SPEC® CINT2006 Result
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Cisco Systems

Cisco UCS C460 M4 (Intel Xeon E7-4860 v2 @ 2.60GHz)

SPECint®_rate2006 =   1830
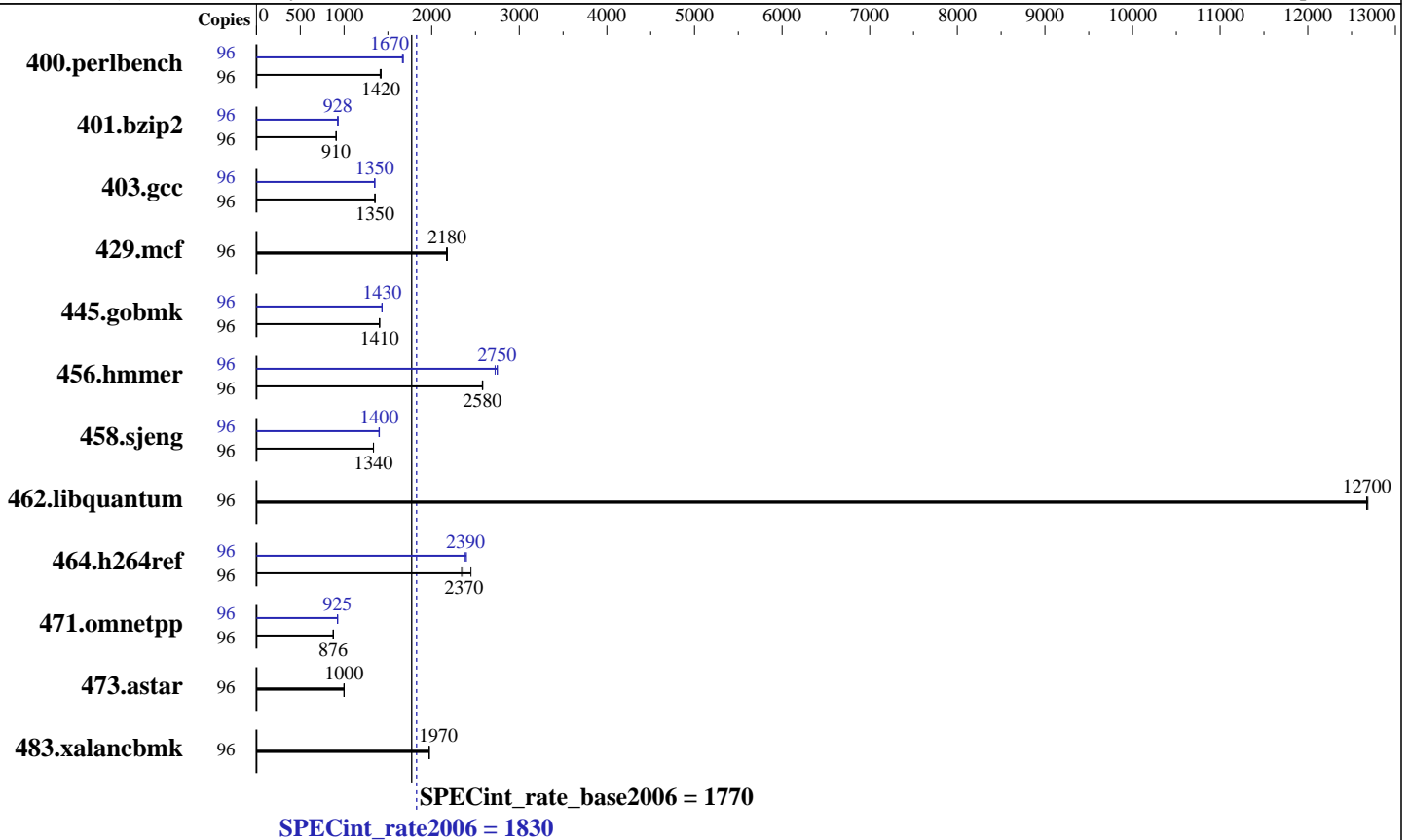
SPECint_rate_base2006 =   1770

