SPEC® CINT2006 Result

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Huawei

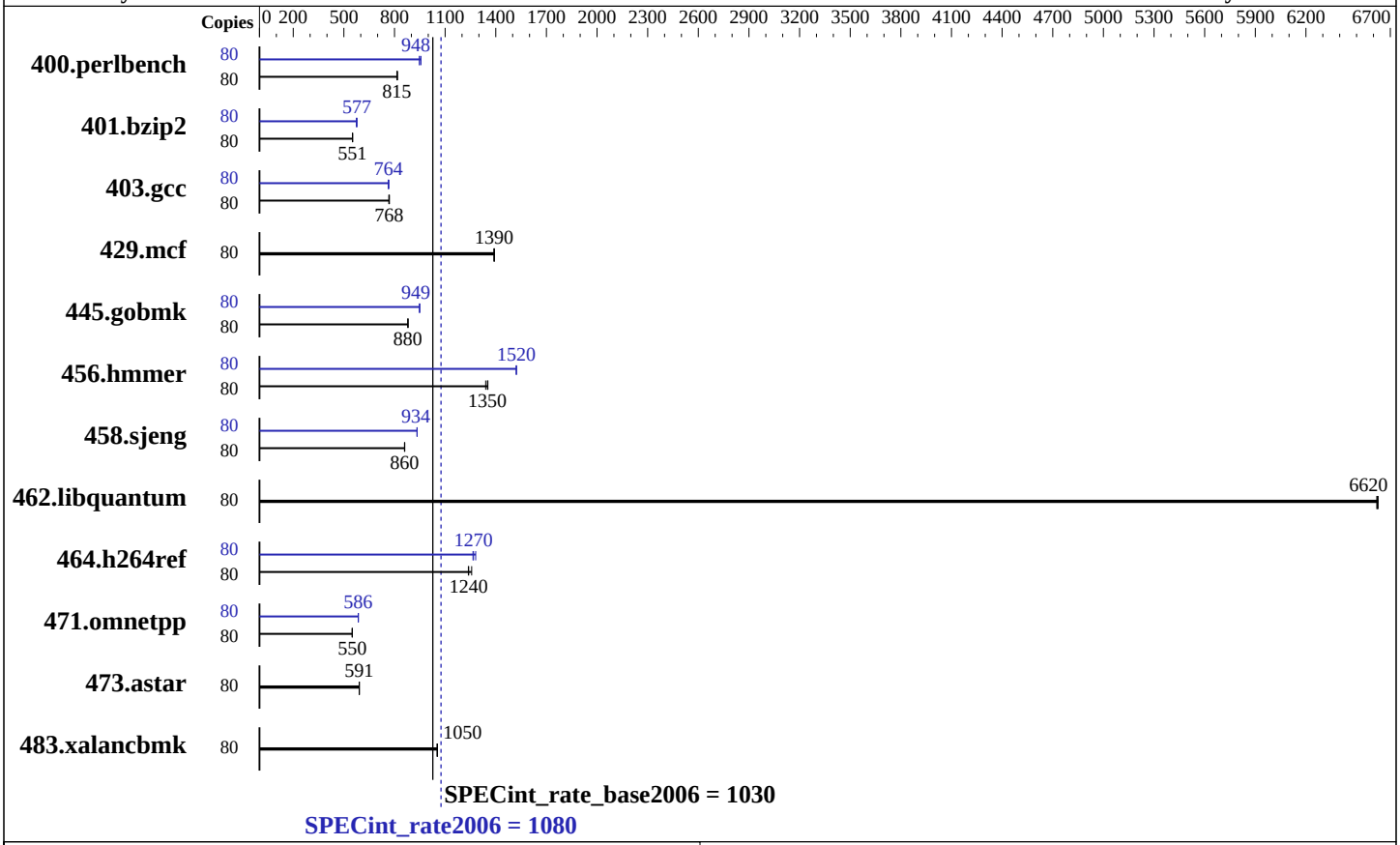
Tecal RH5885 V2 (Intel Xeon E7-4860)

