SPEC® CFP2006 Result

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Intel Corporation

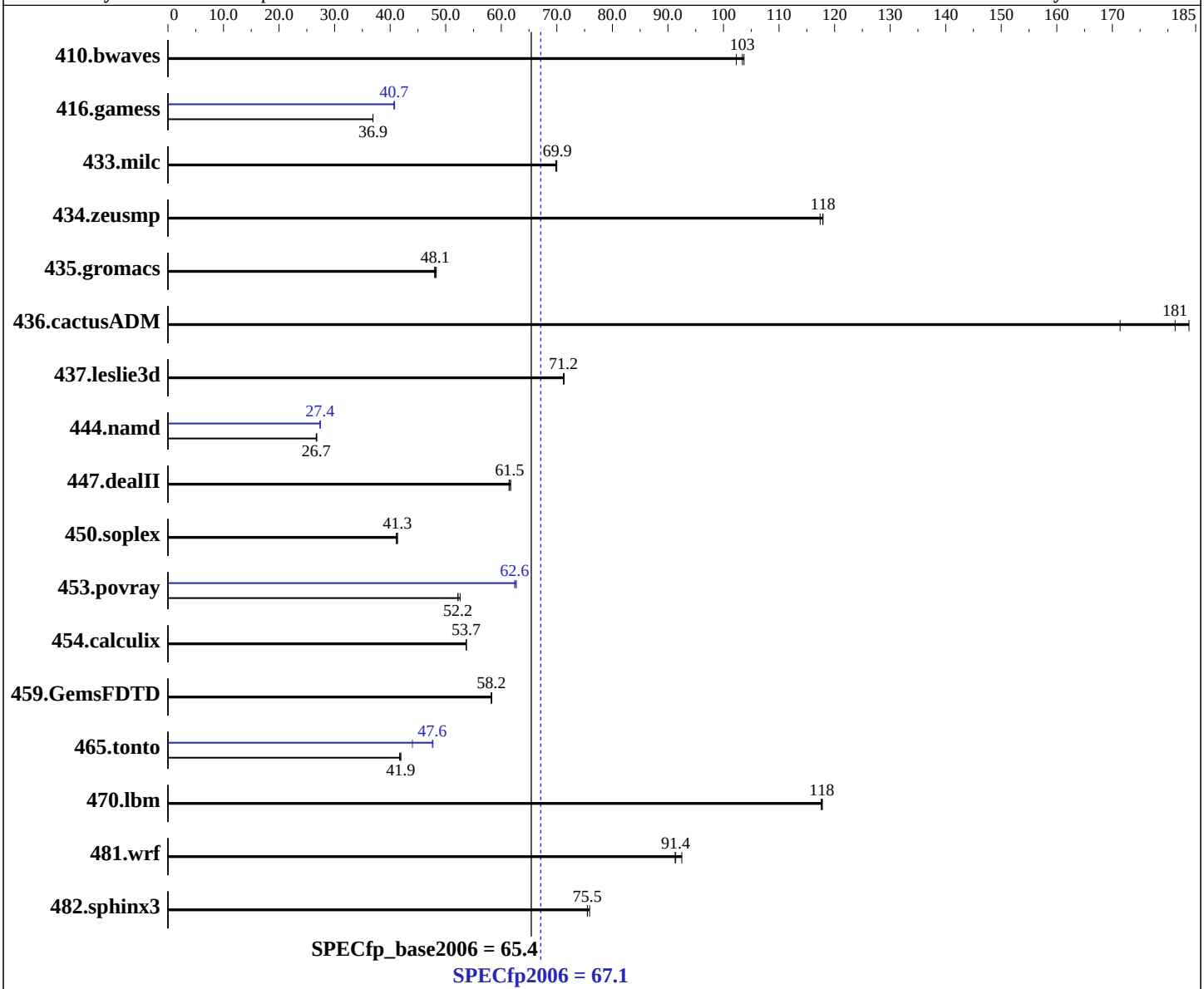
Intel DH77KC motherboard (Intel Core i7-3770K)

SPECfp®2006 = 67.1

SPECfp_base2006 = 65.4

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

Test date: May-2014
Hardware Availability: May-2013
Software Availability: Oct-2013



