SPEC® CINT2006 Result
Copyright 2006-2016 Standard Performance Evaluation Corporation

Cisco Systems

Cisco UCS C460 M4 (Intel Xeon E7-4820 v4 2.00 GHz)

SPECint®_rate2006 =   1380
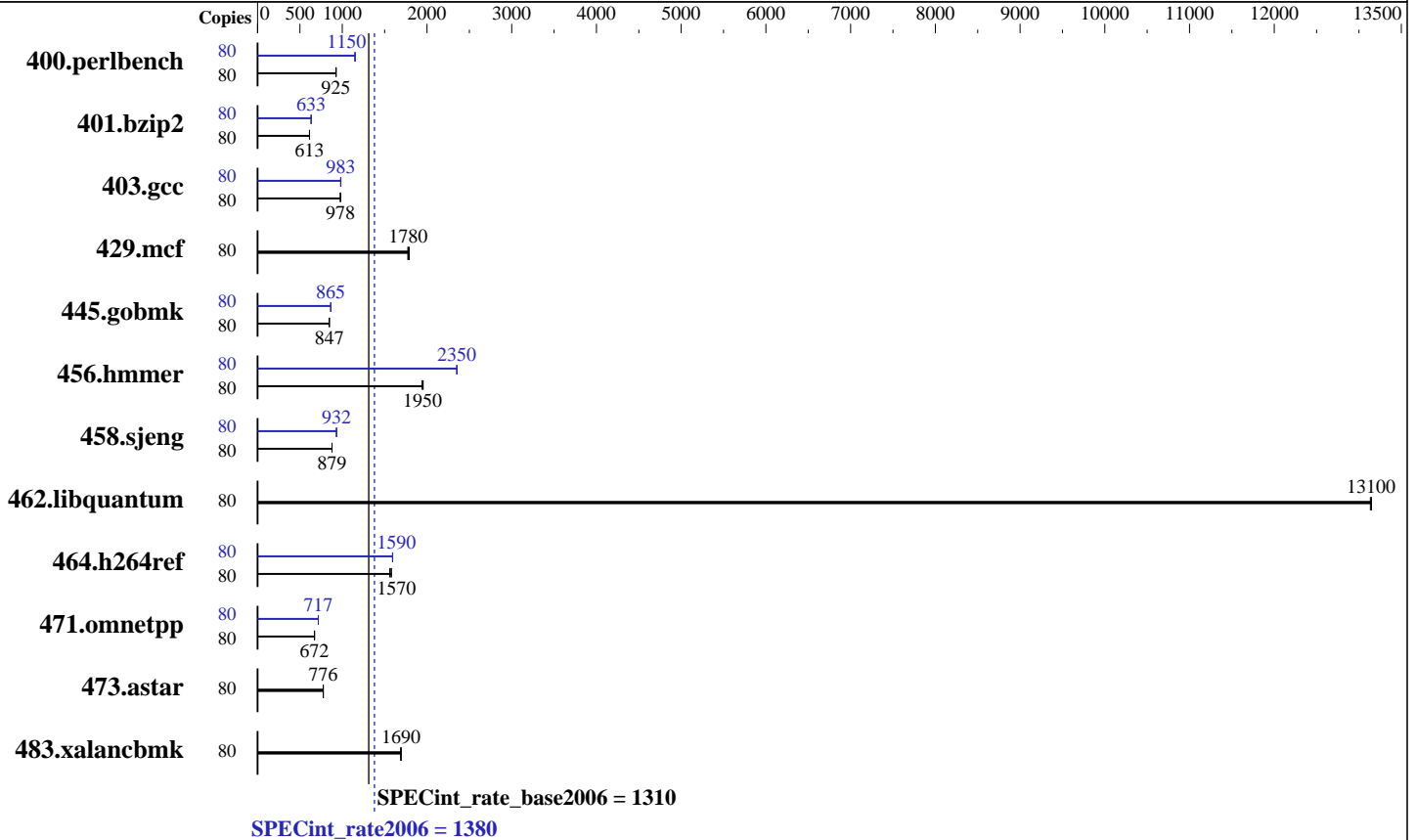
SPECint_rate_base2006 = 1310

CPU2006 license: 9019
Test sponsor: Cisco Systems
Tested by: Cisco Systems

Test date: Oct-2016
Hardware Availability: Jul-2016
Software Availability: Dec-2015

SPECint_rate_base2006 = 1310

SPECint_rate2006 = 1380

Hardware

CPU Name:	Intel Xeon E7-4820 v4
CPU Characteristics:	
CPU MHz:	2000
FPU:	Integrated
CPU(s) enabled:	40 cores, 4 chips, 10 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:	256 KB I+D on chip per core
L3 Cache:	25 MB I+D on chip per chip
Other Cache:	None
Memory:	512 GB (32 x 16 GB 2Rx4 PC4-2400T-R, running at 1333 MHz)
Disk Subsystem:	1 x 400 GB SAS SSD
Other Hardware:	None

Software

Operating System:	SUSE Linux Enterprise Server 12 SP1 (x86_64) 3.12.49-11-default
Compiler:	C/C++: Version 16.0.0.101 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 V10.2

