



# SPEC® CINT2006 Result

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## Huawei

**SPECint®2006 = 39.0**

Huawei CH242 v3 (Intel Xeon E7-4820 v2)

**SPECint\_base2006 = 36.0**

CPU2006 license: 3175

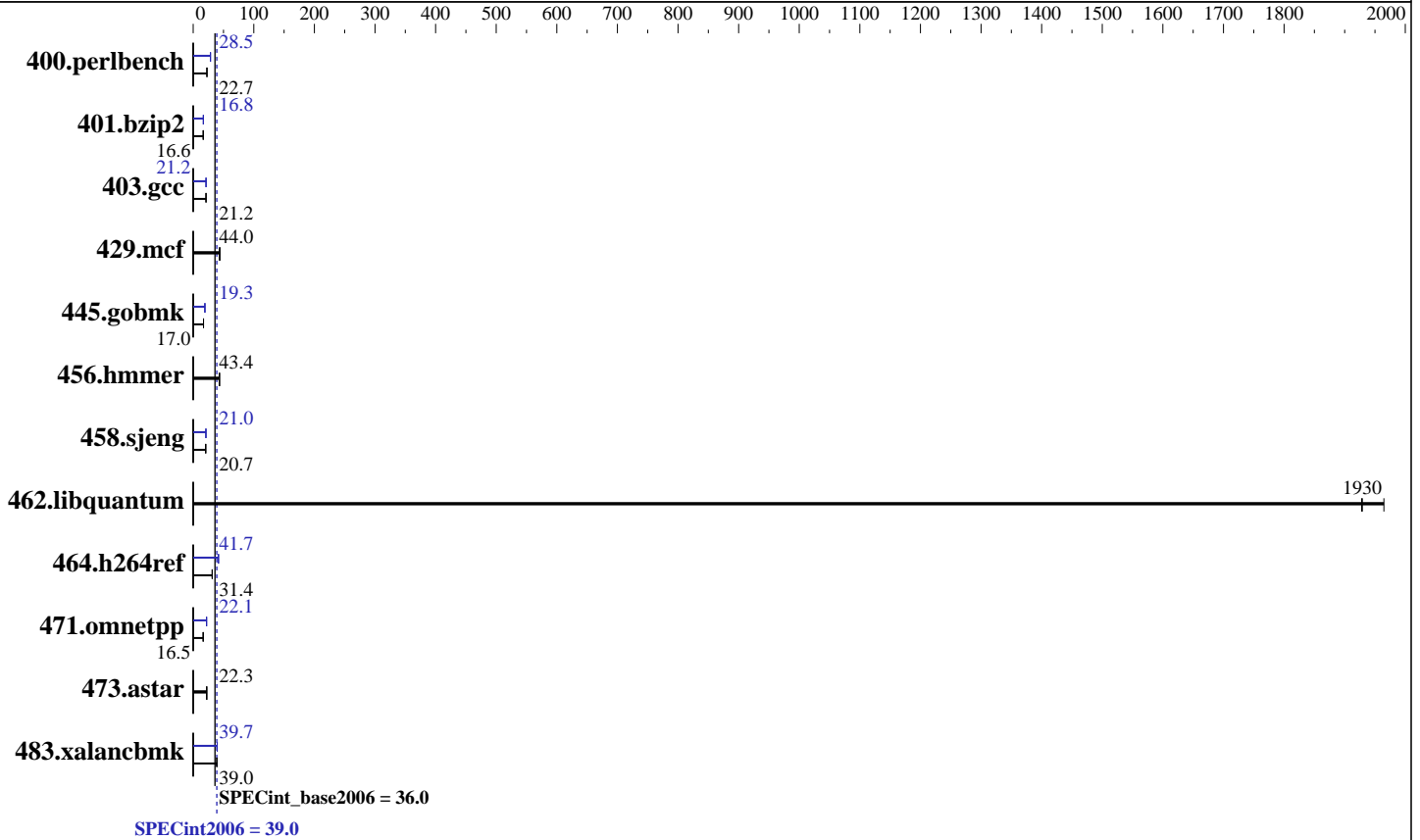
Test sponsor: Huawei

Tested by: Huawei

Test date: Oct-2014

Hardware Availability: Feb-2014

Software Availability: Nov-2013



### Hardware

CPU Name: Intel Xeon E7-4820 v2  
 CPU Characteristics: Intel Turbo Boost Technology up to 2.50 GHz  
 CPU MHz: 2000  
 FPU: Integrated  
 CPU(s) enabled: 32 cores, 4 chips, 8 cores/chip  
 CPU(s) orderable: 2,4 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: 16 MB I+D on chip per chip  
 Other Cache: None  
 Memory: 256 GB (32 x 8 GB 2Rx4 PC3L-12800R-11, ECC, running at 1066 MHz)  
 Disk Subsystem: 1 X 300 GB SAS 10000 RPM  
 Other Hardware: None

### Software

Operating System: Red Hat Enterprise Linux Server release 6.5 (Santiago)  
 2.6.32-431.el6.x86\_64  
 Compiler: C/C++: Version 14.0.0.080 of Intel C++ Studio XE for Linux  
 Auto Parallel: Yes  
 File System: ext4  
 System State: Run level 3 (multi-user)  
 Base Pointers: 32/64-bit  
 Peak Pointers: 32/64-bit  
 Other Software: Microquill SmartHeap V10.0



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## Results Table

Benchmark	Base						Peak					
	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
400.perlbench	<b><u>431</u></b>	<b><u>22.7</u></b>	431	22.7	430	22.7	343	28.5	<b><u>342</u></b>	<b><u>28.5</u></b>	342	28.5
401.bzip2	581	16.6	<b><u>581</u></b>	<b><u>16.6</u></b>	582	16.6	576	16.8	573	16.8	<b><u>576</u></b>	<b><u>16.8</u></b>
