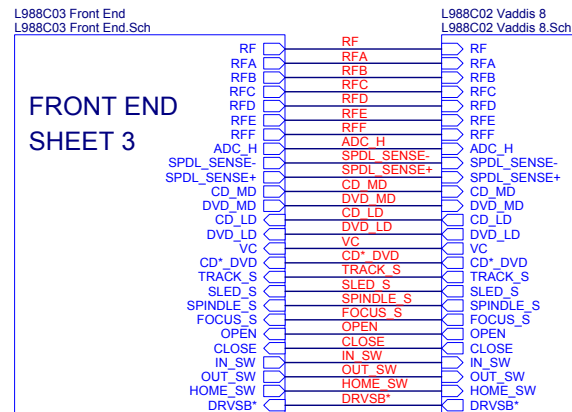
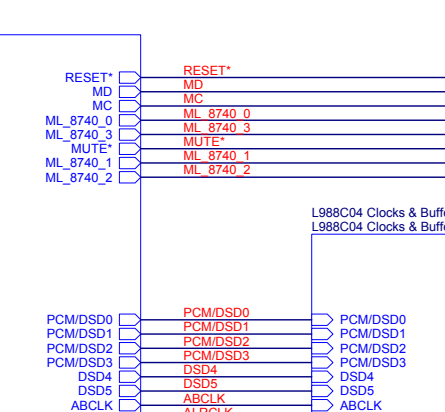


