SPEC® CFP2006 Result

Dell Inc.

$SPECfp^{®}2006 =$ 41.1

Dell Precision T7500 (Intel Xeon W5580, 3.20 GHz)

$SPECfp\_base2006 =$ 38.9

CPU2006 license: 55

Test sponsor: Dell Inc.

Tested by: Dell Inc.

Test date: Mar-2009

Hardware Availability: Apr-2009

Software Availability: May-2009

Benchmark	base	peak
410.bwaves	97.5	97.1
416.gamess	25.2	27.8
433.milc	37.7	37.5
434.zeusmp	32.3	
435.gromacs	24.4	24.8
436.cactusADM	185	187
437.leslie3d	30.1	
444.namd	20.4	20.2
447.dealII	36.1	38.2
450.soplex	30.5	31.3
453.povray	30.4	38.6
454.calculix	29.5	30.6
459.GemsFDTD	47.3	69.1
465.tonto	26.9	31.3
470.lbm	54.4	
481.wrf	42.4	42.4
482.sphinx3	44.6	42.9

SPECfp_base2006 = 38.9

SPECfp2006 = 41.1

Hardware

CPU Name: Intel Xeon W5580

CPU Characteristics: Intel Turbo Boost Technology up to 3.46 GHz

CPU MHz: 3200

FPU: Integrated

CPU(s) enabled: 8 cores, 2 chips, 4 cores/chip, 2 threads/core

CPU(s) orderable: 1,2 chips

Primary Cache: 32 KB I + 32 KB D on chip per core

Secondary Cache: 256 KB I+D on chip per core

Continued on next page

Software

Operating System: Red Hat Enterprise Linux Client release 5.3, Kernel 2.6.18-128.el5 on an x86_64

Compiler: Intel C++ and Fortran Compiler 11.0 for Linux Build 20090131 Package ID: l_cproc_p_11.0.080, l_cprof_p_11.0.080

Auto Parallel: Yes

File System: ext2

System State: Run level 3 (multi-user)

Base Pointers: 64-bit

Continued on next page

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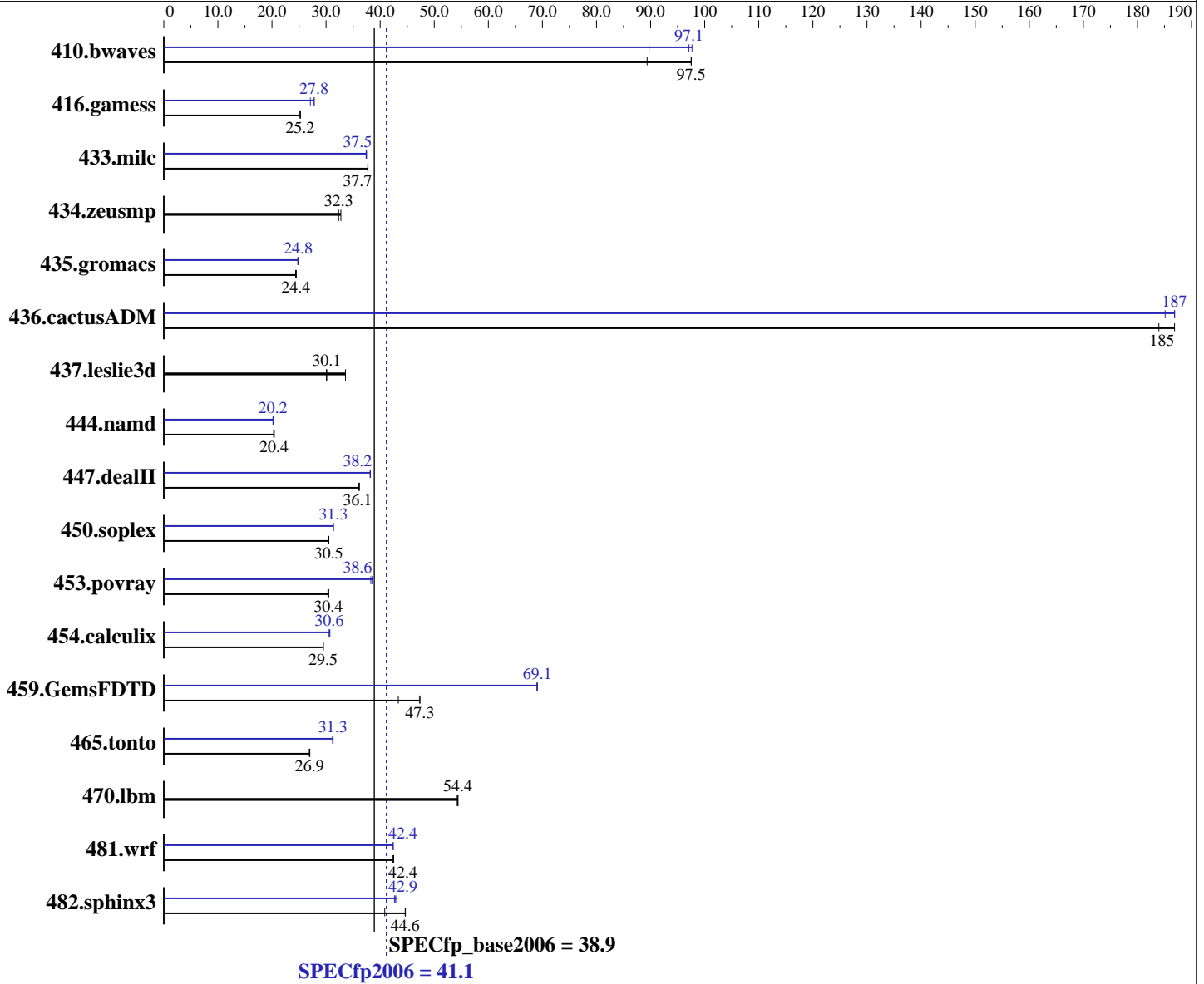**CPU2006 license:** 55   **Test date:** Mar-2009
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L3 Cache:	8 MB I+D on chip per chip	Peak Pointers:	32/64-bit
Other Cache:	None	Other Software:	Binutils 2.18.50.0.7.20080502
Memory:	24 GB (6 x 4 GB DDR3-1333R, CL9)		
Disk Subsystem:	1 x 146 GB 15000 RPM SAS		
Other Hardware:	None		

