SPEC® CINT2006 Result
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IBM Corporation

IBM System x3500 (Intel Xeon X5450)

$SPECint®2006 =$ 26.4

$SPECint\_base2006 =$ 23.0

CPU2006 license: 11
Test sponsor: IBM Corporation
Tested by: IBM Corporation

Test date: Jan-2008
Hardware Availability: Jan-2008
Software Availability: Nov-2007

Benchmark	Peak	Base
400.perlbench	24.2	19.5
401.bzip2	17.5	16.3
403.gcc	19.4	14.5
429.mcf	23.4	21.6
445.gobmk	21.7	19.6
456.hmmer	27.3	15.7
458.sjeng	19.7	17.7
462.libquantum	218	227
464.h264ref	33.3	30.9
471.omnetpp	16.4	15.0
473.astar	16.5	14.9
483.xalancbmk	25.6	

SPECint_base2006 = 23.0

SPECint2006 = 26.4

Hardware

CPU Name:	Intel Xeon X5450
CPU Characteristics:	1333MHz system bus
CPU MHz:	3000
FPU:	Integrated
CPU(s) enabled:	8 cores, 2 chips, 4 cores/chip
CPU(s) orderable:	1,2 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
L3 Cache:	None
Other Cache:	None
Memory:	16 GB (8 x 2 GB DDR2-5300F ECC)
Disk Subsystem:	1 x 80 GB SATA, 7200 RPM
Other Hardware:	None

Software

Operating System:	SuSE Linux Enterprise Server 10 (x86_64), Kernel 2.6.16.21-0.8-smp
Compiler:	Intel C++ Compiler 10.1 for Linux Build 20070913 Package ID: l_cc_p_10.1.008
Auto Parallel:	Yes
File System:	ReiserFS
System State:	Multi-user, run level 3
Base Pointers:	32-bit
Peak Pointers:	32/64-bit
Other Software:	MicroQuill SmartHeap 8.1 Binutils 2.17.50.0.15

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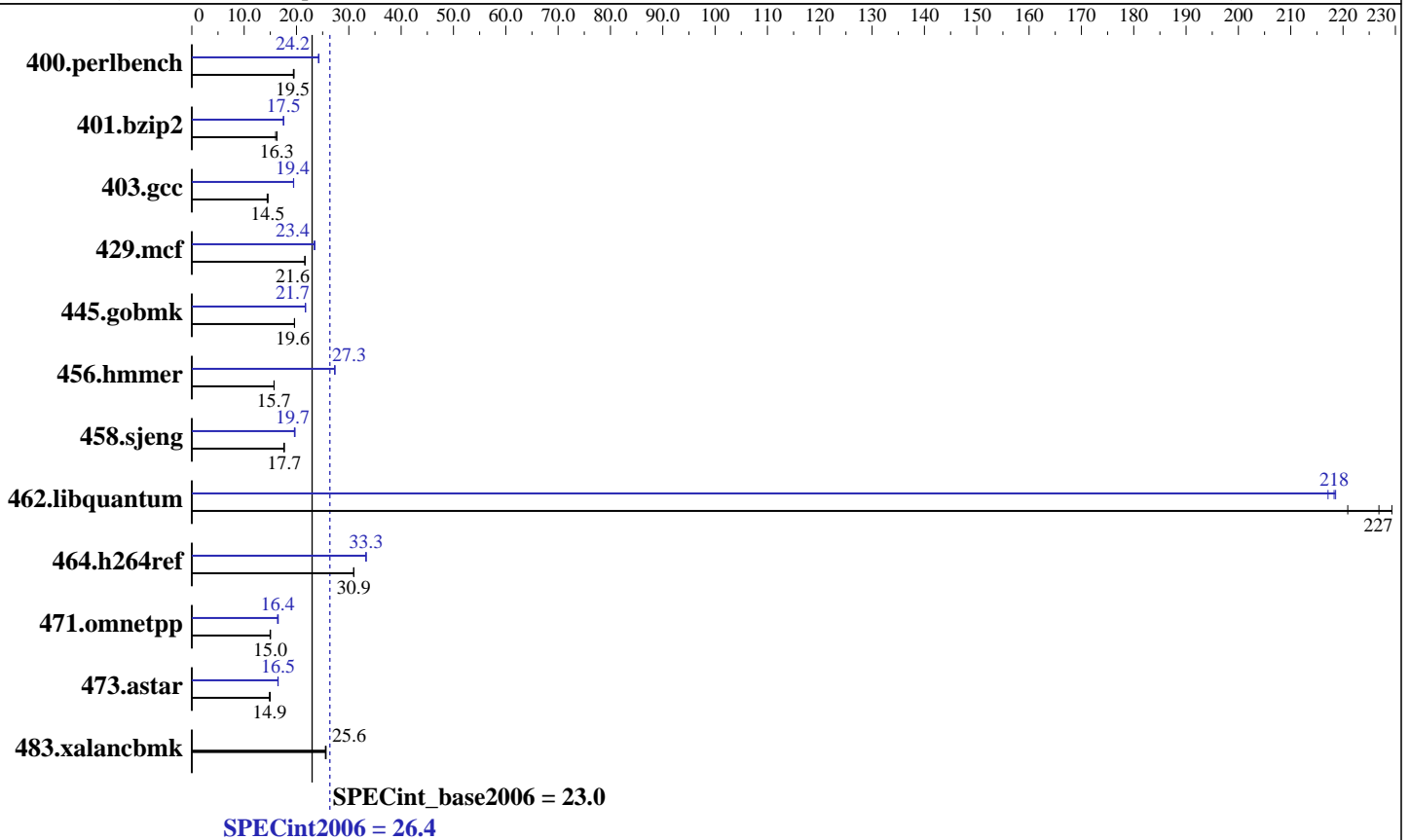
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Results Table

