SPEC® CINT2006 Result

Fujitsu

CELSIUS R570, Intel Xeon X5670

$SPECint^{®}2006 =$ 39.1

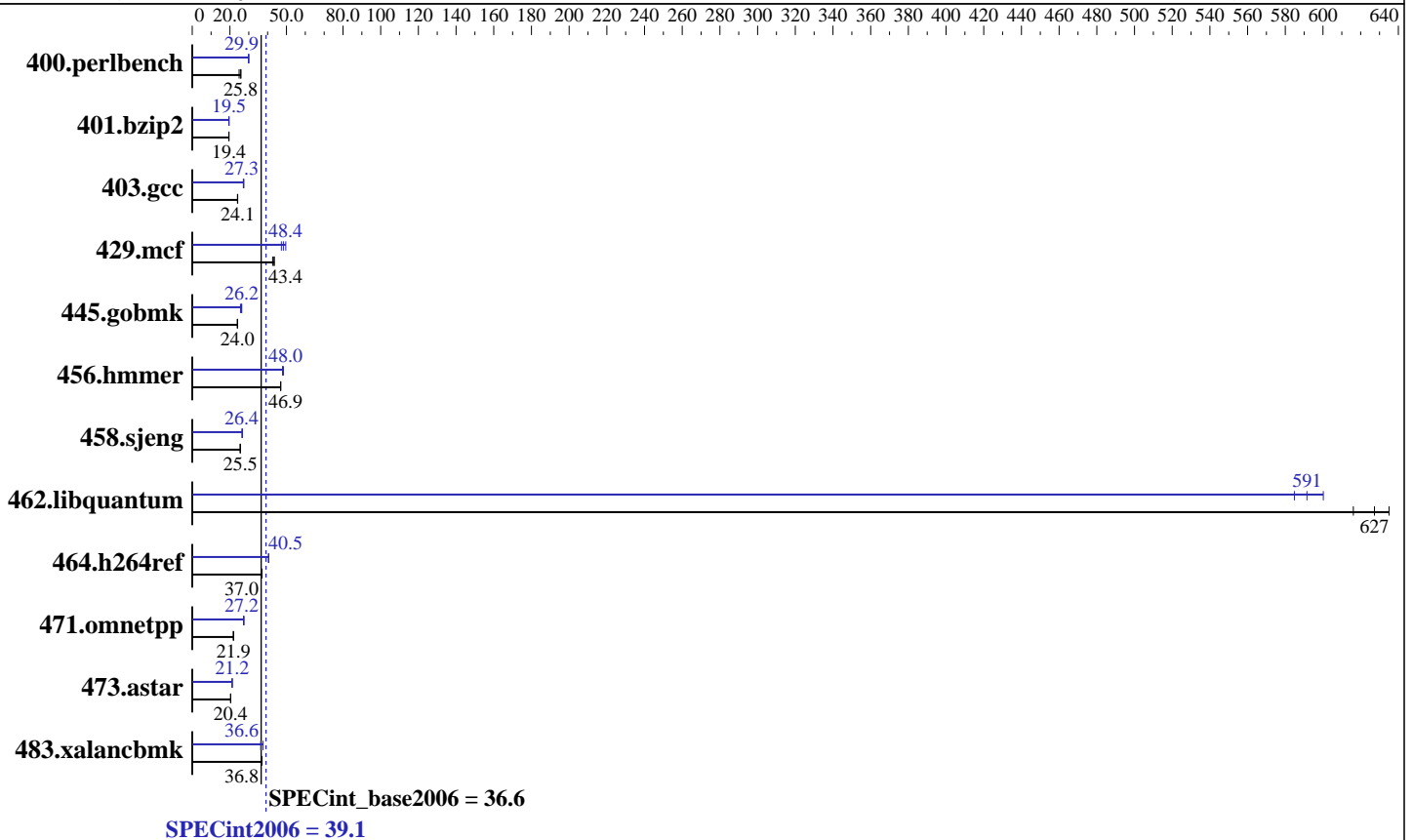$SPECint\_base2006 =$ 36.6

CPU2006 license: 19

Test sponsor: Fujitsu

Tested by: Fujitsu

Test date: Mar-2010

Hardware Availability: Mar-2010

Software Availability: Dec-2009

Benchmark results (scale 0 to 640):

