SPEC® CFP2006 Result

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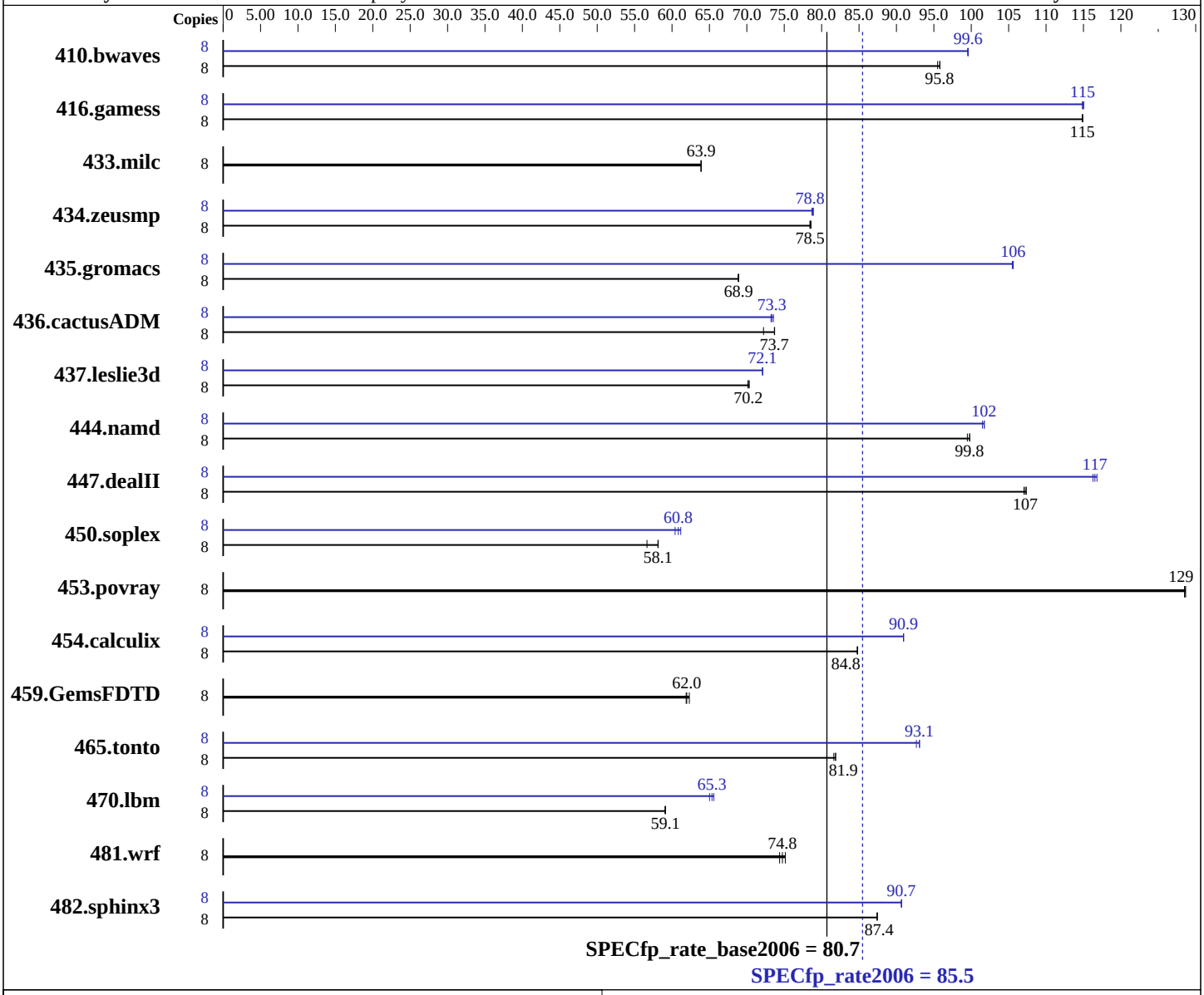
Hewlett-Packard Company
ProLiant DL585 G2

SPECfp®_rate2006 = 85.5

SPECfp_rate_base2006 = 80.7

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 SE
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: 32 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	1138	95.5	1135	95.8	**1135**	**95.8**	8	1092	99.6	1093	99.5	**1092**	**99.6**
416.gamess	8	1364	115	**1364**	**115**	1363	115	8	**1363**	**115**	1362	115	1364	115
433.milc	8	**1149**	**63.9**	1150	63.9	1149	63.9	8	**1149**	**63.9**	1150	63.9	1149	63.9
434.zeusmp	8	**928**	**78.5**	926	78.6	928	78.4	8	923	78.9	925	78.7	**923**	**78.8**
435.gromacs	8	830	68.8	**829**	**68.9**	829	68.9	8	541	106	542	105	**541**	**106**
436.cactusADM	8	1297	73.7	**1297**	**73.7**	1324	72.2	8	1305	73.2	1300	73.6	**1303**	**73.3**
437.leslie3d	8	1072	70.2	**1071**	**70.2**	1069	70.3	8	1043	72.1	1043	72.1	**1043**	**72.1**
444.namd	8	645	99.5	643	99.8	**643**	**99.8**	8	631	102	632	101	**631**	**102**
447.dealII	8	**853**	**107**	852	107	855	107	8	784	117	787	116	**785**	**117**
450.soplex	8	1178	56.7	**1148**	**58.1**	1147	58.2	8	**1097**	**60.8**	1104	60.4	1091	61.2
453.povray	8	331	129	**331**	**129**	331	129	8	331	129	**331**	**129**	331	129
454.calculix	8	**778**	**84.8**	778	84.8	779	84.8	8	726	90.9	726	91.0	**726**	**90.9**
459.GemsFDTD	8	1362	62.3	1372	61.9	**1370**	**62.0**	8	1362	62.3	1372	61.9	**1370**	**62.0**
465.tonto	8	962	81.9	964	81.6	**962**	**81.9**	8	846	93.1	850	92.7	**846**	**93.1**
470.lbm	8	1861	59.1	1859	59.1	**1859**	**59.1**	8	1676	65.6	1691	65.0	**1682**	**65.3**
481.wrf	8	1189	75.1	**1195**	**74.8**	1201	74.4	8	1189	75.1	**1195**	**74.8**	1201	74.4
482.sphinx3	8	**1784**	**87.4**	1784	87.4	1783	87.4	8	**1720**	**90.7**	1719	90.7	1720	90.7

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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