SPEC® CINT2006 Result

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SGI

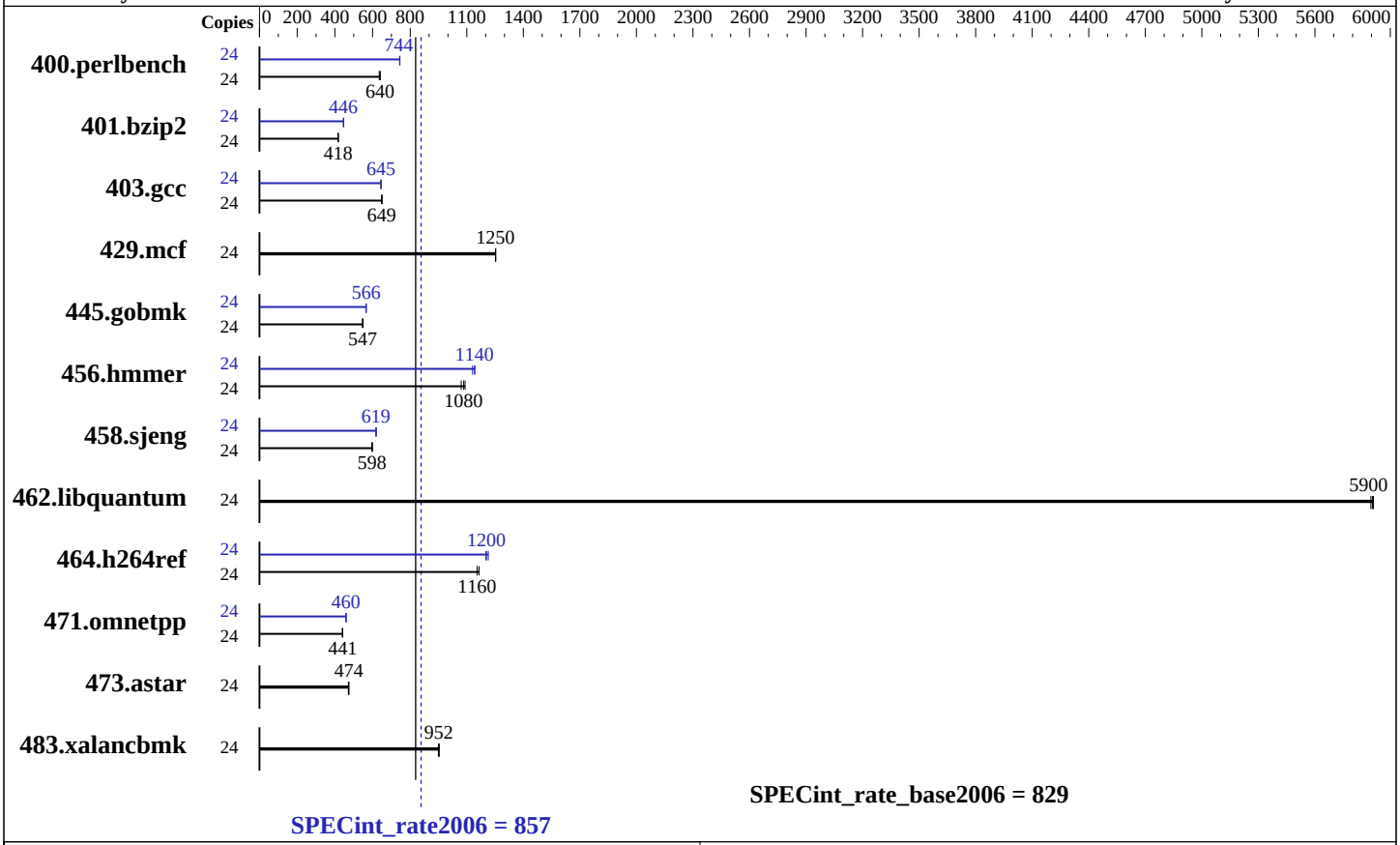
SGI UV 20 (Intel Xeon E5-4617, 2.90 GHz)

SPECint®_rate2006 = 857

SPECint_rate_base2006 = 829

CPU2006 license: 4
Test sponsor: SGI
Tested by: SGI

Test date: Feb-2013
Hardware Availability: Nov-2012
Software Availability: Feb-2013



Hardware

CPU Name:	Intel Xeon E5-4617
CPU Characteristics:	Intel Turbo Boost Technology up to 3.40 GHz
CPU MHz:	2900
FPU:	Integrated
CPU(s) enabled:	24 cores, 4 chips, 6 cores/chip
CPU(s) orderable:	2,4 chip
Primary Cache:	32 KB I + 32 KB D on chip per core
Secondary Cache:	256 KB I+D on chip per core
L3 Cache:	15 MB I+D on chip per chip
Other Cache:	None
Memory:	512 GB (32 x 16 GB 2Rx4 PC3-12800R-11, ECC)
Disk Subsystem:	3.3 TB RAID 0 6 x 600 GB, SSD
Other Hardware:	None

Software

Operating System:	SUSE Linux Enterprise Server 11 (x86_64) kernel 3.0.42-0.7-default
Compiler:	C/C++: Version 13.0.0.133 of Intel C++ Studio XE for Linux
Auto Parallel:	No
File System:	xfs
System State:	Run level 3 (multi-user)
Base Pointers:	32-bit
Peak Pointers:	32/64-bit
Other Software:	Microquill SmartHeap V10.0