- 400.perlbench: 29.9 / 25.8
- 401.bzip2: 19.5 / 19.4
- 403.gcc: 27.3 / 24.1
- 429.mcf: 48.4 / 43.4
- 445.gobmk: 26.2 / 24.0
- 456.hmmer: 48.0 / 46.9
- 458.sjeng: 26.4 / 25.5
- 462.libquantum: 591 / 627
- 464.h264ref: 40.5 / 37.0
- 471.omnetpp: 27.2 / 21.9
- 473.astar: 21.2 / 20.4
- 483.xalancbmk: 36.6 / 36.8

SPECint_base2006 = 36.6

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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:	12 cores, 2 chips, 6 cores/chip
CPU(s) orderable:	1 chip
Primary Cache:	32 KB I + 32 KB D on chip per core
Secondary Cache:	256 KB I+D on chip per core
L3 Cache:	12 MB I+D on chip per chip
Other Cache:	None
Memory:	24 GB (6x4 GB PC3-10600E, 2 rank, CL9)
Disk Subsystem:	1 x SATA II, 400 GB, 7200 rpm
Other Hardware:	None

Software

Operating System:	SUSE Linux Enterprise Server 11 (x86_64), kernel 2.6.27.19-5-default
Compiler:	Intel C++ Professional Compiler for IA32 and Intel 64, Version 11.1 Build 20091130 Package ID: l_cproc_p_11.1.064
Auto Parallel:	Yes
File System:	ext3
System State:	Multi-User Run Level 3
Base Pointers:	64-bit
Peak Pointers:	32/64-bit
Other Software:	Microquill SmartHeap V8.1 Binutils 2.18.50.0.7.20080502

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Results Table

Benchmark	Base						Peak					
	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
400.perlbench	**379**	**25.8**	393	24.9	379	25.8	327	29.9	**326**	**29.9**	326	30.0
401.bzip2	495	19.5	**496**	**19.4**	496	19.4	**495**	**19.5**	495	19.5	495	19.5
403.gcc	336	24.0	**334**	**24.1**	334	24.1	**295**	**27.3**	294	27.3	297	27.1
429.mcf	214	42.7	**210**	**43.4**	210	43.5	184	49.6	193	47.3	**189**	**48.4**
445.gobmk	437	24.0	437	24.0	**437**	**24.0**	399	26.3	**401**	**26.2**	410	25.6
456.hmmer	**199**	**46.9**	199	47.0	199	46.9	193	48.4	**194**	**48.0**	195	47.9
458.sjeng	475	25.5	**475**	**25.5**	474	25.5	458	26.4	**458**	**26.4**	454	26.7
462.libquantum	**33.0**	**627**	32.6	635	33.6	616	**35.0**	**591**	34.5	600	35.4	585
464.h264ref	599	37.0	**598**	**37.0**	598	37.0	547	40.5	545	40.6	**546**	**40.5**
471.omnetpp	**286**	**21.9**	286	21.8	285	21.9	230	27.2	227	27.5	**229**	**27.2**
473.astar	**344**	**20.4**	344	20.4	345	20.4	331	21.2	**332**	**21.2**	332	21.2
483.xalancbmk	**188**	**36.8**	186	37.0	188	36.6	183	37.6	190	36.3	**189**	**36.6**

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 prior to run
OMP_NUM_THREADS set to number of cores
KMP_AFFINITY set to granularity=fine,scatter
```

Base Compiler Invocation

C benchmarks:
```
icc -m64
```

C++ benchmarks:
```
icpc -m64
```

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
```

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Base Portability Flags (Continued)

```
471.omnetpp: -DSPEC_CPU_LP64
  473.astar: -DSPEC_CPU_LP64
483.xalancbmk: -DSPEC_CPU_LP64 -DSPEC_CPU_LINUX
```

Base Optimization Flags

C benchmarks:
```
-xSSE4.2 -ipo -O3 -no-prec-div -static -parallel -opt-prefetch
```