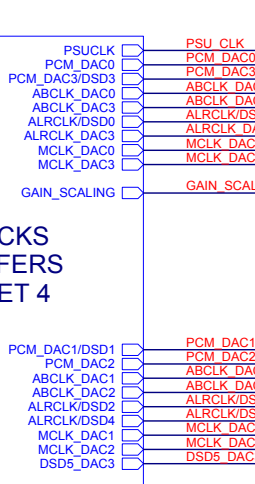
**FRONT END SHEET 3**



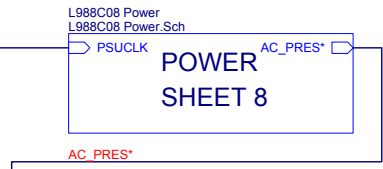
**VADDIS 8 SHEET 2**



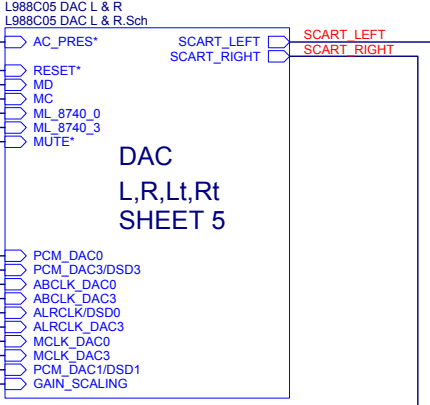
**CLOCKS BUFFERS SHEET 4**



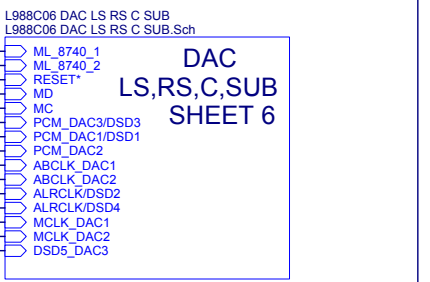
**POWER SHEET 8**



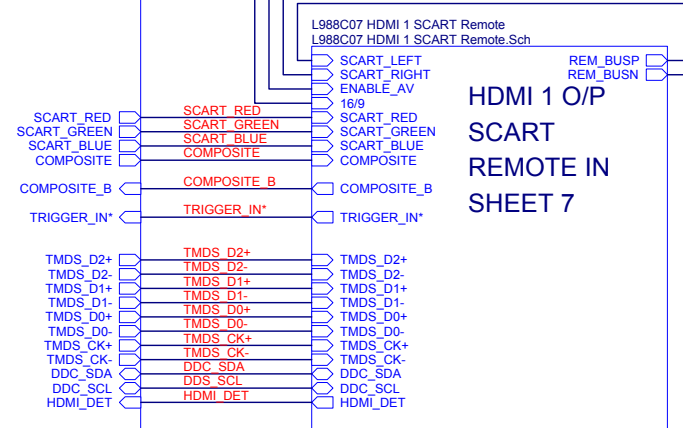
**DAC L,R,Lt,Rt SHEET 5**



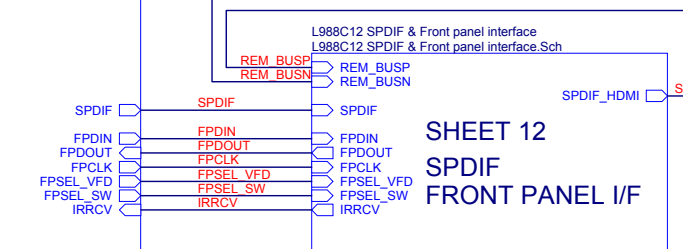
**DAC LS,RS,C,SUB SHEET 6**



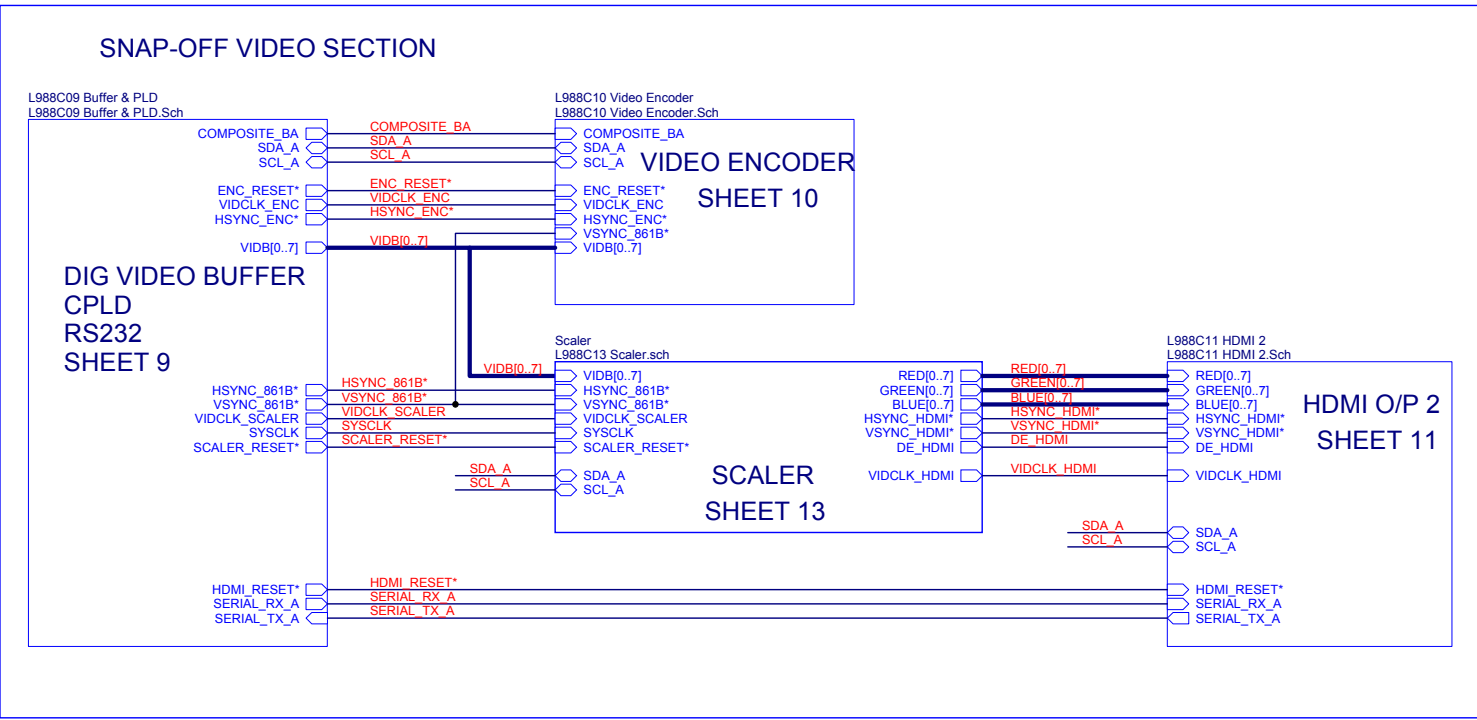
**HDMI 1 O/P SCART REMOTE IN SHEET 7**



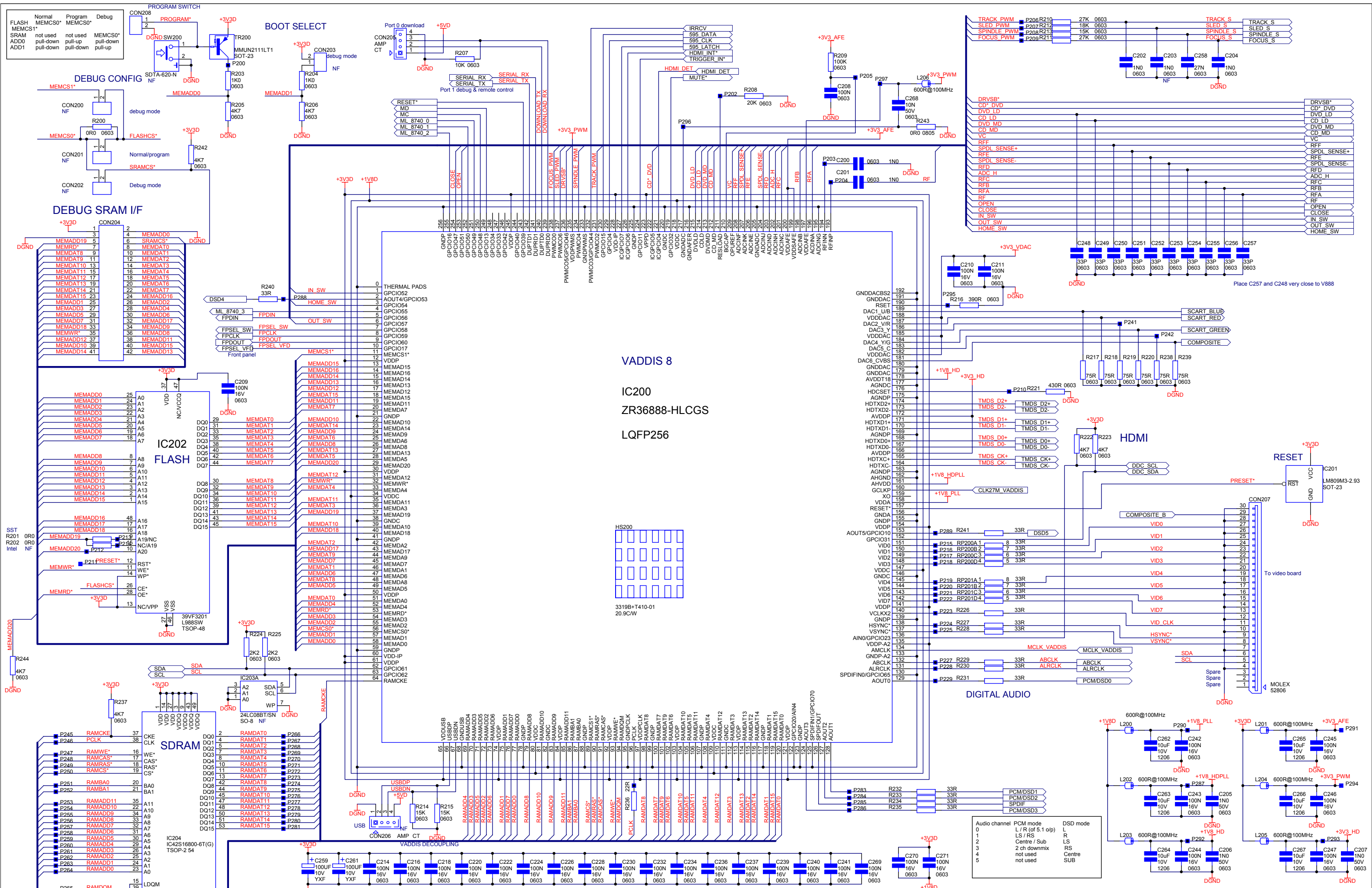
**SHEET 12 SPDIF FRONT PANEL I/F**



**SNAP-OFF VIDEO SECTION**




ITEM100	1	L988PB	Blank PCB DV137 Main Board	
<b>DRAWING TITLE</b>				
<b>DV137 Top Level</b>				
<b>ARCAM</b>				
A & R Cambridge Ltd. Pembroke Avenue Waterbeach Cambridge CB5 9QR				
Filename:	L988C01 Top Level.Sch			
Notes:	06_E029	PG	15/03/06	Issue 2 PCB (changes only affect DV139)
	05_E242	PG	08/12/05	Production Release
ECO No.	INITIALS	DATE	DESCRIPTION OF CHANGE	ISSUE
Contract Engineer:	Contract Tel:	Printed:	12-Jun-2006	Sheet 1 of 13
		A2	DRAWING NO. L988CT	



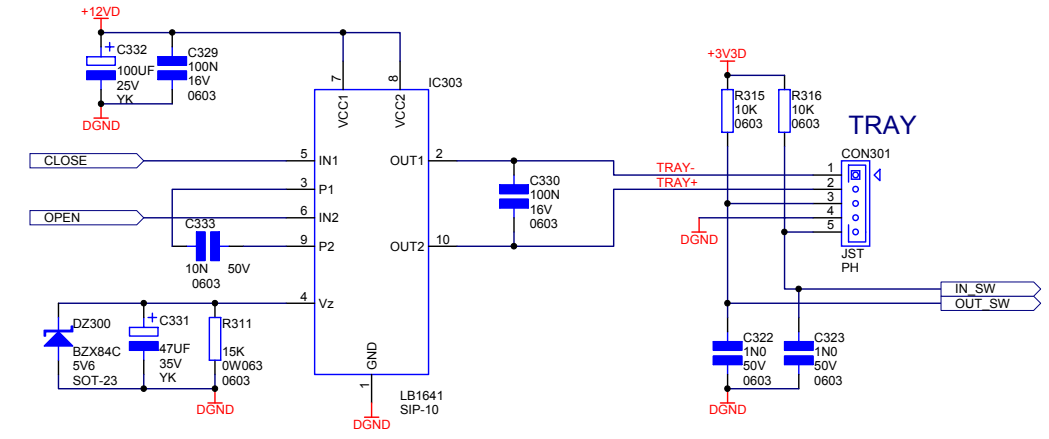
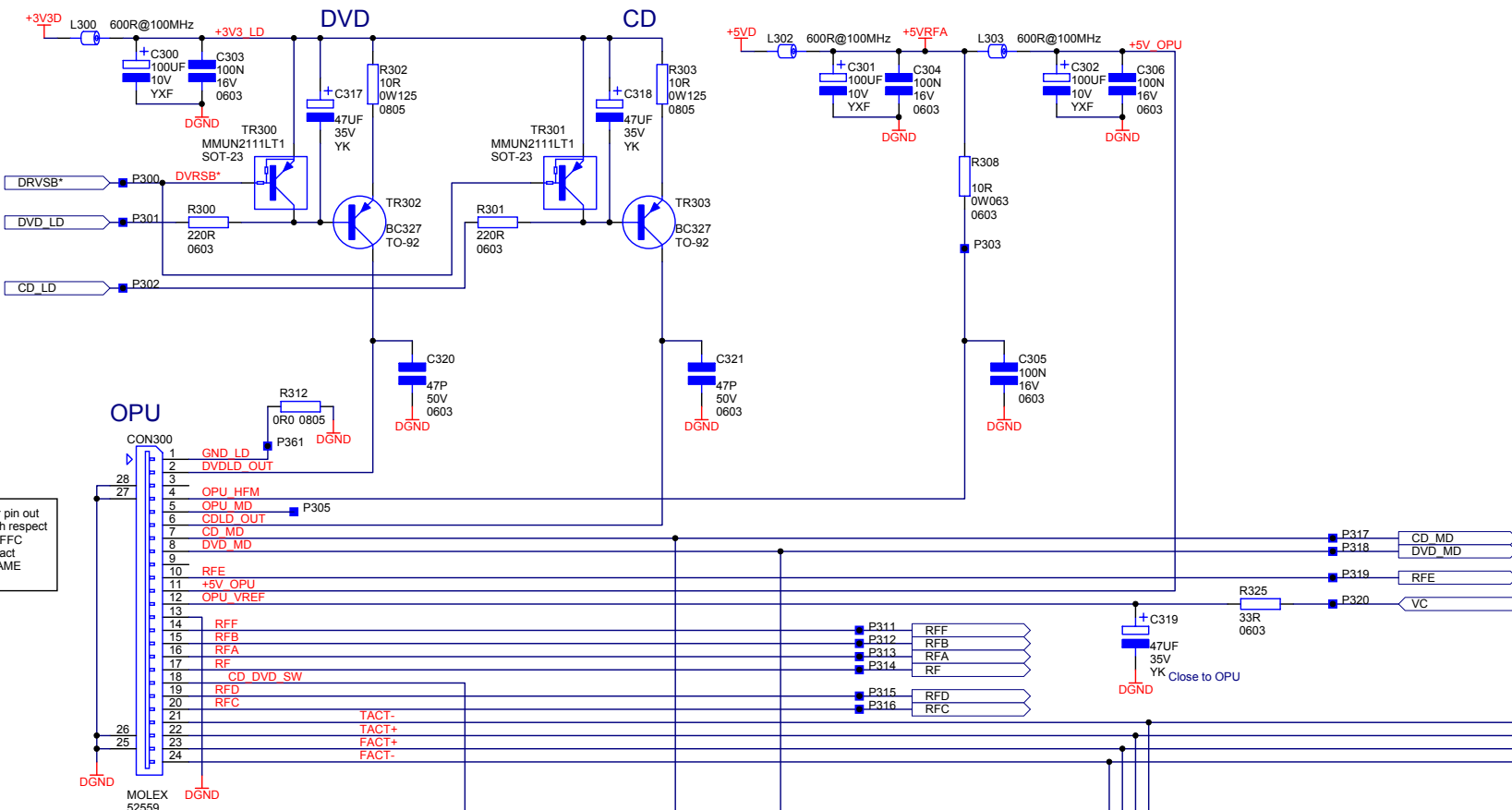
**DRAWING TITLE**  
DV137 Vaddis 8

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

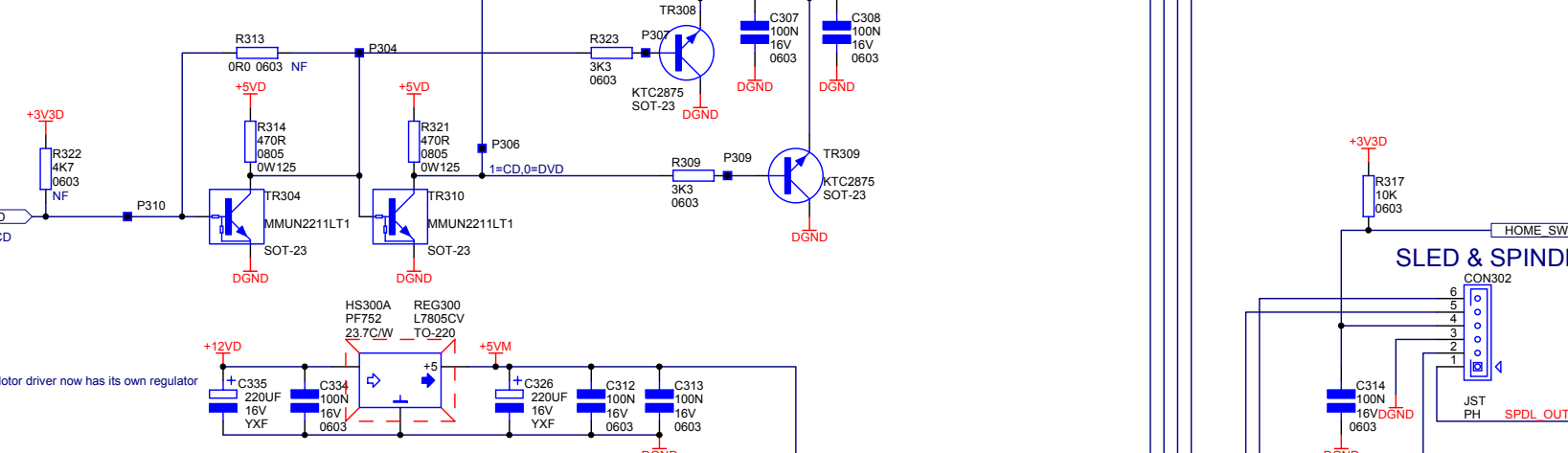
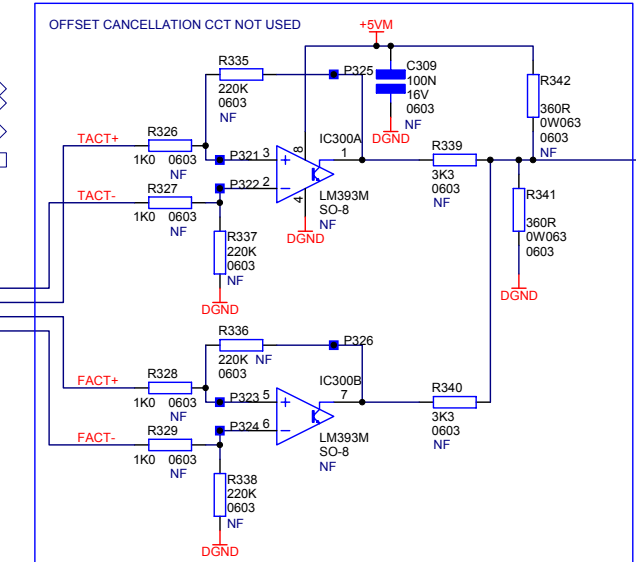
Filename: L988C02 Vaddis 8.Sch  
Notes:  
ECO No. INITIALS DATE DESCRIPTION OF CHANGE  
06\_E093 MJT 12/06/06 Add heatsink to top of Vaddis 3.1  
06\_E036 PG 20/03/06 Add thermal attach pads to IC200 3.0  
06\_E029 PG 15/03/06 Issue 2 PCB (changes only affect DV139) 2.0  
05\_E242 PG 08/12/05 Production Release 1.0  
Printed: 12-Jun-2006 Sheet 2 of 13

