



# SPEC® CINT2006 Result

Copyright 2006-2016 Standard Performance Evaluation Corporation

## Huawei

**SPECint®2006 = 71.6**

Huawei RH2288H V3 (Intel Xeon E5-2690 v4)

**SPECint\_base2006 = 68.8**

CPU2006 license: 3175

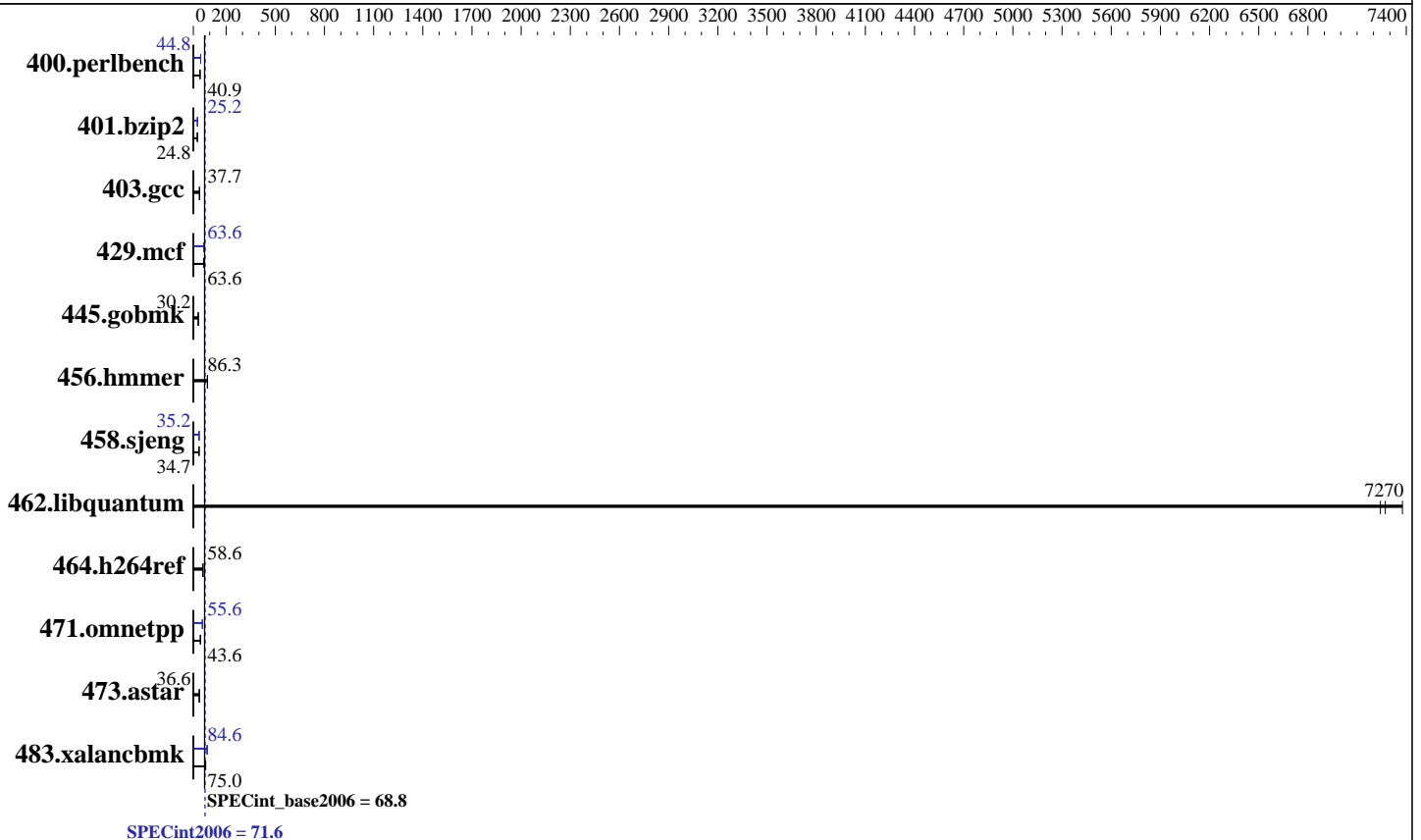
Test sponsor: Huawei

Tested by: Huawei

Test date: Oct-2016

Hardware Availability: Mar-2016

Software Availability: Mar-2016



### Hardware

CPU Name: Intel Xeon E5-2690 v4  
 CPU Characteristics: Intel Turbo Boost Technology up to 3.50 GHz  
 CPU MHz: 2600  
 FPU: Integrated  
 CPU(s) enabled: 28 cores, 2 chips, 14 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: 35 MB I+D on chip per chip  
 Other Cache: None  
 Memory: 256 GB (16 x 16 GB 2Rx8 PC4-2400T-R)  
 Disk Subsystem: 1 x 500 GB SATA, 7200 RPM  
 Other Hardware: None