403.gcc	380	21.2	380	21.2	<b><u>380</u></b>	<b><u>21.2</u></b>	<b><u>379</u></b>	<b><u>21.2</u></b>	380	21.2	379	21.2
429.mcf	211	43.2	<b><u>207</u></b>	<b><u>44.0</u></b>	207	44.0	211	43.2	<b><u>207</u></b>	<b><u>44.0</u></b>	207	44.0
445.gobmk	615	17.0	616	17.0	<b><u>616</u></b>	<b><u>17.0</u></b>	543	19.3	<b><u>543</u></b>	<b><u>19.3</u></b>	543	19.3
456.hammer	<b><u>215</u></b>	<b><u>43.4</u></b>	216	43.3	215	43.4	<b><u>215</u></b>	<b><u>43.4</u></b>	216	43.3	215	43.4
458.sjeng	586	20.7	<b><u>586</u></b>	<b><u>20.7</u></b>	586	20.7	<b><u>576</u></b>	<b><u>21.0</u></b>	576	21.0	577	21.0
462.libquantum	10.7	1930	10.5	1960	<b><u>10.7</u></b>	<b><u>1930</u></b>	10.7	1930	10.5	1960	<b><u>10.7</u></b>	<b><u>1930</u></b>
464.h264ref	708	31.3	703	31.5	<b><u>704</u></b>	<b><u>31.4</u></b>	531	41.7	<b><u>531</u></b>	<b><u>41.7</u></b>	531	41.7
471.omnetpp	379	16.5	377	16.6	<b><u>379</u></b>	<b><u>16.5</u></b>	<b><u>283</u></b>	<b><u>22.1</u></b>	283	22.0	283	22.1
473.astar	<b><u>315</u></b>	<b><u>22.3</u></b>	313	22.5	316	22.2	<b><u>315</u></b>	<b><u>22.3</u></b>	313	22.5	316	22.2
483.xalancbmk	177	39.1	177	39.0	<b><u>177</u></b>	<b><u>39.0</u></b>	<b><u>174</u></b>	<b><u>39.7</u></b>	174	39.6	174	39.7

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

## Operating System Notes

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

## Platform Notes

BIOS configuration:  
Set VMSE LockStep mode disable  
Set HT Technology to disable  
Sysinfo program /spec14/config/sysinfo.rev6818  
\$Rev: 6818 \$ \$Date:: 2012-07-17 #\$ e86d102572650a6e4d596a3cee98f191  
running on localhost.localdomain Sat Oct 25 11:59:41 2014

