



# SPEC® CINT2006 Result

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## Huawei

### SPECint®\_rate2006 = 666

### Huawei RH1288 V2 (Intel Xeon E5-2680)

### SPECint\_rate\_base2006 = 644

CPU2006 license: 3175

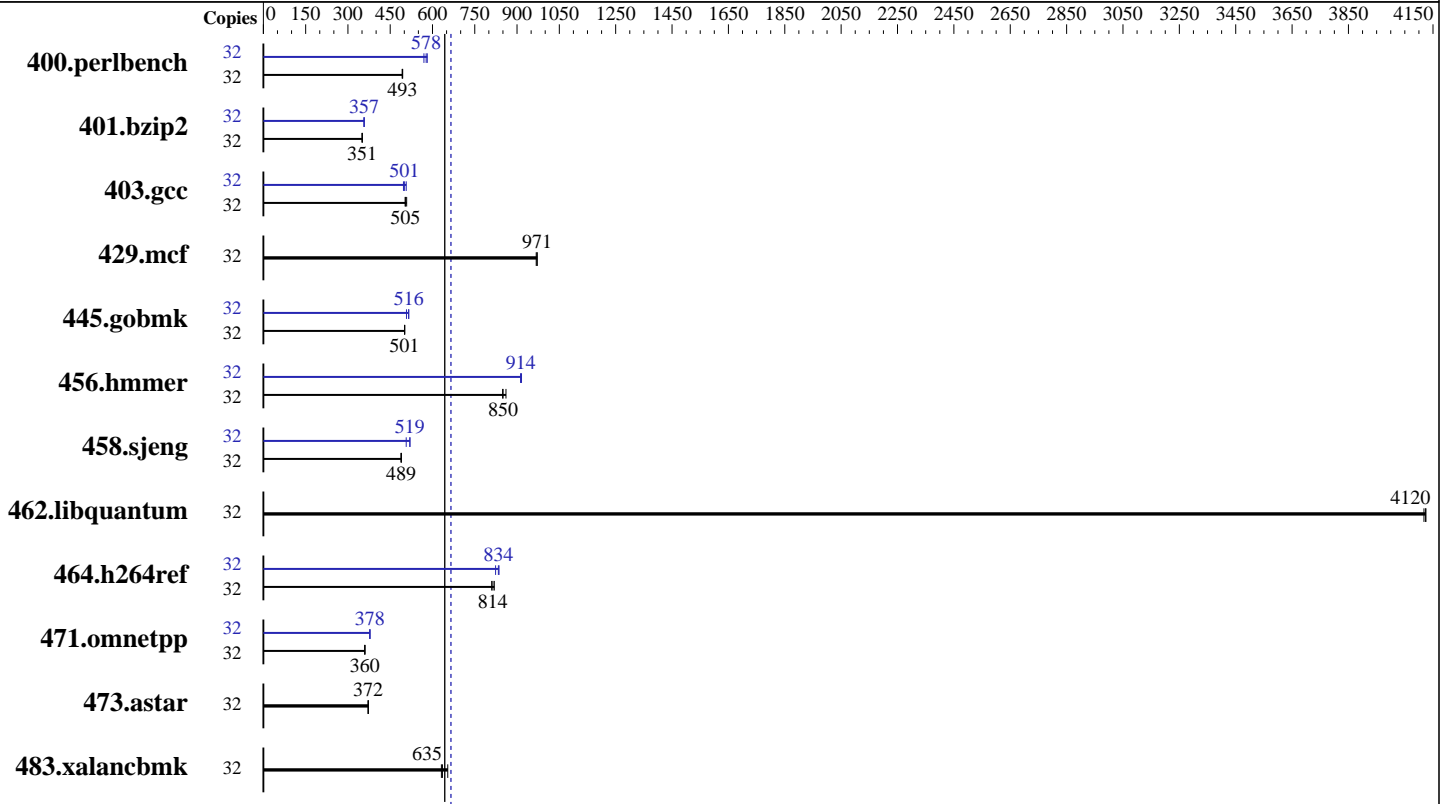
Test sponsor: Huawei

Tested by: Huawei

Test date: Apr-2013

Hardware Availability: May-2012

Software Availability: Dec-2011



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### Hardware

CPU Name: Intel Xeon E5-2680  
 CPU Characteristics: Intel Turbo Boost Technology up to 3.50 GHz  
 CPU MHz: 2700  
 FPU: Integrated  
 CPU(s) enabled: 16 cores, 2 chips, 8 cores/chip, 2 threads/core  
 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: 20 MB I+D on chip per chip  
 Other Cache: None  
 Memory: 128 GB (16 x 8 GB 2Rx4 PC3-12800R-11, ECC)  
 Disk Subsystem: 1 x 500 GB SATA, 7200 RPM  
 Other Hardware: None

### Software

Operating System: Red Hat Enterprise Linux Server release 6.3 (Santiago)  
 2.6.32-279.el6.x86\_64  
 Compiler: C/C++: Version 12.1.0.225 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 V9.01



