# SPEC® CFP2006 Result
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## Fujitsu

PRIMERGY TX150 S7, Intel Xeon X3470, 2.93 GHz

$SPECfp^{®}\_rate2006 =$   90.9

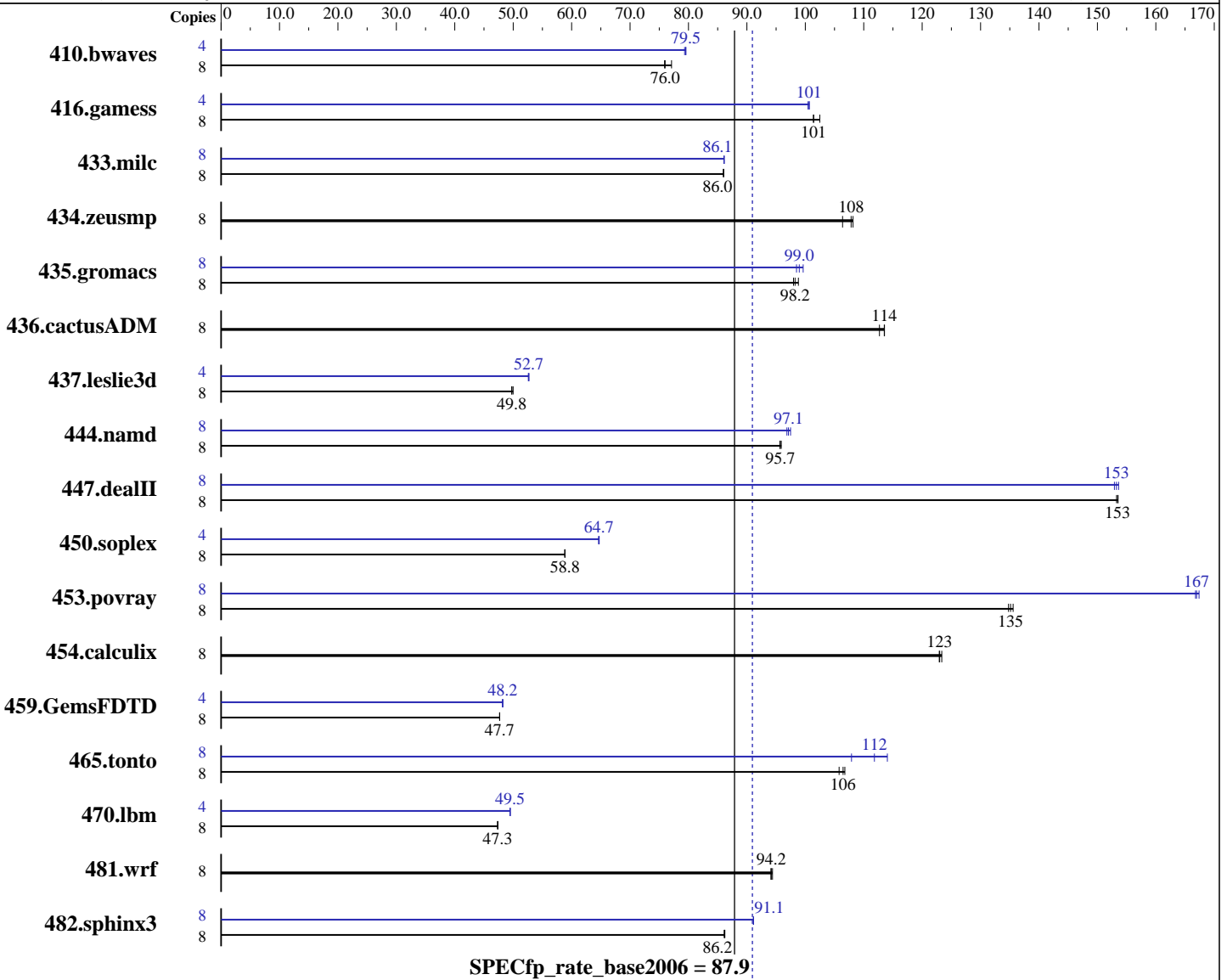$SPECfp\_rate\_base2006 =$   87.9

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

**Test date:** Nov-2009
**Hardware Availability:** Jan-2010
**Software Availability:** Nov-2009



| Benchmark | Copies | |
|---|---|---|
| 410.bwaves | 4 | 79.5 |
| | 8 | 76.0 |
| 416.gamess | 4 | 101 |
| | 8 | 101 |
| 433.milc | 8 | 86.1 |
| | 8 | 86.0 |
| 434.zeusmp | 8 | 108 |
| 435.gromacs | 8 | 99.0 |
| | 8 | 98.2 |
| 436.cactusADM | 8 | 114 |
| 437.leslie3d | 4 | 52.7 |
| | 8 | 49.8 |
| 444.namd | 8 | 97.1 |
| | 8 | 95.7 |
| 447.dealII | 8 | 153 |
| | 8 | 153 |
| 450.soplex | 4 | 64.7 |
| | 8 | 58.8 |
| 453.povray | 8 | 167 |
| | 8 | 135 |
| 454.calculix | 8 | 123 |
| 459.GemsFDTD | 4 | 48.2 |
| | 8 | 47.7 |
| 465.tonto | 8 | 112 |
| | 8 | 106 |
| 470.lbm | 4 | 49.5 |
| | 8 | 47.3 |
| 481.wrf | 8 | 94.2 |
| 482.sphinx3 | 8 | 91.1 |
| | 8 | 86.2 |

