SPEC® CINT2006 Result

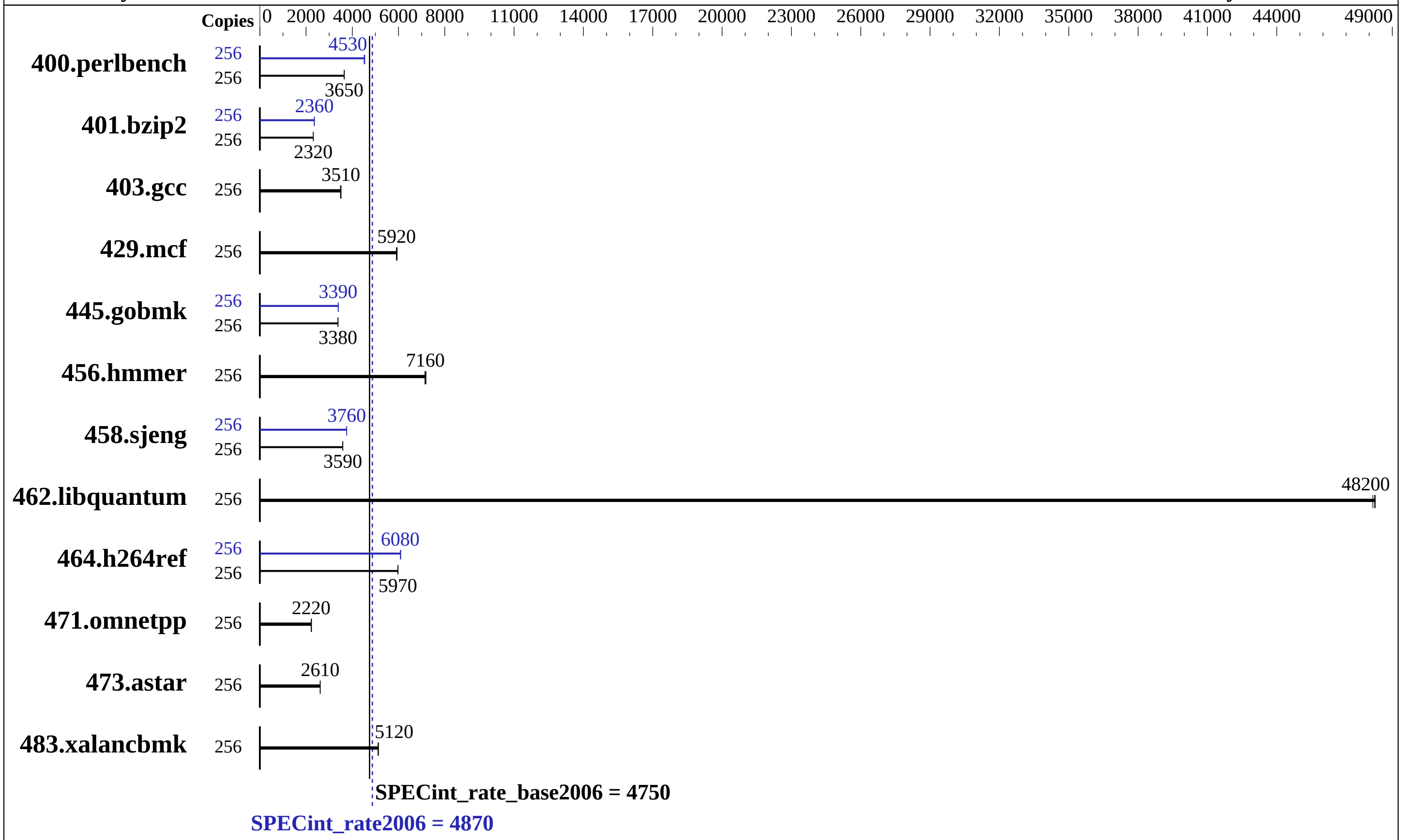
Huawei

Huawei RH8100 V3 (Intel Xeon E7-8860 v3)

SPECint®_rate2006 = 4870

SPECint_rate_base2006 = 4750

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



Hardware

CPU Name:	Intel Xeon E7-8860 v3
CPU Characteristics:	Intel Turbo Boost Technology up to 3.20 GHz
CPU MHz:	2200
FPU:	Integrated
CPU(s) enabled:	128 cores, 8 chips, 16 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:	40 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:	3 x 300 GB SAS, 10K RPM
Other Hardware:	None

Software

Operating System:	Red Hat Enterprise Linux Server release 7.1 (Maipo) 3.10.0-229.el7.x86_64
Compiler:	C/C++: Version 15.0.0.090 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 V10.0

