# SPEC® CFP2006 Result
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## Fujitsu

## CELSIUS R570, Intel Xeon E5506

$SPECfp®\_rate2006 =$  119

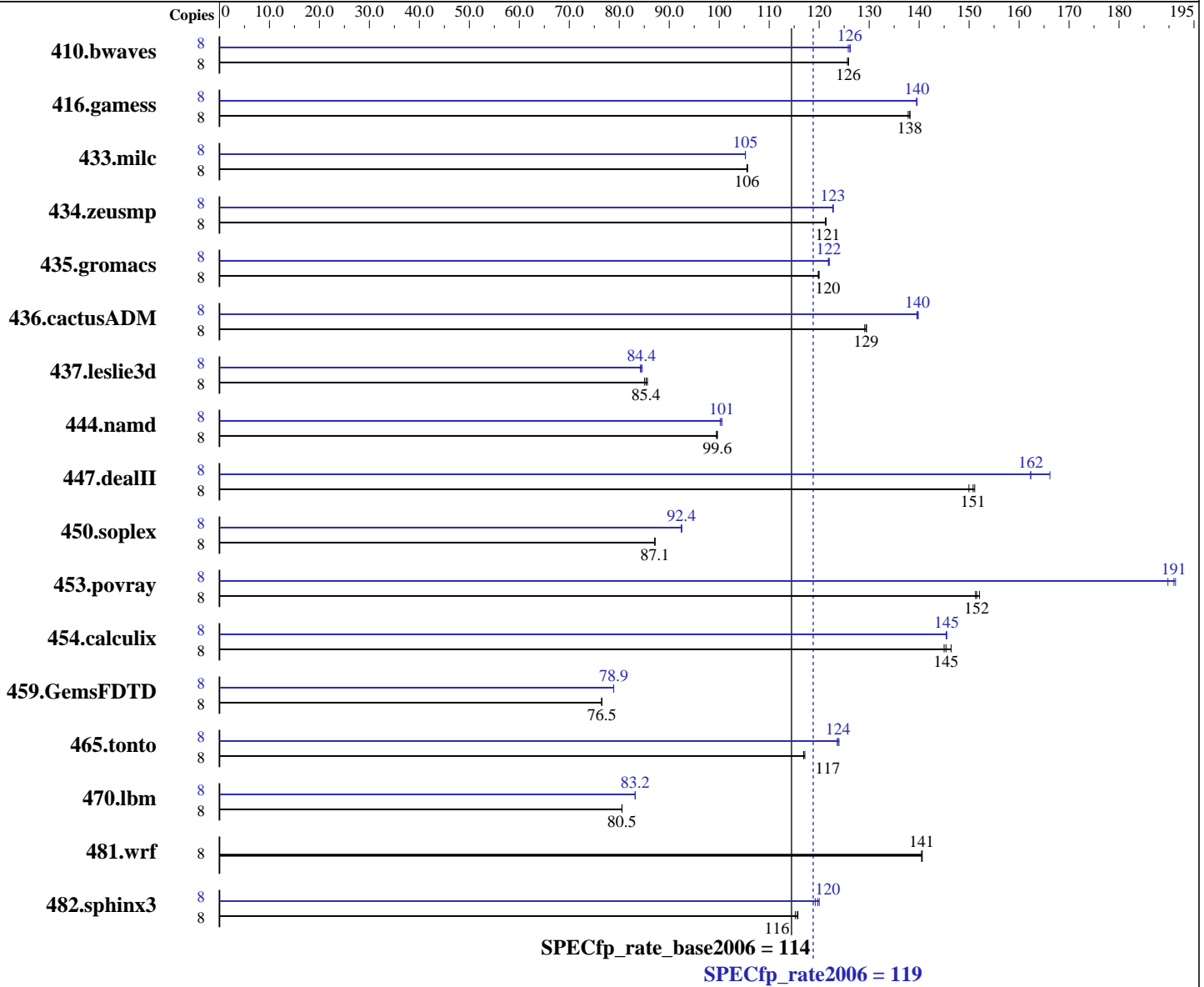$SPECfp\_rate\_base2006 =$  114

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

**Test date:** Apr-2009
**Hardware Availability:** Apr-2009
**Software Availability:** Feb-2009

| Benchmark | Copies | Base | Peak |
|---|---|---|---|
| 410.bwaves | 8 / 8 | 126 | 126 |
| 416.gamess | 8 / 8 | 138 | 140 |
| 433.milc | 8 / 8 | 106 | 105 |
| 434.zeusmp | 8 / 8 | 121 | 123 |
| 435.gromacs | 8 / 8 | 120 | 122 |
| 436.cactusADM | 8 / 8 | 129 | 140 |
| 437.leslie3d | 8 / 8 | 85.4 | 84.4 |
| 444.namd | 8 / 8 | 99.6 | 101 |
| 447.dealII | 8 / 8 | 151 | 162 |
| 450.soplex | 8 / 8 | 87.1 | 92.4 |
| 453.povray | 8 / 8 | 152 | 191 |
| 454.calculix | 8 / 8 | 145 | 145 |
| 459.GemsFDTD | 8 / 8 | 76.5 | 78.9 |
| 465.tonto | 8 / 8 | 117 | 124 |
| 470.lbm | 8 / 8 | 80.5 | 83.2 |
| 481.wrf | 8 | 141 | |
| 482.sphinx3 | 8 / 8 | 116 | 120 |

