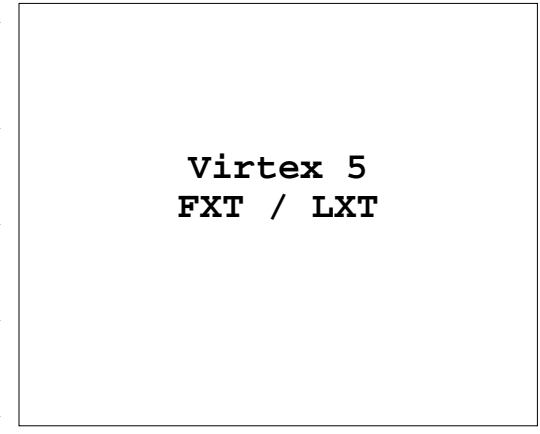


**Dual PCI Express Slots** **Dual 64 Bit DDR2 DIMMS** **Personality Modules**

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P53, P54

Pages 25-30  
P9, P48

Pages 52  
PM1, PM2



System Clock  
USER Clock  
SMA Clock IN/OUT  
GTP CLK SMA INPUT  
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Dual UARTs  
GPIO / LEDs  
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Linear Flash  
Page 59  
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Mictor and  
CPU Debug Header  
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J9, J12, P8

IIC  
Fan Controller  
Page 66

SystemACE  
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U38

MII/RGMII/SGMII  
10/100/1000 PHY  
RJ45 Magnetics  
Page 49  
U47

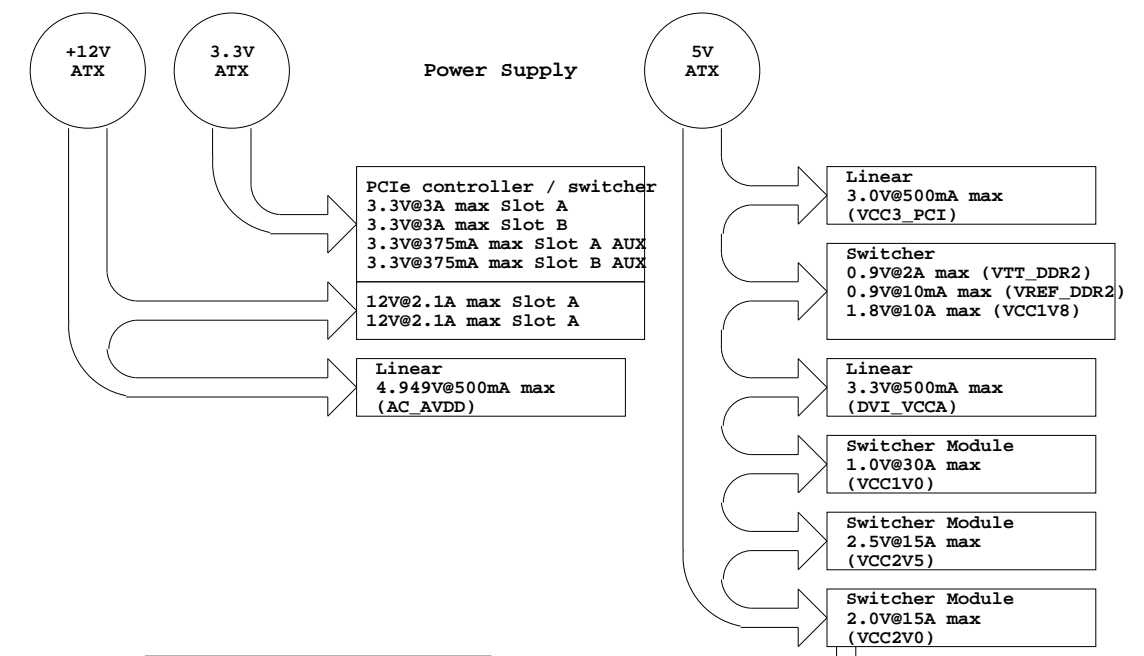
SGMII  
10/100/1000 PHY  
RJ45 Magnetics  
Page 50  
U53

DVI  
Page 53-54  
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IIC / SMBus  
Page 55

DUAL SATA  
Page 51  
J25, J26

2 line  
Character LCD  
Header  
Page 62  
J13



**IIC Device Addresses**

DEVICE	REFDES	ADDR
LM87C1MT	u20	0x5C
RTC-8564JE	u22	0xA2
24LC64-I/SN	u21	0xA0
87705-1001	p9	0xA6
87705-1001	p48	0xA8
MIC2592B-2BTQ	U55	0x8E

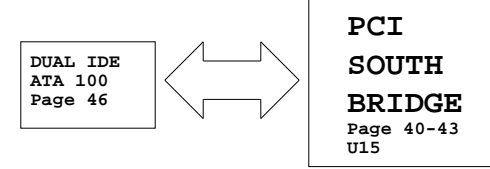
XILINX PART NUMBERS	
SCHEMATICS	0381255
PCB ARTWORK	0532059
PCB FABRICATION	1280432

NOTE: PLEASE REVIEW THE ML510 BOM FOR ITEMS DESIGNATED AS "DNP".

DNP ITEMS ARE NOT POPULATED ON THE PCB.

THE ML510 BOM CONTAINS THE MOST ACCURATE INFORMATION ABOUT

DNP DISCRETES AND COMPONENTS



5V Bridge  
Page 33  
U32

DUAL  
3.3V  
PCI  
Pages  
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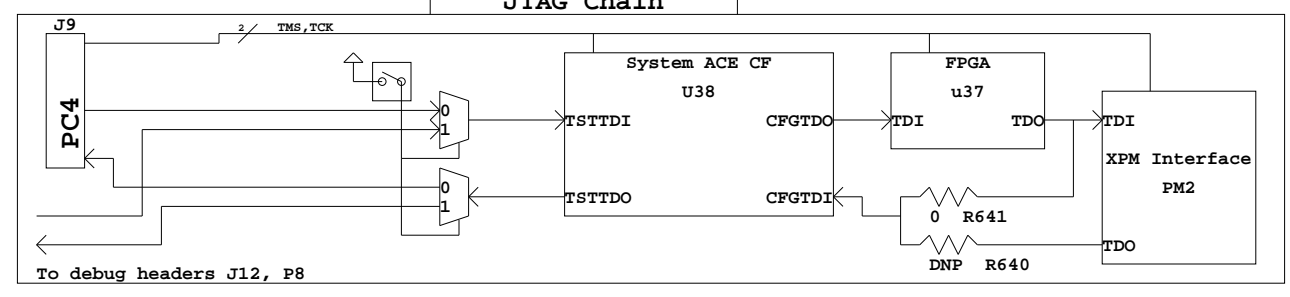
DUAL  
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AC97  
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PS2  
Keyboard &  
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Page 45

USB Host &  
Peripheral  
1.0  
Page 45

**JTAG Chain**




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	ART P/N	0532059
	FAB P/N	1280432
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22	CLOCKS: USER,MGT,SYSAE
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25	DDR2 DIMM0 CONNECTOR
26	DIMM0 DDR2 SSTL-2 TERMINATION
27	DIMM0 DDR2 DECOUPLING
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29	DIMM1 DDR2 SSTL-2 TERMINATION
30	DIMM1 DDR2 DECOUPLING
31	PCI-E SLOT A
32	PCI-E SLOT B
33	PCI-PCI BRIDGE
34	PCI SLOT 6, 5.0V, SECONDARY BUS
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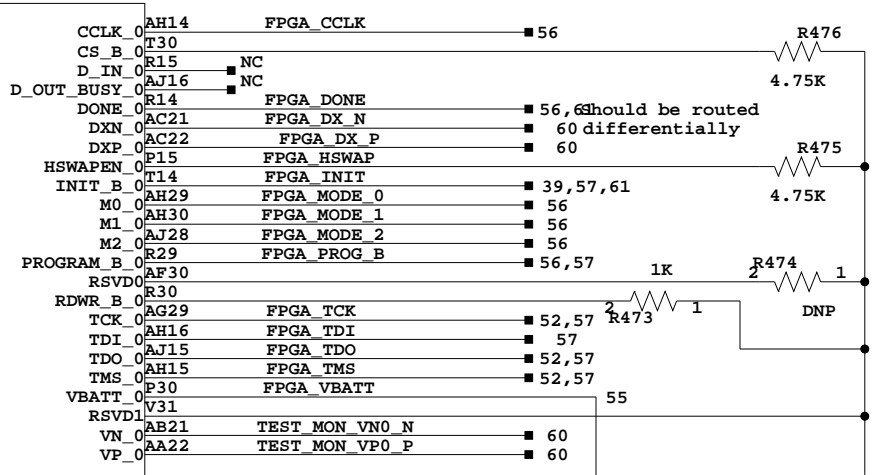
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37	PCI SLOT 3, 3.3V, PRIMARY BUS
38	PCI BUS PULLUPS
39	PCI SUPPLY AND TERMINATION
40	PCI SOUTH BRIDGE, PART 1
41	PCI SOUTH BRIDGE, PART 2-3
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62	ATX AND FRONT PANEL CONNECTORS
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		FAB P/N	1280432
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VCC3V3  
 Changed Bank 0 and SystemACE to 3.3V to accommodate DVI and FLASH  
 U37

**FF1738  
 BANK0**

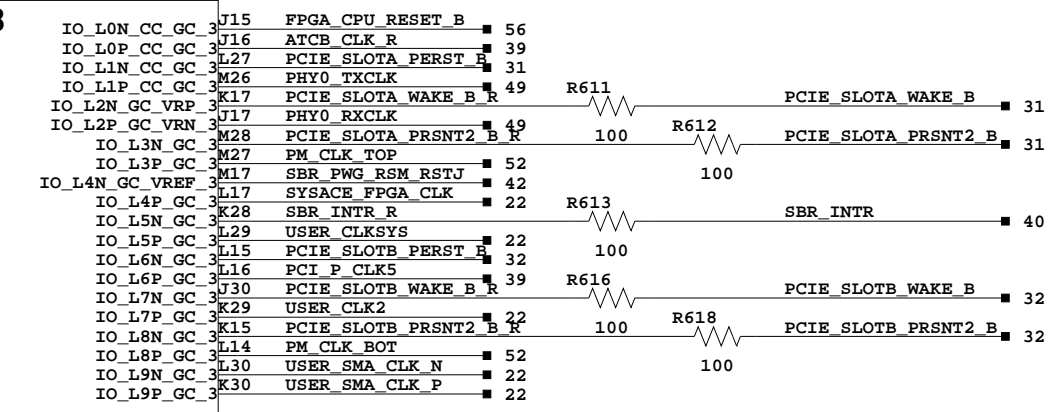


5VLX330TFF1738

C534  
 0.1UF

VCC2V5

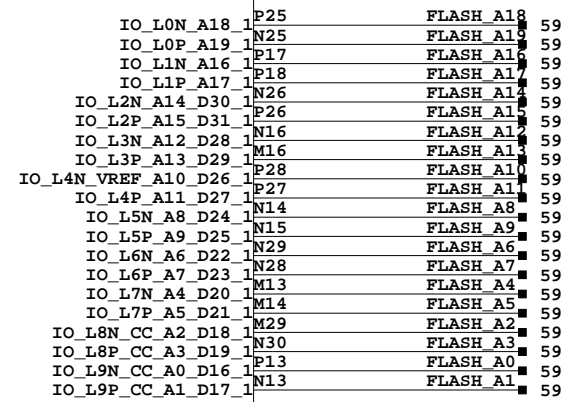
**FF1738  
 BANK3**



5VLX330TFF1738

VCC3V3

**FF1738  
 BANK1**

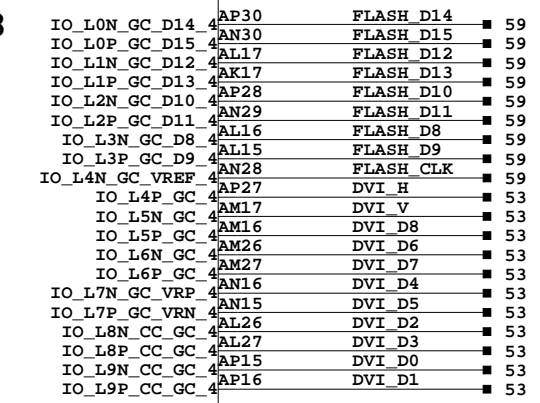


5VLX330TFF1738

VCC3V3

VCC3V3

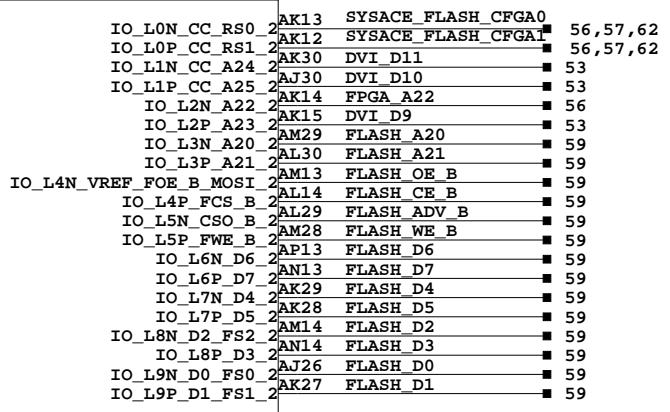
**FF1738  
 BANK4**



5VLX330TFF1738

VCC3V3

**FF1738  
 BANK2**



5VLX330TFF1738

**FPGA - BANK 0, 1, 2, 3, 4**



SCH P/N 0381255  
 ART P/N 0532059  
 FAB P/N 1280432

Title: SCHEM, ROHS COMPLIANT, ML510 VIRTEX-5 EVAL PLATFOM  
 FPGA - BANK 0, 1, 2, 3, 4 - CONFIG, MISC, FLASH, CLOCKS, DVI

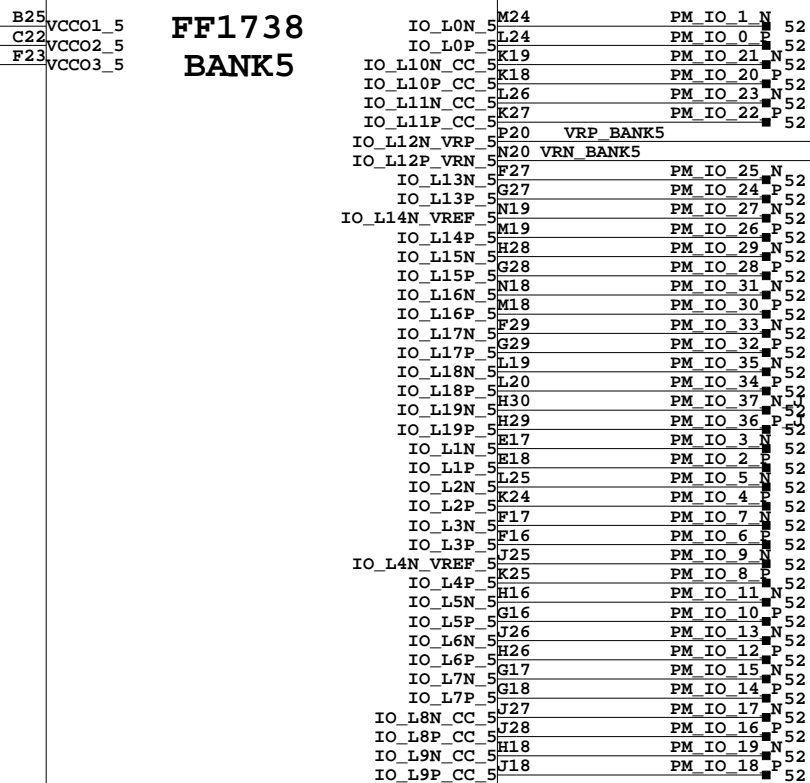
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VCC2V5

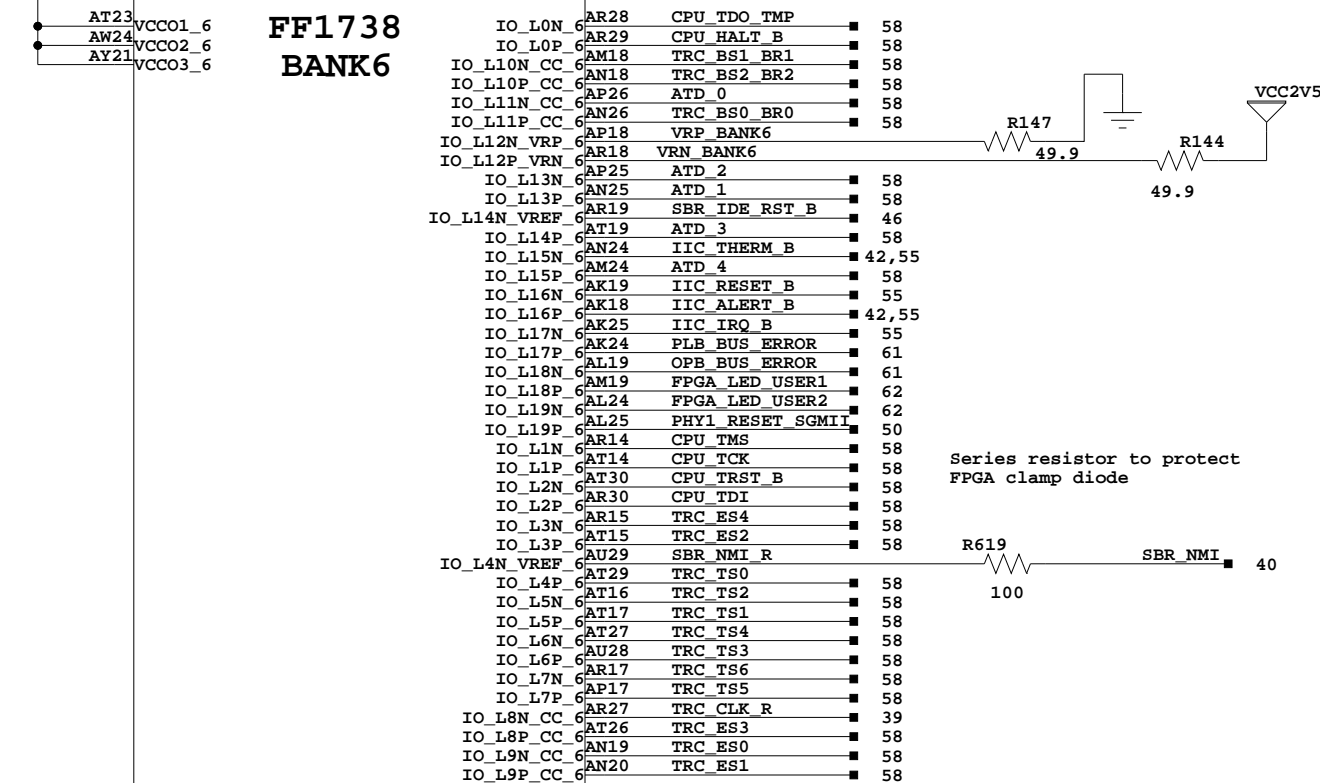
U37



5VLX330TFF1738

VCC2V5

U37



5VLX330TFF1738

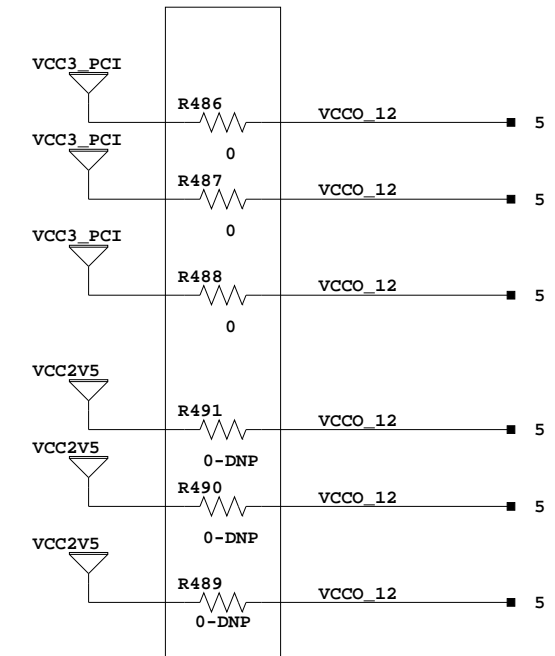
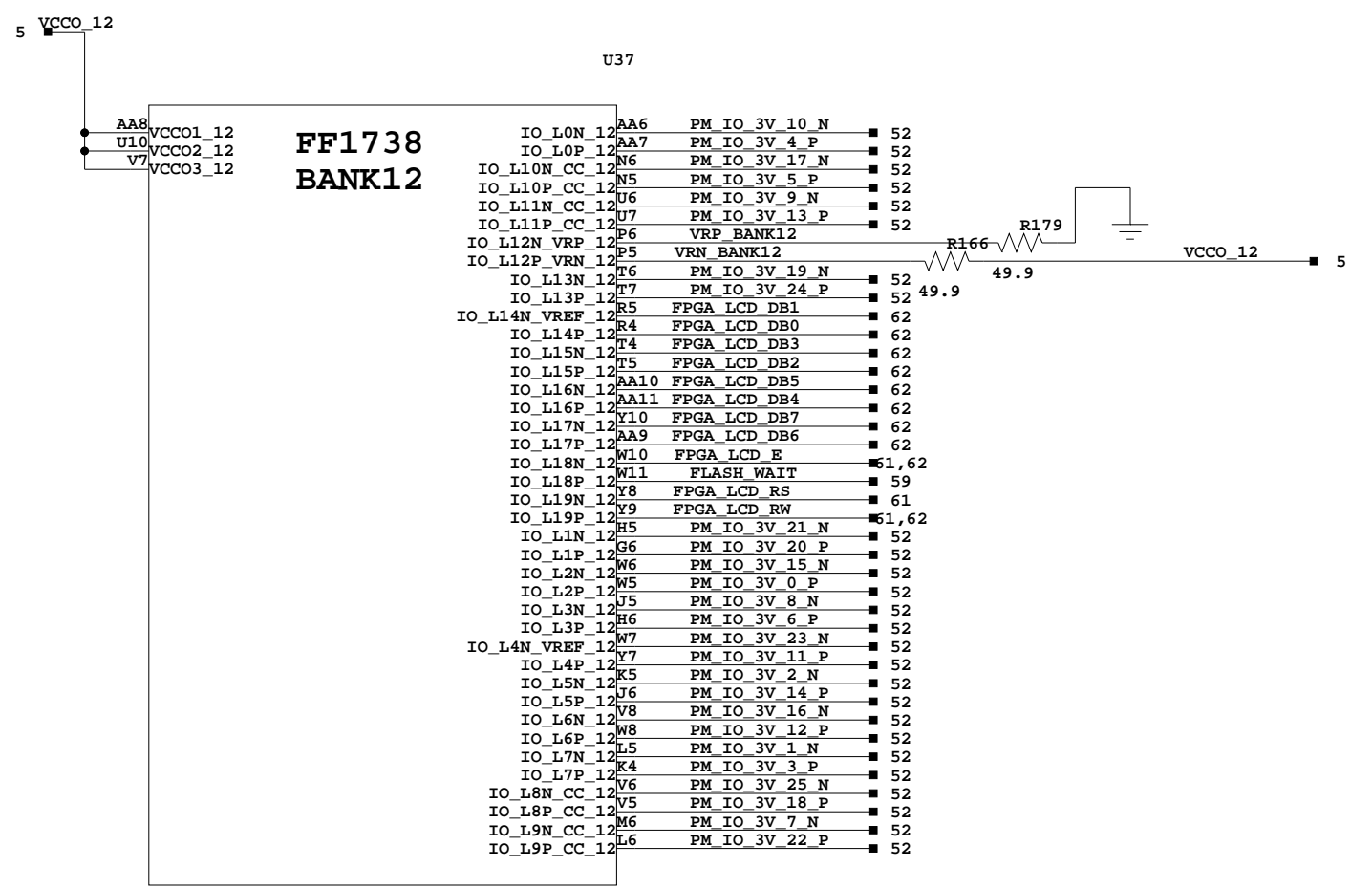
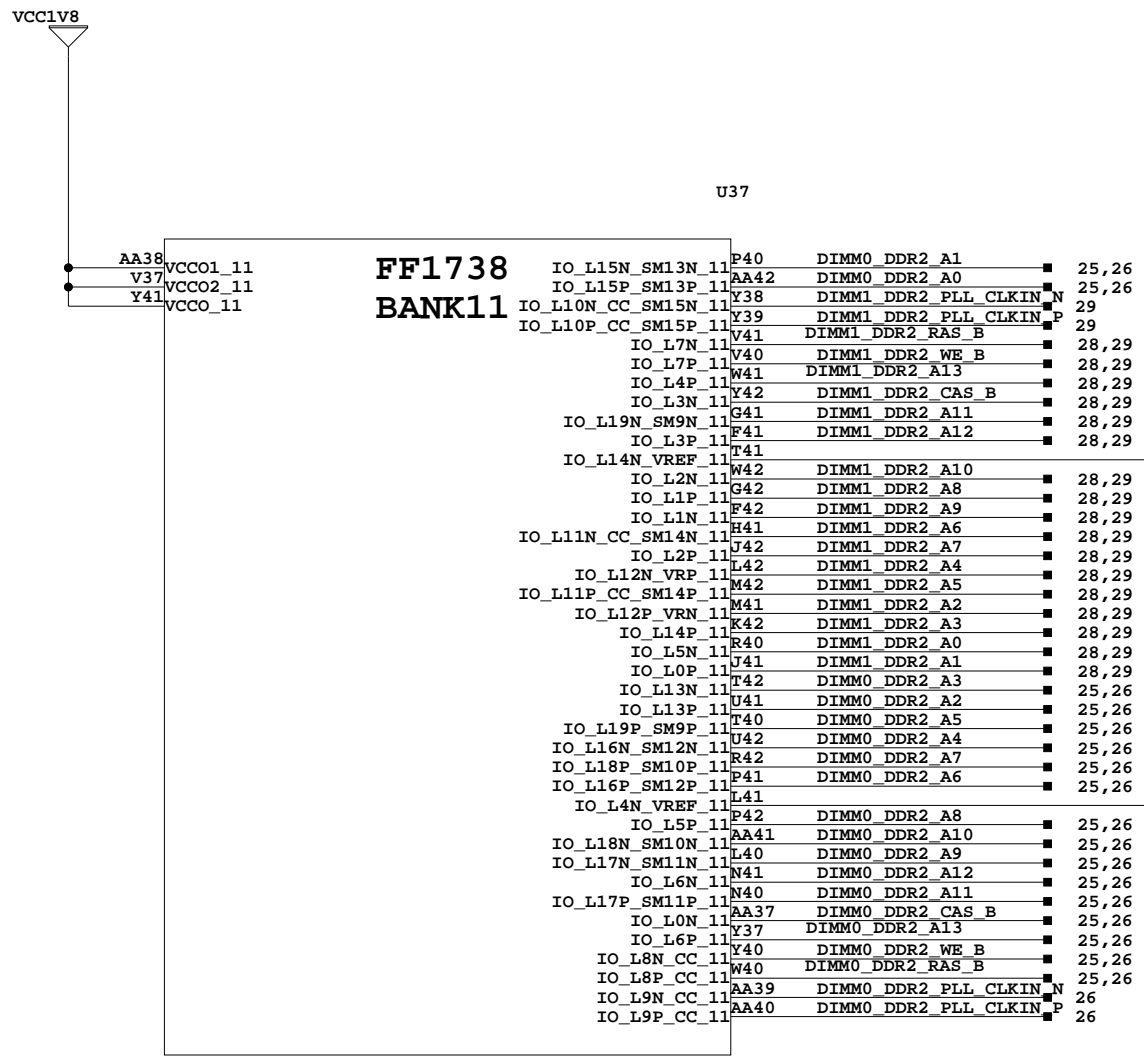
### FPGA - BANK 5,6



SCH P/N 0381255  
 ART P/N 0532059  
 FAB P/N 1280432

Title: SCHEM, ROHS COMPLIANT, ML510 VIRTEX-5 EVAL PLAFORM  
 FPGA - BANK 5,6 - PM, DEBUG

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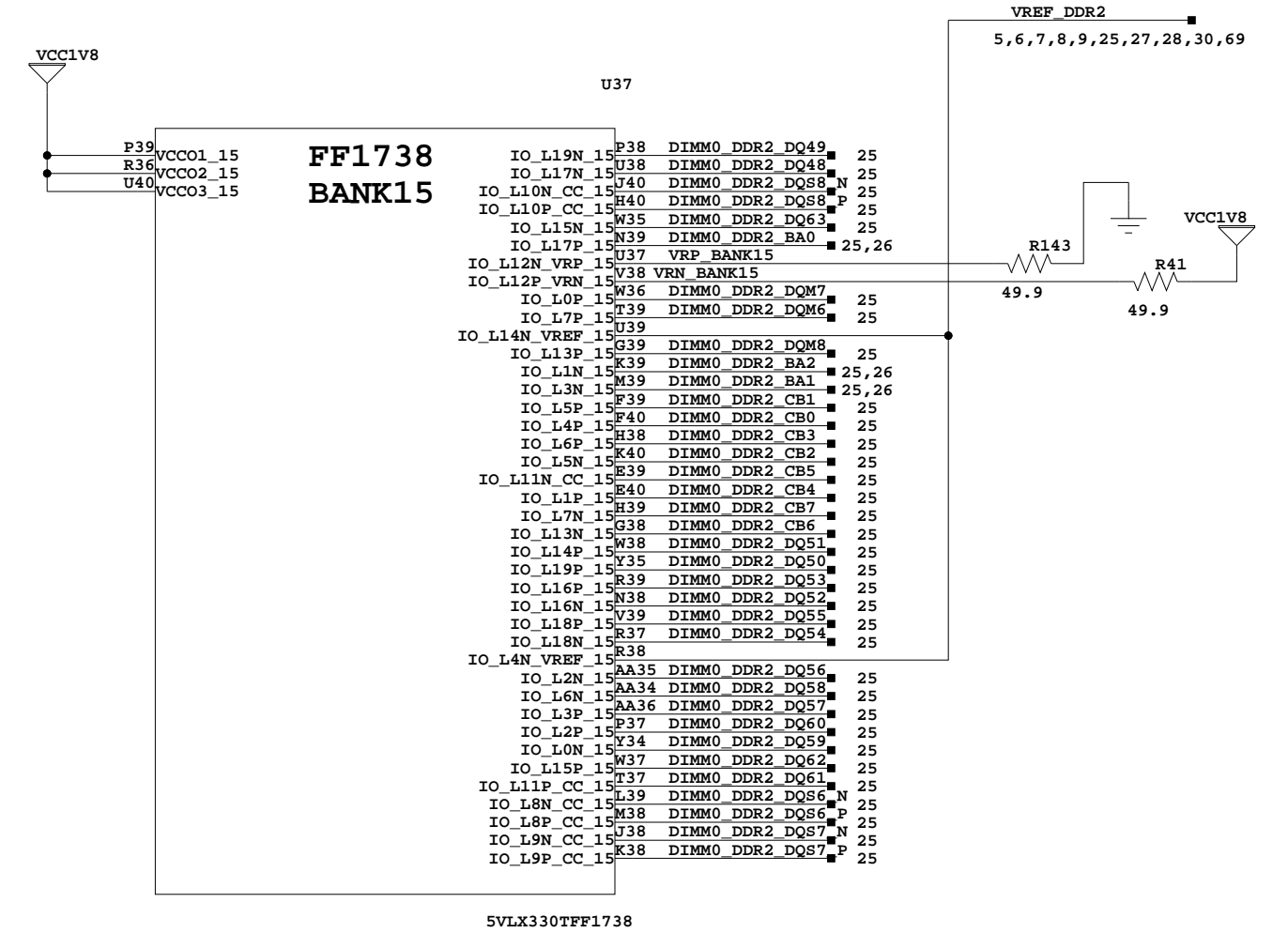
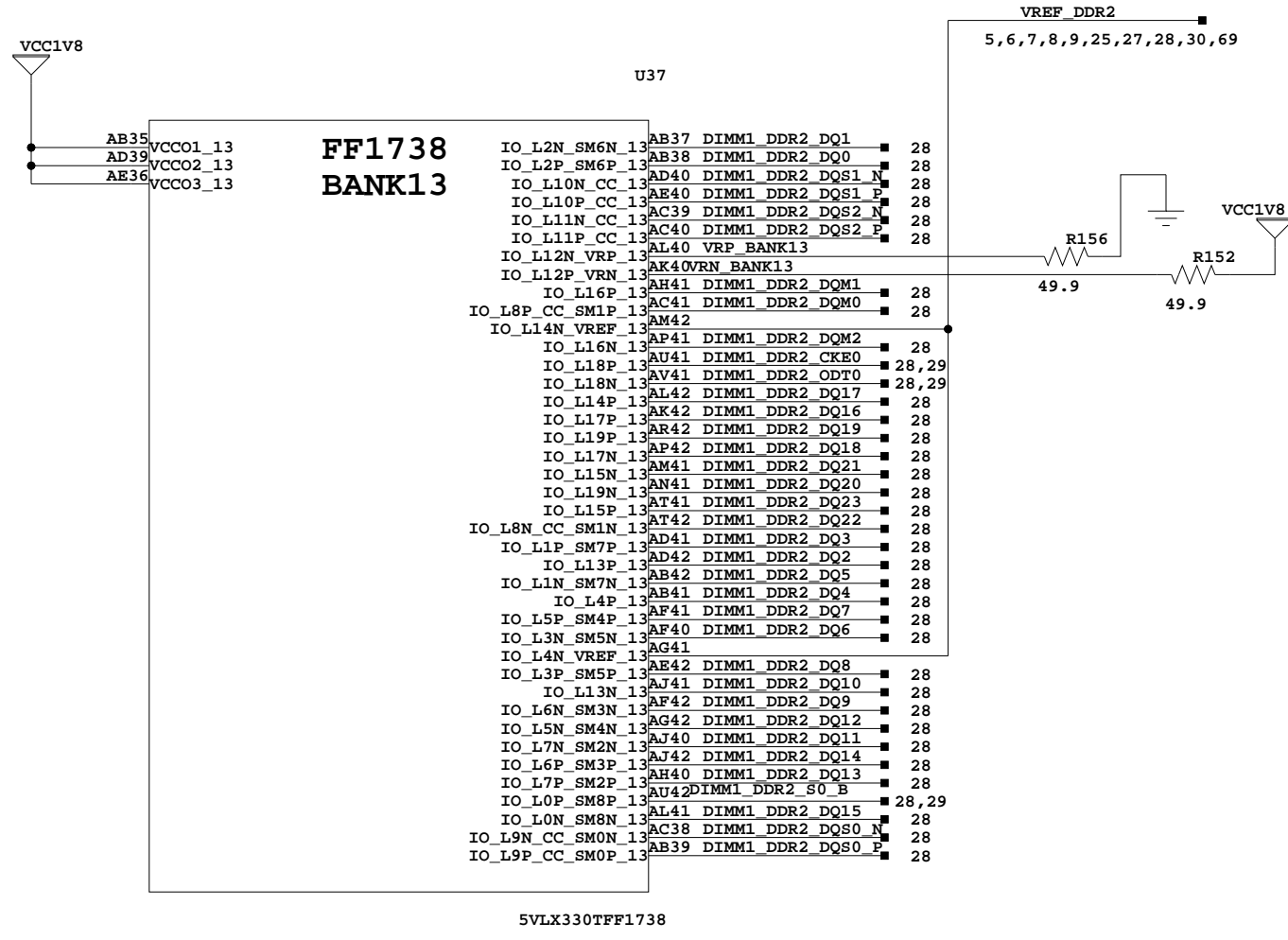


**FPGA - BANK 11,12**



Title: SCHEM, ROHS COMPLIANT, ML510 VIRTEX-5 EVAL PLAFOTRM  
FPGA - BANK 11,12 DDR2, PM, LCD

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**FPGA - BANK 13,15**

	SCH P/N	0381255
	ART P/N	0532059
	FAB P/N	1280432
Title: SCHEM, ROHS COMPLIANT, ML510 VIRTEX-5 EVAL PLAFORM		
FPGA - BANK 13,15 - DDR2		
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VCC1V8

AG40  
AH37  
AK41

VCC01\_17  
VCC02\_17  
VCC03\_17

**FF1738**  
**BANK17**

IO_L0N_17	AC34	DIMM1_DDR2_DQ25	28
IO_L2P_17	AB36	DIMM1_DDR2_DQ24	28
IO_L10N_CC_17	AU39	DIMM1_DDR2_DQ84_N	28
IO_L10P_CC_17	AV40	DIMM1_DDR2_DQ84_P	28
IO_L11N_CC_17	AR39	DIMM1_DDR2_DQ85_N	28
IO_L11P_CC_17	AT39	DIMM1_DDR2_DQ85_P	28
IO_L12N_VRN_17	AH39	VRN_BANK17	28
IO_L12P_VRN_17	AG39	VRN_BANK17	28
IO_L7N_17	AG37	DIMM1_DDR2_DQ4	28
IO_L4P_17	AC36	DIMM1_DDR2_DQ3	28
IO_L14N_VREF_17	AK37		28
IO_L18N_17	AN40	DIMM1_DDR2_DQ5	28
IO_L5P_17	AE39	DIMM1_DDR2_CKE1	28,29
IO_L8P_CC_17	AF37	DIMM1_DDR2_ODT1	28,29
IO_L6P_17	AP40	DIMM1_DDR2_DQ41	28
IO_L18P_17	AM38	DIMM1_DDR2_DQ40	28
IO_L17N_17	AP38	DIMM1_DDR2_DQ43	28
IO_L19N_17	AM37	DIMM1_DDR2_DQ42	28
IO_L16P_17	AK38	DIMM1_DDR2_DQ45	28
IO_L19P_17	AL39	DIMM1_DDR2_DQ44	28
IO_L5N_17	AN39	DIMM1_DDR2_DQ47	28
IO_L17P_17	AN38	DIMM1_DDR2_DQ46	28
IO_L0P_17	AE38	DIMM1_DDR2_DQ27	28
IO_L2N_17	AD36	DIMM1_DDR2_DQ26	28
IO_L3P_17	AC35	DIMM1_DDR2_DQ29	28
IO_L13P_17	AB34	DIMM1_DDR2_DQ28	28
IO_L3N_17	AD37	DIMM1_DDR2_DQ31	28
IO_L1P_17	AD35	DIMM1_DDR2_DQ30	28
IO_L4N_VREF_17	AD38		28
IO_L8N_CC_17	AJ38	DIMM1_DDR2_DQ32	28
IO_L1N_17	AL37	DIMM1_DDR2_DQ34	28
IO_L15N_17	AH38	DIMM1_DDR2_DQ33	28
IO_L7P_17	AF39	DIMM1_DDR2_DQ36	28
IO_L6N_17	AM39	DIMM1_DDR2_DQ35	28
IO_L15P_17	AK39	DIMM1_DDR2_DQ38	28
IO_L13N_17	AG38	DIMM1_DDR2_DQ37	28
IO_L16N_17	AE37	DIMM1_DDR2_S1_B	28,29
IO_L14P_17	AJ37	DIMM1_DDR2_DQ39	28
IO_L9N_CC_17	AT40	DIMM1_DDR2_DQ83_N	28
IO_L9P_CC_17	AR40	DIMM1_DDR2_DQ83_P	28

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VREF\_DDR2  
5,6,8,9,25,27,28,30,69

R244  
49.9

R206  
49.9

VCC1V8

VCC2V5

AD9  
AE6  
AG10

VCC01\_18  
VCC02\_18  
VCC03\_18

**FF1738**  
**BANK18**

IO_L0N_18	AK7	PM_IO_39_N	52
IO_L0P_18	AJ7	PM_IO_38_P	52
IO_L10N_CC_18	AC6	PM_IO_59_N	52
IO_L10P_CC_18	AC5	PM_IO_58_P	52
IO_L11N_CC_18	AF6	PM_IO_61_N	52
IO_L11P_CC_18	AF5	PM_IO_60_P	52
IO_L12N_VRN_18	AD7	VRN_BANK18	52
IO_L12P_VRN_18	AD6	VRN_BANK18	52
IO_L13N_18	AG7	PM_IO_63_N	52
IO_L13P_18	AG6	PM_IO_62_P	52
IO_L14N_VREF_18	AD5	PM_IO_65_N	52
IO_L14P_18	AE5	PM_IO_64_P	52
IO_L15N_18	AF7	PM_IO_66_N	52
IO_L15P_18	AE8	PM_IO_69_P	52
IO_L16N_18	AE8	PM_IO_68_P	52
IO_L16P_18	AD8	PM_IO_68_P	52
IO_L17N_18	AF10	PM_IO_71_N	52
IO_L17P_18	AF9	PM_IO_70_P	52
IO_L18N_18	AE10	PM_IO_73_N	52
IO_L18P_18	AE9	PM_IO_72_P	52
IO_L19N_18	AF12	PM_IO_75_N	52
IO_L19P_18	AF11	PM_IO_74_P	52
IO_L1N_18	AC10	PM_IO_41_N	52
IO_L1P_18	AB11	PM_IO_40_P	52
IO_L2N_18	AK5	PM_IO_43_N	52
IO_L2P_18	AL5	PM_IO_42_P	52
IO_L3N_18	AB8	PM_IO_45_N	52
IO_L3P_18	AB9	PM_IO_44_P	52
IO_L4N_VREF_18	AJ5	PM_IO_47_N	52
IO_L4P_18	AJ6	PM_IO_46_P	52
IO_L5N_18	AC9	PM_IO_49_N	52
IO_L5P_18	AC8	PM_IO_48_P	52
IO_L6N_18	AH5	PM_IO_51_N	52
IO_L6P_18	AH6	PM_IO_50_P	52
IO_L7N_18	AD11	PM_IO_53_N	52
IO_L7P_18	AD10	PM_IO_52_P	52
IO_L8N_CC_18	AH4	PM_IO_55_N	52
IO_L8P_CC_18	AG4	PM_IO_54_P	52
IO_L9N_CC_18	AB6	PM_IO_57_N	52
IO_L9P_CC_18	AB7	PM_IO_56_P	52

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R199  
49.9

R198  
49.9

VCC2V5

### FPGA - BANK 17,18



SCH P/N 0381255  
ART P/N 0532059  
FAB P/N 1280432

Title: SCHEM, ROHS COMPLIANT, ML510 VIRTEX-5 EVAL PLAFORM  
FPGA - BANK 17,18 - DDR2, PM

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VCC1V8

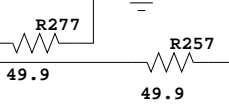
G40 VCC01\_19  
K41 VCC02\_19  
L38 VCC03\_19

### FF1738 BANK19

IO_L8P_CC_19	G36	DIMMO_DDR2_DQ25	25
IO_L18P_19	F37	DIMMO_DDR2_DQ24	25
IO_L10N_CC_19	T36	DIMMO_DDR2_DQS4_N	25
IO_L10P_CC_19	R35	DIMMO_DDR2_DQS4_P	25
IO_L11N_CC_19	V36	DIMMO_DDR2_DQS5_N	25
IO_L11P_CC_19	U36	DIMMO_DDR2_DQS5_P	25
IO_L12N_VRP_19	G37	VRP_BANK19	25
IO_L12P_VRN_19	H36	VRN_BANK19	25
IO_L0N_19	M36	DIMMO_DDR2_DQM4	25
IO_L13P_19	F36	DIMMO_DDR2_DQM3	25
IO_L14N_VREF_19	E37		25
IO_L0P_19	V35	DIMMO_DDR2_DQM5	25
IO_L2P_19	L37	DIMMO_DDR2_CKE1	25,26
IO_L2N_19	K35	DIMMO_DDR2_ODT1	25,26
IO_L5N_19	W32	DIMMO_DDR2_DQ41	25
IO_L14P_19	V33	DIMMO_DDR2_DQ40	25
IO_L19N_19	AA32	DIMMO_DDR2_DQ43	25
IO_L16P_19	Y32	DIMMO_DDR2_DQ42	25
IO_L16N_19	T35	DIMMO_DDR2_DQ45	25
IO_L19P_19	R34	DIMMO_DDR2_DQ44	25
IO_L17N_19	W33	DIMMO_DDR2_DQ47	25
IO_L17P_19	Y33	DIMMO_DDR2_DQ46	25
IO_L13N_19	K37	DIMMO_DDR2_DQ27	25
IO_L4P_19	J36	DIMMO_DDR2_DQ26	25
IO_L8N_CC_19	E38	DIMMO_DDR2_DQ29	25
IO_L15N_19	D37	DIMMO_DDR2_DQ28	25
IO_L5P_19	J37	DIMMO_DDR2_DQ31	25
IO_L7N_19	H35	DIMMO_DDR2_DQ30	25
IO_L4N_VREF_19	L35		25
IO_L7P_19	N35	DIMMO_DDR2_DQ32	25
IO_L6N_19	V34	DIMMO_DDR2_DQ34	25
IO_L15P_19	P36	DIMMO_DDR2_DQ33	25
IO_L1P_19	J35	DIMMO_DDR2_DQ36	25
IO_L3P_19	U34	DIMMO_DDR2_DQ35	25
IO_L3N_19	N36	DIMMO_DDR2_DQ38	25
IO_L1N_19	L36	DIMMO_DDR2_DQ37	25
IO_L18N_19	M37	DIMMO_DDR2_S1_B	25
IO_L6P_19	P35	DIMMO_DDR2_DQ39	25,26
IO_L9N_CC_19	U33	DIMMO_DDR2_DQS3_N	25
IO_L9P_CC_19	T34	DIMMO_DDR2_DQS3_P	25

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VREF\_DDR2  
5,6,7,9,25,27,28,30,69



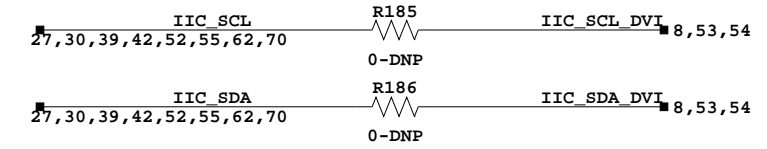
VCC3\_PCI

L8 VCC01\_20  
P9 VCC02\_20  
R6 VCC03\_20

### FF1738 BANK20

IO_L0N_20	N8	PCI_P_CBEL_B	33,35,37,40
IO_L0P_20	N9	PCI_P_CBEL_B	33,35,37,40
IO_L10N_CC_20	G8	PCI_P_SERR_B	33,35,37,38,40
IO_L10P_CC_20	G7	PCI_P_PERR_B	33,35,37,38
IO_L11N_CC_20	J9	PCI_P_CLK1_R	39
IO_L11P_CC_20	U8	PCI_P_CLK0_R	39
IO_L12N_VRP_20	H9	UART0_TXD	44
IO_L12P_VRN_20	H8	UART0_CTS_B	44
IO_L13N_20	F11	UART0_RXD	44
IO_L13P_20	F10	UART1_TXD	44
IO_L14N_VREF_20	J8	UART1_CTS_B	44
IO_L14P_20	V11	UART1_RXD	44
IO_L15N_20	V11	PCI_P_CLK4_R	39
IO_L15P_20	K9	UART1_RTS_B	44
IO_L16N_20	K8	FPGA_SDA	39
IO_L16P_20	L7	FPGA_SCL	39
IO_L17N_20	K7	FLASH_RESET_B	39
IO_L17P_20	M8	DVI_DE	59
IO_L18N_20	M7	IIC_SDA_DVI	53
IO_L18P_20	L9	IIC_SCL_DVI	8,53,54
IO_L19N_20	M9	PCI_P_CLK3_R	39
IO_L1N_20	E8	PCI_P_PAR	33,35,37,40
IO_L1P_20	E9	PCI_P_CBE0_B	33,35,37,40
IO_L2N_20	F8	PCI_P_IRDY_B	33,35,37,38,40
IO_L2P_20	F7	PCI_P_FRAME_B	33,35,37,38,40
IO_L3N_20	E7	PCI_P_REQ0_B	35,38
IO_L3P_20	D7	PCI_P_REQ2_B	38
IO_L4N_VREF_20	R8	PCI_P_REQ1_B	37,38
IO_L4P_20	R7	PCI_P_REQ4_B	33,38
IO_L5N_20	F6	PCI_P_REQ3_B	33,38
IO_L5P_20	F7	PCI_P_GNT1_B	38,40,43
IO_L6N_20	F9	PCI_P_GNT0_B	37,38
IO_L6P_20	F9	PCI_P_GNT3_B	35,38
IO_L7N_20	F5	PCI_P_GNT2_B	38,40
IO_L7P_20	E5	PCI_P_GNT4_B	33,38
IO_L8N_CC_20	V10	PCI_P_TRDY_B	33,35,37,38,40
IO_L8P_CC_20	V9	PCI_P_CLK5_R	39
IO_L9N_CC_20	F9	PCI_P_STOP_B	39
IO_L9P_CC_20	F9	PCI_P_DEVSEL_B	33,35,37,38,40

5VLX330TFF1738



## FPGA - BANK 19,20



SCH P/N 0381255  
ART P/N 0532059  
FAB P/N 1280432

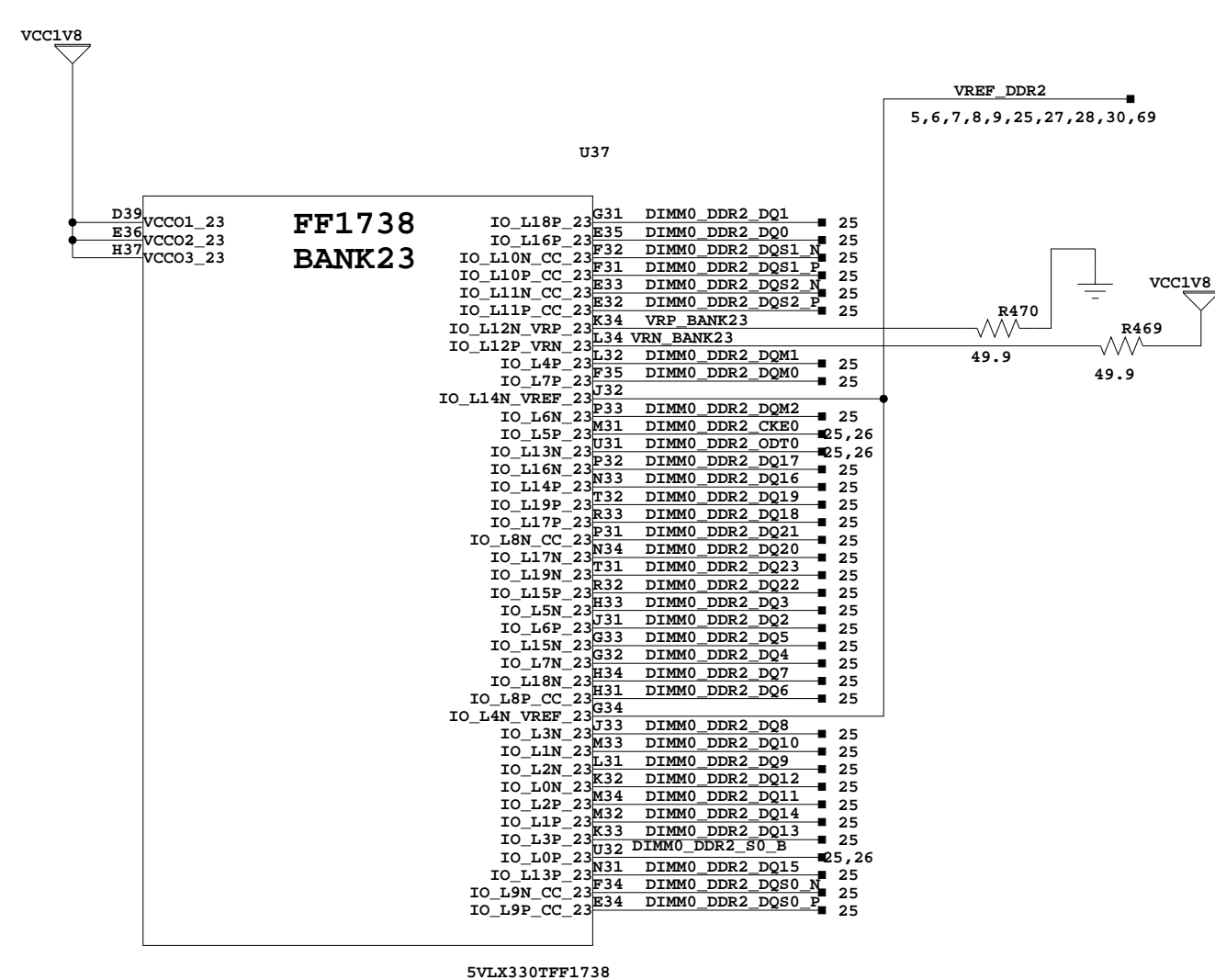
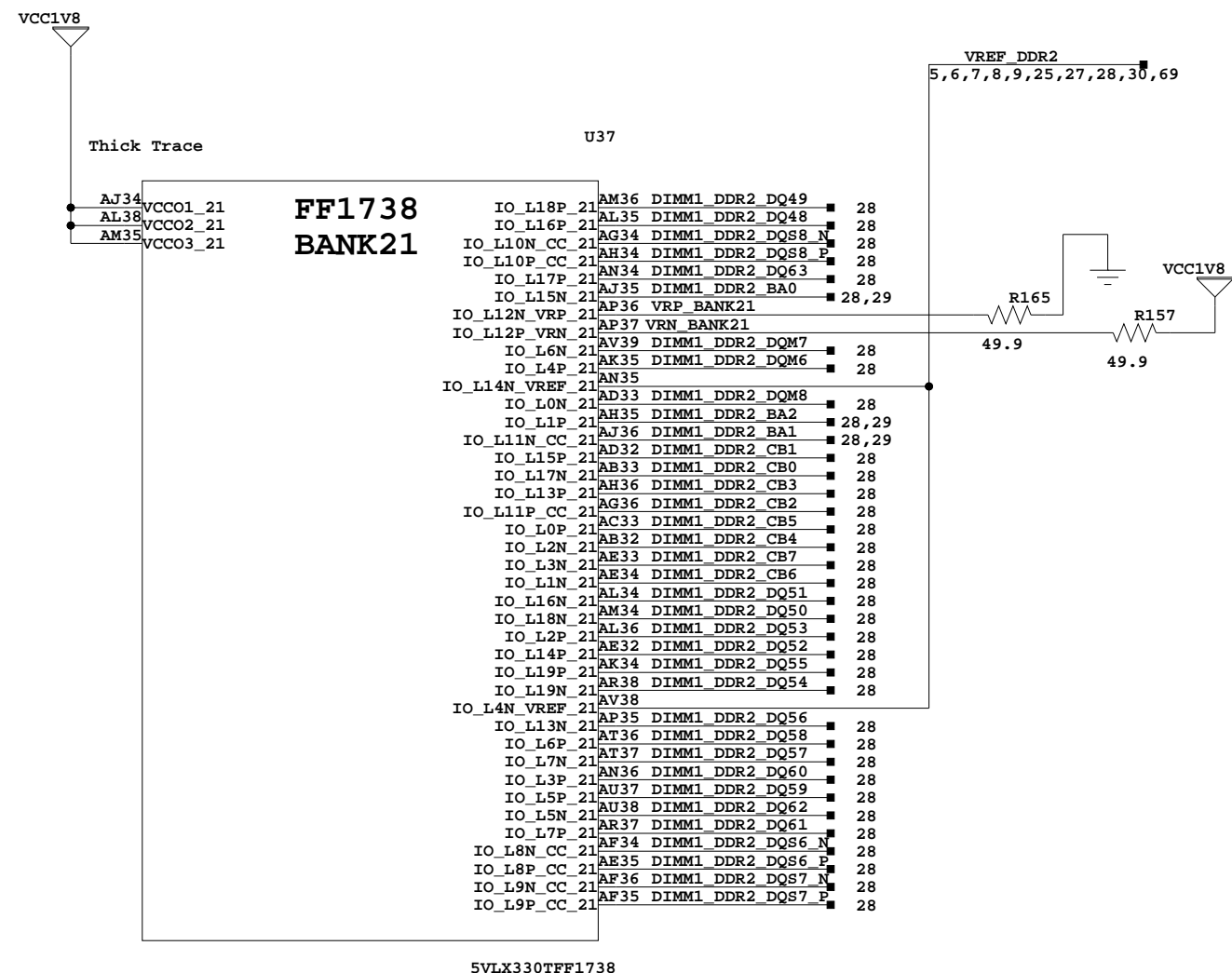
Title: SCHEM, ROHS COMPLIANT, ML510 VIRTEX-5 EVAL PLAFORM  
FPGA - BANK 19,20 DDR2, PCI, IIC, UART

Date: 8-1-2008\_15:03 Ver: C

Sheet Size: B Rev: 01

Sheet 8 of 70 Drawn By BF





**FPGA - BANK 21,23**

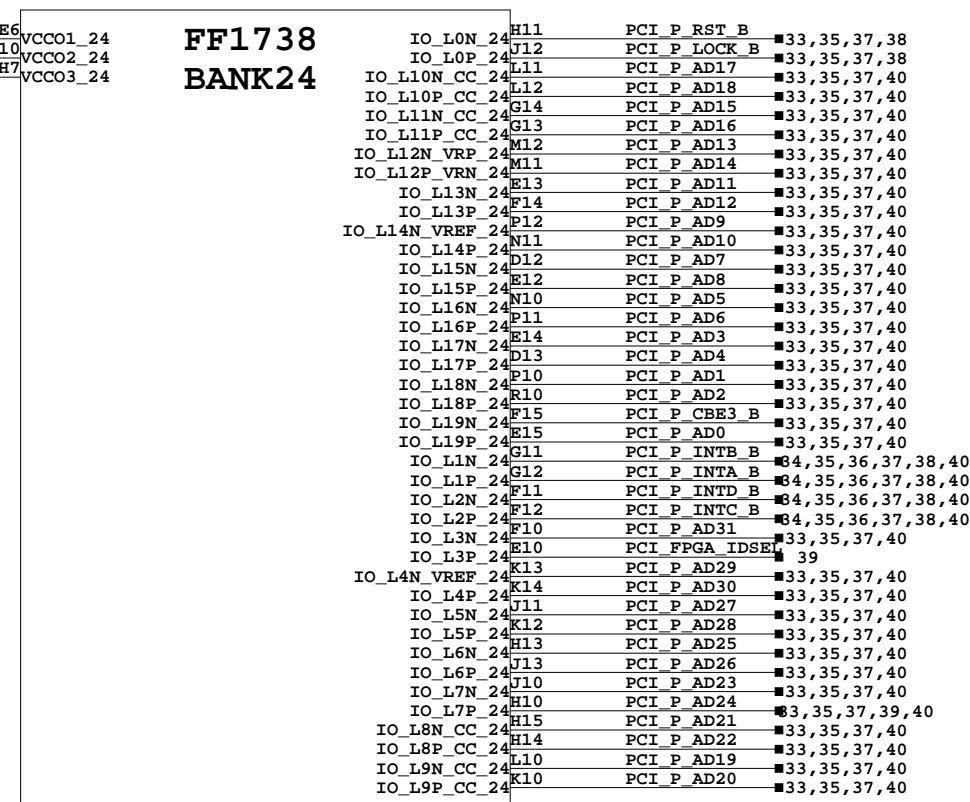


Title: SCHEM, ROHS COMPLIANT, ML510 VIRTEX-5 EVAL PLAFORM  
 FPGA - BANK 21,23 DDR2

Date:	8-1-2008_15:03	Ver:	C
Sheet Size:	B	Rev:	01
Sheet	9 of 70	Drawn By	BF

VCC3\_PCI

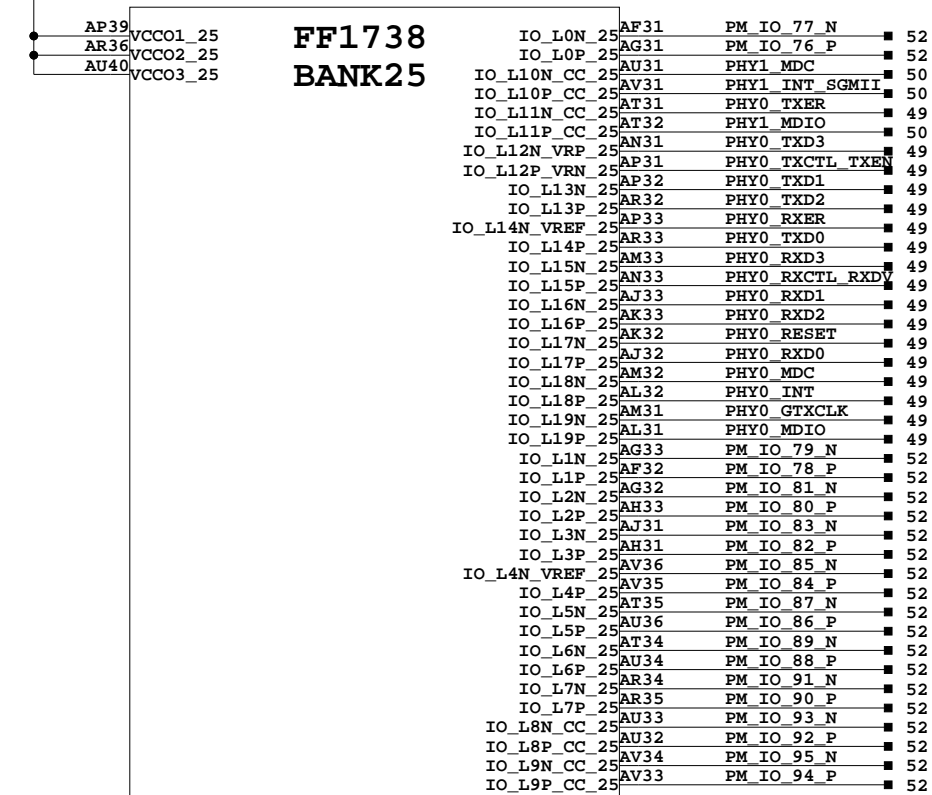
U37



5VLX330TFF1738

VCC2V5

U37



5VLX330TFF1738

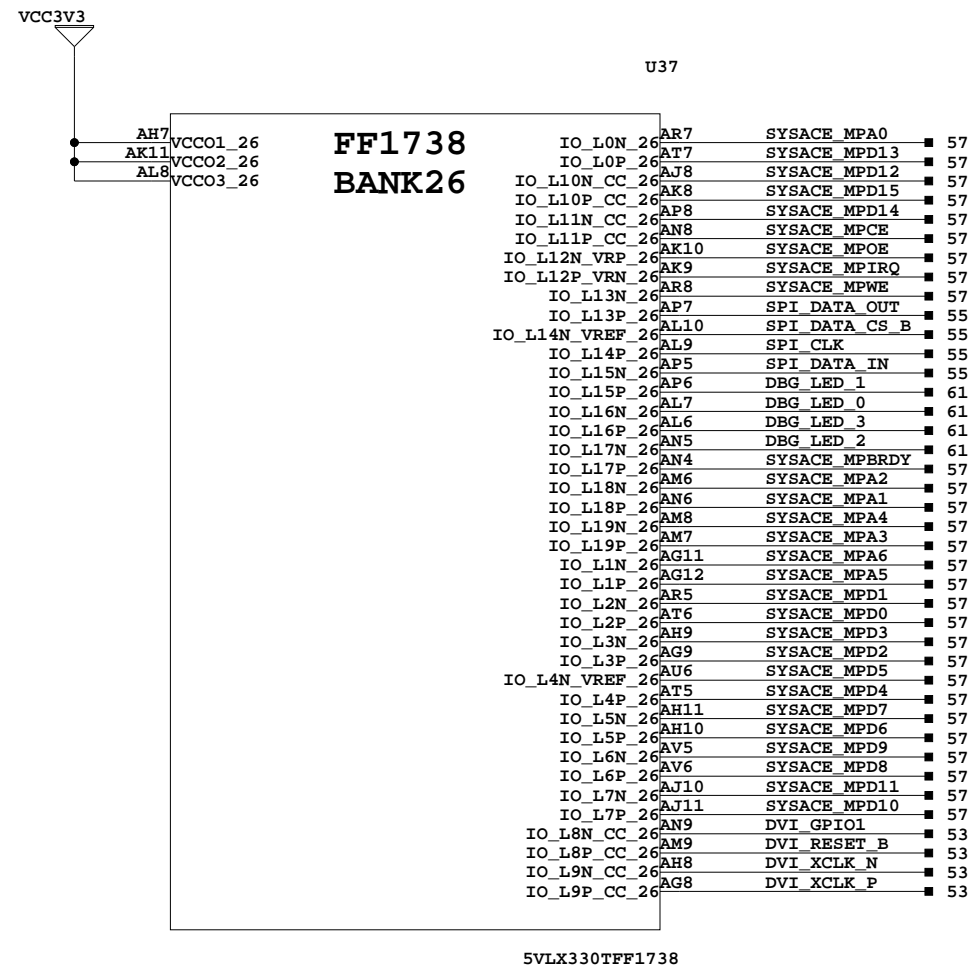
### FPGA - BANK 24,25



SCH P/N	0381255
ART P/N	0532059
FAB P/N	1280432

Title: SCHEM, ROHS COMPLIANT, ML510 VIRTEX-5 EVAL PLAFTRM  
 FPGA - BANK 24,25 PCI, PERSONALITY MODULE, PHY

Date:	8-1-2008_15:03	Ver:	C
Sheet Size:	B	Rev:	01
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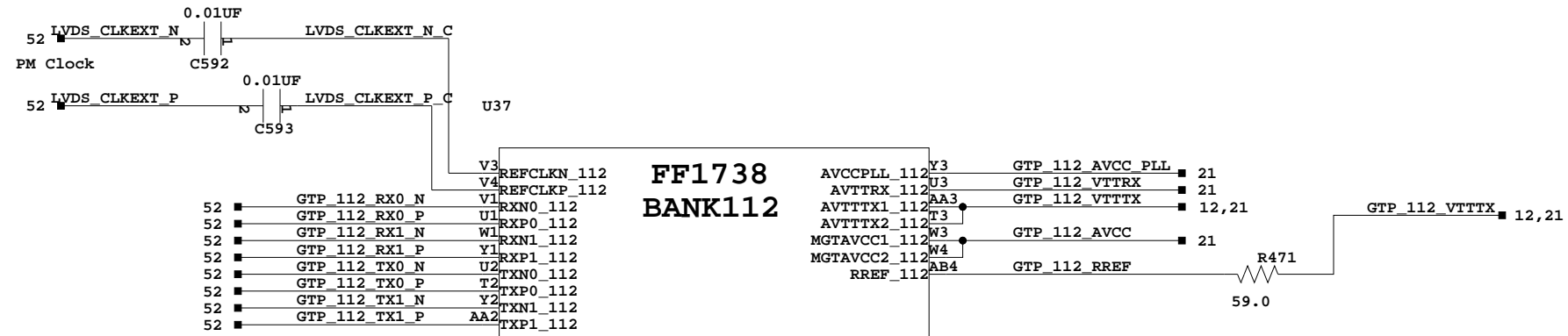
### FPGA - BANK 26



