



# SPEC<sup>®</sup> CINT2006 Result

Copyright 2006-2016 Standard Performance Evaluation Corporation

## Huawei

SPECint<sup>®</sup>\_rate2006 = 1320

Huawei XH321 V3 (Intel Xeon E5-2680 v4)

SPECint\_rate\_base2006 = 1260

CPU2006 license: 3175

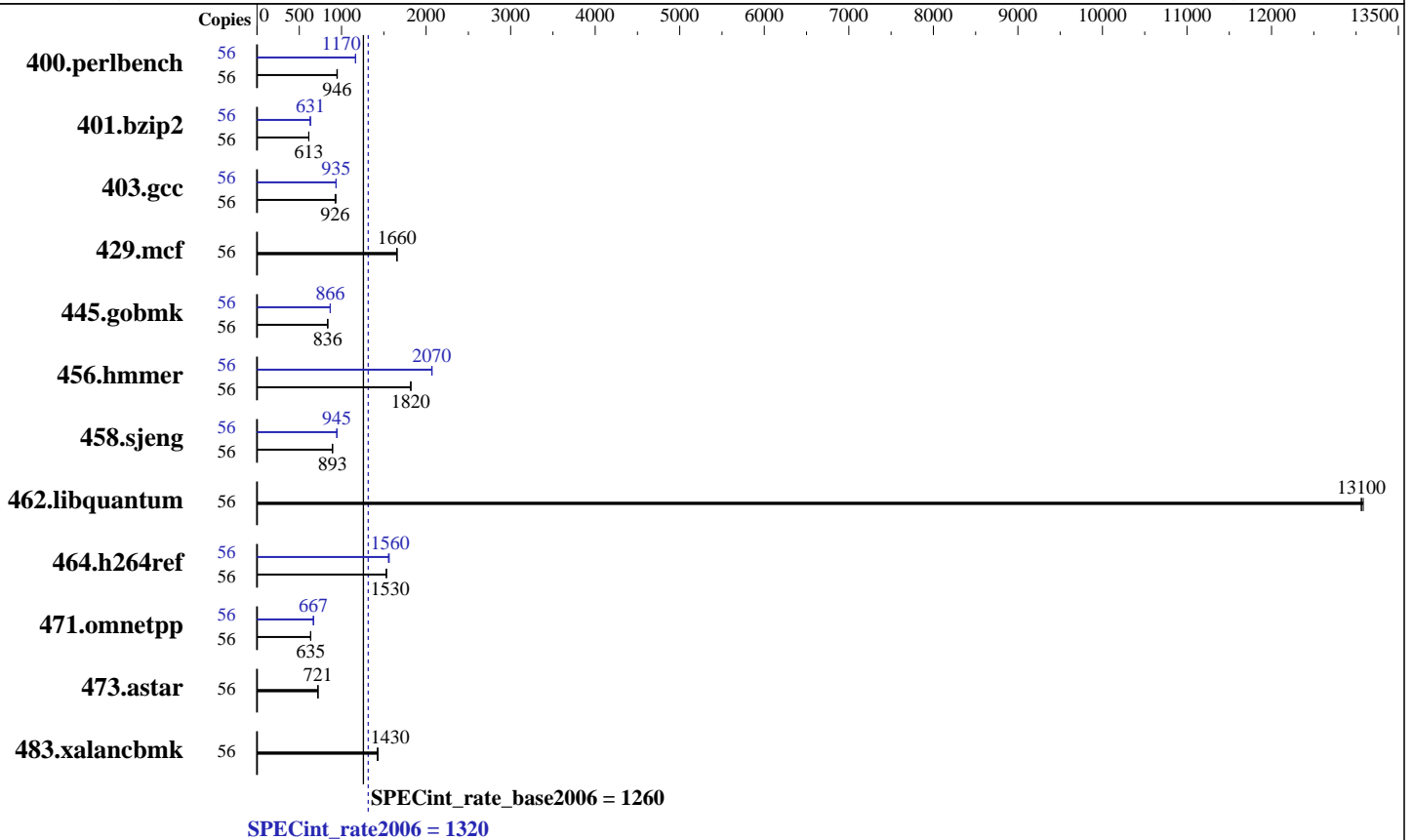
Test date: Nov-2016

Test sponsor: Huawei

Hardware Availability: Nov-2016

Tested by: Huawei

Software Availability: Dec-2015



### Hardware

CPU Name: Intel Xeon E5-2680 v4  
 CPU Characteristics: Intel Turbo Boost Technology up to 3.30 GHz  
 CPU MHz: 2400  
 FPU: Integrated  
 CPU(s) enabled: 28 cores, 2 chips, 14 cores/chip, 2 threads/core  
 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 800 GB SATA SSD  
 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: No  
 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

