



# SPEC® CINT2006 Result

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## Huawei

**SPECint®2006 = 48.8**

Huawei 5288 V3 (Intel Xeon E5-2650L v3)

**SPECint\_base2006 = 46.9**

CPU2006 license: 3175

Test date: Aug-2015

Test sponsor: Huawei

Hardware Availability: Sep-2014

Tested by: Huawei

Software Availability: Sep-2014



### Hardware

CPU Name: Intel Xeon E5-2650L v3  
 CPU Characteristics: Intel Turbo Boost Technology up to 2.50 GHz  
 CPU MHz: 1800  
 FPU: Integrated  
 CPU(s) enabled: 24 cores, 2 chips, 12 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: 30 MB I+D on chip per chip  
 Other Cache: None  
 Memory: 256 GB (16 x 16 GB 2Rx4 PC4-2133P-R)  
 Disk Subsystem: 1 x 500 GB SATA, 7200 RPM  
 Other Hardware: None

### Software

Operating System: Red Hat Enterprise Linux Server release 7.0 (Maipo)  
 3.10.0-123.el7.x86\_64  
 Compiler: C/C++: Version 15.0.0.090 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	342	28.6	<b><u>334</u></b>	<b><u>29.3</u></b>	333	29.3	<b><u>290</u></b>	<b><u>33.7</u></b>	292	33.5	290	33.7
401.bzip2	536	18.0	<b><u>535</u></b>	<b><u>18.0</u></b>	534	18.1	531	18.2	532	18.1	<b><u>532</u></b>	<b><u>18.2</u></b>
403.gcc	297	27.1	298	27.0	<b><u>298</u></b>	<b><u>27.0</u></b>	290	27.8	<b><u>290</u></b>	<b><u>27.8</u></b>	291	27.7
429.mcf	186	49.0	181	50.3	<b><u>184</u></b>	<b><u>49.6</u></b>	183	49.9	185	49.3	<b><u>184</u></b>	<b><u>49.6</u></b>
445.gobmk	506	20.7	<b><u>506</u></b>	<b><u>20.7</u></b>	505	20.8	506	20.7	<b><u>506</u></b>	<b><u>20.7</u></b>	505	20.8
456.hammer	<b><u>189</u></b>	<b><u>49.5</u></b>	188	49.5	189	49.4	<b><u>189</u></b>	<b><u>49.5</u></b>	188	49.5	189	49.4
458.sjeng	483	25.1	<b><u>483</u></b>	<b><u>25.1</u></b>	482	25.1	481	25.2	480	25.2	<b><u>480</u></b>	<b><u>25.2</u></b>
462.libquantum	<b><u>4.09</u></b>	<b><u>5070</u></b>	4.08	5080	4.16	4980	<b><u>4.09</u></b>	<b><u>5070</u></b>	4.08	5080	4.16	4980
464.h264ref	<b><u>641</u></b>	<b><u>34.5</u></b>	641	34.5	641	34.5	<b><u>641</u></b>	<b><u>34.5</u></b>	641	34.5	641	34.5
471.omnetpp	209	29.9	<b><u>210</u></b>	<b><u>29.8</u></b>	211	29.6	156	40.0	<b><u>158</u></b>	<b><u>39.6</u></b>	163	38.3
473.astar	291	24.2	290	24.2	<b><u>290</u></b>	<b><u>24.2</u></b>	<b><u>290</u></b>	<b><u>24.2</u></b>	287	24.5	291	24.2
483.xalancbmk	<b><u>138</u></b>	<b><u>49.9</u></b>	139	49.7	138	49.9	<b><u>138</u></b>	<b><u>49.9</u></b>	139	49.7	138	49.9

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 Snoop Mode to ES mode  
Set Patrol Scrub to Disable  
Set Intel Hyper-Threading to Disable  
Sysinfo program /spec/config/sysinfo.rev6914  
\$Rev: 6914 \$ \$Date:: 2014-06-25 #\$ e3fbb8667b5a285932ceab81e28219e1  
running on localhost.localdomain Mon Aug 10 06:11:20 2015

