



# SPEC® CINT2006 Result

Copyright 2006-2016 Standard Performance Evaluation Corporation

## Huawei

SPECint®2006 = **66.5**

Huawei CH242 V3 (Intel Xeon E7-8860 v4)

SPECint\_base2006 = **64.0**

CPU2006 license: 3175

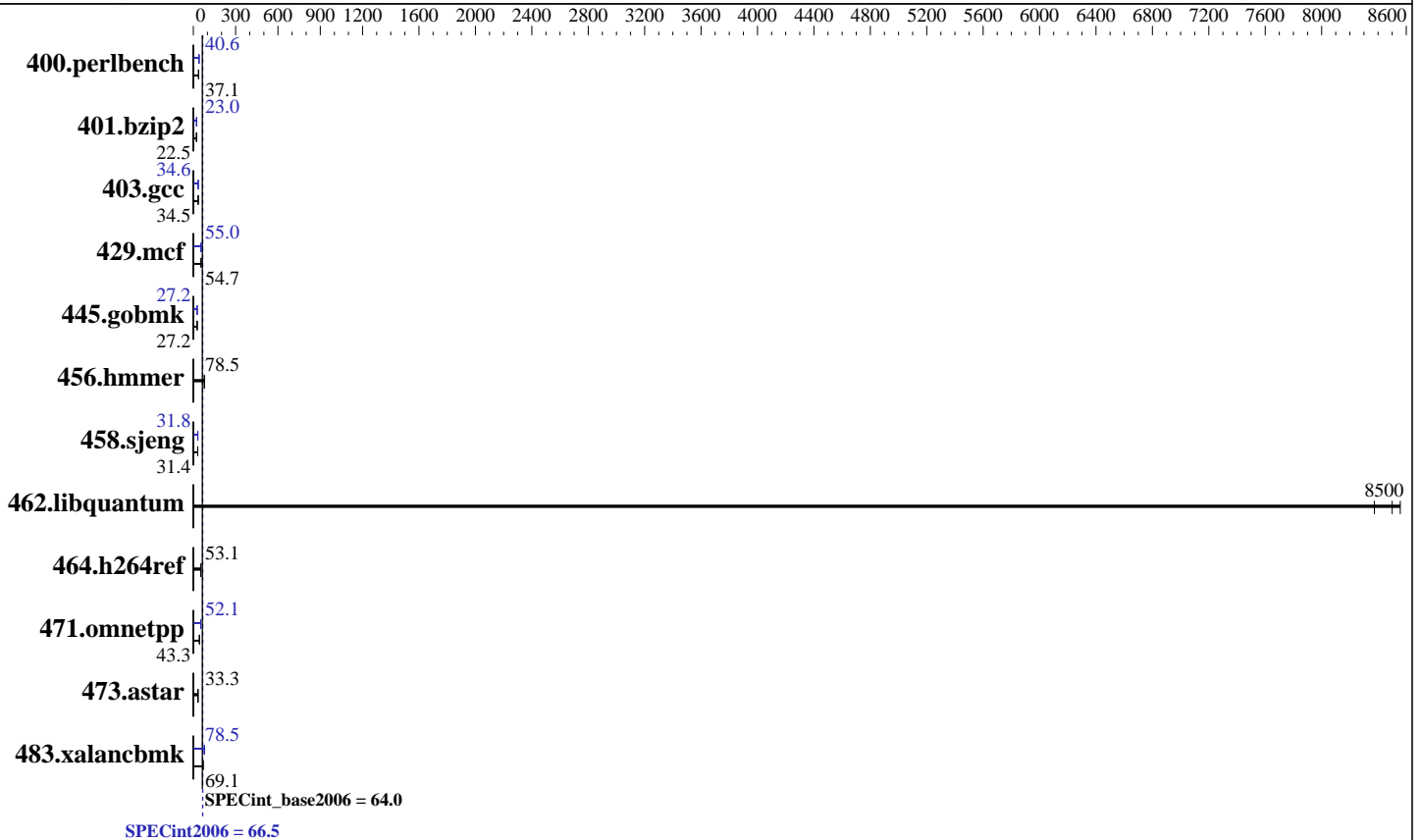
Test date: Dec-2016

Test sponsor: Huawei

Hardware Availability: Jun-2016

Tested by: Huawei

Software Availability: Nov-2015



### Hardware

CPU Name: Intel Xeon E7-8860 v4  
 CPU Characteristics: Intel Turbo Boost Technology up to 3.20 GHz  
 CPU MHz: 2200  
 FPU: Integrated  
 CPU(s) enabled: 72 cores, 4 chips, 18 cores/chip  
 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: 45 MB I+D on chip per chip  
 Other Cache: None  
 Memory: 512 GB (32 x 16 GB 2Rx8 PC4-2400T-R, running at 1600 MHz)  
 Disk Subsystem: 1 x 480 GB SSD  
 Other Hardware: None

