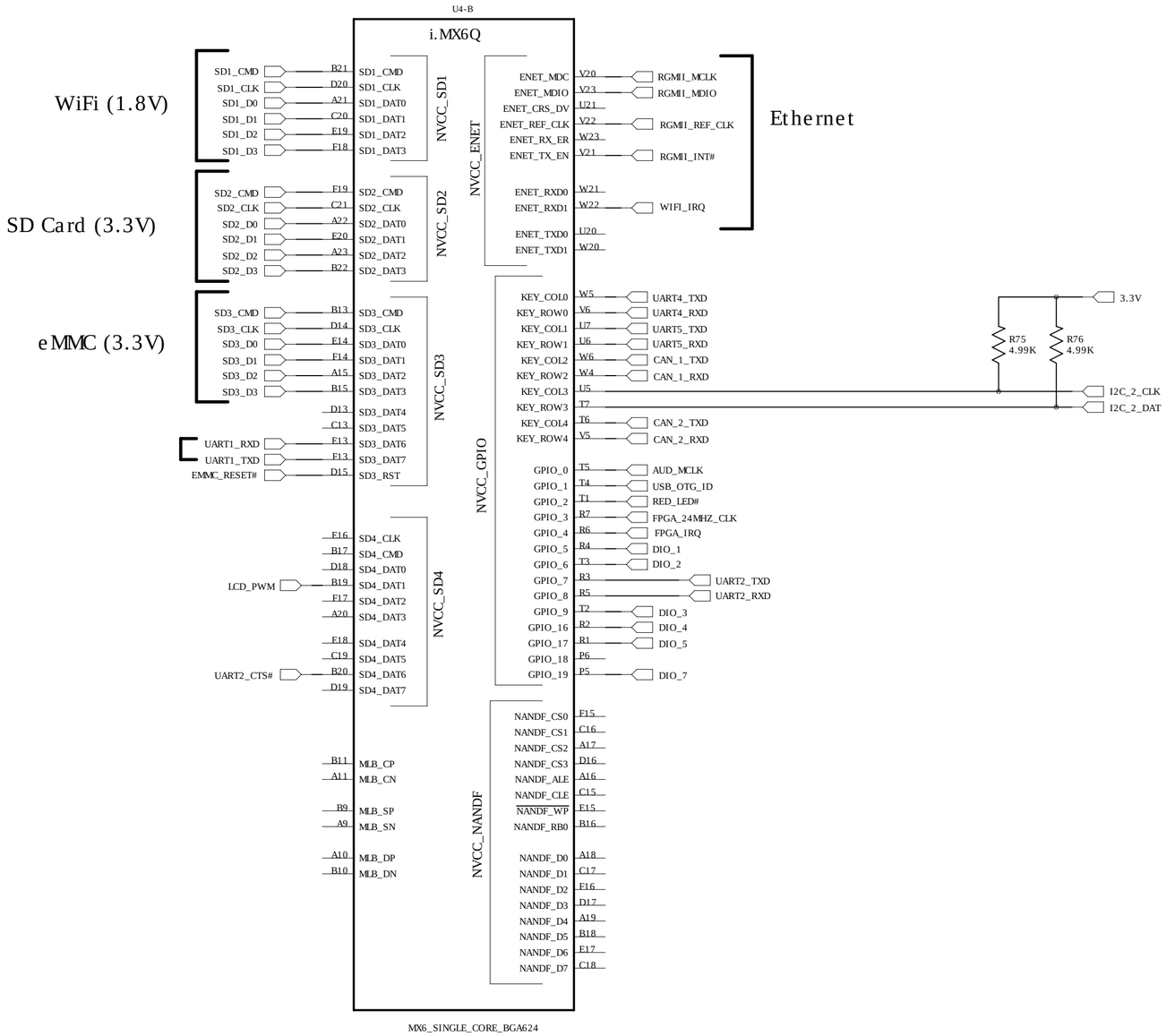
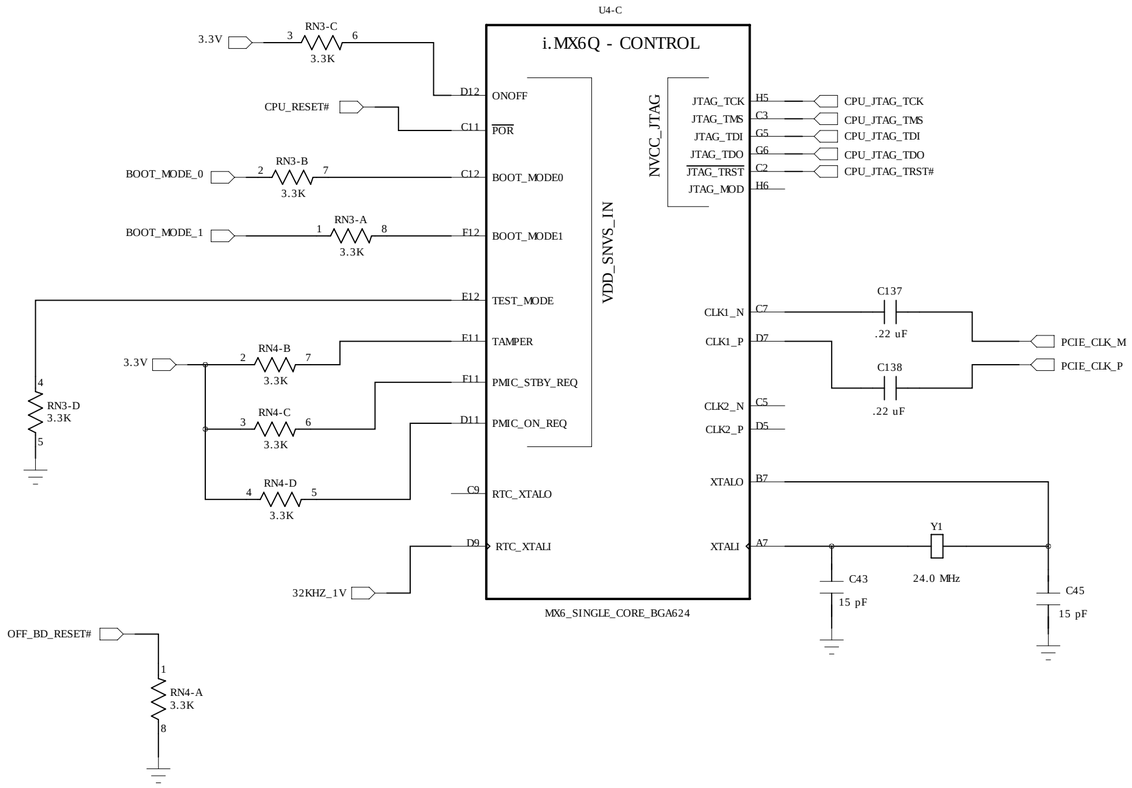
SD, GPIO, NAND



