

6

5

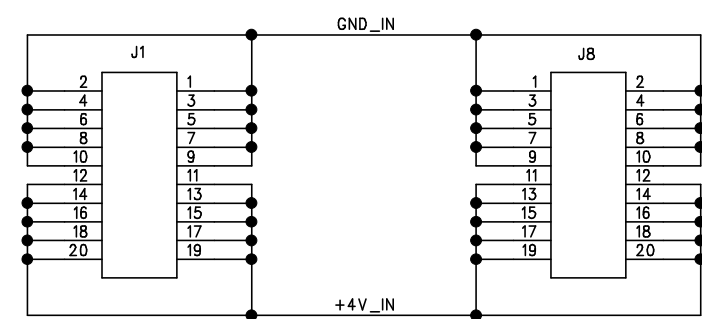
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3

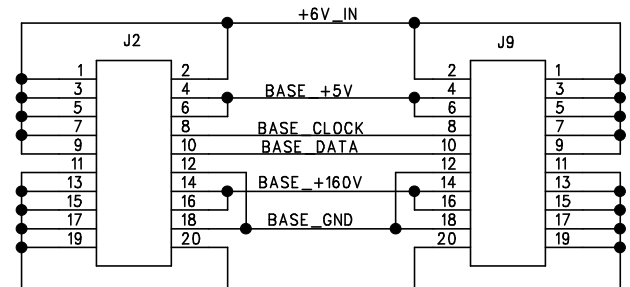
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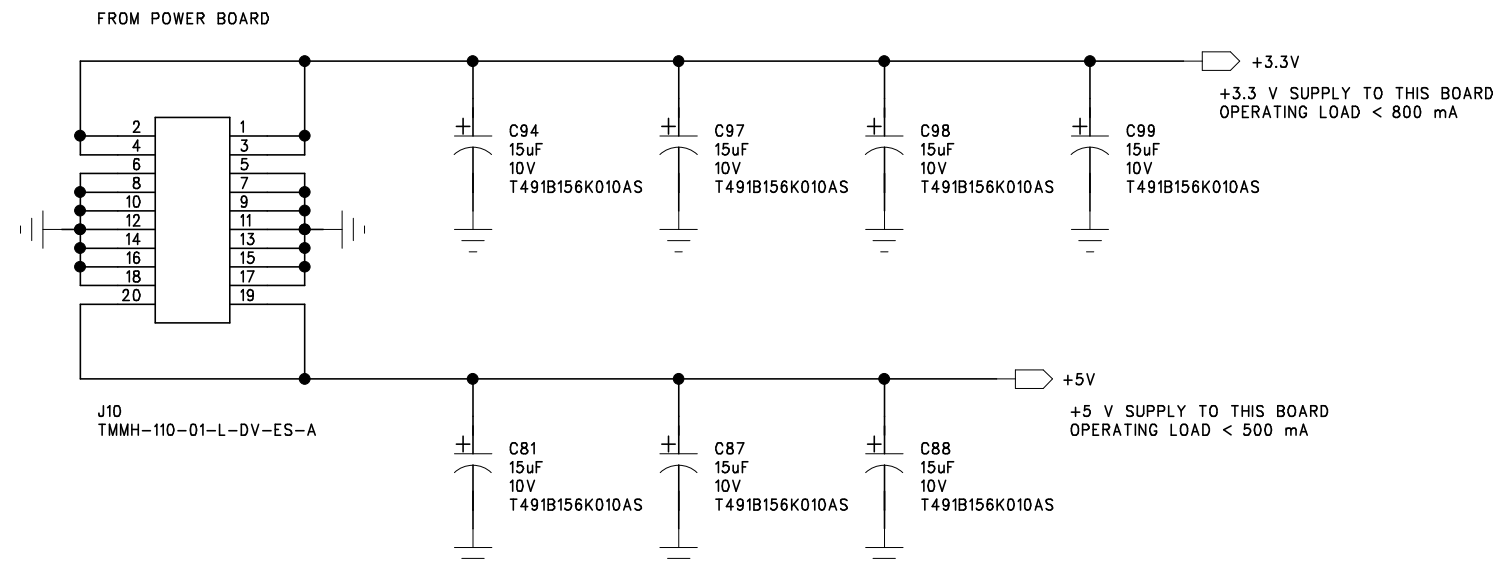
PASSTHROUGH CONNECTIONS FROM CONNECTOR BOARD TO POWER BOARD



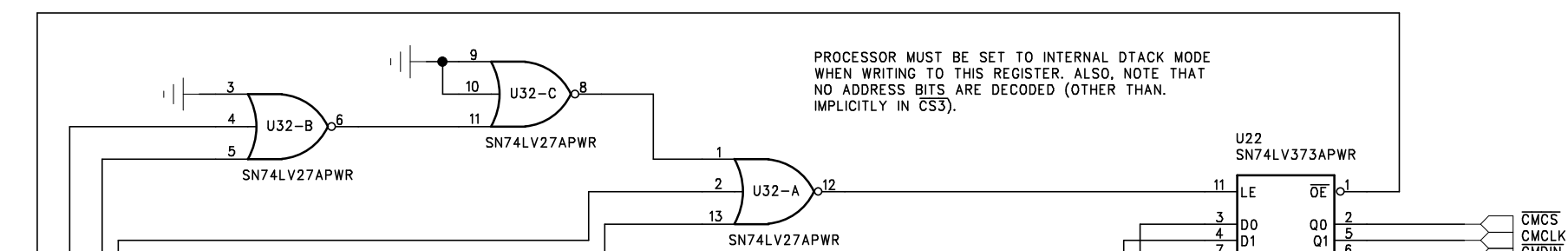
SQW-110-01-L-D-VS-A FROM CONN. BOARD  
TMMH-110-01-L-DV-ES-A TO POWER BOARD



SQW-110-01-L-D-VS-A FROM CONN. BOARD  
TMMH-110-01-L-DV-ES-A TO POWER BOARD

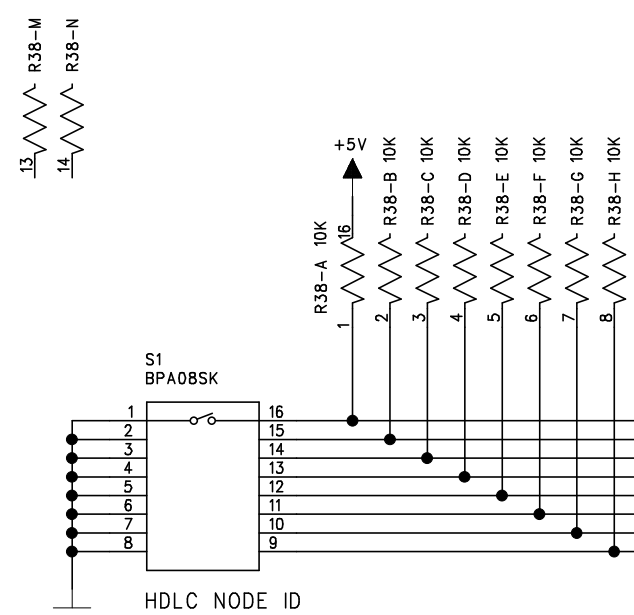


J10 TMMH-110-01-L-DV-ES-A

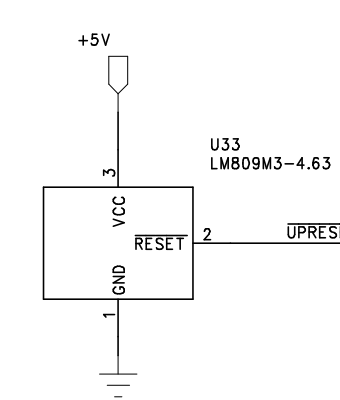


PROCESSOR MUST BE SET TO INTERNAL DTACK MODE WHEN WRITING TO THIS REGISTER. ALSO, NOTE THAT NO ADDRESS BITS ARE DECODED (OTHER THAN, IMPLICITLY IN CS3).

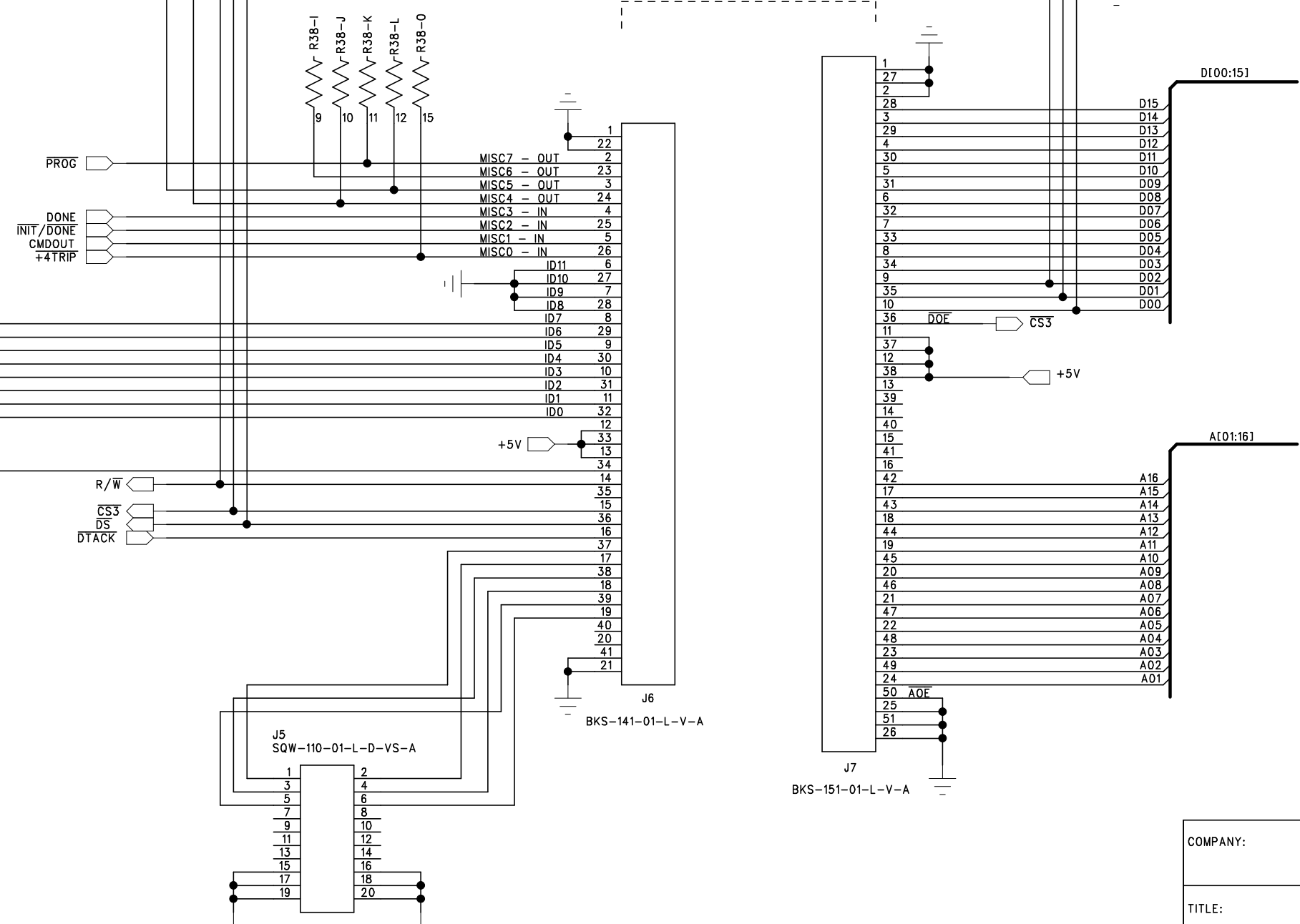
SLOW CONTROLS INTERFACE STAR STANDARD HDLC MEZZANINE BOARD



HDLC NODE ID



U33 LMB09M3-4.63



TO CONNECTOR BOARD HDLC BUS CONNECTOR

REVISION RECORD			
LTR	ECO NO:	APPROVED:	DATE:

THIS BOARD (MAPMT READOUT BOARD) RESPONDS ONLY TO THE RANGE WHERE CS3 IS ACTIVE. ADDRESSES ARE NOT FULLY DECODED --- SOFTWARE SHOULD ONLY ACCESS THE RANGE 0x020000 TO 0x03FFFE. ADDRESSES IN RANGE 0x040000 TO 0x0FFFFE OVERLAY THE RANGE 0x020000 TO 0x03FFFE SEVEN MORE TIMES. SEE THE OPERATING SPECIFICATIONS FOR ADDRESS MAP AND PROTOCOLS FOR CONTROLLING MAPMT READOUT

