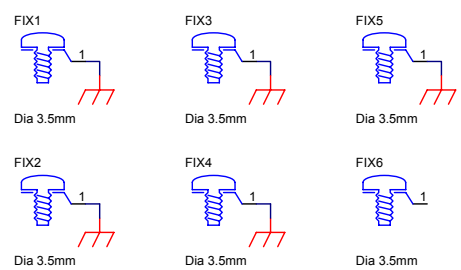


This board is based on the DV78 series PSU L959AY, but with some different component values for different VFD supply voltages. It uses the same blank PCB

NOTE TRANSFORMER TX1 IS MOUNTED ON THE CHASSIS AND CONNECTED TO THE PSU PCB BY CON2,3,4. TX1 IS SHOWN ABOVE FOR CIRCUIT OPERATION

ITEM	QTY	PART No.	DESCRIPTION	NOTES
ITEM1	1	F006	Clip For SW Profile Heatsink	
ITEM2	1	F082	Sil Pad For TO-220 HS Insulator	
ITEM3	2	F022	Fuseholder Cover For 20mm Fuseholder	
ITEM4	1	L959PB	Blank PCB DV78 PSU	
ITEM6	1	F044	Cable Tie 100MM X 2.5MM	USED TO SECURE TRANSFORMER CABLES TO PCB NEAR CON1
ITEM5	1	8M101	Earth Lead Assy 75MM	SAFETY EARTH WIRE FROM IEC INLET SK1 TO METAL CHASSIS
ITEM7	2	HP007S	Rivet Copper	RIVETS TO SECURE IEC INLET TO PCB

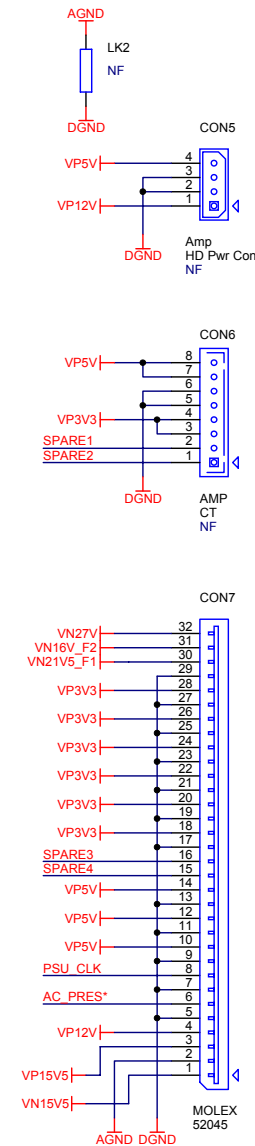


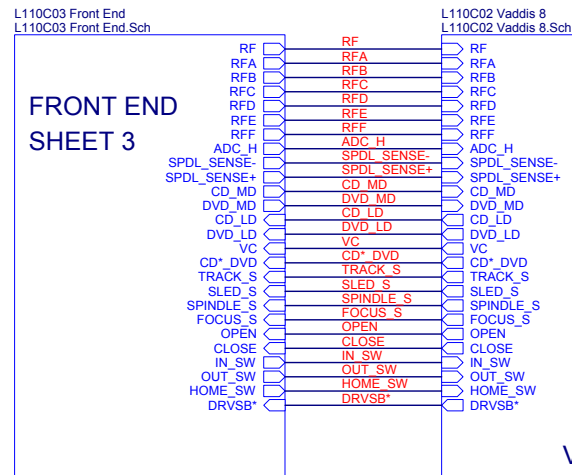
**DRAWING TITLE**  
**DV137 SERIES PSU**

**ARCAM**  
 A & R Cambridge Ltd.  
 Pembroke Avenue  
 Waterbeach  
 Cambridge CB5 9QR

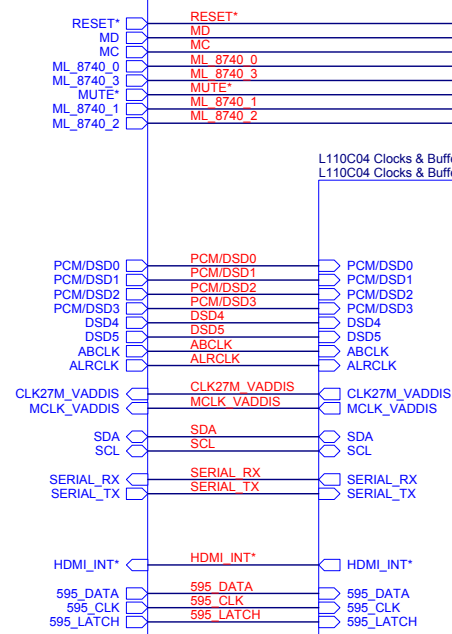
Filename: L994\_1.1.sch  
 Notes: 06\_E092 MJT 09/06/06 Fit C5 for improved conducted emissions 1.1  
 05\_E171 PG 02/07/03 Production release 1.0  
 ECO No. INITIALS DATE DESCRIPTION OF CHANGE ISSUE

Contact Engineer: Peter Gaggas Contact Tel: (01223) 203270 Printed: 9-Jun-2006 Sheet 1 of 1 A2 DRAWING NO. L994CT

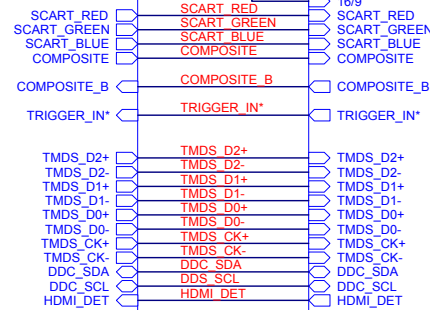




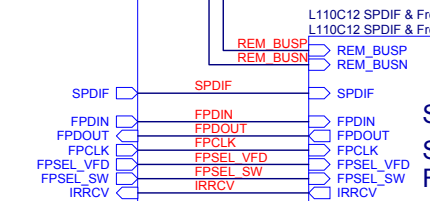
**VADDIS 8 SHEET 2**



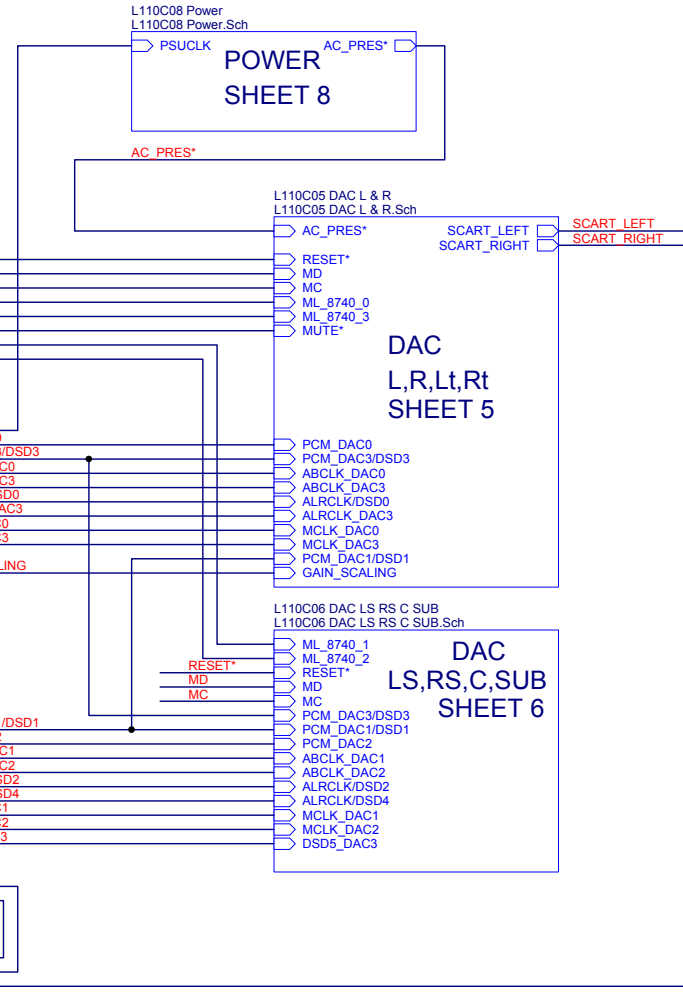
**CLOCKS BUFFERS SHEET 4**



**HDMI 1 O/P SCART REMOTE IN SHEET 7**

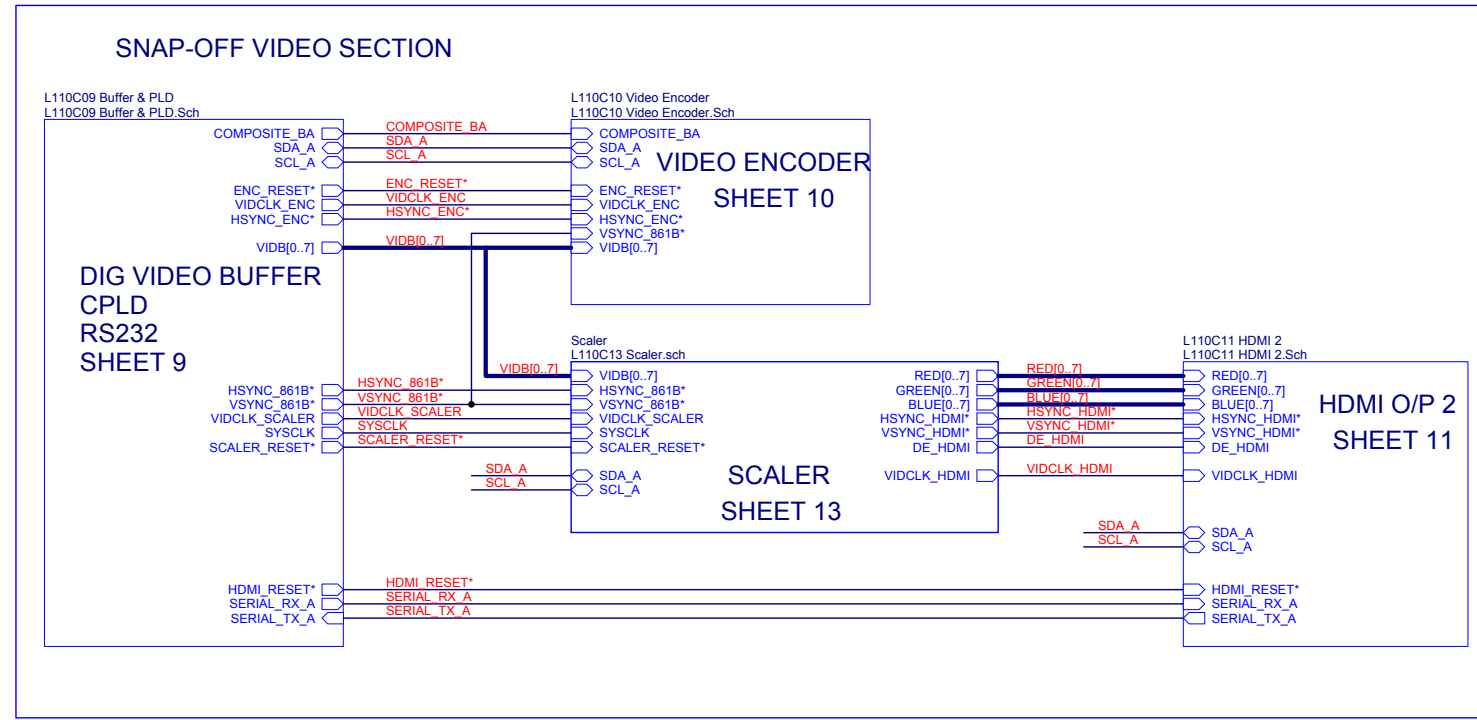


**SHEET 12 SPDIF FRONT PANEL I/F**

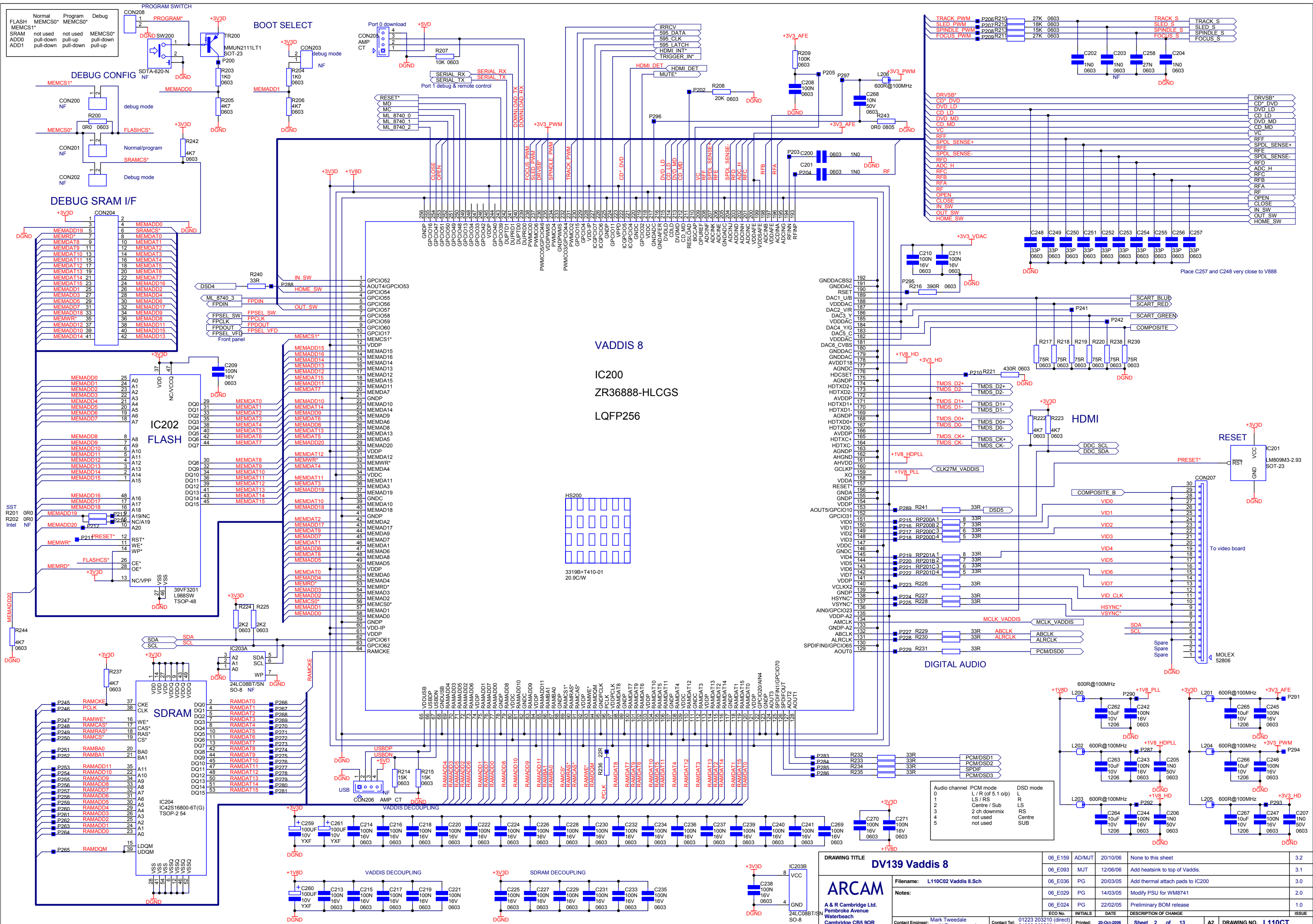


**NOTES ON VARIANTS**  
 This board is one of 3 variants that all use the same bare PCB (L988PB). The build differences are:  
 Number of audio channels (2 OR 8)  
 Type of audio DAC (WM8740 OR WM8741)  
 Video section populated/not populated  
 Scaler/HDMI transmitter used (vaddis internal or external devices)  
 Aux audio PSU fitted/not fitted  
 SPDIF transformer fitted/not fitted

	DV135	DV137	DV139
BOARD ASSEMBLY P/N	L111AY	L988AY	L110AY
AUDIO CHANNELS	2	8	8
AUDIO DAC	WM8740	WM8740	WM8740 (Not WM8741 currently)
VIDEO SECTION	POPULATED	POPULATED	NOT POPULATED
HDMI	VADDIS	ABT1010/SI9030	ON SEPARATE BOARD L102AY
AUX PSU	NOT FITTED	NOT FITTED	FITTED
SPDIF TRANSFORMER	NOT FITTED	FITTED	FITTED



ITEM100	1	L988PB	Blank PCB DV137 Main Board
<b>DRAWING TITLE DV139 Top Level</b>			
06_E159	AD/MJT	20/10/06	DACs now WM8740 + voicing mods
06_E093	MJT	12/06/06	None to this sheet. Add heatsink to top of Vaddis.
06_E036	PG	20/03/05	Add thermal attach pads to IC200
06_E029	PG	14/03/05	Modify PSU for WM8741
06_E024	PG	22/02/05	Preliminary BOM release
ECO No.	INITIALS	DATE	DESCRIPTION OF CHANGE
06_E024			
Contact Engineer: Mark Tweedale markt@arcam.co.uk		Contact Tel: 01223 203210 (direct) 01223 203200 (switch)	Printed: 20-Oct-2006 Sheet 1 of 13 A2 DRAWING NO. L110CT



**DRAWING TITLE**  
DV139 Vaddis 8

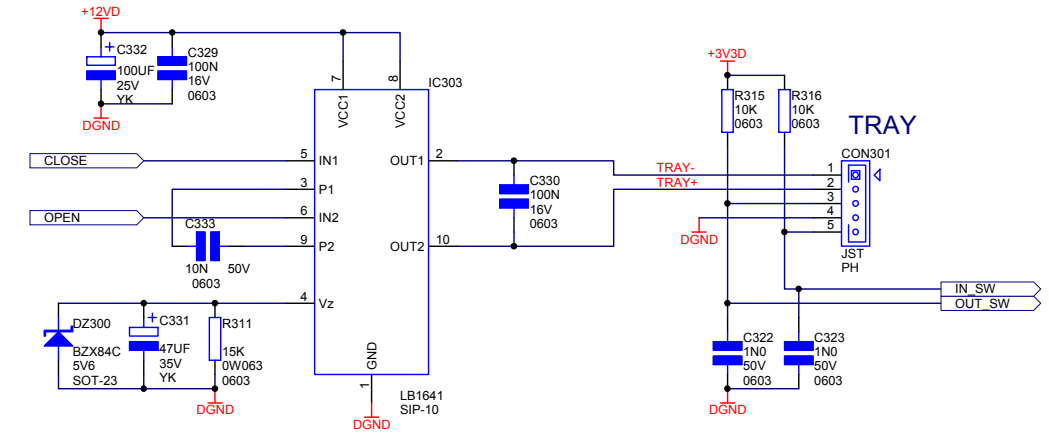
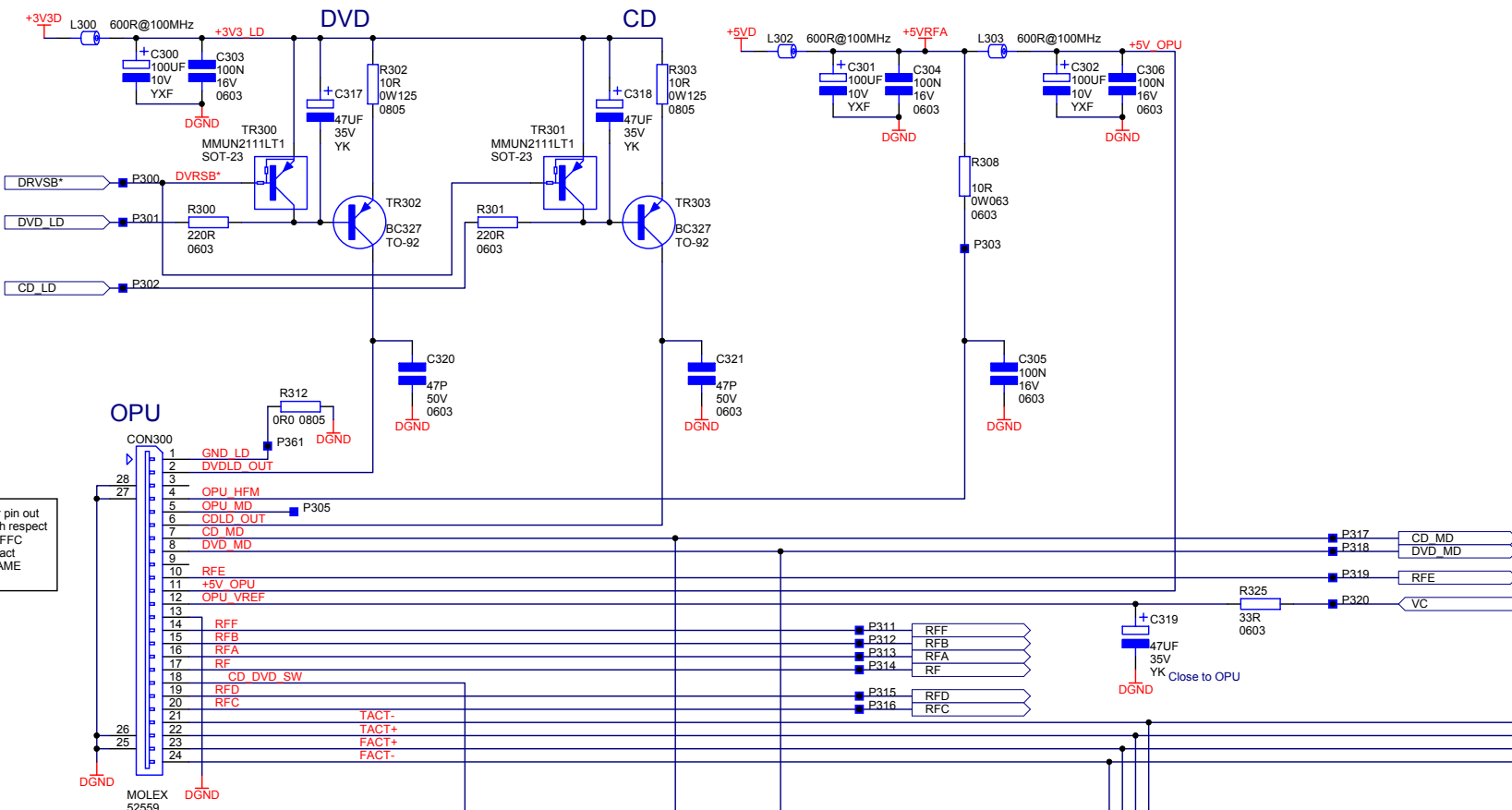
**ARCAM**  
A & R Cambridge Ltd.  
Pembroke Avenue  
Waterbeach  
Cambridge CB5 9QR

