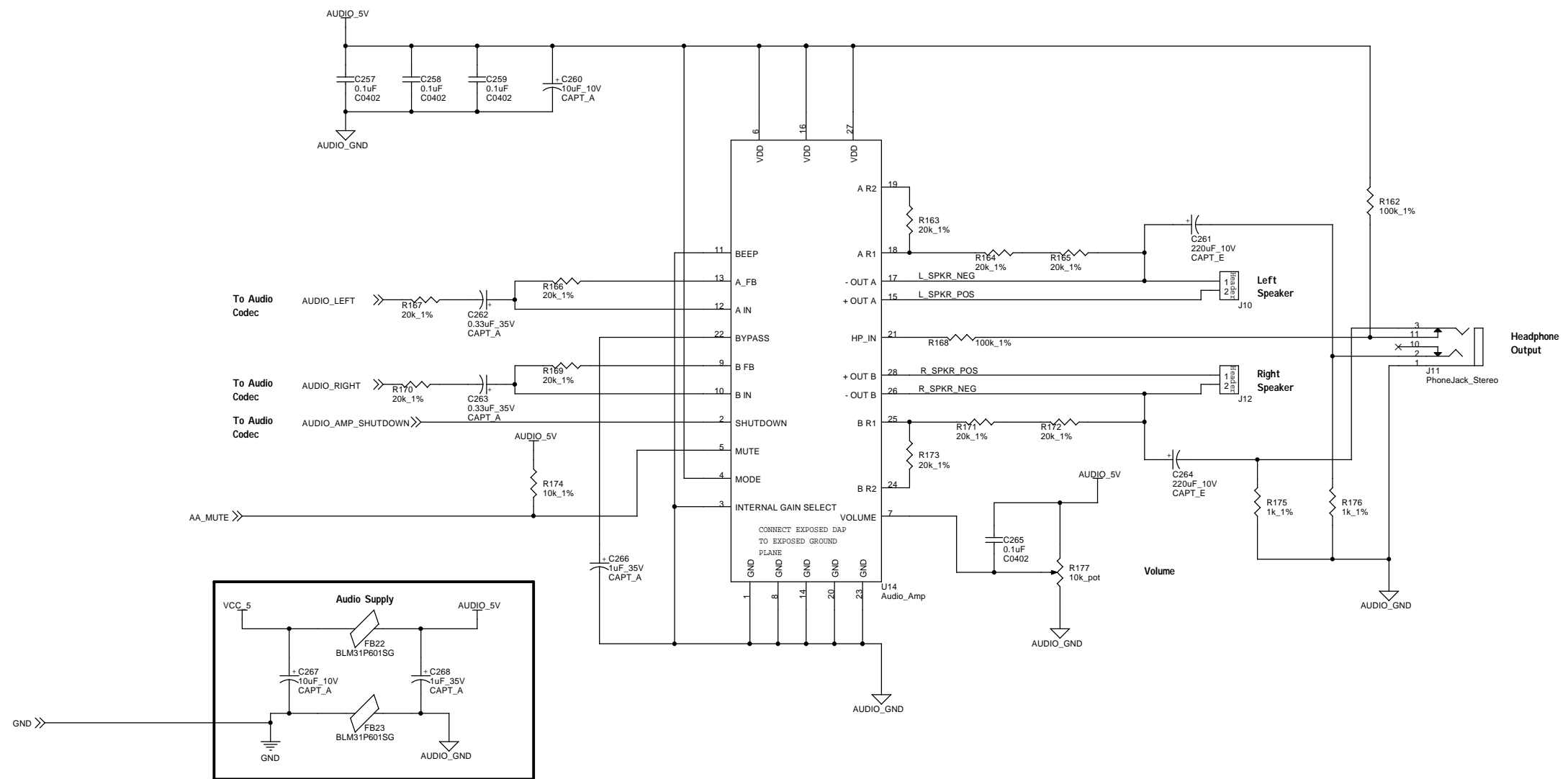
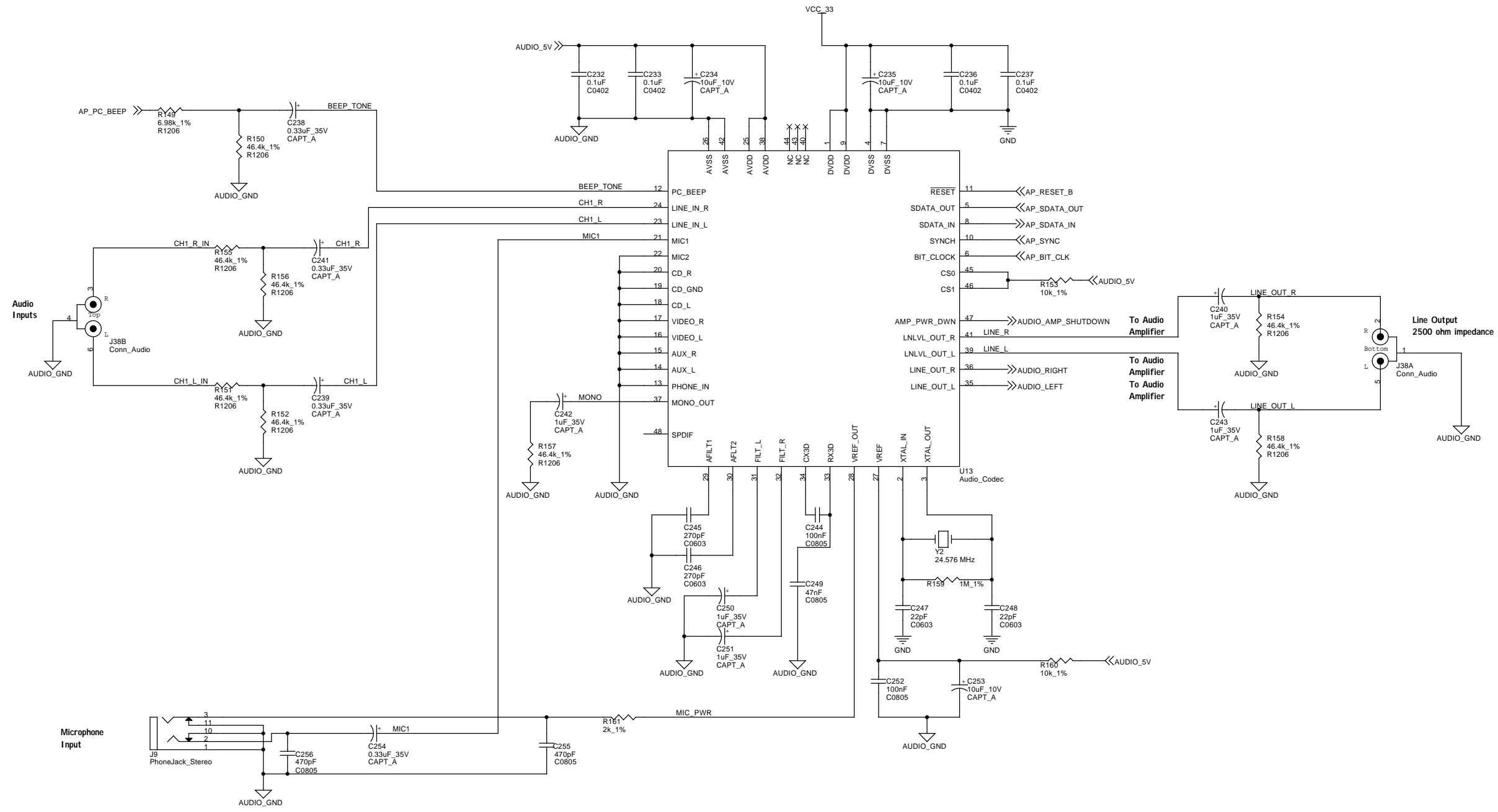


NOTES:
 ALL AA_* OFF PAGE CONNECTORS GO TO FPGA BANK 2.

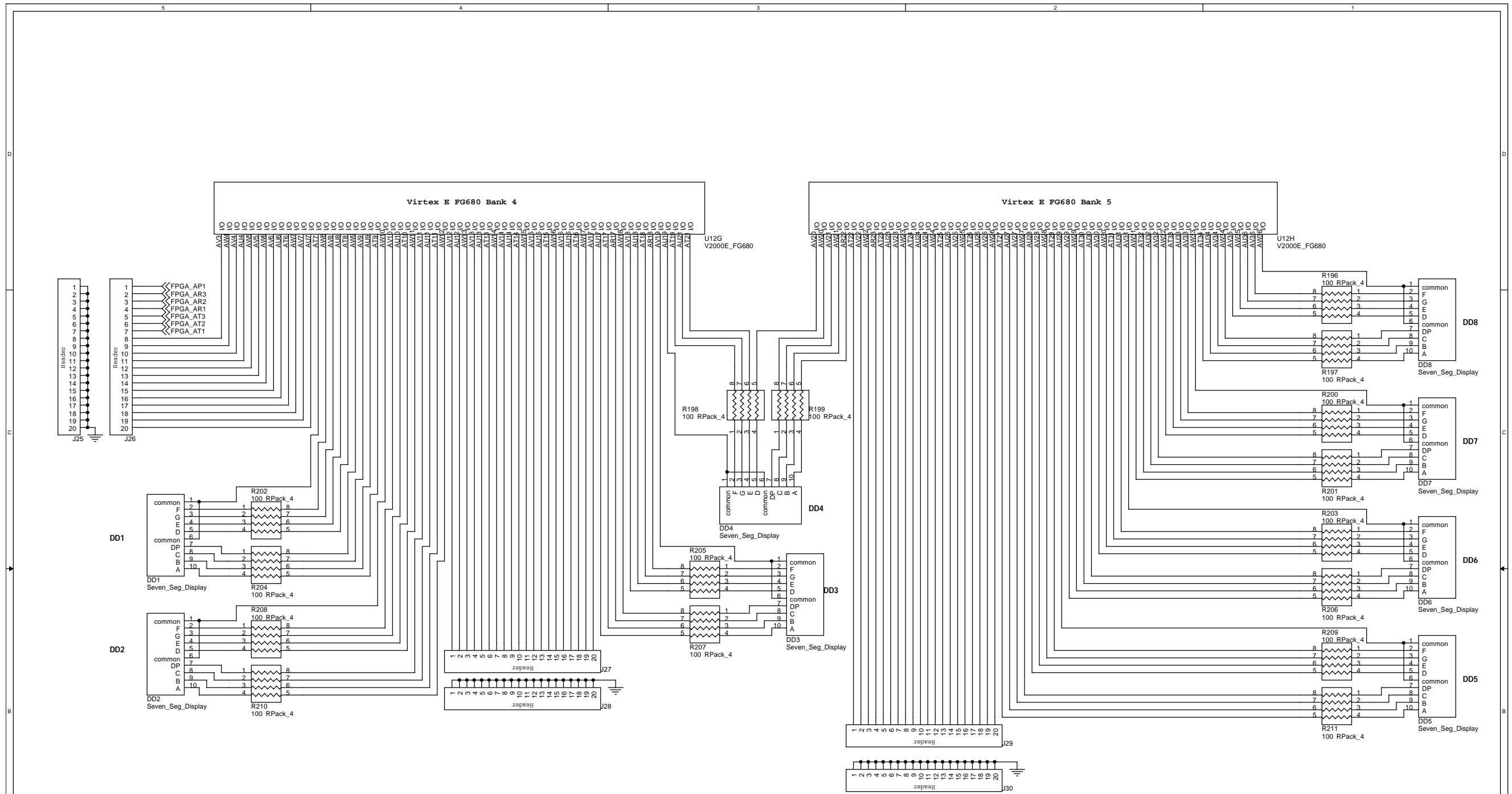


VCC_5
 GND
 AUDIO_5V
 AUDIO_GND

NOTES:
 ALL AP_* OFF PAGE CONNECTORS GO TO FPGA BANK 1.



