SPEC® CINT2006 Result
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Intel Corporation

ASUS Z97-A motherboard (Intel Core i7-4770K)

SPECint®_rate2006 = 212

SPECint_rate_base2006 = 204

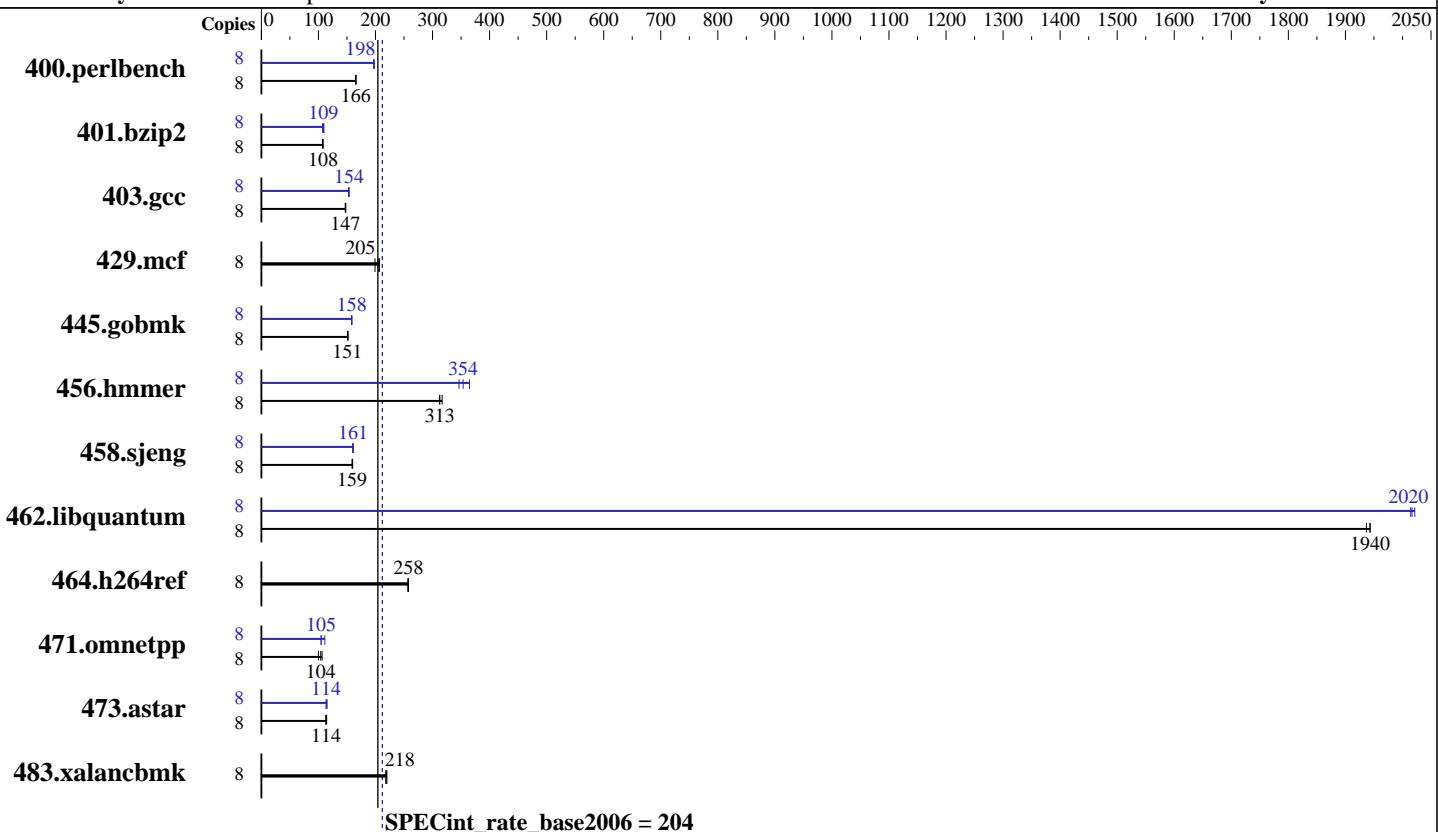**CPU2006 license:** 13

Test sponsor: Intel Corporation

Tested by: Intel Corporation

Test date: May-2014

Hardware Availability: Apr-2014

Software Availability: Oct-2013

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Hardware

CPU Name: Intel Core i7-4770K

CPU Characteristics: Intel Turbo Boost Technology up to 3.90 GHz

CPU MHz: 3500

FPU: Integrated

CPU(s) enabled: 4 cores, 1 chip, 4 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: 8 MB I+D on chip per chip

Other Cache: None

Memory: 8 GB (2 x 4 GB 2Rx4 PC3-12800U-11)

