# SPEC® CINT2006 Result



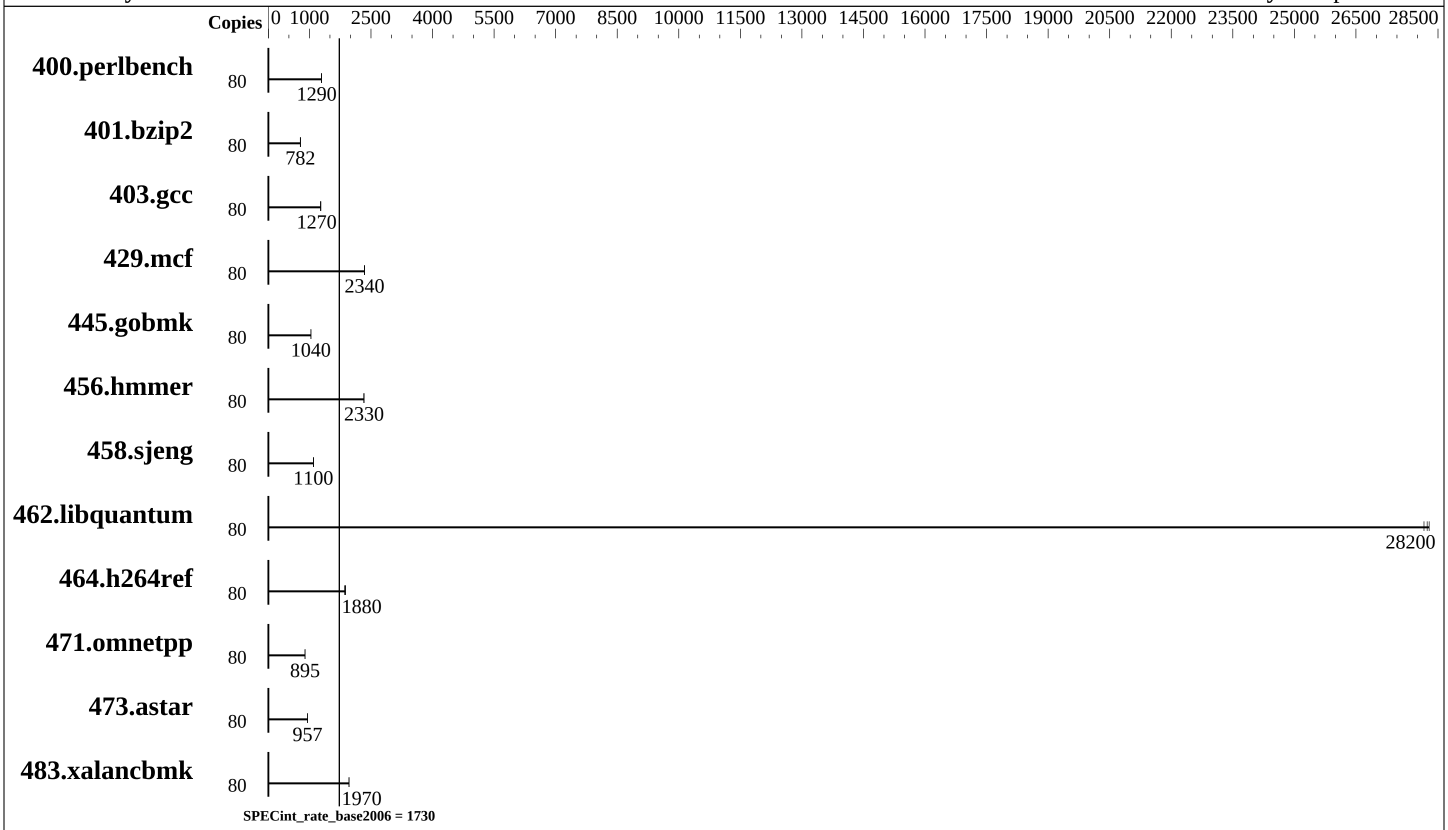
## Dell Inc.