<<VCC_33
 <<GND
 <<AUDIO_5V
 <<AUDIO_GND

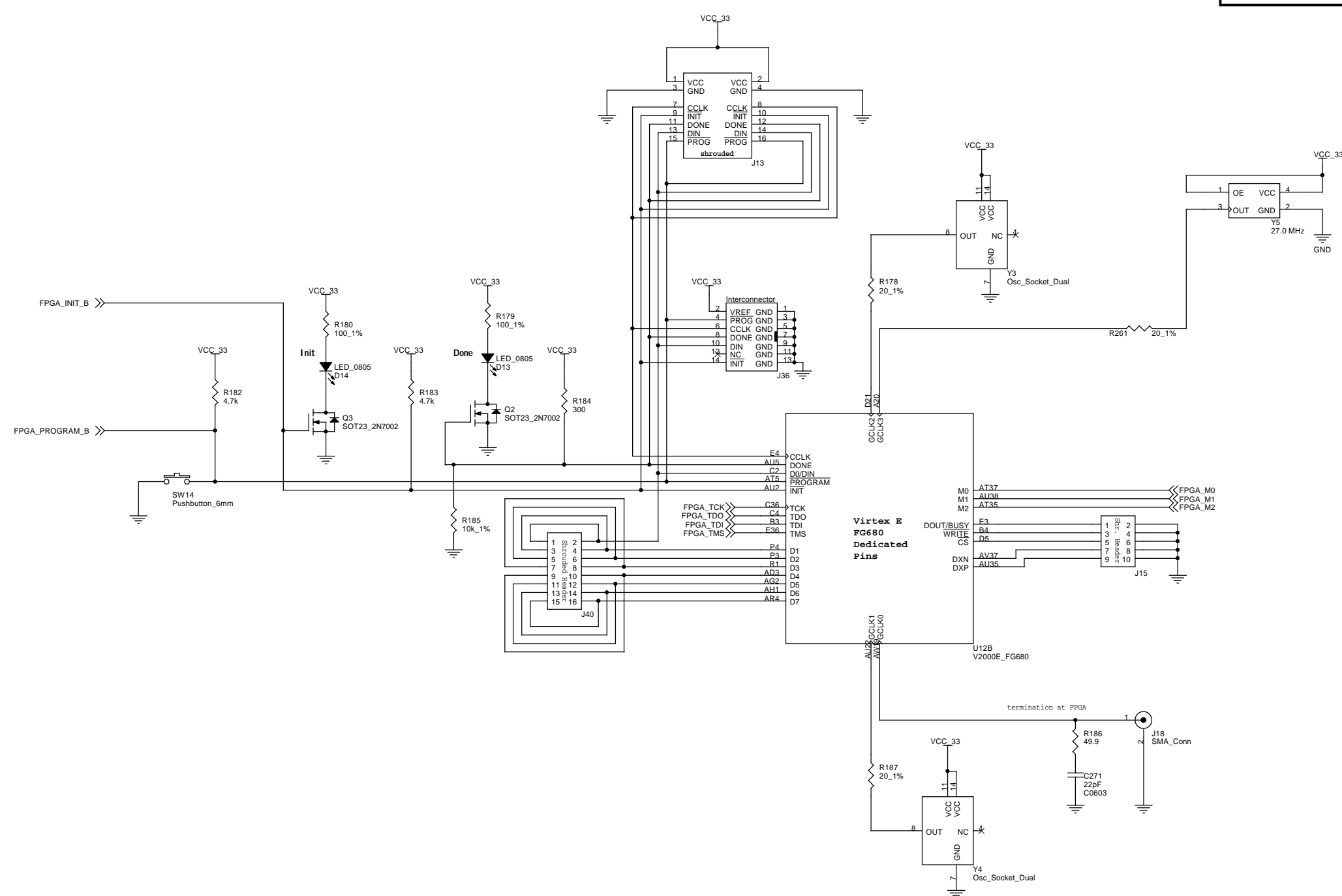


Seven Segment Displays

Display	FPGA Pin	Display	FPGA Pin	Display	FPGA Pin	Display	FPGA Pin	Display	FPGA Pin	Display	FPGA Pin	Display	FPGA Pin	Display	FPGA Pin
DD1	AT9	DD2	AW12	DD3	AU17	DD4	AR22	DD5	AT27	DD6	AV29	DD7	AW31	DD8	AT34
A	AU9	B	AT11	B	AT17	B	AW21	B	AU27	B	AW29	B	AT32	B	AU34
C	AV9	C	AU11	C	AR17	C	AV21	C	AV27	C	AT30	C	AU32	C	AV34
D	AT8	D	AW11	D	AV18	D	AV20	D	AU28	D	AV30	D	AW32	D	AV35
E	AU8	E	AT10	E	AU18	E	AT21	E	AV28	E	AV30	E	AT33	E	AW35
F	AW8	F	AV10	F	AR18	F	AT19	F	AT29	F	AU31	F	AV33	F	AV36
G	AV8	G	AU10	G	AT18	G	AU21	G	AW28	G	AT31	G	AU33	G	AU36
Common	AT7	Common	AW10	Common	AV19	Common	AU19	Common	AU29	Common	AV31	Common	AW33	Common	AW36
Point	AW9	Point	AV11	Point	AW18	Point	AW20	Point	AW27	Point	AU30	Point	AV32	Point	AW34

← GND

2003 CHANGES:
 MOVED Y5 FROM VIDEO ENCODER PAGE & CHANGED THE MANNER OF ITS CONNECTION SUCH THAT IT GOES SOLELY TO THE FPGA. THE OTHER PINS PREVIOUSLY DRIVEN BY Y5 ARE NOW TO BE DRIVEN BY FPGA I/O PINS.



VCC_33
 GND

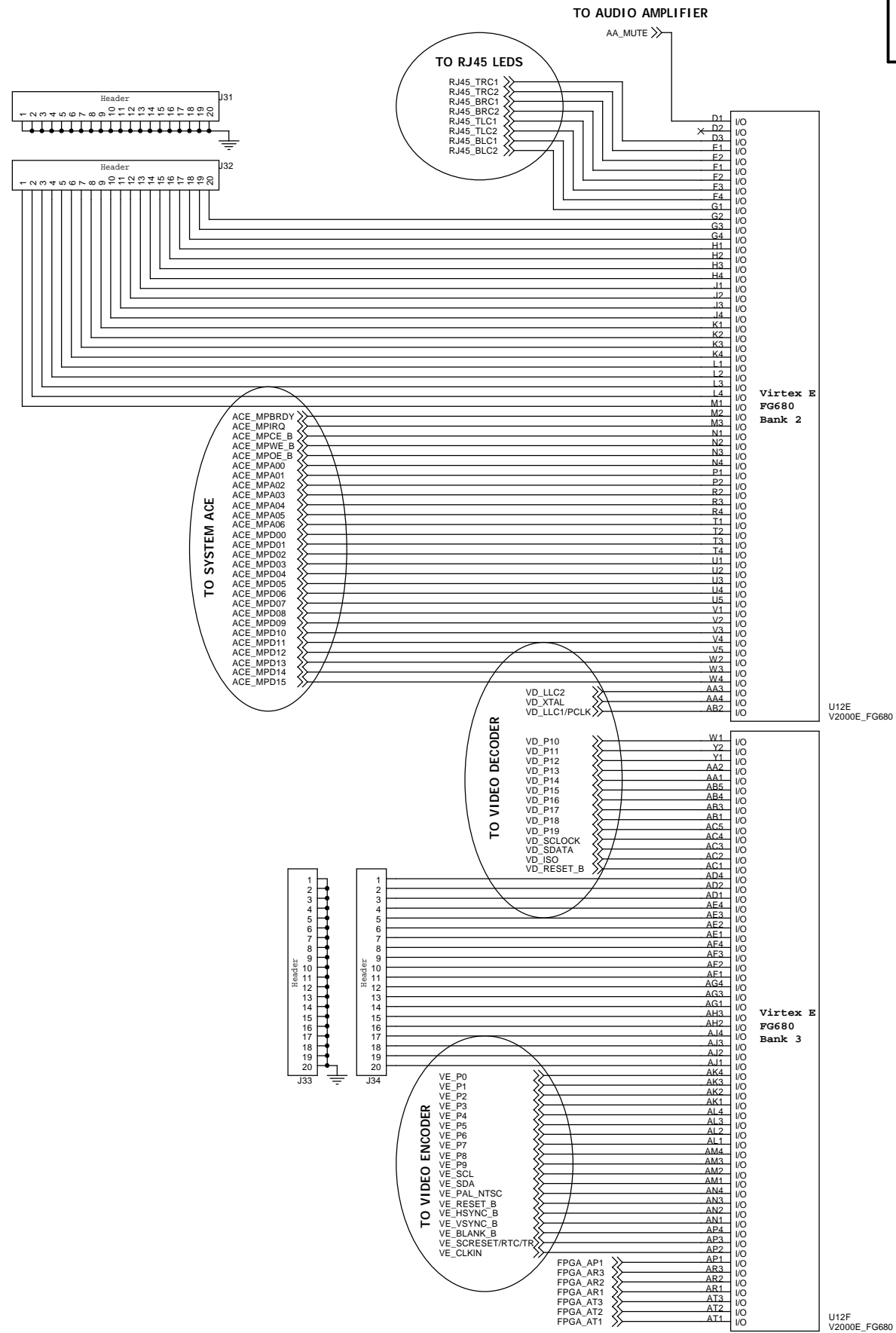
2003 CHANGES
 ADDED VE_CLKIN CONNECTION TO VIDEO ENCODER
 ADDED VD_XTAL CONNECTION TO VIDEO DECODER

