SPEC® CINT2006 Result
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Lenovo Group Limited

Lenovo ThinkServer RS140 (Intel Xeon E3-1285 v3, 3.60 GHz)

SPECint®2006 =   63.4

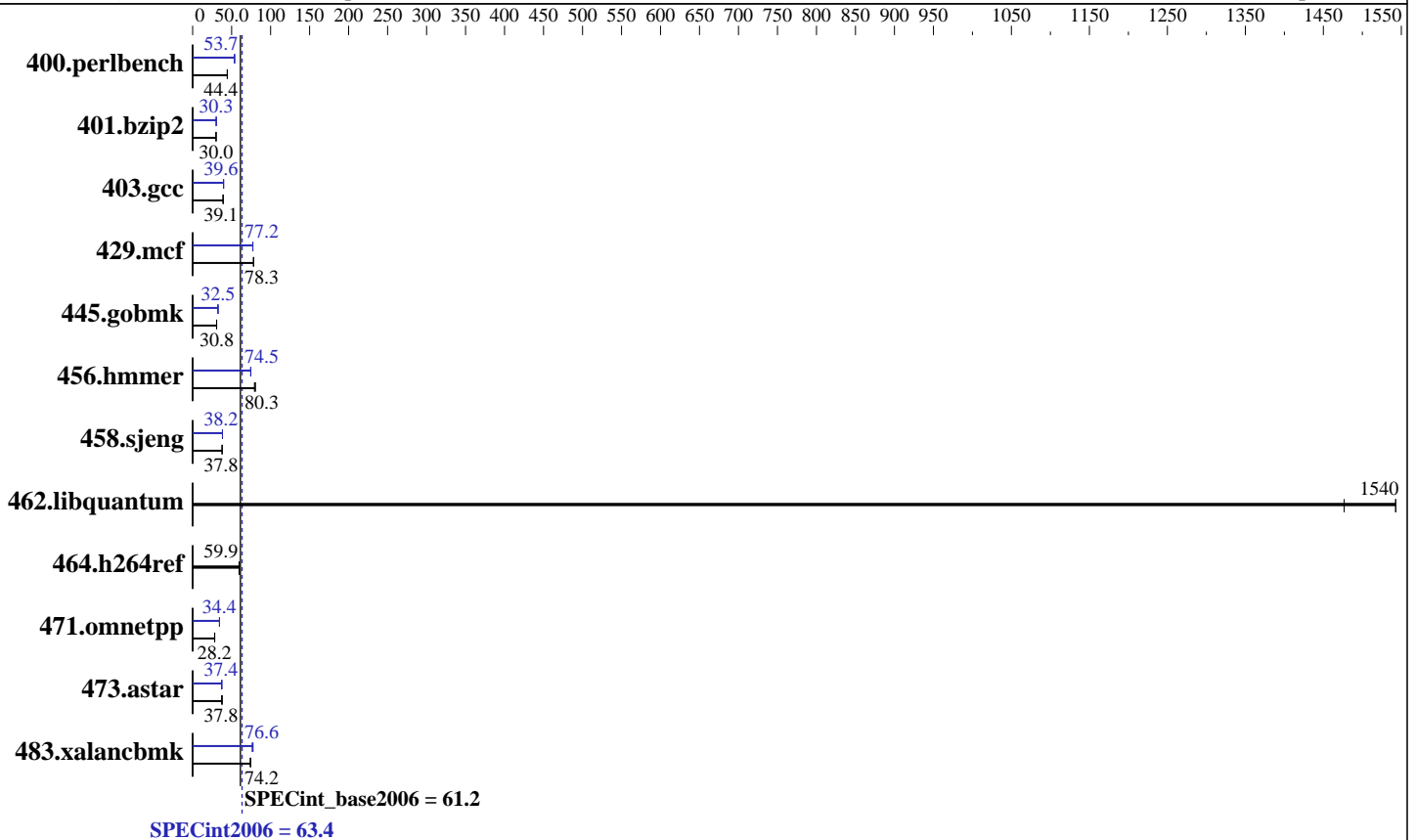SPECint_base2006 =   61.2

CPU2006 license: 9017

Test sponsor: Lenovo Group Limited

Tested by: Lenovo Group Limited

Test date: Apr-2014

Hardware Availability: Jun-2014

Software Availability: Apr-2014

	400.perlbench	53.7 / 44.4
401.bzip2	30.3 / 30.0
403.gcc	39.6 / 39.1
429.mcf	77.2 / 78.3
445.gobmk	32.5 / 30.8
456.hmmer	74.5 / 80.3
458.sjeng	38.2 / 37.8
462.libquantum	1540
464.h264ref	59.9
471.omnetpp	34.4 / 28.2
473.astar	37.4 / 37.8
483.xalancbmk	76.6 / 74.2

