



# SPEC® CINT2006 Result

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Huawei

SPECint®2006 = **NC**

Huawei RH2288 V3 (Intel Xeon E5-2683 v4)

SPECint\_base2006 = **NC**

CPU2006 license: 3175

Test date: Mar-2016

Test sponsor: Huawei

Hardware Availability: Mar-2016

Tested by: Huawei

Software Availability: Aug-2015

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[http://spec.org/cpu2006/Docs/runrules.html#rule\\_1.3.2](http://spec.org/cpu2006/Docs/runrules.html#rule_1.3.2) SPEC CPU run  
<https://www.spec.org/osg/policy.html#AppendixC> gener

- 400.perlbench
- 401.bzip2
- 403.gcc
- 429.mcf
- 445.gobmk
- 456.hmmer
- 458.sjeng
- 462.libquantum
- 464.h264ref
- 471.omnetpp
- 473.astar
- 483.xalancbmk

### Hardware

CPU Name: Intel Xeon E5-2683 v4  
 CPU Characteristics: Intel Turbo Boost Technology up to 3.00 GHz  
 CPU MHz: 2100  
 FPU: Integrated  
 CPU(s) enabled: 32 cores, 2 chips, 16 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: 40 MB I+D on chip per chip  
 Other Cache: None  
 Memory: 256 GB (16 x 16 GB 2Rx4 PC4-2400T-R)  
 Disk Subsystem: 1 x 500GB SATA, 10000 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 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: 32/64-bit  
 Peak Pointers: 32/64-bit  
 Other Software: Microquill SmartHeap V10.2



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## Results Table

| Benchmark      | Base    |       |         |       |         |       | Peak    |       |         |       |         |       |    |
|----------------|---------|-------|---------|-------|---------|-------|---------|-------|---------|-------|---------|-------|----|
|                | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio |    |
| 400.perlbench  | NC      | NC    | NC      | NC    | NC      | NC    | NC      | NC    | NC      | NC    | NC      | NC    | NC |
| 401.bzip2      | NC      | NC    | NC      | NC    | NC      | NC    | NC      | NC    | NC      | NC    | NC      | NC    | NC |
| 403.gcc        | NC      | NC    | NC      | NC    | NC      | NC    | NC      | NC    | NC      | NC    | NC      | NC    | NC |
| 429.mcf        | NC      | NC    | NC      | NC    | NC      | NC    | NC      | NC    | NC      | NC    | NC      | NC    | NC |
| 445.gobmk      | NC      | NC    | NC      | NC    | NC      | NC    | NC      | NC    | NC      | NC    | NC      | NC    | NC |
| 456.hammer     | NC      | NC    | NC      | NC    | NC      | NC    | NC      | NC    | NC      | NC    | NC      | NC    | NC |
| 458.sjeng      | NC      | NC    | NC      | NC    | NC      | NC    | NC      | NC    | NC      | NC    | NC      | NC    | NC |
| 462.libquantum | NC      | NC    | NC      | NC    | NC      | NC    | NC      | NC    | NC      | NC    | NC      | NC    | NC |
| 464.h264ref    | NC      | NC    | NC      | NC    | NC      | NC    | NC      | NC    | NC      | NC    | NC      | NC    | NC |
| 471.omnetpp    | NC      | NC    | NC      | NC    | NC      | NC    | NC      | NC    | NC      | NC    | NC      | NC    | NC |
| 473.astar      | NC      | NC    | NC      | NC    | NC      | NC    | NC      | NC    | NC      | NC    | NC      | NC    | NC |
| 483.xalancbmk  | NC      | NC    | NC      | NC    | NC      | NC    | NC      | NC    | NC      | NC    | NC      | NC    | NC |

Results appear in the column 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 Sleep Mode to ES mode  
Set Patrol Scrub to Disable  
Set Hyper-Threading to Disable  
Sysinfo program /spec16/config/sysinfo.rev6914  
\$Rev: 6914 \$ \$Date:: 2014-06-25 #\$ e3fbb8667b5a285932ceab81e28219e1  
running on localhost.localdomain Tue Apr 5 18:02:09 2016

This section contains SUT (System Under Test) info as seen by some common utilities. To remove or add to this section, see:

Continued on next page



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[http://spec.org/cpu2006/Docs/runrules.html#rule\\_1.3.2](http://spec.org/cpu2006/Docs/runrules.html#rule_1.3.2)**>SPEC CPU run**  
**up policy on** <https://www.spec.org/osg/policy.html#AppendixC>**>gener**

## Platform Notes (Continued)

<http://www.spec.org/cpu2006/Docs/config.html#ysinfo>

From /proc/cpuinfo

```
model name      : Intel(R) Xeon(R) CPU E5-2683 v4 @ 2.10GHz
 2 "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      : 16
  siblings       : 16
  physical 0:    cores 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15
  physical 1:    cores 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15
cache size      : 40960 KB
```

From /proc/meminfo

```
MemTotal:      263569320
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 Apr 5 06:52

SPEC is set to: /spec16

```
Filesystem      Type      Size      Used Avail Use% Mounted on
/dev/sda2        xfs       449G      11G 439G   3% /
```

Additional information from dmidecode:

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## Platform Notes (Continued)

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. 3.12 03/03/2016

Memory:

8x Samsung M393A2G40EB1-CRC 16 GB 1 rank 2400 MHz  
8x Samsung M393A2G40EB1-CRC 16 GB 2 rank 2400 MHz

(End of data from sysinfo program)

## General Notes

Environment variables set by spec 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 = "32"

Binaries compiled on a system with 1x Intel Core i5-4670K CPU + 32GB memory using RedHat EL 7.  
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

icc -m64

C++ benchmarks:

icpc -m64

## Base Portability Flags

400.perlbench: -DSPEC\_CPU\_LP64 -DSPEC\_CPU\_LINUX\_X64

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## Base Portability Flags (Continued)

```

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/shlib -lsmartheap64

## 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

C++ benchmarks (except as noted below):  
icpc -m32 -L/opt/intel/compilers\_and\_libraries\_2016/linux/compiler/lib/ia32\_lin

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## Peak Compiler Invocation (Continued)

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: -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: -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  
 -opt-prefetch -ansi-alias  
 403.gcc: basepeak = yes  
 429.mcf: -xCORE-AVX2 -ipo -O3 -no-prec-div -parallel  
 -opt-prefetch -auto-p32  
 445.gobmk: basepeak = yes

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## Peak Optimization Flags (Continued)

456.hmmr: basepeak = yes

458.sjeng: -xCORE-AVX2(pass 2) -prof-gen:threadsafe(pass 2)  
-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-category:block -ansi-alias  
-Wl,-z,muldefs -L/sh -lsmartheap

473.astar: -xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch  
-auto-p2 -Wl,-z,muldefs -L/sh -lsmartheap64

483.xalancbmk: -xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch  
-ansi-alias -Wl,-z,muldefs -L/sh -lsmartheap

## Peak Other Flags

C benchmark

402.mcf: -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>



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

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