SPEC® CINT2006 Result
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Acer Incorporated

Altos W2000h-W370h F4 (Intel Xeon Gold 6126)

$SPECint^®\_rate2006 =$ 1360

$SPECint\_rate\_base2006 =$ 1290

CPU2006 license: 97	**Test date:** Sep-2017
Test sponsor: Acer Incorporated	**Hardware Availability:** Oct-2017
Tested by: Acer Incorporated	**Software Availability:** Apr-2017

Copies — scale: 0 1000 2000 3000 4000 5000 6000 7000 8000 9000 10000 11500 13000 14500 16000 17500 19000 21500

- 400.perlbench: 48 / 1140 ; 48 / 951
- 401.bzip2: 48 / 589 ; 48 / 557
- 403.gcc: 48 / 956 ; 48 / 951
- 429.mcf: 48 / 1750
- 445.gobmk: 48 / 771 ; 48 / 774
- 456.hmmer: 48 / 2220 ; 48 / 1790
- 458.sjeng: 48 / 886 ; 48 / 821
- 462.libquantum: 48 / 21200
- 464.h264ref: 48 / 1460 ; 48 / 1400
- 471.omnetpp: 48 / 690 ; 48 / 635
- 473.astar: 48 / 732
- 483.xalancbmk: 48 / 1540

SPECint_rate_base2006 = 1290

SPECint_rate2006 = 1360

Hardware

CPU Name:	Intel Xeon Gold 6126
CPU Characteristics:	Intel Turbo Boost Technology up to 3.70 GHz
CPU MHz:	2600
FPU:	Integrated
CPU(s) enabled:	24 cores, 2 chips, 12 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:	19.25 MB I+D on chip per chip
Other Cache:	None
Memory:	284 GB (12 x 32 GB 2Rx4 PC4-2666V-R)
Disk Subsystem:	1 x 1000 GB 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:	Yes
File System:	btrfs
System State:	Run level 3 (multi-user)
Base Pointers:	32-bit
Peak Pointers:	32/64-bit
Other Software:	Microquill SmartHeap V10.2

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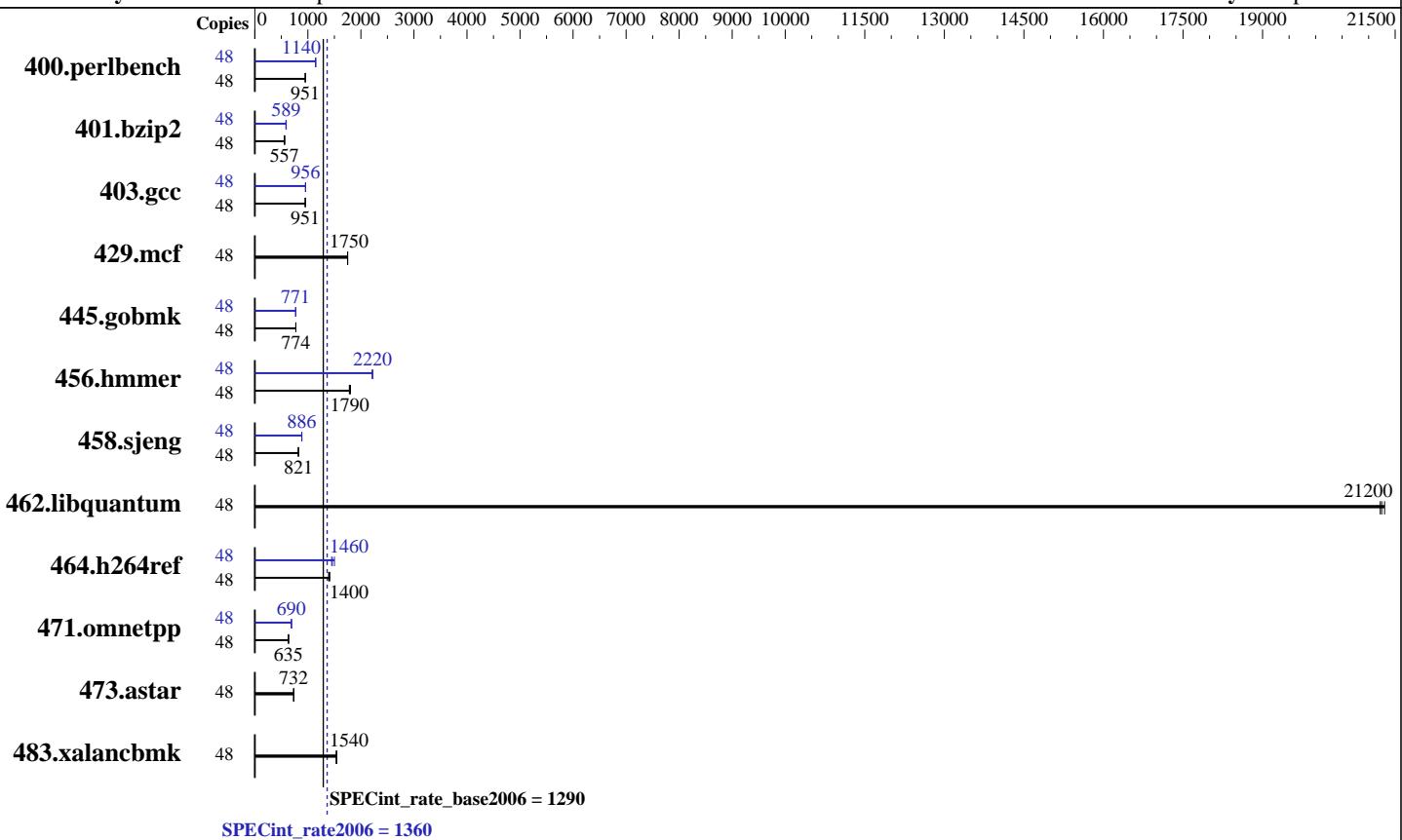
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Results Table

