SPEC® CINT2006 Result
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Cisco Systems

Cisco UCS C220 M5 (Intel Xeon Platinum 8180M, 2.50GHz)

$SPECint®\_rate2006 =$ 2870

$SPECint\_rate\_base2006 =$ 2760
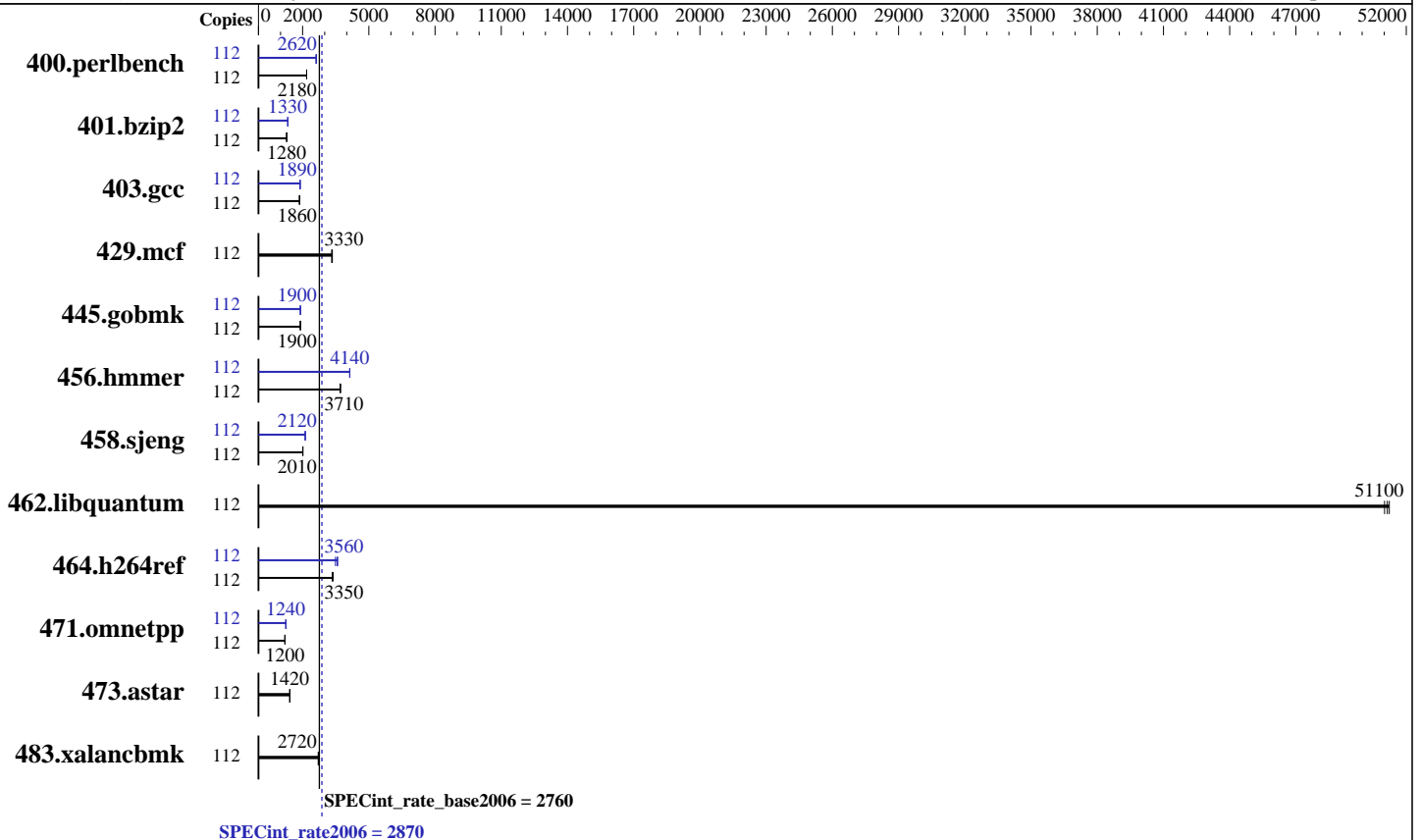
CPU2006 license: 9019

Test sponsor: Cisco Systems

Tested by: Cisco Systems

Test date: Nov-2017

Hardware Availability: Aug-2017

Software Availability: Sep-2017

Benchmark	Copies	Peak	Base
400.perlbench	112	2620	2180
401.bzip2	112	1330	1280
403.gcc	112	1890	1860
429.mcf	112	3330	
445.gobmk	112	1900	1900
456.hmmer	112	4140	3710
458.sjeng	112	2120	2010
462.libquantum	112	51100	
464.h264ref	112	3560	3350
471.omnetpp	112	1240	1200
473.astar	112	1420	
483.xalancbmk	112	2720	

