SPEC® CINT2006 Result
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Lenovo Group Limited

Lenovo ThinkServer RS140 (Intel Xeon E3-1226 v3, 3.30 GHz)

$SPECint^{®}\_rate2006 = 183$

$SPECint\_rate\_base2006 = 176$

Benchmark	Copies	Base	Peak
400.perlbench	4	146	175
401.bzip2	4	86.1	91.8
403.gcc	4	135	135
429.mcf	4	207	
445.gobmk	4	111	111
456.hmmer	4	256	265
458.sjeng	4	131	136
462.libquantum	4	1710	
464.h264ref	4	226	253
471.omnetpp	4	86.9	89.9
473.astar	4	96.7	
483.xalancbmk	4	211	

SPECint_rate_base2006 = 176

SPECint_rate2006 = 183

Hardware

CPU Name: Intel Xeon E3-1226 v3
CPU Characteristics: Intel Turbo Boost Technology up to 3.70 GHz
CPU MHz: 3300
FPU: Integrated
CPU(s) enabled: 4 cores, 1 chip, 4 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: 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 120 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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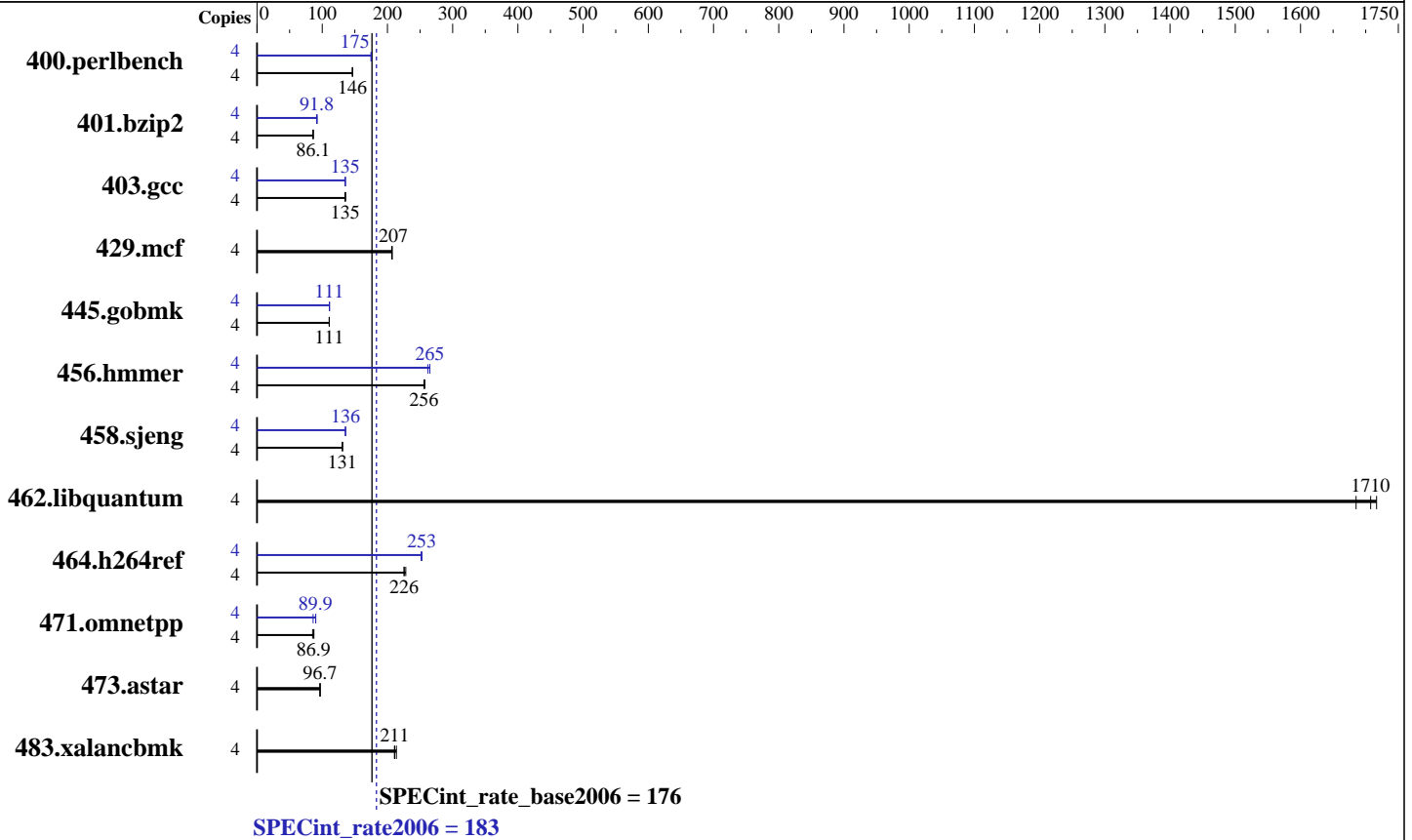
SPECint_rate_base2006 = 176

