SPEC® CINT2006 Result
Copyright 2006-2016 Standard Performance Evaluation Corporation

Huawei

KunLun 9016 (Intel Xeon E7-8890 v3)

SPECint®_rate2006 =　11700

SPECint_rate_base2006 =　11200

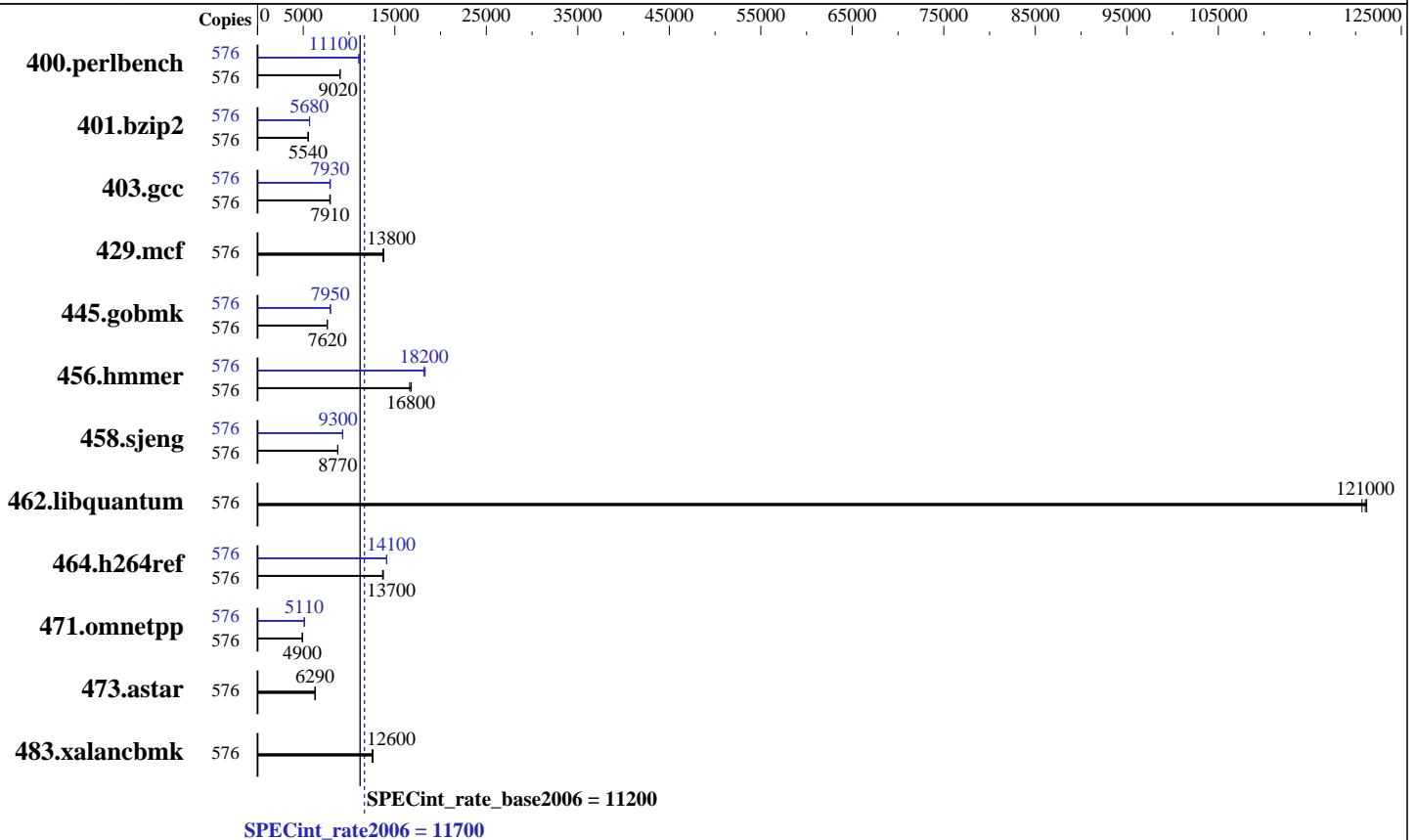**CPU2006 license:** 3175　　　　　　　　　　　　　　　　　　　　　　**Test date:**　Feb-2016
Test sponsor: Huawei　　　　　　　　　　　　　　　　　　　　　　**Hardware Availability:** Jan-2016
Tested by:　Huawei　　　　　　　　　　　　　　　　　　　　　　**Software Availability:** Mar-2015