Filename: L110C02 Vaddis 8.Sch  
Notes:  
Contact Engineer: Mark Tweedale  
markt@arcam.co.uk  
Contact Tel: 01223 203210 (direct)  
01223 203200 (switch)

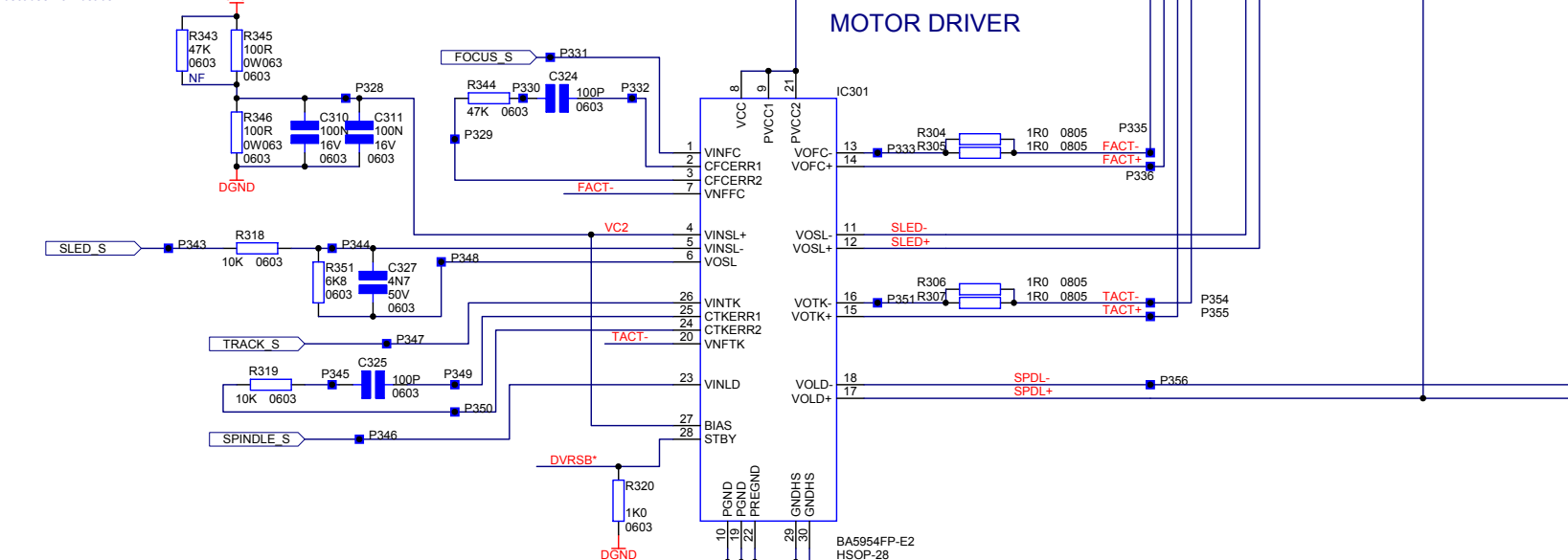
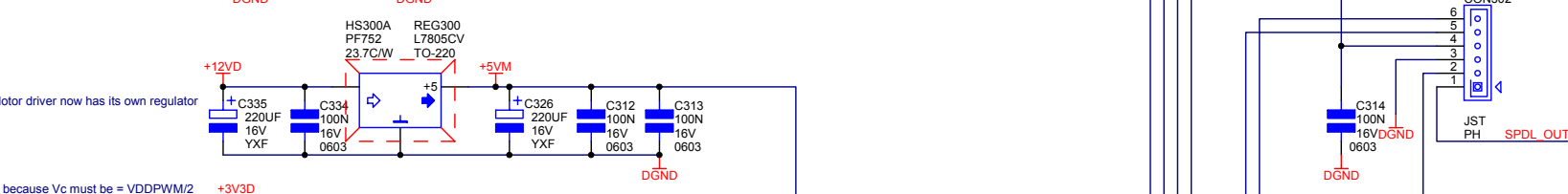
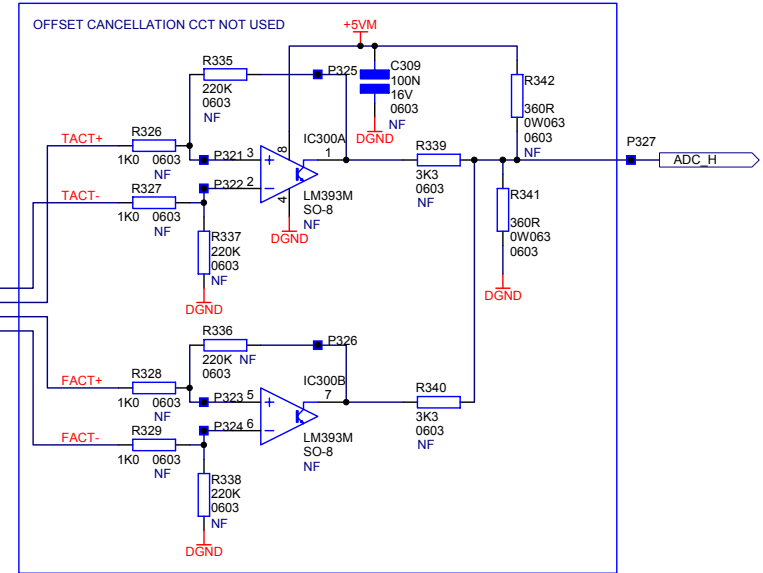
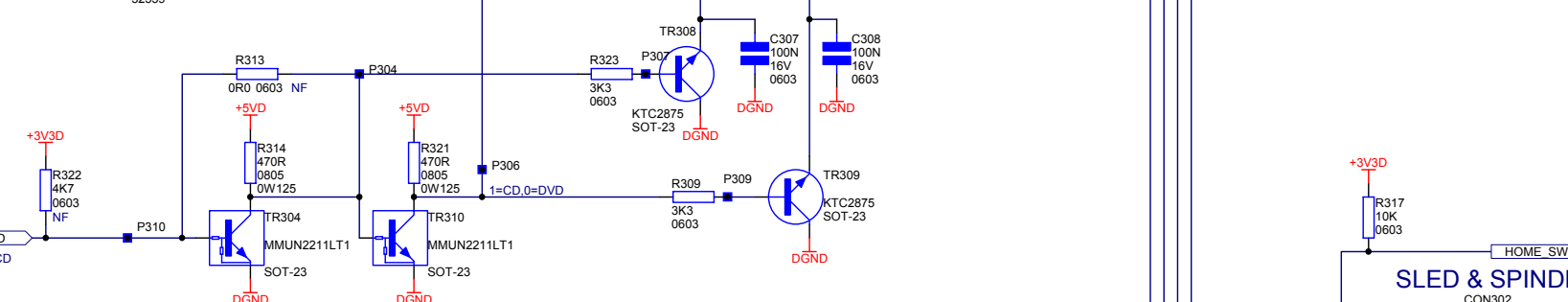
ECO NO	INITIALS	DATE	DESCRIPTION OF CHANGE	ISSUE
06_E159	AD/MJT	20/10/06	None to this sheet	3.2
06_E093	MJT	12/06/06	Add heatsink to top of Vaddis	3.1
06_E036	PG	20/03/05	Add thermal attach pads to IC200	3.0
06_E029	PG	14/03/05	Modify PSU for WM8741	2.0
06_E024	PG	22/02/05	Preliminary BOM release	1.0

Printed: 20-Oct-2006 Sheet 2 of 13 A2 DRAWING NO. L110C02

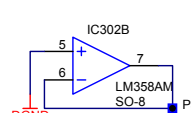
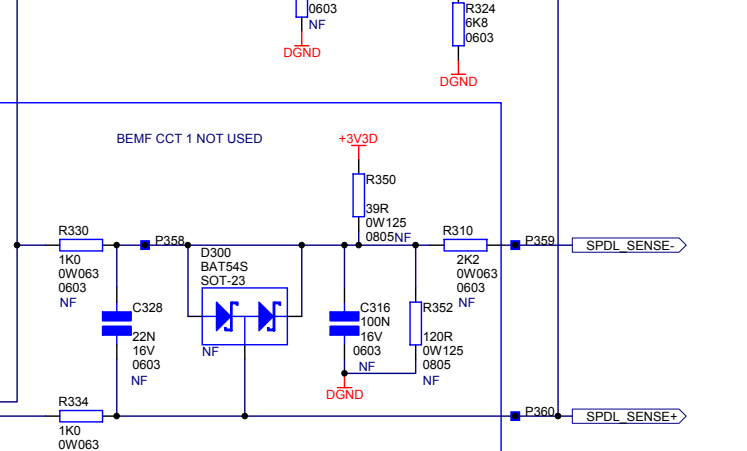
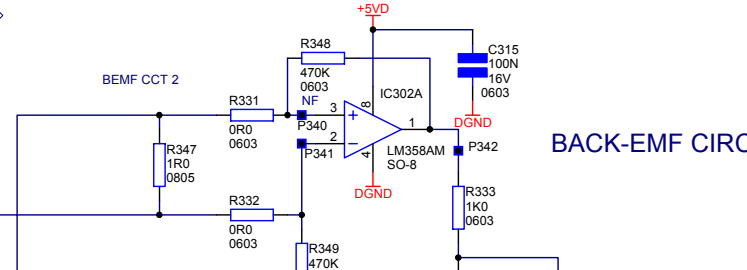
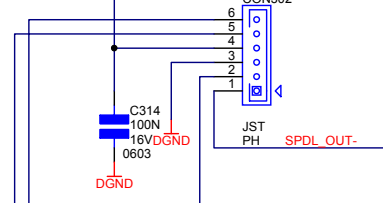
# LASER DRIVERS



OPU connector pin out is reversed with respect to OPU, since FFC cable has contact surfaces on SAME SIDE.



# SLED & SPINDLE



# DRAWING TITLE DV139 Front End

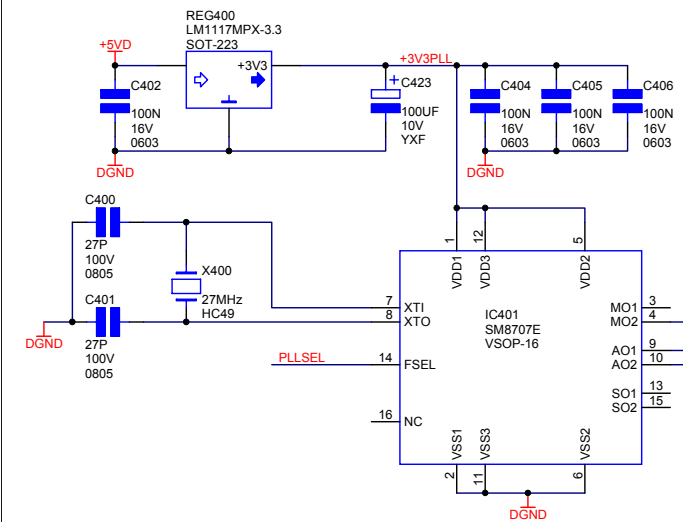
**ARCAM**  
A & R Cambridge Ltd.  
Pembroke Avenue  
Waterbeach  
Cambridge CB5 9QR

Filename: L110C03 Front End.Sch  
Notes:  
Contact Engineer: Mark Tweedale  
markt@arcam.co.uk  
Contact Tel: 01223 203210 (direct)  
01223 203200 (switch)

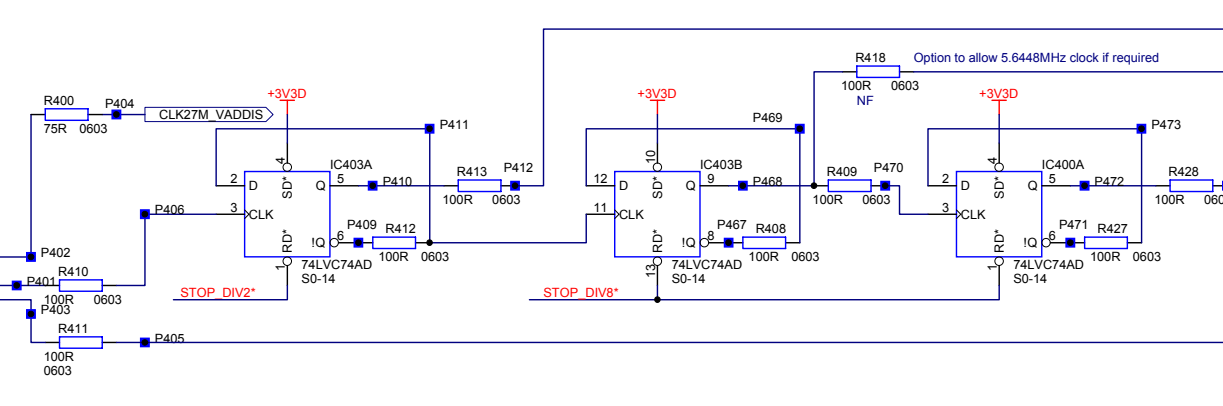
ECO No.	INITIALS	DATE	DESCRIPTION OF CHANGE	ISSUE
06_E159	AD/MJT	20/10/06	None to this sheet	3.2
06_E093	MJT	12/06/06	None to this sheet. Add heatsink to top of Vaddis.	3.1
06_E036	PG	20/03/05	Add thermal attach pads to IC200	3.0
06_E029	PG	14/03/05	Modify PSU for WM8741	2.0
06_E024	PG	22/02/05	Preliminary BOM release	1.0

Printed: 20-Oct-2006 Sheet 3 of 13 A2 DRAWING NO. L110CT

### CLOCK GENERATOR

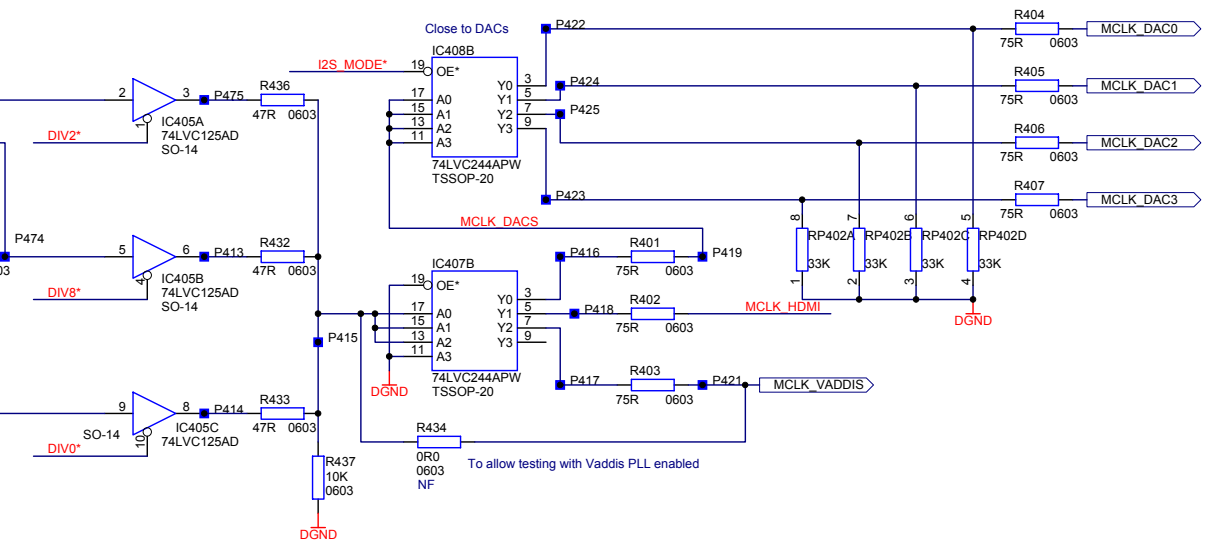


### CLOCK DIVIDER

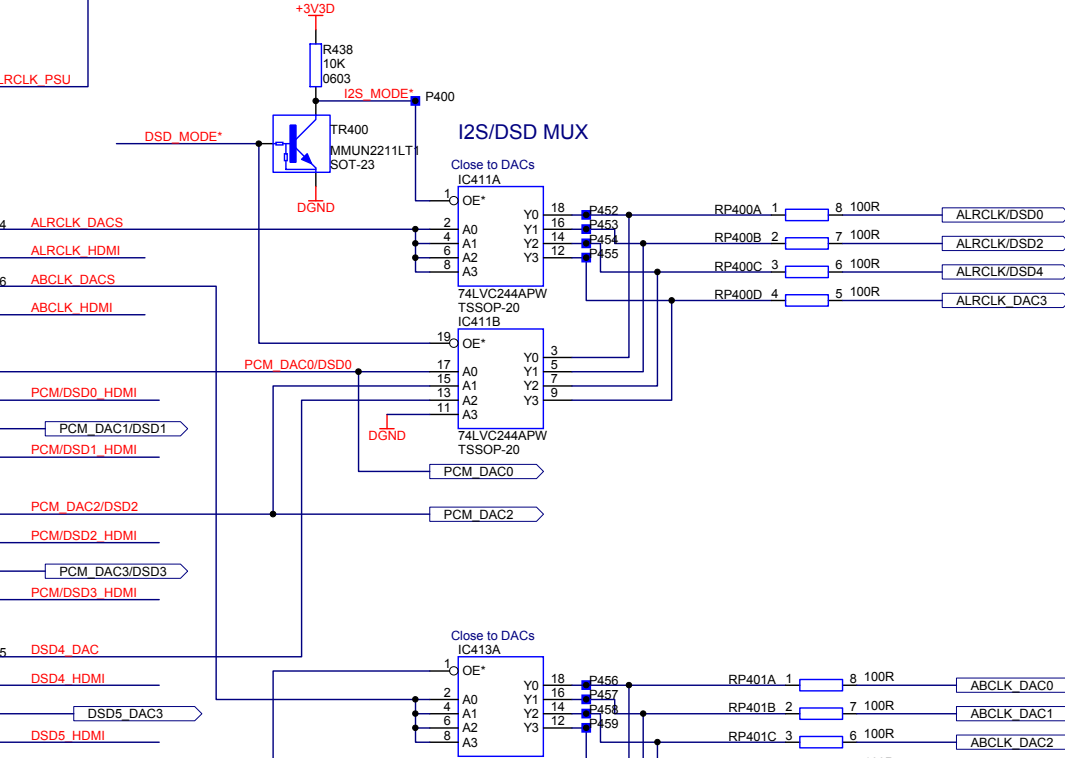
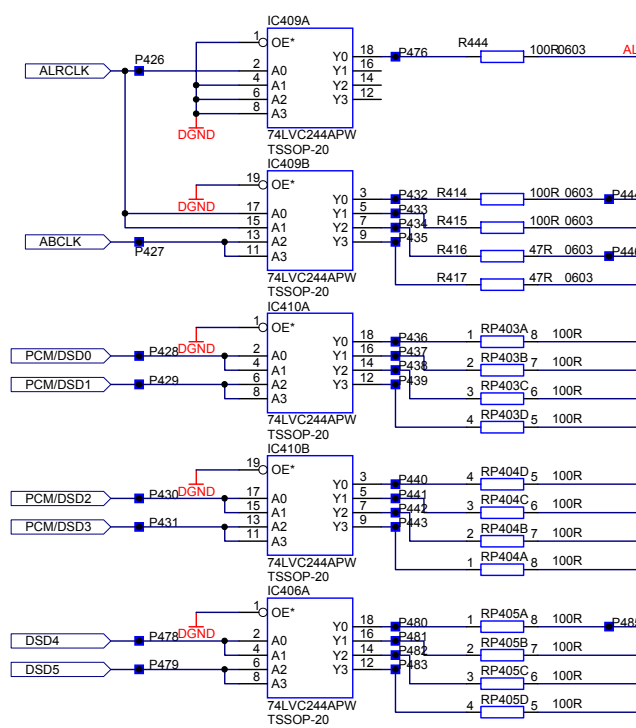


