SPEC® CINT2006 Result

Unisys Corporation

$SPECint®_rate2006 = $ 1910

Unisys ES7000 Model 7600R G3 (Intel Xeon E7-8870)

$SPECint_rate_base2006 = $ 1780
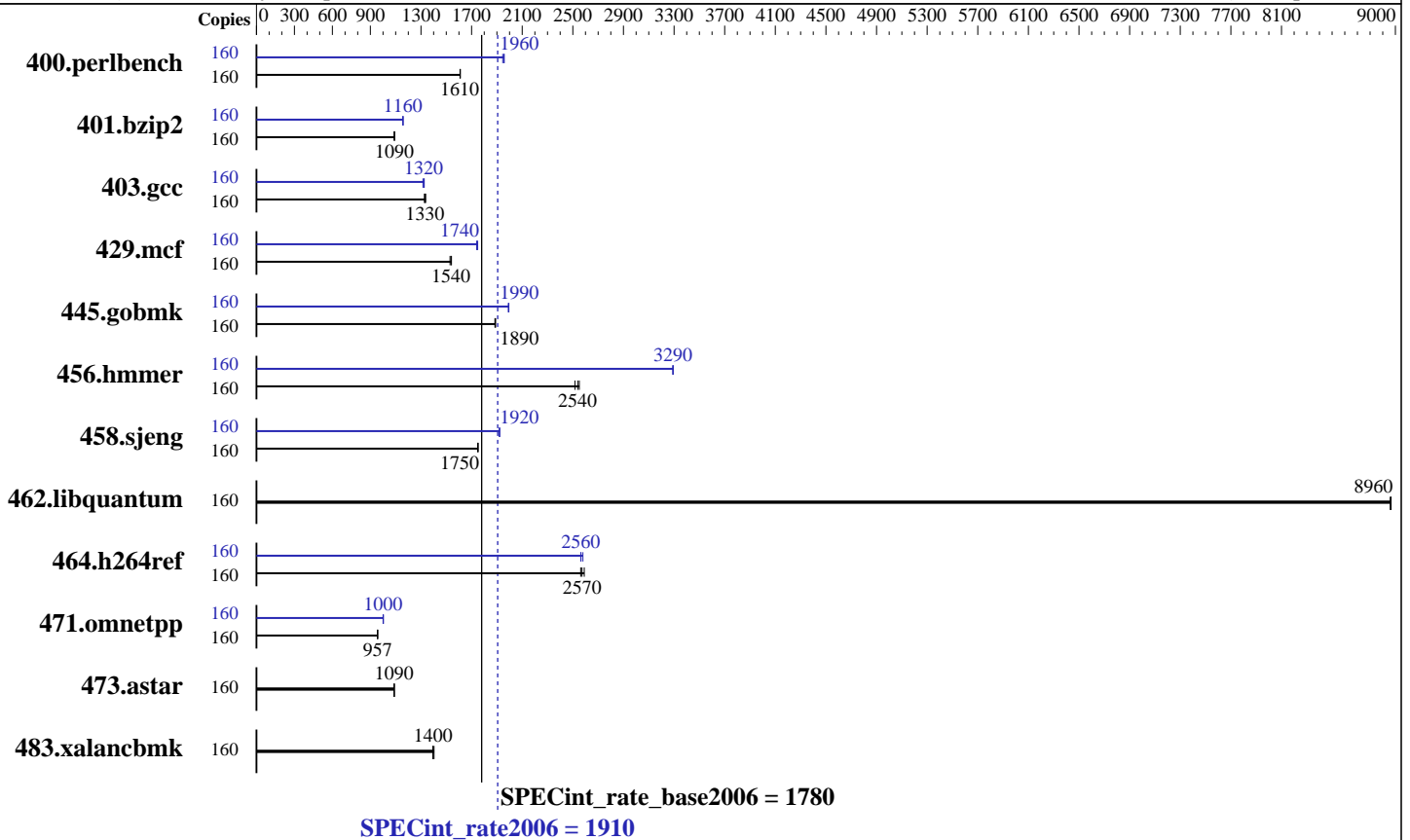
CPU2006 license: 15

Test sponsor: Unisys Corporation

Tested by: Unisys Corporation

Test date: Jul-2011

Hardware Availability: Jun-2011

Software Availability: Apr-2011

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Hardware

CPU Name: Intel Xeon E7-8870

CPU Characteristics: Intel Turbo Boost Technology up to 2.80 GHz

CPU MHz: 2400

FPU: Integrated

CPU(s) enabled: 80 cores, 8 chips, 10 cores/chip, 2 threads/core

CPU(s) orderable: 2,4,8 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: 1 TB (128 x 8 GB 4Rx8 PC3L-8500R-7, ECC)

Disk Subsystem: 3 x 146 GB SAS, 15000 RPM, RAID 0

Other Hardware: None

Software

Operating System: SuSe Linux SLES10 SP1

Compiler: Intel C++ Compiler XE for applications running on IA-32
Version 12.0.1.116 Build 20101116

Auto Parallel: No

File System: ext3

System State: Run level 3 (multi-user)