Benchmark	Copies	Base	Peak
400.perlbench	576	9020	11100
401.bzip2	576	5540	5680
403.gcc	576	7910	7930
429.mcf	576	13800	
445.gobmk	576	7620	7950
456.hmmer	576	16800	18200
458.sjeng	576	8770	9300
462.libquantum	576	121000	
464.h264ref	576	13700	14100
471.omnetpp	576	4900	5110
473.astar	576	6290	
483.xalancbmk	576	12600	

SPECint_rate_base2006 = 11200

SPECint_rate2006 = 11700

Hardware

CPU Name:　Intel Xeon E7-8890 v3
CPU Characteristics:　Intel Turbo Boost Technology up to 3.30 GHz
CPU MHz:　2500
FPU:　Integrated
CPU(s) enabled:　288 cores, 16 chips, 18 cores/chip, 2 threads/core
CPU(s) orderable:　4,8,16 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:　45 MB I+D on chip per chip
Other Cache:　None
Memory:　4 TB (256 x 16 GB 2Rx4 PC4-2133P-R, running at 1600 MHz)
Disk Subsystem:　3 x 300 GB SAS, 10K RPM
Other Hardware:　None

Software

Operating System:　Red Hat Enterprise Linux Server release 7.1 (Maipo)
　3.10.0-229.el7.x86_64
Compiler:　C/C++: Version 16.0.0.101 of Intel C++ Studio XE for Linux
Auto Parallel:　No
File System:　tmpfs
System State:　Run level 3 (multi-user)
Base Pointers:　32-bit
Peak Pointers:　32/64-bit
Other Software:　Microquill SmartHeap V10.2

SPEC CINT2006 Result
Copyright 2006-2016 Standard Performance Evaluation Corporation

Huawei

KunLun 9016 (Intel Xeon E7-8890 v3)

SPECint_rate2006 = 11700

SPECint_rate_base2006 = 11200

CPU2006 license: 3175
Test sponsor: Huawei
Tested by: Huawei

Test date: Feb-2016
Hardware Availability: Jan-2016
Software Availability: Mar-2015

Results Table

Benchmark	Base Copies	Base Seconds	Base Ratio	Base Seconds	Base Ratio	Base Seconds	Base Ratio	Peak Copies	Peak Seconds	Peak Ratio	Peak Seconds	Peak Ratio	Peak Seconds	Peak Ratio
400.perlbench	576	624	9020	625	9000	**624**	**9020**	576	509	11100	503	11200	**508**	**11100**
401.bzip2	576	1001	5560	1009	5510	**1002**	**5540**	576	**979**	**5680**	977	5690	979	5680
403.gcc	576	587	7900	**586**	**7910**	583	7960	576	**584**	**7930**	583	7960	586	7910
429.mcf	576	**382**	**13800**	381	13800	383	13700	576	**382**	**13800**	381	13800	383	13700
445.gobmk	576	792	7620	**793**	**7620**	793	7620	576	760	7950	**760**	**7950**	759	7960
456.hmmer	576	320	16800	**321**	**16800**	323	16600	576	296	18200	293	18300	**295**	**18200**
458.sjeng	576	794	8780	**795**	**8770**	796	8760	576	**749**	**9300**	749	9300	750	9300
462.libquantum	576	98.9	121000	98.5	121000	**98.6**	**121000**	576	98.9	121000	98.5	121000	**98.6**	**121000**
464.h264ref	576	**930**	**13700**	933	13700	927	13700	576	902	14100	**903**	**14100**	904	14100
471.omnetpp	576	734	4900	**734**	**4900**	735	4900	576	704	5110	**704**	**5110**	704	5110
473.astar	576	643	6290	642	6300	**643**	**6290**	576	643	6290	642	6300	**643**	**6290**
483.xalancbmk	576	**316**	**12600**	317	12500	315	12600	576	**316**	**12600**	317	12500	315	12600

