



# SPEC® CFP2006 Result

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Dell Inc.

SPECfp®\_rate2006 = 119

PowerEdge T610 (Intel Xeon E5506, 2.13 GHz)

SPECfp\_rate\_base2006 = 114

CPU2006 license: 55

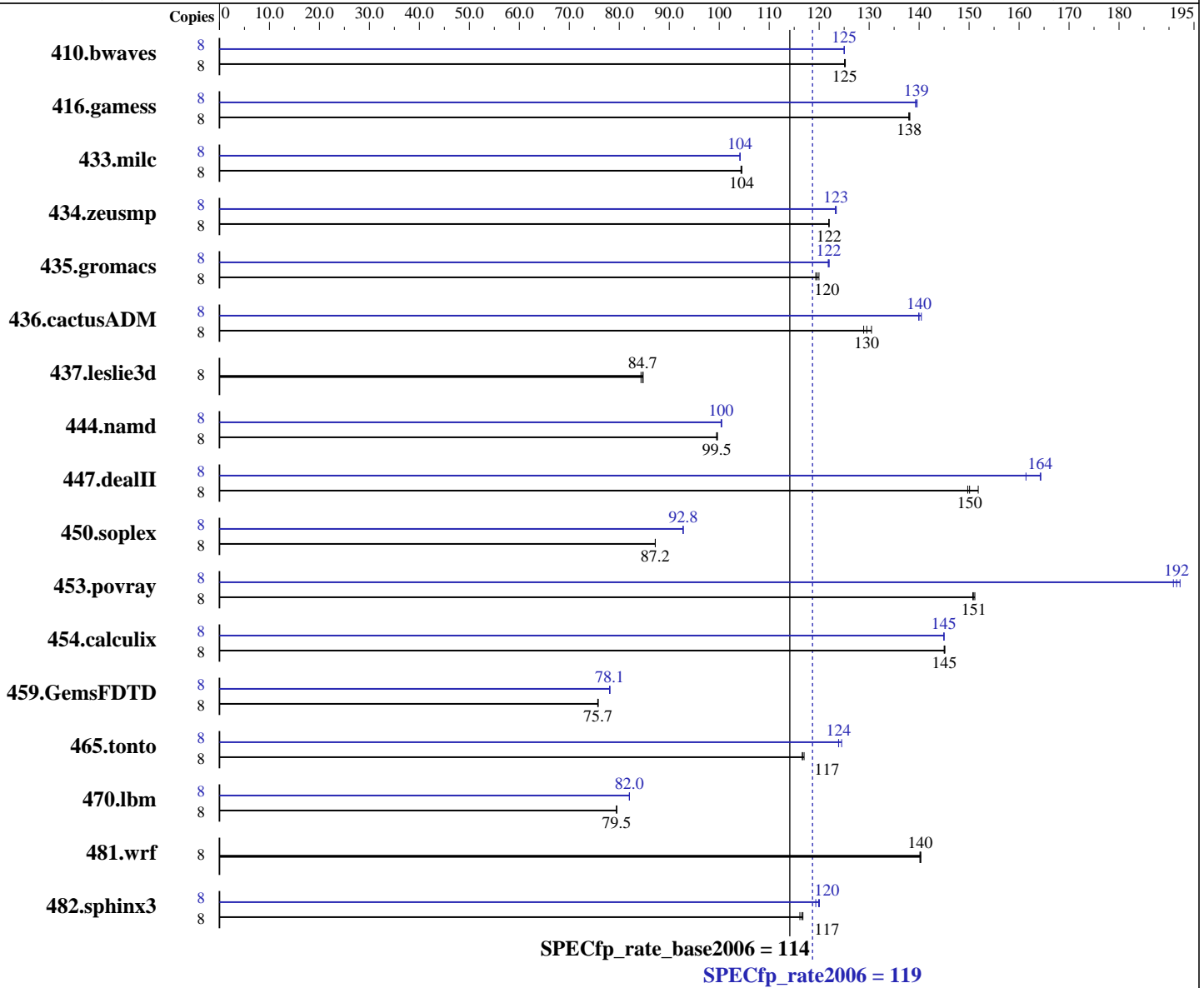
Test date: Apr-2009

Test sponsor: Dell Inc.

Hardware Availability: Mar-2009

Tested by: Dell Inc.

