



# SPEC® CINT2006 Result

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## Huawei

**SPECint®\_rate2006 = 3120**

Huawei RH8100 V3 (Intel Xeon E7-8850 v2)

**SPECint\_rate\_base2006 = 3030**

CPU2006 license: 3175

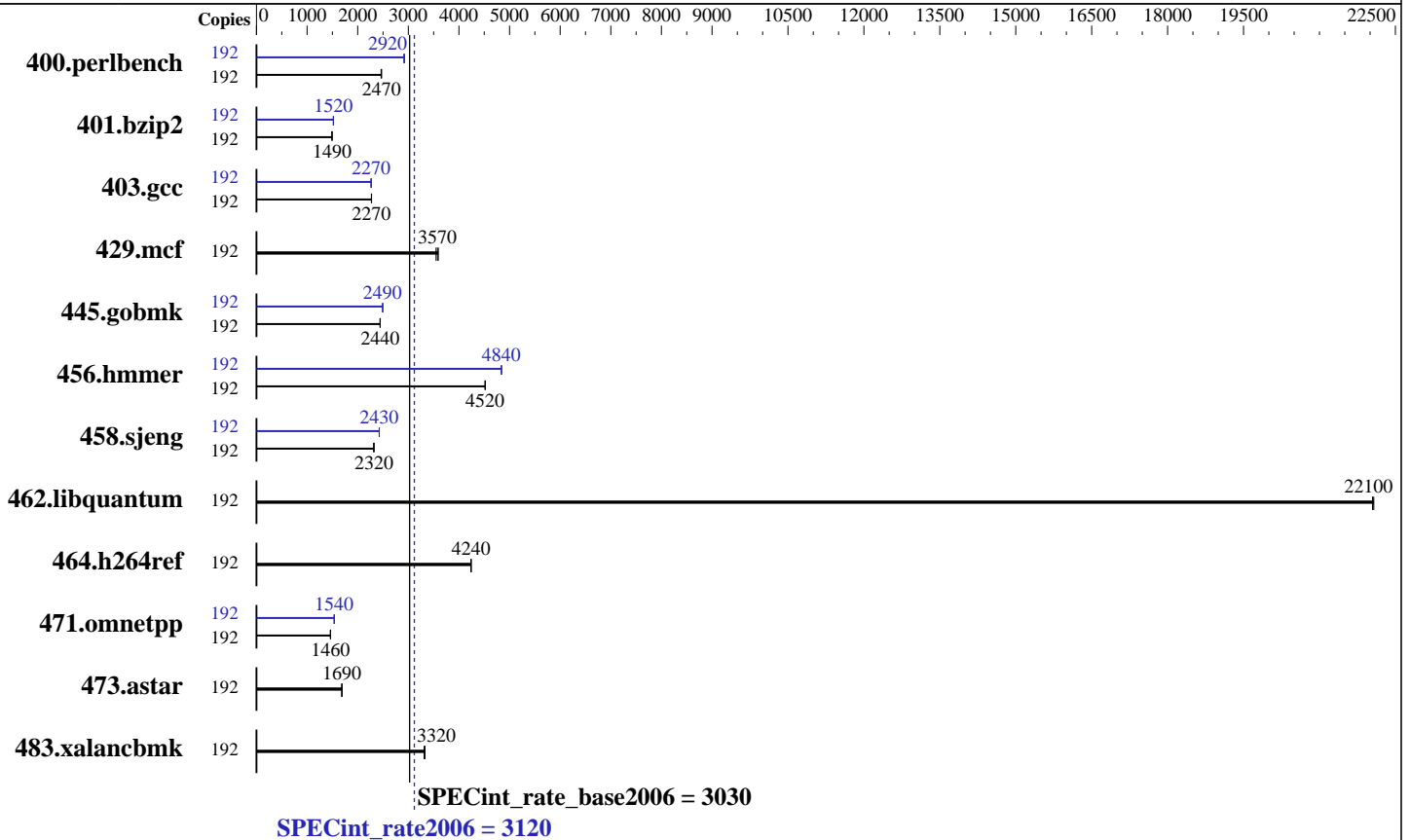
Test date: Jul-2014

Test sponsor: Huawei

Hardware Availability: Feb-2014

Tested by: Huawei

Software Availability: Nov-2013



### Hardware

CPU Name: Intel Xeon E7-8850 v2  
 CPU Characteristics: Intel Turbo Boost Technology up to 2.80 GHz  
 CPU MHz: 2300  
 FPU: Integrated  
 CPU(s) enabled: 96 cores, 8 chips, 12 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: 24 MB I+D on chip per chip  
 Other Cache: None  
 Memory: 1 TB (64 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	192	759	2470	<b>760</b>	<b>2470</b>	762	2460	192	641	2930	644	2910	<b>643</b>	<b>2920</b>
401.bzip2	192	1240	1490	<b>1240</b>	<b>1490</b>	1244	1490	192	1220	1520	<b>1219</b>	<b>1520</b>	1218	1520
403.gcc	192	681	2270	680	2270	<b>680</b>	<b>2270</b>	192	683	2260	<b>682</b>	<b>2270</b>	681	2270
429.mcf	192	487	3590	<b>490</b>	<b>3570</b>	494	3550	192	487	3590	<b>490</b>	<b>3570</b>	494	3550
445.gobmk	192	823	2450	<b>825</b>	<b>2440</b>	825	2440	192	<b>808</b>	<b>2490</b>	808	2490	808	2490
456.hammer	192	397	4510	<b>396</b>	<b>4520</b>	396	4520	192	370	4840	370	4840	<b>370</b>	<b>4840</b>
458.sjeng	192	1000	2320	<b>1001</b>	<b>2320</b>	1003	2320	192	957	2430	<b>957</b>	<b>2430</b>	958	2420
462.libquantum	192	180	22100	<b>180</b>	<b>22100</b>	180	22000	192	180	22100	<b>180</b>	<b>22100</b>	180	22000
464.h264ref	192	1003	4240	1002	4240	<b>1002</b>	<b>4240</b>	192	1003	4240	1002	4240	<b>1002</b>	<b>4240</b>
