REVISION RECORD							
LOC.	REV.	DESCRIPTION	ECO NO.	DRFT.	CHKR	APP	DATE
	A	RELEASE	46-000091				10/05/04
	B	SEE PG. 43 FOR CHANGES	46-000113				10/29/04
	C	SEE PG. 43 FOR CHANGES	46-000118				11/10/04
	D	SEE PG. 43 FOR CHANGES	46-000128				2/24/05
	E	part # change - JW01&JW02 to 539247002 JT02 to 539245007 Updated schematic to match the BOM.	46-000627				5/2/07
	F	SEE PG. 43 FOR CHANGES	46-000884				10/10/07
	G	INSTALL RD07 ON PAGE 6	F03X014208				10/15/13
	H	CHANGE UH01 SEE PGS 10, 43	F03X015430				11/8/13

EP20K160EFC484-2X

TA01 TA02 TA03 TA04

BYTE_EN_L3 R20
BYTE_EN_L2 P17
BYTE_EN_L1 P18
BYTE_EN_L0 R21

MAIN_UART_RXD AA9
DEBUG_UART_RXD B6
SP_UART_RXD D14

MAIN_UART_TXD H2
DEBUG_UART_TXD W4
SP_UART_TXD B9

DATA31 D21 D_UB31
DATA30 F19 D_UB30
DATA29 E19 D_UB29
DATA28 F18 D_UB28
DATA27 E20 D_UB27
DATA26 T20 D_UB26
DATA25 Y20 D_UB25
DATA24 F13 D_UB24
DATA23 W14 D_UB23
DATA22 R18 D_UB22
DATA21 L21 D_UB21
DATA20 P6 D_UB20
DATA19 N5 D_UB19
DATA18 Y19 D_UB18
DATA17 L20 D_UB17
DATA16 V19 D_UB16
DATA15 P21 D_UB15
DATA14 K3 D_UB14
DATA13 N18 D_UB13
DATA12 L7 D_UB12
DATA11 B12 D_UB11
DATA10 G19 D_UB10
DATA9 Y3 D_UB9
DATA8 W5 D_UB8
DATA7 K8 D_UB7
DATA6 J6 D_UB6
DATA5 D4 D_UB5
DATA4 E7 D_UB4
DATA3 D8 D_UB3
DATA2 G10 D_UB2
DATA1 M11 D_UB1
DATA0 W19 D_UB0

A_UB21 D2 ADDR21
A_UB20 B7 ADDR20
A_UB19 W17 ADDR19
A_UB18 Y18 ADDR18
A_UB17 W15 ADDR17
A_UB16 AA20 ADDR16
A_UB15 V14 ADDR15
A_UB14 W18 ADDR14
A_UB13 U15 ADDR13
A_UB12 V17 ADDR12
A_UB11 U14 ADDR11
A_UB10 AA18 ADDR10
A_UB9 AA16 ADDR9
A_UB8 AA19 ADDR8
A_UB7 AA17 ADDR7
A_UB6 V18 ADDR6
A_UB5 Y17 ADDR5
A_UB4 R13 ADDR4
A_UB3 T14 ADDR3
A_UB2 AA13 ADDR2
A_UB1 U18 ADDR1
A_UB0 Y16 ADDR0

RAM_CS1_L K21
RAM_CS0_L K18
RAM_WE_L C12
FLASH_CS_L U16
BUS_OE_L T17
FLASH_WE_L U13

511424-002

UA01

+3.3V

RA01 1K
RA02 1K
RA03 1K
RA04 1K

PWR 16
GND 15
LTC1386
511437-000

UA02
UA03

T1IIN 11
T2IIN 10
R1IIN 13
R2IIN 8
T1OUT 14
T2OUT 7
R1OUT 12
R2OUT 9
V+ 2
V- 6
C1+ 1
C1- 3
C2+ 4
C2- 5

CA01 CA02 CA03 CA04 CA05 CA06 CA07 CA08
1.0UF_16V

539026-014
J100

539179-000
J101

BYTE_EN_L3
BYTE_EN_L2
BYTE_EN_L1
BYTE_EN_L0
2

RAM_CS1_L
RAM_CS0_L
RAM_WR_L
FLASH_CS_L
BUS_OE_L
FLASH_WR_L
2

D_UB[31:0] 2,8,32,33,37

A_UB[21:0] 2,8,32,33,37

CAD GENERATED DRAWING

FILENAME:

DR.	CK.	APP.
GK		

DATE 10/29/04

TELEX
TELEX COMMUNICATIONS, INC.
MINNEAPOLIS, MINNESOTA

TITLE
ADAM AIO-16 CARD
SCHEMATIC

SIZE D

DWG. NO. 9027-7726-000

REV H

SHT. 1 OF 44

MODEL

NEXT ASSBY

TB01 TB04 TB12

1 RAM_CS1_L
1 RAM_CS0_L
1 BYTE_EN_L1
1 BYTE_EN_L0
1 RAM_WR_L
1
1 BYTE_EN_L3
1 BYTE_EN_L2

+3.3V +3.3V +3.3V +3.3V +3.3V +3.3V

RB01 4.7K RB02 4.7K RB03 4.7K RB04 4.7K RB05 4.7K RB08 4.7K

38 POWER_RESET_L
3,37 FLASH_BYTE_EN_L
1,37 FLASH_CS_L
1,37 BUS_OE_L
1 FLASH_WR_L

TB06 TB07 TB08 TB09

AM29LV800B

ARES_L 12
BYTE_L 47
RY_H_BY_L 15
CS_L 26
OE_L 28
WE_L 11

A_UB21 10 A20
A_UB20 9 A19
A_UB19 16 A18
A_UB18 17 A17
A_UB17 48 A16
A_UB16 1 A15
A_UB15 2 A14
A_UB14 3 A13
A_UB13 4 A12
A_UB12 5 A11
A_UB11 6 A10
A_UB10 7 A9
A_UB9 8 A8
A_UB8 18 A7
A_UB7 19 A6
A_UB6 20 A5
A_UB5 21 A4
A_UB4 22 A3
A_UB3 23 A2
A_UB2 24 A1
A_UB1 25 A0

DQ15 45 D_UB15
DQ14 43 D_UB14
DQ13 41 D_UB13
DQ12 39 D_UB12
DQ11 36 D_UB11
DQ10 34 D_UB10
DQ9 32 D_UB9
DQ8 30 D_UB8
DQ7 44 D_UB7
DQ6 42 D_UB6
DQ5 40 D_UB5
DQ4 38 D_UB4
DQ3 35 D_UB3
DQ2 33 D_UB2
DQ1 31 D_UB1
DQ0 29 D_UB0

511425-000

UB01

TB10 TB11

FRM1
9015-7726-000

FRM2
9015-7726-001

+3.3V +3.3V

RB06 4.7K RB07 4.7K

Compatible Parts:
Alliance : AS7C34098-12TC
Cypress: CYC7C1041V33-12ZC
ISS1: IS61LV25616-12T
Check them once more

IDT71V416

CS_L 6
UPPER_BYTE_SEL_L 40
LOWER_BYTE_SEL_L 39
WE_L 17
OE_L 41

A_UB18 44 A17
A_UB17 43 A16
A_UB16 42 A15
A_UB15 27 A14
A_UB14 26 A13
A_UB13 25 A12
A_UB12 24 A11
A_UB11 23 A10
A_UB10 22 A9
A_UB9 21 A8
A_UB8 20 A7
A_UB7 19 A6
A_UB6 18 A5
A_UB5 5 A4
A_UB4 4 A3
A_UB3 3 A2
A_UB2 2 A1
A_UB1 1 A0

DQ15 38 D_UB15
DQ14 37 D_UB14
DQ13 36 D_UB13
DQ12 35 D_UB12
DQ11 32 D_UB11
DQ10 31 D_UB10
DQ9 30 D_UB9
DQ8 29 D_UB8
DQ7 16 D_UB7
DQ6 15 D_UB6
DQ5 14 D_UB5
DQ4 13 D_UB4
DQ3 10 D_UB3
DQ2 9 D_UB2
DQ1 8 D_UB1
DQ0 7 D_UB0

511435-000

UB02

IDT71V416

CS_L 6
UPPER_BYTE_SEL_L 40
LOWER_BYTE_SEL_L 39
WE_L 17
OE_L 41

A_UB18 44 A17
A_UB17 43 A16
A_UB16 42 A15
A_UB15 27 A14
A_UB14 26 A13
A_UB13 25 A12
A_UB12 24 A11
A_UB11 23 A10
A_UB10 22 A9
A_UB9 21 A8
A_UB8 20 A7
A_UB7 19 A6
A_UB6 18 A5
A_UB5 5 A4
A_UB4 4 A3
A_UB3 3 A2
A_UB2 2 A1
A_UB1 1 A0

DQ15 38 D_UB31
DQ14 37 D_UB30
DQ13 36 D_UB29
DQ12 35 D_UB28
DQ11 32 D_UB27
DQ10 31 D_UB26
DQ9 30 D_UB25
DQ8 29 D_UB24
DQ7 16 D_UB23
DQ6 15 D_UB22
DQ5 14 D_UB21
DQ4 13 D_UB20
DQ3 10 D_UB19
DQ2 9 D_UB18
DQ1 8 D_UB17
DQ0 7 D_UB16

511435-000

UB03

1,8,32,33,37 A_UB[21:0]

1,8,32,33,37 D_UB[31:0]

FLASH_RDY_HI_BSY_LO 3

1 RAM_A1

ADAM AIO-16 CARD SCHEMATIC	PAGE 2
DRAWING NO: 90277726000	REV H

Note: Make T3, U2 and V2 as unused tristated pins in the Altera design

AIO Control Logic

EP20K160EFC484-2X

38 ARES_L
2 FLASH_RDY_HI_BSY_LO
33 UART_IRQ1_L
32 UART_IRQ0_L
ARB_REQ_IN_L_LV
ARB_DAT_IN_LV
ARB_BUSY_IN_L_LV
5
CONTR_LISTEN_DAT_LV
CONTR_LISTEN_CLK_LV
11 CARD_ID_LV[4:0]
38 SOFT_BUTTON_2
38 SOFT_BUTTON_1
5 FROM_AP_SER_DAT_LV
RX_256X_FPGA
10 MPU_CLK
10 RX_1X
7 TX_256X
10 NUCLEUS_TDM_START
8
ASIC_CP_STATUS[1:0]
8 ASIC_OVRFLOW_INT_L
TDM_MSG_RXD
SCAN_TEST_OUT
38 ENCODER1_BITA
ENCODER1_BITB
ENCODER2_BITA
ENCODER2_BITB

+3.3V
4MHZ_OSC
10K
RC01
OE
OUT
GND
PWR
528032-000
XC01
FB01
TC31
RC02
162
RC03
0
RC04 4.7K
SB01
DIP8SW
19090002SMS

F12	ARES_L	FLASH_BYTE_EN_L	G6	FLASH_BYTE_EN_L	2
		SPARE_CLK	H12	APEX_CLK_OUT	10
		ENABLE_BUS_SWITCH	M3	ENABLE_BUS_SWITCH	5
		EPM7064_SPARE	G14	EPM7064_SPARE	37
		RAM_A1	T18	RAM_A1	2
	UART0_CS_L		V16	UART0_CS_L	
	UART0_RD_L		M16	UART0_RD_L	32
	UART0_WR_L		V13	UART0_WR_L	
	UART1_CS_L		V15	UART1_CS_L	
U20	UART1_IRQ	UART1_RD_L	Y5	UART1_RD_L	33
Y4	UART0_IRQ	UART1_WR_L	M20	UART1_WR_L	
N19	ARB_REQ_IN_L	ARB_REQ_OUT_L	J3	ARB_REQ_OUT_L_LV	
M15	ARB_DAT_IN	ARB_DAT_OUT	R5	ARB_DAT_OUT_LV	
J2	ARB_BUSY_IN_L	ARB_BUSY_OUT_L	K5	ARB_BUSY_OUT_L_LV	
		ARB_GRANT_L	AA6	ARB_GRANT_L_LV	
		ARB_LISTEN_EN_L	V4	ARB_LISTEN_EN_L_LV	11
U5	CONTR_LISTEN_DAT	CONTR_TALK_DAT	G2	CONTR_TALK_DAT_LV	
M2	CONTR_LISTEN_CLK	CONTR_TALK_CLK	H4	CONTR_TALK_CLK_LV	
L6	4MHZ_CLK				
N3	CARD_ID4	LED_CLKS5	J18	LED_CLKS5	
W3	CARD_ID3	LED_CLKS4	B3	LED_CLKS4	
P11	CARD_ID2	LED_CLKS3	H21	LED_CLKS3	
AA7	CARD_ID1	LED_CLKS2	G5	LED_CLKS2	38
N2	CARD_ID0	LED_CLKS1	H5	LED_CLKS1	
		LED_CLKS0	F2	LED_CLKS0	
		DIP_SWITCH_RD_EN_L	AA3		
		FAIL_LED	C2	FAIL_LED	40
		OK_LED	E5	OK_LED	40
		CLKS_TO_BUS_TX_EN_L	D3	CLKS_TO_BUS_TX_EN_L_LV	10
		CODEC_RESET_H	E9	CODEC_RESET_H	38
V3	SOFT_BUTTON_2	TO_AP_SER_CLK	B19	TO_AP_SER_CLK_LV	5
U4	SOFT_BUTTON_1	TO_AP_SER_DAT	D10	TO_AP_SER_DAT_LV	5
R4	FROM_AP_SER_DAT	AP_1X_CLK	C19	TO_AP_1X_CLK_LV	5
K17	RX_256X_CLK				
N4	MPU_CLOCK				
U3	RX_1X_CLK	TX_1X	C20	TX_1X	7
M18	TX_256X_CLK				
K16	TDM_START_PULSE				
R3	ASIC_CP_STATUS1	ASIC_RESET_L	AA5	ASIC_RESET_L	
P2	ASIC_CP_STATUS0	ASIC_CP_CS_L	N21	ASIC_CP_CS_L	
L17	ASIC_OVRFLOW_INT_L	ASIC_CP_RD_L	W16	ASIC_CP_RD_L	8
E2	S10_TDM_MSG_RXD (SPARE_IN3)	ASIC_CP_WR_L	P16	ASIC_CP_WR_L	
		ASIC_PP_CS_L	W21	ASIC_PP_CS_L	
		ASIC_PP_RD_L	U19	ASIC_PP_RD_L	8
		ASIC_PP_WR_L	N17	ASIC_PP_WR_L	
F21	SCAN_TEST_OUT	SCAN_RESET	L14	SCAN_RESET	
		SCAN_ENABLE	B14	SCAN_ENABLE	8
		SCAN_MODE	K20	SCAN_MODE	
P19	DIP_SW7	SPARE_PIN1	D11		
U21	DIP_SW6	SPARE_PIN3	V12		
N15	DIP_SW5	SPARE_PIN4	G15		
K2	DIP_SW4	SPARE_PIN5	B4		
W20	DIP_SW3	SPARE_PIN6	C21		
V20	DIP_SW2	SPARE_PIN7	H3		
N20	DIP_SW1	SPARE_PIN8	H6		
Y21	DIP_SW0	SPARE_PIN9	Y12		
V21	IN_PORT7	SPARE_PIN10	E13		
T21	IN_PORT6	SPARE_PIN11	B16		
R17	IN_PORT5	SPARE_PIN12	F14		
N16	IN_PORT4	SPARE_PIN15	J19		
R19	IN_PORT3				
T19	IN_PORT2				
Y14	IN_PORT1				
P20	IN_PORT0				
		TEMP_OUT2	G21		
H17	SPARE_IN1	TEMP_OUT3	E6		
F5	SPARE_IN2	TEMP_OUT4	F3		
F7	SPARE_IN3 (TEMP_OUT6)	TEMP_OUT5	B18		
T2	SPARE_IN4 (UART1_TXRDY_L)				

TC05 TC07 TC08 TC09 TC10 TC11 TC12 TC13 TC14 TC15 TC16 TC19 TC20 TC21 TC22 TC23
TC24 TC25 TC26 TC27 TC28 TC29 TC30

511424-002
UA01

ADAM AIO-16 CARD SCHEMATIC	PAGE 3
DRAWING NO: 90277726000	REV H

H1

591693-000

AIO Audio Logic

EP20K160EFC484-2X

+3.3V

RC04 4.7K

18 17 16 15 14 13 12 11 10

ASIC_TALK_CH_14_15 Y6
ASIC_TALK_CH_12_13 Y7
ASIC_TALK_CH_10_11 U7
ASIC_TALK_CH_8_9 V8
ASIC_TALK_CH_6_7 T9
ASIC_TALK_CH_4_5 Y9
ASIC_TALK_CH_2_3 V9
ASIC_TALK_CH_0_1 Y8

KP_LSTN_CH_14_15 W7
KP_LSTN_CH_12_13 W6
KP_LSTN_CH_10_11 U9
KP_LSTN_CH_8_9 V6
KP_LSTN_CH_6_7 U8
KP_LSTN_CH_4_5 P7
KP_LSTN_CH_2_3 W8
KP_LSTN_CH_0_1 W9

CS4224_SCLK_D D16
CS4224_SCLK_C E15
CS4224_SCLK_B D15
CS4224_SCLK_A H16

CS4224_LRCK_CLK_D G20
CS4224_LRCK_CLK_C L16
CS4224_LRCK_CLK_B H18
CS4224_LRCK_CLK_A E18

CS4224_CS_L7 E10
CS4224_CS_L6 F11
CS4224_CS_L5 D9
CS4224_CS_L4 C8
CS4224_CS_L3 F10
CS4224_CS_L2 G11
CS4224_CS_L1 D7
CS4224_CS_L0 D5

CS4224_SER_CLK_D C13
CS4224_SER_CLK_C D13
CS4224_SER_CLK_B B13
CS4224_SER_CLK_A D18

CS4224_SER_DAT_D F8
CS4224_SER_DAT_C G9
CS4224_SER_DAT_B H10
CS4224_SER_DAT_A C5

CS3310_CS_L7 C10
CS3310_CS_L6 J7
CS3310_CS_L5 H19
CS3310_CS_L4 B11
CS3310_CS_L3 H20
CS3310_CS_L2 G4
CS3310_CS_L1 J17
CS3310_CS_L0 C9

CS3310_SER_CLK_D E16
CS3310_SER_CLK_C C15
CS3310_SER_CLK_B C14
CS3310_SER_CLK_A F15

CS3310_SER_DAT_D D6
CS3310_SER_DAT_C C6
CS3310_SER_DAT_B F9
CS3310_SER_DAT_A B10

ASIC_SP_TALK_CLK C17
ASIC_SP_TALK_FS L15
ASIC_SP_TALK_SHIFT_EN D19
ASIC_SP_LISTEN_CLK D17
ASIC_SP_LISTEN_FS K19
ASIC_SP_LISTEN_SHIFT_EN D20

ASIC_LISTEN_CH_14_15 → M6 ASIC_LSTN_CH_14_15
ASIC_LISTEN_CH_12_13 → Y2 ASIC_LSTN_CH_12_13
ASIC_LISTEN_CH_10_11 → V10 ASIC_LSTN_CH_10_11
ASIC_LISTEN_CH_8_9 → AA11 ASIC_LSTN_CH_8_9
ASIC_LISTEN_CH_6_7 → K6 ASIC_LSTN_CH_6_7
ASIC_LISTEN_CH_4_5 → AA12 ASIC_LSTN_CH_4_5
ASIC_LISTEN_CH_2_3 → AA14 ASIC_LSTN_CH_2_3
ASIC_LISTEN_CH_0_1 → AA8 ASIC_LSTN_CH_0_1

8

KP_TALK_CH_14_15 → L3 KP_TALK_CH_14_15
KP_TALK_CH_12_13 → K4 KP_TALK_CH_12_13
KP_TALK_CH_10_11 → P3 KP_TALK_CH_10_11
KP_TALK_CH_8_9 → AA10 KP_TALK_CH_8_9
KP_TALK_CH_6_7 → V5 KP_TALK_CH_6_7
KP_TALK_CH_4_5 → T10 KP_TALK_CH_4_5
KP_TALK_CH_2_3 → W2 KP_TALK_CH_2_3
KP_TALK_CH_0_1 → AA15 KP_TALK_CH_0_1

30 29 25 24 20 19 15 14

+3.3V
RC05 10K
528032-004
22_4MHZ
1 OE
2 GND
3 OUT
4 PWR
XC02
+3.3V
FC01
TC06
RX_512X → V11 RX_512X

511424-002
UA01

ASIC_TALK_CH_14_15
ASIC_TALK_CH_12_13
ASIC_TALK_CH_10_11
ASIC_TALK_CH_8_9
ASIC_TALK_CH_6_7
ASIC_TALK_CH_4_5
ASIC_TALK_CH_2_3
ASIC_TALK_CH_0_1

