SPEC® CINT2006 Result
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IBM Corporation

IBM System x3100 M4 (Intel Xeon E3-1240)

$SPECint®2006 =$ 51.9

$SPECint\_base2006 =$ 48.9

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

Test date: Oct-2011
Hardware Availability: Oct-2011
Software Availability: Aug-2011

0 30.0 60.0 90.0 120 150 180 210 240 270 300 330 360 390 420 450 480 510 540 570 600 630 660 690 720 750 780 810 840 890

400.perlbench 39.4 / 32.6
401.bzip2 25.9 / 25.4
403.gcc 34.0 / 33.6
429.mcf 73.0
445.gobmk 28.1 / 26.7
456.hmmer 56.3 / 56.0
458.sjeng 30.6 / 30.4
462.libquantum 884
464.h264ref 58.3 / 49.7
471.omnetpp 33.0 / 27.2
473.astar 31.8
483.xalancbmk 57.4 / 52.9

SPECint_base2006 = 48.9
SPECint2006 = 51.9

Hardware

CPU Name: Intel Xeon E3-1240
CPU Characteristics: Intel Turbo Boost Technology up to 3.70 GHz
CPU MHz: 3300
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
L3 Cache: 8 MB I+D on chip per chip
Other Cache: None
Memory: 8 GB (2 x 4 GB 2Rx8 PC3-10600E-9, ECC)
Disk Subsystem: 1 x 250 GB SATA, 7200 RPM
Other Hardware: None

Software

Operating System: Red Hat Enterprise Linux Server Release 6.1, Kernel 2.6.32-131.0.15.el6.x86_64
Compiler: C/C++: Version 12.1.0.225 of Intel Compiler XE Build 20110803
Auto Parallel: Yes
File System: ext4
System State: Run level 3 (multi-user)
Base Pointers: 32/64-bit
Peak Pointers: 32/64-bit
Other Software: Microquill SmartHeap V9.01

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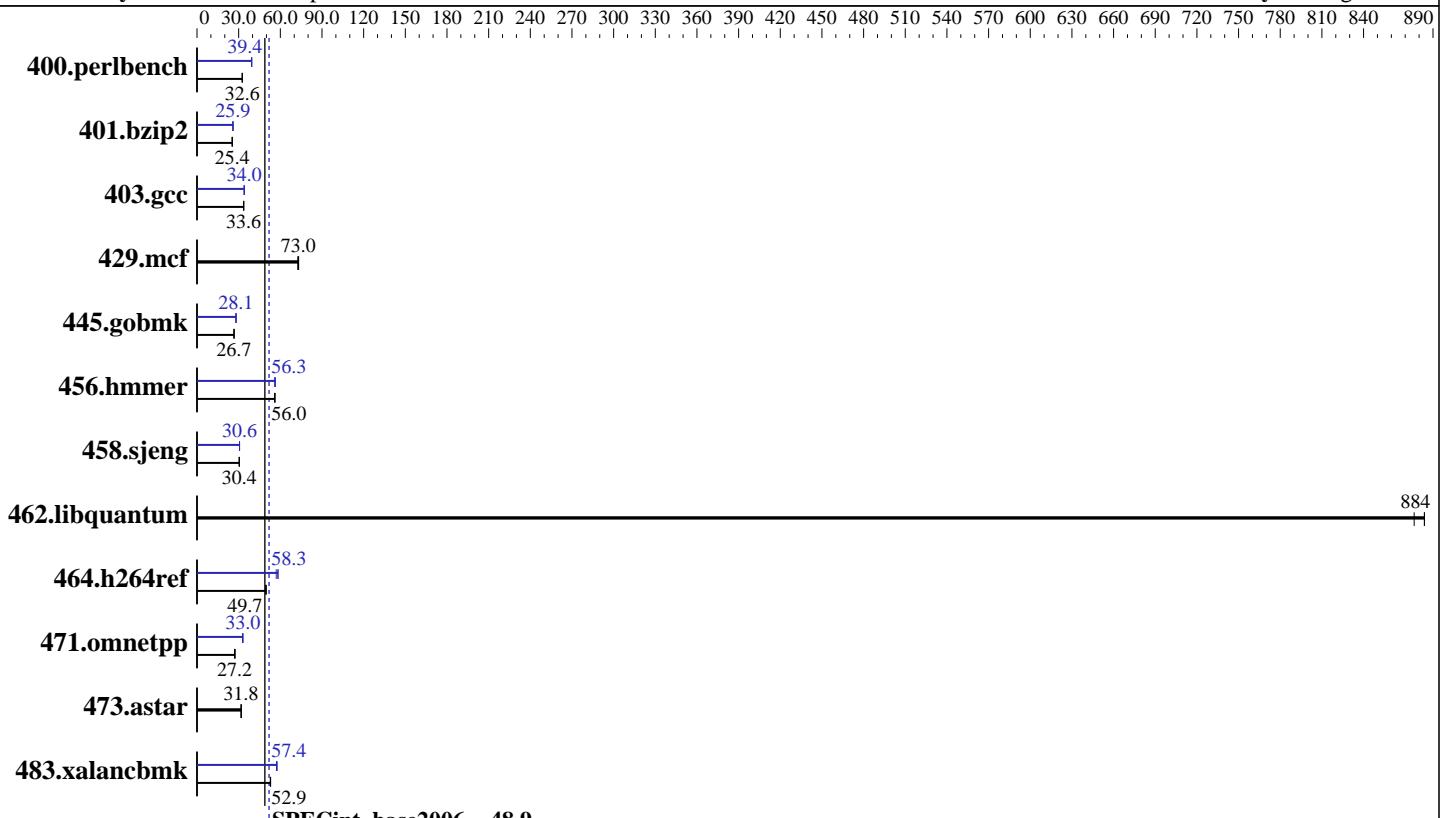
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Results Table

