



SPEC® CINT2006 Result

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Huawei

SPECint®_rate2006 = 1850

Huawei RH5885 V3 (Intel Xeon E7-8880 v2)

SPECint_rate_base2006 = 1810

CPU2006 license: 3175

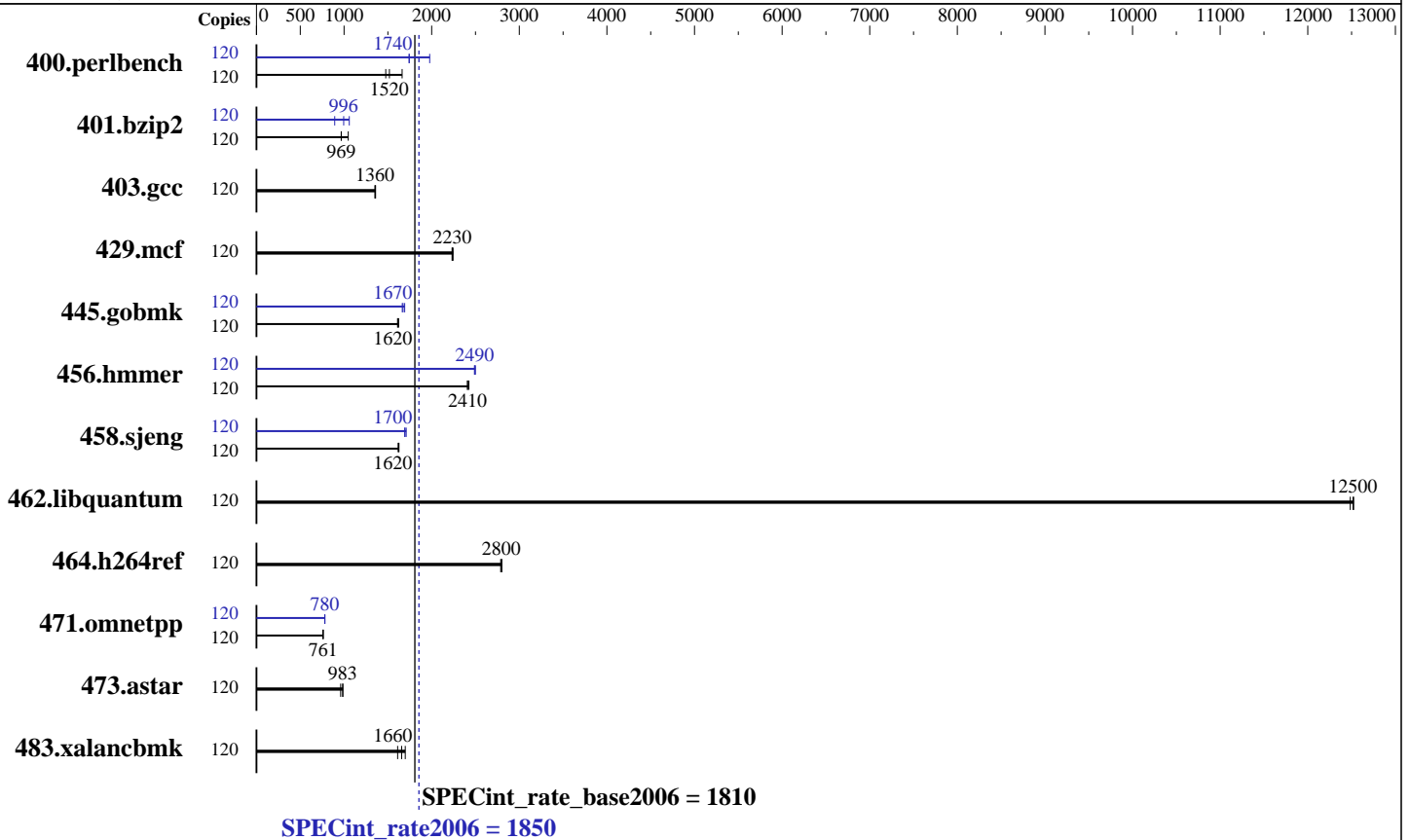
Test sponsor: Huawei

Tested by: Huawei

Test date: Jul-2014

Hardware Availability: Feb-2014

Software Availability: Nov-2013



Hardware

CPU Name: Intel Xeon E7-8880 v2
 CPU Characteristics: Intel Turbo Boost Technology up to 3.10 GHz
 CPU MHz: 2500
 FPU: Integrated
 CPU(s) enabled: 60 cores, 4 chips, 15 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: 37.5 MB I+D on chip per chip
 Other Cache: None
 Memory: 256 GB (16 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	120	705	1660	794	1480	<u>773</u>	<u>1520</u>	120	<u>672</u>	<u>1740</u>	673	1740	593	1980
401.bzip2	120	1105	1050	1197	967	<u>1195</u>	<u>969</u>	120	<u>1163</u>	<u>996</u>	1297	893	1093	1060
403.gcc	120	711	1360	714	1350	<u>713</u>	<u>1360</u>	120	711	1360	714	1350	<u>713</u>	<u>1360</u>
429.mcf	120	488	2240	<u>490</u>	<u>2230</u>	490	2230	120	488	2240	<u>490</u>	<u>2230</u>	490	2230
445.gobmk	120	<u>779</u>	<u>1620</u>	782	1610	776	1620	120	756	1660	<u>752</u>	<u>1670</u>	744	1690
456.hammer	120	462	2420	465	2410	<u>464</u>	<u>2410</u>	120	450	2490	448	2500	<u>449</u>	<u>2490</u>
458.sjeng	120	893	1630	898	1620	<u>895</u>	<u>1620</u>	120	<u>856</u>	<u>1700</u>	858	1690	849	1710
462.libquantum	120	199	12500	199	12500	<u>199</u>	<u>12500</u>	120	199	12500	199	12500	<u>199</u>	<u>12500</u>
464.h264ref	120	948	2800	953	2790	<u>950</u>	<u>2800</u>	120	948	2800	953	2790	<u>950</u>	<u>2800</u>
471.omnetpp	120	<u>986</u>	<u>761</u>	986	760	986	761	120	<u>962</u>	<u>780</u>	960	781	962	779
473.astar	120	877	961	853	987	<u>857</u>	<u>983</u>	120	877	961	853	987	<u>857</u>	<u>983</u>
483.xalancbmk	120	488	1700	514	1610	<u>500</u>	<u>1660</u>	120	488	1700	514	1610	<u>500</u>	<u>1660</u>

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 Fri Aug 1 11:17:35 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 E7-8880 v2 @ 2.50GHz
4 "physical id"s (chips)
120 "processors"
cores, siblings (Caution: counting these is hw and system dependent. The
Continued on next page



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Platform Notes (Continued)

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
cache size : 38400 KB
```

```
From /proc/meminfo
MemTotal:      264348968 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 Aug 1 10:08
```

```
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. BLISV050 06/07/2014
Memory:
16x 16 GB
14x Hynix HMT42GR7AFR4C-PB 16 GB 1333 MHz 2 rank
2x Hynix HMT42GR7MFR4C-PB 16 GB 1333 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
```



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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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