SystemACE		
ACE Pin Name	ACE Pin Number	FPGA Pin Number
MFA00	70	N4
MFA01	69	P1
MFA02	68	P2
MFA03	67	R2
MFA04	45	R3
MFA05	44	R4
MFA06	43	T1
MPBRDY	39	M2
MPCE_B	42	N1
MPD00	66	T2
MPD01	65	T3
MPD02	63	T4
MPD03	62	U1
MPD04	61	U2
MPD05	60	U3
MPD06	59	U4
MPD07	58	U5
MPD08	56	V1
MPD09	53	V2
MPD10	52	V3
MPD11	51	V4
MPD12	50	V5
MPD13	49	W2
MPD14	48	W3
MPD15	47	W4
MPIRQ	41	M3
MPOE_B	77	N3
MPWE_B	76	N2

Audio Amplifier		
Audio Amp Pin Name	Audio Amp Pin Number	FPGA Pin Number
MUTE	5	D1

Video Decoder		
Video Decoder Pin Name	Video Decoder Pin Number	FPGA Pin Number
ISO	65	AC2
LLC1/PCLK	27	AB2
LLC2	26	AA3
P10	18	W1
P11	17	Y2
P12	8	Y1
P13	7	AA2
P14	6	AA1
P15	5	AB5
P16	76	AB4
P17	75	AB3
P18	74	AB1
P19	73	AC5
RESET_B	64	AC1
SCLOCK	68	AC4
SDATA	67	AC3
XTAL	29	AA4

Video Encoder		
Video Encoder Pin Name	Video Encoder Pin Number	FPGA Pin Number
BLANK_B	25	AP4
CLKIN	36	AP2
HSYNC_B	24	AN2
P0	1	AK4
P1	2	AK3
P2	3	AK2
P3	4	AK1
P4	5	AL4
P5	6	AL3
P6	7	AL2
P7	8	AL1
P8	9	AM4
P9	10	AM3
PAL_NTSC	59	AN4
RESET_B	60	AN3
SCL	39	AM2
SCRESET/RTC/TR	41	AP3
SDA	40	AM1
VSYNC_B	23	AN1

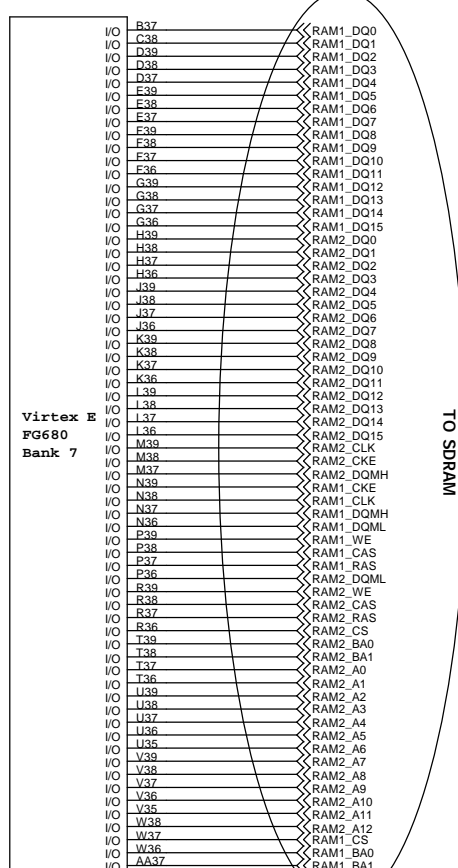


Virtex E
 FG680
 Bank 2

Virtex E
 FG680
 Bank 3

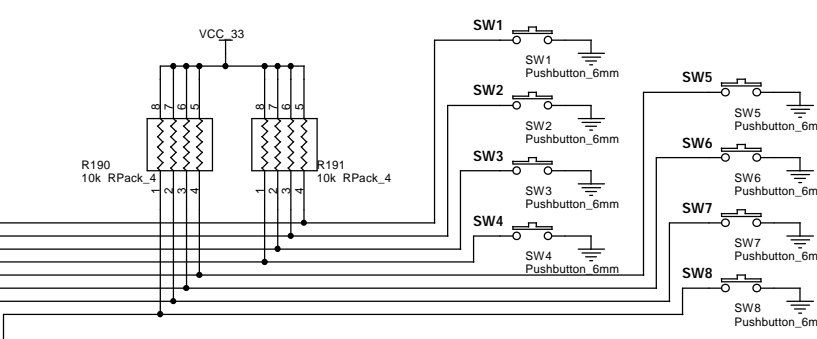
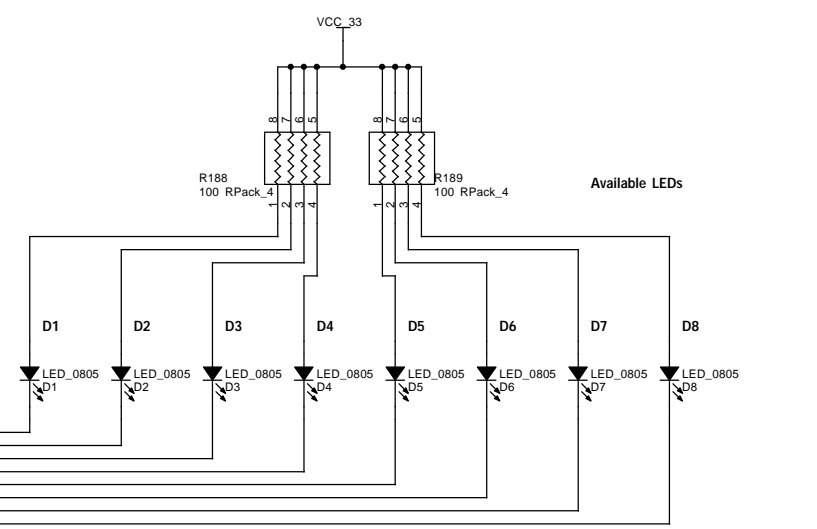
U12F
 V2000E_FG680

2003 CHANGES:
 CHANGED PINOUT FOR SDRAM THROUGH SEPARATION OF ADDRESS BUS & CONTROL LINES
 CHANGED PINOUT FOR LEDs
 CHANGED PINOUT FOR DIP SWITCHES
 CHANGED PINOUT FOR PUSHBUTTON SWITCHES



TO SDRAM

TO SDRAM



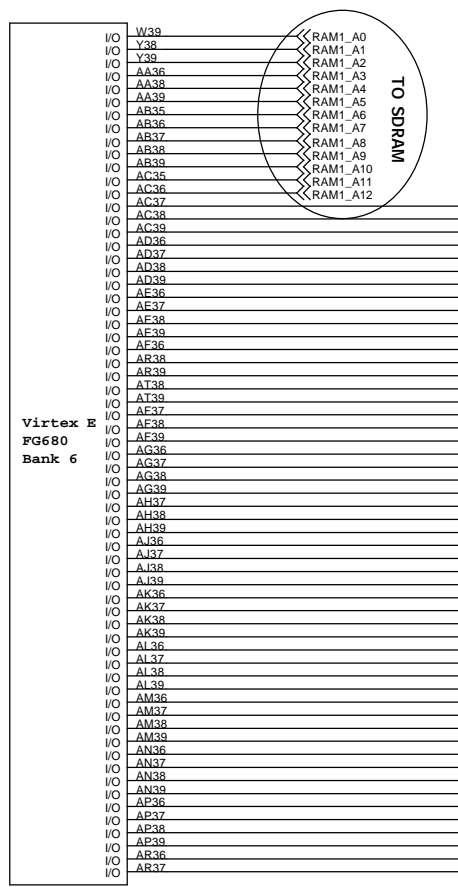
SDRAM FIRST CHIP [U6]		
SDRAM Pin Name	SDRAM Pin Number	FPGA Pin Number
A0	23	W39
A1	24	Y38
A2	25	Y39
A3	26	AA36
A4	29	AA38
A5	30	AA39
A6	31	AB35
A7	32	AB36
A8	33	AB37
A9	34	AB38
A10	22	AB39
A11	35	AC35
A12	36	AC36
BA0	20	W36
BA1	21	AA37
CAS	17	P38
CKE	37	N39
CLK	38	N38
CS	19	W37
DQ0	2	B37
DQ1	4	C38
DQ2	5	D39
DQ3	7	D38
DQ4	8	D37
DQ5	10	E39
DQ6	11	E38
DQ7	13	E37
DQ8	42	F39
DQ9	44	F38
DQ10	45	F37
DQ11	47	F36
DQ12	48	G39
DQ13	50	G38
DQ14	51	G37
DQ15	53	G36
DQMH	39	N37
RAS	18	P37
WE	16	P39

SDRAM SECOND CHIP [U7]		
SDRAM Pin Name	SDRAM Pin Number	FPGA Pin Number
A0	23	T37
A1	24	T36
A2	25	U39
A3	26	U38
A4	29	U37
A5	30	U36
A6	31	U35
A7	32	V39
A8	33	V38
A9	34	V37
A10	22	V36
A11	35	V35
A12	36	W38
BA0	20	T39
BA1	21	T38
CAS	17	R38
CKE	37	M38
CLK	38	M39
CS	19	R36
DQ0	2	H39
DQ1	4	H38
DQ2	5	H37
DQ3	7	H36
DQ4	8	J39
DQ5	10	J38
DQ6	11	J37
DQ7	13	J36
DQ8	42	K39
DQ9	44	K38
DQ10	45	K37
DQ11	47	K36
DQ12	48	L39
DQ13	50	L38
DQ14	51	L37
DQ15	53	L36
DQMH	39	M37
RAS	18	R37
WE	16	R39

LEDs (Active Low)	
LED Number	FPGA Pin Number
D1	AC37
D2	AC38
D3	AC39
D4	AD36
D5	AD37
D6	AD38
D7	AD39
D8	AE36

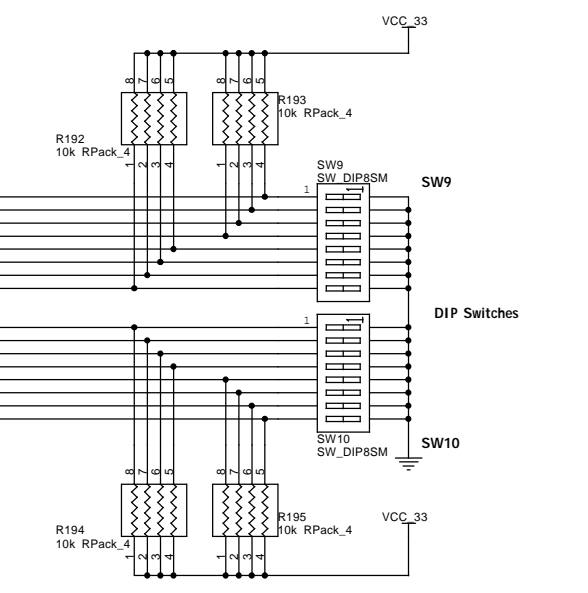
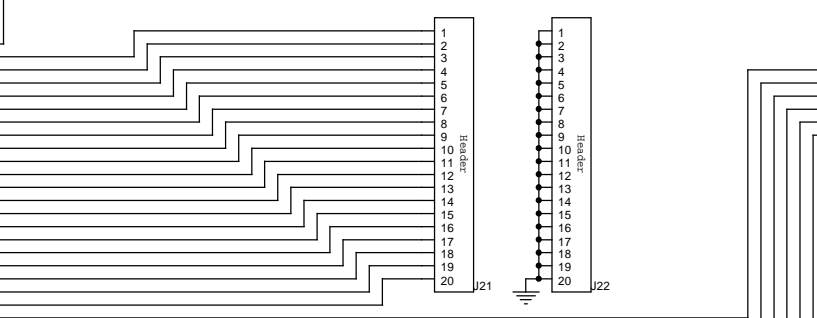
DIP Switches (Active Low)	
Switch Number	FPGA Pin Number
SW9-1	AL38
SW9-2	AL39
SW9-3	AM36
SW9-4	AM37
SW9-5	AM38
SW9-6	AM39
SW9-7	AN36
SW9-8	AN37
SW10-1	AN38
SW10-2	AN39
SW10-3	AP36
SW10-4	AP37
SW10-5	AP38
SW10-6	AP39
SW10-7	AR36
SW10-8	AR37