SCH P/N	0381255
ART P/N	0532059
FAB P/N	1280432

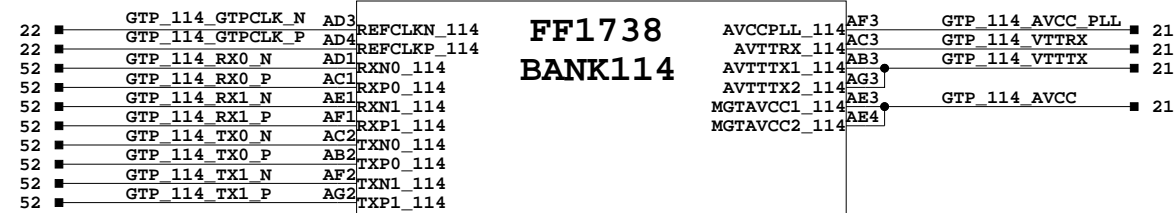
Title: SCHEM, ROHS COMPLIANT, ML510 VIRTEX-5 EVAL PLAFORM  
FPGA - BANK 26 SYSTEM ACE, DVI, SPI, LEDES

Date:	8-1-2008_15:03	Ver:	C
Sheet Size:	B	Rev:	01
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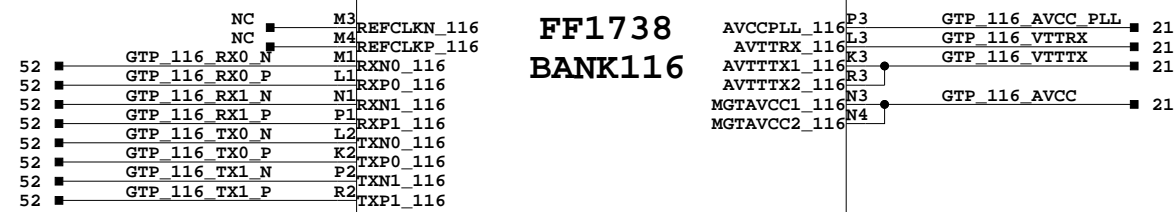
5VLX330TFF1738

U37



5VLX330TFF1738

U37



5VLX330TFF1738

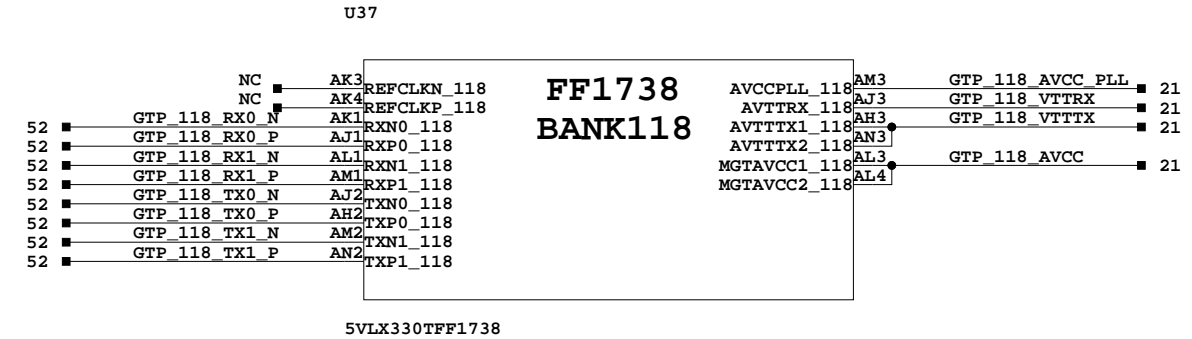
### FPGA - BANK 112, 114, 116



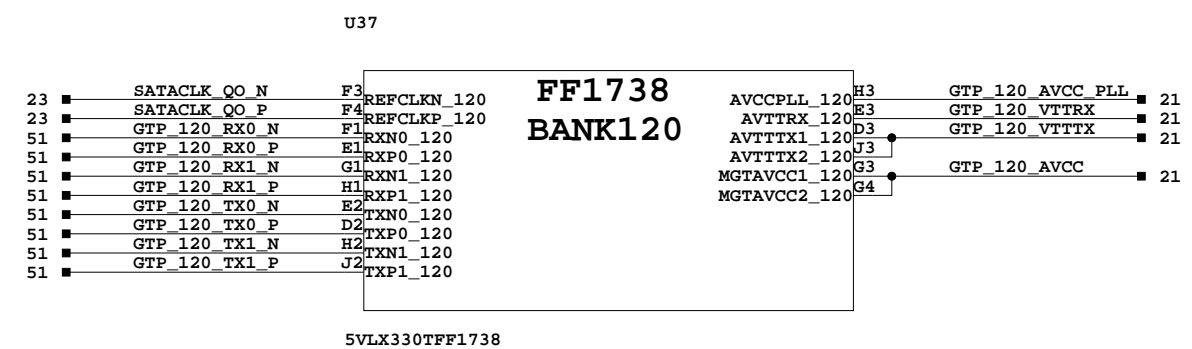
SCH P/N 0381255  
 ART P/N 0532059  
 FAB P/N 1280432

Title: SCHEM, ROHS COMPLIANT, ML510 VIRTEX-5 EVAL PLAFORM  
 FPGA-BANK 112, 114, 116 PERSONALITY MODULES

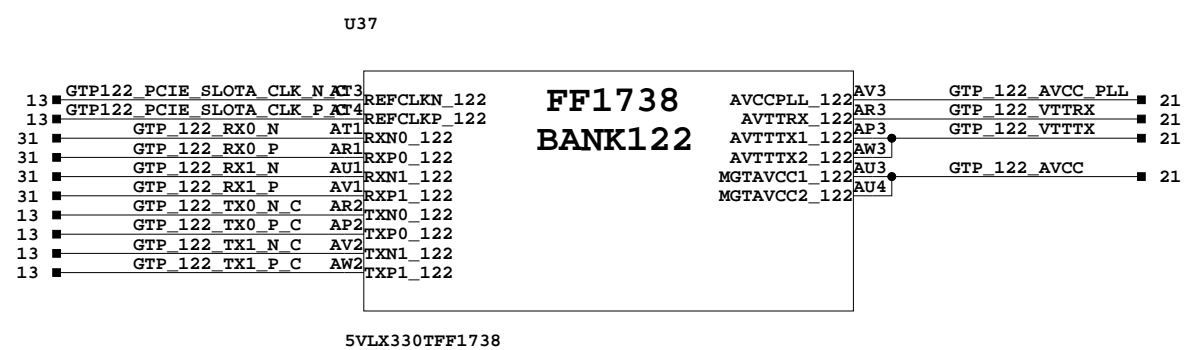
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Sheet Size:	B	Rev:	01
Sheet	12 of 70	Drawn By	BF



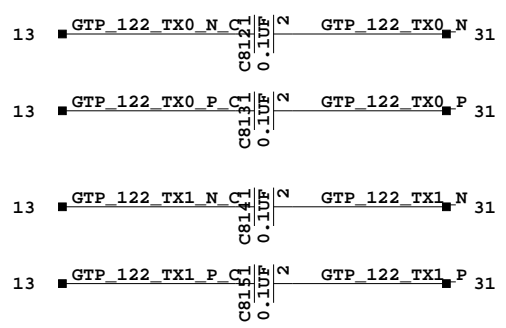
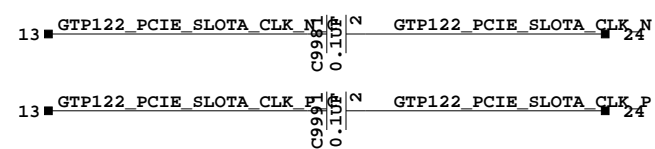
PM



SATA  
SATA Clock



PCIE Slot A

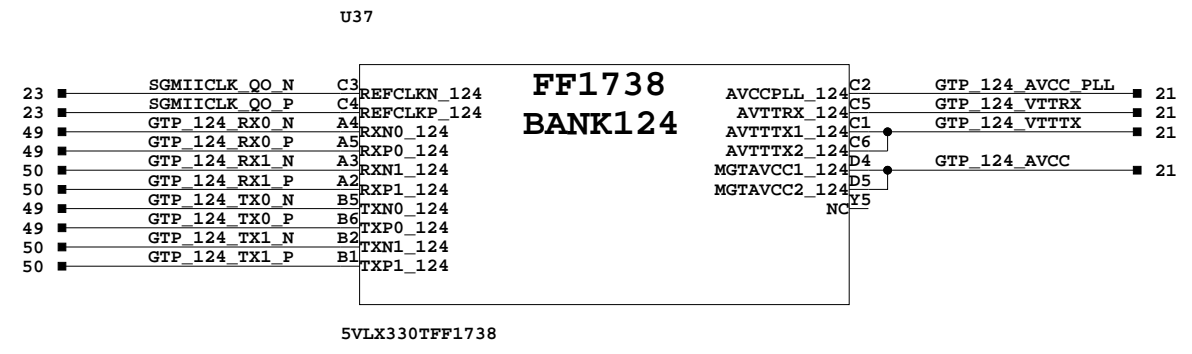


### FPGA - BANK 118,120,122

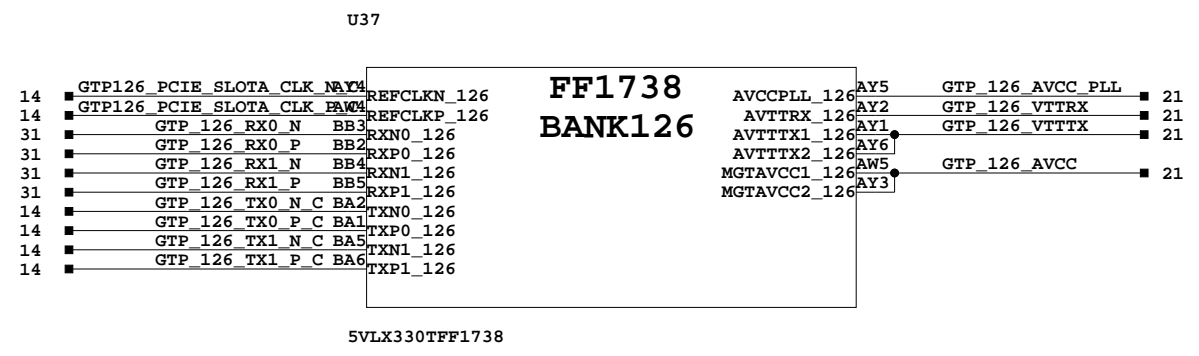


SCH P/N	0381255
ART P/N	0532059
FAB P/N	1280432

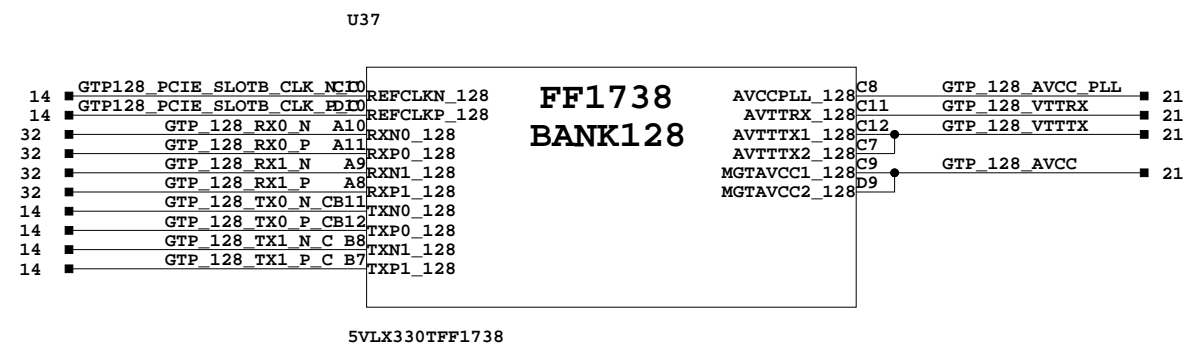
Title: SCHEM, ROHS COMPLIANT, ML510 VIRTEX-5 EVAL PLAFORM	
FPGA - BANK 118,120,122 PM, SATA, PCI-E	
Date: 8-1-2008_15:03	Ver: C
Sheet Size: B	Rev: 01
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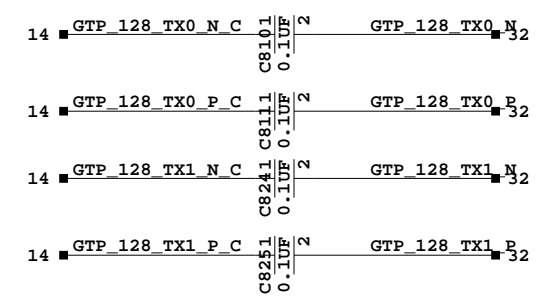
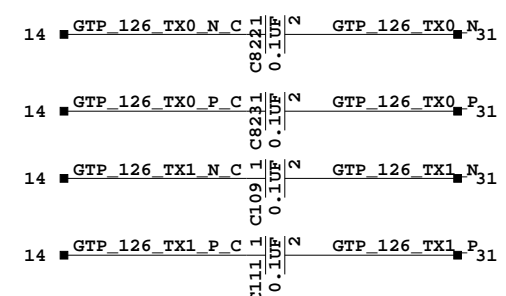
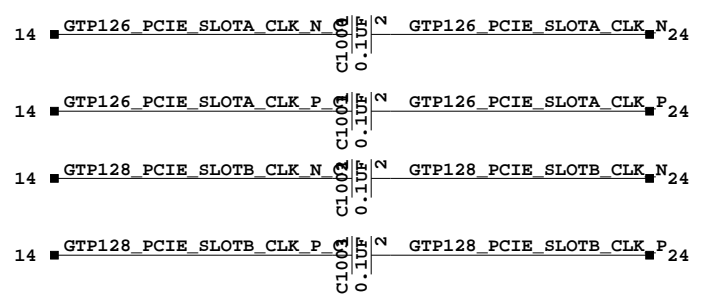
SGMII



PCie Slot A



PCie Slot B  
(FX130T / FX200T / LX330T only)



### FPGA - BANK 124,126,128



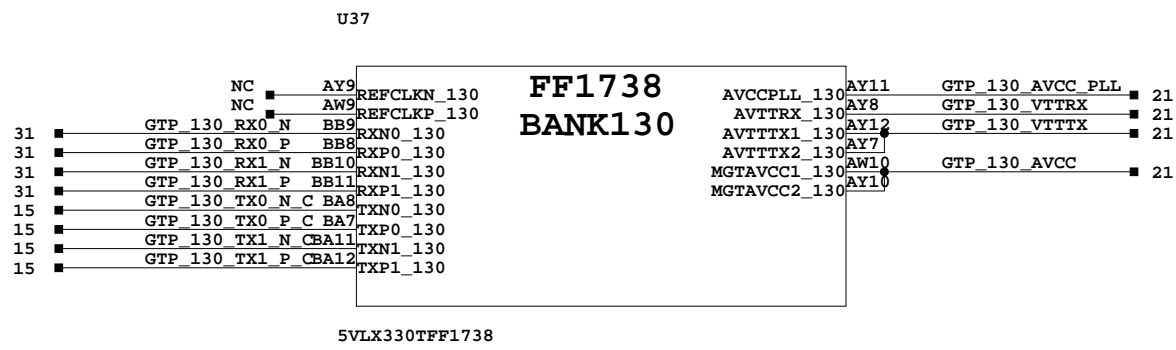
SCH P/N 0381255  
 ART P/N 0532059  
 FAB P/N 1280432

Title: SCHEM, ROHS COMPLIANT, ML510 VIRTEX-5 EVAL PLAFORM  
 FPGA - BANK 124,126,128 SGMII, PCI-E

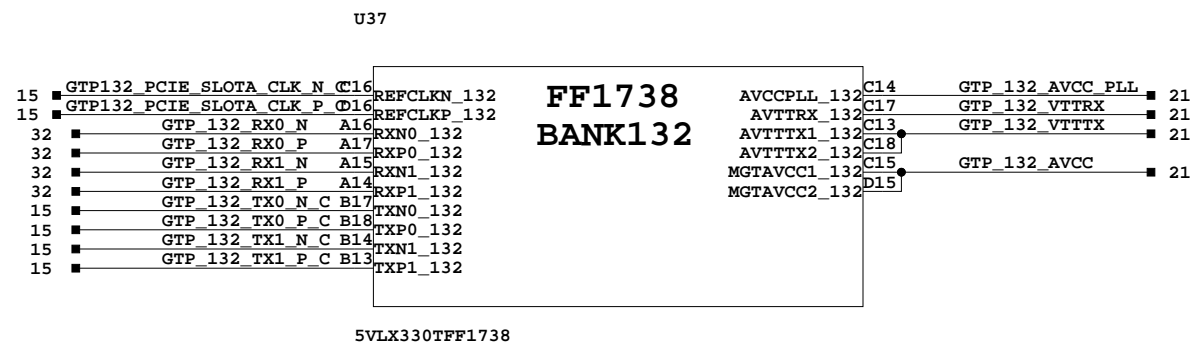
Date: 8-1-2008\_15:03 Ver: C

Sheet Size: B Rev: 01

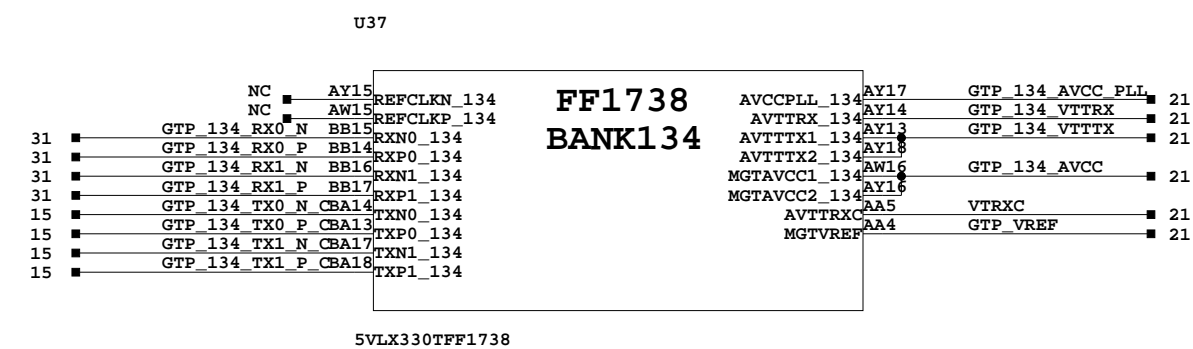
Sheet 14 of 70 Drawn By BF



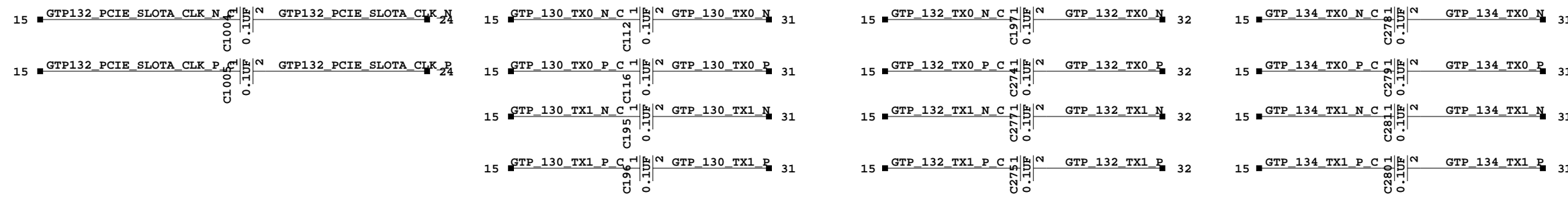
PCie Slot A  
(FX130T / FX200T / LX330T only)



PCie Slot B  
(FX200T / LX330T only)



PCie Slot A  
(FX200T / LX330T only)



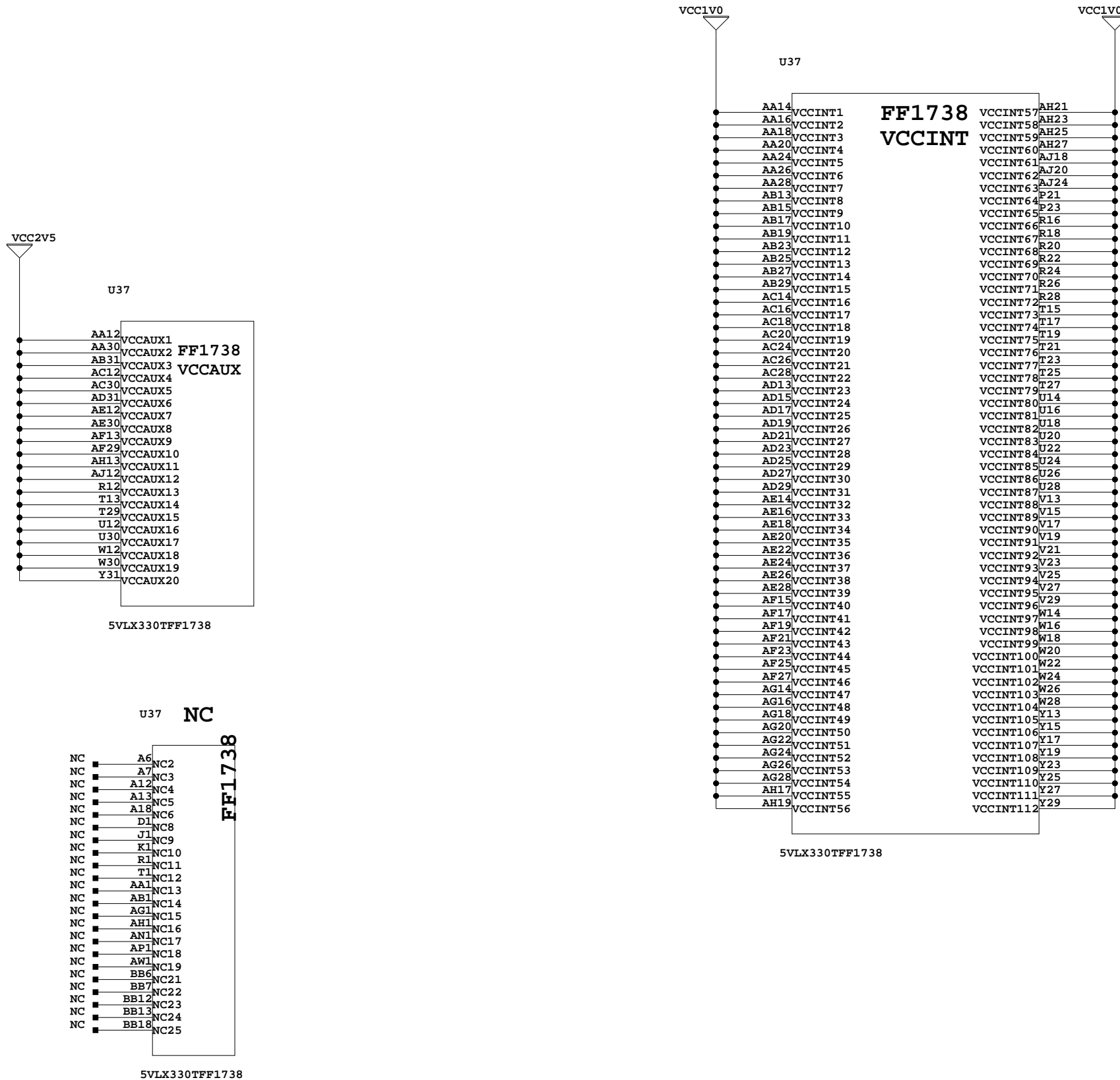
**FPGA - BANK 130,132,134**



SCH P/N 0381255  
ART P/N 0532059  
FAB P/N 1280432

Title: SCHEM, ROHS COMPLIANT, ML510 VIRTEX-5 EVAL PLAFRTORM  
FPGA - BANK 130,132,134 PCI-E

Date:	8-1-2008_15:03	Ver:	C
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**FPGA - VCCAUX, VCCINT, NC**



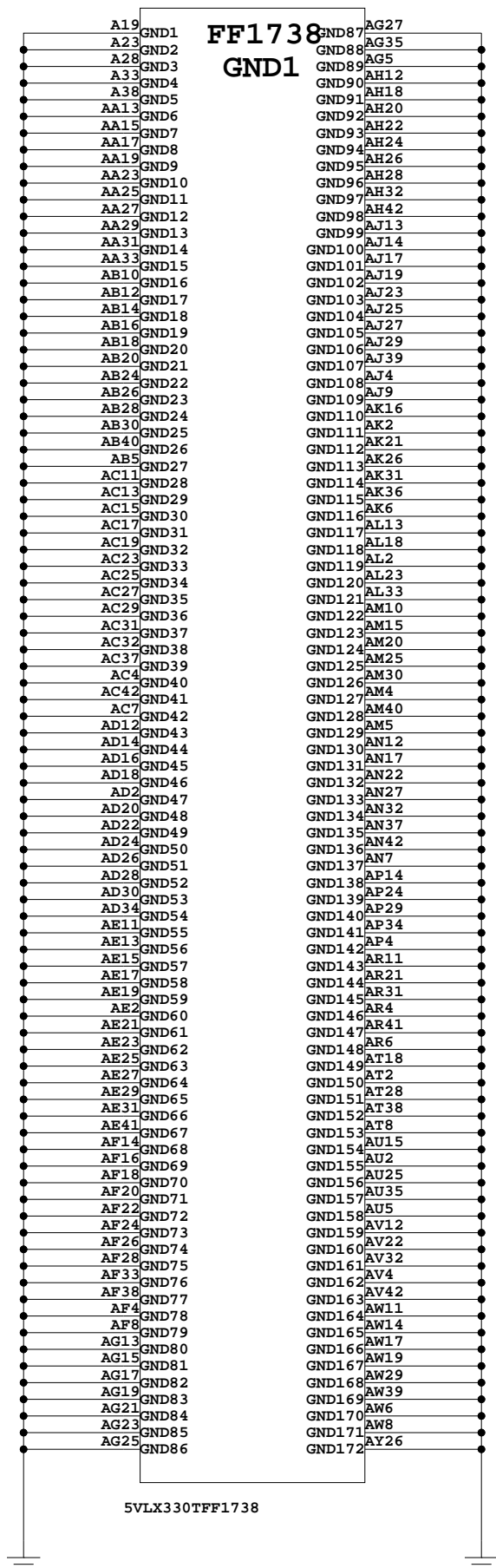
SCH P/N 0381255  
 ART P/N 0532059  
 FAB P/N 1280432

Title: SCHEM, ROHS COMPLIANT, ML510 VIRTEX-5 EVAL PLAFORM  
 FPGA - VCCAUX, VCCINT, NC

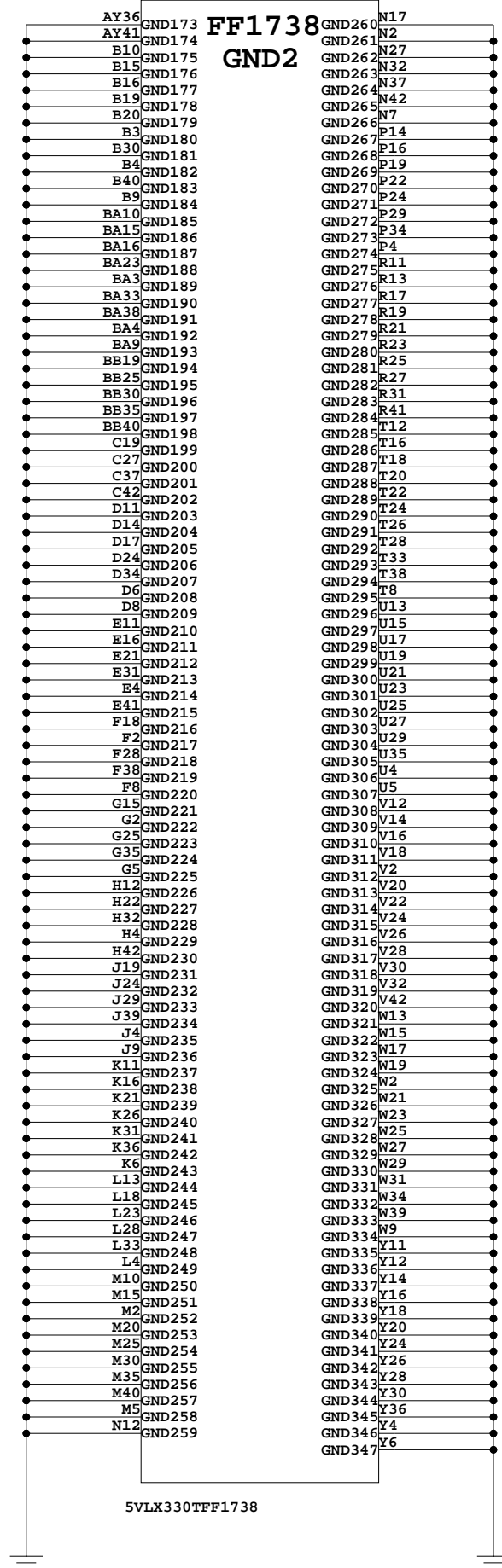
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Sheet Size:	B	Rev:	01
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U37



U37



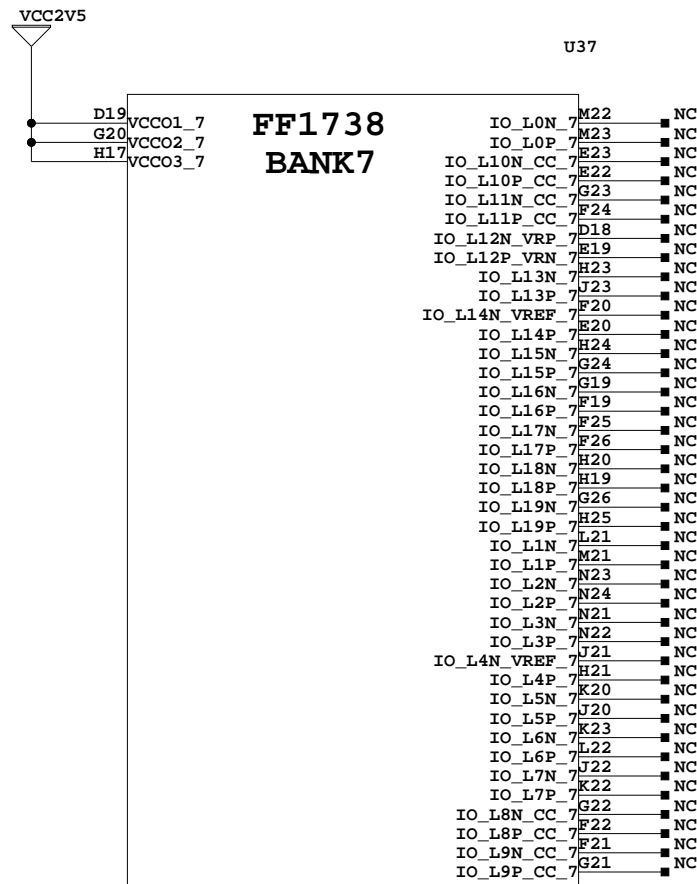
### FPGA - GND



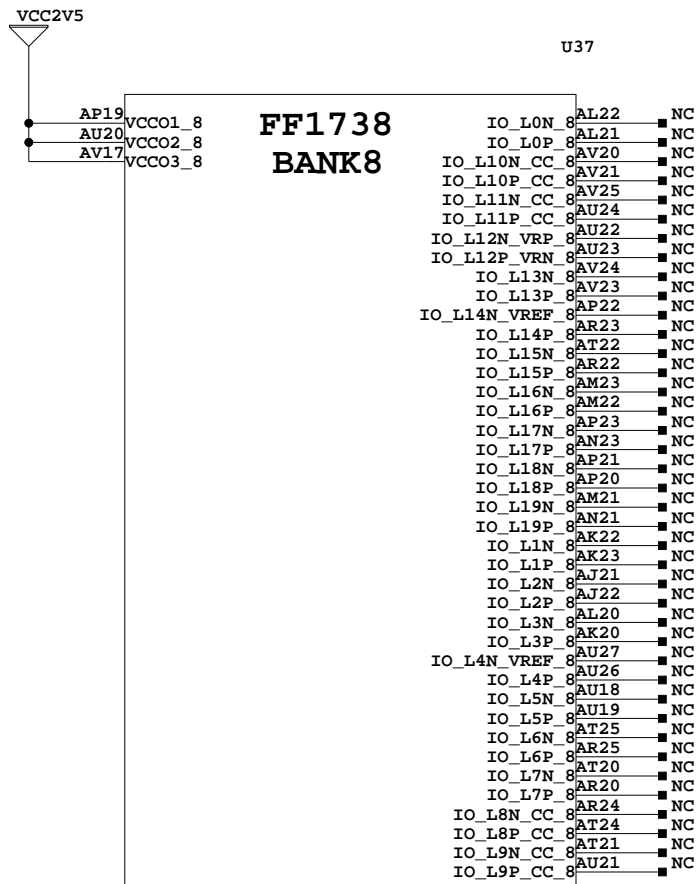
SCH P/N 0381255  
 ART P/N 0532059  
 FAB P/N 1280432

Title: SCHEM, ROHS COMPLIANT, ML510 VIRTEX-5 EVAL PLAFORM  
 FPGA GROUND PINS

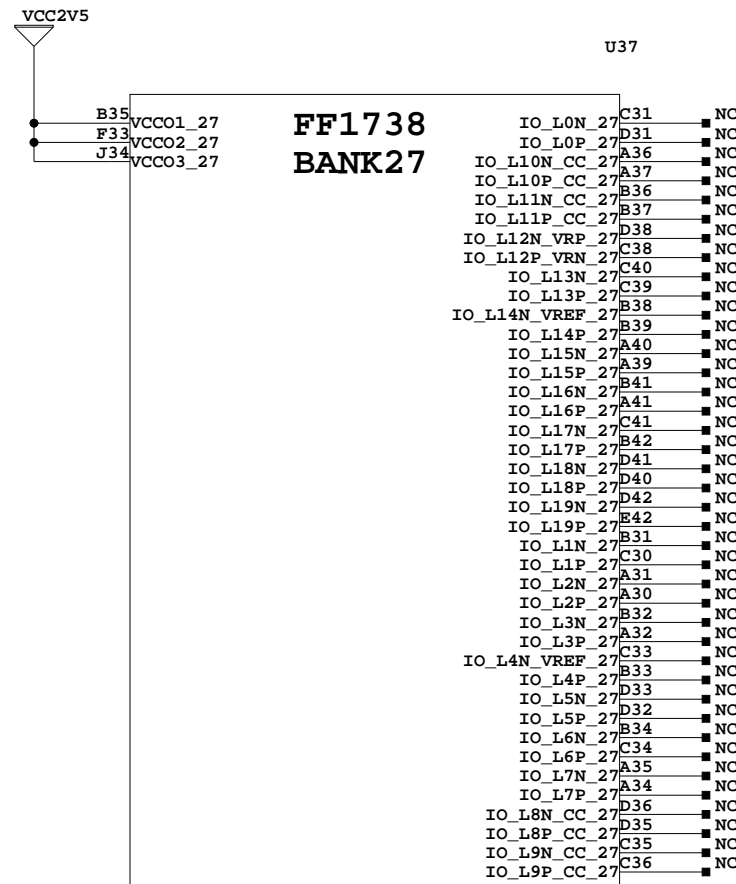
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Sheet Size:	B	Rev:	01
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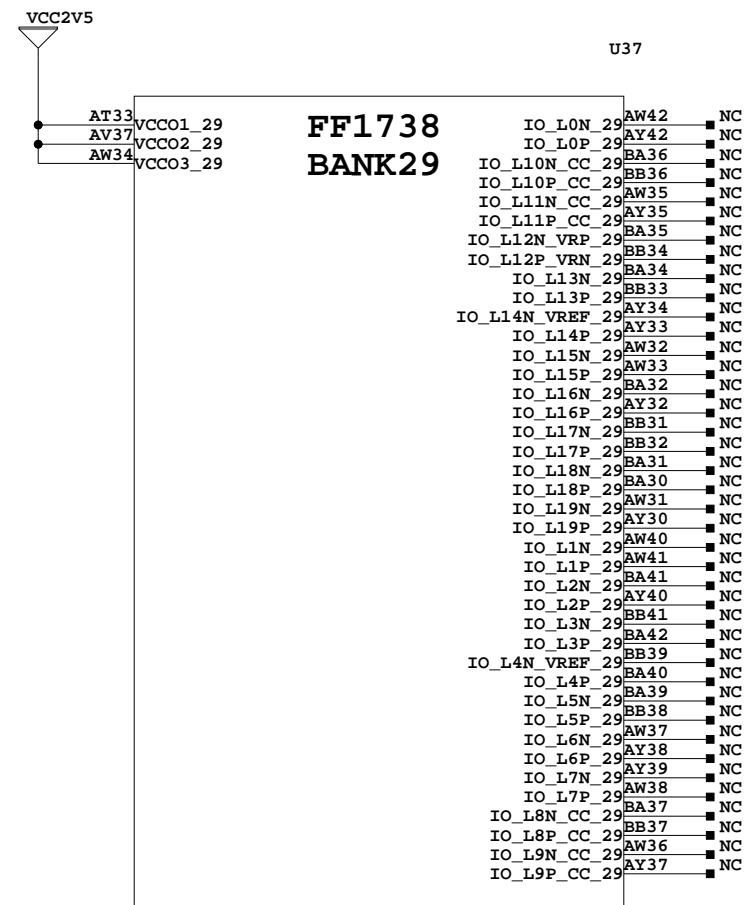
5VLX330TFF1738



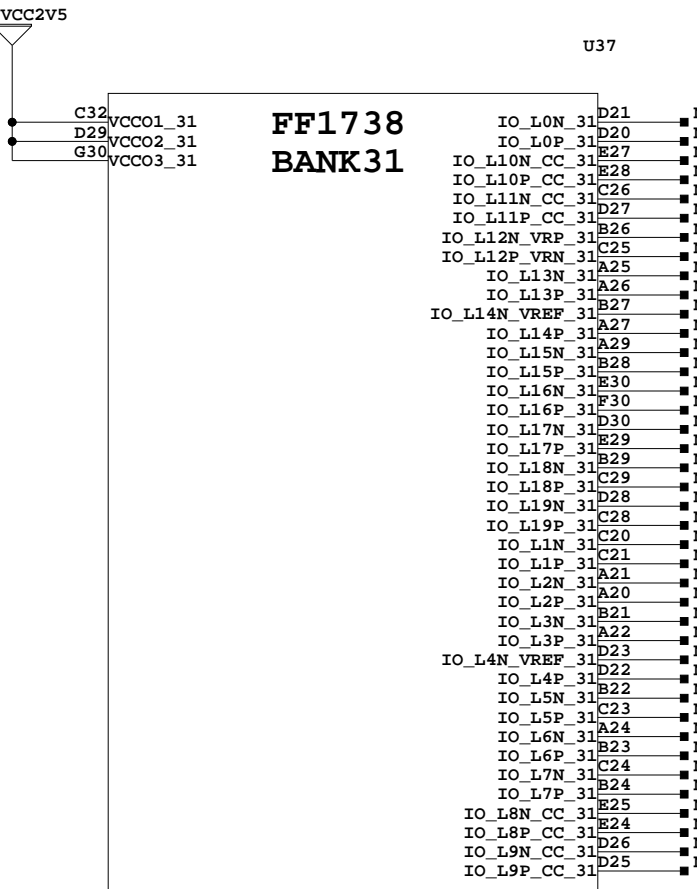
5VLX330TFF1738



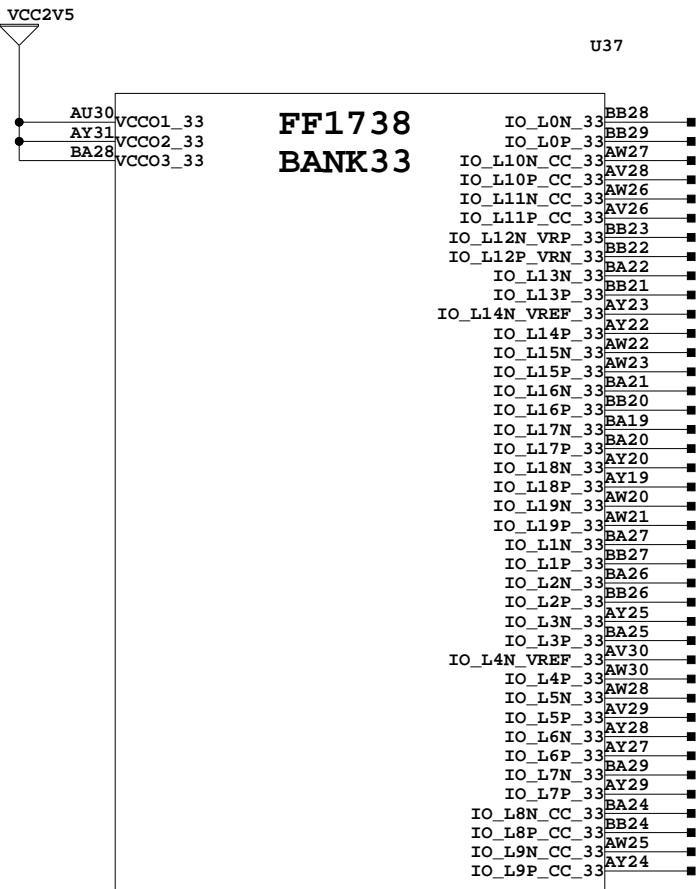
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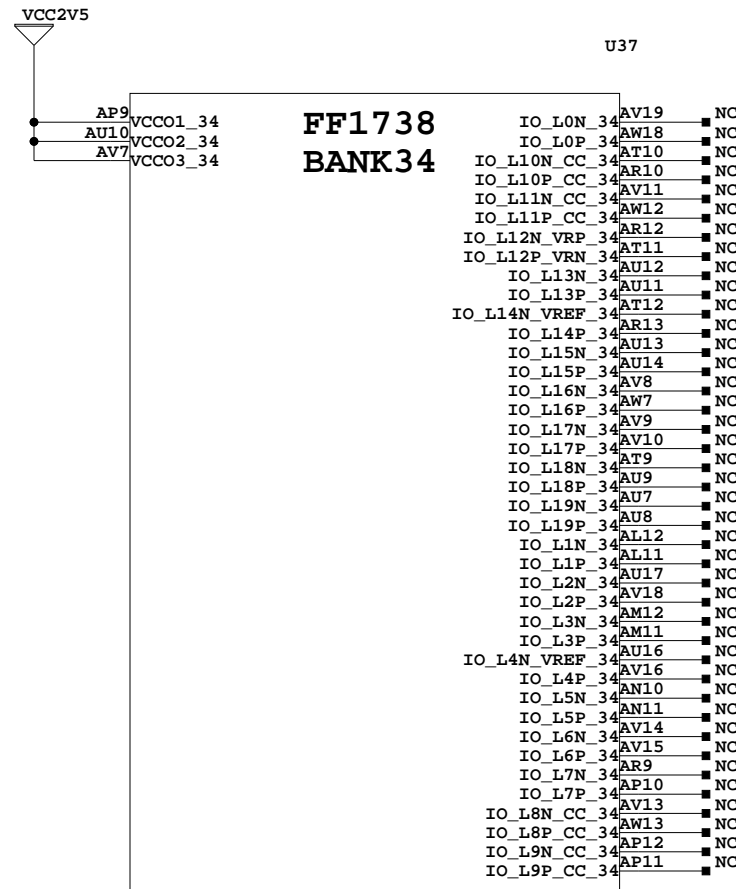
5VLX330TFF1738



5VLX330TFF1738



5VLX330TFF1738



5VLX330TFF1738

### FPGA - BANK 7,8,27,29,31,33,34



SCH P/N 0381255  
ART P/N 0532059  
FAB P/N 1280432

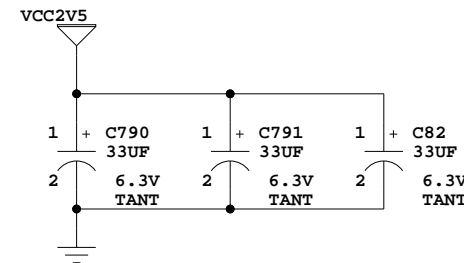
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FPGA - BANK 7,8,27,29,31,33,34 UNUSED BANKS

Date: 7-10-2008\_10:19 Ver: C

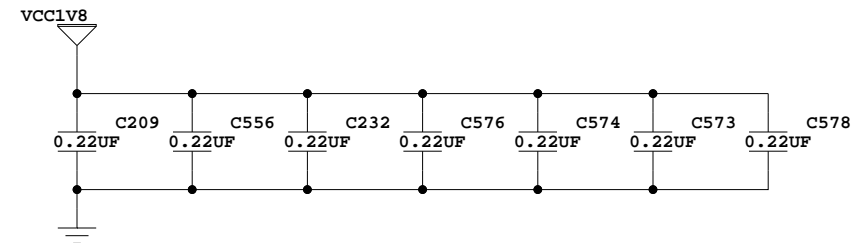
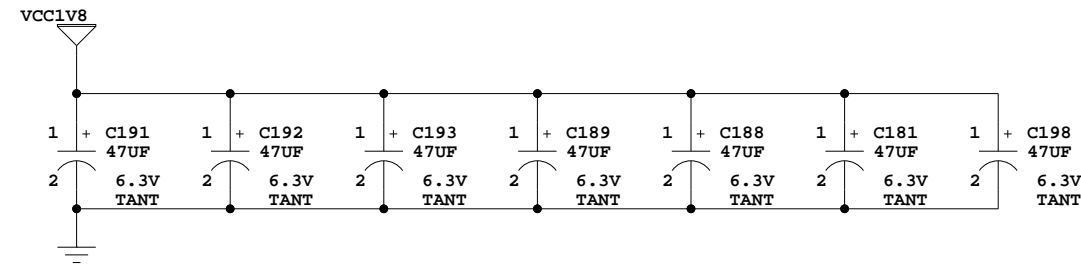
Sheet Size: B Rev: 01

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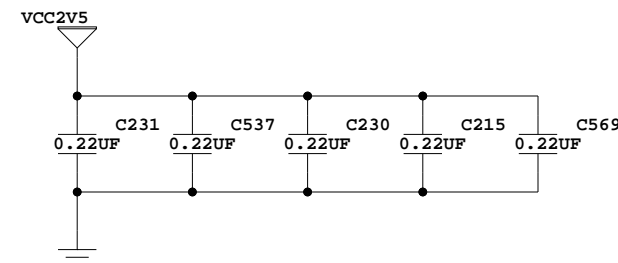
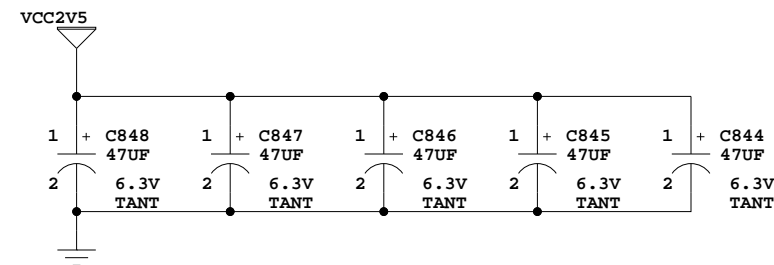
### VCCAUX 2.5V



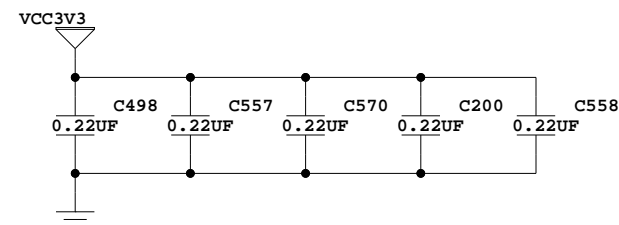
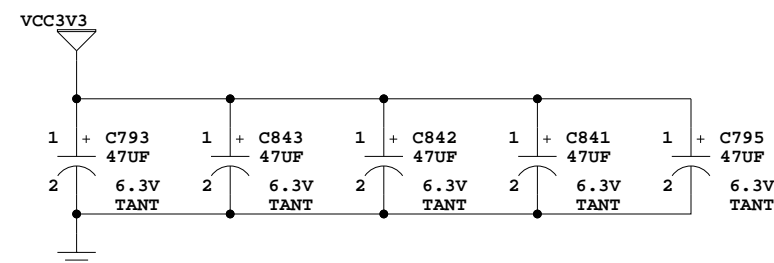
### VCCO 1.8V



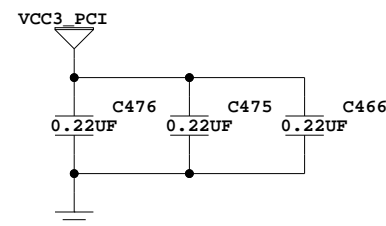
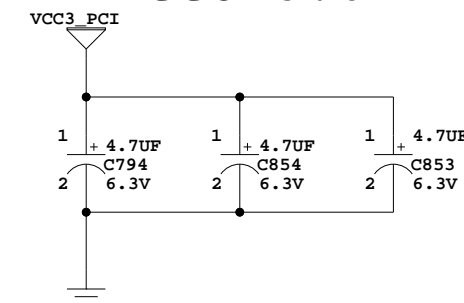
### VCCO 2.5V



### VCCO 3.3V



### VCCO 3.0V PCI



Supply	Banks Used	Capacitors Used
VCCAUX 2.5V	N/A	33uf: 3
VCCINT 1.0V	N/A	330uf: 7 / 0.22uf: 52
VCCO 3.3V	0,1,2,4,26	47uf: 5 / 0.22uf: 5
VCCO 2.5V	3,5,6,18,25	47uf: 5 / 0.22uf: 5
VCCO 1.8V	11,13,15,17,19,21,23	47uf: 7 / 0.22uf: 7
VCCO 3.0V PCI	12,20,24	47uf: 3 / 0.22uf: 3

Note: Bank 12 defaults to 3.0V\_PCI

### FPGA DECOUPLING

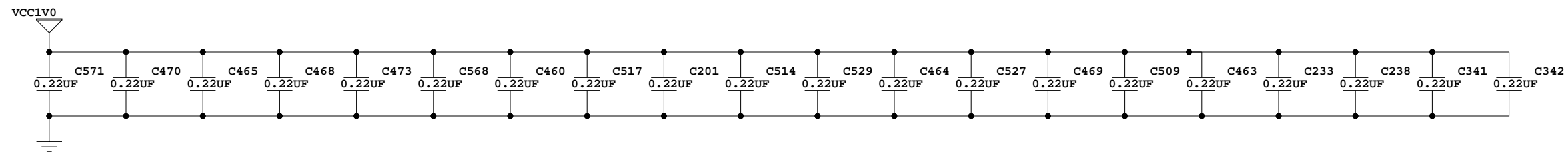
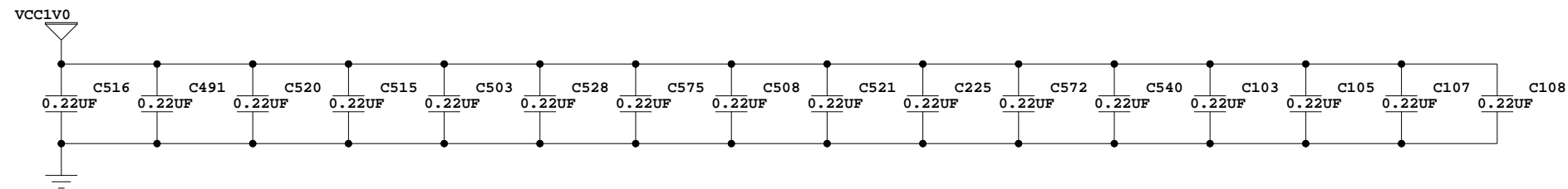
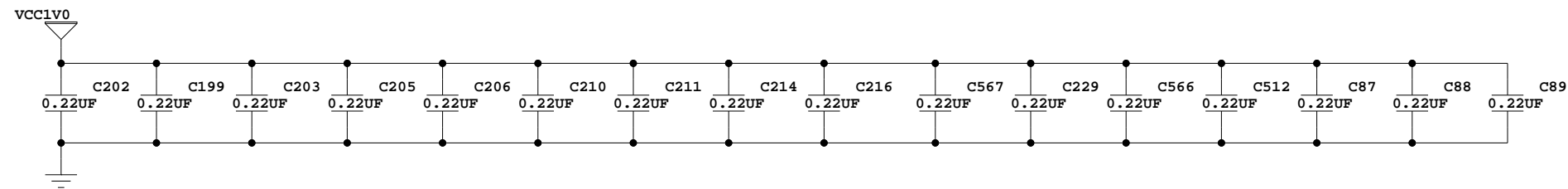
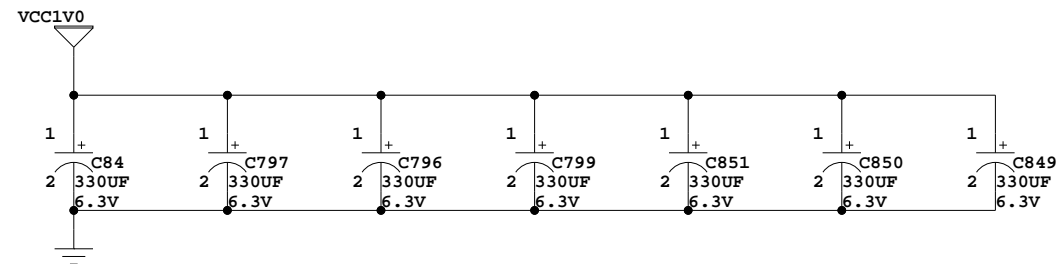


