



SPEC® CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

Hewlett-Packard Company

SPECfp®2006 = 56.9

ProLiant DL360 Gen9
(1.90 GHz, Intel Xeon E5-2609 v3)

SPECfp_base2006 = 55.2

CPU2006 license: 3

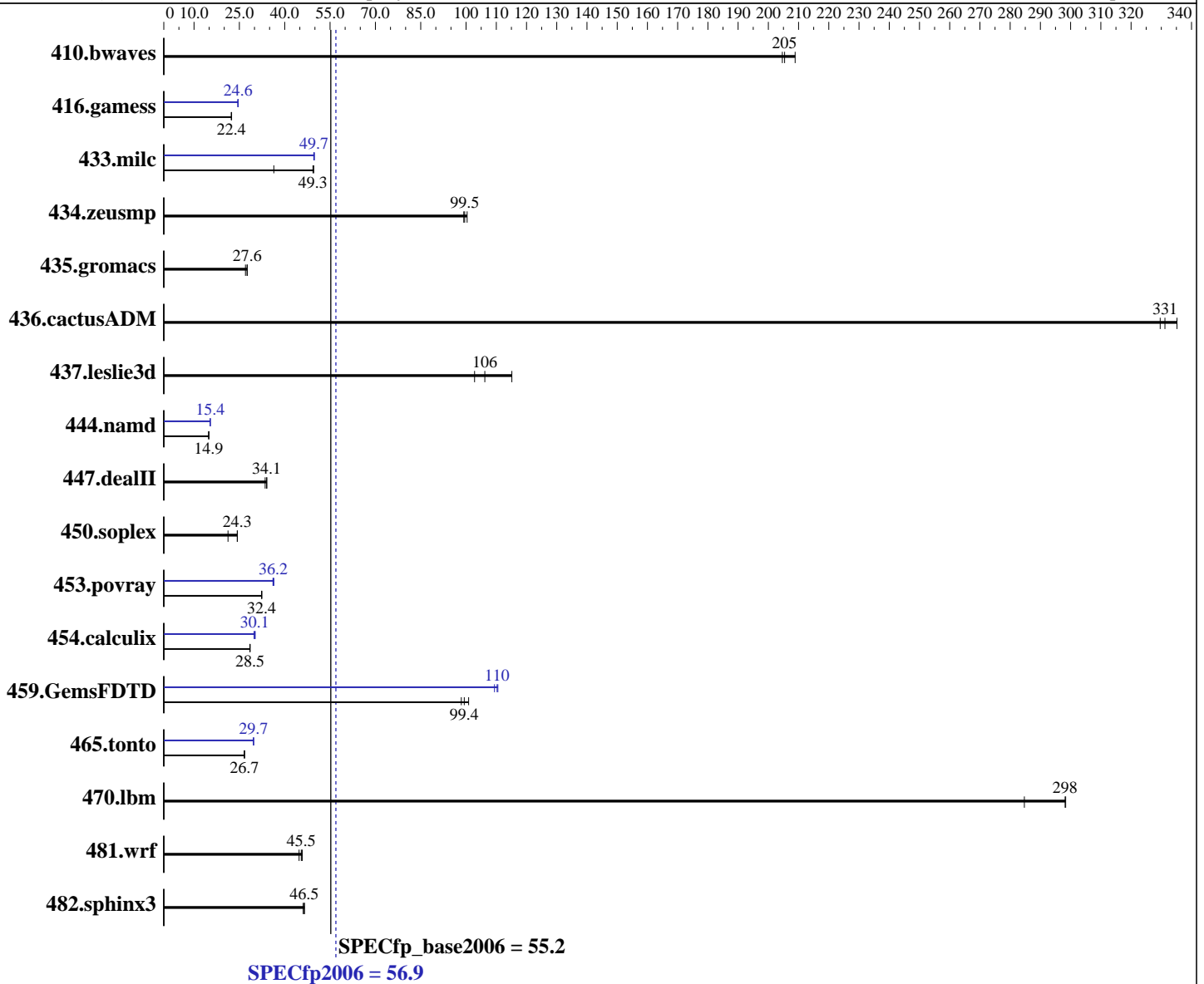
Test date: Sep-2014

Test sponsor: Hewlett-Packard Company

Hardware Availability: Sep-2014

Tested by: Hewlett-Packard Company

Software Availability: Sep-2014



Hardware

CPU Name: Intel Xeon E5-2609 v3
 CPU Characteristics:
 CPU MHz: 1900
 FPU: Integrated
 CPU(s) enabled: 12 cores, 2 chips, 6 cores/chip
 CPU(s) orderable: 1,2 chip
 Primary Cache: 32 KB I + 32 KB D on chip per core
 Secondary Cache: 256 KB I+D on chip per core

