



SPEC® CFP2006 Result

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Supermicro

SuperServer 1027GR-TSF (X9DRG-HF, Intel Xeon E5-2650, 2.8GHz)

SPECfp®_rate2006 = 418

SPECfp_rate_base2006 = 406

CPU2006 license: 001176

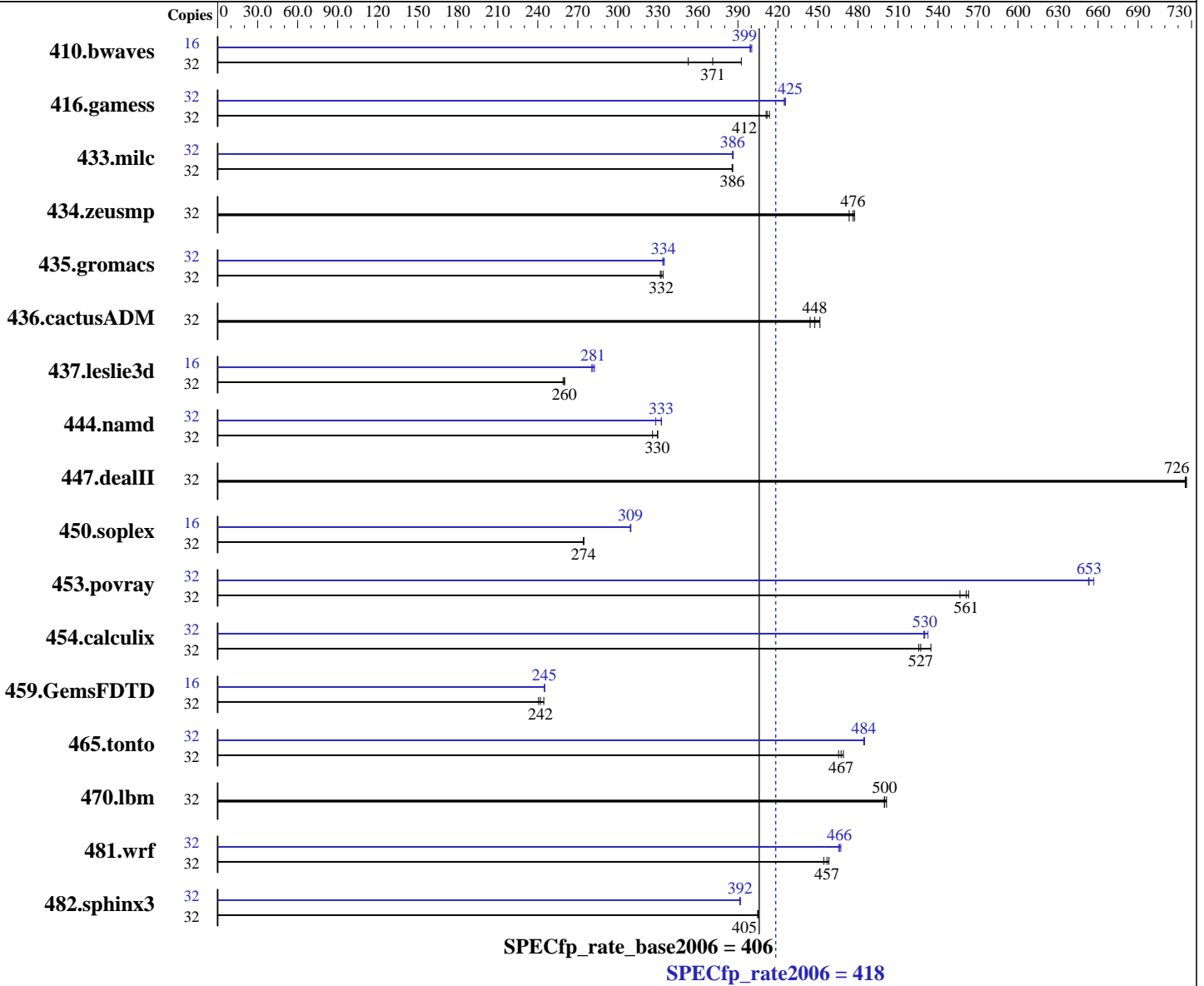
Test sponsor: Supermicro

Tested by: Supermicro

Test date: Apr-2012

Hardware Availability: Mar-2012

Software Availability: Oct-2011



Hardware

CPU Name: Intel Xeon E5-2650
 CPU Characteristics: Intel Turbo Boost Technology up to 2.80 GHz
 CPU MHz: 2000
 FPU: Integrated
 CPU(s) enabled: 16 cores, 2 chips, 8 cores/chip, 2 threads/core
 CPU(s) orderable: 1,2 chip
 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: Red Hat Enterprise Linux Server release 6.1 (Santiago)
 2.6.32-131.0.15.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: No
 File System: ext4

