



SPEC[®] CFP2006 Result

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Intel Corporation

SPECfp[®]2006 = 19.8

Lenovo SureServer R630 G7 (Intel Xeon L7455)

SPECfp_base2006 = 18.7

CPU2006 license: 13

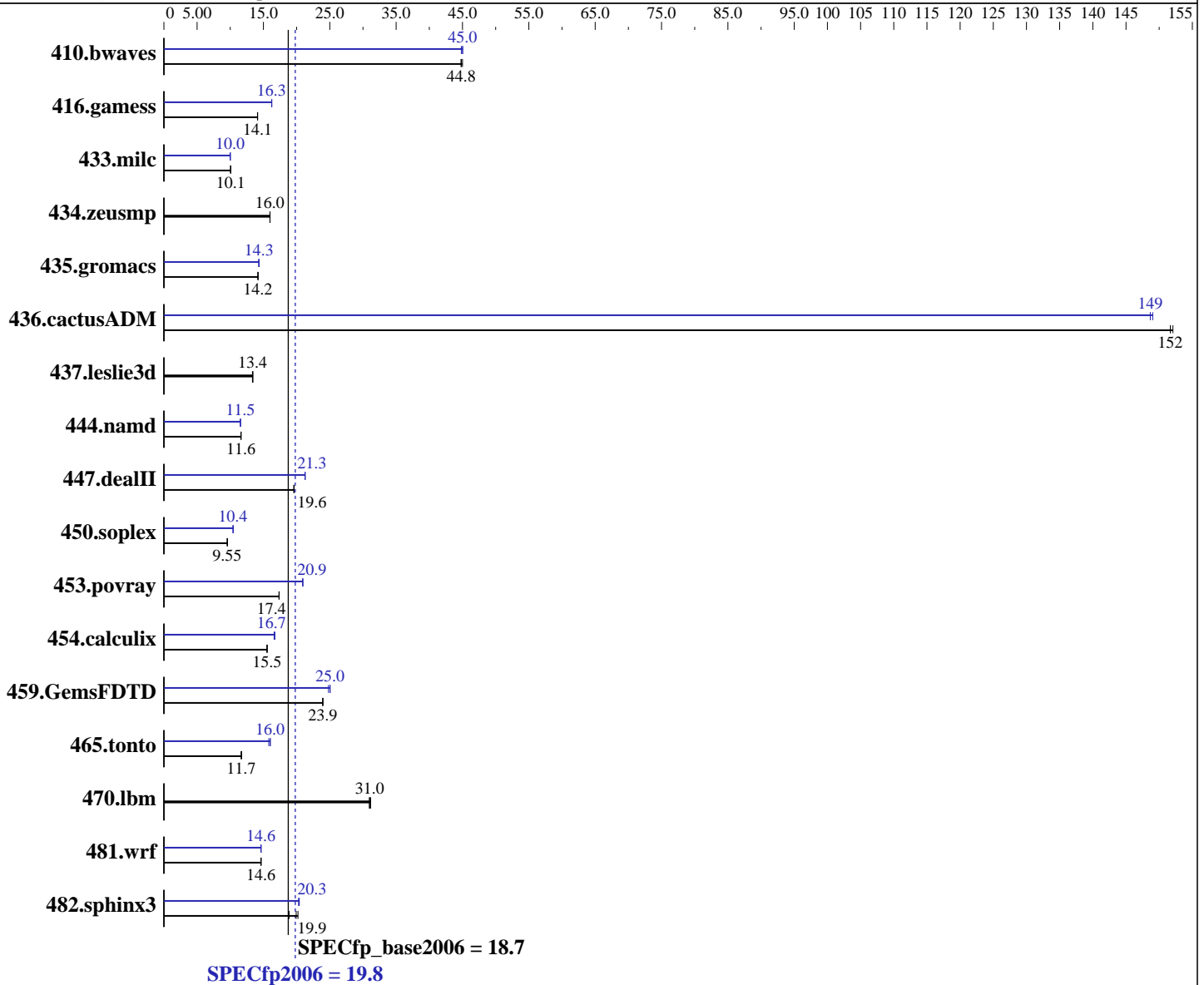
Test sponsor: Intel Corporation

Tested by: Intel Corporation

Test date: Sep-2008

Hardware Availability: Sep-2008

Software Availability: Nov-2008



Hardware

CPU Name: Intel Xeon L7455
 CPU Characteristics:
 CPU MHz: 2133
 FPU: Integrated
 CPU(s) enabled: 24 cores, 4 chips, 6 cores/chip
 CPU(s) orderable: 1,2,4 chips
 Primary Cache: 32 KB I + 32 KB D on chip per core
 Secondary Cache: 9 MB I+D on chip per chip, 3 MB shared / 2 cores

