SPEC® CINT2006 Result
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IBM Corporation

IBM System x3550 (Intel Xeon E5420)

SPECint®2006 = 22.9
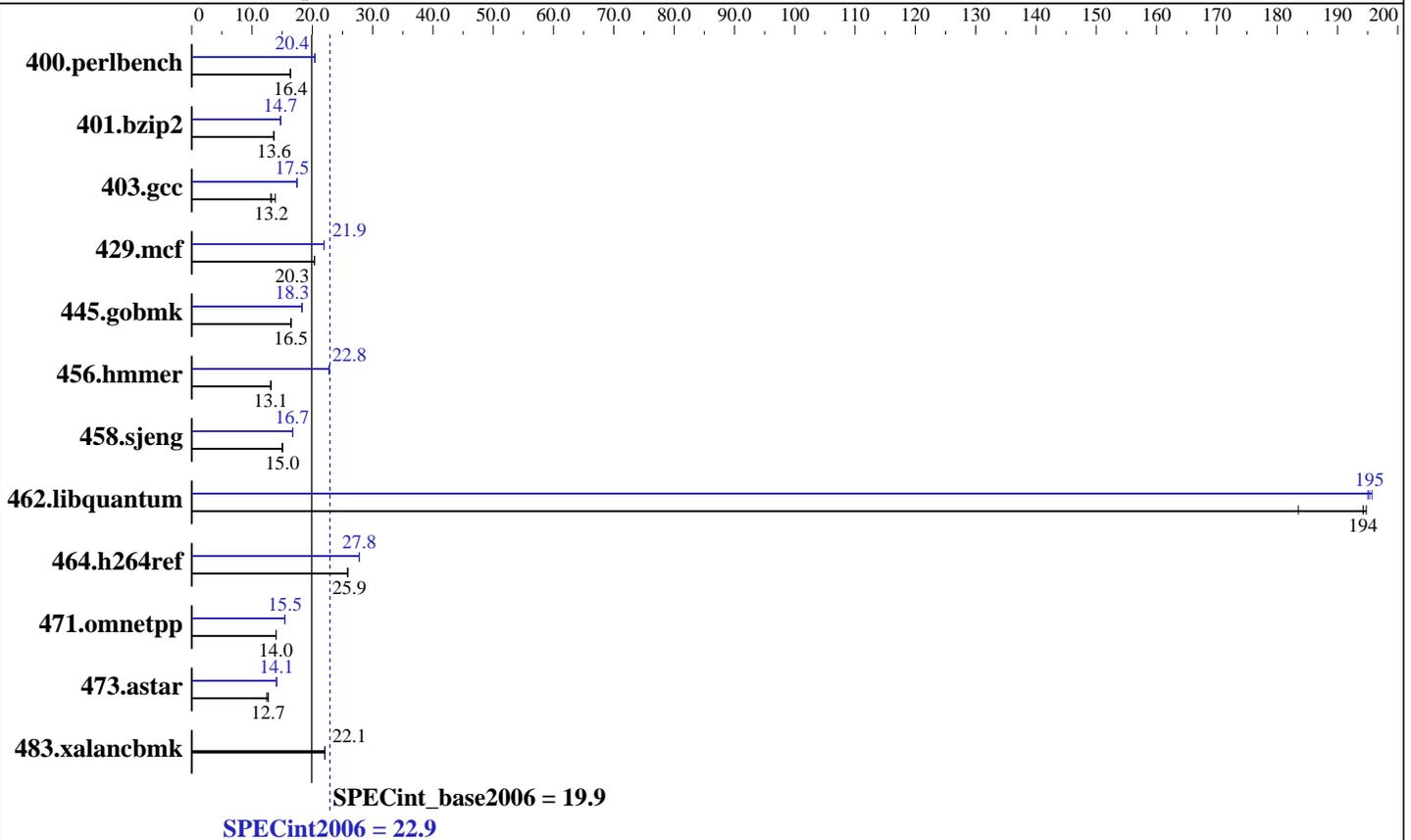
SPECint_base2006 = 19.9

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

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

Benchmark	Result
400.perlbench	20.4 / 16.4
401.bzip2	14.7 / 13.6
403.gcc	17.5 / 13.2
429.mcf	21.9 / 20.3
445.gobmk	18.3 / 16.5
456.hmmer	22.8 / 13.1
458.sjeng	16.7 / 15.0
462.libquantum	195 / 194
464.h264ref	27.8 / 25.9
471.omnetpp	15.5 / 14.0
473.astar	14.1 / 12.7
483.xalancbmk	22.1

SPECint_base2006 = 19.9
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Hardware

CPU Name:	Intel Xeon E5420
CPU Characteristics:	1333MHz system bus
CPU MHz:	2493
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:	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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Results Table

Benchmark	Base						Peak					
	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
400.perlbench	**<u>597</u>**	**<u>16.4</u>**	597	16.4	597	16.4	478	20.4	**<u>478</u>**	**<u>20.4</u>**	479	20.4
401.bzip2	710	13.6	707	13.7	**<u>707</u>**	**<u>13.6</u>**	655	14.7	**<u>655</u>**	**<u>14.7</u>**	654	14.8
403.gcc	614	13.1	580	13.9	**<u>608</u>**	**<u>13.2</u>**	**<u>461</u>**	**<u>17.5</u>**	462	17.4	461	17.5
429.mcf	449	20.3	**<u>448</u>**	**<u>20.3</u>**	448	20.3	415	22.0	416	21.9	**<u>416</u>**	**<u>21.9</u>**
445.gobmk	637	16.5	637	16.5	**<u>637</u>**	**<u>16.5</u>**	**<u>574</u>**	**<u>18.3</u>**	574	18.3	573	18.3
456.hmmer	711	13.1	**<u>711</u>**	**<u>13.1</u>**	711	13.1	410	22.8	**<u>410</u>**	**<u>22.8</u>**	409	22.8
458.sjeng	**<u>804</u>**	**<u>15.0</u>**	804	15.0	806	15.0	724	16.7	**<u>723</u>**	**<u>16.7</u>**	721	16.8
462.libquantum	106	195	**<u>107</u>**	**<u>194</u>**	113	184	**<u>106</u>**	**<u>195</u>**	106	195	106	196
464.h264ref	855	25.9	**<u>856</u>**	**<u>25.9</u>**	857	25.8	796	27.8	**<u>797</u>**	**<u>27.8</u>**	797	27.8
471.omnetpp	446	14.0	447	14.0	**<u>447</u>**	**<u>14.0</u>**	**<u>404</u>**	**<u>15.5</u>**	405	15.4	404	15.5
473.astar	**<u>554</u>**	**<u>12.7</u>**	552	12.7	564	12.4	**<u>499</u>**	**<u>14.1</u>**	499	14.1	500	14.0
483.xalancbmk	312	22.1	**<u>313</u>**	**<u>22.1</u>**	313	22.1	312	22.1	**<u>313</u>**	**<u>22.1</u>**	313	22.1

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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CPU2006 license: 11	**Test date:** Dec-2007
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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:

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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

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

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