



SPEC[®] CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

Oracle Corporation

SPECfp[®]2006 = 102

Sun Blade X4-2B (Intel Xeon E5-2697 v2 2.7GHz)

SPECfp_base2006 = 88.1

CPU2006 license: 6

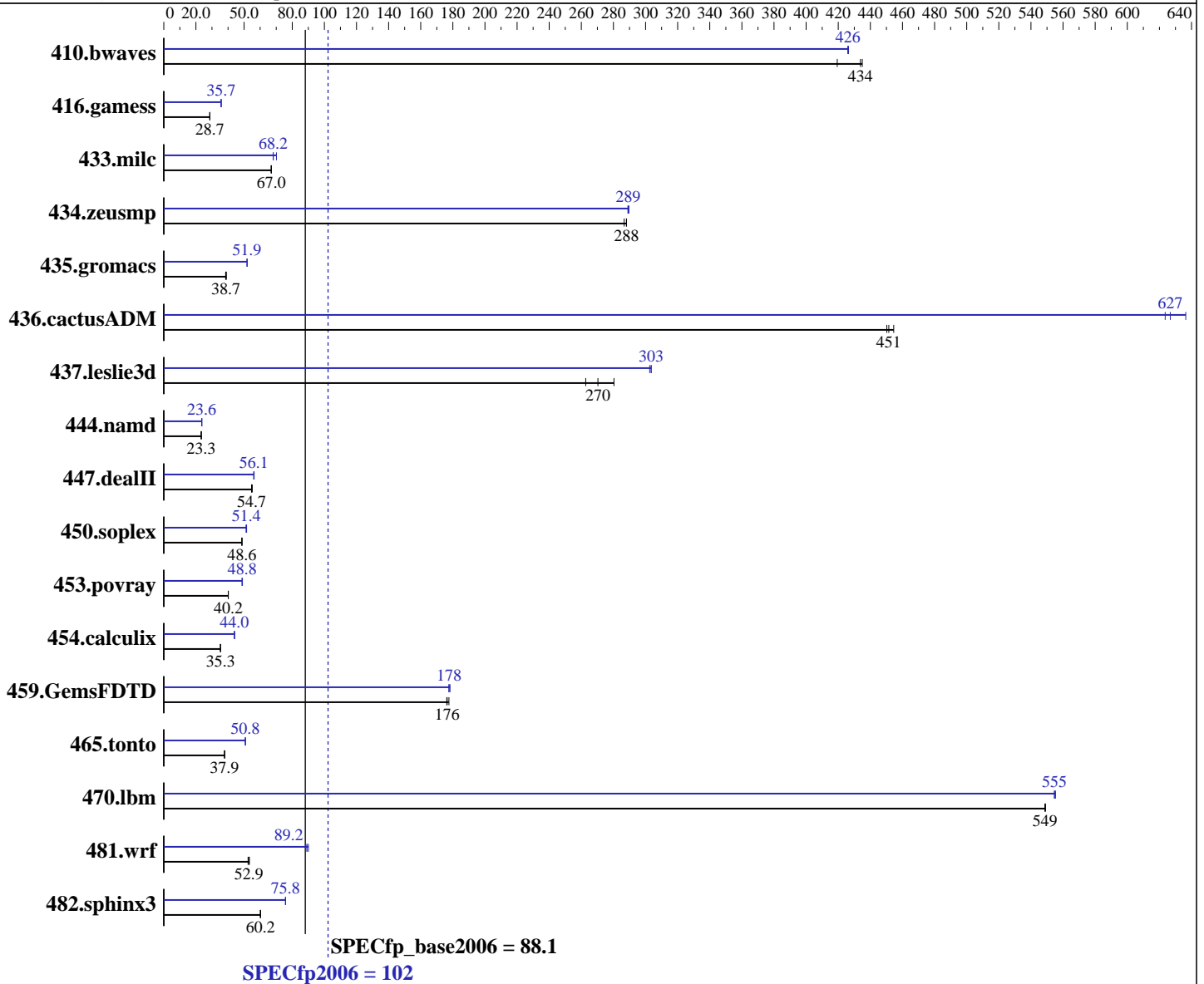
Test sponsor: Oracle Corporation

Tested by: Oracle Corporation

Test date: Sep-2013

Hardware Availability: Sep-2013

Software Availability: Nov-2013



Hardware

CPU Name: Intel Xeon E5-2697 v2
 CPU Characteristics: Intel Turbo Boost Technology up to 3.50 GHz
 CPU MHz: 2700
 FPU: Integrated
 CPU(s) enabled: 24 cores, 2 chips, 12 cores/chip
 CPU(s) orderable: 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: Solaris 11.1 (SRU 11)
 Compiler: C/C++: Version 12.3 of Oracle Solaris Studio 10/13 Patch Set (tested with nightly build 20130822)
 Auto Parallel: Yes
 File System: zfs
 System State: Default
 Base Pointers: 64-bit
 Peak Pointers: 64-bit

Continued on next page



SPEC CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

Oracle Corporation

SPECfp2006 = 102

Sun Blade X4-2B (Intel Xeon E5-2697 v2 2.7GHz)

SPECfp_base2006 = 88.1

CPU2006 license: 6

Test date: Sep-2013

Test sponsor: Oracle Corporation

Hardware Availability: Sep-2013

Tested by: Oracle Corporation

Software Availability: Nov-2013

L3 Cache: 30 MB I+D on chip per chip
 Other Cache: None
 Memory: 256 GB (16 x 16 GB 2Rx4 PC3-12800R-11, ECC)
 Disk Subsystem: 1 x 300 GB SAS, 10K RPM
 Other Hardware: None

Other Software: None

Results Table

Benchmark	Base						Peak					
