SPEC® CINT2006 Result

Huawei

Huawei CH220 V3 (Intel Xeon E5-2643 v4)

$SPECint®2006 =$ 71.9

$SPECint\_base2006 =$ 68.3

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

0 200 400 600 800 1000 1200 1400 1600 1800 2000 2200 2400 2600 2800 3000 3200 3400 3600 3800 4000 4200 4400 4600 4800 5100

- **400.perlbench** 47.4 / 43.4
- **401.bzip2** 27.2 / 26.8
- **403.gcc** 39.6
- **429.mcf** 71.1
- **445.gobmk** 31.6
- **456.hmmer** 90.7
- **458.sjeng** 36.9 / 36.5
- **462.libquantum** 5050
- **464.h264ref** 62.9
- **471.omnetpp** 45.6 / 30.6
- **473.astar** 38.8 / 38.8
- **483.xalancbmk** 88.0 / 79.1

SPECint_base2006 = 68.3

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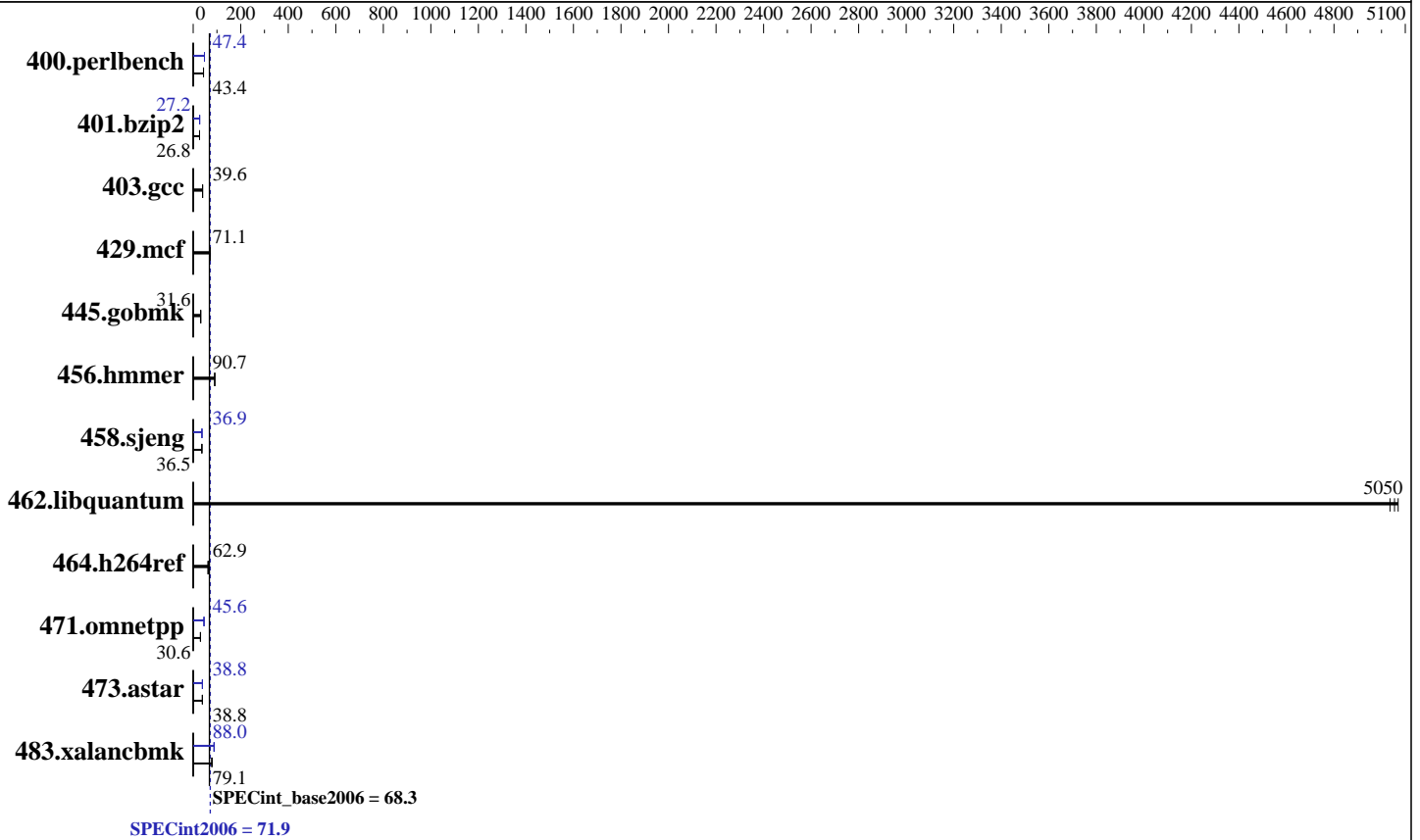
Hardware

CPU Name:	Intel Xeon E5-2643 v4
CPU Characteristics:	Intel Turbo Boost Technology up to 3.70 GHz
CPU MHz:	3400
FPU:	Integrated
CPU(s) enabled:	12 cores, 2 chips, 6 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 (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 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

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Results Table

Benchmark	Base						Peak					
	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
400.perlbench	224	43.6	**225**	**43.4**	226	43.3	206	47.4	206	47.5	**206**	**47.4**
401.bzip2	360	26.8	**360**	**26.8**	362	26.7	355	27.2	354	27.3	**355**	**27.2**
403.gcc	203	39.6	**203**	**39.6**	204	39.5	203	39.6	**203**	**39.6**	204	39.5
429.mcf	**128**	**71.1**	130	70.2	127	71.7	**128**	**71.1**	130	70.2	127	71.7
445.gobmk	**332**	**31.6**	332	31.6	332	31.6	**332**	**31.6**	332	31.6	332	31.6
456.hmmer	**103**	**90.7**	103	90.6	103	90.9	**103**	**90.7**	103	90.6	103	90.9
458.sjeng	**331**	**36.5**	332	36.5	331	36.6	**328**	**36.9**	328	36.9	328	36.9
462.libquantum	**4.10**	**5050**	4.09	5070	4.11	5040	**4.10**	**5050**	4.09	5070	4.11	5040
464.h264ref	**352**	**62.9**	351	63.0	352	62.9	**352**	**62.9**	351	63.0	352	62.9
471.omnetpp	**204**	**30.6**	204	30.6	204	30.6	137	45.5	**137**	**45.6**	137	45.6
473.astar	**181**	**38.8**	180	38.9	183	38.4	180	38.9	**181**	**38.8**	181	38.7
483.xalancbmk	87.0	79.3	88.3	78.1	**87.3**	**79.1**	**78.4**	**88.0**	78.7	87.7	78.3	88.2

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-a2sq Mon Nov 28 16:17:55 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 E5-2643 v4 @ 3.40GHz
         2 "physical id"s (chips)
         12 "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)

```
    caution.)
      cpu cores : 6
      siblings  : 6
      physical 0: cores 0 1 2 3 6 7
      physical 1: cores 0 1 2 3 6 7
    cache size : 20480 KB

  From /proc/meminfo
    MemTotal:       264063680 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-a2sq 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 28 15:59

  SPEC is set to: /spec16
    Filesystem     Type  Size  Used Avail Use% Mounted on
    /dev/sda2      xfs   558G   30G  529G   6% /
  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 Hynix HMA84GR7MFR4N-UH 32 GB 2 rank 2400 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 = "12"

 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>
```

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: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
```

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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: -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

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

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