## SPEC® CINT2006 Result

### Huawei

**Huawei CH121 V3 (Intel Xeon E5-2667 v4)**

| SPECint®2006 = | 72.8 |
| SPECint_base2006 = | 69.2 |

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

**400.perlbench** | 42.4 | 46.3 |
---|---|---|
**401.bzip2** | 26.2 | 26.6 |
**403.gcc** | 39.4 | 39.4 |
**429.mcf** | 70.1 | 31.2 |
**445.gobmk** | 69.1 | 36.6 |
**456.hmmer** | 68.6 | 38.3 |
**458.sjeng** | 86.9 | 36.6 |
**462.libquantum** | 38.3 | 38.3 |
**464.h264ref** | 77.5 | 77.5 |
**471.omnetpp** | 86.9 | 86.9 |
**473.astar** | 52.2 | 52.2 |
**483.xalancbmk** | 36.6 | 36.6 |

**SPECint2006 = 72.8**

**SPECint_base2006 = 69.2**

### Hardware

<table>
<thead>
<tr>
<th>Specification</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>CPU Name</td>
<td>Intel Xeon E5-2667 v4</td>
</tr>
<tr>
<td>CPU Characteristics</td>
<td>Intel Turbo Boost Technology up to 3.60 GHz</td>
</tr>
<tr>
<td>CPU MHZ</td>
<td>3200</td>
</tr>
<tr>
<td>FPU</td>
<td>Integrated</td>
</tr>
<tr>
<td>CPU(s) enabled</td>
<td>16 cores, 2 chips, 8 cores/chip</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>512 GB (16 x 32 GB 2Rx4 PC4-2400T-R)</td>
</tr>
<tr>
<td>Disk Subsystem</td>
<td>1 x 1000 GB SATA, 7200 RPM</td>
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<tr>
<td>Other Hardware</td>
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</table>

### Software

<table>
<thead>
<tr>
<th>Specification</th>
<th>Details</th>
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</thead>
<tbody>
<tr>
<td>Operating System</td>
<td>SUSE Linux Enterprise Server 12 SP1 3.12.49-11-default</td>
</tr>
<tr>
<td>Compiler</td>
<td>C++: Version 16.0.0.101 of Intel C++ Studio XE for Linux</td>
</tr>
<tr>
<td>Auto Parallel</td>
<td>Yes</td>
</tr>
<tr>
<td>File System</td>
<td>xfs</td>
</tr>
<tr>
<td>System State</td>
<td>Run level 3 (multi-user)</td>
</tr>
<tr>
<td>Base Pointers</td>
<td>32/64-bit</td>
</tr>
<tr>
<td>Peak Pointers</td>
<td>32/64-bit</td>
</tr>
<tr>
<td>Other Software</td>
<td>Microquill SmartHeap V10.2</td>
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</table>
Results Table

