SPEC® CFP2006 Result

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Intel Corporation

Intel DH77KC Motherboard (Intel Core i3-3220)

$SPECfp^®2006 =$ 50.2

$SPECfp\_base2006 =$ 49.2
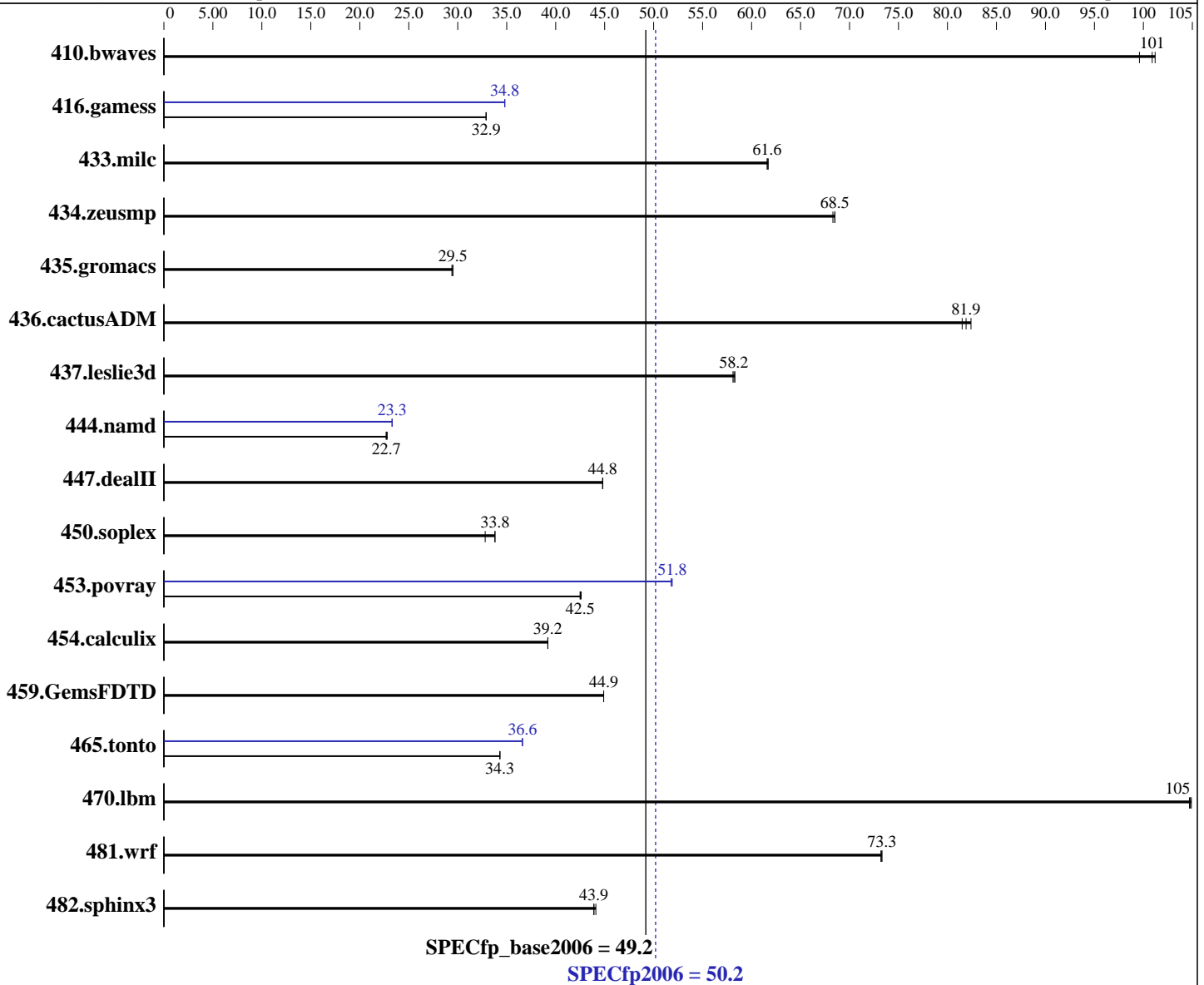
CPU2006 license: 13
Test sponsor: Intel Corporation
Tested by: Intel Corporation

Test date: Sep-2012
Hardware Availability: Sep-2012
Software Availability: Apr-2011

Benchmark	Result
410.bwaves	101
416.gamess	34.8 / 32.9
433.milc	61.6
434.zeusmp	68.5
435.gromacs	29.5
436.cactusADM	81.9
437.leslie3d	58.2
444.namd	23.3 / 22.7
447.dealII	44.8
450.soplex	33.8
453.povray	51.8 / 42.5
454.calculix	39.2
459.GemsFDTD	44.9
465.tonto	36.6 / 34.3
470.lbm	105
481.wrf	73.3
482.sphinx3	43.9

