



# SPEC<sup>®</sup> CINT2006 Result

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## Huawei

SPECint<sup>®</sup>\_rate2006 = 1260

### Huawei CH240 (Intel Xeon E5-4620 v2)

SPECint\_rate\_base2006 = 1220

CPU2006 license: 3175

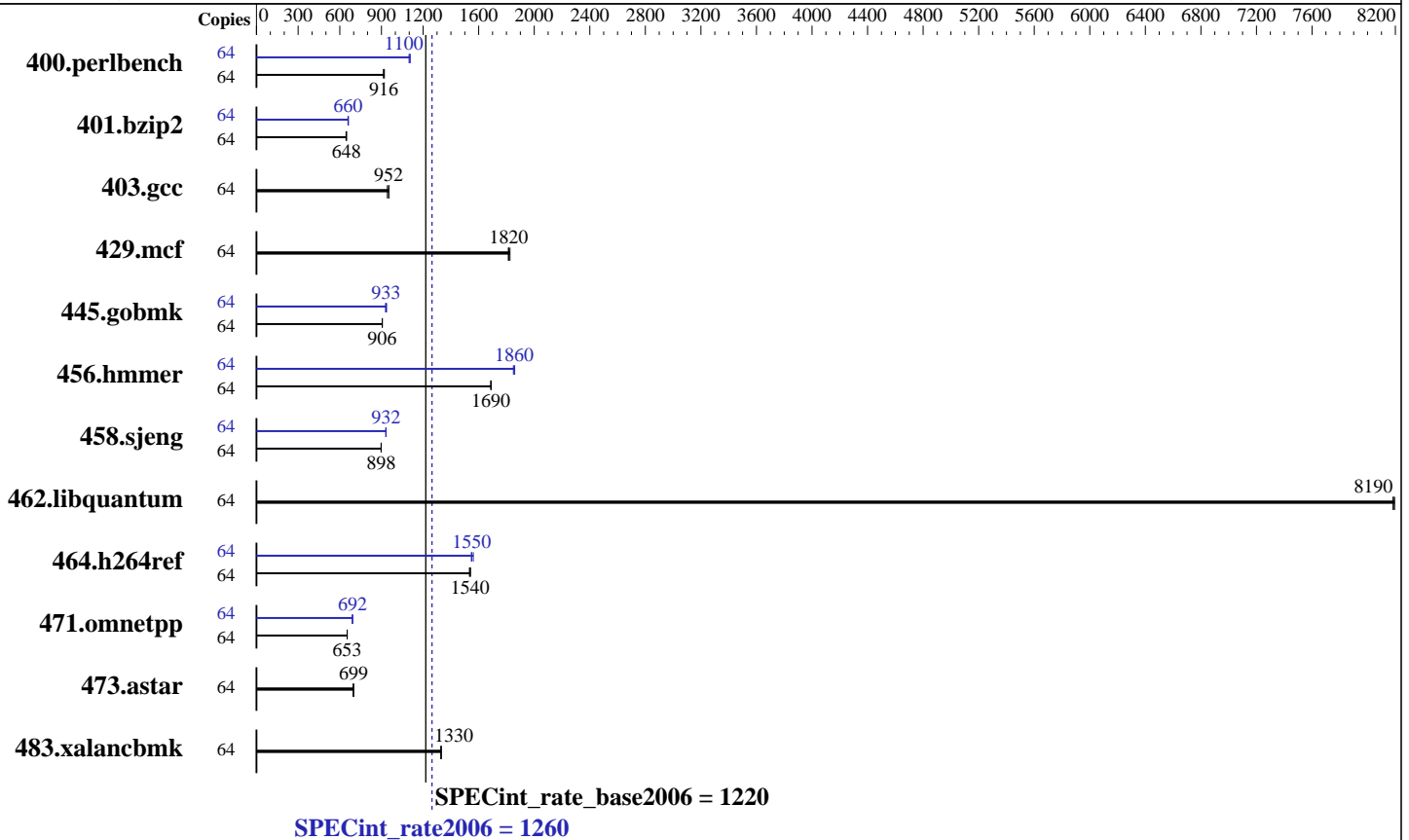
Test date: May-2014

Test sponsor: Huawei

Hardware Availability: Mar-2014

Tested by: Huawei

Software Availability: Nov-2013



### Hardware

CPU Name: Intel Xeon E5-4620 v2  
 CPU Characteristics: Intel Turbo Boost Technology up to 3.00 GHz  
 CPU MHz: 2600  
 FPU: Integrated  
 CPU(s) enabled: 32 cores, 4 chips, 8 cores/chip, 2 threads/core  
 CPU(s) orderable: 2,4 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: 256 GB (32 x 8 GB 2Rx8 PC3-12800R-11,ECC)  
 Disk Subsystem: 1 x 300 GB SAS, 7200 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  | 64     | 684               | 915                | <b><u>682</u></b> | <b><u>916</u></b>  | 679               | 921                | 64     | 565               | 1110               | 569               | 1100               | <b><u>566</u></b> | <b><u>1100</u></b> |
| 401.bzip2      | 64     | 957               | 645                | <b><u>954</u></b> | <b><u>648</u></b>  | 953               | 648                | 64     | 937               | 659                | 933               | 662                | <b><u>936</u></b> | <b><u>660</u></b>  |
| 403.gcc        | 64     | <b><u>541</u></b> | <b><u>952</u></b>  | 541               | 953                | 547               | 942                | 64     | <b><u>541</u></b> | <b><u>952</u></b>  | 541               | 953                | 547               | 942                |
| 429.mcf        | 64     | 322               | 1810               | <b><u>321</u></b> | <b><u>1820</u></b> | 320               | 1830               | 64     | 322               | 1810               | <b><u>321</u></b> | <b><u>1820</u></b> | 320               | 1830               |
| 445.gobmk      | 64     | <b><u>741</u></b> | <b><u>906</u></b>  | 741               | 906                | 741               | 906                | 64     | 716               | 937                | 723               | 929                | <b><u>719</u></b> | <b><u>933</u></b>  |
| 456.hammer     | 64     | 354               | 1690               | <b><u>354</u></b> | <b><u>1690</u></b> | 353               | 1690               | 64     | <b><u>322</u></b> | <b><u>1860</u></b> | 323               | 1850               | 321               | 1860               |
| 458.sjeng      | 64     | 863               | 897                | <b><u>862</u></b> | <b><u>898</u></b>  | 862               | 898                | 64     | 832               | 931                | 830               | 933                | <b><u>831</u></b> | <b><u>932</u></b>  |
| 462.libquantum | 64     | 162               | 8180               | <b><u>162</u></b> | <b><u>8190</u></b> | 162               | 8190               | 64     | 162               | 8180               | <b><u>162</u></b> | <b><u>8190</u></b> | 162               | 8190               |
