



SPEC® CFP2006 Result

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FORMAT

SPECfp®2006 = 21.9

FORMAT R1520ML (2.5 GHz Intel Xeon X3320)

SPECfp_base2006 = 21.0

CPU2006 license: 9015

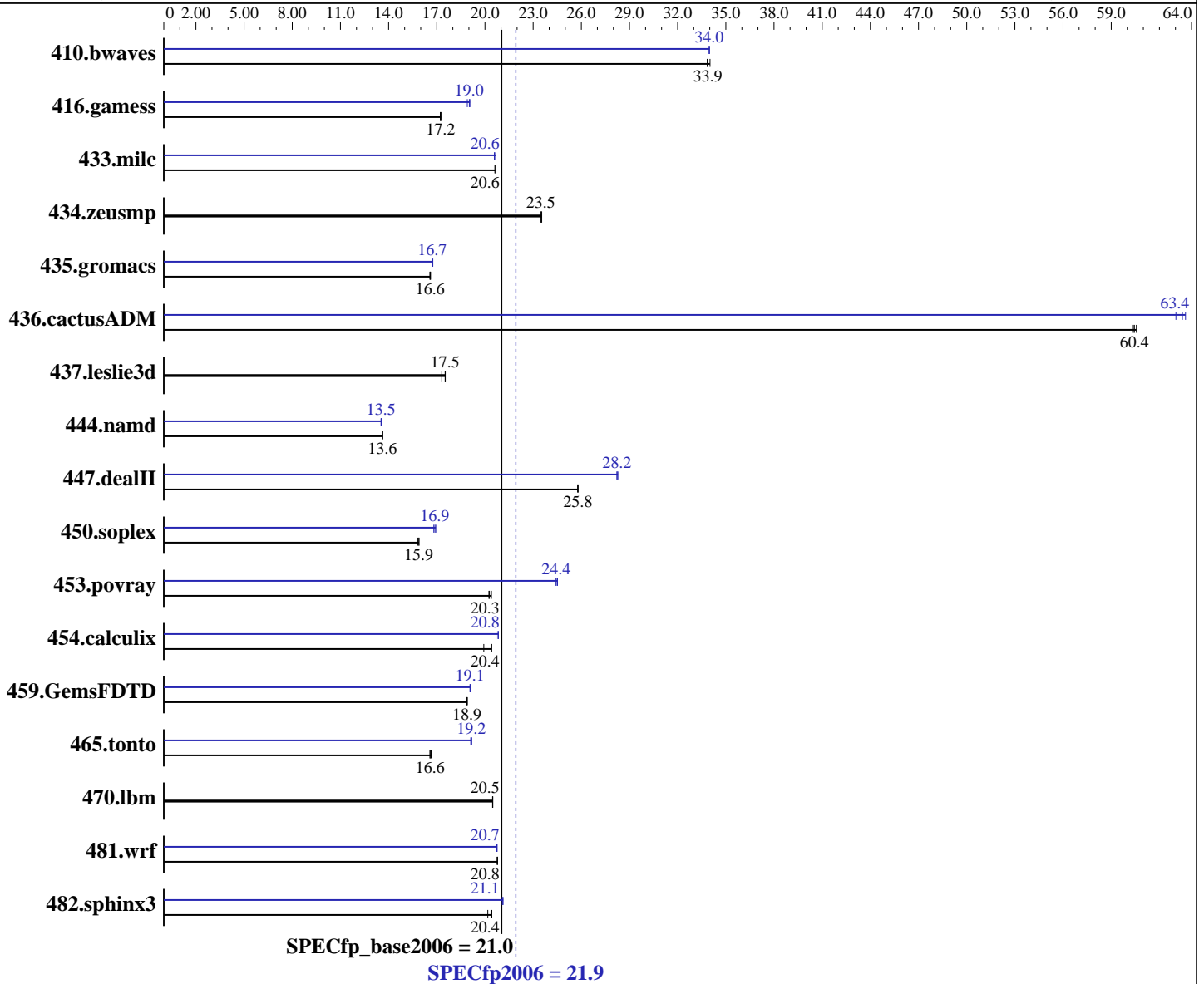
Test sponsor: FORMAT

Tested by: FORMAT

Test date: Oct-2008

Hardware Availability: Aug-2008

Software Availability: Nov-2008



Hardware

CPU Name: Intel Xeon X3320
 CPU Characteristics: 1333 MHz system bus
 CPU MHz: 2500
 FPU: Integrated
 CPU(s) enabled: 4 cores, 1 chip, 4 cores/chip
 CPU(s) orderable: 1 chip
 Primary Cache: 32 KB I + 32 KB D on chip per core
 Secondary Cache: 6 MB I+D on chip per chip, 3 MB shared / 2 cores

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Software

Operating System: Scientific Linux 5.2 2.6.18-92.1.13.el5
 Compiler: Intel C++ and Fortran Compiler 11.0 for Linux
 Build 20080730 Package ID: l_cproc_b_11.0.042
 l_fproc_b_11.0.042
 Auto Parallel: Yes
 File System: ext3
 System State: Run level 3 (multi-user)
 Base Pointers: 64-bit
 Peak Pointers: 32/64-bit

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L3 Cache: None
Other Cache: None
Memory: 8 GB (4 x 2 GB ECC DDR2 SDRAM)
Disk Subsystem: 1 x 160 GB SATA, 5400 RPM
Other Hardware: None

Other Software: Microquill SmartHeap V8.1
Binutils 2.18.50.0.7.20080502

Results Table

Benchmark	Base						Peak					
	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	402	33.8	400	34.0	<u>401</u>	<u>33.9</u>	401	33.9	<u>400</u>	<u>34.0</u>	400	34.0
