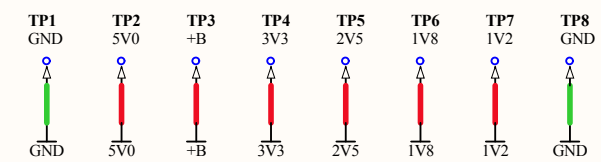
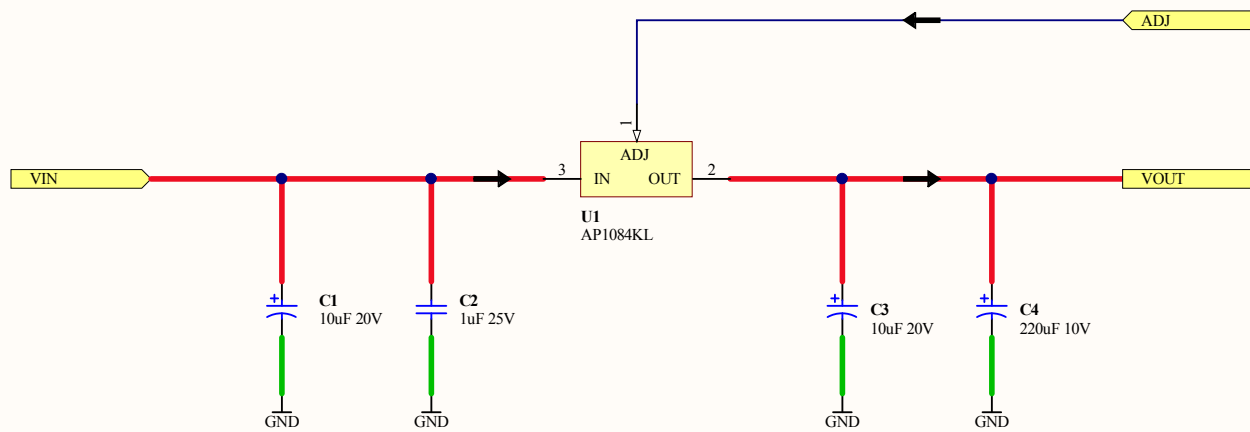



GROUND TEST POINTS



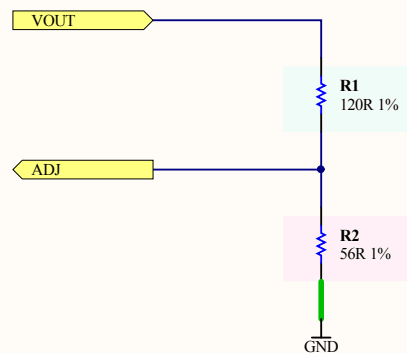
POWER TEST POINTS

Sheet Title NB3000 POWER SUPPLIES		Altium Limited 3 Minna Close Belrose NSW 2085 Australia	
Project Title NB3000AL - Altera			
Size: A4	Assy: D-820-0053	Revision: 02	
Date: 1/02/2010	Time: 1:34:44 PM	Sheet 2 of 81	
File: PSU.SchDoc			



Sheet Title PSU AP1084KL ADJ			<i>Altium Limited</i> 3 Minna Close Belrose NSW 2085 Australia	
Project Title NB3000AL - Altera				
Size: A4	Assy: D-820-0053	Revision: 02		
Date: 1/02/2010	Time: 1:34:44 PM	Sheet 3 of 81		
File: PSU_1084_ADJ.SchDoc				

1.8V Output



$$V_{out} = V_{REF} \left\{ 1 + \frac{R2}{R1} \right\} + I_{ADJ} R2$$

$$V_{REF} = 1.25v$$

$$I_{ADJ} = 55\mu A (0.000055)$$

▲ Calculation for 1.8V;

$$= 1.25V \times (1 + R2/R1) + 0.000055 \times R2$$

$$= 1.25V \times (1 + 56/120) + 0.000055 \times 56$$

$$= 1.25V \times 1.47 + 0.00308$$

$$= 1.83641V$$

Sheet Title **PSU AP1084KL 1V8**

Project Title **NB3000AL - Altera**

Size: A4

Assy: D-820-0053

Revision: 02

Date: 1/02/2010

Time: 1:34:44 PM

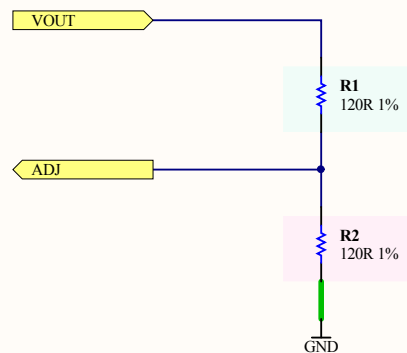
Sheet 4 of 81

File: PSU_1084SET_1V8.SchDoc

Altium Limited
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Belrose
NSW 2085
Australia



2.5V Output



$$V_{out} = V_{REF} \left\{ 1 + \frac{R_2}{R_1} \right\} + I_{ADJ} R_2$$

$$V_{REF} = 1.25v$$

$$I_{ADJ} = 55\mu A (0.000055)$$

▲ Calculation for 2.5V;

$$= 1.25V \times (1 + R_2/R_1) + 0.000055 \times R_2$$

$$= 1.25V \times (1 + 120/120) + 0.000055 \times 120$$

$$= 1.25V \times 2 + 0.0066$$

$$= 2.50066V$$

Sheet Title **PSU AP1084KL SET TO 2V5**

Project Title **NB3000AL - Altera**

Size: **A4**

Assy: **D-820-0053**

Revision: **02**

Date: **1/02/2010**

Time: **1:34:44 PM**

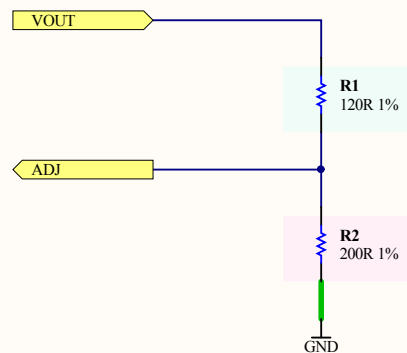
Sheet **5** of **81**

File: **PSU_1084SET_2V5.SchDoc**

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Belrose
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Australia



3.3V Output



$$V_{out} = V_{REF} \left\{ 1 + \frac{R2}{R1} \right\} + I_{ADJ} R2$$

$$V_{REF} = 1.25v$$

$$I_{ADJ} = 55\mu A (0.000055)$$

▲ Calculation for 3.3V;

$$= 1.25V \times (1 + R2/R1) + 0.000055 \times R2$$

$$= 1.25V \times (1 + 200/120) + 0.000055 \times 200$$

$$= 1.25V \times 2.67 + 0.011$$

$$= 3.34433V$$

Sheet Title **PSU AP1084KL SET TO 3V3**

Project Title **NB3000AL - Altera**

Size: A4

Assy: D-820-0053

Revision: 02

Date: 1/02/2010

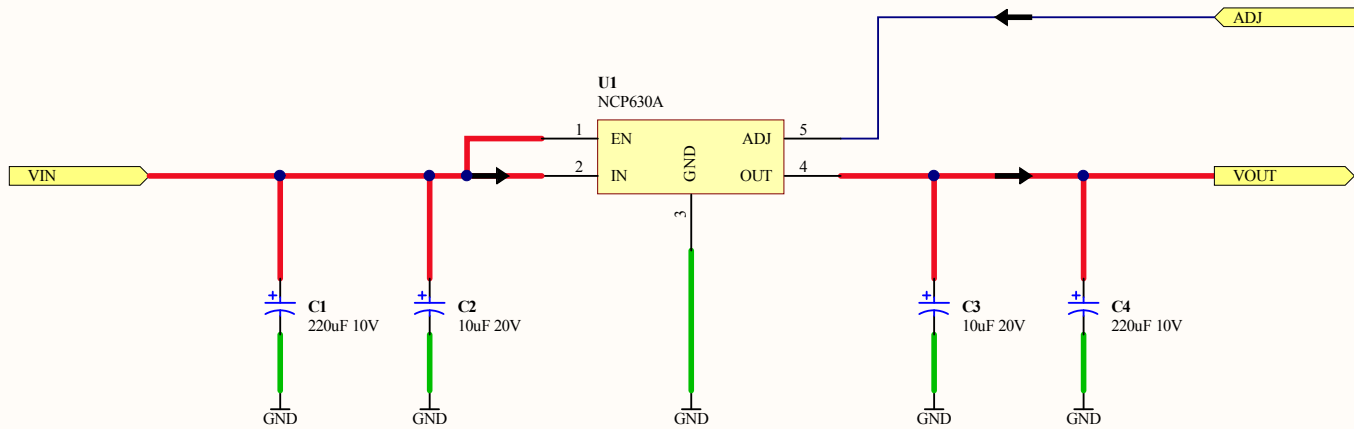
Time: 1:34:44 PM

Sheet 6 of 81

File: PSU_1084SET_3V3.SchDoc

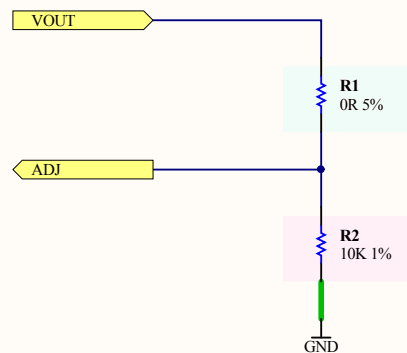
Altium Limited
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Australia





Sheet Title PSU NCP630A ADJ		Altium Limited 3 Minna Close Belrose NSW 2085 Australia	
Project Title NB3000AL - Altera			
Size: A4	Assy: D-820-0053	Revision: 02	
Date: 1/02/2010	Time: 1:34:44 PM	Sheet 7 of 81	
File: PSU NCP630 ADJ.SchDoc			

1.2V Output



$$V_{out} = V_{REF} \left\{ 1 + \frac{R1}{R2} \right\} + I_{ADJ} R_2$$

$$V_{REF} = 1.216v$$

$$I_{ADJ} = 40nA (0.000000040)$$

▲ Calculation for 1.2V;

$$= 1.216V \times (1 + R1/R2) + 0.000000040 \times R2$$

$$= 1.216V \times (1 + 0/10000) + 0.000000040 \times 10000$$

$$= 1.216V \times 1 + 0.0004$$

$$= 1.2164V$$

Sheet Title **PSU NCP630A SET TO 1V2**

Project Title **NB3000AL - Altera**

Size: **A4**

Assy: **D-820-0053**

Revision: **02**

Date: **1/02/2010**

Time: **1:34:44 PM**

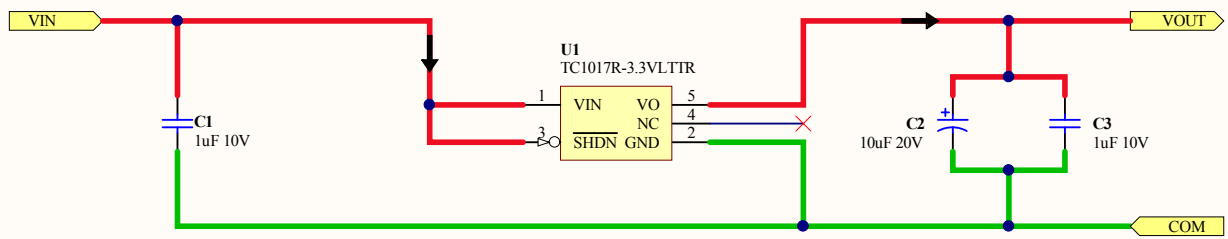
Sheet **8** of **81**


File: **PSU NCP630SET 1V2.SchDoc**

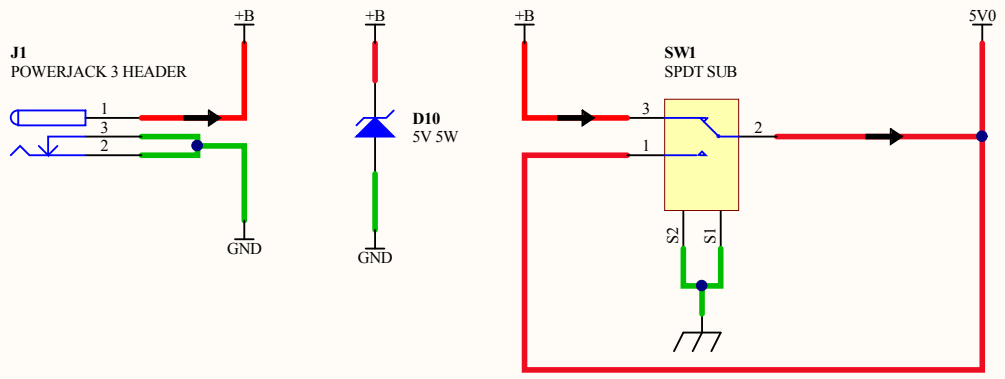
Altium Limited
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Belrose
NSW 2085
Australia




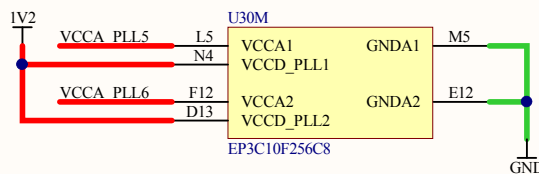
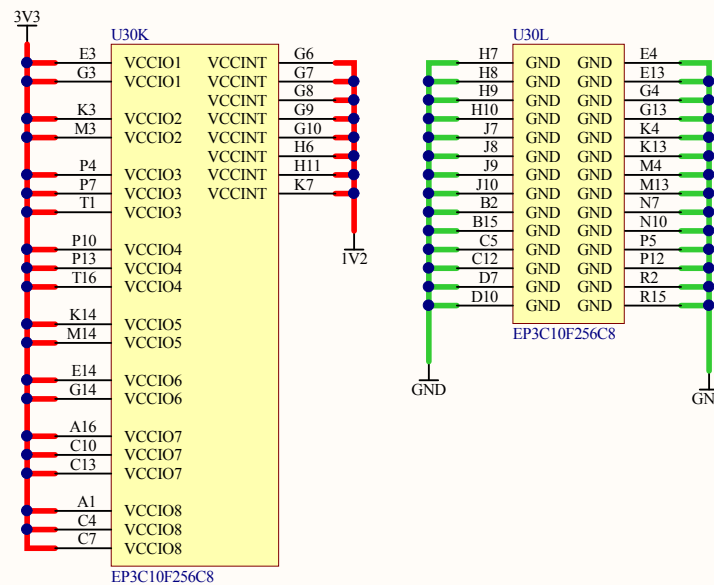
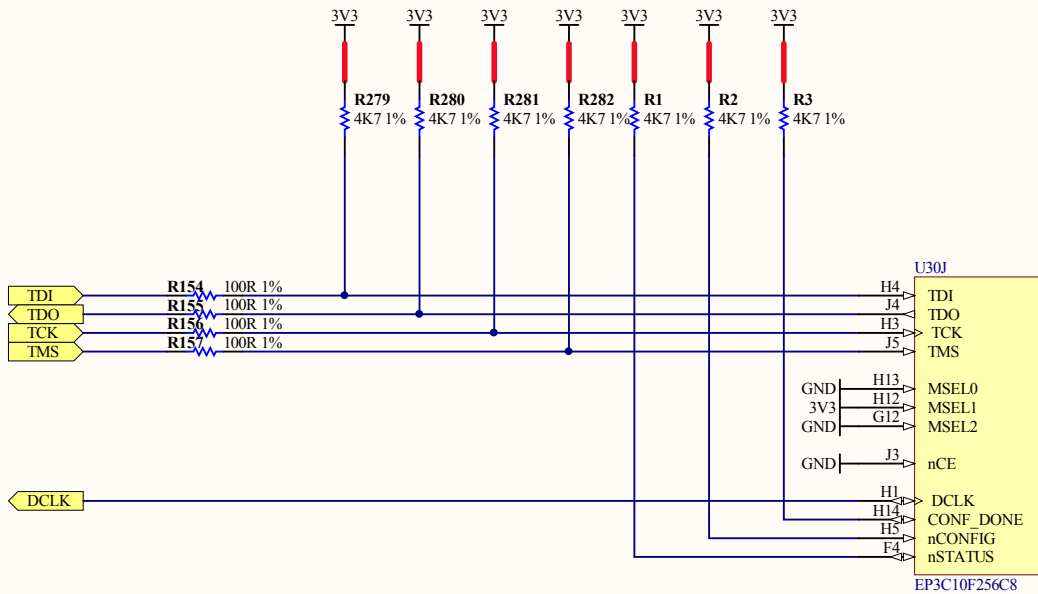
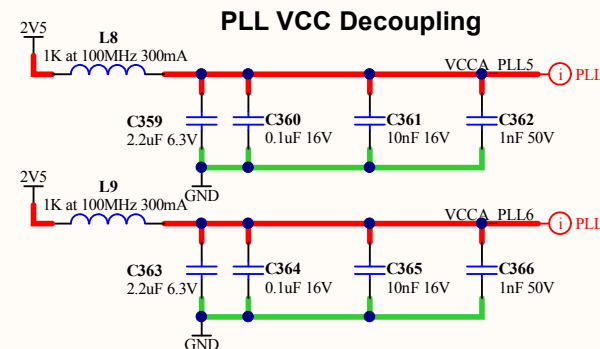
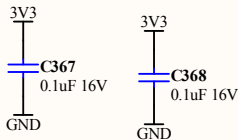
3V3
150mA
50uVRMS



Sheet Title PSU TC1017R 3V3		<i>Altium Limited</i> 3 Minna Close Belrose NSW 2085 Australia	
Project Title NB3000AL - Altera			
Size: A4	Assy: D-820-0053	Revision: 02	
Date: 1/02/2010	Time: 1:34:44 PM	Sheet 9 of 81	
File: PSU TC1017R 3V3.SchDoc			

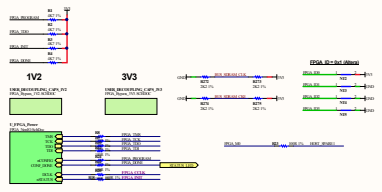
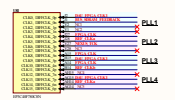
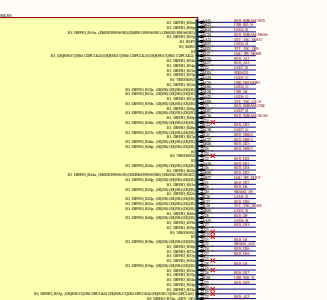
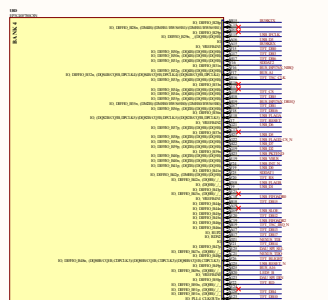
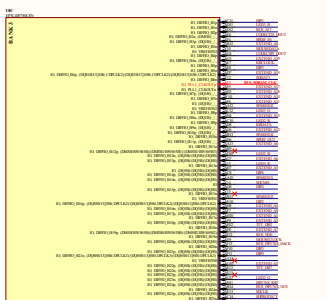
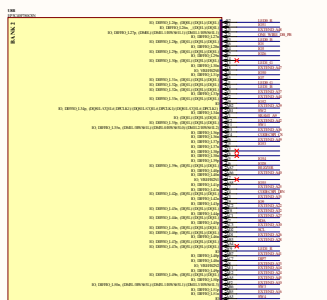
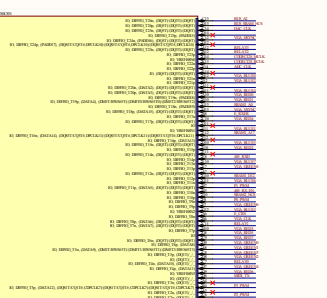
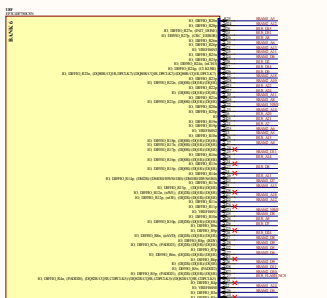
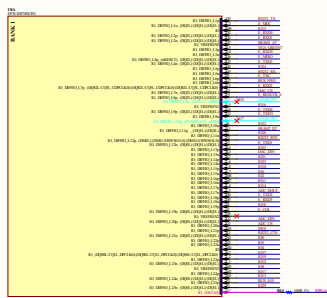
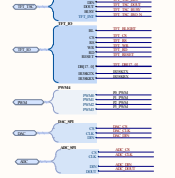
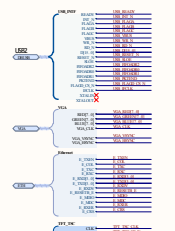
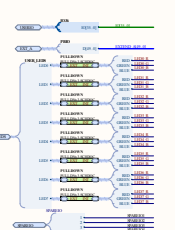
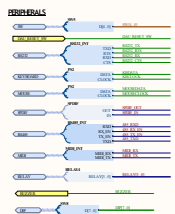
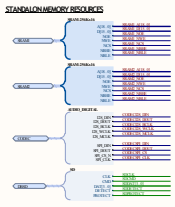
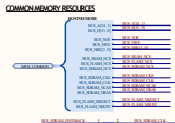
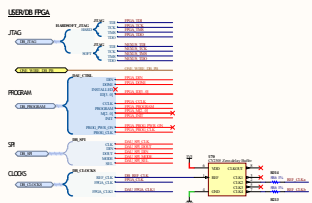


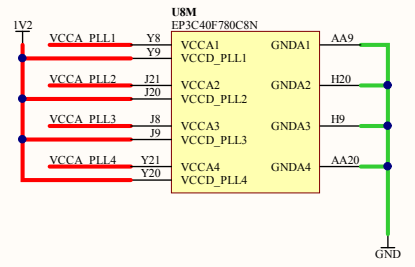
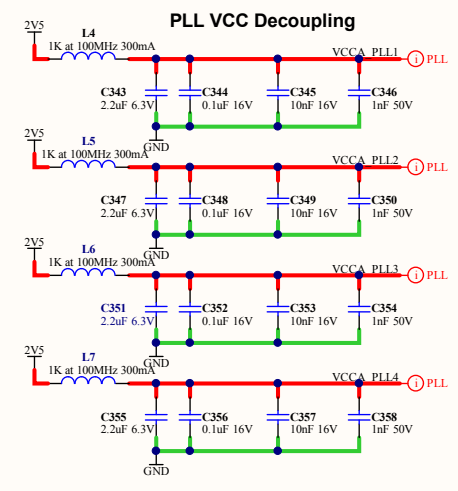
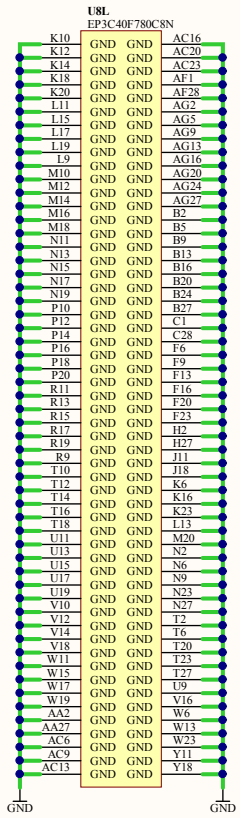
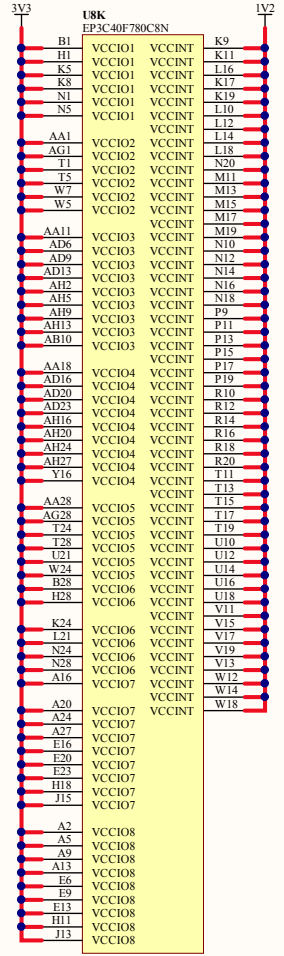
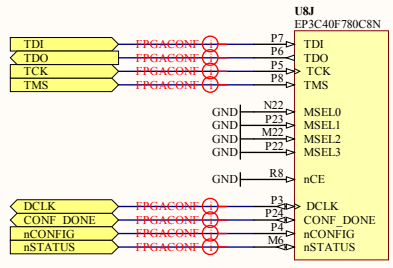
Sheet Title Power Jack & Switch		<i>Altium Limited</i> 3 Minna Close Belrose NSW 2085 Australia	
Project Title NB3000AL - Altera			
Size: A4	Assy: D-820-0053	Revision: 02	
Date: 1/02/2010	Time: 1:34:44 PM	Sheet 10 of 81	
File: PWJACK+SWITCH.SchDoc			

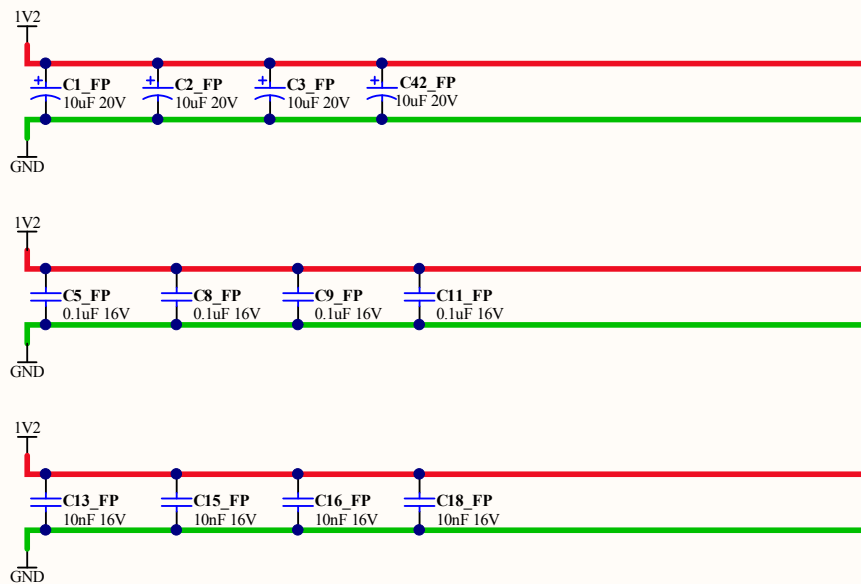



Sheet Title Host FPGA Pwr and Programming			Altium Limited 3 Minna Close Belrose NSW 2085 Australia
Project Title NB3000AL - Altera			
Size: A4	Assy: D-820-0053	Revision: 02	
Date: 1/02/2010	Time: 1:34:45 PM	Sheet 12 of 81	
File: HOST FPGA NonIO.SchDoc			

