## SPEC® CINT2006 Result

### Huawei

**Huawei RH8100 V3 (Intel Xeon E7-8870 v4)**

<table>
<thead>
<tr>
<th>SPECint®_rate2006 = Not Run</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPECint_rate_base2006 = 5920</td>
</tr>
</tbody>
</table>

**CPU2006 license:** 3175  
**Test sponsor:** Huawei  
**Tested by:** Huawei  
**Test date:** Aug-2016  
**Hardware Availability:** Jun-2016  
**Software Availability:** Oct-2015

### Hardware

- **CPU Name:** Intel Xeon E7-8870 v4  
- **CPU Characteristics:** Intel Turbo Boost Technology up to 3.00 GHz  
- **CPU MHz:** 2100  
- **FPU:** Integrated  
- **CPU(s) enabled:** 160 cores, 8 chips, 20 cores/chip, 2 threads/core  
- **CPU(s) orderable:** 4.6.8 chips  
- **Primary Cache:** 32 KB I + 32 KB D on chip per core  
- **Secondary Cache:** 256 KB I+D on chip per core  
- **L3 Cache:** 50 MB I+D on chip per chip  
- **Other Cache:** None  
- **Memory:** 1 TB (64 x 16 GB 2Rx4 PC4-2133P-R, running at 1600 MHz)  
- **Disk Subsystem:** 2 x 600GB SAS, 10K 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
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Results Table

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Copies</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
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<td>6540</td>
<td>339</td>
<td>6510</td>
<td>339</td>
<td>6520</td>
</tr>
</tbody>
</table>

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"
Turbo mode set with:
cpupower -c all frequency-set -g performance

Platform Notes

BIOS configuration:
Set Power Efficiency Mode to Performance
Set Lock_step to disabled
Baseboard Management Controller used to adjust the fan speed to 100%
Set C-State to C0/C1
Sysinfo program /home/spec/config/sysinfo.rev6914
$Rev: 6914 $ $Date:: 2014-06-25 #$ e3fbb8667b5a285932ceab81e28219e1
rating on RH8100v3 Tue Aug  9 10:19:39 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 E7-8870 v4 @ 2.10GHz
Continued on next page

Standard Performance Evaluation Corporation
info@spec.org
http://www.spec.org/
Huawei RH8100 V3 (Intel Xeon E7-8870 v4)

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Platform Notes (Continued)

- 8 "physical id"s (chips)
- 320 "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 : 20
  - siblings : 40
  - physical 0: cores 0 1 2 3 4 8 9 10 11 12 16 17 18 19 20 24 25 26 27 28
  - physical 1: cores 0 1 2 3 4 8 9 10 11 12 16 17 18 19 20 24 25 26 27 28
  - physical 2: cores 0 1 2 3 4 8 9 10 11 12 16 17 18 19 20 24 25 26 27 28
  - physical 3: cores 0 1 2 3 4 8 9 10 11 12 16 17 18 19 20 24 25 26 27 28
  - physical 4: cores 0 1 2 3 4 8 9 10 11 12 16 17 18 19 20 24 25 26 27 28
  - physical 5: cores 0 1 2 3 4 8 9 10 11 12 16 17 18 19 20 24 25 26 27 28
  - physical 6: cores 0 1 2 3 4 8 9 10 11 12 16 17 18 19 20 24 25 26 27 28
  - physical 7: cores 0 1 2 3 4 8 9 10 11 12 16 17 18 19 20 24 25 26 27 28
- cache size : 51200 KB

From /proc/meminfo
- MemTotal: 1056485736 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)

uname -a:
- Linux RH8100v3 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 Aug 9 10:01

SPEC is set to: /home/spec

Filesystem  Type  Size  Used Avail Use% Mounted on
/dev/mapper/rhel-home xfs  978G  8.0G  970G 1% /home

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.

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Platform Notes (Continued)

BIOS American Megatrends Inc. 5.11 02/05/2016
Memory:
   64x Hynix HMA42GR7MFR4N-TF 16 GB 2 rank 2133 MHz, configured at 1600 MHz
   128x NO DIMM NO DIMM

(End of data from sysinfo program)
Regarding the sysinfo display about the memory installed, the correct amount of
memory is 1024 GB and the dmidecode description should have two lines reading as:
   64x Hynix HMA42GR7MFR4N-TF 16 GB 2 rank 2133 MHz, configured at 1600 MHz
   128x NO DIMM NO DIMM

General Notes

Environment variables set by runspec before the start of the run:
LD_LIBRARY_PATH = "/home/spec/libs/32:/home/spec/libs/64:/home/spec/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.:
umactl --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

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Base Portability Flags (Continued)

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

Base 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

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-V1.2-BDW-RevG.xml

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For questions about this result, please contact the tester.
For other inquiries, please contact webmaster@spec.org.

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