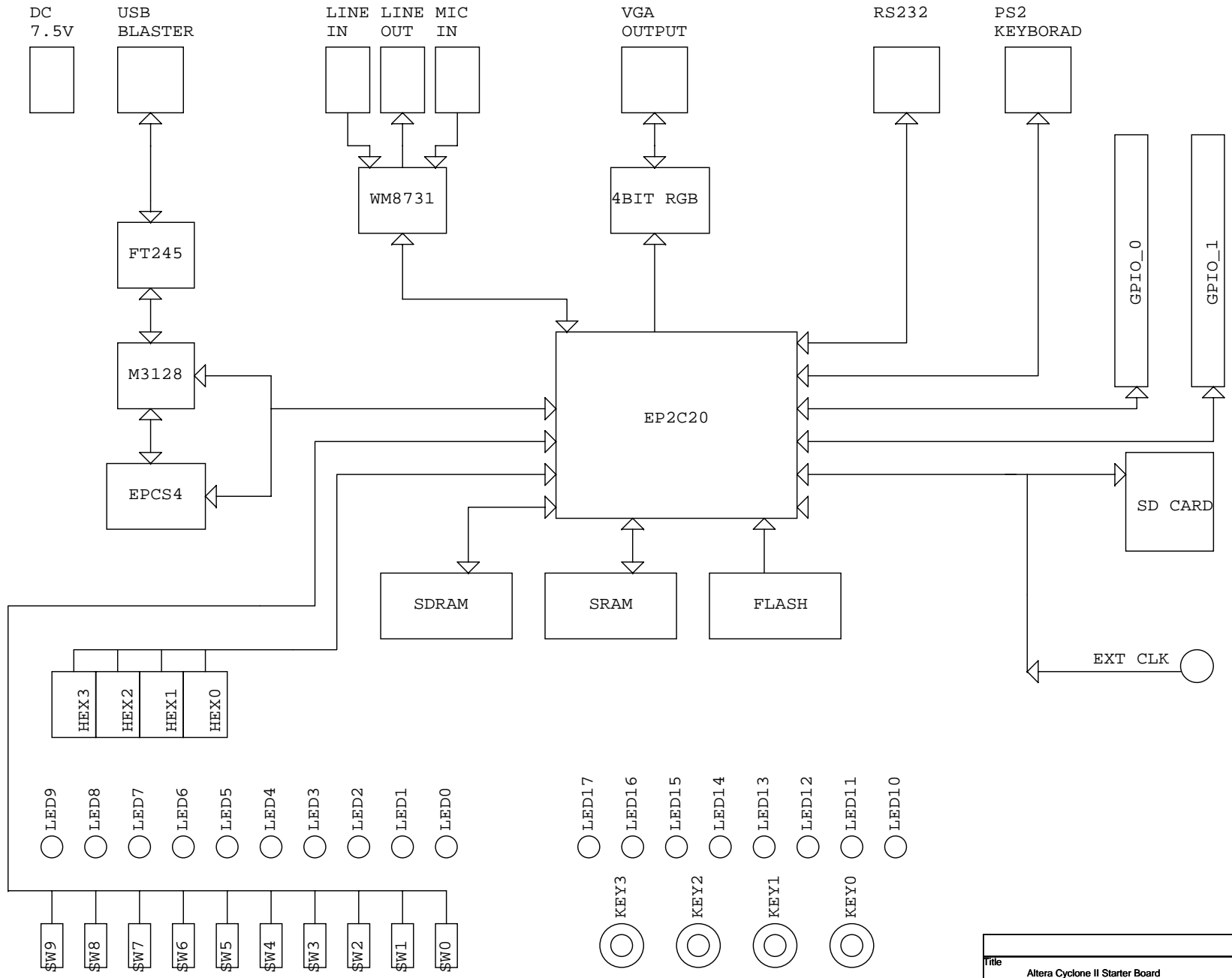
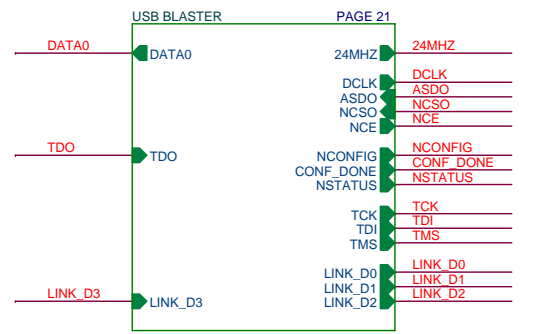
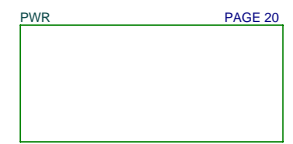
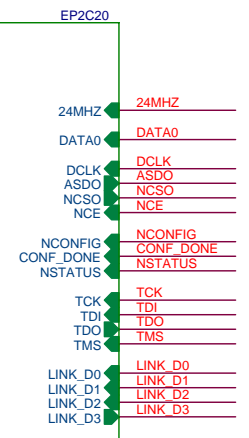
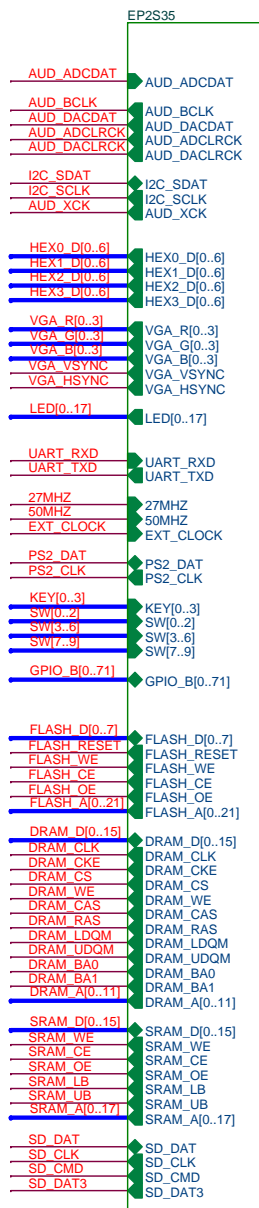
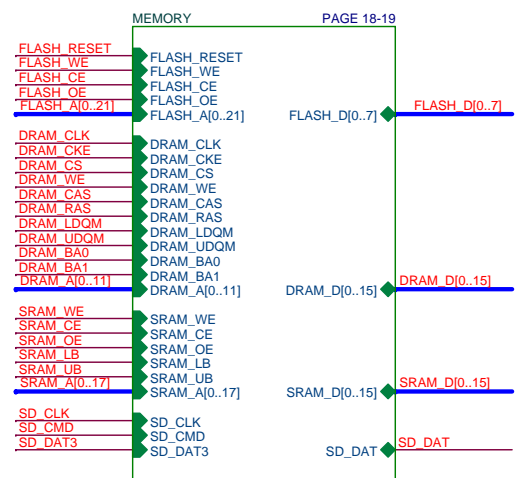
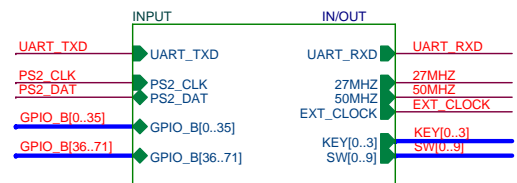
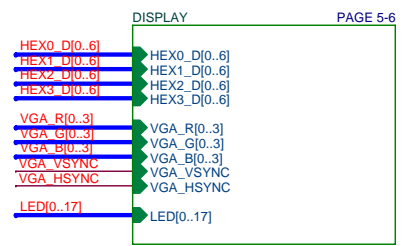
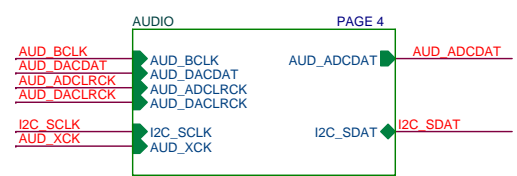


Altera Cyclone II FPGA Starter Board

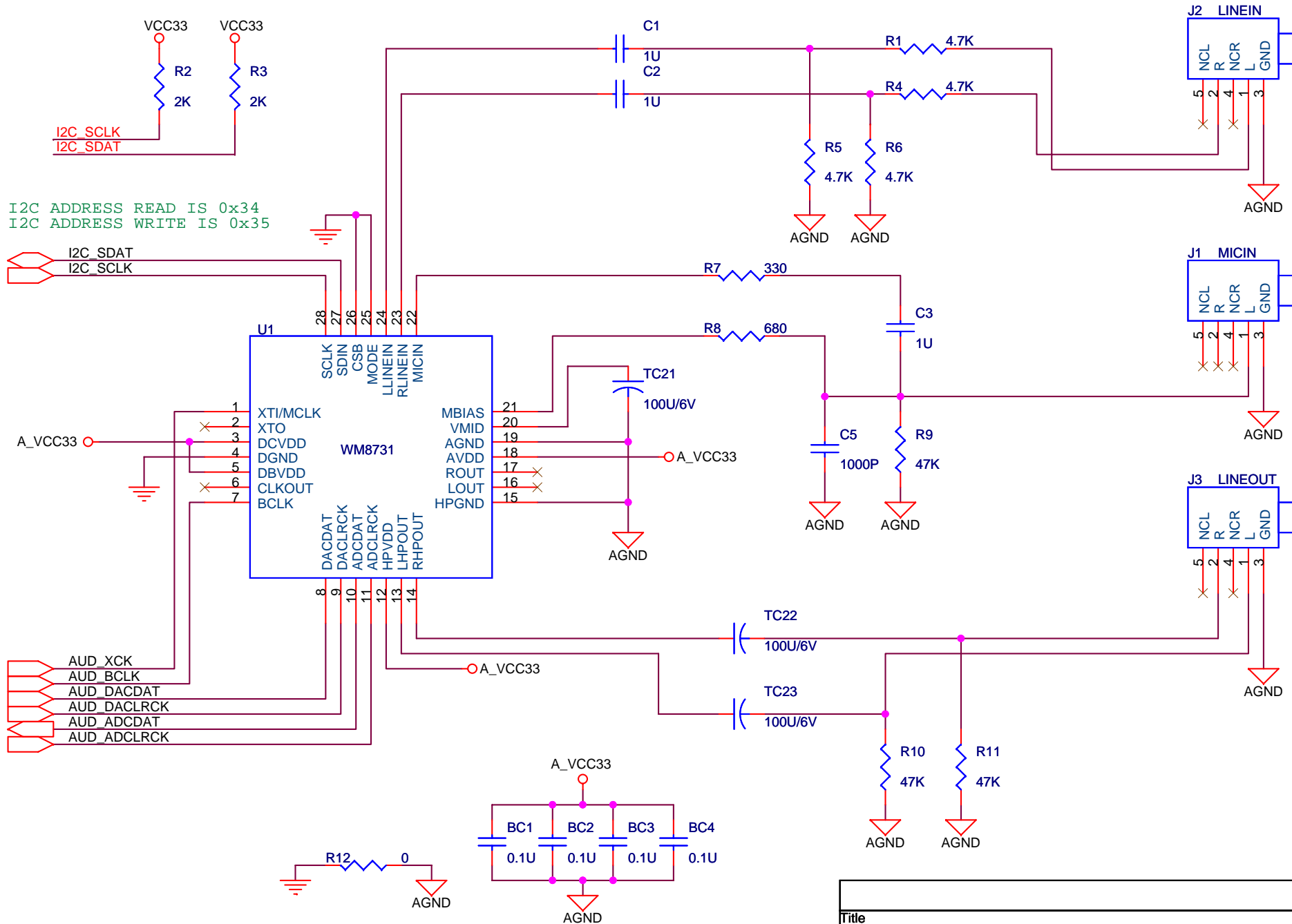
SCHEMATIC	CONTENT	PAGE
TOP	COVER PAGE , TOP	01 ~ 03
AUDIO	WM8731	04 ~ 04
DISPLAY	VGA , 7SEGMENT ,LED	05 ~ 07
EP2C20	EP2C20 BANK1..BANK8 , POWER , CONFIG	08 ~ 12
INPUT	CLOCK , PS2 , RS232 , KEY , SWITCH , CONNECT	13 ~ 17
MEMORY	SRAM , DRAM , FLASH , SD CARD	18 ~ 19
POWER	POWER	20 ~ 20
BLASTER	USB BLASTER	21 ~ 21



