SPEC® CFP2006 Result
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Dell Inc.

PowerEdge R710
(Intel Xeon E5504, 2.00 GHz)

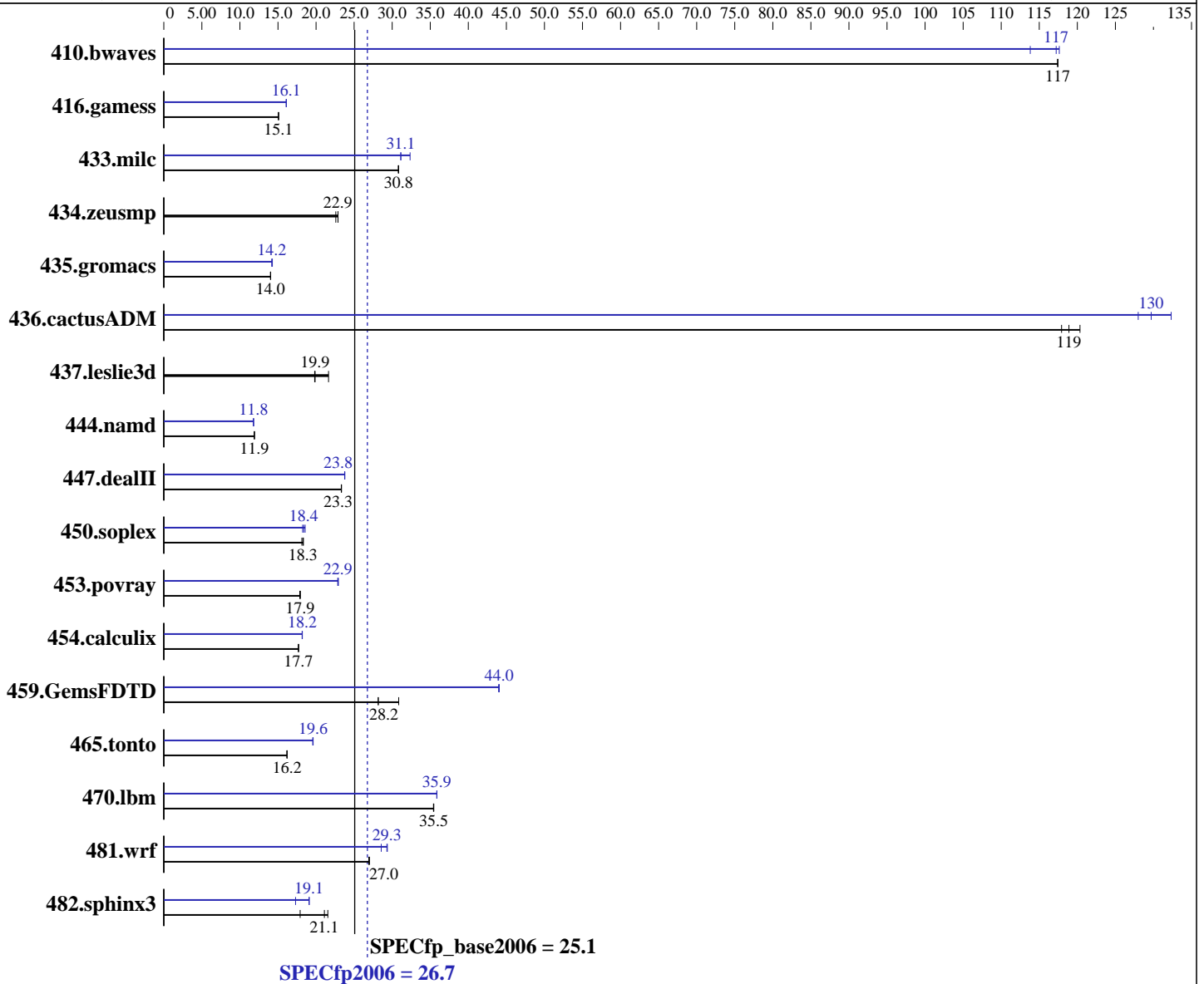$SPECfp®2006 =$ 26.7

$SPECfp\_base2006 =$ 25.1

CPU2006 license:	55	**Test date:**	Jan-2010
Test sponsor:	Dell Inc.	**Hardware Availability:**	Jan-2010
Tested by:	Bull SAS	**Software Availability:**	Dec-2009

