



SPEC[®] CFP2006 Result

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Intel Corporation

SPECfp[®]_rate2006 = 118

Intel DQ87PG motherboard (Intel Core i5-4440)

SPECfp_rate_base2006 = 117

CPU2006 license: 13

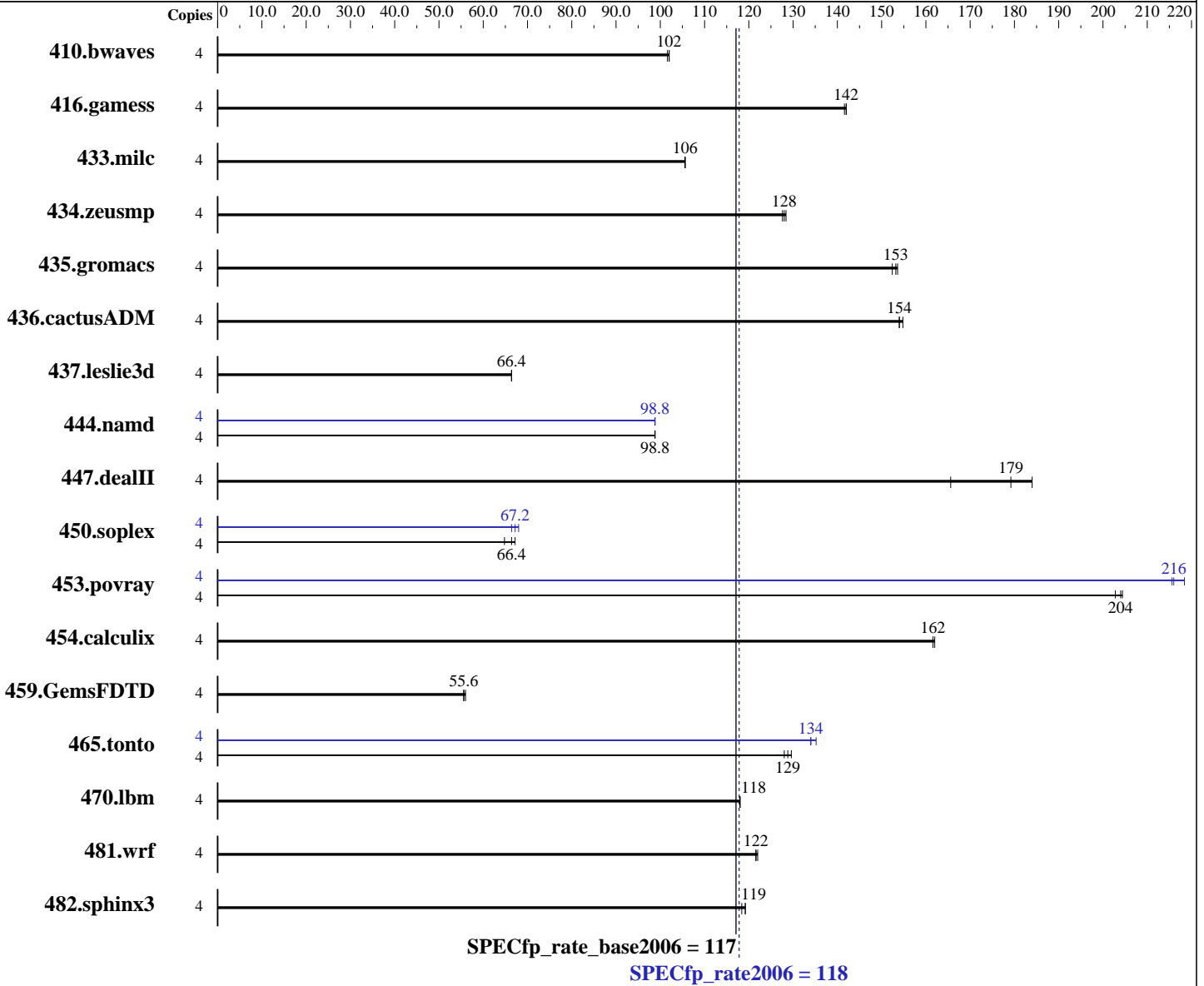
Test sponsor: Intel Corporation

Tested by: Intel Corporation

Test date: Sep-2013

Hardware Availability: Sep-2013

Software Availability: Apr-2013



Hardware

CPU Name: Intel Core i5-4440
 CPU Characteristics: Intel Turbo Boost Technology up to 3.30 GHz
 CPU MHz: 3100
 FPU: Integrated
 CPU(s) enabled: 4 cores, 1 chip, 4 cores/chip
 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 Enterprise 6.1.7601 Service Pack 1 Build 7601
 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: No

