# SPEC® CINT2006 Result

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## Intel Corporation

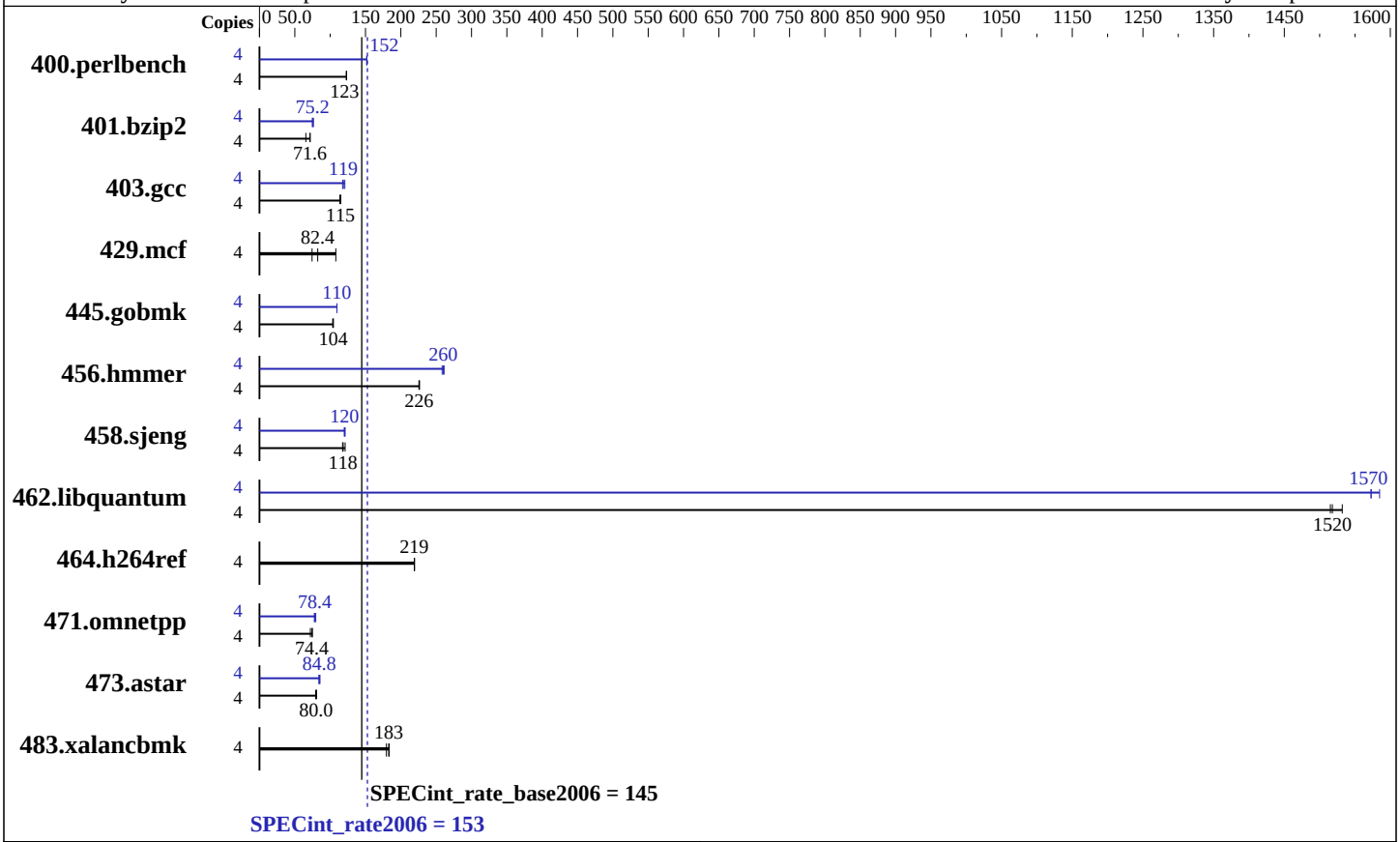
Intel DQ87PG motherboard (Intel Core i5-4670S)

SPECint®_rate2006 = 153

SPECint_rate_base2006 = 145

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

**Test date:** Sep-2013
**Hardware Availability:** Jul-2013
**Software Availability:** Apr-2013




### Hardware

| | |
|---|---|
| CPU Name: | Intel Core i5-4670S |
| CPU Characteristics: | Intel Turbo Boost Technology up to 3.80 GHz |
| CPU MHz: | 3100 |
| FPU: | Integrated |
| CPU(s) enabled: | 4 cores, 1 chip, 4 cores/chip |
| 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: | 6 MB I+D on chip per chip |
| Other Cache: | None |
| Memory: | 4 GB (2 x 2 GB 1Rx8 PC3-12800U-11) |
| Disk Subsystem: | 250 GB Seagate SATA HDD, 7200 RPM |
| Other Hardware: | None |

