SPEC® CFP2006 Result

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SGI

SGI Altix UV 1000 (Intel Xeon X7542, 2.66 GHz)

$SPECfp^®_rate2006 = $ **6600**

$SPECfp_rate_base2006 = $ **6390**
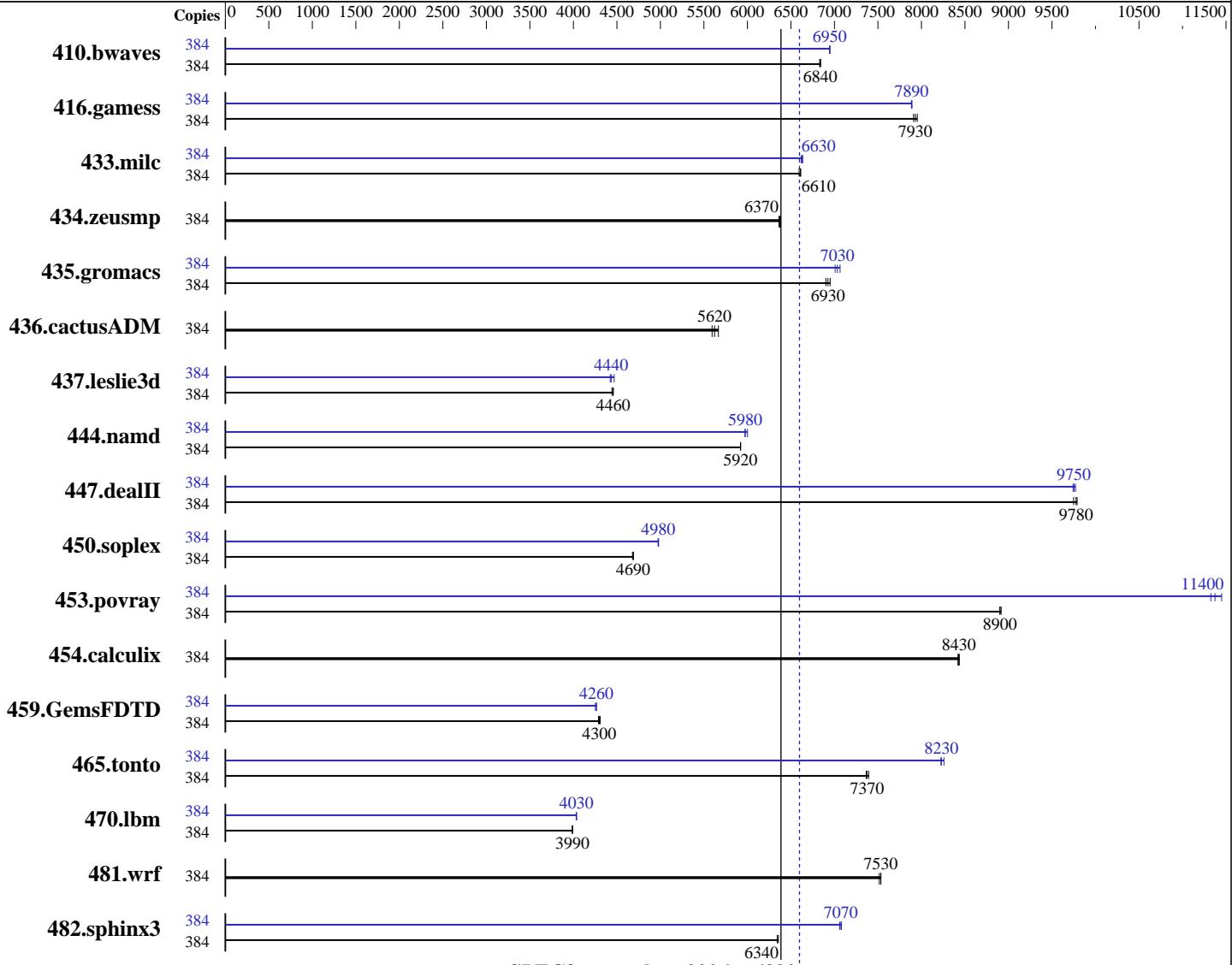
CPU2006 license: 4
Test sponsor: SGI
Tested by: SGI

Test date: Aug-2010
Hardware Availability: Jun-2010
Software Availability: Jun-2010