SPECint_rate_base2006 = 2760

SPECint_rate2006 = 2870

Hardware

CPU Name:	Intel Xeon Platinum 8180M
CPU Characteristics:	Intel Turbo Boost Technology up to 3.80 GHz
CPU MHz:	2500
FPU:	Integrated
CPU(s) enabled:	56 cores, 2 chips, 28 cores/chip, 2 threads/core
CPU(s) orderable:	1,2 chips
Primary Cache:	32 KB I + 32 KB D on chip per core
Secondary Cache:	1 MB I+D on chip per core
L3 Cache:	38.5 MB I+D on chip per chip
Other Cache:	None
Memory:	384 GB (24 x 16 GB 2Rx4 PC4-2666V-R)
Disk Subsystem:	1 x 600 GB SAS HDD, 10K RPM
Other Hardware:	None

Software

Operating System:	SUSE Linux Enterprise Server 12 SP2 (x86_64) 4.4.21-69-default
Compiler:	C/C++: Version 18.0.0.128 of Intel C/C++ Compiler for Linux
Auto Parallel:	Yes
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							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
400.perlbench	112	501	2180	502	2180	**501**	**2180**	112	419	2610	**418**	**2620**	418	2620
401.bzip2	112	844	1280	847	1280	**845**	**1280**	112	**812**	**1330**	812	1330	815	1330
403.gcc	112	487	1850	**485**	**1860**	483	1870	112	**478**	**1890**	477	1890	479	1880
429.mcf	112	305	3350	**307**	**3330**	308	3320	112	305	3350	**307**	**3330**	308	3320
445.gobmk	112	619	1900	619	1900	**619**	**1900**	112	**619**	**1900**	619	1900	617	1900
456.hmmer	112	**282**	**3710**	282	3710	281	3710	112	253	4130	252	4140	**253**	**4140**
458.sjeng	112	674	2010	674	2010	**674**	**2010**	112	640	2120	639	2120	**639**	**2120**
462.libquantum	112	**45.4**	**51100**	45.5	51000	45.3	51200	112	**45.4**	**51100**	45.5	51000	45.3	51200
464.h264ref	112	**740**	**3350**	732	3390	742	3340	112	711	3490	**697**	**3560**	690	3590
471.omnetpp	112	584	1200	**584**	**1200**	584	1200	112	564	1240	**564**	**1240**	564	1240
473.astar	112	**554**	**1420**	553	1420	554	1420	112	**554**	**1420**	553	1420	554	1420
483.xalancbmk	112	**284**	**2720**	284	2720	286	2710	112	**284**	**2720**	284	2720	286	2710

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 Settings:
     Intel HyperThreading Technology set to Enabled
     CPU performance set to Enterprise
     Power Performance Tuning set to OS
     SNC set to Enabled
     IMC Interleaving set to 1-way Interleave
     Patrol Scrub set to Disabled
      Sysinfo program /home/cpu2006-1.2/config/sysinfo.rev6993
      Revision 6993 of 2015-11-06 (b5e8d4b4eb51ed28d7f98696cbe290c1)
      running on linux-3joc Fri Nov 10 00:44:45 2017

      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) Platinum 8180M CPU @ 2.50GHz
```
Continued on next page

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Platform Notes (Continued)

```
      2 "physical id"s (chips)
      112 "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 : 28
      siblings  : 56
      physical 0: cores 0 1 2 3 4 5 6 8 9 10 11 12 13 14 16 17 18 19 20 21 22 24
      25 26 27 28 29 30
      physical 1: cores 0 1 2 3 4 5 6 8 9 10 11 12 13 14 16 17 18 19 20 21 22 24
      25 26 27 28 29 30
   cache size : 39424 KB

From /proc/meminfo
   MemTotal:       394863904 kB
   HugePages_Total:       0
   Hugepagesize:       2048 kB

/usr/bin/lsb_release -d
   SUSE Linux Enterprise Server 12 SP2

From /etc/*release* /etc/*version*
   SuSE-release:
      SUSE Linux Enterprise Server 12 (x86_64)
      VERSION = 12
      PATCHLEVEL = 2
      # This file is deprecated and will be removed in a future service pack or
      release.
      # Please check /etc/os-release for details about this release.
   os-release:
      NAME="SLES"
      VERSION="12-SP2"
      VERSION_ID="12.2"
      PRETTY_NAME="SUSE Linux Enterprise Server 12 SP2"
      ID="sles"
      ANSI_COLOR="0;32"
      CPE_NAME="cpe:/o:suse:sles:12:sp2"

uname -a:
   Linux linux-3joc 4.4.21-69-default #1 SMP Tue Oct 25 10:58:20 UTC 2016
   (9464f67) x86_64 x86_64 x86_64 GNU/Linux

run-level 3 Nov 10 00:14

SPEC is set to: /home/cpu2006-1.2
   Filesystem     Type  Size  Used Avail Use% Mounted on
   /dev/sda3      xfs   516G   31G  486G   6% /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
```

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Platform Notes (Continued)

```
   hardware, firmware, and the "DMTF SMBIOS" standard.