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"
    Tmpfs filesystem can be set with:
     mkdir -p /home/shm
     mount -t tmpfs -o size=2048g,rw tmpfs /home/shm
    Turbo mode set with:
     cpupower -c all frequency-set -g performance
```

Platform Notes

```
    BIOS configuration:
    Set Power Efficiency Mode to Performance
    Set Lock_step to disabled
    Baseboard Management Controller used to adjust the fan speed to 100%
    Set C-State to C0/C1
    Sysinfo program /home/shm/speccpu-1.2-ic16/config/sysinfo.rev6914
    $Rev: 6914 $ $Date:: 2014-06-25 #$ e3fbb8667b5a285932ceab81e28219e1
    running on localhost.localdomain Tue Feb  2 09:38:14 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
```

Huawei

KunLun 9016 (Intel Xeon E7-8890 v3)

SPECint_rate2006 =   11700

SPECint_rate_base2006 = 11200

CPU2006 license: 3175
Test sponsor: Huawei
Tested by: Huawei

Test date: Feb-2016
Hardware Availability: Jan-2016
Software Availability: Mar-2015

Platform Notes (Continued)

```
   From /proc/cpuinfo
      model name : Intel(R) Xeon(R) CPU E7-8890 v3 @ 2.50GHz
         16 "physical id"s (chips)
         576 "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 : 18
         siblings  : 36
         physical 0: cores 0 1 2 3 4 8 9 10 11 16 17 18 19 20 24 25 26 27
         physical 1: cores 0 1 2 3 4 8 9 10 11 16 17 18 19 20 24 25 26 27
         physical 2: cores 0 1 2 3 4 8 9 10 11 16 17 18 19 20 24 25 26 27
         physical 3: cores 0 1 2 3 4 8 9 10 11 16 17 18 19 20 24 25 26 27
         physical 4: cores 0 1 2 3 4 8 9 10 11 16 17 18 19 20 24 25 26 27
         physical 5: cores 0 1 2 3 4 8 9 10 11 16 17 18 19 20 24 25 26 27
         physical 6: cores 0 1 2 3 4 8 9 10 11 16 17 18 19 20 24 25 26 27
         physical 7: cores 0 1 2 3 4 8 9 10 11 16 17 18 19 20 24 25 26 27
         physical 8: cores 0 1 2 3 4 8 9 10 11 16 17 18 19 20 24 25 26 27
         physical 9: cores 0 1 2 3 4 8 9 10 11 16 17 18 19 20 24 25 26 27
         physical 10: cores 0 1 2 3 4 8 9 10 11 16 17 18 19 20 24 25 26 27
         physical 11: cores 0 1 2 3 4 8 9 10 11 16 17 18 19 20 24 25 26 27
         physical 12: cores 0 1 2 3 4 8 9 10 11 16 17 18 19 20 24 25 26 27
         physical 13: cores 0 1 2 3 4 8 9 10 11 16 17 18 19 20 24 25 26 27
         physical 14: cores 0 1 2 3 4 8 9 10 11 16 17 18 19 20 24 25 26 27
         physical 15: cores 0 1 2 3 4 8 9 10 11 16 17 18 19 20 24 25 26 27
      cache size : 46080 KB

   From /proc/meminfo
      MemTotal:       4227106108 kB
      HugePages_Total:        0
      Hugepagesize:        2048 kB

