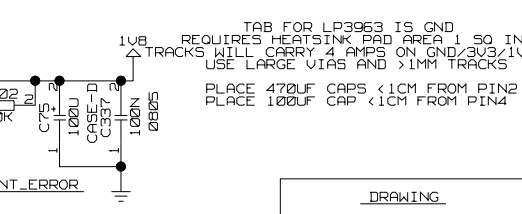
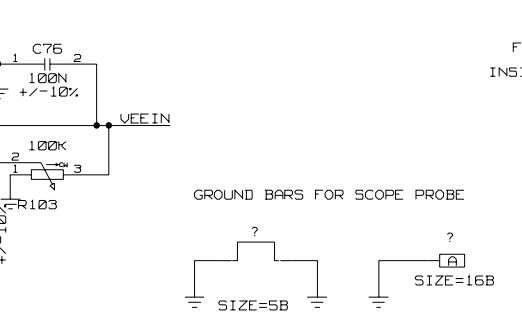
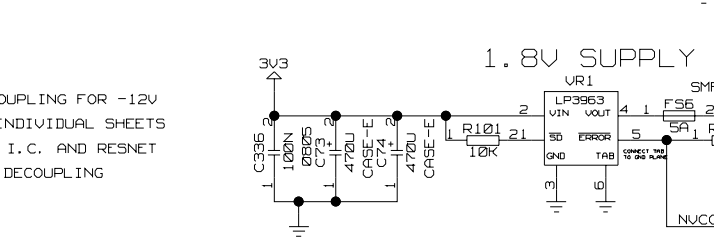
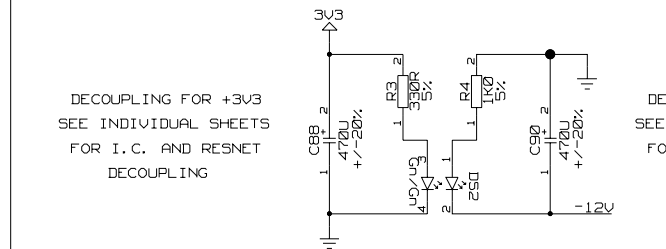
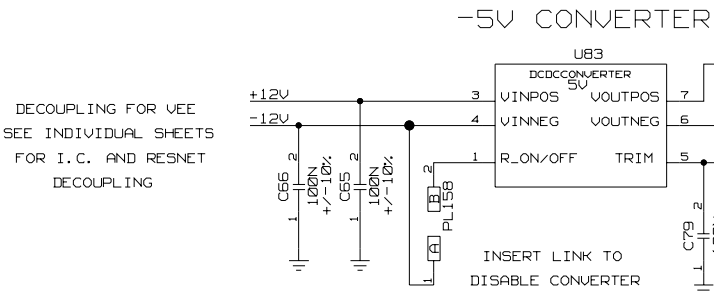
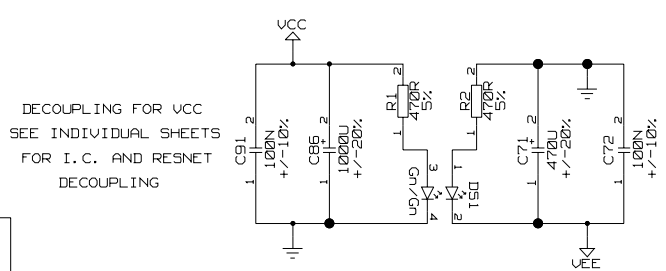


NOTE
J0 CONNECTOR NOT
TO BE FITTED
BUT SUPPLIED LOOSE

J0 SK-HARBUSHM-SHIELDED-95



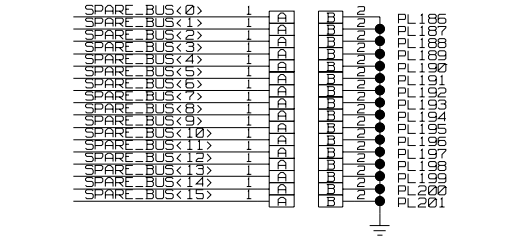
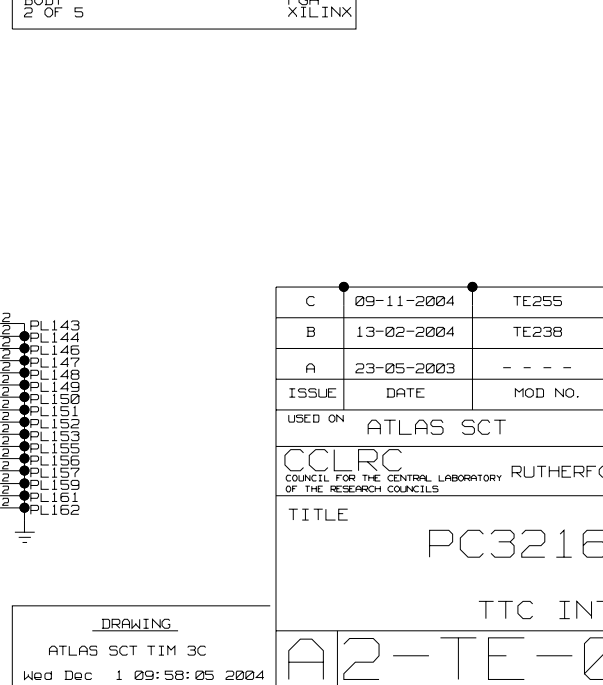
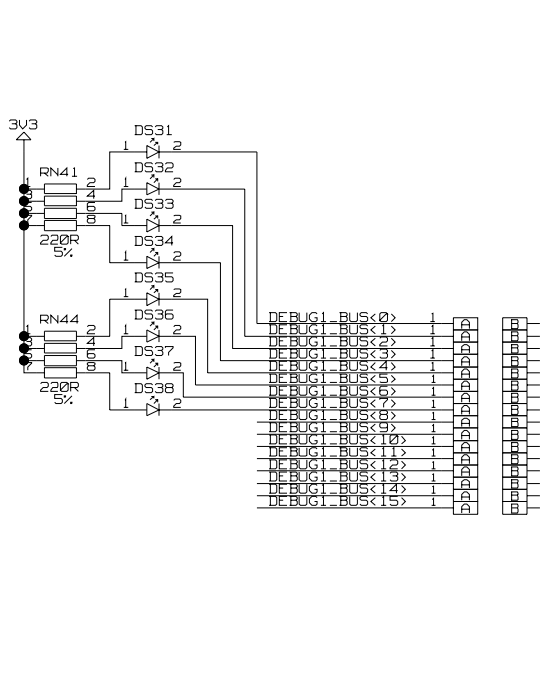
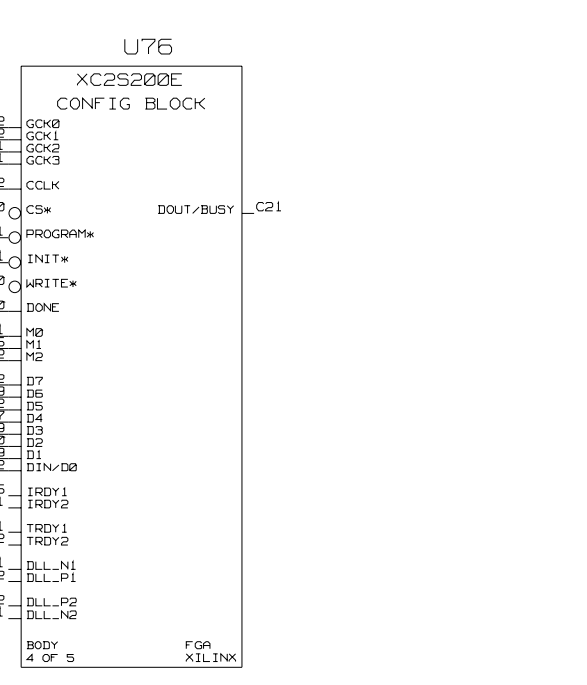
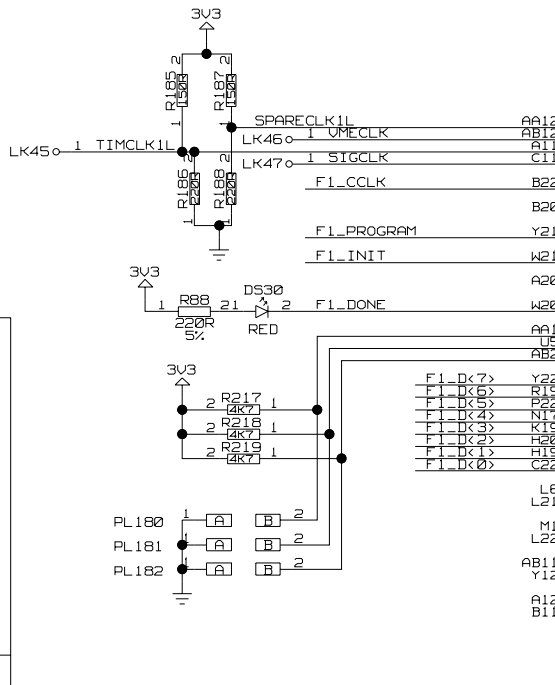
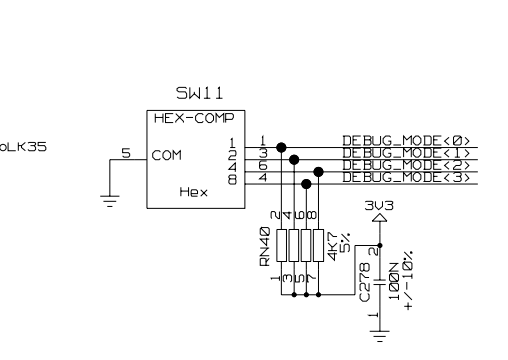
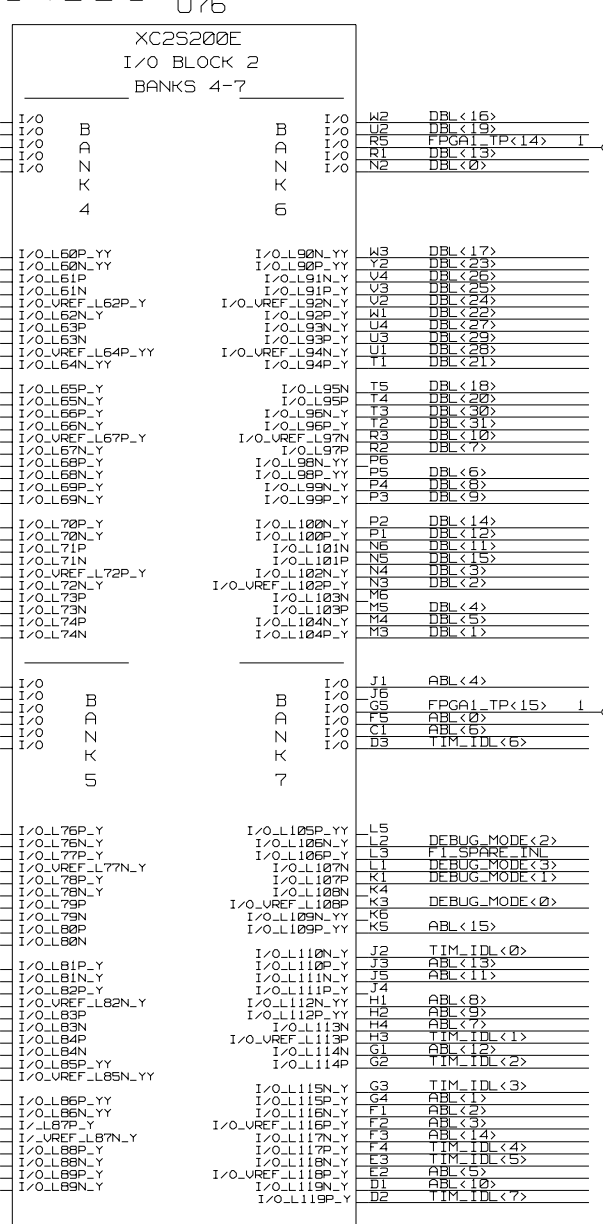
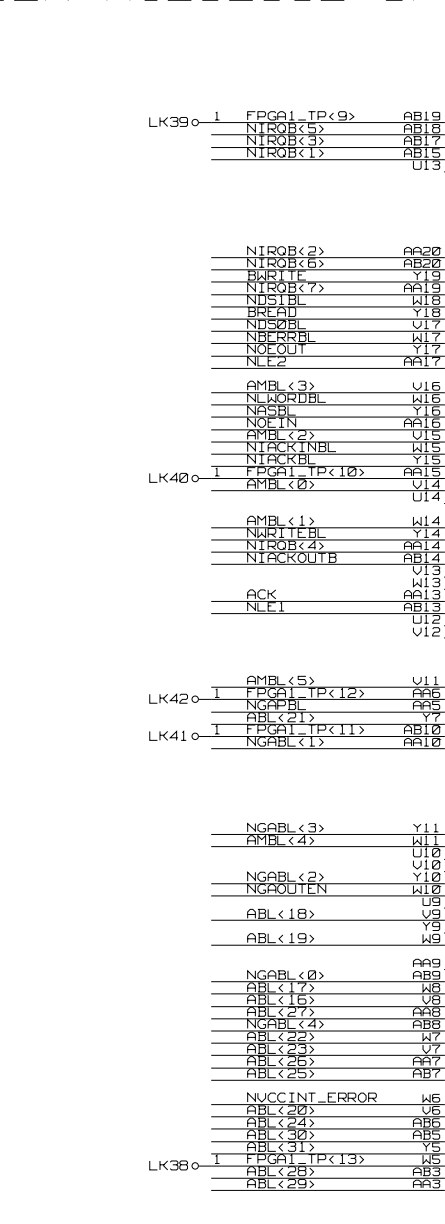
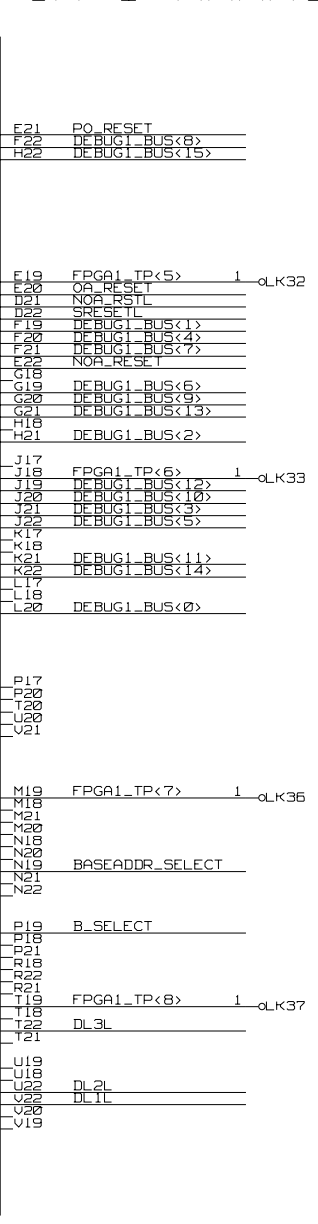
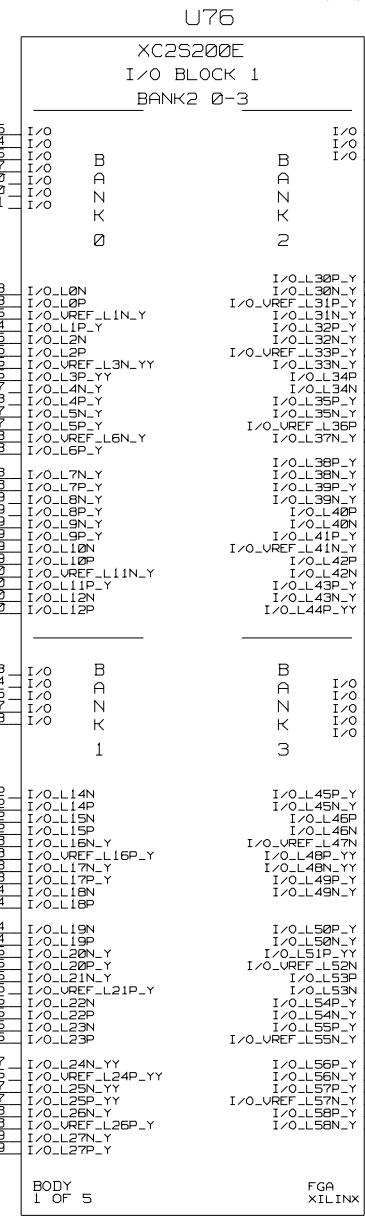
C	09-11-2004	TE255	D. J. BECKETT	M. POSTRANECKY	M. POSTRANECKY
B	13-02-2004	TE238	D. J. BECKETT	M. POSTRANECKY	M. POSTRANECKY
A	23-05-2003	- - -	D. J. BECKETT	M. POSTRANECKY	M. POSTRANECKY
ISSUE	DATE	MOD NO.	DRN BY.	CHKD.	APPD.
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COUNCIL FOR THE CENTRAL LABORATORY RUTHERFORD APPLETON LABORATORY, CHILTON, OXON OX11 0QX.
OF THE RESEARCH COUNCILS

