SPEC® CFP2006 Result

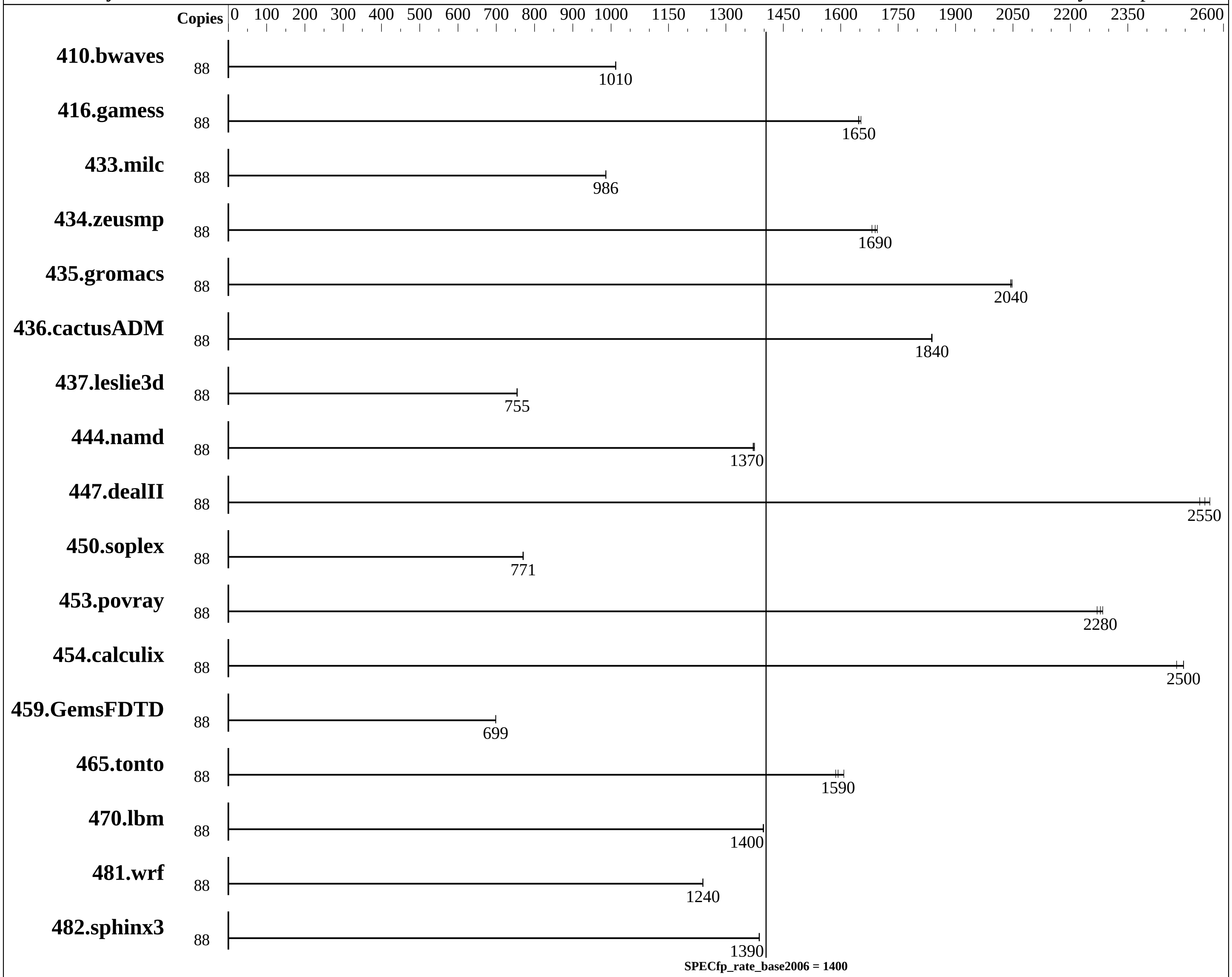
Hewlett Packard Enterprise
(Test Sponsor: HPE)

ProLiant BL460c Gen10
(2.10 GHz, Intel Xeon Gold 6152)