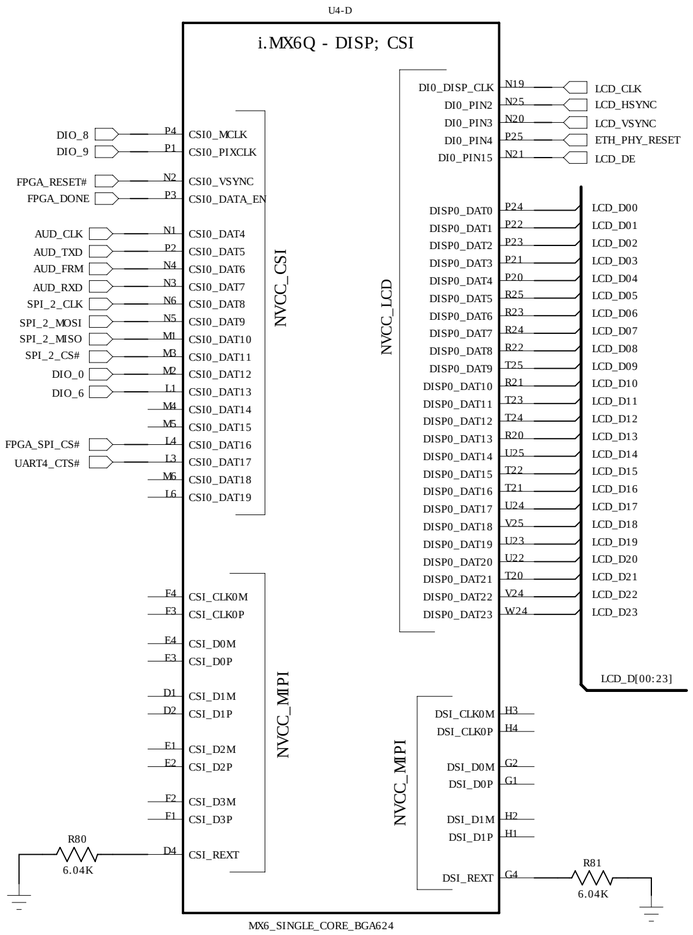
Technologic Systems	Date May 21, 2014	
Title: TS-4900 MX6 SBC		
Rev: A	Designer	Sheet 1 of 7