Continued on next page

Software

Operating System: Red Hat Enterprise Linux Server release 7.0, (Maipo)
 Kernel 3.10.0-123.el7.x86_64
 Compiler: C/C++: Version 14.0.0.080 of Intel C++ Studio XE for Linux;
 Fortran: Version 14.0.0.080 of Intel Fortran Studio XE for Linux
 Auto Parallel: Yes
 File System: xfs

Continued on next page



SPEC CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

Hewlett-Packard Company

SPECfp2006 = **56.9**

ProLiant DL360 Gen9
(1.90 GHz, Intel Xeon E5-2609 v3)

SPECfp_base2006 = **55.2**

CPU2006 license: 3

Test date: Sep-2014

Test sponsor: Hewlett-Packard Company

Hardware Availability: Sep-2014

Tested by: Hewlett-Packard Company

Software Availability: Sep-2014

L3 Cache: 15 MB I+D on chip per chip
Other Cache: None
Memory: 256 GB (16 x 16 GB 2Rx4 PC4-2133P-R, running at 1600 MHz)
Disk Subsystem: 1 x 400 GB SSA SAS, RAID 0
Other Hardware: None

System State: Run level 3 (multi-user)
Base Pointers: 64-bit
Peak Pointers: 32/64-bit
Other Software: None

Results Table

Benchmark	Base						Peak					
	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	66.4	205	65.1	209	66.2	205	66.4	205	65.1	209	66.2	205
416.gamess	874	22.4	877	22.3	873	22.4	801	24.4	795	24.6	795	24.6
433.milc	186	49.3	185	49.6	252	36.4	185	49.6	185	49.7	184	49.8
434.zeusmp	90.7	100	91.7	99.2	91.4	99.5	90.7	100	91.7	99.2	91.4	99.5
435.gromacs	259	27.6	264	27.0	259	27.6	259	27.6	264	27.0	259	27.6
436.cactusADM	36.3	330	35.7	335	36.1	331	36.3	330	35.7	335	36.1	331
437.leslie3d	91.4	103	81.6	115	88.5	106	91.4	103	81.6	115	88.5	106
444.namd	539	14.9	539	14.9	539	14.9	522	15.4	522	15.4	522	15.4
447.dealII	336	34.1	341	33.5	336	34.1	336	34.1	341	33.5	336	34.1
450.soplex	343	24.3	393	21.2	343	24.3	343	24.3	393	21.2	343	24.3
453.povray	164	32.4	164	32.4	164	32.4	146	36.4	147	36.2	147	36.1
454.calculix	290	28.5	290	28.5	289	28.6	276	29.9	274	30.1	273	30.2
459.GemsFDTD	108	98.4	105	101	107	99.4	97.0	109	96.0	111	96.2	110
465.tonto	369	26.7	369	26.7	369	26.7	331	29.7	332	29.7	331	29.7
470.lbm	46.1	298	46.1	298	48.3	285	46.1	298	46.1	298	48.3	285
481.wrf	246	45.5	250	44.8	244	45.8	246	45.5	250	44.8	244	45.8
482.sphinx3	419	46.5	423	46.1	419	46.5	419	46.5	423	46.1	419	46.5

