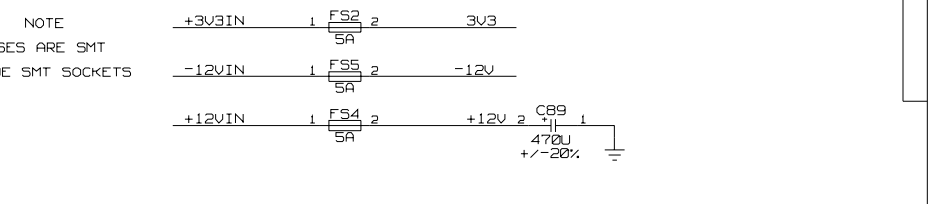
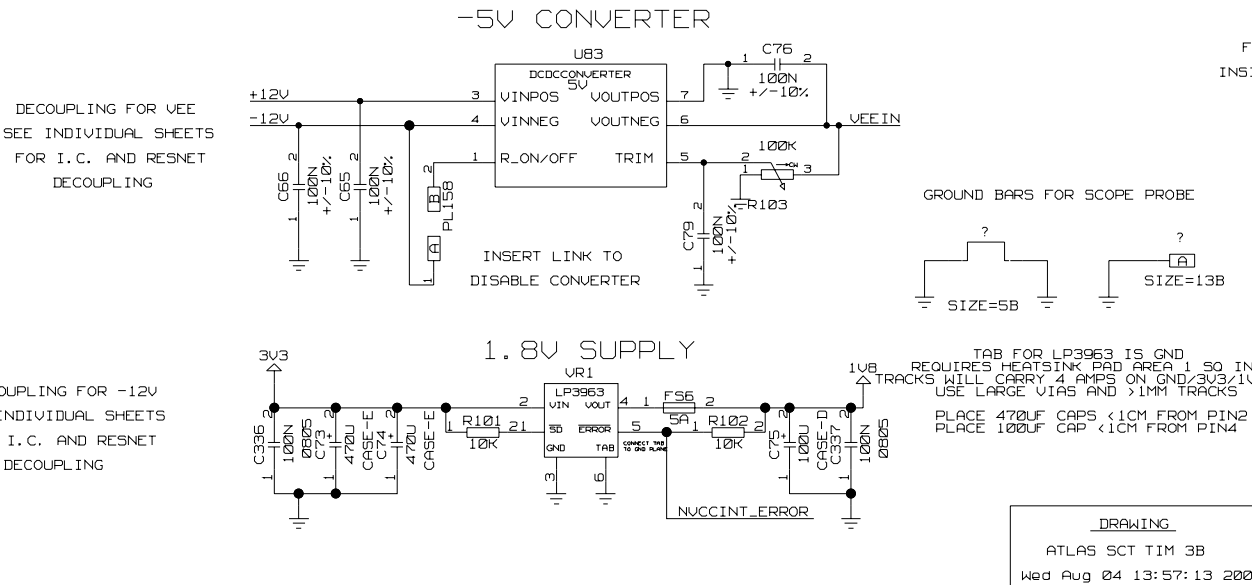
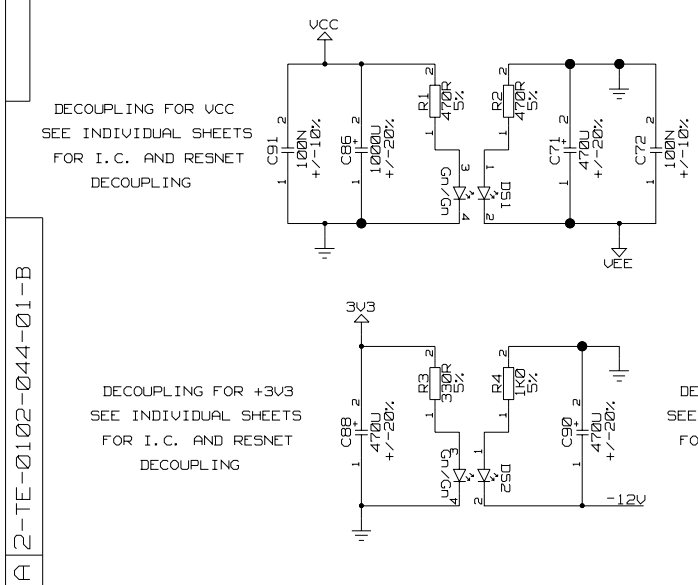
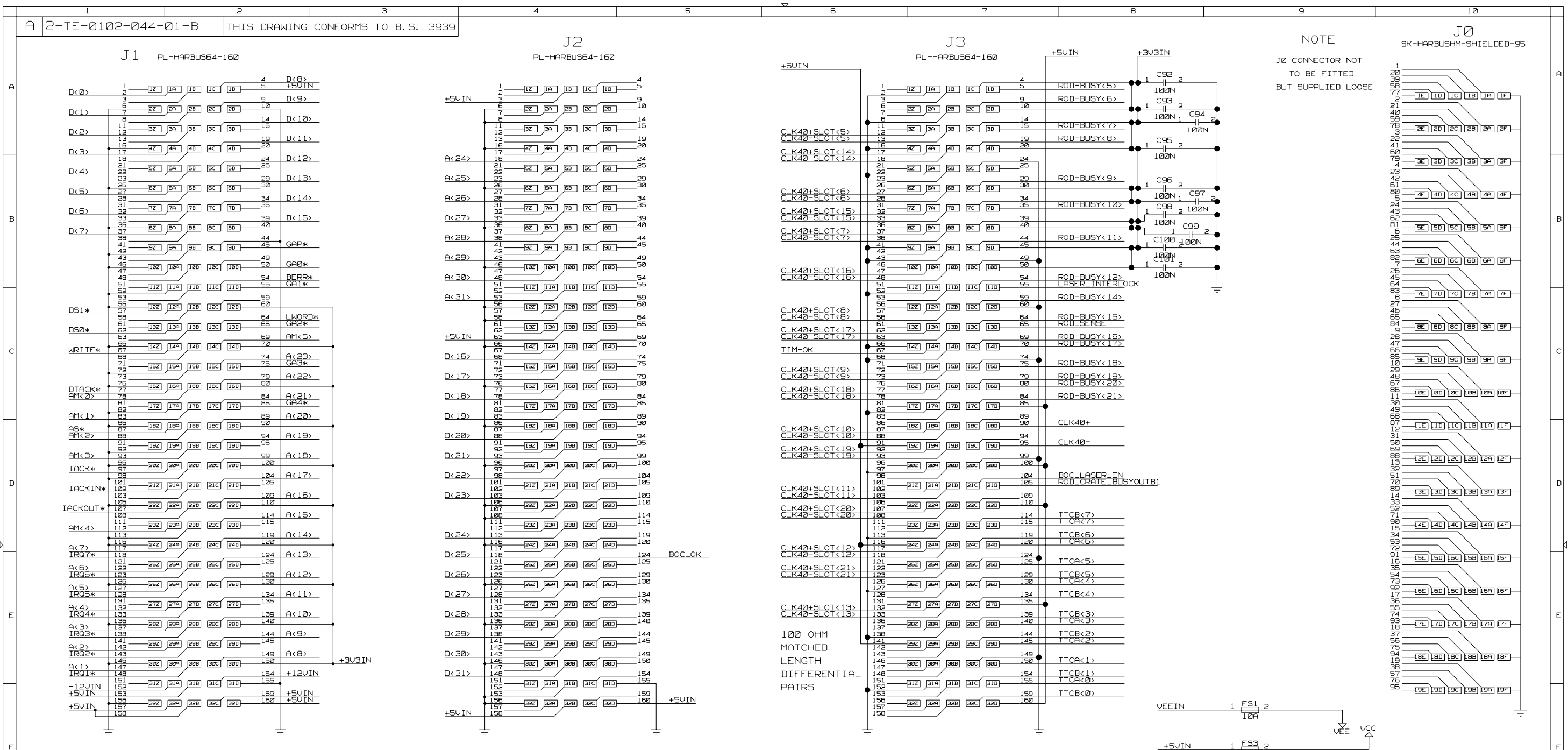


