

# **Flasher Development Board (FDB)**

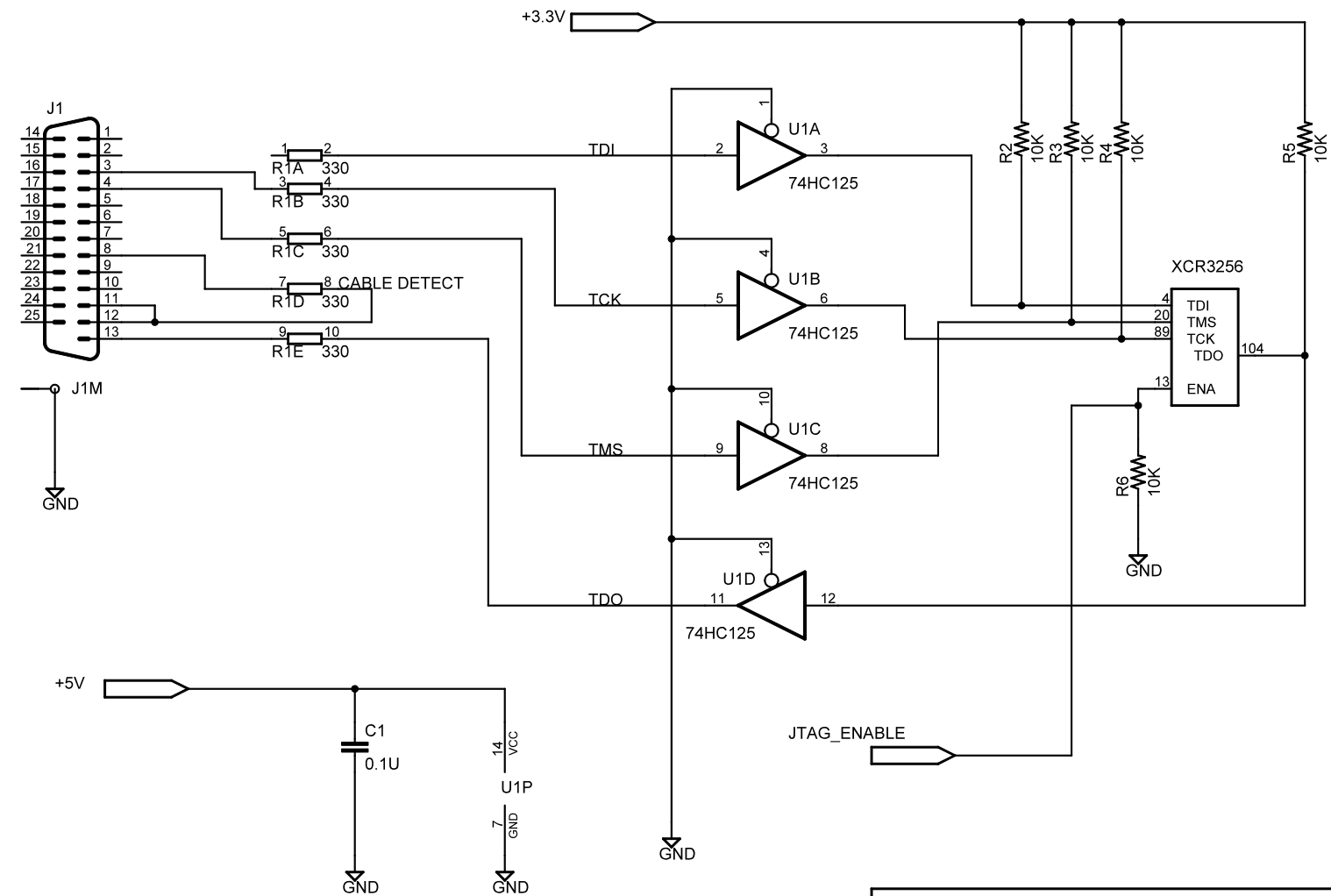
## **For IceCube**

Rev A

April 15, 2003

Nobuyoshi Kitamura

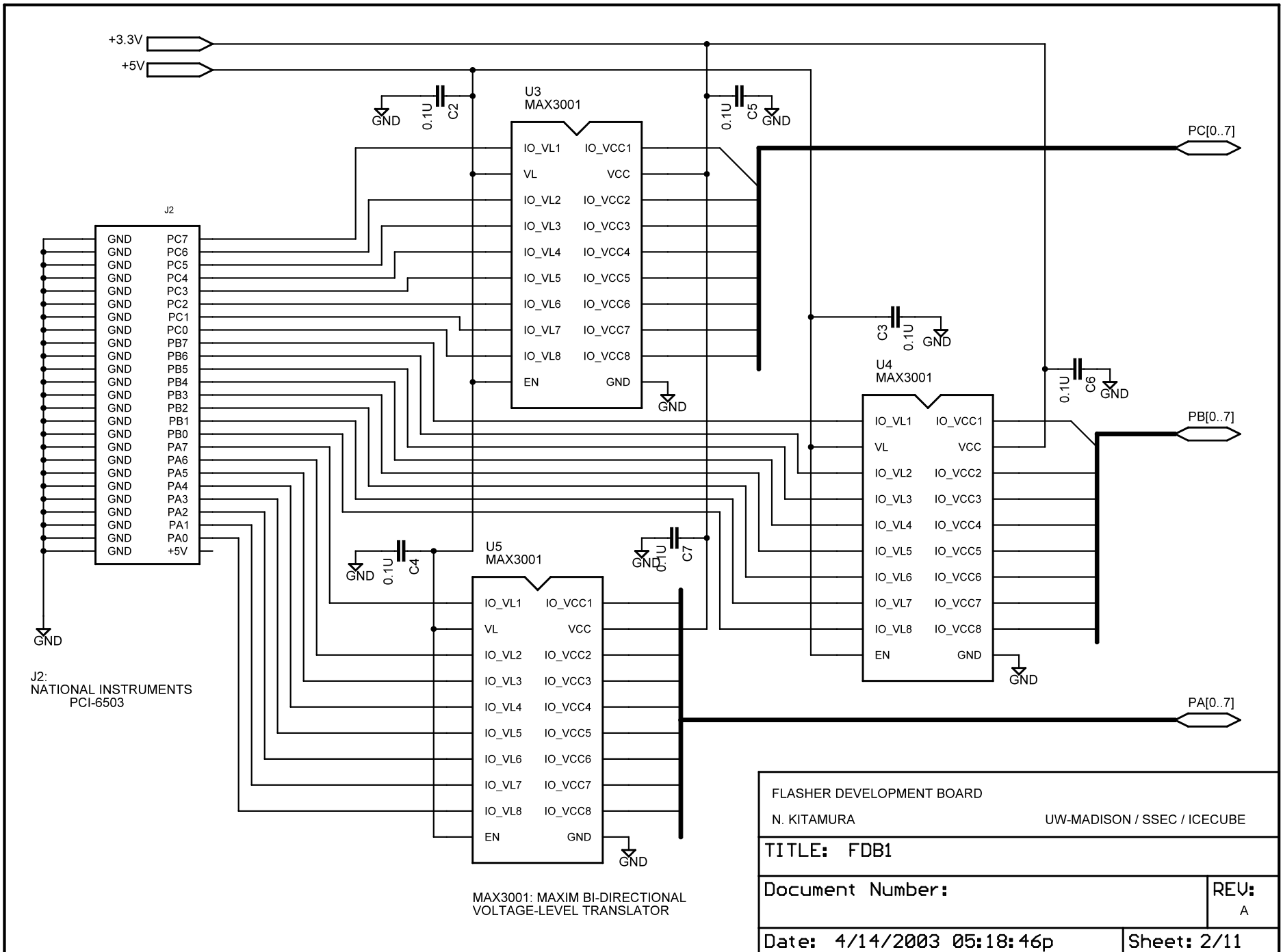
University of Wisconsin-Madison / SSEC



JTAG PROGRAMMING CIRCUIT

Refer to Fig 4 of "Digilab XC2 Reference Manual" ([www.digilentinc.com](http://www.digilentinc.com))  
 DB25 (J1) connects to the PC parallel port.  
 Assume Xilinx iMPACT programmer  
 JTAG-ENABLE must be "HI" in order to program the device.

