# SPEC® CFP2006 Result
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## Fujitsu

PRIMERGY RX300 S6, Intel Xeon E5649, 2.53 GHz

$SPECfp®\_rate2006 = $ 120

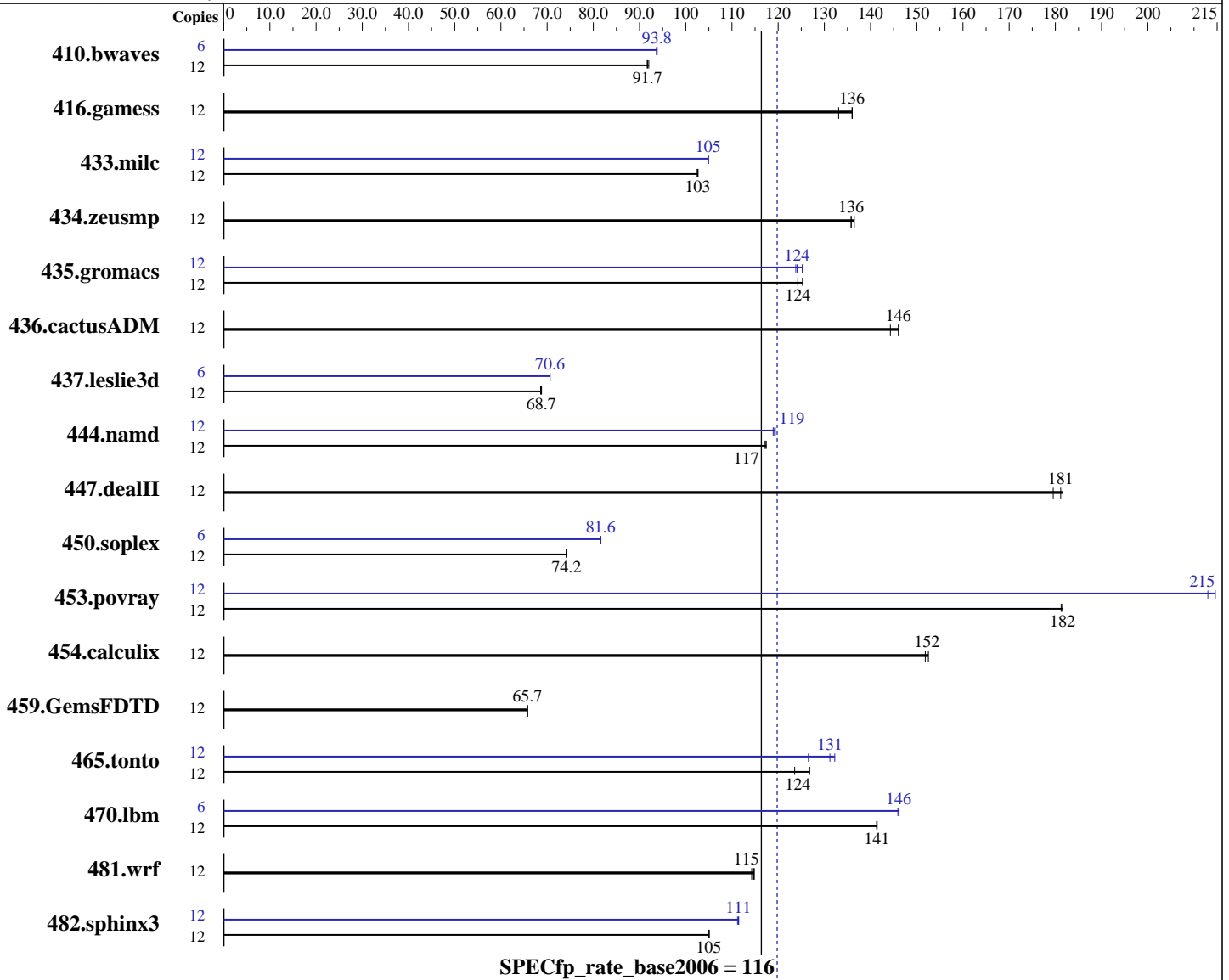$SPECfp\_rate\_base2006 = $ 116

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

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



| Benchmark | Copies | Result |
|---|---|---|
| 410.bwaves | 6 | 93.8 |
| | 12 | 91.7 |
| 416.gamess | 12 | 136 |
| 433.milc | 12 | 105 |
| | 12 | 103 |
| 434.zeusmp | 12 | 136 |
| 435.gromacs | 12 | 124 |
| | 12 | 124 |
| 436.cactusADM | 12 | 146 |
| 437.leslie3d | 6 | 70.6 |
| | 12 | 68.7 |
| 444.namd | 12 | 119 |
| | 12 | 117 |
| 447.dealII | 12 | 181 |
| 450.soplex | 6 | 81.6 |
| | 12 | 74.2 |
| 453.povray | 12 | 215 |
| | 12 | 182 |
| 454.calculix | 12 | 152 |
| 459.GemsFDTD | 12 | 65.7 |
| 465.tonto | 12 | 131 |
| | 12 | 124 |
| 470.lbm | 6 | 146 |
| | 12 | 141 |
| 481.wrf | 12 | 115 |
| 482.sphinx3 | 12 | 111 |
| | 12 | 105 |