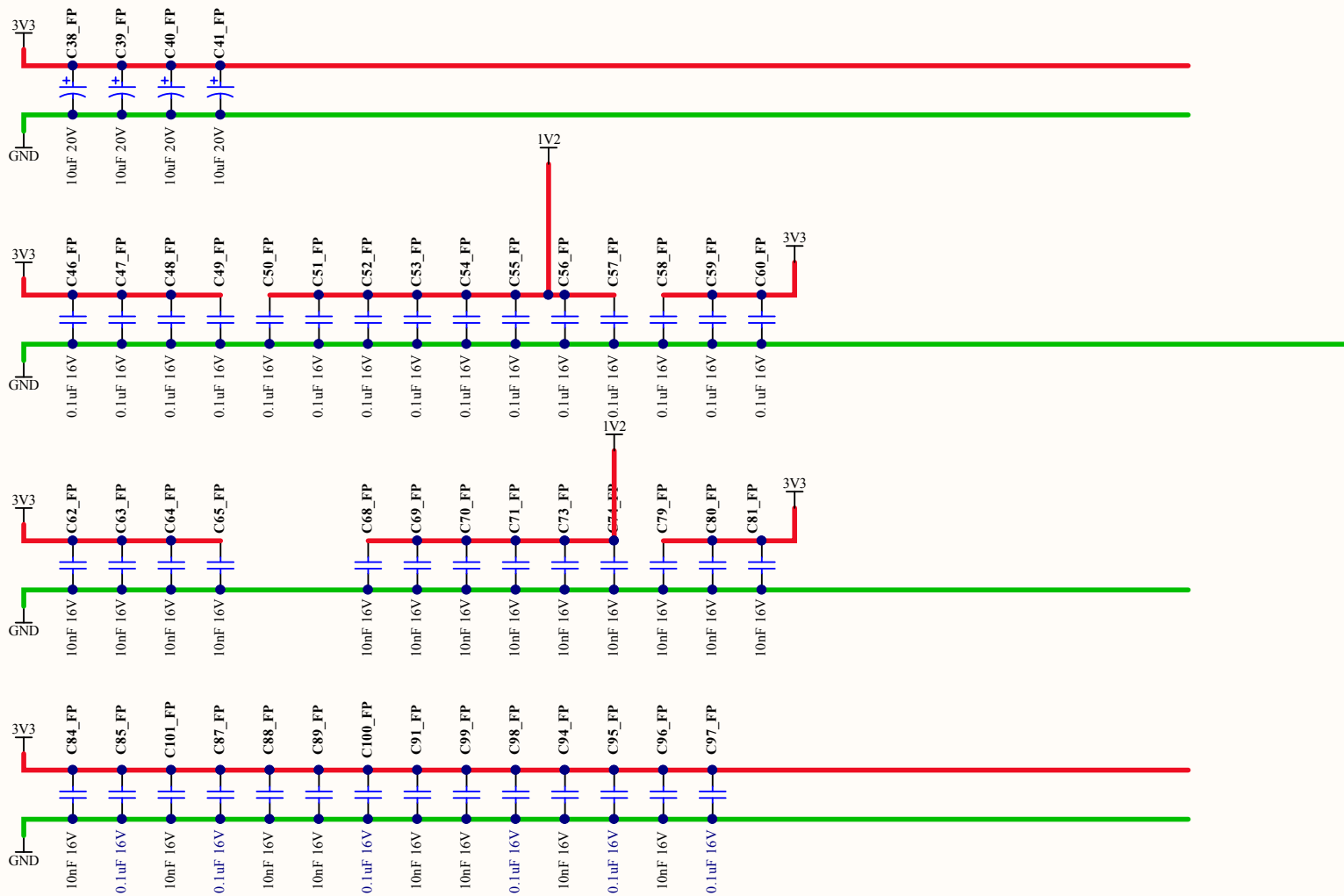








Sheet Title FPGA Bypass 1V2		<i>Altium Limited</i> 3 Minna Close Belrose NSW 2085 Australia	
Project Title NB3000AL - Altera			
Size: A4	Assy: D-820-0053	Revision: 02	
Date: 1/02/2010	Time: 1:34:45 PM	Sheet 15 of 81	
File: FPGA Bypass 1V2.SCHDOC			



▲ The FPGA bypass capacitors are physically grouped as 10nF and 100nF pairs on all major accessible power pins on the FPGA.

Sheet Title FPGA Bypass 3V3		Altium Limited 3 Minna Close Belrose NSW 2085 Australia	
Project Title NB3000AL - Altera			
Size: A4	Assy: D-820-0053	Revision: 02	
Date: 1/02/2010	Time: 1:34:45 PM	Sheet 16 of 81	
File: FPGA Bypass 3V3.SCHDOC			

1

2

3

4

A

A

B

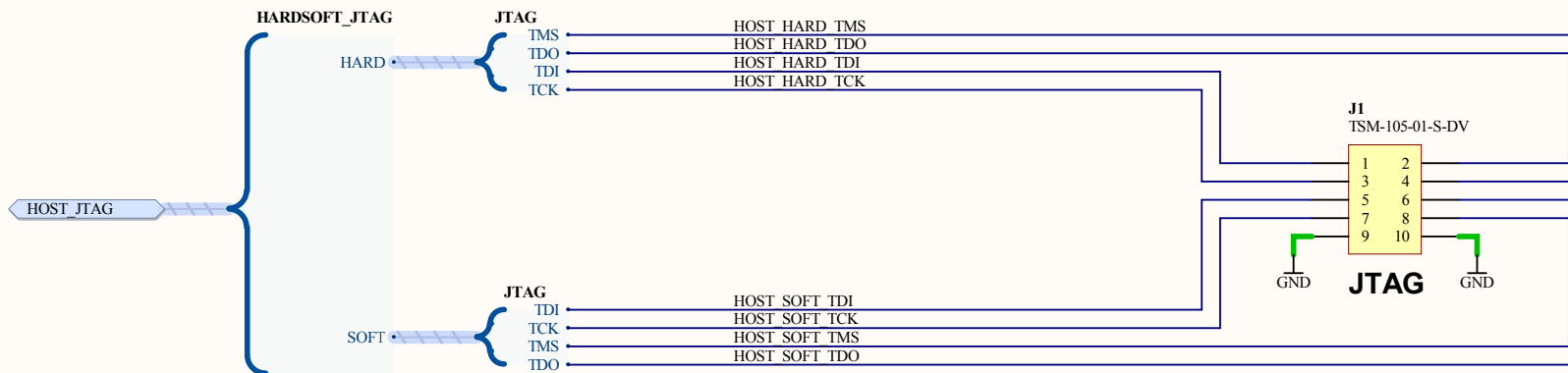
B


C

C

D

D



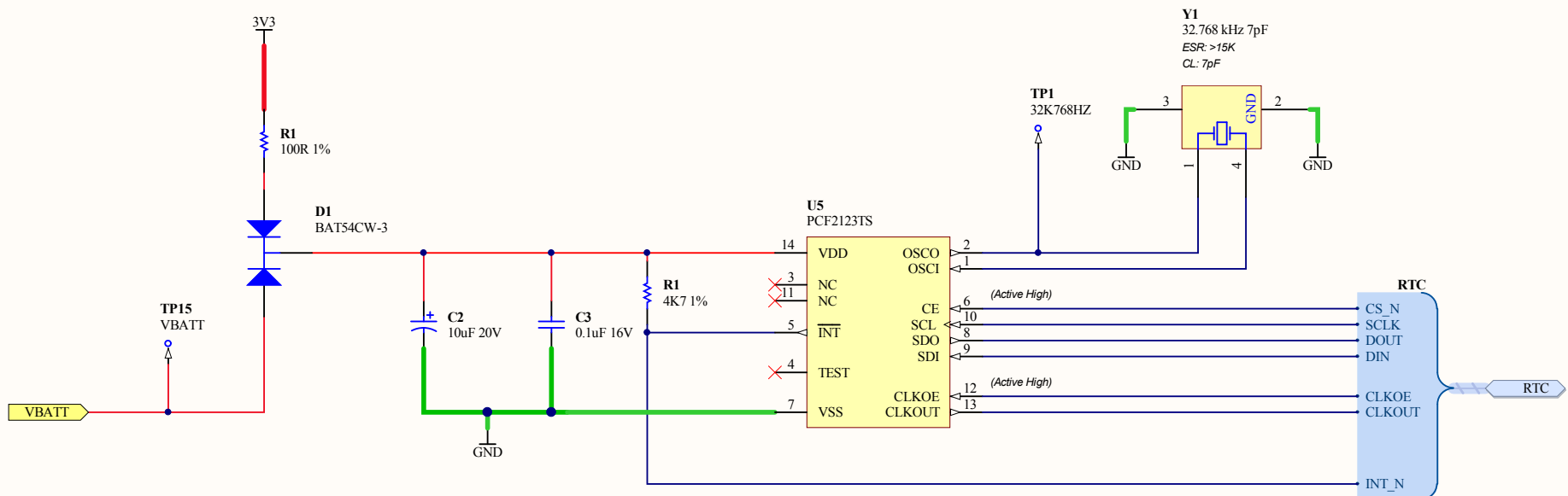
Sheet Title Local MCU Debug Connector		Altium Limited 3 Minna Close Belrose NSW 2085 Australia	
Project Title NB3000AL - Altera			
Size: A4	Assy: D-820-0053	Revision: 02	
Date: 1/02/2010	Time: 1:34:46 PM	Sheet 17 of 81	
File: HOST_JTAG.SchDoc			

1

2

3

4



Sheet Title SPI Real Time Clock		Altium Limited 3 Minna Close Belrose NSW 2085 Australia	
Project Title NB3000AL - Altera			
Size: A4	Assy: D-820-0053	Revision: 02	
Date: 1/02/2010	Time: 1:34:46 PM	Sheet 18 of 81	
File: CLK_PCF2123_RTC.SchDoc			

1

2

3

4

A

A

B

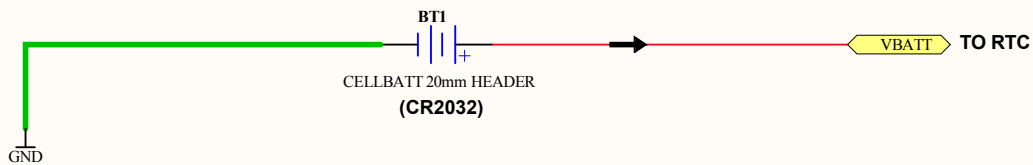
B


C

C

D

D



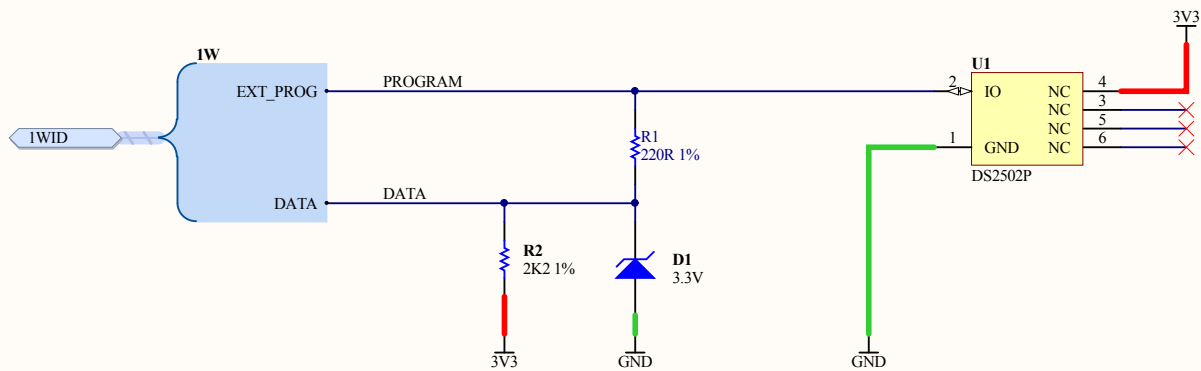
Sheet Title Lithium Battery Holder - CR2032			<i>Altium Limited</i> 3 Minna Close Belrose NSW 2085 Australia	
Project Title NB3000AL - Altera				
Size: A4	Assy: D-820-0053	Revision: 02		
Date: 1/02/2010	Time: 1:34:46 PM	Sheet 19 of 81		
File: CON_BATT_COIN.SchDoc				


1

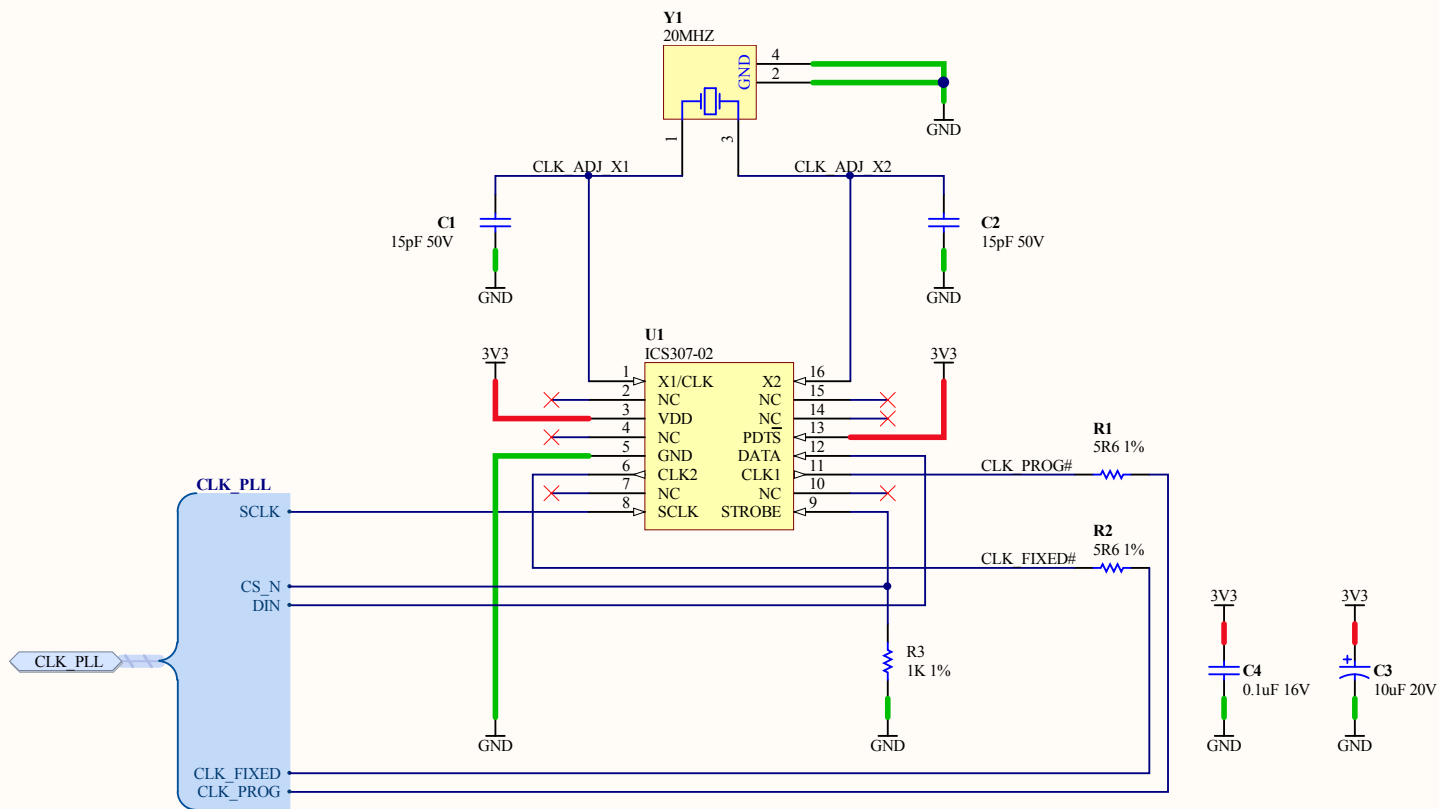
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3

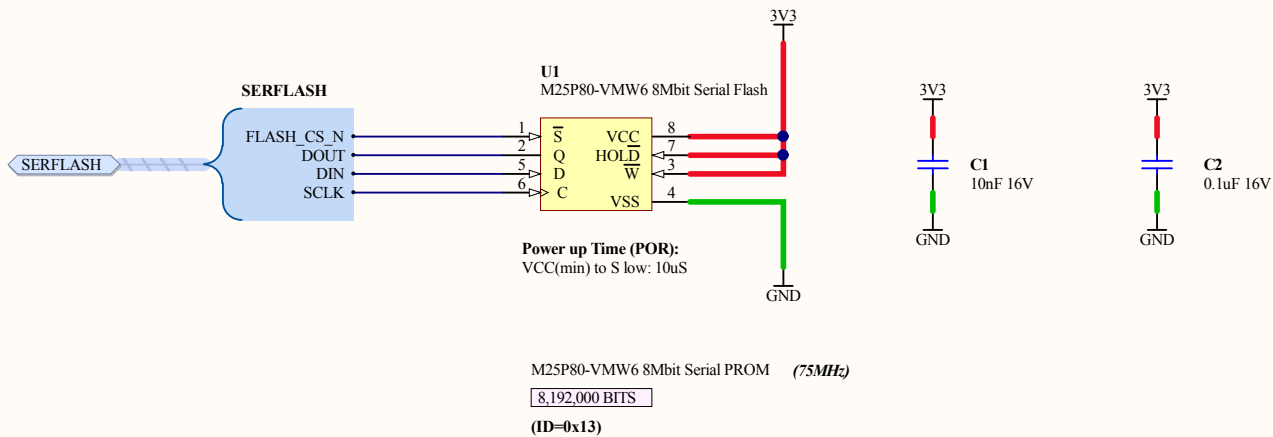
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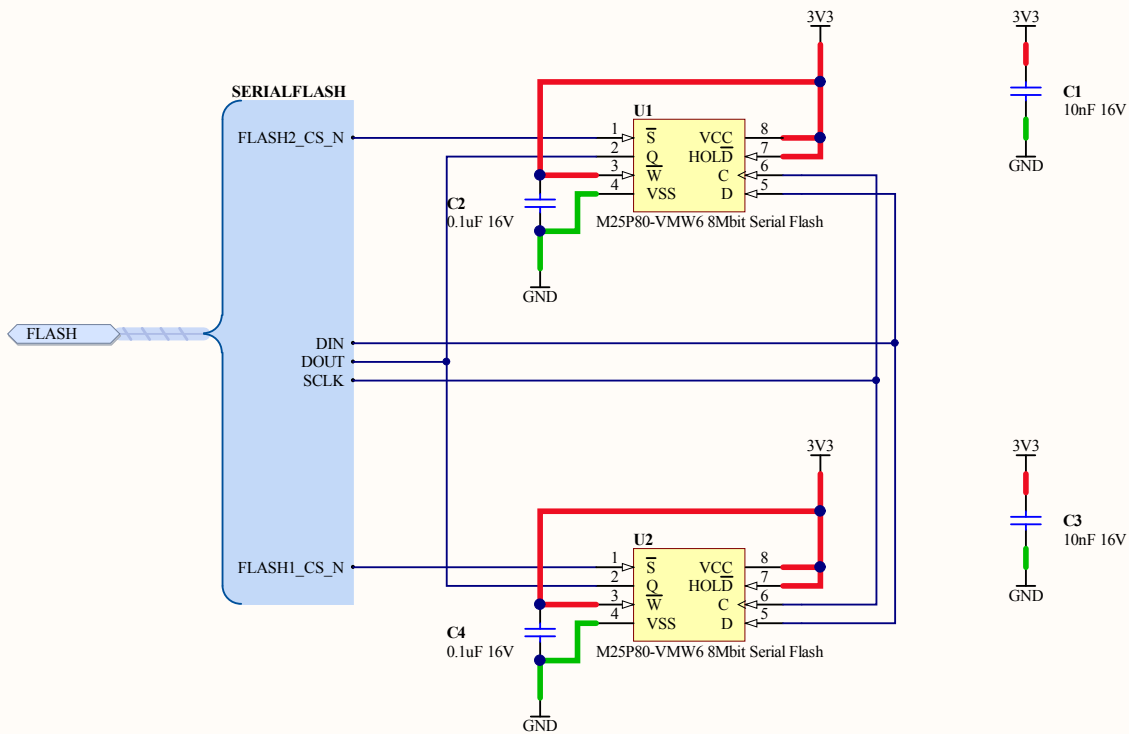
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Project Title NB3000AL - Altera			
Size: A4	Assy: D-820-0053	Revision: 02	
Date: 1/02/2010	Time: 1:34:46 PM	Sheet 20 of 81	
File: 1WB_DS2502_ID.SchDoc			



Sheet Title Programmable SPI Clock		Altium Limited 3 Minna Close Belrose NSW 2085 Australia	
Project Title NB3000AL - Altera			
Size: A4	Assy: D-820-0053	Revision: 02	
Date: 1/02/2010	Time: 1:34:46 PM	Sheet 21 of 81	
File: CLK ICS307-02 PLL.SchDoc			

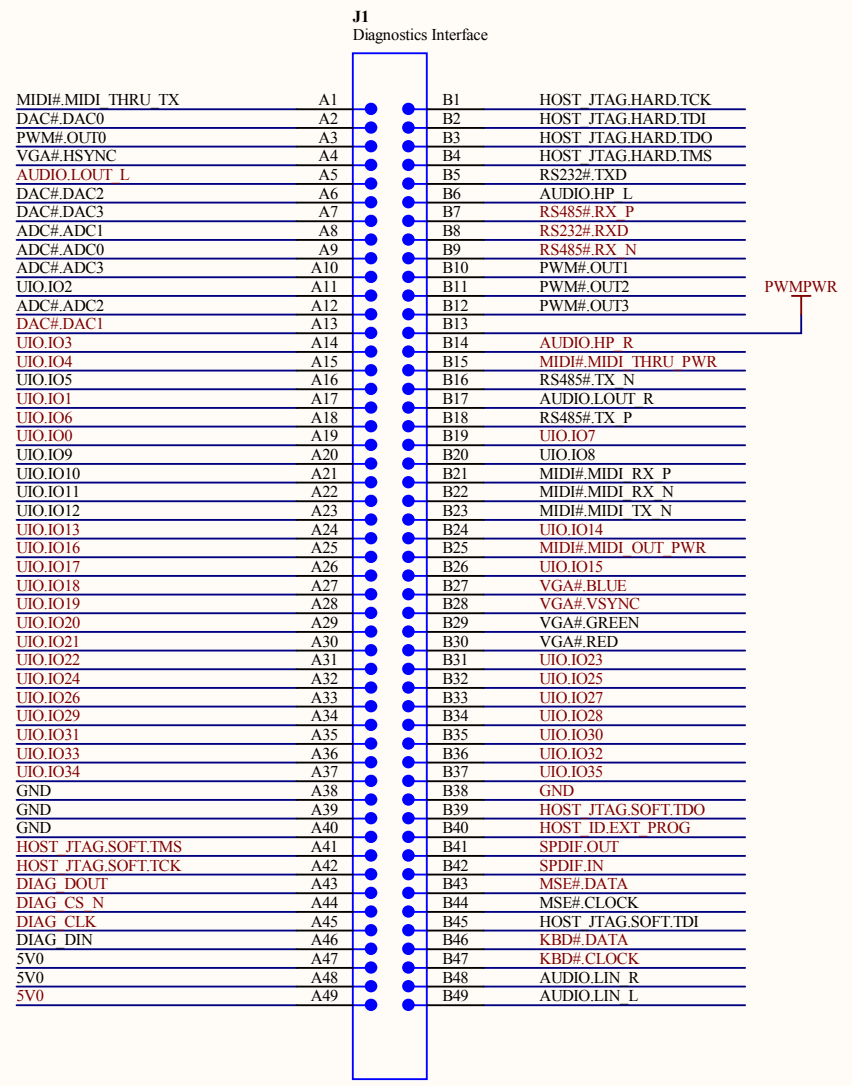
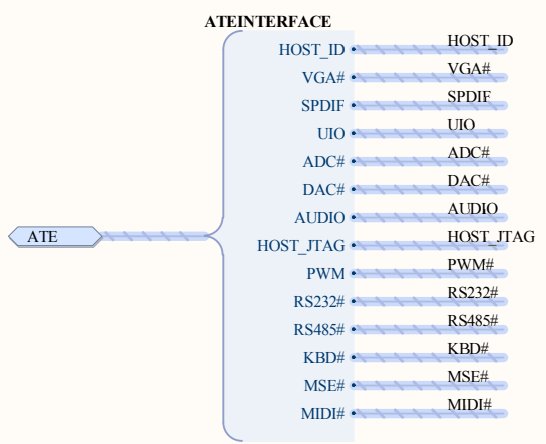
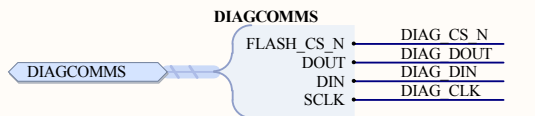


