SPEC® CFP2006 Result

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Hewlett Packard Enterprise

(Test Sponsor: HPE)

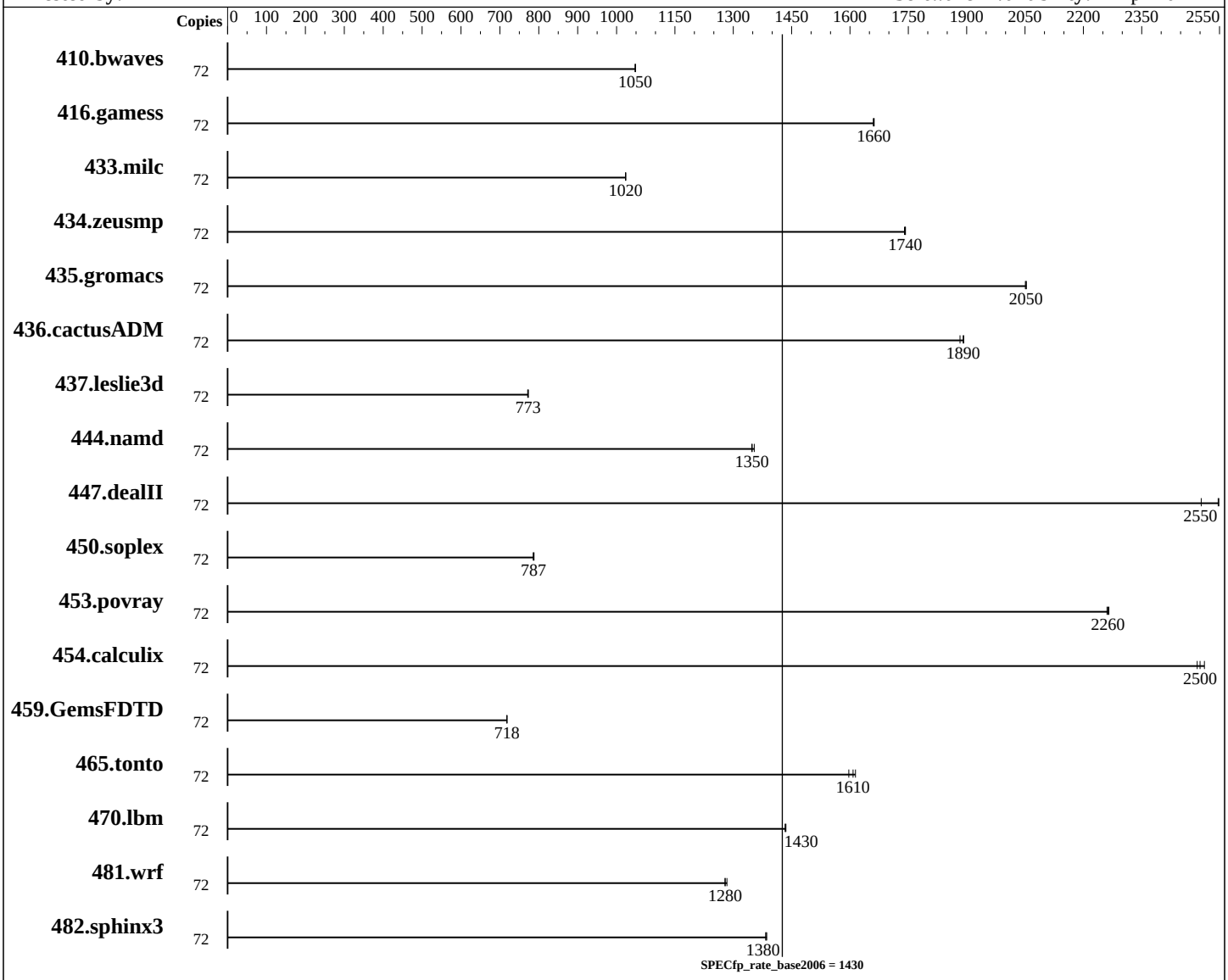
ProLiant DL380 Gen10
(2.70 GHz, Intel Xeon Gold 6150)

