



SPEC[®] CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

IBM Corporation

IBM Flex System x240
(Intel Xeon E5-2609 v2, 2.50 GHz)

SPECfp[®]_rate2006 = 258

SPECfp_rate_base2006 = 253

CPU2006 license: 11

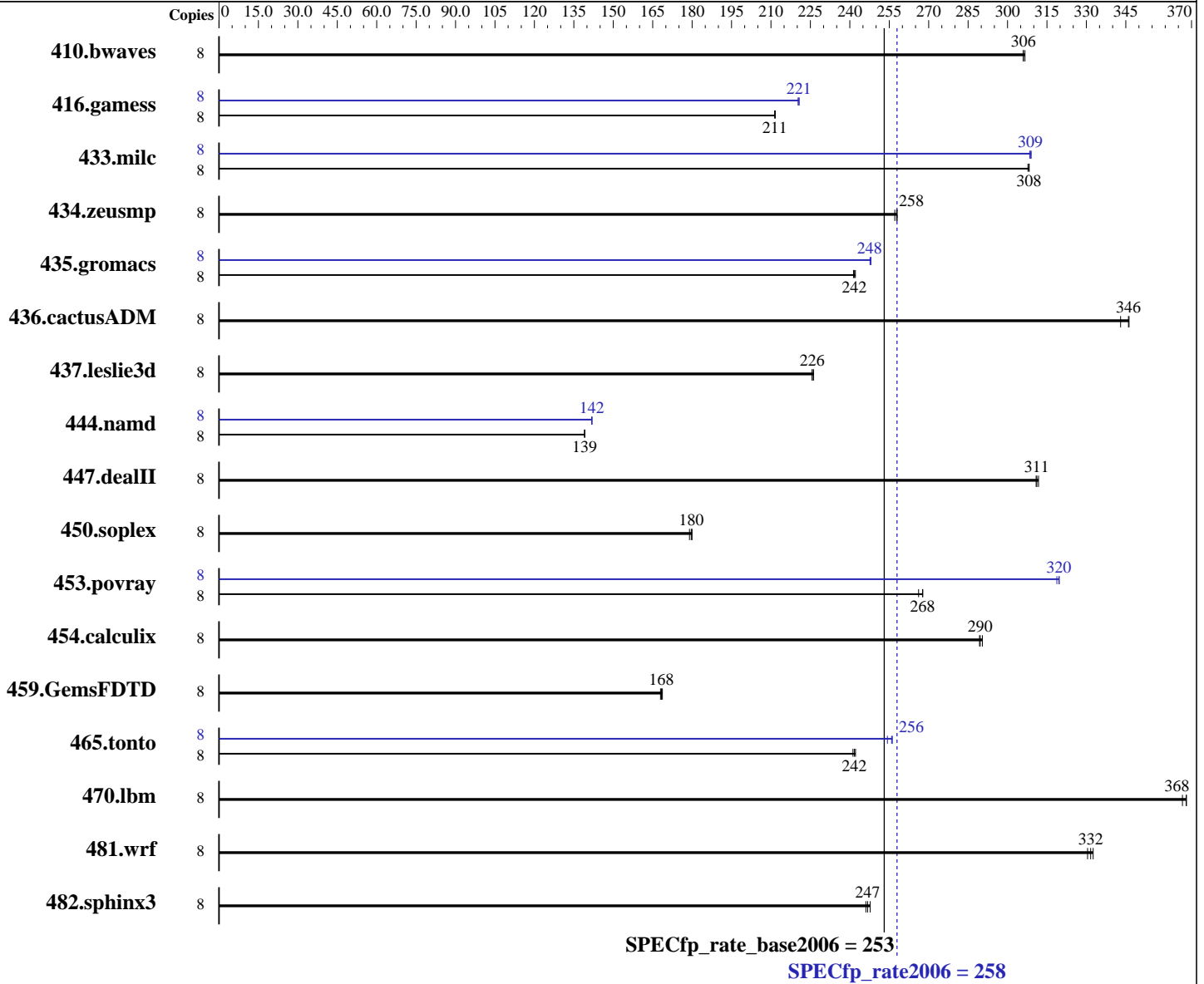
Test sponsor: IBM Corporation

Tested by: IBM Corporation

Test date: Aug-2014

Hardware Availability: Dec-2013

Software Availability: Sep-2013



Hardware

CPU Name: Intel Xeon E5-2609 v2
 CPU Characteristics:
 CPU MHz: 2500
 FPU: Integrated
 CPU(s) enabled: 8 cores, 2 chips, 4 cores/chip
 CPU(s) orderable: 1,2 chips
 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: Red Hat Enterprise Linux Server release 6.4 (Santiago)
 2.6.32-358.el6.x86_64
 Compiler: C/C++: Version 14.0.0.080 of Intel C++ Studio XE for Linux;
 Fortran: Version 14.0.0.080 of Intel Fortran Studio XE for Linux
 Auto Parallel: No
 File System: ext4