Pushbutton Switches (Active Low)	
Switch Number	FPGA Pin Number
SW1	AE37
SW2	AE38
SW3	AE39
SW4	AF36
SW5	AR38
SW6	AR39
SW7	AT38
SW8	AT39



TO SDRAM

TO SDRAM



VCC_33 GND

Ethernet Transceiver		
Transceiver Pin Name	Transceiver Pin Number	FPGA Pin Number
ADD2	18	C15
ADD3	19	D15
ADD4	20	A16
AUTOENA	111	C35
BYPSCR	113	B35
CFG_0	116	A36
CFG_1	115	B36
CFG_2	114	A35
COL0	37	B19
COL1	57	A23
COL2	75	A27
COL3	93	D32
CRS0	38	C19
CRS1	58	D24
CRS2	76	C28
CRS3	94	C32
FDE	110	D35
LED0_0	11	A14
LED0_1	12	B14
LED0_2	13	C14
LED1_0	8	B13
LED1_1	9	C13
LED1_2	10	D13
LED2_0	4	B12
LED2_1	5	C12
LED2_2	6	A13
LED3_0	1	C11
LED3_1	2	D11
LED3_2	3	A12
LEDCLK	15	D14
LEDDAT	16	A15
LEDENA	17	B15
MDC	99	D33
MDDIS	100	C33
MDINT	98	A32
MDIO	97	B32
PWRDN	102	B33
RESET	109	A34
RXD0_0	26	A17
RXD0_1	25	D16
RXD0_2	24	C16
RXD0_3	23	B16
RXD1_0	45	B21
RXD1_1	44	B20
RXD1_2	43	C21
RXD1_3	42	D19
RXD2_0	64	D25
RXD2_1	63	A24
RXD2_2	62	B24

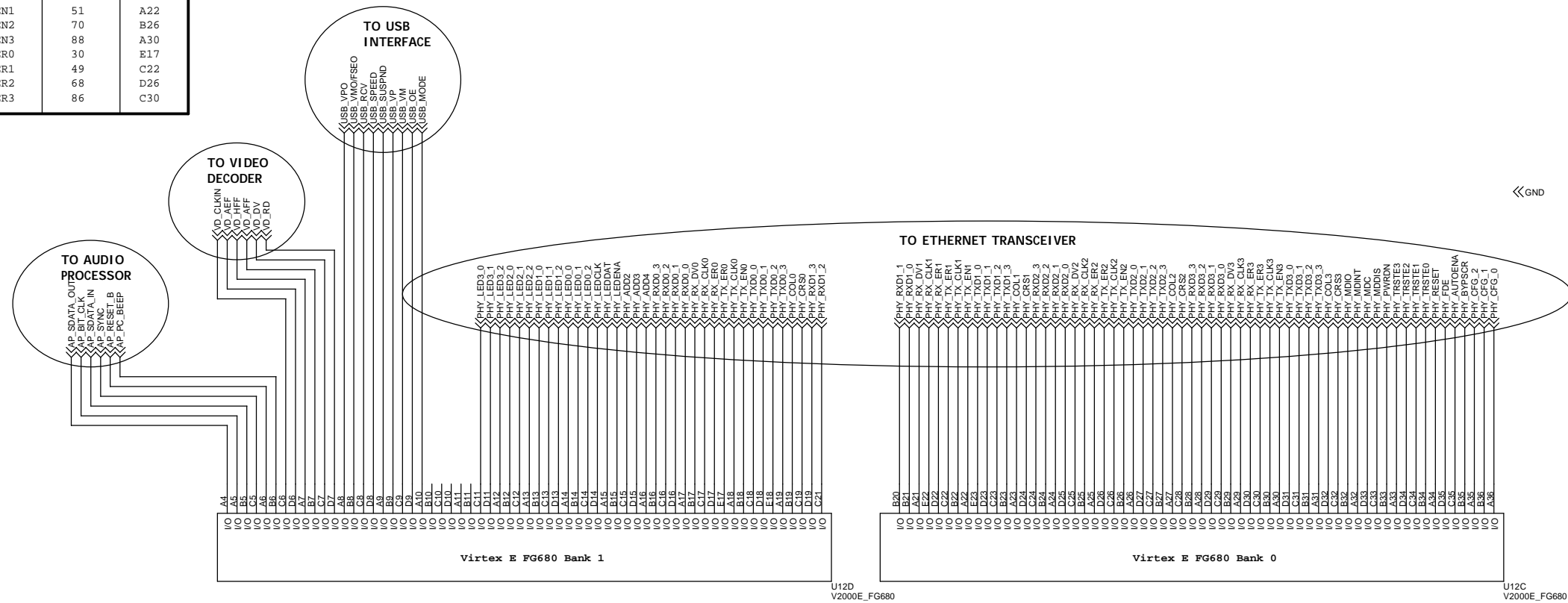
Ethernet Transceiver (cont.)		
Transceiver Pin Name	Transceiver Pin Number	FPGA Pin Number
RXD2_3	61	C24
RXD3_0	82	C29
RXD3_1	81	D29
RXD3_2	80	A28
RXD3_3	79	B28
RX_CLK0	28	C17
RX_CLK1	47	E22
RX_CLK2	66	B25
RX_CLK3	84	A29
RX_DV0	27	B17
RX_DV1	46	A21
RX_DV2	65	C25
RX_DV3	83	B29
RX_ER0	29	D17
RX_ER1	48	D22
RX_ER2	67	A25
RX_ER3	85	D30
TRSTE0	106	B34
TRSTE1	105	C34
TRSTE2	104	D34
TRSTE3	103	A33
TX_CLK0	31	A18
TX_CLK1	50	B22
TX_CLK2	69	C26
TX_CLK3	87	B30
TXD0_0	33	C18
TXD0_1	34	D18
TXD0_2	35	E18
TXD0_3	36	A19
TXD1_0	52	E23
TXD1_1	53	D23
TXD1_2	54	C23
TXD1_3	55	B23
TXD2_0	71	A26
TXD2_1	72	D27
TXD2_2	73	C27
TXD2_3	74	B27
TXD3_0	89	D31
TXD3_1	90	C31
TXD3_2	91	B31
TXD3_3	92	A31
TX_EN0	32	B18
TX_EN1	51	A22
TX_EN2	70	B26
TX_EN3	88	A30
TX_ER0	30	E17
TX_ER1	49	C22
TX_ER2	68	D26
TX_ER3	86	C30

