



SPEC® CFP2006 Result

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Hewlett Packard Enterprise

(Test Sponsor: HPE)

ProLiant DL560 Gen10
(3.00 GHz, Intel Xeon Platinum 8158)

SPECfp®2006 = Not Run

SPECfp_base2006 = 137

CPU2006 license: 3

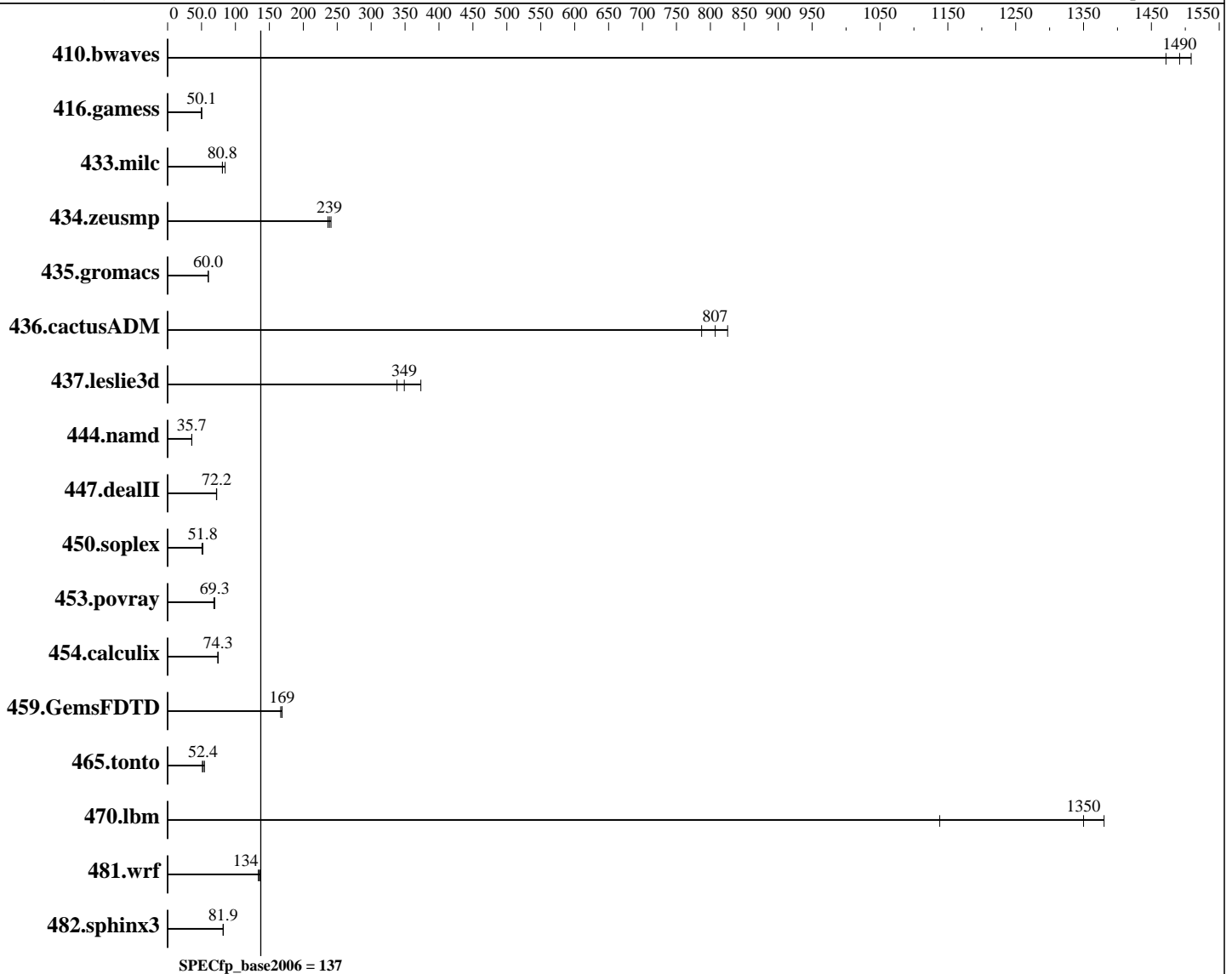
Test sponsor: HPE

Tested by: HPE

Test date: Oct-2017

Hardware Availability: Oct-2017

Software Availability: Apr-2017



Hardware

CPU Name: Intel Xeon Platinum 8158
 CPU Characteristics: Intel Turbo Boost Technology up to 3.70 GHz
 CPU MHz: 3000
 FPU: Integrated
 CPU(s) enabled: 48 cores, 4 chips, 12 cores/chip
 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

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Software

Operating System: Red Hat Enterprise Linux Server release 7.3 (Maipo)
 Kernel 3.10.0-514.el7.x86_64
 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: Yes
 File System: xfs

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L3 Cache: 24.75 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 480 GB SSD SATA, RAID 0
Other Hardware: None

System State: Run level 3 (multi-user)
Base Pointers: 64-bit
Peak Pointers: Not Applicable
Other Software: None

