



SPEC[®] CFP2006 Result

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Hewlett Packard Enterprise

(Test Sponsor: HPE)

ProLiant BL460c Gen10
(3.20 GHz, Intel Xeon Gold 6134)

SPECfp[®]_rate2006 = Not Run

SPECfp_rate_base2006 = 922

CPU2006 license: 3

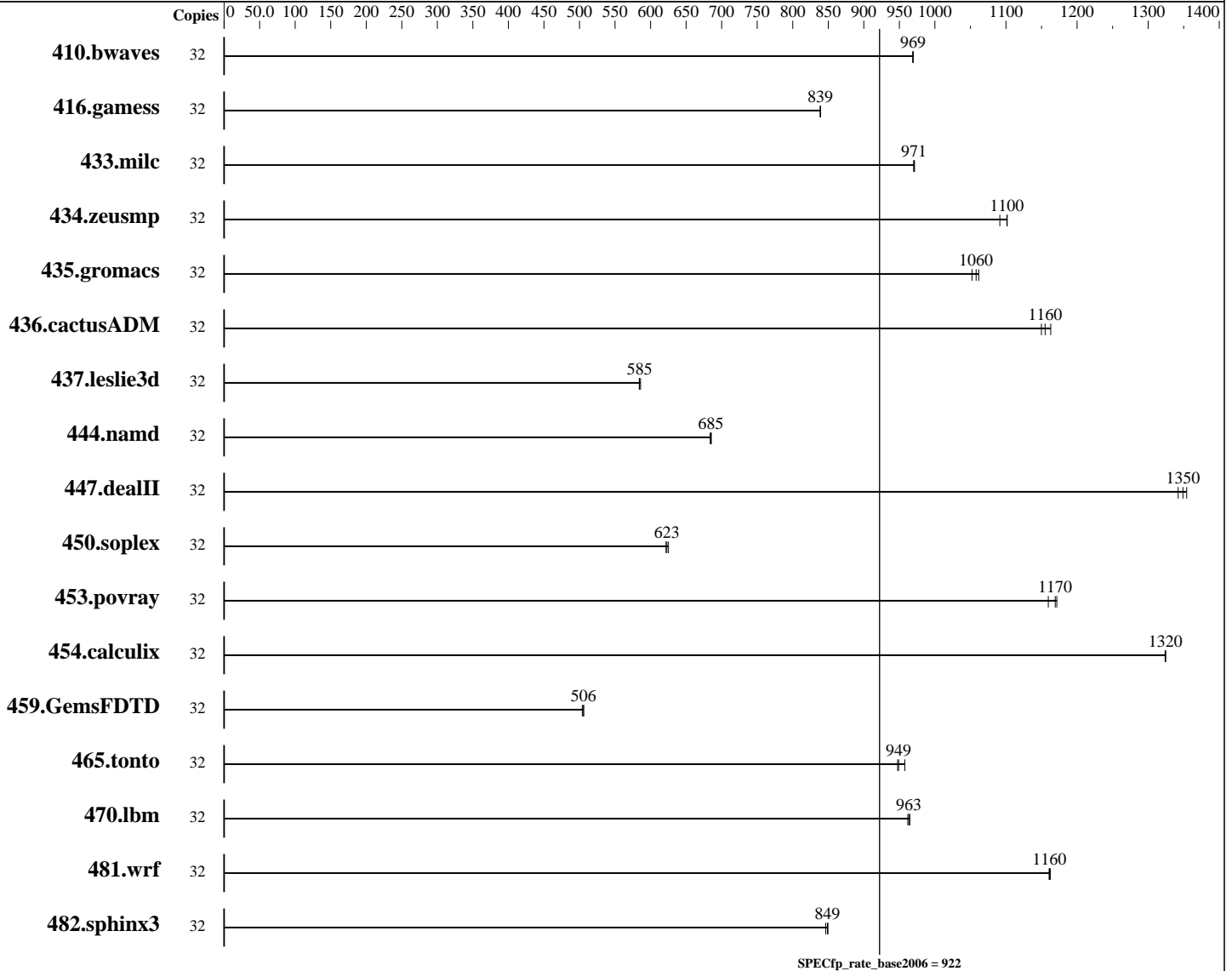
Test sponsor: HPE

Tested by: HPE

Test date: Dec-2017

Hardware Availability: Nov-2017

Software Availability: Apr-2017



Hardware

CPU Name: Intel Xeon Gold 6134
 CPU Characteristics: Intel Turbo Boost Technology up to 3.70 GHz
 CPU MHz: 3200
 FPU: Integrated
 CPU(s) enabled: 16 cores, 2 chips, 8 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) 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: 24.75 MB I+D on chip per chip
Other Cache: None
Memory: 192 GB (12 x 16 GB 2Rx8 PC4-2666V-R)
Disk Subsystem: 1 x 480 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	32	<u>449</u>	<u>969</u>	449	969	449	969							
416.gamess	32	747	839	747	839	<u>747</u>	<u>839</u>							
433.milc	32	<u>303</u>	<u>971</u>	302	971	303	970							
434.zeusmp	32	267	1090	264	1100	<u>264</u>	<u>1100</u>							
435.gromacs	32	<u>216</u>	<u>1060</u>	215	1060	217	1050							
436.cactusADM	32	333	1150	329	1160	<u>331</u>	<u>1160</u>							
437.leslie3d	32	513	586	<u>515</u>	<u>585</u>	515	584							
444.namd	32	374	685	375	684	<u>375</u>	<u>685</u>							
447.dealII	32	<u>271</u>	<u>1350</u>	273	1340	270	1350							
450.soplex	32	<u>428</u>	<u>623</u>	427	625	429	622							
453.povray	32	<u>146</u>	<u>1170</u>	145	1170	147	1160							
454.calculix	32	<u>199</u>	<u>1320</u>	199	1320	199	1320							
459.GemsFDTD	32	674	504	671	506	<u>671</u>	<u>506</u>							
465.tonto	32	329	958	<u>332</u>	<u>949</u>	332	948							
470.lbm	32	456	965	<u>456</u>	<u>963</u>	457	962							
481.wrf	32	308	1160	<u>308</u>	<u>1160</u>	308	1160							
482.sphinx3	32	734	850	737	846	<u>735</u>	<u>849</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"
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 "systemctl stop irqbalance"
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 Prefetch set to Enabled

LLC Dead Line Allocation 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 bl460c115 Sun Dec 17 01:45:39 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 6134 CPU @ 3.20GHz

2 "physical id"s (chips)

32 "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 : 8

siblings : 16

physical 0: cores 0 4 5 7 18 19 21 22