Fs	Master clock frequency	PLLSEL	DIV0*	DIV2*	DIV8*
32kHz	12.288MHz (384 x Fs)	1	1	0	1
44.1kHz	11.2896MHz (256 x Fs)	0	1	0	1
48kHz	12.288MHz (256 x Fs)	1	1	0	1
88.2kHz	22.5792MHz (256 x Fs)	0	0	1	1
96kHz	24.576MHz (256 x Fs)	1	0	1	1
176.4kHz	22.5792MHz (128 x Fs)	0	0	1	1
192kHz	24.576MHz (128 x Fs)	1	0	1	1
DSD 44.1k	2.8224MHz (64 x Fs)	0	1	1	0

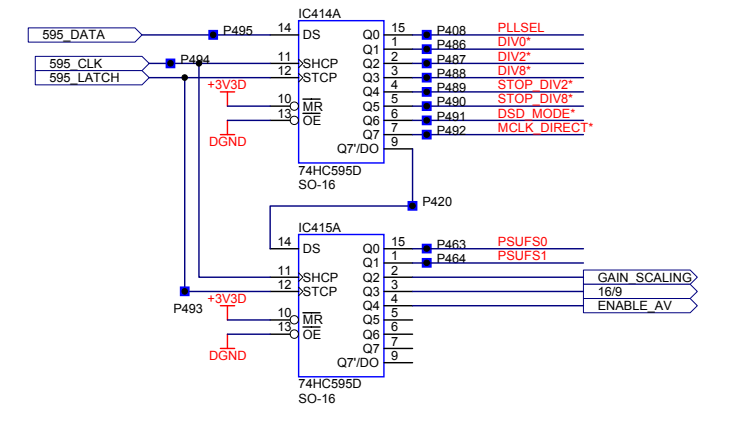
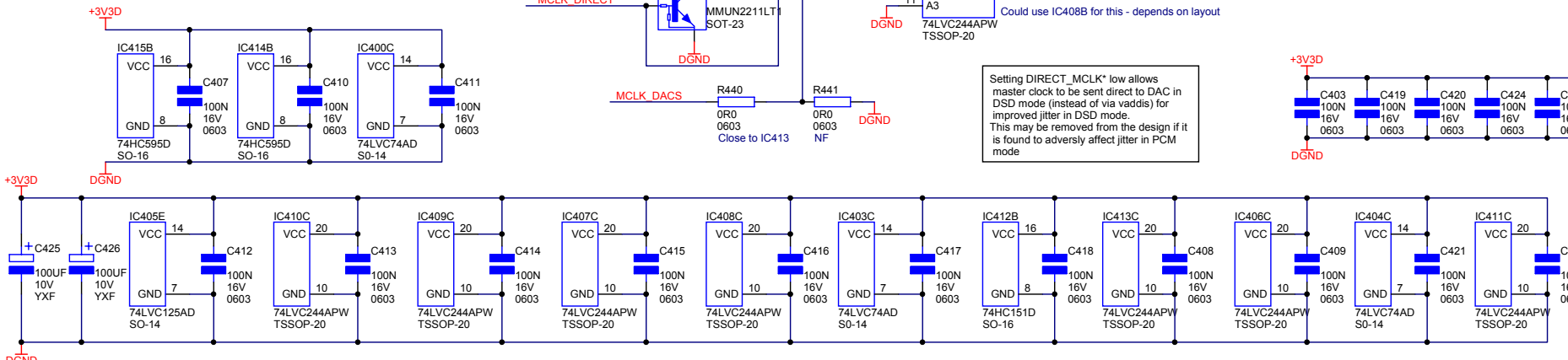
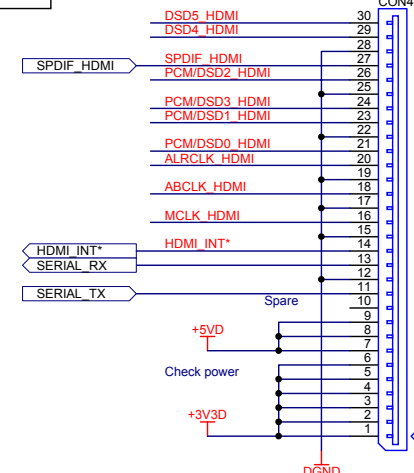
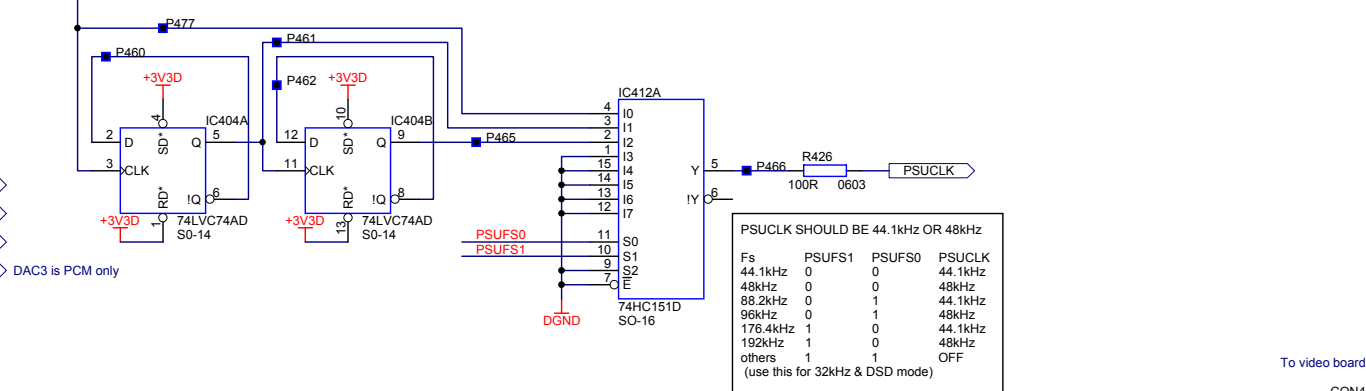
### AUDIO CLOCK BUFFERS



### I2S/DSD BUFFERS



### PSU CLOCK DIVIDER



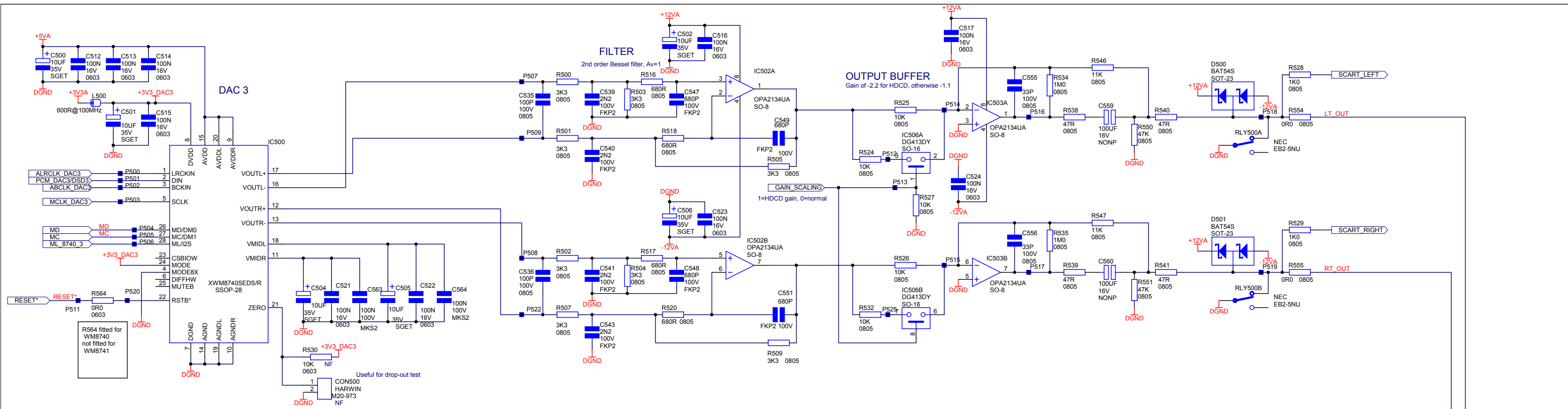
ITEM#	QTY	DESCRIPTION	REMARKS
ITEM400	1	E828AP Pad Damping 7.5x6x3MM Rubber	Fit on one side of XTAL (see assembly drawing)
ITEM401	1	F087 INSULATING PAD FOR HC49 CRYSTALS	Fit to X400 to insulate from PCB

REV	DATE	DESCRIPTION	BY
06_E159	AD/MJT	20/10/06	None to this sheet
06_E093	MJT	12/06/06	None to this sheet. Add heatsink to top of Vaddis.
06_E036	PG	20/03/05	Add thermal attach pads to IC200
06_E029	PG	14/03/05	Modify PSU for WM8741
06_E024	PG	22/02/05	Preliminary BOM release

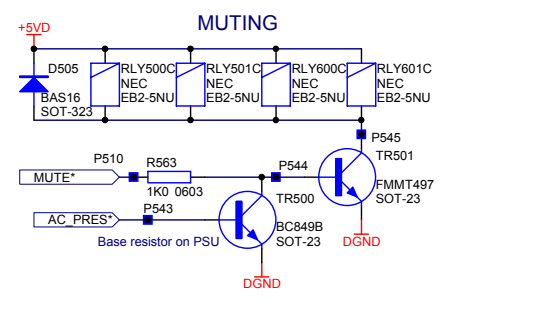
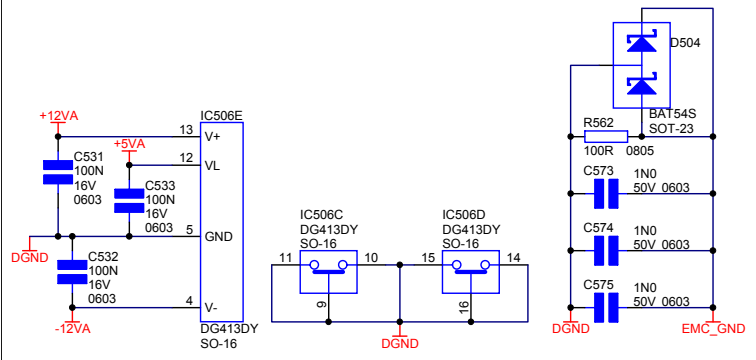
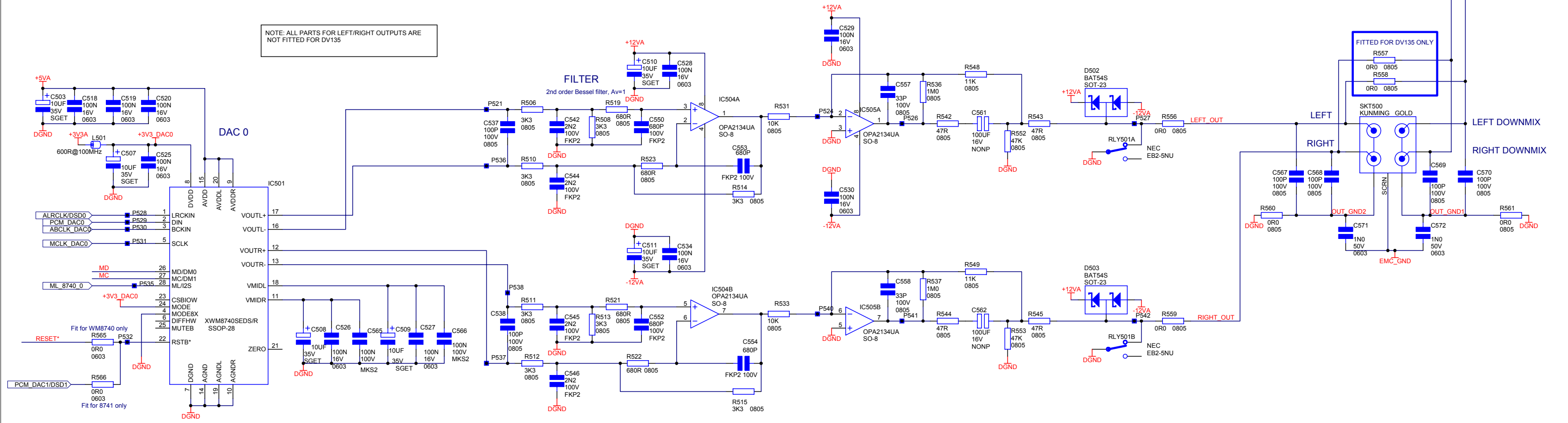
ECO No.	INITIALS	DATE	DESCRIPTION OF CHANGE	ISSUE
				1.0

**ARCAM**  
 A & R Cambridge Ltd.  
 Pembroke Avenue  
 Waterbeach  
 Cambridge CB5 9QR  
 Contact Engineer: Mark Tweedale markt@arcam.co.uk  
 Contact Tel: 01223 203210 (direct) 01223 203200 (switch)

Drawing Title: **DV139 Clocks & Buffers**  
 Filename: L110C04 Clocks & Buffers.Sch  
 Printed: 20-Oct-2006 Sheet 4 of 13 A2 DRAWING NO. L110CT



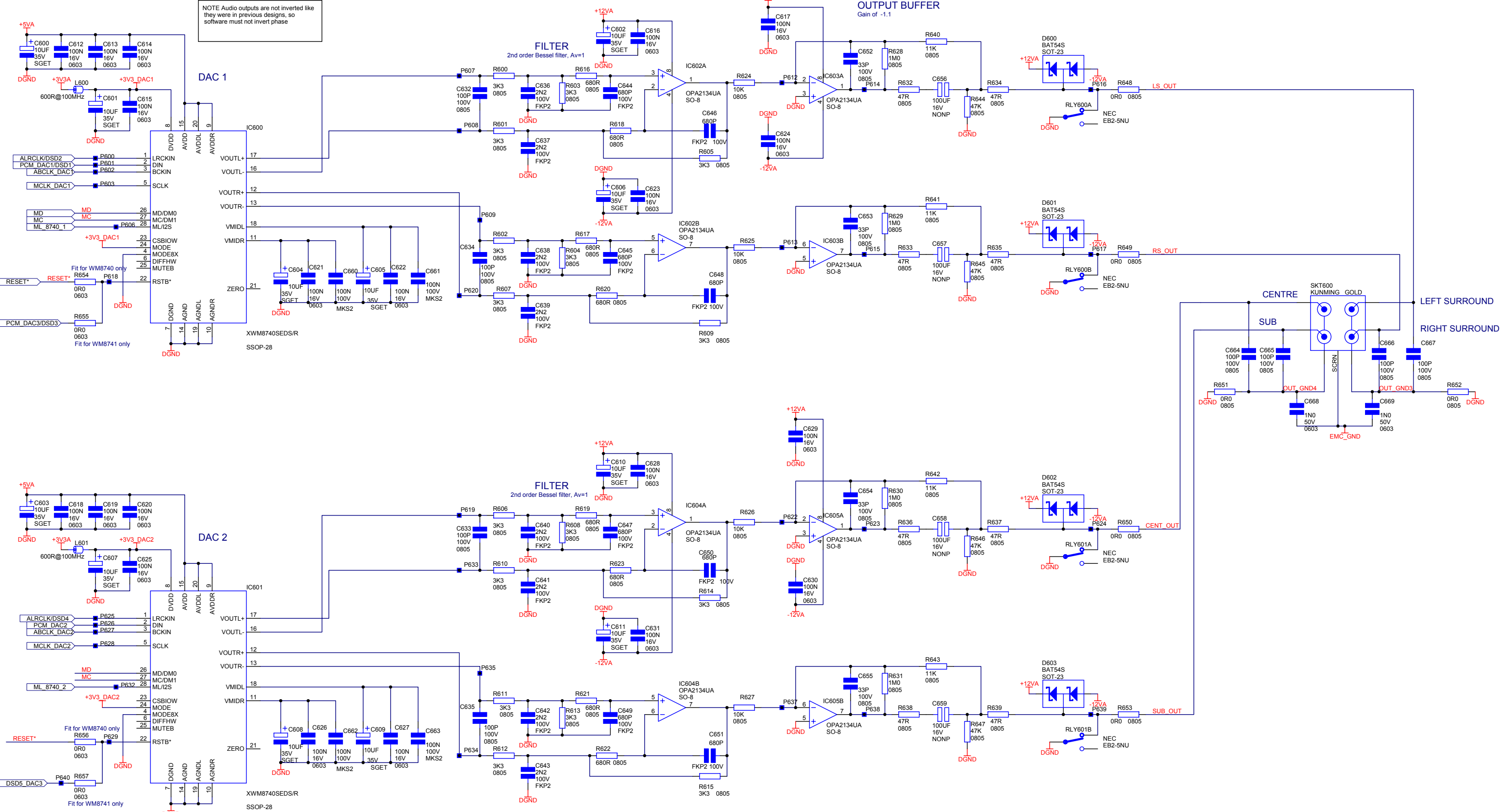
NOTE: ALL PARTS FOR LEFT/RIGHT OUTPUTS ARE NOT FITTED FOR DV135



DRAWING TITLE		06_E159		AD/MJT		20/10/06		DACs changed to WM8740. Removed rubber pads from o/p relays.		3.2	
DRAWING NO. DV139 DAC Left / Right		06_E093		MJT		12/06/06		None to this sheet. Add heatsink to top of Vaddis.		3.1	
Filename: L110C05 DAC L & R.Sch		06_E036		PG		20/03/05		Add thermal attach pads to IC200		3.0	
Notes:		06_E029		PG		14/03/05		Modify PSU for WM8741		2.0	
Notes:		06_E024		PG		22/02/05		Preliminary BOM release		1.0	
ECO No.		INITIALS		DATE		DESCRIPTION OF CHANGE		ISSUE			
Contact Engineer: Mark Tweedale markt@arcam.co.uk		Contact Tel: 01223 203210 (direct) 01223 203200 (switch)		Printed: 20-Oct-2006		Sheet 5 of 13		A2		DRAWING NO. L110CT	