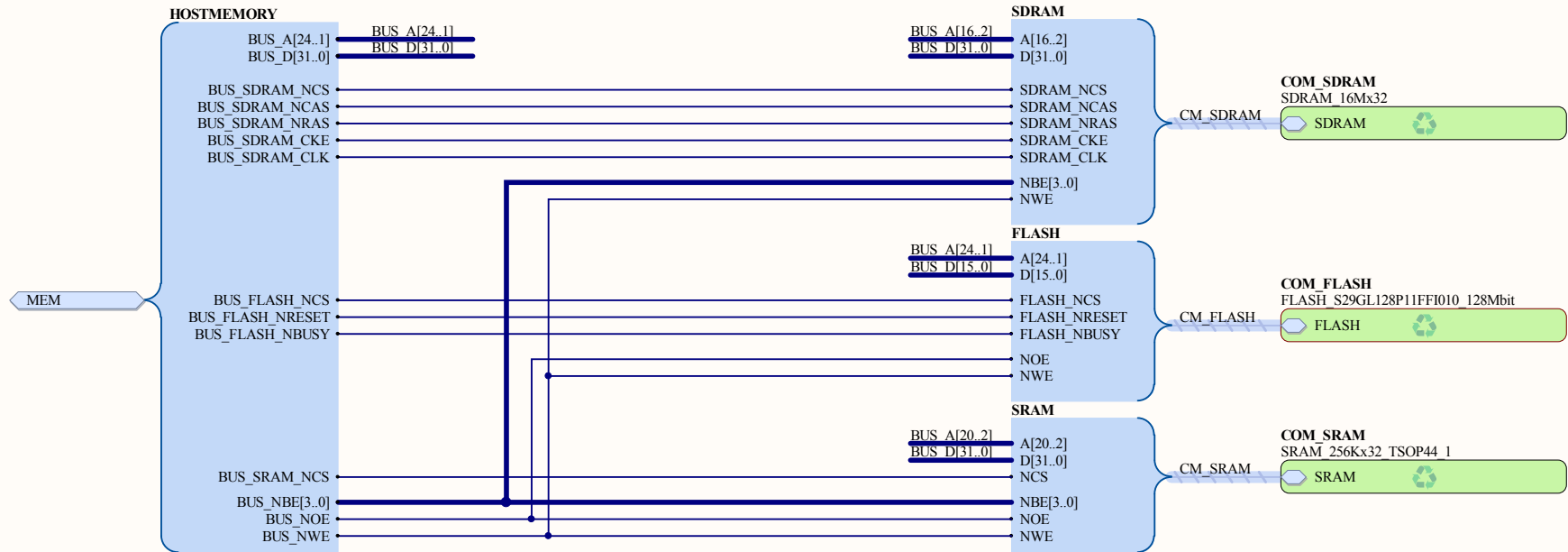
Sheet Title Host - Dual Serial Flash Memory		Altium Limited 3 Minna Close Belrose NSW 2085 Australia	
Project Title NB3000AL - Altera			
Size: A4	Assy: D-820-0053	Revision: 02	
Date: 1/02/2010	Time: 1:34:46 PM	Sheet 22 of 81	
File: FLASH M25PX0 SPI 8Mbit.SchDoc			



Sheet Title USER - Dual Serial Flash Memory		Altium Limited 3 Minna Close Belrose NSW 2085 Australia
Project Title NB3000AL - Altera		
Size: A4	Assy: D-820-0053	Revision: 02
Date: 1/02/2010	Time: 1:34:46 PM	Sheet 23 of 81
File: FLASHSPI M25PX0.SchDoc		





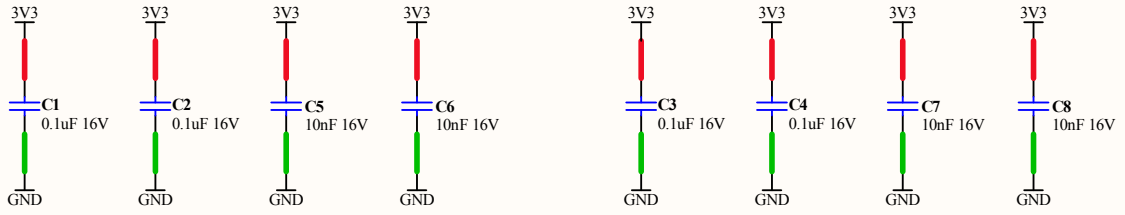
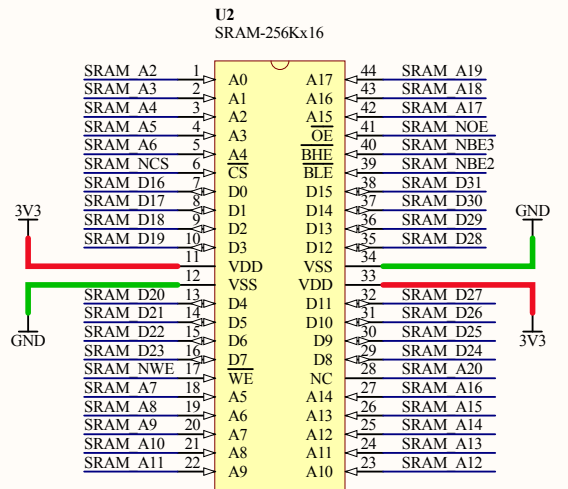
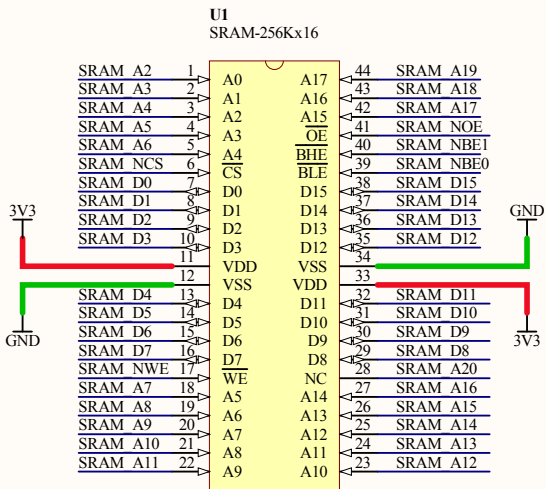
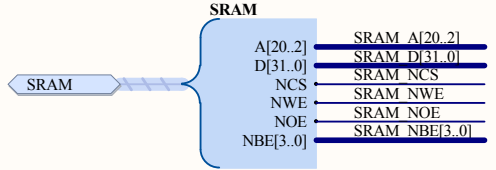


Common-Bus Memory Block

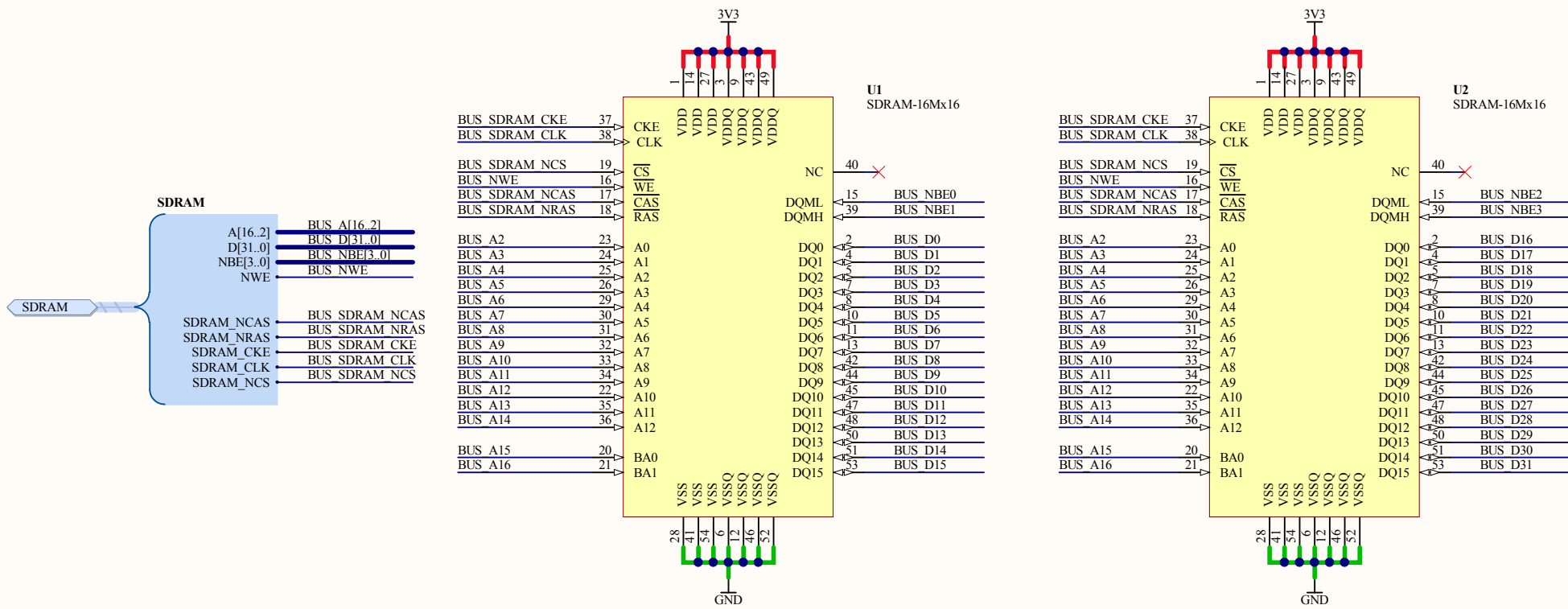
256K x 32-bit SRAM (1 MByte)
 16M x 32-Bit SDRAM (64 MByte)
 8M x 16-Bit Flash (16 MByte)

Sheet Title Common-Bus Memory Block			Altium Limited 3 Minna Close Belrose NSW 2085 Australia	
Project Title NB3000AL - Altera				
Size: A4	Assy: D-820-0053	Revision: 02		
Date: 1/02/2010	Time: 1:34:46 PM	Sheet 25 of 81		
File: CommonMemory.SchDoc				

A18 is connected so that 512KBx16 device can be fitted



Sheet Title 256K x 32 SRAM - TSOP44 x 2			Altium Limited 3 Minna Close Belrose NSW 2085 Australia	
Project Title NB3000AL - Altera				
Size: A4	Assy: D-820-0053	Revision: 02		
Date: 1/02/2010	Time: 1:34:46 PM	Sheet 26 of 81		
File: SRAM 256Kx32 TSOP44 1.SchDoc				



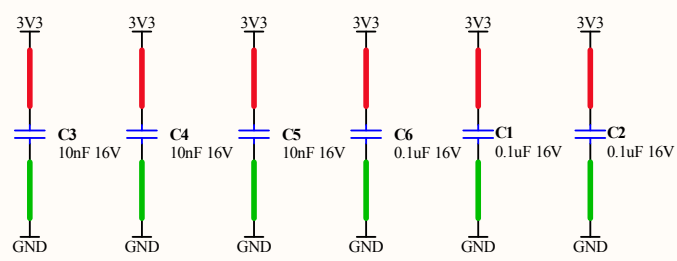
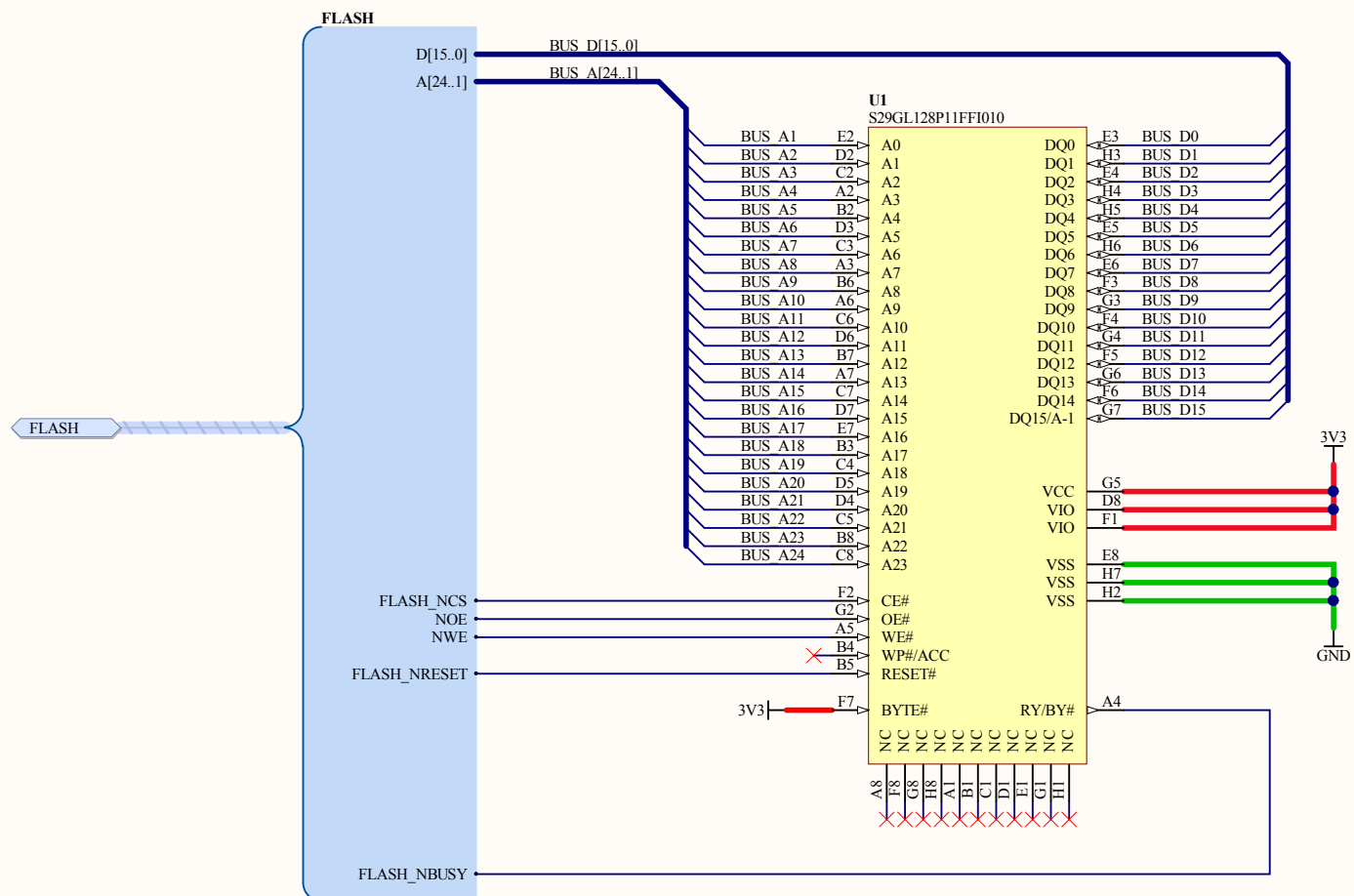
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Project Title NB3000AL - Altera				
Size: A4	Assy: D-820-0053	Revision: 02		
Date: 1/02/2010	Time: 1:34:46 PM	Sheet 27 of 81		
File: SDRAM 16Mx32.SchDoc				

A

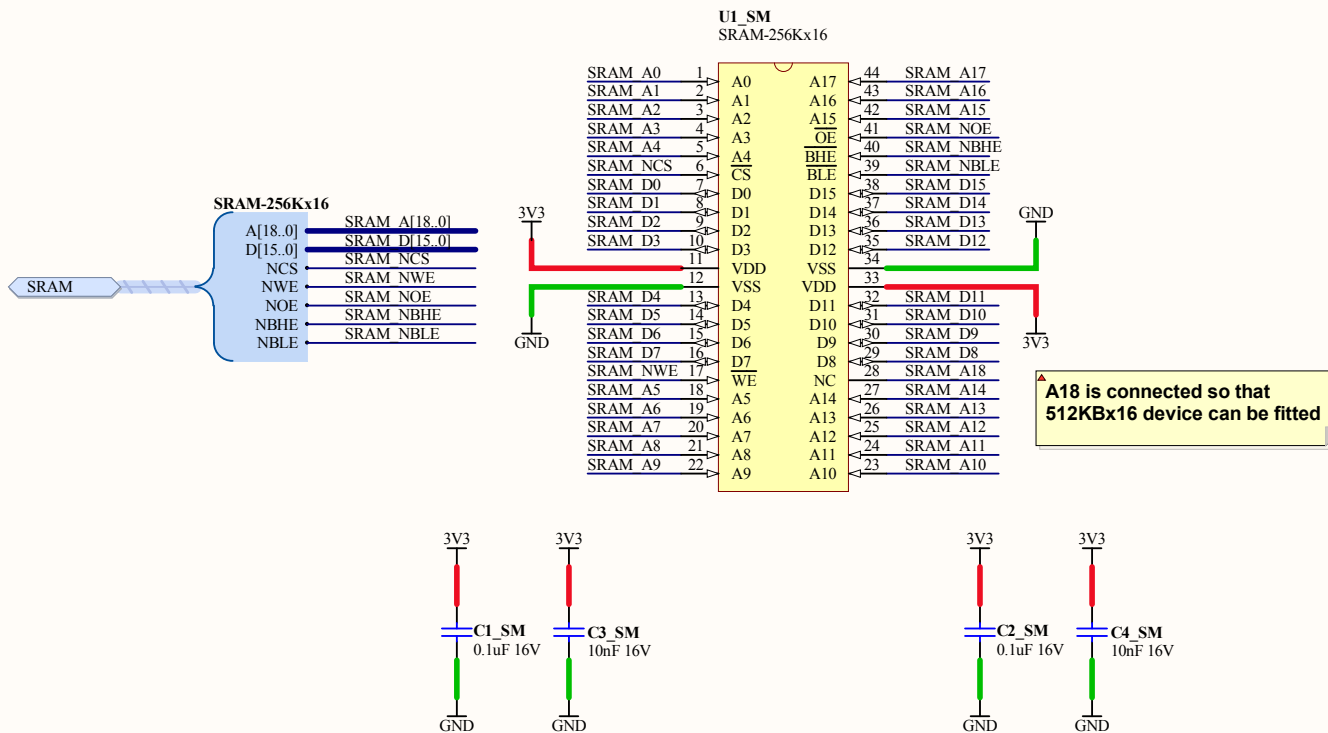
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C

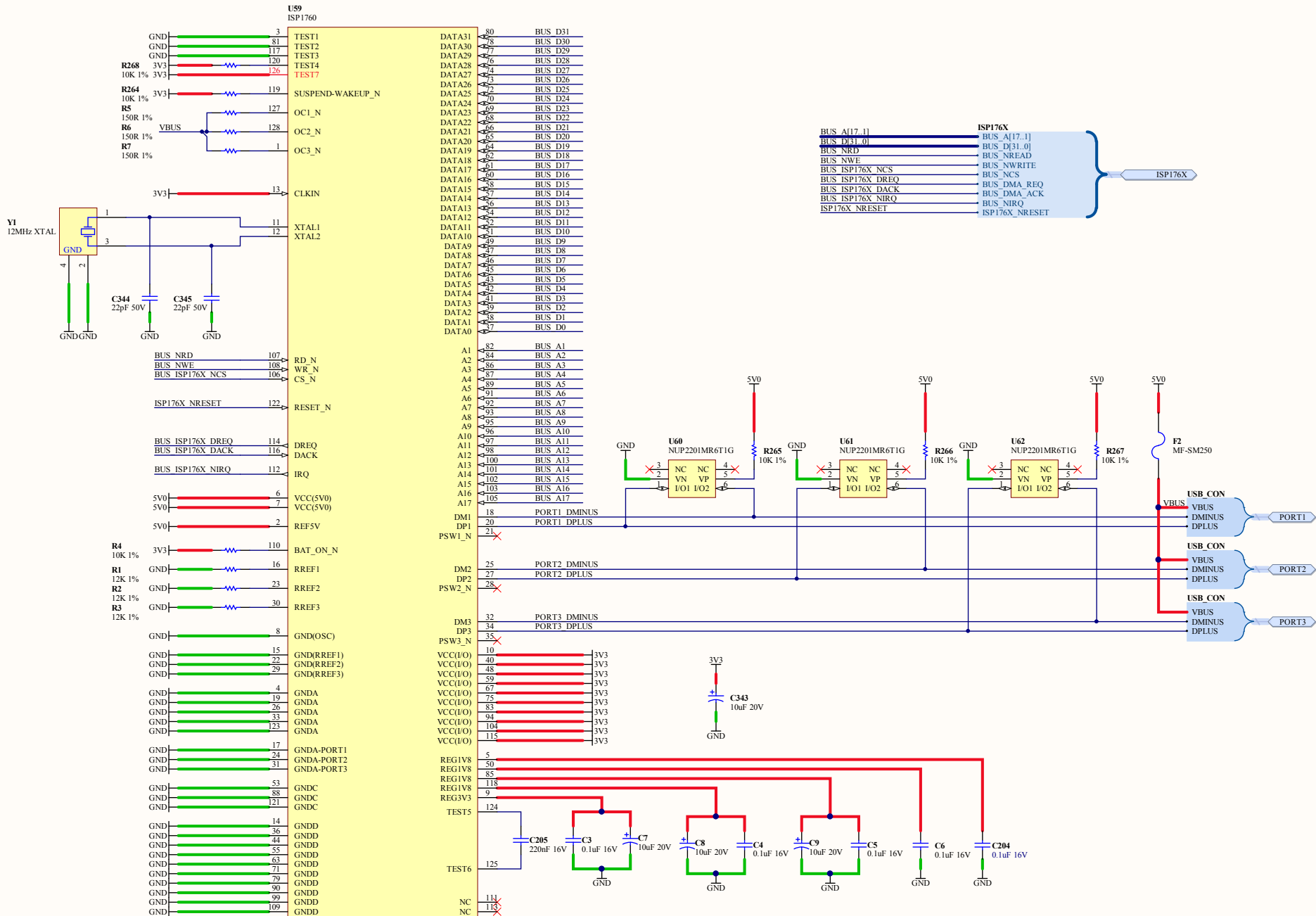
D



Sheet Title 128M-bit Flash Memory (BGA)		Altium Limited 3 Minna Close Belrose NSW 2085 Australia	
Project Title NB3000AL - Altera			
Size: A4	Assy: D-820-0053	Revision: 02	
Date: 1/02/2010	Time: 1:34:46 PM	Sheet 28 of 81	
File: FLASH_S29GL128P11FF1010_128Mbit.SchDoc			



Sheet Title 256K x 16-Bit SRAM		Altium Limited 3 Minna Close Belrose NSW 2085 Australia	
Project Title NB3000AL - Altera			
Size: A4	Assy: D-820-0053	Revision: 02	
Date: 1/02/2010	Time: 1:34:46 PM	Sheet 29 of 81	
File: SRAM 256Kx16 TSOP44.SchDoc			



1

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A

A

B

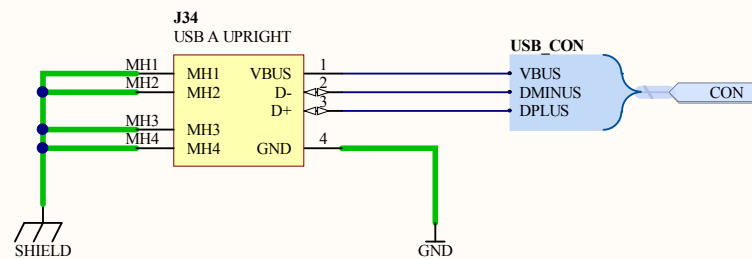
B


C

C

D

D



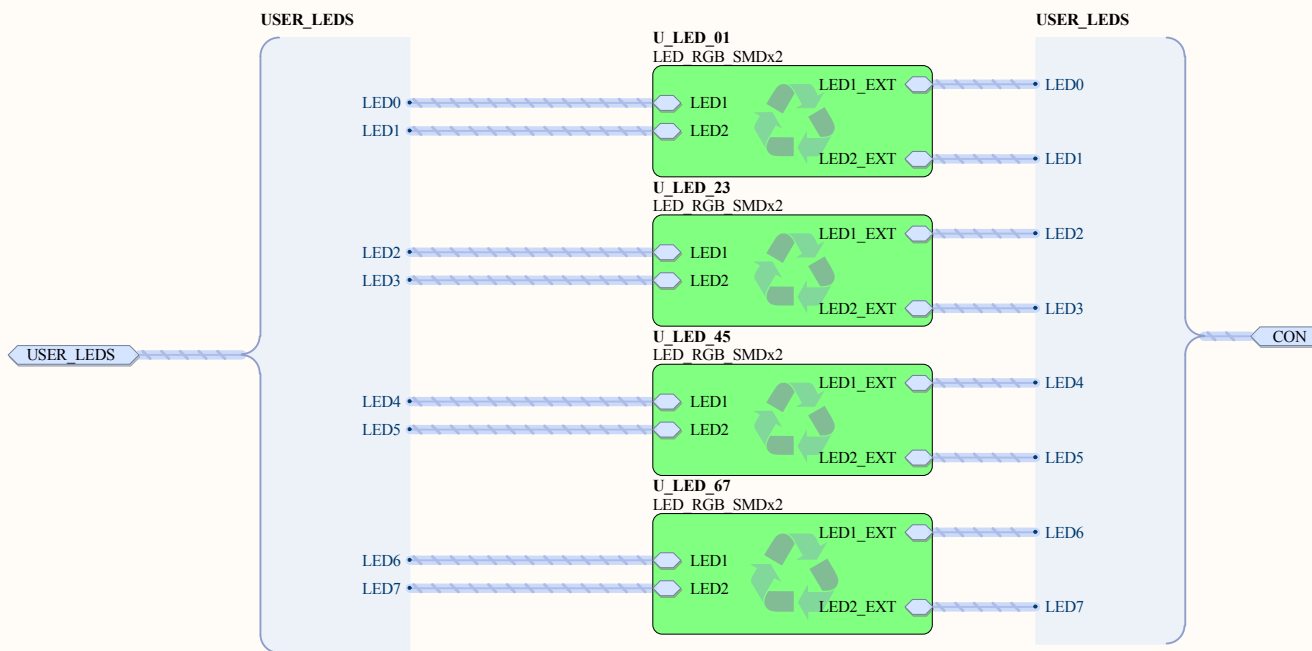
Sheet Title USBA RA Upright Connector		Altium Limited 3 Minna Close Belrose NSW 2085 Australia	
Project Title NB3000AL - Altera			
Size: A4	Assy: D-820-0053	Revision: 02	
Date: 1/02/2010	Time: 1:34:46 PM	Sheet 31 of 81	
File: CON USBA RA UPRIGHT.SchDoc			

