SPEC® CINT2006 Result

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Gigabyte Technology Co., Ltd.

(Test Sponsor: Intel Corporation)

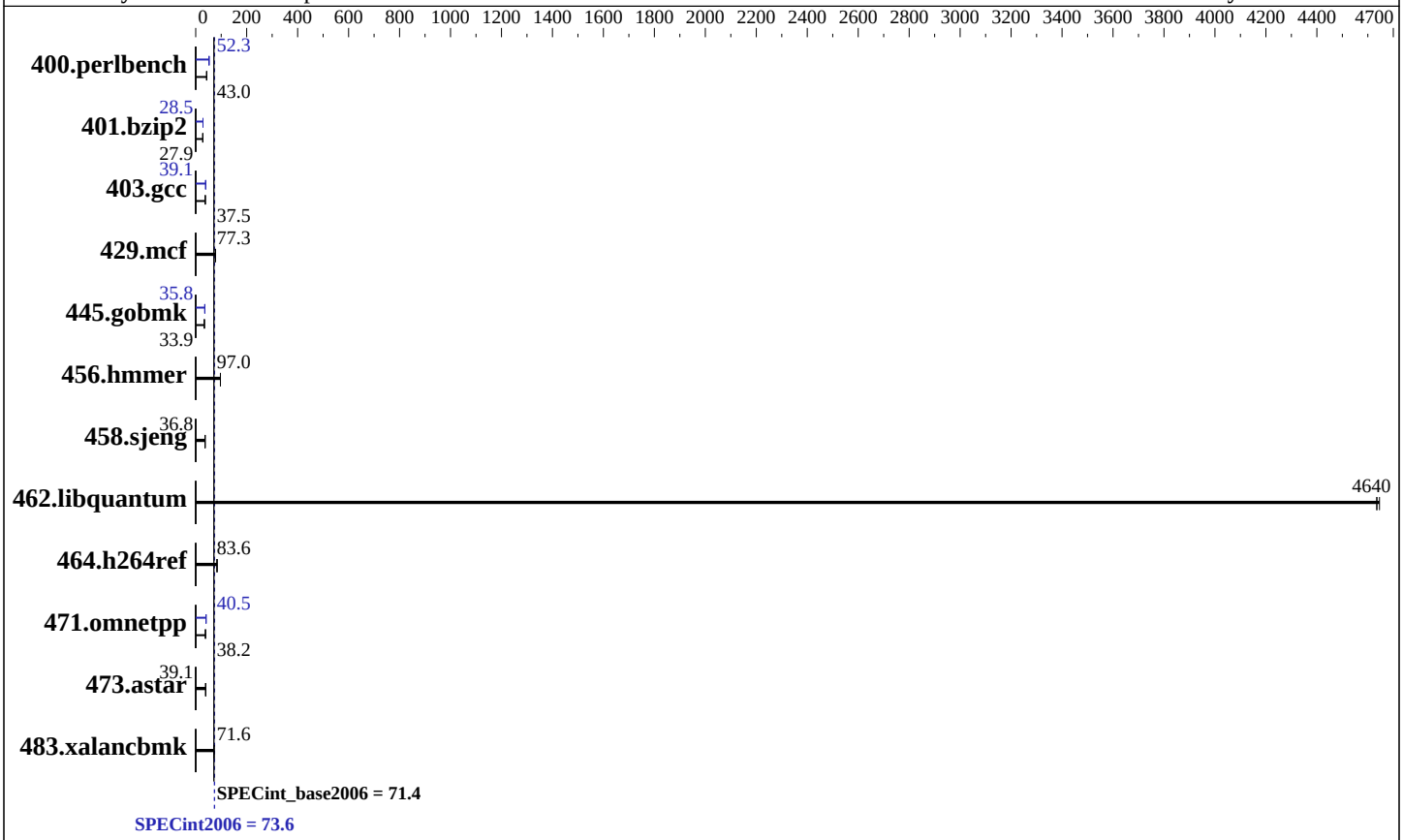
GigaByte GA-X99-Designare EX motherboard (Intel Core i7-6950X)

SPECint®2006 = 73.6

SPECint_base2006 = 71.4

CPU2006 license: 13
Test sponsor: Intel Corporation
Tested by: Intel Corporation

Test date: Jun-2016
Hardware Availability: May-2016
Software Availability: Nov-2015



