Hewlett Packard Enterprise
(Test Sponsor: HPE)
ProLiant DL360 Gen10
(2.10 GHz, Intel Xeon Gold 6152)

SPEC® CFP2006 Result
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SPECfp®2006 = Not Run
SPECfp_base2006 = 140

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

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

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

SPECfp_base2006 = 140

Hardware
CPU Name: Intel Xeon Gold 6152
CPU Characteristics: Intel Turbo Boost Technology up to 3.70 GHz
CPU MHz: 2100
FPU: Integrated
CPU(s) enabled: 44 cores, 2 chips, 22 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

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- **L3 Cache:** 30.25 MB I+D on chip per chip  
- **Other Cache:** None  
- **Memory:** 192 GB (24 x 8 GB 2Rx8 PC4-2666V-R)  
- **Disk Subsystem:** 1 x 480 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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</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 Throughtput-Performance

### Platform Notes

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

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SPECfp2006 = Not Run
SPECfp_base2006 = 140

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/specuser/cpu2006/config/sysinfo.rev6993
Revision 6993 of 2015-11-06 (b5e8d4b4eb51ed28d7f98696cbe290c1)
running on dl360gen10rhel73 Fri Nov 3 23:05:21 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 6152 CPU @ 2.10GHz
  2 "physical id"s (chips)
  44 "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 : 22
siblings : 22
  physical 0: cores 0 1 2 3 4 5 8 9 10 11 12 16 17 18 19 20 21 24 25 26 27 28
  physical 1: cores 0 1 2 3 4 5 8 9 10 11 12 16 17 18 19 20 21 24 25 26 27 28
  cache size : 30976 KB

From /proc/meminfo
MemTotal:       197570624 kB
HugePages_Total:       0
Hugepagesize:       2048 kB

From /etc/*release* /etc/*version*
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 dl360gen10rhel73 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 3 22:57

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Platform Notes (Continued)

SPEC is set to: /home/specuser/cpu2006
Filesystem            Type  Size  Used Avail Use% Mounted on
/dev/mapper/rhel-home xfs   392G   37G  356G  10% /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

(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/specuser/cpu2006/lib/ia32:/home/specuser/cpu2006/lib/intel64:/home/specuser/cpu2006/sh10.2"
OMP_NUM_THREADS = "44"

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

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### Base Portability Flags (Continued)

- 434.zeusmp: -DSPEC_CPU_LP64
- 435.gromacs: -DSPEC_CPU_LP64 -nofor_main
- 436.cactusADM: -DSPEC_CPU_LP64 -nofor_main
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- 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-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/HPE-Platform-Flags-Intel-V1.2-SKX-revF.xml](http://www.spec.org/cpu2006/flags/HPE-Platform-Flags-Intel-V1.2-SKX-revF.xml)
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For other inquiries, please contact webmaster@spec.org.

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