ECO No.	INITIALS	DATE	DESCRIPTION OF CHANGE	ISSUE
06_E093	MJT	12/06/06	Add heatsink to top of Vaddis	3.1
06_E036	PG	20/03/06	Add thermal attach pads to IC200	3.0
06_E029	PG	15/03/06	Issue 2 PCB (changes only affect DV139)	2.0
05_E242	PG	08/12/05	Production Release	1.0

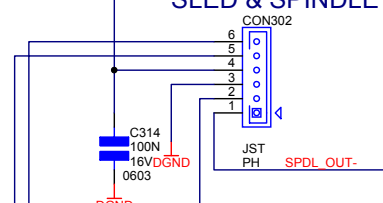
# LASER DRIVERS



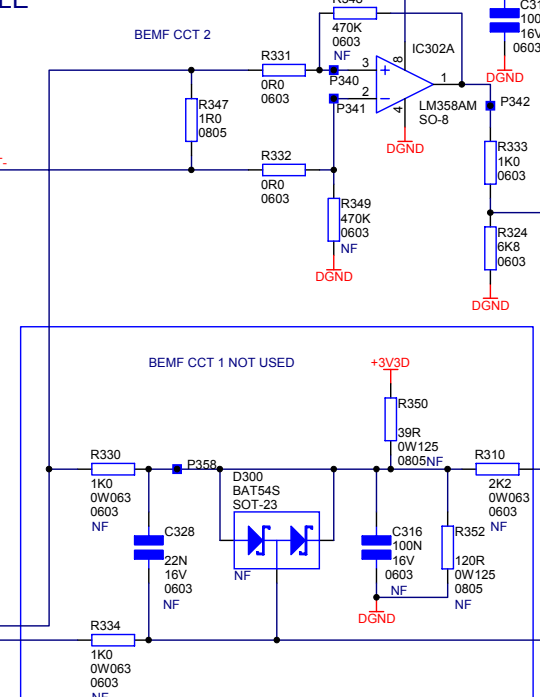
OPU connector pin out is reversed with respect to OPU, since FFC cable has contact surfaces on SAME SIDE.



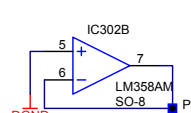
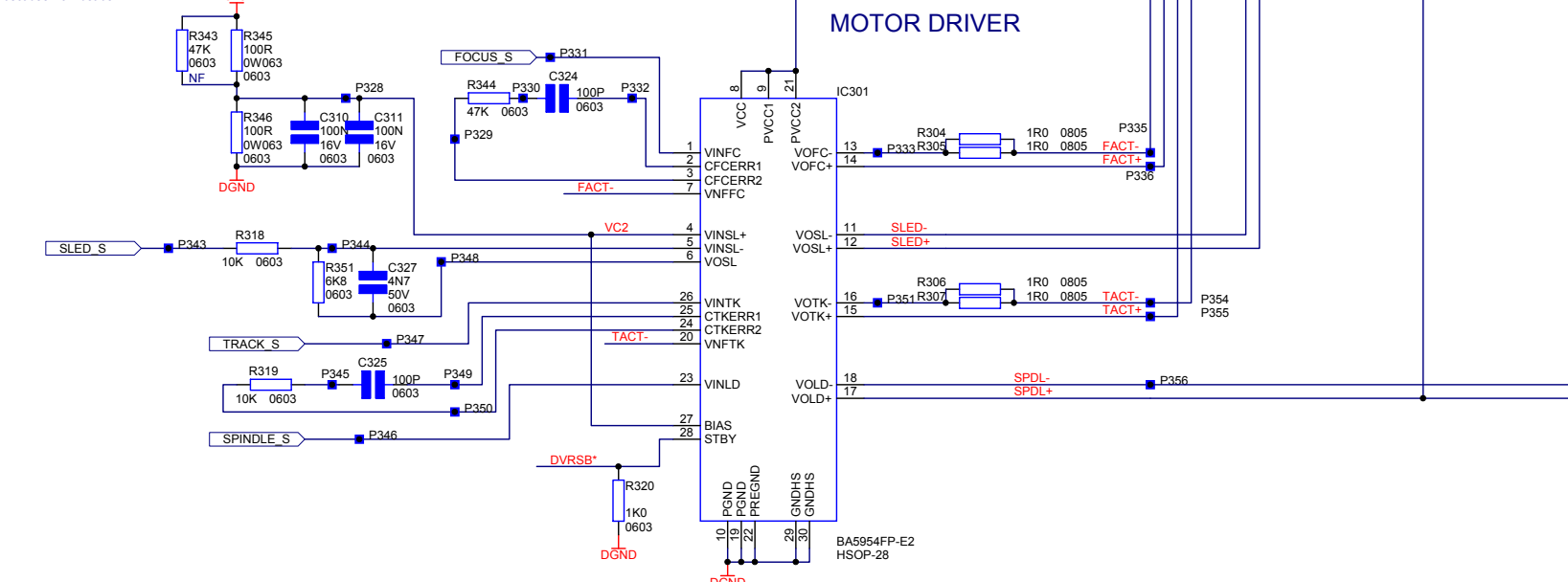
## SLED & SPINDLE



## BACK-EMF CIRCUIT



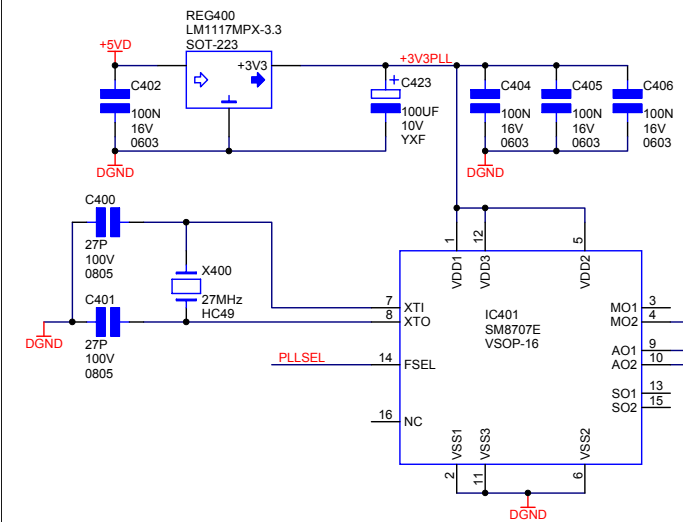
## MOTOR DRIVER



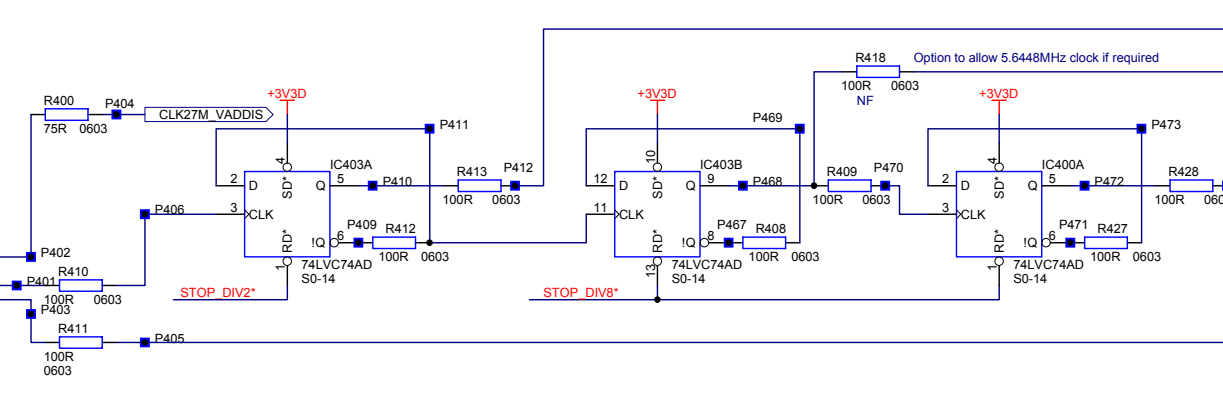
DRAWING TITLE		DV137 Front End		
06_E093	MJT	12/06/06	None to this sheet. Add heatsink to top of Vaddis	3.1
06_E036	PG	20/03/06	Add thermal attach pads to IC200	3.0
06_E029	PG	15/03/06	Issue 2 PCB (changes only affect DV139)	2.0
05_E242	PG	08/12/05	Production Release	1.0
ECO No.	INITIALS	DATE	DESCRIPTION OF CHANGE	ISSUE
Contact Engineer: Mark Tweedale		markt@arcam.co.uk		
Contact Tel: 01223 203210 (direct)		01223 203200 (switch)		
Printed: 12-Jun-2006		Sheet 3 of 13		A2
DRAWING NO. L988CT				

