



SPEC[®] CFP2006 Result

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Fujitsu

SPECfp[®]_rate2006 = 87.9

CELSIUS M470, Intel Xeon W3540

SPECfp_rate_base2006 = 84.3

CPU2006 license: 19

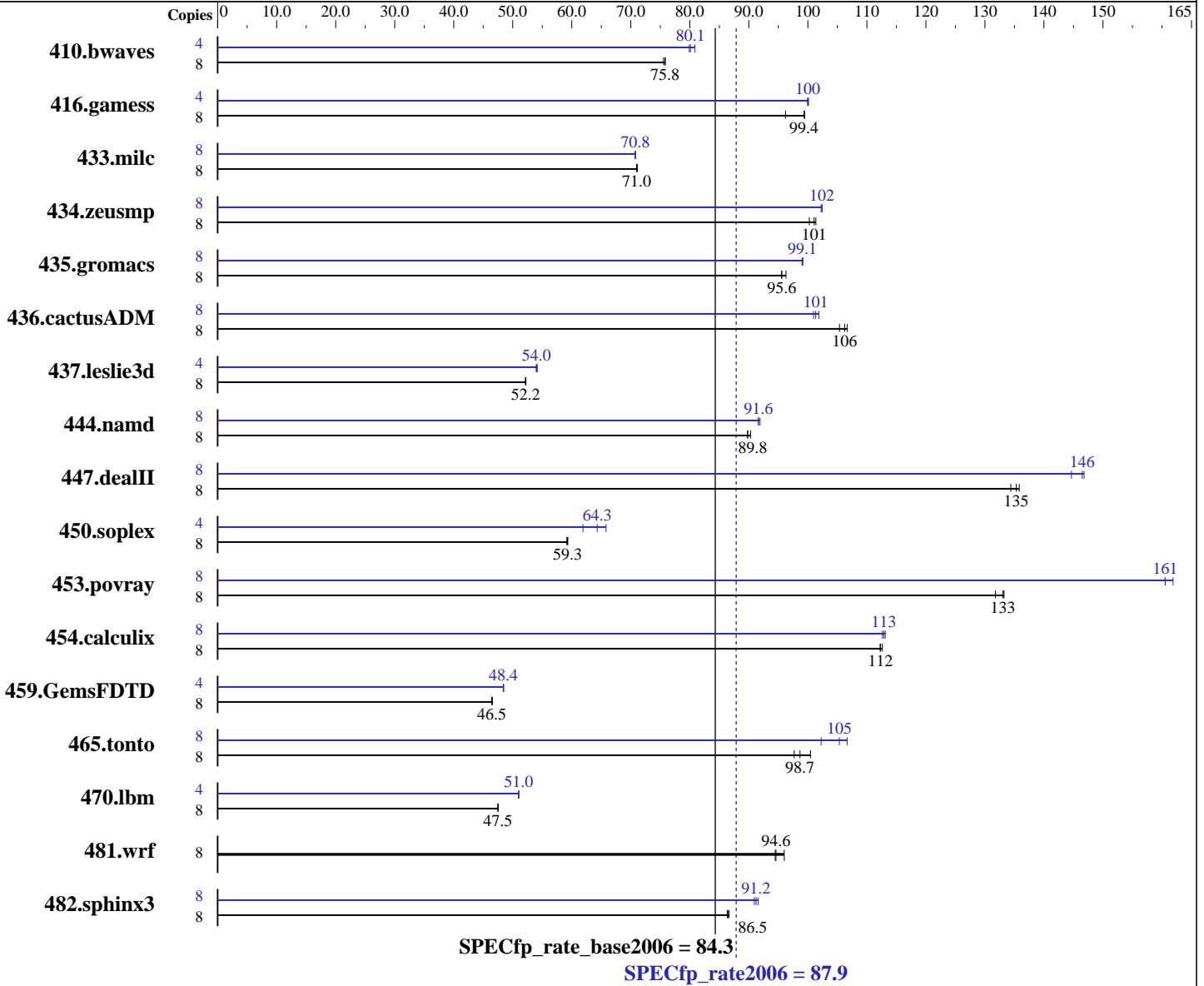
Test sponsor: Fujitsu

Tested by: Fujitsu

Test date: Apr-2009

Hardware Availability: Apr-2009

Software Availability: Feb-2009



Hardware

CPU Name: Intel Xeon W3540
 CPU Characteristics: Intel Turbo Boost Technology up to 3.2 GHz
 CPU MHz: 2933
 FPU: Integrated
 CPU(s) enabled: 4 cores, 1 chip, 4 cores/chip, 2 threads/core
 CPU(s) orderable: 1 chip
 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: ext3
 System State: Multi-User Run Level 3

