SPEC® CINT2006 Result

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Huawei

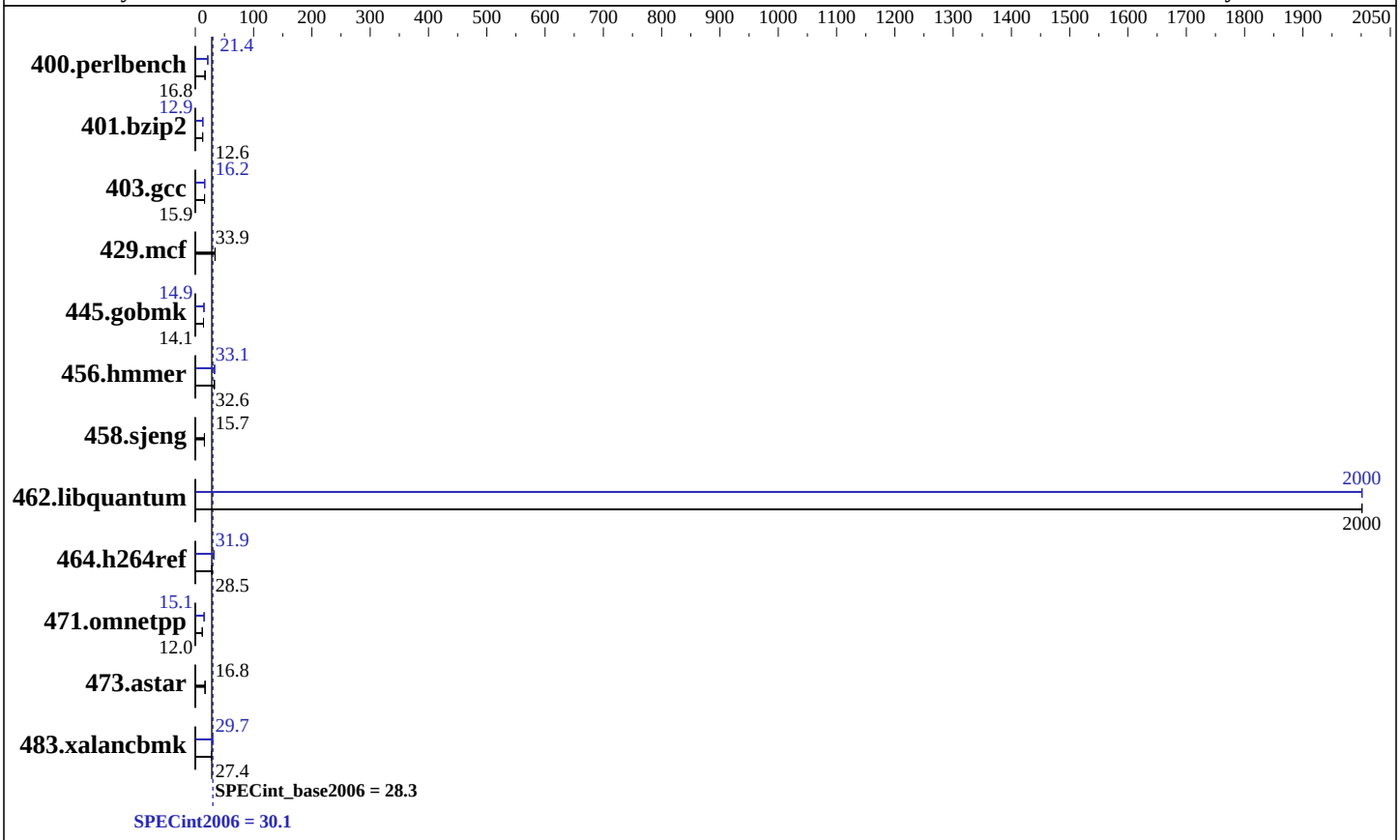
Huawei RH5885H V3 (Intel Xeon E7-4809 v2)

SPECint®2006 = 30.1

SPECint_base2006 = 28.3

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

Test date: Oct-2014
Hardware Availability: Feb-2014
Software Availability: Nov-2013



Hardware

CPU Name:	Intel Xeon E7-4809 v2
CPU Characteristics:	
CPU MHz:	1900
FPU:	Integrated
CPU(s) enabled:	24 cores, 4 chips, 6 cores/chip
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:	12 MB I+D on chip per chip
Other Cache:	None
Memory:	1 TB (64 x 16 GB 2Rx4 PC3-12800R-11, ECC, running at 1066 MHz and CL7)
Disk Subsystem:	2 x 300 GB SAS, 10K RPM
Other Hardware:	None