410.bwaves 117 / 117
416.gamess 16.1 / 15.1
433.milc 31.1 / 30.8
434.zeusmp 22.9
435.gromacs 14.2 / 14.0
436.cactusADM 130 / 119
437.leslie3d 19.9
444.namd 11.8 / 11.9
447.dealII 23.8 / 23.3
450.soplex 18.4 / 18.3
453.povray 22.9 / 17.9
454.calculix 18.2 / 17.7
459.GemsFDTD 44.0 / 28.2
465.tonto 19.6 / 16.2
470.lbm 35.9 / 35.5
481.wrf 29.3 / 27.0
482.sphinx3 19.1 / 21.1

SPECfp_base2006 = 25.1
SPECfp2006 = 26.7

Hardware		**Software**	
CPU Name:	Intel Xeon E5504	Operating System:	SUSE Linux Enterprise Server 10 (x86_64) SP2, SP2 with patch Linux kernel 20090119, Kernel 2.6.16.60-0.34-smp
CPU Characteristics:			
CPU MHz:	2000	Compiler:	Intel C++ Professional Compiler for IA32 and Intel 64, Version 11.1
FPU:	Integrated		Build 20091130 Package ID: l_cproc_p_11.1.064
CPU(s) enabled:	8 cores, 2 chips, 4 cores/chip	Auto Parallel:	Yes
CPU(s) orderable:	1,2 chips	File System:	ReiserFS
Primary Cache:	32 KB I + 32 KB D on chip per core	System State:	Run level 3 (multi-user)
Secondary Cache:	256 KB I+D on chip per core		

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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 PC3-10600R, 2 Rank, running at 800 MHz)	Other Software:	Microquill SmartHeap V8.1 Binutils 2.18.50.0.7.20080502
Disk Subsystem:	1 x 73 GB SAS, 10000 RPM		
Other Hardware:	None		

Results Table

Benchmark	Base						Peak					
	Seconds	**Ratio**	**Seconds**	**Ratio**	**Seconds**	**Ratio**	**Seconds**	**Ratio**	**Seconds**	**Ratio**	**Seconds**	**Ratio**
410.bwaves	**116**	**117**	116	117	116	117	**116**	**117**	116	118	119	114
416.gamess	1299	15.1	1300	15.1	**1299**	**15.1**	**1217**	**16.1**	1217	16.1	1216	16.1
433.milc	298	30.8	**298**	**30.8**	298	30.8	284	32.4	295	31.1	**295**	**31.1**
434.zeusmp	398	22.9	403	22.6	**398**	**22.9**	398	22.9	403	22.6	**398**	**22.9**
435.gromacs	509	14.0	**509**	**14.0**	509	14.0	**502**	**14.2**	503	14.2	501	14.3
436.cactusADM	**101**	**119**	99.3	120	101	118	90.3	132	93.4	128	**92.1**	**130**
437.leslie3d	434	21.6	**473**	**19.9**	474	19.8	434	21.6	**473**	**19.9**	474	19.8
444.namd	674	11.9	**674**	**11.9**	675	11.9	**680**	**11.8**	681	11.8	680	11.8
447.dealII	**490**	**23.3**	491	23.3	490	23.3	481	23.8	**481**	**23.8**	482	23.8
450.soplex	**456**	**18.3**	455	18.3	460	18.1	457	18.2	**454**	**18.4**	449	18.6
453.povray	297	17.9	**297**	**17.9**	298	17.9	**233**	**22.9**	233	22.9	232	22.9
454.calculix	466	17.7	**466**	**17.7**	466	17.7	**454**	**18.2**	454	18.2	453	18.2
459.GemsFDTD	377	28.2	**377**	**28.2**	344	30.9	241	44.0	**241**	**44.0**	241	44.1
465.tonto	**607**	**16.2**	607	16.2	609	16.2	502	19.6	503	19.6	**502**	**19.6**
470.lbm	387	35.5	**388**	**35.5**	388	35.4	383	35.9	383	35.9	**383**	**35.9**
481.wrf	415	26.9	414	27.0	**414**	**27.0**	391	28.6	380	29.4	**381**	**29.3**
482.sphinx3	**924**	**21.1**	905	21.5	1088	17.9	**1021**	**19.1**	1126	17.3	1020	19.1

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

General Notes

```
OMP_NUM_THREADS set to number of cores
KMP_AFFINITY set to granularity=fine,scatter
KMP_STACKSIZE set to 200M
The Dell PowerEdge R710 (Intel Xeon E5504, 2.00 GHz) and
the Bull NovaScale R460 F2 (Intel Xeon E5504, 2.00 GHz) models are electronically equivalent.
The results have been measured on a Bull NovaScale R460 F2 (Intel Xeon E5504, 2.00 GHz) model.
```

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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
```

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:
      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: -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- -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

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Peak Optimization Flags (Continued)

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`

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.20100316.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.20100316.xml

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