Disk Subsystem: 180 GB Intel SSD 530

Other Hardware: None

Software

Operating System: Microsoft Windows 8.1 Pro
6.3.9600 N/A Build 9600

Compiler: C/C++: Version 14.0.1.139 of Intel C++ Studio XE for Windows;
Libraries: Version 16.00.30319.01 of Microsoft Visual Studio 2010 Professional SP1

Auto Parallel: No

File System: NTFS

System State: Default

Base Pointers: 32-bit

Peak Pointers: 32/64-bit

Other Software: SmartHeap Library Version 10.0 from http://www.microquill.com/

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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	8	473	166	472	166	**473**	**166**		8	**396**	**198**	396	198	397	197
401.bzip2	8	722	107	716	108	**717**	**108**		8	706	110	**709**	**109**	718	107
403.gcc	8	**438**	**147**	438	147	435	148		8	**420**	**154**	420	154	420	153
429.mcf	8	352	207	366	199	**357**	**205**		8	352	207	366	199	**357**	**205**
445.gobmk	8	**555**	**151**	553	152	556	151		8	531	158	530	158	**530**	**158**
456.hmmer	8	236	317	239	312	**239**	**313**		8	**211**	**354**	216	346	204	365
458.sjeng	8	606	160	**607**	**159**	608	159		8	604	160	**603**	**161**	603	161
462.libquantum	8	85.3	1940	**85.3**	**1940**	85.6	1940		8	**82.2**	**2020**	82.3	2010	82.0	2020
464.h264ref	8	689	257	**688**	**258**	687	258		8	689	257	**688**	**258**	687	258
471.omnetpp	8	472	106	499	100	**479**	**104**		8	449	111	478	105	**476**	**105**
473.astar	8	500	113	492	114	**494**	**114**		8	**493**	**114**	494	114	488	115
483.xalancbmk	8	253	218	**253**	**218**	251	220		8	253	218	**253**	**218**	251	220

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 14.0 was set up to
generate 32-bit binaries with the command:
"ipsxe-comp-vars.bat ia32 vs2010" (shortcut provided in the Intel(r)
Parallel Studio XE 2013 program folder)
```

Submit Notes

```
Processes were bound to specific processors using the start command with the /affinity switch.
The config file option 'submit' was used to generate the affinity mask for each process.
```

Platform Notes

```
Sysinfo program C:\SPEC14.0/Docs/sysinfo
$Rev: 6775 $ $Date:: 2011-08-16 #$ \8787f7622badcf24e01c368b1db4377c
running on Z97A Thu Mar 12 22:52:47 2015

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 8.1 Pro
OS Version   : 6.3.9600 N/A Build 9600
System Manufacturer: ASUS
System Model : All Series
Processor(s) : 1 Processor(s) Installed.
```
Continued on next page

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Platform Notes (Continued)

```
     [01]: Intel64 Family 6 Model 60 Stepping 3 GenuineIntel ~3501 Mhz
   BIOS Version  : American Megatrends Inc. 0702, 4/23/2014
   Total Physical Memory: 8,069 MB

   Trying 'wmic cpu get /value'
   DeviceID       : CPU0
   L2CacheSize    : 1024
   L3CacheSize    : 8192
   MaxClockSpeed  : 3501
   Name           : Intel(R) Core(TM) i7-4770K CPU @ 3.50GHz
   NumberOfCores  : 4
   NumberOfLogicalProcessors: 8

   (End of data from sysinfo program)
   BIOS: SATA mode set to RAID
   Windows Disk Driver: Intel Rapid Storage Technology 12.9.0.1001
```

Component Notes

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

General Notes

```
   Binaries compiled on a system with 1x Intel Core i7-860 CPU
   + 8GB memory using Windows 7 Enterprise 64-bit
```

Base Compiler Invocation

C benchmarks:
```
   icl -Qvc10 -Qstd=c99
```

C++ benchmarks:
```
   icl -Qvc10
```

Base Portability Flags