FLAHSER DEVELOPMENT BOARD	
N. KITAMURA	UW-MADISON / SSEC / ICECUBE
TITLE: FDB1	
Document Number:	REV: A
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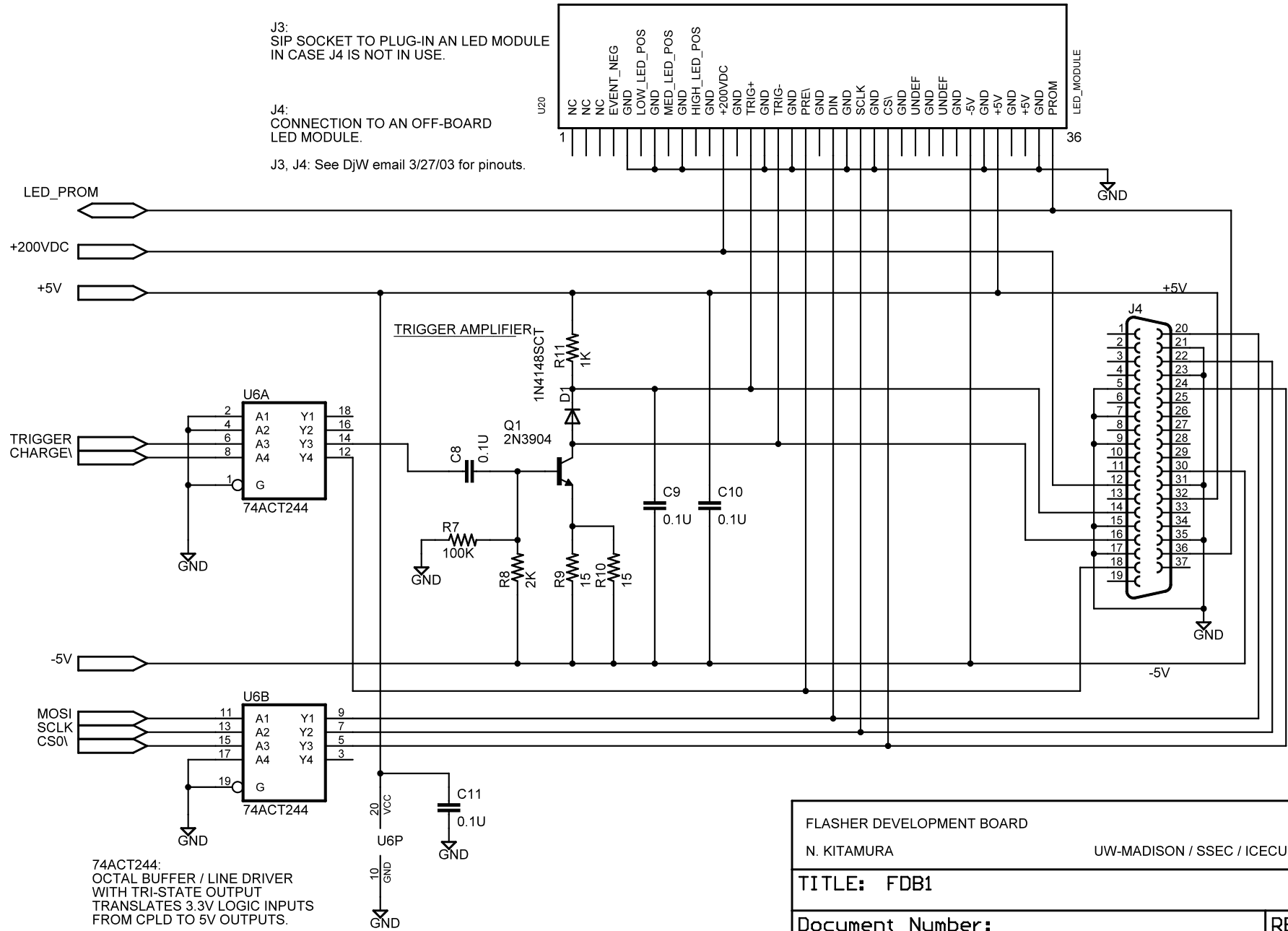


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J3:  
SIP SOCKET TO PLUG-IN AN LED MODULE  
IN CASE J4 IS NOT IN USE.

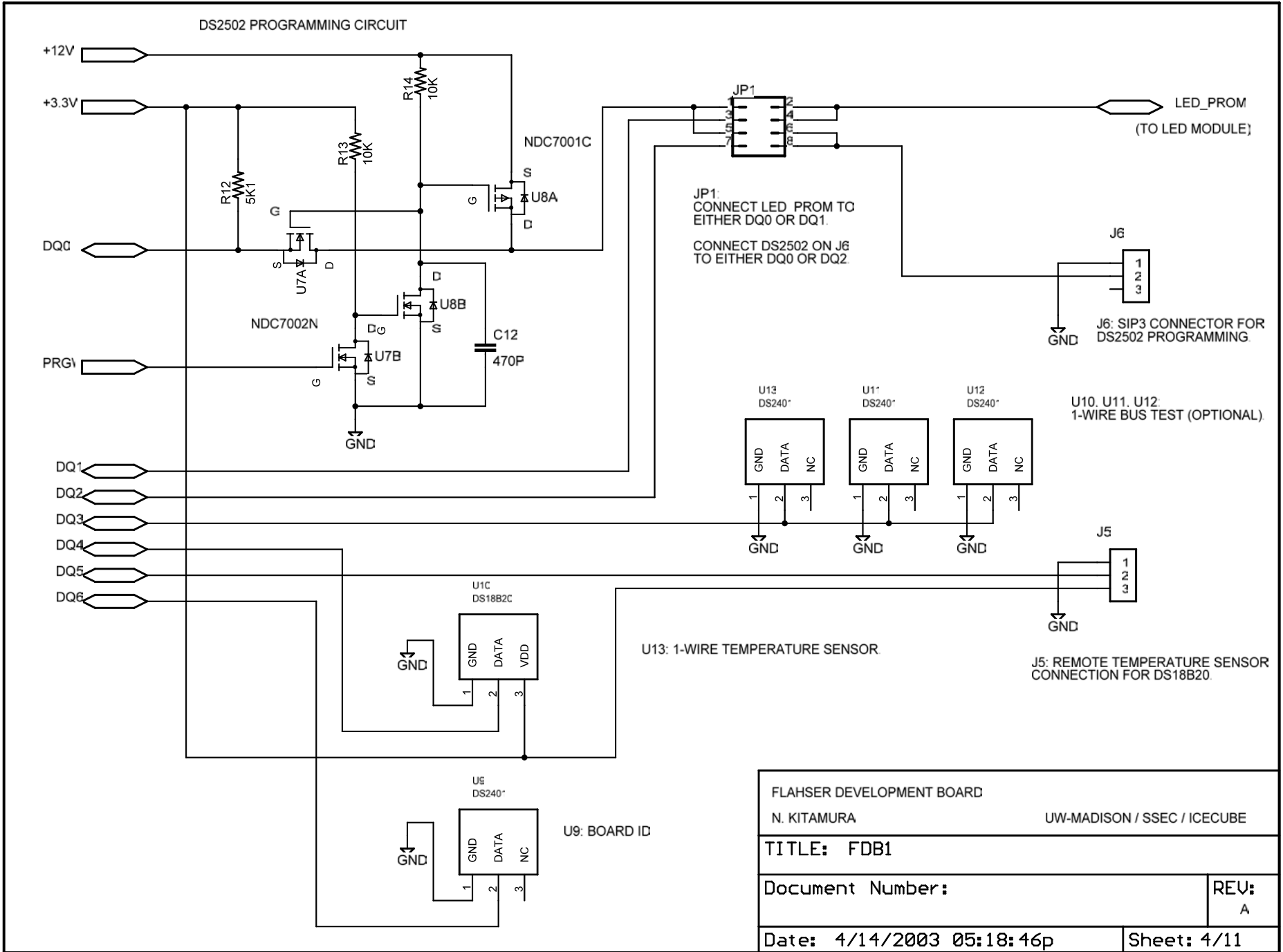
J4:  
CONNECTION TO AN OFF-BOARD  
LED MODULE.

J3, J4: See DjW email 3/27/03 for pinouts.