Control

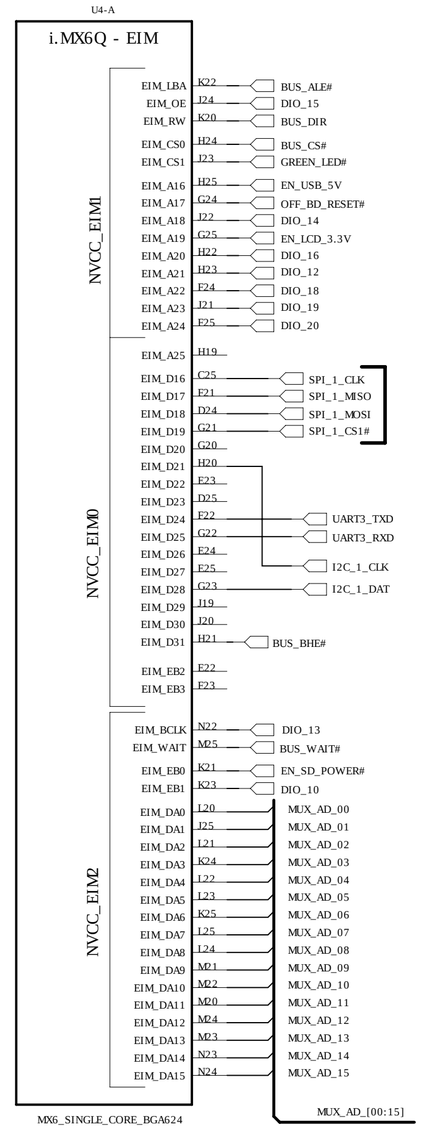


Technologic Systems		Date May 21, 2014
Title: TS-4900		
Rev: A	Designer	Sheet 2 of 7

