NOTES:

1) EPI - External Peripheral Interface Impedence Matching

(A) GPIO24, 25, 36, 37, 40, 41, 48-53, 68, 69, 70, 71 - SDRAM Memory Interface Data + Address
(B) GPIO12, 13, 18, 19, 26, 27, 54, 55 - SRAM Memory Interface Address
(C) GPIO56-62 - SDRAM&SRAM CS, DQM, etc
(D) GPIO34, 35, 28, 29 - SRAM Extended Address
(C) GPIO47 - Clock

2) ENET Differential Pairs - 100 Ohm

(A) ENET_TD+ & ENET_TD-
(B) ENET_RD+ & ENET_RD-

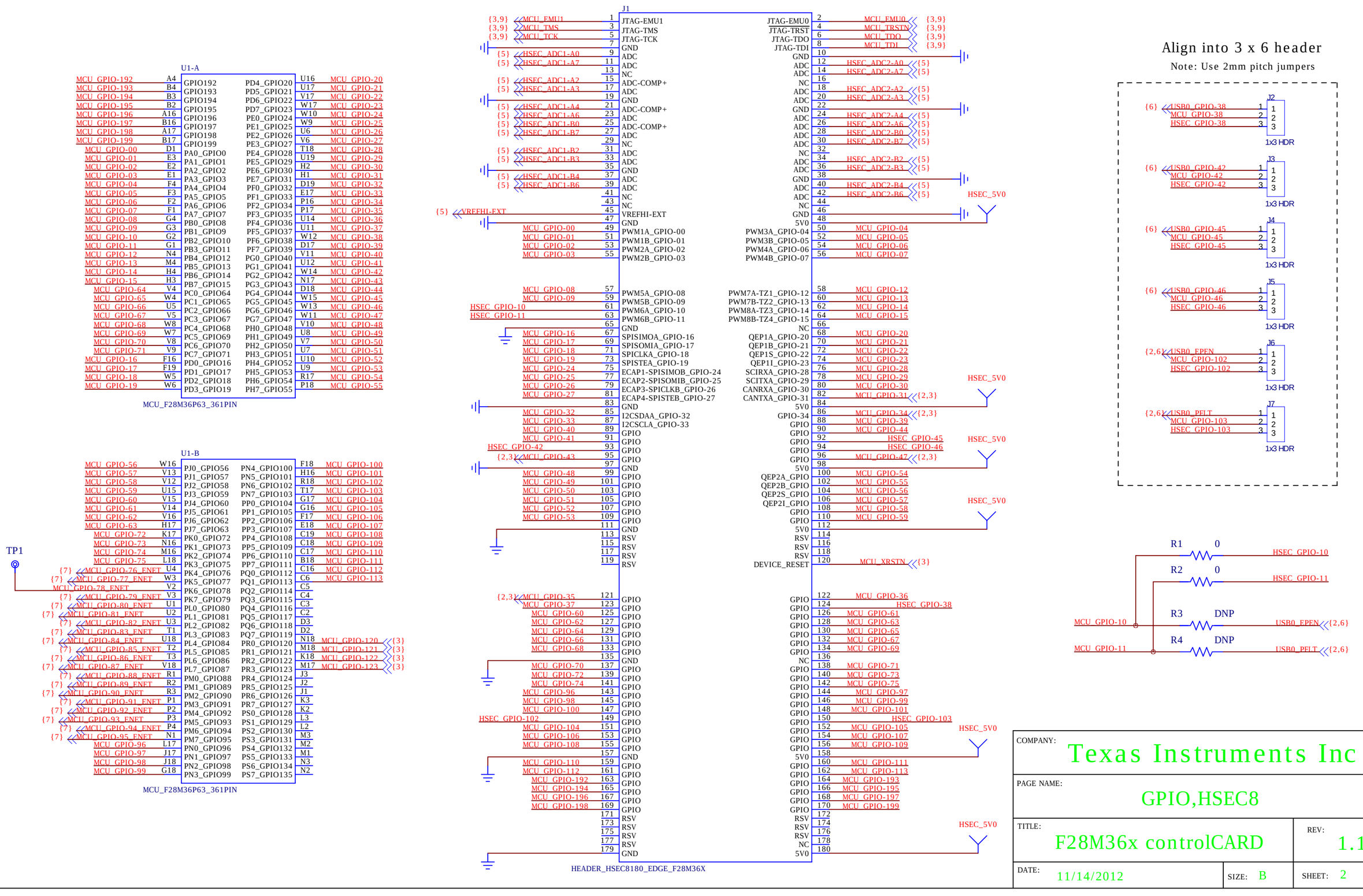
3) USB Differential Pairs - 90 Ohm

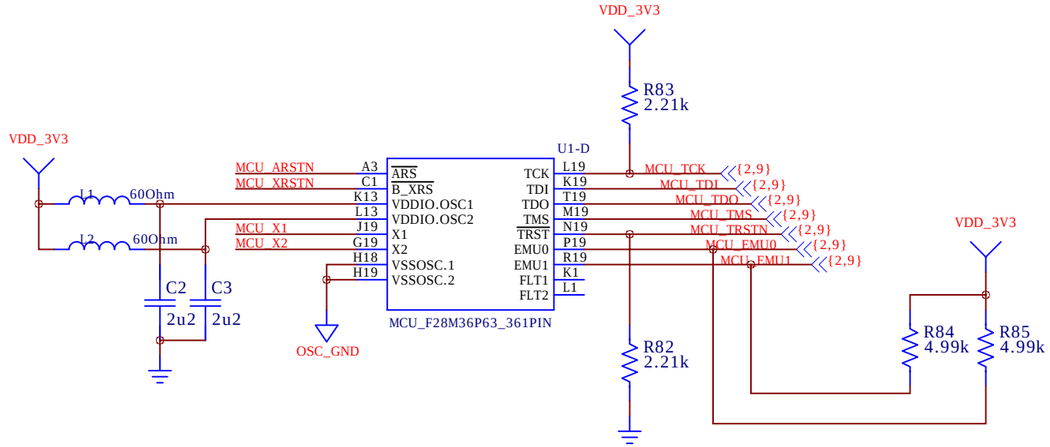
(A) USB-DM & USB-DP
(B) USB0_GPIO-42 & USB0_GPIO-45
(C) MCU_GPIO-42 & MCU_GPIO-45

REVISION RECORD

WHO:	SCH REV:	PCB REV:	NOTES:	DATE:
TI-SBL	R1.0	R1.0	Initial Release to PCB	14-May-2012
