SPEC® CINT2006 Result
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Supermicro

Supermicro X11SAT-F motherboard
(X11SAT-F , Intel Pentium G4400)

$SPECint^{®}\_rate2006 =$ 97.8

$SPECint\_rate\_base2006 =$ 94.9

CPU2006 license: 001176	**Test date:**	Jan-2016
Test sponsor: Supermicro	**Hardware Availability:**	Sep-2015
Tested by: Supermicro	**Software Availability:**	Sep-2015

Copies

```
400.perlbench    2   89.5
                 2   79.6
401.bzip2        2   44.3
                 2   42.4
403.gcc          2   77.5
                 2   77.6
429.mcf          2   122
445.gobmk        2   54.7
                 2   56.3
456.hmmer        2   152
                 2   132
458.sjeng        2   67.7
                 2   65.6
462.libquantum   2   675
464.h264ref      2   126
                 2   125
471.omnetpp      2   57.6
                 2   54.2
473.astar        2   54.5
483.xalancbmk    2   137
```

SPECint_rate_base2006 = 94.9

SPECint_rate2006 = 97.8

Hardware

CPU Name:	Intel Pentium G4400
CPU Characteristics:	
CPU MHz:	3300
FPU:	Integrated
CPU(s) enabled:	2 cores, 1 chip, 2 cores/chip
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:	3 MB I+D on chip per chip
Other Cache:	None
Memory:	16 GB (4 x 4 GB 1Rx8 PC4-2133P-U)
Disk Subsystem:	1 x 200 GB SATA III SSD
Other Hardware:	None

Software

Operating System:	Red Hat Enterprise Linux Server release 7.1, Kernel 3.10.0-229.el7.x86_64
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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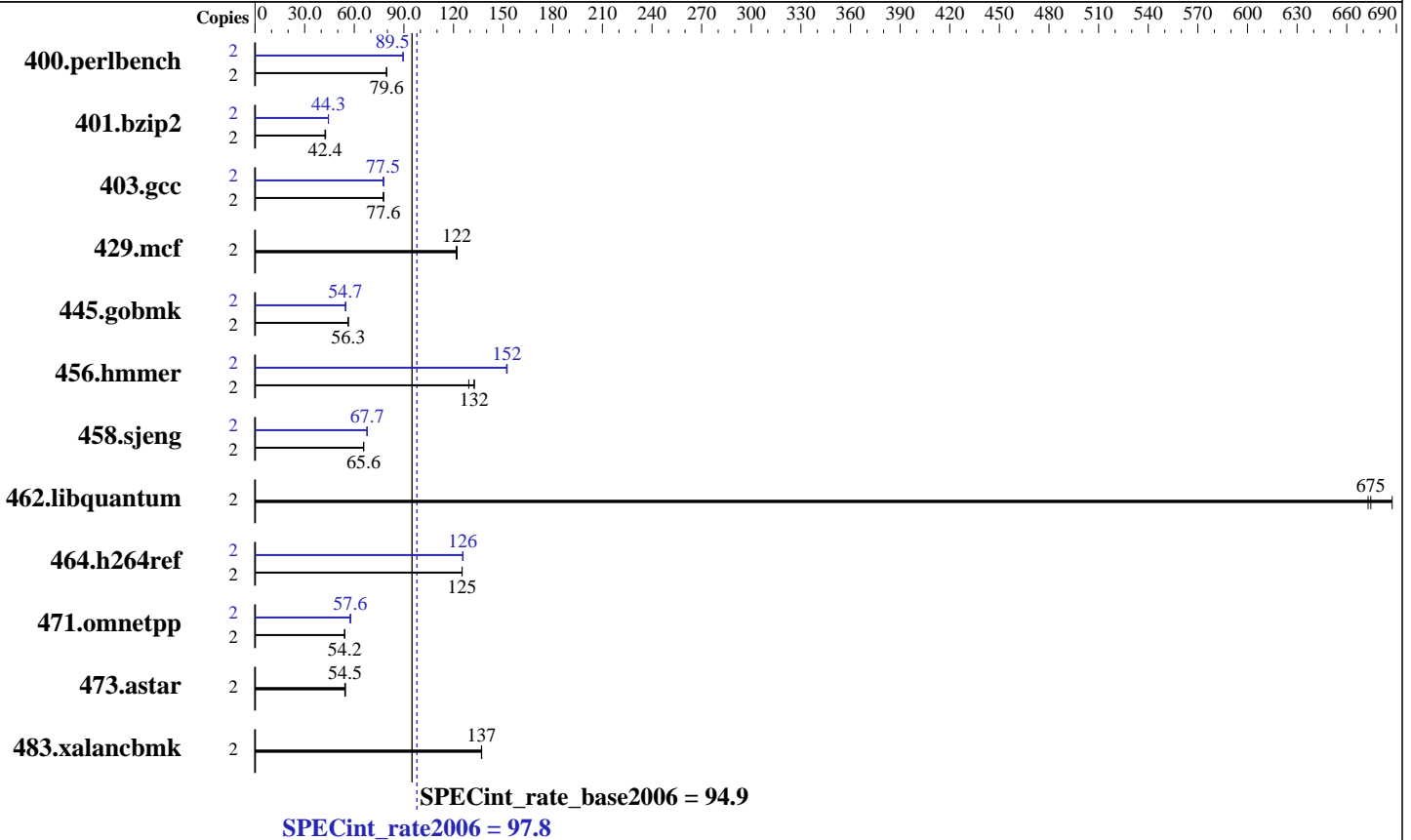SPECint_rate_base2006 = 94.9

