SPEC ACCEL™ ACC Result

GIGABYTE

(Test Sponsor: Cirrascale Corporation)

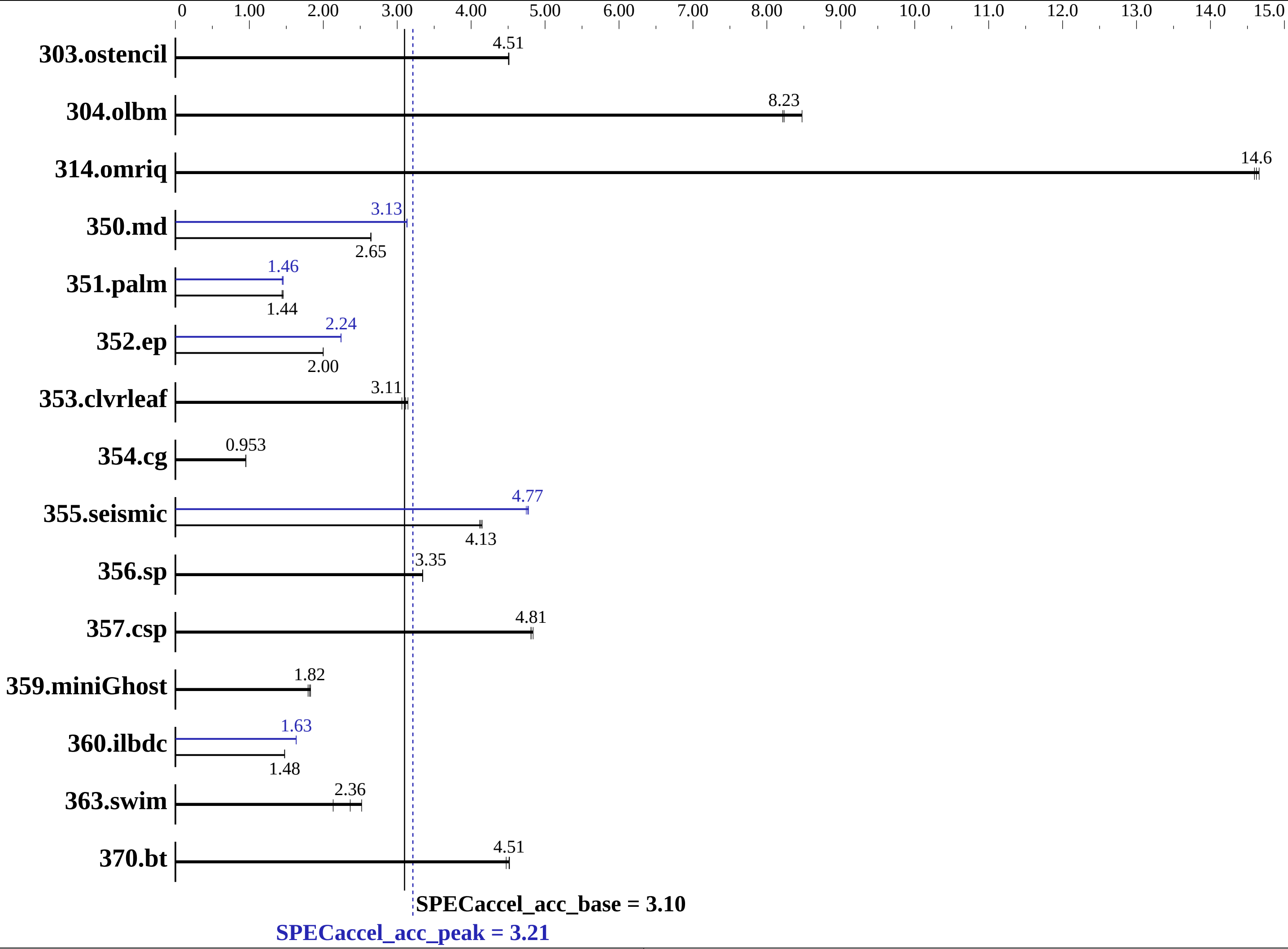
FirePro s9150

GIGABYTE MD70-HB0 Motherboard

SPECaccel_acc_peak = 3.21

SPECaccel_acc_base = 3.10

ACCEL license:	3842	**Test date:**	Feb-2015
Test sponsor:	Cirrascale Corporation	**Hardware Availability:**	Jul-2014
Tested by:	PathScale Inc.	**Software Availability:**	Mar-2015



Hardware

CPU Name:	Intel Xeon E5-2637 v3
CPU Characteristics:	Intel Turbo Boost Technology up to 3.70 GHz
CPU MHz:	3500
CPU MHz Maximum:	3700
FPU:	Integrated
CPU(s) enabled:	8 cores, 2 chips, 4 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:	15 MB I+D on chip per chip
Other Cache:	None

