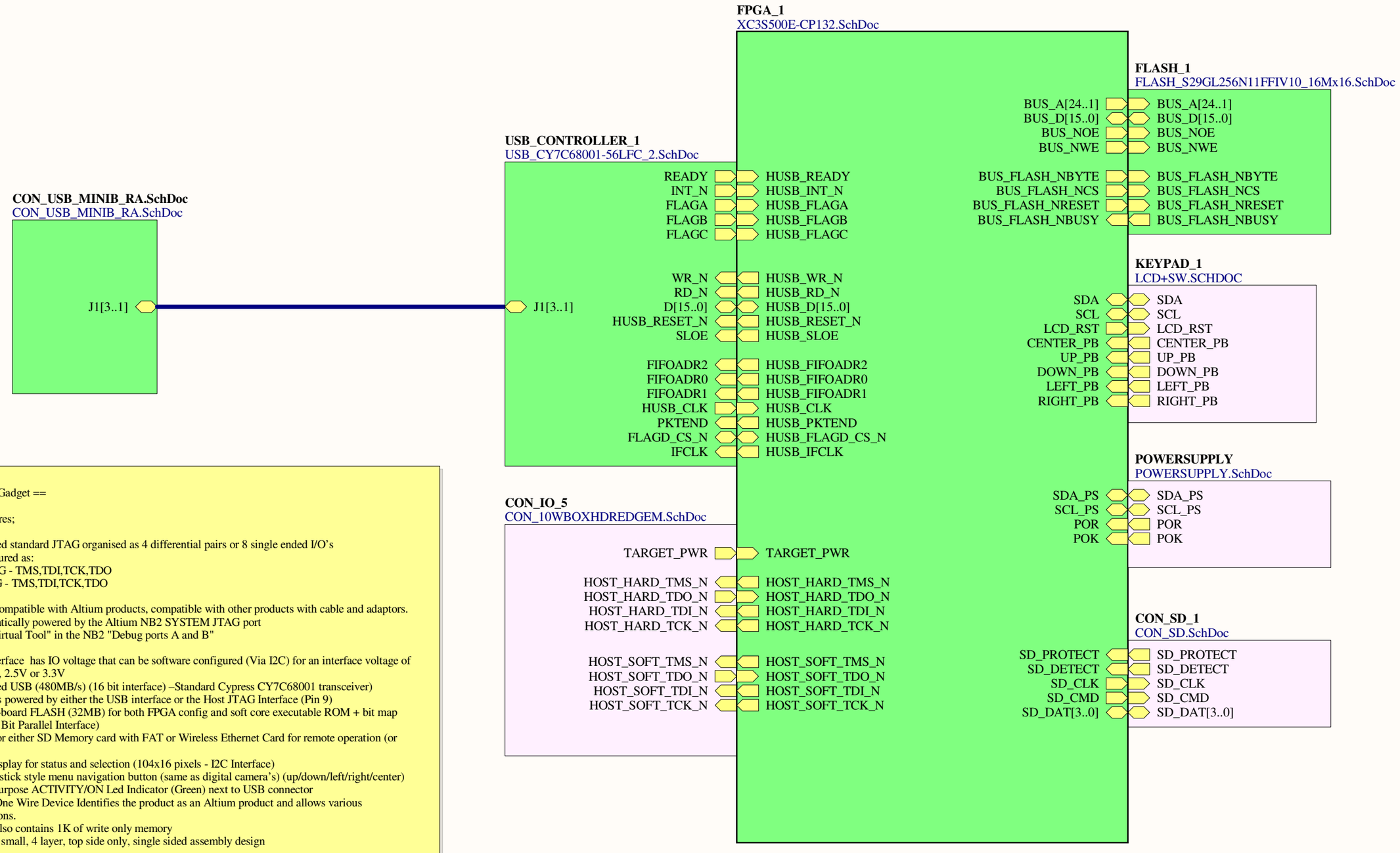


== Steve's Gadget ==

Some features;

- High Speed standard JTAG organised as 4 differential pairs or 8 single ended I/O's
Soft configured as:
  Hard JTAG - TMS,TDI,TCK,TDO
  Soft JTAG - TMS,TDI,TCK,TDO

