SPEC® CINT2006 Result

Supermicro

SuperServer 5038MD-H24TRF
(X10SDE-DF , Intel Xeon D-1531)

SPECint®_rate2006 = 245

SPECint_rate_base2006 = 235

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

SPECint_rate_base2006 = 235

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Hardware

CPU Name:	Intel Xeon D-1531
CPU Characteristics:	Intel Turbo Boost Technology up to 2.70 GHz
CPU MHz:	2200
FPU:	Integrated
CPU(s) enabled:	6 cores, 1 chip, 6 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:	9 MB I+D on chip per chip
Other Cache:	None
Memory:	64 GB (4 x 16 GB 1Rx4 PC4-2400T-R, running at 2133 MHz)
Disk Subsystem:	1 x 240 GB SATA III SSD
Other Hardware:	None

Software

Operating System:	SUSE Linux Enterprise Server 12 SP1, Kernel 3.12.49-11-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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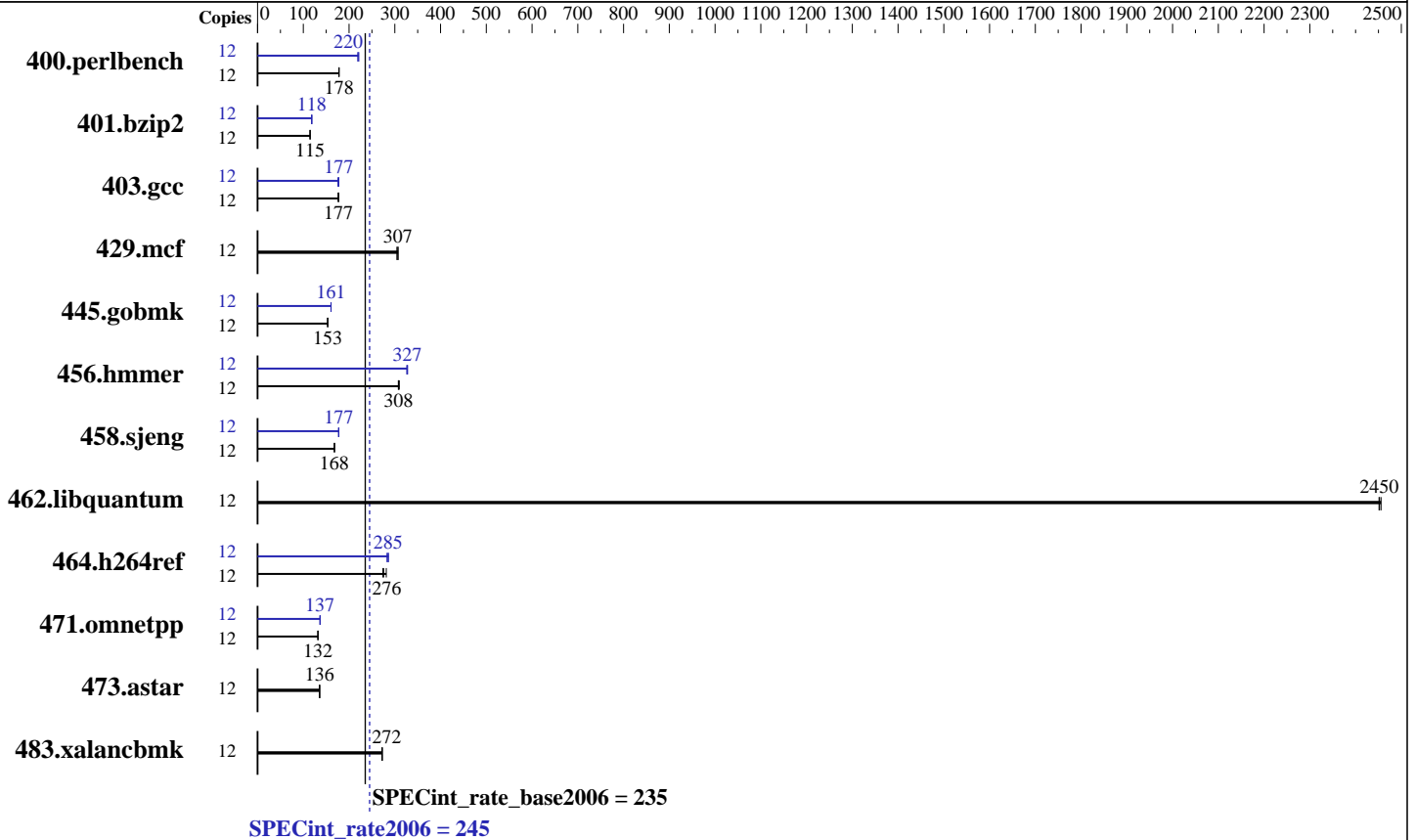
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Results Table

