SPEC® CFP2006 Result

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Supermicro

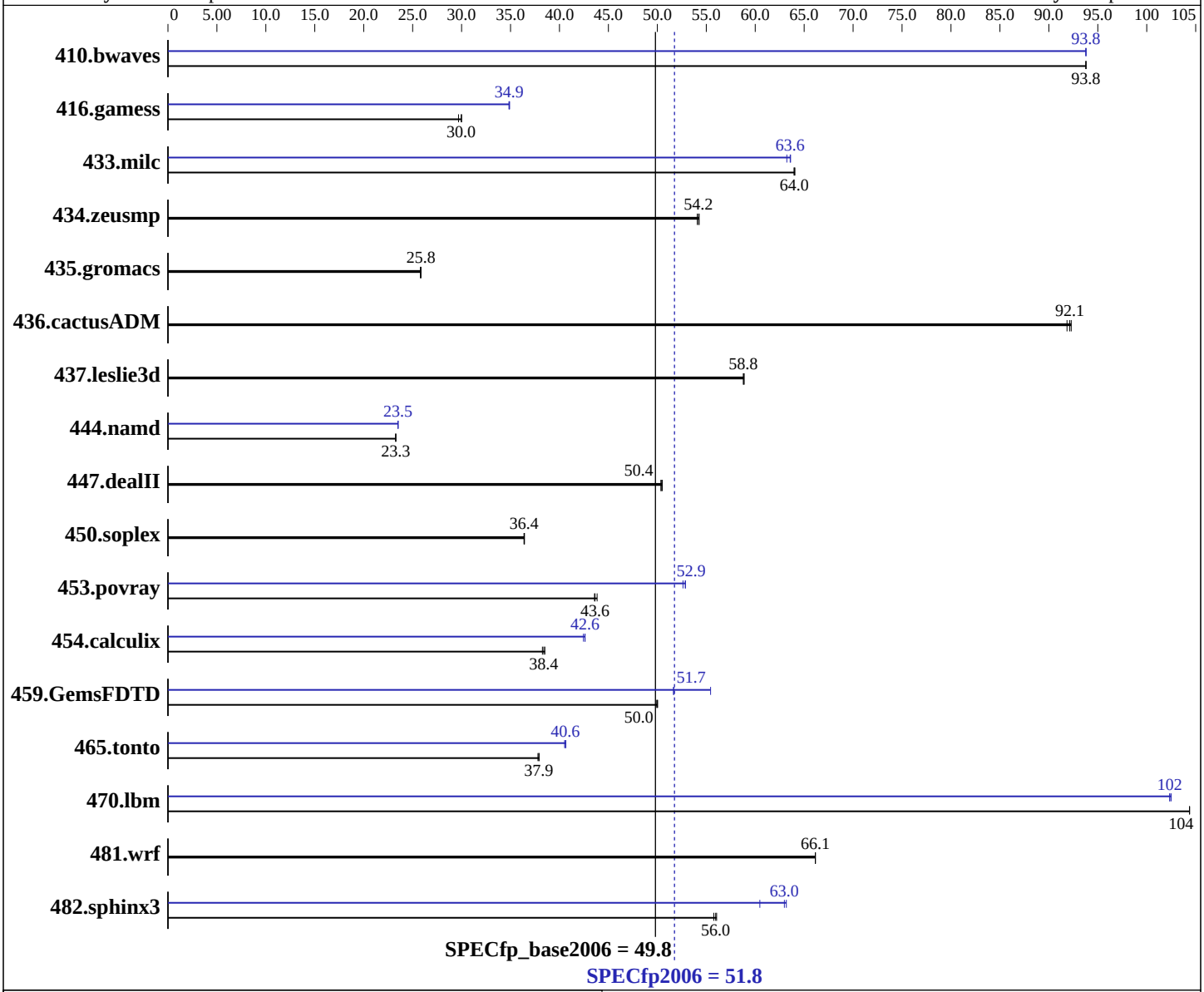
SuperServer 1017C-TF (X9SCL-F, Intel Xeon E3-1220)

SPECfp®2006 = 51.8

SPECfp_base2006 = 49.8

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

Test date: May-2011
Hardware Availability: Apr-2011
Software Availability: Apr-2011



Hardware

CPU Name:	Intel Xeon E3-1220
CPU Characteristics:	Intel Turbo Boost Technology up to 3.40 GHz
CPU MHz:	3100
FPU:	Integrated
CPU(s) enabled:	4 cores, 1 chip, 4 cores/chip
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:	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

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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 PC3-10600E-9, ECC)
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	145	93.8	**145**	**93.8**	145	93.8	145	93.8	145	93.8	**145**	**93.8**
416.gamess	660	29.7	**654**	**30.0**	653	30.0	561	34.9	**562**	**34.9**	562	34.8
433.milc	144	64.0	**143**	**64.0**	143	64.1	144	63.6	145	63.2	**144**	**63.6**
434.zeusmp	168	54.1	**168**	**54.2**	168	54.3	168	54.1	**168**	**54.2**	168	54.3
435.gromacs	276	25.8	277	25.8	**276**	**25.8**	276	25.8	277	25.8	**276**	**25.8**
436.cactusADM	**130**	**92.1**	129	92.3	130	91.9	**130**	**92.1**	129	92.3	130	91.9
437.leslie3d	**160**	**58.8**	160	58.9	160	58.8	**160**	**58.8**	160	58.9	160	58.8
444.namd	345	23.3	**345**	**23.3**	345	23.3	341	23.5	341	23.5	**341**	**23.5**
447.dealII	**227**	**50.4**	227	50.4	227	50.5	**227**	**50.4**	227	50.4	227	50.5
450.soplex	229	36.4	229	36.4	**229**	**36.4**	229	36.4	229	36.4	**229**	**36.4**
453.povray	121	43.8	**122**	**43.6**	122	43.6	101	52.9	101	52.6	**101**	**52.9**
454.calculix	214	38.5	216	38.3	**215**	**38.4**	194	42.6	194	42.4	**194**	**42.6**
459.GemsFDTD	**212**	**50.0**	212	49.9	212	50.0	191	55.4	205	51.7	**205**	**51.7**
465.tonto	259	37.9	260	37.8	**260**	**37.9**	**242**	**40.6**	243	40.5	242	40.7
470.lbm	132	104	132	104	**132**	**104**	134	103	**134**	**102**	134	102
481.wrf	169	66.1	**169**	**66.1**	169	66.1	169	66.1	**169**	**66.1**	169	66.1
482.sphinx3	**348**	**56.0**	348	56.1	349	55.8	322	60.5	**309**	**63.0**	308	63.2

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 in BIOS Setup.
```

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:
```
-xAVX -ipo -O3 -no-prec-div -static -parallel -opt-prefetch
-ansi-alias
```

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

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Base Optimization Flags (Continued)

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: `-xAVX`(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: `-xAVX -ipo -O3 -no-prec-div -unroll2 -ansi-alias -parallel`

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`

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Peak Optimization Flags (Continued)

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 -B /usr/share/libhugetlbfs/ -Wl,-melf_x86_64 -Wl,-hugetlbfs-link=BDT

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 -B /usr/share/libhugetlbfs/ -Wl,-melf_x86_64 -Wl,-hugetlbfs-link=BDT

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 -B /usr/share/libhugetlbfs/ -Wl,-melf_x86_64 -Wl,-hugetlbfs-link=BDT

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 -B /usr/share/libhugetlbfs/ -Wl,-melf_x86_64 -Wl,-hugetlbfs-link=BDT

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

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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