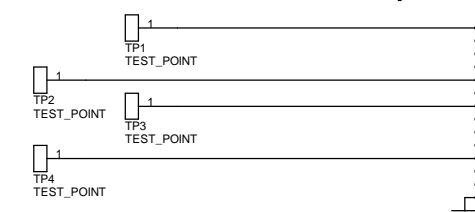
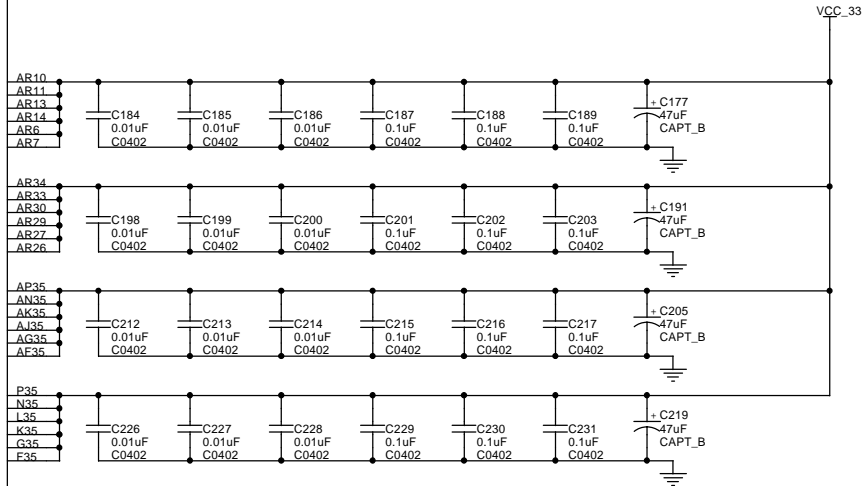
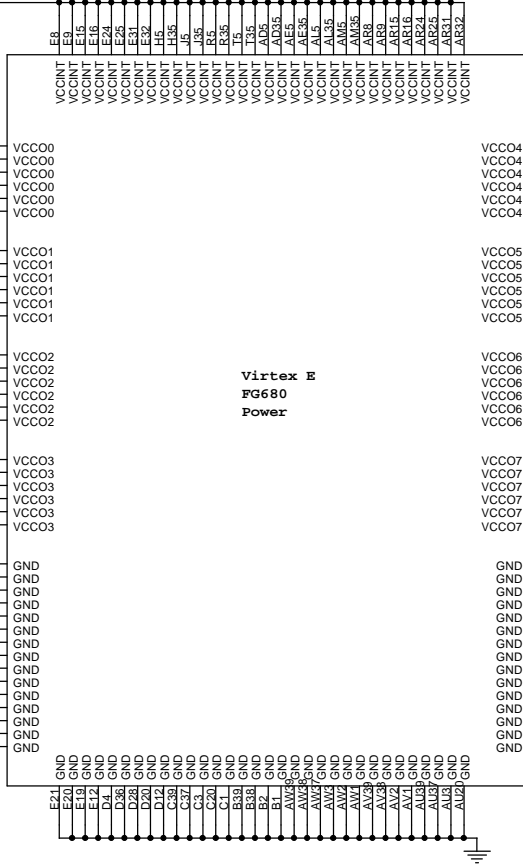
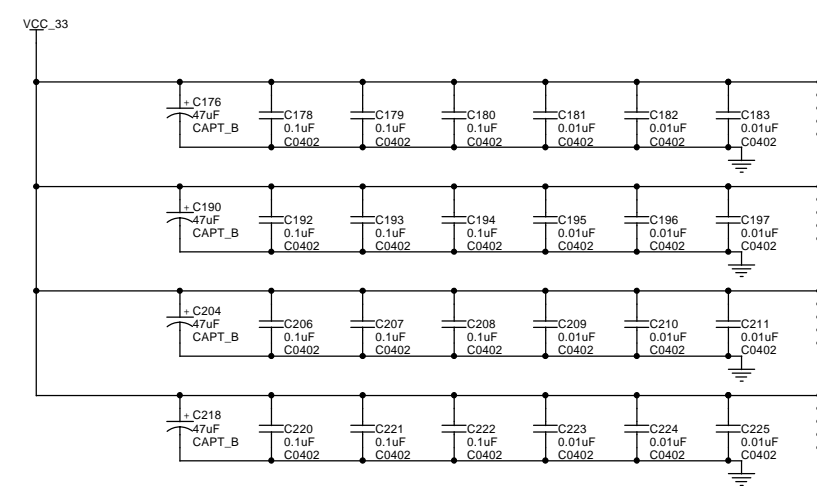
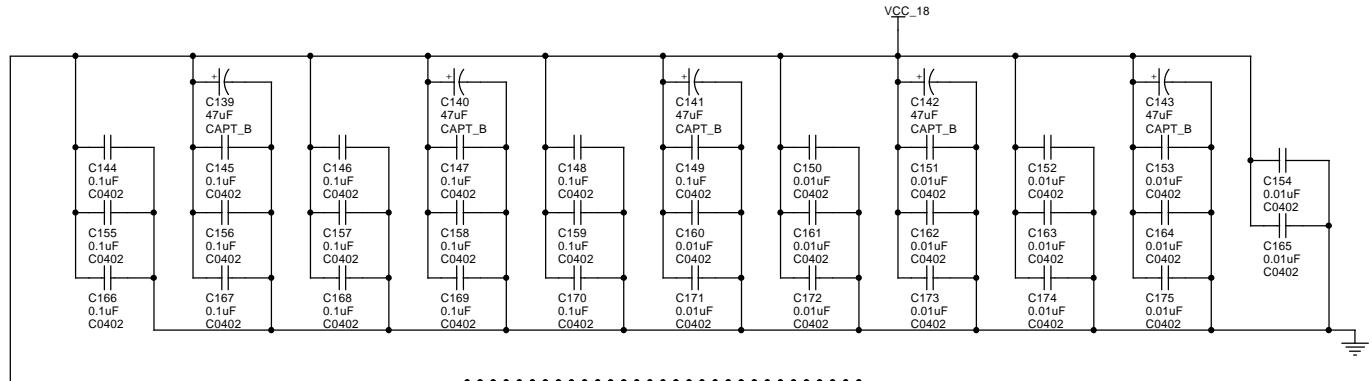
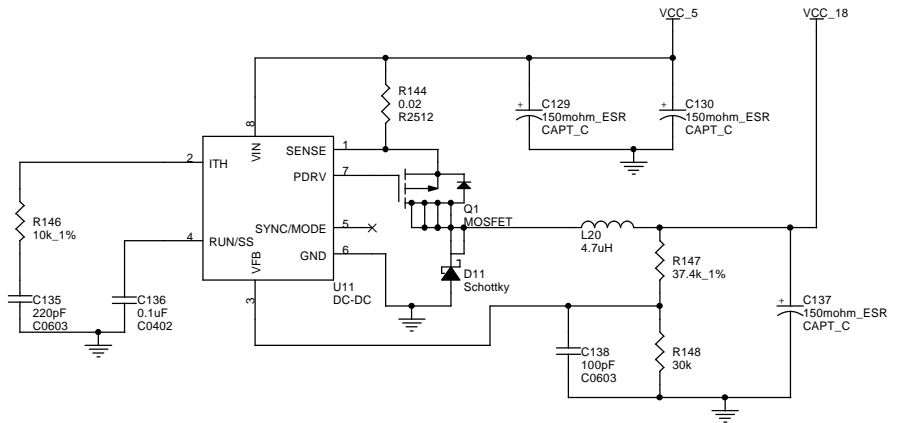
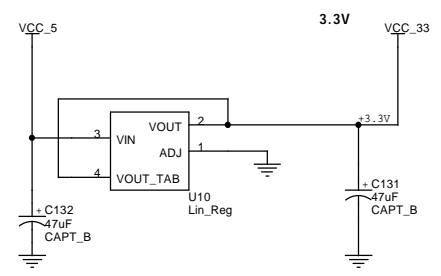
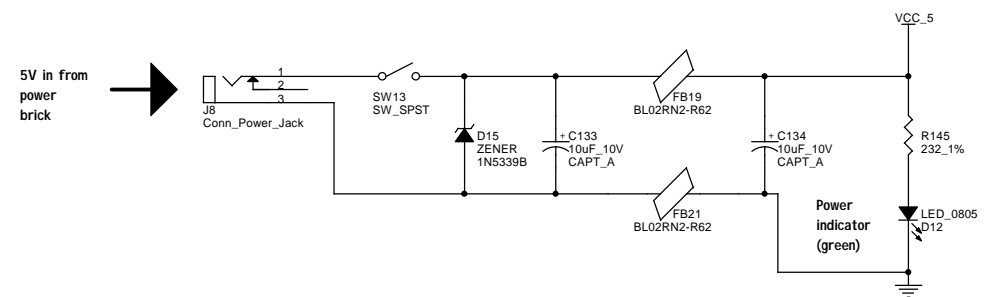
Audio Codec		
Codec Pin Name	Codec Pin Number	FPGA Pin Number
BIT_CLK	6	A5
PC_BEEP	12	B6
RESET_B	11	A6
SDATA_IN	8	B5
SDATA_OUT	5	A4
SYNC	10	C5

USB Interface		
USB Pin Name	USB Pin Number	FPGA Pin Number
MODE	1	A10
OE	2	D9
RCV	3	C8
SPEED	9	D8
SUSPND	6	A9
VM	5	C9
VMO/FSEO	13	B8
VP	4	B9
VPO	12	A8

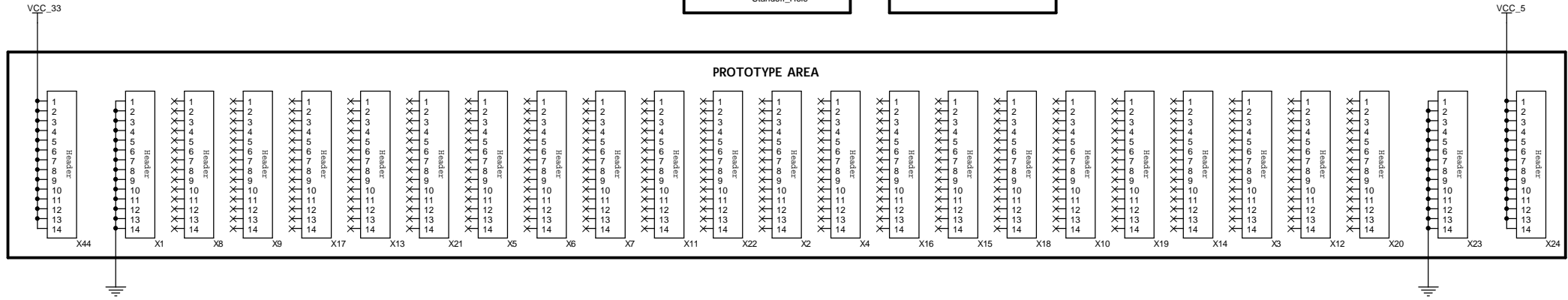
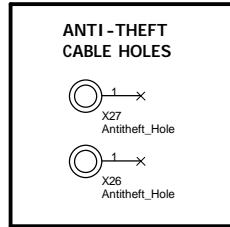
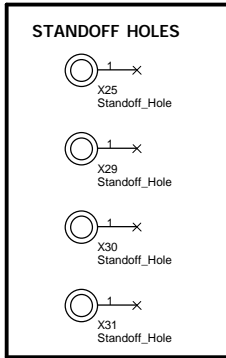
Video Decoder		
Decoder Pin Name	Decoder Pin Number	FPGA Pin Number
AFF	13	D6
AFF	11	B7
CLKIN	16	C6
DV	78	C7
HFF	12	A7
RD	77	D7

2003 CHANGES:
 ADDED VIDEO DECODER CONNECTIONS
 ADDED USB INTERFACE CONNECTIONS

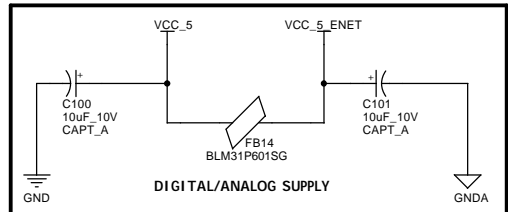
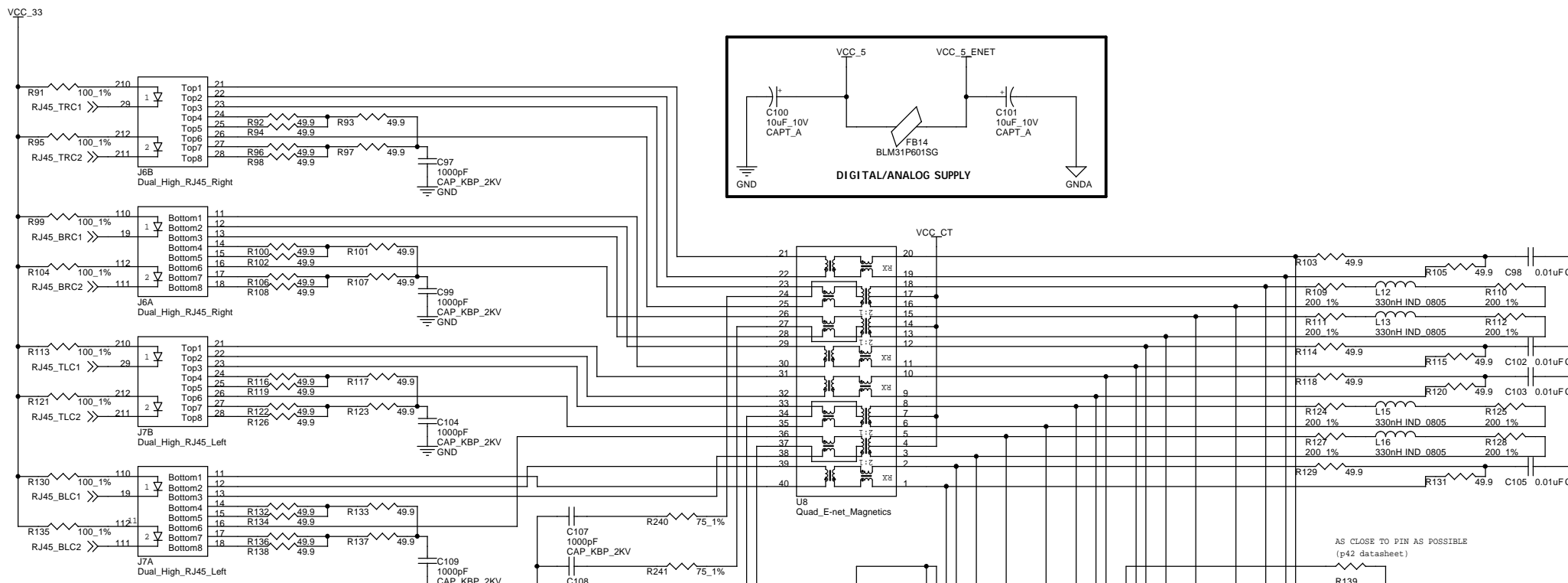




