SPEC® CINT2006 Result
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Dell Inc.

PowerEdge R730 (Intel Xeon E5-2658 v3, 2.20 GHz)

SPECint®_rate2006 =　977

SPECint_rate_base2006 =　939

CPU2006 license: 55　　　　　　　　　　　　　　　　**Test date:** Feb-2015
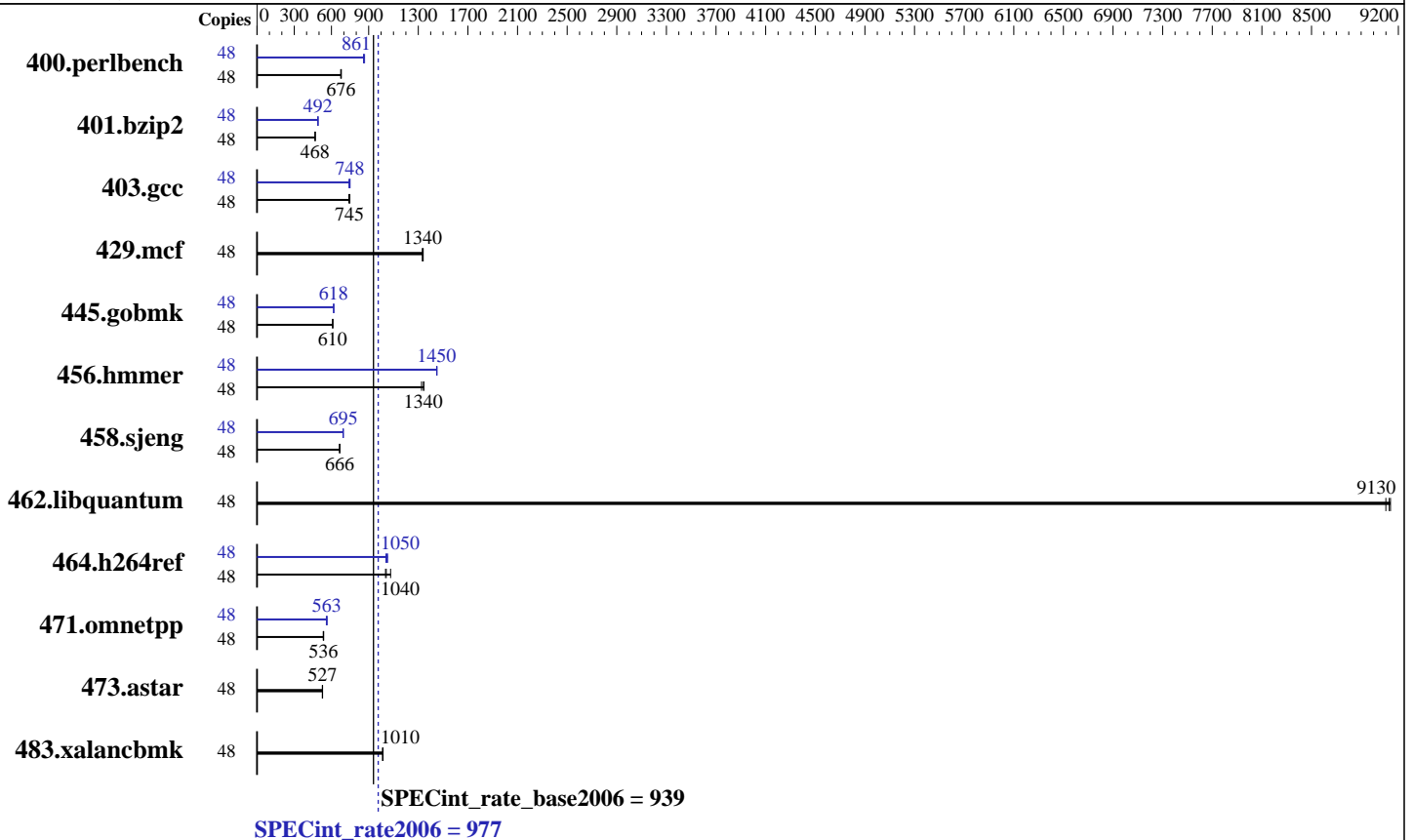**Test sponsor:** Dell Inc.　　　　　　　　　　　　　　**Hardware Availability:** Apr-2015
Tested by: Dell Inc.　　　　　　　　　　　　　　　**Software Availability:** Nov-2014

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Hardware

CPU Name:	Intel Xeon E5-2658 v3
CPU Characteristics:	Intel Turbo Boost Technology up to 2.90 GHz
CPU MHz:	2200
FPU:	Integrated
CPU(s) enabled:	24 cores, 2 chips, 12 cores/chip, 2 threads/core
CPU(s) orderable:	1,2 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:	30 MB I+D on chip per chip
Other Cache:	None
Memory:	256 GB (16 x 16 GB 2Rx4 PC4-2133P-R)
Disk Subsystem:	2 x 300 GB 10000 RPM SAS RAID0
Other Hardware:	None

