



# SPEC® CINT2006 Result

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## Fujitsu Siemens Computers

### SPECint®\_rate2006 = 84.5

### CELSIUS V840, AMD Opteron 2346 HE (1.8 GHz)

### SPECint\_rate\_base2006 = 72.5

CPU2006 license: 22

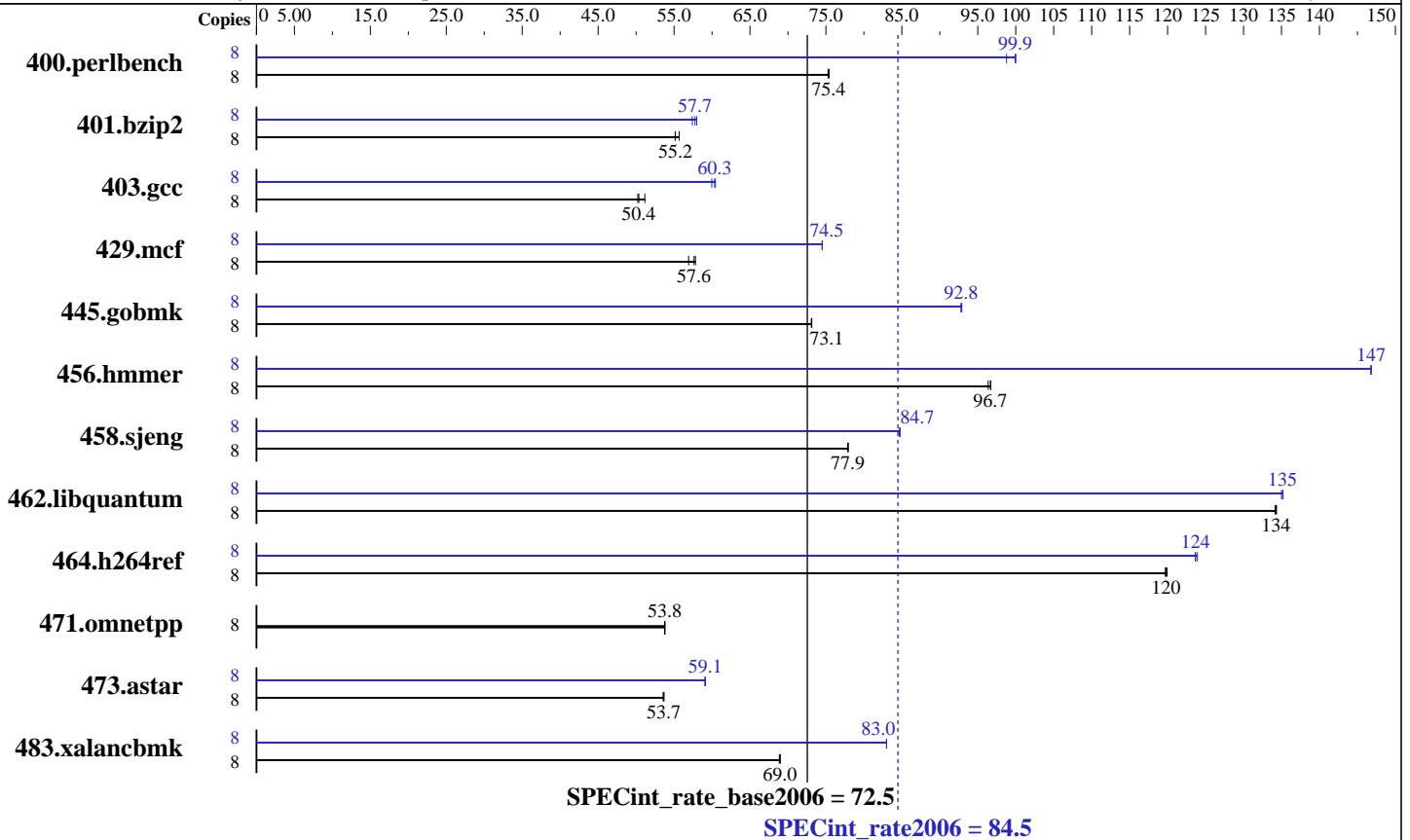
Test sponsor: Fujitsu Siemens Computers

Tested by: Fujitsu Siemens Computers

Test date: Jun-2008

Hardware Availability: May-2008

Software Availability: May-2008



### Hardware

CPU Name: AMD Opteron 2346 HE  
 CPU Characteristics:  
 CPU MHz: 1800  
 FPU: Integrated  
 CPU(s) enabled: 8 cores, 2 chips, 4 cores/chip  
 CPU(s) orderable: 1,2 chips  
 Primary Cache: 64 KB I + 64 KB D on chip per core  
 Secondary Cache: 512 KB I+D on chip per core  
 L3 Cache: 2 MB I+D on chip per chip  
 Other Cache: None  
 Memory: 16 GB (8x2GB PC2-5300P, CL5, dual rank ECC)  
 Disk Subsystem: 1 x 400 GB SATA II, 7200 rpm  
 Other Hardware: None

