SPEC® CFP2006 Result

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Intel Corporation

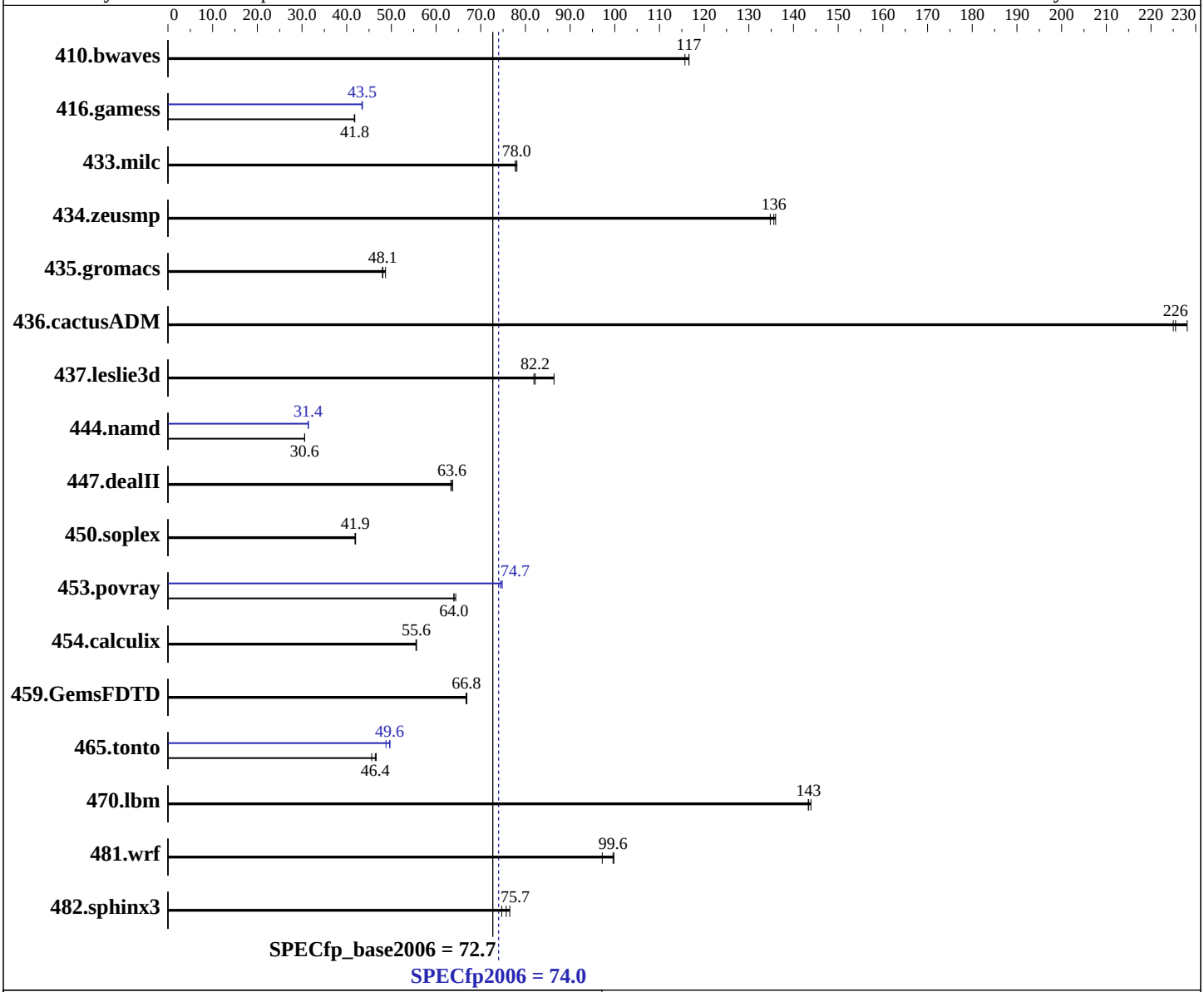
Intel DH87MC Motherboard (Intel Core i7-4770)