1

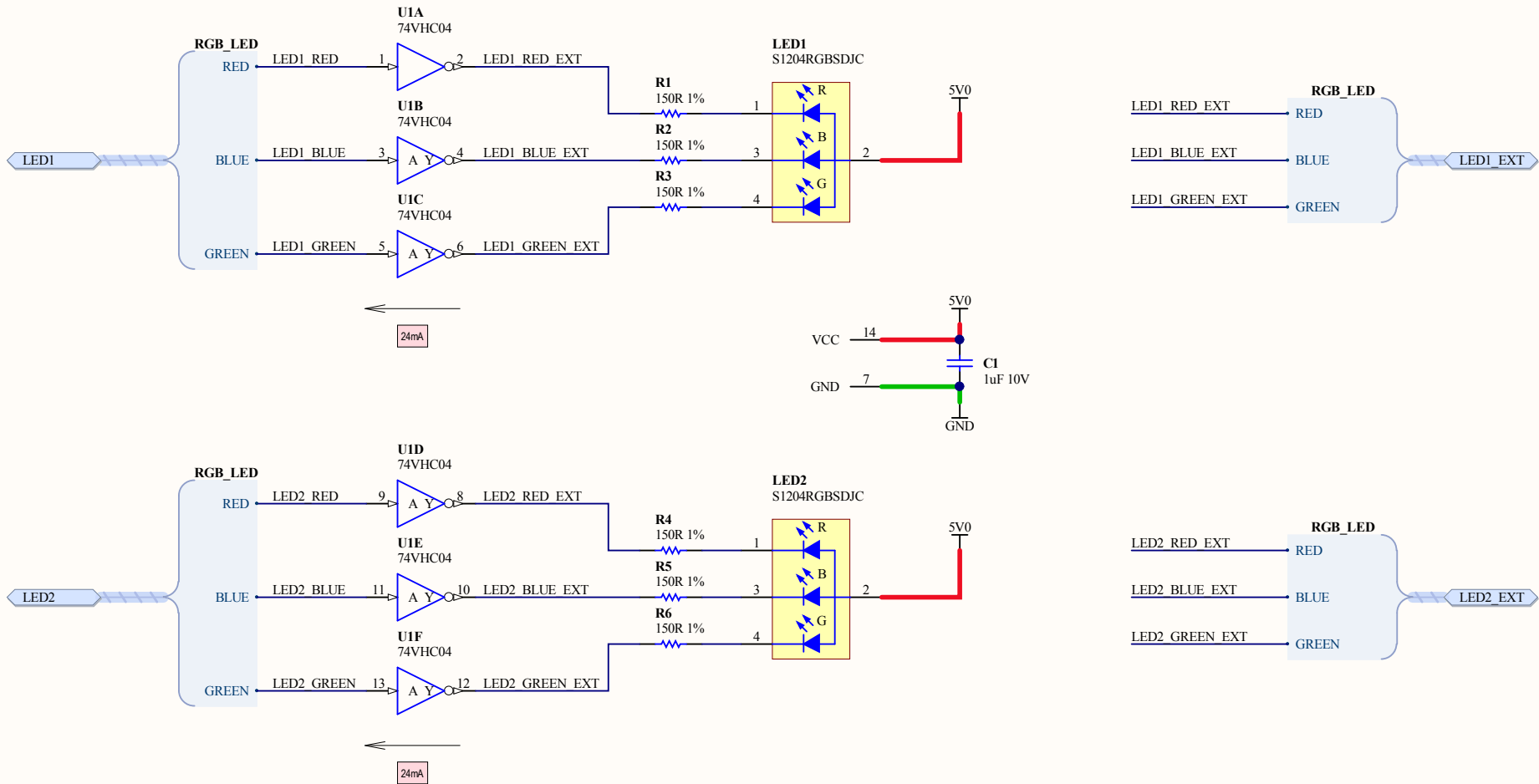
2

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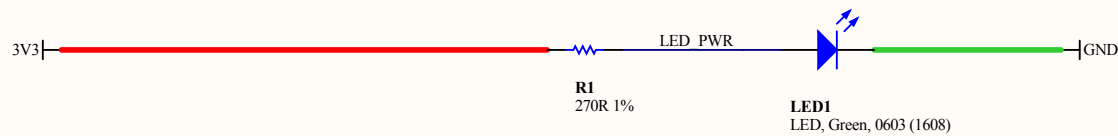


Sheet Title Visual Indicators Top		Altium Limited 3 Minna Close Belrose NSW 2085 Australia	
Project Title NB3000AL - Altera			
Size: A4	Assy: D-820-0053	Revision: 02	
Date: 1/02/2010	Time: 1:34:46 PM	Sheet 32 of 81	
File: LED_RGB_SMDx8.SCHDOC			

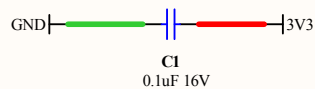
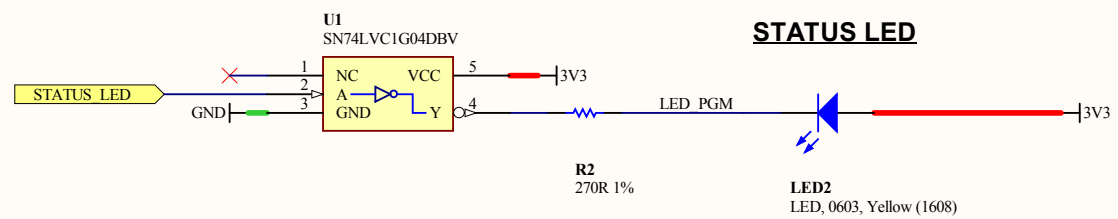



Sheet Title Visual Indicators			Altium Limited 3 Minna Close Belrose NSW 2085 Australia	
Project Title NB3000AL - Altera				
Size: A4	Assy: D-820-0053	Revision: 02		
Date: 1/02/2010	Time: 1:34:47 PM	Sheet 33 of 81		
File: LED_RGB_SMDx2.SCHDOC				

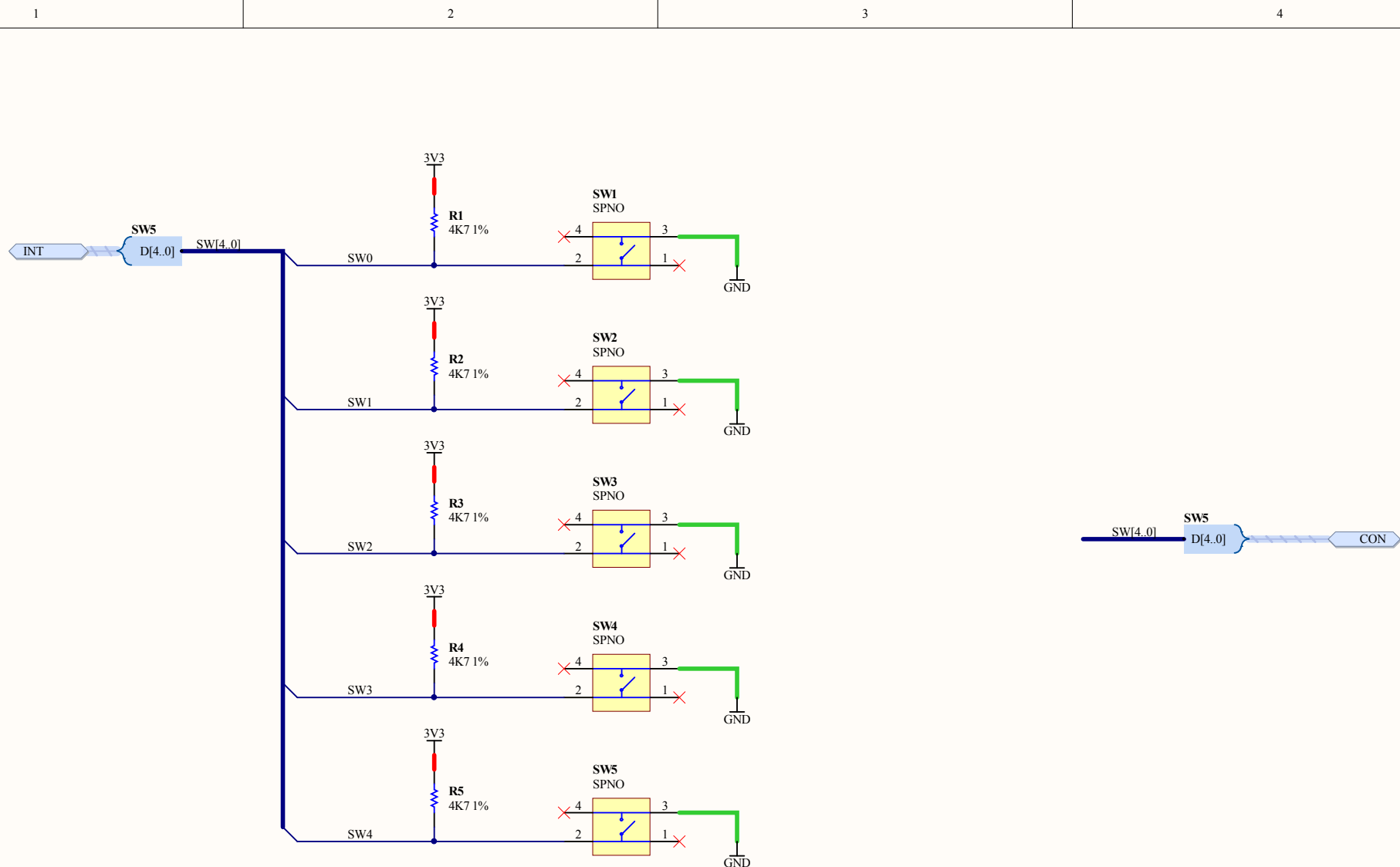
POWER LED



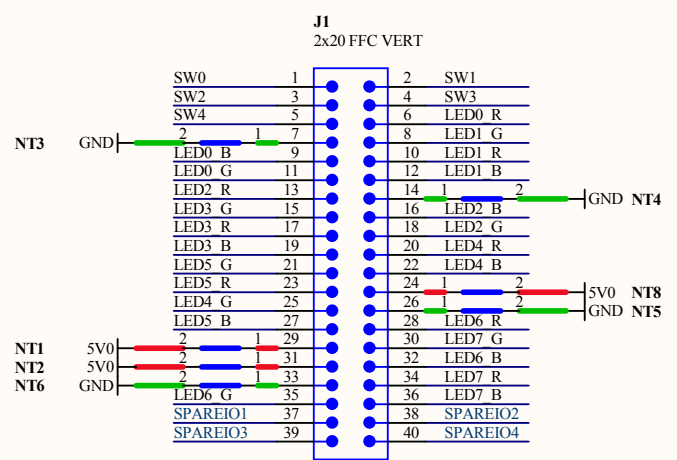
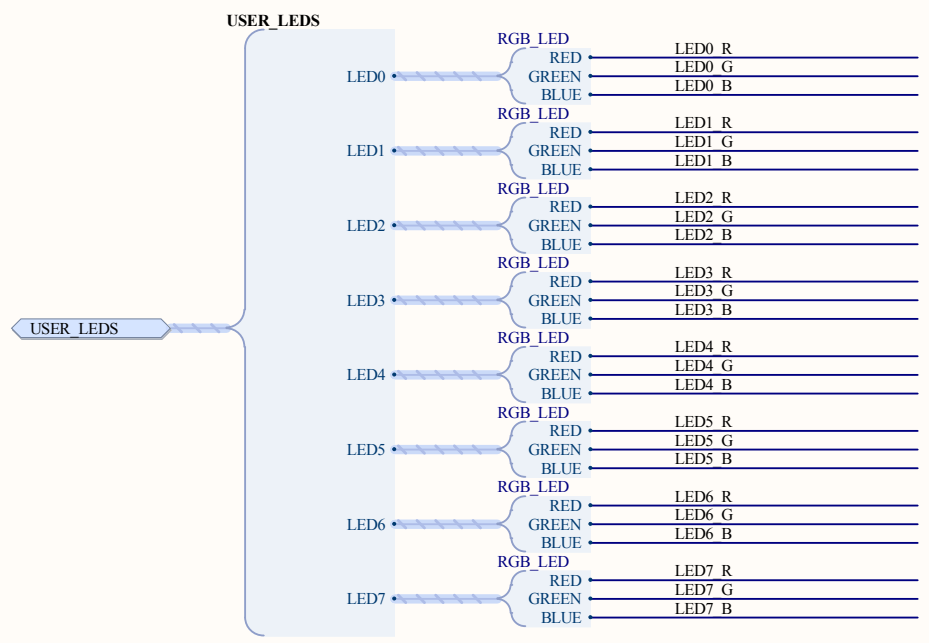
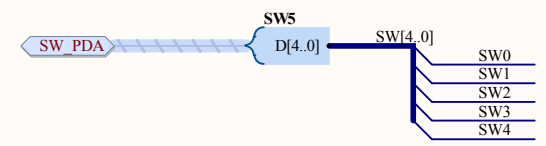
STATUS LED



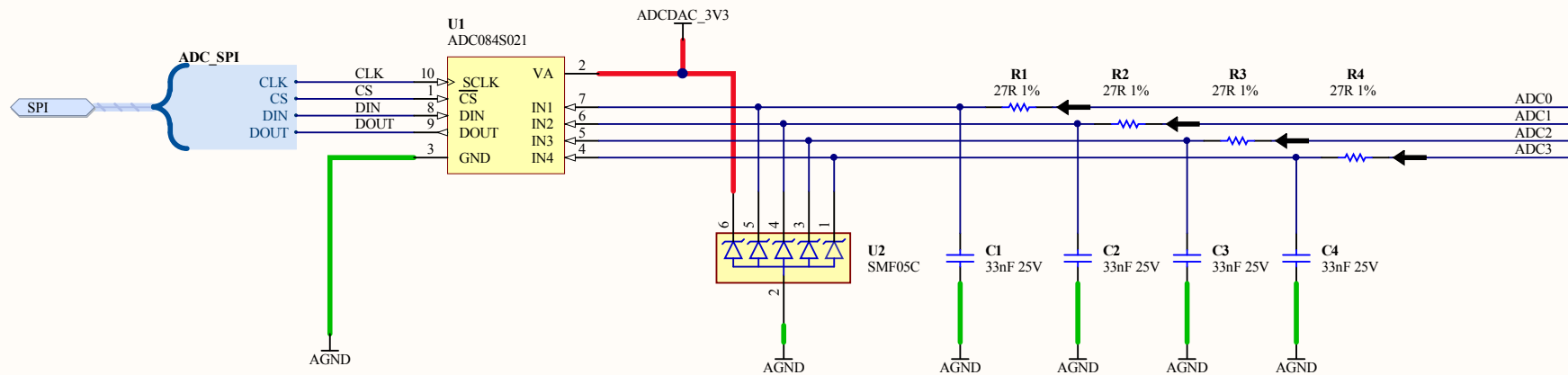
Sheet Title User FPGA Status LEDs		<i>Altium Limited</i> 3 Minna Close Belrose NSW 2085 Australia	
Project Title NB3000AL - Altera			
Size: A4	Assy: D-820-0053	Revision: 02	
Date: 1/02/2010	Time: 1:34:47 PM	Sheet 34 of 81	
File: DB_LEDS_0603.SchDoc			



Sheet Title PDA-Style 5 x SPNO Switch		Altium Limited 3 Minna Close Belrose NSW 2085 Australia	
Project Title NB3000AL - Altera			
Size: A4	Assy: D-820-0053	Revision: 02	
Date: 1/02/2010	Time: 1:34:47 PM	Sheet 35 of 81	
File: SW_PB_SPNOx5_SMD.SCHDOC			



Sheet Title LED and Button Ext. Connector			Altium Limited 3 Minna Close Belrose NSW 2085 Australia	
Project Title NB3000AL - Altera				
Size: A4	Assy: D-820-0053	Revision: 02		
Date: 1/02/2010	Time: 1:34:47 PM	Sheet 36 of 81		
File: CON NB3000 LEDKB.SCHDOC				



ADC maximum sample rate:

8 bit @ 200Ksps

Maximum sample rate (nyquist) : 100kHz

0.012890625v = 1 bit (3V3 ref) resolution

Low Pass Input filter Calculations:

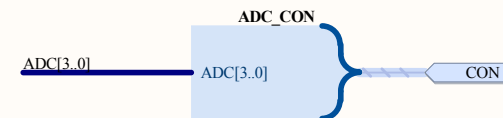
R = 27 Ohms

C = 33nF (0.033uF)

$$f_c = \frac{1}{2\pi RC} \text{ Hz} = \frac{1}{6.38 \times 27 \times 33} \text{ }^{-9}$$

$$= 178715.6777$$

= Corner frequency rolloff (Knee) of ~ 178kHz



Sheet Title ADC084S021 8-Bit ADC IC		Altium Limited 3 Minna Close Belrose NSW 2085 Australia	
Project Title NB3000AL - Altera			
Size: A4	Assy: D-820-0053	Revision: 02	
Date: 1/02/2010	Time: 1:34:47 PM	Sheet 37 of 81	
File: ADC_ADC084S021_SPI.SchDoc			

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A

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B

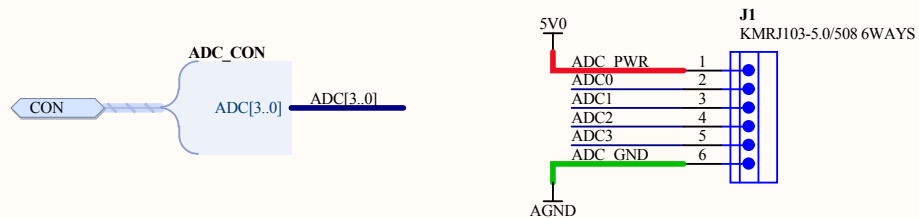
B


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C

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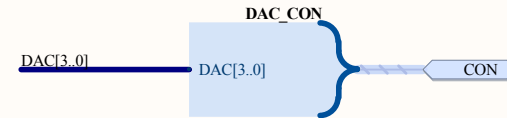
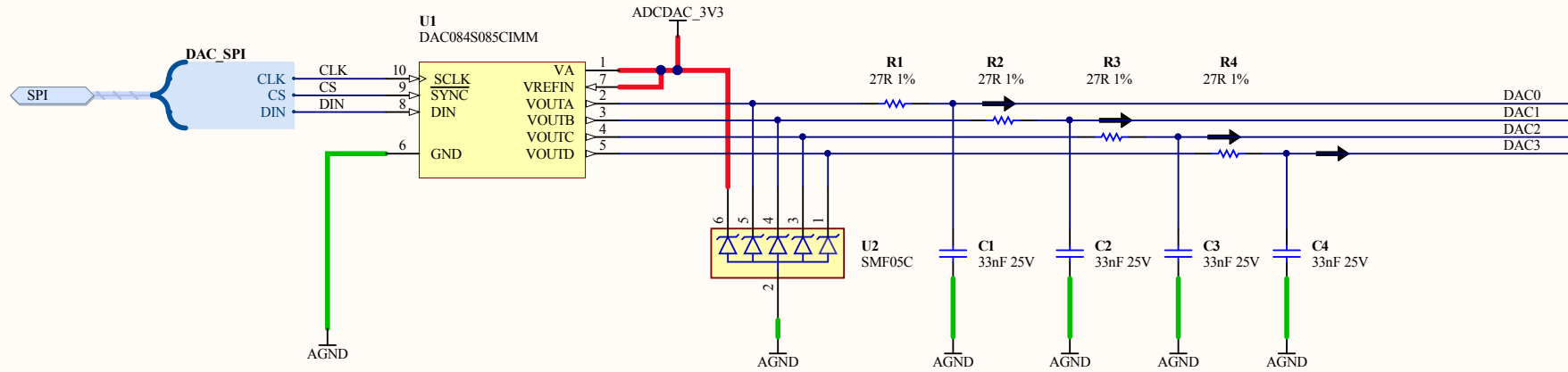
Sheet Title Screw Header For ADC			<i>Altium Limited</i> 3 Minna Close Belrose NSW 2085 Australia	
Project Title NB3000AL - Altera				
Size: A4	Assy: D-820-0053	Revision: 02		
Date: 1/02/2010	Time: 1:34:47 PM	Sheet 38 of 81		
File: CON_ADCx4_KMRJIO3_5MM_6WAY.SchDoc				

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Sheet Title DAC084S085 8-bit DAC IC		Altium Limited 3 Minna Close Belrose NSW 2085 Australia	
Project Title NB3000AL - Altera			
Size: A4	Assy: D-820-0053	Revision: 02	
Date: 1/02/2010	Time: 1:34:47 PM	Sheet 39 of 81	
File: DAC DAC084S085 SPI.SchDoc			

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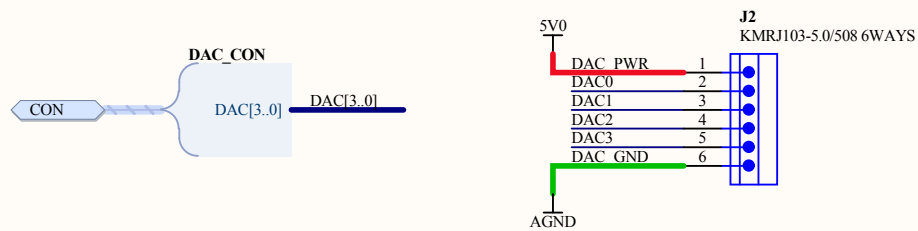
B


C

C

D

D



Sheet Title Screw Header For DAC			<i>Altium Limited</i> 3 Minna Close Belrose NSW 2085 Australia	
Project Title NB3000AL - Altera				
Size: A4	Assy: D-820-0053	Revision: 02		
Date: 1/02/2010	Time: 1:34:47 PM	Sheet 40 of 81		
File: CON DACx4 KMRJIO3 5MM 6WAY.SchDoc				

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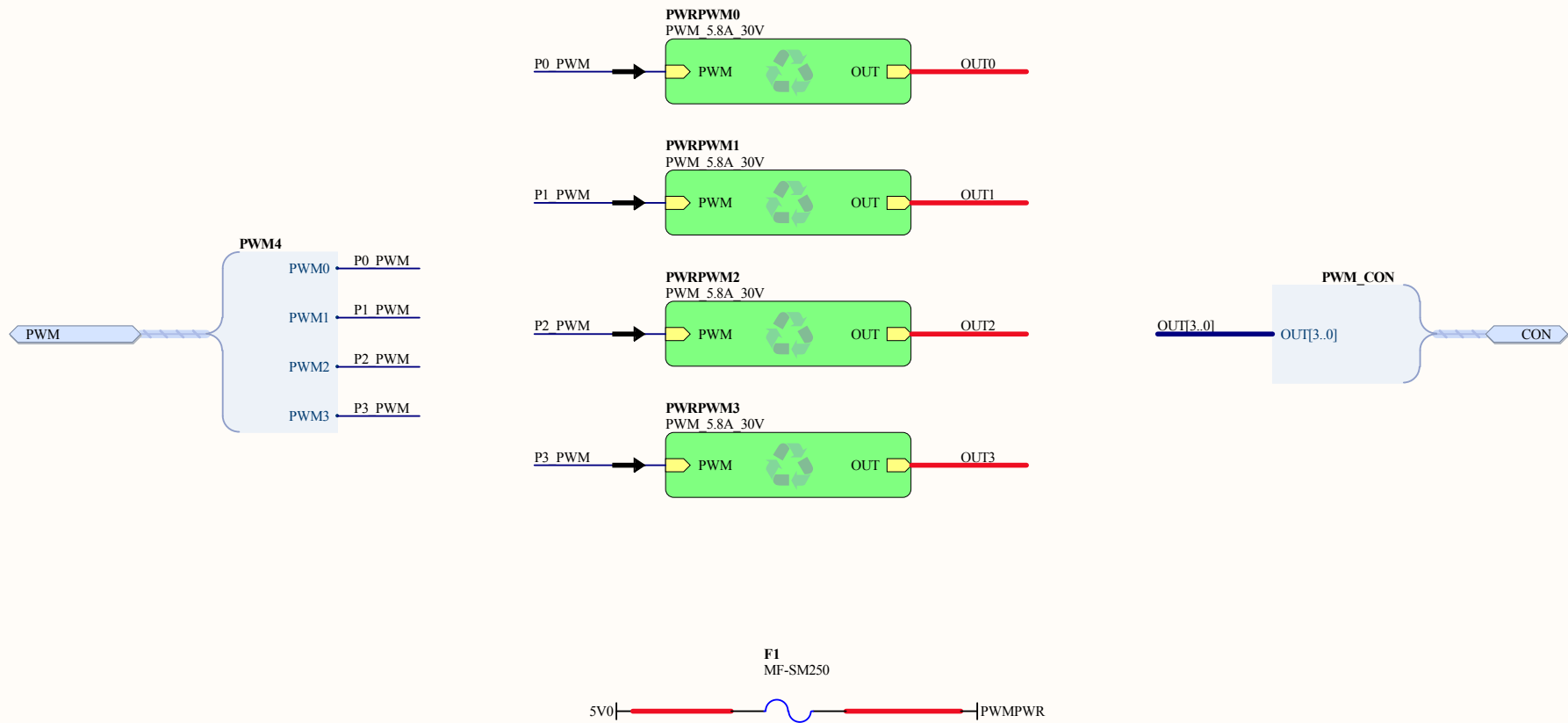
B

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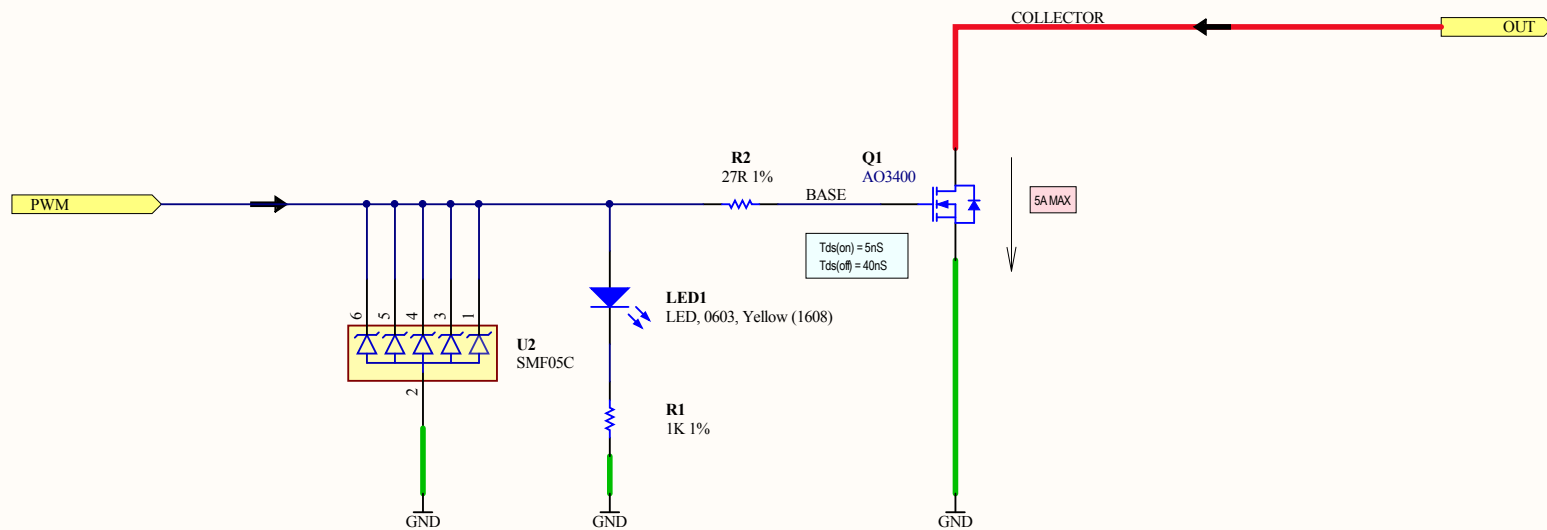
Sheet Title PWM x 4		Altium Limited 3 Minna Close Belrose NSW 2085 Australia	
Project Title NB3000AL - Altera			
Size: A4	Assy: D-820-0053	Revision: 02	
Date: 1/02/2010	Time: 1:34:47 PM	Sheet 41 of 81	
File: PWM 5.8A 30V X4.SchDoc			


