SPEC® CFP2006 Result

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Intel Corporation

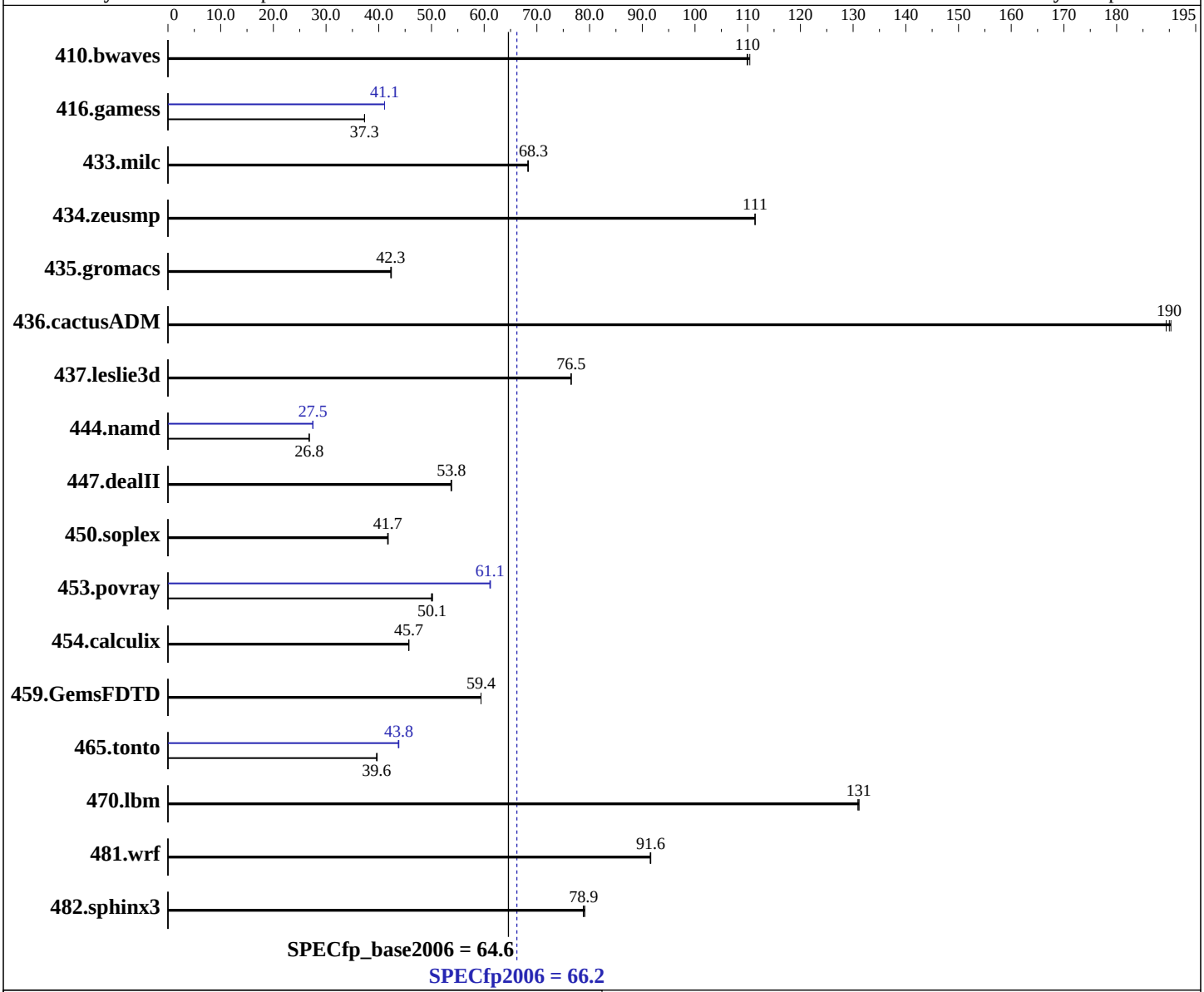
Intel DH77KC motherboard (Intel Core i7-3770K)

SPECfp®2006 = 66.2

SPECfp_base2006 = 64.6

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

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



Hardware

CPU Name:	Intel Core i7-3770K
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

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Software

Operating System:	Microsoft Windows 7 Ultimate (64-bit) 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
File System:	NTFS

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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: 1 TB Seagate SATA, 7200 RPM
Other Hardware: None

System State: Default
Base Pointers: 32/64-bit
Peak Pointers: 32/64-bit
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	124	110	**124**	**110**	123	110	124	110	**124**	**110**	123	110
416.gamess	524	37.3	525	37.3	**524**	**37.3**	477	41.1	**477**	**41.1**	477	41.1
433.milc	134	68.4	**134**	**68.3**	135	68.3	134	68.4	**134**	**68.3**	135	68.3
434.zeusmp	81.7	111	**81.7**	**111**	81.7	111	81.7	111	**81.7**	**111**	81.7	111
435.gromacs	169	42.4	**169**	**42.3**	169	42.3	169	42.4	**169**	**42.3**	169	42.3
436.cactusADM	62.8	190	**62.9**	**190**	63.1	189	62.8	190	**62.9**	**190**	63.1	189
437.leslie3d	123	76.5	**123**	**76.5**	123	76.5	123	76.5	**123**	**76.5**	123	76.5
444.namd	**299**	**26.8**	299	26.8	299	26.8	291	27.5	**291**	**27.5**	292	27.5
447.dealII	213	53.7	213	53.8	**213**	**53.8**	213	53.7	213	53.8	**213**	**53.8**
450.soplex	200	41.8	200	41.7	**200**	**41.7**	200	41.8	200	41.7	**200**	**41.7**
453.povray	106	50.0	106	50.2	**106**	**50.1**	**87.0**	**61.1**	87.0	61.1	86.9	61.2
454.calculix	181	45.7	**181**	**45.7**	181	45.7	181	45.7	**181**	**45.7**	181	45.7
459.GemsFDTD	179	59.4	**179**	**59.4**	179	59.4	179	59.4	**179**	**59.4**	179	59.4
465.tonto	**248**	**39.6**	248	39.7	248	39.6	225	43.8	**225**	**43.8**	225	43.7
470.lbm	105	131	105	131	**105**	**131**	105	131	105	131	**105**	**131**
481.wrf	**122**	**91.6**	122	91.5	122	91.6	**122**	**91.6**	122	91.5	122	91.6
482.sphinx3	**247**	**78.9**	247	78.8	247	79.1	**247**	**78.9**	247	78.8	247	79.1

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 was set up to generate 64-bit binaries with the command:
"ipsxe-comp-vars.bat intel64 vs2008" (shortcut provided in the Intel(r) Parallel Studio XE 2011 program folder)
```

Platform Notes

```
Sysinfo program C:\CPU200~1.17A/Docs/sysinfo
$Rev: 6775 $ $Date:: 2011-08-16 #$ \8787f7622badcf24e01c368b1db4377c
running on CltE840F2070390 Sat May  5 01:46:31 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'
```

Continued on next page

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 ~3501 Mhz
BIOS Version  : Intel Corp. KCH7710H.86A.0069.2012.0224.1825, 2/24/2012
Total Physical Memory: 8,090 MB

Trying 'wmic cpu get /value'
DeviceID      : CPU0
L2CacheSize   : 1024
L3CacheSize   : 8192
MaxClockSpeed : 3501
Name          : Intel(R) Core(TM) i7-3770K CPU @ 3.50GHz
NumberOfCores : 4
NumberOfLogicalProcessors: 8

(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
```

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

Continued on next page

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

Continued on next page

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`

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