



SPEC® CFP2006 Result

Copyright 2006-2017 Standard Performance Evaluation Corporation

Hewlett Packard Enterprise

(Test Sponsor: HPE)

ProLiant DL580 Gen10
(2.10 GHz, Intel Xeon Gold 6130)

SPECfp®_rate2006 = Not Run

SPECfp_rate_base2006 = 1990

CPU2006 license: 3

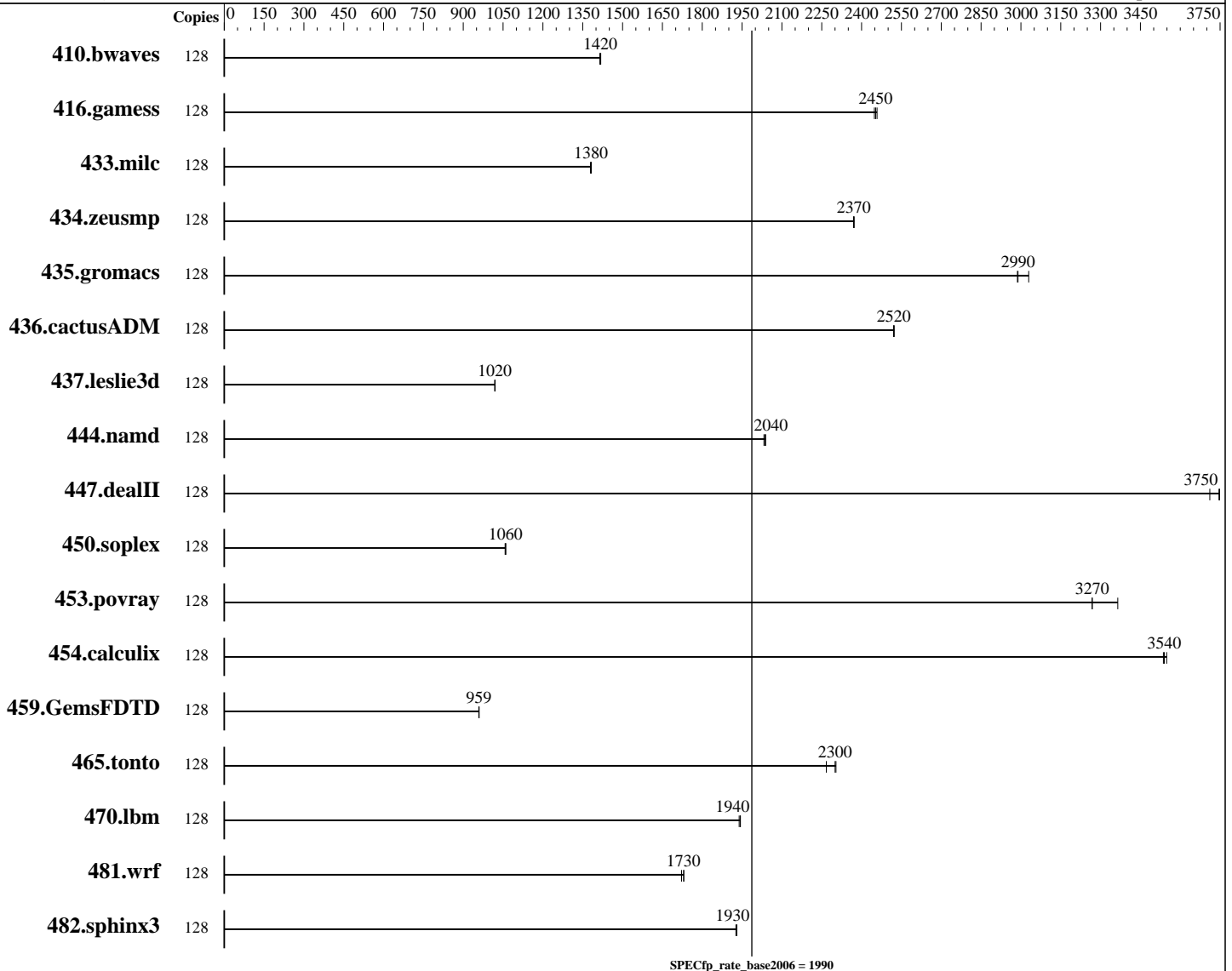
Test sponsor: HPE

Tested by: HPE

Test date: Oct-2017

Hardware Availability: Oct-2017

Software Availability: Sep-2017



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: 64 cores, 4 chips, 16 cores/chip, 2 threads/core
 CPU(s) orderable: 1, 2, 4 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) 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)

Continued on next page



SPEC CFP2006 Result

Copyright 2006-2017 Standard Performance Evaluation Corporation

Hewlett Packard Enterprise

(Test Sponsor: HPE)

ProLiant DL580 Gen10

(2.10 GHz, Intel Xeon Gold 6130)

SPECfp_rate2006 = Not Run

SPECfp_rate_base2006 = 1990

CPU2006 license: 3

Test sponsor: HPE

Tested by: HPE

Test date: Oct-2017

Hardware Availability: Oct-2017

Software Availability: Sep-2017

L3 Cache: 22 MB I+D on chip per chip
Other Cache: None
Memory: 1 TB (16 x 64 GB 4Rx4 PC4-2666V-L)
Disk Subsystem: 1 x 600 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 | 128 | <u>1228</u> | <u>1420</u> | 1227 | 1420 | 1230 | 1410 | | | | | | | |
