SPEC® CINT2006 Result
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SGI

SGI Rackable C1110-GP2 (Intel Xeon E5-2680 v4, 2.40 GHz)

$SPECint^{®}\_rate2006 =$ 1260

SPECint_rate_base2006 = 1220

CPU2006 license: 4	**Test date:** Jun-2016
Test sponsor: SGI	**Hardware Availability:** Mar-2016
Tested by: SGI	**Software Availability:** May-2016

SPECint_rate_base2006 = 1220

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Hardware

CPU Name:	Intel Xeon E5-2680 v4
CPU Characteristics:	Intel Turbo Boost Technology up to 3.30 GHz
CPU MHz:	2400
FPU:	Integrated
CPU(s) enabled:	28 cores, 2 chips, 14 cores/chip, 2 threads/core
CPU(s) orderable:	1,2 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:	35 MB I+D on chip per chip
Other Cache:	None
Memory:	256 GB (8 x 32 GB 2Rx4 PC4-2400T-R)
Disk Subsystem:	1 x 500 GB SATA, 10K RPM
Other Hardware:	None

Software

Operating System:	SuSE Enterprise Linux 12 (x86_64) SP1, Kernel 3.12.57-60.35-default
Compiler:	C/C++: Version 16.0.0.101 of Intel C++ Studio XE for Linux
Auto Parallel:	No
File System:	xfs
System State:	Run level 3 (multi-user)
Base Pointers:	32-bit
Peak Pointers:	32/64-bit
Other Software:	Microquill SmartHeap V10.2

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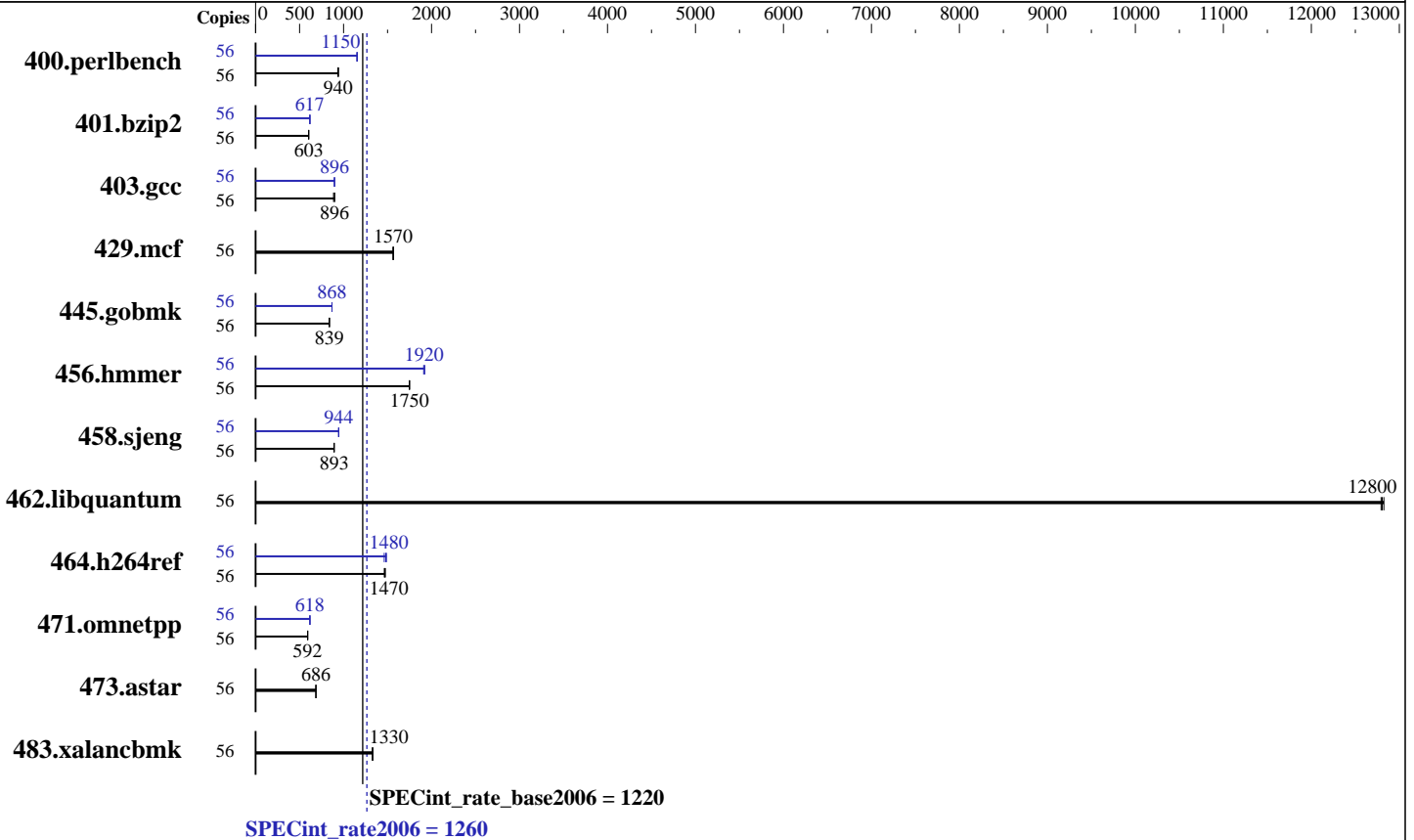SPECint_rate_base2006 = 1220