NOTE  
J0 CONNECTOR NOT  
TO BE FITTED  
BUT SUPPLIED LOOSE

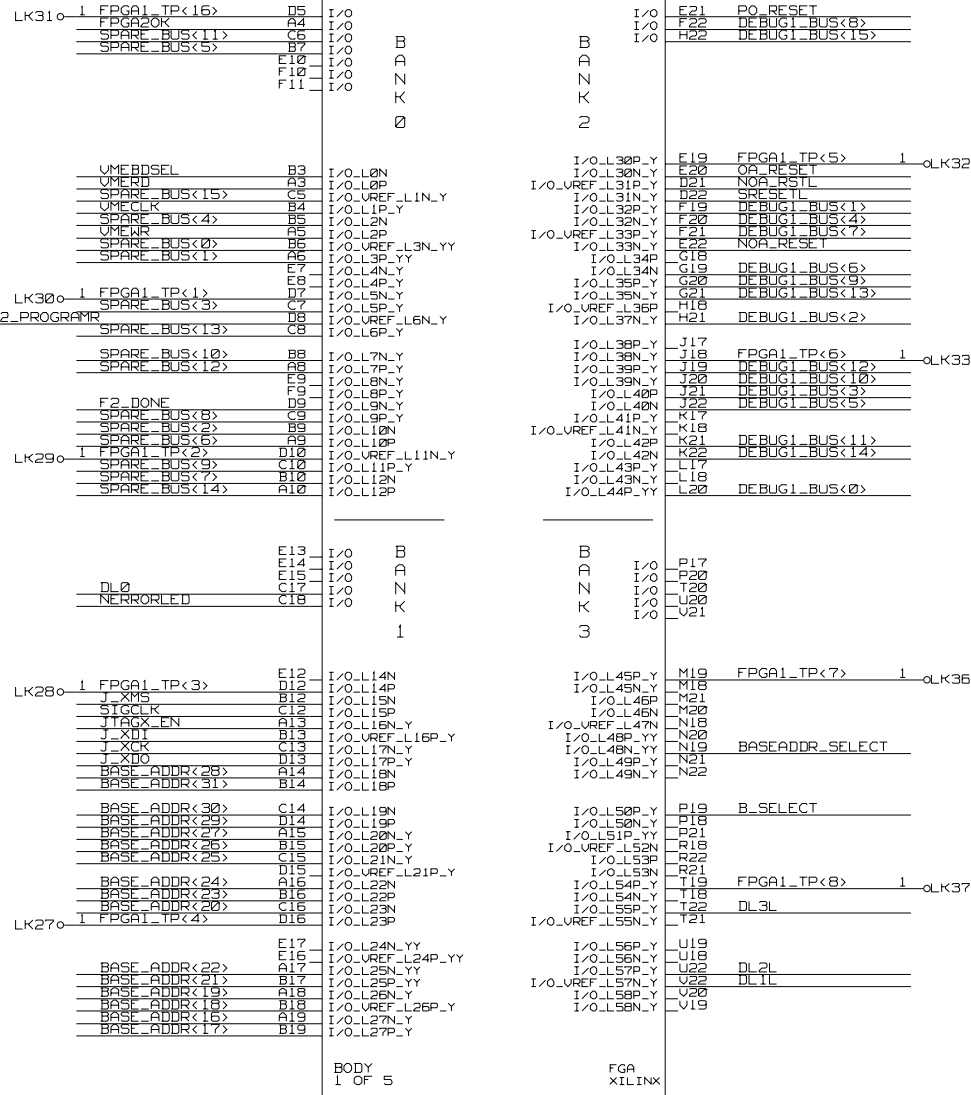
J0  
SK-HARBUSHM-SHIELDED-95



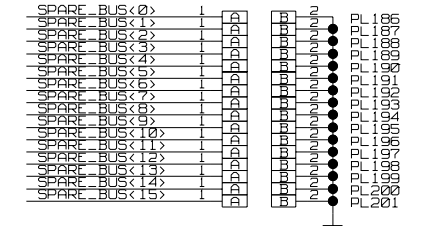
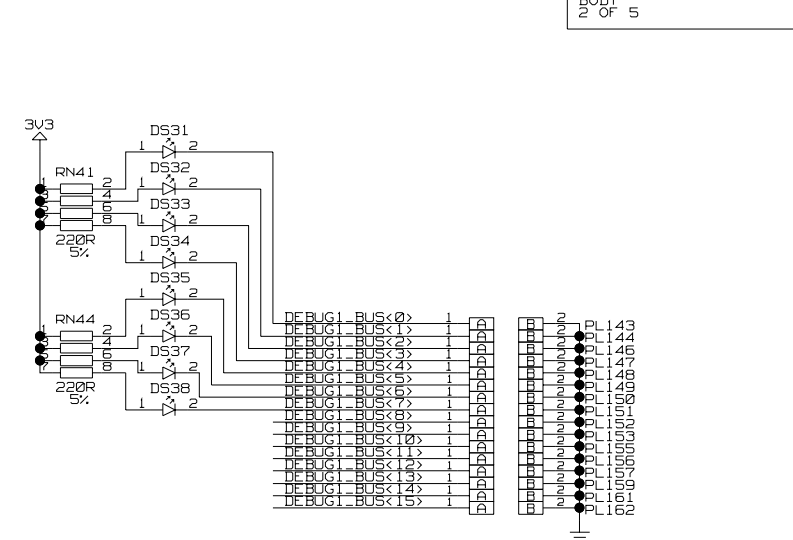
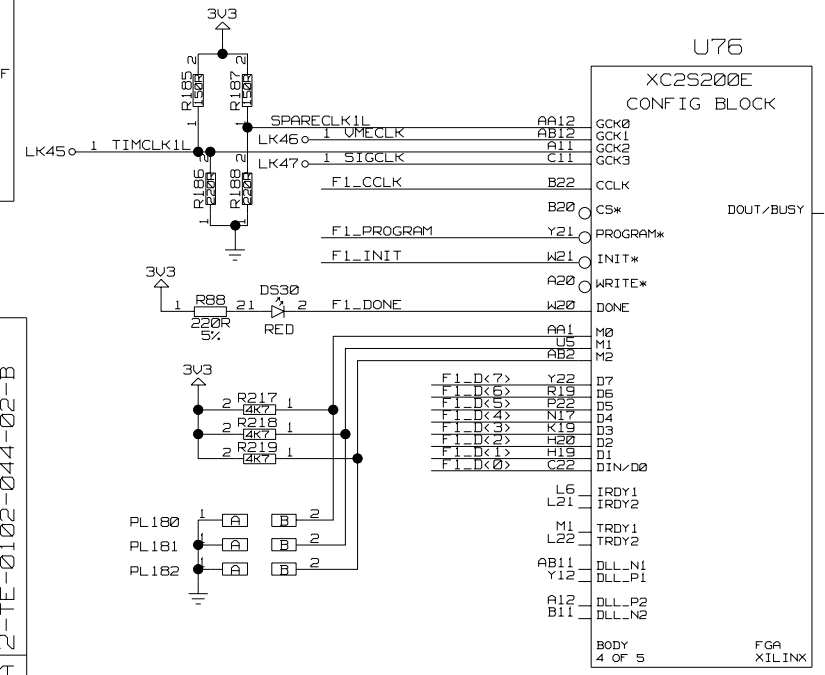
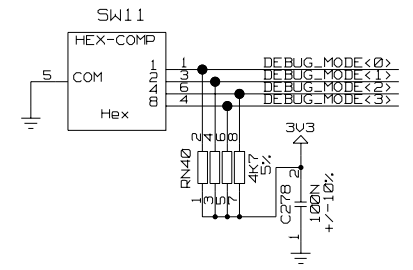
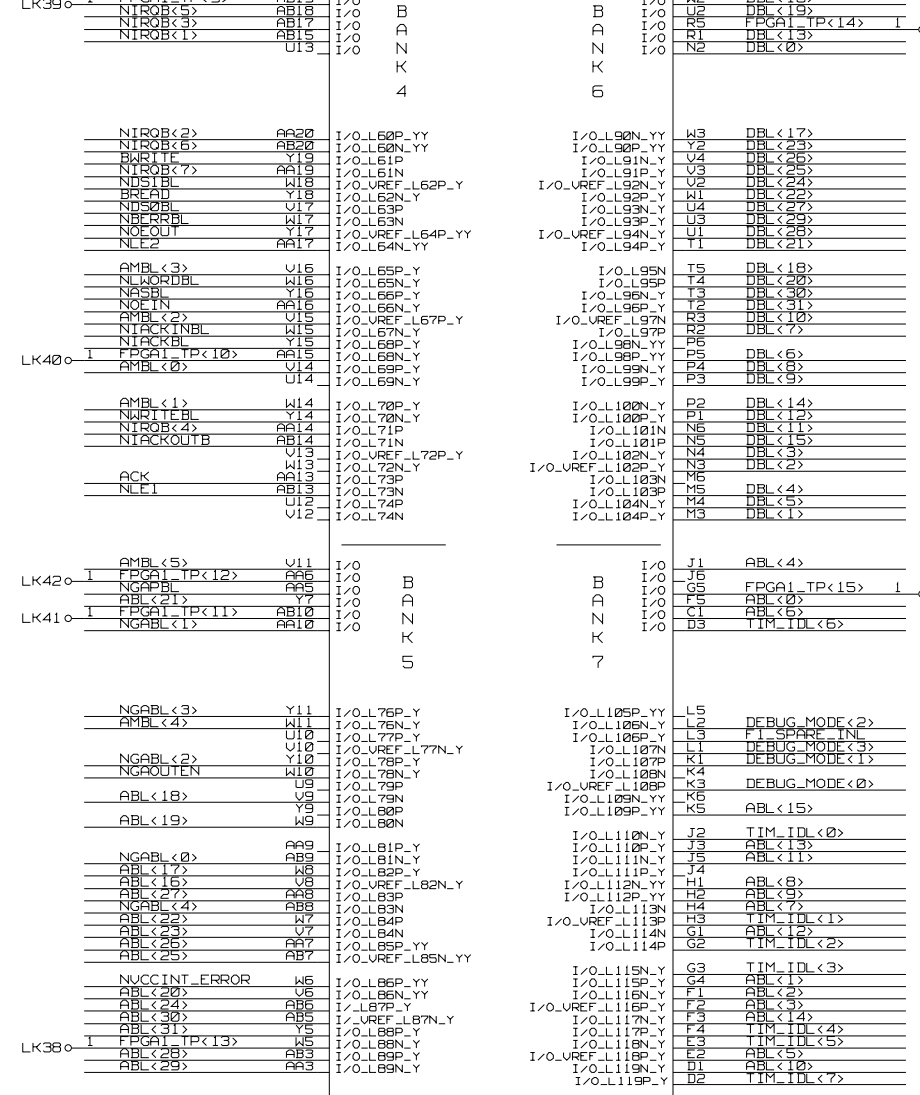
B	13-02-2004	TE23B	D. J. BECKETT	M. POSTRANECKY	M. POSTRANECKY
A	23-05-2003	- - -	D. J. BECKETT	M. POSTRANECKY	M. POSTRANECKY
ISSUE	DATE	MOD NO.	DRN BY.	CHKD.	APPD.
USED ON ATLAS SCT					© CCLRC 2003
CCLRC COUNCIL FOR THE CENTRAL LABORATORY RUTHERFORD APPLETON LABORATORY, CHILTON, OXON OX11 0QX. OF THE RESEARCH COUNCILS					
TITLE			PC3216M CIRCUIT		
			TTC INTERFACE MODULE (TIM-3)		
DRAWING			ATLAS SCT TIM 3B Wed Aug 04 13:57:13 2004		
A2-TE-0102-044-01-B					TOTAL NO. OF SHEETS 16

# FPGA-1 MANAGER XC2S200E-6FG456C U76

## U76 XC2S200E I/O BLOCK 1 BANK2 0-3



## U76 XC2S200E I/O BLOCK 2 BANKS 4-7



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. OF THE RESEARCH COMMISSION					
TITLE					
PC3216M			CIRCUIT		
TTC INTERFACE MODULE (TIM-3)					
DRAWING					
ATLAS SCT TIM 3B					
Wed Aug 04 13:57:25 2004					
A2-TE-0102-044-02-B					
TOTAL NO. OF SHEETS 16					

A 2-TE-0102-044-02-B

54-03  
07-02

FPGA-2 TIM XC2S600E-7FG456C U67

U67

XC2S600E I/O BLOCK 1 BANK2 0-3

XC2S600E I/O BLOCK 2 BANKS 4-7

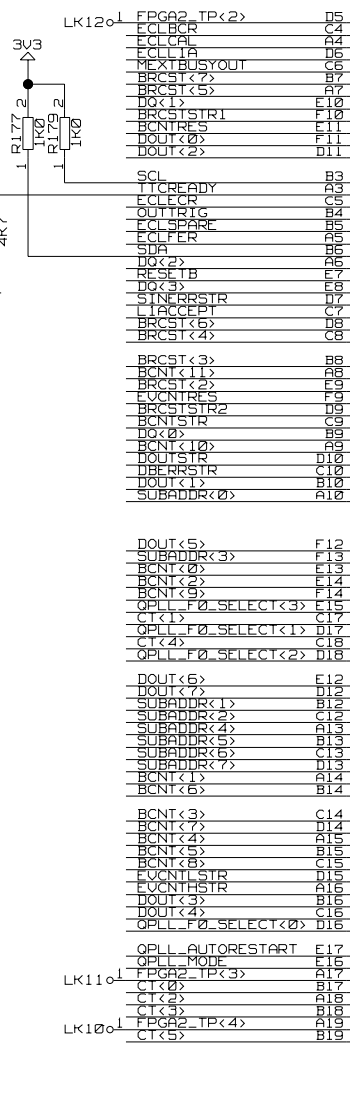


Table listing I/O signals for I/O Block 1, including signals like F19 NLED\_RODBUSY<18>, F20 NLED\_RODBUSY<19>, and F21 NLED\_RODBUSY<21>.

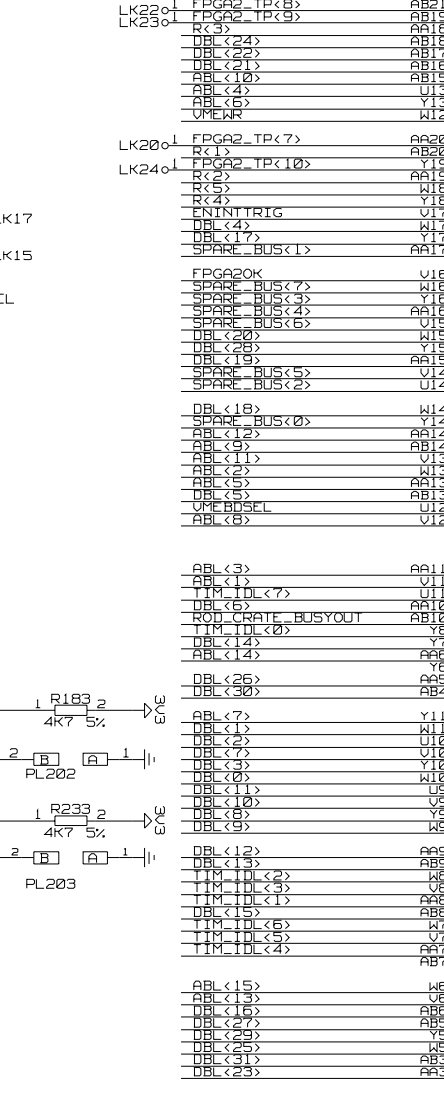


Table listing I/O signals for I/O Block 2, including signals like Y1 ABL<0>, Y2 FPGAP2\_TP<12>, and Y3 TIM\_OK\_OUT.

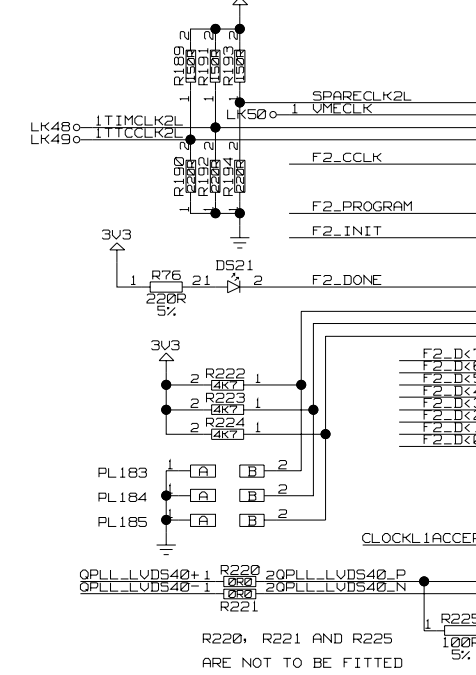
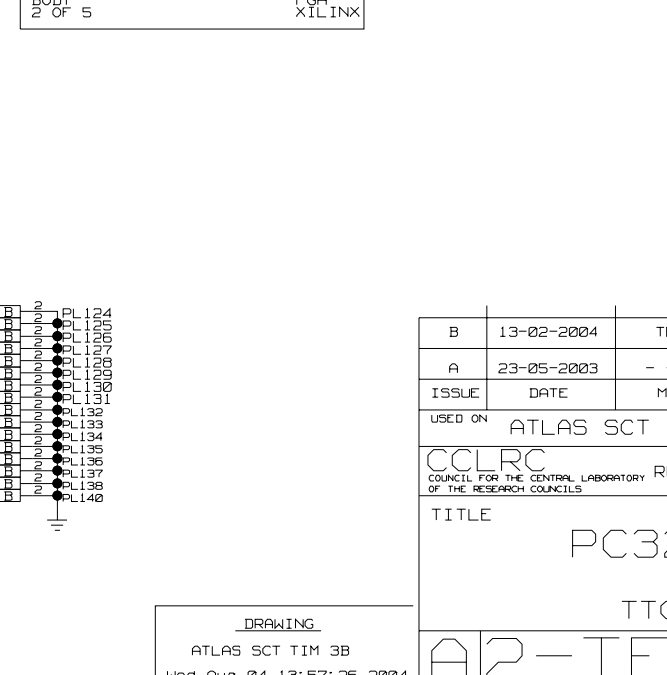
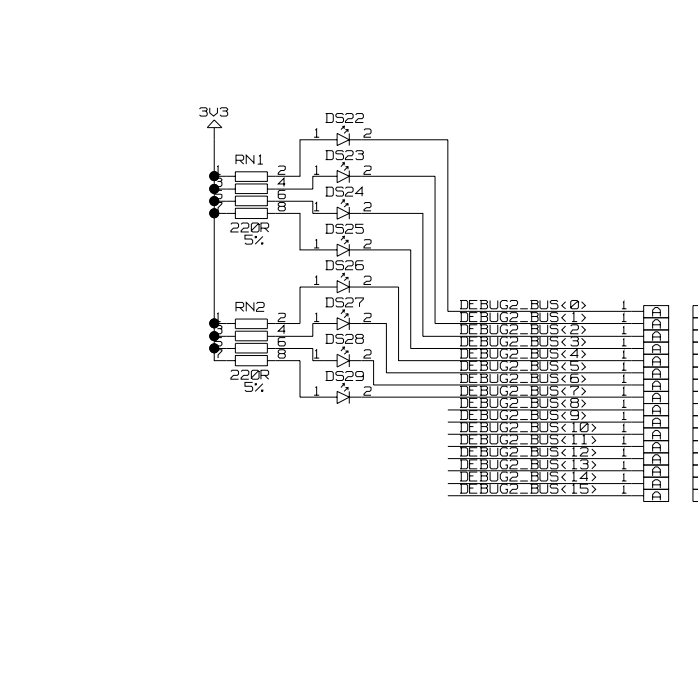


Table listing I/O signals for Config Block, including signals like GCK0, GCK1, GCK2, GCK3, and PROGRAM\*.



Revision table with columns for Issue, Date, Mod No., Drn By., Chkd., Appd., and Status.

