SPEC® CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

Oracle Corporation

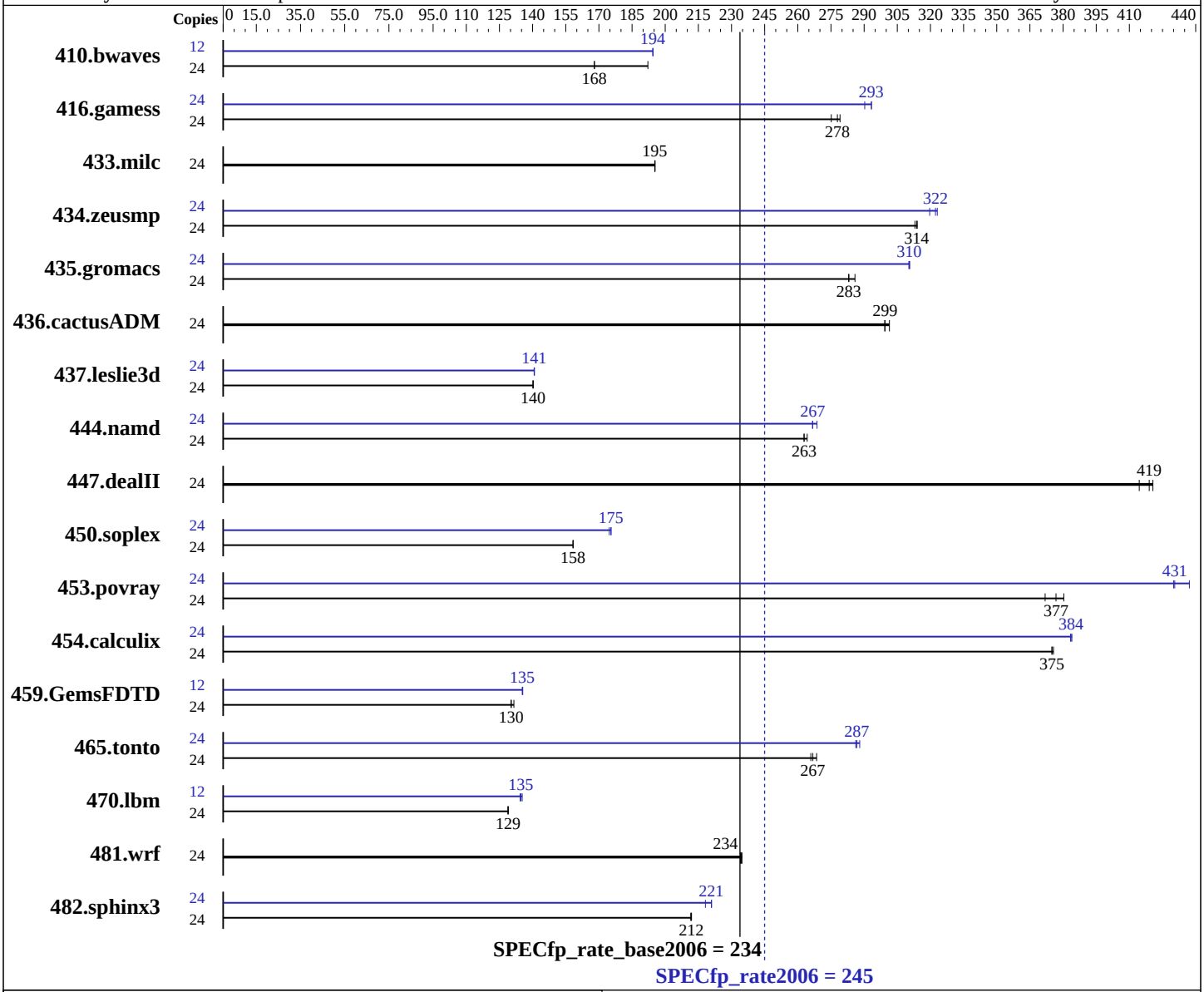
Sun Fire X4170 M2 (Intel Xeon X5670 2.93GHz)

SPECfp®_rate2006 = 245

SPECfp_rate_base2006 = 234

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

Test date: Mar-2010
Hardware Availability: Jun-2010
Software Availability: Jun-2010



