



# SPEC<sup>®</sup> CFP2006 Result

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## Fujitsu

### SPECfp<sup>®</sup>\_rate2006 = 73.5

### PRIMERGY RX200 S6, Intel Xeon E5606, 2.13 GHz

### SPECfp\_rate\_base2006 = 70.9

CPU2006 license: 19

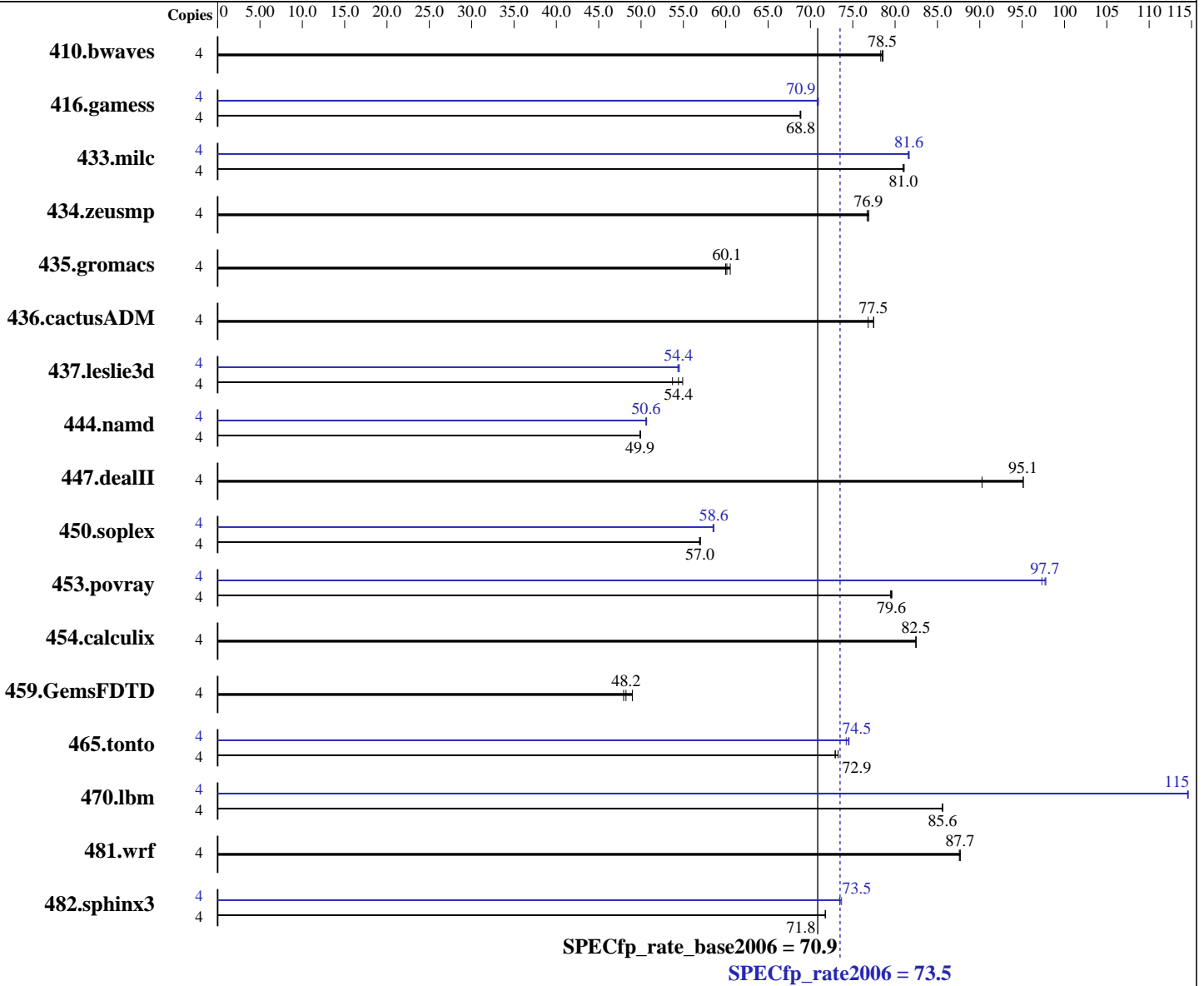
Test sponsor: Fujitsu

Tested by: Fujitsu

Test date: Jan-2011

Hardware Availability: Feb-2011

Software Availability: Jan-2011



### Hardware

CPU Name: Intel Xeon E5606  
 CPU Characteristics:  
 CPU MHz: 2133  
 FPU: Integrated  
 CPU(s) enabled: 4 cores, 1 chip, 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 11 (x86\_64) with SP1, Kernel 2.6.32.12-0.7-default  
 Compiler: Intel C++ and Fortran Intel 64 Compiler XE for applications running on Intel 64, Version 12.0.1.116 Build 20101116  
 Auto Parallel: No  
 File System: ext3  
 System State: Run level 3 (multi-user)  
 Base Pointers: 64-bit

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L3 Cache: 8 MB I+D on chip per chip  
Other Cache: None  
Memory: 24 GB (6 x 4 GB 2Rx4 PC3-10600R-9, ECC, running at 1067 MHz and CL7)  
Disk Subsystem: 1 x SAS, 300 GB, 10000 RPM  
Other Hardware: --

Peak Pointers: 32/64-bit  
Other Software: Binaries compiled on RHEL5.5 with binutils-2.17.50.0.6-14.el5

## Results Table

| Benchmark     | Base   |             |             |            |             |             |             |        | Peak        |             |            |             |             |             |  |  |
|---------------|--------|-------------|-------------|------------|-------------|-------------|-------------|--------|-------------|-------------|------------|-------------|-------------|-------------|--|--|
|               | Copies | Seconds     | Ratio       | Seconds    | Ratio       | Seconds     | Ratio       | Copies | Seconds     | Ratio       | Seconds    | Ratio       | Seconds     | Ratio       |  |  |
| 410.bwaves    | 4      | 694         | 78.3        | <b>693</b> | <b>78.5</b> | 692         | 78.6        | 4      | 694         | 78.3        | <b>693</b> | <b>78.5</b> | 692         | 78.6        |  |  |
| 416.gamess    | 4      | 1139        | 68.8        | 1137       | 68.9        | <b>1138</b> | <b>68.8</b> | 4      | <b>1104</b> | <b>70.9</b> | 1106       | 70.8        | 1104        | 70.9        |  |  |
| 433.milc      | 4      | 454         | 80.9        | <b>453</b> | <b>81.0</b> | 453         | 81.1        | 4      | <b>450</b>  | <b>81.6</b> | 450        | 81.5        | 450         | 81.7        |  |  |
| 434.zeusmp    | 4      | 475         | 76.7        | <b>474</b> | <b>76.9</b> | 473         | 76.9        | 4      | 475         | 76.7        | <b>474</b> | <b>76.9</b> | 473         | 76.9        |  |  |
