SPEC® CINT2006 Result

Hewlett-Packard Company

SPECint®_rate2006 =   693

ProLiant DL360p Gen8
(2.90 GHz, Intel Xeon E5-2690)

SPECint_rate_base2006 = 667

CPU2006 license: 3	**Test date:** Apr-2012
Test sponsor: Hewlett-Packard Company	**Hardware Availability:** Jun-2012
Tested by: Hewlett-Packard Company	**Software Availability:** Mar-2012

Copies 0 150 300 450 600 750 900 1050 1250 1450 1650 1850 2050 2250 2450 2650 2850 3050 3250 3450 3650 4050

Benchmark	Peak	Base
400.perlbench	595	514
401.bzip2	376	367
403.gcc		534
429.mcf		995
445.gobmk	531	516
456.hmmer	1000	848
458.sjeng	531	508
462.libquantum		4030
464.h264ref	873	873
471.omnetpp	387	368
473.astar		387
483.xalancbmk		693

(All copies = 32)

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Hardware

CPU Name:	Intel Xeon E5-2690
CPU Characteristics:	Intel Turbo Boost Technology up to 3.80 GHz
CPU MHz:	2900
FPU:	Integrated
CPU(s) enabled:	16 cores, 2 chips, 8 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:	20 MB I+D on chip per chip
Other Cache:	None
Memory:	128 GB (16 x 8 GB 2Rx4 PC3-12800R-11, ECC)
Disk Subsystem:	2 x 146 GB 15 K SAS, RAID 1
Other Hardware:	None

Software

Operating System:	Red Hat Enterprise Linux Server release 6.2 (Santiago) Kernel 2.6.32-220.el6.x86_64
Compiler:	C/C++: Version 12.1.2.273 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 V9.01 HP Array Configuration Utility, CLI version

SPEC CINT2006 Result
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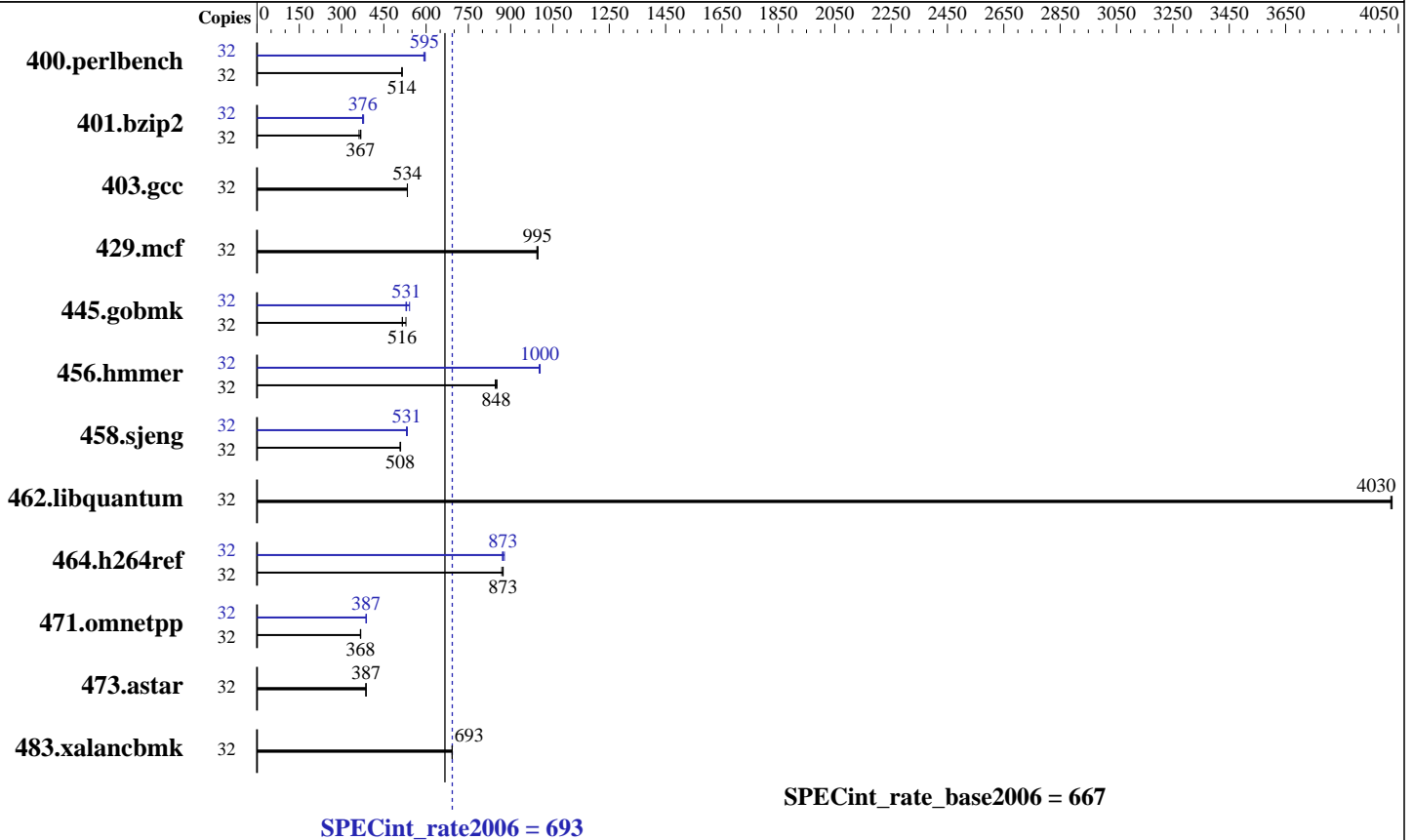
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Results Table