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Seconds</th>
<th>Ratio</th>
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<th>Ratio</th>
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<tr>
<td>403.gcc</td>
<td>204</td>
<td>39.4</td>
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<td>39.4</td>
<td>204</td>
<td>39.4</td>
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<tr>
<td>429.mcf</td>
<td>133</td>
<td>68.8</td>
<td>132</td>
<td>69.1</td>
<td>131</td>
<td>69.7</td>
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<td>445.gobmk</td>
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<td>31.2</td>
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<td>456.hmmer</td>
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<td>36.1</td>
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<td>462.libquantum</td>
<td>3.40</td>
<td>6100</td>
<td>3.45</td>
<td>6010</td>
<td>3.46</td>
<td>5980</td>
<td>3.40</td>
<td>6100</td>
<td>3.45</td>
<td>6010</td>
<td>3.46</td>
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<tr>
<td>464.h264ref</td>
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<td>62.1</td>
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<td>62.0</td>
<td>359</td>
<td>61.7</td>
<td>356</td>
<td>62.1</td>
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<td>62.0</td>
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<td>471.omnetpp</td>
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<td>36.9</td>
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<td>36.6</td>
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<td>51.6</td>
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<td>52.2</td>
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<tr>
<td>473.astar</td>
<td>185</td>
<td>38.0</td>
<td>183</td>
<td>38.3</td>
<td>183</td>
<td>38.4</td>
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<td>38.3</td>
<td>183</td>
<td>38.3</td>
<td>183</td>
<td>38.3</td>
</tr>
<tr>
<td>483.xalancbmk</td>
<td>89.1</td>
<td>77.8</td>
<td>88.8</td>
<td>77.7</td>
<td>90.0</td>
<td>76.7</td>
<td>79.5</td>
<td>86.8</td>
<td>79.4</td>
<td>86.9</td>
<td>79.2</td>
<td>87.2</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 Performance
Set Snoop Mode to ES mode
Set Patrol Scrub to Disable
Set Hyper-Threading to Disable
Baseboard Management Controller used to adjust the fan speed to 100%
Sysinfo program /spec16/config/sysinfo.rev6914
$Rev: 6914 $ $Date:: 2014-06-25 $e3fbb8667b5a2865932ceab8e28219e1
running on linux-4m6y Mon Nov 7 18:00:26 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 E5-2667 v4 @ 3.20GHz
2 "physical id"s (chips)
16 "processors"
cores, siblings (Caution: counting these is hw and system dependent. The Continued on next page
Huawei CH121 V3 (Intel Xeon E5-2667 v4)

Huawei

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

SPECint2006 = 72.8
SPECint_base2006 = 69.2

Platform Notes (Continued)

following excerpts from /proc/cpuinfo might not be reliable. Use with caution.)
  cpu cores : 8
  siblings : 8
  physical 0: cores 0 2 3 4 8 10 11 12
  physical 1: cores 0 2 3 4 8 10 11 12
  cache size : 25600 KB

From /proc/meminfo
  MemTotal: 528829580 kB
  HugePages_Total: 0
  Hugepagesize: 2048 kB

/usr/bin/lsb_release -d
  SUSE Linux Enterprise Server 12 SP1

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 release.
    # 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:
  Linux linux-4m6y 3.12.49-11-default #1 SMP Wed Nov 11 20:52:43 UTC 2015
  (8d714a0) x86_64 x86_64 x86_64 GNU/Linux

run-level 3 Nov 7 13:20 last=5

SPEC is set to: /spec16
  Filesystem  Type  Size  Used  Avail Use% Mounted on
  /dev/sda2    xfs   456G  113G  344G  25% /

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. 3.32 09/14/2016
Memory:
  8x NO DIMM NO DIMM
Huawei
Huawei CH121 V3 (Intel Xeon E5-2667 v4)

SPECint2006 = 72.8
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Platform Notes (Continued)

16x Samsung M393A4K40BB1-CRC 32 GB 2 rank 2400 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 = "/spec16/libs/32:/spec16/libs/64:/spec16/sh"
OMP_NUM_THREADS = "16"

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

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 -DSPEC_CPU_LINUX
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
Huawei

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Test date: Nov-2016
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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

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
### SPEC CINT2006 Result

#### Huawei

Huawei CH121 V3 (Intel Xeon E5-2667 v4)

<table>
<thead>
<tr>
<th>SPECint2006</th>
<th>72.8</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPECint_base2006</td>
<td>69.2</td>
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</tbody>
</table>

**CPU2006 license**: 3175  
**Test sponsor**: Huawei  
**Tested by**: Huawei  
**Test date**: Nov-2016  
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#### 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`
- `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`: `-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`

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#### Peak Other Flags

**C benchmarks**: Continued on next page
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Huawei CH121 V3 (Intel Xeon E5-2667 v4)

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SPECint_base2006  =       69.2

CPU2006 license: 3175
Test sponsor:     Huawei
Test date:        Nov-2016
Tested by:       Huawei
Hardware Availability: Mar-2016
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Peak Other Flags (Continued)

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

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