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Sheet Title PWM 30V/4A		<i>Altium Limited</i> 3 Minna Close Belrose NSW 2085 Australia	
Project Title NB3000AL - Altera			
Size: A4	Assy: D-820-0053	Revision: 02	
Date: 1/02/2010	Time: 1:34:47 PM	Sheet 42 of 81	
File: PWM 5.8A 30V.SchDoc			

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A

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B

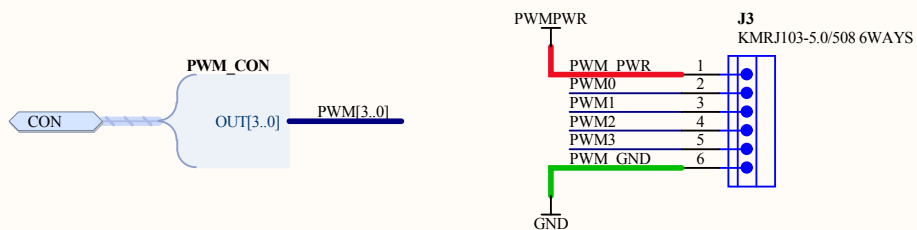
B


C

C

D

D



Sheet Title Screw Header For Power PWM		<i>Altium Limited</i> 3 Minna Close Belrose NSW 2085 Australia	
Project Title NB3000AL - Altera			
Size: A4	Assy: D-820-0053	Revision: 02	
Date: 1/02/2010	Time: 1:34:47 PM	Sheet 43 of 81	
File: CON PWMx4 KMRJIO3 5MM 6WAY.SchDoc			

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A

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B

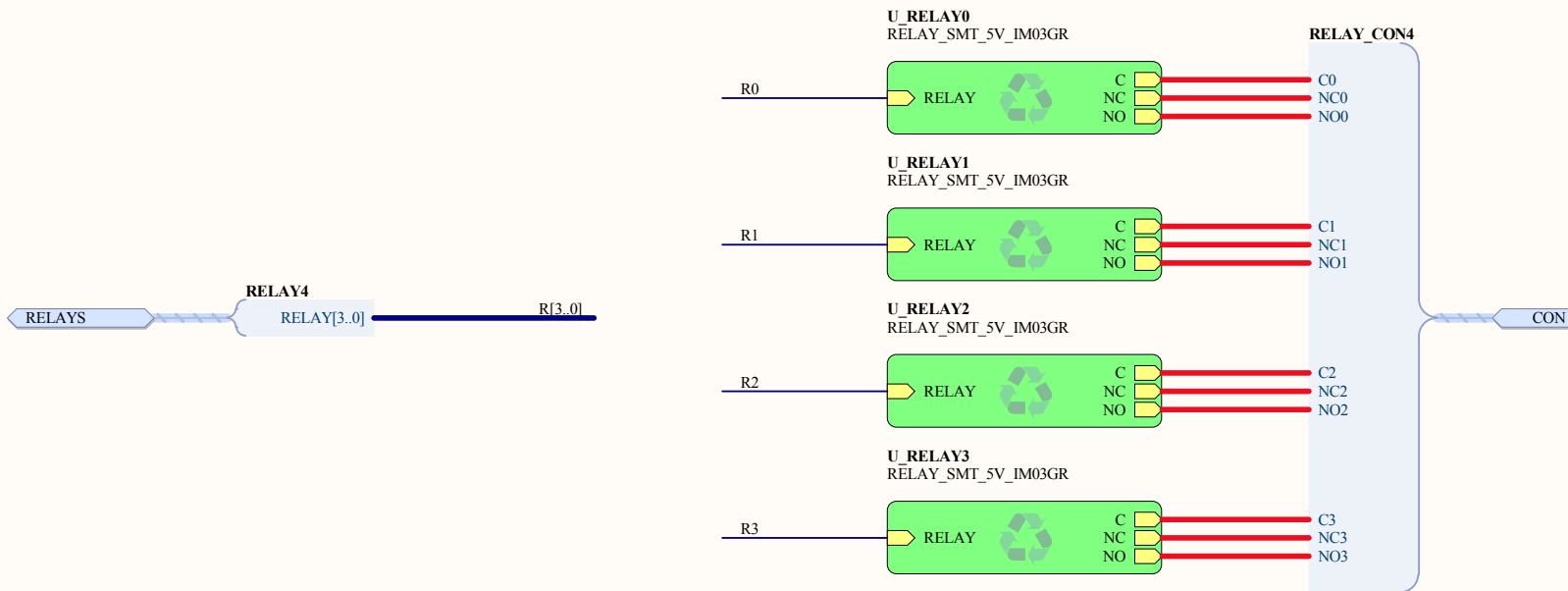
B

C

C

D

D



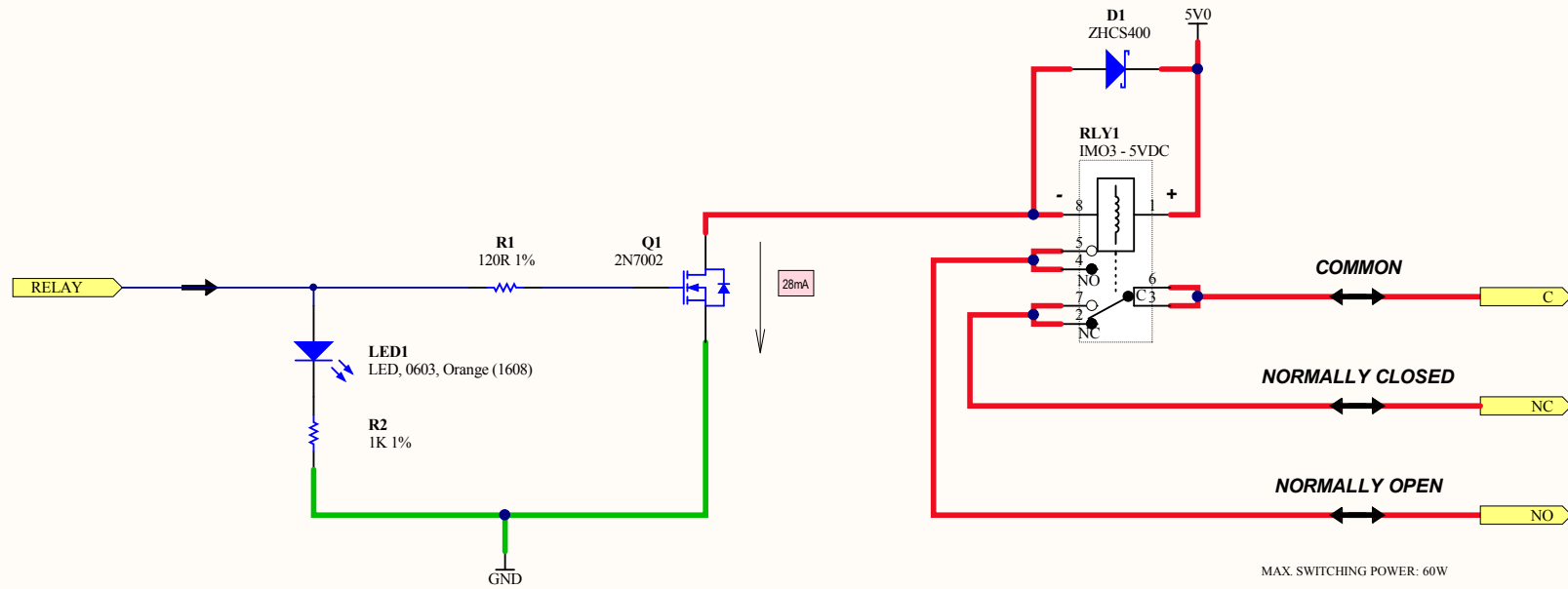
Sheet Title Power Control x4		Altium Limited 3 Minna Close Belrose NSW 2085 Australia	
Project Title NB3000AL - Altera			
Size: A4	Assy: D-820-0053	Revision: 02	
Date: 1/02/2010	Time: 1:34:47 PM	Sheet 44 of 81	
File: RELAY X4 IM03GR.SchDoc			

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Sheet Title Power Control		Altium Limited 3 Minna Close Belrose NSW 2085 Australia	
Project Title NB3000AL - Altera			
Size: A4	Assy: D-820-0053	Revision: 02	
Date: 1/02/2010	Time: 1:34:47 PM	Sheet 45 of 81	
File: RELAY_SMT_5V_IMO3GR.SchDoc			

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A

A

B

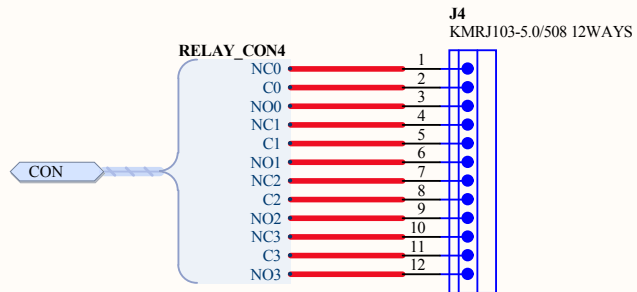
B


C

C

D

D



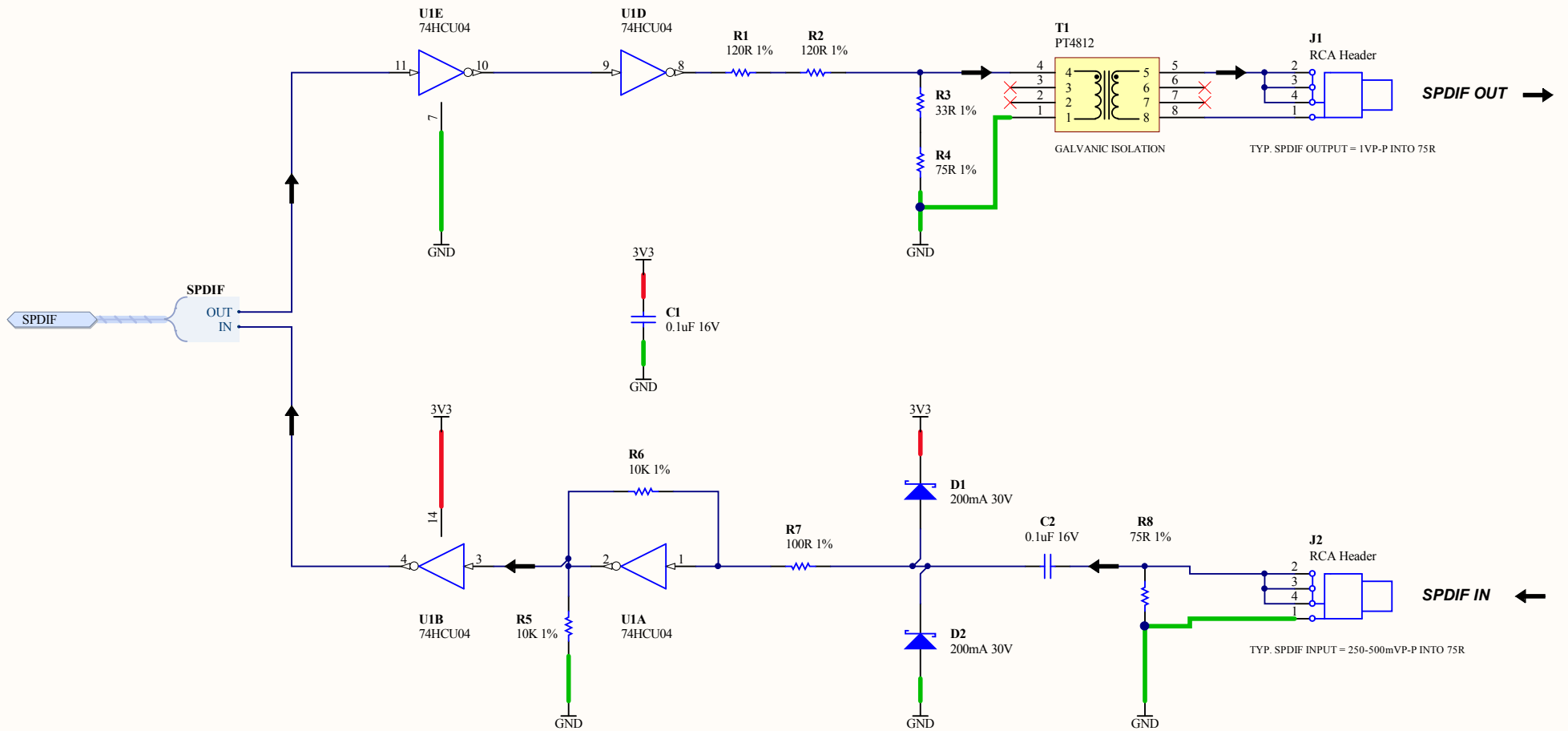
Sheet Title Screw Header For Relays		<i>Altium Limited</i> 3 Minna Close Belrose NSW 2085 Australia	
Project Title NB3000AL - Altera			
Size: A4	Assy: D-820-0053	Revision: 02	
Date: 1/02/2010	Time: 1:34:47 PM	Sheet 46 of 81	
File: CON_RELAYx4_KMRJIO3_5MM_12WAY.SchDoc			

1

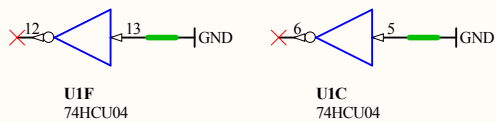
2

3

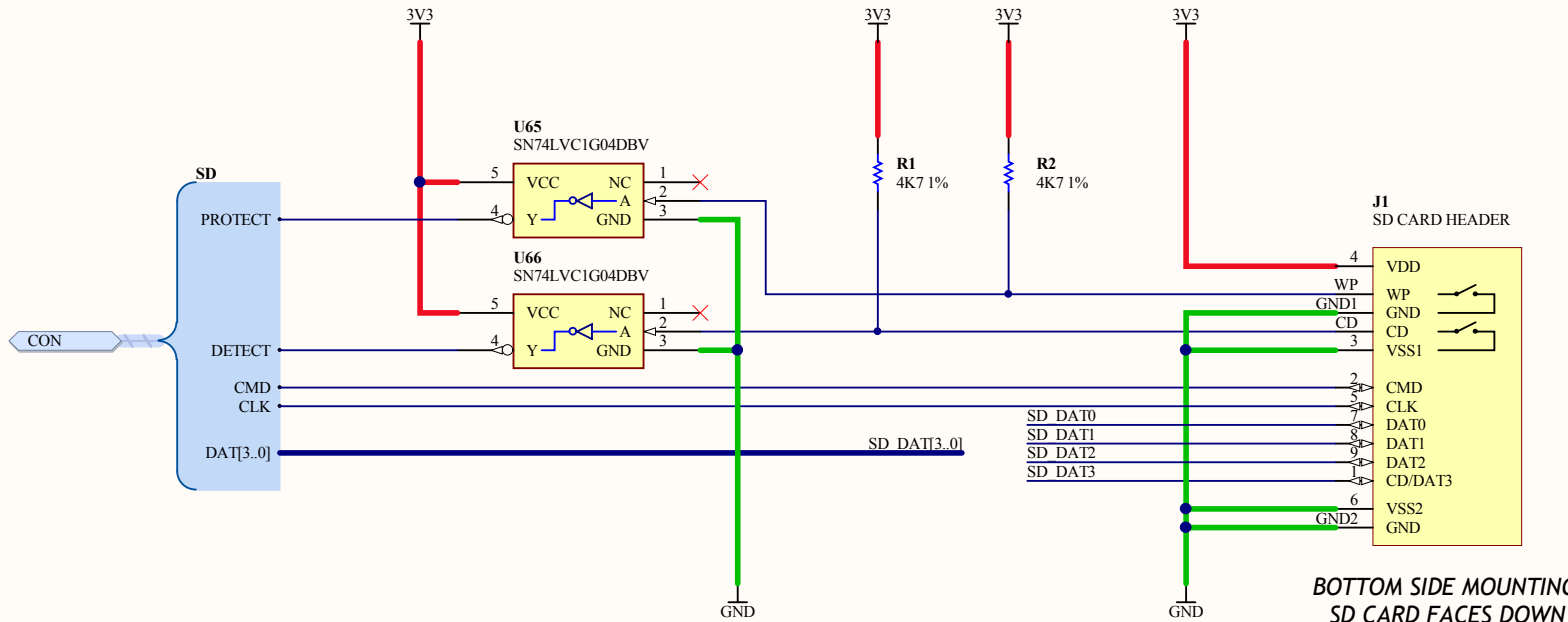
4



NOTE:
INVERTER MUST BE UNBUFFERED (U TYPE)



Sheet Title S/SPDIF RCA IN/OUT		Altium Limited 3 Minna Close Belrose NSW 2085 Australia	
Project Title NB3000AL - Altera			
Size: A4	Assy: D-820-0053	Revision: 02	
Date: 1/02/2010	Time: 1:34:47 PM	Sheet 47 of 81	
File: CON SPDIF INOUT A.SchDoc			



WRITE PROTECT (PIN WP):
 PROTECTED (LOCKED): OPEN - FLOATING
 UNPROTECTED (UNLOCKED): WP CONNECTED TO GND

CARD DETECT (PIN CD):
 CARD REMOVED: OPEN - FLOATING
 CARD INSERTED: CONNECTED TO GND

**BOTTOM SIDE MOUNTING
 SD CARD FACES DOWN**

Sheet Title SD-CARD		Altium Limited 3 Minna Close Belrose NSW 2085 Australia	
Project Title NB3000AL - Altera			
Size: A4	Assy: D-820-0053	Revision: 02	
Date: 1/02/2010	Time: 1:34:47 PM	Sheet 48 of 81	
File: CON_SD_KSDC012551.SchDoc			

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A

A

B

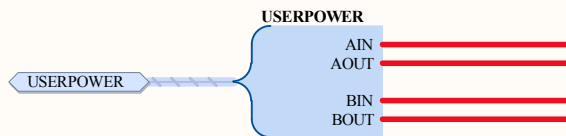
B

C


C

D

D



USER HEADER
POWER LOOPBACK

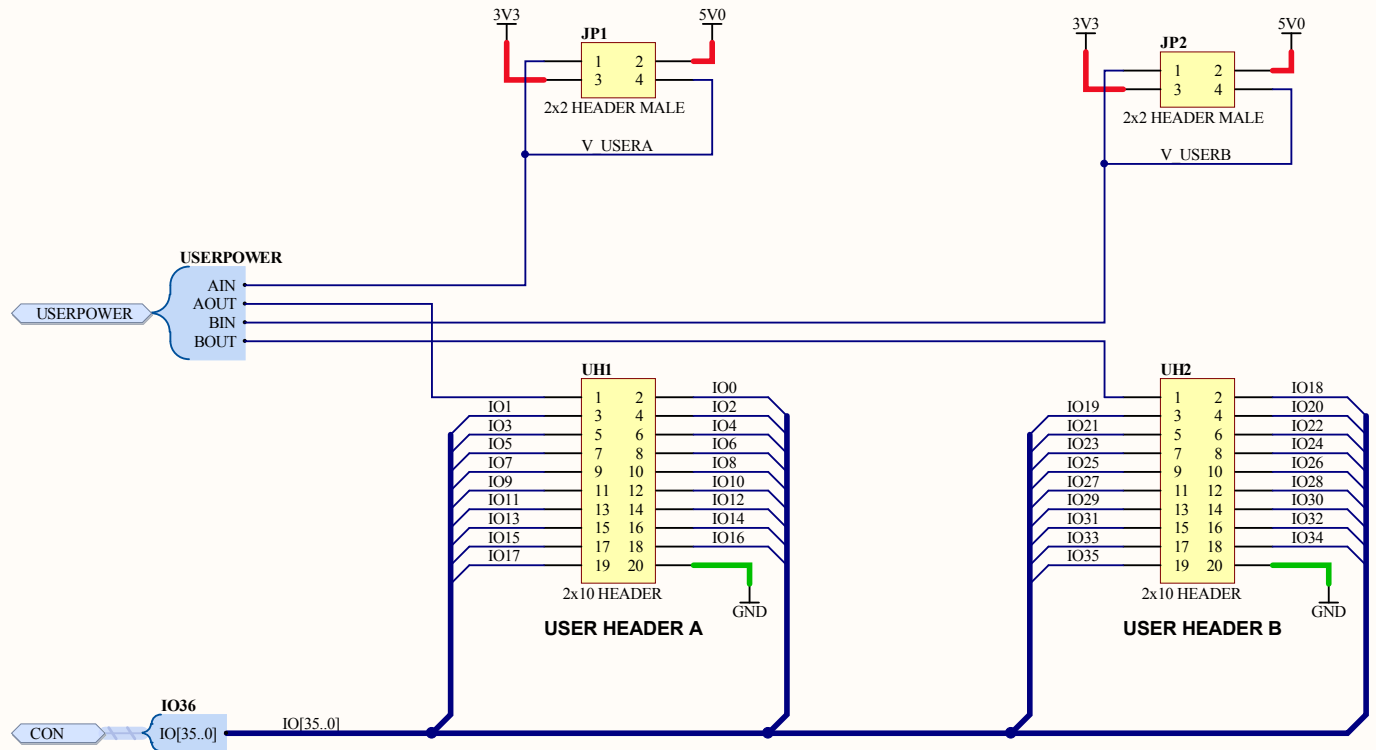
Sheet Title USER IO Power Loopback		<i>Altium Limited</i> 3 Minna Close Belrose NSW 2085 Australia	
Project Title NB3000AL - Altera			
Size: A4	Assy: D-820-0053	Revision: 02	
Date: 1/02/2010	Time: 1:34:47 PM	Sheet 49 of 81	
File: USERPWR.SchDoc			