LCD

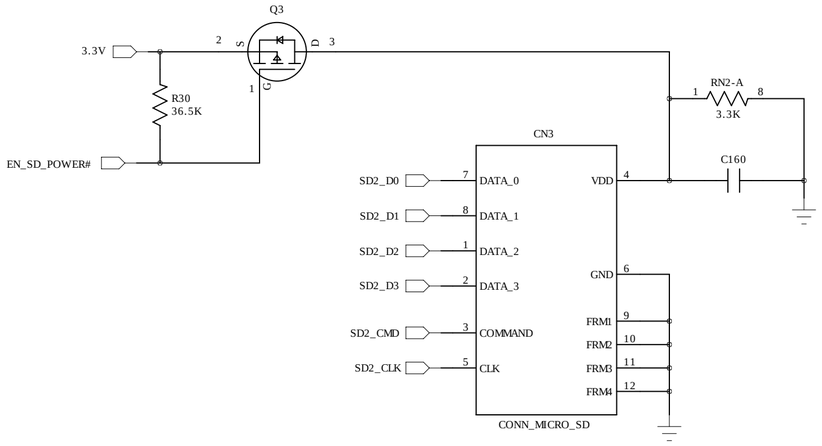


EIM

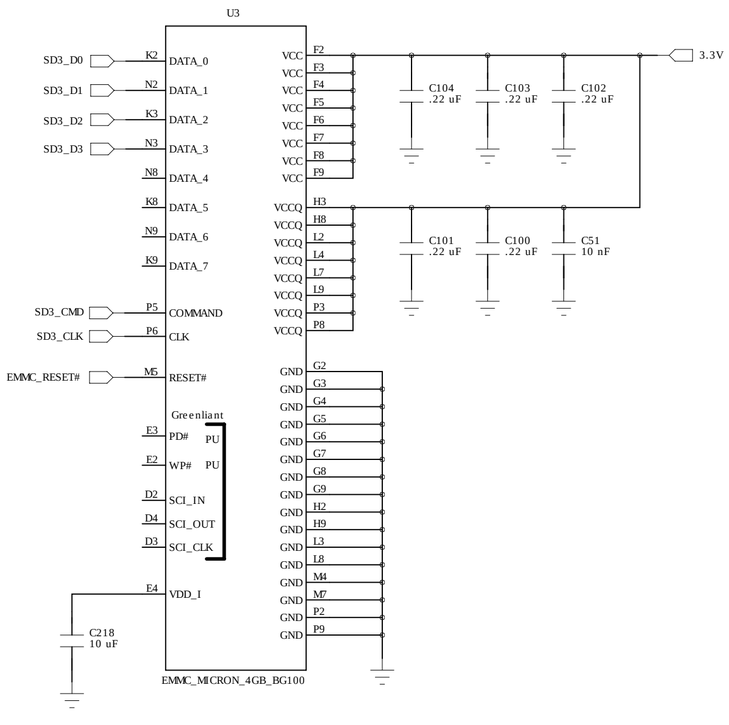


Technologic Systems	Date May 21, 2014	
Title: TS-4900 LCD signals		
Rev: A	Designer	Sheet 3 of 7

Micro SD Card Socket

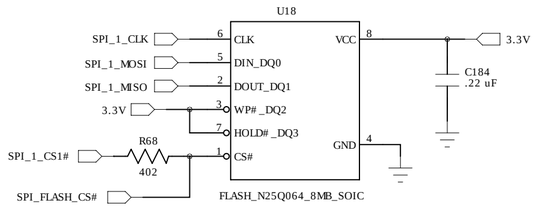


eMMC 4GB



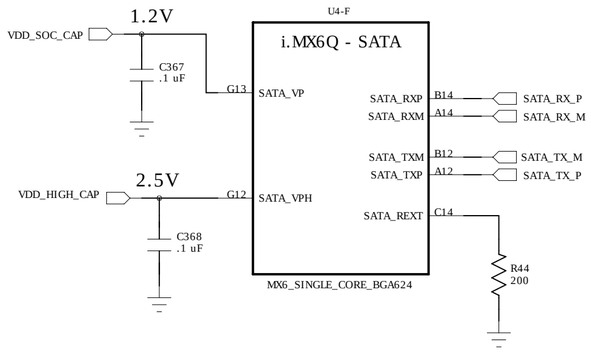
Technologic Systems	Date May 21, 2014	
Title: TS-4900 SD card, eMMC		
Rev: A	Designer	Sheet 4 of 7

