SPEC® CINT2006 Result
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Fujitsu

PRIMERGY RX2530 M4, Intel Xeon Gold 6140, 2.30GHz

$SPECint^®\_rate2006 =$ Not Run
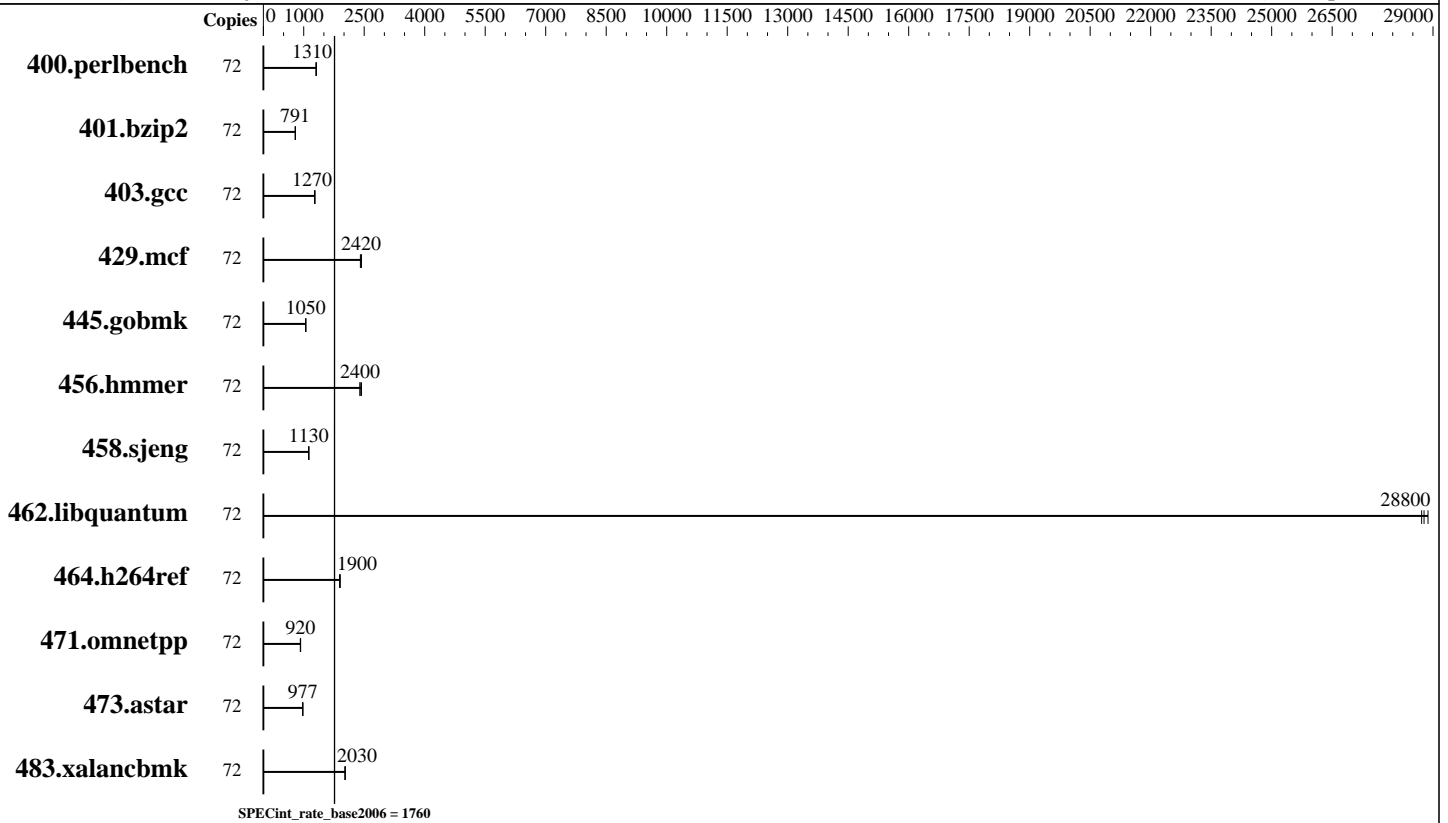
SPECint_rate_base2006 = 1760

CPU2006 license: 19
Test sponsor: Fujitsu
Tested by: Fujitsu

Test date: Aug-2017
Hardware Availability: Jul-2017
Software Availability: Apr-2017

Copies 0 1000 2500 4000 5500 7000 8500 10000 11500 13000 14500 16000 17500 19000 20500 22000 23500 25000 26500 29000

Benchmark	Copies	Result
400.perlbench	72	1310
401.bzip2	72	791
403.gcc	72	1270
429.mcf	72	2420
445.gobmk	72	1050
456.hmmer	72	2400
458.sjeng	72	1130
462.libquantum	72	28800
464.h264ref	72	1900
471.omnetpp	72	920
473.astar	72	977
483.xalancbmk	72	2030

