SPEC® CINT2006 Result

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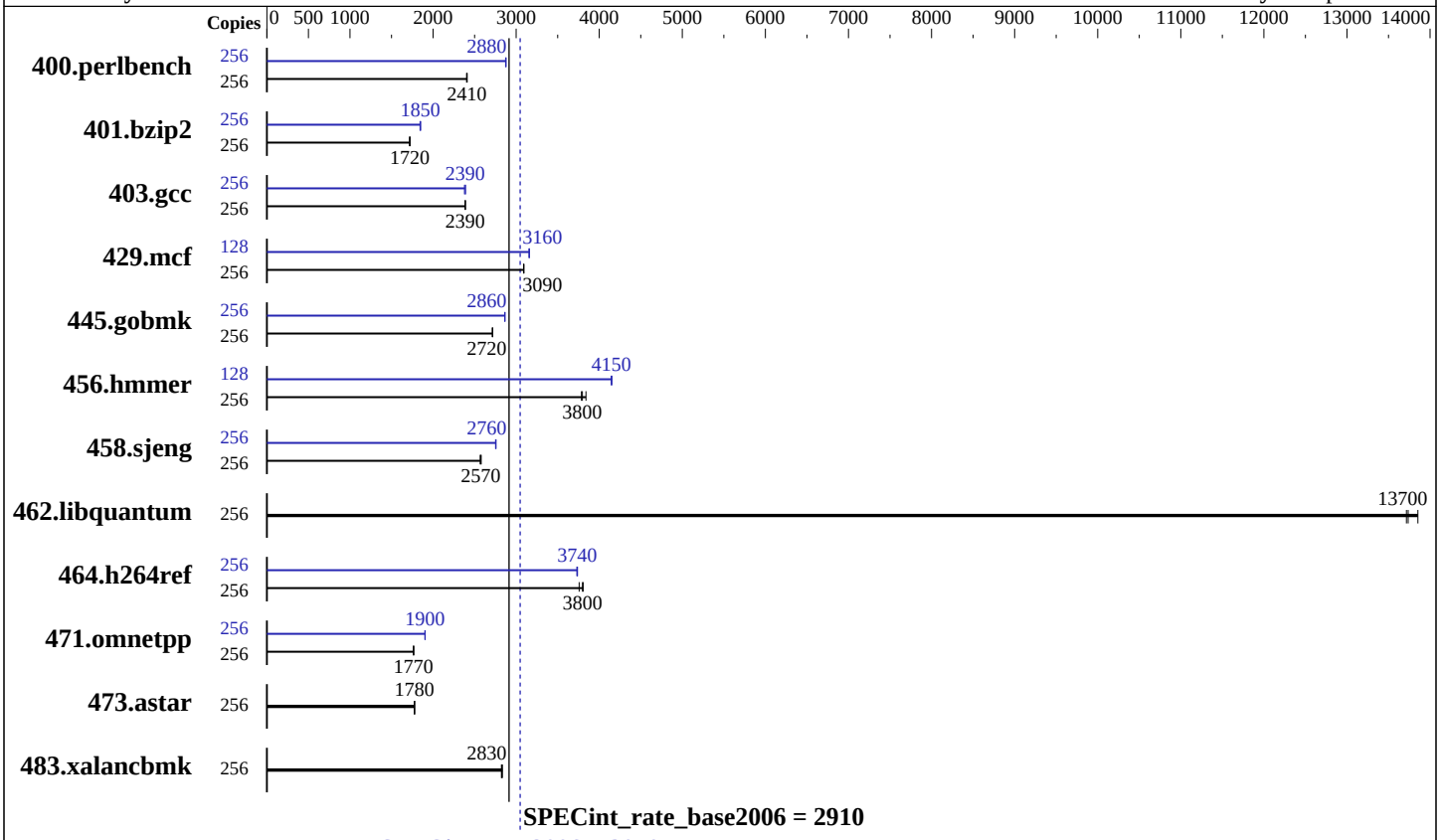
Bull SAS
novascale bullion

SPECint®_rate2006 = 3050

SPECint_rate_base2006 = 2910

CPU2006 license: 20
Test sponsor: Bull SAS
Tested by: Bull SAS

Test date: Jun-2011
Hardware Availability: Sep-2011
Software Availability: Apr-2011



Hardware

CPU Name:	Intel Xeon X7560
CPU Characteristics:	Intel Turbo Boost Technology up to 2.67 GHz
CPU MHz:	2267
FPU:	Integrated
CPU(s) enabled:	128 cores, 16 chips, 8 cores/chip, 2 threads/core
CPU(s) orderable:	2, 4, 8, 12, 16 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:	24 MB I+D on chip per chip
Other Cache:	None
Memory:	1 TB (128 x 8 GB 4Rx8 PC3-8500R-7, ECC)
Disk Subsystem:	1 x 500 GB 7200 RPM SATA
Other Hardware:	None

