SPEC® CFP2006 Result

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Dell Inc.

PowerEdge T610 (Intel Xeon E5507, 2.26 GHz)

$SPECfp^{®}2006 =$ 29.3

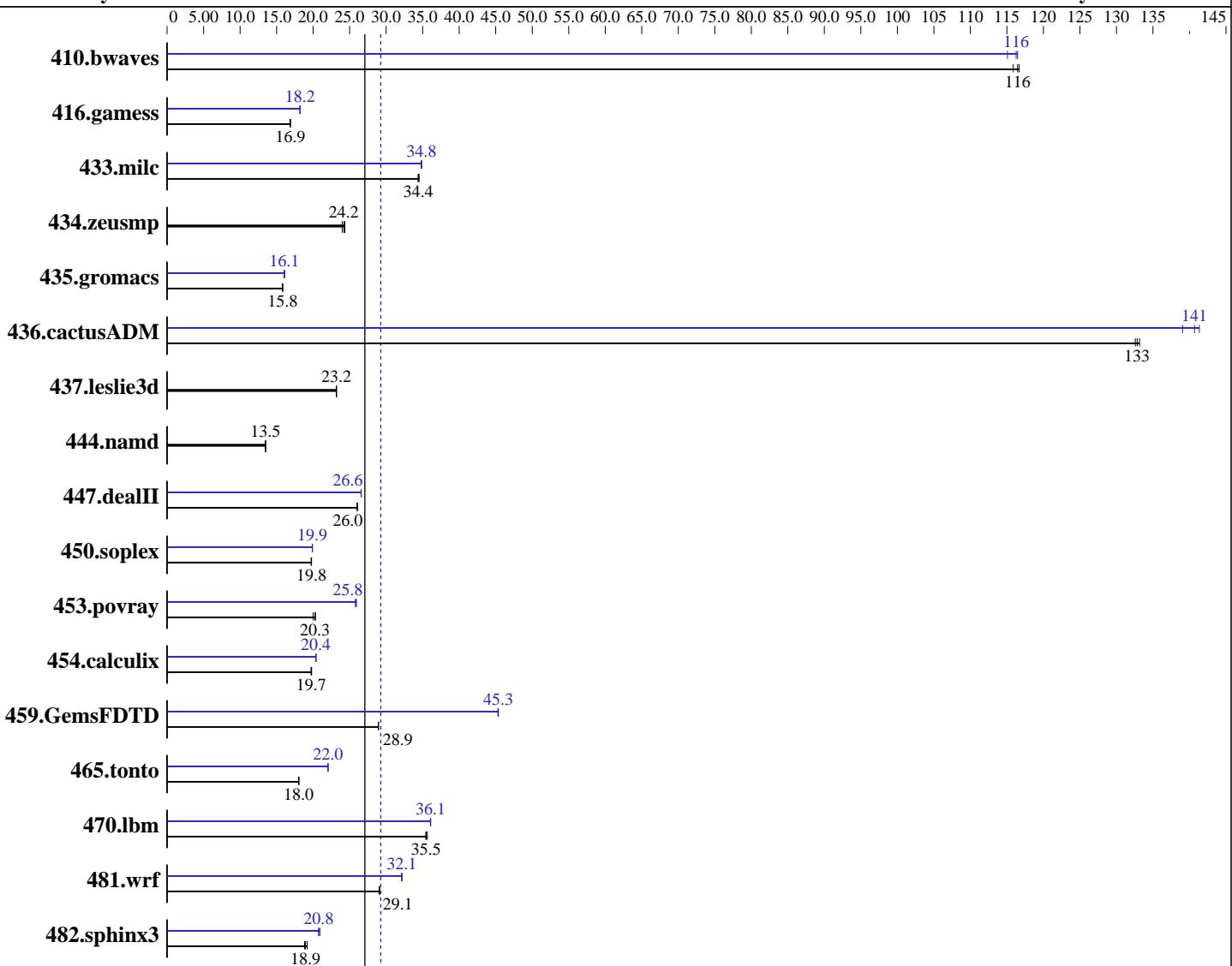$SPECfp\_base2006 =$ 27.1

CPU2006 license: 55
Test sponsor: Dell Inc.
Tested by: Dell Inc.

Test date: May-2010
Hardware Availability: Mar-2010
Software Availability: Dec-2009

Benchmark	Peak	Base
410.bwaves	116	116
416.gamess	18.2	16.9
433.milc	34.8	34.4
434.zeusmp		24.2
435.gromacs	16.1	15.8
436.cactusADM	141	133
437.leslie3d		23.2
444.namd		13.5
447.dealII	26.6	26.0
450.soplex	19.9	19.8
453.povray	25.8	20.3
454.calculix	20.4	19.7
459.GemsFDTD	45.3	28.9
465.tonto	22.0	18.0
470.lbm	36.1	35.5
481.wrf	32.1	29.1
482.sphinx3	20.8	18.9

SPECfp_base2006 = 27.1
SPECfp2006 = 29.3

Hardware

CPU Name: Intel Xeon E5507
CPU Characteristics:
CPU MHz: 2267
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: 256 KB I+D on chip per core

