SPEC® CINT2006 Result
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IBM Corporation

IBM System x3100 M4 (Intel Xeon E3-1280 v2)

SPECint®2006 =   58.0

SPECint_base2006 =   54.7

400.perlbench 44.3 / 36.0
401.bzip2 28.9 / 28.2
403.gcc 38.1 / 37.6
429.mcf 81.1
445.gobmk 31.1 / 29.4
456.hmmer 67.5 / 67.5
458.sjeng 33.5 / 33.3
462.libquantum 1020
464.h264ref 65.2 / 55.8
471.omnetpp 34.7 / 28.5
473.astar 35.6
483.xalancbmk 63.4 / 60.8

SPECint_base2006 = 54.7
SPECint2006 = 58.0

Hardware

CPU Name:	Intel Xeon E3-1280 v2
CPU Characteristics:	Intel Turbo Boost Technology up to 4.00 GHz
CPU MHz:	3600
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:	16 GB (2 x 8 GB 2Rx8 PC3-12800E-11, ECC)
Disk Subsystem:	1 x 250 GB SATA, 7200 RPM
Other Hardware:	None

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
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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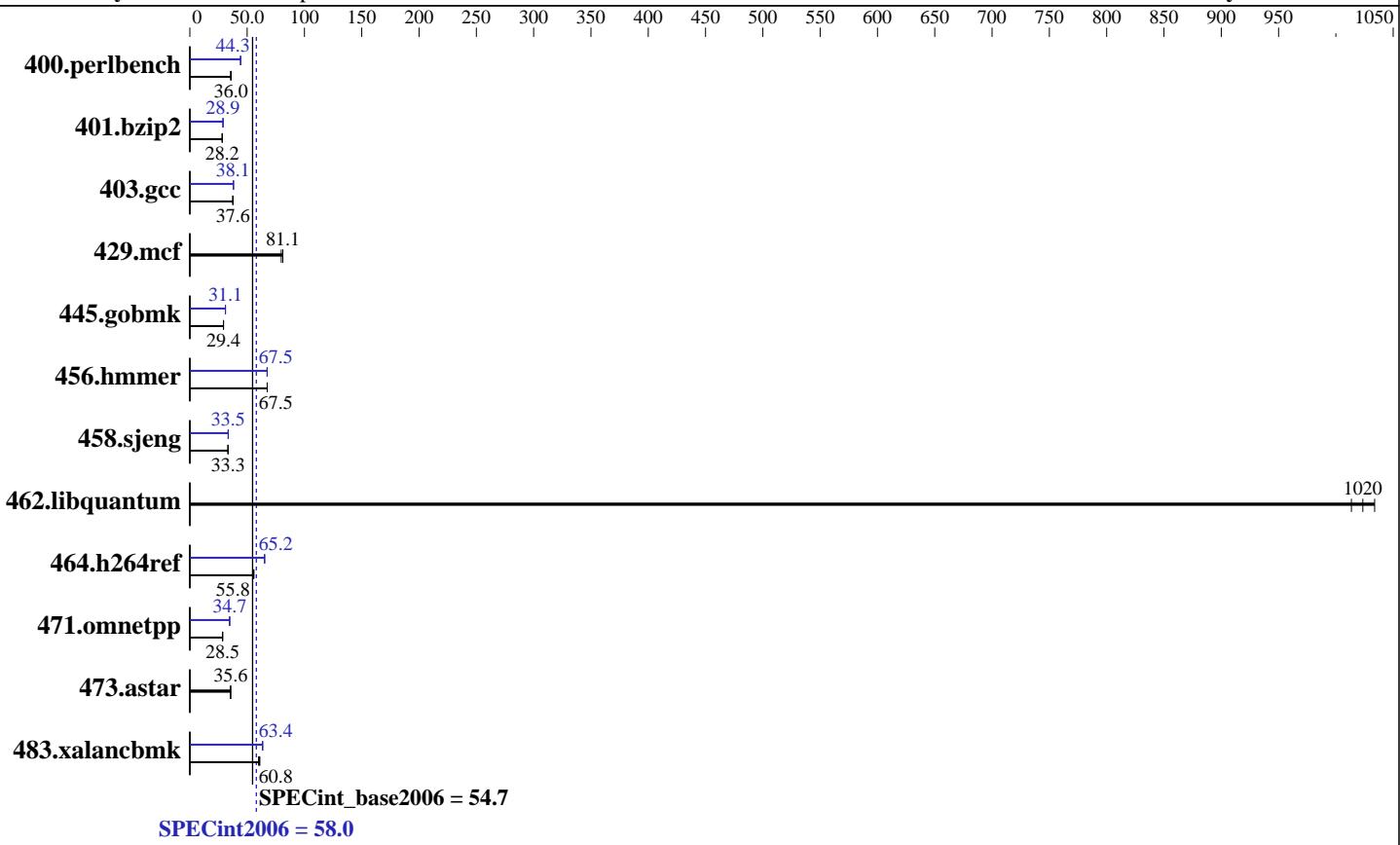SPECint_base2006 = 54.7