471.omnetpp	192	821	1460	820	1460	<b>821</b>	<b>1460</b>	192	781	1540	781	1540	<b>781</b>	<b>1540</b>
473.astar	192	<b>798</b>	<b>1690</b>	800	1690	798	1690	192	<b>798</b>	<b>1690</b>	800	1690	798	1690
483.xalancbmk	192	400	3310	398	3330	<b>399</b>	<b>3320</b>	192	400	3310	398	3330	<b>399</b>	<b>3320</b>

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 RH8100V3 Fri Jul 11 23:03:35 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 E7-8850 v2 @ 2.30GHz  
8 "physical id"s (chips)  
192 "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 : 12
siblings  : 24
physical 0: cores 0 1 2 3 4 5 8 9 10 11 12 13
physical 1: cores 0 1 2 3 4 5 8 9 10 11 12 13
physical 2: cores 0 1 2 3 4 5 8 9 10 11 12 13
physical 3: cores 0 1 2 3 4 5 8 9 10 11 12 13
physical 4: cores 0 1 2 3 4 5 8 9 10 11 12 13
physical 5: cores 0 1 2 3 4 5 8 9 10 11 12 13
physical 6: cores 0 1 2 3 4 5 8 9 10 11 12 13
physical 7: cores 0 1 2 3 4 5 8 9 10 11 12 13
cache size : 24576 KB

```

From /proc/meminfo

```

MemTotal:      1058585896 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 Jul 11 19:40

SPEC is set to: /spec

```

Filesystem      Type  Size  Used Avail Use% Mounted on
/dev/sda2        ext4  385G  8.6G  357G   3% /spec

```

Additional information from dmidecode:

```

BIOS American Megatrends Inc. BLHSV016 06/05/2014
Memory:
64x 16 GB
62x Hynix HMT42GR7AFR4C-PB 16 GB 1066 MHz 2 rank
2x Hynix HMT42GR7MFR4C-PB 16 GB 1066 MHz 2 rank
128x 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 two lines reading as:

```

62x 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: -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: 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](mailto:webmaster@spec.org).

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