SPEC® CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

Hewlett-Packard Company

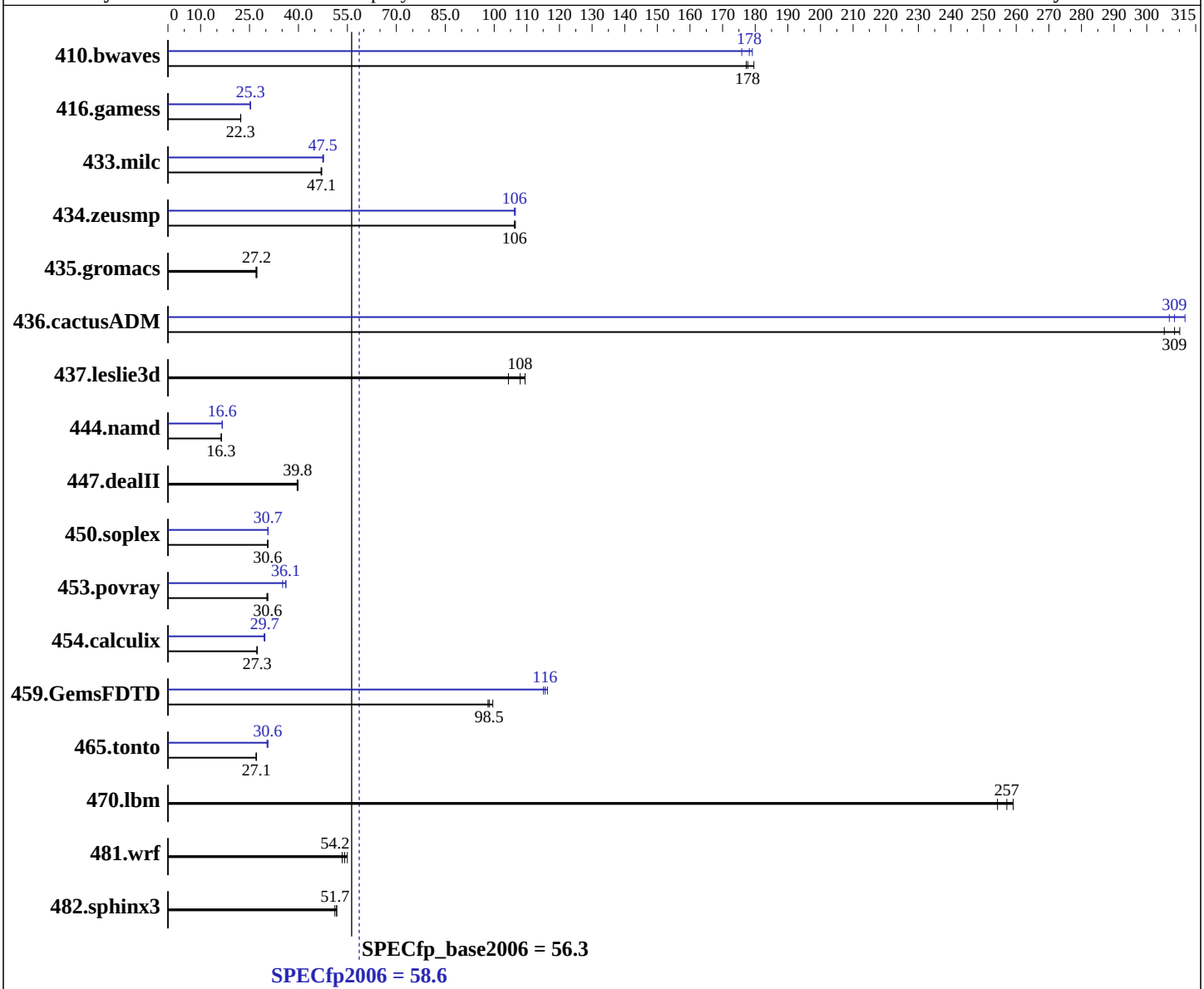
ProLiant BL420c Gen8
(1.90 GHz, Intel Xeon E5-2420)

