Huawei CH226 V3 (Intel Xeon E5-2620 v4)

| SPECint®2006 | 59.8 |
| SPECint_base2006 | 56.9 |

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

| SPECint2006 = 59.8 |

| SPECint_base2006 = 56.9 |

**Hardware**

| CPU Name: | Intel Xeon E5-2620 v4 |
| CPU Characteristics: | Intel Turbo Boost Technology up to 3.00 GHz |
| CPU MHz: | 2100 |
| FPU: | Integrated |
| CPU(s) enabled: | 16 cores, 2 chips, 8 cores/chip |
| 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: | 20 MB I+D on chip per chip |
| Other Cache: | None |
| Memory: | 256 GB (16 x 16 GB 2Rx4 PC4-2133T-R) |
| Disk Subsystem: | 1 x 480 GB SATA SSD |
| Other Hardware: | None |

**Software**

| Operating System: | SUSE Linux Enterprise Server 12 SP1 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 |
SPEC CINT2006 Result

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Results Table

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<td>94.5</td>
<td>73.0</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
running on linux-1jfn Wed Oct 26 00:21:01 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 E5-2620 v4 @ 2.10GHz
  2 "physical id"s (chips)
  2 "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
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Platform Notes (Continued)

cautions.)
cpu cores : 8
siblings : 8
physical 0: cores 0 1 2 3 4 5 6 7
physical 1: cores 0 1 2 3 4 5 6 7
cache size : 20480 KB

From /proc/meminfo
MemTotal: 264064288 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 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-1jfn 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 Oct 25 14:12

SPEC is set to: /spec16
Filesystem Type Size Used Avail Use% Mounted on
/dev/sda1 ext4 394G 14G 380G 4% /

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 Insyne Corp. 3.32 09/14/2016
Memory:
16x Micron 36ASF2G72PZ-2G1A2 16 GB 2 rank 2133 MHz
8x NO DIMM NO DIMM

(End of data from sysinfo program)
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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 CH225 V3 and Huawei CH226 V3 are electronically equivalent.
The results have been measured on a Huawei CH225 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
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
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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

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**Peak Optimization Flags (Continued)**

- **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**

- **403.gcc:** -Dalloca=_alloca

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The flags files that were used to format this result can be browsed at

- [http://www.spec.org/cpu2006/flags/Huawei-Platform-Settings-BDW-V1.0.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/Huawei-Platform-Settings-BDW-V1.0.xml](http://www.spec.org/cpu2006/flags/Huawei-Platform-Settings-BDW-V1.0.xml)
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For other inquiries, please contact webmaster@spec.org.

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