SPEC® CFP2006 Result
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Hewlett Packard Enterprise
(Test Sponsor: HPE)

$SPECfp^{®}\_rate2006 =$ Not Run

ProLiant DL380 Gen10
(2.10 GHz, Intel Xeon Gold 6130)

$SPECfp\_rate\_base2006 =$ 1250

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

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

Benchmark	Copies	Result
410.bwaves	64	1030
416.gamess	64	1270
433.milc	64	1010
434.zeusmp	64	1570
435.gromacs	64	1540
436.cactusADM	64	1710
437.leslie3d	64	751
444.namd	64	1060
447.dealII	64	2060
450.soplex	64	760
453.povray	64	1800
454.calculix	64	1950
459.GemsFDTD	64	691
465.tonto	64	1320
470.lbm	64	1370
481.wrf	64	1250
482.sphinx3	64	1220

SPECfp_rate_base2006 = 1250

Hardware
CPU Name: Intel Xeon Gold 6130
CPU Characteristics: Intel Turbo Boost Technology up to 3.70 GHz
CPU MHz: 2100
FPU: Integrated
CPU(s) enabled: 32 cores, 2 chips, 16 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)

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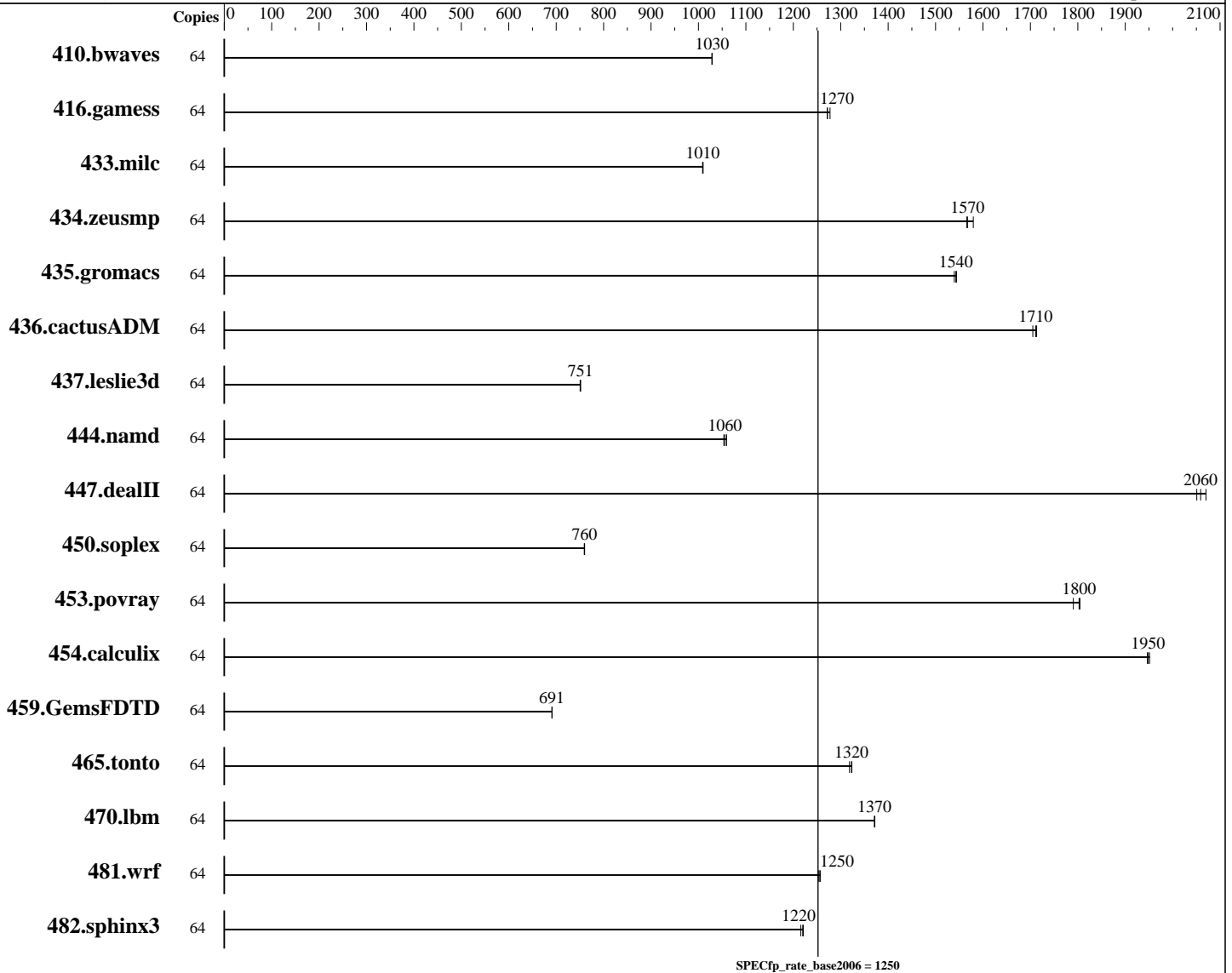$SPECfp\_rate2006 =$ Not Run

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L3 Cache:	22 MB I+D on chip per chip	Base Pointers:	32/64-bit
Other Cache:	None	Peak Pointers:	Not Applicable
Memory:	192 GB (24 x 8 GB 2Rx8 PC4-2666V-R)	Other Software:	None
Disk Subsystem:	1 x 960 GB SSD SATA, RAID 0		
Other Hardware:	None		

Results Table

Benchmark	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	64	**845**	**1030**	845	1030	846	1030							
416.gamess	64	985	1270	**985**	**1270**	981	1280							
433.milc	64	582	1010	582	1010	**582**	**1010**							
434.zeusmp	64	**372**	**1570**	369	1580	372	1570							
435.gromacs	64	296	1540	297	1540	**296**	**1540**							
436.cactusADM	64	449	1710	446	1710	**447**	**1710**							
437.leslie3d	64	802	750	**801**	**751**	801	751							
444.namd	64	484	1060	487	1050	**486**	**1060**							
447.dealII	64	354	2070	357	2050	**356**	**2060**							
450.soplex	64	**703**	**760**	702	760	703	759							
453.povray	64	**189**	**1800**	190	1790	189	1800							
454.calculix	64	**271**	**1950**	271	1950	271	1950							
459.GemsFDTD	64	982	691	982	691	**982**	**691**							
465.tonto	64	476	1320	**476**	**1320**	478	1320							
470.lbm	64	**641**	**1370**	641	1370	641	1370							
481.wrf	64	**570**	**1250**	569	1260	571	1250							
482.sphinx3	64	1026	1220	**1023**	**1220**	1022	1220							

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
     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 Wed Oct  4 15:53:52 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 6130 CPU @ 2.10GHz
          2 "physical id"s (chips)
          64 "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 : 16
          siblings  : 32
          physical 0: cores 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15
          physical 1: cores 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15
       cache size : 22528 KB

    From /proc/meminfo
       MemTotal:        197550452 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:
```

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Platform Notes (Continued)

```
        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 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 4 15:50

    SPEC is set to: /home/cpu2006
        Filesystem      Type  Size  Used Avail Use% Mounted on
        /dev/sdb4       xfs   852G  102G  750G  12% /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

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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

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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

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

Tested with SPEC CPU2006 v1.2.
Report generated on Wed Nov 1 00:54:27 2017 by SPEC CPU2006 PS/PDF formatter v6932.
Originally published on 31 October 2017.