SPEC® CFP2006 Result

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Hewlett-Packard Company

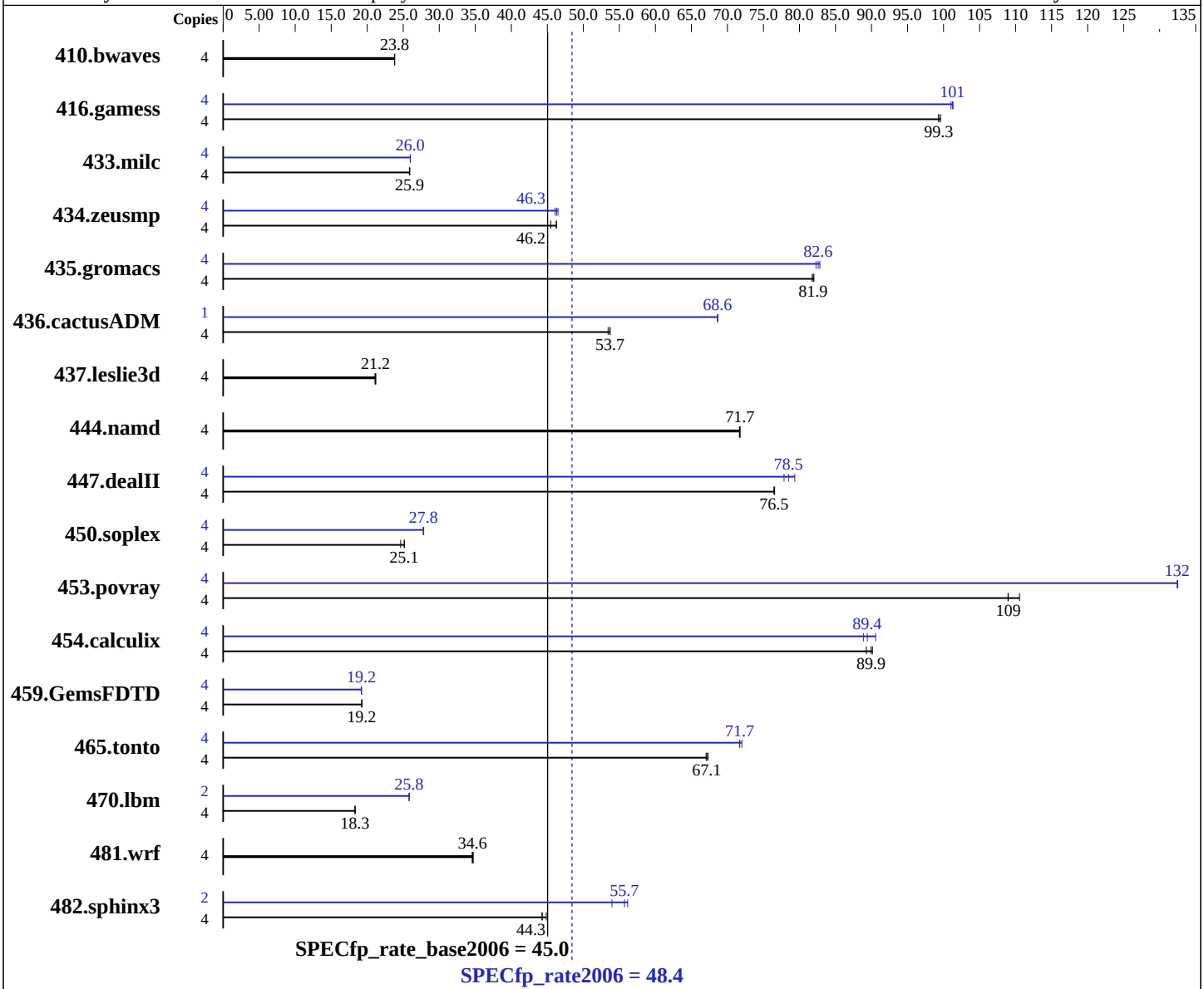
ProLiant BL480c
(3.33 GHz, Intel Xeon X5470)

SPECfp®_rate2006 = 48.4

SPECfp_rate_base2006 = 45.0

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

Test date: Aug-2008
Hardware Availability: Sep-2008
Software Availability: Nov-2008



