IBM Corporation

IBM Flex System x240
(Intel Xeon E5-2665, 2.40 GHz)

SPECfp®2006 = 81.6
SPECfp_base2006 = 77.3

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

Test date: May-2012
Hardware Availability: May-2012
Software Availability: Dec-2011

IBM Corporation

(spec® CFP2006 Result)

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Hardware

CPU Name: Intel Xeon E5-2665
CPU Characteristics: Intel Turbo Boost Technology up to 3.10 GHz
CPU MHz: 2400
FPU: Integrated
CPU(s) enabled: 16 cores, 2 chips, 8 cores/chip, 2 threads/core
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

Software

Operating System: Red Hat Enterprise Linux Server release 6.2
(Santiago)
2.6.32-220.el6.x86_64
Compiler: C/C++: Version 12.1.0.225 of Intel C++ Studio XE for Linux;
Fortran: Version 12.1.0.225 of Intel Fortran Studio XE for Linux
Auto Parallel: Yes
File System: ext4

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**L3 Cache:** 20 MB I+D on chip per chip  
**Other Cache:** None  
**Memory:** 128 GB (16 x 8 GB 2Rx4 PC3-12800R-11, ECC)  
**Disk Subsystem:** 1 x 300 GB SAS, 10000 RPM  
**Other Hardware:** None

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

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### Results Table

<table>
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<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
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<td>291</td>
<td>66.9</td>
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</tbody>
</table>

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

---

### Operating System Notes

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

---

### Platform Notes

Operating Mode set to Maximum Performance in BIOS  
Sysinfo program /cpu2006.1.2/config/sysinfo.rev6800  
$Rev: 6800 $ $Date:: 2011-10-11 #$ 6f2ebdff5032aaa42e583f96b07f99d3  
running on blacktip-pete Sat May 12 08:42:37 2012

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

---

### Hardware Availability: May-2012  
### Software Availability: Dec-2011

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### Test date: May-2012  
### Hardware Availability: May-2012  
### Software Availability: Dec-2011

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Platform Notes (Continued)

model name : Genuine Intel(R) CPU @ 2.40GHz
2 "physical id"s (chips)
32 "processors"
cores, siblings (Caution: counting these is hw and system dependent. The
following excerpts from /proc/cpuinfo might not be reliable. Use with
cautions.)
cpu cores : 8
siblings : 16
physical 0: cores 0 1 2 3 4 5 6 7
physical 1: cores 0 1 2 3 4 5 6 7
cache size : 20480 KB

From /proc/meminfo
MemTotal: 132136204 kB
HugePages_Total: 0
Hugepagesize: 2048 kB

/usr/bin/lsb_release -d
Red Hat Enterprise Linux Server release 6.2 (Santiago)

From /etc/*release*/etc/*version*
redhat-release: Red Hat Enterprise Linux Server release 6.2 (Santiago)
system-release: Red Hat Enterprise Linux Server release 6.2 (Santiago)

uname -a:
Linux blacktip-pete 2.6.32-220.el6.x86_64 #1 SMP Wed Nov 9 08:03:13 EST 2011
x86_64 x86_64 x86_64 GNU/Linux

run-level 3 May 10 16:28

SPEC is set to: /cpu2006.1.2
Filesystem Type Size Used Avail Use% Mounted on
/dev/mapper/vg_blacktippete-lv_root
ext4 265G 6.0G 246G 3% /

Additional information from dmidecode:
Memory:
4x Hynix HMT31GR7CFR4C-PB 8 GB 1600 MHz 2 rank
12x Samsung M393B1K70DH0-CK0 8 GB 1600 MHz 2 rank

(End of data from sysinfo program)

General Notes

Environment variables set by runspec before the start of the run:
KMP_AFFINITY = "granularity=fine,compact,1,0"
LD_LIBRARY_PATH = "/cpu2006.1.2/libs/32:/cpu2006.1.2/libs/64"
OMP_NUM_THREADS = "16"

Binaries compiled on a system with 1x Core i7-860 CPU + 8GB
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SPEC CFP2006 Result

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General Notes (Continued)

memory using RHEL5.5
Transparent Huge Pages enabled with:
echo always > /sys/kernel/mm/redhat_transparent_hugepage/enabled

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
  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  -static  -parallel  -opt-prefetch  -ansi-alias

C++ benchmarks:
  -xAVX  -ipo  -o3  -no-prec-div  -static  -opt-prefetch  -ansi-alias
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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

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) -prof-use (pass 2) -static -auto-ilp32
-ansi-alias

470.lbm: basepeak = yes

482.sphinx3: -xAVX -ipo -O3 -no-prec-div -unroll2 -ansi-alias
-parallel

C++ benchmarks:

444.namd: -xAVX (pass 2) -prof-gen (pass 1) -ipo (pass 2) -O3 (pass 2)
-no-prec-div (pass 2) -prof-use (pass 2) -fno-alias
-auto-ilp32

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Peak Optimization Flags (Continued)

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) -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= -static
434.zeusmp: basepeak = yes
437.leslie3d: basepeak = yes
459.GemsFDTD: -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 -opt-prefetch -parallel
465.tonto: -xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
            -no-prec-div(pass 2) -prof-use(pass 2) -inline-calloc
            -opt-malloc-options=3 -auto -unroll14

Benchmarks using both Fortran and C:
435.gromacs: basepeak = yes
436.cactusADM: basepeak = yes
454.calculix: -xAVX -ipo -O3 -no-prec-div -auto-ilp32 -ansi-alias
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-ic12.1-official-linux64.20111122.html
http://www.spec.org/cpu2006/flags/IBM-Platform-Flags-V1.2-SNB-C.html

You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2006/flags/Intel-ic12.1-official-linux64.20111122.xml
http://www.spec.org/cpu2006/flags/IBM-Platform-Flags-V1.2-SNB-C.xml
# SPEC CFP2006 Result

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IBM Flex System x240  
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- SPECfp_base2006 = 77.3

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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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