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Software

Operating System: SuSe Linux SLES10 SP2
 Compiler: Intel C++ and Fortran Compiler 11.0 for Linux
 Build 20080730 Package ID: l_cc_b_11.0.042,
 l_fc_b_11.0.042
 Auto Parallel: Yes
 File System: ReiserFS
 System State: Run level 3 (multi-user)
 Base Pointers: 64-bit
 Peak Pointers: 32/64-bit

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L3 Cache: 12 MB I+D on chip per chip
Other Cache: None
Memory: 32 GB(16 x2 GB Micron DDR2 5300F, CL5-5-5, ECC)
Disk Subsystem: 73 GB Seagate SAS, 10K 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	302	45.0	303	44.8	303	44.8	302	45.0	303	44.8	302	45.0
416.gamess	1386	14.1	1387	14.1	1389	14.1	1204	16.3	1205	16.3	1206	16.2
433.milc	912	10.1	913	10.1	913	10.1	918	10.0	918	10.0	918	10.0
434.zeusmp	569	16.0	570	16.0	569	16.0	569	16.0	570	16.0	569	16.0
435.gromacs	503	14.2	504	14.2	504	14.2	498	14.3	500	14.3	498	14.3
436.cactusADM	78.6	152	78.8	152	78.8	152	80.4	149	80.4	149	80.2	149
437.leslie3d	701	13.4	705	13.3	702	13.4	701	13.4	705	13.3	702	13.4
444.namd	690	11.6	691	11.6	690	11.6	696	11.5	695	11.5	695	11.5
447.dealII	584	19.6	584	19.6	584	19.6	538	21.3	538	21.3	538	21.3
450.soplex	870	9.58	874	9.55	875	9.53	798	10.4	800	10.4	801	10.4
453.povray	306	17.4	306	17.4	307	17.3	254	20.9	254	20.9	254	20.9
454.calculix	530	15.6	531	15.5	531	15.5	493	16.7	497	16.6	495	16.7
459.GemsFDTD	443	23.9	443	24.0	443	23.9	424	25.0	428	24.8	424	25.0
465.tonto	840	11.7	845	11.6	844	11.7	613	16.0	614	16.0	623	15.8
470.lbm	444	31.0	443	31.0	441	31.2	444	31.0	443	31.0	441	31.2
481.wrf	763	14.6	762	14.7	764	14.6	764	14.6	763	14.6	763	14.6
482.sphinx3	1033	18.9	978	19.9	965	20.2	959	20.3	959	20.3	955	20.4

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

General Notes

All benchmarks compiled in 64-bit mode except 450.soplex and 482.sphinx3, at peak, are compiled in 32-bit mode
OMP_NUM_THREADS set to number of processors
KMP_AFFINITY set to "physical,0"
KMP_STACKSIZE set to 200M
Hardware Prefetcher: Enabled
Adjacent Cache Line Prefetcher: Enabled
High Bandwidth Option: Disabled



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Base Compiler Invocation

C benchmarks:

icc

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:

-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



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Peak Compiler Invocation

C benchmarks (except as noted below):

icc

```
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.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
```

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
```

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Peak Optimization Flags (Continued)

470.lbm: basepeak = yes

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

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.dealII: -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

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Peak Optimization Flags (Continued)

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

The flags file that was used to format this result can be browsed at

<http://www.spec.org/cpu2006/flags/Intel-ic11.0-fp-linux64-revA.20090713.16.html>

You can also download the XML flags source by saving the following link:

<http://www.spec.org/cpu2006/flags/Intel-ic11.0-fp-linux64-revA.20090713.16.xml>

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For other inquiries, please contact webmaster@spec.org.

Tested with SPEC CPU2006 v1.1.
Report generated on Tue Jul 22 20:08:14 2014 by SPEC CPU2006 PS/PDF formatter v6932.
Originally published on 17 November 2008.