	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	32.4	419	31.2	435	<u>31.3</u>	<u>434</u>	<u>31.9</u>	<u>426</u>	31.9	426	31.9	426
416.gamess	683	28.6	683	28.7	<u>683</u>	<u>28.7</u>	<u>548</u>	<u>35.7</u>	548	35.7	548	35.7
433.milc	137	66.8	<u>137</u>	<u>67.0</u>	137	67.0	135	68.1	131	70.2	<u>135</u>	<u>68.2</u>
434.zeusmp	<u>31.6</u>	<u>288</u>	31.7	287	31.6	288	31.5	289	31.4	290	<u>31.5</u>	<u>289</u>
435.gromacs	183	38.9	<u>184</u>	<u>38.7</u>	185	38.5	138	51.8	<u>138</u>	<u>51.9</u>	138	51.9
436.cactusADM	26.3	455	26.5	450	<u>26.5</u>	<u>451</u>	19.2	624	18.8	636	<u>19.1</u>	<u>627</u>
437.leslie3d	33.5	280	35.8	263	<u>34.8</u>	<u>270</u>	31.1	303	<u>31.0</u>	<u>303</u>	31.0	304
444.namd	344	23.3	<u>344</u>	<u>23.3</u>	344	23.3	339	23.7	339	23.6	<u>339</u>	<u>23.6</u>
447.dealII	<u>209</u>	<u>54.7</u>	208	55.1	209	54.7	204	56.0	203	56.3	<u>204</u>	<u>56.1</u>
450.soplex	171	48.7	172	48.6	<u>172</u>	<u>48.6</u>	163	51.2	162	51.6	<u>162</u>	<u>51.4</u>
453.povray	132	40.2	<u>132</u>	<u>40.2</u>	133	40.1	109	48.7	109	49.0	<u>109</u>	<u>48.8</u>
454.calculix	234	35.3	234	35.3	<u>234</u>	<u>35.3</u>	<u>187</u>	<u>44.0</u>	187	44.0	187	44.0
459.GemsFDTD	59.8	178	60.2	176	<u>60.1</u>	<u>176</u>	59.5	178	59.8	177	<u>59.7</u>	<u>178</u>
465.tonto	260	37.8	<u>260</u>	<u>37.9</u>	260	37.9	<u>194</u>	<u>50.8</u>	194	50.8	194	50.8
470.lbm	25.0	549	25.0	549	<u>25.0</u>	<u>549</u>	24.8	555	<u>24.8</u>	<u>555</u>	24.7	555
481.wrf	213	52.5	210	53.3	<u>211</u>	<u>52.9</u>	<u>125</u>	<u>89.2</u>	126	88.5	124	90.1
482.sphinx3	323	60.3	<u>324</u>	<u>60.2</u>	324	60.1	<u>257</u>	<u>75.8</u>	<u>257</u>	<u>75.8</u>	257	75.8

