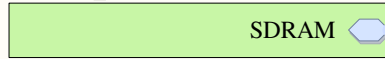


Technical Details
Documentation.SchDoc



SDRAM
SDRAM_16Mx16.SchDoc



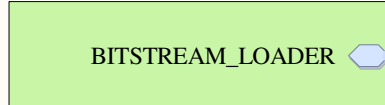
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SYSBOOT2
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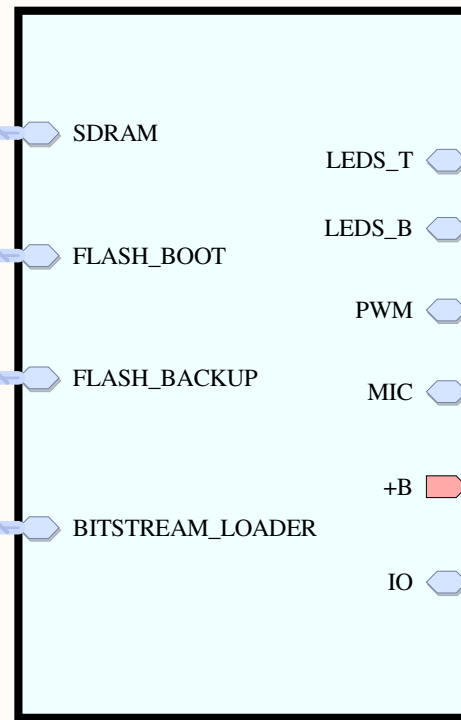
BISTREAM LOADER
BITSTREAM_LOADER.SCHDOC



FPGA POWER
PSU.SchDoc



FPGA_HOST
HOST_FPGA.SchDoc



LEDS_T

TOP_ROW

LEDS_B

BOTTOM_ROW

PWM

AUDIO_OUT

MIC

AUDIO_IN

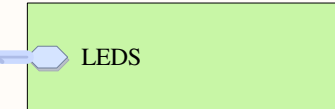
+B

+B

IO

MODIO

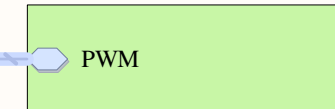
LEDS_TOP
LED.SchDoc



LEDS_BOTTOM
LED.SchDoc



SPEAKERS
SPEAKER.SchDoc



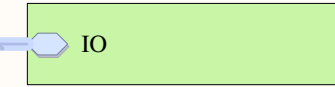
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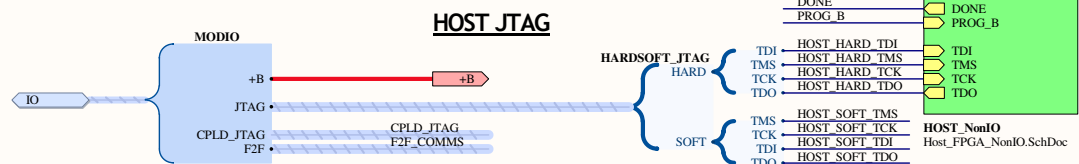
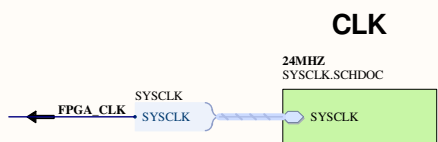
SYSTEM POWER
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MODULE IO
INTERCON.SchDoc



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Size	Number	Revision
A4		
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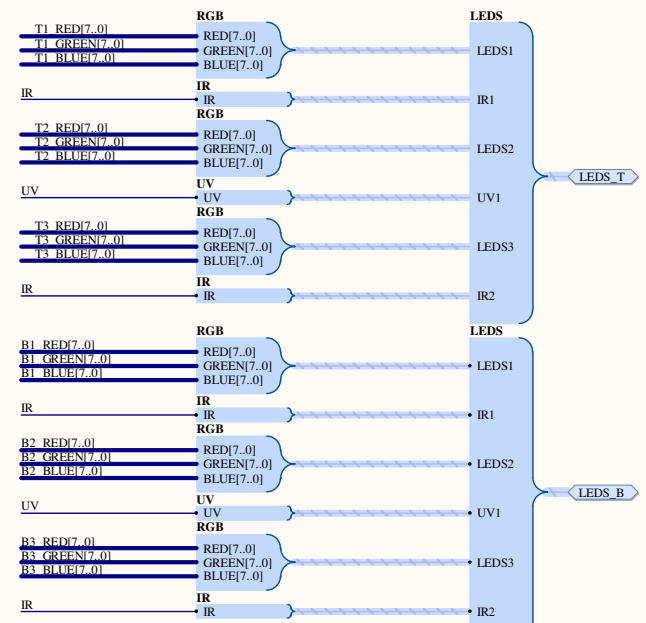


BANK 0

IO_L01N_0	A18	HOST_SOFT_TMS
IO_L01P_0	A18	HOST_SOFT_TCK
IO_L02N_0	D17	HOST_SOFT_TDO
IO_L02P_0VREF_0	D17	MIC_CLK1
IO_L03N_0	E15	MIC_CLK2
IO_L03P_0	F16	PWM_L
IO_L04N_0	F17	PWM_R
IO_L04P_0VREF_0	F17	
IO_L05N_0	G16	LEFT_TX
IO_L05P_0	G16	TP_LEFT_TX
IO_L06N_0	C15	BM_LEFT_TX
IO_L06P_0	C15	RIGHT_TX
IO_L07N_0	D14	TP_RIGHT_TX
IO_L07P_0	D14	BM_RIGHT_TX
IO_L08N_0	A15	F2F1_TX_CLKn
IO_L08P_0	B15	F2F1_TX_CLKp
IO_L09N_0	F13	F2F1_TX_CH0n
IO_L09P_0	F13	F2F1_TX_CH0p
IO_L10N_0VREF_0	F14	F2F1_TX_CH1n
IO_L10P_0	F14	F2F1_TX_CH1p
IO_L11N_0	G12	F2F1_TX_CH2n
IO_L11P_0	G12	F2F1_TX_CH2p
IO_L12N_0	H12	F2F1_TX_CH3n
IO_L12P_0	H12	F2F1_TX_CH3p
IO_L13N_0	J12	F2F1_TX_CH4n
IO_L13P_0	J12	F2F1_TX_CH4p
IO_L14N_0	K11	F2F1_TX_CH5n
IO_L14P_0	K11	F2F1_TX_CH5p
IO_L15N_0GCLKK5	L10	F2F1_RX_CLKn
IO_L15P_0GCLKK4	L10	F2F1_RX_CLKp
IO_L16N_0GCLKK7	M10	F2F1_RX_CH2n
IO_L16P_0GCLKK6	M10	F2F1_RX_CH2p
IO_L17N_0GCLKK9	N10	F2F1_RX_CH3n
IO_L17P_0GCLKK8	N10	F2F1_RX_CH3p
IO_L18N_0GCLKK11	O9	F2F0_TX_CLKn
IO_L18P_0GCLKK10	O9	F2F0_TX_CLKp
IO_L19N_0	P8	F2F0_TX_CH0n
IO_L19P_0	P8	F2F0_TX_CH0p
IO_L20N_0	Q8	F2F0_TX_CH1n
IO_L20P_0	Q8	F2F0_TX_CH1p
IO_L21N_0	R7	F2F0_TX_CH2n
IO_L21P_0	R7	F2F0_TX_CH2p
IO_L22N_0VREF_0	S7	F2F0_TX_CH3n
IO_L22P_0	S7	F2F0_TX_CH3p
IO_L23N_0	T8	F2F0_RX_CLKn
IO_L23P_0	T8	F2F0_RX_CLKp
IO_L24N_0	U7	F2F0_RX_CH0n
IO_L24P_0	U7	F2F0_RX_CH0p
IO_L25N_0	V6	F2F0_RX_CH1n
IO_L25P_0	V6	F2F0_RX_CH1p
IO_L26N_0	W5	F2F0_RX_CH2n
IO_L26P_0	W5	F2F0_RX_CH2p
IO_L27N_0	X4	F2F0_RX_CH3n
IO_L27P_0	X4	F2F0_RX_CH3p
IO_L28N_0	Y6	TP_LEFT_TX
IO_L28P_0	Y6	TP_RIGHT_TX
IO_L29N_0	Z4	TP_LEFT_TX
IO_L29P_0	Z4	TP_RIGHT_TX
IO_L30N_0	A3	BM_LEFT_TX
IO_L30P_0	A3	BM_RIGHT_TX
IO_L31N_0	B6	TP_LEFT_TX
IO_L31P_0	B6	TP_RIGHT_TX
IO_L32N_0PUDC_B	C2	TP_LEFT_TX
IO_L32P_0VREF_0	C2	TP_RIGHT_TX

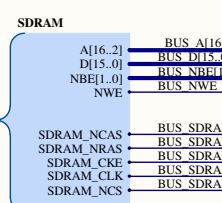
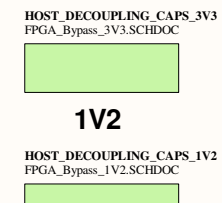
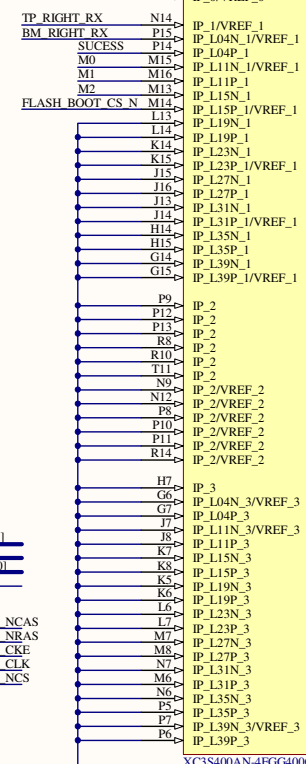
BANK 2

IO_L01N_2/M0	V4	T3_BLUE6
IO_L01P_2/M1	V4	T3_BLUE7
IO_L02N_2/C5O_B	V2	B1_RED0
IO_L02P_2/M2	W3	B1_RED1
IO_L03N_2	W4	B1_RED2
IO_L03P_2	W3	B1_RED3
IO_L04N_2	X7	B1_RED4
IO_L04P_2	X6	B1_RED5
IO_L05N_2	Y5	B1_RED6
IO_L05P_2	Y5	B1_RED7
IO_L06N_2	Z6	B1_GREEN0
IO_L06P_2	Z7	B1_GREEN1
IO_L07N_2	A7	B1_GREEN2
IO_L07P_2/V5S2	Y8	B1_GREEN3
IO_L08N_2	X5	B1_GREEN4
IO_L08P_2	Y4	B1_GREEN5
IO_L09N_2/V5O	V6	B1_GREEN6
IO_L09P_2/V5S1	W7	B1_BLUE0
IO_L10N_2	X6	B1_BLUE1
IO_L10P_2	Y9	B1_BLUE2
IO_L11N_2	W8	B1_BLUE3
IO_L11P_2	X8	B1_BLUE4
IO_L12N_2/D6	V7	B1_BLUE5
IO_L12P_2/D7	V9	B1_BLUE6
IO_L13N_2	W8	B1_BLUE7
IO_L13P_2	X10	B2_RED0
IO_L14N_2/D4	Y9	B2_RED1
IO_L14P_2/D5	Y9	B2_RED2
IO_L15N_2/GCLKK13	W9	B2_RED3
IO_L15P_2/GCLKK12	W10	B2_RED4
IO_L16N_2/GCLKK14	V10	B2_RED5
IO_L16P_2/GCLKK14	V11	B2_RED6
IO_L17N_2/GCLKK1	W12	B2_GREEN0
IO_L17P_2/GCLKK0	X11	B2_GREEN1
IO_L18N_2/GCLKK3	R12	B2_GREEN2
IO_L18P_2/GCLKK2	T12	B2_GREEN3
IO_L19N_2	U12	B2_GREEN4
IO_L19P_2	V12	B2_GREEN5
IO_L20N_2/MOSI/CS1_B	W13	B2_GREEN6
IO_L20P_2	X13	B2_GREEN7
IO_L21N_2	Y13	B2_BLUE0
IO_L21P_2	Z13	B2_BLUE1
IO_L22N_2/DOUT	R13	B2_BLUE2
IO_L22P_2/AWAKE	S14	B2_BLUE3
IO_L23N_2	U14	B2_BLUE4
IO_L23P_2	V14	B2_BLUE5
IO_L24N_2/D3	W14	B2_BLUE6
IO_L24P_2/INT_B	X14	B2_BLUE7
IO_L25N_2	Y14	B2_RED0
IO_L25P_2	Z14	B2_RED1
IO_L26N_2/D1	Y15	B3_RED1
IO_L26P_2/D2	Z15	B3_RED2
IO_L27N_2	A15	B3_RED3
IO_L27P_2	W16	B3_RED4
IO_L28N_2	X16	B3_RED5
IO_L28P_2	Y16	B3_RED6
IO_L29N_2	Z16	B3_RED7
IO_L29P_2	A18	B3_GREEN0
IO_L30N_2	B17	B3_GREEN1
IO_L30P_2	C17	B3_GREEN2
IO_L31N_2	D17	B3_GREEN3
IO_L31P_2	E17	B3_GREEN4
IO_L32N_2/CCLK	F18	B3_GREEN5
IO_L32P_2/DIN/MISO	W18	B3_GREEN6



USE

TP_LEFT_SENSE	E14	IP_0
LEFT_SENSE	F11	IP_0
BM_LEFT_SENSE	F14	IP_0
BM_RIGHT_SENSE	G8	IP_0
RIGHT_SENSE	G9	IP_0
TP_RIGHT_SENSE	G10	IP_0
MIC_DAT1	G12	IP_0
MIC_DAT2	G13	IP_0
HOST_SOFT_TDI	H9	IP_0
LEFT_RX	H10	IP_0
TP_LEFT_RX	H15	IP_0
BM_LEFT_RX	H16	IP_0
RIGHT_RX	G11	IP_0

