SPEC® CINT2006 Result

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IBM Corporation

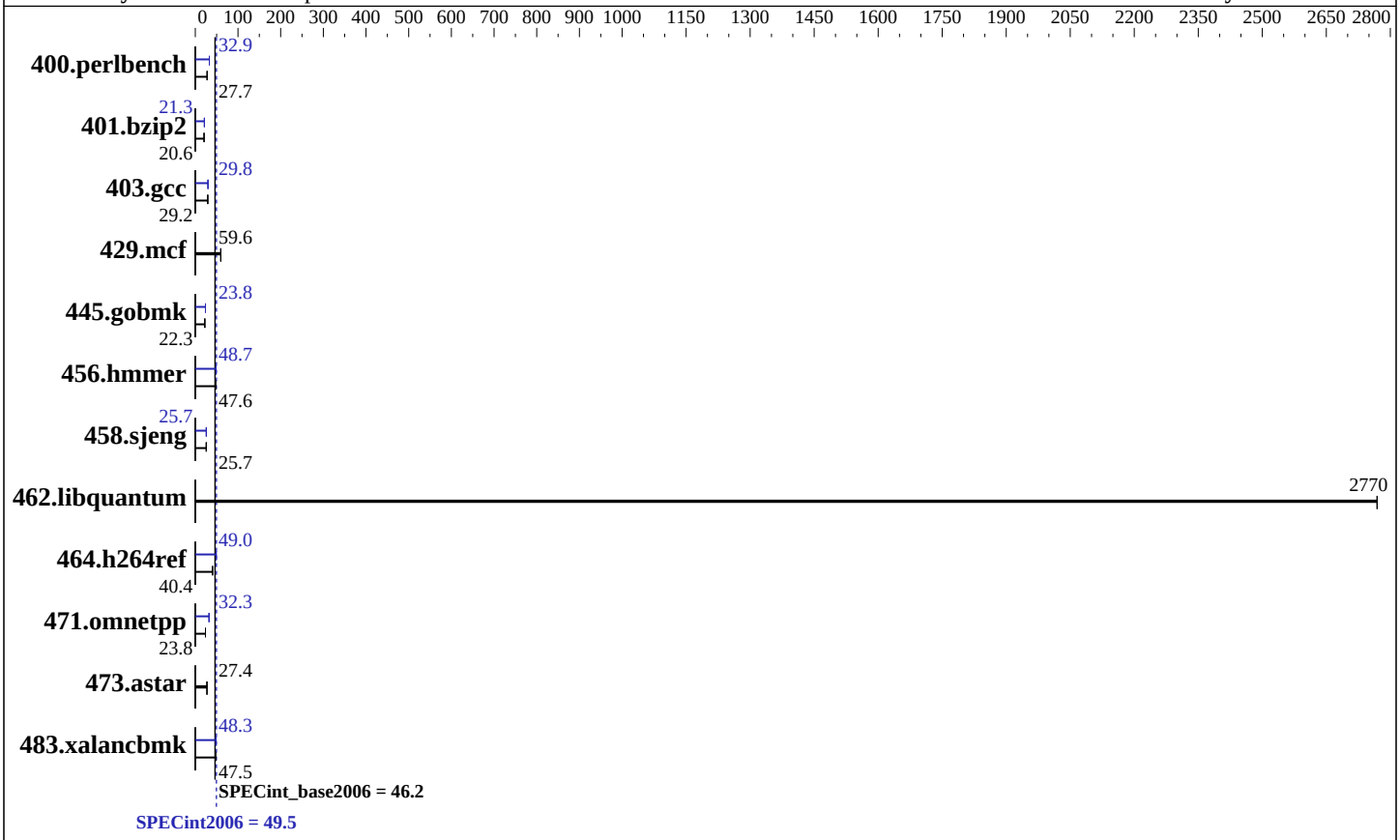
IBM BladeCenter HS23 (Intel Xeon E5-2665, 2.40 GHz)

SPECint®2006 = 49.5

SPECint_base2006 = 46.2

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

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



Hardware

CPU Name:	Intel Xeon E5-2665
CPU Characteristics:	Intel Turbo Boost Technology up to 3.10 GHz
CPU MHz:	2400
FPU:	Integrated
CPU(s) enabled:	16 cores, 2 chips, 8 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:	20 MB I+D on chip per chip
Other Cache:	None
Memory:	128 GB (16 x 8 GB 2Rx4 PC3-12800R-11, ECC)
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:	Yes
File System:	ext4
System State:	Run level 3 (multi-user)
Base Pointers:	32/64-bit
Peak Pointers:	32/64-bit
Other Software:	Microquill SmartHeap V9.01