416.gamess	1137	17.2	<u>1135</u>	<u>17.2</u>	1135	17.3	<u>1029</u>	<u>19.0</u>	1036	18.9	1027	19.1
433.milc	<u>445</u>	<u>20.6</u>	444	20.7	445	20.6	444	20.7	446	20.6	<u>446</u>	<u>20.6</u>
434.zeusmp	388	23.4	387	23.5	<u>388</u>	<u>23.5</u>	388	23.4	387	23.5	<u>388</u>	<u>23.5</u>
435.gromacs	<u>430</u>	<u>16.6</u>	431	16.6	430	16.6	426	16.8	<u>427</u>	<u>16.7</u>	427	16.7
436.cactusADM	<u>198</u>	<u>60.4</u>	198	60.4	197	60.6	<u>188</u>	<u>63.4</u>	188	63.6	190	63.0
437.leslie3d	543	17.3	<u>537</u>	<u>17.5</u>	536	17.5	543	17.3	<u>537</u>	<u>17.5</u>	536	17.5
444.namd	<u>589</u>	<u>13.6</u>	588	13.6	590	13.6	<u>593</u>	<u>13.5</u>	593	13.5	592	13.5
447.dealII	444	25.8	<u>444</u>	<u>25.8</u>	443	25.8	405	28.3	405	28.2	<u>405</u>	<u>28.2</u>
450.soplex	525	15.9	<u>525</u>	<u>15.9</u>	527	15.8	492	16.9	<u>494</u>	<u>16.9</u>	496	16.8
453.povray	<u>262</u>	<u>20.3</u>	261	20.4	263	20.2	218	24.4	<u>218</u>	<u>24.4</u>	217	24.5
454.calculix	404	20.4	<u>405</u>	<u>20.4</u>	414	19.9	396	20.8	399	20.7	<u>396</u>	<u>20.8</u>
459.GemsFDTD	561	18.9	562	18.9	<u>562</u>	<u>18.9</u>	556	19.1	556	19.1	<u>556</u>	<u>19.1</u>
465.tonto	591	16.6	594	16.6	<u>593</u>	<u>16.6</u>	<u>514</u>	<u>19.2</u>	513	19.2	515	19.1
470.lbm	<u>671</u>	<u>20.5</u>	671	20.5	671	20.5	<u>671</u>	<u>20.5</u>	671	20.5	671	20.5
481.wrf	<u>538</u>	<u>20.8</u>	538	20.8	538	20.8	538	20.7	538	20.7	<u>538</u>	<u>20.7</u>
482.sphinx3	954	20.4	<u>957</u>	<u>20.4</u>	966	20.2	922	21.1	<u>924</u>	<u>21.1</u>	928	21.0