Title		
Altera Cyclone II Starter Board		
Size	Document Number	Rev
B	PLACEMENT	1.1A
Date:	Tuesday, October 03, 2006	Sheet 2 of 21

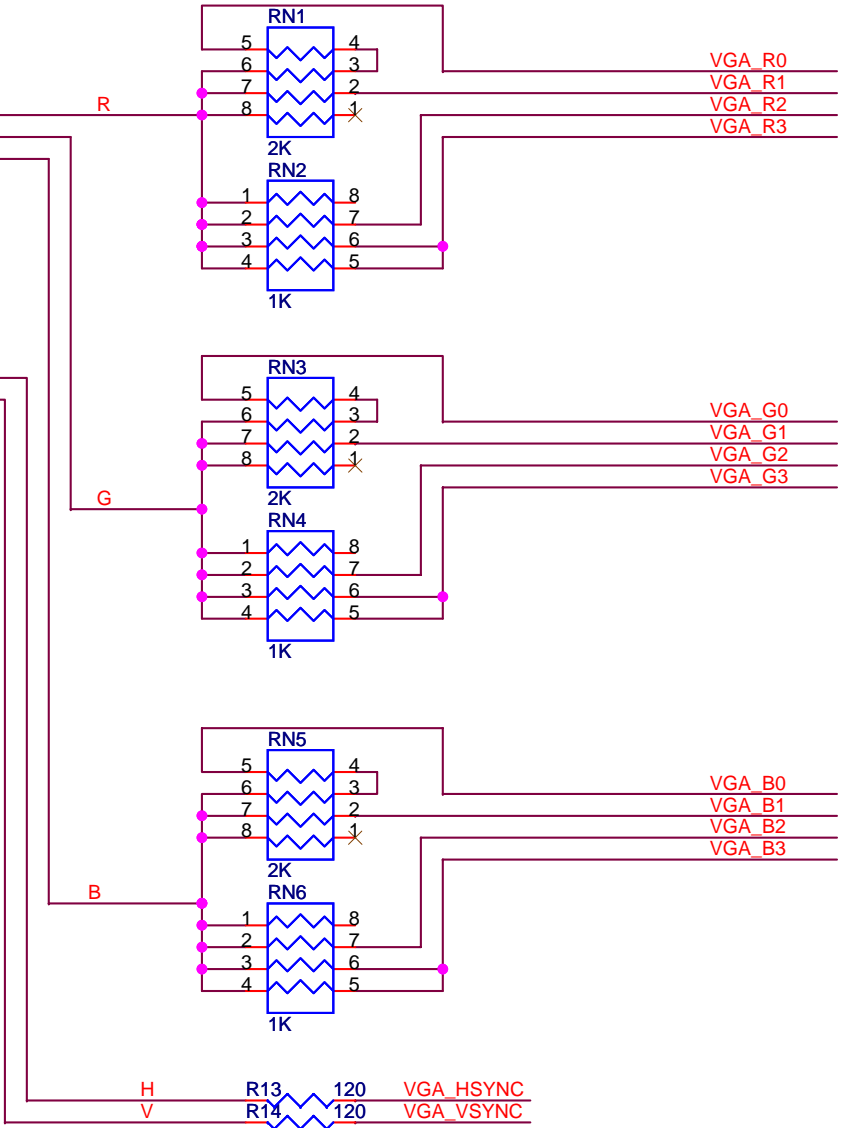
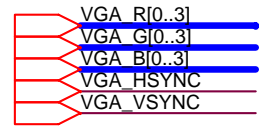
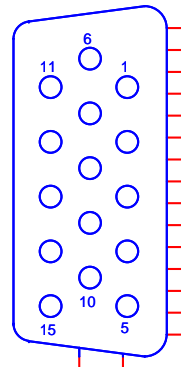


Title		
Altera Cyclone II Starter Board		
Size	Document Number	Rev
B	TOP LEVEL	1.1A
Date:	Tuesday, October 03, 2006	Sheet 3 of 21



Title		
Altera Cyclone II Starter Board		
Size	Document Number	Rev
A	AUDIO	1.1A
Date:	Tuesday, October 03, 2006	Sheet 4 of 21

J4

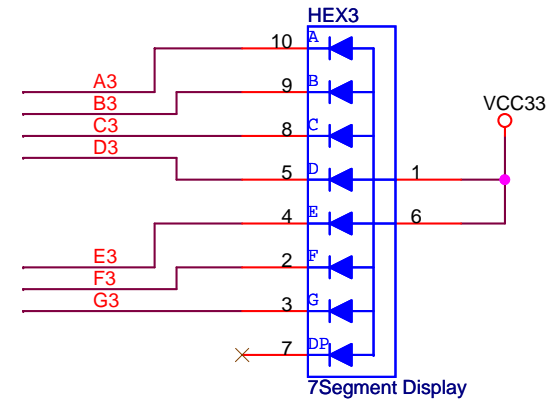
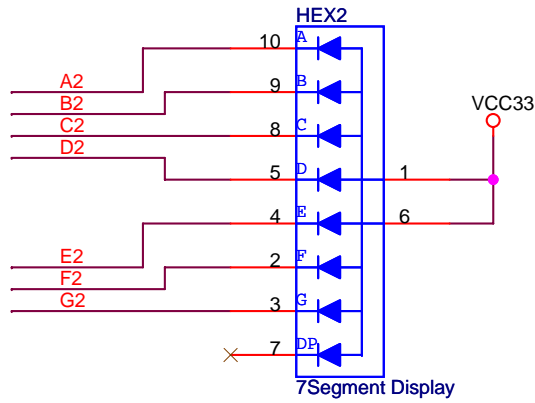
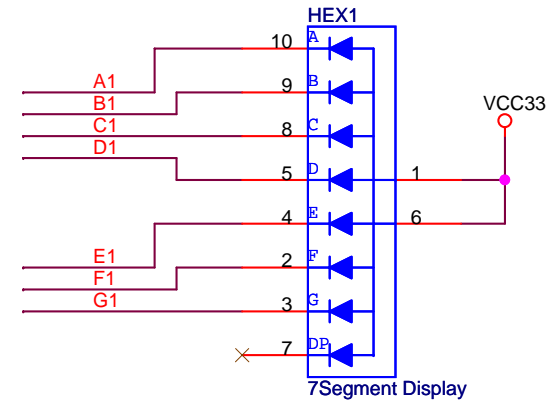
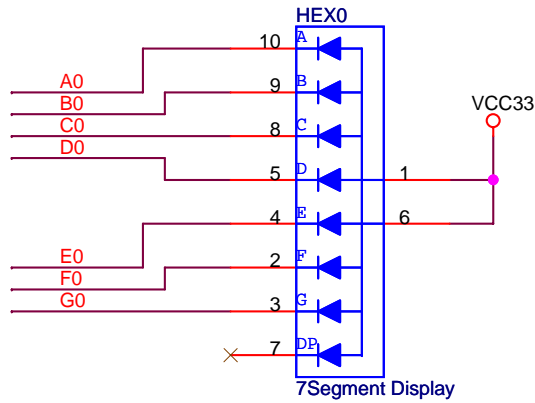
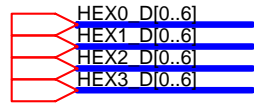
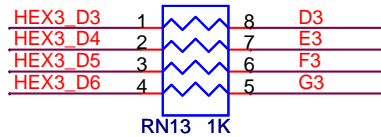
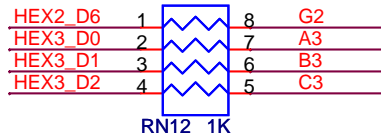
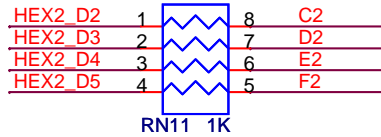
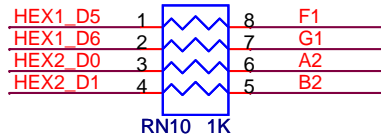
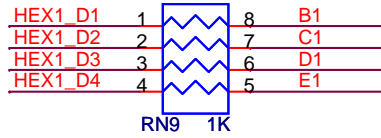
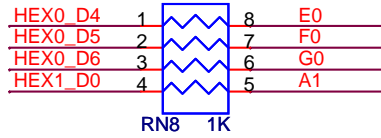
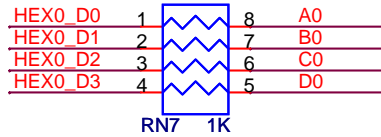


