# SPEC® CFP2006 Result

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## Fujitsu

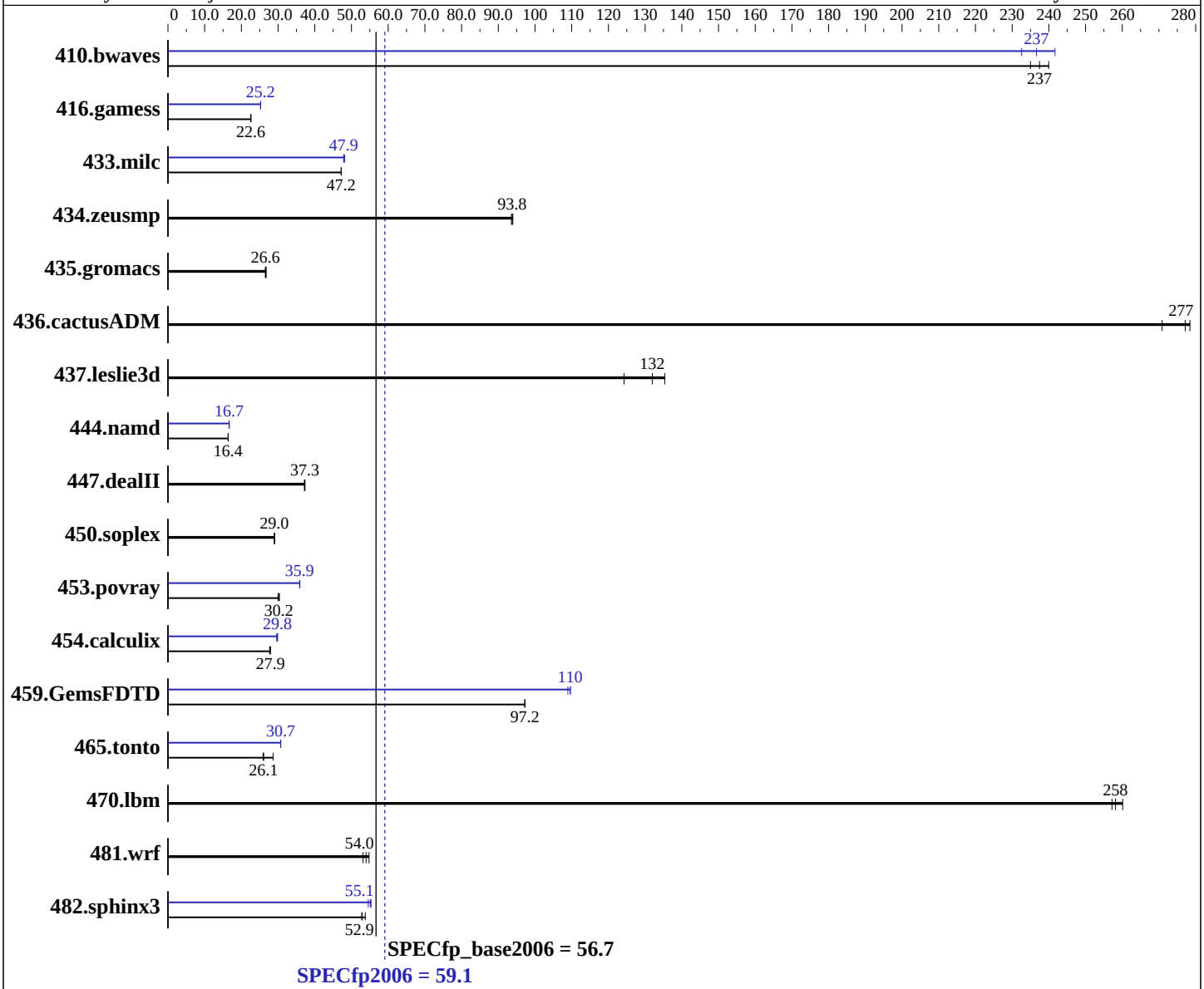
PRIMERGY RX300 S7, Intel Xeon E5-2609, 2.40 GHz