CPU2006 license: 9019

Test sponsor: Cisco Systems

Tested by: Cisco Systems

Test date: Feb-2014

Hardware Availability: Apr-2014

Software Availability: Sep-2013

SPECint_rate_base2006 = 1770

SPECint_rate2006 = 1830

Hardware

CPU Name: Intel Xeon E7-4860 v2

CPU Characteristics: Intel Turbo Boost Technology up to 3.20 GHz

CPU MHz: 2600

FPU: Integrated

CPU(s) enabled: 48 cores, 4 chips, 12 cores/chip, 2 threads/core

CPU(s) orderable: 1,2,3,4 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: 30 MB I+D on chip per chip

Other Cache: None

Memory: 512 GB (64 x 8 GB 2Rx4 PC3-12800R-11, ECC, and CL11)

Disk Subsystem: 1 x 300 GB SAS SATA 15K RPM

Other Hardware: None

Software

Operating System: Red Hat Enterprise Linux Server release 6.4 (Santiago)
2.6.32-358.el6.x86_64

Compiler: C/C++: Version 14.0.0.080 of Intel C++ Studio XE for Linux

Auto Parallel: No

File System: ext4

System State: Run level 3 (multi-user)

Base Pointers: 32-bit

Peak Pointers: 32/64-bit

Other Software: Microquill SmartHeap V10.0

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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	96	659	1420	**661**	**1420**	664	1410	96	560	1670	563	1670	**561**	**1670**
401.bzip2	96	**1018**	**910**	1017	911	1020	909	96	**998**	**928**	994	932	999	927
403.gcc	96	**571**	**1350**	572	1350	571	1350	96	573	1350	**573**	**1350**	572	1350
429.mcf	96	404	2170	402	2180	**402**	**2180**	96	404	2170	402	2180	**402**	**2180**
445.gobmk	96	716	1410	**717**	**1410**	718	1400	96	**702**	**1430**	702	1430	703	1430
456.hmmer	96	**347**	**2580**	347	2580	347	2580	96	326	2750	**326**	**2750**	329	2720
458.sjeng	96	869	1340	870	1330	**870**	**1340**	96	**829**	**1400**	828	1400	831	1400
462.libquantum	96	**157**	**12700**	157	12700	157	12700	96	**157**	**12700**	157	12700	157	12700
464.h264ref	96	907	2340	**897**	**2370**	868	2450	96	887	2400	**890**	**2390**	894	2380
471.omnetpp	96	685	876	683	879	**685**	**876**	96	647	927	**649**	**925**	649	925
473.astar	96	674	999	673	1000	**674**	**1000**	96	674	999	673	1000	**674**	**1000**
483.xalancbmk	96	**336**	**1970**	336	1970	336	1970	96	**336**	**1970**	336	1970	336	1970

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

     CPU performance set to Enterprise
     Power Technology set to Custom
     CPU Power State C6 set to Enabled
     CPU Power State C1 Enhanced set to Disabled
     Package C State Limit set to C0/C1 State
     Energy Performance policy set to Performance
     Memory RAS configuration set to Maximum Performance
     DRAM Clock Throttling Set to Performance
     LV DDR Mode set to Performance-mode
     DRAM Refresh Rate Set to 1x
      Sysinfo program /opt/cpu2006-1.2/config/sysinfo.rev6818
      $Rev: 6818 $ $Date:: 2012-07-17 #$ e86d102572650a6e4d596a3cee98f191
      running on SPECCPU-RHEL64 Thu Mar 20 22:52:31 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