VGA_R0
VGA_R1
VGA_R2
VGA_R3

VGA_G0
VGA_G1
VGA_G2
VGA_G3

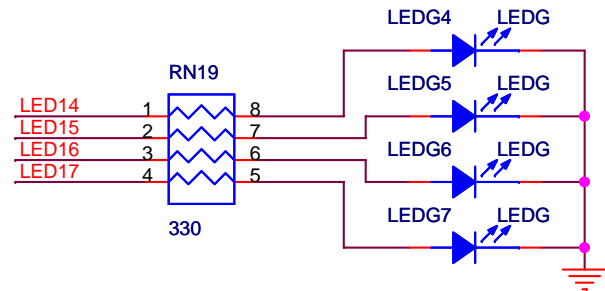
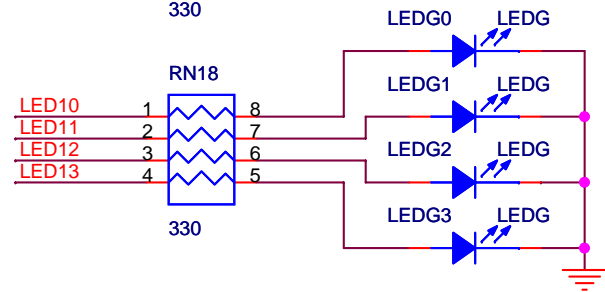
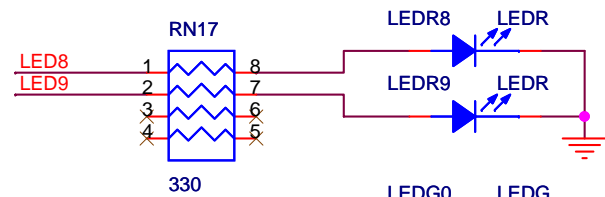
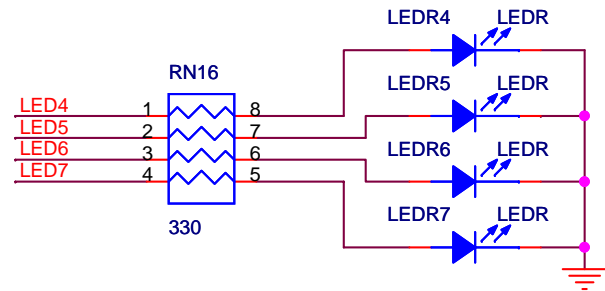
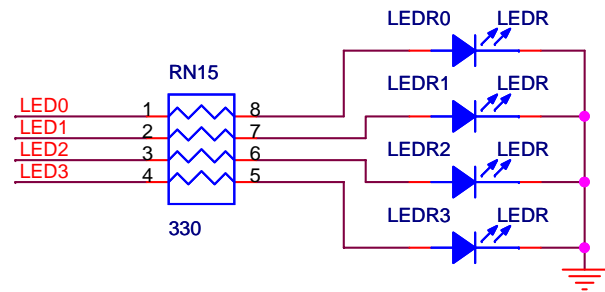
VGA_B0
VGA_B1
VGA_B2
VGA_B3

Title		
Altera Cyclone II Starter Board		
Size	Document Number	Rev
A	VGA	1.1A
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Title		
Altera Cyclone II Starter Board		
Size	Document Number	Rev
A	7 SEGMENT	1.1A
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LED[0..17]



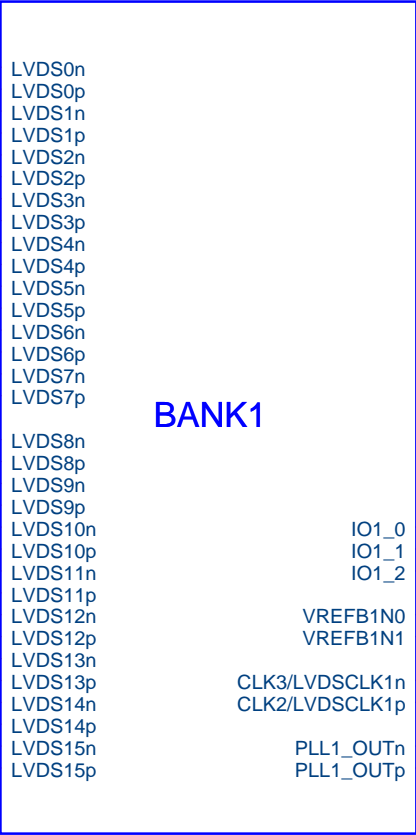
Title		
Altera Cyclone II Starter Board		
Size	Document Number	Rev
A	LED	1.1A
Date:	Tuesday, October 03, 2006	Sheet 7 of 21

DRAM DI[0..15]
 DRAM AI[0..11]
 SW[7..9]

U2A

DRAM A3 Y4
 DRAM A2 Y3
 DRAM A0 W4
 DRAM A10 W3
 DRAM D7 Y2
 DRAM D6 Y1
 DRAM D5 W2
 DRAM D4 W1
 DRAM CS T6
 DRAM RAS T5
 DRAM D3 V2
 DRAM D2 V1
 DRAM A4 R6
 DRAM A5 R5
 DRAM D1 U2
 DRAM D0 U1

 DRAM D15 T2
 DRAM D14 T1
 DRAM D13 R2
 DRAM D12 R1
 DRAM A6 P6
 DRAM A7 P5
 DRAM LDQM R7
 DRAM WE R8
 DRAM A9 N4
 DRAM CKE N3
 DRAM D11 P2
 DRAM D10 P1
 DRAM D9 N2
 DRAM D8 N1
 DRAM UDQM M6
 DRAM UDQM M5



BANK1

CYCLONE II EP2C20

IO1_0 N6 DRAM A11
 IO1_1 T3 DRAM CAS
 IO1_2 W5 DRAM A1

 VREFB1N0 P3 DRAM A8
 VREFB1N1 U3 DRAM_BA0

 CLK3/LVDSCLK1n M2 SW7
 CLK2/LVDSCLK1p M1 SW8

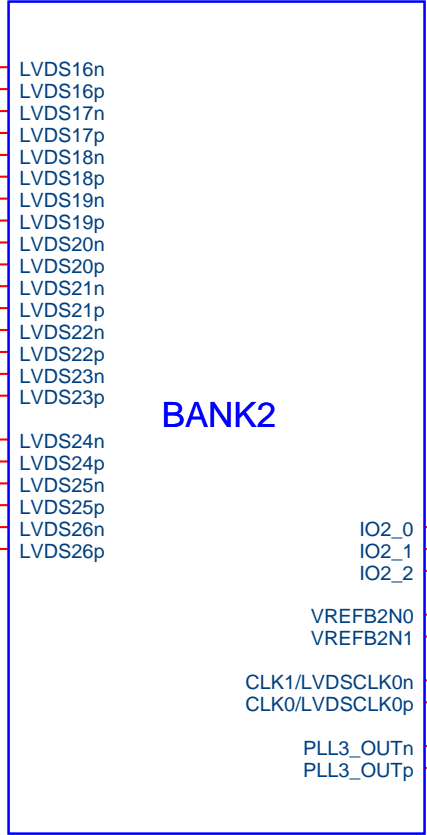
 PLL1_OUTn V4 DRAM_BA1
 PLL1_OUTp U4 DRAM_CLK

HEX0 DI[0..6]
 HEX1 DI[0..6]
 HEX2 DI[0..6]
 HEX3 DI[0..6]

U2B

HEX0 D0 J2
 HEX0 D1 J1
 HEX0 D2 H2
 HEX0 D3 H1
 HEX0 D4 F2
 HEX0 D5 F1
 HEX0 D6 E2
 HEX1 D0 E1
 HEX1 D1 H6
 HEX1 D2 H5
 HEX1 D3 H4
 HEX1 D4 G3
 HEX1 D5 D2
 HEX1 D6 D1
 HEX2 D0 G5
 HEX2 D1 G6