| 435.gromacs   | 4      | 472         | 60.5        | 476        | 60.0        | <b>475</b>  | <b>60.1</b> | 4      | 472         | 60.5        | 476        | 60.0        | <b>475</b>  | <b>60.1</b> |  |  |
| 436.cactusADM | 4      | 622         | 76.8        | <b>617</b> | <b>77.5</b> | 617         | 77.5        | 4      | 622         | 76.8        | <b>617</b> | <b>77.5</b> | 617         | 77.5        |  |  |
| 437.leslie3d  | 4      | <b>691</b>  | <b>54.4</b> | 700        | 53.7        | 685         | 54.9        | 4      | 692         | 54.4        | <b>691</b> | <b>54.4</b> | 690         | 54.5        |  |  |
| 444.namd      | 4      | 642         | 49.9        | 643        | 49.9        | <b>643</b>  | <b>49.9</b> | 4      | 633         | 50.7        | 634        | 50.6        | <b>634</b>  | <b>50.6</b> |  |  |
| 447.dealII    | 4      | <b>481</b>  | <b>95.1</b> | 507        | 90.3        | 481         | 95.1        | 4      | <b>481</b>  | <b>95.1</b> | 507        | 90.3        | 481         | 95.1        |  |  |
| 450.soplex    | 4      | 586         | 56.9        | 585        | 57.0        | <b>586</b>  | <b>57.0</b> | 4      | <b>569</b>  | <b>58.6</b> | 569        | 58.6        | 570         | 58.5        |  |  |
| 453.povray    | 4      | 267         | 79.6        | <b>267</b> | <b>79.6</b> | 268         | 79.5        | 4      | 218         | 97.8        | <b>218</b> | <b>97.7</b> | 219         | 97.3        |  |  |
| 454.calculix  | 4      | 400         | 82.5        | <b>400</b> | <b>82.5</b> | 400         | 82.5        | 4      | 400         | 82.5        | <b>400</b> | <b>82.5</b> | 400         | 82.5        |  |  |
| 459.GemsFDTD  | 4      | <b>880</b>  | <b>48.2</b> | 885        | 47.9        | 867         | 49.0        | 4      | <b>880</b>  | <b>48.2</b> | 885        | 47.9        | 867         | 49.0        |  |  |
| 465.tonto     | 4      | 540         | 72.9        | 537        | 73.3        | <b>540</b>  | <b>72.9</b> | 4      | <b>528</b>  | <b>74.5</b> | 528        | 74.6        | 530         | 74.2        |  |  |
| 470.lbm       | 4      | 642         | 85.6        | <b>642</b> | <b>85.6</b> | 642         | 85.6        | 4      | 480         | 115         | 479        | 115         | <b>480</b>  | <b>115</b>  |  |  |
| 481.wrf       | 4      | 510         | 87.6        | <b>510</b> | <b>87.7</b> | 509         | 87.7        | 4      | 510         | 87.6        | <b>510</b> | <b>87.7</b> | 509         | 87.7        |  |  |
| 482.sphinx3   | 4      | <b>1086</b> | <b>71.8</b> | 1086       | 71.8        | 1086        | 71.8        | 4      | 1061        | 73.5        | 1058       | 73.7        | <b>1061</b> | <b>73.5</b> |  |  |

