



# SPEC<sup>®</sup> CFP2006 Result

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**Hewlett Packard Enterprise**

(Test Sponsor: HPE)

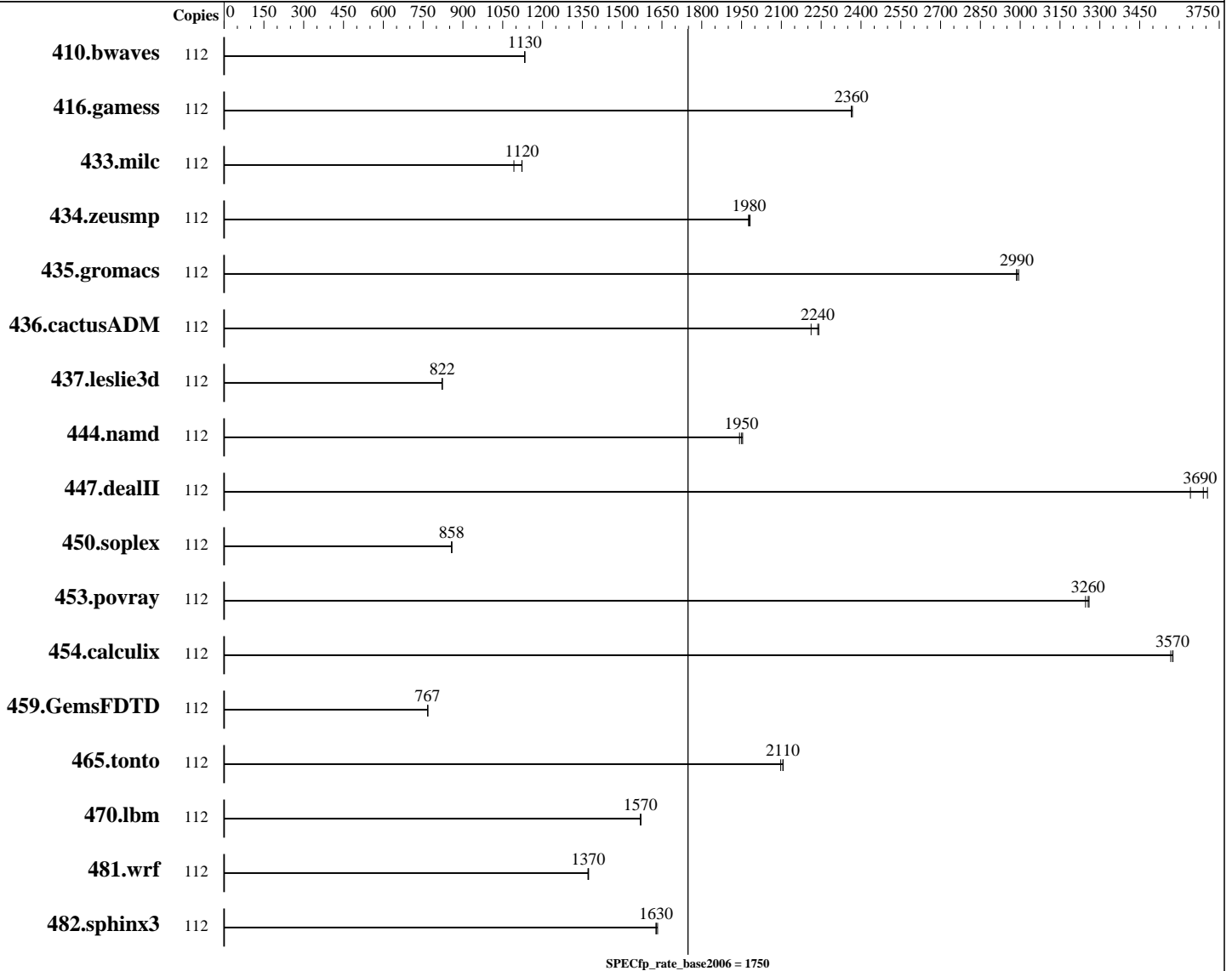
ProLiant DL360 Gen10  
(2.50 GHz, Intel Xeon Platinum 8180M)

