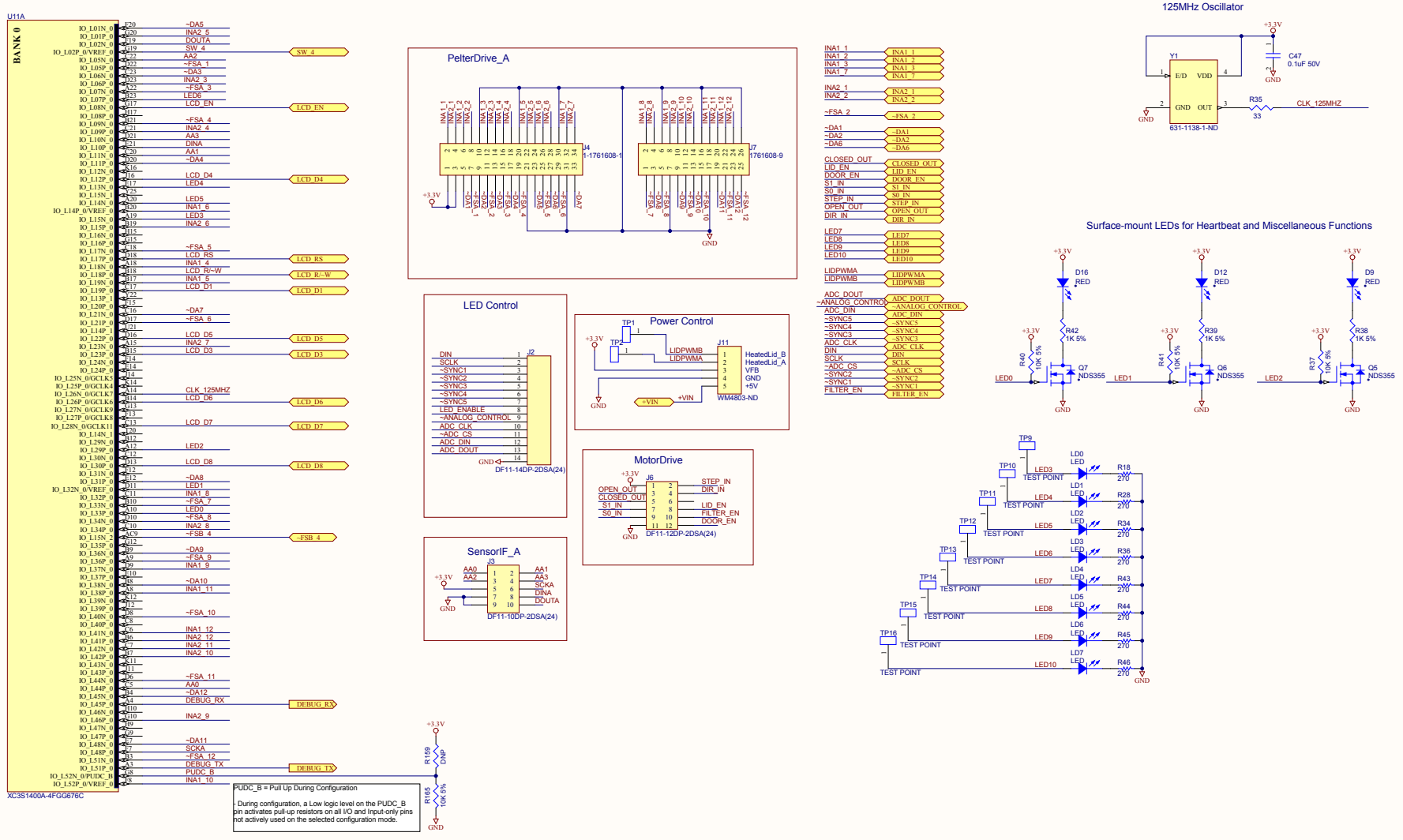

REVISION HISTORY	REV	DESCRIPTION	DATE
	A	Initial Release	31 Mar 2010

PART NUMBER: PCBS-SCM-0914 | PART NAME: System Control

ELECTRONIC ASSEMBLY #: PCBA-SUB-0914

