SPEC® CFP2006 Result

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Sugon

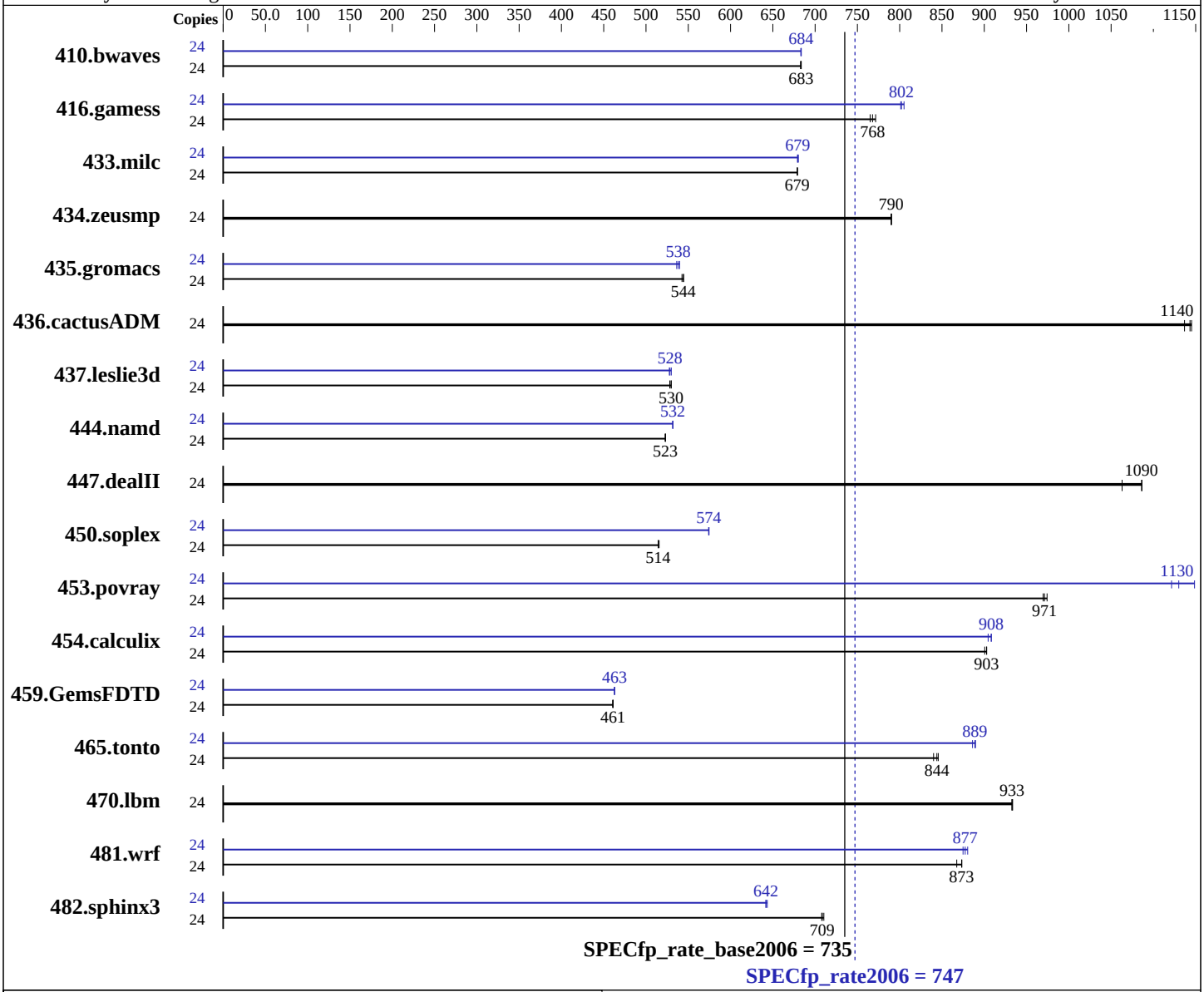
I840-G10 (Intel Xeon E5-4617 2.9GHz)

SPECfp®_rate2006 = 747

SPECfp_rate_base2006 = 735

CPU2006 license: 9046
Test sponsor: Sugon
Tested by: Sugon

Test date: Mar-2013
Hardware Availability: Dec-2012
Software Availability: Jun-2012



Hardware

CPU Name:	Intel Xeon E5-4617
CPU Characteristics:	Intel Turbo Boost Technology up to 3.40 GHz
CPU MHz:	2900
FPU:	Integrated
CPU(s) enabled:	24 cores, 4 chips, 6 cores/chip
CPU(s) orderable:	1,2,3,4 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 6.3 (Santiago) 2.6.32-279.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

