



# SPEC® CINT2006 Result

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## Huawei

SPECint®2006 = **68.2**

Huawei RH2288H V2 (Intel Xeon E5-2667 v2)

SPECint\_base2006 = **62.7**

CPU2006 license: 3175

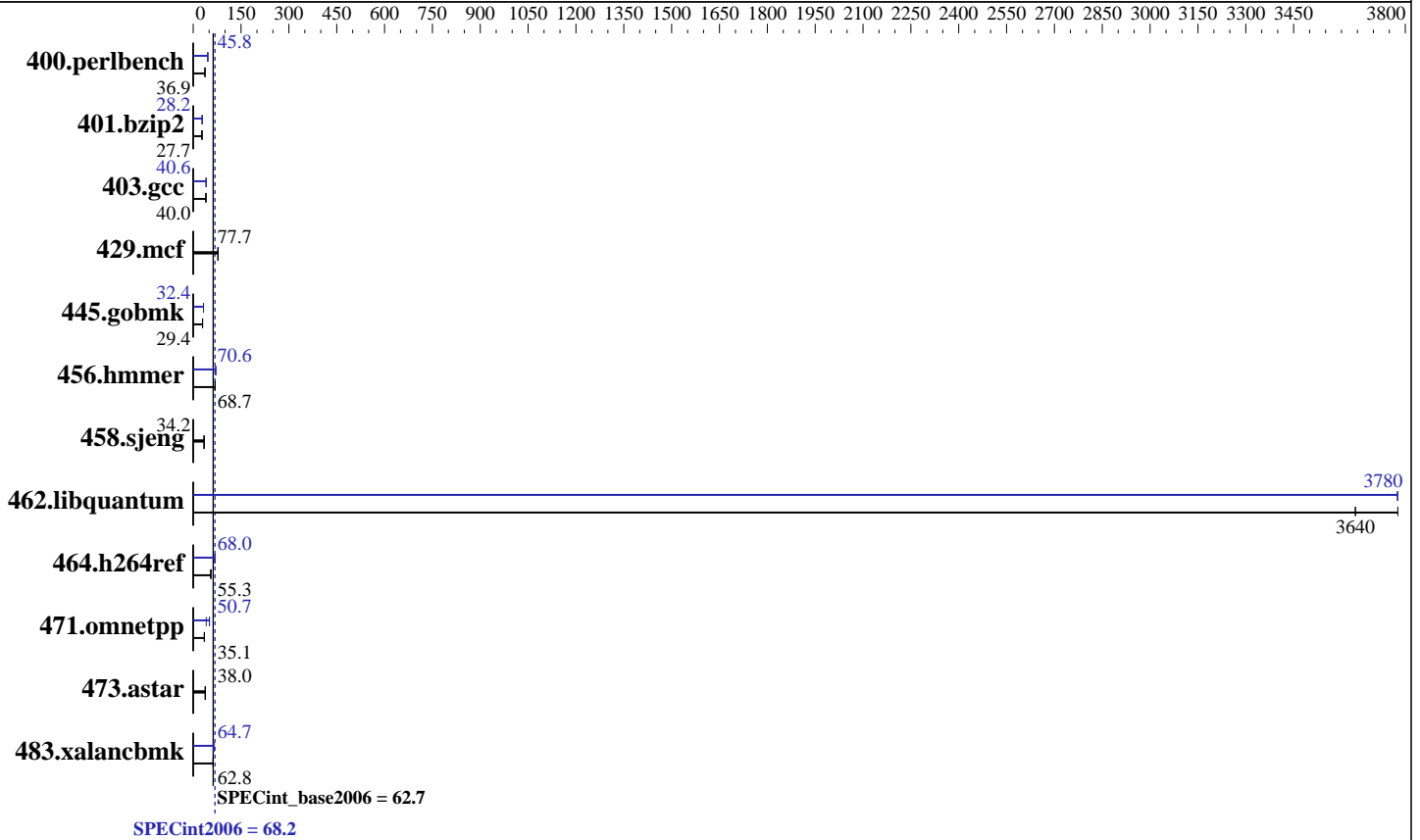
Test sponsor: Huawei

Tested by: Huawei

Test date: Sep-2014

Hardware Availability: Sep-2013

Software Availability: Nov-2013



### Hardware

CPU Name: Intel Xeon E5-2667 v2  
 CPU Characteristics: Intel Turbo Boost Technology up to 4.00 GHz  
 CPU MHz: 3300  
 FPU: Integrated  
 CPU(s) enabled: 16 cores, 2 chips, 8 cores/chip  
 CPU(s) orderable: 1,2 chip  
 Primary Cache: 32 KB I + 32 KB D on chip per core  
 Secondary Cache: 256 KB I+D on chip per core  
 L3 Cache: 25 MB I+D on chip per chip  
 Other Cache: None  
 Memory: 256 GB (16 x 16 GB 2Rx4 PC3-14900R-13, ECC)  
 Disk Subsystem: 1 x 300 GB SATA, 7200RPM  
 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 12.1.0.225 of Intel C++ Studio XE for Linux  
 Auto Parallel: Yes  
 File System: ext4  
 System State: Run level 3 (multi-user)  
 Base Pointers: 32/64-bit  
 Peak Pointers: 32/64-bit  
 Other Software: Microquill SmartHeap V9.01