 HEX2 D2 C2
 HEX2 D3 C1
 HEX2 D5 E4
 HEX2 D4 E3
 HEX3 D6 D4
 HEX2 D6 D3



BANK2

CYCLONE II EP2C20

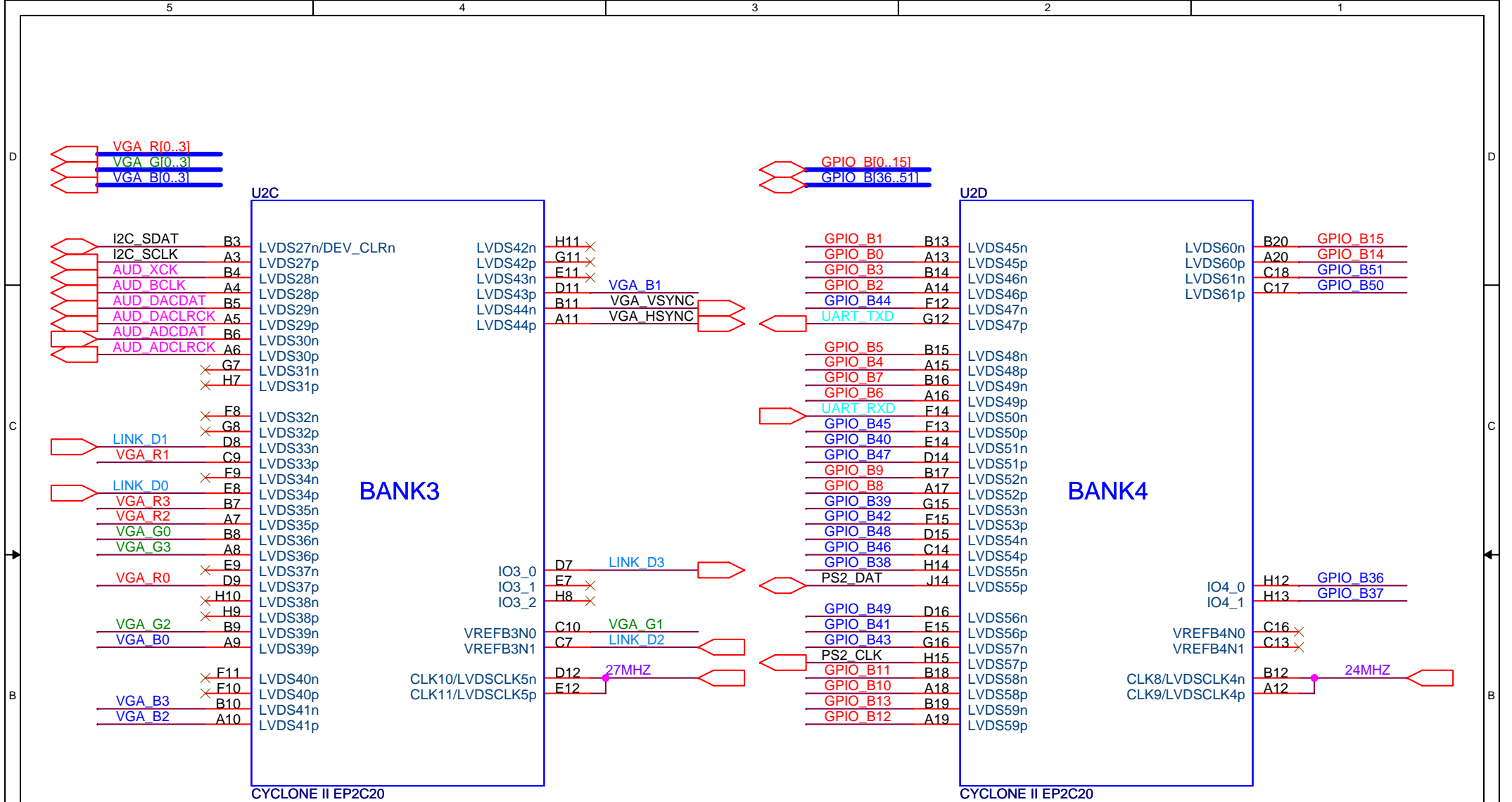
IO2_0 F3 HEX3 D5
 IO2_1 J4 HEX3 D3
 IO2_2 L8 HEX3 D4

 VREFB2N0 F4 HEX3 D0
 VREFB2N1 H3

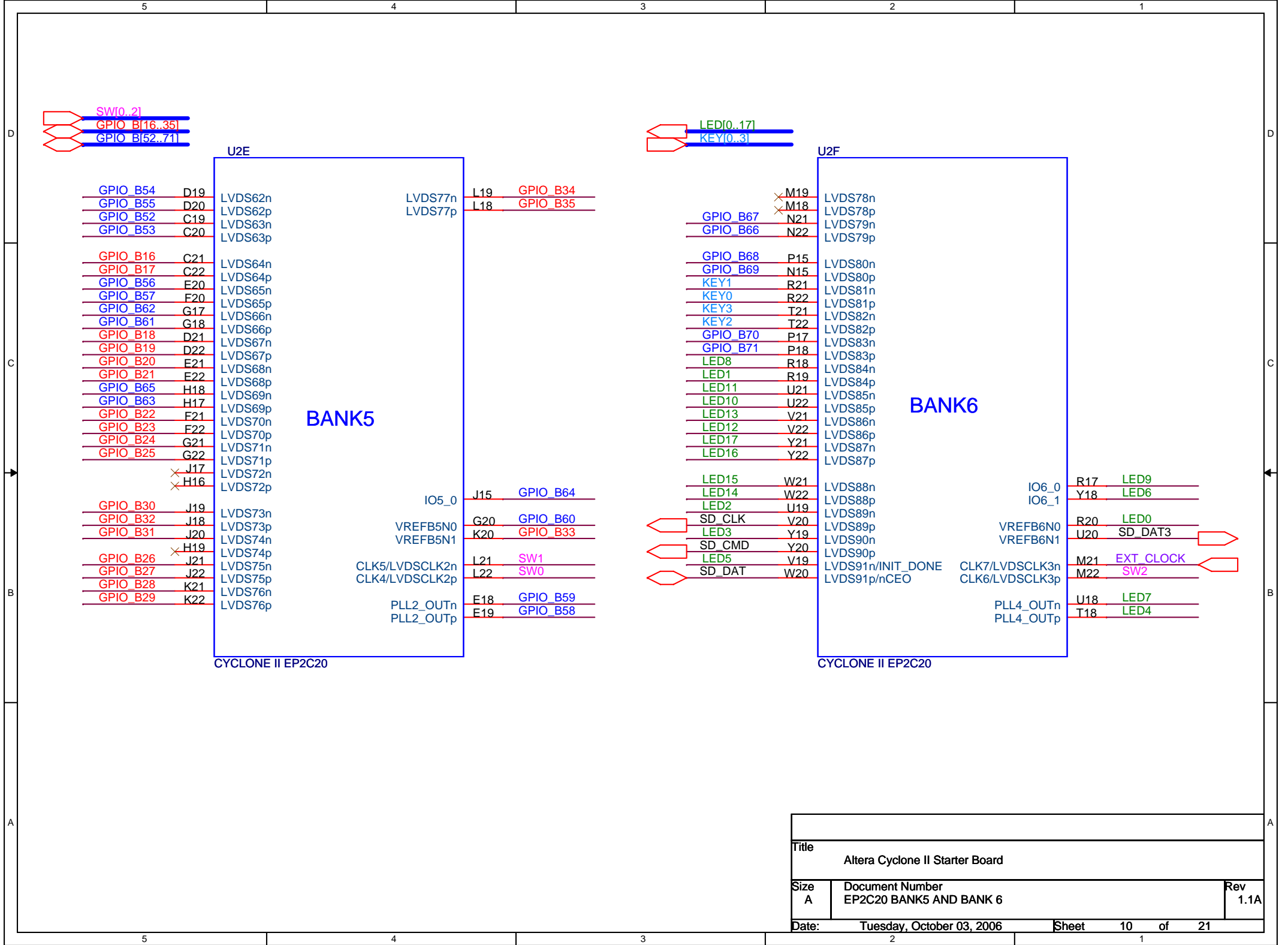
 CLK1/LVDSCLK0n L2 SW9
 CLK0/LVDSCLK0p L1 50MHZ

 PLL3_OUTn D6 HEX3 D2
 PLL3_OUTp D5 HEX3 D1

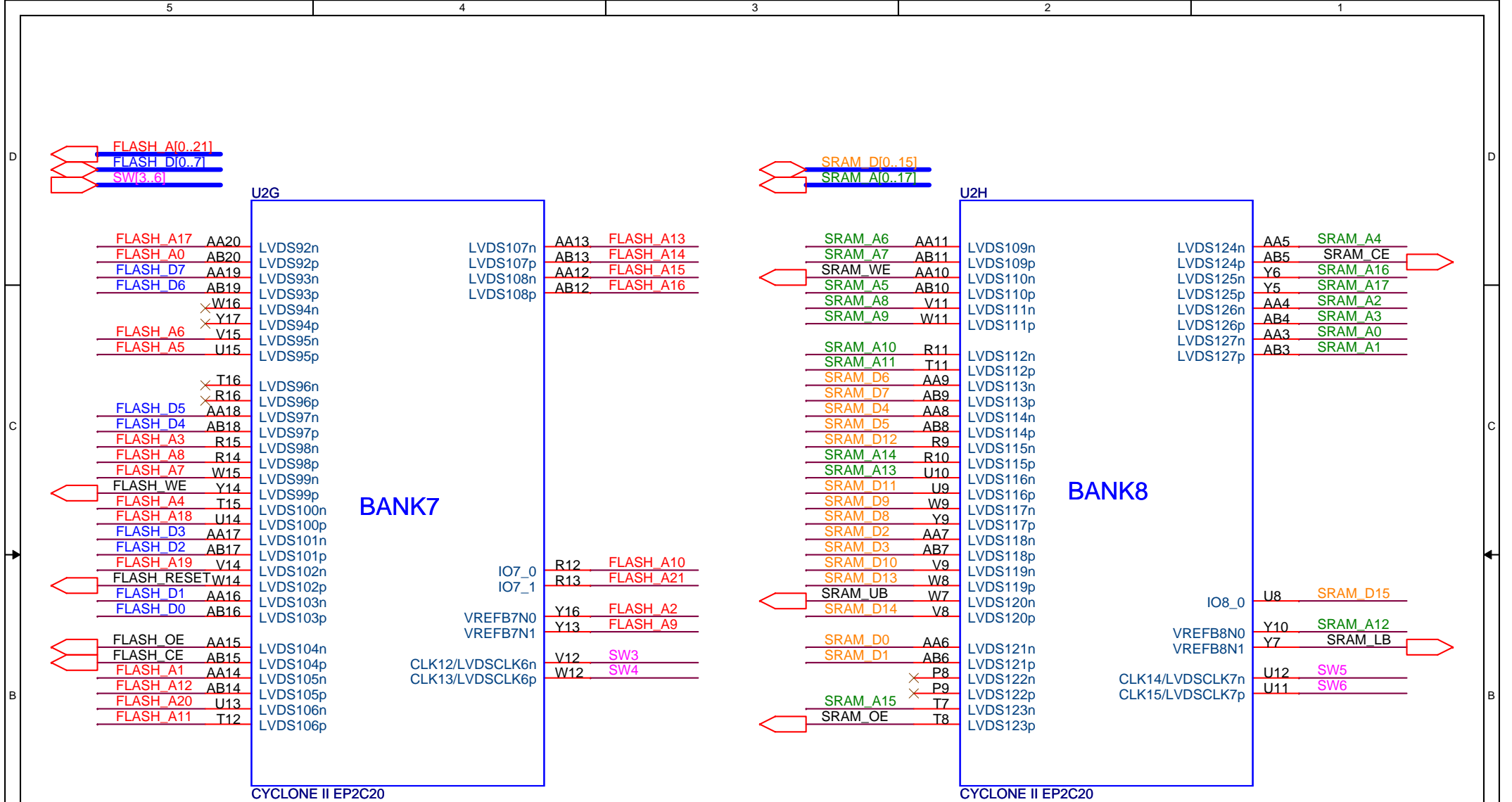
Title		
Altera Cyclone II Starter Board		
Size	Document Number	Rev
A	EP2C20 BANK1 AND BANK 2	1.1A
Date:	Tuesday, October 03, 2006	Sheet 8 of 21



