SPEC® CFP2006 Result

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Supermicro

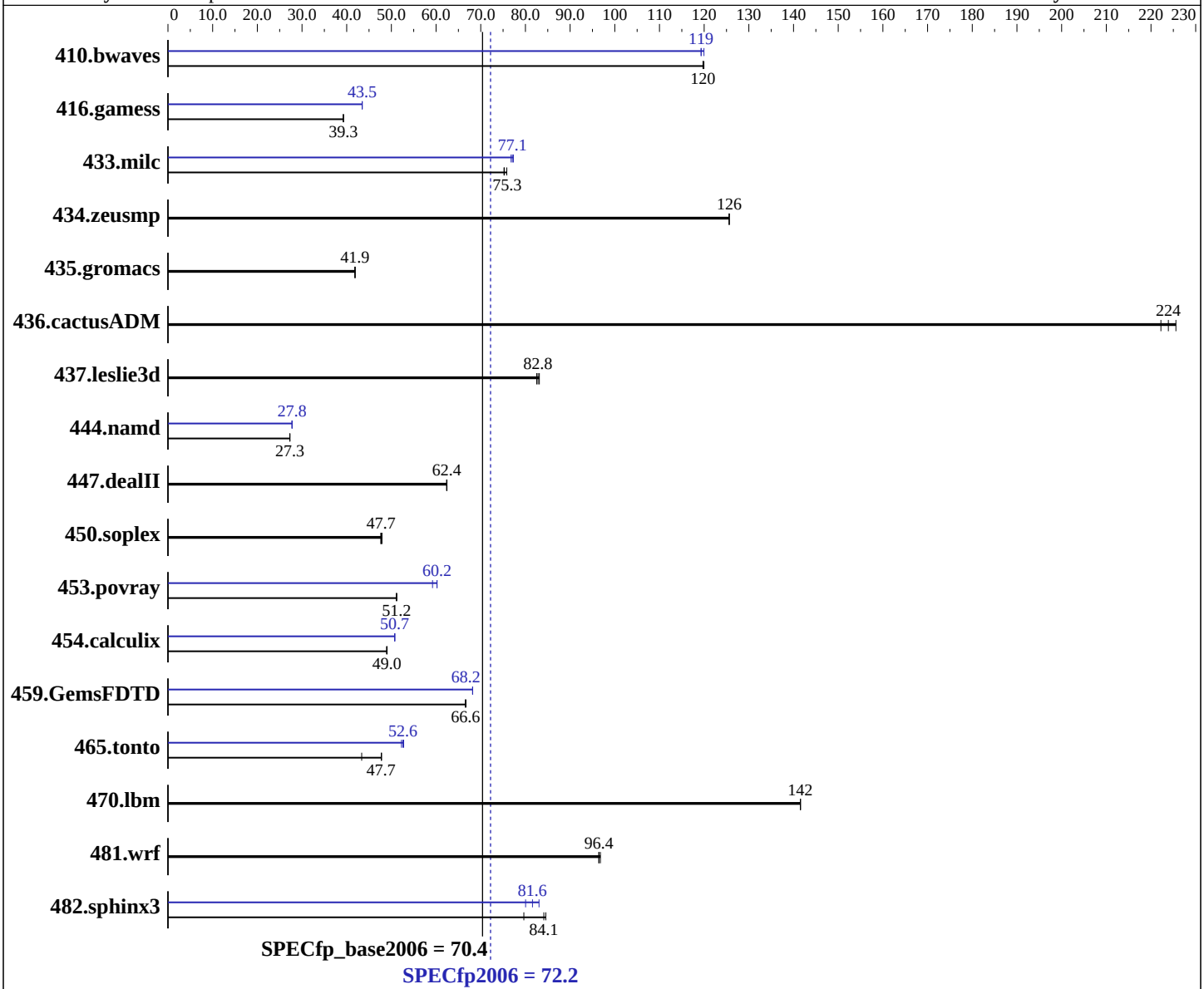
Supermicro C7P67 motherboard (Intel Core i7-3770, 3.40 GHz)

SPECfp®2006 = 72.2

SPECfp_base2006 = 70.4

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

Test date: Jun-2012
Hardware Availability: Apr-2012
Software Availability: Dec-2011