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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	24	369	635	366	640	**366**	**640**	24	**315**	**744**	315	745	315	744
401.bzip2	24	555	417	554	418	**554**	**418**	24	520	445	518	447	**519**	**446**
403.gcc	24	297	650	298	648	**297**	**649**	24	299	645	**300**	**645**	300	644
429.mcf	24	175	1250	**175**	**1250**	175	1250	24	175	1250	**175**	**1250**	175	1250
445.gobmk	24	460	547	**460**	**547**	459	549	24	445	566	**445**	**566**	445	565
456.hmmer	24	205	1090	**207**	**1080**	209	1070	24	198	1130	196	1140	**196**	**1140**
458.sjeng	24	486	598	**486**	**598**	485	598	24	469	619	**469**	**619**	469	619
462.libquantum	24	84.3	5900	**84.2**	**5900**	84.1	5910	24	84.3	5900	**84.2**	**5900**	84.1	5910
464.h264ref	24	456	1170	460	1150	**460**	**1160**	24	437	1210	**441**	**1200**	442	1200
471.omnetpp	24	341	440	**340**	**441**	340	441	24	**326**	**460**	326	460	327	459
473.astar	24	355	474	**356**	**474**	357	472	24	355	474	**356**	**474**	357	472
483.xalancbmk	24	174	949	174	954	**174**	**952**	24	174	949	174	954	**174**	**952**

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

```
Sysinfo program /store/cma/cpu2006-v1.2/config/sysinfo.rev6818
$Rev: 6818 $ $Date:: 2012-07-17 #$ e86d102572650a6e4d596a3cee98f191
running on cy020 Wed Feb 27 00:07:27 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 E5-4617 0 @ 2.90GHz
      4 "physical id"s (chips)
      24 "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 : 6
      siblings  : 6
```

Continued on next page

Platform Notes (Continued)

```
        physical 0: cores 0 1 2 3 4 5
        physical 1: cores 0 1 2 3 4 5
        physical 2: cores 0 1 2 3 4 5
        physical 3: cores 0 1 2 3 4 5
     cache size : 15360 KB

  From /proc/meminfo
     MemTotal:       529360172 kB
     HugePages_Total:       0
     Hugepagesize:       2048 kB

  /usr/bin/lsb_release -d
     SUSE Linux Enterprise Server 11 (x86_64)

  From /etc/*release* /etc/*version*
     SuSE-release:
        SUSE Linux Enterprise Server 11 (x86_64)
        VERSION = 11
        PATCHLEVEL = 2
     sgi-accelerate-release: SGI Accelerate 1.5, Build 707r85.sles11sp2-1302142007
     sgi-foundation-release: SGI Foundation Software 2.7, Build
     707r85.sles11sp2-1302142007
     sgi-mpi-release: SGI MPI 1.5, Build 707r85.sles11sp2-1302142007
     sgi-propack-release: SGI ProPack 706 for Linux, Build
     706rp51.sles11sp2-1210312107
     sgi-release: SGI Performance Suite 1.5, Build 707r85.sles11sp2-1302142007
     sgi-upc-release: SGI UPC 1.5, Build 707r85.sles11sp2-1302142007

  uname -a:
     Linux cy020 3.0.42-0.7-default #1 SMP Tue Oct 9 11:58:45 UTC 2012 (a8dc443)
     x86_64 x86_64 x86_64 GNU/Linux

  run-level 3 Feb 19 14:13 last=S

  SPEC is set to: /store/cma/cpu2006-v1.2
     Filesystem     Type  Size  Used Avail Use% Mounted on
     /dev/sdc1      xfs   3.3T   61G  3.3T   2% /scratch

  Cannot run dmidecode; consider saying 'chmod +s /usr/sbin/dmidecode'

  (End of data from sysinfo program)
```

General Notes

```
 Environment variables set by runspec before the start of the run:
LD_LIBRARY_PATH = "/store/cma/cpu2006-v1.2/libs/32:/store/cma/cpu2006-v1.2/libs/64:/store/cma/cpu2006-v1.2/sh"

  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/transparent_hugepage/enabled
```

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General Notes (Continued)

```
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:
`-xAVX -ipo -O3 -no-prec-div -opt-prefetch -opt-mem-layout-trans=3`

C++ benchmarks:
`-xAVX -ipo -O3 -no-prec-div -opt-prefetch -opt-mem-layout-trans=3`
`-Wl,-z,muldefs -L/sh -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: -xAVX(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: -xAVX(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: -xAVX -ipo -O3 -no-prec-div

429.mcf: basepeak = yes

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

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

458.sjeng: -xAVX(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: -xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
-no-prec-div(pass 2) -prof-use(pass 2) -unroll2
-ansi-alias

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Peak Optimization Flags (Continued)

C++ benchmarks:

471.omnetpp: -xAVX(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/sh -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-ic13-official-linux64.html
http://www.spec.org/cpu2006/flags/SGI-platform.20120912.html

You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2006/flags/Intel-ic13-official-linux64.xml
http://www.spec.org/cpu2006/flags/SGI-platform.20120912.xml

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Tested with SPEC CPU2006 v1.2.
Report generated on Thu Jul 24 15:33:50 2014 by SPEC CPU2006 PS/PDF formatter v6932.
Originally published on 7 May 2013.