



# SPEC® CINT2006 Result

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## Fujitsu

PRIMERGY CX2560 M4, Intel Xeon Platinum 8176M, 2.10GHz

SPECint®\_rate2006 = Not Run

SPECint\_rate\_base2006 = 2510

CPU2006 license: 19

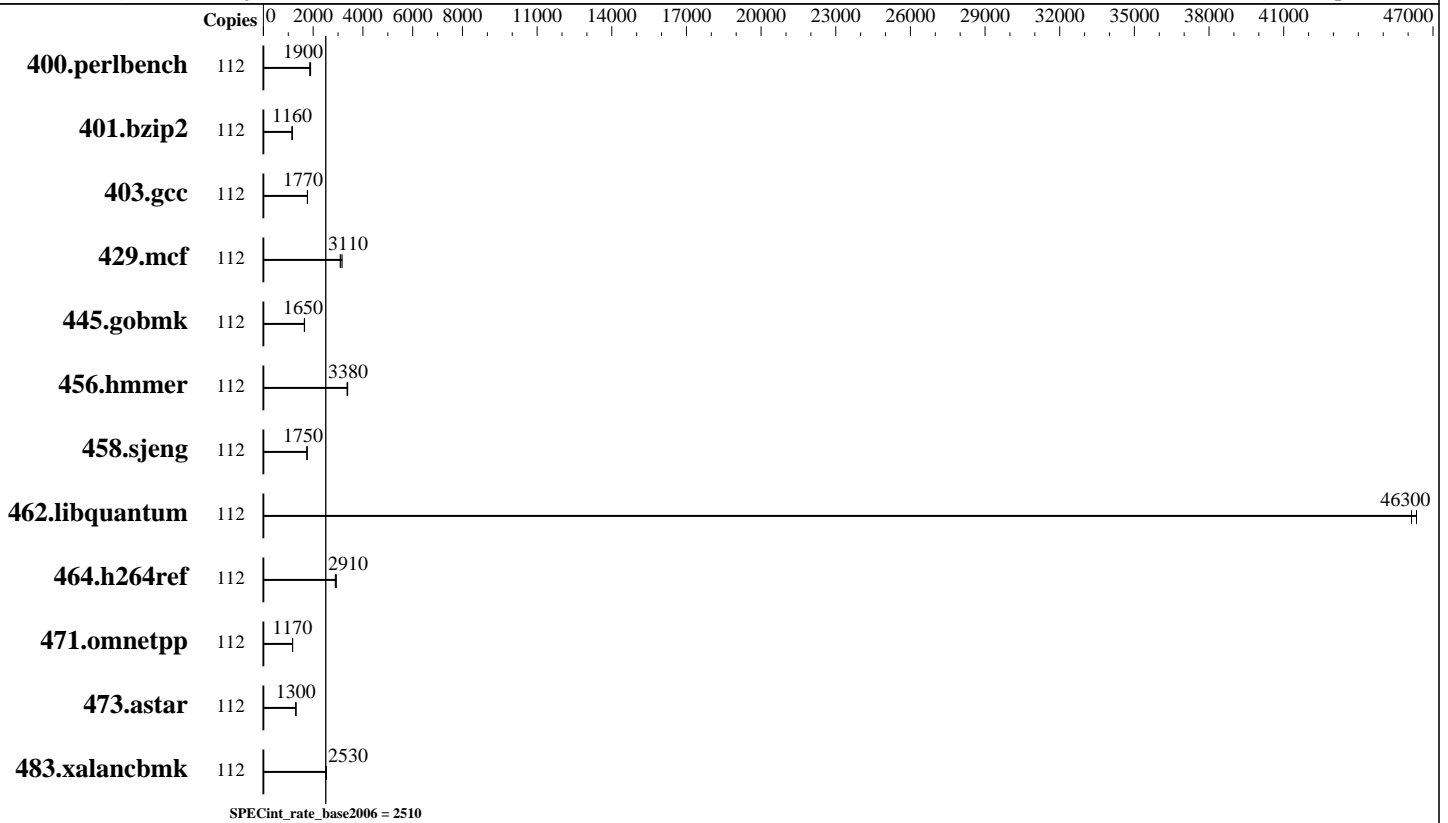
Test sponsor: Fujitsu

Tested by: Fujitsu

Test date: Nov-2017

Hardware Availability: Dec-2017

Software Availability: Sep-2017



### Hardware

CPU Name: Intel Xeon Platinum 8176M  
 CPU Characteristics: Intel Turbo Boost Technology up to 3.80 GHz  
 CPU MHz: 2100  
 FPU: Integrated  
 CPU(s) enabled: 56 cores, 2 chips, 28 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: 38.5 MB I+D on chip per chip  
 Other Cache: None  
 Memory: 192 GB (12 x 16 GB 2Rx4 PC4-2666V-R)  
 Disk Subsystem: 1 x SATA M.2 SSD, 128 GB  
 Other Hardware: None

### 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: xfs  
 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	112	<u>577</u>	<u>1900</u>	588	1860	577	1900							
401.bzip2	112	933	1160	937	1150	<u>935</u>	<u>1160</u>							
403.gcc	112	510	1770	<u>509</u>	<u>1770</u>	508	1770							
429.mcf	112	323	3160	331	3090	<u>328</u>	<u>3110</u>							
445.gobmk	112	710	1650	<u>711</u>	<u>1650</u>	714	1640							
456.hammer	112	309	3390	311	3360	<u>309</u>	<u>3380</u>							
458.sjeng	112	772	1760	773	1750	<u>773</u>	<u>1750</u>							
462.libquantum	112	50.3	46100	50.1	46300	<u>50.1</u>	<u>46300</u>							
464.h264ref	112	858	2890	<u>851</u>	<u>2910</u>	846	2930							
471.omnetpp	112	596	1170	598	1170	<u>597</u>	<u>1170</u>							
473.astar	112	<u>603</u>	<u>1300</u>	603	1300	602	1310							
483.xalancbmk	112	306	2530	306	2520	<u>306</u>	<u>2530</u>							

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"
Set Kernel Boot Parameter: nohz_full=1-111
Set CPU frequency governor to maximum performance with:
cpupower -c all frequency-set -g performance