Benchmark	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
400.perlbench	12	**658**	**178**	659	178	658	178	12	535	219	530	221	**533**	**220**
401.bzip2	12	**1009**	**115**	1008	115	1009	115	12	979	118	**978**	**118**	977	118
403.gcc	12	544	178	549	176	**547**	**177**	12	544	177	550	176	**545**	**177**
429.mcf	12	359	304	356	307	**357**	**307**	12	359	304	356	307	**357**	**307**
445.gobmk	12	**821**	**153**	820	153	822	153	12	783	161	**784**	**161**	785	160
456.hmmer	12	364	308	**364**	**308**	361	310	12	343	326	**342**	**327**	341	328
458.sjeng	12	**864**	**168**	864	168	863	168	12	820	177	**819**	**177**	817	178
462.libquantum	12	101	2450	101	2460	**101**	**2450**	12	101	2450	101	2460	**101**	**2450**
464.h264ref	12	969	274	944	281	**964**	**276**	12	928	286	939	283	**932**	**285**
471.omnetpp	12	**568**	**132**	568	132	568	132	12	549	137	**549**	**137**	549	137
473.astar	12	622	136	620	136	**621**	**136**	12	622	136	620	136	**621**	**136**
483.xalancbmk	12	304	272	**304**	**272**	304	272	12	304	272	**304**	**272**	304	272

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

    Sysinfo program /usr/cpu2006/config/sysinfo.rev6914
    $Rev: 6914 $ $Date:: 2014-06-25 #$ e3fbb8667b5a285932ceab81e28219e1
    running on linux-ux9z Wed Jun 29 16:55:09 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) Xeon(R) CPU D-1531 @ 2.20GHz
          1 "physical id"s (chips)
          12 "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 : 6
          siblings : 12

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Platform Notes (Continued)

```
    physical 0: cores 0 1 2 3 4 5
  cache size : 9216 KB

From /proc/meminfo
  MemTotal:       65814800 kB
  HugePages_Total:       0
  Hugepagesize:       2048 kB

/usr/bin/lsb_release -d
  SUSE Linux Enterprise Server 12 SP1

From /etc/*release* /etc/*version*
  SuSE-release:
     SUSE Linux Enterprise Server 12 (x86_64)
     VERSION = 12
     PATCHLEVEL = 1
     # This file is deprecated and will be removed in a future service pack or
     release.
     # Please check /etc/os-release for details about this release.
  os-release:
     NAME="SLES"
     VERSION="12-SP1"
     VERSION_ID="12.1"
     PRETTY_NAME="SUSE Linux Enterprise Server 12 SP1"
     ID="sles"
     ANSI_COLOR="0;32"
     CPE_NAME="cpe:/o:suse:sles:12:sp1"

uname -a:
  Linux linux-ux9z 3.12.49-11-default #1 SMP Wed Nov 11 20:52:43 UTC 2015
  (8d714a0) x86_64 x86_64 x86_64 GNU/Linux

run-level 5 Jun 29 16:43

SPEC is set to: /usr/cpu2006
  Filesystem     Type  Size  Used Avail Use% Mounted on
  /dev/sda3      xfs   217G  117G  100G  54% /
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 05/13/2016
  Memory:
  4x Micron 18ADF2G72PZ-2G3A1 16 GB 1 rank 2400 MHz, configured at 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:
```
   -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
```

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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`

> 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`

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Peak Optimization Flags (Continued)

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`

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`

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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

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

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