Continued on next page



SPEC CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

IBM Corporation

IBM Flex System x240
(Intel Xeon E5-2609 v2, 2.50 GHz)

SPECfp_rate2006 = **258**

SPECfp_rate_base2006 = **253**

CPU2006 license: 11
Test sponsor: IBM Corporation
Tested by: IBM Corporation

Test date: Aug-2014
Hardware Availability: Dec-2013
Software Availability: Sep-2013

L3 Cache: 10 MB I+D on chip per chip
Other Cache: None
Memory: 256 GB (16 x 16 GB 2Rx4 PC3-14900R-13, ECC, running at 1333 MHz)
Disk Subsystem: 1 x 300 GB SAS, 10000 RPM
Other Hardware: None

System State: Run level 3 (multi-user)
Base Pointers: 32/64-bit
Peak Pointers: 32/64-bit
Other Software: None

Results Table

| Benchmark | Base | | | | | | | | Peak | | | | | | | |
|---------------|--------|------------|------------|------------|------------|------------|------------|--------|------------|------------|------------|------------|------------|------------|--|--|
| | Copies | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio | Copies | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio | | |
| 410.bwaves | 8 | 355 | 306 | 355 | 307 | 355 | 306 | 8 | 355 | 306 | 355 | 307 | 355 | 306 | | |
| 416.gamess | 8 | 741 | 211 | 740 | 212 | 741 | 211 | 8 | 711 | 220 | 710 | 221 | 710 | 221 | | |
| 433.milc | 8 | 239 | 308 | 238 | 308 | 238 | 308 | 8 | 238 | 308 | 238 | 309 | 238 | 309 | | |
| 434.zeusmp | 8 | 283 | 257 | 282 | 258 | 282 | 258 | 8 | 283 | 257 | 282 | 258 | 282 | 258 | | |
| 435.gromacs | 8 | 237 | 241 | 236 | 242 | 236 | 242 | 8 | 230 | 248 | 231 | 248 | 230 | 248 | | |
| 436.cactusADM | 8 | 276 | 346 | 276 | 346 | 279 | 343 | 8 | 276 | 346 | 276 | 346 | 279 | 343 | | |
| 437.leslie3d | 8 | 332 | 226 | 333 | 226 | 333 | 226 | 8 | 332 | 226 | 333 | 226 | 333 | 226 | | |
| 444.namd | 8 | 461 | 139 | 461 | 139 | 461 | 139 | 8 | 452 | 142 | 452 | 142 | 452 | 142 | | |
| 447.dealII | 8 | 294 | 312 | 294 | 311 | 294 | 311 | 8 | 294 | 312 | 294 | 311 | 294 | 311 | | |
| 450.soplex | 8 | 371 | 180 | 373 | 179 | 371 | 180 | 8 | 371 | 180 | 373 | 179 | 371 | 180 | | |
| 453.povray | 8 | 160 | 266 | 159 | 268 | 159 | 268 | 8 | 133 | 320 | 133 | 320 | 134 | 319 | | |
| 454.calculix | 8 | 228 | 290 | 227 | 290 | 228 | 289 | 8 | 228 | 290 | 227 | 290 | 228 | 289 | | |
| 459.GemsFDTD | 8 | 503 | 169 | 505 | 168 | 504 | 168 | 8 | 503 | 169 | 505 | 168 | 504 | 168 | | |
| 465.tonto | 8 | 326 | 242 | 325 | 242 | 326 | 241 | 8 | 307 | 256 | 310 | 254 | 308 | 256 | | |
| 470.lbm | 8 | 299 | 368 | 299 | 368 | 300 | 367 | 8 | 299 | 368 | 299 | 368 | 300 | 367 | | |
| 481.wrf | 8 | 269 | 333 | 269 | 332 | 270 | 330 | 8 | 269 | 333 | 269 | 332 | 270 | 330 | | |
| 482.sphinx3 | 8 | 632 | 247 | 629 | 248 | 633 | 246 | 8 | 632 | 247 | 629 | 248 | 633 | 246 | | |

Results appear in the order in which they were run. Bold underlined text indicates a median measurement.

Submit Notes

The numactl mechanism was used to bind copies to processors. The config file option 'submit' was used to generate numactl commands to bind each copy to a specific processor. For details, please see the config file.