Continued on next page



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L3 Cache: 20 MB I+D on chip per chip
Other Cache: None
Memory: 64 GB (8 x 8 GB 2Rx8 PC3-12800R-11, ECC)
Disk Subsystem: 1 x 1 TB SATA II, 7200 RPM
Other Hardware: None

System State: Run level 3 (multi-user)
Base Pointers: 32/64-bit
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	32	1108	393	<u>1172</u>	<u>371</u>	1233	353	16	545	399	543	400	<u>544</u>	<u>399</u>
416.gamess	32	1524	411	<u>1521</u>	<u>412</u>	1515	414	32	1472	426	1475	425	<u>1473</u>	<u>425</u>
433.milc	32	761	386	762	386	<u>761</u>	<u>386</u>	32	<u>761</u>	<u>386</u>	761	386	760	387
434.zeusmp	32	610	477	<u>611</u>	<u>476</u>	615	473	32	610	477	<u>611</u>	<u>476</u>	615	473
435.gromacs	32	688	332	684	334	<u>687</u>	<u>332</u>	32	<u>684</u>	<u>334</u>	685	334	682	335
436.cactusADM	32	861	444	847	451	<u>854</u>	<u>448</u>	32	861	444	847	451	<u>854</u>	<u>448</u>
437.leslie3d	32	1162	259	<u>1157</u>	<u>260</u>	1157	260	16	536	280	532	283	<u>535</u>	<u>281</u>
444.namd	32	787	326	<u>778</u>	<u>330</u>	778	330	32	771	333	<u>772</u>	<u>333</u>	781	328
447.dealII	32	505	725	504	726	<u>504</u>	<u>726</u>	32	505	725	504	726	<u>504</u>	<u>726</u>
450.soplex	32	<u>973</u>	<u>274</u>	972	274	973	274	16	<u>431</u>	<u>309</u>	431	310	431	309
453.povray	32	302	563	306	556	<u>303</u>	<u>561</u>	32	<u>261</u>	<u>653</u>	261	653	259	657
454.calculix	32	494	535	<u>501</u>	<u>527</u>	502	526	32	496	532	499	529	<u>498</u>	<u>530</u>
459.GemsFDTD	32	1411	241	<u>1403</u>	<u>242</u>	1389	245	16	693	245	<u>693</u>	<u>245</u>	693	245
465.tonto	32	677	465	<u>674</u>	<u>467</u>	671	469	32	650	484	<u>650</u>	<u>484</u>	649	485
470.lbm	32	877	501	<u>879</u>	<u>500</u>	880	500	32	877	501	<u>879</u>	<u>500</u>	880	500
481.wrf	32	<u>783</u>	<u>457</u>	780	458	787	454	32	765	467	768	466	<u>767</u>	<u>466</u>
482.sphinx3	32	<u>1540</u>	<u>405</u>	1539	405	1541	405	32	<u>1593</u>	<u>392</u>	1591	392	1593	391

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

Submit Notes

The numactl mechanism was used to bind copies to processors. The config file option 'submit' was used to generate numactl commands to bind each copy to a specific processor. For details, please see the config file.

Operating System Notes

Stack size set to unlimited using "ulimit -s unlimited"
Transparent Huge Pages disabled with:
echo never > /sys/kernel/mm/redhat_transparent_hugepage/enabled
Filesystem page cache cleared with:
echo 1> /proc/sys/vm/drop_caches
runspec command invoked through numactl i.e.:
numactl --interleave=all runspec <etc>



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Platform Notes

```
Sysinfo program /home/cpu2006/config/sysinfo.rev6800
$Rev: 6800 $ $Date:: 2011-10-11 #$ 6f2ebdff5032aaa42e583f96b07f99d3
running on localhost.localdomain Mon Apr 30 17:56:06 2012
```

