SPEC® CINT2006 Result
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Lenovo Group Limited

Lenovo System x3950 X6
(Intel Xeon E7-8894 v4, 2.40 GHz)

$SPECint®\_rate2006 =$ Not Run

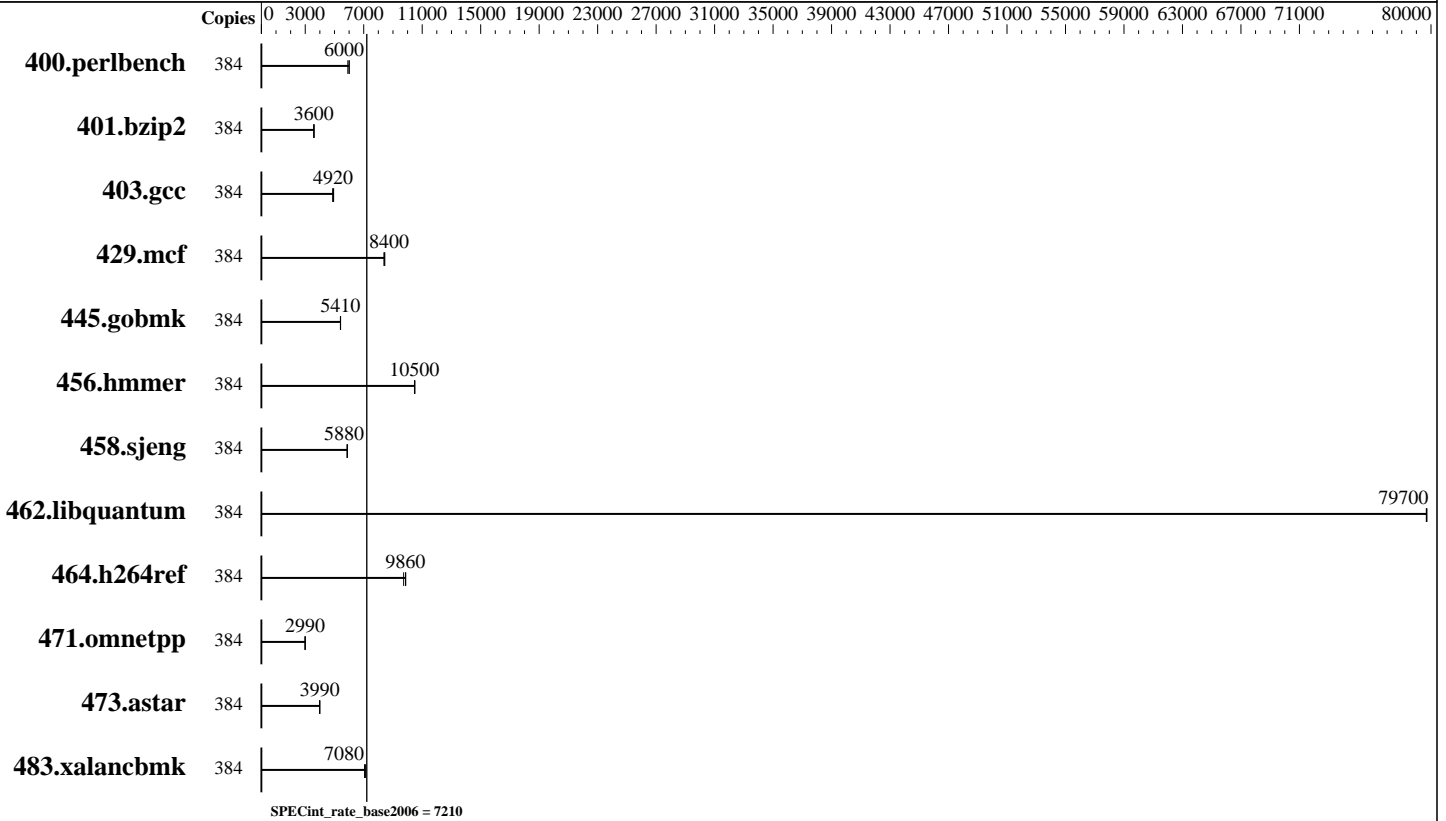SPECint_rate_base2006 = 7210

CPU2006 license: 9017　　**Test date:** Jan-2017
Test sponsor: Lenovo Group Limited　　**Hardware Availability:** Feb-2017
Tested by: Lenovo Group Limited　　**Software Availability:** Sep-2016

