SPEC® CINT2006 Result
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IBM Corporation

IBM System x3550 (Intel Xeon X5460)

SPECint®2006 = 27.7
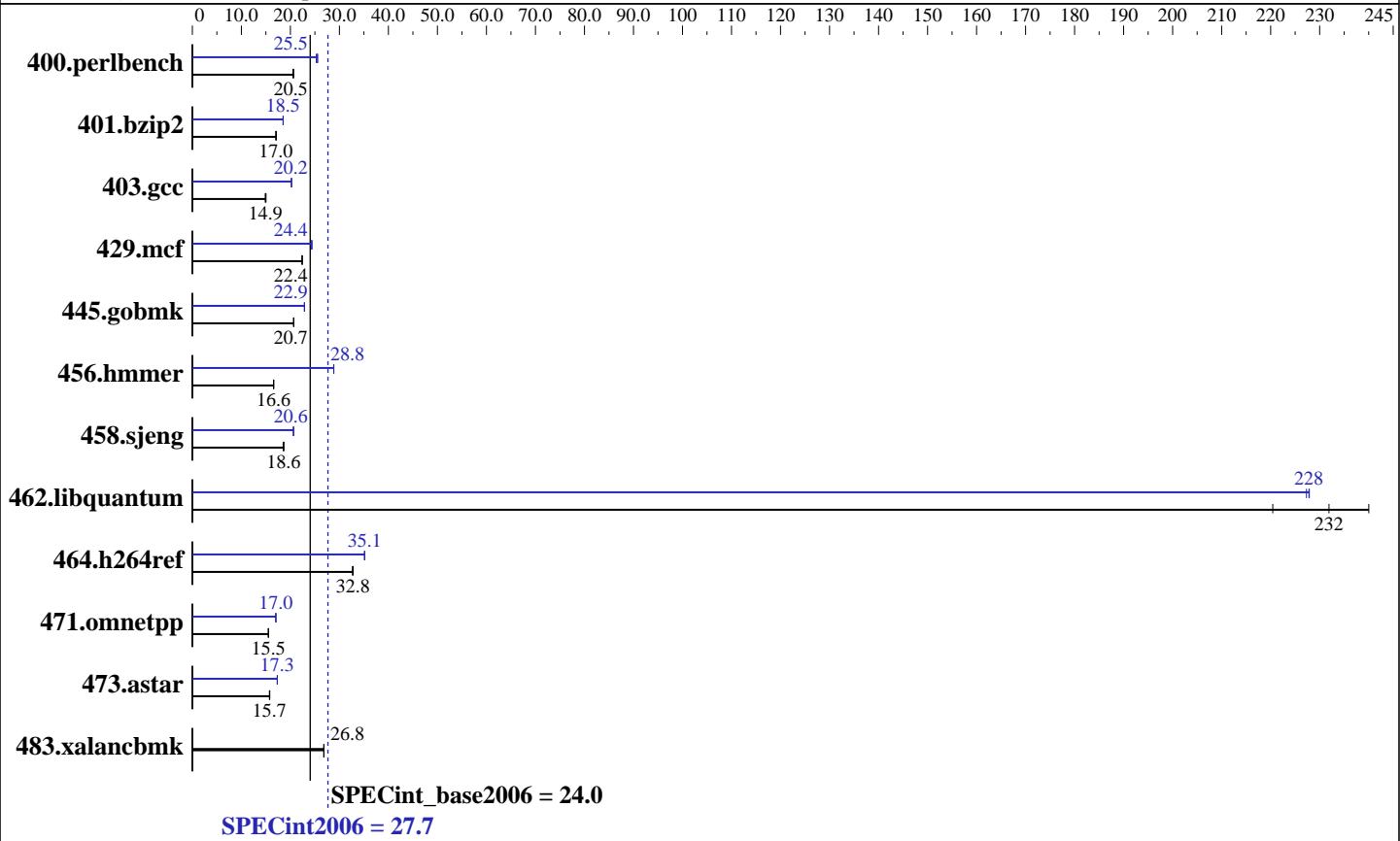
SPECint_base2006 = 24.0

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

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

Benchmark results chart:

- 400.perlbench: 25.5 / 20.5
- 401.bzip2: 18.5 / 17.0
- 403.gcc: 20.2 / 14.9
- 429.mcf: 24.4 / 22.4
- 445.gobmk: 22.9 / 20.7
- 456.hmmer: 28.8 / 16.6
- 458.sjeng: 20.6 / 18.6
- 462.libquantum: 228 / 232
- 464.h264ref: 35.1 / 32.8
- 471.omnetpp: 17.0 / 15.5
- 473.astar: 17.3 / 15.7
- 483.xalancbmk: 26.8

SPECint_base2006 = 24.0
SPECint2006 = 27.7

Hardware

CPU Name:	Intel Xeon X5460
CPU Characteristics:	1333MHz system bus
CPU MHz:	3158
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 36 GB SAS, 15000 RPM
Other Hardware:	None

Software

Operating System:	SLES10 (x86_64), 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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Results Table

Benchmark	Base						Peak					
	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
400.perlbench	476	20.5	472	20.7	**476**	**20.5**	**383**	**25.5**	387	25.3	382	25.5
401.bzip2	563	17.2	566	17.0	**566**	**17.0**	521	18.5	520	18.5	**521**	**18.5**
403.gcc	536	15.0	**540**	**14.9**	540	14.9	397	20.3	398	20.2	**398**	**20.2**
429.mcf	**407**	**22.4**	407	22.4	407	22.4	374	24.4	374	24.4	**374**	**24.4**
445.gobmk	508	20.7	**507**	**20.7**	507	20.7	459	22.9	459	22.9	**459**	**22.9**
456.hmmer	564	16.6	562	16.6	**562**	**16.6**	323	28.9	323	28.8	**323**	**28.8**
458.sjeng	**650**	**18.6**	653	18.5	648	18.7	**587**	**20.6**	586	20.7	587	20.6
462.libquantum	94.0	220	86.3	240	**89.3**	**232**	91.2	227	90.9	228	**91.0**	**228**
464.h264ref	677	32.7	675	32.8	**676**	**32.8**	630	35.1	**630**	**35.1**	629	35.2
471.omnetpp	**403**	**15.5**	402	15.5	403	15.5	367	17.0	**367**	**17.0**	367	17.0
473.astar	**446**	**15.7**	446	15.7	444	15.8	405	17.3	405	17.3	**405**	**17.3**
483.xalancbmk	257	26.8	257	26.8	**257**	**26.8**	257	26.8	257	26.8	**257**	**26.8**

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
Powersaved dameon was disabled in OS
```

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-ia32-intel64-linux-flags.20090714.14.html`

You can also download the XML flags source by saving the following link:
`http://www.spec.org/cpu2006/flags/Intel-ic10-ia32-intel64-linux-flags.20090714.14.xml`

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Tested with SPEC CPU2006 v1.0.
Report generated on Tue Jul 22 13:44:45 2014 by SPEC CPU2006 PS/PDF formatter v6932.
Originally published on 11 December 2007.