TI-SBL	R1.1	R1.1	Edited Order of Boot Mode Switches Added ENET Address Resistors Fixed Ethernet PHY LED order R43: 100K to 0R0 Added XRSn connection through HSEC connector	16-July-2012

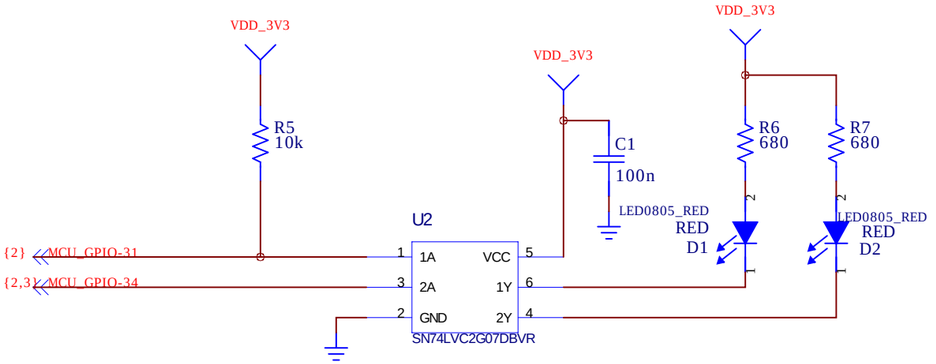
COMPANY: Texas Instruments Inc			
PAGE NAME: NOTES			
TITLE: F28M36x controlCARD			REV: 1.1
DATE: 11/14/2012	SIZE: B	SHEET: 1 OF 9	


U1-A
MCU_F28M36P63_361PIN
U1-B
MCU_F28M36P63_361PIN
TP1
J1
HEADER_HSEC8180_EDGE_F28M36X
HSEC_5V0
Align into 3 x 6 header
Note: Use 2mm pitch jumpers
J2
J3
J4
J5
J6
J7
1x3 HDR
R1 0
R2 0
R3 DNP
R4 DNP
COMPANY:
Texas Instruments Inc
PAGE NAME:
GPIO,HSEC8
TITLE:
F28M36x controlCARD
REV:
1.1
DATE:
11/14/2012
SIZE: B
SHEET: 2 OF 9

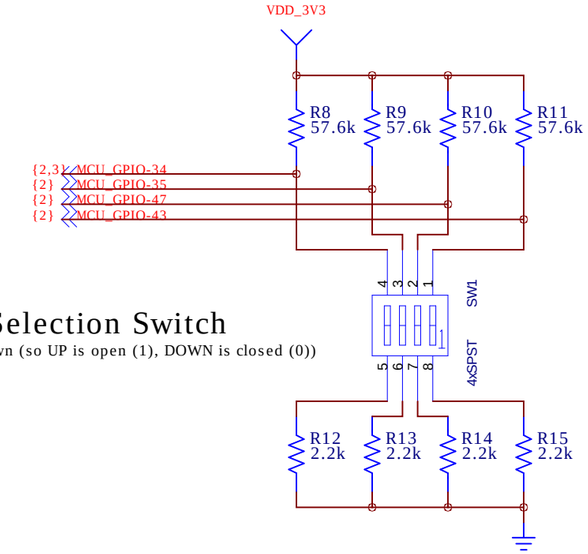


F28M36x Clock

F28M36x Reset Pins

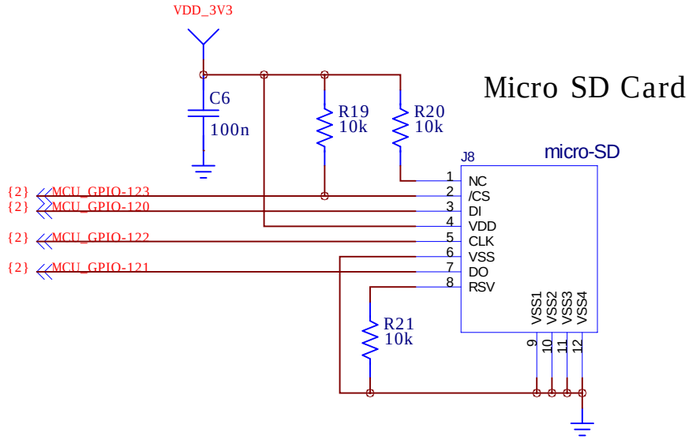


LEDs



Boot Mode Selection Switch

*SW1 placed upside-down (so UP is open (1), DOWN is closed (0))



