SPEC® CINT2006 Result

Fujitsu

PRIMERGY RX1330 M3, Intel Xeon E3-1280 v6, 3.9GHz

SPECint®_rate2006 =   280

SPECint_rate_base2006 =   271

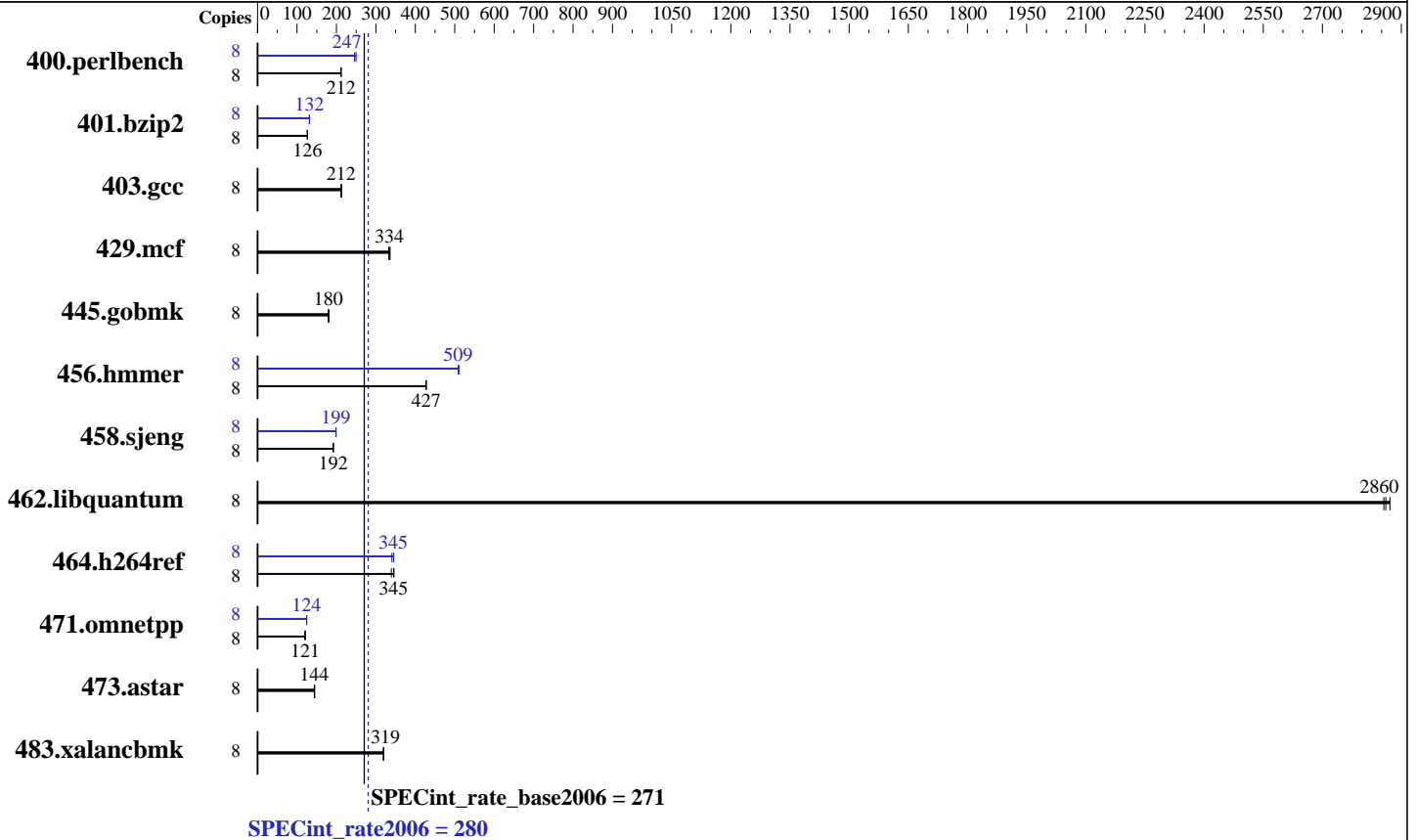**CPU2006 license:** 19

Test sponsor: Fujitsu

Tested by: Fujitsu

Test date: Mar-2017

Hardware Availability: May-2017

Software Availability: Nov-2016

Graph results:

Benchmark	Copies	Base	Peak
400.perlbench	8	212	247
401.bzip2	8	126	132
403.gcc	8	212	
429.mcf	8	334	
445.gobmk	8	180	
456.hmmer	8	427	509
458.sjeng	8	192	199
462.libquantum	8	2860	
464.h264ref	8	345	345
471.omnetpp	8	121	124
473.astar	8	144	
483.xalancbmk	8	319	

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Hardware

CPU Name: Intel Xeon E3-1280 v6

CPU Characteristics: Intel Turbo Boost Technology up to 4.20 GHz

CPU MHz: 3900

FPU: Integrated

CPU(s) enabled: 4 cores, 1 chip, 4 cores/chip, 2 threads/core

CPU(s) orderable: 1 chip

Primary Cache: 32 KB I + 32 KB D on chip per core

Secondary Cache: 256 KB I+D on chip per core

L3 Cache: 8 MB I+D on chip per chip

Other Cache: None

Memory: 64 GB (4 x 16 GB 2Rx8 PC4-2400T-E)