PROJECT: PlateCycler

	DATE	SIGNATURE
DESIGNER		
CHECKED BY		
MANAGER		

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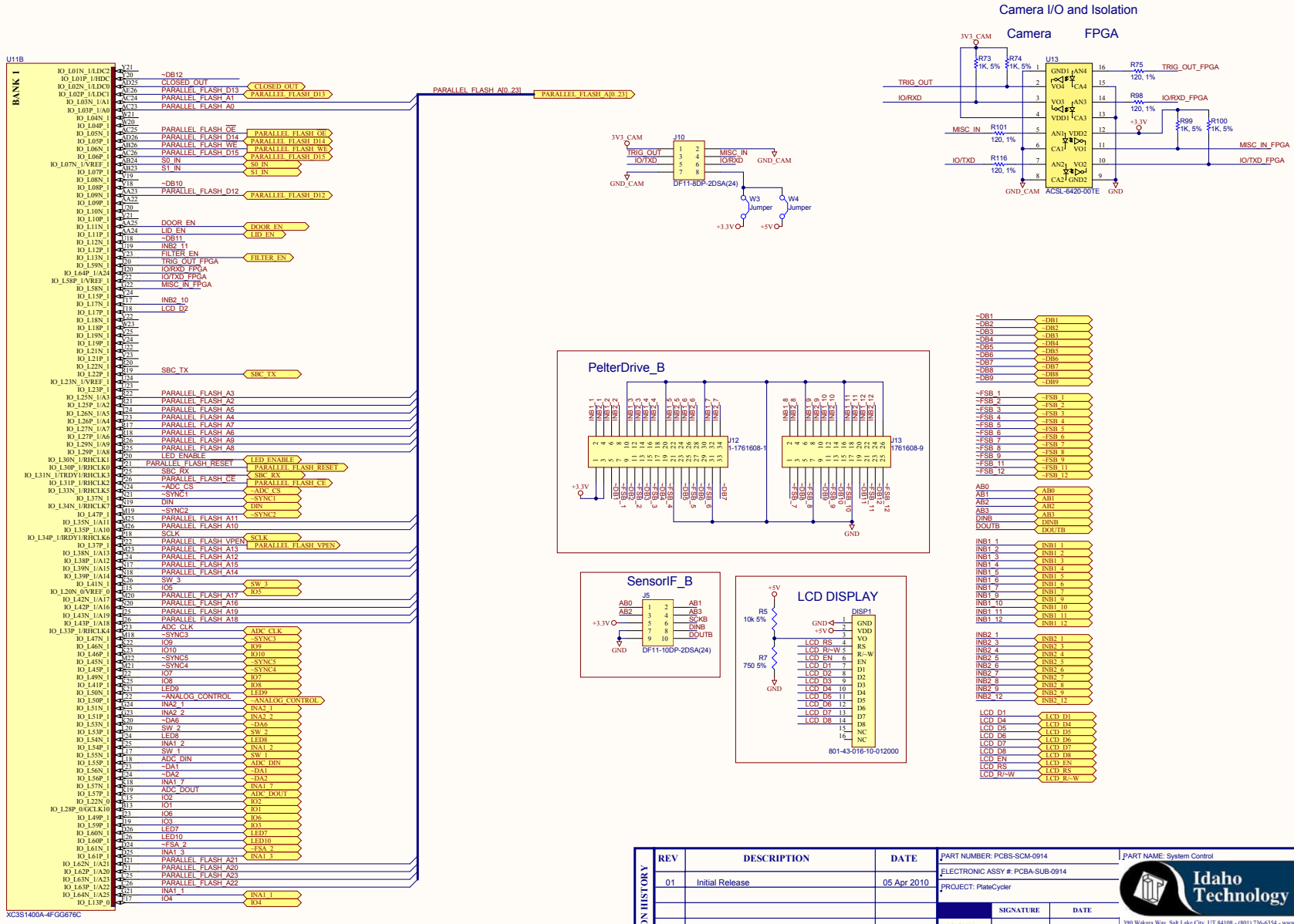
SIZE: C | REV: 01 | SHEET: 1 OF: 12