Hardware

CPU Name:	Intel Xeon X5670
CPU Characteristics:	Intel Turbo Boost Technology up to 3.33 GHz
CPU MHz:	2933
FPU:	Integrated
CPU(s) enabled:	12 cores, 2 chips, 6 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

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Software

Operating System:	Oracle Solaris 10 10/09
Compiler:	Oracle Solaris Studio Express 6/10
Auto Parallel:	No
File System:	zfs
System State:	Default
Base Pointers:	64-bit
Peak Pointers:	32/64-bit
Other Software:	Apache C++ Standard Library V4.2.1

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L3 Cache: 12 MB I+D on chip per chip
Other Cache: None
Memory: 48 GB (12 x 4 GB DDR3-1333 CL9, 2 Rank, ECC)
Disk Subsystem: 1 x 300 GB, SAS, 10000 RPM
Other Hardware: None

Results Table

Benchmark	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	24	1697	192	**1942**	**168**	1942	168	12	838	195	839	194	**839**	**194**
416.gamess	24	**1691**	**278**	1708	275	1684	279	24	1602	293	**1602**	**293**	1619	290
433.milc	24	1128	195	**1128**	**195**	1128	195	24	1128	195	**1128**	**195**	1128	195
434.zeusmp	24	**696**	**314**	695	314	698	313	24	676	323	**678**	**322**	683	320
435.gromacs	24	606	283	**605**	**283**	599	286	24	**552**	**310**	552	310	552	311
436.cactusADM	24	951	301	**958**	**299**	958	299	24	951	301	**958**	**299**	958	299
437.leslie3d	24	1609	140	**1609**	**140**	1608	140	24	1604	141	1602	141	**1603**	**141**
444.namd	24	728	264	**732**	**263**	732	263	24	716	269	722	267	**722**	**267**
447.dealII	24	662	414	**655**	**419**	653	421	24	662	414	**655**	**419**	653	421
450.soplex	24	1265	158	**1264**	**158**	1264	158	24	1146	175	**1141**	**175**	1141	175
453.povray	24	336	380	343	372	**339**	**377**	24	**297**	**431**	297	430	292	437
454.calculix	24	**528**	**375**	527	376	528	375	24	516	384	516	383	**516**	**384**
459.GemsFDTD	24	1936	132	**1953**	**130**	1955	130	12	939	136	**940**	**135**	941	135
465.tonto	24	**885**	**267**	880	268	888	266	24	820	288	**824**	**287**	825	286
470.lbm	24	2560	129	2557	129	**2557**	**129**	12	1227	134	**1224**	**135**	1219	135
481.wrf	24	1142	235	1145	234	**1143**	**234**	24	1142	235	1145	234	**1143**	**234**
482.sphinx3	24	2207	212	**2209**	**212**	2211	212	24	2144	218	2117	221	**2117**	**221**

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

Compiler Invocation Notes

```
The Apache C++ Standard Library V4.2.1 was installed from
http://stdcxx.apache.org/download.html using:
    alias gmake=specmake
    gmake BUILDTYPE=8D CONFIG=sunpro.config
```

Submit Notes

```
The config file option 'submit' was used.
```

Operating System Notes

```
ulimit -s unlimited  (shell)

/etc/system parameters
   tune_t_fsflushr=10
   autoup=900
   zfs:zfs_arc_max = 0x10000000
   lpg_alloc_prefer=1
```

Platform Notes

```
  Default BIOS settings used except:
    C-State                  : Disabled
    Data Reuse Optimization  : Disabled
```

General Notes

```
447.dealII (peak): "apache_stdcxx_4_2_1" src.alt was used.

447.dealII (base): "apache_stdcxx_4_2_1" src.alt was used.
```

Base Compiler Invocation

C benchmarks:
`cc`

C++ benchmarks:
`CC`

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`

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Base Portability Flags (Continued)

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:
-fast -xtarget=nehalem -xipo=2 -m64 -xpagesize=2M -xalias_level=std

C++ benchmarks:
-fast -xtarget=nehalem -xipo=2 -m64 -xpagesize=2M
-xalias_level=compatible -library=no%Cstd -I/data1/stdcxx-4.2.1/include
-I/data1/stdcxx-4.2.1/build/include -L/data1/stdcxx-4.2.1/build/lib
-R/data1/stdcxx-4.2.1/build/lib -lstd8D

Fortran benchmarks:
-fast -xtarget=nehalem -xarch=generic -xipo=2 -m64 -xpagesize=2M