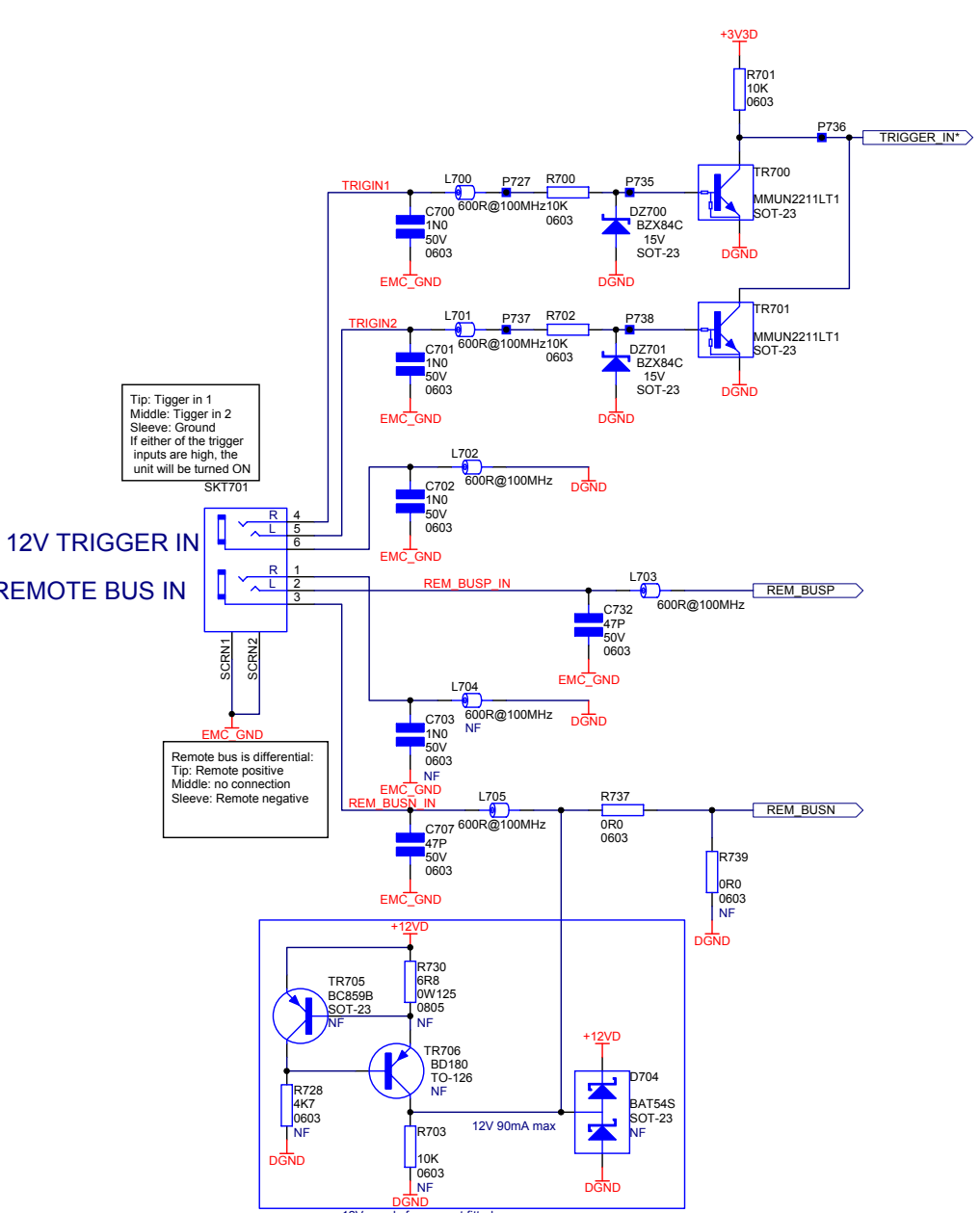
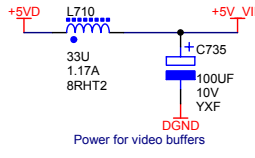
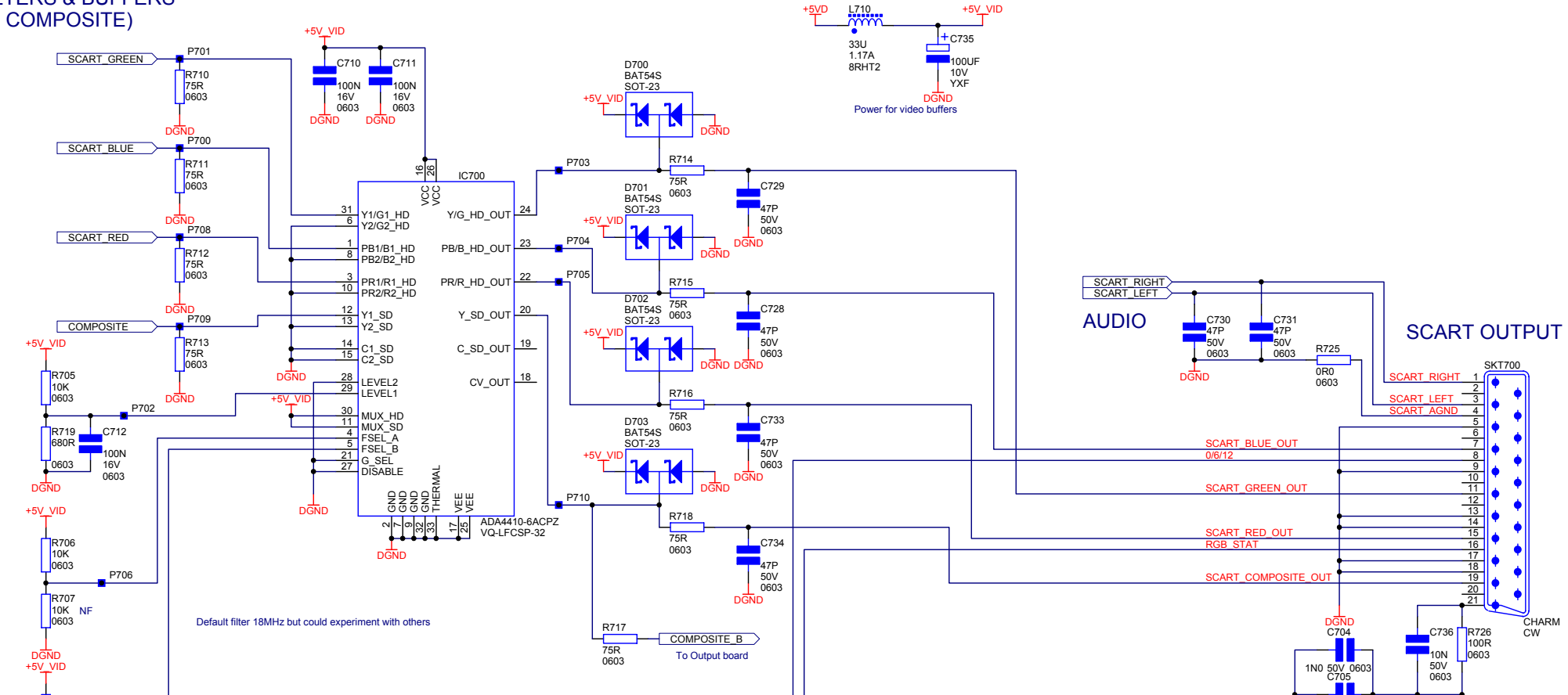
NOTE Audio outputs are not inverted like they were in previous designs, so software must not invert phase



NOTE: ALL PARTS ON THIS SHEET ARE NOT FITTED FOR DV135

DRAWING TITLE		06_E159		AD/MJT		20/10/06		DACs changed to WM8740. Removed rubber pads from o/p relays.		3.2					
<b>ARCAM</b> A & R Cambridge Ltd. Pembroke Avenue Waterbeach Cambridge CB5 9QR		Filename:		L110C06 DAC LS RS C SUB.Sch		06_E093		MJT		12/06/06		None to this sheet. Add heatsink to top of Vaddis.		3.1	
		Notes:				06_E036		PG		20/03/05		Add thermal attach pads to IC200		3.0	
						06_E029		PG		14/03/05		Modify PSU for WM8741		2.0	
						06_E024		PG		22/02/05		Preliminary BOM release		1.0	
						ECO No.		INITIALS		DATE		DESCRIPTION OF CHANGE		ISSUE	
Contact Engineer:		Mark Tweedale		markt@arcam.co.uk		Contact Tel:		01223 203210 (direct)		01223 203200 (switch)		Printed:		20-Oct-2006	
												Sheet		6 of 13	
												A2		DRAWING NO. L110CT	

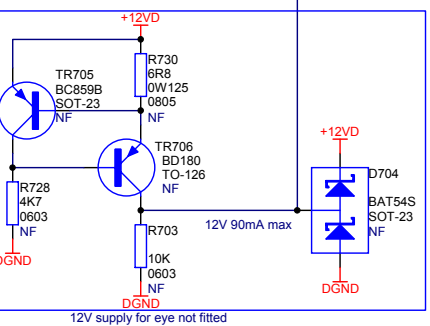
# VIDEO FILTERS & BUFFERS (SCART & COMPOSITE)



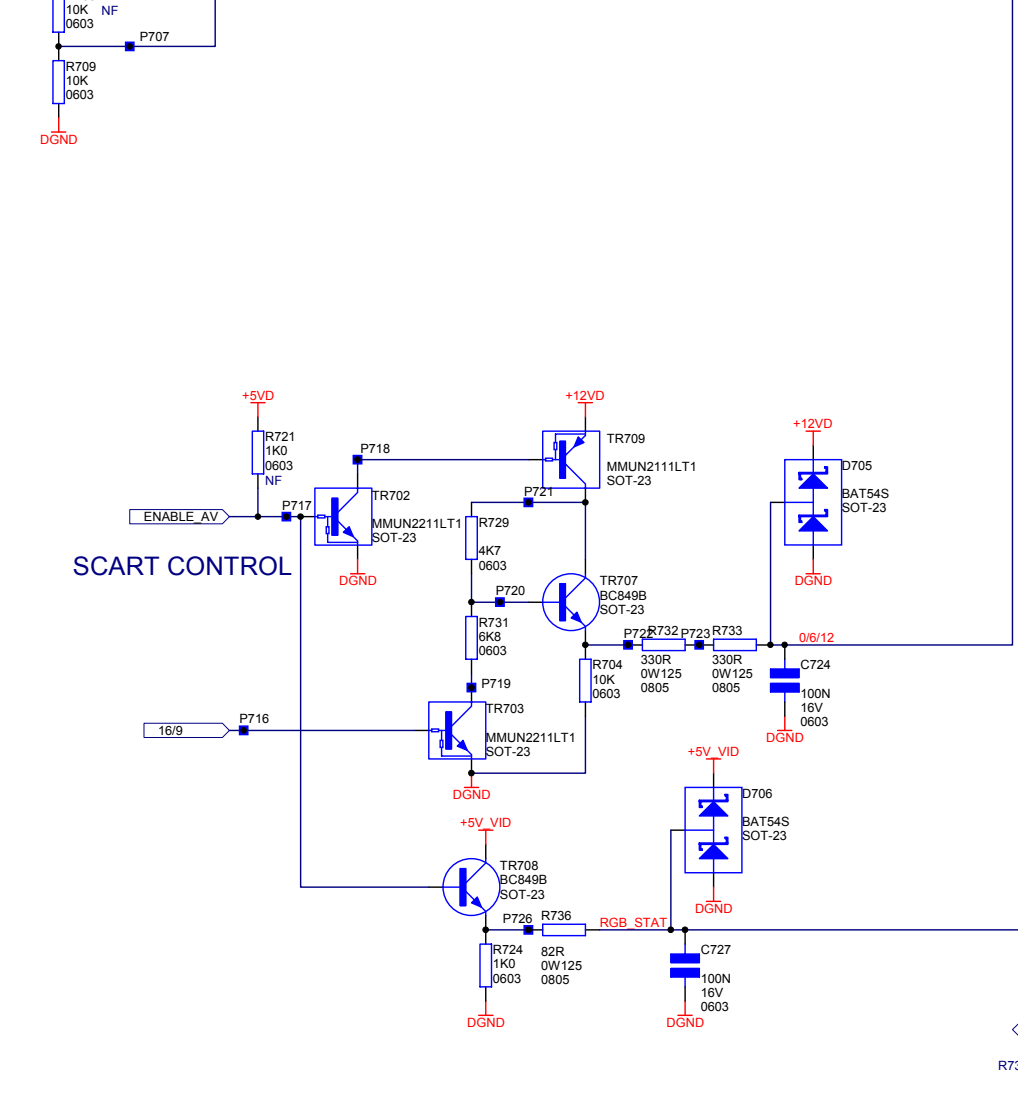
Tip: Tigger in 1  
Middle: Tigger in 2  
Sleeve: Ground  
If either of the trigger inputs are high, the unit will be turned ON

12V TRIGGER IN  
REMOTE BUS IN

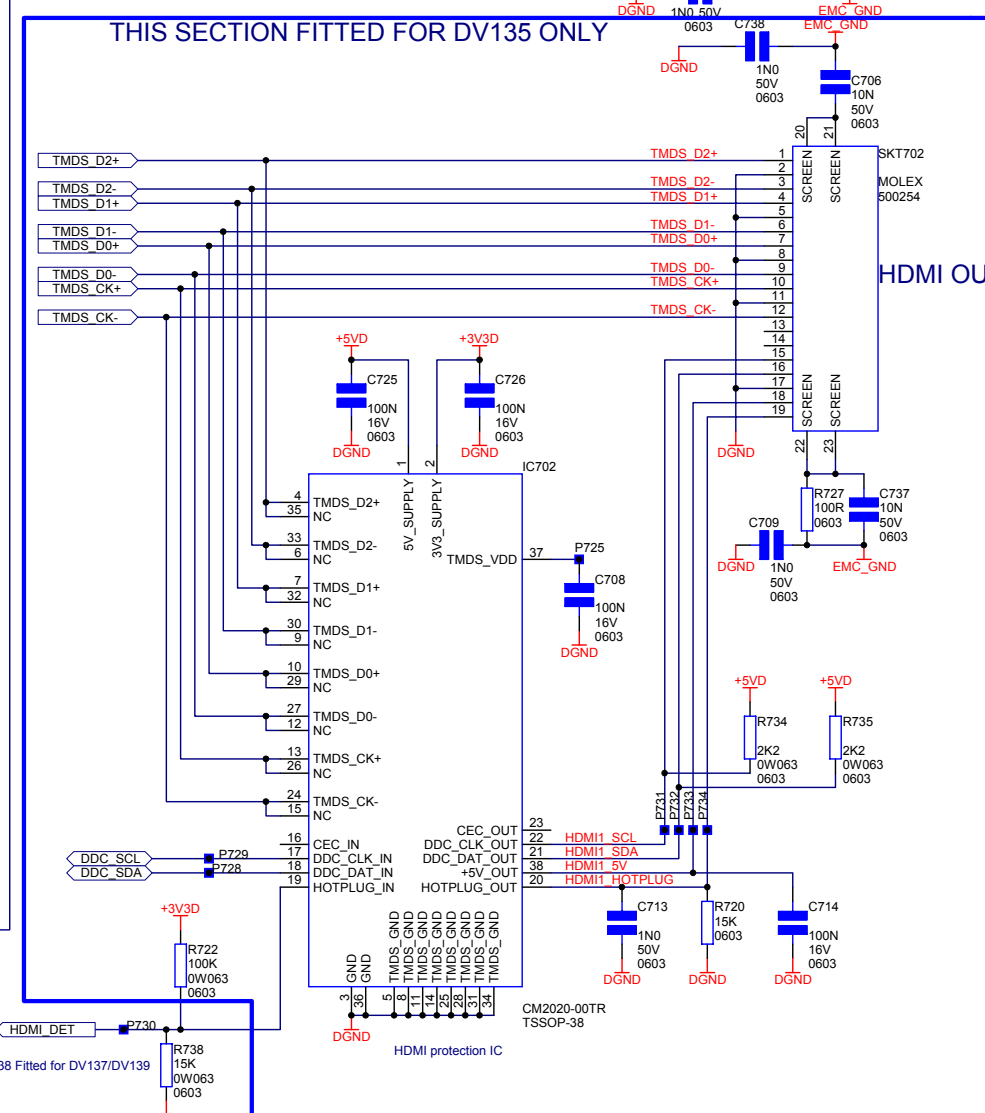
Remote bus is differential:  
Tip: Remote positive  
Middle: no connection  
Sleeve: Remote negative



Remote bus is configured for differential remote bus, but could be changed to have single ended remote bus with 12V out



SCART CONTROL



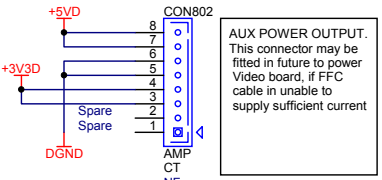
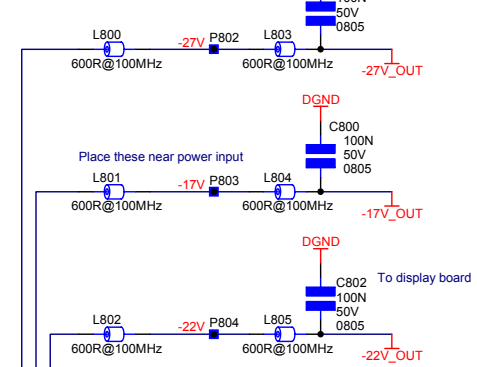
THIS SECTION FITTED FOR DV135 ONLY

HDMI OUT

DRAWING TITLE		06_E159 AD/MJT 20/10/06 None to this sheet		3.2
DV139 SCART, HDMI 1, remote		06_E093 MJT 12/06/06 None to this sheet. Add heatsink to top of Vaddis.		3.1
<b>ARCAM</b> A & R Cambridge Ltd. Pembroke Avenue Waterbeach Cambridge CB5 9QR		06_E036 PG 20/03/05 Add thermal attach pads to IC200		3.0
		06_E029 PG 14/03/05 Modify PSU for WM8741		2.0
Contact Engineer: Mark Tweedale mark@arcam.co.uk		06_E024 PG 22/02/05 Preliminary BOM release		1.0
		ECO No. INITIALS DATE DESCRIPTION OF CHANGE 01223 203210 (direct) 20-10-06 01223 203200 (switch)		ISSUE
Contact Tel: 01223 203210 (direct) 01223 203200 (switch)		Printed: 20-Oct-2006 Sheet 7 of 13		A2 DRAWING NO. L110CT

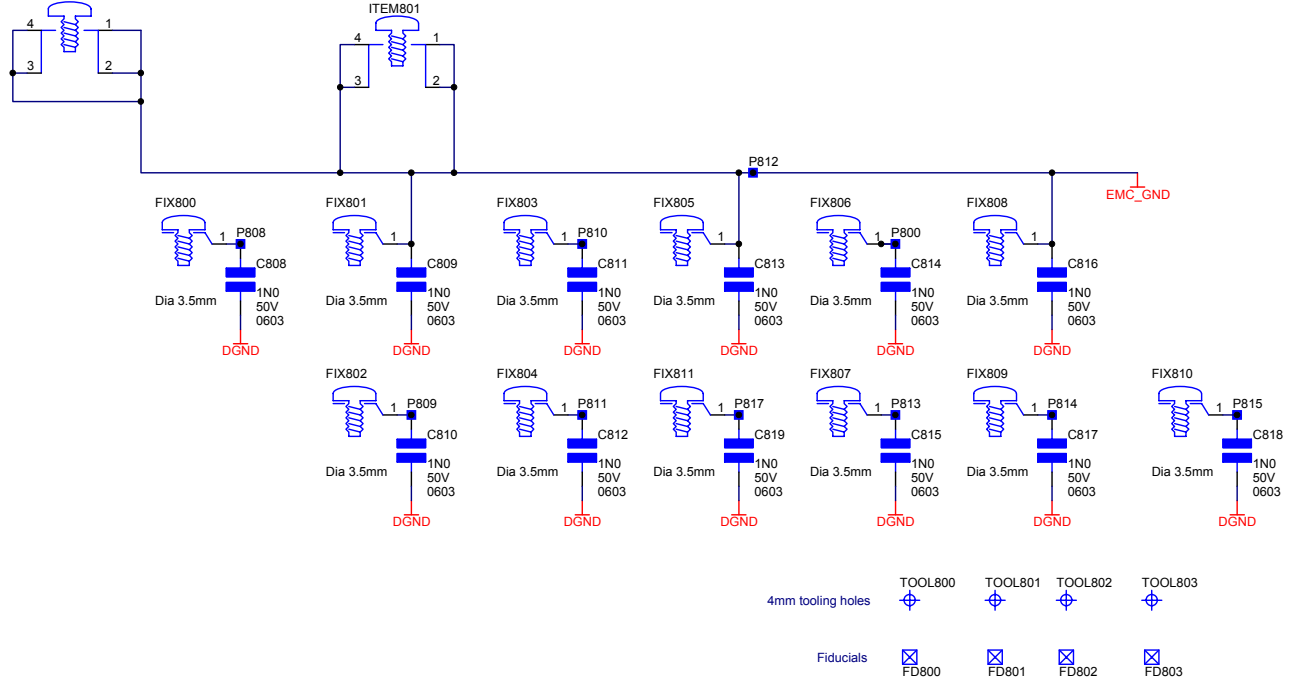


**DISPLAY BOARD SUPPLIES**



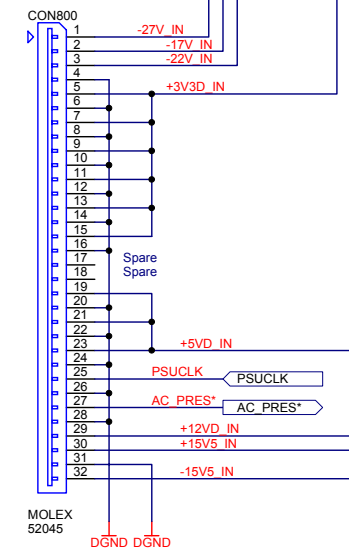
AUX POWER OUTPUT. This connector may be fitted in future to power Video board, if FFC cable is unable to supply sufficient current