8

KP_LSTN_CH_14_15 → 30
KP_LSTN_CH_12_13 → 29
KP_LSTN_CH_10_11 → 25
KP_LSTN_CH_8_9 → 24
KP_LSTN_CH_6_7 → 20
KP_LSTN_CH_4_5 → 19
KP_LSTN_CH_2_3 → 15
KP_LSTN_CH_0_1 → 14

CS4224_SCLK_D → 29,30
CS4224_SCLK_C → 24,25
CS4224_SCLK_B → 19,20
CS4224_SCLK_A → 14,15

CS4224_LRCK_CLK_D → 29,30
CS4224_LRCK_CLK_C → 24,25
CS4224_LRCK_CLK_B → 19,20
CS4224_LRCK_CLK_A → 14,15

CS4224_CS_L7 → 30
CS4224_CS_L6 → 29
CS4224_CS_L5 → 25
CS4224_CS_L4 → 24
CS4224_CS_L3 → 20
CS4224_CS_L2 → 19
CS4224_CS_L1 → 15
CS4224_CS_L0 → 14

CS4224_SER_CLK_D → 29,30
CS4224_SER_CLK_C → 24,25
CS4224_SER_CLK_B → 19,20
CS4224_SER_CLK_A → 14,15

CS4224_SER_DAT_D → 29,30
CS4224_SER_DAT_C → 24,25
CS4224_SER_DAT_B → 19,20
CS4224_SER_DAT_A → 14,15

CS3310_CS_L7_LV
CS3310_CS_L6_LV
CS3310_CS_L5_LV
CS3310_CS_L4_LV
CS3310_CS_L3_LV
CS3310_CS_L2_LV
CS3310_CS_L1_LV
CS3310_CS_L0_LV

5

CS3310_SER_CLK_D_LV
CS3310_SER_CLK_C_LV
CS3310_SER_CLK_B_LV
CS3310_SER_CLK_A_LV

5

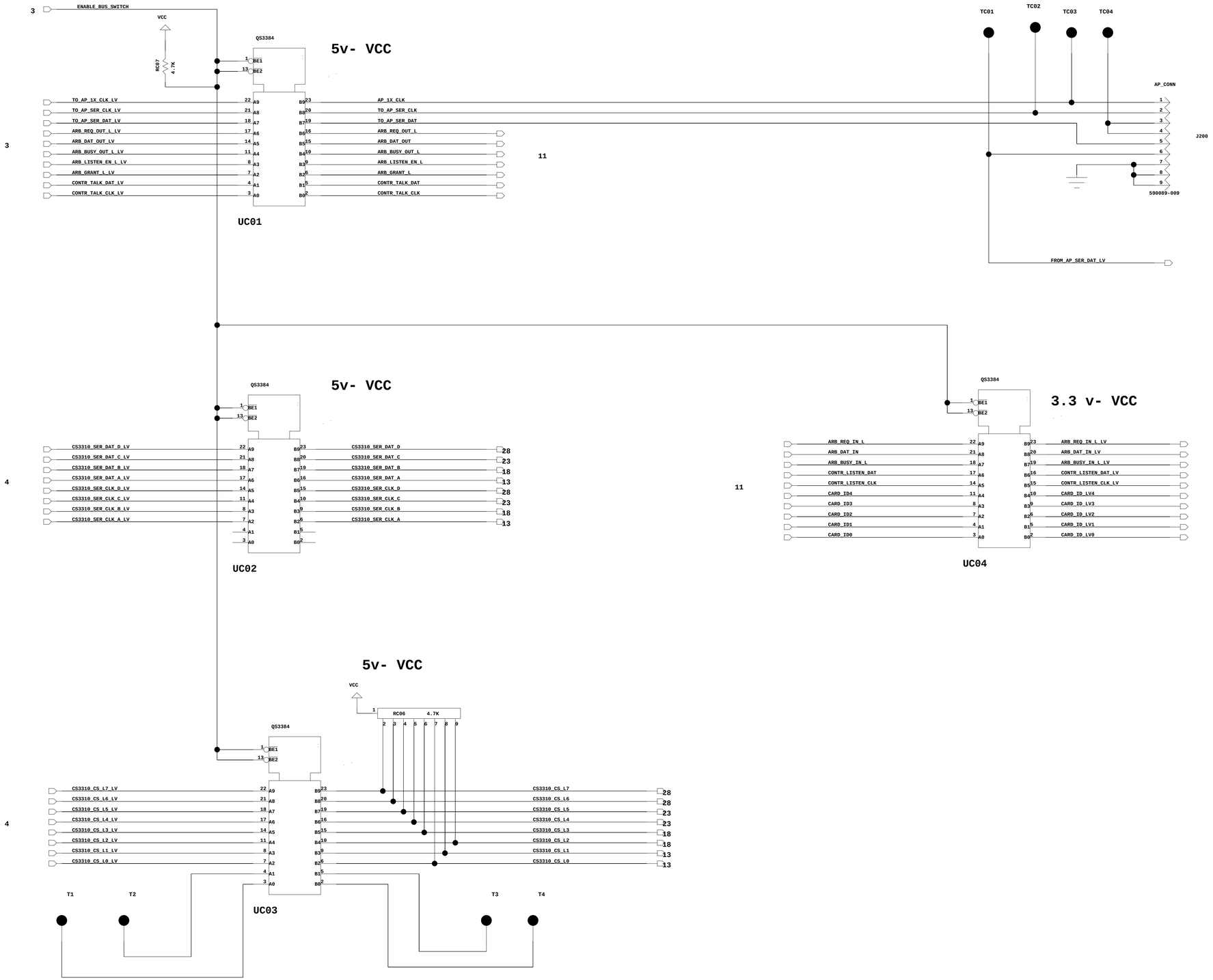
CS3310_SER_DAT_D_LV
CS3310_SER_DAT_C_LV
CS3310_SER_DAT_B_LV
CS3310_SER_DAT_A_LV

5

ASIC_SP_TALK_CLK
ASIC_SP_TALK_FS
ASIC_SP_TALK_SHIFT_EN
ASIC_SP_LISTEN_CLK
ASIC_SP_LISTEN_FS
ASIC_SP_LISTEN_SHIFT_EN

8

ADAM AIO-16 CARD SCHEMATIC	PAGE 4
DRAWING NO: 90277726000	REV H



Please ensure that the bus switch's VCC are tied to 5v and 3.3 V as needed

ADAM AIO-16 CARD SCHEMATIC	PAGE 5
DRAWING NO: 90277726000	REV H

RX_TDM_DAT[23:0]

RX_TDM_DAT_CMOS[23:0]

TD02

74FCT163374

OE2_L
OE1_L
CLK2
CLK1

RX_TDM_DAT23 RX_TDM_DAT22 RX_TDM_DAT21 RX_TDM_DAT20 RX_TDM_DAT19 RX_TDM_DAT18 RX_TDM_DAT17 RX_TDM_DAT16
RX_TDM_DAT15 RX_TDM_DAT14 RX_TDM_DAT13 RX_TDM_DAT12 RX_TDM_DAT11 RX_TDM_DAT10 RX_TDM_DAT9 RX_TDM_DAT8

RX_TDM_DAT_CMOS23 RX_TDM_DAT_CMOS22 RX_TDM_DAT_CMOS21 RX_TDM_DAT_CMOS20 RX_TDM_DAT_CMOS19 RX_TDM_DAT_CMOS18 RX_TDM_DAT_CMOS17 RX_TDM_DAT_CMOS16
RX_TDM_DAT_CMOS15 RX_TDM_DAT_CMOS14 RX_TDM_DAT_CMOS13 RX_TDM_DAT_CMOS12 RX_TDM_DAT_CMOS11 RX_TDM_DAT_CMOS10 RX_TDM_DAT_CMOS9 RX_TDM_DAT_CMOS8

UD02

511428-000

+3.3V

RD09 100

TD03

74FCT163374

OE2_L
OE1_L
CLK2
CLK1

RX_TDM_DAT7 RX_TDM_DAT6 RX_TDM_DAT5 RX_TDM_DAT4 RX_TDM_DAT3 RX_TDM_DAT2 RX_TDM_DAT1 RX_TDM_DAT0

RX_TDM_DAT_CMOS7 RX_TDM_DAT_CMOS6 RX_TDM_DAT_CMOS5 RX_TDM_DAT_CMOS4 RX_TDM_DAT_CMOS3 RX_TDM_DAT_CMOS2 RX_TDM_DAT_CMOS1 RX_TDM_DAT_CMOS0

TDM_START

UD03

511428-000

+3.3V

RD10 100

+3.3V +3.3V +3.3V

RD11 100
RD12 100
RD13 100

TD04 TD05

+3.3V

RD14 4.7K

H2

591693-000

NUCLEUS

511397-001

(BUS_PORT)

S0_TDM_START
TDM_CLOCK

S6_TDM_OE_A_L
S6_TDM_OE_B_L
S6_TDM_OE_C_L

S6_TDM_OE_L
S7_TDM_OE_L
S7_TS_FLAG_L

COMB_TDM_OE_L 7

TD08 TD09

TD06

TD07

TDM_IN31 TDM_IN30 TDM_IN29 TDM_IN28 TDM_IN27 TDM_IN26 TDM_IN25 TDM_IN24 TDM_IN23 TDM_IN22 TDM_IN21 TDM_IN20 TDM_IN19 TDM_IN18 TDM_IN17 TDM_IN16 TDM_IN15 TDM_IN14 TDM_IN13 TDM_IN12 TDM_IN11 TDM_IN10 TDM_IN9 TDM_IN8 TDM_IN7 TDM_IN6 TDM_IN5 TDM_IN4 TDM_IN3 TDM_IN2 TDM_IN1 TDM_IN0

TDM_OUT31 TDM_OUT30 TDM_OUT29 TDM_OUT28 TDM_OUT27 TDM_OUT26 TDM_OUT25 TDM_OUT24 TDM_OUT23 TDM_OUT22 TDM_OUT21 TDM_OUT20 TDM_OUT19 TDM_OUT18 TDM_OUT17 TDM_OUT16 TDM_OUT15 TDM_OUT14 TDM_OUT13 TDM_OUT12 TDM_OUT11 TDM_OUT10 TDM_OUT9 TDM_OUT8 TDM_OUT7 TDM_OUT6 TDM_OUT5 TDM_OUT4 TDM_OUT3 TDM_OUT2 TDM_OUT1 TDM_OUT0

TX_TDM_DATA23 TX_TDM_DATA22 TX_TDM_DATA21 TX_TDM_DATA20 TX_TDM_DATA19 TX_TDM_DATA18 TX_TDM_DATA17 TX_TDM_DATA16 TX_TDM_DATA15 TX_TDM_DATA14 TX_TDM_DATA13 TX_TDM_DATA12 TX_TDM_DATA11 TX_TDM_DATA10 TX_TDM_DATA9 TX_TDM_DATA8 TX_TDM_DATA7 TX_TDM_DATA6 TX_TDM_DATA5 TX_TDM_DATA4 TX_TDM_DATA3 TX_TDM_DATA2 TX_TDM_DATA1 TX_TDM_DATA0

TD11 TD10

TX_TDM_DATA[23:0] 7

UD04

Note: Nucleus (UD04) should be placed as close as possible to UD02, UD03, UE01 and UE02

+3.3V

RD01 4.7K
RD02 4.7K
RD03 4.7K
RD04 4.7K

RD05 0
RD06 0
RD07 0
RD08 0
RD18 0
RD19 0

+3.3V

RD17 4.7K

CY7B991V

511421-000

FEEDBACK
FS
TEST
4F1
4F0
3F1
3F0
2F1
2F0
1F1
1F0
REF

4Q1 4Q0 3Q1 3Q0 2Q1 2Q0 1Q1 1Q0

TDM_CLOCK

UD01

NOTE: THE SIX SIGNALS DRIVEN BY THE CY7B991 MUST BE ROUTED AS A DAISY CHAIN WITH THE 100 OHM RESISTOR AS THE LAST POINT IN THE CHAIN (ECL-STYLE)

TD01

11 RX_TDM_CLK_DIV2

7 RX_TDM_START

TDM_DAT_CLK_A 7

TDM_DAT_CLK_B 7

Use upper 24 bits of the TDM bus, that is from 8 to 31

ADAM AIO-16 CARD SCHEMATIC	PAGE 6
DRAWING NO: 90277726000	REV H

Note: The LVTTL/BTL chips should be placed
as close to the connector as possible

6 COMB_TDM_OE_L
6 TDM_DAT_CLK_A
3 CLKS_TO_BUS_TX_EN_L_LV
6 TDM_DAT_CLK_B

TE01

+3.3V RE01 4.7K
+3.3V RE02 4.7K
+3.3V RE03 4.7K
+3.3V RE04 4.7K
+3.3V RE05 4.7K

SN74FB1653
511429-000

1OEB 81
1OEB_L 80
1CLKAB 83
1LEAB 82
1OEA 87
1OEA_L 86
1CLKBA 84
1LEBA 85
2OEB 45
2OEB_L 46
2CLKAB 43
2LEAB 44
2OEA 39
2OEA_L 40
2CLKBA 42
2LEBA 41
2SEL2 63
2SEL1 48
2CLK 14
2CLKAB_L 62

1B8 64 BUS_TDM_DAT_L23
1B7 66 BUS_TDM_DAT_L22
1B6 67 BUS_TDM_DAT_L21
1B5 69 BUS_TDM_DAT_L20
1B4 70 BUS_TDM_DAT_L19
1B3 72 BUS_TDM_DAT_L18
1B2 73 BUS_TDM_DAT_L17
1B1 75 BUS_TDM_DAT_L16
1B0 76

1AI8 12
TX_TDM_DATA23 1AI7 10
TX_TDM_DATA22 1AI6 7
TX_TDM_DATA21 1AI5 5
TX_TDM_DATA20 1AI4 100
TX_TDM_DATA19 1AI3 98
TX_TDM_DATA18 1AI2 95
TX_TDM_DATA17 1AI1 93
TX_TDM_DATA16 1AI0 90

1AO8 11
1AO7 9 RX_TDM_DAT23
1AO6 6 RX_TDM_DAT22
1AO5 4 RX_TDM_DAT21
1AO4 99 RX_TDM_DAT20
1AO3 97 RX_TDM_DAT19
1AO2 94 RX_TDM_DAT18
1AO1 92 RX_TDM_DAT17
1AO0 89 RX_TDM_DAT16

TE03

2B7 50 BUS_TDM_DAT_L15
2B6 51 BUS_TDM_DAT_L14
2B5 53 BUS_TDM_DAT_L13
2B4 54 BUS_TDM_DAT_L12
2B3 56 BUS_TDM_DAT_L11
2B2 57 BUS_TDM_DAT_L10
2B1 59 BUS_TDM_DAT_L9
2B0 60 BUS_TDM_DAT_L8

2AI7 37
TX_TDM_DATA15 2AI6 34
TX_TDM_DATA14 2AI5 32
TX_TDM_DATA13 2AI4 29
TX_TDM_DATA12 2AI3 27
TX_TDM_DATA11 2AI2 22
TX_TDM_DATA10 2AI1 20
TX_TDM_DATA9 2AI0 17
TX_TDM_DATA8

2AO7 36 RX_TDM_DAT15
2AO6 33 RX_TDM_DAT14
2AO5 31 RX_TDM_DAT13
2AO4 28 RX_TDM_DAT12
2AO3 26 RX_TDM_DAT11
2AO2 21 RX_TDM_DAT10
2AO1 19 RX_TDM_DAT9
2AO0 16 RX_TDM_DAT8

TE02

UE01

+3.3V RE18 4.7K
+3.3V RE06 4.7K
+3.3V RE07 4.7K
+3.3V RE08 4.7K
+3.3V RE09 4.7K
+3.3V RE10 4.7K

SN74FB1653
511429-000

1OEB 81
1OEB_L 80
1CLKAB 83
1LEAB 82
1OEA 87
1OEA_L 86
1CLKBA 84
1LEBA 85
2OEB 45
2OEB_L 46
2CLKAB 43
2LEAB 44
2OEA 39
2OEA_L 40
2CLKBA 42
2LEBA 41
2SEL2 63
2SEL1 48
2CLK 14
2CLKAB_L 62

1B8 64 BUS_TDM_DAT_L7
1B7 66 BUS_TDM_DAT_L6
1B6 67 BUS_TDM_DAT_L5
1B5 69 BUS_TDM_DAT_L4
1B4 70 BUS_TDM_DAT_L3
1B3 72 BUS_TDM_DAT_L2
1B2 73 BUS_TDM_DAT_L1
1B1 75 BUS_TDM_DAT_L0
1B0 76

1AI8 12
TX_TDM_DATA7 1AI7 10
TX_TDM_DATA6 1AI6 7
TX_TDM_DATA5 1AI5 5
TX_TDM_DATA4 1AI4 100
TX_TDM_DATA3 1AI3 98
TX_TDM_DATA2 1AI2 95
TX_TDM_DATA1 1AI1 93
TX_TDM_DATA0 1AI0 90

1AO8 11
1AO7 9 RX_TDM_DAT7
1AO6 6 RX_TDM_DAT6
1AO5 4 RX_TDM_DAT5
1AO4 99 RX_TDM_DAT4
1AO3 97 RX_TDM_DAT3
1AO2 94 RX_TDM_DAT2
1AO1 92 RX_TDM_DAT1
1AO0 89 RX_TDM_DAT0

+3.3V
RE11 4.7K
RE12 4.7K
RE13 4.7K
RE14 4.7K
RE15 4.7K

2B7 50 BUS_TX_256X_L 11
2B6 51 BUS_TX_1X_L 11
2B5 53 BUS_TX_TDM_START_L 11
2B4 54
2B3 56
2B2 57
2B1 59
2B0 60

2AI7 37
2AI6 34
2AI5 32
2AI4 29
2AI3 27
2AI2 22
2AI1 20
2AI0 17

2AO7 36 RX_256X 10
2AO6 33 RX_1X 10
2AO5 31 RX_TDM_START 10
2AO4 28
2AO3 26
2AO2 21
2AO1 19
2AO0 16

UE02

6 TX_TDM_DATA[23:0]
6 RX_TDM_DAT[23:0]
11 BUS_TDM_DAT_L[23:0]
10 TX_256X
3 TX_1X
8 NUCLEUS_TDM_START

ADAM AIO-16 CARD SCHEMATIC	PAGE 7
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TF01 TF02 TF03

ASIC_SP_TALK_CLK
ASIC_SP_TALK_FS
ASIC_SP_TALK_SHIFT_EN

TF04 TF05 TF31

ASIC_SP_LISTEN_CLK
ASIC_SP_LISTEN_FS
ASIC_SP_LISTEN_SHIFT_EN

TF06 TF07 TF08 TF09

ASIC_TALK_CH_14_15
ASIC_TALK_CH_12_13
ASIC_TALK_CH_10_11
ASIC_TALK_CH_8_9
ASIC_TALK_CH_6_7
ASIC_TALK_CH_4_5
ASIC_TALK_CH_2_3
ASIC_TALK_CH_0_1

TF30 TF10 TF11 TF12

NUCLEUS
511397-001
(SERIAL PORTS)

T02	SP_TALK_CLOCK		
U02	SP_TALK_FS		
U03	SP_TALK_SHIFT_EN		
U01	SP_LISTEN_CLOCK		
U04	SP_LISTEN_FS		
V02	SP_LISTEN_SHIFT_EN		
E04	SER_IN15	SER_OUT15	K02
D02	SER_IN14	SER_OUT14	K03
E03	SER_IN13	SER_OUT13	L04
E01	SER_IN12	SER_OUT12	L02
E02	SER_IN11	SER_OUT11	M03
F03	SER_IN10	SER_OUT10	M01
F02	SER_IN9	SER_OUT9	M02
G04	SER_IN8	SER_OUT8	N02
G02	SER_IN7	SER_OUT7	N03
G03	SER_IN6	SER_OUT6	N01
H01	SER_IN5	SER_OUT5	P03
H02	SER_IN4	SER_OUT4	P01
H03	SER_IN3	SER_OUT3	R03
J04	SER_IN2	SER_OUT2	R02
J03	SER_IN1	SER_OUT1	R04
K01	SER_IN0	SER_OUT0	R01

UD04

TF14 TF16 TF17 TF19
TF13 TF15 TF29 TF18

ASIC_LISTEN_CH_14_15
ASIC_LISTEN_CH_12_13
ASIC_LISTEN_CH_10_11
ASIC_LISTEN_CH_8_9
ASIC_LISTEN_CH_6_7
ASIC_LISTEN_CH_4_5
ASIC_LISTEN_CH_2_3
ASIC_LISTEN_CH_0_1