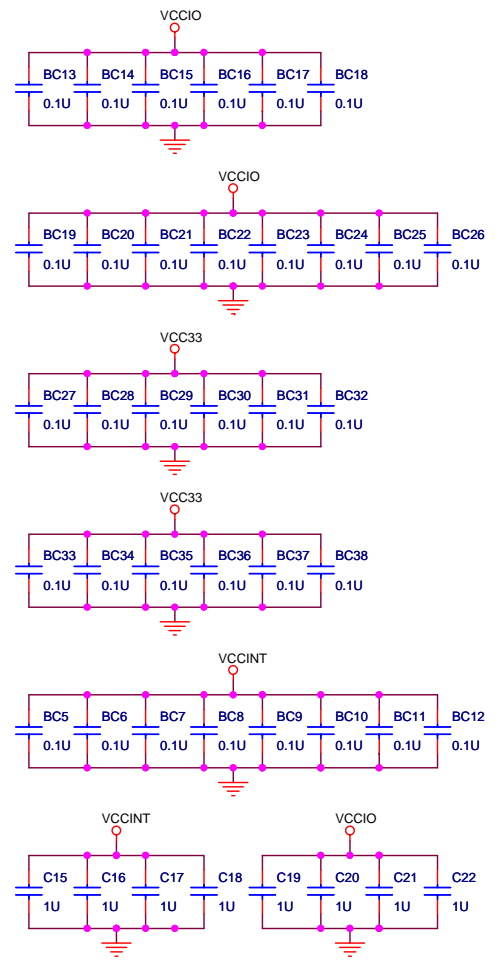
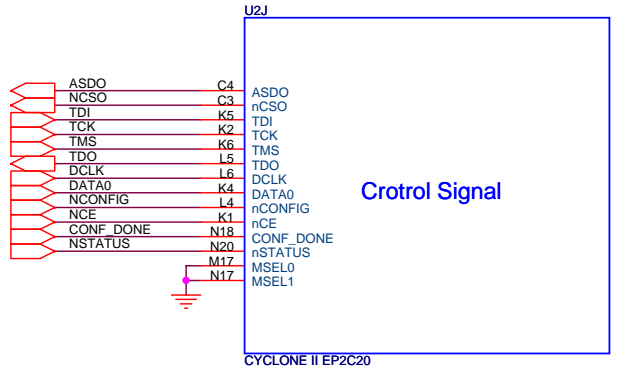
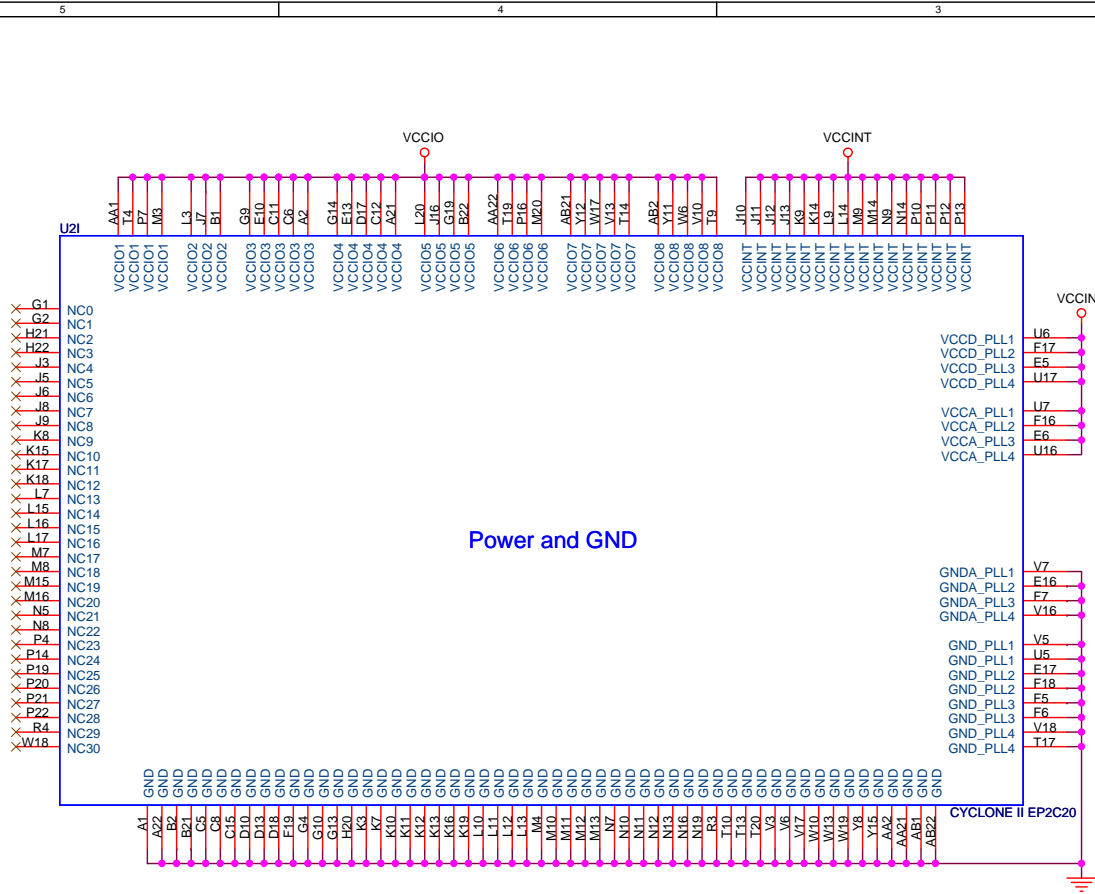
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Altera Cyclone II Starter Board		
Size	Document Number	Rev
A	EP2C35 BANK3 AND BANK 4	1.1A
Date:	Tuesday, October 03, 2006	Sheet 9 of 21



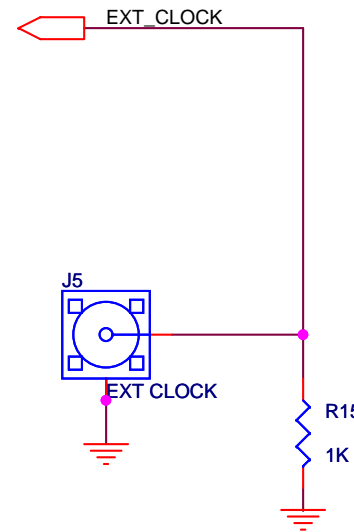
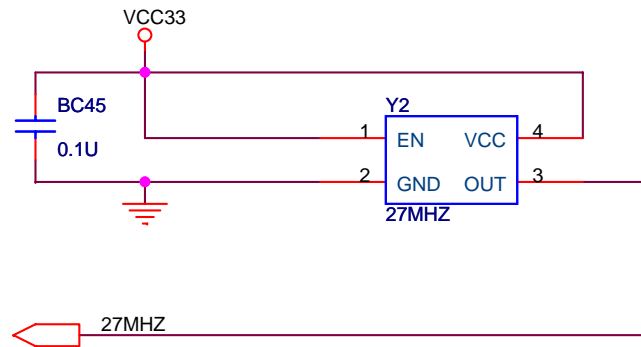
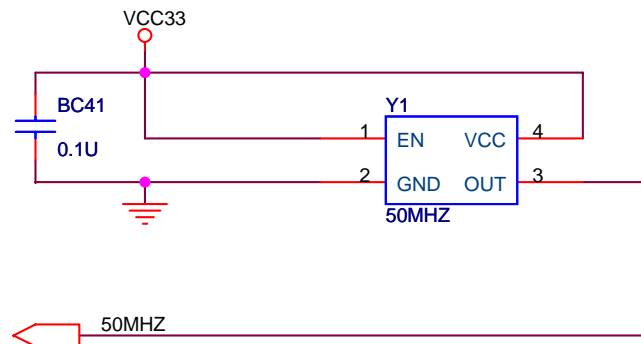
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Altera Cyclone II Starter Board		
Size	Document Number	Rev
A	EP2C20 BANK5 AND BANK 6	1.1A
Date:	Tuesday, October 03, 2006	Sheet 10 of 21



