SPEC® CFP2006 Result

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Oracle Corporation

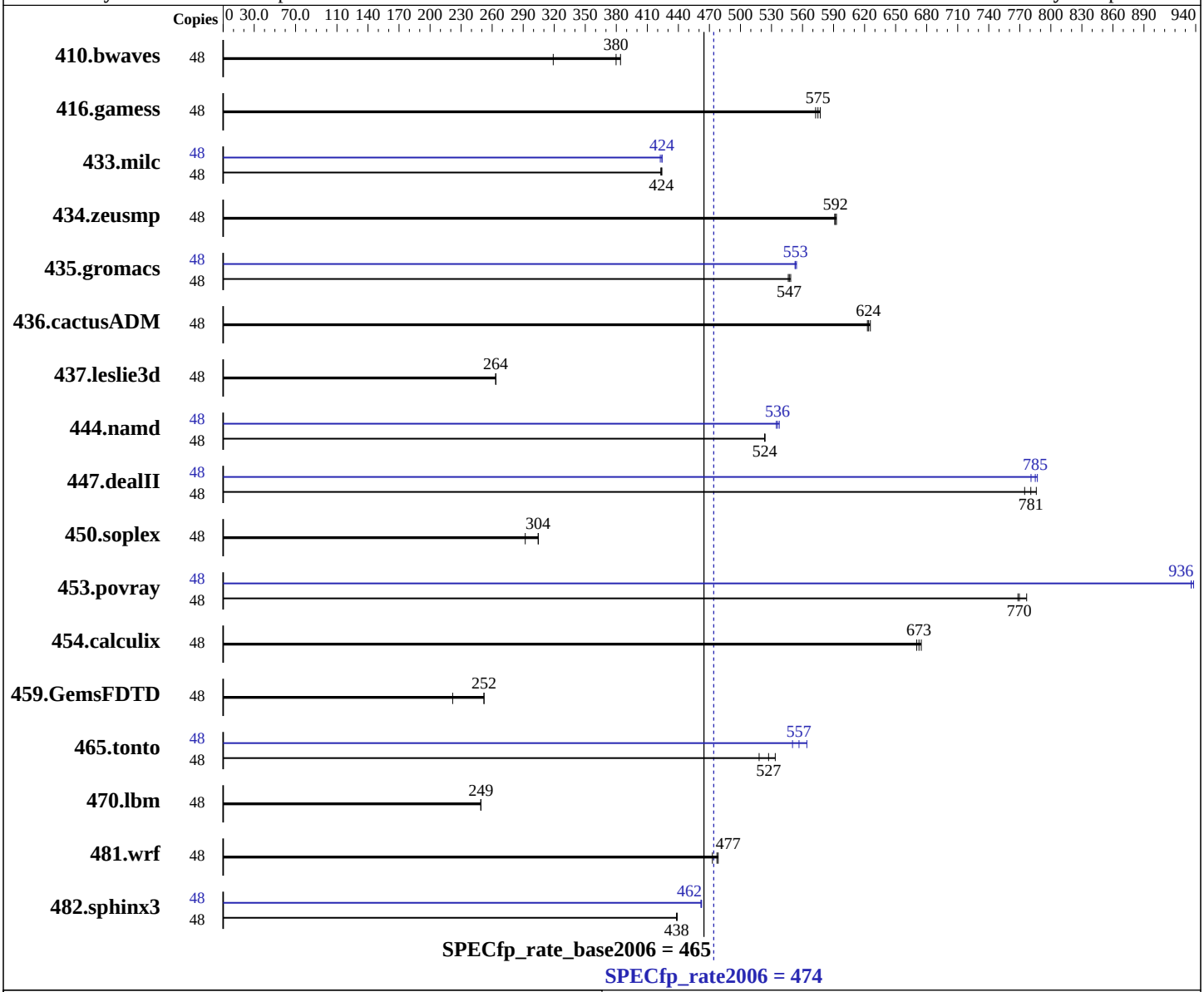
Sun Blade X6275 M2 Server Module (Intel Xeon X5670 2.93 GHz)

SPECfp®_rate2006 = 474

SPECfp_rate_base2006 = 465

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

Test date: Nov-2010
Hardware Availability: Dec-2010
Software Availability: Apr-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:	24 cores, 4 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 Enterprise Linux Server release 5.5 kernel 2.6.18-194.el5
Compiler:	Intel C++ and Fortran Professional Compiler for IA32 and Intel 64, Version 11.1 Build 20091130 Package ID: l_cproc_p_11.1.064, l_cprof_p_11.1.064
Auto Parallel:	No
File System:	NFSv4
System State:	Run level 3 (multi-user)

