# SPEC® CINT2006 Result
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## Fujitsu

PRIMERGY CX2550 M4, Intel Xeon Platinum 8176M, 2.10GHz

$SPECint®\_rate2006 =$ Not Run
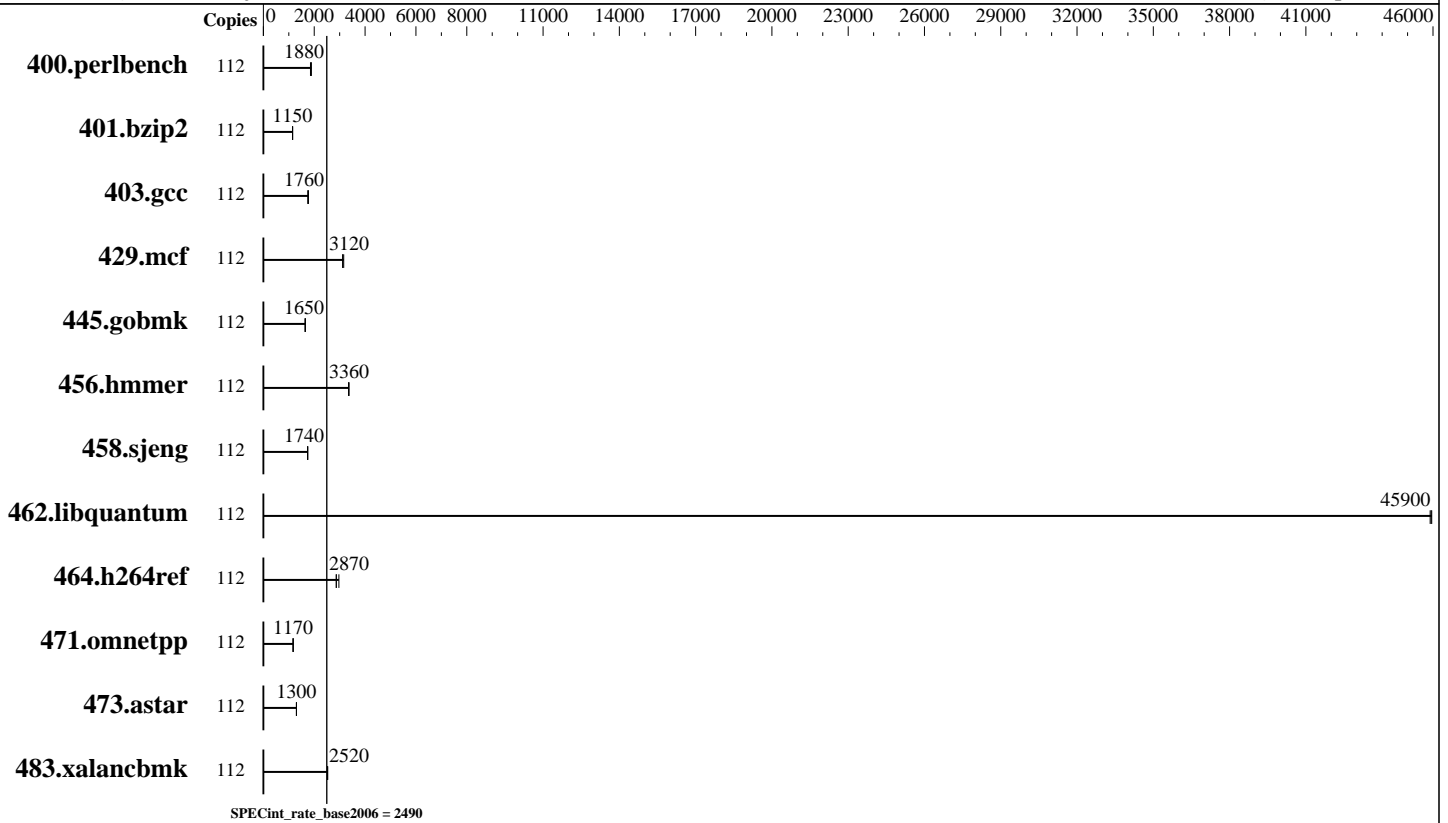
SPECint_rate_base2006 = 2490

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

**Test date:** Dec-2017
**Hardware Availability:** Dec-2017
**Software Availability:** Sep-2017



| Benchmark | Copies | Result |
|---|---|---|
| 400.perlbench | 112 | 1880 |
| 401.bzip2 | 112 | 1150 |
| 403.gcc | 112 | 1760 |
| 429.mcf | 112 | 3120 |
| 445.gobmk | 112 | 1650 |
| 456.hmmer | 112 | 3360 |
| 458.sjeng | 112 | 1740 |
| 462.libquantum | 112 | 45900 |
| 464.h264ref | 112 | 2870 |
| 471.omnetpp | 112 | 1170 |
| 473.astar | 112 | 1300 |
| 483.xalancbmk | 112 | 2520 |

SPECint_rate_base2006 = 2490

## 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 | **582** | **1880** | 591 | 1850 | 581 | 1880 | | | | | | | |
| 401.bzip2 | 112 | 942 | 1150 | 939 | 1150 | **941** | **1150** | | | | | | | |
| 403.gcc | 112 | 509 | 1770 | 515 | 1750 | **512** | **1760** | | | | | | | |
| 429.mcf | 112 | 323 | 3160 | **327** | **3120** | 328 | 3120 | | | | | | | |
| 445.gobmk | 112 | 712 | 1650 | 716 | 1640 | **714** | **1650** | | | | | | | |
| 456.hmmer | 112 | 311 | 3360 | **311** | **3360** | 312 | 3350 | | | | | | | |
| 458.sjeng | 112 | 779 | 1740 | **778** | **1740** | 778 | 1740 | | | | | | | |
| 462.libquantum | 112 | 50.6 | 45900 | **50.5** | **45900** | 50.5 | 45900 | | | | | | | |
| 464.h264ref | 112 | **864** | **2870** | 835 | 2970 | 865 | 2870 | | | | | | | |
| 471.omnetpp | 112 | 598 | 1170 | 598 | 1170 | **598** | **1170** | | | | | | | |
| 473.astar | 112 | **604** | **1300** | 605 | 1300 | 604 | 1300 | | | | | | | |
| 483.xalancbmk | 112 | **306** | **2520** | 306 | 2530 | 306 | 2520 | | | | | | | |

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/Benchmark/speccpu-icc18-20171020/config/sysinfo.rev6993
Revision 6993 of 2015-11-06 (b5e8d4b4eb51ed28d7f98696cbe290c1)
running on CX2550M4 Fri Dec  1 18:51:19 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:       196604044 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 CX2550M4 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 Dec 1 17:50

  SPEC is set to: /home/Benchmark/speccpu-icc18-20171020
    Filesystem      Type  Size  Used Avail Use% Mounted on
    /dev/sda5       xfs    77G   14G   64G  18% /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 V1.0.0.0 R1.9.6 for D3853-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/Benchmark/speccpu-icc18-20171020/icc2018lib/ia32:/home/Benchmark/speccpu-icc18-20171020/icc2018lib/intel64"
LD_LIBRARY_PATH = "$LD_LIBRARY_PATH:/home/Benchmark/speccpu-icc18-20171020/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_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/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.

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