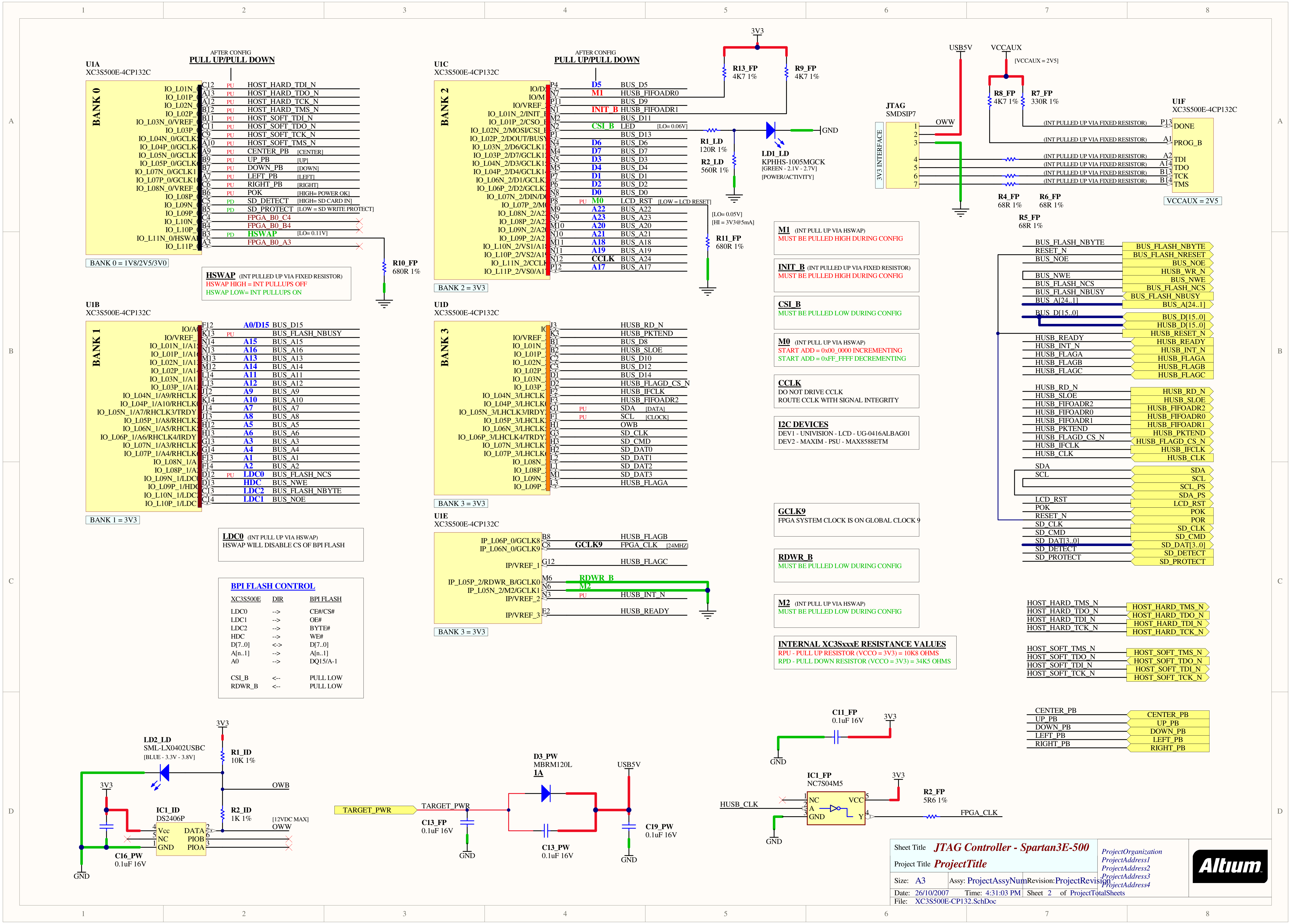
- Directly compatible with Altium products, compatible with other products with cable and adaptors.
- Is Automatically powered by the Altium NB2 SYSTEM JTAG port
- Acts a "Virtual Tool" in the NB2 "Debug ports A and B"

- JTAG Interface has IO voltage that can be software configured (Via I2C) for an interface voltage of either 1.8V, 2.5V or 3.3V
- High Speed USB (480MB/s) (16 bit interface) –Standard Cypress CY7C68001 transceiver)
- Adaptor is powered by either the USB interface or the Host JTAG Interface (Pin 9)
- Single on-board FLASH (32MB) for both FPGA config and soft core executable ROM + bit map storage (16 Bit Parallel Interface)
- SD Slot for either SD Memory card with FAT or Wireless Ethernet Card for remote operation (or Bluetooth)
- OLED Display for status and selection (104x16 pixels - I2C Interface)
- 5 way Joystick style menu navigation button (same as digital camera's) (up/down/left/right/center)
- General purpose ACTIVITY/ON Led Indicator (Green) next to USB connector
- DS2406 One Wire Device Identifies the product as an Altium product and allows various configurations.
- DS2406 also contains 1K of write only memory
- Low cost, small, 4 layer, top side only, single sided assembly design

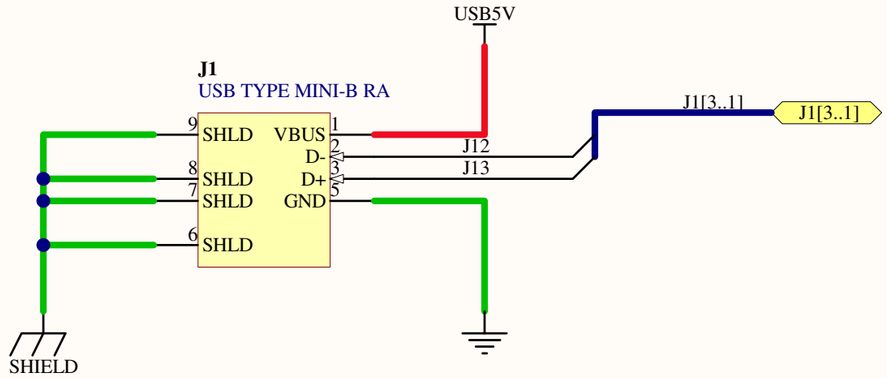
Software Features;

- One touch programming of JTAG images
- Auto target detect using JTAG ID's or manual target select
  ie - FLASH ROM or FPGA with Flash (XC3S E Series)
- Portable program library via SD card, or virtual library via Wirless SD Card

Sheet Title	***Serial JTAG Adapter***		*ProjectOrganization*
Project Title	***ProjectTitle***		*ProjectAddress1*
Size: A4	Assy: ProjectAssyNum	Revision: ProjectRevision	*ProjectAddress2* *ProjectAddress3* *ProjectAddress4*
Date: 26/10/2007	Time: 4:31:03 PM	Common Sheet	
File: SJA01.01.SchDoc			