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Accelerator

Accel Model Name:	AMD FirePro s9150
Accel Vendor:	AMD
Accel Name:	FirePro s9150
Type of Accel:	GPU
Accel Connection:	PCIe 3.0 16x
Does Accel Use ECC:	No
Accel Description:	GPU set to high performance of sclk: 86100 mclk: 125000. See notes below.
Accel Driver:	AMD ATI Radeon Linux x86_64 Kernel Module 3.19.0+

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Hardware (Continued)

Memory:	32 GB (4 x 8 GB 1Rx4 PC4-2133R-15, running at 2133 MHz)
Disk Subsystem:	Western Digital Model: WD7500BPKT-00PK4T0 750Gb SATA 7200 rpm
Other Hardware:	None

Software

Operating System:	CentOS release 6.6 (Final) 3.19.0PathScale+
Compiler:	PathScale ENZO 2015 v6.0
File System:	ext4
System State:	Run level 3 (add definition here)
Other Software:	None

Results Table

Benchmark	Base						Peak					
	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
303.ostencil	32.2	4.50	**32.2**	**4.51**	32.1	4.51	32.2	4.50	**32.2**	**4.51**	32.1	4.51
304.olbm	**55.3**	**8.23**	53.7	8.48	55.4	8.21	**55.3**	**8.23**	53.7	8.48	55.4	8.21
314.omriq	65.5	14.6	65.2	14.7	**65.4**	**14.6**	65.5	14.6	65.2	14.7	**65.4**	**14.6**
350.md	95.2	2.65	**95.3**	**2.65**	95.4	2.64	80.5	3.13	**80.5**	**3.13**	80.4	3.14
351.palm	**256**	**1.44**	256	1.44	254	1.46	256	1.45	**254**	**1.46**	254	1.46
352.ep	265	2.00	**265**	**2.00**	265	2.00	236	2.24	**236**	**2.24**	237	2.24
353.clvrleaf	145	3.06	141	3.15	**143**	**3.11**	145	3.06	141	3.15	**143**	**3.11**
354.cg	428	0.953	428	0.953	**428**	**0.953**	428	0.953	428	0.953	**428**	**0.953**
355.seismic	**89.5**	**4.13**	89.2	4.15	89.9	4.12	78.0	4.75	77.5	4.78	**77.6**	**4.77**
356.sp	**82.5**	**3.35**	82.6	3.34	82.5	3.35	**82.5**	**3.35**	82.6	3.34	82.5	3.35
357.csp	56.1	4.81	55.8	4.84	**56.1**	**4.81**	56.1	4.81	55.8	4.84	**56.1**	**4.81**
359.miniGhost	206	1.79	**203**	**1.82**	202	1.83	206	1.79	**203**	**1.82**	202	1.83
360.ilbdc	249	1.48	**248**	**1.48**	248	1.48	**225**	**1.63**	225	1.63	224	1.64
363.swim	108	2.13	91.3	2.52	**97.3**	**2.36**	108	2.13	91.3	2.52	**97.3**	**2.36**
370.bt	49.8	4.47	**49.4**	**4.51**	49.4	4.52	49.8	4.47	**49.4**	**4.51**	49.4	4.52

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

Platform Notes

```
Sysinfo program /home/pathscale/ACCEL/Docs/sysinfo
$Rev: 6874 $ $Date:: 2013-11-20 #$ 0953404ef7e75a5f9bbb534c6de3f831
running on Cirrascale Thu Feb 19 14:14:13 2015

This section contains SUT (System Under Test) info as seen by
```

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Platform Notes (Continued)

```
some common utilities.  To remove or add to this section, see:
  http://www.spec.org/accel/Docs/config.html#sysinfo

From /proc/cpuinfo
   model name : Intel(R) Xeon(R) CPU E5-2637 v3 @ 3.50GHz
      2 "physical id"s (chips)
      16 "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 : 4
      siblings  : 8
      physical 0: cores 0 1 4 5
      physical 1: cores 0 1 4 5
   cache size : 15360 KB

From /proc/meminfo
   MemTotal:       32946036 kB
   HugePages_Total:       0
   Hugepagesize:       2048 kB

/usr/bin/lsb_release -d
   CentOS release 6.6 (Final)

From /etc/*release* /etc/*version*
   centos-release: CentOS release 6.6 (Final)
   redhat-release: CentOS release 6.6 (Final)
   system-release: CentOS release 6.6 (Final)
   system-release-cpe: cpe:/o:centos:linux:6:GA

uname -a:
   Linux Cirrascale 3.19.0PathScale+ #6 SMP Tue Feb 17 03:20:41 PST 2015 x86_64
   x86_64 x86_64 GNU/Linux

run-level 3 Feb 19 14:06

SPEC is set to: /home/pathscale/ACCEL
   Filesystem     Type  Size  Used Avail Use% Mounted on
   /dev/sda1      ext4   96G   26G   66G  28% /
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 GIGABYTE F15 11/28/2014
  Memory:
   4x Kinston 9995589-001.A00G 8 GB 1 rank 2133 MHz
```