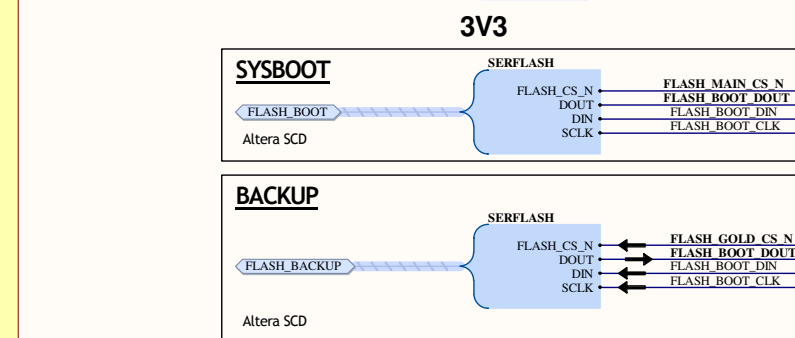
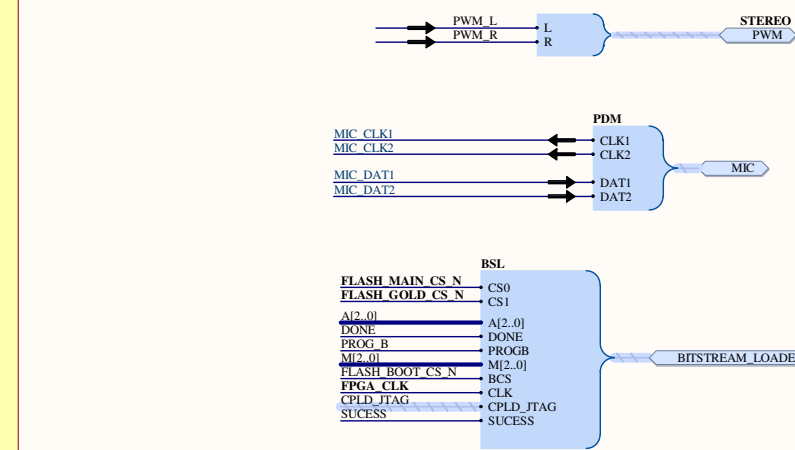
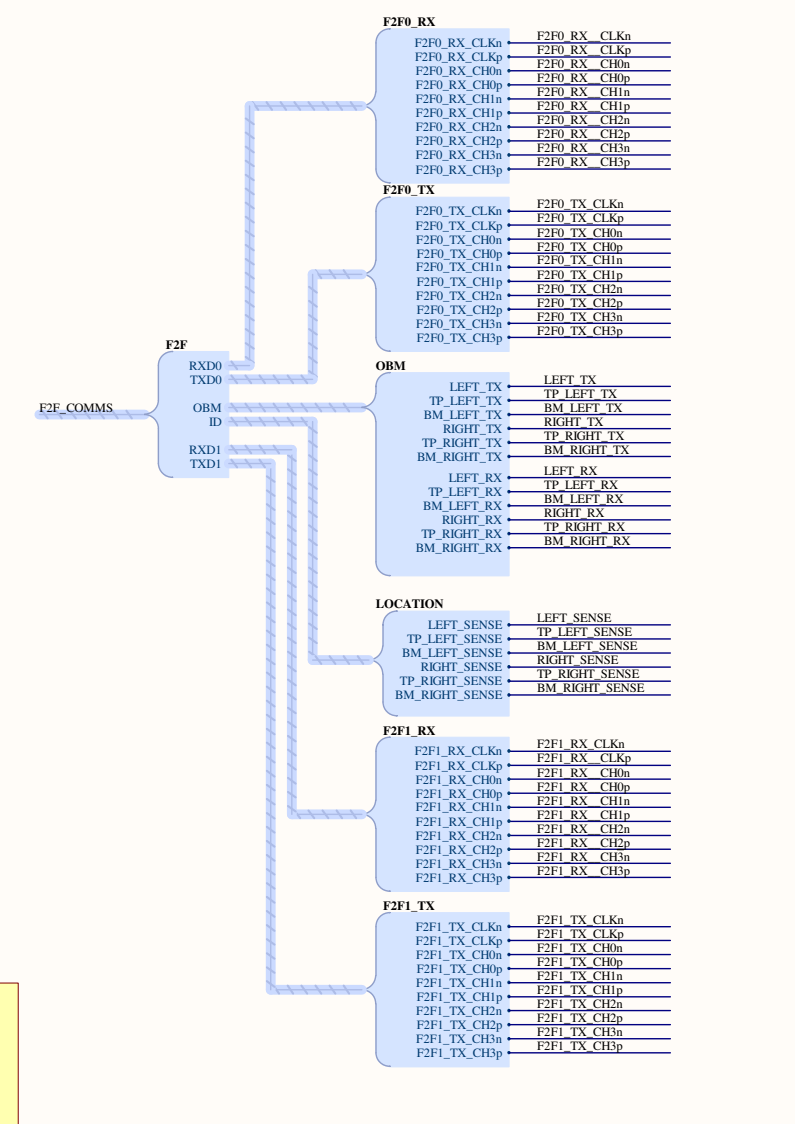


BANK 1

IO_L01N_1/LDC1	V20	T1_GREEN2
IO_L01P_1/HDC	W20	T1_GREEN3
IO_L02N_1/LDC0	X18	T1_GREEN4
IO_L02P_1/LDC1	Y19	T1_GREEN5
IO_L03N_1/A1	Z17	T1_GREEN7
IO_L03P_1/A0	A20	T1_BLUE0
IO_L05N_1	B18	T1_BLUE1
IO_L05P_1	C20	T1_BLUE2
IO_L06N_1	D20	T1_BLUE3
IO_L06P_1	E17	T1_BLUE4
IO_L07N_1	F16	T1_BLUE5
IO_L07P_1	G17	T1_BLUE6
IO_L08N_1	H18	T1_BLUE7
IO_L08P_1	J18	T1_RED0
IO_L09N_1	K20	T2_RED0
IO_L09P_1	L20	T2_RED1
IO_L10N_1/VREF_1	M18	T2_RED2
IO_L10P_1	N17	T2_RED3
IO_L12N_1/A3	O15	T2_RED5
IO_L12P_1/A2	P19	T2_RED6
IO_L13N_1/A5	Q18	T2_RED7
IO_L13P_1/A4	R18	T2_GREEN0
IO_L14N_1/A7	S17	T2_GREEN1
IO_L14P_1/A6	T16	T2_GREEN2
IO_L16N_1/A9	U15	T2_GREEN3
IO_L16P_1/A8	V20	T2_GREEN4
IO_L17N_1/RHCLK1	W19	T2_GREEN5
IO_L17P_1/RHCLK0	X18	T2_GREEN6
IO_L18N_1/TRDY1/RHCLK3	Y19	T2_GREEN7
IO_L18P_1/RHCLK2	Z17	T2_BLUE0
IO_L20N_1/RHCLK5	A18	T2_BLUE1
IO_L20P_1/RHCLK4	B18	T2_BLUE2
IO_L21N_1/RHCLK7	C20	T2_BLUE3
IO_L21P_1/RDY1/RHCLK6	D18	T2_BLUE4
IO_L22N_1/A11	E19	T2_BLUE5
IO_L22P_1/A10	F19	T2_BLUE6
IO_L24N_1	G16	T2_BLUE7
IO_L24P_1	H18	T3_RED0
IO_L25N_1/A13	J19	T3_RED1
IO_L25P_1/A12	K20	T3_RED2
IO_L26N_1/A16	L20	T3_RED3
IO_L26P_1/A14	M17	T3_RED4
IO_L28N_1	N18	T3_RED5
IO_L28P_1	O19	T3_RED6
IO_L29N_1/A17	Q20	T3_RED7
IO_L29P_1/A16	R18	T3_GREEN0
IO_L30N_1/A19	S17	T3_GREEN1
IO_L30P_1/A18	T19	T3_GREEN2
IO_L32N_1	U20	T3_GREEN3
IO_L32P_1	V17	T3_GREEN4
IO_L33N_1	W18	T3_GREEN5
IO_L33P_1	X18	T3_GREEN6
IO_L34N_1	Y20	T3_GREEN7
IO_L36N_1/A21	Z16	T3_BLUE0
IO_L36P_1/A20	A16	T3_BLUE1
IO_L37N_1/A23	B19	T3_BLUE2
IO_L37P_1/A22	C20	T3_BLUE3
IO_L38N_1/A25	D19	T3_BLUE4
IO_L38P_1/A24	E20	T3_BLUE5

BANK 3

IO_L01N_3	D3	B3_GREEN6
IO_L01P_3	D4	B3_GREEN7
IO_L02N_3	E2	B3_BLUE0
IO_L02P_3	F1	B3_BLUE1
IO_L03N_3	G2	B3_BLUE2
IO_L03P_3	H1	B3_BLUE3
IO_L05N_3	I1	B3_BLUE4
IO_L05P_3	J1	B3_BLUE5
IO_L06N_3	K5	B3_BLUE6
IO_L06P_3	L4	B3_BLUE7
IO_L07N_3	M5	UV
IO_L07P_3	N4	FLASH_BOOT_DOUT
IO_L08N_3	O4	FLASH_BOOT_CS_N
IO_L08P_3	P4	FLASH_BOOT_DIN
IO_L09N_3	Q4	FPGA_CLK
IO_L09P_3	R3	FLASH_BOOT_CLK
IO_L10N_3	S0	
IO_L10P_3	T2	A1
IO_L12N_3	U3	A2
IO_L12P_3	V1	
IO_L13N_3/VREF_3	W1	BUS_NB0E
IO_L13P_3	X1	BUS_NB0E1
IO_L14N_3	Y1	BUS_NWE
IO_L14P_3	Z1	BUS_SDRAM_NCAS
IO_L16N_3	A3	BUS_SDRAM_NRAS
IO_L16P_3	B3	BUS_SDRAM_CKE
IO_L17N_3/LHCLK1	C2	BUS_SDRAM_CKE
IO_L17P_3/LHCLK0	D1	BUS_SDRAM_CLK
IO_L18N_3/IRDY2/LHCLK3	E3	BUS_SDRAM_NCS
IO_L18P_3/IRDY2/LHCLK3	F3	BUS_D0
IO_L18P_3/IRDY2/LHCLK3	G5	BUS_D1
IO_L20N_3/LHCLK2	H4	BUS_D2
IO_L20P_3/LHCLK2	I1	BUS_D3
IO_L20P_3/LHCLK4	J1	BUS_D4
IO_L21N_3/LHCLK7	K1	BUS_D5
IO_L21P_3/IRDY2/LHCLK6	L3	BUS_D6
IO_L22N_3	M2	BUS_D7
IO_L22P_3/VREF_3	N5	BUS_D8
IO_L24N_3	O4	BUS_D9
IO_L24P_3	P4	BUS_D10
IO_L25N_3	Q4	BUS_D11
IO_L25P_3	R3	BUS_D12
IO_L26N_3	S1	BUS_D13
IO_L26P_3	T1	BUS_D14
IO_L28N_3	U1	BUS_D15
IO_L28P_3	V1	BUS_D16
IO_L29N_3	W1	BUS_D17
IO_L29P_3	X1	BUS_D18
IO_L30N_3	Y1	BUS_D19
IO_L30P_3	Z1	BUS_D20
IO_L32N_3	A2	BUS_A3
IO_L32P_3	B2	BUS_A4
IO_L32P_3	C2	BUS_A5
IO_L32P_3	D2	BUS_A6
IO_L33N_3	E3	BUS_A7
IO_L33P_3	F3	BUS_A8
IO_L34N_3	G3	BUS_A9
IO_L34P_3	H3	BUS_A10
IO_L36N_3	I4	BUS_A11
IO_L36P_3	J4	BUS_A12
IO_L37N_3	K5	BUS_A13
IO_L37P_3	L5	BUS_A14
IO_L38N_3	M1	BUS_A15
IO_L38P_3	N1	BUS_A16



1

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3

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A

A

B

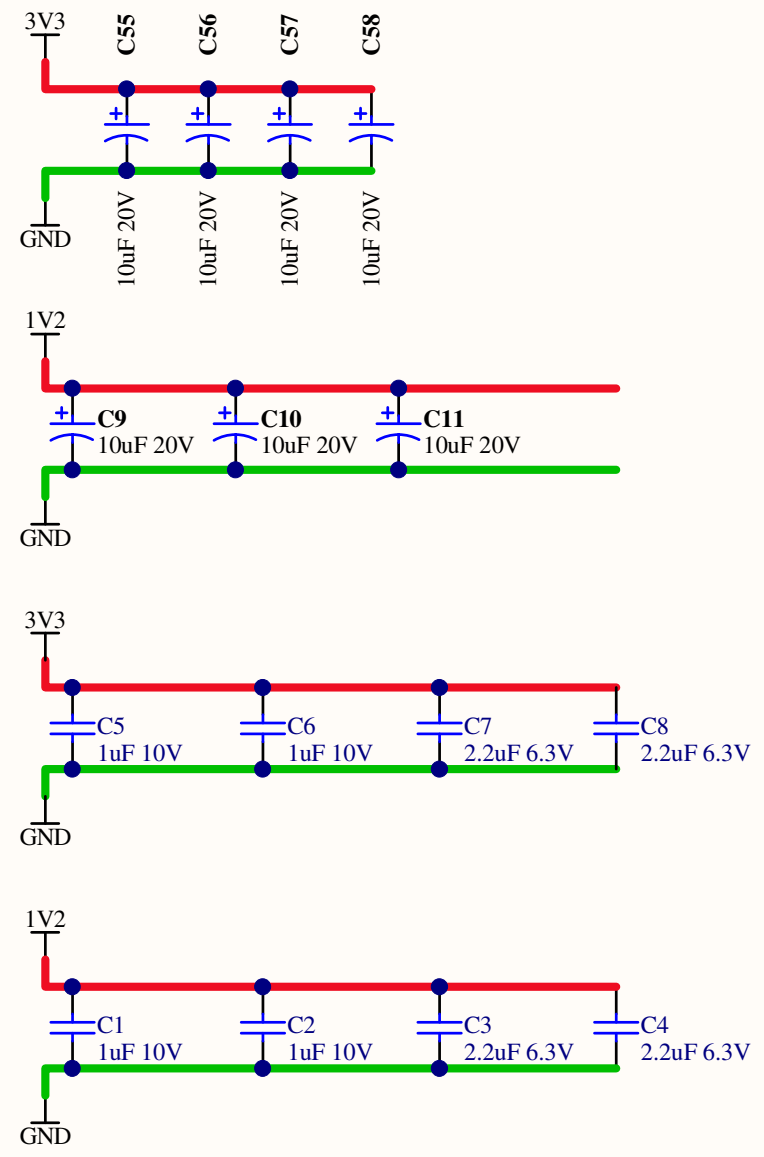
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C