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

### CLOCK GENERATOR

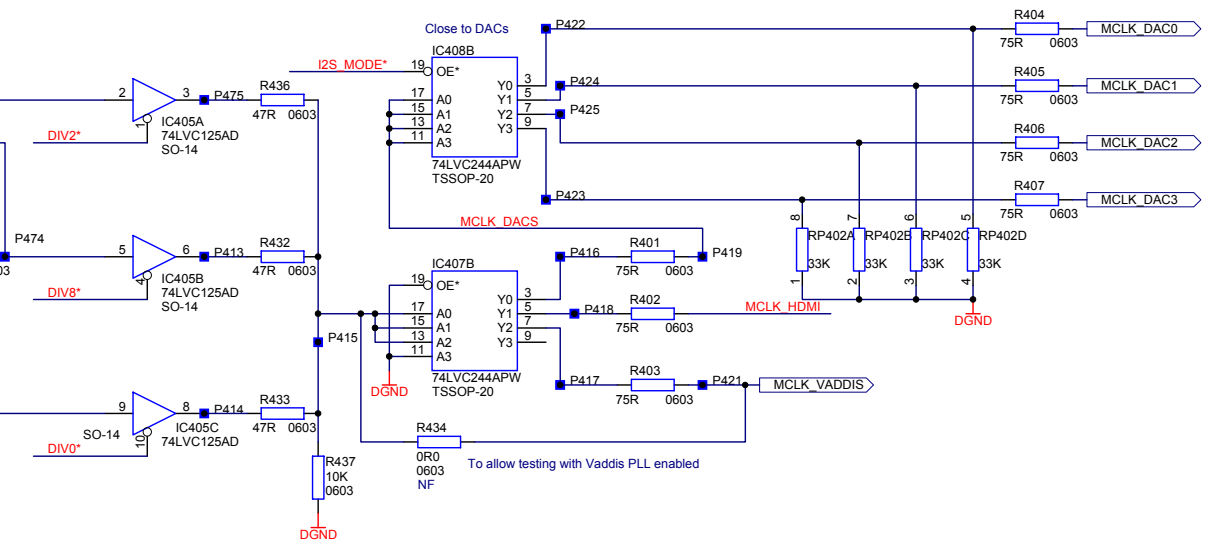


### CLOCK DIVIDER

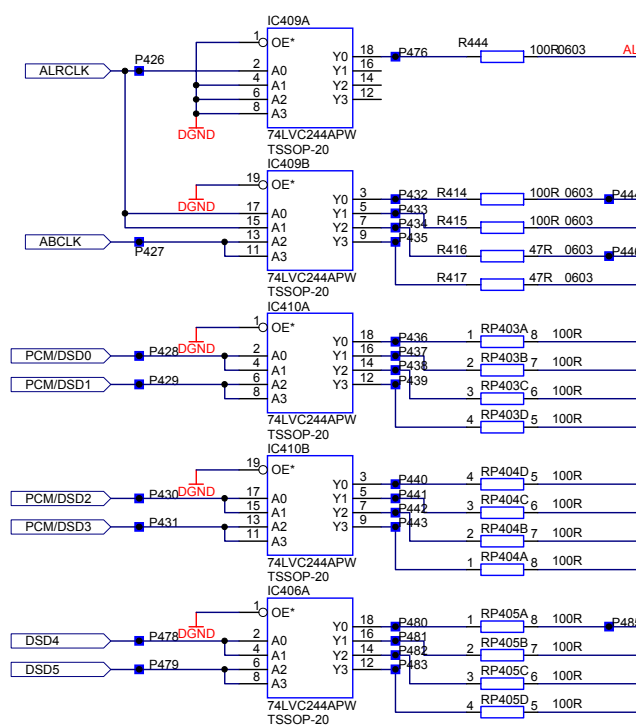


Fs	Master clock frequency	PLLSEL	DIV0*	DIV2*	DIV8*
32kHz	12.288MHz (384 x Fs)	1	1	0	1
44.1kHz	11.2896MHz (256 x Fs)	0	1	0	1
48kHz	12.288MHz (256 x Fs)	1	1	0	1
88.2kHz	22.5792MHz (256 x Fs)	0	0	1	1
96kHz	24.576MHz (256 x Fs)	1	0	1	1
176.4kHz	22.5792MHz (128 x Fs)	0	0	1	1
192kHz	24.576MHz (128 x Fs)	1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

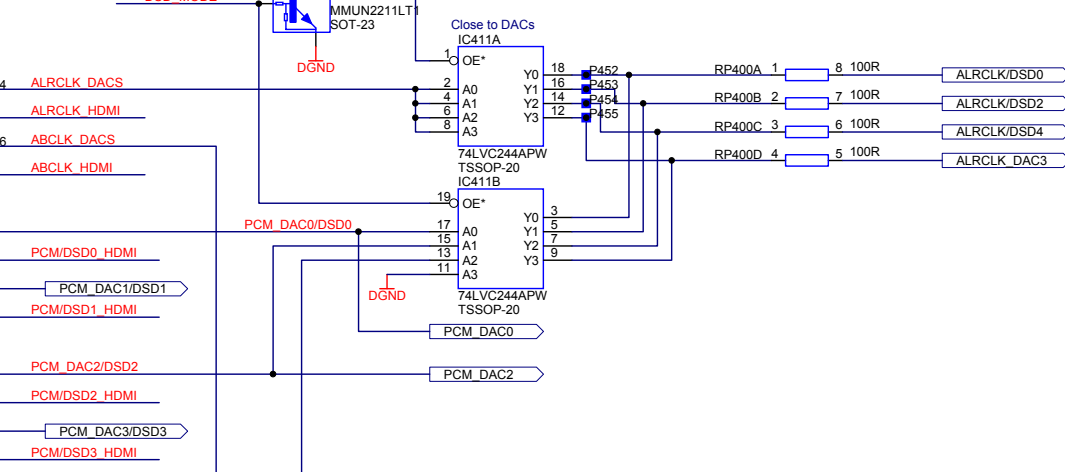
### AUDIO CLOCK BUFFERS



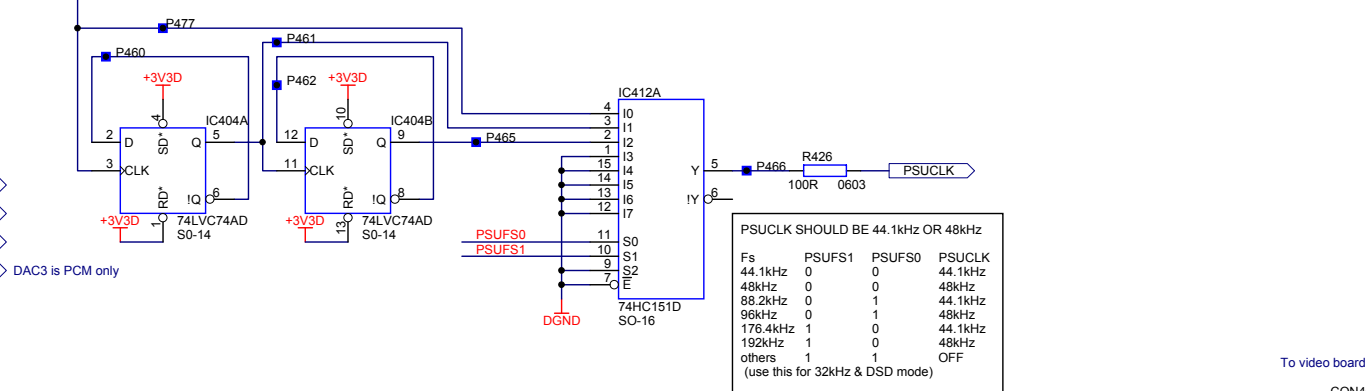
### I2S/DSD BUFFERS



### I2S/DSD MUX

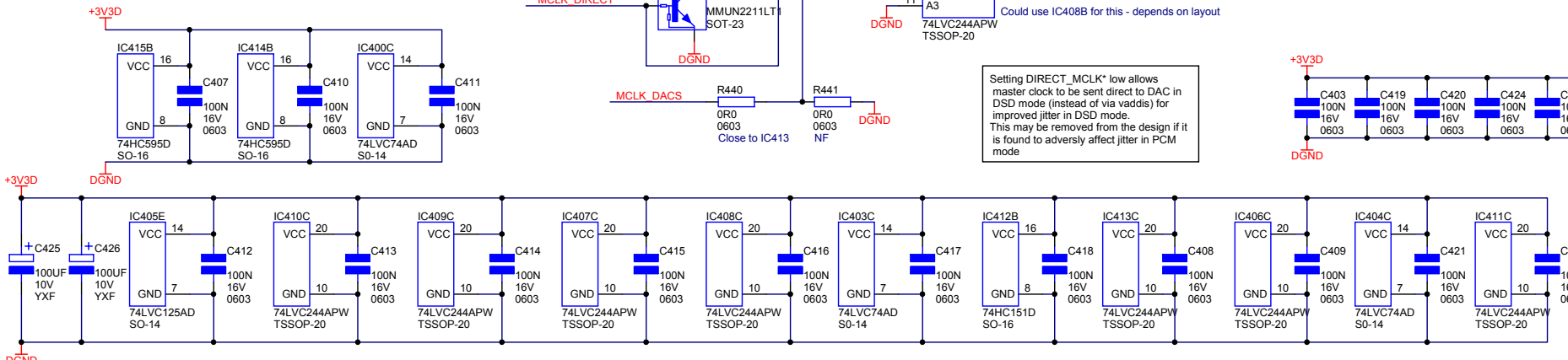
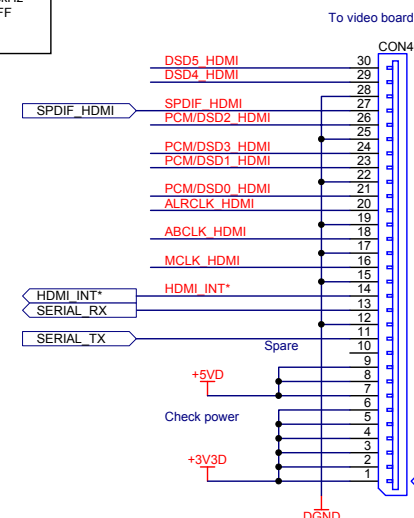


### PSU CLOCK DIVIDER



Fs	PSUFS1	PSUFS0	PSUCLK
44.1kHz	0	0	44.1kHz
48kHz	0	0	48kHz
88.2kHz	0	1	44.1kHz
96kHz	0	1	48kHz
176.4kHz	1	0	44.1kHz
192kHz	1	0	48kHz
others	1	1	OFF

(use this for 32kHz & DSD mode)



Setting DIRECT\_MCLK\* low allows master clock to be sent direct to DAC in DSD mode (instead of via vaddis) for improved jitter in DSD mode. This may be removed from the design if it is found to adversely affect jitter in PCM mode.

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

DRAWING TITLE				
06_E093	MJT	12/06/06	None to this sheet. Add heatsink to top of Vaddis	3.1
06_E036	PG	20/03/06	Add thermal attach pads to IC200	3.0
06_E029	PG	15/03/06	Issue 2 PCB (changes only affect DV139)	2.0
05_E242	PG	08/12/05	Production Release	1.0
ECO No.	INITIALS	DATE	DESCRIPTION OF CHANGE	ISSUE

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

Filename: L988C04 Clocks & Buffers.Sch

Contact Engineer: Mark Tweedale  
markt@arcam.co.uk

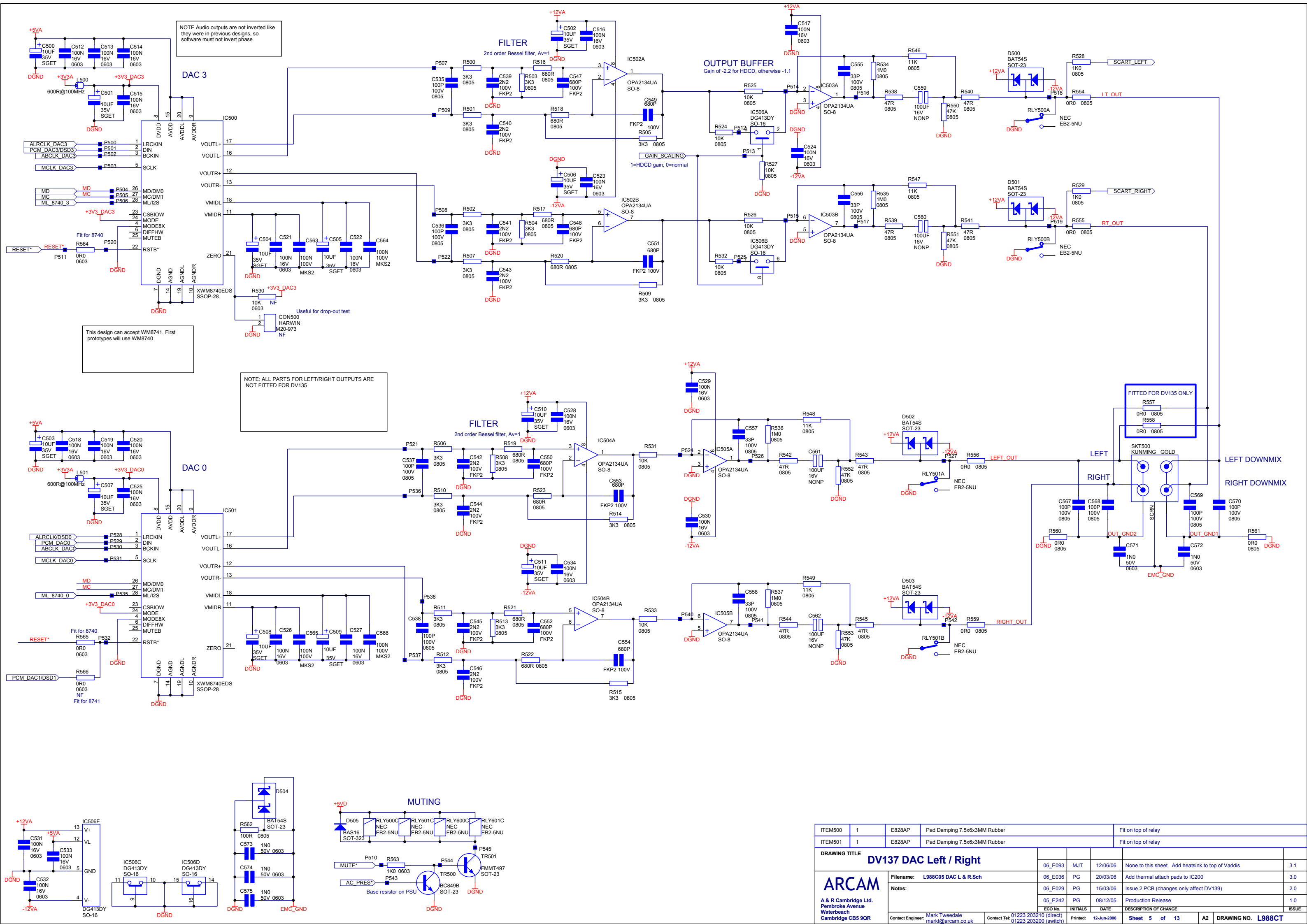
Contact Tel: 01223 203210 (direct)  
01223 203200 (switch)

