

EclaireXL - Bug #67

Pokey two tone timing problem

06/01/2018 10:42 AM - admin

Status:	Resolved	Start date:	06/01/2018
Priority:	Normal	Due date:	
Assignee:		% Done:	0%
Category:		Estimated time:	0:00 hour
Target version:			
Description			
An old bug.. See http://atariage.com/forums/topic/228527-pokey-emulation/page-3#entry3060595			
10 P=53760 20 POKE P+8,64 30 POKE P+1,10+32 31 POKE 53775,11 40 POKE P,20 50 GOTO 50			
high pitched, low pitched on real Atari			

History

#1 - 06/14/2018 08:35 PM - foft

Related post: <http://atariage.com/forums/topic/118448-implementation-of-pokey-2-tone-filter-in-emulation/page-3#entry1449990>

#2 - 06/19/2018 09:54 PM - foft

Been measuring cases on the scope...

Confirmed the extra cycle delays described in that forum post on my 600XL. Confirmed missing on the EclaireXL implementation.

#3 - 06/19/2018 09:55 PM - foft

I was concerned that my clocks were off at first since I was running in VGA mode, but that changes vsync slightly (50Hz vs 4.86Hz) which of course also impacts audio frequency:-) Debugging in RGB mode gives a perfect match.

#4 - 06/20/2018 09:27 PM - foft

A 2 cycle delay on the reset fixes both the 4 cycle and the 9 cycle case.

Now to check this specific example!

#5 - 06/20/2018 09:57 PM - foft

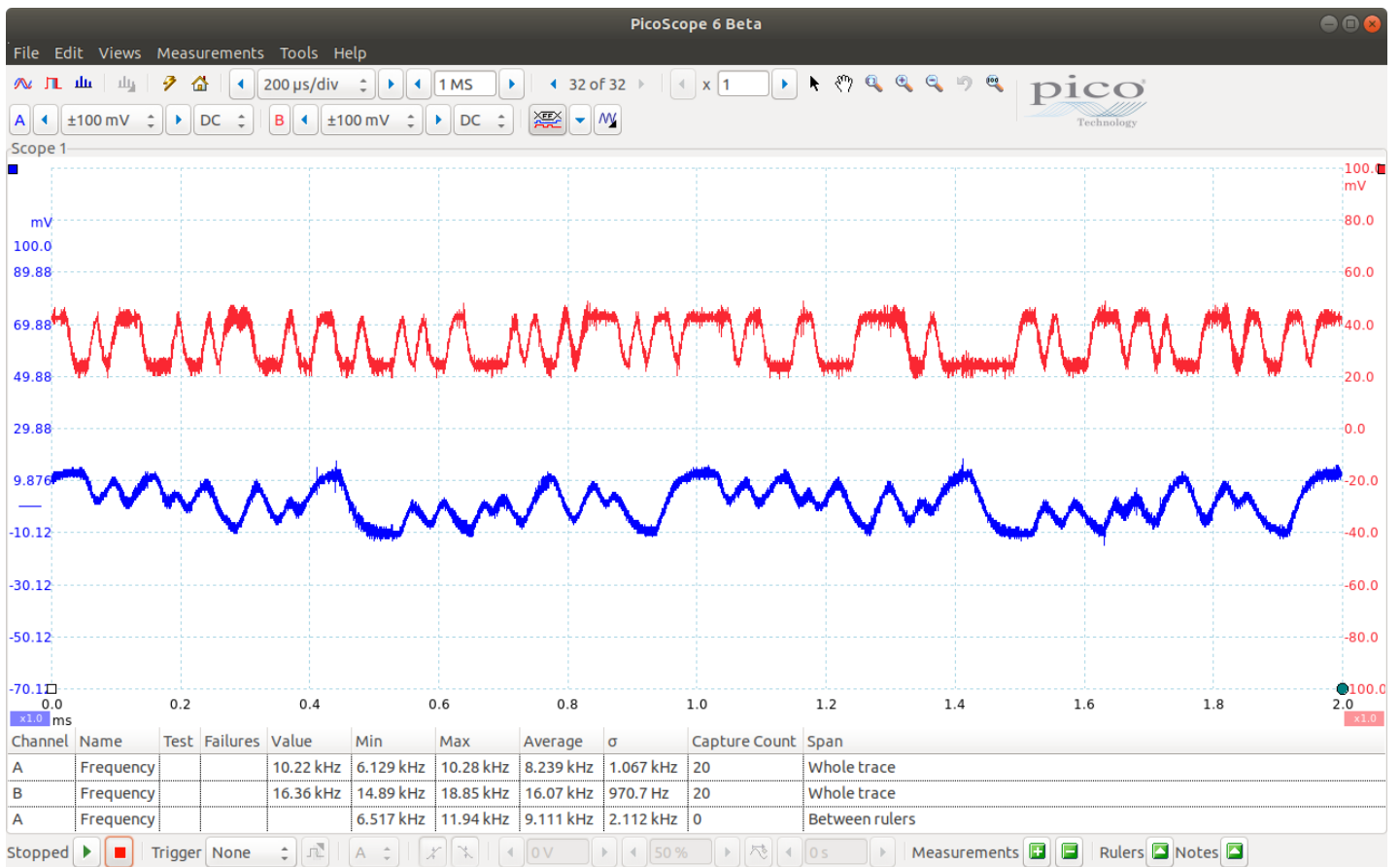
Nope, seems to be some interaction with the noise filtering. I wonder if the delay also needs applying to the pulse from the timer, that then hits the noise filter.

#6 - 06/20/2018 10:03 PM - foft

- File Screenshot from 2018-06-20 23-02-19.png added

So, errr identical then! Going to have to think about this one...

B is Atari, A is EclaireXL.



#7 - 06/21/2018 09:44 PM - foft

I found if I pokey 53775,11+128 on the Atari then it matches the Eclair output. Unfortunately forcing the serious output on eclaire to 1 or 0 does not change anything. Still its something to go on!

#8 - 01/14/2021 10:38 AM - foft

I have audio test pcbs now to allow synchronised writes to pokeymax vs pokey. Which should help track down this kind of thing.

#9 - 09/23/2021 08:44 PM - foft

This was fixed following investigation and a simple test case/detailed spreadsheet from Synthpopalooza.

I used these new audio test pcbs and a cycle exact fpga comparison program to check it against the real pokey.

Incidentally I found another few small intermittent cycle differences which I'll be able to track down with this too.

#10 - 09/23/2021 08:44 PM - foft

- Status changed from New to Resolved

Files

Screenshot from 2018-06-20 23-02-19.png	111 KB	06/20/2018	foft
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