C

D

D



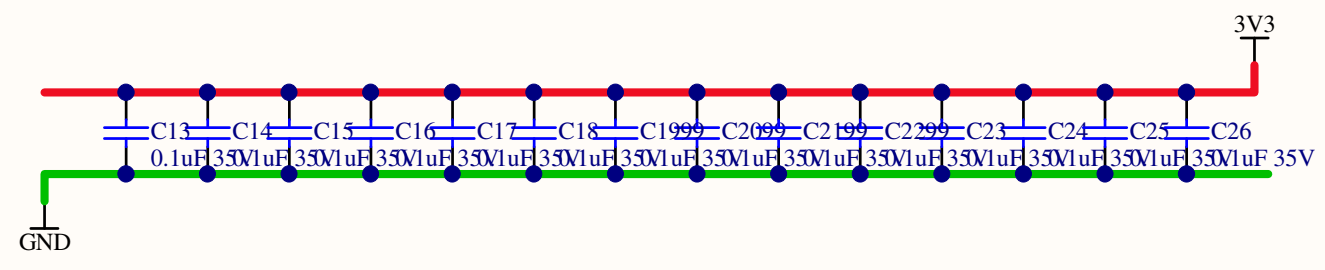
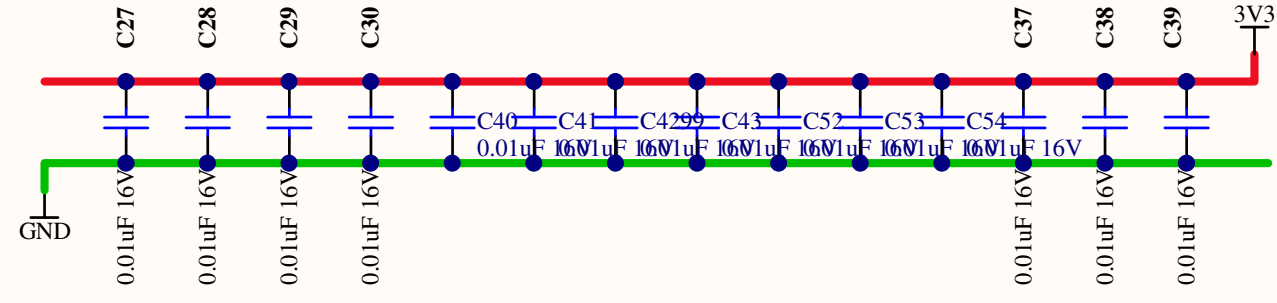
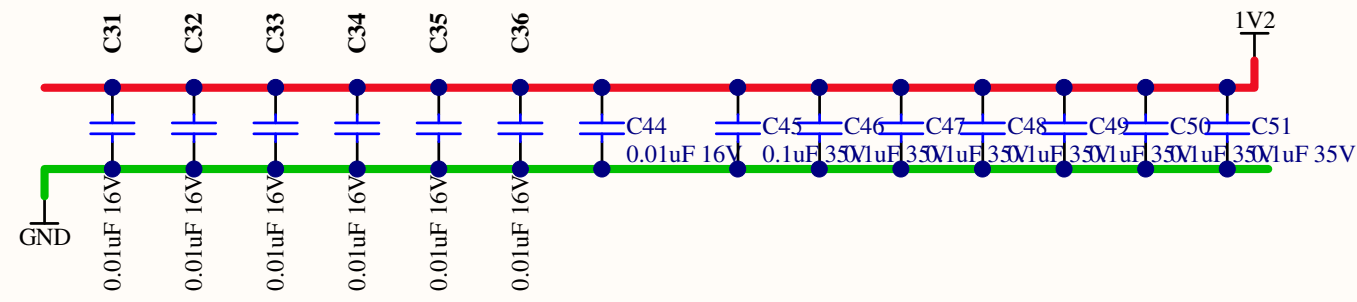
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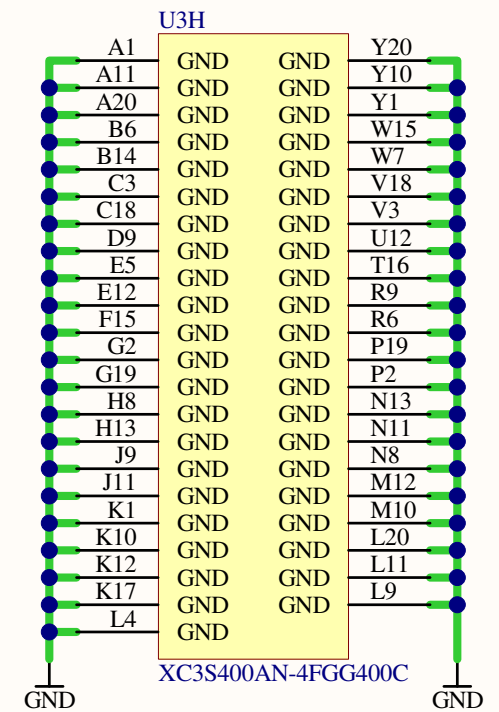
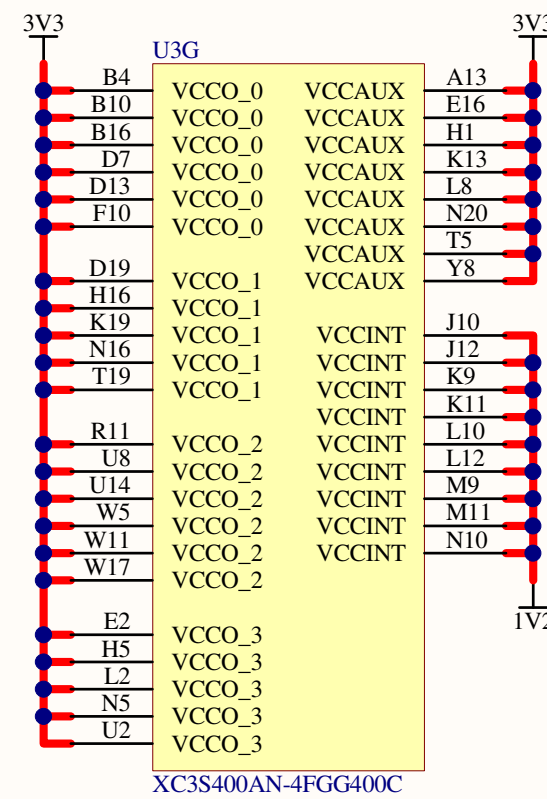
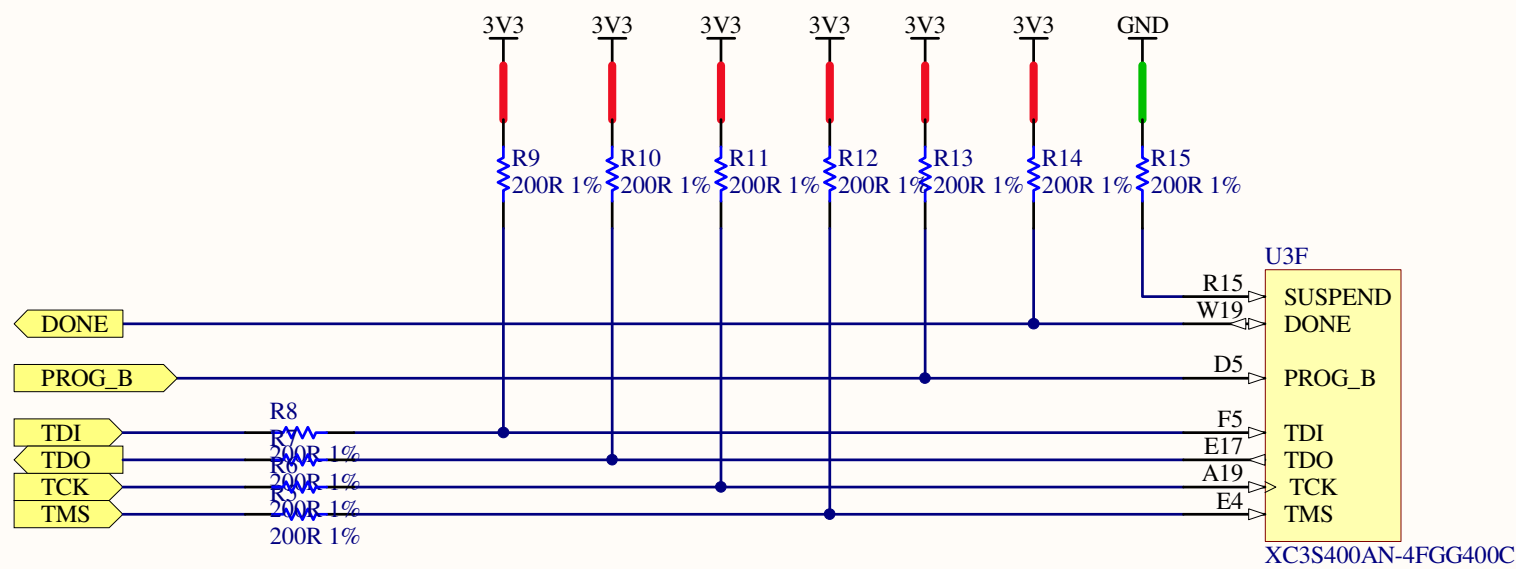
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A

B

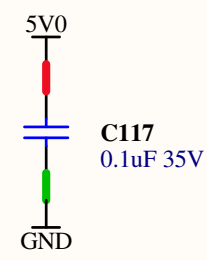
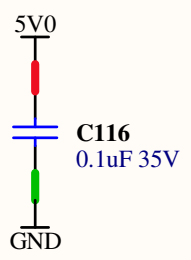
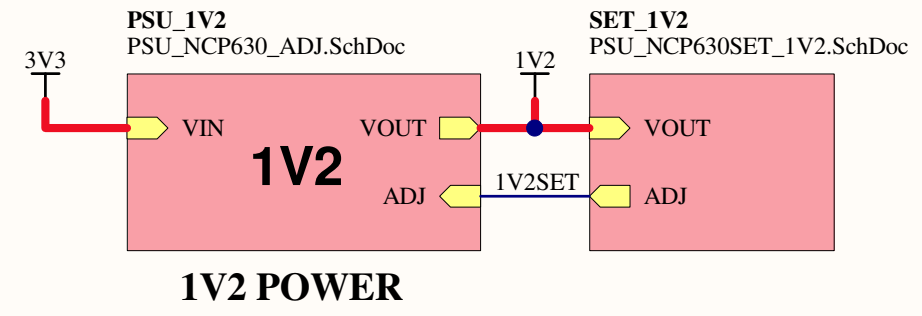
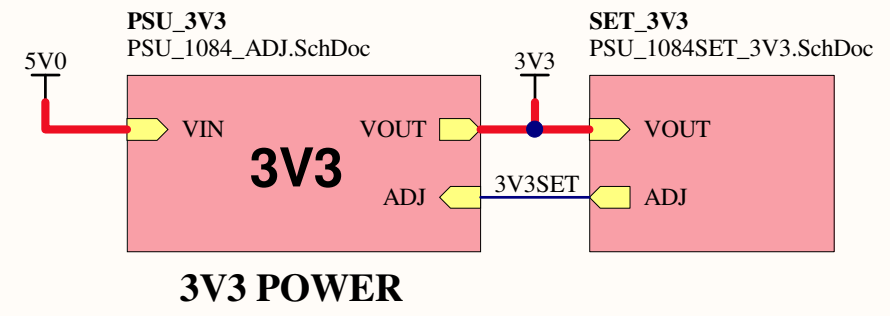
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C


C

D

D



Sheet Title 16M x 32 SDRAM TSOP54 x 2		Altium Limited	
Project Title ALL-01 G13 Acoustic LED Lighting			
Size: A4	Assy: ALL01	Revision:04	
Date: 9/24/2011	Time: 1:11:33 AM	Sheet 6 of 26	
File: PSU.SchDoc			