Printed: 12-Jun-2006

Sheet 4 of 13

DRAWING NO. L988CT





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

This design can accept WM8741. First prototypes will use WM8740

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

FITTED FOR DV135 ONLY

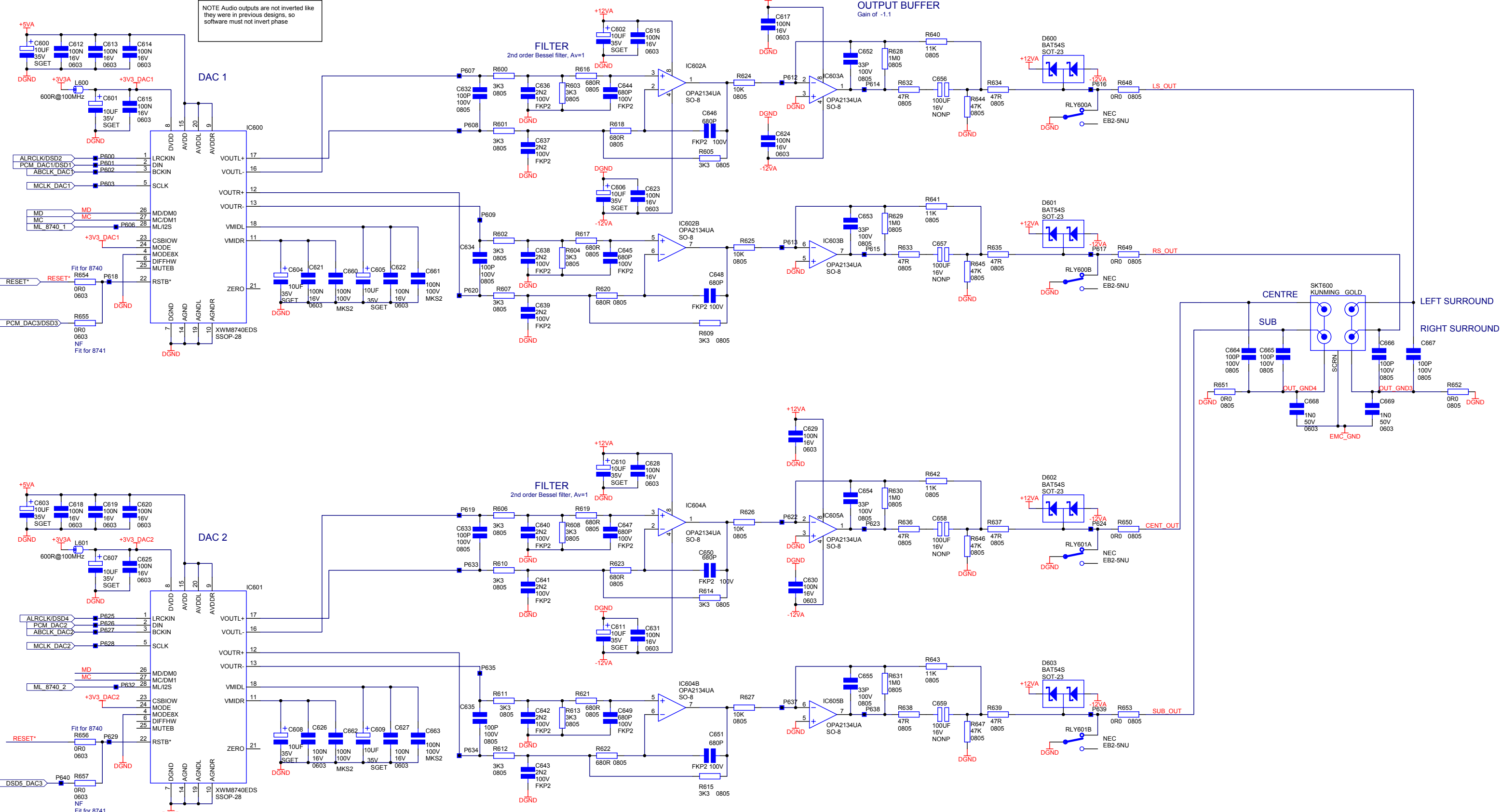
ITEM500	1	E828AP	Pad Damping 7.5x6x3MM Rubber	Fit on top of relay
ITEM501	1	E828AP	Pad Damping 7.5x6x3MM Rubber	Fit on top of relay

DRAWING TITLE				
<b>DV137 DAC Left / Right</b>				
06_E093	MJT	12/06/06	None to this sheet. Add heatsink to top of Vaddis	3.1
06_E036	PG	20/03/06	Add thermal attach pads to IC200	3.0
06_E029	PG	15/03/06	Issue 2 PCB (changes only affect DV139)	2.0
05_E242	PG	08/12/05	Production Release	1.0

**ARCAM**  
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 Pembroke Avenue  
 Waterbeach  
 Cambridge CB5 9QR

Filename: L988C05 DAC L & R.Sch  
 Notes:  
 Contact Engineer: Mark Tweedale mark@arcam.co.uk  
 Contact Tel: 01223 203210 (direct) 01223 203200 (switch)  
 Printed: 12-Jun-2006  
 Sheet 5 of 13  
 A2 DRAWING NO. L988CT

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



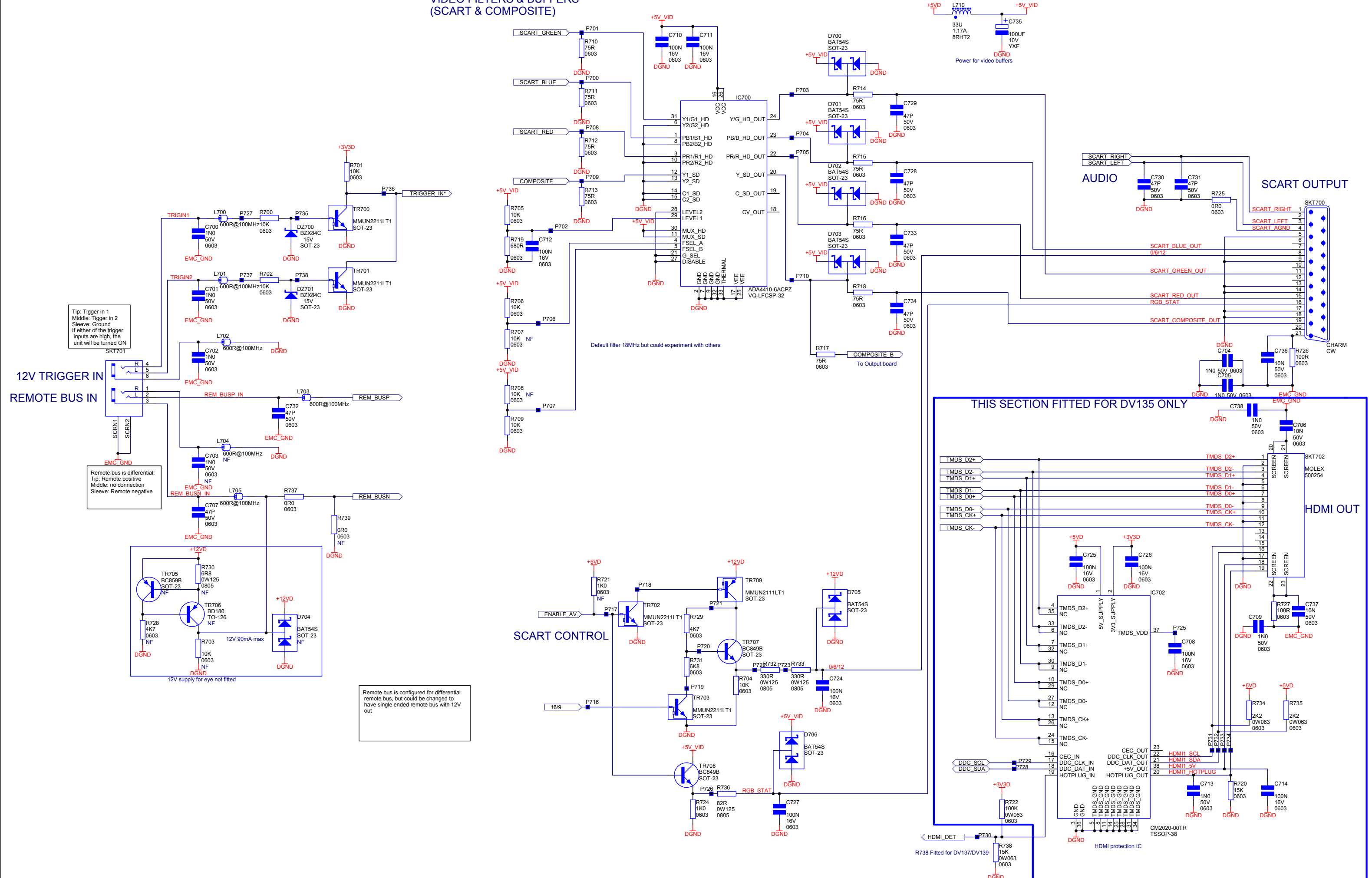
NOTE: ALL PARTS ON THIS SHEET ARE NOT FITTED FOR DV135

ITEM600	1	E828AP	Pad Damping 7.5x6x3MM Rubber	Fit on top of relay
ITEM601	1	E828AP	Pad Damping 7.5x6x3MM Rubber	Fit on top of relay

DRAWING TITLE				
<b>DV137 DAC LS RS C SUB</b>				
06_E093	MJT	12/06/06	None to this sheet. Add heatsink to top of Vaddis	3.1
06_E036	PG	20/03/06	Add thermal attach pads to IC200	3.0
06_E029	PG	15/03/06	Issue 2 PCB (changes only affect DV139)	2.0
05_E242	PG	08/12/05	Production Release	1.0
ECO No.	INITIALS	DATE	DESCRIPTION OF CHANGE	ISSUE

