



SPEC[®] CFP2006 Result

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Fujitsu Siemens Computers

SPECfp[®]_rate2006 = 156

PRIMERGY RX600 S4, Intel Xeon X7460, 2.66 GHz

SPECfp_rate_base2006 = 142

CPU2006 license: 22

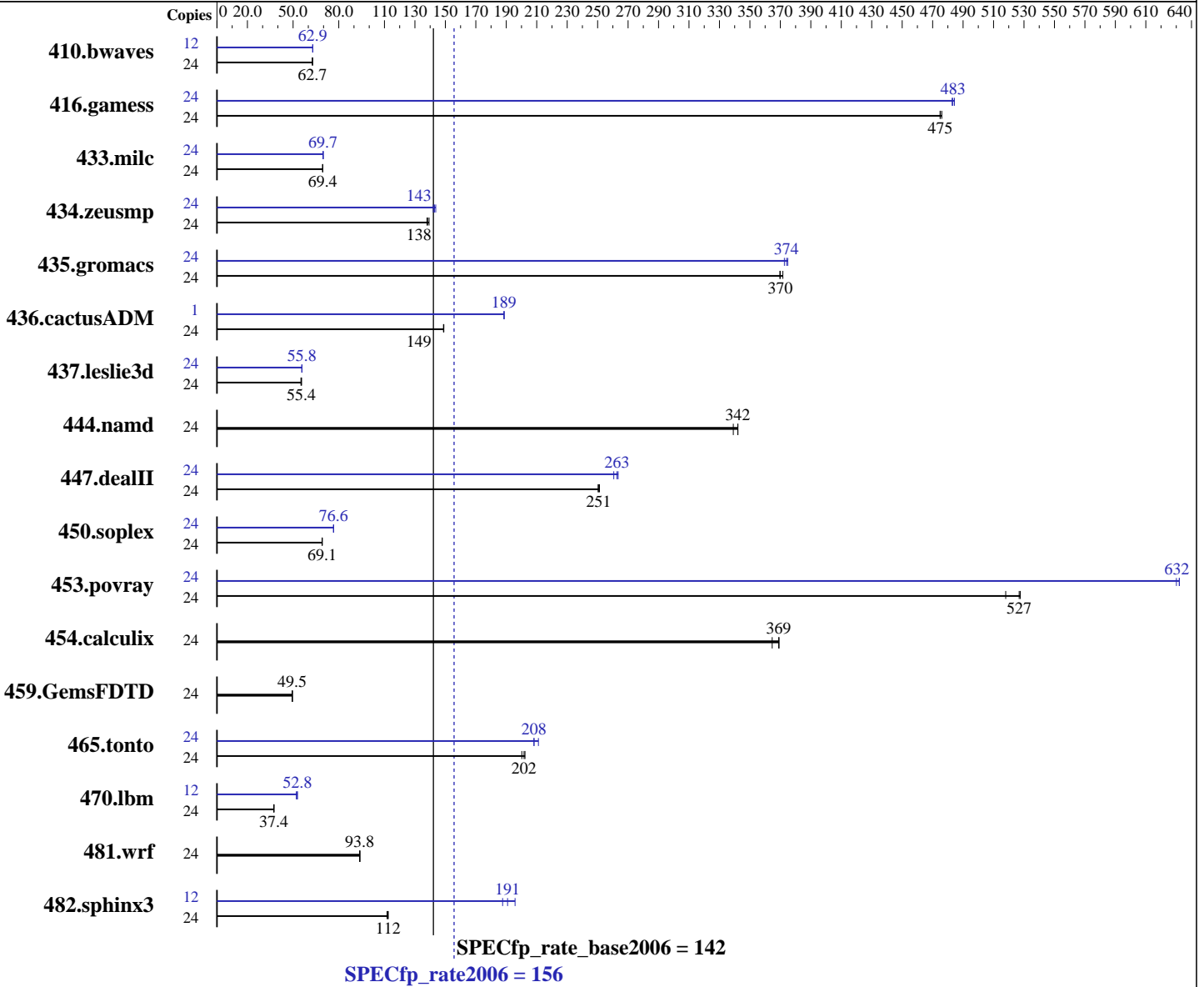
Test sponsor: Fujitsu Siemens Computers

Tested by: Fujitsu Siemens Computers

Test date: Aug-2008

Hardware Availability: Sep-2008

Software Availability: Nov-2008



Hardware

CPU Name: Intel Xeon X7460
 CPU Characteristics: 1066 MHz system bus
 CPU MHz: 2667
 FPU: Integrated
 CPU(s) enabled: 24 cores, 4 chips, 6 cores/chip
 CPU(s) orderable: 1,2,4 chips
 Primary Cache: 32 KB I + 32 KB D on chip per core
 Secondary Cache: 9 MB I+D on chip per chip, 3 MB shared / 2 cores

