



SPEC[®] CFP2006 Result

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SGI

SGI Altix XE 320 (Intel Xeon E5472, 3.00 GHz)

SPECfp[®]_rate2006 = 87.8

SPECfp_rate_base2006 = 78.0

CPU2006 license: 4

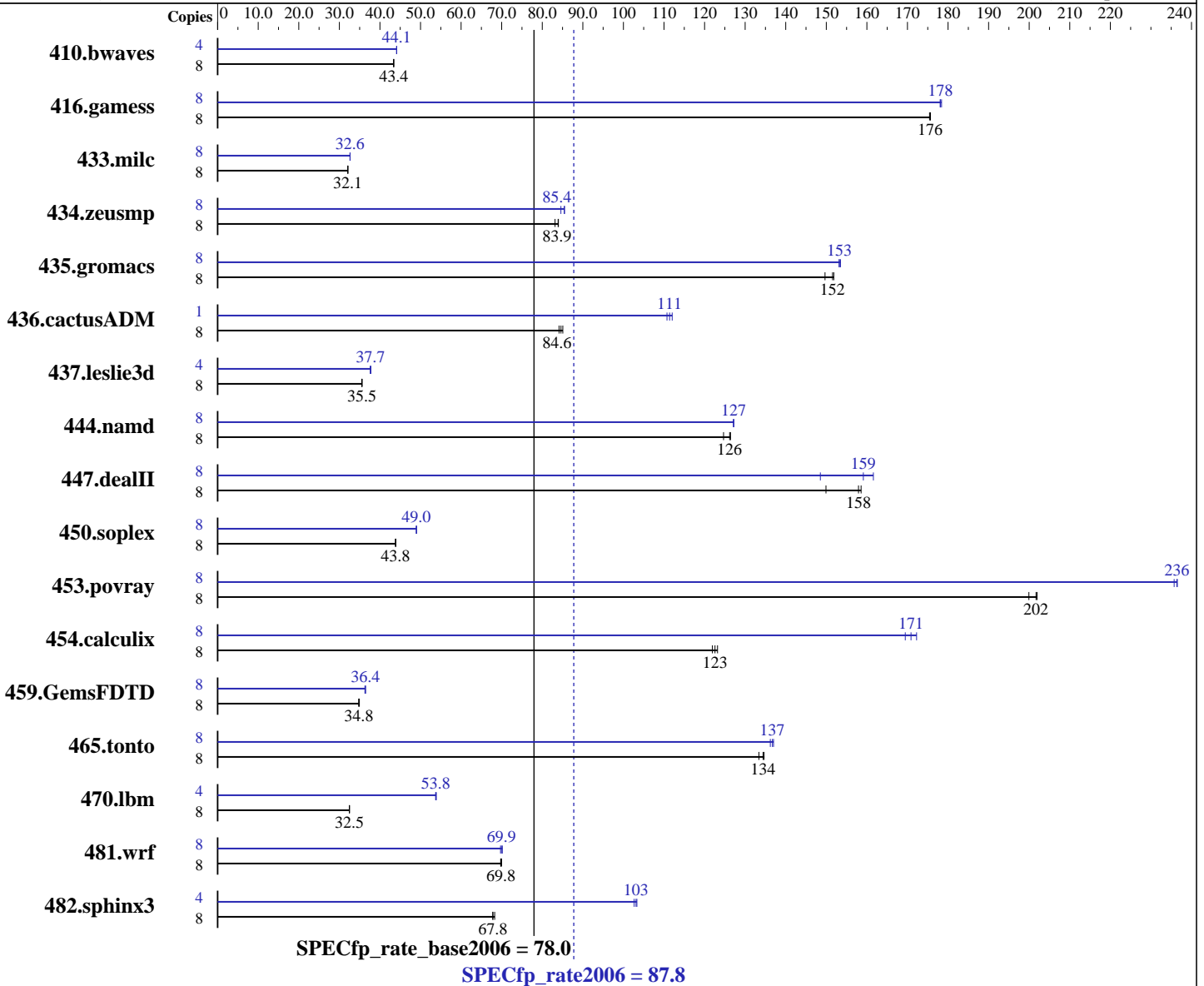
Test sponsor: SGI

Tested by: SGI

Test date: May-2008

Hardware Availability: Feb-2008

Software Availability: Apr-2008



Hardware

CPU Name: Intel Xeon E5472
 CPU Characteristics: Quad Core, 3.0 GHz
 CPU MHz: 2992
 FPU: Integrated
 CPU(s) enabled: 8 cores, 2 chips, 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 for Linux
 Version 10.1, Build 20070913
 Auto Parallel: Yes
 File System: xfs
 System State: Multi-user, run level 3
 Base Pointers: 64-bit
 Peak Pointers: 32/64-bit

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L3 Cache: None
Other Cache: None
Memory: 16 GB (8*2GB PC2-6400 CL5-5-5 FB-DIMMs)
Disk Subsystem: 1 x 250 GB SATA (Hitachi Deskstar 7200rpm)
Other Hardware: None

Other Software: SGI ProPack 5 for Linux Service Pack 5
Binutils 2.17

Results Table

Benchmark	Base								Peak							
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio		
410.bwaves	8	<u>2506</u>	<u>43.4</u>	2507	43.4	2505	43.4	4	<u>1232</u>	<u>44.1</u>	1233	44.1	1232	44.1		
416.gamess	8	893	175	892	176	<u>892</u>	<u>176</u>	8	880	178	<u>879</u>	<u>178</u>	878	178		
433.milc	8	<u>2289</u>	<u>32.1</u>	2288	32.1	2290	32.1	8	<u>2250</u>	<u>32.6</u>	2249	32.6	2251	32.6		