1

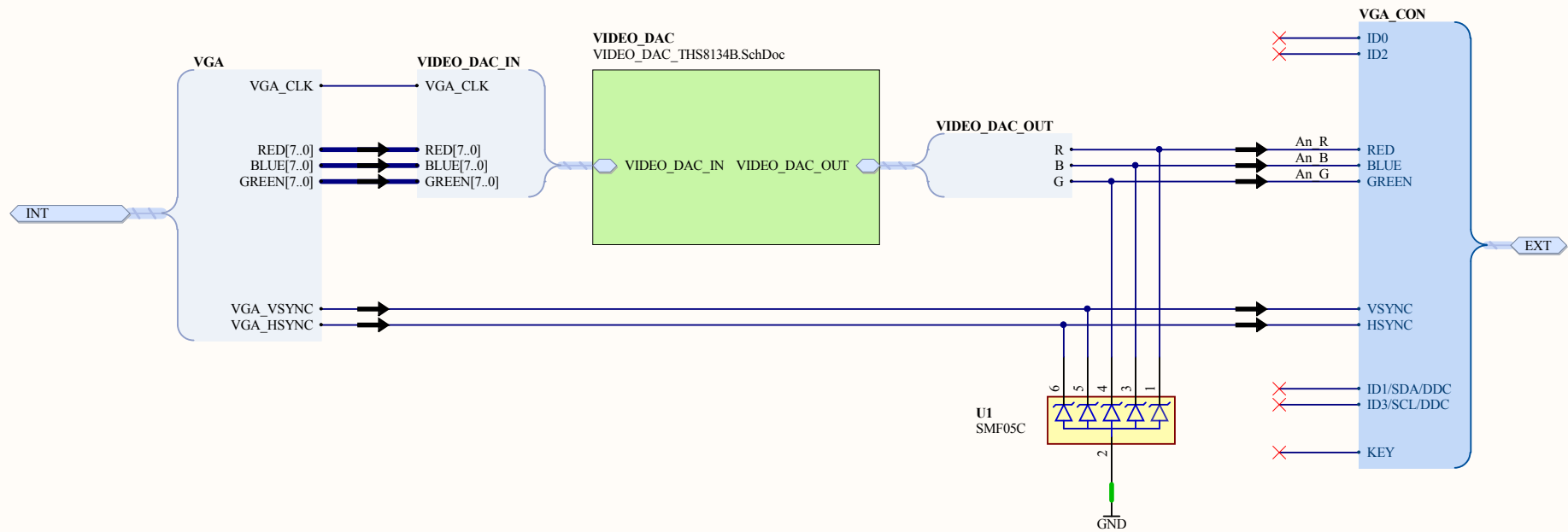
2

3

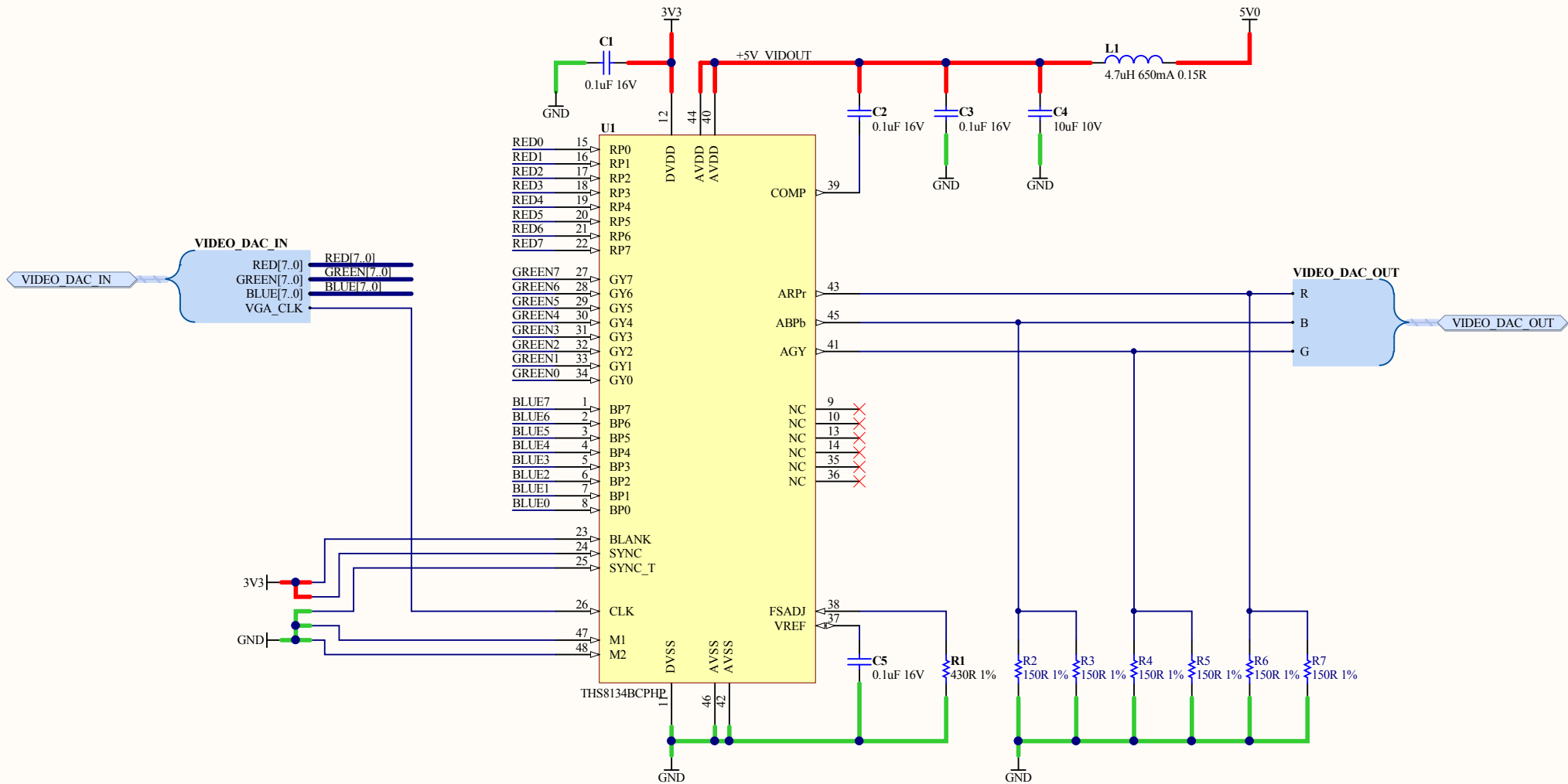
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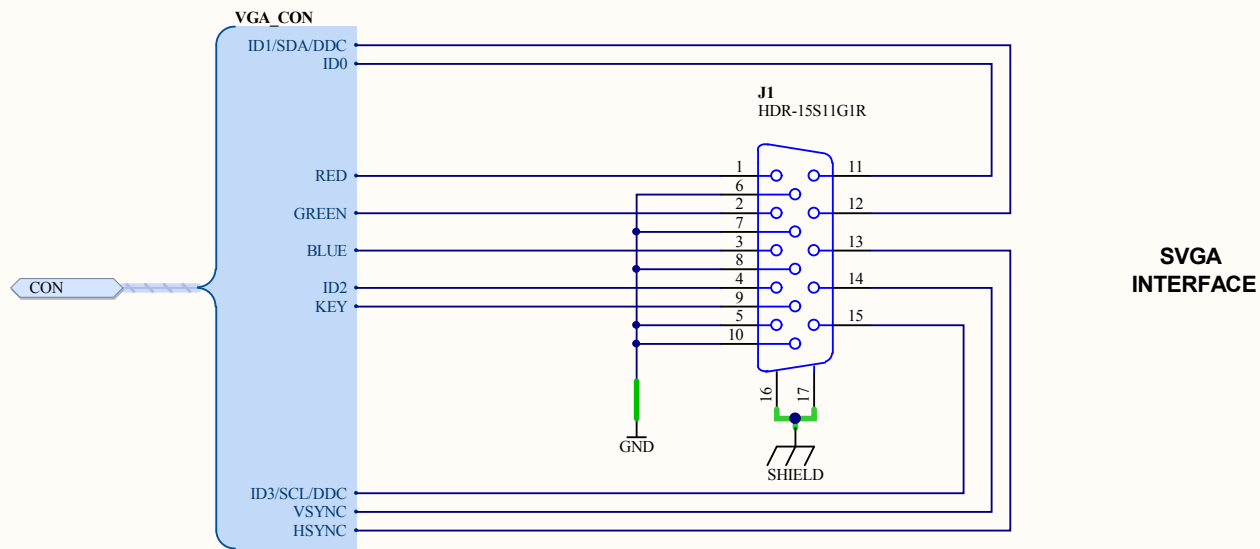
Sheet Title 36-Way User I/O Headers		<i>Altium Limited</i> 3 Minna Close Belrose NSW 2085 Australia	
Project Title NB3000AL - Altera			
Size: A4	Assy: D-820-0053	Revision: 02	
Date: 1/02/2010	Time: 1:34:47 PM	Sheet 50 of 81	
File: CON_USER_20WBOXHDRAMx2.SCHDOC			




Sheet Title VGA Ouput		Altium Limited 3 Minna Close Belrose NSW 2085 Australia	
Project Title NB3000AL - Altera			
Size: A4	Assy: D-820-0053	Revision: 02	
Date: 1/02/2010	Time: 1:34:47 PM	Sheet 51 of 81	
File: VGA_OUT.SCHDOC			

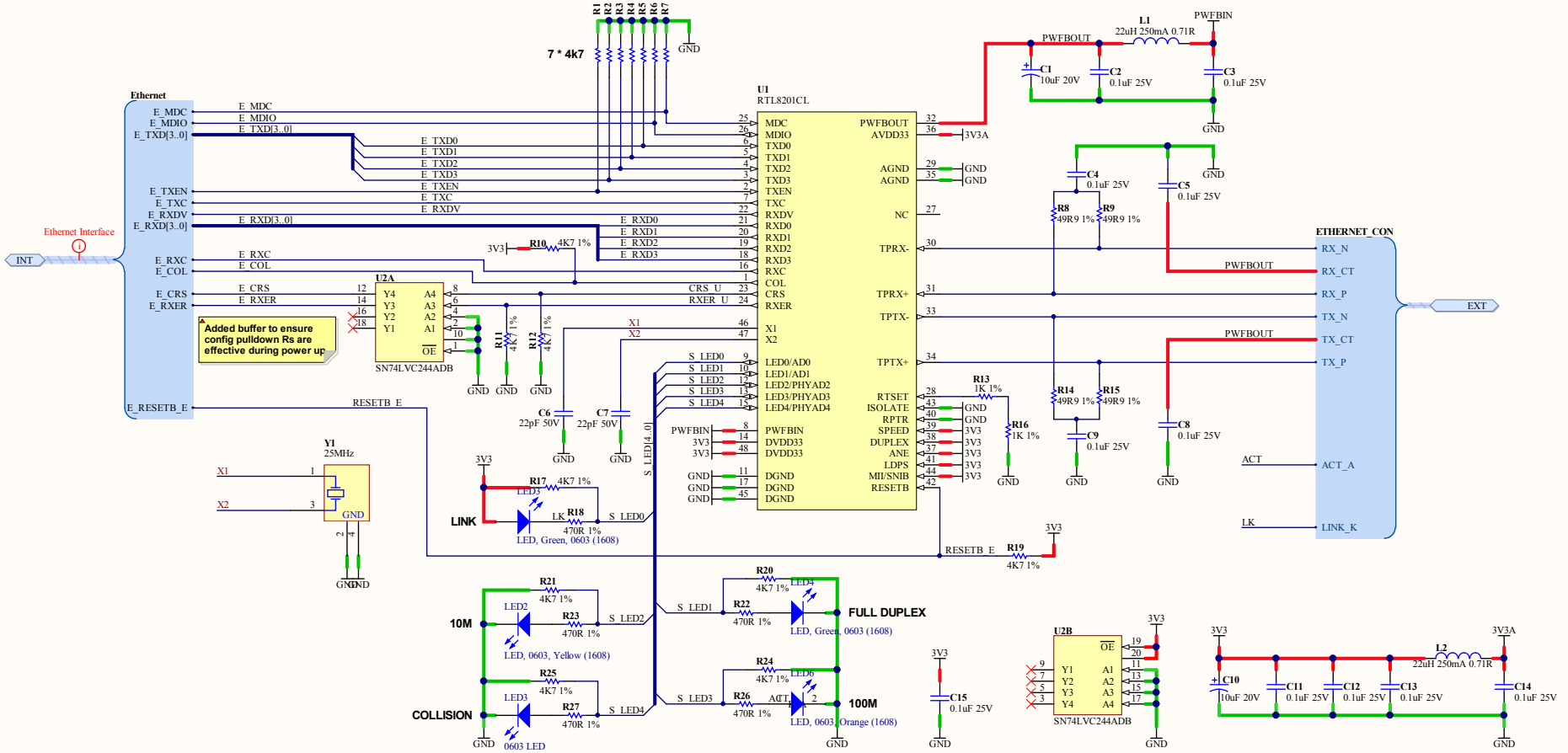


Sheet Title Video DAC		Altium Limited 3 Minna Close Belrose NSW 2085 Australia	
Project Title NB3000AL - Altera			
Size: A4	Assy: D-820-0053	Revision: 02	
Date: 1/02/2010	Time: 1:34:48 PM	Sheet 52 of 81	
File: VIDEO_DAC_THS8134B.SchDoc			

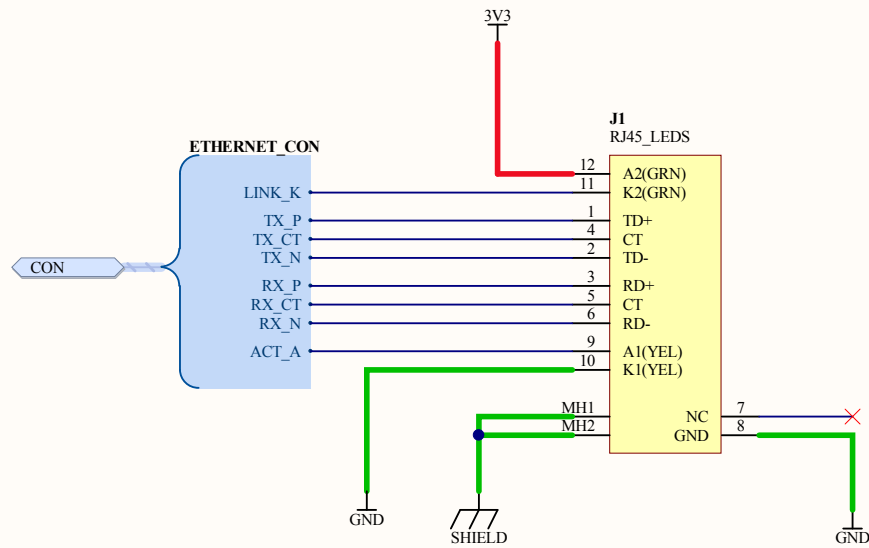



**SVGA
INTERFACE**

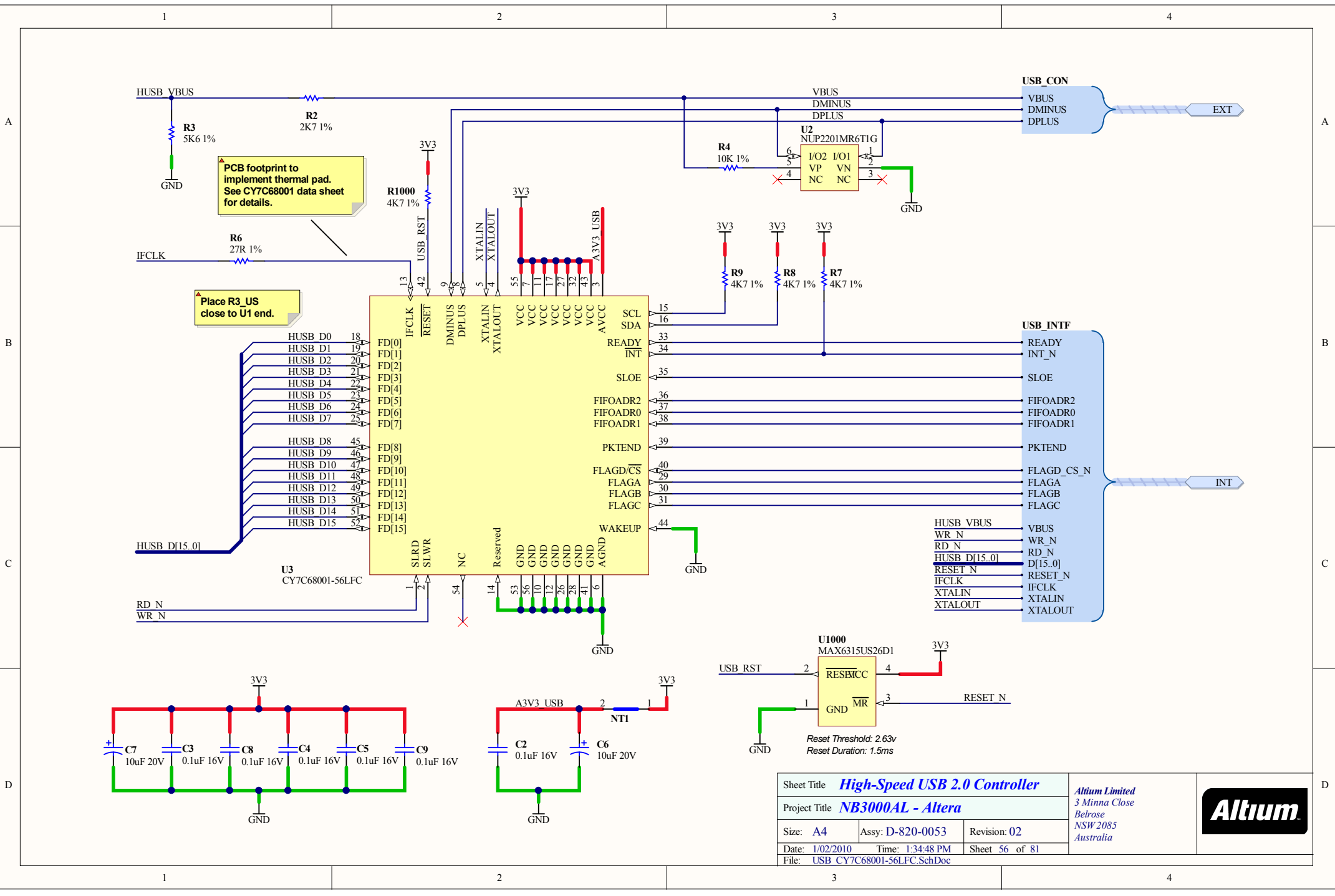
Sheet Title Video Out Connector		Altium Limited 3 Minna Close Belrose NSW 2085 Australia	
Project Title NB3000AL - Altera			
Size: A4	Assy: D-820-0053	Revision: 02	
Date: 1/02/2010	Time: 1:34:48 PM	Sheet 53 of 81	
File: CON_VGA_DB15.SCHDOC			



Sheet Title			Altium Limited	
Ethernet Interface			3 Minna Close	
Project Title NB3000AL - Altera			Belrose	
Size: A3	Assy: D-820-0053	Revision: 02	NSW 2085	
Date: 1/02/2010	Time: 1:34:48 PM	Sheet 54 of 81	Australia	
File: Ethernet RTL8201CL.SchDoc				

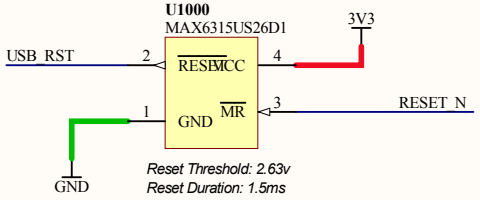
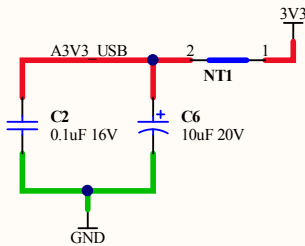
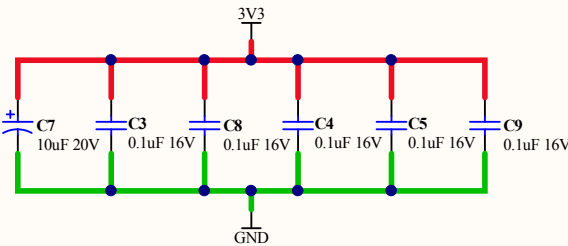


Sheet Title Ethernet Connector		Altium Limited 3 Minna Close Belrose NSW 2085 Australia	
Project Title NB3000AL - Altera			
Size: A4	Assy: D-820-0053	Revision: 02	
Date: 1/02/2010	Time: 1:34:48 PM	Sheet 55 of 81	
File: CON ETHERNET RJ45 LEADS.SchDoc			

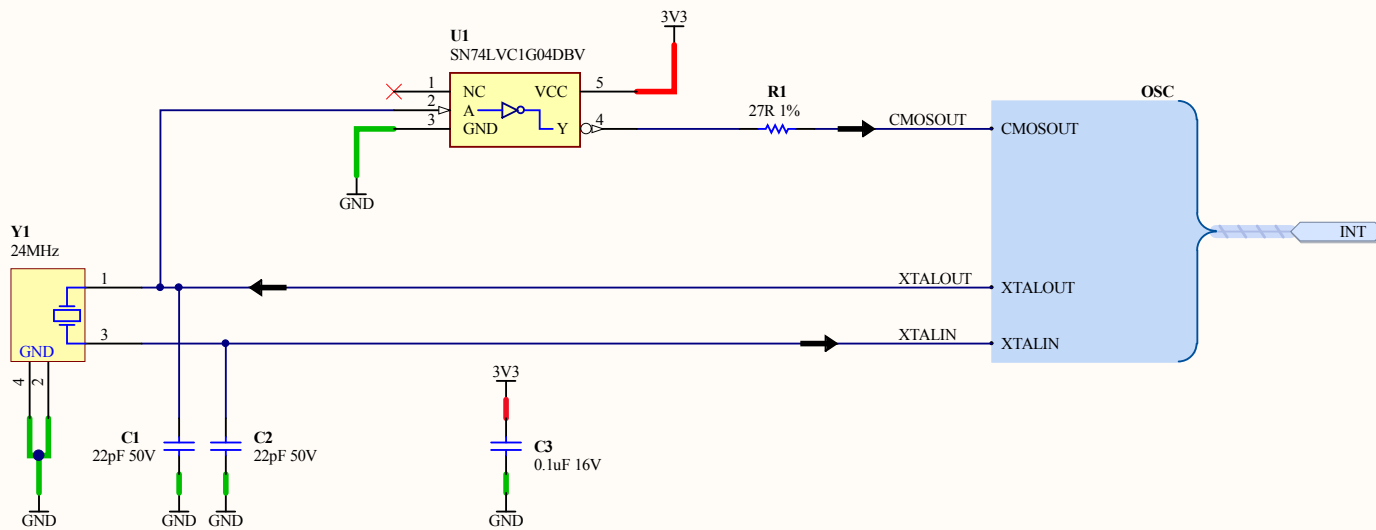


PCB footprint to implement thermal pad. See CY7C68001 data sheet for details.

Place R3_US close to U1 end.



Sheet Title High-Speed USB 2.0 Controller		Altium Limited 3 Minna Close Belrose NSW 2085 Australia	
Project Title NB3000AL - Altera			
Size: A4	Assy: D-820-0053	Revision: 02	
Date: 1/02/2010	Time: 1:34:48 PM	Sheet 56 of 81	
File: USB CY7C68001-56LFC.SchDoc			



Sheet Title 24MHz Oscillator		Altium Limited 3 Minna Close Belrose NSW 2085 Australia	
Project Title NB3000AL - Altera			
Size: A4	Assy: D-820-0053	Revision: 02	
Date: 1/02/2010	Time: 1:34:48 PM	Sheet 57 of 81	
File: OSC_24MHZ.SchDoc			

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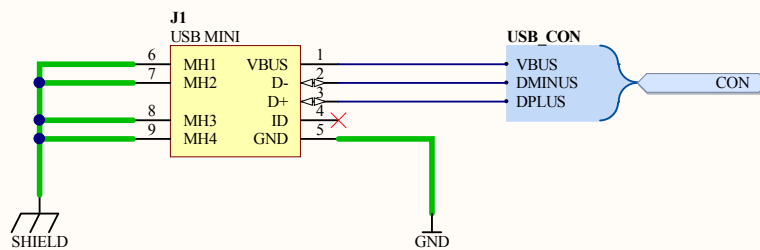
B


C

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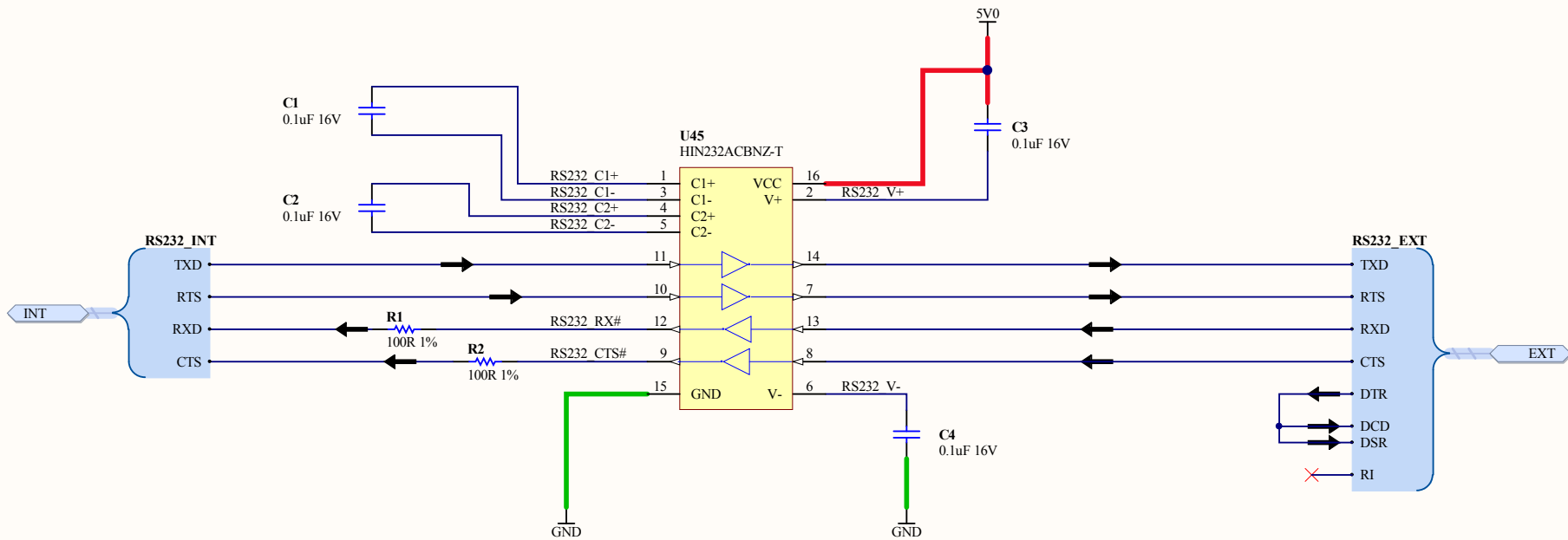
Sheet Title USB 2.0 Type B Connector		<i>Altium Limited</i> 3 Minna Close Belrose NSW 2085 Australia	
Project Title NB3000AL - Altera			
Size: A4	Assy: D-820-0053	Revision: 02	
Date: 1/02/2010	Time: 1:34:48 PM	Sheet 58 of 81	
File: CON MINI USBB RA KME04-USBMU03A01-1.SchDoc			

1

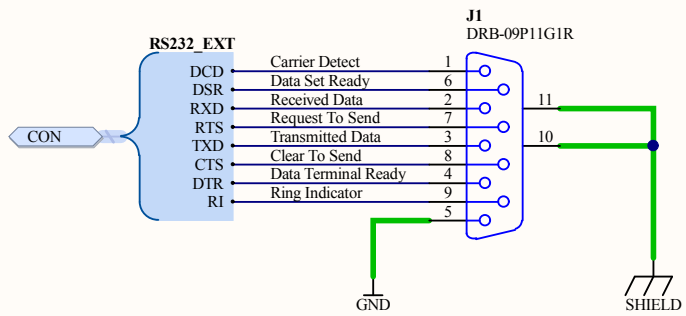
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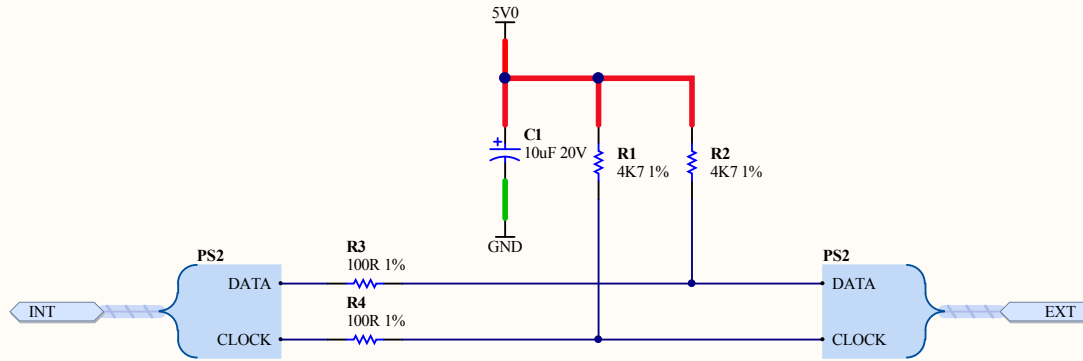



Sheet Title RS232 Communication IC		Altium Limited 3 Minna Close Belrose NSW 2085 Australia	
Project Title NB3000AL - Altera			
Size: A4	Assy: D-820-0053	Revision: 02	
Date: 1/02/2010	Time: 1:34:48 PM	Sheet 59 of 81	
File: RS232 HIN232.SchDoc			

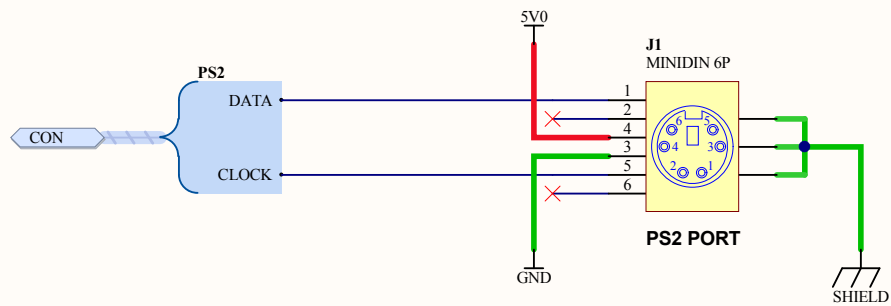



RS232 DB-9 Male Connector
EIA-574 Standard

Sheet Title RS232-DCE DB9		<i>Altium Limited</i> 3 Minna Close Belrose NSW 2085 Australia	
Project Title NB3000AL - Altera			
Size: A4	Assy: D-820-0053	Revision: 02	
Date: 1/02/2010	Time: 1:34:48 PM	Sheet 60 of 81	
File: CON RS232DCE DB9 TH.SchDoc			