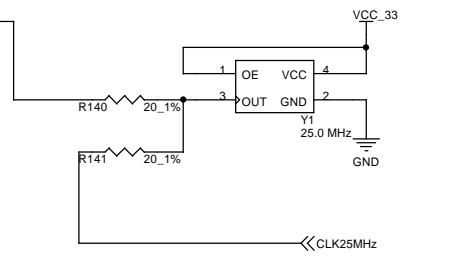
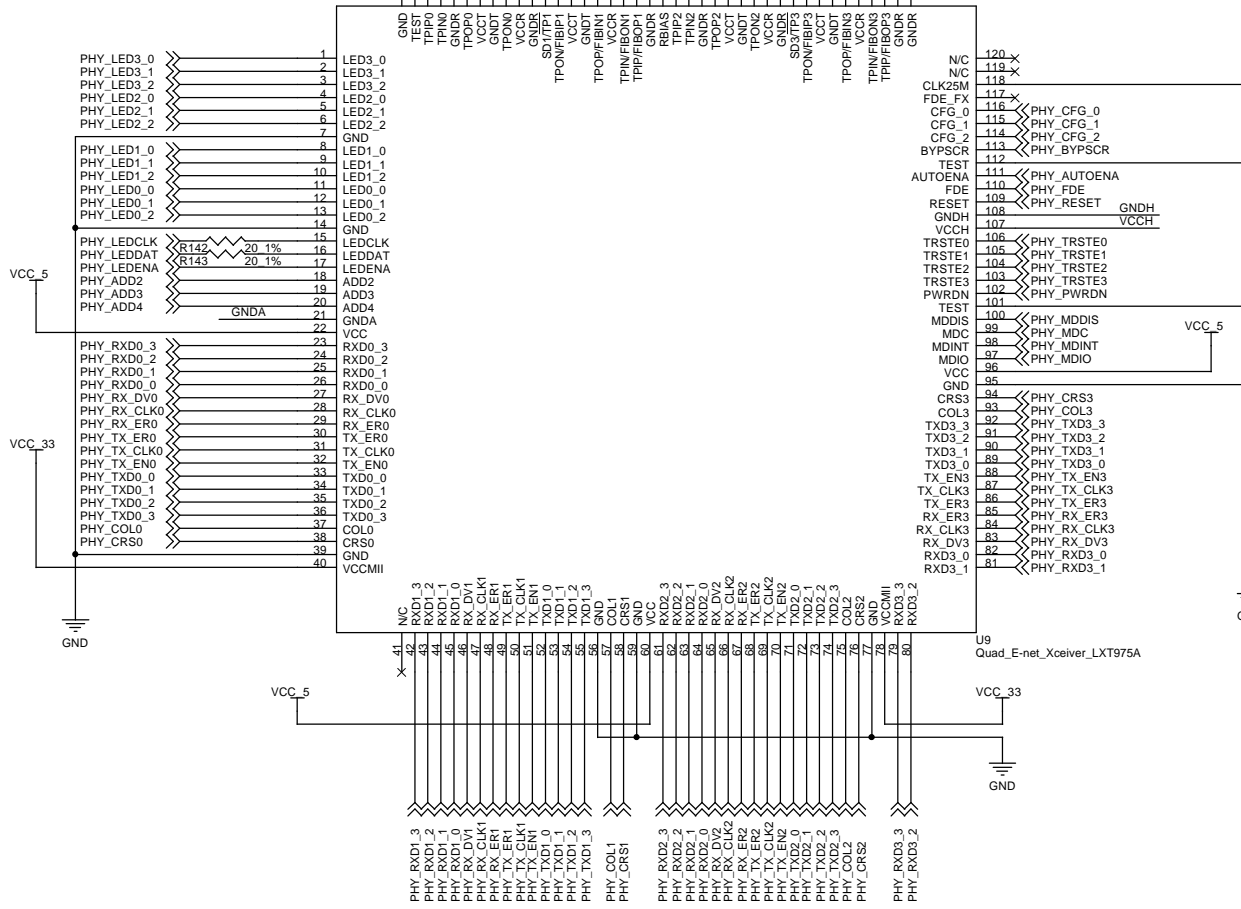
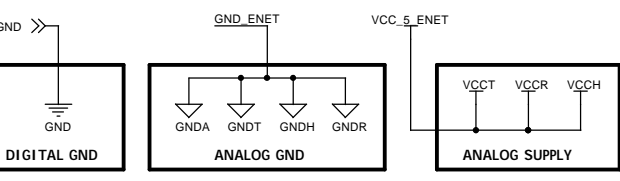
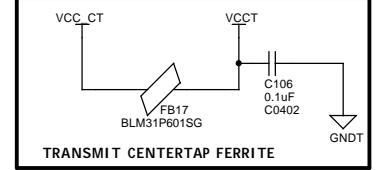
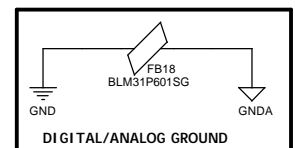
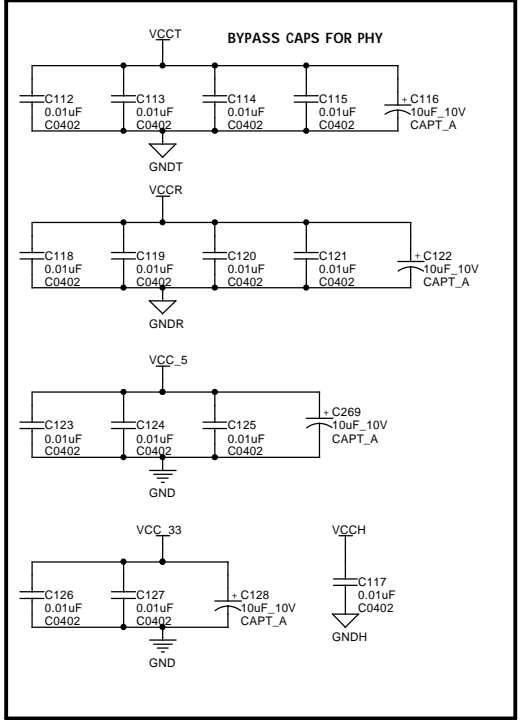
2003 CHANGES:
 MADE ANTI-THEFT CABLE HOLES BIGGER
 ADDED POWER AND GND STRIPS TO PROTO AREA



VCC_5
 VCC_33
 GND

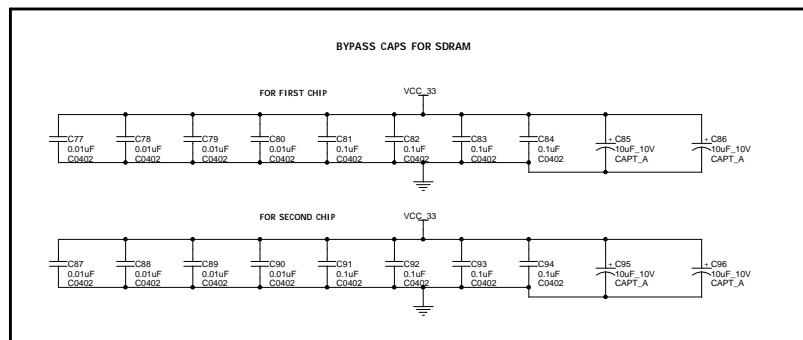
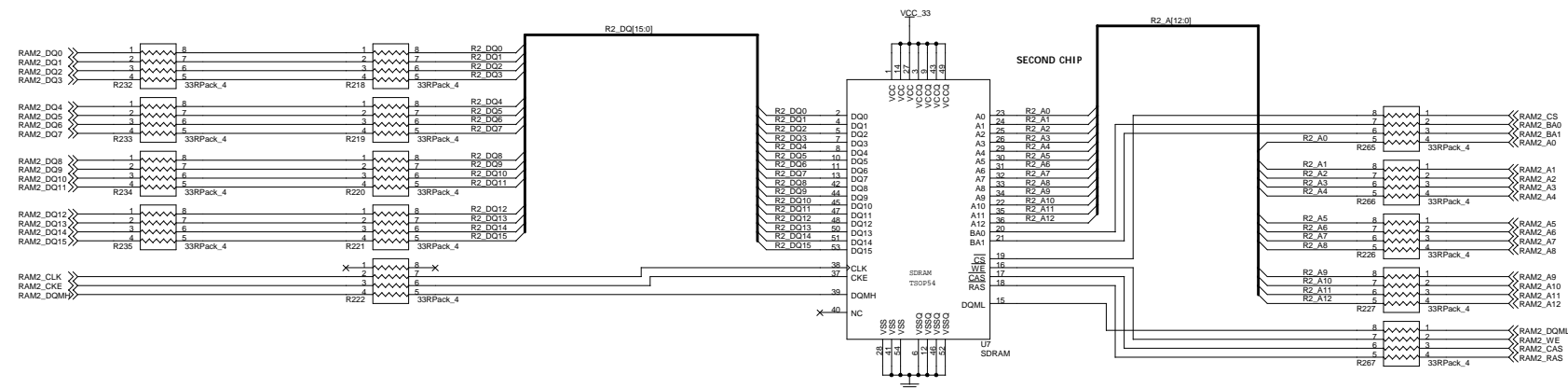
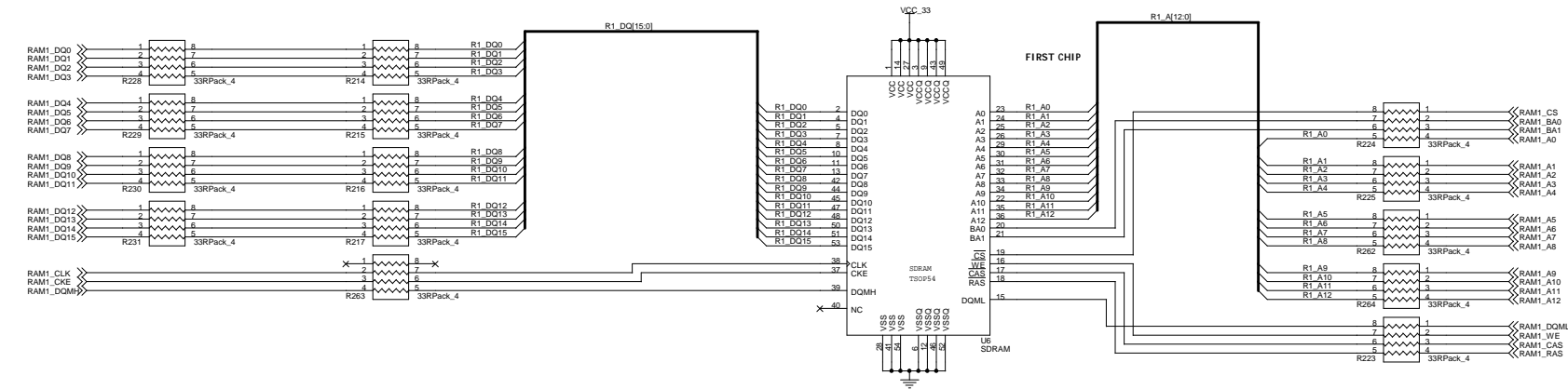


NOTES:
 ALL PHY_* OFF PAGE CONNECTORS GO TO FPGA BANKS 0 & 1.
 VCCH, VVCT, VCCR are all the same 'analog' plane.
 GNDH, GNDT, GNDA, GNDR are all the same GND.
 Digital GND is regular board GND (GND to all other components).