TITLE
PC3216M
CIRCUIT
TTC INTERFACE MODULE (TIM-3C)

61-04
54-03
07-02

FPGA-1 MANAGER XC2S200E-6FG456C U76



ISSUE	DATE	MOD NO.	DRN BY.	CHKD.	APPD.	STATUS
C	09-11-2004	TE255	D. J. BECKETT	M. POSTRANECKY	M. POSTRANECKY	
B	13-02-2004	TE238	D. J. BECKETT	M. POSTRANECKY	M. POSTRANECKY	
A	23-05-2003	- - -	D. J. BECKETT	M. POSTRANECKY	M. POSTRANECKY	

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CCLRC
COUNCIL FOR THE CENTRAL LABORATORY RUTHERFORD APPLETON LABORATORY, CHILTON, OXON OX11 0QX.

TITLE
PC3216M CIRCUIT
TTC INTERFACE MODULE (TIM-3C)

61-04
54-03
07-02

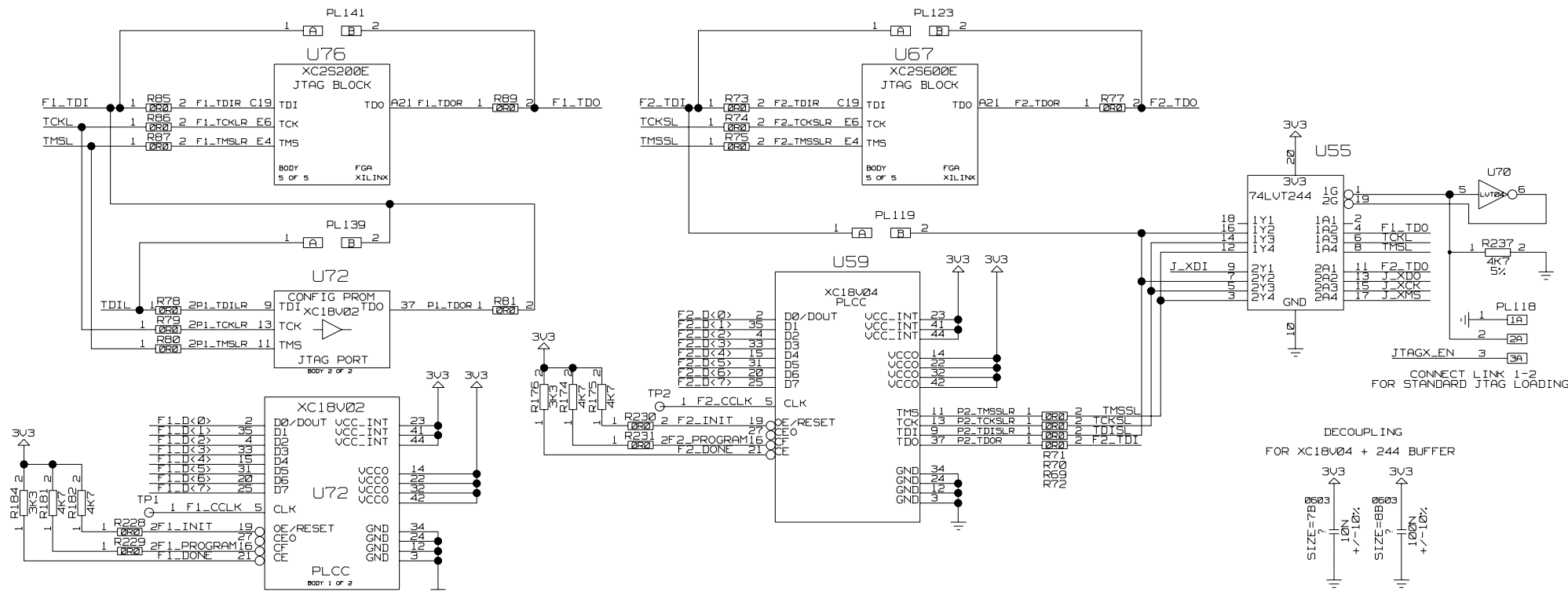
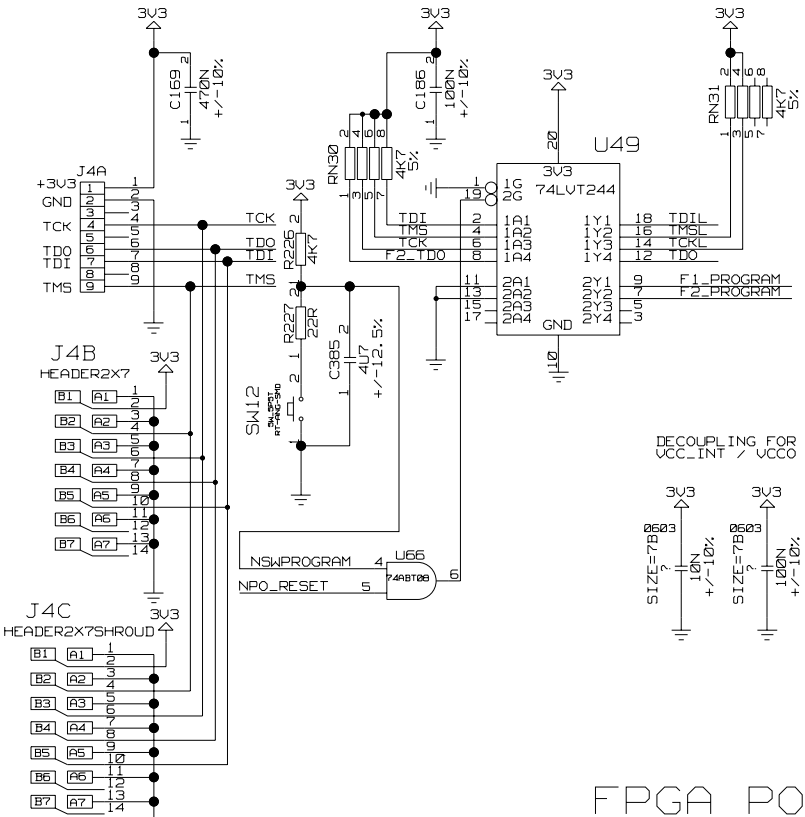
DRAWING
ATLAS SCT TIM 3C
Wed Dec 1 09:58:05 2004

A2-TE-0102-044-02-C

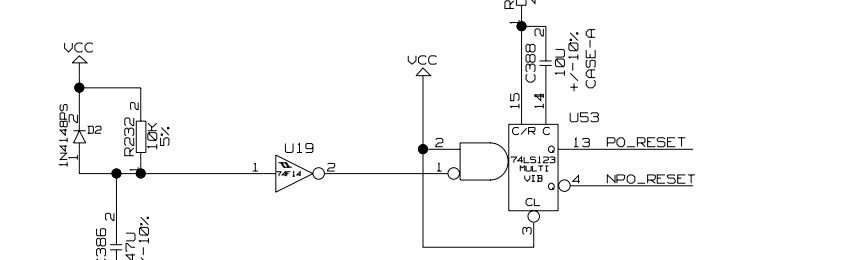
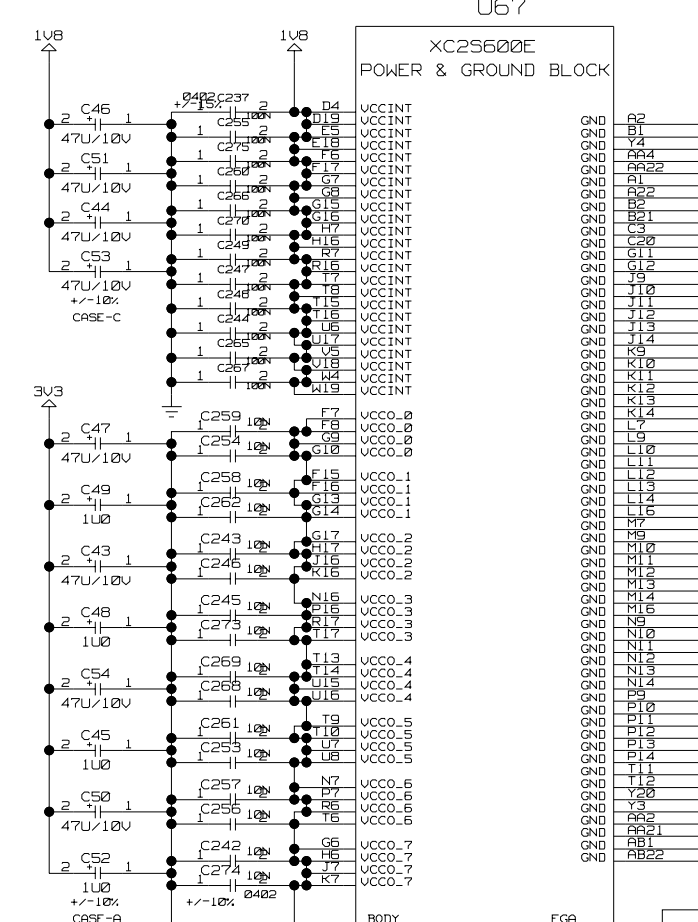
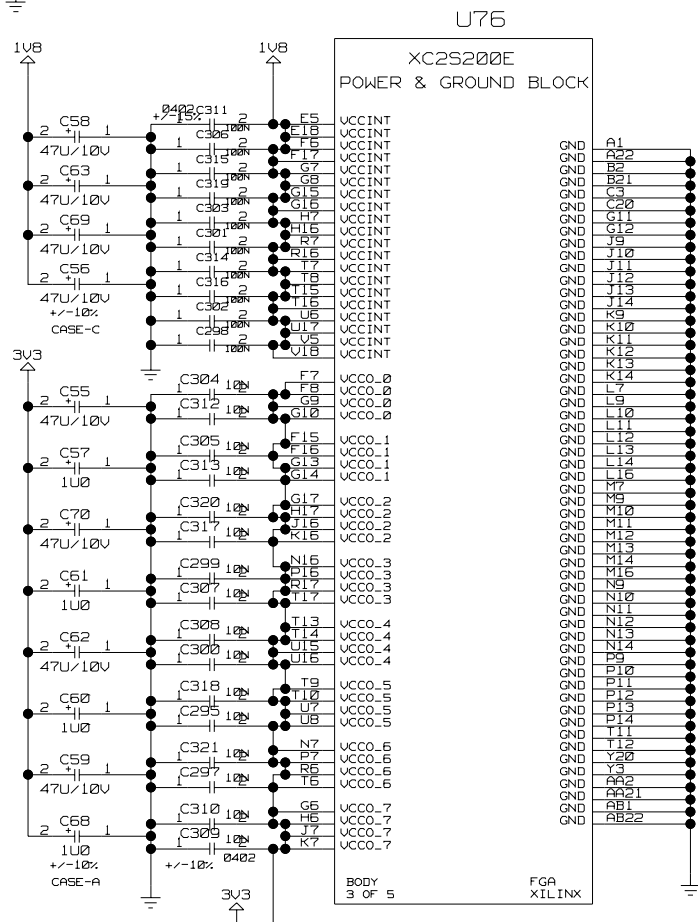
TOTAL NO. OF SHEETS 16