434.zeusmp	8	867	84.0	<u>868</u>	<u>83.9</u>	876	83.1	8	852	85.5	861	84.6	<u>852</u>	<u>85.4</u>		
435.gromacs	8	<u>377</u>	<u>152</u>	376	152	382	150	8	373	153	<u>373</u>	<u>153</u>	372	154		
436.cactusADM	8	1124	85.1	1136	84.1	<u>1130</u>	<u>84.6</u>	1	107	112	108	111	<u>107</u>	<u>111</u>		
437.leslie3d	8	2118	35.5	2111	35.6	<u>2116</u>	<u>35.5</u>	4	995	37.8	<u>999</u>	<u>37.7</u>	999	37.6		
444.namd	8	<u>508</u>	<u>126</u>	508	126	515	125	8	504	127	505	127	<u>505</u>	<u>127</u>		
447.dealII	8	577	159	610	150	<u>579</u>	<u>158</u>	8	616	149	<u>575</u>	<u>159</u>	566	162		
450.soplex	8	1522	43.8	<u>1522</u>	<u>43.8</u>	1519	43.9	8	1362	49.0	<u>1362</u>	<u>49.0</u>	1361	49.0		
453.povray	8	213	200	<u>211</u>	<u>202</u>	211	202	8	<u>180</u>	<u>236</u>	180	237	181	236		
454.calculix	8	541	122	536	123	<u>538</u>	<u>123</u>	8	383	172	389	169	<u>386</u>	<u>171</u>		
459.GemsFDTD	8	<u>2439</u>	<u>34.8</u>	2440	34.8	2430	34.9	8	<u>2330</u>	<u>36.4</u>	2338	36.3	2329	36.4		
465.tonto	8	585	135	<u>586</u>	<u>134</u>	590	133	8	578	136	575	137	<u>576</u>	<u>137</u>		
470.lbm	8	<u>3384</u>	<u>32.5</u>	3383	32.5	3388	32.4	4	1023	53.7	1020	53.9	<u>1022</u>	<u>53.8</u>		
481.wrf	8	1281	69.7	1277	70.0	<u>1280</u>	<u>69.8</u>	8	1282	69.7	<u>1278</u>	<u>69.9</u>	1274	70.2		
482.sphinx3	8	2284	68.3	<u>2299</u>	<u>67.8</u>	2299	67.8	4	755	103	760	103	<u>756</u>	<u>103</u>		

