SPEC® CFP2006 Result

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Supermicro

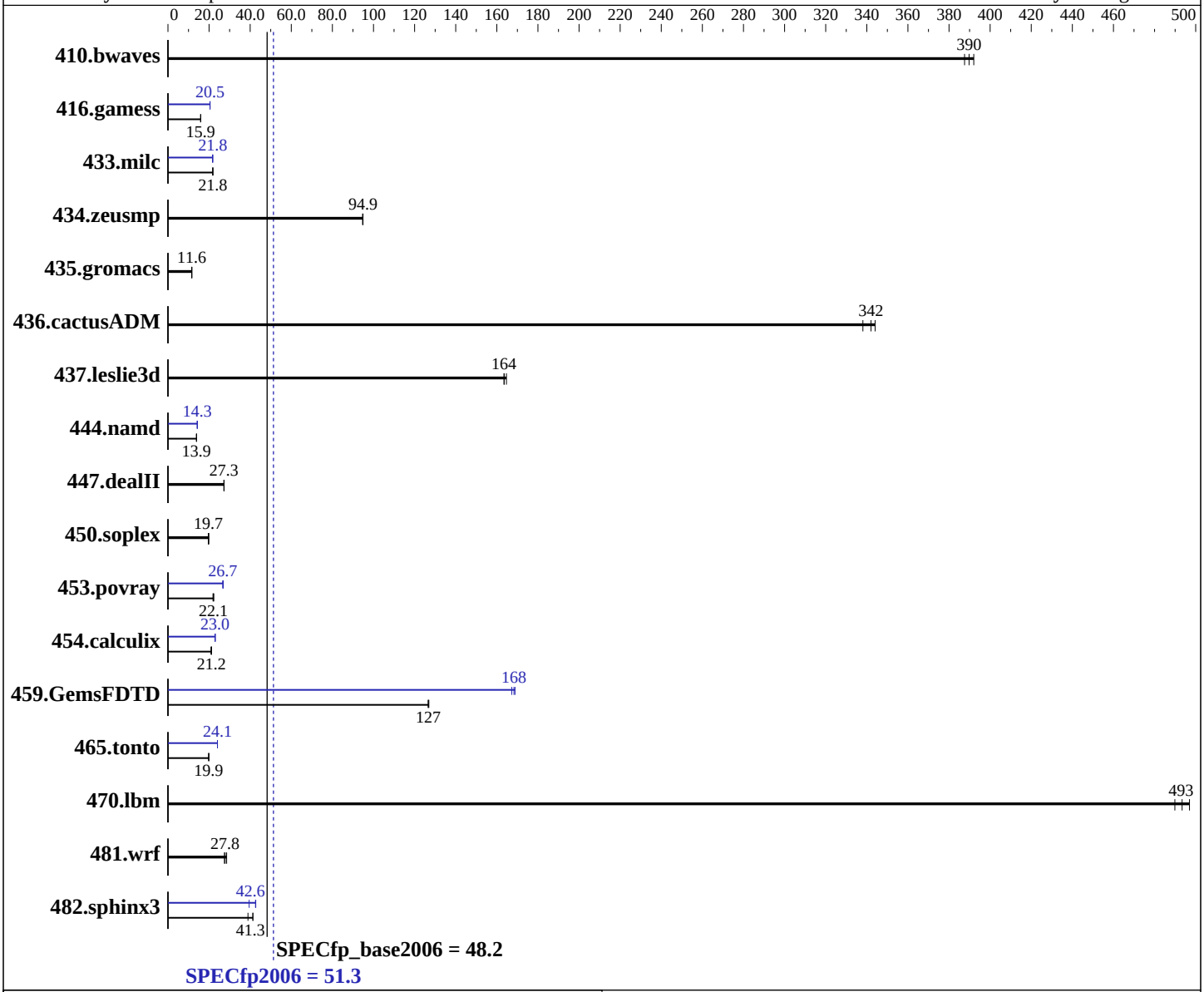
SuperServer 8046B-6RF (X8QB6-F, Intel Xeon E7-4830)

SPECfp®2006 = 51.3

SPECfp_base2006 = 48.2

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

Test date: Jan-2012
Hardware Availability: Apr-2011
Software Availability: Aug-2011



Hardware

CPU Name:	Intel Xeon E7-4830
CPU Characteristics:	Intel Turbo Boost Technology up to 2.40 GHz
CPU MHz:	2133
FPU:	Integrated
CPU(s) enabled:	32 cores, 4 chips, 8 cores/chip, 2 threads/core
CPU(s) orderable:	2, 4 chips
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 6.1 (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:	Yes
File System:	ext4

