Huawei

Huawei CH222 V3 (Intel Xeon E5-2609 v3)

<table>
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<tr>
<th>Application</th>
<th>SPECint_rate2006</th>
<th>SPECint_rate_base2006</th>
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<td>400.perlbench</td>
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<td>429.mcf</td>
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CPU2006 license: 3175
Test date: Jan-2015
Test sponsor: Huawei
Hardware Availability: Sep-2014
Tested by: Huawei
Software Availability: Jun-2014

Hardware

| CPU Name: | Intel Xeon E5-2609 v3 |
|----------------|
| CPU Characteristics: |
| CPU MHz: | 1900 |
| FPU: | Integrated |
| CPU(s) enabled: | 12 cores, 2 chips, 6 cores/chip |
| CPU(s) orderable: | 12 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 PC4-2133P-R, running at 1600 MHz) |
| Disk Subsystem: | 1 x 500 GB SATA, 7200 RPM |
| Other Hardware: | None |

Software

<table>
<thead>
<tr>
<th>Operating System:</th>
<th>Red Hat Enterprise Linux Server release 7.0 (Maipo) 3.10.0-123.el7.x86_64</th>
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<tbody>
<tr>
<td>Compiler:</td>
<td>C++: Version 15.0.0.090 of Intel C++ Studio XE for Linux</td>
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<tr>
<td>Auto Parallel:</td>
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<td>xfs</td>
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<tr>
<td>System State:</td>
<td>Run level 3 (multi-user)</td>
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<tr>
<td>Base Pointers:</td>
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<tr>
<td>Peak Pointers:</td>
<td>32/64-bit</td>
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<tr>
<td>Other Software:</td>
<td>Microquill SmartHeap V10.0</td>
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Huawei

Huawei CH222 V3 (Intel Xeon E5-2609 v3)

SPECint_rate2006 = 320
SPECint_rate_base2006 = 311

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

Results Table

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<tr>
<th>Benchmark</th>
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</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 ES
Set Hyper-Threading to Disabled
Set Patrol Scrub to Disable
Baseboard Management Controller used to adjust the fan speed to 100%
Sysinfo program /spec15/config/sysinfo.rev6914
$Rev: 6914 $ $Date:: 2014-06-25 $ e3fbb8667b5a285932ceab8e28219e1
running on localhost.localdomain Fri Jan  9 06:48:28 2015

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 E5-2609 v3 @ 1.90GHz
    2 "physical id"s (chips)
Huawei

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**SPECint_rate2006** = 320

**SPECint_rate_base2006** = 311

**CPU2006 license:** 3175

**Test date:** Jan-2015

**Test sponsor:** Huawei

**Hardware Availability:** Sep-2014

**Tested by:** Huawei

**Software Availability:** Jun-2014

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**Platform Notes (Continued)**

12 "processors"
cores, siblings (Caution: counting these is hw and system dependent. The
following excerpts from /proc/cpuinfo might not be reliable. Use with
cautions.)

```
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: 263721952 kB
HugePages_Total: 0
Hugepagesize: 2048 kB
```

From /etc/*release* /etc/*version*

```
os-release:
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: Red Hat Enterprise Linux Server release 7.0 (Maipo)
system-release-cpe: 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 Jan 9 06:46
```

SPEC is set to: /spec15

```
Filesystem Type Size Used Avail Use% Mounted on
/dev/sda2 xfs 510G 207G 304G 41% /
```

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. 1.19 10/10/2014
Memory:
8x NO DIMM NO DIMM 3 rank
8x Samsung M393A2G40DB0-CPB 16 GB 1 rank 2133 MHz, configured at 1600 MHz
8x Samsung M393A2G40DB0-CPB 16 GB 2 rank 2133 MHz, configured at 1600 MHz
```

(End of data from sysinfo program)
Huawei

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General Notes

Environment variables set by runspec before the start of the run:
LD_LIBRARY_PATH = "/spec15/libs/32:/spec15/libs/64:/spec15/sh"

Binaries compiled on a system with 1x Core i5-4670K CPU + 16GB memory using RedHat EL 7.0
Transparent Huge Pages enabled with:
echo always > /sys/kernel/mm/transparent_hugepage/enabled
Filesystem page cache cleared with:
echo 1>/proc/sys/vm/drop_caches
runcspec command invoked through numactl i.e.:
umactl --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 -L/opt/intel/composer_xe_2015/lib/ia32

C++ benchmarks:
icpc -m32 -L/opt/intel/composer_xe_2015/lib/ia32

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 -lsmartheap

Base Other Flags

Continued on next page
Huawei

Huawei CH222 V3 (Intel Xeon E5-2609 v3)

SPECint\_rate2006 = 320
SPECint\_rate\_base2006 = 311

Base Other Flags (Continued)

403.gcc: -Dalloca=_alloca

Peak Compiler Invocation

C benchmarks (except as noted below):

\texttt{icc -m32 -L/opt/intel/composer\_xe\_2015/lib/ia32}

400.perlbench: \texttt{icc -m64}

401.bzip2: \texttt{icc -m64}

456.hmmer: \texttt{icc -m64}

458.sjeng: \texttt{icc -m64}

C++ benchmarks:

\texttt{icpc -m32 -L/opt/intel/composer\_xe\_2015/lib/ia32}

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-1lp32

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-1lp32 -ansi-alias

403.gcc: -xCORE-AVX2 -ipo -03 -no-prec-div

429.mcf: basepeak = yes
Huawei

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**SPECint_rate2006 = 320**

**SPECint_rate_base2006 = 311**

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</table>

**Peak Optimization Flags (Continued)**

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  
-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

462.libquantum:  
basepeak = yes

464.h264ref:  
-xCORE-AVX2(pass 2)  
-prof-gen(pass 1)  
-ipo(pass 2)  
-03(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)  
-03(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-ic15.0-official-linux64.html

http://www.spec.org/cpu2006/flags/Huawei-Platform-Settings-HASWELL-V1.2.html

You can also download the XML flags sources by saving the following links:

http://www.spec.org/cpu2006/flags/Intel-ic15.0-official-linux64.xml

http://www.spec.org/cpu2006/flags/Huawei-Platform-Settings-HASWELL-V1.2.xml
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For other inquiries, please contact webmaster@spec.org.

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