SPEC® CFP2006 Result
Copyright 2006-2018 Standard Performance Evaluation Corporation

Hewlett Packard Enterprise
(Test Sponsor: HPE)

Synergy 480 Gen10
(3.20 GHz, Intel Xeon Gold 6146)

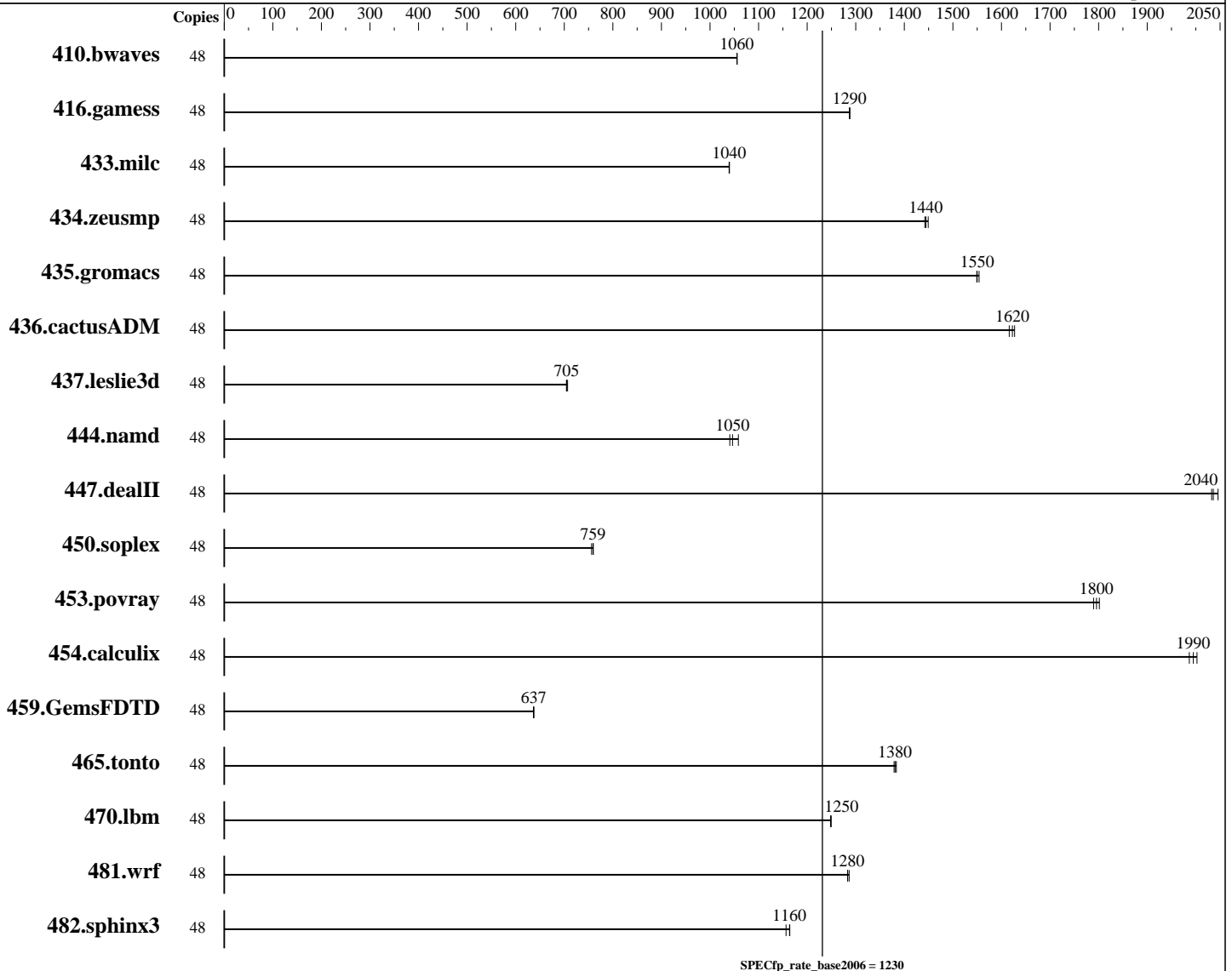$SPECfp®\_rate2006 =$ **Not Run**

$SPECfp\_rate\_base2006 = 1230$

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

Benchmark	Copies	Result
410.bwaves	48	1060
416.gamess	48	1290
433.milc	48	1040
434.zeusmp	48	1440
435.gromacs	48	1550
436.cactusADM	48	1620
437.leslie3d	48	705
444.namd	48	1050
447.dealII	48	2040
450.soplex	48	759
453.povray	48	1800
454.calculix	48	1990
459.GemsFDTD	48	637
465.tonto	48	1380
470.lbm	48	1250
481.wrf	48	1280
482.sphinx3	48	1160

SPECfp_rate_base2006 = 1230

Hardware

CPU Name:	Intel Xeon Gold 6146
CPU Characteristics:	Intel Turbo Boost Technology up to 4.20 GHz
CPU MHz:	3200
FPU:	Integrated
CPU(s) enabled:	24 cores, 2 chips, 12 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 (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)

Continued on next page

SPEC CFP2006 Result

Copyright 2006-2018 Standard Performance Evaluation Corporation

Hewlett Packard Enterprise

(Test Sponsor: HPE)

