Huawei

Huawei CH121 V3 (Intel Xeon E5-2660 v3)

CPU2006 license: 3175
Test sponsor: Huawei
Tested by: Huawei

SPECint\_rate2006 = 893
SPECint\_rate_base2006 = 865

Hardware

<table>
<thead>
<tr>
<th>CPU Name:</th>
<th>Intel Xeon E5-2660 v3</th>
</tr>
</thead>
<tbody>
<tr>
<td>CPU Characteristics:</td>
<td>Intel Turbo Boost Technology up to 3.30 GHz</td>
</tr>
<tr>
<td>CPU MHz:</td>
<td>2600</td>
</tr>
<tr>
<td>FPU:</td>
<td>Integrated</td>
</tr>
<tr>
<td>CPU(s) enabled:</td>
<td>20 cores, 2 chips, 10 cores/chip, 2 threads/core</td>
</tr>
<tr>
<td>CPU(s) orderable:</td>
<td>1.2 chip</td>
</tr>
<tr>
<td>Primary Cache:</td>
<td>32 KB I + 32 KB D on chip per core</td>
</tr>
<tr>
<td>Secondary Cache:</td>
<td>256 KB I+D on chip per core</td>
</tr>
<tr>
<td>L3 Cache:</td>
<td>25 MB I+D on chip per chip</td>
</tr>
<tr>
<td>Other Cache:</td>
<td>None</td>
</tr>
<tr>
<td>Memory:</td>
<td>256 GB (16 x 16 GB 2Rx4 PC4-2133P-R)</td>
</tr>
<tr>
<td>Disk Subsystem:</td>
<td>1 x 256 GB SATA, SSD</td>
</tr>
<tr>
<td>Other Hardware:</td>
<td>None</td>
</tr>
</tbody>
</table>

Software

<table>
<thead>
<tr>
<th>Operating System:</th>
<th>Red Hat Enterprise Linux Server release 6.5 (Santiago)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Compiler:</td>
<td>C++: Version 14.0.0.080 of Intel C++ Studio XE for Linux</td>
</tr>
<tr>
<td>Auto Parallel:</td>
<td>No</td>
</tr>
<tr>
<td>File System:</td>
<td>ext4</td>
</tr>
<tr>
<td>System State:</td>
<td>Run level 3 (multi-user)</td>
</tr>
<tr>
<td>Base Pointers:</td>
<td>32-bit</td>
</tr>
<tr>
<td>Peak Pointers:</td>
<td>32/64-bit</td>
</tr>
<tr>
<td>Other Software:</td>
<td>Microquill SmartHeap V10.0</td>
</tr>
</tbody>
</table>
### Huawei CH121 V3 (Intel Xeon E5-2660 v3)

**CPU2006 license:** 3175  
**Test date:** Aug-2014  
**Hardware Availability:** Sep-2014  
**Test sponsor:** Huawei  
**Tested by:** Huawei  
**Software Availability:** Nov-2013

### Results Table

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Copies</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Base</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Peak</th>
<th>Seconds</th>
<th>Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>400.perlbench</td>
<td>40</td>
<td>588</td>
<td>665</td>
<td>585</td>
<td>668</td>
<td>590</td>
<td>662</td>
<td>40</td>
<td>484</td>
</tr>
<tr>
<td>401.bzip2</td>
<td>40</td>
<td>907</td>
<td>425</td>
<td>910</td>
<td>424</td>
<td>907</td>
<td>426</td>
<td>40</td>
<td>870</td>
</tr>
<tr>
<td>403.gcc</td>
<td>40</td>
<td>487</td>
<td>661</td>
<td>486</td>
<td>663</td>
<td>487</td>
<td>661</td>
<td>40</td>
<td>487</td>
</tr>
<tr>
<td>429.mcf</td>
<td>40</td>
<td>308</td>
<td>1180</td>
<td>310</td>
<td>1180</td>
<td>309</td>
<td>1180</td>
<td>40</td>
<td>308</td>
</tr>
<tr>
<td>445.gobmk</td>
<td>40</td>
<td>712</td>
<td>589</td>
<td>710</td>
<td>591</td>
<td>710</td>
<td>591</td>
<td>40</td>
<td>695</td>
</tr>
<tr>
<td>456.hmmer</td>
<td>40</td>
<td>310</td>
<td>1210</td>
<td>308</td>
<td>1210</td>
<td>309</td>
<td>1210</td>
<td>40</td>
<td>307</td>
</tr>
<tr>
<td>458.sjeng</td>
<td>40</td>
<td>771</td>
<td>628</td>
<td>772</td>
<td>627</td>
<td>775</td>
<td>625</td>
<td>40</td>
<td>756</td>
</tr>
<tr>
<td>462.libquantum</td>
<td>40</td>
<td>100</td>
<td>8290</td>
<td>99.3</td>
<td>8340</td>
<td>99.6</td>
<td>8320</td>
<td>40</td>
<td>100</td>
</tr>
<tr>
<td>464.h264ref</td>
<td>40</td>
<td>874</td>
<td>1010</td>
<td>887</td>
<td>998</td>
<td>881</td>
<td>1010</td>
<td>40</td>
<td>843</td>
</tr>
<tr>
<td>471.omnetpp</td>
<td>40</td>
<td>524</td>
<td>477</td>
<td>523</td>
<td>478</td>
<td>524</td>
<td>477</td>
<td>40</td>
<td>496</td>
</tr>
<tr>
<td>473.astar</td>
<td>40</td>
<td>595</td>
<td>472</td>
<td>591</td>
<td>475</td>
<td>591</td>
<td>475</td>
<td>40</td>
<td>595</td>
</tr>
<tr>
<td>483.xalancbmk</td>
<td>40</td>
<td>294</td>
<td>939</td>
<td>294</td>
<td>940</td>
<td>294</td>
<td>940</td>
<td>40</td>
<td>294</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"