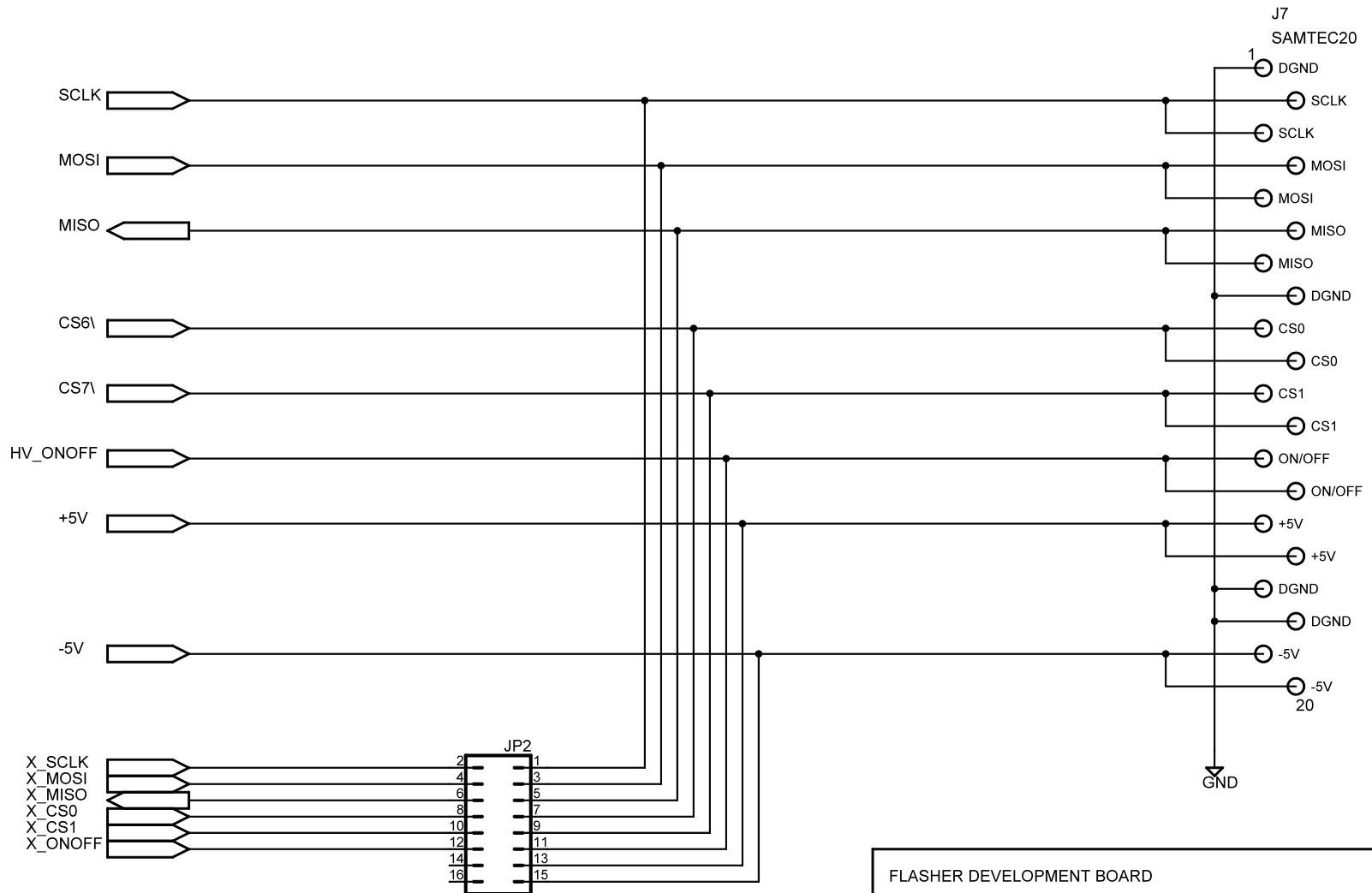
74ACT244:  
OCTAL BUFFER / LINE DRIVER  
WITH TRI-STATE OUTPUT  
TRANSLATES 3.3V LOGIC INPUTS  
FROM CPLD TO 5V OUTPUTS.

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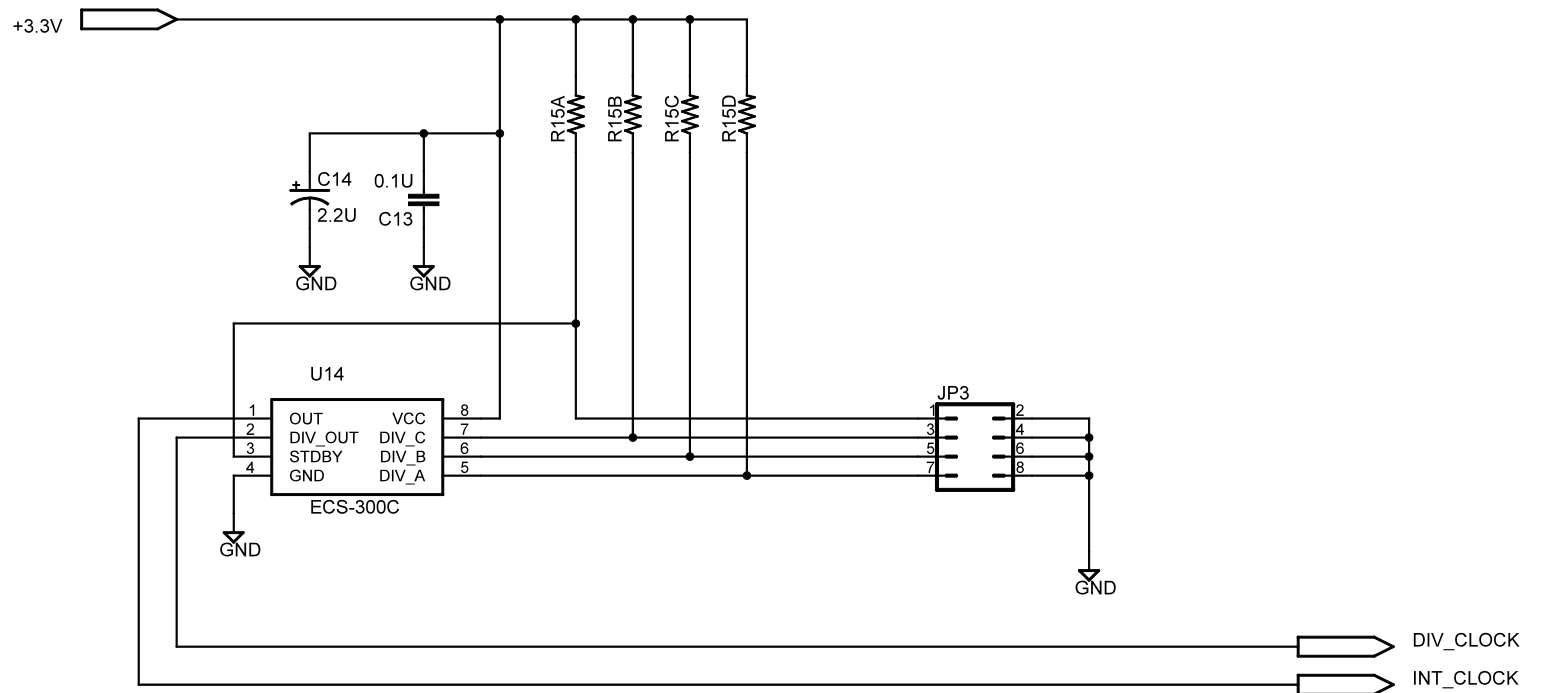


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J7:  
CONNECTION TO HV PMT BASE BOARD  
(OPTIONAL)