**M3 R/A PCB FIXING BRACKETS**

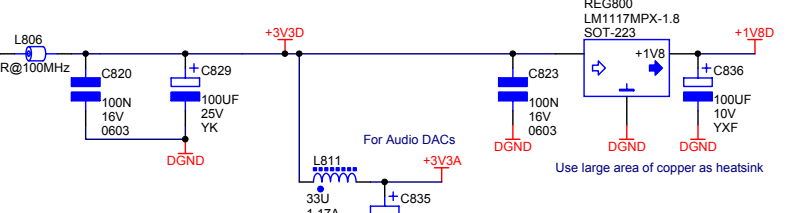


Could use spare connectors for more 5V but would mean mod to PSU

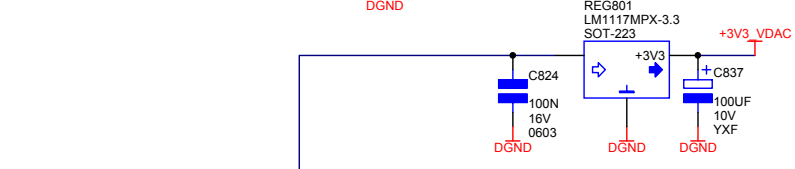
**POWER IN**



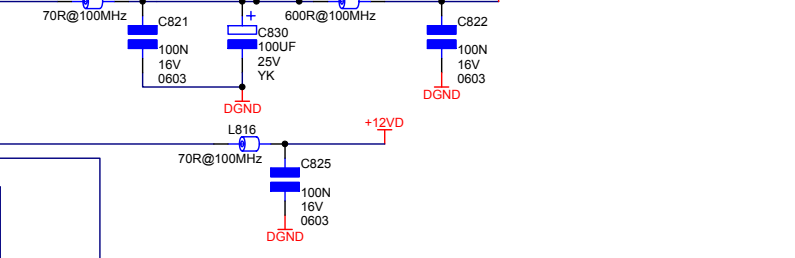
**VADDIS +1.8V CORE SUPPLY**



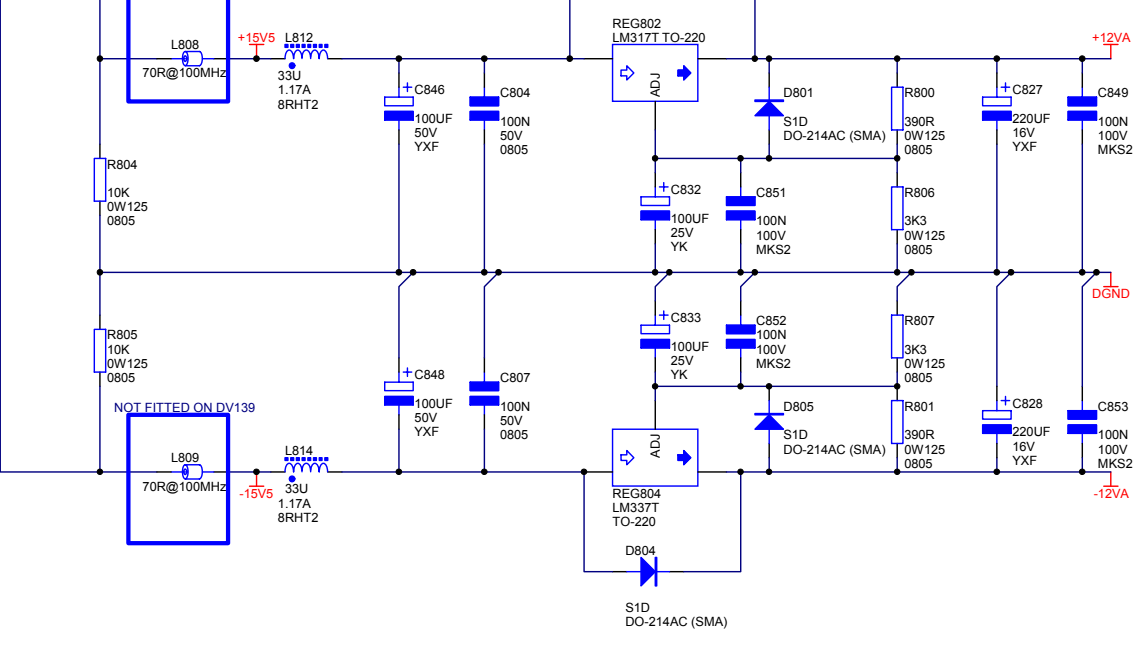
**VADDIS +3.3V DAC SUPPLY**



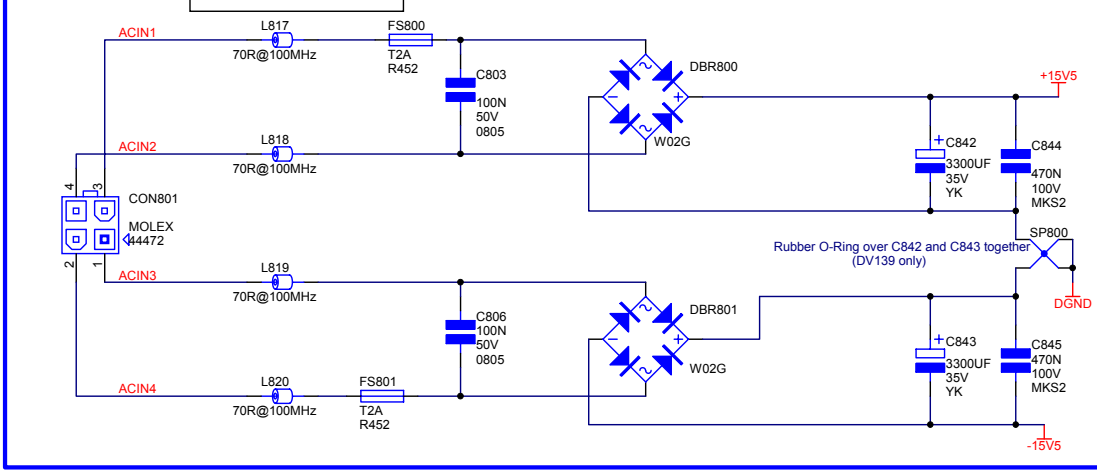
**+5V\_DISPLAY**



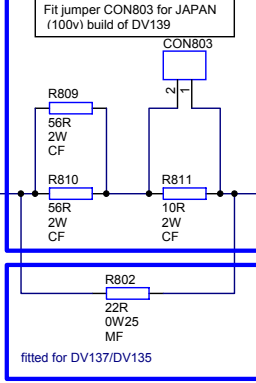
**AUDIO SUPPLY REGULATORS**



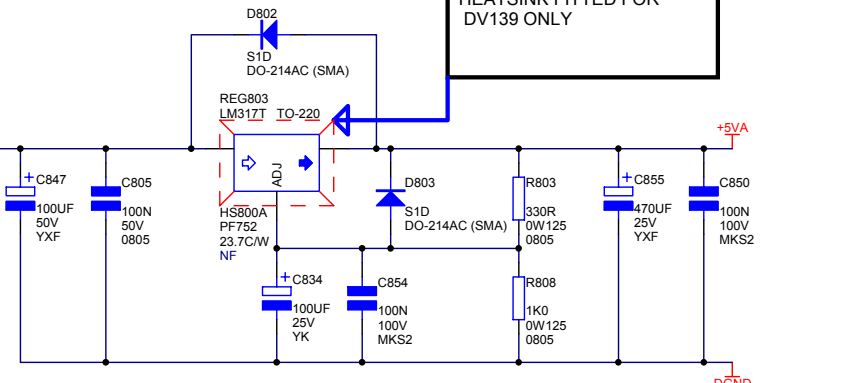
**AUX PSU Fitted for DV139 only**



**These parts fitted for DV139**



**AUDIO DAC SUPPLY**



**HEATSINK FITTED FOR DV139 ONLY**

Audio power rails come from AUX PSU for DV139

Dummy loads to stabilise switch mode PSU when rails are not used

NOT FITTED ON DV139

NOT FITTED ON DV139

ITEM	QTY	PART No.	DESCRIPTION	NOTES
ITEM802	1	F291	26.4mm I/D, 32.5mm O/D O-Ring	Place over C842 and C843 together (halfway down the capacitor) (DV139 only)

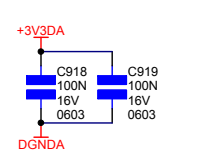
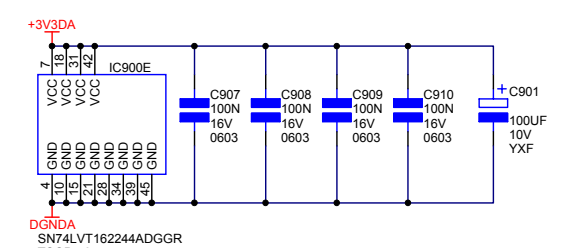
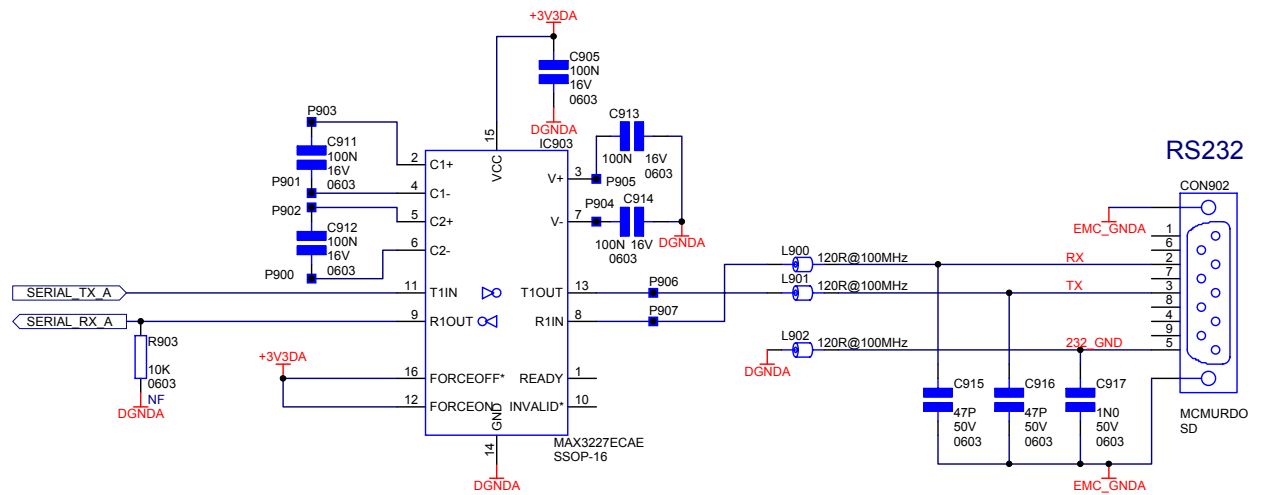
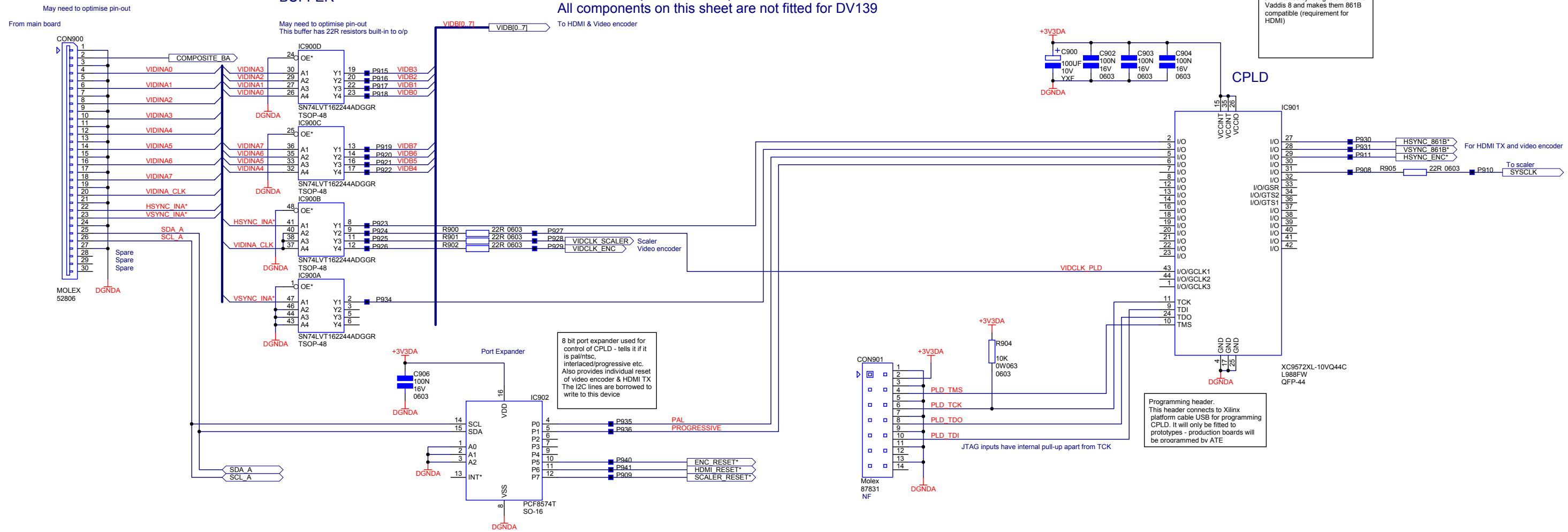
DRAWING TITLE		DV139 Power	
06_E159	AD/MJT	20/10/06	Added rubber ring (over C842/C843)
06_E093	MJT	12/06/06	None to this sheet. Add heatsink to top of Vaddis.
06_E036	PG	20/03/05	Add thermal attach pads to IC200
06_E029	PG	14/03/05	Modify PSU for WM8741
06_E024	PG	22/02/05	Preliminary BOM release
ECO No.	INITIALS	DATE	DESCRIPTION OF CHANGE

**ARCAM**  
A & R Cambridge Ltd.  
Pembroke Avenue  
Waterbeach  
Cambridge CB5 9QR

Filename: L110C08 Power.Sch  
Contact Engineer: Mark Tweedale markt@arcam.co.uk  
Contact Tel: 01223 203210 (direct) 01223 203200 (switch)  
Printed: 20-Oct-2006  
Sheet 8 of 13  
DRAWING NO. L110CT

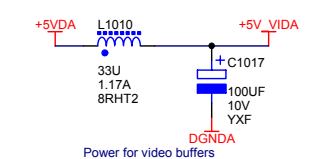
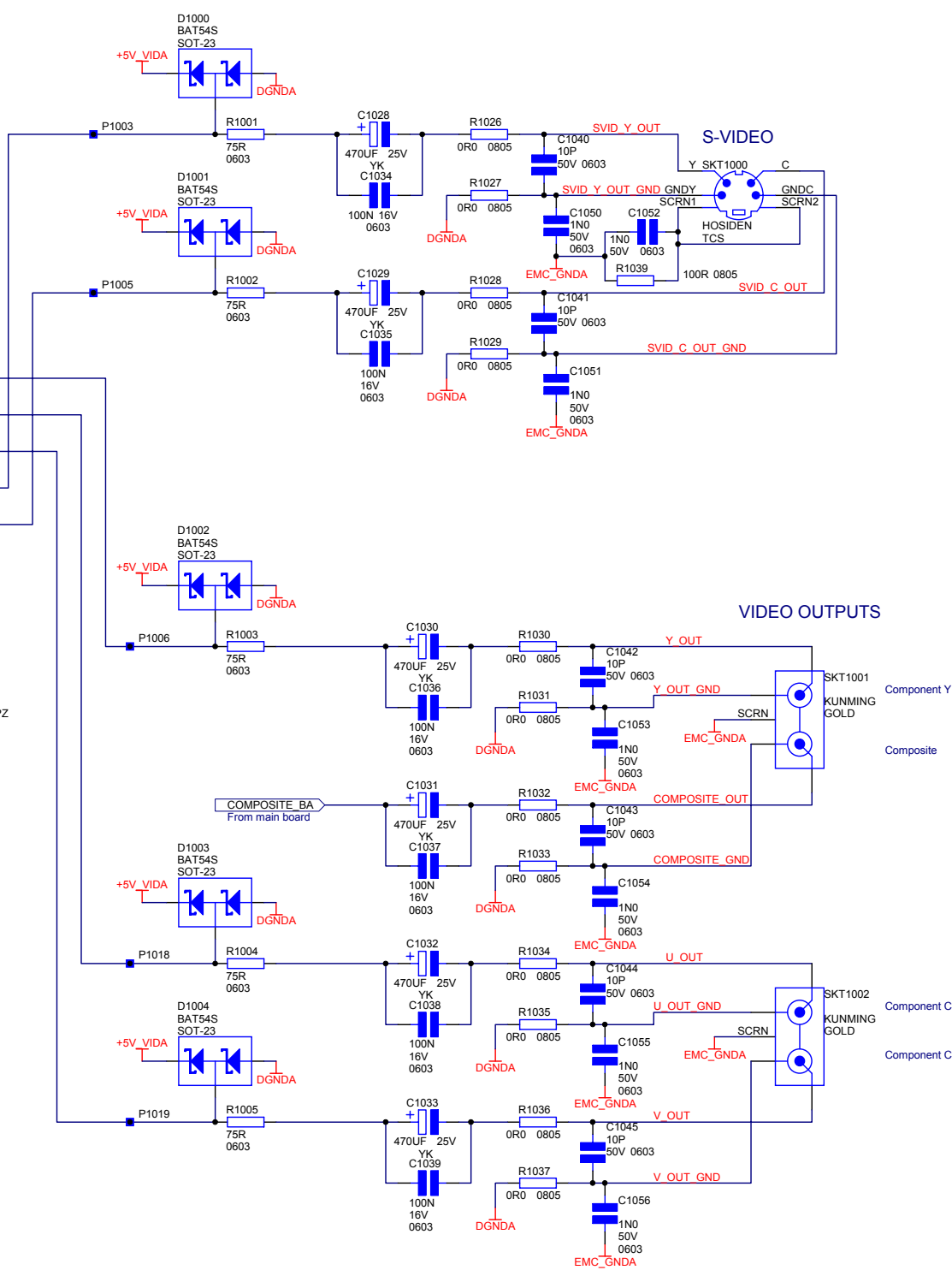
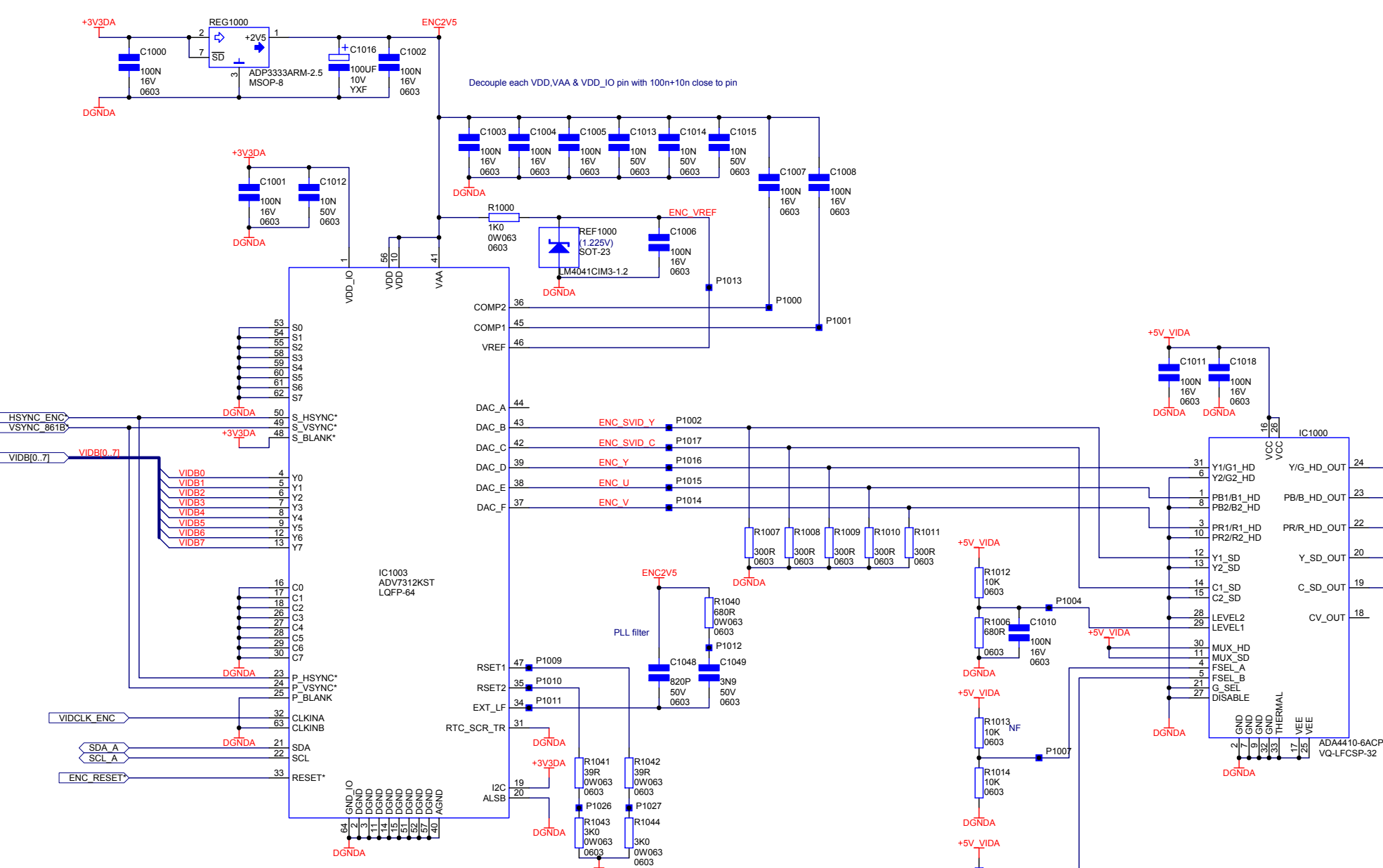
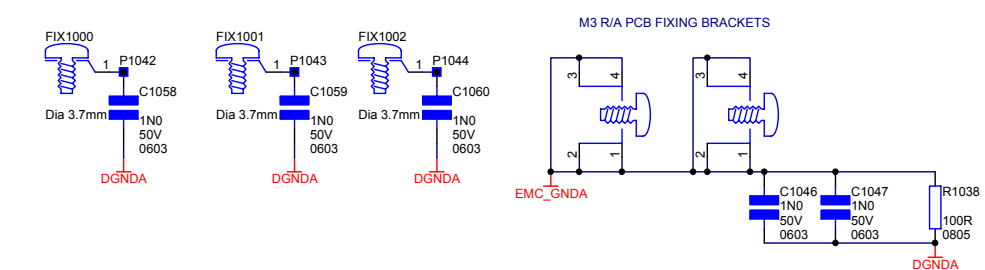
# BUFFER

