SPEC® CINT2006 Result

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IBM Corporation

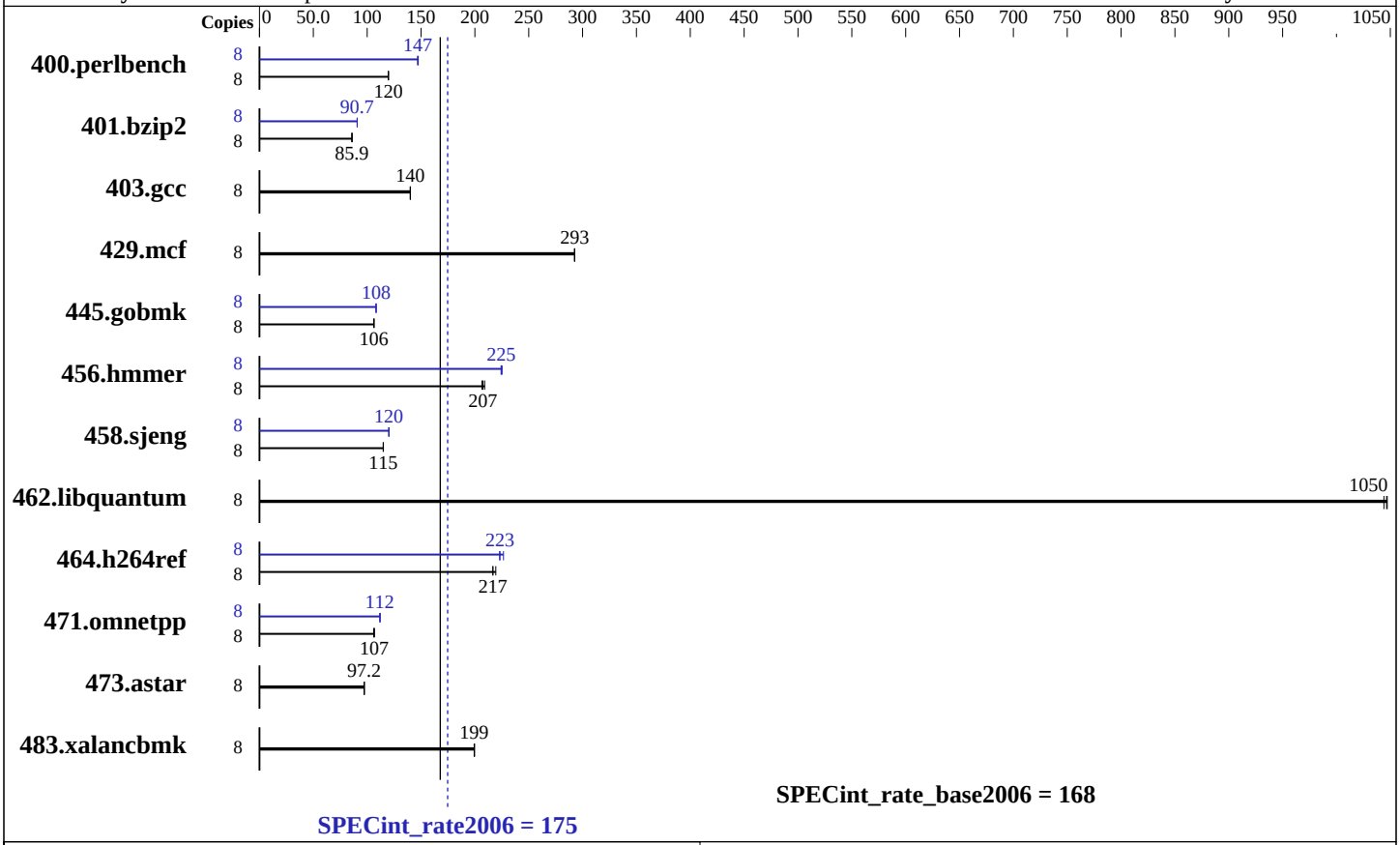
IBM BladeCenter HS23
(Intel Xeon E5-2603, 1.80 GHz)