C++ benchmarks:
```
-xSSE4.2 -ipo -O3 -no-prec-div -opt-prefetch -Wl,-z,muldefs
-L/home/cmplr/usr3/alrahate/cpu2006.1.1.ic11.1/libic11.1-64bit -lsmartheap64
```

Base Other Flags

C benchmarks:

```
403.gcc: -Dalloca=_alloca
```

Peak Compiler Invocation

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

```
400.perlbench: icc -m32
```

```
429.mcf: icc -m32
```

```
445.gobmk: icc -m32
```

```
464.h264ref: icc -m32
```

C++ benchmarks (except as noted below):
```
icpc -m32
```

```
473.astar: icpc -m64
```

Peak Portability Flags

```
400.perlbench: -DSPEC_CPU_LINUX_IA32
    401.bzip2: -DSPEC_CPU_LP64
```

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Test date: Mar-2010
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Software Availability: Dec-2009

Peak Portability Flags (Continued)

```
    403.gcc: -DSPEC_CPU_LP64
  456.hmmer: -DSPEC_CPU_LP64
  458.sjeng: -DSPEC_CPU_LP64
462.libquantum: -DSPEC_CPU_LP64 -DSPEC_CPU_LINUX
   473.astar: -DSPEC_CPU_LP64
483.xalancbmk: -DSPEC_CPU_LINUX
```

Peak Optimization Flags

C benchmarks:

```
  400.perlbench: -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) -ansi-alias -opt-prefetch

     401.bzip2: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
                -O3(pass 2) -no-prec-div -static(pass 2) -prof-use(pass 2)
                -auto-ilp32 -opt-prefetch -ansi-alias

       403.gcc: -xSSE4.2 -ipo -O3 -no-prec-div -static -inline-calloc
                -opt-malloc-options=3 -auto-ilp32

       429.mcf: -xSSE4.2 -ipo -O3 -no-prec-div -static -opt-prefetch

    445.gobmk: -xSSE4.2(pass 2) -prof-gen(pass 1) -prof-use(pass 2) -O2
               -ipo -no-prec-div -ansi-alias

    456.hmmer: -xSSE4.2 -ipo -O3 -no-prec-div -static -unroll2
               -ansi-alias -auto-ilp32

    458.sjeng: -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

462.libquantum: -xSSE4.2 -ipo -O3 -no-prec-div -static -parallel
                -opt-prefetch -par-schedule-static=32768 -ansi-alias

    464.h264ref: -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
```

C++ benchmarks:

```
    471.omnetpp: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
                 -O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2)
                 -ansi-alias -opt-ra-region-strategy=block -Wl,-z,muldefs
                 -L/home/cmplr/usr3/alrahate/cpu2006.1.1.ic11.1/libic11.1-32bit -lsmartheap
```

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CPU2006 license: 19	**Test date:** Mar-2010
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Peak Optimization Flags (Continued)

473.astar: `-xSSE4.2`(pass 2) `-prof-gen`(pass 1) `-ipo`(pass 2)
`-O3`(pass 2) `-no-prec-div`(pass 2) `-prof-use`(pass 2)
`-ansi-alias -opt-ra-region-strategy=routine -Wl,-z,muldefs`
`-L/home/cmplr/usr3/alrahate/cpu2006.1.1.ic11.1/libic11.1-64bit -lsmartheap64`

483.xalancbmk: `-xSSE4.2 -ipo -O3 -no-prec-div -opt-prefetch`
`-Wl,-z,muldefs`
`-L/home/cmplr/usr3/alrahate/cpu2006.1.1.ic11.1/libic11.1-32bit -lsmartheap`

Peak Other Flags

C benchmarks:

403.gcc: `-Dalloca=_alloca`

The flags file that was used to format this result can be browsed at
http://www.spec.org/cpu2006/flags/Intel-ic11.1-linux64-revE.20100316.01.html

You can also download the XML flags source by saving the following link:
http://www.spec.org/cpu2006/flags/Intel-ic11.1-linux64-revE.20100316.01.xml

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