SPEC® CINT2006 Result

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Huawei

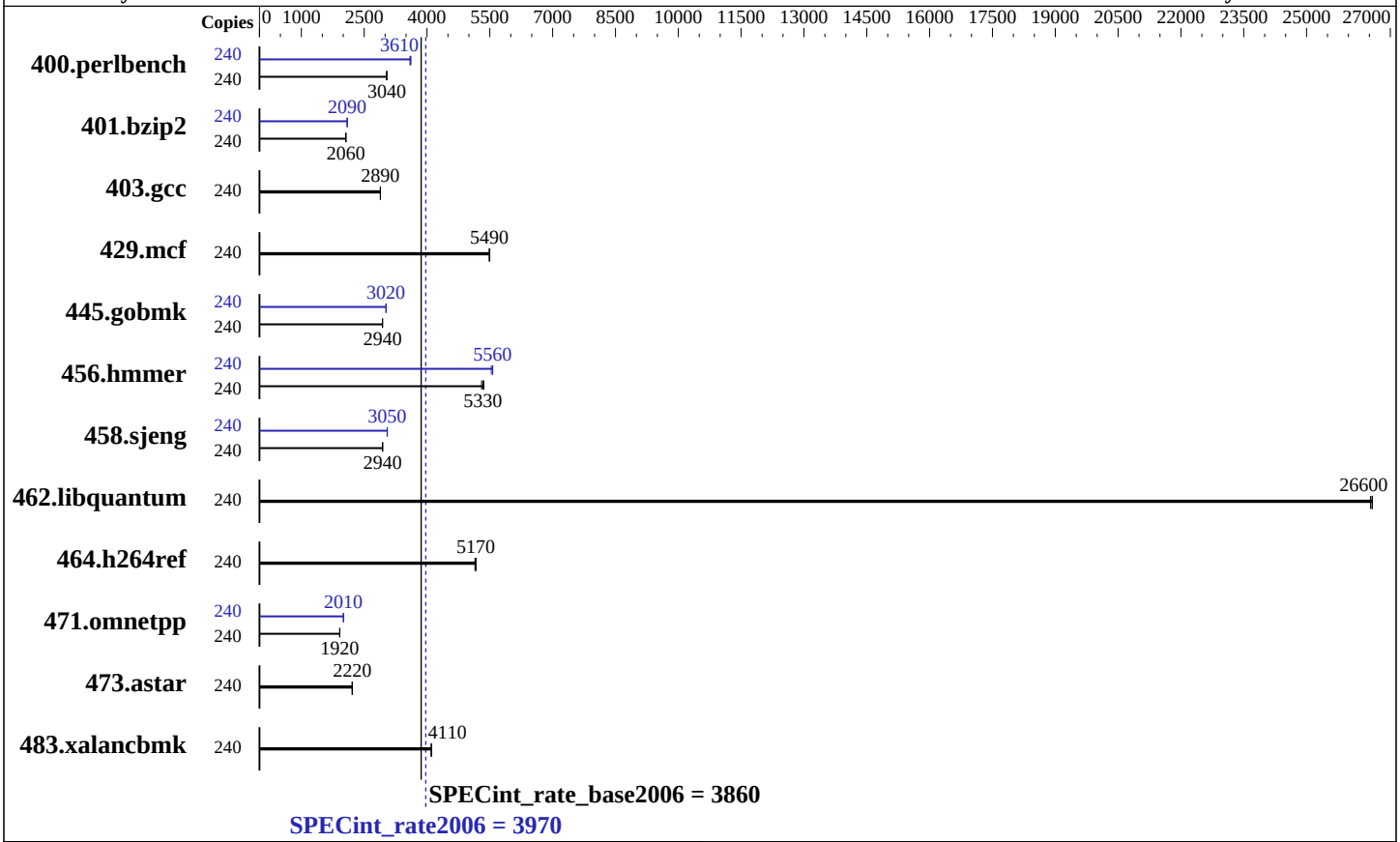
Huawei RH8100 V3 (Intel Xeon E7-8880L v2)

