SPEC® CFP2006 Result
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SGI

SGI Altix ICE 8200 (Intel Xeon
Processor X5355, 2.66 GHz)

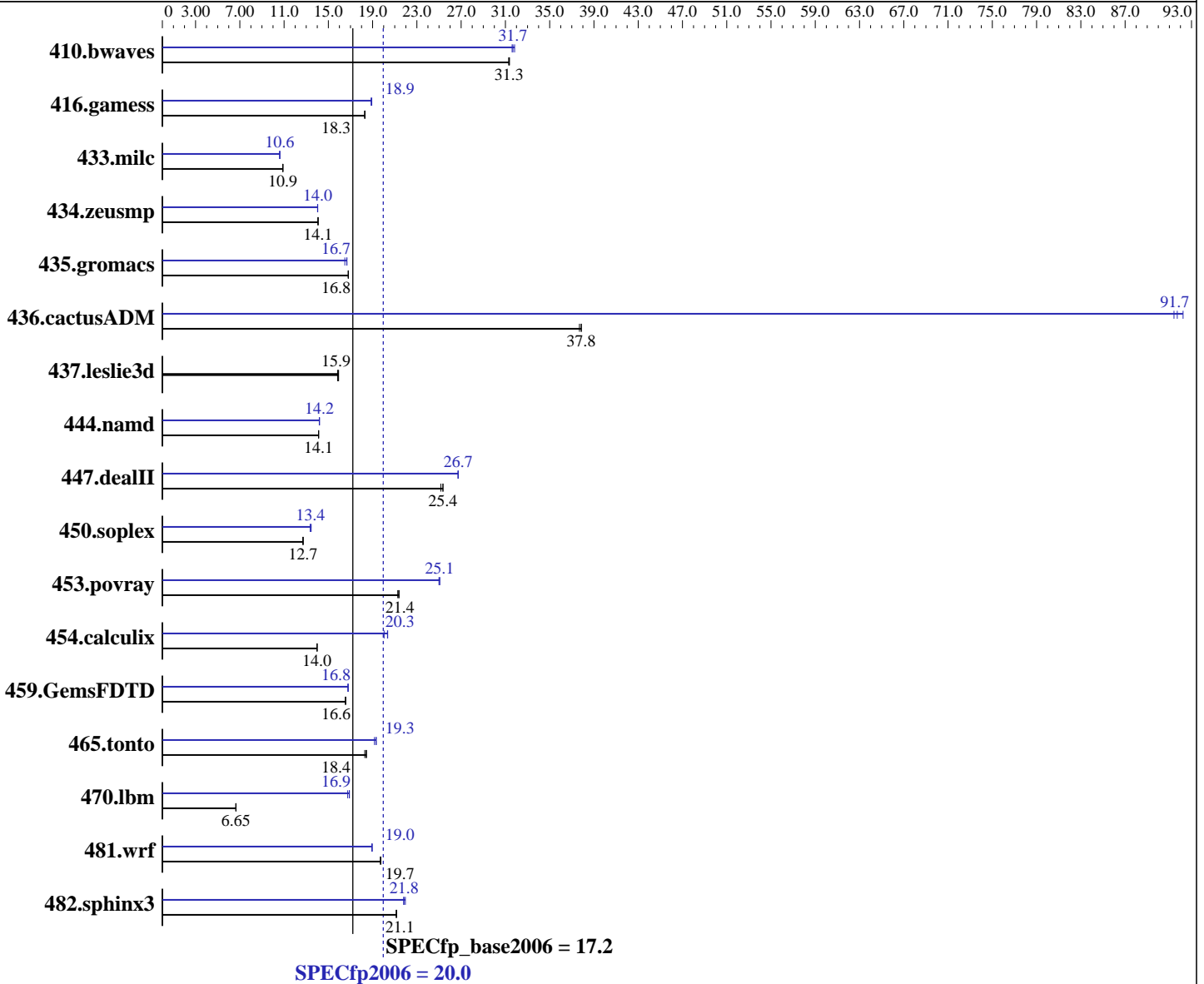$SPECfp^{®}2006 =$ 20.0

$SPECfp\_base2006 =$ 17.2

CPU2006 license:	4	**Test date:**	Sep-2007
Test sponsor:	SGI	**Hardware Availability:**	Aug-2007
Tested by:	SGI	**Software Availability:**	Nov-2007

0 3.00 7.00 11.0 15.0 19.0 23.0 27.0 31.0 35.0 39.0 43.0 47.0 51.0 55.0 59.0 63.0 67.0 71.0 75.0 79.0 83.0 87.0 93.0

- **410.bwaves** 31.7 / 31.3
- **416.gamess** 18.9 / 18.3
- **433.milc** 10.6 / 10.9
- **434.zeusmp** 14.0 / 14.1
- **435.gromacs** 16.7 / 16.8
- **436.cactusADM** 91.7 / 37.8
- **437.leslie3d** 15.9
- **444.namd** 14.2 / 14.1
- **447.dealII** 26.7 / 25.4
- **450.soplex** 13.4 / 12.7
- **453.povray** 25.1 / 21.4
- **454.calculix** 20.3 / 14.0
- **459.GemsFDTD** 16.8 / 16.6
- **465.tonto** 19.3 / 18.4
- **470.lbm** 16.9 / 6.65
- **481.wrf** 19.0 / 19.7
- **482.sphinx3** 21.8 / 21.1