SCH P/N 0381255  
ART P/N 0532059  
FAB P/N 1280432

Title: SCHEM, ROHS COMPLIANT, ML510 VIRTEX-5 EVAL PLATFORM  
FPGA DECOUPLING

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# VCCINT 1.0V



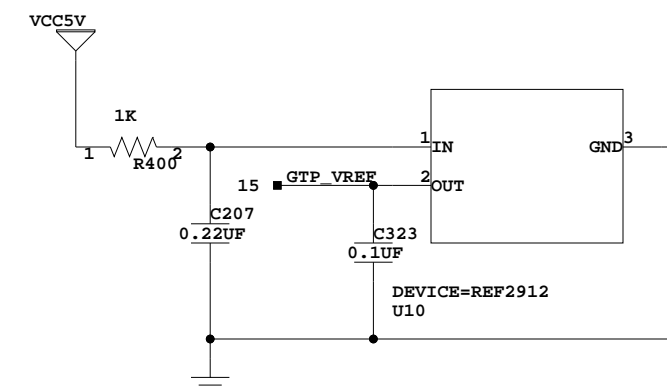
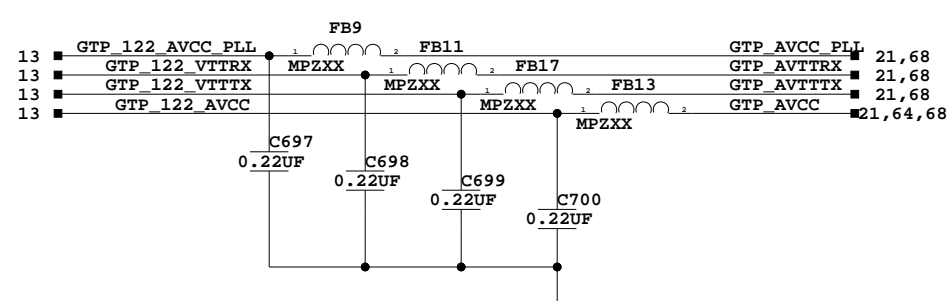
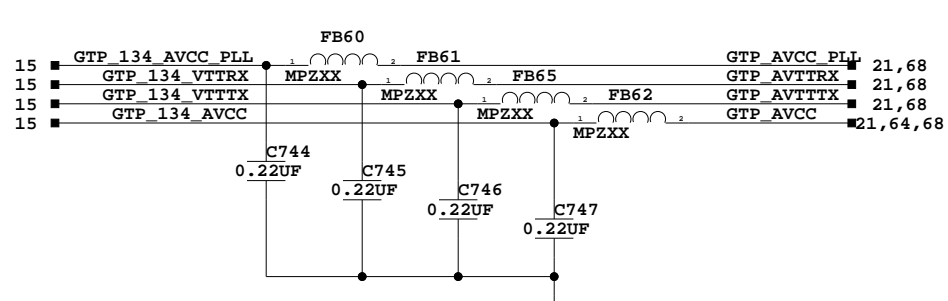
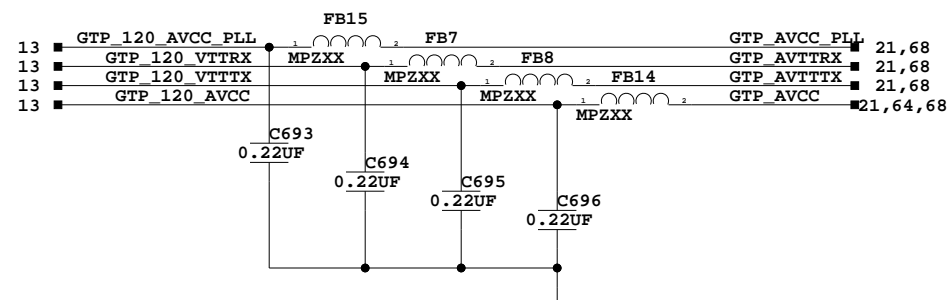
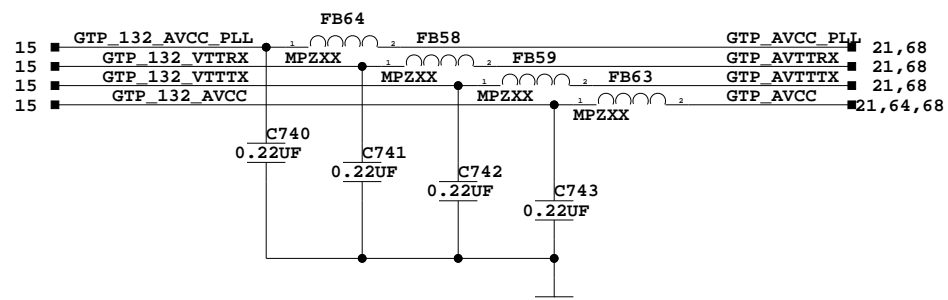
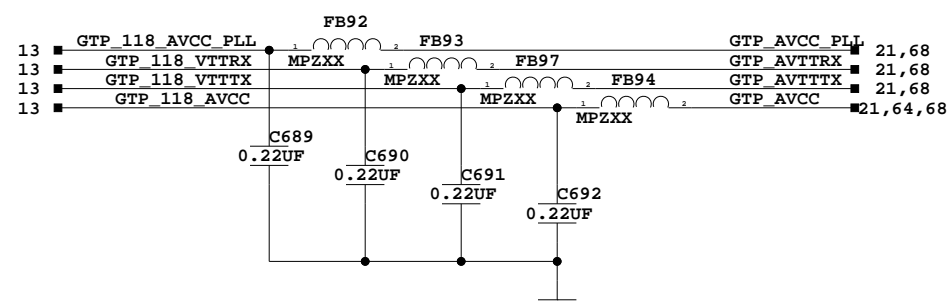
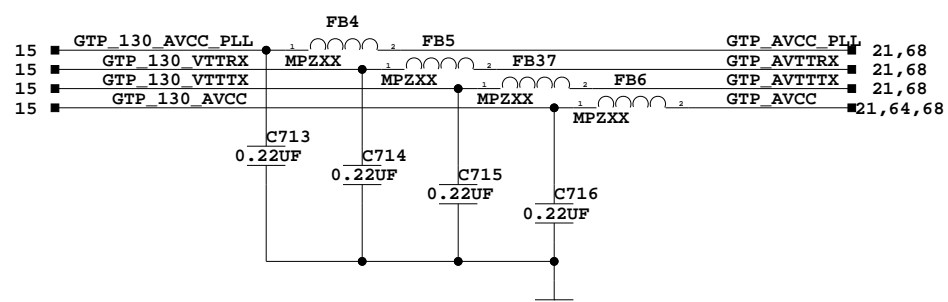
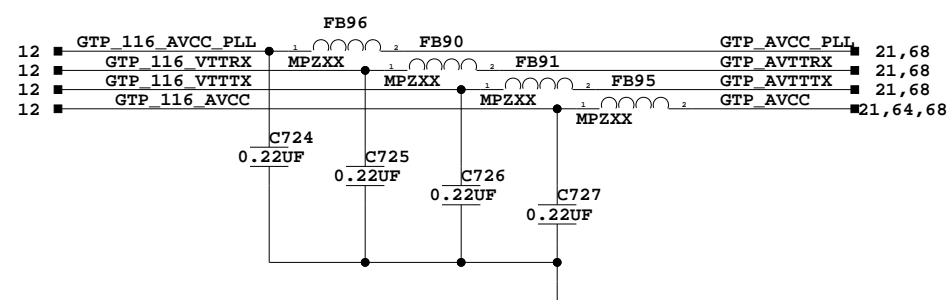
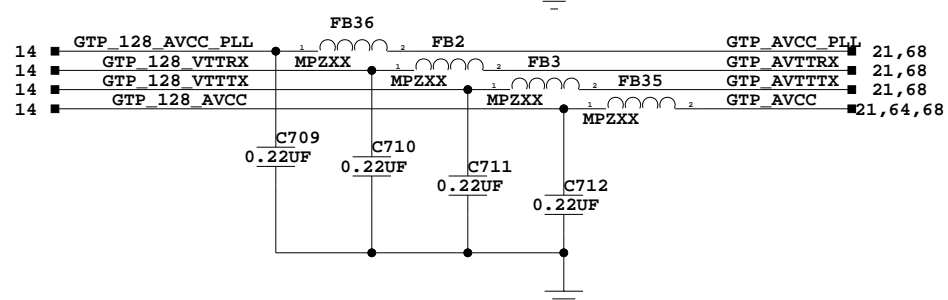
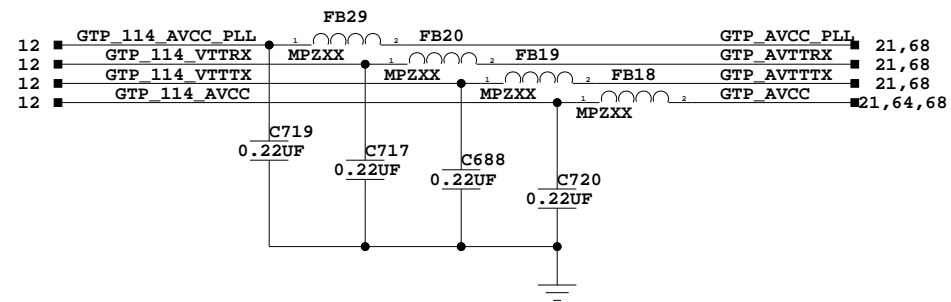
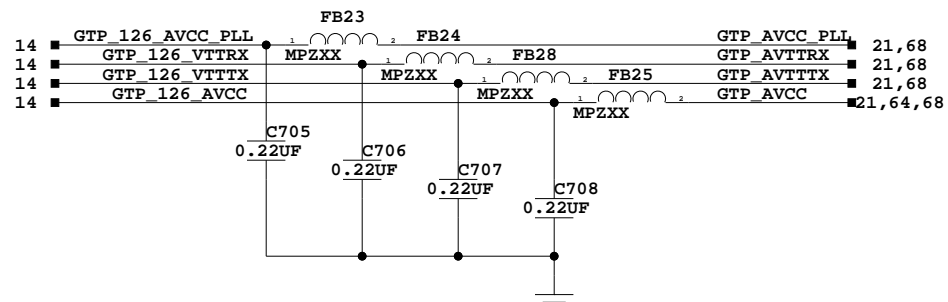
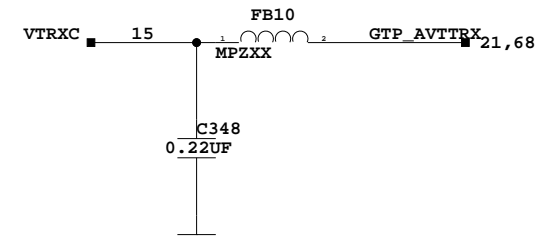
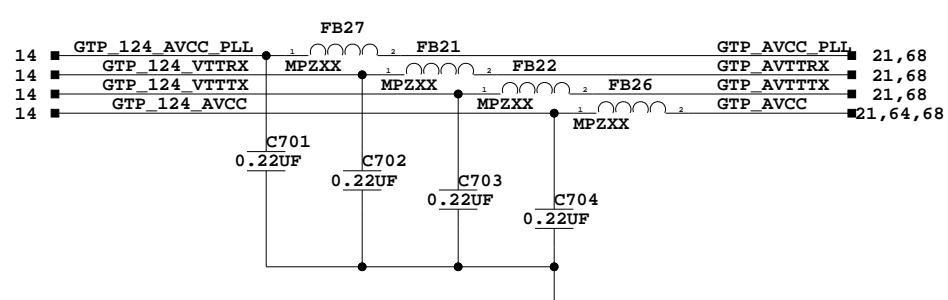
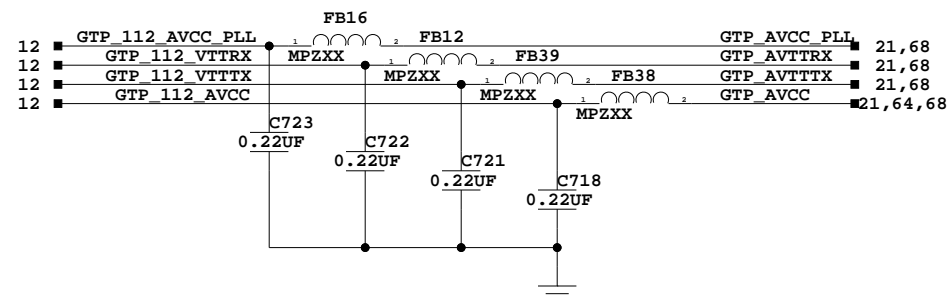
## FPGA DECOUPLING PAGE 2



SCH P/N 0381255  
 ART P/N 0532059  
 FAB P/N 1280432

Title: SCHEM, ROHS COMPLIANT, ML510 VIRTEX-5 EVAL PLAFORM  
 FPGA DECOUPLING PAGE 2

Date:	7-10-2008_10:19	Ver:	C
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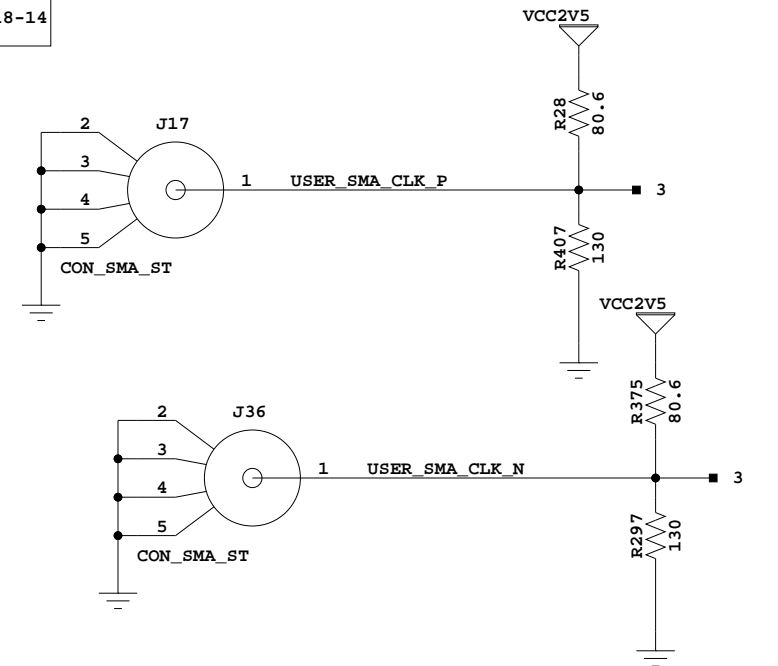
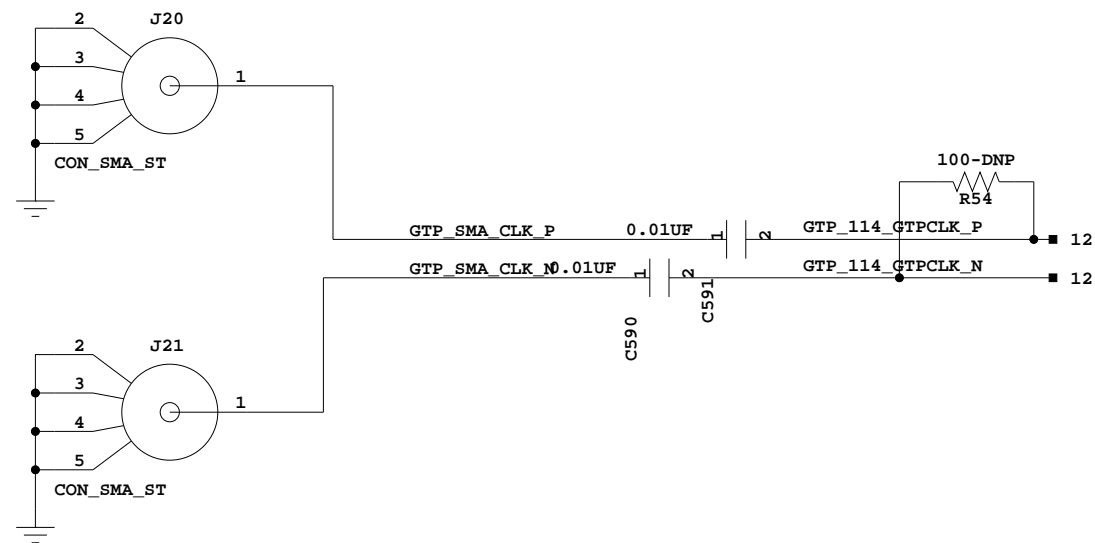
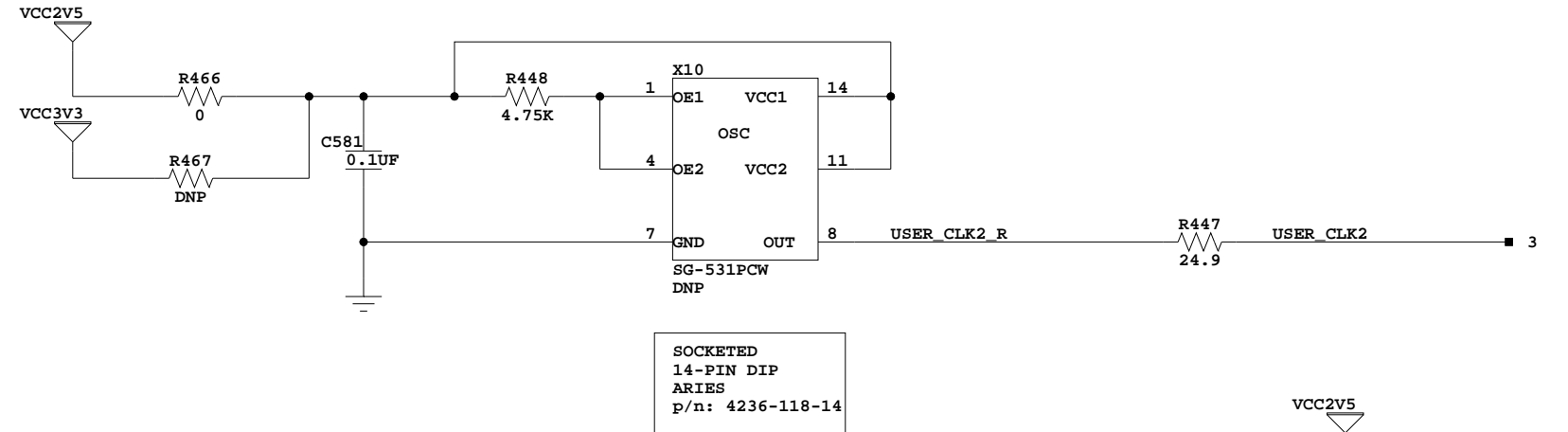
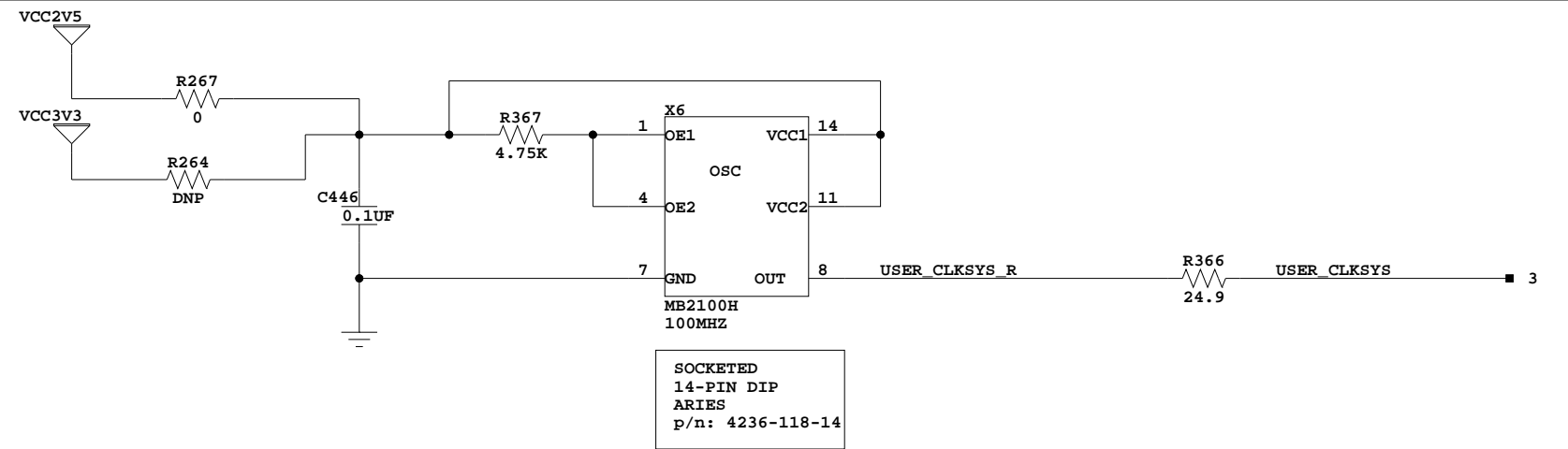
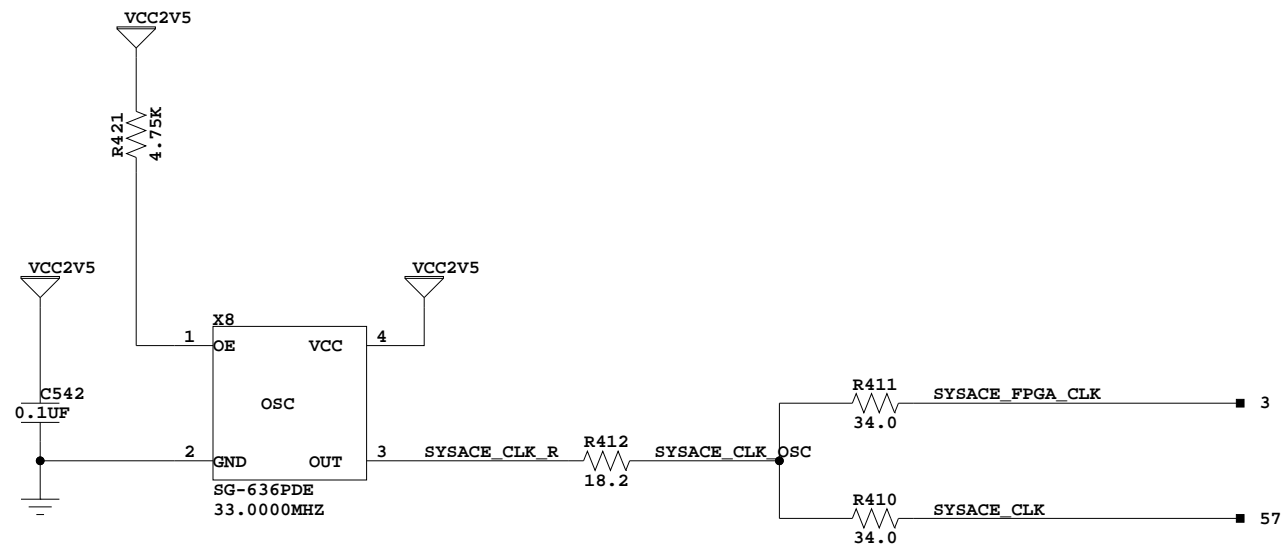
### GTP POWER FILTER



SCH P/N 0381255  
 ART P/N 0532059  
 FAB P/N 1280432

Title: SCHEM, ROHS COMPLIANT, ML510 VIRTEX-5 EVAL PLAFORM  
 GTP POWER FILTER

Date:	7-10-2008_10:19	Ver:	C
Sheet Size:	B	Rev:	01
Sheet	21 of 70	Drawn By	BF



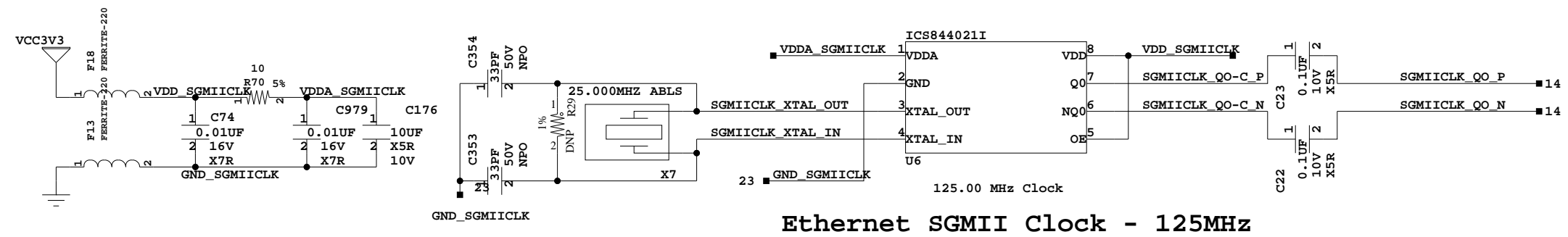
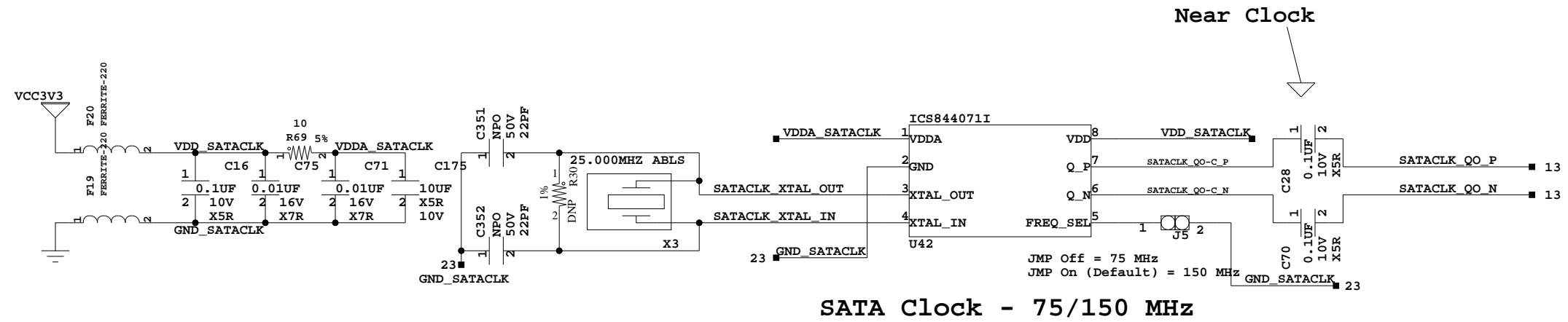
### CLOCKS: USER, MGT, SYSACE



SCH P/N 0381255  
ART P/N 0532059  
FAB P/N 1280432

Title: SCHEM, ROHS COMPLIANT, ML510 VIRTEX-5 EVAL PLAFORM  
CLKS: USR, MGT, SYSACE

Date:	7-10-2008_10:19	Ver:	C
Sheet Size:	B	Rev:	01
Sheet	22 of 70	Drawn By	BF

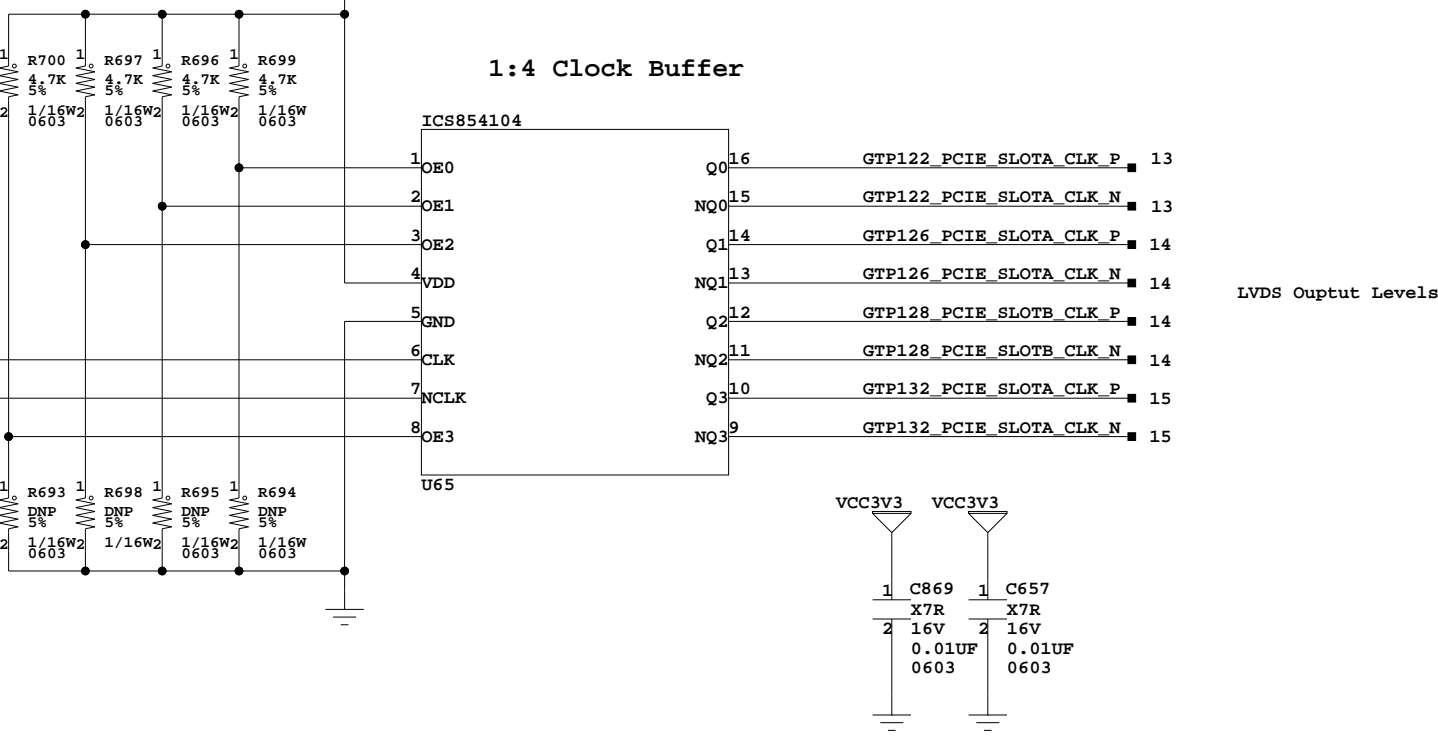
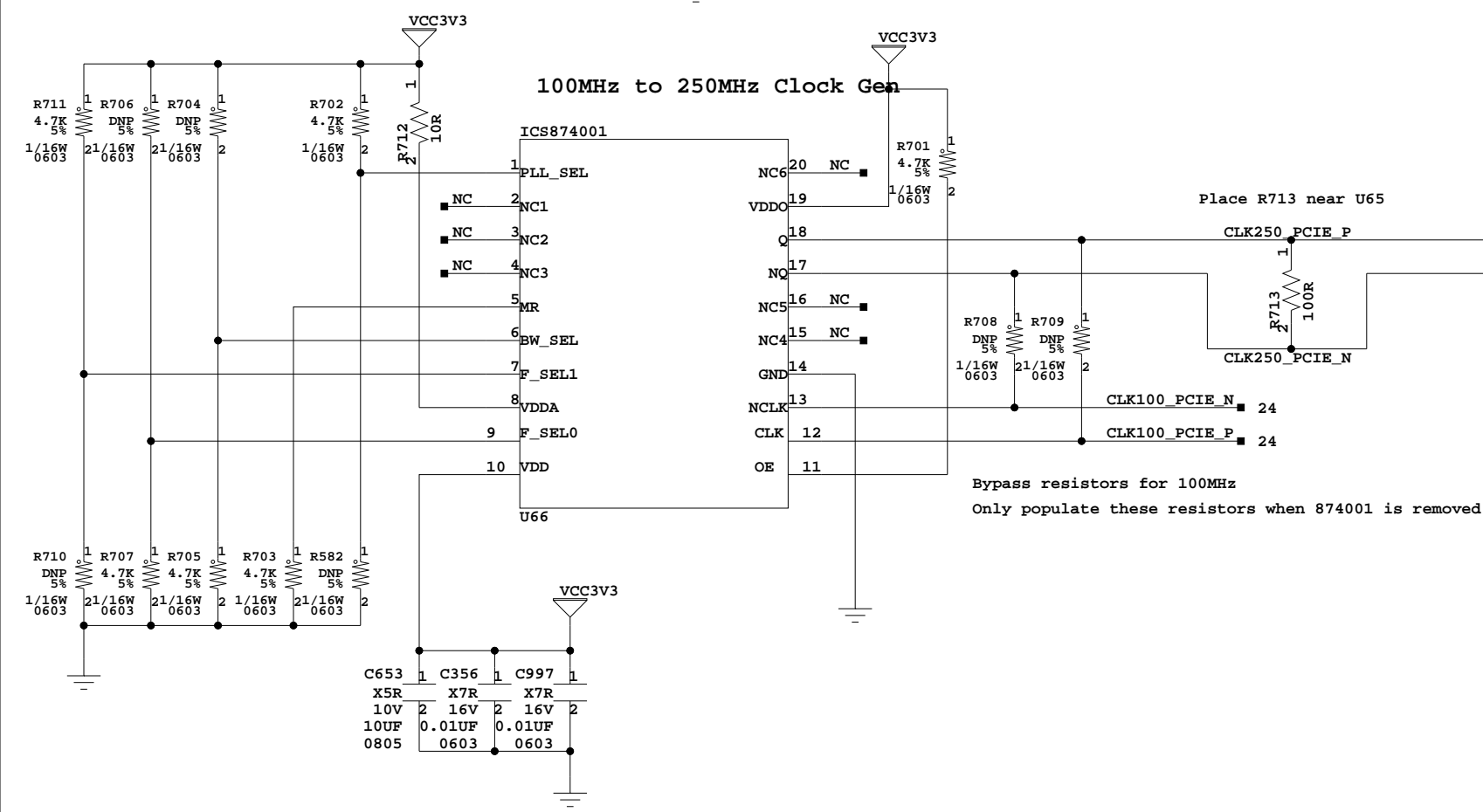
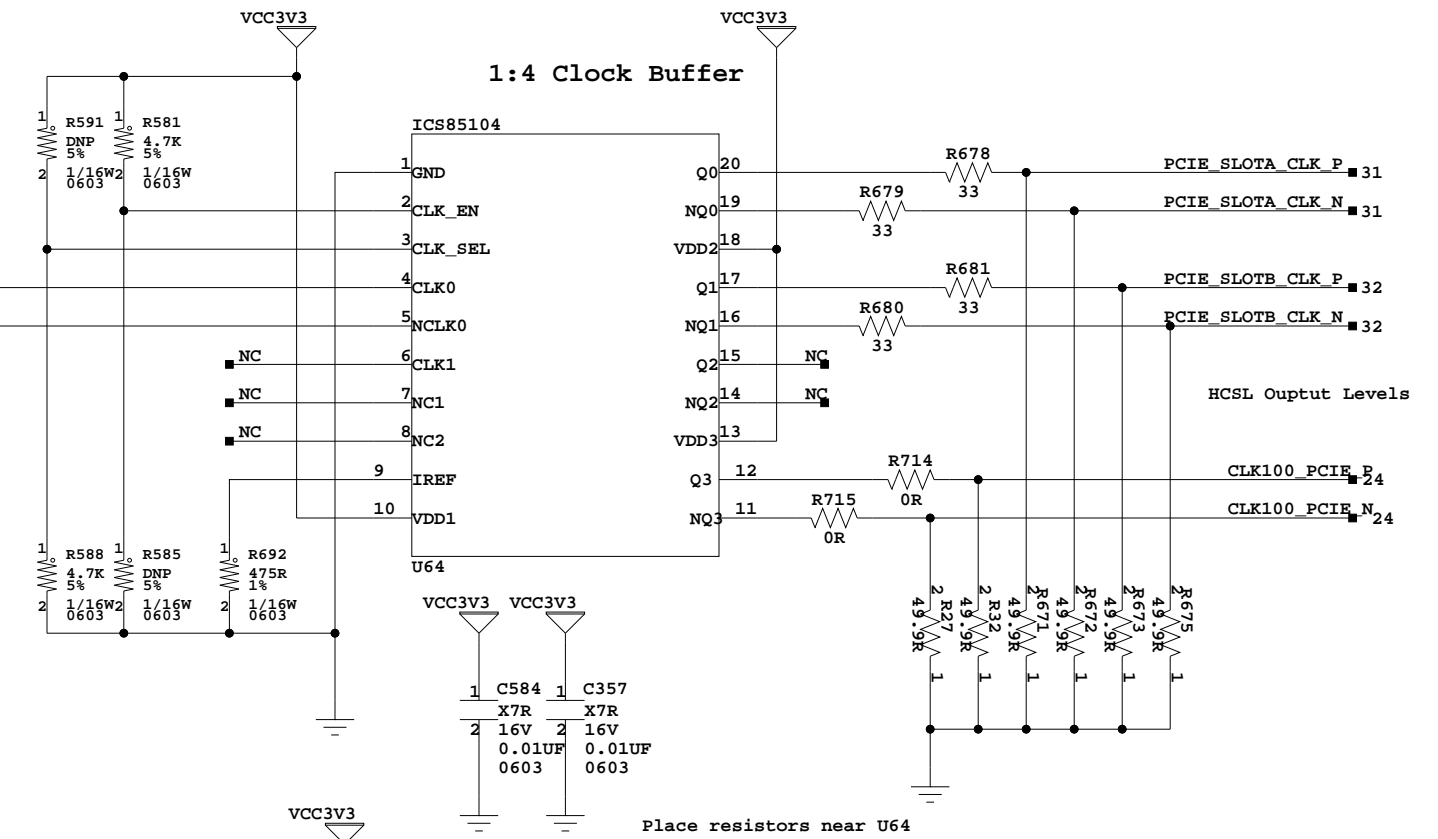
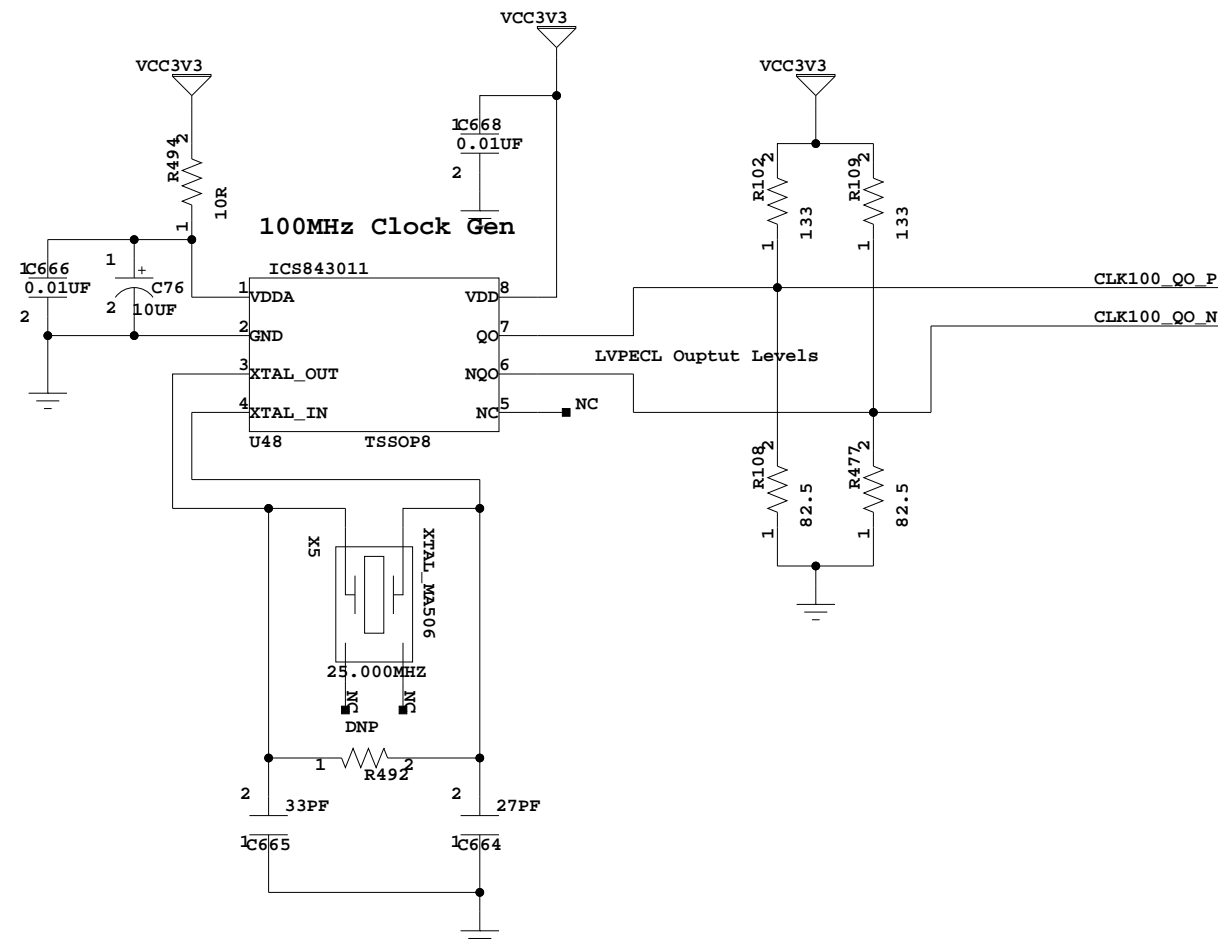


### SATA, SGMII CLOCKS

	SCH P/N	0381255
	ART P/N	0532059
	FAB P/N	1280432

Title: SCHEM, ROHS COMPLIANT, ML510 VIRTEX-5 EVAL PLAFORM  
SATA, SGMII CLOCKS

Date:	7-10-2008_10:19	Ver:	C
Sheet Size:	B	Rev:	01
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**PCie CLOCKS**

SCH P/N 0381255  
ART P/N 0532059  
FAB P/N 1280432

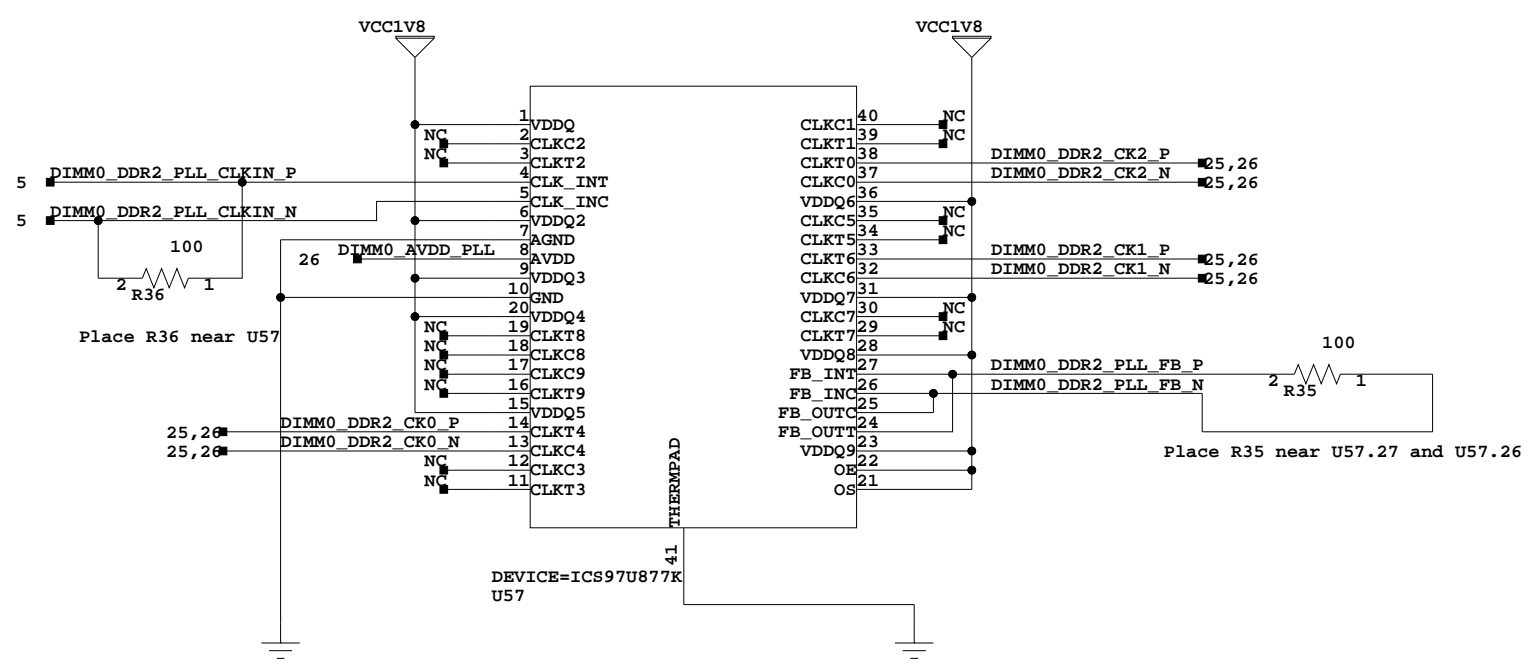
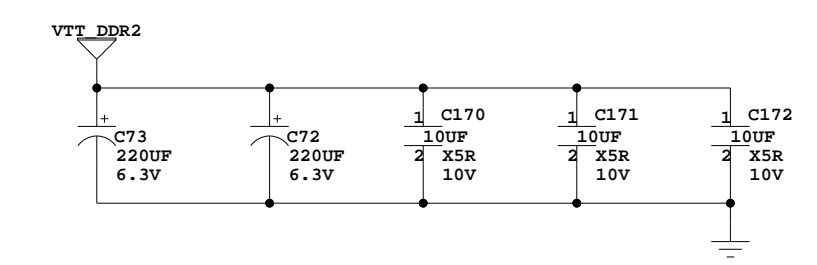
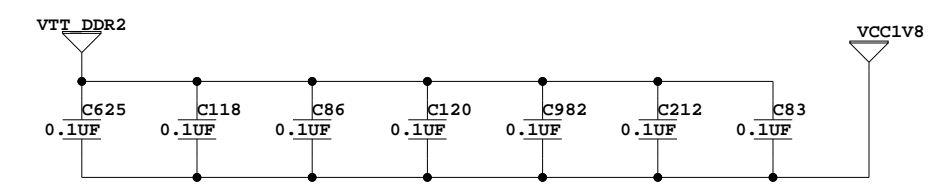
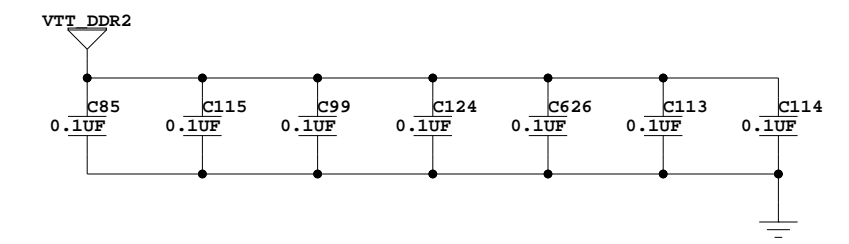
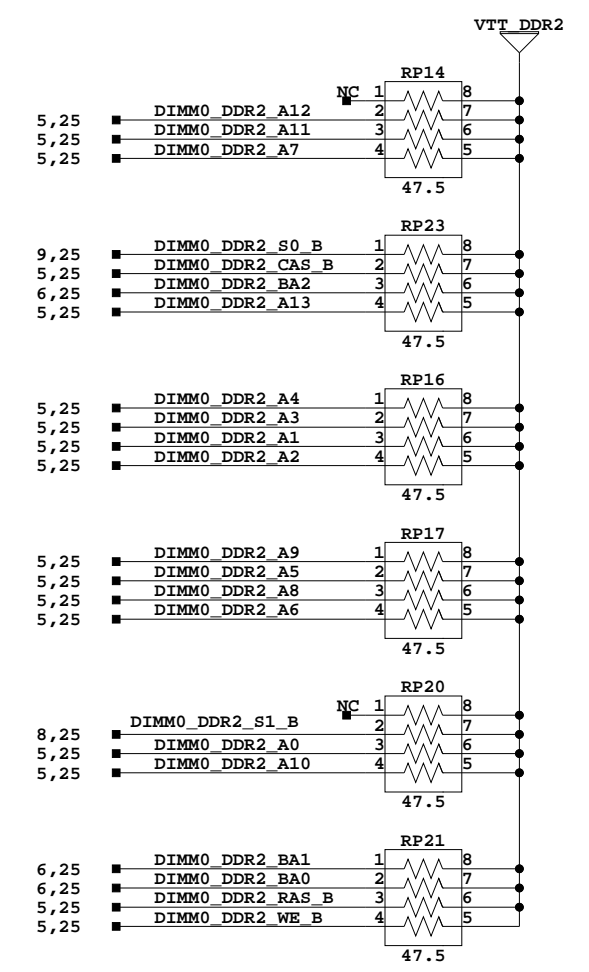
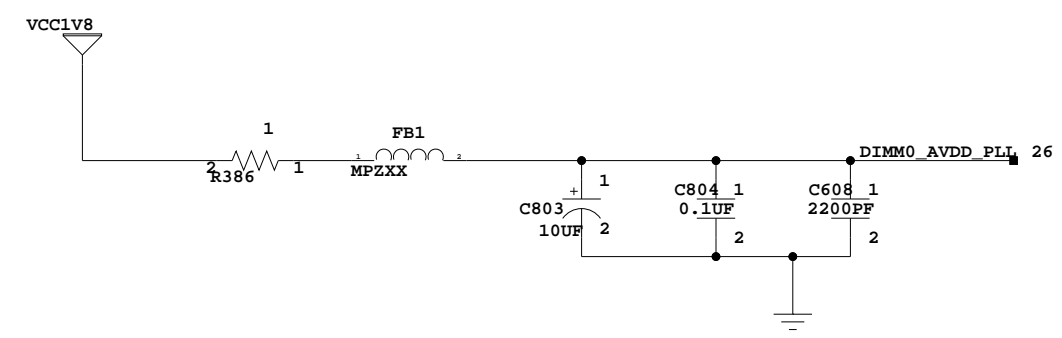
Title: SCHEM, ROHS COMPLIANT, ML510 VIRTEX-5 EVAL PLAFORM  
PCIE CLOCKS

Date: 7-10-2008\_10:19 Ver: C  
Sheet Size: B Rev: 01  
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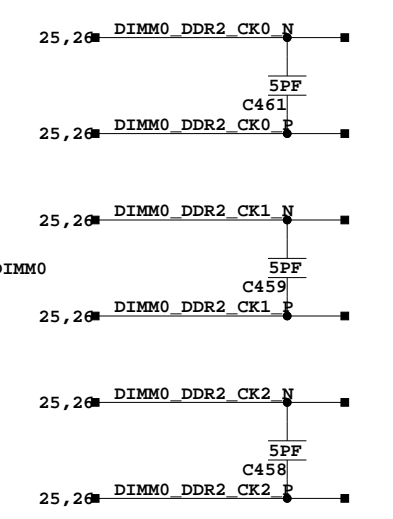




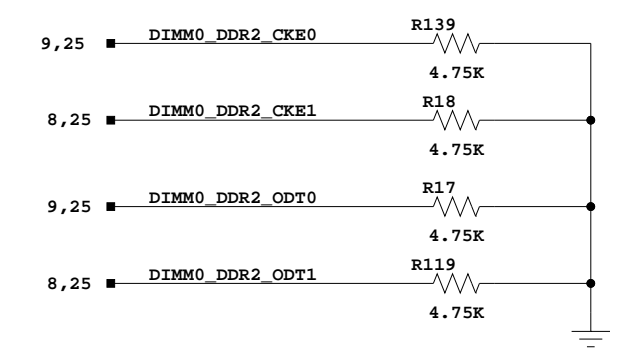
Since this is a source-sink power supply, split of decoupling capacitors between VTT-GND and VTT-VCC1V8



DIMM0\_DDR2\_PLL\_FB\* to be length matched to DIMM0\_DDR2\_CLKIN\*



Place these 5pf caps near DDR2 DIMM0



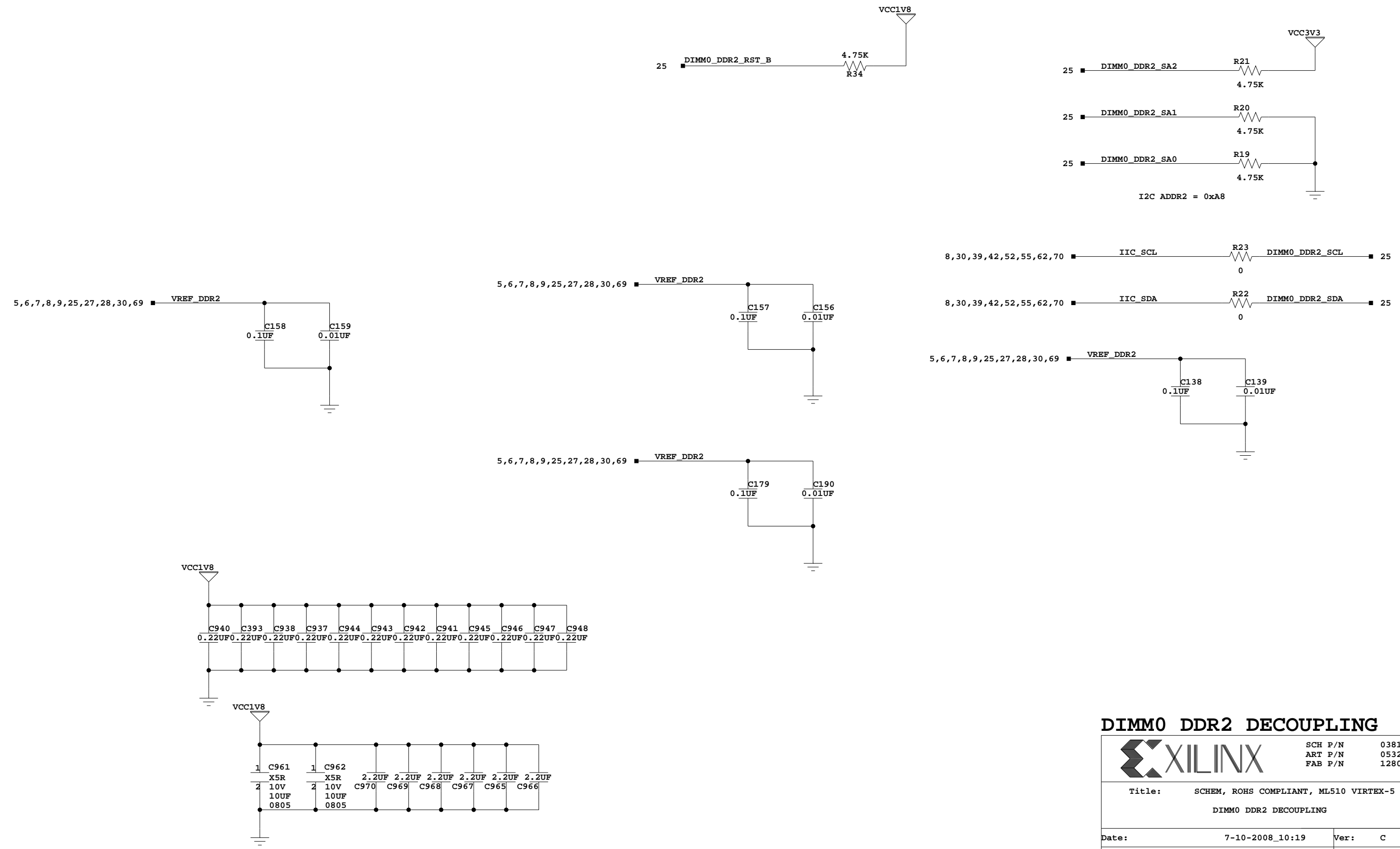
### DIMM0 DDR2 SSTL-2 TERMINATION



SCH P/N 0381255  
ART P/N 0532059  
FAB P/N 1280432

Title: SCHEM, ROHS COMPLIANT, ML510 VIRTEX-5 EVAL PLAFORM  
DIMM0 DDR2 SSTL-2 TERMINATION

Date:	7-10-2008_10:19	Ver:	C
Sheet Size:	B	Rev:	01
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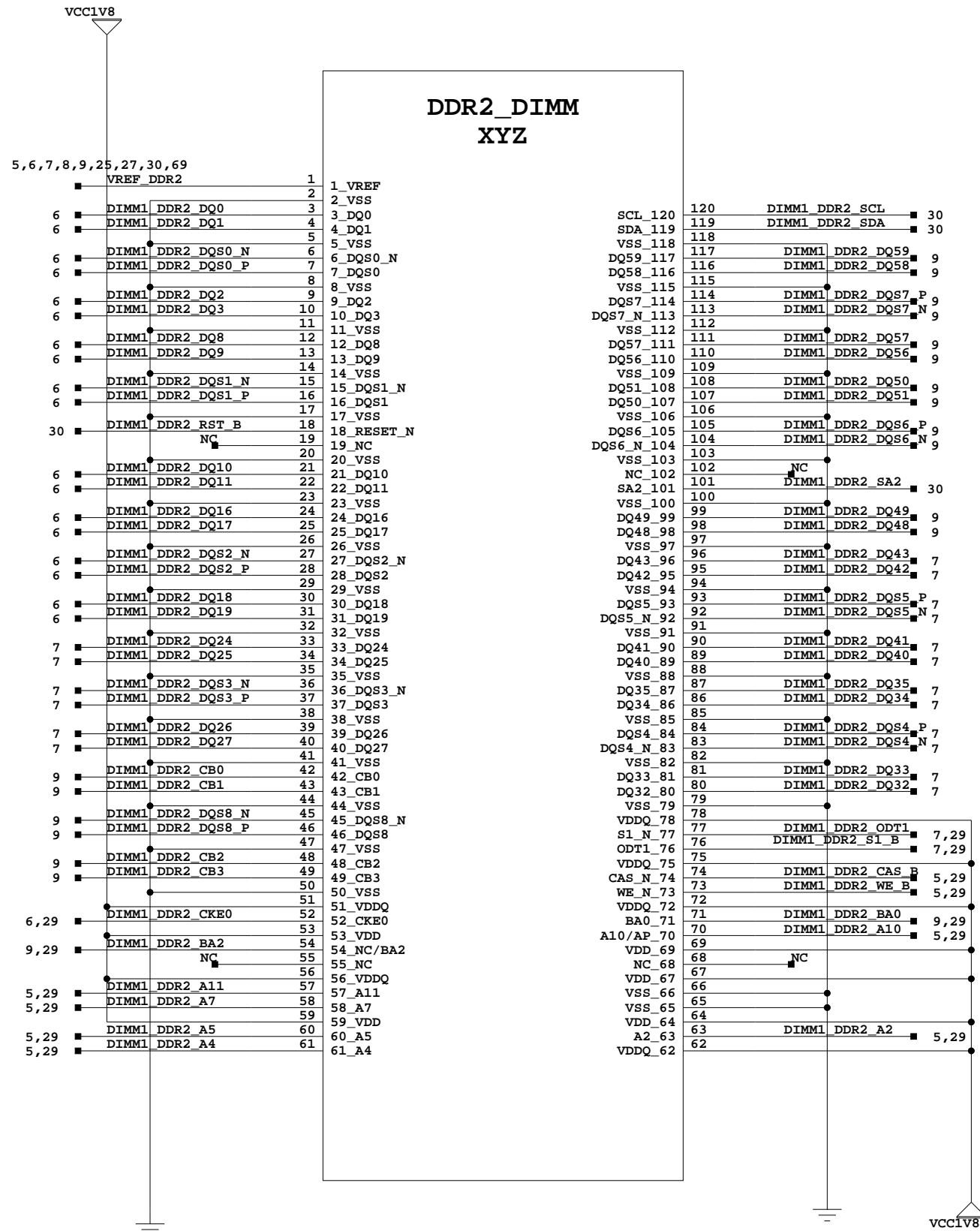


### DIMM0 DDR2 DECOUPLING

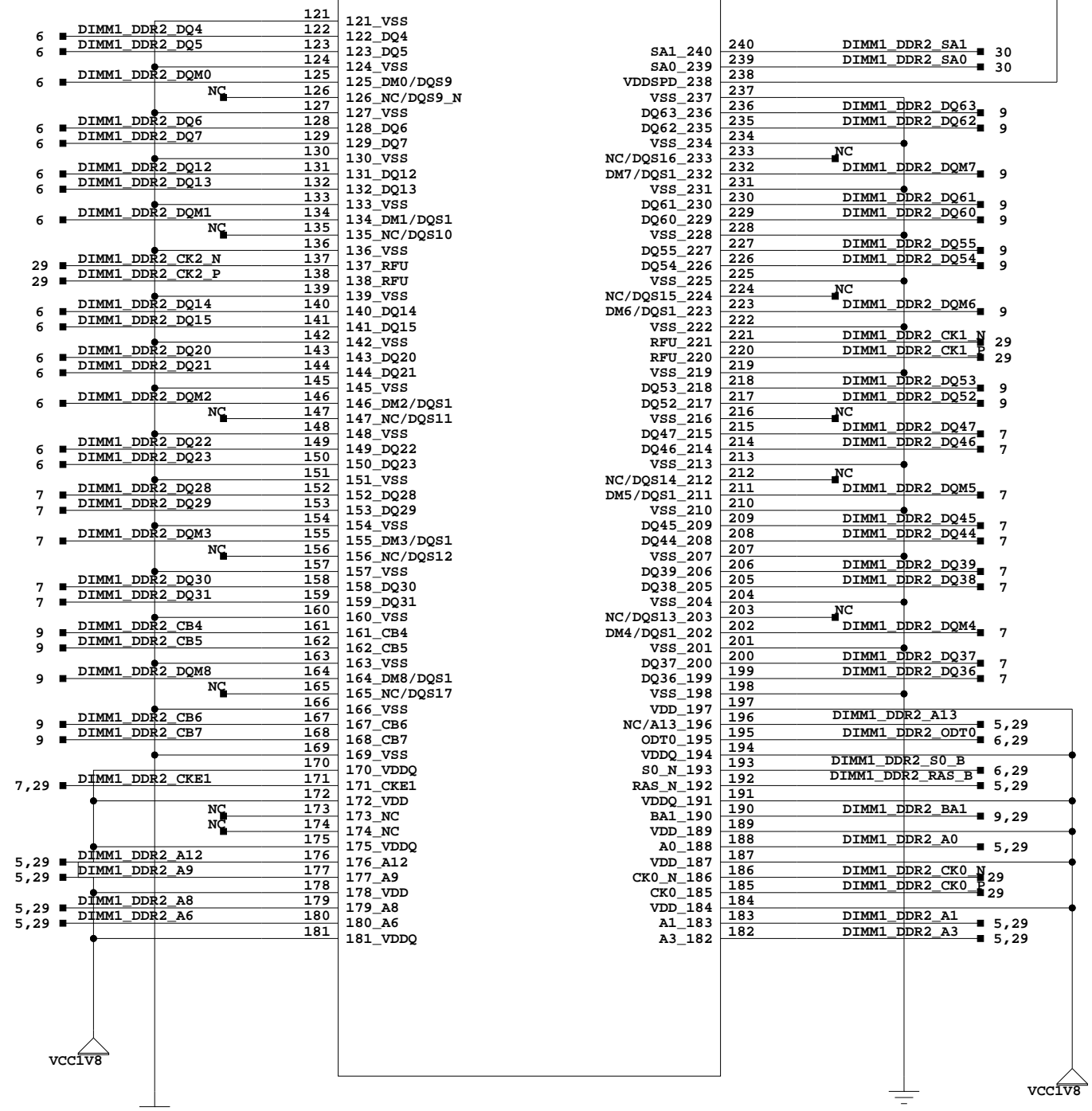


SCH P/N 0381255  
 ART P/N 0532059  
 FAB P/N 1280432

Title: SCHEM, ROHS COMPLIANT, ML510 VIRTEX-5 EVAL PLAFORM DIMM0 DDR2 DECOUPLING	
Date: 7-10-2008_10:19	Ver: C
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P9  
 DEVICE=DDR2\_DIMM  
 PKG\_TYPE=CON-240-DDRAM  
 PARTS=1  
 LEVEL=STD



P9  
 DEVICE=DDR2\_DIMM  
 PKG\_TYPE=CON-240-DDRAM  
 PARTS=1  
 LEVEL=STD

I2C ADDR = 0xA6

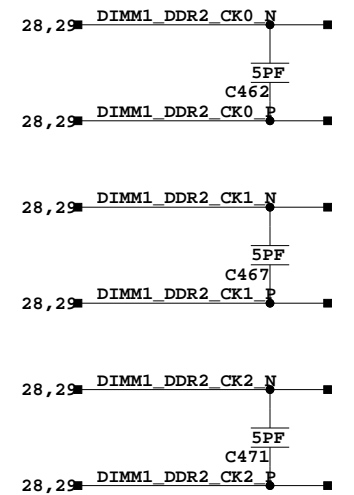
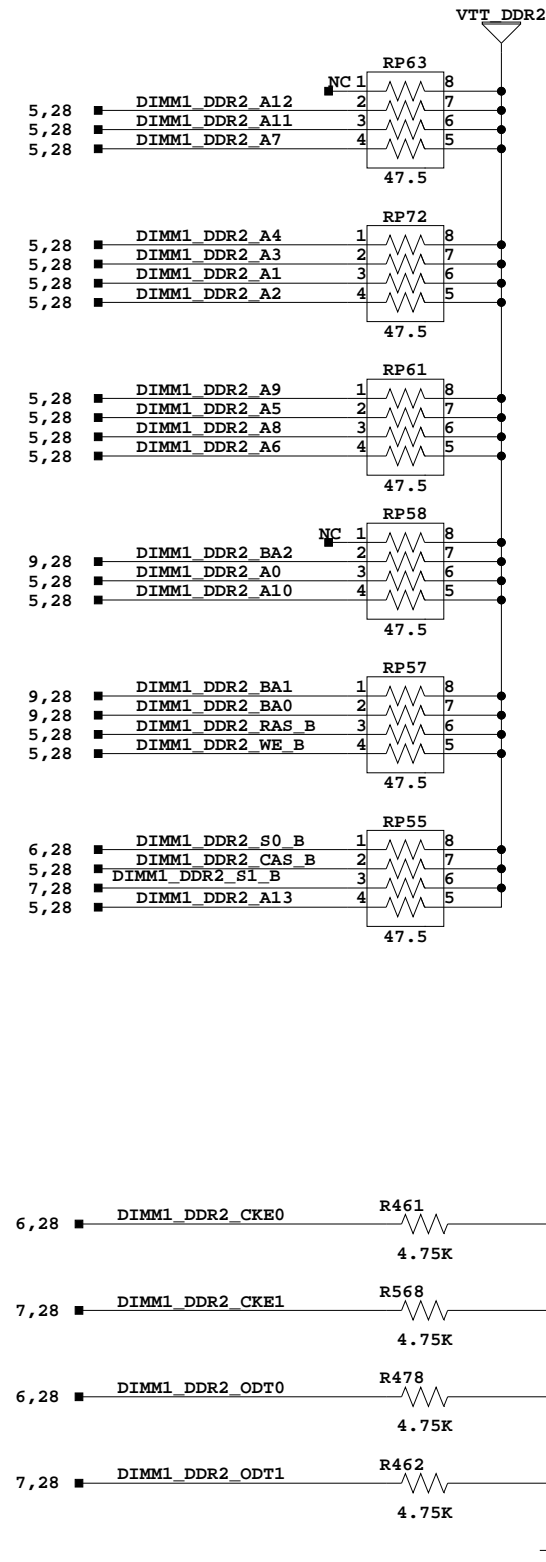
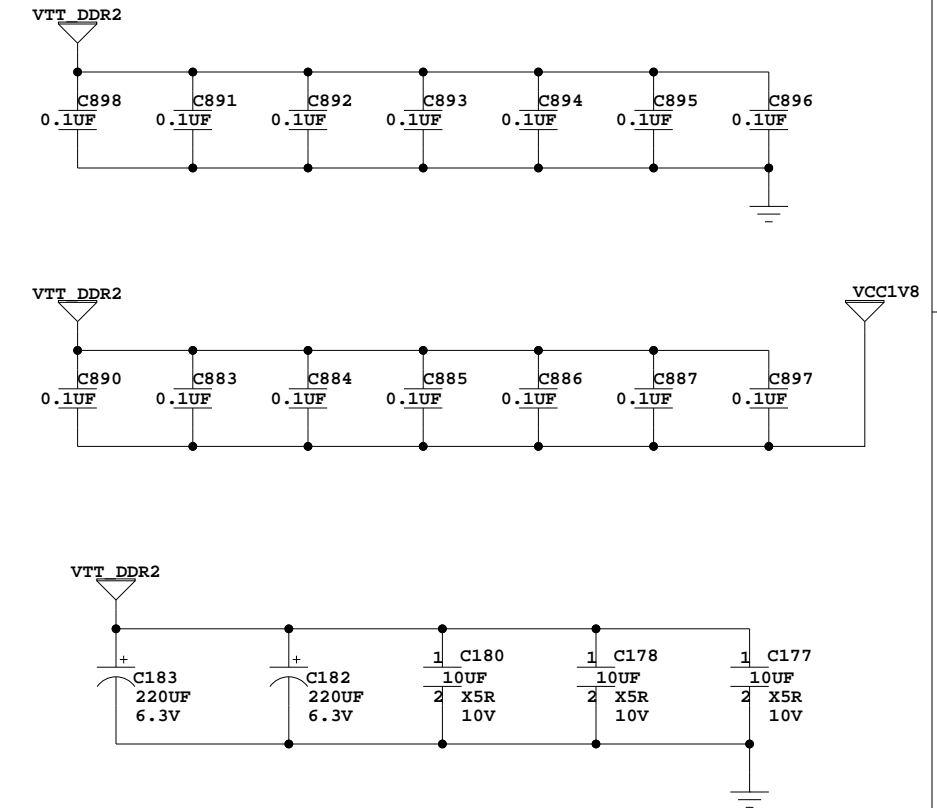
### DDR2 DIMM1 CONNECTOR

