SPEC® CINT2006 Result
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Fujitsu

PRIMERGY RX2540 M4, Intel Xeon Platinum 8180, 2.50GHz

$SPECint®\_rate2006 =$ Not Run

$SPECint\_rate\_base2006 =$ 2870

CPU2006 license: 19	**Test date:** Sep-2017
Test sponsor: Fujitsu	**Hardware Availability:** Jul-2017
Tested by: Fujitsu	**Software Availability:** Sep-2017

Copies 0 2000   5000   8000 11000 14000 17000 20000 23000 26000 29000 32000 35000 38000 41000 44000 47000   53000

Benchmark	Copies	Result
400.perlbench	112	2250
401.bzip2	112	1330
403.gcc	112	1970
429.mcf	112	3420
445.gobmk	112	1970
456.hmmer	112	3900
458.sjeng	112	2100
462.libquantum	112	52400
464.h264ref	112	3570
471.omnetpp	112	1240
473.astar	112	1450
483.xalancbmk	112	2810

SPECint_rate_base2006 = 2870

Hardware

CPU Name:	Intel Xeon Platinum 8180
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 chip
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:	752 GB tmpfs
Other Hardware:	1 x SAS HDD, 1.2 TB, 10.5K RPM, used for swap

Software

Operating System:	SUSE Linux Enterprise Server 12 SP2 4.4.21-69-default
Compiler:	C/C++: Version 18.0.0.128 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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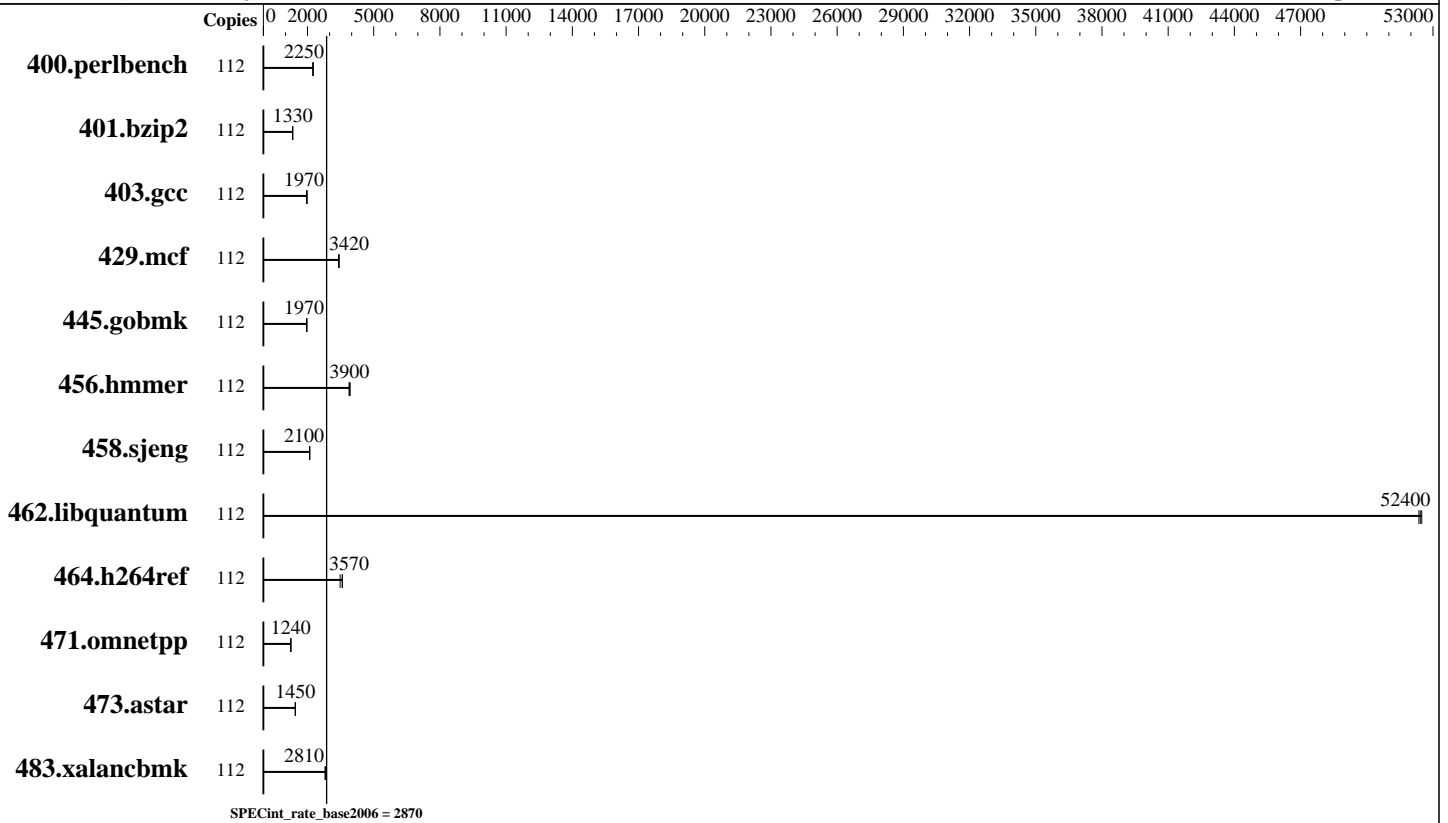
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Results Table