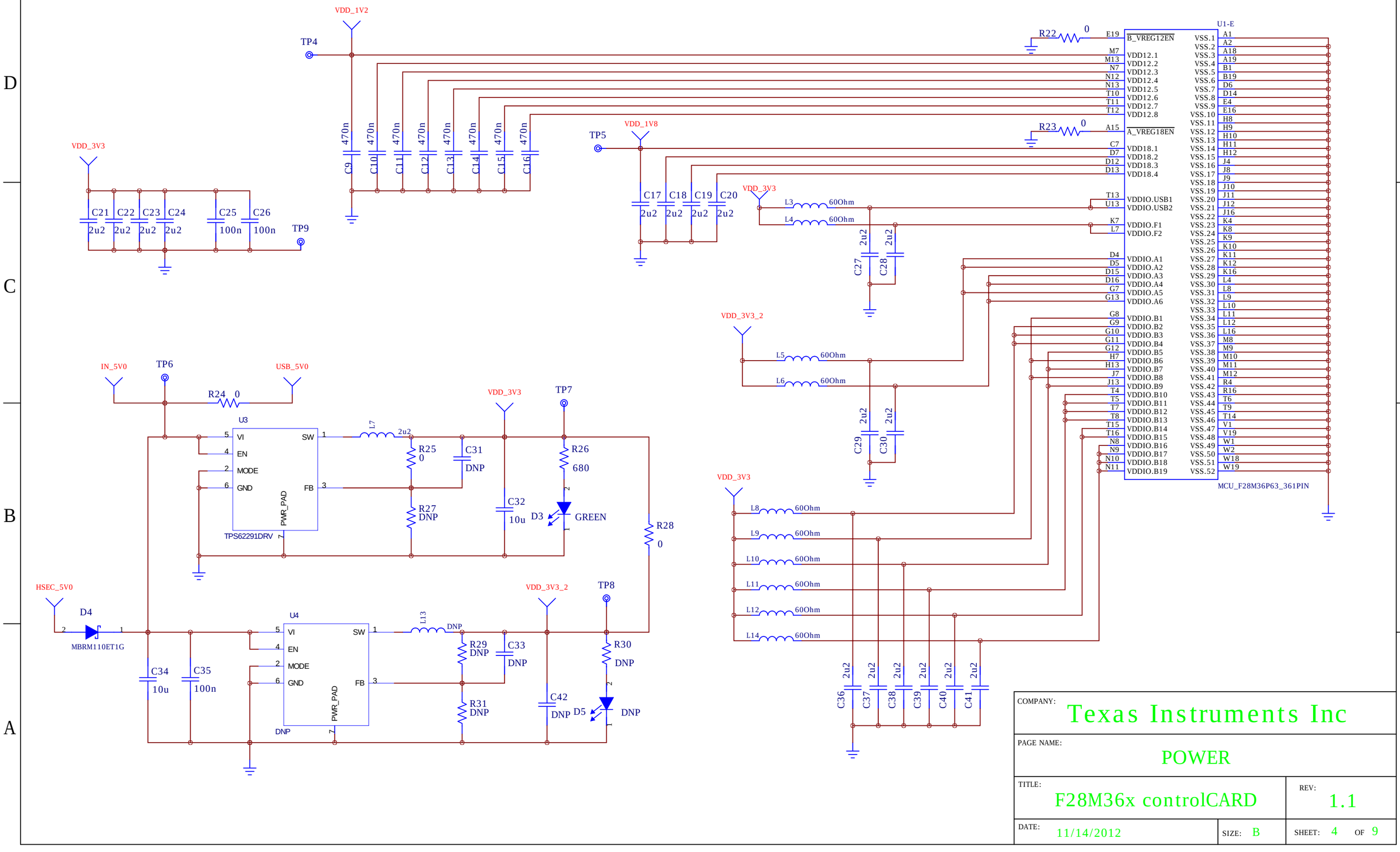
Micro SD Card

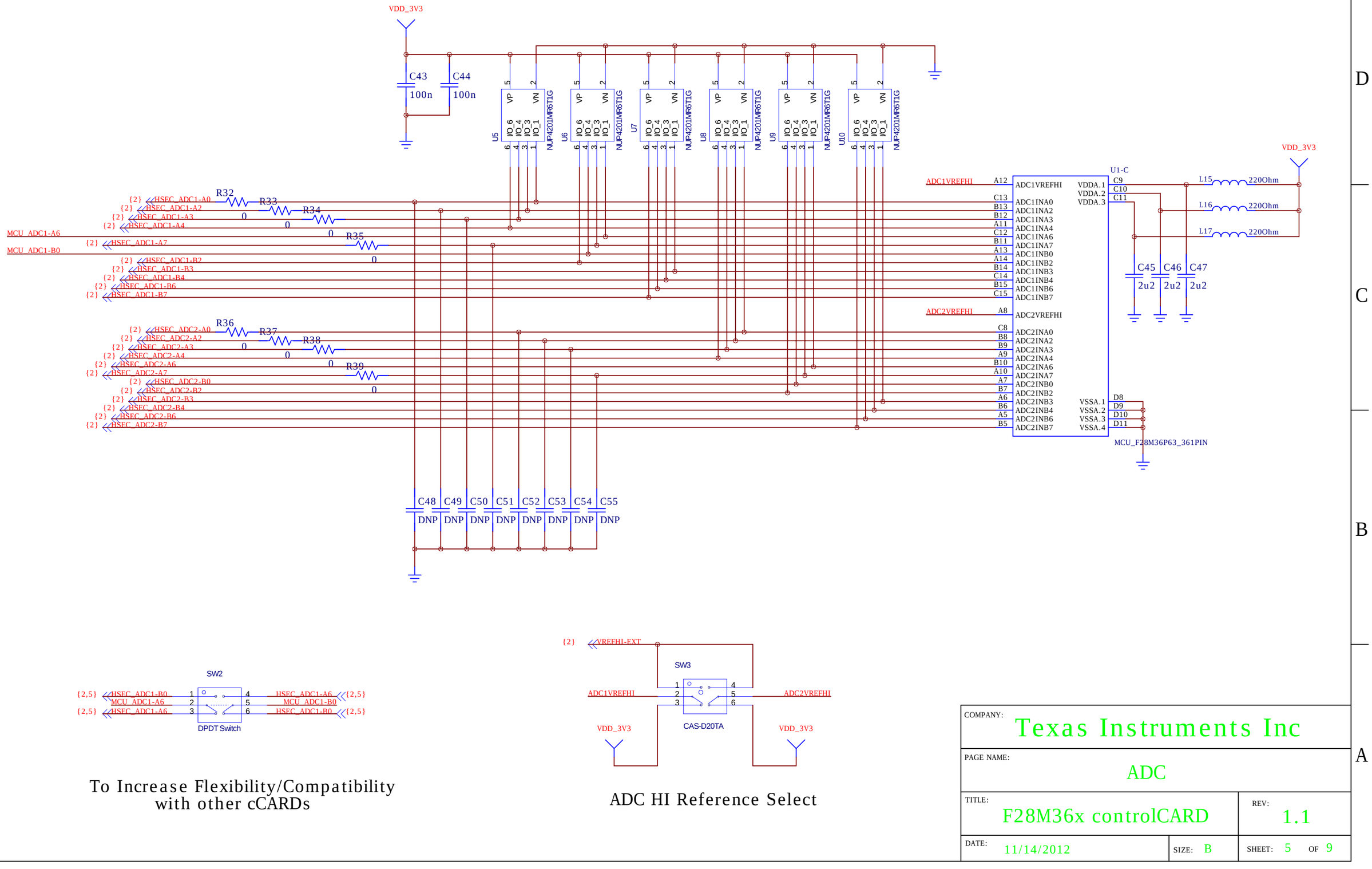
Selected Boot Mode Chart

(see datasheet for other boot modes and more information)

