# SPEC® CFP2006 Result

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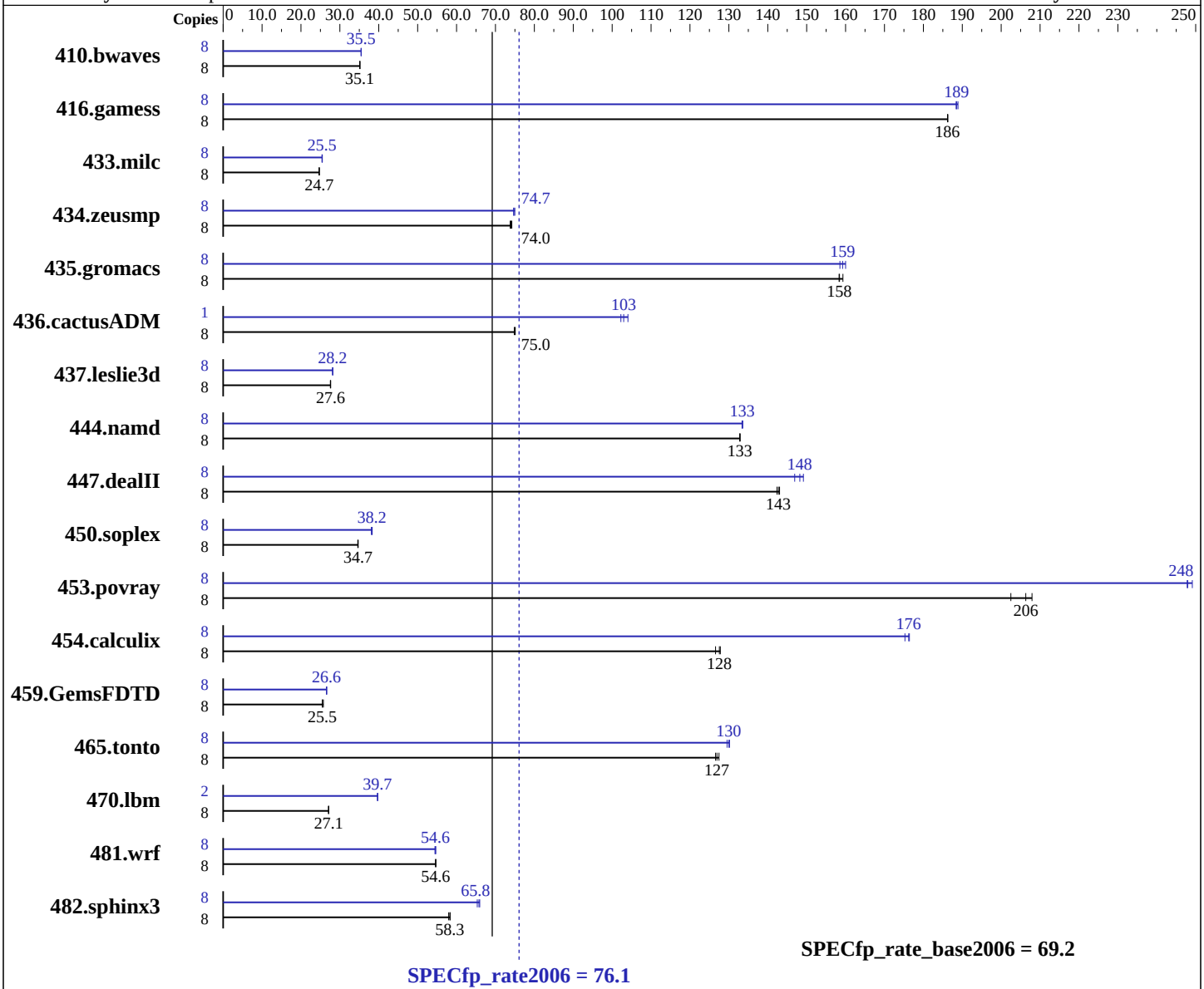
## Supermicro Motherborad X7DBU

**SPECfp®_rate2006 = 76.1**

**SPECfp_rate_base2006 = 69.2**

**CPU2006 license:** 001176
**Test sponsor:** Supermicro
**Tested by:** Supermicro

**Test date:** Oct-2007
**Hardware Availability:** Nov-2007
**Software Availability:** Nov-2007




### Hardware

| | |
|---|---|
| CPU Name: | Intel Xeon X5460 |
| CPU Characteristics: | Quad Core, 3.16GHz |
| CPU MHz: | 3160 |
| 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: | 12 MB I+D on chip per chip, 6 MB shared / 2 cores |