Hardware

CPU Name:	Intel Core i7-6950X
CPU Characteristics:	Intel Turbo Boost Technology up to 3.50 GHz
CPU MHz:	3000
FPU:	Integrated
CPU(s) enabled:	10 cores, 1 chip, 10 cores/chip, 2 threads/core
CPU(s) orderable:	1 chip
Primary Cache:	32 KB I + 32 KB D on chip per core
Secondary Cache:	256 KB I+D on chip per core
L3 Cache:	25 MB I+D on chip per chip
Other Cache:	None
Memory:	32 GB (4 x 8 GB 2Rx4 PC4-2133R-U)
Disk Subsystem:	1 TB Seagate SATA HDD, 7200 RPM
Other Hardware:	None

Software

Operating System:	Microsoft Windows 10 Pro 10.0.10586 N/A Build 10586
Compiler:	C/C++: Version 16.0.0.110 of Intel C++ Studio XE for Windows; Libraries: Version 18.00.30723 of Microsoft Visual Studio 2013
Auto Parallel:	Yes
File System:	NTFS
System State:	Default
Base Pointers:	32/64-bit
Peak Pointers:	32/64-bit
Other Software:	SmartHeap Library Version 11.0 from http://www.microquill.com/

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Results Table

Benchmark	Base						Peak					
	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
400.perlbench	227	43.1	227	43.0	**227**	**43.0**	187	52.3	187	52.3	**187**	**52.3**
401.bzip2	345	27.9	347	27.8	**346**	**27.9**	338	28.6	**339**	**28.5**	339	28.5
403.gcc	215	37.5	214	37.6	**214**	**37.5**	206	39.1	206	39.1	**206**	**39.1**
429.mcf	**118**	**77.3**	118	77.3	118	77.4	**118**	**77.3**	118	77.3	118	77.4
445.gobmk	309	33.9	**309**	**33.9**	310	33.9	**293**	**35.8**	293	35.8	293	35.8
456.hmmer	96.2	97.0	96.3	96.9	**96.2**	**97.0**	96.2	97.0	96.3	96.9	**96.2**	**97.0**
458.sjeng	**329**	**36.8**	329	36.8	329	36.8	**329**	**36.8**	329	36.8	329	36.8
462.libquantum	**4.47**	**4640**	4.46	4650	4.47	4640	**4.47**	**4640**	4.46	4650	4.47	4640
464.h264ref	**265**	**83.6**	264	83.9	266	83.3	**265**	**83.6**	264	83.9	266	83.3
471.omnetpp	163	38.4	**164**	**38.2**	164	38.2	155	40.4	154	40.6	**154**	**40.5**
473.astar	180	39.1	**179**	**39.1**	179	39.1	180	39.1	**179**	**39.1**	179	39.1
483.xalancbmk	96.4	71.6	96.2	71.7	**96.3**	**71.6**	96.4	71.6	96.2	71.7	**96.3**	**71.6**

Results appear in the order in which they were run. Bold underlined text indicates a median measurement.

Compiler Invocation Notes

```
To compile these binaries, the Intel Compiler 16.0 was set up to
generate 64-bit binaries with the command:
"psxevars.bat intel64" (shortcut provided in the Intel(r)
Parallel Studio XE 2016 program folder)
```

Platform Notes

```
Sysinfo program C:\SPEC16.0/Docs/sysinfo
$Rev: 6775 $ $Date:: 2011-08-16 #$ \8787f7622badcf24e01c368b1db4377c
running on Clt1C1B0D05C2E5 Sat Jun 18 07:53:38 2016

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

Trying 'systeminfo'
OS Name        : Microsoft Windows 10 Pro
OS Version     : 10.0.10586 N/A Build 10586
System Manufacturer: Gigabyte Technology Co., Ltd.
System Model   : Default string
Processor(s)   : 1 Processor(s) Installed.
     [01]: Intel64 Family 6 Model 79 Stepping 1 GenuineIntel ~3001 Mhz
BIOS Version   : American Megatrends Inc. F2, 5/22/2016
Total Physical Memory: 32,606 MB

Trying 'wmic cpu get /value'
DeviceID       : CPU0
```

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Platform Notes (Continued)

```
L2CacheSize   : 2560
L3CacheSize   : 25600
MaxClockSpeed : 3001
Name          : Intel(R) Core(TM) i7-6950X CPU @ 3.00GHz
NumberOfCores : 10
NumberOfLogicalProcessors: 20

(End of data from sysinfo program)
```