Software Availability: Feb-2009



### Hardware

CPU Name: Intel Xeon E5506  
 CPU Characteristics:  
 CPU MHz: 2133  
 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

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### 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 Professional 11.0 for Linux Build 20090131 Package ID: l\_cproc\_p\_11.0.080, l\_cprof\_p\_11.0.080  
 Auto Parallel: No  
 File System: ReiserFS  
 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 downclocked to 800 MHz)  
Disk Subsystem: 1 x 73 GB 15000 RPM SAS  
Other Hardware: None

Base Pointers: 64-bit  
Peak Pointers: 32/64-bit  
Other Software: Binutils 2.18.50.0.7.20080502

## Results Table

| Benchmark     | Base   |             |             |             |            |            |             | Peak   |             |             |             |             |            |             |
|---------------|--------|-------------|-------------|-------------|------------|------------|-------------|--------|-------------|-------------|-------------|-------------|------------|-------------|
|               | Copies | Seconds     | Ratio       | Seconds     | Ratio      | Seconds    | Ratio       | Copies | Seconds     | Ratio       | Seconds     | Ratio       | Seconds    | Ratio       |
| 410.bwaves    | 8      | <b>869</b>  | <b>125</b>  | 869         | 125        | 868        | 125         | 8      | <b>870</b>  | <b>125</b>  | 870         | 125         | 870        | 125         |
| 416.gamess    | 8      | 1136        | 138         | <b>1135</b> | <b>138</b> | 1134       | 138         | 8      | 1122        | 140         | <b>1123</b> | <b>139</b>  | 1125       | 139         |
| 433.milc      | 8      | 703         | 105         | <b>703</b>  | <b>104</b> | 704        | 104         | 8      | 705         | 104         | <b>705</b>  | <b>104</b>  | 705        | 104         |
| 434.zeusmp    | 8      | <b>597</b>  | <b>122</b>  | 597         | 122        | 597        | 122         | 8      | 590         | 123         | <b>590</b>  | <b>123</b>  | 591        | 123         |
| 435.gromacs   | 8      | 479         | 119         | <b>478</b>  | <b>120</b> | 476        | 120         | 8      | 468         | 122         | 469         | 122         | <b>469</b> | <b>122</b>  |
| 436.cactusADM | 8      | 733         | 130         | 742         | 129        | <b>738</b> | <b>130</b>  | 8      | 683         | 140         | 681         | 140         | <b>683</b> | <b>140</b>  |
| 437.leslie3d  | 8      | 887         | 84.8        | 892         | 84.3       | <b>888</b> | <b>84.7</b> | 8      | 887         | 84.8        | 892         | 84.3        | <b>888</b> | <b>84.7</b> |
| 444.namd      | 8      | 644         | 99.7        | 645         | 99.5       | <b>645</b> | <b>99.5</b> | 8      | 639         | 100         | 638         | 101         | <b>639</b> | <b>100</b>  |
| 447.dealII    | 8      | 611         | 150         | <b>610</b>  | <b>150</b> | 603        | 152         | 8      | 557         | 164         | <b>557</b>  | <b>164</b>  | 567        | 161         |
| 450.soplex    | 8      | <b>765</b>  | <b>87.2</b> | 765         | 87.2       | 765        | 87.2        | 8      | 719         | 92.8        | 719         | 92.8        | <b>719</b> | <b>92.8</b> |
| 453.povray    | 8      | <b>282</b>  | <b>151</b>  | 282         | 151        | 282        | 151         | 8      | 221         | 192         | <b>222</b>  | <b>192</b>  | 223        | 191         |
| 454.calculix  | 8      | 455         | 145         | 455         | 145        | <b>455</b> | <b>145</b>  | 8      | <b>455</b>  | <b>145</b>  | 455         | 145         | 455        | 145         |
| 459.GemsFDTD  | 8      | <b>1121</b> | <b>75.7</b> | 1120        | 75.8       | 1121       | 75.7        | 8      | <b>1087</b> | <b>78.1</b> | 1087        | 78.1        | 1086       | 78.1        |
| 465.tonto     | 8      | 675         | 117         | 673         | 117        | <b>675</b> | <b>117</b>  | 8      | 632         | 124         | 635         | 124         | <b>635</b> | <b>124</b>  |
| 470.lbm       | 8      | <b>1383</b> | <b>79.5</b> | 1383        | 79.5       | 1383       | 79.5        | 8      | 1340        | 82.0        | <b>1340</b> | <b>82.0</b> | 1340       | 82.0        |
| 481.wrf       | 8      | 638         | 140         | 637         | 140        | <b>637</b> | <b>140</b>  | 8      | 638         | 140         | 637         | 140         | <b>637</b> | <b>140</b>  |
| 482.sphinx3   | 8      | <b>1338</b> | <b>117</b>  | 1343        | 116        | 1335       | 117         | 8      | <b>1301</b> | <b>120</b>  | 1299        | 120         | 1307       | 119         |

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

## Base Compiler Invocation

C benchmarks:  
icc

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## Base Compiler Invocation (Continued)

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

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

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

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



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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: -xSSE4.2 -ipo -O3 -no-prec-div -static -opt-prefetch  
 -auto-ilp32

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## Peak Optimization Flags (Continued)

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: -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: -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)

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

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 -auto-ilp32

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## Peak Optimization Flags (Continued)

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

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-ic11.0-fp-linux64-revA.20090710.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.20090710.xml>

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For questions about this result, please contact the tester.  
For other inquiries, please contact [webmaster@spec.org](mailto:webmaster@spec.org).

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