BOUNDARY SCAN CHAIN

J-TAG INTERFACE

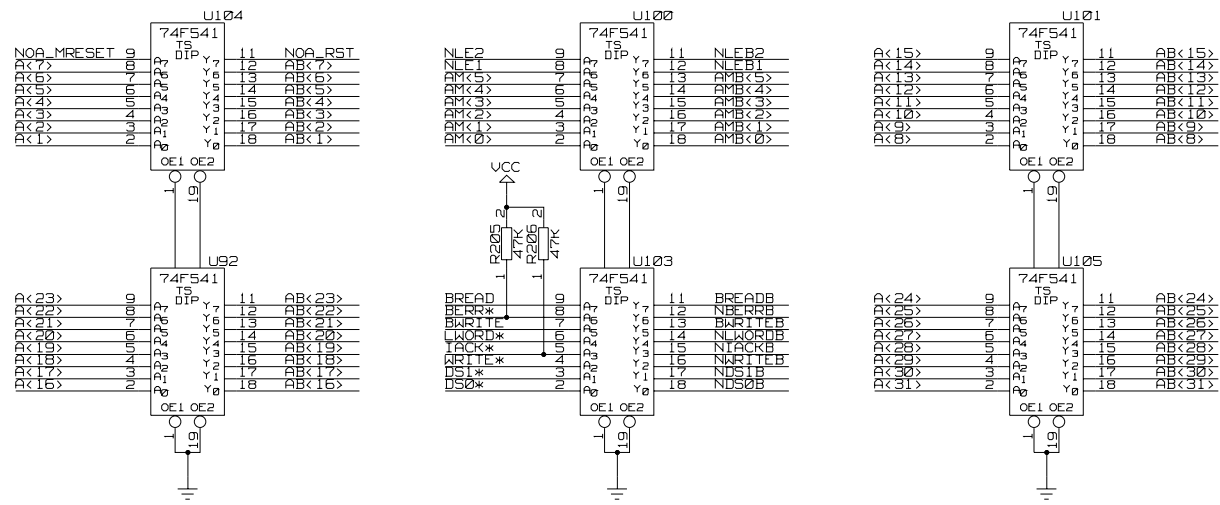


FPGA POWER AND DECOUPLING

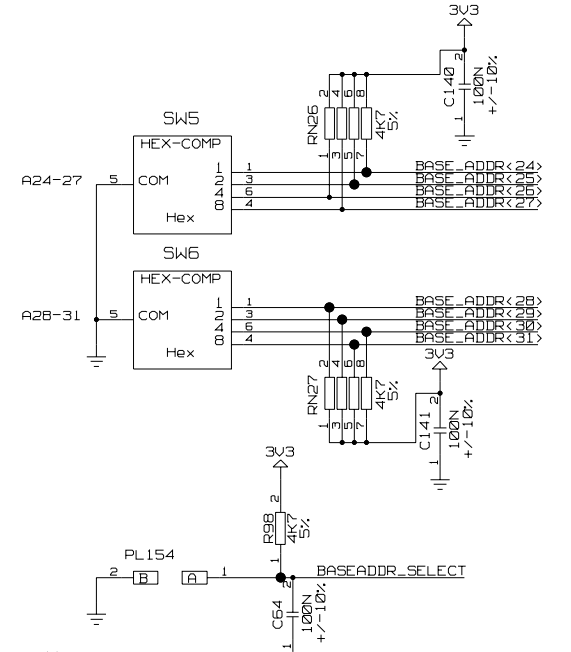
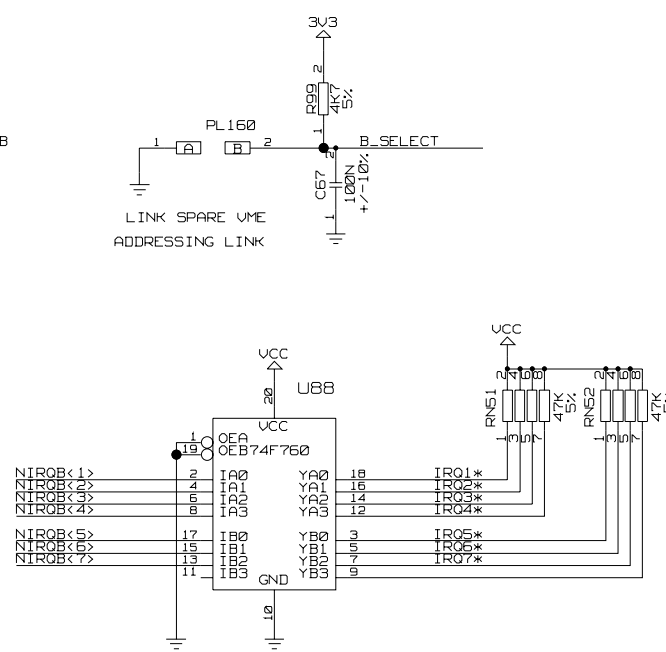
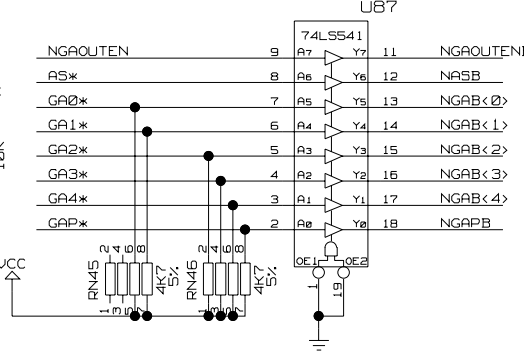
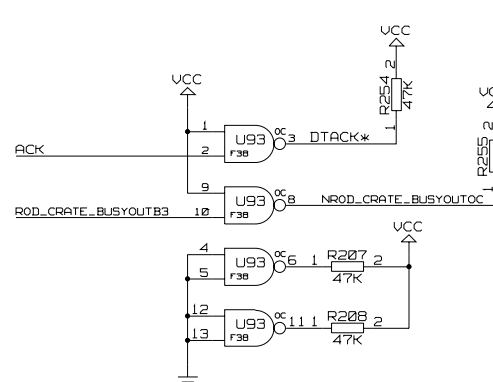
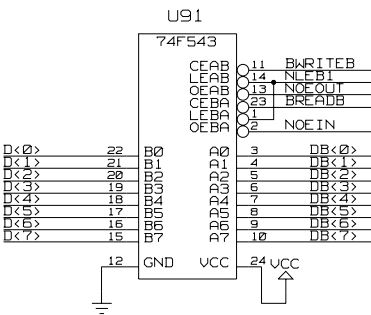
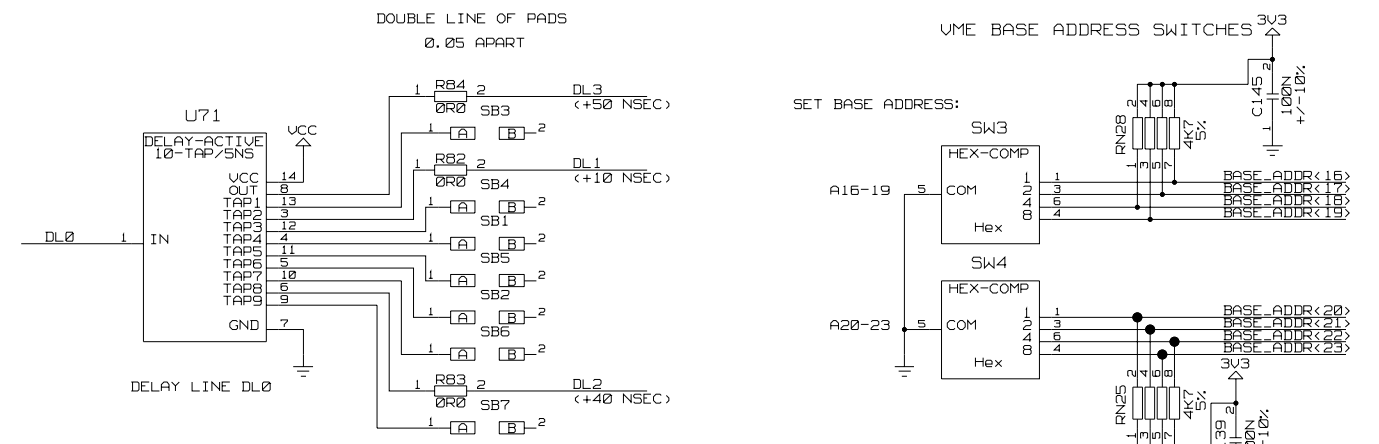


C	09-11-2004	TE255	D. J. BECKETT	M. POSTRANECKY	M. POSTRANECKY
B	13-02-2004	TE238	D. J. BECKETT	M. POSTRANECKY	M. POSTRANECKY
A	23-05-2003	- - -	D. J. BECKETT	M. POSTRANECKY	M. POSTRANECKY
ISSUE	DATE	MOD NO.	DRN BY.	CHKD.	APPD.
USED ON			ATLAS SCT		
CCLRC			© CCLRC 2003		
COUNCIL FOR THE CENTRAL LABORATORY RUTHERFORD APPLETON LABORATORY, CHILTON, OXON OX11 0QX.					
TITLE			PC3216M CIRCUIT		
TTC INTERFACE MODULE (TIM-3C)			61-04		
A2-TE-0102-044-04-C			54-03		
			07-02		
TOTAL NO. OF SHEETS 16					

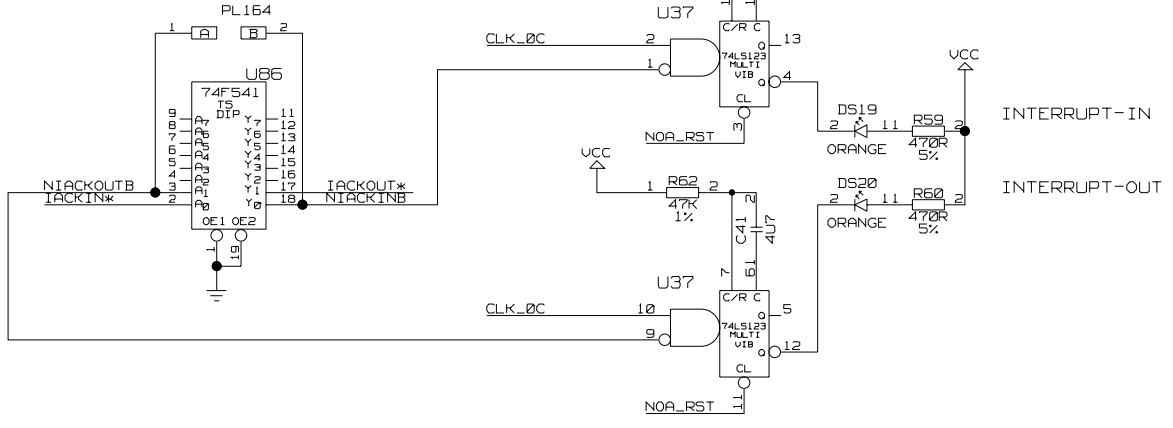
VME AND BACKPLANE BUFFERS



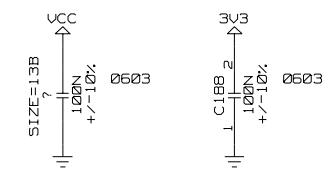
VME DELAYS AND BASE SELECT



INSERT LINK TO BYPASS VME INTERRUPTS DAISY CHAIN



DECOUPLING



C	09-11-2004	TE255	D. J. BECKETT	M. POSTRANECKY	M. POSTRANECKY
B	13-02-2004	TE238	D. J. BECKETT	M. POSTRANECKY	M. POSTRANECKY
A	23-05-2003	- - -	D. J. BECKETT	M. POSTRANECKY	M. POSTRANECKY
ISSUE	DATE	MOD NO.	DRN BY.	CHKD.	APPD.
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COUNCIL FOR THE CENTRAL LABORATORY RUTHERFORD APPLETON LABORATORY, CHILTON, OXON OX11 0QX.
OF THE RESEARCH COUNCILS

TITLE
PC3216M CIRCUIT
TTC INTERFACE MODULE (TIM-3C)

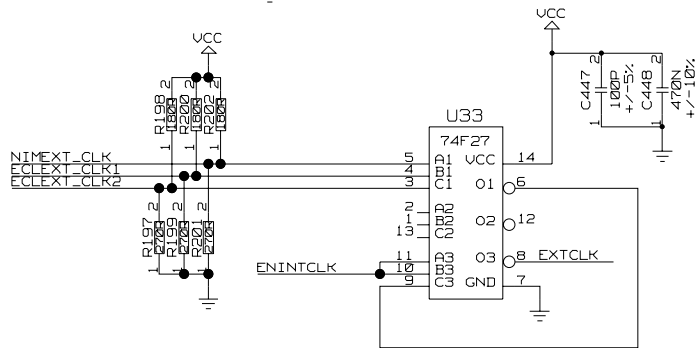
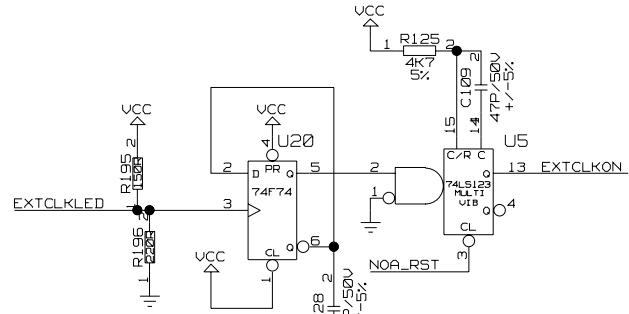
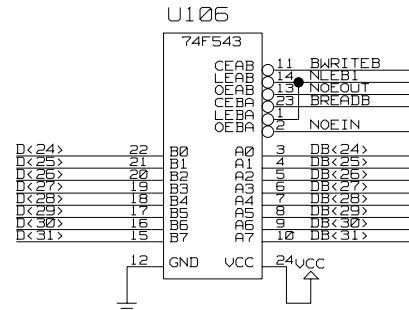
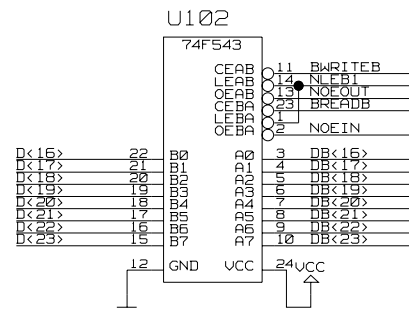
61-04
54-03
07-02

A2-TE-0102-044-05-C

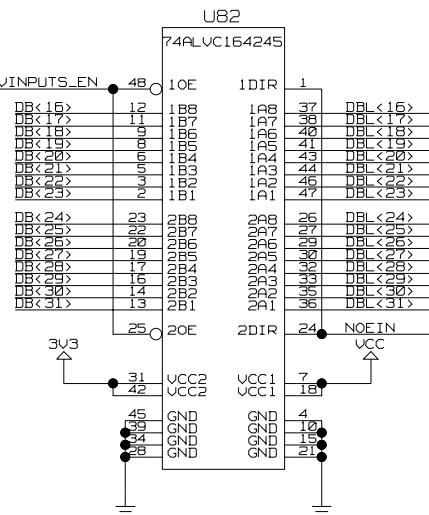
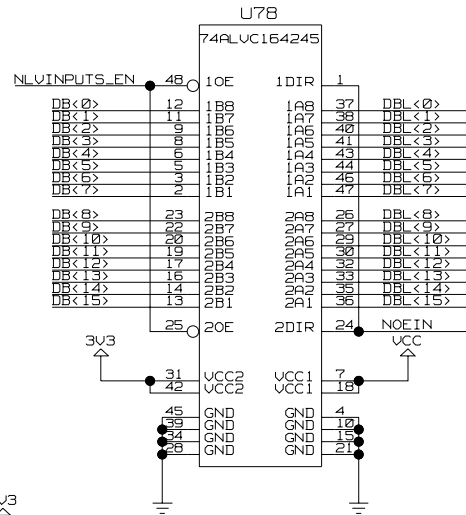
DRAWING
ATLAS SCT TIM 3C
Wed Dec 1 09:58:18 2004

