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

Superdome Flex
(3.00 GHz, Intel Xeon Gold 6154)

$SPECfp^®\_rate2006 =$ **Not Run**
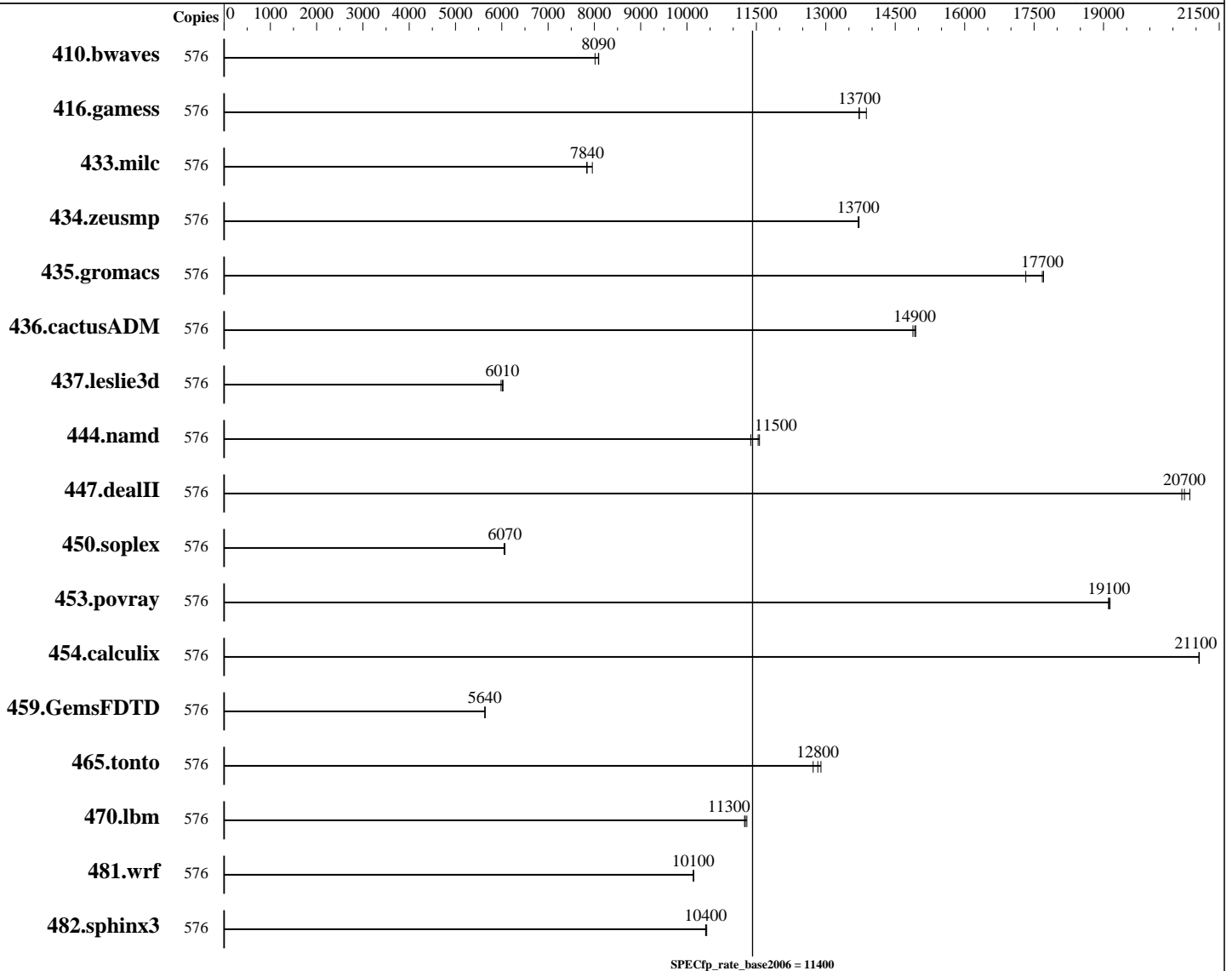
SPECfp_rate_base2006 = **11400**

CPU2006 license: 3
Test sponsor: HPE
Tested by: HPE
Test date: Dec-2017
Hardware Availability: Mar-2018
Software Availability: Mar-2018

Benchmark	Copies	Result
410.bwaves	576	8090
416.gamess	576	13700
433.milc	576	7840
434.zeusmp	576	13700
435.gromacs	576	17700
436.cactusADM	576	14900
437.leslie3d	576	6010
444.namd	576	11500
447.dealII	576	20700
450.soplex	576	6070
453.povray	576	19100
454.calculix	576	21100
459.GemsFDTD	576	5640
465.tonto	576	12800
470.lbm	576	11300
481.wrf	576	10100
482.sphinx3	576	10400

SPECfp_rate_base2006 = 11400

Hardware
CPU Name: Intel Xeon Gold 6154
CPU Characteristics: Intel Turbo Boost Technology up to 3.70 GHz
CPU MHz: 3000
FPU: Integrated
CPU(s) enabled: 288 cores, 16 chips, 18 cores/chip, 2 threads/core
CPU(s) orderable: 4 to 32 chips
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 (x86_64) SP2, Kernel 4.4.74-92.38-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: tmpfs
System State: Run level 3 (multi-user)

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L3 Cache:	24.75 MB I+D on chip per chip	Base Pointers:	32/64-bit
Other Cache:	None	Peak Pointers:	Not Applicable
Memory:	6 TB (192 x 32 GB 2Rx4 PC4-2666V-R)	Other Software:	HPE Foundation Software 1.0,
Disk Subsystem:	6 TB tmpfs		Build 717a270.sles12sp2-1709012000
Other Hardware:	None		