Software

Operating System:	Red Hat Enterprise Linux Server release 6.5 (Santiago) 2.6.32-431.el6.x86_64
Compiler:	C/C++: Version 12.1.0.225 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 V9.01

Results Table

Benchmark	Base						Peak					
	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
400.perlbench	585	16.7	**581**	**16.8**	578	16.9	**457**	**21.4**	457	21.4	458	21.3
401.bzip2	763	12.7	767	12.6	**765**	**12.6**	750	12.9	**748**	**12.9**	747	12.9
403.gcc	511	15.7	**507**	**15.9**	505	15.9	500	16.1	**498**	**16.2**	498	16.2
429.mcf	**269**	**33.9**	270	33.7	267	34.1	**269**	**33.9**	270	33.7	267	34.1
445.gobmk	746	14.1	745	14.1	**745**	**14.1**	707	14.8	**706**	**14.9**	706	14.9
456.hmmer	**286**	**32.6**	284	32.8	286	32.6	**281**	**33.1**	281	33.2	285	32.8
458.sjeng	773	15.7	772	15.7	**772**	**15.7**	773	15.7	772	15.7	**772**	**15.7**
462.libquantum	10.4	2000	**10.4**	**2000**	10.4	2000	10.4	2000	10.4	2000	**10.4**	**2000**
464.h264ref	**777**	**28.5**	776	28.5	778	28.5	696	31.8	**695**	**31.9**	694	31.9
471.omnetpp	520	12.0	519	12.0	**519**	**12.0**	411	15.2	**413**	**15.1**	413	15.1
473.astar	419	16.8	415	16.9	**418**	**16.8**	419	16.8	415	16.9	**418**	**16.8**
483.xalancbmk	252	27.4	251	27.5	**252**	**27.4**	233	29.7	232	29.7	**232**	**29.7**

Results appear in the order in which they were run. Bold underlined text indicates a median measurement.

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 Intel Hyper Threading to disabled
Sysinfo program /spec/config/sysinfo.rev6800
$Rev: 6800 $ $Date:: 2011-10-11 #$ 6f2ebdff5032aaa42e583f96b07f99d3
running on RH5885HV3 Mon Oct 20 12:20:33 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 E7-4809 v2 @ 1.90GHz
      4 "physical id"s (chips)
      24 "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 : 6
      siblings  : 6
      physical 0: cores 0 1 2 3 4 5
```

Continued on next page

Platform Notes (Continued)

```
        physical 1: cores 0 1 2 3 4 5
        physical 2: cores 0 1 2 3 4 5
        physical 3: cores 0 1 2 3 4 5
     cache size : 12288 KB

  From /proc/meminfo
     MemTotal:       1058606704 kB
     HugePages_Total:       0
     Hugepagesize:       2048 kB

  /usr/bin/lsb_release -d
     Red Hat Enterprise Linux Server release 6.5 (Santiago)

  From /etc/*release* /etc/*version*
     redhat-release: Red Hat Enterprise Linux Server release 6.5 (Santiago)
     system-release: Red Hat Enterprise Linux Server release 6.5 (Santiago)
     system-release-cpe: cpe:/o:redhat:enterprise_linux:6server:ga:server

  uname -a:
     Linux RH5885HV3 2.6.32-431.el6.x86_64 #1 SMP Sun Nov 10 22:19:54 EST 2013
     x86_64 x86_64 x86_64 GNU/Linux

  run-level 3 Oct 20 12:13

  SPEC is set to: /spec
     Filesystem     Type  Size  Used Avail Use% Mounted on
     /dev/sda5      ext4  321G  2.1G  303G   1% /spec

  Additional information from dmidecode:
    Memory:
     60x Hynix HMT42GR7AFR4C-PB 16 GB 1600 MHz 2 rank
     4x Hynix HMT42GR7MFR4C-PB 16 GB 1600 MHz 2 rank