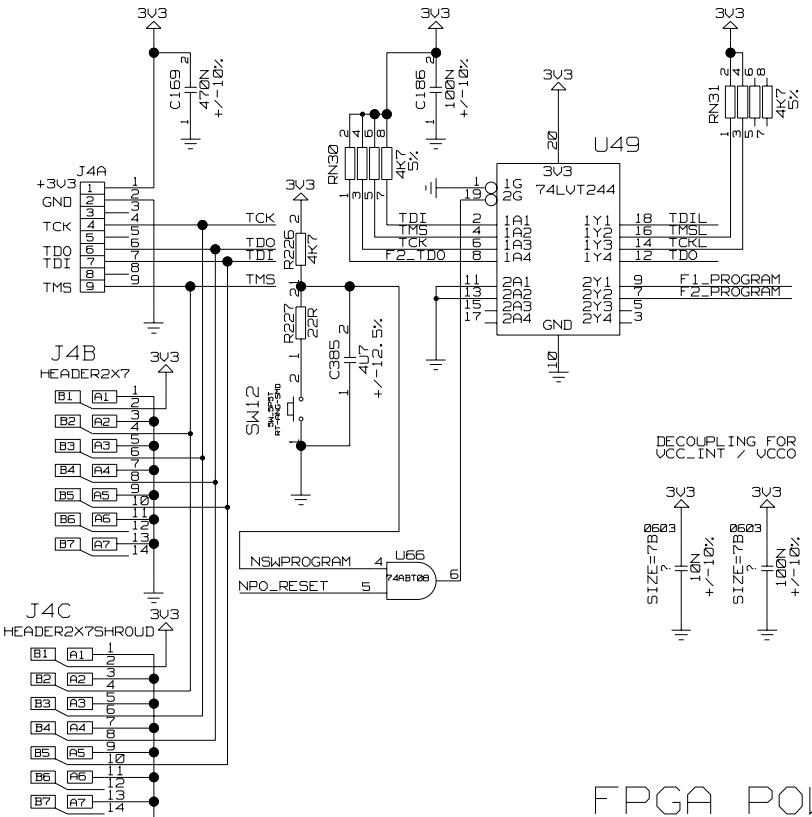
Used on ATLAS SCT, CCLRC Council for the Central Laboratory, Rutherford Appleton Laboratory, Chilton, Oxon OX11 0QX. Title: PC3216M CIRCUIT TTC INTERFACE MODULE (TIM-3).

A 2-TE-0102-044-03-B

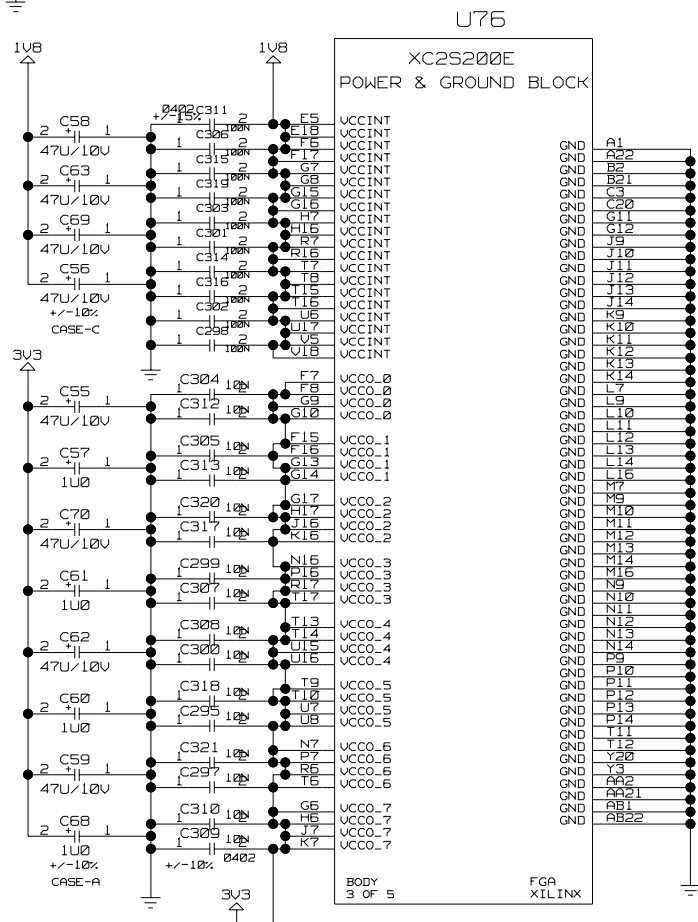
DRAWING ATLAS SCT TIM 3B Wed Aug 04 13:57:26 2004

# BOUNDARY SCAN CHAIN

## J-TAG INTERFACE

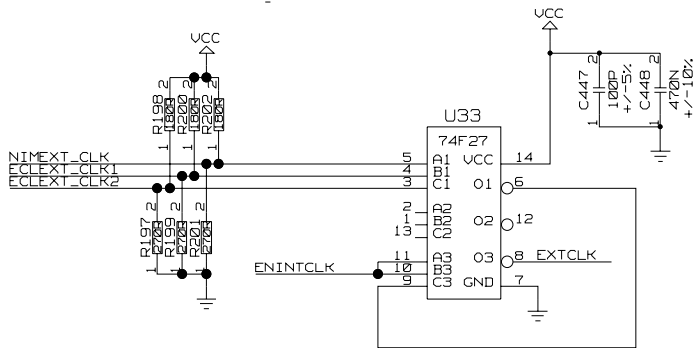
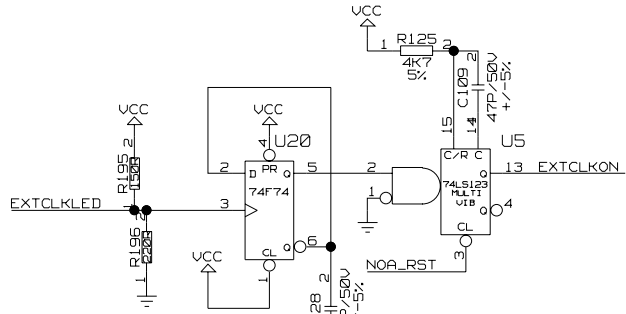
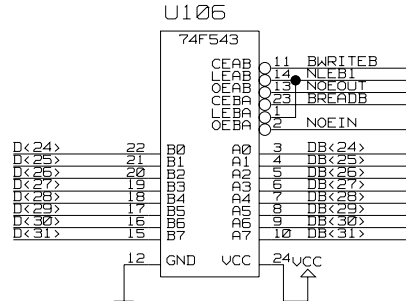
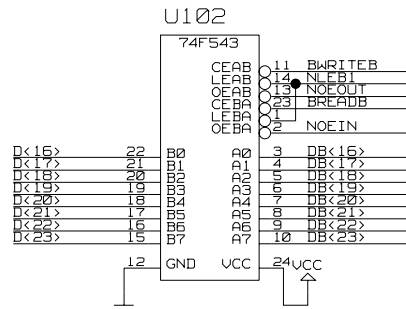


## FPGA POWER AND DECOUPLING

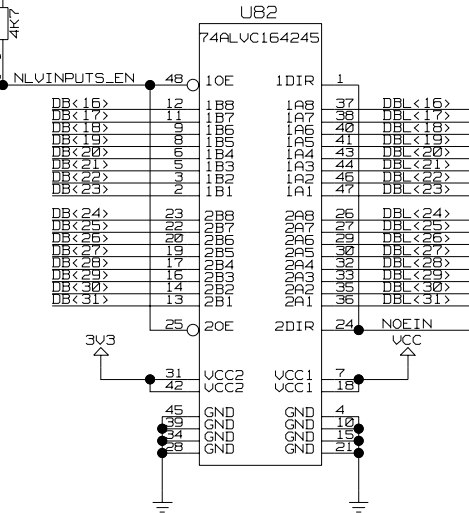
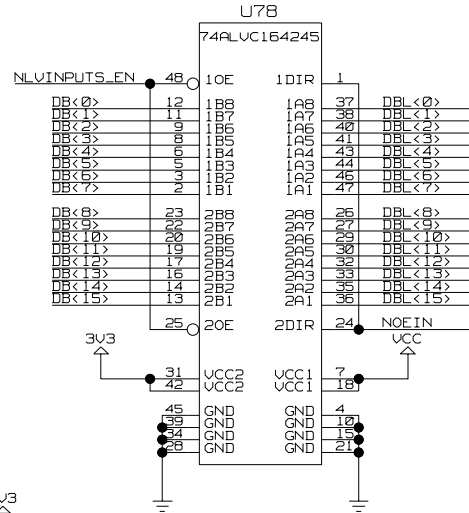




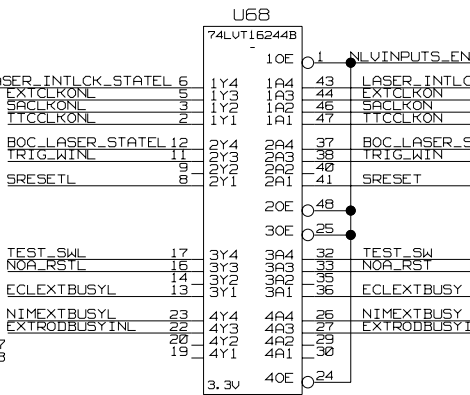
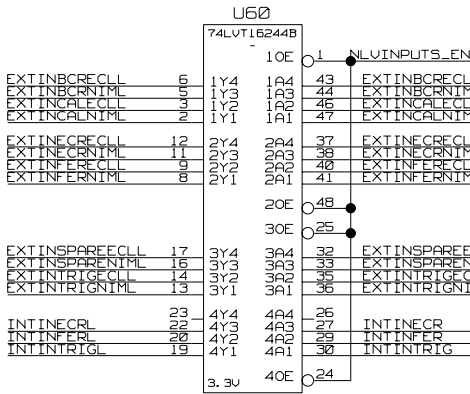
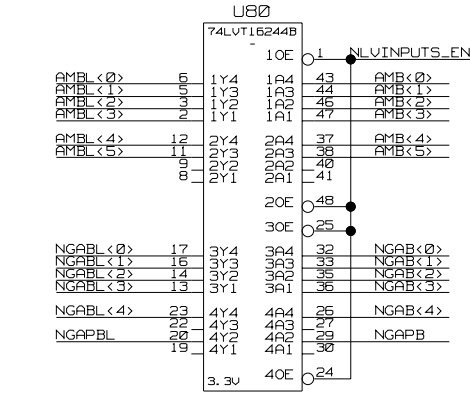
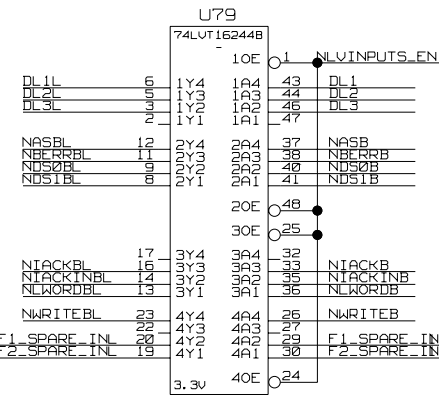
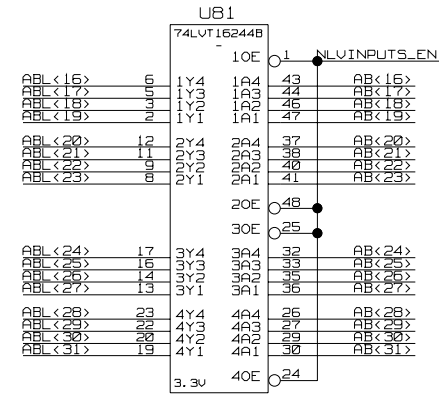
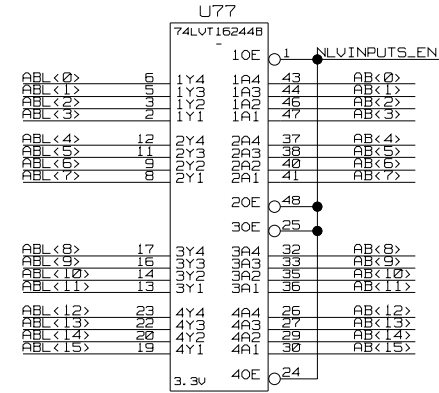
EXTRA BUFFERS



LV BUFFERS



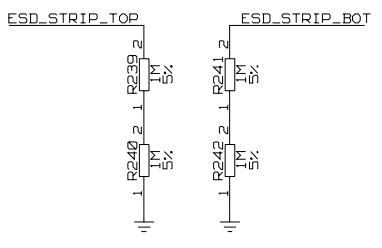
LV SIGNAL BUFFERS



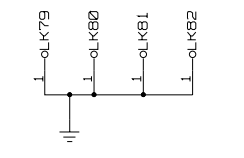
INSERT LINK TO  
ENABLE ALL  
LV BUFFERS

SELECT INTECR = INTFER  
OR INTECR = 0

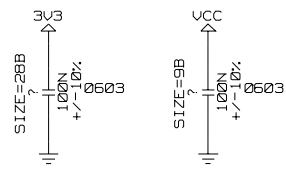
RESISTORS FOR ESD  
DISCHARGE STRIP



HOLES FOR STRENGTHENING  
BAR



DECOUPLING



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

USED ON ATLAS SCT © CCLRC 2003

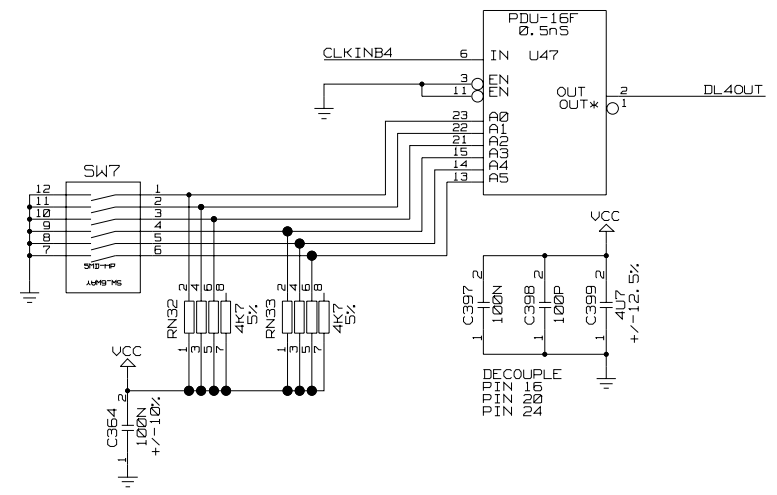
CCLRC COUNCIL FOR THE CENTRAL LABORATORY RUTHERFORD APPLETON LABORATORY, CHILTON, OXON OX11 0QX.