Results Table

Benchmark	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
400.perlbench	256	**685**	**3650**	685	3650	686	3650	256	555	4510	551	4540	**552**	**4530**
401.bzip2	256	**1067**	**2320**	1067	2320	1068	2310	256	**1047**	**2360**	1046	2360	1051	2350
403.gcc	256	591	3490	**587**	**3510**	586	3520	256	591	3490	**587**	**3510**	586	3520
429.mcf	256	393	5940	395	5910	**395**	**5920**	256	393	5940	395	5910	**395**	**5920**
445.gobmk	256	793	3390	**794**	**3380**	795	3380	256	791	3400	793	3390	**792**	**3390**
456.hmmer	256	332	7190	334	7140	**333**	**7160**	256	332	7190	334	7140	**333**	**7160**
458.sjeng	256	**863**	**3590**	864	3590	862	3590	256	**824**	**3760**	824	3760	824	3760
462.libquantum	256	**110**	**48200**	110	48300	110	48200	256	**110**	**48200**	110	48300	110	48200
464.h264ref	256	948	5980	**949**	**5970**	949	5970	256	**932**	**6080**	929	6100	932	6080
471.omnetpp	256	715	2240	**720**	**2220**	720	2220	256	715	2240	**720**	**2220**	720	2220
473.astar	256	689	2610	**688**	**2610**	687	2610	256	689	2610	**688**	**2610**	687	2610
483.xalancbmk	256	345	5120	**345**	**5120**	344	5140	256	345	5120	**345**	**5120**	344	5140

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 Performance
Set Lock_step to disabled
Baseboard Management Controller used to adjust the fan speed to 100%
Set Memory Power Saving to disabled
Sysinfo program /home/spec/config/sysinfo.rev6914
$Rev: 6914 $ $Date:: 2014-06-25 #$ e3fbb8667b5a285932ceab81e28219e1
running on RH8100 Sun Nov 29 07:08:19 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 E7-8860 v3 @ 2.20GHz
      8 "physical id"s (chips)
      256 "processors"
```

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Platform Notes (Continued)

```
      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 : 16
         siblings  : 32
         physical 0: cores 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15
         physical 1: cores 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15
         physical 2: cores 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15
         physical 3: cores 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15
         physical 4: cores 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15
         physical 5: cores 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15
         physical 6: cores 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15
         physical 7: cores 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15
      cache size : 40960 KB

   From /proc/meminfo
      MemTotal:       1056448424 kB
      HugePages_Total:       0
      Hugepagesize:       2048 kB

   From /etc/*release* /etc/*version*
      os-release:
         NAME="Red Hat Enterprise Linux Server"
         VERSION="7.1 (Maipo)"
         ID="rhel"
         ID_LIKE="fedora"
         VERSION_ID="7.1"
         PRETTY_NAME="Red Hat Enterprise Linux Server 7.1 (Maipo)"
         ANSI_COLOR="0;31"
         CPE_NAME="cpe:/o:redhat:enterprise_linux:7.1:GA:server"
      redhat-release: Red Hat Enterprise Linux Server release 7.1 (Maipo)
      system-release: Red Hat Enterprise Linux Server release 7.1 (Maipo)
      system-release-cpe: cpe:/o:redhat:enterprise_linux:7.1:ga:server

   uname -a:
      Linux RH8100 3.10.0-229.el7.x86_64 #1 SMP Thu Jan 29 18:37:38 EST 2015 x86_64
      x86_64 x86_64 GNU/Linux

   run-level 3 Nov 29 04:30

   SPEC is set to: /home/spec
      Filesystem              Type  Size  Used Avail Use% Mounted on
      /dev/mapper/rhel00-home xfs   781G   16G  766G   2% /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. BLISV623 09/16/2015
     Memory:
```

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Platform Notes (Continued)

```
    4x Hynix HMA42GR7MFR4N-TFTD 16 GB 2 rank 2133 MHz, configured at 1600 MHz
    128x NO DIMM NO DIMM
    60x Samsung M393A2G40DB0-CPB 16 GB 2 rank 2133 MHz, configured at 1600 MHz

 (End of data from sysinfo program)
 Regarding the sysinfo display about the memory installed, the correct amount of
 memory is 1 TB and the dmidecode description should have three lines reading as:
     4x Hynix HMA42GR7MFR4N-TFTD 16 GB 2 rank 2133 MHz, configured at 1600 MHz
     128x NO DIMM NO DIMM
     60x 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 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
 runspec command invoked through numactl i.e.:
 numactl --interleave=all runspec <etc>
```

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

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Base Optimization Flags (Continued)

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

Peak Compiler Invocation

C benchmarks (except as noted below):
icc -m32 -L/opt/intel/composer_xe_2015/lib/ia32

400.perlbench: icc -m64

401.bzip2: icc -m64

458.sjeng: icc -m64

C++ benchmarks:
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
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) -O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2) -auto-ilp32

401.bzip2: -xCORE-AVX2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2) -opt-prefetch -auto-ilp32 -ansi-alias

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Peak Optimization Flags (Continued)

403.gcc: basepeak = yes

429.mcf: basepeak = yes

445.gobmk: -xCORE-AVX2(pass 2) -prof-gen(pass 1) -prof-use(pass 2) -ansi-alias -opt-mem-layout-trans=3

456.hmmer: basepeak = yes

458.sjeng: -xCORE-AVX2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(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) -O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2) -unroll2 -ansi-alias

C++ benchmarks:

471.omnetpp: basepeak = yes

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-V1.2-HSW-RevG.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-V1.2-HSW-RevG.xml

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

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