Benchmark	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
400.perlbench	32	606	515	**608**	**514**	608	514	32	**526**	**595**	528	592	524	597
401.bzip2	32	853	362	838	369	**841**	**367**	32	**822**	**376**	824	375	816	378
403.gcc	32	**483**	**534**	483	533	483	534	32	**483**	**534**	483	533	483	534
429.mcf	32	293	997	294	993	**293**	**995**	32	293	997	294	993	**293**	**995**
445.gobmk	32	**651**	**516**	651	516	635	529	32	635	529	620	541	**633**	**531**
456.hmmer	32	**352**	**848**	353	846	351	852	32	297	1000	**298**	**1000**	298	1000
458.sjeng	32	**762**	**508**	760	510	762	508	32	**729**	**531**	730	531	726	533
462.libquantum	32	165	4020	**165**	**4030**	165	4030	32	165	4020	**165**	**4030**	165	4030
464.h264ref	32	815	868	**811**	**873**	811	873	32	807	878	813	871	**811**	**873**
471.omnetpp	32	545	367	**544**	**368**	544	368	32	517	387	515	388	**516**	**387**
473.astar	32	580	387	582	386	**580**	**387**	32	580	387	582	386	**580**	**387**
483.xalancbmk	32	**319**	**693**	319	692	319	693	32	**319**	**693**	319	692	319	693

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/redhat_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>
    Drive Write Cache set to Enabled in HP Array Configuration Utility, CLI version
    Accelerator Ratio for Reads/Writes set to = 100% Read / 0% Write in HP Array Configuration Utility, CLI version

Platform Notes

    BIOS Configuration:
     HP Power Profile set to Custom
     Energy/Performance Bias is set to Maximum Performance
     Thermal Configuration set to Maximum Cooling
     Collaborative Power Control set to Disabled
     Processor Power and Utilization Monitoring set to Disabled
    Sysinfo program /cpu2006/config/sysinfo.rev6800
    $Rev: 6800 $ $Date:: 2011-10-11 #$ 6f2ebdff5032aaa42e583f96b07f99d3
    running on DL360-G9 Tue Apr 17 10:44:53 2012

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Platform Notes (Continued)

```
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 E5-2690 0 @ 2.90GHz
      2 "physical id"s (chips)
      32 "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 : 8
      siblings  : 16
      physical 0: cores 0 1 2 3 4 5 6 7
      physical 1: cores 0 1 2 3 4 5 6 7
   cache size : 20480 KB

From /proc/meminfo
   MemTotal:       132260288 kB
   HugePages_Total:        0
   Hugepagesize:        2048 kB

/usr/bin/lsb_release -d
   Red Hat Enterprise Linux Server release 6.2 (Santiago)

From /etc/*release* /etc/*version*
   redhat-release: Red Hat Enterprise Linux Server release 6.2 (Santiago)
   system-release: Red Hat Enterprise Linux Server release 6.2 (Santiago)
   system-release-cpe: cpe:/o:redhat:enterprise_linux:6server:ga:server

uname -a:
   Linux DL360-G9 2.6.32-220.el6.x86_64 #1 SMP Wed Nov 9 08:03:13 EST 2011
   x86_64 x86_64 x86_64 GNU/Linux

run-level 3 Apr 17 10:42 last=5

SPEC is set to: /cpu2006
   Filesystem     Type     Size  Used Avail Use% Mounted on
   /dev/sda3      ext4     133G   35G   92G  28% /

Additional information from dmidecode:
  BIOS HP P71 03/27/2012
  Memory:
   16x Not Specified Not Specified 8 GB 1600 MHz 2 rank

(End of data from sysinfo program)
```

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General Notes

```
Environment variables set by runspec before the start of the run:
KMP_AFFINITY = "granularity=fine,compact,1,0"
LD_LIBRARY_PATH = "/cpu2006/libs2/32:/cpu2006/libs2/64"

 Binaries compiled on a system with 2x Xeon E5-2667 CPU + 256GB
 memory using SLES11 SP2,RC3
```

Base Compiler Invocation

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

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

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 -opt-mem-layout-trans=3
```

C++ benchmarks:
```
    -xSSE4.2 -ipo -O3 -no-prec-div -opt-prefetch -opt-mem-layout-trans=3
    -Wl,-z,muldefs -L/spec/libs2/32 -lsmartheap
```

Base Other Flags

C benchmarks:

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

Peak Compiler Invocation

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

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Peak Compiler Invocation (Continued)

    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`
     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)`
           `-auto-ilp32`

        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`

       403.gcc: `basepeak = yes`

       429.mcf: `basepeak = yes`

    445.gobmk: `-xSSE4.2(pass 2) -prof-gen(pass 1) -prof-use(pass 2)`
           `-ansi-alias -opt-mem-layout-trans=3`

    456.hmmer: `-xSSE4.2 -ipo -O3 -no-prec-div -unroll2 -auto-ilp32`

     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`

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Peak Optimization Flags (Continued)

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/spec/libs2/32 -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/HP-Platform-Flags-Intel-V1.2-A.20120425.html
http://www.spec.org/cpu2006/flags/Intel-ic12.1-official-linux64.20120425.html

You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2006/flags/HP-Platform-Flags-Intel-V1.2-A.20120425.xml
http://www.spec.org/cpu2006/flags/Intel-ic12.1-official-linux64.20120425.xml

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