```
     403.gcc: -DSPEC_CPU_WIN32
    464.h264ref: -DWIN32 -DSPEC_CPU_NO_INTTYPES
   483.xalancbmk: -Qoption,cpp,--no_wchar_t_keyword
```

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Base Optimization Flags

C benchmarks:

    -QxCORE-AVX2 -Qipo -O3 -Qprec-div- -Qopt-prefetch /F512000000

C++ benchmarks:

    -QxCORE-AVX2 -Qipo -O3 -Qprec-div- -Qopt-prefetch -Qcxx-features
    /F512000000 shlW32M.lib   -link /FORCE:MULTIPLE

Base Other Flags

C benchmarks:

       403.gcc: -Dalloca=_alloca

Peak Compiler Invocation

C benchmarks (except as noted below):
    icl -Qvc10 -Qstd=c99

   456.hmmer: C:\Program Files (x86)\Intel\Composer XE 2013 SP1/bin/intel64/icl.exe

   458.sjeng: C:\Program Files (x86)\Intel\Composer XE 2013 SP1/bin/intel64/icl.exe

 462.libquantum: C:\Program Files (x86)\Intel\Composer XE 2013 SP1/bin/intel64/icl.exe
              -Qstd=c99

C++ benchmarks (except as noted below):
    icl -Qvc10

   473.astar: C:\Program Files (x86)\Intel\Composer XE 2013 SP1/bin/intel64/icl.exe

Peak Portability Flags

       403.gcc: -DSPEC_CPU_WIN32
     456.hmmer: -DSPEC_CPU_P64
     458.sjeng: -DSPEC_CPU_P64
 462.libquantum: -DSPEC_CPU_P64
    464.h264ref: -DWIN32 -DSPEC_CPU_NO_INTTYPES
     473.astar: -DSPEC_CPU_P64
 483.xalancbmk: -Qoption,cpp,--no_wchar_t_keyword

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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
                /F512000000 shlW32M.lib   -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
                /F512000000

         403.gcc: -QxCORE-AVX2(pass 2) -Qprof_gen(pass 1) -Qprof_use(pass 2)
                -Qipo -O3 -Qprec-div- -Qopt-prefetch /F512000000

         429.mcf: basepeak = yes

        445.gobmk: -QxCORE-AVX2(pass 2) -Qprof_gen(pass 1) -Qprof_use(pass 2)
                -Qipo -O2 -Qprec-div- -Qansi-alias /F512000000

       456.hmmer: -Qauto-ilp32 -QxCORE-AVX2(pass 2) -Qprof_gen(pass 1)
                -Qprof_use(pass 2) -Qipo -O3 -Qprec-div- -Qopt-prefetch
                /F512000000

        458.sjeng: -Qauto-ilp32 -QxCORE-AVX2(pass 2) -Qprof_gen(pass 1)
                -Qprof_use(pass 2) -Qipo -O3 -Qprec-div- -Qunroll4
                /F512000000

    462.libquantum: -Qauto-ilp32 -QxCORE-AVX2 -Qipo -O3 -Qprec-div-
                -Qopt-prefetch /F512000000

      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 /F512000000 shlW32M.lib
                        -link /FORCE:MULTIPLE

         473.astar: -Qauto-ilp32 -QxCORE-AVX2 -Qipo -O3 -Qprec-div-
                -Qopt-prefetch /F512000000 shlW64M.lib
                        -link /FORCE:MULTIPLE

    483.xalancbmk: basepeak = yes

Peak Other Flags

C benchmarks:

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Peak Other Flags (Continued)

```
      403.gcc: -Dalloca=_alloca

   456.hmmer: -link -LIBPATH:C:\Program Files (x86)\Intel\Composer XE 2013 SP1/compiler/lib/intel64
             -link -LIBPATH:C:/Program Files (x86)/Microsoft Visual Studio 10.0/VC/lib/AMD6
             -link -LIBPATH:C:/Program Files (x86)/Microsoft Visual Studio 10.0/VC/lib
             -link -LIBPATH:C:/Program Files (x86)/Microsoft SDKs/Windows/v7.0A/lib/x64

    458.sjeng: -link -LIBPATH:C:\Program Files (x86)\Intel\Composer XE 2013 SP1/compiler/lib/intel64
             -link -LIBPATH:C:/Program Files (x86)/Microsoft Visual Studio 10.0/VC/lib/AMD6
             -link -LIBPATH:C:/Program Files (x86)/Microsoft Visual Studio 10.0/VC/lib
             -link -LIBPATH:C:/Program Files (x86)/Microsoft SDKs/Windows/v7.0A/lib/x64

 462.libquantum: -link -LIBPATH:C:\Program Files (x86)\Intel\Composer XE 2013 SP1/compiler/lib/intel64
             -link -LIBPATH:C:/Program Files (x86)/Microsoft Visual Studio 10.0/VC/lib/AMD6
             -link -LIBPATH:C:/Program Files (x86)/Microsoft Visual Studio 10.0/VC/lib
             -link -LIBPATH:C:/Program Files (x86)/Microsoft SDKs/Windows/v7.0A/lib/x64
```

C++ benchmarks:

```
    473.astar: -link -LIBPATH:C:\Program Files (x86)\Intel\Composer XE 2013 SP1/compiler/lib/intel64
             -link -LIBPATH:C:/Program Files (x86)/Microsoft Visual Studio 10.0/VC/lib/AMD6
             -link -LIBPATH:C:/Program Files (x86)/Microsoft Visual Studio 10.0/VC/lib
             -link -LIBPATH:C:/Program Files (x86)/Microsoft SDKs/Windows/v7.0A/lib/x64
```

The flags file that was used to format this result can be browsed at
http://www.spec.org/cpu2006/flags/Intel-ic14.0-official-windows.html

You can also download the XML flags source by saving the following link:
http://www.spec.org/cpu2006/flags/Intel-ic14.0-official-windows.xml

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