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Software

Operating System: SUSE Linux Enterprise Server 10 (x86_64) SP2, Kernel 2.6.16.60-0.21-smpp
 Compiler: Intel C++ and Fortran Compiler 11.0 for Linux Build 20080730 Package ID: l_cproc_b_11.0.042, l_fproc_b_11.0.042
 Auto Parallel: Yes
 File System: ext3
 System State: Multi-User Run Level 3
 Base Pointers: 64-bit

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Hardware (Continued)

L3 Cache: 16 MB I+D on chip per chip
 Other Cache: None
 Memory: 64 GB (16x4 GB PC2-5300F, 2 rank, CL5-5-5, ECC)
 Disk Subsystem: 1x SAS, 73 GB, 15000 rpm
 Other Hardware: None

Software (Continued)

Peak Pointers: 32/64-bit
 Other Software: Binutils 2.18.50.0.7.20080502

Results Table

Benchmark	Base								Peak							
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio		
410.bwaves	24	5202	62.7	5198	62.8	<u>5198</u>	<u>62.7</u>	12	2592	62.9	<u>2592</u>	<u>62.9</u>	2592	62.9		
416.gamess	24	987	476	990	475	<u>989</u>	<u>475</u>	24	973	483	<u>972</u>	<u>483</u>	970	484		
433.milc	24	3174	69.4	3171	69.5	<u>3172</u>	<u>69.4</u>	24	3160	69.7	<u>3159</u>	<u>69.7</u>	3159	69.7		
434.zeusmp	24	1583	138	1568	139	<u>1579</u>	<u>138</u>	24	<u>1529</u>	<u>143</u>	1537	142	1520	144		
435.gromacs	24	461	372	<u>463</u>	<u>370</u>	464	370	24	460	373	457	375	<u>458</u>	<u>374</u>		
436.cactusADM	24	1925	149	1927	149	<u>1927</u>	<u>149</u>	1	63.4	189	<u>63.4</u>	<u>189</u>	63.4	189		
437.leslie3d	24	4090	55.2	<u>4072</u>	<u>55.4</u>	4061	55.5	24	4045	55.8	<u>4044</u>	<u>55.8</u>	4042	55.8		
444.namd	24	<u>563</u>	<u>342</u>	568	339	563	342	24	<u>563</u>	<u>342</u>	568	339	563	342		
447.dealII	24	1097	250	<u>1096</u>	<u>251</u>	1093	251	24	1042	263	<u>1045</u>	<u>263</u>	1054	261		
450.soplex	24	2900	69.0	<u>2899</u>	<u>69.1</u>	2893	69.2	24	2614	76.6	2613	76.6	<u>2613</u>	<u>76.6</u>		
453.povray	24	<u>242</u>	<u>527</u>	242	528	246	518	24	202	632	<u>202</u>	<u>632</u>	203	630		
454.calculix	24	<u>537</u>	<u>369</u>	543	365	536	369	24	<u>537</u>	<u>369</u>	543	365	536	369		
459.GemsFDTD	24	5148	49.5	5140	49.5	<u>5147</u>	<u>49.5</u>	24	5148	49.5	5140	49.5	<u>5147</u>	<u>49.5</u>		
465.tonto	24	1180	200	1167	202	<u>1171</u>	<u>202</u>	24	1134	208	1119	211	<u>1134</u>	<u>208</u>		
470.lbm	24	8835	37.3	<u>8812</u>	<u>37.4</u>	8804	37.5	12	3122	52.8	3164	52.1	<u>3124</u>	<u>52.8</u>		
481.wrf	24	2861	93.7	2854	93.9	<u>2859</u>	<u>93.8</u>	24	2861	93.7	2854	93.9	<u>2859</u>	<u>93.8</u>		
482.sphinx3	24	<u>4163</u>	<u>112</u>	4188	112	4160	112	12	1195	196	<u>1225</u>	<u>191</u>	1247	188		

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

Compiler Invocation Notes

All binaries were built with 64-bit mode except:
 437.leslie3d, 450.soplex, 470.lbm and 482.sphinx3
 in peak were built with 32-bit mode.

Submit Notes

The config file option 'submit' was used.
 For peak modules using 1/2 the number of available cores, each
 copy was assigned to a single L2 cache using mysubmit.pl script.
 See the flags description file for mysubmit.pl details.