Benchmark	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
400.perlbench	48	492	954	494	950	**493**	**951**	48	**410**	**1140**	408	1150	410	1140
401.bzip2	48	833	556	819	565	**832**	**557**	48	790	586	**786**	**589**	782	593
403.gcc	48	407	950	405	954	**406**	**951**	48	404	957	404	956	**404**	**956**
429.mcf	48	250	1750	**250**	**1750**	250	1750	48	250	1750	**250**	**1750**	250	1750
445.gobmk	48	650	774	**651**	**774**	652	773	48	**653**	**771**	653	771	653	771
456.hmmer	48	**250**	**1790**	248	1800	251	1780	48	**202**	**2220**	202	2220	202	2210
458.sjeng	48	706	823	**708**	**821**	708	820	48	655	886	**656**	**886**	656	885
462.libquantum	48	46.7	21300	46.9	21200	**46.8**	**21200**	48	46.7	21300	46.9	21200	**46.8**	**21200**
464.h264ref	48	751	1410	763	1390	**760**	**1400**	48	708	1500	733	1450	**727**	**1460**
471.omnetpp	48	472	635	473	634	**472**	**635**	48	435	689	**435**	**690**	434	691
473.astar	48	459	735	**460**	**732**	461	731	48	459	735	**460**	**732**	461	731
483.xalancbmk	48	214	1550	**215**	**1540**	216	1530	48	214	1550	**215**	**1540**	216	1530

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 Configuration:
CPU Power and Performance Policy set to Performance
IMC set to 1-way interleaving
Sub_NUMA Cluster set to enabled
Set Fan Profile set to Performance
Sysinfo program /usr/cpu2006/config/sysinfo.rev6993
Revision 6993 of 2015-11-06 (b5e8d4b4eb51ed28d7f98696cbe290c1)
running on linux-irn9 Thu Sep  7 17:13:48 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) Gold 6126 CPU @ 2.60GHz
      2 "physical id"s (chips)
      48 "processors"
```

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Platform Notes (Continued)

```
   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 : 12
      siblings  : 24
      physical 0: cores 0 1 3 4 6 8 9 10 11 12 13 14
      physical 1: cores 0 1 2 3 4 5 6 8 9 11 12 13
   cache size : 19712 KB

From /proc/meminfo
   MemTotal:      394675016 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-irn9 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 7 17:10