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## Results Table

| Benchmark      | Base               |                    |                   |                    |                   |                    | Peak              |                    |                   |                    |                    |                    |
|----------------|--------------------|--------------------|-------------------|--------------------|-------------------|--------------------|-------------------|--------------------|-------------------|--------------------|--------------------|--------------------|
|                | Seconds            | Ratio              | Seconds           | Ratio              | Seconds           | Ratio              | Seconds           | Ratio              | Seconds           | Ratio              | Seconds            | Ratio              |
| 400.perlbench  | 265                | 36.9               | <b><u>265</u></b> | <b><u>36.9</u></b> | 264               | 37.0               | <b><u>213</u></b> | <b><u>45.8</u></b> | 213               | 45.8               | 213                | 45.9               |
| 401.bzip2      | <b><u>349</u></b>  | <b><u>27.7</u></b> | 349               | 27.7               | 349               | 27.6               | 342               | 28.2               | <b><u>342</u></b> | <b><u>28.2</u></b> | 342                | 28.2               |
| 403.gcc        | 201                | 40.0               | <b><u>201</u></b> | <b><u>40.0</u></b> | 202               | 39.9               | <b><u>198</u></b> | <b><u>40.6</u></b> | 198               | 40.6               | 198                | 40.6               |
| 429.mcf        | 117                | 77.6               | <b><u>117</u></b> | <b><u>77.7</u></b> | 117               | 77.9               | 117               | 77.6               | <b><u>117</u></b> | <b><u>77.7</u></b> | 117                | 77.9               |
| 445.gobmk      | 357                | 29.4               | 357               | 29.4               | <b><u>357</u></b> | <b><u>29.4</u></b> | 324               | 32.4               | 324               | 32.4               | <b><u>324</u></b>  | <b><u>32.4</u></b> |
| 456.hammer     | 136                | 68.5               | <b><u>136</u></b> | <b><u>68.7</u></b> | 136               | 68.8               | <b><u>132</u></b> | <b><u>70.6</u></b> | 132               | 70.7               | 132                | 70.4               |
| 458.sjeng      | 354                | 34.2               | <b><u>354</u></b> | <b><u>34.2</u></b> | 354               | 34.2               | 354               | 34.2               | <b><u>354</u></b> | <b><u>34.2</u></b> | 354                | 34.2               |
| 462.libquantum | <b><u>5.69</u></b> | <b><u>3640</u></b> | 5.49              | 3780               | 5.69              | 3640               | 5.49              | 3780               | 5.49              | 3780               | <b><u>5.49</u></b> | <b><u>3780</u></b> |
| 464.h264ref    | 401                | 55.3               | 400               | 55.4               | <b><u>400</u></b> | <b><u>55.3</u></b> | <b><u>326</u></b> | <b><u>68.0</u></b> | 325               | 68.0               | 326                | 68.0               |
| 471.omnetpp    | <b><u>178</u></b>  | <b><u>35.1</u></b> | 179               | 34.9               | 178               | 35.1               | 122               | 51.3               | <b><u>123</u></b> | <b><u>50.7</u></b> | 153                | 40.9               |
| 473.astar      | 187                | 37.6               | <b><u>185</u></b> | <b><u>38.0</u></b> | 185               | 38.0               | 187               | 37.6               | <b><u>185</u></b> | <b><u>38.0</u></b> | 185                | 38.0               |
| 483.xalancbmk  | <b><u>110</u></b>  | <b><u>62.8</u></b> | 110               | 62.9               | 110               | 62.5               | 106               | 64.8               | <b><u>107</u></b> | <b><u>64.7</u></b> | 107                | 64.6               |

Results appear in the order in which they were run. Bold underlined text indicates a median measurement.

## Operating System Notes

Stack size set to unlimited using "ulimit -s unlimited"

## Platform Notes

```

BIOS configuration:
Set Power Efficiency Mode to Custom
Set Hyper-Threading to Disabled
Sysinfo program /spec/config/sysinfo.rev6800
$Rev: 6800 $ $Date:: 2011-10-11 #$ 6f2ebdff5032aaa42e583f96b07f99d3
running on localhost.localdomain Sat Sep 6 05:29:30 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 E5-2667 v2 @ 3.30GHz
 2 "physical id"s (chips)
 16 "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 : 8
siblings : 8
physical 0: cores 1 2 3 4 8 9 10 11
physical 1: cores 1 2 3 4 8 9 10 11
cache size : 25600 KB

```

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## Platform Notes (Continued)