TOTAL NO. OF SHEETS 16

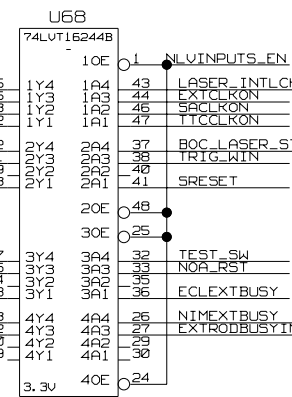
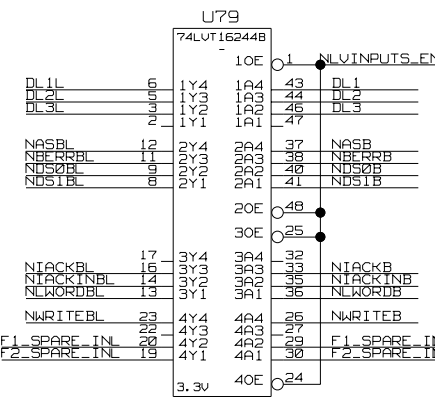
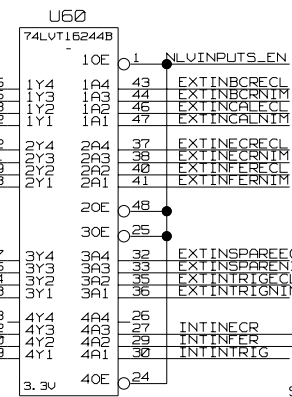
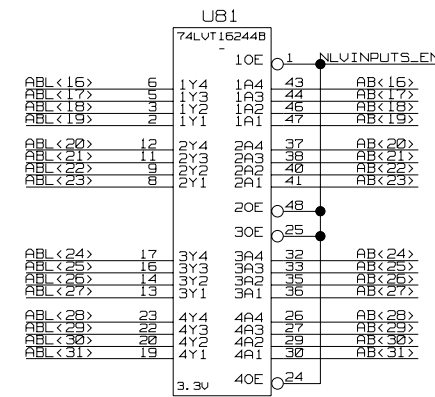
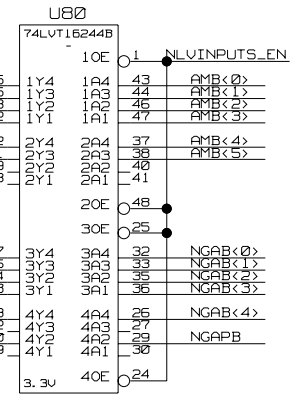
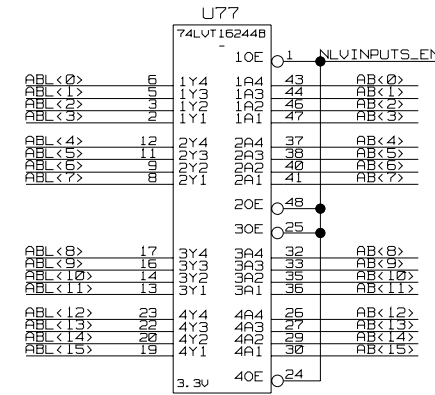
EXTRA BUFFERS



LV BUFFERS



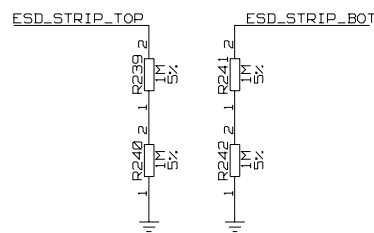
LV SIGNAL BUFFERS



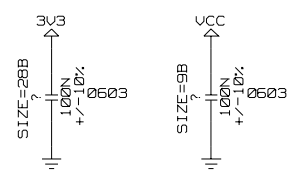
INSERT LINK TO
ENABLE ALL
LV BUFFERS

SELECT INTECR = INTFERR
OR INTECR = 0

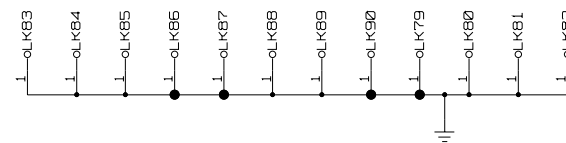
RESISTORS FOR ESD
DISCHARGE STRIP



DECOUPLING



HOLES FOR STRENGTHENING
BARS



C	09-11-2004	TE255	D. J. BECKETT	M. POSTRANECKY	M. POSTRANECKY	
B	13-02-2004	TE238	D. J. BECKETT	M. POSTRANECKY	M. POSTRANECKY	
A	23-05-2003	- - -	D. J. BECKETT	M. POSTRANECKY	M. POSTRANECKY	
ISSUE	DATE	MOD NO.	DRN BY.	CHKD.	APPD.	STATUS

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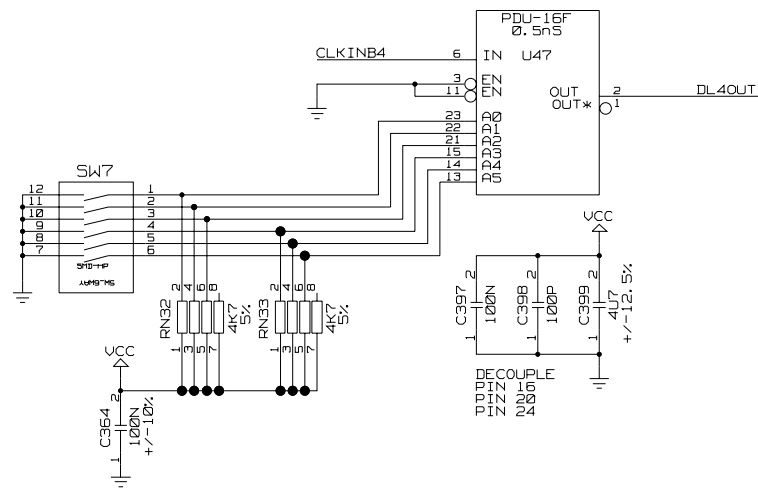
CCLRC COUNCIL FOR THE CENTRAL LABORATORY RUTHERFORD APPLETON LABORATORY, CHILTON, OXON OX11 0QX.

TITLE PC3216M CIRCUIT
TTC INTERFACE MODULE (TIM-3C)

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ATLAS SCT TIM 3C
Wed Dec 1 09:58:21 2004

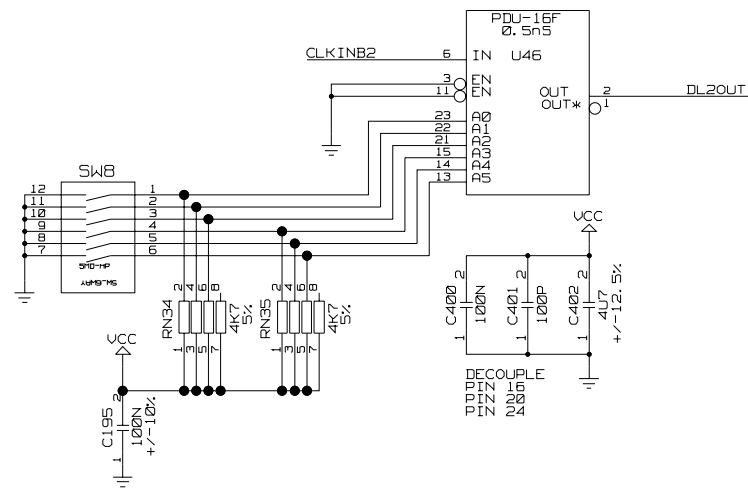
A2-TE-0102-044-06-C

DL4 - TIM SETUP DELAY



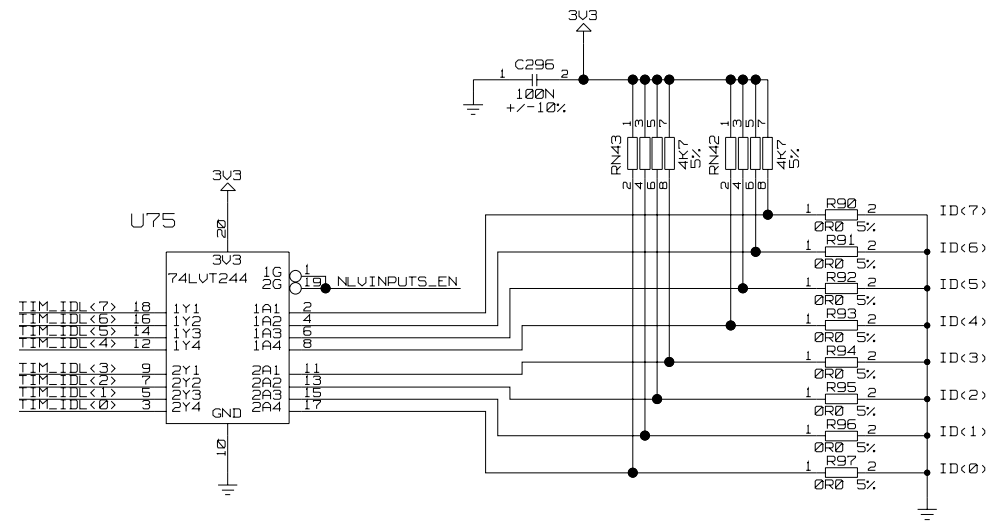
DELAY 9-41USEC IN STEPS OF 0.5USEC

DL2 - ROD SETUP DELAY FOR TTC OUTPUTS



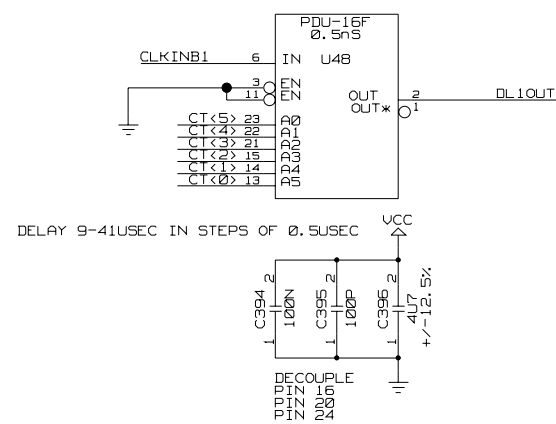
DELAY 9-41USEC IN STEPS OF 0.5USEC

SERIAL NUMBER REGISTER



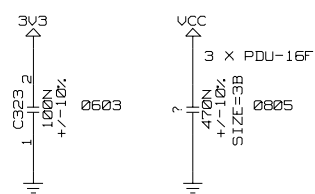
REMOVE RESISTORS TO ENCODE SERIAL NUMBER

DL1 - SACLK DELAY



DELAY 9-41USEC IN STEPS OF 0.5USEC

DECOUPLING



C	09-11-2004	TE255	D. J. BECKETT	M. POSTRANECKY	M. POSTRANECKY	
B	13-02-2004	TE238	D. J. BECKETT	M. POSTRANECKY	M. POSTRANECKY	
A	23-05-2003	- - - -	D. J. BECKETT	M. POSTRANECKY	M. POSTRANECKY	
ISSUE	DATE	MOD NO.	DRN BY.	CHKD.	APPD.	STATUS

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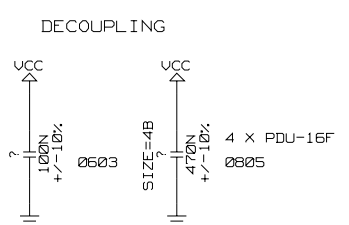
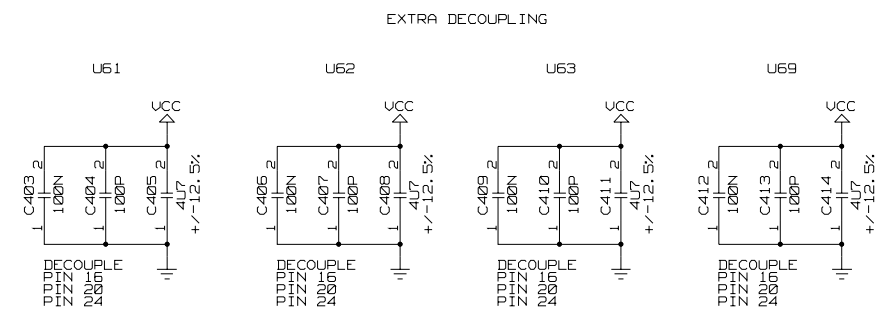
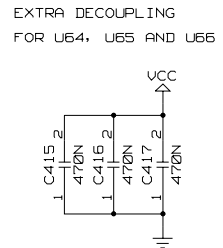
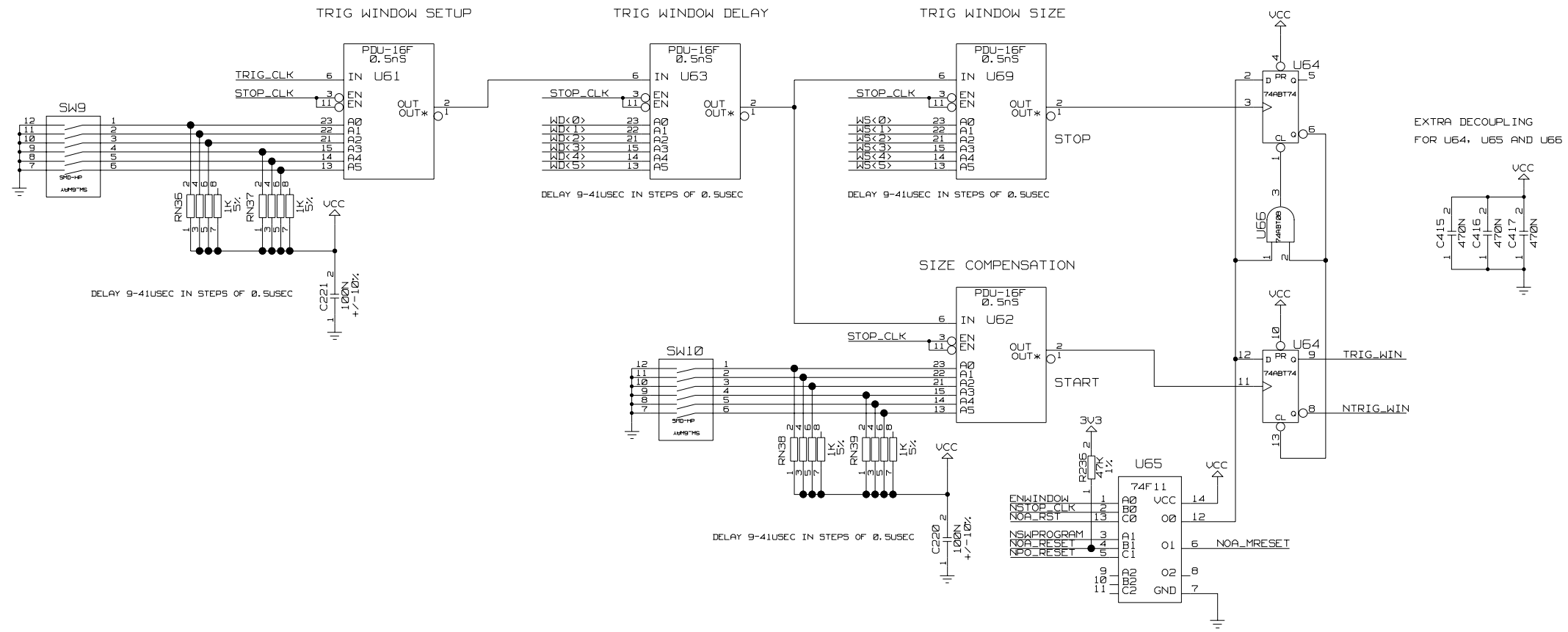
CCLRC COUNCIL FOR THE CENTRAL LABORATORY RUTHERFORD APPLETON LABORATORY, CHILTON, OXON OX11 0QX.

TITLE PC3216M CIRCUIT
TTC INTERFACE MODULE (TIM-3C)

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ATLAS SCT TIM 3C
Wed Dec 1 09:58:23 2004

A2-TE-0102-044-07-C

TRIGGER WINDOW - VERS B



C	09-11-2004	TE255	D. J. BECKETT	M. POSTRANECKY	M. POSTRANECKY
B	13-02-2004	TE238	D. J. BECKETT	M. POSTRANECKY	M. POSTRANECKY
A	23-05-2003	- - -	D. J. BECKETT	M. POSTRANECKY	M. POSTRANECKY
ISSUE	DATE	MOD NO.	DRN BY.	CHKD.	APPD.