SPECint®_rate2006 = 175

SPECint_rate_base2006 = 168

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

Test date: Apr-2012
Hardware Availability: Apr-2012
Software Availability: Dec-2011



Hardware

CPU Name:	Intel Xeon E5-2603
CPU Characteristics:	
CPU MHz:	1800
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:	10 MB I+D on chip per chip
Other Cache:	None
Memory:	128 GB (16 x 8 GB 2Rx4 PC3-12800R-11, ECC, running at 1066 MHz)
Disk Subsystem:	1 x 300 GB SAS, 10000 RPM
Other Hardware:	None

Software

Operating System:	Red Hat Enterprise Linux Server release 6.2 (Santiago) 2.6.32-220.el6.x86_64
Compiler:	C/C++: Version 12.1.0.225 of Intel C++ Studio XE for Linux
Auto Parallel:	No
File System:	ext4
System State:	Run level 3 (multi-user)
Base Pointers:	32-bit
Peak Pointers:	32/64-bit
Other Software:	Microquill SmartHeap V9.01

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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	654	120	**653**	**120**	652	120	8	532	147	530	147	**531**	**147**
401.bzip2	8	897	86.1	**899**	**85.9**	901	85.7	8	**851**	**90.7**	851	90.7	850	90.8
403.gcc	8	459	140	460	140	**460**	**140**	8	459	140	460	140	**460**	**140**
429.mcf	8	250	292	**249**	**293**	249	293	8	250	292	**249**	**293**	249	293
445.gobmk	8	789	106	**790**	**106**	790	106	8	**775**	**108**	775	108	775	108
456.hmmer	8	**360**	**207**	361	207	357	209	8	**332**	**225**	333	224	331	225
458.sjeng	8	**842**	**115**	843	115	841	115	8	806	120	806	120	**806**	**120**
462.libquantum	8	158	1050	159	1040	**158**	**1050**	8	158	1050	159	1040	**158**	**1050**
464.h264ref	8	807	219	817	217	**817**	**217**	8	794	223	**793**	**223**	781	227
471.omnetpp	8	471	106	469	107	**469**	**107**	8	446	112	448	112	**447**	**112**
473.astar	8	578	97.1	576	97.5	**578**	**97.2**	8	578	97.1	576	97.5	**578**	**97.2**
483.xalancbmk	8	276	200	277	199	**277**	**199**	8	276	200	277	199	**277**	**199**

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

Submit Notes

```
The numactl mechanism was used to bind copies to processors. The config file option 'submit'
was used to generate numactl commands to bind each copy to a specific processor.
For details, please see the config file.
```

Operating System Notes

```
Stack size set to unlimited using "ulimit -s unlimited"
```

Platform Notes

```
Operating Mode set to Maximum Perfomance in BIOS
Sysinfo program /cpu2006.1.2/config/sysinfo.rev6800
$Rev: 6800 $ $Date:: 2011-10-11 #$ 6f2ebdff5032aaa42e583f96b07f99d3
running on tigershark-pete Tue Apr 24 17:29:05 2012

This section contains SUT (System Under Test) info as seen by
some common utilities.  To remove or add to this section, see:
  http://www.spec.org/cpu2006/Docs/config.html#sysinfo

From /proc/cpuinfo
   model name : Intel(R) Xeon(R) CPU E5-2603 0 @ 1.80GHz
      2 "physical id"s (chips)
      8 "processors"
   cores, siblings (Caution: counting these is hw and system dependent.  The
   following excerpts from /proc/cpuinfo might not be reliable.  Use with
   caution.)
      cpu cores : 4
```

