SPEC® CFP2006 Result

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Gigabyte Technology Co., Ltd.

(Test Sponsor: Intel Corporation)

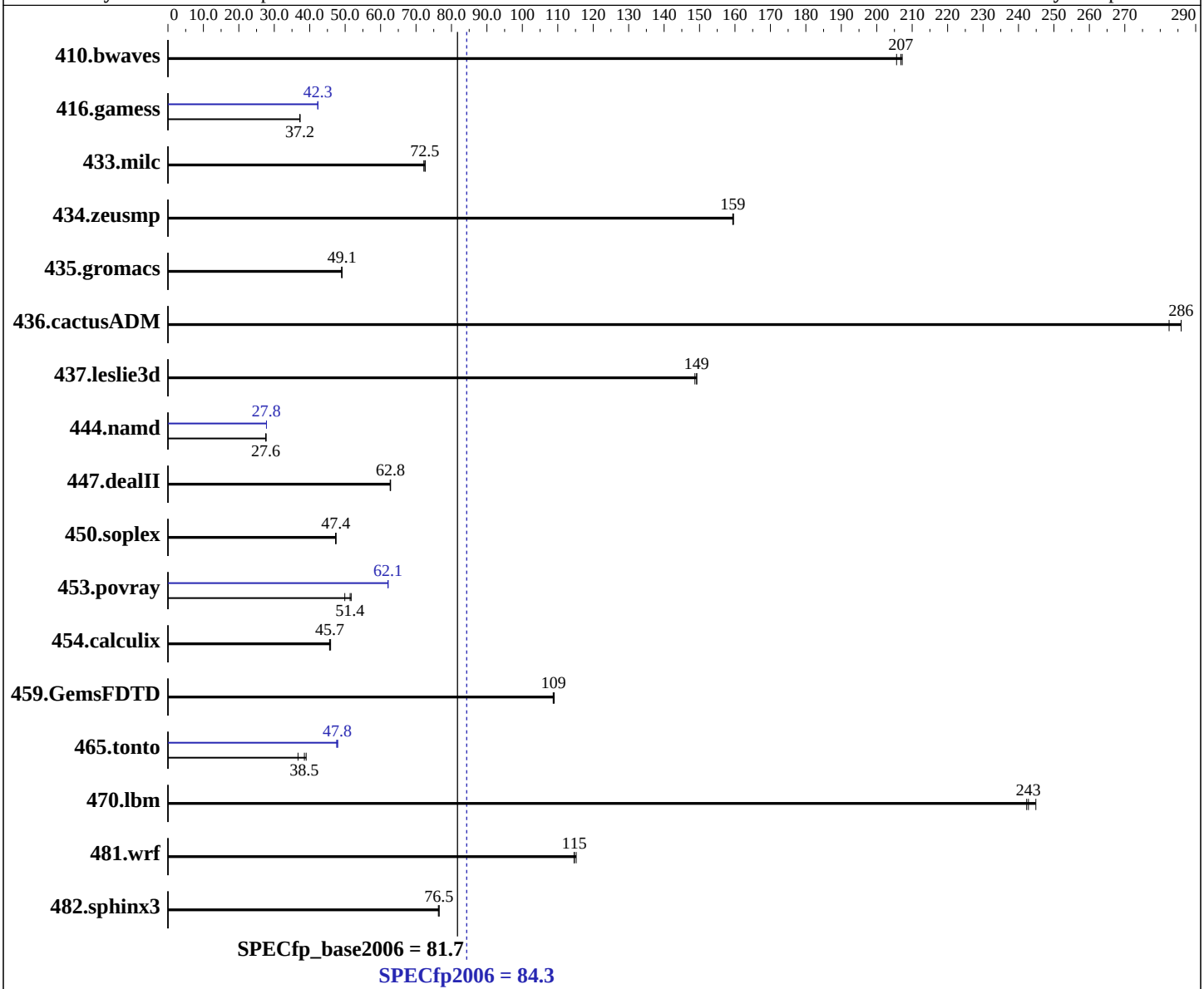
GigaByte x79-UP4 motherboard (Intel Core i7-4960X)