| 416.gamess | 128 | <u>1022</u> | <u>2450</u> | 1024 | 2450 | 1020 | 2460 | | | | | | | |
| 433.milc | 128 | 852 | 1380 | 850 | 1380 | <u>851</u> | <u>1380</u> | | | | | | | |
| 434.zeusmp | 128 | 491 | 2370 | 491 | 2370 | <u>491</u> | <u>2370</u> | | | | | | | |
| 435.gromacs | 128 | 306 | 2990 | <u>306</u> | <u>2990</u> | 302 | 3030 | | | | | | | |
| 436.cactusADM | 128 | <u>607</u> | <u>2520</u> | 606 | 2520 | 607 | 2520 | | | | | | | |
| 437.leslie3d | 128 | 1181 | 1020 | <u>1180</u> | <u>1020</u> | 1180 | 1020 | | | | | | | |
| 444.namd | 128 | <u>504</u> | <u>2040</u> | 505 | 2030 | 504 | 2040 | | | | | | | |
| 447.dealII | 128 | 391 | 3750 | 395 | 3710 | <u>391</u> | <u>3750</u> | | | | | | | |
| 450.soplex | 128 | 1007 | 1060 | 1009 | 1060 | <u>1007</u> | <u>1060</u> | | | | | | | |
| 453.povray | 128 | <u>208</u> | <u>3270</u> | 208 | 3270 | 202 | 3360 | | | | | | | |
| 454.calculix | 128 | <u>298</u> | <u>3540</u> | 299 | 3540 | 298 | 3550 | | | | | | | |
| 459.GemsFDTD | 128 | 1415 | 960 | 1417 | 959 | <u>1416</u> | <u>959</u> | | | | | | | |
| 465.tonto | 128 | 547 | 2300 | <u>548</u> | <u>2300</u> | 556 | 2270 | | | | | | | |
| 470.lbm | 128 | <u>905</u> | <u>1940</u> | 905 | 1940 | 907 | 1940 | | | | | | | |
| 481.wrf | 128 | 830 | 1720 | <u>826</u> | <u>1730</u> | 826 | 1730 | | | | | | | |
| 482.sphinx3 | 128 | 1292 | 1930 | 1295 | 1930 | <u>1293</u> | <u>1930</u> | | | | | | | |

