SPEC® CFP2006 Result

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Hewlett-Packard Company

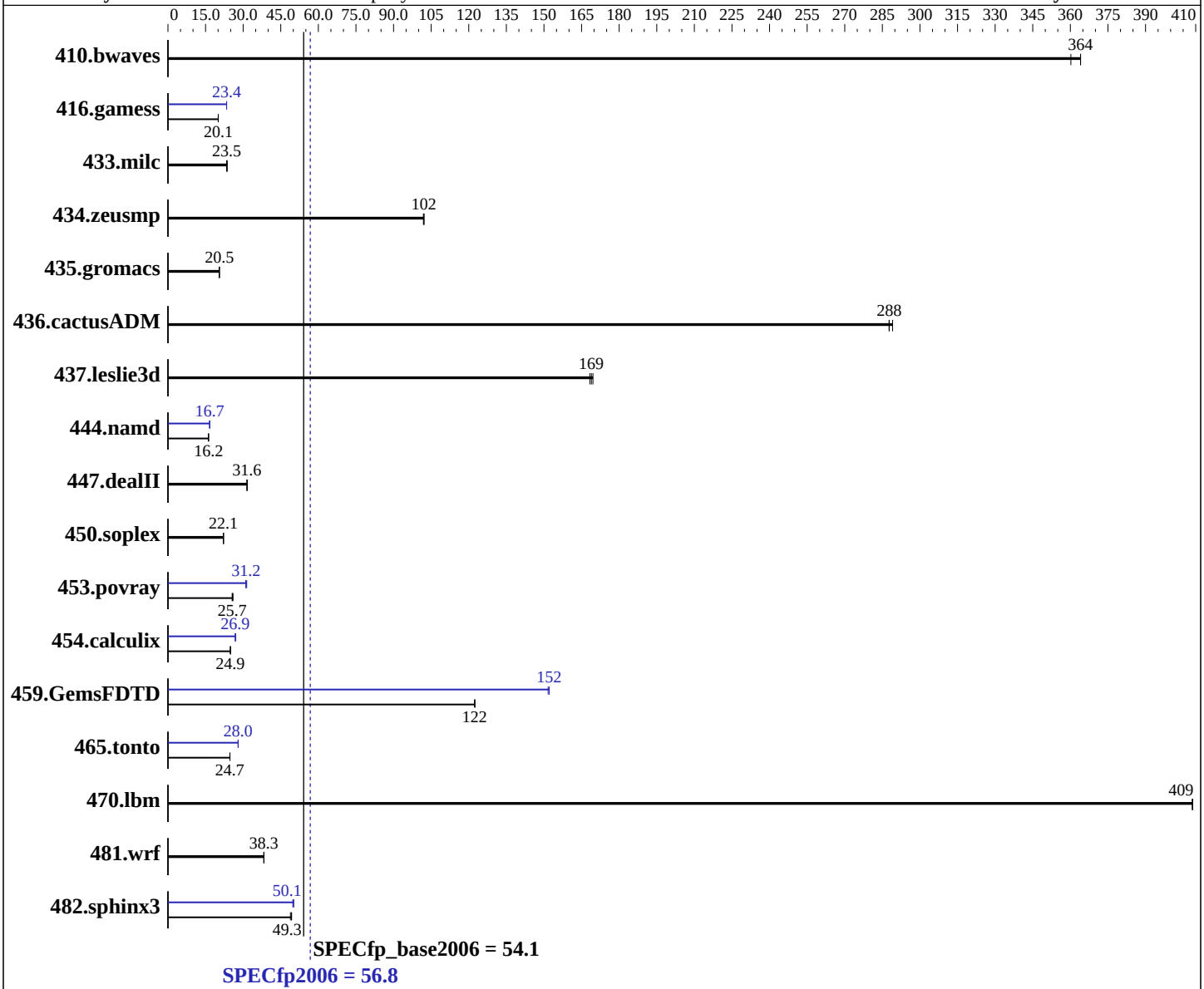
ProLiant DL580 G7
(2.66 GHz, Intel Xeon E7-8837)

SPECfp®2006 = 56.8

SPECfp_base2006 = 54.1

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

Test date: Aug-2012
Hardware Availability: Dec-2011
Software Availability: Oct-2011



Hardware

CPU Name:	Intel Xeon E7-8837
CPU Characteristics:	Intel Turbo Boost Technology up to 2.80 GHz
CPU MHz:	2667
FPU:	Integrated
CPU(s) enabled:	32 cores, 4 chips, 8 cores/chip
CPU(s) orderable:	2,4 chips
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 SP1 (x86_64) 2.6.32.12-0.7-default
Compiler:	C/C++: Version 12.1.0.225 of Intel C++ Studio XE for Linux; Fortran: Version 12.1.0.225 of Intel Fortran Studio XE for Linux
Auto Parallel:	Yes
File System:	ext3
System State:	Run level 3 (multi-user)