TITLE PC3216M CIRCUIT  
TTC INTERFACE MODULE (TIM-3)

DRAWING  
ATLAS SCT TIM 3B  
Wed Aug 04 13:57:31 2004

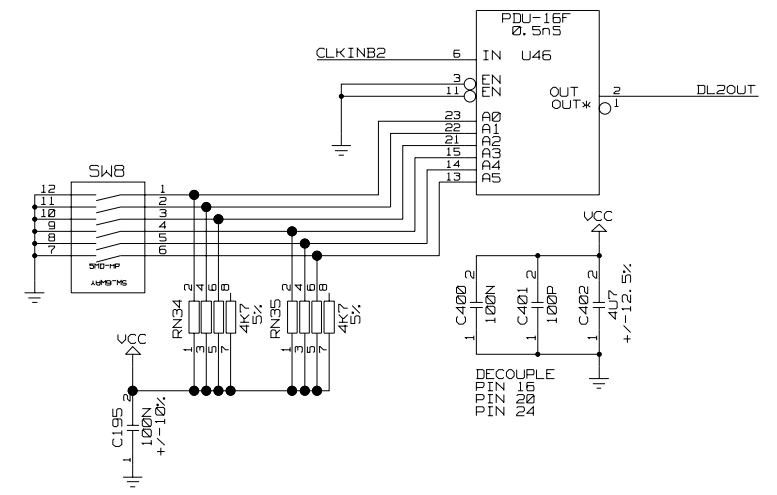
A2-TE-0102-044-06-B

DL4 - TIM SETUP DELAY



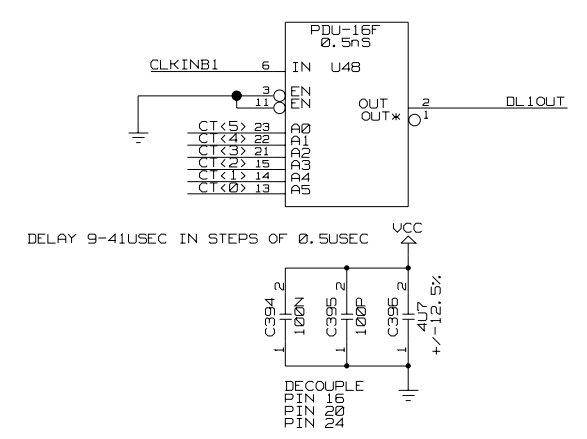
DELAY 9-41USEC IN STEPS OF 0.5USEC

DL2 - ROD SETUP DELAY FOR TTC OUTPUTS



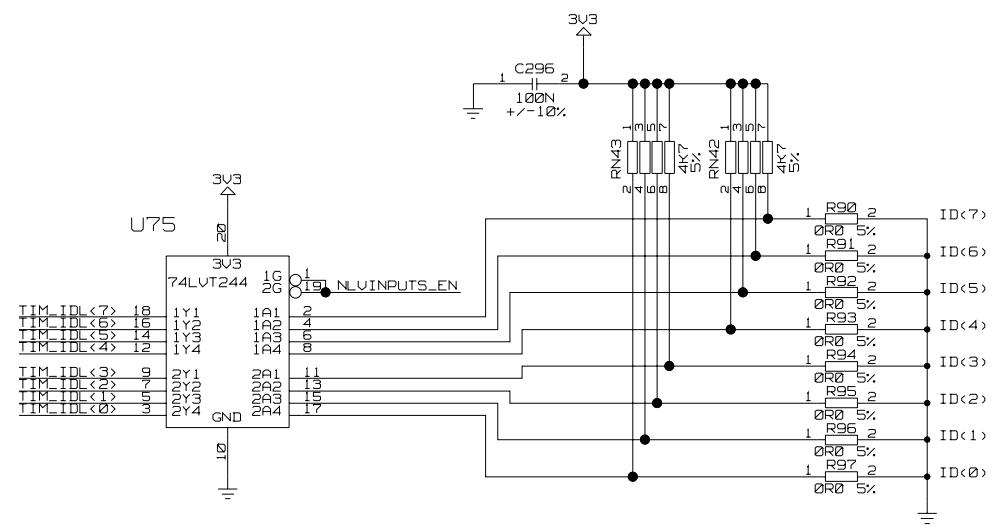
DELAY 9-41USEC IN STEPS OF 0.5USEC

DL1 - SACLK DELAY

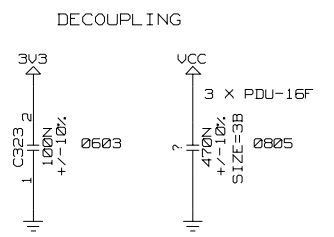


DELAY 9-41USEC IN STEPS OF 0.5USEC

SERIAL NUMBER REGISTER



REMOVE RESISTORS TO ENCODE SERIAL NUMBER



DECOUPLING

DRAWING  
ATLAS SCT TIM 3B  
Wed Aug 04 13:57:32 2004

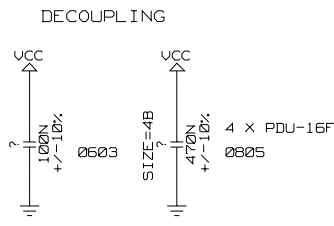
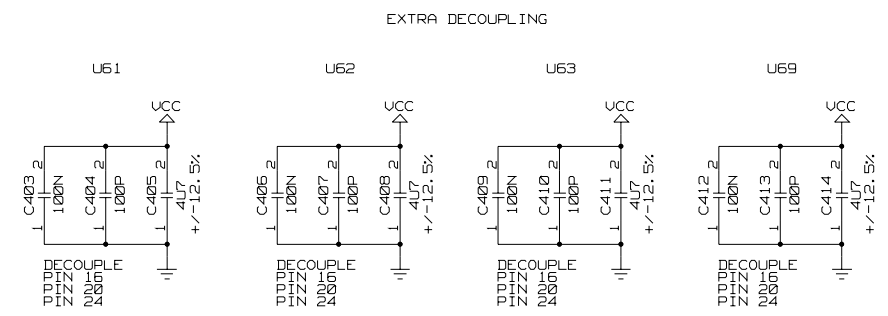
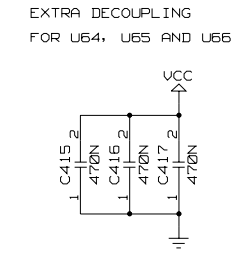
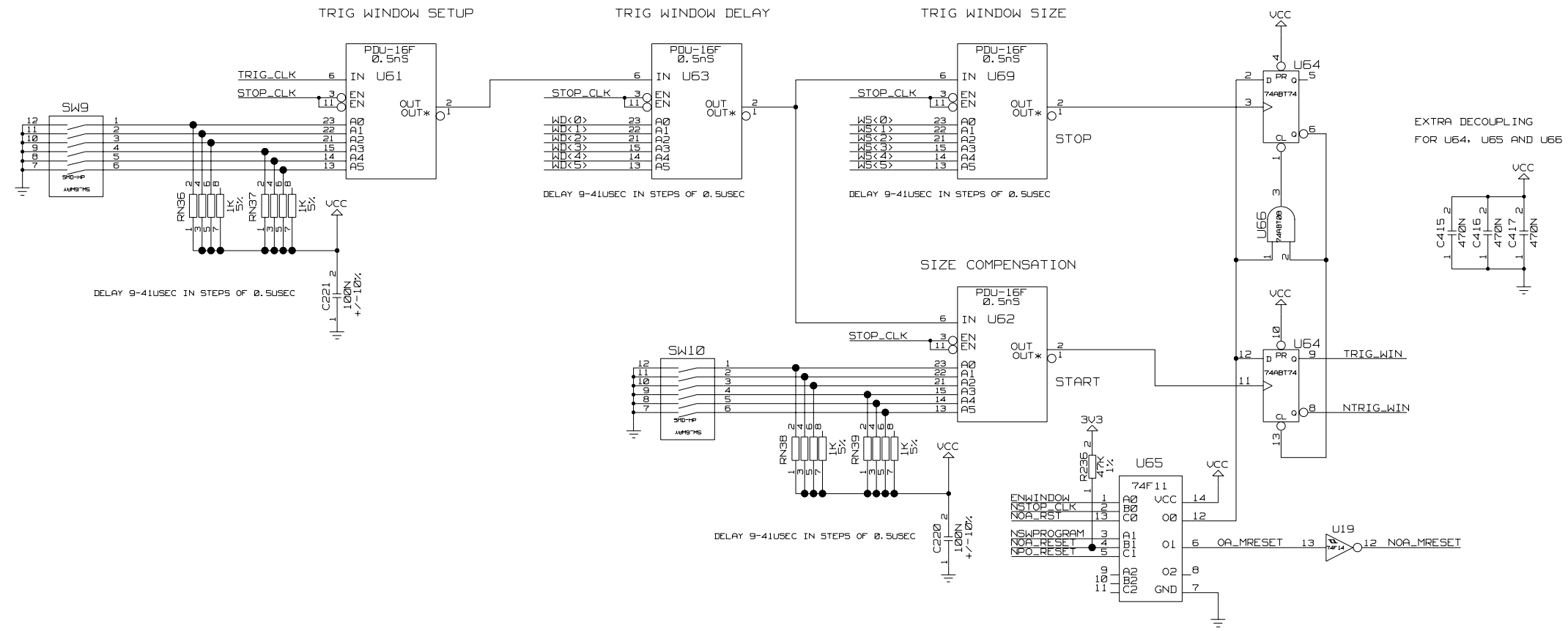
B	13-02-2004	TE23B	D. J. BECKETT	M. POSTRANECKY	M. POSTRANECKY	
A	23-05-2003	- - - -	D. J. BECKETT	M. POSTRANECKY	M. POSTRANECKY	
ISSUE	DATE	MOD NO.	DRN BY.	CHKD.	APPD.	STATUS
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OF THE RESEARCH COUNCILS

TITLE  
PC3216M CIRCUIT  
TTC INTERFACE MODULE (TIM-3)

A2-TE-0102-044-07-B  
54-03  
07-02

TRIGGER WINDOW - VERS B



B	13-02-2004	TE23B	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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 OF THE RESEARCH COUNCILS

TITLE  
 PC3216M CIRCUIT  
 TTC INTERFACE MODULE (TIM-3)

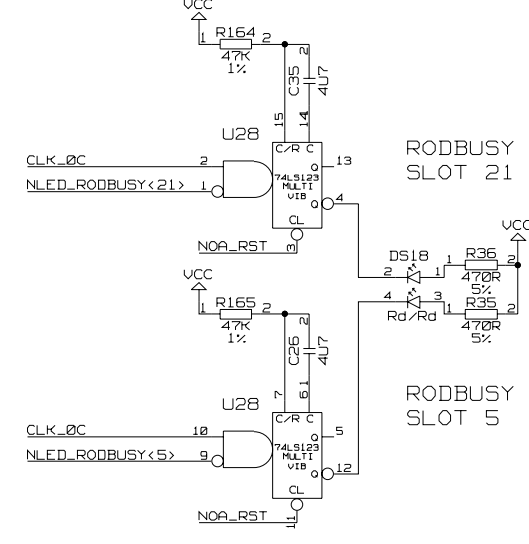
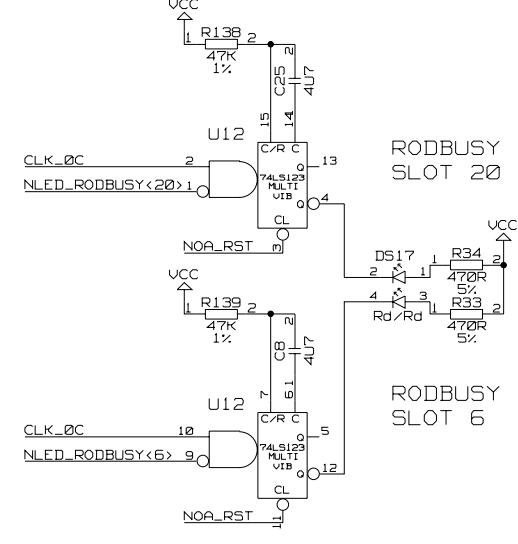
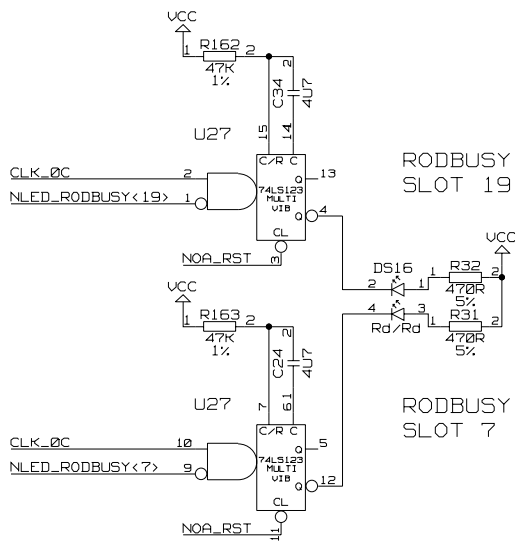
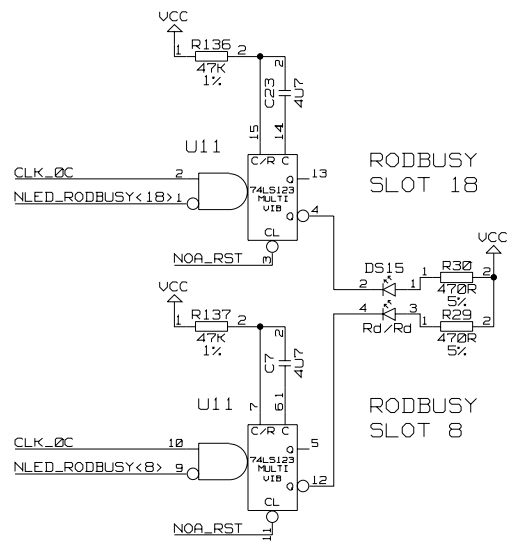
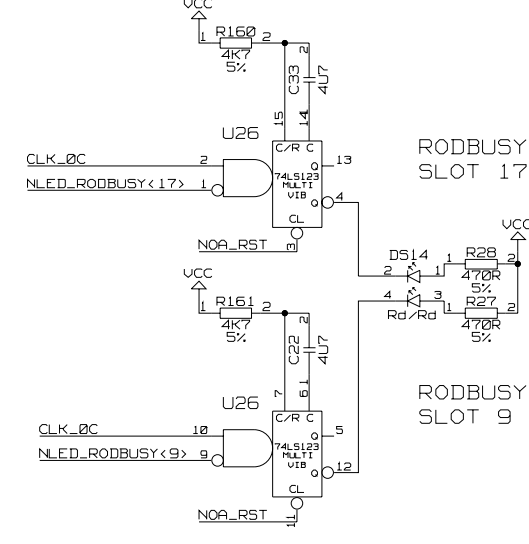
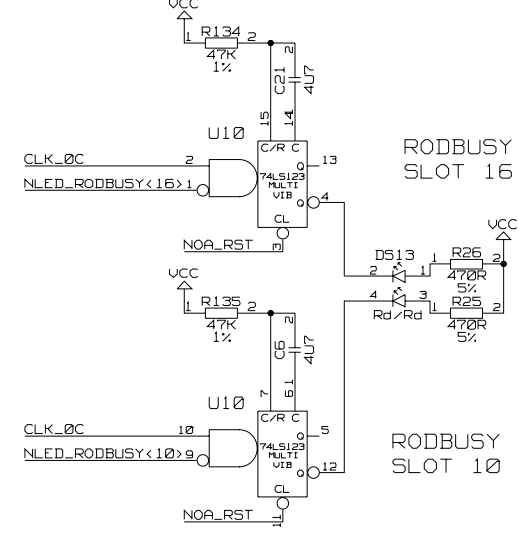
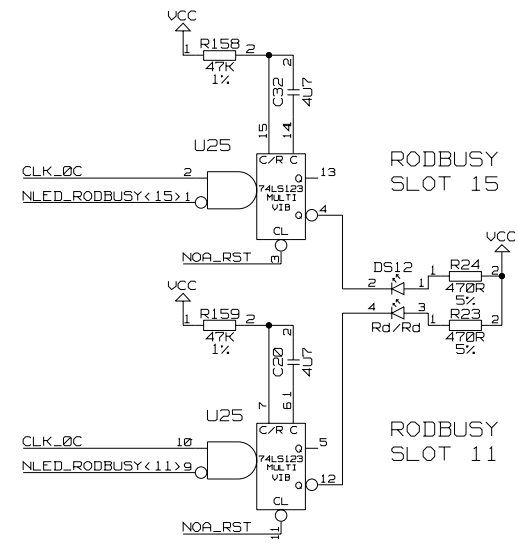
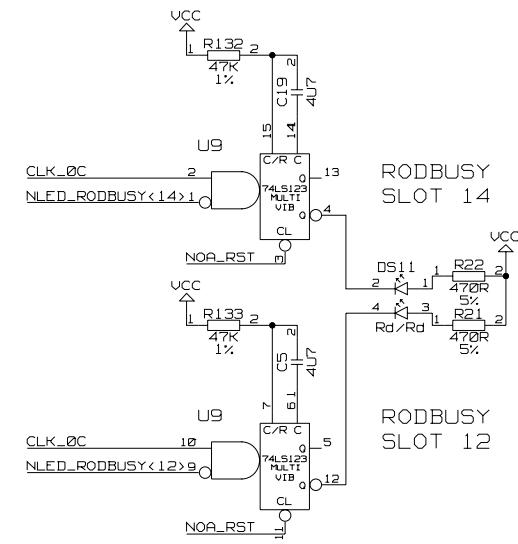
54-03  
 07-02

