



# SPEC<sup>®</sup> CFP2006 Result

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## Sun Microsystems Sun Fire X4150

SPECfp<sup>®</sup>\_rate2006 = 76.7

SPECfp\_rate\_base2006 = 69.2

CPU2006 license: 6

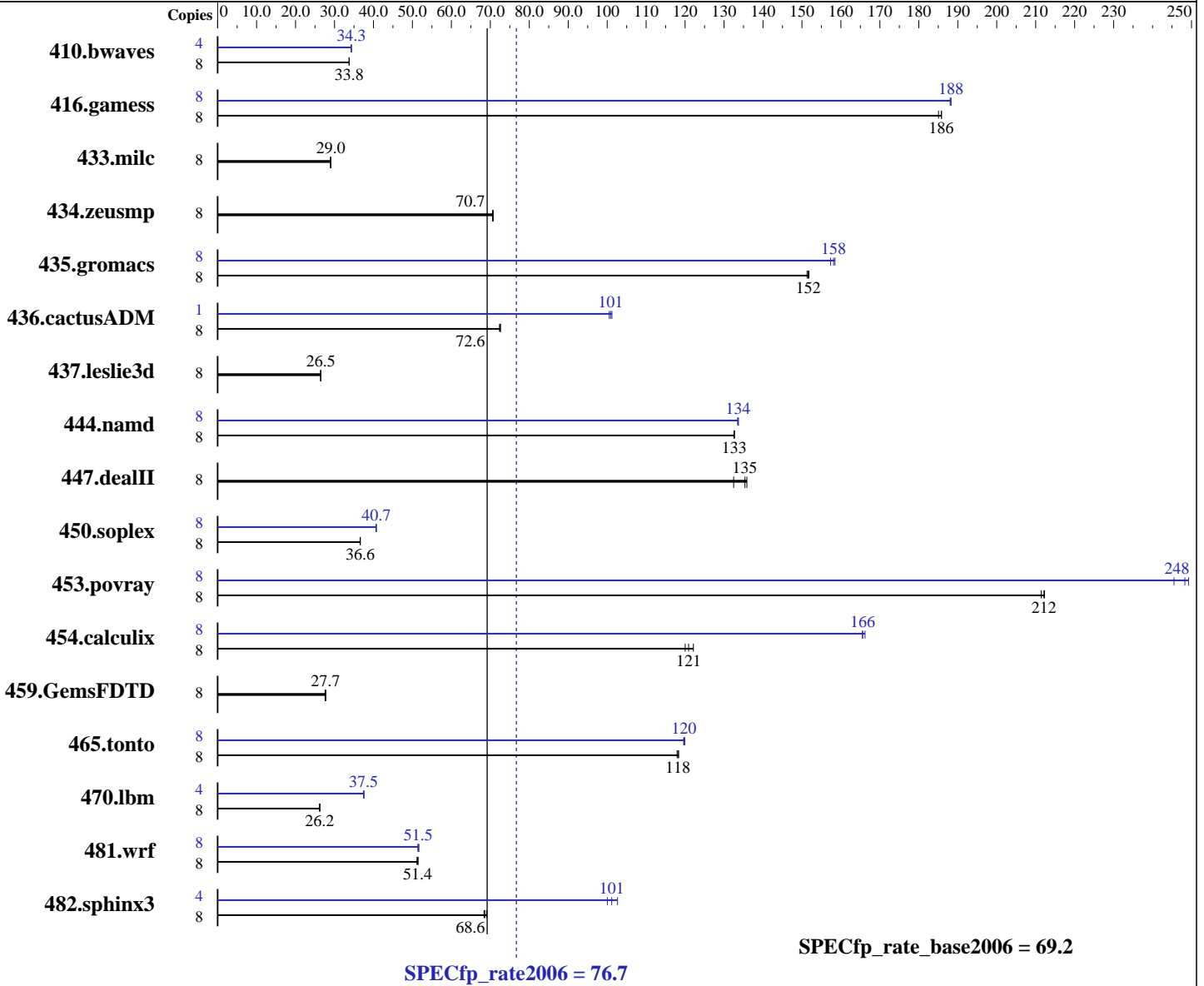
Test sponsor: Sun Microsystems

Tested by: Sun Microsystems

Test date: Jan-2008

Hardware Availability: Feb-2008

Software Availability: Nov-2007



### Hardware

CPU Name: Intel Xeon X5460  
 CPU Characteristics: 3.16 GHz, 2x6 MB L2 shared, 1333 MHz system bus  
 CPU MHz: 3166  
 FPU: Integrated  
 CPU(s) enabled: 8 cores, 2 chips, 4 cores/chip  
 CPU(s) orderable: 1,2 (order by number of chips)  
 Primary Cache: 32 KB I + 32 KB D on chip per core  
 Secondary Cache: 12 MB I+D on chip per chip, 6 MB shared / 2 cores

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### Software

Operating System: SUSE LINUX Enterprise Server 10 SP1 for x86\_64  
 Compiler: Intel C++ and Fortran Compiler for Linux32 and Linux64 version 10.1 Build 20070913  
 Auto Parallel: Yes  
 File System: ReiserFS  
 System State: Multi-user, run level 3  
 Base Pointers: 64-bit  
 Peak Pointers: 32/64-bit

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L3 Cache: None  
Other Cache: None  
Memory: 16 GB (8x2GB DDR2 PC2-5300F 2rank CAS 5-5-5 with ECC)  
Disk Subsystem: SAS, 72 GB, 10K RPM  
Other Hardware: None

Other Software: SmartHeap library V8.1  
Binutils 2.17.50.0.15

## Results Table

Benchmark	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	8	3219	33.8	3220	33.8	<b>3220</b>	<b>33.8</b>	4	<b>1584</b>	<b>34.3</b>	1583	34.3	1585	34.3
