



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

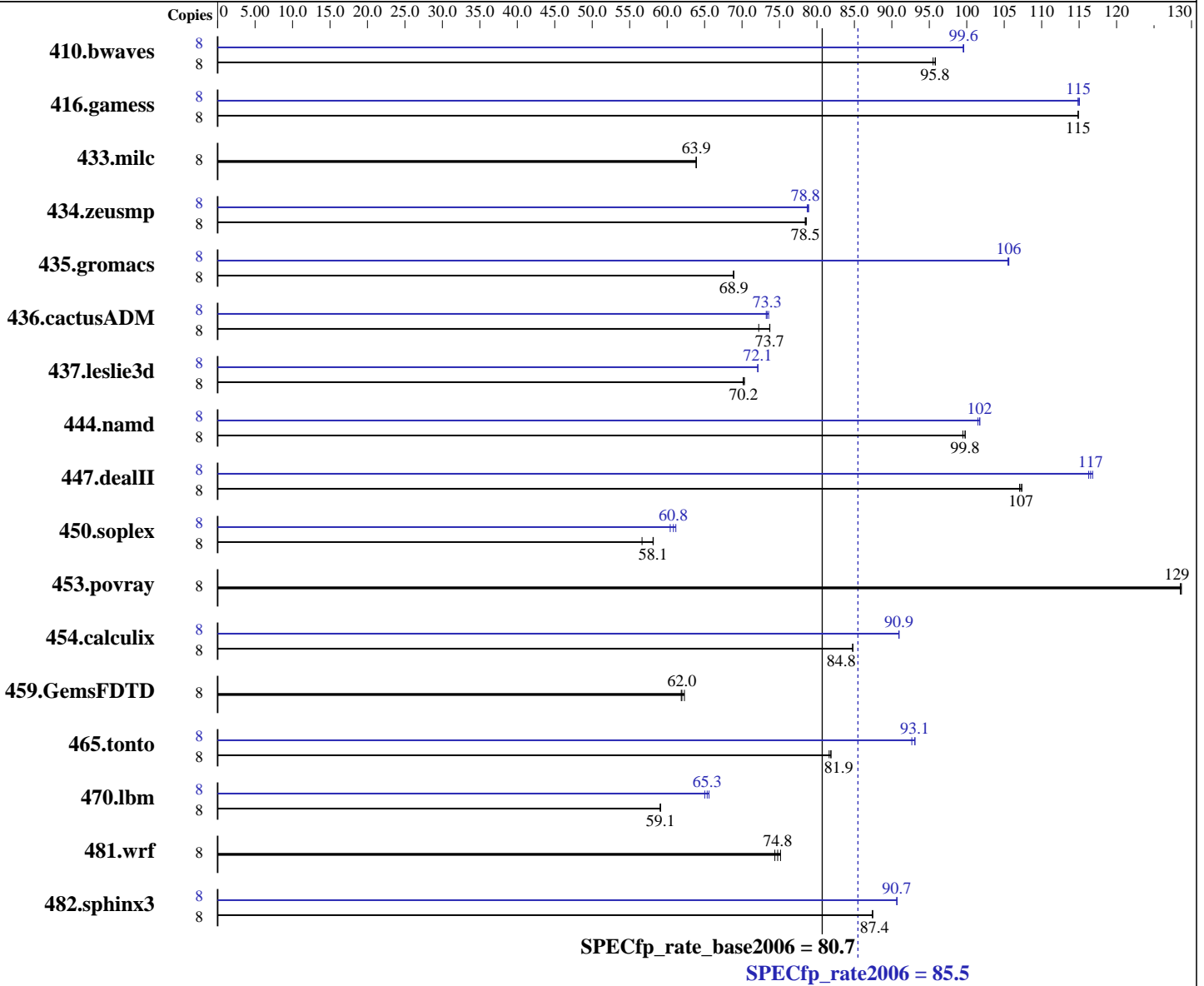
Test sponsor: Hewlett-Packard Company

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



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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



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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.deallI: -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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