	SCH P/N	0381255
	ART P/N	0532059
	FAB P/N	1280432

Title: SCHEM, ROHS COMPLIANT, ML510 VIRTEX-5 EVAL PLAFORM  
 DDR2 DIMM2 CONNECTOR

Date:	8-1-2008_15:08	Ver:	C
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Since this is a source-sink power supply, split of decoupling capacitors between VTT-GND and VTT-VCC1V8



Place these 5pf caps near DDR2 DIMM1

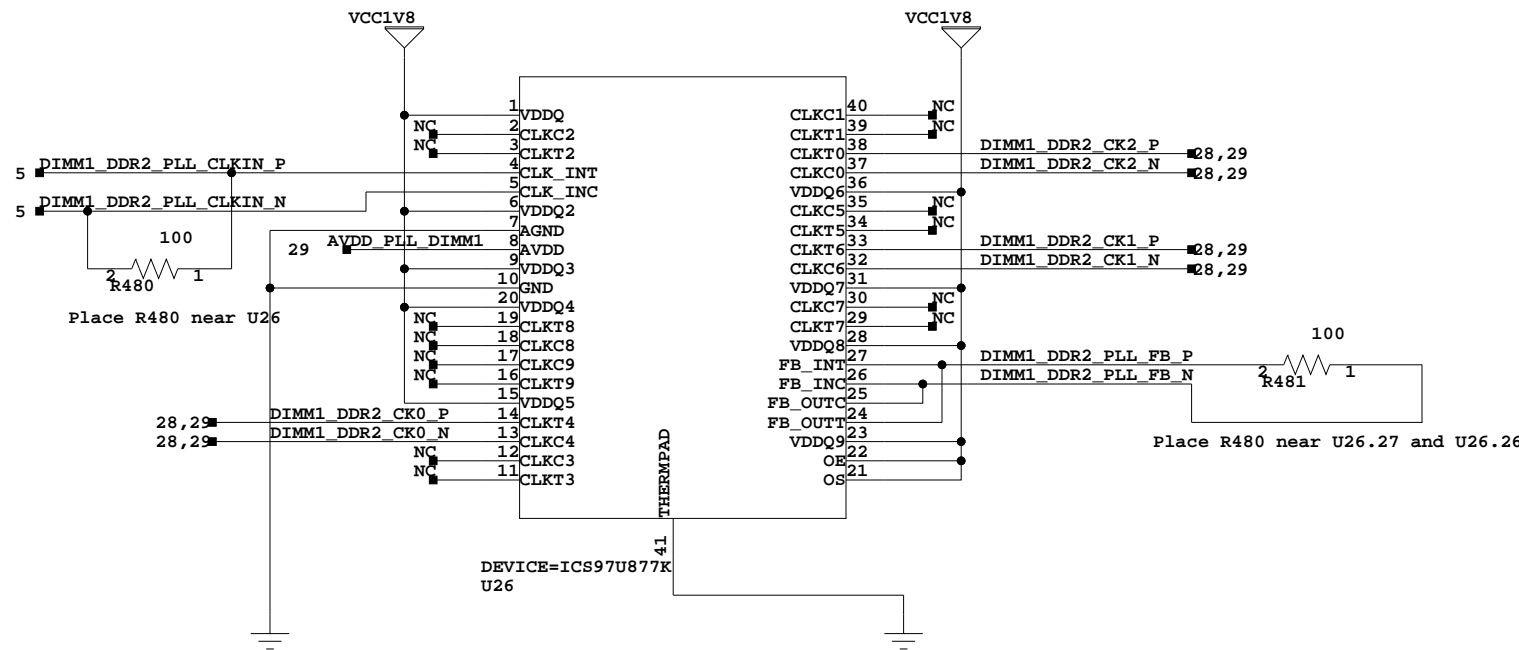
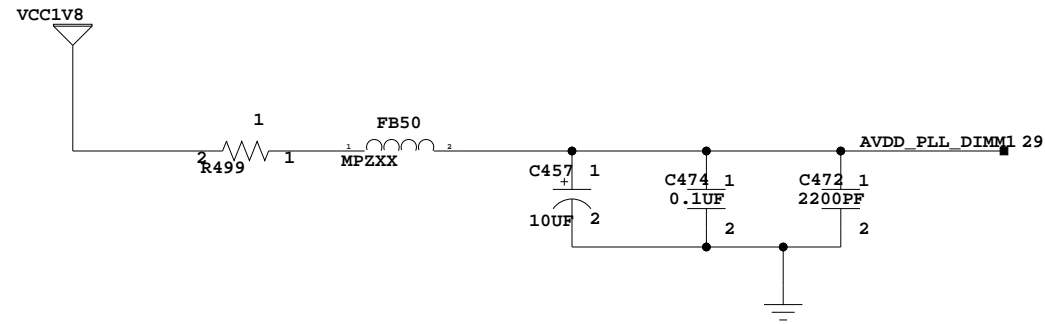
## DIMM1 DDR2 SSTL-2 TERMINATION



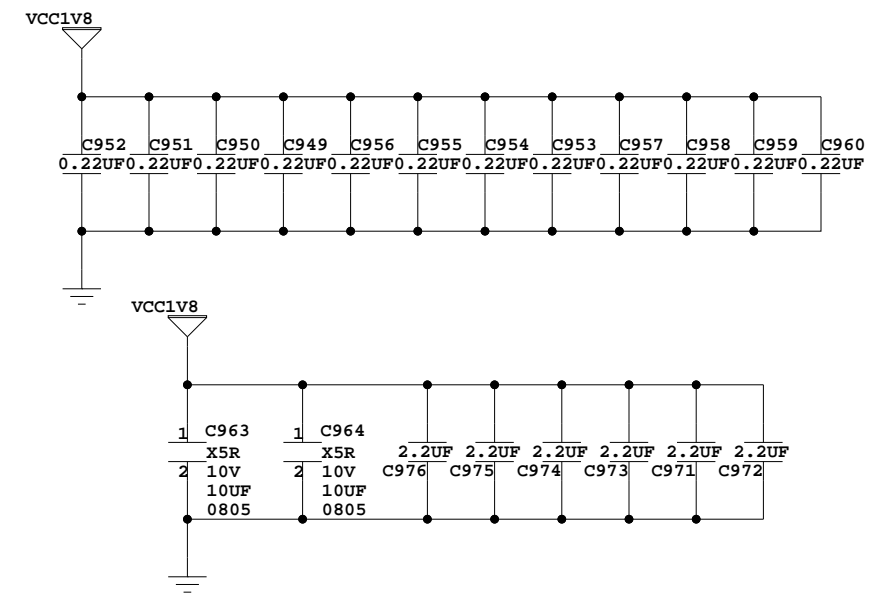
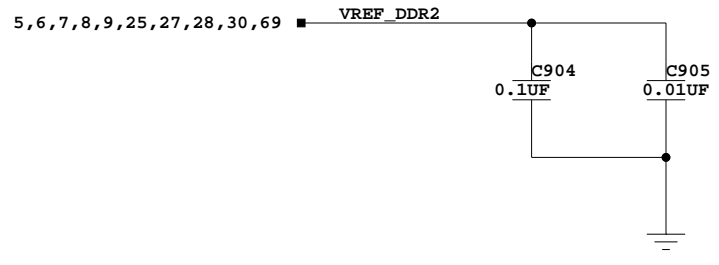
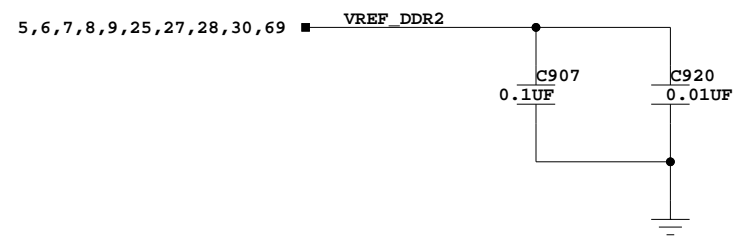
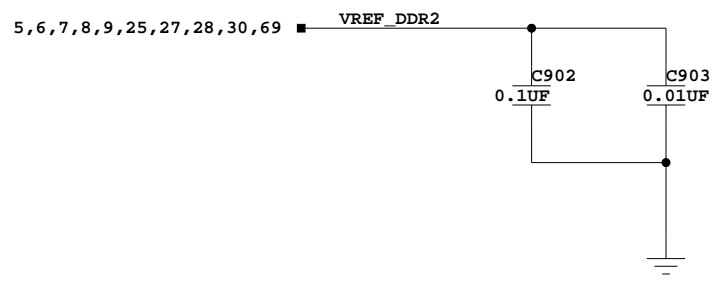
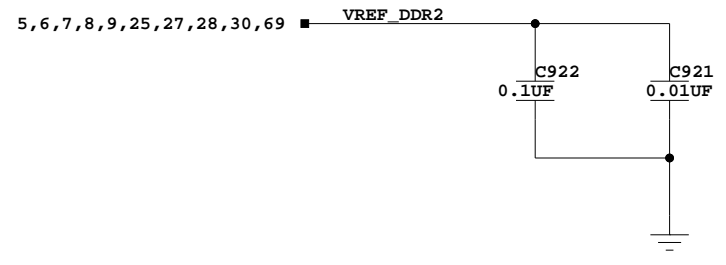
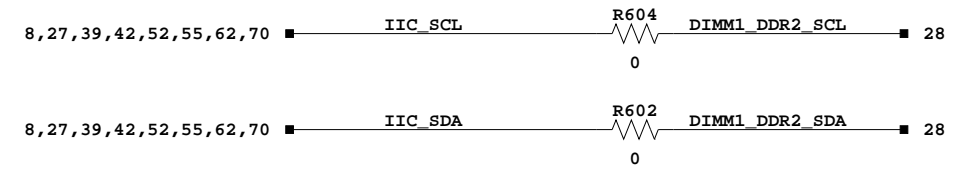
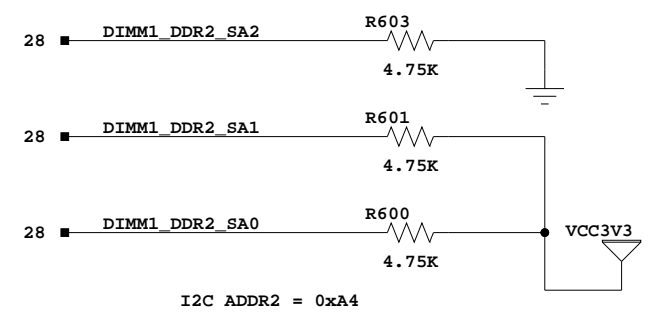
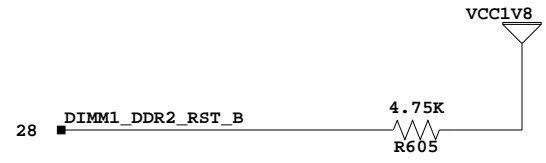
SCH P/N 0381255  
ART P/N 0532059  
FAB P/N 1280432

Title: SCHEM, ROHS COMPLIANT, ML510 VIRTEX-5 EVAL PLAFORM  
DIMM1 DDR2 SSTL-2 TERMINATION

Date:	7-10-2008_10:19	Ver:	C
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DIMM1\_DDR2\_PLL\_FB\* to be length matched to DIMM0\_DDR2\_CLKIN\_\*

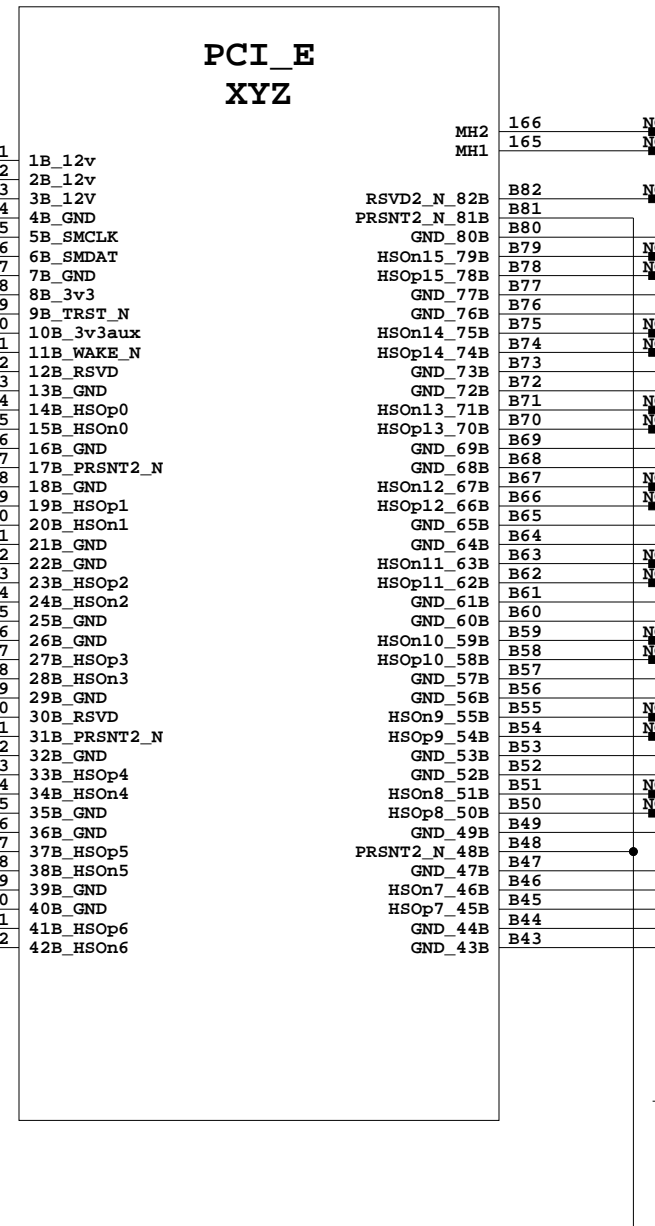
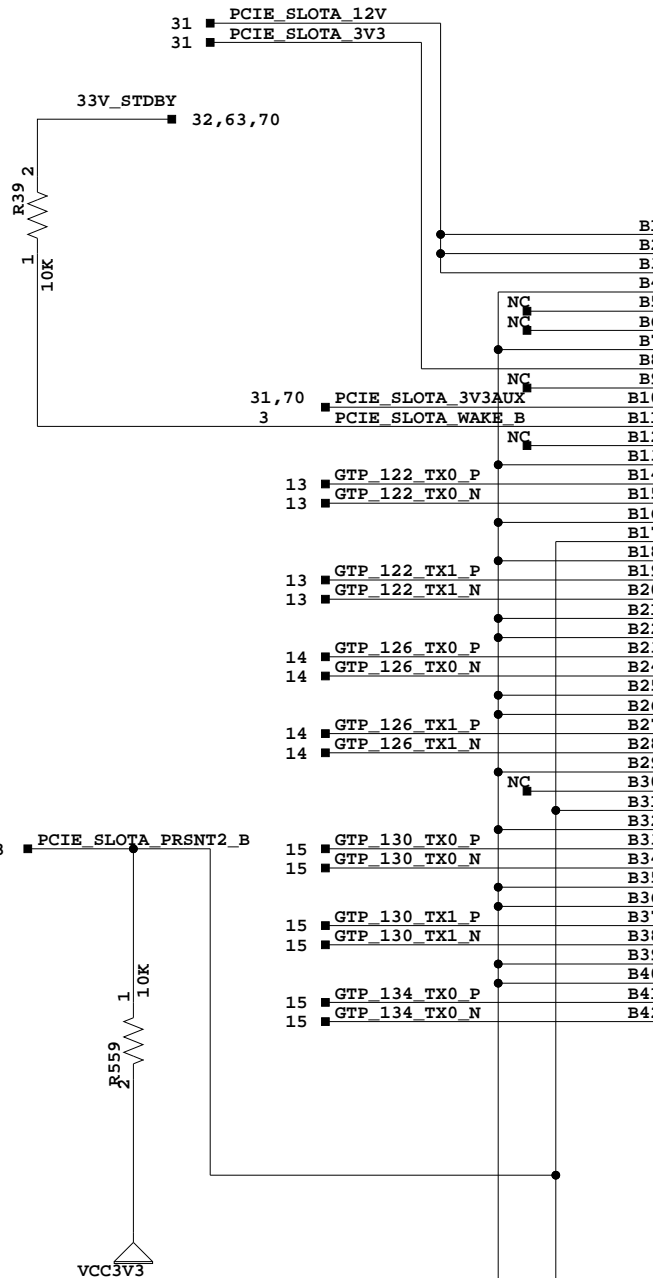


### DIMM1 DDR2 DECOUPLING

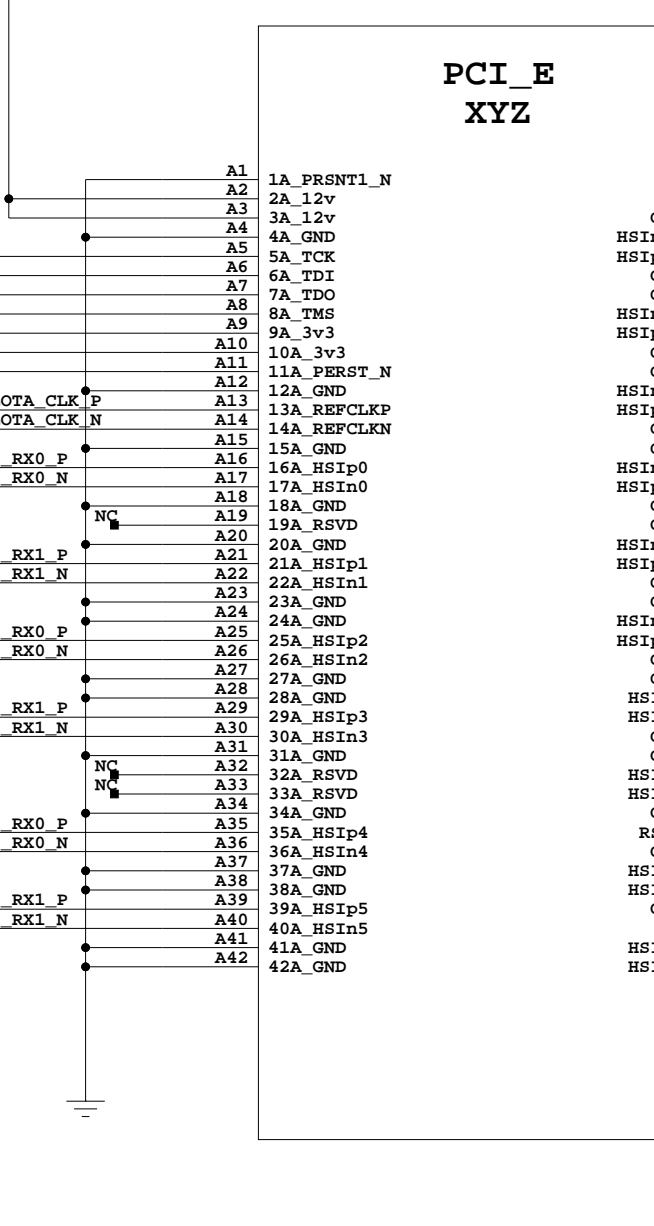
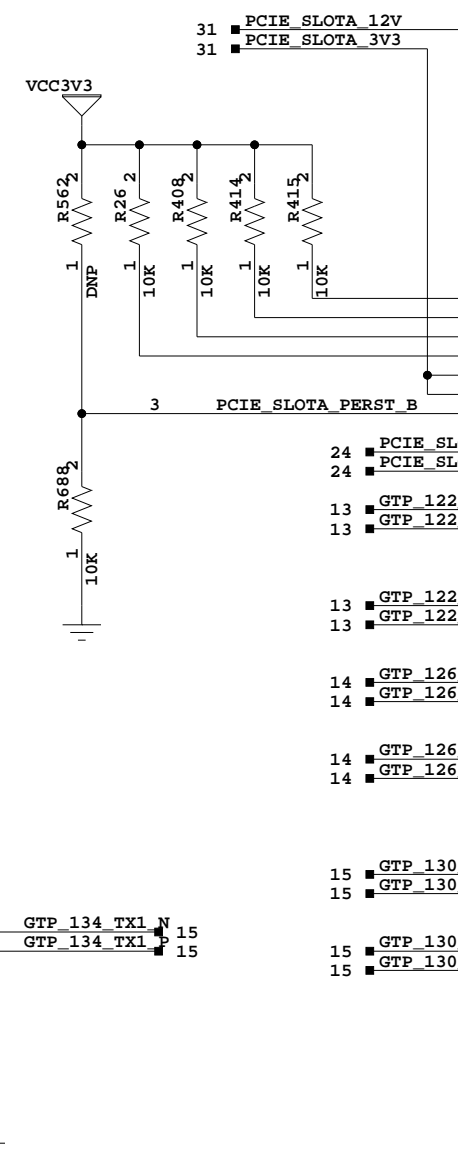


SCH P/N 0381255  
 ART P/N 0532059  
 FAB P/N 1280432

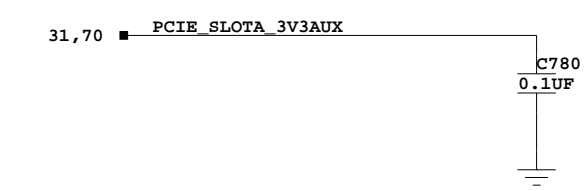
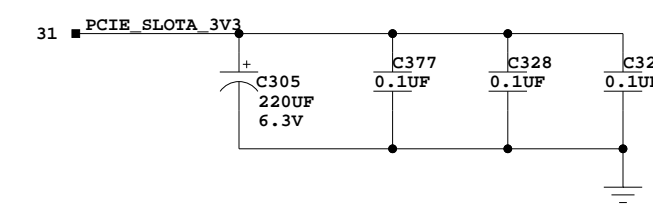
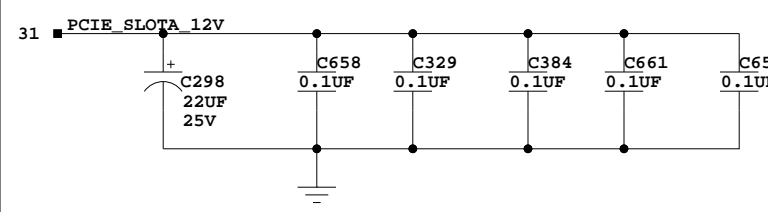
Title: SCHEM, ROHS COMPLIANT, ML510 VIRTEX-5 EVAL PLAFORM	
DIMM1 DDR2 DECOUPLING	
Date: 7-10-2008_10:19	Ver: C
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P53  
 DEVICE=PCI\_E  
 PKG\_TYPE=CON\_PCI-E\_164  
 PARTS=1  
 LEVEL=STD



P53  
 DEVICE=PCI\_E  
 PKG\_TYPE=CON\_PCI-E\_164  
 PARTS=1  
 LEVEL=STD



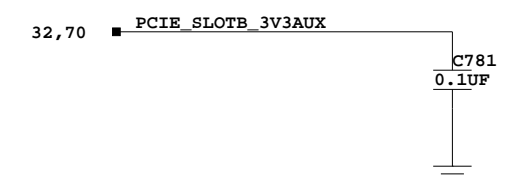
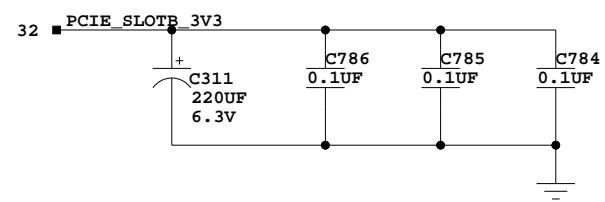
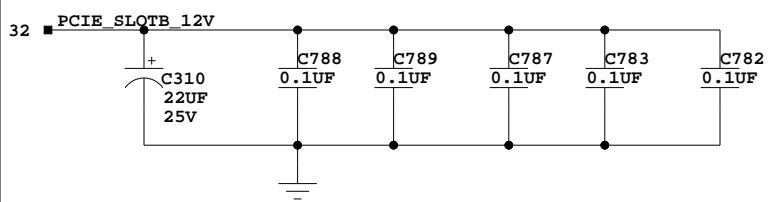
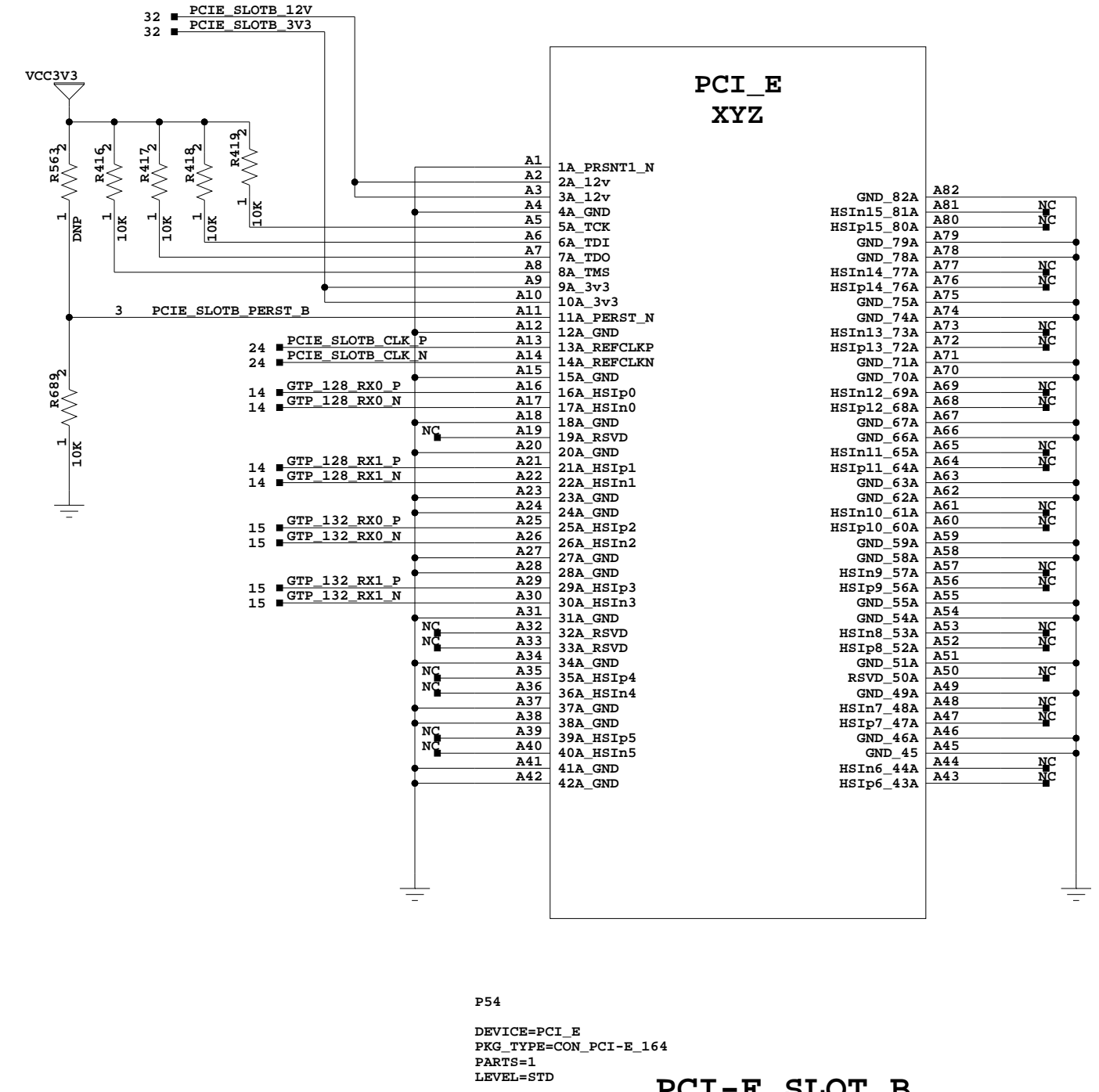
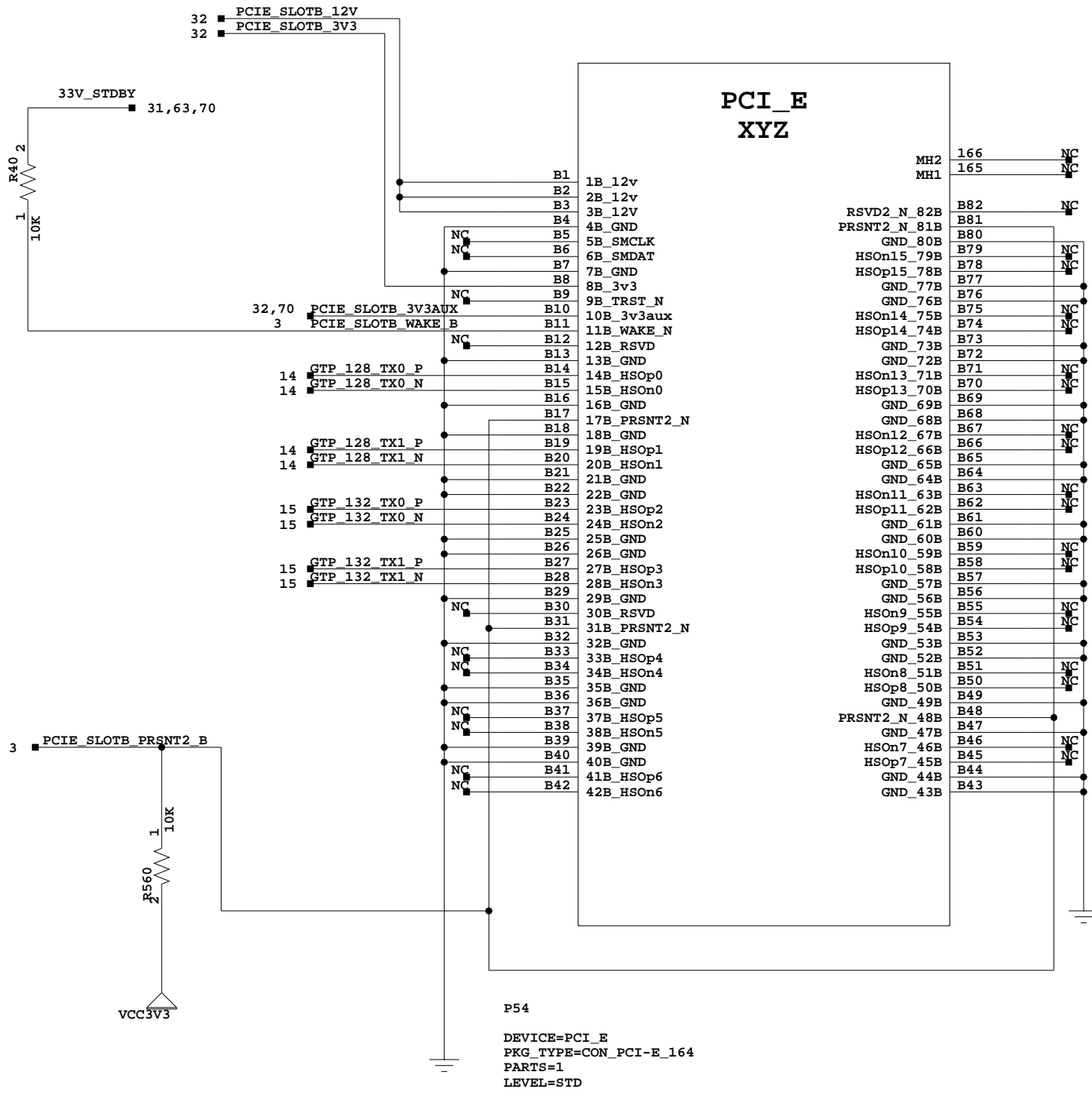
### PCI-E SLOT A



SCH P/N 0381255  
 ART P/N 0532059  
 FAB P/N 1280432

Title: SCHEM, ROHS COMPLIANT, ML510 VIRTEX-5 EVAL PLAFORM  
 PCI-E SLOT A

Date:	8-1-2008_15:08	Ver:	C
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**PCI-E SLOT B**



SCH P/N 0381255  
ART P/N 0532059  
FAB P/N 1280432

Title: SCHEM, ROHS COMPLIANT, ML510 VIRTEX-5 EVAL PLAFPTORM PCI-E SLOT B	
Date: 8-1-2008_15:08	Ver: C
Sheet Size: B	Rev: 01
Sheet <b>32</b> of <b>70</b>	Drawn By BF



PCI-PCI BRIDGE  
PCI2250\_PGF

U32

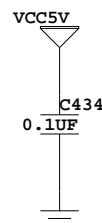
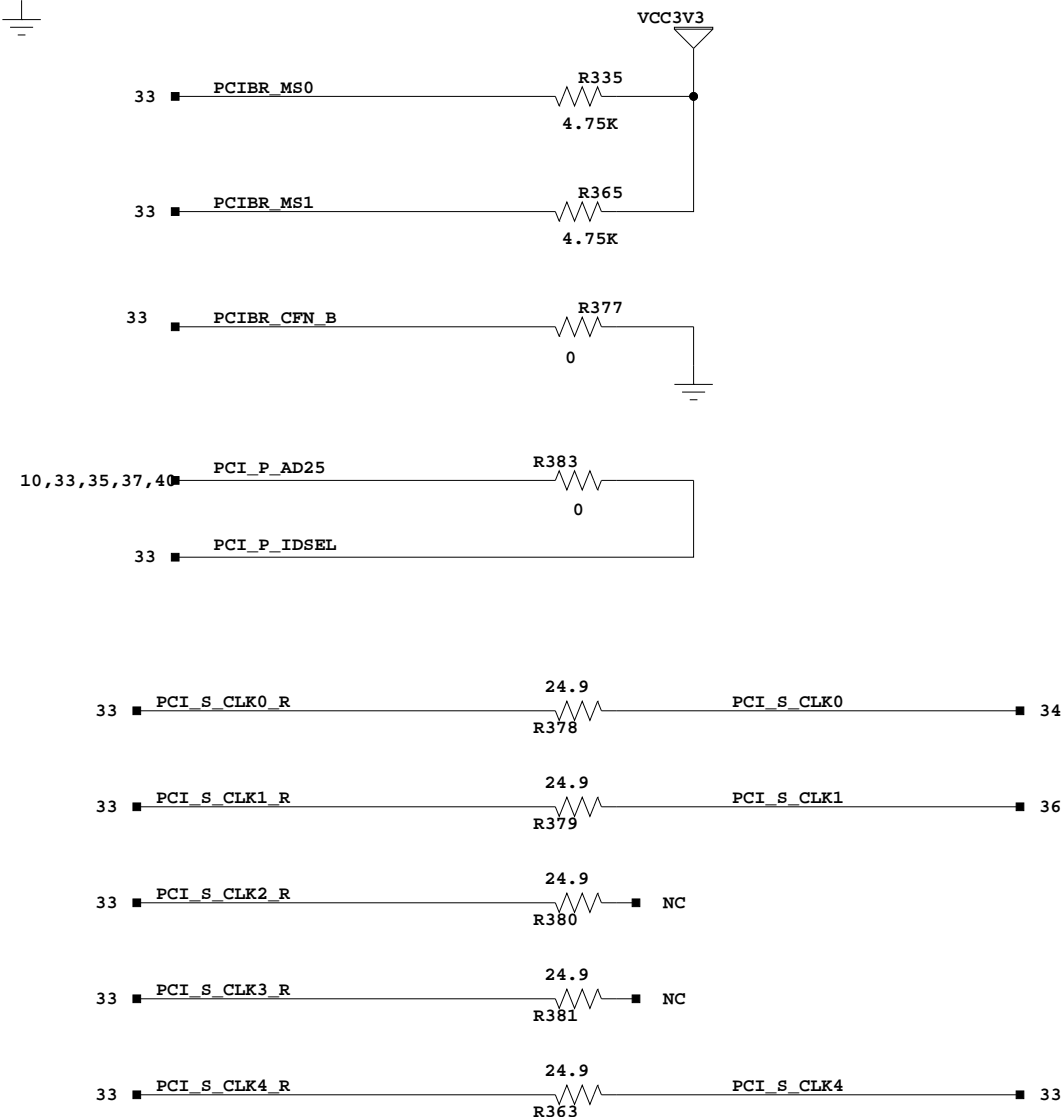
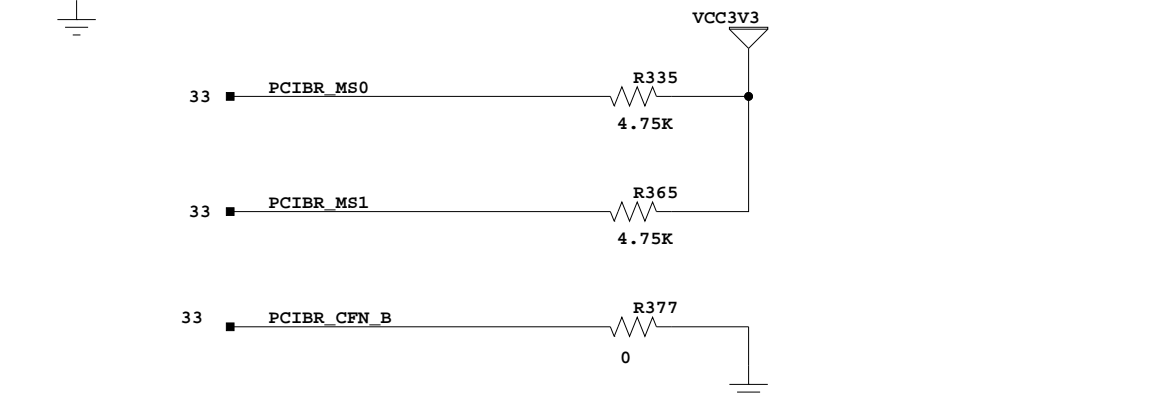
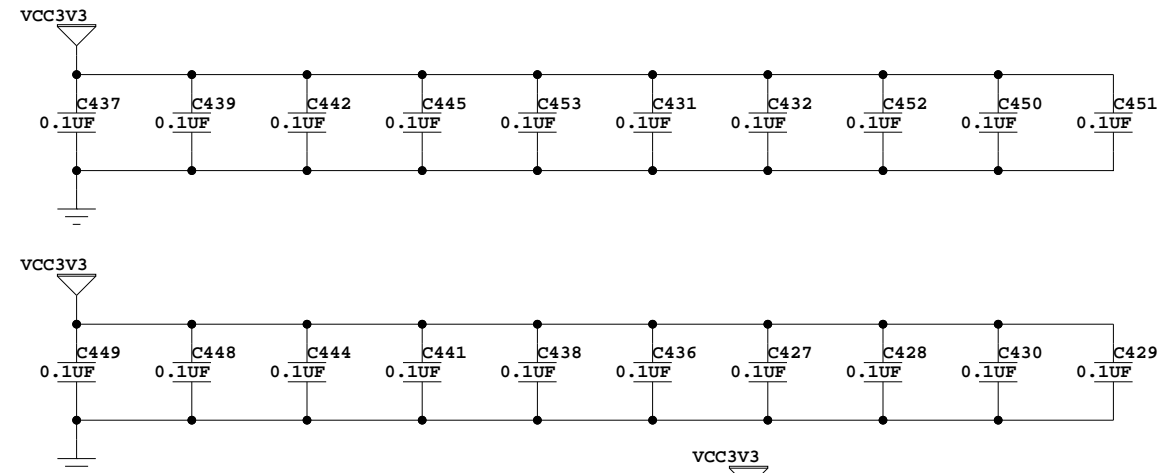
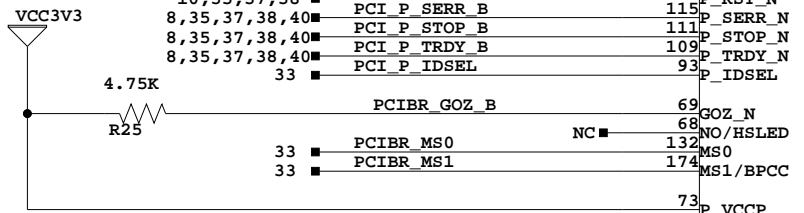
10,35,37,40	PCI P AD0	147	P_AD0
10,35,37,40	PCI P AD1	146	P_AD1
10,35,37,40	PCI P AD2	144	P_AD2
10,35,37,40	PCI P AD3	143	P_AD3
10,35,37,40	PCI P AD4	141	P_AD4
10,35,37,40	PCI P AD5	140	P_AD5
10,35,37,40	PCI P AD6	138	P_AD6
10,35,37,40	PCI P AD7	137	P_AD7
10,35,37,40	PCI P AD8	128	P_AD8
10,35,37,40	PCI P AD9	127	P_AD9
10,35,37,40	PCI P AD10	125	P_AD10
10,35,37,40	PCI P AD11	124	P_AD11
10,35,37,40	PCI P AD12	123	P_AD12
10,35,37,40	PCI P AD13	121	P_AD13
10,35,37,40	PCI P AD14	120	P_AD14
10,35,37,40	PCI P AD15	119	P_AD15
10,35,37,40	PCI P AD16	103	P_AD16
10,35,37,40	PCI P AD17	102	P_AD17
10,35,37,40	PCI P AD18	101	P_AD18
10,35,37,40	PCI P AD19	99	P_AD19
10,35,37,40	PCI P AD20	98	P_AD20
10,35,37,40	PCI P AD21	97	P_AD21
10,35,37,40	PCI P AD22	95	P_AD22
10,35,37,40	PCI P AD23	94	P_AD23
10,35,37,40	PCI P AD24	86	P_AD24
10,33,35,37,40	PCI P AD25	84	P_AD25
10,35,37,40	PCI P AD26	83	P_AD26
10,35,37,40	PCI P AD27	82	P_AD27
10,35,37,40	PCI P AD28	80	P_AD28
10,35,37,40	PCI P AD29	79	P_AD29
10,35,37,40	PCI P AD30	78	P_AD30
10,35,37,40	PCI P AD31	76	P_AD31
8,35,37,40	PCI P CBE0_B	135	P_C/BE0_N
8,35,37,40	PCI P CBE1_B	117	P_C/BE1_N
8,35,37,40	PCI P CBE2_B	105	P_C/BE2_N
10,35,37,40	PCI P CBE3_B	91	P_C/BE3_N

PRIMARY

SECONDARY

148	PCI S AD0	34,36
150	PCI S AD1	34,36
151	PCI S AD2	34,36
152	PCI S AD3	34,36
154	PCI S AD4	34,36
155	PCI S AD5	34,36
156	PCI S AD6	34,36
158	PCI S AD7	34,36
160	PCI S AD8	34,36
162	PCI S AD9	34,36
163	PCI S AD10	34,36
164	PCI S AD11	34,36
166	PCI S AD12	34,36
167	PCI S AD13	34,36
169	PCI S AD14	34,36
170	PCI S AD15	34,36
16	PCI S AD16	34,36
18	PCI S AD17	34,36
19	PCI S AD18	34,36
20	PCI S AD19	34,36
22	PCI S AD20	34,36
23	PCI S AD21	34,36
24	PCI S AD22	34,36
26	PCI S AD23	34,36
28	PCI S AD24	34,36
30	PCI S AD25	34,36
31	PCI S AD26	34,36
33	PCI S AD27	34,36
34	PCI S AD28	34,36
35	PCI S AD29	34,36
37	PCI S AD30	34,36
38	PCI S AD31	34,36
159	PCI S CBE0_B	34,36
172	PCI S CBE1_B	34,36
15	PCI S CBE2_B	34,36
27	PCI S CBE3_B	34,36
49	PCI S GNT0_B	34,38
50	PCI S GNT1_B	36,38
51	PCI S GNT2_B	38
53	PCI S GNT3_B	38
39	PCI S REQ0_B	34,38
40	PCI S REQ1_B	36,38
42	PCI S REQ2_B	38
47	PCI S REQ3_B	38
59	PCI S CLK0_R	33
61	PCI S CLK1_R	33
63	PCI S CLK2_R	33
65	PCI S CLK3_R	33
67	PCI S CLK4_R	33
57	PCI S CLK4	33
9	PCI S DEVSEL_B	34,36,38
13	PCI S FRAME_B	34,36,38
12	PCI S IRDY_B	34,36,38
7	PCI S LOCK_B	34,36,38
3	PCI S PAR	34,36
6	PCI S PERR_B	34,36,38
54	PCI S RST_B	34,36,38
5	PCI S SERR_B	34,36,38
8	PCI S STOP_B	34,36,38
11	PCI S TRDY_B	34,36,38
58	VCC5V	
55	PCI S CFN_B	33
39	PCI S REQ0_N	
40	PCI S REQ1_N	
42	PCI S REQ2_N	
47	PCI S REQ3_N	
59	PCI S CLK0_R	
61	PCI S CLK1_R	
63	PCI S CLK2_R	
65	PCI S CLK3_R	
67	PCI S CLK4_R	
57	PCI S CLK4	
9	PCI S DEVSEL_N	
13	PCI S FRAME_N	
12	PCI S IRDY_N	
7	PCI S LOCK_N	
3	PCI S PAR	
6	PCI S PERR_N	
54	PCI S RST_N	
5	PCI S SERR_N	
8	PCI S STOP_N	
11	PCI S TRDY_N	
58	S_VCCP	
55	S_C/CFN_N	
159	S_C/BE0_N	
172	S_C/BE1_N	
15	S_C/BE2_N	
27	S_C/BE3_N	
49	S_GNT0_N	
50	S_GNT1_N	
51	S_GNT2_N	
53	S_GNT3_N	
39	S_REQ0_N	
40	S_REQ1_N	
42	S_REQ2_N	
47	S_REQ3_N	
59	S_CLKOUT0	
61	S_CLKOUT1	
63	S_CLKOUT2	
65	S_CLKOUT3	
67	S_CLKOUT4	
57	S_CLK	
9	S_DEVSEL_N	
13	S_FRAME_N	
12	S_IRDY_N	
7	S_MFUNC	
3	S_PAR	
6	S_PERR_N	
54	S_RST_N	
5	S_SERR_N	
8	S_STOP_N	
11	S_TRDY_N	

VCC3V3;10,17,25,32,44,52,62,66,81,88,100  
VCC3V3;108,118,126,139,145,153,161,168,176  
GND;1,14,21,29,36,45,56,60,64,71,77,89  
GND;96,104,113,122,130,133,142,149,157,165,171  
NC=2,4,41,43,46,48,85,87,90,92,129,131,134,136,173,175



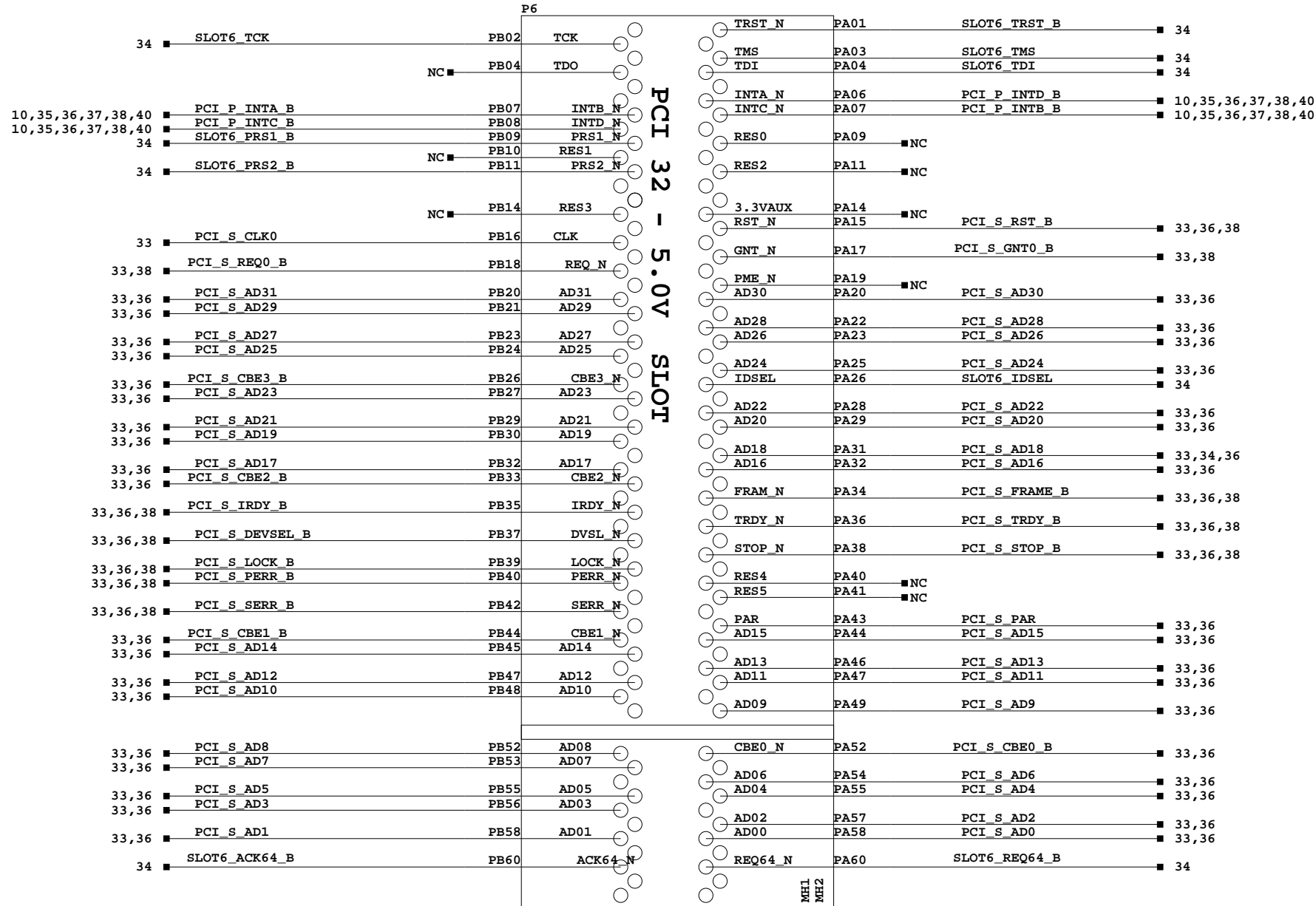
PCI-PCI BRIDGE



SCH P/N 0381255  
ART P/N 0532059  
FAB P/N 1280432

Title: SCHEM, ROHS COMPLIANT, ML510 VIRTEX-5 EVAL PLAFORM  
PCI-PCI BRIDGE

Date:	7-10-2008_10:19	Ver:	C
Sheet Size:	B	Rev:	01
Sheet	33 of 70	Drawn By	BF

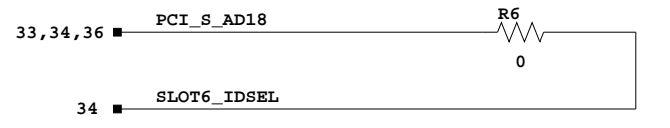
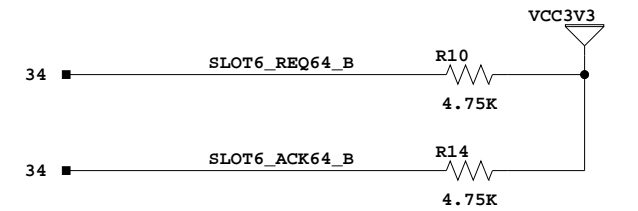
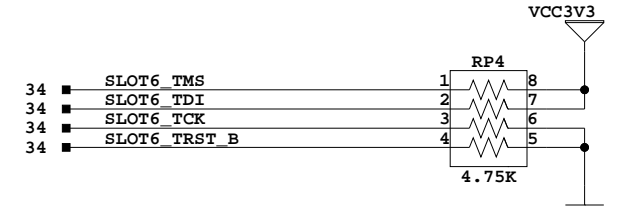
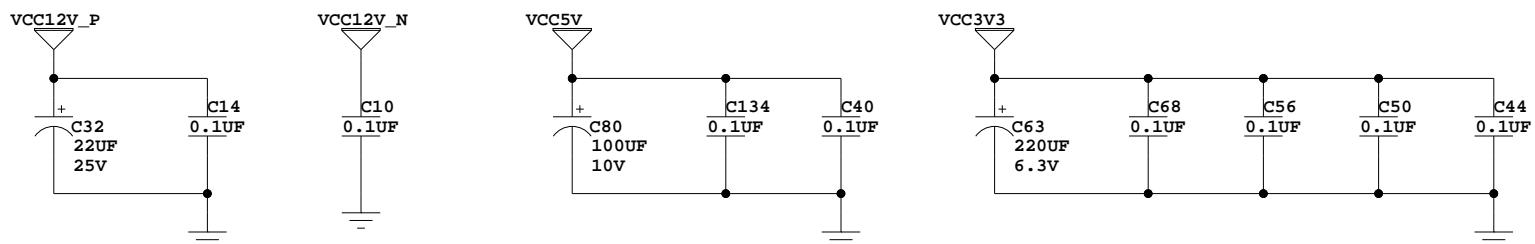


VCC12V\_P;PA02  
 VCC12V\_N;PB01  
 VCC5V;PA05,PB05,PB06,PA08,PA61,PA62,PB61,PB62

VCC3V3;PA21,PB25,PA27,PB31,PA33,PB36  
 VCC3V3;PA39,PB41,PB43,PA45,PA53,PB54

VCCIO VCC5V;PA10,PA16,PB19,PB59,PA59

GND;PB03,PB15,PB17,PA18,PB22,PA24  
 GND;PB28,PA30,PB34,PA35,PA37,PB38  
 GND;PA42,PB46,PA48,PB49,PA56,PB57  
 GND;PB12,PA12,PB13,PA13

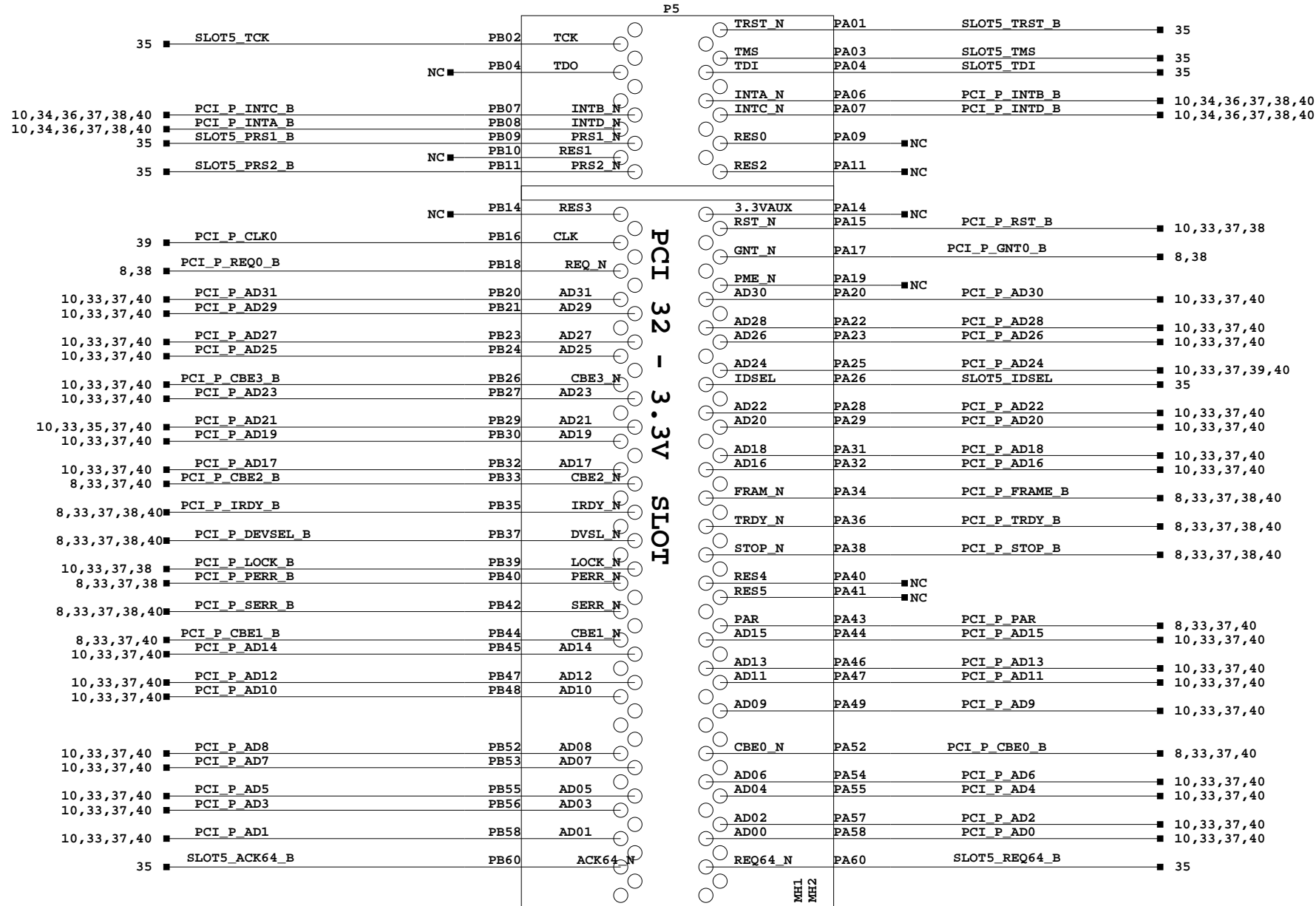


**PCI SLOT 6, 5.0V, SECONDARY BUS**

SCH P/N 0381255  
 ART P/N 0532059  
 FAB P/N 1280432

Title: SCHEM, ROHS COMPLIANT, ML510 VIRTEX-5 EVAL PLAFORM  
 PCI SLOT 6, 5.0V, SECONDARY BUS

Date:	7-10-2008_10:19	Ver:	C
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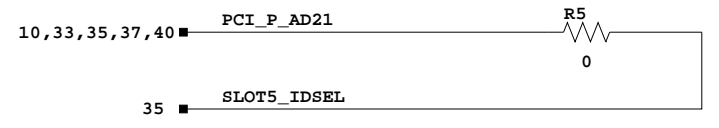
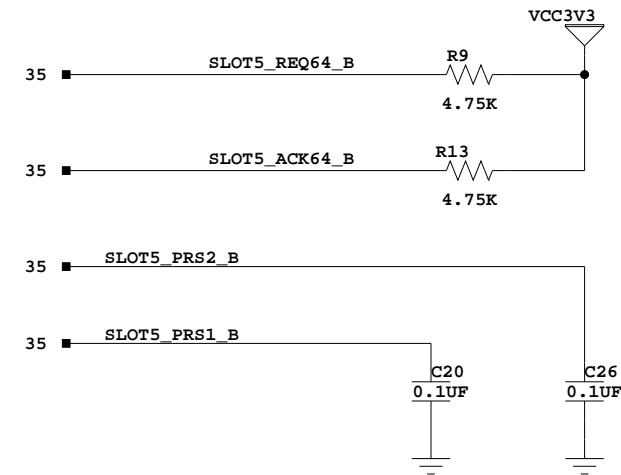
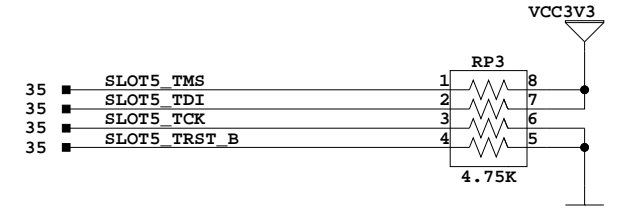
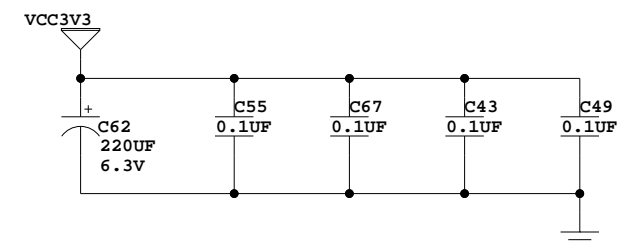
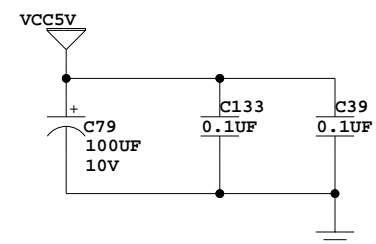
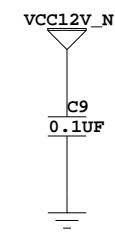
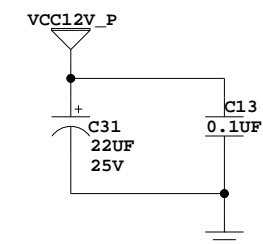


SIGNAL=GND; PA50, PA51, PB50, PB51

VCC12V\_P;PA02  
VCC12V\_N;PB01  
VCC5V;PA05, PB05, PB06, PA08  
VCC5V;PA61, PB61, PA62, PB62  
VCC3V3;PA21, PB25, PA27, PB31, PA33, PB36  
VCC3V3;PA39, PB41, PB43, PA45, PA53, PB54

