SPEC® CFP2006 Result

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Hewlett-Packard Company

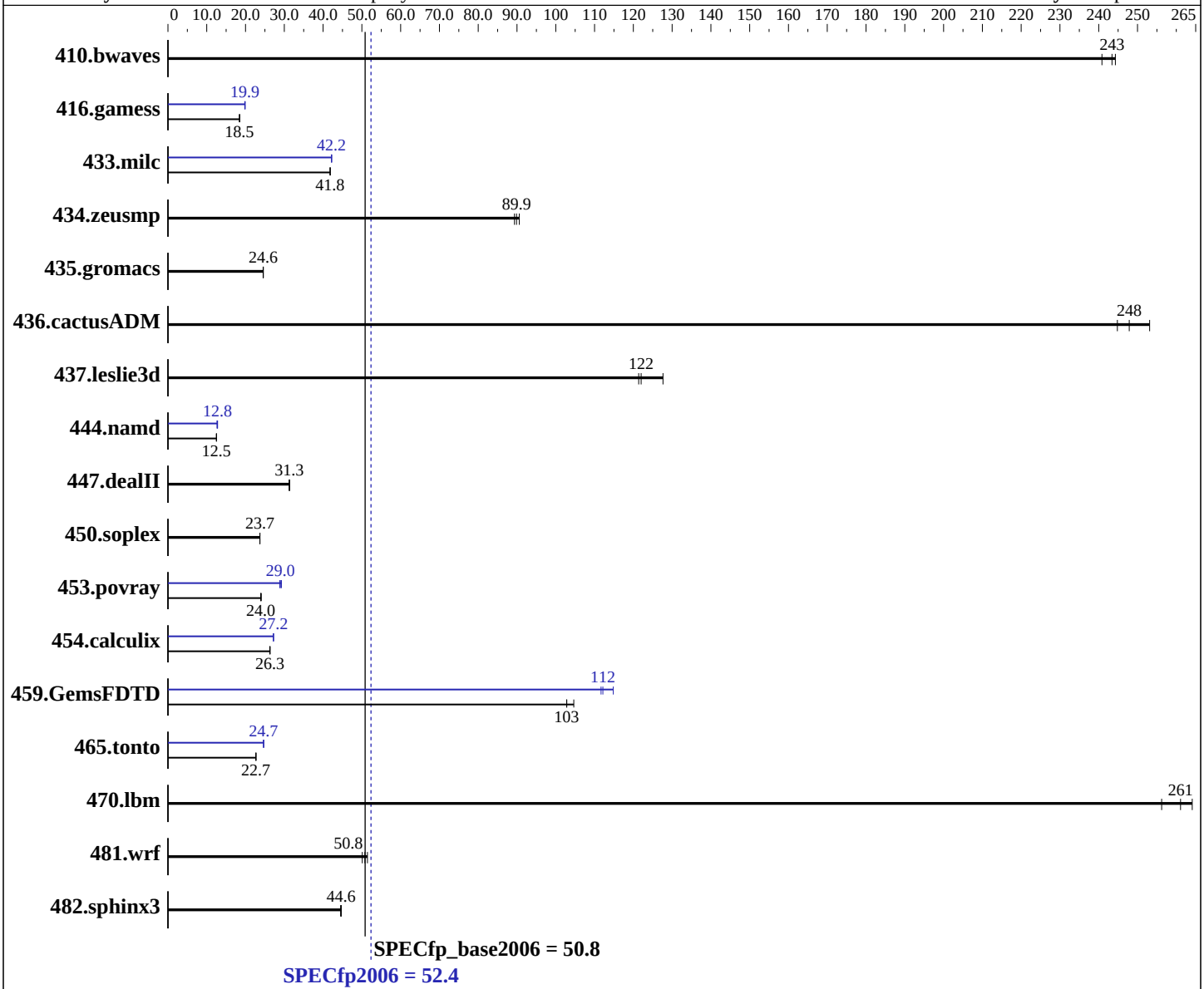
ProLiant DL360p Gen8
(1.80 GHz, Intel Xeon E5-2603 v2)

SPECfp®2006 = 52.4

SPECfp_base2006 = 50.8

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

Test date: Oct-2013
Hardware Availability: Sep-2013
Software Availability: Sep-2013



Hardware

CPU Name:	Intel Xeon E5-2603 v2
CPU Characteristics:	
CPU MHz:	1800
FPU:	Integrated
CPU(s) enabled:	8 cores, 2 chips, 4 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

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Software

Operating System:	SUSE Linux Enterprise Server 11 (x86_64) SP3 Kernel 3.0.76-0.11-default
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:	ext3
System State:	Run level 3 (multi-user)

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L3 Cache: 10 MB I+D on chip per chip
Other Cache: None
Memory: 128 GB (16 x 8 GB 2Rx4 PC3-10600R-9, ECC)
Disk Subsystem: 1 x 400 GB SAS SSD, RAID 0
Other Hardware: None