SPI Boot Flash



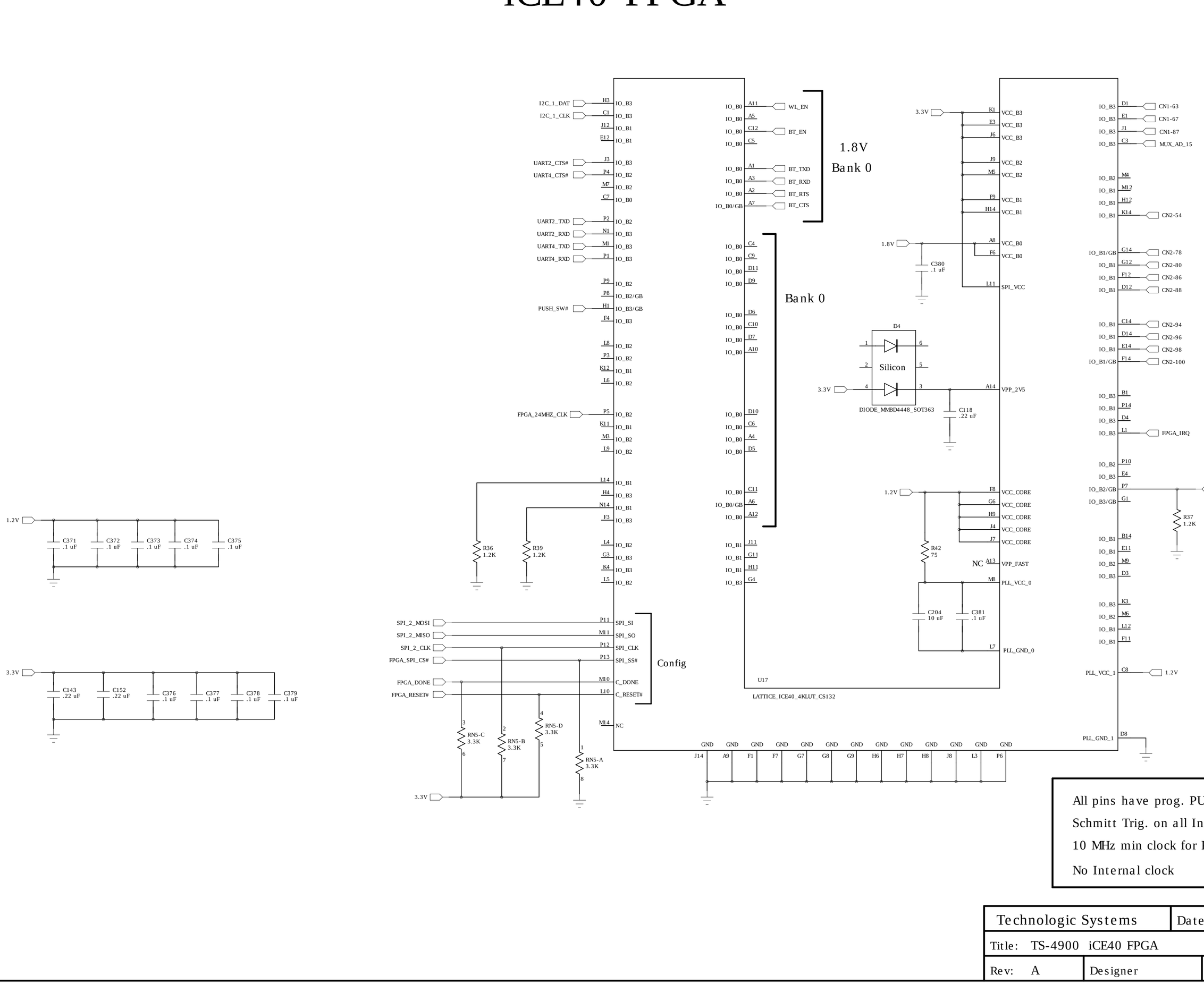
64 bytes of OTP

SATA



Technologic Systems		Date May 21, 2014
Title: TS-4900 Flash, SATA		
Rev: A	Designer	Sheet 5 of 7

iCE40 FPGA



Technologic Systems	Date May 21, 2014	
Title: TS-4900 iCE40 FPGA		
Rev: A	Designer	Sheet 6 of 7

Two 100-pin Off-board Connectors

"5V" pins supply all power to the module
Apply 4.5V to 5.5V to these pins

OFF_BD_RESET# is an Output
used to reset all peripherals

EXT_RESET# is an Input
used to reboot the CPU

Do not drive active high
(use open drain)

⚠ All signals driving DIO on CN1 & CN2 must be powered by the 3.3V on CN2, or remain at 0V until the CN2 3.3V rail is > 3.0V

Must have 10 nF Capacitor
very near CN2 and GND
for all "quiet" signals
(between diff pairs)

Left

CN1

	1	2	EXT_RESET#
	3	4	EN_USB_5V
	5	6	SD2_D2
	7	8	SD2_D3
OFF_BD_RESET#	9	10	SD2_CMD
NC	11	12	3.3V
NC	13	14	SD2_CLK
5V	15	16	5V
NC	17	18	SD2_D0
LCD_D08	19	20	SD2_D1
LCD_D09	21	22	
LCD_D10	23	24	LCD_D00
LCD_D11	25	26	LCD_D01
LCD_D12	27	28	LCD_D02
	29	30	LCD_D03
LCD_D13	31	32	LCD_D04
LCD_D14	33	34	LCD_D05
LCD_D15	35	36	V_BAT
LCD_D16	37	38	LCD_D06
LCD_D17	39	40	LCD_D07
LCD_D18	41	42	LCD_D21
LCD_D19	43	44	LCD_D22
LCD_D20	45	46	LCD_D23
5V	47	48	EN_LCD_3.3V
LCD_CLK	49	50	
LCD_HSYNC	51	52	BOOT_MODE_0
LCD_VSYNC	53	54	BOOT_MODE_1
LCD_DE	55	56	SPI_1_MISO
LCD_PWM	57	58	SPI_1_MOSI
SPI_FLASH_CS#	59	60	SPI_1_CLK
SPI_1_CS1#	61	62	
CN1-63	63	64	MUX_AD_15
DIO_10	65	66	MUX_AD_14
CN1-67	67	68	MUX_AD_13
CAN_2_RXD	69	70	MUX_AD_12
CAN_2_TXD	71	72	MUX_AD_11
PUSH_SW#	73	74	MUX_AD_10
	75	76	MUX_AD_09
DIO_12	77	78	MUX_AD_08
DIO_13	79	80	MUX_AD_07
DIO_14	81	82	MUX_AD_06
DIO_15	83	84	MUX_AD_05
DIO_16	85	86	MUX_AD_04
CN1-87	87	88	MUX_AD_03
DIO_18	89	90	MUX_AD_02
DIO_19	91	92	MUX_AD_01
DIO_20	93	94	MUX_AD_00
	95	96	BUS_ALE#
BUS_WAIT#	97	98	BUS_DIR
BUS_BHE#	99	100	BUS_CS#