Benchmark	Copies	Result
400.perlbench	384	6000
401.bzip2	384	3600
403.gcc	384	4920
429.mcf	384	8400
445.gobmk	384	5410
456.hmmer	384	10500
458.sjeng	384	5880
462.libquantum	384	79700
464.h264ref	384	9860
471.omnetpp	384	2990
473.astar	384	3990
483.xalancbmk	384	7080

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Hardware

CPU Name: Intel Xeon E7-8894 v4
CPU Characteristics: Intel Turbo Boost Technology up to 3.40 GHz
CPU MHz: 2400
FPU: Integrated
CPU(s) enabled: 192 cores, 8 chips, 24 cores/chip, 2 threads/core
CPU(s) orderable: 4,8 chips
Primary Cache: 32 KB I + 32 KB D on chip per core
Secondary Cache: 256 KB I+D on chip per core
L3 Cache: 60 MB I+D on chip per chip
Other Cache: None
Memory: 1 TB (64 x 16 GB 2Rx4 PC4-2133P-R, running at 1600 MHz)
Disk Subsystem: 1 x 800 GB SATA SSD
Other Hardware: None

Software

Operating System: SUSE Linux Enterprise Server 12 SP1 (x86_64) Kernel 3.12.49-11-default
Compiler: C/C++: Version 17.0.0.098 of Intel C/C++ Compiler for Linux
Auto Parallel: No
File System: btrfs
System State: Run level 3 (multi-user)
Base Pointers: 32-bit
Peak Pointers: Not Applicable
Other Software: Microquill SmartHeap V10.2

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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	384	635	5910	625	6010	**625**	**6000**							
401.bzip2	384	1034	3580	**1031**	**3600**	1029	3600							
403.gcc	384	**629**	**4920**	626	4940	634	4880							
429.mcf	384	**417**	**8400**	415	8440	417	8390							
445.gobmk	384	745	5410	744	5420	**744**	**5410**							
456.hmmer	384	341	10500	**342**	**10500**	342	10500							
458.sjeng	384	792	5870	791	5880	**791**	**5880**							
462.libquantum	384	**99.8**	**79700**	99.9	79700	99.8	79700							
464.h264ref	384	**862**	**9860**	873	9730	861	9870							
471.omnetpp	384	801	2990	**802**	**2990**	802	2990							
473.astar	384	676	3990	**676**	**3990**	675	3990							
483.xalancbmk	384	**374**	**7080**	372	7110	375	7060							

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

Submit Notes

    The numactl mechanism was used to bind copies to processors. The config file option 'submit'
    was used to generate numactl 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"
    Transparent Huge Pages enabled with:
    echo always > /sys/kernel/mm/transparent_hugepage/enabled
    Filesystem page cache cleared with:
    echo 1>   /proc/sys/vm/drop_caches

Platform Notes

    BIOS configuration:
    Memory Mode set to Independent
    Operating Mode set to Maximum Performance
    DCU Streamer Prefetcher set to Disable
     Sysinfo program /home/cpu2006-1.2-ic17.0/config/sysinfo.rev6993
     Revision 6993 of 2015-11-06 (b5e8d4b4eb51ed28d7f98696cbe290c1)
     running on Draco-8S Mon Jan 23 22:22:13 2017