Component Notes

```
Tested systems can be used with Shin-G ATX case,
PC Power and Cooling 1200W power supply
```

General Notes

```
OMP_NUM_THREADS set to number of processors cores
KMP_AFFINITY set to granularity=fine,scatter
Binaries compiled on a system with 1x Intel Xeon E5-2699 v3 CPU
+ 64GB memory using Windows 8.1 Enterprise 64-bit
```

Base Compiler Invocation

C benchmarks:
```
icl -Qvc12 -Qstd=c99
```

C++ benchmarks:
```
icl -Qvc12
```

Base Portability Flags

400.perlbench: -DSPEC_CPU_P64 -DSPEC_CPU_WIN64_X64
401.bzip2: -DSPEC_CPU_P64
403.gcc: -DSPEC_CPU_P64 -DSPEC_CPU_WIN64
429.mcf: -DSPEC_CPU_P64
445.gobmk: -DSPEC_CPU_P64
456.hmmer: -DSPEC_CPU_P64
458.sjeng: -DSPEC_CPU_P64
462.libquantum: -DSPEC_CPU_P64
464.h264ref: -DSPEC_CPU_P64 -DWIN32
471.omnetpp: -DSPEC_CPU_P64 -DSPEC_CPU_WIN64
473.astar: -DSPEC_CPU_P64
483.xalancbmk: -DSPEC_CPU_P64 -Qoption,cpp,--no_wchar_t_keyword -DWIN64

Base Optimization Flags

C benchmarks:
```
-QxCORE-AVX2 -Qipo -O3 -Qprec-div- -Qopt-prefetch -Qparallel
-Qauto-ilp32 /F64000000
```

C++ benchmarks:
```
-QxCORE-AVX2 -Qipo -O3 -Qprec-div- -Qopt-prefetch -Qcxx-features
-Qauto-ilp32 /F64000000 shlW64M.lib            -link /FORCE:MULTIPLE
```

Base Other Flags

C benchmarks:

403.gcc: `-Dalloca=_alloca`

Peak Compiler Invocation

C benchmarks:
```
icl -Qvc12 -Qstd=c99
```

C++ benchmarks:
```
icl -Qvc12
```

Peak Portability Flags

Same as Base Portability Flags

Peak Optimization Flags

C benchmarks:

400.perlbench: `-QxCORE-AVX2`(pass 2) `-Qprof_gen`(pass 1) `-Qprof_use`(pass 2)
`-Qipo -O3 -Qprec-div- -Qansi-alias -Qopt-prefetch`
`-Qauto-ilp32 /F64000000 shlW64M.lib`
`/F256000000 -link /FORCE:MULTIPLE`

401.bzip2: `-QxCORE-AVX2`(pass 2) `-Qprof_gen`(pass 1) `-Qprof_use`(pass 2)
`-Qipo -O3 -Qprec-div- -Qopt-prefetch -Qansi-alias`
`-Qauto-ilp32 /F64000000`

403.gcc: `-QxCORE-AVX2`(pass 2) `-Qprof_gen`(pass 1) `-Qprof_use`(pass 2)
`-Qipo -O3 -Qprec-div- -Qauto-ilp32 /F64000000`

Continued on next page

Peak Optimization Flags (Continued)

429.mcf: basepeak = yes

445.gobmk: -QxCORE-AVX2(pass 2) -Qprof_gen(pass 1) -Qprof_use(pass 2) -Qipo -O2 -Qprec-div- -Qansi-alias -Qauto-ilp32 /F64000000

456.hmmer: basepeak = yes

458.sjeng: basepeak = yes

462.libquantum: basepeak = yes

464.h264ref: basepeak = yes

C++ benchmarks:

471.omnetpp: -QxCORE-AVX2(pass 2) -Qprof_gen(pass 1) -Qprof_use(pass 2) -Qipo -O3 -Qprec-div- -Qansi-alias -Qopt-ra-region-strategy=block -Qauto-ilp32 /F64000000 shlW64M.lib -link /FORCE:MULTIPLE

473.astar: basepeak = yes

483.xalancbmk: basepeak = yes

Peak Other Flags

C benchmarks:

403.gcc: -Dalloca=_alloca

The flags file that was used to format this result can be browsed at
http://www.spec.org/cpu2006/flags/Intel-ic16.0-official-windows.html

You can also download the XML flags source by saving the following link:
http://www.spec.org/cpu2006/flags/Intel-ic16.0-official-windows.xml

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