74LV08A

RF5 0 — 12, 13 — 11
RF6 0
UF01
511430-000

74LV08A

RF7 0 — 9, 10 — 8
RF8 0
UF01
511430-000

TX_1X

+3.3V
RF10 10K

NUCLEUS
Misc. Port

W04	1X_IN	TDM_START_OUT	AC18 → NUCLEUS_TDM_START → 3,7
C20	NAND_TREE_EN	S7_DEAD_ZONE	D11
		S7_TEST_MODE	AC17
		S10_TEST_COMPARE	Y17
		NAND_TREE_OUT	Y02
A21	SCAN_RESET	SCAN_TEST_OUT	B21 → SCAN_TEST_OUT → 3
D21	SCAN_ENABLE		
C22	SCAN_MODE		

511397-001
UD04

TF24 TF25 TF26 TF27 TF28

SCAN_RESET
SCAN_ENABLE
SCAN_MODE

+3.3V +3.3V +3.3V
RF01 10K
RF02 10K
RF03 10K

TF20 TF21 TF22

NUCLEUS
(CONTROL PORT)

A03	CONTR_CS_L	S10_TDM_MSG_RXD	AA17 → TDM_MSG_RXD
C13	CONTR_RD_STB_L		
A13	CONTR_WR_STB_L		
C14	ADDR1	CONTR_DAT15	C09 D_UB15
D13	ADDR0	CONTR_DAT14	B09 D_UB14
		CONTR_DAT13	D09 D_UB13
		CONTR_DAT12	A09 D_UB12
		CONTR_DAT11	C08 D_UB11
		CONTR_DAT10	B08 D_UB10
		CONTR_DAT9	C07 D_UB9
		CONTR_DAT8	D07 D_UB8
		CONTR_DAT7	A07 D_UB7
		CONTR_DAT6	B06 D_UB6
		CONTR_DAT5	A06 D_UB5
		CONTR_DAT4	C06 D_UB4
		CONTR_DAT3	A05 D_UB3
		CONTR_DAT2	B04 D_UB2
		CONTR_DAT1	A04 D_UB1
		CONTR_DAT0	C04 D_UB0
Y01	RESET_L	STATUS1	A14 ASIC_CP_STATUS1
		STATUS0	B14 ASIC_CP_STATUS0
		OVFL_INT_L	AA16

511397-001
UD04

A_UB[20:0]
A_UB3
A_UB2

ARES_L

+3.3V
RF04 10K

74LV08A
UF01
511430-000

ASIC_RESET_L

TF23

TF34 TF32 TF33

D_UB[31:0] → 1,2,32,33,37
ASIC_CP_STATUS[1:0] → 4
ASIC_OVRFLOW_INT_L → 4

ASIC_CP_STATUS1
ASIC_CP_STATUS0

ASIC_CP_CS_L
ASIC_CP_RD_L
ASIC_CP_WR_L

ADAM AIO-16 CARD SCHEMATIC	PAGE 8
DRAWING NO: 90277726000	REV H

3

+3.3V +3.3V +3.3V

RG04 4.7K
RG05 4.7K
RG06 4.7K

TG05 TG06 TG07

ASIC_PP_CS_L
ASIC_PP_WR_L
ASIC_PP_RD_L

W03 PP_CS_L
V01 PP_WR_STB_L
W02 PP_RD_STB_L

NUCLEUS
511397-001
(PARALLEL PORT)

UD04

CL_PAR_DAT31	Y03	PAR_PORT31
CL_PAR_DAT30	AC04	PAR_PORT30
CL_PAR_DAT29	AA05	PAR_PORT29
CL_PAR_DAT28	AC05	PAR_PORT28
CL_PAR_DAT27	AB05	PAR_PORT27
CL_PAR_DAT26	AA06	PAR_PORT26
CL_PAR_DAT25	AC06	PAR_PORT25
CL_PAR_DAT24	AB06	PAR_PORT24
CL_PAR_DAT23	Y07	PAR_PORT23
CL_PAR_DAT22	AA07	PAR_PORT22
CL_PAR_DAT21	AC08	PAR_PORT21
CL_PAR_DAT20	AB08	PAR_PORT20
CL_PAR_DAT19	AA08	PAR_PORT19
CL_PAR_DAT18	AC09	PAR_PORT18
CL_PAR_DAT17	Y09	PAR_PORT17
CL_PAR_DTA16	AA09	PAR_PORT16
CL_PAR_DAT15	AB10	PAR_PORT15
CL_PAR_DAT14	AA10	PAR_PORT14
CL_PAR_DAT13	Y11	PAR_PORT13
CL_PAR_DAT12	AC11	PAR_PORT12
CL_PAR_DAT11	AB11	PAR_PORT11
CL_PAR_DAT10	AA12	PAR_PORT10
CL_PAR_DAT9	AB12	PAR_PORT9
CL_PAR_DAT8	AB13	PAR_PORT8
CL_PAR_DAT7	AA13	PAR_PORT7
CL_PAR_DAT6	AC13	PAR_PORT6
CL_PAR_DAT5	Y13	PAR_PORT5
CL-PAR_DAT4	AA14	PAR_PORT4
CL_PAR_DAT3	AC14	PAR_PORT3
CL_PAR_DAT2	AB15	PAR_PORT2
CL_PAR_DAT1	Y15	PAR_PORT1
CL_PAR_DAT0	AC15	PAR_PORT0

EP20K160EFC484-2X

ASIC_PP_DATA31	B8	PAR_PORT31
ASIC_PP_DATA30	B15	PAR_PORT30
ASIC_PP_DATA29	B5	PAR_PORT29
ASIC_PP_DATA28	B17	PAR_PORT28
ASIC_PP_DATA27	B20	PAR_PORT27
ASIC_PP_DATA26	E3	PAR_PORT26
ASIC_PP_DATA25	E4	PAR_PORT25
ASIC_PP_DATA24	E3	PAR_PORT24
ASIC_PP_DATA23	E21	PAR_PORT23
ASIC_PP_DATA22	E18	PAR_PORT22
ASIC_PP_DATA21	F20	PAR_PORT21
ASIC_PP_DATA20	H16	PAR_PORT20
ASIC_PP_DATA19	K15	PAR_PORT19
ASIC_PP_DATA18	J20	PAR_PORT18
ASIC_PP_DATA17	M17	PAR_PORT17
ASIC_PP_DATA16	M2	PAR_PORT16
ASIC_PP_DATA15	L3	PAR_PORT15
ASIC_PP_DATA14	U2	PAR_PORT14
ASIC_PP_DATA13	AA4	PAR_PORT13
ASIC_PP_DATA12	C4	PAR_PORT12
ASIC_PP_DATA11	E8	PAR_PORT11
ASIC_PP_DATA10	C7	PAR_PORT10
ASIC_PP_DATA9	G13	PAR_PORT9
ASIC_PP_DATA8	C18	PAR_PORT8
ASIC_PP_DATA7	G17	PAR_PORT7
ASIC_PP_DATA6	E17	PAR_PORT6
ASIC_PP_DATA5	E16	PAR_PORT5
ASIC_PP_DATA4	C16	PAR_PORT4
ASIC_PP_DATA3	E14	PAR_PORT3
ASIC_PP_DATA2	C11	PAR_PORT2
ASIC_PP_DATA1	J12	PAR_PORT1
ASIC_PP_DATA0	H13	PAR_PORT0

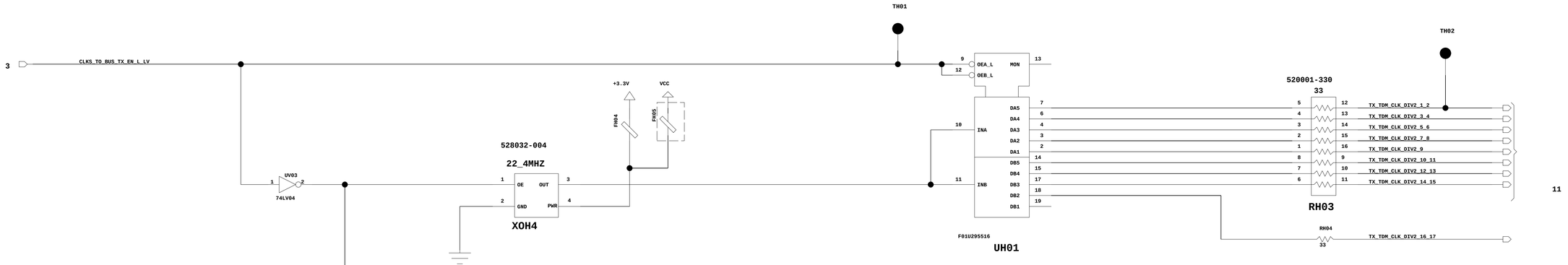
511424-002

UA01

PAR_PORT[31:0]

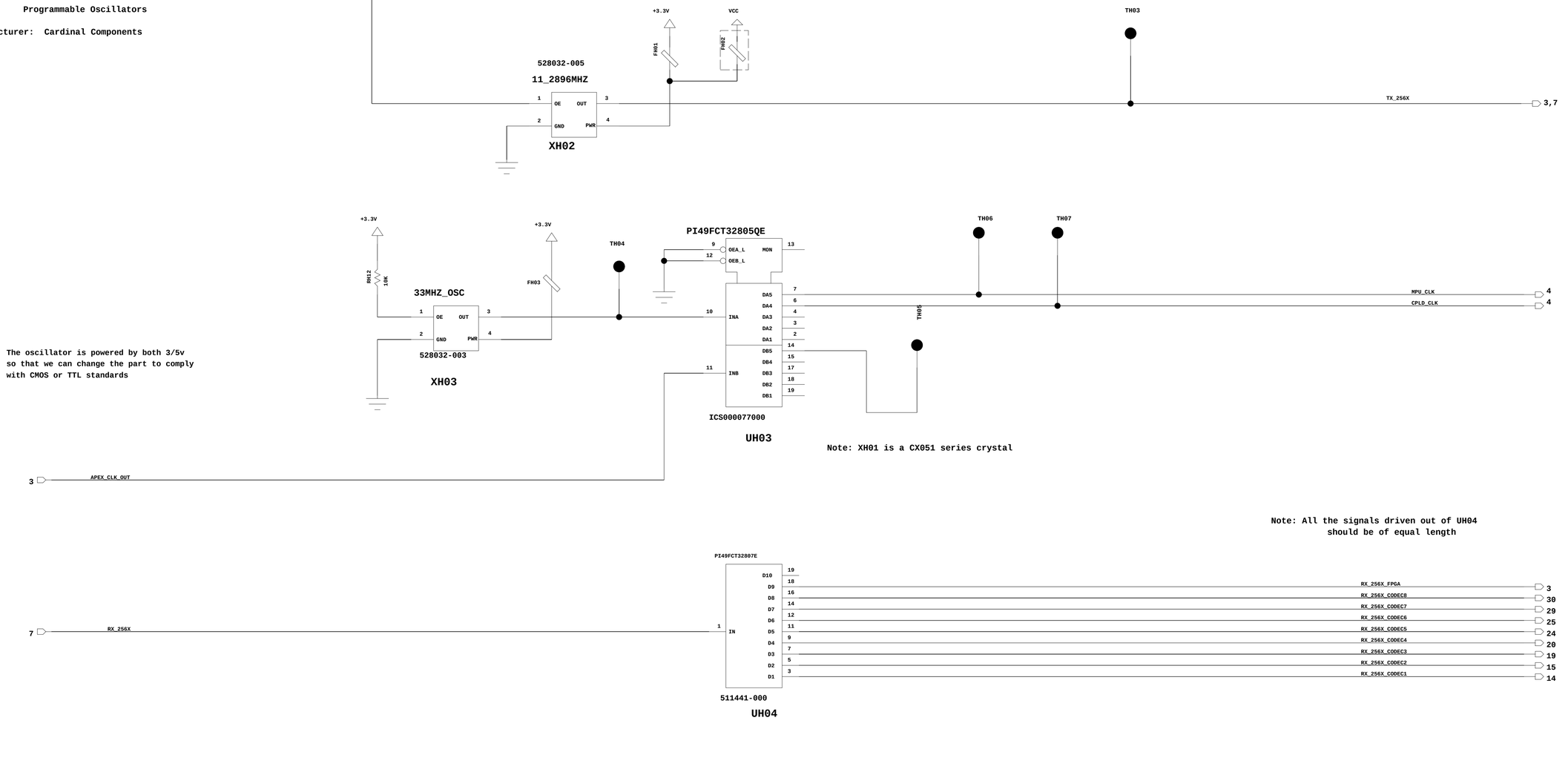
ADAM AIO-16 CARD SCHEMATIC	PAGE 9
DRAWING NO: 90277726000	REV H

Does the clock buffer need to be a 5v Part
to reduce propogation delay on the back plane????
Since the clock path is used only by the AIO card, FCT3805 should be fine



Note: XH02, XH03, XH04 are CPP series
Programmable Oscillators

Manufacturer: Cardinal Components



The oscillator is powered by both 3/5v
so that we can change the part to comply
with CMOS or TTL standards

Note: XH01 is a CX051 series crystal

Note: All the signals driven out of UH04
should be of equal length

ADAM AIO-16 CARD SCHEMATIC	PAGE 10
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BUS_TDM_DAT_L[23:0]

BUS_TX_TDM_START_L

BUS_TX_1X_L

BUS_TX_256X_L

CONN_VCC

39

TI18

7

3

5

SN74ABT125D
514007-001

UI01

TI01 TI02 TI03

VCC

RI12 4.7K
RI13 4.7K
RI14 4.7K

ARB_REQ_OUT_L
ARB_DAT_OUT
ARB_BUSY_OUT_L

BUS_ARB_REQ_L
BUS_ARB_DAT
BUS_ARB_BUSY_L

RI01 0
RI02 0

TI04 TI05 TI06

J300

CONN110
539046-000

CONN_-15V
CONN_+15V

BUS_ARB_REQ_L
BUS_MSG_CLK
BUS_ARB_DAT
BUS_MSG_DAT
BUS_ARB_BUSY_L
BUS_ACK_CLK
BUS_ACK_DAT

AGND AGND

SN74ABT125D
514007-001

UI03

RI07 0
RI08 0
RI09 0
RI10 0
RI11 0

BUS_ARB_REQ_L
BUS_ARB_DAT
BUS_ARB_BUSY_L

ARB_REQ_IN_L
ARB_DAT_IN
ARB_BUSY_IN_L

TI19 TI20 TI21

SN74ABT125D
514007-001

UI02

TI12 TI13

CONTR_TALK_DAT
CONTR_TALK_CLK

BUS_MSG_DAT
BUS_MSG_CLK
BUS_ACK_DAT
BUS_ACK_CLK

TI10 TI11

TI16 TI17

SN74ABT125D
514007-001

UI04

BUS_MSG_DAT
BUS_MSG_CLK
BUS_ACK_DAT
BUS_ACK_CLK

CONTR_LISTEN_DAT
CONTR_LISTEN_CLK

TI23 TI24

VCC VCC

RI03 4.7K
RI04 4.7K

TI14 TI15

ARB_LISTEN_EN_L
ARB_GRANT_L

RX_TDM_CLK_DIV2

6

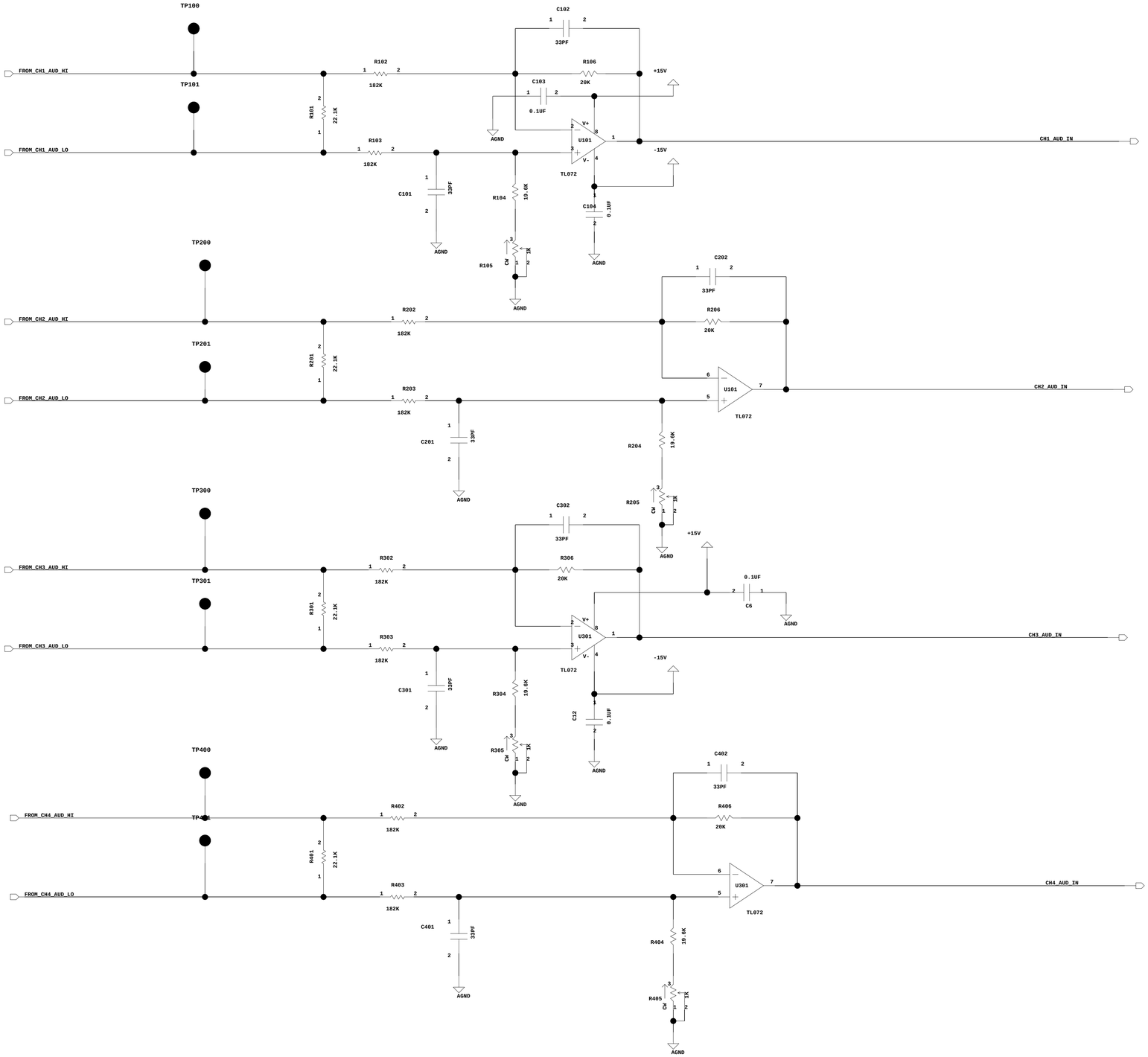
CARD_ID[4:0]

3

10

TX_TDM_CLK_DIV2_1_2
TX_TDM_CLK_DIV2_3_4
TX_TDM_CLK_DIV2_5_6
TX_TDM_CLK_DIV2_7_8
TX_TDM_CLK_DIV2_9
TX_TDM_CLK_DIV2_10_11
TX_TDM_CLK_DIV2_12_13
TX_TDM_CLK_DIV2_14_15
TX_TDM_CLK_DIV2_16_17

ADAM AIO-16 CARD SCHEMATIC	PAGE 11
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@SHEET=12

ADAM AIO-16 CARD SCHEMATIC	PAGE 12
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5

CS3310_SER_DAT_A
CS3310_SER_CLK_A
CS3310_CS_L0

T100 T200

12 CH1_AUD_IN
12 CH2_AUD_IN

+5V_ANALOG_CH_1_2
-5V_ANALOG_CH_1_2

R107 10
0.1UF C109
C105 10UF 25V
C106 0.1UF
C110 0.1UF
25V 10UF C111
C107 0.1UF
C108 10UF 25V
AGND

U100
SDATAO 7
SDATAI 3
SCK 6
CS 2
MUTE 8
ZCEN 1
VD+ 4
DGND 5
VA+ 12
VA- 13
AINL 16
AGNDL 15
AINR 9
AGNDR 10
AOUTL 14
AOUTR 11
CS3310
511072-000

FROM_CH1_AUD 14
FROM_CH2_AUD 14

T103 T203

T300 T400

12 CH3_AUD_IN
12 CH4_AUD_IN

+5V_ANALOG_CH_3_4
-5V_ANALOG_CH_3_4

R307 10
0.1UF C309
C305 10UF 25V
C306 0.1UF
C310 0.1UF
25V 10UF C311
C307 0.1UF
C308 10UF 25V
AGND

U300
SDATAO 7
SDATAI 3
SCK 6
CS 2
MUTE 8
ZCEN 1
VD+ 4
DGND 5
VA+ 12
VA- 13
AINL 16
AGNDL 15
AINR 9
AGNDR 10
AOUTL 14
AOUTR 11
CS3310
511072-000