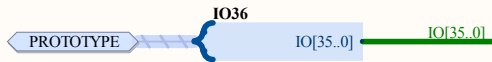


Sheet Title PC PS2		<i>Altium Limited</i> 3 Minna Close Belrose NSW 2085 Australia	
Project Title NB3000AL - Altera			
Size: A4	Assy: D-820-0053	Revision: 02	
Date: 1/02/2010	Time: 1:34:48 PM	Sheet 61 of 81	
File: PC PS2.SchDoc			



Sheet Title PS2 MINIDIN6F Connector (Black)		Altium Limited 3 Minna Close Belrose NSW 2085 Australia	
Project Title NB3000AL - Altera			
Size: A4	Assy: D-820-0053	Revision: 02	
Date: 1/02/2010	Time: 1:34:48 PM	Sheet 62 of 81	
File: CON PS2PORT MINIDIN6F BLACK.SchDoc			

PROTOTYPE



IO35	B32
IO34	A32
IO33	H32
IO32	H31
IO31	H30
IO30	H29
IO29	H28
IO28	H27
IO27	H26
IO26	H25
IO25	H24
IO24	H23
IO23	H22
IO22	H21
IO21	H20
IO20	H19
IO19	H18
IO18	H17
IO17	H16
IO16	H15
IO15	H14
IO14	H13
IO13	H12
IO12	H11
IO11	H10
IO10	H9
IO9	H8
IO8	H7
IO7	H6
IO6	H5
IO5	H4
IO4	H3
IO3	H2
IO2	H1
IO1	A1
IO0	B1

GND	1	GND
1V2	2	1V2
GND	3	GND
1V8	4	1V8
GND	5	GND
2V5	6	2V5
GND	27	GND
3V3	28	3V3
GND	29	GND
5V0	30	5V0
GND	31	GND
+B	32	B+

Sheet Title User Prototyping Area		
Project Title NB3000AL - Altera		
Size: A4	Assy: D-820-0053	Revision: 02
Date: 1/02/2010	Time: 1:34:48 PM	Sheet 63 of 81
File: PROTOTYPE A.SchDoc		

Altium Limited
 3 Minna Close
 Belrose
 NSW 2085
 Australia



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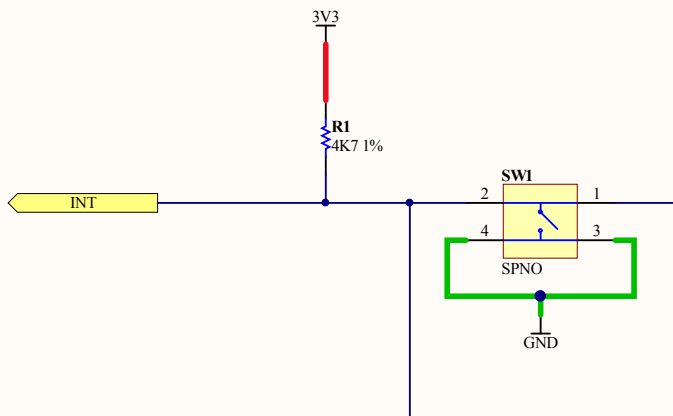
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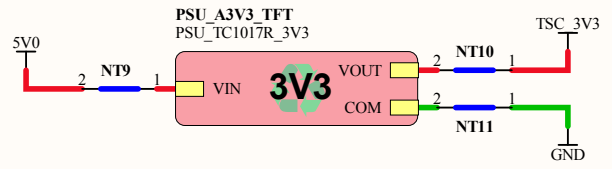
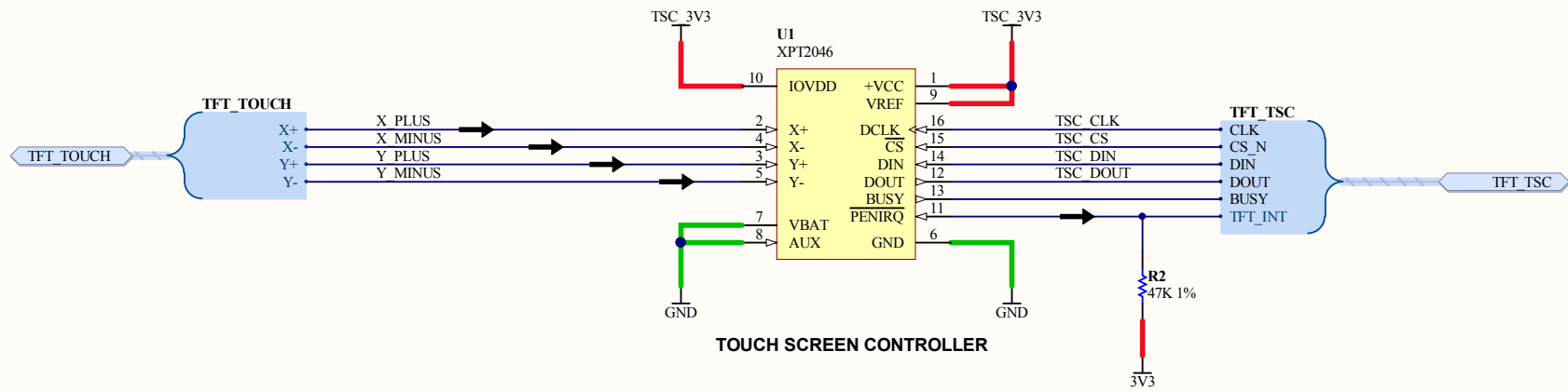
Sheet Title Push Button SPNO Switch		<i>Altium Limited</i> 3 Minna Close Belrose NSW 2085 Australia	
Project Title NB3000AL - Altera			
Size: A4	Assy: D-820-0053	Revision: 02	
Date: 1/02/2010	Time: 1:34:48 PM	Sheet 64 of 81	
File: SW_RESET_SPNO.SCHDOC			

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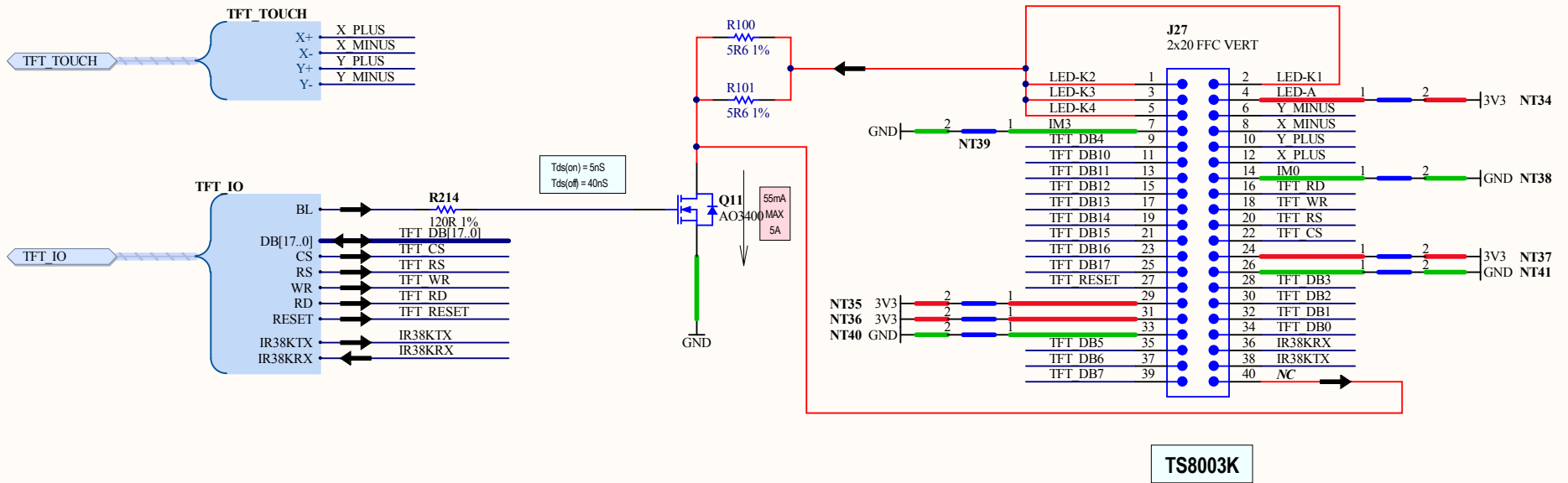
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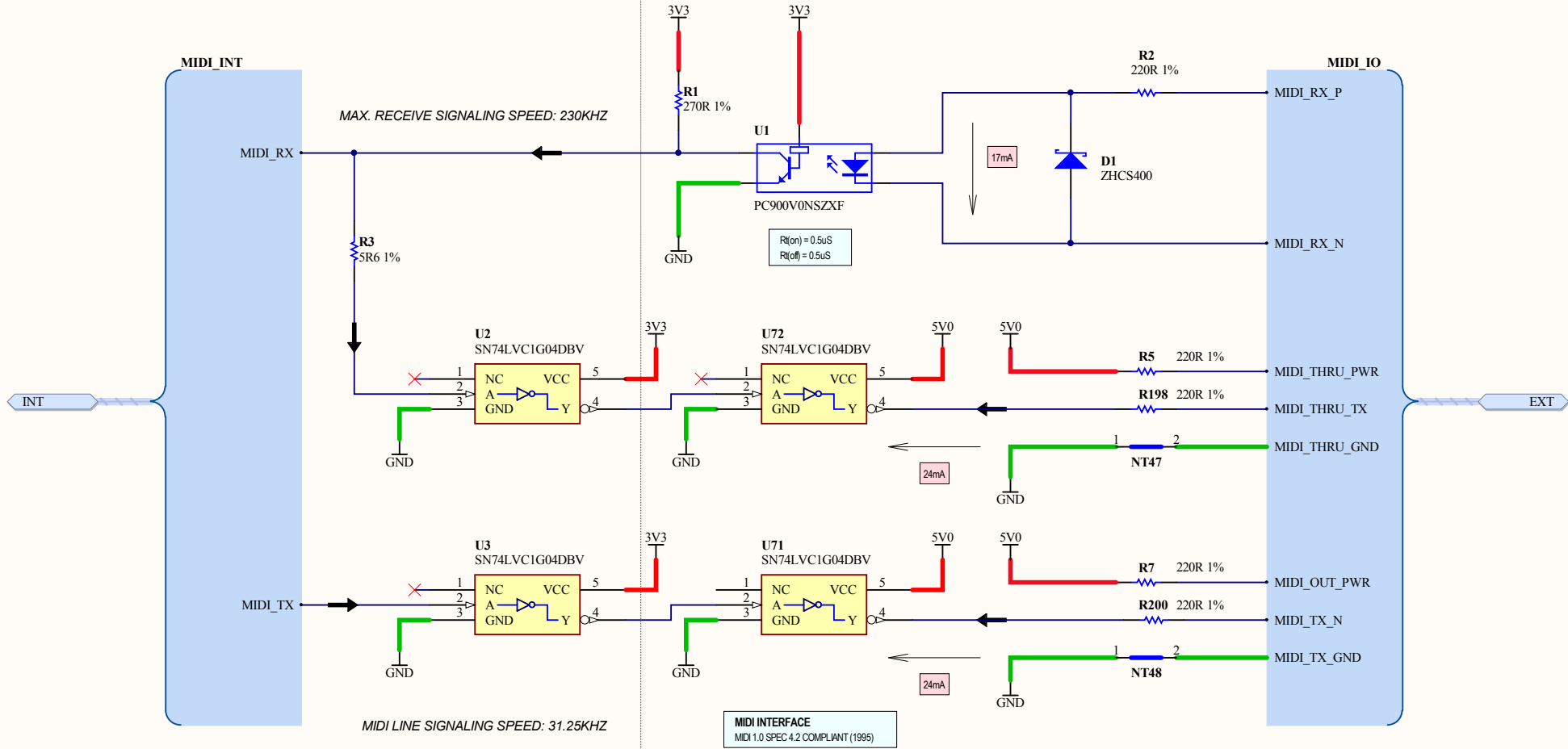


Sheet Title TFT Touchscreen Interface		Altium Limited 3 Minna Close Belrose NSW 2085 Australia	
Project Title NB3000AL - Altera			
Size: A4	Assy: D-820-0053	Revision: 02	
Date: 1/02/2010	Time: 1:34:48 PM	Sheet 65 of 81	
File: TSC_XPT2046.SchDoc			



TS8003K

Sheet Title LCD Module Connector			Altium Limited 3 Minna Close Belrose NSW 2085 Australia	
Project Title NB3000AL - Altera				
Size: A4	Assy: D-820-0053	Revision: 02		
Date: 1/02/2010	Time: 1:34:48 PM	Sheet 66 of 81		
File: CON_FFC40_LCDIFT.SCHDOC				



Sheet Title MIDI Sub-system		Altium Limited 3 Minna Close Belrose NSW 2085 Australia	
Project Title NB3000AL - Altera			
Size: A4	Assy: D-820-0053	Revision: 02	
Date: 1/02/2010	Time: 1:34:48 PM	Sheet 67 of 81	
File: MIDI_FULL.SCHDOC			

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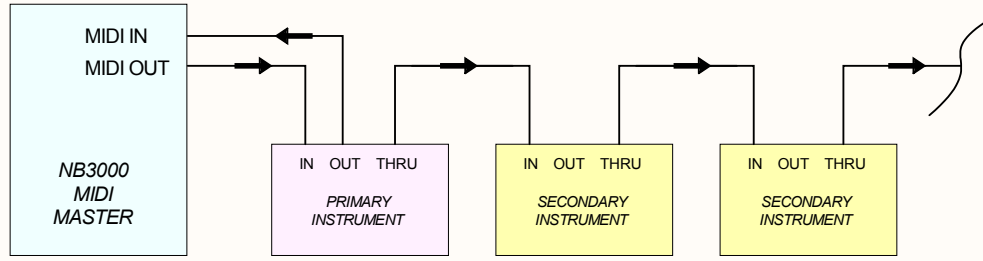
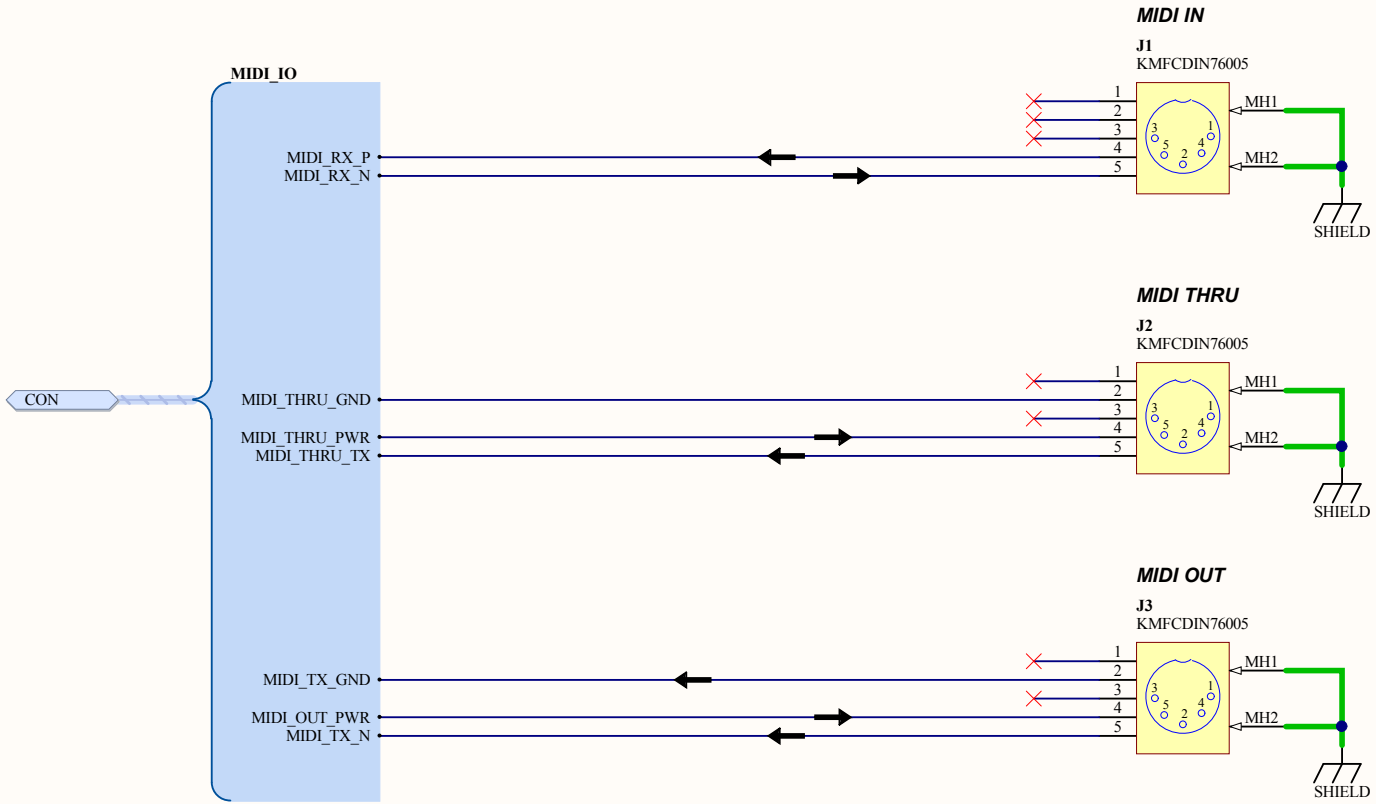
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Sheet Title MIDI Connectors		
Project Title NB3000AL - Altera		
Size: A4	Assy: D-820-0053	Revision: 02
Date: 1/02/2010	Time: 1:34:48 PM	Sheet 68 of 81
File: CON MIDI DIN5.SCHDOC		

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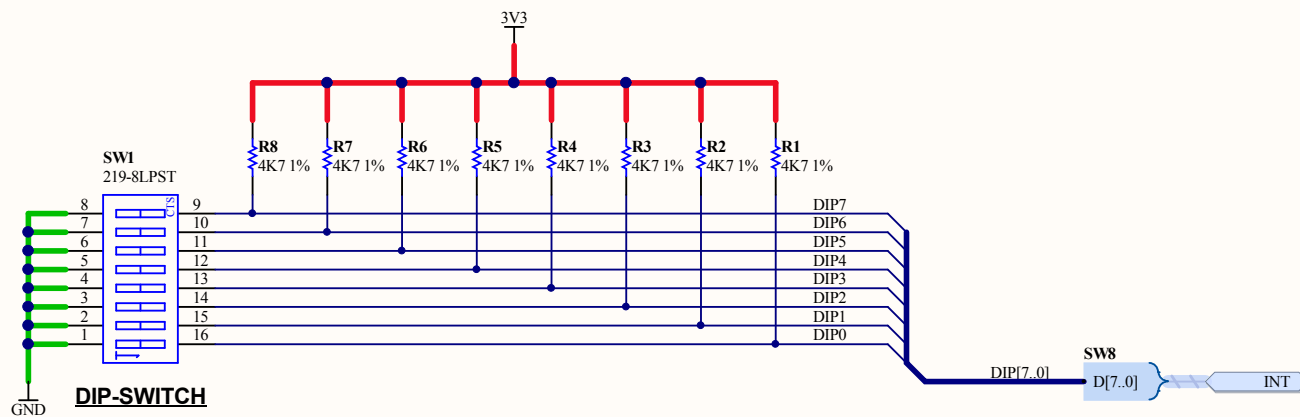


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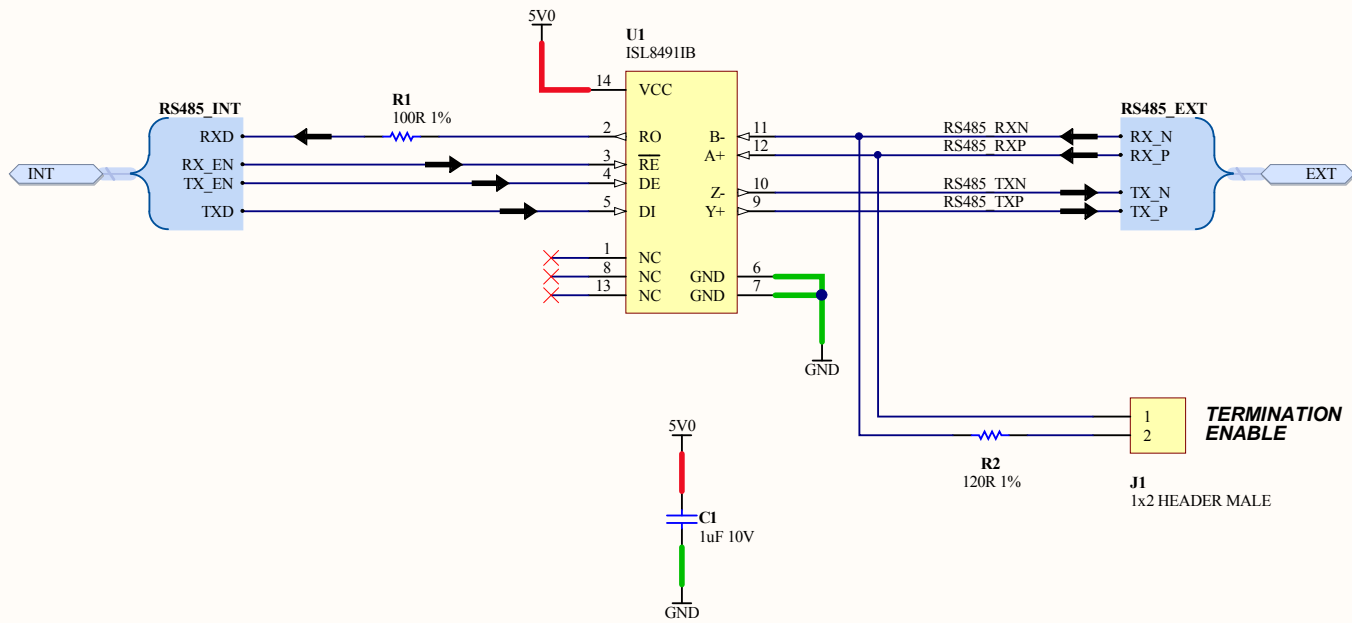
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Sheet Title 8-Way SPST DIP Switch (SMT)		Altium Limited 3 Minna Close Belrose NSW 2085 Australia	
Project Title NB3000AL - Altera			
Size: A4	Assy: D-820-0053	Revision: 02	
Date: 1/02/2010	Time: 1:34:48 PM	Sheet 69 of 81	
File: SW_DIP8 SMT.SchDoc			



Sheet Title RS485 Communication IC			Altium Limited 3 Minna Close Belrose NSW 2085 Australia	
Project Title NB3000AL - Altera				
Size: A4	Assy: D-820-0053	Revision: 02		
Date: 1/02/2010	Time: 1:34:49 PM	Sheet 70 of 81		
File: RS485_ISL8491.SchDoc				

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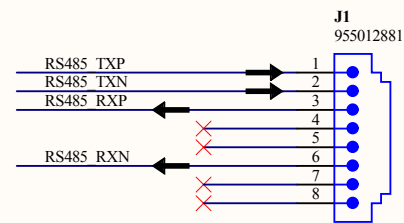
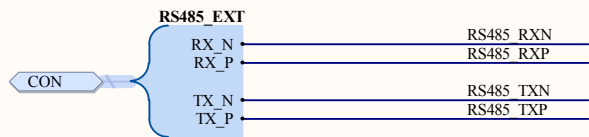
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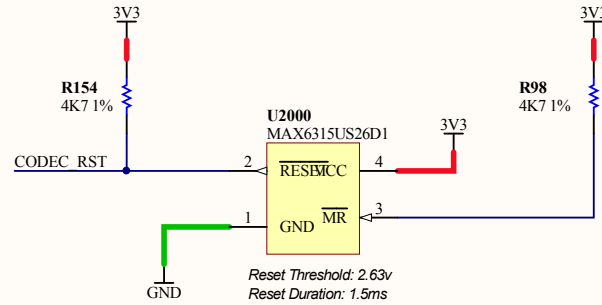
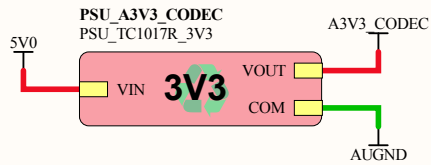
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Project Title NB3000AL - Altera			
Size: A4	Assy: D-820-0053	Revision: 02	
Date: 1/02/2010	Time: 1:34:49 PM	Sheet 71 of 81	
File: CON RS485 RJ45.SchDoc			