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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: 10 GbE interface

Base Pointers: 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	48	2045	319	**1718**	**380**	1698	384	48	2045	319	**1718**	**380**	1698	384
416.gamess	48	1628	577	1641	573	**1635**	**575**	48	1628	577	1641	573	**1635**	**575**
433.milc	48	1042	423	1039	424	**1040**	**424**	48	1043	423	1039	424	**1039**	**424**
434.zeusmp	48	737	593	739	591	**738**	**592**	48	737	593	739	591	**738**	**592**
435.gromacs	48	**626**	**547**	625	549	627	546	48	**620**	**553**	618	554	620	553
436.cactusADM	48	917	626	**919**	**624**	921	623	48	917	626	**919**	**624**	921	623
437.leslie3d	48	**1712**	**264**	1711	264	1713	263	48	**1712**	**264**	1711	264	1713	263
444.namd	48	736	523	735	524	**735**	**524**	48	720	535	716	538	**718**	**536**
447.dealII	48	**703**	**781**	699	786	709	775	48	**700**	**785**	703	781	698	787
450.soplex	48	1371	292	1314	305	**1315**	**304**	48	1371	292	1314	305	**1315**	**304**
453.povray	48	**332**	**770**	329	777	332	768	48	273	936	**273**	**936**	272	938
454.calculix	48	**589**	**673**	587	675	591	670	48	**589**	**673**	587	675	591	670
459.GemsFDTD	48	2296	222	**2020**	**252**	2020	252	48	2296	222	**2020**	**252**	2020	252
465.tonto	48	912	518	**896**	**527**	885	534	48	**849**	**557**	858	550	837	564
470.lbm	48	2646	249	2648	249	**2647**	**249**	48	2646	249	2648	249	**2647**	**249**
481.wrf	48	1134	473	**1123**	**477**	1120	479	48	1134	473	**1123**	**477**	1120	479
482.sphinx3	48	2135	438	2132	439	**2134**	**438**	48	2023	462	2026	462	**2025**	**462**

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, along with submit.pl to
distribute jobs to two nodes of the Sun Blade X6275 M2 server module.
It also uses numactl to bind copies to the cores.
```

Operating System Notes

```
'ulimit -s unlimited' was used to set the stacksize to unlimited prior to run
```

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

 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,wsize=65536" in the /etc/fstab.
```

General Notes

```
 Binaries were compiled on SLES 10 with Binutils 2.18.50.0.7.20080502
```

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
```

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Base 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

Base Optimization Flags

C benchmarks:
-xSSE4.2 -ipo -O3 -no-prec-div -static

C++ benchmarks:
-xSSE4.2 -ipo -O3 -no-prec-div -static

Fortran benchmarks:
-xSSE4.2 -ipo -O3 -no-prec-div -static

Benchmarks using both Fortran and C:
-xSSE4.2 -ipo -O3 -no-prec-div -static

Peak Compiler Invocation

C benchmarks (except as noted below):
icc -m64

482.sphinx3: icc -m32

C++ benchmarks:
icpc -m64

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

Continued on next page

Peak Portability Flags (Continued)

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

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) -static(pass 2) -prof-use(pass 2) -fno-alias -opt-prefetch

470.lbm: basepeak = yes

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

C++ benchmarks:

444.namd: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2) -static(pass 2) -prof-use(pass 2) -fno-alias -auto-ilp32

447.dealII: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2) -static(pass 2) -prof-use(pass 2) -unroll2 -ansi-alias -scalar-rep-

450.soplex: basepeak = yes

453.povray: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2) -static(pass 2) -prof-use(pass 2) -unroll4 -ansi-alias

Fortran benchmarks:

410.bwaves: basepeak = yes

416.gamess: basepeak = yes

434.zeusmp: basepeak = yes

437.leslie3d: basepeak = yes

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Peak Optimization Flags (Continued)

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) -static(pass 2) -prof-use(pass 2) -unroll4 -auto -inline-calloc -opt-malloc-options=3

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) -static(pass 2) -prof-use(pass 2) -opt-prefetch -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-ic11.1-linux64-revE-pathfix-smartheap.20101027.html
http://www.spec.org/cpu2006/flags/Oracle-platform-x86_64.20101027.html
http://www.spec.org/cpu2006/flags/Sun-Blade-6275M2.html

You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2006/flags/Intel-ic11.1-linux64-revE-pathfix-smartheap.20101027.xml
http://www.spec.org/cpu2006/flags/Oracle-platform-x86_64.20101027.xml
http://www.spec.org/cpu2006/flags/Sun-Blade-6275M2.xml

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