



SPEC® CFP2006 Result

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Supermicro

SuperServer 2026TT-HIBQRF (X8DTT-HIBQF+, Intel Xeon E5603)

SPECfp®2006 = 30.5

SPECfp_base2006 = 29.3

CPU2006 license: 001176

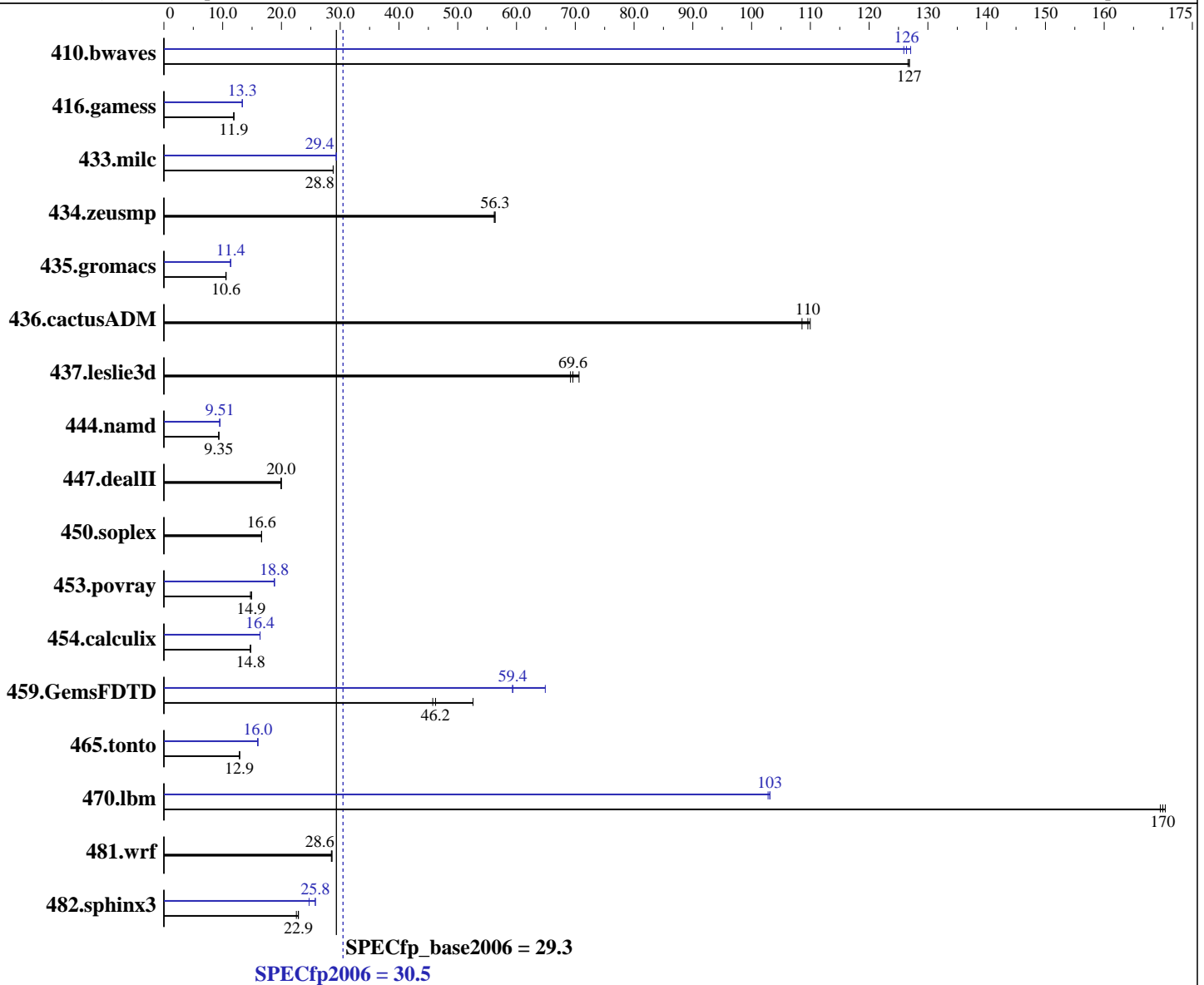
Test sponsor: Supermicro

Tested by: Supermicro

Test date: Mar-2011

Hardware Availability: Feb-2011

Software Availability: Apr-2011



Hardware

CPU Name: Intel Xeon E5603
 CPU Characteristics:
 CPU MHz: 1600
 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 11 (x86_64) 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 Intel C++ and Fortran Intel 64 Compiler XE for applications running on Intel 64 Version 12.0 Update 3
 Auto Parallel: Yes
 File System: ext3

