SPEC® CINT2006 Result

Lenovo Group Limited

Lenovo ThinkServer TS140 (Intel Xeon E3-1245 v3, 3.40 GHz)

SPECint®_rate2006 = 208

SPECint_rate_base2006 = 200
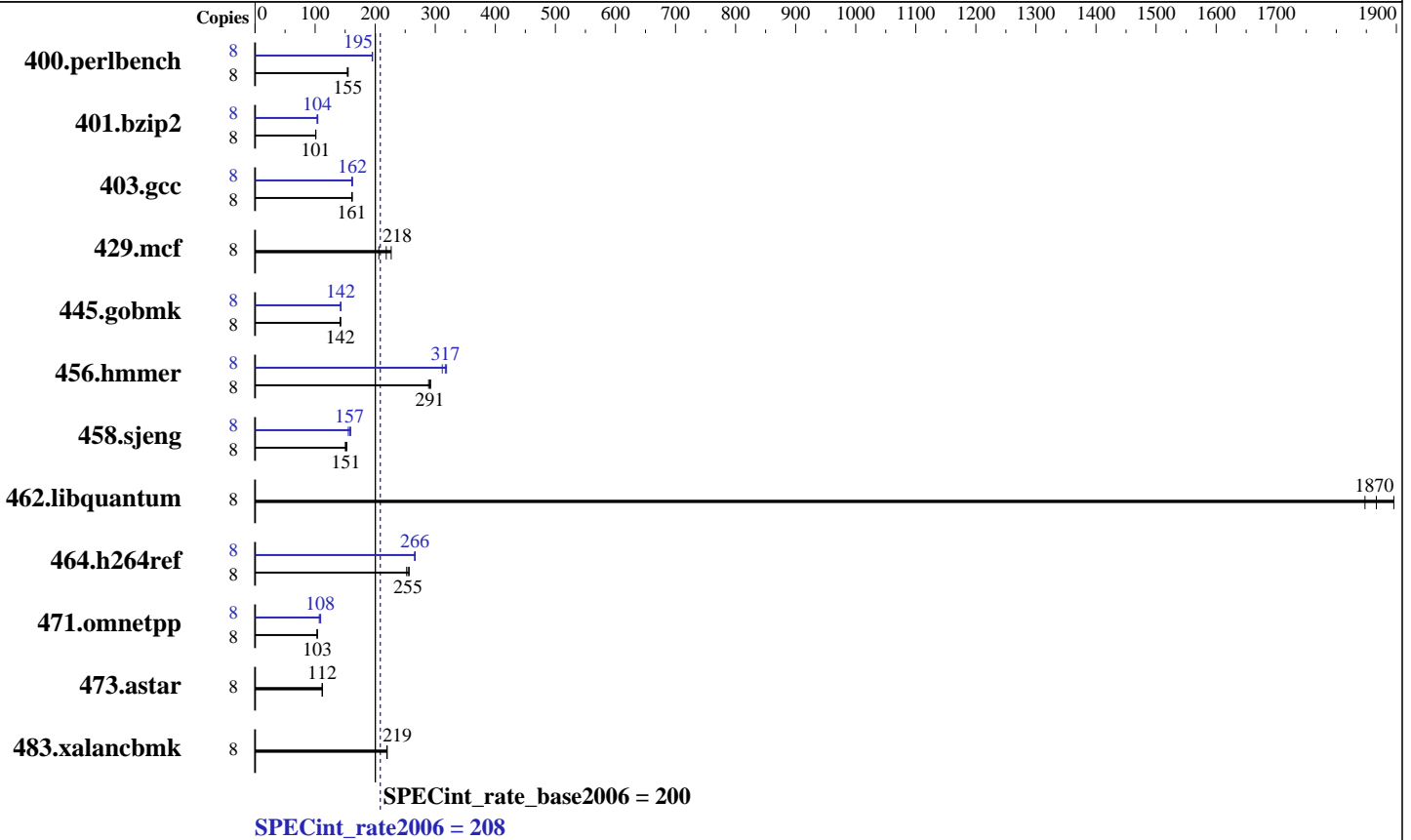
CPU2006 license: 9017

Test sponsor: Lenovo Group Limited

Tested by: Lenovo Group Limited

Test date: Apr-2015

Hardware Availability: Sep-2013

Software Availability: Sep-2014

Benchmark	Copies	Result
400.perlbench	8	195 (peak)
400.perlbench	8	155 (base)
401.bzip2	8	104 (peak)
401.bzip2	8	101 (base)
403.gcc	8	162 (peak)
403.gcc	8	161 (base)
429.mcf	8	218
445.gobmk	8	142 (peak)
445.gobmk	8	142 (base)
456.hmmer	8	317 (peak)
456.hmmer	8	291 (base)
458.sjeng	8	157 (peak)
458.sjeng	8	151 (base)
462.libquantum	8	1870
464.h264ref	8	266 (peak)
464.h264ref	8	255 (base)
471.omnetpp	8	108 (peak)
471.omnetpp	8	103 (base)
473.astar	8	112
483.xalancbmk	8	219

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Hardware

CPU Name: Intel Xeon E3-1245 v3

CPU Characteristics: Intel Turbo Boost Technology up to 3.80 GHz

CPU MHz: 3400

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 PC3L-12800E-11,ECC)

Disk Subsystem: 1 x 800 GB SATA SSD

Other Hardware: None

Software

Operating System: Red Hat Enterprise Linux Server release 7.0 (Maipo)
3.10.0-123.el7.x86_64

Compiler: C/C++: Version 15.0.0.090 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 V10.0