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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  | 32     | 632        | 494         | 635        | 493        | <b>634</b> | <b>493</b> | 32     | <b>541</b> | <b>578</b>  | 549        | 570        | 538        | 581        |  |  |
| 401.bzip2      | 32     | 880        | 351         | <b>881</b> | <b>351</b> | 882        | 350        | 32     | <b>864</b> | <b>357</b>  | 863        | 358        | 865        | 357        |  |  |
| 403.gcc        | 32     | 507        | 508         | <b>511</b> | <b>505</b> | 512        | 503        | 32     | <b>514</b> | <b>501</b>  | 518        | 497        | 508        | 507        |  |  |
| 429.mcf        | 32     | 301        | 968         | <b>301</b> | <b>971</b> | 300        | 971        | 32     | 301        | 968         | <b>301</b> | <b>971</b> | 300        | 971        |  |  |
| 445.gobmk      | 32     | 669        | 502         | <b>670</b> | <b>501</b> | 670        | 501        | 32     | 651        | 516         | 661        | 508        | <b>651</b> | <b>516</b> |  |  |
| 456.hammer     | 32     | 352        | 849         | 347        | 861        | <b>351</b> | <b>850</b> | 32     | 327        | 913         | 326        | 916        | <b>327</b> | <b>914</b> |  |  |
| 458.sjeng      | 32     | 791        | 490         | 793        | 488        | <b>792</b> | <b>489</b> | 32     | 764        | 507         | <b>745</b> | <b>519</b> | 744        | 520        |  |  |
| 462.libquantum | 32     | <b>161</b> | <b>4120</b> | 161        | 4120       | 161        | 4120       | 32     | <b>161</b> | <b>4120</b> | 161        | 4120       | 161        | 4120       |  |  |
| 464.h264ref    | 32     | <b>870</b> | <b>814</b>  | 874        | 810        | 864        | 819        | 32     | <b>849</b> | <b>834</b>  | 860        | 824        | 847        | 836        |  |  |
| 471.omnetpp    | 32     | 555        | 361         | <b>556</b> | <b>360</b> | 556        | 360        | 32     | 529        | 378         | 530        | 378        | <b>529</b> | <b>378</b> |  |  |
| 473.astar      | 32     | 604        | 372         | 604        | 372        | <b>604</b> | <b>372</b> | 32     | 604        | 372         | 604        | 372        | <b>604</b> | <b>372</b> |  |  |
| 483.xalancbmk  | 32     | 350        | 632         | <b>348</b> | <b>635</b> | 338        | 654        | 32     | 350        | 632         | <b>348</b> | <b>635</b> | 338        | 654        |  |  |

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"  
Transparent Huge Pages enabled with:  
Select only test related files when installing the operating system

## Platform Notes

BIOS configuration:  
Set Power Efficiency Mode to Performance  
Baseboard Management Controller used to adjust the fan speed to 100%  
Sysinfo program /spec/config/sysinfo.rev6800  
\$Rev: 6800 \$ \$Date:: 2011-10-11 #\$ 6f2ebdff5032aaa42e583f96b07f99d3  
running on z-spectest Sun Apr 21 17:44:57 2013

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 E5-2680 0 @ 2.70GHz  
2 "physical id"s (chips)  
32 "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 : 8
siblings  : 16
physical 0: cores 0 1 2 3 4 5 6 7
physical 1: cores 0 1 2 3 4 5 6 7
cache size : 20480 KB
```

From /proc/meminfo

```
MemTotal:      132118004 kB
HugePages_Total:      0
Hugepagesize:    2048 kB
```

/usr/bin/lsb\_release -d

```
Red Hat Enterprise Linux Server release 6.3 (Santiago)
```

From /etc/\*release\* /etc/\*version\*

```
redhat-release: Red Hat Enterprise Linux Server release 6.3 (Santiago)
system-release: Red Hat Enterprise Linux Server release 6.3 (Santiago)
system-release-cpe: cpe:/o:redhat:enterprise_linux:6server:ga:server
```

uname -a:

```
Linux z-spectest 2.6.32-279.el6.x86_64 #1 SMP Wed Jun 13 18:24:36 EDT 2012
x86_64 x86_64 x86_64 GNU/Linux
```

run-level 3 Apr 21 17:42

SPEC is set to: /spec

```
Filesystem      Type      Size  Used Avail Use% Mounted on
/dev/sda2        ext4      289G  8.1G  266G   3% /
```

Additional information from dmidecode:

(End of data from sysinfo program)

## General Notes

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

```
LD_LIBRARY_PATH = "/spec/libs/32:/spec/libs/64"
```

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
```

Filesystem page cache cleared with:

```
echo 1 > /proc/sys/vm/drop_caches
```

runspec command invoked through numactl i.e.:

```
numactl --interleave=all runspec <etc>
```



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## 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/smartheap -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



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## 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

462.libquantum: basepeak = yes

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

473.astar: basepeak = yes

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## Peak Optimization Flags (Continued)

483.xalanbmk: 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-ic12.1-official-linux64.20120425.html>

<http://www.spec.org/cpu2006/flags/Huawei-Platform-Settings-revE.20121120.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-revE.20121120.xml>

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For other inquiries, please contact [webmaster@spec.org](mailto:webmaster@spec.org).

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