A2-TE-0102-044-08-B

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 ATLAS SCT TIM 3B  
 Wed Aug 04 13:57:33 2004



LED DISPLAYS DS11-DS18 (62USEC)



DECOUPLING



A 2-TE-0102-044-09-B

B	13-02-2004	TE23B	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.

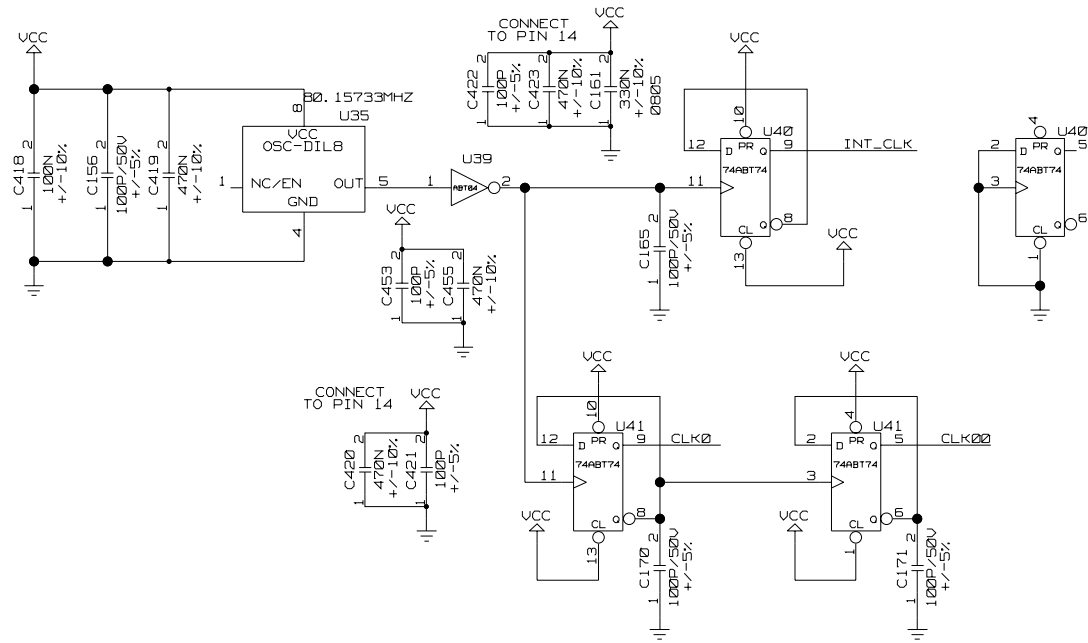
TITLE  
PC3216M CIRCUIT  
TTC INTERFACE MODULE (TIM-3)

54-03  
07-02

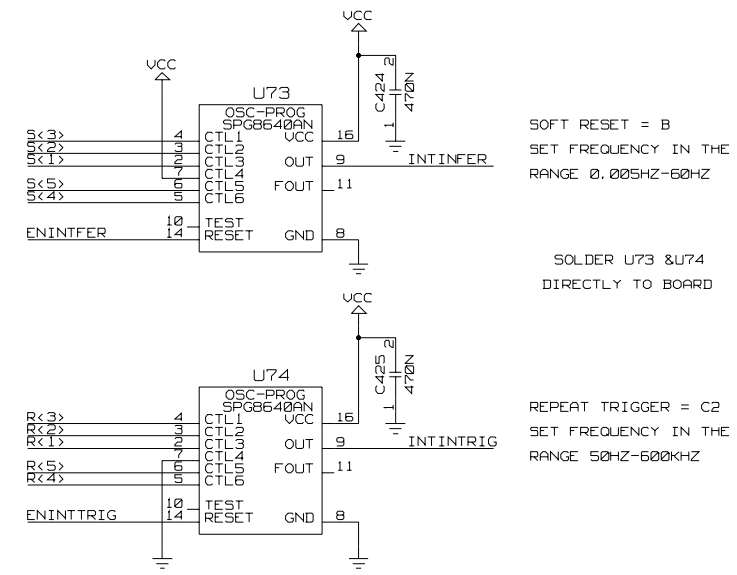
DRAWING  
ATLAS SCT TIM 3B  
Wed Aug 04 13:57:14 2004

A2-TE-0102-044-09-B

INTERNAL OSCILLATORS 1



INTERNAL OSCILLATORS 2

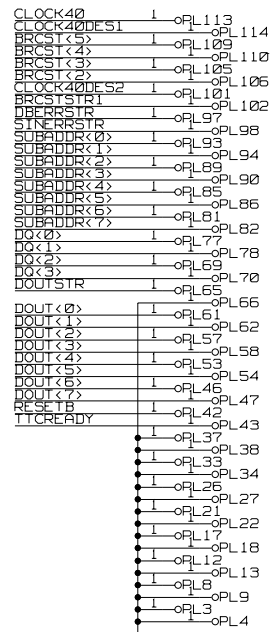


TTCRQ DAUGHTER BOARD CONNECTORS

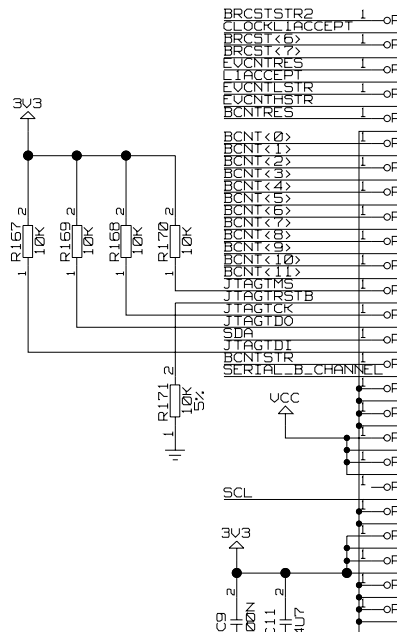
STRAIGHT RECEPTACLE CONTACTS PRECI-DIP 714-91-125-31-001  
2X DOUBLE ROW OF 25 CONTACTS

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

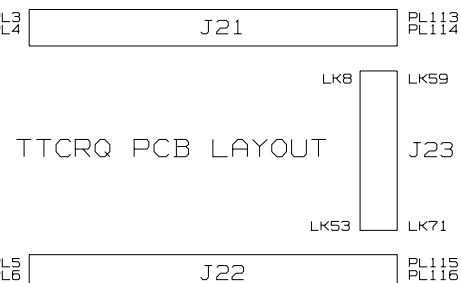
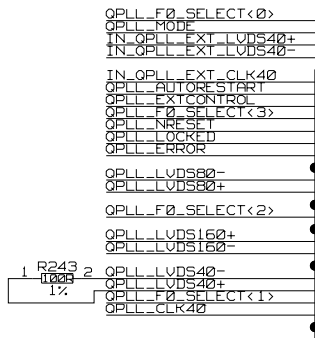
TTC J21



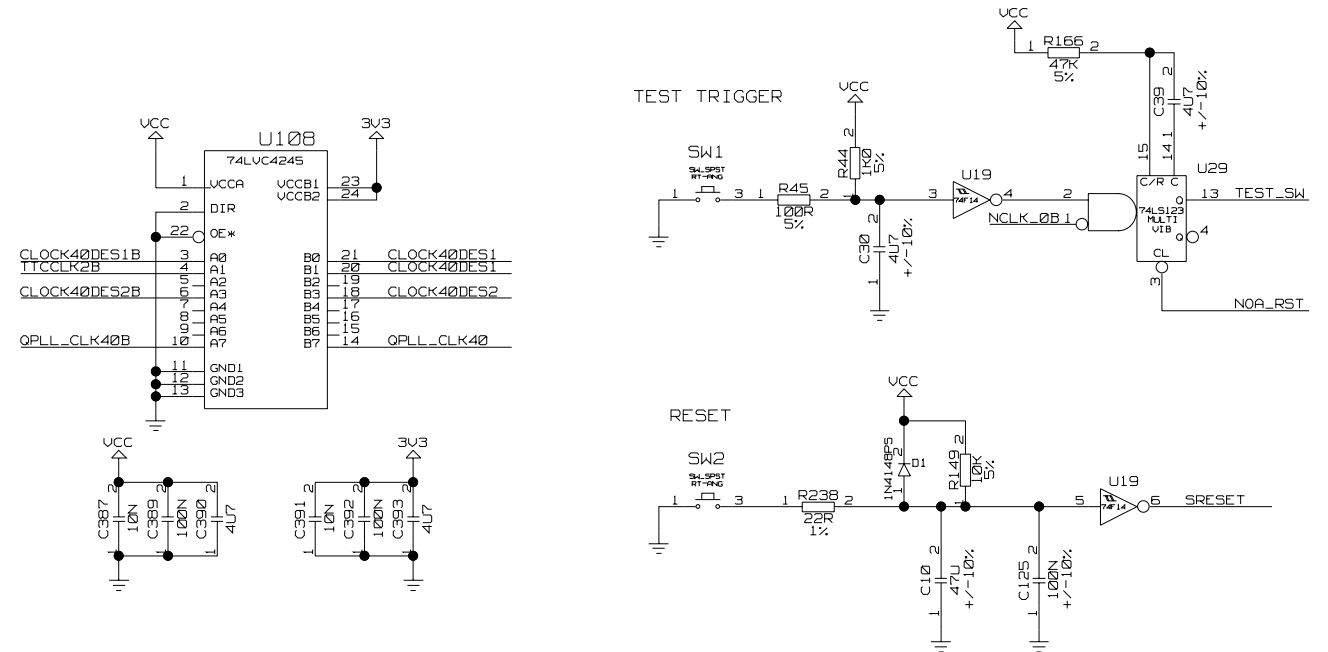
TTC J22



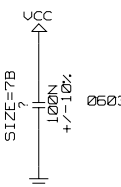
TTC J23



TEST SWITCHES



DECOUPLING



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

B	13-02-2004	TE23B	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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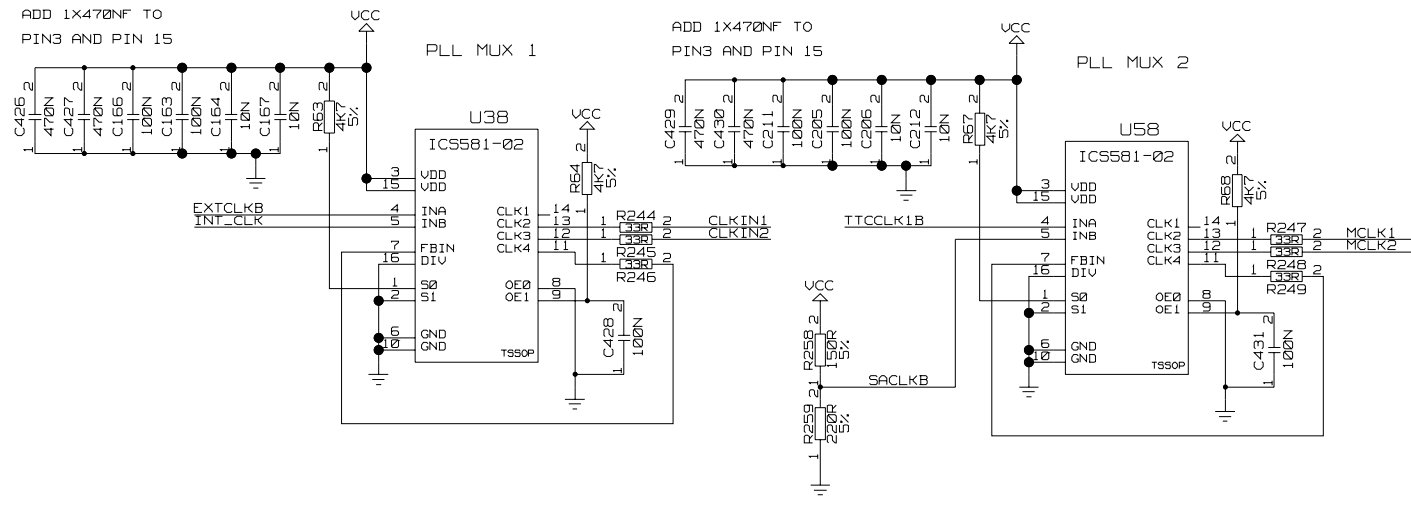
CCLRC  
COUNCIL FOR THE CENTRAL LABORATORY RUTHERFORD APPLETON LABORATORY, CHILTON, OXON OX11 0QX.  
OF THE RESEARCH COUNCILS

