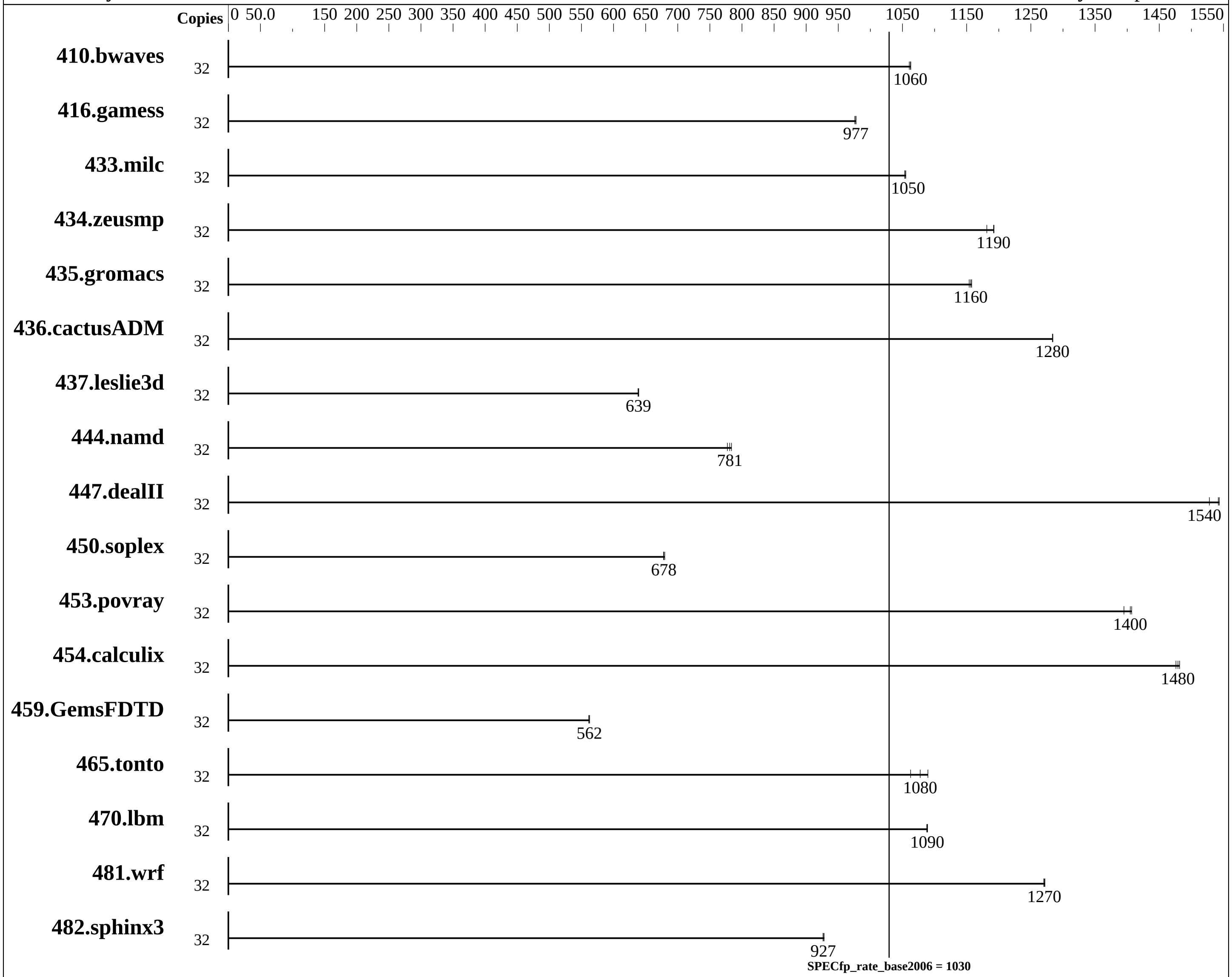
SPEC® CFP2006 Result

Hewlett Packard Enterprise
(Test Sponsor: HPE)
ProLiant DL380 Gen10
(3.90 GHz, Intel Xeon Gold 6137)

SPECfp®_rate2006 = Not Run

SPECfp_rate_base2006 = 1030

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



Hardware

CPU Name:	Intel Xeon Gold 6137
CPU Characteristics:	Intel Turbo Boost Technology up to 4.00 GHz
CPU MHz:	3900
FPU:	Integrated
CPU(s) enabled:	16 cores, 2 chips, 8 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

Continued on next page

Software

Operating System:	SUSE Linux Enterprise Server 12 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:	No
File System:	xfs
System State:	Run level 3 (multi-user)

Continued on next page

SPEC CFP2006 Result

Hewlett Packard Enterprise
(Test Sponsor: HPE)

ProLiant DL380 Gen10
(3.90 GHz, Intel Xeon Gold 6137)

SPECfp_rate2006 = Not Run

SPECfp_rate_base2006 = 1030

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

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

L3 Cache: 24.75 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 960 GB SSD SATA, RAID 0
Other Hardware: None