### Software

Operating System: Red Hat Enterprise Linux Server release 7.2 (Maipo)  
 3.10.0-327.el7.x86\_64  
 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-bit  
 Peak Pointers: 32/64-bit  
 Other Software: Microquill SmartHeap V10.2



# SPEC CINT2006 Result

Copyright 2006-2016 Standard Performance Evaluation Corporation

Huawei

SPECint2006 = 66.5

Huawei CH242 V3 (Intel Xeon E7-8860 v4)

SPECint\_base2006 = 64.0

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

Test date: Dec-2016  
Hardware Availability: Jun-2016  
Software Availability: Nov-2015

## Results Table

Benchmark	Base						Peak					
	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
400.perlbench	262	37.3	263	37.1	<u>263</u>	<u>37.1</u>	240	40.6	241	40.6	<u>241</u>	<u>40.6</u>
401.bzip2	<u>428</u>	<u>22.5</u>	428	22.6	430	22.5	420	23.0	<u>420</u>	<u>23.0</u>	420	23.0
403.gcc	233	34.6	234	34.4	<u>233</u>	<u>34.5</u>	232	34.7	235	34.3	<u>232</u>	<u>34.6</u>
429.mcf	<u>167</u>	<u>54.7</u>	167	54.8	167	54.6	165	55.3	<u>166</u>	<u>55.0</u>	166	54.8
445.gobmk	386	27.2	386	27.2	<u>386</u>	<u>27.2</u>	385	27.2	<u>385</u>	<u>27.2</u>	386	27.2
456.hammer	<u>119</u>	<u>78.5</u>	119	78.4	119	78.5	<u>119</u>	<u>78.5</u>	119	78.4	119	78.5
458.sjeng	<u>385</u>	<u>31.4</u>	386	31.3	385	31.4	<u>380</u>	<u>31.8</u>	380	31.8	380	31.8
462.libquantum	2.42	8560	2.47	8370	<u>2.44</u>	<u>8500</u>	2.42	8560	2.47	8370	<u>2.44</u>	<u>8500</u>
464.h264ref	<u>417</u>	<u>53.1</u>	416	53.2	418	53.0	<u>417</u>	<u>53.1</u>	416	53.2	418	53.0
471.omnetpp	143	43.6	<u>144</u>	<u>43.3</u>	145	43.2	117	53.2	<u>120</u>	<u>52.1</u>	120	52.1
473.astar	211	33.3	<u>211</u>	<u>33.3</u>	214	32.9	211	33.3	<u>211</u>	<u>33.3</u>	214	32.9
483.xalancbmk	<u>99.9</u>	<u>69.1</u>	99.7	69.2	100	68.9	88.0	78.4	87.8	78.6	<u>87.9</u>	<u>78.5</u>

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 Custom

Set Hyper-Threading to Disabled

Set Lock\_step to disabled

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 localhost.localdomain Thu Dec 1 09:53:43 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 E7-8860 v4 @ 2.20GHz

4 "physical id"s (chips)

72 "processors"

cores, siblings (Caution: counting these is hw and system dependent. The following excerpts from /proc/cpuinfo might not be reliable. Use with

Continued on next page

Standard Performance Evaluation Corporation

info@spec.org

<http://www.spec.org/>

Page 2



# SPEC CINT2006 Result

Copyright 2006-2016 Standard Performance Evaluation Corporation

Huawei

SPECint2006 = 66.5

Huawei CH242 V3 (Intel Xeon E7-8860 v4)

SPECint\_base2006 = 64.0

CPU2006 license: 3175

Test sponsor: Huawei

Tested by: Huawei

Test date: Dec-2016

Hardware Availability: Jun-2016

Software Availability: Nov-2015

## Platform Notes (Continued)

caution.)

```

cpu cores : 18
siblings  : 18
physical 0: cores 0 1 2 3 4 8 9 10 11 16 17 18 19 20 24 25 26 27
physical 1: cores 0 1 2 3 4 8 9 10 11 16 17 18 19 20 24 25 26 27
physical 2: cores 0 1 2 3 4 8 9 10 11 16 17 18 19 20 24 25 26 27
physical 3: cores 0 1 2 3 4 8 9 10 11 16 17 18 19 20 24 25 26 27
cache size : 46080 KB