Disk Subsystem: 2 x SAS, 600 GB, 15000 RPM

Other Hardware: None

Software

Operating System: SUSE Linux Enterprise Server 12 SP2 (x86_64) 4.4.21-68-default

Compiler: C/C++: Version 17.0.0.098 of Intel C/C++ Compiler 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

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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	8	369	212	370	212	**369**	**212**	8	318	246	**317**	**247**	313	250
401.bzip2	8	613	126	**611**	**126**	611	126	8	585	132	**586**	**132**	589	131
403.gcc	8	302	213	**304**	**212**	304	212	8	302	213	**304**	**212**	304	212
429.mcf	8	219	333	**218**	**334**	217	336	8	219	333	**218**	**334**	217	336
445.gobmk	8	465	181	**466**	**180**	466	180	8	465	181	**466**	**180**	466	180
456.hmmer	8	174	428	175	427	**175**	**427**	8	**147**	**509**	146	511	147	508
458.sjeng	8	504	192	505	192	**504**	**192**	8	486	199	**487**	**199**	487	199
462.libquantum	8	**57.9**	**2860**	57.7	2870	58.0	2860	8	**57.9**	**2860**	57.7	2870	58.0	2860
464.h264ref	8	**513**	**345**	522	339	512	346	8	520	340	513	345	**514**	**345**
471.omnetpp	8	415	120	**415**	**121**	414	121	8	402	125	402	124	**402**	**124**
473.astar	8	388	145	390	144	**389**	**144**	8	388	145	390	144	**389**	**144**
483.xalancbmk	8	173	320	173	319	**173**	**319**	8	173	320	173	319	**173**	**319**

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"
    Turbo mode set with :
    cpupower -c all frequency-set -g performance
    cpupower idle-set -d 2
    cpupower idle-set -d 3
    cpupower idle-set -d 4
    echo always > /sys/kernel/mm/transparent_hugepage/enabled
    echo 1 > /proc/sys/vm/drop_caches
    echo 1000000000 > /proc/sys/kernel/sched_min_granularity_ns
    echo 1500000000 > /proc/sys/kernel/sched_wakeup_granularity_ns

Platform Notes

    Sysinfo program /home/benchmark/speccpu-20160922-updated/config/sysinfo.rev6993
    Revision 6993 of 2015-11-06 (b5e8d4b4eb51ed28d7f98696cbe290c1)
    running on linux-l8u9 Fri Mar 3 15:32:07 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

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Platform Notes (Continued)

```
From /proc/cpuinfo
   model name : Intel(R) Xeon(R) CPU E3-1280 v6 @ 3.90GHz
      1 "physical id"s (chips)
      8 "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 : 4
      siblings  : 8
      physical 0: cores 0 1 2 3
   cache size : 8192 KB

From /proc/meminfo
   MemTotal:       65656544 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-l8u9 4.4.21-68-default #1 SMP Tue Oct 18 18:19:37 UTC 2016
   (63cf368) x86_64 x86_64 x86_64 GNU/Linux

run-level 3 Mar 3 01:39

SPEC is set to: /home/benchmark/speccpu-20160922-updated
   Filesystem     Type   Size  Used Avail Use% Mounted on
   /dev/sda4      xfs    516G   26G  490G   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
   hardware, firmware, and the "DMTF SMBIOS" standard.

   BIOS FUJITSU // American Megatrends Inc. V5.0.0.11 R0.92.0 for D3375-B1x
   02/02/2017
```

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Platform Notes (Continued)

```
     Memory:
      4x Samsung M391A2K43BB1-CRC 16 GB 2 rank 2400 MHz

   (End of data from sysinfo program)
```

General Notes

```
Environment variables set by runspec before the start of the run:
LD_LIBRARY_PATH = "/home/benchmark/speccpu-20160922-updated/libs/32:/home/benchmark/speccpu-20160922-updated/libs/64:/home/benchmark/speccpu-20160922-updated/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
 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
```

Base Optimization Flags

C benchmarks:

```
     -xCORE-AVX2 -ipo -O3 -no-prec-div -qopt-prefetch
     -qopt-mem-layout-trans=3
```

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Base Optimization Flags (Continued)

C++ benchmarks:

```
-xCORE-AVX2 -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`
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) -xCORE-AVX2(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-AVX2(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: `basepeak = yes`

429.mcf: `basepeak = yes`

445.gobmk: `basepeak = yes`

456.hmmer: `-xCORE-AVX2 -ipo -O3 -no-prec-div -unroll2 -auto-ilp32`
`-qopt-mem-layout-trans=3`

458.sjeng: `-prof-gen(pass 1) -prof-use(pass 2) -xCORE-AVX2(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-AVX2(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-AVX2(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`

473.astar: `basepeak = yes`

483.xalancbmk: `basepeak = yes`

Peak Other Flags

C benchmarks:

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Peak Other Flags (Continued)

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.html

http://www.spec.org/cpu2006/flags/Fujitsu-Platform-Settings-V1.2-BDW-RevE.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.xml

http://www.spec.org/cpu2006/flags/Fujitsu-Platform-Settings-V1.2-BDW-RevE.xml

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

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