Huawei CH121 V3 (Intel Xeon E5-2603 v3)

**SPECint\_rate2006 = 275**

**SPECint\_rate_base2006 = 265**

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

<table>
<thead>
<tr>
<th>Hardware</th>
<th>Software</th>
</tr>
</thead>
</table>
| **CPU Name:** | Operating System: Red Hat Enterprise Linux Server release 6.5 (Santiago)  
**CPU Characteristics:** | 2.6.32-431.el6.x86_64  
**CPU MHz:** | Compiler: C/C++: Version 14.0.0.080 of Intel C++ Studio XE for Linux |
| 1600 | Auto Parallel: No |
| FPU: Integrated | File System: ext4 |
| CPU(s) enabled: 12 cores, 2 chips, 6 cores/chip | System State: Run level 3 (multi-user) |
| CPU(s) orderable: 1.2 chip | Base Pointers: 32-bit |
| Primary Cache: 32 KB I + 32 KB D on chip per core | Peak Pointers: 32/64-bit |
| Secondary Cache: 256 KB I+D on chip per core | Other Software: Microquill SmartHeap V10.0 |
| L3 Cache: 15 MB I+D on chip per chip | |
| Other Cache: None | |
| Memory: 256 GB (16 x 16 GB 2Rx4 PC4-2133P-R, running at 1600 MHz) | |
| Disk Subsystem: 1 x 300 GB SAS, 10K RPM | |
| Other Hardware: None | |

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**Software Availability:** Sep-2014  
**Test date:** Sep-2014  
**Hardware Availability:** Nov-2013  
**Test sponsor:** Huawei
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#### Results Table

<table>
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<th>Seconds</th>
<th>Ratio</th>
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<td>325</td>
</tr>
</tbody>
</table>

Results appear in the order in which they were run. Bold underlined text indicates a median measurement.

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### 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.

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### Operating System Notes

Stack size set to unlimited using "ulimit -s unlimited"

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### Platform Notes

BIOS configuration:
Set Power Efficiency Mode to Custom  
Set Snoop Mode to HS  
Set Hyper-Threading to Disabled  
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 administrator Tue Sep 2 16:57:41 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 E5-2603 v3 @ 1.60GHz  
2 "physical id"s (chips)  
12 "processors"

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Huawei

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### Platform Notes (Continued)

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 : 6
- siblings : 6
- physical 0: cores 0 1 2 3 4 5
- physical 1: cores 0 1 2 3 4 5
- cache size : 15360 KB

From /proc/meminfo
- MemTotal: 264277800 kB
- HugePages_Total: 0
- Hugepagesize: 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)

uname -a:
- Linux administrator 2.6.32-431.el6.x86_64 #1 SMP Sun Nov 10 22:19:54 EST 2013
  x86_64 x86_64 x86_64 GNU/Linux

run-level 3 Sep 2 16:55

SPEC is set to:
- /spec
- Filesystem      Type  Size  Used Avail Use% Mounted on
  /dev/sda1      ext4  231G  85G  135G  39%  /

Additional information from dmidecode:
- BIOS Insyde Corp. 1.16 09/02/2014
- Memory:
  - 8x NO DIMM NO DIMM 3 rank
  - 8x Samsung M393A2G40DB0-CPB 16 GB 1600 MHz 1 rank
  - 8x Samsung M393A2G40DB0-CPB 16 GB 1600 MHz 2 rank

(End of data from sysinfo program)

---

### 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:

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General Notes (Continued)

echo 1> /proc/sys/vm/drop_caches
runspec command invoked through numacl --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

400.perlbench: -DSPEC_CPU_LINUX_IA32  
462.libquantum: -DSPEC_CPU_LINUX  
483.xalancbmk: -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 -lismartheap

Base Other Flags

C benchmarks:  
  403.gcc: -Dalloca=_alloca

Peak Compiler Invocation

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

Continued on next page
Huawei

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Tested by: Huawei

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 -unroll12 -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)
-unroll14 -auto-ilp32

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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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