Benchmark	Base Copies	Base Seconds	Base Ratio	Base Seconds	Base Ratio	Base Seconds	Base Ratio	Peak Copies	Peak Seconds	Peak Ratio	Peak Seconds	Peak Ratio	Peak Seconds	Peak Ratio
400.perlbench	112	485	2260	488	2240	**487**	**2250**							
401.bzip2	112	**814**	**1330**	814	1330	813	1330							
403.gcc	112	459	1960	**457**	**1970**	456	1980							
429.mcf	112	**298**	**3420**	298	3430	299	3420							
445.gobmk	112	600	1960	596	1970	**597**	**1970**							
456.hmmer	112	269	3880	**268**	**3900**	266	3930							
458.sjeng	112	**646**	**2100**	646	2100	646	2100							
462.libquantum	112	**44.3**	**52400**	44.2	52500	44.3	52400							
464.h264ref	112	**694**	**3570**	713	3480	693	3580							
471.omnetpp	112	**563**	**1240**	563	1240	563	1240							
473.astar	112	**543**	**1450**	542	1450	543	1450							
483.xalancbmk	112	276	2800	275	2810	**275**	**2810**							

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=1-111
     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
     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
     Sub NUMA Clustering = Enabled

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Platform Notes (Continued)

```
    IMC Interleaving = 1-way
    LLC Dead Line Alloc = Disabled
    Stale AtoS = Enabled
    DCU Streamer Prefetcher = Disabled
    Patrol Scrub = Disabled
    Fan Control = Full
    Sysinfo program /home/memory/speccpu/config/sysinfo.rev6993
    Revision 6993 of 2015-11-06 (b5e8d4b4eb51ed28d7f98696cbe290c1)
    running on linux-knpm Thu Sep 14 18:34:09 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 8180 CPU @ 2.50GHz
          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:      394412556 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"
```
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Platform Notes (Continued)

```
        CPE_NAME="cpe:/o:suse:sles:12:sp2"

  uname -a:
     Linux linux-knpm 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 Sep 14 18:20

  SPEC is set to: /home/memory/speccpu
     Filesystem      Type    Size  Used Avail Use% Mounted on
     tmpfs           tmpfs   752G  9.6G  743G   2% /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 R1.7.0 for D3384-A1x
   07/25/2017
   Memory:
   24x Samsung 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 = "/home/memory/speccpu/icc2018lib/ia32:/home/memory/speccpu/icc2018lib/intel64:/home/memory/speccpu/sh10.2"

 Binaries compiled on a system with 2x Intel Xeon Platinum 8180 CPU + 384GB RAM
 memory using SUSE Linux Enterprise Server 12 SP2
 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_2018.0.128/linux/compiler/lib/ia32
```

C++ benchmarks:
```
    icpc -m32 -L/opt/intel/compilers_and_libraries_2018.0.128/linux/compiler/lib/ia32
```

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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-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/Fujitsu-Platform-Settings-V1.2-SKL-RevB.html
http://www.spec.org/cpu2006/flags/Intel-ic17.0-official-linux64-revF.html

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

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

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