SPECfp®_rate2006 = Not Run

SPECfp_rate_base2006 = 1430

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

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



Hardware

CPU Name:	Intel Xeon Gold 6150
CPU Characteristics:	Intel Turbo Boost Technology up to 3.70 GHz
CPU MHz:	2700
FPU:	Integrated
CPU(s) enabled:	36 cores, 2 chips, 18 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:	No
File System:	xfs
System State:	Run level 3 (multi-user)

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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

Benchmark	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	72	**934**	**1050**	933	1050	934	1050							
416.gamess	72	**848**	**1660**	848	1660	849	1660							
433.milc	72	646	1020	646	1020	**646**	**1020**							
434.zeusmp	72	377	1740	**376**	**1740**	376	1740							
435.gromacs	72	250	2050	**250**	**2050**	251	2050							
436.cactusADM	72	457	1880	**455**	**1890**	455	1890							
437.leslie3d	72	876	773	**876**	**773**	877	771							
444.namd	72	**428**	**1350**	429	1350	426	1350							
447.dealII	72	323	2550	329	2500	**323**	**2550**							
450.soplex	72	**763**	**787**	764	786	762	788							
453.povray	72	169	2260	169	2270	**169**	**2260**							
454.calculix	72	237	2510	**238**	**2500**	238	2490							
459.GemsFDTD	72	1064	718	1064	718	**1064**	**718**							
465.tonto	72	444	1600	439	1610	**441**	**1610**							
470.lbm	72	**690**	**1430**	689	1440	690	1430							
481.wrf	72	627	1280	**629**	**1280**	629	1280							
482.sphinx3	72	**1014**	**1380**	1014	1380	1012	1390							

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
runspec command invoked through numactl i.e.:
 numactl --interleave=all runspec <etc>
irqbalance disabled with "service irqbalance stop"
tuned profile set wtih "tuned-adm profile throughput-performance"
```

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Operating System Notes (Continued)

```
VM Dirty ratio was set to 40 using "echo 40 > /proc/sys/vm/dirty_ratio"
Numa balancing was disabled using "echo 0 > /proc/sys/kernel/numa_balancing"
```

Platform Notes

```
BIOS Configuration:
 Thermal Configuration set to Maximum Cooling
 Memory Patrol Scrubbing set to Disabled
 LLC Prefetcher set to Enabled
 LLC Dead Line Allocation set to Disabled
 Stale A to S set to Disabled
 Workload Pofile set to General Throughput Compute
  Minimum Processor Idle Power Core C-State set to C1E

Sysinfo program /home/cpu2006/config/sysinfo.rev6993
Revision 6993 of 2015-11-06 (b5e8d4b4eb51ed28d7f98696cbe290c1)
running on dl380gen10-2 Fri Oct 20 12:01:14 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 6150 CPU @ 2.70GHz
      2 "physical id"s (chips)
      72 "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 : 18
      siblings  : 36
      physical 0: cores 0 1 2 3 8 9 10 11 16 17 18 19 20 24 25 26 27
      physical 1: cores 0 1 2 3 8 9 10 11 16 17 18 19 20 24 25 26 27
   cache size : 25344 KB

From /proc/meminfo
   MemTotal:       197548372 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.
```

Continued on next page

Platform Notes (Continued)

```
      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 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 Oct 20 12:00

   SPEC is set to: /home/cpu2006
      Filesystem     Type  Size  Used Avail Use% Mounted on
      /dev/sda4      xfs   517G  140G  378G  27% /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
```

Base Compiler Invocation

C benchmarks:
```
icc -m64
```

C++ benchmarks:
```
icpc -m64
```

Fortran benchmarks:
```
ifort -m64
```

Continued on next page

Base Compiler Invocation (Continued)

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-revD.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-revD.xml`

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For other inquiries, please contact webmaster@spec.org.

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