SPEC® CINT2006 Result

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Huawei

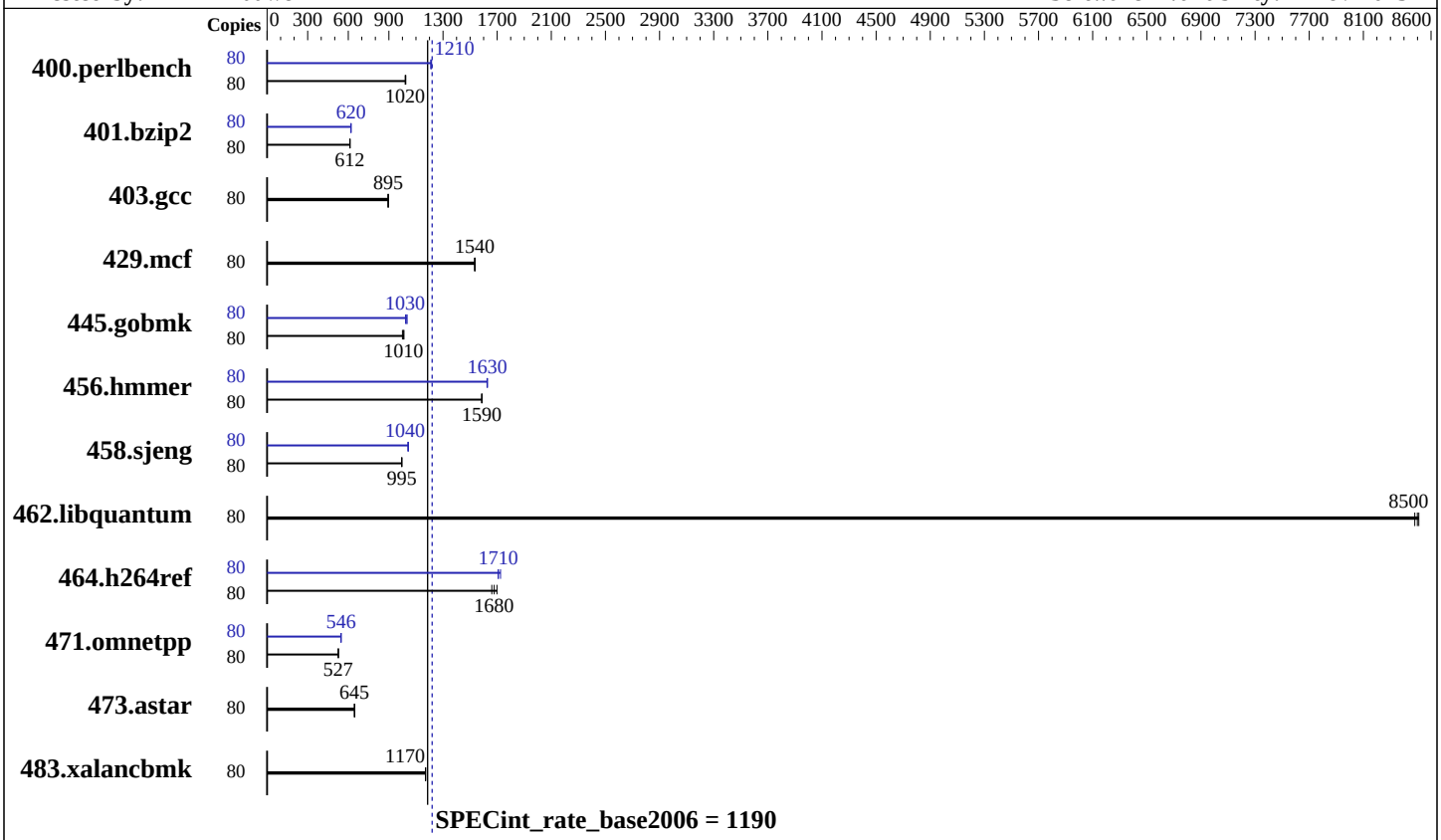
Huawei RH5885 V3 (Intel Xeon E7-4830 v2)

SPECint®_rate2006 = 1220

SPECint_rate_base2006 = 1190

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

Test date: Sep-2014
Hardware Availability: Feb-2014
Software Availability: Nov-2013



Hardware

CPU Name:	Intel Xeon E7-4830 v2
CPU Characteristics:	Intel Turbo Boost Technology up to 2.70 GHz
CPU MHz:	2200
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:	20 MB I+D on chip per chip
Other Cache:	None
Memory:	256 GB (16 x 16 GB 2Rx4 PC3-12800R-11, ECC, running at 1066 MHz)
Disk Subsystem:	2 x 600 GB SAS, 10K RPM
Other Hardware:	None