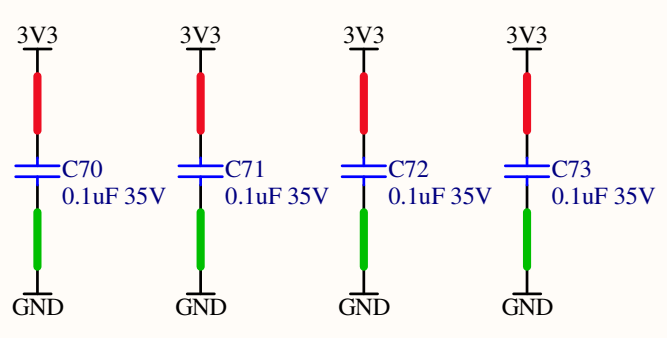
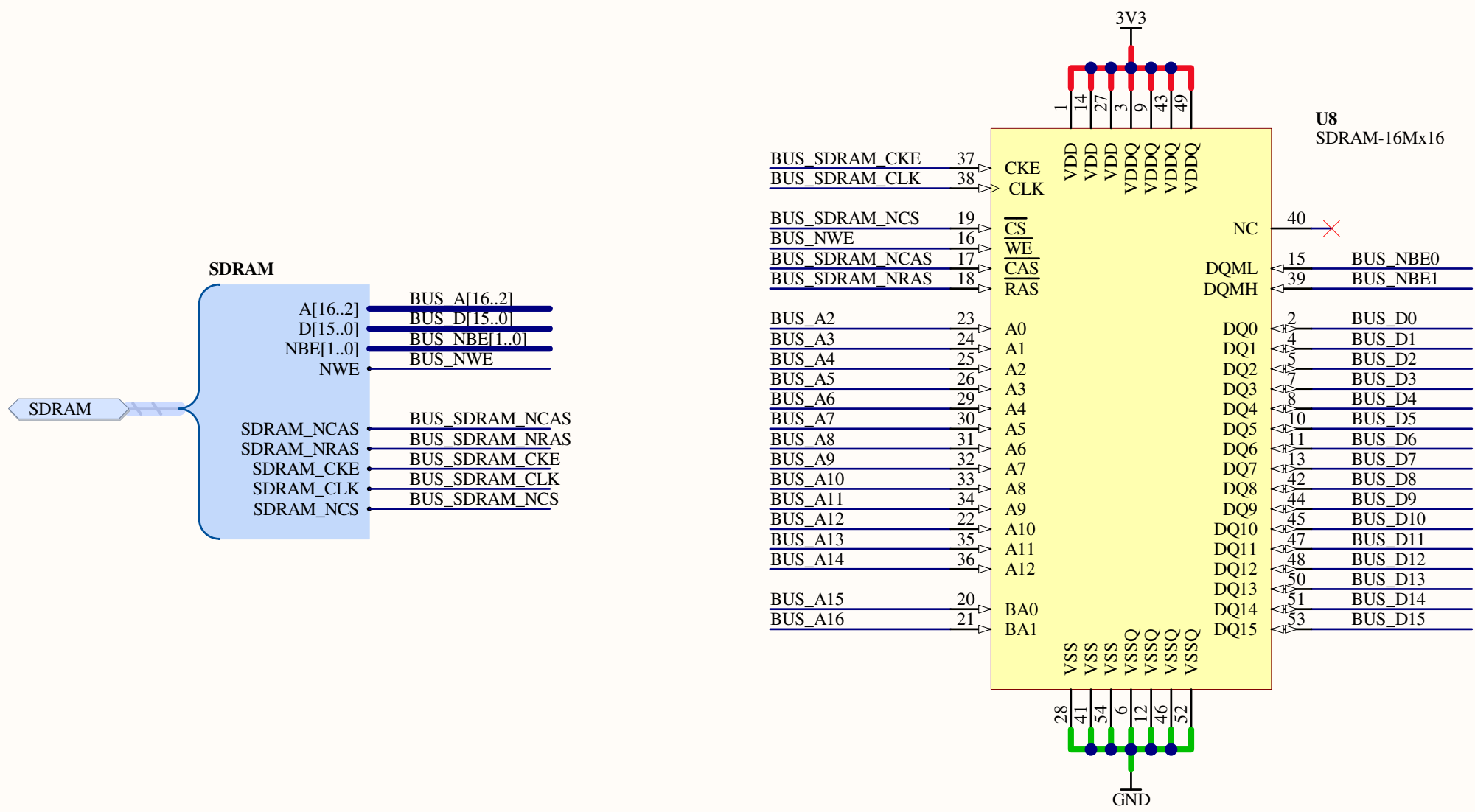


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Sheet Title 16M x 32 SDRAM TSOP54 x 2		
Project Title ALL-01 G13 Acoustic LED Lighting		
Size: A4	Assy: ALL01	Revision:04
Date: 9/24/2011	Time: 1:11:33 AM	Sheet 7 of 26
File: SDRAM_16Mx16.SchDoc		

Altium Limited



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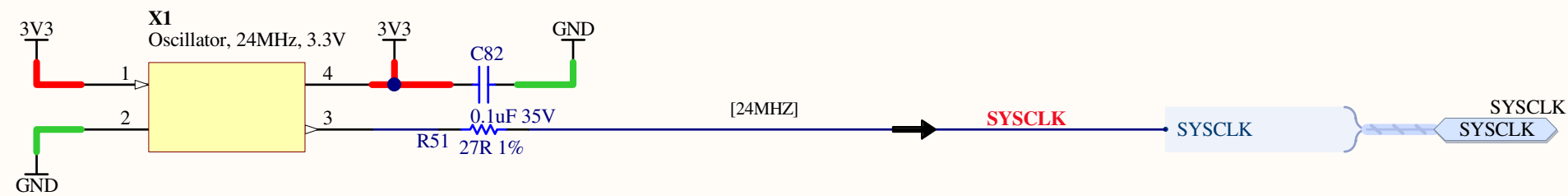
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Sheet Title 16M x 32 SDRAM TSOP54 x 2		Altium Limited
Project Title ALL-01 G13 Acoustic LED Lighting		
Size: A4	Assy: ALL01	Revision:04
Date: 9/24/2011	Time: 1:11:33 AM	Sheet 8 of 26
File: SYSCLK.SchDoc		



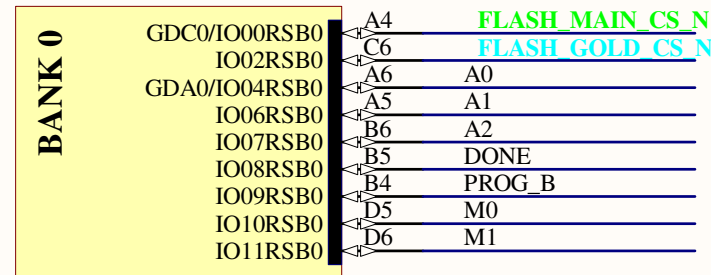
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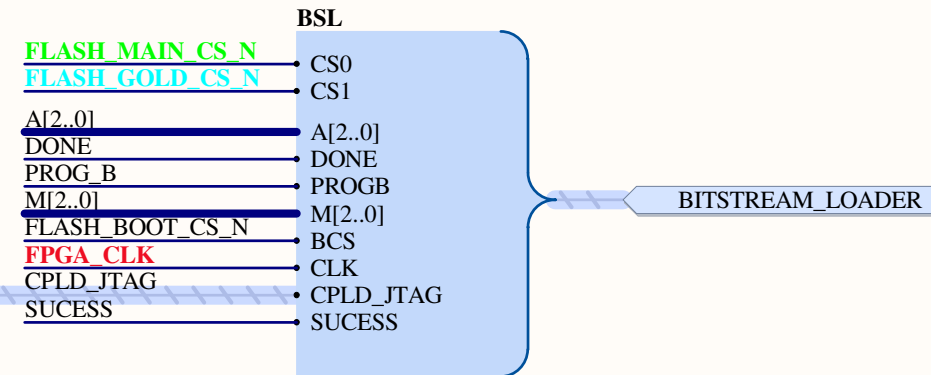
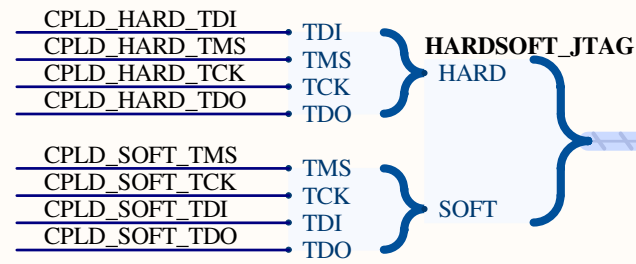
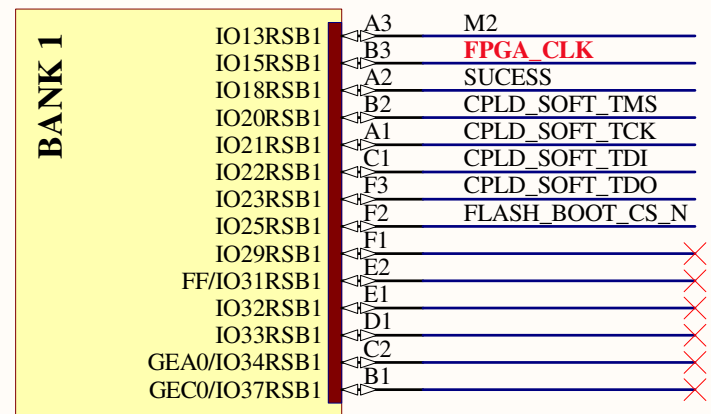
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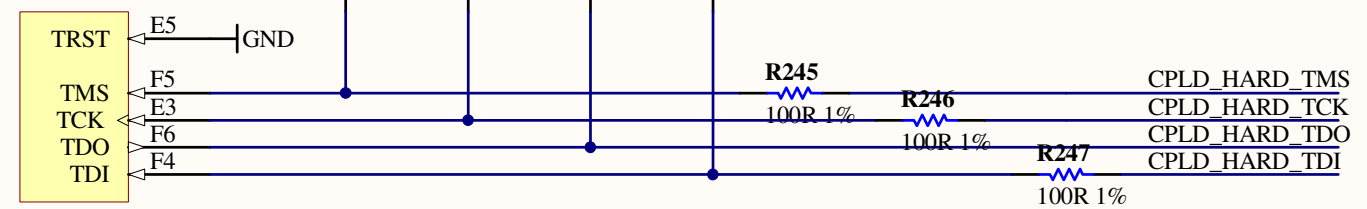
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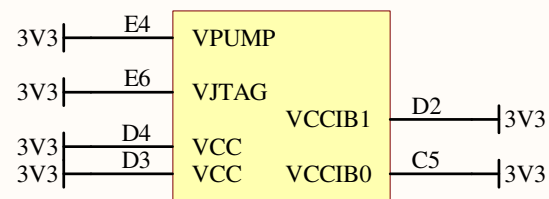
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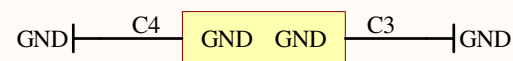
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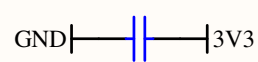
U17D
AGLN010V2-UC36



U17E
AGLN010V2-UC36



C121
0.1uF 35V



Sheet Title **16M x 32 SDRAM TSOP54 x 2**

Altium Limited

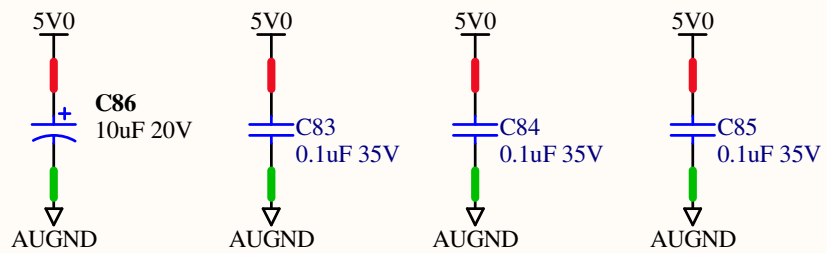
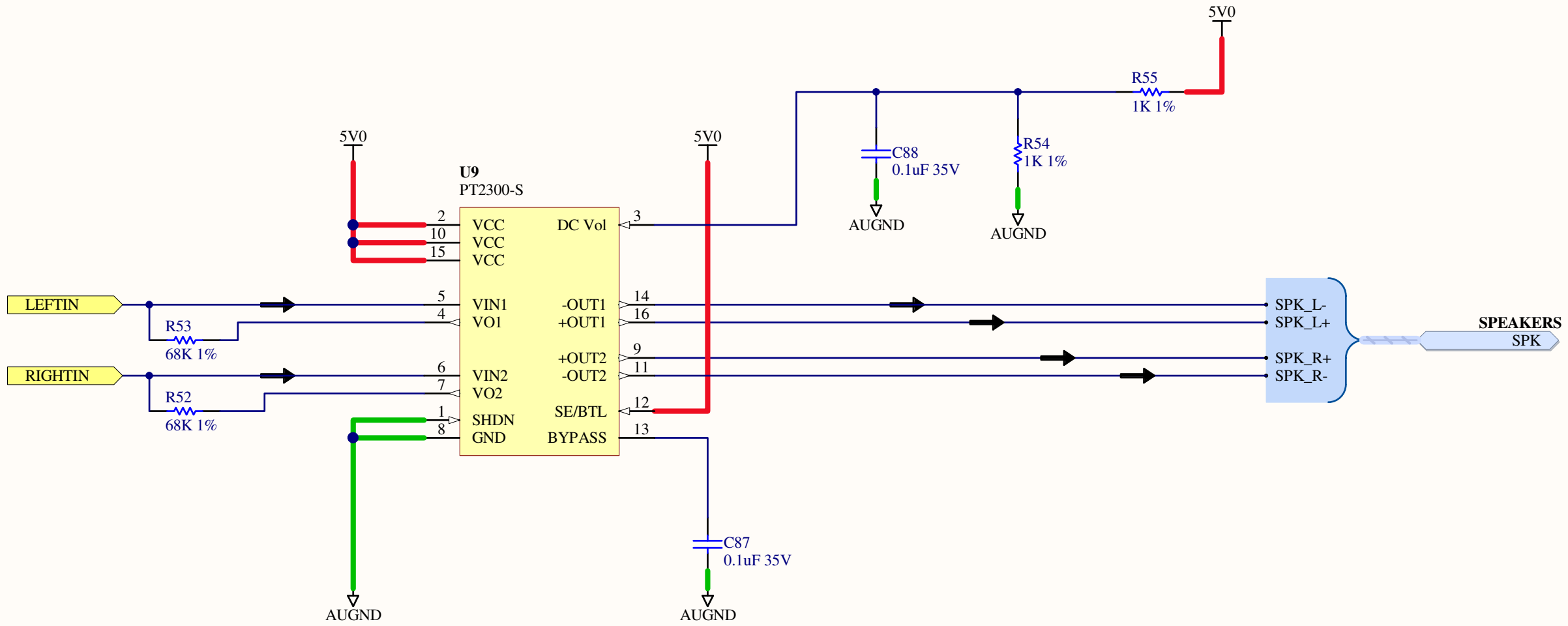
Project Title **ALL-01 G13 Acoustic LED Lighting**

