SPEC® CINT2006 Result

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Huawei

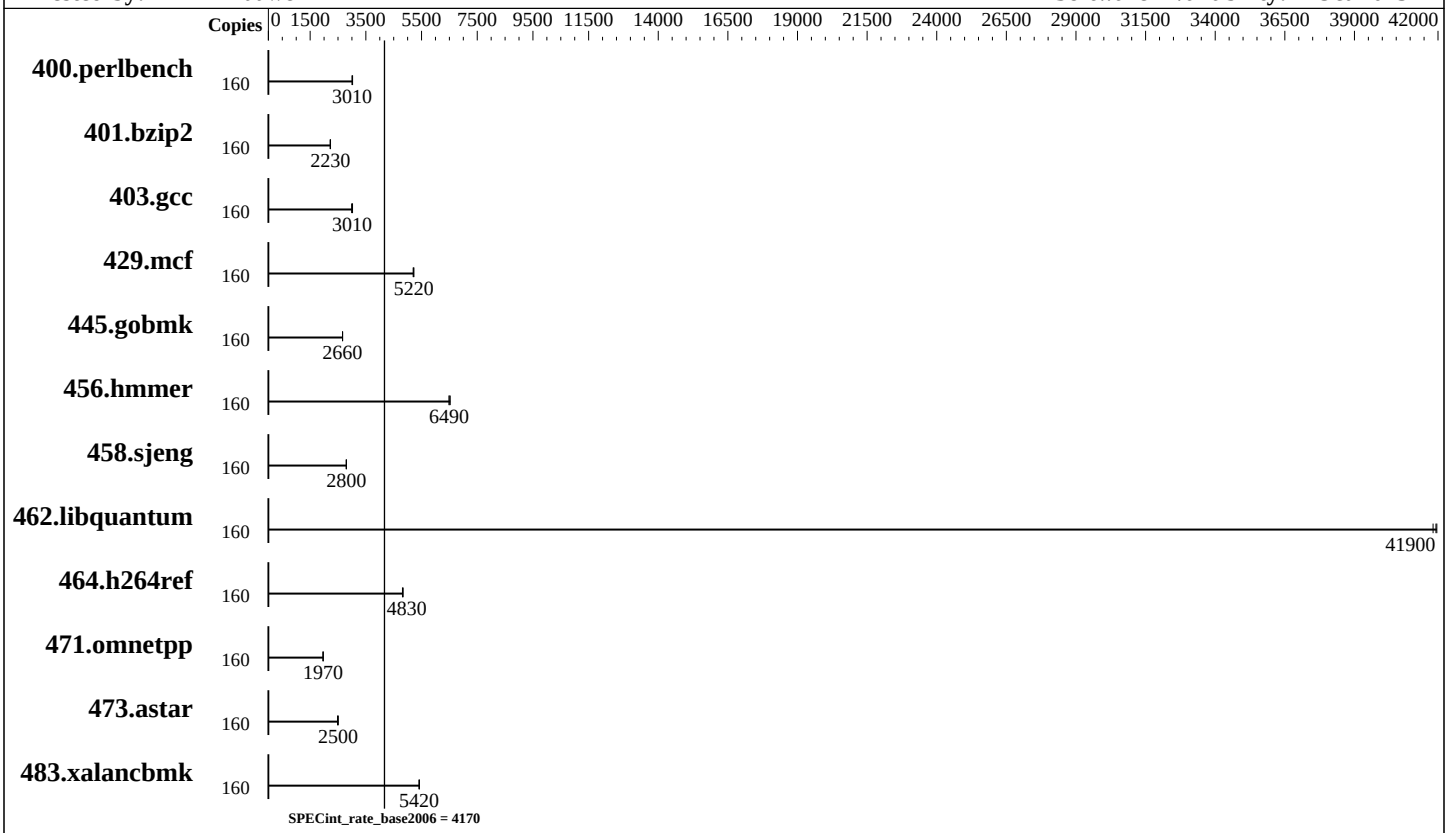
Huawei RH8100 V3 (Intel Xeon E7-8891 v4)

SPECint®_rate2006 = Not Run

SPECint_rate_base2006 = 4170

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

Test date: Aug-2016
Hardware Availability: Jun-2016
Software Availability: Oct-2015



Hardware

CPU Name:	Intel Xeon E7-8891 v4
CPU Characteristics:	Intel Turbo Boost Technology up to 3.50 GHz
CPU MHz:	2800
FPU:	Integrated
CPU(s) enabled:	80 cores, 8 chips, 10 cores/chip, 2 threads/core
CPU(s) orderable:	4,6,8 chips
Primary Cache:	32 KB I + 32 KB D on chip per core
Secondary Cache:	256 KB I+D on chip per core
L3 Cache:	60 MB I+D on chip per chip
Other Cache:	None
Memory:	1 TB (64 x 16 GB 2Rx4 PC4-2133P-R, running at 1600 MHz)
Disk Subsystem:	2 x 600GB SAS, 10K RPM
Other Hardware:	None

Software

Operating System:	Red Hat Enterprise Linux Server release 7.2 (Maipo) 3.10.0-327.el7.x86_64
Compiler:	C/C++: Version 16.0.0.101 of Intel C++ Studio XE for Linux
Auto Parallel:	No
File System:	xfs
System State:	Run level 3 (multi-user)
Base Pointers:	32-bit
Peak Pointers:	32/64-bit
Other Software:	Microquill SmartHeap V10.2

