SPEC® CFP2006 Result
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Dell Inc.

PowerEdge M710 (Intel Xeon E5503, 2.00 GHz)

$SPECfp^®\_rate2006 =$ 74.9

SPECfp_rate_base2006 =   72.5

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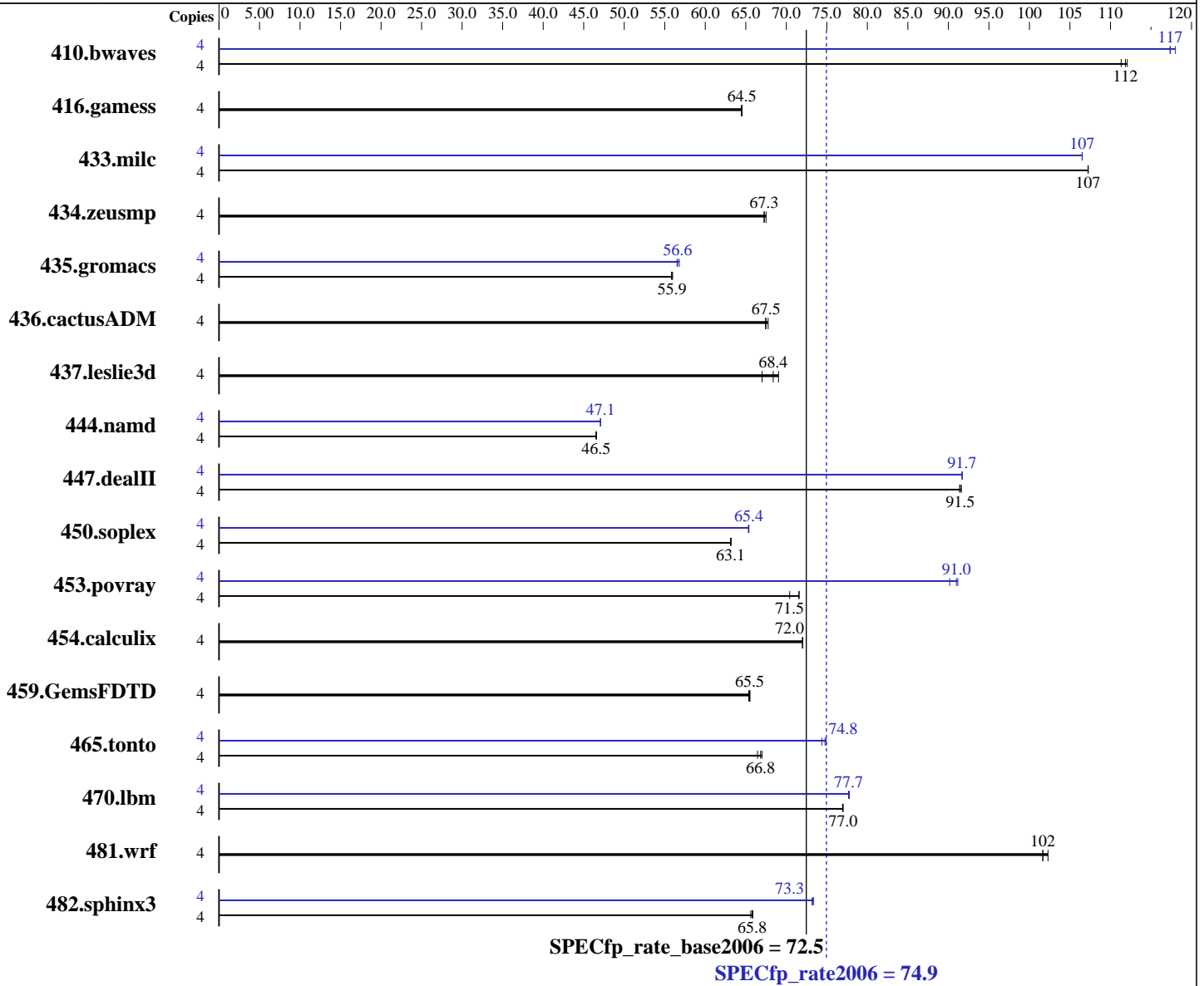**Test sponsor:** Dell Inc.
Tested by: Dell Inc.

