SPEC® CINT2006 Result

Bull SAS

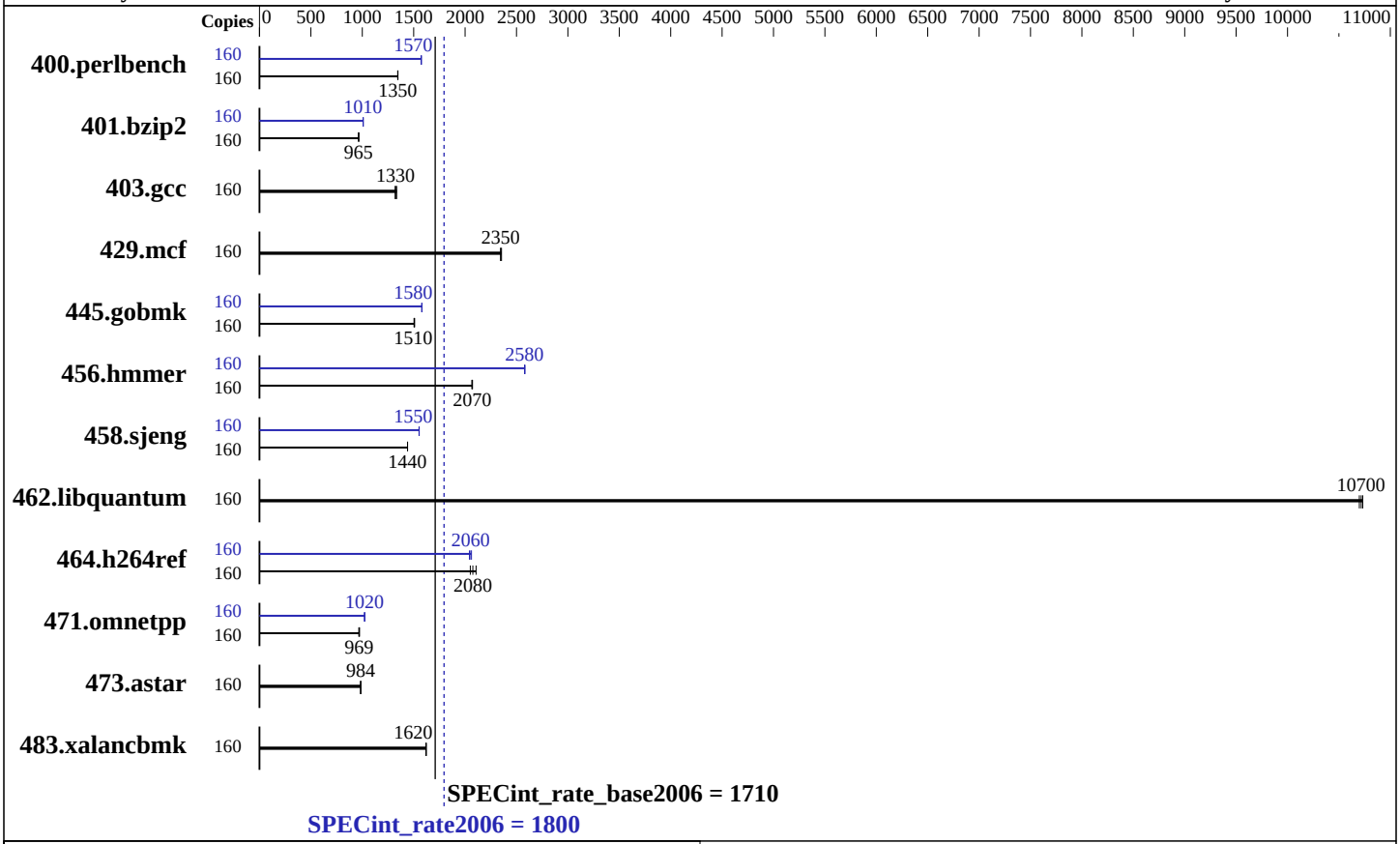
Bullion E7-4850 (80 cores - 2TB RAM)

SPECint®_rate2006 = 1800

SPECint_rate_base2006 = 1710

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

Test date: Jan-2013
Hardware Availability: Jan-2012
Software Availability: Jun-2012



Hardware

CPU Name:	Intel Xeon E7-4850
CPU Characteristics:	Intel Turbo Boost Technology up to 2.40 GHz
CPU MHz:	2000
FPU:	Integrated
CPU(s) enabled:	80 cores, 8 chips, 10 cores/chip, 2 threads/core
CPU(s) orderable:	4,8 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:	2 TB (128 x 16 GB 2Rx4 PC3-8500R-7, ECC)
Disk Subsystem:	1 x 500 GB SATA, 7200 RPM
Other Hardware:	None