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

Submit Notes

The config file option 'submit' was used to bind processes to CPU threads with pbind(1)

Operating System Notes

```
ulimit -s unlimited (shell): increases stack
/etc/system parameters
autoup=1000
tune_t_fsflushr=10
gzip compression set using "zfs set compression=gzip <zfs-filesystem>"
```



SPEC CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

Oracle Corporation

SPECfp2006 = 102

Sun Blade X4-2B (Intel Xeon E5-2697 v2 2.7GHz)

SPECfp_base2006 = 88.1

CPU2006 license: 6

Test date: Sep-2013

Test sponsor: Oracle Corporation

Hardware Availability: Sep-2013

Tested by: Oracle Corporation

Software Availability: Nov-2013

Platform Notes

Default BIOS Settings were used except:
Hyper-Threading (HT) Technology was Disabled

```
Sysinfo program /export/home/cpu2006v1.2/Docs/sysinfo
: 6775 2011-08-16 #f7622badcf24e01c368b1db4377c
running on bur408-94 Mon Sep 2 15:51:28 2013
```

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 /usr/sbin/psrinfo -pv
Intel(r) Xeon(r) CPU E5-2697 v2 @ 2.70GHz
x86 (GenuineIntel 306E4 family 6 model 62 step 4 clock 2693 MHz)
```

```
/usr/sbin/psrinfo -p: 2 chips
/usr/sbin/psrinfo | wc -l: 24 threads
```

```
/usr/sbin/prtconf | grep "Memory size:": 262087 Megabytes
```

```
/etc/release:
Oracle Solaris 11.1 X86
```

```
uname -a:
SunOS bur408-94 5.11 11.1 i86pc i386 i86pc
```

```
disk: df -h
Filesystem      Size  Used  Available Capacity  Mounted on
rpool/export/home 274G   33G    164G      17%   /export/home
```

(End of data from sysinfo program)

General Notes

Environment variables set by runspec before the start of the run:

```
MTEXCLUSIVE = "Y"
OMP_NUM_THREADS = "24"
SUNW_MP_PROCBIND = "scatter"
SUNW_MP_THR_IDLE = "spin"
```

Base Compiler Invocation

C benchmarks:
cc

C++ benchmarks:
CC

Continued on next page



SPEC CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

Oracle Corporation

SPECfp2006 = 102

Sun Blade X4-2B (Intel Xeon E5-2697 v2 2.7GHz)

SPECfp_base2006 = 88.1

CPU2006 license: 6

Test date: Sep-2013

Test sponsor: Oracle Corporation

Hardware Availability: Sep-2013

Tested by: Oracle Corporation

Software Availability: Nov-2013

Base Compiler Invocation (Continued)

Fortran benchmarks:
f90

Benchmarks using both Fortran and C:
cc f90

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
436.cactusADM: -DSPEC_CPU_LP64
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
459.GemsFDTD: -DSPEC_CPU_LP64
465.tonto: -DSPEC_CPU_LP64
470.lbm: -DSPEC_CPU_LP64
481.wrf: -DSPEC_CPU_LP64 -DSPEC_CPU_WORDS_LITTLEENDIAN
482.sphinx3: -DSPEC_CPU_LP64