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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	2	245	79.7	246	79.4	**245**	**79.6**	2	218	89.6	219	89.4	**218**	**89.5**
401.bzip2	2	452	42.7	**455**	**42.4**	456	42.3	2	435	44.4	436	44.3	**435**	**44.3**
403.gcc	2	207	77.7	208	77.5	**207**	**77.6**	2	**208**	**77.5**	208	77.4	207	77.9
429.mcf	2	**150**	**122**	150	122	149	122	2	**150**	**122**	150	122	149	122
445.gobmk	2	**372**	**56.3**	373	56.3	372	56.4	2	**384**	**54.7**	384	54.7	382	54.9
456.hmmer	2	144	129	141	133	**141**	**132**	2	123	152	122	152	**123**	**152**
458.sjeng	2	369	65.7	369	65.6	**369**	**65.6**	2	357	67.8	**357**	**67.7**	357	67.7
462.libquantum	2	61.6	673	**61.4**	**675**	60.3	687	2	61.6	673	**61.4**	**675**	60.3	687
464.h264ref	2	354	125	**354**	**125**	354	125	2	**352**	**126**	352	126	352	126
471.omnetpp	2	231	54.1	**231**	**54.2**	231	54.2	2	217	57.5	**217**	**57.6**	216	57.9
473.astar	2	259	54.3	**258**	**54.5**	257	54.7	2	259	54.3	**258**	**54.5**	257	54.7
483.xalancbmk	2	101	137	101	137	**101**	**137**	2	101	137	101	137	**101**	**137**

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

Submit Notes

    The taskset mechanism was used to bind copies to processors. The config file option 'submit'
    was used to generate taskset 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"

Platform Notes

    As tested, the system used a Supermicro CSE-732D4-903B chassis.
    The chassis is configured with a PWS-903-PQ power supply, 1 SNK-P0046A4 heatsink,
    as well as 1 FAN-0124L4 chassis fan.
    Sysinfo program /usr/cpu2006/config/sysinfo.rev6914
    $Rev: 6914 $ $Date:: 2014-06-25 #$ e3fbb8667b5a285932ceab81e28219e1
    running on X11SAT-01 Sat Jan 23 13:06:16 2016

    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) Pentium(R) CPU G4400 @ 3.30GHz
          1 "physical id"s (chips)
          2 "processors"
       cores, siblings (Caution: counting these is hw and system dependent. The
       following excerpts from /proc/cpuinfo might not be reliable. Use with

Continued on next page

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Platform Notes (Continued)

```
   caution.)
      cpu cores : 2
      siblings  : 2
      physical 0: cores 0 1
   cache size : 3072 KB

From /proc/meminfo
   MemTotal:       16248992 kB
   HugePages_Total:       0
   Hugepagesize:       2048 kB

From /etc/*release* /etc/*version*
   os-release:
      NAME="Red Hat Enterprise Linux Server"
      VERSION="7.1 (Maipo)"
      ID="rhel"
      ID_LIKE="fedora"
      VERSION_ID="7.1"
      PRETTY_NAME="Red Hat Enterprise Linux Server 7.1 (Maipo)"
      ANSI_COLOR="0;31"
      CPE_NAME="cpe:/o:redhat:enterprise_linux:7.1:GA:server"
   redhat-release: Red Hat Enterprise Linux Server release 7.1 (Maipo)
   system-release: Red Hat Enterprise Linux Server release 7.1 (Maipo)
   system-release-cpe: cpe:/o:redhat:enterprise_linux:7.1:ga:server

uname -a:
   Linux X11SAT-01 3.10.0-229.el7.x86_64 #1 SMP Thu Jan 29 18:37:38 EST 2015
   x86_64 x86_64 x86_64 GNU/Linux

run-level 3 Jan 23 02:12

SPEC is set to: /usr/cpu2006
   Filesystem      Type  Size  Used Avail Use% Mounted on
   /dev/sda2       xfs   183G   48G  135G  27% /
Additional information from dmidecode:

   Warning: Use caution when you interpret this section. The 'dmidecode' program
   reads system data which is "intended to allow hardware to be accurately
   determined", but the intent may not be met, as there are frequent changes to
   hardware, firmware, and the "DMTF SMBIOS" standard.

 BIOS American Megatrends Inc. 1.0 01/19/2016
 Memory:
 4x Micron 8ATF51264AZ-2G1A2 4 GB 1 rank 2133 MHz

(End of data from sysinfo program)
```

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General Notes

```
Environment variables set by runspec before the start of the run:
LD_LIBRARY_PATH = "/usr/cpu2006/libs/32:/usr/cpu2006/libs/64:/usr/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
```

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:
    -xSSE4.2 -ipo -O3 -no-prec-div -opt-prefetch

C++ benchmarks:
    -xSSE4.2 -ipo -O3 -no-prec-div -opt-prefetch -Wl,-z,muldefs
    -L/sh -lsmartheap

Base Other Flags

C benchmarks:

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Base Other Flags (Continued)

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`

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: `-xSSE4.2(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: `-xSSE4.2(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`

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Peak Optimization Flags (Continued)

403.gcc: `-xSSE4.2 -ipo -O3 -no-prec-div`

429.mcf: `basepeak = yes`

445.gobmk: `-xSSE4.2(pass 2) -prof-gen:threadsafe(pass 1)`
`-prof-use(pass 2) -par-num-threads=1(pass 1) -ansi-alias`

456.hmmer: `-xSSE4.2 -ipo -O3 -no-prec-div -unroll2 -auto-ilp32`

458.sjeng: `-xSSE4.2(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: `-xSSE4.2(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: `-xSSE4.2(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/Supermicro-Platform-Settings-V1.2-revH.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/Supermicro-Platform-Settings-V1.2-revH.xml

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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 Feb 9 17:20:45 2016 by SPEC CPU2006 PS/PDF formatter v6932.
Originally published on 9 February 2016.