



# SPEC® CINT2006 Result

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## Huawei

SPECint®\_rate2006 = 464

Huawei RH2288H V2 (Intel Xeon E5-2640)

SPECint\_rate\_base2006 = 445

CPU2006 license: 3175

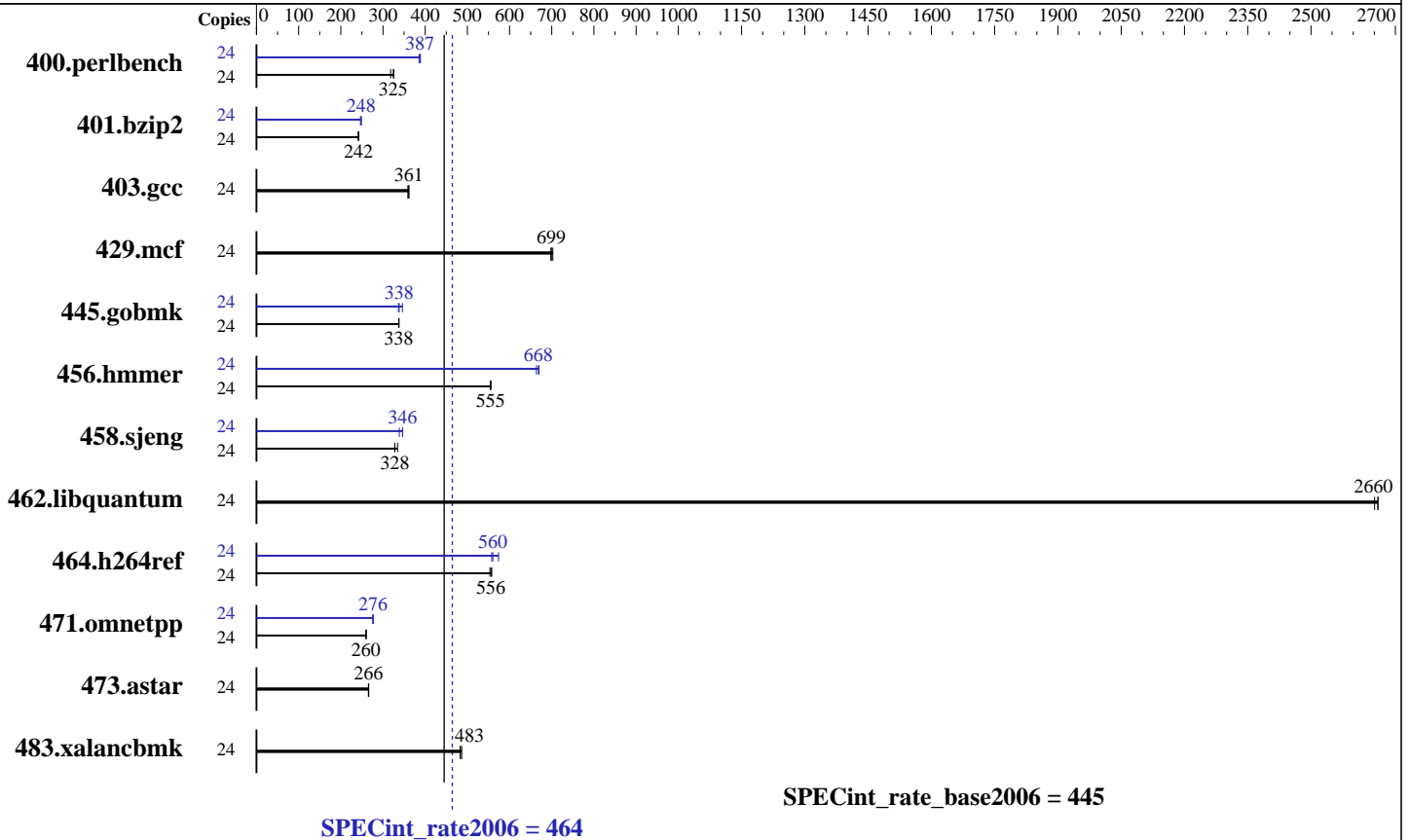
Test sponsor: Huawei

Tested by: Huawei

Test date: May-2012

Hardware Availability: Mar-2012

Software Availability: Dec-2011



### Hardware

CPU Name: Intel Xeon E5-2640  
 CPU Characteristics: Intel Turbo Boost Technology up to 3.00 GHz  
 CPU MHz: 2500  
 FPU: Integrated  
 CPU(s) enabled: 12 cores, 2 chips, 6 cores/chip, 2 threads/core  
 CPU(s) orderable: 1,2 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: 15 MB I+D on chip per chip  
 Other Cache: None  
 Memory: 128 GB (16 x 8 GB 2Rx4 PC3-12800R-11, ECC, running at 1333 MHz)  
 Disk Subsystem: 1 x 300 GB SAS, 10K RPM  
 Other Hardware: None