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

General Notes

'ulimit -s unlimited' was used to set the stacksize to unlimited prior to run
OMP_NUM_THREADS set to number of processors
KMP_AFFINITY set to "physical,0"
KMP_STACKSIZE set to 200M

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_LP64 -DSPEC_CPU_CASE_FLAG -DSPEC_CPU_LINUX
482.sphinx3: -DSPEC_CPU_LP64

```

Base Optimization Flags

C benchmarks:

-xSSE4.1 -ipo -O3 -no-prec-div -static -parallel -opt-prefetch

C++ benchmarks:

-xSSE4.1 -ipo -O3 -no-prec-div -static -parallel -opt-prefetch

Fortran benchmarks:

-xSSE4.1 -ipo -O3 -no-prec-div -static -parallel -opt-prefetch

Benchmarks using both Fortran and C:

-xSSE4.1 -ipo -O3 -no-prec-div -static -parallel -opt-prefetch

Peak Compiler Invocation

C benchmarks (except as noted below):

icc

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Peak Compiler Invocation (Continued)

```
482.sphinx3: /opt/intel/Compiler/11.0/042/bin/ia32/icc
             -L/opt/intel/Compiler/11.0/042/ipp/ia32/lib
             -I/opt/intel/Compiler/11.0/042/ipp/ia32/include
```

C++ benchmarks (except as noted below):

icpc

```
450.soplex: /opt/intel/Compiler/11.0/042/bin/ia32/icpc
            -L/opt/intel/Compiler/11.0/042/ipp/ia32/lib
            -I/opt/intel/Compiler/11.0/042/ipp/ia32/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.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
470.lbm: -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) -xSSE4.1 -ipo -O3
         -no-prec-div -static -fno-alias
```

```
470.lbm: basepeak = yes
```

```
482.sphinx3: -xSSE4.1 -ipo -O3 -no-prec-div -static -unroll2
```

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Peak Optimization Flags (Continued)

C++ benchmarks:

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

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

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

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

Fortran benchmarks:

410.bwaves: -xSSE4.1 -ipo -O3 -no-prec-div -static -opt-prefetch
-parallel

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

434.zeusmp: basepeak = yes

437.leslie3d: basepeak = yes

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

465.tonto: -prof-gen(pass 1) -prof-use(pass 2) -xSSE4.1 -ipo -O3
-no-prec-div -static -unroll4 -auto

Benchmarks using both Fortran and C:

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

436.cactusADM: -prof-gen(pass 1) -prof-use(pass 2) -xSSE4.1 -ipo -O3
-no-prec-div -static -unroll2 -opt-prefetch -parallel
-auto-ilp32

454.calculix: -xSSE4.1 -ipo -O3 -no-prec-div -static -auto-ilp32

481.wrf: -xSSE4.1 -ipo -O3 -no-prec-div -static -opt-prefetch
-parallel -auto-ilp32



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The flags files that were used to format this result can be browsed at

<http://www.spec.org/cpu2006/flags/Intel-ic11.0-fp-linux64-revA.20090713.04.html>

<http://www.spec.org/cpu2006/flags/Intel-Linux64-Platform.20090713.00.html>

You can also download the XML flags sources by saving the following links:

<http://www.spec.org/cpu2006/flags/Intel-ic11.0-fp-linux64-revA.20090713.04.xml>

<http://www.spec.org/cpu2006/flags/Intel-Linux64-Platform.20090713.00.xml>

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