| 464.h264ref    | 64     | <b><u>921</u></b> | <b><u>1540</u></b> | 919               | 1540               | 924               | 1530               | 64     | 915               | 1550               | 907               | 1560               | <b><u>914</u></b> | <b><u>1550</u></b> |
| 471.omnetpp    | 64     | 613               | 653                | 612               | 654                | <b><u>612</u></b> | <b><u>653</u></b>  | 64     | <b><u>578</u></b> | <b><u>692</u></b>  | 579               | 690                | 578               | 692                |
| 473.astar      | 64     | <b><u>643</u></b> | <b><u>699</u></b>  | 643               | 699                | 645               | 696                | 64     | <b><u>643</u></b> | <b><u>699</u></b>  | 643               | 699                | 645               | 696                |
| 483.xalancbmk  | 64     | 332               | 1330               | 333               | 1330               | <b><u>332</u></b> | <b><u>1330</u></b> | 64     | 332               | 1330               | 333               | 1330               | <b><u>332</u></b> | <b><u>1330</u></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

Sysinfo program /spec/config/sysinfo.rev6818  
\$Rev: 6818 \$ \$Date:: 2012-07-17 #\$ e86d102572650a6e4d596a3cee98f191  
running on localhost Fri May 30 16:51:21 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 E5-4620 v2 @ 2.60GHz  
4 "physical id"s (chips)  
64 "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 : 16

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## Platform Notes (Continued)

```

physical 0: cores 0 1 2 3 4 5 6 7
physical 1: cores 0 1 2 3 4 5 6 7
physical 2: cores 0 1 2 3 4 5 6 7
physical 3: cores 0 1 2 3 4 5 6 7
cache size : 20480 KB

```

From /proc/meminfo

```

MemTotal:      264479484 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 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 May 30 16:46

SPEC is set to: /spec

```

Filesystem      Type      Size      Used Avail Use% Mounted on
/dev/sda2        ext4      245G      27G   206G  12% /

```

Additional information from dmidecode:

```

BIOS Insyde Corp. OARYV388 04/23/2014
Memory:
16x NO DIMM NO DIMM
32x Samsung M393B1G73BH0-CK0 8 GB 1600 MHz 2 rank

```

(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:/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>



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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/sh -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: 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

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/sh -lsmartheap

473.astar: basepeak = yes

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## Peak Optimization Flags (Continued)

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-linux64.20140128.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-linux64.20140128.xml>

<http://www.spec.org/cpu2006/flags/Huawei-Platform-Settings-V1.0-IVB-RevG.xml>

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