VCCIO VCC3V3;PA10, PA16, PB19, PB59, PA59

GND;PB03, PB15, PB17, PA18, PB22, PA24  
GND;PB28, PA30, PB34, PA35, PA37, PB38  
GND;PA42, PB46, PA48, PB49, PA56, PB57



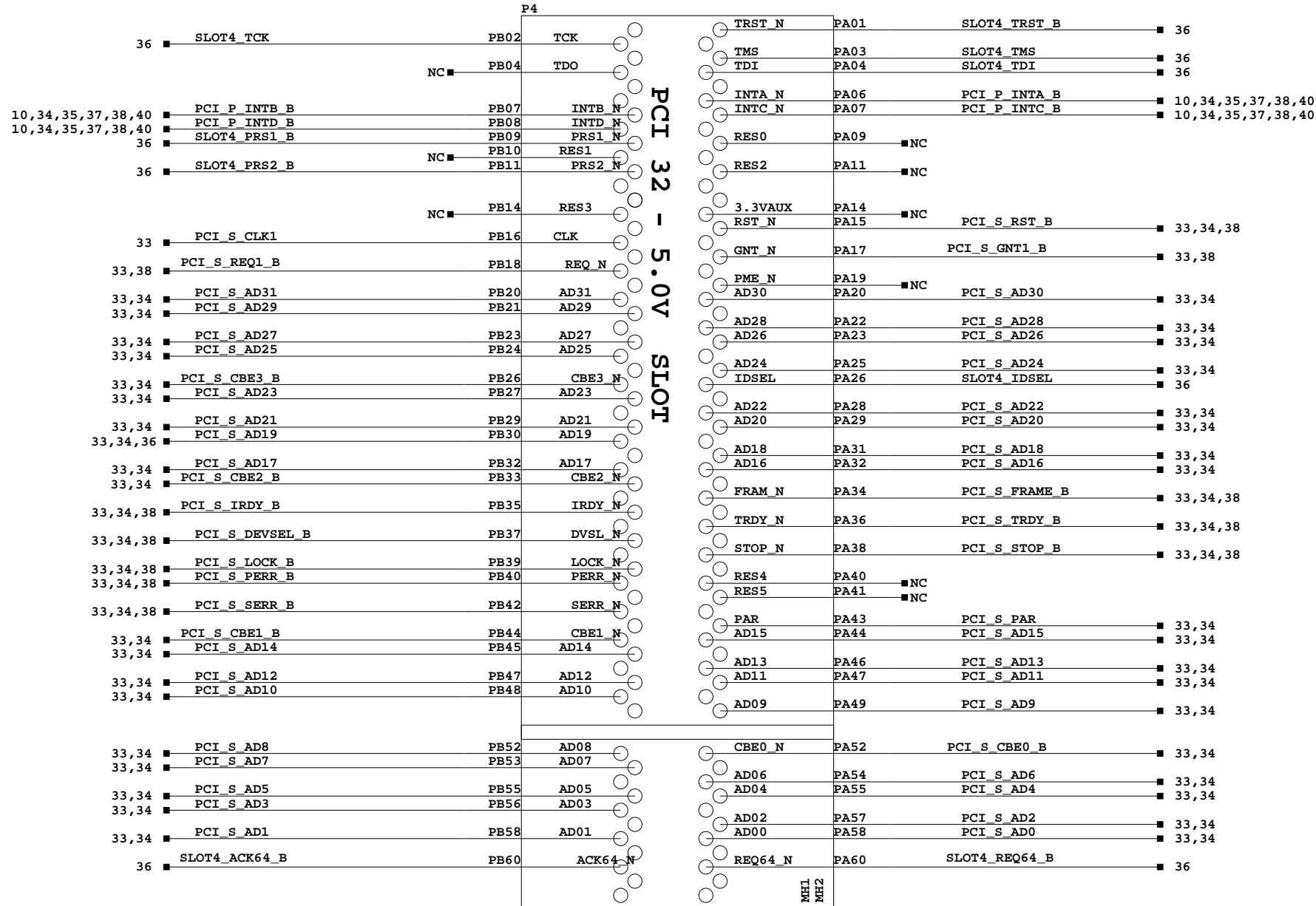
**PCI SLOT 5, 3.3V, PRIMARY BUS**



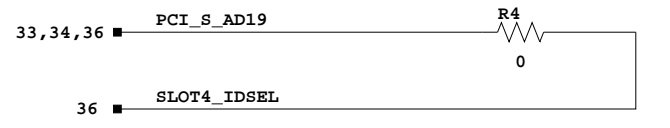
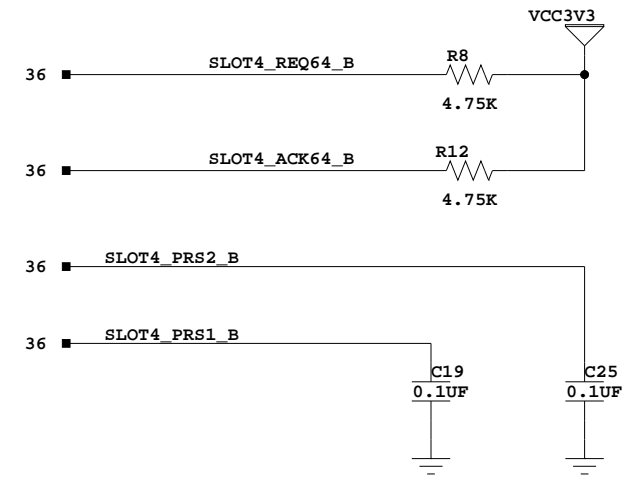
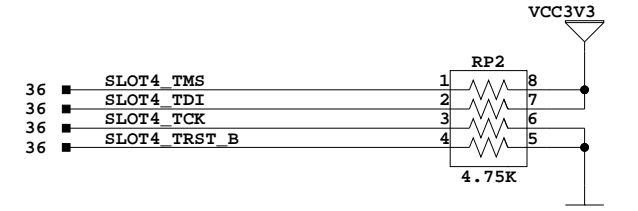
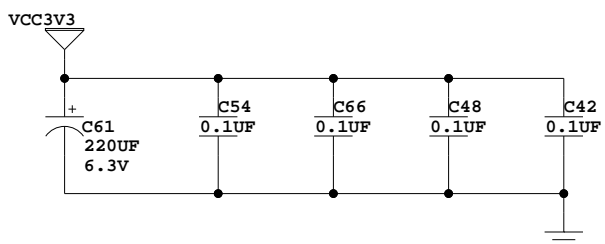
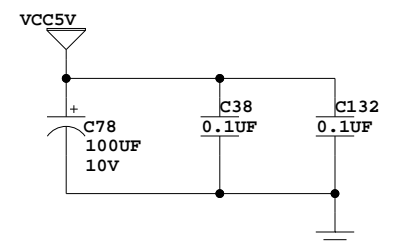
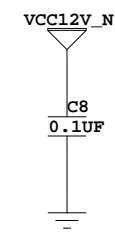
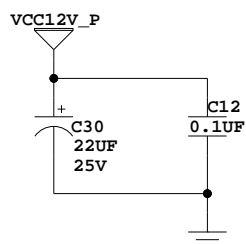
SCH P/N 0381255  
ART P/N 0532059  
FAB P/N 1280432

Title: SCHEM, ROHS COMPLIANT, ML510 VIRTEX-5 EVAL PLAFORM  
PCI SLOT 5, 3.3V, PRIMARY BUS

Date:	7-10-2008_10:19	Ver:	C
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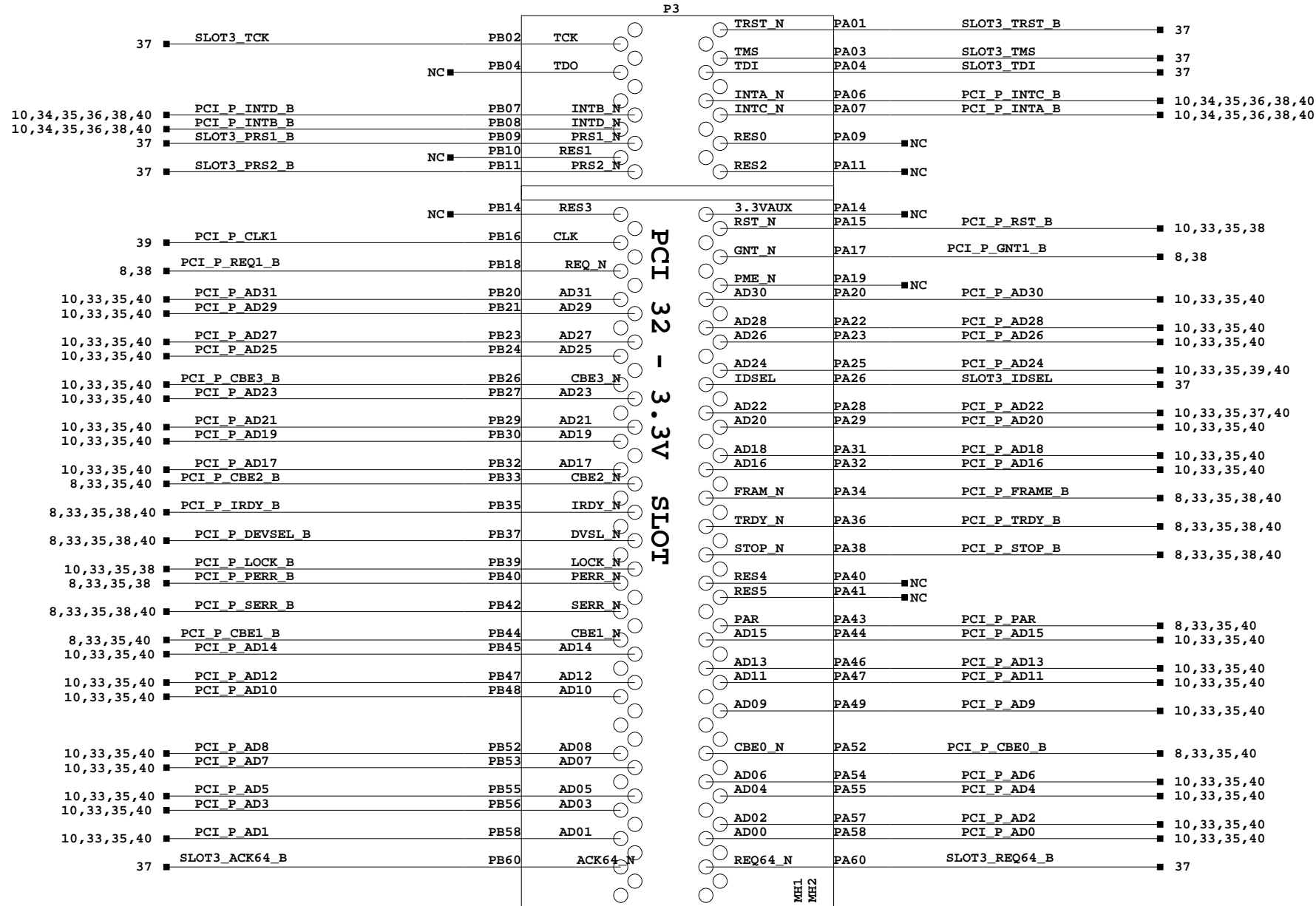


VCC12V\_P;PA02  
 VCC12V\_N;PB01  
 VCC5V;PA05, PB05, PB06, PA08, PA61, PA62, PB61, PB62  
 VCC3V3;PA21, PB25, PA27, PB31, PA33, PB36  
 VCC3V3;PA39, PB41, PB43, PA45, PA53, PB54  
 VCCIO VCC5V;PA10, PA16, PB19, PB59, PA59  
 GND;PB03, PB15, PB17, PA18, PB22, PA24  
 GND;PB28, PA30, PB34, PA35, PA37, PB38  
 GND;PA42, PB46, PA48, PB49, PA56, PB57  
 GND;PB12, PA12, PB13, PA13



**PCI SLOT 4, 5.0V, SECONDARY BUS**

		SCH P/N	0381255
		ART P/N	0532059
		FAB P/N	1280432
Title: SCHEM, ROHS COMPLIANT, ML510 VIRTEX-5 EVAL PLAFORM PCI SLOT 4, 5.0V, SECONDARY BUS			
Date:	7-10-2008_10:19	Ver:	C
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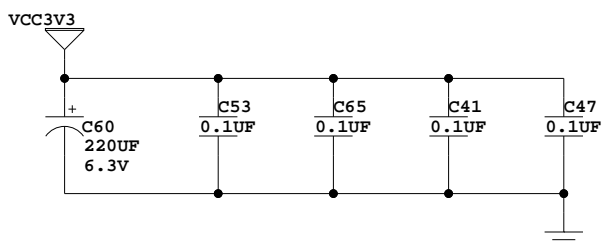
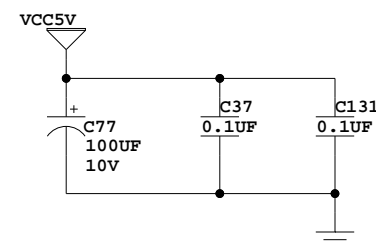
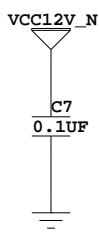
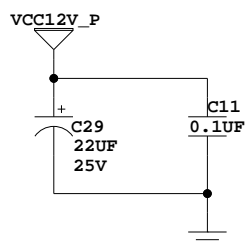
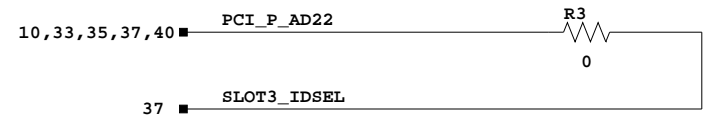
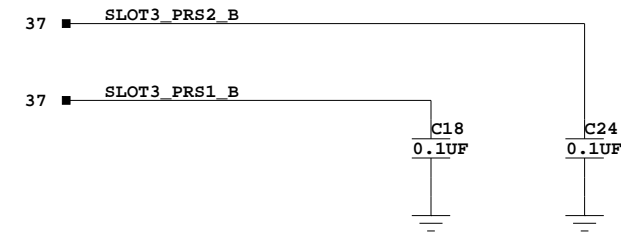
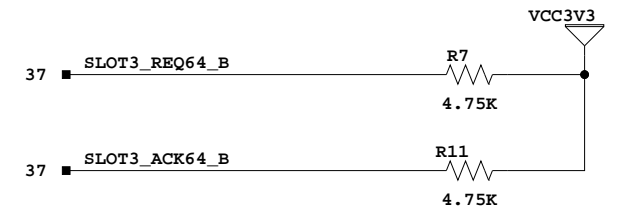
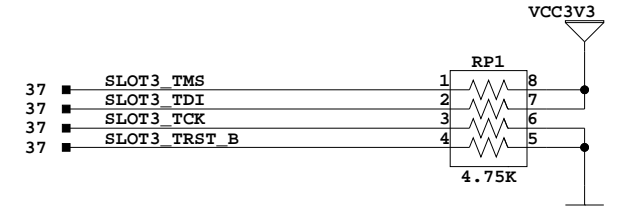


SIGNAL=GND; PA50, PA51, PB50, PB51

VCC12V\_P;PA02  
 VCC12V\_N;PB01  
 VCC5V;PA05, PB05, PB06, PA08  
 VCC5V;PA61, PB61, PA62, PB62  
 VCC3V3;PA21, PB25, PA27, PB31, PA33, PB36  
 VCC3V3;PA39, PB41, PB43, PA45, PA53, PB54

VCCIO VCC3V3;PA10, PA16, PB19, PB59, PA59

GND;PB03, PB15, PB17, PA18, PB22, PA24  
 GND;PB28, PA30, PB34, PA35, PA37, PB38  
 GND;PA42, PB46, PA48, PB49, PA56, PB57



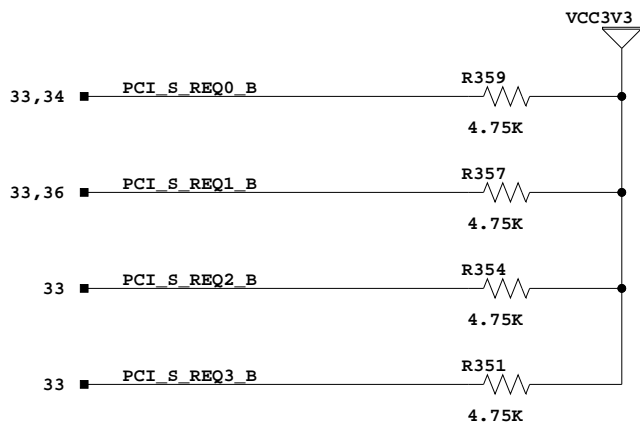
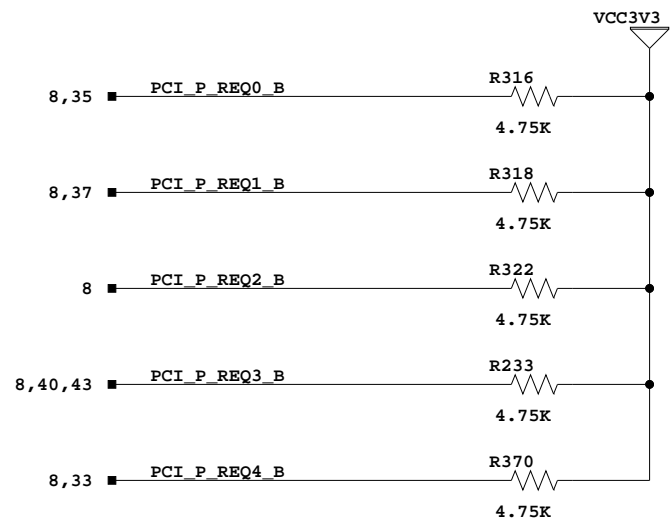
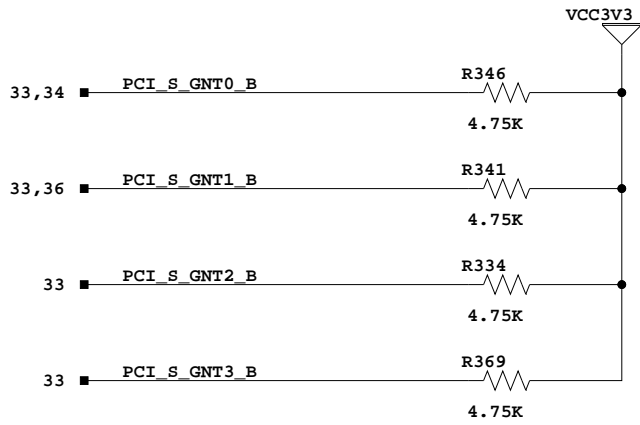
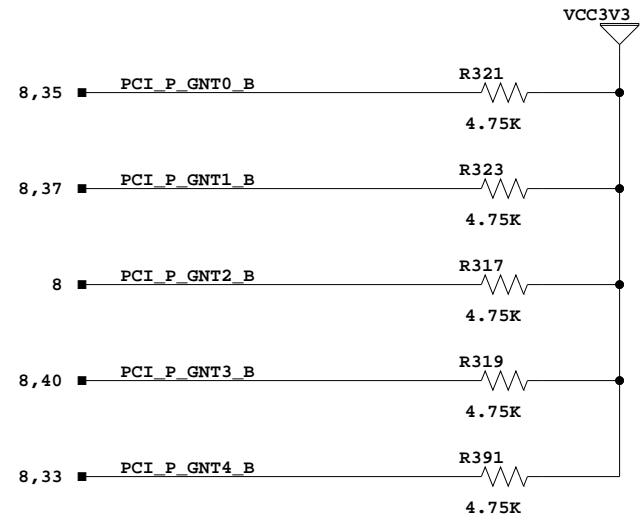
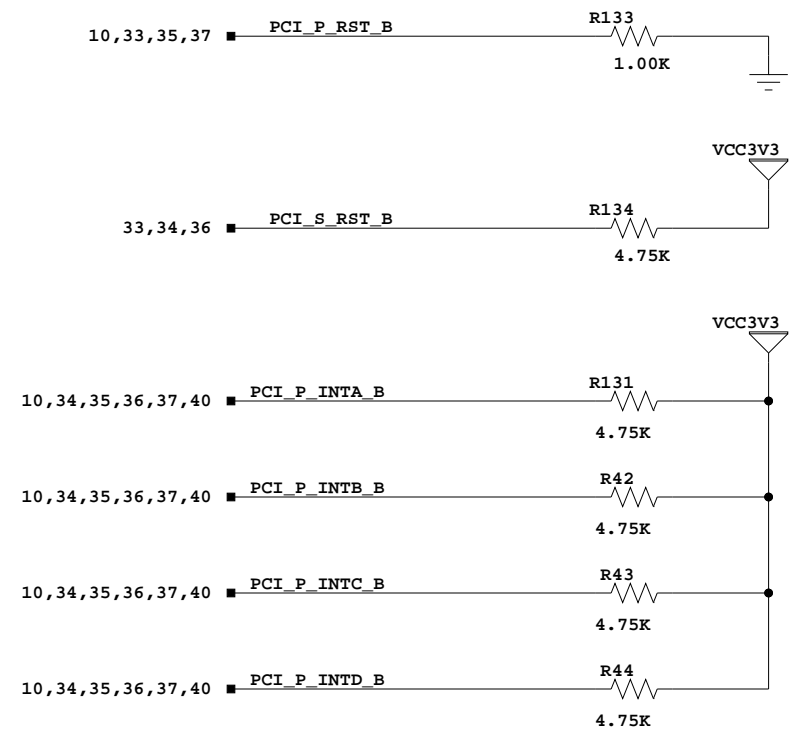
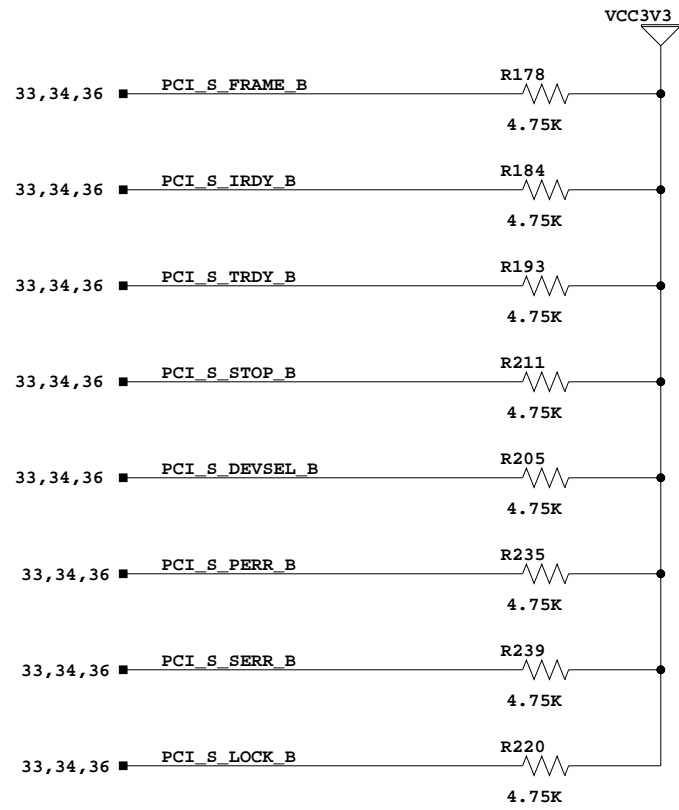
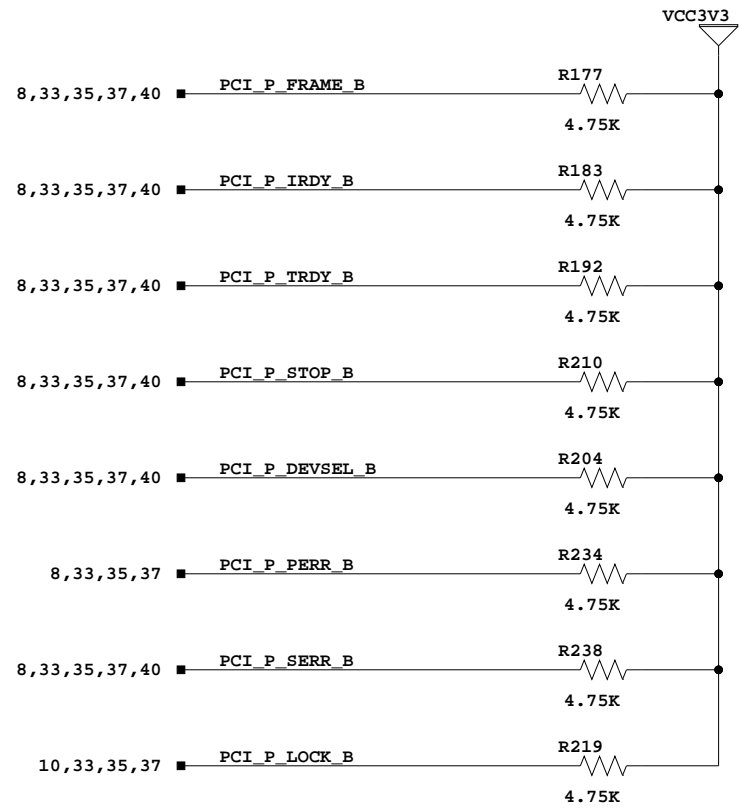
PCI SLOT 3, 3.3V, PRIMARY BUS



SCH P/N 0381255  
 ART P/N 0532059  
 FAB P/N 1280432

Title: SCHEM, ROHS COMPLIANT, ML510 VIRTEX-5 EVAL PLAFORM  
 PCI SLOT 3, 3.3V, PRIMARY BUS

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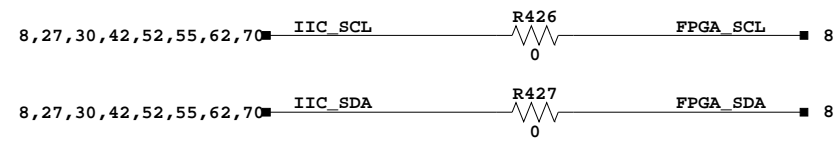
### PCI BUS PULLUPS



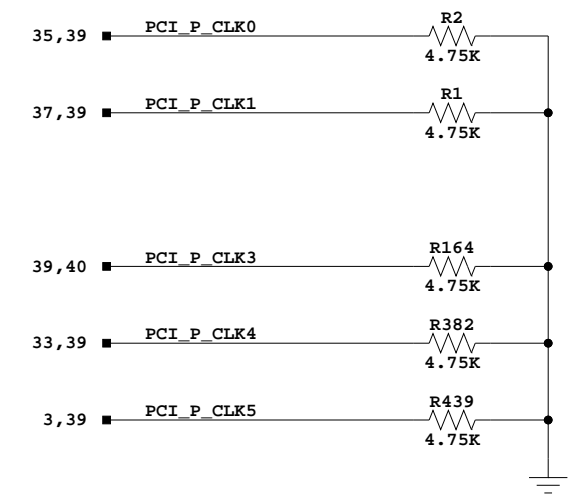
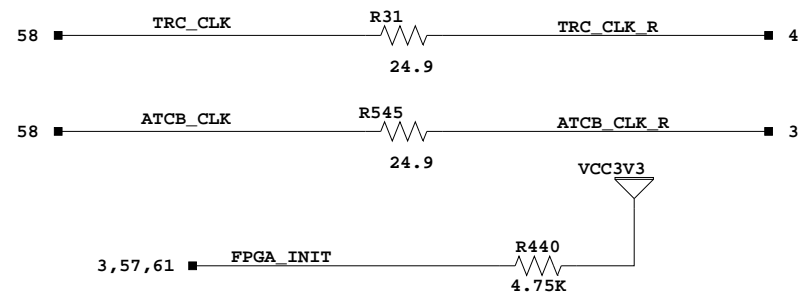
SCH P/N 0381255  
 ART P/N 0532059  
 FAB P/N 1280432

Title: SCHEM, ROHS COMPLIANT, ML510 VIRTEX-5 EVAL PLAFORM  
 PCI BUS PULLUPS

Date:	7-10-2008_10:19	Ver:	C
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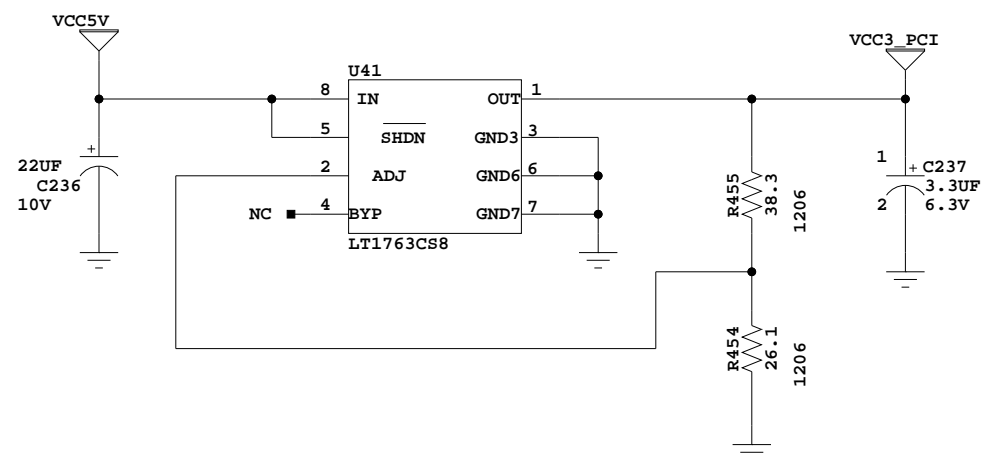
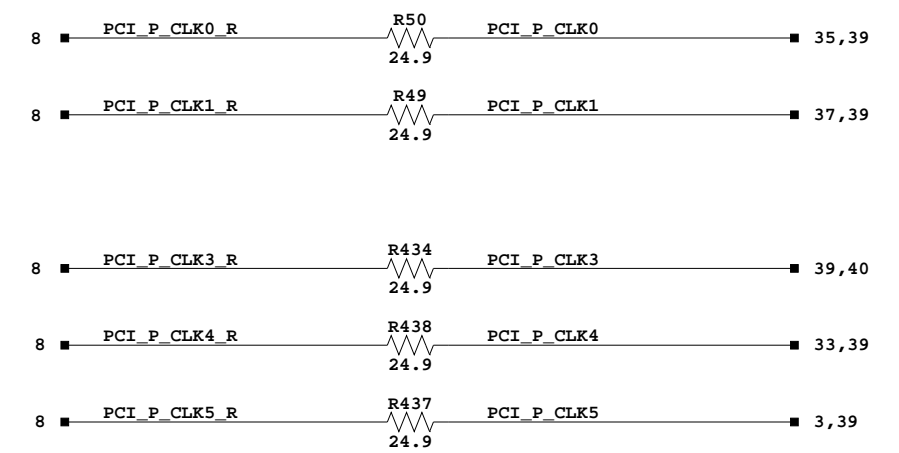


NOTE: TRC\_CLK RESISTOR ALLOWS CLOCK TERMINATION  
 TO BE ADJUSTED INDEPENDENTLY OF OTHER I/O.

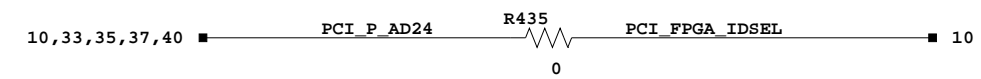


NOTE: THE PCI SPEC RECOMMENDS THAT  
 CLOCKS BE PULLED LOW WHEN THE  
 BUS IS NOT ACTIVELY CLOCKED.

NOTE: PCI\_CLK RESISTORS ALLOW CLOCK TERMINATION  
 TO BE ADJUSTED INDEPENDENTLY OF OTHER I/O.



NOTE: THE COMPONENT VALUES FOR THIS REGULATOR ARE TAKEN  
 FROM XAPP653. THIS DESIGN IS INTENDED TO SINK CURRENT  
 THROUGH THE 1206 RESISTORS WHEN THE CLAMP DIODES ON  
 THE FPGA ARE CONDUCTING DURING OVERSHOOT. THIS IS WHY  
 THE VALUES ARE UNUSUAL RELATIVE TO THE LT1763 DATASHEET.



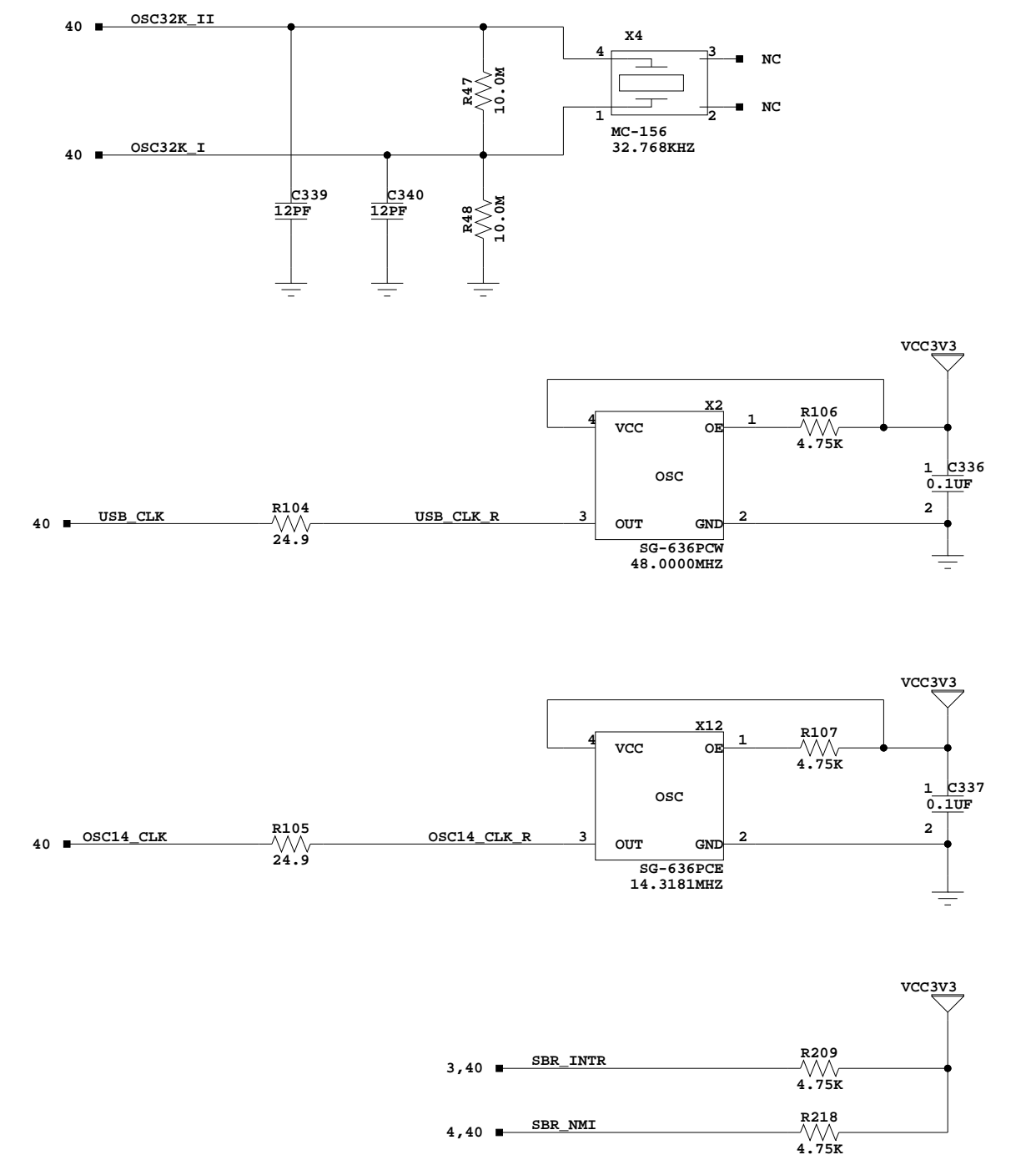
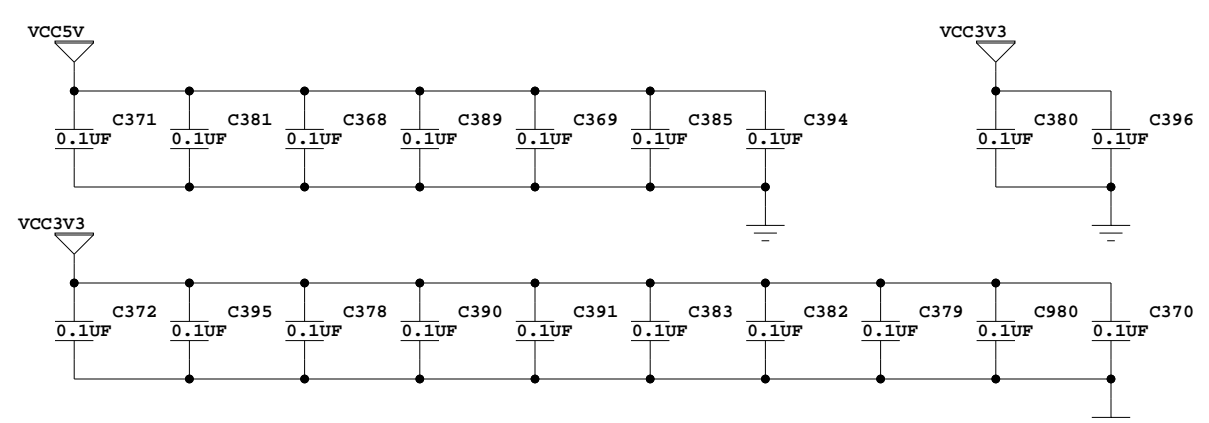
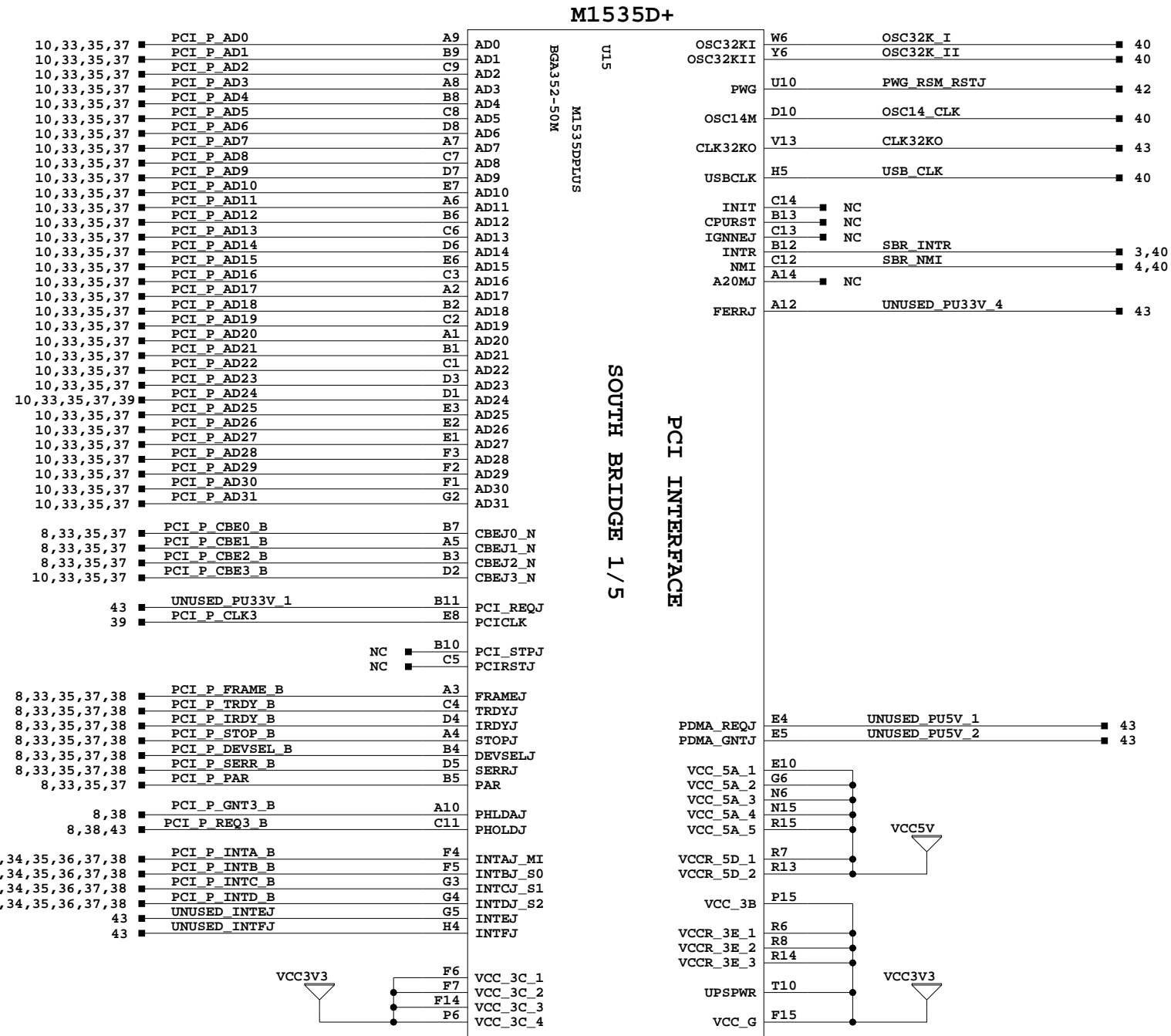
### PCI SUPPLY AND TERMINATION



SCH P/N 0381255  
 ART P/N 0532059  
 FAB P/N 1280432

Title: SCHEM, ROHS COMPLIANT, ML510 VIRTEX-5 EVAL PLAFORM  
 PCI SUPPLY AND TERMINATION

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### PCI SOUTH BRIDGE, PART 1

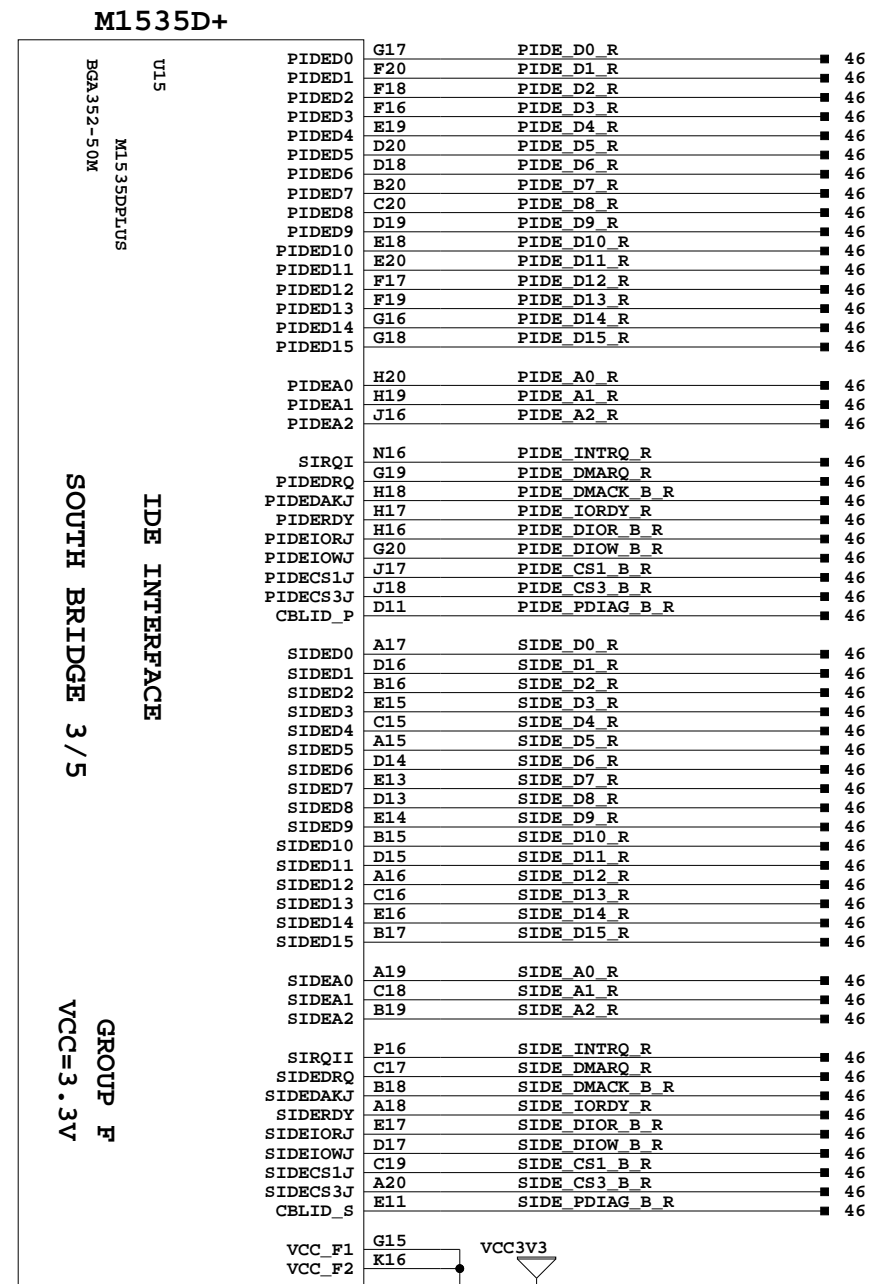
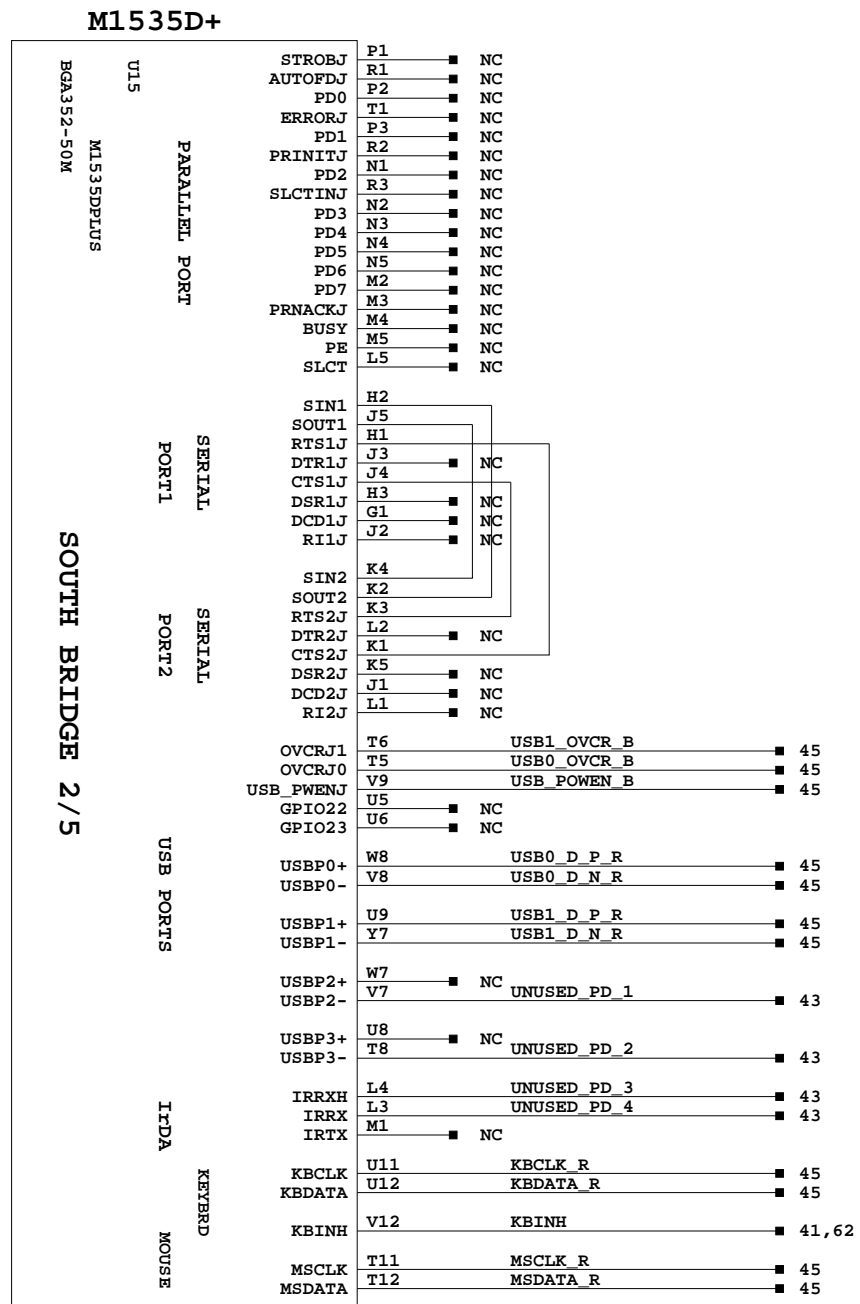


SCH P/N 0381255  
 ART P/N 0532059  
 FAB P/N 1280432

Title: SCHEM, ROHS COMPLIANT, ML510 VIRTEX-5 EVAL PLAFORM  
 PCI SOUTH BRIDGE, PART 1

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**PCI SOUTH BRIDGE, PART 2-3**



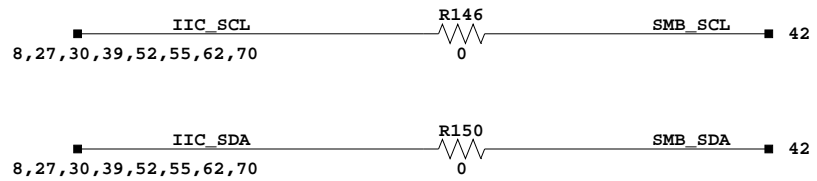
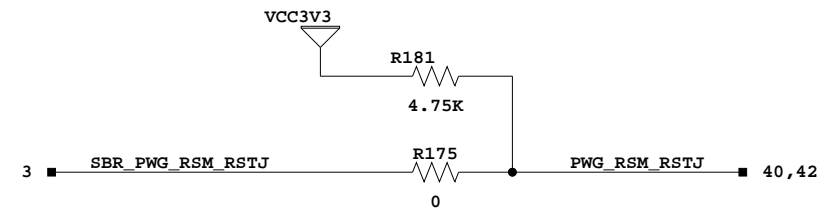
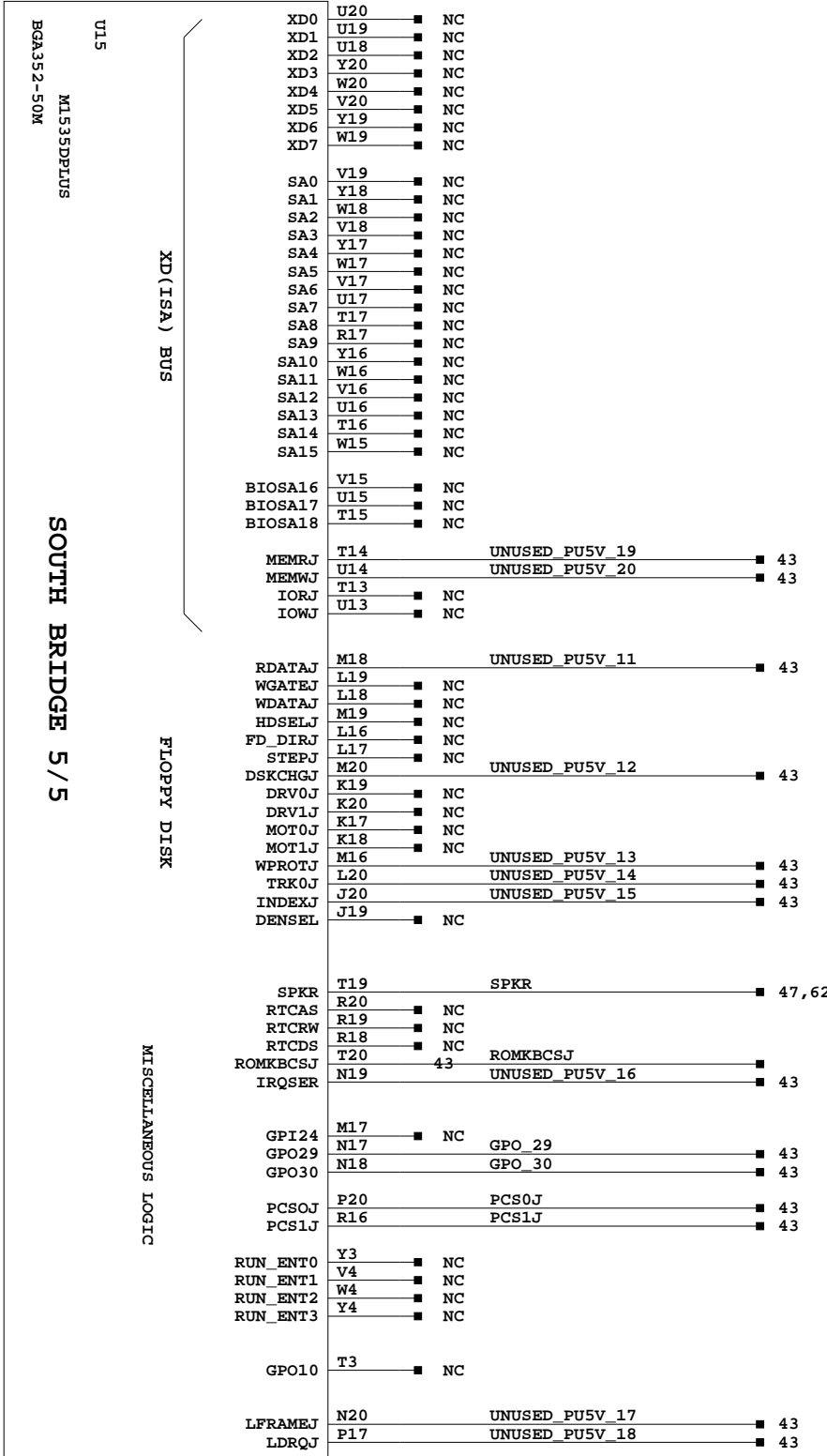
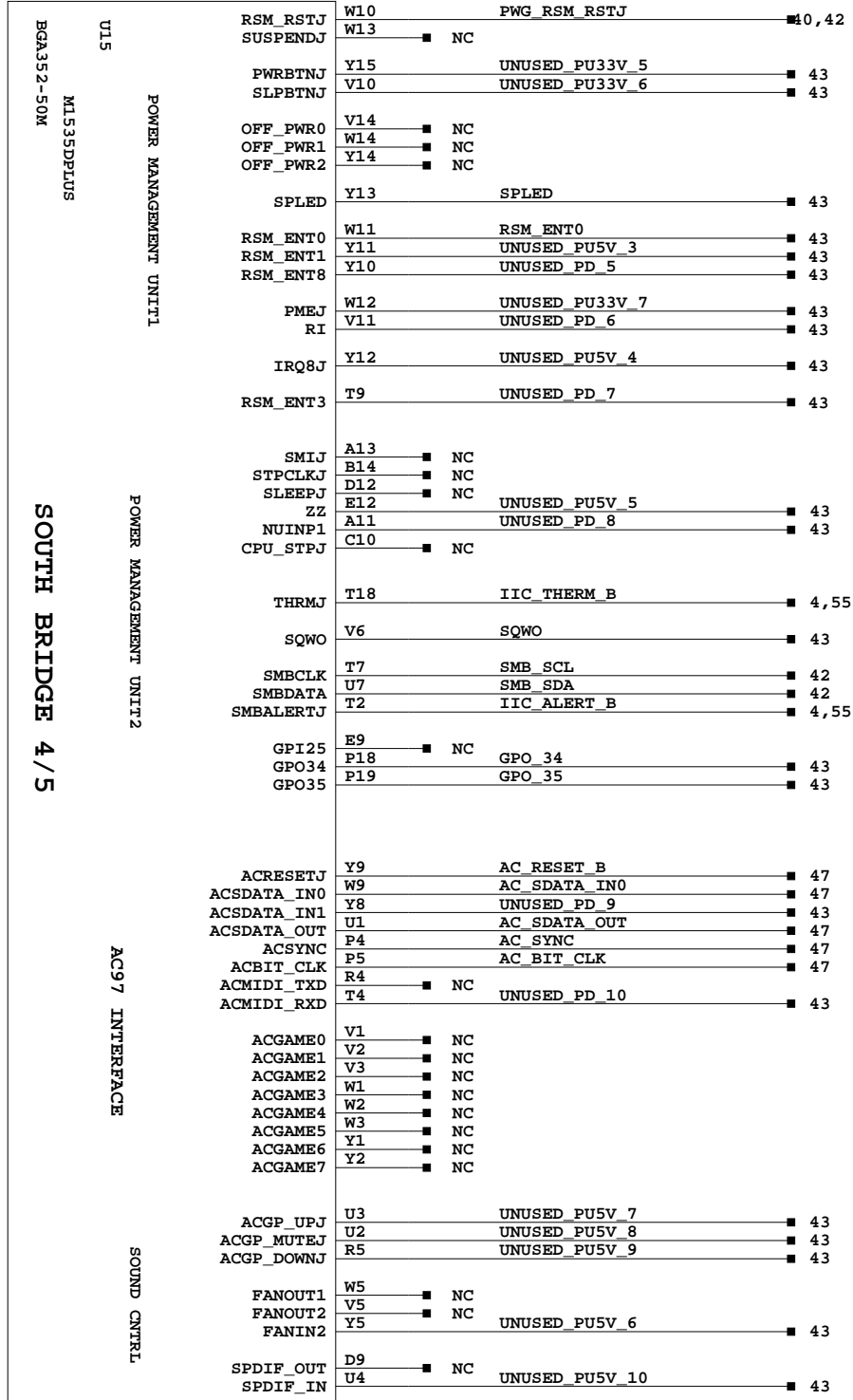
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ART P/N 0532059  
FAB P/N 1280432

Title: SCHEM, ROHS COMPLIANT, ML510 VIRTEX-5 EVAL PLAFORM  
PCI SOUTH BRIDGE, PART 2-3

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M1535D+

M1535D+



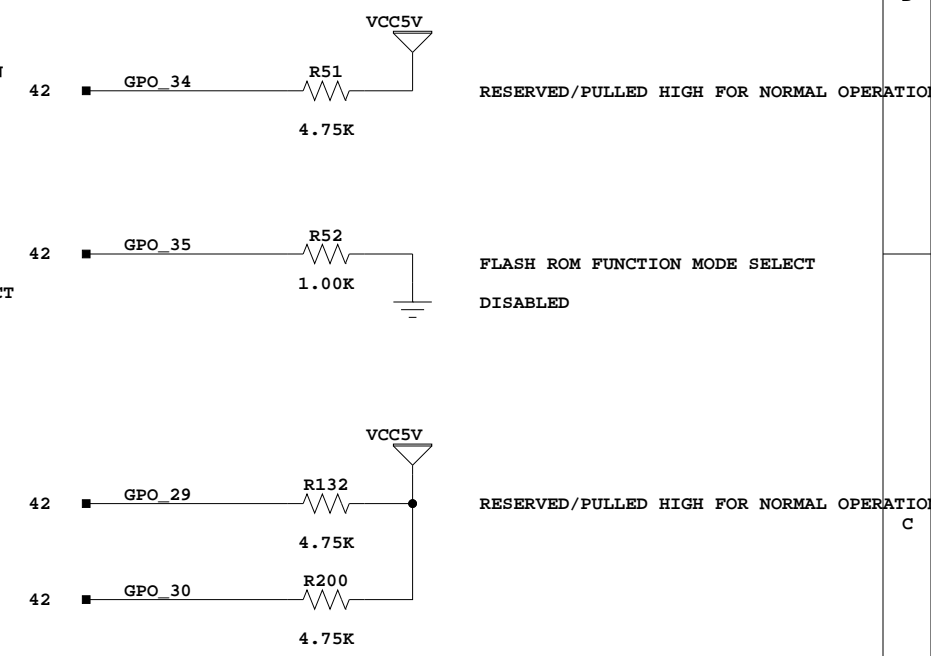
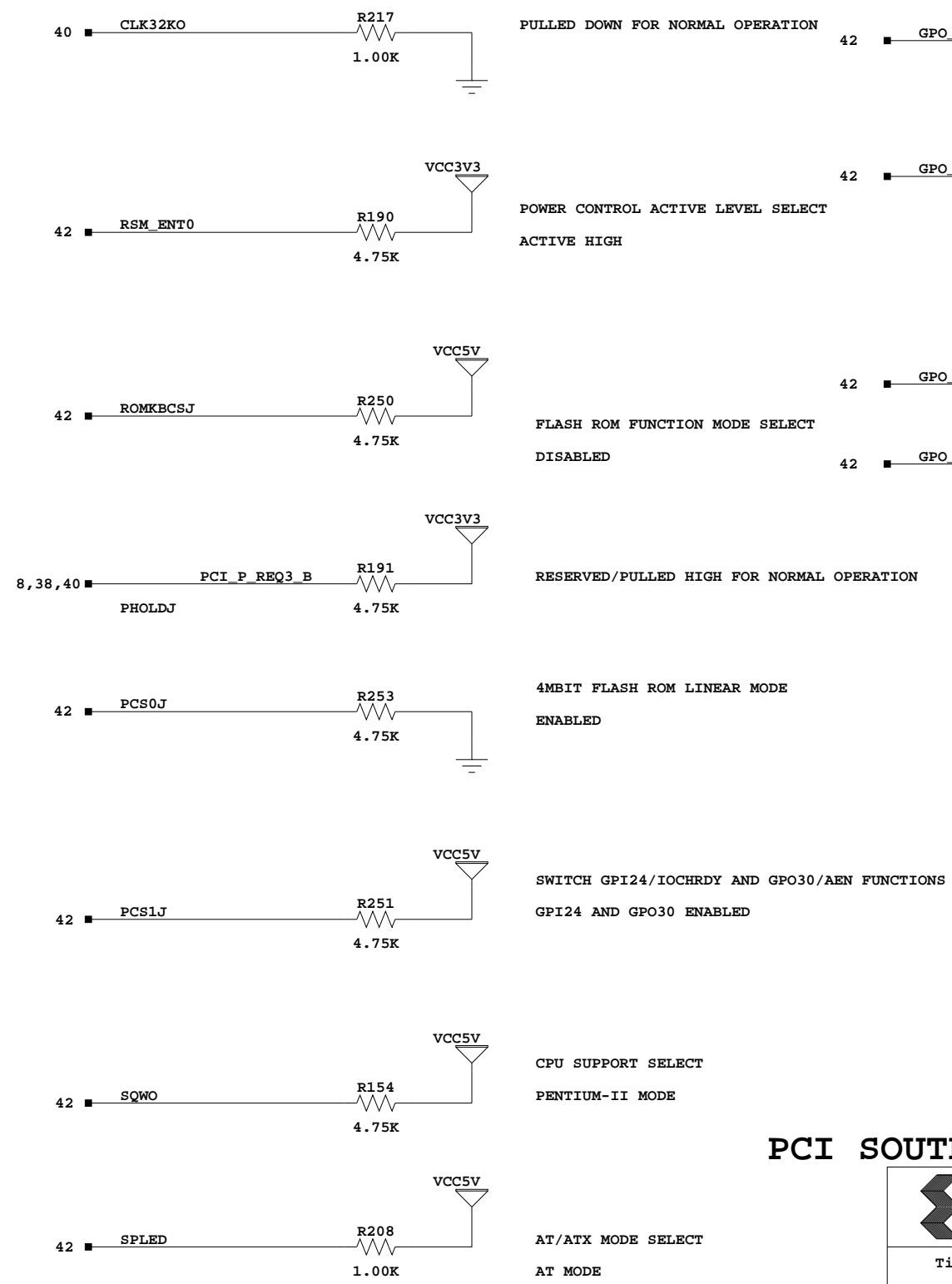
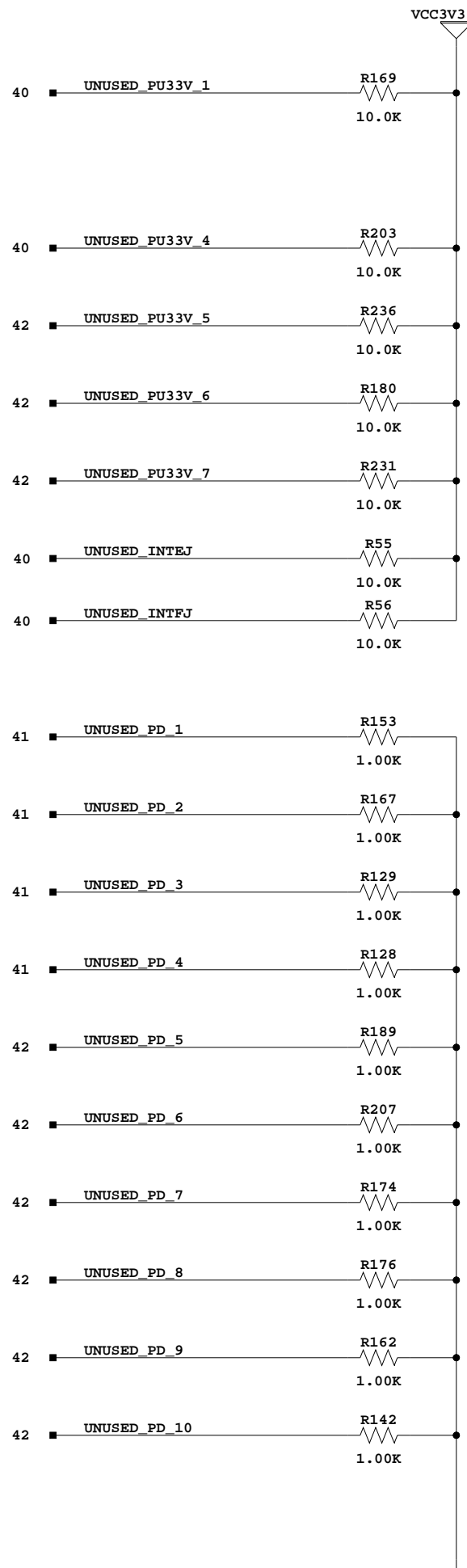
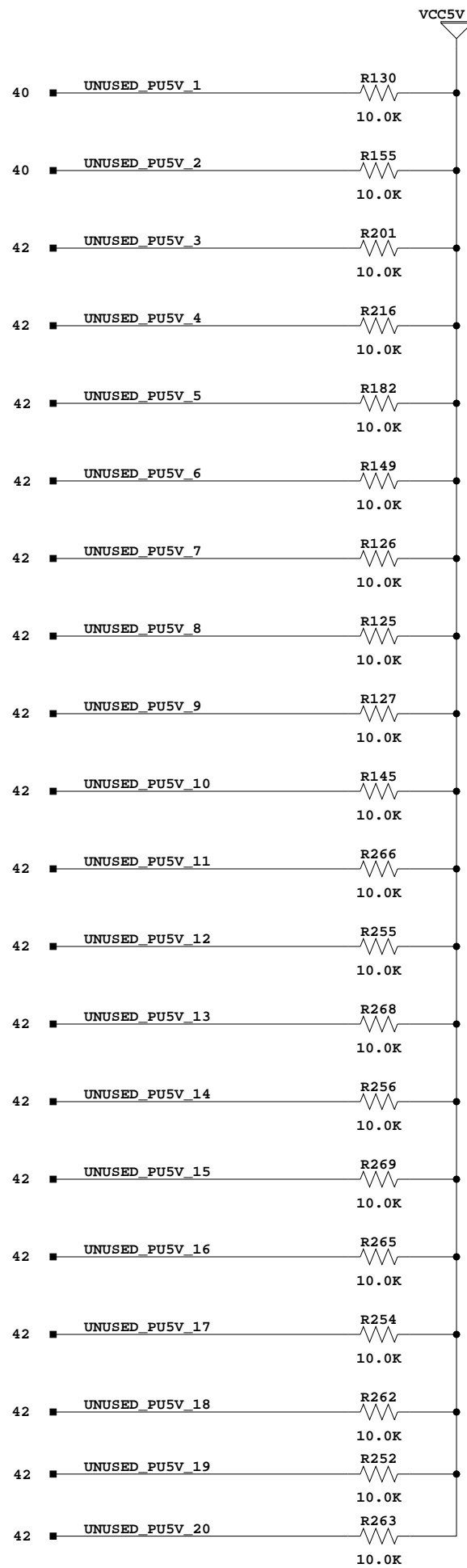
PCI SOUTH BRIDGE, PART 4-5