Hardware

CPU Name:	Intel Xeon X5470
CPU Characteristics:	3.33 GHz, 2x6 MB L2 shared, 1333 MHz system bus
CPU MHz:	3333
FPU:	Integrated
CPU(s) enabled:	4 cores, 1 chip, 4 cores/chip
CPU(s) orderable:	1,2 chips
Primary Cache:	32 KB I + 32 KB D on chip per core
Secondary Cache:	12 MB I+D on chip per chip, 6 MB shared / 2 cores

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Software

Operating System:	SUSE Linux Enterprise Server 10 (x86_64) SP1, Kernel 2.6.16.46-0.12-smp
Compiler:	Intel C++ and Fortran Compiler 11.0 for Linux Build 20080730 Package ID: l_cproc_b_11.0.042, l_fproc_b_11.0.042
Auto Parallel:	Yes
File System:	ext3
System State:	Run level 3 (multi-user)
Base Pointers:	64-bit

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L3 Cache: None
Other Cache: None
Memory: 16 GB (8x2 GB PC2-5300F CL5)
Disk Subsystem: 1x146 GB 10 K SAS
Other Hardware: None

Peak Pointers: 32/64-bit
Other Software: Binutils 2.18.50.0.7.20080502

Results Table

Benchmark	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	4	**2283**	**23.8**	2283	23.8	2285	23.8	4	**2283**	**23.8**	2283	23.8	2285	23.8
416.gamess	4	789	99.3	786	99.6	**788**	**99.3**	4	**774**	**101**	775	101	773	101
433.milc	4	1420	25.9	1418	25.9	**1418**	**25.9**	4	1414	26.0	**1414**	**26.0**	1413	26.0
434.zeusmp	4	787	46.3	**787**	**46.2**	800	45.5	4	783	46.5	**786**	**46.3**	790	46.1
435.gromacs	4	348	82.0	349	81.8	**349**	**81.9**	4	347	82.3	**346**	**82.6**	345	82.8
436.cactusADM	4	895	53.4	**890**	**53.7**	890	53.7	1	174	68.7	174	68.6	**174**	**68.6**
437.leslie3d	4	**1776**	**21.2**	1776	21.2	1784	21.1	4	**1776**	**21.2**	1776	21.2	1784	21.1
444.namd	4	**447**	**71.7**	447	71.7	448	71.7	4	**447**	**71.7**	447	71.7	448	71.7
447.dealII	4	598	76.6	**598**	**76.5**	598	76.5	4	**583**	**78.5**	588	77.9	577	79.4
450.soplex	4	1354	24.6	1326	25.2	**1327**	**25.1**	4	1201	27.8	**1200**	**27.8**	1198	27.8
453.povray	4	192	111	195	109	**195**	**109**	4	**161**	**132**	161	132	161	133
454.calculix	4	370	89.3	**367**	**89.9**	366	90.1	4	364	90.6	371	88.9	**369**	**89.4**
459.GemsFDTD	4	**2205**	**19.2**	2206	19.2	2203	19.3	4	**2211**	**19.2**	2214	19.2	2208	19.2
465.tonto	4	**586**	**67.1**	587	67.0	585	67.3	4	547	72.0	549	71.7	**549**	**71.7**
470.lbm	4	3002	18.3	**3001**	**18.3**	3000	18.3	2	1064	25.8	**1064**	**25.8**	1065	25.8
481.wrf	4	**1290**	**34.6**	1287	34.7	1293	34.6	4	**1290**	**34.6**	1287	34.7	1293	34.6
482.sphinx3	4	**1761**	**44.3**	1738	44.9	1761	44.3	2	722	54.0	694	56.2	**700**	**55.7**

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

Submit Notes

```
The config file option 'submit' was used.
 taskset was used to bind processes to cores except
 for 436.cactusADM peak
```

Platform Notes

```
BIOS configuration:
  Power Regulator set to Static High Performance Mode
  Adjacent Sector Prefetch Disabled
  Hardware Prefetcher Disabled
```

General Notes

```
All benchmarks compiled in 64-bit mode except 450.soplex,
and 482.sphinx3, at peak, are compiled in 32-bit mode
OMP_NUM_THREADS set to number of processors
KMP_AFFINITY set to "physical,0"
KMP_STACKSIZE set to 64M
```

Base Compiler Invocation

C benchmarks:
`icc`

C++ benchmarks:
`icpc`

Fortran benchmarks:
`ifort`

Benchmarks using both Fortran and C:
`icc ifort`

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:
`-xSSE4.1 -ipo -O3 -no-prec-div -static -opt-prefetch`

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Base Optimization Flags (Continued)