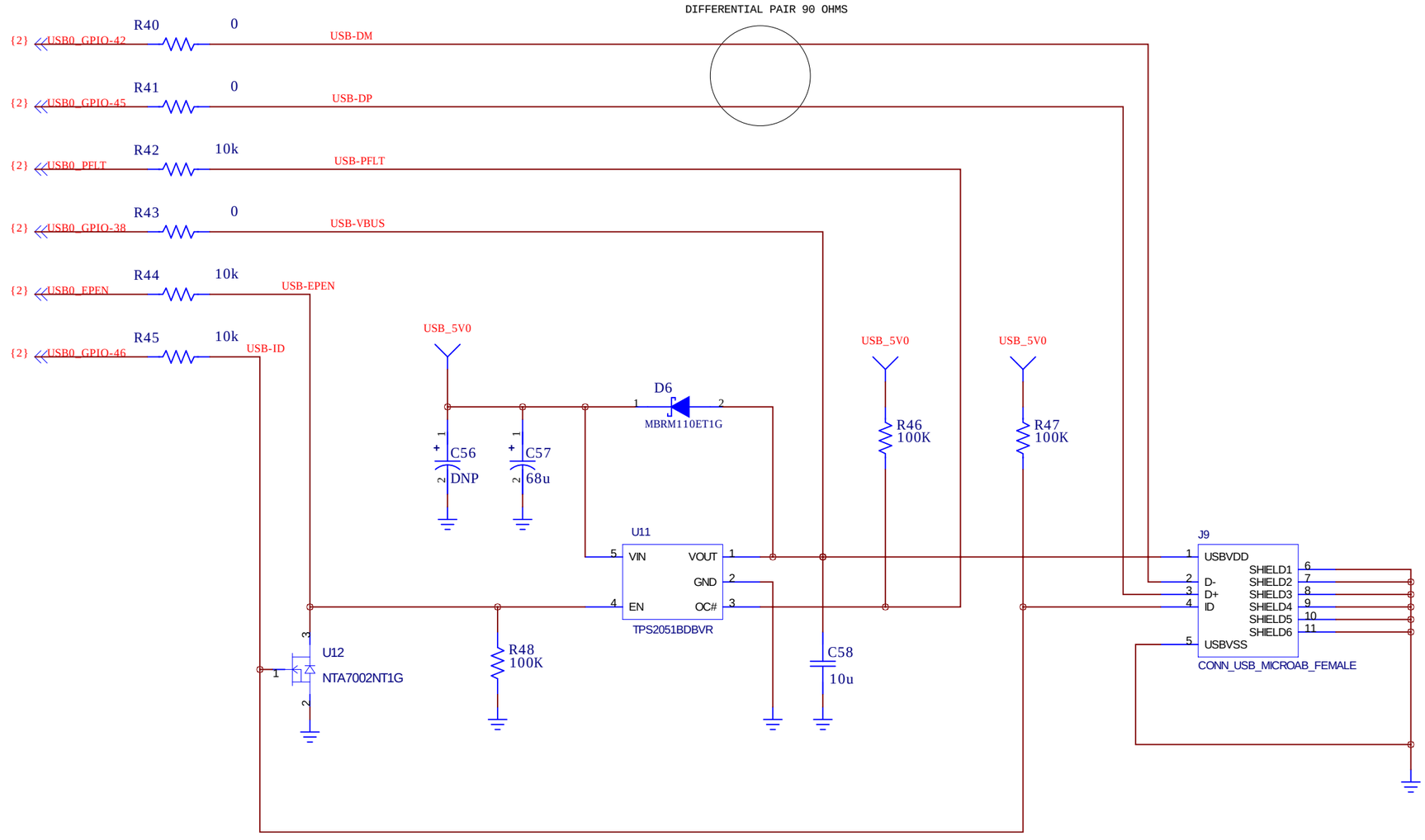
Mode #	GPIO34	GPIO35	GPIO47	GPIO43	Boot Mode
00	0	0	0	0	Boot from Parallel GPIO
02	0	0	1	0	Boot to Serial Peripherals
07	0	1	1	1	Boot from Flash
12	1	1	0	0	Boot from Ethernet (for cCARD)
15	1	1	1	1	Boot from Flash (Fast)

COMPANY: Texas Instruments Inc		
PAGE NAME: SUPPORT,LEDS,BOOT		
TITLE: F28M36x controlCARD		REV: 1.1
DATE: 11/14/2012	SIZE: B	SHEET: 3 OF 9


VDD_1V2
TP4
470n C9
470n C10
470n C11
470n C12
470n C13
470n C14
470n C15
470n C16
VDD_3V3
C21 2u2
C22 2u2
C23 2u2
C24 2u2
C25 100n
C26 100n
TP9
VDD_1V8
TP5
C17 2u2
C18 2u2
C19 2u2
C20 2u2
VDD_3V3
L3 60Ohm
L4 60Ohm
C27 2u2
C28 2u2
VDD_3V3_2
L5 60Ohm
L6 60Ohm
C29 2u2
C30 2u2
VDD_3V3
L8 60Ohm
L9 60Ohm
L10 60Ohm
L11 60Ohm
L12 60Ohm
L14 60Ohm
C36 2u2
C37 2u2
C38 2u2
C39 2u2
C40 2u2
C41 2u2
IN_5V0
TP6
R24 0
USB_5V0
U3
VI
EN
MODE
GND
SW
FB
PWR_PAD
TPS62291DRV
L7 2u2
R25 0
C31 DNP
R27 DNP
VDD_3V3
TP7
C32 10u
R26 680
D3 GREEN
R28 0
HSEC_5V0
D4
MBRM110ET1G
C34 10u
C35 100n
U4
VI
EN
MODE
GND
SW
