SPEC® CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

Oracle Corporation

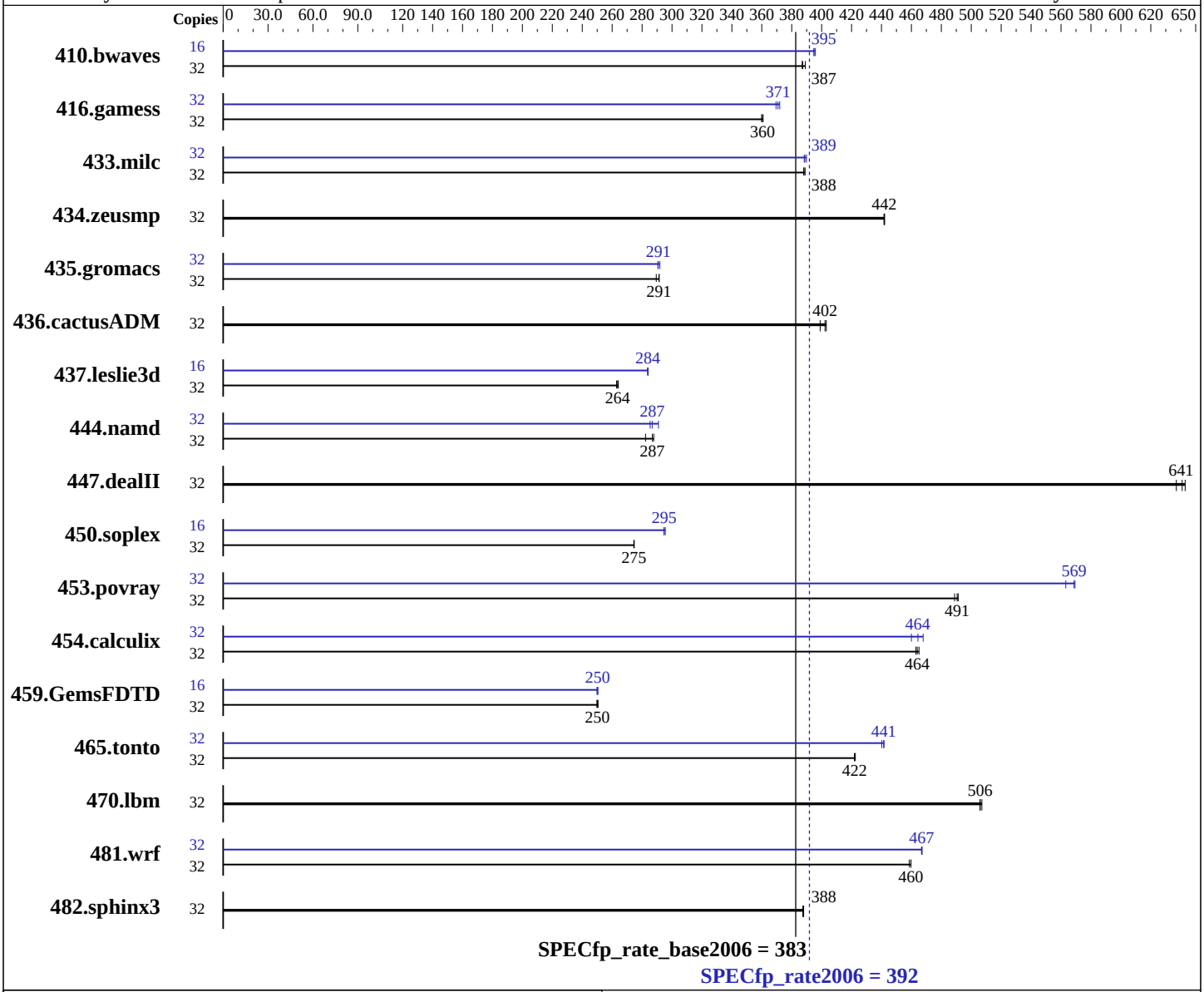
Netra Server X3-2 (Intel Xeon E5-2658 2.1GHz)

SPECfp®_rate2006 = 392

SPECfp_rate_base2006 = 383

CPU2006 license: 6
Test sponsor: Oracle Corporation
Tested by: Oracle Corporation

Test date: Mar-2012
Hardware Availability: Apr-2012
Software Availability: Oct-2011



Hardware

CPU Name:	Intel Xeon E5-2658
CPU Characteristics:	Intel Turbo Boost Technology up to 2.40 GHz
CPU MHz:	2100
FPU:	Integrated
CPU(s) enabled:	16 cores, 2 chips, 8 cores/chip, 2 threads/core
CPU(s) orderable:	1 or 2 chips
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:	Oracle Linux Server release 6.1 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
System State:	Run level 5 (multi-user)

Continued on next page

SPEC CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

Oracle Corporation

Netra Server X3-2 (Intel Xeon E5-2658 2.1GHz)

SPECfp_rate2006 = 392

SPECfp_rate_base2006 = 383

CPU2006 license: 6
Test sponsor: Oracle Corporation
Tested by: Oracle Corporation