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Hardware

CPU Name: Intel Xeon Gold 6140
CPU Characteristics: Intel Turbo Boost Technology up to 3.70 GHz
CPU MHz: 2300
FPU: Integrated
CPU(s) enabled: 36 cores, 2 chips, 18 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: 24.75 MB I+D on chip per chip
Other Cache: None
Memory: 384 GB (24 x 16 GB 2Rx4 PC4-2666V-R)
Disk Subsystem: 752 GB tmpfs
Other Hardware: None

Software

Operating System: SUSE Linux Enterprise Server 12 SP2 4.4.21-69-default
Compiler: C/C++: Version 17.0.3.191 of Intel C/C++ Compiler for Linux
Auto Parallel: No
File System: tmpfs
System State: Run level 3 (multi-user)
Base Pointers: 32-bit
Peak Pointers: Not Applicable
Other Software: Microquill SmartHeap V10.2

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Results Table

Benchmark	Copies	Base Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Peak Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
400.perlbench	72	537	1310	538	1310	**537**	**1310**							
401.bzip2	72	**878**	**791**	874	795	880	790							
403.gcc	72	455	1270	**455**	**1270**	454	1280							
429.mcf	72	**271**	**2420**	273	2410	270	2430							
445.gobmk	72	**719**	**1050**	720	1050	718	1050							
456.hmmer	72	**280**	**2400**	281	2390	276	2430							
458.sjeng	72	**774**	**1130**	774	1130	774	1130							
462.libquantum	72	51.7	28900	**51.8**	**28800**	51.9	28700							
464.h264ref	72	**839**	**1900**	843	1890	837	1900							
471.omnetpp	72	**489**	**920**	487	924	492	916							
473.astar	72	**517**	**977**	517	978	519	974							
483.xalancbmk	72	245	2030	**245**	**2030**	245	2020							

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"
    Kernel Boot Parameter set with : nohz_full=1-71
    Turbo mode set with :
    cpupower -c all frequency-set -g performance
    Tmpfs filesystem can be set with:
    mkdir /home/memory
    mount -t tmpfs -o size=752g,rw tmpfs /home/memory
    Process tunning setting:
    echo 10000000 > /proc/sys/kernel/sched_min_granularity_ns
    echo 15000000 > /proc/sys/kernel/sched_wakeup_granularity_ns
    echo 0 > /proc/sys/kernel/numa_balancing
    cpu idle state set with:
    cpupower idle-set -d 1
    cpupower idle-set -d 2

Platform Notes

    BIOS configuration:
    Link Frequency Select = 10.4 GT/s
    HWPM Support = Disabled
    Intel Virtualization Technology = Disabled

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Platform Notes (Continued)

```
   Sub NUMA Clustering = Enabled
   IMC Interleaving = 1-way
   LLC Dead Line Alloc = Disabled
   Stale AtoS = Enabled
   Sysinfo program /home/memory/speccpu/config/sysinfo.rev6993
   Revision 6993 of 2015-11-06 (b5e8d4b4eb51ed28d7f98696cbe290c1)
   running on linux-zz9i Tue Aug 15 08:24:45 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) Gold 6140 CPU @ 2.30GHz
         2 "physical id"s (chips)
         72 "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 : 18
         siblings  : 36
         physical 0: cores 0 1 2 3 4 8 9 10 11 16 17 18 19 20 24 25 26 27
         physical 1: cores 0 1 2 3 4 8 9 10 11 16 17 18 19 20 24 25 26 27
      cache size : 25344 KB

   From /proc/meminfo
      MemTotal:       394407124 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-zz9i 4.4.21-69-default #1 SMP Tue Oct 25 10:58:20 UTC 2016
```
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Platform Notes (Continued)

```
   (9464f67) x86_64 x86_64 x86_64 GNU/Linux

 run-level 3 Aug 15 08:04

 SPEC is set to: /home/memory/speccpu
    Filesystem     Type   Size  Used Avail Use% Mounted on
    tmpfs          tmpfs  752G  4.1G  748G   1% /home/memory
 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. V5.0.0.12 R1.4.1 for D3383-A1x
   06/19/2017
   Memory:
   24x Hynix HMA42GR7BJR4N-VK 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 = "/home/memory/speccpu/lib/ia32:/home/memory/speccpu/lib/intel64:/home/memory/speccpu/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

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Base Portability Flags (Continued)

```
        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-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
```

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/Fujitsu-Platform-Settings-V1.2-SKL-RevA.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/Fujitsu-Platform-Settings-V1.2-SKL-RevA.xml

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For other inquiries, please contact webmaster@spec.org.

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