This section contains SUT (System Under Test) info as seen by some common utilities. To remove or add to this section, see: <http://www.spec.org/cpu2006/Docs/config.html#sysinfo>

```
From /proc/cpuinfo
model name : Intel(R) Xeon(R) CPU E5-2650 0 @ 2.00GHz
 2 "physical id"s (chips)
 32 "processors"
cores, siblings (Caution: counting these is hw and system dependent. The following excerpts from /proc/cpuinfo might not be reliable. Use with caution.)
  cpu cores : 8
  siblings  : 16
  physical 0: cores 0 1 2 3 4 5 6 7
  physical 1: cores 0 1 2 3 4 5 6 7
cache size : 20480 KB
```

```
From /proc/meminfo
MemTotal:      65948756 kB
HugePages_Total:      0
Hugepagesize:    2048 kB
```

```
/usr/bin/lsb_release -d
Red Hat Enterprise Linux Server release 6.1 (Santiago)
```

```
From /etc/*release* /etc/*version*
redhat-release: Red Hat Enterprise Linux Server release 6.1 (Santiago)
system-release: Red Hat Enterprise Linux Server release 6.1 (Santiago)
system-release-cpe: cpe:/o:redhat:enterprise_linux:6server:ga:server
```

```
uname -a:
Linux localhost.localdomain 2.6.32-131.0.15.el6.x86_64 #1 SMP Tue May 10
15:42:40 EDT 2011 x86_64 x86_64 x86_64 GNU/Linux
```

```
run-level 3 Apr 30 02:58
```

```
SPEC is set to: /home/cpu2006
Filesystem      Type      Size  Used Avail Use% Mounted on
/dev/mapper/VolGroup-lv_home
                ext4      162G  104G   50G   68% /home
```

Additional information from dmidecode:

```
Memory:
8x Hynix Semiconducto HMT31GR7CFR4C 8 GB 1600 MHz 1 rank
```

(End of data from sysinfo program)



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General Notes

Environment variables set by runspec before the start of the run:
LD_LIBRARY_PATH = "/home/cpu2006/libs/32:/home/cpu2006/libs/64"

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.deallI: -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 -opt-prefetch -auto-p32
-ansi-alias -opt-mem-layout-trans=3

Continued on next page



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Base Optimization Flags (Continued)

C++ benchmarks:

-xAVX -ipo -O3 -no-prec-div -static -opt-prefetch -auto-p32
-ansi-alias -opt-mem-layout-trans=3

Fortran benchmarks:

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

Benchmarks using both Fortran and C:

-xAVX -ipo -O3 -no-prec-div -static -opt-prefetch -auto-p32
-ansi-alias -opt-mem-layout-trans=3

Peak Compiler Invocation

C benchmarks (except as noted below):

icc -m64

482.sphinx3: icc -m32

C++ benchmarks (except as noted below):

icpc -m64

450.soplex: icpc -m32

Fortran benchmarks:

ifort -m64

Benchmarks using both Fortran and C:

icc -m64 ifort -m64

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
437.leslie3d: -DSPEC_CPU_LP64
444.namd: -DSPEC_CPU_LP64
447.dealII: -DSPEC_CPU_LP64
453.povray: -DSPEC_CPU_LP64
454.calculix: -DSPEC_CPU_LP64 -nofor_main
465.tonto: -DSPEC_CPU_LP64
470.lbm: -DSPEC_CPU_LP64
481.wrf: -DSPEC_CPU_LP64 -DSPEC_CPU_CASE_FLAG -DSPEC_CPU_LINUX



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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
-opt-mem-layout-trans=3

470.lbm: basepeak = yes

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

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.dealIII: basepeak = yes

450.soplex: -xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
-no-prec-div(pass 2) -prof-use(pass 2) -opt-malloc-options=3

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(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
-no-prec-div(pass 2) -prof-use(pass 2) -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: -xAVX -ipo -O3 -no-prec-div -static -opt-prefetch

459.GemsFDTD: -xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
-no-prec-div(pass 2) -prof-use(pass 2) -opt-malloc-options=3

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

Benchmarks using both Fortran and C:

435.gromacs: -xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
-no-prec-div(pass 2) -prof-use(pass 2) -opt-prefetch
-static -auto-ilp32 -opt-mem-layout-trans=3

Continued on next page



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Peak Optimization Flags (Continued)

436.cactusADM: basepeak = yes

454.calculix: -xAVX -ipo -O3 -no-prec-div -static -auto-ilp32
-opt-mem-layout-trans=3

481.wrf: Same as 454.calculix

The flags files that were used to format this result can be browsed at

<http://www.spec.org/cpu2006/flags/Intel-ic12.1-official-linux64.20120425.html>

<http://www.spec.org/cpu2006/flags/Supermicro-Platform-Settings-revA.html>

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

<http://www.spec.org/cpu2006/flags/Intel-ic12.1-official-linux64.20120425.xml>

<http://www.spec.org/cpu2006/flags/Supermicro-Platform-Settings-revA.xml>

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