U1A XC3S500E-4CP132C
BANK 0
AFTER CONFIG PULL UP/PULL DOWN
BANK 0 = 1V8/2V5/3V0
HSWAP (INT PULLED UP VIA FIXED RESISTOR)
HSWAP HIGH = INT PULLUPS OFF
HSWAP LOW= INT PULLUPS ON
R10_FP 680R 1%
U1B XC3S500E-4CP132C
BANK 1
BANK 1 = 3V3
LDC0 (INT PULL UP VIA HSWAP)
HSWAP WILL DISABLE CS OF BPI FLASH
BPI FLASH CONTROL
XC3S500E DIR BPI FLASH
LDC0 --> CE#/CS#
LDC1 --> OE#
LDC2 --> BYTE#
HDC --> WE#
D[7..0] <-> D[7..0]
A[n..1] --> A[n..1]
A0 --> DQ15/A-1
CSI_B <-- PULL LOW
RDWR_B <-- PULL LOW
U1C XC3S500E-4CP132C
BANK 2
BANK 2 = 3V3
U1D XC3S500E-4CP132C
BANK 3
BANK 3 = 3V3
U1E XC3S500E-4CP132C
GCLK9
RDWR_B
M2
R13_FP 4K7 1%
R9_FP 4K7 1%
R1_LD 120R 1%
R2_LD 560R 1%
LD1_LD KPHHS-1005MGCK [GREEN - 2.1V - 2.7V] [POWER/ACTIVITY]
R11_FP 680R 1%
JTAG SMDSIP7
3V3 INTERFACE
USB5V
VCCAUX [VCCAUX = 2V5]
R8_FP 4K7 1%
R7_FP 330R 1%
U1F XC3S500E-4CP132C
DONE
PROG_B
TDI
TDO
TCK
TMS
VCCAUX = 2V5
R4_FP 68R 1%
R6_FP 68R 1%
R5_FP 68R 1%
M1 (INT PULL UP VIA HSWAP)
MUST BE PULLED HIGH DURING CONFIG
INIT_B (INT PULLED UP VIA FIXED RESISTOR)
MUST BE PULLED HIGH DURING CONFIG
CSI_B
MUST BE PULLED LOW DURING CONFIG
M0 (INT PULL UP VIA HSWAP)
START ADD = 0x00_0000 INCREMENTING
START ADD = 0xFF_FFFF DECREMENTING
CCLK
DO NOT DRIVE CCLK
ROUTE CCLK WITH SIGNAL INTEGRITY
I2C DEVICES
DEV1 - UNIVISION - LCD - UG-0416ALBAG01
DEV2 - MAXIM - PSU - MAX8588ETM
GCLK9
FPGA SYSTEM CLOCK IS ON GLOBAL CLOCK 9
RDWR_B
MUST BE PULLED LOW DURING CONFIG
M2 (INT PULL UP VIA HSWAP)
MUST BE PULLED LOW DURING CONFIG
INTERNAL XC3SxxxE RESISTANCE VALUES
RPU - PULL UP RESISTOR (VCCO = 3V3) = 10K8 OHMS
RPD - PULL DOWN RESISTOR (VCCO = 3V3) = 34K5 OHMS
LD2_LD SML-LX0402USBC [BLUE - 3.3V - 3.8V]
R1_ID 10K 1%
R2_ID 1K 1%
IC1_ID DS2406P
C16_PW 0.1uF 16V
TARGET_PWR
C13_FP 0.1uF 16V
D3_PW MBRM120L 1A
C13_PW 0.1uF 16V
C19_PW 0.1uF 16V
C11_FP 0.1uF 16V
IC1_FP NC7S04M5
R2_FP 5R6 1%
HUSB_CLK
FPGA_CLK
Sheet Title JTAG Controller - Spartan3E-500
Project Title ProjectTitle
Size: A3
Assy: ProjectAssyNum
Revision: ProjectRevision
Date: 26/10/2007
Time: 4:31:03 PM
Sheet 2 of ProjectTotalSheets
File: XC3S500E-CP132.SchDoc
ProjectOrganization
ProjectAddress1
ProjectAddress2
ProjectAddress3
ProjectAddress4



