SPEC® CINT2006 Result

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IBM Corporation

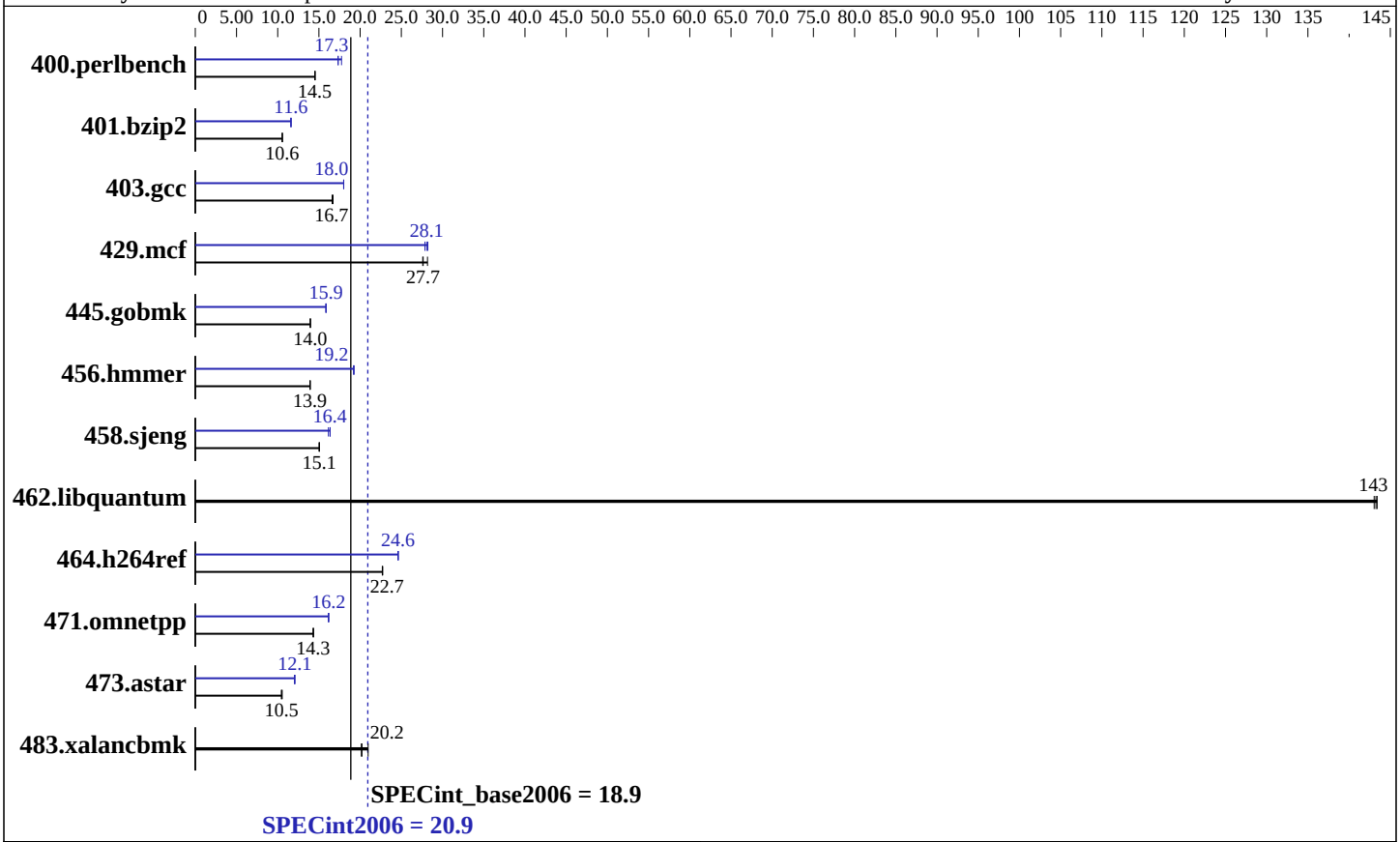
IBM System x3400 M2 (Intel Xeon E5504)

SPECint®2006 = 20.9

SPECint_base2006 = 18.9

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

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



Hardware

CPU Name:	Intel Xeon E5504
CPU Characteristics:	
CPU MHz:	2000
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:	256 KB I+D on chip per core
L3 Cache:	4 MB I+D on chip per chip
Other Cache:	None
Memory:	24 GB (12 x 2 GB PC3-10600R, 2 Rank, running at 800 MHz)
Disk Subsystem:	1 x 146 GB SAS, 15000 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						Peak					
	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
400.perlbench	**673**	**14.5**	673	14.5	672	14.5	564	17.3	551	17.7	**564**	**17.3**
401.bzip2	915	10.5	914	10.6	**914**	**10.6**	**831**	**11.6**	832	11.6	831	11.6
403.gcc	482	16.7	485	16.6	**483**	**16.7**	**447**	**18.0**	447	18.0	447	18.0
429.mcf	324	28.2	**330**	**27.7**	330	27.6	**325**	**28.1**	323	28.2	327	27.9
445.gobmk	**751**	**14.0**	751	14.0	751	14.0	661	15.9	**662**	**15.9**	662	15.9
456.hmmer	**670**	**13.9**	669	13.9	670	13.9	486	19.2	485	19.2	**485**	**19.2**
458.sjeng	**804**	**15.1**	806	15.0	803	15.1	749	16.1	**740**	**16.4**	740	16.4
462.libquantum	145	143	**145**	**143**	144	143	145	143	**145**	**143**	144	143
464.h264ref	975	22.7	**975**	**22.7**	973	22.7	899	24.6	**899**	**24.6**	899	24.6
471.omnetpp	436	14.3	**437**	**14.3**	437	14.3	**386**	**16.2**	387	16.1	386	16.2
473.astar	671	10.5	**671**	**10.5**	666	10.5	**582**	**12.1**	584	12.0	581	12.1
483.xalancbmk	**341**	**20.2**	329	21.0	342	20.1	**341**	**20.2**	329	21.0	342	20.1

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
```

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`

Base Optimization Flags

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

Continued on next page

Base Optimization Flags (Continued)

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`

Peak Optimization Flags

C benchmarks:

Continued on next page

Peak Optimization Flags (Continued)

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

Peak Other Flags

C benchmarks:

Continued on next page

Peak Other Flags (Continued)

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`

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