SPEC CINT2006 Result
Copyright 2006-2016 Standard Performance Evaluation Corporation

Cisco Systems

Cisco UCS C460 M4 (Intel Xeon E7-4820 v4 2.00 GHz)

SPECint_rate2006 =   1380

SPECint_rate_base2006 = 1310

CPU2006 license: 9019
Test sponsor: Cisco Systems
Tested by: Cisco Systems

Test date: Oct-2016
Hardware Availability: Jul-2016
Software Availability: Dec-2015

Results Table

Benchmark	Base						Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
400.perlbench	80	845	925	842	928	**845**	**925**	80	**680**	**1150**	678	1150	680	1150
401.bzip2	80	**1259**	**613**	1261	612	1258	613	80	1219	633	**1220**	**633**	1221	632
403.gcc	80	660	975	655	983	**658**	**978**	80	655	984	657	980	**655**	**983**
429.mcf	80	**410**	**1780**	411	1770	407	1790	80	**410**	**1780**	411	1770	407	1790
445.gobmk	80	991	847	**991**	**847**	992	846	80	969	866	973	862	**970**	**865**
456.hmmer	80	382	1950	**383**	**1950**	384	1940	80	**317**	**2350**	317	2350	317	2350
458.sjeng	80	1102	879	1101	879	**1101**	**879**	80	1039	932	1039	932	**1039**	**932**
462.libquantum	80	126	13100	**126**	**13100**	126	13100	80	126	13100	**126**	**13100**	126	13100
464.h264ref	80	1120	1580	**1129**	**1570**	1135	1560	80	**1111**	**1590**	1112	1590	1110	1600
471.omnetpp	80	744	672	**744**	**672**	744	672	80	**697**	**717**	698	716	697	718
473.astar	80	724	775	**724**	**776**	724	776	80	724	775	**724**	**776**	724	776
483.xalancbmk	80	326	1690	**326**	**1690**	327	1690	80	326	1690	**326**	**1690**	327	1690

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:
    CPU performance set to Enterprise
    Power Technology set to Performance
    Energy Performance BIAS setting set to Balanced Performance
    Memory RAS configuration set to Maximum Performance
    Memory Power Saving Mode set to Disabled
    QPI Snoop Mode set to Cluster-on-Die
     Sysinfo program /opt/cpu2006-1.2/config/sysinfo.rev6914
     $Rev: 6914 $ $Date:: 2014-06-25 #$ e3fbb8667b5a285932ceab81e28219e1
     running on linux-69f9 Wed Oct 26 00:23:39 2016

     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 E7-4820 v4 @ 2.00GHz
Continued on next page

Cisco Systems

Cisco UCS C460 M4 (Intel Xeon E7-4820 v4 2.00 GHz)

SPECint_rate2006 =   1380

SPECint_rate_base2006 = 1310

CPU2006 license: 9019

Test sponsor: Cisco Systems

Tested by: Cisco Systems

Test date: Oct-2016

Hardware Availability: Jul-2016

Software Availability: Dec-2015

Platform Notes (Continued)

```
     4 "physical id"s (chips)
     80 "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 : 10
     siblings  : 20
     physical 0: cores 0 1 2 3 4 8 9 10 11 12
     physical 1: cores 0 1 2 3 4 8 9 10 11 12
     physical 2: cores 0 1 2 3 4 8 9 10 11 12
     physical 3: cores 0 1 2 3 4 8 9 10 11 12
  cache size : 25600 KB

From /proc/meminfo
   MemTotal:       529297700 kB
   HugePages_Total:        0
   Hugepagesize:        2048 kB

From /etc/*release* /etc/*version*
   SuSE-release:
      SUSE Linux Enterprise Server 12 (x86_64)
      VERSION = 12
      PATCHLEVEL = 1
      # 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-SP1"
      VERSION_ID="12.1"
      PRETTY_NAME="SUSE Linux Enterprise Server 12 SP1"
      ID="sles"
      ANSI_COLOR="0;32"
      CPE_NAME="cpe:/o:suse:sles:12:sp1"

uname -a:
   Linux linux-69f9 3.12.49-11-default #1 SMP Wed Nov 11 20:52:43 UTC 2015
   (8d714a0) x86_64 x86_64 x86_64 GNU/Linux

run-level 3 Oct 26 00:22

SPEC is set to: /opt/cpu2006-1.2
   Filesystem      Type  Size  Used Avail Use% Mounted on
   /dev/sda1       xfs   372G   98G  275G  27% /
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. C460M4.2.0.13b.0.080320162321 08/03/2016
```

Continued on next page

SPEC CINT2006 Result
Copyright 2006-2016 Standard Performance Evaluation Corporation

Cisco Systems

Cisco UCS C460 M4 (Intel Xeon E7-4820 v4 2.00 GHz)

SPECint_rate2006 =   1380

SPECint_rate_base2006 = 1310

CPU2006 license: 9019
Test sponsor: Cisco Systems
Tested by: Cisco Systems

Test date: Oct-2016
Hardware Availability: Jul-2016
Software Availability: Dec-2015