FILENAME: System Control - Bank 0.SchDoc


U11B
BANK 1
XC3S1400A-4FGG676C
PARALLEL_FLASH_A[0..23]
PARALLEL_FLASH_A[0..23]
Camera I/O and Isolation
Camera
FPGA
3V3_CAM
TRIG_OUT
IO/RXD
IO/TXD
MISC_IN
U13
ACSL-6420-001E
R73 1K, 5%
R74 1K, 5%
R75 120, 1%
R98 120, 1%
R99 1K, 5%
R100 1K, 5%
R101 120, 1%
R116 120, 1%
TRIG_OUT_FPGA
IO/RXD_FPGA
MISC_IN_FPGA
IO/TXD_FPGA
J10
DF11-8DP-2DSA(24)
W3 Jumper
W4 Jumper
PelterDrive_B
J12
1-1761608-1
J13
1761608-9
SensorIF_B
J5
DF11-10DP-2DSA(24)
LCD DISPLAY
DISP1
R5 10k 5%
R7 750 5%
801-43-016-10-012000
REVISION HISTORY
REV
DESCRIPTION
DATE
01
Initial Release
05 Apr 2010
PART NUMBER: PCBS-SCM-0914
PART NAME: System Control
ELECTRONIC ASSY #: PCBA-SUB-0914
PROJECT: PlateCycler
SIGNATURE
DATE
DESIGNER
CHECKED BY
MANAGER
FILENAME: System Control - Bank1.SchDoc
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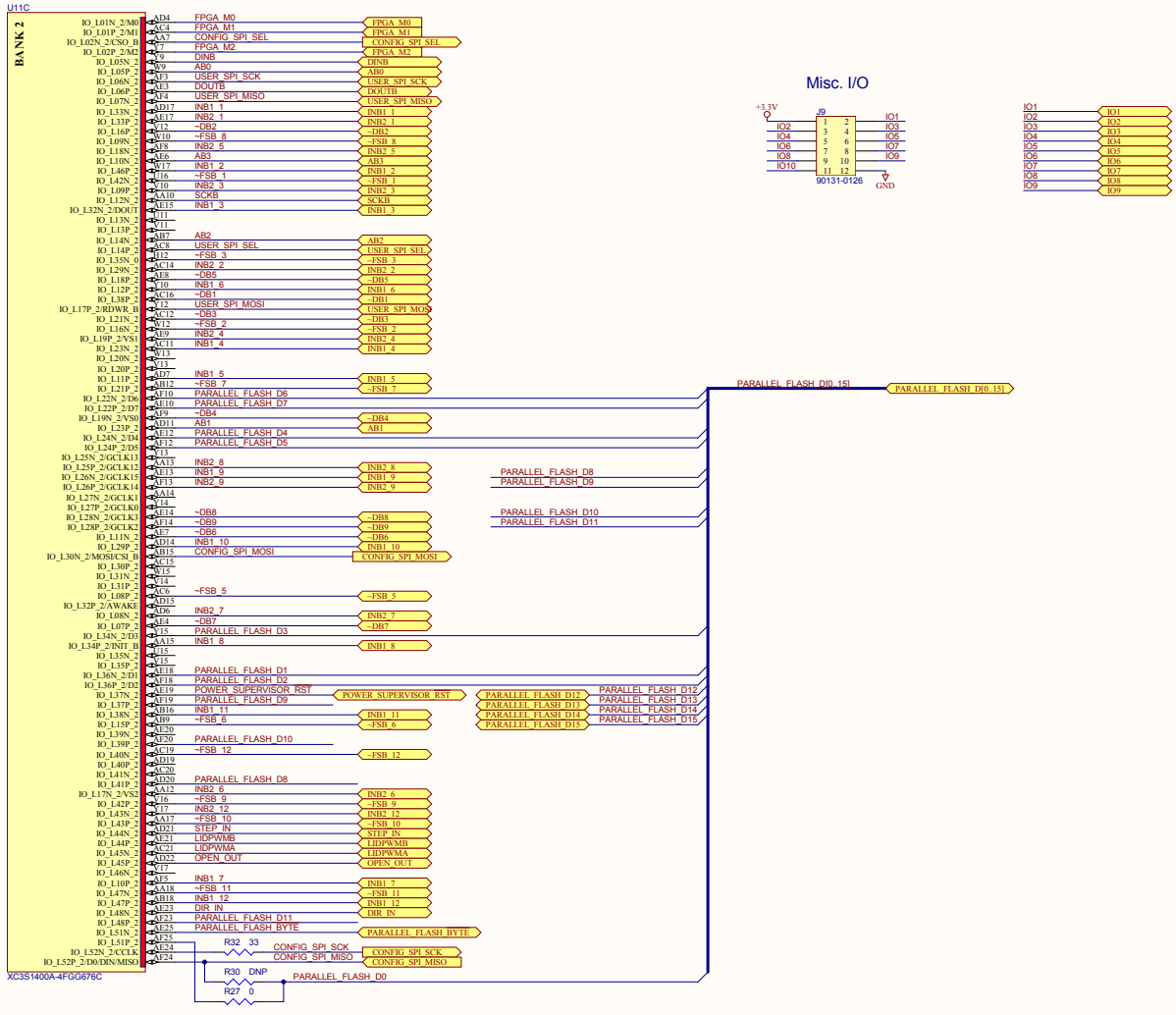
SIZE: C
REV: 01
SHEET: 2 OF: 12



