SPEC® CFP2006 Result

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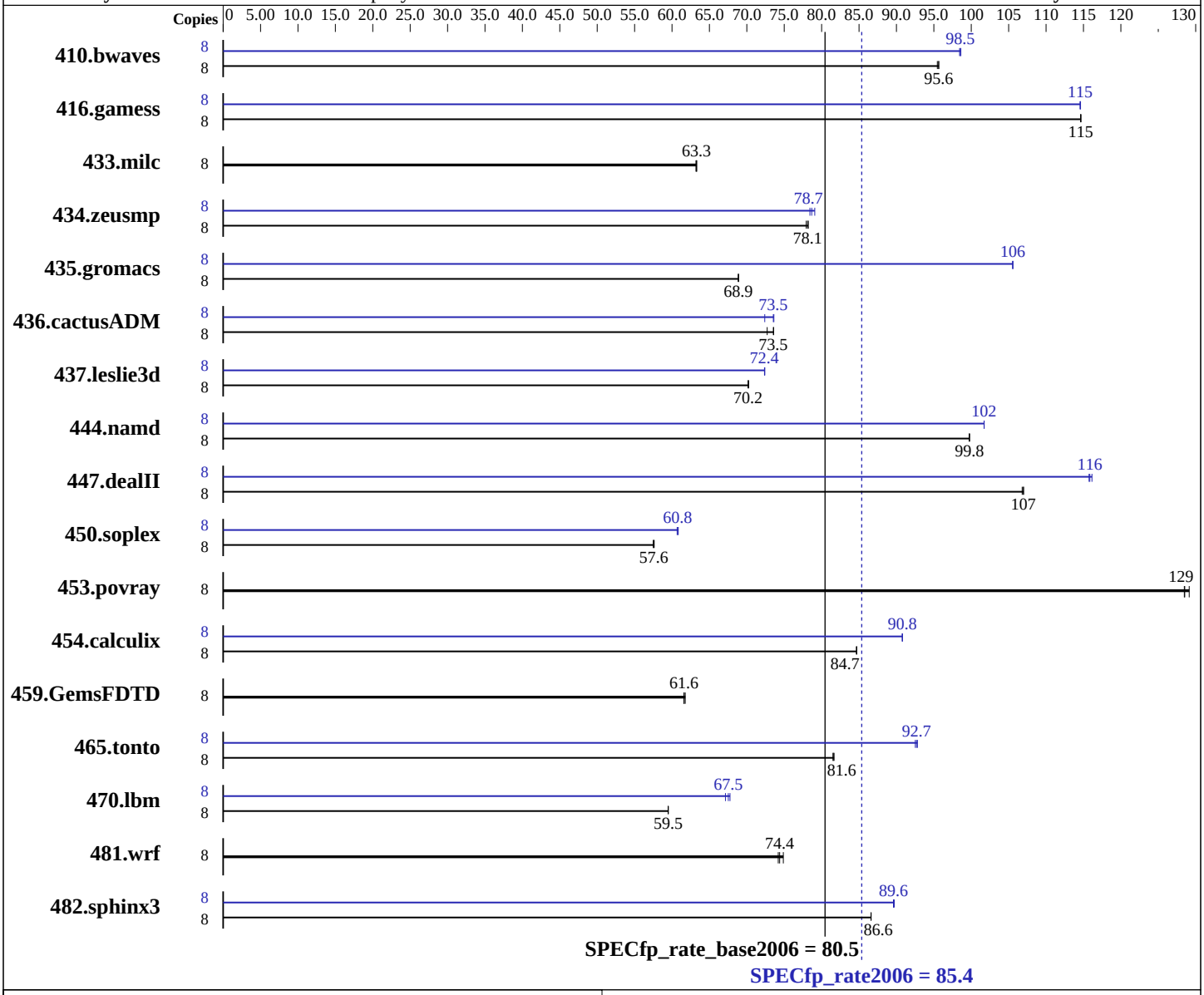
Hewlett-Packard Company
ProLiant BL685c

SPECfp®_rate2006 = 85.4

SPECfp_rate_base2006 = 80.5

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

Test date: Feb-2007
Hardware Availability: Sep-2006
Software Availability: Jan-2007