Benchmark	Base						Peak					
	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
400.perlbench	503	19.4	**501**	**19.5**	501	19.5	402	24.3	**403**	**24.2**	403	24.2
401.bzip2	**593**	**16.3**	593	16.3	602	16.0	551	17.5	550	17.5	**550**	**17.5**
403.gcc	553	14.6	**555**	**14.5**	559	14.4	414	19.4	414	19.5	**414**	**19.4**
429.mcf	421	21.7	**422**	**21.6**	423	21.6	390	23.4	388	23.5	**390**	**23.4**
445.gobmk	**535**	**19.6**	534	19.6	535	19.6	**483**	**21.7**	483	21.7	483	21.7
456.hmmer	594	15.7	593	15.7	**594**	**15.7**	342	27.3	**342**	**27.3**	341	27.3
458.sjeng	688	17.6	685	17.7	**685**	**17.7**	614	19.7	**615**	**19.7**	617	19.6
462.libquantum	93.8	221	**91.3**	**227**	90.3	229	94.8	219	95.4	217	**94.9**	**218**
464.h264ref	**715**	**30.9**	715	31.0	715	30.9	665	33.3	**665**	**33.3**	665	33.3
471.omnetpp	**417**	**15.0**	418	15.0	416	15.0	381	16.4	378	16.5	**380**	**16.4**
473.astar	**471**	**14.9**	468	15.0	473	14.8	427	16.4	425	16.5	**426**	**16.5**
483.xalancbmk	**270**	**25.6**	270	25.5	269	25.7	**270**	**25.6**	270	25.5	269	25.7

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

General Notes

```
All benchmarks compiled in 32-bit mode except 401.bzip2 and 456.hmmer,
for peak, are compiled in 64-bit mode
Hardware Sector Prefetch Enabled and Adjacent Sector Prefetch Enabled
OMP_NUM_THREADS set to number of cores
KMP_AFFINITY set to physical,0
KMP_STACKSIZE set to null
```

Base Compiler Invocation

C benchmarks:
```
icc
```

C++ benchmarks:
```
icpc
```

Base Portability Flags

```
    400.perlbench: -DSPEC_CPU_LINUX_IA32
    462.libquantum: -DSPEC_CPU_LINUX
    483.xalancbmk: -DSPEC_CPU_LINUX
```

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Base Optimization Flags

C benchmarks:
```
-fast -vec-guard-write -parallel -par-runtime-control
```

C++ benchmarks:
```
-xT -ipo -O3 -no-prec-div -Wl,-z,muldefs
-L/spec/users/rahul/cpu2006.1.0/lib  -lsmartheap
```

Base Other Flags

C benchmarks:

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

Peak Compiler Invocation

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

```
401.bzip2: /opt/intel/cce/10.1.008/bin/icc
           -L/opt/intel/cce/10.1.008/lib
           -I/opt/intel/cce/10.1.008/include

456.hmmer: /opt/intel/cce/10.1.008/bin/icc
           -L/opt/intel/cce/10.1.008/lib
           -I/opt/intel/cce/10.1.008/include
```

C++ benchmarks:
```
icpc
```

Peak Portability Flags

```
400.perlbench: -DSPEC_CPU_LINUX_IA32
   401.bzip2: -DSPEC_CPU_LP64
   456.hmmer: -DSPEC_CPU_LP64
462.libquantum: -DSPEC_CPU_LINUX
483.xalancbmk: -DSPEC_CPU_LINUX
```

Peak Optimization Flags

C benchmarks:

Continued on next page

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Peak Optimization Flags (Continued)

```
       400.perlbench: -prof-gen(pass 1) -prof-use(pass 2) -fast -ansi-alias
                      -prefetch

           401.bzip2: -prof-gen(pass 1) -prof-use(pass 2) -fast -prefetch
                      -auto-ilp32

             403.gcc: -fast -inline-calloc -opt-malloc-options=3

             429.mcf: -fast -prefetch

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

          456.hmmer: -fast -unroll2 -ansi-alias -opt-multi-version-aggressive
                      -auto-ilp32

           458.sjeng: -prof-gen(pass 1) -prof-use(pass 2) -fast -unroll4

      462.libquantum: -fast -unroll4 -Ob0 -prefetch
                      -opt-streaming-stores always -vec-guard-write
                      -opt-malloc-options=3 -parallel -par-runtime-control

          464.h264ref: -prof-gen(pass 1) -prof-use(pass 2) -fast -unroll2
                      -ansi-alias
```

C++ benchmarks:

```
          471.omnetpp: -prof-gen(pass 1) -prof-use(pass 2) -xT -O3 -ipo
                      -no-prec-div -ansi-alias -opt-ra-region-strategy=block
                      -Wl,-z,muldefs
                      -L/spec/users/rahul/cpu2006.1.0/lib  -lsmartheap

            473.astar: -prof-gen(pass 1) -prof-use(pass 2) -xT -O3 -ipo
                      -no-prec-div -ansi-alias -opt-ra-region-strategy=routine
                      -Wl,-z,muldefs
                      -L/spec/users/rahul/cpu2006.1.0/lib  -lsmartheap

       483.xalancbmk: basepeak = yes
```

Peak Other Flags

C benchmarks:

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

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

`http://www.spec.org/cpu2006/flags/Intel-ic10.1-INT-ia32-linux-flags.20090714.06.html`

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

`http://www.spec.org/cpu2006/flags/Intel-ic10.1-INT-ia32-linux-flags.20090714.06.xml`

For questions about this result, please contact the tester.
For other inquiries, please contact webmaster@spec.org.

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