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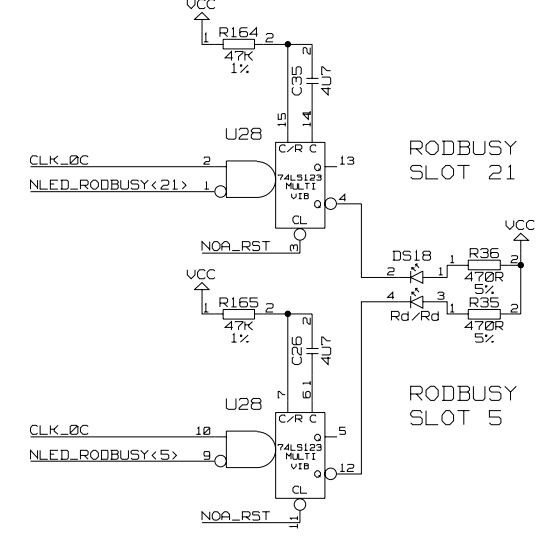
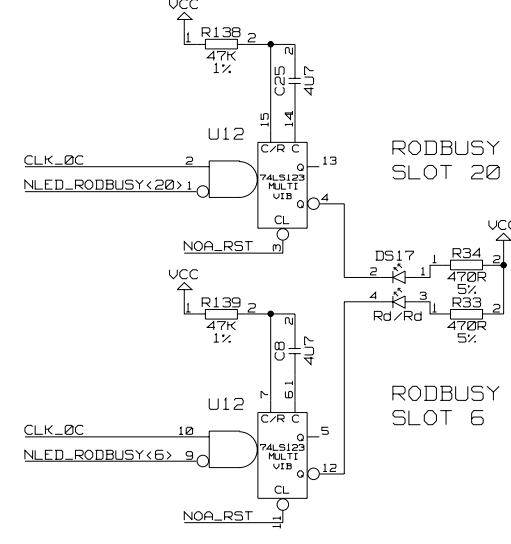
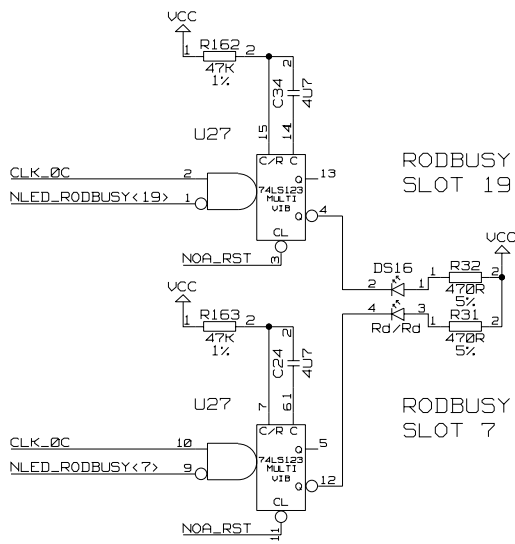
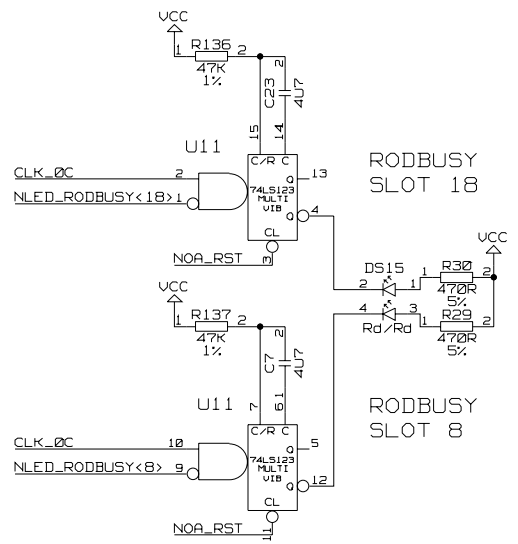
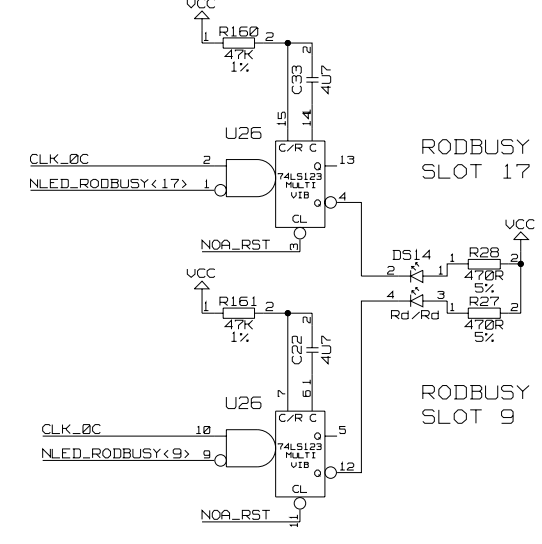
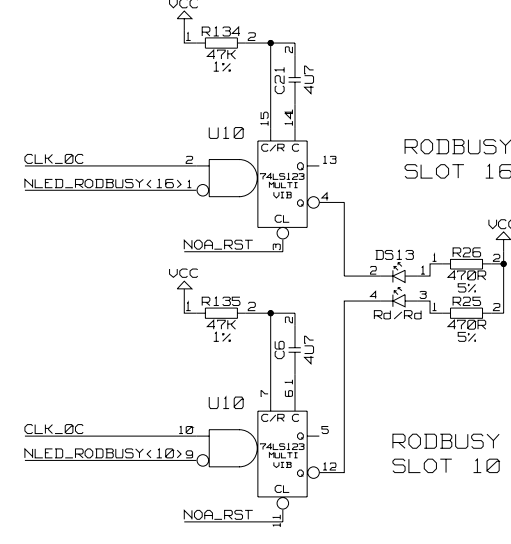
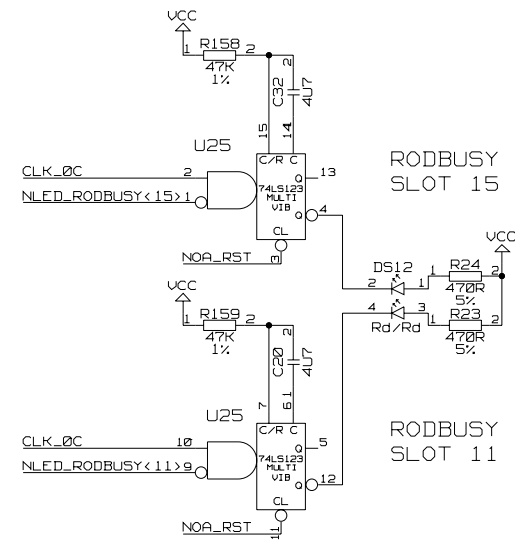
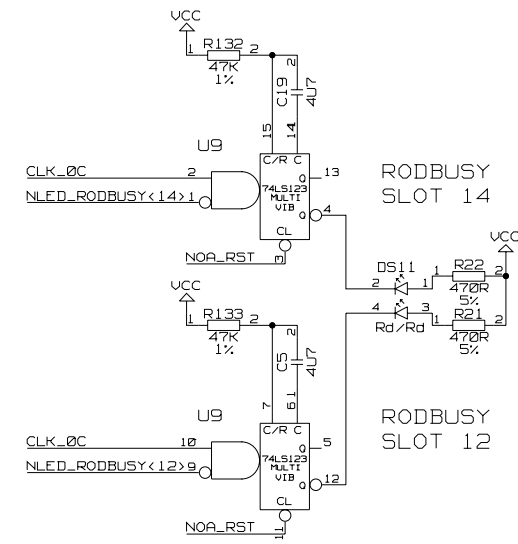
CCLRC COUNCIL FOR THE CENTRAL LABORATORY RUTHERFORD APPLETON LABORATORY, CHILTON, OXON OX11 0QX.

TITLE PC3216M CIRCUIT
TTC INTERFACE MODULE (TIM-3C)

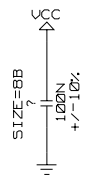
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ATLAS SCT TIM 3C
Wed Dec 1 09:58:24 2004

A2-TE-0102-044-08-C

LED DISPLAYS DS11-DS18 (62USEC)



DECOUPLING



C	09-11-2004	TE255	D. J. BECKETT	M. POSTRANECKY	M. POSTRANECKY	
B	13-02-2004	TE238	D. J. BECKETT	M. POSTRANECKY	M. POSTRANECKY	
A	23-05-2003	- - - -	D. J. BECKETT	M. POSTRANECKY	M. POSTRANECKY	
ISSUE	DATE	MOD NO.	DRN BY.	CHKD.	APPD.	STATUS
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CCLRC
COUNCIL FOR THE CENTRAL LABORATORY RUTHERFORD APPLETON LABORATORY, CHILTON, OXON OX11 0QX.

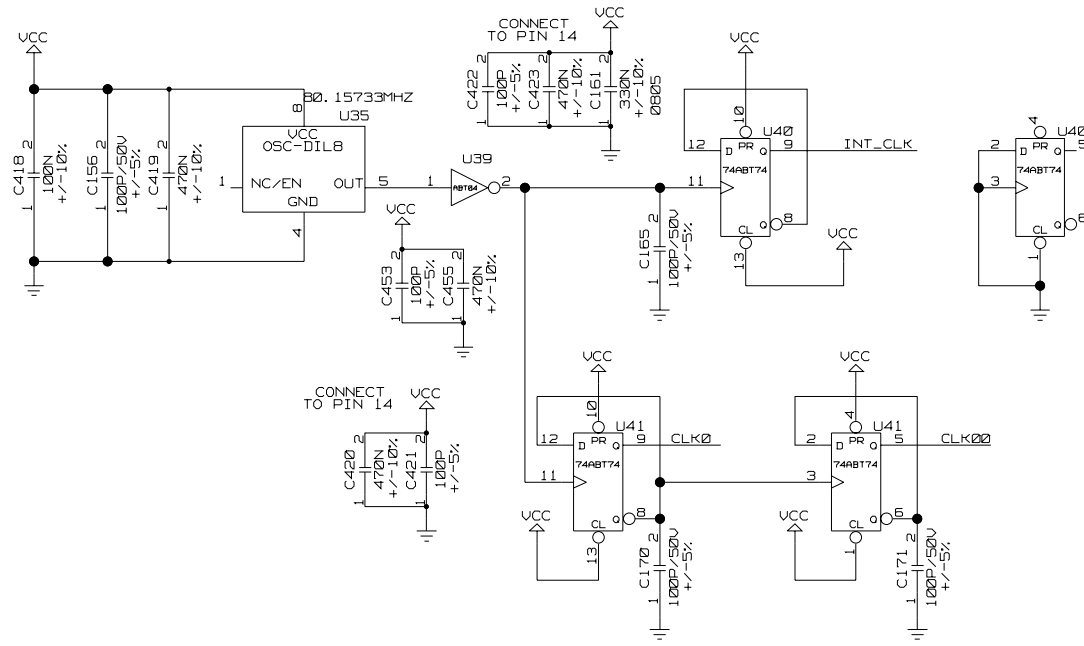
TITLE
PC3216M CIRCUIT
TTC INTERFACE MODULE (TIM-3C)

61-04
54-03
07-02

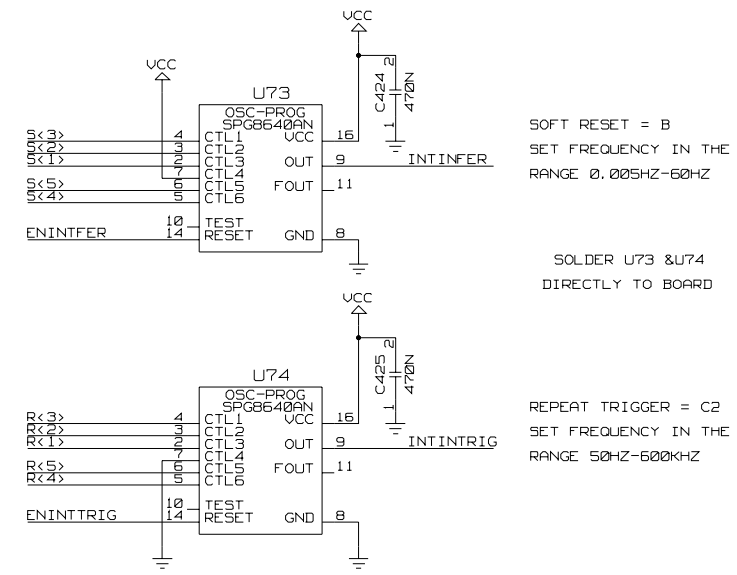
DRAWING
ATLAS SCT TIM 3C
Wed Dec 1 09:57:45 2004

A2-TE-0102-044-09-C

INTERNAL OSCILLATORS 1



INTERNAL OSCILLATORS 2



SOFT RESET = B
SET FREQUENCY IN THE
RANGE 0.005HZ-60HZ

SOLDER U73 & U74
DIRECTLY TO BOARD

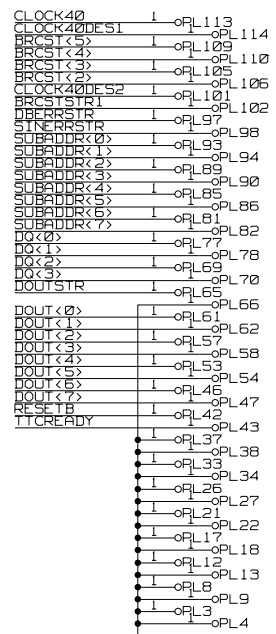
REPEAT TRIGGER = C2
SET FREQUENCY IN THE
RANGE 50HZ-600KHZ

TTCRQ DAUGHTER BOARD CONNECTORS

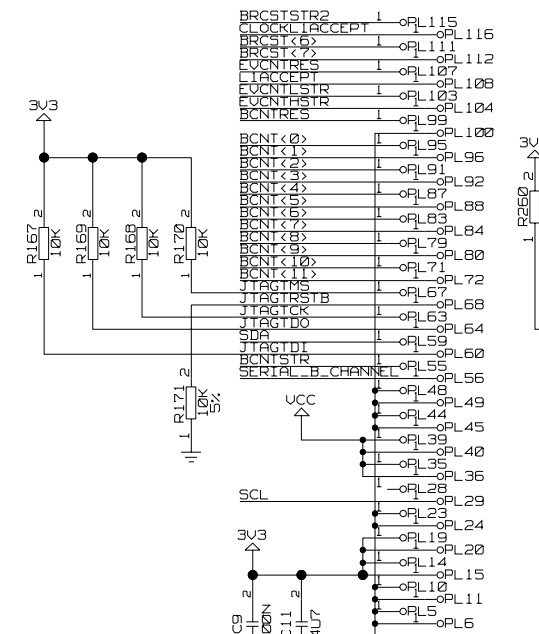
STRAIGHT RECEPTACLE CONTACTS PRECI-DIP 714-91-125-31-001
2X DOUBLE ROW OF 25 CONTACTS