Size: A4 Assy: ALL01 Revision:04

Date: 9/24/2011 Time: 1:11:33 AM Sheet 9 of 26

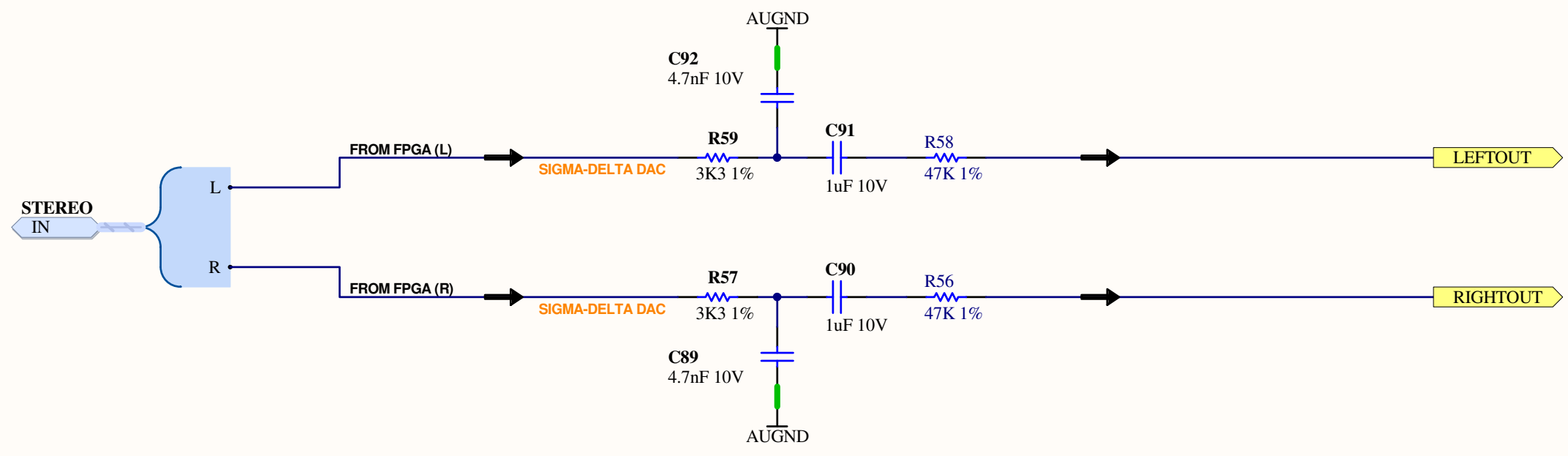
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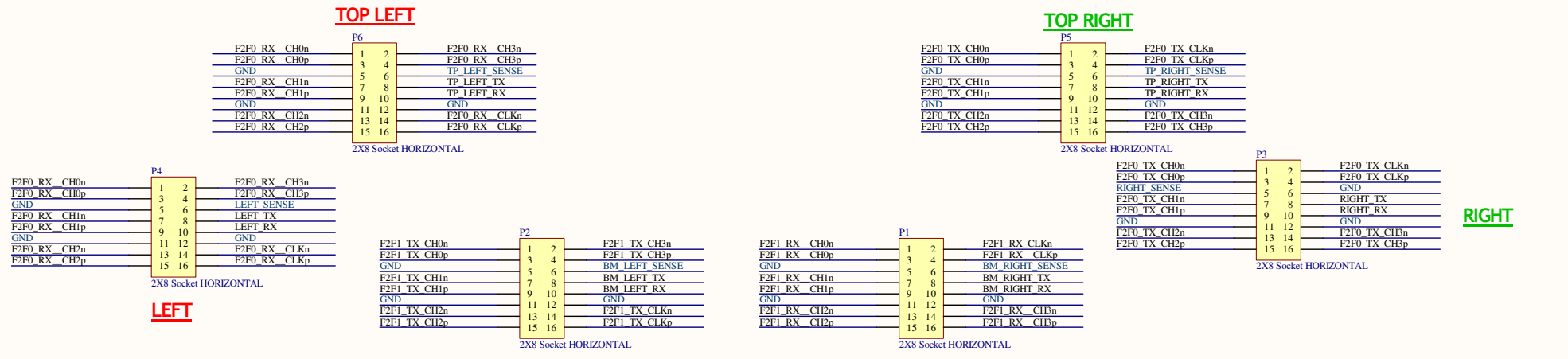
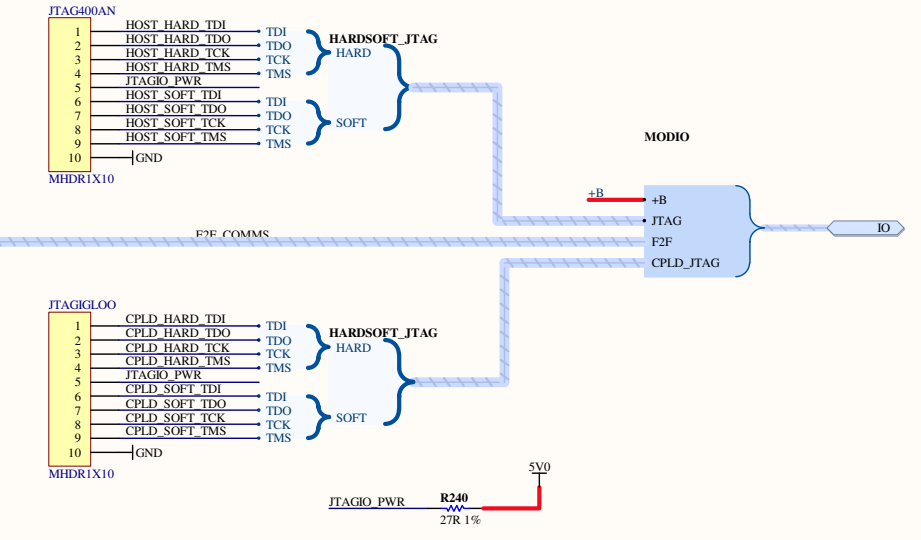
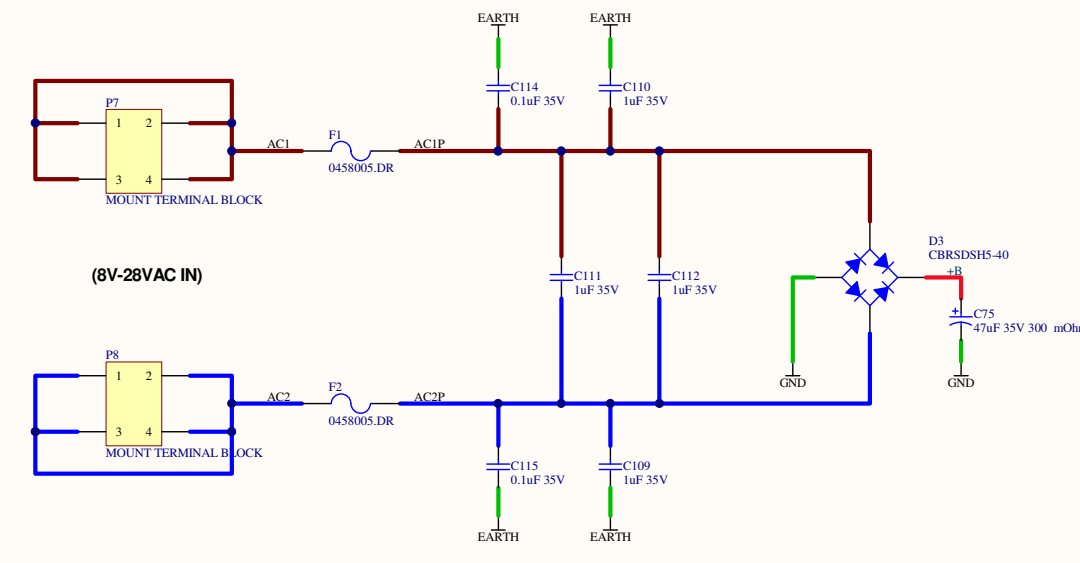
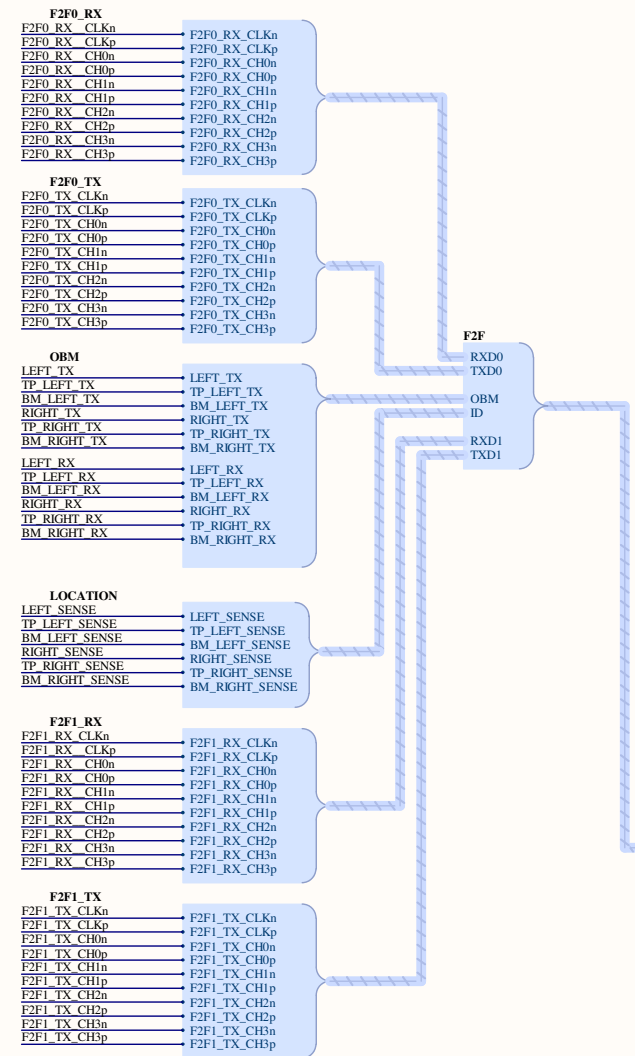


Sheet Title AUDIO AMP & MIXER PT2300		Altium Limited
Project Title ALL-01 G13 Acoustic LED Lighting		
Size: A4	Assy: ALL01	Revision:04
Date: 9/24/2011	Time: 1:11:33 AM	Sheet 10 of 26
File: AMP_PT2300.SchDoc		