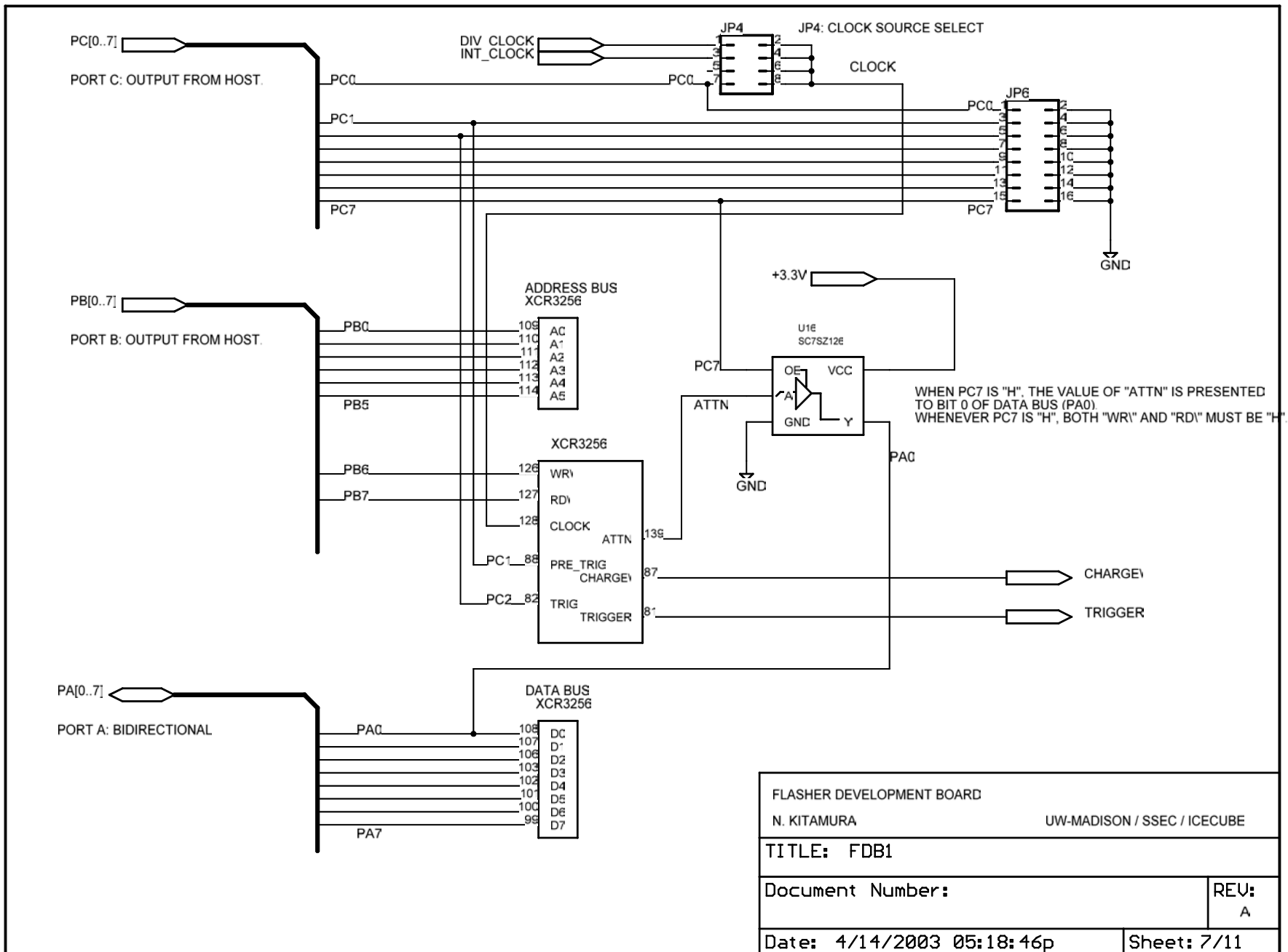


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U14: PROGRAMMABLE CMOS CLOCK  
 F0 = 20.000MHZ  
 USE JP3 TO PROGRAM  
 1-2: OPEN=NORMAL; CLOSE=STAND-BY  
 3-4, 5-6, 7-8: ALL OPEN ==> F0/256  
 ALL CLOSED ==> F0/2  
 SEE DATASHEET FOR OTHER VALUES

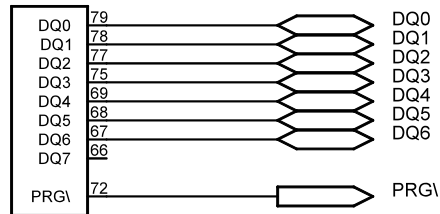
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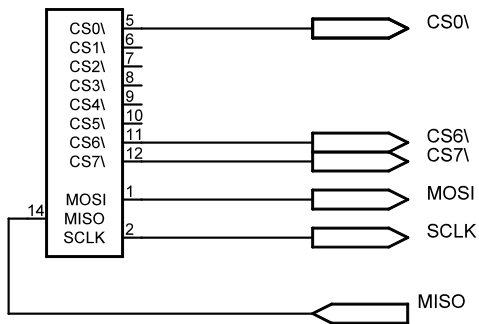
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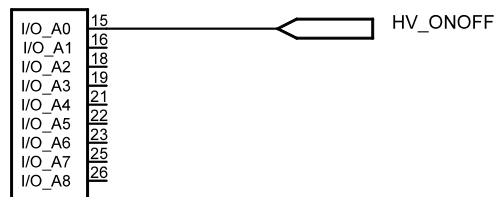
XCR3256



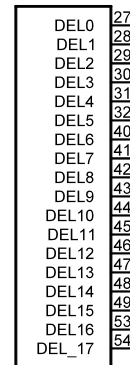
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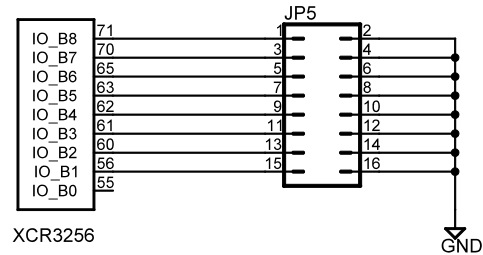
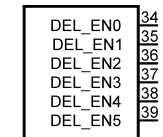
XCR3256



