SPEC® CFP2006 Result
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Intel Corporation

Intel DQ77MK motherboard (Intel Pentium G2030)

$SPECfp®\_rate2006 =$ 63.7

$SPECfp\_rate\_base2006 =$ 62.7

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

Test date: Nov-2013
Hardware Availability: Jun-2013
Software Availability: Apr-2013

Benchmark	Copies	Result
410.bwaves	2	81.4
416.gamess	2	61.2
433.milc	2	79.2
434.zeusmp	2	66.6
435.gromacs	2	65.2
436.cactusADM	2	59.6
437.leslie3d	2	51.4
444.namd	2 / 2	41.6 / 41.4
447.dealII	2	84.4
450.soplex	2 / 2	45.8 / 47.8
453.povray	2 / 2	92.6 / 76.6
454.calculix	2	68.0
459.GemsFDTD	2	41.4
465.tonto	2 / 2	60.0 / 53.2
470.lbm	2	73.6
481.wrf	2	80.0
482.sphinx3	2	60.8

SPECfp_rate_base2006 = 62.7

SPECfp_rate2006 = 63.7

Hardware

CPU Name:	Intel Pentium G2030
CPU Characteristics:	
CPU MHz:	3000
FPU:	Integrated
CPU(s) enabled:	2 cores, 1 chip, 2 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

Continued on next page

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; Fortran: Version 13.1.1.171 of Intel Fortran Studio XE for Windows; Libraries: Version 16.00.30319.01 of Microsoft Visual Studio 2010 Professional SP1
Auto Parallel:	No

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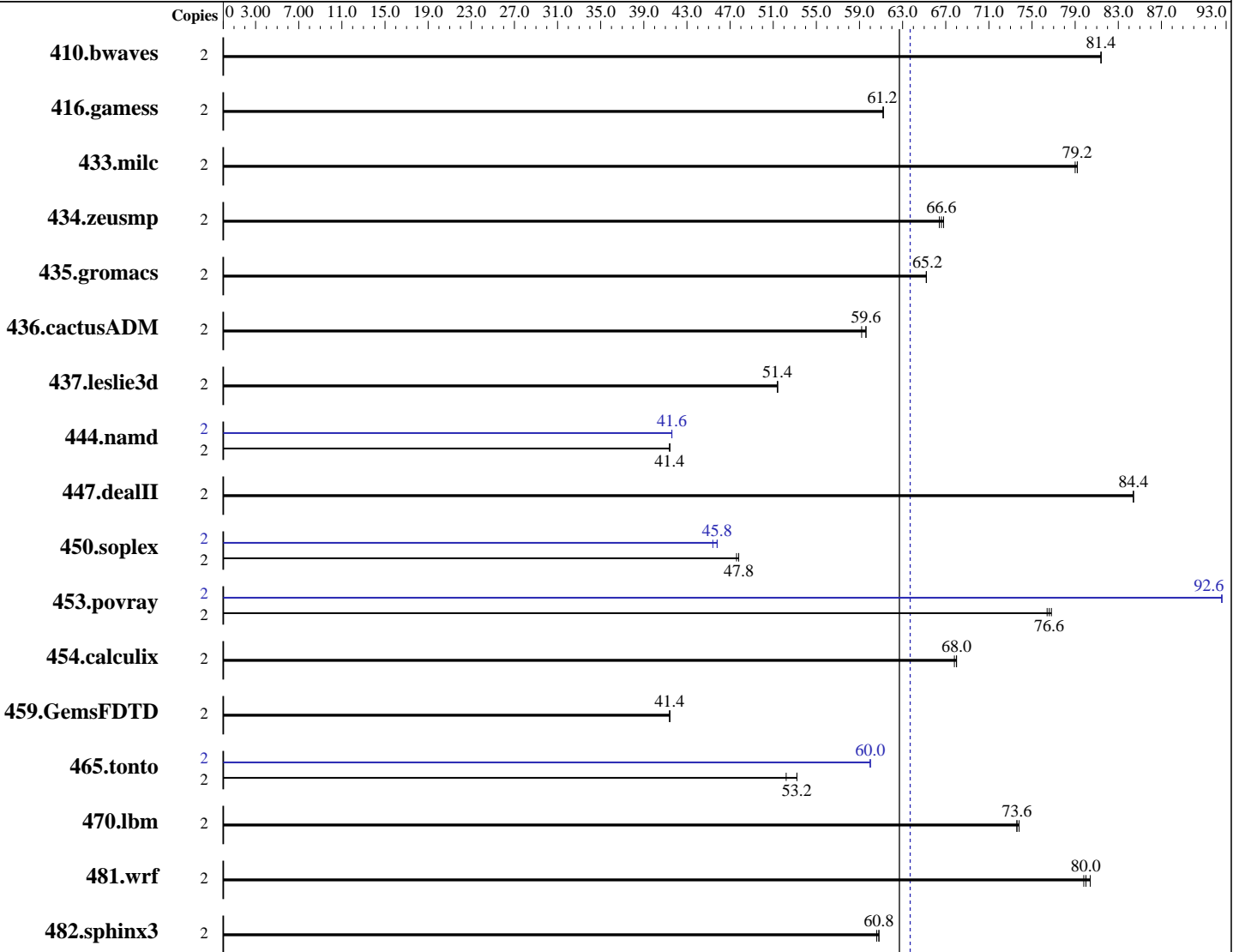
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L3 Cache:	3 MB I+D on chip per chip	File System:	NTFS
Other Cache:	None	System State:	Default
Memory:	4 GB (2 x 2 GB 1Rx8 PC3-12800U-11, running at 1333 MHz and CL9)	Base Pointers:	32/64-bit
		Peak Pointers:	32/64-bit
Disk Subsystem:	250 GB Seagate SATA HDD, 7200 RPM	Other Software:	SmartHeap Library Version 10.0 from http://www.microquill.com/
Other Hardware:	None		