SPECfp_base2006 = 49.2

SPECfp2006 = 50.2

Hardware

CPU Name: Intel Core i3-3220
CPU Characteristics:
CPU MHz: 3300
FPU: Integrated
CPU(s) enabled: 2 cores, 1 chip, 2 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
Continued on next page

Software

Operating System: Microsoft Windows 7 Ultimate
6.1.7601 Service Pack 1 Build 7601
Compiler: C/C++: Version 12.1.0.229 of Intel C++ Studio XE
for Windows;
Fortran: Version 12.1.0.229 of Intel Fortran
Studio XE for Windows;
Libraries: Version 15.00.30729.01 of Microsoft
Visual Studio 2008 Professional SP1
Auto Parallel: Yes
Continued on next page

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L3 Cache:	3 MB I+D on chip per chip	File System:	NTFS
Other Cache:	None	System State:	Default
Memory:	8 GB (2 x 4 GB 2Rx8 PC3-12800U-9)	Base Pointers:	32/64-bit
Disk Subsystem:	1 TB Seagate SATA, 7200 RPM	Peak Pointers:	32/64-bit
Other Hardware:	None	Other Software:	SmartHeap Library Version 9.01 from http://www.microquill.com/

Results Table

Benchmark	Base						Peak					
	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	**<u>135</u>**	**<u>101</u>**	134	101	137	99.6	**<u>135</u>**	**<u>101</u>**	134	101	137	99.6
416.gamess	596	32.9	**<u>596</u>**	**<u>32.9</u>**	596	32.9	563	34.8	563	34.8	**<u>563</u>**	**<u>34.8</u>**
433.milc	149	61.7	149	61.6	**<u>149</u>**	**<u>61.6</u>**	149	61.7	149	61.6	**<u>149</u>**	**<u>61.6</u>**
434.zeusmp	133	68.3	133	68.5	**<u>133</u>**	**<u>68.5</u>**	133	68.3	133	68.5	**<u>133</u>**	**<u>68.5</u>**
435.gromacs	**<u>242</u>**	**<u>29.5</u>**	243	29.4	242	29.5	**<u>242</u>**	**<u>29.5</u>**	243	29.4	242	29.5
436.cactusADM	**<u>146</u>**	**<u>81.9</u>**	147	81.5	145	82.4	**<u>146</u>**	**<u>81.9</u>**	147	81.5	145	82.4
437.leslie3d	162	58.1	**<u>161</u>**	**<u>58.2</u>**	161	58.3	162	58.1	**<u>161</u>**	**<u>58.2</u>**	161	58.3
444.namd	353	22.7	353	22.8	**<u>353</u>**	**<u>22.7</u>**	**<u>344</u>**	**<u>23.3</u>**	344	23.3	344	23.3
447.dealII	255	44.8	**<u>255</u>**	**<u>44.8</u>**	255	44.8	255	44.8	**<u>255</u>**	**<u>44.8</u>**	255	44.8
450.soplex	**<u>247</u>**	**<u>33.8</u>**	246	33.8	255	32.8	**<u>247</u>**	**<u>33.8</u>**	246	33.8	255	32.8
453.povray	**<u>125</u>**	**<u>42.5</u>**	125	42.6	125	42.5	**<u>103</u>**	**<u>51.8</u>**	103	51.8	103	51.9
454.calculix	211	39.2	**<u>210</u>**	**<u>39.2</u>**	210	39.2	211	39.2	**<u>210</u>**	**<u>39.2</u>**	210	39.2
459.GemsFDTD	**<u>236</u>**	**<u>44.9</u>**	236	44.9	236	44.9	**<u>236</u>**	**<u>44.9</u>**	236	44.9	236	44.9
465.tonto	287	34.3	287	34.3	**<u>287</u>**	**<u>34.3</u>**	269	36.6	**<u>269</u>**	**<u>36.6</u>**	269	36.6
470.lbm	**<u>131</u>**	**<u>105</u>**	131	105	131	105	**<u>131</u>**	**<u>105</u>**	131	105	131	105
481.wrf	153	73.2	152	73.3	**<u>152</u>**	**<u>73.3</u>**	153	73.2	152	73.3	**<u>152</u>**	**<u>73.3</u>**
482.sphinx3	444	43.9	**<u>444</u>**	**<u>43.9</u>**	442	44.1	444	43.9	**<u>444</u>**	**<u>43.9</u>**	442	44.1