XCR3256



XCR3256



FLASHER DEVELOPMENT BOARD

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TITLE: FDB1

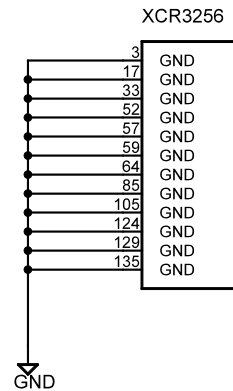
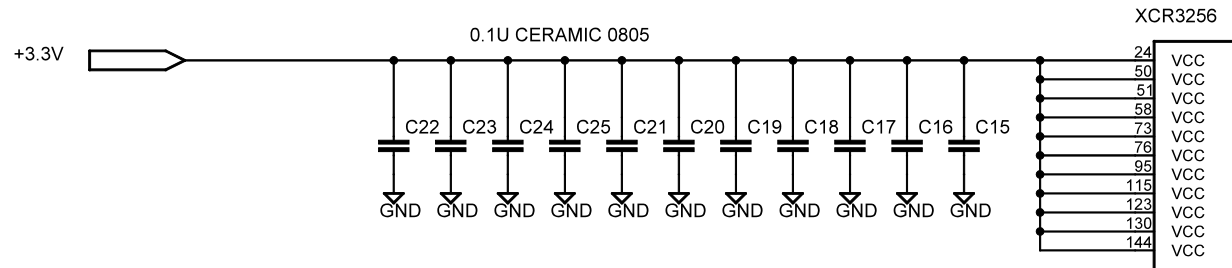
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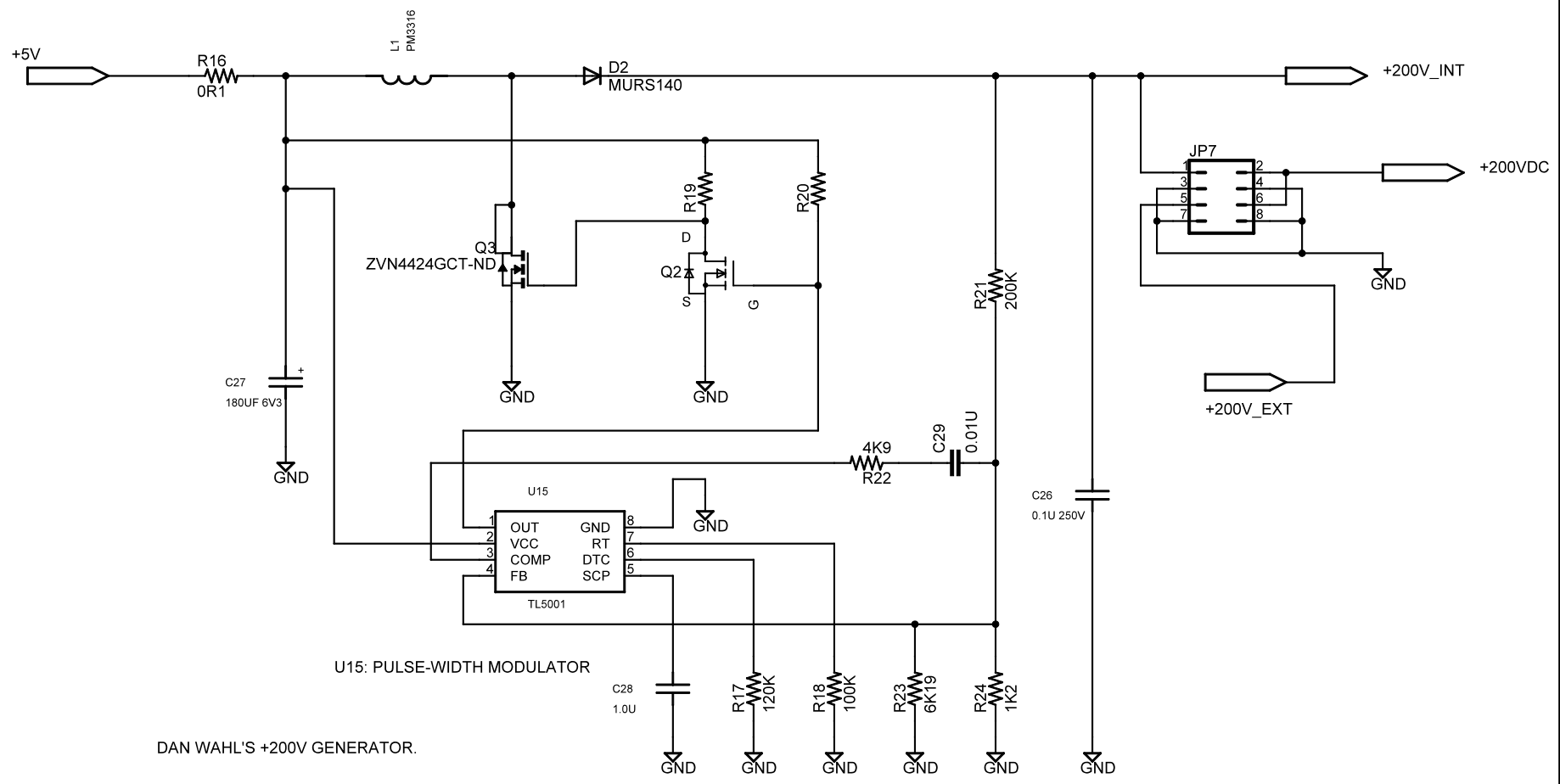
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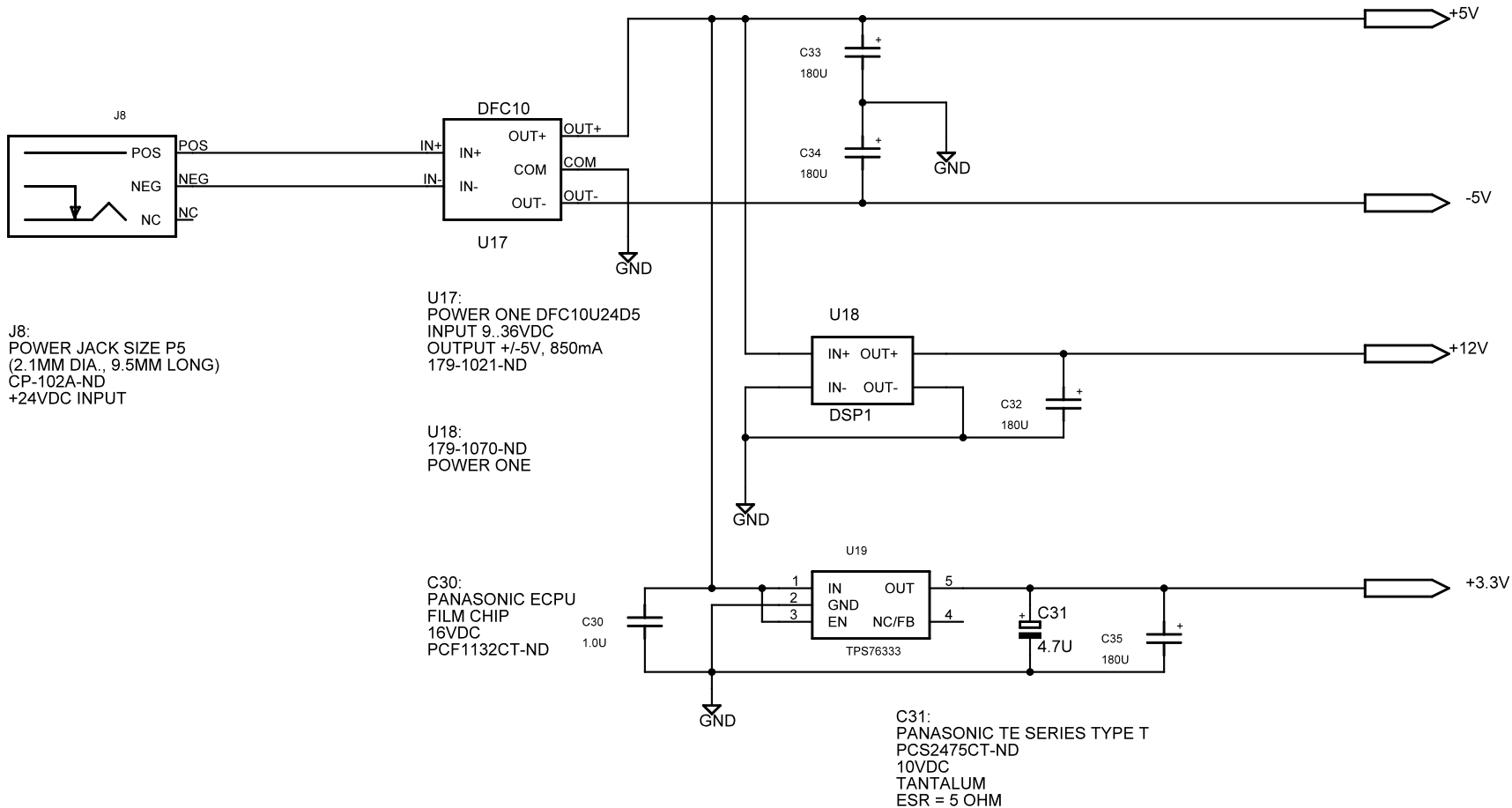
FLASHER DEVELOPMENT BOARD	
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DAN'S +200VDC CKT



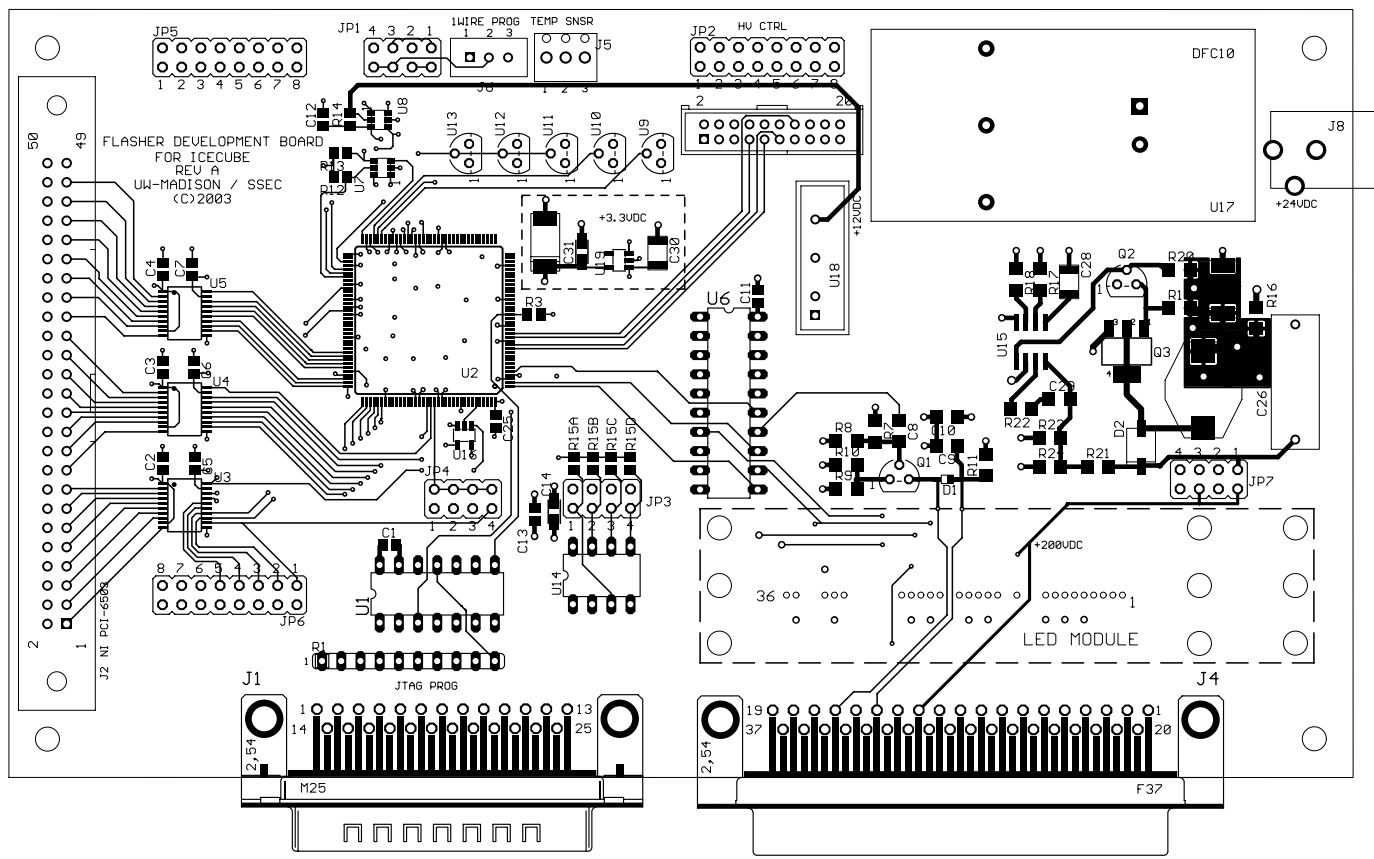
DAN WAHL'S +200V GENERATOR.