FROM_CH3_AUD 14
FROM_CH4_AUD 14

T303 T403

4 CS3310_CS_L1

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DRAWING NO: 90277726000	REV H

T114 T115 T116 T117 T118 T119 T120

38 RESET_CODECS_L
4 CS4224_CS_L0
10 RX_256X_CODEC1
CS4224_LRCK_CLK_A
CS4224_SCLK_A
4 CS4224_SER_CLK_A
CS4224_SER_DAT_A
KP_LSTN_CH_0_1

+3.3V VCC
FL1 FL2
CL1 0.1UF
CL2 1.0UF_25V

T190
R119 150
KP_TALK_CH_0_1 4

1 Ct1 68PF

T111 T112

U105
CS4224
511356-000

27 RST
12 AD0/CS_L
18 I2C/SPI_L
2 XTO
3 XTI
4 LRCK
5 SCLK
10 SCL/CCLK
11 SDA/CDIN
9 SDIN
SDOUT 8
13 VL
1 NC1
14 NC2
15 NC3
28 NC4
17 AINR+
16 AINR-
AOUTR- 23
AOUTR+ 24
20 AINL+
19 AINL-
AOUTL- 26
AOUTL+ 25
6 VD
7 DGND
VA 21
AGND 22

R115 0
R116 150
R117 150
R118 150

T109 T110 T209 T210 T211 T212

13 FROM_CH1_AUD
C112 10UF 35V
R109 10K
R108 47.5K
AGND

C113 47PF
R110 10K
+5V_ANALOG_CH_1_2
C114 0.1UF
U102 LM833
-5V_ANALOG_CH_1_2
C115 0.1UF

C116 10PF
R112 10K
R111 10K
U102 LM833
R113 150
C117 2200PF
R114 150

13 FROM_CH2_AUD
C212 10UF 35V
R209 10K
R208 47.5K
AGND

C213 47PF
R210 10K
+5V_ANALOG_CH_1_2
C214 0.1UF
U202 LM833
-5V_ANALOG_CH_1_2
C215 0.1UF

C216 10PF
R212 10K
R211 10K
U202 LM833
R213 150
C217 2200PF
R214 150

+5V_ANALOG_CH_1_2
R131 10K
R130 8.2K
C139 47UF 35V
C140 0.1UF
AGND

C127 0.1UF
C128 1.0UF_25V
R128
C129 0.1UF
C130 1.0UF_25V
FP1

R120 2.8K
R122 11K
R124 2.8K
C118 2200PF
C120 2200PF
R127 14K
C124 220PF
+5V_ANALOG_CH_1_2
C123 0.1UF
U106 LM833
-5V_ANALOG_CH_1_2
C125 0.1UF
C126 10UF 35V
R132 47.5K
CH1_AUD_OUT 16

R121 2.8K
R123 11K
R125 2.8K
C119 2200PF
C121 2200PF
R126 14K
C122 220PF

R220 2.8K
R222 11K
R224 2.8K
C218 2200PF
C220 2200PF
R227 14K
C224 220PF
U106 LM833
C226 10UF 35V
R232 47.5K
CH2_AUD_OUT 16

R221 2.8K
R223 11K
R225 2.8K
C219 2200PF
C221 2200PF
R226 14K
C222 220PF

+6V
558012-003
LT1117-5
U103
IN OUT ADJ
C131 330UF 25V
C132 10UF 25V
C133 0.1UF
C134 0.1UF

-15V
LM79L05
558009-205
U104
VIN1 VIN2 VIN3 VIN4 OUT GND
C135 33UF 25V
C136 10UF 25V
C137 0.1UF
C138 0.1UF
C140 10UF 25V

1 NOT INSTALLED

ADAM AIO-16 CARD SCHEMATIC	PAGE 14
DRAWING NO: 90277726000	REV H

T314 T315 T320

38 RESET_CODECS_L
4 CS4224_CS_L1
10 RX_256X_CODEC2
CS4224_LRCK_CLK_A
CS4224_SCLK_A
5 CS4224_SER_CLK_A
CS4224_SER_DAT_A
KP_LSTN_CH_2_3

+3.3V VCC
FL3 FL4
CL3 0.1UF
CL4 1.0UF_25V

T390
R319 150
KP_TALK_CH_2_3 4

1 C12 2 68PF

T311 T312

U305
CS4224
511356-000
RST AD0/CS_L I2C/SPI_L XTO XTI LRCK SCLK SCL/CCLK SDA/CDIN
VL NC1 NC2 NC3 NC4
SDIN SDOUT
AINR+ AINR- AINL+ AINL- AOUTR- AOUTR+ AOUTL- AOUTL+
VD DGND VA AGND

T309 T310 T409 T410 T411 T412

13 FROM_CH3_AUD
C312 10UF 35V
R309 10K
R308 47.5K
C313 47PF
R310 10K +5V_ANALOG_CH_3_4
C314 0.1UF
U302 V+ V- -5V_ANALOG_CH_3_4
LM833 0.1UF C315
C316 10PF
R312 10K
U302 LM833
R311 10K
R315 0
R316 150
R317 150
R313 150
C317 2200PF
R314 150
R318 150

13 FROM_CH4_AUD
C412 10UF 35V
R409 10K
R408 47.5K
C413 47PF
R410 10K +5V_ANALOG_CH_3_4
C414 0.1UF
U402 V+ V- -5V_ANALOG_CH_3_4
LM833 0.1UF C415
C416 10PF
R412 10K
U402 LM833
R411 10K
R413 150
C4017 2200PF
R414 150

+5V_ANALOG_CH_3_4
R331 10K
8.2K R330
C339 47UF 35V
C340 0.1UF
C327 0.1UF
C328 1.0UF_25V
R328
C329 0.1UF
C330 1.0UF_25V
FP2

R320 2.8K
R322 11K
R324 2.8K
R327 14K
C324 220PF +5V_ANALOG_CH_3_4
C323 0.1UF
U306 V+ V- -5V_ANALOG_CH_3_4
LM833 C325 0.1UF
C318 2200PF
C320 2200PF
C326 10UF 35V
R332 47.5K
CH3_AUD_OUT 16

R321 2.8K
R323 11K
R325 2.8K
C319 2200PF
C321 2200PF
R328 14K
C322 220PF

R420 2.8K
R422 11K
R424 2.8K
R427 14K
C424 220PF
U306
LM833
C418 2200PF
C420 2200PF
C426 10UF 35V
R432 47.5K
CH4_AUD_OUT 16

R421 2.8K
R423 11K
R425 2.8K
C419 2200PF
C421 2200PF
R426 14K
C422 220PF

AGND

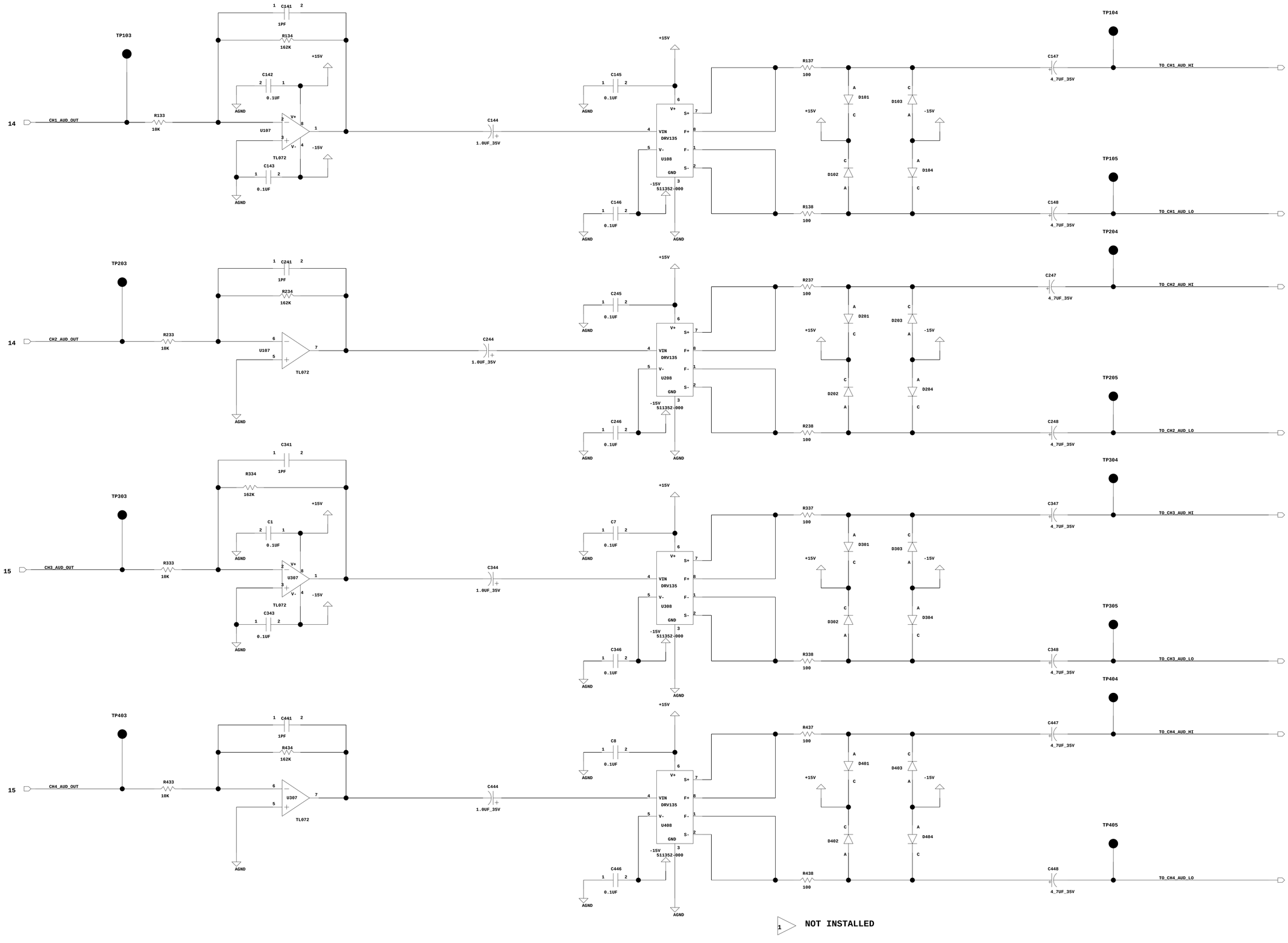
+6V
558012-003
LT1117-5
U303 IN OUT ADJ
C331 330UF 25V
C332 100UF 25V
C333 0.1UF
C334 0.1UF

-15V
LM79L05
558009-205
U304 VIN1 VIN2 VIN3 VIN4 OUT GND
C335 330UF 25V
C336 10UF 25V
C337 0.1UF
C338 0.1UF
C340 10UF 25V
-5V_ANALOG_CH_3_4

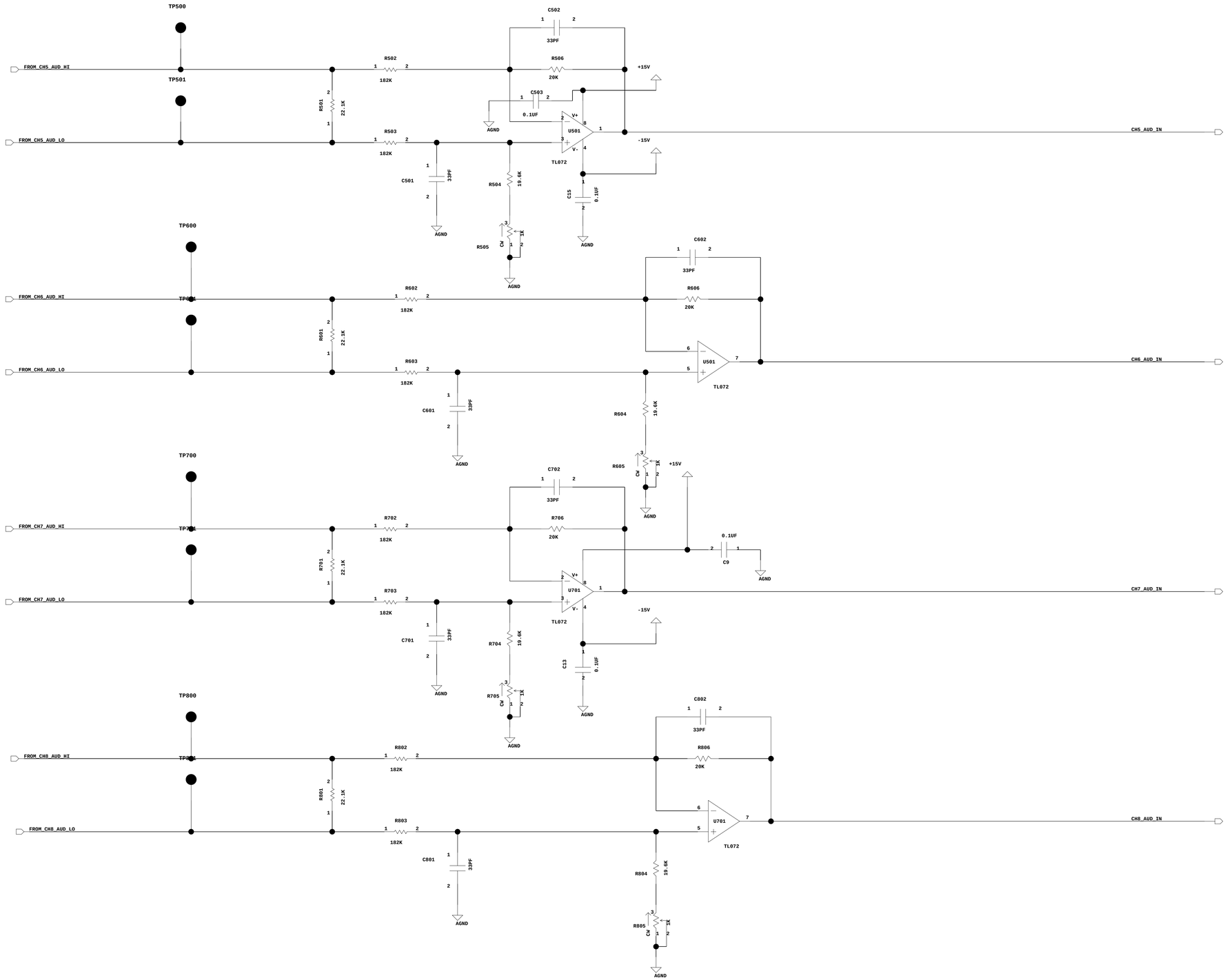
1 NOT INSTALLED

SCHEMATIC	PAGE 15
DRAWING NO: 90277726000	REV H

ADAM AIO-16 CARD



ADAM AIO-16 CARD SCHEMATIC	PAGE 16
DRAWING NO: 90277726000	REV H



ADAM AIO-16 CARD SCHEMATIC	PAGE 17
DRAWING NO: 90277726000	REV H

4

CS3310_SER_DAT_B

CS3310_SER_CLK_B

CS3310_CS_L2

T502

T602

17 CH5_AUD_IN

17 CH6_AUD_IN

+5V_ANALOG_CH_5_6

-5V_ANALOG_CH_5_6

R507 10

C505 10UF 25V

C506 0.1UF

0.1UF C509

C510 0.1UF

25V 10UF C511

C507 0.1UF

C508 10UF 25V

AGND

U500

7	SDATAO	VD+	4
3	SDATAI	DGND	5
6	SCK		
2	CS		
8	MUTE	VA+	12
1	ZCEN	VA-	13
16	AINL	AOUTL	14
15	AGNDL		
9	AINR	AOUTR	11
10	AGNDR		

CS3310

511072-000

FROM_CH5_AUD 19

FROM_CH6_AUD 19

T503

T603

T702

T802

17 CH7_AUD_IN

17 CH8_AUD_IN

+5V_ANALOG_CH_7_8

-5V_ANALOG_CH_7_8

R707 10

C705 10UF 25V

C706 0.1UF

0.1UF C709

C710 0.1UF

25V 10UF C711

C707 0.1UF

C708 10UF 25V

AGND

U700

7	SDATAO	VD+	4
3	SDATAI	DGND	5
6	SCK		
2	CS		
8	MUTE	VA+	12
1	ZCEN	VA-	13
16	AINL	AOUTL	14
15	AGNDL		
9	AINR	AOUTR	11
10	AGNDR		

CS3310

511072-000

FROM_CH7_AUD 20

FROM_CH8_AUD 20

T703

T803

4 CS3310_CS_L3

SCHEMATIC	PAGE 18
DRAWING NO: 90277726000	REV H

T514 T515 T516 T517 T518 T519 T520

19 RESET_CODECS_L
4 CS4224_CS_L2
8 RX_256X_CODEC3
5 CS4224_LRCK_CLK_B
5 CS4224_SCLK_B
5 CS4224_SER_CLK_B
5 CS4224_SER_DAT_B
5 KP_LSTN_CH_4_5

+3.3V VCC
FL5 FL6
CL5 0.1UF CL6 1.0UF_25V

T590
R519 150
KP_TALK_CH_4_5 4

1 C73 2 68PF

T511 T512

U505
CS4224
27 RST
12 AD0/CS_L
18 I2C/SPI_L
2 XTO
3 XTI
4 LRCK
5 SCLK
10 SCL/CCLK
11 SDA/CDIN
13 VL
1 NC1
14 NC2
15 NC3
28 NC4
9 SDIN
8 SDOUT
17 AINR+
16 AINR-
23 AOUTR-
24 AOUTR+
20 AINL+
19 AINL-
26 AOUTL-
25 AOUTL+
6 VD
7 DGND
21 VA
22 AGND
511356-000

R515 0
R516 150
R517 150
R518 150

T509 T510 T609 T610 T611 T612

18 FROM_CH5_AUD
C512 10UF 35V
R509 10K
R508 47.5K AGND

C513 47PF
R510 10K +5V_ANALOG_CH_5_6
C514 0.1UF AGND
U502 V+ V- -5V_ANALOG_CH_5_6
LM833 0.1UF AGND C515

C516 10PF
R512 10K
U502 LM833
R511 10K
R513 150
C517 2200PF
R514 150

R520 2.8K
R522 11K
R524 2.8K
C518 2200PF AGND
C520 2200PF AGND
R527 14K
C524 220PF
+5V_ANALOG_CH_5_6
C523 0.1UF AGND
U506 V+ V- -5V_ANALOG_CH_5_6
LM833
C525 0.1UF AGND
C526 10UF 35V
R5032 47.5K AGND
CH5_AUD_OUT 21

R521 2.8K
R523 11K
R525 2.8K
C519 2200PF AGND
C521 2200PF AGND
R526 14K AGND
C522 220PF AGND

18 FROM_CH6_AUD
C612 10UF 35V
R609 10K
R608 47.5K AGND

C613 47PF
R610 10K +5V_ANALOG_CH_5_6
C614 0.1UF AGND
U602 V+ V- -5V_ANALOG_CH_5_6
LM833 0.1UF AGND C615

C616 10PF
R612 10K
U602 LM833
R611 10K
R613 150
C617 2200PF
R614 150

R620 2.8K
R622 11K
R624 2.8K
C618 2200PF AGND
C620 2200PF AGND
R627 14K
C624 220PF
U506 LM833
C626 10UF 35V
R632 47.5K AGND
CH6_AUD_OUT 21

R621 2.8K
R623 11K
R625 2.8K
C619 2200PF AGND
C621 2200PF AGND
R626 14K AGND
C622 220PF AGND

+5V_ANALOG_CH_5_6
R531 10K
R530 8.2K AGND
C539 470UF 35V
C540 0.1UF AGND
R528
C527 0.1UF
C528 1.0UF_25V AGND
C529 0.1UF
C530 1.0UF_25V AGND
FP3

+6V
558012-003
LT1117-5
U503 IN OUT ADJ
C531 33UF 25V
C532 10UF 25V
C533 0.1UF
C534 0.1UF AGND

-15V
LM79L05
558009-205
U504 VIN1 VIN2 VIN3 VIN4 OUT GND
C535 33UF 25V
C536 25V 10UF
C537 0.1UF AGND
C538 0.1UF
C540 25V 10UF
-5V_ANALOG_CH_5_6

1 NOT INSTALLED

ADAM AIO-16 CARD SCHEMATIC	PAGE 19
DRAWING NO: 90277726000	REV H

38 RESET_CODECS_L
4 CS4224_CS_L3
10 RX_256X_CODEC4
CS4224_LRCK_CLK_B
CS4224_SCLK_B
4 CS4224_SER_CLK_B
CS4224_SER_DAT_B
KP_LSTN_CH_6_7