COMPANY: INDIANA UNIVERSITY CYCLOTRON FACILITY			
TITLE: STAR EEMC MAPMT READOUT BOARD POWER INPUT, HDLC MEZZANINE BOARD			
DRAWN: D. FORD, M. STONECIPHER, G. VISSER	DATED: 06 AUG 03	CODE:	SIZE:
CHECKED:	DATED:	DRAWING NO:	REV: XXXX 1
QUALITY CONTROL:	DATED:		
RELEASED:	DATED:	SCALE:	SHEET: 1 OF 10

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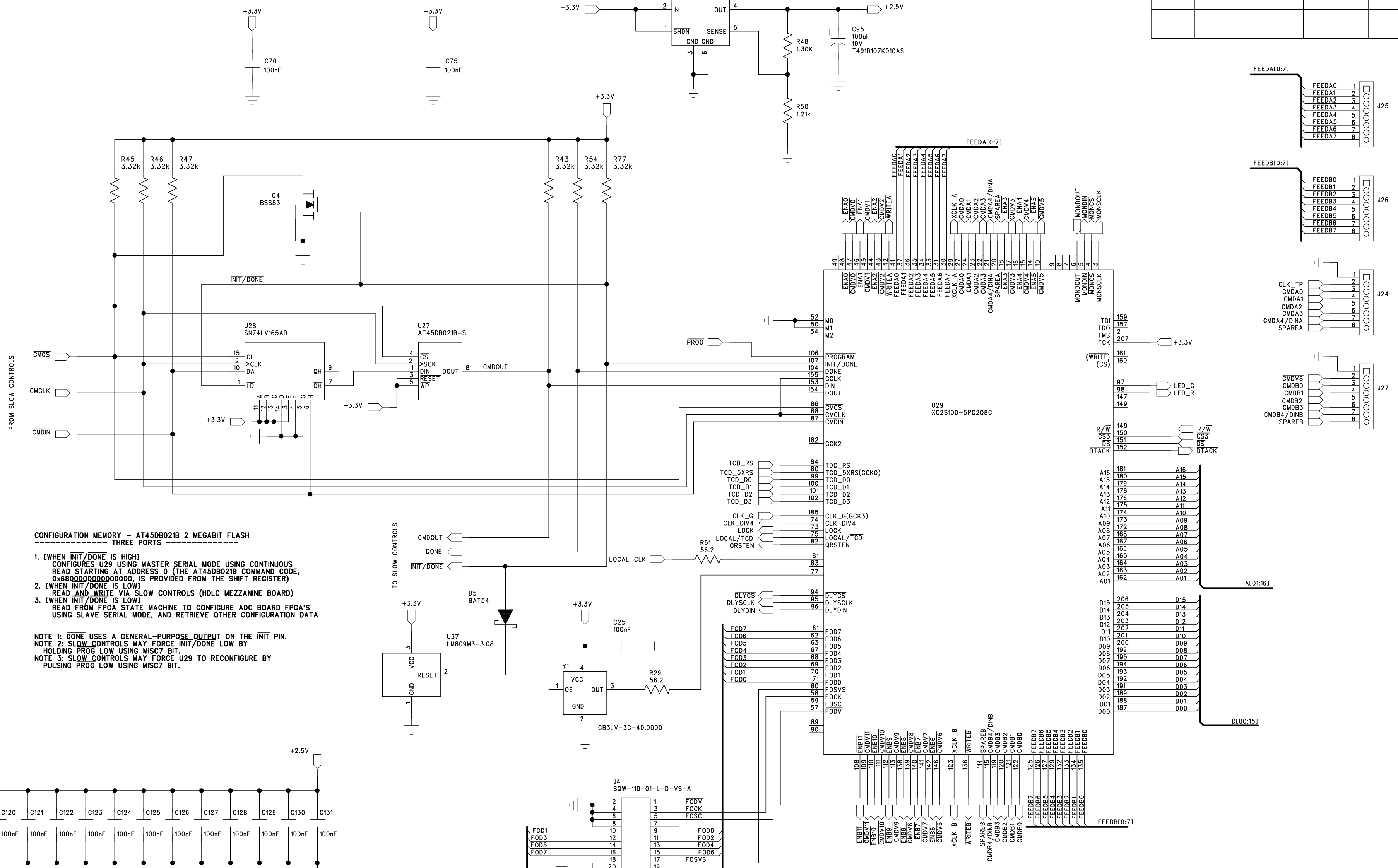
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REVISION RECORD			
LTR	ECO NO:	APPROVED:	DATE:



**CONFIGURATION MEMORY - AT45DB021B 2 MEGABIT FLASH**  
-----  
THREE PORTS

- [WHEN INIT/DONE IS HIGH] CONFIGURES U29 USING MASTER SERIAL MODE USING CONTINUOUS READ STARTING AT ADDRESS 0 (THE AT45DB021B COMMAND CODE, 0x6800000000000000, IS PROVIDED FROM THE SHIFT REGISTER)
- [WHEN INIT/DONE IS LOW] READ AND WRITE VIA SLOW CONTROLS (HDLC MEZZANINE BOARD)
- [WHEN INIT/DONE IS LOW] READ FROM FPGA STATE MACHINE TO CONFIGURE ADC BOARD FPGA'S USING SLAVE SERIAL MODE, AND RETRIEVE OTHER CONFIGURATION DATA

NOTE 1: DONE USES A GENERAL-PURPOSE OUTPUT ON THE INIT PIN.  
NOTE 2: SLOW CONTROLS MAY FORCE INIT/DONE LOW BY HOLDING PROG LOW USING MISC7 BIT.  
NOTE 3: SLOW CONTROLS MAY FORCE U29 TO RECONFIGURE BY PULSING PROG LOW USING MISC7 BIT.

COMPANY: INDIANA UNIVERSITY CYCLOTRON FACILITY			
TITLE: STAR EEMC MAPMT READOUT BOARD READOUT AND CONTROL FPGA			
DRAWN: D. FORD, M. STONECIPHER, G. VISSER	DATED: 06 AUG 03	CODE:	SIZE:
CHECKED:	DATED:	DRAWING NO:	REV: XXXX 1
QUALITY CONTROL:	DATED:	SCALE:	SHEET: 2 OF 10
RELEASED:	DATED:		

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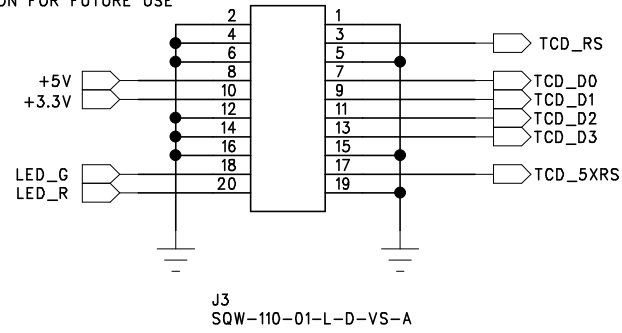
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REVISION RECORD			
LTR	ECO NO:	APPROVED:	DATE:

POWER FOR THE TCD RECEIVER  
ON CONNECTOR BOARD  
+3.3V IS OPTION FOR FUTURE USE



J3  
SQW-110-01-L-D-VS-A

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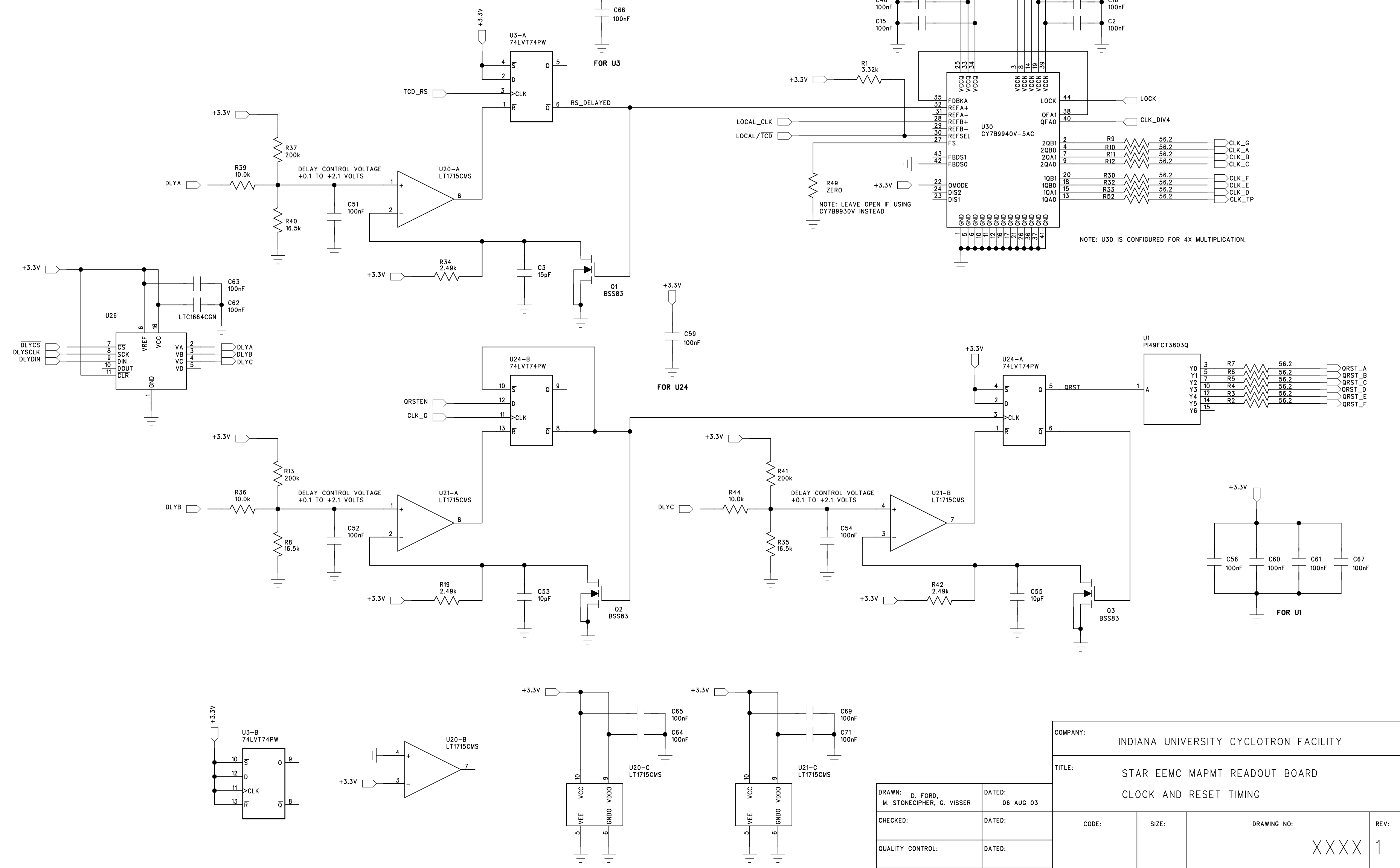
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NOTE: U30 IS CONFIGURED FOR 4X MULTIPLICATION.

