

## EclaireXL - Feature #7

### Implement I2C vga/hdmi support

04/04/2017 09:07 PM - admin

<b>Status:</b> New	<b>Start date:</b> 04/04/2017
<b>Priority:</b> Normal	<b>Due date:</b>
<b>Assignee:</b>	<b>% Done:</b> 0%
<b>Category:</b>	<b>Estimated time:</b> 0:00 hour
<b>Target version:</b>	
<b>Description</b> Try the I2C support on the new board.  Initially for presence detection Latest for checking modes  Its via a mux chip so we can independently address both ports	
<b>Related issues:</b> Related to Bug #19: PAL VGA Synch issues (screen is not centered) <b>Closed</b> <b>05/30/2017</b>	

#### History

##### #1 - 05/11/2017 08:26 PM - foft

- File PCA9540B.pdf added

Attached mux/level converter chip data sheet

##### #2 - 05/11/2017 08:28 PM - foft

- File 24c04.pdf added

EDID is apparently one of these I can access at address 0x50

##### #3 - 05/11/2017 08:30 PM - foft

- File ddciv1r1.pdf added

DDC looks a little funkier

##### #4 - 05/11/2017 08:34 PM - foft

Used this controller for the ADC on v1: <https://eewiki.net/pages/viewpage.action?pageId=10125324>

So I guess I just need to wire this to the ZPU, then I can experiment with this in firmware.

I guess a write FIFO that captures 16 bits (7 bit address, R/W and data). Then a fifo for the reply. + A way of telling when its all stopped.

##### #5 - 05/31/2017 07:04 PM - foft

- Related to Bug #19: PAL VGA Synch issues (screen is not centered added

##### #6 - 02/04/2018 09:25 PM - admin

- Priority changed from Normal to Urgent

Going to at least check this chip is wired properly before the new boards are ordered

##### #7 - 02/06/2018 09:28 PM - foft

Writing some code to say:

```
select channel1
read selected channel
write to random slave on channel1
```

```
select channel0
```

read selected channel  
write to random slave on channel0

Might be working, but need to work out how to check... I guess I can stick the scope in i2c decode mode on the vga or hdmi port (fiddly...) and see if I see anything.

**#8 - 02/06/2018 09:36 PM - foft**

Picoscope has i2c debugging and linux drivers:-) Installed them and will connect that up and take a look tomorrow.

**#9 - 02/06/2018 09:38 PM - foft**

Looking on signaltap looks like slave reads of the control register are not working. Hmmmm.

**#10 - 02/07/2018 08:00 PM - foft**

I had the pin assignments backwards. I can now write 4/5 to the control register and read it back. This should be channel select.

Next up... checking that what I write makes it to the VGA and HDMI port. I guess I could try speaking to them. Annoying thing here is I only have one monitor so would need to disconnect it to check!

**#11 - 02/07/2018 08:23 PM - foft**

VGA is working... receiving "00 FF FF FF FF FF FF 00 10 AC ..."  
Now for HDMI

**#12 - 02/07/2018 08:25 PM - foft**

HDMI is working too... "00 FF FF FF FF FF FF 00 10 AC ..."

**#13 - 02/07/2018 08:25 PM - foft**

- *Priority changed from Urgent to Normal*

Setting back to normal since the hardware side is working fine.

**#14 - 02/07/2018 08:51 PM - foft**

Added to the video settings 'VGA connected' and 'HDMI connected' which look for the start of the DDC sequence '00FF'

**Files**

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PCA9540B.pdf	290 KB	05/11/2017	foft
24c04.pdf	163 KB	05/11/2017	foft
ddcciv1r1.pdf	127 KB	05/11/2017	foft