SPEC® CINT2006 Result
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Cisco Systems

Cisco UCS C480 M5 (Intel Xeon Platinum 8153 2.00GHz)

SPECint®_rate2006 =   2830
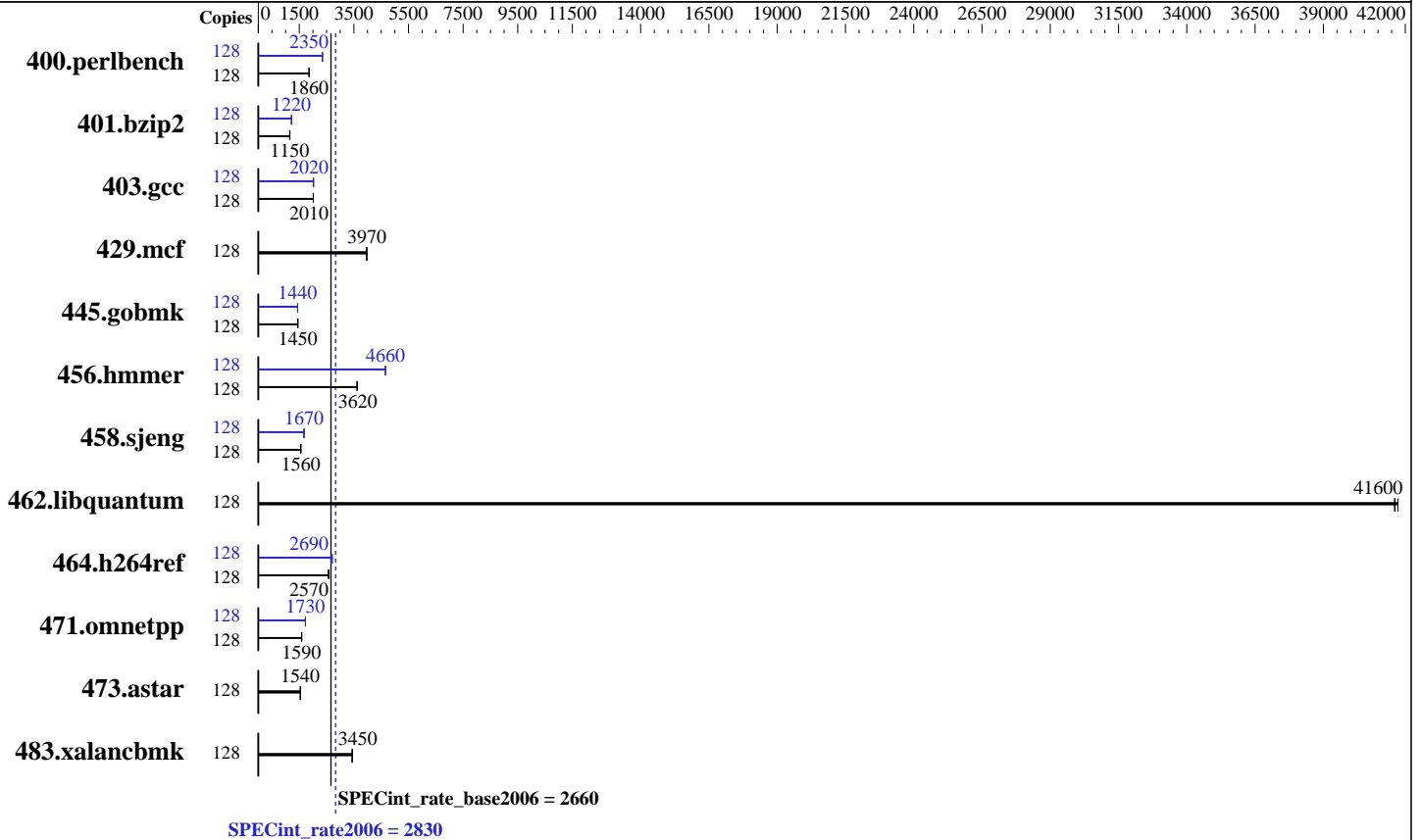
SPECint_rate_base2006 = 2660

CPU2006 license: 9019

Test sponsor: Cisco Systems

Tested by: Cisco Systems

Test date: Aug-2017

Hardware Availability: Aug-2017

Software Availability: Apr-2017

Benchmark	Copies	Score
400.perlbench	128	2350
400.perlbench	128	1860
401.bzip2	128	1220
401.bzip2	128	1150
403.gcc	128	2020
403.gcc	128	2010
429.mcf	128	3970
445.gobmk	128	1440
445.gobmk	128	1450
456.hmmer	128	4660
456.hmmer	128	3620
458.sjeng	128	1670
458.sjeng	128	1560
462.libquantum	128	41600
464.h264ref	128	2690
464.h264ref	128	2570
471.omnetpp	128	1730
471.omnetpp	128	1590
473.astar	128	1540
483.xalancbmk	128	3450