TYCO_100PIN_SBC

MUX_AD_[00:15]

Off-Bd
SD Card

SD card signals on connector
are wired in parallel with
SD card socket. Only one
can be populated with SD card

Data Bus
or DIO

5V — C146 .22 uF — C148 .22 uF

Bus Control

CN1-Pin 67 = UART0 TXEN

If Bus is not needed, all Bus
signals can be changed to DIO

Devices connected to this bus must never
drive it when BUS_CS# is deasserted
(must be off within 30 nS of deassertion)

Devices must pull the BUS_WAIT# line low
if they need more than 150 nS strobe

The data bus can not have more than
30 pF of off-board capacitive loading
May need data buffer chip for heavy loads

Right

CN2

MDI_0_P	1	2	ETH_ACT_LED
MDI_0_M	3	4	ETH_LINK_LED
ETH_CT	5	6	RED_LED#
MDI_1_P	7	8	GREEN_LED#
MDI_1_M	9	10	
ETH_CT	11	12	
3.3V	13	14	
	15	16	
MDI_2_P	17	18	
MDI_2_M	19	20	
	21	22	
MDI_3_P	23	24	
MDI_3_M	25	26	
	27	28	I2C_2_CLK
HOST_USB_M	29	30	I2C_2_DAT
HOST_USB_P	31	32	
1.2V	33	34	AUD_MCLK
USB_OTG_M	35	36	AUD_CLK
USB_OTG_P	37	38	AUD_FRM
	39	40	AUD_TXD
	41	42	AUD_RXD
CPU_JTAG_TRST#	43	44	CPU_JTAG_TMS
PCIE_TX_P	45	46	CPU_JTAG_TCK
PCIE_TX_M	47	48	CPU_JTAG_TDI
	49	50	CPU_JTAG_TDO
PCIE_RX_M	51	52	DIO_0
PCIE_RX_P	53	54	CN2-54
	55	56	DIO_1
PCIE_CLK_P	57	58	DIO_2
PCIE_CLK_M	59	60	DIO_3
1.8V	61	62	DIO_4
SPI_2_CS#	63	64	DIO_5
SPI_2_MOSI	65	66	DIO_6
SPI_2_MISO	67	68	DIO_7
SPI_2_CLK	69	70	DIO_8
	71	72	DIO_9
SATA_RX_M	73	74	USB_OTG_ID
SATA_RX_P	75	76	USB_OTG_VBUS
3.3V	77	78	CN2-78
SATA_TX_M	79	80	CN2-80
SATA_TX_P	81	82	UART3_TXD
	83	84	UART3_RXD
	85	86	CN2-86
	87	88	CN2-88
	89	90	UART5_TXD
UART1_TXD	91	92	UART5_RXD
UART1_RXD	93	94	CN2-94
CAN_1_TXD	95	96	CN2-96
CAN_1_RXD	97	98	CN2-98
	99	100	CN2-100

TYCO_100PIN_SBC

Gigabit
Ethernet

3.3V rail can supply up
to 700 mA to base board

USB
Ports

3.3V — C52 10 nF

DDR_1.5V — C53 10 nF

SPI
or DIO

CPU JTAG Vcc

Console

CAN

I2C

I2S
or DIO

CPU
JTAG

Serial Ports
or DIO

CN2-54 Codec CLK
on the TS-8390

ETH_CT — C115 .22 uF — near CN2-5,11

Technologic Systems	Date May 21, 2014
Title: TS-4900 Off-board Connectors	
Rev: A	Designer
Sheet 7 of 7	