416.gamess	8	846	185	843	186	<b>843</b>	<b>186</b>	8	832	188	<b>832</b>	<b>188</b>	833	188
433.milc	8	2524	29.1	2536	29.0	<b>2529</b>	<b>29.0</b>	8	2524	29.1	2536	29.0	<b>2529</b>	<b>29.0</b>
434.zeusmp	8	1031	70.6	1030	70.7	<b>1030</b>	<b>70.7</b>	8	1031	70.6	1030	70.7	<b>1030</b>	<b>70.7</b>
435.gromacs	8	376	152	378	151	<b>377</b>	<b>152</b>	8	363	157	360	158	<b>361</b>	<b>158</b>
436.cactusADM	8	1317	72.6	<b>1317</b>	<b>72.6</b>	1321	72.4	1	118	101	119	101	<b>118</b>	<b>101</b>
437.leslie3d	8	<b>2841</b>	<b>26.5</b>	2845	26.4	2837	26.5	8	<b>2841</b>	<b>26.5</b>	2845	26.4	2837	26.5
444.namd	8	484	133	484	133	<b>484</b>	<b>133</b>	8	481	133	480	134	<b>480</b>	<b>134</b>
447.dealII	8	691	132	674	136	<b>676</b>	<b>135</b>	8	691	132	674	136	<b>676</b>	<b>135</b>
450.soplex	8	<b>1823</b>	<b>36.6</b>	1822	36.6	1824	36.6	8	1642	40.6	1638	40.7	<b>1638</b>	<b>40.7</b>
453.povray	8	<b>201</b>	<b>212</b>	201	212	201	211	8	171	249	<b>171</b>	<b>248</b>	173	246
454.calculix	8	<b>546</b>	<b>121</b>	540	122	550	120	8	397	166	<b>399</b>	<b>166</b>	399	166
459.GemsFDTD	8	3078	27.6	<b>3066</b>	<b>27.7</b>	3058	27.8	8	3078	27.6	<b>3066</b>	<b>27.7</b>	3058	27.8
465.tonto	8	667	118	665	118	<b>666</b>	<b>118</b>	8	656	120	<b>658</b>	<b>120</b>	658	120
470.lbm	8	4194	26.2	<b>4194</b>	<b>26.2</b>	4193	26.2	4	<b>1466</b>	<b>37.5</b>	1466	37.5	1463	37.6
481.wrf	8	<b>1739</b>	<b>51.4</b>	1737	51.5	1747	51.2	8	1729	51.7	<b>1734</b>	<b>51.5</b>	1738	51.4
482.sphinx3	8	2258	69.0	<b>2273</b>	<b>68.6</b>	2280	68.4	4	<b>771</b>	<b>101</b>	759	103	779	100