SPECint_rate_base2006 = 2660

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Hardware

CPU Name:	Intel Xeon Platinum 8153
CPU Characteristics:	Intel Turbo Boost Technology up to 2.80 GHz
CPU MHz:	2000
FPU:	Integrated
CPU(s) enabled:	64 cores, 4 chips, 16 cores/chip, 2 threads/core
CPU(s) orderable:	2,4 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:	22 MB I+D on chip per chip
Other Cache:	None
Memory:	768 GB (48 x 16 GB 2Rx4 PC4-2666V-R)
Disk Subsystem:	1 x 400 GB SAS SSD
Other Hardware:	None

Software

Operating System:	SUSE Linux Enterprise Server 12 SP2(x86_64) 4.4.21-69-default
Compiler:	C/C++: Version 17.0.3.191 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	128	672	1860	**672**	**1860**	672	1860	128	**532**	**2350**	533	2350	532	2350
401.bzip2	128	1076	1150	1065	1160	**1073**	**1150**	128	1022	1210	**1016**	**1220**	1009	1220
403.gcc	128	**512**	**2010**	511	2010	512	2010	128	**510**	**2020**	510	2020	510	2020
429.mcf	128	295	3960	**294**	**3970**	293	3980	128	295	3960	**294**	**3970**	293	3980
445.gobmk	128	927	1450	**927**	**1450**	928	1450	128	**931**	**1440**	933	1440	931	1440
456.hmmer	128	**330**	**3620**	329	3630	331	3610	128	257	4650	**257**	**4660**	256	4660
458.sjeng	128	**994**	**1560**	994	1560	995	1560	128	925	1670	**925**	**1670**	925	1670
462.libquantum	128	**63.7**	**41600**	63.6	41700	63.7	41600	128	**63.7**	**41600**	63.6	41700	63.7	41600
464.h264ref	128	1092	2590	**1100**	**2570**	1104	2560	128	1065	2660	1044	2710	**1054**	**2690**
471.omnetpp	128	504	1590	503	1590	**504**	**1590**	128	465	1720	463	1730	**463**	**1730**
473.astar	128	583	1540	584	1540	**583**	**1540**	128	583	1540	584	1540	**583**	**1540**
483.xalancbmk	128	256	3450	**256**	**3450**	258	3430	128	256	3450	**256**	**3450**	258	3430

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 /opt/cpu2006-1.2/config/sysinfo.rev6993
    Revision 6993 of 2015-11-06 (b5e8d4b4eb51ed28d7f98696cbe290c1)
    running on linux-wjnw Sat Aug 12 03:44:04 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 8153 CPU @ 2.00GHz
```

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Platform Notes (Continued)

```
    4 "physical id"s (chips)
    128 "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 : 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
  cache size : 22528 KB

From /proc/meminfo
  MemTotal:       791190188 kB
  HugePages_Total:       0
  Hugepagesize:       2048 kB

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-wjnw 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 Aug 11 09:21

SPEC is set to: /opt/cpu2006-1.2
  Filesystem     Type  Size  Used Avail Use% Mounted on
  /dev/sdy2      xfs   321G   73G  249G  23% /
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 Cisco Systems, Inc. C480M5.3.1.0.272.0613172154 06/13/2017
```

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Platform Notes (Continued)

```
    Memory:
      48x 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/cpu2006-1.2/lib/ia32:/opt/cpu2006-1.2/lib/intel64:/opt/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_2017/linux/lib/ia32
```

C++ benchmarks:
```
    icpc -m32 -L/opt/intel/compilers_and_libraries_2017/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:

```
-xCORE-AVX512 -ipo -O3 -no-prec-div -qopt-prefetch
-qopt-mem-layout-trans=3
```

C++ benchmarks:

```
-xCORE-AVX512 -ipo -O3 -no-prec-div -qopt-prefetch
-qopt-mem-layout-trans=3 -Wl,-z,muldefs -L/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_2017/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_2017/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
```

Continued on next page

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Peak Portability Flags (Continued)

    483.xalancbmk: `-D_FILE_OFFSET_BITS=64 -DSPEC_CPU_LINUX`

Peak Optimization Flags

C benchmarks:

    400.perlbench: `-prof-gen`(pass 1) `-prof-use`(pass 2) `-xCORE-AVX512`(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) `-xCORE-AVX512`(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: `-xCORE-AVX512 -ipo -O3 -no-prec-div`
        `-qopt-mem-layout-trans=3`

    429.mcf: `basepeak = yes`

    445.gobmk: `-prof-gen`(pass 1) `-prof-use`(pass 2) `-xCORE-AVX512`(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: `-xCORE-AVX512 -ipo -O3 -no-prec-div -unroll2 -auto-ilp32`
        `-qopt-mem-layout-trans=3`

    458.sjeng: `-prof-gen`(pass 1) `-prof-use`(pass 2) `-xCORE-AVX512`(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) `-xCORE-AVX512`(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) `-xCORE-AVX512`(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/sh10.2 -lsmartheap`

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Peak Optimization Flags (Continued)

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-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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