Test date: Mar-2012
Hardware Availability: Apr-2012
Software Availability: Oct-2011

L3 Cache: 20 MB I+D on chip per chip
Other Cache: None
Memory: 128 GB (16 x 8 GB 2Rx4 PC3-12800R-11, ECC)
Disk Subsystem: 1 x 300 GB 10K RPM SAS
Other Hardware: None

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	1118	389	**1123**	**387**	1124	387	16	**551**	**395**	549	396	551	395
416.gamess	32	1736	361	1741	360	**1738**	**360**	32	**1690**	**371**	1684	372	1696	370
433.milc	32	757	388	**757**	**388**	755	389	32	753	390	756	388	**756**	**389**
434.zeusmp	32	659	442	659	442	**659**	**442**	32	659	442	659	442	**659**	**442**
435.gromacs	32	789	289	**784**	**291**	784	291	32	783	292	786	291	**786**	**291**
436.cactusADM	32	**951**	**402**	958	399	949	403	32	**951**	**402**	958	399	949	403
437.leslie3d	32	1144	263	**1141**	**264**	1139	264	16	529	284	**530**	**284**	530	284
444.namd	32	**895**	**287**	892	288	909	282	32	899	285	**895**	**287**	882	291
447.dealII	32	569	643	575	637	**571**	**641**	32	569	643	575	637	**571**	**641**
450.soplex	32	971	275	**972**	**275**	972	274	16	452	296	453	295	**453**	**295**
453.povray	32	348	489	347	491	**347**	**491**	32	**299**	**569**	299	569	302	563
454.calculix	32	568	465	**569**	**464**	570	463	32	564	468	**569**	**464**	574	460
459.GemsFDTD	32	1355	251	1359	250	**1358**	**250**	16	678	250	679	250	**678**	**250**
465.tonto	32	**746**	**422**	746	422	745	423	32	**713**	**441**	713	442	715	440
470.lbm	32	867	507	**869**	**506**	869	506	32	867	507	**869**	**506**	869	506
481.wrf	32	778	460	**778**	**460**	779	459	32	766	467	**765**	**467**	765	467
482.sphinx3	32	1610	387	**1609**	**388**	1607	388	32	1610	387	**1609**	**388**	1607	388

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

```
Default BIOS Settings were used.

Oracle's Netra Server X3-2 was formerly known as the Sun Netra X4270 M3
```

Continued on next page

Platform Notes (Continued)

```
Sysinfo program /data1/cpu2006v1.2/config/sysinfo.rev6800
$Rev: 6800 $ $Date:: 2011-10-11 #$ 6f2ebdff5032aaa42e583f96b07f99d3
running on pae-sb-02 Wed Mar 21 20:28:09 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 E5-2658 0 @ 2.10GHz
      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:       132288120 kB
   HugePages_Total:       0
   Hugepagesize:       2048 kB

/usr/bin/lsb_release -d
   Oracle Linux Server release 6.1

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

uname -a:
   Linux pae-sb-02 2.6.32-131.0.15.el6.x86_64 #1 SMP Fri May 20 15:04:03 EDT
   2011 x86_64 x86_64 x86_64 GNU/Linux

run-level 5 Mar 16 16:49

SPEC is set to: /data1/cpu2006v1.2
   Filesystem     Type    Size  Used Avail Use% Mounted on
   /dev/mapper/vg_paesb02-lv_root
                  ext4     50G   11G   37G  23% /

Additional information from dmidecode:
  Memory:
   16x Samsung M393B1K70DH0-YK0 8 GB 1600 MHz 2 rank

(End of data from sysinfo program)
```

General Notes

```
Environment variables set by runspec before the start of the run:
LD_LIBRARY_PATH = "/data1/cpu2006v1.2/libs/32:/data1/cpu2006v1.2/libs/64"

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

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:
icc -m64

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

Continued on next page

Peak Portability Flags (Continued)

470.lbm: -DSPEC_CPU_LP64
481.wrf: -DSPEC_CPU_LP64 -DSPEC_CPU_CASE_FLAG -DSPEC_CPU_LINUX
482.sphinx3: -DSPEC_CPU_LP64

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: basepeak = yes

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

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

Continued on next page

Peak Optimization Flags (Continued)

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 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/Oracle-platform-x86_64.CPUv1.2-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-linux64.20111122.xml
http://www.spec.org/cpu2006/flags/Oracle-platform-x86_64.CPUv1.2-RevA.xml

SPEC and SPECfp are registered trademarks of the Standard Performance Evaluation Corporation. All other brand and product names appearing in this result are trademarks or registered trademarks of their respective holders.

For questions about this result, please contact the tester.
For other inquiries, please contact webmaster@spec.org.

Tested with SPEC CPU2006 v1.2.
Report generated on Thu Jul 24 11:43:19 2014 by SPEC CPU2006 PS/PDF formatter v6932.
Originally published on 31 July 2012.