Hewlett Packard Enterprise
(Test Sponsor: HPE)
ProLiant DL360 Gen10
(2.60 GHz, Intel Xeon Silver 4112)

SPECfp®2006 = Not Run
SPECfp_base2006 = 99.8

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

Hardware
CPU Name: Intel Xeon Silver 4112
CPU Characteristics: Intel Turbo Boost Technology up to 3.00 GHz
CPU MHz: 2600
FPU: Integrated
CPU(s) enabled: 8 cores, 2 chips, 4 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)
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
SPEC CPU2006 Result

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

L3 Cache: 8.25 MB I+D on chip per chip
Other Cache: None
Memory: 192 GB (24 x 8 GB 2Rx8 PC4-2666V-R, running at 2400)
Disk Subsystem: 1 x 600 GB SATA SSD, RAID 0
Other Hardware: None
System State: Run level 3 (multi-user)
Base Pointers: 64-bit
Peak Pointers: Not Applicable
Other Software: None

Results Table

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<tr>
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</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 invocartion 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"spec.cpu2006.notes_plat_000: BIOS Configuration:

Platform Notes

BIOS Configuration:
- Intel Hyperthreading set to Disabled
- Thermal Configuration set to Maximum Cooling
- LLC Prefetcher set to Enabled

Continued on next page
**SPEC CFP2006 Result**

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

**ProLiant DL360 Gen10**
(2.60 GHz, Intel Xeon Silver 4112)

| SPECfp2006 = | Not Run |
| SPECfp_base2006 = | 99.8 |

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

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**Platform Notes (Continued)**

- LLC Dead Line Allocation set to Disabled
- 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
- Uncore Frequency scaling set to Auto
- Sysinfo program `/home/cpu2006/config/sysinfo.rev6993`
- Revision 6993 of 2015-11-06 (b5e8d4b4eb51ed28d7f98696cbe290c1)
- running on DL360G10 Tue Oct 24 09:36:18 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) Silver 4112 CPU @ 2.60GHz`
- `2 "physical id"s (chips)`
- `8 "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 : 4`
- `siblings : 4`
- `physical 0: cores 1 2 4 5`
- `physical 1: cores 0 2 3 4`
- `cache size : 8448 KB`

From `/proc/meminfo`
- `MemTotal: 197753316 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 DL360G10 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`

Continued on next page
Platform Notes (Continued)

run-level 3 Oct 24 06:48

SPEC is set to: /home/cpu2006

Filesystem Type  Size  Used  Avail Use% Mounted on
/dev/mapper/rhel_dl360g10-home xfs 504G 37G 467G 8% /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 U32 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:
KMP_AFFINITY = "granularity=core,compact"
LD_LIBRARY_PATH = "/home/cpu2006/lib/ia32:/home/cpu2006/lib/intel64:/home/cpu2006/sh10.2"
OMP_NUM_THREADS = "8"

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

Continued on next page
### Base Portability Flags (Continued)

- 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
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- 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/HPE-Platform-Flags-Intel-V1.2-SKX-revD.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/HPE-Platform-Flags-Intel-V1.2-SKX-revD.xml](http://www.spec.org/cpu2006/flags/HPE-Platform-Flags-Intel-V1.2-SKX-revD.xml)
### SPEC CFP2006 Result

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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.  