Continued on next page

Platform Notes (Continued)

```
        siblings  : 4
        physical 0: cores 0 1 2 3
        physical 1: cores 0 1 2 3
     cache size : 10240 KB

  From /proc/meminfo
     MemTotal:       132138680 kB
     HugePages_Total:       0
     Hugepagesize:       2048 kB

  /usr/bin/lsb_release -d
     Red Hat Enterprise Linux Server release 6.2 (Santiago)

  From /etc/*release* /etc/*version*
     redhat-release: Red Hat Enterprise Linux Server release 6.2 (Santiago)
     system-release: Red Hat Enterprise Linux Server release 6.2 (Santiago)
     system-release-cpe: cpe:/o:redhat:enterprise_linux:6server:ga:server

  uname -a:
     Linux tigershark-pete 2.6.32-220.el6.x86_64 #1 SMP Wed Nov 9 08:03:13 EST
     2011 x86_64 x86_64 x86_64 GNU/Linux

  run-level 3 Apr 24 16:53

  SPEC is set to: /cpu2006.1.2
     Filesystem     Type    Size  Used Avail Use% Mounted on
     /dev/mapper/vg_tigersharkpet-lv_root
                    ext4    265G   67G  186G  27% /

  Additional information from dmidecode:
    Memory:
     9x Micron 36JDYS1G72PZ-1G6M1 8 GB 1600 MHz 2 rank
     7x Samsung M392B1K70DM0-CK0 8 GB 1600 MHz 2 rank

  (End of data from sysinfo program)
```

General Notes

```
 Environment variables set by runspec before the start of the run:
 LD_LIBRARY_PATH = "/cpu2006.1.2/libs/32:/cpu2006.1.2/libs/64"

  Binaries compiled on a system with 1x Core i7-860 CPU + 8GB
  memory using RHEL5.5
  Transparent Huge Pages enabled with:
  echo always > /sys/kernel/mm/redhat_transparent_hugepage/enabled
  Filesystem page cache cleared with:
  echo 1>       /proc/sys/vm/drop_caches
  runspec command invoked through numactl i.e.:
  numactl --interleave=all runspec <etc>
```

Base Compiler Invocation

C benchmarks:
icc -m32

C++ benchmarks:
icpc -m32

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 -opt-prefetch -opt-mem-layout-trans=3

C++ benchmarks:
-xSSE4.2 -ipo -O3 -no-prec-div -opt-prefetch -opt-mem-layout-trans=3
-Wl,-z,muldefs -L/smartheap -lsmartheap

Base Other Flags

C benchmarks:

403.gcc: -Dalloca=_alloca

Peak Compiler Invocation

C benchmarks (except as noted below):
icc -m32

400.perlbench: icc -m64

401.bzip2: icc -m64

456.hmmer: icc -m64

458.sjeng: icc -m64

C++ benchmarks:
icpc -m32

Peak Portability Flags

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

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) -prof-use(pass 2) -auto-ilp32

401.bzip2: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2) -opt-prefetch -auto-ilp32 -ansi-alias

403.gcc: basepeak = yes

429.mcf: basepeak = yes

445.gobmk: -xSSE4.2(pass 2) -prof-gen(pass 1) -prof-use(pass 2) -ansi-alias -opt-mem-layout-trans=3

456.hmmer: -xSSE4.2 -ipo -O3 -no-prec-div -unroll2 -auto-ilp32

458.sjeng: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2) -no-prec-div(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) -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/smartheap -lsmartheap

473.astar: basepeak = yes

Continued on next page

Peak Optimization Flags (Continued)

483.xalancbmk: `basepeak = yes`

Peak Other Flags

C benchmarks:

403.gcc: `-Dalloca=_alloca`

The flags files that were used to format this result can be browsed at
`http://www.spec.org/cpu2006/flags/Intel-ic12.1-official-linux64.20111122.html`
`http://www.spec.org/cpu2006/flags/IBM-Platform-Flags-V1.2-SNB-C.html`

You can also download the XML flags sources by saving the following links:
`http://www.spec.org/cpu2006/flags/Intel-ic12.1-official-linux64.20111122.xml`
`http://www.spec.org/cpu2006/flags/IBM-Platform-Flags-V1.2-SNB-C.xml`

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For other inquiries, please contact webmaster@spec.org.

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