SCH P/N 0381255  
ART P/N 0532059  
FAB P/N 1280432

Title: SCHEM, ROHS COMPLIANT, ML510 VIRTEX-5 EVAL PLAFORM  
PCI SOUTH BRIDGE, PART 4-5

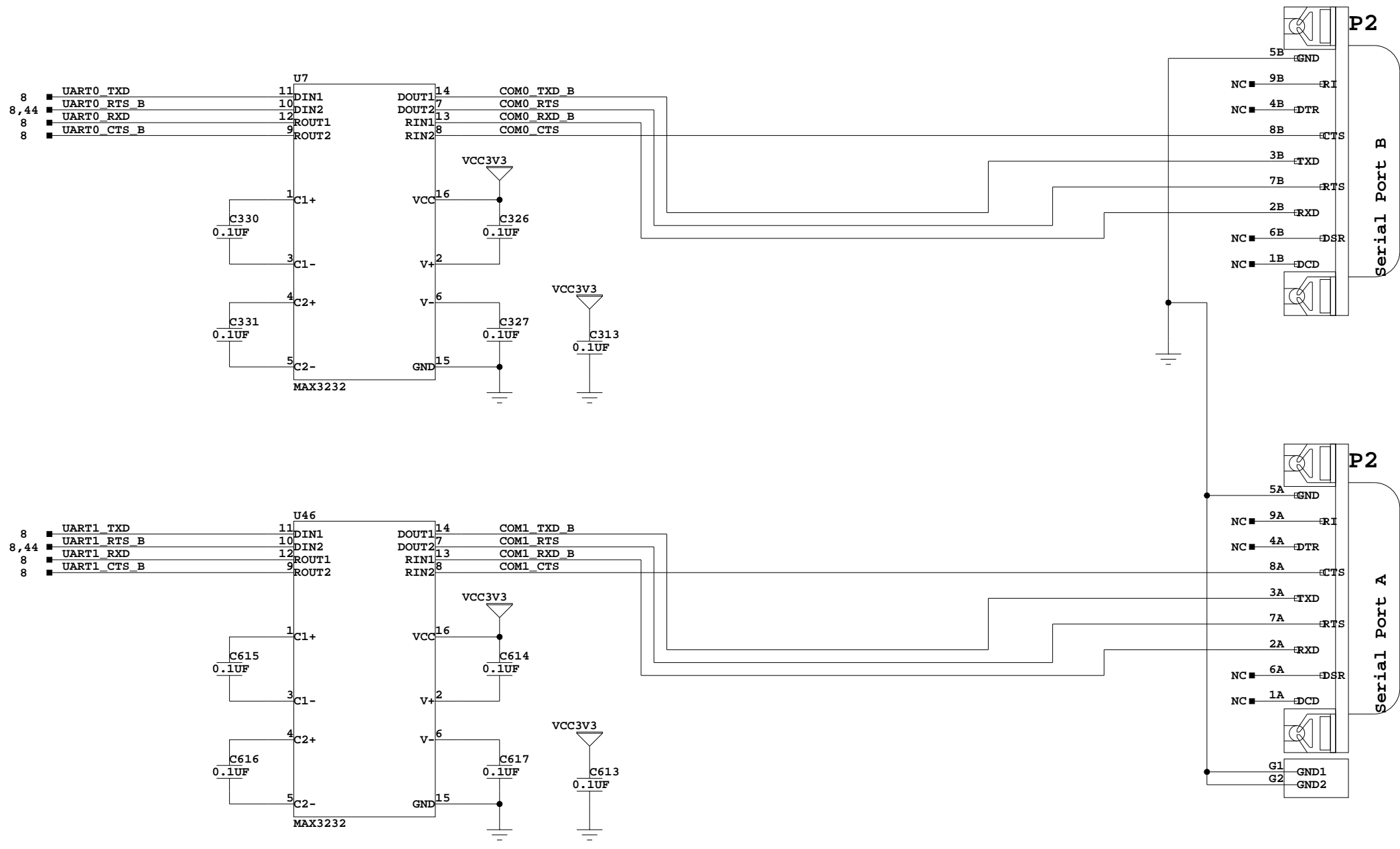
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PCI SOUTH BRIDGE, CONFIG and UNUSED

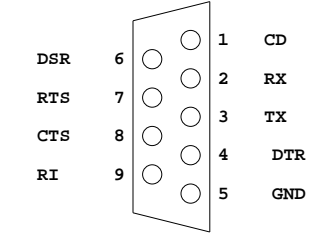
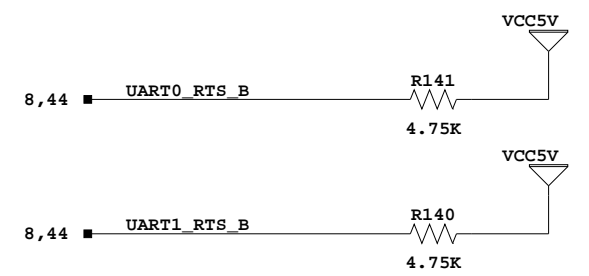
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	ART P/N	0532059
	FAB P/N	1280432
Title: SCHEM, ROHS COMPLIANT, ML510 VIRTEX-5 EVAL PLAFORM		
PCI SOUTH BRIDGE, UNUSED PIN RESISTORS		
Date:	7-10-2008_10:19	Ver: C
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NOTE: AT MODE IS USED HERE TO DISABLE THE SOFT-POWER FUNCTIONALITY OF THE SOUTH BRIDGE



Silkscreen:  
"COM 1"

Silkscreen:  
"COM 2"



RS232 DTE PINOUT  
CONNECTS TO PC WITH  
F/F NULL MODEM CABLE.

LOOKING INTO DB9 PLUG

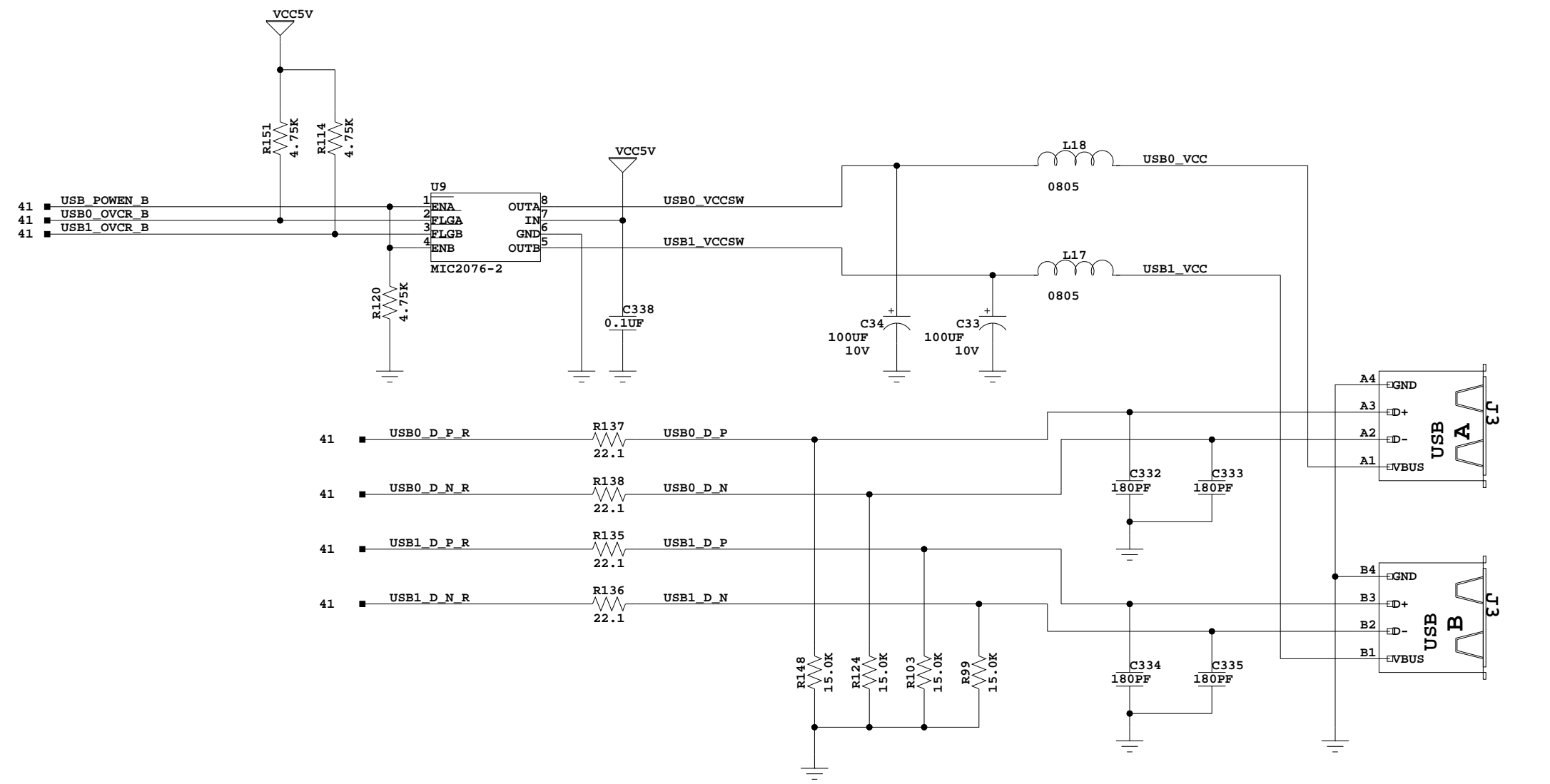
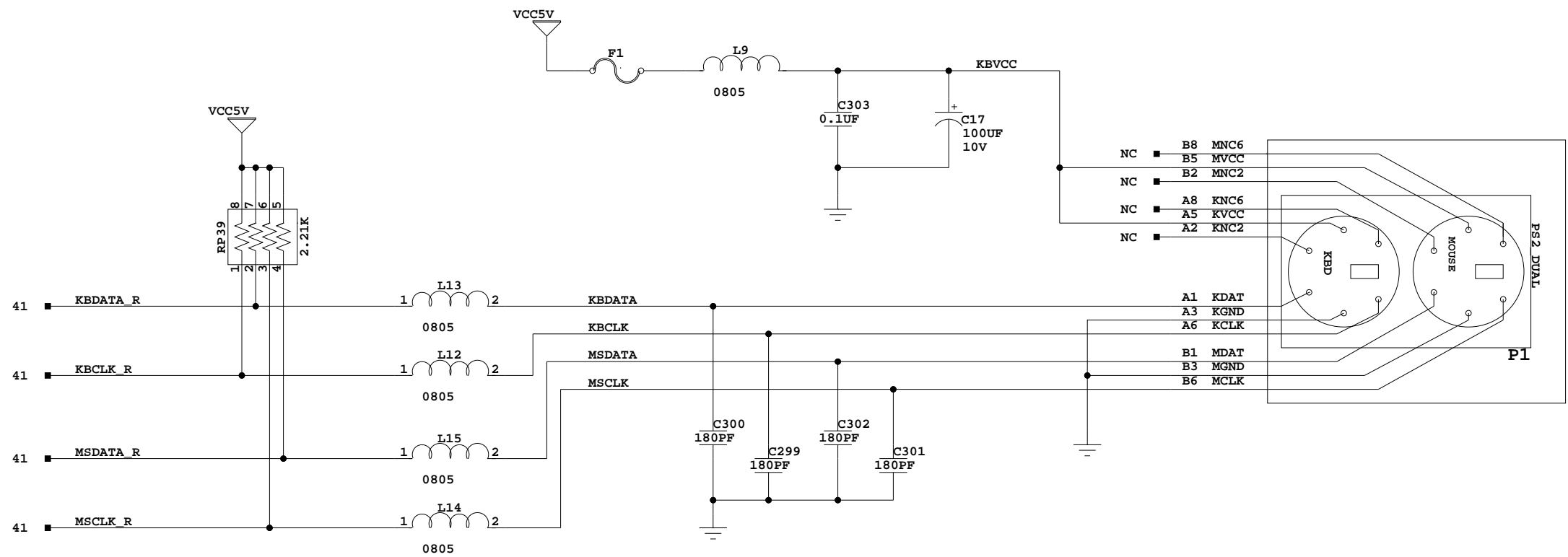
### RS232 SERIAL PORT INTERFACE



SCH P/N 0381255  
ART P/N 0532059  
FAB P/N 1280432

Title: SCHEM, ROHS COMPLIANT, ML510 VIRTEX-5 EVAL PLAFTRM  
RS232 SERIAL PORT INTERFACE

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### KBD/MOUSE AND USB INTERFACES



SCH P/N 0381255  
 ART P/N 0532059  
 FAB P/N 1280432

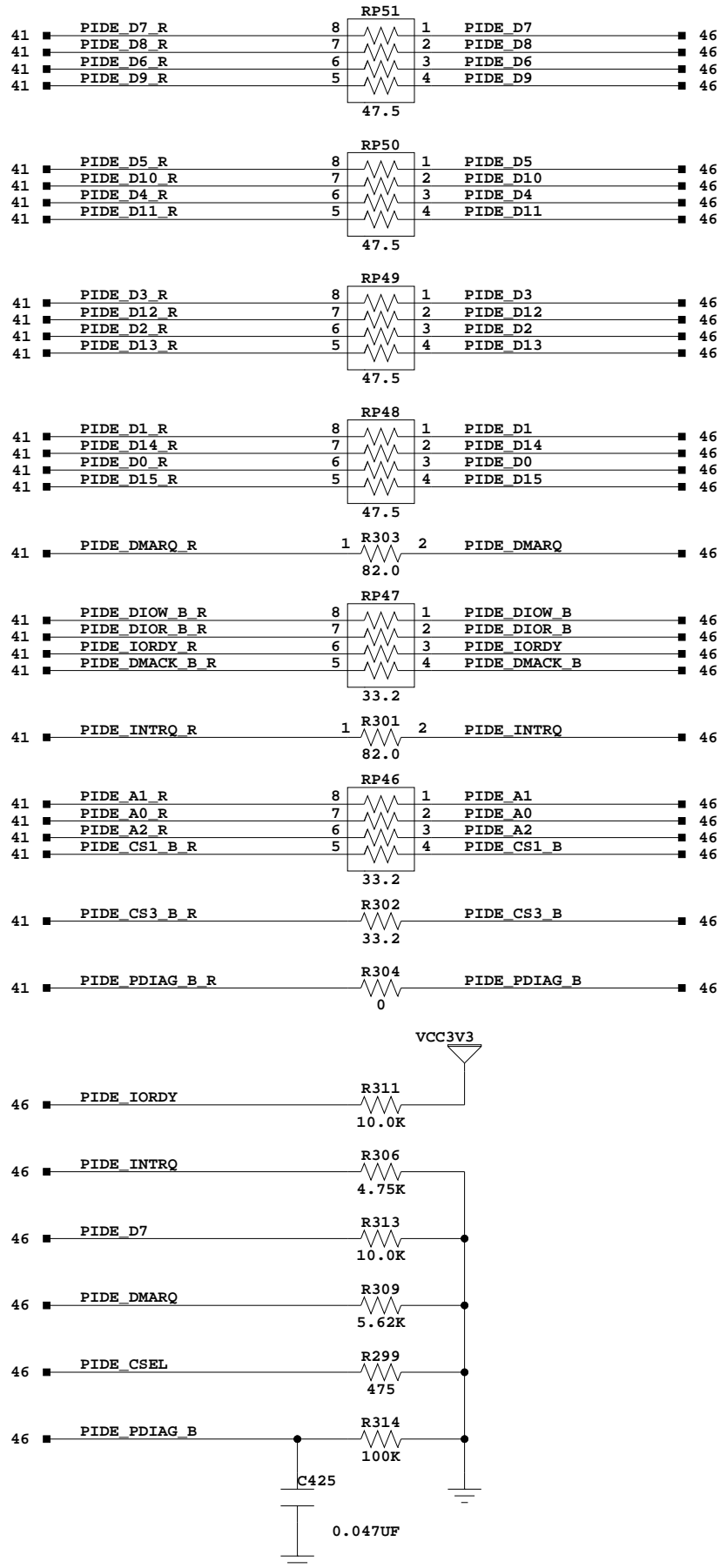
Title: SCHEM, ROHS COMPLIANT, ML510 VIRTEX-5 EVAL PLAFORM  
 KBD/MOUSE AND USB INTERFACES

Date: 7-10-2008\_10:19 Ver: C

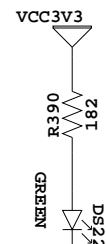
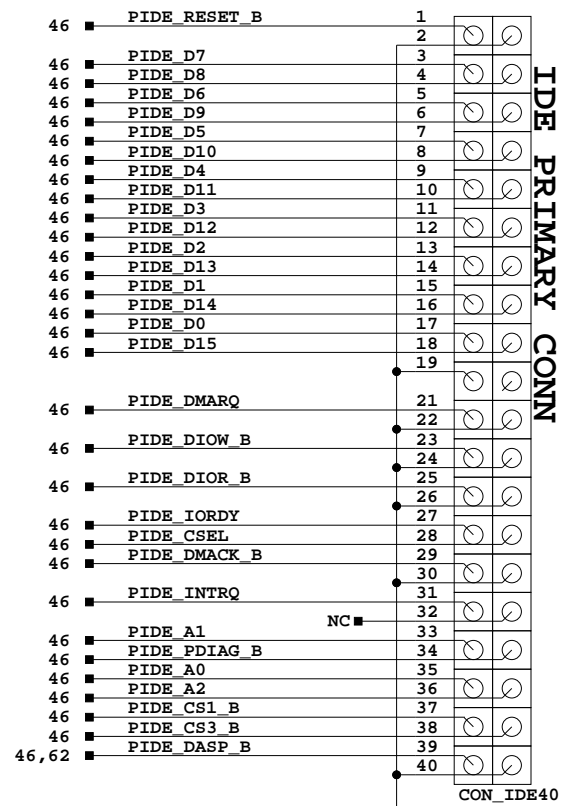
Sheet Size: B Rev: 01

Sheet 45 of 70 Drawn By BF

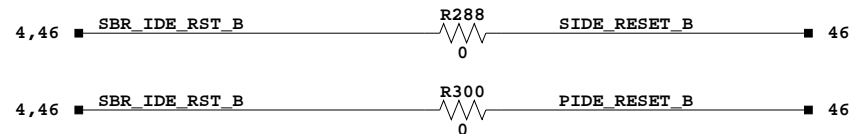
Pin 20 must be removed.  
Silkscreen:  
"IDE PRIMARY"



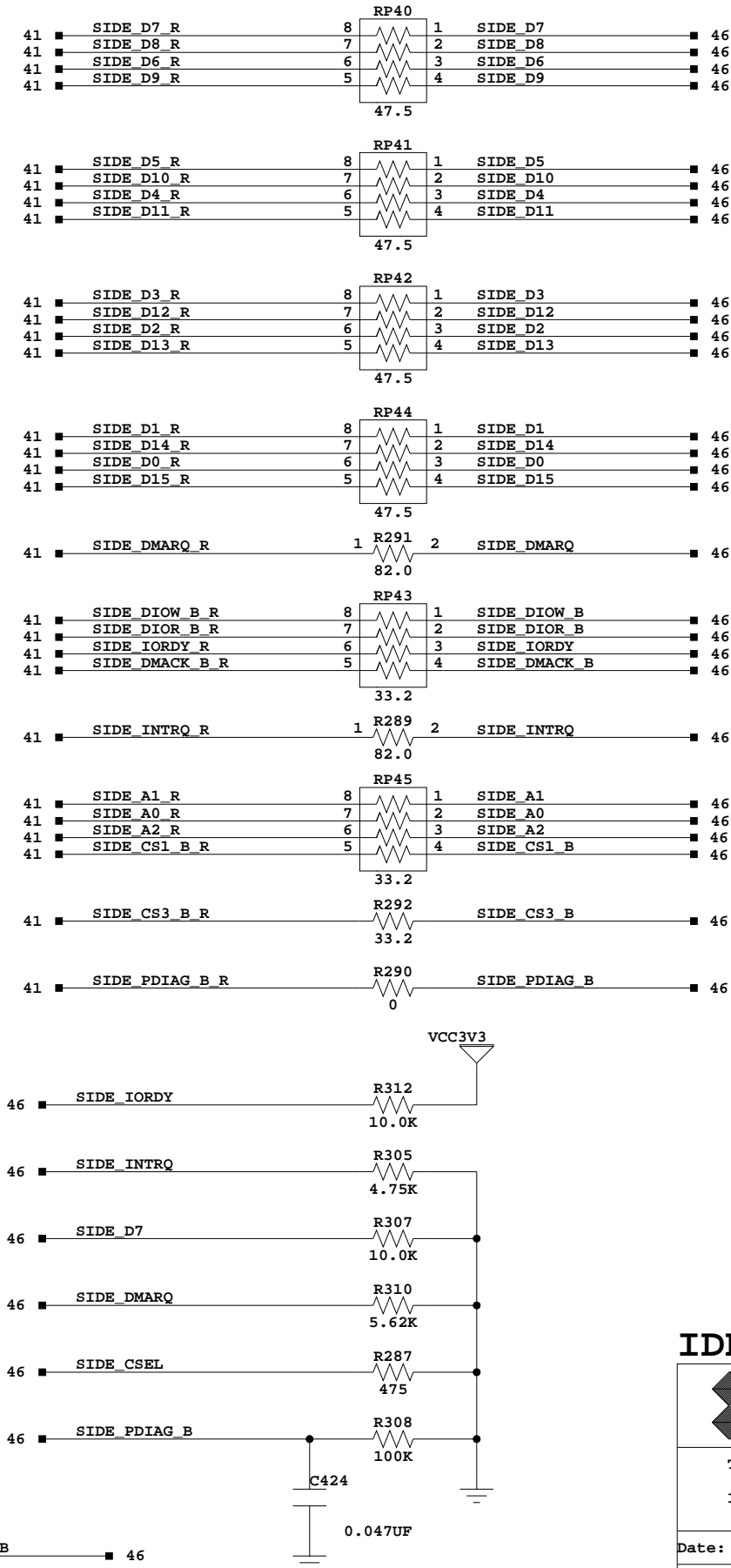
Mark Pin 1  
Pin20=Key  
J16



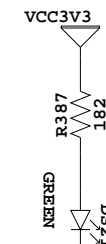
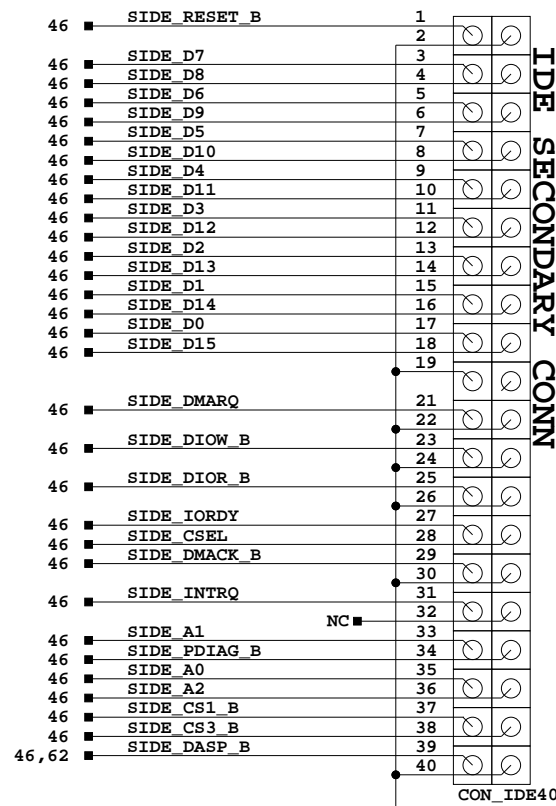
Silkscreen:  
"IDE P LED"



Pin 20 must be removed.  
Silkscreen:  
"IDE SECONDARY"



Mark Pin 1  
Pin20=Key  
J15



Silkscreen:  
"IDE S LED"

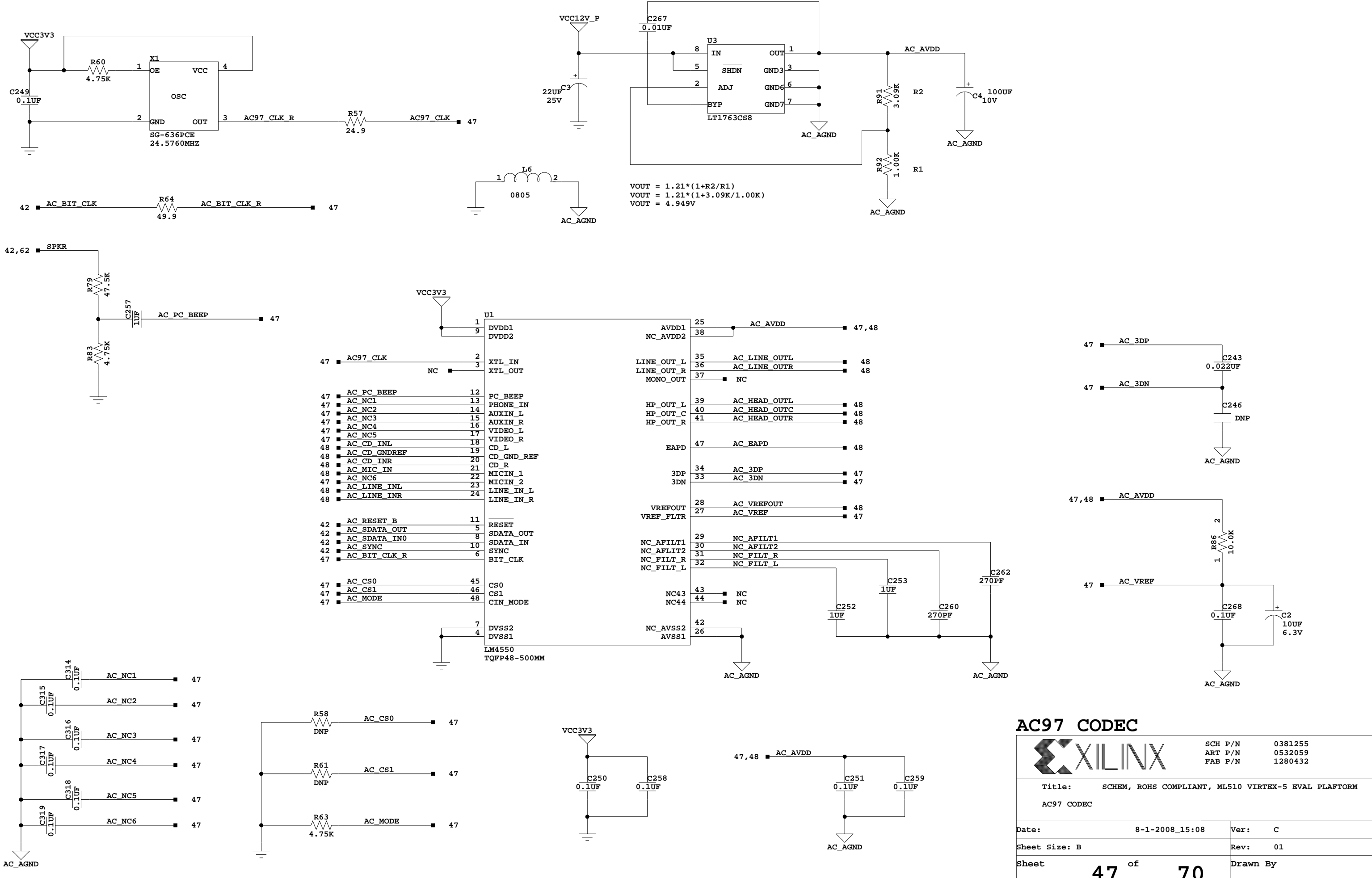
### IDE INTERFACES



SCH P/N 0381255  
ART P/N 0532059  
FAB P/N 1280432

Title: SCHEM, ROHS COMPLIANT, ML510 VIRTEX-5 EVAL PLATFOM  
IDE INTERFACES

Date:	7-10-2008_10:19	Ver:	C
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### AC97 CODEC



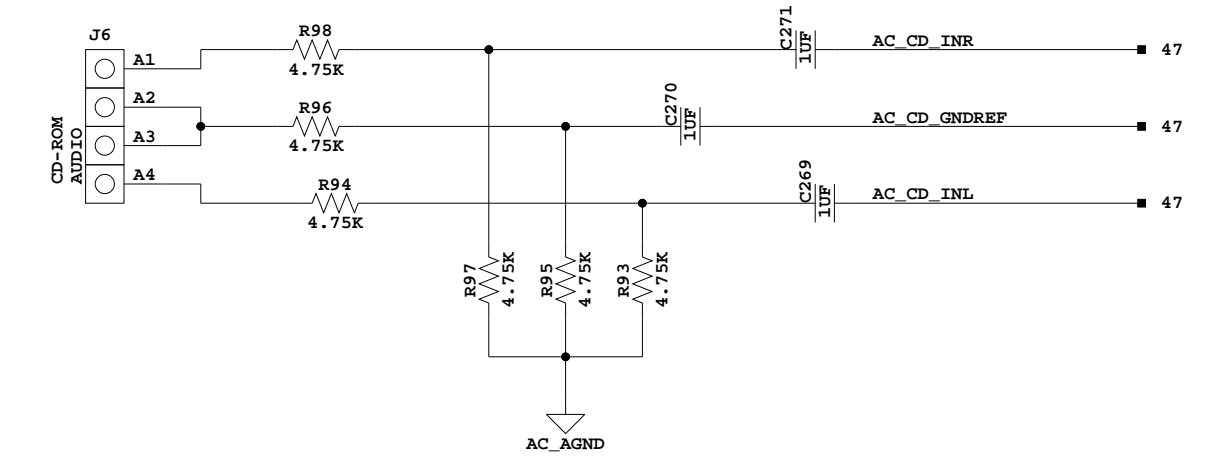
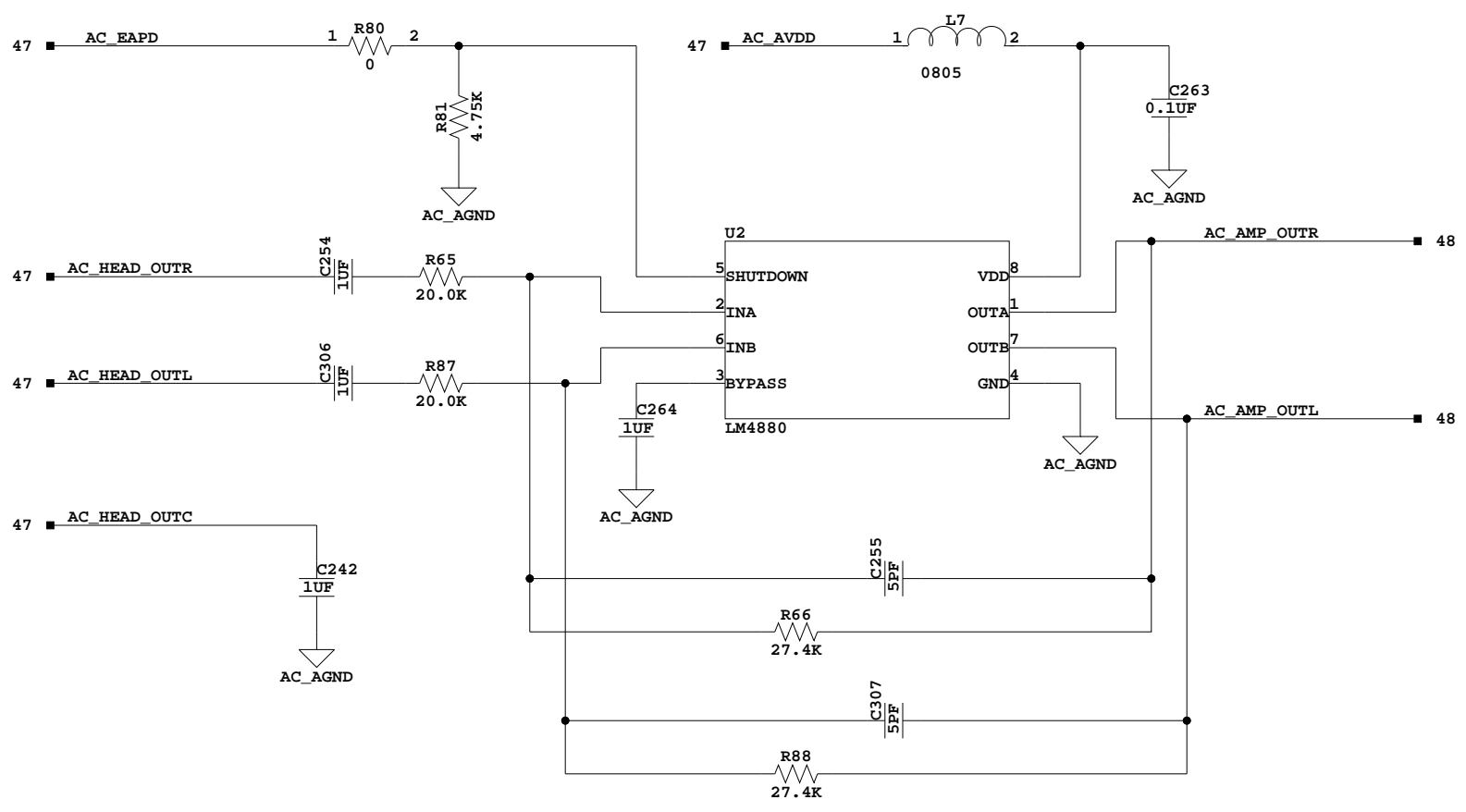
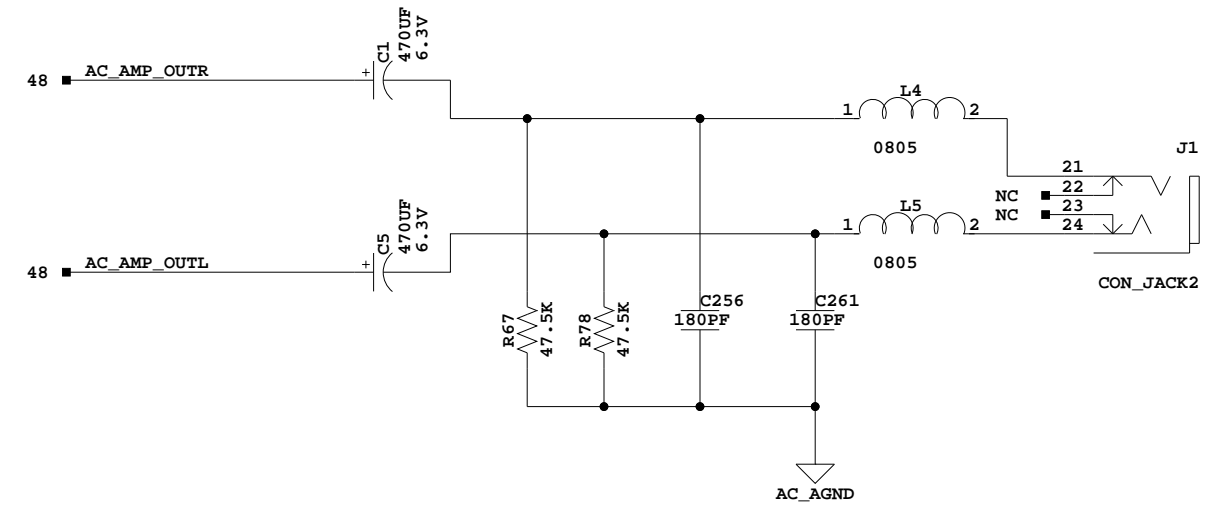
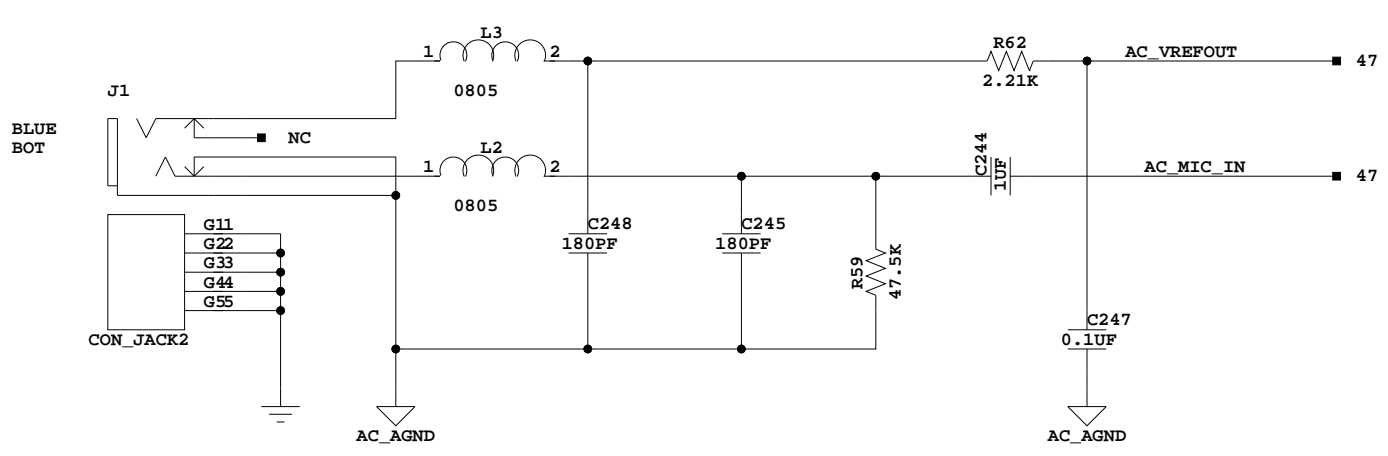
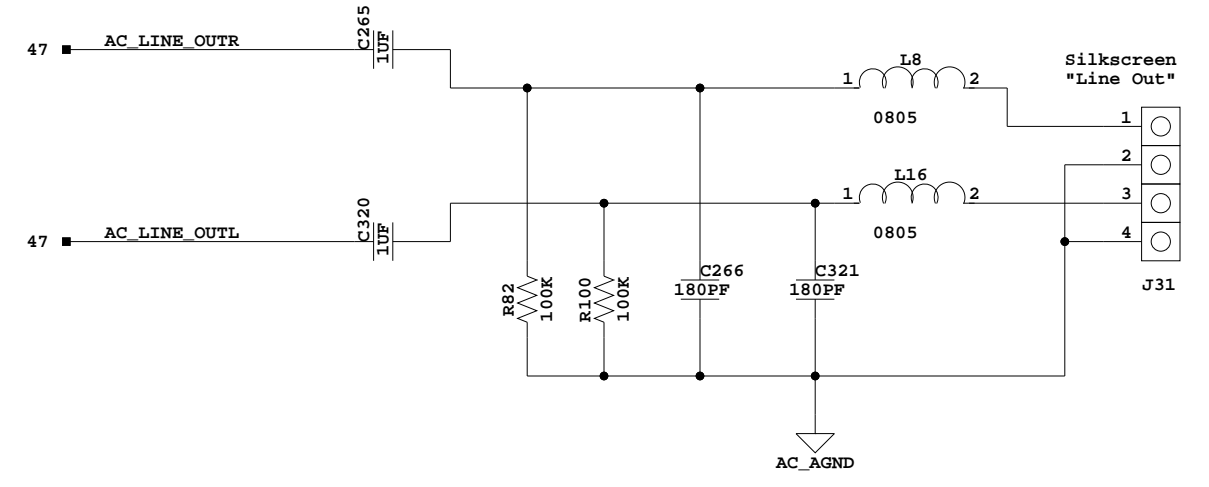
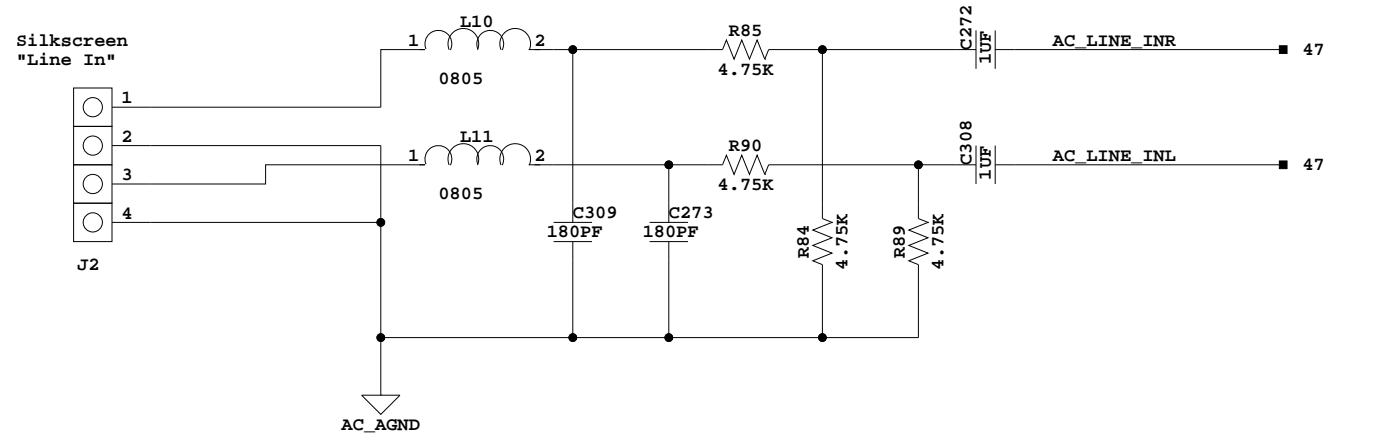
SCH P/N 0381255  
 ART P/N 0532059  
 FAB P/N 1280432

Title: SCHEM, ROHS COMPLIANT, ML510 VIRTEX-5 EVAL PLAFORM  
 AC97 CODEC

Date: 8-1-2008\_15:08 Ver: C

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### AC97 CONNECTORS

	SCH P/N	0381255
	ART P/N	0532059
	FAB P/N	1280432

Title: SCHEM, ROHS COMPLIANT, ML510 VIRTEX-5 EVAL PLAFORM  
AC97 CONNECTORS

Date:	7-10-2008_10:19	Ver:	C
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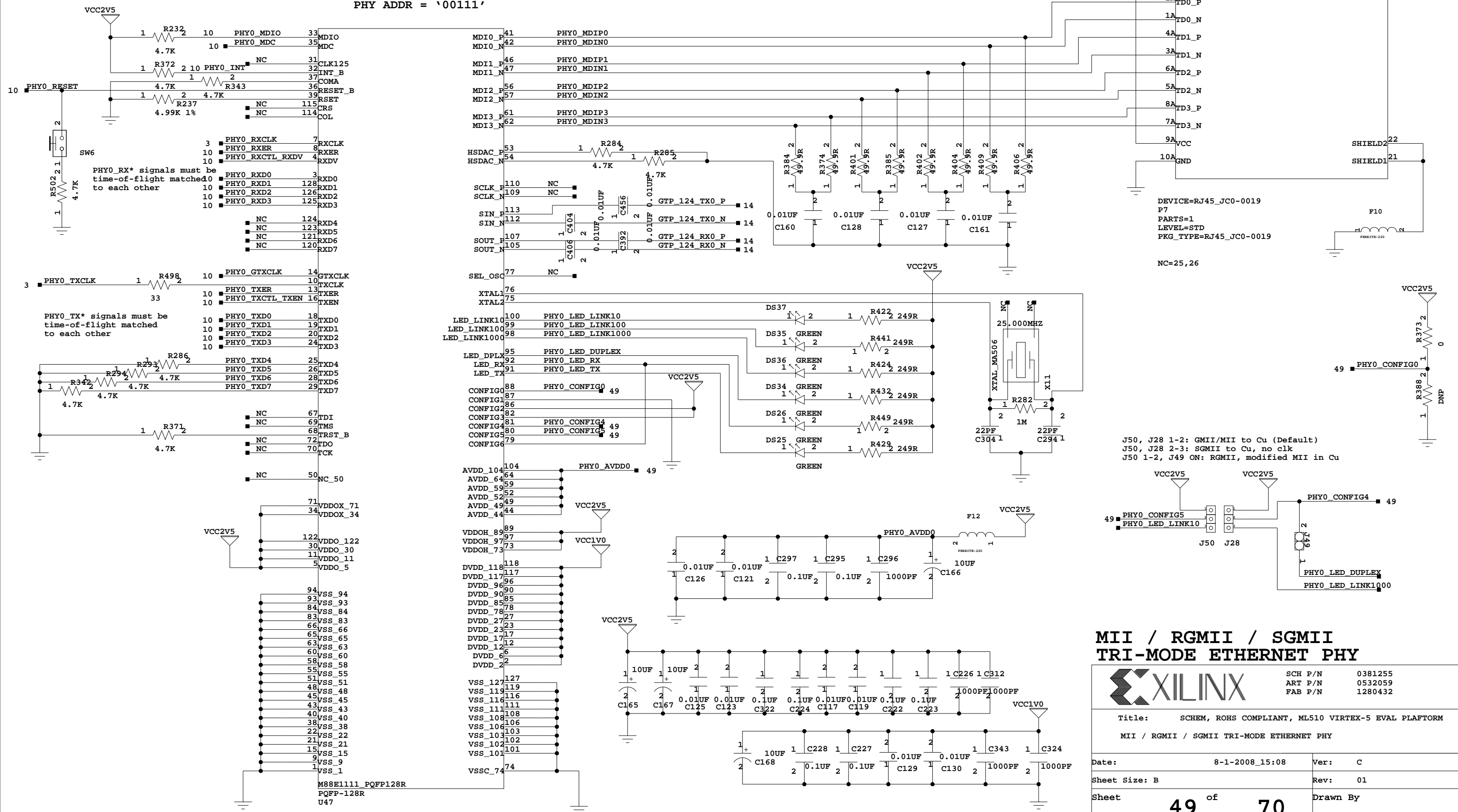


**SGMII:  
GTP 124\_0**

NOTE:  
PHY ADDR = '00111'

NOTE:  
BOTTOM SGMII

**10/100/1000  
RJ45 AND  
MAGNETICS**



DEVICE=RJ45\_JC0-0019  
P7  
PARTS=1  
LEVEL=STD  
PKG\_TYPE=RJ45\_JC0-0019  
NC=25,26

J50, J28 1-2: GMII/MII to Cu (Default)  
J50, J28 2-3: SGMII to Cu, no clk  
J50 1-2, J49 ON: RGMII, modified MII in Cu

**MII / RGMII / SGMII  
TRI-MODE ETHERNET PHY**



SCH P/N 0381255  
ART P/N 0532059  
FAB P/N 1280432

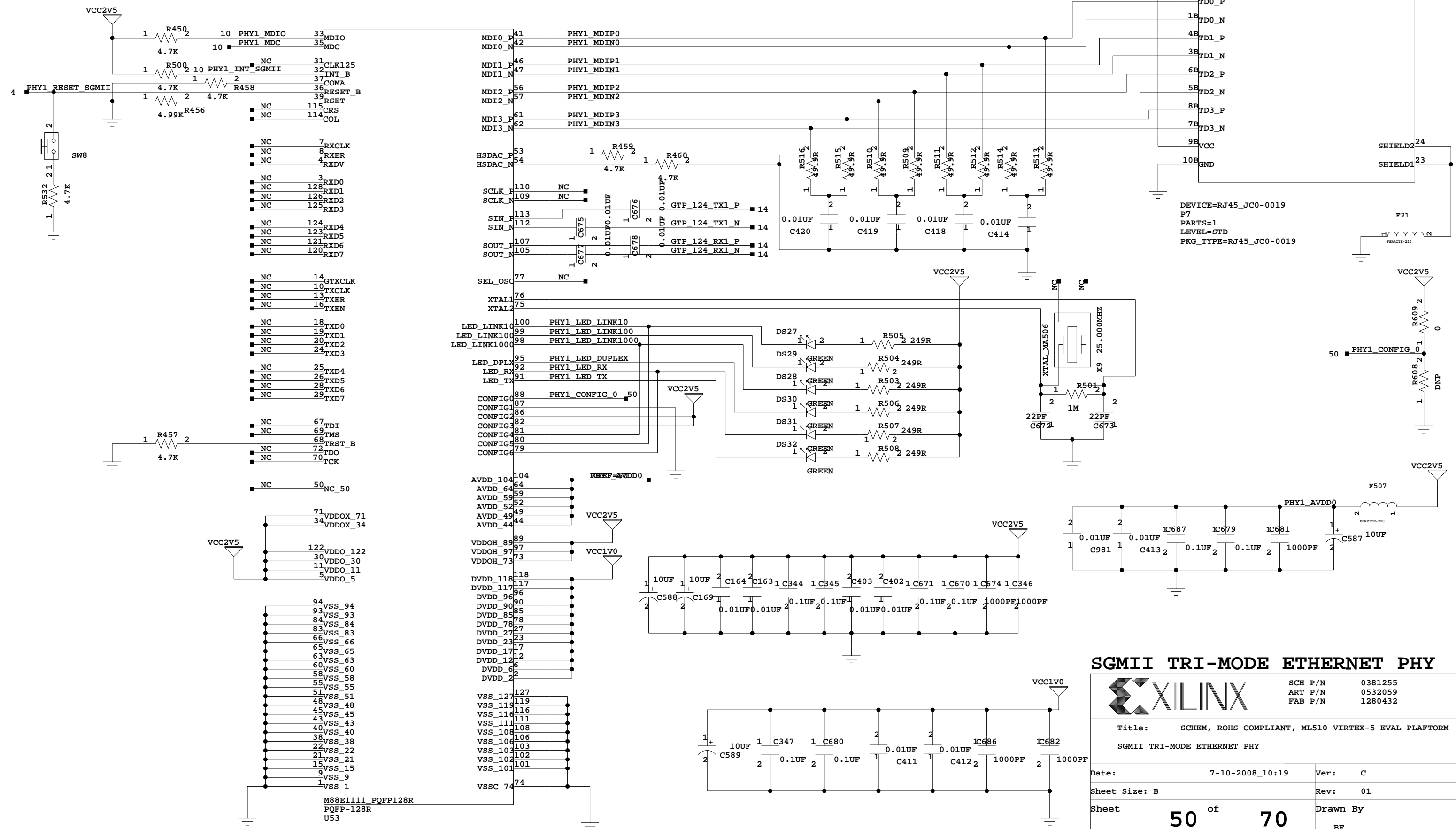
Title: SCHEM, ROHS COMPLIANT, ML510 VIRTEX-5 EVAL PLAFTRM  
MII / RGMII / SGMII TRI-MODE ETHERNET PHY

Date:	8-1-2008_15:08	Ver:	C
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**SGMII:  
GTP 124\_1**

NOTE:  
PHY ADDR = '00111'

NOTE:  
BOTTOM SGMII  
**10/100/1000  
RJ45 AND  
MAGNETICS**



DEVICE=RJ45\_JC0-0019  
P7  
PARTS=1  
LEVEL=STD  
PKG\_TYPE=RJ45\_JC0-0019

**SGMII TRI-MODE ETHERNET PHY**



SCH P/N 0381255  
ART P/N 0532059  
FAB P/N 1280432

Title: SCHEM, ROHS COMPLIANT, ML510 VIRTEX-5 EVAL PLAFORM  
SGMII TRI-MODE ETHERNET PHY

Date:	7-10-2008_10:19	Ver:	C
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# SATA Host 1