Platform Notes (Continued)

```
    Memory:
     32x 0xCE00 M393A2G40EB1-CRC 16 GB 2 rank 2400 MHz, configured at 1333 MHz
     64x NO DIMM NO DIMM   2400 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/libs/32:/opt/cpu2006-1.2/libs/64:/opt/cpu2006-1.2/sh"

 Binaries compiled on a system with 1x Intel Core i5-4670K CPU + 32GB
 memory using RedHat EL 7.1
 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>
```

Base Compiler Invocation

C benchmarks:
```
    icc -m32 -L/opt/intel/compilers_and_libraries_2016/linux/compiler/lib/ia32_lin
```

C++ benchmarks:
```
    icpc -m32 -L/opt/intel/compilers_and_libraries_2016/linux/compiler/lib/ia32_lin
```

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
```

SPEC CINT2006 Result
Copyright 2006-2016 Standard Performance Evaluation Corporation

Cisco Systems

Cisco UCS C460 M4 (Intel Xeon E7-4820 v4 2.00 GHz)

SPECint_rate2006 =   1380

SPECint_rate_base2006 = 1310

CPU2006 license: 9019
Test sponsor: Cisco Systems
Tested by: Cisco Systems

Test date: Oct-2016
Hardware Availability: Jul-2016
Software Availability: Dec-2015

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:

403.gcc: `-Dalloca=_alloca`

Peak Compiler Invocation

C benchmarks (except as noted below):
```
icc -m32 -L/opt/intel/compilers_and_libraries_2016/linux/compiler/lib/ia32_lin
```

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_2016/linux/compiler/lib/ia32_lin
```

Peak Portability Flags

```
    400.perlbench: -D_FILE_OFFSET_BITS=64 -DSPEC_CPU_LP64 -DSPEC_CPU_LINUX_X64
        401.bzip2: -D_FILE_OFFSET_BITS=64 -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: -D_FILE_OFFSET_BITS=64 -DSPEC_CPU_LP64
        458.sjeng: -D_FILE_OFFSET_BITS=64 -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

Cisco Systems

Cisco UCS C460 M4 (Intel Xeon E7-4820 v4 2.00 GHz)

SPECint_rate2006 =   1380

SPECint_rate_base2006 = 1310

CPU2006 license: 9019
Test sponsor: Cisco Systems
Tested by: Cisco Systems

Test date: Oct-2016
Hardware Availability: Jul-2016
Software Availability: Dec-2015

Peak Portability Flags (Continued)

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

Peak Optimization Flags

C benchmarks:

400.perlbench: `-xCORE-AVX2(pass 2) -prof-gen:threadsafe(pass 1)`
`-ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2)`
`-par-num-threads=1(pass 1) -prof-use(pass 2) -auto-ilp32`

401.bzip2: `-xCORE-AVX2(pass 2) -prof-gen:threadsafe(pass 1)`
`-ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2)`
`-par-num-threads=1(pass 1) -prof-use(pass 2) -opt-prefetch`
`-auto-ilp32 -ansi-alias`

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

429.mcf: `basepeak = yes`

445.gobmk: `-xCORE-AVX2(pass 2) -prof-gen:threadsafe(pass 1)`
`-prof-use(pass 2) -par-num-threads=1(pass 1) -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:threadsafe(pass 1)`
`-ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2)`
`-par-num-threads=1(pass 1) -prof-use(pass 2) -unroll4`
`-auto-ilp32`

462.libquantum: `basepeak = yes`

464.h264ref: `-xCORE-AVX2(pass 2) -prof-gen:threadsafe(pass 1)`
`-ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2)`
`-par-num-threads=1(pass 1) -prof-use(pass 2) -unroll2`
`-ansi-alias`

C++ benchmarks:

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

473.astar: `basepeak = yes`

SPEC CINT2006 Result
Copyright 2006-2016 Standard Performance Evaluation Corporation

Cisco Systems

Cisco UCS C460 M4 (Intel Xeon E7-4820 v4 2.00 GHz)

SPECint_rate2006 =   1380

SPECint_rate_base2006 = 1310

CPU2006 license: 9019
Test sponsor: Cisco Systems
Tested by: Cisco Systems

Test date: Oct-2016
Hardware Availability: Jul-2016
Software Availability: Dec-2015

Peak Optimization Flags (Continued)

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-ic16.0-official-linux64.html
http://www.spec.org/cpu2006/flags/Cisco-Platform-Settings-V1.2-revE.html

You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2006/flags/Intel-ic16.0-official-linux64.xml
http://www.spec.org/cpu2006/flags/Cisco-Platform-Settings-V1.2-revE.xml

SPEC and SPECint are registered trademarks of the Standard Performance
Evaluation Corporation. All other brand and product names appearing in
this result are trademarks or registered trademarks of their respective
holders.

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

Tested with SPEC CPU2006 v1.2.
Report generated on Tue Nov 15 16:08:00 2016 by SPEC CPU2006 PS/PDF formatter v6932.
Originally published on 15 November 2016.