SPEC® CINT2006 Result

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IBM Corporation

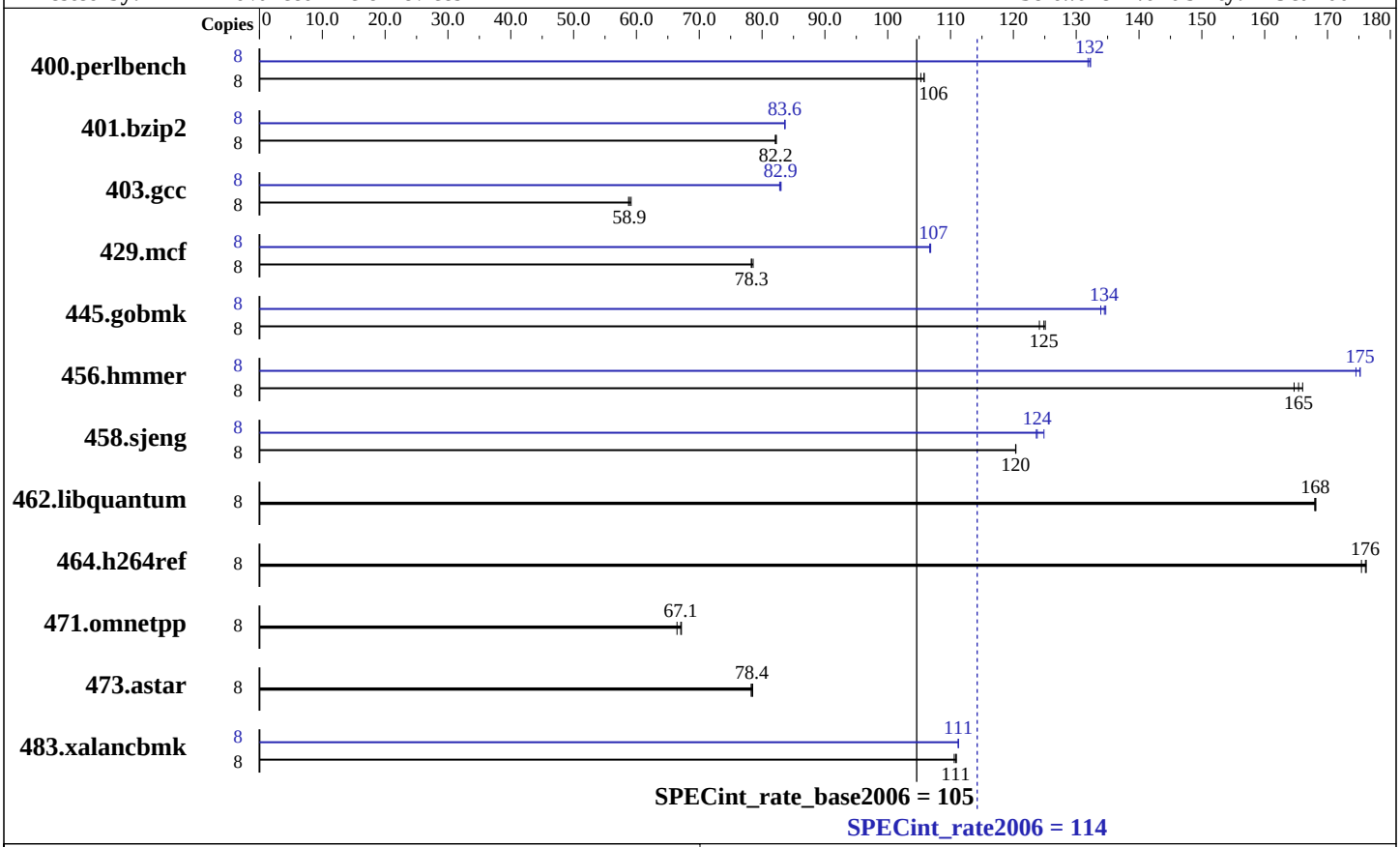
IBM System x3755 (AMD Opteron 8224 SE)