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  
Large pages were not enabled for this run

## Platform Notes

BIOS configuration:  
Data Reuse Optimization = Disable



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**CPU2006 license:** 19  
**Test sponsor:** Fujitsu  
**Tested by:** Fujitsu

**Test date:** Jan-2011  
**Hardware Availability:** Feb-2011  
**Software Availability:** Jan-2011

## General Notes

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

## 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 -ansi-alias

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

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 -ansi-alias`

## 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.deallI: `-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) -prof-use(pass 2) -static -auto-ilp32

470.lbm: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)  
-no-prec-div(pass 2) -prof-use(pass 2) -opt-malloc-options=3  
-ansi-alias -opt-prefetch -static -auto-ilp32

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

### C++ benchmarks:

444.namd: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)  
-no-prec-div(pass 2) -prof-use(pass 2) -fno-alias  
-auto-ilp32

447.dealII: basepeak = yes

450.soplex: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)  
-no-prec-div(pass 2) -prof-use(pass 2) -opt-malloc-options=3  
-B /usr/share/libhugetlbfs/ -Wl,-hugetlbfs-link=BDT

453.povray: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)  
-no-prec-div(pass 2) -prof-use(pass 2) -unroll4 -ansi-alias  
-B /usr/share/libhugetlbfs/ -Wl,-melf\_x86\_64 -Wl,-hugetlbfs-link=BDT

### Fortran benchmarks:

410.bwaves: basepeak = yes

416.gamess: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)  
-no-prec-div(pass 2) -prof-use(pass 2) -unroll2  
-inline-level=0 -scalar-rep- -static

434.zeusmp: basepeak = yes

437.leslie3d: -xSSE4.2 -ipo -O3 -no-prec-div  
-B /usr/share/libhugetlbfs/ -Wl,-melf\_x86\_64 -Wl,-hugetlbfs-link=BDT

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) -prof-use(pass 2) -unroll4 -auto  
-inline-calloc -opt-malloc-options=3  
-B /usr/share/libhugetlbfs/ -Wl,-melf\_x86\_64 -Wl,-hugetlbfs-link=BDT

### Benchmarks using both Fortran and C:

435.gromacs: basepeak = yes

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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-ic12.0-linux64-revA.20110222.00.html>

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

<http://www.spec.org/cpu2006/flags/Intel-ic12.0-linux64-revA.20110222.00.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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