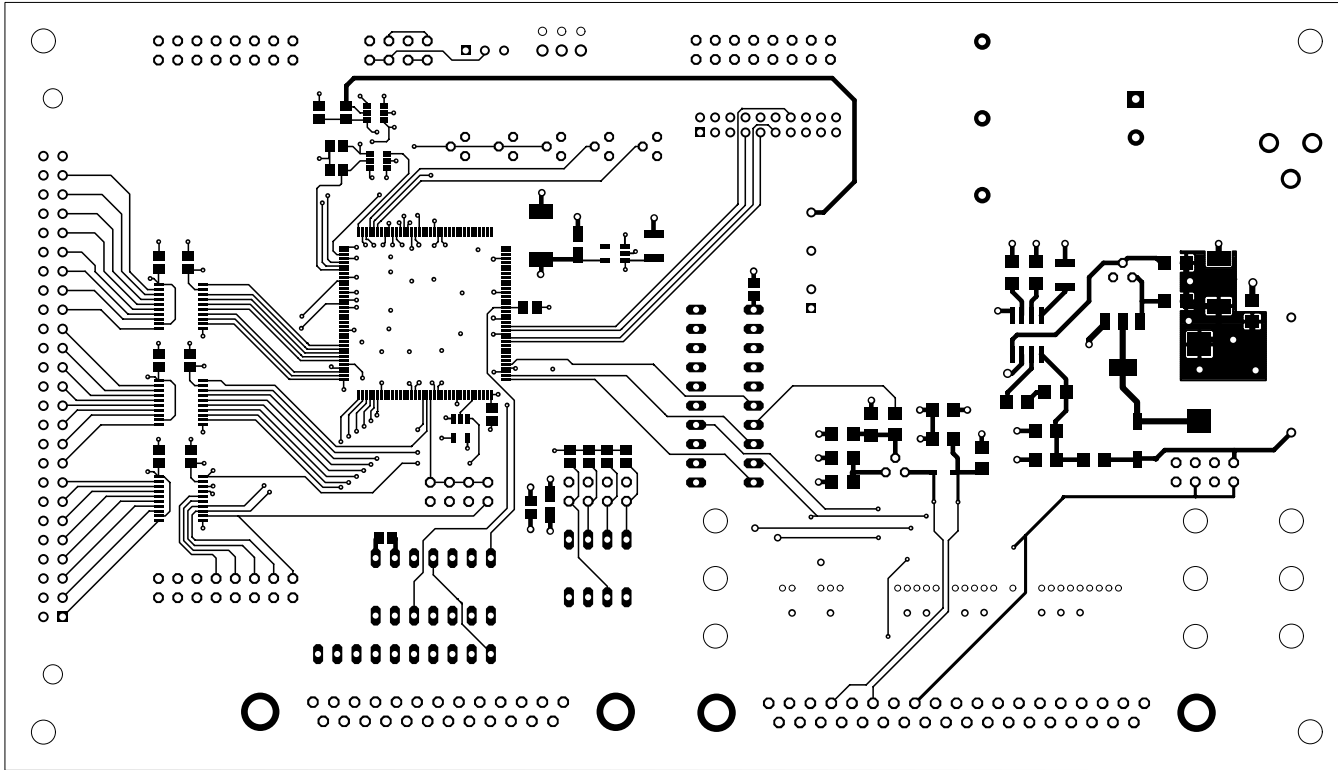
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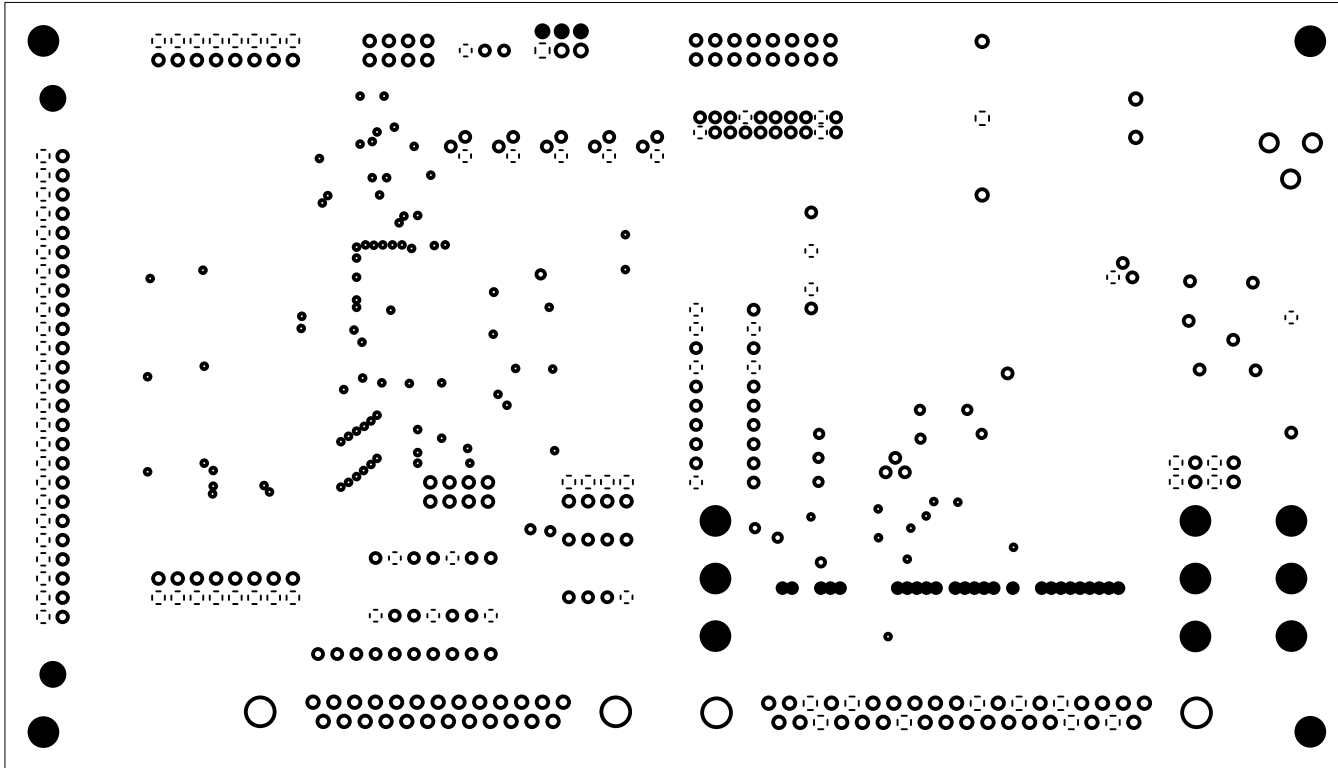
POWER SUPPLIES