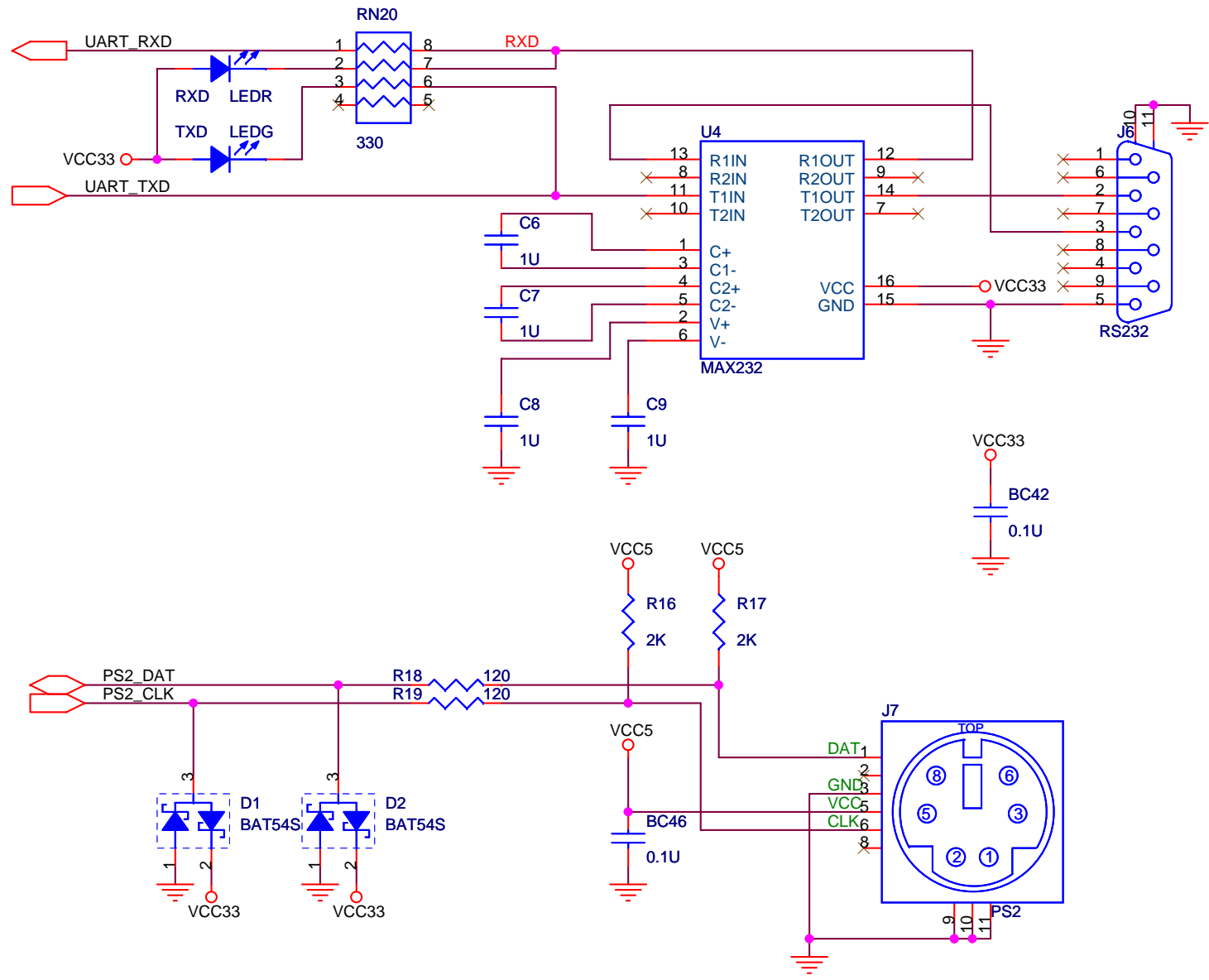
Title		
Altera Cyclone II Starter Board		
Size A	Document Number EP2C20 BANK7 AND BANK 8	Rev 1.1A
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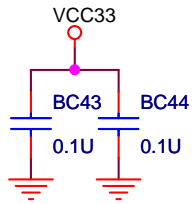
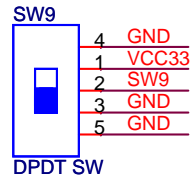
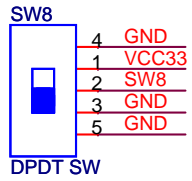
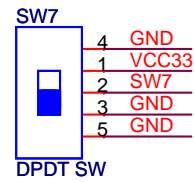
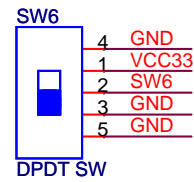
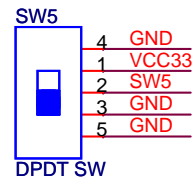
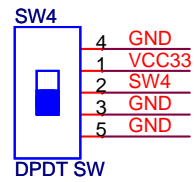
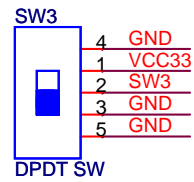
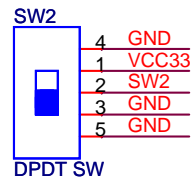
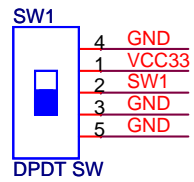
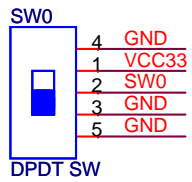
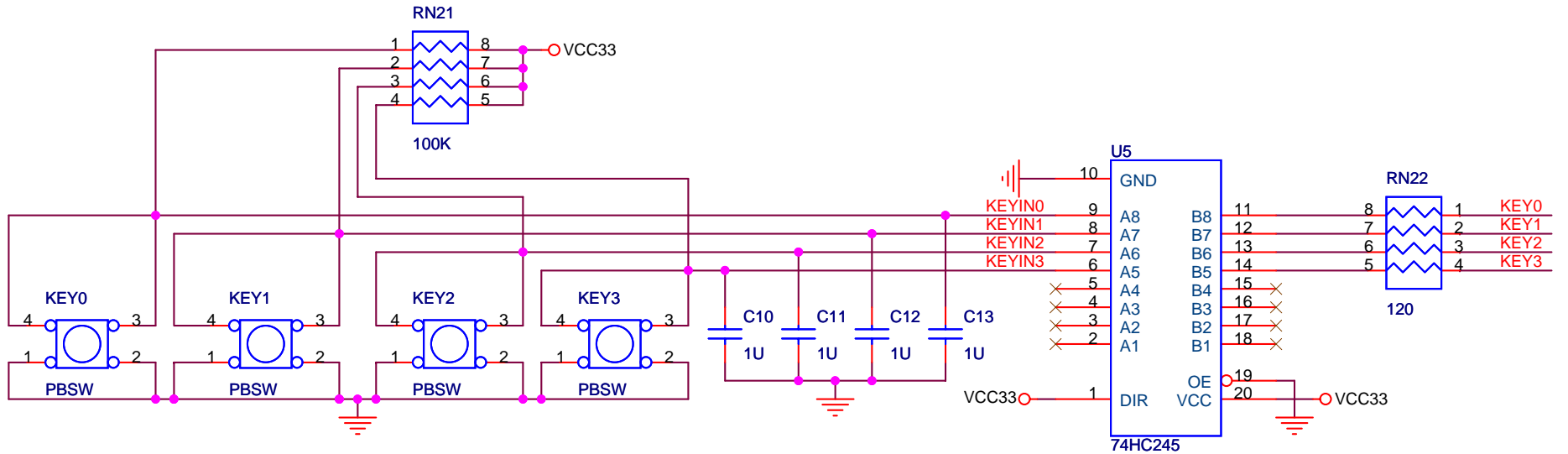
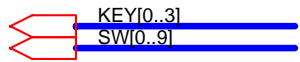
Title		
Altera Cyclone II Starter Board		
Size	Document Number	Rev
B	EP2C20 POWER AND CONFIG	1.1A
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Title		
Altera Cyclone II Starter Board		
Size	Document Number	Rev
A	CLOCK	1.1A
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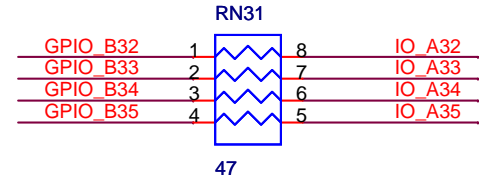
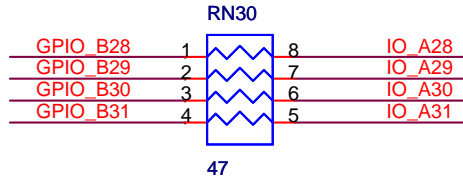
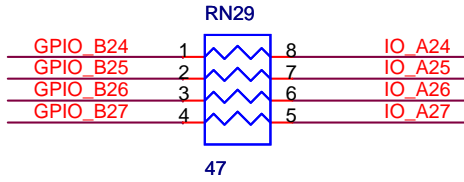
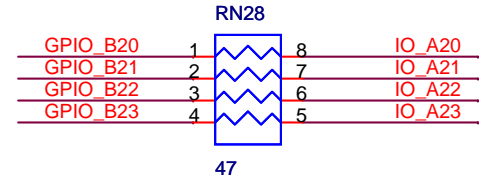
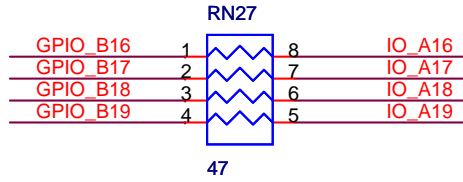
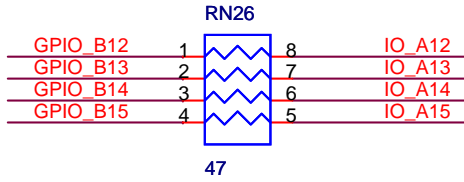
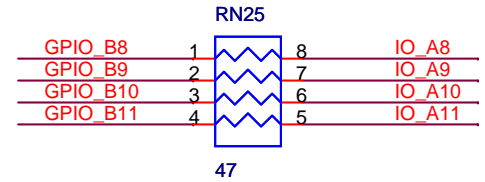
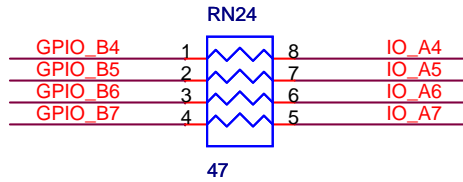
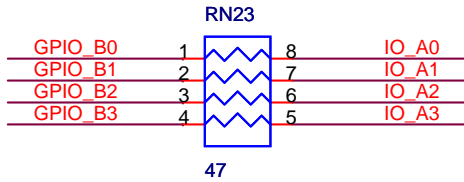


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Altera Cyclone II Starter Board		
Size	Document Number	Rev
A	PS2 AND RS232	1.1A
Date:	Tuesday, October 03, 2006	Sheet 14 of 21

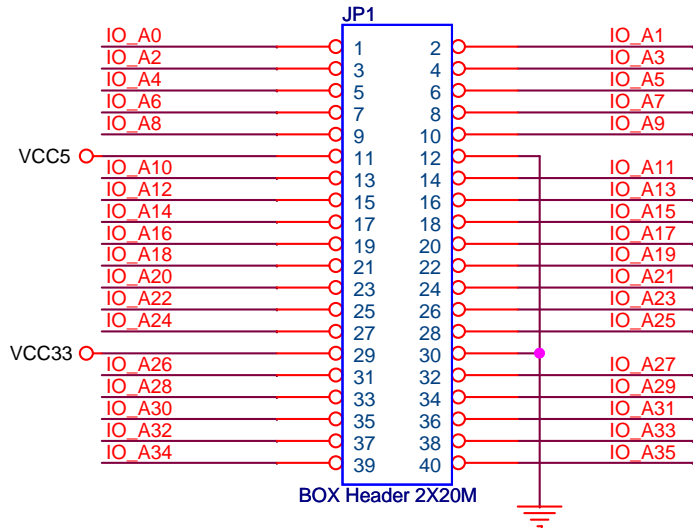


Title		
Altera Cyclone II Starter Board		
Size	Document Number	Rev
A	KEY AND SWITCH	1.1A
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GPIO_B[0..35]