Software

Operating System:	Red Hat Enterprise Linux Server release 6.3 (Santiago) 2.6.32-279.el6.x86_64
Compiler:	C/C++: Version 12.1.0.225 of Intel C++ Studio XE for Linux
Auto Parallel:	No
File System:	tmpfs
System State:	Run level 3 (multiuser)
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	160	1161	1350	**1161**	**1350**	1163	1340	160	993	1570	994	1570	**993**	**1570**
401.bzip2	160	1601	964	**1601**	**965**	1599	965	160	**1530**	**1010**	1532	1010	1530	1010
403.gcc	160	965	1330	**972**	**1330**	976	1320	160	965	1330	**972**	**1330**	976	1320
429.mcf	160	**622**	**2350**	622	2350	620	2350	160	**622**	**2350**	622	2350	620	2350
445.gobmk	160	**1115**	**1510**	1116	1500	1112	1510	160	**1063**	**1580**	1062	1580	1063	1580
456.hmmer	160	720	2070	**722**	**2070**	722	2070	160	578	2580	**579**	**2580**	579	2580
458.sjeng	160	**1344**	**1440**	1345	1440	1344	1440	160	**1247**	**1550**	1246	1550	1248	1550
462.libquantum	160	**309**	**10700**	309	10700	310	10700	160	**309**	**10700**	309	10700	310	10700
464.h264ref	160	1681	2110	**1706**	**2080**	1727	2050	160	**1723**	**2060**	1717	2060	1734	2040
471.omnetpp	160	1027	973	1034	967	**1032**	**969**	160	977	1020	979	1020	**978**	**1020**
473.astar	160	**1141**	**984**	1141	985	1141	984	160	**1141**	**984**	1141	985	1141	984
483.xalancbmk	160	**681**	**1620**	680	1620	682	1620	160	**681**	**1620**	680	1620	682	1620

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

```
SPEC files placed in /spec2006, with /spec2006
mounted as tmpfs with mpol=interleave, size=480G
Stack size set to unlimited using "ulimit -s unlimited"
Kernel booted with option clocksource=jiffies (allows to count time with interrupts at
1 jiffy period instead using HPET counters)
Bios set with Max_Numa_Nodes_per_module to 4
Bios set with Memory hemisphere mode
```

Platform Notes

```
Sysinfo program /spec2006/config/sysinfo.rev6800
$Rev: 6800 $ $Date:: 2011-10-11 #$ 6f2ebdff5032aaa42e583f96b07f99d3
running on turin-test Fri Jan 18 15:14:07 2013

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 E7- 4850 @ 2.00GHz
      8 "physical id"s (chips)
```

Continued on next page

Platform Notes (Continued)

```
        160 "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 : 10
        siblings  : 20
        physical 0: cores 0 1 2 8 9 16 17 18 24 25
        physical 1: cores 0 1 2 8 9 16 17 18 24 25
        physical 2: cores 0 1 2 8 9 16 17 18 24 25
        physical 3: cores 0 1 2 8 9 16 17 18 24 25
        physical 4: cores 0 1 2 8 9 16 17 18 24 25
        physical 5: cores 0 1 2 8 9 16 17 18 24 25
        physical 6: cores 0 1 2 8 9 16 17 18 24 25
        physical 7: cores 0 1 2 8 9 16 17 18 24 25
     cache size : 24576 KB

  From /proc/meminfo
     MemTotal:       2115719988 kB
     HugePages_Total:       0
     Hugepagesize:       2048 kB

  /usr/bin/lsb_release -d
     Red Hat Enterprise Linux Server release 6.3 (Santiago)

  From /etc/*release* /etc/*version*
     redhat-release: Red Hat Enterprise Linux Server release 6.3 (Santiago)
     system-release: Red Hat Enterprise Linux Server release 6.3 (Santiago)
     system-release-cpe: cpe:/o:redhat:enterprise_linux:6server:ga:server

  uname -a:
     Linux turin-test 2.6.32-279.el6.x86_64 #1 SMP Wed Jun 13 18:24:36 EDT 2012
     x86_64 x86_64 x86_64 GNU/Linux

  run-level 3 Jan 18 13:55 last=5

  SPEC is set to: /spec2006
     Filesystem     Type    Size  Used Avail Use% Mounted on
     none           tmpfs   480G  2.6G  478G   1% /spec2006

  Additional information from dmidecode:

  (End of data from sysinfo program)
```

General Notes

```
 Environment variables set by runspec before the start of the run:
 LD_LIBRARY_PATH = "/spec2006/libs/32:/spec2006/libs/64"

  Binaries compiled on a system with 1x Core i7-860 CPU + 8GB
  memory using RHEL5.5
  Transparent Huge Pages enabled with:
```

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General Notes (Continued)

```
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`

Continued on next page

Peak Compiler Invocation (Continued)

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

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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-ic12.1-official-linux64.20111122.html`
`http://www.spec.org/cpu2006/flags/Bull-Platform-Settings-V1.2-revB.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/Bull-Platform-Settings-V1.2-revB.xml`

For questions about this result, please contact the tester.
For other inquiries, please contact webmaster@spec.org.

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