### Software

| | |
|---|---|
| Operating System: | Microsoft Windows 7 Enterprise 6.1.7601 Service Pack 1 Build 7601 |
| Compiler: | C/C++: Version 13.1.1.171 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 | 4 | 317 | 123 | **318** | **123** | 318 | 123 | 4 | 258 | 152 | **257** | **152** | 257 | 152 |
| 401.bzip2 | 4 | 588 | 65.6 | 538 | 71.6 | **540** | **71.6** | 4 | 506 | 76.4 | 517 | 74.8 | **514** | **75.2** |
| 403.gcc | 4 | 284 | 114 | 280 | 115 | **281** | **115** | 4 | 273 | 118 | **271** | **119** | 267 | 121 |
| 429.mcf | 4 | 338 | 108 | 489 | 74.4 | **443** | **82.4** | 4 | 338 | 108 | 489 | 74.4 | **443** | **82.4** |
| 445.gobmk | 4 | **403** | **104** | 401 | 104 | 405 | 104 | 4 | 383 | 110 | **383** | **110** | 383 | 110 |
| 456.hmmer | 4 | **165** | **226** | 165 | 226 | 165 | 226 | 4 | **144** | **260** | 143 | 261 | 145 | 258 |
| 458.sjeng | 4 | 411 | 118 | **408** | **118** | 400 | 121 | 4 | **402** | **120** | 403 | 120 | 399 | 121 |
| 462.libquantum | 4 | 54.7 | 1520 | 54.1 | 1530 | **54.6** | **1520** | 4 | **52.7** | **1570** | 52.3 | 1580 | 52.7 | 1570 |
| 464.h264ref | 4 | 404 | 219 | **404** | **219** | 404 | 219 | 4 | 404 | 219 | **404** | **219** | 404 | 219 |
| 471.omnetpp | 4 | **335** | **74.4** | 347 | 72.0 | 335 | 74.8 | 4 | **318** | **78.4** | 314 | 79.6 | 322 | 77.6 |
| 473.astar | 4 | 347 | 80.8 | 352 | 79.6 | **351** | **80.0** | 4 | 328 | 85.6 | 335 | 84.0 | **331** | **84.8** |
| 483.xalancbmk | 4 | 154 | 180 | **151** | **183** | 150 | 184 | 4 | 154 | 180 | **151** | **183** | 150 | 184 |

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 13.1 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:\SPEC13.1/Docs/sysinfo
$Rev: 6775 $ $Date:: 2011-08-16 #$ \8787f7622badcf24e01c368b1db4377c
running on Clt7C05070FB382 Sat Sep 28 18:17:49 2013

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 7 Enterprise
OS Version    : 6.1.7601 Service Pack 1 Build 7601
System Manufacturer: INTEL_
System Model  : DQ87PG__
Processor(s)  : 1 Processor(s) Installed.
```

Continued on next page

## Platform Notes (Continued)

```
     [01]: Intel64 Family 6 Model 60 Stepping 3 GenuineIntel ~3101 Mhz
  BIOS Version  : Intel(R) Corp. PGQ8710H.86A.0036.2013.0702.1908, 7/2/2013
  Total Physical Memory: 3,749 MB

  Trying 'wmic cpu get /value'
  DeviceID      : CPU0
  L2CacheSize   : 1024
  L3CacheSize   : 6144
  MaxClockSpeed : 3101
  Name          : Intel(R) Core(TM) i5-4670S CPU @ 3.10GHz
  NumberOfCores : 4
  NumberOfLogicalProcessors: 4

  (End of data from sysinfo program)
BIOS: SATA mode set to RAID
Windows Disk Driver: Intel Rapid Storage Technology 12.5.0.1066
Windows Chipset Driver: Intel Chipset Driver 9.4.0.1027
```

## Component Notes

```
Tested systems can be used with Shin-G ATX case,
PC Power and Cooling 1200W power supply
Micron MT8JTF25664AZ-1G6 Series Memory DIMMs
```

## 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`

## 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 2013.171/bin/intel64/icl.exe`

458.sjeng: `C:\Program Files (x86)\Intel\Composer XE 2013.171/bin/intel64/icl.exe`

462.libquantum: `C:\Program Files (x86)\Intel\Composer XE 2013.171/bin/intel64/icl.exe -Qstd=c99`

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

473.astar: `C:\Program Files (x86)\Intel\Composer XE 2013.171/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`

# 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:

Continued on next page

# Peak Other Flags (Continued)

403.gcc: `-Dalloca=_alloca`

456.hmmer: `-link -LIBPATH:C:\Program Files (x86)\Intel\Composer XE 2013.171/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 2013.171/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 2013.171/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 2013.171/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-ic13.1-official-windows.html`

You can also download the XML flags source by saving the following link:
`http://www.spec.org/cpu2006/flags/Intel-ic13.1-official-windows.xml`


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