SPEC® CINT2006 Result
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IBM Corporation

IBM BladeCenter HS22 (Intel Xeon X5560)

$SPECint®2006 =$ 34.4
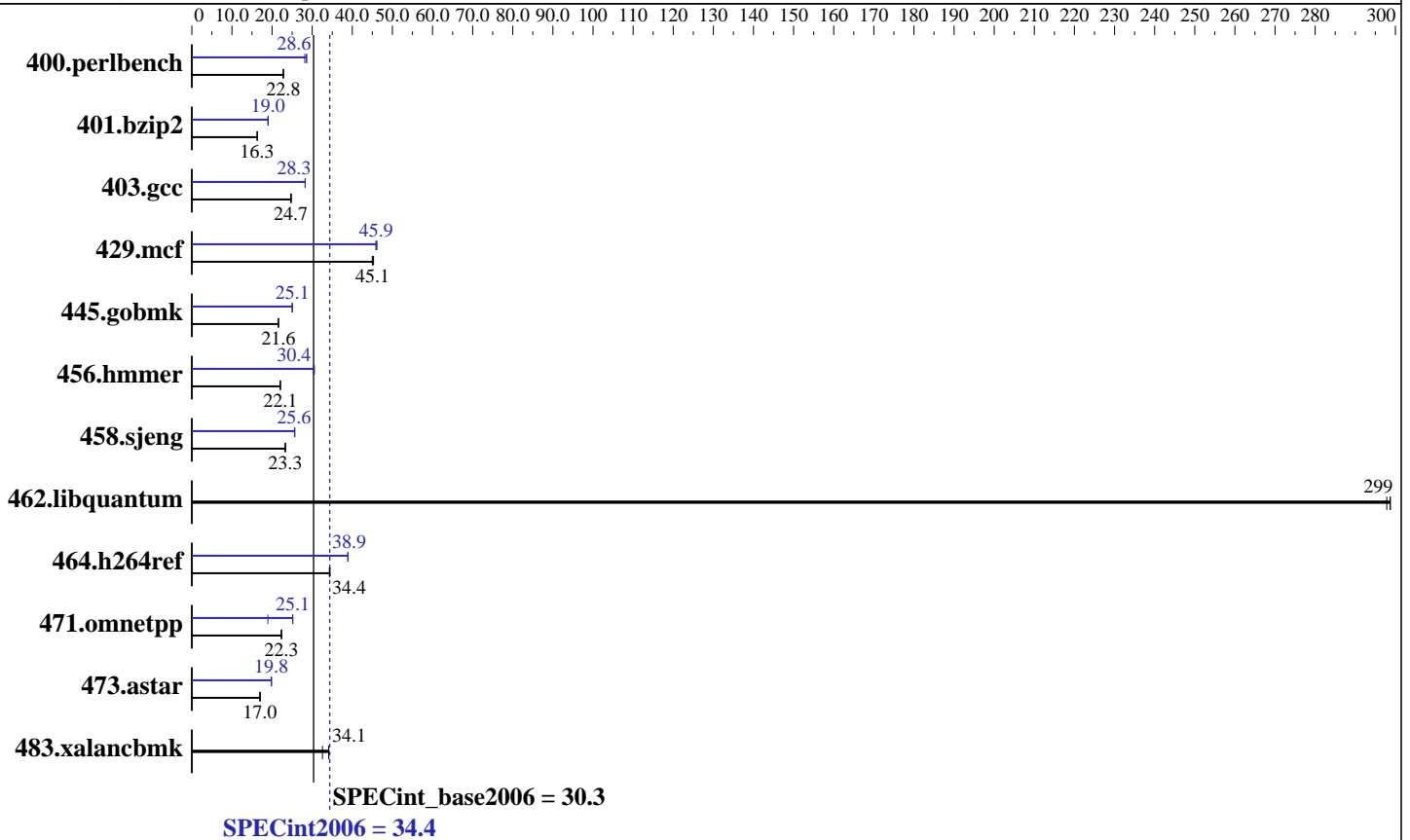
$SPECint\_base2006 =$ 30.3

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

Test date: Jun-2009
Hardware Availability: Apr-2009
Software Availability: Feb-2009

400.perlbench	28.6 / 22.8
401.bzip2	19.0 / 16.3
403.gcc	28.3 / 24.7
429.mcf	45.9 / 45.1
445.gobmk	25.1 / 21.6
456.hmmer	30.4 / 22.1
458.sjeng	25.6 / 23.3
462.libquantum	299
464.h264ref	38.9 / 34.4
471.omnetpp	25.1 / 22.3
473.astar	19.8 / 17.0
483.xalancbmk	34.1