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Results Table

Benchmark	Base						Peak					
	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
400.perlbench	351	27.8	**353**	**27.7**	354	27.6	297	32.8	**297**	**32.9**	296	33.0
401.bzip2	469	20.6	469	20.6	**469**	**20.6**	**454**	**21.3**	454	21.3	454	21.3
403.gcc	275	29.2	275	29.2	**275**	**29.2**	270	29.8	272	29.6	**270**	**29.8**
429.mcf	152	59.9	**153**	**59.6**	153	59.6	152	59.9	**153**	**59.6**	153	59.6
445.gobmk	**470**	**22.3**	470	22.3	470	22.3	441	23.8	**441**	**23.8**	441	23.8
456.hmmer	196	47.5	196	47.6	**196**	**47.6**	192	48.7	192	48.6	**192**	**48.7**
458.sjeng	471	25.7	472	25.6	**471**	**25.7**	470	25.7	**470**	**25.7**	471	25.7
462.libquantum	7.48	2770	7.48	2770	**7.48**	**2770**	7.48	2770	7.48	2770	**7.48**	**2770**
464.h264ref	549	40.3	548	40.4	**548**	**40.4**	**452**	**49.0**	451	49.1	453	48.9
471.omnetpp	**262**	**23.8**	263	23.8	262	23.8	195	32.1	193	32.4	**194**	**32.3**
473.astar	256	27.4	257	27.3	**257**	**27.4**	256	27.4	257	27.3	**257**	**27.4**
483.xalancbmk	145	47.5	**145**	**47.5**	145	47.7	143	48.4	**143**	**48.3**	143	48.3

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

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 Fri Mar 23 02:25:23 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 : Genuine Intel(R) CPU @ 2.40GHz
      2 "physical id"s (chips)
      32 "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 : 8
      siblings  : 16
      physical 0: cores 0 1 2 3 4 5 6 7
      physical 1: cores 0 1 2 3 4 5 6 7
   cache size : 20480 KB

From /proc/meminfo
```

Continued on next page

Platform Notes (Continued)

```
      MemTotal:       132135800 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 Mar 21 16:38

   SPEC is set to: /cpu2006.1.2
      Filesystem     Type    Size  Used Avail Use% Mounted on
      /dev/mapper/vg_tigersharkpet-lv_root
                     ext4    265G   66G  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:
KMP_AFFINITY = "granularity=fine,scatter"
LD_LIBRARY_PATH = "/cpu2006.1.2/libs/32:/cpu2006.1.2/libs/64"
OMP_NUM_THREADS = "16"

 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
```

Base Compiler Invocation

C benchmarks:

```
icc  -m64
```

C++ benchmarks:

```
icpc -m64
```

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`
464.h264ref: `-DSPEC_CPU_LP64`
471.omnetpp: `-DSPEC_CPU_LP64`
473.astar: `-DSPEC_CPU_LP64`
483.xalancbmk: `-DSPEC_CPU_LP64 -DSPEC_CPU_LINUX`

Base Optimization Flags

C benchmarks:
`-xSSE4.2 -ipo -O3 -no-prec-div -parallel -opt-prefetch -auto-p32`

C++ benchmarks:
`-xSSE4.2 -ipo -O3 -no-prec-div -opt-prefetch -auto-p32`
`-Wl,-z,muldefs -L/smartheap -lsmartheap64`

Base Other Flags

C benchmarks:

403.gcc: `-Dalloca=_alloca`

Peak Compiler Invocation

C benchmarks (except as noted below):
`icc -m64`

400.perlbench: `icc -m32`

445.gobmk: `icc -m32`

464.h264ref: `icc -m32`

C++ benchmarks (except as noted below):
`icpc -m32`

473.astar: `icpc -m64`

Peak Portability Flags

400.perlbench: -DSPEC_CPU_LINUX_IA32
401.bzip2: -DSPEC_CPU_LP64
403.gcc: -DSPEC_CPU_LP64
429.mcf: -DSPEC_CPU_LP64
456.hmmer: -DSPEC_CPU_LP64
458.sjeng: -DSPEC_CPU_LP64
462.libquantum: -DSPEC_CPU_LP64 -DSPEC_CPU_LINUX
473.astar: -DSPEC_CPU_LP64
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) -opt-prefetch -ansi-alias

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

403.gcc: -xSSE4.2 -ipo -O3 -no-prec-div -inline-calloc -opt-malloc-options=3 -auto-ilp32

429.mcf: basepeak = yes

445.gobmk: -xSSE4.2(pass 2) -prof-gen(pass 1) -prof-use(pass 2) -ansi-alias

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

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

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) -opt-ra-region-strategy=block -ansi-alias -Wl,-z,muldefs -L/smartheap -lsmartheap

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Peak Optimization Flags (Continued)

473.astar: `basepeak = yes`

483.xalancbmk: `-xSSE4.2 -ipo -O3 -no-prec-div -opt-prefetch -ansi-alias -Wl,-z,muldefs -L/smartheap -lsmartheap`

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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