Continued on next page

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L3 Cache: 24 MB I+D on chip per chip
Other Cache: None
Memory: 1 TB (64 x 16 GB 2Rx4 PC3-10600R-9, ECC)
Disk Subsystem: 5 x 900 GB 6G SAS 10K, RAID 5
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	**37.3**	**364**	37.3	364	37.7	360	**37.3**	**364**	37.3	364	37.7	360
416.gamess	**975**	**20.1**	975	20.1	977	20.0	836	23.4	**837**	**23.4**	837	23.4
433.milc	392	23.4	388	23.6	**391**	**23.5**	392	23.4	388	23.6	**391**	**23.5**
434.zeusmp	89.1	102	89.3	102	**89.1**	**102**	89.1	102	89.3	102	**89.1**	**102**
435.gromacs	350	20.4	347	20.6	**348**	**20.5**	350	20.4	347	20.6	**348**	**20.5**
436.cactusADM	41.3	289	41.5	288	**41.5**	**288**	41.3	289	41.5	288	**41.5**	**288**
437.leslie3d	**55.6**	**169**	55.8	168	55.4	170	**55.6**	**169**	55.8	168	55.4	170
444.namd	497	16.1	**495**	**16.2**	495	16.2	483	16.6	**482**	**16.7**	481	16.7
447.dealII	**362**	**31.6**	361	31.7	364	31.5	**362**	**31.6**	361	31.7	364	31.5
450.soplex	378	22.1	**377**	**22.1**	376	22.2	378	22.1	**377**	**22.1**	376	22.2
453.povray	**207**	**25.7**	205	26.0	207	25.6	169	31.4	171	31.0	**171**	**31.2**
454.calculix	**331**	**24.9**	332	24.9	331	24.9	308	26.8	**307**	**26.9**	305	27.1
459.GemsFDTD	86.7	122	**86.7**	**122**	86.7	122	70.0	152	69.8	152	**69.8**	**152**
465.tonto	398	24.8	398	24.7	**398**	**24.7**	352	28.0	**351**	**28.0**	351	28.0
470.lbm	**33.6**	**409**	33.6	409	33.6	409	**33.6**	**409**	33.6	409	33.6	409
481.wrf	292	38.2	**292**	**38.3**	291	38.3	292	38.2	**292**	**38.3**	291	38.3
482.sphinx3	**396**	**49.3**	395	49.3	399	48.9	391	49.8	**389**	**50.1**	388	50.2

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"
runspec command invoked through numactl i.e.:
numactl --interleave=all runspec <etc>
```

Platform Notes

```
BIOS Configuration:
  HP Power Profile set to Maximum Performance
  Thermal Configuration set to Increased Cooling
  Collaborative Power Control set to Disabled
 Sysinfo program /cpu2006/config/sysinfo.rev6800
 $Rev: 6800 $ $Date:: 2011-10-11 #$ 6f2ebdff5032aaa42e583f96b07f99d3
 running on dl580g7-r88 Sat Aug 11 16:18:28 2012
```

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Platform Notes (Continued)

```
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 E7- 8837 @ 2.67GHz
      4 "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  : 8
      physical 0: cores 0 1 2 9 16 18 24 25
      physical 1: cores 0 1 2 8 17 18 24 25
      physical 2: cores 0 1 2 8 17 18 24 25
      physical 3: cores 0 1 8 9 16 17 24 25
   cache size : 24576 KB

From /proc/meminfo
   MemTotal:       1058831952 kB
   HugePages_Total:       0
   Hugepagesize:       2048 kB

From /etc/*release* /etc/*version*
   SuSE-release:
      SUSE Linux Enterprise Server 11 (x86_64)
      VERSION = 11
      PATCHLEVEL = 1

uname -a:
   Linux dl580g7-r88 2.6.32.12-0.7-default #1 SMP 2010-05-20 11:14:20 +0200
   x86_64 x86_64 x86_64 GNU/Linux

run-level 3 Aug 10 13:58 last=S

SPEC is set to: /cpu2006
   Filesystem     Type    Size  Used Avail Use% Mounted on
   /dev/cciss/c0d0p2
                  ext3    3.3T   76G  3.0T   3% /

Additional information from dmidecode:
  BIOS HP P65 12/01/2011

(End of data from sysinfo program)
```

General Notes

```
Environment variables set by runspec before the start of the run:
KMP_AFFINITY = "granularity=fine,scatter"
LD_LIBRARY_PATH = "/cpu2006/libs/32:/cpu2006/libs/64"
```

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General Notes (Continued)

```
OMP_NUM_THREADS = "16"

 Binaries compiled on a system with 1x Core i7-860 CPU + 8GB
 memory using RHEL5.5
```

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:
```
-xSSE4.2 -ipo -O3 -no-prec-div -static -parallel -opt-prefetch
-ansi-alias
```

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Base Optimization Flags (Continued)

C++ benchmarks:
`-xSSE4.2 -ipo -O3 -no-prec-div -static -opt-prefetch -ansi-alias`

Fortran benchmarks:
`-xSSE4.2 -ipo -O3 -no-prec-div -static -parallel -opt-prefetch`

Benchmarks using both Fortran and C:
`-xSSE4.2 -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: `basepeak = yes`

470.lbm: `basepeak = yes`

482.sphinx3: `-xSSE4.2 -ipo -O3 -no-prec-div -unroll2 -ansi-alias -parallel`

C++ benchmarks:

444.namd: `-xSSE4.2`(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`

Continued on next page

Peak Optimization Flags (Continued)

447.dealII: basepeak = yes

450.soplex: basepeak = yes

453.povray: -xSSE4.2(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: -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 -scalar-rep- -static

434.zeusmp: basepeak = yes

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: -xSSE4.2(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: -xSSE4.2 -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

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