## GTP 120\_1



# SATA Host 2

## GTP 120\_0

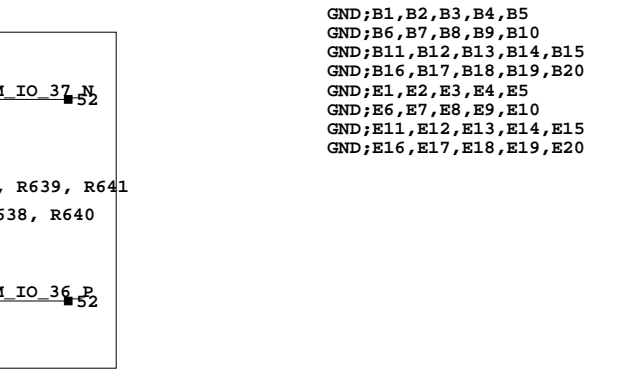
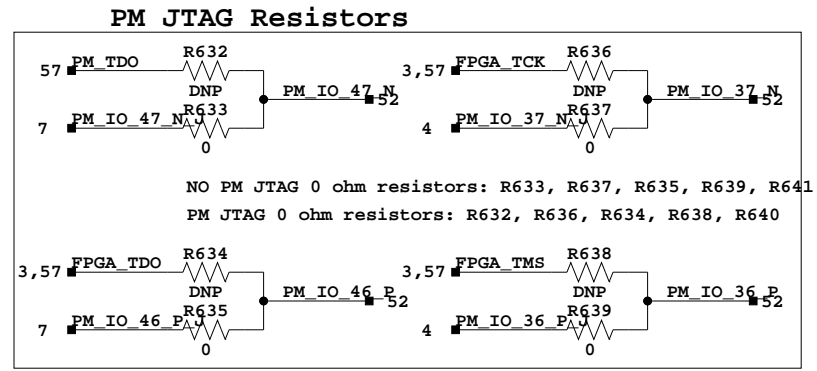
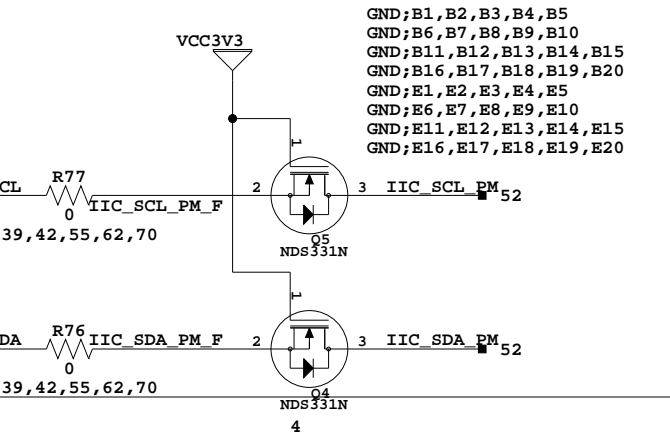
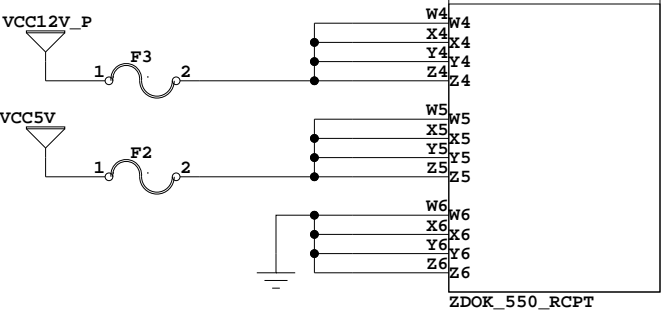
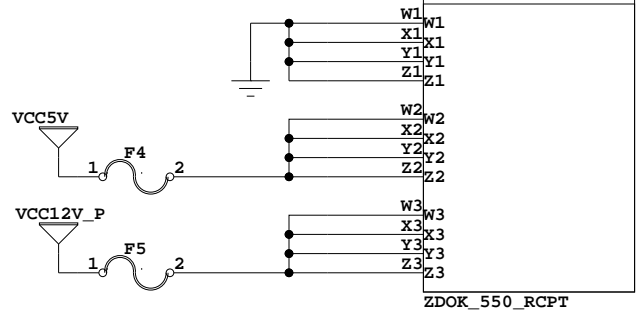
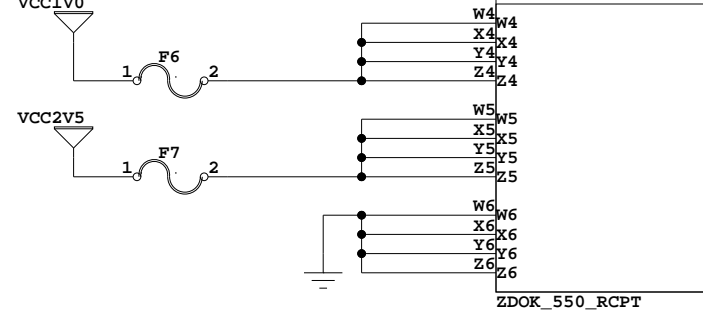
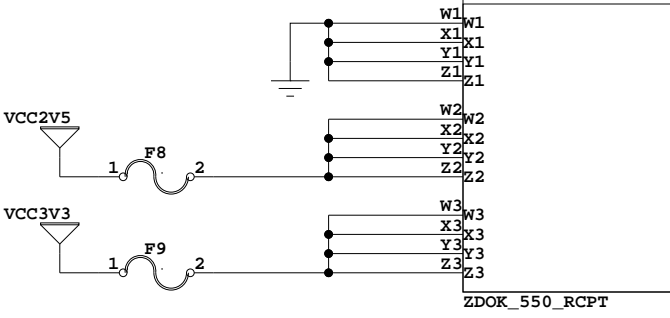
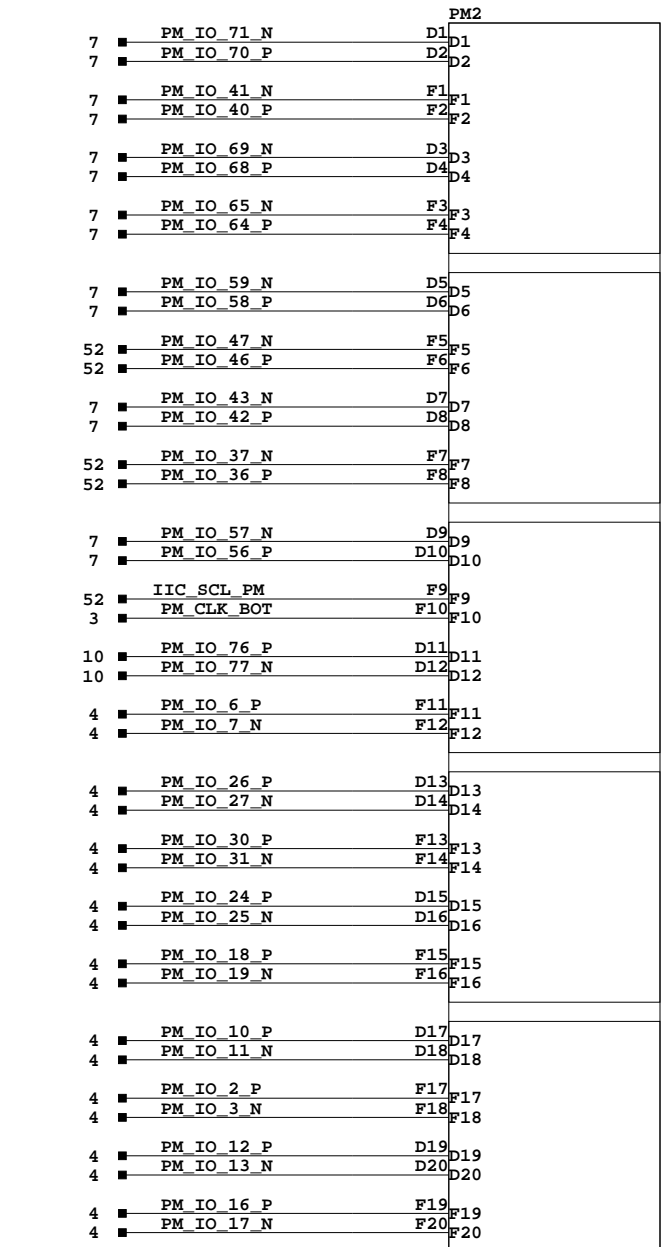
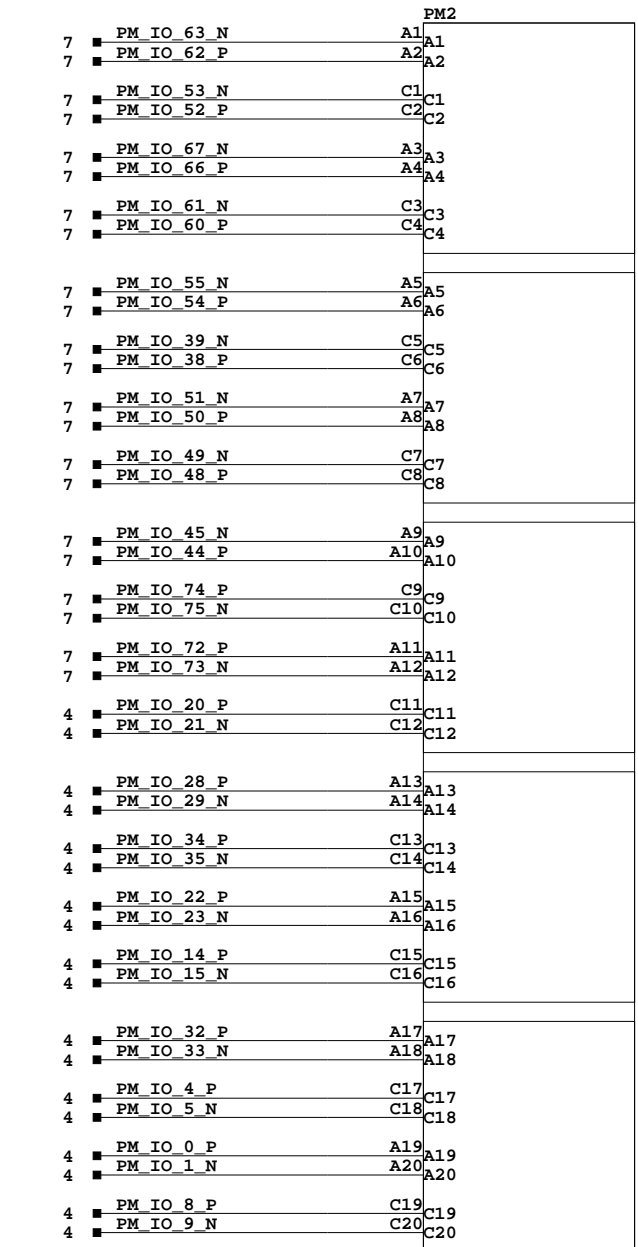
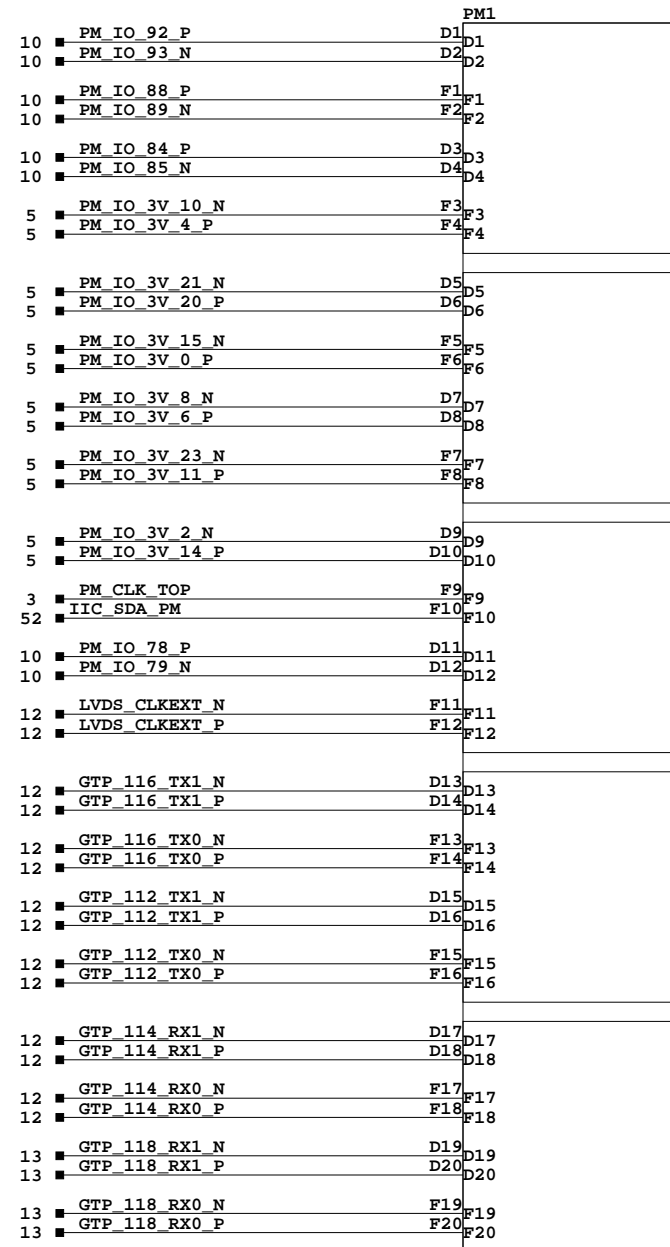
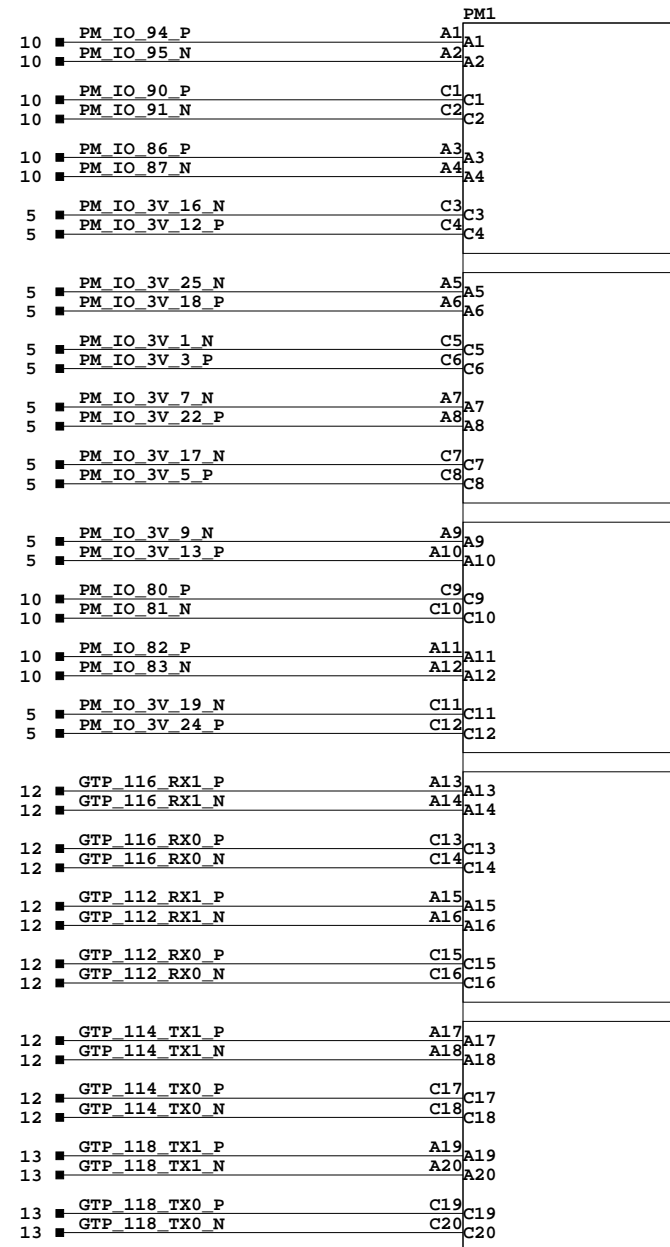


### SATA INTERFACE



Title: SCHEM, ROHS COMPLIANT, ML510 VIRTEX-5 EVAL PLAFORM  
 SATA INTERFACE

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PERSONALITY MODULE CONNECTORS



SCH P/N 0381255  
ART P/N 0532059  
FAB P/N 1280432

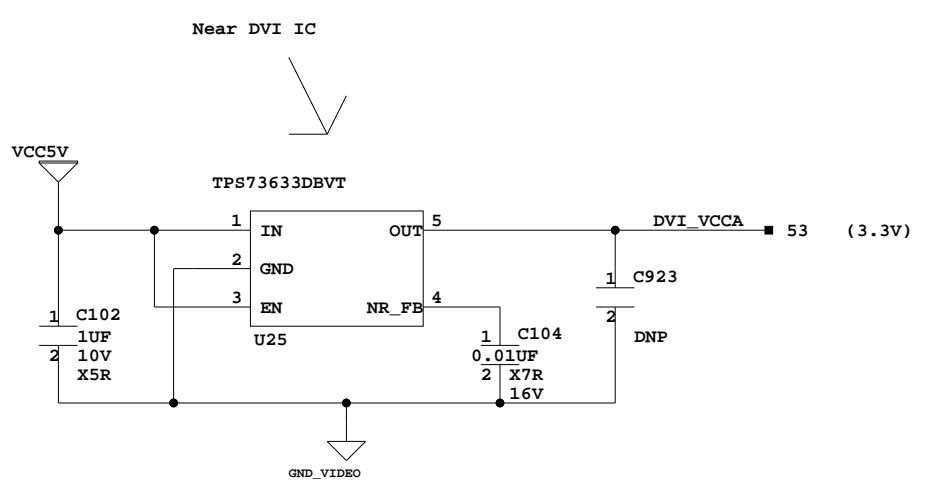
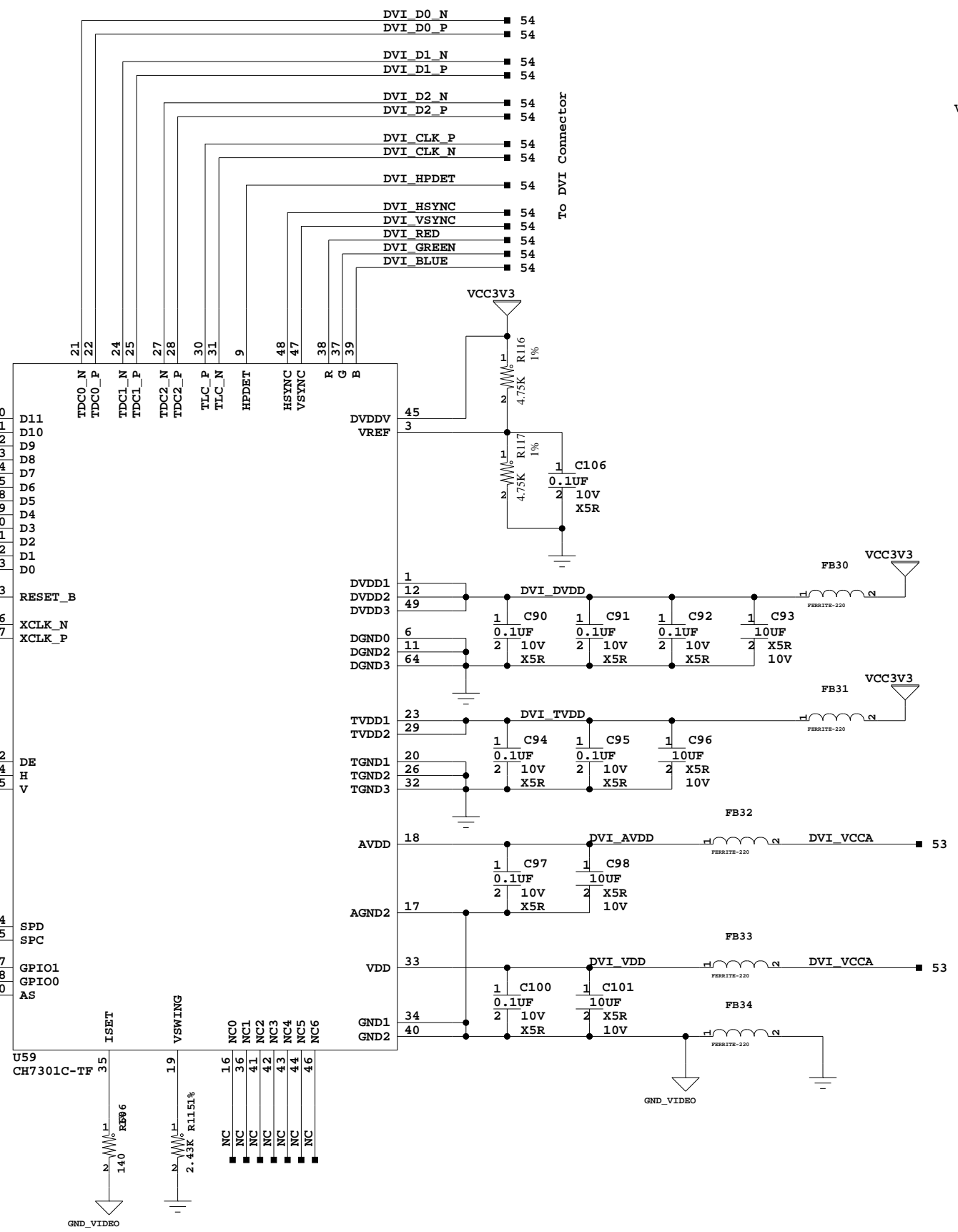
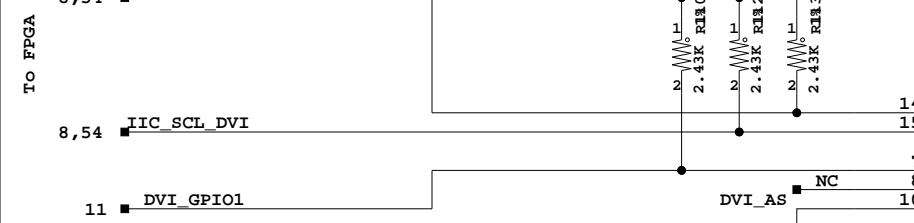
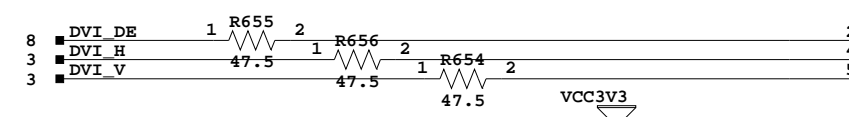
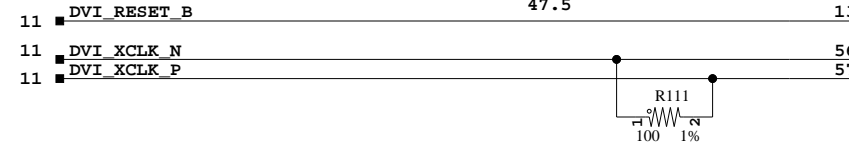
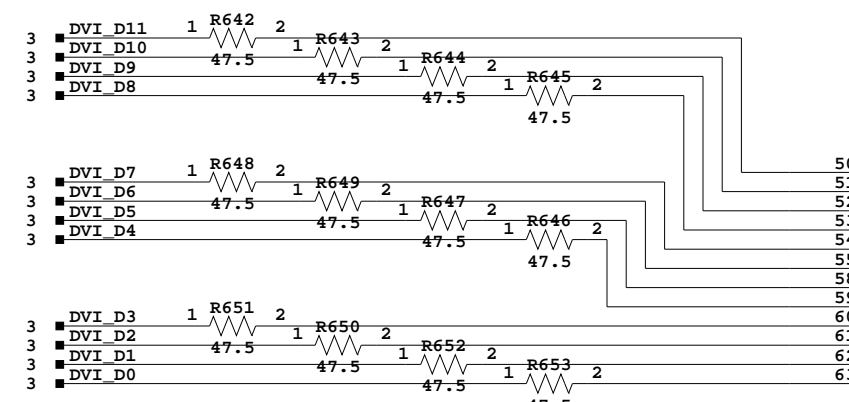
Title: SCHEM, ROHS COMPLIANT, ML510 VIRTEX-5 EVAL PLAFORM  
PERSONALITY MODULE CONNECTORS

Date: 8-1-2008\_15:08 Ver: C

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Place termination RPs near U37



IIC Address = 0x76

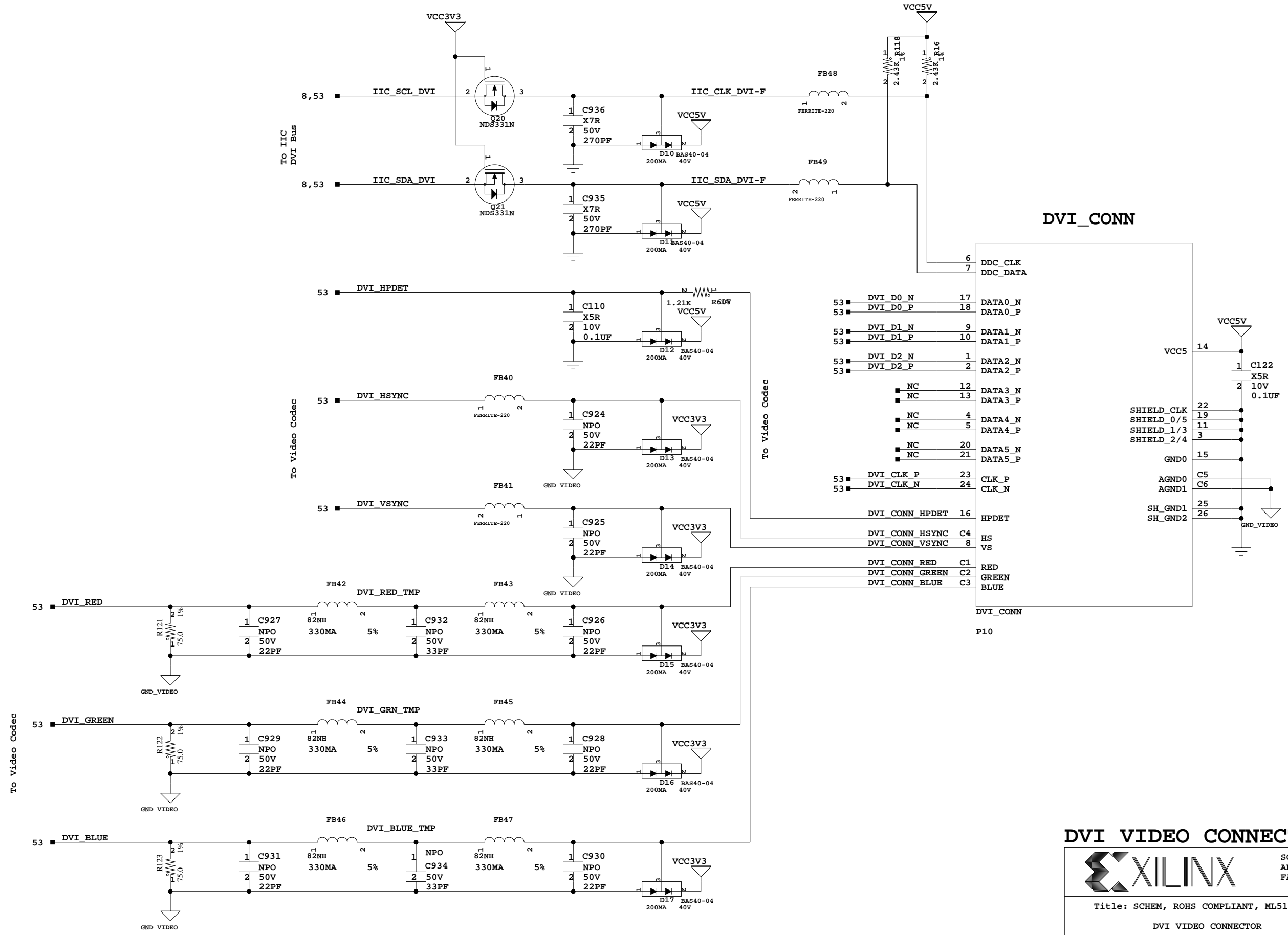
### DVI CODEC



SCH P/N 0381255  
 ART P/N 0532059  
 FAB P/N 1280432

Title: SCHEM, ROHS COMPLIANT, ML510 VIRTEX-5 EVAL PLAFORM  
 DVI CODEC

Date:	8-1-2008_15:08	Ver:	C
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### DVI VIDEO CONNECTOR

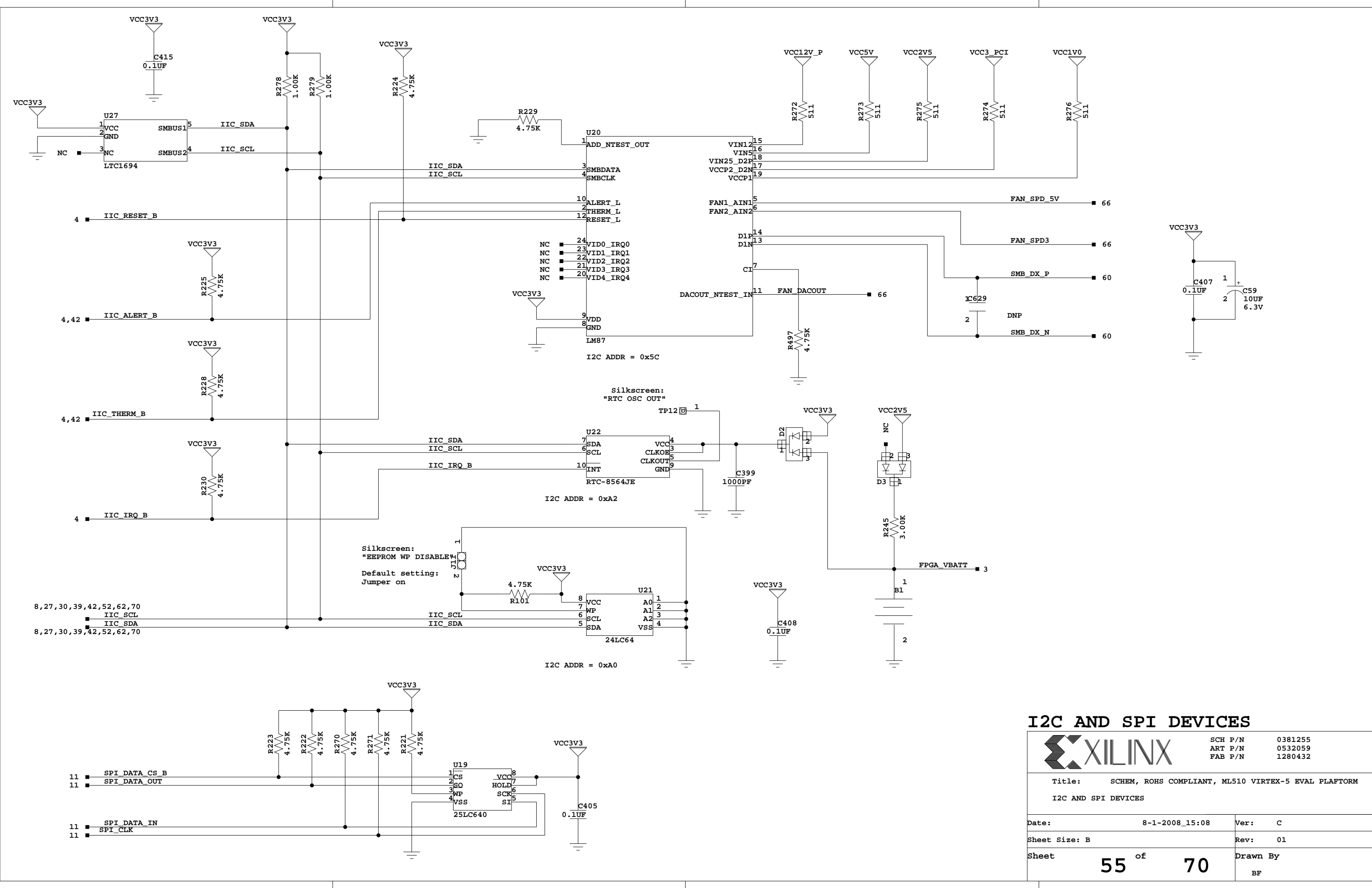


SCH P/N 0381255  
 ART P/N 0532059  
 FAB P/N 1280432


Title: SCHEM, ROHS COMPLIANT, ML510 VIRTEX-5 EVAL PLAFRTORM

DVI VIDEO CONNECTOR

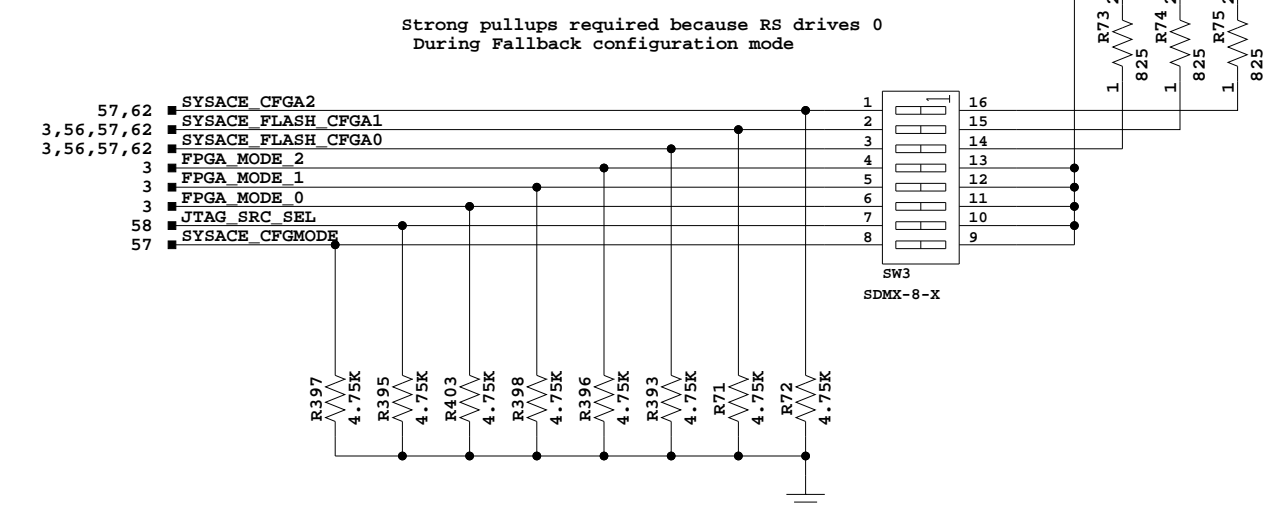
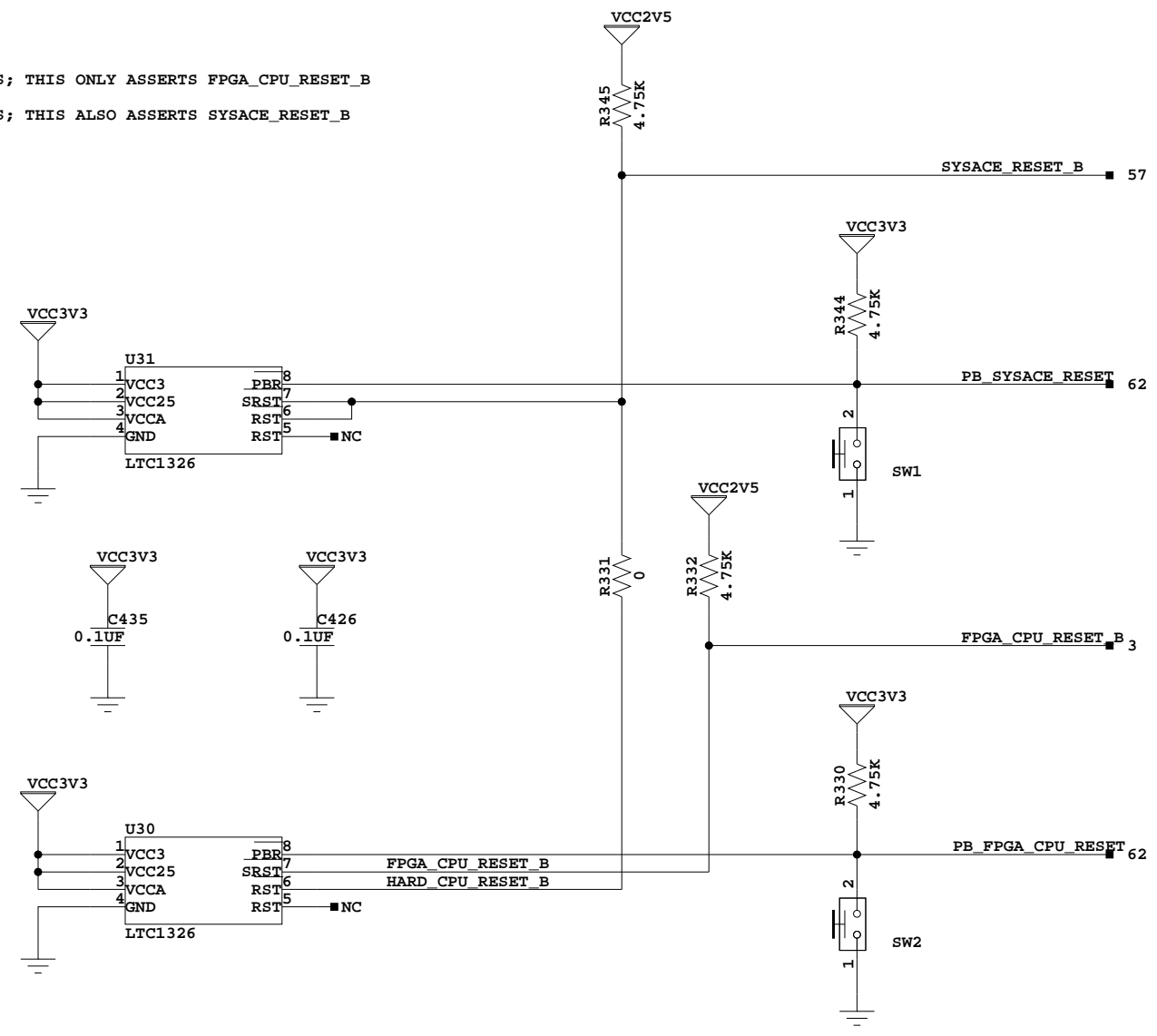
Date:	7-10-2008_10:19	Ver:	C
Sheet Size:	B	Rev:	01
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### I2C AND SPI DEVICES

		SCH P/N	0381255
		ART P/N	0532059
		FAB P/N	1280432
Title: SCHEM, ROHS COMPLIANT, ML510 VIRTEX-5 EVAL PLAFORM			
I2C AND SPI DEVICES			
Date:	8-1-2008_15:08	Ver:	C
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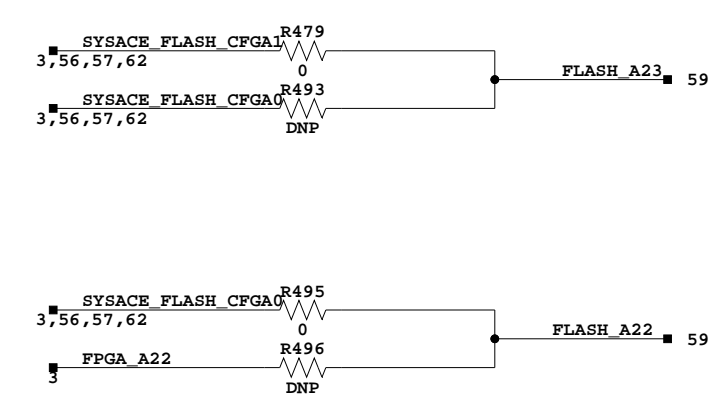
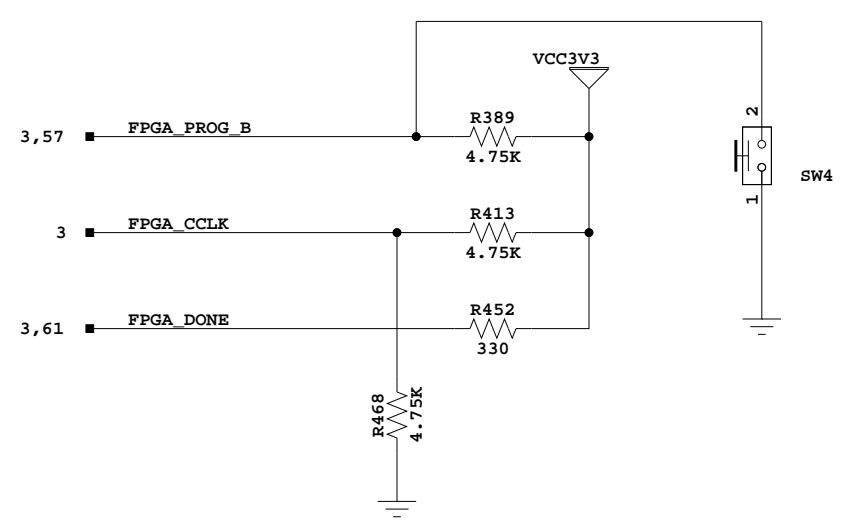
IF SW2 PRESSED < 2S; THIS ONLY ASSERTS FPGA\_CPU\_RESET\_B  
 IF SW2 PRESSED > 2S; THIS ALSO ASSERTS SYSACE\_RESET\_B




### BPI Flash Addressing Scheme

	FPGA (U37) BPI Addr Pin	Schematic Net Name	Net Connection After Jumping	Parallel Flash (U43) Addr Pin	
4 x 64 Mbit Revisions	RS1 (U37.AK12)	SYSAC_FLASH_CFG1	FLASH_A23	R479-0ohm; R493-DNP	A24 (U43.26)
	RS0 (U37.AK13)	SYSAC_FLASH_CFG0	FLASH_A22	R495-0ohm; R496-DNP	A23 (U43.9)
	A22 (U37.AK14)	FPGA_A22	no connect		no connect
2 x 128 Mbit Revisions	RS1 (U37.AK12)	SYSAC_FLASH_CFG1	no connect	R479-DNP; R493-0ohm	no connect
	RS0 (U37.AK13)	SYSAC_FLASH_CFG0	FLASH_A23	R495-DNP; R496-0ohm	A24 (U43.26)
	A22 (U37.AK14)	FPGA_A22	FLASH_A22		A23 (U43.9)
Any Address Mode	A[21:0] (U37)	FLASH_A[21:0]	FLASH_A[21:0] N/A	A[22:1] (U43)	

Note: See the ML510 User Guide for more details about BPI Flash



## FPGA CONFIG, RESET, AND MISC I/O



SCH P/N 0381255  
 ART P/N 0532059  
 FAB P/N 1280432

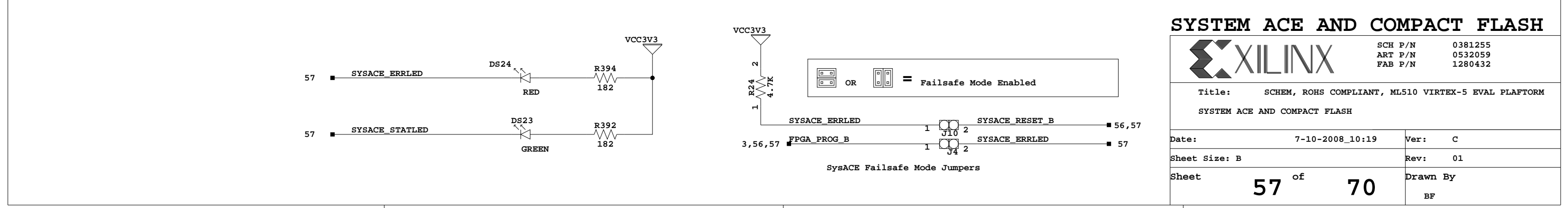
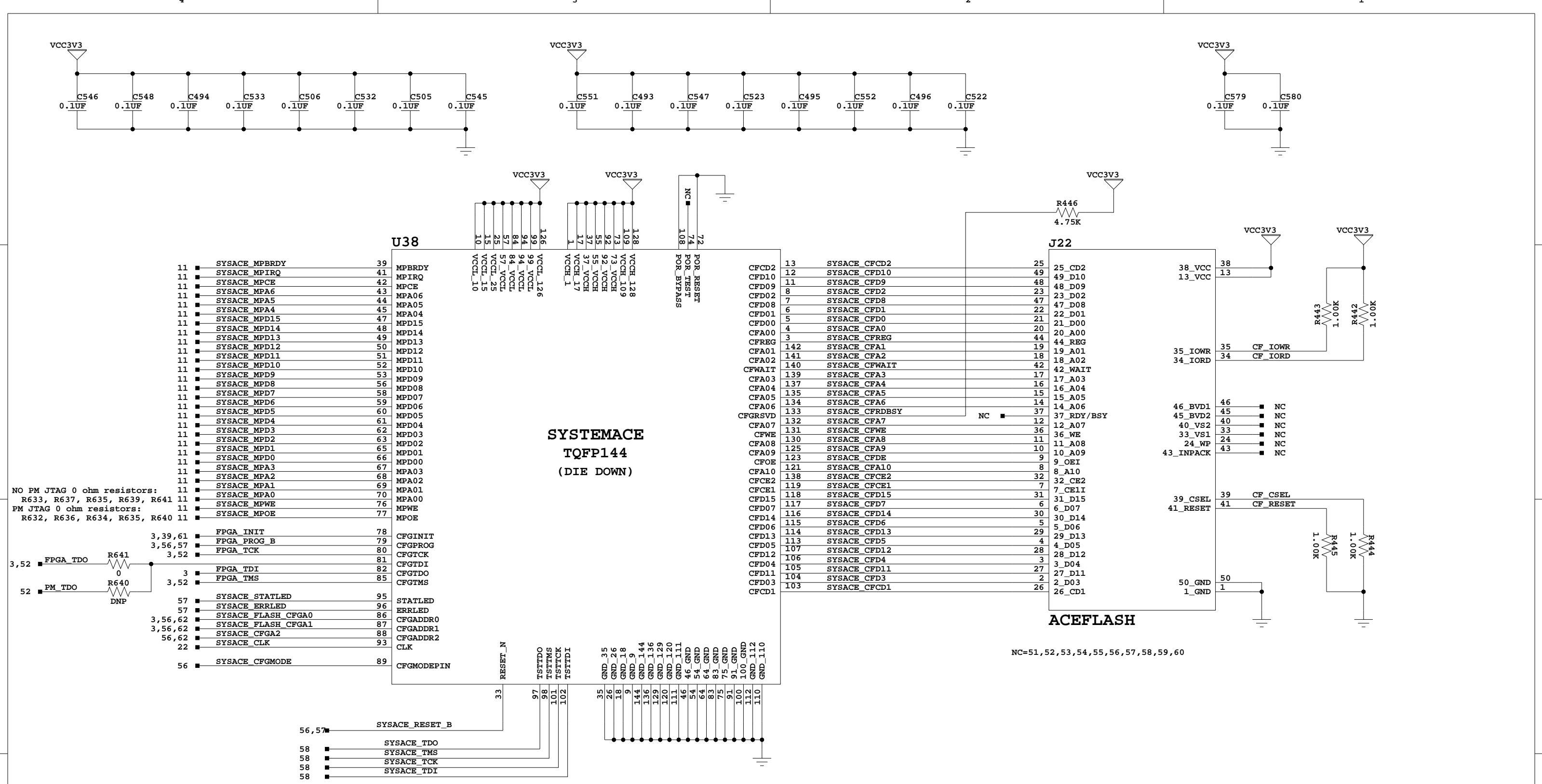
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Title: SCHEM, ROHS COMPLIANT, ML510 VIRTEX-5 EVAL PLAFORM  
 FPGA CONFIG, RESET, AND MISC I/O

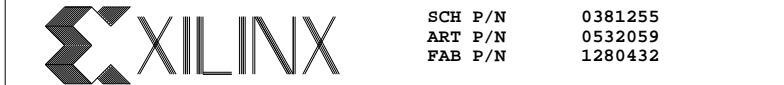
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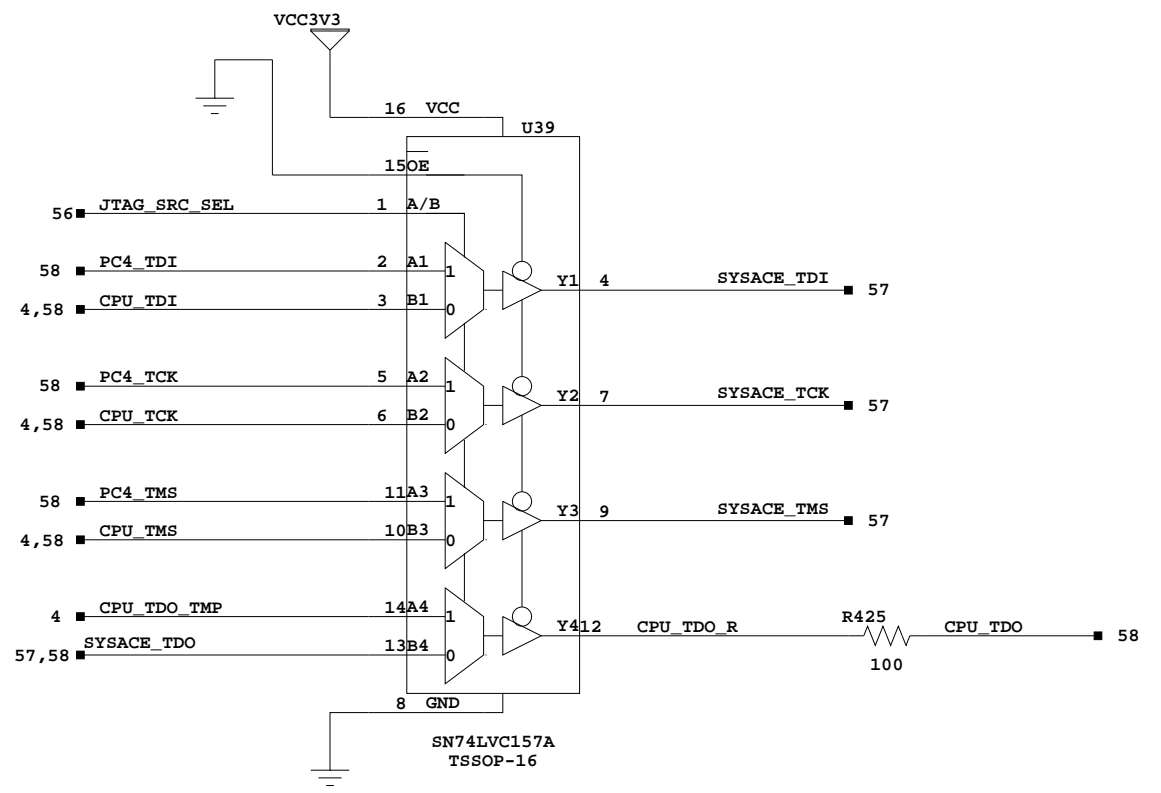
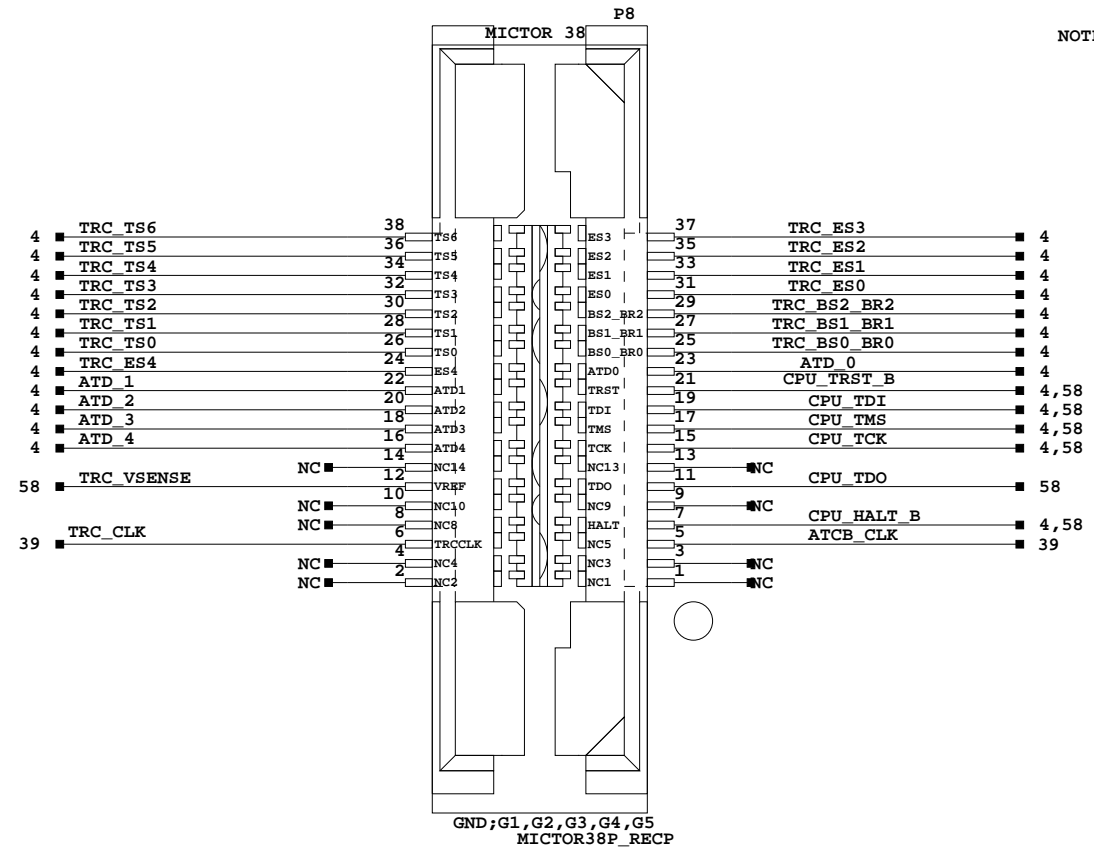
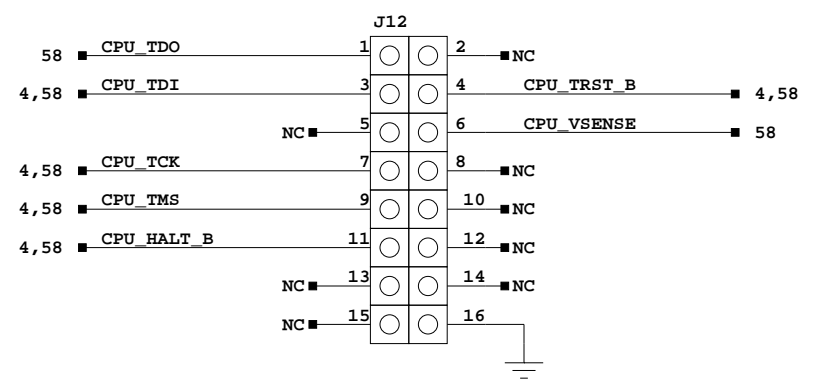
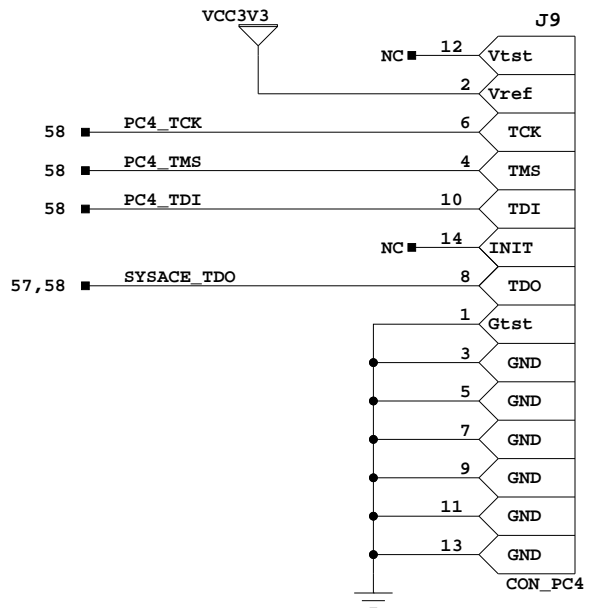
# SYSTEM ACE AND COMPACT FLASH



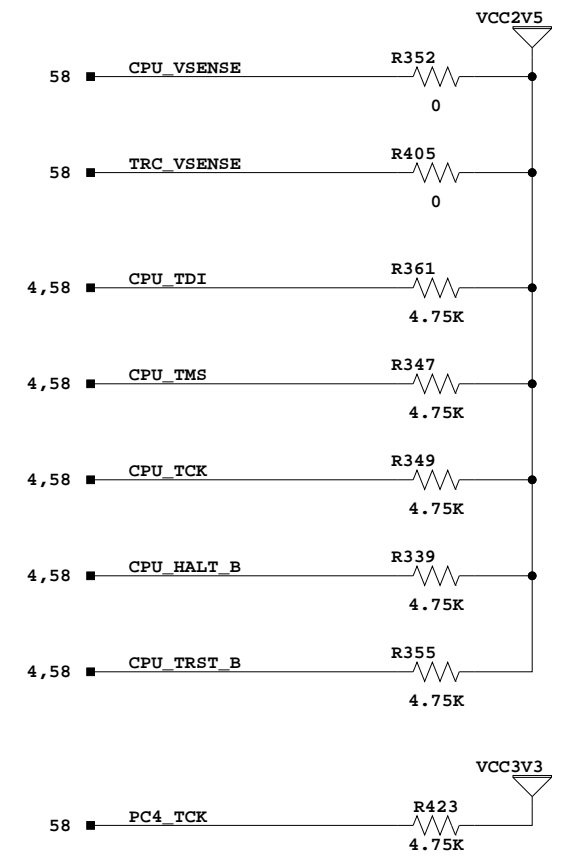
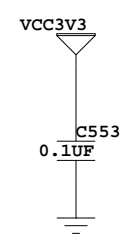
SCH P/N 0381255  
ART P/N 0532059  
FAB P/N 1280432

Title: SCHEM, ROHS COMPLIANT, ML510 VIRTEX-5 EVAL PLATFOM  
SYSTEM ACE AND COMPACT FLASH

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NOTE: THIS MUX INTRODUCES AN IMPLICIT 2.5V TO 3.3V LEVEL-SHIFT FOR THE CPU JTAG SIGNALS. THE SERIES RESISTOR ON CPU\_TDO IS INTENDED TO PROVIDE PROTECTION FOR A 2.5V JTAG PROBE.



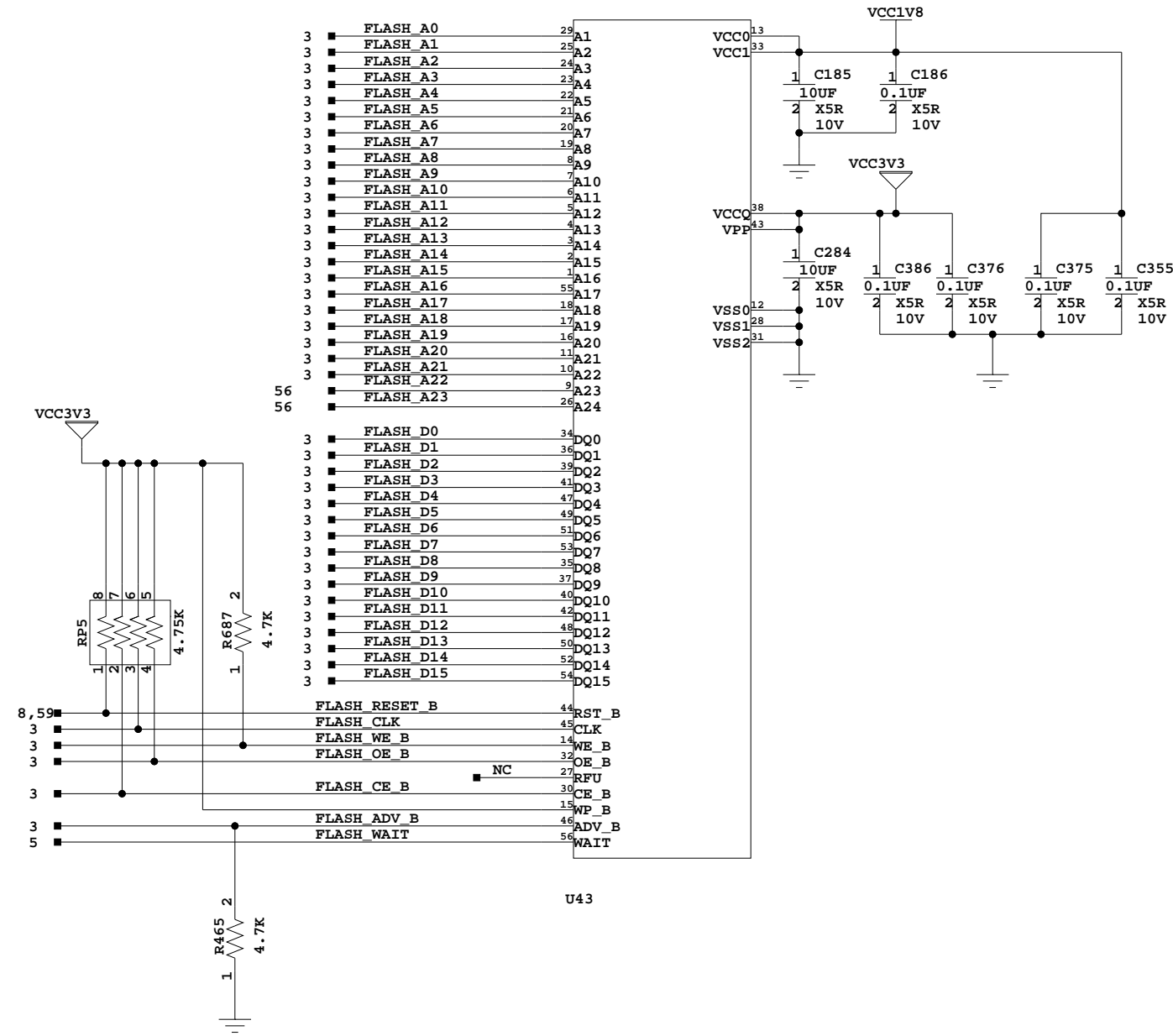
### JTAG, DEBUG, TRACE CONNECTORS



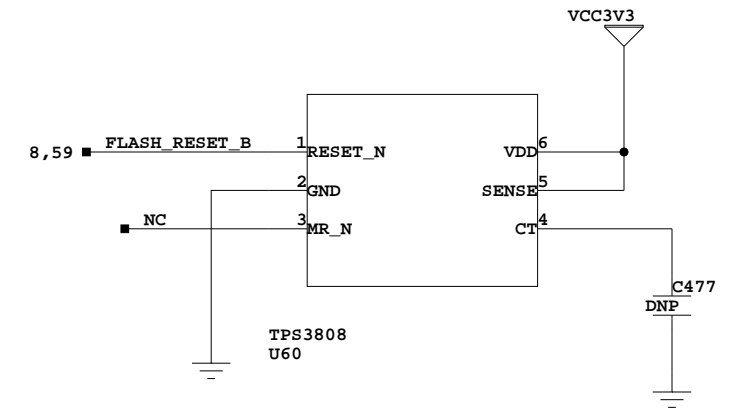
Title: SCHEM, ROHS COMPLIANT, ML510 VIRTEX-5 EVAL PLAFORM  
JTAG, DEBUG, TRACE CONNECTORS

Date:	7-10-2008_10:19	Ver:	C
Sheet Size:	B	Rev:	01
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Silkscreen:  
"Strata FLASH"  
"256 MBit"



Programmable-Delay Supervisor Circuit



$$\langle \text{Cap Value in nF} \rangle = (((\langle \text{DELAY in S} \rangle) - (0.5 * 0.001)) * 175)$$

### SYNC. SRAM FLASH

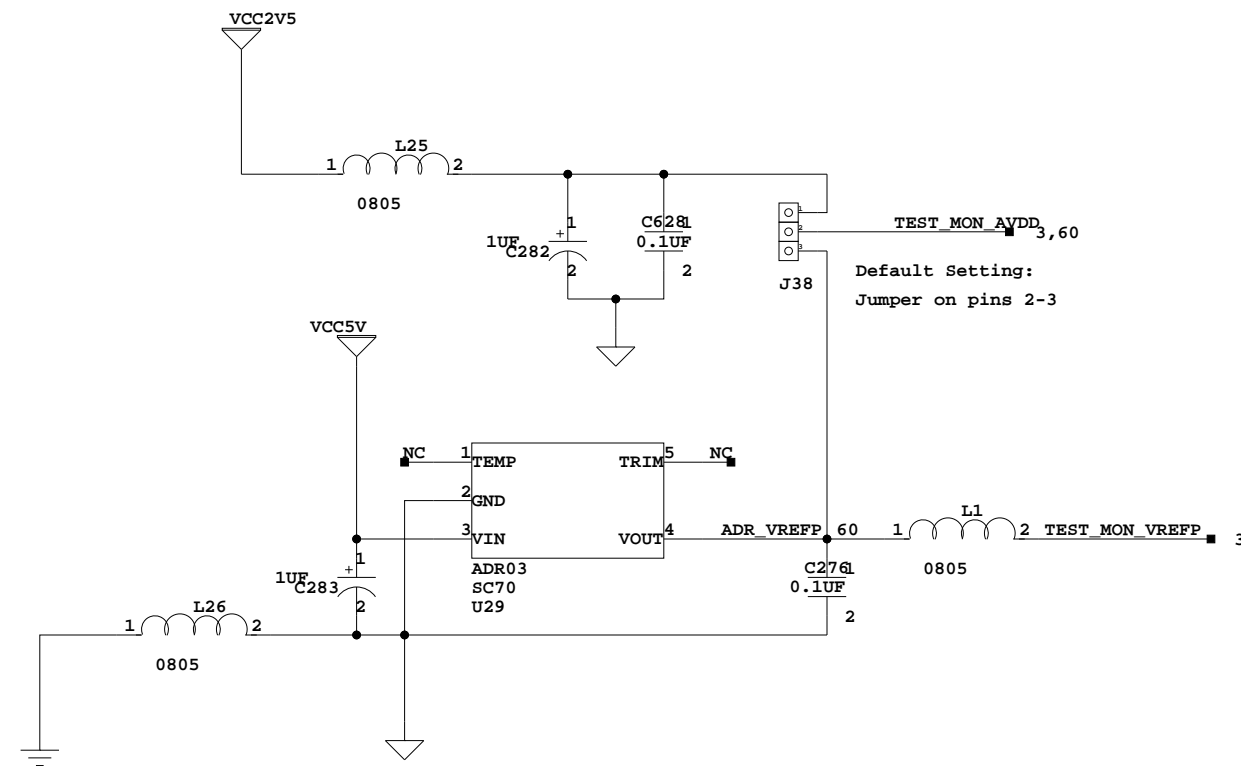


SCH P/N 0381255  
ART P/N 0532059  
FAB P/N 1280432

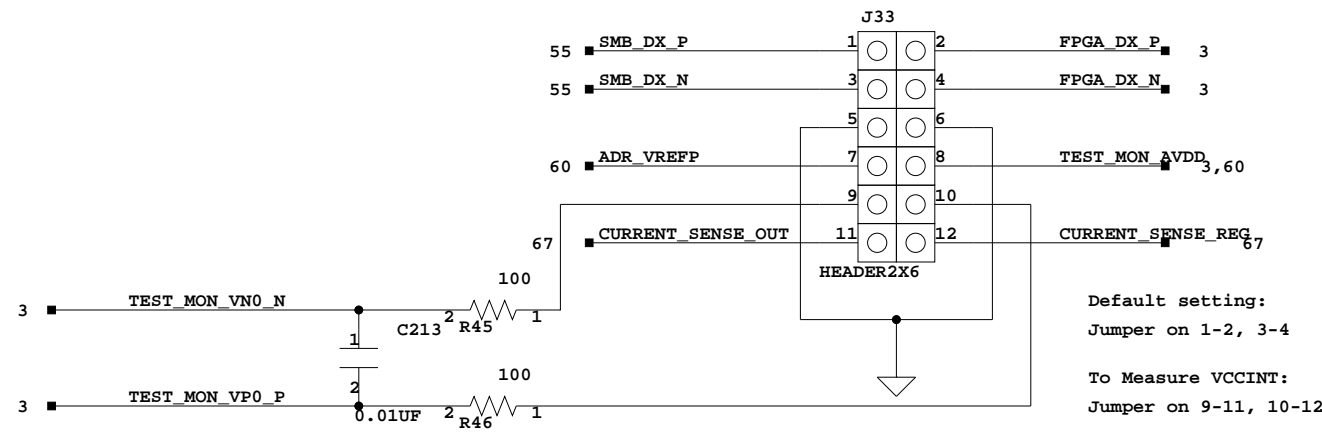
Title: SCHEM, ROHS COMPLIANT, ML510 VIRTEX-5 EVAL PLAFORM

SYNC. SRAM FLASH

Date:	8-1-2008_15:08	Ver:	C
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System Monitor Header for probing



