SPEC® CFP2006 Result

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SGI

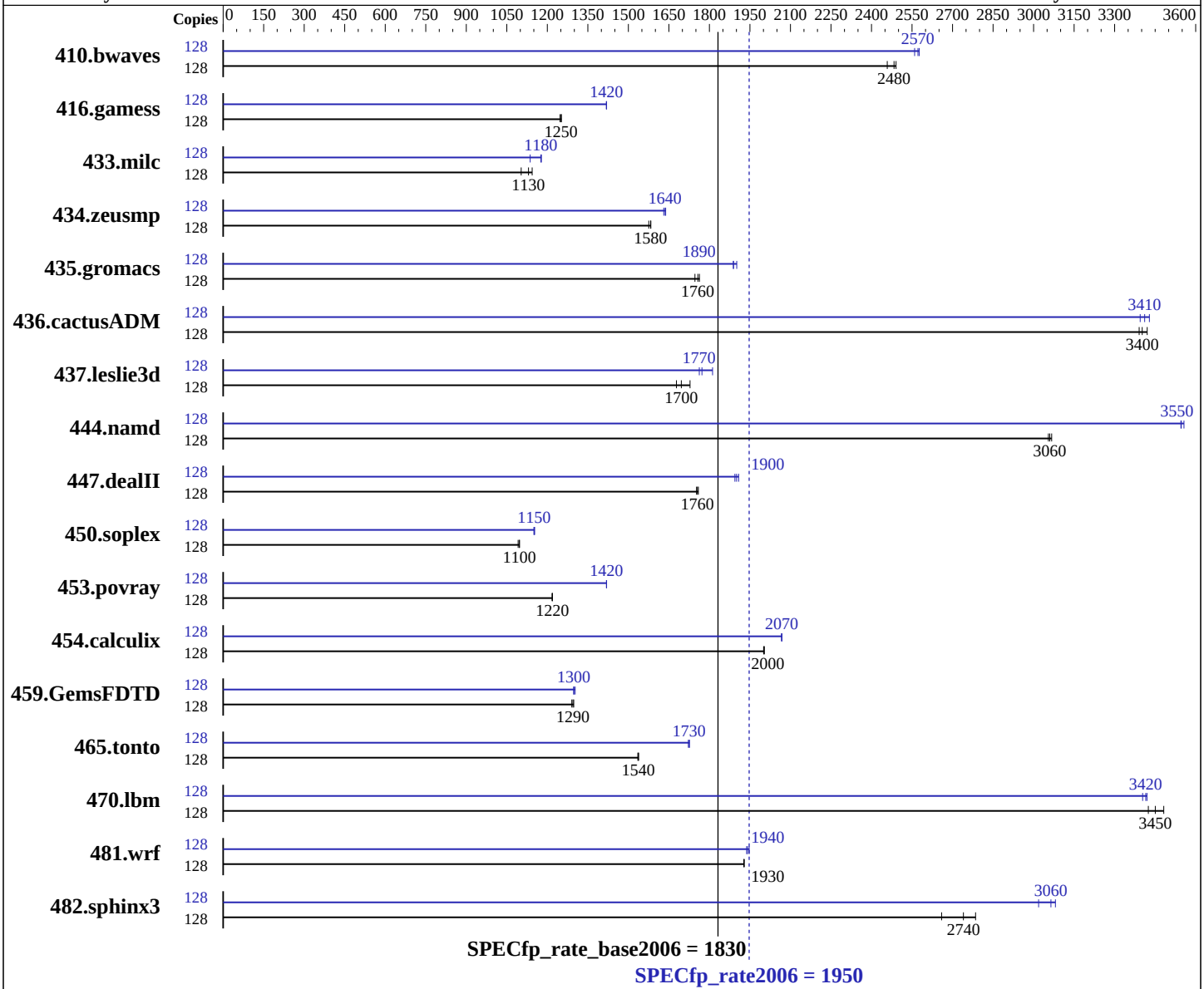
SGI Altix 4700 Bandwidth System (Itanium Processor 9150M 1.66GHz/24M)