CPU2006 license: 9017
Test sponsor: Lenovo Group Limited
Tested by: Lenovo Group Limited

Test date: Mar-2015
Hardware Availability: Jun-2014
Software Availability: Sep-2014

Results Table

Benchmark	Base						Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
400.perlbench	4	267	146	**267**	**146**	267	146	4	**223**	**175**	223	175	223	175
401.bzip2	4	**448**	**86.1**	447	86.3	450	85.8	4	423	91.3	**420**	**91.8**	418	92.3
403.gcc	4	**238**	**135**	237	136	239	135	4	**238**	**135**	238	135	238	135
429.mcf	4	176	207	177	207	**176**	**207**	4	176	207	177	207	**176**	**207**
445.gobmk	4	**379**	**111**	379	111	379	111	4	378	111	378	111	**378**	**111**
456.hmmer	4	**146**	**256**	146	256	145	257	4	141	265	142	262	**141**	**265**
458.sjeng	4	369	131	**370**	**131**	370	131	4	357	136	356	136	**357**	**136**
462.libquantum	4	48.3	1720	**48.5**	**1710**	49.2	1690	4	48.3	1720	**48.5**	**1710**	49.2	1690
464.h264ref	4	388	228	**392**	**226**	393	225	4	**350**	**253**	352	252	350	253
471.omnetpp	4	**288**	**86.9**	293	85.3	286	87.3	4	277	90.1	290	86.1	**278**	**89.9**
473.astar	4	291	96.5	**291**	**96.7**	290	96.9	4	291	96.5	**291**	**96.7**	290	96.9
483.xalancbmk	4	131	211	129	214	**131**	**211**	4	131	211	129	214	**131**	**211**

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
    C1E Support set to Disabled
     Sysinfo program /usr/cpu2006/config/sysinfo.rev6914
     $Rev: 6914 $ $Date:: 2014-06-25 #$ e3fbb8667b5a285932ceab81e28219e1
     running on RS140 Tue Mar 10 03:42:02 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 E3-1226 v3 @ 3.30GHz
           1 "physical id"s (chips)
           4 "processors"
        cores, siblings (Caution: counting these is hw and system dependent. The
        following excerpts from /proc/cpuinfo might not be reliable. Use with

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Platform Notes (Continued)

```
   caution.)
      cpu cores : 4
      siblings  : 4
      physical 0: cores 0 1 2 3
   cache size : 8192 KB

From /proc/meminfo
   MemTotal:       16155464 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 RS140 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 Mar 9 22:49

SPEC is set to: /usr/cpu2006
   Filesystem     Type  Size  Used Avail Use% Mounted on
   /dev/sda2      xfs   108G   12G   97G  11% /
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 FBKT84CUS 09/30/2014
   Memory:
   2x Hynix/Hyundai HMT41GU7AFR8A-PB 8 GB 2 rank 1600 MHz
   2x [Empty] [Empty]

 (End of data from sysinfo program)
RS140 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-RS140-revA.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-RS140-revA.xml

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

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