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

General Notes

BIOS settings:

Snoop Filter: Enabled

Hardware Prefetcher: Enabled

Adjacent Sector Prefetch: Disabled

All benchmarks compiled in 64-bit mode except 437.leslie3d, 450.soplex

470.lbm and 482.sphinx3, at peak, are compiled in 32-bit mode

The taskset utility was used to bind processes to cores

Parallel settings for 436.cactusADM peak:

OMP_NUM_THREADS = 8

KMP_AFFINITY = physical,0

KMP_STACKSIZE = 64M



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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:

-fast

C++ benchmarks:

-fast

Fortran benchmarks:

-fast

Benchmarks using both Fortran and C:

-fast



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Peak Compiler Invocation

C benchmarks (except as noted below):

```
/opt/intel/cc/10.1.008/bin/icc -L/opt/intel/cc/10.1.008/lib
-I/opt/intel/cc/10.1.008/include
```

433.milc: icc

C++ benchmarks (except as noted below):

icpc

```
450.soplex: /opt/intel/cc/10.1.008/bin/icpc -L/opt/intel/cc/10.1.008/lib
-I/opt/intel/cc/10.1.008/include
```

Fortran benchmarks (except as noted below):

ifort

```
437.leslie3d: /opt/intel/fc/10.1.008/bin/ifort -L/opt/intel/fc/10.1.008/lib
-I/opt/intel/fc/10.1.008/include
```

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
444.namd: -DSPEC_CPU_LP64
447.deallI: -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
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) -fast -fno-alias
-auto-ilp32
```

```
470.lbm: -prof-gen(pass 1) -prof-use(pass 2) -fast -unroll2
-scalar-rep- -prefetch -opt-malloc-options=3
```

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Peak Optimization Flags (Continued)

482.sphinx3: -fast -unroll2

C++ benchmarks:

444.namd: -prof-gen(pass 1) -prof-use(pass 2) -fast -fno-alias
-auto-ilp32

447.dealIII: -prof-gen(pass 1) -prof-use(pass 2) -fast -unroll2
-ansi-alias -scalar-rep-

450.soplex: -prof-gen(pass 1) -prof-use(pass 2) -fast
-opt-malloc-options=3

453.povray: -prof-gen(pass 1) -prof-use(pass 2) -fast -unroll4
-ansi-alias

Fortran benchmarks:

410.bwaves: -fast -prefetch

416.gamess: -prof-gen(pass 1) -prof-use(pass 2) -fast -unroll2 -Ob0
-ansi-alias -scalar-rep-

434.zeusmp: -prof-gen(pass 1) -prof-use(pass 2) -fast

437.leslie3d: -prof-gen(pass 1) -prof-use(pass 2) -fast -prefetch
-opt-malloc-options=3

459.GemsFDTD: -prof-gen(pass 1) -prof-use(pass 2) -fast -unroll2 -Ob0
-prefetch

465.tonto: -prof-gen(pass 1) -prof-use(pass 2) -fast -unroll4 -auto

Benchmarks using both Fortran and C:

435.gromacs: -prof-gen(pass 1) -prof-use(pass 2) -fast -prefetch
-auto-ilp32

436.cactusADM: -prof-gen(pass 1) -prof-use(pass 2) -fast -unroll2
-prefetch -parallel -auto-ilp32

454.calculix: -fast -unroll-aggressive -auto-ilp32

481.wrf: -fast -auto-ilp32

The flags file that was used to format this result can be browsed at

<http://www.spec.org/cpu2006/flags/Intel-ic10.1-FP-intel64-linux-flags.20090714.03.html>



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You can also download the XML flags source by saving the following link:

<http://www.spec.org/cpu2006/flags/Intel-ic10.1-FP-intel64-linux-flags.20090714.03.xml>

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