



# SPEC<sup>®</sup> CFP2006 Result

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**Hewlett Packard Enterprise**

(Test Sponsor: HPE)

ProLiant DL380 Gen10  
(2.50 GHz, Intel Xeon Platinum 8180)

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

SPECfp\_rate\_base2006 = 1740

CPU2006 license: 3

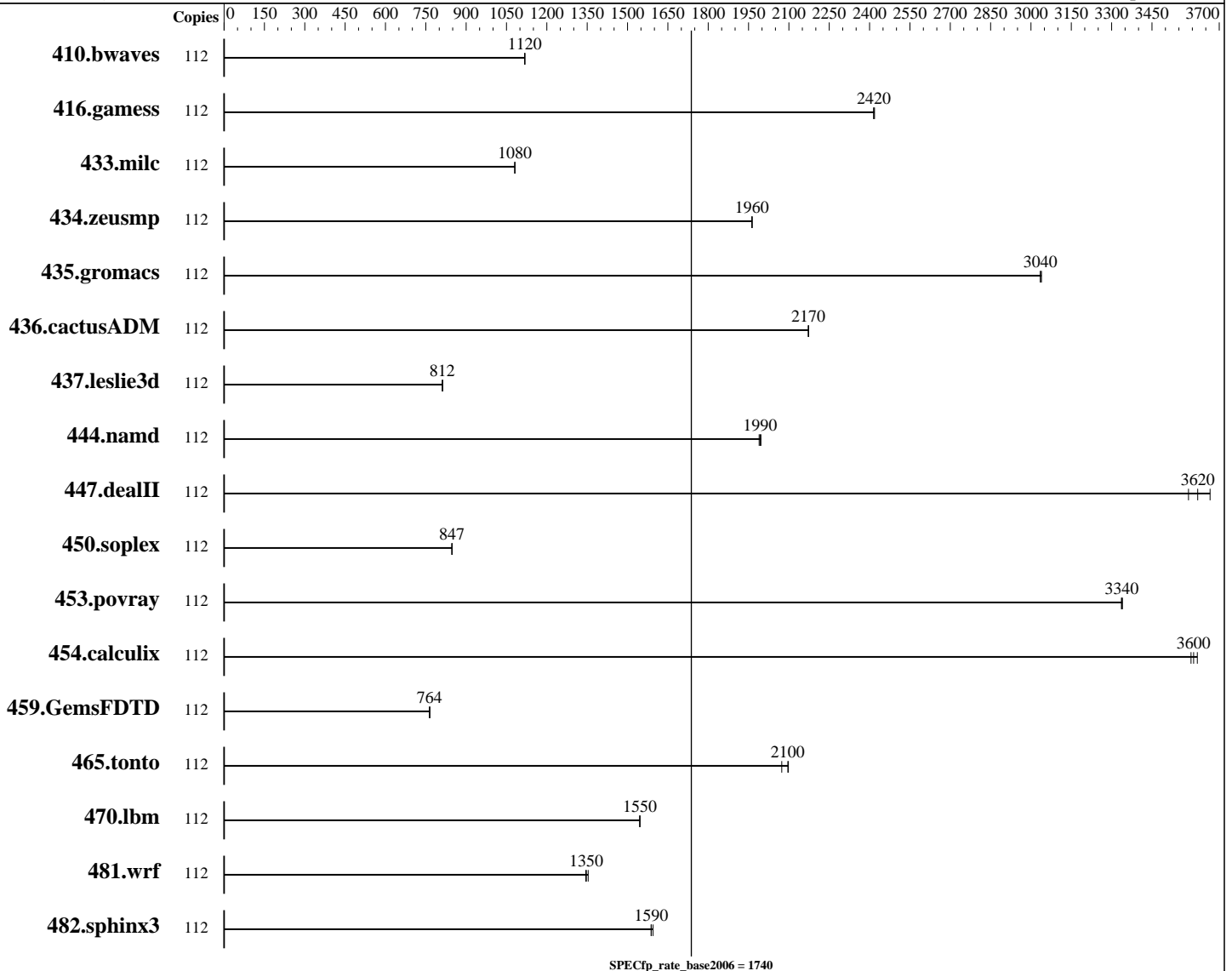
Test sponsor: HPE

Tested by: HPE

Test date: Sep-2017

Hardware Availability: Sep-2017

Software Availability: Apr-2017



## Hardware

CPU Name: Intel Xeon Platinum 8180  
 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  
 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: btrfs  
 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: 384 GB (24 x 16 GB 2Rx4 PC4-2666V-R)  
Disk Subsystem: 1 x 450 GB SATA SSD, RAID 0  
Other Hardware: None

Base Pointers: 32/64-bit  
Peak Pointers: 32/64-bit  
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	1362	1120	1361	1120	<u>1361</u>	<u>1120</u>							
416.gamess	112	<u>908</u>	<u>2420</u>	908	2420	907	2420							
433.milc	112	<u>951</u>	<u>1080</u>	951	1080	951	1080							
434.zeusmp	112	519	1960	519	1960	<u>519</u>	<u>1960</u>							
435.gromacs	112	<u>263</u>	<u>3040</u>	264	3030	263	3040							
436.cactusADM	112	<u>616</u>	<u>2170</u>	616	2170	616	2170							
437.leslie3d	112	1295	813	<u>1297</u>	<u>812</u>	1298	811							
444.namd	112	450	2000	452	1990	<u>451</u>	<u>1990</u>							
447.dealII	112	357	3590	350	3670	<u>354</u>	<u>3620</u>							
450.soplex	112	<u>1103</u>	<u>847</u>	1103	847	1101	848							
453.povray	112	179	3340	<u>179</u>	<u>3340</u>	178	3340							
454.calculix	112	257	3600	255	3620	<u>256</u>	<u>3600</u>							
459.GemsFDTD	112	1553	765	1556	764	<u>1555</u>	<u>764</u>							
465.tonto	112	<u>526</u>	<u>2100</u>	525	2100	532	2070							
470.lbm	112	<u>996</u>	<u>1550</u>	996	1550	995	1550							
481.wrf	112	930	1340	<u>929</u>	<u>1350</u>	924	1350							
482.sphinx3	112	1375	1590	<u>1374</u>	<u>1590</u>	1369	1590							

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>



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## Platform Notes

### BIOS Configuration:

Thermal Configuration set to Maximum Cooling  
LLC Dead Line Allocation set to Disabled  
Workload Profile set to General Throughput Compute  
Sysinfo program /spec\_cpu/cpu2006/config/sysinfo.rev6993  
Revision 6993 of 2015-11-06 (b5e8d4b4eb51ed28d7f98696cbe290c1)  
running on local Thu Jan 4 04:18:29 2001

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 8180 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 4 5 6 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 4 5 6 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:      395708488 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:

```
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"
```

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## Platform Notes (Continued)

```
uname -a:
Linux local 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 Jan 3 22:50
```

```
SPEC is set to: /spec_cpu/cpu2006
Filesystem      Type      Size  Used Avail Use% Mounted on
/dev/sda3        btrfs    445G  259G  183G   59% /
```

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 08/18/2017

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 = "/spec_cpu/cpu2006/lib/ia32:/spec_cpu/cpu2006/lib/intel64:/spec_cpu/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
```

Benchmarks using both Fortran and C:

```
icc -m64 ifort -m64
```



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## 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-revB.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-revB.xml>



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For questions about this result, please contact the tester.  
For other inquiries, please contact [webmaster@spec.org](mailto:webmaster@spec.org).

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