Hardware

CPU Name:	Intel Core i7-3770
CPU Characteristics:	Intel Turbo Boost Technology up to 3.90 GHz
CPU MHz:	3400
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

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Software

Operating System:	Red Hat Enterprise Linux Server Release 6.2, Kernel 2.6.32-220.el6.x86_64
Compiler:	C/C++: Version 12.1.0.225 of Intel C++ Studio XE for Linux; Fortran: Version 12.1.0.225 of Intel Fortran Studio XE for Linux
Auto Parallel:	Yes
File System:	ext4
System State:	Run level 3 (multi-user)

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L3 Cache: 8 MB I+D on chip per chip
Other Cache: None
Memory: 16 GB (4 x 4 GB 2Rx8 PC3-14900U-13)
Disk Subsystem: 1 x 120 GB OCZ SSD
Other Hardware: None

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	113	120	**113**	**120**	113	120	**114**	**119**	114	119	113	120
416.gamess	498	39.3	**499**	**39.3**	499	39.2	451	43.5	**450**	**43.5**	450	43.5
433.milc	122	75.2	**122**	**75.3**	121	75.8	119	77.3	120	76.8	**119**	**77.1**
434.zeusmp	72.4	126	72.5	126	**72.4**	**126**	72.4	126	72.5	126	**72.4**	**126**
435.gromacs	**171**	**41.9**	170	41.9	171	41.8	**171**	**41.9**	170	41.9	171	41.8
436.cactusADM	53.0	226	53.8	222	**53.4**	**224**	53.0	226	53.8	222	**53.4**	**224**
437.leslie3d	114	82.5	113	83.1	**114**	**82.8**	114	82.5	113	83.1	**114**	**82.8**
444.namd	294	27.3	294	27.3	**294**	**27.3**	289	27.8	289	27.8	**289**	**27.8**
447.dealII	**183**	**62.4**	183	62.4	183	62.4	**183**	**62.4**	183	62.4	183	62.4
450.soplex	**175**	**47.7**	175	47.6	174	47.9	**175**	**47.7**	175	47.6	174	47.9
453.povray	**104**	**51.2**	104	51.1	104	51.2	89.8	59.2	88.3	60.2	**88.4**	**60.2**
454.calculix	168	49.0	169	48.9	**168**	**49.0**	**163**	**50.7**	162	50.8	163	50.7
459.GemsFDTD	159	66.7	159	66.5	**159**	**66.6**	156	68.2	**156**	**68.2**	156	68.2
465.tonto	227	43.4	206	47.8	**206**	**47.7**	187	52.8	**187**	**52.6**	188	52.2
470.lbm	97.1	142	**97.1**	**142**	97.1	142	97.1	142	**97.1**	**142**	97.1	142
481.wrf	116	96.4	**116**	**96.4**	115	96.8	116	96.4	**116**	**96.4**	115	96.8
482.sphinx3	245	79.6	230	84.6	**232**	**84.1**	235	83.0	**239**	**81.6**	244	80.0

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"
Transparent Huge Pages enabled with:
echo always > /sys/kernel/mm/redhat_transparent_hugepage/enabled
```

Platform Notes

```
As tested, the system used a Supermicro CSE-732D2-500B chassis.
The chassis is configured with a PWS-502-PQ power supply, 1 SNK-P0046A4 heatsink,
as well as 1 FAN-0124L4 front cooling fan and 1 FAN-0124L4 rear exhaust fan.
BIOS configuration:
Memory Timing Selection = Manual
Memory Frequency = Force DDR-1866MHz
```

General Notes

```
Environment variables set by runspec before the start of the run:
KMP_AFFINITY = "granularity=fine,scatter"
LD_LIBRARY_PATH = "/usr/cpu2006/libs/32:/usr/cpu2006/libs/64"
OMP_NUM_THREADS = "4"

 Binaries compiled on a system with 1x Core i7-860 CPU + 8GB
 memory using RHEL5.5
```

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/Intel-ic12.1-official-linux64.20111122.html
http://www.spec.org/cpu2006/flags/Supermicro-Platform-Settings-revA.20120625.html

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

http://www.spec.org/cpu2006/flags/Intel-ic12.1-official-linux64.20111122.xml
http://www.spec.org/cpu2006/flags/Supermicro-Platform-Settings-revA.20120625.xml

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