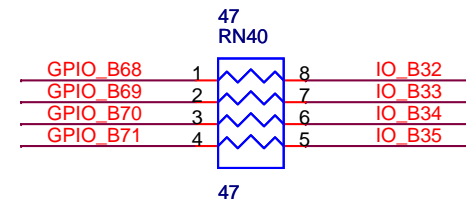
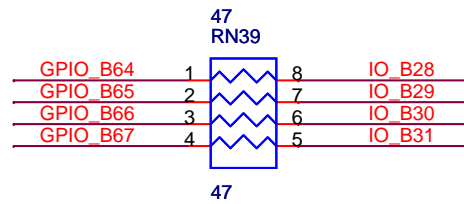
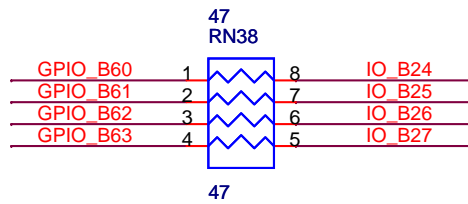
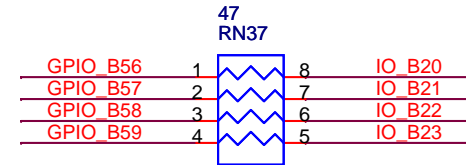
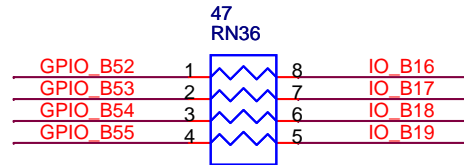
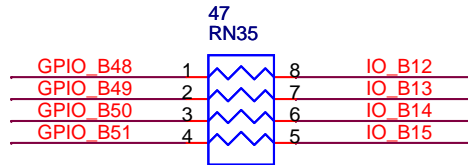
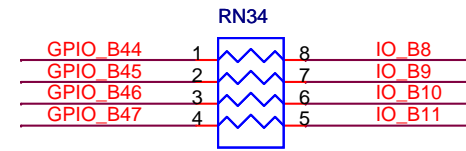
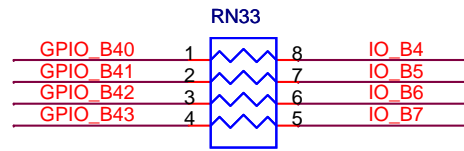
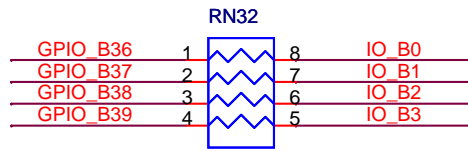


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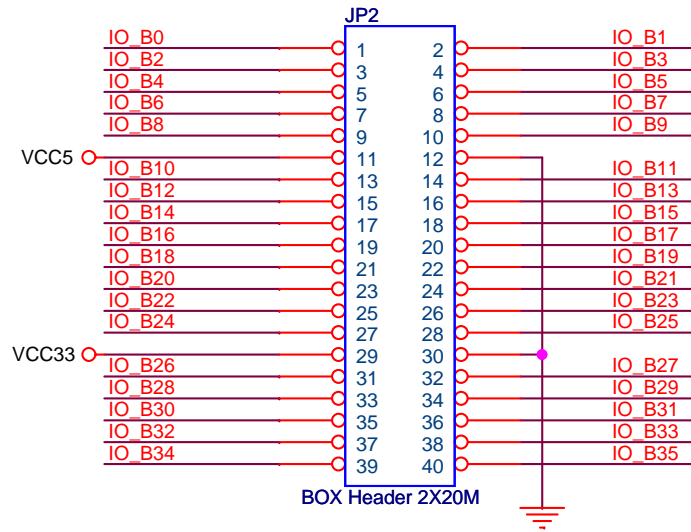


Title		
Altera Cyclone II Starter Board		
Size	Document Number	Rev
A	CONNECT A	1.1A
Date:	Tuesday, October 03, 2006	Sheet 16 of 21

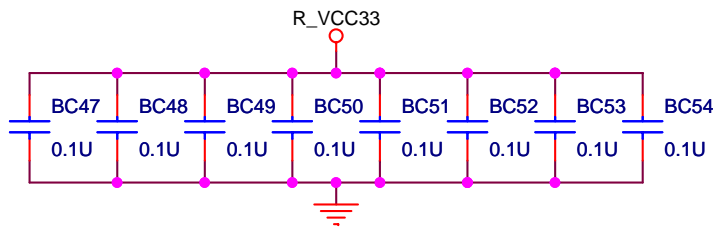
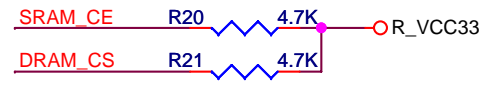
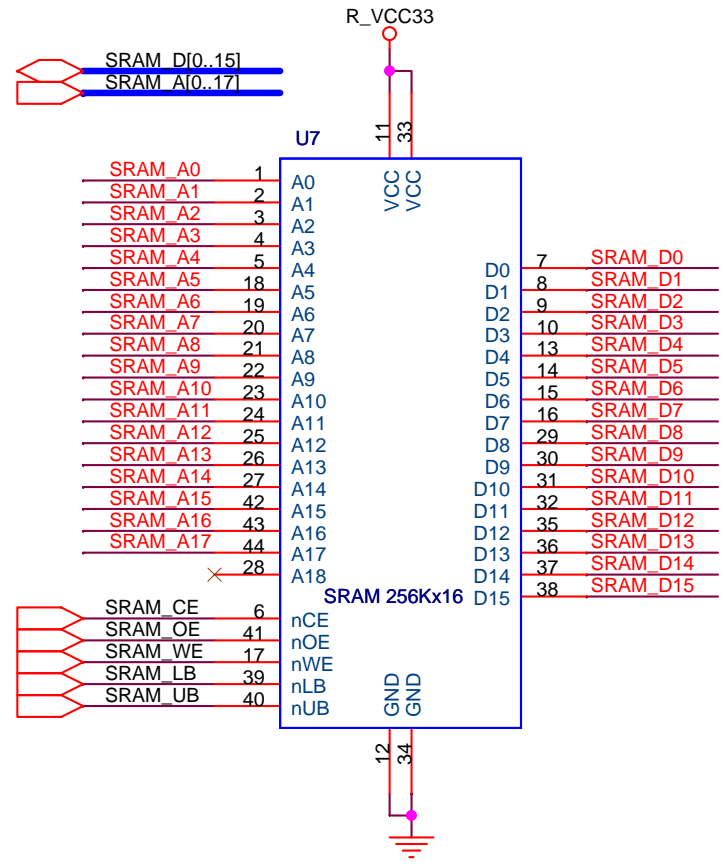
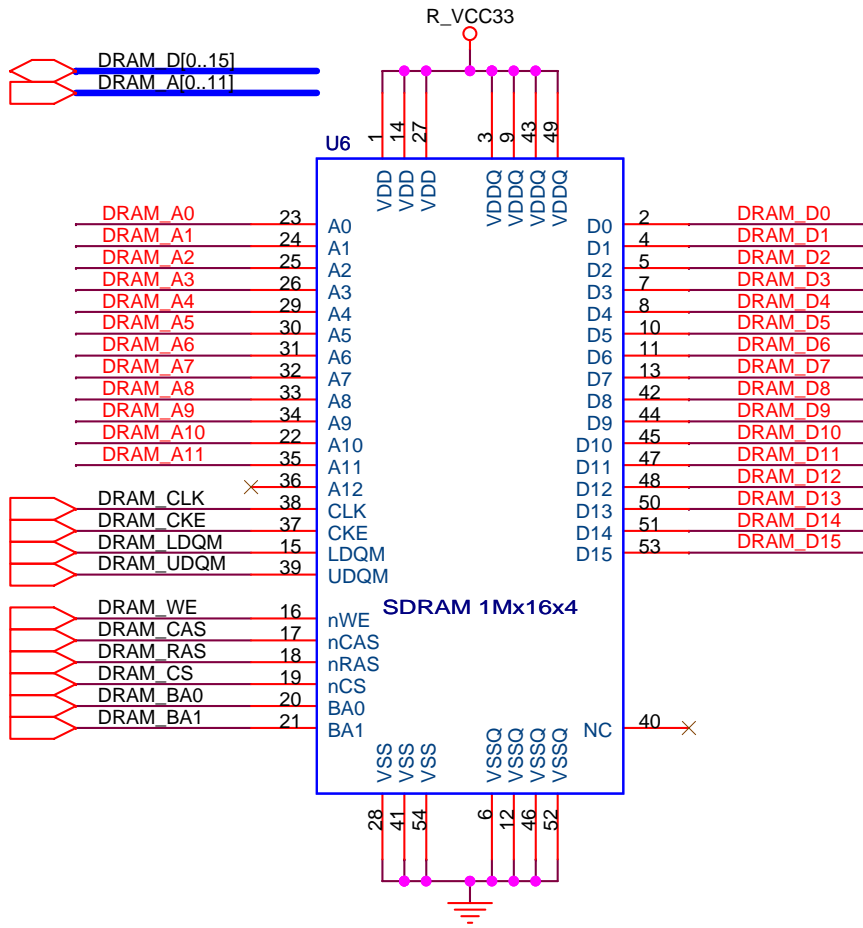
GPIO B[36..71]