STRAIGHT RECEPTACLE CONTACTS PRECI-DIP 714-91-125-31-001
1X DOUBLE ROW OF 13 CONTACTS

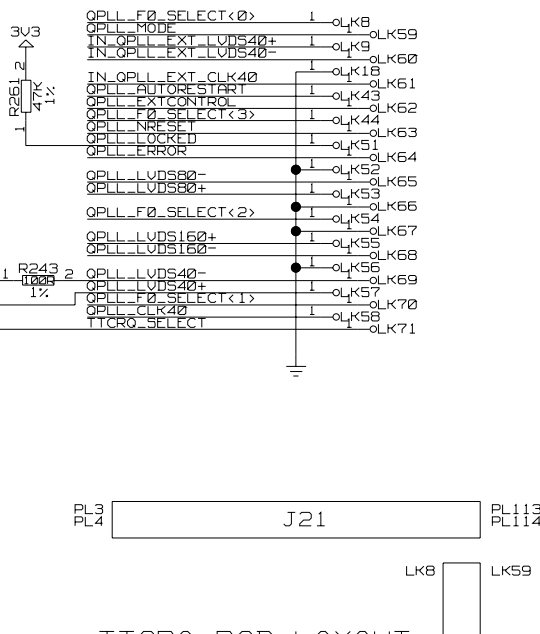
TTC J21



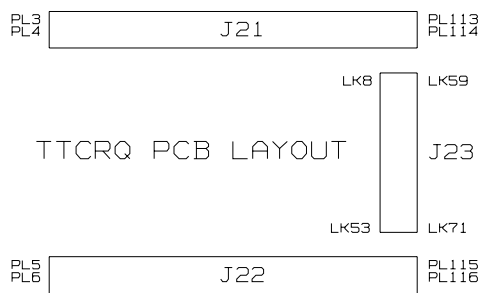
TTC J22



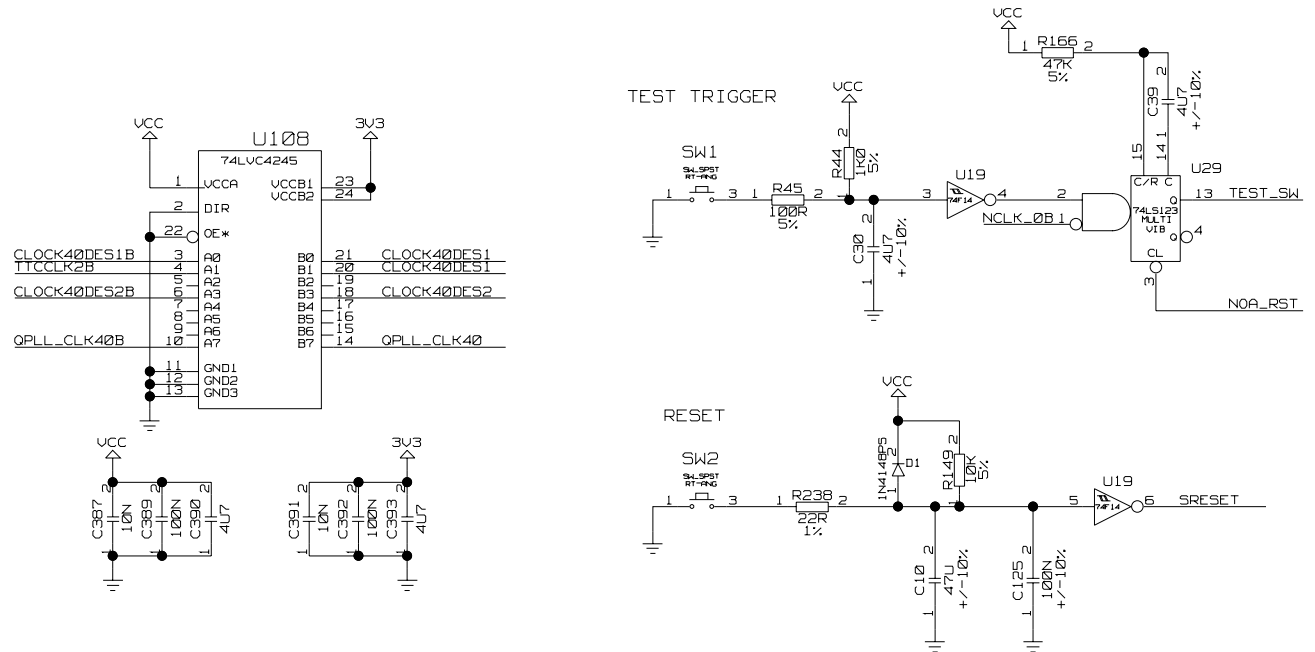
TTC J23



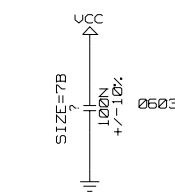
TTCRQ PCB LAYOUT



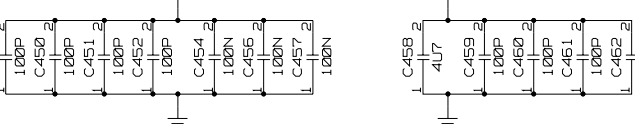
TEST SWITCHES



DECOUPLING



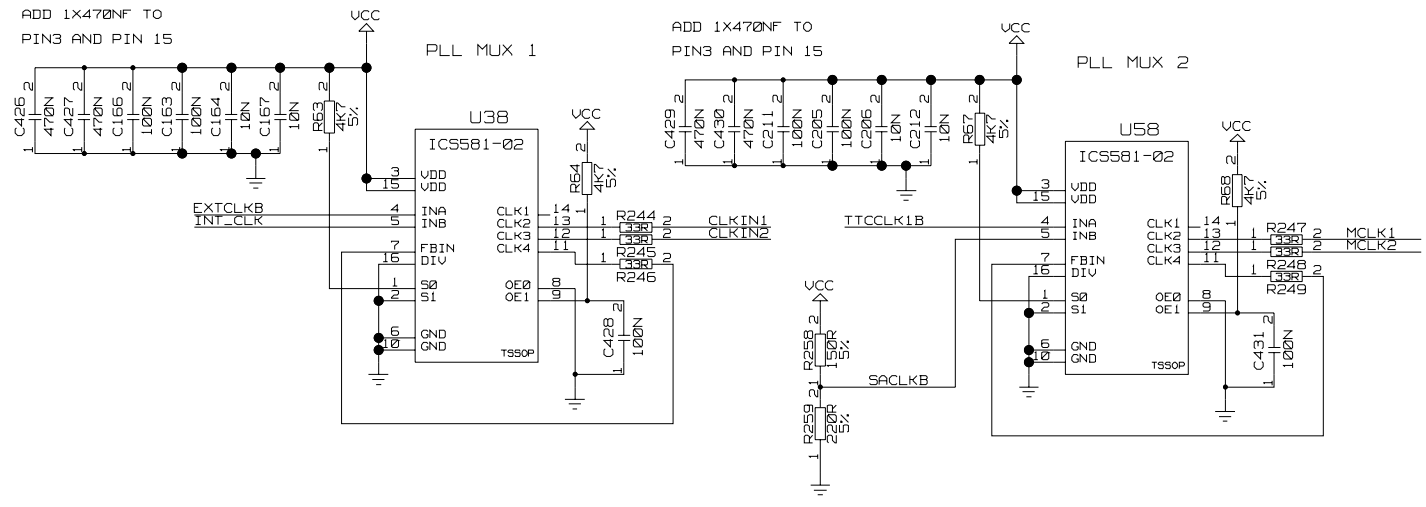
ARRANGE PINS ON A 0.1" SPACING
INNER ROWS 55.9MM APART



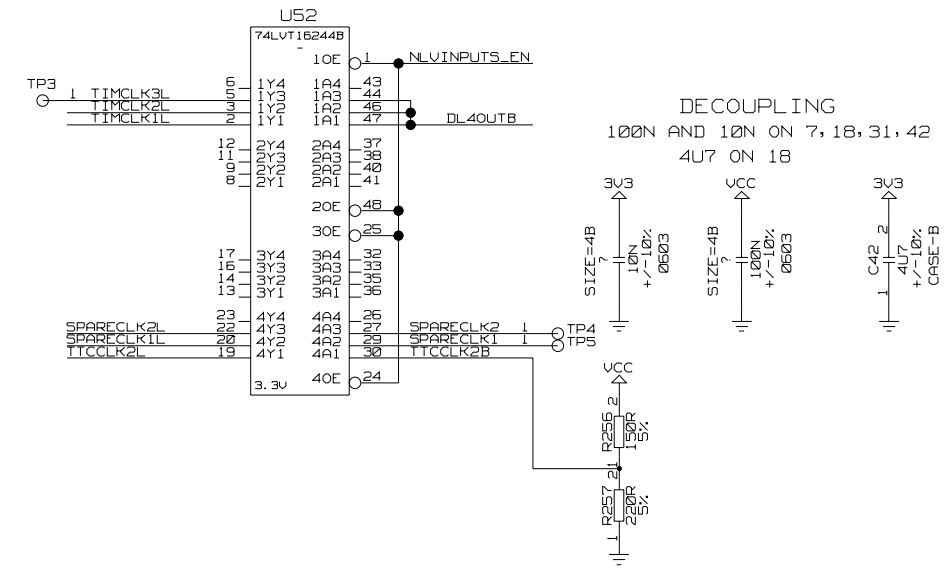
C	09-11-2004	TE255	D. J. BECKETT	M. POSTRANECKY	M. POSTRANECKY
B	13-02-2004	TE238	D. J. BECKETT	M. POSTRANECKY	M. POSTRANECKY
A	23-05-2003	- - -	D. J. BECKETT	M. POSTRANECKY	M. POSTRANECKY
ISSUE	DATE	MOD NO.	DRN BY.	CHKD.	APPD.
USED ON ATLAS SCT					© CCLRC 2003
CCLRC COUNCIL FOR THE CENTRAL LABORATORY RUTHERFORD APPLETON LABORATORY, CHILTON, OXON OX11 0QX.					
TITLE PC3216M CIRCUIT					
TTC INTERFACE MODULE (TIM-3C)					
A2-TE-0102-044-10-C					
					61-04 54-03 07-02
TOTAL NO. OF SHEETS 16					

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TIM-3 CLOCK SELECT
TIM CLOCKS MULTIPLEXERS



LV CLOCK BUFFERS



A 2-TE-0102-044-11-C

C	09-11-2004	TE255	D. J. BECKETT	M. POSTRANECKY	M. POSTRANECKY	
B	13-02-2004	TE238	D. J. BECKETT	M. POSTRANECKY	M. POSTRANECKY	
A	23-05-2003	- - - -	D. J. BECKETT	M. POSTRANECKY	M. POSTRANECKY	
ISSUE	DATE	MOD NO.	DRN BY.	CHKD.	APPD.	STATUS