REVISION HISTORY			
REV	DESCRIPTION	DATE	
01	Initial Release	05 Apr 2010	

PART NUMBER: PCBS-SCM-0914
PART NAME: System Control
ELECTRONIC ASSY #: PCBA-SUB-0914
PROJECT: PlateCycler

	SIGNATURE	DATE
DESIGNER		
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MANAGER		

FILENAME: System Control - Bank2.SchDoc

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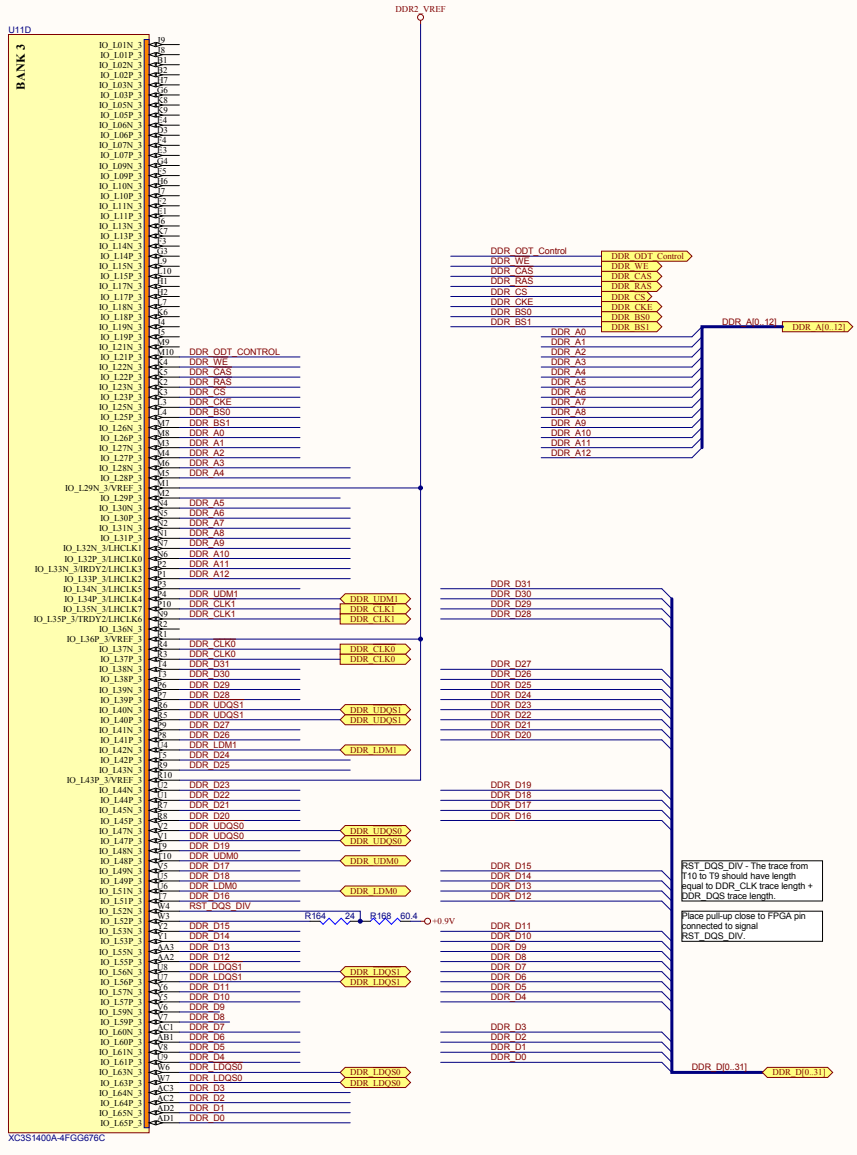
SIZE: C
REV: 01
SHEET: 3 OF: 12



