## SPEC® CFP2006 Result

### Hewlett Packard Enterprise

(Test Sponsor: HPE)

Synergy 480 Gen10
(2.10 GHz, Intel Xeon Platinum 8176)

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Test date: Nov-2017

Hardware Availability: Oct-2017

Software Availability: Apr-2017

### 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:** 56 cores, 2 chips, 28 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) kernel 3.10.0-514.el7.x86_64
- **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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### Benchmark Results

<table>
<thead>
<tr>
<th>Benchmark</th>
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<tbody>
<tr>
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<td>50.3</td>
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<tr>
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SPECfp_base2006 = 143
SPEC CFP2006 Result

Hewlett Packard Enterprise
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SPECFp2006 = Not Run
SPECFp_base2006 = 143

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

L3 Cache: 38.5 MB I+D on chip per chip
Other Cache: None
Memory: 384 GB (24 x 16 GB 2Rx8 PC4-2666V-R)
Disk Subsystem: 1 x 480 GB SATA SSD, RAID 0

System State: Run level 3 (multi-user)
Base Pointers: 64-bit
Peak Pointers: Not Applicable
Other Software: None

Results Table

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

Continued on next page
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Platform Notes (Continued)

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 SY480_Hjp_RHEL Fri Nov 17 21:27:42 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
  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
cautions.)
cpu cores : 28
siblings : 28
  physical 0: cores 0 1 2 3 4 5 6 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 4 5 6 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: 395926720 kB
HugePages_Total: 0
Hugepagesize: 2048 kB

From /etc/*release* /etc/*version*
os-release:
  NAME="Red Hat Enterprise Linux Server"
  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 SY480_Hjp_RHEL 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 17 21:24

Continued on next page
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**Platform Notes (Continued)**

SPEC is set to: /home/cpu2006
Filesystem | Type | Size | Used | Avail | Use% | Mounted on
/dev/mapper/rhel-home | xfs | 392G | 28G | 365G | 7% | /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

(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 = "56"

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
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
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/Intel-ic17.0-official-linux64-revF.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/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 other inquiries, please contact webmaster@spec.org.

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