Base Pointers: 32/64-bit
Peak Pointers: Not Applicable
Other Software: None

Results Table

	Base							Peak						
Benchmark	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	32	409	1060	410	1060	**409**	**1060**							
416.gamess	32	642	976	**641**	**977**	641	978							
433.milc	32	**279**	**1050**	278	1060	279	1050							
434.zeusmp	32	**244**	**1190**	244	1190	246	1180							
435.gromacs	32	**198**	**1160**	198	1150	197	1160							
436.cactusADM	32	298	1280	298	1280	**298**	**1280**							
437.leslie3d	32	**471**	**639**	471	639	471	638							
444.namd	32	327	784	330	777	**329**	**781**							
447.dealII	32	**237**	**1540**	237	1540	240	1530							
450.soplex	32	394	678	**393**	**678**	393	680							
453.povray	32	**121**	**1400**	121	1410	122	1390							
454.calculix	32	178	1480	**178**	**1480**	179	1480							
459.GemsFDTD	32	605	561	**604**	**562**	603	563							
465.tonto	32	296	1060	289	1090	**292**	**1080**							
470.lbm	32	404	1090	404	1090	**404**	**1090**							
481.wrf	32	281	1270	**281**	**1270**	281	1270							
482.sphinx3	32	**673**	**927**	673	926	672	928							

Results appear in the order in which they were run. Bold underlined text indicates a median measurement.

Submit Notes

```
The numactl mechanism was used to bind copies to processors. The config file option 'submit'
was used to generate numactl commands to bind each copy to a specific processor.
For details, please see the config file.
```

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
irqbalance service stopped using "systemctl stop irqbalance.service"
Used throughput-performance profile for tuned-adm: "tuned-adm profile throughput-performance profile"
Numa Balancing disabled using â  echo 0 > /proc/sys/kernel/numa_balancing"
runspec command invoked through numactl i.e.:
```

Continued on next page

Operating System Notes (Continued)

```
numactl --interleave=all runspec <etc>
```

Platform Notes

```
BIOS Configuration:
 Memory Patrol Scrubbing set to Disabled
 Thermal Configuration set to Maximum Cooling
 LLC Prefetch set to Enabled
 LLC Dead Line Allocation set to Disabled
 Stale A to S set to Disabled
 Workload Profile set to General Throughput Compute
 Minimum Processor Idle Power Core C-State set to C1E State
 Sysinfo program /home/cpu2006/config/sysinfo.rev6993
 Revision 6993 of 2015-11-06 (b5e8d4b4eb51ed28d7f98696cbe290c1)
 running on dl380gen10-2 Fri Dec  1 12:10:50 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 6137 CPU @ 3.90GHz
       2 "physical id"s (chips)
       32 "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 : 8
       siblings  : 16
       physical 0: cores 0 5 16 18 19 20 21
       physical 1: cores 0 2 3 9 16 19 26 27
    cache size : 25344 KB

 From /proc/meminfo
    MemTotal:       197554680 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"
```

Continued on next page

Platform Notes (Continued)

```
        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 dl380gen10-2 4.4.21-69-default #1 SMP Tue Oct 25 10:58:20 UTC 2016
     (9464f67) x86_64 x86_64 x86_64 GNU/Linux

  run-level 3 Dec 1 12:10

  SPEC is set to: /home/cpu2006
     Filesystem     Type  Size  Used Avail Use% Mounted on
     /dev/sda4      xfs   517G   86G  431G  17% /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 U30 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:
LD_LIBRARY_PATH = "/home/cpu2006/lib/ia32:/home/cpu2006/lib/intel64:/home/cpu2006/sh10.2"

 Binaries compiled on a system with 1x Intel Core i7-4790 CPU + 32GB RAM
 memory using Redhat Enterprise Linux 7.2
```

No: The test sponsor attests, as of date of publication, that CVE-2017-5754 (Meltdown) is mitigated in the system as tested and documented.
No: The test sponsor attests, as of date of publication, that CVE-2017-5753 (Spectre variant 1) is mitigated in the system as tested and documented.
No: The test sponsor attests, as of date of publication, that CVE-2017-5715 (Spectre variant 2) is mitigated in the system as tested and documented.

Base Compiler Invocation

C benchmarks:
icc -m64

C++ benchmarks:
icpc -m64

Continued on next page

Base Compiler Invocation (Continued)

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 -qopt-prefetch -auto-p32 -qopt-mem-layout-trans=3`

C++ benchmarks:
`-xCORE-AVX2 -ipo -O3 -no-prec-div -qopt-prefetch -auto-p32 -qopt-mem-layout-trans=3`

Fortran benchmarks:
`-xCORE-AVX2 -ipo -O3 -no-prec-div -qopt-prefetch`

Benchmarks using both Fortran and C:
`-xCORE-AVX2 -ipo -O3 -no-prec-div -qopt-prefetch -auto-p32 -qopt-mem-layout-trans=3`

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

Tested with SPEC CPU2006 v1.2.
Report generated on Fri Feb 16 12:33:54 2018 by SPEC CPU2006 PS/PDF formatter v6932.
Originally published on 15 February 2018.