**Hewlett Packard Enterprise**  
(Test Sponsor: HPE)  
Synergy 480 Gen10  
(2.60 GHz, Intel Xeon Silver 4112)

<table>
<thead>
<tr>
<th>SPECfp®2006 =</th>
<th>Not Run</th>
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<tbody>
<tr>
<td>SPECfp_base2006 =</td>
<td>98.1</td>
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</table>

**CPU2006 license:** 3  
**Test date:** Nov-2017

**Test sponsor:** HPE  
**Hardware Availability:** Oct-2017

**Tested by:** HPE  
**Software Availability:** Apr-2017

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**SPECfp_base2006 = 98.1**

**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 CFP2006 Result

**Test Sponsor:** HPE  
**Synergy 480 Gen10**  
**CPU2006 license:** 3  
**Test date:** Nov-2017  
**Test sponsor:** HPE  
**Hardware Availability:** Oct-2017  
**Tested by:** HPE  
**Software Availability:** Apr-2017  
**System State:** Run level 3 (multi-user)  
**Base Pointers:** 64-bit  
**Peak Pointers:** Not Applicable  
**Other Software:** None

### Results Table

<table>
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<tr>
<th>Benchmark</th>
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<th>Ratio</th>
<th>Seconds</th>
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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

Continued on next page
### SPEC CFP2006 Result

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**SPECfp2006 = Not Run**  
**SPECfp_base2006 = 98.1**

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**Platform Notes (Continued)**

- LLC Dead Line Allocation 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 localhost.localdomain Thu Nov 30 08:41:33 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 1 3 4
- cache size : 8448 KB

From `/proc/meminfo`

- MemTotal: 395934144 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 localhost.localdomain 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 30 08:37

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**Continued on next page**
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SPEC CFP2006 Result

SPECfp2006 = Not Run
SPECfp_base2006 = 98.1

Platform Notes (Continued)

SPEC is set to: /home/cpu2006
Filesystem          Type  Size  Used Avail Use% Mounted on
/dev/mapper/rhel-home   xfs   392G   34G  359G   9%   /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 I42 09/27/2017
Memory:
24x UNKNOWN NOT AVAILABLE 16 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
433.milc: -DSPEC_CPU_LP64
434.zeusmp: -DSPEC_CPU_LP64
SPEC CFP2006 Result

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

Test date: Nov-2017
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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.libm: -DSPEC_CPU_LP64
481.wrf: -DSPEC_CPU_LP64
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-revH.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-revH.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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