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GIGABYTE MD70-HB0 Motherboard

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ACCEL license: 3842		**Test date:**	Feb-2015
Test sponsor: Cirrascale Corporation		**Hardware Availability:**	Jul-2014
Tested by: PathScale Inc.		**Software Availability:**	Mar-2015

Platform Notes (Continued)

```
   12x NO DIMM NO DIMM

(End of data from sysinfo program)
3.19.0PathScale+ is built from exactly this commit with one additionally patch below
https://github.com/torvalds/linux/commit/8cc748aa76c921d8834ef00f762f31acd2c93aa8

Author: Alex Deucher <alexander.deucher@amd.com>
Date:   Thu Feb 12 00:40:58 2015 -0500

    drm/radeon: fix voltage setup on hawaii

    Missing parameter when fetching the real voltage values
    from atom.  Fixes problems with dynamic clocking on
    certain boards.

    bug:
    https://bugs.freedesktop.org/show_bug.cgi?id=87457

    Signed-off-by: Alex Deucher <alexander.deucher@amd.com>
    Cc: stable@vger.kernel.org

diff --git a/drivers/gpu/drm/radeon/radeon_atombios.c b/drivers/gpu/drm/radeon/radeon_atombios.c
index dbc94f3..fc1b3f3 100644
--- a/drivers/gpu/drm/radeon/radeon_atombios.c
+++ b/drivers/gpu/drm/radeon/radeon_atombios.c
@@ -3289,6 +3289,7 @@ int radeon_atom_get_voltage_evv(struct radeon_device *rdev,

        args.in.ucVoltageType = VOLTAGE_TYPE_VDDC;
        args.in.ucVoltageMode = ATOM_GET_VOLTAGE_EVV_VOLTAGE;
+       args.in.usVoltageLevel = cpu_to_le16(virtual_voltage_id);
        args.in.ulSCLKFreq =
This run fixes a cooling issue which wasn't caught in previous runs.
A 40w fan was adjusted in order to provide airflow for the passively cooled s9150
```

General Notes

```
ECC disabled by default
GPU Boost mode enabled by setting the device to the following below
high performance mode: "echo high > /sys/class/drm/card0/device/power_dpm_force_performance_level"
The details for high performance mode: cat /sys/kernel/debug/dri/64/radeon_pm_info
uvd    disabled
vce    disabled
power level avg    sclk: 86100 mclk: 125000
The Intel documentation says the CPU can boost to 3700 Mhz, but dmidecode reports Max Speed: 3600 MHz
Kit built system using no case and just mounted on a test bench
```

Base Compiler Invocation

C benchmarks:
`pathcc`

Fortran benchmarks:
`pathf90`

Benchmarks using both Fortran and C:
`pathcc pathf90`

Base Portability Flags

314.omriq: `-std=gnu89`

Base Optimization Flags

C benchmarks:
`-O3 -acc -device=hawaii`

Fortran benchmarks:
`-O3 -acc -device=hawaii`

Benchmarks using both Fortran and C:
`-O3 -acc -device=hawaii`

Peak Compiler Invocation

C benchmarks:
`pathcc`

Fortran benchmarks:
`pathf90`

Benchmarks using both Fortran and C:
`pathcc pathf90`

Peak Portability Flags

314.omriq: `-std=gnu89`

Peak Optimization Flags

C benchmarks:

303.ostencil: `basepeak = yes`

304.olbm: `basepeak = yes`

314.omriq: `basepeak = yes`

352.ep: `-O3 -acc -device=hawaii -fprelaxed-offload`

354.cg: `basepeak = yes`

357.csp: `basepeak = yes`

370.bt: `basepeak = yes`

Fortran benchmarks:

350.md: `-O3 -acc -device=hawaii -fprelaxed-offload`

351.palm: `-O3 -acc -device=hawaii -CG2:gpu-no-sched-regpressure`

355.seismic: `Same as 350.md`

356.sp: `basepeak = yes`

360.ilbdc: `-O3 -acc -device=hawaii -CG2:gpu-no-misched`

363.swim: `basepeak = yes`

Benchmarks using both Fortran and C:

353.clvrleaf: `basepeak = yes`

359.miniGhost: `basepeak = yes`

The flags file that was used to format this result can be browsed at
http://www.spec.org/accel/flags/pathscale2015_flags.20150318.html

You can also download the XML flags source by saving the following link:
http://www.spec.org/accel/flags/pathscale2015_flags.20150318.xml

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