



SPEC® CINT2006 Result

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Huawei

SPECint®_rate2006 = 4080

Huawei RH8100 V3 (Intel Xeon E7-8870 v2)

SPECint_rate_base2006 = 3970

CPU2006 license: 3175

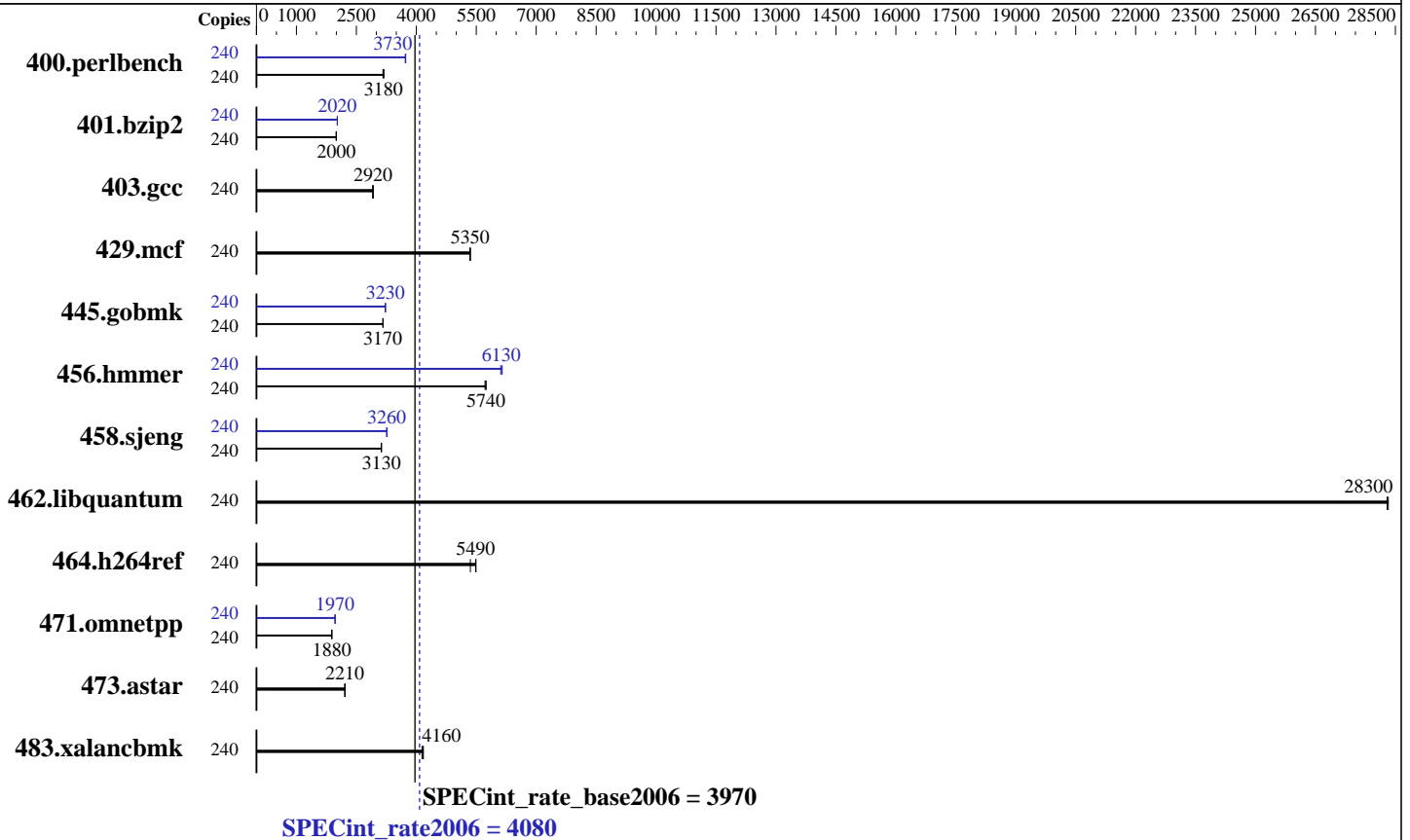
Test sponsor: Huawei

Tested by: Huawei

Test date: Oct-2014

Hardware Availability: Feb-2014

Software Availability: Nov-2013



Hardware

CPU Name: Intel Xeon E7-8870 v2
 CPU Characteristics: Intel Turbo Boost Technology up to 2.90 GHz
 CPU MHz: 2300
 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: 30 MB I+D on chip per chip
 Other Cache: None
 Memory: 1 TB (128 x 8 GB 2Rx8 PC3-12800R-11, ECC, running at 1333 MHz)
 Disk Subsystem: 2 x 300 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	735	3190	741	3170	<u>738</u>	<u>3180</u>	240	630	3720	628	3740	<u>629</u>	<u>3730</u>
401.bzip2	240	1160	2000	1158	2000	<u>1160</u>	<u>2000</u>	240	1144	2020	<u>1144</u>	<u>2020</u>	1146	2020
403.gcc	240	664	2910	661	2920	<u>663</u>	<u>2920</u>	240	664	2910	661	2920	<u>663</u>	<u>2920</u>
429.mcf	240	<u>409</u>	<u>5350</u>	409	5350	410	5340	240	<u>409</u>	<u>5350</u>	409	5350	410	5340
445.gobmk	240	<u>795</u>	<u>3170</u>	795	3170	795	3170	240	<u>780</u>	<u>3230</u>	780	3230	781	3230
456.hammer	240	<u>390</u>	<u>5740</u>	392	5720	390	5740	240	<u>365</u>	<u>6130</u>	366	6110	364	6150
458.sjeng	240	929	3130	<u>929</u>	<u>3130</u>	930	3120	240	888	3270	891	3260	<u>891</u>	<u>3260</u>
462.libquantum	240	<u>176</u>	<u>28300</u>	176	28300	176	28300	240	<u>176</u>	<u>28300</u>	176	28300	176	28300
464.h264ref	240	<u>968</u>	<u>5490</u>	967	5490	992	5350	240	<u>968</u>	<u>5490</u>	967	5490	992	5350
471.omnetpp	240	796	1880	795	1890	<u>796</u>	<u>1880</u>	240	763	1970	762	1970	<u>762</u>	<u>1970</u>