REVISION HISTORY			
REV	DESCRIPTION	DATE	
01	Initial Release	05 Apr 2010	

PART NUMBER: PCBS-SCM-0914
PART NAME: System Contol
ELECTRONIC ASSY #: PCBA-SUB-0914
PROJECT: PlateCycler

	SIGNATURE	DATE
DESIGNER		
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MANAGER		

FILENAME: System Control - Bank3.SchDoc

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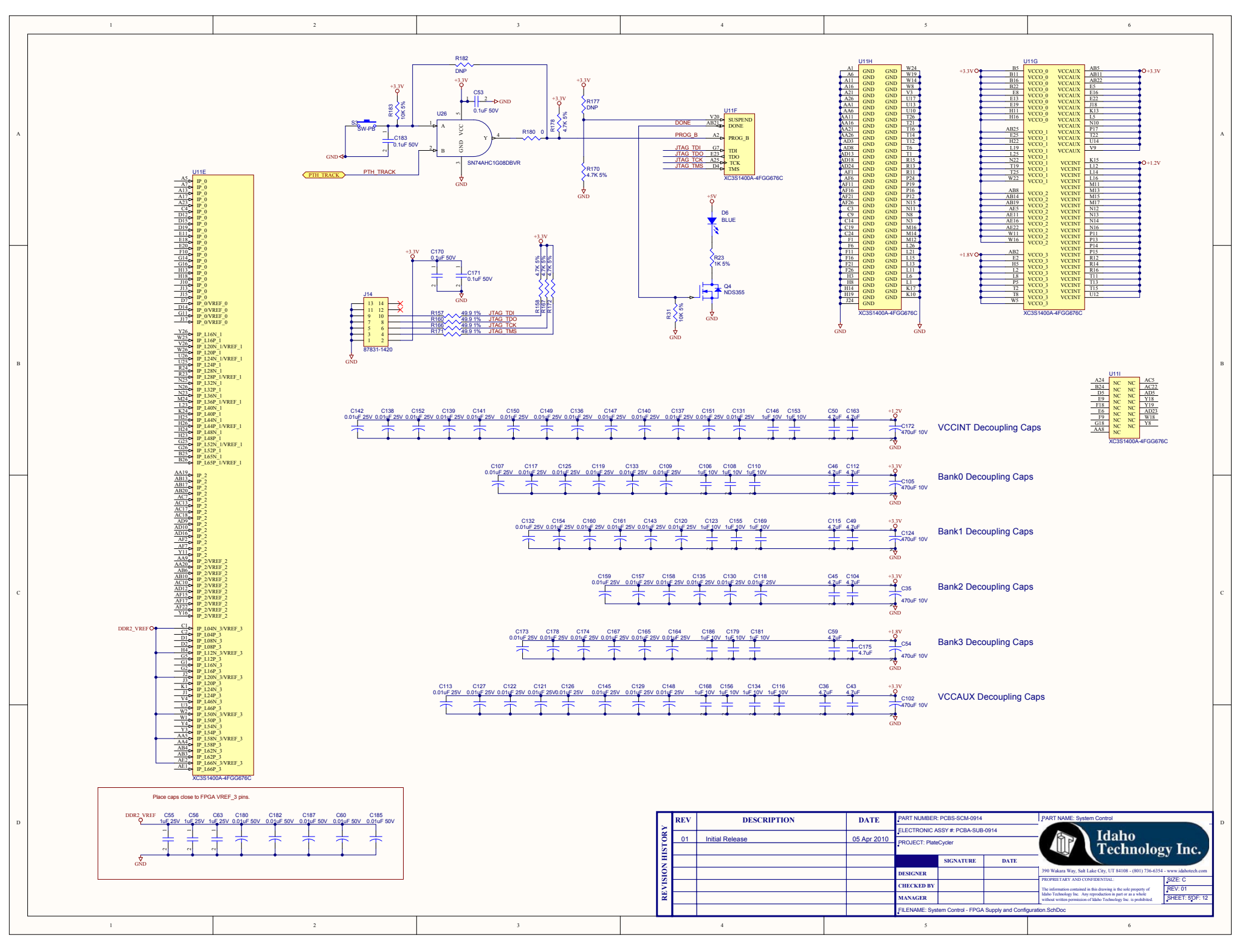
SIZE: C
REV: 01
SHEET: 4 OF: 12