Sheet Title	***CON_USB_1***		*ProjectOrganization* *ProjectAddress1* *ProjectAddress2* *ProjectAddress3* *ProjectAddress4*
Project Title	***ProjectTitle***		
Size: A4	Assy: ProjectAssyNum	Revision: ProjectRevision	
Date: 26/10/2007	Time: 4:31:03 PM	Common Sheet	
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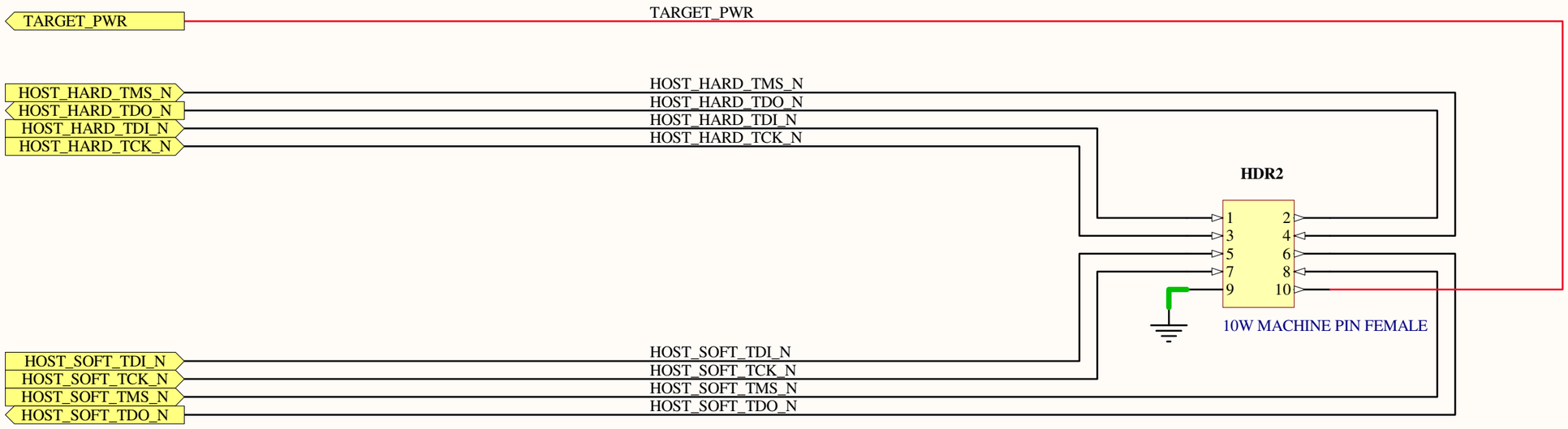
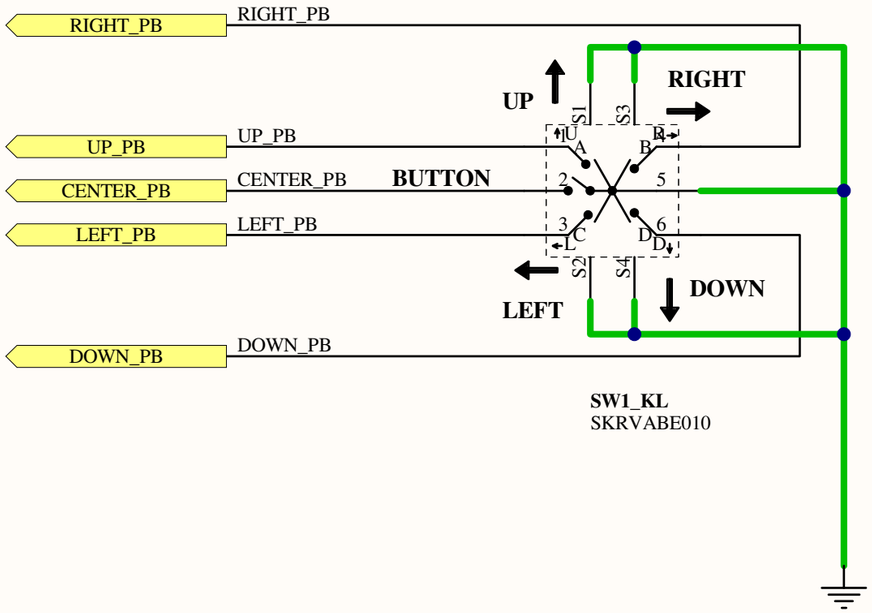


JTAG PROGRAMMING INTERFACE

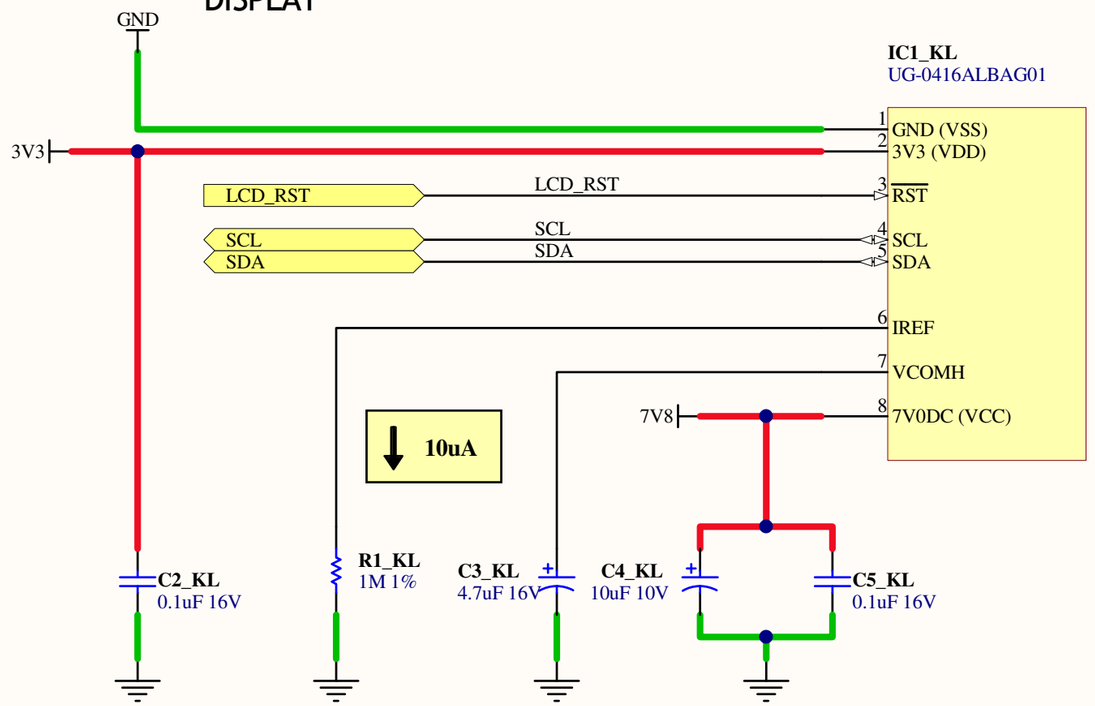
Sheet Title	*JTAG Interface*		*ProjectOrganization* *ProjectAddress1* *ProjectAddress2* *ProjectAddress3* *ProjectAddress4*
Project Title	*ProjectTitle*		
Size: A4	Assy: ProjectAssyNum	Revision: ProjectRevision	
Date: 26/10/2007	Time: 4:31:04 PM	Common Sheet	
File: CON_10WBOXHDREDGEM.SchDoc			

