SPEC® CFP2006 Result

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Hewlett Packard Enterprise

(Test Sponsor: HPE)

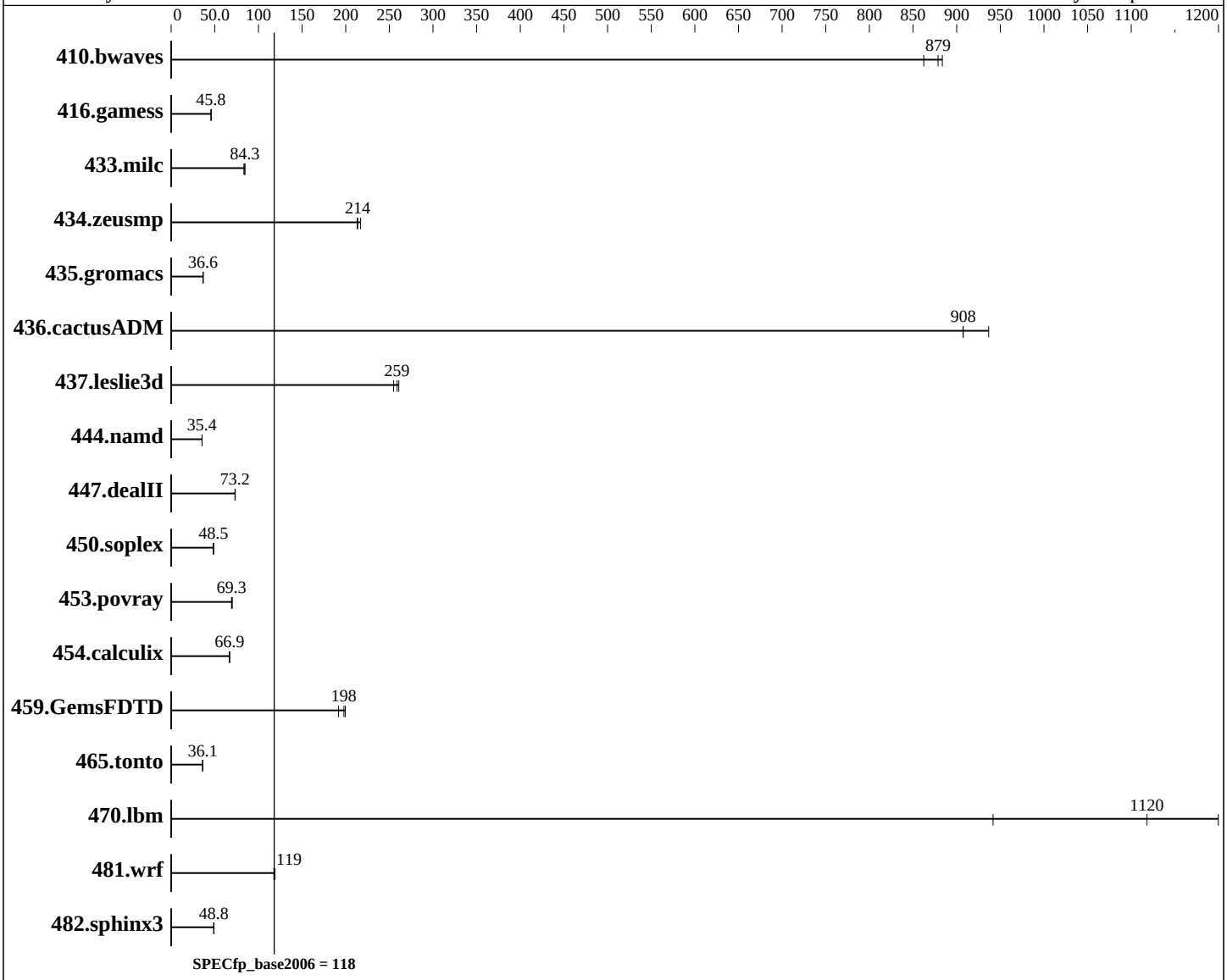
Synergy 480 Gen10
(2.00 GHz, Intel Xeon Gold 6138)

SPECfp®2006 = Not Run

SPECfp_base2006 = 118

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

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



Hardware

CPU Name:	Intel Xeon Gold 6138
CPU Characteristics:	Intel Turbo Boost Technology up to 3.70 GHz
CPU MHz:	2000
FPU:	Integrated
CPU(s) enabled:	40 cores, 2 chips, 20 cores/chip, 2 threads/core
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

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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:	Yes
File System:	xfs
System State:	Run level 3 (multi-user)

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L3 Cache: 27.5 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 960 GB SATA SSD, RAID 0
Other Hardware: None

Base Pointers: 64-bit
Peak Pointers: Not Applicable
Other Software: None

Results Table

Benchmark	Base						Peak					
	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	15.4	884	**15.5**	**879**	15.8	862						
416.gamess	428	45.8	**428**	**45.8**	428	45.7						
433.milc	109	84.5	**109**	**84.3**	110	83.3						
434.zeusmp	41.9	217	**42.6**	**214**	42.7	213						
435.gromacs	195	36.6	195	36.7	**195**	**36.6**						
436.cactusADM	**13.2**	**908**	12.8	937	13.2	907						
437.leslie3d	**36.3**	**259**	36.0	261	36.9	255						
444.namd	227	35.4	227	35.4	**227**	**35.4**						
447.dealII	156	73.1	156	73.4	**156**	**73.2**						
450.soplex	173	48.2	**172**	**48.5**	172	48.5						
453.povray	76.8	69.3	75.9	70.1	**76.8**	**69.3**						
454.calculix	123	67.1	124	66.5	**123**	**66.9**						
459.GemsFDTD	**53.6**	**198**	55.3	192	53.2	200						
465.tonto	272	36.2	273	36.0	**272**	**36.1**						
470.lbm	11.5	1200	14.6	942	**12.3**	**1120**						
481.wrf	94.9	118	**94.1**	**119**	94.0	119						
482.sphinx3	400	48.7	397	49.1	**399**	**48.8**						

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:
 Thermal Configuration set to Maximum Cooling
 LLC Prefetch set to Enabled
 LLC Dead Line Allocation set to Disabled
 Memory Patrol Scrubbing set to Disabled
```

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Platform Notes (Continued)

```
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 linux-vjuj Mon Nov 20 12:26:55 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 6138 CPU @ 2.00GHz
      2 "physical id"s (chips)
      80 "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 : 20
      siblings  : 40
      physical 0: cores 0 1 2 3 8 9 10 11 12 16 17 18 19 20 24 25 26 27 28
      physical 1: cores 0 1 2 3 8 9 10 11 12 16 17 18 19 20 24 25 26 27 28
   cache size : 28160 KB

From /proc/meminfo
   MemTotal:       395921388 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:
      SUSE Linux Enterprise Server 12 (x86_64)
      VERSION = 12
      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:
   Linux linux-vjuj 4.4.21-69-default #1 SMP Tue Oct 25 10:58:20 UTC 2016
```

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Platform Notes (Continued)

```
      (9464f67) x86_64 x86_64 x86_64 GNU/Linux

   run-level 3 Nov 17 16:35

   SPEC is set to: /home/cpu2006
      Filesystem     Type  Size  Used Avail Use% Mounted on
      /dev/sda4      xfs   852G   76G  777G   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

   (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 = "80"

 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
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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