SPECfp_rate_base2006 = 114

SPECfp_rate2006 = 119

## 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

*Continued on next page*

## 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 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
Base Pointers:      64-bit

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| | |
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| | | | |
|---|---|---|---|
| L3 Cache: | 4 MB I+D on chip per chip | Peak Pointers: | 32/64-bit |
| Other Cache: | None | Other Software: | Binutils 2.18.50.0.7.20080502 |
| Memory: | 24 GB (6x4 GB PC3 10600R, 2 rank, ECC, running at 800 MHz) | | |
| Disk Subsystem: | 1 x SATA II, 400 GB, 7200 rpm | | |
| Other Hardware: | None | | |

## Results Table

| Benchmark | Base | | | | | | Peak | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Copies | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio | Copies | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio |
| 410.bwaves | 8 | 865 | 126 | 864 | 126 | **864** | **126** | 8 | 864 | 126 | **862** | **126** | 861 | 126 |
| 416.gamess | 8 | 1134 | 138 | 1137 | 138 | **1134** | **138** | 8 | 1123 | 139 | **1123** | **140** | 1122 | 140 |
| 433.milc | 8 | 695 | 106 | **696** | **106** | 696 | 106 | 8 | 698 | 105 | **698** | **105** | 698 | 105 |
| 434.zeusmp | 8 | 600 | 121 | 600 | 121 | **600** | **121** | 8 | **593** | **123** | 593 | 123 | 593 | 123 |
| 435.gromacs | 8 | 476 | 120 | **476** | **120** | 477 | 120 | 8 | 468 | 122 | **469** | **122** | 469 | 122 |
| 436.cactusADM | 8 | 741 | 129 | **739** | **129** | 738 | 129 | 8 | **684** | **140** | 684 | 140 | 685 | 140 |
| 437.leslie3d | 8 | 878 | 85.6 | 884 | 85.1 | **881** | **85.4** | 8 | **891** | **84.4** | 893 | 84.2 | 889 | 84.6 |
| 444.namd | 8 | **644** | **99.6** | 644 | 99.6 | 645 | 99.4 | 8 | **638** | **101** | 640 | 100 | 638 | 101 |
| 447.dealII | 8 | 610 | 150 | 606 | 151 | **607** | **151** | 8 | 551 | 166 | **564** | **162** | 564 | 162 |
| 450.soplex | 8 | **766** | **87.1** | 766 | 87.1 | 766 | 87.1 | 8 | **722** | **92.4** | 721 | 92.5 | 722 | 92.4 |
| 453.povray | 8 | 281 | 151 | **281** | **152** | 280 | 152 | 8 | 222 | 191 | **223** | **191** | 224 | 190 |
| 454.calculix | 8 | 455 | 145 | **454** | **145** | 451 | 146 | 8 | 454 | 146 | 454 | 145 | **454** | **145** |
| 459.GemsFDTD | 8 | **1110** | **76.5** | 1109 | 76.5 | 1110 | 76.5 | 8 | 1076 | 78.9 | **1076** | **78.9** | 1076 | 78.9 |
| 465.tonto | 8 | 672 | 117 | **673** | **117** | 673 | 117 | 8 | 635 | 124 | 637 | 124 | **636** | **124** |
| 470.lbm | 8 | **1365** | **80.5** | 1365 | 80.5 | 1364 | 80.6 | 8 | 1321 | 83.2 | 1322 | 83.2 | **1321** | **83.2** |
| 481.wrf | 8 | 636 | 141 | 635 | 141 | **636** | **141** | 8 | 636 | 141 | 635 | 141 | **636** | **141** |
| 482.sphinx3 | 8 | 1353 | 115 | **1349** | **116** | 1347 | 116 | 8 | 1299 | 120 | 1308 | 119 | **1302** | **120** |

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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**Test date:** Apr-2009
**Hardware Availability:** Apr-2009
**Software Availability:** Feb-2009

## 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

## Base Optimization Flags

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

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

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## CELSIUS R570, Intel Xeon E5506

SPECfp_rate2006 = 119

SPECfp_rate_base2006 = 114

## Base Optimization Flags (Continued)

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`
465.tonto: `-DSPEC_CPU_LP64`
470.lbm: `-DSPEC_CPU_LP64`
481.wrf: `-DSPEC_CPU_LP64 -DSPEC_CPU_CASE_FLAG -DSPEC_CPU_LINUX`

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# 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`

    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`

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**Test date:** Apr-2009
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# Peak Optimization Flags (Continued)

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.20090710.08.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.20090710.08.xml

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

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