FB
PWR_PAD
DNP
L13 DNP
R29 DNP
C33 DNP
R31 DNP
VDD_3V3_2
TP8
C42 DNP
D5
R30 DNP
DNP
R22 0
R23 0
U1-E
B_VREG12EN
A_VREG18EN
VDD12.1
VDD12.2
VDD12.3
VDD12.4
VDD12.5
VDD12.6
VDD12.7
VDD12.8
VDD18.1
VDD18.2
VDD18.3
VDD18.4
VDDIO.USB1
VDDIO.USB2
VDDIO.F1
VDDIO.F2
VDDIO.A1
VDDIO.A2
VDDIO.A3
VDDIO.A4
VDDIO.A5
VDDIO.A6
VDDIO.B1
VDDIO.B2
VDDIO.B3
VDDIO.B4
VDDIO.B5
VDDIO.B6
VDDIO.B7
VDDIO.B8
VDDIO.B9
VDDIO.B10
VDDIO.B11
VDDIO.B12
VDDIO.B13
VDDIO.B14
VDDIO.B15
VDDIO.B16
VDDIO.B17
VDDIO.B18
VDDIO.B19
VSS.1
VSS.2
VSS.3
VSS.4
VSS.5
VSS.6
VSS.7
VSS.8
VSS.9
VSS.10
VSS.11
VSS.12
VSS.13
VSS.14
VSS.15
VSS.16
VSS.17
VSS.18
VSS.19
VSS.20
VSS.21
VSS.22
VSS.23
VSS.24
VSS.25
VSS.26
VSS.27
VSS.28
VSS.29
VSS.30
VSS.31
VSS.32
VSS.33
VSS.34
VSS.35
VSS.36
VSS.37
VSS.38
VSS.39
VSS.40
VSS.41
VSS.42
VSS.43
VSS.44
VSS.45
VSS.46
VSS.47
VSS.48
VSS.49
VSS.50
VSS.51
VSS.52
MCU_F28M36P63_361PIN
COMPANY: Texas Instruments Inc
PAGE NAME: POWER
TITLE: F28M36x controlCARD
REV: 1.1
DATE: 11/14/2012
SIZE: B
SHEET: 4 OF 9



