SPEC® CINT2006 Result

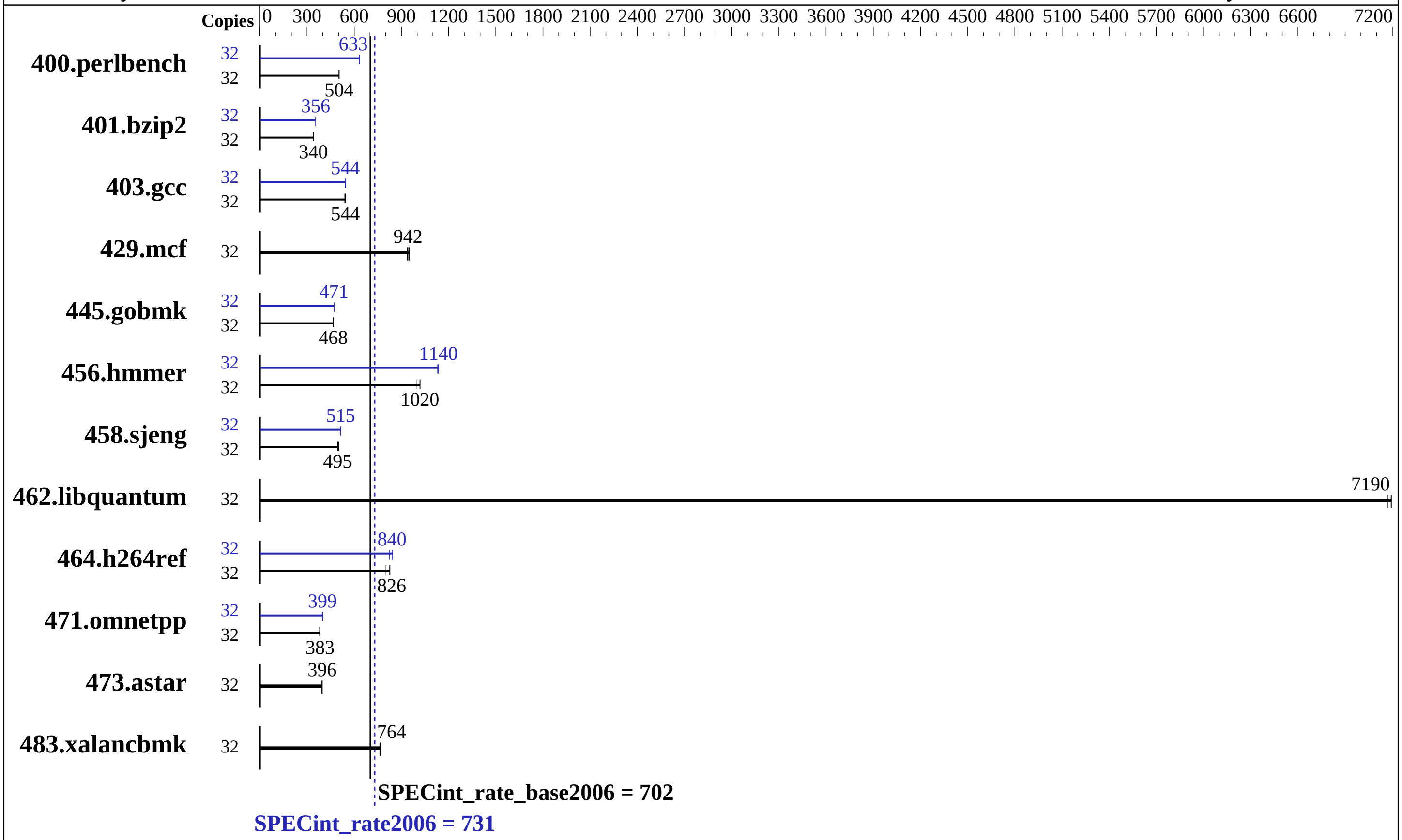
Huawei

Huawei CH222 V3 (Intel Xeon E5-2640 v3)

SPECint®_rate2006 = 731

SPECint_rate_base2006 = 702

CPU2006 license:	3175	**Test date:**	Dec-2014
Test sponsor:	Huawei	**Hardware Availability:**	Sep-2014
Tested by:	Huawei	**Software Availability:**	Jun-2014



Hardware

CPU Name:	Intel Xeon E5-2640 v3
CPU Characteristics:	Intel Turbo Boost Technology up to 3.40 GHz
CPU MHz:	2600
FPU:	Integrated
CPU(s) enabled:	16 cores, 2 chips, 8 cores/chip, 2 threads/core
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 PC4-2133P-R, running at 1867 MHz)
Disk Subsystem:	1 x 500 GB SATA, 7200 RPM
Other Hardware:	None