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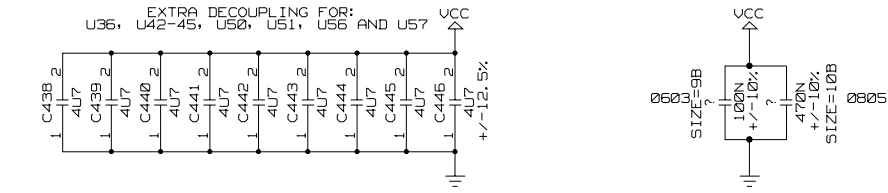
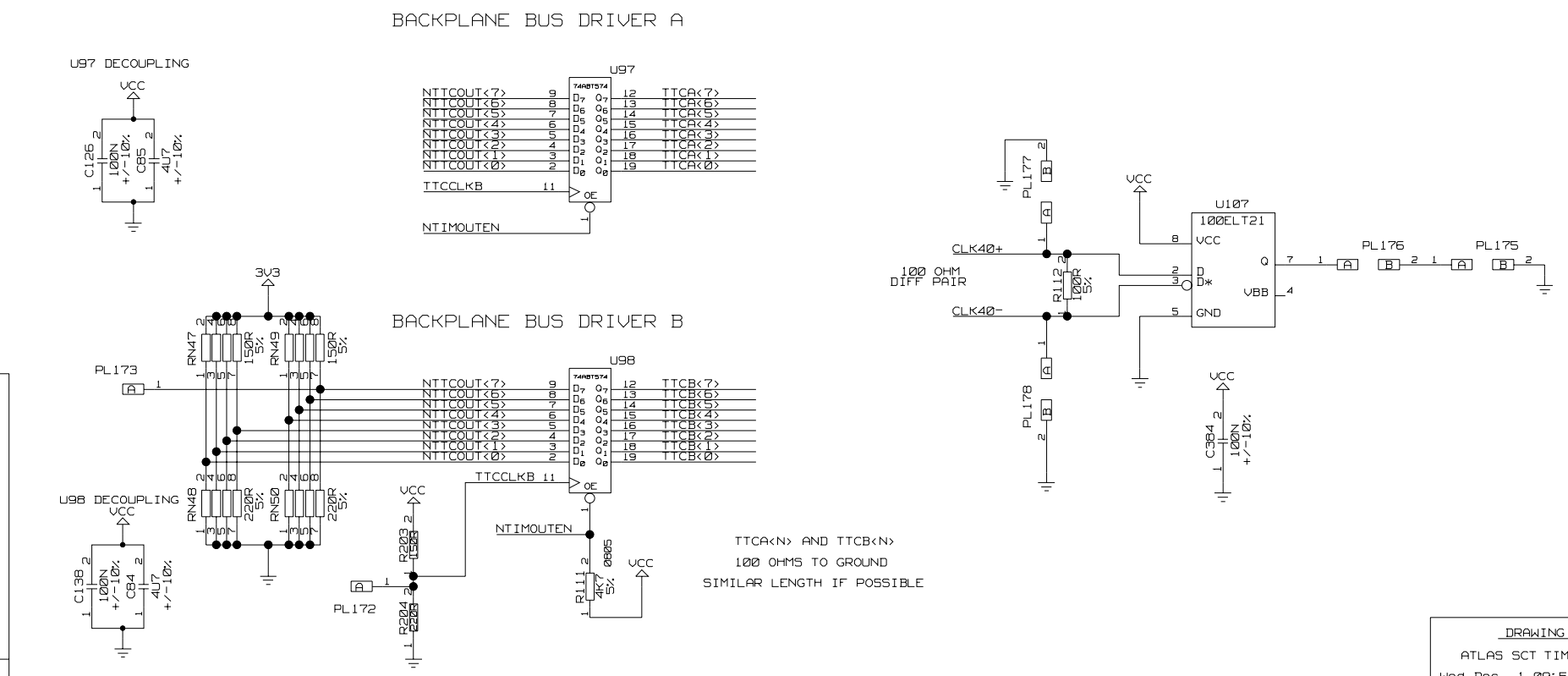
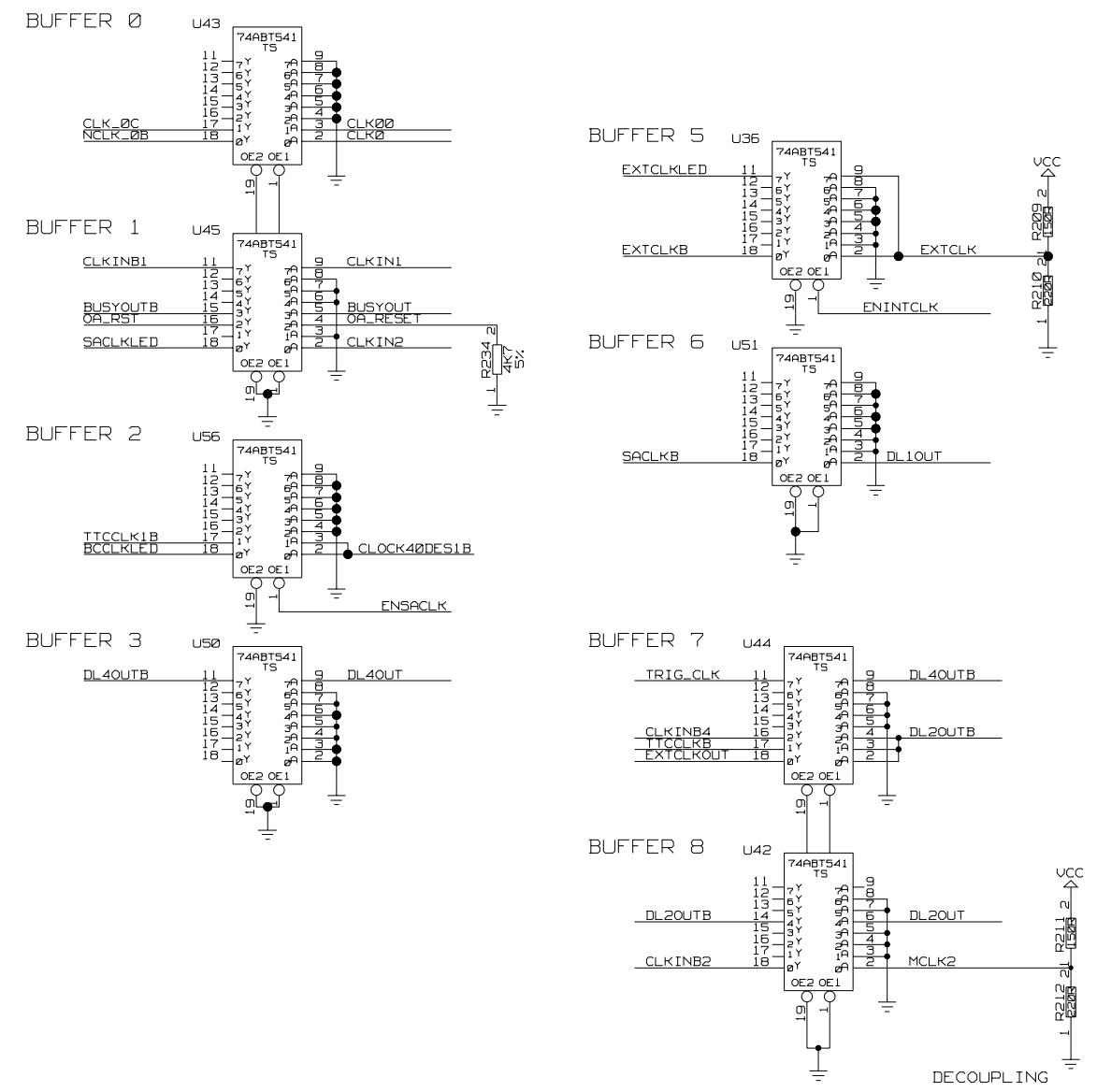
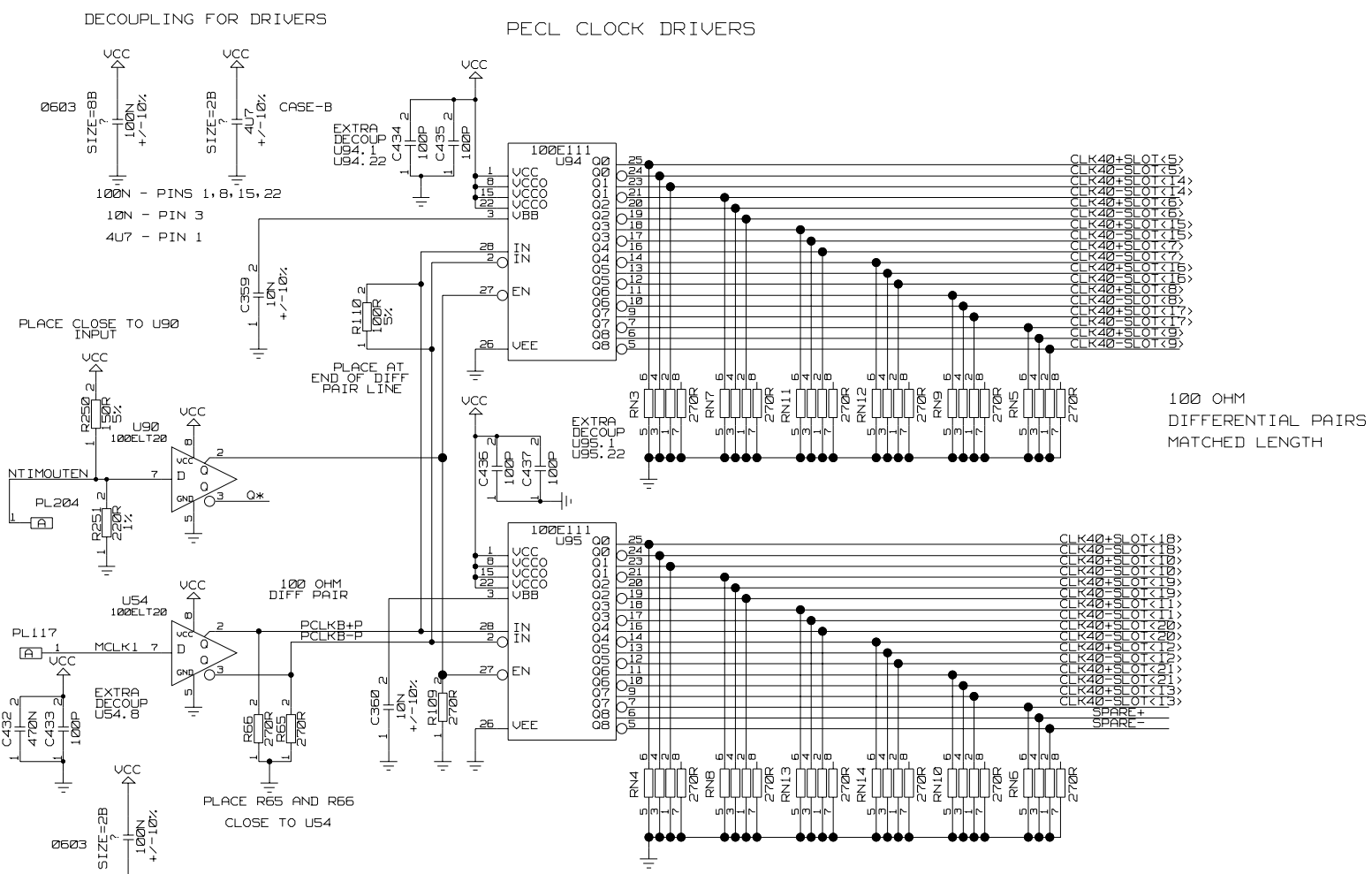
CCLRC COUNCIL FOR THE CENTRAL LABORATORY RUTHERFORD APPLETON LABORATORY, CHILTON, OXON OX11 0QX.

TITLE PC3216M CIRCUIT
TTC INTERFACE MODULE (TIM-3C)

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ATLAS SCT TIM 3C
Wed Dec 1 09:57:51 2004

A2-TE-0102-044-11-C

CLOCK BUFFERS AND DRIVERS



C	09-11-2004	TE255	D. J. BECKETT	M. POSTRANECKY	M. POSTRANECKY
B	13-02-2004	TE238	D. J. BECKETT	M. POSTRANECKY	M. POSTRANECKY
A	23-05-2003	- - -	D. J. BECKETT	M. POSTRANECKY	M. POSTRANECKY
ISSUE	DATE	MOD NO.	DRN BY.	CHKD.	APPD.
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TITLE
PC3216M CIRCUIT
TTC INTERFACE MODULE (TIM-3C)

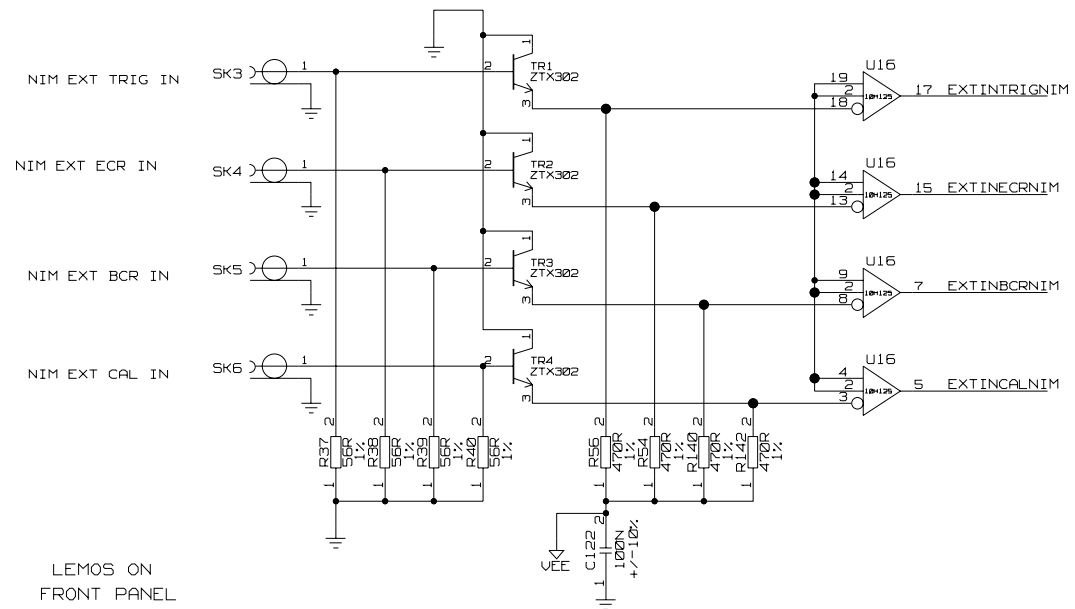
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54-03
07-02

A2-TE-0102-044-12-C

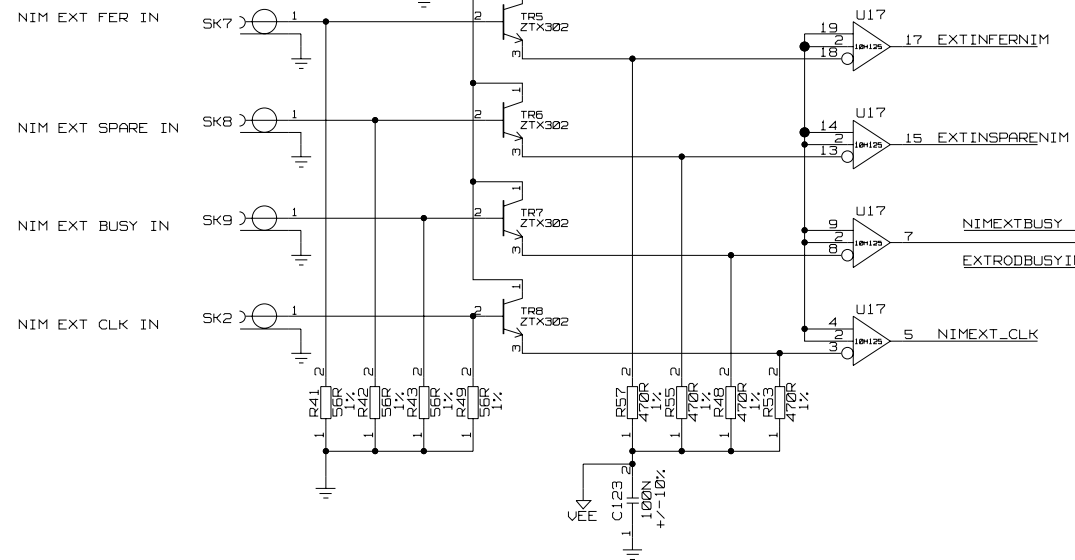
TOTAL NO. OF SHEETS 16

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ATLAS SCT TIM 3C
Wed Dec 1 09:57:54 2004

EXT. INPUTS A - NIM

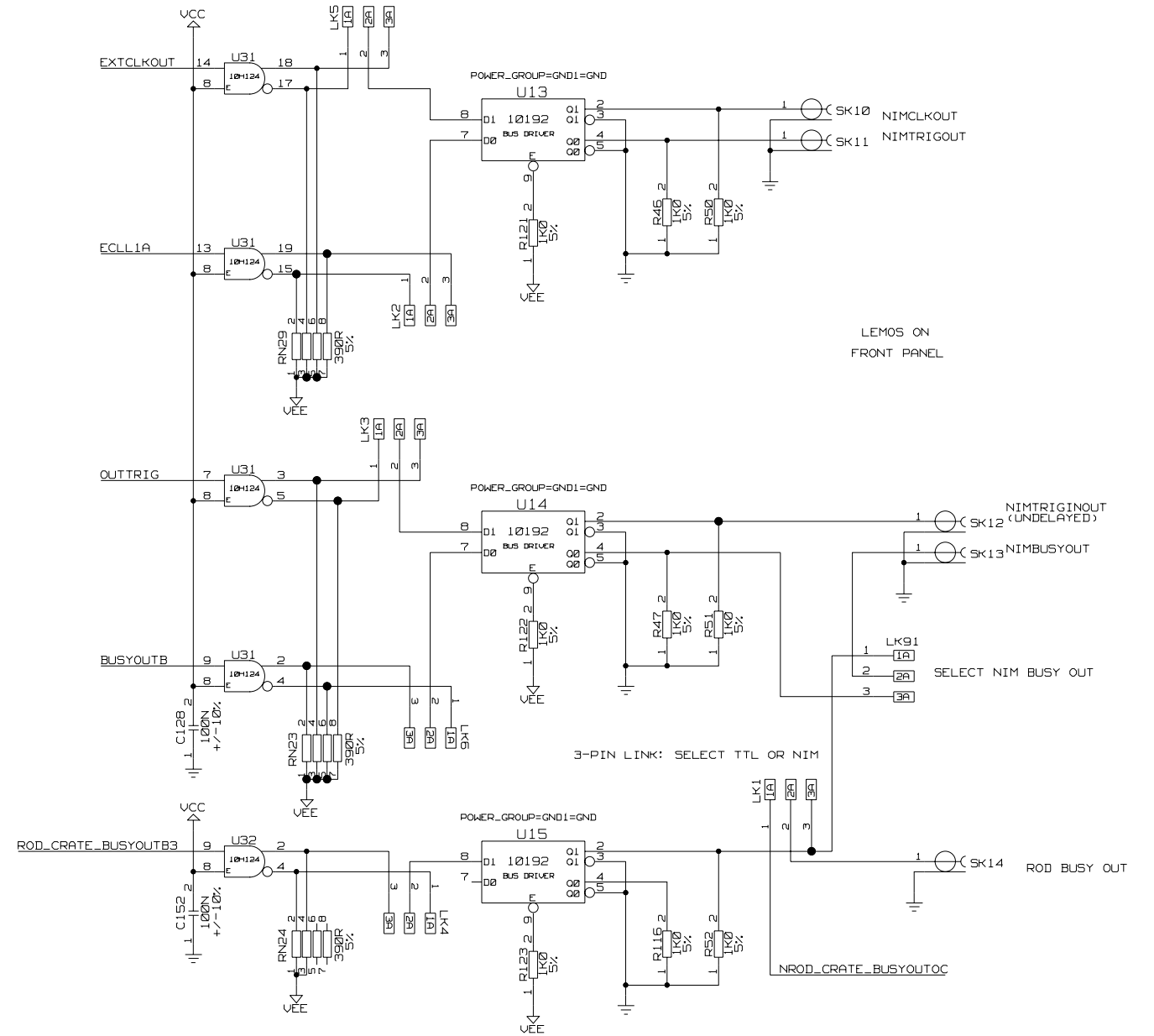


LEMOS ON FRONT PANEL



SELECT ONBOARD DESTINATION OF EXTBUSY INPUT

EXT. OUTPUTS A - NIM



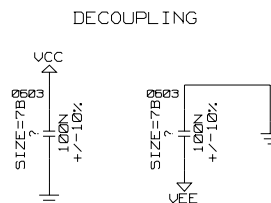
LEMOS ON FRONT PANEL

NIMTRIGOUT (UNDELAYED)
NIMBUSYOUT

SELECT NIM BUSY OUT

3-PIN LINK: SELECT TTL OR NIM

NROD_CRATE_BUSYOUTOC



C	09-11-2004	TE255	D. J. BECKETT	M. POSTRANECKY	M. POSTRANECKY	
B	13-02-2004	TE238	D. J. BECKETT	M. POSTRANECKY	M. POSTRANECKY	
A	23-05-2003	- - - -	D. J. BECKETT	M. POSTRANECKY	M. POSTRANECKY	
ISSUE	DATE	MOD NO.	DRN BY.	CHKD.	APPD.	STATUS
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OF THE RESEARCH COUNCILS