Hardware

CPU Name:	AMD Opteron 8220
CPU Characteristics:	
CPU MHz:	2800
FPU:	Integrated
CPU(s) enabled:	8 cores, 4 chips, 2 cores/chip
CPU(s) orderable:	2,4 chips
Primary Cache:	64 KB I + 64 KB D on chip per core
Secondary Cache:	1 MB I+D on chip per core

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Software

Operating System:	Solaris 10 6/06
Compiler:	Sun Studio 11 with Patches
Auto Parallel:	No
File System:	ufs
System State:	Default
Base Pointers:	64-bit
Peak Pointers:	32/64-bit
Other Software:	None

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L3 Cache: None
Other Cache: None
Memory: 64 GB (16x2 GB, PC2-5300P CL5)
Disk Subsystem: 72 GB 10K SAS
Other Hardware: None

Results Table

Benchmark	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	8	1139	95.5	1137	95.7	**1137**	**95.6**	8	1103	98.6	**1103**	**98.5**	1104	98.4
416.gamess	8	**1366**	**115**	1366	115	1367	115	8	1367	115	**1367**	**115**	1367	115
433.milc	8	1162	63.2	1160	63.3	**1161**	**63.3**	8	1162	63.2	1160	63.3	**1161**	**63.3**
434.zeusmp	8	934	77.9	931	78.2	**932**	**78.1**	8	928	78.4	921	79.1	**925**	**78.7**
435.gromacs	8	829	68.9	**829**	**68.9**	829	68.9	8	541	106	**541**	**106**	541	106
436.cactusADM	8	1315	72.7	**1300**	**73.5**	1299	73.6	8	1320	72.4	1299	73.6	**1300**	**73.5**
437.leslie3d	8	**1072**	**70.2**	1072	70.2	1070	70.3	8	1039	72.4	1039	72.4	**1039**	**72.4**
444.namd	8	**643**	**99.8**	643	99.7	643	99.8	8	631	102	**631**	**102**	631	102
447.dealII	8	857	107	**856**	**107**	855	107	8	788	116	**790**	**116**	791	116
450.soplex	8	**1159**	**57.6**	1158	57.6	1161	57.5	8	**1098**	**60.8**	1099	60.7	1097	60.8
453.povray	8	**331**	**129**	331	128	330	129	8	**331**	**129**	331	128	330	129
454.calculix	8	780	84.7	**779**	**84.7**	779	84.7	8	**727**	**90.8**	727	90.8	727	90.8
459.GemsFDTD	8	**1377**	**61.6**	1378	61.6	1374	61.8	8	**1377**	**61.6**	1378	61.6	1374	61.8
465.tonto	8	966	81.5	**965**	**81.6**	964	81.7	8	851	92.5	**849**	**92.7**	848	92.8
470.lbm	8	1848	59.5	**1848**	**59.5**	1847	59.5	8	1637	67.1	**1628**	**67.5**	1622	67.8
481.wrf	8	**1201**	**74.4**	1193	74.9	1204	74.2	8	**1201**	**74.4**	1193	74.9	1204	74.2
482.sphinx3	8	1801	86.6	1800	86.6	**1800**	**86.6**	8	1740	89.6	**1740**	**89.6**	1738	89.7

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

Operating System Notes

```
Processes were bound to cores using "submit" and "pbind".


ulimit -s unlimited  (shell): increases stack

The following patches were applied to Sun Studio 11 compiler:
120759-09 : x86/x64
121016-05 : x86 C
121020-04 : x86 F90
121022-02 : x86 F90
121018-08 : x86 C++
```

Platform Notes

```
Node Interleaving was disabled in BIOS
```

Base Compiler Invocation

C benchmarks:
```
cc
```

C++ benchmarks:
```
CC
```

Fortran benchmarks:
```
f90
```

Benchmarks using both Fortran and C:
```
cc f90
```

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
436.cactusADM: -DSPEC_CPU_LP64
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
459.GemsFDTD: -DSPEC_CPU_LP64
465.tonto: -DSPEC_CPU_LP64
470.lbm: -DSPEC_CPU_LP64
481.wrf: -DSPEC_CPU_LP64 -DSPEC_CPU_WORDS_LITTLEENDIAN
482.sphinx3: -DSPEC_CPU_LP64