PowerEdge R540 (Intel Xeon Gold 6138, 2.00 GHz)

SPECint®_rate2006 = Not Run

SPECint_rate_base2006 = 1730

| | | | |
|---|---|---|---|
| **CPU2006 license:** | 55 | **Test date:** | Aug-2017 |
| **Test sponsor:** | Dell Inc. | **Hardware Availability:** | Sep-2017 |
| **Tested by:** | Dell Inc. | **Software Availability:** | Apr-2017 |




## Hardware

| | |
|---|---|
| CPU Name: | Intel Xeon Gold 6138 |
| CPU Characteristics: | Intel Turbo Boost Technology up to 3.70 GHz |
| CPU MHz: | 2000 |
| FPU: | Integrated |
| CPU(s) enabled: | 40 cores, 2 chips, 20 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: | 27.5 MB I+D on chip per chip |
| Other Cache: | None |
| Memory: | 192 GB (12 x 16 GB 2Rx8 PC4-2666V-R) |
| Disk Subsystem: | 1 x 1 TB SATA 7200 RPM |
| 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: | xfs |
| System State: | Run level 3 (multi-user) |
| Base Pointers: | 32-bit |
| Peak Pointers: | 32/64-bit |
| Other Software: | Microquill SmartHeap V10.2 |

## Results Table

| | Base | | | | | | | Peak | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Benchmark | Copies | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio | Copies | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio |
| 400.perlbench | 80 | **604** | **1290** | 605 | 1290 | 604 | 1290 | | | | | | | |
| 401.bzip2 | 80 | 993 | 777 | 987 | 782 | **987** | **782** | | | | | | | |
| 403.gcc | 80 | 503 | 1280 | **506** | **1270** | 507 | 1270 | | | | | | | |
| 429.mcf | 80 | **311** | **2340** | 311 | 2340 | 312 | 2340 | | | | | | | |
| 445.gobmk | 80 | **811** | **1040** | 811 | 1030 | 810 | 1040 | | | | | | | |
| 456.hmmer | 80 | 321 | 2320 | **320** | **2330** | 320 | 2330 | | | | | | | |
| 458.sjeng | 80 | **881** | **1100** | 881 | 1100 | 881 | 1100 | | | | | | | |
| 462.libquantum | 80 | 58.9 | 28200 | **58.7** | **28200** | 58.6 | 28300 | | | | | | | |
| 464.h264ref | 80 | 942 | 1880 | 956 | 1850 | **944** | **1880** | | | | | | | |
| 471.omnetpp | 80 | 559 | 894 | 559 | 895 | **559** | **895** | | | | | | | |
| 473.astar | 80 | 587 | 957 | 588 | 956 | **587** | **957** | | | | | | | |
| 483.xalancbmk | 80 | 281 | 1960 | **281** | **1970** | 281 | 1970 | | | | | | | |

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"
```

## Platform Notes

```
BIOS settings:
Sub NUMA Cluster enabled
Virtualization Technology disabled
System Profile set to Custom
CPU Performance set to Maximum Performance
C States set to autonomous
C1E disabled
Uncore Frequency set to Dynamic
Energy Efficiency Policy set to Performance
Memory Patrol Scrub disabled
Logical Processor enabled
CPU Interconnect Bus Link Power Management disabled
PCI ASPM L1 Link Power Management disabled
Sysinfo program /root/cpu2006-1.2_ic17u3/config/sysinfo.rev6993
Revision 6993 of 2015-11-06 (b5e8d4b4eb51ed28d7f98696cbe290c1)
running on linux-28u4 Thu Aug 31 01:16:42 2017
```

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## Platform Notes (Continued)

```
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 6138 CPU @ 2.00GHz
      2 "physical id"s (chips)
      80 "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 : 20
      siblings  : 40
      physical 0: cores 0 1 2 3 4 8 9 10 11 12 16 17 18 19 20 24 25 26 27 28
      physical 1: cores 0 1 2 3 4 8 9 10 11 12 16 17 18 19 20 24 25 26 27 28
   cache size : 28160 KB

From /proc/meminfo
   MemTotal:       196687084 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-28u4 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 31 01:10

SPEC is set to: /root/cpu2006-1.2_ic17u3
   Filesystem     Type  Size  Used Avail Use% Mounted on
   /dev/sda2      xfs   927G  9.1G  918G   1% /
Additional information from dmidecode:
```

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## Platform Notes (Continued)

```
    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 Dell Inc. 1.0.0 08/10/2017
  Memory:
    8x 002C00B3002C 18ASF2G72PDZ-2G6D1 16 GB 2 rank 2666 MHz
    4x 002C0632002C 18ASF2G72PDZ-2G6D1 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 = "/root/cpu2006-1.2_ic17u3/lib/ia32:/root/cpu2006-1.2_ic17u3/lib/intel64:/root/cpu2006-1.2_ic17u3/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 by default
 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
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

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## Base Portability Flags (Continued)

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/Dell-Platform-Flags-PowerEdge14G-revC.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/Dell-Platform-Flags-PowerEdge14G-revC.xml



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

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