Altium

KEYPAD



DISPLAY



LCD

LCD

UG-0416ALBAG01

Sheet Title	*Control Key and LCD Display*		*ProjectOrganization* *ProjectAddress1* *ProjectAddress2* *ProjectAddress3* *ProjectAddress4*
Project Title	*ProjectTitle*		
Size: A4	Assy: ProjectAssyNum	Revision: ProjectRevision	
Date: 26/10/2007	Time: 4:31:04 PM	Common Sheet	
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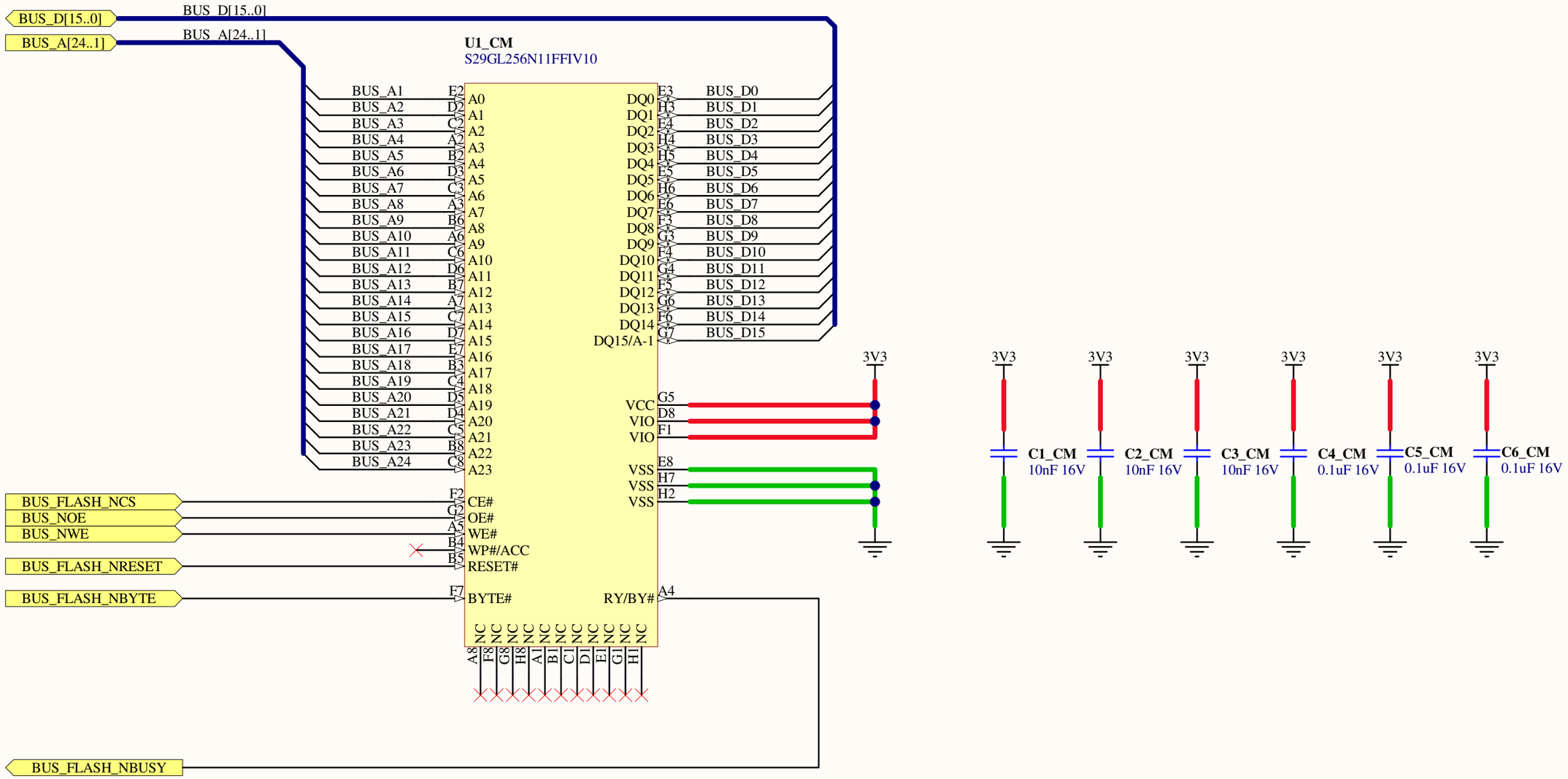