TITLE  
PC3216M  
CIRCUIT  
TTC INTERFACE MODULE (TIM-3)

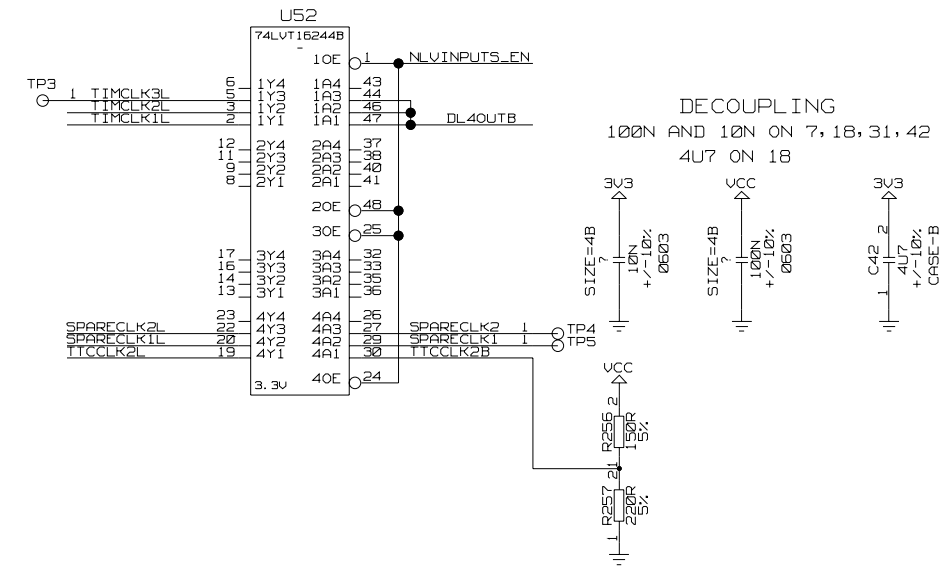
DRAWING  
ATLAS SCT TIM 3B  
Wed Aug 04 13:57:15 2004

TIM-3 CLOCK SELECT

TIM CLOCKS MULTIPLEXERS



LV CLOCK BUFFERS

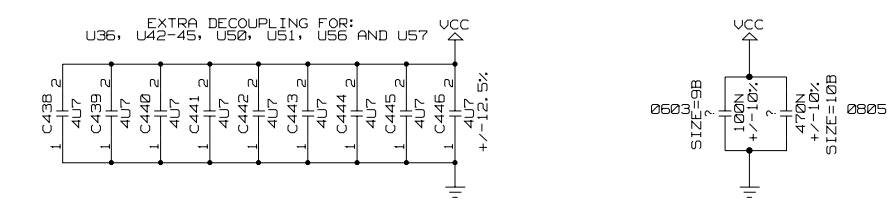
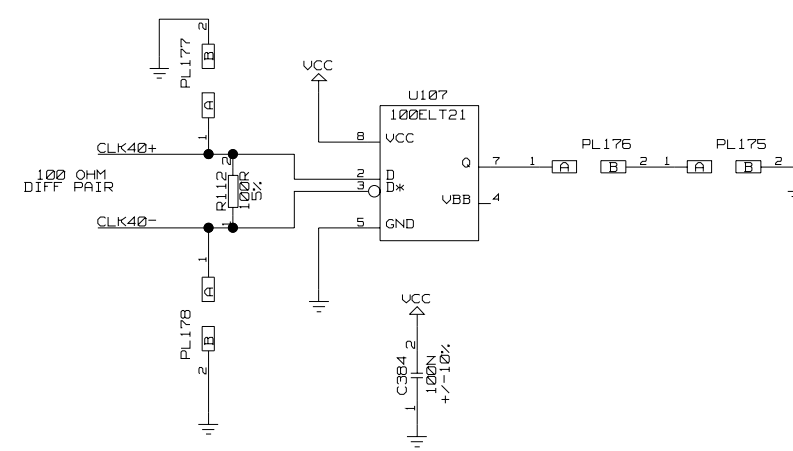
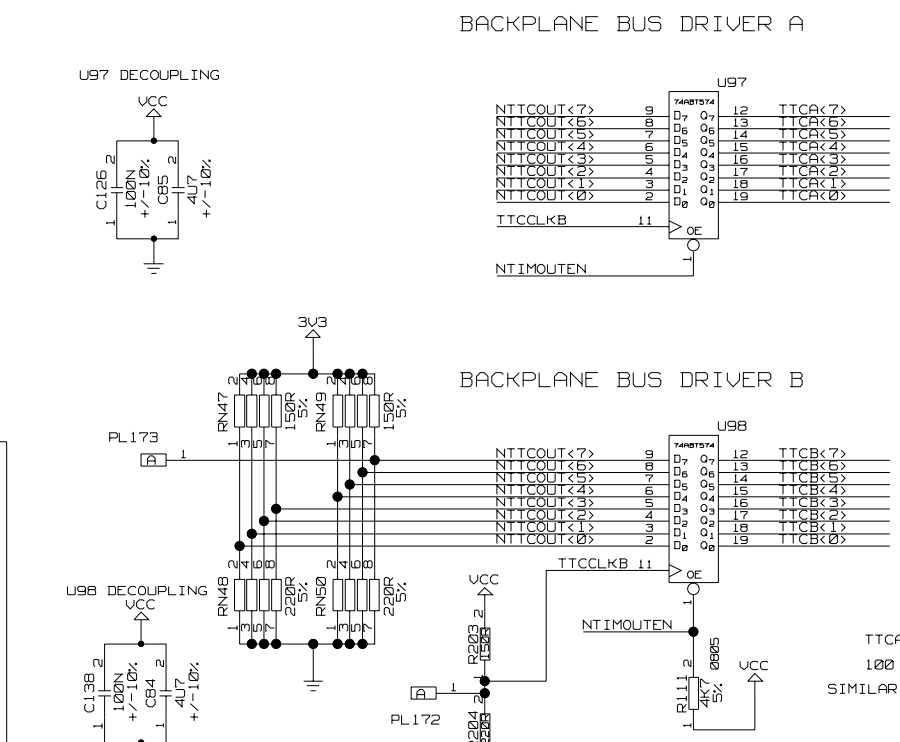
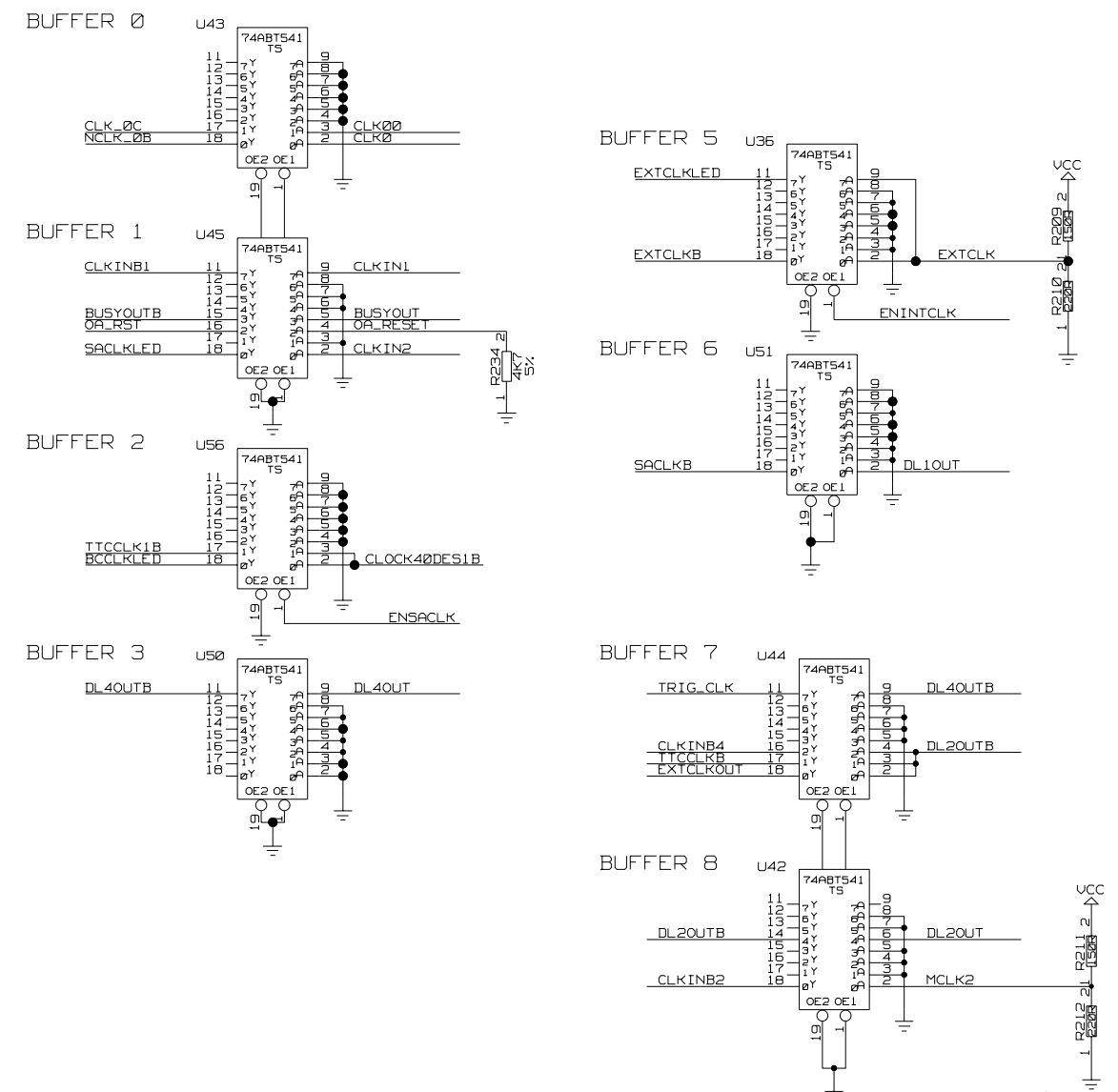
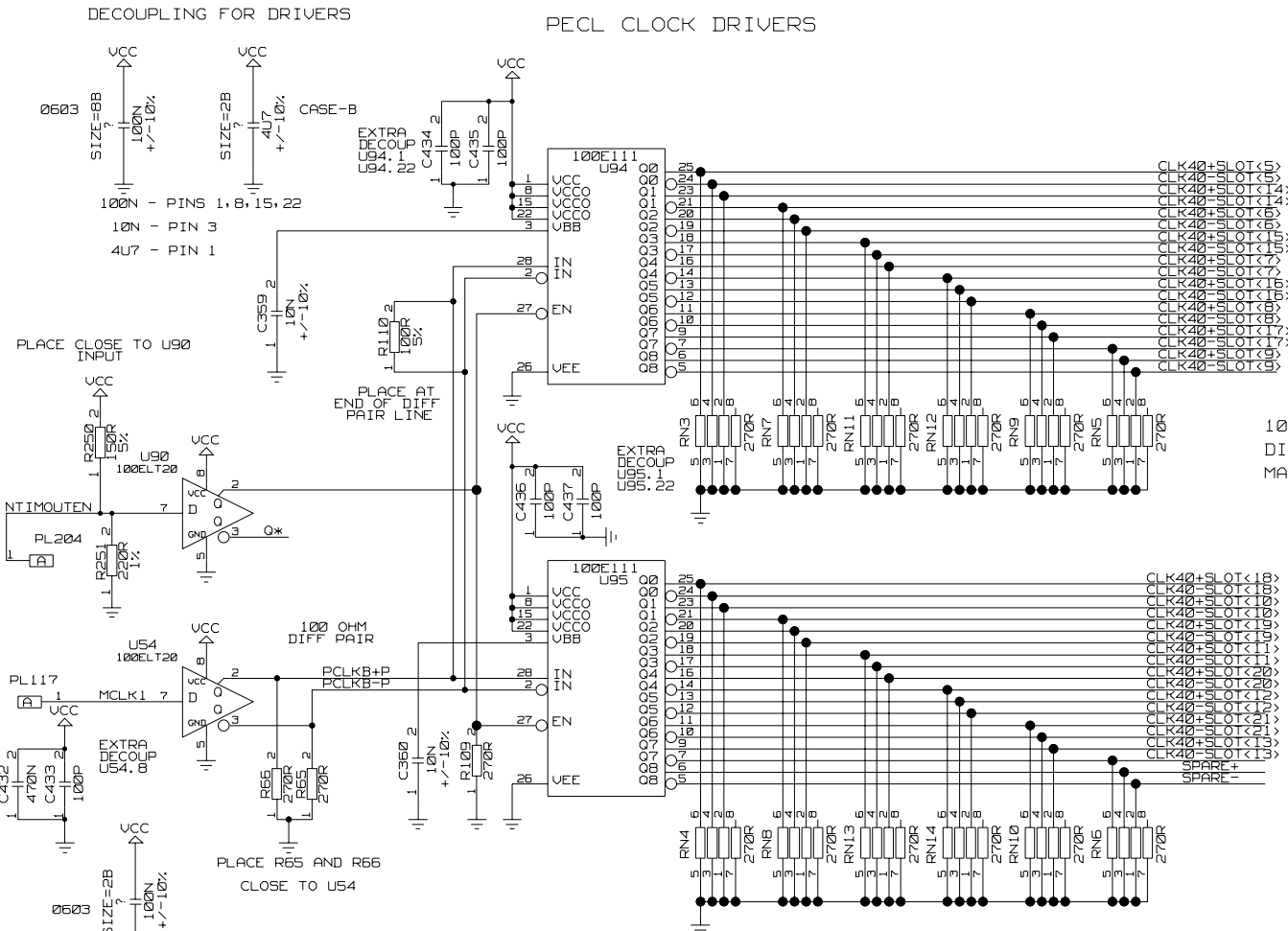


A 2-TE-0102-044-11-B

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ATLAS SCT TIM 3B  
Wed Aug 04 13:57:17 2004

B	13-02-2004	TE23B	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
USED ON ATLAS SCT					© CCLRC 2003	
CCLRC COUNCIL FOR THE CENTRAL LABORATORY RUTHERFORD APPLETON LABORATORY, CHILTON, OXON OX11 0QX. OF THE RESEARCH COUNCILS						
TITLE			PC3216M CIRCUIT			
			TTC INTERFACE MODULE (TIM-3)			
			54-03 07-02			
A2-TE-0102-044-11-B						
TOTAL NO. OF SHEETS						16

CLOCK BUFFERS AND DRIVERS



B	13-02-2004	TE23B	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.