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L3 Cache: 15 MB I+D on chip per chip
Other Cache: None
Memory: 256 GB (32 x 8 GB 2Rx4 PC3-12800R-11, ECC)
Disk Subsystem: 1 x 300 GB SAS, 10000 RPM
Other Hardware: None

System State: Run level 3 (Full multiuser with network)
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	24	**477**	**683**	477	684	478	683	24	**477**	**684**	477	684	478	683
416.gamess	24	609	772	614	765	**612**	**768**	24	587	801	**586**	**802**	584	805
433.milc	24	325	679	**324**	**679**	324	679	24	324	680	**324**	**679**	324	679
434.zeusmp	24	276	790	276	790	**276**	**790**	24	276	790	276	790	**276**	**790**
435.gromacs	24	**315**	**544**	315	544	316	543	24	**318**	**538**	320	536	317	540
436.cactusADM	24	252	1140	**251**	**1140**	250	1150	24	252	1140	**251**	**1140**	250	1150
437.leslie3d	24	426	530	**426**	**530**	427	528	24	428	528	426	530	**427**	**528**
444.namd	24	368	523	**368**	**523**	368	523	24	362	532	**362**	**532**	362	532
447.dealII	24	253	1090	**253**	**1090**	258	1060	24	253	1090	**253**	**1090**	258	1060
450.soplex	24	**389**	**514**	389	514	388	516	24	348	575	349	574	**348**	**574**
453.povray	24	131	974	**131**	**971**	132	970	24	111	1150	114	1120	**113**	**1130**
454.calculix	24	220	901	219	903	**219**	**903**	24	218	908	**218**	**908**	219	905
459.GemsFDTD	24	553	460	**552**	**461**	552	461	24	550	463	550	463	**550**	**463**
465.tonto	24	279	846	281	840	**280**	**844**	24	**266**	**889**	267	886	265	890
470.lbm	24	353	934	**353**	**933**	354	933	24	353	934	**353**	**933**	354	933
481.wrf	24	307	874	309	867	**307**	**873**	24	306	875	**306**	**877**	305	880
482.sphinx3	24	659	710	661	708	**660**	**709**	24	**729**	**642**	727	643	729	642

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"
```

Platform Notes

```
Sysinfo program /root/speccpu2006/config/sysinfo.rev6800
$Rev: 6800 $ $Date:: 2011-10-11 #$ 6f2ebdff5032aaa42e583f96b07f99d3
running on speccpu.sugon.com Mon Jan 14 19:20:00 2013
```

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Platform Notes (Continued)

```
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 E5-4617 0 @ 2.90GHz
      4 "physical id"s (chips)
      24 "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 : 6
      siblings  : 6
      physical 0: cores 0 1 2 3 4 5
      physical 1: cores 0 1 2 3 4 5
      physical 2: cores 0 1 2 3 4 5
      physical 3: cores 0 1 2 3 4 5
   cache size : 15360 KB

From /proc/meminfo
   MemTotal:       264501048 kB
   HugePages_Total:       0
   Hugepagesize:       2048 kB

/usr/bin/lsb_release -d
   Red Hat Enterprise Linux Server release 6.3 (Santiago)

From /etc/*release* /etc/*version*
   redhat-release: Red Hat Enterprise Linux Server release 6.3 (Santiago)
   system-release: Red Hat Enterprise Linux Server release 6.3 (Santiago)
   system-release-cpe: cpe:/o:redhat:enterprise_linux:6server:ga:server

uname -a:
   Linux speccpu.sugon.com 2.6.32-279.el6.x86_64 #1 SMP Wed Jun 13 18:24:36 EDT
   2012 x86_64 x86_64 x86_64 GNU/Linux

run-level 3 Jan 14 18:48 last=3

SPEC is set to: /root/speccpu2006
   Filesystem     Type    Size  Used Avail Use% Mounted on
   /dev/mapper/vg_speccpu-lv_root
                  ext4     50G   12G   36G  25% /

Additional information from dmidecode:
  Memory:
   32x Hynix Semiconducto HMT31GR7CFR4C-PB 8 GB 1600 MHz 1 rank

(End of data from sysinfo program)
```

General Notes

```
Environment variables set by runspec before the start of the run:
LD_LIBRARY_PATH = "/root/speccpu2006/libs/32:/root/speccpu2006/libs/64"

 Binaries compiled on a system with 1x Core i7-860 CPU + 8GB
 memory using RHEL5.5
 Transparent Huge Pages enabled with:
 echo always > /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>
```

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 -opt-prefetch -auto-p32
-ansi-alias -opt-mem-layout-trans=3
```

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`

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Peak Portability Flags (Continued)

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

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.dealII: 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

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Peak Optimization Flags (Continued)

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`

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 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 15:26:51 2014 by SPEC CPU2006 PS/PDF formatter v6932.
Originally published on 23 April 2013.