Operating System Notes

Stack size set to unlimited using "ulimit -s unlimited"



SPEC CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

IBM Corporation

IBM Flex System x240
(Intel Xeon E5-2609 v2, 2.50 GHz)

SPECfp_rate2006 = 258

SPECfp_rate_base2006 = 253

CPU2006 license: 11
Test sponsor: IBM Corporation
Tested by: IBM Corporation

Test date: Aug-2014
Hardware Availability: Dec-2013
Software Availability: Sep-2013

Platform Notes

Operating Mode set to Maximum Performance in BIOS
Sysinfo program /cpu2006.1.2_14.0_updates/config/sysinfo.rev6818
\$Rev: 6818 \$ \$Date:: 2012-07-17 # \$ e86d102572650a6e4d596a3cee98f191
running on BT2-IVB Sat Aug 9 00:16:40 2014

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>

```
From /proc/cpuinfo
model name : Intel(R) Xeon(R) CPU E5-2609 v2 @ 2.50GHz
 2 "physical id"s (chips)
 8 "processors"
cores, siblings (Caution: counting these is hw and system dependent. The
following excerpts from /proc/cpuinfo might not be reliable. Use with
caution.)
cpu cores : 4
siblings : 4
physical 0: cores 0 1 2 3
physical 1: cores 0 1 2 3
cache size : 10240 KB
```

```
From /proc/meminfo
MemTotal: 264506244 kB
HugePages_Total: 0
Hugepagesize: 2048 kB
```

```
/usr/bin/lsb_release -d
Red Hat Enterprise Linux Server release 6.4 (Santiago)
```

```
From /etc/*release* /etc/*version*
redhat-release: Red Hat Enterprise Linux Server release 6.4 (Santiago)
system-release: Red Hat Enterprise Linux Server release 6.4 (Santiago)
system-release-cpe: cpe:/o:redhat:enterprise_linux:6server:ga:server
```

```
uname -a:
Linux BT2-IVB 2.6.32-358.el6.x86_64 #1 SMP Tue Jan 29 11:47:41 EST 2013
x86_64 x86_64 x86_64 GNU/Linux
```

```
run-level 3 Aug 8 16:21
```

```
SPEC is set to: /cpu2006.1.2_14.0_updates
Filesystem Type Size Used Avail Use% Mounted on
/dev/mapper/vg_bt2ivb-lv_root
ext4 265G 100G 153G 40% /
```

```
Additional information from dmidecode:
BIOS IBM -[B2E141AUS-1.50]- 05/08/2014
Memory:
16x Micron 36JSF2G72PZ-1G9E1 16 GB 1333 MHz 2 rank
8x Not Specified Not Specified
```

Continued on next page



SPEC CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

IBM Corporation

IBM Flex System x240
(Intel Xeon E5-2609 v2, 2.50 GHz)

SPECfp_rate2006 = 258

SPECfp_rate_base2006 = 253

CPU2006 license: 11
Test sponsor: IBM Corporation
Tested by: IBM Corporation

Test date: Aug-2014
Hardware Availability: Dec-2013
Software Availability: Sep-2013

Platform Notes (Continued)

(End of data from sysinfo program)

General Notes

Environment variables set by runspec before the start of the run:

```
LD_LIBRARY_PATH = "/cpu2006.1.2_14.0_updates/libs/32:/cpu2006.1.2_14.0_updates/libs/64:/cpu2006.1.2_14.0_updates/sh"
```

Binaries compiled on a system with 1x Core i7-860 CPU + 8GB memory using RedHat EL 6.4

Transparent Huge Pages enabled with:

```
echo always > /sys/kernel/mm/redhat_transparent_hugepage/enabled
```

Filesystem page cache cleared with:

```
echo 1 > /proc/sys/vm/drop_caches
```

runspec command invoked through numactl i.e.:

```
numactl --interleave=all runspec <etc>
```

Base Compiler Invocation

C benchmarks:

```
icc -m64
```

C++ benchmarks:

```
icpc -m64
```

Fortran benchmarks:

```
ifort -m64
```

Benchmarks using both Fortran and C:

```
icc -m64 ifort -m64
```

Base Portability Flags

```
410.bwaves: -DSPEC_CPU_LP64
416.gamess: -DSPEC_CPU_LP64
433.milc: -DSPEC_CPU_LP64
434.zeusmp: -DSPEC_CPU_LP64
435.gromacs: -DSPEC_CPU_LP64 -nofor_main
436.cactusADM: -DSPEC_CPU_LP64 -nofor_main
437.leslie3d: -DSPEC_CPU_LP64
444.namd: -DSPEC_CPU_LP64
447.dealII: -DSPEC_CPU_LP64
450.soplex: -DSPEC_CPU_LP64
453.povray: -DSPEC_CPU_LP64
454.calculix: -DSPEC_CPU_LP64 -nofor_main
459.GemsFDTD: -DSPEC_CPU_LP64
465.tonto: -DSPEC_CPU_LP64
```

Continued on next page



SPEC CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

IBM Corporation

IBM Flex System x240
(Intel Xeon E5-2609 v2, 2.50 GHz)