REVISION HISTORY			
REV	DESCRIPTION	DATE	
01	Initial Release	05 Apr 2010	

PART NUMBER: PCBS-SCM-0914
PART NAME: System Control
ELECTRONIC ASSY #: PCBA-SUB-0914
PROJECT: PlateCycler

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FILENAME: System Control - FPGA Supply and Configuration.SchDoc

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SIZE: C
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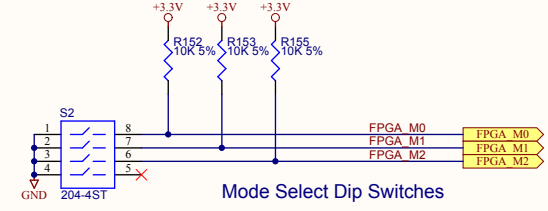
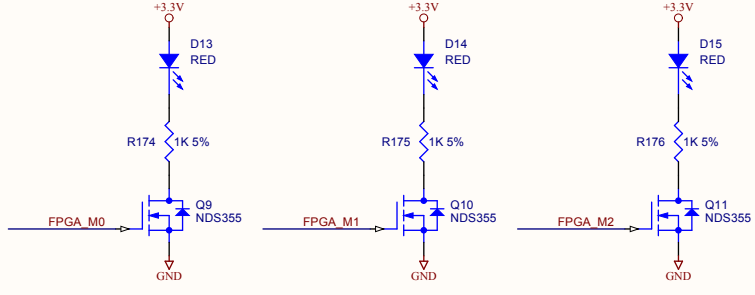
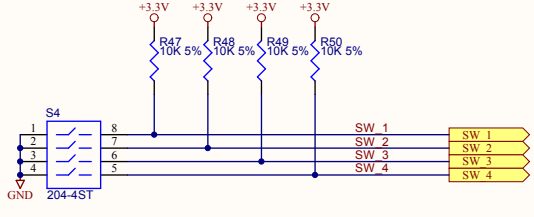


Mode Select Dip Switches

Normal mode = configure with serial flash
M0 = 1, M1 = 0, M2 = 0.





User Dip Switches

REVISION HISTORY	REV	DESCRIPTION	DATE
	01	Initial Release	05 Apr 2010

PART NUMBER: PCBS-SCM-0914
PART NAME: System Control
ELECTRONIC ASSY #: PCBA-SUB-0914
PROJECT: PlateCycler

	SIGNATURE	DATE
DESIGNER		
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FILENAME: System Control - Mode DIP Switch.SchDoc

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SIZE: B
REV: 01
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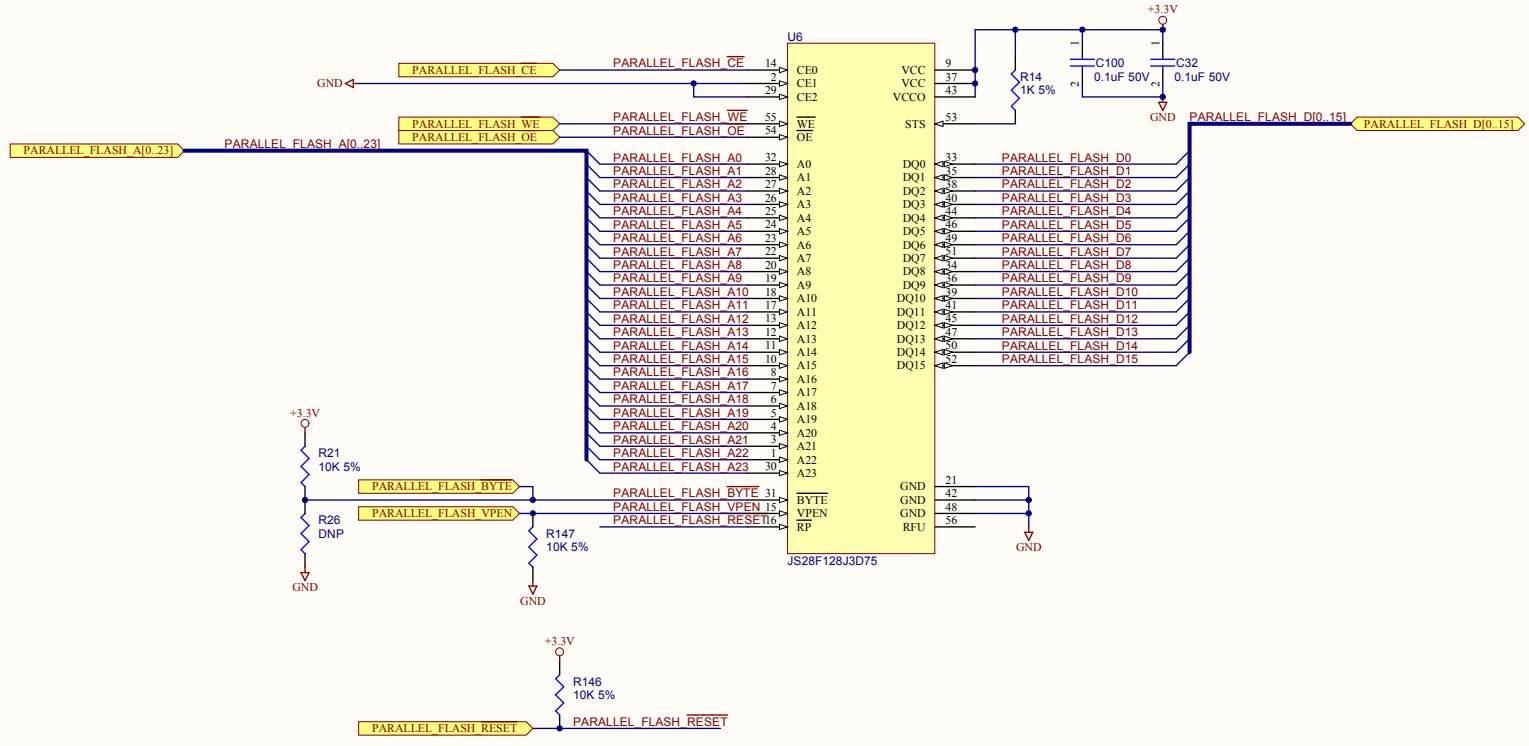

