SPEC® CFP2006 Result

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Supermicro

(Test Sponsor: Intel Corporation)

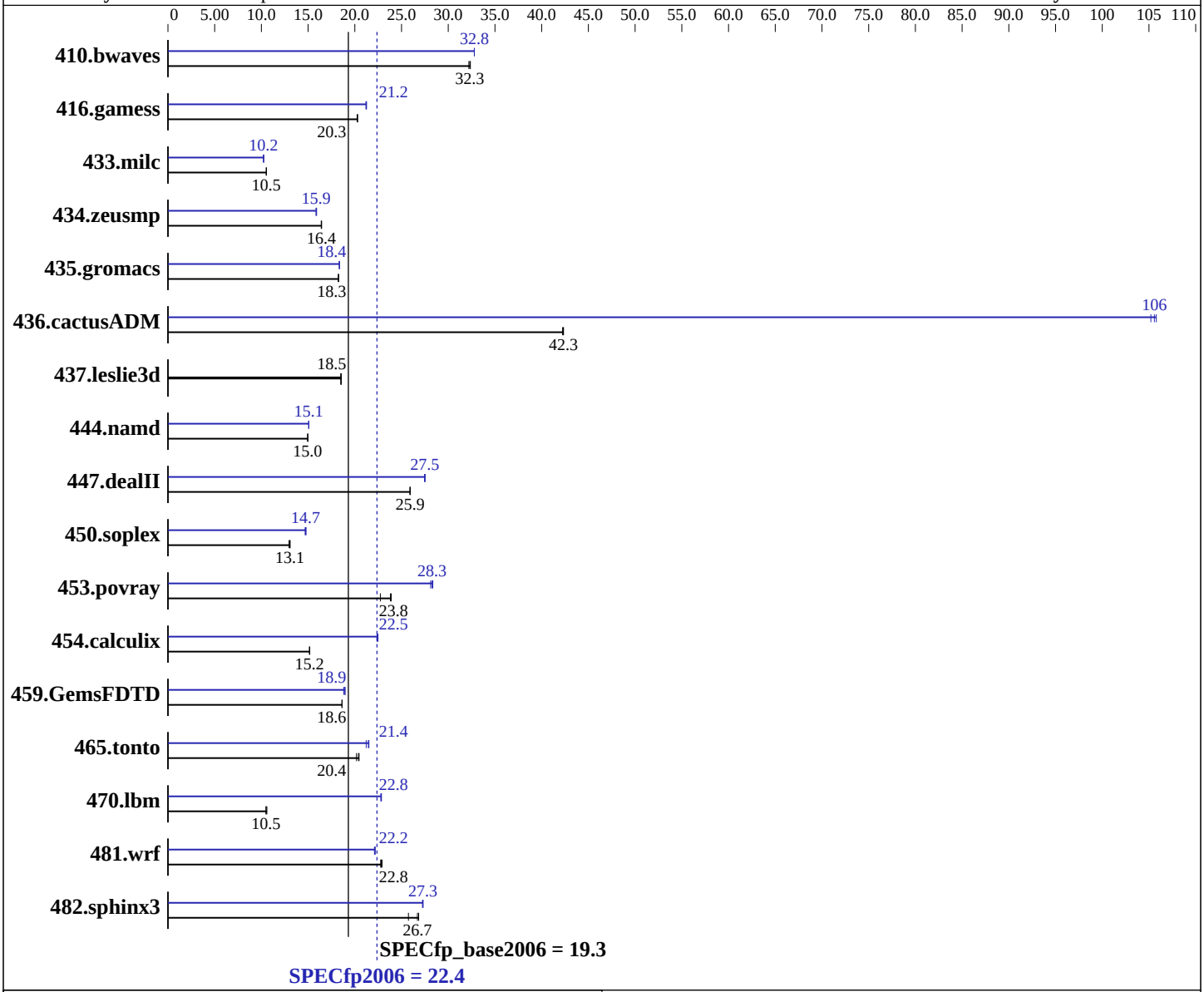
Supermicro X7DB8+ (Intel Xeon processor E5440, 2.83 GHz)

SPECfp®2006 = 22.4

SPECfp_base2006 = 19.3

CPU2006 license: 13
Test sponsor: Intel Corporation
Tested by: Intel Corporation

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



Hardware

CPU Name:	Intel Xeon E5440
CPU Characteristics:	Quad Core, 2.83 GHz
CPU MHz:	2833
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:	64-Bit SUSE LINUX Enterprise Server 10 SP1 RC1, Kernel linux-cbgm 2.6.16.43-0.5-smp for x86_64
Compiler:	Intel C++ and Fortran Compiler 10.1 for Linux Build 20070913 Package ID: l_cc_p_10.1.008, l_fc_p_10.1.008
Auto Parallel:	Yes
File System:	ReiserFS
System State:	Multi-user, run level 3

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L3 Cache: None
Other Cache: None
Memory: 16 GB (8 * 2GB DDR2 5300F, 2 rank, CL5-5-5, ECC)
Disk Subsystem: 1x73GB Seagate ST37330LC SCSI 10K RPM
Other Hardware: None

Base Pointers: 64-bit
Peak Pointers: 32/64-bit
Other Software: Binutils 2.17.50.0.15

Results Table

Benchmark	Base						Peak					
	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	420	32.4	**421**	**32.3**	422	32.2	**414**	**32.8**	414	32.8	414	32.8
416.gamess	967	20.3	964	20.3	**966**	**20.3**	924	21.2	921	21.3	**922**	**21.2**
433.milc	**872**	**10.5**	872	10.5	871	10.5	**897**	**10.2**	895	10.3	898	10.2
434.zeusmp	553	16.4	555	16.4	**554**	**16.4**	572	15.9	574	15.9	**574**	**15.9**
435.gromacs	**391**	**18.3**	391	18.2	391	18.3	**389**	**18.4**	389	18.4	389	18.3
436.cactusADM	**282**	**42.3**	282	42.3	283	42.2	**113**	**106**	113	106	114	105
437.leslie3d	507	18.6	**507**	**18.5**	508	18.5	507	18.6	**507**	**18.5**	508	18.5
444.namd	**536**	**15.0**	536	15.0	535	15.0	532	15.1	533	15.1	**532**	**15.1**
447.dealII	**441**	**25.9**	442	25.9	441	25.9	**416**	**27.5**	417	27.5	416	27.5
450.soplex	**639**	**13.1**	638	13.1	644	13.0	564	14.8	568	14.7	**566**	**14.7**
453.povray	223	23.9	**223**	**23.8**	234	22.7	**188**	**28.3**	188	28.4	189	28.1
454.calculix	545	15.1	543	15.2	**544**	**15.2**	369	22.4	**367**	**22.5**	367	22.5
459.GemsFDTD	569	18.6	570	18.6	**569**	**18.6**	560	19.0	564	18.8	**560**	**18.9**
465.tonto	**483**	**20.4**	481	20.5	488	20.2	457	21.5	**459**	**21.4**	464	21.2
470.lbm	1309	10.5	**1308**	**10.5**	1298	10.6	**602**	**22.8**	601	22.9	603	22.8
481.wrf	487	22.9	491	22.8	**490**	**22.8**	**504**	**22.2**	505	22.1	504	22.2
482.sphinx3	726	26.8	**730**	**26.7**	757	25.7	**714**	**27.3**	714	27.3	715	27.2

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 Sector Prefetch: Enabled
 All benchmarks compiled in 64-bit mode except 450.soplex,
 470.lbm and 482.sphinx3, at peak, are compiled in 32-bit mode
```

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

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:
`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.20090714.06.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.20090714.06.xml`

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