SPECint_base2006 = 61.2

SPECint2006 = 63.4

Hardware

CPU Name: Intel Xeon E3-1285 v3

CPU Characteristics: Intel Turbo Boost Technology up to 4.00 GHz

CPU MHz: 3600

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 240 GB SATA SSD

Other Hardware: None

Software

Operating System: Red Hat Enterprise Linux Server release 6.5 (Santiago)
2.6.32-431.el6.x86_64

Compiler: C/C++: Version 14.0.0.080 of Intel C++ Studio XE for Linux

Auto Parallel: Yes

File System: ext4

System State: Run level 3 (Full multiuser with network)

Base Pointers: 32/64-bit

Peak Pointers: 32/64-bit

Other Software: Microquill SmartHeap V10.0

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Results Table

Benchmark	Base						Peak					
	Seconds	**Ratio**	**Seconds**	**Ratio**	**Seconds**	**Ratio**	**Seconds**	**Ratio**	**Seconds**	**Ratio**	**Seconds**	**Ratio**
400.perlbench	220	44.5	220	44.4	**220**	**44.4**	182	53.8	182	53.7	**182**	**53.7**
401.bzip2	322	30.0	320	30.1	**322**	**30.0**	319	30.3	319	30.3	**319**	**30.3**
403.gcc	206	39.1	206	39.1	**206**	**39.1**	203	39.6	203	39.7	**203**	**39.6**
429.mcf	116	78.3	117	77.8	**116**	**78.3**	118	77.1	118	77.3	**118**	**77.2**
445.gobmk	341	30.7	**341**	**30.8**	341	30.8	**323**	**32.5**	322	32.5	323	32.5
456.hmmer	116	80.3	118	79.2	**116**	**80.3**	125	74.7	125	74.5	**125**	**74.5**
458.sjeng	320	37.8	**320**	**37.8**	319	37.9	316	38.2	317	38.2	**316**	**38.2**
462.libquantum	13.4	1540	14.0	1480	**13.4**	**1540**	13.4	1540	14.0	1480	**13.4**	**1540**
464.h264ref	370	59.9	372	59.5	**370**	**59.9**	370	59.9	372	59.5	**370**	**59.9**
471.omnetpp	220	28.4	222	28.2	**222**	**28.2**	**182**	**34.4**	181	34.5	182	34.4
473.astar	185	37.8	**186**	**37.8**	189	37.2	**188**	**37.4**	187	37.5	190	37.0
483.xalancbmk	**92.9**	**74.2**	92.7	74.4	93.3	73.9	90.2	76.5	89.0	77.5	**90.1**	**76.6**

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

Submit Notes

    The config file option 'submit' was used.

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.rev6818
    $Rev: 6818 $ $Date:: 2012-07-17 #$ e86d102572650a6e4d596a3cee98f191
    running on RS140 Wed Apr 23 01:25:28 2014

    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 E3-1285 v3 @ 3.60GHz
          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.)
          cpu cores : 4
          siblings : 8

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Platform Notes (Continued)

```
      physical 0: cores 0 1 2 3
    cache size : 8192 KB

  From /proc/meminfo
    MemTotal:        16219472 kB
    HugePages_Total:        0
    Hugepagesize:        2048 kB

  /usr/bin/lsb_release -d
    Red Hat Enterprise Linux Server release 6.5 (Santiago)

  From /etc/*release* /etc/*version*
    redhat-release: Red Hat Enterprise Linux Server release 6.5 (Santiago)
    system-release: Red Hat Enterprise Linux Server release 6.5 (Santiago)
    system-release-cpe: cpe:/o:redhat:enterprise_linux:6server:ga:server

  uname -a:
    Linux RS140 2.6.32-431.el6.x86_64 #1 SMP Sun Nov 10 22:19:54 EST 2013 x86_64
    x86_64 x86_64 GNU/Linux

  run-level 3 Apr 23 01:22

  SPEC is set to: /usr/cpu2006
    Filesystem      Type  Size  Used Avail Use% Mounted on
    /dev/sda2       ext4  217G   30G  176G  15% /

  Additional information from dmidecode:
    BIOS LENOVO FBKT75CUS 03/24/2014
    Memory:
    2x   8 GB
    2x Samsung M391B1G73QH0-YK0 8 GB 1600 MHz 2 rank
    2x [Empty] [Empty]

  (End of data from sysinfo program)
  RS140 support 2 channels and 2 DIMMs per channel, total 4 DIMMs.
  2 DIMM slots installed with 8 GB DIMM for this run.
```

