



SPEC® CINT2006 Result

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Fujitsu Siemens Computers

SPECint®2006 = 15.4

CELSIUS V840, AMD Opteron 2356 (2.3 GHz)

SPECint_base2006 = 13.4

CPU2006 license: 22

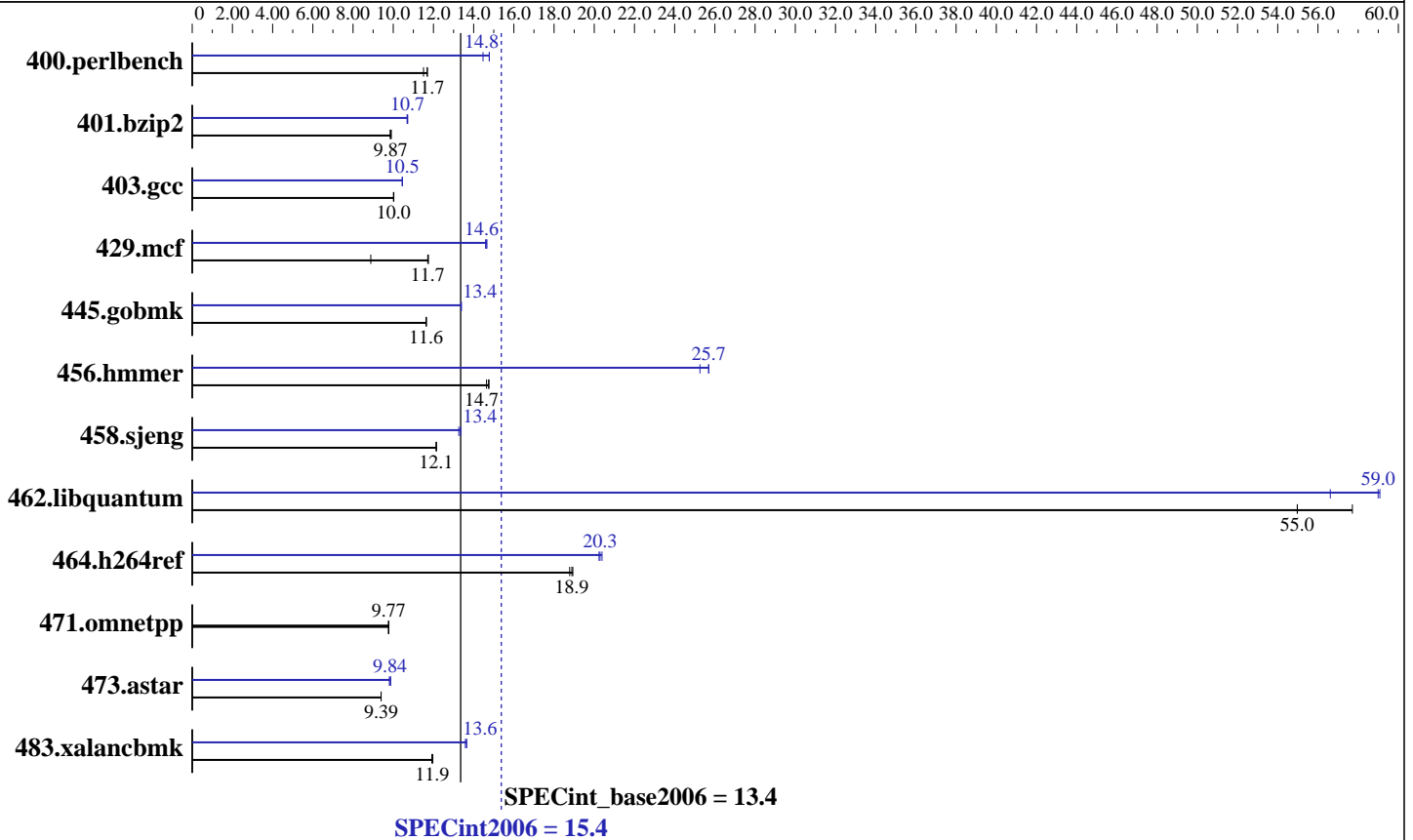
Test date: Apr-2008

Test sponsor: Fujitsu Siemens Computers

Hardware Availability: May-2008

Tested by: Fujitsu Siemens Computers

Software Availability: May-2008



Hardware

CPU Name: AMD Opteron 2356
 CPU Characteristics:
 CPU MHz: 2300
 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
 Other Hardware: None