**SPECfp<sup>®</sup>\_rate2006 = Not Run**

**SPECfp\_rate\_base2006 = 1750**

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

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



### Hardware

CPU Name: Intel Xeon Platinum 8180M  
CPU Characteristics: Intel Turbo Boost Technology up to 3.80 GHz  
CPU MHz: 2500  
FPU: Integrated  
CPU(s) enabled: 56 cores, 2 chips, 28 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) SP2  
Kernel 4.4.21-68-default  
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: 38.5 MB I+D on chip per chip  
Other Cache: None  
Memory: 192 GB (24 x 8 GB 2Rx8 PC4-2666V-R)  
Disk Subsystem: 1 x 400 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	112	1344	1130	<u>1343</u>	<u>1130</u>	1343	1130							
416.gamess	112	926	2370	<u>928</u>	<u>2360</u>	928	2360							
433.milc	112	941	1090	916	1120	<u>916</u>	<u>1120</u>							
434.zeusmp	112	516	1980	<u>515</u>	<u>1980</u>	514	1980							
435.gromacs	112	268	2990	267	2990	<u>268</u>	<u>2990</u>							
436.cactusADM	112	605	2210	<u>598</u>	<u>2240</u>	597	2240							
437.leslie3d	112	<u>1280</u>	<u>822</u>	1282	821	1280	823							
444.namd	112	<u>461</u>	<u>1950</u>	460	1950	462	1940							
447.dealII	112	346	3710	352	3640	<u>347</u>	<u>3690</u>							
450.soplex	112	<u>1089</u>	<u>858</u>	1090	857	1088	858							
453.povray	112	<u>183</u>	<u>3260</u>	183	3260	184	3250							
454.calculix	112	259	3570	<u>258</u>	<u>3570</u>	258	3580							
459.GemsFDTD	112	1547	768	1549	767	<u>1549</u>	<u>767</u>							
465.tonto	112	525	2100	<u>523</u>	<u>2110</u>	523	2110							
470.lbm	112	980	1570	981	1570	<u>981</u>	<u>1570</u>							
481.wrf	112	<u>912</u>	<u>1370</u>	911	1370	912	1370							
482.sphinx3	112	<u>1340</u>	<u>1630</u>	1341	1630	1336	1630							

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 with "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 linux-rugf Tue Oct 10 11:49:56 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) Platinum 8180M CPU @ 2.50GHz
 2 "physical id"s (chips)
 112 "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 : 28
  siblings  : 56
  physical 0: cores 0 1 2 3 8 9 10 11 12 13 14 16 17 18 19 20 21 22 24 25 26
 27 28 29 30
  physical 1: cores 0 1 2 3 8 9 10 11 12 13 14 16 17 18 19 20 21 22 24 25 26
 27 28 29 30
cache size : 39424 KB
```

From /proc/meminfo

```
MemTotal:      197735560 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"
```

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## Platform Notes (Continued)

```

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 linux-rugf 4.4.21-68-default #1 SMP Tue Oct 18 18:19:37 UTC 2016
(63cf368) x86_64 x86_64 x86_64 GNU/Linux

```

run-level 3 Oct 10 06:10

```

SPEC is set to: /home/cpu2006
Filesystem      Type      Size  Used Avail Use% Mounted on
/dev/nvme0n1p4 xfs       331G  107G  225G  33% /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 U32 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>

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For other inquiries, please contact [webmaster@spec.org](mailto:webmaster@spec.org).

Tested with SPEC CPU2006 v1.2.  
Report generated on Wed Nov 1 00:54:38 2017 by SPEC CPU2006 PS/PDF formatter v6932.  
Originally published on 31 October 2017.