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

## Operating System Notes

'ulimit -s unlimited' was used to set the stacksize to unlimited

## Platform Notes

BIOS configuration:  
Hardware Prefetch = Disable; Adjacent Sector Prefetch = Disable

## General Notes

All benchmarks were compiled in 64-bit mode except 450.soplex, 470.lbm and 482.sphinx3 for peak were compiled in 32-bit mode



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## Base Compiler Invocation

C benchmarks:

icc

C++ benchmarks:

icpc

Fortran benchmarks:

ifort

Benchmarks using both Fortran and C:

icc ifort

## 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  
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:

-fast

C++ benchmarks:

-fast

Fortran benchmarks:

-fast

Benchmarks using both Fortran and C:

-fast



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## Peak Compiler Invocation

C benchmarks (except as noted below):

```
/opt/intel/cc/10.1.008/bin/icc -L/opt/intel/cc/10.1.008/lib  
-I/opt/intel/cc/10.1.008/include
```

433.milc: icc

C++ benchmarks (except as noted below):

icpc

```
450.soplex: /opt/intel/cc/10.1.008/bin/icpc -L/opt/intel/cc/10.1.008/lib  
-I/opt/intel/cc/10.1.008/include
```

Fortran benchmarks:

ifort

Benchmarks using both Fortran and C:

icc ifort

## 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  
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  
481.wrf: -DSPEC_CPU_LP64 -DSPEC_CPU_CASE_FLAG -DSPEC_CPU_LINUX
```

## Peak Optimization Flags

C benchmarks:

433.milc: basepeak = yes

```
470.lbm: -prof-gen(pass 1) -prof-use(pass 2) -fast -unroll2  
-scalar-rep- -prefetch -opt-malloc-options=3
```

482.sphinx3: -fast -unroll2

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## Peak Optimization Flags (Continued)

C++ benchmarks:

444.namd: -prof-gen(pass 1) -prof-use(pass 2) -fast -fno-alias  
-auto-ilp32  
447.dealII: basepeak = yes  
450.soplex: -prof-gen(pass 1) -prof-use(pass 2) -fast  
-opt-malloc-options=3  
453.povray: -prof-gen(pass 1) -prof-use(pass 2) -fast -unroll4  
-ansi-alias

Fortran benchmarks:

410.bwaves: -fast -prefetch  
416.gamess: -prof-gen(pass 1) -prof-use(pass 2) -fast -unroll2 -Ob0  
-ansi-alias -scalar-rep-  
434.zeusmp: basepeak = yes  
437.leslie3d: basepeak = yes  
459.GemsFDTD: basepeak = yes  
465.tonto: -prof-gen(pass 1) -prof-use(pass 2) -fast -unroll4 -auto

Benchmarks using both Fortran and C:

435.gromacs: -prof-gen(pass 1) -prof-use(pass 2) -fast -prefetch  
-auto-ilp32  
436.cactusADM: -prof-gen(pass 1) -prof-use(pass 2) -fast -unroll2  
-prefetch -parallel -auto-ilp32  
454.calculix: -fast -unroll-aggressive -auto-ilp32  
481.wrf: -fast -prefetch -auto-ilp32

The flags file that was used to format this result can be browsed at

<http://www.spec.org/cpu2006/flags/Intel-ic10.1-FP-intel64-linux-flags.20090714.19.html>

You can also download the XML flags source by saving the following link:

<http://www.spec.org/cpu2006/flags/Intel-ic10.1-FP-intel64-linux-flags.20090714.19.xml>



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