SPECfp®2006 = 58.6

SPECfp_base2006 = 56.3

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

Test date: Jul-2012
Hardware Availability: Jun-2012
Software Availability: Feb-2012



Hardware

CPU Name:	Intel Xeon E5-2420
CPU Characteristics:	Intel Turbo Boost Technology up to 2.40 GHz
CPU MHz:	1900
FPU:	Integrated
CPU(s) enabled:	12 cores, 2 chips, 6 cores/chip, 2 threads/core
CPU(s) orderable:	1,2 chips
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 6.2 (Santiago) 2.6.32-220.el6.x86_64
Compiler:	C/C++: Version 12.1.3.293 of Intel C++ Studio XE for Linux; Fortran: Version 12.1.3.293 of Intel Fortran Studio XE for Linux
Auto Parallel:	Yes
File System:	ext4

Continued on next page

SPEC CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

Hewlett-Packard Company

ProLiant BL420c Gen8
(1.90 GHz, Intel Xeon E5-2420)

SPECfp2006 = 58.6

SPECfp_base2006 = 56.3

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

Test date: Jul-2012
Hardware Availability: Jun-2012
Software Availability: Feb-2012

L3 Cache: 15 MB I+D on chip per chip
Other Cache: None
Memory: 96 GB (12 x 8 GB 2Rx4 PC3-12800R-11, ECC, running at 1333 MHz and CL9)
Disk Subsystem: 2 x 146 GB 15 K SAS, RAID 0
Other Hardware: None

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

Results Table

Benchmark	Base						Peak					
	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	75.7	180	76.7	177	**76.5**	**178**	**76.3**	**178**	77.3	176	75.9	179
416.gamess	**879**	**22.3**	877	22.3	879	22.3	774	25.3	**774**	**25.3**	777	25.2
433.milc	195	47.1	**195**	**47.1**	196	46.9	**193**	**47.5**	193	47.5	192	47.7
434.zeusmp	85.7	106	**85.7**	**106**	85.5	106	**85.7**	**106**	85.7	106	85.5	106
435.gromacs	262	27.2	**262**	**27.2**	265	27.0	262	27.2	**262**	**27.2**	265	27.0
436.cactusADM	**38.7**	**309**	39.1	305	38.5	310	38.3	312	38.9	307	**38.7**	**309**
437.leslie3d	90.1	104	85.9	109	**87.1**	**108**	90.1	104	85.9	109	**87.1**	**108**
444.namd	491	16.3	490	16.4	**491**	**16.3**	**482**	**16.6**	482	16.6	482	16.6
447.dealII	**288**	**39.8**	287	39.8	289	39.6	**288**	**39.8**	287	39.8	289	39.6
450.soplex	272	30.7	**273**	**30.6**	274	30.5	272	30.7	**272**	**30.7**	272	30.6
453.povray	**174**	**30.6**	174	30.6	175	30.3	151	35.1	**147**	**36.1**	147	36.1
454.calculix	**302**	**27.3**	301	27.4	303	27.3	278	29.7	**278**	**29.7**	280	29.5
459.GemsFDTD	**108**	**98.5**	108	98.1	107	99.6	**91.8**	**116**	91.2	116	92.2	115
465.tonto	362	27.2	365	27.0	**363**	**27.1**	**322**	**30.6**	321	30.6	324	30.4
470.lbm	54.0	254	53.0	259	**53.4**	**257**	54.0	254	53.0	259	**53.4**	**257**
481.wrf	203	55.0	**206**	**54.2**	209	53.4	203	55.0	**206**	**54.2**	209	53.4
482.sphinx3	381	51.2	**377**	**51.7**	377	51.7	381	51.2	**377**	**51.7**	377	51.7

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 with:
echo always > /sys/kernel/mm/transparent_hugepage/enabled
```

Platform Notes