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

Copies

Benchmark	Copies	Value
410.bwaves	4	117
	4	112
416.gamess	4	64.5
433.milc	4	107
	4	107
434.zeusmp	4	67.3
435.gromacs	4	56.6
	4	55.9
436.cactusADM	4	67.5
437.leslie3d	4	68.4
444.namd	4	47.1
	4	46.5
447.dealII	4	91.7
	4	91.5
450.soplex	4	65.4
	4	63.1
453.povray	4	91.0
	4	71.5
454.calculix	4	72.0
459.GemsFDTD	4	65.5
465.tonto	4	74.8
	4	66.8
470.lbm	4	77.7
	4	77.0
481.wrf	4	102
482.sphinx3	4	73.3
	4	65.8

SPECfp_rate_base2006 = 72.5

SPECfp_rate2006 = 74.9

Hardware

CPU Name: Intel Xeon E5503
CPU Characteristics:
CPU MHz: 2000
FPU: Integrated
CPU(s) enabled: 4 cores, 2 chips, 2 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: No
File System: ext3
System State: Run level 3 (multi-user)
Continued on next page

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L3 Cache:	4 MB I+D on chip per chip	Base Pointers:	64-bit
Other Cache:	None	Peak Pointers:	32/64-bit
Memory:	48 GB (12 x 4 GB DDR3-1333 DR RDIMM, CL9, ECC, downclocked to 800 MHz)	Other Software:	None
Disk Subsystem:	1 x 146 GB 15000 RPM SAS		
Other Hardware:	None		

Results Table

Benchmark	Base Copies	Base Seconds	Base Ratio	Base Seconds	Base Ratio	Base Seconds	Base Ratio	Peak Copies	Peak Seconds	Peak Ratio	Peak Seconds	Peak Ratio	Peak Seconds	Peak Ratio
410.bwaves	4	**486**	**112**	485	112	488	111	4	**463**	**117**	461	118	463	117
416.gamess	4	1215	64.5	1214	64.5	**1214**	**64.5**	4	1215	64.5	1214	64.5	**1214**	**64.5**
433.milc	4	342	107	**342**	**107**	342	107	4	**345**	**107**	345	107	345	106
434.zeusmp	4	541	67.3	539	67.5	**541**	**67.3**	4	541	67.3	539	67.5	**541**	**67.3**
435.gromacs	4	**511**	**55.9**	511	55.8	510	56.0	4	**505**	**56.6**	503	56.8	505	56.5
436.cactusADM	4	709	67.4	705	67.8	**708**	**67.5**	4	709	67.4	705	67.8	**708**	**67.5**
437.leslie3d	4	561	67.0	545	69.0	**550**	**68.4**	4	561	67.0	545	69.0	**550**	**68.4**
444.namd	4	689	46.6	689	46.5	**689**	**46.5**	4	682	47.1	**681**	**47.1**	681	47.1
447.dealII	4	500	91.6	**500**	**91.5**	501	91.4	4	499	91.7	499	91.7	**499**	**91.7**
450.soplex	4	528	63.2	528	63.1	**528**	**63.1**	4	510	65.4	**510**	**65.4**	511	65.3
453.povray	4	302	70.4	**297**	**71.5**	297	71.6	4	236	90.2	233	91.2	**234**	**91.0**
454.calculix	4	**458**	**72.0**	458	72.0	458	72.0	4	**458**	**72.0**	458	72.0	458	72.0
459.GemsFDTD	4	**648**	**65.5**	648	65.5	649	65.4	4	**648**	**65.5**	648	65.5	649	65.4
465.tonto	4	**589**	**66.8**	587	67.0	592	66.5	4	525	74.9	529	74.4	**526**	**74.8**
470.lbm	4	714	76.9	**714**	**77.0**	714	77.0	4	707	77.8	708	77.7	**707**	**77.7**
481.wrf	4	440	102	**439**	**102**	437	102	4	440	102	**439**	**102**	437	102
482.sphinx3	4	**1185**	**65.8**	1184	65.9	1188	65.6	4	1063	73.4	**1064**	**73.3**	1066	73.2

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

Submit Notes

```
    The config file option 'submit' was used.
     numactl was used to bind copies to the cores
```

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)
```

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General Notes

Binaries were compiled on SLES 10 with Binutils 2.18.50.0.7.20080502

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

C++ benchmarks:
    -xSSE4.2 -ipo -O3 -no-prec-div -static

Fortran benchmarks:
    -xSSE4.2 -ipo -O3 -no-prec-div -static

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Base Optimization Flags (Continued)

Benchmarks using both Fortran and C:
```
-xSSE4.2 -ipo -O3 -no-prec-div -static
```

Peak Compiler Invocation

C benchmarks (except as noted below):
```
icc    -m64
```

```
482.sphinx3: icc -m32
```

C++ benchmarks (except as noted below):
```
icpc   -m64
```

```
450.soplex: icpc -m32
```

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

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

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:

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Peak Optimization Flags (Continued)

 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 -opt-prefetch

 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)
          -opt-malloc-options=3 -ansi-alias -auto-ilp32

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

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-

 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

 416.gamess: basepeak = yes

 434.zeusmp: basepeak = yes

 437.leslie3d: basepeak = yes

 459.GemsFDTD: basepeak = yes

 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 -inline-calloc -opt-malloc-options=3

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

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Peak Optimization Flags (Continued)

436.cactusADM: basepeak = yes

454.calculix: basepeak = yes

481.wrf: basepeak = yes

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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