SPECfp®2006 = 74.0

SPECfp_base2006 = 72.7

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

Test date: Jul-2014
Hardware Availability: Jun-2013
Software Availability: Oct-2013



Hardware

CPU Name:	Intel Core i7-4770
CPU Characteristics:	Intel Turbo Boost Technology up to 3.90 GHz
CPU MHz:	3400
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 SATA 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	118	116	117	117	**117**	**117**	118	116	117	117	**117**	**117**
416.gamess	469	41.7	**469**	**41.8**	468	41.8	450	43.5	**450**	**43.5**	451	43.4
433.milc	118	78.1	118	77.7	**118**	**78.0**	118	78.1	118	77.7	**118**	**78.0**
434.zeusmp	67.5	135	**67.1**	**136**	66.9	136	67.5	135	**67.1**	**136**	66.9	136
435.gromacs	147	48.7	149	48.0	**148**	**48.1**	147	48.7	149	48.0	**148**	**48.1**
436.cactusADM	53.1	225	**53.0**	**226**	52.4	228	53.1	225	**53.0**	**226**	52.4	228
437.leslie3d	109	86.4	**114**	**82.2**	115	81.9	109	86.4	**114**	**82.2**	115	81.9
444.namd	262	30.6	**262**	**30.6**	262	30.6	**255**	**31.4**	255	31.4	256	31.4
447.dealII	181	63.3	**180**	**63.6**	180	63.7	181	63.3	**180**	**63.6**	180	63.7
450.soplex	**199**	**41.9**	199	42.0	199	41.9	**199**	**41.9**	199	42.0	199	41.9
453.povray	**83.1**	**64.0**	83.1	64.0	82.6	64.4	71.1	74.8	71.5	74.4	**71.2**	**74.7**
454.calculix	149	55.5	148	55.6	**148**	**55.6**	149	55.5	148	55.6	**148**	**55.6**
459.GemsFDTD	**159**	**66.8**	159	66.7	159	66.9	**159**	**66.8**	159	66.7	159	66.9
465.tonto	211	46.6	216	45.6	**212**	**46.4**	198	49.7	202	48.8	**198**	**49.6**
470.lbm	**95.8**	**143**	95.9	143	95.5	144	**95.8**	**143**	95.9	143	95.5	144
481.wrf	112	99.8	**112**	**99.6**	115	97.2	112	99.8	**112**	**99.6**	115	97.2
482.sphinx3	261	74.7	**257**	**75.7**	255	76.5	261	74.7	**257**	**75.7**	255	76.5

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 Clt7C05070D8262 Fri Jul 25 20:35:29 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   : DH87MC__
Processor(s)   : 1 Processor(s) Installed.
     [01]: Intel64 Family 6 Model 60 Stepping 3 GenuineIntel ~3401 Mhz
BIOS Version   : Intel Corp. MCH8710H.86A.0047.2013.0606.1508, 6/6/2013
Total Physical Memory: 7,862 MB

Trying 'wmic cpu get /value'
DeviceID       : CPU0
L2CacheSize    : 1024
L3CacheSize    : 8192
MaxClockSpeed : 3401
Name           : Intel(R) Core(TM) i7-4770 CPU @ 3.40GHz
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 -Qvc10 -Qstd=c99
```

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:
-QxCORE-AVX2 -Qipo -O3 -Qprec-div- -Qparallel -Qansi-alias
-Qopt-prefetch -Qauto-ilp32 /F1000000000

C++ benchmarks:
-QxCORE-AVX2 -Qipo -O3 -Qprec-div- -Qparallel -Qansi-alias
-Qopt-prefetch -Qcxx-features -Qauto-ilp32 /F1000000000 shlW64M.lib
-link /FORCE:MULTIPLE

Fortran benchmarks:
-QxCORE-AVX2 -Qipo -O3 -Qprec-div- -Qparallel -Qansi-alias
-Qopt-prefetch /F1000000000

Benchmarks using both Fortran and C:
-QxCORE-AVX2 -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

Continued on next page

Peak Compiler Invocation (Continued)

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: -QxCORE-AVX2(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: -QxCORE-AVX2(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: -QxCORE-AVX2(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: `-QxCORE-AVX2`(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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