Results Table

Benchmark	Base						Peak					
	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	9.01	1510	<u>9.11</u>	<u>1490</u>	9.24	1470						
416.gamess	391	50.0	<u>391</u>	<u>50.1</u>	391	50.1						
433.milc	108	84.8	114	80.8	<u>114</u>	<u>80.8</u>						
434.zeusmp	<u>38.1</u>	<u>239</u>	38.5	236	37.8	241						
435.gromacs	<u>119</u>	<u>60.0</u>	120	59.6	119	60.0						
436.cactusADM	15.2	787	14.5	825	<u>14.8</u>	<u>807</u>						
437.leslie3d	27.8	338	<u>26.9</u>	<u>349</u>	25.2	373						
444.namd	225	35.7	<u>225</u>	<u>35.7</u>	225	35.7						
447.dealII	<u>158</u>	<u>72.2</u>	158	72.3	159	72.0						
450.soplex	165	50.6	<u>161</u>	<u>51.8</u>	161	51.8						
453.povray	76.7	69.4	<u>76.7</u>	<u>69.3</u>	78.1	68.1						
454.calculix	<u>111</u>	<u>74.3</u>	111	74.3	111	74.2						
459.GemsFDTD	<u>63.0</u>	<u>169</u>	62.9	169	63.7	167						
465.tonto	181	54.3	192	51.2	<u>188</u>	<u>52.4</u>						
470.lbm	<u>10.2</u>	<u>1350</u>	9.95	1380	12.1	1140						
481.wrf	83.5	134	82.1	136	<u>83.2</u>	<u>134</u>						
482.sphinx3	238	82.1	<u>238</u>	<u>81.9</u>	238	81.9						

Results appear in the order in which they were run. Bold underlined text indicates a median measurement.

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
irqbalance disabled with "systemctl stop irqbalance"
tuned profile set with "tuned-adm profile throughput-performance"

Platform Notes

BIOS Configuration:
Intel Hyperthreading set to Disabled
Thermal Configuration set to Maximum Cooling
Memory Patrol Scrubbing set to Disabled
LLC Prefetcher set to Enabled

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Platform Notes (Continued)

LLC Dead Line Allocation set to Disabled
 Stale A to S set to Enabled
 Workload Pofile set to General Peak Frequency Compute
 Energy/Performance Bias set to Maximum Performance
 Uncore Frequency Scaling set to Auto
 Workload Pofile set to Custom
 NUMA Group Size Optimization set to Flat

Sysinfo program /cpu2006/config/sysinfo.rev6993
 Revision 6993 of 2015-11-06 (b5e8d4b4eb51ed28d7f98696cbe290c1)
 running on DL560-Gen10 Mon Oct 9 19:16:45 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 8158 CPU @ 3.00GHz
 4 "physical id"s (chips)
 48 "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      : 12
siblings       : 12
physical 0:    cores 0 1 2 3 4 8 9 11 17 18 19 20
physical 1:    cores 0 1 2 3 4 9 10 16 18 19 25 26
physical 2:    cores 0 1 3 9 10 16 18 19 24 25 26 27
physical 3:    cores 0 1 2 3 4 8 10 11 18 24 25 27
cache size     : 25344 KB
```

```
From /proc/meminfo
MemTotal:      792074900 kB
HugePages_Total: 0
Hugepagesize:  2048 kB
```

```
From /etc/*release* /etc/*version*
os-release:
NAME="Red Hat Enterprise Linux Server"
VERSION="7.3 (Maipo)"
ID="rhel"
ID_LIKE="fedora"
VERSION_ID="7.3"
PRETTY_NAME="Red Hat Enterprise Linux Server 7.3 (Maipo)"
ANSI_COLOR="0;31"
CPE_NAME="cpe:/o:redhat:enterprise_linux:7.3:GA:server"
redhat-release: Red Hat Enterprise Linux Server release 7.3 (Maipo)
system-release: Red Hat Enterprise Linux Server release 7.3 (Maipo)
system-release-cpe: cpe:/o:redhat:enterprise_linux:7.3:ga:server
```

```
uname -a:
Linux DL560-Gen10 3.10.0-514.el7.x86_64 #1 SMP Wed Oct 19 11:24:13 EDT 2016
```

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Platform Notes (Continued)

x86_64 x86_64 x86_64 GNU/Linux

run-level 3 Oct 9 16:57

SPEC is set to: /cpu2006

Filesystem	Type	Size	Used	Avail	Use%	Mounted on
/dev/sdb1	xfs	447G	11G	437G	3%	/

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 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:

KMP_AFFINITY = "granularity=fine,compact"

LD_LIBRARY_PATH = "/cpu2006/lib/ia32:/cpu2006/lib/intel64:/cpu2006/sh10.2"

OMP_NUM_THREADS = "48"

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 -parallel -qopt-prefetch

C++ benchmarks:

-xCORE-AVX2 -ipo -O3 -no-prec-div -qopt-prefetch

Fortran benchmarks:

-xCORE-AVX2 -ipo -O3 -no-prec-div -parallel -qopt-prefetch

Benchmarks using both Fortran and C:

-xCORE-AVX2 -ipo -O3 -no-prec-div -parallel -qopt-prefetch

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

Tested with SPEC CPU2006 v1.2.
Report generated on Wed Nov 15 10:59:12 2017 by SPEC CPU2006 PS/PDF formatter v6932.
Originally published on 14 November 2017.