From /proc/meminfo

MemTotal: 264478184 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 localhost.localdomain 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 5 19:55

SPEC is set to: /spec

| Filesystem | Type | Size | Used | Avail | Use% | Mounted on |
|------------|------|------|------|-------|------|------------|
| /dev/sda2  | ext4 | 265G | 15G  | 237G  | 6%   | /          |

Additional information from dmidecode:

Memory:

10x Hynix HMT42GR7AFR4C-RD 16 GB 1867 MHz 2 rank

6x Samsung M393B2G70DB0-CMA 16 GB 1867 MHz 2 rank

(End of data from sysinfo program)

## General Notes

Environment variables set by runspec before the start of the run:

KMP\_AFFINITY = "granularity=fine,compact,0,1"

LD\_LIBRARY\_PATH = "/spec/libs/32:/spec/libs/64"

OMP\_NUM\_THREADS = "16"

Binaries compiled on a system with 2 x Xeon X5645 CPU + 16GB memory using RHEL 6.1

Transparent Huge Pages enabled with:

echo always > /sys/kernel/mm/redhat\_transparent\_hugepage/enabled

## Base Compiler Invocation

C benchmarks:

icc -m64

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## Base Compiler Invocation (Continued)

C++ benchmarks:  
icpc -m64

## Base Portability Flags

400.perlbench: -DSPEC\_CPU\_LP64 -DSPEC\_CPU\_LINUX\_X64  
401.bzip2: -DSPEC\_CPU\_LP64  
403.gcc: -DSPEC\_CPU\_LP64  
429.mcf: -DSPEC\_CPU\_LP64  
445.gobmk: -DSPEC\_CPU\_LP64  
456.hmmer: -DSPEC\_CPU\_LP64  
458.sjeng: -DSPEC\_CPU\_LP64  
462.libquantum: -DSPEC\_CPU\_LP64 -DSPEC\_CPU\_LINUX  
464.h264ref: -DSPEC\_CPU\_LP64  
471.omnetpp: -DSPEC\_CPU\_LP64  
473.astar: -DSPEC\_CPU\_LP64  
483.xalancbmk: -DSPEC\_CPU\_LP64 -DSPEC\_CPU\_LINUX

## Base Optimization Flags

C benchmarks:  
-xSSE4.2 -ipo -O3 -no-prec-div -parallel -opt-prefetch -auto-p32  
C++ benchmarks:  
-xSSE4.2 -ipo -O3 -no-prec-div -opt-prefetch -auto-p32  
-Wl,-z,muldefs -L/smartheap -lsmartheap64

## Base Other Flags

C benchmarks:  
403.gcc: -Dalloca=\_alloca

## Peak Compiler Invocation

C benchmarks (except as noted below):  
icc -m64  
400.perlbench: icc -m32  
445.gobmk: icc -m32

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## Peak Compiler Invocation (Continued)

464.h264ref: icc -m32

C++ benchmarks (except as noted below):

icpc -m32

473.astar: icpc -m64

## Peak Portability Flags

400.perlbench: -DSPEC\_CPU\_LINUX\_IA32  
 401.bzip2: -DSPEC\_CPU\_LP64  
 403.gcc: -DSPEC\_CPU\_LP64  
 429.mcf: -DSPEC\_CPU\_LP64  
 456.hmmer: -DSPEC\_CPU\_LP64  
 458.sjeng: -DSPEC\_CPU\_LP64  
 462.libquantum: -DSPEC\_CPU\_LP64 -DSPEC\_CPU\_LINUX  
 473.astar: -DSPEC\_CPU\_LP64  
 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)  
 -opt-prefetch -ansi-alias

401.bzip2: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2)  
 -O3(pass 2) -no-prec-div -prof-use(pass 2) -auto-ilp32  
 -opt-prefetch -ansi-alias

403.gcc: -xAVX -ipo -O3 -no-prec-div -inline-calloc  
 -opt-malloc-options=3 -auto-ilp32

429.mcf: basepeak = yes

445.gobmk: -xSSE4.2(pass 2) -prof-gen(pass 1) -prof-use(pass 2)  
 -ansi-alias

456.hmmer: -xSSE4.2 -ipo -O3 -no-prec-div -unroll2 -auto-ilp32  
 -ansi-alias

458.sjeng: basepeak = yes

462.libquantum: -xAVX -ipo -O3 -no-prec-div -parallel -opt-prefetch  
 -auto-p32

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## Peak Optimization Flags (Continued)

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)  
-opt-ra-region-strategy=block -ansi-alias  
-Wl,-z,muldefs -L/smartheap -lsmartheap

473.astar: basepeak = yes

483.xalancbmk: -xSSE4.2 -ipo -O3 -no-prec-div -opt-prefetch -ansi-alias  
-Wl,-z,muldefs -L/smartheap -lsmartheap

## 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-ic12.1-official-linux64.20120425.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-ic12.1-official-linux64.20120425.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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