



SPEC[®] CFP2006 Result

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Hewlett Packard Enterprise

(Test Sponsor: HPE)

ProLiant DL560 Gen10
(2.60 GHz, Intel Xeon Gold 6132)

SPECfp[®]_rate2006 = Not Run

SPECfp_rate_base2006 = 2430

CPU2006 license: 3

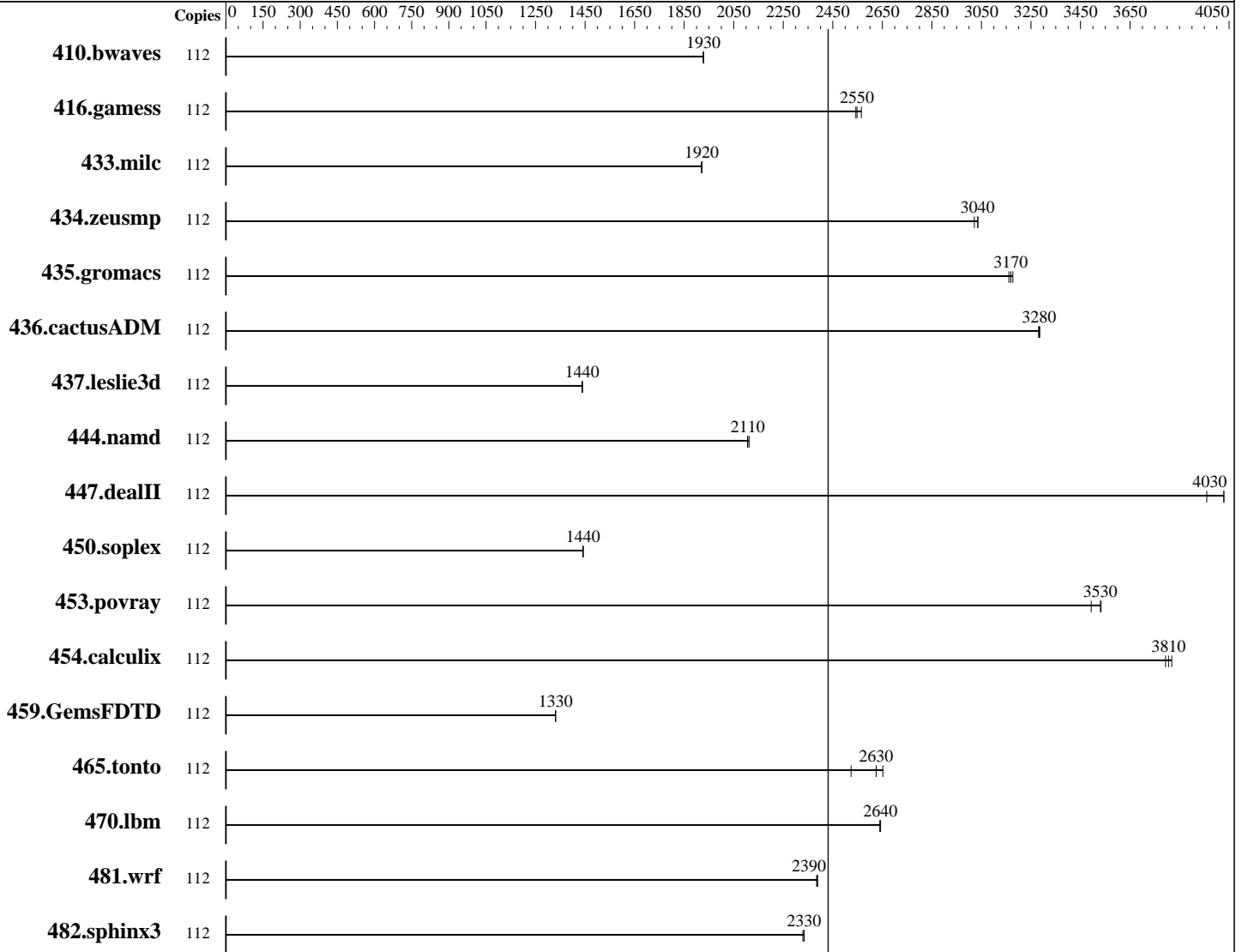
Test sponsor: HPE

Tested by: HPE

Test date: Dec-2017

Hardware Availability: Oct-2017

Software Availability: Apr-2017



Hardware

CPU Name: Intel Xeon Gold 6132
 CPU Characteristics: Intel Turbo Boost Technology up to 3.70 GHz
 CPU MHz: 2600
 FPU: Integrated
 CPU(s) enabled: 56 cores, 4 chips, 14 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) 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: xfs
 System State: Run level 3 (multi-user)

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L3 Cache: 19.25 MB I+D on chip per chip
Other Cache: None
Memory: 384 GB (48 x 8 GB 2Rx8 PC4-2666V-R)
Disk Subsystem: 1 x 960 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	790	1930	789	1930	790	1930							
416.gamess	112	855	2570	862	2540	861	2550							
433.milc	112	535	1920	535	1920	535	1920							
434.zeusmp	112	337	3020	336	3040	336	3040							
435.gromacs	112	252	3170	252	3180	253	3160							
436.cactusADM	112	407	3290	408	3280	408	3280							
437.leslie3d	112	732	1440	732	1440	731	1440							
444.namd	112	425	2110	426	2110	427	2110							
447.dealII	112	318	4030	324	3960	318	4030							
450.soplex	112	648	1440	648	1440	648	1440							
453.povray	112	169	3530	169	3530	171	3490							
454.calculix	112	242	3820	243	3810	244	3790							
459.GemsFDTD	112	893	1330	893	1330	893	1330							
465.tonto	112	420	2630	416	2650	437	2520							
470.lbm	112	582	2640	582	2640	583	2640							
481.wrf	112	524	2390	524	2390	525	2380							
482.sphinx3	112	937	2330	935	2330	935	2330							

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
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
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 linux-mcua Tue Dec 5 16:03:35 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 6132 CPU @ 2.60GHz
 4 "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 : 14
  siblings  : 28
  physical 0: cores 0 1 2 3 4 5 6 8 9 10 11 12 13 14
  physical 1: cores 0 1 2 3 4 5 6 8 9 10 11 12 13 14
  physical 2: cores 0 1 2 3 4 5 6 8 9 10 11 12 13 14
  physical 3: cores 0 1 2 3 4 5 6 8 9 10 11 12 13 14
cache size : 19712 KB
```

From /proc/meminfo

```
MemTotal:      395915992 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-mcua 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 Dec 5 11:18
```

```
SPEC is set to: /home/cpu2006
Filesystem      Type  Size  Used Avail Use% Mounted on
/dev/sdb4       xfs   852G  122G  731G  15% /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 09/29/2017

Memory:

48x 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-revH.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-revH.xml>

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

Tested with SPEC CPU2006 v1.2.
Report generated on Tue Jan 16 12:09:13 2018 by SPEC CPU2006 PS/PDF formatter v6932.
Originally published on 14 January 2018.