### Platform Notes

BIOS configuration:  
Set Power Efficiency Mode to Custom  
Set Snoop Mode to COD  
Baseboard Management Controller used to adjust the fan speed to 100%  
Sysinfo program /spec/config/sysinfo.rev6818  
$Rev: 6818 $ $Date:: 2012-07-17 #$ e86d102572650a6e4d596a3cee98f191  
running on xjt Sat Aug 30 13:26:47 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 E5-2660 v3 @ 2.60GHz  
2 "physical id"s (chips)  
40 "processors"  
cores, siblings (Caution: counting these is hw and system dependent. The Continued on next page
platform notes (continued)

following excerpts from /proc/cpuinfo might not be reliable. use with caution.)
  cpu cores : 10
  siblings : 20
  physical 0: cores 0 1 2 3 4 8 9 10 11 12
  physical 1: cores 0 1 2 3 4 8 9 10 11 12
  cache size : 12800 KB

from /proc/meminfo
  memtotal: 264299332 kB
  hiugepages_total: 0
  hiugepagesize: 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:6:server:
general notes

environment variables set by runspec before the start of the run:
  ld_library_path = "/spec/libs/32:/spec/libs/64:/spec/sh"

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
filesystem page cache cleared with:
  echo 1> /proc/sys/vm/drop_caches

(continued on next page)
### Huawei

Huawei CH121 V3 (Intel Xeon E5-2660 v3)

<table>
<thead>
<tr>
<th>SPECint_rate2006</th>
<th>893</th>
</tr>
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<tr>
<td>SPECint_rate_base2006</td>
<td>865</td>
</tr>
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**Tested by**: Huawei

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#### General Notes (Continued)

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 -m32

- **C++ benchmarks**:
  - icpc -m32

---

#### Base Portability Flags

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Flags</th>
</tr>
</thead>
<tbody>
<tr>
<td>400.perlbench</td>
<td>-DSPEC_CPU_LINUX_IA32</td>
</tr>
<tr>
<td>462.libquantum</td>
<td>-DSPEC_CPU_LINUX</td>
</tr>
<tr>
<td>483.xalancbmk</td>
<td>-DSPEC_CPU_LINUX</td>
</tr>
</tbody>
</table>

---

#### 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

---

#### Peak Compiler Invocation

**C benchmarks (except as noted below)**:
- icc -m32

---

Continued on next page
SPEC CINT2006 Result

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Huawei CH121 V3 (Intel Xeon E5-2660 v3)

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SPECint_rate_base2006 = 865

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Test date: Aug-2014
Hardware Availability: Sep-2014
Software Availability: Nov-2013

Peak Compiler Invocation (Continued)

400.perlbench: icc -m64
401.bzip2: icc -m64
456.hmmer: icc -m64
458.sjeng: icc -m64

C++ benchmarks:
icpc -m32

Peak Portability Flags

400.perlbench: -DSPEC_CPU_LP64 -DSPEC_CPU_LINUX_X64
401.bzip2: -DSPEC_CPU_LP64
456.hmmer: -DSPEC_CPU_LP64
458.sjeng: -DSPEC_CPU_LP64
462.libquantum: -DSPEC_CPU_LINUX
483.xalancbmk: -DSPEC_CPU_LINUX

Peak Optimization Flags

C benchmarks:

400.perlbench: -xCORE-AVX2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
-03(pass 2) -no-prec-div(pass 2) -prof-use(pass 2)
-auto-ilp32
401.bzip2: -xCORE-AVX2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
-03(pass 2) -no-prec-div(pass 2) -prof-use(pass 2)
-opt-prefetch -auto-ilp32 -ansi-alias
403.gcc: basepeak = yes
429.mcf: basepeak = yes
445.gobmk: -xCORE-AVX2(pass 2) -prof-gen(pass 1) -prof-use(pass 2)
-ansi-alias -opt-mem-layout-trans=3
456.hmmer: -xCORE-AVX2 -ipo -03 -no-prec-div -unroll2 -auto-ilp32
458.sjeng: -xCORE-AVX2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
-03(pass 2) -no-prec-div(pass 2) -prof-use(pass 2)
-unroll4 -auto-ilp32

Continued on next page
Peak Optimization Flags (Continued)

462.libquantum: basepeak = yes

464.h264ref: -xCORE-AVX2(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: -xCORE-AVX2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
-O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2)
-ansi-alias -opt-ra-region-strategy=block -Wl,-z,muldefs
-L/sh -lsmartheap

473.astar: basepeak = yes
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-ic14.0-official-linux64.20140128.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.

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