**SPECfp_rate_base2006 = 87.9**
**SPECfp_rate2006 = 90.9**

## Hardware

CPU Name: Intel Xeon X3470
CPU Characteristics: Intel Turbo Boost Technology up to 3.60 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

*Continued on next page*

## Software

Operating System: SUSE Linux Enterprise Server 11 (x86_64), Kernel 2.6.27.19-5-smp
Compiler: Intel C++ and Fortran Professional Compiler for IA32 and Intel 64, Version 11.1
Build 20091012 Package ID: l_cproc_p_11.1.059, l_cprof_p_11.1.059
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 | Base Pointers: | 64-bit |
| Other Cache: | None | Peak Pointers: | 32/64-bit |
| Memory: | 16 GB (4x4 GB PC3-10600R, 2 rank, CL9-9-9, ECC) | Other Software: | Binutils 2.18.50.0.7.20080502 |
| Disk Subsystem: | 1 x SATA, 250 GB, 7200 RPM | | |
| Other Hardware: | None | | |

## Results Table

| Benchmark | Base Copies | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio | Peak Copies | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 410.bwaves | 8 | 1432 | 75.9 | **1430** | **76.0** | 1410 | 77.1 | 4 | 685 | 79.3 | **683** | **79.5** | 683 | 79.6 |
| 416.gamess | 8 | 1528 | 102 | **1544** | **101** | 1545 | 101 | 4 | **778** | **101** | 780 | 100 | 778 | 101 |
| 433.milc | 8 | **854** | **86.0** | 854 | 86.0 | 854 | 86.0 | 8 | 853 | 86.1 | 853 | 86.1 | **853** | **86.1** |
| 434.zeusmp | 8 | **675** | **108** | 684 | 106 | 673 | 108 | 8 | **675** | **108** | 684 | 106 | 673 | 108 |
| 435.gromacs | 8 | 578 | 98.8 | 583 | 98.0 | **581** | **98.2** | 8 | **577** | **99.0** | 573 | 99.6 | 580 | 98.5 |
| 436.cactusADM | 8 | **842** | **114** | 842 | 114 | 848 | 113 | 8 | **842** | **114** | 842 | 114 | 848 | 113 |
| 437.leslie3d | 8 | **1511** | **49.8** | 1504 | 50.0 | 1511 | 49.8 | 4 | **714** | **52.7** | 715 | 52.6 | 714 | 52.7 |
| 444.namd | 8 | **670** | **95.7** | 669 | 95.9 | 671 | 95.6 | 4 | 662 | 96.9 | **661** | **97.1** | 658 | 97.5 |
| 447.dealII | 8 | 597 | 153 | 596 | 154 | **596** | **153** | 8 | 596 | 154 | 599 | 153 | **597** | **153** |
| 450.soplex | 8 | 1134 | 58.9 | 1134 | 58.8 | **1134** | **58.8** | 4 | 516 | 64.6 | 515 | 64.7 | **516** | **64.7** |
| 453.povray | 8 | 316 | 135 | **315** | **135** | 314 | 136 | 8 | **255** | **167** | 255 | 167 | 254 | 167 |
| 454.calculix | 8 | 535 | 123 | 537 | 123 | **537** | **123** | 8 | 535 | 123 | 537 | 123 | **537** | **123** |
| 459.GemsFDTD | 8 | 1780 | 47.7 | 1781 | 47.7 | **1780** | **47.7** | 4 | 881 | 48.2 | **880** | **48.2** | 880 | 48.2 |
| 465.tonto | 8 | **739** | **106** | 744 | 106 | 737 | 107 | 8 | 729 | 108 | 690 | 114 | **704** | **112** |
| 470.lbm | 8 | 2322 | 47.3 | **2322** | **47.3** | 2320 | 47.4 | 4 | 1110 | 49.5 | **1111** | **49.5** | 1111 | 49.5 |
| 481.wrf | 8 | 947 | 94.4 | 949 | 94.1 | **949** | **94.2** | 8 | 947 | 94.4 | 949 | 94.1 | **949** | **94.2** |
| 482.sphinx3 | 8 | 1811 | 86.1 | 1808 | 86.2 | **1809** | **86.2** | 8 | 1711 | 91.1 | **1711** | **91.1** | 1711 | 91.1 |

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

## General Notes

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

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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
```

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    -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.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 -opt-prefetch`

         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)`
                `-opt-malloc-options=3 -ansi-alias -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: `basepeak = yes`

　　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`

　　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 -inline-calloc -opt-malloc-options=3`

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: `basepeak = yes`

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# Peak Optimization Flags (Continued)

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-ic11.1-fp-linux64-revE.html

You can also download the XML flags source by saving the following link:
http://www.spec.org/cpu2006/flags/Intel-ic11.1-fp-linux64-revE.xml

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

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