Software

Operating System:	Red Hat Enterprise Linux 6.0 (x86_64), Kernel 2.6.32-71.el6.x86_64
Compiler:	Intel C++ Compiler XE for applications running on IA-32 Version 12.0.1.116 Build 20101116
Auto Parallel:	No
File System:	tmpfs
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	256	1038	2410	1041	2400	**1039**	**2410**	256	**869**	**2880**	869	2880	871	2870
401.bzip2	256	1434	1720	1439	1720	**1435**	**1720**	256	**1337**	**1850**	1335	1850	1340	1840
403.gcc	256	863	2390	864	2390	**863**	**2390**	256	863	2390	**863**	**2390**	867	2380
429.mcf	256	**755**	**3090**	755	3090	755	3090	128	370	3160	**370**	**3160**	369	3160
445.gobmk	256	990	2710	**989**	**2720**	988	2720	256	**938**	**2860**	937	2870	938	2860
456.hmmer	256	**629**	**3800**	631	3790	622	3840	128	**288**	**4150**	288	4150	288	4150
458.sjeng	256	1207	2570	**1204**	**2570**	1201	2580	256	1124	2760	**1124**	**2760**	1125	2750
462.libquantum	256	**386**	**13700**	387	13700	383	13900	256	**386**	**13700**	387	13700	383	13900
464.h264ref	256	1507	3760	1488	3810	**1492**	**3800**	256	1516	3740	**1516**	**3740**	1519	3730
471.omnetpp	256	907	1760	905	1770	**906**	**1770**	256	840	1910	**841**	**1900**	841	1900
473.astar	256	1011	1780	1011	1780	**1011**	**1780**	256	1011	1780	1011	1780	**1011**	**1780**
483.xalancbmk	256	623	2840	**625**	**2830**	626	2820	256	623	2840	**625**	**2830**	626	2820

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

Submit Notes

```
The config file option 'submit' was used.
 numactl was used to bind copies to the cores
 Tmpfs filesystem set up with:
  mkdir -p /mnt/shm
  mount -t tmpfs -o rw,mpol=interleave tmpfs /mnt/shm/
 The mpol=interleave option sets the NUMA
 memory allocation policy for all files to allocate
 from each node in turn.
Operating system file is ext3
Spec benchmark is copied from hard disk ext3 to tmpfs
Binaries were compiled with huge pages enabled
but huge pages were not used
```

Platform Notes

```
System is composed of 4 modules with 32 DIMMs on each module.
```

General Notes

```
 The Bull novascale bullion and
 the Bull bullx S6030 models are electronically equivalent.
 The results have been measured on a novascale bullion model.
 Binaries were compiled on RHEL5.5
```

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
-B /usr/share/libhugetlbfs/ -Wl,-hugetlbfs-link=BDT

C++ benchmarks:
-xSSE4.2 -ipo -O3 -no-prec-div -opt-prefetch -Wl,-z,muldefs
-L/smartheap -lsmartheap
-B /usr/share/libhugetlbfs/ -Wl,-hugetlbfs-link=BDT

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

Continued on next page

Peak Compiler Invocation (Continued)

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)
-B /usr/share/libhugetlbfs/ -Wl,-melf_x86_64 -Wl,-hugetlbfs-link=BDT

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
-B /usr/share/libhugetlbfs/ -Wl,-melf_x86_64 -Wl,-hugetlbfs-link=BDT

403.gcc: -xSSE4.2 -ipo -O3 -no-prec-div
-B /usr/share/libhugetlbfs/ -Wl,-hugetlbfs-link=BDT

429.mcf: -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 -auto-ilp32

445.gobmk: -xSSE4.2(pass 2) -prof-gen(pass 1) -prof-use(pass 2)
-ansi-alias -auto-ilp32

456.hmmer: -xSSE4.2 -ipo -O3 -no-prec-div -unroll2 -auto-ilp32
-B /usr/share/libhugetlbfs/ -Wl,-melf_x86_64 -Wl,-hugetlbfs-link=BDT

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
-B /usr/share/libhugetlbfs/ -Wl,-melf_x86_64 -Wl,-hugetlbfs-link=BDT

462.libquantum: basepeak = yes

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Peak Optimization Flags (Continued)

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`

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-ic12.0-linux64-revB.20110705.html`
`http://www.spec.org/cpu2006/flags/Intel-Linux64-Platform.20110705.html`

You can also download the XML flags sources by saving the following links:
`http://www.spec.org/cpu2006/flags/Intel-ic12.0-linux64-revB.20110705.xml`
`http://www.spec.org/cpu2006/flags/Intel-Linux64-Platform.20110705.xml`

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