### Software

Operating System: SUSE Linux Enterprise Server 10 (x86\_64) SP1, Kernel 2.6.16.46-0.12-smp  
 Compiler: PGI Workstation Complete Version 7.2-1 PathScale Compiler Suite, Release 3.2 Beta  
 Auto Parallel: No  
 File System: ext3  
 System State: Multi-User SuSE Run Level 3  
 Base Pointers: 32/64-bit  
 Peak Pointers: 32/64-bit  
 Other Software: binutils 2.18.50  
 Microquill SmartHeap 8.1 32-bit Library for Linux



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## Results Table

Benchmark	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
400.perlbench	8	1037	75.4	1038	75.3	<b>1037</b>	<b>75.4</b>	8	791	98.8	781	100	<b>782</b>	<b>99.9</b>
401.bzip2	8	1387	55.7	1400	55.1	<b>1399</b>	<b>55.2</b>	8	1345	57.4	1331	58.0	<b>1337</b>	<b>57.7</b>
403.gcc	8	1282	50.2	<b>1279</b>	<b>50.4</b>	1259	51.2	8	<b>1067</b>	<b>60.3</b>	1074	60.0	1065	60.4
429.mcf	8	1282	56.9	1262	57.8	<b>1266</b>	<b>57.6</b>	8	979	74.5	<b>979</b>	<b>74.5</b>	979	74.5
445.gobmk	8	<b>1148</b>	<b>73.1</b>	1147	73.1	1148	73.1	8	<b>904</b>	<b>92.8</b>	903	92.9	904	92.8
456.hammer	8	<b>772</b>	<b>96.7</b>	772	96.7	775	96.4	8	508	147	509	147	<b>508</b>	<b>147</b>
458.sjeng	8	1243	77.9	<b>1243</b>	<b>77.9</b>	1242	77.9	8	1143	84.7	<b>1142</b>	<b>84.7</b>	1142	84.8
462.libquantum	8	1236	134	<b>1235</b>	<b>134</b>	1234	134	8	<b>1226</b>	<b>135</b>	1226	135	1228	135
464.h264ref	8	1479	120	1476	120	<b>1478</b>	<b>120</b>	8	1429	124	1432	124	<b>1431</b>	<b>124</b>
471.omnetpp	8	929	53.8	930	53.7	<b>930</b>	<b>53.8</b>	8	929	53.8	930	53.7	<b>930</b>	<b>53.8</b>
473.astar	8	1049	53.6	1047	53.7	<b>1047</b>	<b>53.7</b>	8	<b>950</b>	<b>59.1</b>	950	59.1	951	59.1
483.xalancbmk	8	800	69.0	<b>800</b>	<b>69.0</b>	802	68.9	8	665	83.0	665	83.0	<b>665</b>	<b>83.0</b>

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

## Operating System Notes

```

powersave -f is applied to set CPU to maximum frequency prior to run
stacksize is set to unlimited prior to run
ulimit -l 2457600
PGI_HUGE_PAGES set to 150
(Total number of huge pages available is 1200)

```

## General Notes

The command numactl has been used to bind processes to CPUs

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

## Base Compiler Invocation

C benchmarks:  
pgcc

C++ benchmarks:  
pgcpp



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## Base Portability Flags

```

400.perlbench: -DSPEC_CPU_LP64 -DSPEC_CPU_LINUX_X64
401.bzip2: -DSPEC_CPU_LP64
403.gcc: -DSPEC_CPU_LP64
429.mcf: -DSPEC_CPU_LP64
445.gobmk: -DSPEC_CPU_LP64
456.hmmer: -DSPEC_CPU_LP64
458.sjeng: -DSPEC_CPU_LP64
462.libquantum: -DSPEC_CPU_LP64 -DSPEC_CPU_LINUX
464.h264ref: -DSPEC_CPU_LP64
483.xalancbmk: -DSPEC_CPU_LINUX

```

## Base Optimization Flags

C benchmarks:

```

-fastsse -Msmartalloc=huge:150 -Mfprelaxed -Mipa=jobs:4 -Mipa=fast
-Mipa=inline -tp barcelona-64 -Bstatic_pgi

```

C++ benchmarks:

```

-fastsse -Msmartalloc=huge:150 -Mfprelaxed --zc_eh -Mipa=jobs:4
-Mipa=fast -Mipa=inline -tp barcelona -Bstatic_pgi