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Operating System Notes

'ulimit -s unlimited' was used to set the stacksize to unlimited prior to run
OMP_NUM_THREADS set to number of cores (default)
KMP_AFFINITY set to "physical,0"
KMP_STACKSIZE set to 64M

Platform Notes

BIOS configuration:
High Bandwidth option = Enable

General Notes

taskset has been used to bind processes to cores except
for 436.cactusADM peak

For information about Fujitsu Siemens Computers please see:
<http://www.fujitsu-siemens.com>

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.deallI: -DSPEC_CPU_LP64
450.soplex: -DSPEC_CPU_LP64
453.povray: -DSPEC_CPU_LP64

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Base Portability Flags (Continued)

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:
 -xSSE4.1 -ipo -O3 -no-prec-div -static -opt-prefetch

C++ benchmarks:
 -xSSE4.1 -ipo -O3 -no-prec-div -static -opt-prefetch

Fortran benchmarks:
 -xSSE4.1 -ipo -O3 -no-prec-div -static -opt-prefetch

Benchmarks using both Fortran and C:
 -xSSE4.1 -ipo -O3 -no-prec-div -static -opt-prefetch

Peak Compiler Invocation

C benchmarks (except as noted below):
 /opt/intel/Compiler/11.0/042/bin/ia32/icc
 -L/opt/intel/Compiler/11.0/042/ipp/ia32/lib
 -I/opt/intel/Compiler/11.0/042/ipp/ia32/include

433.milc: icc

C++ benchmarks (except as noted below):
 icpc

450.soplex: /opt/intel/Compiler/11.0/042/bin/ia32/icpc
 -L/opt/intel/Compiler/11.0/042/ipp/ia32/lib
 -I/opt/intel/Compiler/11.0/042/ipp/ia32/include

Fortran benchmarks (except as noted below):
 ifort

437.leslie3d: /opt/intel/Compiler/11.0/042/bin/ia32/fort
 -L/opt/intel/Compiler/11.0/042/ipp/ia32/lib
 -I/opt/intel/Compiler/11.0/042/ipp/ia32/include

Benchmarks using both Fortran and C:
 icc ifort



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

470.lbm: -prof-gen(pass 1) -prof-use(pass 2) -xSSE4.1 -ipo -O3
         -no-prec-div -static -unroll2 -scalar-rep- -opt-prefetch
         -opt-malloc-options=3

482.sphinx3: -xSSE4.1 -ipo -O3 -no-prec-div -static -unroll2

```

C++ benchmarks:

```

444.namd: basepeak = yes

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

450.soplex: -prof-gen(pass 1) -prof-use(pass 2) -xSSE4.1 -ipo -O3
           -no-prec-div -static -opt-malloc-options=3

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

```

Fortran benchmarks:

```

410.bwaves: -xSSE4.1 -ipo -O3 -no-prec-div -static -opt-prefetch

416.gamess: -prof-gen(pass 1) -prof-use(pass 2) -xSSE4.1 -ipo -O3
           -no-prec-div -static -unroll2 -Ob0 -ansi-alias
           -scalar-rep-

```

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Peak Optimization Flags (Continued)

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

437.leslie3d: -prof-gen(pass 1) -prof-use(pass 2) -xSSE4.1 -ipo -O3
-no-prec-div -static -opt-malloc-options=3 -opt-prefetch

459.GemsFDTD: basepeak = yes

465.tonto: -prof-gen(pass 1) -prof-use(pass 2) -xSSE4.1 -ipo -O3
-no-prec-div -static -unroll4 -auto

Benchmarks using both Fortran and C:

435.gromacs: -prof-gen(pass 1) -prof-use(pass 2) -xSSE4.1 -ipo -O3
-no-prec-div -static -opt-prefetch -auto-ilp32

436.cactusADM: -prof-gen(pass 1) -prof-use(pass 2) -xSSE4.1 -ipo -O3
-no-prec-div -static -unroll2 -opt-prefetch -parallel
-auto-ilp32

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-ic11.0-fp-linux64-revA.20090713.04.html>

<http://www.spec.org/cpu2006/flags/Intel-Linux64-Platform.20090714.html>

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

<http://www.spec.org/cpu2006/flags/Intel-ic11.0-fp-linux64-revA.20090713.04.xml>

<http://www.spec.org/cpu2006/flags/Intel-Linux64-Platform.20090714.xml>

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

Tested with SPEC CPU2006 v1.1.

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