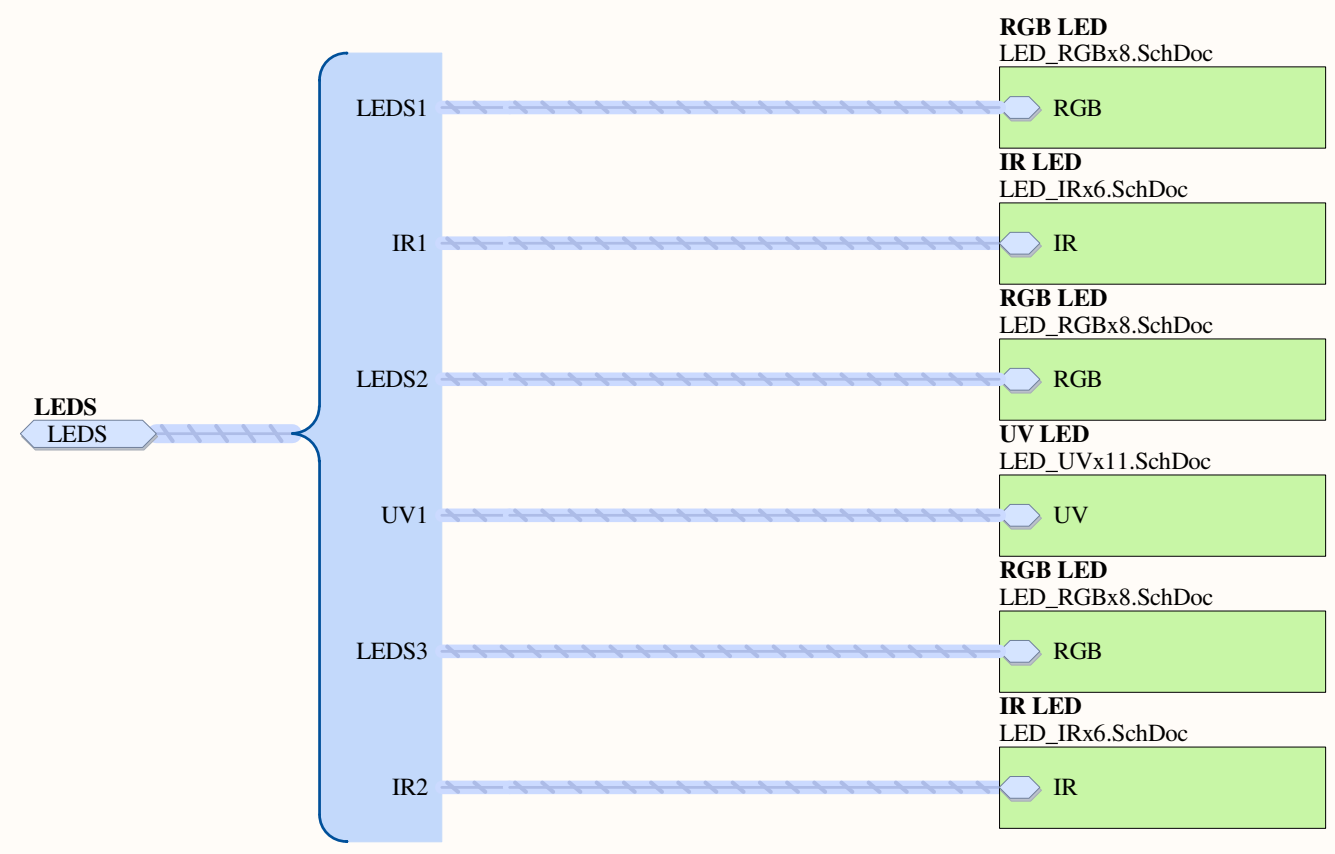




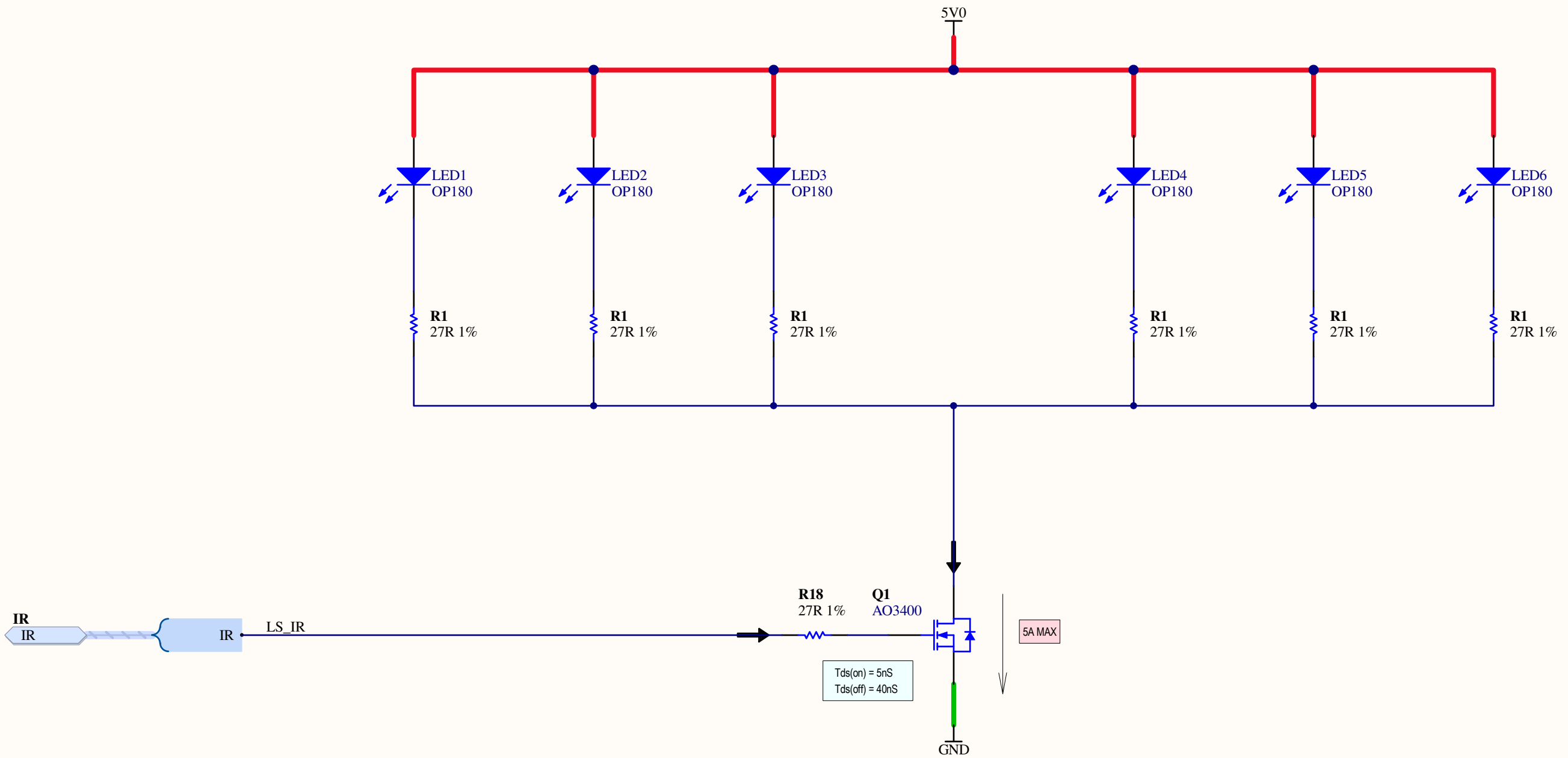
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Date:	9/24/2011	Sheet of
File:	C:\Designs\..ANA_DELTASIGMA.SchDoc	Drawn By:



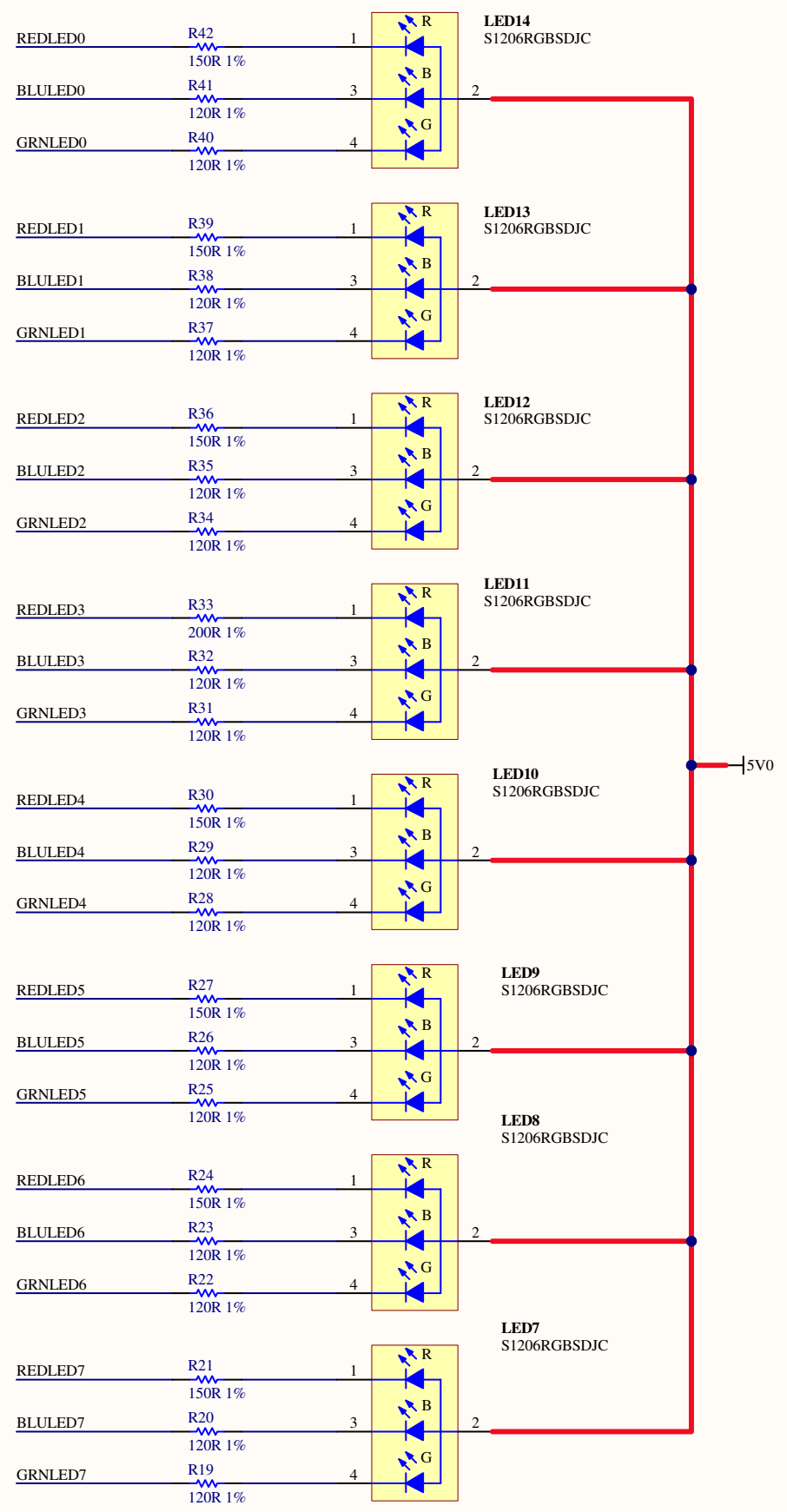
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A2		
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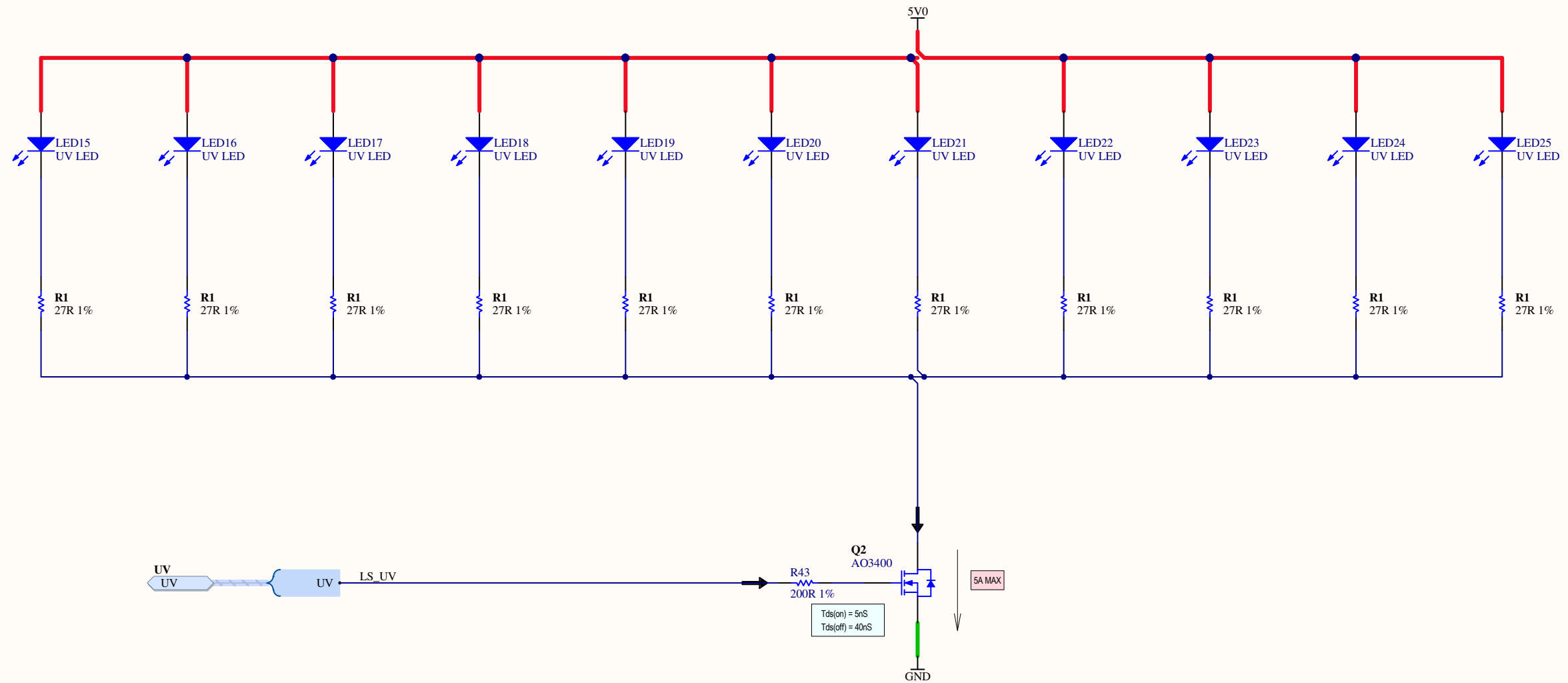
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A4		
Date:	9/24/2011	Sheet of
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Title		
Size	Number	Revision
A4		
Date:	9/24/2011	Sheet of
File:	C:\Designs\..\LED_IRx6.SchDoc	Drawn By:



Title		
Size A3	Number	Revision
Date: 9/24/2011	Sheet of	Drawn By:
File: C:\Designs\A\LED_RGBx8.SchDoc		



