



# SPEC® CINT2006 Result

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## Fujitsu

PRIMERGY RX2530 M4, Intel Xeon Platinum 8160, 2.10GHz

SPECint®\_rate2006 = Not Run

SPECint\_rate\_base2006 = 2170

CPU2006 license: 19

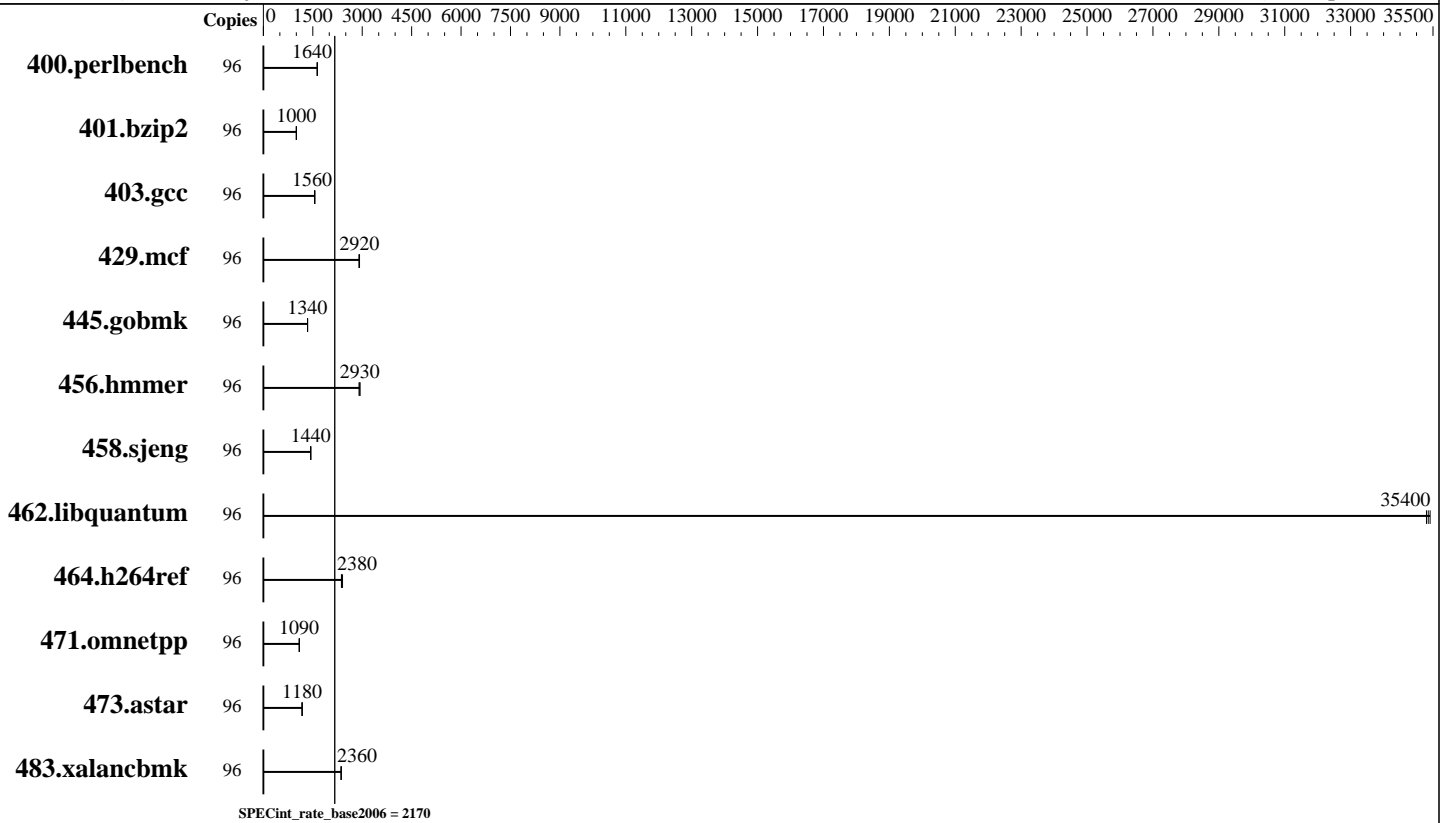
Test sponsor: Fujitsu

Tested by: Fujitsu

Test date: Aug-2017

Hardware Availability: Jul-2017

Software Availability: Apr-2017



### Hardware

CPU Name: Intel Xeon Platinum 8160  
 CPU Characteristics: Intel Turbo Boost Technology up to 3.70 GHz  
 CPU MHz: 2100  
 FPU: Integrated  
 CPU(s) enabled: 48 cores, 2 chips, 24 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: 33 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	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
400.perlbench	96	<b>574</b>	<b>1640</b>	573	1640	574	1630							
401.bzip2	96	927	999	924	1000	<b>925</b>	<b>1000</b>							
403.gcc	96	498	1550	<b>496</b>	<b>1560</b>	494	1560							
429.mcf	96	302	2900	300	2920	<b>300</b>	<b>2920</b>							
445.gobmk	96	750	1340	752	1340	<b>751</b>	<b>1340</b>							
456.hammer	96	309	2900	<b>306</b>	<b>2930</b>	306	2930							
458.sjeng	96	808	1440	808	1440	<b>808</b>	<b>1440</b>							
462.libquantum	96	<b>56.3</b>	<b>35400</b>	56.2	35400	56.3	35300							
464.h264ref	96	<b>894</b>	<b>2380</b>	884	2400	897	2370							
471.omnetpp	96	551	1090	<b>550</b>	<b>1090</b>	550	1090							
473.astar	96	572	1180	574	1170	<b>573</b>	<b>1180</b>							
483.xalancbmk	96	<b>280</b>	<b>2360</b>	281	2360	280	2360							

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=1-95
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 tuning setting:
echo 1000000 > /proc/sys/kernel/sched_min_granularity_ns
echo 1500000 > /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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```



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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 Mon Aug 14 03:25:21 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 8160 CPU @ 2.10GHz
 2 "physical id"s (chips)
 96 "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 : 24
  siblings  : 48
  physical 0: cores 0 1 2 3 4 5 8 9 10 11 12 13 16 17 18 19 20 21 24 25 26
 27 28 29
  physical 1: cores 0 1 2 3 4 5 8 9 10 11 12 13 16 17 18 19 20 21 24 25 26
 27 28 29
cache size : 33792 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"
```

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## Platform Notes (Continued)

```
uname -a:  
Linux linux-zz9i 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 14 02:36
```

```
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



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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/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 questions about this result, please contact the tester.  
For other inquiries, please contact [webmaster@spec.org](mailto:webmaster@spec.org).

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