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

Compiler Invocation Notes

```
ipsxe-comp-vars batch file invoked with intel64
```

Platform Notes

```
Sysinfo program C:\CPU200~1.17A/Docs/sysinfo
$Rev: 6775 $ $Date:: 2011-08-16 #$ \8787f7622badcf24e01c368b1db4377c
running on CltE840F20AA165 Thu Sep 20 01:20:44 2012

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'
```

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Platform Notes (Continued)

```
OS Name         : Microsoft Windows 7 Ultimate
OS Version      : 6.1.7601 Service Pack 1 Build 7601
System Manufacturer: INTEL_
System Model    : DH77KC__
Processor(s)    : 1 Processor(s) Installed.
    [01]: Intel64 Family 6 Model 58 Stepping 9 GenuineIntel ~3300 Mhz
BIOS Version    : Intel Corp. KCH7710H.86A.0095.2012.0608.1754, 6/8/2012
Total Physical Memory: 8,092 MB

Trying 'wmic cpu get /value'
DeviceID        : CPU0
L2CacheSize     : 512
L3CacheSize     : 3072
MaxClockSpeed   : 3300
Name            : Intel(R) Core(TM) i3-3220 CPU @ 3.30GHz
NumberOfCores : 2
NumberOfLogicalProcessors: 4

(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 Core i7-860 CPU
+ 8GB memory using Windows 7 Enterprise 64-bit
```

Base Compiler Invocation

C benchmarks:
```
icl -Qvc9 -Qstd=c99
```

C++ benchmarks:
```
icl -Qvc9
```

Fortran benchmarks:
```
ifort
```

Benchmarks using both Fortran and C:
```
icl -Qvc9 -Qstd=c99 ifort
```

SPEC CFP2006 Result

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Base Portability Flags

```
    410.bwaves: -DSPEC_CPU_P64 -names:lowercase
    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
     450.soplex: -DSPEC_CPU_P64
     453.povray: -DSPEC_CPU_P64 -DSPEC_CPU_WINDOWS_ICL
    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:

```
    -QxAVX -Qipo -O3 -Qprec-div- -Qparallel -Qansi-alias -Qopt-prefetch
    -Qauto-ilp32 /F1000000000
```

C++ benchmarks:

```
    -QxAVX -Qipo -O3 -Qprec-div- -Qparallel -Qansi-alias -Qopt-prefetch
    -Qcxx-features -Qauto-ilp32 /F1000000000 shlW64M.lib
             -link /FORCE:MULTIPLE
```

Fortran benchmarks:

```
    -QxAVX -Qipo -O3 -Qprec-div- -Qparallel -Qansi-alias -Qopt-prefetch
    /F1000000000
```

Benchmarks using both Fortran and C:

```
    -QxAVX -Qipo -O3 -Qprec-div- -Qparallel -Qansi-alias -Qopt-prefetch
    -Qauto-ilp32 /F1000000000
```

Peak Compiler Invocation

C benchmarks:

```
    icl -Qvc9 -Qstd=c99
```

C++ benchmarks:

```
    icl -Qvc9
```

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Peak Compiler Invocation (Continued)

Fortran benchmarks:
```
ifort
```

Benchmarks using both Fortran and C:
```
icl -Qvc9 -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: -QxAVX(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: basepeak = yes

> 453.povray: -QxAVX(pass 2) -Qprof_gen(pass 1) -Qprof_use(pass 2) -Qipo
> -O3 -Qprec-div- -Qunroll4 -Qansi-alias -Qauto-ilp32
> /F1000000000 shlW64M.lib   -link /FORCE:MULTIPLE

Fortran benchmarks:

> 410.bwaves: basepeak = yes

> 416.gamess: -QxAVX(pass 2) -Qprof_gen(pass 1) -Qprof_use(pass 2) -Qipo
> -O3 -Qprec-div- -Qunroll2 -Ob0 -Qansi-alias -Qscalar-rep-
> /F1000000000

> 434.zeusmp: basepeak = yes

> 437.leslie3d: basepeak = yes

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Peak Optimization Flags (Continued)

459.GemsFDTD: basepeak = yes

465.tonto: -QxAVX(pass 2) -Qprof_gen(pass 1) -Qprof_use(pass 2) -Qipo
-O3 -Qprec-div- -Qunroll4 -Qauto -Qinline-calloc
/F1000000000

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-ic12.1-official-windows.20120117.html

You can also download the XML flags source by saving the following link:
http://www.spec.org/cpu2006/flags/Intel-ic12.1-official-windows.20120117.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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