COMPANY:	Texas Instruments Inc
PAGE NAME:	ADC
TITLE:	F28M36x controlCARD
REV:	1.1
DATE:	11/14/2012
SIZE:	B
SHEET:	5 OF 9



COMPANY: Texas Instruments Inc		
PAGE NAME: USB		
TITLE: F28M36x controlCARD		REV: 1.1
DATE: 11/14/2012	SIZE: B	SHEET: 6 OF 9

PHY Address Configuration

VDD_3V3
R86 DNP
R88 DNP
R90 DNP
R92 DNP
R94 DNP
R87 2.2k
R89 2.2k
R91 2.2k
R93 2.2k
R95 2.2k

Warning: U13.11 (TRSTn) should have a 2.2k pulldown (See controlCARD errata)

U13

10	JTAG_TMS	
8	JTAG_TCK	
9	JTAG_TDO	
12	JTAG_TDI	
11	JTAG_TRSTN	
30	MDIO	{2} MCU_GPIO-88_ENET
31	MDC	{2} MCU_GPIO-87_ENET
46	MII_RXD_3/PHYAD4	{2} MCU_GPIO-80_ENET
45	MII_RXD_2/PHYAD3	{2} MCU_GPIO-81_ENET
44	MII_RXD_1/PHYAD2	{2} MCU_GPIO-82_ENET
43	MII_RXD_0/PHYAD1	{2} MCU_GPIO-83_ENET
39	MII_RX_DV	{2} MCU_GPIO-93_ENET
38	MII_RX_CLK	{2} MCU_GPIO-95_ENET
41	MII_RX_ERR/MDIX_EN	{2} MCU_GPIO-94_ENET
1	MII_TX_CLK	{2} MCU_GPIO-77_ENET
2	MII_TX_EN	{2} MCU_GPIO-76_ENET
3	MII_TXD_0	{2} MCU_GPIO-92_ENET
4	MII_TXD_1	{2} MCU_GPIO-91_ENET
5	MII_TXD_2	{2} MCU_GPIO-90_ENET
6	MII_TXD_3	{2} MCU_GPIO-89_ENET
42	MII_COL/PHYAD0	{2} MCU_GPIO-84_ENET
40	MII_CRS/LED_CFG	{2} MCU_GPIO-79_ENET
7	PWRDNN/INT	{2} MCU_GPIO-86_ENET
34	XI	
33	XO	
29	RESTN	
32	VDD33_IO	
48	VDD33_IO	
23	PFBOUT	
18	PFBIN1	
37	PFBIN2	
21	SW_STRAPN	
20	RSV	
22	AVDD33	
47	IOGND	
35	IOGND	
19	AGND	
15	AGND	

R53 33
R54 33
R55 33
R56 33
R57 33
R58 33
R59 33
R60 33
R61 33
R66 33
R67 33
R68 33
R69 33
R70 33
R71 33
R72 33
R73 33

VDD_3V3
R74 10k
R75 10k
{2} MCU_GPIO-85_ENET

X2
X1 X2
25MHz, 50ppm
C63 10p
C64 10p

VDD_3V3
C65 1u
C66 100n
C67 100n

VDD_3V3
C68 10u
C69 100n
C70 100n
C71 100n

VDD_3V3
R79 2.2k
R80 2.2k

VDD_3V3
R81 0
C72 1u
C73 100n
C74 10n

VDD_3V3
R50 2.2k
R51 2.2k
R52 2.2k

26	LED_ACT/AN_EN	
27	LED_SPEED/AN_1	
28	LED_LINK/AN_0	
17	TD+	ENET_TD+
16	TD-	ENET_TD-
14	RD+	ENET_RD+
13	RD-	ENET_RD-
24	RBIAS	R78 4.87k
25	CLKOUT	
36	VSS	
49	GNDPAD	