Continued on next page

Software

Operating System: SUSE Linux Enterprise Server 11 (x86_64), Kernel 2.6.27.19-5-smp
Compiler: Intel C++ and Fortran Professional Compiler for IA32 and Intel 64, Version 11.1
Build 20091130 Package ID: l_cproc_p_11.1.064, l_cprof_p_11.1.064
Auto Parallel: Yes
File System: ext3
System State: Run level 3 (multi-user)

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L3 Cache:	4 MB I+D on chip per chip
Other Cache:	None
Memory:	48 GB (12 x 4 GB DDR3-1333 DR RDIMM, CL9, ECC, downclocked to 800 MHz)
Disk Subsystem:	1 x 146 GB 15000 RPM SAS
Other Hardware:	None

Base Pointers:	64-bit
Peak Pointers:	32/64-bit
Other Software:	None

Results Table

Benchmark	Base						Peak					
	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	116	117	117	116	**117**	**116**	117	116	118	115	**117**	**116**
416.gamess	1162	16.9	1159	16.9	**1160**	**16.9**	**1076**	**18.2**	1075	18.2	1077	18.2
433.milc	266	34.5	**267**	**34.4**	267	34.4	263	34.9	264	34.8	**264**	**34.8**
434.zeusmp	374	24.3	**376**	**24.2**	379	24.0	374	24.3	**376**	**24.2**	379	24.0
435.gromacs	**451**	**15.8**	451	15.8	451	15.8	**444**	**16.1**	443	16.1	445	16.0
436.cactusADM	**90.0**	**133**	90.1	133	89.7	133	**84.9**	**141**	84.5	141	85.9	139
437.leslie3d	406	23.2	405	23.2	**405**	**23.2**	406	23.2	405	23.2	**405**	**23.2**
444.namd	594	13.5	**595**	**13.5**	595	13.5	594	13.5	**595**	**13.5**	595	13.5
447.dealII	**439**	**26.0**	439	26.0	439	26.1	430	26.6	431	26.6	**430**	**26.6**
450.soplex	**422**	**19.8**	423	19.7	422	19.8	**419**	**19.9**	419	19.9	419	19.9
453.povray	**263**	**20.3**	266	20.0	262	20.3	206	25.8	205	25.9	**206**	**25.8**
454.calculix	417	19.8	418	19.7	**418**	**19.7**	405	20.4	405	20.4	**405**	**20.4**
459.GemsFDTD	**367**	**28.9**	367	28.9	367	28.9	**234**	**45.3**	234	45.3	234	45.4
465.tonto	546	18.0	545	18.1	**546**	**18.0**	447	22.0	446	22.1	**446**	**22.0**
470.lbm	388	35.4	386	35.6	**387**	**35.5**	381	36.1	381	36.1	**381**	**36.1**
481.wrf	385	29.0	**384**	**29.1**	384	29.1	**348**	**32.1**	348	32.1	347	32.2
482.sphinx3	1016	19.2	**1029**	**18.9**	1035	18.8	930	21.0	939	20.7	**939**	**20.8**

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

Operating System Notes

```
'ulimit -s unlimited' was used to set the stacksize to unlimited prior to run
```

Platform Notes

```
BIOS Settings:
Power Management = Maximum Performance (Default = Active Power Controller)
```

General Notes

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

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Test sponsor:	Dell Inc.	**Hardware Availability:**	Mar-2010
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General Notes (Continued)

```
  Binaries were compiled on SLES 10 with Binutils 2.18.50.0.7.20080502
  The Dell PowerEdge T610 and
  the Bull NovaScale T840 F2 models are electronically equivalent.
  The results have been measured on a Dell PowerEdge T610 model.
```

Base Compiler Invocation

C benchmarks:
```
    icc    -m64
```

C++ benchmarks:
```
    icpc   -m64
```

Fortran benchmarks:
```
    ifort -m64
```

Benchmarks using both Fortran and C:
```
    icc    -m64 ifort -m64
```

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
```

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CPU2006 license: 55		**Test date:**	May-2010
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Base Optimization Flags (Continued)

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
```

Peak Compiler Invocation

C benchmarks:
```
icc    -m64
```

C++ benchmarks:
```
icpc   -m64
```

Fortran benchmarks:
```
ifort -m64
```

Benchmarks using both Fortran and C:
```
icc    -m64 ifort -m64
```

Peak Portability Flags

```
Same as Base Portability Flags
```

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)
           -ansi-alias

 470.lbm: -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)
          -parallel -ansi-alias -auto-ilp32

482.sphinx3: -xSSE4.2 -ipo -O3 -no-prec-div -static -auto-ilp32
             -unroll2
```

C++ benchmarks:

```
 444.namd: basepeak = yes
```

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Peak Optimization Flags (Continued)

```
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- -auto-ilp32

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 -auto-ilp32

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)
            -inline-calloc -opt-malloc-options=3 -auto -unroll4
```

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

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

481.wrf: Same as 454.calculix
```

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

http://www.spec.org/cpu2006/flags/Intel-ic11.1-linux64-revE.20100330.html

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

http://www.spec.org/cpu2006/flags/Intel-ic11.1-linux64-revE.20100330.xml

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