```
BIOS configuration:
 HP Power Profile set to Maximum Performance
Sysinfo program /mnt/store/cpu2006/Docs/sysinfo
$Rev: 6775 $ $Date:: 2011-08-16 #$ 8787f7622badcf24e01c368b1db4377c
running on bl420c-cpu Tue Jul 17 18:49:17 2012

This section contains SUT (System Under Test) info as seen by
```

Continued on next page

Platform Notes (Continued)

```
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 E5-2420 0 @ 1.90GHz
      2 "physical id"s (chips)
      24 "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 : 6
      siblings  : 12
      physical 0: cores 0 1 2 3 4 5
      physical 1: cores 0 1 2 3 4 5
   cache size : 15360 KB

From /proc/meminfo
   MemTotal:       99026400 kB
   HugePages_Total:       0
   Hugepagesize:       2048 kB

/usr/bin/lsb_release -d
   Red Hat Enterprise Linux Server release 6.2 (Santiago)

From /etc/*release* /etc/*version*
   redhat-release: Red Hat Enterprise Linux Server release 6.2 (Santiago)
   system-release: Red Hat Enterprise Linux Server release 6.2 (Santiago)
   system-release-cpe: cpe:/o:redhat:enterprise_linux:6server:ga:server

uname -a:
   Linux bl420c-cpu 2.6.32-220.el6.x86_64 #1 SMP Wed Nov 9 08:03:13 EST 2011
   x86_64 x86_64 x86_64 GNU/Linux

run-level 3 Jul 11 23:26

SPEC is set to: /mnt/store/cpu2006
   Filesystem     Type    Size  Used Avail Use% Mounted on
   /dev/sda5      ext4    191G   14G  168G   8% /mnt/store

(End of data from sysinfo program)
```

General Notes

```
glibc-static-2.12-1.47.el6.x86_64.rpm is added to enable static linking
Environment variables set by runspec before the start of the run:
LD_LIBRARY_PATH = "/opt/smartheap/:/opt/ic12-libs/intel64/"
OMP_NUM_THREADS=12
KMP_AFFINITY="granularity=fine,scatter"
```

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:
-xAVX -ipo -O3 -no-prec-div -static -parallel -opt-prefetch
-ansi-alias

C++ benchmarks:
-xAVX -ipo -O3 -no-prec-div -static -opt-prefetch -ansi-alias

Fortran benchmarks:
-xAVX -ipo -O3 -no-prec-div -static -parallel -opt-prefetch

Benchmarks using both Fortran and C:
-xAVX -ipo -O3 -no-prec-div -static -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

Peak Portability Flags

Same as Base Portability Flags

Peak Optimization Flags

C benchmarks:

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

470.lbm: basepeak = yes

482.sphinx3: basepeak = yes

C++ benchmarks:

444.namd: -xAVX(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.dealII: basepeak = yes

450.soplex: -xAVX -ipo -O3 -no-prec-div -static -opt-prefetch -ansi-alias

453.povray: -xAVX(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: -xAVX -ipo -O3 -no-prec-div -opt-prefetch -parallel -static

Continued on next page

Peak Optimization Flags (Continued)

416.gamess: -xAVX(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- -static

434.zeusmp: -xAVX -ipo -O3 -no-prec-div -static -parallel -opt-prefetch

437.leslie3d: basepeak = yes

459.GemsFDTD: -xSSE4.2(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: -xAVX(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

Benchmarks using both Fortran and C:

435.gromacs: basepeak = yes

436.cactusADM: -xAVX -ipo -O3 -no-prec-div -static -parallel -opt-prefetch -ansi-alias

454.calculix: -xAVX -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-ic12.1-official-linux64.20120425.html
http://www.spec.org/cpu2006/flags/HP-Platform-Flags-Intel-V1.2-A.20120829.html

You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2006/flags/Intel-ic12.1-official-linux64.20120425.xml
http://www.spec.org/cpu2006/flags/HP-Platform-Flags-Intel-V1.2-A.20120829.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 Thu Jul 24 11:11:41 2014 by SPEC CPU2006 PS/PDF formatter v6932.
Originally published on 29 August 2012.