SPECint_base2006 = 30.3
SPECint2006 = 34.4

Hardware

CPU Name:	Intel Xeon X5560
CPU Characteristics:	Intel Turbo Boost Technology up to 3.20 GHz
CPU MHz:	2800
FPU:	Integrated
CPU(s) enabled:	8 cores, 2 chips, 4 cores/chip, 2 threads/core
CPU(s) orderable:	1,2 chips
Primary Cache:	32 KB I + 32 KB D on chip per core
Secondary Cache:	256 KB I+D on chip per core
L3 Cache:	8 MB I+D on chip per chip
Other Cache:	None
Memory:	24 GB (6 x 4 GB PC3-10600R)
Disk Subsystem:	1 x 73 GB SAS, 10000 RPM
Other Hardware:	None

Software

Operating System:	SuSE Linux Enterprise Server 10 (x86_64) SP2 with patch Linux kernel 20090119, Kernel 2.6.16.60-0.34-smp
Compiler:	Intel C++ Compiler Professional 11.0 for Linux Build 20090131 Package ID: l_cproc_p_11.0.080
Auto Parallel:	Yes
File System:	ReiserFS
System State:	Run level 3 (multi-user)
Base Pointers:	32-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 Seconds	Base Ratio	Base Seconds	Base Ratio	Base Seconds	Base Ratio	Peak Seconds	Peak Ratio	Peak Seconds	Peak Ratio	Peak Seconds	Peak Ratio
400.perlbench	428	22.8	**428**	**22.8**	428	22.8	**342**	**28.6**	341	28.6	347	28.1
401.bzip2	**592**	**16.3**	593	16.3	591	16.3	509	19.0	**508**	**19.0**	506	19.1
403.gcc	326	24.7	**326**	**24.7**	325	24.8	285	28.3	**285**	**28.3**	285	28.2
429.mcf	201	45.3	203	45.0	**202**	**45.1**	199	45.9	**198**	**45.9**	198	46.2
445.gobmk	486	21.6	486	21.6	**486**	**21.6**	419	25.1	419	25.0	**419**	**25.1**
456.hmmer	**423**	**22.1**	423	22.1	423	22.1	305	30.6	307	30.4	**306**	**30.4**
458.sjeng	**519**	**23.3**	520	23.3	518	23.3	473	25.6	**473**	**25.6**	471	25.7
462.libquantum	**69.4**	**299**	69.6	298	69.4	299	**69.4**	**299**	69.6	298	69.4	299
464.h264ref	642	34.4	**644**	**34.4**	645	34.3	569	38.9	**569**	**38.9**	568	39.0
471.omnetpp	280	22.3	**280**	**22.3**	279	22.4	248	25.2	330	19.0	**249**	**25.1**
473.astar	414	17.0	412	17.0	**413**	**17.0**	354	19.8	**354**	**19.8**	354	19.9
483.xalancbmk	**202**	**34.1**	212	32.6	202	34.1	**202**	**34.1**	212	32.6	202	34.1

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

General Notes

```
'ulimit -s unlimited' was used to set the stack size to unlimited prior to run
OMP_NUM_THREADS set to number of cores
KMP_AFFINITY set to granularity=fine,scatter
Processor CPU C-States Enabled
```

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:

```
-xSSE4.2 -ipo -O3 -no-prec-div -static -parallel
-par-runtime-control -opt-prefetch
```

C++ benchmarks:

```
-xSSE4.2 -ipo -O3 -no-prec-div -opt-prefetch -Wl,-z,muldefs
-L/spec/cpu2006.1.1/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/Compiler/11.0/080/bin/intel64/icc`

> 456.hmmer: `/opt/intel/Compiler/11.0/080/bin/intel64/icc`

> 458.sjeng: `/opt/intel/Compiler/11.0/080/bin/intel64/icc`

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

> 473.astar: `/opt/intel/Compiler/11.0/080/bin/intel64/icpc`

Peak Portability Flags

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

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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(pass 2) -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

    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 -auto-ilp32

    462.libquantum: basepeak = yes

    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/spec/cpu2006.1.1/lib -lsmartheap

    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 -auto-ilp32
             -Wl,-z,muldefs -L/spec/cpu2006.1.1/lib -lsmartheap64

    483.xalancbmk: basepeak = yes

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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-ic11.0-int-linux64-revA.html`

You can also download the XML flags source by saving the following link:
`http://www.spec.org/cpu2006/flags/Intel-ic11.0-int-linux64-revA.xml`

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

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