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 E5-2650L v3 @ 1.80GHz  
2 "physical id"s (chips)  
24 "processors"  
cores, siblings (Caution: counting these is hw and system dependent. The following excerpts from /proc/cpuinfo might not be reliable. Use with  
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## Platform Notes (Continued)

```
caution.)
cpu cores : 12
siblings  : 12
physical 0: cores 0 1 2 3 4 5 8 9 10 11 12 13
physical 1: cores 0 1 2 3 4 5 8 9 10 11 12 13
cache size : 30720 KB
```

```
From /proc/meminfo
MemTotal:      263578448 kB
HugePages_Total:    0
Hugepagesize:    2048 kB
```

```
From /etc/*release* /etc/*version*
os-release:
NAME="Red Hat Enterprise Linux Server"
VERSION="7.0 (Maipo)"
ID="rhel"
ID_LIKE="fedora"
VERSION_ID="7.0"
PRETTY_NAME="Red Hat Enterprise Linux Server 7.0 (Maipo)"
ANSI_COLOR="0;31"
CPE_NAME="cpe:/o:redhat:enterprise_linux:7.0:GA:server"
redhat-release: Red Hat Enterprise Linux Server release 7.0 (Maipo)
system-release: Red Hat Enterprise Linux Server release 7.0 (Maipo)
system-release-cpe: cpe:/o:redhat:enterprise_linux:7.0:ga:server
```

```
uname -a:
Linux localhost.localdomain 3.10.0-123.el7.x86_64 #1 SMP Mon May 5 11:16:57
EDT 2014 x86_64 x86_64 x86_64 GNU/Linux
```

```
run-level 3 Aug 10 06:10
```

```
SPEC is set to: /spec
Filesystem      Type  Size  Used Avail Use% Mounted on
/dev/sdal        ext4  385G   94G  271G  26% /
```

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. 1.50 05/26/2015
Memory:
8x Micron 36ASF2G72PZ-2G1A2 16 GB 1 rank 2133 MHz
8x Micron 36ASF2G72PZ-2G1A2 16 GB 2 rank 2133 MHz
```

(End of data from sysinfo program)



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## General Notes

Environment variables set by runspec before the start of the run:  
 KMP\_AFFINITY = "granularity=fine,compact,1,0"  
 LD\_LIBRARY\_PATH = "/spec/libs/32:/spec/libs/64:/spec/sh"  
 OMP\_NUM\_THREADS = "24"

Binaries compiled on a system with 1x Core i5-4670K CPU + 16GB memory using RedHat EL 7.0  
 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



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## 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/composer\_xe\_2015/lib/ia32

C++ benchmarks (except as noted below):

icpc -m64

471.omnetpp: icpc -m32 -L/opt/intel/composer\_xe\_2015/lib/ia32

## Peak Portability Flags

400.perlbench: -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.hmmer: -DSPEC\_CPU\_LP64  
458.sjeng: -DSPEC\_CPU\_LP64  
462.libquantum: -DSPEC\_CPU\_LP64 -DSPEC\_CPU\_LINUX  
464.h264ref: -DSPEC\_CPU\_LP64  
473.astar: -DSPEC\_CPU\_LP64  
483.xalancbmk: -DSPEC\_CPU\_LP64 -DSPEC\_CPU\_LINUX

## Peak Optimization Flags

C benchmarks:

400.perlbench: -xCORE-AVX2(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: -xCORE-AVX2(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: -xCORE-AVX2 -ipo -O3 -no-prec-div -inline-calloc  
-opt-malloc-options=3 -auto-ilp32

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## Peak Optimization Flags (Continued)

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(pass 1) -ipo(pass 2)  
-O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2)  
-unroll4

462.libquantum: basepeak = yes

464.h264ref: basepeak = yes

C++ benchmarks:

471.omnetpp: -xCORE-AVX2(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: -xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch  
-auto-p32 -Wl,-z,muldefs -L/sh -lsmartheap64

483.xalancbmk: basepeak = yes

## 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-ic15.0-official-linux64.html>

<http://www.spec.org/cpu2006/flags/Huawei-Platform-Settings-HASWELL-V1.4.html>

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

<http://www.spec.org/cpu2006/flags/Intel-ic15.0-official-linux64.xml>

<http://www.spec.org/cpu2006/flags/Huawei-Platform-Settings-HASWELL-V1.4.xml>



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

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