Software

Operating System: SUSE Linux Enterprise Server 10 (x86_64) SP1, Kernel 2.6.16.46-0.12-smp
 Compiler: PGI Server Complete Version 7.2
 Auto Parallel: Yes
 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 | | | | | |
|----------------|-------------|-------------|------------|-------------|------------|-------------|------------|-------------|-------------|-------------|------------|-------------|
| | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio |
| 400.perlbench | 849 | 11.5 | 836 | 11.7 | 835 | 11.7 | 661 | 14.8 | 661 | 14.8 | 675 | 14.5 |
| 401.bzip2 | 977 | 9.87 | 974 | 9.90 | 980 | 9.85 | 903 | 10.7 | 902 | 10.7 | 900 | 10.7 |
| 403.gcc | 803 | 10.0 | 804 | 10.0 | 803 | 10.0 | 770 | 10.5 | 770 | 10.5 | 770 | 10.5 |
| 429.mcf | 776 | 11.8 | 1027 | 8.88 | 778 | 11.7 | 625 | 14.6 | 624 | 14.6 | 622 | 14.7 |
| 445.gobmk | 901 | 11.6 | 901 | 11.6 | 901 | 11.6 | 784 | 13.4 | 784 | 13.4 | 783 | 13.4 |
| 456.hammer | 637 | 14.6 | 632 | 14.8 | 633 | 14.7 | 369 | 25.3 | 363 | 25.7 | 363 | 25.7 |
| 458.sjeng | 996 | 12.1 | 996 | 12.1 | 997 | 12.1 | 913 | 13.3 | 906 | 13.4 | 905 | 13.4 |
| 462.libquantum | 359 | 57.7 | 377 | 55.0 | 377 | 55.0 | 351 | 59.1 | 351 | 59.0 | 366 | 56.6 |
| 464.h264ref | 1172 | 18.9 | 1179 | 18.8 | 1169 | 18.9 | 1094 | 20.2 | 1091 | 20.3 | 1086 | 20.4 |
| 471.omnetpp | 640 | 9.77 | 639 | 9.78 | 640 | 9.76 | 640 | 9.77 | 639 | 9.78 | 640 | 9.76 |
| 473.astar | 747 | 9.39 | 747 | 9.40 | 747 | 9.39 | 716 | 9.81 | 713 | 9.84 | 711 | 9.87 |
| 483.xalancbmk | 578 | 11.9 | 579 | 11.9 | 576 | 12.0 | 508 | 13.6 | 506 | 13.6 | 505 | 13.7 |

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

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.hmmmer: -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:896 -Mloop32 -Mconcur=innermost
-Mfprelaxed -Mipa=jobs:4 -Mipa=fast -Mipa=inline -tp barcelona-64
-Bstatic_pgi

```

C++ benchmarks:

```

-fastsse -Msmartalloc=huge:896 -Mloop32 -Mfprelaxed --zc_eh
-Mipa=jobs:4 -Mipa=fast -Mipa=inline -tp barcelona -Bstatic_pgi

```

Peak Compiler Invocation

C benchmarks:

pgcc

C++ benchmarks:

pgcpp

Peak Portability Flags

```

400.perlbench: -DSPEC_CPU_LP64 -DSPEC_CPU_LINUX_X64
401.bzip2: -DSPEC_CPU_LP64
445.gobmk: -DSPEC_CPU_LP64
456.hmmmer: -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

```



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Peak Optimization Flags

C benchmarks:

400.perlbench: -Mpfi(pass 1) -Mpfo(pass 2) -Mipa=jobs:4(pass 2)
 -Mipa=inline(pass 2) -fastsse -O4 -Msmartalloc=huge:896
 -Mnovect -Mnounroll -Mfprelaxed -tp barcelona-64
 -Bstatic_pgi

401.bzip2: -Mpfi=indirect(pass 1) -Mpfo=indirect(pass 2) -fastsse -O4
 -Msmartalloc=huge:896 -Mprefetch=t0 -Mnounroll
 -tp barcelona-64 -Bstatic_pgi

403.gcc: -Mpfi(pass 1) -Mpfo(pass 2) -Mipa=jobs:4(pass 2)
 -Mipa=fast(pass 2) -Mipa=inline(pass 2) -fastsse
 -Msmartalloc=huge:896 -Mprefetch=t0 -Mnodalign -Mloop32
 -Mfprelaxed -tp barcelona -Bstatic_pgi

429.mcf: -fastsse -Msmartalloc=huge:896 -Mipa=jobs:4 -Mipa=fast
 -Mipa=inline:1 -tp barcelona -Bstatic_pgi

445.gobmk: -Mpfi(pass 1) -Mpfo(pass 2) -Mipa=jobs:4(pass 2)
 -Mipa=fast(pass 2) -fastsse -O4 -Msmartalloc=huge:896
 -Mnovect -Mfprelaxed -tp barcelona-64 -Bstatic_pgi

456.hmmer: -fastsse -Mvect=partial -Munroll=n:8 -Msmartalloc=huge:896
 -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:896
 -Mfprelaxed -tp barcelona-64 -Bstatic_pgi

462.libquantum: -fastsse -Munroll=m:8 -Msmartalloc=huge:896
 -Mprefetch=distance:8 -Mconcur=innermost -Mconcur=noaltcode
 -Mfprelaxed -Mipa=jobs:4 -Mipa=fast -Mipa=inline
 -Mipa=noarg -tp barcelona-64 -Bstatic_pgi

464.h264ref: -Mpfi=indirect(pass 1) -Mpfo=indirect(pass 2)
 -Mipa=jobs:4(pass 2) -Mipa=fast(pass 2)
 -Mipa=inline(pass 2) -fastsse -Msmartalloc=huge:896
 -Mfprelaxed -tp barcelona-64 -Bstatic_pgi

C++ benchmarks:

471.omnetpp: basepeak = yes

473.astar: -Mpfi(pass 1) -Mpfo(pass 2) -Mipa=jobs:4(pass 2)
 -Mipa=fast(pass 2) -Mipa=inline:6(pass 2) -fastsse -O4
 -Msmartalloc=huge:896 -Msafeptr=global -Mloop32
 -Mfprelaxed --zc_eh -tp barcelona -Bstatic_pgi

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Peak Optimization Flags (Continued)

```
483.xalancbmk: --zc_eh -fastsse -O4 -Mfprelaxed -Msmartalloc
               -Mipa=jobs:4 -Mipa=fast -Mipa=inline -tp barcelona
               -Bstatic_pgi -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.20090714.html>

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

<http://www.spec.org/cpu2006/flags/fsc-mix-pgi-path.20090714.xml>

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

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