Huawei

Huawei CH121 V3 (Intel Xeon E5-2637 v4)

<table>
<thead>
<tr>
<th>SPECint&lt;sup&gt;®&lt;/sup&gt;2006</th>
<th>NC</th>
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<tr>
<td>SPECint&lt;sub&gt;base2006&lt;/sub&gt;</td>
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CPU2006 license: 3175
Test sponsor: Huawei
Tested by: Huawei

SPEC has determined that this result is not in compliance with the SPEC CPU2006 run and reporting rules. Specifically, the memory was not available as required by SPEC CPU rule 1.3.2 and the SPEC Open Systems Group policy on general availability.

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<thead>
<tr>
<th>Test date: Mar-2016</th>
<th>Hardware Availability: Mar-2016</th>
<th>Software Availability: Mar-2016</th>
</tr>
</thead>
</table>

### Hardware

- **CPU Name:** Intel Xeon E5-2637 v4
  - **CPU Characteristics:** Intel Turbo Boost Technology up to 3.70 GHz
  - **CPU MHz:** 3500
  - **FPU:** Integrated
  - **CPU(s) enabled:** 8 cores, 2 chips, 4 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:** 15 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 2 T 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:** ICC++, Version 16.0.0.101 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 V10.2
SPEC CINT2006 Result

Huawei

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Results Table

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</tbody>
</table>

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

BIO configuration:
Set Power Efficiency Mode to Custom
Set Snoop Mode to ES mode
Set Patrol Scrub to Disable
Set Hyper-Threading to Disable
Sysinfo program /speccpu/spec16/config/sysinfo.rev6914
$Rev: 6914 $ $Date:: 2014-06-25 $$ e3fbb8667b5a285932ceab81e28219e1

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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Platform Notes (Continued)

http://www.spec.org/cpu2006/Docs/config.html#sysinfo

From /proc/cpuinfo
model name : Intel(R) Xeon(R) CPU E5-2637 v4 @ 3.50GHz
 2 "physical id"s (chips)
 8 "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 : 4
siblings : 4
physical 0: cores 0 2 3
physical 1: cores 0 2 3
cache size : 15360 KB

From /proc/meminfo
MemTotal:       263572104 kB
HugePages_Total:       0
Hugepagesize:       2048 kB

From /etc/*release*/etc/*version*
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: 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 Mar 19 14:34

SPEC is set to: /speccpu/spec16
Filesystem Type Size Used Avail Use% Mounted on
/dev/sda2 ext4 1.6T 43G 1.5T 3% /
Additional information from dmidecode:

Non-Compliant
SPEC CINT2006 Result

Huawei

Huawei CH121 V3 (Intel Xeon E5-2637 v4)

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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. 3.09 02/22/2016
Memory:
8x NO DIMM NO DIMM 3 rank
8x Samsung M393A2G40EB1-CRC16 GB 1 rank 400 MHz
8x Samsung M393A2G40EB1-CRC16 GB 2 rank 400 MHz

(End of data from sysinfo program)

General Notes

Environment variables set by runspec before the start of the run:
KMP_AFFINITY = "granularity=fine,compact,1,0"
LD_LIBRARY_PATH = "/speccpu/spec16/libs/32:/speccpu/spec16/libs/64:/speccpu/spec16/sh"
OMP_NUM_THREADS = "8"

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
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 -m64

C++ benchmarks:
icpc -m64
SPEC CINT2006 Result

Huawei
Huawei CH121 V3 (Intel Xeon E5-2637 v4)

| SPECint2006 = | NC |
| SPECint_base2006 = | NC |

CPU2006 license: 3175
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**Base Portability Flags**

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<td>-DSPEC_CPU_LP64 -DSPEC_CPU_LINUX_x64</td>
</tr>
<tr>
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<tr>
<td>483.xalancbmk</td>
<td>-DSPEC_CPU_LP64 -DSPEC_CPU_LINUX</td>
</tr>
</tbody>
</table>

**Base Optimization Flags**

C benchmarks:
-xCORE-AVX2 -ipo -O3 -no-prec-div -parallel -opt-prefetch -auto-p32

C++ benchmarks:
-xCORE-AVX2 -I. -O3 -no-prec-div -opt-prefetch -auto-p32
-Wl,-z,muldefs -Wl,-L/sh -L/smarterheap64

**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

Continued on next page

Non-Compliant
Huawei
Huawei CH121 V3 (Intel Xeon E5-2637 v4)

CPU2006 license: 3175
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Tested by: Huawei

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SPEC CINT2006 Result

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Peak Compiler Invocation (Continued)

473.astar: icpc -m64

Peak Portability Flags

<table>
<thead>
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<th>Benchmark</th>
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</thead>
<tbody>
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<td>400.perlbench</td>
<td>-D_FILE_OFFSET_BITS=64 -DSPEC_CPU_LP64</td>
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<tr>
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<tr>
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<td>471.omnetpp</td>
<td>-D_FILE_OFFSET_BITS=64</td>
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Peak Optimization Flags

C benchmarks:

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<td>400.perlbench</td>
<td>-xCORE-AVX2(pas 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 -opt-prec-div -opt-prefetch</td>
</tr>
<tr>
<td>491.bzip2</td>
<td>-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</td>
</tr>
<tr>
<td>493.gcc</td>
<td>-xCORE-AVX2 -ipo -O3 -no-prec-div -inline-calloc -opt-malloc-options=3 -auto-ilp32</td>
</tr>
<tr>
<td>429.mcf</td>
<td>-xCORE-AVX2 -ipo -O3 -no-prec-div -parallel -opt-prefetch -auto-p32</td>
</tr>
<tr>
<td>445.gobmk</td>
<td>basepeak = yes</td>
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Huawei CH121 V3 (Intel Xeon E5-2637 v4) SPECint2006 = NC
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CPU2006 license: 3175
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Tested by: Huawei
Software Availability: Mar-2016

Peak Optimization Flags (Continued)

456.hmmer: basepeak = yes
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 1) -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-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: -xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch
              -ansi-alias
              -Wl,-z,muldefs -L/sh -lsmartheap

Peak Other Flags

C benchmarks:
403.gcc: -Dalloca=_alloca

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 CINT2006 Result

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For other inquiries, please contact webmaster@spec.org.

Tested with SPEC CPU2006 v1.2.
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