```

From /proc/meminfo

```

MemTotal:      528078532 kB
HugePages_Total:      0
Hugepagesize:    2048 kB

```

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

```

os-release:
NAME="Red Hat Enterprise Linux Server"
VERSION="7.2 (Maipo)"
ID="rhel"
ID_LIKE="fedora"
VERSION_ID="7.2"
PRETTY_NAME="Red Hat Enterprise Linux Server 7.2 (Maipo)"
ANSI_COLOR="0;31"
CPE_NAME="cpe:/o:redhat:enterprise_linux:7.2:GA:server"
redhat-release: Red Hat Enterprise Linux Server release 7.2 (Maipo)
system-release: Red Hat Enterprise Linux Server release 7.2 (Maipo)
system-release-cpe: cpe:/o:redhat:enterprise_linux:7.2:ga:server

```

uname -a:

```

Linux localhost.localdomain 3.10.0-327.el7.x86_64 #1 SMP Thu Oct 29 17:29:29
EDT 2015 x86_64 x86_64 x86_64 GNU/Linux

```

run-level 3 Dec 1 09:44

SPEC is set to: /spec16

```

Filesystem      Type  Size  Used Avail Use% Mounted on
/dev/sdal        ext4  407G   16G  370G   5% /

```

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 American Megatrends Inc. BLISV788 11/07/2016

Memory:

32x Hynix HMA82GR7AFR8N-UH 16 GB 2 rank 2400 MHz, configured at 1600 MHz

(End of data from sysinfo program)



# SPEC CINT2006 Result

Copyright 2006-2016 Standard Performance Evaluation Corporation

Huawei

SPECint2006 = 66.5

Huawei CH242 V3 (Intel Xeon E7-8860 v4)

SPECint\_base2006 = 64.0

CPU2006 license: 3175

Test date: Dec-2016

Test sponsor: Huawei

Hardware Availability: Jun-2016

Tested by: Huawei

Software Availability: Nov-2015

## 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 = "72"

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.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:

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

C++ benchmarks:

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

-Wl,-z,muldefs -L/sh -lsmartheap64



# SPEC CINT2006 Result

Copyright 2006-2016 Standard Performance Evaluation Corporation

Huawei

SPECint2006 = 66.5

Huawei CH242 V3 (Intel Xeon E7-8860 v4)

SPECint\_base2006 = 64.0

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

Test date: Dec-2016  
Hardware Availability: Jun-2016  
Software Availability: Nov-2015

## 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

445.gobmk: 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: -D\_FILE\_OFFSET\_BITS=64  
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:

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

Continued on next page



# SPEC CINT2006 Result

Copyright 2006-2016 Standard Performance Evaluation Corporation

Huawei

SPECint2006 = 66.5

Huawei CH242 V3 (Intel Xeon E7-8860 v4)

SPECint\_base2006 = 64.0

CPU2006 license: 3175

Test date: Dec-2016

Test sponsor: Huawei

Hardware Availability: Jun-2016

Tested by: Huawei

Software Availability: Nov-2015

## Peak Optimization Flags (Continued)

401.bzip2 (continued):

-opt-prefetch -ansi-alias

403.gcc: -xCORE-AVX2 -ipo -O3 -no-prec-div -inline-calloc

-opt-malloc-options=3 -auto-ilp32

429.mcf: -xCORE-AVX2 -ipo -O3 -no-prec-div -parallel

-opt-prefetch -auto-p32

445.gobmk: -xCORE-AVX2(pass 2) -prof-gen:threadsafe(pass 1)

-prof-use(pass 2) -par-num-threads=1(pass 1) -ansi-alias

456.hmmr: 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

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>

Standard Performance Evaluation Corporation

[info@spec.org](mailto:info@spec.org)

<http://www.spec.org/>

Page 6



# SPEC CINT2006 Result

Copyright 2006-2016 Standard Performance Evaluation Corporation

Huawei

SPECint2006 = 66.5

Huawei CH242 V3 (Intel Xeon E7-8860 v4)

SPECint\_base2006 = 64.0

CPU2006 license: 3175

Test sponsor: Huawei

Tested by: Huawei

Test date: Dec-2016

Hardware Availability: Jun-2016

Software Availability: Nov-2015

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 Wed Dec 28 10:52:29 2016 by SPEC CPU2006 PS/PDF formatter v6932.  
Originally published on 27 December 2016.