<b>ARCAM</b> A & R Cambridge Ltd. Pembroke Avenue Waterbeach Cambridge CB5 9QR	Filename: L988C06 DAC LS RS C SUB.Sch Notes:	Contact Engineer: Mark Tweedale mark@arcam.co.uk	Contact Tel: 01223 203210 (direct) 01223 203200 (switch)	Printed: 12-Jun-2006 Sheet 6 of 13 A2 DRAWING NO. L988CT
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# VIDEO FILTERS & BUFFERS (SCART & COMPOSITE)



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

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

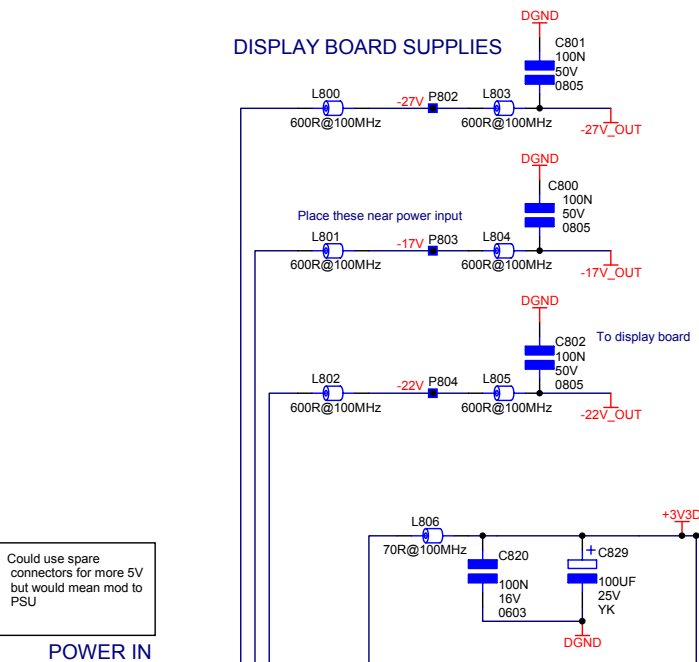
12V supply for eye not fitted

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

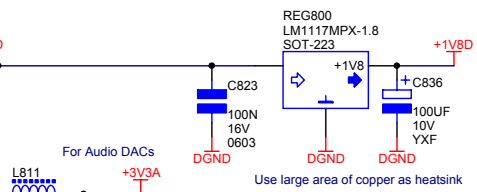
DRAWING TITLE				
<b>DV137 SCART, HDMI 1, remote</b>				
06_E093	MJT	12/06/06	None to this sheet. Add heatsink to top of Vaddis	3.1
06_E036	PG	20/03/06	Add thermal attach pads to IC200	3.0
06_E029	PG	15/03/06	Issue 2 PCB (changes only affect DV139)	2.0
05_E242	PG	08/12/05	Production Release	1.0
ECO No.	INITIALS	DATE	DESCRIPTION OF CHANGE	ISSUE
Contact Engineer: Mark Tweedale markt@arcam.co.uk Contact Tel: 01223 203210 (direct) 01223 203200 (switch)				
Printed: 12-Jun-2006		Sheet 7 of 13		A2 DRAWING NO. L988CT

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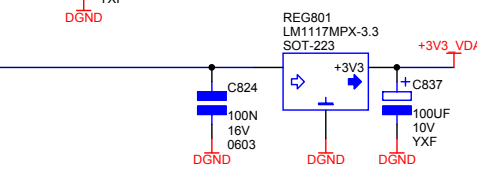
**DISPLAY BOARD SUPPLIES**



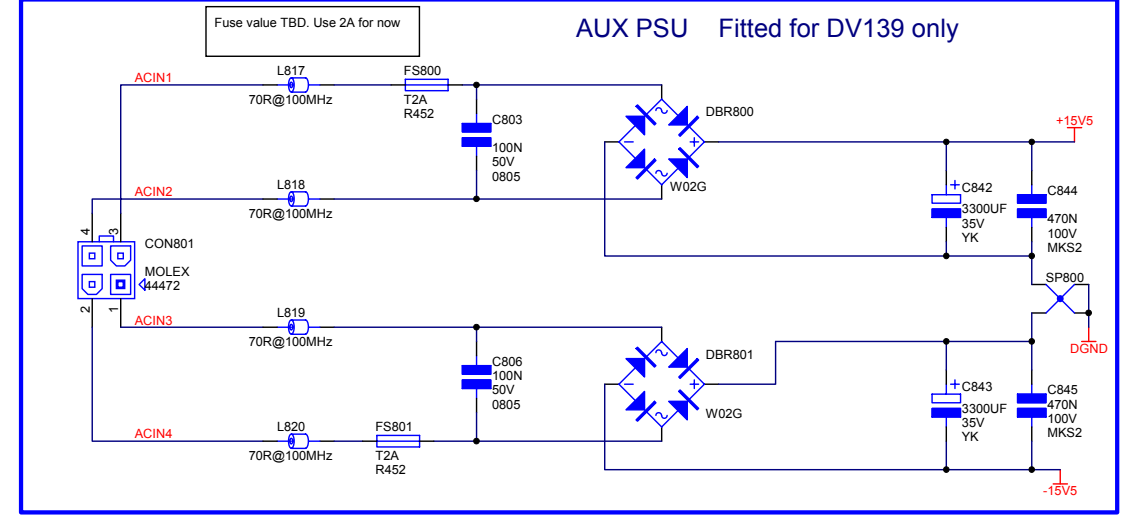
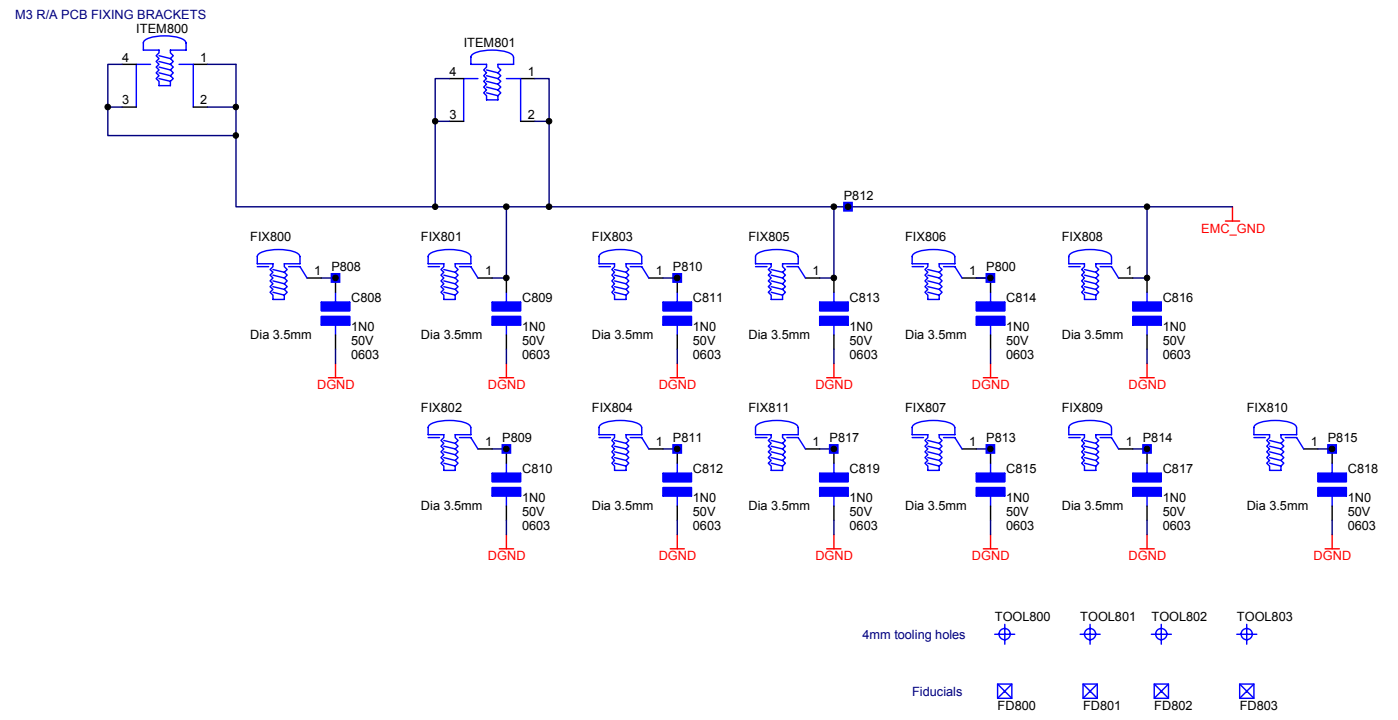
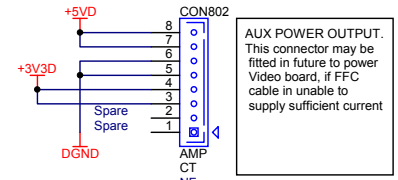
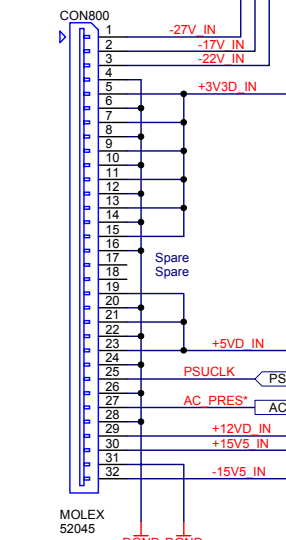
**VADDIS +1.8V CORE SUPPLY**