SPECfp®_rate2006 = 1950

SPECfp_rate_base2006 = 1830

CPU2006 license: 4
Test sponsor: SGI
Tested by: SGI

Test date: Oct-2007
Hardware Availability: Nov-2007
Software Availability: Nov-2007



Hardware

CPU Name:	Dual-Core Intel Itanium 9150M
CPU Characteristics:	667MHz FSB
CPU MHz:	1669
FPU:	Integrated
CPU(s) enabled:	128 cores, 64 chips, 2 cores/chip
CPU(s) orderable:	8 to 512 blades with 1 chip per blade
Primary Cache:	16 KB I + 16 KB D on chip per core
Secondary Cache:	1 MB I + 256 KB D on chip per core

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Software

Operating System:	SUSE Linux Enterprise Server 10 (ia64) SP1, Kernel 2.6.16.53-0.16-default
Compiler:	Intel Fortran Compiler for Linux 10.1 (Build 20071005) Intel C++ Compiler for Linux 10.1 (Build 20071005)
Auto Parallel:	No
File System:	xfs
System State:	Multi-user

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L3 Cache: 12 MB I+D on chip per core
Other Cache: None
Memory: 512 GB (8*1GB DDR2-400 DIMMS per 2 core module)
Disk Subsystem: 2.4 TB RAID 4+1
32 x 73 GB SCSI (Seagate Cheetah 15k rpm)
Other Hardware: None

Base Pointers: 64-bit
Peak Pointers: 32/64-bit
Other Software: SGI ProPack 5 Service Pack 3

Results Table

Benchmark	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	128	708	2460	698	2490	**700**	**2480**	128	675	2580	680	2560	**676**	**2570**
416.gamess	128	**2003**	**1250**	2010	1250	2002	1250	128	1766	1420	1767	1420	**1766**	**1420**
433.milc	128	1065	1100	**1040**	**1130**	1027	1140	128	1034	1140	**999**	**1180**	997	1180
434.zeusmp	128	**736**	**1580**	739	1580	736	1580	128	714	1630	**712**	**1640**	711	1640
435.gromacs	128	518	1760	523	1750	**520**	**1760**	128	481	1900	484	1890	**484**	**1890**
436.cactusADM	128	**450**	**3400**	447	3420	451	3390	128	**448**	**3410**	446	3430	451	3390
437.leslie3d	128	717	1680	696	1730	**709**	**1700**	128	683	1760	664	1810	**679**	**1770**
444.namd	128	336	3050	**335**	**3060**	335	3070	128	289	3560	290	3550	**289**	**3550**
447.dealII	128	**834**	**1760**	832	1760	836	1750	128	773	1890	767	1910	**770**	**1900**
450.soplex	128	**973**	**1100**	973	1100	978	1090	128	928	1150	**927**	**1150**	926	1150
453.povray	128	559	1220	559	1220	**559**	**1220**	128	480	1420	480	1420	**480**	**1420**
454.calculix	128	527	2000	**527**	**2000**	528	2000	128	510	2070	**511**	**2070**	511	2070
459.GemsFDTD	128	1046	1300	**1049**	**1290**	1052	1290	128	**1046**	**1300**	1047	1300	1042	1300
465.tonto	128	821	1530	**819**	**1540**	819	1540	128	731	1720	**730**	**1730**	730	1730
470.lbm	128	505	3480	**510**	**3450**	514	3420	128	**515**	**3420**	514	3420	517	3400
481.wrf	128	**742**	**1930**	742	1930	741	1930	128	**737**	**1940**	738	1940	734	1950
482.sphinx3	128	938	2660	**910**	**2740**	896	2790	128	826	3020	**814**	**3060**	810	3080

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

General Notes

```
Processes were bound to CPUs using dplace.
limit stacksize unlimited
```

Base Compiler Invocation

C benchmarks:
```
icc
```

C++ benchmarks:
```
icpc
```

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Base Compiler Invocation (Continued)

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_LINUX -DSPEC_CPU_LINUX64_IPF
482.sphinx3: -DSPEC_CPU_LP64