473.astar	240	<u>761</u>	<u>2210</u>	762	2210	761	2210	240	<u>761</u>	<u>2210</u>	762	2210	761	2210
483.xalancbmk	240	396	4180	<u>398</u>	<u>4160</u>	400	4140	240	396	4180	<u>398</u>	<u>4160</u>	400	4140

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%
C-State disabled,C6 Enabled
Adjacent Sector Prefetch Enabled
Sysinfo program /spec/config/sysinfo.rev6818
\$Rev: 6818 \$ \$Date:: 2012-07-17 #\$ e86d102572650a6e4d596a3cee98f191
running on RH8100V3 Thu Oct 16 11:58:49 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 E7-8870 v2 @ 2.30GHz
8 "physical id"s (chips)

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Platform Notes (Continued)

240 "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 : 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 : 30720 KB
```

```
From /proc/meminfo
MemTotal:      1058578916 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 RH8100V3 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 Oct 16 11:51
```

```
SPEC is set to: /spec
Filesystem      Type  Size  Used Avail Use% Mounted on
/dev/sda3        ext4  533G   28G  478G   6% /
```

```
Additional information from dmidecode:
BIOS American Megatrends Inc. BLHSV325 09/30/2014
Memory:
128x 8 GB
128x Hynix HMT41GR7AFR8C-PB 8 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 1 TB and the dmidecode description should have one line reading as:
128x Hynix HMT41GR7AFR8C-PB 8 GB 1333 MHz 2 rank



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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



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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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