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"
Prior to runcpu invocation
Filesystem page cache synced and cleared with:
sync; echo 3> /proc/sys/vm/drop_caches
runspec command invoked through numactl i.e.:
numactl --interleave=all runspec <etc>



SPEC CFP2006 Result

Copyright 2006-2017 Standard Performance Evaluation Corporation

Hewlett Packard Enterprise

(Test Sponsor: HPE)

ProLiant DL580 Gen10
(2.10 GHz, Intel Xeon Gold 6130)

SPECfp_rate2006 = Not Run

SPECfp_rate_base2006 = 1990

CPU2006 license: 3

Test sponsor: HPE

Tested by: HPE

Test date: Oct-2017

Hardware Availability: Oct-2017

Software Availability: Sep-2017

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 Enabled
 Workload Pofile set to Throughput Frequency 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 linux-0nki Mon Oct 30 07:06:36 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
 4 "physical id"s (chips)
 128 "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
 physical 2:   cores 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15
 physical 3:   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:      1056517044 kB
HugePages_Total:      0
Hugepagesize:    2048 kB

```

/usr/bin/lsb_release -d

```
SUSE Linux Enterprise Server 12 SP3
```

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"

```

Continued on next page



SPEC CFP2006 Result

Copyright 2006-2017 Standard Performance Evaluation Corporation

Hewlett Packard Enterprise

(Test Sponsor: HPE)

ProLiant DL580 Gen10
(2.10 GHz, Intel Xeon Gold 6130)

SPECfp_rate2006 = Not Run

SPECfp_rate_base2006 = 1990

CPU2006 license: 3

Test sponsor: HPE

Tested by: HPE

Test date: Oct-2017

Hardware Availability: Oct-2017

Software Availability: Sep-2017

Platform Notes (Continued)

```
PRETTY_NAME="SUSE Linux Enterprise Server 12 SP3"
ID="sles"
ANSI_COLOR="0;32"
CPE_NAME="cpe:/o:suse:sles:12:sp3"
```

```
uname -a:
Linux linux-0nki 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 Oct 30 07:04
```

```
SPEC is set to: /home/cpu2006
Filesystem      Type  Size  Used Avail Use% Mounted on
/dev/sda4        xfs   517G   92G  426G  18% /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 U34 08/18/2017
```

```
Memory:
```

```
32x UNKNOWN NOT AVAILABLE
```

```
16x UNKNOWN NOT AVAILABLE 64 GB 4 rank 2666 MHz
```

(End of data from sysinfo program)

Regarding the sysinfo display about the memory installed, the correct amount of memory is 1 TB and the dmidecode description should have one line reading as:
16x UNKNOWN NOT AVAILABLE 64 GB 4 rank 2666

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



SPEC CFP2006 Result

Copyright 2006-2017 Standard Performance Evaluation Corporation

Hewlett Packard Enterprise

(Test Sponsor: HPE)

ProLiant DL580 Gen10

(2.10 GHz, Intel Xeon Gold 6130)

SPECfp_rate2006 = Not Run

SPECfp_rate_base2006 = 1990

CPU2006 license: 3

Test sponsor: HPE

Tested by: HPE

Test date: Oct-2017

Hardware Availability: Oct-2017

Software Availability: Sep-2017

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>



SPEC CFP2006 Result

Copyright 2006-2017 Standard Performance Evaluation Corporation

Hewlett Packard Enterprise

(Test Sponsor: HPE)

ProLiant DL580 Gen10

(2.10 GHz, Intel Xeon Gold 6130)

SPECfp_rate2006 = Not Run

SPECfp_rate_base2006 = 1990

CPU2006 license: 3

Test sponsor: HPE

Tested by: HPE

Test date: Oct-2017

Hardware Availability: Oct-2017

Software Availability: Sep-2017

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>

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 Wed Nov 15 10:58:56 2017 by SPEC CPU2006 PS/PDF formatter v6932.
Originally published on 14 November 2017.