### Software

Operating System: Red Hat Enterprise Linux Server release 6.2 (Santiago)  
 2.6.32-220.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	24	721	325	<u>722</u>	<u>325</u>	737	318	24	603	389	608	385	<u>606</u>	<u>387</u>
401.bzip2	24	955	243	960	241	<u>957</u>	<u>242</u>	24	940	246	932	248	<u>933</u>	<u>248</u>
403.gcc	24	535	361	538	359	<u>535</u>	<u>361</u>	24	535	361	538	359	<u>535</u>	<u>361</u>
429.mcf	24	312	703	<u>313</u>	<u>699</u>	314	698	24	312	703	<u>313</u>	<u>699</u>	314	698
445.gobmk	24	745	338	746	337	<u>746</u>	<u>338</u>	24	748	337	728	346	<u>744</u>	<u>338</u>
456.hammer	24	<u>403</u>	<u>555</u>	403	556	404	554	24	337	664	<u>335</u>	<u>668</u>	334	670
458.sjeng	24	<u>885</u>	<u>328</u>	868	334	886	328	24	<u>839</u>	<u>346</u>	838	347	857	339
462.libquantum	24	188	2650	<u>187</u>	<u>2660</u>	187	2660	24	188	2650	<u>187</u>	<u>2660</u>	187	2660
464.h264ref	24	960	553	<u>955</u>	<u>556</u>	952	558	24	<u>948</u>	<u>560</u>	952	558	925	574
471.omnetpp	24	577	260	577	260	<u>577</u>	<u>260</u>	24	<u>543</u>	<u>276</u>	543	276	543	276
473.astar	24	633	266	<u>634</u>	<u>266</u>	635	265	24	633	266	<u>634</u>	<u>266</u>	635	265
483.xalancbmk	24	<u>343</u>	<u>483</u>	343	483	340	487	24	<u>343</u>	<u>483</u>	343	483	340	487

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:  
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>  
Select only test related files when installing the operating system

## Platform Notes

BIOS configuration:  
Set Power Efficiency Mode to Performance  
Adjust the fan speed to 100%  
Sysinfo program /spec/config/sysinfo.rev6800  
\$Rev: 6800 \$ \$Date:: 2011-10-11 #\$ 6f2ebdff5032aaa42e583f96b07f99d3  
running on RH2288-rebuild Wed May 16 17:44:18 2012

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>

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## Platform Notes (Continued)

From /proc/cpuinfo

model name : Intel(R) Xeon(R) CPU E5-2640 0 @ 2.50GHz

2 "physical id"s (chips)

24 "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 : 6

siblings : 12

physical 0: cores 0 1 2 3 4 5

physical 1: cores 0 1 2 3 4 5

cache size : 15360 KB

From /proc/meminfo

MemTotal: 132133108 kB

HugePages\_Total: 0

Hugepagesize: 2048 kB

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

redhat-release: Red Hat Enterprise Linux Server release 6.2 (Santiago)

system-release: Red Hat Enterprise Linux Server release 6.2 (Santiago)

system-release-cpe: cpe:/o:redhat:enterprise\_linux:6server:ga:server

uname -a:

Linux RH2288-rebuild 2.6.32-220.el6.x86\_64 #1 SMP Wed Nov 9 08:03:13 EST 2011

x86\_64 x86\_64 x86\_64 GNU/Linux

run-level 3 May 16 17:39

SPEC is set to: /spec

Filesystem Type Size Used Avail Use% Mounted on

/dev/sdal ext4 289G 22G 252G 8% /

Additional information from dmidecode:

Memory:

16x Samsung M393B1K70DH0-CK0 8 GB 1600 MHz 2 rank

## 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 1x Core i7-860 CPU + 8GB memory using RHEL5.5

The Huawei RH2288H V2 and

the Huawei RH2288 V2 models are electronically equivalent.

The results have been measured on a Huawei RH2288 V2 model



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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: 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/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.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.xml>

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

Tested with SPEC CPU2006 v1.2.  
Report generated on Thu Jul 24 16:54:59 2014 by SPEC CPU2006 PS/PDF formatter v6932.  
Originally published on 31 December 2013.