SPECfp_base2006 = 17.2

SPECfp2006 = 20.0

Hardware

CPU Name:	Intel Xeon X5355
CPU Characteristics:	Quad Core, 2.66 GHz
CPU MHz:	2666
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:	8 MB I+D on chip per chip, 4 MB shared / 2 cores

Continued on next page

Software

Operating System:	SUSE Linux Enterprise Server 10 SP1 (x86_64) Kernel 2.6.16.46-0.12-smp
Compiler:	Intel C++ and Fortran Compiler for Linux32 and Linux64, Version 10.1, Build 20070824
Auto Parallel:	Yes
File System:	NFSv3 IPoIB
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 PC2-5300 FB-DIMMs)
Disk Subsystem:	16 TB RAID 6+1
	32 x 500 GB SATA (Seagate Barracuda 7200 rpm)
Other Hardware:	None

Other Software: SGI ProPack Compute Node 5 SP2 for Linux Binutils 2.17

Results Table

Benchmark	Base						Peak					
	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	**434**	**31.3**	433	31.4	434	31.3	430	31.6	**429**	**31.7**	427	31.8
416.gamess	1071	18.3	1070	18.3	**1070**	**18.3**	1035	18.9	1038	18.9	**1037**	**18.9**
433.milc	**843**	**10.9**	842	10.9	843	10.9	865	10.6	**865**	**10.6**	866	10.6
434.zeusmp	648	14.1	**647**	**14.1**	646	14.1	**648**	**14.0**	649	14.0	648	14.0
435.gromacs	425	16.8	425	16.8	**425**	**16.8**	**428**	**16.7**	433	16.5	428	16.7
436.cactusADM	316	37.9	**316**	**37.8**	317	37.7	**130**	**91.7**	130	92.2	131	91.4
437.leslie3d	590	15.9	594	15.8	**592**	**15.9**	590	15.9	594	15.8	**592**	**15.9**
444.namd	568	14.1	**568**	**14.1**	568	14.1	566	14.2	565	14.2	**565**	**14.2**
447.dealII	455	25.2	451	25.4	**451**	**25.4**	**428**	**26.7**	428	26.7	428	26.7
450.soplex	**656**	**12.7**	655	12.7	657	12.7	624	13.4	620	13.4	**623**	**13.4**
453.povray	249	21.4	250	21.3	**249**	**21.4**	213	25.0	**212**	**25.1**	212	25.1
454.calculix	**590**	**14.0**	590	14.0	590	14.0	405	20.4	412	20.0	**406**	**20.3**
459.GemsFDTD	641	16.6	641	16.5	**641**	**16.6**	632	16.8	**632**	**16.8**	632	16.8
465.tonto	533	18.4	538	18.3	**535**	**18.4**	514	19.2	509	19.3	**510**	**19.3**
470.lbm	2062	6.66	**2067**	**6.65**	2071	6.63	820	16.7	**813**	**16.9**	813	16.9
481.wrf	**566**	**19.7**	566	19.7	567	19.7	590	18.9	**589**	**19.0**	589	19.0
482.sphinx3	**922**	**21.1**	921	21.2	922	21.1	888	22.0	**893**	**21.8**	894	21.8

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

General Notes

```
BIOS settings:
  Hardware Prefetcher:  enabled
  Adjacent Cacheline Prefetcher:  enabled
  Snoop Filter:  disabled
All codes compiled with automatic parallelization and run with
  OMP_NUM_THREADS = 8
```

Base Compiler Invocation

C benchmarks:
```
icc
```

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Base Compiler Invocation (Continued)

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 -parallel`

C++ benchmarks:
    `-fast -parallel`

Fortran benchmarks:
    `-fast -parallel`

Benchmarks using both Fortran and C:
    `-fast -parallel`

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Peak Compiler Invocation

C benchmarks (except as noted below):
```
/home/cmplr/usr3/alrahate/compilers/ic10.1mainline/20070824/Linux32/bin/icc
-L/home/cmplr/usr3/alrahate/compilers/ic10.1mainline/20070824/Linux32/lib
-I/home/cmplr/usr3/alrahate/compilers/ic10.1mainline/20070824/Linux32/include
```

433.milc: `icc`

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

450.soplex: `/home/cmplr/usr3/alrahate/compilers/ic10.1mainline/20070824/Linux32/bin/icpc`
`-L/home/cmplr/usr3/alrahate/compilers/ic10.1mainline/20070824/Linux32/lib`
`-I/home/cmplr/usr3/alrahate/compilers/ic10.1mainline/20070824/Linux32/include`

Fortran benchmarks:
```
ifort
```

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
   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
      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.dealII: `-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 -parallel`

       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: basepeak = yes

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

         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 -parallel -prefetch -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.20090714.07.html`

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.20090714.07.xml`

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For questions about this result, please contact the tester.
For other inquiries, please contact webmaster@spec.org.

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