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	**55.8**	**243**	56.4	241	55.6	244	**55.8**	**243**	56.4	241	55.6	244
416.gamess	**1061**	**18.5**	1060	18.5	1061	18.5	**985**	**19.9**	989	19.8	985	19.9
433.milc	219	41.8	**219**	**41.8**	220	41.8	218	42.2	**218**	**42.2**	218	42.2
434.zeusmp	**101**	**89.9**	102	89.4	100	90.6	**101**	**89.9**	102	89.4	100	90.6
435.gromacs	**291**	**24.6**	290	24.6	291	24.5	**291**	**24.6**	290	24.6	291	24.5
436.cactusADM	48.8	245	47.2	253	**48.2**	**248**	48.8	245	47.2	253	**48.2**	**248**
437.leslie3d	**77.0**	**122**	77.4	121	73.6	128	**77.0**	**122**	77.4	121	73.6	128
444.namd	**641**	**12.5**	641	12.5	641	12.5	628	12.8	**628**	**12.8**	635	12.6
447.dealII	364	31.4	**366**	**31.3**	366	31.3	364	31.4	**366**	**31.3**	366	31.3
450.soplex	**352**	**23.7**	352	23.7	352	23.7	**352**	**23.7**	352	23.7	352	23.7
453.povray	**222**	**24.0**	221	24.1	223	23.9	185	28.8	182	29.3	**183**	**29.0**
454.calculix	314	26.2	313	26.3	**314**	**26.3**	303	27.2	303	27.2	**303**	**27.2**
459.GemsFDTD	101	105	103	103	**103**	**103**	95.0	112	**94.6**	**112**	92.4	115
465.tonto	**434**	**22.7**	434	22.7	434	22.7	399	24.7	**399**	**24.7**	399	24.6
470.lbm	52.0	264	53.6	256	**52.6**	**261**	52.0	264	53.6	256	**52.6**	**261**
481.wrf	**220**	**50.8**	223	50.1	217	51.4	**220**	**50.8**	223	50.1	217	51.4
482.sphinx3	436	44.7	**437**	**44.6**	438	44.5	436	44.7	**437**	**44.6**	438	44.5

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"
Transparent Huge Pages enabled with:
 echo always > /sys/kernel/mm/redhat_transparent_hugepage/enabled
Filesystem page cache cleared with:
 echo 1 > /proc/sys/vm/drop_caches
Disabled unused Linux services through "stop_services.sh" before running.
```

Platform Notes

```
BIOS Configuration:
 HP Power Profile set to Maximum Performance
 Memory Power Savings Mode set to Maximum Performance
 Collaborative Power Control set to Disabled
 Dynamic Power Capping Functionality set to Disabled
```

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Platform Notes (Continued)

```
 Thermal Configuration set to Maximum Cooling
 Processor Power and Utilization Monitoring set to Disabled
 Memory Refresh Rate set to 1x
Sysinfo program /cpu2006/config/sysinfo.rev6818
$Rev: 6818 $ $Date:: 2012-07-17 #$ e86d102572650a6e4d596a3cee98f191
running on dl360p-gen8-sles11 Wed Oct  9 23:24:58 2013

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 E5-2603 v2 @ 1.80GHz
      2 "physical id"s (chips)
      8 "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 : 4
      siblings  : 4
      physical 0: cores 0 1 2 3
      physical 1: cores 0 1 2 3
   cache size : 10240 KB

From /proc/meminfo
   MemTotal:       132130192 kB
   HugePages_Total:       0
   Hugepagesize:       2048 kB

/usr/bin/lsb_release -d
   SUSE Linux Enterprise Server 11 (x86_64)

From /etc/*release* /etc/*version*
   SuSE-release:
      SUSE Linux Enterprise Server 11 (x86_64)
      VERSION = 11
      PATCHLEVEL = 3

uname -a:
   Linux dl360p-gen8-sles11 3.0.76-0.11-default #1 SMP Fri Jun 14 08:21:43 UTC
   2013 (ccab990) x86_64 x86_64 x86_64 GNU/Linux

run-level 3 Oct 9 07:34 last=S

SPEC is set to: /cpu2006
   Filesystem     Type  Size  Used Avail Use% Mounted on
   /dev/sda3      ext3  365G  8.9G  338G   3% /

Additional information from dmidecode:
  BIOS HP P71 09/08/2013
  Memory:
   1x HP NOT AVAILABLE 8 GB 1333 MHz
```

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Platform Notes (Continued)

```
      8x UNKNOWN NOT AVAILABLE
      15x UNKNOWN NOT AVAILABLE 8 GB 1333 MHz

   (End of data from sysinfo program)
   Regarding the sysinfo display about the memory installed, the correct amount of
   memory is 128 GB and the dmidecode description should read as the following:
      1x HP NOT AVAILABLE 8 GB 1333 MHz 2 rank
      15x UNKNOWN NOT AVAILABLE 8 GB 1333 MHz 2 rank
```

General Notes

```
Environment variables set by runspec before the start of the run:
LD_LIBRARY_PATH = "/cpu2006/libs/32:/cpu2006/libs/64:/cpu2006/sh"
OMP_NUM_THREADS = "8"

 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
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

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Base Portability Flags (Continued)

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 -parallel -opt-prefetch -ansi-alias

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

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

Benchmarks using both Fortran and C:
-xAVX -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

Peak Portability Flags

Same as Base Portability Flags

Peak Optimization Flags

C benchmarks:

Continued on next page

Peak Optimization Flags (Continued)

433.milc: -xAVX(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: -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: basepeak = yes

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: basepeak = yes

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-

434.zeusmp: basepeak = yes

437.leslie3d: basepeak = yes

459.GemsFDTD: -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 -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: basepeak = yes

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

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Peak Optimization Flags (Continued)

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-revB.20131009.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-revB.20131009.xml`

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