Results Table

	Base							Peak						
Benchmark	**Copies**	**Seconds**	**Ratio**	**Seconds**	**Ratio**	**Seconds**	**Ratio**	**Copies**	**Seconds**	**Ratio**	**Seconds**	**Ratio**	**Seconds**	**Ratio**
410.bwaves	2	334	81.4	**334**	**81.4**	334	81.4	2	334	81.4	**334**	**81.4**	334	81.4
416.gamess	2	640	61.2	639	61.2	**639**	**61.2**	2	640	61.2	639	61.2	**639**	**61.2**
433.milc	2	232	79.0	232	79.2	**232**	**79.2**	2	232	79.0	232	79.2	**232**	**79.2**
434.zeusmp	2	**274**	**66.6**	274	66.4	273	66.8	2	**274**	**66.6**	274	66.4	273	66.8
435.gromacs	2	219	65.2	**219**	**65.2**	219	65.2	2	219	65.2	**219**	**65.2**	219	65.2
436.cactusADM	2	404	59.2	401	59.6	**401**	**59.6**	2	404	59.2	401	59.6	**401**	**59.6**
437.leslie3d	2	**366**	**51.4**	366	51.4	366	51.4	2	**366**	**51.4**	366	51.4	366	51.4
444.namd	2	**388**	**41.4**	388	41.4	387	41.4	2	386	41.6	**386**	**41.6**	386	41.6
447.dealII	2	**271**	**84.4**	271	84.4	271	84.4	2	**271**	**84.4**	271	84.4	271	84.4
450.soplex	2	351	47.6	**349**	**47.8**	349	47.8	2	367	45.4	**365**	**45.8**	364	45.8
453.povray	2	139	76.4	**139**	**76.6**	139	76.8	2	115	92.6	**115**	**92.6**	115	92.6
454.calculix	2	243	68.0	243	67.8	**243**	**68.0**	2	243	68.0	243	67.8	**243**	**68.0**
459.GemsFDTD	2	514	41.4	**514**	**41.4**	514	41.4	2	514	41.4	**514**	**41.4**	514	41.4
465.tonto	2	370	53.2	**370**	**53.2**	377	52.2	2	328	60.0	328	60.0	**328**	**60.0**
470.lbm	2	374	73.6	372	73.8	**374**	**73.6**	2	374	73.6	372	73.8	**374**	**73.6**
481.wrf	2	**279**	**80.0**	278	80.4	280	79.8	2	**279**	**80.0**	278	80.4	280	79.8
482.sphinx3	2	643	60.6	**641**	**60.8**	641	60.8	2	643	60.6	**641**	**60.8**	641	60.8

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 64-bit binaries with the command:
"ipsxe-comp-vars.bat intel64 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.
```

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Platform Notes

```
Sysinfo program C:\SPEC13.1/Docs/sysinfo
$Rev: 6775 $ $Date:: 2011-08-16 #$ \8787f7622badcf24e01c368b1db4377c
running on Clt7054D217ADD3 Tue Nov 19 04:53:03 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     : DQ77MK__
Processor(s)     : 1 Processor(s) Installed.
    [01]: Intel64 Family 6 Model 58 Stepping 9 GenuineIntel ~3000 Mhz
BIOS Version     : Intel Corp. MKQ7710H.86A.0054.2012.1120.1444, 11/20/2012
Total Physical Memory: 3,912 MB

Trying 'wmic cpu get /value'
DeviceID        : CPU0
L2CacheSize     : 512
L3CacheSize     : 3072
MaxClockSpeed   : 3000
Name            : Intel(R) Pentium(R) CPU G2030 @ 3.00GHz
NumberOfCores   : 2
NumberOfLogicalProcessors: 2

