**Huawei**

**Huawei CH220 V3 (Intel Xeon E5-2650L v4)**

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>SPECint2006</th>
<th>SPECint_base2006</th>
</tr>
</thead>
<tbody>
<tr>
<td>400.perlbench</td>
<td>42.5</td>
<td></td>
</tr>
<tr>
<td>401.bzip2</td>
<td>50.1</td>
<td></td>
</tr>
<tr>
<td>403.gcc</td>
<td>52.1</td>
<td></td>
</tr>
<tr>
<td>429.mcf</td>
<td>42.5</td>
<td></td>
</tr>
<tr>
<td>445.gobmk</td>
<td>54.1</td>
<td></td>
</tr>
<tr>
<td>456.hmmer</td>
<td>61.4</td>
<td></td>
</tr>
<tr>
<td>458.sjeng</td>
<td>25.6</td>
<td></td>
</tr>
<tr>
<td>462.libquantum</td>
<td>39.4</td>
<td></td>
</tr>
<tr>
<td>464.h264ref</td>
<td>39.1</td>
<td></td>
</tr>
<tr>
<td>471.omnetpp</td>
<td>44.7</td>
<td></td>
</tr>
<tr>
<td>473.astar</td>
<td>35.4</td>
<td></td>
</tr>
<tr>
<td>483.xalancbmk</td>
<td>56.9</td>
<td></td>
</tr>
</tbody>
</table>

**Hardware**

- **CPU Name:** Intel Xeon E5-2650L v4
- **CPU Characteristics:** Intel Turbo Boost Technology up to 2.50 GHz
- **CPU MHz:** 1700
- **CPU(s) enabled:** 28 cores, 2 chips, 14 cores/chip
- **FPU:** Integrated
- **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:** 35 MB I+D on chip per chip
- **Other Cache:** None
- **Memory:** 256 GB (8 x 32 GB 2Rx4 PC4-2400T-R)
- **Disk Subsystem:** 1 x 600 GB SAS, 10000 RPM
- **Other Hardware:** None

**Software**

- **Operating System:** SUSE Linux Enterprise Server 12 SP1 (x86_64) 3.12.49-11-default
- **Compiler:** C/C++: 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
Huawei

Huawei CH220 V3 (Intel Xeon E5-2650L v4)

SPECint2006 = 53.2
SPECint_base2006 = 51.2

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

Results Table

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Seconds (Base)</th>
<th>Seconds (Peak)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Seconds (Ratio)</td>
<td>Seconds (Ratio)</td>
</tr>
<tr>
<td>400.perlbench</td>
<td>328</td>
<td>328</td>
</tr>
<tr>
<td>401.bzip2</td>
<td>528</td>
<td>527</td>
</tr>
<tr>
<td>403.gcc</td>
<td>272</td>
<td>272</td>
</tr>
<tr>
<td>429.mcf</td>
<td>174</td>
<td>175</td>
</tr>
<tr>
<td>445.gobmk</td>
<td>488</td>
<td>488</td>
</tr>
<tr>
<td>456.hmmer</td>
<td>151</td>
<td>152</td>
</tr>
<tr>
<td>458.sjeng</td>
<td>477</td>
<td>478</td>
</tr>
<tr>
<td>462.libquantum</td>
<td>3.73</td>
<td>3.79</td>
</tr>
<tr>
<td>464.h264ref</td>
<td>567</td>
<td>567</td>
</tr>
<tr>
<td>471.omnetpp</td>
<td>177</td>
<td>177</td>
</tr>
<tr>
<td>473.astar</td>
<td>261</td>
<td>259</td>
</tr>
<tr>
<td>483.xalancbmk</td>
<td>121</td>
<td>121</td>
</tr>
</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

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

From /proc/cpuinfo
model name : Intel(R) Xeon(R) CPU E5-2650L v4@ 1.70GHz
2 "physical id"s (chips)
28 "processors"
cores, siblings (Caution: counting these is hw and system dependent. The following excerpts from /proc/cpuinfo might not be reliable. Use with
Continued on next page
Huawei