Base Pointers: 32-bit

Peak Pointers: 32/64-bit

Other Software: Microquill SmartHeap V9.01
libhugetlbfs V2.12

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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	160	**971**	**1610**	971	1610	972	1610	160	**799**	**1960**	799	1960	803	1950
401.bzip2	160	1416	1090	**1417**	**1090**	1418	1090	160	1332	1160	1334	1160	**1334**	**1160**
403.gcc	160	963	1340	971	1330	**967**	**1330**	160	972	1330	979	1320	**974**	**1320**
429.mcf	160	947	1540	954	1530	**949**	**1540**	160	835	1750	**837**	**1740**	838	1740
445.gobmk	160	**889**	**1890**	891	1880	889	1890	160	843	1990	841	1990	**842**	**1990**
456.hmmer	160	593	2520	**588**	**2540**	585	2550	160	454	3290	453	3290	**454**	**3290**
458.sjeng	160	1107	1750	1105	1750	**1107**	**1750**	160	1008	1920	**1008**	**1920**	1009	1920
462.libquantum	160	**370**	**8960**	370	8960	370	8970	160	**370**	**8960**	370	8960	370	8970
464.h264ref	160	**1377**	**2570**	1367	2590	1382	2560	160	1381	2560	1373	2580	**1381**	**2560**
471.omnetpp	160	**1045**	**957**	1046	956	1044	958	160	1000	1000	**998**	**1000**	997	1000
473.astar	160	1031	1090	**1032**	**1090**	1032	1090	160	1031	1090	**1032**	**1090**	1032	1090
483.xalancbmk	160	792	1390	787	1400	**791**	**1400**	160	792	1390	787	1400	**791**	**1400**

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.
    numactl was used to bind copies to the cores
```

Operating System Notes

```
    'ulimit -s unlimited' was used to set the stacksize to unlimited prior to run
    'mount -t hugetlbfs nodev /mnt/hugepages' was used to enable large pages
    echo 156000 > /proc/sys/vm/nr_hugepages
    HUGETLB_MORECORE=yes
    export LD_PRELOAD=/usr/lib64/libhugetlbfs.so
```

General Notes

```
   Binaries compiled on RHEL5.5 with
   binutils-2.17.50.0.6-14.el5
```

Base Compiler Invocation

C benchmarks:
```
      icc  -m32
```

C++ benchmarks:
```
      icpc -m32
```

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Base Portability Flags

```
400.perlbench: -DSPEC_CPU_LINUX_IA32
462.libquantum: -DSPEC_CPU_LINUX
483.xalancbmk: -DSPEC_CPU_LINUX
```

Base Optimization Flags

C benchmarks:

```
-xSSE4.2 -ipo -O3 -no-prec-div -opt-prefetch
-B /usr/share/libhugetlbfs/ -Wl,--hugetlbfs-link=BDT
```

C++ benchmarks:

```
-xSSE4.2 -ipo -O3 -no-prec-div -opt-prefetch -Wl,-z,muldefs
-L/smartheap -lsmartheap
-B /usr/share/libhugetlbfs/ -Wl,--hugetlbfs-link=BDT
```

Base Other Flags

C benchmarks:

```
403.gcc: -Dalloca=_alloca
```

Peak Compiler Invocation

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

```
400.perlbench: icc -m64
```

```
401.bzip2: icc -m64
```

```
456.hmmer: icc -m64
```

```
458.sjeng: icc -m64
```

C++ benchmarks:
```
icpc -m32
```

Peak Portability Flags

```
400.perlbench: -DSPEC_CPU_LP64 -DSPEC_CPU_LINUX_X64
401.bzip2: -DSPEC_CPU_LP64
```

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Peak Portability Flags (Continued)

```
    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: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
               -O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2)
               -B /usr/share/libhugetlbfs/ -Wl,-melf_x86_64 -Wl,-hugetlbfs-link=BDT

     401.bzip2: -xSSE4.2(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
               -B /usr/share/libhugetlbfs/ -Wl,-melf_x86_64 -Wl,-hugetlbfs-link=BDT

       403.gcc: -xSSE4.2 -ipo -O3 -no-prec-div
               -B /usr/share/libhugetlbfs/ -Wl,-hugetlbfs-link=BDT

       429.mcf: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
               -O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2)
               -ansi-alias -auto-ilp32

     445.gobmk: -xSSE4.2(pass 2) -prof-gen(pass 1) -prof-use(pass 2)
               -ansi-alias -auto-ilp32

     456.hmmer: -xSSE4.2 -ipo -O3 -no-prec-div -unroll2 -auto-ilp32
               -B /usr/share/libhugetlbfs/ -Wl,-melf_x86_64 -Wl,-hugetlbfs-link=BDT

     458.sjeng: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
               -O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2)
               -unroll4 -auto-ilp32
               -B /usr/share/libhugetlbfs/ -Wl,-melf_x86_64 -Wl,-hugetlbfs-link=BDT

462.libquantum: basepeak = yes

    464.h264ref: -xSSE4.2(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: -xSSE4.2(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/smartheap -lsmartheap
```

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Peak Optimization Flags (Continued)

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-ic12.0-linux64-revB.html
http://www.spec.org/cpu2006/flags/IBM-platform-linux64-revA.20110818.html

You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2006/flags/Intel-ic12.0-linux64-revB.xml
http://www.spec.org/cpu2006/flags/IBM-platform-linux64-revA.20110818.xml

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