



SPEC® CFP2006 Result

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Hewlett Packard Enterprise

(Test Sponsor: HPE)

ProLiant DL580 Gen10

(2.50 GHz, Intel Xeon Platinum 8180)

SPECfp®_rate2006 = Not Run

SPECfp_rate_base2006 = 3400

CPU2006 license: 3

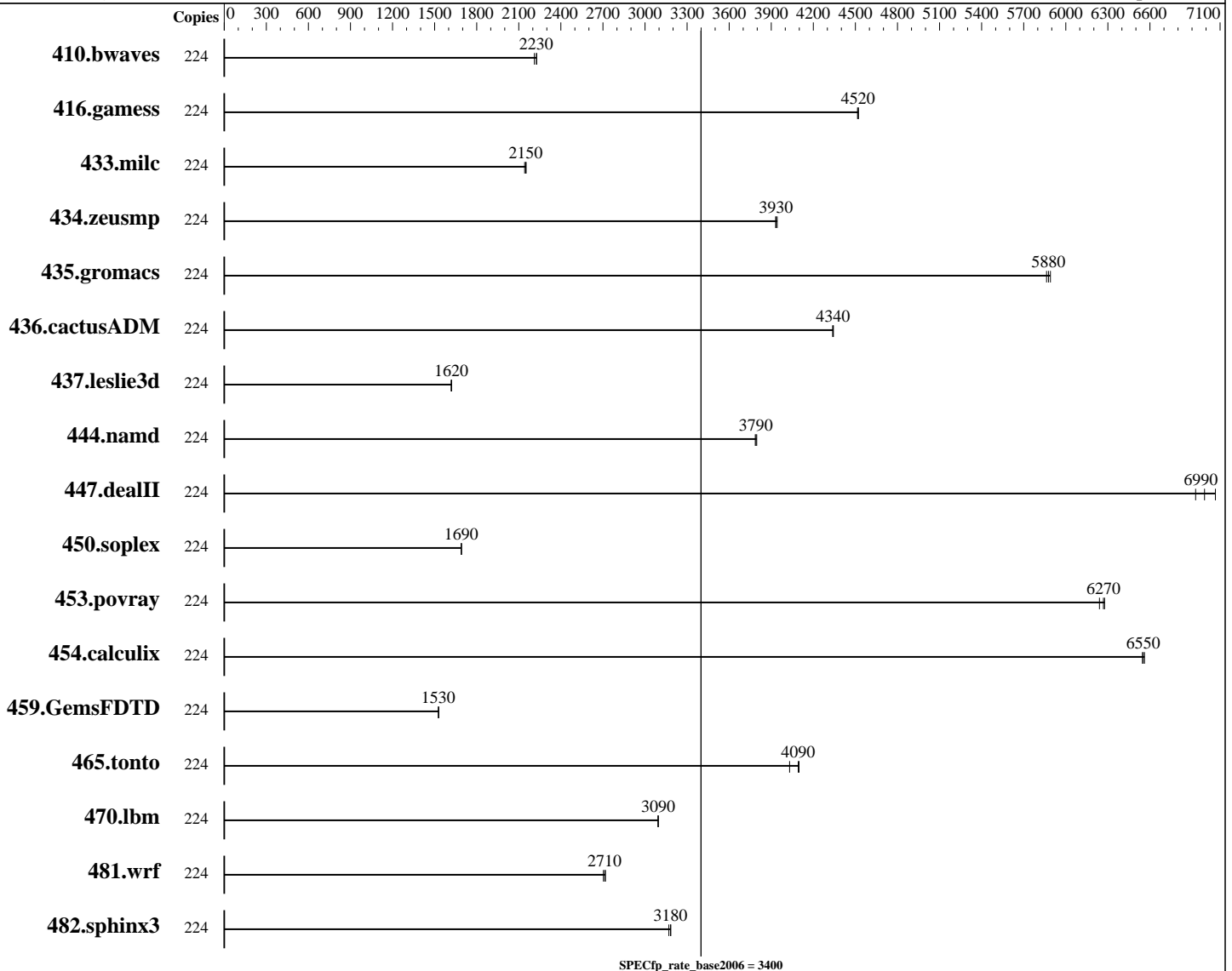
Test sponsor: HPE

Tested by: HPE

Test date: Sep-2017

Hardware Availability: Sep-2017

Software Availability: Sep-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: 112 cores, 4 chips, 28 cores/chip, 2 threads/core
CPU(s) orderable: 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)

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L3 Cache: 38.5 MB I+D on chip per chip
Other Cache: None
Memory: 768 GB (48 x 16 GB 2Rx8 PC4-2666V-R)
Disk Subsystem: 1 x 800 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	224	1377	2210	<u>1368</u>	<u>2230</u>	1367	2230							
416.gamess	224	<u>970</u>	<u>4520</u>	970	4520	971	4520							
433.milc	224	<u>957</u>	<u>2150</u>	955	2150	960	2140							
434.zeusmp	224	519	3930	<u>518</u>	<u>3930</u>	517	3940							
435.gromacs	224	272	5890	273	5860	<u>272</u>	<u>5880</u>							
436.cactusADM	224	<u>617</u>	<u>4340</u>	616	4340	617	4340							
437.leslie3d	224	<u>1299</u>	<u>1620</u>	1301	1620	1299	1620							
444.namd	224	473	3800	<u>474</u>	<u>3790</u>	474	3790							
447.dealII	224	363	7070	370	6930	<u>367</u>	<u>6990</u>							
450.soplex	224	1104	1690	1106	1690	<u>1105</u>	<u>1690</u>							
453.povray	224	191	6240	190	6280	<u>190</u>	<u>6270</u>							
454.calculix	224	282	6560	<u>282</u>	<u>6550</u>	282	6550							
459.GemsFDTD	224	1556	1530	<u>1556</u>	<u>1530</u>	1555	1530							
465.tonto	224	<u>539</u>	<u>4090</u>	547	4030	538	4100							
470.lbm	224	995	3090	995	3090	<u>995</u>	<u>3090</u>							
481.wrf	224	921	2720	<u>922</u>	<u>2710</u>	926	2700							
482.sphinx3	224	1377	3170	<u>1372</u>	<u>3180</u>	1371	3180							

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>
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"



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Platform Notes

BIOS Configuration:

Thermal Configuration set to Maximum Cooling
 LLC prefetch set to Enabled
 LLC Dead Line Allocation set to Disabled
 Stale A to S set to Enabled
 Memory patrol scrubbing set to disabled
 AHS PCI logging level set to Minimal logging
 Workload Profile 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 DL580G10 Sat Sep 16 07:48:15 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 8180 CPU @ 2.50GHz
 4 "physical id"s (chips)
 224 "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
physical 2:    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 3:    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:      792260404 kB
HugePages_Total: 0
Hugepagesize:  2048 kB
```

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"
```

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Platform Notes (Continued)

```
VERSION_ID="12.3"
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 DL580G10 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 Sep 16 07:39
```

```
SPEC is set to: /home/cpu2006
Filesystem      Type  Size  Used Avail Use% Mounted on
/dev/sdb4       xfs   703G  9.9G  693G   2% /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:

48x 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

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-revD.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-revD.xml>



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For other inquiries, please contact webmaster@spec.org.

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