Results Table

Benchmark	Base Seconds	Base Ratio	Base Seconds	Base Ratio	Base Seconds	Base Ratio	Peak Seconds	Peak Ratio	Peak Seconds	Peak Ratio	Peak Seconds	Peak Ratio
410.bwaves	152	89.4	139	97.5	**139**	**97.5**	**140**	**97.1**	151	89.7	139	97.7
416.gamess	777	25.2	776	25.2	**777**	**25.2**	**705**	**27.8**	723	27.1	704	27.8
433.milc	243	37.8	243	37.7	**243**	**37.7**	245	37.4	245	37.5	**245**	**37.5**
434.zeusmp	278	32.7	**282**	**32.3**	282	32.2	278	32.7	**282**	**32.3**	282	32.2
435.gromacs	293	24.4	**292**	**24.4**	292	24.5	288	24.8	**287**	**24.8**	287	24.9
436.cactusADM	65.0	184	64.0	187	**64.8**	**185**	64.6	185	63.9	187	**63.9**	**187**
437.leslie3d	280	33.6	**312**	**30.1**	313	30.1	280	33.6	**312**	**30.1**	313	30.1
444.namd	395	20.3	393	20.4	**393**	**20.4**	397	20.2	397	20.2	**397**	**20.2**
447.dealII	317	36.1	**317**	**36.1**	317	36.1	**300**	**38.2**	300	38.2	300	38.2
450.soplex	**273**	**30.5**	273	30.5	274	30.4	266	31.4	267	31.3	**266**	**31.3**
453.povray	175	30.5	**175**	**30.4**	175	30.3	**138**	**38.6**	139	38.3	138	38.6
454.calculix	**280**	**29.5**	280	29.5	280	29.5	269	30.7	270	30.6	**270**	**30.6**
459.GemsFDTD	**224**	**47.3**	224	47.3	245	43.4	**154**	**69.1**	154	69.0	154	69.1
465.tonto	364	27.0	**365**	**26.9**	365	26.9	314	31.3	315	31.2	**315**	**31.3**
470.lbm	253	54.4	253	54.2	**253**	**54.4**	253	54.4	253	54.2	**253**	**54.4**
481.wrf	263	42.5	265	42.2	**264**	**42.4**	263	42.4	265	42.2	**263**	**42.4**
482.sphinx3	**437**	**44.6**	477	40.8	436	44.7	452	43.1	457	42.6	**455**	**42.9**

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

Platform Notes

```
    BIOS Settings:
      Hyper-Threading Technology set to ON.
      Memory Node Interleaving set to NUMA.
```

General Notes

```
    OMP_NUM_THREADS set to number of cores
    KMP_AFFINITY set to granularity=fine,scatter
    KMP_STACKSIZE set to 200M

    Binaries were built on SUSE Linux Enterprise Server 10 (x86_64) SP2.
```

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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:
```
-xSSE4.2 -ipo -O3 -no-prec-div -static -parallel -opt-prefetch
```

C++ benchmarks:
```
-xSSE4.2 -ipo -O3 -no-prec-div -static -parallel -opt-prefetch
```

Fortran benchmarks:
```
-xSSE4.2 -ipo -O3 -no-prec-div -static -parallel -opt-prefetch
```

Benchmarks using both Fortran and C:
```
-xSSE4.2 -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: `icc -m32`

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

     450.soplex: `icpc -m32`

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

         470.lbm: basepeak = yes

        482.sphinx3: `-xSSE4.2 -ipo -O3 -no-prec-div -static -unroll2`

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Peak Optimization Flags (Continued)

C++ benchmarks:

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

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

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

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

Fortran benchmarks:

```
 410.bwaves: -xSSE4.2 -ipo -O3 -no-prec-div -static -opt-prefetch
             -parallel

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

434.zeusmp: basepeak = yes

437.leslie3d: basepeak = yes

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

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

Benchmarks using both Fortran and C:

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

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

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Peak Optimization Flags (Continued)

454.calculix: `-xSSE4.2 -ipo -O3 -no-prec-div -static -auto-ilp32`

481.wrf: `-xSSE4.2 -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/dell.flags.ic11.0.lin.html`

You can also download the XML flags source by saving the following link:
`http://www.spec.org/cpu2006/flags/dell.flags.ic11.0.lin.xml`

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

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