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Results Table

Benchmark	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
400.perlbench	56	581	942	585	935	**582**	**940**	56	475	1150	**474**	**1150**	474	1160
401.bzip2	56	896	603	**896**	**603**	895	604	56	875	618	**876**	**617**	877	616
403.gcc	56	509	886	**503**	**896**	502	899	56	**503**	**896**	502	898	503	896
429.mcf	56	**326**	**1570**	326	1570	327	1560	56	**326**	**1570**	326	1570	327	1560
445.gobmk	56	700	839	701	838	**700**	**839**	56	677	868	**677**	**868**	677	868
456.hmmer	56	299	1750	299	1750	**299**	**1750**	56	**272**	**1920**	274	1910	272	1920
458.sjeng	56	759	893	**759**	**893**	759	892	56	**717**	**944**	717	945	718	944
462.libquantum	56	90.7	12800	**90.6**	**12800**	90.5	12800	56	90.7	12800	**90.6**	**12800**	90.5	12800
464.h264ref	56	**844**	**1470**	840	1480	847	1460	56	**838**	**1480**	833	1490	848	1460
471.omnetpp	56	591	592	**591**	**592**	592	592	56	**567**	**618**	568	616	566	618
473.astar	56	573	686	573	686	**573**	**686**	56	573	686	573	686	**573**	**686**
483.xalancbmk	56	290	1330	291	1330	**290**	**1330**	56	290	1330	291	1330	**290**	**1330**

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"

General Notes

Environment variables set by runspec before the start of the run:
LD_LIBRARY_PATH = "/store/draddatz/cpu2006/libs/32:/store/draddatz/cpu2006/libs/64:/store/draddatz/cpu2006/sh"

Binaries compiled on a system with 1x Intel Core i5-4670K CPU + 32GB
memory using RedHat EL 7.1
Transparent Huge Pages enabled with:
echo always > /sys/kernel/mm/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>

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Base Compiler Invocation

C benchmarks:

    icc -m32 -L/opt/intel/compilers_and_libraries_2016/linux/compiler/lib/ia32_lin

C++ benchmarks:

    icpc -m32 -L/opt/intel/compilers_and_libraries_2016/linux/compiler/lib/ia32_lin

Base Portability Flags

    400.perlbench: -D_FILE_OFFSET_BITS=64 -DSPEC_CPU_LINUX_IA32
       401.bzip2: -D_FILE_OFFSET_BITS=64
         403.gcc: -D_FILE_OFFSET_BITS=64
         429.mcf: -D_FILE_OFFSET_BITS=64
       445.gobmk: -D_FILE_OFFSET_BITS=64
       456.hmmer: -D_FILE_OFFSET_BITS=64
       458.sjeng: -D_FILE_OFFSET_BITS=64
    462.libquantum: -D_FILE_OFFSET_BITS=64 -DSPEC_CPU_LINUX
      464.h264ref: -D_FILE_OFFSET_BITS=64
      471.omnetpp: -D_FILE_OFFSET_BITS=64
       473.astar: -D_FILE_OFFSET_BITS=64
    483.xalancbmk: -D_FILE_OFFSET_BITS=64 -DSPEC_CPU_LINUX

Base Optimization Flags

C benchmarks:

    -xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch
    -opt-mem-layout-trans=3

C++ benchmarks:

    -xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch
    -opt-mem-layout-trans=3 -Wl,-z,muldefs -L/sh -lsmartheap

Base Other Flags

C benchmarks:

    403.gcc: -Dalloca=_alloca

Peak Compiler Invocation

C benchmarks (except as noted below):

    icc -m32 -L/opt/intel/compilers_and_libraries_2016/linux/compiler/lib/ia32_lin

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Peak Compiler Invocation (Continued)

    400.perlbench: `icc -m64`

       401.bzip2: `icc -m64`

      456.hmmer: `icc -m64`

       458.sjeng: `icc -m64`

C++ benchmarks:
    `icpc -m32 -L/opt/intel/compilers_and_libraries_2016/linux/compiler/lib/ia32_lin`

Peak Portability Flags

       400.perlbench: `-D_FILE_OFFSET_BITS=64 -DSPEC_CPU_LP64 -DSPEC_CPU_LINUX_X64`
          401.bzip2: `-D_FILE_OFFSET_BITS=64 -DSPEC_CPU_LP64`
            403.gcc: `-D_FILE_OFFSET_BITS=64`
            429.mcf: `-D_FILE_OFFSET_BITS=64`
         445.gobmk: `-D_FILE_OFFSET_BITS=64`
         456.hmmer: `-D_FILE_OFFSET_BITS=64 -DSPEC_CPU_LP64`
          458.sjeng: `-D_FILE_OFFSET_BITS=64 -DSPEC_CPU_LP64`
    462.libquantum: `-D_FILE_OFFSET_BITS=64 -DSPEC_CPU_LINUX`
        464.h264ref: `-D_FILE_OFFSET_BITS=64`
        471.omnetpp: `-D_FILE_OFFSET_BITS=64`
          473.astar: `-D_FILE_OFFSET_BITS=64`
     483.xalancbmk: `-D_FILE_OFFSET_BITS=64 -DSPEC_CPU_LINUX`

Peak Optimization Flags

C benchmarks:

    400.perlbench: `-xCORE-AVX2(pass 2) -prof-gen:threadsafe(pass 1)`
                   `-ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2)`
                   `-par-num-threads=1(pass 1) -prof-use(pass 2) -auto-ilp32`

       401.bzip2: `-xCORE-AVX2(pass 2) -prof-gen:threadsafe(pass 1)`
                   `-ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2)`
                   `-par-num-threads=1(pass 1) -prof-use(pass 2) -opt-prefetch`
                   `-auto-ilp32 -ansi-alias`

         403.gcc: `-xCORE-AVX2 -ipo -O3 -no-prec-div`

         429.mcf: `basepeak = yes`

       445.gobmk: `-xCORE-AVX2(pass 2) -prof-gen:threadsafe(pass 1)`
                   `-prof-use(pass 2) -par-num-threads=1(pass 1) -ansi-alias`
                   `-opt-mem-layout-trans=3`

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Peak Optimization Flags (Continued)

456.hmmer: `-xCORE-AVX2 -ipo -O3 -no-prec-div -unroll2 -auto-ilp32`

458.sjeng: `-xCORE-AVX2(pass 2) -prof-gen:threadsafe(pass 1)`
`-ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2)`
`-par-num-threads=1(pass 1) -prof-use(pass 2) -unroll4`
`-auto-ilp32`

462.libquantum: basepeak = yes

464.h264ref: `-xCORE-AVX2(pass 2) -prof-gen:threadsafe(pass 1)`
`-ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2)`
`-par-num-threads=1(pass 1) -prof-use(pass 2) -unroll2`
`-ansi-alias`

C++ benchmarks:

471.omnetpp: `-xCORE-AVX2(pass 2) -prof-gen:threadsafe(pass 1)`
`-ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2)`
`-par-num-threads=1(pass 1) -prof-use(pass 2) -ansi-alias`
`-opt-ra-region-strategy=block -Wl,-z,muldefs`
`-L/sh -lsmartheap`

473.astar: basepeak = yes

483.xalancbmk: basepeak = yes

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-ic16.0-official-linux64.html
http://www.spec.org/cpu2006/flags/SGI-platform.20160628.html

You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2006/flags/Intel-ic16.0-official-linux64.xml
http://www.spec.org/cpu2006/flags/SGI-platform.20160628.xml

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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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