SPEC® CINT2006 Result
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Huawei

Huawei RH5885H V3 (Intel Xeon E7-8860 v4)

$SPECint^®\_rate2006 =$ Not Run

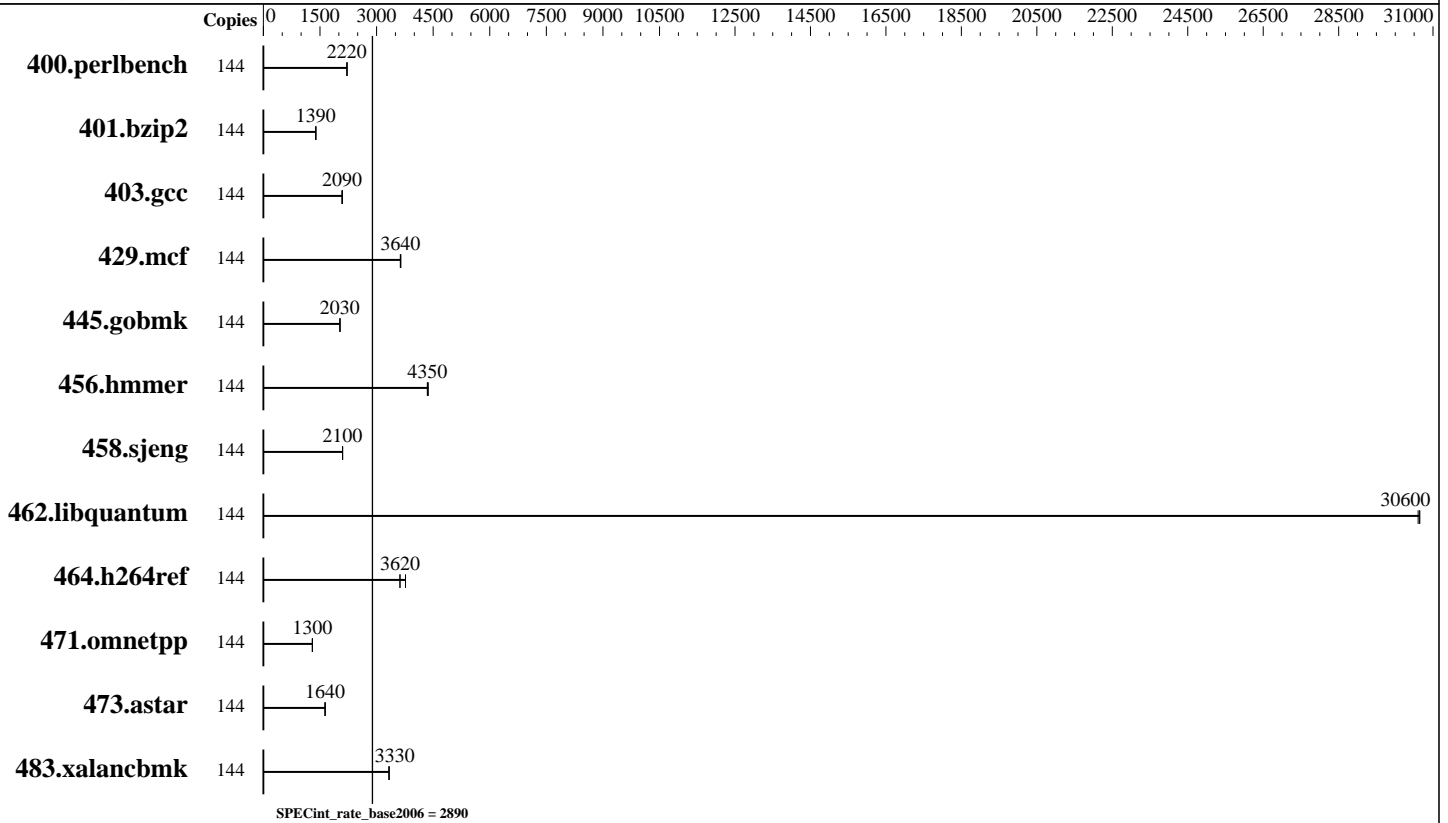$SPECint\_rate\_base2006 =$ 2890

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

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

Benchmark	Copies	Result
400.perlbench	144	2220
401.bzip2	144	1390
403.gcc	144	2090
429.mcf	144	3640
445.gobmk	144	2030
456.hmmer	144	4350
458.sjeng	144	2100
462.libquantum	144	30600
464.h264ref	144	3620
471.omnetpp	144	1300
473.astar	144	1640
483.xalancbmk	144	3330

