



# SPEC® CINT2006 Result

Copyright 2006-2016 Standard Performance Evaluation Corporation

## Huawei

**SPECint®\_rate2006 = 1600**

Huawei CH121 V3 (Intel Xeon E5-2697 v4)

**SPECint\_rate\_base2006 = 1540**

CPU2006 license: 3175

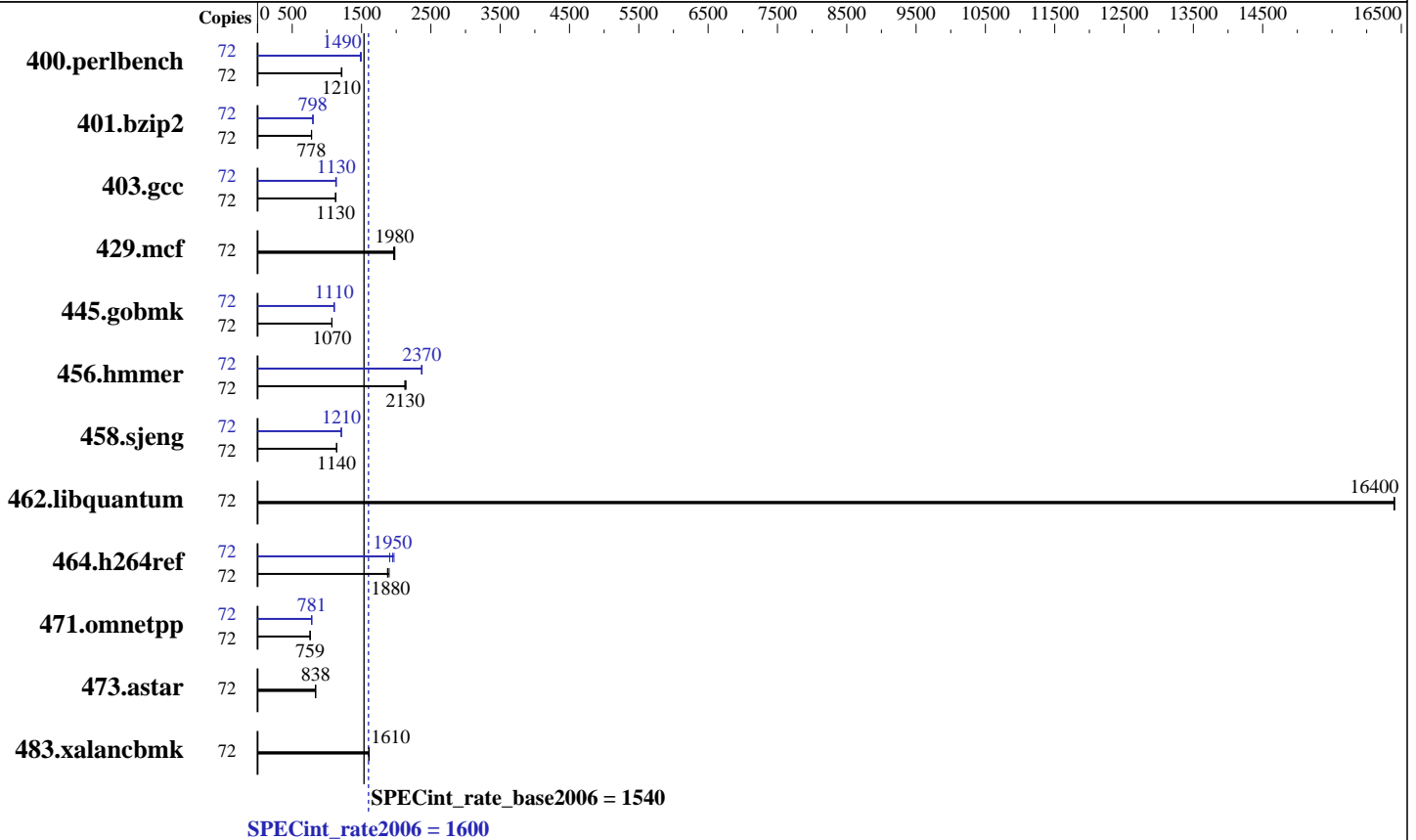
Test date: Oct-2016

Test sponsor: Huawei

Hardware Availability: Mar-2016

Tested by: Huawei

Software Availability: Mar-2016



### Hardware

CPU Name: Intel Xeon E5-2697 v4  
 CPU Characteristics: Intel Turbo Boost Technology up to 3.60 GHz  
 CPU MHz: 2300  
 FPU: Integrated  
 CPU(s) enabled: 36 cores, 2 chips, 18 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: 45 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 1000GB SATA, 7200 RPM  
 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: 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 = 1600

Huawei CH121 V3 (Intel Xeon E5-2697 v4)