Differential Pair 100 OHM
Differential Pair 100 OHM

VDD_3V3
C59 100n
C60 100n
R62 49.9
R63 49.9
R64 49.9
R65 49.9

VDD_3V3
C61 100n
C62 100n

VDD_3V3
R49 330
D7
GREEN

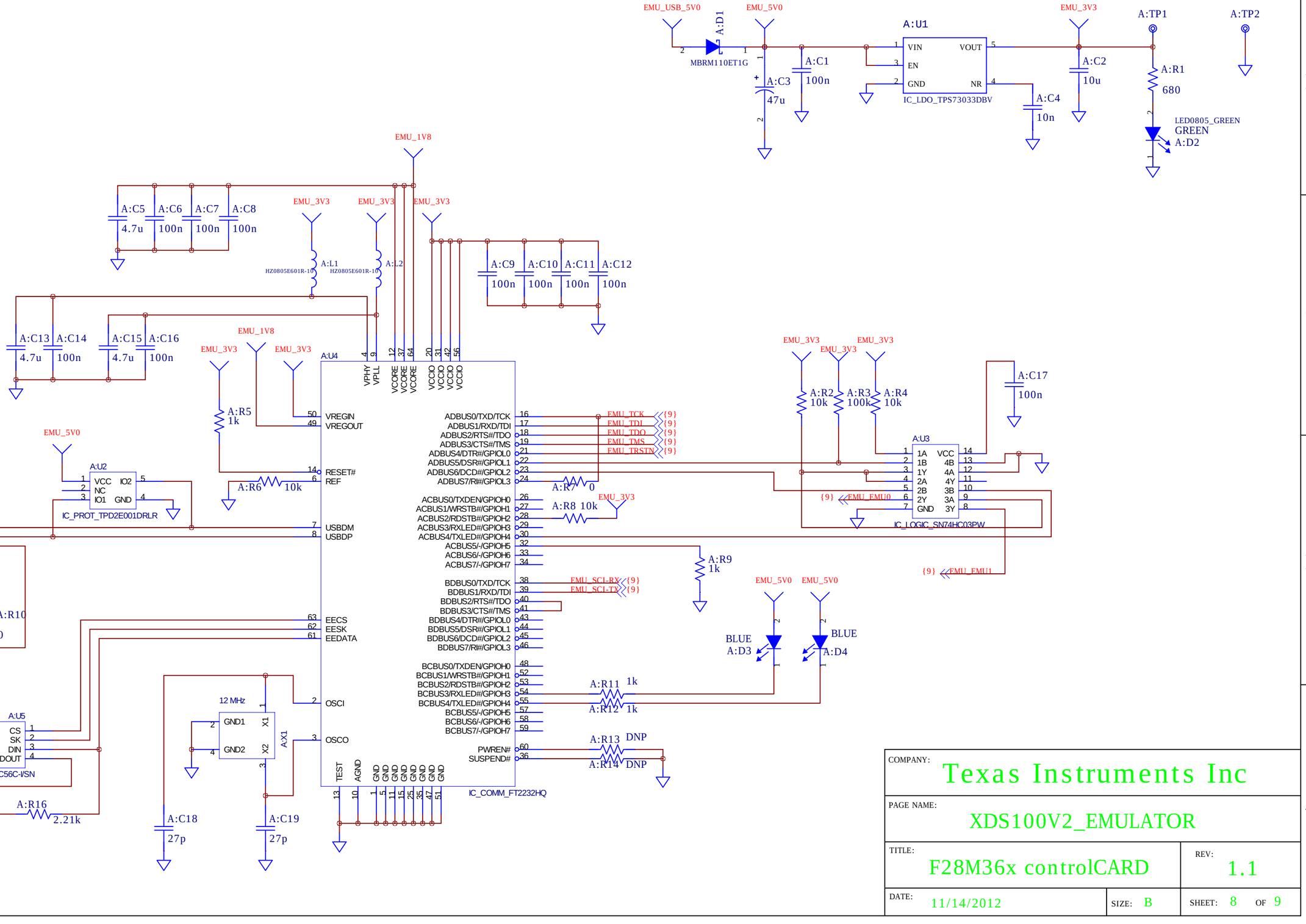
VDD_3V3
R76 330
R77 330

J10 ENET Connector

1	TX+
4	TXCT
2	TX-
3	RX+
5	RXCT
6	RX-
11	C_YLW
12	A_YLW
10	C_GRN
9	A_GRN
7	NC
8	CHS_GND3
13	CHS_GND1
14	CHS_GND2

IC_COMM_ENET_TLK110PT

COMPANY:	Texas Instruments Inc
PAGE NAME:	ETHERNET
TITLE:	F28M36x controlCARD
REV:	1.1
DATE:	11/14/2012
SIZE:	B
SHEET:	7 OF 9