SPECfp®_rate2006 = Not Run

SPECfp_rate_base2006 = 1400

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



Hardware

CPU Name:	Intel Xeon Gold 6152
CPU Characteristics:	Intel Turbo Boost Technology up to 3.70 GHz
CPU MHz:	2100
FPU:	Integrated
CPU(s) enabled:	44 cores, 2 chips, 22 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) SP3 Kernel 4.4.73-5-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:	30.25 MB I+D on chip per chip
Other Cache:	None
Memory:	192 GB (12 x 16 GB 2Rx8 PC4-2666V-R)
Disk Subsystem:	1 x 480 GB SATA SSD, 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	88	1182	1010	**1182**	**1010**	1181	1010							
416.gamess	88	1047	1650	1042	1650	**1046**	**1650**							
433.milc	88	820	986	819	987	**819**	**986**							
434.zeusmp	88	476	1680	472	1700	**474**	**1690**							
435.gromacs	88	**307**	**2040**	307	2050	307	2040							
436.cactusADM	88	572	1840	**572**	**1840**	572	1840							
437.leslie3d	88	**1096**	**755**	1096	755	1097	754							
444.namd	88	**514**	**1370**	515	1370	513	1370							
447.dealII	88	397	2540	393	2560	**395**	**2550**							
450.soplex	88	954	769	952	771	**952**	**771**							
453.povray	88	206	2270	**205**	**2280**	205	2280							
454.calculix	88	293	2480	**291**	**2500**	291	2500							
459.GemsFDTD	88	1336	699	**1337**	**699**	1337	699							
465.tonto	88	**544**	**1590**	546	1590	538	1610							
470.lbm	88	865	1400	**865**	**1400**	864	1400							
481.wrf	88	793	1240	**793**	**1240**	792	1240							
482.sphinx3	88	**1236**	**1390**	1237	1390	1236	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
 LLC Prefetch set to Enabled
 LLC Dead Line Allocation set to Disabled
 Memory Patrol Scrubbing 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 bl460c107 Tue Dec  5 07:29:13 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 6152 CPU @ 2.10GHz
       2 "physical id"s (chips)
       88 "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 : 22
       siblings  : 44
       physical 0: cores 0 1 2 3 8 9 10 11 12 16 17 18 19 20 21 24 25 26 27 28
       physical 1: cores 0 1 2 3 8 9 10 11 12 16 17 18 19 20 21 24 25 26 27 28
    cache size : 30976 KB

 From /proc/meminfo
    MemTotal:       197740176 kB
    HugePages_Total:       0
    Hugepagesize:       2048 kB

 From /etc/*release* /etc/*version*
    SuSE-release:
       SUSE Linux Enterprise Server 12 (x86_64)
       VERSION = 12
       PATCHLEVEL = 3
       # 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-SP3"
       VERSION_ID="12.3"
       PRETTY_NAME="SUSE Linux Enterprise Server 12 SP3"
```

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Platform Notes (Continued)

```
        ID="sles"
        ANSI_COLOR="0;32"
        CPE_NAME="cpe:/o:suse:sles:12:sp3"

  uname -a:
     Linux bl460c107 4.4.73-5-default #1 SMP Tue Jul 4 15:33:39 UTC 2017 (b7ce4e4)
     x86_64 x86_64 x86_64 GNU/Linux

  run-level 3 Dec 5 07:28

  SPEC is set to: /home/cpu2006
     Filesystem     Type  Size  Used Avail Use% Mounted on
     /dev/sda4      xfs   300G   26G  274G   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 I41 11/14/2017
    Memory:
     4x UNKNOWN NOT AVAILABLE
     12x UNKNOWN NOT AVAILABLE 16 GB 2 rank 2666 MHz

  (End of data from sysinfo program)
  Regarding the sysinfo display about the memory installed, the correct amount of
  memory is 192 GB and the dmidecode description should have one line reading as:
     12x UNKNOWN NOT AVAILABLE 16 GB 2 rank 2666 MHz
```

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-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

For questions about this result, please contact the tester.
For other inquiries, please contact webmaster@spec.org.

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