	410.bwaves	384	6950
		384	6840
	416.gamess	384	7890
		384	7930
	433.milc	384	6630
		384	6610
	434.zeusmp	384	6370
	435.gromacs	384	7030
		384	6930
	436.cactusADM	384	5620
	437.leslie3d	384	4440
		384	4460
	444.namd	384	5980
		384	5920
	447.dealII	384	9750
		384	9780
	450.soplex	384	4980
		384	4690
	453.povray	384	11400
		384	8900
	454.calculix	384	8430
	459.GemsFDTD	384	4260
		384	4300
	465.tonto	384	8230
		384	7370
	470.lbm	384	4030
		384	3990
	481.wrf	384	7530
	482.sphinx3	384	7070
		384	6340

SPECfp_rate_base2006 = 6390

SPECfp_rate2006 = 6600

Hardware

CPU Name: Intel Xeon X7542
CPU Characteristics: Intel Turbo Boost Technology up to 2.80 GHz
CPU MHz: 2667
FPU: Integrated
CPU(s) enabled: 384 cores, 64 chips, 6 cores/chip
CPU(s) orderable: 2-256 chips
Primary Cache: 32 KB I + 32 KB D on chip per core
Secondary Cache: 256 KB I+D on chip per core

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Software

Operating System: SUSE Linux Enterprise Server 11 (x86_64) SP1, Kernel 2.6.32.12-0.7.1.1381.0.PTF-default
Compiler: Intel C++ and Fortran Professional Compiler for IA32 and Intel 64, Version 11.1
Build 20091130 Package ID: l_cproc_p_11.1.064, l_cprof_p_11.1.064
Auto Parallel: No
File System: tmpfs
System State: Run Level 3 (multi-user)

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L3 Cache:	18 MB I+D on chip per chip	Base Pointers:	64-bit
Other Cache:	None	Peak Pointers:	32/64-bit
Memory:	2 TB (512 x 4GB dual-rank DDR3-1066 CL7 RDIMMs)	Other Software:	None
Disk Subsystem:	None		
Other Hardware:	None		

Results Table

Benchmark	Base Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Peak Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	384	**763**	**6840**	764	6830	763	6840	384	751	6950	751	6950	**751**	**6950**
416.gamess	384	951	7910	**948**	**7930**	945	7950	384	953	7890	953	7890	**953**	**7890**
433.milc	384	**533**	**6610**	533	6610	535	6590	384	**532**	**6630**	531	6640	533	6620
434.zeusmp	384	548	6380	549	6360	**548**	**6370**	384	548	6380	549	6360	**548**	**6370**
435.gromacs	384	397	6900	394	6950	**396**	**6930**	384	388	7060	**390**	**7030**	391	7010
436.cactusADM	384	**816**	**5620**	810	5670	820	5590	384	**816**	**5620**	810	5670	820	5590
437.leslie3d	384	**810**	**4460**	812	4440	810	4460	384	808	4470	816	4420	**814**	**4440**
444.namd	384	520	5920	**520**	**5920**	520	5920	384	513	6000	**515**	**5980**	516	5970
447.dealII	384	451	9750	449	9790	**449**	**9780**	384	451	9740	**450**	**9750**	450	9770
450.soplex	384	**683**	**4690**	684	4680	683	4690	384	644	4970	**644**	**4980**	643	4980
453.povray	384	**229**	**8900**	229	8920	229	8900	384	**180**	**11400**	178	11400	180	11300
454.calculix	384	376	8430	**376**	**8430**	376	8420	384	376	8430	**376**	**8430**	376	8420
459.GemsFDTD	384	950	4290	**948**	**4300**	946	4310	384	**955**	**4260**	955	4270	958	4250
465.tonto	384	511	7390	**512**	**7370**	513	7360	384	459	8220	**459**	**8230**	458	8260
470.lbm	384	1322	3990	1323	3990	**1323**	**3990**	384	1308	4030	**1308**	**4030**	1307	4040
481.wrf	384	571	7520	**569**	**7530**	569	7530	384	571	7520	**569**	**7530**	569	7530
482.sphinx3	384	**1180**	**6340**	1180	6340	1177	6360	384	1057	7080	**1058**	**7070**	1060	7060

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

Submit Notes

    The config file option 'submit' was used.
     numactl was used to bind copies to the cores

Operating System Notes

    Tmpfs filesystem set up with:
       mkdir -p /mnt/shm
       mount -t tmpfs -o size=2048g,rw,mpol=interleave tmpfs /mnt/shm/
       The mpol=interleave option sets the NUMA memory allocation
       policy for all files to allocate from each node in turn.