Base Optimization Flags

C benchmarks:
```
-fast -xipo=2 -xarch=amd64a
```

C++ benchmarks:
```
-fast -xipo=2 -xarch=amd64a -library=stlport4
```

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Base Optimization Flags (Continued)

Fortran benchmarks:
`-fast -xipo=2 -xarch=amd64a`

Benchmarks using both Fortran and C:
`-fast`(cc) `-fast`(f90) `-xipo=2 -xarch=amd64a`

Base Other Flags

C benchmarks:
`-V`

C++ benchmarks:
`-verbose=version`

Fortran benchmarks:
`-V`

Benchmarks using both Fortran and C:
`-V`

Peak Compiler Invocation

C benchmarks:
`cc`

C++ benchmarks:
`CC`

Fortran benchmarks:
`f90`

Benchmarks using both Fortran and C:
`cc f90`

Peak Portability Flags

433.milc: `-DSPEC_CPU_LP64`
436.cactusADM: `-DSPEC_CPU_LP64`
453.povray: `-DSPEC_CPU_LP64`
459.GemsFDTD: `-DSPEC_CPU_LP64`
481.wrf: `-DSPEC_CPU_LP64 -DSPEC_CPU_WORDS_LITTLEENDIAN`

Peak Optimization Flags

C benchmarks:

433.milc: basepeak = yes

470.lbm: -fast -xarch=amd64a -xpagesize=2m -W2,-Ainline:inc=200 -W2,-Ainline:cs=500 -xprefetch_level=3

482.sphinx3: -fast -xarch=amd64a -xrestrict -xipo=2 -xprefetch=auto -xpagesize=2m -Wd,-iropt-prof -W2,-Ashort_ldst:ldld -W2,-Ainline:rs=50 -M /usr/lib/ld/map.bssalign

C++ benchmarks:

444.namd: -xprofile=collect:./feedback(pass 1) -xprofile=use:./feedback(pass 2) -fast -xarch=amd64a -xipo=2 -library=stlport4

447.dealII: -fast -xarch=amd64a -xipo=2 -xvector -Qoption iropt -Abcopy -xalias_level -xrestrict -xregs=frameptr -library=stlport4

450.soplex: -fast -xipo=2 -xarch=sse2a -library=stlport4

453.povray: basepeak = yes

Fortran benchmarks:

410.bwaves: -fast -xarch=amd64a -unroll=5 -stackvar -xO4 -xipo=2 -xprefetch_level=3 -Qoption iropt -Rloop_dist

416.gamess: -fast -xarch=amd64a -xipo=2 -xprefetch_level=3

434.zeusmp: -fast -xarch=amd64a -xipo=2 -xregs=frameptr

437.leslie3d: -fast -xipo=2 -xarch=sse2a

459.GemsFDTD: basepeak = yes

465.tonto: -xprofile=collect:./feedback(pass 1) -xprofile=use:./feedback(pass 2) -fast -xarch=amd64a -xipo=2 -xvector=lib -xalias -xdepend -lbsdmalloc

Benchmarks using both Fortran and C:

435.gromacs: -fast(cc) -fast(f90) -xipo=2 -xarch=amd64a -Wu,-fsimple=3 -Qoption ube -fsimple=3

436.cactusADM: -fast(cc) -fast(f90) -xipo=2 -xarch=amd64a

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Peak Optimization Flags (Continued)

454.calculix: `-fast`(cc) `-fast`(f90) `-xarch=amd64a -xpagesize=2m -xprefetch=auto -xprefetch_level=3 -W2,-Ainline:inc=200 -W2,-Ainline:cs=500 -unroll=5 -stackvar -xO4 -xipo=2 -Qoption iropt -Rloop_dist`

481.wrf: `basepeak = yes`

Peak Other Flags

C benchmarks:
`-V`

C++ benchmarks:
`-verbose=version`

Fortran benchmarks:
`-V`

Benchmarks using both Fortran and C:
`-V`

The flags file that was used to format this result can be browsed at
`http://www.spec.org/cpu2006/flags/HP-Solaris-Sun-Studio-Opteron.html`

You can also download the XML flags source by saving the following link:
`http://www.spec.org/cpu2006/flags/HP-Solaris-Sun-Studio-Opteron.xml`

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For other inquiries, please contact webmaster@spec.org.

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