 (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
```

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Base Compiler Invocation (Continued)

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

Fortran benchmarks:
```
ifort
```

Benchmarks using both Fortran and C:
```
icl -Qvc10 -Qstd=c99 ifort
```

Base Portability Flags

```
    410.bwaves: -DSPEC_CPU_P64
    416.gamess: -DSPEC_CPU_P64
      433.milc: -DSPEC_CPU_P64
    434.zeusmp: -DSPEC_CPU_P64
   435.gromacs: -DSPEC_CPU_P64
 436.cactusADM: -DSPEC_CPU_P64 /names:lowercase /assume:underscore
   437.leslie3d: -DSPEC_CPU_P64
     444.namd: -DSPEC_CPU_P64 /TP
    447.dealII: -DSPEC_CPU_P64 -DDEAL_II_MEMBER_VAR_SPECIALIZATION_BUG
             -Qoption,cpp,--ms_incompat_treatment_of_commas_in_macros
    450.soplex: -DSPEC_CPU_P64
    453.povray: -DSPEC_CPU_P64 -DSPEC_CPU_NEED_INVHYP -DNEED_INVHYP
   454.calculix: -DSPEC_CPU_P64 -DSPEC_CPU_NOZMODIFIER /names:lowercase
  459.GemsFDTD: -DSPEC_CPU_P64
     465.tonto: -DSPEC_CPU_P64
      470.lbm: -DSPEC_CPU_P64
       481.wrf: -DSPEC_CPU_P64 -DSPEC_CPU_WINDOWS_ICL
    482.sphinx3: -DSPEC_CPU_P64
```

Base Optimization Flags

C benchmarks:
```
-QxSSE4.2 -Qipo -O3 -Qprec-div- -Qansi-alias -Qopt-prefetch
-Qauto-ilp32 /F1000000000              -link /FORCE:MULTIPLE
```

C++ benchmarks:
```
-QxSSE4.2 -Qipo -O3 -Qprec-div- -Qansi-alias -Qopt-prefetch
-Qcxx-features -Qauto-ilp32 /F1000000000 shlW64M.lib
             -link /FORCE:MULTIPLE
```

Fortran benchmarks:
```
-QxSSE4.2 -Qipo -O3 -Qprec-div- -Qansi-alias -Qopt-prefetch
/F1000000000              -link /FORCE:MULTIPLE
```

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Base Optimization Flags (Continued)

Benchmarks using both Fortran and C:
```
-QxSSE4.2 -Qipo -O3 -Qprec-div- -Qansi-alias -Qopt-prefetch
-Qauto-ilp32 /F1000000000          -link /FORCE:MULTIPLE
```

Peak Compiler Invocation

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

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

Fortran benchmarks:
```
ifort
```

Benchmarks using both Fortran and C:
```
icl -Qvc10 -Qstd=c99 ifort
```

Peak Portability Flags

```
Same as Base Portability Flags
```

Peak Optimization Flags

C benchmarks:

```
     433.milc: basepeak = yes

     470.lbm: basepeak = yes

  482.sphinx3: basepeak = yes
```

C++ benchmarks:

```
  444.namd: -QxSSE4.2(pass 2) -Qprof_gen(pass 1) -Qprof_use(pass 2)
            -Qipo -O3 -Qprec-div- -Oa -Qauto-ilp32 /F1000000000
            shlW64M.lib          -link /FORCE:MULTIPLE

  447.dealII: basepeak = yes

  450.soplex: -QxSSE4.2(pass 2) -Qprof_gen(pass 1) -Qprof_use(pass 2)
            -Qipo -O3 -Qauto-ilp32 /F1000000000 shlW64M.lib
                  -link /FORCE:MULTIPLE
```

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Peak Optimization Flags (Continued)

```
453.povray: -QxSSE4.2(pass 2) -Qprof_gen(pass 1) -Qprof_use(pass 2)
            -Qipo -O3 -Qprec-div- -Qopt-prefetch -Qauto-ilp32
            /F1000000000 shlW64M.lib           -link /FORCE:MULTIPLE
```

Fortran benchmarks:

   410.bwaves: `basepeak = yes`

   416.gamess: `basepeak = yes`

   434.zeusmp: `basepeak = yes`

   437.leslie3d: `basepeak = yes`

   459.GemsFDTD: `basepeak = yes`

```
  465.tonto: -QxSSE4.2(pass 2) -Qprof_gen(pass 1) -Qprof_use(pass 2)
             -Qipo -O3 -Qprec-div- -Qunroll4 -Qauto /F1000000000
                   -link /FORCE:MULTIPLE
```

Benchmarks using both Fortran and C:

   435.gromacs: `basepeak = yes`

   436.cactusADM: `basepeak = yes`

   454.calculix: `basepeak = yes`

   481.wrf: `basepeak = yes`

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

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

Tested with SPEC CPU2006 v1.2.
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