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

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

Results Table

Benchmark	Base						Peak					
	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
400.perlbench	275	35.5	271	36.0	**271**	**36.0**	220	44.3	**221**	**44.3**	221	44.3
401.bzip2	**342**	**28.2**	341	28.3	342	28.2	333	29.0	**333**	**28.9**	334	28.9
403.gcc	**214**	**37.6**	214	37.6	214	37.5	**211**	**38.1**	211	38.1	212	38.0
429.mcf	112	81.2	**112**	**81.1**	114	79.8	112	81.2	**112**	**81.1**	114	79.8
445.gobmk	**357**	**29.4**	357	29.3	357	29.4	337	31.1	338	31.1	**338**	**31.1**
456.hmmer	138	67.5	138	67.5	**138**	**67.5**	138	67.4	**138**	**67.5**	138	67.5
458.sjeng	**363**	**33.3**	363	33.3	363	33.3	361	33.5	**361**	**33.5**	362	33.5
462.libquantum	**20.2**	**1020**	20.4	1010	20.0	1030	**20.2**	**1020**	20.4	1010	20.0	1030
464.h264ref	**397**	**55.8**	397	55.7	397	55.8	339	65.3	**339**	**65.2**	339	65.2
471.omnetpp	**219**	**28.5**	220	28.5	217	28.8	180	34.8	**180**	**34.7**	180	34.6
473.astar	197	35.6	**197**	**35.6**	198	35.5	197	35.6	**197**	**35.6**	198	35.5
483.xalancbmk	**113**	**60.8**	113	61.0	115	59.9	108	63.7	109	63.3	**109**	**63.4**

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

```
BIOS Settings:
Turbo Mode enabled in BIOS
C-State enabled in BIOS
Sysinfo program /root/SPECcpu1.2/config/sysinfo.rev6800
$Rev: 6800 $ $Date:: 2011-10-11 #$ 6f2ebdff5032aaa42e583f96b07f99d3
running on localhost.localdomain Wed May  9 20:45:56 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
  model name : Intel(R) Xeon(R) CPU E3-1280 V2 @ 3.60GHz
     1 "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  : 8
     physical 0: cores 0 1 2 3
  cache size : 8192 KB
```

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Platform Notes (Continued)

```
From /proc/meminfo
   MemTotal:      16322724 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)
   system-release-cpe: cpe:/o:redhat:enterprise_linux:6server:ga:server

uname -a:
   Linux localhost.localdomain 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 8 14:52

SPEC is set to: /root/SPECcpu1.2
   Filesystem    Type    Size  Used Avail Use% Mounted on
   /dev/mapper/VolGroup-lv_root
                 ext4     50G   41G  6.3G  87% /

Additional information from dmidecode:
  Memory:
   2x Micron 18JSF1G72AZ-1G6D1 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,scatter"
LD_LIBRARY_PATH = "/root/SPECcpu1.2/libs/32:/root/SPECcpu1.2/libs/64"
OMP_NUM_THREADS = "4"

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

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CPU2006 license: 11

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Hardware Availability: May-2012

Software Availability: Dec-2011

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`

464.h264ref: `icc -m32`

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

473.astar: `icpc -m64`

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CPU2006 license: 11		**Test date:**	May-2012
Test sponsor: IBM Corporation		**Hardware Availability:**	May-2012
Tested by: IBM Corporation		**Software Availability:**	Dec-2011

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

    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
```

Continued on next page

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Peak Optimization Flags (Continued)

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-official-linux64.20111122.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-ic12.1-official-linux64.20111122.xml
http://www.spec.org/cpu2006/flags/IBM-Platform-Flags-V1.2-IVB-A.xml

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

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