This circuit is part of the snap-off section.  
All components on this sheet are not fitted for DV139



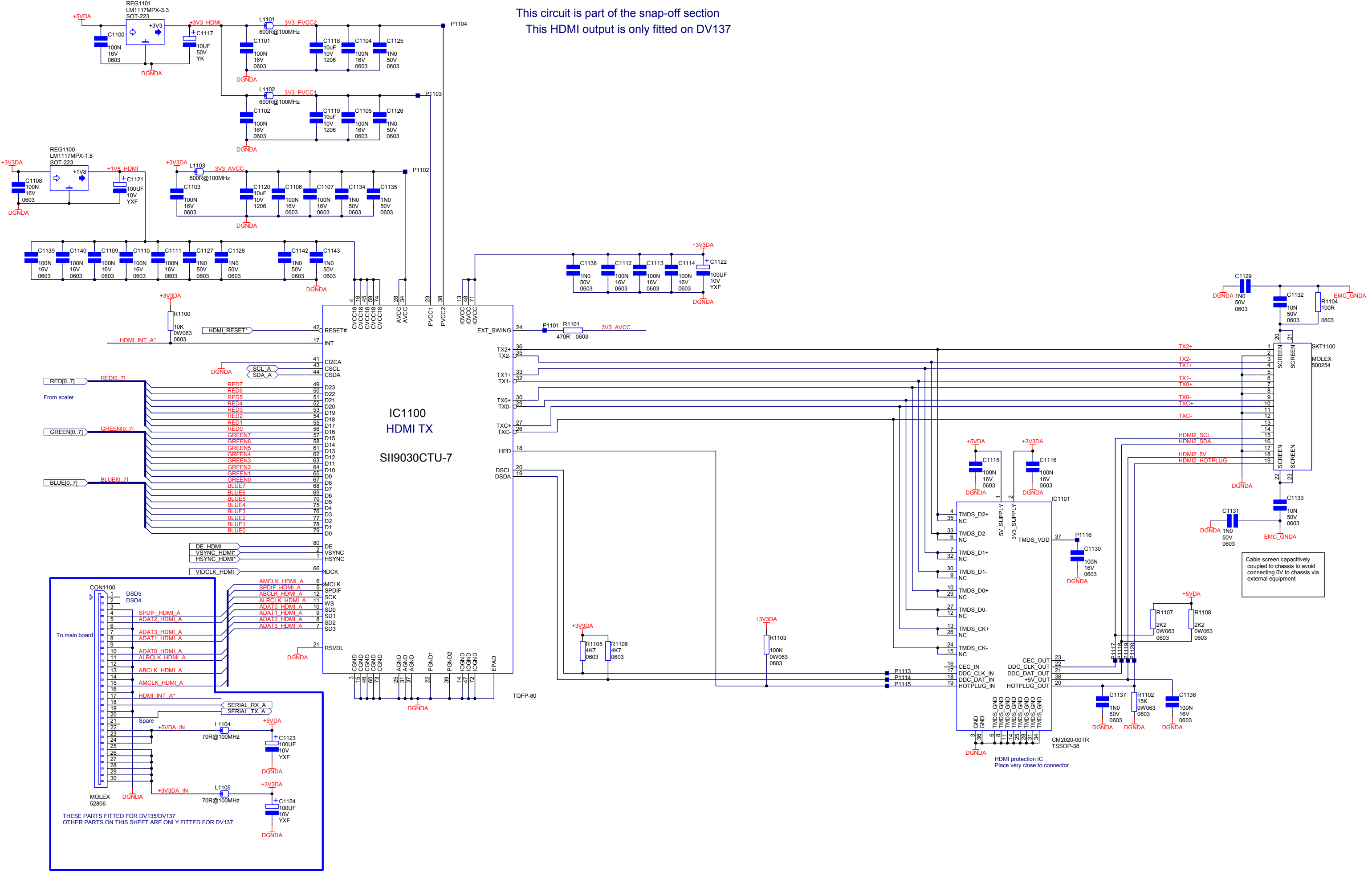
DRAWING TITLE		06_E159		AD/MJT		20/10/06		None to this sheet		3.2							
DV139 buffer & PLD (not fitted)		06_E093		MJT		12/06/06		None to this sheet. Add heatsink to top of Vaddis.		3.1							
<b>ARCAM</b> A & R Cambridge Ltd. Pembroke Avenue Waterbeach Cambridge CB5 9QR		Filename:		L110C09 Buffer & PLD.Sch		06_E036		PG		20/03/05		Add thermal attach pads to IC200		3.0			
		Notes:		06_E029		PG		14/03/05		Modify PSU for WM8741		2.0					
		06_E024		PG		22/02/05		Preliminary BOM release		1.0							
		ECO No.		INITIALS		DATE		DESCRIPTION OF CHANGE		ISSUE							
Contact Engineer:		Mark Tweedale		markt@arcam.co.uk		Contact Tel:		01223 203210 (direct)		01223 203200 (switch)		Printed: 20-Oct-2006		Sheet 9 of 13		A2 DRAWING NO. L110CT	

This circuit is part of the snap-off section  
All components on this sheet are not fitted for DV139



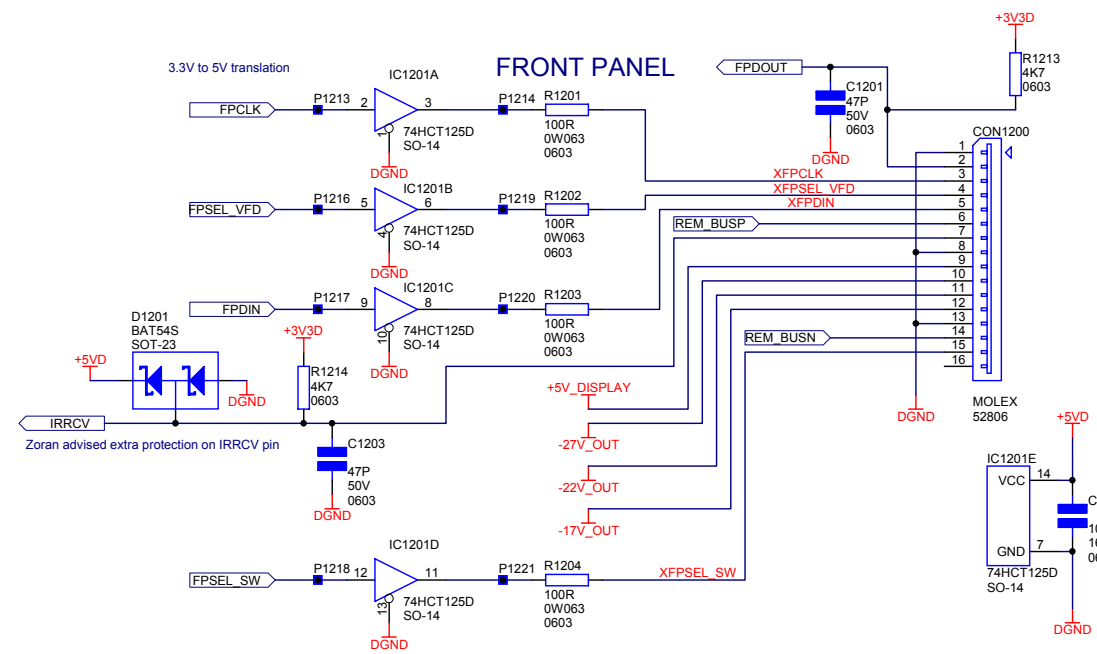
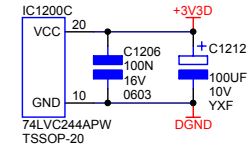
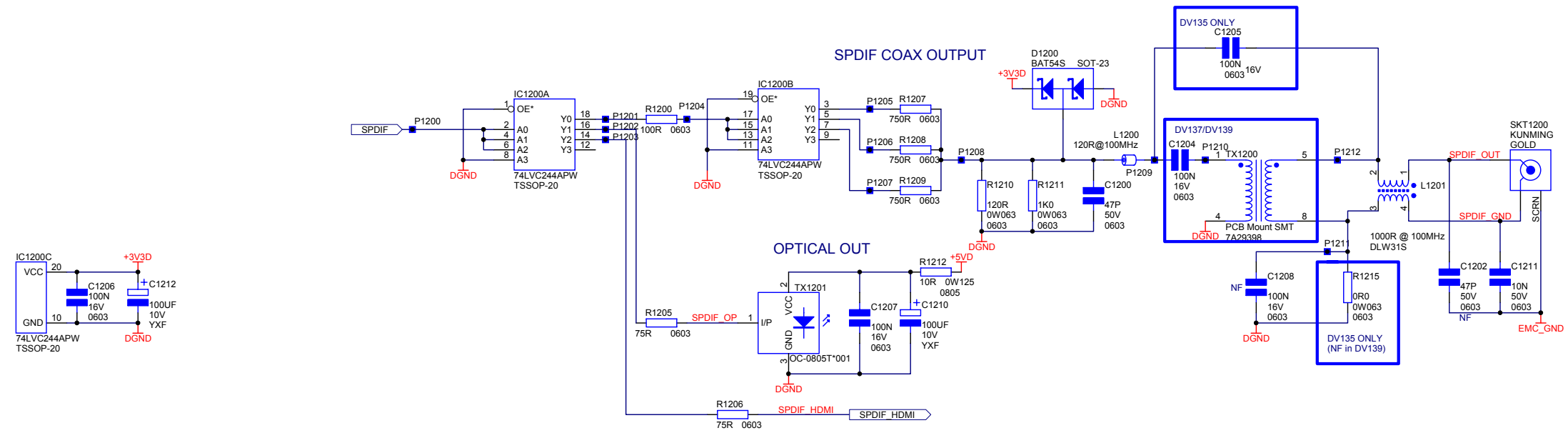
DRAWING TITLE		06_E159		AD/MJT		20/10/06		None to this sheet		3.2	
DV139 Video Encoder (not fitted)		06_E093		MJT		12/06/06		None to this sheet. Add heatsink to top of Vaddis.		3.1	
<b>ARCAM</b> A & R Cambridge Ltd. Pembroke Avenue Waterbeach Cambridge CB5 9QR		06_E036		PG		20/03/05		Add thermal attach pads to IC200		3.0	
		06_E029		PG		14/03/05		Modify PSU for WM8741		2.0	
		06_E024		PG		22/02/05		Preliminary BOM release		1.0	
		ECO No.		INITIALS		DATE		DESCRIPTION OF CHANGE		ISSUE	
Contact Engineer: Mark Tweedale markt@arcam.co.uk		Contact Tel: 01223 203210 (direct) 01223 203200 (switch)		Printed: 20-Oct-2006		Sheet 10 of 13		A2		DRAWING NO. L1100T	

This circuit is part of the snap-off section  
 This HDMI output is only fitted on DV137



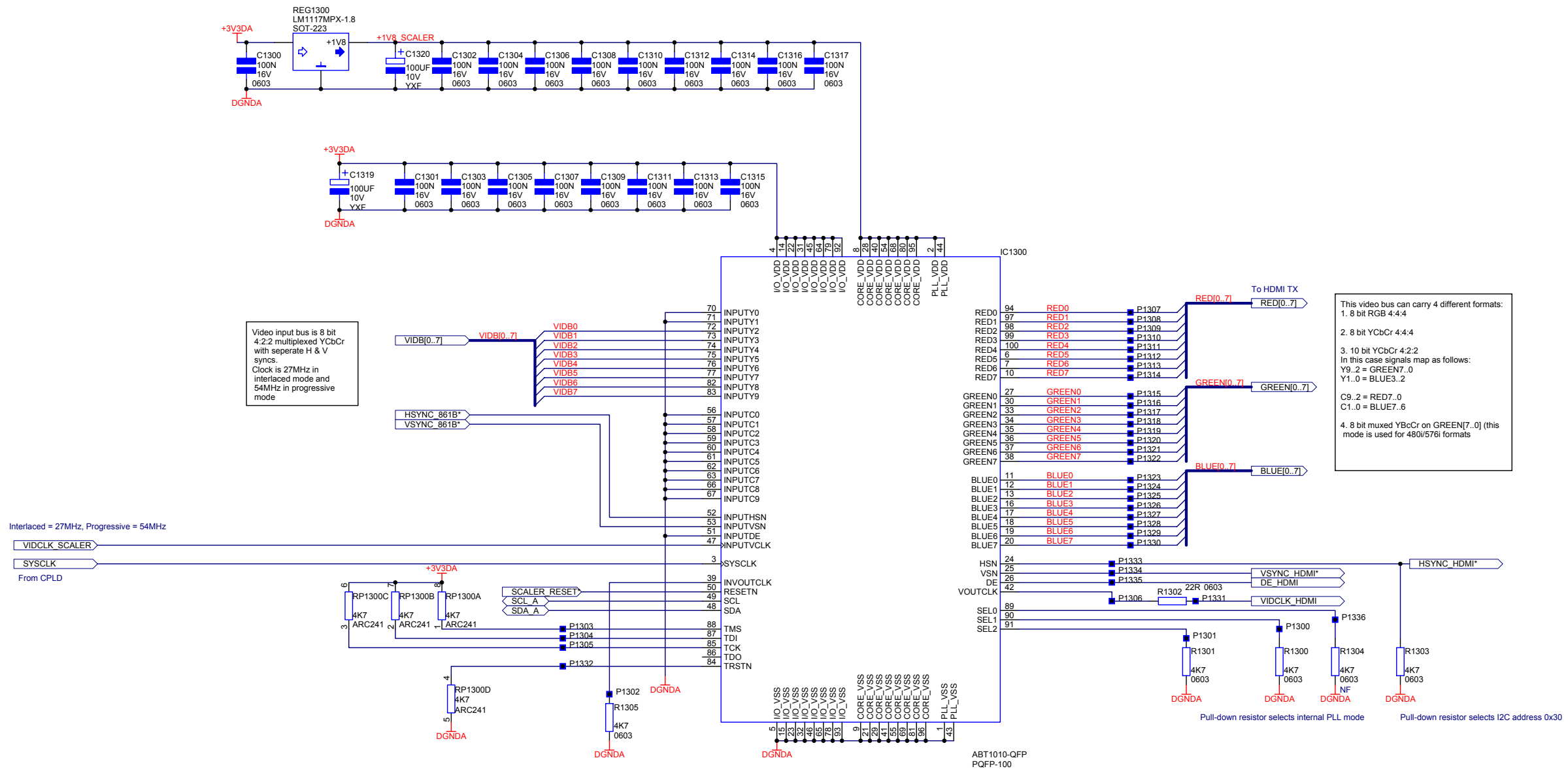
Cable screen capacitively coupled to chassis to avoid connecting 0V to chassis via external equipment

DRAWING TITLE		06_E159		AD/MJT		20/10/06		None to this sheet		3.2			
<b>ARCAM</b> A & R Cambridge Ltd. Pembroke Avenue Waterbeach Cambridge CB5 9QR		Filename: L110C11 HDMI 2.Sch		06_E093		MJT		12/06/06		None to this sheet. Add heatsink to top of Vaddis.		3.1	
		Notes:		06_E036		PG		20/03/05		Add thermal attach pads to IC200		3.0	
		06_E029		PG		14/03/05		Modify PSU for WM8741		2.0			
		06_E024		PG		22/02/05		Preliminary BOM release		1.0			
ECO No.		INITIALS		DATE		DESCRIPTION OF CHANGE				ISSUE			
Contact Engineer: Mark Tweedale markt@arcam.co.uk		Contact Tel: 01223 203210 (direct) 01223 203200 (switch)		Printed: 20-Oct-2006		Sheet 11 of 13		A2		DRAWING NO. L110CT			

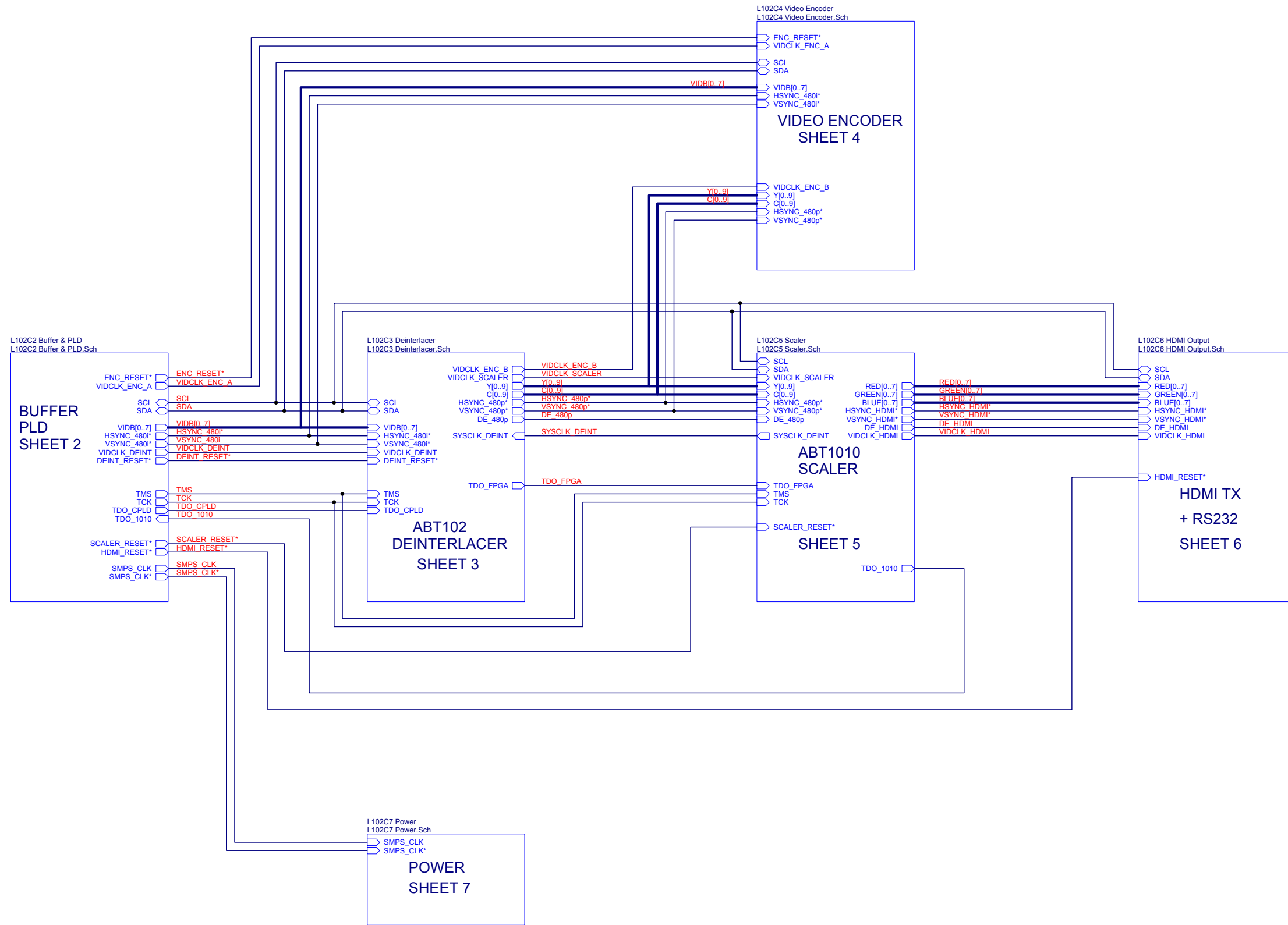


DRAWING TITLE		06_E159		AD/MJT		20/10/06		R1215 now set to NF		3.2			
<b>ARCAM</b> A & R Cambridge Ltd. Pembroke Avenue Waterbeach Cambridge CB5 9QR		Filename: L110C12 SPDIF & Front panel interface.Sch		06_E093		MJT		12/06/06		None to this sheet. Add heatsink to top of Vaddis.		3.1	
		Notes:		06_E036		PG		20/03/05		Add thermal attach pads to IC200		3.0	
				06_E029		PG		14/03/05		Modify PSU for WM8741		2.0	
				06_E024		PG		22/02/05		Preliminary BOM release		1.0	
		ECO No.		INITIALS		DATE		DESCRIPTION OF CHANGE		ISSUE			
Contact Engineer: Mark Tweedale mark@arcam.co.uk		Contact Tel: 01223 203210 (direct) 01223 203200 (switch)		Printed: 29-Oct-2006		Sheet 12 of 13		A2		DRAWING NO. L110CT			

This circuit is part of the snap-off section.  
All components on this sheet are only fitted for DV137

