



# SPEC® CINT2006 Result

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## Huawei

**SPECint®\_rate2006 = 1080**

### Tecal RH5885 V2 (Intel Xeon E7-4860)

**SPECint\_rate\_base2006 = 1030**

CPU2006 license: 3175

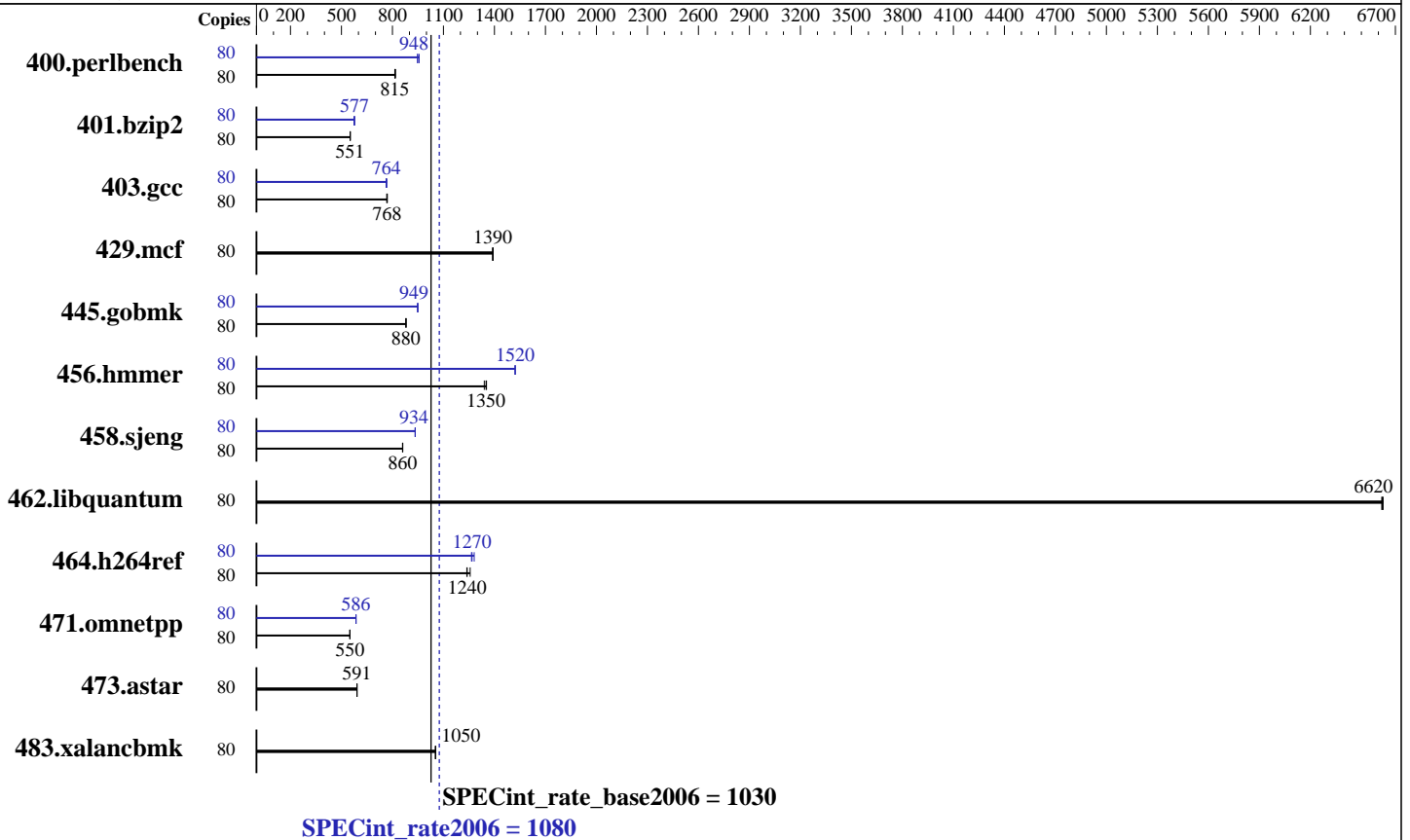
Test date: Feb-2013

Test sponsor: Huawei

Hardware Availability: Oct-2012

Tested by: Huawei

Software Availability: Oct-2012



### Hardware

CPU Name: Intel Xeon E7-4860  
 CPU Characteristics: Intel Turbo Boost Technology up to 2.67 GHz  
 CPU MHz: 2267  
 FPU: Integrated  
 CPU(s) enabled: 40 cores, 4 chips, 10 cores/chip, 2 threads/core  
 CPU(s) orderable: 2,4 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: 24 MB I+D on chip per chip  
 Other Cache: None  
 Memory: 1 TB (64 x 16 GB 4Rx4 PC3-10600R-9, ECC, running at 1066 MHz)  
 Disk Subsystem: 1 x 500 GB SATA, 7200 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 13.0.0.079 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	80	960	814	955	818	<u>959</u>	<u>815</u>	80	<u>825</u>	<u>948</u>	817	957	825	948
401.bzip2	80	<u>1400</u>	<u>551</u>	1402	551	1398	552	80	1346	574	1338	577	<u>1338</u>	<u>577</u>
403.gcc	80	840	767	<u>839</u>	<u>768</u>	836	770	80	<u>843</u>	<u>764</u>	845	762	840	767
429.mcf	80	<u>525</u>	<u>1390</u>	524	1390	525	1390	80	<u>525</u>	<u>1390</u>	524	1390	525	1390
445.gobmk	80	<u>954</u>	<u>880</u>	955	879	953	880	80	885	948	884	949	<u>885</u>	<u>949</u>
456.hammer	80	557	1340	<u>553</u>	<u>1350</u>	552	1350	80	<u>490</u>	<u>1520</u>	490	1520	491	1520
458.sjeng	80	1124	861	1127	859	<u>1126</u>	<u>860</u>	80	1036	934	<u>1037</u>	<u>934</u>	1037	933
462.libquantum	80	<u>250</u>	<u>6620</u>	250	6630	250	6620	80	<u>250</u>	<u>6620</u>	250	6630	250	6620
464.h264ref	80	1408	1260	1431	1240	<u>1428</u>	<u>1240</u>	80	1382	1280	1399	1270	<u>1396</u>	<u>1270</u>
471.omnetpp	80	909	550	910	549	<u>909</u>	<u>550</u>	80	<u>854</u>	<u>586</u>	855	585	854	586
473.astar	80	948	592	951	591	<u>950</u>	<u>591</u>	80	948	592	951	591	<u>950</u>	<u>591</u>
483.xalancbmk	80	<u>524</u>	<u>1050</u>	524	1050	523	1050	80	<u>524</u>	<u>1050</u>	524	1050	523	1050

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

BIOS configuration:  
Power Technology set to Custom, Performance/Watt set to Traditional  
Sysinfo program /home/cpu2006/config/sysinfo.rev6818  
\$Rev: 6818 \$ \$Date:: 2012-07-17 #\$ 5569a0425e2ad530534e4c79a46e4d28  
running on RH5885-24 Sat Feb 2 09:15:23 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 E7- 4860 @ 2.27GHz  
4 "physical id"s (chips)  
80 "processors"  
cores, siblings (Caution: counting these is hw and system dependent. The following excerpts from /proc/cpuinfo might not be reliable. Use with caution.)