```

## Peak Compiler Invocation

C benchmarks (except as noted below):

pgcc

400.perlbench: pathcc

403.gcc: pathcc

445.gobmk: pathcc

464.h264ref: pathcc

C++ benchmarks (except as noted below):

pgcpp

483.xalancbmk: pathCC

## Peak Portability Flags

```

400.perlbench: -DSPEC_CPU_LP64 -DSPEC_CPU_LINUX_X64
401.bzip2: -DSPEC_CPU_LP64

```

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## Peak Portability Flags (Continued)

445.gobmk: -DSPEC\_CPU\_LP64  
 456.hmmer: -DSPEC\_CPU\_LP64  
 458.sjeng: -DSPEC\_CPU\_LP64  
 462.libquantum: -DSPEC\_CPU\_LP64 -DSPEC\_CPU\_LINUX  
 464.h264ref: -DSPEC\_CPU\_LP64  
 483.xalancbmk: -DSPEC\_CPU\_LINUX

## Peak Optimization Flags

C benchmarks:

400.perlbench: -march=barcelona -fb\_create fbdata(pass 1)  
 -fb\_opt fbdata(pass 2) -Ofast -IPA:plimit=20000 -LNO:opt=0  
 -WOPT:if\_conv=0 -CG:local\_sched\_alg=1

401.bzip2: -Mpfi=indirect(pass 1) -Mpfo=indirect(pass 2) -fastsse -O4  
 -Msmartalloc=huge:150 -Mprefetch=t0 -Mnounroll  
 -tp barcelona-64 -Bstatic\_pgi

403.gcc: -march=barcelona -fb\_create fbdata(pass 1)  
 -fb\_opt fbdata(pass 2) -O3 -OPT:Ofast -m32

429.mcf: -fastsse -Msmartalloc=huge:150 -Mipa=jobs:4 -Mipa=fast  
 -Mipa=inline:1 -tp barcelona -Bstatic\_pgi

445.gobmk: -march=barcelona -fb\_create fbdata(pass 1)  
 -fb\_opt fbdata(pass 2) -O3 -OPT:alias=restrict  
 -LNO:prefetch=1 -LNO:ignore\_feedback=off -CG:p2align=on

456.hmmer: -fastsse -Mvect=partial -Munroll=n:8 -Msmartalloc=huge:150  
 -Msafeptr -Mprefetch=t0 -Mfprelaxed -Mipa=jobs:4  
 -Mipa=const -Mipa=ptr -Mipa=arg -Mipa=inline  
 -tp barcelona-64 -Bstatic\_pgi

458.sjeng: -Mpfi(pass 1) -Mpfo(pass 2) -Mipa=jobs:4(pass 2)  
 -Mipa=fast(pass 2) -Mipa=inline:1(pass 2)  
 -Mipa=noarg(pass 2) -fastsse -Msmartalloc=huge:150  
 -Mfprelaxed -tp barcelona-64 -Bstatic\_pgi

462.libquantum: -fastsse -Munroll=m:8 -Msmartalloc=huge:150  
 -Mprefetch=distance:4 -Mfprelaxed -Mipa=jobs:4 -Mipa=fast  
 -Mipa=inline -Mipa=noarg -tp barcelona-64 -Bstatic\_pgi

464.h264ref: -march=barcelona -fb\_create fbdata(pass 1)  
 -fb\_opt fbdata(pass 2) -O3 -IPA:plimit=20000  
 -OPT:alias=disjoint -LNO:prefetch=0 -CG:ptr\_load\_use=0  
 -CG:push\_pop\_int\_saved\_regs=off

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## Peak Optimization Flags (Continued)

C++ benchmarks:

471.omnetpp: basepeak = yes

473.astar: -Mphi(pass 1) -Mpfo(pass 2) -Mipa=jobs:4(pass 2)  
-Mipa=fast(pass 2) -Mipa=inline:6(pass 2) -fastsse -O4  
-Msmartalloc=huge:150 -Msafeptr=global -Mfprelaxed --zc\_eh  
-tp barcelona -Bstatic\_pgi

483.xalancbmk: -march=barcelona -Ofast -OPT:unroll\_times\_max=8  
-CG:push\_pop\_int\_saved\_regs=off -CG:ptr\_load\_use=0 -m32  
-lsmartheap

## Peak Other Flags

C++ benchmarks:

483.xalancbmk: -L/opt/SmartHeap\_8.1/lib

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

<http://www.spec.org/cpu2006/flags/fsc-mix-pgi-path.html>

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

<http://www.spec.org/cpu2006/flags/fsc-mix-pgi-path.xml>

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For other inquiries, please contact [webmaster@spec.org](mailto:webmaster@spec.org).

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