SPECfp®2006 = 59.1

SPECfp_base2006 = 56.7

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

**Test date:** Mar-2012
**Hardware Availability:** Mar-2012
**Software Availability:** Dec-2011




## Hardware

| | |
|---|---|
| CPU Name: | Intel Xeon E5-2609 |
| CPU Characteristics: | |
| CPU MHz: | 2400 |
| 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 |

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## Software

| | |
|---|---|
| Operating System: | Red Hat Enterprise Linux Server release 6.2 (Santiago)<br>2.6.32-220.el6.x86_64 |
| Compiler: | C/C++: Version 12.1.0.225 of Intel C++ Studio XE for Linux;<br>Fortran: Version 12.1.0.225 of Intel Fortran Studio XE for Linux |
| Auto Parallel: | Yes |
| File System: | ext4 |

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L3 Cache: 10 MB I+D on chip per chip
Other Cache: None
Memory: 128 GB (16 x 8 GB 2Rx4 PC3L-12800R-11, ECC, running at 1067 MHz and CL7)
Disk Subsystem: 1 x SATA, 500 GB, 7200 RPM
Other Hardware: None

System State: Run level 3 (multi-user)
Base Pointers: 64-bit
Peak Pointers: 32/64-bit
Other Software: None

## Results Table

| Benchmark | Base | | | | | | Peak | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio |
| 410.bwaves | 57.8 | 235 | **57.2** | **237** | 56.6 | 240 | 58.4 | 233 | **57.4** | **237** | 56.2 | 242 |
| 416.gamess | **868** | **22.6** | 869 | 22.5 | 866 | 22.6 | 775 | 25.3 | **776** | **25.2** | 776 | 25.2 |
| 433.milc | 194 | 47.2 | **194** | **47.2** | 195 | 47.2 | 191 | 48.2 | **192** | **47.9** | 192 | 47.9 |
| 434.zeusmp | **97.0** | **93.8** | 97.2 | 93.6 | 96.8 | 94.0 | **97.0** | **93.8** | 97.2 | 93.6 | 96.8 | 94.0 |
| 435.gromacs | **269** | **26.6** | 269 | 26.5 | 267 | 26.8 | **269** | **26.6** | 269 | 26.5 | 267 | 26.8 |
| 436.cactusADM | 44.1 | 271 | 42.9 | 278 | **43.1** | **277** | 44.1 | 271 | 42.9 | 278 | **43.1** | **277** |
| 437.leslie3d | 75.6 | 124 | **71.2** | **132** | 69.4 | 135 | 75.6 | 124 | **71.2** | **132** | 69.4 | 135 |
| 444.namd | 489 | 16.4 | **489** | **16.4** | 489 | 16.4 | 481 | 16.7 | 481 | 16.7 | **481** | **16.7** |
| 447.dealII | 307 | 37.3 | **307** | **37.3** | 308 | 37.2 | 307 | 37.3 | **307** | **37.3** | 308 | 37.2 |
| 450.soplex | 288 | 29.0 | **287** | **29.0** | 286 | 29.1 | 288 | 29.0 | **287** | **29.0** | 286 | 29.1 |
| 453.povray | 177 | 30.0 | **176** | **30.2** | 175 | 30.4 | 148 | 35.9 | **148** | **35.9** | 148 | 35.9 |
| 454.calculix | 295 | 27.9 | **296** | **27.9** | 298 | 27.7 | 276 | 29.8 | **277** | **29.8** | 279 | 29.6 |
| 459.GemsFDTD | 109 | 97.2 | 109 | 97.2 | **109** | **97.2** | 96.8 | 110 | **96.8** | **110** | 97.4 | 109 |
| 465.tonto | 343 | 28.7 | **377** | **26.1** | 379 | 26.0 | **320** | **30.7** | 320 | 30.7 | 321 | 30.7 |
| 470.lbm | 53.4 | 257 | 52.8 | 260 | **53.2** | **258** | 53.4 | 257 | 52.8 | 260 | **53.2** | **258** |
| 481.wrf | 210 | 53.2 | 204 | 54.8 | **207** | **54.0** | 210 | 53.2 | 204 | 54.8 | **207** | **54.0** |
| 482.sphinx3 | **369** | **52.9** | 369 | 52.8 | 363 | 53.8 | 352 | 55.3 | 357 | 54.6 | **354** | **55.1** |

Results appear in the order in which they were run. Bold underlined text indicates a median measurement.