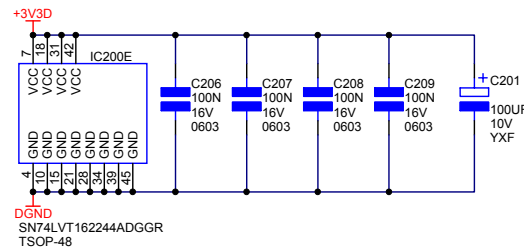
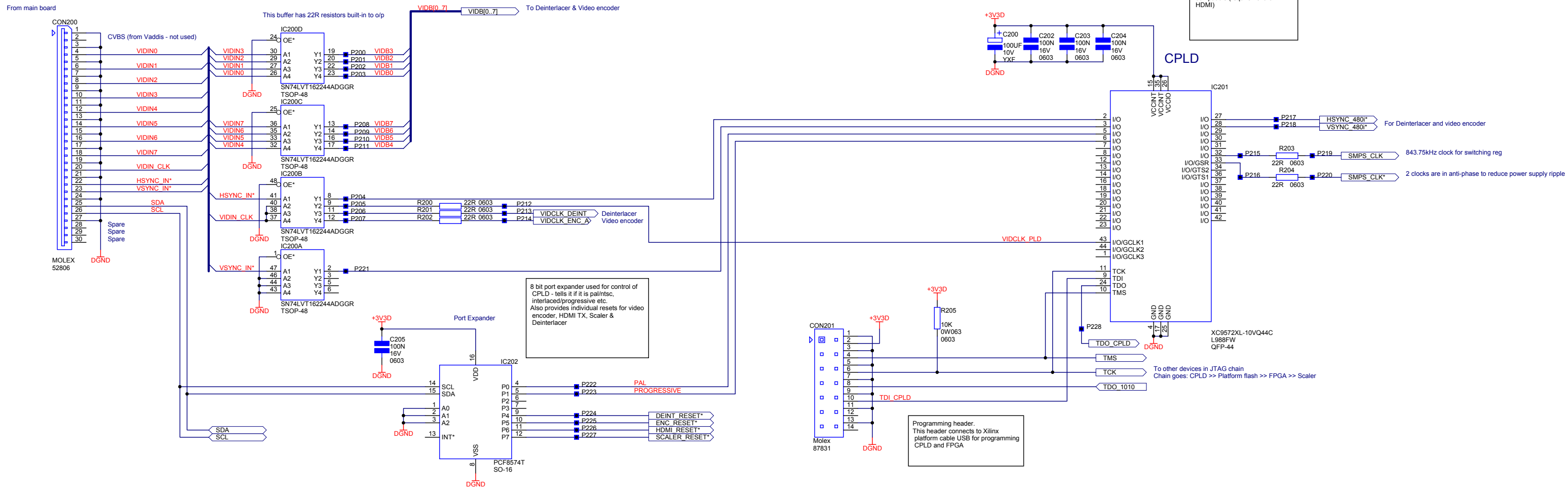


DRAWING TITLE		06_E159	AD/MJT	20/10/06	None to this sheet	3.2
<b>DV139 Scaler (not fitted)</b> <b>ARCAM</b> A & R Cambridge Ltd. Pembroke Avenue Waterbeach Cambridge CB5 9QR		06_E093	MJT	12/06/06	None to this sheet. Add heatsink to top of Vaddis.	3.1
		06_E036	PG	20/03/05	Add thermal attach pads to IC200	3.0
Filename: L110C13 Scaler.Sch Notes:		06_E029	PG	14/03/05	Modify PSU for WM8741	2.0
		06_E024	PG	22/02/05	Preliminary BOM release	1.0
ECO No. INITIALS DATE DESCRIPTION OF CHANGE		06_E024	PG	22/02/05	Preliminary BOM release	1.0
Contact Engineer: Mark Tweedale mark@arcam.co.uk Contact Tel: 01223 203210 (direct) 01223 203200 (switch)		06_E024	PG	22/02/05	Preliminary BOM release	1.0
Printed: 20-Oct-2006 Sheet 13 of 13 A2 DRAWING NO. L110CT		06_E024	PG	22/02/05	Preliminary BOM release	1.0



ITEM	QTY	PART No.	DESCRIPTION	NOTES
ITEM100	1	L102PB	Blank PCB DV139 Video Board	
<b>DRAWING TITLE</b>				
<b>DV139 Video Board Top Level</b>				
<b>ARCAM</b>		Filename: L102C1 Top Level.Sch		
A & R Cambridge Ltd. Pembroke Avenue Waterbeach Cambridge CB5 9QR		Notes:		
06_E159	MJT/PG	19/10/06	Production issue. Add ferrite disc to IC301.	1.0
ECO No.	INITIALS	DATE	DESCRIPTION OF CHANGE	ISSUE
Contact Engineer: Peter Gaggis		Contact Tel: (01223) 203270	Printed: 20-Oct-2006	Sheet 1 of 7
		DRAWING NO. L102CT		

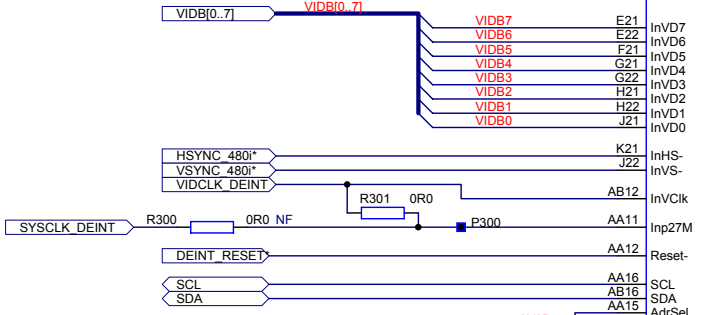
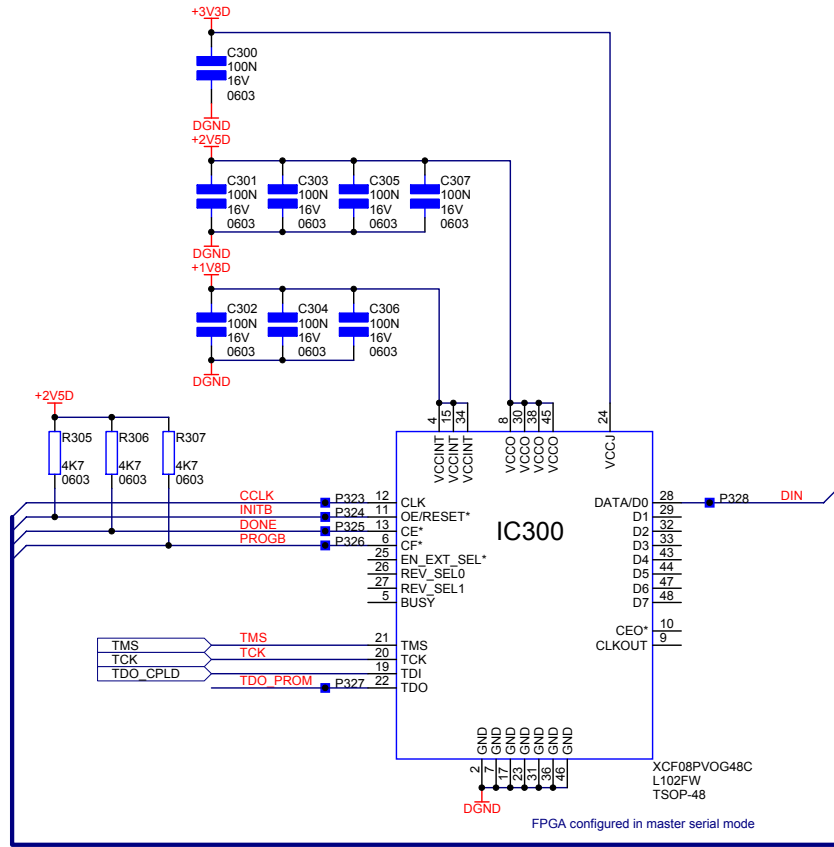
# BUFFER



DRAWING TITLE		DV139 Digital video buffer & PLD			
Filename:		L102C2 Buffer & PLD.Sch			
Notes:					
ECO No.	INITIALS	DATE	DESCRIPTION OF CHANGE		ISSUE
06_E159	MJT/PG	19/10/06	None to this sheet.		1.0
Contact Engineer: Peter Gaggis		Contact Tel: (01223) 203270		Printed: 20-Oct-2006	Sheet 2 of 7
A & R Cambridge Ltd. Pembroke Avenue Waterbeach Cambridge CB5 9QR		DRAWING NO. L102CT			



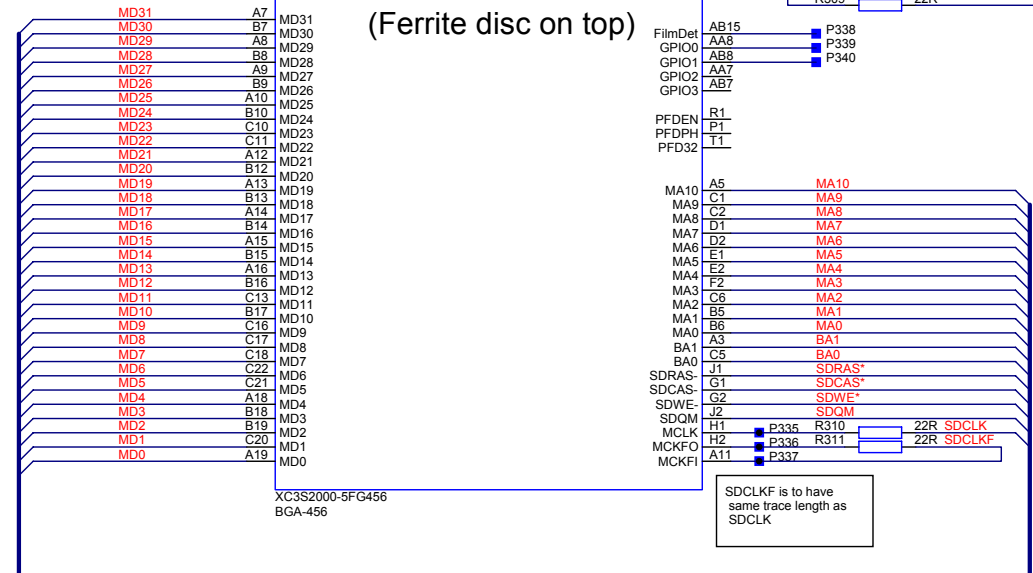
### Configuration PROM



Inp27M runs from video clock.  
It is an option to use SYSCLK\_DEINT from XTAL oscillator instead (see sheet 5)

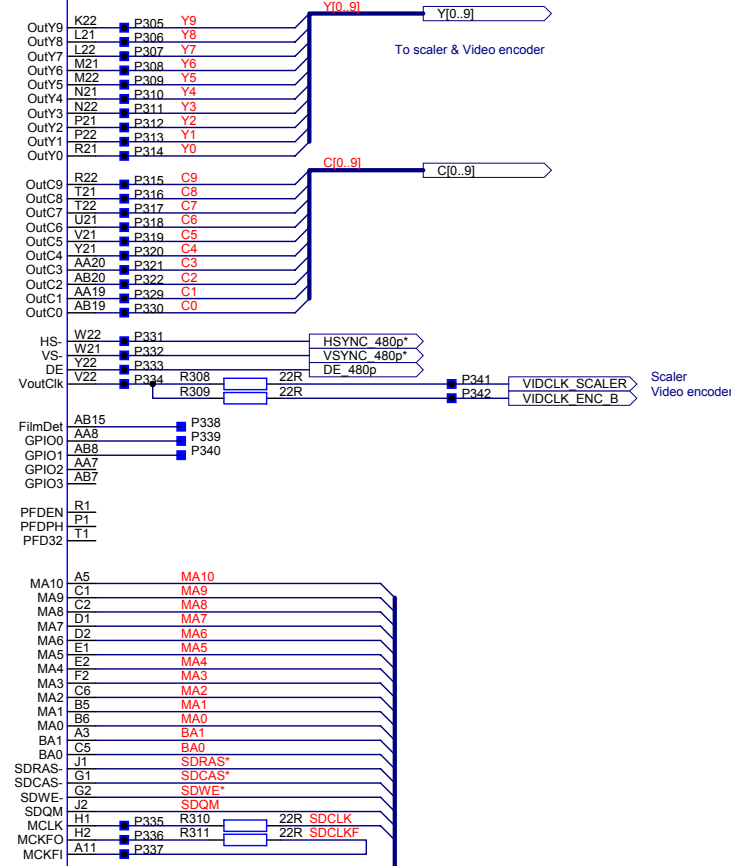
### IC301A ABT102 FPGA

(Ferrite disc on top)

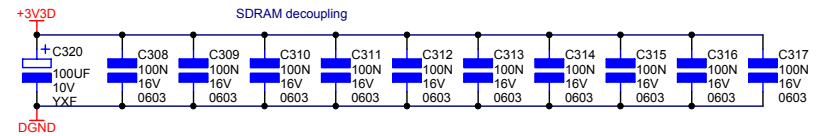


The series 56R resistors allow the JTAG to run at 3.3V levels instead of 2.5V which the FPGA is designed for. See Xilinx application note XAPP453 The 3.3V Configuration of Spartan-3 FPGAs

NOTE: Decoupling and power for FPGA is shown on sheet 7

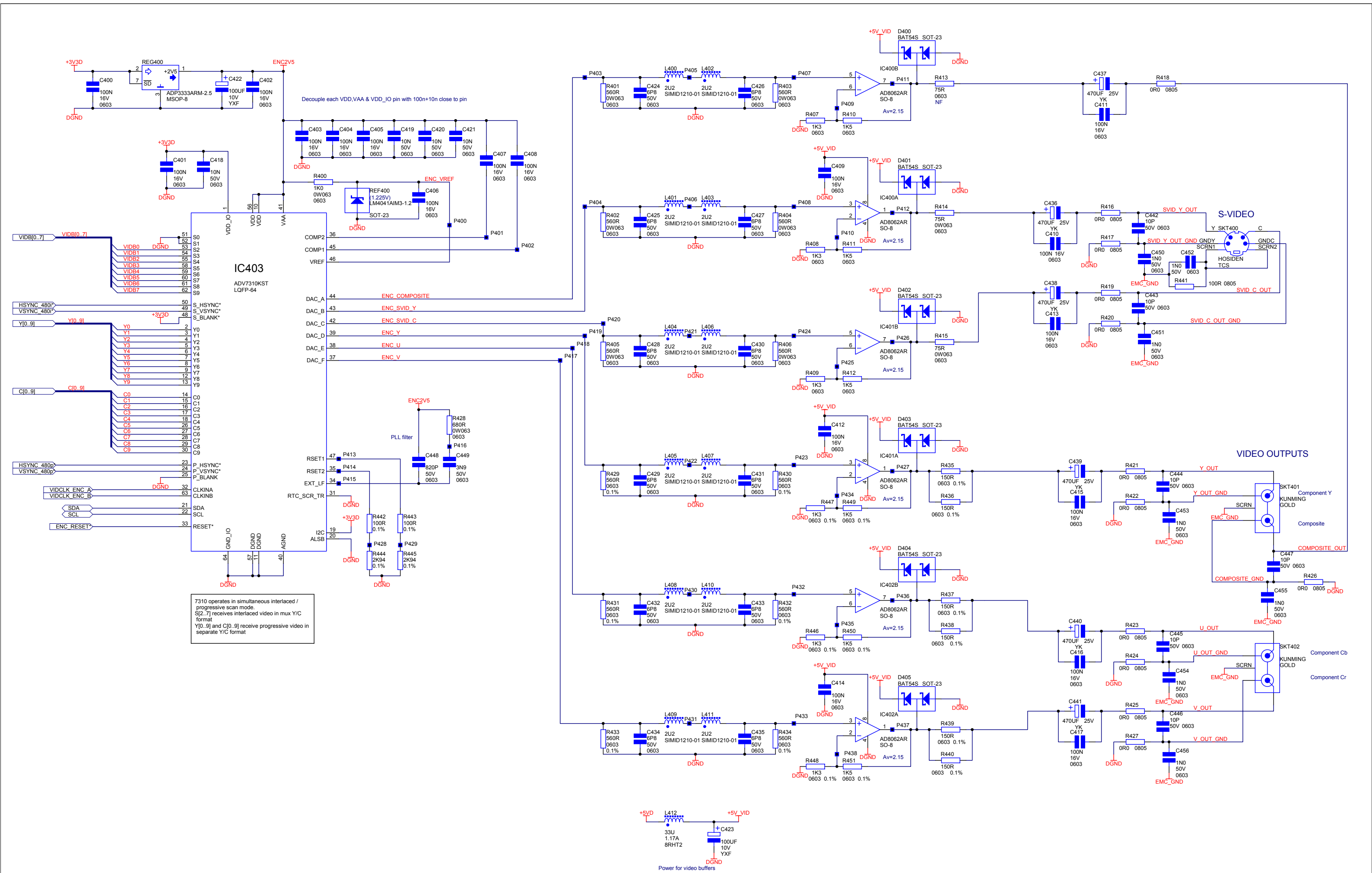


SDCLKF is to have same trace length as SDCLK

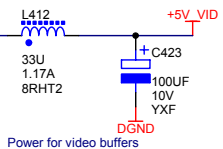


ITEM300	1	F243	Ferrite Disk - This part is RoHS compliant.	Place on top of IC301
---------	---	------	---	-----------------------

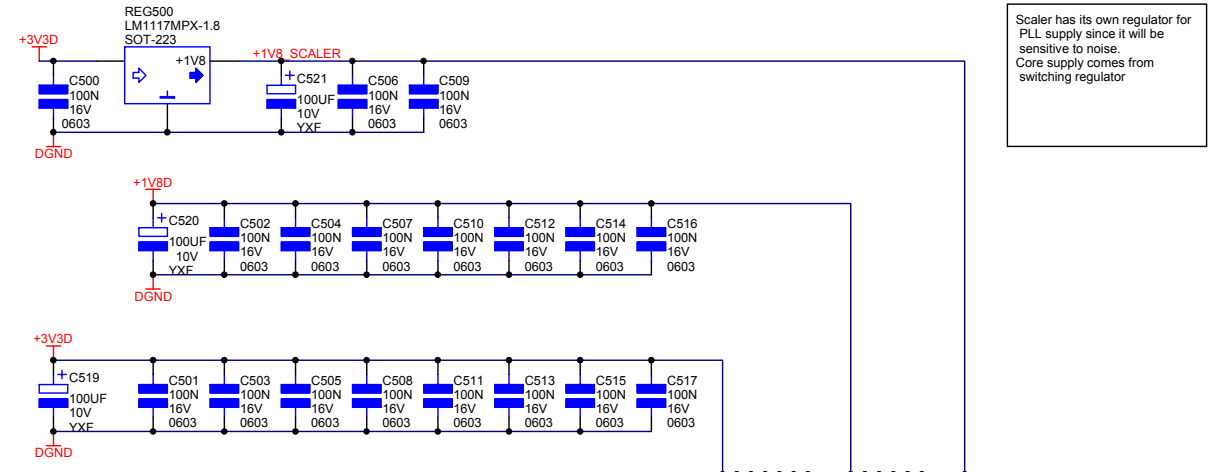
DRAWING TITLE <b>DV139 Deinterlacer</b>				
Filename: L102C3 Deinterlacer.Sch				
Notes:				
06_E159	MJT/PG	19/10/06	Add ferrite disc to IC301	1.0
ECO No.	INITIALS	DATE	DESCRIPTION OF CHANGE	ISSUE
Contract Engineer: Peter Gaggas		Contract Tel: (01223) 203270		Printed: 20-Oct-2006
Sheet 3 of 7		A2		DRAWING NO. L102CT



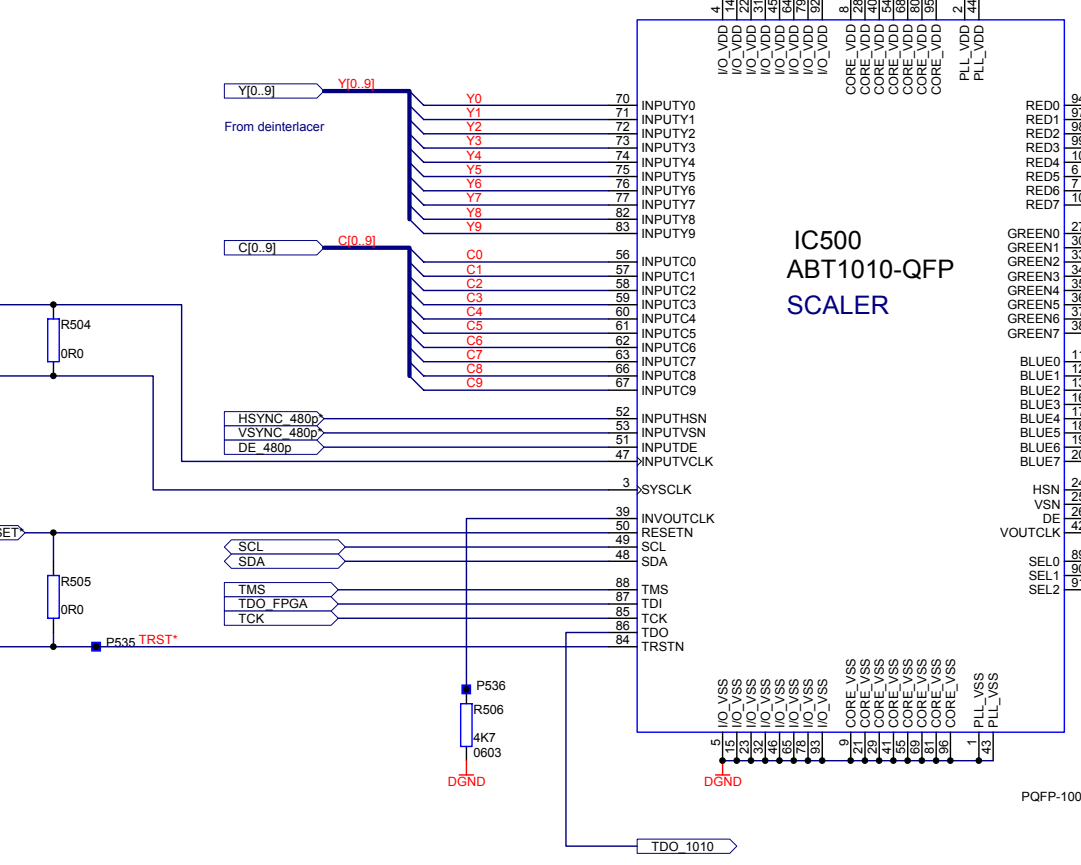
7310 operates in simultaneous interlaced / progressive scan mode. S[2..7] receives interlaced video in mux Y/C format. Y[0..9] and C[0..9] receive progressive video in separate Y/C format.