SPECint_rate_base2006 = 2890

Hardware

CPU Name: Intel Xeon E7-8860 v4
CPU Characteristics: Intel Turbo Boost Technology up to 3.20 GHz
CPU MHz: 2200
FPU: Integrated
CPU(s) enabled: 72 cores, 4 chips, 18 cores/chip, 2 threads/core
CPU(s) orderable: 2,4 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: 45 MB I+D on chip per chip
Other Cache: None
Memory: 512 GB (32 x 16 GB 2Rx4 PC4-2133P-R, running at 1600 MHz)
Disk Subsystem: 2 x 600 GB 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 Copies	Base Seconds	Base Ratio	Base Seconds	Base Ratio	Base Seconds	Base Ratio	Peak Copies	Peak Seconds	Peak Ratio	Peak Seconds	Peak Ratio	Peak Seconds	Peak Ratio
400.perlbench	144	634	2220	636	2210	**635**	**2220**							
401.bzip2	144	**1000**	**1390**	1001	1390	999	1390							
403.gcc	144	**555**	**2090**	557	2080	553	2100							
429.mcf	144	**361**	**3640**	362	3630	360	3640							
445.gobmk	144	744	2030	**744**	**2030**	745	2030							
456.hmmer	144	307	4370	**309**	**4350**	309	4350							
458.sjeng	144	830	2100	830	2100	**830**	**2100**							
462.libquantum	144	97.5	30600	97.3	30700	**97.4**	**30600**							
464.h264ref	144	**880**	**3620**	880	3620	846	3770							
471.omnetpp	144	694	1300	**693**	**1300**	692	1300							
473.astar	144	619	1630	**618**	**1640**	617	1640							
483.xalancbmk	144	**298**	**3330**	298	3330	298	3330							

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 RH5885HV3 Thu Aug 25 09:40:50 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 E7-8860 v4 @ 2.20GHz

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Platform Notes (Continued)

```
     4 "physical id"s (chips)
     144 "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 : 18
     siblings  : 36
     physical 0: cores 0 1 2 3 4 8 9 10 11 16 17 18 19 20 24 25 26 27
     physical 1: cores 0 1 2 3 4 8 9 10 11 16 17 18 19 20 24 25 26 27
     physical 2: cores 0 1 2 3 4 8 9 10 11 16 17 18 19 20 24 25 26 27
     physical 3: cores 0 1 2 3 4 8 9 10 11 16 17 18 19 20 24 25 26 27
  cache size : 23040 KB

From /proc/meminfo
   MemTotal:       528067196 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 RH5885HV3 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 25 09:38

SPEC is set to: /home/spec
   Filesystem              Type  Size  Used Avail Use% Mounted on
   /dev/mapper/rhel-home xfs  1000G  8.0G  992G   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.

 BIOS American Megatrends Inc. 5.11 02/05/2016
 Memory:
 64x NO DIMM NO DIMM
 32x Samsung M393A2G40DB0-CPB 16 GB 2 rank 2133 MHz, configured at 1600 MHz
```

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Platform Notes (Continued)

```
   (End of data from sysinfo program)
 Regarding the sysinfo display about the memory installed, the correct amount of
 memory is 512 GB and the dmidecode description should have two lines reading as:
    64x NO DIMM NO DIMM
    32x Samsung M393A2G40DB0-CPB 16 GB 2 rank 2133 MHz, configured at 1600 MHz
```

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
    483.xalancbmk: -D_FILE_OFFSET_BITS=64 -DSPEC_CPU_LINUX
```

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CPU2006 license:	3175	**Test date:**	Aug-2016
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Tested by:	Huawei	**Software Availability:**	Nov-2015

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

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

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