SPECint®_rate2006 = 114

SPECint_rate_base2006 = 105

CPU2006 license: 11
Test sponsor: IBM Corporation
Tested by: Advanced Micro Devices

Test date: Aug-2007
Hardware Availability: Sep-2007
Software Availability: Oct-2007



Hardware

CPU Name:	AMD Opteron 8224 SE
CPU Characteristics:	
CPU MHz:	3200
FPU:	Integrated
CPU(s) enabled:	8 cores, 4 chips, 2 cores/chip
CPU(s) orderable:	1, 2, 3, 4 chips
Primary Cache:	64 KB I + 64 KB D on chip per core
Secondary Cache:	1 MB I+D on chip per core
L3 Cache:	None
Other Cache:	None
Memory:	32 GB (16 x 2GB, DDR2-667 CL5 ECC REG Dual Rank)
Disk Subsystem:	1 x 73GB SAS, 15000 RPM
Other Hardware:	None

Software

Operating System:	SuSE Linux Enterprise Server 10 SP1 64-bit kernel
Compiler:	The Portland Group (PGI) PGI pgcc 7.1-0 C Compiler PGI pgCC 7.1-0 C++ Compiler
Auto Parallel:	No
File System:	ext3
System State:	Multi-user, run level 3
Base Pointers:	32/64-bit
Peak Pointers:	32/64-bit
Other Software:	SmartHeap 8.0 32-bit Library for Linux

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Results Table

Benchmark	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
400.perlbench	8	739	106	742	105	**739**	**106**	8	**591**	**132**	593	132	591	132
401.bzip2	8	940	82.1	**939**	**82.2**	938	82.3	8	923	83.6	**923**	**83.6**	923	83.6
403.gcc	8	1089	59.2	**1094**	**58.9**	1096	58.7	8	776	83.0	**776**	**82.9**	778	82.8
429.mcf	8	932	78.3	**931**	**78.3**	928	78.6	8	683	107	684	107	**683**	**107**
445.gobmk	8	671	125	**672**	**125**	676	124	8	623	135	627	134	**624**	**134**
456.hmmer	8	450	166	453	165	**451**	**165**	8	**426**	**175**	428	175	426	175
458.sjeng	8	**804**	**120**	804	120	804	120	8	775	125	783	124	**782**	**124**
462.libquantum	8	986	168	987	168	**986**	**168**	8	986	168	987	168	**986**	**168**
464.h264ref	8	1005	176	**1006**	**176**	1009	175	8	1005	176	**1006**	**176**	1009	175
471.omnetpp	8	744	67.2	**746**	**67.1**	752	66.5	8	744	67.2	**746**	**67.1**	752	66.5
473.astar	8	718	78.3	715	78.5	**716**	**78.4**	8	718	78.3	715	78.5	**716**	**78.4**
483.xalancbmk	8	498	111	499	111	**498**	**111**	8	496	111	**496**	**111**	496	111

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

Operating System Notes

```
Environment stack size set to 'unlimited'
'numactl' was used to bind copies to the cores
Set vm/nr_hugepages=1024 in /etc/sysctl.conf
mount -t hugetlbfs nodev /mnt/hugepages
```

Base Compiler Invocation

C benchmarks:
`pgcc`

C++ benchmarks:
`pgcpp`

Base Portability Flags

400.perlbench: `-DSPEC_CPU_LP64 -DSPEC_CPU_LINUX_X64`
401.bzip2: `-DSPEC_CPU_LP64`
403.gcc: `-DSPEC_CPU_LP64`
429.mcf: `-DSPEC_CPU_LP64`
445.gobmk: `-DSPEC_CPU_LP64`
456.hmmer: `-DSPEC_CPU_LP64`
458.sjeng: `-DSPEC_CPU_LP64`
462.libquantum: `-DSPEC_CPU_LP64 -DSPEC_CPU_LINUX`