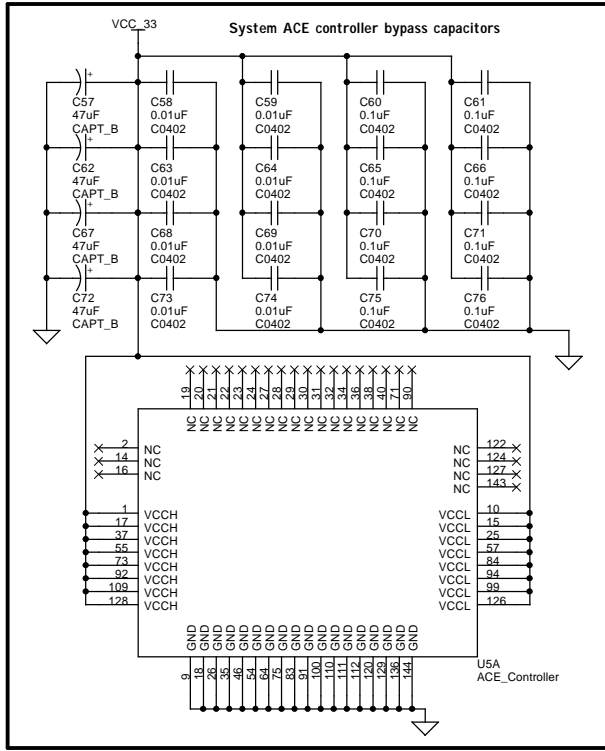
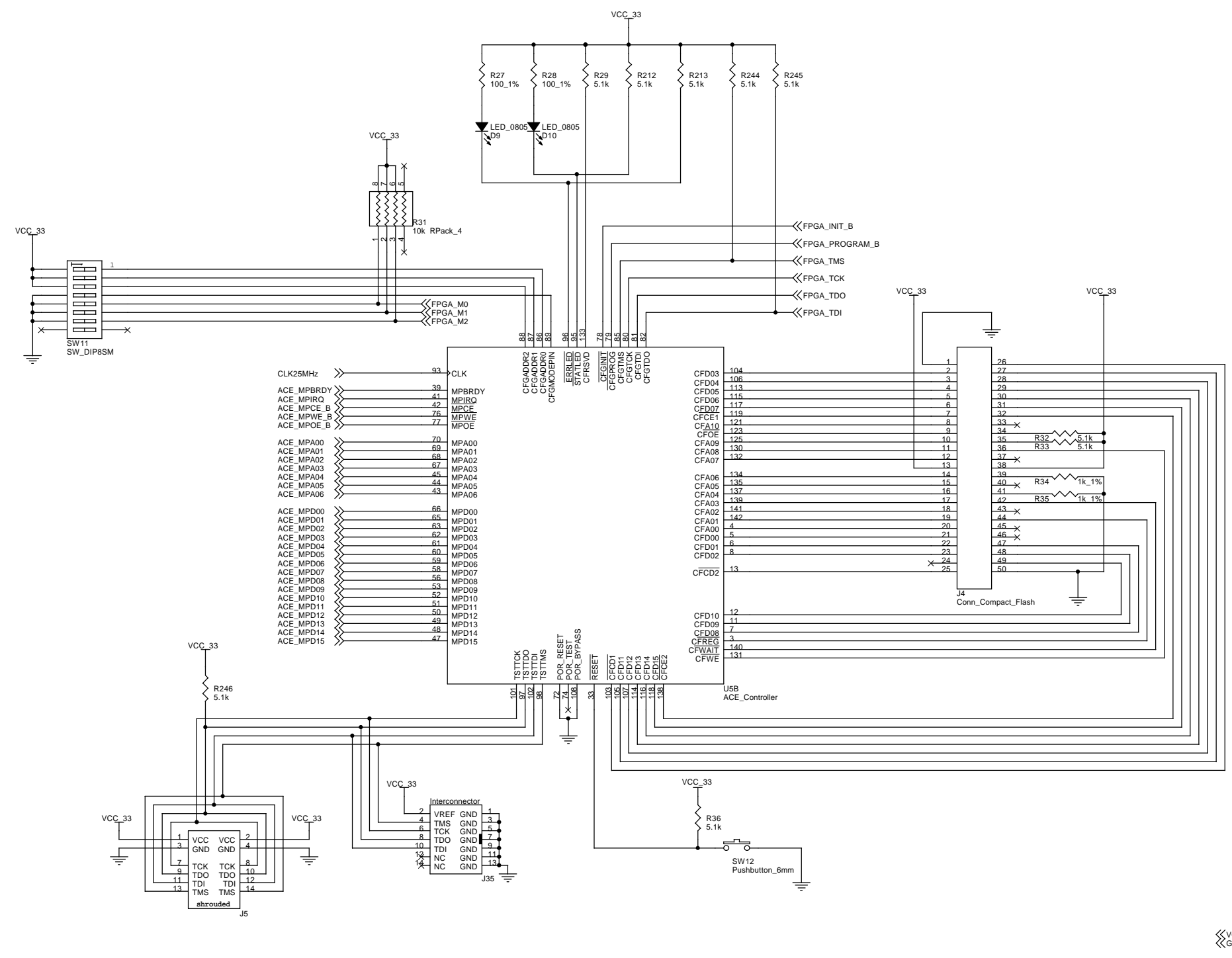
2003 CHANGES:
 SEPARATED ADDRESS BUS AND CONTROL LINES FOR EACH CHIP, AND ADDED TERMINATION RESISTORS AS APPROPRIATE
 ADDED A12 LINE TO ALLOW FOR USE OF LARGER CAPACITY CHIPS

NOTES:
 ALL RAM*_OFF PAGE CONNECTORS GO TO FPGA BANK 7.
 R214, R215, R216, R217 close to U7.
 R218, R219, R220, R221 close to U7.
 R222 through R235 close to FPGA.

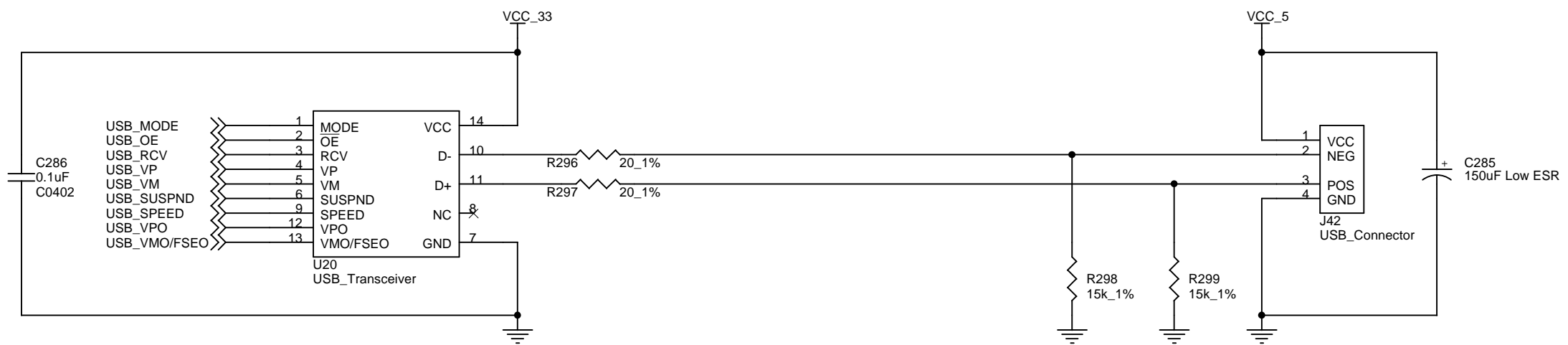


VCC_33
GND

NOTES:
ALL ACE_* PINS GO TO FPGA BANK 2.