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Platform Notes (Continued)

```
From /proc/cpuinfo
   model name : Intel(R) Xeon(R) CPU E7-4860 v2 @ 2.60GHz
      4 "physical id"s (chips)
      96 "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 : 12
      siblings  : 24
      physical 0: cores 0 1 2 3 4 5 8 9 10 11 12 13
      physical 1: cores 0 1 2 3 4 5 8 9 10 11 12 13
      physical 2: cores 0 1 2 3 4 5 8 9 10 11 12 13
      physical 3: cores 0 1 2 3 4 5 8 9 10 11 12 13
   cache size : 30720 KB

From /proc/meminfo
   MemTotal:       529137696 kB
   HugePages_Total:        0
   Hugepagesize:        2048 kB

/usr/bin/lsb_release -d
   Red Hat Enterprise Linux Server release 6.4 (Santiago)

From /etc/*release* /etc/*version*
   redhat-release: Red Hat Enterprise Linux Server release 6.4 (Santiago)
   system-release: Red Hat Enterprise Linux Server release 6.4 (Santiago)
   system-release-cpe: cpe:/o:redhat:enterprise_linux:6server:ga:server

uname -a:
   Linux SPECCPU-RHEL64 2.6.32-358.el6.x86_64 #1 SMP Tue Jan 29 11:47:41 EST
   2013 x86_64 x86_64 x86_64 GNU/Linux

run-level 3 Mar 20 16:07

SPEC is set to: /opt/cpu2006-1.2
   Filesystem     Type     Size  Used Avail Use% Mounted on
   /dev/sda2      ext4     275G   11G  251G   4% /

Additional information from dmidecode:
  BIOS Cisco Systems, Inc. C460M4.1.5.5.13.012720142211 01/27/2014
  Memory:
   64x   8 GB
   64x 0xCE00 M393B1K70QB0-YK0 8 GB 1333 MHz 2 rank
   32x NO DIMM NO DIMM

(End of data from sysinfo program)
```

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General Notes

```
Environment variables set by runspec before the start of the run:
LD_LIBRARY_PATH = "/opt/cpu2006-1.2/libs/32:/opt/cpu2006-1.2/libs/64:/opt/cpu2006-1.2/sh"

 Binaries compiled on a system with 1x Core i7-860 CPU + 8GB
 memory using RedHat EL 6.4
 Transparent Huge Pages enabled with:
 echo always > /sys/kernel/mm/redhat_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
```

C++ benchmarks:
```
    icpc -m32
```

Base Portability Flags

```
    400.perlbench: -DSPEC_CPU_LINUX_IA32
    462.libquantum: -DSPEC_CPU_LINUX
    483.xalancbmk: -DSPEC_CPU_LINUX
```

Base Optimization Flags

C benchmarks:
```
    -xSSE4.2 -ipo -O3 -no-prec-div -opt-prefetch -opt-mem-layout-trans=3
```

C++ benchmarks:
```
    -xSSE4.2 -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
```

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Peak Compiler Invocation

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

400.perlbench: `icc -m64`

401.bzip2: `icc -m64`

456.hmmer: `icc -m64`

458.sjeng: `icc -m64`

C++ benchmarks:
```
icpc -m32
```

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: `-xSSE4.2(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: `-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 -auto-ilp32 -ansi-alias`

403.gcc: `-xSSE4.2 -ipo -O3 -no-prec-div`

429.mcf: `basepeak = yes`

445.gobmk: `-xSSE4.2(pass 2) -prof-gen(pass 1) -prof-use(pass 2)`
`-ansi-alias -opt-mem-layout-trans=3`

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

458.sjeng: `-xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2)`
`-O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2)`
`-unroll4 -auto-ilp32`

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Peak Optimization Flags (Continued)

462.libquantum: basepeak = yes

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)`
`-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-ic14.0-official-linux64.20140128.html
http://www.spec.org/cpu2006/flags/Cisco-Platform-Settings-V1.2.20140311.html

You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2006/flags/Intel-ic14.0-official-linux64.20140128.xml
http://www.spec.org/cpu2006/flags/Cisco-Platform-Settings-V1.2.20140311.xml

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

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