SPEC is set to: /usr/cpu2006
   Filesystem      Type   Size  Used Avail Use% Mounted on
   /dev/sda3      btrfs 3.7T  195G  3.5T   6% /
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 Intel Corporation SE5C620.86B.00.01.0004.071220170215 07/12/2017
 Memory:
```

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Platform Notes (Continued)

```
    4x Empty/NO DIMM NO DIMM
    12x Micron 36ASF4G72PZ-2G6D1 32 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 = "/usr/cpu2006/lib/ia32:/usr/cpu2006/lib/intel64:/usr/cpu2006/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
      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
```

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Base Optimization Flags (Continued)

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`

Peak Compiler Invocation

C benchmarks (except as noted below):
```
icc -m32 -L/opt/intel/compilers_and_libraries_2017/linux/lib/ia32
```

400.perlbench: `icc -m64`

401.bzip2: `icc -m64`

456.hmmer: `icc -m64`

458.sjeng: `icc -m64`

C++ benchmarks:
```
icpc -m32 -L/opt/intel/compilers_and_libraries_2017/linux/lib/ia32
```

Peak Portability Flags

```
  400.perlbench: -DSPEC_CPU_LP64 -DSPEC_CPU_LINUX_X64
     401.bzip2: -DSPEC_CPU_LP64
       403.gcc: -D_FILE_OFFSET_BITS=64
       429.mcf: -D_FILE_OFFSET_BITS=64
    445.gobmk: -D_FILE_OFFSET_BITS=64
    456.hmmer: -DSPEC_CPU_LP64
     458.sjeng: -DSPEC_CPU_LP64
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
```

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Peak Optimization Flags

C benchmarks:

```
   400.perlbench: -prof-gen(pass 1) -prof-use(pass 2) -xCORE-AVX512(pass 2)
                  -par-num-threads=1(pass 1) -ipo(pass 2) -O3(pass 2)
                  -no-prec-div(pass 2) -auto-ilp32 -qopt-mem-layout-trans=3

       401.bzip2: -prof-gen(pass 1) -prof-use(pass 2) -xCORE-AVX512(pass 2)
                  -par-num-threads=1(pass 1) -ipo(pass 2) -O3(pass 2)
                  -no-prec-div(pass 2) -qopt-prefetch -auto-ilp32
                  -qopt-mem-layout-trans=3

         403.gcc: -xCORE-AVX512 -ipo -O3 -no-prec-div
                  -qopt-mem-layout-trans=3

         429.mcf: basepeak = yes

       445.gobmk: -prof-gen(pass 1) -prof-use(pass 2) -xCORE-AVX512(pass 2)
                  -par-num-threads=1(pass 1) -ipo(pass 2) -O3(pass 2)
                  -no-prec-div(pass 2) -qopt-mem-layout-trans=3

       456.hmmer: -xCORE-AVX512 -ipo -O3 -no-prec-div -unroll2 -auto-ilp32
                  -qopt-mem-layout-trans=3

       458.sjeng: -prof-gen(pass 1) -prof-use(pass 2) -xCORE-AVX512(pass 2)
                  -par-num-threads=1(pass 1) -ipo(pass 2) -O3(pass 2)
                  -no-prec-div(pass 2) -unroll4 -auto-ilp32
                  -qopt-mem-layout-trans=3

   462.libquantum: basepeak = yes

     464.h264ref: -prof-gen(pass 1) -prof-use(pass 2) -xCORE-AVX512(pass 2)
                  -par-num-threads=1(pass 1) -ipo(pass 2) -O3(pass 2)
                  -no-prec-div(pass 2) -unroll2 -qopt-mem-layout-trans=3
```

C++ benchmarks:

```
     471.omnetpp: -prof-gen(pass 1) -prof-use(pass 2) -xCORE-AVX512(pass 2)
                  -par-num-threads=1(pass 1) -ipo(pass 2) -O3(pass 2)
                  -no-prec-div(pass 2)
                  -qopt-ra-region-strategy=block
                  -qopt-mem-layout-trans=3 -Wl,-z,muldefs
                  -L/sh10.2 -lsmartheap

       473.astar: basepeak = yes

   483.xalancbmk: basepeak = yes
```

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Peak 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/Acer-Platform-Settings-V1.3-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/Acer-Platform-Settings-V1.3-revC.xml`

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

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