T7014 T7015 T7020

+3.3V VCC
FL7 FL8
CL7 0.1UF CL8 1.0UF_25V

T790
R719 150
KP_TALK_CH_6_7 4

U705 CS4224
RST AD0/CS_L I2C/SPI_L XTO XTI LRCK SCLK SCL/CCLK SDA/CDIN SDIN SDOUT VL NC1 NC2 NC3 NC4
AINR+ AINR- AINL+ AINL- AOUTR- AOUTR+ AOUTL- AOUTL+ VD DGND VA AGND
511356-000

C714 0.1UF C712 10UF 35V R709 10K R708 47.5K
FROM_CH7_AUD 18
U702 LM833 C715 0.1UF
C713 47PF R710 10K +5V_ANALOG_CH_7_8
-5V_ANALOG_CH_7_8
C716 10PF R712 10K R711 10K
R715 0 R716 0 R717 150 R718 150
R713 150 C717 2200PF R714 150
T709 T710

C812 10UF 35V R809 10K R808 47.5K
FROM_CH8_AUD 18
U802 LM833 C815 0.1UF
C813 47PF R810 10K C814 0.1UF
C816 10PF R812 10K R811 10K
R813 150 C817 2200PF R814 150
T809 T810

C724 220PF R727 14K
C723 0.1UF
U706 LM833 C725 0.1UF
C726 10UF 35V R732 47.5K
CH7_AUD_OUT 21
R720 2.8K C718 2200PF R722 11K C720 2200PF R724 2.8K
R721 2.8K C719 2200PF R723 11K C721 2200PF R728 14K R725 2.8K C722 2200PF

T711 T712
T811 T812

R827 14K C824 220PF
R820 2.8K C818 2200PF R822 11K C820 2200PF R824 2.8K
R821 2.8K C819 2200PF R823 11K C821 2200PF R826 14K R825 2.8K C822 2200PF
C826 10UF 35V R832 47.5K
CH8_AUD_OUT 21

C727 0.1UF C728 1.0UF_25V R728
C729 0.1UF C730 1.0UF_25V
FP4

R730 8.2K C739 47UF 35V C740 0.1UF R731 10K

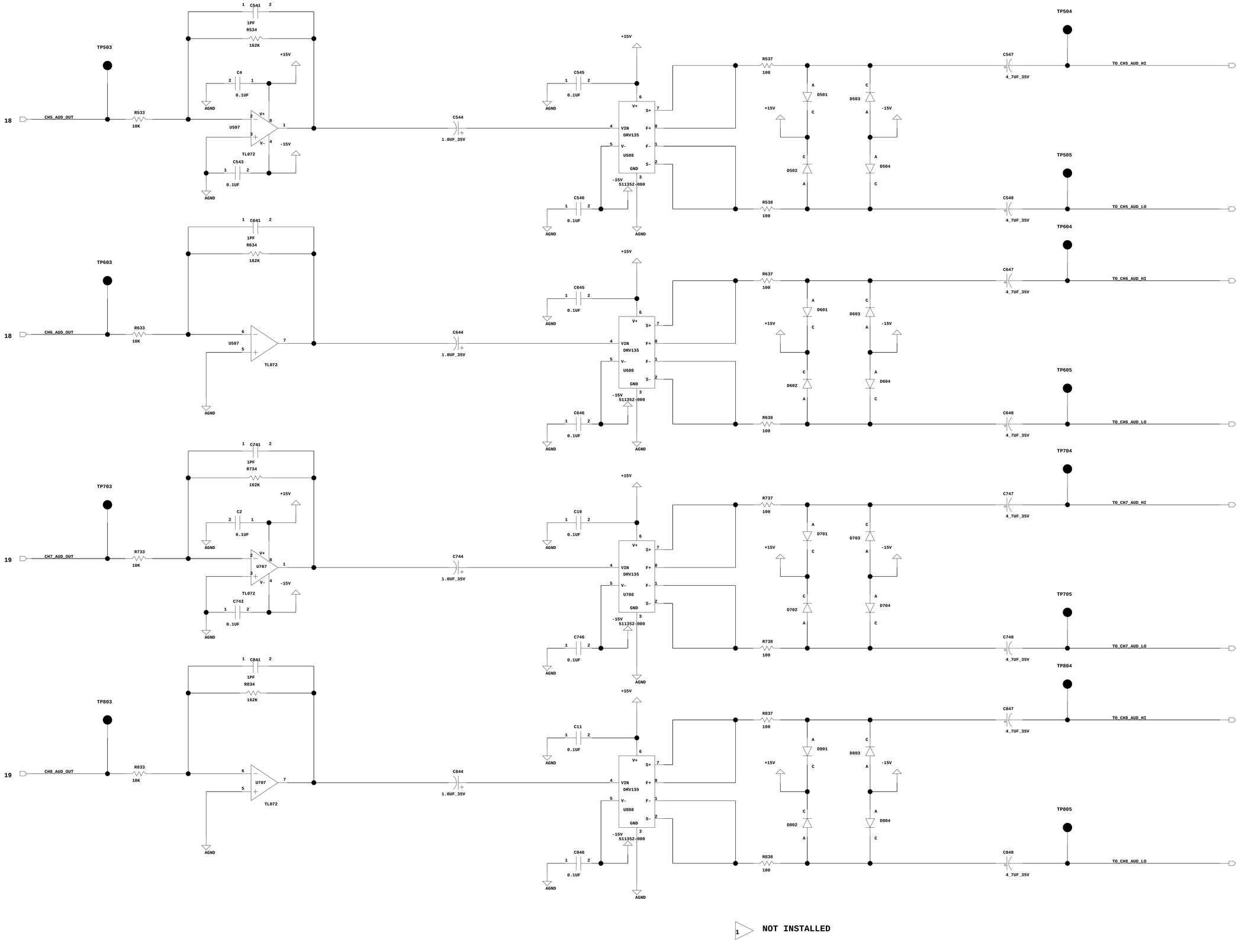
+5V_ANALOG_CH_7_8
-5V_ANALOG_CH_7_8
AGND

558012-003
LT1117-5
U703 IN OUT ADJ
+6V C731 33UF 25V C732 10UF 25V C733 0.1UF C734 0.1UF

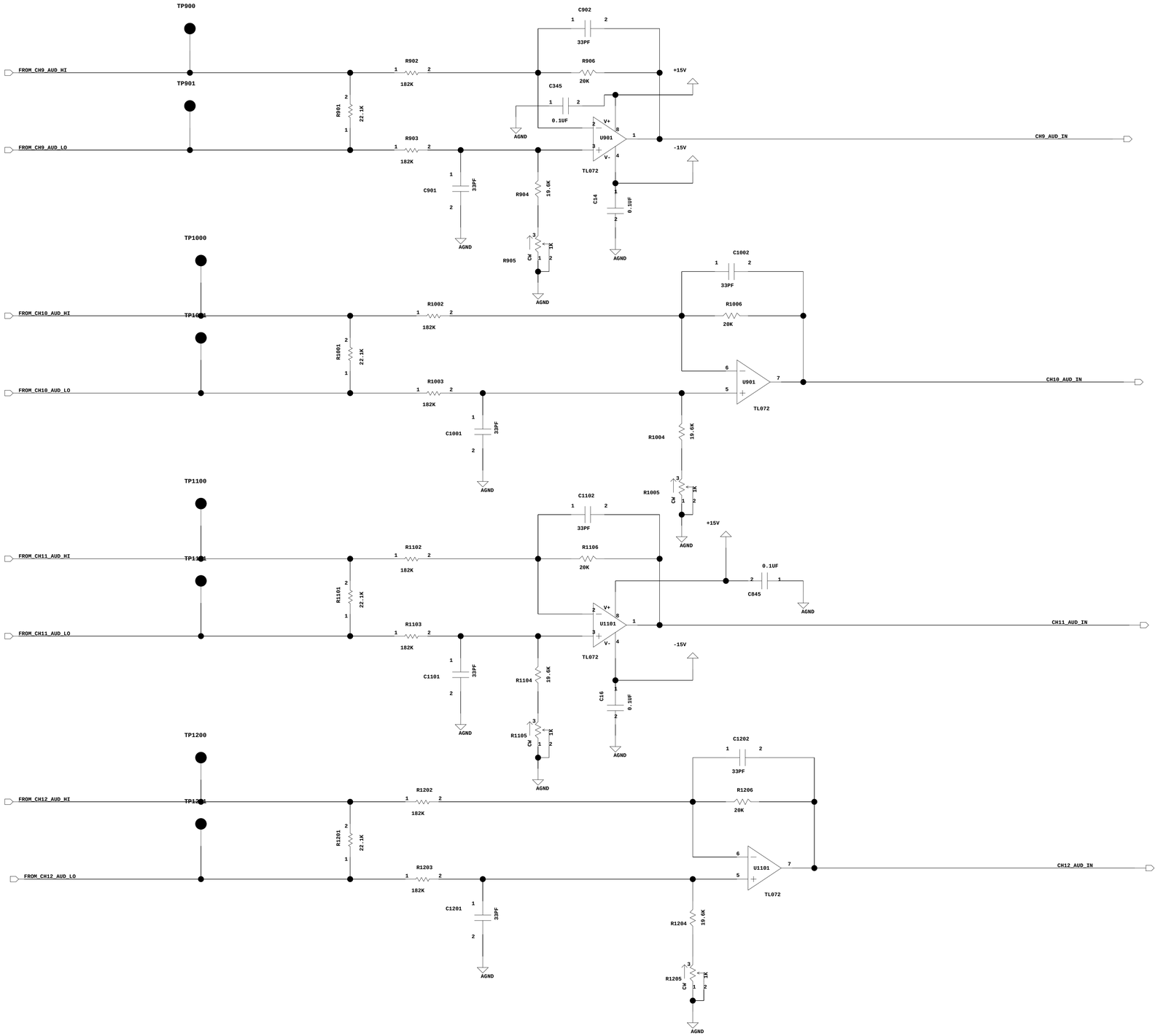
LM79L05
558009-205
U704 VIN1 VIN2 VIN3 VIN4 OUT GND
-15V C735 33UF 25V C736 10UF 25V C737 0.1UF C738 0.1UF C740 10UF 25V

1 NOT INSTALLED

ADAM AIO-16 CARD SCHEMATIC	PAGE 20
DRAWING NO: 90277726000	REV H



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CS3310_SER_DAT_C

CS3310_SER_CLK_C

CS3310_CS_L4

+5V_ANALOG_CH_9_10

-5V_ANALOG_CH_9_10

R907 10

C905 10UF 25V

C906 0.1UF

C909 0.1UF

C910 0.1UF

C911 10UF 25V

C907 0.1UF

C908 10UF 25V

AGND

U900

SDATAO SDATAI SCK CS MUTE ZCEN

VD+ DGND VA+ VA-

AINL AGNDL AINR AGNDR

AOUTL AOUTR

CS3310

511072-000

T902 T1002

22 CH9_AUD_IN

22 CH10_AUD_IN

FROM_CH9_AUD 24

FROM_CH10_AUD 24

T903 T1003

+5V_ANALOG_CH_11_12

-5V_ANALOG_CH_11_12

R1107 10

C1105 10UF 25V

C1106 0.1UF

C1109 0.1UF

C1110 0.1UF

C1111 10UF 25V

C1107 0.1UF

C1108 10UF 25V

U1100

T1102 T1202

22 CH11_AUD_IN

22 CH12_AUD_IN

FROM_CH11_AUD 25

FROM_CH12_AUD 25

T1103 T1203

4 CS3310_CS_L5

ADAM AIO-16 CARD SCHEMATIC	PAGE 23
DRAWING NO: 90277726000	REV H

T914 T915 T916 T917 T918 T919 T920

38 RESET_CODECS_L
4 CS4224_CS_L4
10 RX_256X_CODEC5
CS4224_LRCK_CLK_C
CS4224_SCLK_C
CS4224_SER_CLK_C
CS4224_SER_DAT_C
KP_LSTN_CH_8_9

4

+3.3V FL9 VCC FL10
CL9 0.1UF CL10 1.0UF_25V

T990 KP_TALK_CH_8_9 4 R919 150

1 CT5 2 68PF

T911 T912

U905 CS4224
RST 27
AD0/CS_L 12
I2C/SPI_L 18
XTO 2
XTI 3
LRCK 4
SCLK 5
SCL/CCLK 10
SDA/CDIN 11
VL 13
NC1 1
NC2 14
NC3 15
NC4 28
SDIN 9
SDOUT 8
AINR+ 17
AINR- 16
AOUTR- 23
AOUTR+ 24
AINL+ 20
AINL- 19
AOUTL- 26
AOUTL+ 25
VD 6
DGND 7
VA 21
AGND 22
511356-000

23 FROM_CH9_AUD C912 10UF 35V R909 10K R908 47.5K AGND
C913 47PF R910 10K +5V_ANALOG_CH_9_10 C914 0.1UF AGND
U902 V+ V- LM833 -5V_ANALOG_CH_9_10
LM833 0.1UF AGND C915
C916 10PF R912 10K
R911 10K
U902 LM833
R915 0 R916 150 R917 150
R913 150 C917 2200PF R914 150 R918 150
T909 T910 T1009 T1010

23 FROM_CH10_AUD C1012 10UF 35V R1009 10K R1008 47.5K AGND
C1013 47PF R1010 10K +5V_ANALOG_CH_9_10 C1014 0.1UF AGND
U1002 V+ V- LM833 -5V_ANALOG_CH_9_10
LM833 0.1UF AGND C1015
C1016 10PF R1012 10K
R1011 10K
U1002 LM833
R1013 150 C1017 2200PF R1014 150
+5V_ANALOG_CH_9_10 R931 10K
8.2K R930 AGND
C939 47UF 35V C940 0.1UF AGND
FP5
C929 0.1UF C930 1.0UF_25V AGND
C927 0.1UF C928 1.0UF_25V AGND R928

R920 2.8K R922 11K R924 2.8K R927 14K C924 220PF +5V_ANALOG_CH_9_10
C918 2200PF C920 2200PF C923 0.1UF AGND
U906 V+ V- LM833 -5V_ANALOG_CH_9_10
C926 10UF 35V R932 47.5K CH9_AUD_OUT 26
R921 2.8K R923 11K R925 2.8K C919 2200PF C921 2200PF R926 14K C922 220PF AGND

R1020 2.8K R1022 11K R1024 2.8K R1027 14K C1024 220PF
C1018 2200PF C1020 2200PF U906 LM833
C1026 10UF 35V R1032 47.5K CH10_AUD_OUT 26
R1021 2.8K R1023 11K R1025 2.8K C1019 2200PF C1021 2200PF R1026 14K C1022 220PF AGND

+6V C931 33UF 25V C932 10UF 25V C933 0.1UF
U903 558012-003 LT1117-5 IN OUT ADJ
C934 0.1UF AGND
+5V_ANALOG_CH_9_10

-15V C935 33UF 25V C936 10UF 25V C937 0.1UF
U904 LM79L05 558009-205 VIN1 VIN2 VIN3 VIN4 OUT GND
C938 0.1UF C940 10UF 25V AGND
-5V_ANALOG_CH_9_10

1 NOT INSTALLED

ADAM AIO-16 CARD SCHEMATIC	PAGE 24
DRAWING NO: 90277726000	REV H

RESET_CODECS_L
CS4224_CS_L5
RX_256X_CODEC6
CS4224_LRCK_CLK_C
CS4224_SCLK_C
CS4224_SER_CLK_C
CS4224_SER_DAT_C
KP_LSTN_CH_10_11

T1114 T1115 T1120 T1190 T1111 T1112 T1109 T1110 T1209 T1210 T1211 T1212

+3.3V VCC FL11 FL12 CL11 0.1UF CL12 1.0UF_25V

R1119 150 KP_TALK_CH_10_11

FROM_CH11_AUD C1112 10UF 35V R1109 10K R1108 47.5K AGND

C1113 47PF R1110 10K +5V_ANALOG_CH_11_12 C1114 0.1UF U1102 -5V_ANALOG_CH_11_12 LM833 0.1UF C1115

C1116 10PF R1112 10K U1102 LM833 R1111 10K

R1115 0 R1116 150 R1117 150 R1113 150 C1117 2200PF R1114 150 R1118 150

U1105 CS4224
RST AD0/CS_L I2C/SPI_L XTO XTI LRCK SCLK SCL/CCLK SDA/CDIN SDIN SDOUT AINR+ AINR- AINL+ AINL- AOUTR- AOUTR+ AOUTL- AOUTL+ VD DGND VA AGND VL NC1 NC2 NC3 NC4

CT6 68PF

R1120 2.8K R1122 11K R1124 2.8K R1127 14K C1124 220PF +5V_ANALOG_CH_11_12 C1123 0.1UF AGND
C1118 2200PF C1120 2200PF U1106 LM833 -5V_ANALOG_CH_11_12 C1125 0.1UF
C1126 10UF 35V CH11_AUD_OUT 26 R1132 47.5K

R1121 2.8K R1123 11K R1125 2.8K
C1119 2200PF C1121 2200PF R1128 14K C1122 220PF

FROM_CH12_AUD C1212 10UF 35V R1209 10K R1208 47.5K AGND

C1213 47PF R1210 10K +5V_ANALOG_CH_11_12 C1214 0.1UF U1202 -5V_ANALOG_CH_11_12 LM833 0.1UF C1215

C1216 10PF R1212 10K U1202 LM833 R1211 10K

R1213 150 C1217 2200PF R1214 150

511356-000

C1127 0.1UF C1128 1.0UF_25V R1128 AGND

R1220 2.8K R1222 11K R1224 2.8K R1227 14K C1224 220PF
C1218 2200PF C1220 2200PF U1106 LM833
C1226 10UF 35V CH12_AUD_OUT 26 R1232 47.5K