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### Software

| | |
|---|---|
| Operating System: | SuSE Linux Enterprise Server 10 (x86_64) SP1, kernel 2.6.16.46-0.12-default |
| Compiler: | Intel C++ and Fortran Compiler for Linux32 and Linux64 version 10.1 Build 20070725 |
| Auto Parallel: | Yes |
| File System: | ReiserFS |
| System State: | Multi-user, run level 3 |
| Base Pointers: | 64-bit |

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L3 Cache: None
Other Cache: None
Memory: 8 GB (8 * 1 GB PC2-5300 FBDIMM, CL-5-5-5, ECC)
Disk Subsystem: 500GB SATA, 7200RPM
Other Hardware: None

Peak Pointers: 32/64-bit
Other Software: None

## Results Table

| Benchmark | Base | | | | | | | Peak | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Copies | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio | Copies | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio |
| 410.bwaves | 8 | 3091 | 35.2 | 3096 | 35.1 | **3095** | **35.1** | 8 | **3065** | **35.5** | 3064 | 35.5 | 3065 | 35.5 |
| 416.gamess | 8 | 841 | 186 | 841 | 186 | **841** | **186** | 8 | 831 | 188 | 829 | 189 | **831** | **189** |
| 433.milc | 8 | 2978 | 24.7 | **2973** | **24.7** | 2971 | 24.7 | 8 | 2892 | 25.4 | **2885** | **25.5** | 2880 | 25.5 |
| 434.zeusmp | 8 | 981 | 74.2 | **984** | **74.0** | 987 | 73.8 | 8 | **974** | **74.7** | 971 | 75.0 | 975 | 74.7 |
| 435.gromacs | 8 | 361 | 158 | 359 | 159 | **361** | **158** | 8 | 357 | 160 | 360 | 159 | **359** | **159** |
| 436.cactusADM | 8 | **1275** | **75.0** | 1278 | 74.8 | 1273 | 75.1 | 1 | 115 | 104 | **116** | **103** | 117 | 102 |
| 437.leslie3d | 8 | 2722 | 27.6 | 2729 | 27.6 | **2723** | **27.6** | 8 | 2674 | 28.1 | 2668 | 28.2 | **2670** | **28.2** |
| 444.namd | 8 | **483** | **133** | 483 | 133 | 483 | 133 | 8 | **481** | **133** | 480 | 134 | 481 | 133 |
| 447.dealII | 8 | **641** | **143** | 640 | 143 | 643 | 142 | 8 | 623 | 147 | 614 | 149 | **617** | **148** |
| 450.soplex | 8 | **1925** | **34.7** | 1922 | 34.7 | 1928 | 34.6 | 8 | 1741 | 38.3 | **1745** | **38.2** | 1751 | 38.1 |
| 453.povray | 8 | 210 | 202 | **206** | **206** | 205 | 208 | 8 | **172** | **248** | 171 | 249 | 172 | 248 |
| 454.calculix | 8 | **517** | **128** | 516 | 128 | 521 | 127 | 8 | 374 | 176 | **375** | **176** | 377 | 175 |
| 459.GemsFDTD | 8 | 3294 | 25.8 | 3328 | 25.5 | **3326** | **25.5** | 8 | 3188 | 26.6 | **3193** | **26.6** | 3196 | 26.6 |
| 465.tonto | 8 | **620** | **127** | 622 | 127 | 618 | 127 | 8 | **606** | **130** | 608 | 130 | 605 | 130 |
| 470.lbm | 8 | **4052** | **27.1** | 4051 | 27.1 | 4060 | 27.1 | 2 | 692 | 39.7 | **692** | **39.7** | 693 | 39.7 |
| 481.wrf | 8 | 1636 | 54.6 | **1636** | **54.6** | 1634 | 54.7 | 8 | 1641 | 54.4 | 1635 | 54.7 | **1638** | **54.6** |
| 482.sphinx3 | 8 | 2672 | 58.3 | **2675** | **58.3** | 2690 | 58.0 | 8 | **2371** | **65.8** | 2387 | 65.3 | 2364 | 66.0 |