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"
echo always > /sys/kernel/mm/transparent_hugepage/enabled
Filesystem page cache cleared with:
echo 1 > /proc/sys/vm/drop_caches
echo 1 > /proc/sys/vm/zone_reclaim_mode
```

Platform Notes

BIOS Configuration:
HP Power Profile set to Custom
HP Power Regulator to HP Static High Performance Mode
Minimum Processor Idle Power Package State set to No Package State
QPI Snoop Configuration set to Home Snoop

Continued on next page



SPEC CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

Hewlett-Packard Company

SPECfp2006 = 56.9

ProLiant DL360 Gen9
(1.90 GHz, Intel Xeon E5-2609 v3)

SPECfp_base2006 = 55.2

CPU2006 license: 3
Test sponsor: Hewlett-Packard Company
Tested by: Hewlett-Packard Company

Test date: Sep-2014
Hardware Availability: Sep-2014
Software Availability: Sep-2014

Platform Notes (Continued)

Thermal Configuration set to Maximum Cooling
Collaborative Power Control set to Disabled
Processor Power and Utilization Monitoring set to Disabled
Memory Double Refresh Rate set to 1x Refresh

Sysinfo program /home/cpu2006/config/sysinfo.rev6818
\$Rev: 6818 \$ \$Date:: 2012-07-17 #\$ e86d102572650a6e4d596a3cee98f191
running on DL360_Gen9 Thu Sep 18 08:33:16 2014

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) CPU E5-2609 v3 @ 1.90GHz
 2 "physical id"s (chips)
 12 "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 : 2
  cpu cores : 4
  siblings  : 2
  siblings  : 4
  physical 0: cores 0 1 2 3 4 5
  physical 1: cores 0 1 2 3 4 5
cache size : 7680 KB
```

```
From /proc/meminfo
MemTotal:      263846800 kB
HugePages_Total:    0
Hugepagesize:    2048 kB
```

```
From /etc/*release* /etc/*version*
os-release:
NAME="Red Hat Enterprise Linux Server"
VERSION="7.0 (Maipo)"
ID="rhel"
ID_LIKE="fedora"
VERSION_ID="7.0"
PRETTY_NAME="Red Hat Enterprise Linux Server 7.0 (Maipo)"
ANSI_COLOR="0;31"
CPE_NAME="cpe:/o:redhat:enterprise_linux:7.0:GA:server"
redhat-release: Red Hat Enterprise Linux Server release 7.0 (Maipo)
system-release: Red Hat Enterprise Linux Server release 7.0 (Maipo)
system-release-cpe: cpe:/o:redhat:enterprise_linux:7.0:ga:server
```

```
uname -a:
Linux DL360_Gen9 3.10.0-123.el7.x86_64 #1 SMP Mon May 5 11:16:57 EDT 2014
x86_64 x86_64 x86_64 GNU/Linux
```

run-level 3 Sep 16 11:31

Continued on next page



SPEC CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

Hewlett-Packard Company

ProLiant DL360 Gen9
(1.90 GHz, Intel Xeon E5-2609 v3)

SPECfp2006 = 56.9

SPECfp_base2006 = 55.2

CPU2006 license: 3

Test sponsor: Hewlett-Packard Company

Tested by: Hewlett-Packard Company

Test date: Sep-2014

Hardware Availability: Sep-2014

Software Availability: Sep-2014

Platform Notes (Continued)

SPEC is set to: /home/cpu2006

Filesystem	Type	Size	Used	Avail	Use%	Mounted on
/dev/mapper/rhel-home	xfs	318G	34G	285G	11%	/home

Additional information from dmidecode:

BIOS HP P89 07/11/2014

Memory:

16x HP NOT AVAILABLE 16 GB 1600 MHz 2 rank

8x UNKNOWN NOT AVAILABLE

(End of data from sysinfo program)

Regarding the sysinfo display about the memory installed, the correct amount of memory is 256 GB and the dmidecode description should have one line reading as:

16x HP NOT AVAILABLE 16 GB 1600 MHz 2 rank

General Notes

Environment variables set by runspec before the start of the run:

KMP_AFFINITY = "granularity=fine,compact,1,0"

LD_LIBRARY_PATH = "/home/cpu2006/libs/32:/home/cpu2006/libs/64:/home/cpu2006/sh"

OMP_NUM_THREADS = "12"

Binaries compiled on a system with 1x Core i7-860 CPU + 8GB memory using RedHat EL 6.4

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

Continued on next page

Standard Performance Evaluation Corporation

info@spec.org

http://www.spec.org/

Page 4



SPEC CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

Hewlett-Packard Company

SPECfp2006 = 56.9

ProLiant DL360 Gen9
(1.90 GHz, Intel Xeon E5-2609 v3)