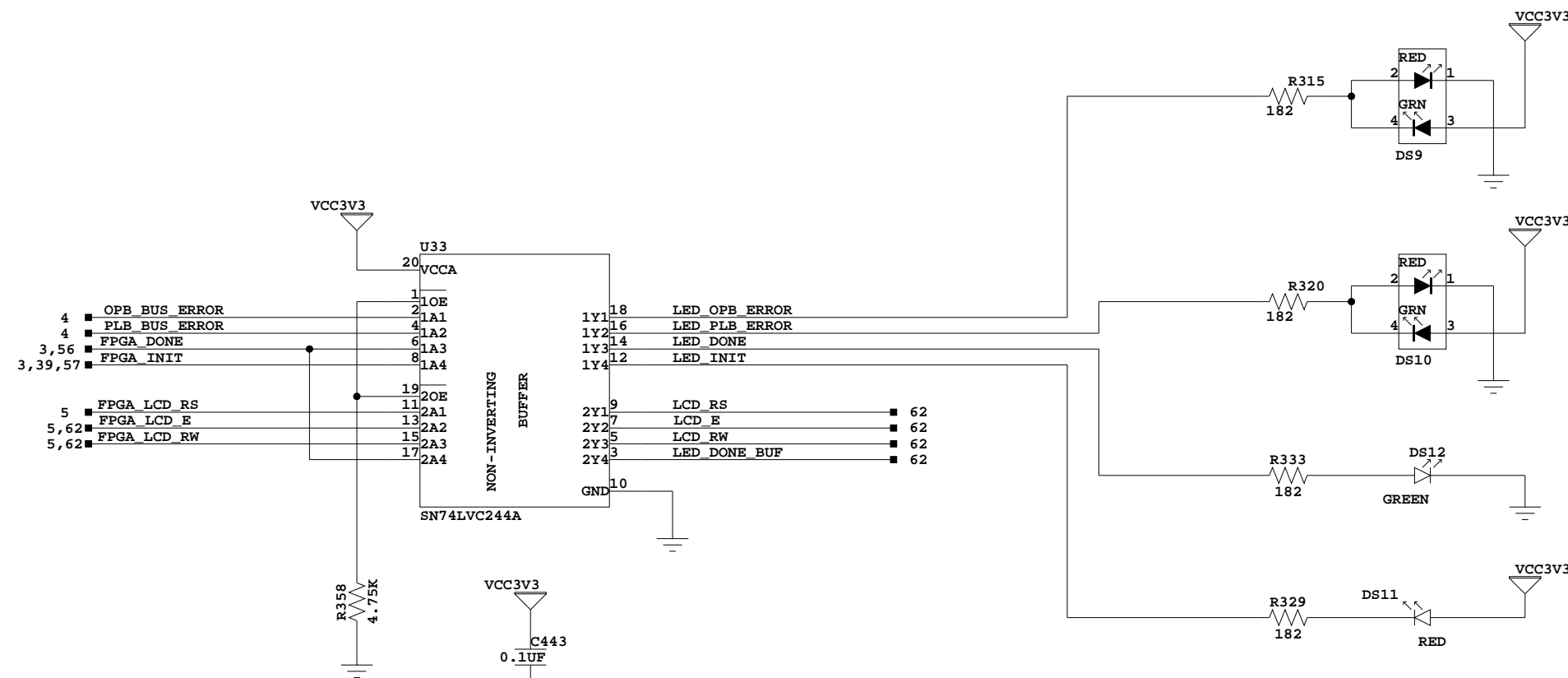
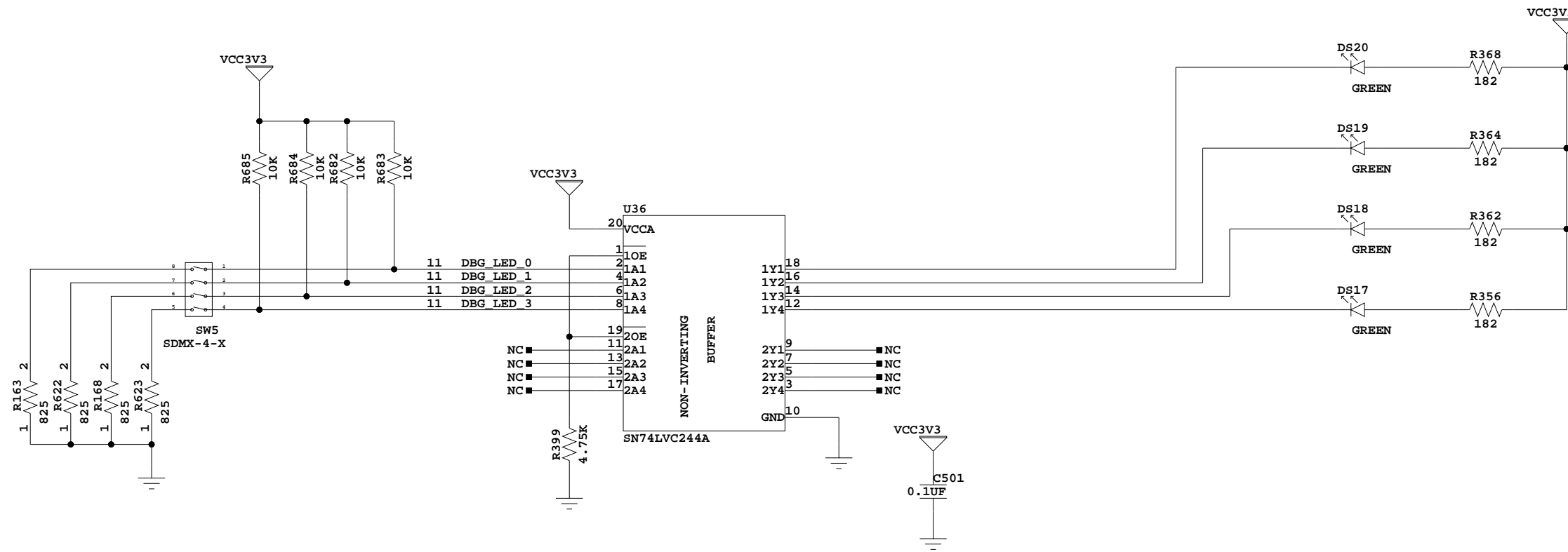
place 100 ohm resistors and 0.01 cap near FPGA

### SYSMON HEADER / AVDD VREFP SUPPLY

	SCH P/N	0381255
	ART P/N	0532059
	FAB P/N	1280432

Title: SCHEM, ROHS COMPLIANT, ML510 VIRTEX-5 EVAL PLAFORM  
SYS MONITOR HEADER / FPGA AVDD VREFP SUPPLY

Date:	8-1-2008_15:09	Ver:	C
Sheet Size:	B	Rev:	01
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## DEBUG AND STATUS LEDS



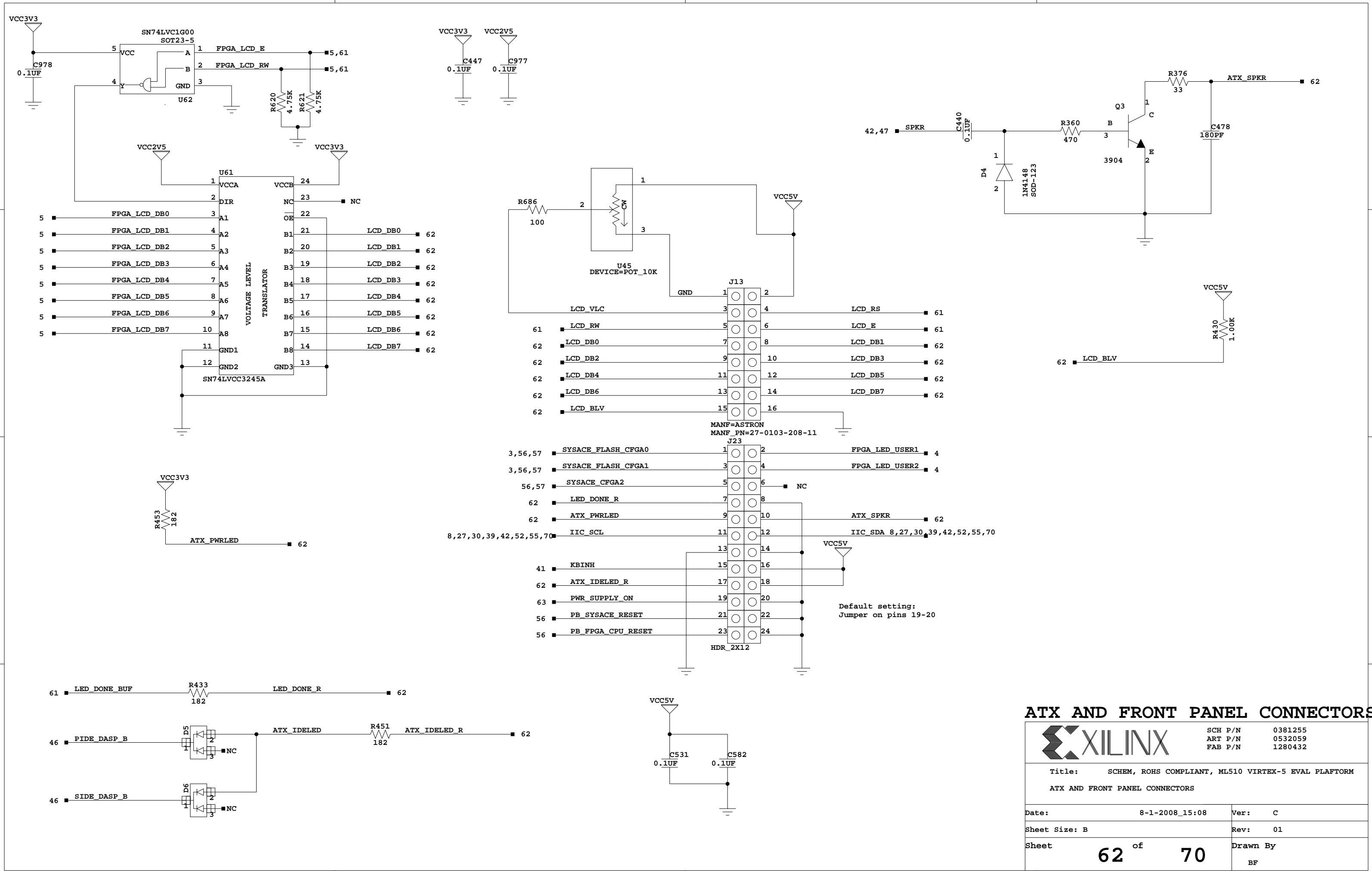
SCH P/N 0381255  
 ART P/N 0532059  
 FAB P/N 1280432

Title: SCHEM, ROHS COMPLIANT, ML510 VIRTEX-5 EVAL PLATFOrm  
 DEBUG AND STATUS LEDS

Date: 8-1-2008\_15:08 Ver: C

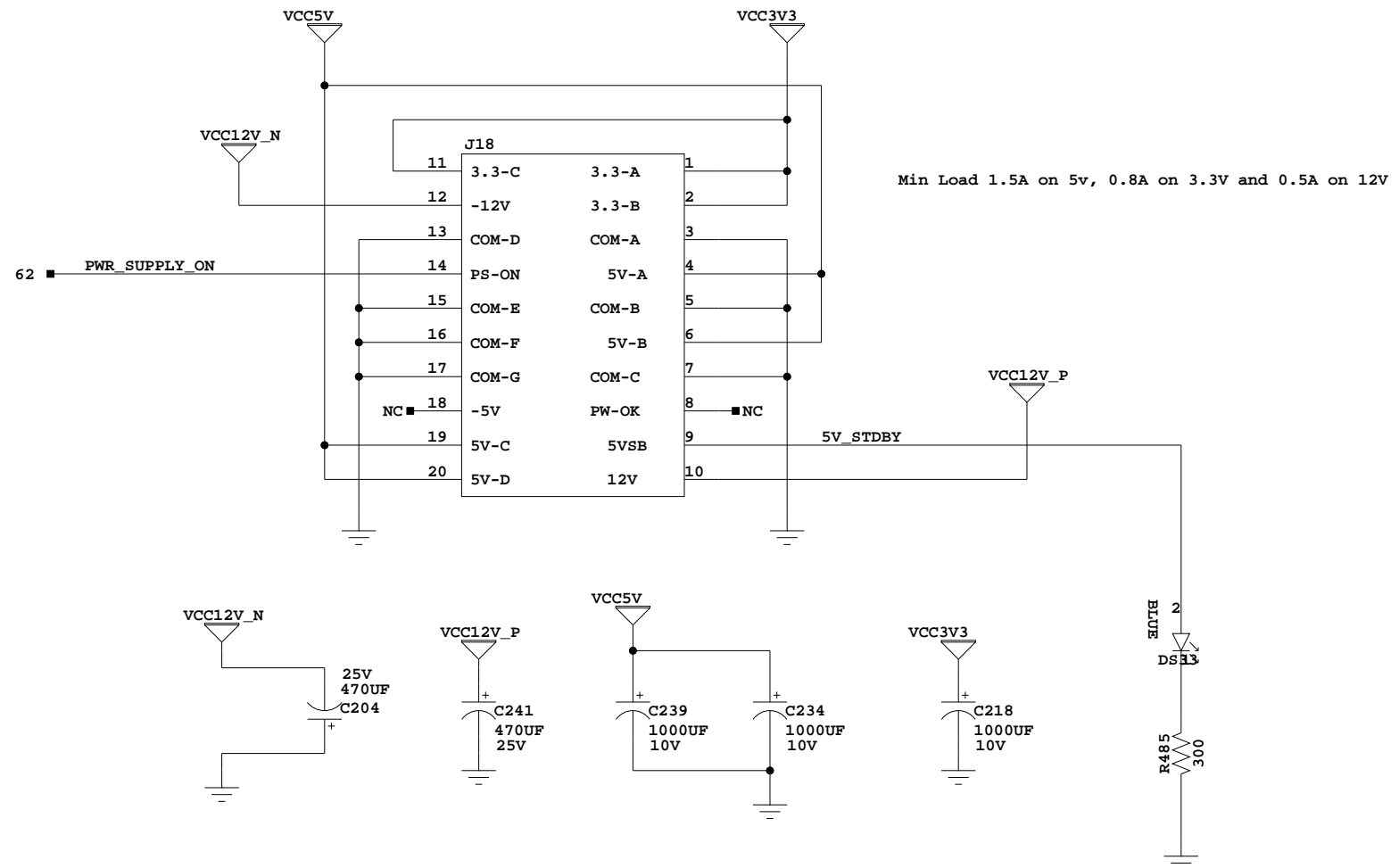
Sheet Size: B Rev: 01

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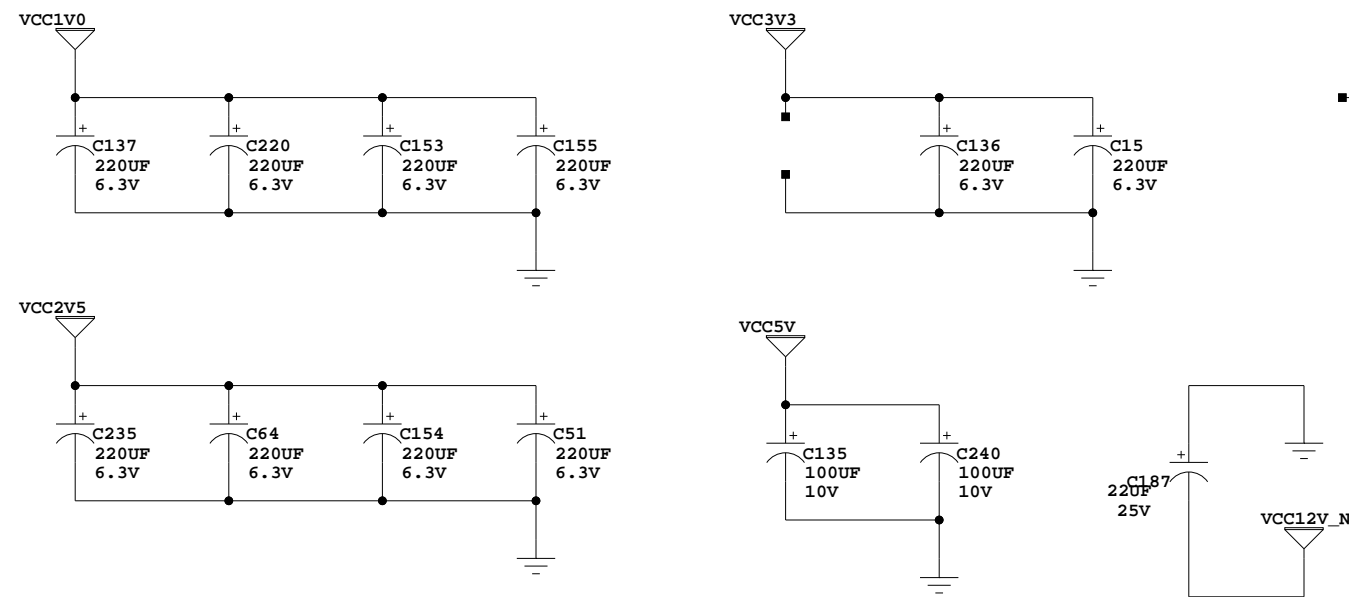
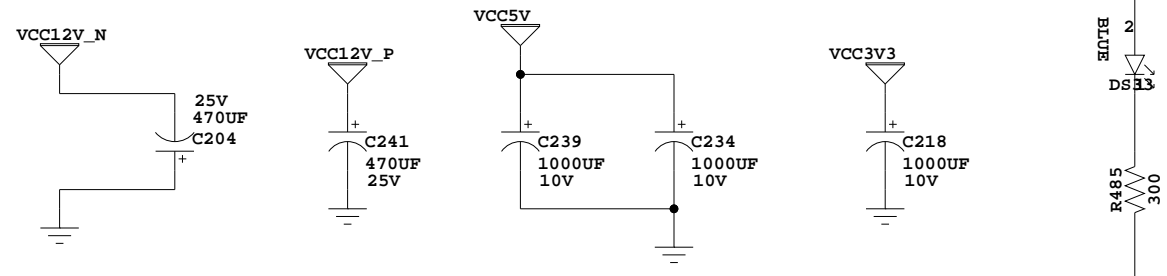


## ATX AND FRONT PANEL CONNECTORS

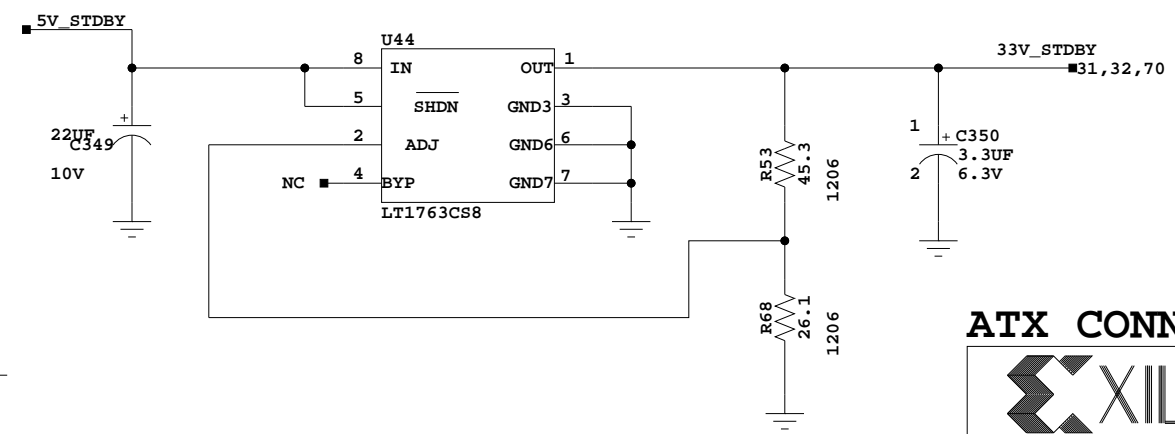
	SCH P/N 0381255	ART P/N 0532059
	FAB P/N 1280432	
Title: SCHEM, ROHS COMPLIANT, ML510 VIRTEX-5 EVAL PLAFORM ATX AND FRONT PANEL CONNECTORS		
Date: 8-1-2008_15:08	Ver: C	
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	BF	



### ATX Power Connector



BULK CAPS DISTRIBUTED AROUND BOARD.

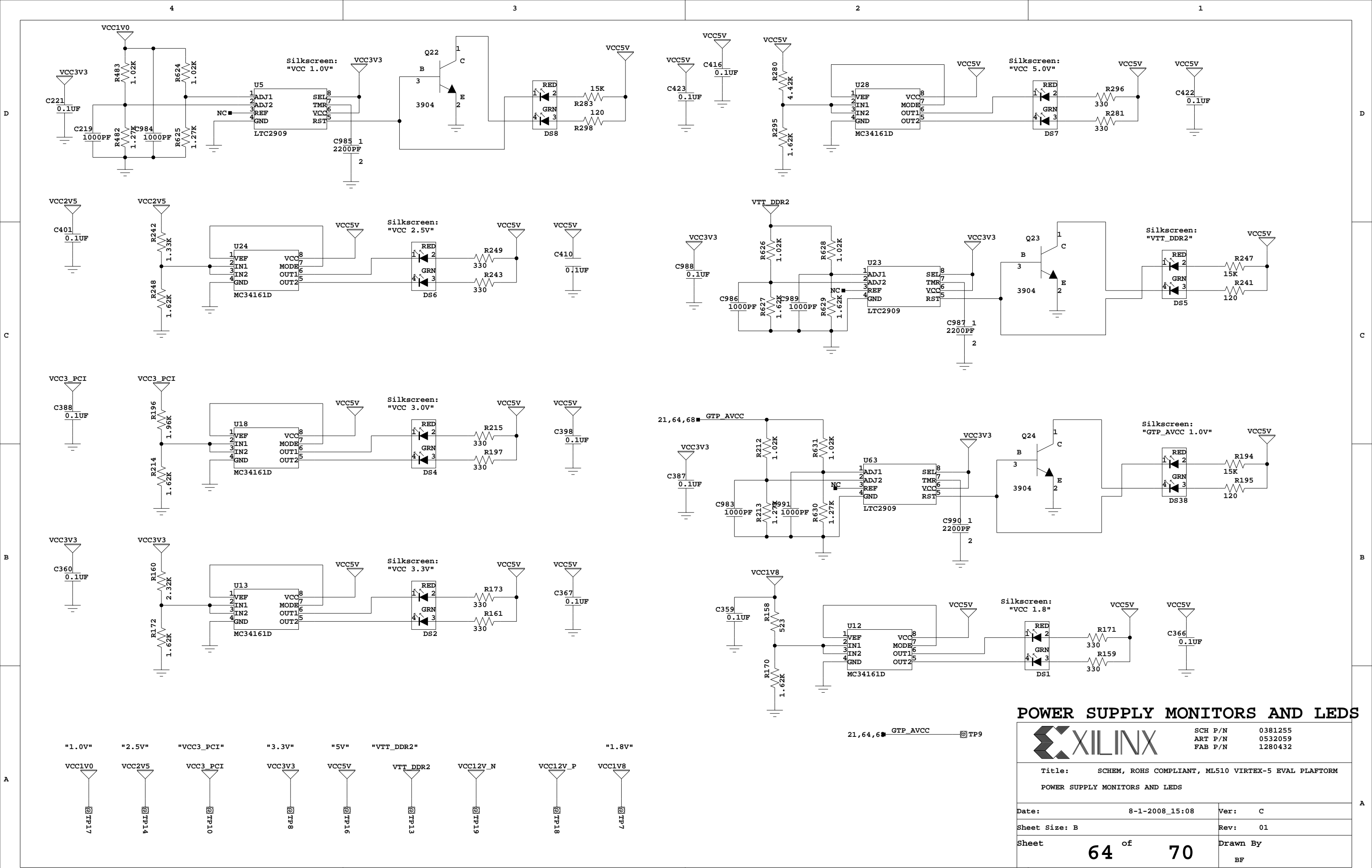


### ATX CONNECTOR, PWR TOGGLE

	SCH P/N	0381255
	ART P/N	0532059
	FAB P/N	1280432

Title: SCHEM, ROHS COMPLIANT, ML510 VIRTEX-5 EVAL PLAFORM  
ATX CONNECTOR, PWR TOGGLE AND HEADER

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**POWER SUPPLY MONITORS AND LEDs**

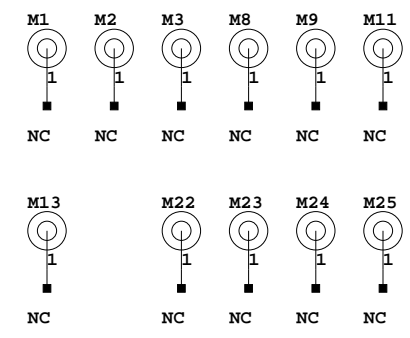
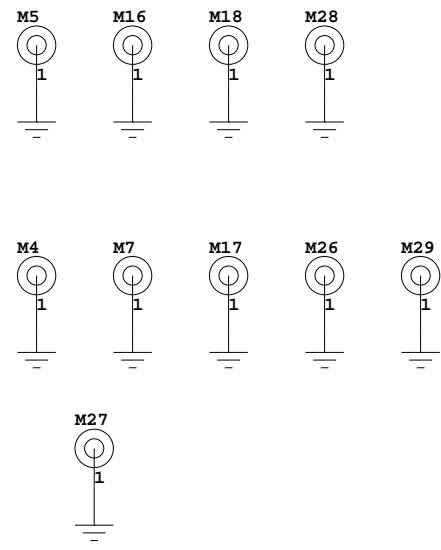
**XILINX** SCH P/N 0381255  
 ART P/N 0532059  
 FAB P/N 1280432

Title: SCHEM, ROHS COMPLIANT, ML510 VIRTEX-5 EVAL PLAFORM  
 POWER SUPPLY MONITORS AND LEDs

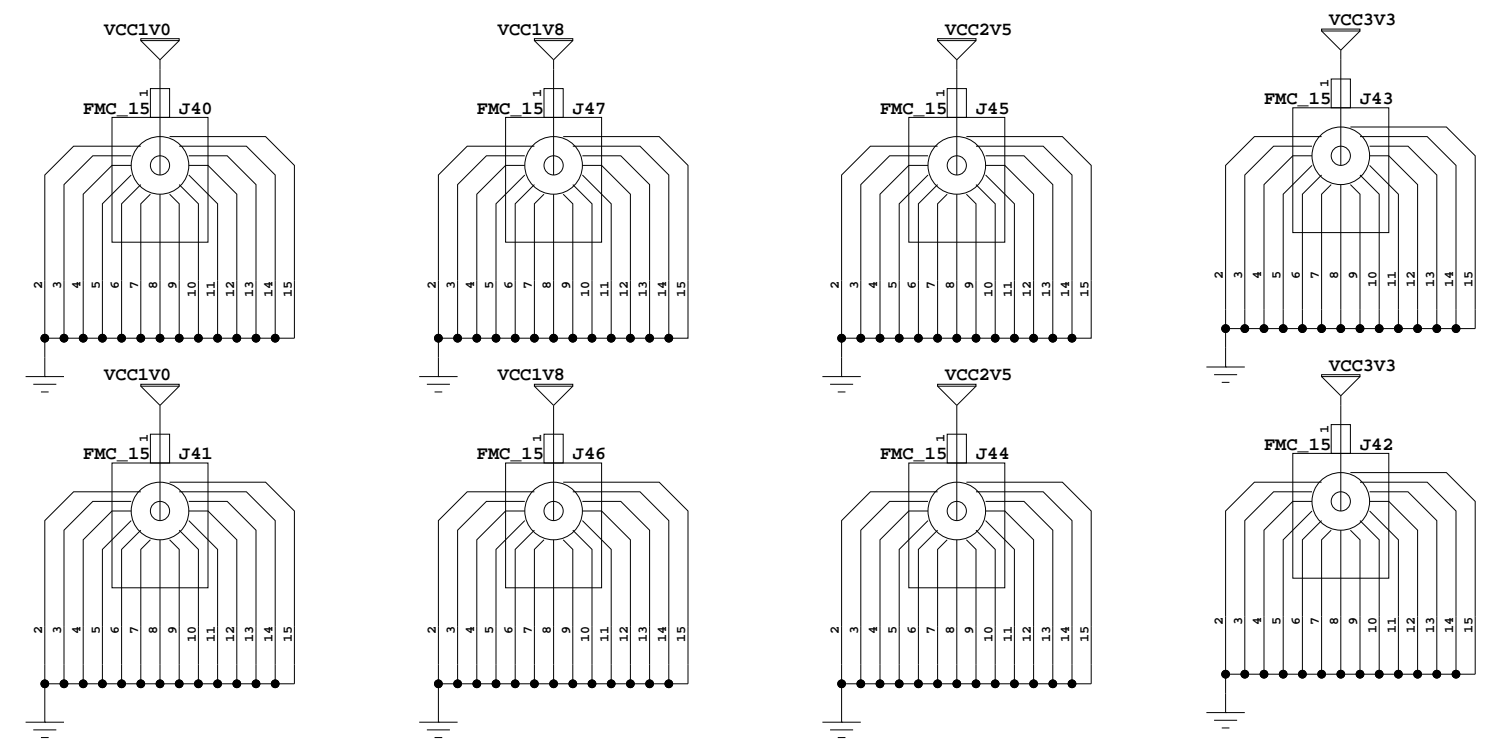
Date:	8-1-2008_15:08	Ver:	C
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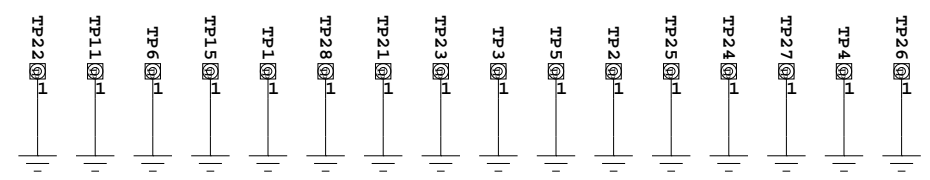
### Mounting holes for ATX Form Factor



### FMC connectors for power supply testing



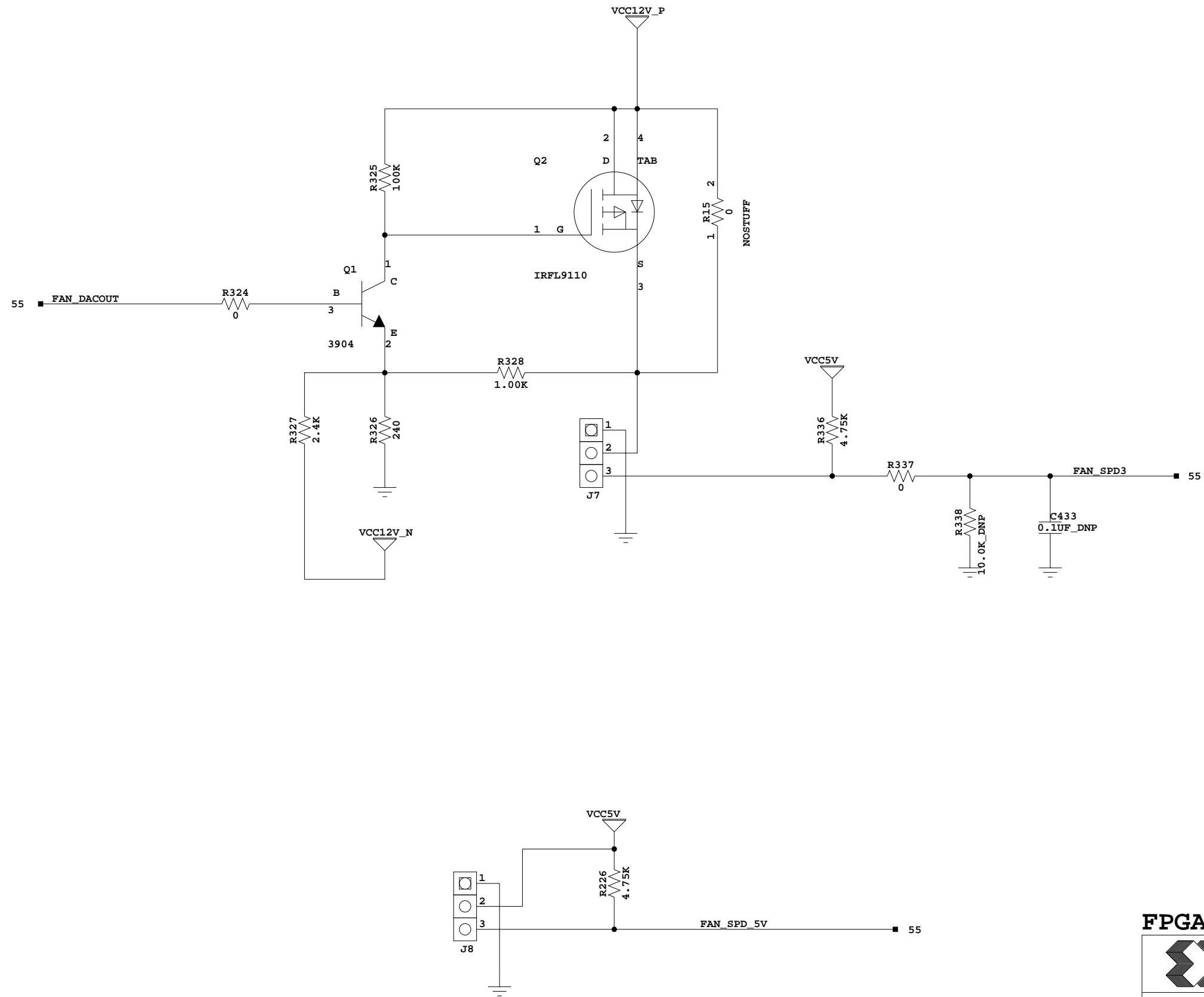
### Spread out on the board.



Silkscreen:  
"GND"

### ATX MOUNTING HOLES / TEST POINTS

	SCH P/N	0381255
	ART P/N	0532059
	FAB P/N	1280432
Title: SCHEM, ROHS COMPLIANT, ML510 VIRTEX-5 EVAL PLAFTRM ATX MOUNTING HOLES AND TEST POINTS		
Date:	8-1-2008_15:08	Ver: C
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## FPGA FAN SWITCH AND TACH

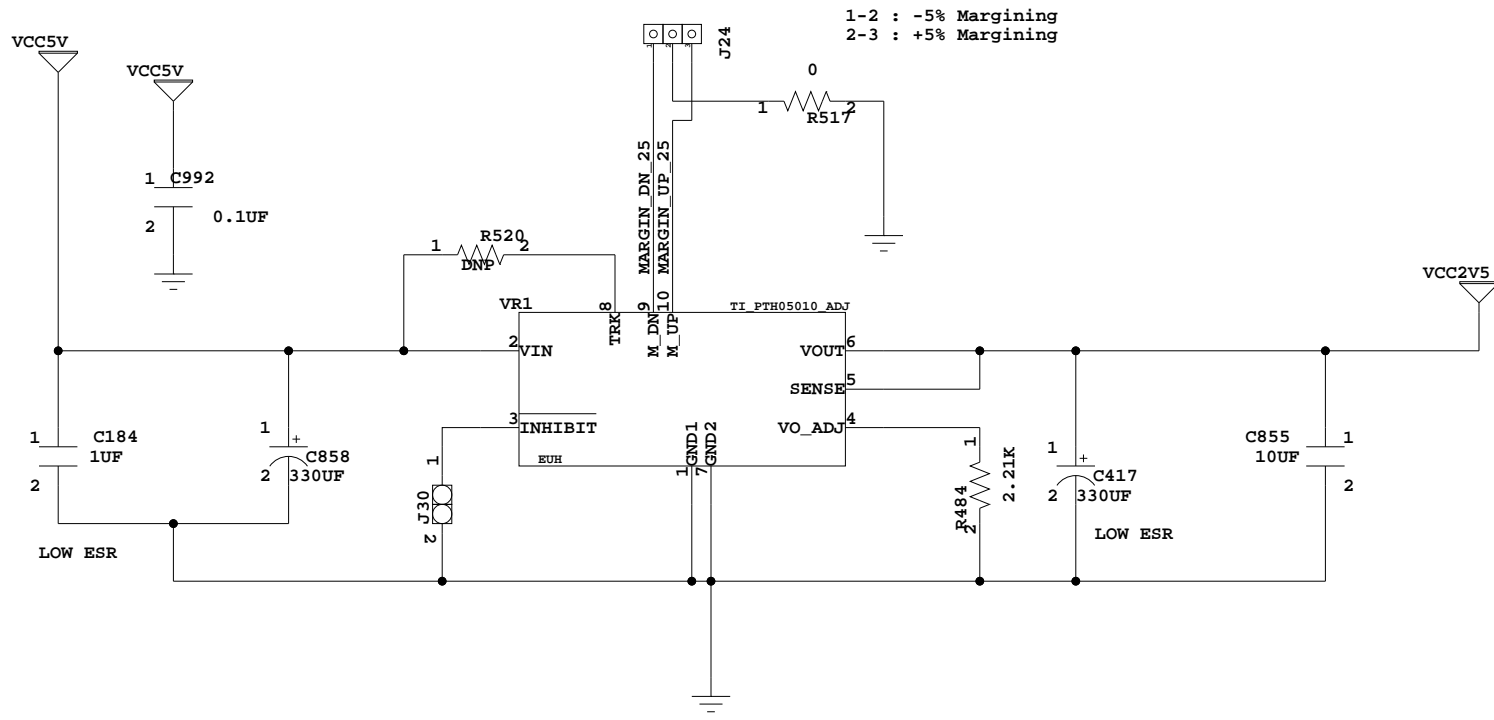


SCH P/N 0381255  
 ART P/N 0532059  
 FAB P/N 1280432

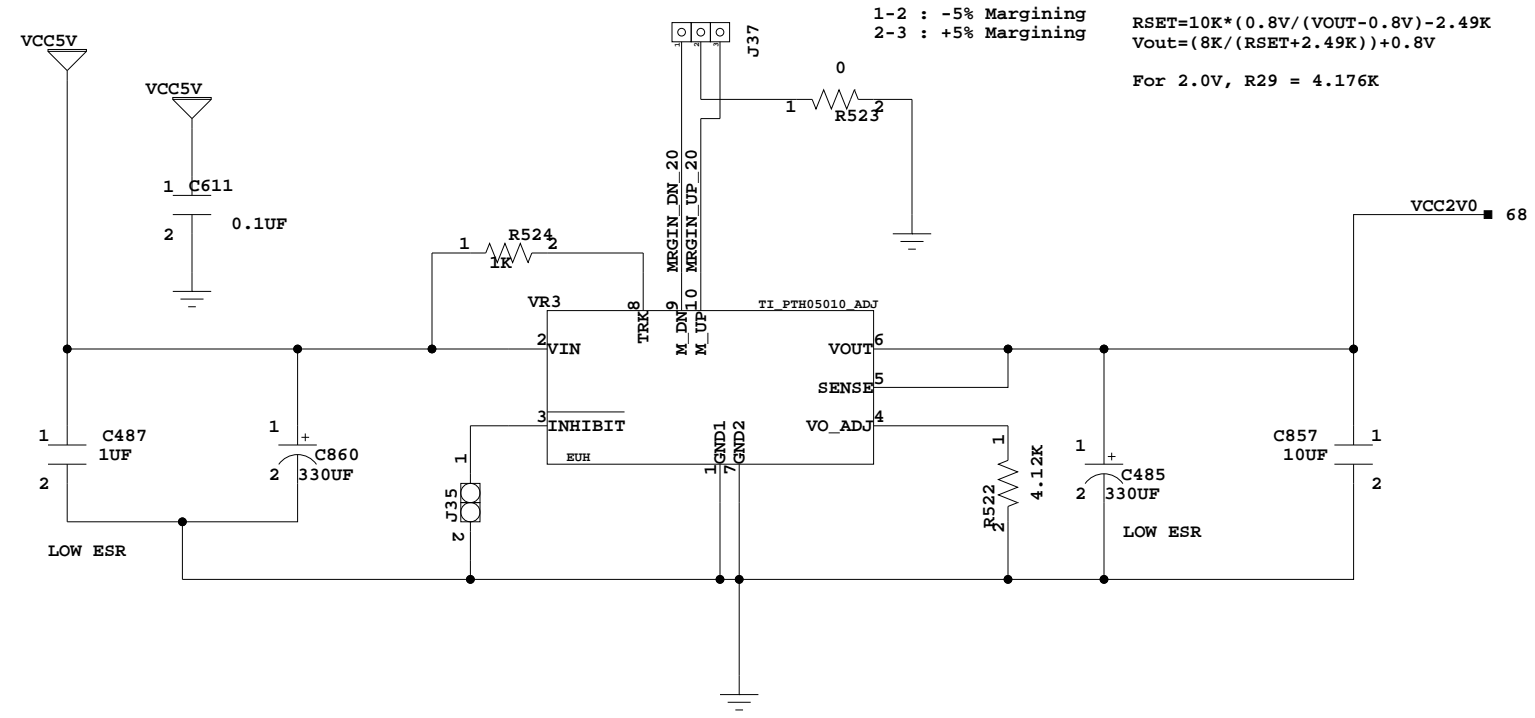
Title: SCHEM, ROHS COMPLIANT, ML510 VIRTEX-5 EVAL PLAFORM  
 FPGA FAN SWITCH AND TACH

Date:	8-1-2008_15:08	Ver:	C
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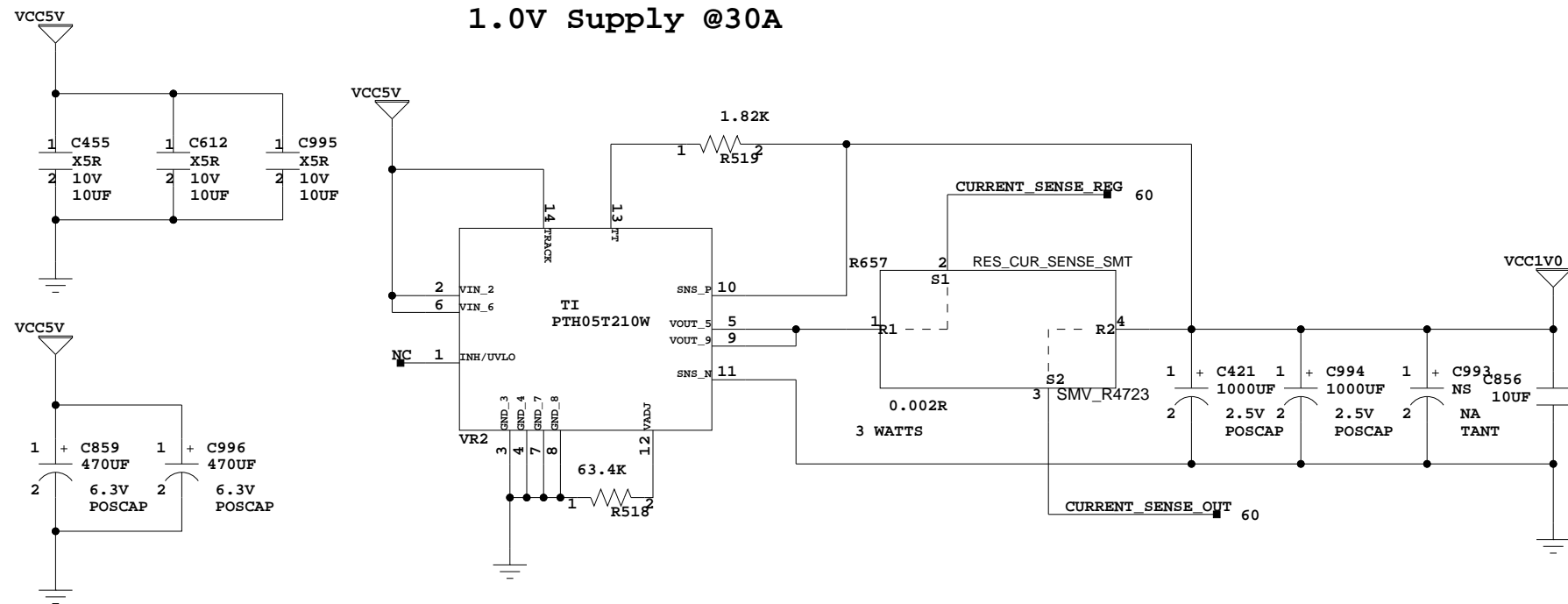
2.5V Supply @15A



2.0V Supply @15A



1.0V Supply @30A



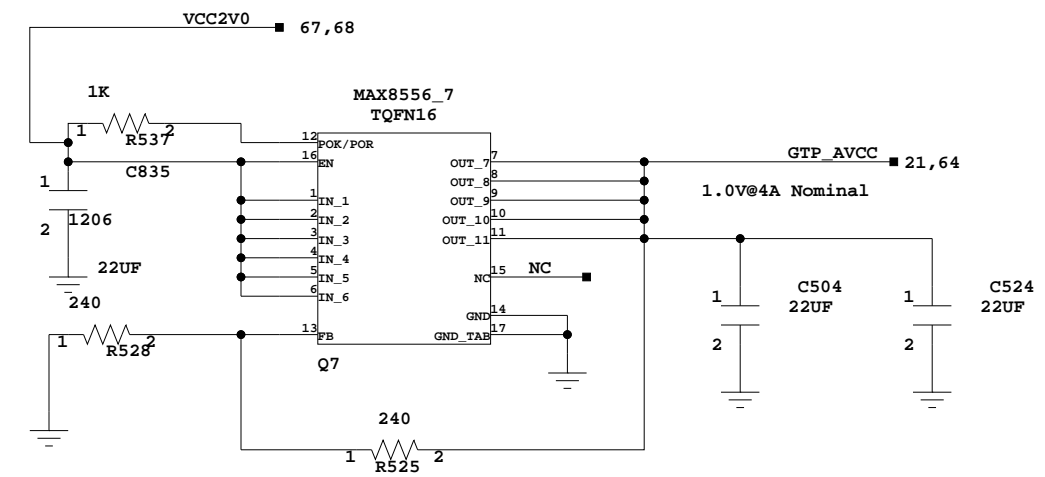
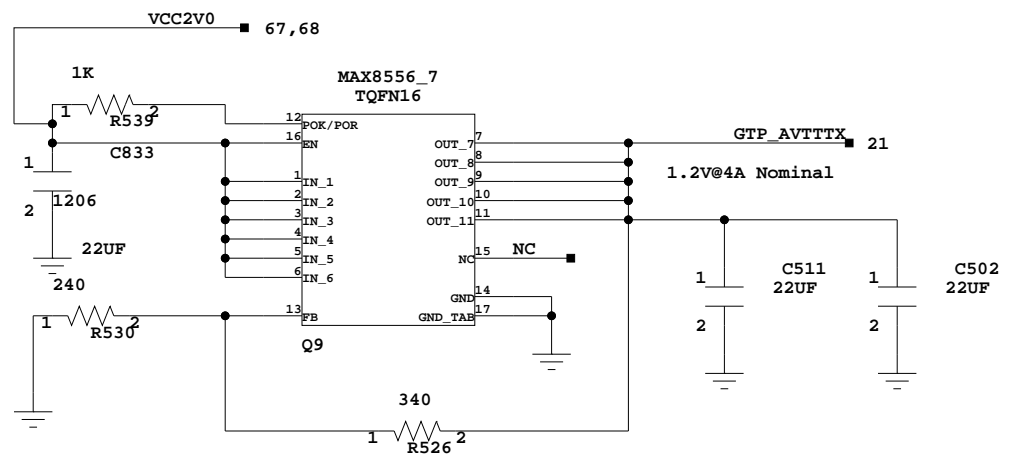
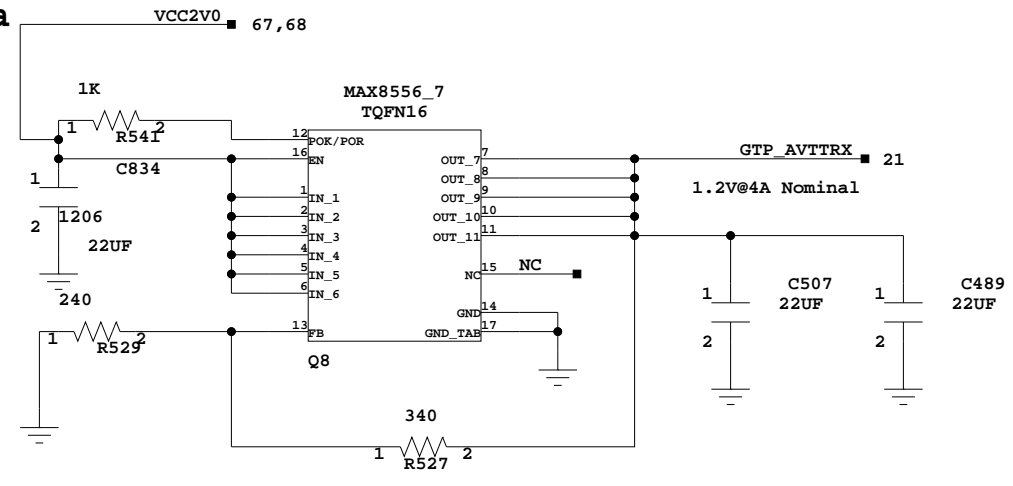
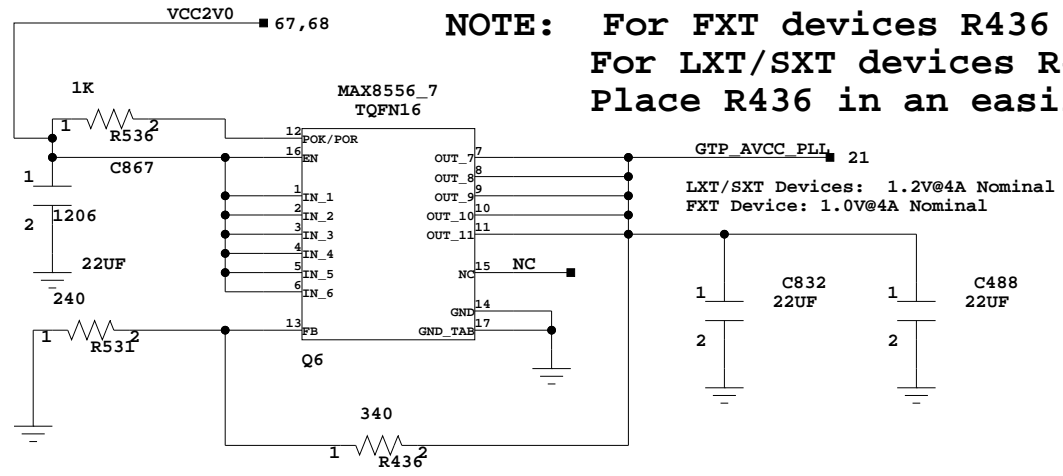
FPGA CORE AND IO VOLTAGE

	SCH P/N	0381255
	ART P/N	0532059
	FAB P/N	1280432

Title: SCHEM, ROHS COMPLIANT, ML510 VIRTEX-5 EVAL PLAFTRM  
FPGA CORE AND IO VOLTAGE

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**NOTE: For FXT devices R436 must be 240 ohms  
 For LXT/SXT devices R436 should be 340 ohms  
 Place R436 in an easily accessible area**



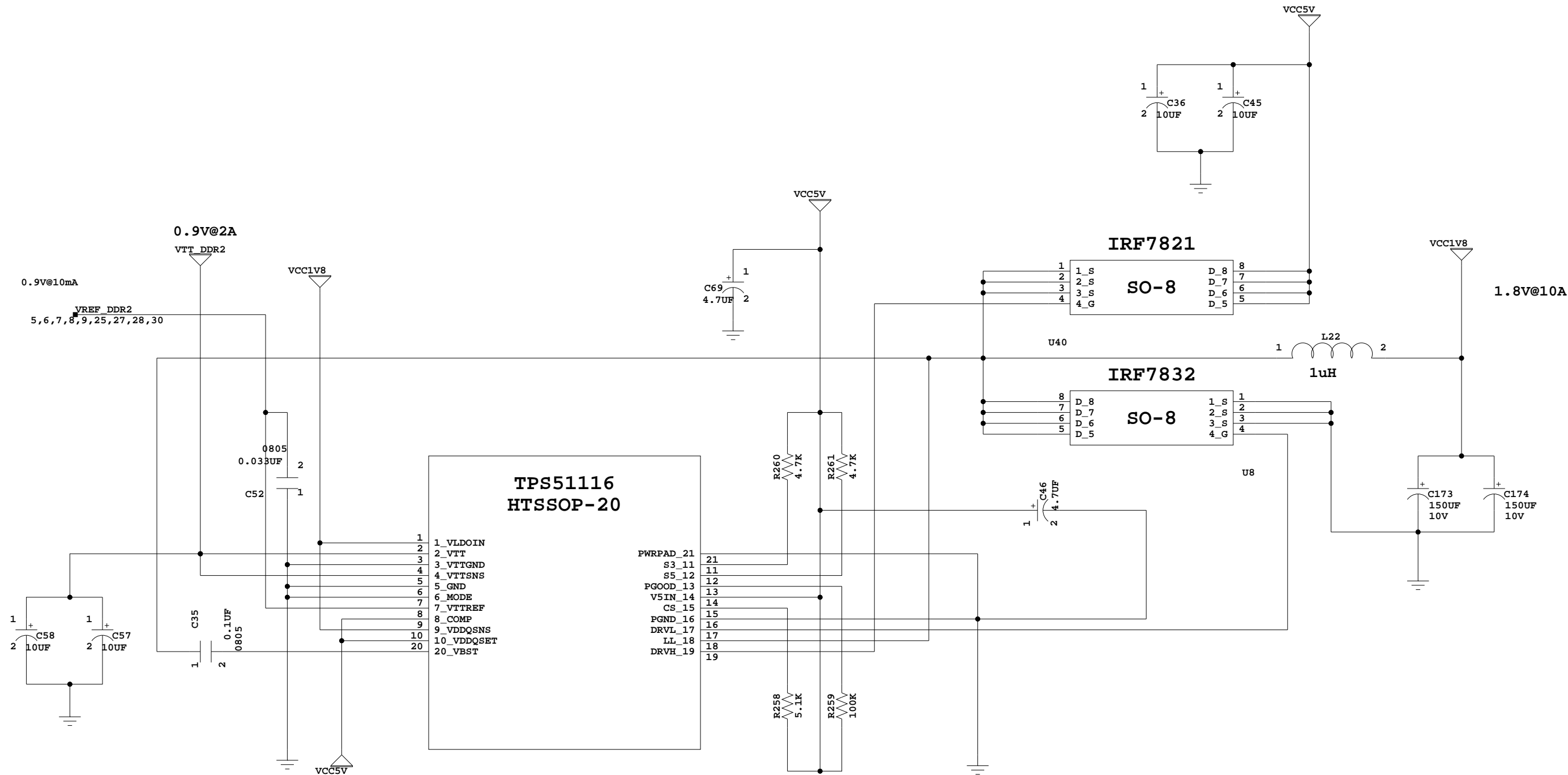
$$R2 = R1 * \left\{ \left( \frac{V_{out}}{0.5} \right) - 1 \right\}$$


**GTP POWER SUPPLIES**

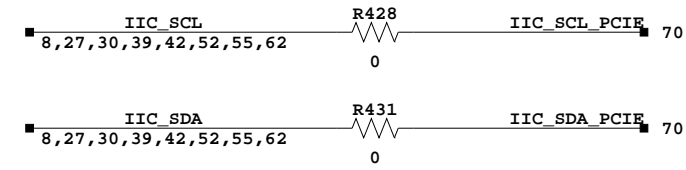
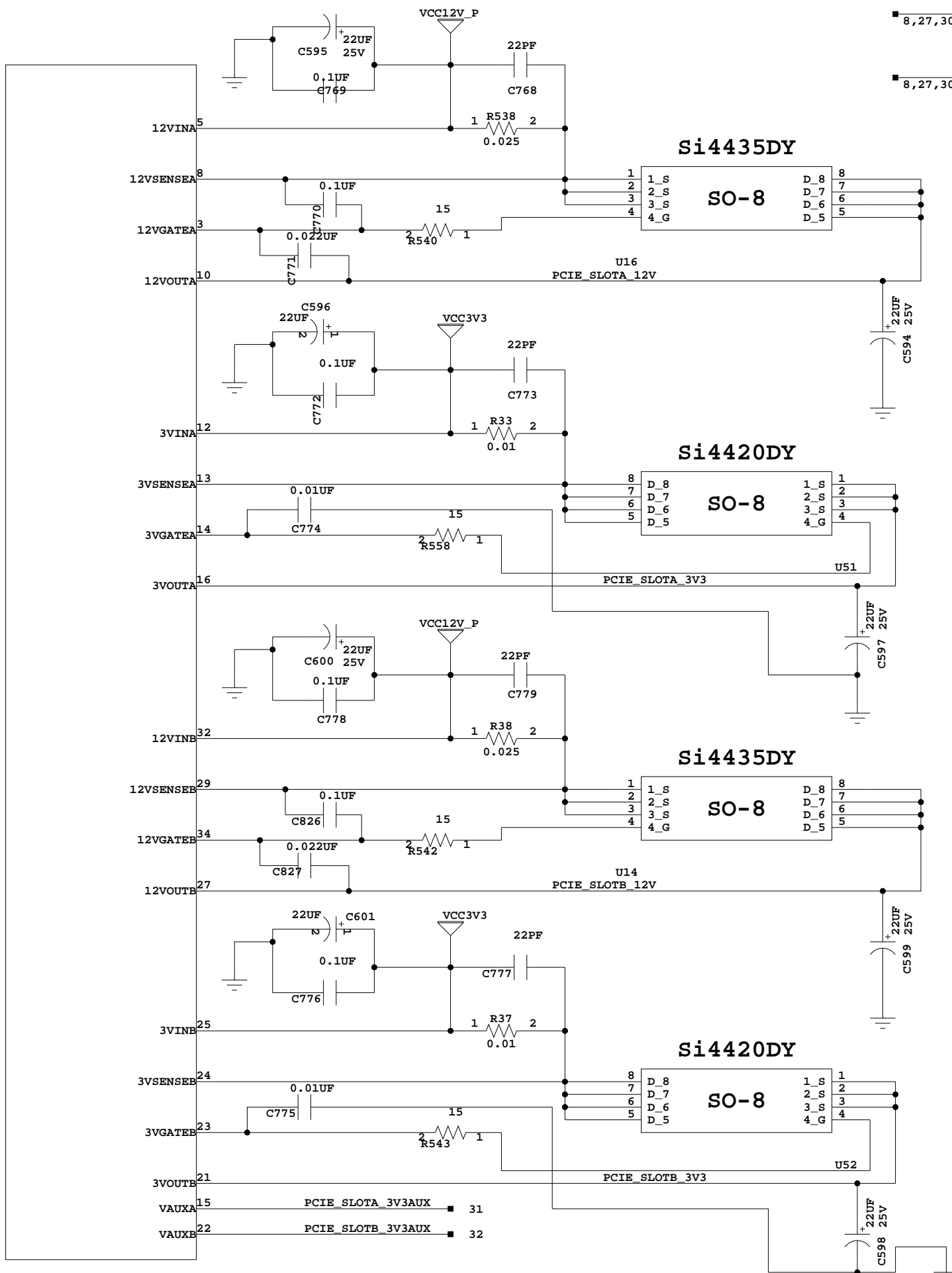


SCH P/N 0381255  
 ART P/N 0532059  
 FAB P/N 1280432

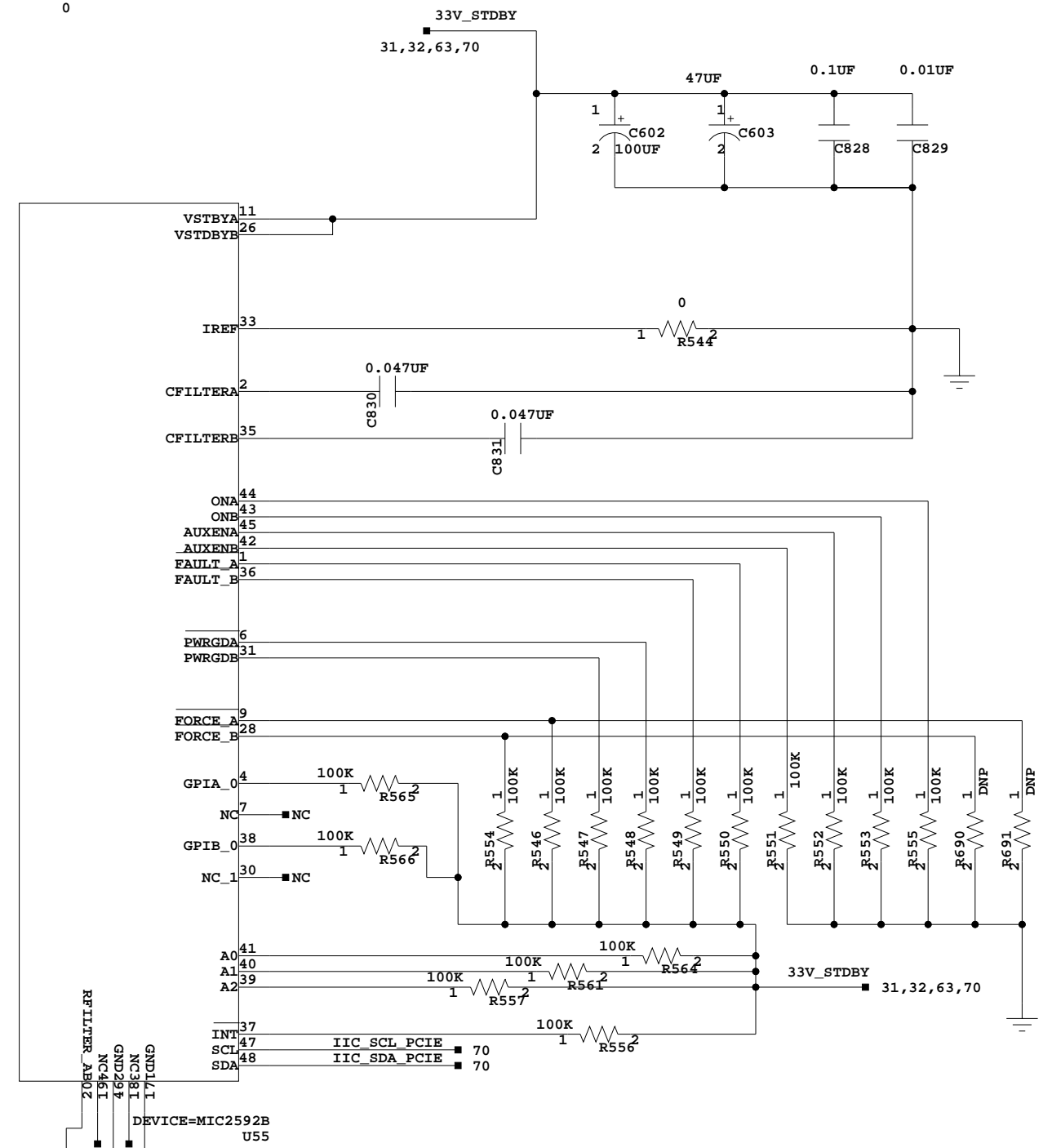
Title: SCHEM, ROHS COMPLIANT, ML510 VIRTEX-5 EVAL PLAFORM GTP POWER SUPPLIES	
Date: 8-1-2008_15:08	Ver: C
Sheet Size: B	Rev: 01
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DDR2 POWER SUPPLY		
		SCH P/N 0381255
		ART P/N 0532059
		FAB P/N 1280432
Title: SCHEM, ROHS COMPLIANT, ML510 VIRTEX-5 EVAL PLAFORM DDR2 POWER SUPPLY		
Date:	8-1-2008_15:08	Ver: C
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I2C ADDR = 0x8E  
Make sure IIC Address is set correctly



### PCI-E PWR MGMT CONTROLLER



SCH P/N 0381255  
ART P/N 0532059  
FAB P/N 1280432

Title: SCHEM, ROHS COMPLIANT, ML510 VIRTEX-5 EVAL PLAFORM  
PCI-E PWR MGMT CONTROLLER

Date:	8-1-2008_15:08	Ver:	C
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DEVICE=MIC2592B  
U55