Process tuning settings:
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:
DCU Streamer Prefetcher = Disabled
Intel Virtualization Technology = Disabled
Power Technology = Custom
HWPM Support = Disabled
UPI Link Frequency Select = 10.4GT/s
Sub NUMA Clustering = Enabled
```

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### Platform Notes (Continued)

Stale AtoS = Enabled  
LLC dead line alloc = Disabled  
Sysinfo program /home/speccpu2006/config/sysinfo.rev6993  
Revision 6993 of 2015-11-06 (b5e8d4b4eb51ed28d7f98696cbe290c1)  
running on linux-CX2560M4 Mon Nov 27 18:13:08 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 8176M CPU @ 2.10GHz
 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:      196468548 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-CX2560M4 4.4.21-69-default #1 SMP Tue Oct 25 10:58:20 UTC 2016
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```



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### Platform Notes (Continued)

(9464f67) x86\_64 x86\_64 x86\_64 GNU/Linux

run-level 3 Nov 27 18:01

SPEC is set to: /home/speccpu2006

Filesystem	Type	Size	Used	Avail	Use%	Mounted on
/dev/sdb1	xfs	120G	9.6G	110G	9%	/home/speccpu2006

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 V1.0.0.0 R1.9.6 for D3854-A1x 10/06/2017

Memory:  
12x Hynix HMA42GR7BJR4N-VK 16 GB 2 rank 2666 MHz  
4x Not Specified Not Specified

(End of data from sysinfo program)

### General Notes

Environment variables set by runspec before the start of the run:

LD\_LIBRARY\_PATH = "/home/speccpu2006/icc2018lib/ia32:/home/speccpu2006/icc2018lib/intel64:/home/speccpu2006/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

### 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-RevD.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-RevD.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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