# SPEC® CINT2006 Result

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## Huawei

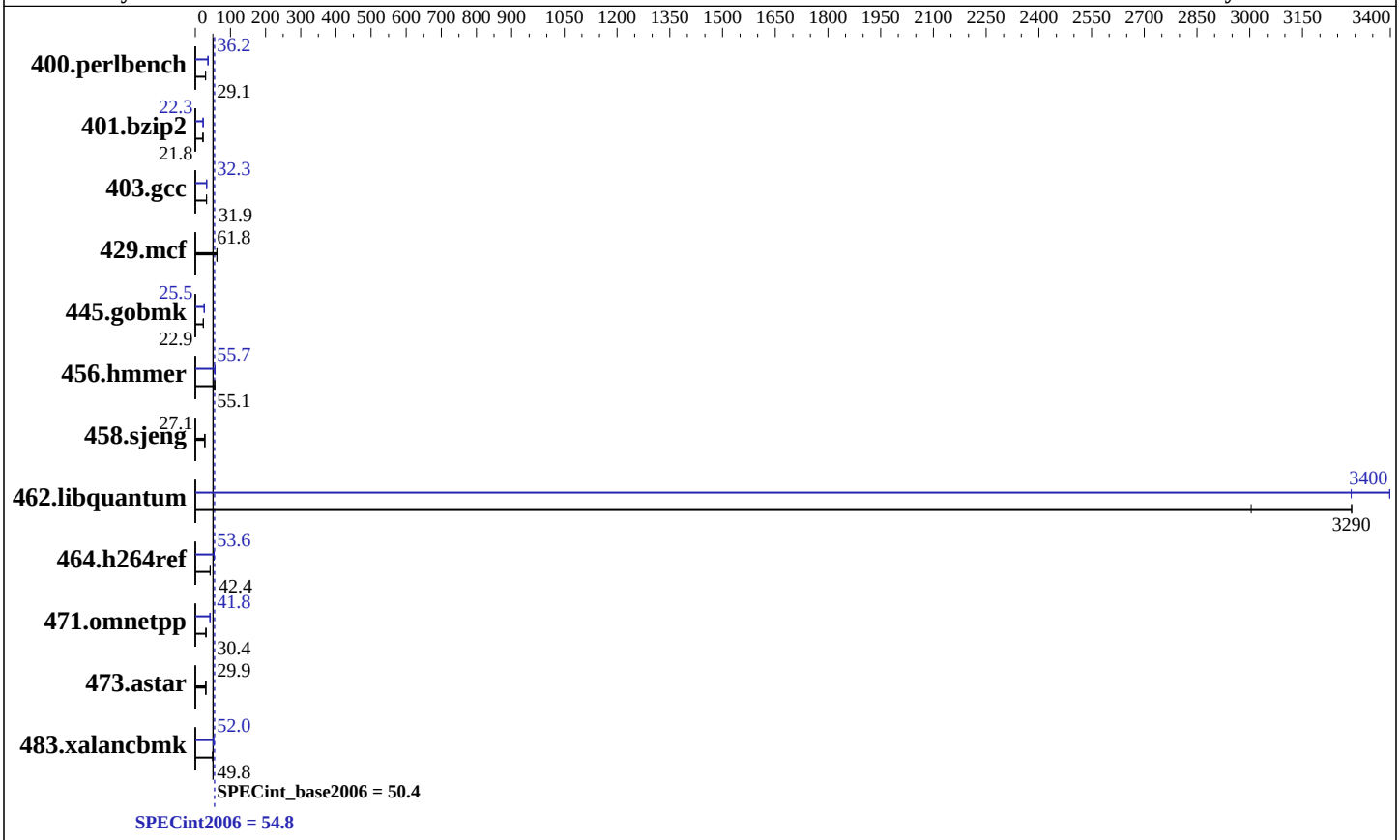
## Huawei RH2285H v2 (Intel Xeon E5-2470 v2)

