SPEC® CFP2006 Result

Intel Corporation

$SPECfp^{®}2006 =$ 19.9

Intel Server System S7000FC4UR (Intel Xeon L7445)

$SPECfp\_base2006 =$ 18.9

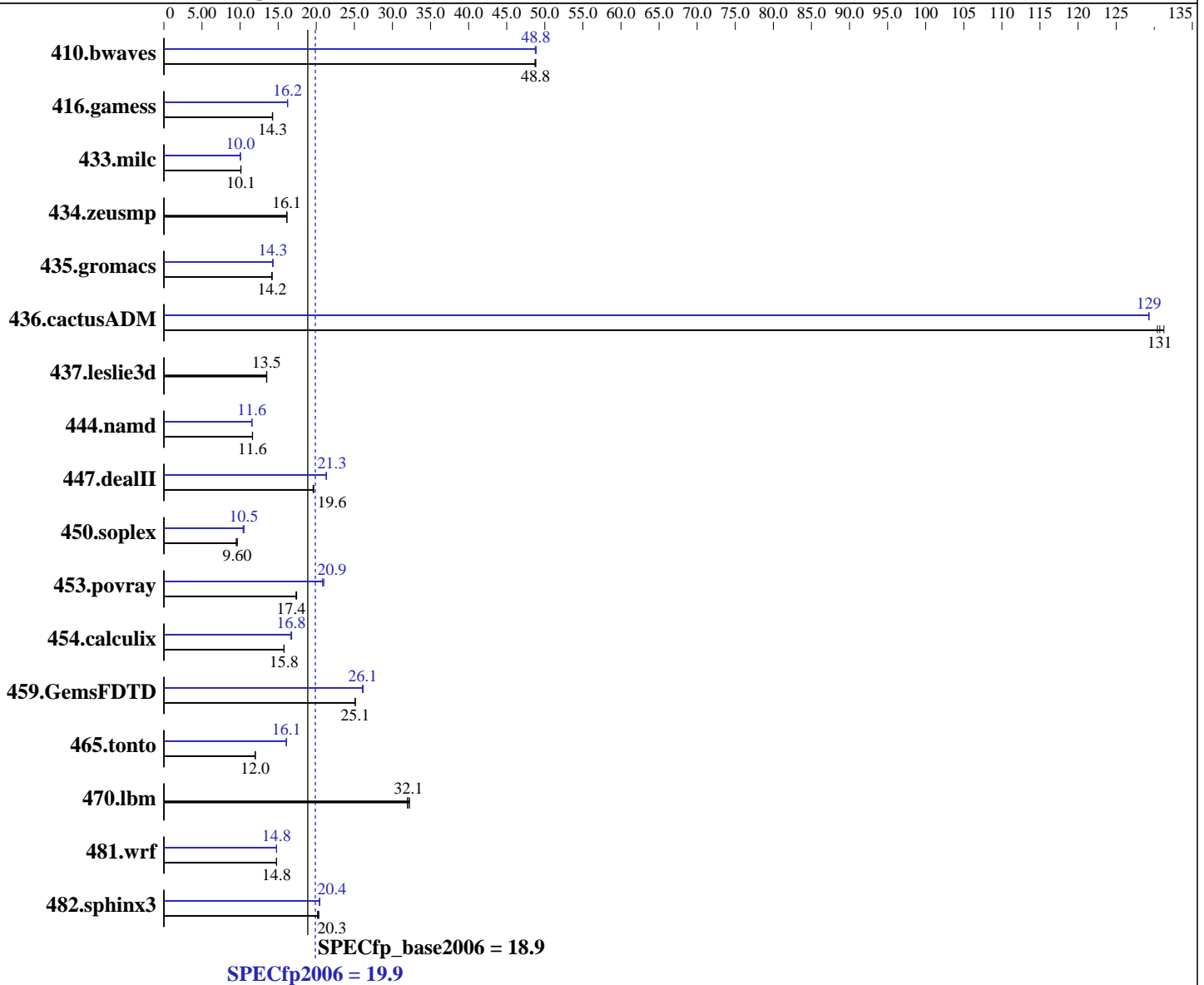|	
CPU2006 license: 13	**Test date:** Sep-2008
Test sponsor: Intel Corporation	**Hardware Availability:** Sep-2008
Tested by: Intel Corporation	**Software Availability:** Nov-2008

SPECfp_base2006 = 18.9

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Hardware

CPU Name:	Intel Xeon L7445
CPU Characteristics:	
CPU MHz:	2133
FPU:	Integrated
CPU(s) enabled:	16 cores, 4 chips, 4 cores/chip
CPU(s) orderable:	1,2,4 chips
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

Software

Operating System:	SUSE Linux Enterprise Server 10 (x86_64) SP2, Kernel 2.6.16-60.0.21-smp
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

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L3 Cache:	12 MB I+D on chip per chip
Other Cache:	None
Memory:	32 GB (16x2GB Micron DDR2 5300F,2 rank, CL5-5-5, ECC)
Disk Subsystem:	73 GB Seagate SAS, 10K RPM
Other Hardware:	None

Peak Pointers:	32/64-bit
Other Software:	Microquill SmartHeap V8.1
	Binutils 2.18.50.0.7.20080502

Results Table

Benchmark	Base Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Peak Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	278	48.8	**278**	**48.8**	279	48.7	279	48.7	**278**	**48.8**	278	48.9
416.gamess	1372	14.3	**1372**	**14.3**	1376	14.2	1205	16.3	1207	16.2	**1206**	**16.2**
433.milc	907	10.1	910	10.1	**908**	**10.1**	**914**	**10.0**	915	10.0	914	10.0
434.zeusmp	564	16.1	564	16.1	**564**	**16.1**	564	16.1	564	16.1	**564**	**16.1**
435.gromacs	**503**	**14.2**	504	14.2	503	14.2	**500**	**14.3**	498	14.3	500	14.3
436.cactusADM	91.0	131	91.6	130	**91.4**	**131**	**92.4**	**129**	92.4	129	92.4	129
437.leslie3d	696	13.5	**697**	**13.5**	697	13.5	696	13.5	**697**	**13.5**	697	13.5
444.namd	689	11.6	690	11.6	**690**	**11.6**	694	11.6	694	11.6	**694**	**11.6**
447.dealII	582	19.7	584	19.6	**582**	**19.6**	537	21.3	536	21.3	**536**	**21.3**
450.soplex	866	9.63	**869**	**9.60**	879	9.48	793	10.5	803	10.4	**796**	**10.5**
453.povray	305	17.4	307	17.3	**306**	**17.4**	253	21.0	**255**	**20.9**	255	20.8
454.calculix	523	15.8	**523**	**15.8**	524	15.8	**492**	**16.8**	492	16.8	495	16.7
459.GemsFDTD	423	25.1	422	25.1	**423**	**25.1**	406	26.1	**406**	**26.1**	407	26.1
465.tonto	821	12.0	820	12.0	**821**	**12.0**	612	16.1	613	16.1	**612**	**16.1**
470.lbm	430	32.0	**428**	**32.1**	426	32.2	430	32.0	**428**	**32.1**	426	32.2
481.wrf	**756**	**14.8**	756	14.8	755	14.8	756	14.8	**756**	**14.8**	755	14.8
482.sphinx3	967	20.2	958	20.3	**961**	**20.3**	952	20.5	955	20.4	**954**	**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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CPU2006 license: 13
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Tested by: Intel Corporation

Test date: Sep-2008
Hardware Availability: Sep-2008
Software Availability: Nov-2008

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`

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

Tested with SPEC CPU2006 v1.1.
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