R1221 2.8K R1223 11K R1225 2.8K
C1219 2200PF C1221 2200PF R1226 14K C1222 220PF

R1131 10K +5V_ANALOG_CH_11_12 R1130 8.2K C1139 47UF 35V C1140 0.1UF

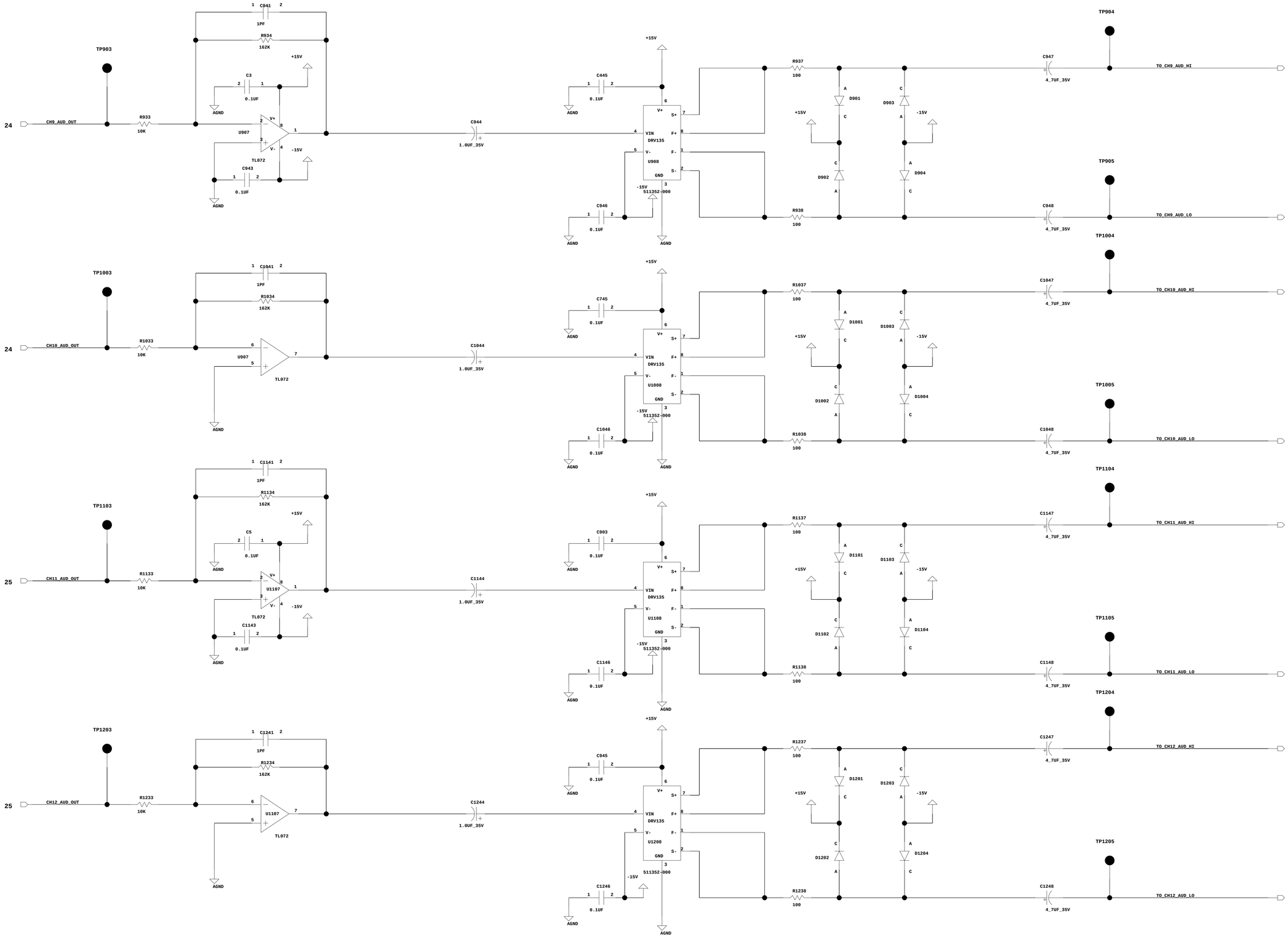
C1129 0.1UF C1130 1.0UF_25V FP6

558012-003
LT1117-5
U1103 IN OUT ADJ
+6V C1131 33UF 25V C1132 100UF 25V C1133 0.1UF C1134 0.1UF +5V_ANALOG_CH_11_12

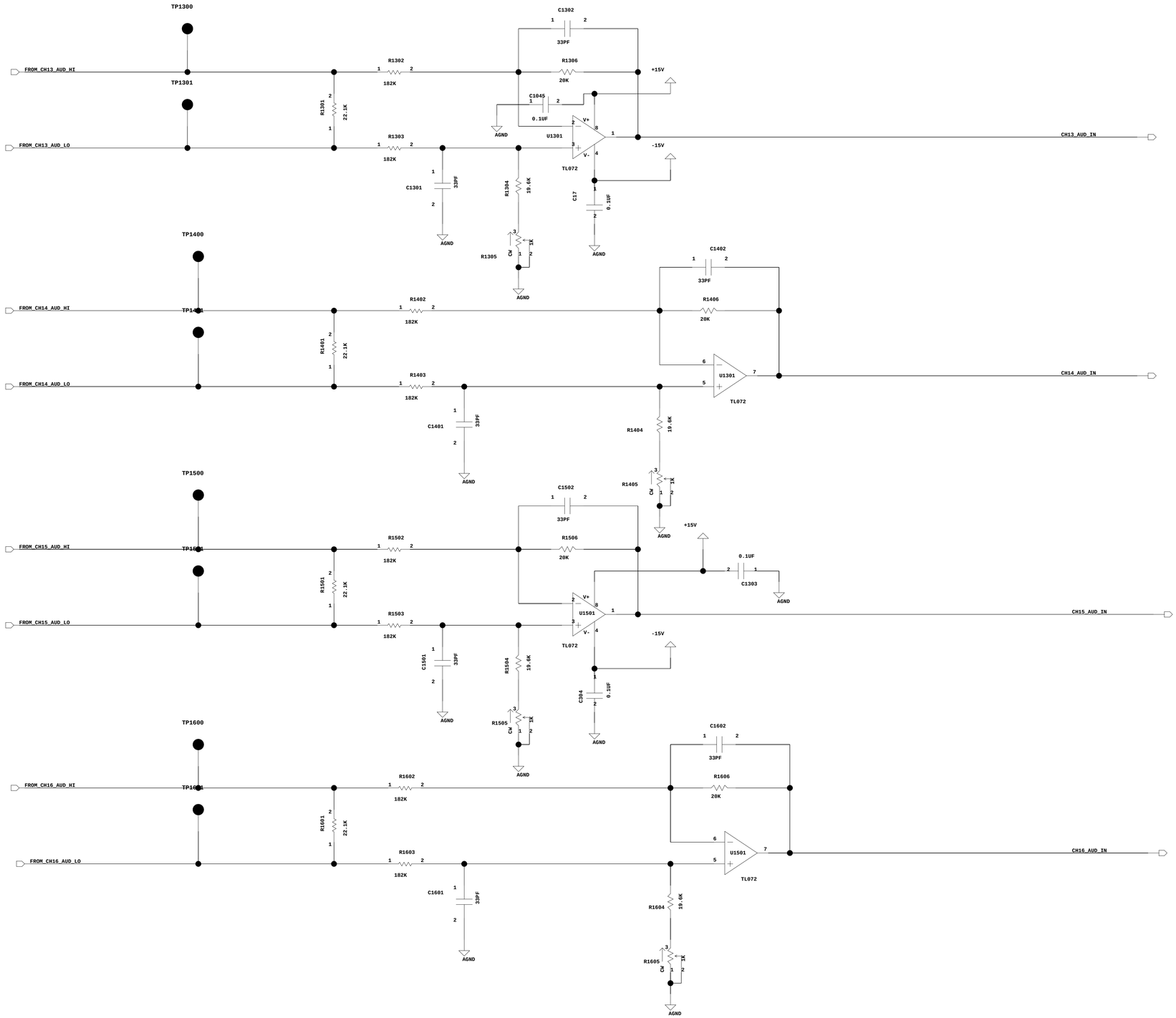
LM79L05
558009-205
U1104 VIN1 VIN2 VIN3 VIN4 OUT GND
-15V C1135 33UF 25V C1136 25V 10UF C1137 0.1UF C1138 0.1UF C1140 25V 10UF -5V_ANALOG_CH_11_12

1 NOT INSTALLED

ADAM AIO-16 CARD SCHEMATIC	PAGE 25
DRAWING NO: 90277726000	REV H



ADAM AIO-16 CARD SCHEMATIC	PAGE 26
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ADAM AIO-16 CARD SCHEMATIC	PAGE 27
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4

CS3310_SER_DAT_D

CS3310_SER_CLK_D

CS3310_CS_L6

T1302

T1402

27 CH13_AUD_IN

27 CH14_AUD_IN

+5V_ANALOG_CH_13_14

-5V_ANALOG_CH_13_14

R1307 10

C1305 10UF 25V

C1306 0.1UF

0.1UF C1309

C1310 0.1UF

C1311 10UF 25V

C1307 0.1UF

C1308 10UF 25V

AGND

U1300

SDATAO 7 — VD+ 4

SDATAI 3 — DGND 5

SCK 6

CS 2

MUTE 8 — VA+ 12

ZCEN 1 — VA- 13

AINL 16 — AOUTL 14 — FROM_CH13_AUD — 29

AGNDL 15

AINR 9 — AOUTR 11 — FROM_CH14_AUD — 29

AGNDR 10

CS3310

511072-000

T1303

T1403

+5V_ANALOG_CH_15_16

-5V_ANALOG_CH_15_16

R1507 10

C1505 10UF 25V

C1506 0.1UF

0.1UF C1509

C1510 0.1UF

C1511 10UF 25V

C1507 0.1UF

C1508 10UF 25V

AGND

U1500

SDATAO 7 — VD+ 4

SDATAI 3 — DGND 5

SCK 6

CS 2

MUTE 8 — VA+ 12

ZCEN 1 — VA- 13

AINL 16 — AOUTL 14 — FROM_CH15_AUD — 30

AGNDL 15

AINR 9 — AOUTR 11 — FROM_CH16_AUD — 30

AGNDR 10

CS3310

511072-000

T1502

T1602

27 CH15_AUD_IN

27 CH16_AUD_IN

T1503

T1603

4 CS3310_CS_L7

ADAM AIO-16 CARD SCHEMATIC	PAGE 28
DRAWING NO: 90277726000	REV H

T1314 T1315 T1316 T1317 T1318 T1319 T1320

38 RESET_CODECS_L
4 CS4224_CS_L6
10 RX_256X_CODEC7
CS4224_LRCK_CLK_D
CS4224_SCLK_D
4 CS4224_SER_CLK_D
CS4224_SER_DAT_D
KP_LSTN_CH_12_13

+3.3V VCC
FL13 FL14
CL13 0.1UF CL14 1.0UF_25V

T1390
R1319 150
KP_TALK_CH_12_13 4

1 C77 68PF

T1311 T1312

U1305
CS4224
RST 27
AD0/CS_L 12
I2C/SPI_L 18
XTO 2
XTI 3
LRCK 4
SCLK 5
SCL/CCLK 10
SDA/CDIN 11
VL 13
NC1 1
NC2 14
NC3 15
NC4 28
SDIN 9
SDOUT 8
AINR+ 17
AINR- 16
AOUTR- 23
AOUTR+ 24
AINL+ 20
AINL- 19
AOUTL- 26
AOUTL+ 25
VD 6
DGND 7
VA 21
AGND 22
511356-000

28 FROM_CH13_AUD
C1312 10UF 35V
R1309 10K
R1308 47.5K
AGND
C1313 47PF
R1310 10K +5V_ANALOG_CH_13_14
C1314 0.1UF
LM833 U1302 -5V_ANALOG_CH_13_14
C1315 0.1UF
C1316 10PF
R1312 10K
R1311 10K
R1313 150
C1317 2200PF
R1314 150
R1315 0
R1316 150
R1317 150
R1318 150
T1309
T1310
T1409
T1410

28 FROM_CH14_AUD
C1412 10UF 35V
R1409 10K
R1408 47.5K
AGND
C1413 47PF
R1410 10K +5V_ANALOG_CH_13_14
C1414 0.1UF
U1402 -5V_ANALOG_CH_13_14
C1415 0.1UF
C1416 10PF
R1412 10K
R1411 10K
R1413 150
C1417 2200PF
R1414 150
LM833

+5V_ANALOG_CH_13_14
R1331 10K
R1330 8.2K
C1339 47UF 35V
C1340 0.1UF
C1327 0.1UF
C1328 1.0UF_25V
R1328
C1329 0.1UF
C1330 1.0UF_25V
FP7

T1411 T1412

R1320 2.8K C1318 2200PF
R1322 11K C1320 2200PF
R1324 2.8K
R1327 14K C1324 220PF
C1323 0.1UF
+5V_ANALOG_CH_13_14
U1306 LM833
-5V_ANALOG_CH_13_14
C1325 0.1UF
C1326 10UF 35V
CH13_AUD_OUT 31
R1332 47.5K

R1321 2.8K C1319 2200PF
R1323 11K C1321 2200PF
R1326 14K
R1325 2.8K C1322 220PF

R1420 2.8K C1418 2200PF
R1422 11K C1420 2200PF
R1424 2.8K
R1427 14K C1424 220PF
U1306 LM833
C1426 10UF 35V
CH14_AUD_OUT 31
R1432 47.5K

R1421 2.8K C1419 2200PF
R1423 11K C1421 2200PF
R1426 14K
R1425 2.8K C1422 220PF

AGND

+6V
558012-003
LT1117-5
U1303
IN OUT ADJ
C1331 33UF 25V
C1332 10UF 25V
C1333 0.1UF
C1334 0.1UF
+5V_ANALOG_CH_13_14

-15V
LM79L05
558009-205
U1304
VIN1 VIN2 VIN3 VIN4 OUT GND
C1335 33UF 25V
C1336 10UF 25V
C1337 0.1UF
C1338 0.1UF
C1340 10UF 25V
-5V_ANALOG_CH_13_14

1 NOT INSTALLED

ADAM AIO-16 CARD SCHEMATIC	PAGE 29
DRAWING NO: 90277726000	REV H

T1514 T1515 T1520

38 RESET_CODECS_L
4 CS4224_CS_L7
10 RX_256X_CODEC8
CS4224_LRCK_CLK_D
CS4224_SCLK_D
4 CS4224_SER_CLK_D
CS4224_SER_DAT_D
KP_LSTN_CH_14_15

+3.3V VCC
FL15 FL16
CL15 0.1UF
CL16 1.0UF_25V

T1590
R1519 150
KP_TALK_CH_14_15 4

CT8 68PF

T1511 T1512

U1505 CS4224
RST AD0/CS_L I2C/SPI_L XTO XTI LRCK SCLK SCL/CCLK SDA/CDIN SDIN SDOUT
VL NC1 NC2 NC3 NC4
AINR+ AINR- AINL+ AINL- AOUTR- AOUTR+ AOUTL- AOUTL+
VD DGND VA AGND
511356-000

R1515 R1516 R1517 R1518 150

T1509 T1510 T1609 T1610 T1611 T1612

28 FROM_CH15_AUD
C1512 10UF 35V
R1509 10K
R1508 47.5K
C1513 47PF
R1510 10K +5V_ANALOG_CH_15_16
C1514 0.1UF
U1502 V+ V- LM833
C1515 0.1UF
-5V_ANALOG_CH_15_16
R1511 10K
C1516 10PF
R1512 10K
U1502 LM833
R1513 150
C1517 2200PF
R1514 150

28 FROM_CH16_AUD
C1612 10UF 35V
R1609 10K
R1608 47.5K
C1613 47PF
R1610 10K +5V_ANALOG_CH_15_16
C1614 0.1UF
U1602 V+ V- LM833
C1615 0.1UF
-5V_ANALOG_CH_15_16
R1611 10K
C1616 10PF
R1612 10K
U1602 LM833
R1613 150
C1617 2200PF
R1614 150

R1520 2.8K C1518 2200PF
R1522 11K C1520 2200PF
R1524 2.8K
R1527 14K C1524 220PF
C1523 0.1UF
+5V_ANALOG_CH_15_16
U1506 V+ V- LM833
-5V_ANALOG_CH_15_16
C1525 0.1UF
C1526 10UF 35V R1532 47.5K
CH15_AUD_OUT 31

R1521 2.8K C1519 2200PF
R1523 11K C1521 2200PF
R1525 2.8K R1526 14K C1522 220PF

R1620 2.8K C1618 2200PF
R1622 11K C1620 2200PF
R1624 2.8K
R1627 14K C1624 220PF
U1506 LM833
C1626 10UF 35V R1632 47.5K
CH16_AUD_OUT 31

R1621 2.8K C1619 2200PF
R1623 11K C1621 2200PF
R1625 2.8K R1626 14K C1622 220PF

R1528
C1527 0.1UF
C1528 1.0UF_25V
R1529 8.2K
C1539 47UF 35V
C1540 0.1UF
R1530
R1531 10K
C1529 0.1UF
C1530 1.0UF_25V
FP8

AGND +5V_ANALOG_CH_15_16 -5V_ANALOG_CH_15_16

+6V
558012-003
LT1117-5
U1503 IN OUT ADJ
C1531 33UF 25V
C1532 10UF 25V
C1533 0.1UF
C1534 0.1UF

-15V
LM79L05
558009-205
U1504 VIN1 VIN2 VIN3 VIN4 OUT GND
C1535 33UF 25V
C1536 25V 10UF
C1537 0.1UF
C1538 0.1UF
C1540 25V 10UF

1 NOT INSTALLED

ADAM AIO-16 CARD SCHEMATIC	PAGE 30
DRAWING NO: 90277726000	REV H

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CH13_AUD_OUT

TP1303

R1333
10K

C1341 1PF
R1334 162K

C303 0.1UF

U1307 TL072

C1343 0.1UF

C1344 1.0UF_35V

U1308 DRV135

C1145 0.1UF

C1346 0.1UF

R1337 100

R1338 100

D1301 D1303 D1302 D1304

C1347 4_7UF_35V

C1348 4_7UF_35V

TP1304

TP1305

TO_CH13_AUD_HI

TO_CH13_AUD_LO

28

CH14_AUD_OUT

TP1403

R1433
10K

C1441 1PF
R1434 162K

U1307 TL072

C1444 1.0UF_35V

U1408 DRV135

C1245 0.1UF

C1446 0.1UF

R1437 100

R1438 100

D1401 D1403 D1402 D1404

C1447 4_7UF_35V

C1448 4_7UF_35V

TP1404

TP1405

TO_CH14_AUD_HI

TO_CH14_AUD_LO

29

CH15_AUD_OUT

TP1503

R1533
10K

C1541 1PF
R1534 162K

C342 0.1UF

U1507 TL072

C1543 0.1UF

C1544 1.0UF_35V

U1508 DRV135

C1345 0.1UF

C1546 0.1UF

R1537 100

R1538 100

D1501 D1503 D1502 D1504

C1547 4_7UF_35V

C1548 4_7UF_35V

TP1504

TP1505

TO_CH15_AUD_HI

TO_CH15_AUD_LO

29

CH16_AUD_OUT

TP1603

R1633
10K

C1641 1PF
R1634 162K

U1507 TL072

C1644 1.0UF_35V

U1608 DRV135

C1445 0.1UF

C1646 0.1UF

R1637 100

R1638 100

D1601 D1603 D1602 D1604

C1647 4_7UF_35V

C1648 4_7UF_35V

TP1604

TP1605

TO_CH16_AUD_HI

TO_CH16_AUD_LO

+15V -15V AGND 511352-000

31

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XV01 is a Programmable Oscillator

Manufacturer: Cardinal Components

TV01 TV02 TV03

ARES_L

UART0_CS_L
UART0_RD_L
UART0_WR_L

+3.3V

RV01 10K

528032-001
7_3728MHZ_OSC

OE OUT
GND PWR

XV01

FV01 FV02

VCC

RV02 47.5K

RV06 4.7K

XR16L788

RESET_L
XTAL1
CS_L
RD_L
WR_L
INT_H_MOT_L
TMRCK
ENIR
XTAL2
INT_L

RV16 47.5K

TV05

UART_IRQ0_L

RV03 0
RV04 0
RV05 0
RV13 0
RV14 0

UV03 74LV04

RV17 0
RV18 0

RV21 4.7K
RV22 4.7K

TV04

A_UB9 A_UB8 A_UB7 A_UB6 A_UB5 A_UB4 A_UB3 A_UB2

A7 A6 A5 A4 A3 A2 A1 A0

D7 D6 D5 D4 D3 D2 D1 D0

D_UB7 D_UB6 D_UB5 D_UB4 D_UB3 D_UB2 D_UB1 D_UB0

RXD7 RXD6 RXD5 RXD4 RXD3 RXD2 RXD1 RXD0

TXD7 TXD6 TXD5 TXD4 TXD3 TXD2 TXD1 TXD0

TV06

DSR7_L DSR6_L DSR5_L DSR4_L DSR3_L DSR2_L DSR1_L DSR0_L

DTR7_L DTR6_L DTR5_L DTR4_L DTR3_L DTR2_L DTR1_L DTR0_L

CTS7_L CTS6_L CTS5_L CTS4_L CTS3_L CTS2_L CTS1_L CTS0_L

RTS7_L RTS6_L RTS5_L RTS4_L RTS3_L RTS2_L RTS1_L RTS0_L

RTS7 RTS6 RTS5 RTS4 RTS3 RTS2 RTS1 RTS0

TV07

CD7_L CD6_L CD5_L CD4_L CD3_L CD2_L CD1_L CD0_L

RI7_L RI6_L RI5_L RI4_L RI3_L RI2_L RI1_L RI0_L

BC_DETECT1
BC_DETECT0

RV29 0
RV30 0

RV23 4.7K

511455-000

UV01

A_UB[21:0]

D_UB[7:0]

1,2,8,33,37

38 3 34 34

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DRAWING NO: 90277726000	REV H

XV01 is a Programmable Oscillator

Manufacturer: Cardinal Components

TV09 TV10 TV11

38

ARES_L

UART1_CS_L

UART1_RD_L

UART1_WR_L

3

+3.3V

RV19 10K

528032-001

7_3728MHZ_OSC

XV02

OE OUT GND PWR

FV03 FV04

VCC

RV20 47.5K

RV07 4.7K

XR16L788

RESET_L XTAL1 CS_L RD_L WR_L INT_H_MOT_L TMRCK ENIR

XTAL2 INT_L

RV26 0 RV27 0

TV13

UART_IRQ1_L

3

RV25 4.7K

RV23 4.7K

RV28 4.7K

RV29 4.7K

35

RXD15 RXD14 RXD13 RXD12 RXD11 RXD10 RXD9 RXD8

TV12

A_UB9 A_UB8 A_UB7 A_UB6 A_UB5 A_UB4 A_UB3 A_UB2

A7 A6 A5 A4 A3 A2 A1 A0

D7 D6 D5 D4 D3 D2 D1 D0

D_UB7 D_UB6 D_UB5 D_UB4 D_UB3 D_UB2 D_UB1 D_UB0

TV14

TXD15 TXD14 TXD13 TXD12 TXD11 TXD10 TXD9 TXD8

RXD7 RXD6 RXD5 RXD4 RXD3 RXD2 RXD1 RXD0

TXD7 TXD6 TXD5 TXD4 TXD3 TXD2 TXD1 TXD0

DSR7_L DSR6_L DSR5_L DSR4_L DSR3_L DSR2_L DSR1_L DSR0_L

DTR7_L DTR6_L DTR5_L DTR4_L DTR3_L DTR2_L DTR1_L DTR0_L

TV15

RTS15 RTS14 RTS13 RTS12 RTS11 RTS10 RTS9 RTS8

CTS7_L CTS6_L CTS5_L CTS4_L CTS3_L CTS2_L CTS1_L CTS0_L

RTS7_L RTS6_L RTS5_L RTS4_L RTS3_L RTS2_L RTS1_L RTS0_L

CD7_L CD6_L CD5_L CD4_L CD3_L CD2_L CD1_L CD0_L

RI7_L RI6_L RI5_L RI4_L RI3_L RI2_L RI1_L RI0_L

511455-000

UV06

D_UB[7:0]