SPECint®2006 = 54.8

SPECint_base2006 = 50.4

**CPU2006 license:** 3175
**Test sponsor:** Huawei
**Tested by:** Huawei

**Test date:** May-2014
**Hardware Availability:** Mar-2014
**Software Availability:** Nov-2013




### Hardware

| | |
|---|---|
| CPU Name: | Intel Xeon E5-2470 v2 |
| CPU Characteristics: | Intel Turbo Boost Technology up to 3.20 GHz |
| CPU MHz: | 2400 |
| FPU: | Integrated |
| CPU(s) enabled: | 20 cores, 2 chips, 10 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: | 96 GB (12 x 8 GB 2Rx8 PC3-12800R-11,ECC) |
| Disk Subsystem: | 1 x 300 GB SAS |
| Other Hardware: | None |

### Software

| | |
|---|---|
| Operating System: | Red Hat Enterprise Linux Server release 6.5 (Santiago)<br>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 | 336 | 29.1 | 335 | 29.2 | **335** | **29.1** | 270 | 36.2 | 269 | 36.3 | **270** | **36.2** |
| 401.bzip2 | **442** | **21.8** | 442 | 21.9 | 442 | 21.8 | 433 | 22.3 | 433 | 22.3 | **433** | **22.3** |
| 403.gcc | 253 | 31.9 | **252** | **31.9** | 252 | 31.9 | 249 | 32.3 | **249** | **32.3** | 250 | 32.2 |
| 429.mcf | **148** | **61.8** | 149 | 61.1 | 147 | 61.9 | **148** | **61.8** | 149 | 61.1 | 147 | 61.9 |
| 445.gobmk | 457 | 23.0 | 458 | 22.9 | **457** | **22.9** | 411 | 25.5 | 411 | 25.5 | **411** | **25.5** |
| 456.hmmer | 169 | 55.1 | **169** | **55.1** | 169 | 55.1 | **167** | **55.7** | 167 | 55.9 | 168 | 55.7 |
| 458.sjeng | 447 | 27.1 | 447 | 27.1 | **447** | **27.1** | 447 | 27.1 | 447 | 27.1 | **447** | **27.1** |
| 462.libquantum | 6.90 | 3000 | 6.30 | 3290 | **6.30** | **3290** | 6.30 | 3290 | **6.10** | **3400** | 6.10 | 3400 |
| 464.h264ref | 524 | 42.3 | **522** | **42.4** | 522 | 42.4 | 412 | 53.7 | 413 | 53.6 | **413** | **53.6** |
| 471.omnetpp | 205 | 30.5 | **206** | **30.4** | 207 | 30.2 | 146 | 42.9 | **149** | **41.8** | 151 | 41.5 |
| 473.astar | 235 | 29.8 | 233 | 30.1 | **235** | **29.9** | 235 | 29.8 | 233 | 30.1 | **235** | **29.9** |
| 483.xalancbmk | 139 | 49.7 | 138 | 49.9 | **138** | **49.8** | 133 | 52.1 | 133 | 52.0 | **133** | **52.0** |

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

```
Sysinfo program /spec/config/sysinfo.rev6800
$Rev: 6800 $ $Date:: 2011-10-11 #$ 6f2ebdff5032aaa42e583f96b07f99d3
running on localhost.localdomain Mon May 26 11:14:51 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 E5-2470 v2 @ 2.40GHz
      2 "physical id"s (chips)
      20 "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 : 10
      siblings  : 10
      physical 0: cores 0 1 2 3 4 8 9 10 11 12
      physical 1: cores 0 1 2 3 4 8 9 10 11 12
   cache size : 25600 KB

From /proc/meminfo
   MemTotal:       99010156 kB
```

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## Platform Notes (Continued)

```
      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 May 26 10:29

   SPEC is set to: /spec
      Filesystem     Type  Size  Used Avail Use% Mounted on
      /dev/sda2      ext4  540G  113G  400G  22% /

   Additional information from dmidecode:
     Memory:
      12x Hynix HMT41GR7AFR8C-PB 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:
KMP_AFFINITY = "granularity=fine,compact,0,1"
LD_LIBRARY_PATH = "/spec/libs/32:/spec/libs/64"
OMP_NUM_THREADS = "20"

 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

The Huawei RH2285H v2 and Huawei RH2285 v2 models are electronically equivalent.
The results have been measured on a Huawei RH2285H v2 model.
```

## Base Compiler Invocation

C benchmarks:

```
icc  -m64
```

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

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

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

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## Peak Optimization Flags (Continued)

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 questions about this result, please contact the tester.
For other inquiries, please contact webmaster@spec.org.

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