Benchmarks using both Fortran and C:
-fast(cc) -xtarget=nehalem -xipo=2 -m64 -xpagesize=2M
-xalias_level=std -fast(f90) -xarch=generic

Base Other Flags

C benchmarks:
-V -# -xjobs=24

C++ benchmarks:
-verbose=diags,version -xjobs=24

Fortran benchmarks:
-V -v -xjobs=24

Benchmarks using both Fortran and C:
-V -# -xjobs=24 -v

Peak Compiler Invocation

C benchmarks:
cc

C++ benchmarks:
CC

Fortran benchmarks:
f90

Benchmarks using both Fortran and C:
cc f90

Peak Portability Flags

433.milc: -DSPEC_CPU_LP64
436.cactusADM: -DSPEC_CPU_LP64
447.dealII: -DSPEC_CPU_LP64
481.wrf: -DSPEC_CPU_LP64 -DSPEC_CPU_WORDS_LITTLEENDIAN

Peak Optimization Flags

C benchmarks:

433.milc: basepeak = yes

470.lbm: -fast -xtarget=nehalem -xipo=2 -m64 -lbsdmalloc

482.sphinx3: -fast -xtarget=nehalem -xipo=2 -m64 -xpagesize=2M
-xalias_level=std -xunroll=3 -xprefetch=no%auto

C++ benchmarks:

444.namd: -xprofile=collect:./feedback(pass 1)
-xprofile=use:./feedback(pass 2) -fast -xtarget=nehalem
-xipo=2 -m64 -xpagesize=2M -xalias_level=compatible
-library=stlport4

447.dealII: basepeak = yes

450.soplex: -xprofile=collect:./feedback(pass 1)
-xprofile=use:./feedback(pass 2) -fast -xtarget=nehalem
-xipo=2 -xpagesize=2M -xalias_level=compatible
-library=stlport4 -m32 -qoption iropt -Rujam
-qoption iropt -Rtile

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Peak Optimization Flags (Continued)

453.povray: -xprofile=collect:./feedback(pass 1)
-xprofile=use:./feedback(pass 2) -fast -xtarget=nehalem
-xipo=2 -m64 -xpagesize=2M -xvector=no%simd
-xalias_level=compatible -library=stlport4

Fortran benchmarks:

410.bwaves: -xprofile=collect:./feedback(pass 1)
-xprofile=use:./feedback(pass 2) -fast -xtarget=nehalem
-xipo=2 -m64 -xpagesize=2M

416.gamess: -fast -xtarget=nehalem -xipo=2 -m64 -xpagesize=2M
-xunroll=1 -xvector=no%simd

434.zeusmp: Same as 410.bwaves

437.leslie3d: -fast -xtarget=nehalem -xipo=2 -m64 -xpagesize=2M
-Qoption ube -xprefetch_mult=2

459.GemsFDTD: Same as 410.bwaves

465.tonto: -xprofile=collect:./feedback(pass 1)
-xprofile=use:./feedback(pass 2) -fast -xtarget=nehalem
-xipo=2 -m64 -xvector=lib -xalias -xdepend -lbsdmalloc

Benchmarks using both Fortran and C:

435.gromacs: -xprofile=collect:./feedback(pass 1)
-xprofile=use:./feedback(pass 2) -fast(cc) -fast(f90)
-xtarget=nehalem -xipo=2 -m64 -xpagesize=2M
-Qoption ube -fsimple=3

436.cactusADM: basepeak = yes

454.calculix: -fast(cc) -fast(f90) -xtarget=nehalem -xipo=2 -m64
-xpagesize=2M -xunroll=3 -xprefetch_level=2
-xprefetch_auto_type=indirect_array_access

481.wrf: basepeak = yes

Peak Other Flags

C benchmarks:
-V -# -xjobs=24

C++ benchmarks:
-verbose=diags,version -xjobs=24

Continued on next page

Peak Other Flags (Continued)

Fortran benchmarks:
`-V -v -xjobs=24`

Benchmarks using both Fortran and C:
`-V -# -xjobs=24 -v`

The flags file that was used to format this result can be browsed at
`http://www.spec.org/cpu2006/flags/Oracle-Solaris-Studio-x86_64.html`

You can also download the XML flags source by saving the following link:
`http://www.spec.org/cpu2006/flags/Oracle-Solaris-Studio-x86_64.xml`

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