Continued on next page



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L3 Cache: 4 MB I+D on chip per chip
Other Cache: None
Memory: 48 GB (12 x 4 GB 2Rx4 PC3-10600R-9, ECC, running at 1067 MHz)
Disk Subsystem: 1 x 500 GB SATA II, 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 | 107 | 127 | 107 | 127 | 107 | 127 | 108 | 126 | 108 | 126 | 107 | 127 |
| 416.gamess | 1644 | 11.9 | 1644 | 11.9 | 1649 | 11.9 | 1467 | 13.3 | 1467 | 13.3 | 1468 | 13.3 |
| 433.milc | 319 | 28.8 | 319 | 28.8 | 319 | 28.8 | 313 | 29.3 | 312 | 29.4 | 313 | 29.4 |
| 434.zeusmp | 162 | 56.3 | 162 | 56.3 | 162 | 56.2 | 162 | 56.3 | 162 | 56.3 | 162 | 56.2 |
| 435.gromacs | 675 | 10.6 | 678 | 10.5 | 675 | 10.6 | 627 | 11.4 | 629 | 11.4 | 630 | 11.3 |
| 436.cactusADM | 110 | 109 | 109 | 110 | 109 | 110 | 110 | 109 | 109 | 110 | 109 | 110 |
| 437.leslie3d | 133 | 70.6 | 136 | 69.2 | 135 | 69.6 | 133 | 70.6 | 136 | 69.2 | 135 | 69.6 |
| 444.namd | 857 | 9.35 | 860 | 9.33 | 858 | 9.35 | 843 | 9.52 | 844 | 9.51 | 843 | 9.51 |
| 447.dealII | 574 | 19.9 | 573 | 20.0 | 573 | 20.0 | 574 | 19.9 | 573 | 20.0 | 573 | 20.0 |
| 450.soplex | 502 | 16.6 | 502 | 16.6 | 502 | 16.6 | 502 | 16.6 | 502 | 16.6 | 502 | 16.6 |
| 453.povray | 358 | 14.9 | 356 | 14.9 | 361 | 14.7 | 283 | 18.8 | 283 | 18.8 | 283 | 18.8 |
| 454.calculix | 559 | 14.8 | 562 | 14.7 | 558 | 14.8 | 504 | 16.4 | 504 | 16.4 | 504 | 16.4 |
| 459.GemsFDTD | 232 | 45.7 | 230 | 46.2 | 202 | 52.6 | 179 | 59.3 | 179 | 59.4 | 163 | 64.9 |
| 465.tonto | 763 | 12.9 | 766 | 12.9 | 766 | 12.9 | 616 | 16.0 | 615 | 16.0 | 617 | 15.9 |
| 470.lbm | 80.8 | 170 | 81.0 | 170 | 80.6 | 170 | 134 | 103 | 133 | 103 | 133 | 103 |
| 481.wrf | 391 | 28.6 | 392 | 28.5 | 391 | 28.6 | 391 | 28.6 | 392 | 28.5 | 391 | 28.6 |
| 482.sphinx3 | 865 | 22.5 | 852 | 22.9 | 851 | 22.9 | 757 | 25.8 | 756 | 25.8 | 789 | 24.7 |

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

Operating System Notes

```
'ulimit -s unlimited' was used to set the stack size to unlimited prior to run
Hugepages was enabled with the following:
nodev /mnt/hugepages hugetlbfs defaults 0 0' added to /etc/fstab
echo 900 > /proc/sys/vm/nr_hugepages
export HUGETLB_MORECORE=yes
```

Platform Notes

Fan speed set to Full Speed and Data Reuse Optimization disabled in BIOS Setup.



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General Notes

OMP_NUM_THREADS set to number of cores
Binaries compiled on RHEL5.5 with binutils-2.17.50.0.6-14.el5

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 -parallel -opt-prefetch
-ansi-alias

C++ benchmarks:
-xSSE4.2 -ipo -O3 -no-prec-div -static -opt-prefetch -ansi-alias

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Base Optimization Flags (Continued)

Fortran benchmarks:

`-xSSE4.2 -ipo -O3 -no-prec-div -static -parallel -opt-prefetch`

Benchmarks using both Fortran and C:

`-xSSE4.2 -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: `-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
-ansi-alias`

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) -parallel
-ansi-alias -static -auto-ilp32`

482.sphinx3: `-xSSE4.2 -ipo -O3 -no-prec-div -unroll2 -ansi-alias
-parallel`

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`

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Peak Optimization Flags (Continued)

447.deallI: basepeak = yes

450.soplex: basepeak = yes

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 -ipo -O3 -no-prec-div -opt-prefetch -parallel
-static

416.gamess: -xSSE4.2(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: -xSSE4.2(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
-B /usr/share/libhugetlbfs/ -Wl,-melf_x86_64 -Wl,-hugetlbfs-link=BDT

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) -inline-calloc
-opt-malloc-options=3 -auto -unroll4
-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) -static -auto-ilp32
-ansi-alias

436.cactusADM: basepeak = yes

454.calculix: -xSSE4.2 -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/Intel-ic12.0-linux64-revB.html>

<http://www.spec.org/cpu2006/flags/Intel-Linux64-Platform.20110308.html>



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

<http://www.spec.org/cpu2006/flags/Intel-ic12.0-linux64-revB.xml>

<http://www.spec.org/cpu2006/flags/Intel-Linux64-Platform.20110308.xml>

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