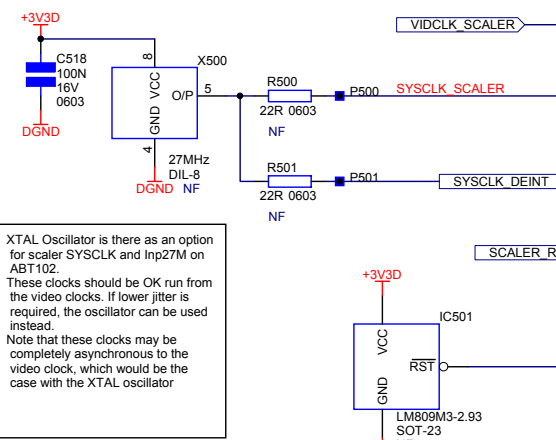
DRAWING TITLE		DV139 Video Encoder	
Filename:		L102C4 Video Encoder.Sch	
Notes:			
A & R Cambridge Ltd. Pembroke Avenue Waterbeach Cambridge CB5 9QR		06_E159	MJT/PG
Contact Engineer: Peter Gaggis		19/10/06	None to this sheet.
Contact Tel: (01223) 203270		ECO No.	INITIALS
Printed: 20-Oct-2006		DATE	DESCRIPTION OF CHANGE
Sheet 4 of 7		A2	DRAWING NO. C102CT
			1.0



Scaler has its own regulator for PLL supply since it will be sensitive to noise. Core supply comes from switching regulator



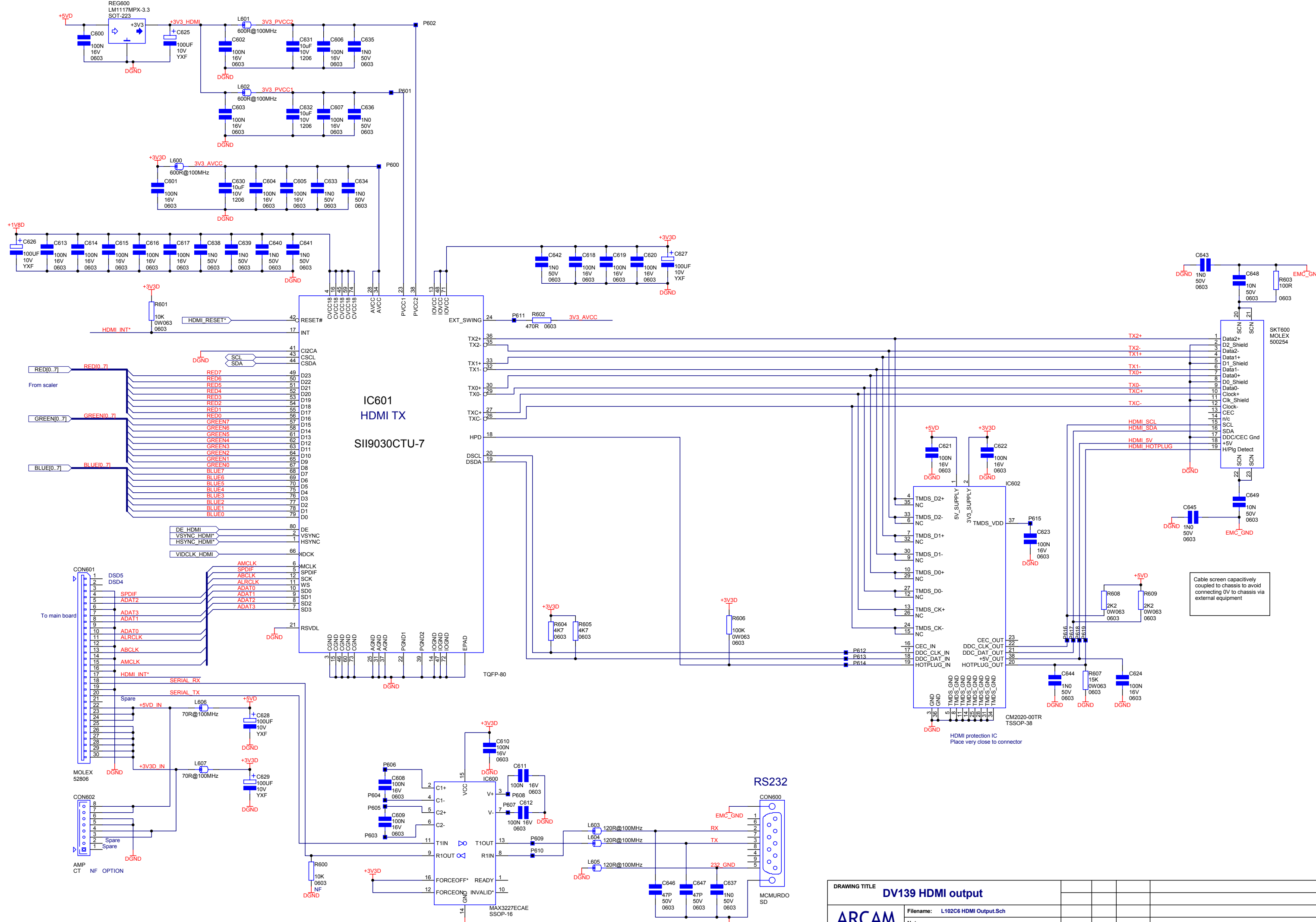
This video bus can carry 4 different formats:  
 1. 8 bit RGB 4:4:4  
 2. 8 bit YCbCr 4:4:4  
 3. 10 bit YCbCr 4:2:2  
 In this case signals map as follows:  
 Y9..2 = GREEN7..0  
 Y1..0 = BLUE3..2  
 C9..2 = RED7..0  
 C1..0 = BLUE7..6  
 4. 8 bit multiplexed YUV (for 480i/576i).  
 Signals map as follows:  
 YUV[7..0] = GREEN[7..0]



XTAL Oscillator is there as an option for scaler SYSCLK and Inp27M on ABT102. These clocks should be OK run from the video clocks. If lower jitter is required, the oscillator can be used instead. Note that these clocks may be completely asynchronous to the video clock, which would be the case with the XTAL oscillator

TRSTN receives a reset whenever scaler is reset. There is an option for a separate reset generator IC for this

DRAWING TITLE		DV139 Scaler					
ARCAM		Filename: L102C5 Scaler.Sch					
A & R Cambridge Ltd. Pembroke Avenue Waterbeach Cambridge CB5 9QR		Notes:					
ECO No.	INITIALS	DATE	DESCRIPTION OF CHANGE				
06_E159	MJT/PG	19/10/06	None to this sheet.			1.0	
Contact Engineer: Peter Gaggis		Contact Tel: (01223) 203270		Printed: 20-Oct-2006		Sheet 5 of 7	
				A2		DRAWING NO. L102CT	

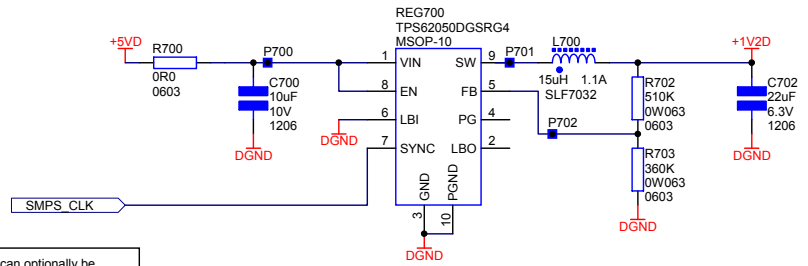


Cable screen capacitively coupled to chassis to avoid connecting 0V to chassis via external equipment

DRAWING TITLE		DV139 HDMI output	
ARCAM		A & R Cambridge Ltd. Pembroke Avenue Waterbeach Cambridge CB5 9QR	
Filename:	L102C6 HDMI Output.Sch		
Notes:			
ECO No.	INITIALS	DATE	DESCRIPTION OF CHANGE
06_E159	MJT/PG	19/10/06	None to this sheet.
1.0			
Contact Engineer:	Peter Gaggas	Contact Tel:	(01223) 203270
Printed:	20-Oct-2006	Sheet	6 of 7
DRAWING NO. L102CT			

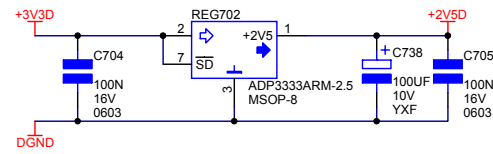
# FPGA POWER

## FPGA CORE SUPPLY

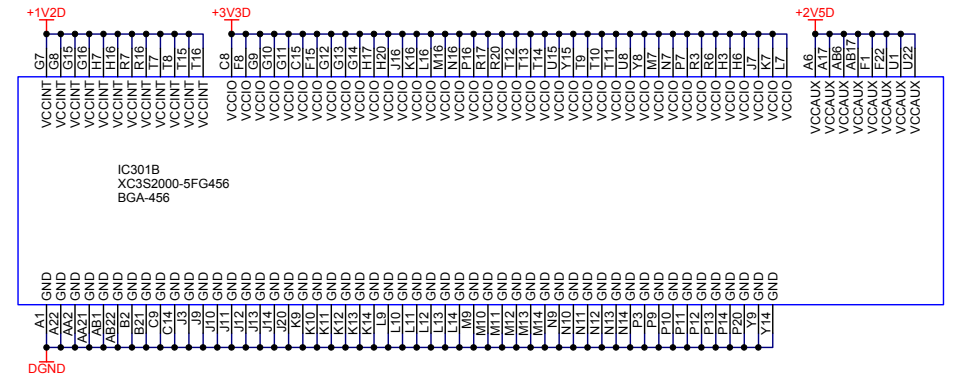
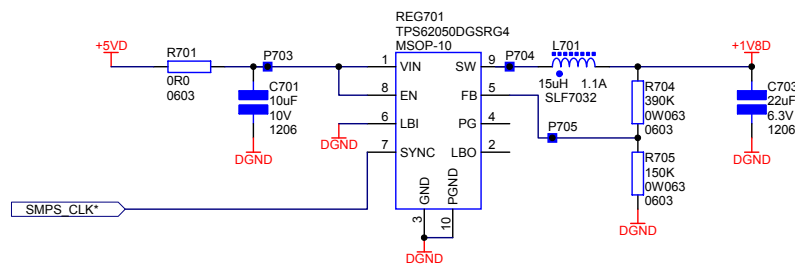


Switching reg can optionally be synchronised to a 843.75kHz clock provided by the CPLD. Connecting SYNC high forces fixed PWM mode using internal oscillator. Initially CPLD will output logic 1

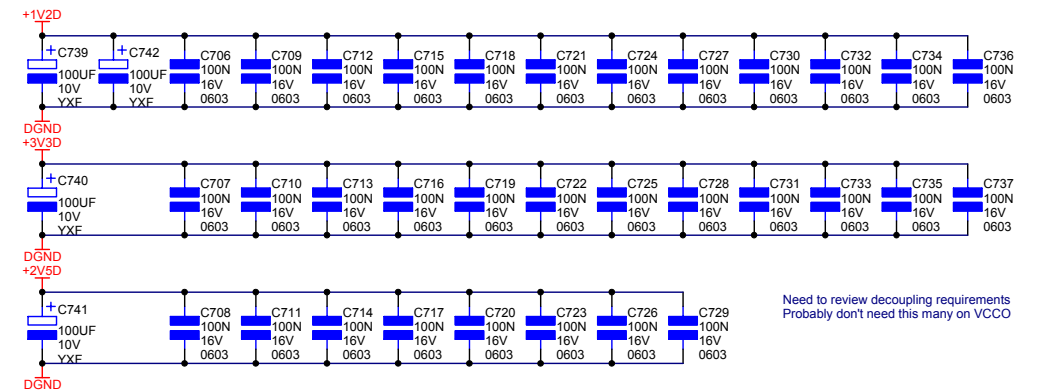
## FPGA AUX SUPPLY



## 1.8V SUPPLY

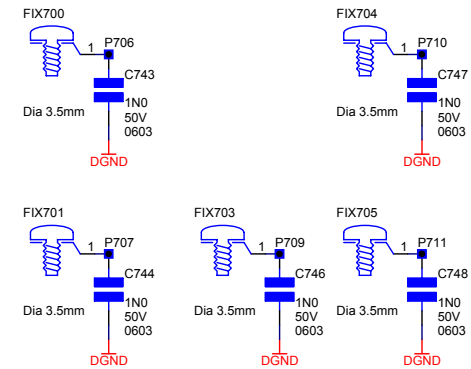


## FPGA DECOUPLING

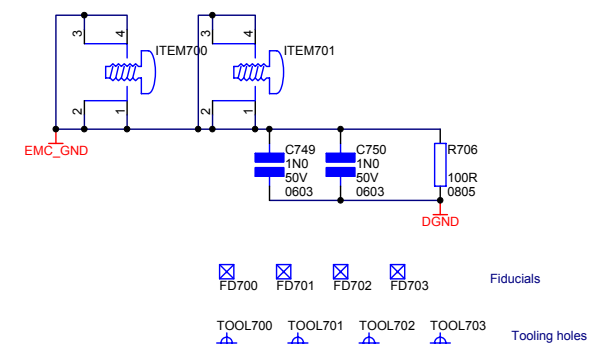


Need to review decoupling requirements. Probably don't need this many on VCCO

## Fixing holes

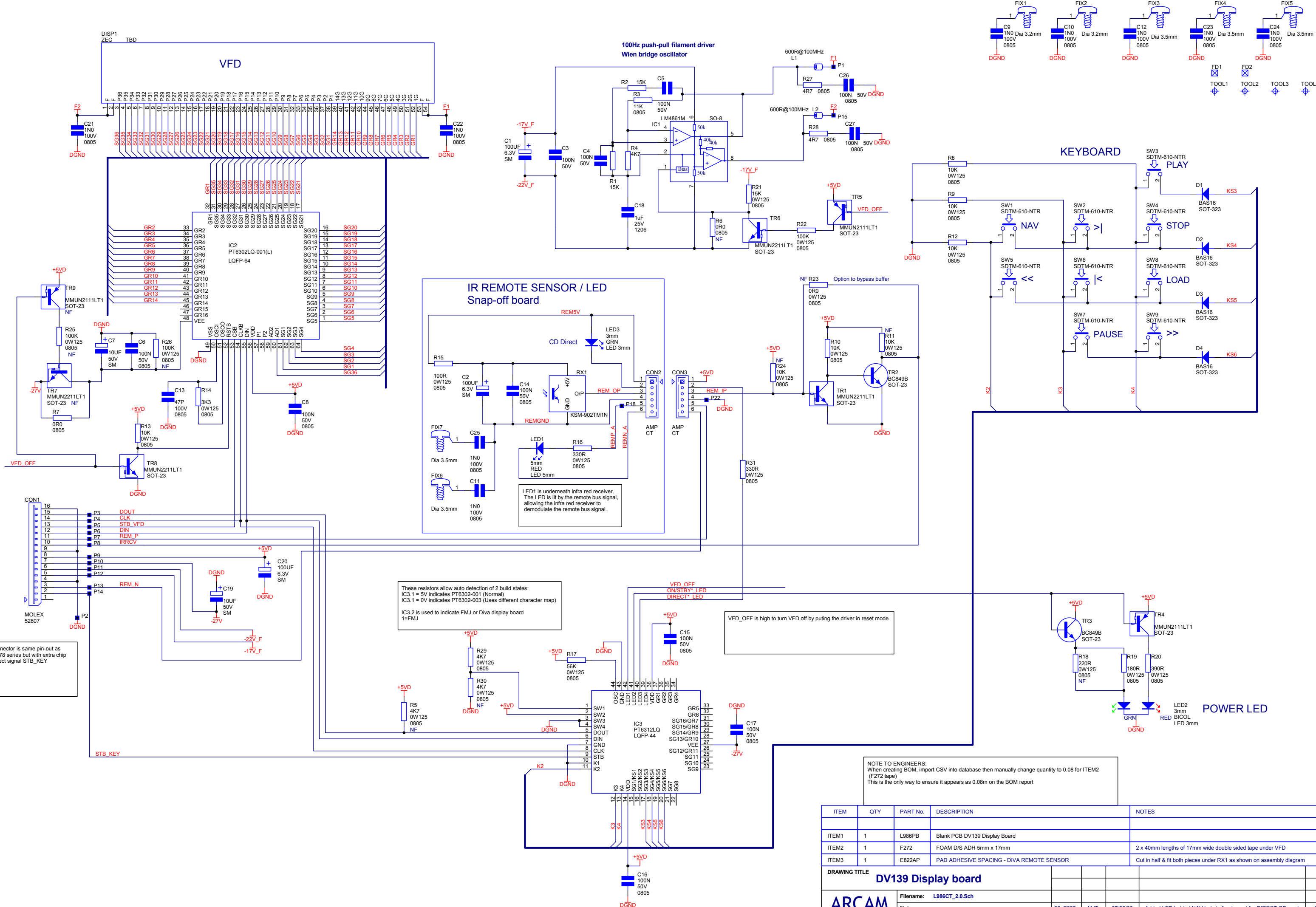


## M3 R/A PCB FIXING BRACKETS



FD700 FD701 FD702 FD703 Fiducials  
TOOL700 TOOL701 TOOL702 TOOL703 Tooling holes

DRAWING TITLE		DV139 Video board power					
 A & R Cambridge Ltd. Pembroke Avenue Waterbeach Cambridge CB5 9QR	Filename:	L102C7 Power.Sch					
	Notes:						
	ECO No.	INITIALS	DATE	DESCRIPTION OF CHANGE			1.0
	06_E159	MJT/PG	19/10/06	None to this sheet.			ISSUE
Contact Engineer:	Peter Gaggas	Contact Tel:	(01223) 203270	Printed:	20-Oct-2006	Sheet 7 of 7	A2 DRAWING NO. L102CT



These resistors allow auto detection of 2 build states:  
 IC3.1 = 5V indicates PT6302-001 (Normal)  
 IC3.1 = 0V indicates PT6302-003 (Uses different character map)  
 IC3.2 is used to indicate FMJ or Diva display board  
 1=FMJ

VFD\_OFF is high to turn VFD off by putting the driver in reset mode

NOTE TO ENGINEERS:  
 When creating BOM, import CSV into database then manually change quantity to 0.08 for ITEM2 (F272 tape).  
 This is the only way to ensure it appears as 0.08m on the BOM report

ITEM	QTY	PART No.	DESCRIPTION	NOTES
ITEM1	1	L986PB	Blank PCB DV139 Display Board	
ITEM2	1	F272	FOAM D/S ADH 5mm x 17mm	2 x 40mm lengths of 17mm wide double sided tape under VFD
ITEM3	1	E822AP	PAD ADHESIVE SPACING - DIVA REMOTE SENSOR	Cut in half & fit both pieces under RX1 as shown on assembly diagram

**DRAWING TITLE**  
**DV139 Display board**

**ARCAM**  
 A & R Cambridge Ltd.  
 Pembroke Avenue  
 Waterbeach  
 Cambridge CB5 9QR

Filename: L986CT\_2.0.Sch  
 Notes:  
 06\_E089 MJT 07/06/06 Added LED behind NAV hole in front panel for DIRECT CD mode. 2.0  
 06\_E040 PG 21/03/06 Production release 1.0  
 ECO No. INITIALS DATE DESCRIPTION OF CHANGE ISSUE

Contract Engineer: Mark Tweedale markt@arcam.co.uk  
 Contract Tel: 01223 203210 (direct) 01223 203200 (switch)  
 Printed: 8-Jun-2006  
 Sheet 1 of 1  
 A2 DRAWING NO. L986CT