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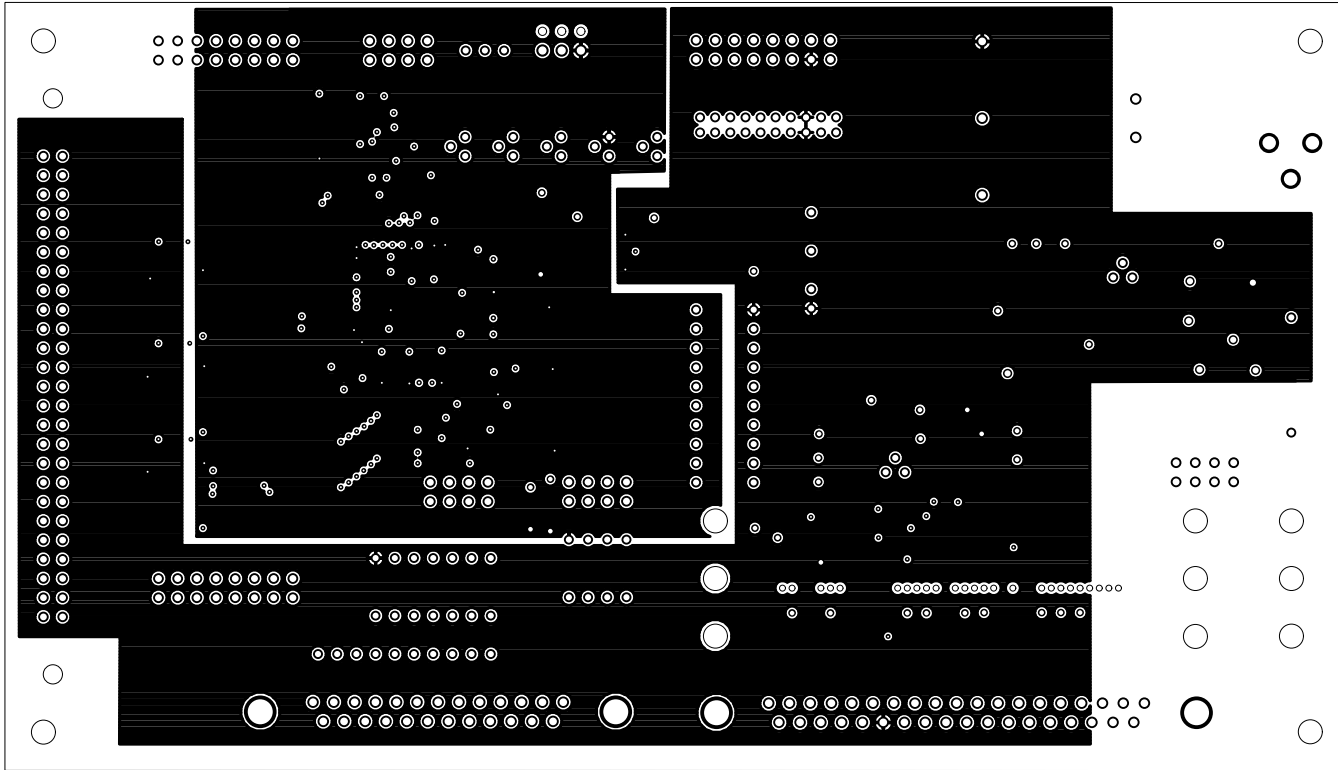


