Boost Technology up to 3.20 GHz
- **CPU MHz:** 2200
- **FPU:** Integrated
- **CPU(s) enabled:** 28 cores, 2 chips, 14 cores/chip, 2 threads/core
- **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 Details:

- **Operating System:** SUSE Linux Enterprise Server 12 (x86_64) SP2
- **Kernel:** 4.4.21-69-default
- **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
- **System State:** Run level 3 (multi-user)

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#### SPECfp Rate Results:

### SPECfp_rate2006 = Not Run

- **SPECfp_rate_base2006 = 1070**

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### Hardware

<table>
<thead>
<tr>
<th>SPECfp Rate</th>
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<tbody>
<tr>
<td>410.bwaves</td>
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</tr>
<tr>
<td>416.gamess</td>
<td>56</td>
</tr>
<tr>
<td>433.milc</td>
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<td>434.zeusmp</td>
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<tr>
<td>435.gromacs</td>
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<tr>
<td>436.cactusADM</td>
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<tr>
<td>437.leslie3d</td>
<td>56</td>
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<tr>
<td>444.namd</td>
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<tr>
<td>447.dealII</td>
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<td>450.soplex</td>
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<td>454.calculix</td>
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<td>459.GemsFDTD</td>
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<td>465.tonto</td>
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<td>481.wrf</td>
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<tr>
<td>482.sphinx3</td>
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</tr>
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Hewlett Packard Enterprise  
ProLiant DL380 Gen10  
(2.20 GHz, Intel Xeon Gold 5120)

**SPEC CFP2006 Result**

**Test Sponsor:** HPE  
**CPU2006 license:** 3  
**Test date:** Nov-2017  
**Test sponsor:** HPE  
**Hardware Availability:** Oct-2017

**SPECfp_rate2006 = Not Run**  
**SPECfp_rate_base2006 = 1070**

**Results Table**

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<tr>
<th>Benchmark</th>
<th>Copies</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Base Pointers</th>
<th>PeaK Pointers</th>
<th>Other Software</th>
<th>Memory</th>
<th>Disk Subsystem</th>
<th>Other Hardware</th>
<th>L3 Cache</th>
<th>Other Cache</th>
<th>Base</th>
<th>Peak</th>
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<tbody>
<tr>
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<td>470.lbm</td>
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<tr>
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<tr>
<td>482.sphinx3</td>
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<td>None</td>
<td>None</td>
<td>None</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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

**Submit Notes**

The numactl mechanism was used to bind copies to processors. The config file option 'submit' was used to generate numactl commands to bind each copy to a specific processor. For details, please see the config file.

**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  
runcspec command invoked through numactl i.e.:  
numactl --interleave=all runspec <etc>  
irqbalance disabled with "service irqbalance stop"

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Hewlett Packard Enterprise
(Test Sponsor: HPE)
ProLiant DL380 Gen10
(2.20 GHz, Intel Xeon Gold 5120)

**SPECfp_rate2006 = Not Run**
**SPECfp_rate_base2006 = 1070**

<table>
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<th>Test date: Nov-2017</th>
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**Operating System Notes (Continued)**

- tuned profile set with "tuned-adm profile throughput-performance"
- VM Dirty ratio was set to 40 using "echo 40 > /proc/sys/vm/dirty_ratio"
- Numa balancing was disabled using "echo 0 > /proc/sys/kernel/numa_balancing"

**Platform Notes**

**BIOS Configuration:**
- Thermal Configuration set to Maximum Cooling
- LLC Prefetch set to Enabled
- LLC Dead Line Allocation set to Disabled
- Memory Patrol Scrubbing set to Disabled
- Workload Profile set to General Throughput Compute
  - Minimum Processor Idle Power Core C-State set to C1E
- Sysinfo program /home/cpu2006/config/sysinfo.rev6993
- Revision 6993 of 2015-11-06 (b5e8d4b4eb51ed28d7f98696cbe290c1)
  running on dl380gen10 Tue Nov 14 00:25:19 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 5120 CPU @ 2.20GHz
- 2 "physical id"s (chips)
- 56 "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: 14
  - siblings: 28
  - physical 0: cores 0 1 2 3 4 5 6 8 9 10 11 12 13 14
  - physical 1: cores 0 1 2 3 4 5 6 8 9 10 11 12 13 14
  - cache size: 19712 KB

From /proc/meminfo
- MemTotal: 197551508 kB
- HugePages_Total: 0
- Hugepagesize: 2048 kB

/usr/bin/lsb_release -d
- SUSE Linux Enterprise Server 12 SP2

From /etc/*release* /etc/*version*
- SuSE-release:
  - SUSE Linux Enterprise Server 12 (x86_64)
  - VERSION = 12
  - PATCHLEVEL = 2
- # This file is deprecated and will be removed in a future service pack or release.
- # Please check /etc/os-release for details about this release.
- os-release:

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**Platform Notes (Continued)**

NAME="SLES"  
VERSION="12-SP2"  
VERSION_ID="12.2"  
PRETTY_NAME="SUSE Linux Enterprise Server 12 SP2"  
ID="sles"  
ANSI_COLOR="0;32"  
CPE_NAME="cpe:/o:suse:sles:12:sp2"

uname -a:

    Linux dl380gen10 4.4.21-69-default #1 SMP Tue Oct 25 10:58:20 UTC 2016  
    (9464f67) x86_64 x86_64 x86_64 GNU/Linux

run-level 3 Nov 14 00:21

SPEC is set to: /home/cpu2006

    Filesystem  Type    Size  Used  Avail  Use% Mounted on
    /dev/sdb4    xfs     852G  88G  765G  11%  /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, configured at 2400 MHz

(End of data from sysinfo program)

**General Notes**

Environment variables set by runspec before the start of the run:
LD_LIBRARY_PATH = "/home/cpu2006/lib/ia32:/home/cpu2006/lib/intel64:/home/cpu2006/sh10.2"

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

Continued on next page
SPEC CFP2006 Result

Hewlett Packard Enterprise
(Test Sponsor: HPE)
ProLiant DL380 Gen10
(2.20 GHz, Intel Xeon Gold 5120)

SPECfp_rate2006 = Not Run
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CPU2006 license: 3
Test sponsor: HPE
Tested by: HPE

Base Compiler Invocation (Continued)

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
435.gromacs: -DSPEC_CPU_LP64 -nofor_main
436.cactusADM: -DSPEC_CPU_LP64 -nofor_main
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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 -qopt-prefetch -auto-p32
-qopt-mem-layout-trans=3

C++ benchmarks:
-xCORE-AVX2 -ipo -O3 -no-prec-div -qopt-prefetch -auto-p32
-qopt-mem-layout-trans=3

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

Benchmarks using both Fortran and C:
-xCORE-AVX2 -ipo -O3 -no-prec-div -qopt-prefetch -auto-p32
-qopt-mem-layout-trans=3

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-revG.html
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(Test Sponsor: HPE)  
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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-revG.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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