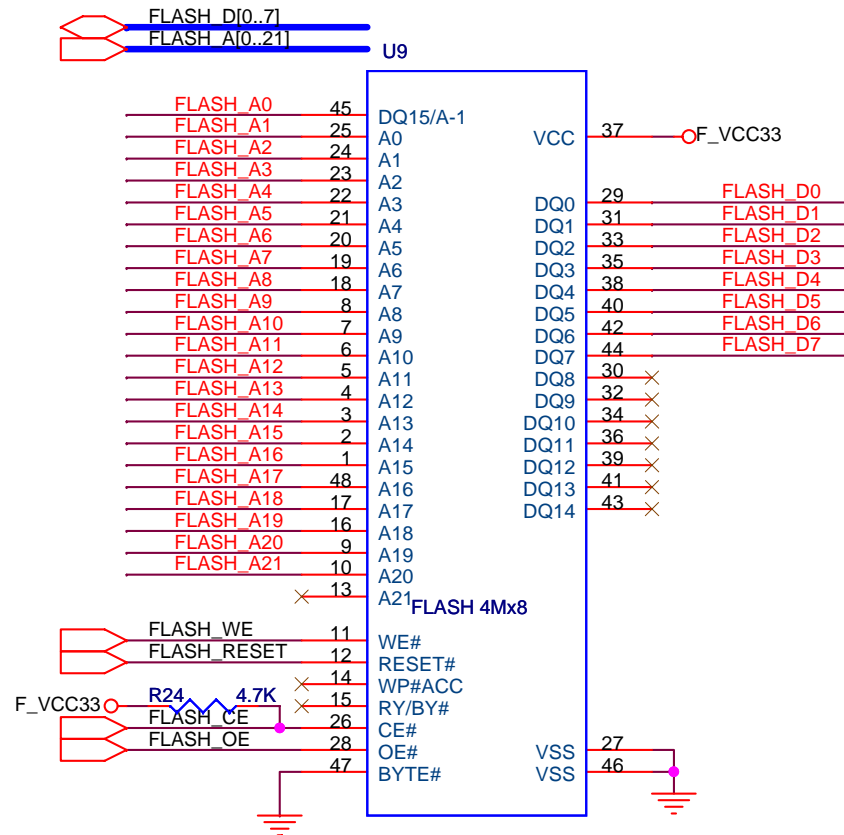
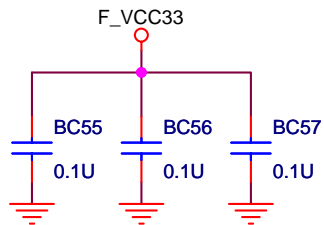
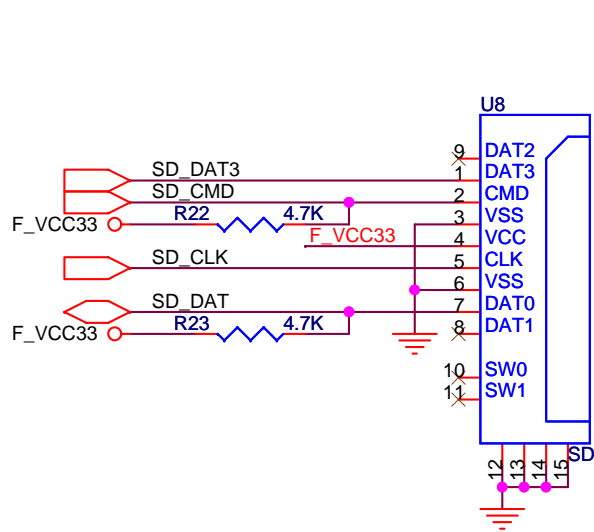
(GPIO 1)



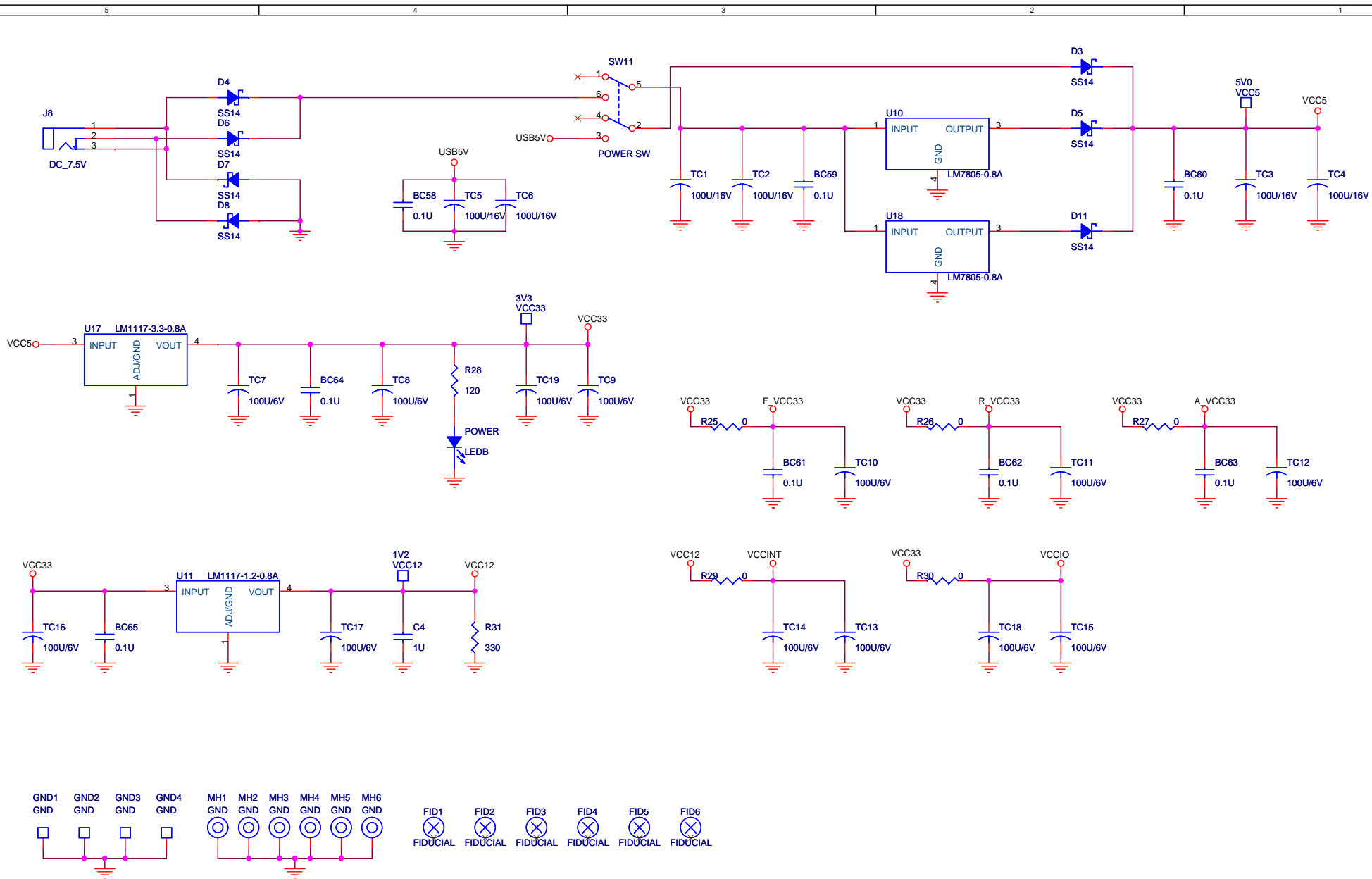
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Altera Cyclone II Starter Board		
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A	CONNECT B	1.1A
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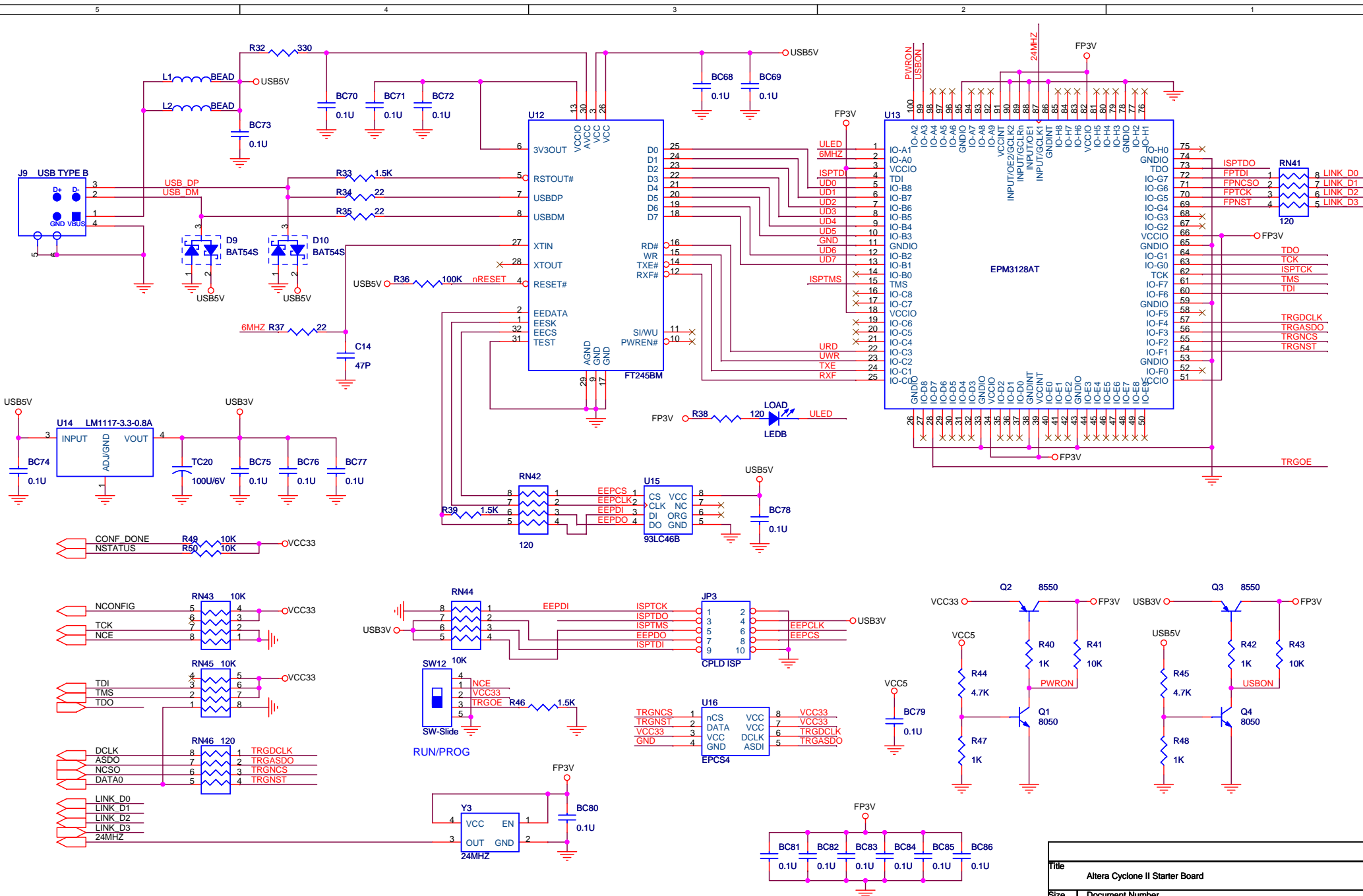
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B	USB BLASTER	1.1A
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