1,2,8,32,37

35

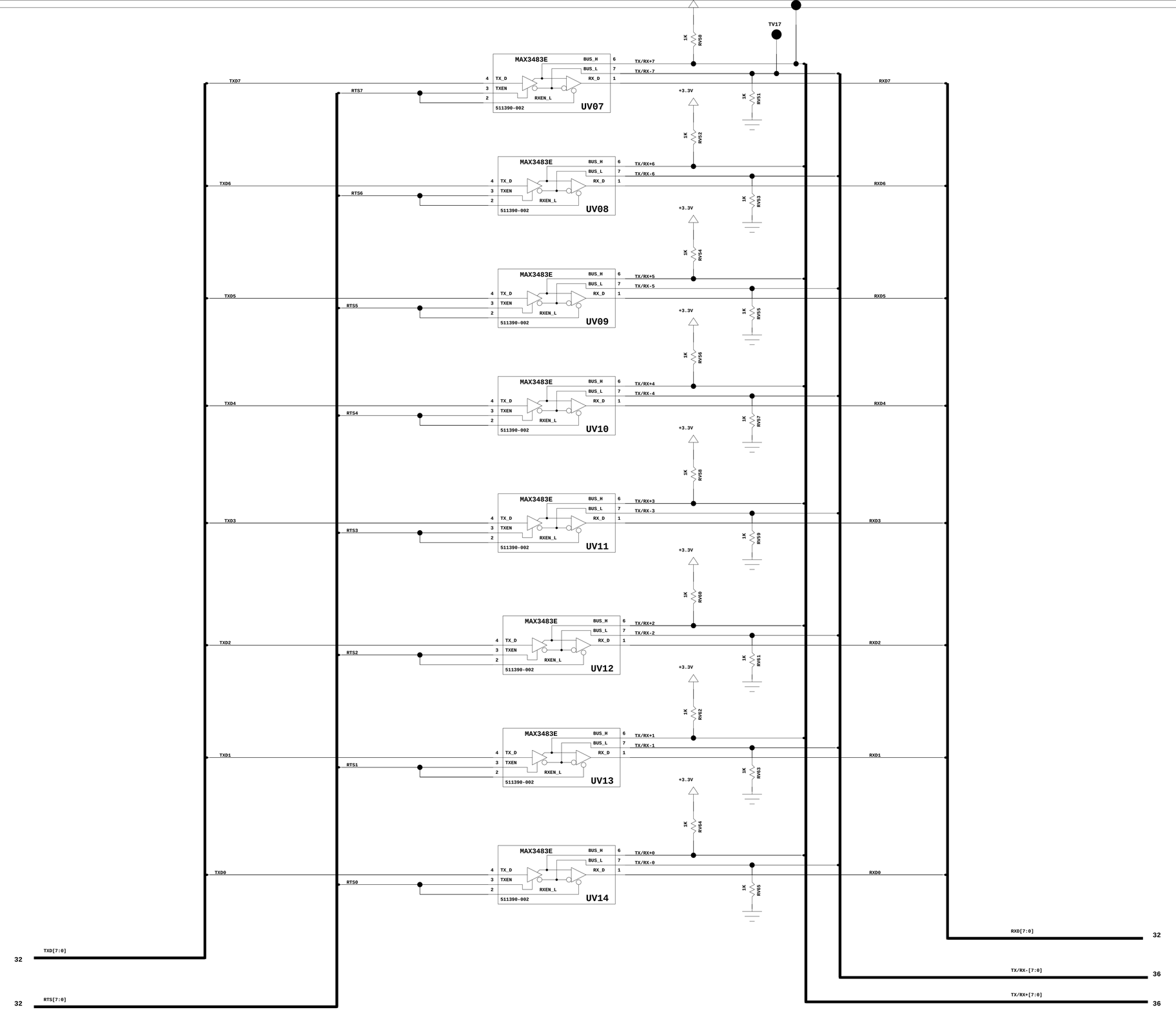
+3.3V

RV28 4.7K

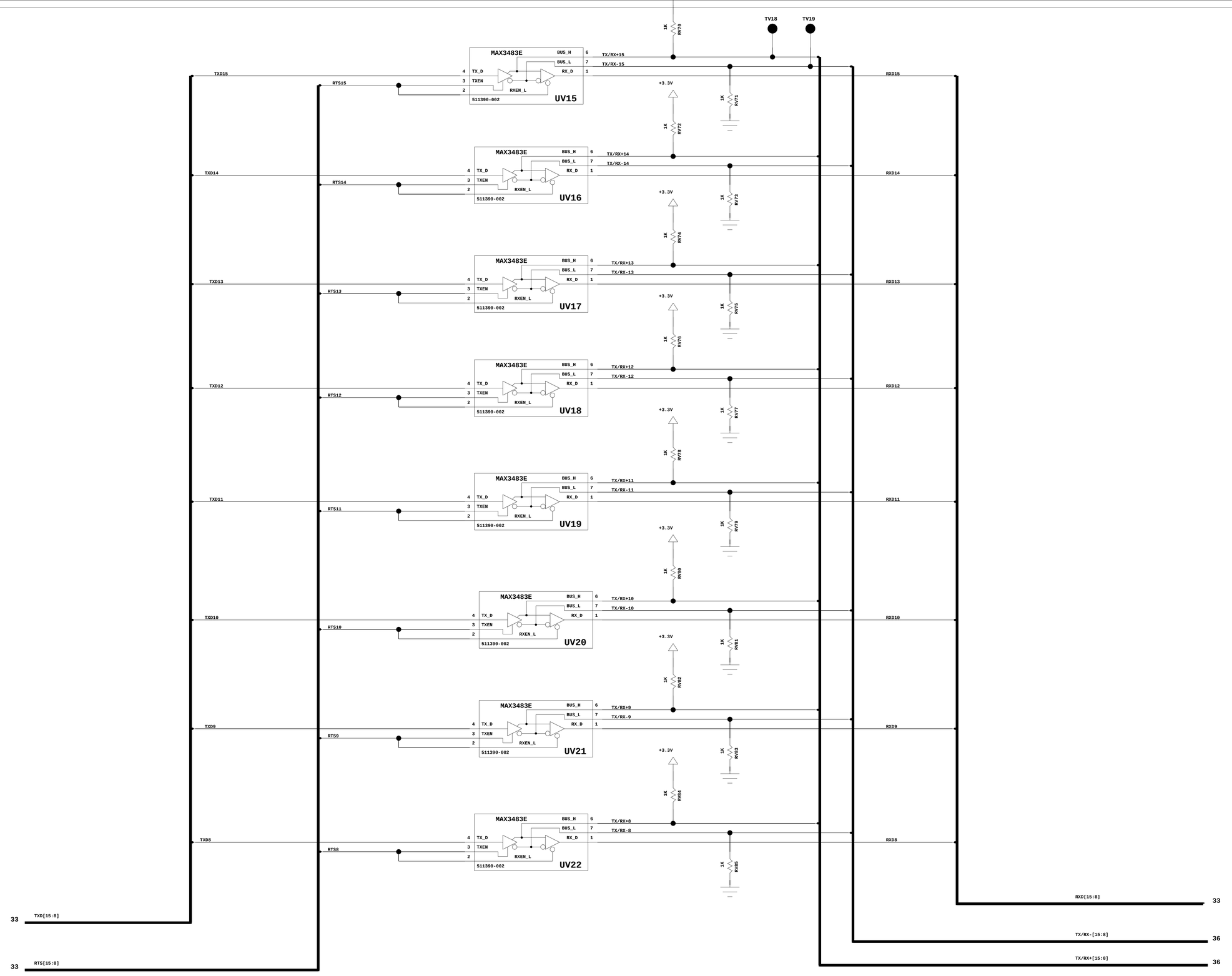
A_UB[21:0]

1,2,8,32,37

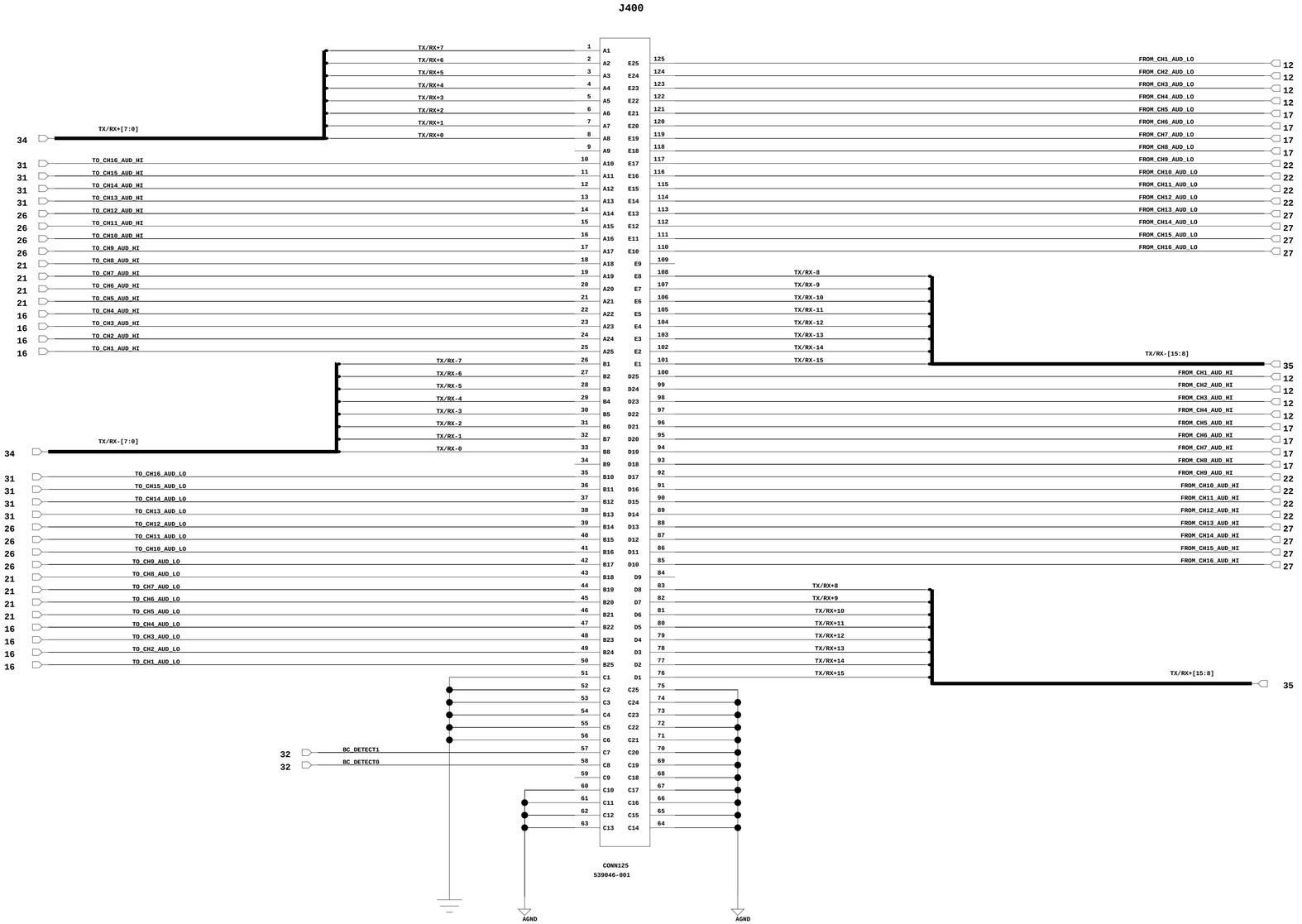
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ADAM AIO-16 CARD SCHEMATIC	PAGE 34
DRAWING NO: 90277726000	REV H



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JMPR1
8800105148

JMPR2
8800105148

TO PROGRAM VIA JTAG

APEX 20K160E- SHORT PIN 1-2 and 3-4

EPM 3064- SHORT PIN 5-6 and 7-8

JTAG
539247-002
JW01

CONFIG
539247-002
JW02

TCK
TMS
TDI
TDO
APEX_TDI
APEX_TDO
CPLD_TDI
CPLD_TDO

+3.3V
RW01 1K
RW02 1K
RW03 1K
RW04 1K
RW11 1K
RW15 1K

EP20K160EFC484-2X
UA01

1K RW05
1K RW06
MSEL0
MSEL1
TCK
TMS
TDI
NCONFIG
DATA0
NCE
TRST
DCLK
DEV_CLR_L
CEO_L
CONF_DONE
NSTATUS

D_UB0
1,2

ARES_L
38

RW07 1K
RW08 1K
RW09 1K
RW10 0

EPM3064
UW01

INPUT/GCLRN
INPUT/OE1
INPUT/OE2
INPUT/GCLK
TCK
TDI
TMS
APEX_BOOT_SEL
SPARE

TDO
AO/D15
A1
A2
A3
A4
A5
A6
A7
A8
A9
A10
A11
A12
A13
A14
A15
A16
A17
A18
APEX_DCLK
APEX_NCONFIG
FLASH_BYTE_L
FLASH_OE_L
FLASH_CS_L

A_UB1
A_UB2
A_UB3
A_UB4
A_UB5
A_UB6
A_UB7
A_UB8
A_UB9
A_UB10
A_UB11
A_UB12
A_UB13
A_UB14
A_UB15
A_UB16
A_UB17
A_UB18

D_UB15
1,2,8,32,33

A_UB[18:1]
1,2,8,33,34

FLASH_BYTE_EN_L
2,3
BUS_OE_L
1,2
FLASH_CS_L
1,2

511442-000
RW12 0
RW13 0

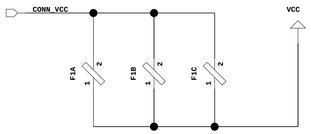
RW14 0

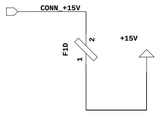
38 POWER_RESET_L
10 CPLD_CLK
3 EPM7064_SPARE

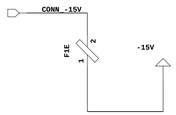
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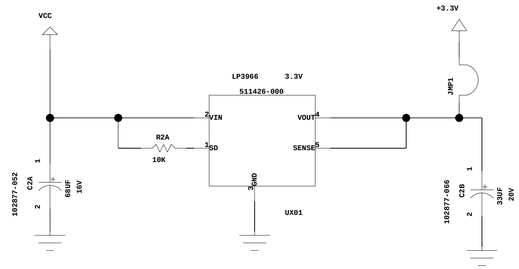
+3.3V
RT01
10K
SWT01
TACSW
57544-002
CT01
4.7UF_35V
74LV14
UT02
511443-000
UP01
74LV04
TT02
POWER_RESET_L
2,37
RT15
0
74LV08A
UF01
511430-000
TT03
ARES_L
3,32,33,37
+3.3V
RT04
10K
SWT02
TACSW_ST
545056-000
CT03
4.7UF_35V
74LV14
UT02
511443-000
UP01
74LV04
+3.3V
RT07
10K
3
CODEC_RESET_H
74LV14
UT02
511443-000
TT04
RESET_CODECS_L
14,15,19,20,24,25,29,30
TT05
+3.3V
RT08
1K
CT04
4.7UF_35V
1K
RT09
74LV14
UT02
511443-000
SOFT_BUTTON_1
3
+3.3V
RT10
1K
CT05
4.7UF_35V
1K
RT11
74LV14
UT02
511443-000
SOFT_BUTTON_2
3
TT08
+3.3V
+3.3V
+3.3V
+3.3V
R18
10K
R19
10K
RT16
10K
RT17
10K
TT09
TT10
TT06
TT07
ENCODER2_BITA
ENCODER2_BITB
ENCODER1_BITA
ENCODER1_BITB
3
LED PIGGYBACK
CONNECTOR
JT03
539026-020
RT14
0
74LV14
UT02
511443-000
+3.3V
JT02
1
20
2
19
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18
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16
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539245-007
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LED_CLKS4
LED_CLKS3
LED_CLKS2
LED_CLKS1
LED_CLKS0
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D_UB6
D_UB5
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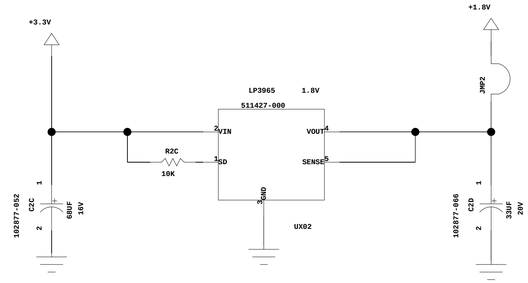
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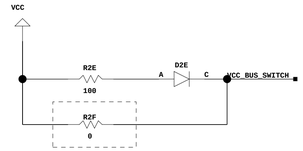


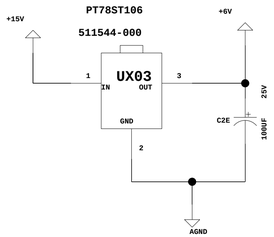


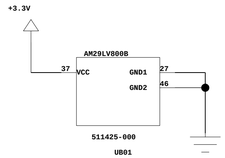


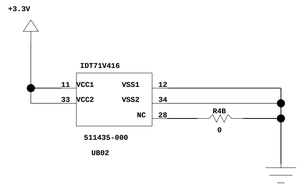


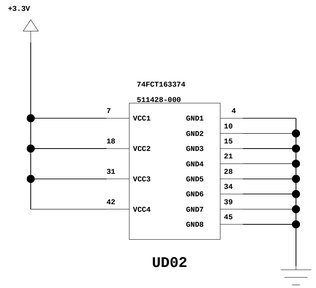


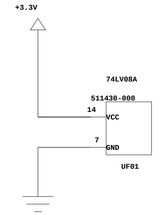


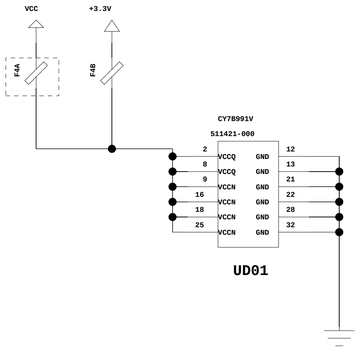


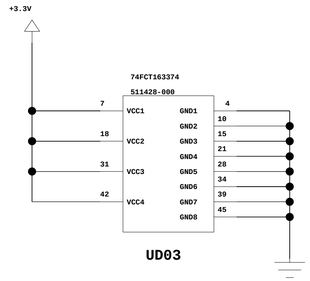


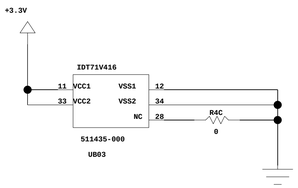


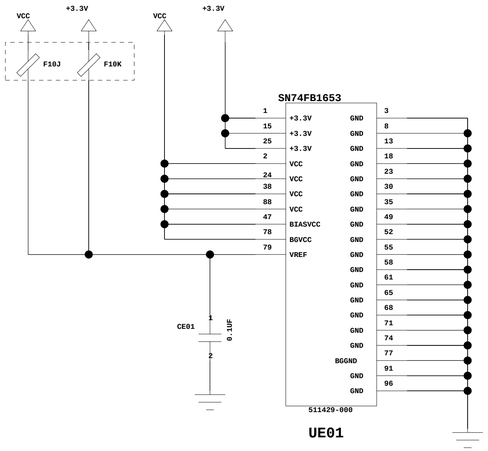


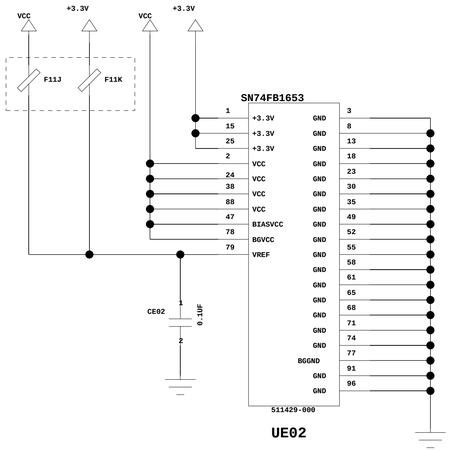




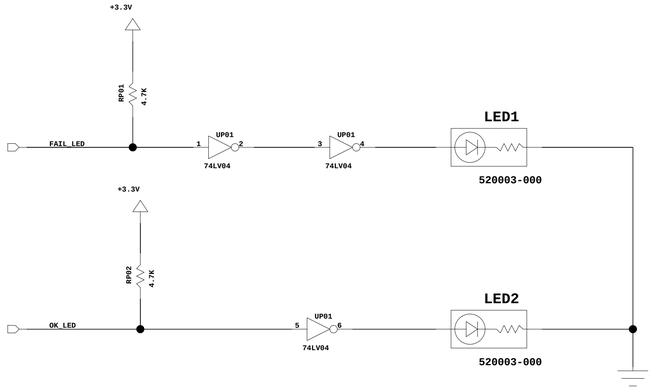


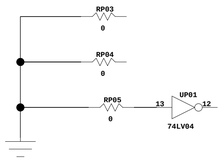


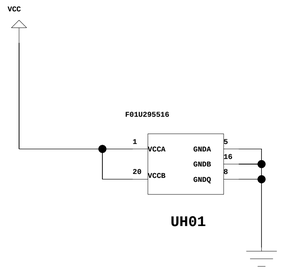


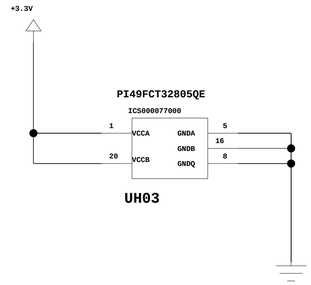


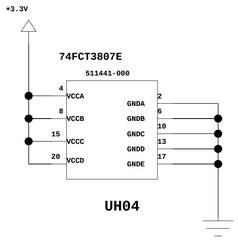
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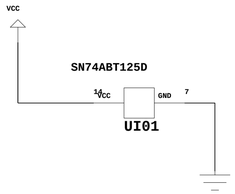