C++ benchmarks:
`-xSSE4.1 -ipo -O3 -no-prec-div -static -opt-prefetch`

Fortran benchmarks:
`-xSSE4.1 -ipo -O3 -no-prec-div -static -opt-prefetch`

Benchmarks using both Fortran and C:
`-xSSE4.1 -ipo -O3 -no-prec-div -static -opt-prefetch`

Peak Compiler Invocation

C benchmarks (except as noted below):
`icc`

482.sphinx3: `/opt/intel/Compiler/11.0/042/bin/ia32/icc -L/opt/intel/Compiler/11.0/042/ipp/ia32/lib -I/opt/intel/Compiler/11.0/042/ipp/ia32/include`

C++ benchmarks (except as noted below):
`icpc`

450.soplex: `/opt/intel/Compiler/11.0/042/bin/ia32/icpc -L/opt/intel/Compiler/11.0/042/ipp/ia32/lib -I/opt/intel/Compiler/11.0/042/ipp/ia32/include`

Fortran benchmarks:
`ifort`

Benchmarks using both Fortran and C:
`icc ifort`

Peak 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`
453.povray: `-DSPEC_CPU_LP64`
454.calculix: `-DSPEC_CPU_LP64 -nofor_main`
459.GemsFDTD: `-DSPEC_CPU_LP64`

Continued on next page

Peak Portability Flags (Continued)

465.tonto: -DSPEC_CPU_LP64
470.lbm: -DSPEC_CPU_LP64
481.wrf: -DSPEC_CPU_LP64 -DSPEC_CPU_CASE_FLAG -DSPEC_CPU_LINUX

Peak Optimization Flags

C benchmarks:

433.milc: -prof-gen(pass 1) -prof-use(pass 2) -xSSE4.1 -ipo -O3
-no-prec-div -static -fno-alias

470.lbm: -xSSE4.1 -ipo -O3 -no-prec-div -static -opt-prefetch
-auto-ilp32

482.sphinx3: -xSSE4.1 -ipo -O3 -no-prec-div -static -unroll2

C++ benchmarks:

444.namd: basepeak = yes

447.dealII: -prof-gen(pass 1) -prof-use(pass 2) -xSSE4.1 -ipo -O3
-no-prec-div -static -unroll2 -ansi-alias -scalar-rep-

450.soplex: -prof-gen(pass 1) -prof-use(pass 2) -xSSE4.1 -ipo -O3
-no-prec-div -static -opt-malloc-options=3

453.povray: -prof-gen(pass 1) -prof-use(pass 2) -xSSE4.1 -ipo -O3
-no-prec-div -static -unroll4 -ansi-alias

Fortran benchmarks:

410.bwaves: basepeak = yes

416.gamess: -prof-gen(pass 1) -prof-use(pass 2) -xSSE4.1 -ipo -O3
-no-prec-div -static -unroll2 -Ob0 -ansi-alias
-scalar-rep-

434.zeusmp: -prof-gen(pass 1) -prof-use(pass 2) -xSSE4.1 -ipo -O3
-no-prec-div -static

437.leslie3d: basepeak = yes

459.GemsFDTD: -prof-gen(pass 1) -prof-use(pass 2) -xSSE4.1 -ipo -O3
-no-prec-div -static -unroll2 -Ob0 -opt-prefetch

465.tonto: -prof-gen(pass 1) -prof-use(pass 2) -xSSE4.1 -ipo -O3
-no-prec-div -static -unroll4 -auto

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Peak Optimization Flags (Continued)

Benchmarks using both Fortran and C:

435.gromacs: `-prof-gen`(pass 1) `-prof-use`(pass 2) `-xSSE4.1 -ipo -O3 -no-prec-div -static -opt-prefetch -auto-ilp32`

436.cactusADM: `-prof-gen`(pass 1) `-prof-use`(pass 2) `-xSSE4.1 -ipo -O3 -no-prec-div -static -unroll2 -opt-prefetch -parallel -auto-ilp32`

454.calculix: `-xSSE4.1 -ipo -O3 -no-prec-div -static -auto-ilp32`

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-ic11.0-fp-linux64-revD.20090713.html
http://www.spec.org/cpu2006/flags/HP-Intel-Linux-Settings-flags.20090713.html

You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2006/flags/Intel-ic11.0-fp-linux64-revD.20090713.xml
http://www.spec.org/cpu2006/flags/HP-Intel-Linux-Settings-flags.20090713.xml

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