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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	8	509	154	505	155	**505**	**155**	8	**400**	**195**	401	195	400	195
401.bzip2	8	**764**	**101**	763	101	765	101	8	739	105	747	103	**743**	**104**
403.gcc	8	400	161	**399**	**161**	398	162	8	400	161	**398**	**162**	397	162
429.mcf	8	322	227	**334**	**218**	354	206	8	322	227	**334**	**218**	354	206
445.gobmk	8	589	143	592	142	**590**	**142**	8	590	142	**589**	**142**	586	143
456.hmmer	8	255	292	258	289	**256**	**291**	8	**236**	**317**	239	312	234	319
458.sjeng	8	633	153	**640**	**151**	644	150	8	**615**	**157**	608	159	624	155
462.libquantum	8	**88.8**	**1870**	87.4	1900	89.7	1850	8	**88.8**	**1870**	87.4	1900	89.7	1850
464.h264ref	8	**695**	**255**	690	257	702	252	8	667	266	664	267	**665**	**266**
471.omnetpp	8	482	104	484	103	**483**	**103**	8	468	107	458	109	**462**	**108**
473.astar	8	503	112	**502**	**112**	500	112	8	503	112	**502**	**112**	500	112
483.xalancbmk	8	**251**	**219**	252	219	251	220	8	**251**	**219**	252	219	251	220

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

    BIOS configuration:
    ICE Performance Modes set to Full Speed
     Sysinfo program /usr/cpu2006/config/sysinfo.rev6914
     $Rev: 6914 $ $Date:: 2014-06-25 #$ e3fbb8667b5a285932ceab81e28219e1
     running on TS140 Tue Apr 14 19:16:47 2015

     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 E3-1245 v3 @ 3.40GHz
           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.)

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Platform Notes (Continued)

```
        cpu cores : 4
        siblings  : 8
        physical 0: cores 0 1 2 3
    cache size : 8192 KB

  From /proc/meminfo
     MemTotal:       16156764 kB
     HugePages_Total:        0
     Hugepagesize:        2048 kB

  From /etc/*release* /etc/*version*
     os-release:
        NAME="Red Hat Enterprise Linux Server"
        VERSION="7.0 (Maipo)"
        ID="rhel"
        ID_LIKE="fedora"
        VERSION_ID="7.0"
        PRETTY_NAME="Red Hat Enterprise Linux Server 7.0 (Maipo)"
        ANSI_COLOR="0;31"
        CPE_NAME="cpe:/o:redhat:enterprise_linux:7.0:GA:server"
     redhat-release: Red Hat Enterprise Linux Server release 7.0 (Maipo)
     system-release: Red Hat Enterprise Linux Server release 7.0 (Maipo)
     system-release-cpe: cpe:/o:redhat:enterprise_linux:7.0:ga:server

  uname -a:
     Linux TS140 3.10.0-123.el7.x86_64 #1 SMP Mon May 5 11:16:57 EDT 2014 x86_64
     x86_64 x86_64 GNU/Linux

  run-level 3 Apr 14 19:16

  SPEC is set to: /usr/cpu2006
     Filesystem     Type  Size  Used Avail Use% Mounted on
     /dev/sda2      xfs   741G   29G  713G   4% /
  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 LENOVO FBKT99AUS 09/19/2014
     Memory:
     2x Samsung M391B1G73BH0-YK0 8 GB 2 rank 1600 MHz
     2x [Empty] [Empty]

  (End of data from sysinfo program)
  TS140 support 2 channels and 2 DIMMs per channel, total 4 DIMMs.
  2DIMM slots installed with 8 GB DIMM for this run.
```

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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 Core i5-4670K CPU + 16GB
 memory using RedHat EL 7.0
 Transparent Huge Pages enabled with:
 echo always > /sys/kernel/mm/transparent_hugepage/enabled

Base Compiler Invocation

C benchmarks:
    icc -m32 -L/opt/intel/composer_xe_2015/lib/ia32

C++ benchmarks:
    icpc -m32 -L/opt/intel/composer_xe_2015/lib/ia32

Base Portability Flags

    400.perlbench: -DSPEC_CPU_LINUX_IA32
    462.libquantum: -DSPEC_CPU_LINUX
    483.xalancbmk: -DSPEC_CPU_LINUX

Base Optimization Flags

C benchmarks:
    -xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch

C++ benchmarks:
    -xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch -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/composer_xe_2015/lib/ia32

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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/composer_xe_2015/lib/ia32`

Peak Portability Flags

400.perlbench: `-DSPEC_CPU_LP64 -DSPEC_CPU_LINUX_X64`
401.bzip2: `-DSPEC_CPU_LP64`
456.hmmer: `-DSPEC_CPU_LP64`
458.sjeng: `-DSPEC_CPU_LP64`
462.libquantum: `-DSPEC_CPU_LINUX`
483.xalancbmk: `-DSPEC_CPU_LINUX`

Peak Optimization Flags

C benchmarks:

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

401.bzip2: `-xCORE-AVX2(pass 2) -prof-gen(pass 1) -ipo(pass 2)`
        `-O3(pass 2) -no-prec-div(pass 2) -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(pass 1) -prof-use(pass 2)`
        `-ansi-alias`

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

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

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Peak Optimization Flags (Continued)

462.libquantum: basepeak = yes

464.h264ref: -xCORE-AVX2(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: -xCORE-AVX2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
-O3(pass 2) -no-prec-div(pass 2) -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-ic15.0-official-linux64.html
http://www.spec.org/cpu2006/flags/Lenovo-Platform-Settings-V1.2-TS140-revC.html

You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2006/flags/Intel-ic15.0-official-linux64.xml
http://www.spec.org/cpu2006/flags/Lenovo-Platform-Settings-V1.2-TS140-revC.xml

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

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