   From /etc/*release* /etc/*version*
      os-release:
         NAME="Red Hat Enterprise Linux Server"
         VERSION="7.1 (Maipo)"
         ID="rhel"
         ID_LIKE="fedora"
         VERSION_ID="7.1"
         PRETTY_NAME="Red Hat Enterprise Linux Server 7.1 (Maipo)"
         ANSI_COLOR="0;31"
         CPE_NAME="cpe:/o:redhat:enterprise_linux:7.1:GA:server"
      redhat-release: Red Hat Enterprise Linux Server release 7.1 (Maipo)
      system-release: Red Hat Enterprise Linux Server release 7.1 (Maipo)
      system-release-cpe: cpe:/o:redhat:enterprise_linux:7.1:ga:server

   uname -a:
      Linux localhost.localdomain 3.10.0-229.el7.x86_64 #1 SMP Thu Jan 29 18:37:38
      EST 2015 x86_64 x86_64 x86_64 GNU/Linux

   run-level 3 Jan 7 11:26
```

Continued on next page

SPEC CINT2006 Result
Copyright 2006-2016 Standard Performance Evaluation Corporation

Huawei

KunLun 9016 (Intel Xeon E7-8890 v3)

SPECint_rate2006 = 11700

SPECint_rate_base2006 = 11200

CPU2006 license: 3175
Test sponsor: Huawei
Tested by: Huawei

Test date: Feb-2016
Hardware Availability: Jan-2016
Software Availability: Mar-2015

Platform Notes (Continued)

```
SPEC is set to: /home/shm/speccpu-1.2-ic16
   Filesystem      Type   Size  Used Avail Use% Mounted on
   tmpfs           tmpfs  2.0T  3.8G  2.0T   1% /home/shm
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. BLXSV919 12/24/2015


(End of data from sysinfo program)
Because Huawei KunLun 9016 uses System Management BIOS (SMBIOS) v3.0,but the dmidoce of
RHEL7.1 is based on V2.0,so can not read the memory information.
```

General Notes

```
Environment variables set by runspec before the start of the run:
LD_LIBRARY_PATH = "/home/shm/speccpu-1.2-ic16/libs/32:/home/shm/speccpu-1.2-ic16/libs/64:/home/shm/speccpu-1.2-ic16/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
 Filesystem page cache cleared with:
 echo 1>        /proc/sys/vm/drop_caches
 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_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
```

SPEC CINT2006 Result
Copyright 2006-2016 Standard Performance Evaluation Corporation

Huawei

KunLun 9016 (Intel Xeon E7-8890 v3)

SPECint_rate2006 =   11700

SPECint_rate_base2006 = 11200

CPU2006 license: 3175
Test sponsor: Huawei
Tested by: Huawei

Test date: Feb-2016
Hardware Availability: Jan-2016
Software Availability: Mar-2015

Base Portability Flags (Continued)

```
   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
```

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
```

Huawei

KunLun 9016 (Intel Xeon E7-8890 v3)

SPECint_rate2006 =   11700

SPECint_rate_base2006 = 11200

CPU2006 license: 3175
Test sponsor: Huawei
Tested by: Huawei

Test date: Feb-2016
Hardware Availability: Jan-2016
Software Availability: Mar-2015

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

     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
```

Continued on next page

SPEC CINT2006 Result
Copyright 2006-2016 Standard Performance Evaluation Corporation

Huawei

KunLun 9016 (Intel Xeon E7-8890 v3)

SPECint_rate2006 = 11700

SPECint_rate_base2006 = 11200

CPU2006 license: 3175
Test sponsor: Huawei
Tested by: Huawei

Test date: Feb-2016
Hardware Availability: Jan-2016
Software Availability: Mar-2015

Peak Optimization Flags (Continued)

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`

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/Huawei-Platform-Settings-V1.2-HSW-RevG.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/Huawei-Platform-Settings-V1.2-HSW-RevG.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 Tue Feb 23 17:36:45 2016 by SPEC CPU2006 PS/PDF formatter v6932.
Originally published on 23 February 2016.