Base Optimization Flags

C benchmarks:
-fast -IPF-fp-relaxed -opt-prefetch-next-iteration -ansi-alias

C++ benchmarks:
-fast -IPF-fp-relaxed -opt-prefetch-next-iteration -ansi-alias

Fortran benchmarks:
-fast -IPF-fp-relaxed -opt-prefetch-next-iteration

Benchmarks using both Fortran and C:
-fast -IPF-fp-relaxed -opt-prefetch-next-iteration -ansi-alias

Peak Compiler Invocation

C benchmarks:
icc

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Peak Compiler Invocation (Continued)

C++ benchmarks:
icpc

Fortran benchmarks:
ifort

Benchmarks using both Fortran and C:
icc ifort

Peak Portability Flags

Same as Base Portability Flags

Peak Optimization Flags

C benchmarks:

433.milc: -fast -IPF-fp-relaxed -opt-prefetch-next-iteration -fno-alias -ansi-alias

470.lbm: -fast -IPF-fp-relaxed -opt-prefetch-next-iteration -ansi-alias

482.sphinx3: -prof_gen(pass 1) -prof_use(pass 2) -fast -IPF-fp-relaxed -opt-prefetch-next-iteration -fno-alias -no-opt-prefetch-initial-values -ansi-alias

C++ benchmarks:

444.namd: -prof_gen(pass 1) -prof_use(pass 2) -fast -IPF-fp-relaxed -opt-prefetch-next-iteration -no-prefetch -auto-ilp32 -fno-alias -ansi-alias

447.dealII: -fast -IPF-fp-relaxed -opt-prefetch-next-iteration -inline-factor=150 -no-alias-args -no-opt-loadpair -ansi-alias

450.soplex: -prof_gen(pass 1) -prof_use(pass 2) -fast -IPF-fp-relaxed -opt-prefetch-next-iteration -auto-ilp32 -no-alias-args -ansi-alias

453.povray: -prof_gen(pass 1) -prof_use(pass 2) -fast -IPF-fp-relaxed -opt-prefetch-next-iteration -inline-factor=150 -ansi-alias

Fortran benchmarks:

Continued on next page

Peak Optimization Flags (Continued)

410.bwaves: `-prof_gen`(pass 1) `-prof_use`(pass 2) `-fast -IPF-fp-relaxed -opt-prefetch-next-iteration`

416.gamess: `-prof_gen`(pass 1) `-prof_use`(pass 2) `-fast -IPF-fp-relaxed -opt-prefetch-next-iteration -no-prefetch`

434.zeusmp: `Same as 410.bwaves`

437.leslie3d: `-prof_gen`(pass 1) `-prof_use`(pass 2) `-fast -IPF-fp-relaxed -opt-prefetch-next-iteration -no-opt-loadpair`

459.GemsFDTD: `-fast -IPF-fp-relaxed -opt-prefetch-next-iteration`

465.tonto: `-prof_gen`(pass 1) `-prof_use`(pass 2) `-fast -IPF-fp-relaxed -opt-prefetch-next-iteration -inline-factor=150 -no-prefetch`

Benchmarks using both Fortran and C:

435.gromacs: `-prof_gen`(pass 1) `-prof_use`(pass 2) `-fast -IPF-fp-relaxed -opt-prefetch-next-iteration -no-prefetch -fno-alias -ansi-alias`

436.cactusADM: `-fast -IPF-fp-relaxed -opt-prefetch-next-iteration -ansi-alias`

454.calculix: `-fast -IPF-fp-relaxed -opt-prefetch-next-iteration -inline-factor=150 -no-opt-prefetch-initial-values -ansi-alias`

481.wrf: `-fast -IPF-fp-relaxed -opt-prefetch-next-iteration -no-opt-loadpair -ansi-alias`

The flags file that was used to format this result can be browsed at
`http://www.spec.org/cpu2006/flags/Intel-ic91-ipf.html`

You can also download the XML flags source by saving the following link:
`http://www.spec.org/cpu2006/flags/Intel-ic91-ipf.xml`

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