SPECint®_rate2006 = 1080

SPECint_rate_base2006 = 1030

CPU2006 license: 3175
Test sponsor: Huawei
Tested by: Huawei

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



Hardware

CPU Name:	Intel Xeon E7-4860
CPU Characteristics:	Intel Turbo Boost Technology up to 2.67 GHz
CPU MHz:	2267
FPU:	Integrated
CPU(s) enabled:	40 cores, 4 chips, 10 cores/chip, 2 threads/core
CPU(s) orderable:	2,4 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 (64 x 16 GB 4Rx4 PC3-10600R-9, ECC, running at 1066 MHz)
Disk Subsystem:	1 x 500 GB SATA, 7200 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 13.0.0.079 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	80	960	814	955	818	**959**	**815**	80	**825**	**948**	817	957	825	948
401.bzip2	80	**1400**	**551**	1402	551	1398	552	80	1346	574	1338	577	**1338**	**577**
403.gcc	80	840	767	**839**	**768**	836	770	80	**843**	**764**	845	762	840	767
429.mcf	80	**525**	**1390**	524	1390	525	1390	80	**525**	**1390**	524	1390	525	1390
445.gobmk	80	**954**	**880**	955	879	953	880	80	885	948	884	949	**885**	**949**
456.hmmer	80	557	1340	**553**	**1350**	552	1350	80	**490**	**1520**	490	1520	491	1520
458.sjeng	80	1124	861	1127	859	**1126**	**860**	80	1036	934	**1037**	**934**	1037	933
462.libquantum	80	**250**	**6620**	250	6630	250	6620	80	**250**	**6620**	250	6630	250	6620
464.h264ref	80	1408	1260	1431	1240	**1428**	**1240**	80	1382	1280	1399	1270	**1396**	**1270**
471.omnetpp	80	909	550	910	549	**909**	**550**	80	**854**	**586**	855	585	854	586
473.astar	80	948	592	951	591	**950**	**591**	80	948	592	951	591	**950**	**591**
483.xalancbmk	80	**524**	**1050**	524	1050	523	1050	80	**524**	**1050**	524	1050	523	1050

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

```
BIOS configuration:
Power Technology set to Custom, Performance/Watt set to Traditional
Sysinfo program /home/cpu2006/config/sysinfo.rev6818
$Rev: 6818 $ $Date:: 2012-07-17 #$ 5569a0425e2ad530534e4c79a46e4d28
running on RH5885-24 Sat Feb  2 09:15:23 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- 4860 @ 2.27GHz
      4 "physical id"s (chips)
      80 "processors"
   cores, siblings (Caution: counting these is hw and system dependent.  The
   following excerpts from /proc/cpuinfo might not be reliable.  Use with
   caution.)
```

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Platform Notes (Continued)

```
        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
     cache size : 24576 KB

  From /proc/meminfo
     MemTotal:       1058803604 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 RH5885-24 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 Feb 2 09:14

  SPEC is set to: /home/cpu2006
     Filesystem     Type    Size  Used Avail Use% Mounted on
     /dev/mapper/vg_rh588524-lv_home
                    ext4    409G   18G  371G   5% /home

  Additional information from dmidecode:
    BIOS American Megatrends Inc. RGPUC-BIOS-V023 12/17/2012
    Memory:
     64x   16 GB
     64x Hyundai HMT42GR7BMR4C-H9 16 GB 1067 MHz 4 rank

  (End of data from sysinfo program)
     Descriptions about memory generated by sysinfo are not correct,
     only 64 DIMMs are installed not 128, see descriptions below.
     Memory:
      64x Hyundai HMT42GR7BMR4C-H9 16 GB 1067 MHz 4 rank
```

General Notes

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

 Binaries compiled on a system with 4x Xeon E7-8870 CPU + 1024GB
 memory using RHEL6.2
```

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General Notes (Continued)

```
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/home/cpu2006/smartheap -lsmartheap
```

Base Other Flags

C benchmarks:

403.gcc: `-Dalloca=_alloca`

Peak Compiler Invocation

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

Continued on next page

Peak Compiler Invocation (Continued)

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: -xSSE4.2 -ipo -O3 -no-prec-div

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

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Peak Optimization Flags (Continued)

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/home/cpu2006/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/Huawei-Platform-Settings-revG.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/Huawei-Platform-Settings-revG.xml

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