



SPEC® CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

Oracle Corporation

Sun Blade X6275 M2 Server Module (Intel Xeon X5675 3.06 GHz)

SPECfp®_rate2006 = 260

SPECfp_rate_base2006 = 253

CPU2006 license: 6

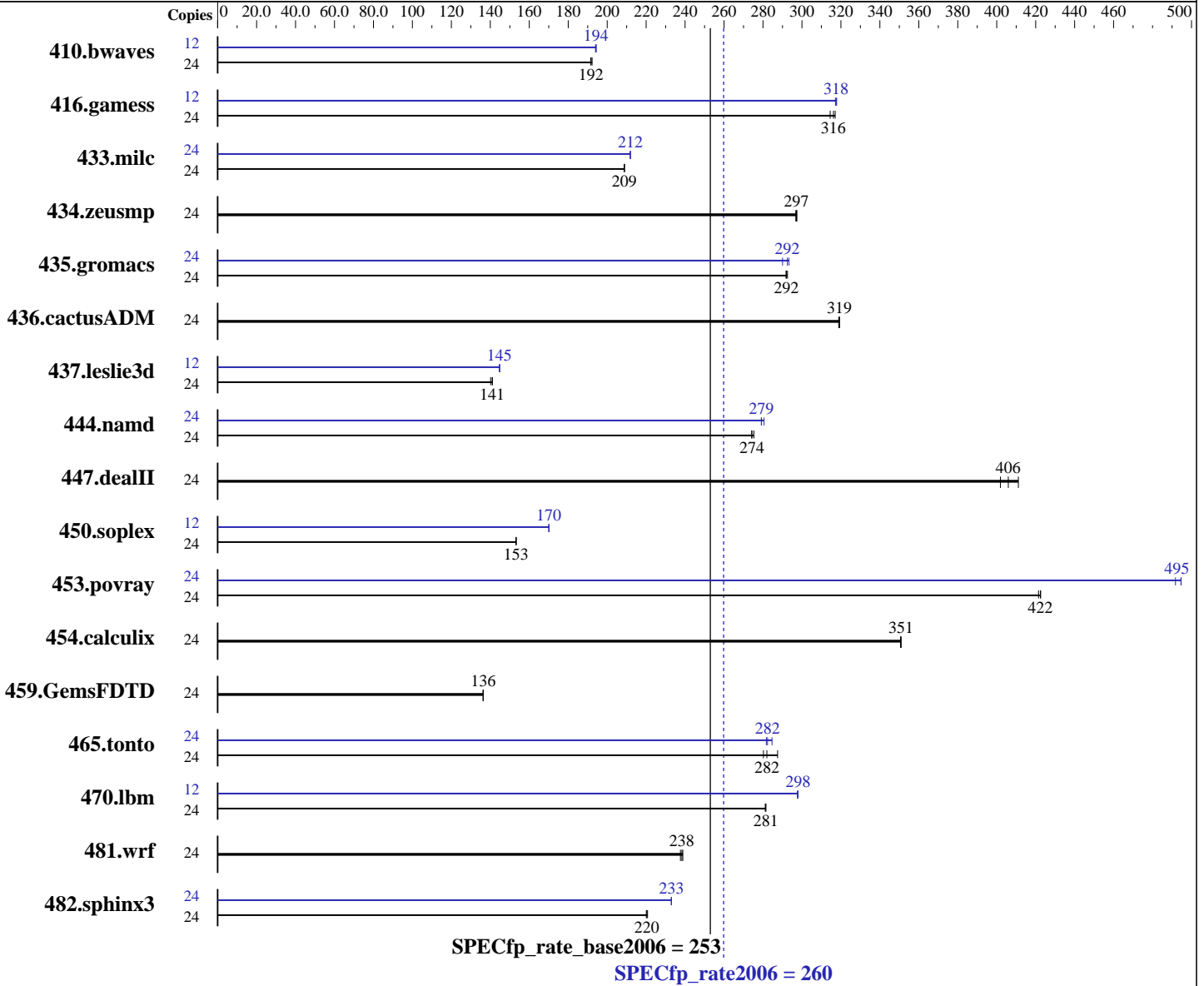
Test sponsor: Oracle Corporation

Tested by: Oracle Corporation

Test date: Jan-2011

Hardware Availability: Mar-2011

Software Availability: Nov-2010



Hardware

CPU Name: Intel Xeon X5675
 CPU Characteristics: Intel Turbo Boost Technology up to 3.46 GHz
 CPU MHz: 3067
 FPU: Integrated
 CPU(s) enabled: 12 cores, 2 chips, 6 cores/chip, 2 threads/core
 CPU(s) orderable: 1 or 2 chips per Sun Blade X6275 M2 node
 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 Linux 5.5 kernel 2.6.18-194.el5
 Compiler: Intel C++ and Fortran Intel 64 Compiler XE for applications running on Intel 64 Version 12.0.1.116 Build 20101116
 Auto Parallel: No
 File System: NFSv4
 System State: Run level 3 (multi-user)
 Base Pointers: 64-bit

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L3 Cache: 12 MB I+D on chip per chip
Other Cache: None
Memory: 96 GB (12 x 8 GB 2Rx4 PC3-10600R-9, ECC, per node)
Disk Subsystem: Sun Storage 7410 System via NFS (See additional details below)
Other Hardware: None

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	1696	192	<u>1701</u>	<u>192</u>	1703	192	12	<u>840</u>	<u>194</u>	839	194	841	194		
416.gamess	24	<u>1486</u>	<u>316</u>	1482	317	1494	314	12	741	317	<u>740</u>	<u>318</u>	739	318		