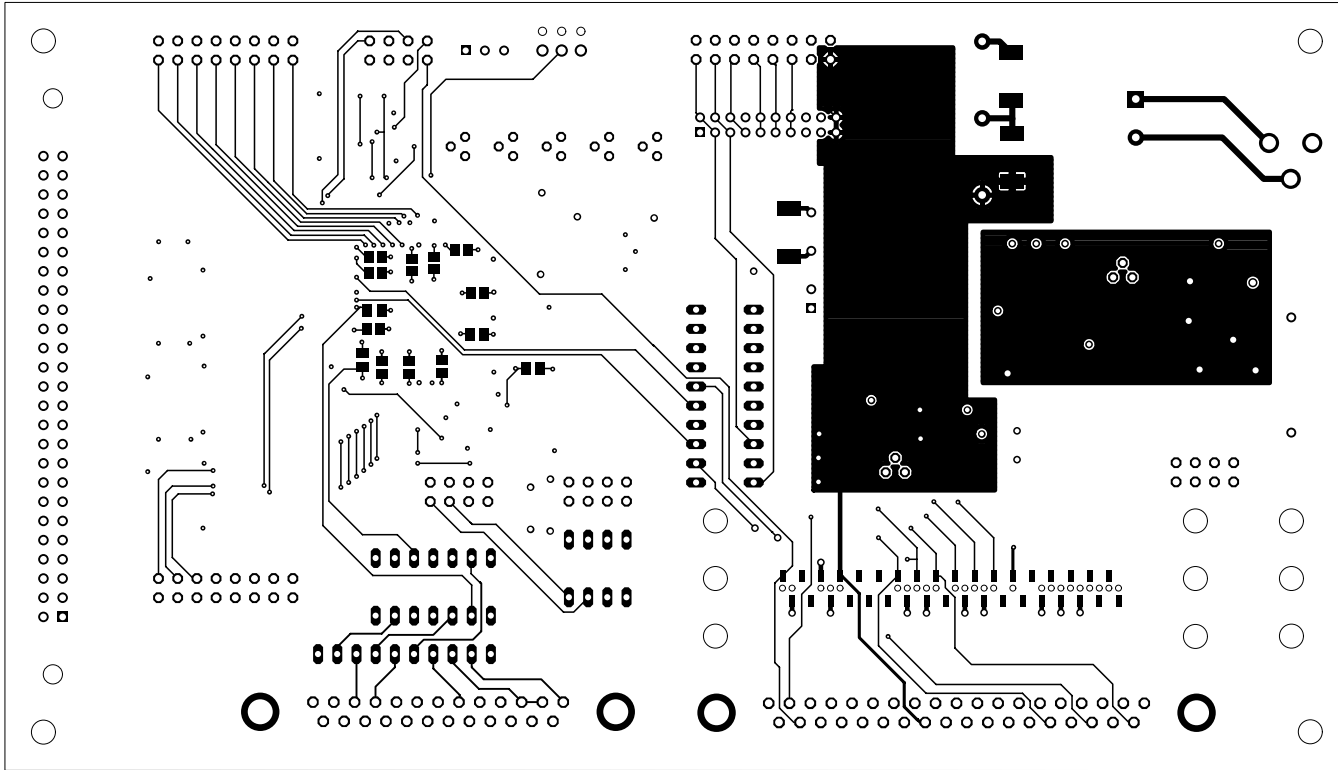


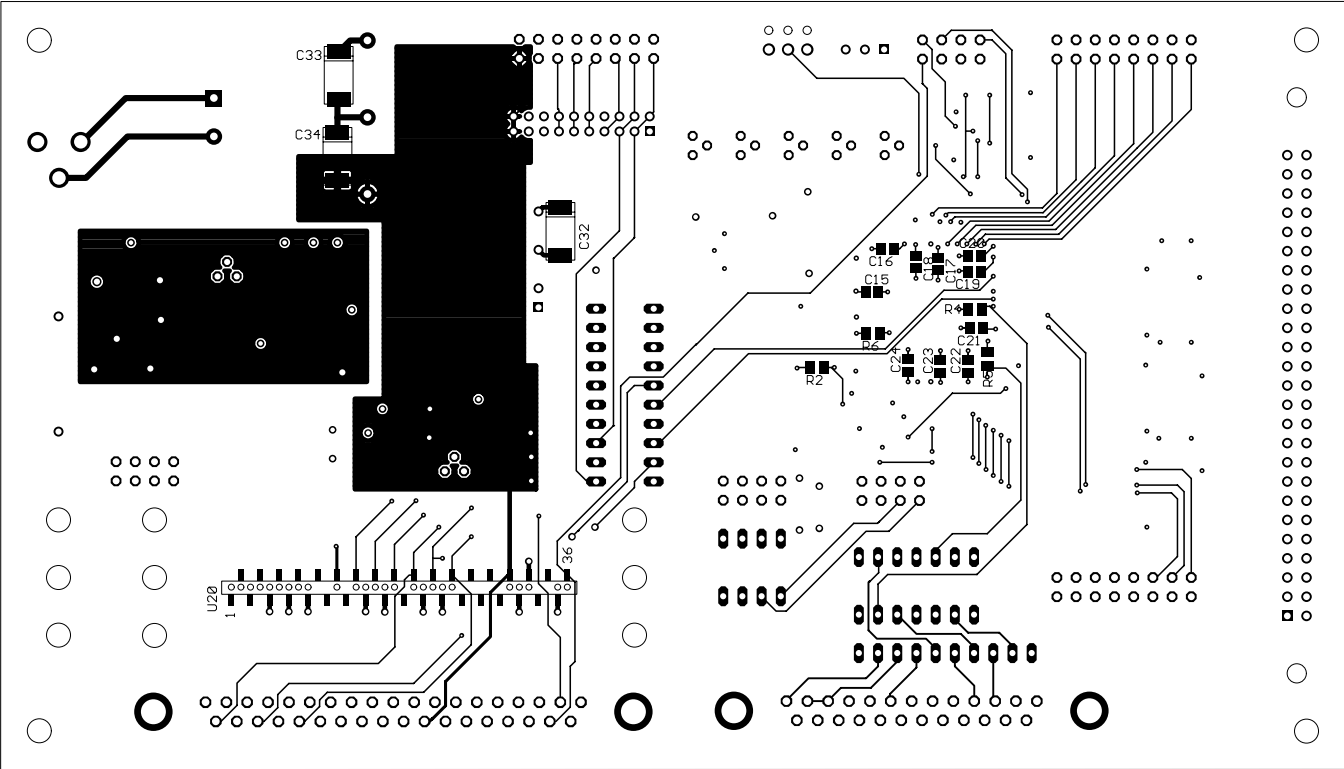












## Partlist exported from C:/Program Files/EAGLE-4.09/projects/FDB/FDB1.sch at 4/15/2003 01:19:58p

Part	Value	Device	Package	Description
C1	0.1U	C-EUC0805	C0805	CAPACITOR, European symbol
C2	0.1U	C-EUC0805	C0805	CAPACITOR, European symbol
C3	0.1U	C-EUC0805	C0805	CAPACITOR, European symbol
C4	0.1U	C-EUC0805	C0805	CAPACITOR, European symbol
C5	0.1U	C-EUC0805	C0805	CAPACITOR, European symbol
C6	0.1U	C-EUC0805	C0805	CAPACITOR, European symbol
C7	0.1U	C-EUC0805	C0805	CAPACITOR, European symbol
C8	0.1U	C-EUC1206	C1206	CAPACITOR, European symbol
C9	0.1U	C-EUC1206	C1206	CAPACITOR, European symbol
C10	0.1U	C-EUC1206	C1206	CAPACITOR, European symbol
C11	0.1U	C-EUC0805	C0805	CAPACITOR, European symbol
C12	470P	C-EUC0805	C0805	CAPACITOR, European symbol
C13	0.1U	C-EUC0805	C0805	CAPACITOR, European symbol
C14	2.2U	CPOL- USCT3216	CT3216	POLARIZED CAPACITOR, American symbol
C15		C-EUC0805	C0805	CAPACITOR, European symbol
C16		C-EUC0805	C0805	CAPACITOR, European symbol
C17		C-EUC0805	C0805	CAPACITOR, European symbol
C18		C-EUC0805	C0805	CAPACITOR, European symbol
C19		C-EUC0805	C0805	CAPACITOR, European symbol
C20		C-EUC0805	C0805	CAPACITOR, European symbol
C21		C-EUC0805	C0805	CAPACITOR, European symbol
C22		C-EUC0805	C0805	CAPACITOR, European symbol
C23		C-EUC0805	C0805	CAPACITOR, European symbol
C24		C-EUC0805	C0805	CAPACITOR, European symbol
C25		C-EUC0805	C0805	CAPACITOR, European symbol
C26	0.1U 250V	C_ECQ	C_ECQ	PANASONIC ECQ SERIES CAP
C27	180UF 6V3	C_KEMET	C_KEMET	KEMET ALUMINUM-ORGANIC AO-CAP
C28	1.0U	C_ECPU	C_ECPU	PANASONIC ECPU SERIES FILM CHIP CAP
C29	0.01U	C-EUC1206	C1206	CAPACITOR, European symbol
C30	1.0U	C_ECPU	C_ECPU	PANASONIC ECPU SERIES FILM CHIP CAP
C31	4.7U	CPOL- EUCT3216	CT3216	POLARIZED CAPACITOR, European symbol
C32	180U	C_KEMET	C_KEMET	KEMET ALUMINUM-ORGANIC AO-CAP
C33	180U	C_KEMET	C_KEMET	KEMET ALUMINUM-ORGANIC AO-CAP
C34	180U	C_KEMET	C_KEMET	KEMET ALUMINUM-ORGANIC AO-CAP
C35	180U	C_KEMET	C_KEMET	KEMET ALUMINUM-ORGANIC AO-CAP
D1	1N4148SCT	DIODE	SOD323	
D2	MURS140	MURS140	D_SMB	DIODES INC., 1.0A SMT SUPER FAST RECTIFIER. MURS140DICT-ND
J1		M25HP	M25HP	SUB-D
J2	NI6503	NI6503	CON_50	NATIONAL INSTRUMENTS 6503/DIO-24 PINOUTS
J4		F37HP	F37HP	SUB-D
J5	TRM_BLK3	TRM_BLK3	TRM_BLK3	PHOENIX 3-PIN TERMINAL BLOCK DIGIKEY 277-1274- ND
J6	SIP3	SIP3	SIP3	

J7	SAMTEC20	SAMTEC20	SAMTEC20	
J8	POWER_JACK	POWER_JACK	POWER_JACK	
JP1		JP4Q	JP4Q	JUMPER
JP2		JP8Q	JP8Q	JUMPER
JP3		JP4Q	JP4Q	JUMPER
JP4		JP4Q	JP4Q	JUMPER
JP5		JP8Q	JP8Q	JUMPER
JP6		JP8Q	JP8Q	JUMPER
JP7		JP4Q	JP4Q	JUMPER
L1	PM3316	PM3316	PM3316	
Q1	2N3904	2N3904	TO92	
Q2	2N7000FS	2N7000FS	TO92	
Q3	ZVN4424GCT-ND	NMOSSOT223	SOT223	MOS FET
R1	330	E5R	SIL10	SIL RESISTOR
R2	10K	R-US_M0805	M0805	RESISTOR, American symbol
R3	10K	R-US_M0805	M0805	RESISTOR, American symbol
R4	10K	R-US_M0805	M0805	RESISTOR, American symbol
R5	10K	R-US_M0805	M0805	RESISTOR, American symbol
R6	10K	R-US_M0805	M0805	RESISTOR, American symbol
R7	100K	R-US_R1206	R1206	RESISTOR, American symbol
R8	2K	R-US_R1206	R1206	RESISTOR, American symbol
R9	15	R-US_R1206	R1206	RESISTOR, American symbol
R10	15	R-US_R1206	R1206	RESISTOR, American symbol
R11	1K	R-US_R1206	R1206	RESISTOR, American symbol
R12	5K1	R-US_R0805	R0805	RESISTOR, American symbol
R13	10K	R-US_R0805	R0805	RESISTOR, American symbol
R14	10K	R-US_R0805	R0805	RESISTOR, American symbol
R15A		R-US_R0805	R0805	RESISTOR, American symbol
R15B		R-US_R0805	R0805	RESISTOR, American symbol
R15C		R-US_R0805	R0805	RESISTOR, American symbol
R15D		R-US_R0805	R0805	RESISTOR, American symbol
R16	0R1	R-US_R1206	R1206	RESISTOR, American symbol
R17	120K	R-US_R1206	R1206	RESISTOR, American symbol
R18	100K	R-US_R1206	R1206	RESISTOR, American symbol
R19		R-US_R1206	R1206	RESISTOR, American symbol
R20		R-US_R1206	R1206	RESISTOR, American symbol
R21	200K	R-US_R1206	R1206	RESISTOR, American symbol
R22	4K9	R-US_R1206	R1206	RESISTOR, American symbol
R23	6K19	R-US_R1206	R1206	RESISTOR, American symbol
R24	1K2	R-US_R1206	R1206	RESISTOR, American symbol
U1	74HC125	74125N	DIL14	Quad bus BUFFER, 3-state
U2	XCR3256	XCR3256	TQ144	
U3	MAX3001	MAX3001	TSSOP20	
U4	MAX3001	MAX3001	TSSOP20	
U5	MAX3001	MAX3001	TSSOP20	
U6	74ACT244	74LS244N	DIL20	Octal BUFFER and LINE DRIVER, 3-state
U7	NDC7002N	NDC7002N	SSOT-6	DUAL N-CH FET

U8	NDC7001C	NDC7001C	SSOT-6	DUAL N&P CHANNEL MOSFET
U9	DS2401	DS2401	TO92	
U10	DS18B20	DS18B20	TO92	1WIRE TEMPERATURE SENSOR
U11	DS2401	DS2401	TO92	
U12	DS2401	DS2401	TO92	
U13	DS2401	DS2401	TO92	
U14	ECS-300C	ECS-300C	DIL8	CMOS PROGRAMMABLE OSCILLATOR
U15	TL5001	TL5001	SO8	TEXAS INSTRUMENTS PULSE-WIDTH MODULATION CTRL CKT
U16	SC7SZ126	SC7SZ126	SOT23-5	
U17	DFC10	DFC10	POWER-ONE	POWER ONE DC/DC CONVERTER
U18	DSP1	DSP1	DSP1	POWER-ONE DC/DC CONVERTER DSP1 SERIES
U19	TPS76333	TPS763XX	SOT23-5	TEXAS INSTRUMENTS LDO
U20	LED_MODULE	LED_MODULE	RSM36_SAM	