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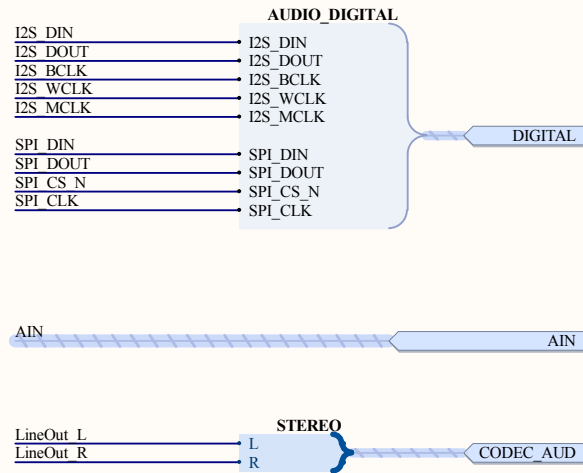
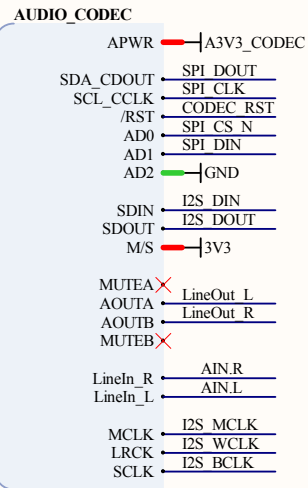
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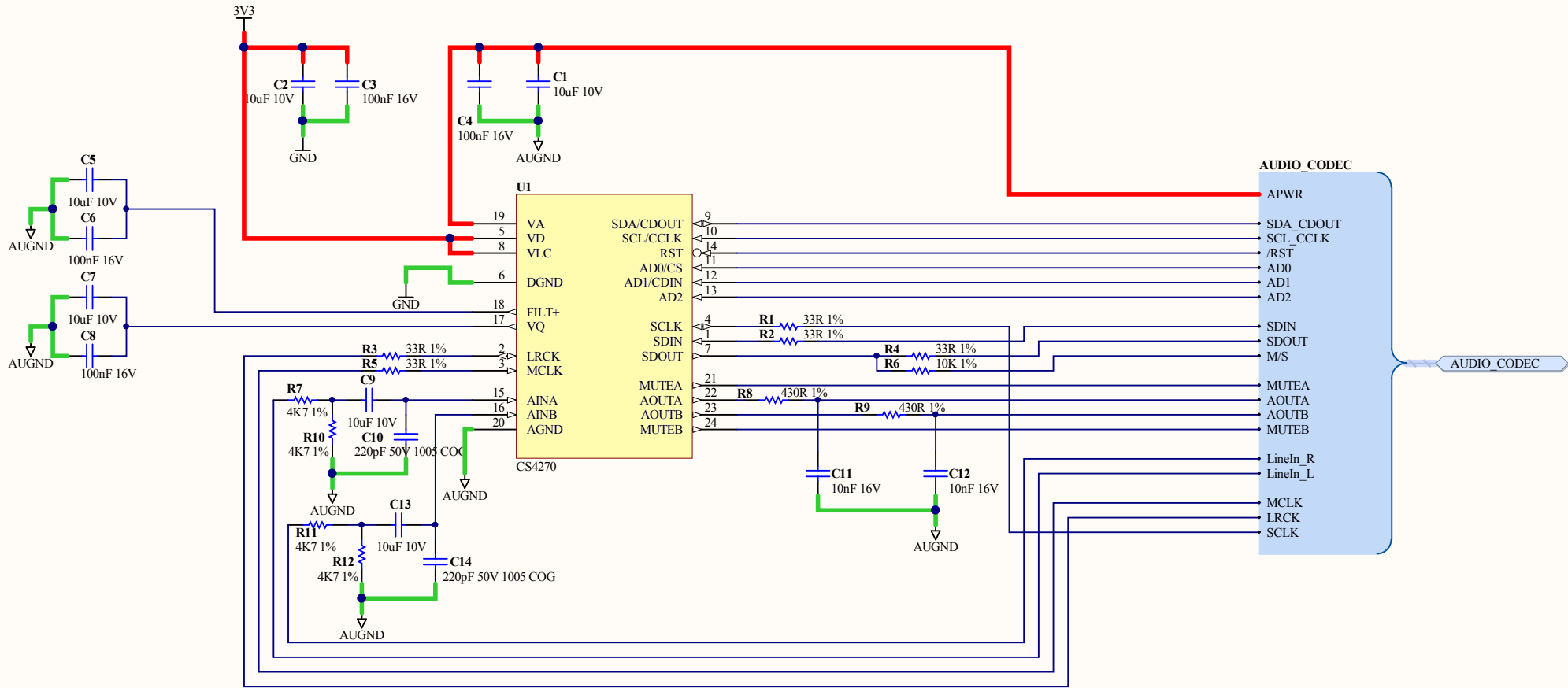
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CODEC_CS4270
AUDIO_CODEC_CS4270



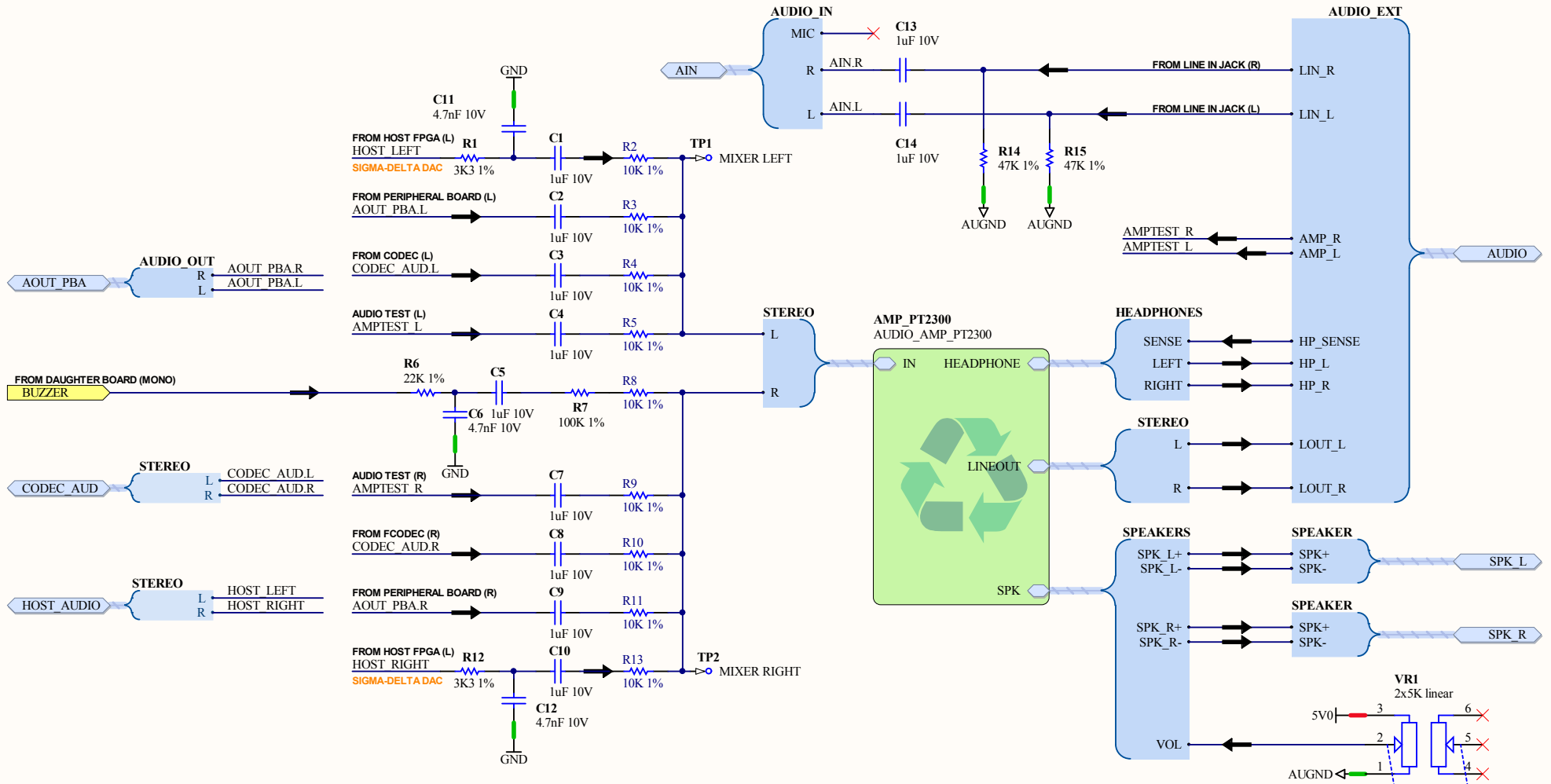
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Project Title NB3000AL - Altera				
Size: A4	Assy: D-820-0053	Revision: 02		
Date: 1/02/2010	Time: 1:34:49 PM	Sheet 72 of 81		
File: Audio_Codec.SchDoc				



Sheet Title Audio CODEC		Altium Limited 3 Minna Close Belrose NSW 2085 Australia	
Project Title NB3000AL - Altera			
Size: A4	Assy: D-820-0053	Revision: 02	
Date: 1/02/2010	Time: 1:34:49 PM	Sheet 73 of 81	
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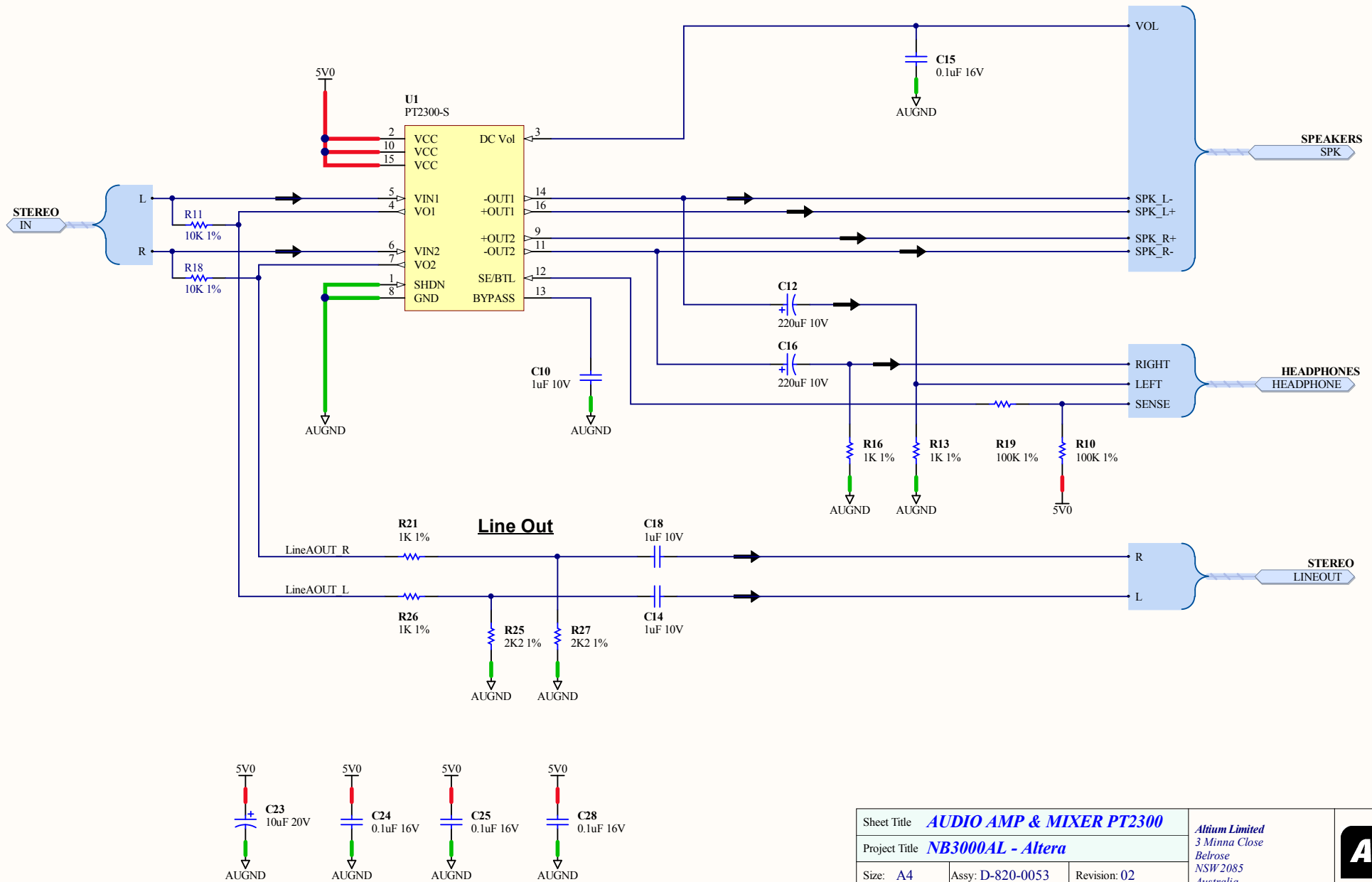
Audio Mixer - Left Channel

Audio Signal to Peripheral Board



Audio Mixer - Right Channel

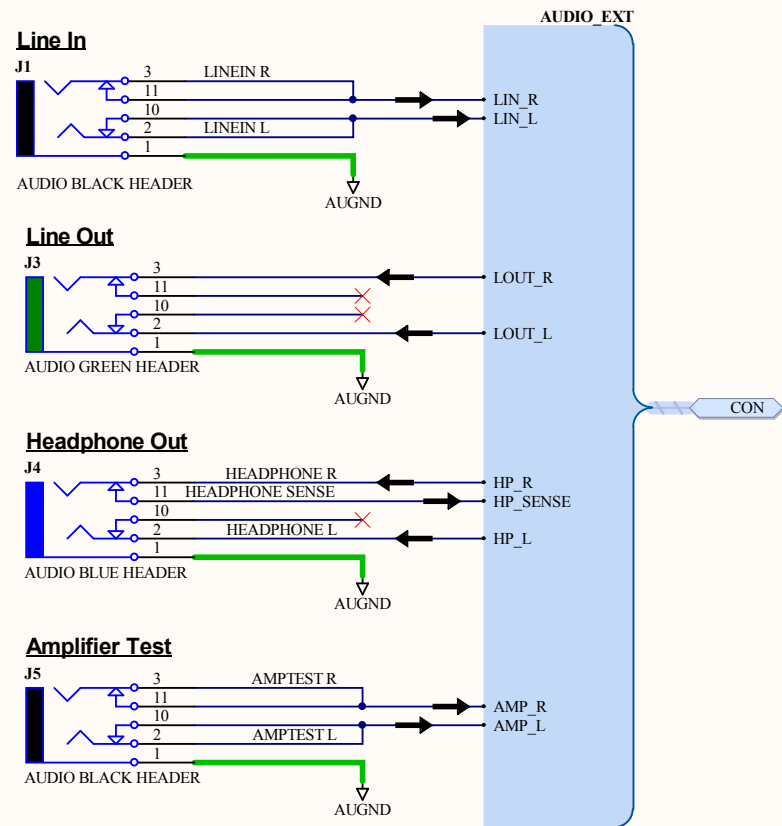
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Project Title NB3000AL - Altera				
Size: A4	Assy: D-820-0053	Revision: 02		
Date: 1/02/2010	Time: 1:34:49 PM	Sheet 74 of 81		
File: AUDIO AMP NB2C.SchDoc				



Sheet Title AUDIO AMP & MIXER PT2300		
Project Title NB3000AL - Altera		
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Date: 1/02/2010	Time: 1:34:49 PM	Sheet 75 of 81
File: AUDIO AMP PT2300.SchDoc		

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Sheet Title AUDIO AC99 Interface		Altium Limited 3 Minna Close Belrose NSW 2085 Australia	
Project Title NB3000AL - Altera			
Size: A4	Assy: D-820-0053	Revision: 02	
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File: CON AUDIO AC99 NOMIC.SchDoc			

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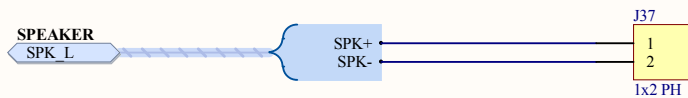
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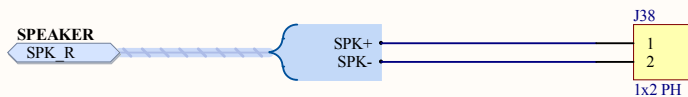
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External Speakers Left



External Speakers Right

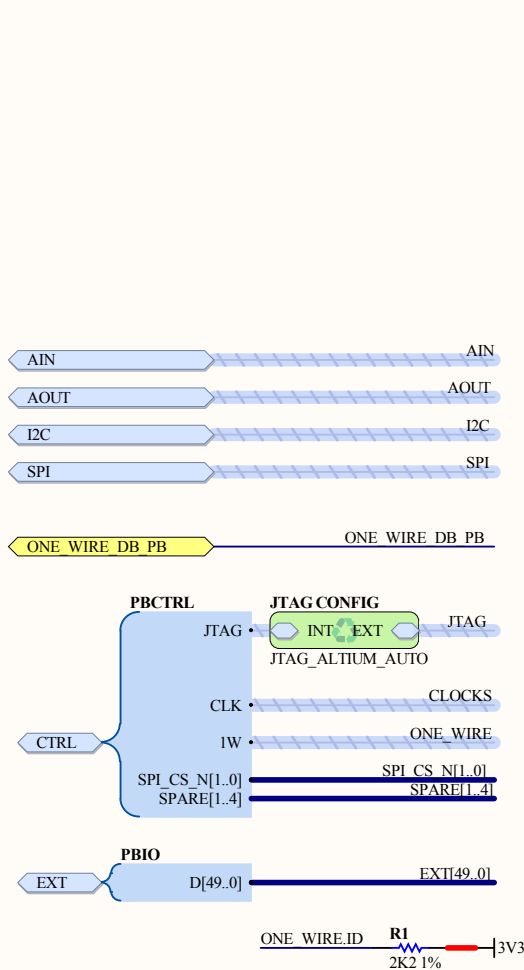
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Project Title NB3000AL - Altera			
Size: A4	Assy: D-820-0053	Revision: 02	
Date: 1/02/2010	Time: 1:34:49 PM	Sheet 77 of 81	
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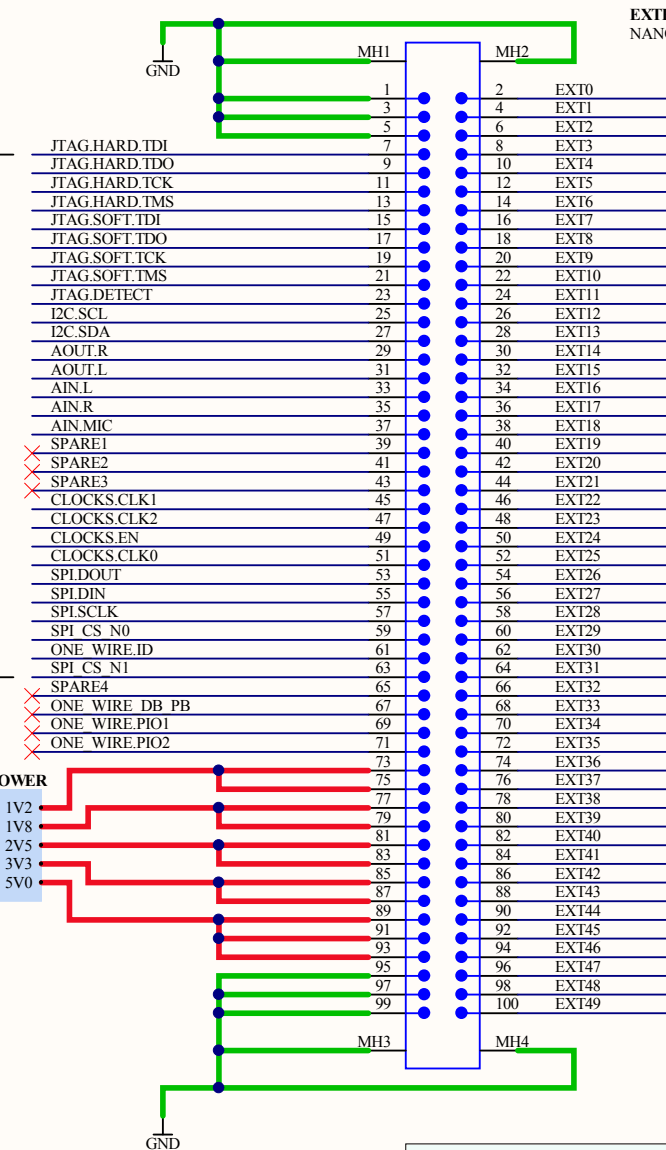
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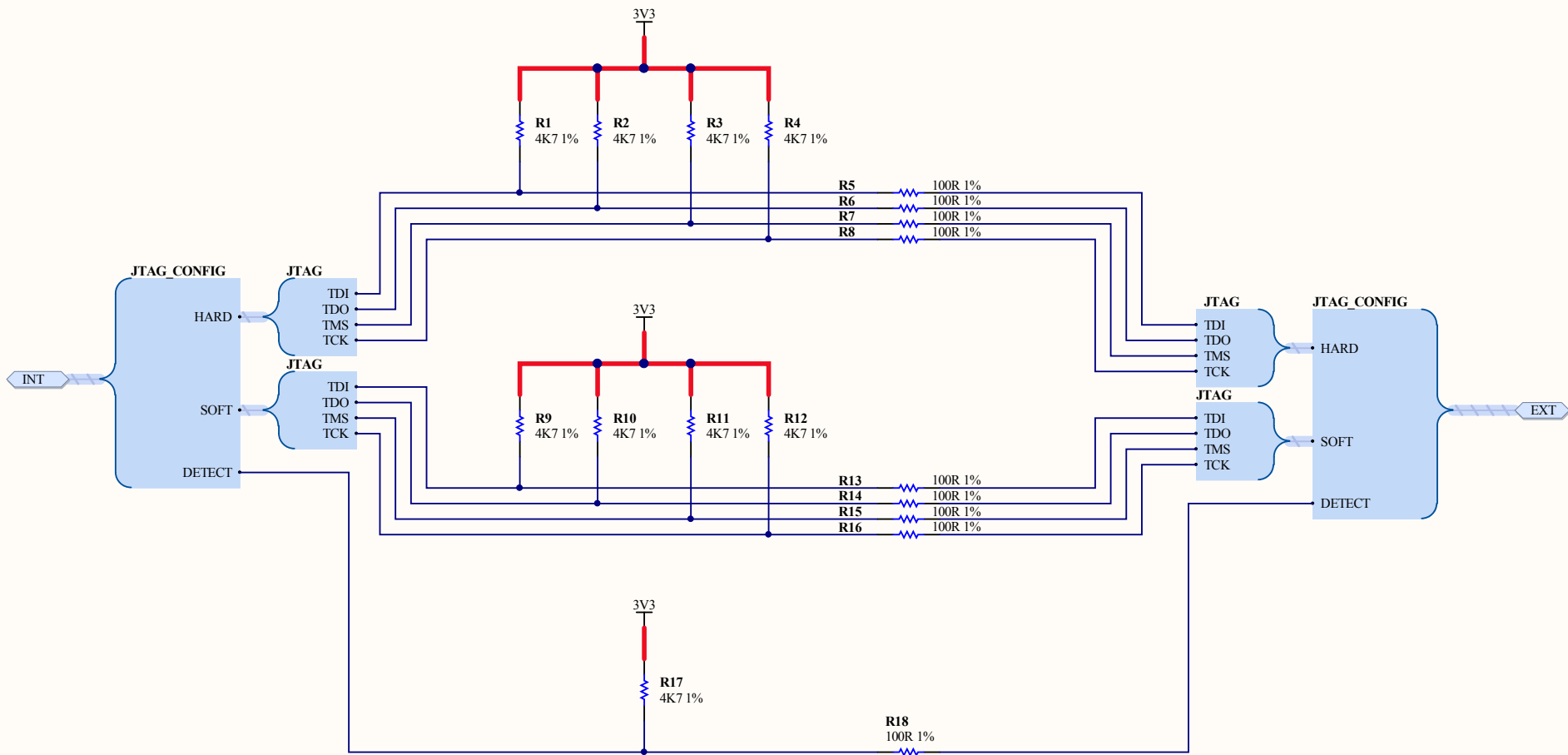
COMMON SERVICES


PBPOWER



STANDARD PERIPHERAL INTERFACE

Sheet Title Peripheral Board Connector			Altium Limited 3 Minna Close Belrose NSW 2085 Australia	
Project Title NB3000AL - Altera				
Size: A4	Assy: D-820-0053	Revision: 02		
Date: 1/02/2010	Time: 1:34:49 PM	Sheet 78 of 81		
File: PBCON.schdoc				



Sheet Title Auto-Detect JTAG Circuit		Altium Limited 3 Minna Close Belrose NSW 2085 Australia	
Project Title NB3000AL - Altera			
Size: A4	Assy: D-820-0053	Revision: 02	
Date: 1/02/2010	Time: 1:34:49 PM	Sheet 79 of 81	
File: JTAG_ALTNUM_AUTO.SchDoc			

Standoffs For Peripheral Board

PB_MH1
8.5mm spacer, Gold, 2xM3



PB_MH2
8.5mm spacer, Gold, 2xM3



PB_MH3
8.5mm spacer, Gold, 2xM3



PB_MH4
8.5mm spacer, Gold, 2xM3



PB_MH5
8.5mm spacer, Gold, 2xM3



Fiducial Alignment Components

FD1
Fiducial - Round



FD2
Fiducial - Round



FD3
Fiducial - Round



PCB1
NB3000AL Blank PCB
Printed Circuit Board (Bare)

PCB Identifiers

Altium Logo BOT1
Altium(2009)



LOGO1
Nanoboard Logo



Sheet Title NB3000AL Holes and Graphics		Altium Limited 3 Minna Close Belrose NSW 2085 Australia	
Project Title NB3000AL - Altera			
Size: A4	Assy: D-820-0053	Revision: 02	
Date: 1/02/2010	Time: 1:34:49 PM	Sheet 80 of 81	
File: Mounts.SchDoc			

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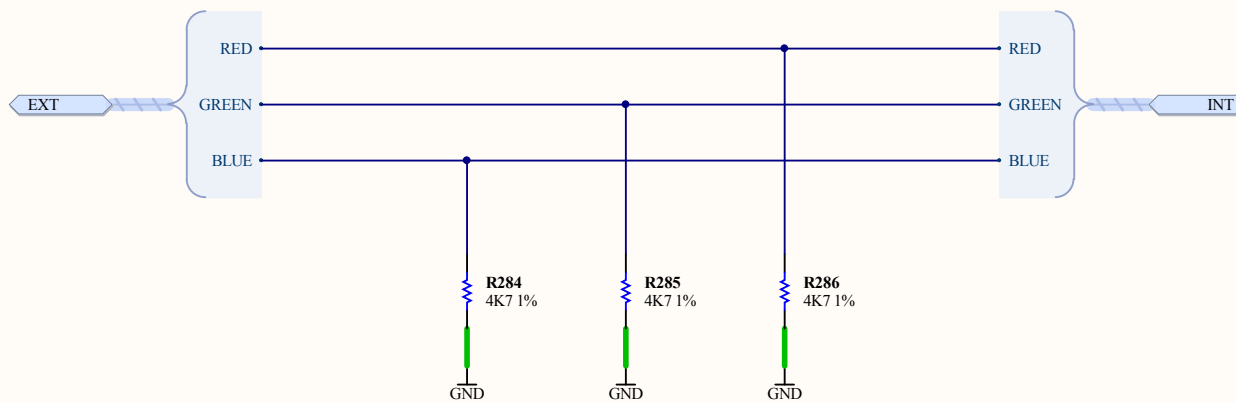
B


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Sheet Title Host & User LEDs - Pull-Down Resistors		Altium Limited 3 Minna Close Belrose NSW 2085 Australia	
Project Title NB3000AL - Altera			
Size: A4	Assy: D-820-0053	Revision: 02	
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File: PULLDNx3.SCHDOC			

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