433.milc	24	1055	209	1055	209	<u>1055</u>	<u>209</u>	24	<u>1040</u>	<u>212</u>	1040	212	1040	212		
434.zeusmp	24	734	297	736	297	<u>735</u>	<u>297</u>	24	734	297	736	297	<u>735</u>	<u>297</u>		
435.gromacs	24	587	292	<u>587</u>	<u>292</u>	586	293	24	584	293	591	290	<u>586</u>	<u>292</u>		
436.cactusADM	24	<u>898</u>	<u>319</u>	898	319	899	319	24	<u>898</u>	<u>319</u>	898	319	899	319		
437.leslie3d	24	1599	141	1610	140	<u>1601</u>	<u>141</u>	12	779	145	<u>779</u>	<u>145</u>	780	145		
444.namd	24	<u>702</u>	<u>274</u>	702	274	699	275	24	686	281	690	279	<u>689</u>	<u>279</u>		
447.dealII	24	<u>676</u>	<u>406</u>	683	402	668	411	24	<u>676</u>	<u>406</u>	683	402	668	411		
450.soplex	24	<u>1306</u>	<u>153</u>	1306	153	1306	153	12	588	170	<u>588</u>	<u>170</u>	588	170		
453.povray	24	303	421	<u>302</u>	<u>422</u>	302	423	24	258	495	260	492	<u>258</u>	<u>495</u>		
454.calculix	24	564	351	<u>564</u>	<u>351</u>	565	351	24	564	351	<u>564</u>	<u>351</u>	565	351		
459.GemsFDTD	24	1868	136	1867	136	<u>1867</u>	<u>136</u>	24	1868	136	1867	136	<u>1867</u>	<u>136</u>		
465.tonto	24	821	287	<u>837</u>	<u>282</u>	843	280	24	<u>837</u>	<u>282</u>	838	282	830	285		
470.lbm	24	<u>1172</u>	<u>281</u>	1173	281	1172	281	12	553	298	554	298	<u>553</u>	<u>298</u>		
481.wrf	24	1122	239	<u>1125</u>	<u>238</u>	1128	238	24	1122	239	<u>1125</u>	<u>238</u>	1128	238		
482.sphinx3	24	2119	221	2125	220	<u>2123</u>	<u>220</u>	24	2009	233	<u>2007</u>	<u>233</u>	2007	233		

