



SPEC[®] CFP2006 Result

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Oracle Corporation

SPECfp[®]_rate2006 = 245

Sun Fire X4170 M2 (Intel Xeon X5670 2.93GHz)

SPECfp_rate_base2006 = 234

CPU2006 license: 6

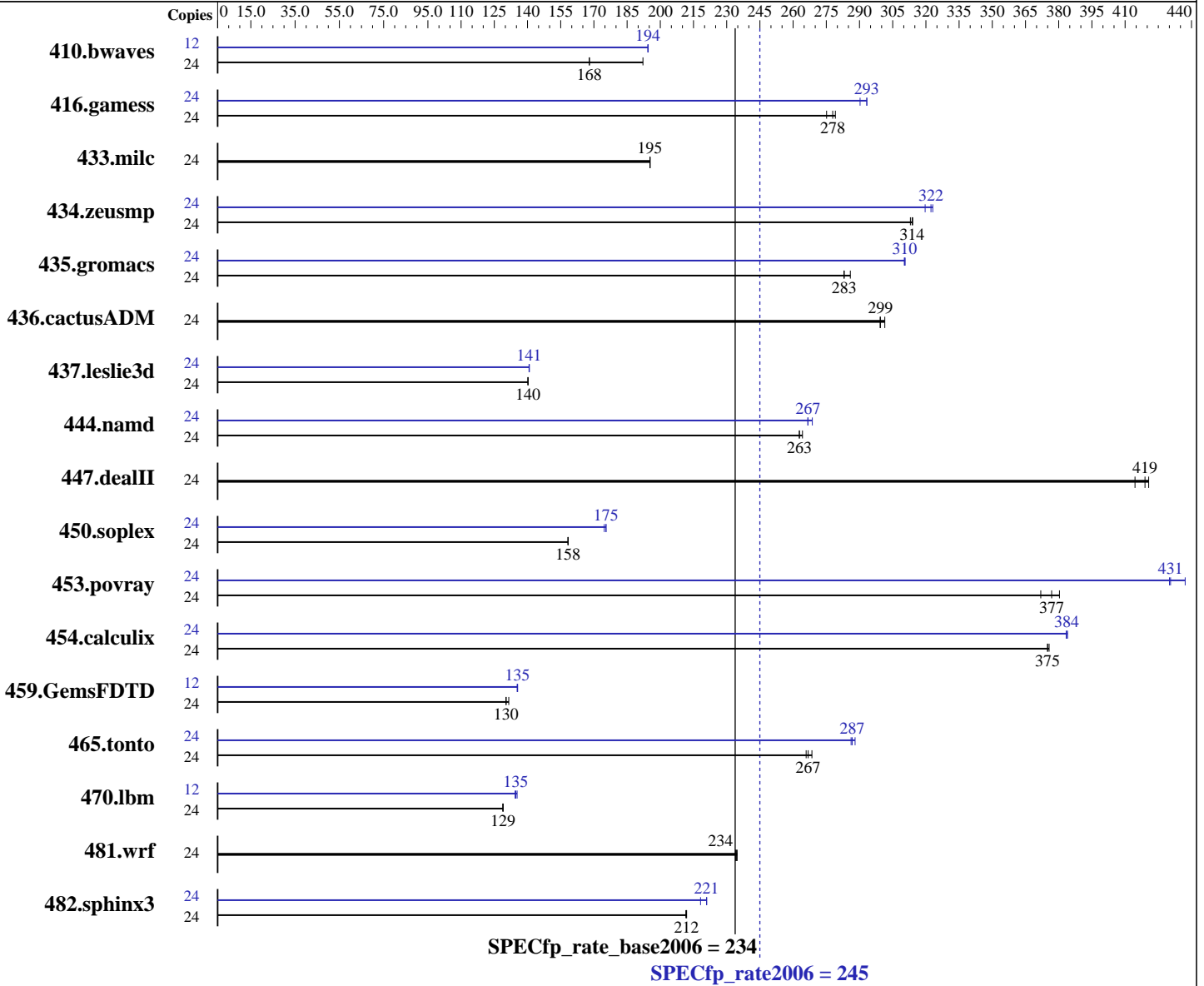
Test date: Mar-2010

Test sponsor: Oracle Corporation

Hardware Availability: Jun-2010

Tested by: Oracle Corporation

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

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.



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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.dealIII (peak): "apache_stdccx4_2_1" src.alt was used.
447.dealIII (base): "apache_stdccx4_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.deall: -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



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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

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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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