Software

Operating System:	Red Hat Enterprise Linux Server release 6.5 (Santiago) 2.6.32-431.el6.x86_64
Compiler:	C/C++: Version 14.0.0.080 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 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	80	766	1020	763	1020	**764**	**1020**	80	**645**	**1210**	643	1220	646	1210
401.bzip2	80	1260	613	1261	612	**1261**	**612**	80	1245	620	1246	619	**1245**	**620**
403.gcc	80	**720**	**895**	721	893	718	897	80	**720**	**895**	721	893	718	897
429.mcf	80	476	1530	**475**	**1540**	475	1540	80	476	1530	**475**	**1540**	475	1540
445.gobmk	80	839	1000	830	1010	**833**	**1010**	80	**813**	**1030**	820	1020	812	1030
456.hmmer	80	471	1590	470	1590	**470**	**1590**	80	**459**	**1630**	458	1630	459	1620
458.sjeng	80	**973**	**995**	972	996	973	995	80	927	1040	**929**	**1040**	930	1040
462.libquantum	80	**195**	**8500**	195	8510	195	8480	80	**195**	**8500**	195	8510	195	8480
464.h264ref	80	1066	1660	**1055**	**1680**	1042	1700	80	1037	1710	1026	1720	**1036**	**1710**
471.omnetpp	80	949	527	951	526	**950**	**527**	80	914	547	**915**	**546**	916	546
473.astar	80	**870**	**645**	871	645	866	648	80	**870**	**645**	871	645	866	648
483.xalancbmk	80	**471**	**1170**	471	1170	472	1170	80	**471**	**1170**	471	1170	472	1170

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:
Set Power Efficiency Mode to Performance
Set Lock_step to disabled
Baseboard Management Controller used to adjust the fan speed to 100%
Sysinfo program /spec/config/sysinfo.rev6818
$Rev: 6818 $ $Date:: 2012-07-17 #$ e86d102572650a6e4d596a3cee98f191
running on RH5885V3 Mon Sep 15 11:26:37 2014

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 E7-4830 v2 @ 2.20GHz
      4 "physical id"s (chips)
      80 "processors"
   cores, siblings (Caution: counting these is hw and system dependent.  The
```

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Platform Notes (Continued)

```
      following excerpts from /proc/cpuinfo might not be reliable.  Use with
      caution.)
         cpu cores : 10
         siblings  : 20
         physical 0: cores 0 1 2 3 4 8 9 10 11 12
         physical 1: cores 0 1 2 3 4 8 9 10 11 12
         physical 2: cores 0 1 2 3 4 8 9 10 11 12
         physical 3: cores 0 1 2 3 4 8 9 10 11 12
      cache size : 20480 KB

   From /proc/meminfo
      MemTotal:       264353232 kB
      HugePages_Total:       0
      Hugepagesize:       2048 kB

   /usr/bin/lsb_release -d
      Red Hat Enterprise Linux Server release 6.5 (Santiago)

   From /etc/*release* /etc/*version*
      redhat-release: Red Hat Enterprise Linux Server release 6.5 (Santiago)
      system-release: Red Hat Enterprise Linux Server release 6.5 (Santiago)
      system-release-cpe: cpe:/o:redhat:enterprise_linux:6server:ga:server

   uname -a:
      Linux RH5885V3 2.6.32-431.el6.x86_64 #1 SMP Sun Nov 10 22:19:54 EST 2013
      x86_64 x86_64 x86_64 GNU/Linux

   run-level 3 Sep 15 10:59

   SPEC is set to: /spec
      Filesystem     Type  Size  Used Avail Use% Mounted on
      /dev/sda2      ext4  385G   13G  353G   4% /spec

   Additional information from dmidecode:
     BIOS American Megatrends Inc. BLISV395 07/25/2014
     Memory:
      16x   16 GB
      14x Hynix HMT42GR7AFR4C-PB 16 GB 1066 MHz 2 rank
      2x Hynix HMT42GR7MFR4C-PB 16 GB 1066 MHz 2 rank
      32x NO DIMM NO DIMM

   (End of data from sysinfo program)
   Regarding the sysinfo display about the memory installed, the correct amount of
   memory is 256 GB and the dmidecode description should have two lines reading as:
      14x Hynix HMT42GR7AFR4C-PB 16 GB 1066 MHz 2 rank
      2x Hynix HMT42GR7MFR4C-PB 16 GB 1066 MHz 2 rank
```

General Notes

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

 Binaries compiled on a system with 1x Core i7-860 CPU + 8GB
 memory using RedHat EL 6.4
 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/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

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

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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/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-ic14.0-official-linux64-revC.html
http://www.spec.org/cpu2006/flags/Huawei-Platform-Settings-V1.0-IVB-RevG.html

You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2006/flags/Intel-ic14.0-official-linux64-revC.xml
http://www.spec.org/cpu2006/flags/Huawei-Platform-Settings-V1.0-IVB-RevG.xml

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