NOTE: LEAVE OPEN IF USING  
CY7B9930V INSTEAD

FOR U1

FOR U24

FOR U3

COMPANY: INDIANA UNIVERSITY CYCLOTRON FACILITY			
TITLE: STAR EEMC MAPMT READOUT BOARD CLOCK AND RESET TIMING			
DRAWN: D. FORD, M. STONECIPHER, G. VISSER	DATED: 06 AUG 03	CODE:	SIZE:
CHECKED:	DATED:	DRAWING NO: XXXX	REV: 1
QUALITY CONTROL:	DATED:	SHEET: 3 OF 10	
RELEASED:	DATED:	SCALE:	

6

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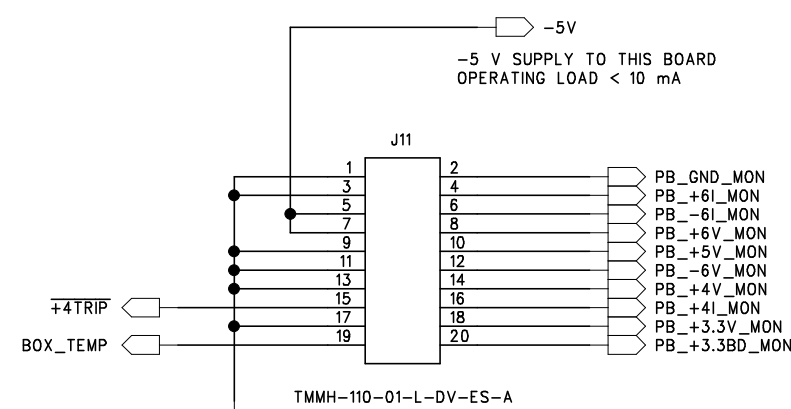
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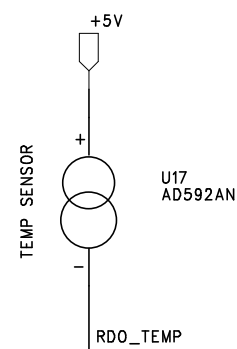
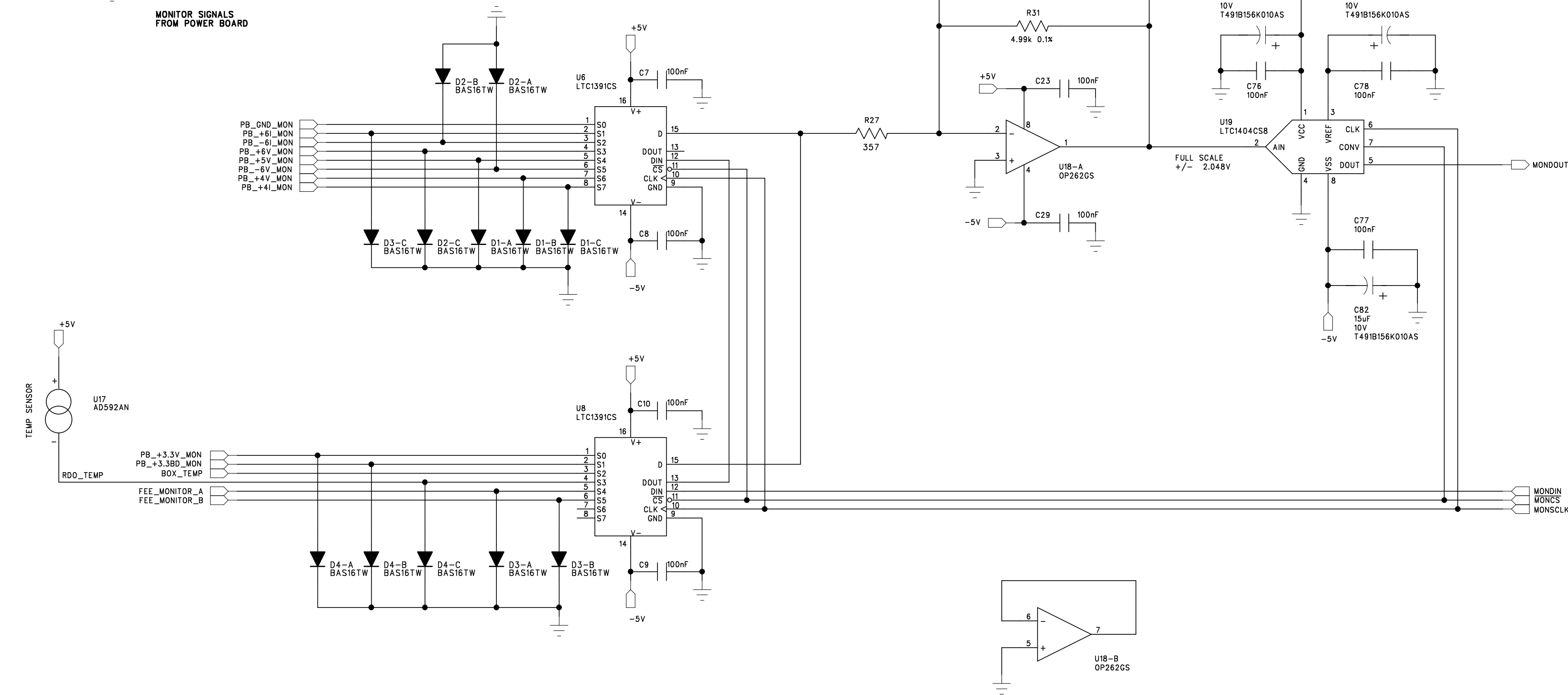
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REVISION RECORD			
LTR	ECO NO:	APPROVED:	DATE:



SLOW CONTROLS MONITOR ADC  
RANGE +/- 410.4 uA,  
INPUT RESISTANCE ~ 400 OHM.



COMPANY: INDIANA UNIVERSITY CYCLOTRON FACILITY			
TITLE: STAR EEMC MAPMT READOUT BOARD SLOW CONTROLS MONITOR ADC			
DRAWN: D. FORD, M. STONECIPHER, G. VISSER	DATED: 06 AUG 03	CODE:	SIZE:
CHECKED:	DATED:	DRAWING NO: XXXX 1	
QUALITY CONTROL:	DATED:	REV: 1	
RELEASED:	DATED:	SCALE:	SHEET: 4 OF 10

6

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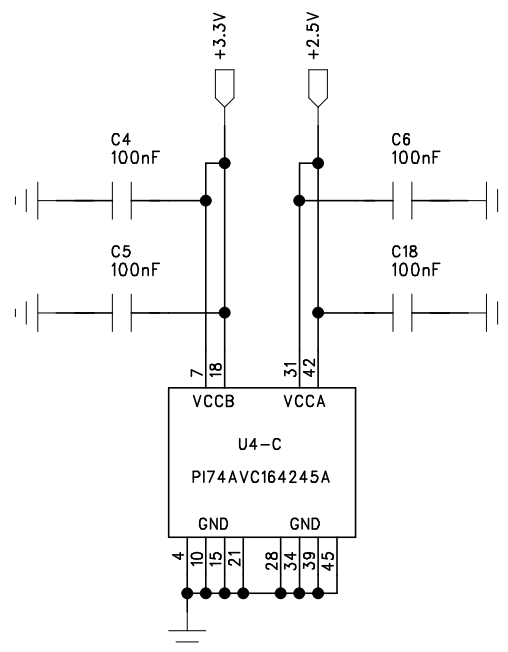
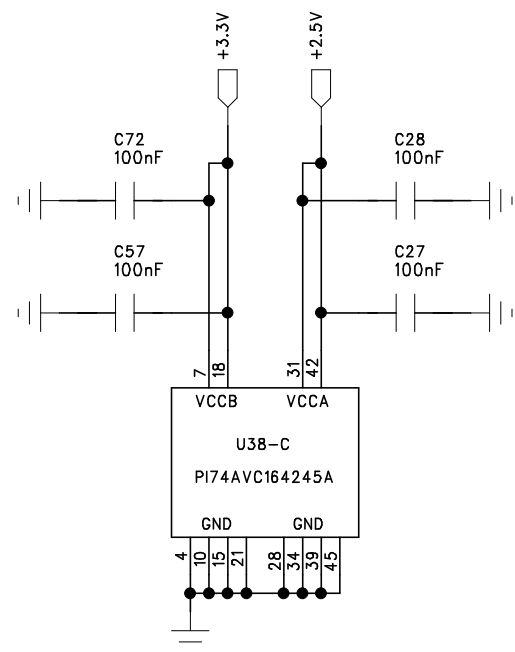
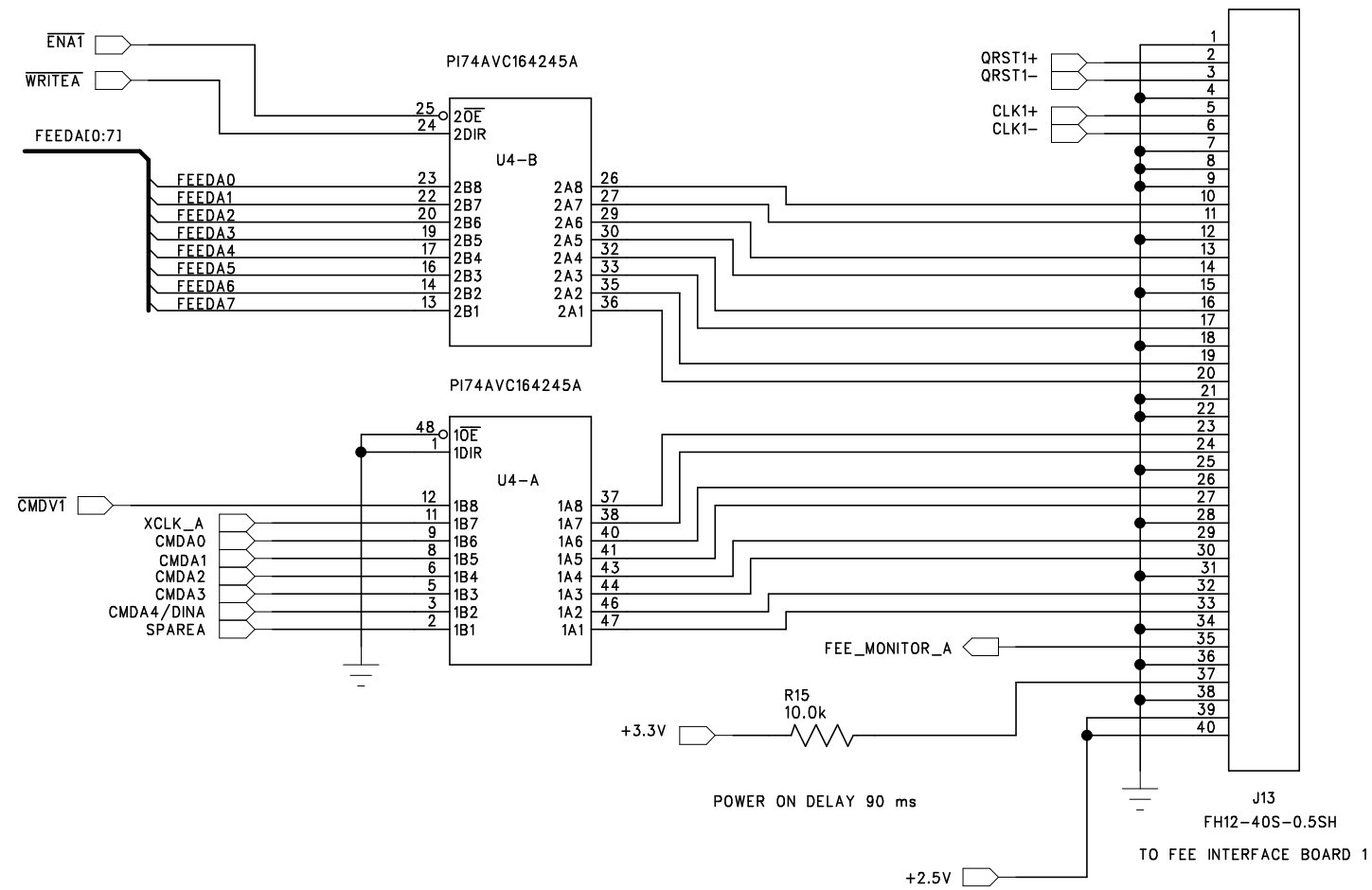
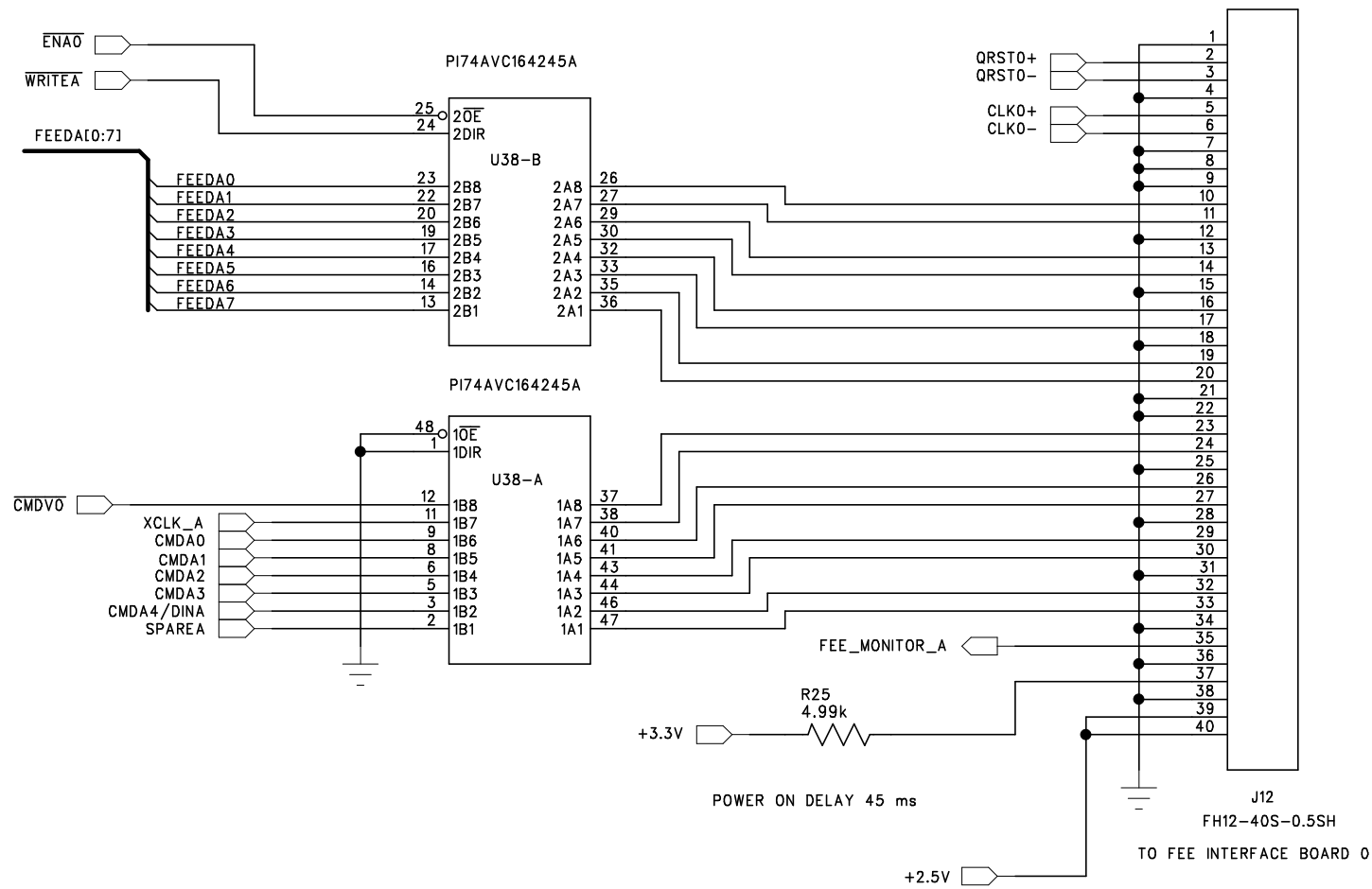
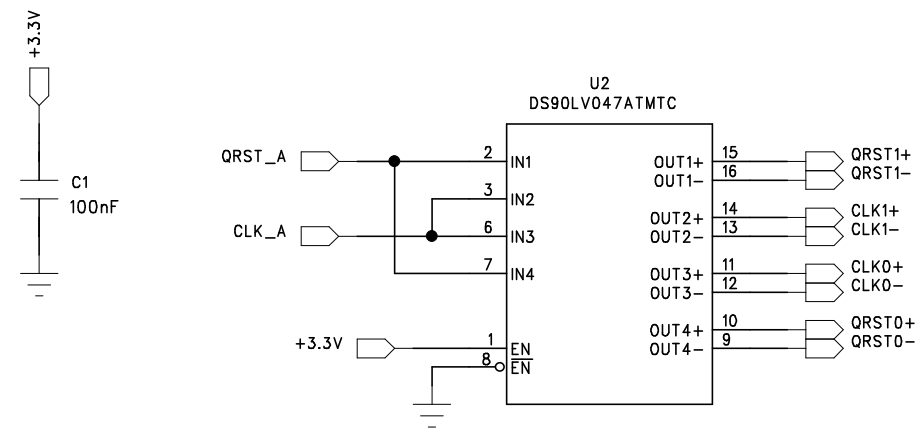
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REVISION RECORD			
LTR	ECO NO:	APPROVED:	DATE:



COMPANY: INDIANA UNIVERSITY CYCLOTRON FACILITY			
TITLE: STAR EEMC MAPMT READOUT BOARD MAPMT / FEE ASSEMBLIES 0 AND 1			
DRAWN: D. FORD, M. STONECIPHER, G. VISSER	DATED: 06 AUG 03	CODE:	SIZE:
CHECKED:	DATED:	DRAWING NO: XXXX 1	
QUALITY CONTROL:	DATED:	SCALE:	REV: 1
RELEASED:	DATED:	SHEET: 5 OF 10	

6

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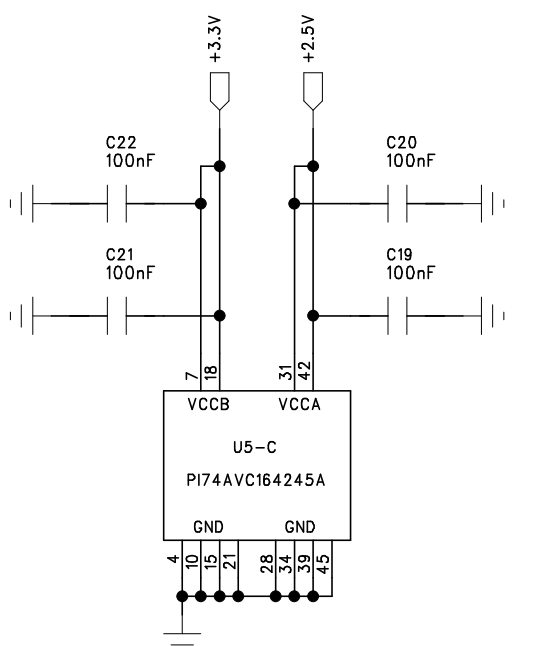
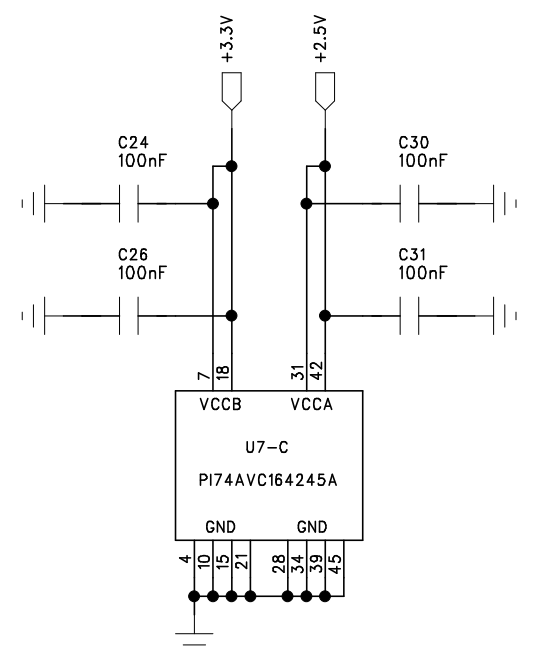
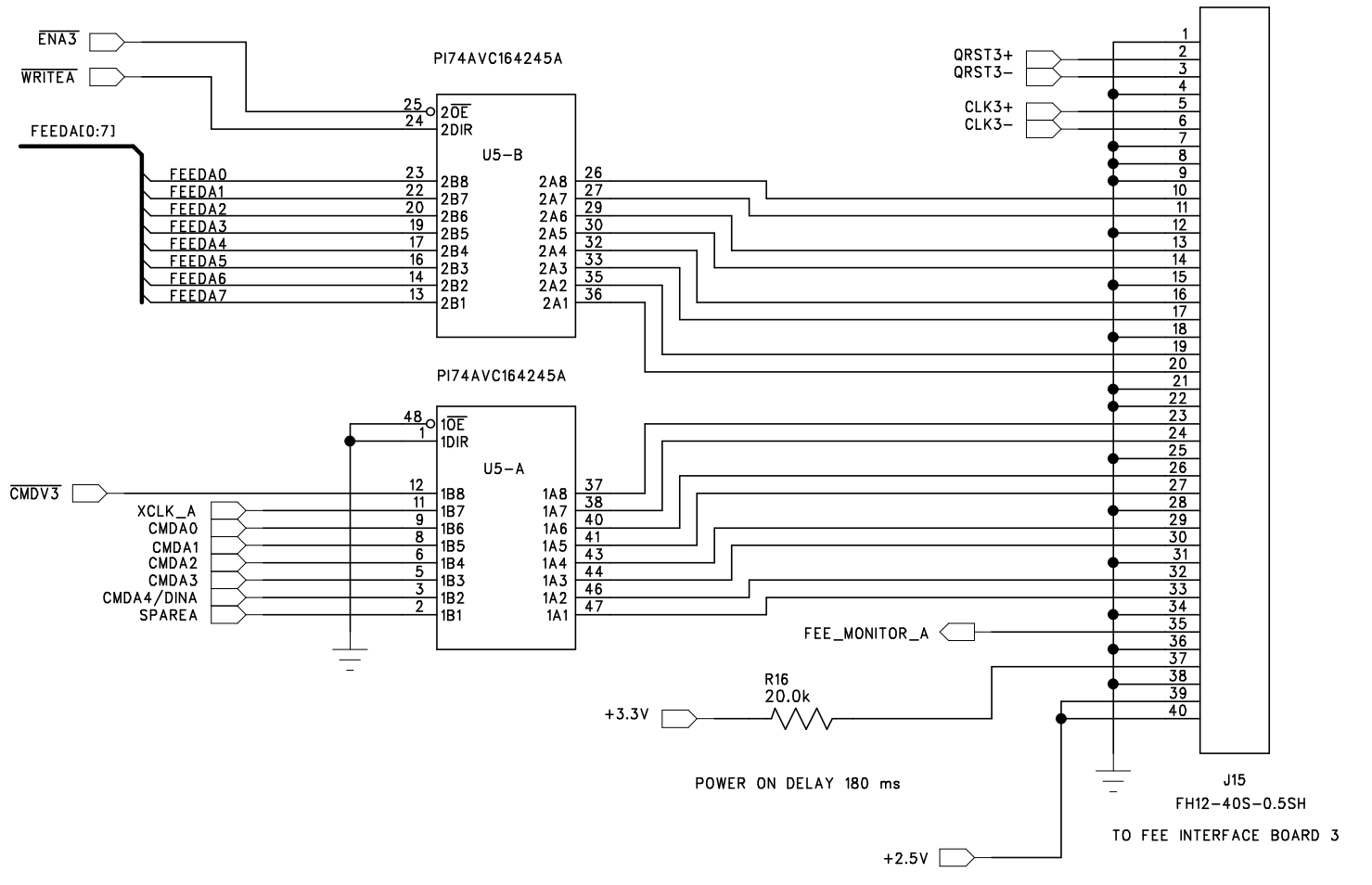
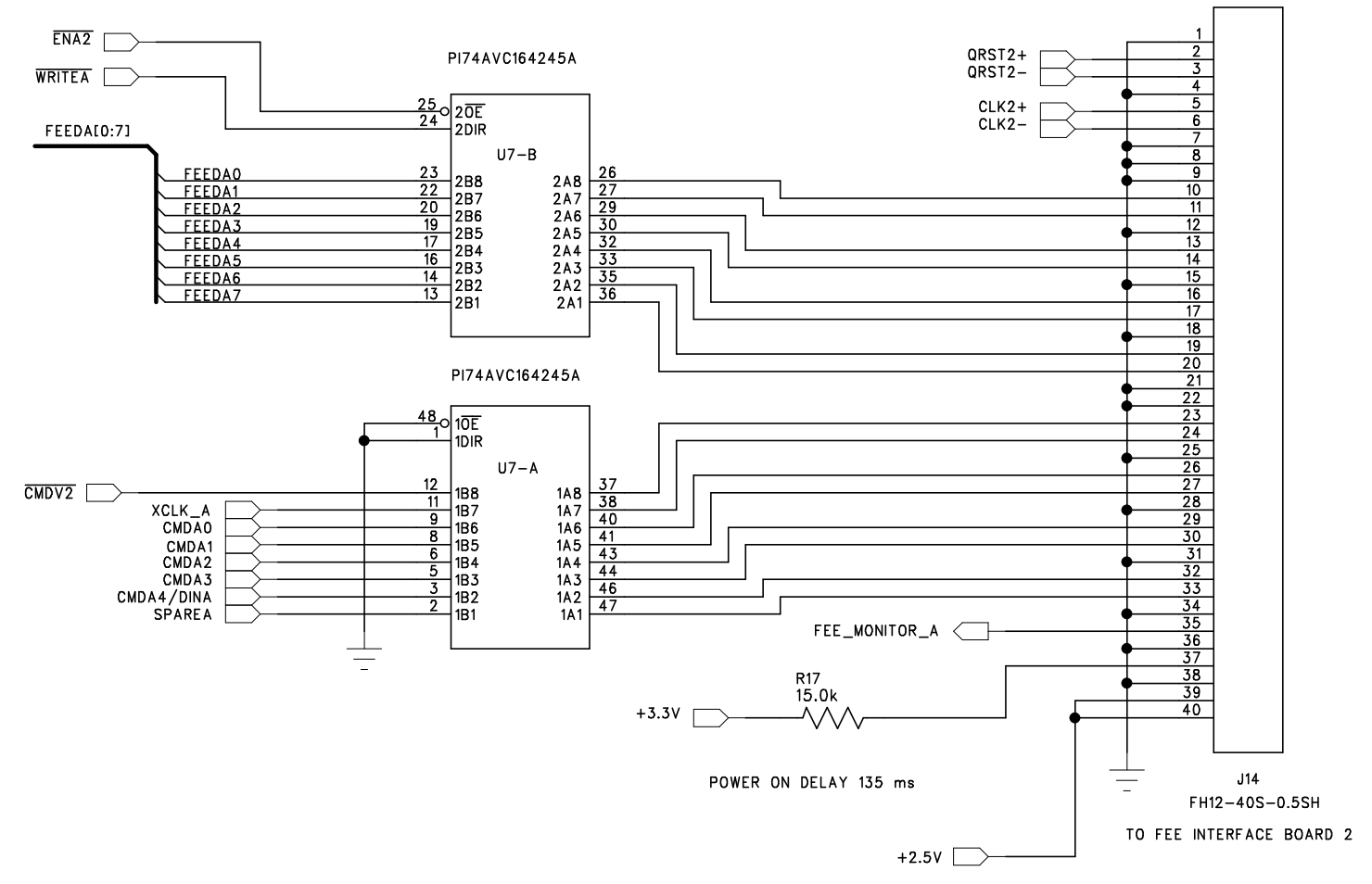
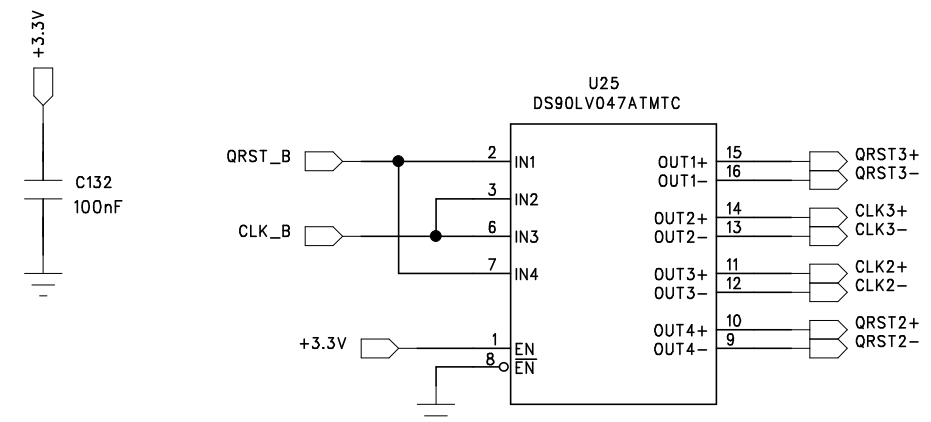
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REVISION RECORD			
LTR	ECO NO:	APPROVED:	DATE:



COMPANY: INDIANA UNIVERSITY CYCLOTRON FACILITY			
TITLE: STAR EEMC MAPMT READOUT BOARD MAPMT / FEE ASSEMBLIES 2 AND 3			
DRAWN: D. FORD, M. STONECIPHER, G. VISSER	DATED: 06 AUG 03	CODE:	SIZE:
CHECKED:	DATED:	DRAWING NO: XXXX 1	
QUALITY CONTROL:	DATED:	SCALE:	SHEET: 6 OF 10
RELEASED:	DATED:		

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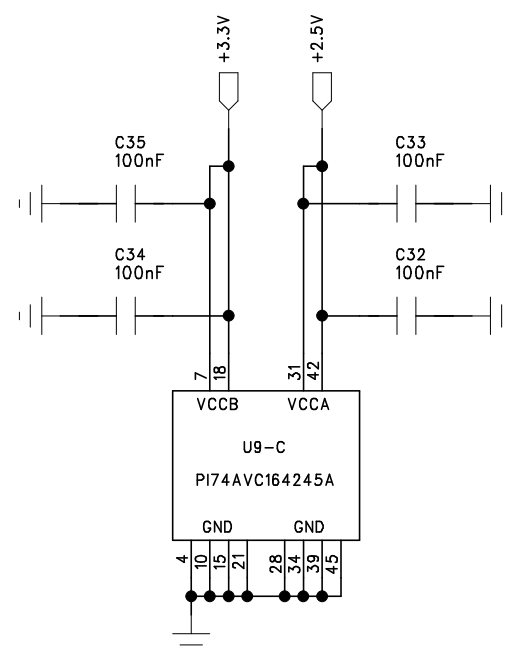
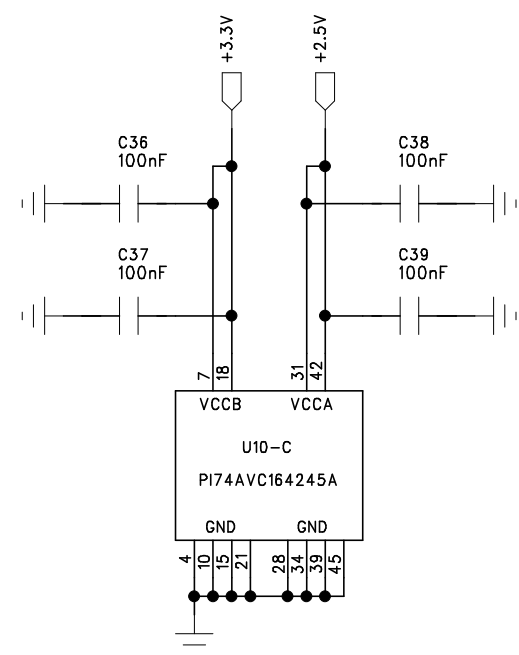
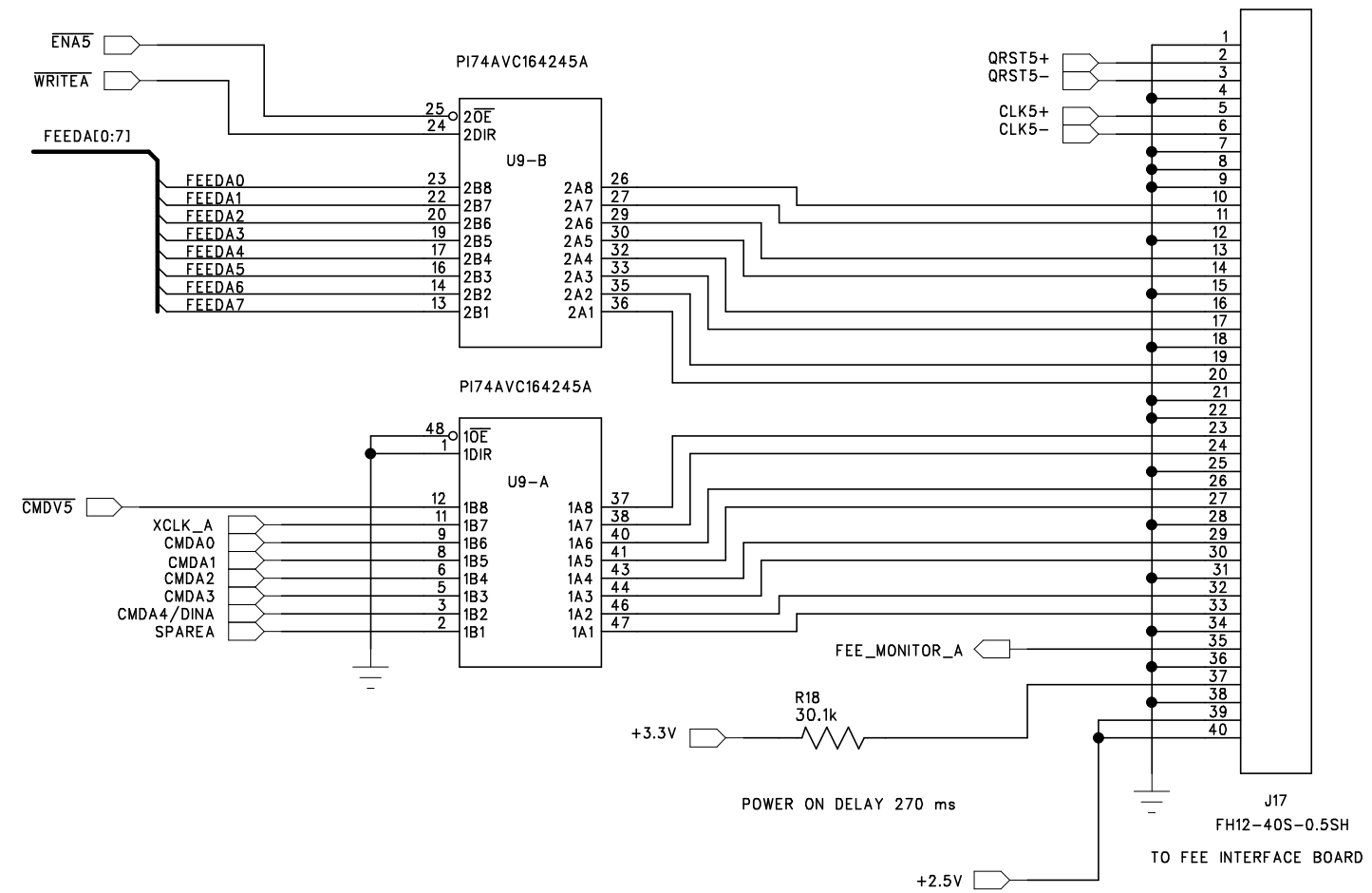
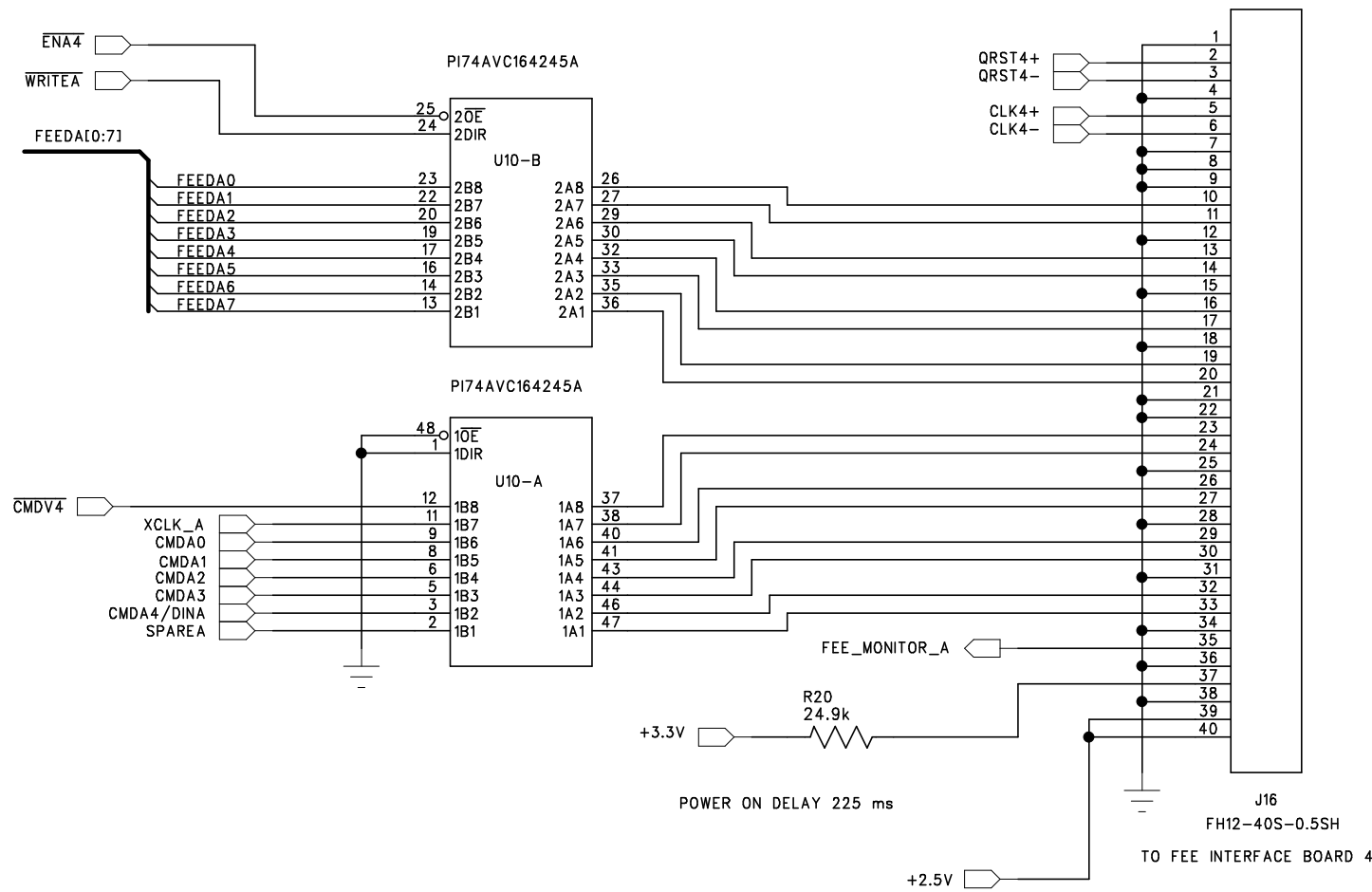
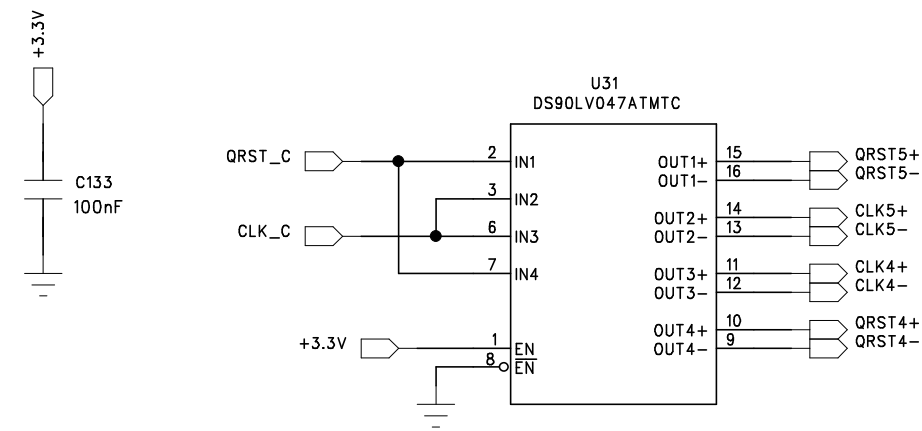
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REVISION RECORD			
LTR	ECO NO:	APPROVED:	DATE:



COMPANY: INDIANA UNIVERSITY CYCLOTRON FACILITY			
TITLE: STAR EEMC MAPMT READOUT BOARD MAPMT / FEE ASSEMBLIES 4 AND 5			
DRAWN: D. FORD, M. STONECIPHER, G. VISSER	DATED: 06 AUG 03	CODE:	SIZE:
CHECKED:	DATED:	DRAWING NO: XXXX 1	
QUALITY CONTROL:	DATED:	SCALE:	REV: 1
RELEASED:	DATED:	SHEET: 7 OF 10	

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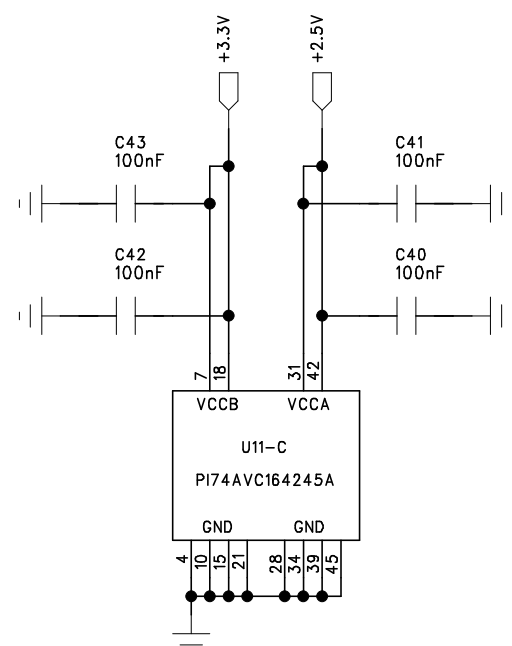
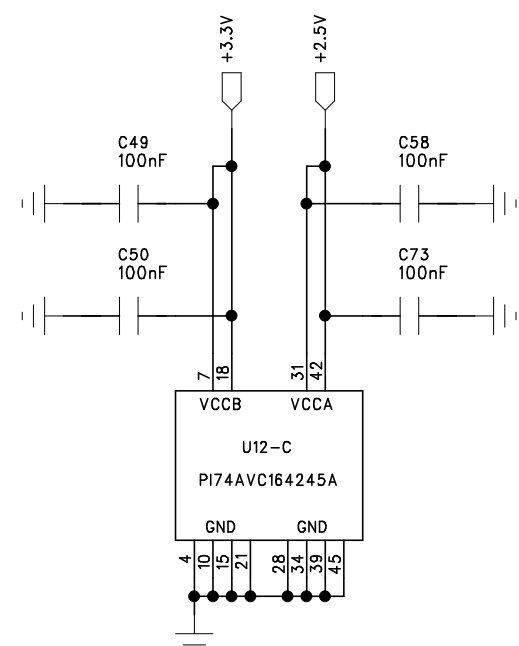
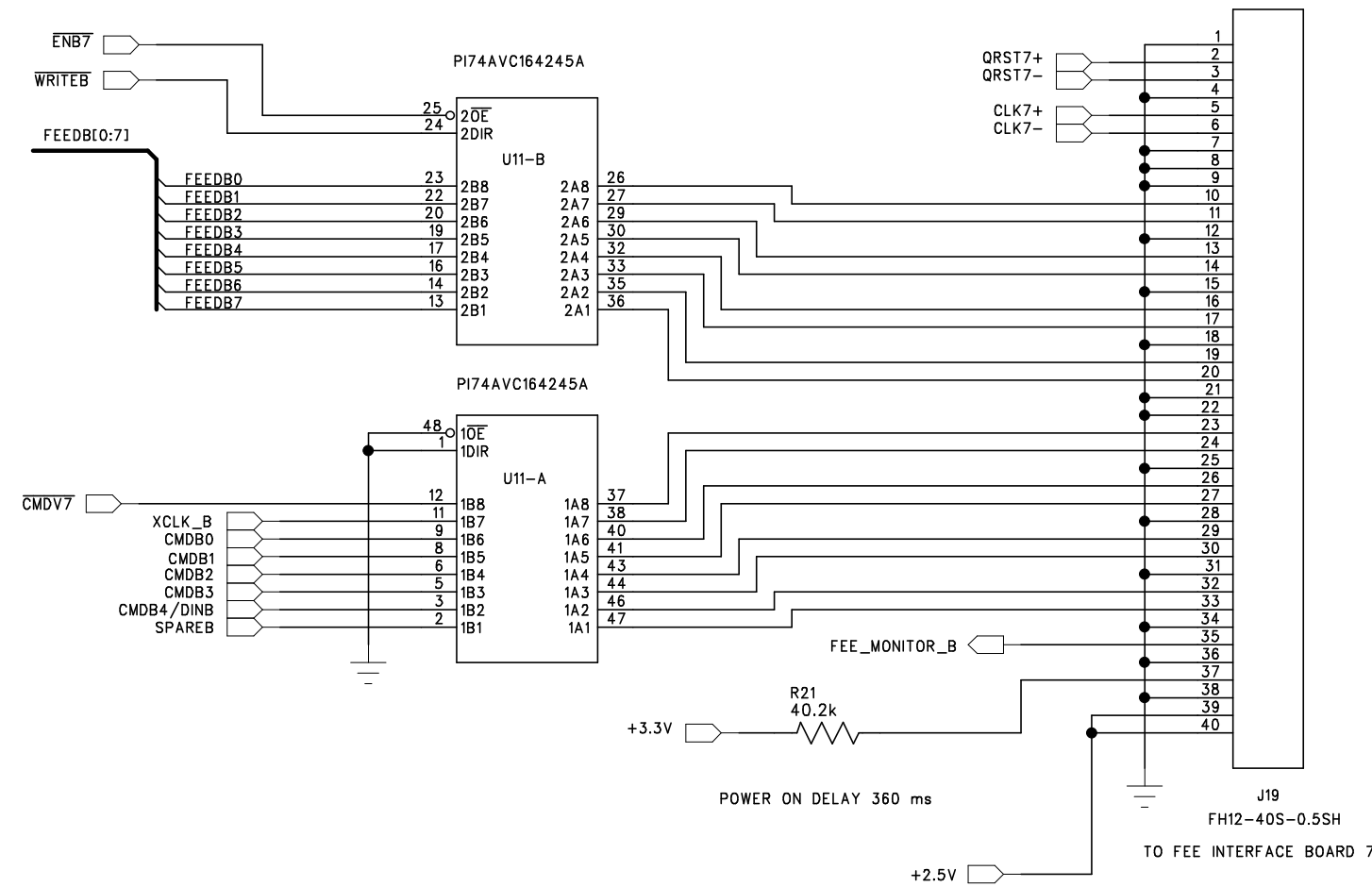
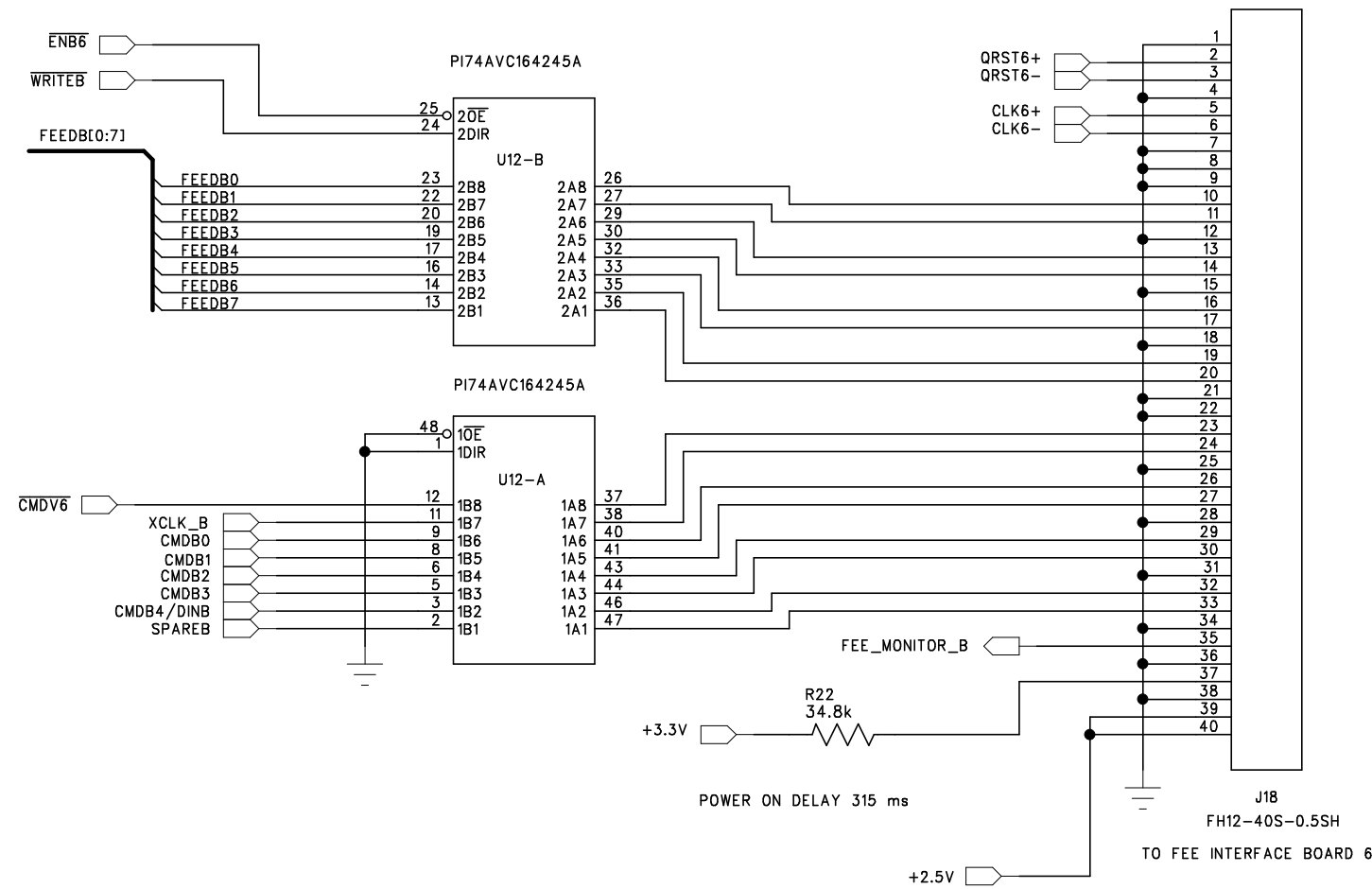
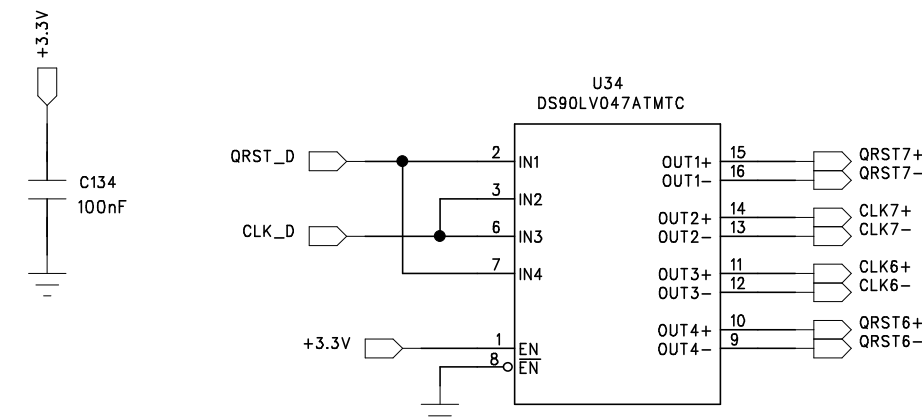
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REVISION RECORD			
LTR	ECO NO:	APPROVED:	DATE:



COMPANY: INDIANA UNIVERSITY CYCLOTRON FACILITY			
TITLE: STAR EEMC MAPMT READOUT BOARD MAPMT / FEE ASSEMBLIES 6 AND 7			
DRAWN: D. FORD, M. STONECIPHER, G. VISSER	DATED: 06 AUG 03	CODE:	SIZE:
CHECKED:	DATED:	DRAWING NO: XXXX 1	
QUALITY CONTROL:	DATED:	SCALE:	REV: 1
RELEASED:	DATED:	SHEET: 8 OF 10	



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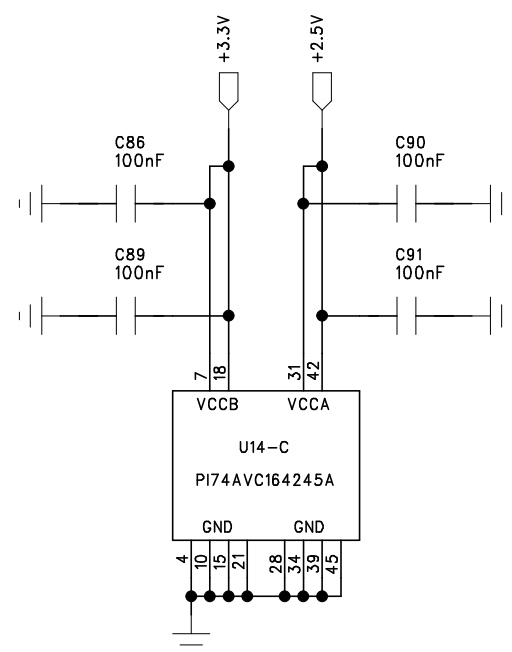
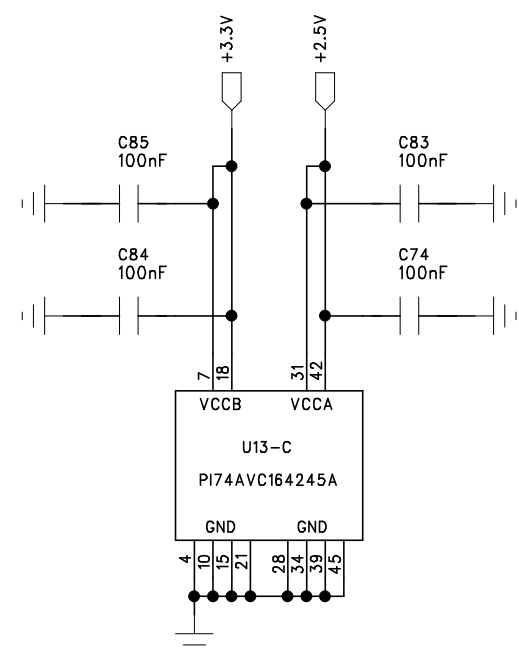
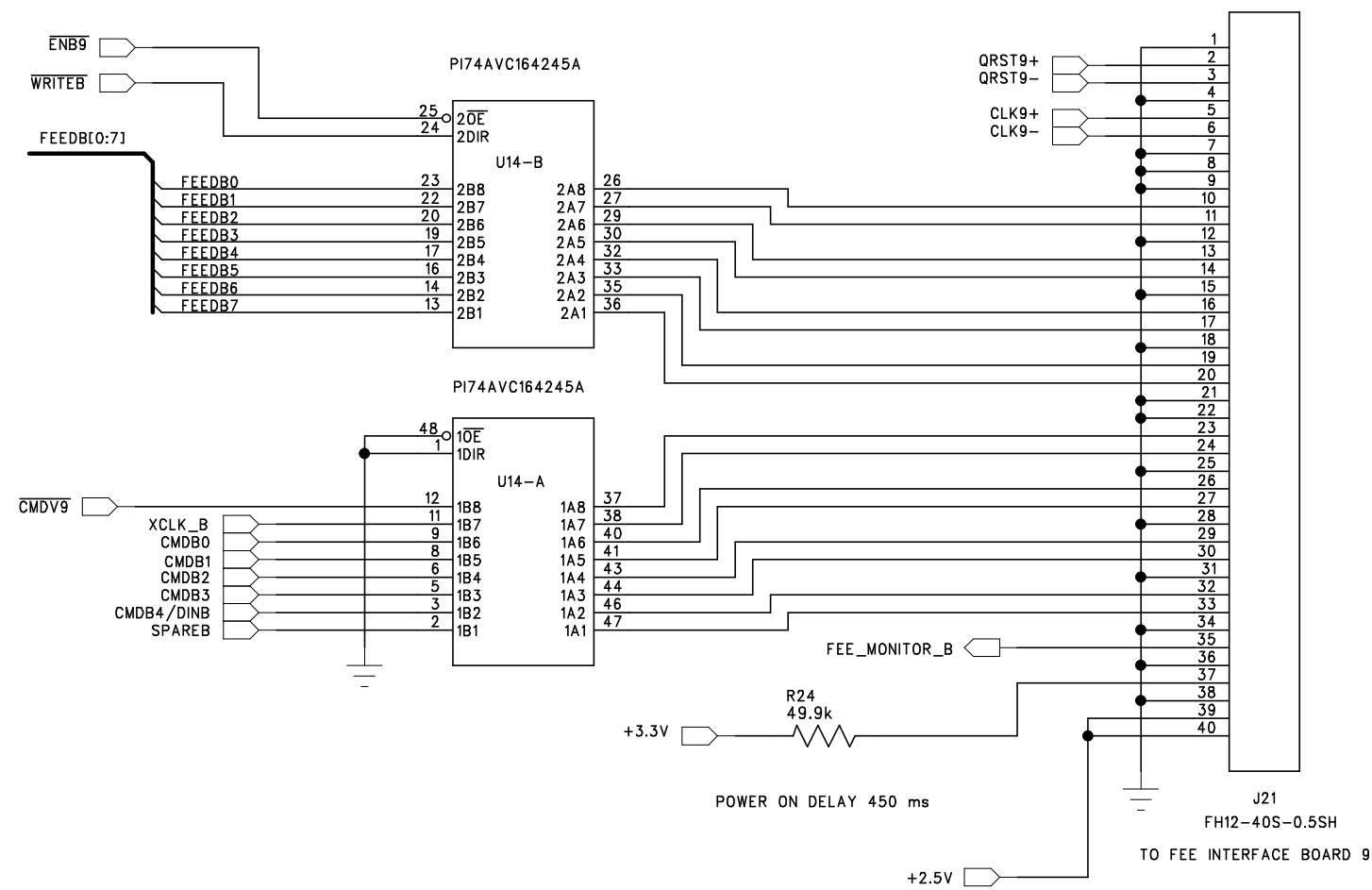
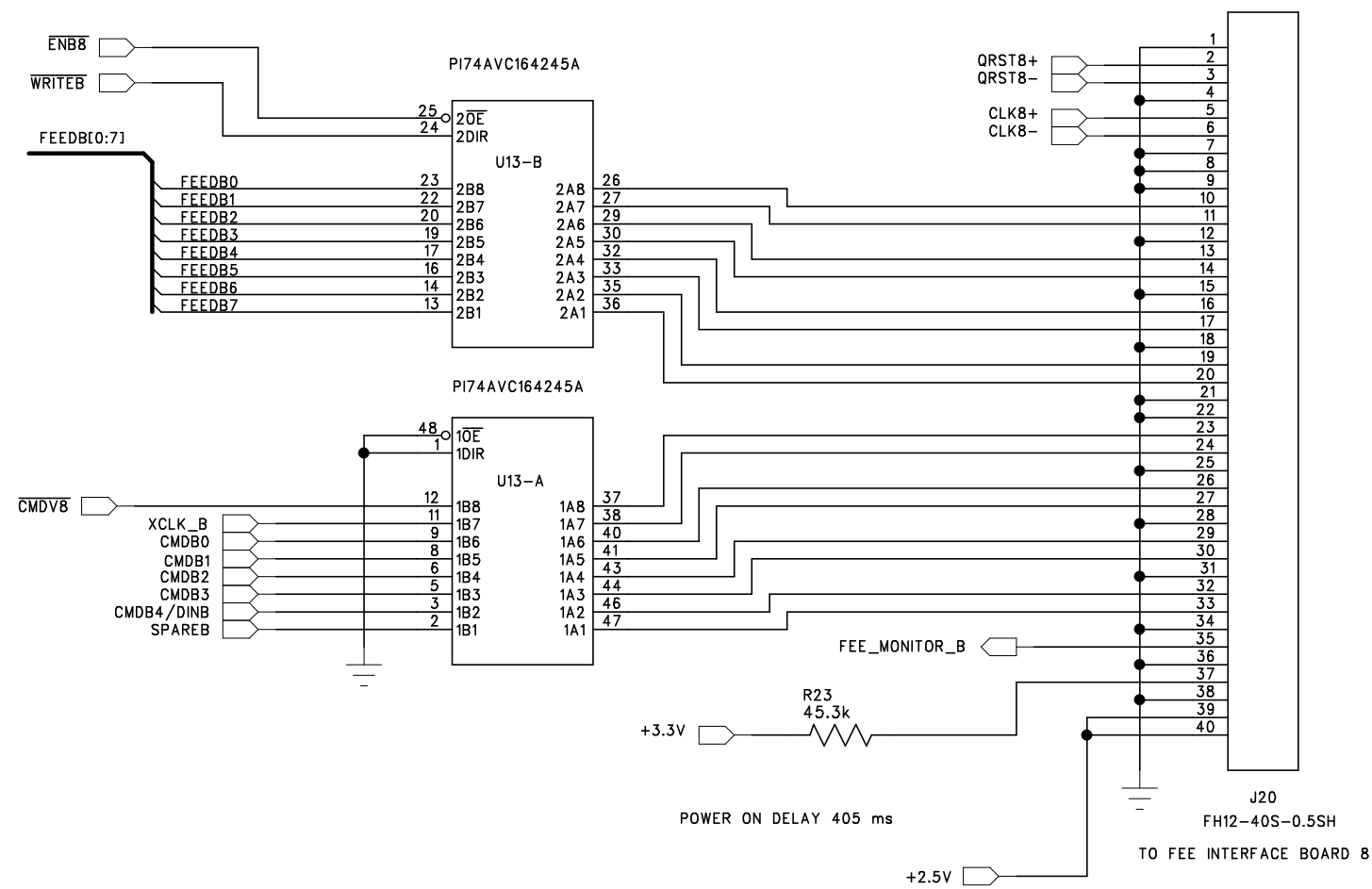
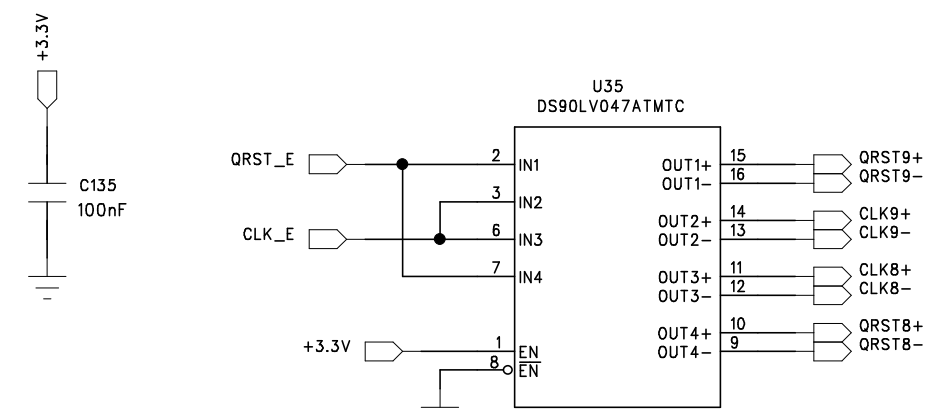
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REVISION RECORD			
LTR	ECO NO:	APPROVED:	DATE:



COMPANY: INDIANA UNIVERSITY CYCLOTRON FACILITY			
TITLE: STAR EEMC MAPMT READOUT BOARD MAPMT / FEE ASSEMBLIES 8 AND 9			
DRAWN: D. FORD, M. STONECIPHER, G. VISSER	DATED: 06 AUG 03	CODE:	SIZE:
CHECKED:	DATED:	DRAWING NO: XXXX 1	
QUALITY CONTROL:	DATED:	SCALE:	REV: 1
RELEASED:	DATED:	SHEET: 9 OF 10	

6

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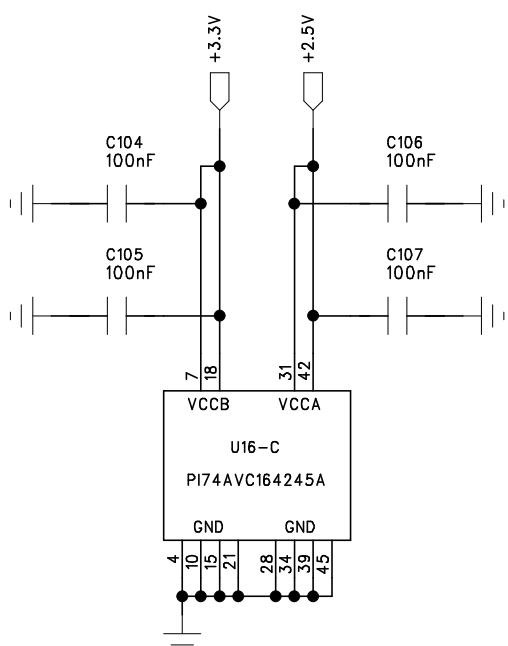
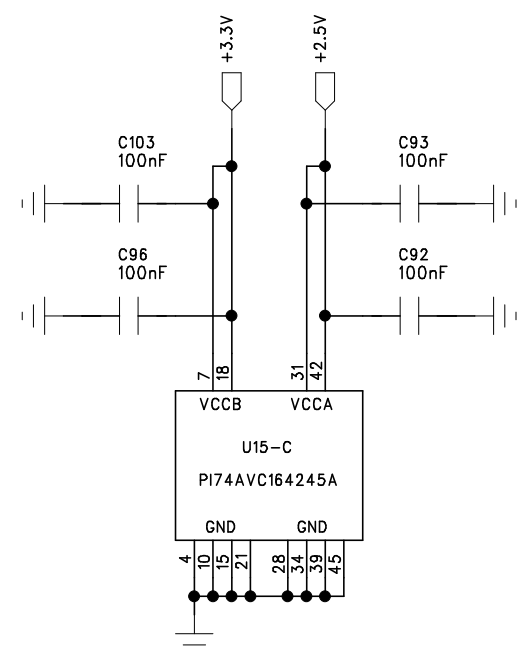
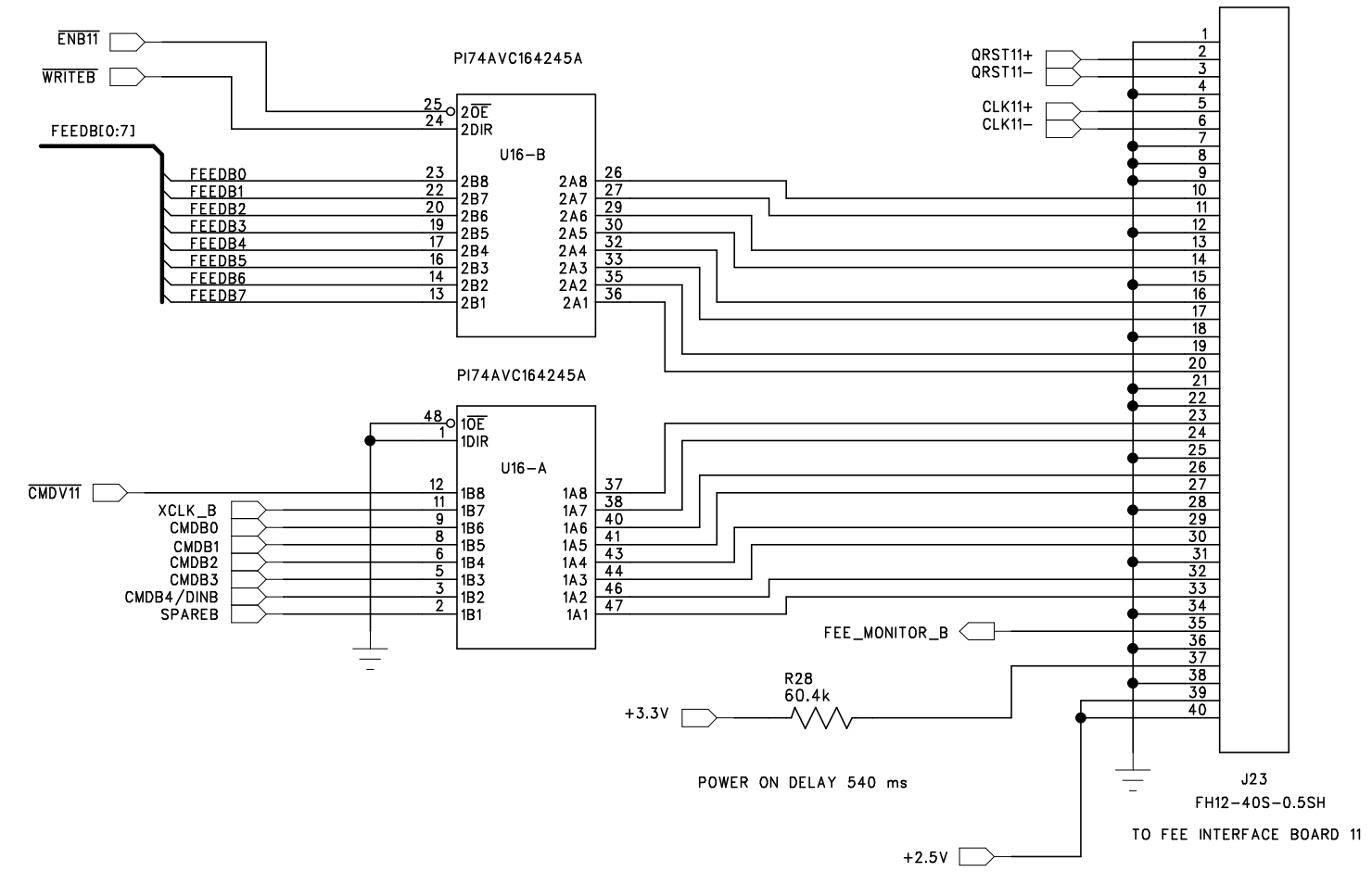
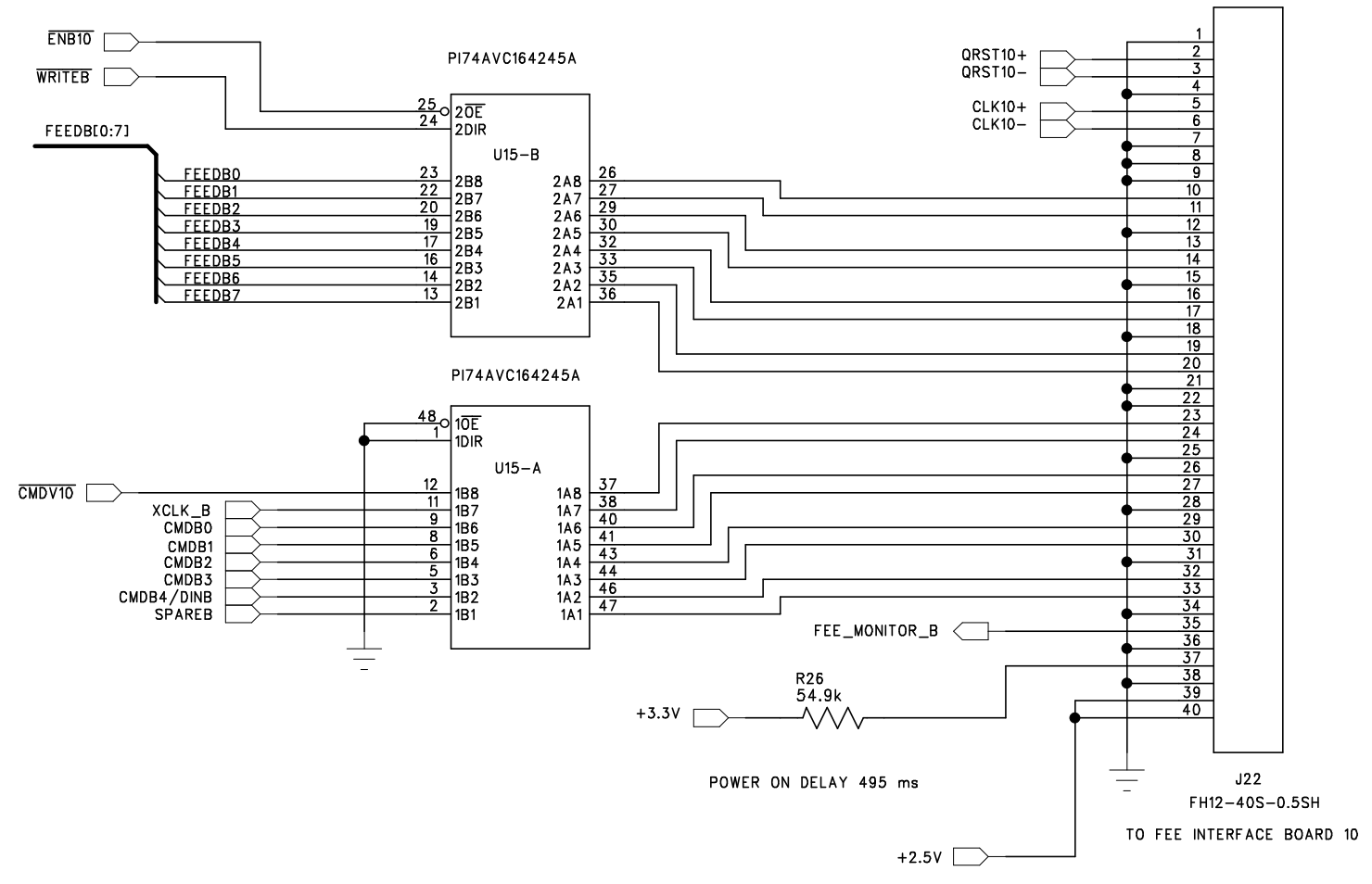
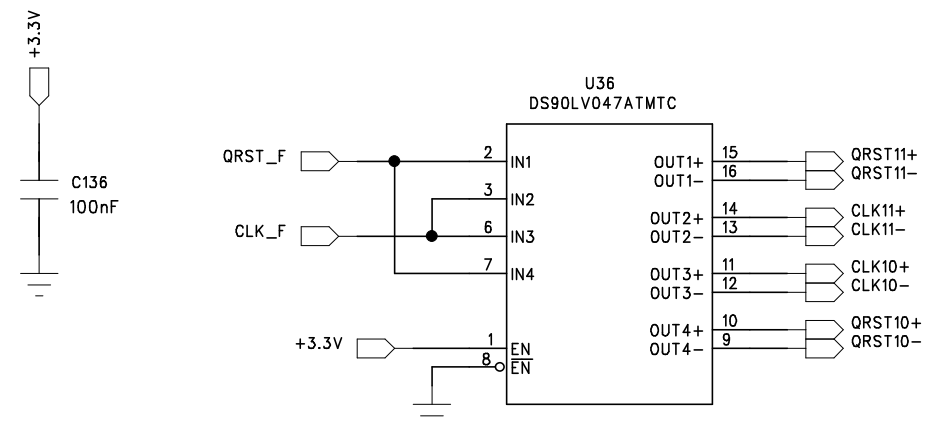
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1

REVISION RECORD			
LTR	ECO NO:	APPROVED:	DATE:



COMPANY: INDIANA UNIVERSITY CYCLOTRON FACILITY			
TITLE: STAR EEMC MAPMT READOUT BOARD MAPMT / FEE ASSEMBLIES 10 AND 11			
DRAWN: D. FORD, M. STONECIPHER, G. VISSER	DATED: 06 AUG 03	CODE:	SIZE:
CHECKED:	DATED:	DRAWING NO: XXXX 1	
QUALITY CONTROL:	DATED:	SCALE:	REV: 1
RELEASED:	DATED:	SHEET: 10 OF 10	