## Operating System Notes

```
Stack size set to unlimited using "ulimit -s unlimited"
```

## Platform Notes

```
BIOS configuration:
Frequency Floor Override = Enable
```

## General Notes

```
Environment variables set by runspec before the start of the run:
KMP_AFFINITY = "granularity=fine,scatter"
LD_LIBRARY_PATH = "/SPECcpu2006/libs/32:/SPECcpu2006/libs/64"
```

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## General Notes (Continued)

```
OMP_NUM_THREADS = "8"

 Binaries compiled on a system with 1x Core i7-860 CPU + 8GB
 memory using RHEL5.5
 Transparent Huge Pages enabled with:
 echo always > /sys/kernel/mm/redhat_transparent_hugepage/enabled
 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:
```
-xAVX -ipo -O3 -no-prec-div -static -parallel -opt-prefetch
-ansi-alias
```

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## Base Optimization Flags (Continued)

C++ benchmarks:
-xAVX -ipo -O3 -no-prec-div -static -opt-prefetch -ansi-alias

Fortran benchmarks:
-xAVX -ipo -O3 -no-prec-div -static -parallel -opt-prefetch

Benchmarks using both Fortran and C:
-xAVX -ipo -O3 -no-prec-div -static -parallel -opt-prefetch -ansi-alias

## Peak Compiler Invocation

C benchmarks:
icc -m64

C++ benchmarks:
icpc -m64

Fortran benchmarks:
ifort -m64

Benchmarks using both Fortran and C:
icc -m64 ifort -m64

## Peak Portability Flags

Same as Base Portability Flags

## Peak Optimization Flags

C benchmarks:

433.milc: -xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2) -static -auto-ilp32 -ansi-alias

470.lbm: basepeak = yes

482.sphinx3: -xAVX -ipo -O3 -no-prec-div -unroll2 -ansi-alias -parallel

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## Peak Optimization Flags (Continued)

C++ benchmarks:

444.namd: -xAVX(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: basepeak = yes

453.povray: -xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2) -unroll4 -ansi-alias

Fortran benchmarks:

410.bwaves: -xAVX -ipo -O3 -no-prec-div -opt-prefetch -parallel -static

416.gamess: -xAVX(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: basepeak = yes

459.GemsFDTD: -xAVX(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 -opt-prefetch -parallel

465.tonto: -xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2) -inline-calloc -opt-malloc-options=3 -auto -unroll4

Benchmarks using both Fortran and C:

435.gromacs: basepeak = yes

436.cactusADM: basepeak = yes

454.calculix: -xAVX -ipo -O3 -no-prec-div -auto-ilp32 -ansi-alias

481.wrf: basepeak = yes

The flags files that were used to format this result can be browsed at
http://www.spec.org/cpu2006/flags/Fujitsu-Platform.20120320.html
http://www.spec.org/cpu2006/flags/Intel-ic12.1-official-linux64.20111122.html

You can also download the XML flags sources by saving the following links:

`http://www.spec.org/cpu2006/flags/Fujitsu-Platform.20120320.xml`
`http://www.spec.org/cpu2006/flags/Intel-ic12.1-official-linux64.20111122.xml`


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For other inquiries, please contact webmaster@spec.org.

Tested with SPEC CPU2006 v1.2.
Report generated on Thu Jul 24 07:39:34 2014 by SPEC CPU2006 PS/PDF formatter v6932.
Originally published on 10 April 2012.