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L3 Cache: 24 MB I+D on chip per chip
Other Cache: None
Memory: 256 GB (32 x 8 GB 2Rx8 PC3-10600R-9, ECC, operate @ 1066MHz and CL7)
Disk Subsystem: 1 x 1 TB 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	**34.9**	**390**	34.7	392	35.1	388	**34.9**	**390**	34.7	392	35.1	388
416.gamess	**1228**	**15.9**	1227	16.0	1232	15.9	956	20.5	**957**	**20.5**	957	20.5
433.milc	**421**	**21.8**	420	21.9	421	21.8	**421**	**21.8**	424	21.7	421	21.8
434.zeusmp	96.1	94.7	95.9	94.9	**95.9**	**94.9**	96.1	94.7	95.9	94.9	**95.9**	**94.9**
435.gromacs	616	11.6	**616**	**11.6**	617	11.6	616	11.6	**616**	**11.6**	617	11.6
436.cactusADM	34.7	344	**34.9**	**342**	35.3	338	34.7	344	**34.9**	**342**	35.3	338
437.leslie3d	57.5	164	57.1	165	**57.5**	**164**	57.5	164	57.1	165	**57.5**	**164**
444.namd	577	13.9	577	13.9	**577**	**13.9**	562	14.3	562	14.3	**562**	**14.3**
447.dealII	420	27.2	**420**	**27.3**	419	27.3	420	27.2	**420**	**27.3**	419	27.3
450.soplex	419	19.9	**424**	**19.7**	425	19.6	419	19.9	**424**	**19.7**	425	19.6
453.povray	**240**	**22.1**	239	22.3	243	21.9	**199**	**26.7**	199	26.7	198	26.9
454.calculix	389	21.2	394	20.9	**389**	**21.2**	359	23.0	**359**	**23.0**	359	23.0
459.GemsFDTD	83.8	127	83.6	127	**83.8**	**127**	62.8	169	**63.0**	**168**	63.4	167
465.tonto	**495**	**19.9**	495	19.9	496	19.8	**409**	**24.1**	409	24.1	409	24.1
470.lbm	28.0	490	**27.8**	**493**	27.6	497	28.0	490	**27.8**	**493**	27.6	497
481.wrf	**401**	**27.8**	407	27.5	391	28.6	**401**	**27.8**	407	27.5	391	28.6
482.sphinx3	501	38.9	472	41.3	**472**	**41.3**	456	42.7	493	39.5	**458**	**42.6**

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"
```

Platform Notes

```
Sysinfo program /home/cpu2006v1.2/config/sysinfo.rev6800
$Rev: 6800 $ $Date:: 2011-10-11 #$ 6f2ebdff5032aaa42e583f96b07f99d3
running on localhost.localdomain Tue Jan 17 09:50:55 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
```

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Platform Notes (Continued)

```
      model name : Intel(R) Xeon(R) CPU E7- 4830 @ 2.13GHz
         4 "physical id"s (chips)
         64 "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 8 17 18 24 25
         physical 1: cores 0 1 2 8 17 18 24 25
         physical 2: cores 0 1 2 8 17 18 24 25
         physical 3: cores 0 1 2 8 17 18 24 25
      cache size : 24576 KB

   From /proc/meminfo
      MemTotal:       264534604 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 Jan 13 15:24

   SPEC is set to: /home/cpu2006v1.2
      Filesystem     Type    Size  Used Avail Use% Mounted on
      /dev/mapper/VolGroup-lv_home
                     ext4    799G  521G  238G  69% /home

   Additional information from dmidecode:

   (End of data from sysinfo program)
```

General Notes

```
 Environment variables set by runspec before the start of the run:
 KMP_AFFINITY = "granularity=fine,scatter"
 LD_LIBRARY_PATH = "/home/cpu2006v1.2/libs/32:/home/cpu2006v1.2/libs/64"
 OMP_NUM_THREADS = "32"

  Binaries compiled on a system with 1x Core i7-860 CPU + 8GB
  memory using RHEL6.1
```

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General Notes (Continued)

```
Transparent Huge Pages enabled with:
echo always > /sys/kernel/mm/redhat_transparent_hugepage/enabled
runspec command invoked through numactl i.e.:
numactl --interleave=all runspec <etc>
```

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
```

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Base Optimization Flags (Continued)

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

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: `basepeak = yes`

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

C++ benchmarks:

Continued on next page

Peak Optimization Flags (Continued)

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

447.dealII: 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

Fortran benchmarks:

410.bwaves: basepeak = yes

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

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

Benchmarks using both Fortran and C:

435.gromacs: basepeak = yes

436.cactusADM: basepeak = yes

454.calculix: -xSSE4.2 -ipo -O3 -no-prec-div -auto-ilp32 -ansi-alias

481.wrf: basepeak = yes

The flags file that was used to format this result can be browsed at
http://www.spec.org/cpu2006/flags/Intel-ic12.1-official-linux64.20111122.html

You can also download the XML flags source by saving the following link:
http://www.spec.org/cpu2006/flags/Intel-ic12.1-official-linux64.20111122.xml

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Tested with SPEC CPU2006 v1.2.
Report generated on Thu Jul 24 03:59:23 2014 by SPEC CPU2006 PS/PDF formatter v6932.
Originally published on 24 April 2012.