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## Platform Notes (Continued)

```

cpu cores : 10
siblings  : 20
physical 0: cores 0 1 2 8 9 16 17 18 24 25
physical 1: cores 0 1 2 8 9 16 17 18 24 25
physical 2: cores 0 1 2 8 9 16 17 18 24 25
physical 3: cores 0 1 2 8 9 16 17 18 24 25
cache size : 24576 KB

```

From /proc/meminfo

```

MemTotal:      1058803604 kB
HugePages_Total:    0
Hugepagesize:    2048 kB

```

/usr/bin/lsb\_release -d

Red Hat Enterprise Linux Server release 6.2 (Santiago)

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 RH5885-24 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 Feb 2 09:14

SPEC is set to: /home/cpu2006

```

Filesystem      Type      Size  Used Avail Use% Mounted on
/dev/mapper/vg_rh588524-lv_home
                ext4      409G  18G  371G   5% /home

```

Additional information from dmidecode:

BIOS American Megatrends Inc. RGPUC-BIOS-V023 12/17/2012

Memory:

```

64x 16 GB
64x Hyundai HMT42GR7BMR4C-H9 16 GB 1067 MHz 4 rank

```

(End of data from sysinfo program)

Descriptions about memory generated by sysinfo are not correct, only 64 DIMMs are installed not 128, see descriptions below.

Memory:

64x Hyundai HMT42GR7BMR4C-H9 16 GB 1067 MHz 4 rank

## General Notes

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

LD\_LIBRARY\_PATH = "/home/cpu2006/libs/32:/home/cpu2006/libs/64"

Binaries compiled on a system with 4x Xeon E7-8870 CPU + 1024GB memory using RHEL6.2

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## General Notes (Continued)

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>

## 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/home/cpu2006/smartheap -lsmartheap

## Base Other Flags

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

## Peak Compiler Invocation

C benchmarks (except as noted below):  
icc -m32

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Software Availability: Oct-2012

## Peak Compiler Invocation (Continued)

400.perlbench: `icc -m64`

401.bzip2: `icc -m64`

456.hmmer: `icc -m64`

458.sjeng: `icc -m64`

C++ benchmarks:

`icpc -m32`

## 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`

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## Peak Optimization Flags (Continued)

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/home/cpu2006/smartheap -lsmartheap

473.astar: basepeak = yes

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-ic12.1-official-linux64.20111122.html>

<http://www.spec.org/cpu2006/flags/Huawei-Platform-Settings-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-linux64.20111122.xml>

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

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

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