SPECfp_base2006 = 55.2

CPU2006 license: 3

Test date: Sep-2014

Test sponsor: Hewlett-Packard Company

Hardware Availability: Sep-2014

Tested by: Hewlett-Packard Company

Software Availability: Sep-2014

Base Portability Flags (Continued)

```

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 -opt-prefetch
-ansi-alias

```

C++ benchmarks:

```

-xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch -ansi-alias

```

Fortran benchmarks:

```

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

```

Benchmarks using both Fortran and C:

```

-xCORE-AVX2 -ipo -O3 -no-prec-div -parallel -opt-prefetch
-ansi-alias

```

Peak Compiler Invocation

C benchmarks:

```

icc -m64

```

C++ benchmarks:

```

icpc -m64

```

Fortran benchmarks:

```

ifort -m64

```

Benchmarks using both Fortran and C:

```

icc -m64 ifort -m64

```



SPEC CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

Hewlett-Packard Company

SPECfp2006 = 56.9

ProLiant DL360 Gen9
(1.90 GHz, Intel Xeon E5-2609 v3)

SPECfp_base2006 = 55.2

CPU2006 license: 3

Test date: Sep-2014

Test sponsor: Hewlett-Packard Company

Hardware Availability: Sep-2014

Tested by: Hewlett-Packard Company

Software Availability: Sep-2014

Peak Portability Flags

Same as Base Portability Flags

Peak Optimization Flags

C benchmarks:

433.milc: -xCORE-AVX2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
-O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2)
-auto-ilp32 -ansi-alias

470.lbm: basepeak = yes

482.sphinx3: basepeak = yes

C++ benchmarks:

444.namd: -xCORE-AVX2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
-O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2)
-fno-alias -auto-ilp32

447.dealIII: basepeak = yes

450.soplex: basepeak = yes

453.povray: -xCORE-AVX2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
-O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2) -unroll4
-ansi-alias

Fortran benchmarks:

410.bwaves: basepeak = yes

416.gamess: -xCORE-AVX2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
-O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2) -unroll2
-inline-level=0 -scalar-rep-

434.zeusmp: basepeak = yes

437.leslie3d: basepeak = yes

459.GemsFDTD: -xCORE-AVX2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
-O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2) -unroll2
-inline-level=0 -opt-prefetch -parallel

465.tonto: -xCORE-AVX2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
-O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2)
-inline-calloc -opt-malloc-options=3 -auto -unroll4

Continued on next page



SPEC CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

Hewlett-Packard Company

SPECfp2006 = 56.9

ProLiant DL360 Gen9
(1.90 GHz, Intel Xeon E5-2609 v3)

SPECfp_base2006 = 55.2

CPU2006 license: 3

Test date: Sep-2014

Test sponsor: Hewlett-Packard Company

Hardware Availability: Sep-2014

Tested by: Hewlett-Packard Company

Software Availability: Sep-2014

Peak Optimization Flags (Continued)

Benchmarks using both Fortran and C:

435.gromacs: basepeak = yes

436.cactusADM: basepeak = yes

454.calculix: -xCORE-AVX2 -ipo -O3 -no-prec-div -auto-ilp32 -ansi-alias

481.wrf: basepeak = yes

The flags files that were used to format this result can be browsed at

<http://www.spec.org/cpu2006/flags/Intel-ic14.0-official-linux64.20140128.html>

<http://www.spec.org/cpu2006/flags/HP-Platform-Flags-Intel-V1.2-HSW-revB.html>

You can also download the XML flags sources by saving the following links:

<http://www.spec.org/cpu2006/flags/Intel-ic14.0-official-linux64.20140128.xml>

<http://www.spec.org/cpu2006/flags/HP-Platform-Flags-Intel-V1.2-HSW-revB.xml>

SPEC and SPECfp are registered trademarks of the Standard Performance Evaluation Corporation. All other brand and product names appearing in this result are trademarks or registered trademarks of their respective holders.

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 Oct 8 19:41:56 2014 by SPEC CPU2006 PS/PDF formatter v6932.
Originally published on 8 October 2014.