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 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; Fortran: Version 14.0.1.139 of Intel Fortran Studio XE for Windows; Libraries: Version 16.00.30319.01 of Microsoft Visual Studio 2010 Professional SP1
Auto Parallel:	Yes

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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 HDD 7200 RPM
Other Hardware:	None

File System:	NTFS
System State:	Default
Base Pointers:	32/64-bit
Peak Pointers:	32/64-bit
Other Software:	SmartHeap Library Version 10.0 from http://www.microquill.com/

Results Table

Benchmark	Base						Peak					
	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	133	102	**131**	**103**	131	104	133	102	**131**	**103**	131	104
416.gamess	531	36.9	**531**	**36.9**	530	36.9	**481**	**40.7**	481	40.7	480	40.8
433.milc	131	70.0	132	69.8	**131**	**69.9**	131	70.0	132	69.8	**131**	**69.9**
434.zeusmp	77.5	117	77.2	118	**77.2**	**118**	77.5	117	77.2	118	**77.2**	**118**
435.gromacs	149	48.0	148	48.3	**148**	**48.1**	149	48.0	148	48.3	**148**	**48.1**
436.cactusADM	69.7	171	65.0	184	**65.9**	**181**	69.7	171	65.0	184	**65.9**	**181**
437.leslie3d	132	71.3	**132**	**71.2**	132	71.2	132	71.3	**132**	**71.2**	132	71.2
444.namd	300	26.8	300	26.7	**300**	**26.7**	292	27.4	292	27.4	**292**	**27.4**
447.dealII	186	61.7	**186**	**61.5**	186	61.4	186	61.7	**186**	**61.5**	186	61.4
450.soplex	203	41.1	202	41.3	**202**	**41.3**	203	41.1	202	41.3	**202**	**41.3**
453.povray	**102**	**52.2**	102	52.2	101	52.6	85.3	62.4	84.9	62.7	**85.0**	**62.6**
454.calculix	154	53.7	**154**	**53.7**	154	53.7	154	53.7	**154**	**53.7**	154	53.7
459.GemsFDTD	182	58.2	**182**	**58.2**	182	58.3	182	58.2	**182**	**58.2**	182	58.3
465.tonto	**235**	**41.9**	236	41.7	235	41.9	206	47.7	224	44.0	**207**	**47.6**
470.lbm	117	118	**117**	**118**	117	118	117	118	**117**	**118**	117	118
481.wrf	121	92.5	122	91.3	**122**	**91.4**	121	92.5	122	91.3	**122**	**91.4**
482.sphinx3	257	75.9	258	75.5	**258**	**75.5**	257	75.9	258	75.5	**258**	**75.5**

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 64-bit binaries with the command:
"ipsxe-comp-vars.bat intel64 vs2010" (shortcut provided in the Intel(r)
Parallel Studio XE 2013 program folder)
```

Platform Notes

```
Sysinfo program C:\SPEC14.0/Docs/sysinfo
$Rev: 6775 $ $Date:: 2011-08-16 #$ \8787f7622badcf24e01c368b1db4377c
running on IVB9600 Thu May 29 18:06:25 2014

This section contains SUT (System Under Test) info as seen by
some common utilities.  To remove or add to this section, see:
```

Continued on next page

Platform Notes (Continued)

```
    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: INTEL_
  System Model  : DH77KC__
  Processor(s)  : 1 Processor(s) Installed.
       [01]: Intel64 Family 6 Model 58 Stepping 8 GenuineIntel ~3501 Mhz
  BIOS Version  : Intel Corp. KCH7710H.86A.0110.2013.0513.1018, 5/13/2013
  Total Physical Memory: 8,089 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)
  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

```
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 -Qvc10 -Qstd=c99
```

C++ benchmarks:

```
icl -Qvc10
```

Fortran benchmarks:

```
ifort
```

Continued on next page

Base Compiler Invocation (Continued)

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:
-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 -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: `-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`

Continued on next page

Peak Optimization Flags (Continued)

434.zeusmp: basepeak = yes

437.leslie3d: basepeak = yes

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-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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