SPECfp®2006 = 84.3

SPECfp_base2006 = 81.7

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

Test date: Aug-2013
Hardware Availability: Sep-2013
Software Availability: Apr-2013



Hardware

CPU Name:	Intel Core i7-4960X
CPU Characteristics:	Intel Turbo Boost Technology up to 4.00 GHz
CPU MHz:	3600
FPU:	Integrated
CPU(s) enabled:	6 cores, 1 chip, 6 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 Pro 6.2.9200 N/A Build 9200
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:	Yes

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L3 Cache:	15 MB I+D on chip per chip
Other Cache:	None
Memory:	16 GB (4 x 4 GB 2Rx4 PC3-12800U-11)
Disk Subsystem:	1 TB Seagate SATA, 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	66.1	206	65.6	207	**65.7**	**207**	66.1	206	65.6	207	**65.7**	**207**
416.gamess	525	37.3	**526**	**37.2**	526	37.2	463	42.3	463	42.3	**463**	**42.3**
433.milc	**127**	**72.5**	126	72.6	127	72.2	**127**	**72.5**	126	72.6	127	72.2
434.zeusmp	**57.1**	**159**	57.0	160	57.1	159	**57.1**	**159**	57.0	160	57.1	159
435.gromacs	146	49.1	**146**	**49.1**	146	49.0	146	49.1	**146**	**49.1**	146	49.0
436.cactusADM	42.3	283	41.8	286	**41.8**	**286**	42.3	283	41.8	286	**41.8**	**286**
437.leslie3d	63.0	149	**63.0**	**149**	63.2	149	63.0	149	**63.0**	**149**	63.2	149
444.namd	**290**	**27.6**	290	27.6	290	27.7	**288**	**27.8**	288	27.8	288	27.8
447.dealII	**182**	**62.8**	182	62.7	182	62.8	**182**	**62.8**	182	62.7	182	62.8
450.soplex	176	47.3	176	47.4	**176**	**47.4**	176	47.3	176	47.4	**176**	**47.4**
453.povray	103	51.7	107	49.9	**104**	**51.4**	85.6	62.1	**85.6**	**62.1**	85.7	62.1
454.calculix	181	45.6	180	45.9	**181**	**45.7**	181	45.6	180	45.9	**181**	**45.7**
459.GemsFDTD	97.3	109	**97.5**	**109**	97.6	109	97.3	109	**97.5**	**109**	97.6	109
465.tonto	252	39.0	**256**	**38.5**	268	36.7	205	47.9	**206**	**47.8**	207	47.6
470.lbm	**56.6**	**243**	56.1	245	56.7	242	**56.6**	**243**	56.1	245	56.7	242
481.wrf	97.0	115	**97.4**	**115**	97.5	115	97.0	115	**97.4**	**115**	97.5	115
482.sphinx3	255	76.3	255	76.5	**255**	**76.5**	255	76.3	255	76.5	**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 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)
```

Platform Notes

```
Sysinfo program C:\Users\PECA_W~1\Desktop\CPU200~1.APR/Docs/sysinfo
$Rev: 6775 $ $Date:: 2011-08-16 #$ \8787f7622badcf24e01c368b1db4377c
running on Clt38607738DA9E Sat Aug  3 19:56:30 2013

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 Pro
OS Version    : 6.2.9200 N/A Build 9200
System Manufacturer: Gigabyte Technology Co., Ltd.
System Model  : To be filled by O.E.M.
Processor(s)  : 1 Processor(s) Installed.
     [01]: Intel64 Family 6 Model 62 Stepping 4 GenuineIntel ~3601 Mhz
BIOS Version  : American Megatrends Inc. F4, 7/1/2013
Total Physical Memory: 16,307 MB

Trying 'wmic cpu get /value'
DeviceID      : CPU0
L2CacheSize   : 256
L3CacheSize   : 15360
MaxClockSpeed : 3601
Name          : Intel(R) Core(TM) i7-4960X CPU @ 3.60GHz
NumberOfCores : 6
NumberOfLogicalProcessors: 12

(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:
-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

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: -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-ic13.1-official-windows.20130924.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.20130924.xml

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

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