Sheet Title	***FLASH_1***		*ProjectOrganization* *ProjectAddress1* *ProjectAddress2* *ProjectAddress3* *ProjectAddress4*
Project Title	***ProjectTitle***		
Size: A4	Assy: ProjectAssyNum	Revision: ProjectRevision	
Date: 26/10/2007	Time: 4:31:04 PM	Common Sheet	
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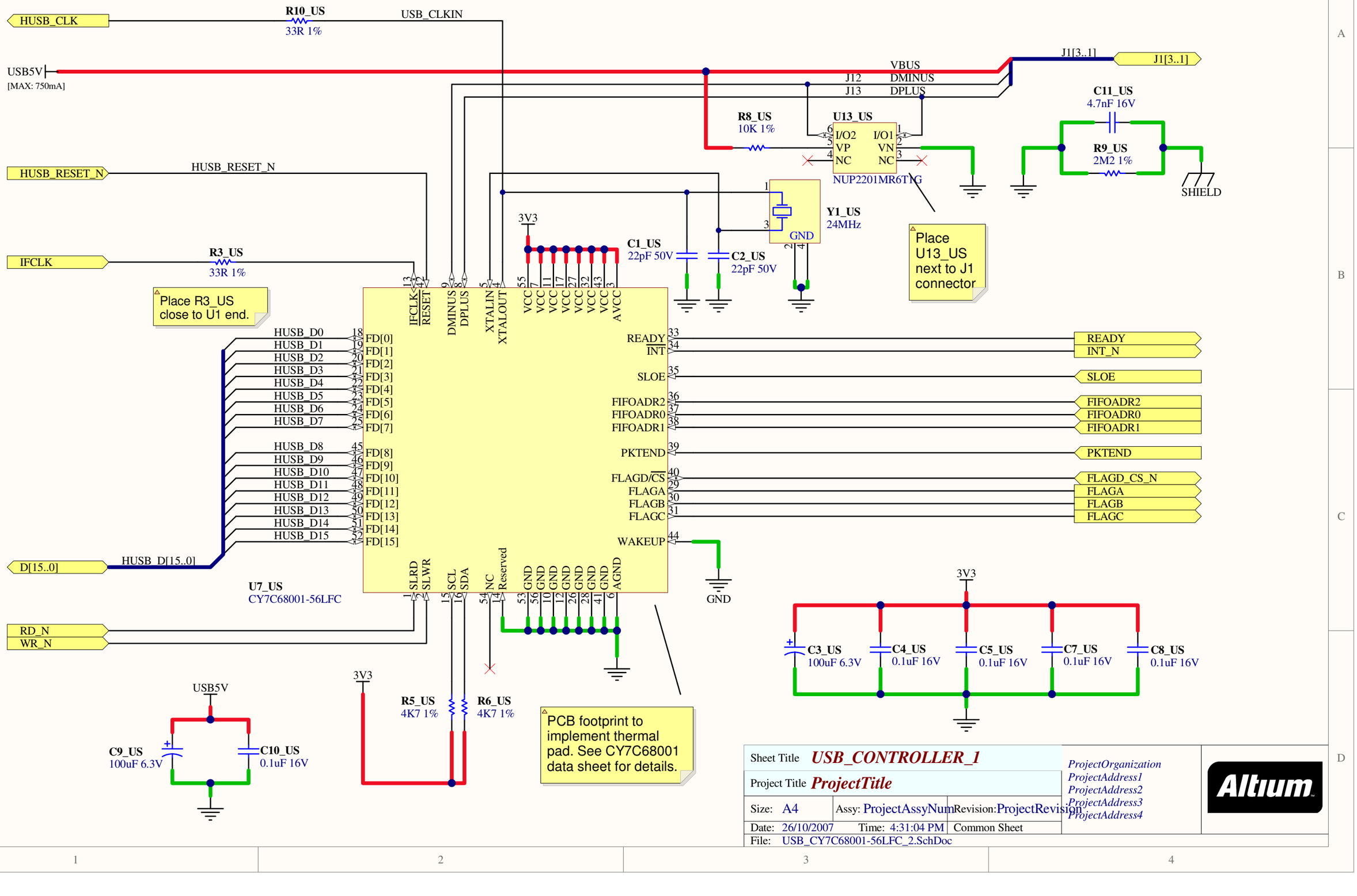
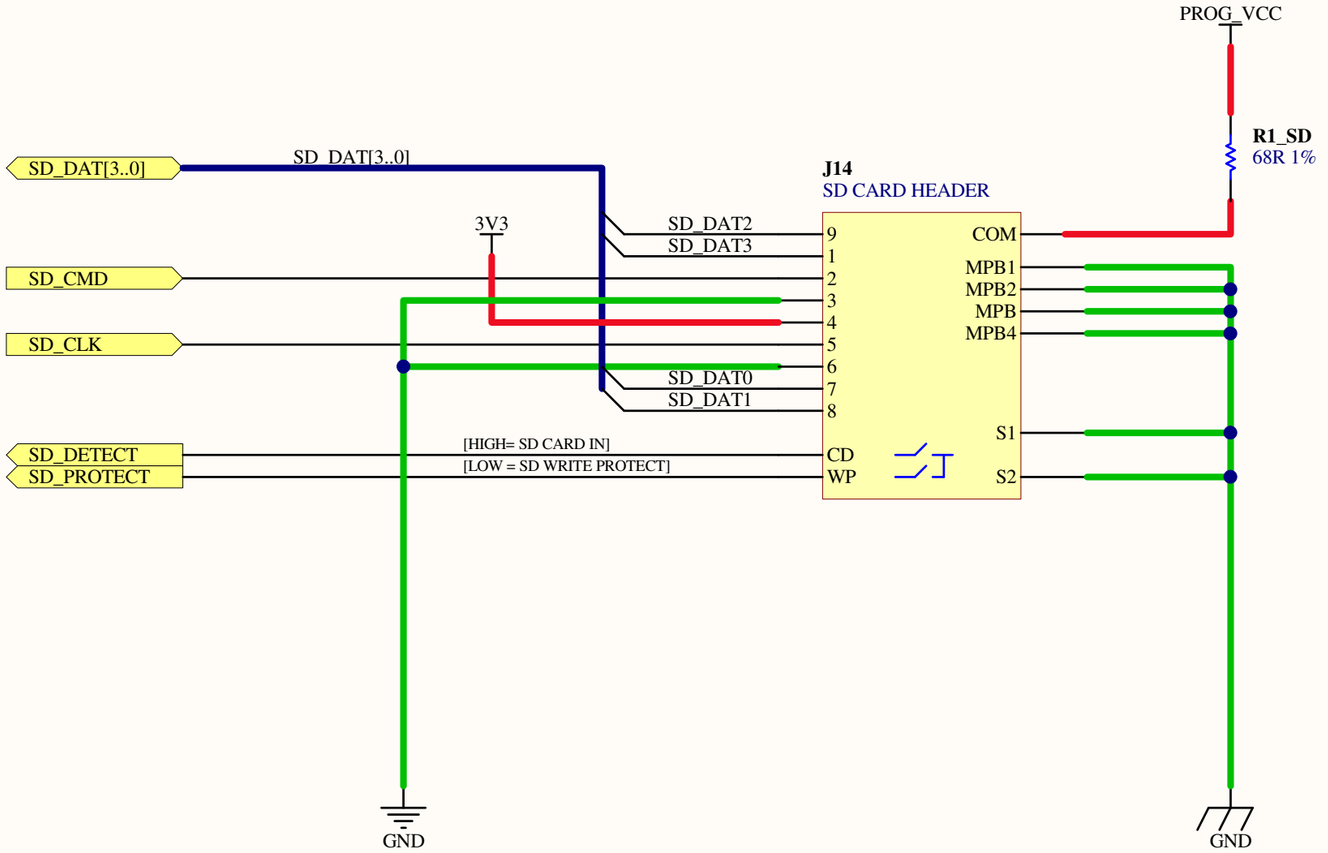
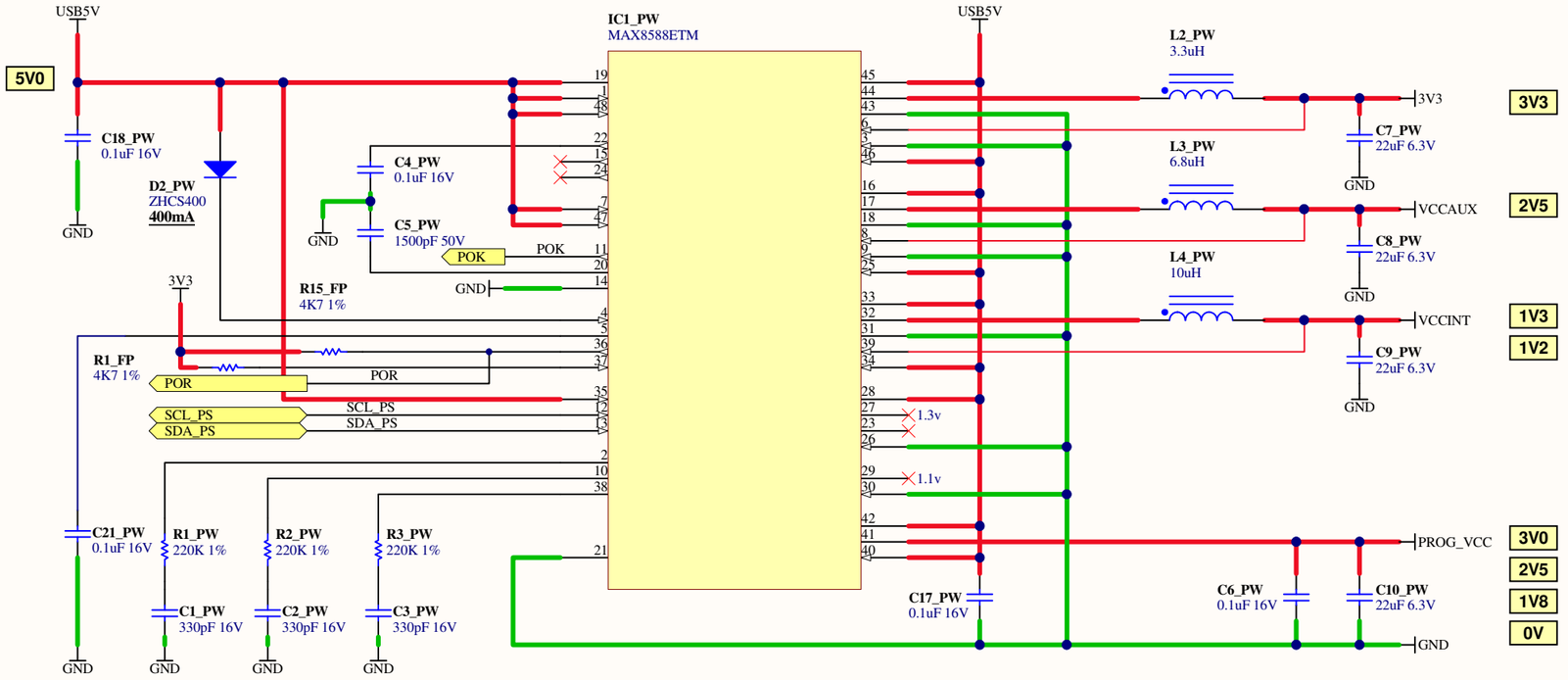
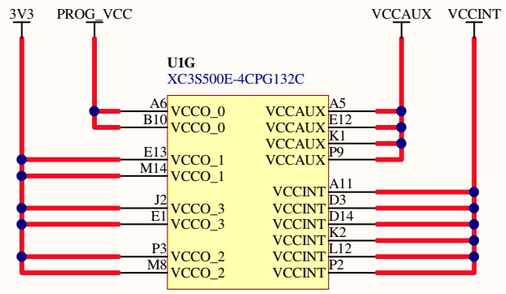