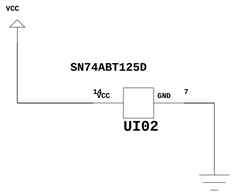


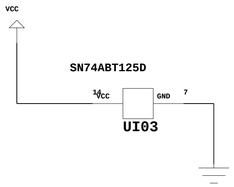


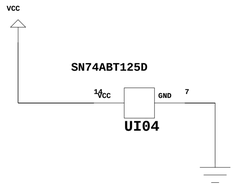


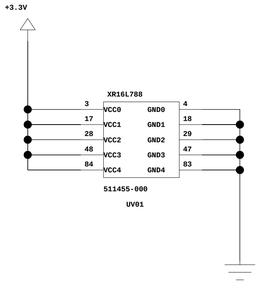


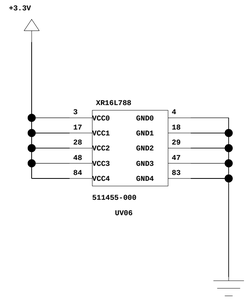


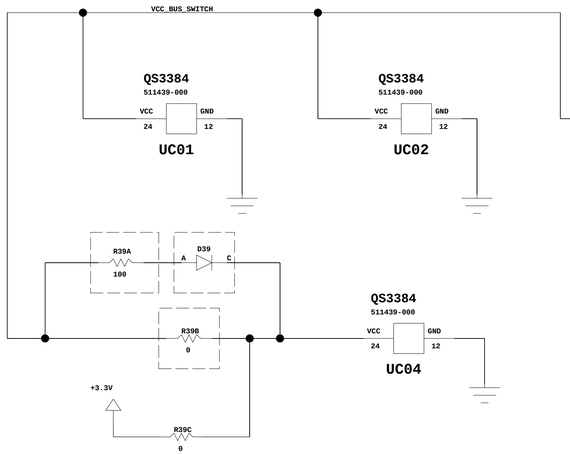


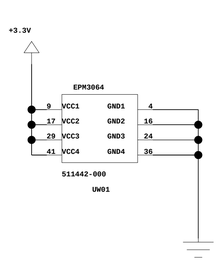


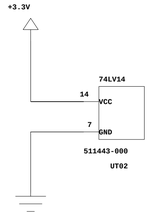


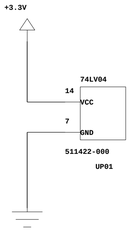


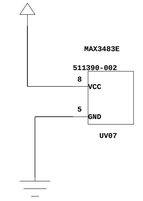


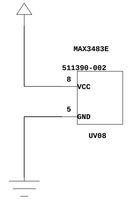


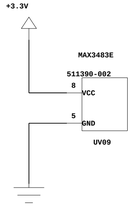


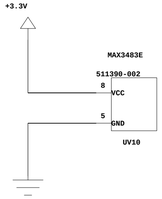


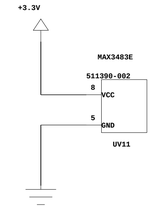


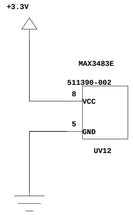


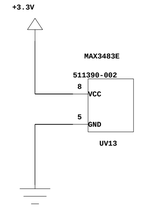


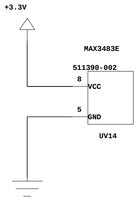


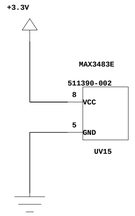


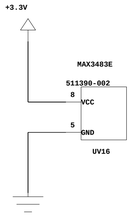


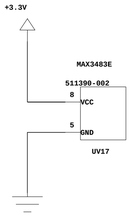


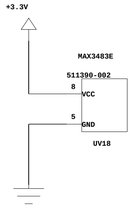


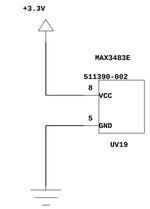


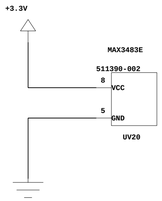


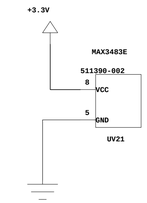


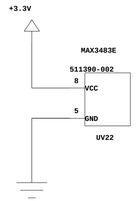




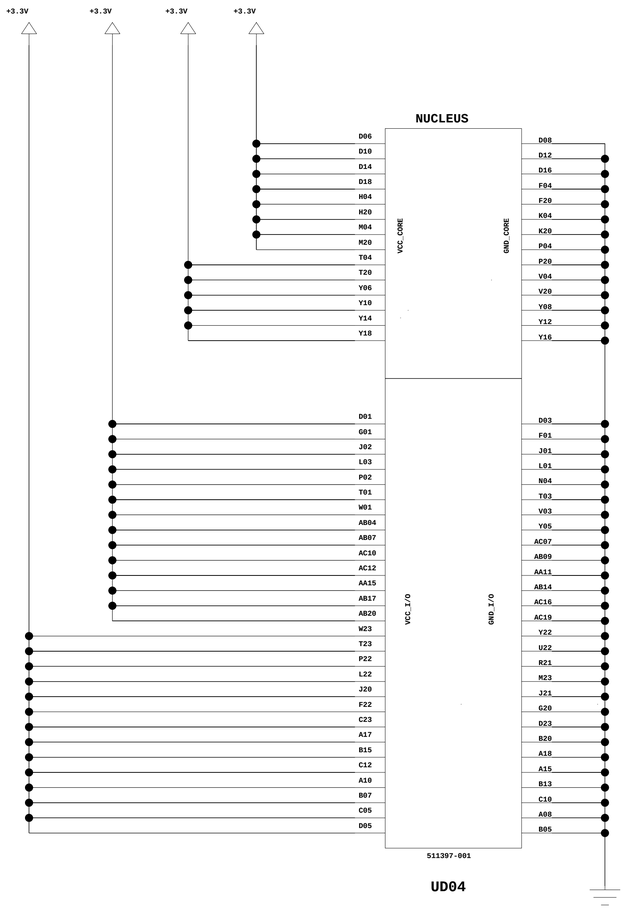


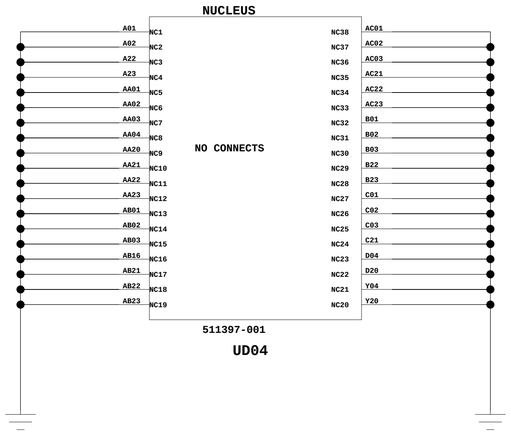


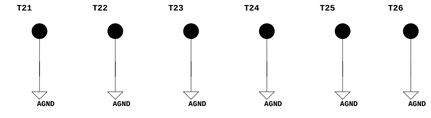


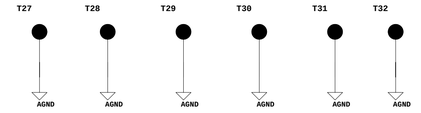


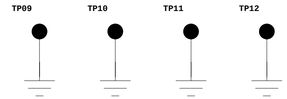
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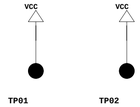


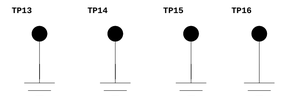


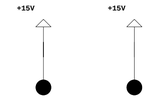


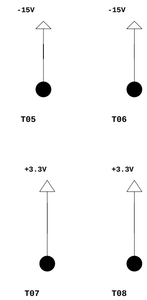


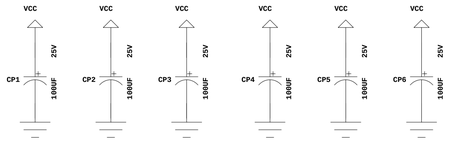


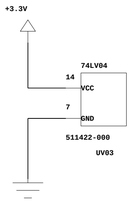




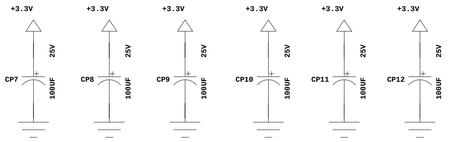


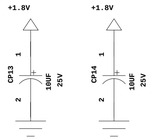




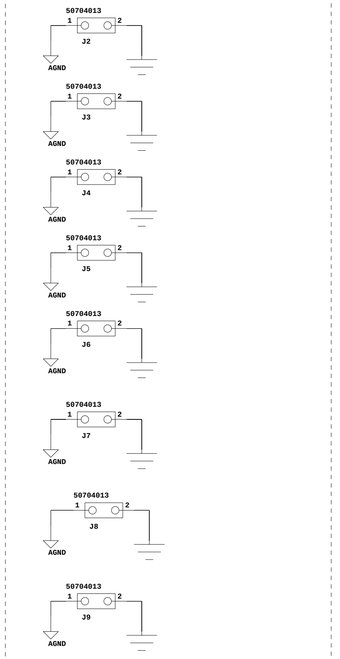


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9040-7726-000



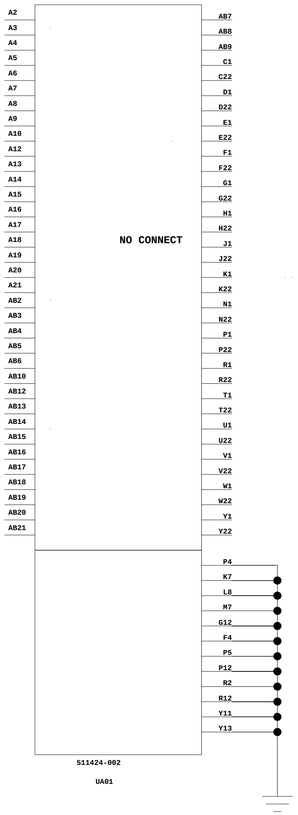


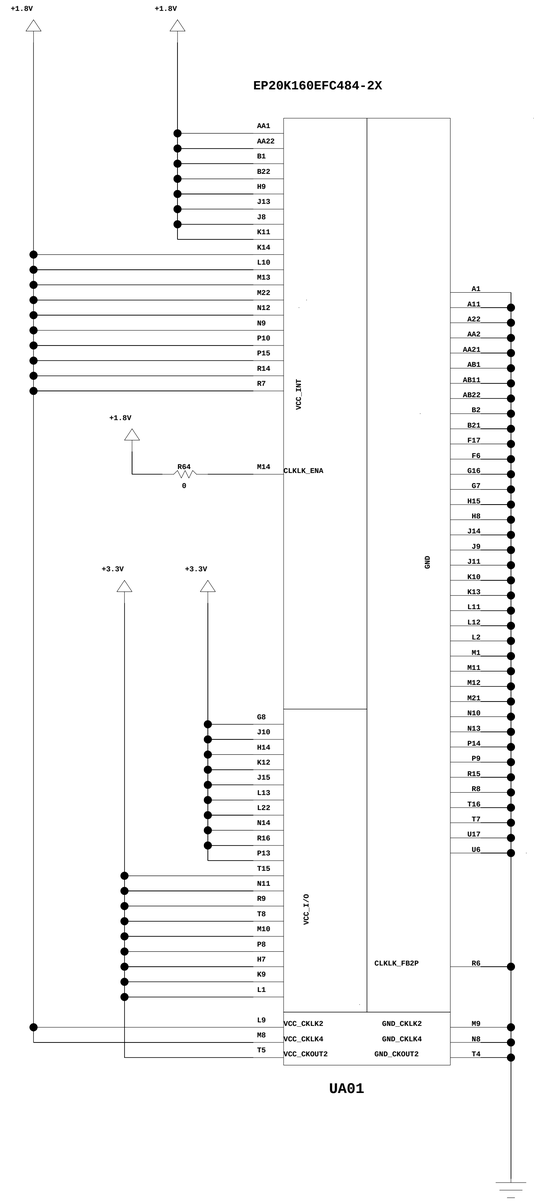
To be placed near signals
that cross the dead zone



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EP20K160EFC484-2X





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Changes from Rev03 to 04

1. Please add gnd symbol to the silk screen
2. Ground trace between CY05.2 and CY03.1 and power pad of UY01 not tied together
3. Ground trace between CY10.2 , CY07.1, CY08.1 and power pad of UY02 not tied together
4. Changed J100 to 539026-014
5. Changed test point P/N# to 590307-000
6. Changed P/N# of CY01, CY02 and CY06 to 517060-002
7. Tied A_UB[9..2] to UV01 and UV06
8. Tied A_UB[3..2] to UD04
9. Added 2 2-pin jumper for JW02
10. Remove RI03 and RI04 from CONTR_LISTEN_DAT/CLK
11. Add RI03 and RI04 to ARB_LISTEN_EN_L and ARB_GRANT_L

Changes from Rev04 to 05

1. Added a ISR part UX03
2. Added a 100uF Capacitor C2E
3. Create a 6V plane to the analog section

Changes from Rev05 to A

None done. Revision was bumped to load the board in the system

Changes from RevA to B

Item 15 in BOM was changed to 162K. Refer to BOM fro details regarding resistor designations

Changes from RevB to C

Item 92- Qty changed from 18 to 50. since 1K pull up/down resistor was added to pg.34 and 35

Item 108- Qty changed from 4 to 8. since 4.7K pull up resistors were added to pg.5 and 11

Changes from RevC to D

Feed back caps on the output gain stage was changed to 1pF to improve the frequency response of the audio circuitry.Pgs affected are 16,21,26,31

Item 25- Part Number waschanged to 723411-1(1pF,50V)

Changes from RevE to F

Replace UH03 (49FCT3805A) with Pericom PI49FCT32805QE

Replace UH04 (49FCT3807E) with Pericom PI49FCT32807QE

Chaged R115, R315, R515, R715, R915, R1115, R1315, R1515 from 100 Ohm to 0 Ohm

Use jumper wire to short J2, J3, J4, J5, J6, J7, J8, J9

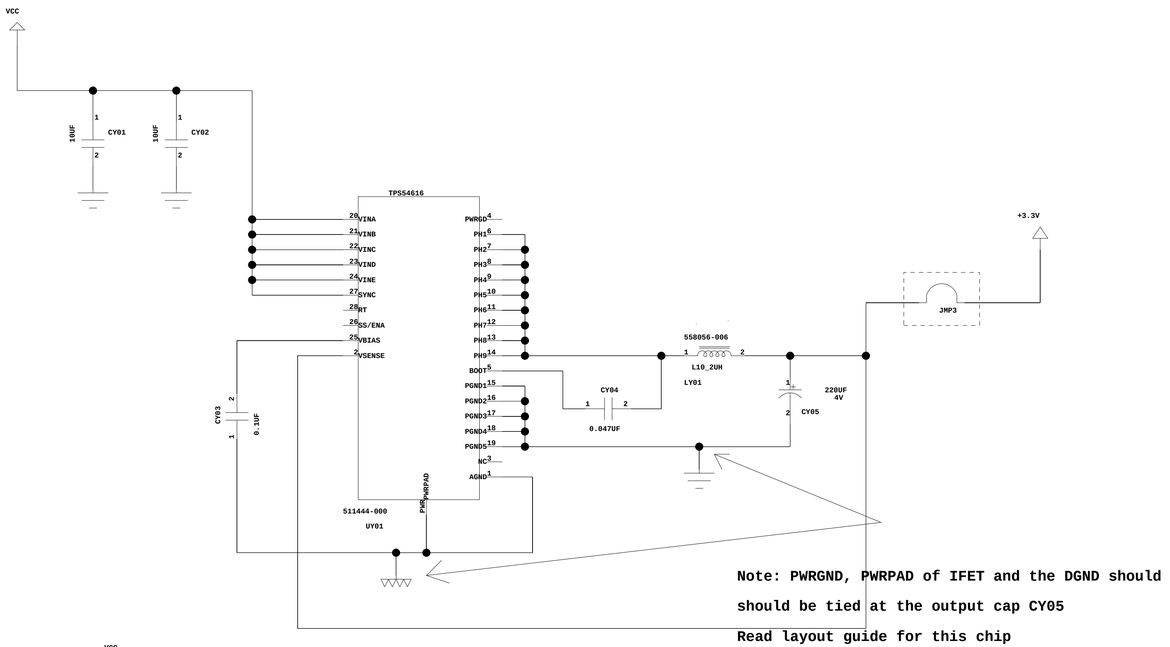
Turned on the “Slow slew rate” option on Altera FPGA

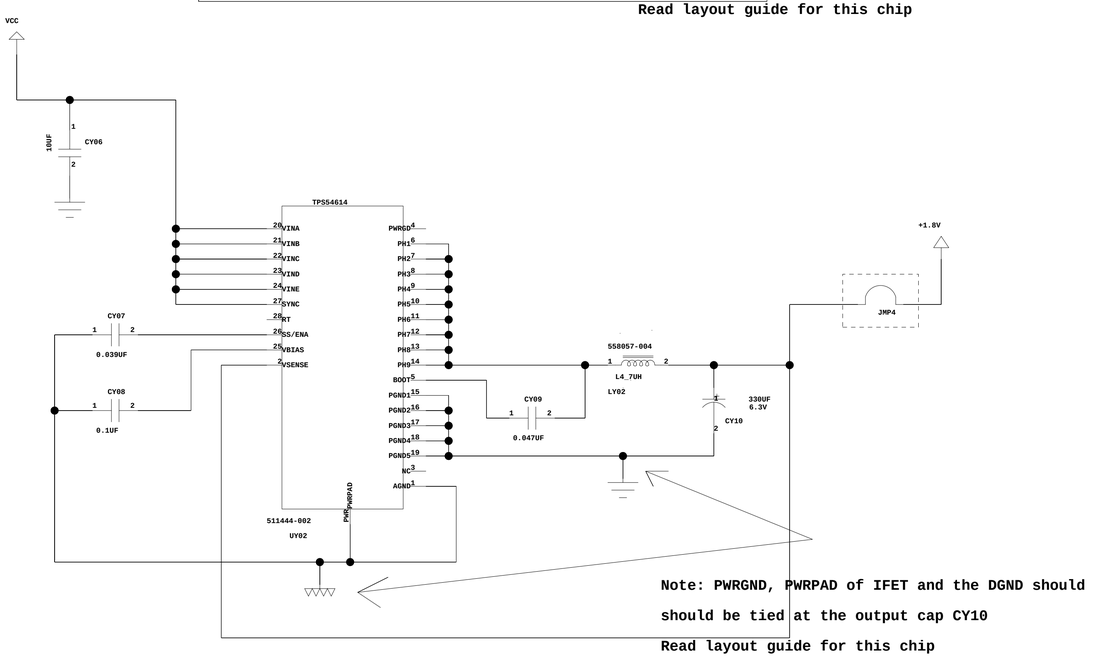
Changes from RevF to G

Changed RD07 from not installed to 0 Ohms

Changes from Rev G to H

Changed UH01 from F01U142807 (IDT49FCT805CTQG) to F01U295516 (PI49FCT3805QE) to change output levels from TTL to CMOS





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