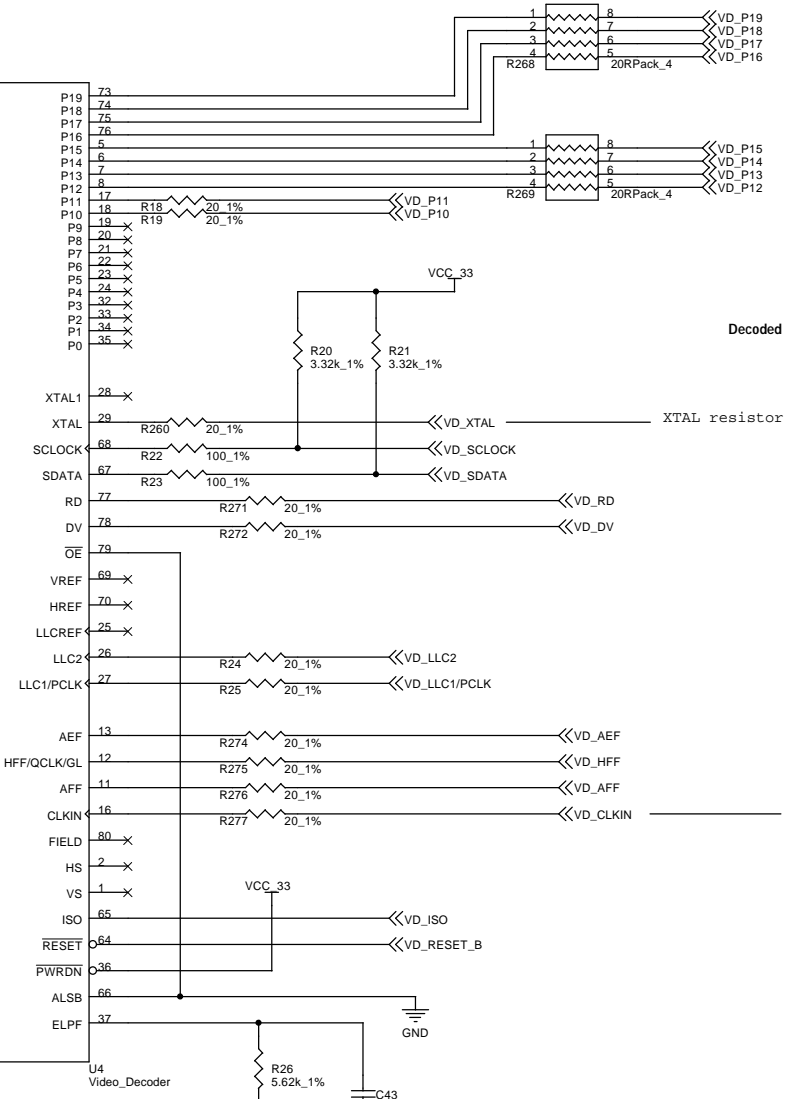
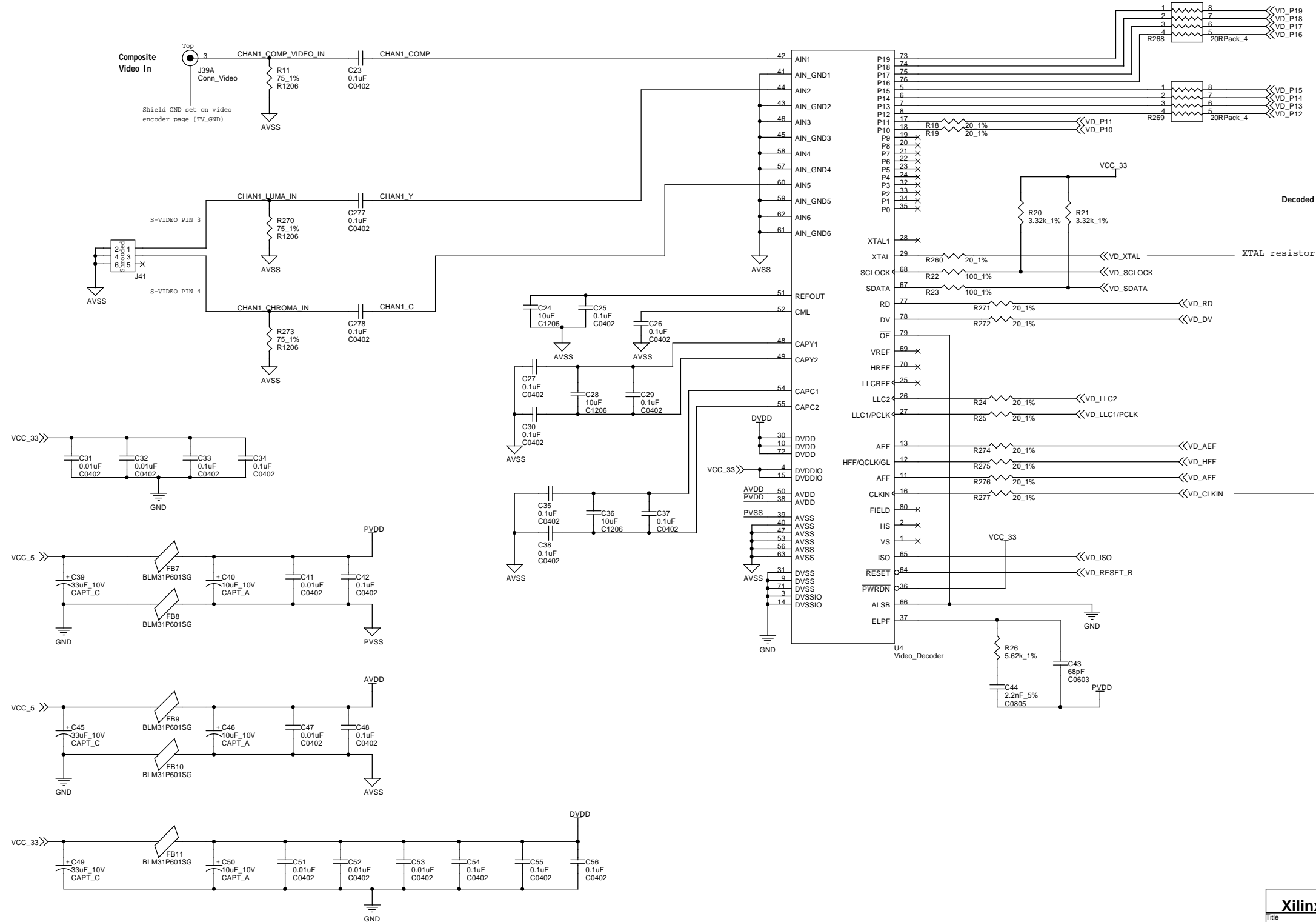
NOTES:
ALL USB_* PINS GO TO FPGA BANK 1.



Xilinx, Inc.		2100 Logic Drive San Jose, CA 95124	Drawn By: Daniel Postoian, Xilinx APD
Title UC Berkeley - USB			
Size B	Document Number		Rev C.1
Date:	Tuesday, July 22, 2003	Sheet	13 of 15

2003 CHANGES:
 CONNECTED FIFO SIGNALS TO FPGA [RD, DV, AEF, AFF, CLKIN, HFF/QCLK/GL]
 REMOVED 0805 RESISTORS R9, R10, R12, R13, R14, R15, R16 & R17. REPLACED WITH (2) R-PACKS.
 XTAL SIGNAL NOW COMES FROM DEDICATED FPGA PIN AND NOT A BRANCH OF CRYSTAL
 ADDED ACCESS TO S-VIDEO INPUT

NOTES:
 ALL VD_* OFF PAGE CONNECTORS GO TO FPGA BANKS 1, 2 & 3.



Decoded Video Data to FPGA

XTAL resistor should be at FPGA

CLKIN resistor should be at FPGA

VCC_5
 VCC_33
 GND

Xilinx, Inc. 2100 Logic Drive, San Jose, CA 95124
 Drawn by: Rick Balkantyne, Xilinx Labs
 Daniel Postoljan, Xilinx APD

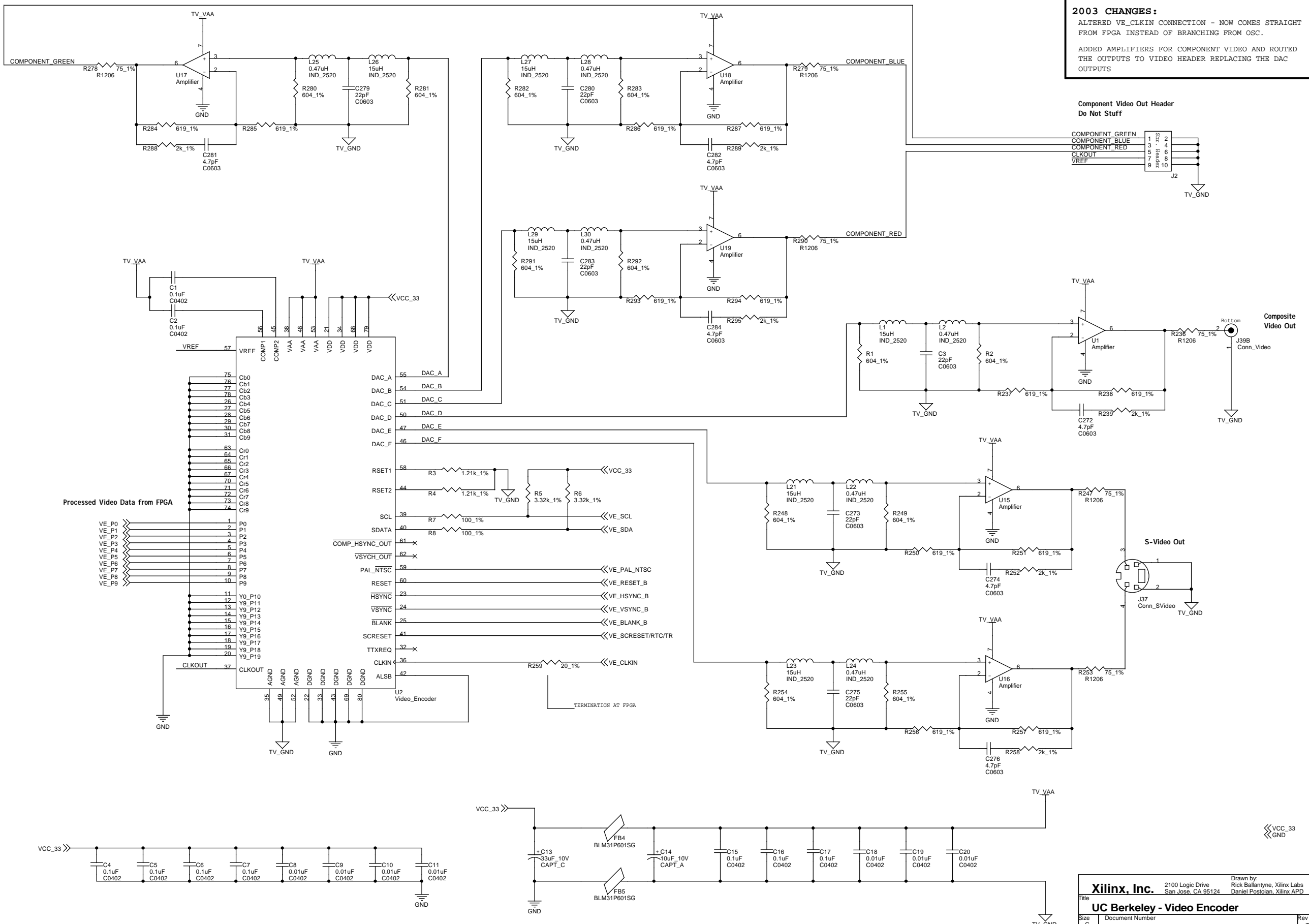
UC Berkeley - Video Decoder

Size	Document Number	Rev
C		C.1

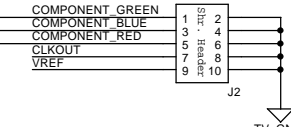
Date: Tuesday, July 22, 2003 Sheet 14 of 15

NOTES:
ALL VE_* OFF PAGE CONNECTORS GO TO FPGA BANK 3.

2003 CHANGES:
ALTERED VE_CLKIN CONNECTION - NOW COMES STRAIGHT FROM FPGA INSTEAD OF BRANCHING FROM OSC.
ADDED AMPLIFIERS FOR COMPONENT VIDEO AND ROUTED THE OUTPUTS TO VIDEO HEADER REPLACING THE DAC OUTPUTS



Component Video Out Header
Do Not Stuff



Composite Video Out
J39B Conn_Video

S-Video Out
J37 Conn_SVideo

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UC Berkeley - Video Encoder

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