TITLE
PC3216M CIRCUIT
TTC INTERFACE MODULE (TIM-3C)

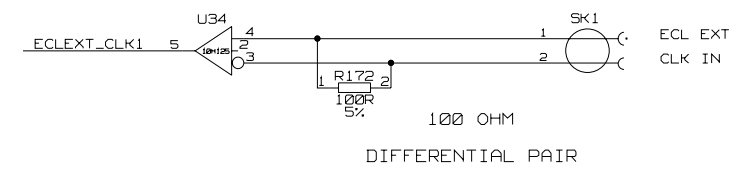
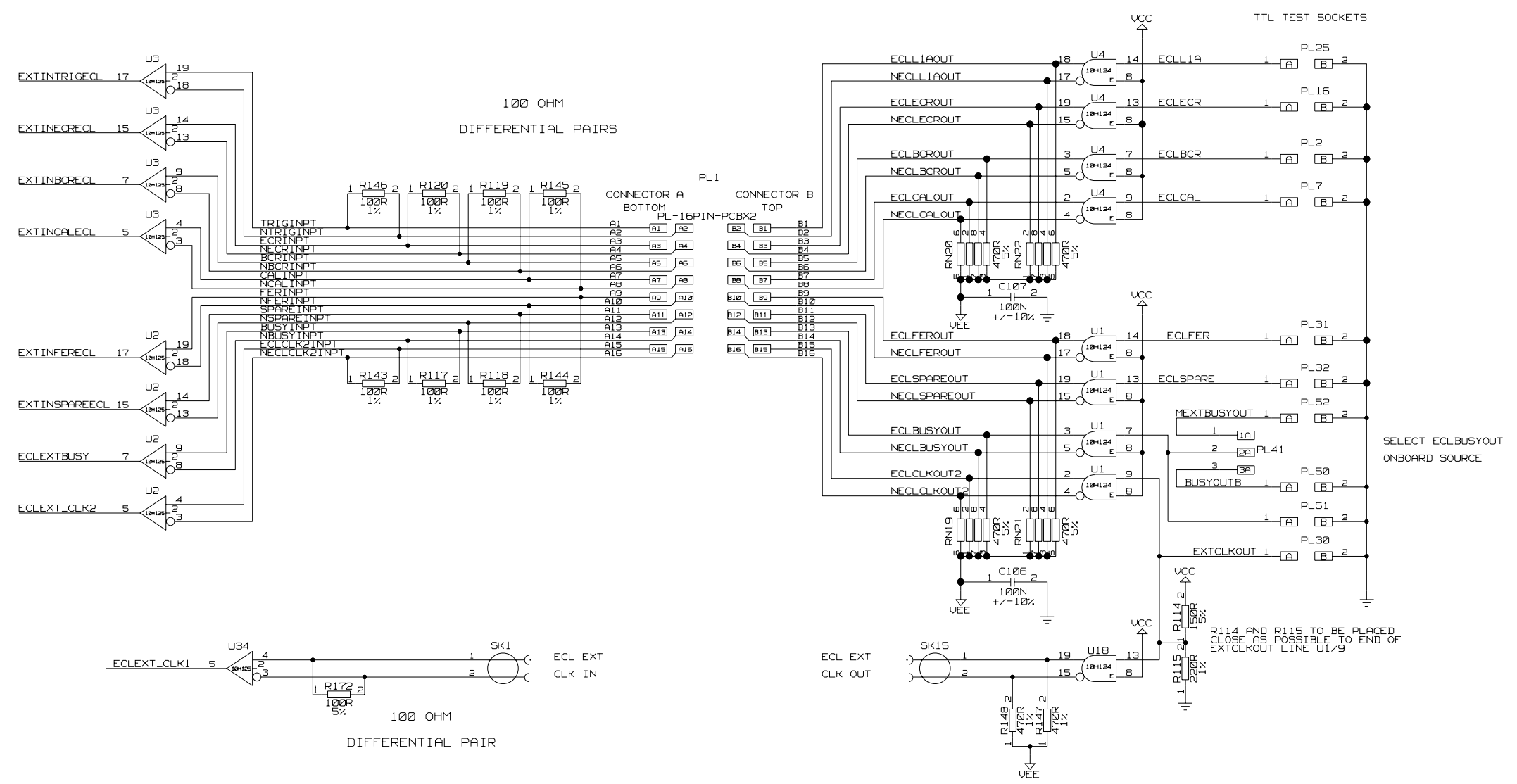
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07-02

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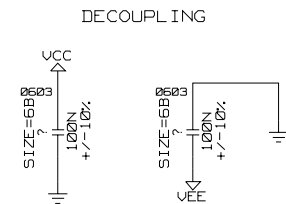
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ATLAS SCT TIM 3C
Wed Dec 1 09:57:58 2004

EXT. INPUTS B - ECL

EXT. OUTPUTS B - ECL



R114 AND R115 TO BE PLACED CLOSE AS POSSIBLE TO END OF EXTCLKOUT LINE U1/3



C	09-11-2004	TE255	D. J. BECKETT	M. POSTRANECKY	M. POSTRANECKY
B	13-02-2004	TE238	D. J. BECKETT	M. POSTRANECKY	M. POSTRANECKY
A	23-05-2003	- - -	D. J. BECKETT	M. POSTRANECKY	M. POSTRANECKY
ISSUE	DATE	MOD NO.	DRN BY.	CHKD.	APPD.

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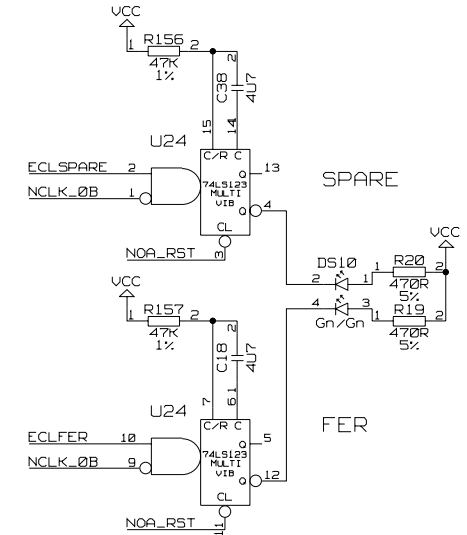
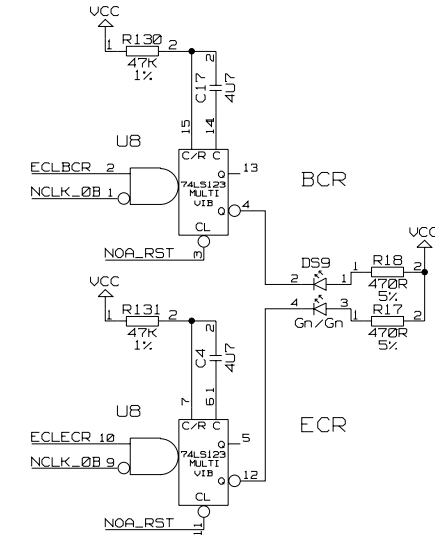
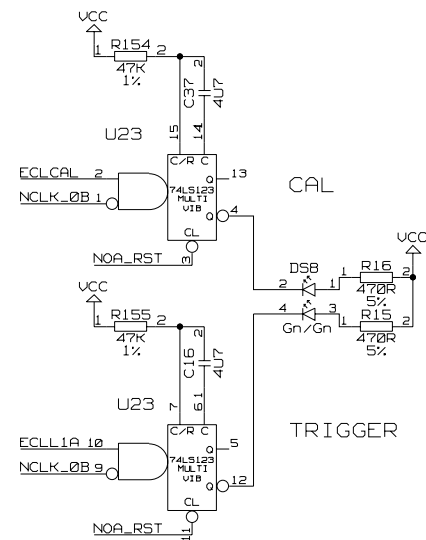
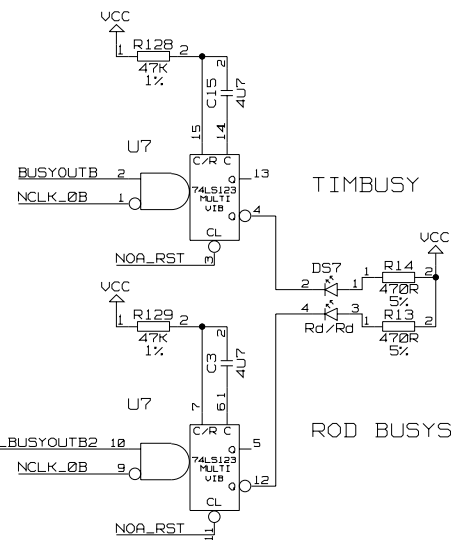
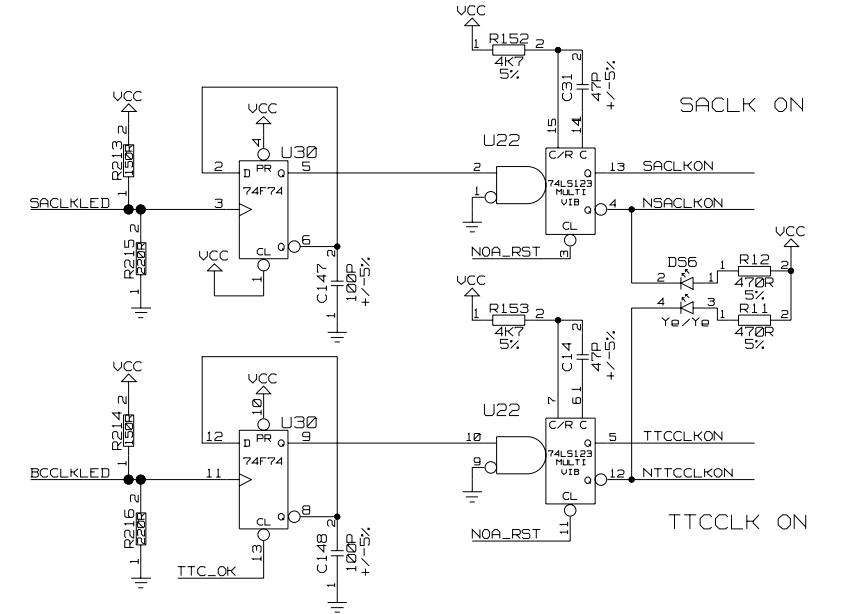
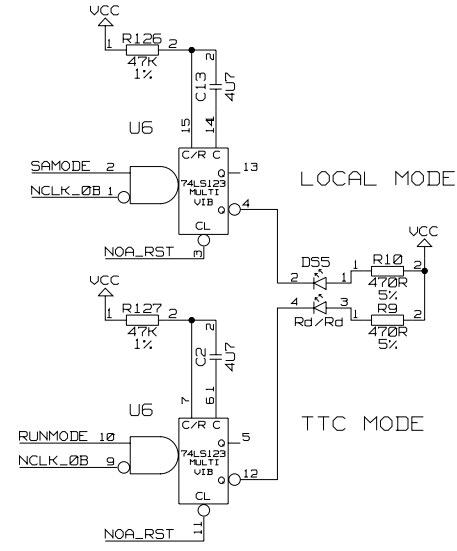
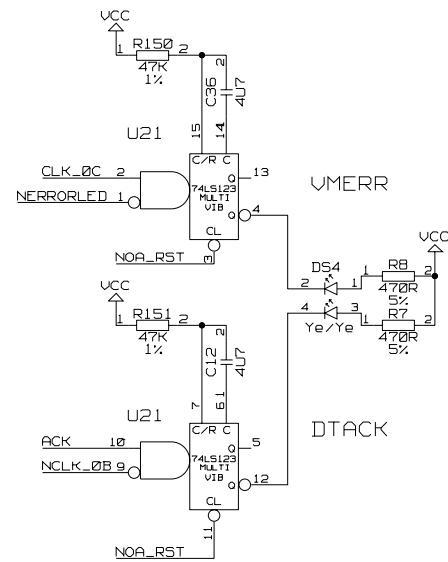
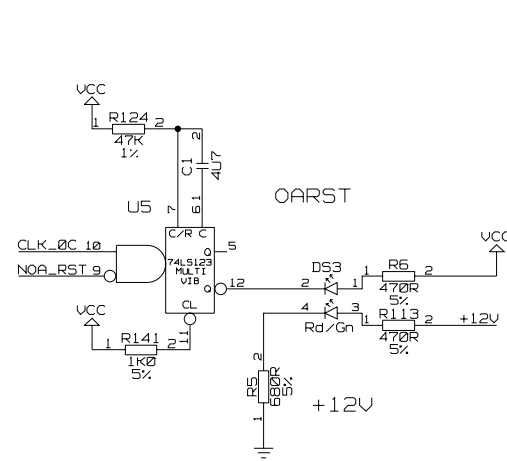
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TITLE PC3216M CIRCUIT
TTC INTERFACE MODULE (TIM-3C)

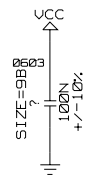
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LED DISPLAYS DS3-DS10 (62USEC)



DECOUPLING



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B	13-02-2004	TE238	D. J. BECKETT	M. POSTRANECKY	M. POSTRANECKY
A	23-05-2003	- - - -	D. J. BECKETT	M. POSTRANECKY	M. POSTRANECKY
ISSUE	DATE	MOD NO.	DRN BY.	CHKD.	APPD.
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TITLE
PC3216M CIRCUIT
TTC INTERFACE MODULE (TIM-3C)

61-04
54-03
07-02

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A2-TE-0102-044-16-C