Continued on next page

Base Portability Flags (Continued)

464.h264ref: -DSPEC_CPU_LP64
483.xalancbmk: -DSPEC_CPU_LINUX

Base Optimization Flags

C benchmarks:
-fast -Mipa=fast -Mipa=inline -Mipa=noarg -Mfprelaxed
-Msmartalloc=huge:64 -tp k8-64 -Bstatic_pgi

C++ benchmarks:
-fastsse -Mipa=fast -Mipa=inline -Mfprelaxed -Msmartalloc --zc_eh
-tp k8-32 -Bstatic_pgi -lsmartheap

Base Other Flags

C benchmarks:
-w

C++ benchmarks:
-w -L/proj/qa/smartheap/SmartHeap_8/lib

Peak Compiler Invocation

C benchmarks:
pgcc

C++ benchmarks:
pgcpp

Peak Portability Flags

400.perlbench: -DSPEC_CPU_LP64 -DSPEC_CPU_LINUX_X64
401.bzip2: -DSPEC_CPU_LP64
445.gobmk: -DSPEC_CPU_LP64
456.hmmer: -DSPEC_CPU_LP64
458.sjeng: -DSPEC_CPU_LP64
462.libquantum: -DSPEC_CPU_LP64 -DSPEC_CPU_LINUX
464.h264ref: -DSPEC_CPU_LP64
483.xalancbmk: -DSPEC_CPU_LINUX

Peak Optimization Flags

C benchmarks:

400.perlbench: `-Mpfi`(pass 1) `-Mpfo`(pass 2) `-Mipa=inline`(pass 2) `-fast -O4 -Mfprelaxed -Msmartalloc=huge:8 -Mnounroll -tp k8-64 -Bstatic_pgi`

401.bzip2: `-Mpfi`(pass 1) `-Mpfo`(pass 2) `-fast -O4 -Msmartalloc=huge:64 -tp k8-64 -Bstatic_pgi`

403.gcc: `-fastsse -Mfprelaxed -Msmartalloc=huge:32 -Mipa=fast -Mipa=inline -tp k8-32 -Bstatic_pgi`

429.mcf: `-fastsse -Mipa=fast -Mipa=inline -Msmartalloc=huge:16 -tp k8-32 -Bstatic_pgi`

445.gobmk: `-Mpfi`(pass 1) `-Mpfo`(pass 2) `-Mipa=fast`(pass 2) `-fast -O4 -Msmartalloc=huge:32 -Mfprelaxed -Mnovect -tp k8-64 -Bstatic_pgi`

456.hmmer: `-fast -Msmartalloc=huge:32 -Mfprelaxed -Msafeptr -Mipa=const -Mipa=ptr -Mipa=arg -tp k8-64 -Bstatic_pgi`

458.sjeng: `-Mpfi`(pass 1) `-Mipa=fast`(pass 2) `-Mipa=inline`(pass 2) `-Mipa=noarg`(pass 2) `-Mpfo`(pass 2) `-fast -Msmartalloc=huge:32 -Mfprelaxed -tp k8-64 -Bstatic_pgi`

462.libquantum: `basepeak = yes`

464.h264ref: `basepeak = yes`

C++ benchmarks:

471.omnetpp: `basepeak = yes`

473.astar: `basepeak = yes`

483.xalancbmk: `-fastsse -O4 -Mipa=fast -Mipa=inline -Mfprelaxed -Msmartalloc --zc_eh -tp k8-32 -Bstatic_pgi -lsmartheap`

Peak Other Flags

C benchmarks:
`-w`

C++ benchmarks:
`-w -L/proj/qa/smartheap/SmartHeap_8/lib`

The flags file that was used to format this result can be browsed at
http://www.spec.org/cpu2006/flags/pgi710_flags.20090714.01.html

You can also download the XML flags source by saving the following link:
http://www.spec.org/cpu2006/flags/pgi710_flags.20090714.01.xml

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