SPECfp_rate2006 = 258

SPECfp_rate_base2006 = 253

CPU2006 license: 11
Test sponsor: IBM Corporation
Tested by: IBM Corporation

Test date: Aug-2014
Hardware Availability: Dec-2013
Software Availability: Sep-2013

Base Portability Flags (Continued)

470.lbm: -DSPEC_CPU_LP64
481.wrf: -DSPEC_CPU_LP64 -DSPEC_CPU_CASE_FLAG -DSPEC_CPU_LINUX
482.sphinx3: -DSPEC_CPU_LP64

Base Optimization Flags

C benchmarks:
-xAVX -ipo -O3 -no-prec-div -opt-prefetch -auto-p32 -ansi-alias
-opt-mem-layout-trans=3

C++ benchmarks:
-xAVX -ipo -O3 -no-prec-div -opt-prefetch -auto-p32 -ansi-alias
-opt-mem-layout-trans=3

Fortran benchmarks:
-xAVX -ipo -O3 -no-prec-div -opt-prefetch

Benchmarks using both Fortran and C:
-xAVX -ipo -O3 -no-prec-div -opt-prefetch -auto-p32 -ansi-alias
-opt-mem-layout-trans=3

Peak Compiler Invocation

C benchmarks:
icc -m64

C++ benchmarks:
icpc -m64

Fortran benchmarks:
ifort -m64

Benchmarks using both Fortran and C:
icc -m64 ifort -m64

Peak Portability Flags

Same as Base Portability Flags



SPEC CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

IBM Corporation

IBM Flex System x240
(Intel Xeon E5-2609 v2, 2.50 GHz)

SPECfp_rate2006 = 258

SPECfp_rate_base2006 = 253

CPU2006 license: 11
Test sponsor: IBM Corporation
Tested by: IBM Corporation

Test date: Aug-2014
Hardware Availability: Dec-2013
Software Availability: Sep-2013

Peak Optimization Flags

C benchmarks:

433.milc: -xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
-no-prec-div(pass 2) -opt-mem-layout-trans=3(pass 2)
-prof-use(pass 2) -auto-ilp32

470.lbm: basepeak = yes

482.sphinx3: basepeak = yes

C++ benchmarks:

444.namd: -xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
-no-prec-div(pass 2) -opt-mem-layout-trans=3(pass 2)
-prof-use(pass 2) -fno-alias -auto-ilp32

447.dealII: basepeak = yes

450.soplex: basepeak = yes

453.povray: -xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
-no-prec-div(pass 2) -opt-mem-layout-trans=3(pass 2)
-prof-use(pass 2) -unroll4 -ansi-alias

Fortran benchmarks:

410.bwaves: basepeak = yes

416.gamess: -xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
-no-prec-div(pass 2) -prof-use(pass 2) -unroll2
-inline-level=0 -scalar-rep-

434.zeusmp: basepeak = yes

437.leslie3d: basepeak = yes

459.GemsFDTD: basepeak = yes

465.tonto: -xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
-no-prec-div(pass 2) -prof-use(pass 2) -unroll4 -auto
-inline-calloc -opt-malloc-options=3

Benchmarks using both Fortran and C:

435.gromacs: -xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
-no-prec-div(pass 2) -opt-mem-layout-trans=3(pass 2)
-prof-use(pass 2) -opt-prefetch -auto-ilp32

436.cactusADM: basepeak = yes

Continued on next page



SPEC CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

IBM Corporation

IBM Flex System x240
(Intel Xeon E5-2609 v2, 2.50 GHz)

SPECfp_rate2006 = 258

SPECfp_rate_base2006 = 253

CPU2006 license: 11

Test sponsor: IBM Corporation

Tested by: IBM Corporation

Test date: Aug-2014

Hardware Availability: Dec-2013

Software Availability: Sep-2013

Peak Optimization Flags (Continued)

454.calculix: basepeak = yes

481.wrf: basepeak = yes

The flags files that were used to format this result can be browsed at

<http://www.spec.org/cpu2006/flags/Intel-ic14.0-official-linux64.20140128.html>

<http://www.spec.org/cpu2006/flags/IBM-Platform-Flags-V1.2-IVB-A.html>

You can also download the XML flags sources by saving the following links:

<http://www.spec.org/cpu2006/flags/Intel-ic14.0-official-linux64.20140128.xml>

<http://www.spec.org/cpu2006/flags/IBM-Platform-Flags-V1.2-IVB-A.xml>

SPEC and SPECfp are registered trademarks of the Standard Performance Evaluation Corporation. All other brand and product names appearing in this result are trademarks or registered trademarks of their respective holders.

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

Tested with SPEC CPU2006 v1.2.

Report generated on Tue Aug 26 18:11:46 2014 by SPEC CPU2006 PS/PDF formatter v6932.

Originally published on 26 August 2014.