REVISION HISTORY	REV	DESCRIPTION	DATE
	01	Initial Release	05 Apr 2010

PART NUMBER: PCBS-SCM-0914
PART NAME: System Control
ELECTRONIC ASSY #: PCBA-SUB-0914
PROJECT: PlateCycler

	SIGNATURE	DATE
DESIGNER		
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MANAGER		

FILENAME: System Control - Parallel Flash.SchDoc

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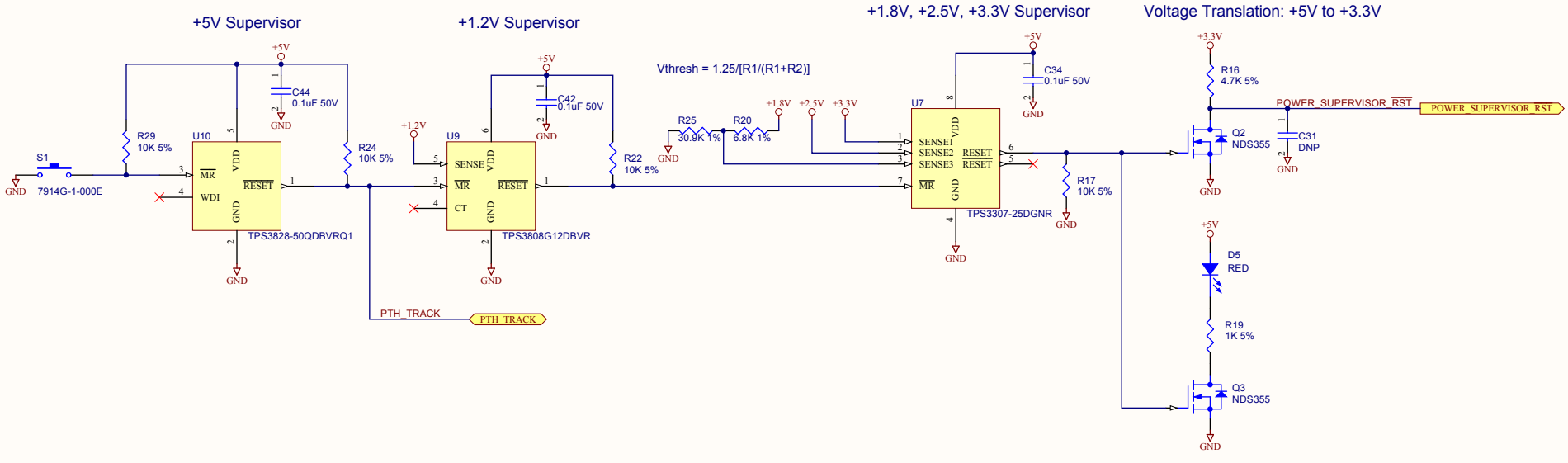
SIZE: B
REV: 01
SHEET: 7 OF: 12