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 E7-4820 v2 @ 2.00GHz  
4 "physical id"s (chips)  
32 "processors"  
cores, siblings (Caution: counting these is hw and system dependent. The following excerpts from /proc/cpuinfo might not be reliable. Use with caution.)  
cpu cores : 8  
siblings : 8  
physical 0: cores 0 1 2 3 4 5 6 7  
physical 1: cores 0 1 2 3 4 5 6 7  
physical 2: cores 0 1 2 3 4 5 6 7

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## Platform Notes (Continued)

physical 3: cores 0 1 2 3 4 5 6 7  
cache size : 16384 KB

From /proc/meminfo  
MemTotal: 264359016 kB  
HugePages\_Total: 0  
Hugepagesize: 2048 kB

/usr/bin/lsb\_release -d  
Red Hat Enterprise Linux Server release 6.5 (Santiago)

From /etc/\*release\* /etc/\*version\*  
redhat-release: Red Hat Enterprise Linux Server release 6.5 (Santiago)  
system-release: Red Hat Enterprise Linux Server release 6.5 (Santiago)  
system-release-cpe: cpe:/o:redhat:enterprise\_linux:6server:ga:server

uname -a:  
Linux localhost.localdomain 2.6.32-431.el6.x86\_64 #1 SMP Sun Nov 10 22:19:54  
EST 2013 x86\_64 x86\_64 x86\_64 GNU/Linux

run-level 3 Oct 25 11:54

SPEC is set to: /spec14  
Filesystem Type Size Used Avail Use% Mounted on  
/dev/sda2 ext4 255G 135G 108G 56% /

Additional information from dmidecode:  
BIOS American Megatrends Inc. BLISV302 09/03/2014  
Memory:  
32x 8 GB  
32x Micron 36KSF1G72PZ-1G6K1 8 GB 1066 MHz 2 rank

(End of data from sysinfo program)  
The system use 256 GB memory

## General Notes

Environment variables set by runspec before the start of the run:  
LD\_LIBRARY\_PATH = "/spec14/libs/32:/spec14/libs/64:/spec14/sh"  
OMP\_NUM\_THREADS = "32"

Binaries compiled on a system with 1x Core i7-860 CPU + 8GB  
memory using RedHat EL 6.4  
Transparent Huge Pages enabled with:  
echo always > /sys/kernel/mm/redhat\_transparent\_hugepage/enabled  
runspec command invoked through numactl i.e.:  
numactl --interleave=all runspec <etc>



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## 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:  
-xSSE4.2 -ipo -O3 -no-prec-div -parallel -opt-prefetch -auto-p32  
  
C++ benchmarks:  
-xSSE4.2 -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

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## Peak Compiler Invocation (Continued)

400.perlbench: `icc -m32`

445.gobmk: `icc -m32`

464.h264ref: `icc -m32`

C++ benchmarks (except as noted below):

`icpc -m32`

473.astar: `icpc -m64`

## Peak Portability Flags

400.perlbench: `-DSPEC_CPU_LINUX_IA32`

401.bzip2: `-DSPEC_CPU_LP64`

403.gcc: `-DSPEC_CPU_LP64`

429.mcf: `-DSPEC_CPU_LP64`

456.hmmer: `-DSPEC_CPU_LP64`

458.sjeng: `-DSPEC_CPU_LP64`

462.libquantum: `-DSPEC_CPU_LP64 -DSPEC_CPU_LINUX`

473.astar: `-DSPEC_CPU_LP64`

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) -opt-prefetch -ansi-alias`

401.bzip2: `-xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2) -no-prec-div -prof-use(pass 2) -auto-ilp32 -opt-prefetch -ansi-alias`

403.gcc: `-xSSE4.2 -ipo -O3 -no-prec-div -inline-calloc -opt-malloc-options=3 -auto-ilp32`

429.mcf: `basepeak = yes`

445.gobmk: `-xSSE4.2(pass 2) -prof-gen(pass 1) -prof-use(pass 2) -ansi-alias`

456.hmmer: `basepeak = yes`

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## Peak Optimization Flags (Continued)

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

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

473.astar: basepeak = yes

483.xalancbmk: -xSSE4.2 -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-ic14.0-official-linux64.20140128.html>

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

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

<http://www.spec.org/cpu2006/flags/Intel-ic14.0-official-linux64.20140128.xml>

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

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

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