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Platform Notes

        OS on 300 GB SAS disk

General Notes

        Binaries were compiled on SLES 10 with Binutils 2.18.50.0.7.20080502

Base Compiler Invocation

C benchmarks:
        icc   -m64

C++ benchmarks:
        icpc   -m64

Fortran benchmarks:
        ifort -m64

Benchmarks using both Fortran and C:
        icc   -m64 ifort -m64

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:
        -xSSE4.2 -ipo -O3 -no-prec-div -static

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Test sponsor:	SGI	**Hardware Availability:**	Jun-2010
Tested by:	SGI	**Software Availability:**	Jun-2010

Base Optimization Flags (Continued)

C++ benchmarks:
```
-xSSE4.2 -ipo -O3 -no-prec-div -static
```

Fortran benchmarks:
```
-xSSE4.2 -ipo -O3 -no-prec-div -static
```

Benchmarks using both Fortran and C:
```
-xSSE4.2 -ipo -O3 -no-prec-div -static
```

Peak Compiler Invocation

C benchmarks (except as noted below):
```
icc    -m64
```

482.sphinx3: `icc -m32`

C++ benchmarks (except as noted below):
```
icpc   -m64
```

450.soplex: `icpc -m32`

Fortran benchmarks:
```
ifort -m64
```

Benchmarks using both Fortran and C:
```
icc    -m64 ifort -m64
```

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`
437.leslie3d: `-DSPEC_CPU_LP64`
444.namd: `-DSPEC_CPU_LP64`
447.dealII: `-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`

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Peak Optimization Flags

C benchmarks:

> 433.milc: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
> -no-prec-div(pass 2) -static(pass 2) -prof-use(pass 2)
> -fno-alias -opt-prefetch

> 470.lbm: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
> -no-prec-div(pass 2) -static(pass 2) -prof-use(pass 2)
> -opt-malloc-options=3 -ansi-alias -auto-ilp32

> 482.sphinx3: -xSSE4.2 -ipo -O3 -no-prec-div -static -unroll2

C++ benchmarks:

> 444.namd: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
> -no-prec-div(pass 2) -static(pass 2) -prof-use(pass 2)
> -fno-alias -auto-ilp32

> 447.dealII: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
> -no-prec-div(pass 2) -static(pass 2) -prof-use(pass 2)
> -unroll2 -ansi-alias -scalar-rep-

> 450.soplex: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
> -no-prec-div(pass 2) -static(pass 2) -prof-use(pass 2)
> -opt-malloc-options=3

> 453.povray: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
> -no-prec-div(pass 2) -static(pass 2) -prof-use(pass 2)
> -unroll4 -ansi-alias

Fortran benchmarks:

> 410.bwaves: -xSSE4.2 -ipo -O3 -no-prec-div -static -opt-prefetch

> 416.gamess: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
> -no-prec-div(pass 2) -static(pass 2) -prof-use(pass 2)
> -unroll2 -Ob0 -ansi-alias -scalar-rep-

> 434.zeusmp: basepeak = yes

> 437.leslie3d: -xSSE4.2 -ipo -O3 -no-prec-div -static

> 459.GemsFDTD: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
> -no-prec-div(pass 2) -static(pass 2) -prof-use(pass 2)
> -unroll2 -Ob0

> 465.tonto: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
> -no-prec-div(pass 2) -static(pass 2) -prof-use(pass 2)
> -unroll4 -auto -inline-calloc -opt-malloc-options=3

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Peak Optimization Flags (Continued)

Benchmarks using both Fortran and C:

    435.gromacs: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
            -no-prec-div(pass 2) -static(pass 2) -prof-use(pass 2)
            -opt-prefetch -auto-ilp32

    436.cactusADM: basepeak = yes

    454.calculix: basepeak = yes

    481.wrf: basepeak = yes

The flags file that was used to format this result can be browsed at
http://www.spec.org/cpu2006/flags/Intel-ic11.1-linux64-revE.20100316.html

You can also download the XML flags source by saving the following link:
http://www.spec.org/cpu2006/flags/Intel-ic11.1-linux64-revE.20100316.xml

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