Results Table

Benchmark	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	576	977	8010	967	8090	**968**	**8090**							
416.gamess	576	813	13900	**822**	**13700**	822	13700							
433.milc	576	675	7840	665	7960	**674**	**7840**							
434.zeusmp	576	**382**	**13700**	383	13700	382	13700							
435.gromacs	576	237	17300	232	17700	**233**	**17700**							
436.cactusADM	576	461	14900	463	14900	**461**	**14900**							
437.leslie3d	576	898	6030	905	5980	**900**	**6010**							
444.namd	576	**400**	**11500**	399	11600	406	11400							
447.dealII	576	318	20700	**318**	**20700**	316	20900							
450.soplex	576	794	6050	**792**	**6070**	792	6070							
453.povray	576	**160**	**19100**	160	19100	160	19100							
454.calculix	576	**226**	**21100**	226	21100	226	21100							
459.GemsFDTD	576	1084	5640	1084	5640	**1084**	**5640**							
465.tonto	576	440	12900	445	12700	**442**	**12800**							
470.lbm	576	701	11300	**703**	**11300**	704	11200							
481.wrf	576	**635**	**10100**	635	10100	634	10100							
482.sphinx3	576	1079	10400	**1079**	**10400**	1077	10400							

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 with:
echo always > /sys/kernel/mm/transparent_hugepage/enabled
Filesystem page cache cleared with:
shell invocation of 'sync; echo 3 > /proc/sys/vm/drop_caches' prior to run
The tmpfs filesystem was set up with:
    mkdir -p /dev/shm/cpu2006-16S
    mount -t tmpfs -o size=6144G,rw tmpfs /dev/shm/cpu2006-16S

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Platform Notes

```
    Rack Management Controller setting:
       modify npar pnum=0 ras=hpc


    Sysinfo program /dev/shm/cpu2006-16S/config/sysinfo.rev6993
    Revision 6993 of 2015-11-06 (b5e8d4b4eb51ed28d7f98696cbe290c1)
    running on uv4test35-sys Fri Dec  8 15:34:05 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 6154 CPU @ 3.00GHz
          16 "physical id"s (chips)
          576 "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 4 8 9 10 11 16 17 18 19 20 24 25 26 27
          physical 1: cores 0 1 2 3 4 8 9 10 11 16 17 18 19 20 24 25 26 27
          physical 2: cores 0 1 2 3 4 8 9 10 11 16 17 18 19 20 24 25 26 27
          physical 3: cores 0 1 2 3 4 8 9 10 11 16 17 18 19 20 24 25 26 27
          physical 4: cores 0 1 2 3 4 8 9 10 11 16 17 18 19 20 24 25 26 27
          physical 5: cores 0 1 2 3 4 8 9 10 11 16 17 18 19 20 24 25 26 27
          physical 6: cores 0 1 2 3 4 8 9 10 11 16 17 18 19 20 24 25 26 27
          physical 7: cores 0 1 2 3 4 8 9 10 11 16 17 18 19 20 24 25 26 27
          physical 8: cores 0 1 2 3 4 8 9 10 11 16 17 18 19 20 24 25 26 27
          physical 9: cores 0 1 2 3 4 8 9 10 11 16 17 18 19 20 24 25 26 27
          physical 10: cores 0 1 2 3 4 8 9 10 11 16 17 18 19 20 24 25 26 27
          physical 11: cores 0 1 2 3 4 8 9 10 11 16 17 18 19 20 24 25 26 27
          physical 12: cores 0 1 2 3 4 8 9 10 11 16 17 18 19 20 24 25 26 27
          physical 13: cores 0 1 2 3 4 8 9 10 11 16 17 18 19 20 24 25 26 27
          physical 14: cores 0 1 2 3 4 8 9 10 11 16 17 18 19 20 24 25 26 27
          physical 15: cores 0 1 2 3 4 8 9 10 11 16 17 18 19 20 24 25 26 27
       cache size : 25344 KB

    From /proc/meminfo
       MemTotal:       6145746556 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
```

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Platform Notes (Continued)

```
        release.
        # Please check /etc/os-release for details about this release.
    hpe-foundation-release: HPE Foundation Software 1.0, Build
    717a270.sles12sp2-1709012000
    hpe-mpi-release: HPE MPI 1.2, Build 718a13.sles12sp2-1710021900
    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"
    sgi-release: SGI Performance Suite 1.16

  uname -a:
    Linux uv4test35-sys 4.4.74-92.38-default #1 SMP Tue Sep 12 19:43:46 UTC 2017
    (545c055) x86_64 x86_64 x86_64 GNU/Linux

  run-level 3 Dec 7 12:57

  SPEC is set to: /dev/shm/cpu2006-16S
    Filesystem      Type   Size  Used Avail Use% Mounted on
    tmpfs           tmpfs  6.0T  244G  5.8T   4% /dev/shm/cpu2006-16S
  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.


  (End of data from sysinfo program)
```

General Notes

```
  Environment variables set by runspec before the start of the run:
  LD_LIBRARY_PATH = "/dev/shm/cpu2006-16S/lib/ia32:/dev/shm/cpu2006-16S/lib/intel64:/dev/shm/cpu2006-16S/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
```

Continued on next page

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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
```

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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-Superdome_Flex-RevA.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-Superdome_Flex-RevA.xml

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

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