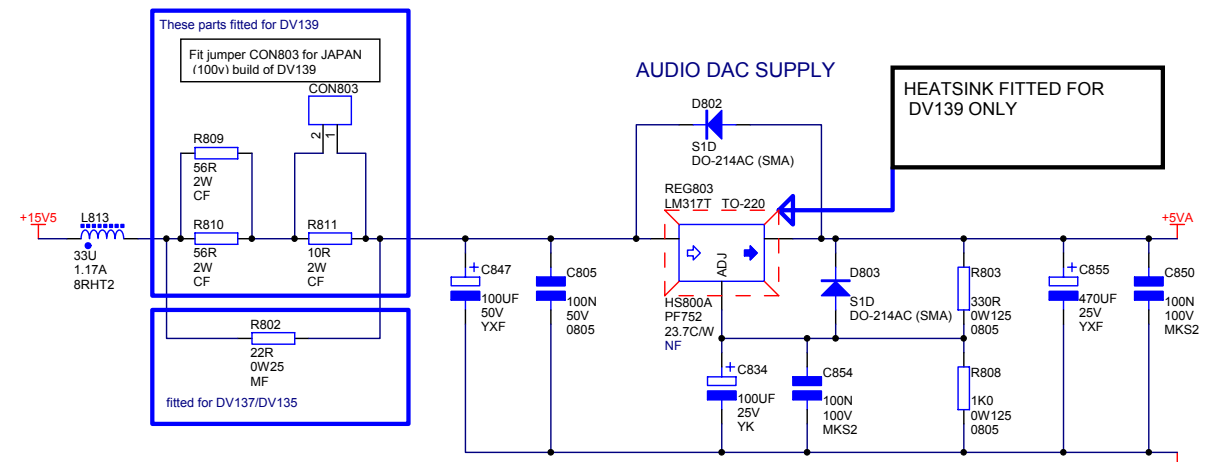
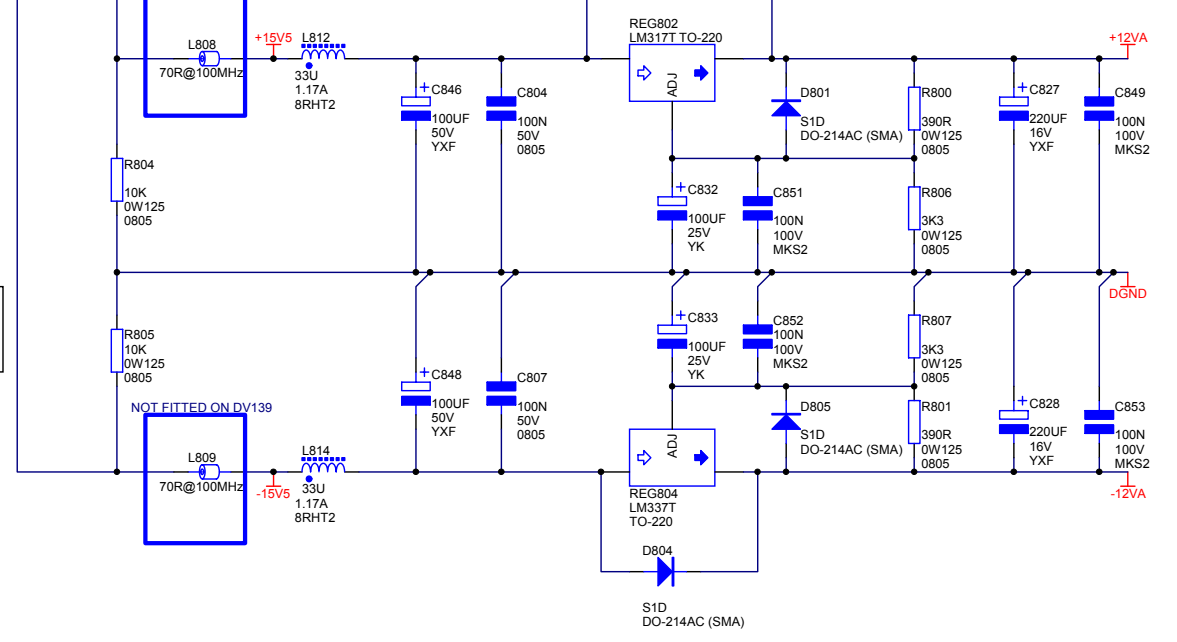
**VADDIS +3.3V DAC SUPPLY**



**POWER IN**



**AUDIO SUPPLY REGULATORS**



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

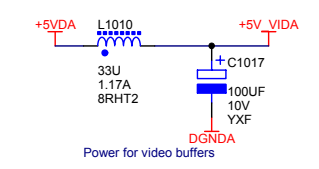
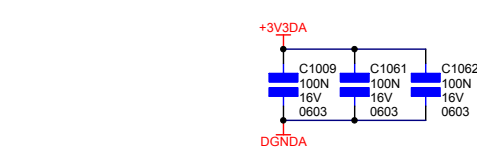
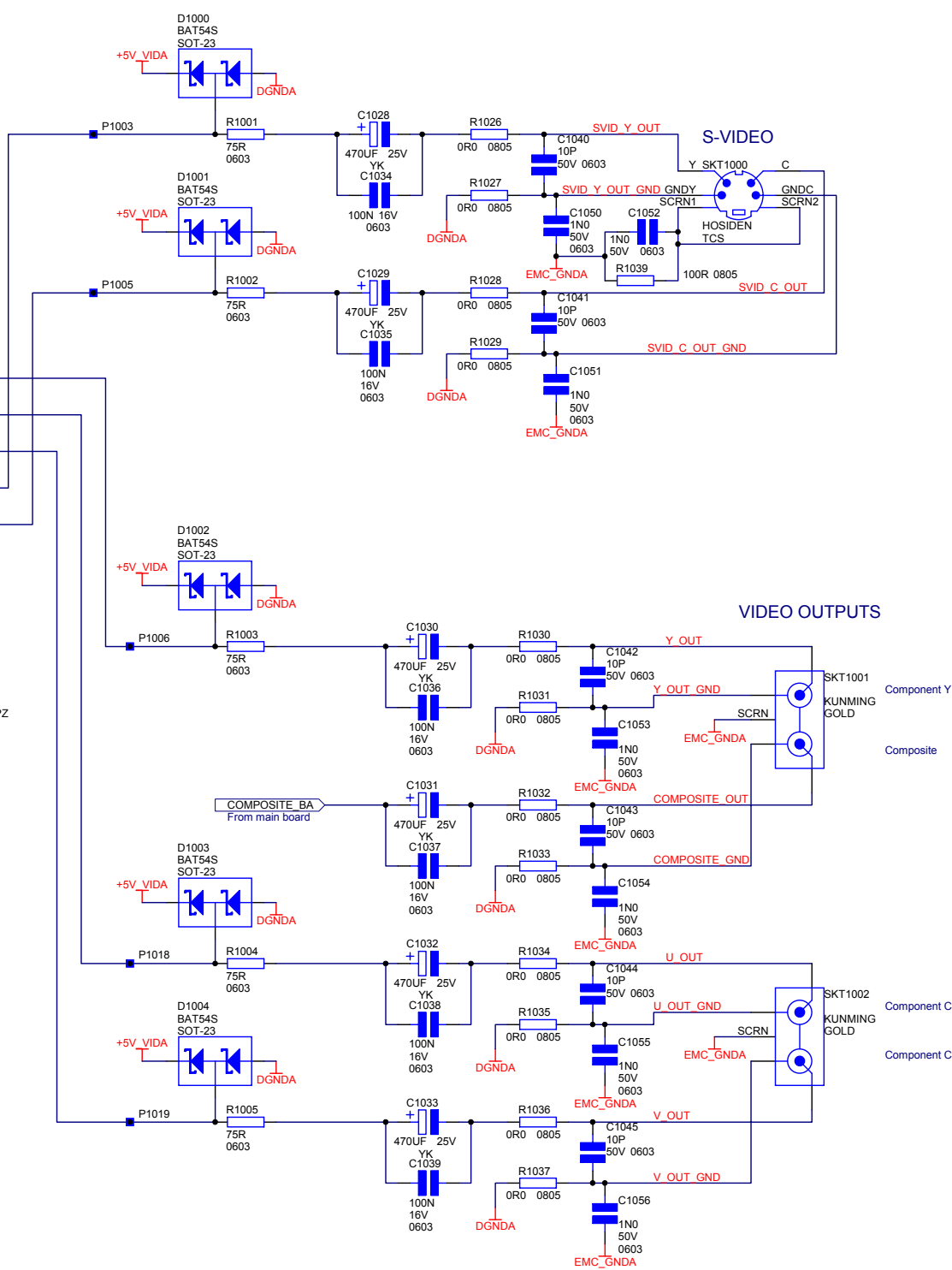
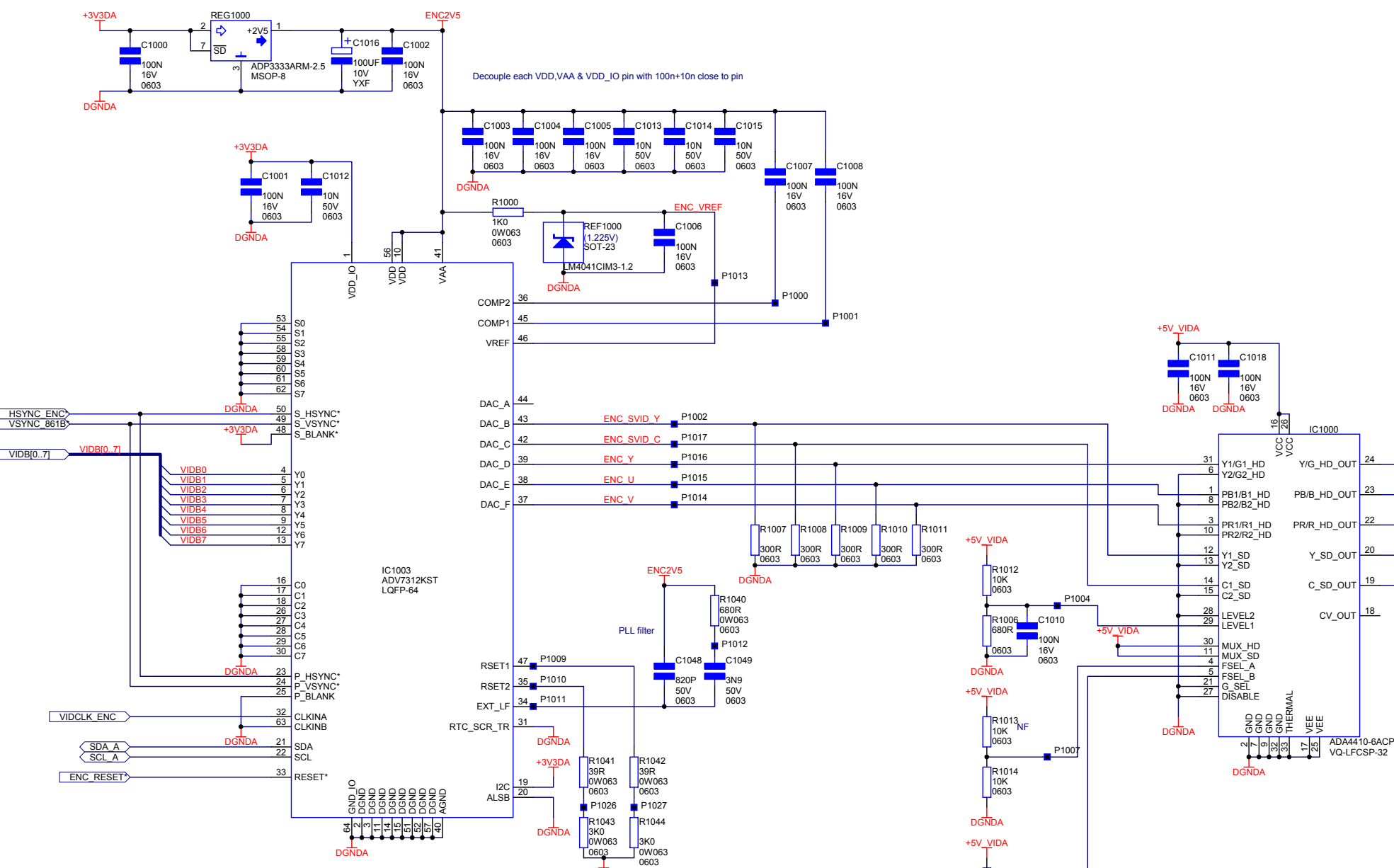
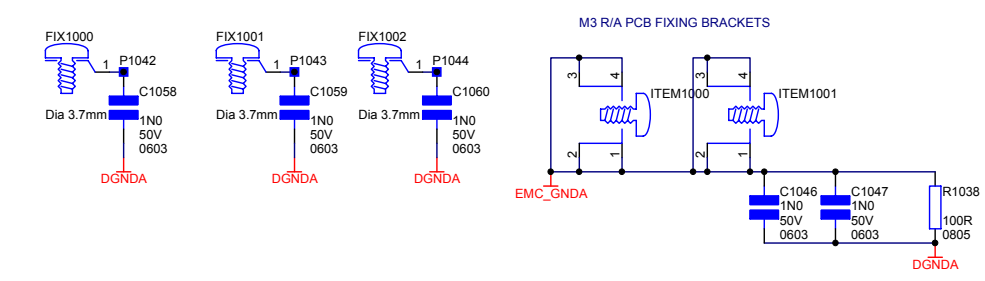
NOT FITTED ON DV139

