## SPEC® CFP2006 Result

**Hewlett Packard Enterprise**

**ProLiant DL560 Gen10**

(2.10 GHz, Intel Xeon Platinum 8176)

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### SPECfp®_rate2006 = Not Run

### SPECfp_rate_base2006 = 3180

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### Hardware

- **CPU Name:** Intel Xeon Platinum 8176
- **CPU Characteristics:** Intel Turbo Boost Technology up to 3.80 GHz
- **CPU MHz:** 2100
- **FPU:** Integrated
- **CPU(s) enabled:** 112 cores, 4 chips, 28 cores/chip, 2 threads/core
- **Primary Cache:** 32 KB I + 32 KB D on chip per core
- **Secondary Cache:** 1 MB I+D on chip per core

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### Software

- **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:** No
- **File System:** xfs
- **System State:** Run level 3 (multi-user)

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**Note:**

- **Test Sponsor:** HPE
- **Test date:** Nov-2017
- **Hardware Availability:** Oct-2017
- **Software Availability:** Apr-2017
Hewlett Packard Enterprise  
(Test Sponsor: HPE)  
ProLiant DL560 Gen10  
(2.10 GHz, Intel Xeon Platinum 8176)  

SPECfp_rate2006 =  Not Run  
SPECfp_rate_base2006 =  3180

CPU2006 license: 3  
Test sponsor:  HPE  
Tested by:  HPE  
Test date:  Nov-2017  
Hardware Availability:  Oct-2017  
Test sponsor:  HPE  
Hardware Availability:  Apr-2017  
L3 Cache:  38.5 MB I+D on chip per chip  
Other Cache:  None  
Memory:  768 GB (48 x 16 GB 2Rx8 PC4-2666V-R)  
Disk Subsystem:  2 x 480 GB SATA SSD, RAID 0  
Other Hardware:  None  
Base Pointers:  32/64-bit  
Peak Pointers:  Not Applicable  
Other Software:  None

Results Table

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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  
runcmd command invoked through numactl i.e.:  
numactl --interleave=all runcmd <etc>  
irqbalance disabled with "service irqbalance stop"  
tuned profile set with "tuned-adm profile throughput-performance"  
Continued on next page
Hewlett Packard Enterprise
(Test Sponsor: HPE)
ProLiant DL560 Gen10
(2.10 GHz, Intel Xeon Platinum 8176)

SPEC CFP2006 Result

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Software Availability: Apr-2017

Operating System Notes (Continued)

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 linux-smfo Thu Nov 16 20:52:32 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 8176 CPU @ 2.10GHz
4 "physical id"s (chips)
224 "processors"
cores, siblings (Caution: counting these is hw and system dependent. The
following excerpts from /proc/cpuinfo might not be reliable. Use with
cautions.)
cpu cores : 28
siblings : 56
physical 0: cores 0 1 2 3 8 9 10 11 12 13 14 16 17 18 19 20 21 22 24 25 26
27 28 29 30
physical 1: cores 0 1 2 3 8 9 10 11 12 13 14 16 17 18 19 20 21 22 24 25 26
27 28 29 30
physical 2: cores 0 1 2 3 8 9 10 11 12 13 14 16 17 18 19 20 21 22 24 25 26
27 28 29 30
physical 3: cores 0 1 2 3 8 9 10 11 12 13 14 16 17 18 19 20 21 22 24 25 26
27 28 29 30
cache size : 39424 KB

From /proc/meminfo
MemTotal: 792260908 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:
    VERSION = 12

Continued on next page
SPEC CFP2006 Result

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Platform Notes (Continued)

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:
  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:
  (9464f67) x86_64 x86_64 x86_64 GNU/Linux
run-level 3 Nov 16 14:31

SPEC is set to: /home/cpu2006

Filesystem Type Size Used Avail Use% Mounted on
/dev/sda4 xfs 852G 260G 593G 31% /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 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:
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

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Base Compiler Invocation (Continued)

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
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 -nofor_main
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
# SPEC CFP2006 Result

## Hewlett Packard Enterprise

**Test Sponsor:** HPE

**ProLiant DL560 Gen10**

*(2.10 GHz, Intel Xeon Platinum 8176)*

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### CPU2006 License:

| CPU2006 License | 3 |

### Test Sponsor:

| Test Sponsor | HPE |

### Tested by:

| Tested by | HPE |

### Test Date:

| Test Date | Nov-2017 |

### Hardware Availability:

| Hardware Availability | Oct-2017 |

### Software Availability:

| Software Availability | Apr-2017 |

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The flags files that were used to format this result can be browsed at:

- [http://www.spec.org/cpu2006/flags/HPE-Platform-Flags-Intel-V1.2-SKX-revG.html](http://www.spec.org/cpu2006/flags/HPE-Platform-Flags-Intel-V1.2-SKX-revG.html)

You can also download the XML flags sources by saving the following links:

- [http://www.spec.org/cpu2006/flags/HPE-Platform-Flags-Intel-V1.2-SKX-revG.xml](http://www.spec.org/cpu2006/flags/HPE-Platform-Flags-Intel-V1.2-SKX-revG.xml)

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For other inquiries, please contact webmaster@spec.org.

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Tested with SPEC CPU2006 v1.2.

Report generated on Tue Dec 12 17:06:53 2017 by SPEC CPU2006 PS/PDF formatter v6932.

Originally published on 12 December 2017.