Software

Operating System:	SUSE Linux Enterprise Server 12 3.12.28-4-default
Compiler:	C/C++: Version 15.0.0.090 of Intel C++ Studio XE for Linux
Auto Parallel:	No
File System:	ext4
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	48	690	680	**694**	**676**	694	676	48	546	859	541	867	**545**	**861**
401.bzip2	48	989	468	987	470	**989**	**468**	48	**942**	**492**	944	491	942	492
403.gcc	48	516	749	**518**	**745**	522	740	48	515	750	521	741	**516**	**748**
429.mcf	48	328	1330	**328**	**1340**	327	1340	48	328	1330	**328**	**1340**	327	1340
445.gobmk	48	**825**	**610**	825	610	825	610	48	815	618	**815**	**618**	814	618
456.hmmer	48	338	1330	**334**	**1340**	333	1340	48	309	1450	309	1450	**309**	**1450**
458.sjeng	48	872	666	871	667	**872**	**666**	48	**836**	**695**	836	695	836	695
462.libquantum	48	109	9100	**109**	**9130**	109	9140	48	109	9100	**109**	**9130**	109	9140
464.h264ref	48	986	1080	1025	1040	**1019**	**1040**	48	1022	1040	1009	1050	**1015**	**1050**
471.omnetpp	48	558	537	**560**	**536**	562	534	48	531	564	**533**	**563**	537	559
473.astar	48	**639**	**527**	637	529	639	527	48	**639**	**527**	637	529	639	527
483.xalancbmk	48	**327**	**1010**	327	1010	326	1020	48	**327**	**1010**	327	1010	326	1020

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"

Platform Notes

        BIOS settings:
        Snoop Mode set to Cluster on Die
        Virtualization Technology disabled
        System Profile set to Performance
        Sysinfo program /root/cpu2006-1.2/config/sysinfo.rev6914
        $Rev: 6914 $ $Date:: 2014-06-25 #$ e3fbb8667b5a285932ceab81e28219e1
        running on linux-wkha Mon Feb 2 17:10:17 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 E5-2658 v3 @ 2.20GHz
              2 "physical id"s (chips)
              48 "processors"
           cores, siblings (Caution: counting these is hw and system dependent. The

Continued on next page

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Platform Notes (Continued)

```
    following excerpts from /proc/cpuinfo might not be reliable.  Use with
    caution.)
       cpu cores : 6
       siblings  : 12
       physical 0: cores 0 1 2 3 4 5 8 9 10 11 12 13
       physical 1: cores 0 1 2 3 4 5 8 9 10 11 12 13
    cache size : 15360 KB

 From /proc/meminfo
    MemTotal:       264569196 kB
    HugePages_Total:        0
    Hugepagesize:        2048 kB

 /usr/bin/lsb_release -d
    SUSE Linux Enterprise Server 12

 From /etc/*release* /etc/*version*
    SuSE-release:
       SUSE Linux Enterprise Server 12 (x86_64)
       VERSION = 12
       PATCHLEVEL = 0
       # 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"
       VERSION_ID="12"
       PRETTY_NAME="SUSE Linux Enterprise Server 12"
       ID="sles"
       ANSI_COLOR="0;32"
       CPE_NAME="cpe:/o:suse:sles:12"

 uname -a:
    Linux linux-wkha 3.12.28-4-default #1 SMP Thu Sep 25 17:02:34 UTC 2014
    (9879bd4) x86_64 x86_64 x86_64 GNU/Linux

 run-level 3 Feb 2 17:07 last=5

 SPEC is set to: /root/cpu2006-1.2
    Filesystem      Type  Size  Used Avail Use% Mounted on
    /dev/sda1       ext4  493G  7.5G  484G   2% /
 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 Dell Inc. 1.2.5 01/30/2015
  Memory:
    16x 00AD00B300AD HMA42GR7MFR4N-TF 16 GB 2 rank 2133 MHz
```

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Platform Notes (Continued)

```
      8x Not Specified Not Specified

    (End of data from sysinfo program)
```

General Notes

```
  Environment variables set by runspec before the start of the run:
  LD_LIBRARY_PATH = "/root/cpu2006-1.2/libs/32:/root/cpu2006-1.2/libs/64:/root/cpu2006-1.2/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
   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/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
    -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
```

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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

        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

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Peak Optimization Flags (Continued)

429.mcf: basepeak = yes

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

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/Dell-Platform-Settings-V1.2-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/Dell-Platform-Settings-V1.2-revC.xml

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

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