Huawei CH220 V3 (Intel Xeon E5-2650L v4)

SPECint2006 = 53.2
SPECint_base2006 = 51.2

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

Test date: Nov-2016
Hardware Availability: Mar-2016
Software Availability: Dec-2015

Platform Notes (Continued)

cautions.)
  cpu cores : 14
  siblings : 14
  physical 0: cores 0 1 2 3 4 5 6 8 9 10 11 12 13 14
  physical 1: cores 0 1 2 3 4 5 6 8 9 10 11 12 13 14
  cache size : 35840 KB

From /proc/meminfo
  MemTotal:  264271940 kB
  HugePages_Total: 0
  Hugepagesize: 2048 kB

From /etc/*release* /etc/*version*
  SuSE-release:
    SUSE Linux Enterprise Server 12 (x86_64)
    VERSION = 12
    PATCHLEVEL = 1
    # This file is deprecated and will be removed in a future service pack or
    # please check /etc/os-release for details about this release.
  os-release:
    NAME="SLES"
    VERSION="12-SP1"
    VERSION_ID="12.1"
    PRETTY_NAME="SUSE Linux Enterprise Server 12 SP1"
    ID="sles"
    ANSI_COLOR="0;32"
    CPE_NAME="cpe:/o:suse:sles:12:sp1"

uname -a:
  (8d714a0) x86_64 x86_64 x86_64 GNU/Linux

run-level 3 Nov 25 12:45

SPEC is set to: /spec16
  Filesystem Type Size Used Avail Use% Mounted on
  /dev/sda1 ext4 551G 106G 443G 20% /

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. 3.31 08/22/2016
Memory:
  8x Micron 36ASF4G72PZ-2G3B1 32 GB 2 rank 2400 MHz
  8x NO DIMM NO DIMM

(End of data from sysinfo program)
Huawei

Huawei CH220 V3 (Intel Xeon E5-2650L v4)

**SPECint2006 = 53.2**  
**SPECint_base2006 = 51.2**

**CPU2006 license:** 3175  
**Test date:** Nov-2016  
**Test sponsor:** Huawei  
**Hardware Availability:** Mar-2016  
**Tested by:** Huawei  
**Software Availability:** Dec-2015

### General Notes

Environment variables set by runspec 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 = "28"

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  
runcspec 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
Huawei
Huawei CH220 V3 (Intel Xeon E5-2650L v4)

SPECint2006 = 53.2
SPECint_base2006 = 51.2

CPU2006 license: 3175
Test date: Nov-2016
Test sponsor: Huawei
Hardware Availability: Mar-2016
Tested by: Huawei
Software Availability: Dec-2015

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
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:threadsafepass 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:threadsafepass 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

Continued on next page
Huawei CH220 V3 (Intel Xeon E5-2650L v4)

Huawei

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

SPECint2006 = 53.2
SPECint_base2006 = 51.2

Hardware Availability: Mar-2016
Software Availability: Dec-2015

Peak Optimization Flags (Continued)

403.gcc: basepeak = yes
429.mcf: basepeak = yes
445.gobmk: basepeak = yes
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 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-strategy=block
            -ansi-alias
            -Wl,-z,muldefs -L/sh -lsmartheap

473.astar: basepeak = yes

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

Peak Other Flags

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
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
# SPEC CINT2006 Result

**Huawei**

Huawei CH220 V3 (Intel Xeon E5-2650L v4)

| SPECint2006 | 53.2 |
| SPECint_base2006 | 51.2 |

| CPU2006 license: | 3175 |
| Test sponsor: | Huawei |
| Tested by: | Huawei |
| Test date: | Nov-2016 |
| Hardware Availability: | Mar-2016 |
| Software Availability: | Dec-2015 |

SPEC and SPECint are registered trademarks of the Standard Performance Evaluation Corporation. All other brand and product names appearing in this result are trademarks or registered trademarks of their respective holders.

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

Tested with SPEC CPU2006 v1.2.
Originally published on 13 December 2016.