TITLE  
PC3216M CIRCUIT  
TTC INTERFACE MODULE (TIM-3)

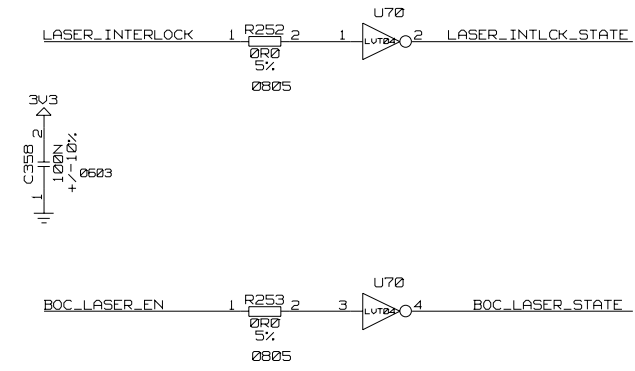
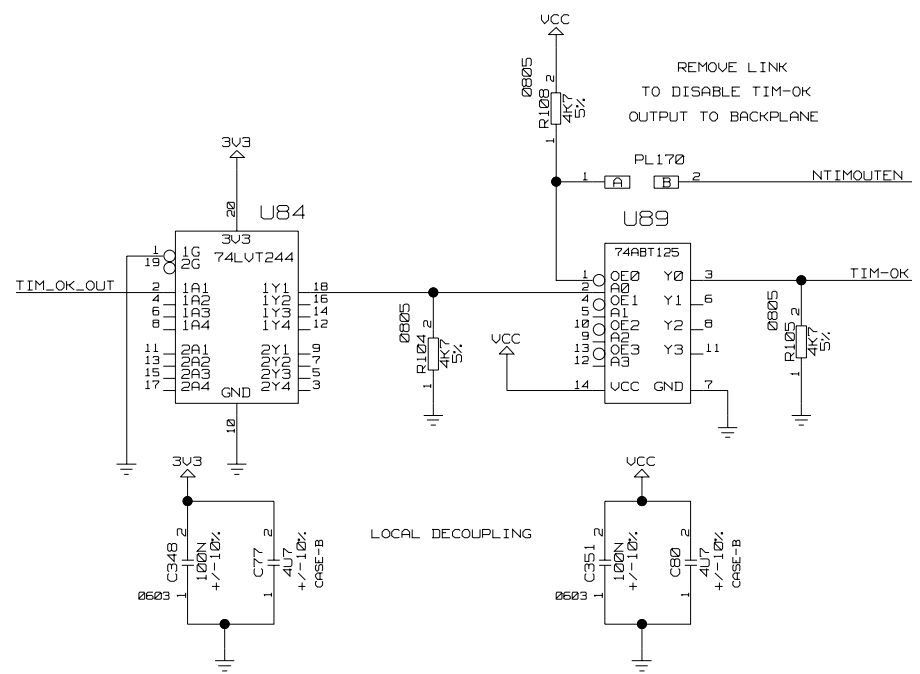
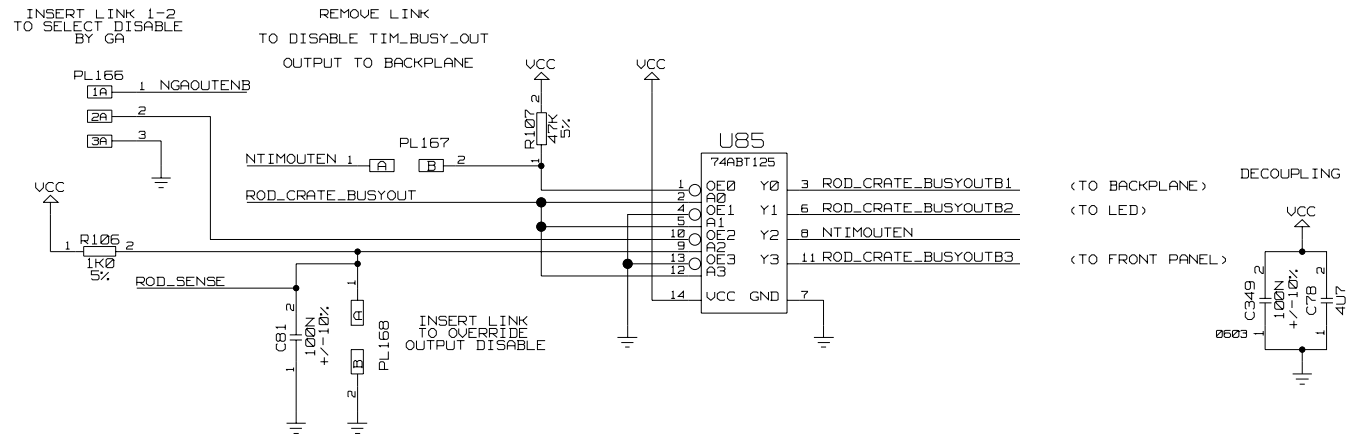
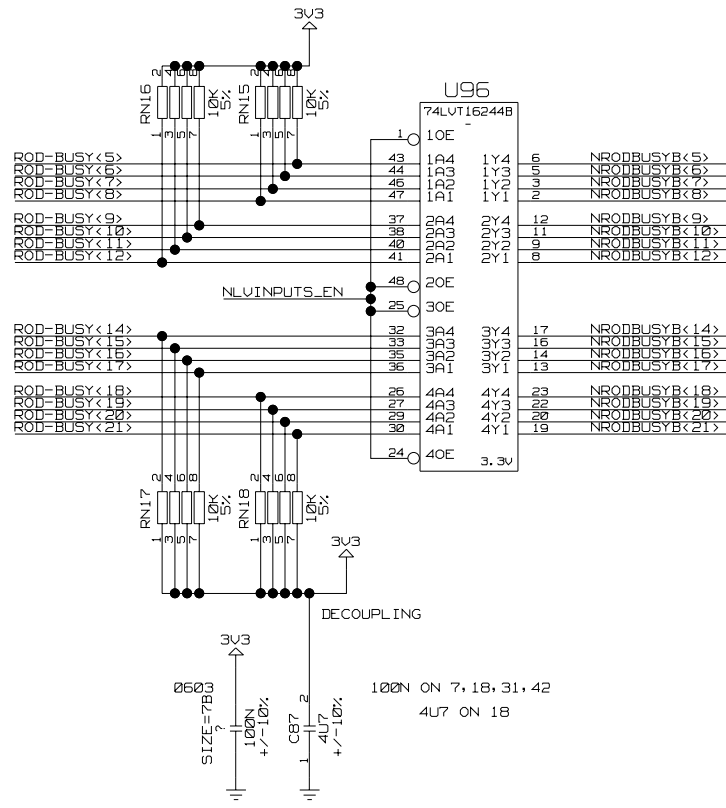
54-03  
07-02

A2-TE-0102-044-12-B

TOTAL NO. OF SHEETS 16

DRAWING  
ATLAS SCT TIM 3B  
Wed Aug 04 13:57:18 2004

BUSY RECEIVER + DRIVER

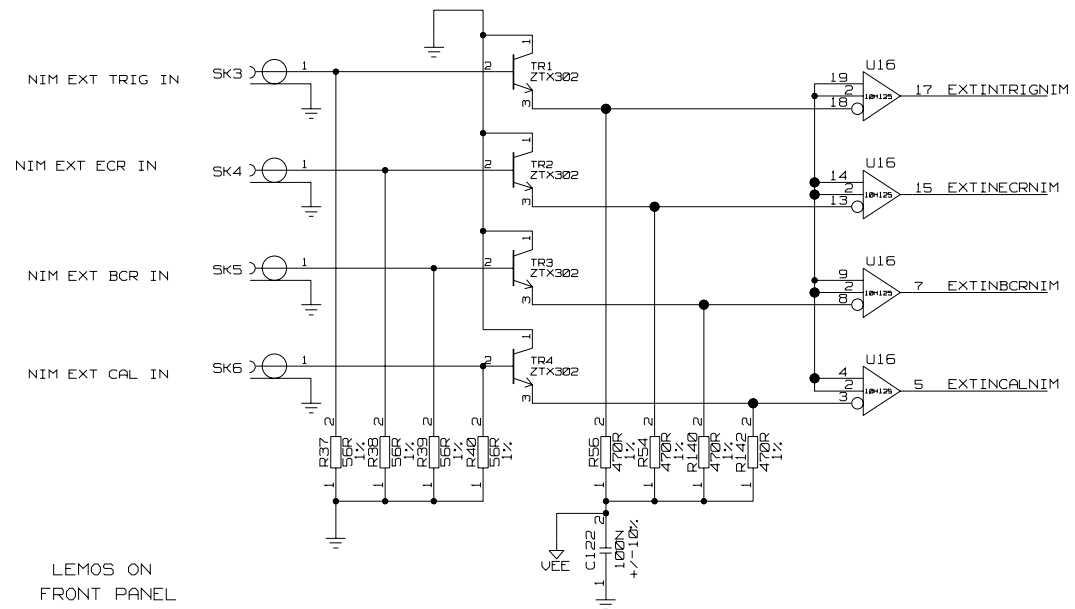


B	13-02-2004	TE23B	D. J. BECKETT	M. POSTRANECKY	M. POSTRANECKY	
A	23-05-2003	- - - -	D. J. BECKETT	M. POSTRANECKY	M. POSTRANECKY	
ISSUE	DATE	MOD NO.	DRN BY.	CHKD.	APPD.	STATUS

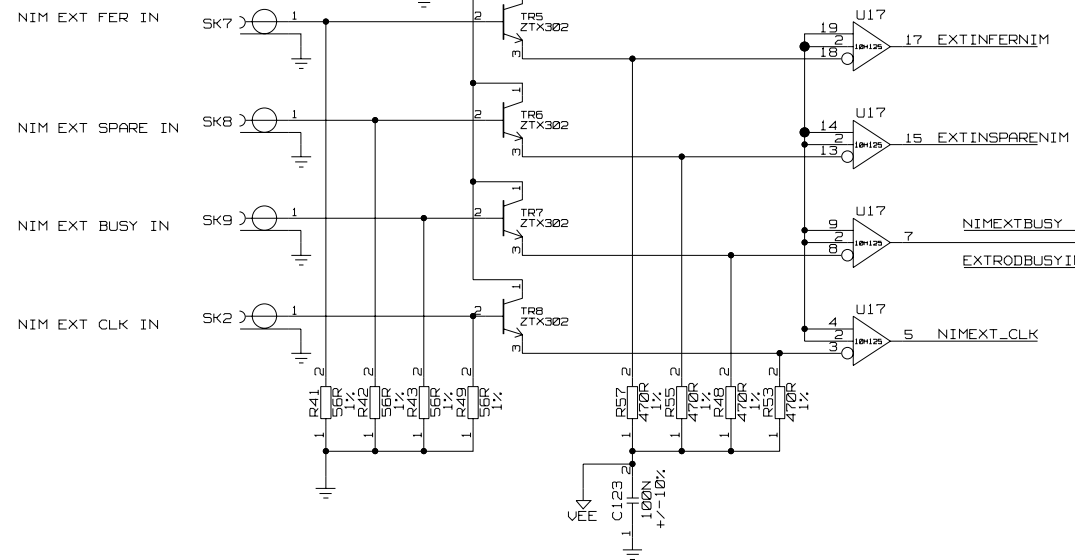
USED ON ATLAS SCT © CCLRC 2003  
 CCLRC COUNCIL FOR THE CENTRAL LABORATORY RUTHERFORD APPLETON LABORATORY, CHILTON, OXON OX11 0QX.  
 TITLE PC3216M CIRCUIT  
 TTC INTERFACE MODULE (TIM-3) 54-03 07-02