Benchmark	Base						Peak					
	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
400.perlbench	300	32.6	299	32.6	**300**	**32.6**	248	39.4	248	39.4	**248**	**39.4**
401.bzip2	381	25.4	**380**	**25.4**	380	25.4	372	25.9	373	25.9	**373**	**25.9**
403.gcc	**239**	**33.6**	239	33.6	240	33.6	**237**	**34.0**	236	34.1	237	34.0
429.mcf	**125**	**73.0**	126	72.6	125	73.2	**125**	**73.0**	126	72.6	125	73.2
445.gobmk	**393**	**26.7**	393	26.7	393	26.7	**373**	**28.1**	373	28.1	373	28.1
456.hmmer	167	56.0	**166**	**56.0**	166	56.0	167	56.0	166	56.3	**166**	**56.3**
458.sjeng	398	30.4	**398**	**30.4**	397	30.5	**395**	**30.6**	395	30.6	395	30.6
462.libquantum	23.4	884	**23.4**	**884**	23.6	876	23.4	884	**23.4**	**884**	23.6	876
464.h264ref	**445**	**49.7**	445	49.7	446	49.6	**380**	**58.3**	388	57.1	379	58.3
471.omnetpp	228	27.4	**230**	**27.2**	230	27.2	189	33.0	190	32.9	**189**	**33.0**
473.astar	**221**	**31.8**	220	31.9	221	31.8	**221**	**31.8**	220	31.9	221	31.8
483.xalancbmk	130	53.0	**131**	**52.9**	131	52.8	**120**	**57.4**	120	57.7	120	57.3

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

Platform Notes

```
    BIOS Settings:
    Turbo Mode enabled in BIOS
    C-State enabled in BIOS
```

General Notes

```
    Environment variables set by runspec before the start of the run:
    KMP_AFFINITY = "granularity=fine,scatter"
    LD_LIBRARY_PATH = "/root/SPECcpu12.1/smartheap:/root/SPECcpu12.1/ic12.1-libs/ia32/:/root/SPECcpu12.1/ic12.1-libs/intel64"
    OMP_NUM_THREADS = "4"

     Binaries compiled on a system with 1x Core i7-860 CPU + 8GB memory
     using RHEL5.5 with binutils-2.17.50.0.6-14.el5
     Stack size set to unlimited using "ulimit -s unlimited"
     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
```

Base Compiler Invocation

```
C benchmarks:
      icc  -m64
```

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Base Compiler Invocation (Continued)