### Software

Operating System: SUSE Linux Enterprise Server 12 SP1 3.12.49-11-default  
 Compiler: C/C++: Version 16.0.0.101 of Intel C++ Studio XE for Linux  
 Auto Parallel: Yes  
 File System: xfs  
 System State: Run level 3 (multi-user)  
 Base Pointers: 32/64-bit  
 Peak Pointers: 32/64-bit  
 Other Software: Microquill SmartHeap V10.2



# SPEC CINT2006 Result

Copyright 2006-2016 Standard Performance Evaluation Corporation

## Huawei

SPECint2006 = **71.6**

Huawei RH2288H V3 (Intel Xeon E5-2690 v4)

SPECint\_base2006 = **68.8**

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

Test date: Oct-2016  
Hardware Availability: Mar-2016  
Software Availability: Mar-2016

## Results Table

Benchmark	Base						Peak					
	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
400.perlbench	240	40.8	<b><u>239</u></b>	<b><u>40.9</u></b>	239	40.9	219	44.6	218	44.8	<b><u>218</u></b>	<b><u>44.8</u></b>
401.bzip2	388	24.9	390	24.7	<b><u>389</u></b>	<b><u>24.8</u></b>	<b><u>383</u></b>	<b><u>25.2</u></b>	383	25.2	383	25.2
403.gcc	<b><u>214</u></b>	<b><u>37.7</u></b>	213	37.7	214	37.6	<b><u>214</u></b>	<b><u>37.7</u></b>	213	37.7	214	37.6
429.mcf	<b><u>143</u></b>	<b><u>63.6</u></b>	146	62.5	143	64.0	144	63.3	142	64.1	<b><u>143</u></b>	<b><u>63.6</u></b>
445.gobmk	<b><u>347</u></b>	<b><u>30.2</u></b>	347	30.2	348	30.2	<b><u>347</u></b>	<b><u>30.2</u></b>	347	30.2	348	30.2
456.hammer	108	86.3	108	86.2	<b><u>108</u></b>	<b><u>86.3</u></b>	108	86.3	108	86.2	<b><u>108</u></b>	<b><u>86.3</u></b>
458.sjeng	348	34.7	348	34.8	<b><u>348</u></b>	<b><u>34.7</u></b>	344	35.2	<b><u>344</u></b>	<b><u>35.2</u></b>	345	35.1
462.libquantum	<b><u>2.85</u></b>	<b><u>7270</u></b>	2.81	7380	2.86	7240	<b><u>2.85</u></b>	<b><u>7270</u></b>	2.81	7380	2.86	7240
464.h264ref	<b><u>378</u></b>	<b><u>58.6</u></b>	379	58.4	378	58.6	<b><u>378</u></b>	<b><u>58.6</u></b>	379	58.4	378	58.6
471.omnetpp	<b><u>143</u></b>	<b><u>43.6</u></b>	143	43.7	146	42.7	113	55.3	112	55.8	<b><u>112</u></b>	<b><u>55.6</u></b>
473.astar	<b><u>192</u></b>	<b><u>36.6</u></b>	192	36.6	193	36.3	<b><u>192</u></b>	<b><u>36.6</u></b>	192	36.6	193	36.3
483.xalancbmk	91.2	75.7	92.7	74.4	<b><u>92.0</u></b>	<b><u>75.0</u></b>	<b><u>81.6</u></b>	<b><u>84.6</u></b>	81.4	84.8	81.7	84.4

Results appear in the order in which they were run. Bold underlined text indicates a median measurement.

## Submit Notes

The config file option 'submit' was used.

## Operating System Notes

Stack size set to unlimited using "ulimit -s unlimited"

## Platform Notes

BIOS configuration:  
Set Power Efficiency Mode to Performance  
Set Snoop Mode to ES mode  
Set Patrol Scrub to Disable  
Set Hyper-Threading to Disable  
Baseboard Management Controller used to adjust the fan speed to 100%  
Sysinfo program /spec16/config/sysinfo.rev6914  
\$Rev: 6914 \$ \$Date:: 2014-06-25 #\$ e3fbb8667b5a285932ceab81e28219e1  
running on linux-4m6y Fri Oct 28 19:47:15 2016

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 E5-2690 v4@ 2.60GHz
 2 "physical id"s (chips)
 28 "processors"
cores, siblings (Caution: counting these is hw and system dependent. The
Continued on next page
```



# SPEC CINT2006 Result

Copyright 2006-2016 Standard Performance Evaluation Corporation

Huawei

SPECint2006 = 71.6

Huawei RH2288H V3 (Intel Xeon E5-2690 v4)

SPECint\_base2006 = 68.8

CPU2006 license: 3175

Test sponsor: Huawei

Tested by: Huawei

Test date: Oct-2016

Hardware Availability: Mar-2016

Software Availability: Mar-2016

## Platform Notes (Continued)

following excerpts from /proc/cpuinfo might not be reliable. Use with caution.)