DRAWING TITLE		DV137 Power					
<b>ARCAM</b> A & R Cambridge Ltd. Pembroke Avenue Waterbeach Cambridge CB5 9QR	Filename:	L988C08 Power.Sch	06_E093	MJT	12/06/06	None to this sheet. Add heatsink to top of Vaddis	3.1
	Notes:		06_E036	PG	20/03/06	Add thermal attach pads to IC200	3.0
			06_E029	PG	15/03/06	Issue 2 PCB (changes only affect DV139)	2.0
			05_E242	PG	08/12/05	Production 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:	12-Jun-2006
						Sheet 8 of 13	A2 DRAWING NO. L988CT



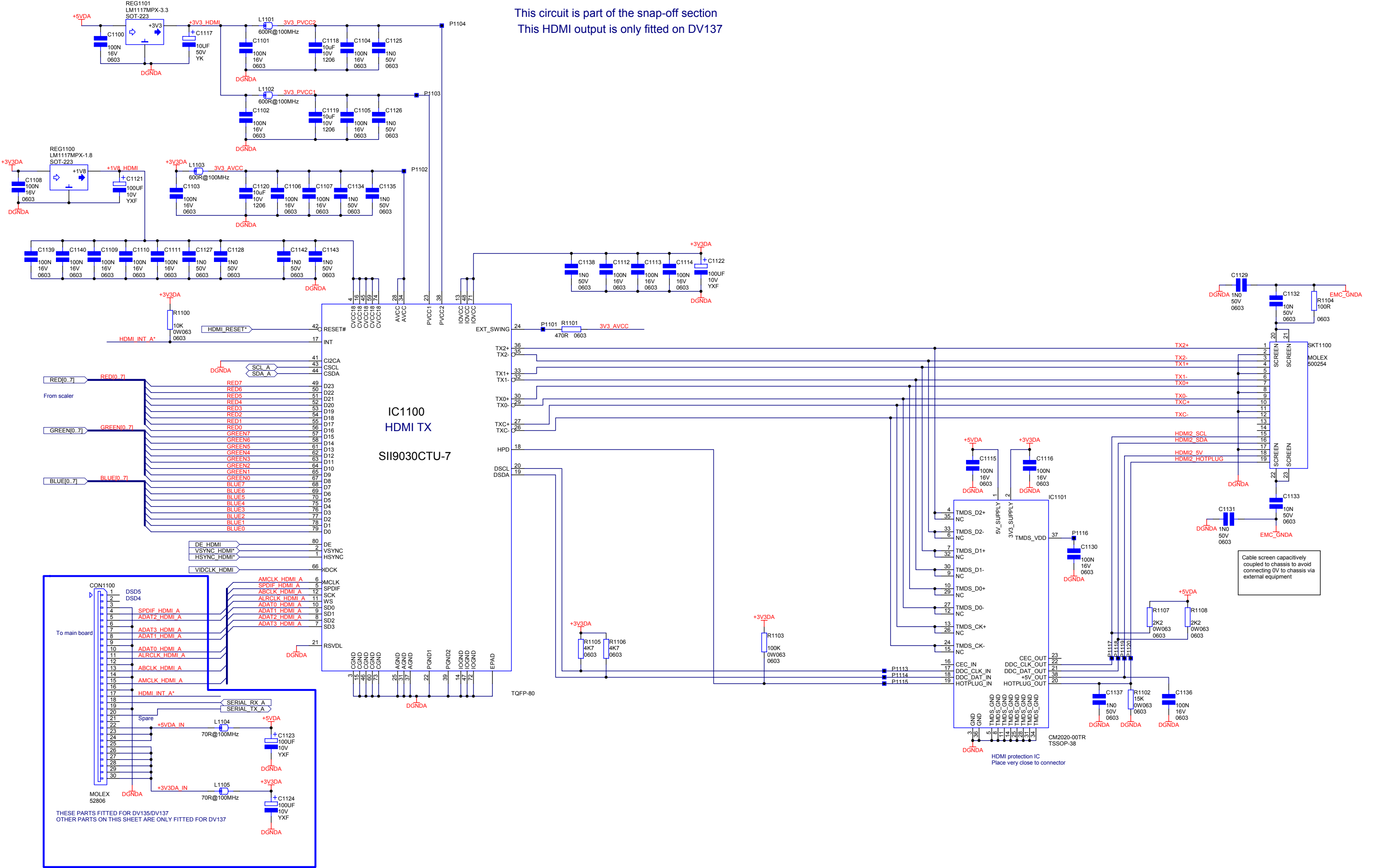


This circuit is part of the snap-off section  
All components on this sheet are not fitted for DV139



DRAWING TITLE		DV137 Video Encoder					
<b>ARCAM</b> A & R Cambridge Ltd. Pembroke Avenue Waterbeach Cambridge CB5 9QR	Filename:	L988C10 Video Encoder.Sch	06_E093	MJT	12/06/06	None to this sheet. Add heatsink to top of Vaddis	3.1
	Notes:		06_E036	PG	20/03/06	Add thermal attach pads to IC200	3.0
			06_E029	PG	15/03/06	Issue 2 PCB (changes only affect DV139)	2.0
			05_E242	PG	08/12/05	Production 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:	12-Jun-2006
						Sheet	10 of 13
						A2	DRAWING NO. L988CT

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



DRAWING TITLE		REV		DATE	DESCRIPTION OF CHANGE	ISSUE
DV137 HDMI output 2		06_E093	MJT	12/06/06	None to this sheet. Add heatsink to top of Vaddis	3.1
		06_E036	PG	20/03/06	Add thermal attach pads to IC200	3.0
		06_E029	PG	15/03/06	Issue 2 PCB (changes only affect DV139)	2.0
		05_E242	PG	08/12/05	Production Release	1.0
ECO No.	INITIALS	DATE	DESCRIPTION OF CHANGE			ISSUE
05_E242	PG	08/12/05	Production Release			1.0

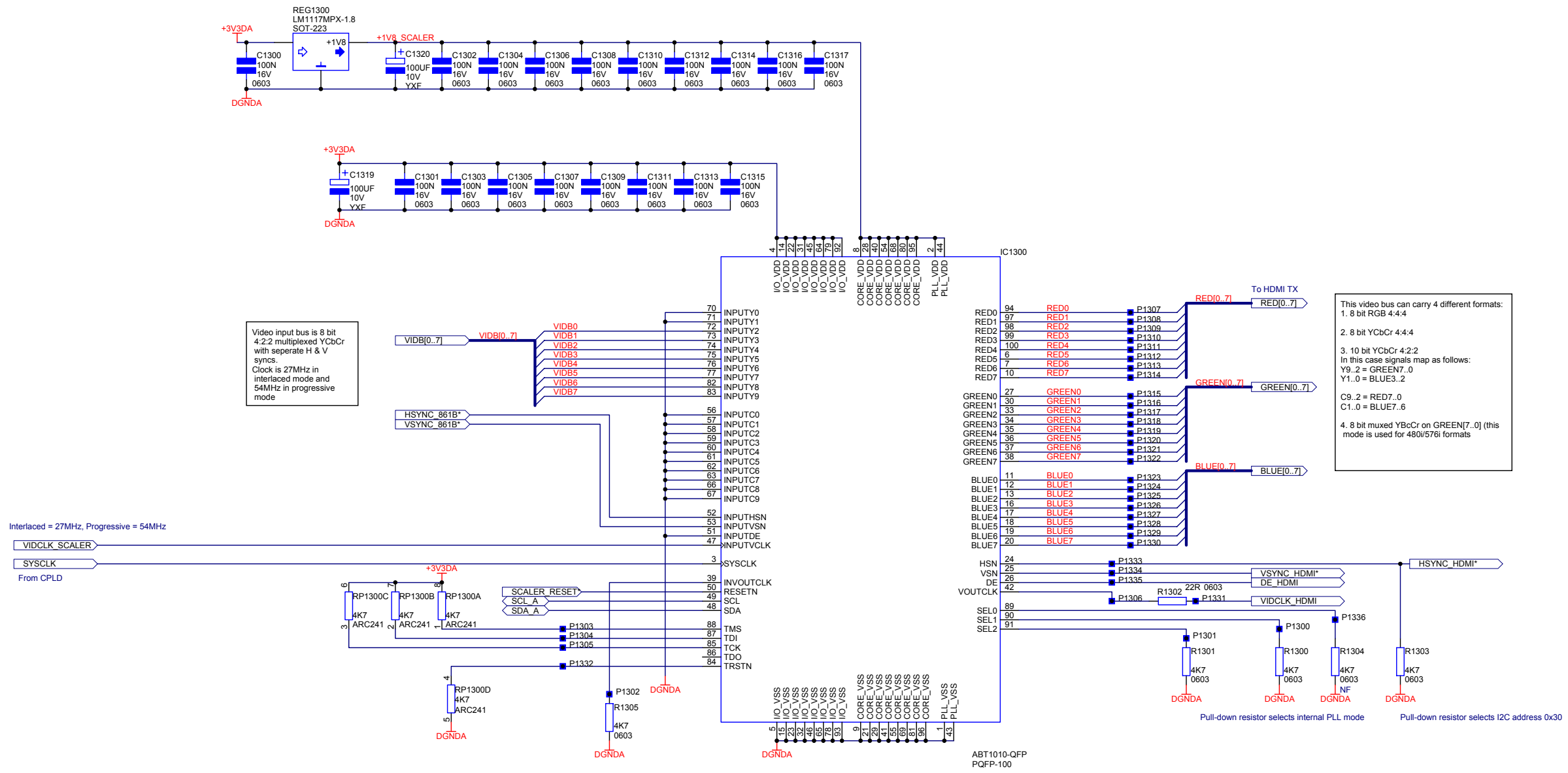
  

<b>ARCAM</b> A & R Cambridge Ltd. Pembroke Avenue Waterbeach Cambridge CB5 9QR		Contact Engineer: Mark Tweedale markt@arcam.co.uk	Contact Tel: 01223 203210 (direct) 01223 203200 (switch)	Printed: 12-Jun-2006 Sheet 11 of 13 A2 DRAWING NO. L988CT
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This circuit is part of the snap-off section.  
All components on this sheet are only fitted for DV137



DRAWING TITLE		DV137 Scaler			
06_E093	MJT	12/06/06	None to this sheet. Add heatsink to top of Vaddis		3.1
06_E036	PG	20/03/06	Add thermal attach pads to IC200		3.0
06_E029	PG	15/03/06	Issue 2 PCB (changes only affect DV139)		2.0
05_E242	PG	08/12/05	Production 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: 12-Jun-2006	Sheet 13 of 13
A & R Cambridge Ltd. Pembroke Avenue Waterbeach Cambridge CB5 9QR		DRAWING NO. L988CT			