physical 1: cores 0 4 5 16 19 20 22

cache size : 25344 KB

From /proc/meminfo

MemTotal: 197748592 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"

VERSION_ID="12.3"

PRETTY_NAME="SUSE Linux Enterprise Server 12 SP3"

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Platform Notes (Continued)

```
ID="sles"
ANSI_COLOR="0;32"
CPE_NAME="cpe:/o:suse:sles:12:sp3"
```

```
uname -a:
Linux bl460c115 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 Dec 17 01:44
```

```
SPEC is set to: /home/cpu2006
Filesystem      Type  Size  Used Avail Use% Mounted on
/dev/sda4        xfs   852G  147G  706G  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 I41 11/14/2017

Memory:

4x UNKNOWN NOT AVAILABLE

12x 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

No: The test sponsor attests, as of date of publication, that CVE-2017-5754 (Meltdown) is mitigated in the system as tested and documented.

No: The test sponsor attests, as of date of publication, that CVE-2017-5753 (Spectre variant 1) is mitigated in the system as tested and documented.

No: The test sponsor attests, as of date of publication, that CVE-2017-5715 (Spectre variant 2) is mitigated in the system as tested and documented.

This benchmark result is intended to provide perspective on past performance using the historical hardware and/or software described on this result page.

The system as described on this result page was formerly generally available. At the time of this publication, it may not be shipping, and/or may not be supported, and/or may fail to meet other tests of General Availability described in the

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General Notes (Continued)

SPEC OSG Policy document, <http://www.spec.org/osg/policy.htm>.

This measured result may not be representative of the result that would be measured were this benchmark run with hardware and software available as of the publication date.

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

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

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Base Optimization Flags (Continued)

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>

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 questions about this result, please contact the tester.
For other inquiries, please contact webmaster@spec.org.

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