   BIOS Cisco Systems, Inc. C220M5.3.1.1d.0.0615170645 06/15/2017
   Memory:
    24x 0xCE00 M393A2G40EB2-CTD 16 GB 2 rank 2666 MHz

  (End of data from sysinfo program)
```

General Notes

```
 Environment variables set by runspec before the start of the run:
 LD_LIBRARY_PATH = "/opt/intel/lib/ia32:/opt/intel/lib/intel64:/home/cpu2006-1.2/sh10.2"

  Binaries compiled on a system with 1x Intel Core i7-4790 CPU + 32GB RAM
  memory using Redhat Enterprise Linux 7.2
  Transparent Huge Pages enabled with:
  echo always > /sys/kernel/mm/transparent_hugepage/enabled
  Filesystem page cache cleared with:
  shell invocation of 'sync; echo 3 > /proc/sys/vm/drop_caches' prior to run
  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_2018/linux/lib/ia32
```

C++ benchmarks:
```
     icpc -m32 -L/opt/intel/compilers_and_libraries_2018/linux/lib/ia32
```

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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Base Optimization Flags

C benchmarks:
```
-xHOST -ipo -O3 -no-prec-div -qopt-prefetch -qopt-mem-layout-trans=3
```

C++ benchmarks:
```
-xHOST -ipo -O3 -no-prec-div -qopt-prefetch -qopt-mem-layout-trans=3
-Wl,-z,muldefs -L/home/cpu2006-1.2/sh10.2 -lsmartheap
```

Base Other Flags

C benchmarks:

> 403.gcc: `-Dalloca=_alloca`

Peak Compiler Invocation

C benchmarks (except as noted below):
```
icc -m32 -L/opt/intel/compilers_and_libraries_2018/linux/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/compilers_and_libraries_2018/linux/lib/ia32
```

Peak Portability Flags

400.perlbench: `-DSPEC_CPU_LP64 -DSPEC_CPU_LINUX_X64`
401.bzip2: `-DSPEC_CPU_LP64`
403.gcc: `-D_FILE_OFFSET_BITS=64`
429.mcf: `-D_FILE_OFFSET_BITS=64`
445.gobmk: `-D_FILE_OFFSET_BITS=64`
456.hmmer: `-DSPEC_CPU_LP64`
458.sjeng: `-DSPEC_CPU_LP64`
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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Peak Optimization Flags

C benchmarks:

    400.perlbench: `-prof-gen`(pass 1) `-prof-use`(pass 2) `-xHOST`(pass 2)
        `-par-num-threads=1`(pass 1) `-ipo`(pass 2) `-O3`(pass 2)
        `-no-prec-div`(pass 2) `-auto-ilp32` `-qopt-mem-layout-trans=3`

    401.bzip2: `-prof-gen`(pass 1) `-prof-use`(pass 2) `-xHOST`(pass 2)
        `-par-num-threads=1`(pass 1) `-ipo`(pass 2) `-O3`(pass 2)
        `-no-prec-div`(pass 2) `-qopt-prefetch` `-auto-ilp32`
        `-qopt-mem-layout-trans=3`

    403.gcc: `-xHOST` `-ipo` `-O3` `-no-prec-div` `-qopt-mem-layout-trans=3`

    429.mcf: basepeak = yes

    445.gobmk: `-prof-gen`(pass 1) `-prof-use`(pass 2) `-xHOST`(pass 2)
        `-par-num-threads=1`(pass 1) `-ipo`(pass 2) `-O3`(pass 2)
        `-no-prec-div`(pass 2) `-qopt-mem-layout-trans=3`

    456.hmmer: `-xHOST` `-ipo` `-O3` `-no-prec-div` `-unroll2` `-auto-ilp32`
        `-qopt-mem-layout-trans=3`

    458.sjeng: `-prof-gen`(pass 1) `-prof-use`(pass 2) `-xHOST`(pass 2)
        `-par-num-threads=1`(pass 1) `-ipo`(pass 2) `-O3`(pass 2)
        `-no-prec-div`(pass 2) `-unroll4` `-auto-ilp32`
        `-qopt-mem-layout-trans=3`

    462.libquantum: basepeak = yes

    464.h264ref: `-prof-gen`(pass 1) `-prof-use`(pass 2) `-xHOST`(pass 2)
        `-par-num-threads=1`(pass 1) `-ipo`(pass 2) `-O3`(pass 2)
        `-no-prec-div`(pass 2) `-unroll2` `-qopt-mem-layout-trans=3`

C++ benchmarks:

    471.omnetpp: `-prof-gen`(pass 1) `-prof-use`(pass 2) `-xHOST`(pass 2)
        `-par-num-threads=1`(pass 1) `-ipo`(pass 2) `-O3`(pass 2)
        `-no-prec-div`(pass 2)
        `-qopt-ra-region-strategy=block`
        `-qopt-mem-layout-trans=3` `-Wl,-z,muldefs`
        `-L/home/cpu2006-1.2/sh10.2 -lsmartheap`

    473.astar: basepeak = yes

    483.xalancbmk: basepeak = yes

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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-ic17.0-official-linux64-revF.html
http://www.spec.org/cpu2006/flags/Cisco-Platform-Settings-V1.2-revH.html

You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2006/flags/Intel-ic17.0-official-linux64-revF.xml
http://www.spec.org/cpu2006/flags/Cisco-Platform-Settings-V1.2-revH.xml

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

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