Synergy 480 Gen10
(3.20 GHz, Intel Xeon Gold 6146)

$SPECfp\_rate2006 =$ Not Run

$SPECfp\_rate\_base2006 =$ 1230

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

L3 Cache:	24.75 MB I+D on chip per chip	Base Pointers:	32/64-bit
Other Cache:	None	Peak Pointers:	Not Applicable
Memory:	384 GB (24 x 16 GB 2Rx8 PC4-2666V-R)	Other Software:	None
Disk Subsystem:	1 x 480 GB SATA SSD, 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	48	618	1060	**618**	**1060**	618	1060							
416.gamess	48	**730**	**1290**	730	1290	730	1290							
433.milc	48	**424**	**1040**	424	1040	424	1040							
434.zeusmp	48	303	1440	**302**	**1440**	301	1450							
435.gromacs	48	221	1550	**221**	**1550**	221	1550							
436.cactusADM	48	355	1620	**354**	**1620**	353	1630							
437.leslie3d	48	**640**	**705**	641	704	638	707							
444.namd	48	370	1040	**368**	**1050**	364	1060							
447.dealII	48	268	2050	270	2030	**270**	**2040**							
450.soplex	48	529	756	527	760	**527**	**759**							
453.povray	48	142	1800	**142**	**1800**	143	1790							
454.calculix	48	198	2000	**199**	**1990**	199	1990							
459.GemsFDTD	48	799	637	800	636	**800**	**637**							
465.tonto	48	341	1380	**342**	**1380**	343	1380							
470.lbm	48	528	1250	**528**	**1250**	528	1250							
481.wrf	48	**418**	**1280**	417	1290	418	1280							
482.sphinx3	48	809	1160	804	1160	**804**	**1160**							

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 "systemctl stop irqbalance"
tuned profile set with "tuned-adm profile throughput-performance"

SPEC CFP2006 Result

Hewlett Packard Enterprise

(Test Sponsor: HPE)

Synergy 480 Gen10
(3.20 GHz, Intel Xeon Gold 6146)

$SPECfp\_rate2006 =$ **Not Run**

$SPECfp\_rate\_base2006 =$ **1230**

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

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

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 Prefetch set to Enabled
 LLC Dead Line Allocation 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 sy480_m3_sles Sun Dec 24 09:53:06 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 6146 CPU @ 3.20GHz
      2 "physical id"s (chips)
      48 "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 : 12
      siblings  : 24
      physical 0: cores 0 1 2 3 8 9 10 11 18 19 24 27
      physical 1: cores 0 1 2 3 4 8 9 11 17 18 19 20
   cache size : 25344 KB

From /proc/meminfo
   MemTotal:        395926124 kB
   HugePages_Total:         0
   Hugepagesize:         2048 kB

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"
      VERSION="12-SP2"
      VERSION_ID="12.2"
      PRETTY_NAME="SUSE Linux Enterprise Server 12 SP2"
```

Continued on next page

Hewlett Packard Enterprise

(Test Sponsor: HPE)

Synergy 480 Gen10
(3.20 GHz, Intel Xeon Gold 6146)

$SPECfp\_rate2006 =$ **Not Run**

$SPECfp\_rate\_base2006 =$ **1230**

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

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

Platform Notes (Continued)

```
        ID="sles"
        ANSI_COLOR="0;32"
        CPE_NAME="cpe:/o:suse:sles:12:sp2"

  uname -a:
     Linux sy480_m3_sles 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 24 09:50

  SPEC is set to: /home/cpu2006
     Filesystem      Type  Size  Used Avail Use% Mounted on
     /dev/sda4       xfs   405G   82G  324G  21% /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 I42 11/14/2017
   Memory:
    24x UNKNOWN NOT AVAILABLE 16 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.


  This benchmark result is intended to provide perspective on
  past performance using the historical hardware and/or
  software described on this result page.

  The system as described on this result page was formerly
  generally available. At the time of this publication, it may
  not be shipping, and/or may not be supported, and/or may fail
  to meet other tests of General Availability described in the
  SPEC OSG Policy document, http://wwww.spec.org/osg/policy.htm.
```

SPEC CFP2006 Result
Copyright 2006-2018 Standard Performance Evaluation Corporation

Hewlett Packard Enterprise
(Test Sponsor: HPE)

Synergy 480 Gen10
(3.20 GHz, Intel Xeon Gold 6146)

$SPECfp\_rate2006 =$ Not Run

$SPECfp\_rate\_base2006 =$ 1230

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

General Notes (Continued)

This measured result may not be representative of the result
that would be measured were this benchmark run with hardware
and software available as of the publication date.

Base Compiler Invocation

C benchmarks:
      icc -m64

C++ benchmarks:
      icpc -m64

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

Hewlett Packard Enterprise

(Test Sponsor: HPE)

Synergy 480 Gen10
(3.20 GHz, Intel Xeon Gold 6146)

$SPECfp\_rate2006 =$ Not Run

$SPECfp\_rate\_base2006 =$ 1230

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

Base Optimization Flags (Continued)

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

SPEC and SPECfp are registered trademarks of the Standard Performance
Evaluation Corporation. All other brand and product names appearing in
this result are trademarks or registered trademarks of their respective
holders.

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 Thu Jun 14 11:30:11 2018 by SPEC CPU2006 PS/PDF formatter v6932.
Originally published on 13 June 2018.