```

Base Optimization Flags

C benchmarks:
-g -fast -xtarget=ivybridge -xipo=2 -m64 -xautopar -xreduction
-xalias_level=std

C++ benchmarks:
-g -fast -xtarget=ivybridge -xipo=2 -m64 -xpagesize=2M
-xalias_level=compatible -library=stdcxx4

Fortran benchmarks:
-g -fast -xtarget=ivybridge -xipo=2 -m64 -xautopar -xreduction
-xpagesize=2M

Benchmarks using both Fortran and C:
-g -fast(cc) -xtarget=ivybridge -xipo=2 -m64 -xautopar -xreduction
-xalias_level=std -fast(f90) -xpagesize=2M



SPEC CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

Oracle Corporation

SPECfp2006 = 102

Sun Blade X4-2B (Intel Xeon E5-2697 v2 2.7GHz)

SPECfp_base2006 = 88.1

CPU2006 license: 6

Test date: Sep-2013

Test sponsor: Oracle Corporation

Hardware Availability: Sep-2013

Tested by: Oracle Corporation

Software Availability: Nov-2013

Peak Compiler Invocation

C benchmarks:

cc

C++ benchmarks:

CC

Fortran benchmarks:

f90

Benchmarks using both Fortran and C:

cc f90

Peak Portability Flags

436.cactusADM: -DSPEC_CPU_LP64

481.wrf: -DSPEC_CPU_WORDS_LITTLEENDIAN

Peak Optimization Flags

C benchmarks:

433.milc: -g -xprofile=collect:./feedback(pass 1)
-xprofile=use:./feedback(pass 2) -fast -xtarget=ivybridge
-xipo=2 -m64 -xpagesize=2M -xalias_level=std -xautopar
-xreduction -W2,-Aparallel:nthreads=12 -lmtmalloc

470.lbm: -g -fast -xtarget=ivybridge -xipo=2 -m64 -xautopar
-xreduction -xpagesize=4K -xprefetch_level=3 -lmtmalloc

482.sphinx3: -g -xprofile=collect:./feedback(pass 1)
-xprofile=use:./feedback(pass 2) -fast -xtarget=ivybridge
-xipo=2 -m64 -xpagesize=2M -xalias_level=std -xrestrict
-xprefetch=no%auto -xautopar -xreduction
-W2,-Aparallel:nthreads=12

C++ benchmarks:

444.namd: -g -xprofile=collect:./feedback(pass 1)
-xprofile=use:./feedback(pass 2) -fast -xtarget=ivybridge
-xO3 -xprefetch=no%auto -m64 -xpagesize=2M
-xalias_level=compatible -library=stlport4

447.dealIII: -g -fast -xtarget=ivybridge -xipo=2 -m64 -xpagesize=2M
-xalias_level=compatible -library=stdcxx4 -xrestrict

Continued on next page



SPEC CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

Oracle Corporation

SPECfp2006 = 102

Sun Blade X4-2B (Intel Xeon E5-2697 v2 2.7GHz)

SPECfp_base2006 = 88.1

CPU2006 license: 6

Test date: Sep-2013

Test sponsor: Oracle Corporation

Hardware Availability: Sep-2013

Tested by: Oracle Corporation

Software Availability: Nov-2013

Peak Optimization Flags (Continued)

450.soplex: -g -xprofile=collect:./feedback(pass 1)
-xprofile=use:./feedback(pass 2) -fast -xtarget=ivybridge
-xipo=2 -xpagesize=2M -xalias_level=compatible
-library=stlport4 -m64 -Qoption iropt -Rtile

453.povray: -g -xprofile=collect:./feedback(pass 1)
-xprofile=use:./feedback(pass 2) -fast -xtarget=ivybridge
-xprefetch=no%auto -xipo=2 -m64 -xpagesize=2M
-xalias_level=compatible -qoption iropt -Atile:skew=on
-qoption iropt -Ainline:cs=700 -library=stdcxx4