SPECint®_rate2006 = 3970

SPECint_rate_base2006 = 3860

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

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



Hardware

CPU Name:	Intel Xeon E7-8880L v2
CPU Characteristics:	Intel Turbo Boost Technology up to 2.80 GHz
CPU MHz:	2200
FPU:	Integrated
CPU(s) enabled:	120 cores, 8 chips, 15 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:	37.5 MB I+D on chip per chip
Other Cache:	None
Memory:	2 TB (128 x 16 GB 2Rx4 PC3-12800R-11, ECC, running at 1333 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	240	773	3030	**771**	**3040**	771	3040	240	649	3610	**650**	**3610**	653	3590
401.bzip2	240	1123	2060	**1123**	**2060**	1122	2060	240	1104	2100	**1106**	**2090**	1106	2090
403.gcc	240	670	2890	669	2890	**669**	**2890**	240	670	2890	669	2890	**669**	**2890**
429.mcf	240	**399**	**5490**	399	5490	398	5500	240	**399**	**5490**	399	5490	398	5500
445.gobmk	240	858	2930	**857**	**2940**	857	2940	240	**833**	**3020**	833	3020	833	3020
456.hmmer	240	**420**	**5330**	422	5300	418	5360	240	402	5570	405	5530	**402**	**5560**
458.sjeng	240	990	2930	987	2940	**988**	**2940**	240	**952**	**3050**	953	3050	951	3050
462.libquantum	240	**187**	**26600**	187	26600	187	26500	240	**187**	**26600**	187	26600	187	26500
464.h264ref	240	1032	5140	1027	5170	**1028**	**5170**	240	1032	5140	1027	5170	**1028**	**5170**
471.omnetpp	240	**782**	**1920**	783	1920	782	1920	240	**748**	**2010**	747	2010	748	2000
473.astar	240	759	2220	762	2210	**761**	**2220**	240	759	2220	762	2210	**761**	**2220**
483.xalancbmk	240	404	4100	403	4110	**403**	**4110**	240	404	4100	403	4110	**403**	**4110**

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%
Set C-state to C6
Sysinfo program /spec/config/sysinfo.rev6818
$Rev: 6818 $ $Date:: 2012-07-17 #$ e86d102572650a6e4d596a3cee98f191
running on RH8100 Tue Aug 19 09:08:37 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 E7-8880L v2 @ 2.20GHz
      8 "physical id"s (chips)
      240 "processors"
```

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Platform Notes (Continued)

```
      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 : 15
         siblings  : 30
         physical 0: cores 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14
         physical 1: cores 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14
         physical 2: cores 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14
         physical 3: cores 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14
         physical 4: cores 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14
         physical 5: cores 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14
         physical 6: cores 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14
         physical 7: cores 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14
      cache size : 38400 KB

   From /proc/meminfo
      MemTotal:       2117574140 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 RH8100 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 Aug 19 04:33

   SPEC is set to: /spec
      Filesystem     Type  Size  Used Avail Use% Mounted on
      /dev/sda5      ext4  452G  4.9G  425G   2% /spec

   Additional information from dmidecode:
     BIOS American Megatrends Inc. BLHSV020 07/29/2014
     Memory:
      128x   16 GB
      123x Hynix HMT42GR7AFR4C-PB 16 GB 1333 MHz 2 rank
      5x Hynix HMT42GR7MFR4C-PB 16 GB 1333 MHz 2 rank
      64x NO DIMM NO DIMM

   (End of data from sysinfo program)
   Regarding the sysinfo display about the memory installed, the correct amount of
   memory is 2 TB and the dmidecode description should have two lines reading as:
      123x Hynix HMT42GR7AFR4C-PB 16 GB 1333 MHz 2 rank
      5x Hynix HMT42GR7MFR4C-PB 16 GB 1333 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: basepeak = yes

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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For other inquiries, please contact webmaster@spec.org.

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