     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

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Platform Notes (Continued)

```
      model name : Intel(R) Xeon(R) CPU E7-8894 v4 @ 2.40GHz
         8 "physical id"s (chips)
         384 "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 : 24
         siblings  : 48
         physical 0: cores 0 1 2 3 4 5 8 9 10 11 12 13 16 17 18 19 20 21 24 25 26
         27 28 29
         physical 1: cores 0 1 2 3 4 5 8 9 10 11 12 13 16 17 18 19 20 21 24 25 26
         27 28 29
         physical 2: cores 0 1 2 3 4 5 8 9 10 11 12 13 16 17 18 19 20 21 24 25 26
         27 28 29
         physical 3: cores 0 1 2 3 4 5 8 9 10 11 12 13 16 17 18 19 20 21 24 25 26
         27 28 29
         physical 4: cores 0 1 2 3 4 5 8 9 10 11 12 13 16 17 18 19 20 21 24 25 26
         27 28 29
         physical 5: cores 0 1 2 3 4 5 8 9 10 11 12 13 16 17 18 19 20 21 24 25 26
         27 28 29
         physical 6: cores 0 1 2 3 4 5 8 9 10 11 12 13 16 17 18 19 20 21 24 25 26
         27 28 29
         physical 7: cores 0 1 2 3 4 5 8 9 10 11 12 13 16 17 18 19 20 21 24 25 26
         27 28 29
      cache size : 61440 KB

   From /proc/meminfo
      MemTotal:       1058529032 kB
      HugePages_Total:        0
      Hugepagesize:       2048 kB

   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 Draco-8S 3.12.49-11-default #1 SMP Wed Nov 11 20:52:43 UTC 2015
      (8d714a0) x86_64 x86_64 x86_64 GNU/Linux
```

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Platform Notes (Continued)

```
  run-level 3 Jan 23 22:16

  SPEC is set to: /home/cpu2006-1.2-ic17.0
     Filesystem      Type    Size   Used Avail Use% Mounted on
     /dev/sda2       btrfs  744G    91G  650G  13% /home
  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 IBM -[A9E135LUS-3.11]- 11/18/2016
   Memory:
    47x Hynix HMA42GR7MFR4N-TF 16 GB 2 rank 2133 MHz, configured at 1600 MHz
    17x Hynix HMA42GR7MFR4N-TFTD 16 GB 2 rank 2133 MHz, configured at 1600 MHz
    128x NO DIMM Unknown

  (End of data from sysinfo program)
```

General Notes

```
  Environment variables set by runspec before the start of the run:
  LD_LIBRARY_PATH = "/home/cpu2006-1.2-ic17.0/libs/32:/home/cpu2006-1.2-ic17.0/libs/64:/home/cpu2006-1.2-ic17.0/sh10.2"

   Binaries compiled on a system with 1x Intel Core i7-4790 CPU + 32GB RAM
   memory using Redhat Enterprise Linux 7.2
   runspec command invoked through numactl i.e.:
   numactl --interleave=all runspec <etc>
```

Base Compiler Invocation

C benchmarks:
```
    icc -m32 -L/opt/intel/compilers_and_libraries_2017/linux/lib/ia32
```

C++ benchmarks:
```
    icpc -m32 -L/opt/intel/compilers_and_libraries_2017/linux/lib/ia32
```

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
```

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Base Portability Flags (Continued)

```
      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 -qopt-prefetch
      -qopt-mem-layout-trans=3
```

C++ benchmarks:
```
      -xCORE-AVX2 -ipo -O3 -no-prec-div -qopt-prefetch
      -qopt-mem-layout-trans=3 -Wl,-z,muldefs -L/sh10.2 -lsmartheap
```

Base 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-ic17.0-official-linux64.html
http://www.spec.org/cpu2006/flags/Lenovo-Platform-Flags-V1.2-BDW-D.html

You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2006/flags/Intel-ic17.0-official-linux64.xml
http://www.spec.org/cpu2006/flags/Lenovo-Platform-Flags-V1.2-BDW-D.xml

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For other inquiries, please contact webmaster@spec.org.

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