Software

Operating System:	Red Hat Enterprise Linux Server release 7.0 (Maipo) 3.10.0-123.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 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	32	620	504	626	499	**621**	**504**	32	492	635	**494**	**633**	495	632
401.bzip2	32	907	340	908	340	**907**	**340**	32	**868**	**356**	869	355	868	356
403.gcc	32	472	545	477	540	**474**	**544**	32	471	546	**473**	**544**	476	541
429.mcf	32	307	951	311	938	**310**	**942**	32	307	951	311	938	**310**	**942**
445.gobmk	32	718	468	**718**	**468**	718	467	32	**713**	**471**	713	471	712	472
456.hmmer	32	**293**	**1020**	293	1020	299	999	32	263	1140	**263**	**1140**	264	1130
458.sjeng	32	784	494	774	500	**783**	**495**	32	**753**	**515**	753	514	751	515
462.libquantum	32	92.4	7170	**92.2**	**7190**	92.2	7190	32	92.4	7170	**92.2**	**7190**	92.2	7190
464.h264ref	32	883	802	**858**	**826**	856	827	32	839	844	**843**	**840**	860	823
471.omnetpp	32	522	383	527	380	**522**	**383**	32	500	400	505	396	**502**	**399**
473.astar	32	566	397	**567**	**396**	570	394	32	566	397	**567**	**396**	570	394
483.xalancbmk	32	290	763	288	766	**289**	**764**	32	290	763	288	766	**289**	**764**

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 Custom
Set Snoop Mode to ES
Set Patrol Scrub to Disable
Baseboard Management Controller used to adjust the fan speed to 100%
Sysinfo program /spec15/config/sysinfo.rev6914
$Rev: 6914 $ $Date:: 2014-06-25 #$ e3fbb8667b5a285932ceab81e28219e1
running on localhost.localdomain Wed Dec 24 12:57:50 2014

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 E5-2640 v3 @ 2.60GHz
      2 "physical id"s (chips)
      32 "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 : 8
           siblings  : 16
           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:       263719632 kB
        HugePages_Total:       0
        Hugepagesize:       2048 kB

     From /etc/*release* /etc/*version*
        os-release:
           NAME="Red Hat Enterprise Linux Server"
           VERSION="7.0 (Maipo)"
           ID="rhel"
           ID_LIKE="fedora"
           VERSION_ID="7.0"
           PRETTY_NAME="Red Hat Enterprise Linux Server 7.0 (Maipo)"
           ANSI_COLOR="0;31"
           CPE_NAME="cpe:/o:redhat:enterprise_linux:7.0:GA:server"
        redhat-release: Red Hat Enterprise Linux Server release 7.0 (Maipo)
        system-release: Red Hat Enterprise Linux Server release 7.0 (Maipo)
        system-release-cpe: cpe:/o:redhat:enterprise_linux:7.0:ga:server

     uname -a:
        Linux localhost.localdomain 3.10.0-123.el7.x86_64 #1 SMP Mon May 5 11:16:57
        EDT 2014 x86_64 x86_64 x86_64 GNU/Linux

     run-level 3 Dec 24 12:52

     SPEC is set to: /spec15
        Filesystem     Type  Size  Used Avail Use% Mounted on
        /dev/sda2      xfs   510G  188G  323G  37% /
     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. 1.19 10/10/2014
       Memory:
        8x NO DIMM NO DIMM   3 rank
        8x Samsung M393A2G40DB0-CPB 16 GB 1 rank 2133 MHz, configured at 1867 MHz
        8x Samsung M393A2G40DB0-CPB 16 GB 2 rank 2133 MHz, configured at 1867 MHz

     (End of data from sysinfo program)
```

General Notes

```
Environment variables set by runspec before the start of the run:
LD_LIBRARY_PATH = "/spec15/libs/32:/spec15/libs/64:/spec15/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>
 The Huawei CH121 V3 and Huawei CH222 V3
 are electronically equivalent.
 The results have been measured on a Huawei CH121 V3 model
```

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

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:

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Base Other Flags (Continued)

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`

456.hmmer: `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`
456.hmmer: `-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`

403.gcc: `-xCORE-AVX2 -ipo -O3 -no-prec-div`

429.mcf: `basepeak = yes`

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Peak Optimization Flags (Continued)

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

456.hmmer: -xCORE-AVX2 -ipo -O3 -no-prec-div -unroll2 -auto-ilp32

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: -xCORE-AVX2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2) -ansi-alias -opt-ra-region-strategy=block -Wl,-z,muldefs -L/sh -lsmartheap

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-HASWELL-V1.2.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-HASWELL-V1.2.xml

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

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