EclaireXL - Feature #7

Implement I2C vga/hdmi support

04/04/2017 09:07 PM - admin

Status:	New	**Start date:**	04/04/2017
Priority:	Normal	**Due date:**	
Assignee:		**% Done:**	0%
Category:		**Estimated time:**	0:00 hour
Target version:			

Description

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

Related issues:

Related to Bug #19: PAL VGA Synch issues (screen is not centered	**Closed**	**05/30/2017**

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 ddcciv1r1.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. Hmmm.

#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

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