SPECint\_rate2006 = 1320

Huawei XH321 V3 (Intel Xeon E5-2680 v4)

SPECint\_rate\_base2006 = 1260

CPU2006 license: 3175

Test sponsor: Huawei

Tested by: Huawei

Test date: Nov-2016

Hardware Availability: Nov-2016

Software Availability: Dec-2015

## Results Table

Benchmark	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
400.perlbench	56	576	950	578	946	<u>578</u>	<u>946</u>	56	469	1170	<u>469</u>	<u>1170</u>	470	1160
401.bzip2	56	880	614	884	612	<u>882</u>	<u>613</u>	56	<u>856</u>	<u>631</u>	855	632	858	630
403.gcc	56	488	924	<u>487</u>	<u>926</u>	483	934	56	<u>482</u>	<u>935</u>	482	936	482	935
429.mcf	56	309	1650	308	1660	<u>308</u>	<u>1660</u>	56	309	1650	308	1660	<u>308</u>	<u>1660</u>
445.gobmk	56	703	835	<u>702</u>	<u>836</u>	702	837	56	678	867	<u>678</u>	<u>866</u>	679	865
456.hammer	56	287	1820	<u>287</u>	<u>1820</u>	287	1820	56	<u>253</u>	<u>2070</u>	252	2070	253	2070
458.sjeng	56	759	893	<u>759</u>	<u>893</u>	759	893	56	717	945	717	945	<u>717</u>	<u>945</u>
462.libquantum	56	88.8	13100	<u>88.8</u>	<u>13100</u>	88.7	13100	56	88.8	13100	<u>88.8</u>	<u>13100</u>	88.7	13100
464.h264ref	56	<u>810</u>	<u>1530</u>	810	1530	809	1530	56	792	1560	797	1560	<u>796</u>	<u>1560</u>
471.omnetpp	56	552	634	551	635	<u>551</u>	<u>635</u>	56	525	667	524	668	<u>524</u>	<u>667</u>
473.astar	56	546	720	<u>545</u>	<u>721</u>	545	722	56	546	720	<u>545</u>	<u>721</u>	545	722
483.xalancbmk	56	270	1430	271	1420	<u>271</u>	<u>1430</u>	56	270	1430	271	1420	<u>271</u>	<u>1430</u>

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:

Set Power Efficiency Mode to Performance

Set Snoop Mode to COD mode

Set Patrol Scrub to Disable

Sysinfo program /spec/spec16/config/sysinfo.rev6914

\$Rev: 6914 \$ \$Date:: 2014-06-25 #\$ e3fbb8667b5a285932ceab81e28219e1

running on linux-c3qu Sat Nov 19 17:36:54 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 E5-2680 v4@ 2.40GHz

2 "physical id"s (chips)

56 "processors"

cores, siblings (Caution: counting these is hw and system dependent. The

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

SPECint\_rate2006 = 1320

Huawei XH321 V3 (Intel Xeon E5-2680 v4)

SPECint\_rate\_base2006 = 1260

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

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

## Platform Notes (Continued)

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

```
cpu cores : 14
siblings  : 28
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 : 17920 KB
```

```
From /proc/meminfo
MemTotal:      264057072 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-c3qu 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 Nov 18 10:28
```

```
SPEC is set to: /spec/spec16
Filesystem      Type  Size  Used Avail Use% Mounted on
/dev/sda3       xfs   641G  8.4G  633G   2% /spec
```

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. 3.31 08/22/2016

Memory:  
16x Samsung M393A2K43BB1-CRC 16 GB 2 rank 2400 MHz  
Continued on next page



# SPEC CINT2006 Result

Copyright 2006-2016 Standard Performance Evaluation Corporation

Huawei

SPECint\_rate2006 = 1320

Huawei XH321 V3 (Intel Xeon E5-2680 v4)

SPECint\_rate\_base2006 = 1260

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

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

## Platform Notes (Continued)

(End of data from sysinfo program)

## General Notes

Environment variables set by runspec before the start of the run:  
LD\_LIBRARY\_PATH = "/spec/spec16/libs/32:/spec/spec16/libs/64:/spec/spec16/sh"

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

C++ benchmarks:

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

## Base Portability Flags

400.perlbench: -D\_FILE\_OFFSET\_BITS=64 -DSPEC\_CPU\_LINUX\_IA32  
401.bzip2: -D\_FILE\_OFFSET\_BITS=64  
403.gcc: -D\_FILE\_OFFSET\_BITS=64  
429.mcf: -D\_FILE\_OFFSET\_BITS=64  
445.gobmk: -D\_FILE\_OFFSET\_BITS=64  
456.hmmer: -D\_FILE\_OFFSET\_BITS=64  
458.sjeng: -D\_FILE\_OFFSET\_BITS=64  
462.libquantum: -D\_FILE\_OFFSET\_BITS=64 -DSPEC\_CPU\_LINUX  
464.h264ref: -D\_FILE\_OFFSET\_BITS=64  
471.omnetpp: -D\_FILE\_OFFSET\_BITS=64  
473.astar: -D\_FILE\_OFFSET\_BITS=64  
483.xalancbmk: -D\_FILE\_OFFSET\_BITS=64 -DSPEC\_CPU\_LINUX

## Base Optimization Flags

C benchmarks:

-xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch  
-opt-mem-layout-trans=3

Continued on next page



# SPEC CINT2006 Result

Copyright 2006-2016 Standard Performance Evaluation Corporation

Huawei

SPECint\_rate2006 = 1320

Huawei XH321 V3 (Intel Xeon E5-2680 v4)

SPECint\_rate\_base2006 = 1260

CPU2006 license: 3175

Test date: Nov-2016

Test sponsor: Huawei

Hardware Availability: Nov-2016

Tested by: Huawei

Software Availability: Dec-2015

## Base Optimization Flags (Continued)

C++ benchmarks:

-xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch  
-opt-mem-layout-trans=3 -Wl,-z,muldefs -L/sh -lsmarthearp

## Base Other Flags

C benchmarks:

403.gcc: -Dalloca=\_alloca

## Peak Compiler Invocation

C benchmarks (except as noted below):

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

400.perlbench: icc -m64

401.bzip2: icc -m64

456.hmmer: icc -m64

458.sjeng: icc -m64

C++ benchmarks:

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

## Peak Portability Flags

400.perlbench: -D\_FILE\_OFFSET\_BITS=64 -DSPEC\_CPU\_LP64 -DSPEC\_CPU\_LINUX\_X64

401.bzip2: -D\_FILE\_OFFSET\_BITS=64 -DSPEC\_CPU\_LP64

403.gcc: -D\_FILE\_OFFSET\_BITS=64

429.mcf: -D\_FILE\_OFFSET\_BITS=64

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

456.hmmer: -D\_FILE\_OFFSET\_BITS=64 -DSPEC\_CPU\_LP64

458.sjeng: -D\_FILE\_OFFSET\_BITS=64 -DSPEC\_CPU\_LP64

462.libquantum: -D\_FILE\_OFFSET\_BITS=64 -DSPEC\_CPU\_LINUX

464.h264ref: -D\_FILE\_OFFSET\_BITS=64

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

473.astar: -D\_FILE\_OFFSET\_BITS=64

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



# SPEC CINT2006 Result

Copyright 2006-2016 Standard Performance Evaluation Corporation

Huawei

SPECint\_rate2006 = 1320

Huawei XH321 V3 (Intel Xeon E5-2680 v4)

SPECint\_rate\_base2006 = 1260

CPU2006 license: 3175

Test date: Nov-2016

Test sponsor: Huawei

Hardware Availability: Nov-2016

Tested by: Huawei

Software Availability: Dec-2015

## 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) -auto-ilp32

401.bzip2: -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  
 -auto-ilp32 -ansi-alias

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

429.mcf: basepeak = yes

445.gobmk: -xCORE-AVX2(pass 2) -prof-gen:threadsafe(pass 1)  
 -prof-use(pass 2) -par-num-threads=1(pass 1) -ansi-alias  
 -opt-mem-layout-trans=3

456.hmmer: -xCORE-AVX2 -ipo -O3 -no-prec-div -unroll2 -auto-ilp32

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  
 -auto-ilp32

462.libquantum: basepeak = yes

464.h264ref: -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) -unroll2  
 -ansi-alias

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) -ansi-alias  
 -opt-ra-region-strategy=block -Wl,-z,muldefs  
 -L/sh -lsmartheap

473.astar: basepeak = yes

483.xalancbmk: basepeak = yes



# SPEC CINT2006 Result

Copyright 2006-2016 Standard Performance Evaluation Corporation

Huawei

SPECint\_rate2006 = 1320

Huawei XH321 V3 (Intel Xeon E5-2680 v4)

SPECint\_rate\_base2006 = 1260

CPU2006 license: 3175

Test sponsor: Huawei

Tested by: Huawei

Test date: Nov-2016

Hardware Availability: Nov-2016

Software Availability: Dec-2015

## 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>

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 10:51:06 2016 by SPEC CPU2006 PS/PDF formatter v6932.  
Originally published on 27 December 2016.