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.
numactl was used to bind copies to the cores

Operating System Notes

'ulimit -s unlimited' was used to set the stacksize to unlimited prior to run
Hugepages was enabled with the following:
'nodev /mnt/hugepages hugetlbfs defaults 0 0' added to /etc/fstab
echo 10800 > /proc/sys/vm/nr_hugepages
export HUGETLB_MORECORE=yes
export LD_PRELOAD=/usr/lib64/libhugetlbfs.so



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Platform Notes

Load Default BIOS Settings and then change the following

Data Reuse Optimization Disabled
Hardware Prefetch Enabled
Adjacent Cache Line Prefetch Enabled
L1 Data Prefetch Enabled
Intel Hyperthreading Options Enabled

Storage Configuration for Disk Subsystem:

Sun Storage 7410 has 2 x J4400 disk shelves. There are 22 x 750 GB 7200 RPM SATA Disks per J4400 disk shelf under RAID-1 configuration mounted over 10GBE network interface with these options "rw,noacl,hard,intr,rsize=65536,wspace=65536" in the /etc/fstab.

General Notes

Binaries were compiled on RHEL5.5 with Binutils binutils-2.17.50.0.6-14.el5

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

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Base Portability Flags (Continued)

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:

-xSSE4.2 -ipo -O3 -no-prec-div -static -ansi-alias

C++ benchmarks:

-xSSE4.2 -ipo -O3 -no-prec-div -static -ansi-alias

Fortran benchmarks:

-xSSE4.2 -ipo -O3 -no-prec-div -static

Benchmarks using both Fortran and C:

-xSSE4.2 -ipo -O3 -no-prec-div -static -ansi-alias

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

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Peak Portability Flags (Continued)

```

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
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

```

Peak Optimization Flags

C benchmarks:

```

433.milc: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
-no-prec-div(pass 2) -prof-use(pass 2) -static -auto-ilp32

```

```

470.lbm: -xSSE4.2(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
-ansi-alias -opt-prefetch -static -auto-ilp32

```

```

482.sphinx3: -xSSE4.2 -ipo -O3 -no-prec-div -unroll2

```

C++ benchmarks:

```

444.namd: -xSSE4.2(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: -xSSE4.2(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
-B /usr/share/libhugetlbfs/ -Wl,-hugetlbfs-link=BDT

```

```

453.povray: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
-no-prec-div(pass 2) -prof-use(pass 2) -unroll4 -ansi-alias
-B /usr/share/libhugetlbfs/ -Wl,-melf_x86_64 -Wl,-hugetlbfs-link=BDT

```

Fortran benchmarks:

```

410.bwaves: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
-no-prec-div(pass 2) -prof-use(pass 2) -static

```

```

416.gamess: -xSSE4.2(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

```

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Peak Optimization Flags (Continued)

434.zeusmp: basepeak = yes

437.leslie3d: -xSSE4.2 -ipo -O3 -no-prec-div
-B /usr/share/libhugetlbfs/ -Wl,-melf_x86_64 -Wl,-hugetlbfs-link=BDT

459.GemsFDTD: basepeak = yes

465.tonto: -xSSE4.2(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
-B /usr/share/libhugetlbfs/ -Wl,-melf_x86_64 -Wl,-hugetlbfs-link=BDT

Benchmarks using both Fortran and C:

435.gromacs: -xSSE4.2(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

436.cactusADM: basepeak = yes

454.calculix: basepeak = yes

481.wrf: basepeak = yes

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

<http://www.spec.org/cpu2006/flags/Intel-ic12.0-linux64-revA.html>

http://www.spec.org/cpu2006/flags/Oracle-platform-x86_64.20101027.html

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

<http://www.spec.org/cpu2006/flags/Intel-ic12.0-linux64-revA.xml>

http://www.spec.org/cpu2006/flags/Oracle-platform-x86_64.20101027.xml

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For other inquiries, please contact webmaster@spec.org.

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