SPECint\_rate\_base2006 = 1540

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						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
400.perlbench	72	581	1210	<b><u>581</u></b>	<b><u>1210</u></b>	578	1220	72	470	1500	474	1480	<b><u>473</u></b>	<b><u>1490</u></b>
401.bzip2	72	894	777	890	780	<b><u>893</u></b>	<b><u>778</u></b>	72	<b><u>870</u></b>	<b><u>798</u></b>	869	800	871	798
403.gcc	72	<b><u>515</u></b>	<b><u>1130</u></b>	512	1130	515	1120	72	514	1130	<b><u>511</u></b>	<b><u>1130</u></b>	510	1140
429.mcf	72	332	1980	334	1960	<b><u>332</u></b>	<b><u>1980</u></b>	72	332	1980	334	1960	<b><u>332</u></b>	<b><u>1980</u></b>
445.gobmk	72	705	1070	703	1070	<b><u>704</u></b>	<b><u>1070</u></b>	72	682	1110	684	1100	<b><u>683</u></b>	<b><u>1110</u></b>
456.hammer	72	<b><u>315</u></b>	<b><u>2130</u></b>	316	2120	314	2140	72	284	2360	<b><u>283</u></b>	<b><u>2370</u></b>	283	2370
458.sjeng	72	<b><u>763</u></b>	<b><u>1140</u></b>	764	1140	763	1140	72	<b><u>721</u></b>	<b><u>1210</u></b>	721	1210	721	1210
462.libquantum	72	<b><u>91.0</u></b>	<b><u>16400</u></b>	91.0	16400	90.9	16400	72	<b><u>91.0</u></b>	<b><u>16400</u></b>	91.0	16400	90.9	16400
464.h264ref	72	840	1900	<b><u>849</u></b>	<b><u>1880</u></b>	850	1880	72	<b><u>818</u></b>	<b><u>1950</u></b>	809	1970	836	1910
471.omnetpp	72	593	759	<b><u>593</u></b>	<b><u>759</u></b>	593	758	72	<b><u>576</u></b>	<b><u>781</u></b>	577	781	576	781
473.astar	72	603	838	606	835	<b><u>603</u></b>	<b><u>838</u></b>	72	603	838	606	835	<b><u>603</u></b>	<b><u>838</u></b>
483.xalancbmk	72	<b><u>309</u></b>	<b><u>1610</u></b>	308	1610	310	1600	72	<b><u>309</u></b>	<b><u>1610</u></b>	308	1610	310	1600

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 /spec16/config/sysinfo.rev6914  
\$Rev: 6914 \$ \$Date:: 2014-06-25 #\$ e3fbb8667b5a285932ceab81e28219e1  
running on localhost.localdomain Sat Oct 22 01:15:41 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 E5-2697 v4 @ 2.30GHz  
2 "physical id"s (chips)  
72 "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

SPECint\_rate2006 = 1600

Huawei CH121 V3 (Intel Xeon E5-2697 v4)

SPECint\_rate\_base2006 = 1540

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 : 18
siblings  : 36
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
cache size : 23040 KB
```

```
From /proc/meminfo
MemTotal:      263562532 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 Oct 21 03:04
```

```
SPEC is set to: /spec16
Filesystem      Type  Size  Used Avail Use% Mounted on
/dev/sda2       xfs   254G  9.6G  245G   4% /
```

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:
16x Micron 18ASF2G72PDZ-2G3B1 16 GB 2 rank 2400 MHz
8x NO DIMM NO DIMM
```

(End of data from sysinfo program)



# SPEC CINT2006 Result

Copyright 2006-2016 Standard Performance Evaluation Corporation

Huawei

SPECint\_rate2006 = 1600

Huawei CH121 V3 (Intel Xeon E5-2697 v4)

SPECint\_rate\_base2006 = 1540

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

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

## General Notes

Environment variables set by runspec before the start of the run:  
LD\_LIBRARY\_PATH = "/spec16/libs/32:/spec16/libs/64:/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>  
The Huawei CH121 V3 and Huawei CH222 V3 are electronically equivalent.  
The results have been measured on a Huawei CH121 V3 model.

## 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  
C++ benchmarks:  
-xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch  
-opt-mem-layout-trans=3 -Wl,-z,muldefs -L/sh -lsmartheap



# SPEC CINT2006 Result

Copyright 2006-2016 Standard Performance Evaluation Corporation

Huawei

SPECint\_rate2006 = 1600

Huawei CH121 V3 (Intel Xeon E5-2697 v4)

SPECint\_rate\_base2006 = 1540

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

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

## 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.xalanbmk: -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) -auto-ilp32

Continued on next page



# SPEC CINT2006 Result

Copyright 2006-2016 Standard Performance Evaluation Corporation

Huawei

SPECint\_rate2006 = 1600

Huawei CH121 V3 (Intel Xeon E5-2697 v4)

SPECint\_rate\_base2006 = 1540

CPU2006 license: 3175

Test sponsor: Huawei

Tested by: Huawei

Test date: Oct-2016

Hardware Availability: Mar-2016

Software Availability: Mar-2016

## Peak Optimization Flags (Continued)

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.hmmr: -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

## Peak Other Flags

C benchmarks:

403.gcc: -Dalloca=\_alloca



# SPEC CINT2006 Result

Copyright 2006-2016 Standard Performance Evaluation Corporation

Huawei

SPECint\_rate2006 = 1600

Huawei CH121 V3 (Intel Xeon E5-2697 v4)

SPECint\_rate\_base2006 = 1540

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 16:06:35 2016 by SPEC CPU2006 PS/PDF formatter v6932.  
Originally published on 15 November 2016.