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L3 Cache: 8 MB I+D on chip per chip
 Other Cache: None
 Memory: 12 GB (6 x 2 GB PC3-10600E, 2 rank, ECC, running at 1066 MHz)
 Disk Subsystem: 1 x SATA II, 400 GB, 7200 rpm
 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 | <u>1434</u> | <u>75.8</u> | 1434 | 75.8 | 1439 | 75.5 | 4 | 680 | 79.9 | 672 | 80.9 | <u>679</u> | <u>80.1</u> |
| 416.gamess | 8 | 1575 | 99.5 | <u>1576</u> | <u>99.4</u> | 1628 | 96.2 | 4 | 784 | 99.9 | <u>783</u> | <u>100</u> | 782 | 100 |
| 433.milc | 8 | 1033 | 71.1 | <u>1034</u> | <u>71.0</u> | 1034 | 71.0 | 8 | 1037 | 70.8 | 1038 | 70.7 | <u>1038</u> | <u>70.8</u> |
| 434.zeusmp | 8 | <u>720</u> | <u>101</u> | 726 | 100 | 718 | 101 | 8 | 711 | 102 | 712 | 102 | <u>711</u> | <u>102</u> |
| 435.gromacs | 8 | 598 | 95.6 | 593 | 96.3 | <u>598</u> | <u>95.6</u> | 8 | 577 | 99.0 | <u>576</u> | <u>99.1</u> | 576 | 99.2 |
| 436.cactusADM | 8 | 896 | 107 | <u>900</u> | <u>106</u> | 907 | 105 | 8 | <u>943</u> | <u>101</u> | 947 | 101 | 938 | 102 |
| 437.leslie3d | 8 | <u>1441</u> | <u>52.2</u> | 1440 | 52.2 | 1442 | 52.1 | 4 | 697 | 54.0 | 694 | 54.2 | <u>696</u> | <u>54.0</u> |
| 444.namd | 8 | 715 | 89.8 | <u>714</u> | <u>89.8</u> | 711 | 90.3 | 8 | 700 | 91.6 | 698 | 91.9 | <u>700</u> | <u>91.6</u> |
| 447.dealII | 8 | 681 | 134 | <u>676</u> | <u>135</u> | 674 | 136 | 8 | <u>625</u> | <u>146</u> | 623 | 147 | 633 | 145 |
| 450.soplex | 8 | 1125 | 59.3 | 1128 | 59.2 | <u>1125</u> | <u>59.3</u> | 4 | 539 | 61.9 | <u>519</u> | <u>64.3</u> | 507 | 65.8 |
| 453.povray | 8 | 323 | 132 | 319 | 133 | <u>320</u> | <u>133</u> | 8 | 265 | 161 | <u>265</u> | <u>161</u> | 263 | 162 |
| 454.calculix | 8 | <u>588</u> | <u>112</u> | 586 | 113 | 588 | 112 | 8 | 583 | 113 | <u>585</u> | <u>113</u> | 586 | 113 |
| 459.GemsFDTD | 8 | <u>1826</u> | <u>46.5</u> | 1824 | 46.5 | 1827 | 46.5 | 4 | 877 | 48.4 | 876 | 48.4 | <u>876</u> | <u>48.4</u> |
| 465.tonto | 8 | 806 | 97.7 | 784 | 100 | <u>798</u> | <u>98.7</u> | 8 | 770 | 102 | 738 | 107 | <u>747</u> | <u>105</u> |
| 470.lbm | 8 | 2313 | 47.5 | <u>2314</u> | <u>47.5</u> | 2314 | 47.5 | 4 | 1077 | 51.0 | <u>1078</u> | <u>51.0</u> | 1078 | 51.0 |
| 481.wrf | 8 | 931 | 96.0 | 946 | 94.5 | <u>945</u> | <u>94.6</u> | 8 | 931 | 96.0 | 946 | 94.5 | <u>945</u> | <u>94.6</u> |
| 482.sphinx3 | 8 | <u>1803</u> | <u>86.5</u> | 1806 | 86.3 | 1799 | 86.7 | 8 | <u>1709</u> | <u>91.2</u> | 1702 | 91.6 | 1715 | 90.9 |

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 --localalloc --physcpubind was used to bind copies to the cores and their local memory. The complete list of parameters may be found in the config file.

Operating System Notes

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



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Platform Notes

BIOS configuration:
Memory speed set to "Max Performance" (Switch in "Advanced Memory Options")

General Notes

For information about Fujitsu please visit:
<http://www.fujitsu.com>

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



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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

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 (except as noted below):
ifort

437.leslie3d: ifort -m32

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
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

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Peak Portability Flags (Continued)

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
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: -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 -opt-prefetch

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Peak Optimization Flags (Continued)

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

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.20090710.07.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.20090710.07.xml>

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

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