Fortran benchmarks:

410.bwaves: -g -xprofile=collect:./feedback(pass 1)
-xprofile=use:./feedback(pass 2) -fast -xtarget=ivybridge
-xipo=2 -m64 -xpagesize=4K -xautopar -xreduction

416.gamess: -g -fast -xtarget=ivybridge -xipo=2 -m64 -xpagesize=2M
-xunroll=1 -xvector=no%simd -xprefetch=no%auto

434.zeusmp: -g -xprofile=collect:./feedback(pass 1)
-xprofile=use:./feedback(pass 2) -fast -xtarget=ivybridge
-xipo=2 -m64 -xpagesize=2M -xautopar -xreduction

437.leslie3d: -g -xprofile=collect:./feedback(pass 1)
-xprofile=use:./feedback(pass 2) -fast -xtarget=ivybridge
-xipo=2 -m64 -xautopar -xreduction -lmtmalloc

459.GemsFDTD: Same as 434.zeusmp

465.tonto: -g -xprofile=collect:./feedback(pass 1)
-xprofile=use:./feedback(pass 2) -fast -xtarget=ivybridge
-xpagesize=2M -O3 -m64 -stackvar -xprefetch=no%auto
-xalias -xautopar -xreduction
-Qoption iropt -Aparallel:nthreads=12 -lfast_r

Benchmarks using both Fortran and C:

435.gromacs: -g -xprofile=collect:./feedback(pass 1)
-xprofile=use:./feedback(pass 2) -fast(cc) -fast(f90)
-xtarget=ivybridge -xipo=2 -m64 -xpagesize=2M -fsimple=2
-Qoption ube -fsimple=3 -O4 -xautopar -xreduction
-Qoption iropt -Aparallel:nthreads=12 -lmtmalloc

436.cactusADM: -g -xprofile=collect:./feedback(pass 1)
-xprofile=use:./feedback(pass 2) -fast(cc) -fast(f90)
-xtarget=ivybridge -m64 -xautopar -xreduction
-xpagesize=2M -lumem -lmvec -xprefetch_level=3

Continued on next page



SPEC CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

Oracle Corporation

SPECfp2006 = 102

Sun Blade X4-2B (Intel Xeon E5-2697 v2 2.7GHz)

SPECfp_base2006 = 88.1

CPU2006 license: 6

Test date: Sep-2013

Test sponsor: Oracle Corporation

Hardware Availability: Sep-2013

Tested by: Oracle Corporation

Software Availability: Nov-2013

Peak Optimization Flags (Continued)

```
454.calculix: -g -fast(cc) -fast(f90) -xtarget=ivybridge -xipo=0 -m64
             -xpagesize=2M -xprefetch_level=2
             -xprefetch_auto_type=indirect_array_access
             -Qoption ube -xprefetch_mult=24 -xunroll=2
```

```
481.wrf: -g -xprofile=collect:./feedback(pass 1)
          -xprofile=use:./feedback(pass 2) -fast(cc) -fast(f90)
          -xtarget=ivybridge -O4 -xchip=nehalem -xarch=sse4_2
          -xipo=2 -m64 -xpagesize=2M -xprefetch=no%auto -xautopar
          -xreduction -Qoption iropt -Aparallel:nthreads=12
```

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

http://www.spec.org/cpu2006/flags/Oracle-Solaris-Studio12.3-x86_64.20130924.html

http://www.spec.org/cpu2006/flags/Oracle-platform-x86_64.CPUv1.2-RevA.20120425.html

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

http://www.spec.org/cpu2006/flags/Oracle-Solaris-Studio12.3-x86_64.20130924.xml

http://www.spec.org/cpu2006/flags/Oracle-platform-x86_64.CPUv1.2-RevA.20120425.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 15:58:05 2014 by SPEC CPU2006 PS/PDF formatter v6932.

Originally published on 24 September 2013.