C++ benchmarks:
    icpc -m64

Base Portability Flags

        400.perlbench: -DSPEC_CPU_LP64 -DSPEC_CPU_LINUX_X64
           401.bzip2: -DSPEC_CPU_LP64
             403.gcc: -DSPEC_CPU_LP64
             429.mcf: -DSPEC_CPU_LP64
          445.gobmk: -DSPEC_CPU_LP64
          456.hmmer: -DSPEC_CPU_LP64
           458.sjeng: -DSPEC_CPU_LP64
      462.libquantum: -DSPEC_CPU_LP64 -DSPEC_CPU_LINUX
          464.h264ref: -DSPEC_CPU_LP64
         471.omnetpp: -DSPEC_CPU_LP64
            473.astar: -DSPEC_CPU_LP64
       483.xalancbmk: -DSPEC_CPU_LP64 -DSPEC_CPU_LINUX

Base Optimization Flags

C benchmarks:
    -xAVX -ipo -O3 -no-prec-div -parallel -opt-prefetch -auto-p32

C++ benchmarks:
    -xAVX -ipo -O3 -no-prec-div -opt-prefetch -auto-p32 -Wl,-z,muldefs
    -L/smartheap -lsmartheap64

Base Other Flags

C benchmarks:

        403.gcc: -Dalloca=_alloca

Peak Compiler Invocation

C benchmarks (except as noted below):
    icc -m64

    400.perlbench: icc -m32

       445.gobmk: icc -m32

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Peak Compiler Invocation (Continued)

> 464.h264ref: `icc -m32`

C++ benchmarks (except as noted below):
> `icpc -m32`

> 473.astar: `icpc -m64`

Peak Portability Flags

```
    400.perlbench: -DSPEC_CPU_LINUX_IA32
       401.bzip2: -DSPEC_CPU_LP64
         403.gcc: -DSPEC_CPU_LP64
         429.mcf: -DSPEC_CPU_LP64
      456.hmmer: -DSPEC_CPU_LP64
       458.sjeng: -DSPEC_CPU_LP64
   462.libquantum: -DSPEC_CPU_LP64 -DSPEC_CPU_LINUX
       473.astar: -DSPEC_CPU_LP64
   483.xalancbmk: -DSPEC_CPU_LINUX
```

Peak Optimization Flags

C benchmarks:

> 400.perlbench: `-xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)`
> `-no-prec-div(pass 2) -prof-use(pass 2) -opt-prefetch`
> `-ansi-alias`

> 401.bzip2: `-xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)`
> `-no-prec-div -prof-use(pass 2) -auto-ilp32 -opt-prefetch`
> `-ansi-alias`

> 403.gcc: `-xAVX -ipo -O3 -no-prec-div -inline-calloc`
> `-opt-malloc-options=3 -auto-ilp32`

> 429.mcf: `basepeak = yes`

> 445.gobmk: `-xAVX(pass 2) -prof-gen(pass 1) -prof-use(pass 2)`
> `-ansi-alias`

> 456.hmmer: `-xAVX -ipo -O3 -no-prec-div -unroll2 -auto-ilp32`
> `-ansi-alias`

> 458.sjeng: `-xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)`
> `-no-prec-div(pass 2) -prof-use(pass 2) -unroll4`

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Peak Optimization Flags (Continued)

462.libquantum: basepeak = yes

464.h264ref: `-xAVX`(pass 2) `-prof-gen`(pass 1) `-ipo`(pass 2) `-O3`(pass 2)
`-no-prec-div`(pass 2) `-prof-use`(pass 2) `-unroll2`
`-ansi-alias`

C++ benchmarks:

471.omnetpp: `-xAVX`(pass 2) `-prof-gen`(pass 1) `-ipo`(pass 2) `-O3`(pass 2)
`-no-prec-div`(pass 2) `-prof-use`(pass 2)
`-opt-ra-region-strategy=block` `-ansi-alias` `-Wl,-z,muldefs`
`-L/smartheap` `-lsmartheap`

473.astar: basepeak = yes

483.xalancbmk: `-xAVX` `-ipo` `-O3` `-no-prec-div` `-opt-prefetch` `-ansi-alias`
`-Wl,-z,muldefs` `-L/smartheap` `-lsmartheap`

Peak Other Flags

C benchmarks:

403.gcc: `-Dalloca=_alloca`

The flags files that were used to format this result can be browsed at
http://www.spec.org/cpu2006/flags/Intel-ic12.1-linux64.html
http://www.spec.org/cpu2006/flags/IBM-platform-linux64-revB.20111206.html

You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2006/flags/Intel-ic12.1-linux64.xml
http://www.spec.org/cpu2006/flags/IBM-platform-linux64-revB.20111206.xml

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

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