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L3 Cache: 6 MB I+D on chip per chip
 Other Cache: None
 Memory: 4 GB (2 x 2 GB 1Rx8 PC3-12800U-11)
 Disk Subsystem: 250 GB 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 | | | | | | |
|---------------|--------|-------------------|--------------------|-------------------|-------------------|-------------------|--------------------|--------|-------------------|--------------------|--------------------|-------------------|-------------------|--------------------|
| | Copies | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio | Copies | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio |
| 410.bwaves | 4 | 535 | 102 | 534 | 102 | <u>534</u> | <u>102</u> | 4 | 535 | 102 | 534 | 102 | <u>534</u> | <u>102</u> |
| 416.gamess | 4 | 553 | 142 | 552 | 142 | <u>552</u> | <u>142</u> | 4 | 553 | 142 | 552 | 142 | <u>552</u> | <u>142</u> |
| 433.milc | 4 | 348 | 106 | <u>348</u> | <u>106</u> | 348 | 106 | 4 | 348 | 106 | <u>348</u> | <u>106</u> | 348 | 106 |
| 434.zeusmp | 4 | 284 | 128 | 285 | 128 | <u>284</u> | <u>128</u> | 4 | 284 | 128 | 285 | 128 | <u>284</u> | <u>128</u> |
| 435.gromacs | 4 | <u>186</u> | <u>153</u> | 187 | 152 | 186 | 154 | 4 | <u>186</u> | <u>153</u> | 187 | 152 | 186 | 154 |
| 436.cactusADM | 4 | 311 | 154 | <u>311</u> | <u>154</u> | 309 | 155 | 4 | 311 | 154 | <u>311</u> | <u>154</u> | 309 | 155 |
| 437.leslie3d | 4 | 566 | 66.4 | 567 | 66.4 | <u>566</u> | <u>66.4</u> | 4 | 566 | 66.4 | 567 | 66.4 | <u>566</u> | <u>66.4</u> |
| 444.namd | 4 | 325 | 98.8 | 325 | 98.8 | <u>325</u> | <u>98.8</u> | 4 | <u>325</u> | <u>98.8</u> | 325 | 98.8 | 325 | 98.8 |
| 447.dealII | 4 | 276 | 166 | 249 | 184 | <u>255</u> | <u>179</u> | 4 | 276 | 166 | 249 | 184 | <u>255</u> | <u>179</u> |
| 450.soplex | 4 | <u>502</u> | <u>66.4</u> | 516 | 64.8 | 496 | 67.2 | 4 | <u>495</u> | <u>67.2</u> | 504 | 66.4 | 490 | 68.0 |
| 453.povray | 4 | 105 | 203 | 104 | 204 | <u>104</u> | <u>204</u> | 4 | 97.5 | 218 | <u>98.5</u> | <u>216</u> | 98.7 | 216 |
| 454.calculix | 4 | <u>204</u> | <u>162</u> | 204 | 162 | 204 | 162 | 4 | <u>204</u> | <u>162</u> | 204 | 162 | 204 | 162 |
| 459.GemsFDTD | 4 | <u>761</u> | <u>55.6</u> | 761 | 55.6 | 760 | 56.0 | 4 | <u>761</u> | <u>55.6</u> | 761 | 55.6 | 760 | 56.0 |
| 465.tonto | 4 | <u>305</u> | <u>129</u> | 304 | 130 | 308 | 128 | 4 | <u>294</u> | <u>134</u> | 294 | 134 | 291 | 135 |
| 470.lbm | 4 | 466 | 118 | 467 | 118 | <u>466</u> | <u>118</u> | 4 | 466 | 118 | 467 | 118 | <u>466</u> | <u>118</u> |
| 481.wrf | 4 | <u>368</u> | <u>122</u> | 368 | 122 | 366 | 122 | 4 | <u>368</u> | <u>122</u> | 368 | 122 | 366 | 122 |
| 482.sphinx3 | 4 | 658 | 118 | <u>655</u> | <u>119</u> | 655 | 119 | 4 | 658 | 118 | <u>655</u> | <u>119</u> | 655 | 119 |

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)

Submit Notes

Processes were bound to specific processors using the start command with the /affinity switch. The config file option 'submit' was used to generate the affinity mask for each process.