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

## General Notes

```
Tested systems can be used with CSE-812L-520U case,
To ensure system stability, a 550W (minimum) ATX power supply
[4-pin (+12V), 8-pin (+12V) and 24-pin are required]
Product description located as of
http://www.supermicro.com/products/motherboard/Xeon1333/5000/X7DBU.cfm
The system bus runs at 1333 MHz
taskset was used to bind processes to cores except for 436.cactusADM at peak
```

## Base Compiler Invocation

C benchmarks:
icc

Continued on next page

## Base Compiler Invocation (Continued)

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:
-fast

C++ benchmarks:
-fast

Fortran benchmarks:
-fast

Benchmarks using both Fortran and C:
-fast

## Peak Compiler Invocation

C benchmarks (except as noted below):
```
/home/cmplr/usr3/alrahate/compilers/ic10.1mainline/20070725/Linux32/bin/icc
-L/home/cmplr/usr3/alrahate/compilers/ic10.1mainline/20070725/Linux32/lib
-I/home/cmplr/usr3/alrahate/compilers/ic10.1mainline/20070725/Linux32/include
```

433.milc: `icc`

C++ benchmarks (except as noted below):
```
icpc
```

450.soplex: `/home/cmplr/usr3/alrahate/compilers/ic10.1mainline/20070725/Linux32/bin/icpc -L/home/cmplr/usr3/alrahate/compilers/ic10.1mainline/20070725/Linux32/lib -I/home/cmplr/usr3/alrahate/compilers/ic10.1mainline/20070725/Linux32/include`

Fortran benchmarks (except as noted below):
```
ifort
```

437.leslie3d: `/home/cmplr/usr3/alrahate/compilers/ic10.1mainline/20070725/Linux32/bin/ifort -L/home/cmplr/usr3/alrahate/compilers/ic10.1mainline/20070725/Linux32/lib -I/home/cmplr/usr3/alrahate/compilers/ic10.1mainline/20070725/Linux32/include`

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`
481.wrf: `-DSPEC_CPU_LP64 -DSPEC_CPU_CASE_FLAG -DSPEC_CPU_LINUX`

## Peak Optimization Flags

C benchmarks:

433.milc: `-prof-gen`(pass 1) `-prof-use`(pass 2) `-fast -fno-alias -auto-ilp32`

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## Peak Optimization Flags (Continued)

470.lbm: -prof-gen(pass 1) -prof-use(pass 2) -fast -unroll2 -scalar-rep- -prefetch -opt-malloc-options=3

482.sphinx3: -fast -unroll2

C++ benchmarks:

444.namd: -prof-gen(pass 1) -prof-use(pass 2) -fast -fno-alias -auto-ilp32

447.dealII: -prof-gen(pass 1) -prof-use(pass 2) -fast -unroll2 -ansi-alias -scalar-rep-

450.soplex: -prof-gen(pass 1) -prof-use(pass 2) -fast -opt-malloc-options=3

453.povray: -prof-gen(pass 1) -prof-use(pass 2) -fast -unroll4 -ansi-alias

Fortran benchmarks:

410.bwaves: -fast -prefetch

416.gamess: -prof-gen(pass 1) -prof-use(pass 2) -fast -unroll2 -Ob0 -ansi-alias -scalar-rep-

434.zeusmp: -prof-gen(pass 1) -prof-use(pass 2) -fast

437.leslie3d: -prof-gen(pass 1) -prof-use(pass 2) -fast -prefetch -opt-malloc-options=3

459.GemsFDTD: -prof-gen(pass 1) -prof-use(pass 2) -fast -unroll2 -Ob0 -prefetch

465.tonto: -prof-gen(pass 1) -prof-use(pass 2) -fast -unroll4 -auto

Benchmarks using both Fortran and C:

435.gromacs: -prof-gen(pass 1) -prof-use(pass 2) -fast -prefetch -auto-ilp32

436.cactusADM: -prof-gen(pass 1) -prof-use(pass 2) -fast -unroll2 -prefetch -parallel -auto-ilp32

454.calculix: -fast -unroll-aggressive -auto-ilp32

481.wrf: -fast -auto-ilp32

The flags file that was used to format this result can be browsed at
http://www.spec.org/cpu2006/flags/Intel-ic10.1-FP-intel64-linux-flags.20090714.28.html

You can also download the XML flags source by saving the following link:
http://www.spec.org/cpu2006/flags/Intel-ic10.1-FP-intel64-linux-flags.20090714.28.xml


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

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