Title		
Size	Number	Revision
A3		
Date:	9/24/2011	Sheet of
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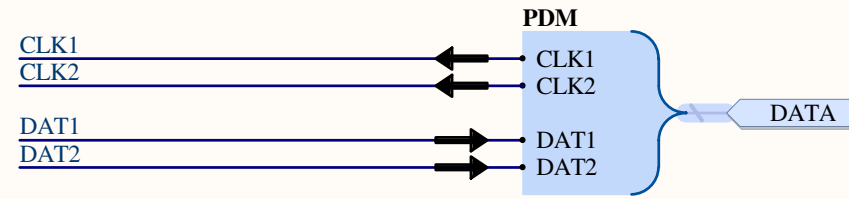
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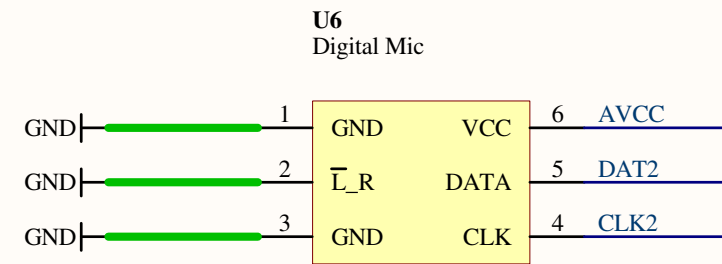
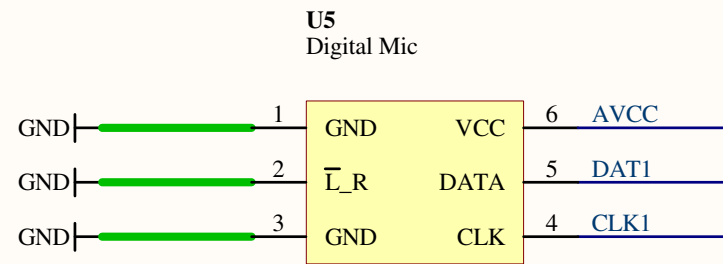
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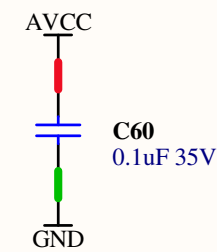
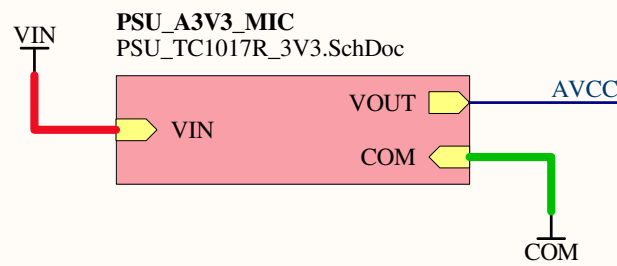
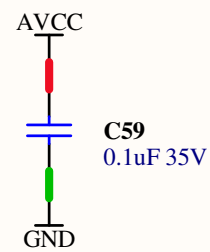
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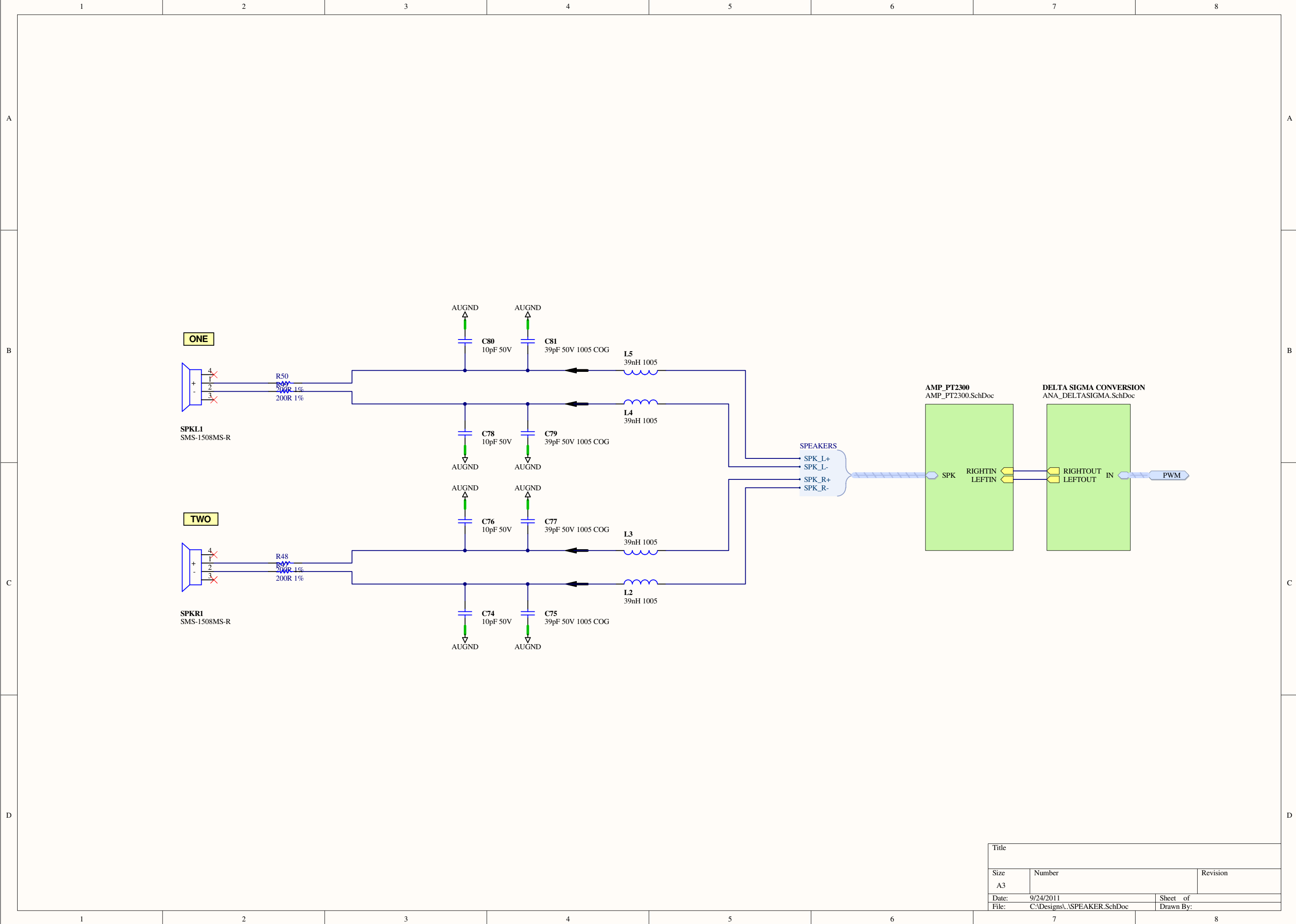
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Size	Number	Revision
A4		
Date:	9/24/2011	Sheet of
File:	C:\Designs\..\MIC.SchDoc	Drawn By:

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ONE

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SPKL1
SMS-1508MS-R

SPKR1
SMS-1508MS-R

AMP_PT2300
AMP_PT2300.SchDoc

DELTA SIGMA CONVERSION
ANA_DELTASIGMA.SchDoc

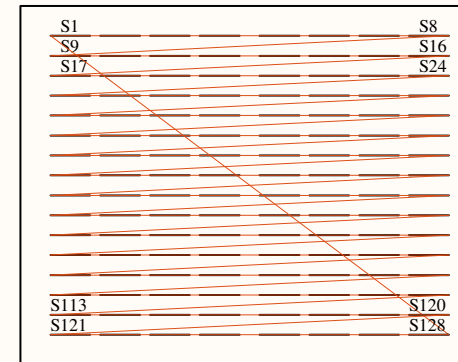
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Size	Number	Revision
A3		
Date:	9/24/2011	Sheet of
File:	C:\Designs\ASPEAKER.SchDoc	Drawn By:

GLASS STAIR WELL INSTALLATION

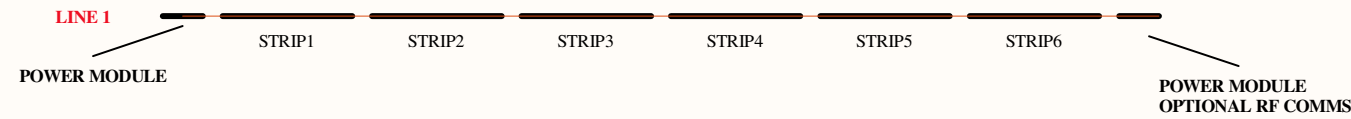


GRAPHICS ARRAY - 192x32 - Cont.

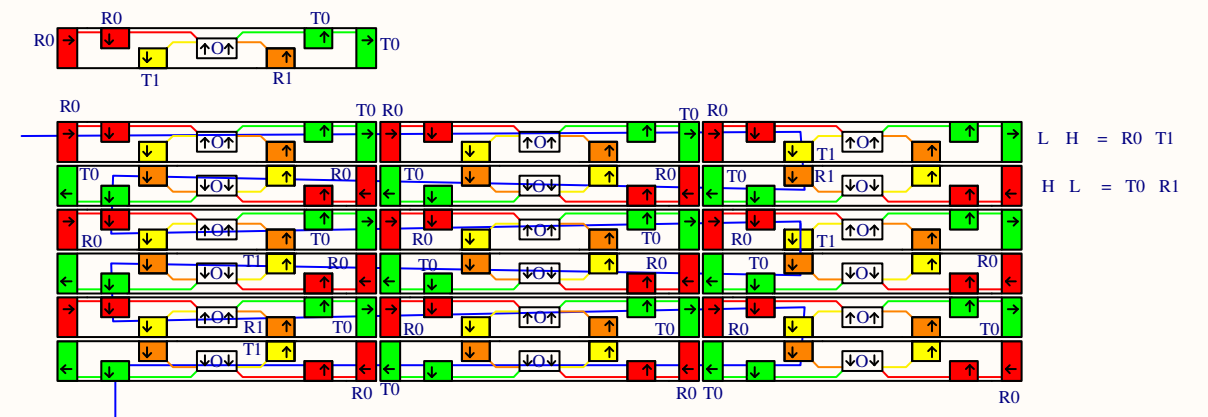
LEDS PER STRIP = 24 (H) x 2 (V). DISPLAY = 192 (H) 32 (V) = 6144 PIXELS
 H = 8 STRIPS = 8x24 = 192 PIXELS - 293mm x 8 = 2344mm (~2.5M in Length)
 V = 16 STRIPS = 16x2 = 32 PIXELS - 25mm x 16 = 400mm (~0.5M in Length)



FLUROESCENT RELACEMENT



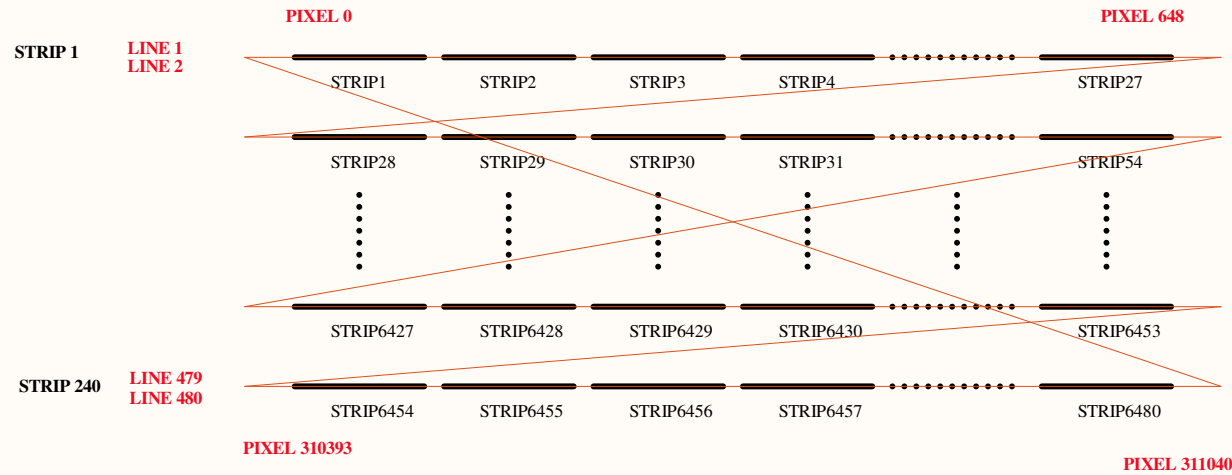
FPGA TO FPGA COMMUNICATIONS
 OUT OF BAND MANAGEMENT - HSUART
 VIDEO DATA - TMDS 4 BIT + CLOCK INTERFACE



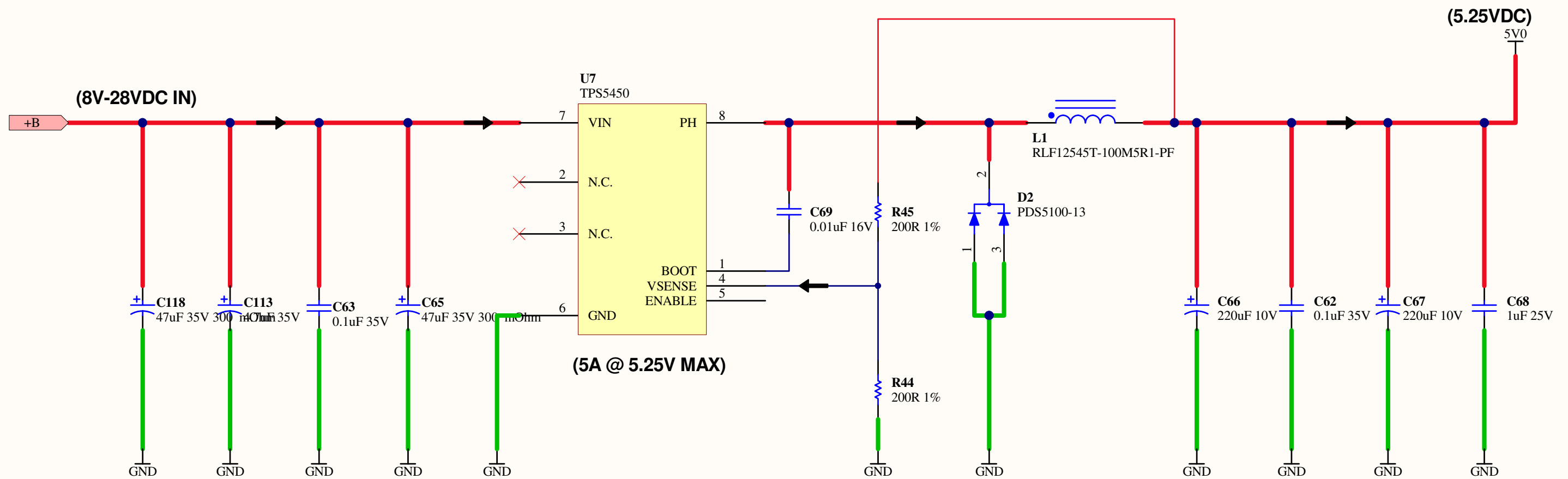
GRAPHICS ARRAY - 640x480

GRAPHICS ARRAY - 640x480 Cont.