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Platform Notes

Sysinfo program C:\SPEC13.1/Docs/sysinfo
\$Rev: 6775 \$ \$Date:: 2011-08-16 #\$ \8787f7622badcf24e01c368b1db4377c
running on Clt7C05070FB2B7 Sun Sep 22 05:27:24 2013

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'

OS Name : Microsoft Windows 7 Enterprise
OS Version : 6.1.7601 Service Pack 1 Build 7601
System Manufacturer: INTEL_
System Model : DQ87PG__
Processor(s) : 1 Processor(s) Installed.
 [01]: Intel64 Family 6 Model 60 Stepping 3 GenuineIntel ~3101 Mhz
BIOS Version : Intel(R) Corp. PGQ8710H.86A.0036.2013.0702.1908, 7/2/2013
Total Physical Memory: 3,749 MB

Trying 'wmic cpu get /value'

DeviceID : CPU0
L2CacheSize : 1024
L3CacheSize : 6144
MaxClockSpeed : 3101
Name : Intel(R) Core(TM) i5-4440 CPU @ 3.10GHz
NumberOfCores : 4
NumberOfLogicalProcessors: 4

(End of data from sysinfo program)

BIOS: SATA mode set to RAID

Windows Disk Driver: Intel Rapid Storage Technology 12.5.0.1066

Windows Chipset Driver: Intel Chipset Driver 9.4.0.1027

Component Notes

Tested systems can be used with Shin-G ATX case,
PC Power and Cooling 1200W power supply
Micron MT8JTF25664AZ-1G6 Series Memory DIMMs

General Notes

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

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Base Compiler Invocation (Continued)

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- -Qansi-alias -Qopt-prefetch
-Qauto-ilp32 /F1000000000 -link /FORCE:MULTIPLE

C++ benchmarks:

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

Fortran benchmarks:

-QxCORE-AVX2 -Qipo -O3 -Qprec-div- -Qansi-alias -Qopt-prefetch
/F1000000000 -link /FORCE:MULTIPLE

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Base Optimization Flags (Continued)

Benchmarks using both Fortran and C:

`-QxCORE-AVX2 -Qipo -O3 -Qprec-div- -Qansi-alias -Qopt-prefetch
-Qauto-ilp32 /F1000000000 -link /FORCE:MULTIPLE`

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: `-QxCORE-AVX2(pass 2) -Qprof_gen(pass 1) -Qprof_use(pass 2)
-Qipo -O3 -Qprec-div- -Oa -Qauto-ilp32 /F1000000000
sh1W64M.lib -link /FORCE:MULTIPLE`

447.dealII: basepeak = yes

450.soplex: `-QxCORE-AVX2(pass 2) -Qprof_gen(pass 1) -Qprof_use(pass 2)
-Qipo -O3 -Qauto-ilp32 /F1000000000 sh1W64M.lib
-link /FORCE:MULTIPLE`

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Peak Optimization Flags (Continued)

453.povray: -QxCORE-AVX2(pass 2) -Qprof_gen(pass 1) -Qprof_use(pass 2)
-Qipo -O3 -Qprec-div- -Qopt-prefetch -Qauto-ilp32
/F1000000000 sh1W64M.lib -link /FORCE:MULTIPLE

Fortran benchmarks:

410.bwaves: basepeak = yes

416.gamess: basepeak = yes

434.zeusmp: basepeak = yes

437.leslie3d: basepeak = yes

459.GemsFDTD: basepeak = yes

465.tonto: -QxCORE-AVX2(pass 2) -Qprof_gen(pass 1) -Qprof_use(pass 2)
-Qipo -O3 -Qprec-div- -Qunroll4 -Qauto /F1000000000
-link /FORCE:MULTIPLE

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.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.xml>

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For other inquiries, please contact webmaster@spec.org.

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