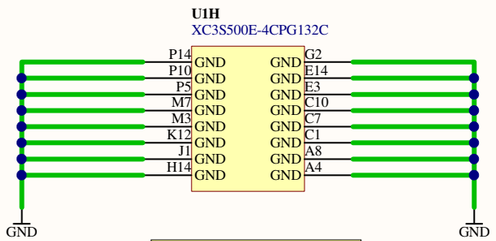
Sheet Title	*USB_CONTROLLER_1*		*ProjectOrganization*
Project Title	*ProjectTitle*		*ProjectAddress1* *ProjectAddress2* *ProjectAddress3* *ProjectAddress4*
Size: A4	Assy: ProjectAssyNum	Revision: ProjectRevision	
Date: 26/10/2007	Time: 4:31:04 PM	Common Sheet	
File: USB_CY7C68001-56LFC_2.SchDoc			



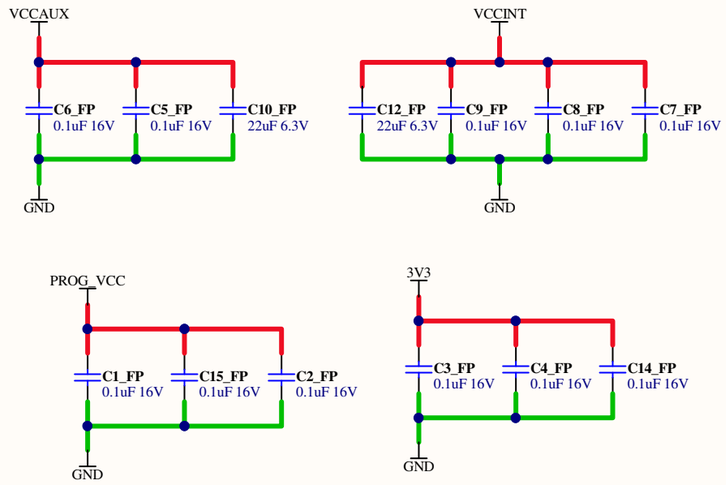
Sheet Title	*CON_SD_1*		*ProjectOrganization* *ProjectAddress1* *ProjectAddress2* *ProjectAddress3* *ProjectAddress4*
Project Title	*ProjectTitle*		
Size: A4	Assy: ProjectAssyNum	Revision: ProjectRevision	
Date: 26/10/2007 Time: 4:31:04 PM		Common Sheet	
File: CON_SD.SchDoc			

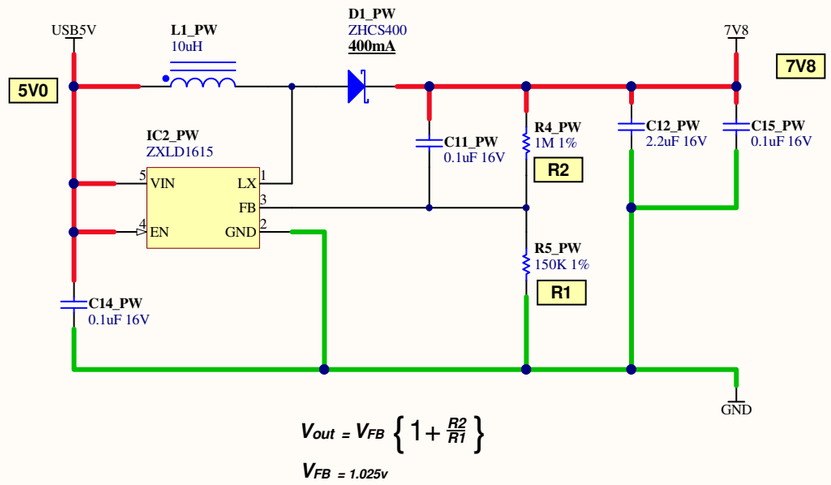






POR REQUIREMENTS:
1. - VCCINT - 1.2V
2. - VCCAUX - 2.5V
3. - VCCO BANK2 - 3.3V





Sheet Title	***Power Supply***		*ProjectOrganization*
Project Title	***ProjectTitle***		*ProjectAddress1* *ProjectAddress2* *ProjectAddress3* *ProjectAddress4*
Size: A3	Assy: ProjectAssyNum	Revision: ProjectRevision	
Date: 26/10/2007	Time: 4:31:04 PM	Sheet 9 of ProjectTotalSheets	
File: POWERSUPPLY.SchDoc			

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