```
cpu cores : 14
siblings  : 14
physical 0: cores 0 1 2 3 4 5 6 8 9 10 11 12 13 14
physical 1: cores 0 1 2 3 4 5 6 8 9 10 11 12 13 14
cache size : 35840 KB
```

From /proc/meminfo

```
MemTotal:      264063040 kB
HugePages_Total:    0
Hugepagesize:    2048 kB
```

/usr/bin/lsb\_release -d

```
SUSE Linux Enterprise Server 12 SP1
```

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

```
SuSE-release:
SUSE Linux Enterprise Server 12 (x86_64)
VERSION = 12
PATCHLEVEL = 1
# This file is deprecated and will be removed in a future service pack or
release.
# Please check /etc/os-release for details about this release.
```

os-release:

```
NAME="SLES"
VERSION="12-SP1"
VERSION_ID="12.1"
PRETTY_NAME="SUSE Linux Enterprise Server 12 SP1"
ID="sles"
ANSI_COLOR="0;32"
CPE_NAME="cpe:/o:suse:sles:12:sp1"
```

uname -a:

```
Linux linux-4m6y 3.12.49-11-default #1 SMP Wed Nov 11 20:52:43 UTC 2015
(8d714a0) x86_64 x86_64 x86_64 GNU/Linux
```

run-level 3 Oct 28 19:46 last=5

SPEC is set to: /spec16

```
Filesystem      Type  Size  Used Avail Use% Mounted on
/dev/sda2        xfs   456G  109G  347G  24% /
```

Additional information from dmidecode:

Warning: Use caution when you interpret this section. The 'dmidecode' program reads system data which is "intended to allow hardware to be accurately determined", but the intent may not be met, as there are frequent changes to hardware, firmware, and the "DMTF SMBIOS" standard.

BIOS Insyde Corp. 3.32 09/14/2016

Memory:

```
8x NO DIMM NO DIMM
```

Continued on next page



# SPEC CINT2006 Result

Copyright 2006-2016 Standard Performance Evaluation Corporation

Huawei

SPECint2006 = 71.6

Huawei RH2288H V3 (Intel Xeon E5-2690 v4)

SPECint\_base2006 = 68.8

CPU2006 license: 3175

Test sponsor: Huawei

Tested by: Huawei

Test date: Oct-2016

Hardware Availability: Mar-2016

Software Availability: Mar-2016

## Platform Notes (Continued)

16x Ramaxel RMRA6351MB78HBF2400 16 GB 2 rank 2400 MHz

(End of data from sysinfo program)

## General Notes

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

KMP\_AFFINITY = "granularity=fine,compact,1,0"

LD\_LIBRARY\_PATH = "/spec16/libs/32:/spec16/libs/64:/spec16/sh"

OMP\_NUM\_THREADS = "28"

Binaries compiled on a system with 1x Intel Core i5-4670K CPU + 32GB memory using RedHat EL 7.1

Transparent Huge Pages enabled with:

echo always > /sys/kernel/mm/transparent\_hugepage/enabled

runspec command invoked through numactl i.e.:

numactl --interleave=all runspec <etc>

## 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.hmmmer: -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:

-xCORE-AVX2 -ipo -O3 -no-prec-div -parallel -opt-prefetch -auto-p32

Continued on next page

Standard Performance Evaluation Corporation

info@spec.org

http://www.spec.org/

Page 4



# SPEC CINT2006 Result

Copyright 2006-2016 Standard Performance Evaluation Corporation

Huawei

SPECint2006 = 71.6

Huawei RH2288H V3 (Intel Xeon E5-2690 v4)

SPECint\_base2006 = 68.8

CPU2006 license: 3175

Test date: Oct-2016

Test sponsor: Huawei

Hardware Availability: Mar-2016

Tested by: Huawei

Software Availability: Mar-2016

## Base Optimization Flags (Continued)

C++ benchmarks:

-xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch -auto-p32  
-Wl,-z,muldefs -L/sh -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 -L/opt/intel/compilers\_and\_libraries\_2016/linux/compiler/lib/ia32\_lin

C++ benchmarks (except as noted below):

icpc -m32 -L/opt/intel/compilers\_and\_libraries\_2016/linux/compiler/lib/ia32\_lin

473.astar: icpc -m64

## Peak Portability Flags

400.perlbench: -D\_FILE\_OFFSET\_BITS=64 -DSPEC\_CPU\_LINUX\_IA32

401.bzip2: -DSPEC\_CPU\_LP64

403.gcc: -DSPEC\_CPU\_LP64

429.mcf: -DSPEC\_CPU\_LP64

445.gobmk: -DSPEC\_CPU\_LP64

456.hmmmer: -DSPEC\_CPU\_LP64

458.sjeng: -DSPEC\_CPU\_LP64

462.libquantum: -DSPEC\_CPU\_LP64 -DSPEC\_CPU\_LINUX

464.h264ref: -DSPEC\_CPU\_LP64

471.omnetpp: -D\_FILE\_OFFSET\_BITS=64

473.astar: -DSPEC\_CPU\_LP64

483.xalancbmk: -D\_FILE\_OFFSET\_BITS=64 -DSPEC\_CPU\_LINUX

## Peak Optimization Flags

C benchmarks:

Continued on next page



# SPEC CINT2006 Result

Copyright 2006-2016 Standard Performance Evaluation Corporation

Huawei

SPECint2006 = 71.6

Huawei RH2288H V3 (Intel Xeon E5-2690 v4)

SPECint\_base2006 = 68.8

CPU2006 license: 3175

Test date: Oct-2016

Test sponsor: Huawei

Hardware Availability: Mar-2016

Tested by: Huawei

Software Availability: Mar-2016

## Peak Optimization Flags (Continued)

400.perlbench: -xCORE-AVX2(pass 2) -prof-gen:threadsafe(pass 1)  
-ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2)  
-par-num-threads=1(pass 1) -prof-use(pass 2) -opt-prefetch  
-ansi-alias

401.bzip2: -xCORE-AVX2(pass 2) -prof-gen:threadsafe(pass 1)  
-ipo(pass 2) -O3(pass 2) -no-prec-div  
-par-num-threads=1(pass 1) -prof-use(pass 2) -auto-ilp32  
-opt-prefetch -ansi-alias

403.gcc: basepeak = yes

429.mcf: -xCORE-AVX2 -ipo -O3 -no-prec-div -parallel  
-opt-prefetch -auto-p32

445.gobmk: basepeak = yes

456.hmmmer: basepeak = yes

458.sjeng: -xCORE-AVX2(pass 2) -prof-gen:threadsafe(pass 1)  
-ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2)  
-par-num-threads=1(pass 1) -prof-use(pass 2) -unroll4

462.libquantum: basepeak = yes

464.h264ref: basepeak = yes

C++ benchmarks:

471.omnetpp: -xCORE-AVX2(pass 2) -prof-gen:threadsafe(pass 1)  
-ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2)  
-par-num-threads=1(pass 1) -prof-use(pass 2)  
-opt-ra-region-strategy=block -ansi-alias  
-Wl,-z,muldefs -L/sh -lsmartheap

473.astar: basepeak = yes

483.xalancbmk: -xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch  
-ansi-alias -Wl,-z,muldefs -L/sh -lsmartheap

## Peak Other Flags

C benchmarks:

403.gcc: -Dalloca=\_alloca



# SPEC CINT2006 Result

Copyright 2006-2016 Standard Performance Evaluation Corporation

Huawei

SPECint2006 = 71.6

Huawei RH2288H V3 (Intel Xeon E5-2690 v4)

SPECint\_base2006 = 68.8

CPU2006 license: 3175

Test sponsor: Huawei

Tested by: Huawei

Test date: Oct-2016

Hardware Availability: Mar-2016

Software Availability: Mar-2016

The flags files that were used to format this result can be browsed at

<http://www.spec.org/cpu2006/flags/Intel-ic16.0-official-linux64.html>

<http://www.spec.org/cpu2006/flags/Huawei-Platform-Settings-BDW-V1.0.html>

You can also download the XML flags sources by saving the following links:

<http://www.spec.org/cpu2006/flags/Intel-ic16.0-official-linux64.xml>

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

SPEC and SPECint are registered trademarks of the Standard Performance Evaluation Corporation. All other brand and product names appearing in this result are trademarks or registered trademarks of their respective holders.

For questions about this result, please contact the tester.  
For other inquiries, please contact [webmaster@spec.org](mailto:webmaster@spec.org).

Tested with SPEC CPU2006 v1.2.  
Report generated on Tue Nov 15 16:07:41 2016 by SPEC CPU2006 PS/PDF formatter v6932.  
Originally published on 15 November 2016.