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Results Table

Benchmark	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
400.perlbench	160	517	3020	**519**	**3010**	520	3010							
401.bzip2	160	697	2220	692	2230	**692**	**2230**							
403.gcc	160	426	3020	**427**	**3010**	431	2990							
429.mcf	160	281	5200	**280**	**5220**	280	5220							
445.gobmk	160	**630**	**2660**	629	2670	631	2660							
456.hmmer	160	229	6530	**230**	**6490**	230	6490							
458.sjeng	160	**692**	**2800**	691	2800	692	2800							
462.libquantum	160	79.0	42000	79.3	41800	**79.1**	**41900**							
464.h264ref	160	735	4810	**733**	**4830**	732	4840							
471.omnetpp	160	**509**	**1970**	508	1970	509	1960							
473.astar	160	**449**	**2500**	448	2510	452	2480							
483.xalancbmk	160	**204**	**5420**	204	5420	204	5410							

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"
Turbo mode set with:
cpupower -c all frequency-set -g performance
```

Platform Notes

```
BIOS configuration:
Set Power Efficiency Mode to Performance
Set Lock_step to disabled
Baseboard Management Controller used to adjust the fan speed to 100%
Set C-State to C0/C1
Sysinfo program /home/spec/config/sysinfo.rev6914
$Rev: 6914 $ $Date:: 2014-06-25 #$ e3fbb8667b5a285932ceab81e28219e1
running on RH8100v3 Fri Aug  5 18:09:12 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 E7-8891 v4 @ 2.80GHz
```

Continued on next page

Platform Notes (Continued)

```
        8 "physical id"s (chips)
        160 "processors"
     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 : 10
        siblings  : 20
        physical 0: cores 5 9 10 11 13 18 24 26 28 29
        physical 1: cores 5 9 10 11 13 18 24 26 28 29
        physical 2: cores 5 9 10 11 13 18 24 26 28 29
        physical 3: cores 5 9 10 11 13 18 24 26 28 29
        physical 4: cores 5 9 10 11 13 18 24 26 28 29
        physical 5: cores 5 9 10 11 13 18 24 26 28 29
        physical 6: cores 5 9 10 11 13 18 24 26 28 29
        physical 7: cores 5 9 10 11 13 18 24 26 28 29
     cache size : 61440 KB

  From /proc/meminfo
     MemTotal:       1056512628 kB
     HugePages_Total:       0
     Hugepagesize:       2048 kB

  From /etc/*release* /etc/*version*
     os-release:
        NAME="Red Hat Enterprise Linux Server"
        VERSION="7.2 (Maipo)"
        ID="rhel"
        ID_LIKE="fedora"
        VERSION_ID="7.2"
        PRETTY_NAME="Red Hat Enterprise Linux Server 7.2 (Maipo)"
        ANSI_COLOR="0;31"
        CPE_NAME="cpe:/o:redhat:enterprise_linux:7.2:GA:server"
     redhat-release: Red Hat Enterprise Linux Server release 7.2 (Maipo)
     system-release: Red Hat Enterprise Linux Server release 7.2 (Maipo)
     system-release-cpe: cpe:/o:redhat:enterprise_linux:7.2:ga:server

  uname -a:
     Linux RH8100v3 3.10.0-327.el7.x86_64 #1 SMP Thu Oct 29 17:29:29 EDT 2015
     x86_64 x86_64 x86_64 GNU/Linux

  run-level 3 Aug 4 16:56

  SPEC is set to: /home/spec
     Filesystem            Type  Size  Used Avail Use% Mounted on
     /dev/mapper/rhel-home xfs   978G  8.3G  970G   1% /home
  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.
```

Continued on next page

Platform Notes (Continued)

```
    BIOS American Megatrends Inc. 5.11 02/05/2016
    Memory:
     64x Hynix HMA42GR7MFR4N-TF 16 GB 2 rank 2133 MHz, configured at 1600 MHz
     128x NO DIMM NO DIMM

  (End of data from sysinfo program)
  Regarding the sysinfo display about the memory installed, the correct amount of
  memory is 1024 GB and the dmidecode description should have two lines reading as:
   64x Hynix HMA42GR7MFR4N-TF 16 GB 2 rank 2133 MHz, configured at 1600 MHz
   128x NO DIMM NO DIMM
```

General Notes

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

  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
  Filesystem page cache cleared with:
  echo 1>       /proc/sys/vm/drop_caches
  runspec command invoked through numactl i.e.:
  numactl --interleave=all runspec <etc>
```

Base Compiler Invocation

C benchmarks:

```
icc -m32 -L/opt/intel/compilers_and_libraries_2016/linux/compiler/lib/ia32_lin
```

C++ benchmarks:

```
icpc -m32 -L/opt/intel/compilers_and_libraries_2016/linux/compiler/lib/ia32_lin
```

Base Portability Flags

```
400.perlbench: -D_FILE_OFFSET_BITS=64 -DSPEC_CPU_LINUX_IA32
  401.bzip2: -D_FILE_OFFSET_BITS=64
    403.gcc: -D_FILE_OFFSET_BITS=64
    429.mcf: -D_FILE_OFFSET_BITS=64
  445.gobmk: -D_FILE_OFFSET_BITS=64
  456.hmmer: -D_FILE_OFFSET_BITS=64
  458.sjeng: -D_FILE_OFFSET_BITS=64
462.libquantum: -D_FILE_OFFSET_BITS=64 -DSPEC_CPU_LINUX
  464.h264ref: -D_FILE_OFFSET_BITS=64
  471.omnetpp: -D_FILE_OFFSET_BITS=64
    473.astar: -D_FILE_OFFSET_BITS=64
```

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Base Portability Flags (Continued)

483.xalancbmk: `-D_FILE_OFFSET_BITS=64 -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

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-V1.2-BDW-RevG.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-V1.2-BDW-RevG.xml

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For other inquiries, please contact webmaster@spec.org.

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