LEDS PER STRIP = 24 (H) x 2 (V) PIXELS. DISPLAY SIZE REQUIRED = 640 (H) 480 (V) - 307200 PIXELS
 H = 27 STRIPS = 27x24 = 648 PIXELS - 293mm x 27 = 7911mm (~8M in Length)
 V = 240 STRIPS = 240x2 = 480 PIXELS - 25mm x 240 = 6000mm (~6M in Length)
 TOTAL NUMBER OF PIXELS = 648 x 480 = 311040
 TOTAL NUMBER OF STRIPS REQUIRED = 240x27 = 6480



Title		
Size	Number	Revision
A3		
Date:	9/24/2011	Sheet of
File:	C:\Designs\A\Documentation\SchDoc	Drawn By:



Primary 5.25V Supply

Sheet Title Power Suppl 5.0V			Altium Limited. Level 3, 12a Rodborough Rd Frenchs Forest 2086 NSW AUSTRALIA	
Project Title NB2HND01				
Size: A4	Assy: D-820-0017	Revision: .02		
Date: 9/24/2011	Time: 1:11:33 AM	Sheet 20 of 26		
File: PSU_TPS5450_5V0.SchDoc				

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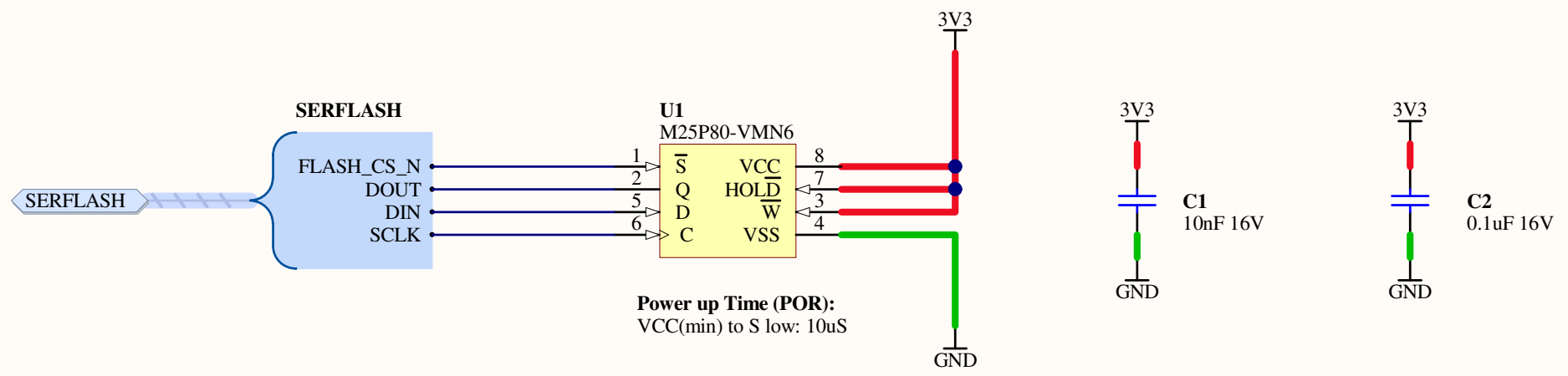
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M25P80-VMN6 8Mbit Serial PROM (75MHz)
 8,192,000 BITS
 (ID=0x13)

Sheet Title Host - Dual Serial Flash Memory		Altium Limited
Project Title ALL-01 G13 Acoustic LED Lighting		
Size: A4	Assy: ALL01	Revision:04
Date: 9/24/2011	Time: 1:11:33 AM	Sheet 21 of 26
File: FLASH_M25PX0N_SPI_8Mbit.SchDoc		



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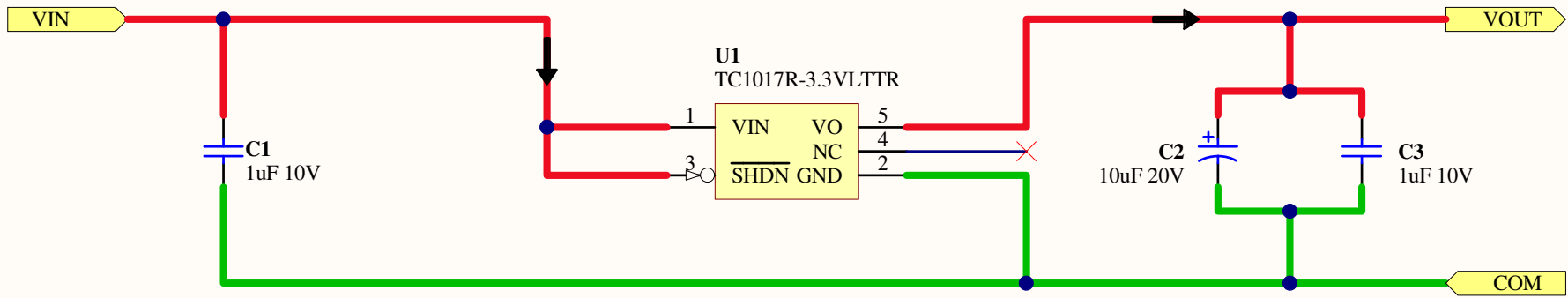
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3V3
150mA
50uVRMS



Sheet Title PSU TC1017R 3V3		Altium Limited
Project Title ALL-01 G13 Acoustic LED Lighting		
Size: A4	Assy: ALL01	Revision:04
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File: PSU_TC1017R_3V3.SchDoc		



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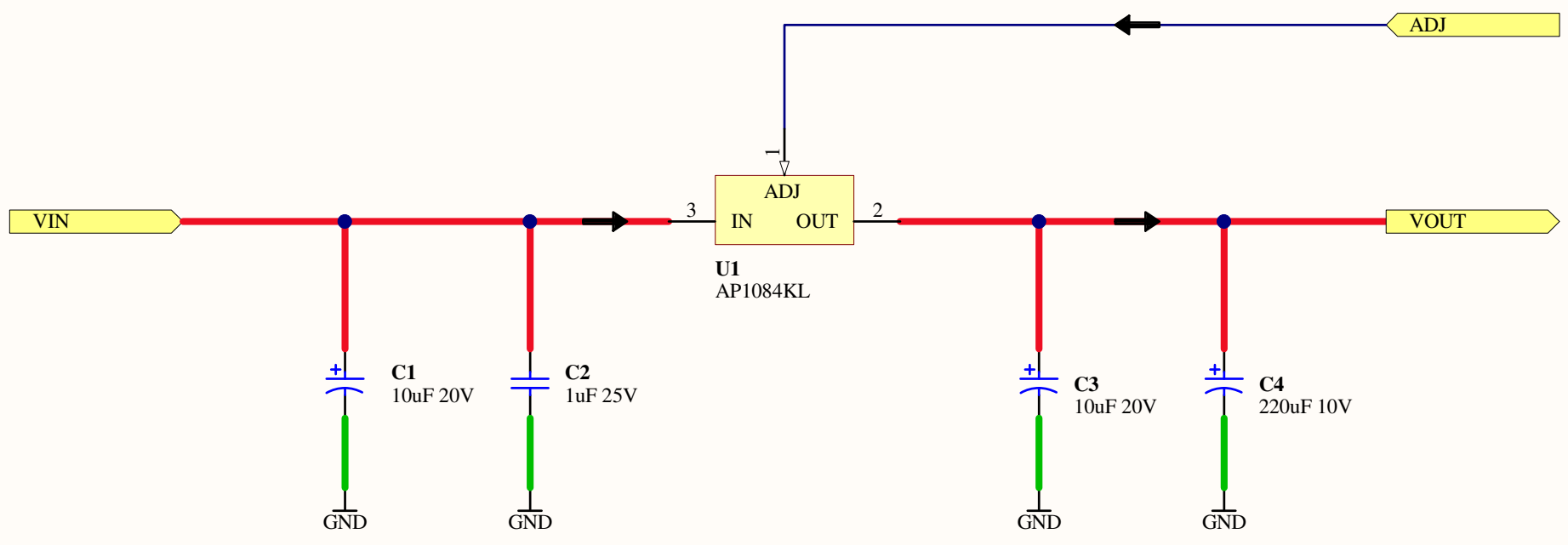
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Sheet Title PSU AP1084KL ADJ		Altium Limited
Project Title ALL-01 G13 Acoustic LED Lighting		
Size: A4	Assy: ALL01	Revision:04
Date: 9/24/2011	Time: 1:11:33 AM	Sheet 23 of 26
File: PSU_1084_ADJ.SchDoc		



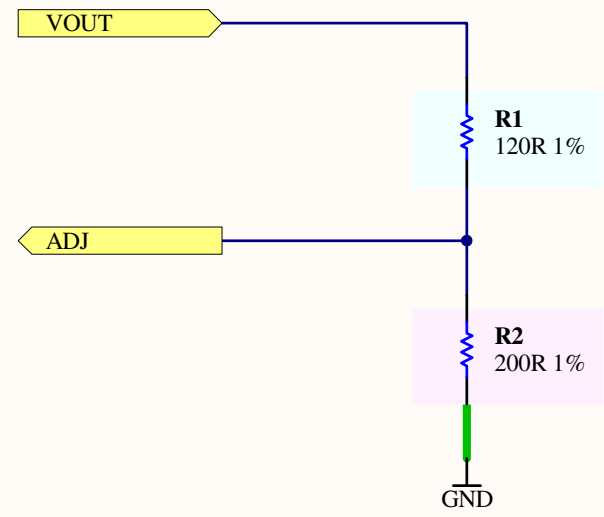
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3.3V Output




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

$$V_{REF} = 1.25v$$

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

▲ Calculation for 3.3V;
 = 1.25V x (1+R2/R1) + 0.000055 x R2
 = 1.25V x (1+200/120) + 0.000055 x 200
 = 1.25V x 2.67 + 0.011
 = 3.34433V

Sheet Title PSU AP1084KL SET TO 3V3		<i>Altium Limited</i>	
Project Title ALL-01 G13 Acoustic LED Lighting			
Size: A4	Assy: ALL01	Revision:04	
Date: 9/24/2011	Time: 1:11:33 AM	Sheet 24 of 26	
File: PSU_1084SET_3V3.SchDoc			

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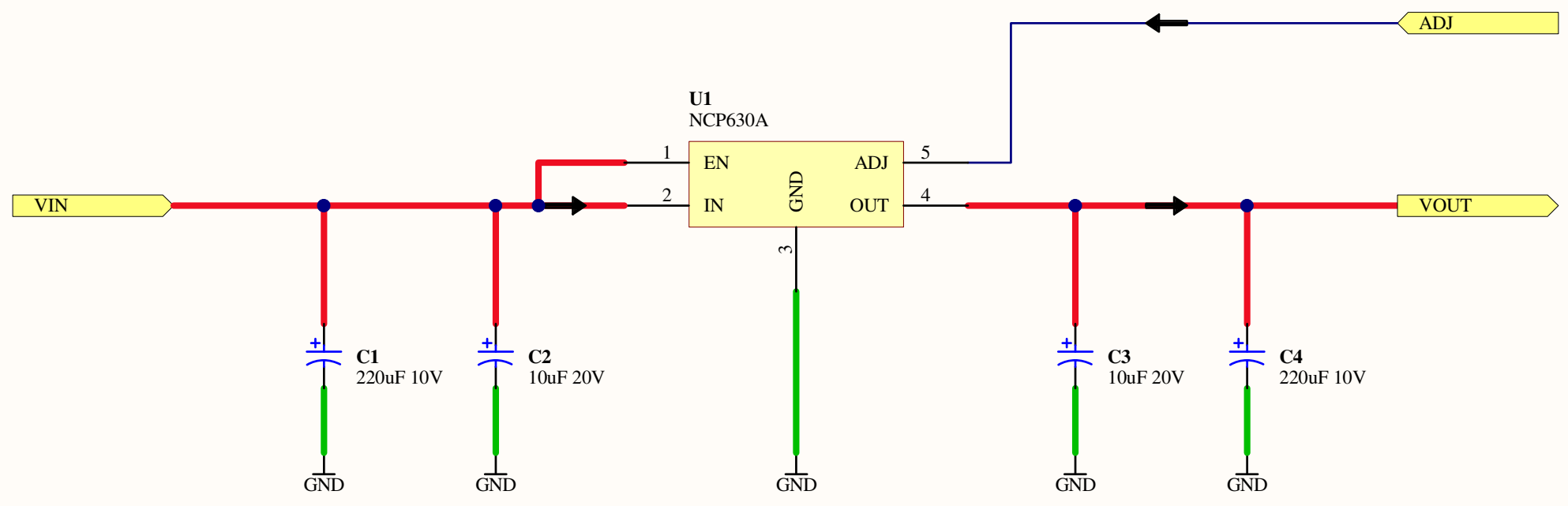
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Sheet Title PSU NCP630A ADJ		Altium Limited
Project Title ALL-01 G13 Acoustic LED Lighting		
Size: A4	Assy: ALL01	Revision:04
Date: 9/24/2011	Time: 1:11:33 AM	Sheet 25 of 26
File: PSU_NCP630_ADJ.SchDoc		



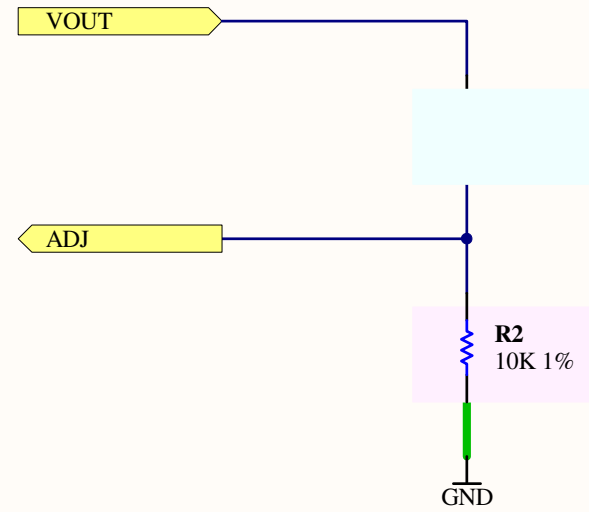
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1.2V Output



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

$$V_{REF} = 1.216v$$

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

▲ Calculation for 1.2V;
 = 1.216V x (1+R1/R2) + 0.000000040 x R2
 = 1.216V x (1+0/10000) + 0.000000040 x 10000
 = 1.216V x 1 + 0.0004
 = 1.2164V

Sheet Title PSU NCP630A SET TO 1V2		Altium Limited	
Project Title ALL-01 G13 Acoustic LED Lighting			
Size: A4	Assy: ALL01	Revision:04	
Date: 9/24/2011	Time: 1:11:33 AM	Sheet 26 of 26	
File: PSU_NCP630SET_1V2.SchDoc			