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EXT. INPUTS A - NIM

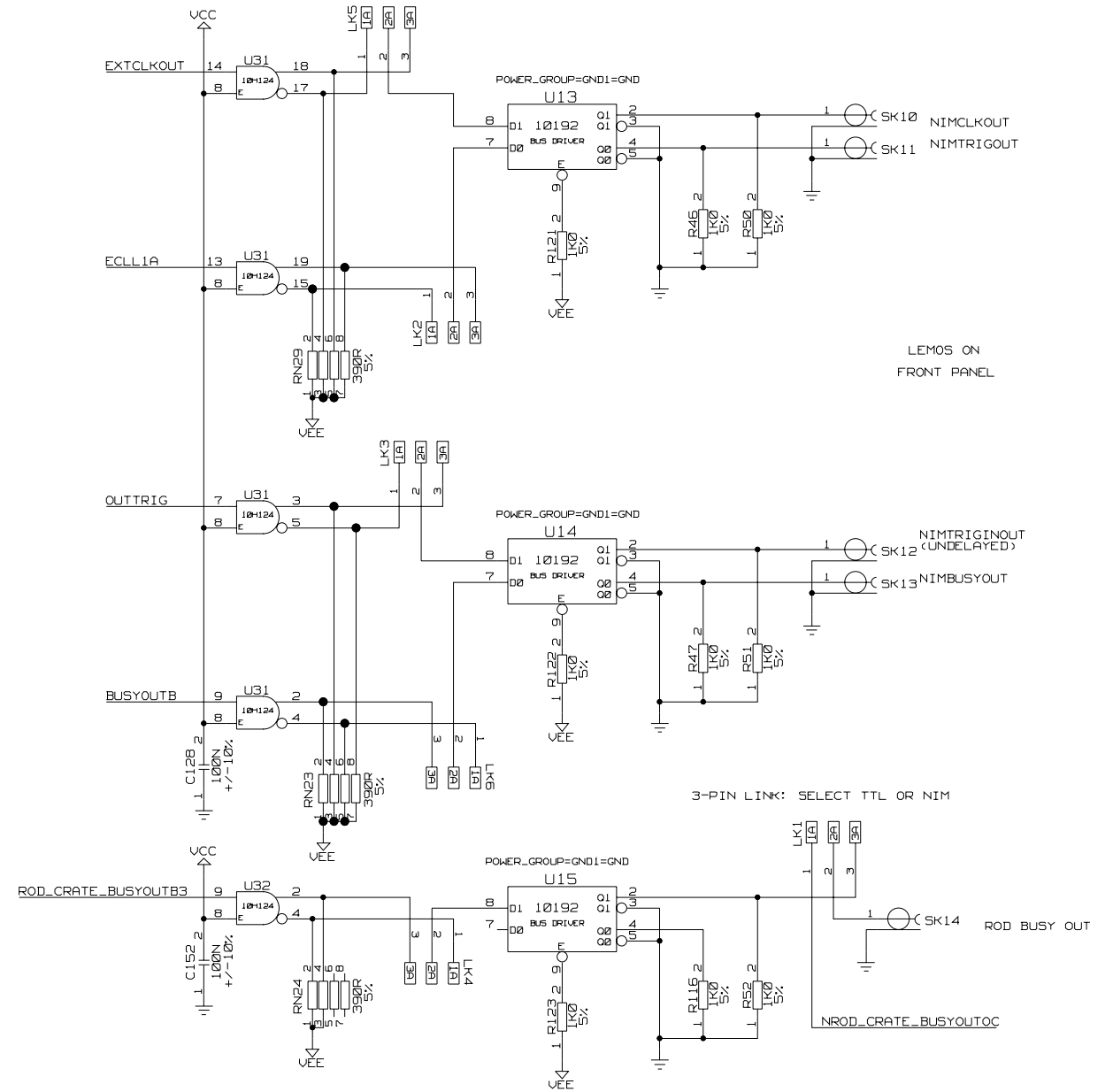


LEMOS ON FRONT PANEL



SELECT ONBOARD DESTINATION OF EXTBUSY INPUT

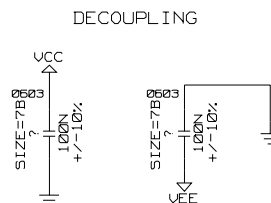
EXT. OUTPUTS A - NIM



LEMOS ON FRONT PANEL

3-PIN LINK: SELECT TTL OR NIM

NROD\_CRATE\_BUSYOUTOC



B	13-02-2004	TE23B	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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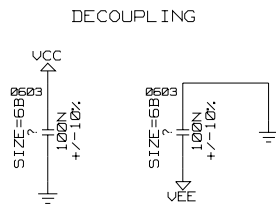
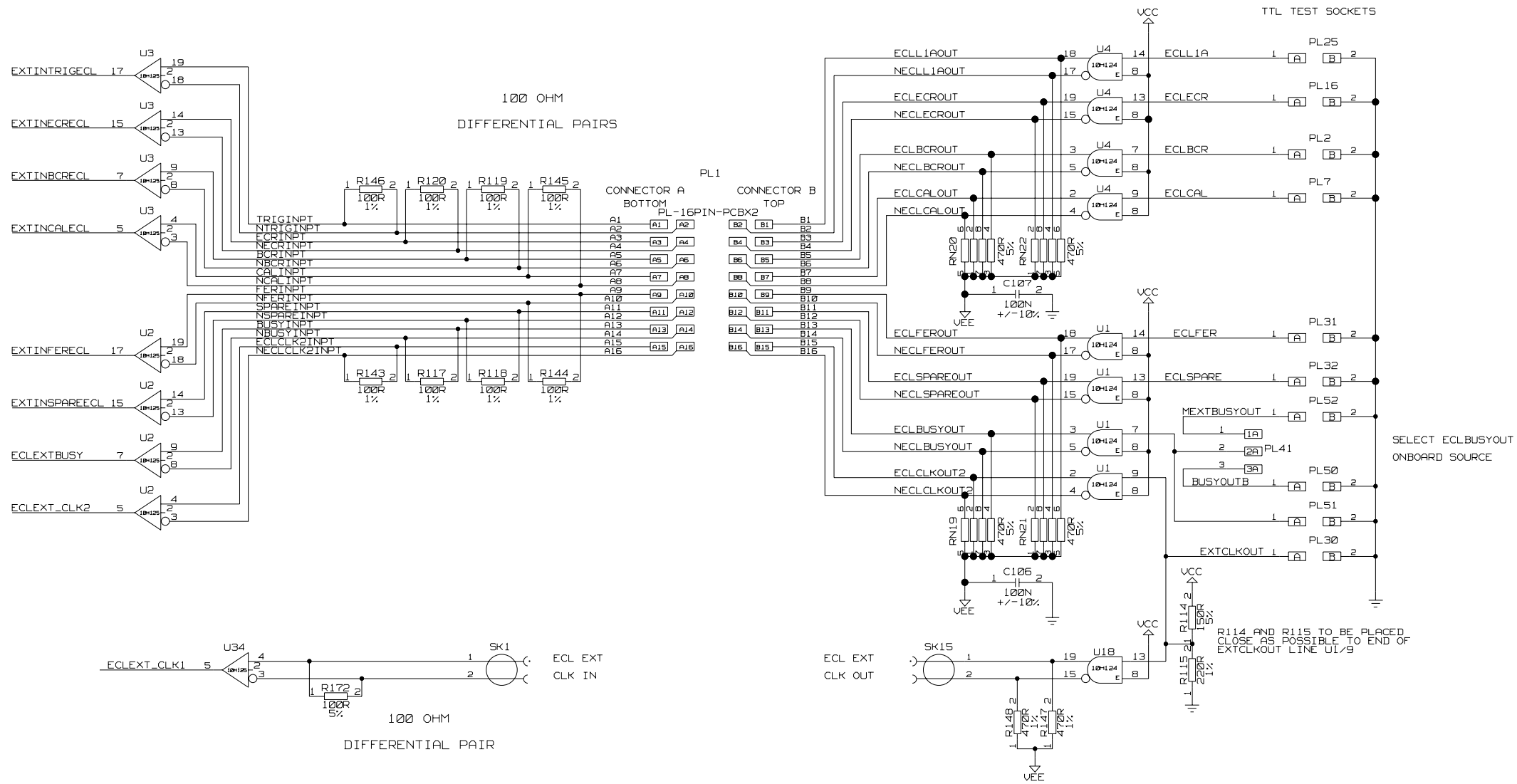
TITLE PC3216M CIRCUIT  
TTC INTERFACE MODULE (TIM-3)

DRAWING ATLAS SCT TIM 3B Wed Aug 04 13:57:21 2004

54-03 07-02  
A2-TE-0102-044-14-B

EXT. INPUTS B - ECL

EXT. OUTPUTS B - ECL



B	13-02-2004	TE23B	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-3)

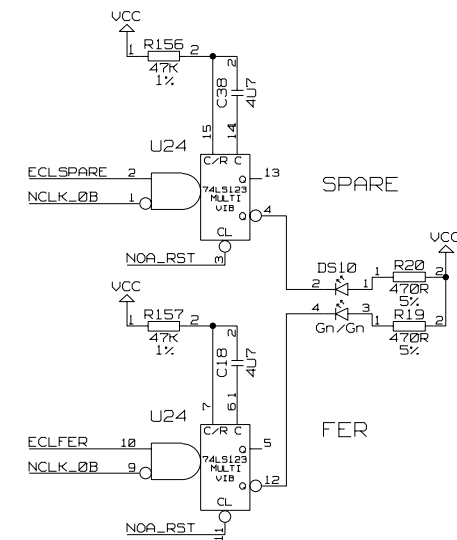
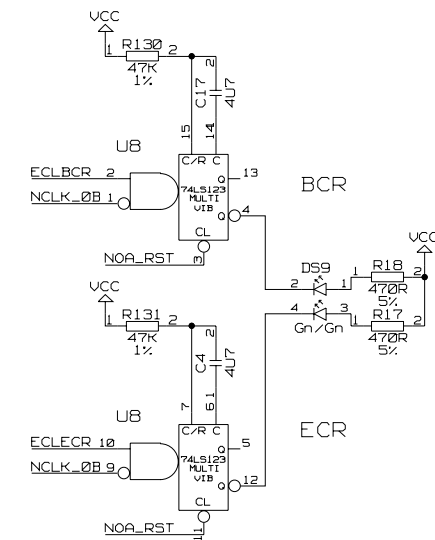
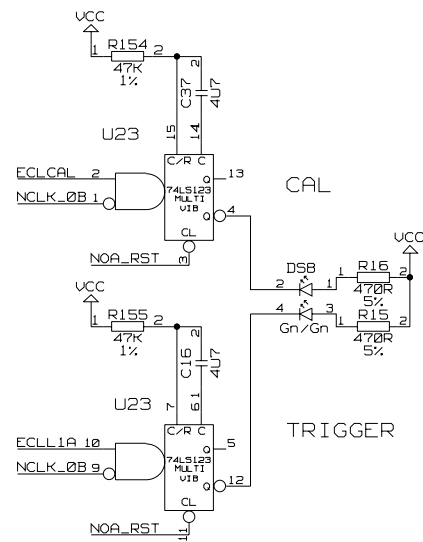
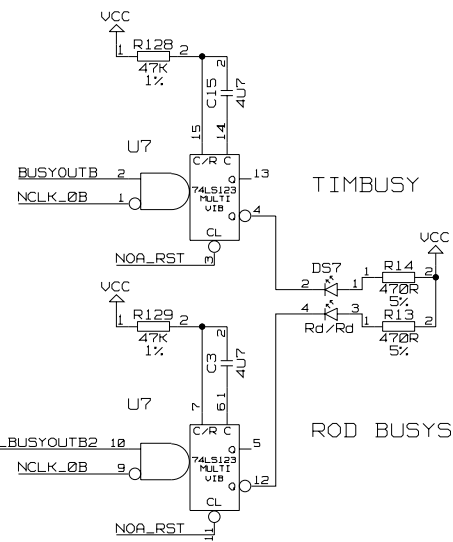
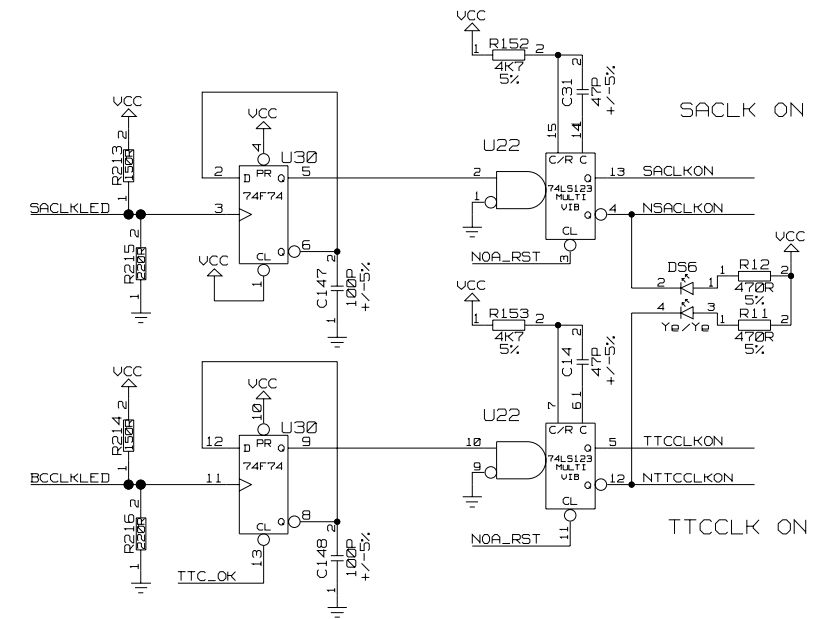
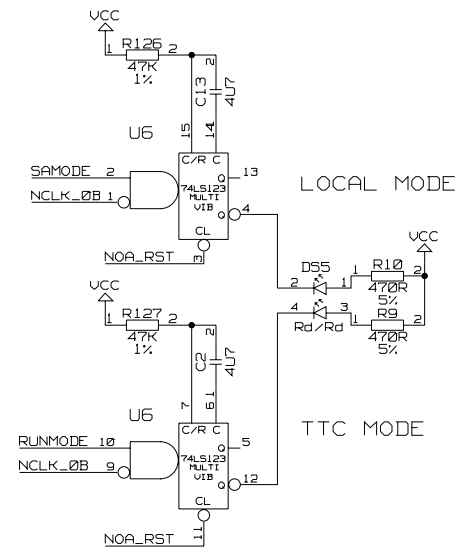
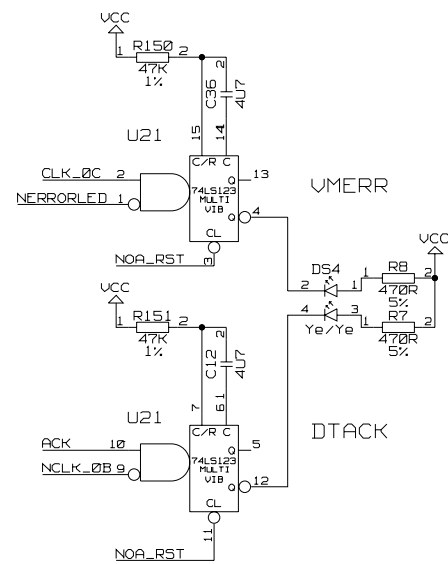
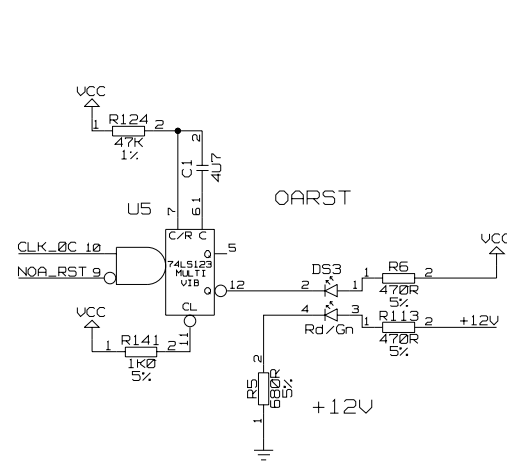
54-03  
 07-02

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 ATLAS SCT TIM 3B  
 Wed Aug 04 13:57:22 2004

A2-TE-0102-044-15-B

A 2-TE-0102-044-15-B

LED DISPLAYS DS3-DS10 (62USEC)



DECOUPLING



A 2-TE-0102-044-16-B

B	13-02-2004	TE23B	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-3)

DRAWING  
ATLAS SCT TIM 3B  
Wed Aug 04 13:57:23 2004

54-03  
07-02  
A2-TE-0102-044-16-B