SPECfp_rate_base2006 = 116

SPECfp_rate2006 = 120

## Hardware

CPU Name: Intel Xeon E5649
CPU Characteristics: Intel Turbo Boost Technology up to 2.93 GHz
CPU MHz: 2533
FPU: Integrated
CPU(s) enabled: 6 cores, 1 chip, 6 cores/chip, 2 threads/core
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 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: | 12 MB I+D on chip per chip |
| Other Cache: | None |
| Memory: | 24 GB (6 x 4 GB 2Rx4 PC3-10600R-9, ECC) |
| 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 | 12 | 1773 | 92.0 | **1778** | **91.7** | 1779 | 91.7 | 6 | **870** | **93.8** | 869 | 93.8 | 871 | 93.6 |
| 416.gamess | 12 | 1727 | 136 | **1728** | **136** | 1765 | 133 | 12 | 1727 | 136 | **1728** | **136** | 1765 | 133 |
| 433.milc | 12 | 1073 | 103 | **1074** | **103** | 1075 | 102 | 12 | 1050 | 105 | 1051 | 105 | **1050** | **105** |
| 434.zeusmp | 12 | 800 | 136 | 804 | 136 | **804** | **136** | 12 | 800 | 136 | 804 | 136 | **804** | **136** |
| 435.gromacs | 12 | **689** | **124** | 684 | 125 | 690 | 124 | 12 | **690** | **124** | 684 | 125 | 692 | 124 |
| 436.cactusADM | 12 | 982 | 146 | **982** | **146** | 994 | 144 | 12 | 982 | 146 | **982** | **146** | 994 | 144 |
| 437.leslie3d | 12 | **1641** | **68.7** | 1640 | 68.8 | 1645 | 68.6 | 6 | 798 | 70.6 | 799 | 70.6 | **799** | **70.6** |
| 444.namd | 12 | 820 | 117 | 822 | 117 | **821** | **117** | 12 | 806 | 119 | 809 | 119 | **808** | **119** |
| 447.dealII | 12 | 765 | 180 | **758** | **181** | 756 | 182 | 12 | 765 | 180 | **758** | **181** | 756 | 182 |
| 450.soplex | 12 | **1349** | **74.2** | 1350 | 74.2 | 1349 | 74.2 | 6 | **613** | **81.6** | 613 | 81.6 | 613 | 81.6 |
| 453.povray | 12 | 352 | 182 | **352** | **182** | 352 | 181 | 12 | **298** | **215** | 297 | 215 | 300 | 213 |
| 454.calculix | 12 | 649 | 153 | **650** | **152** | 652 | 152 | 12 | 649 | 153 | **650** | **152** | 652 | 152 |
| 459.GemsFDTD | 12 | 1936 | 65.8 | 1940 | 65.6 | **1937** | **65.7** | 12 | 1936 | 65.8 | 1940 | 65.6 | **1937** | **65.7** |
| 465.tonto | 12 | 956 | 124 | **950** | **124** | 931 | 127 | 12 | **900** | **131** | 933 | 127 | 893 | 132 |
| 470.lbm | 12 | 1166 | 141 | **1166** | **141** | 1167 | 141 | 6 | **564** | **146** | 564 | 146 | 565 | 146 |
| 481.wrf | 12 | **1168** | **115** | 1167 | 115 | 1173 | 114 | 12 | **1168** | **115** | 1167 | 115 | 1173 | 114 |
| 482.sphinx3 | 12 | 2225 | 105 | **2227** | **105** | 2230 | 105 | 12 | 2098 | 111 | **2099** | **111** | 2103 | 111 |

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
 Hugepages were not configured on the system
```

## Platform Notes

```
 BIOS configuration:
 Data Reuse Optimization = Disable
```

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$SPECfp\_rate2006 =$    120

$SPECfp\_rate\_base2006 =$    116

| | |
|---|---|
| **CPU2006 license:** 19 | **Test date:** Jan-2011 |
| **Test sponsor:** Fujitsu | **Hardware Availability:** Feb-2011 |
| **Tested by:** Fujitsu | **Software Availability:** Jan-2011 |

## General Notes

 This result was measured on the PRIMERGY TX300 S6. The PRIMERGY TX300 S6
 and the PRIMERGY RX300 S6 are electronically equivalent.

 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

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## 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 -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.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) -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: `-xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)`
        `-no-prec-div(pass 2) -prof-use(pass 2) -static`

    416.gamess: `basepeak = yes`

    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: `-xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)`
        `-no-prec-div(pass 2) -prof-use(pass 2) -opt-prefetch`
        `-static -auto-ilp32`

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# Peak Optimization Flags (Continued)

436.cactusADM: basepeak = yes

454.calculix: basepeak = yes

481.wrf: basepeak = yes

The flags files that were used to format this result can be browsed at
http://www.spec.org/cpu2006/flags/Intel-ic12.0-linux64-revB.20110316.html
http://www.spec.org/cpu2006/flags/Intel-ic12.0-linux64-revA.20110316.html

You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2006/flags/Intel-ic12.0-linux64-revB.20110316.xml
http://www.spec.org/cpu2006/flags/Intel-ic12.0-linux64-revA.20110316.xml

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