COMPANY:	Texas Instruments Inc
PAGE NAME:	XDS100V2_EMULATOR
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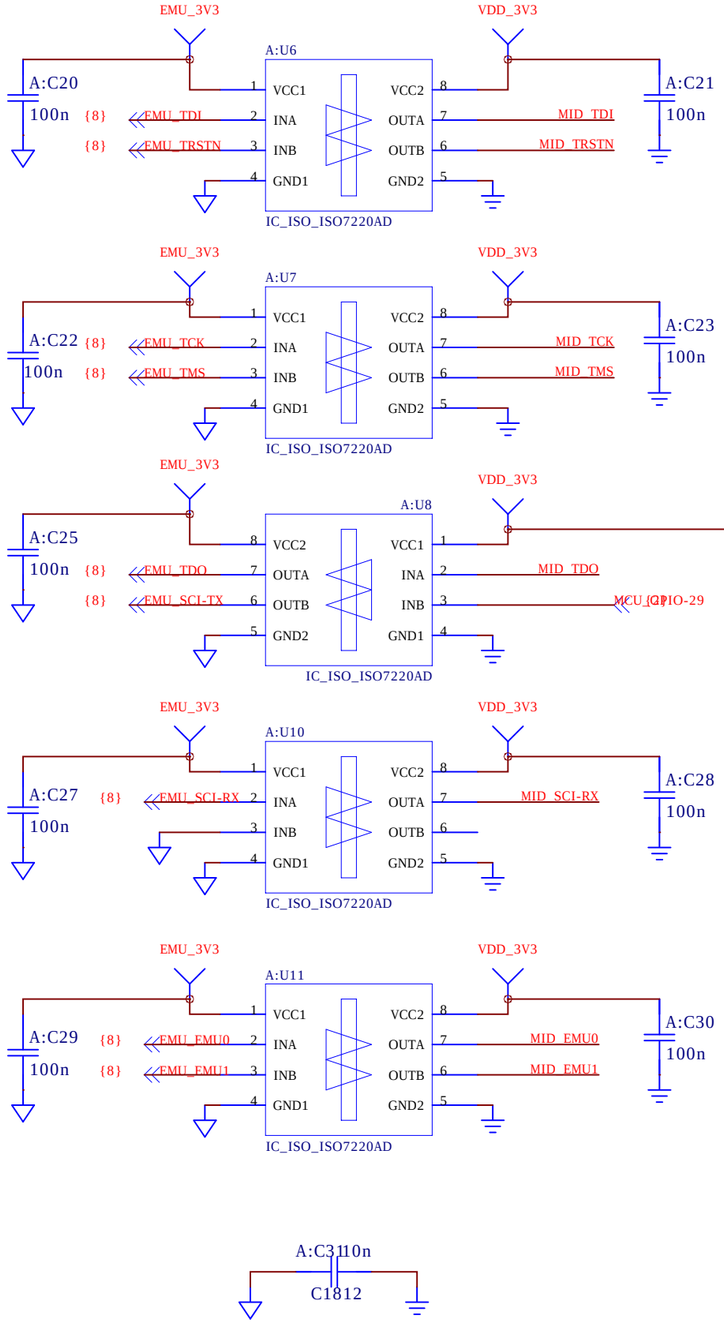
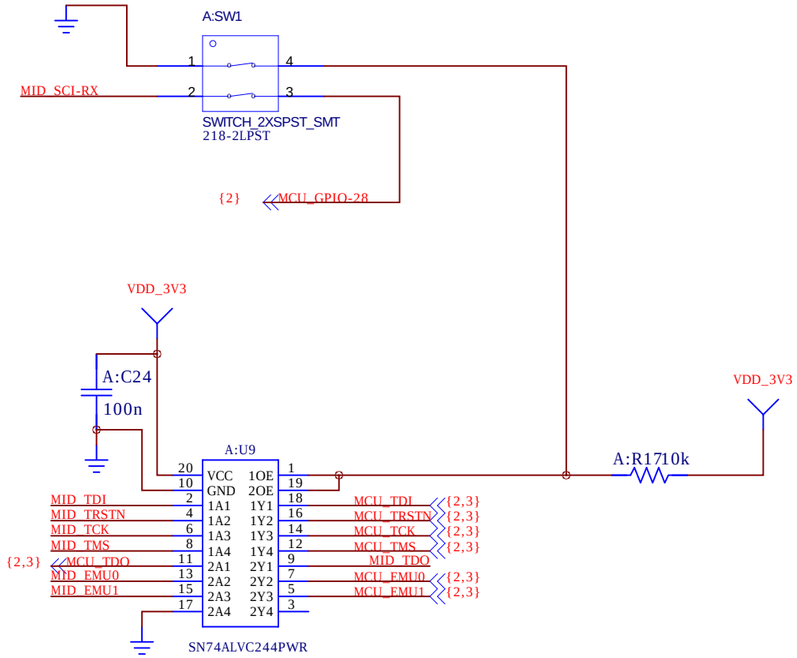
REV:	1.1
DATE:	11/14/2012
SIZE:	B
SHEET:	8 OF 9



A:SW1 - Emulation & GPIO28 Switch

Pos 1 ON: Use xds100v2 emulator that is on the cCARD
Pos 1 OFF: Boot from FLASH/peripheral (see SW1) OR use the emulator on the baseboard
Pos 2 ON: GPIO28 will be controlled by the USB-to-UART adapter on the FTDI chip.
Pos 2 OFF: GPIO-28 can be controlled by a pin in HSEC connector



COMPANY: Texas Instruments Inc		
PAGE NAME: EMULATOR_INTERFACE		
TITLE: F28M36x controlCARD		REV: 1.1
DATE: 11/14/2012	SIZE: B	SHEET: 9 OF 9