General Notes

```
Environment variables set by runspec before the start of the run:
KMP_AFFINITY = "granularity=fine,scatter"
LD_LIBRARY_PATH = "/usr/cpu2006/libs/32:/usr/cpu2006/libs/64:/usr/cpu2006/sh"
OMP_NUM_THREADS = "4"

 Binaries compiled on a system with 1x Core i7-860 CPU + 8GB
 memory using RedHat EL 6.4
 Transparent Huge Pages enabled with:
 echo always > /sys/kernel/mm/redhat_transparent_hugepage/enabled
 runspec command invoked through numactl i.e.:
 numactl --interleave=all runspec <etc>
```

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Base Compiler Invocation

C benchmarks:
    icc -m64

C++ benchmarks:
    icpc -m64

Base Portability Flags

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

Base Optimization Flags

C benchmarks:
    -xCORE-AVX2 -ipo -O3 -no-prec-div -parallel -opt-prefetch -auto-p32

C++ benchmarks:
    -xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch -auto-p32
    -Wl,-z,muldefs -L/sh -lsmartheap64

Base Other Flags

C benchmarks:

        403.gcc: -Dalloca=_alloca

Peak Compiler Invocation

C benchmarks (except as noted below):
    icc -m64

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CPU2006 license: 9017		**Test date:**	Apr-2014
Test sponsor:	Lenovo Group Limited	**Hardware Availability:**	Jun-2014
Tested by:	Lenovo Group Limited	**Software Availability:**	Apr-2014

Peak Compiler Invocation (Continued)

400.perlbench: `icc -m32`

445.gobmk: `icc -m32`

C++ benchmarks (except as noted below):
`icpc -m32`

473.astar: `icpc -m64`

Peak Portability Flags

```
400.perlbench: -DSPEC_CPU_LINUX_IA32
   401.bzip2: -DSPEC_CPU_LP64
     403.gcc: -DSPEC_CPU_LP64
     429.mcf: -DSPEC_CPU_LP64
   456.hmmer: -DSPEC_CPU_LP64
   458.sjeng: -DSPEC_CPU_LP64
462.libquantum: -DSPEC_CPU_LP64 -DSPEC_CPU_LINUX
  464.h264ref: -DSPEC_CPU_LP64
    473.astar: -DSPEC_CPU_LP64
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)
               -opt-prefetch -ansi-alias

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

     403.gcc: -xCORE-AVX2 -ipo -O3 -no-prec-div -inline-calloc
               -opt-malloc-options=3 -auto-ilp32

     429.mcf: -xCORE-AVX2 -ipo -O3 -no-prec-div -parallel
               -opt-prefetch -auto-p32

   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
               -ansi-alias
```

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Peak Optimization Flags (Continued)

```
  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

462.libquantum: basepeak = yes

   464.h264ref: basepeak = yes
```

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)
             -opt-ra-region-strategy=block            -ansi-alias
             -Wl,-z,muldefs -L/sh -lsmartheap

   473.astar: -xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch
             -auto-p32 -Wl,-z,muldefs -L/sh -lsmartheap64

483.xalancbmk: -xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch
             -ansi-alias -Wl,-z,muldefs -L/sh -lsmartheap
```

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-ic14.0-official-linux64.20140128.html
http://www.spec.org/cpu2006/flags/Lenovo-Platform-Settings-V1.2-revB.html

You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2006/flags/Intel-ic14.0-official-linux64.20140128.xml
http://www.spec.org/cpu2006/flags/Lenovo-Platform-Settings-V1.2-revB.xml

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 Thu Jul 24 22:46:50 2014 by SPEC CPU2006 PS/PDF formatter v6932.
Originally published on 24 June 2014.