  (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 two lines reading as:
     60x Hynix HMT42GR7AFR4C-PB 16 GB 1600 MHz 2 rank
     4x Hynix HMT42GR7MFR4C-PB 16 GB 1600 MHz 2 rank
  Dmidecode mistakenly believes the memory was running at 1600 MHz, when it should only run at 1066 MHz
  This benchmark result is intended to provide perspective on past
  performance using the historical software described on this result page.
  The system as described on this result page was formerly generally available(Oct-2014).
  But at the time of this publication (November 2014), the compiler specified
  (Intel Compiler 12) was not listed as supported per
   https://software.intel.com/en-us/articles/intel-compilers-supported-compiler-versions
  This measured result may not be representative of the result that would be measured
  were this benchmark run with hardware and software available as of the publication date.
```

General Notes

```
Environment variables set by runspec before the start of the run:
KMP_AFFINITY = "granularity=fine,compact,0,1"
LD_LIBRARY_PATH = "/spec/libs/32:/spec/libs/64"
OMP_NUM_THREADS = "24"

 Binaries compiled on a system with 2 x Xeon X5645 CPU + 16GB memory
 using RHEL 6.1
 Transparent Huge Pages enabled with:
 echo always > /sys/kernel/mm/redhat_transparent_hugepage/enabled
```

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:
```
-xSSE4.2 -ipo -O3 -no-prec-div -parallel -opt-prefetch -auto-p32
```

C++ benchmarks:
```
-xSSE4.2 -ipo -O3 -no-prec-div -opt-prefetch -auto-p32
-Wl,-z,muldefs -L/smartheap -lsmartheap64
```

Base Other Flags

C benchmarks:

403.gcc: `-Dalloca=_alloca`

Peak Compiler Invocation

C benchmarks (except as noted below):
`icc -m64`

400.perlbench: `icc -m32`

445.gobmk: `icc -m32`

464.h264ref: `icc -m32`

C++ benchmarks (except as noted below):
`icpc -m32`

473.astar: `icpc -m64`

Peak Portability Flags

400.perlbench: `-DSPEC_CPU_LINUX_IA32`
401.bzip2: `-DSPEC_CPU_LP64`
403.gcc: `-DSPEC_CPU_LP64`
429.mcf: `-DSPEC_CPU_LP64`
456.hmmer: `-DSPEC_CPU_LP64`
458.sjeng: `-DSPEC_CPU_LP64`
462.libquantum: `-DSPEC_CPU_LP64 -DSPEC_CPU_LINUX`
473.astar: `-DSPEC_CPU_LP64`
483.xalancbmk: `-DSPEC_CPU_LINUX`

Peak Optimization Flags

C benchmarks:

400.perlbench: `-xSSE4.2`(pass 2) `-prof-gen`(pass 1) `-ipo`(pass 2)
`-O3`(pass 2) `-no-prec-div`(pass 2) `-prof-use`(pass 2)
`-opt-prefetch -ansi-alias`

401.bzip2: `-xSSE4.2`(pass 2) `-prof-gen`(pass 1) `-ipo`(pass 2)
`-O3`(pass 2) `-no-prec-div -prof-use`(pass 2) `-auto-ilp32`
`-opt-prefetch -ansi-alias`

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Peak Optimization Flags (Continued)

403.gcc: -xAVX -ipo -O3 -no-prec-div -inline-calloc
-opt-malloc-options=3 -auto-ilp32

429.mcf: basepeak = yes

445.gobmk: -xSSE4.2(pass 2) -prof-gen(pass 1) -prof-use(pass 2)
-ansi-alias

456.hmmer: -xSSE4.2 -ipo -O3 -no-prec-div -unroll2 -auto-ilp32
-ansi-alias

458.sjeng: basepeak = yes

462.libquantum: -xAVX -ipo -O3 -no-prec-div -parallel -opt-prefetch
-auto-p32

464.h264ref: -xSSE4.2(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: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
-O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2)
-opt-ra-region-strategy=block -ansi-alias
-Wl,-z,muldefs -L/smartheap -lsmartheap

473.astar: basepeak = yes

483.xalancbmk: -xSSE4.2 -ipo -O3 -no-prec-div -opt-prefetch -ansi-alias
-Wl,-z,muldefs -L/smartheap -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-ic12.1-official-linux64.20111122.html
http://www.spec.org/cpu2006/flags/Huawei-Platform-Settings-V1.0-IVB-RevG.html

You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2006/flags/Intel-ic12.1-official-linux64.20111122.xml
http://www.spec.org/cpu2006/flags/Huawei-Platform-Settings-V1.0-IVB-RevG.xml

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