REVISION HISTORY	REV	DESCRIPTION	DATE
	01	Initial Release	05 Apr 2010

PART NUMBER: PCBS-SCM-0914
PART NAME: System Control
ELECTRONIC ASSY #: PCBA-SUB-0914
PROJECT: PlateCycler

	SIGNATURE	DATE
DESIGNER		
CHECKED BY		
MANAGER		

FILENAME: System Control - Power Supervisors.SchDoc

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SIZE: B
REV: 01
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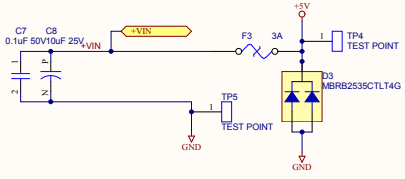
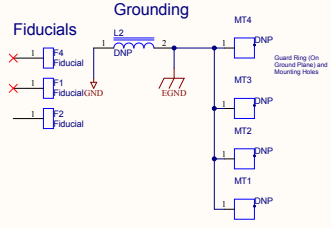
POWER IN +5V

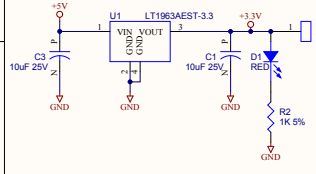


Grounding

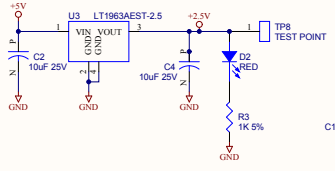
Fiducials



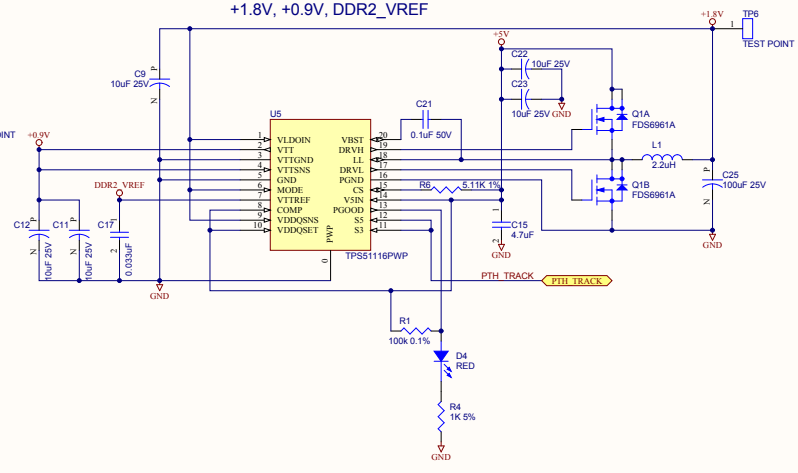
+3.3V Regulator



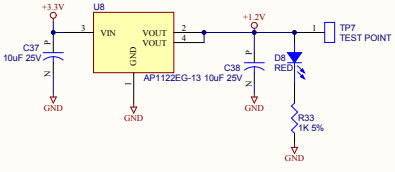
+2.5V Regulator



+1.8V, +0.9V, DDR2_VREF



+1.2V Regulator



Power Considerations:

1. The PHY datasheet suggests the following:

"It is strongly recommended that the PC board have one solid ground plane and at least one split power plane with 2.5V and 1.8V copper islands. Ideally the PCB should
have solid planes for each of the supply voltages. The interplane capacitance between the supply and ground planes may be maximized by reducing the plane spacing. In addition, filling unused board areas on signal planes with
copper and connecting them to the proper power plane will
also increase the interplane capacitance."

2. The PHY datasheet suggests the following:

"1 oz. copper is recommended for the power and ground planes."

REVISION HISTORY

REV	DESCRIPTION	DATE
01	Initial Release	05 Apr 2010

PART NUMBER: PCBS-SCM-0914
PART NAME: System Control
ELECTRONIC ASSY #: PCBA-SUB-0914
PROJECT: PlateCycler

	SIGNATURE	DATE
DESIGNER		
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MANAGER		

FILENAME: System Control - Power.SchDoc

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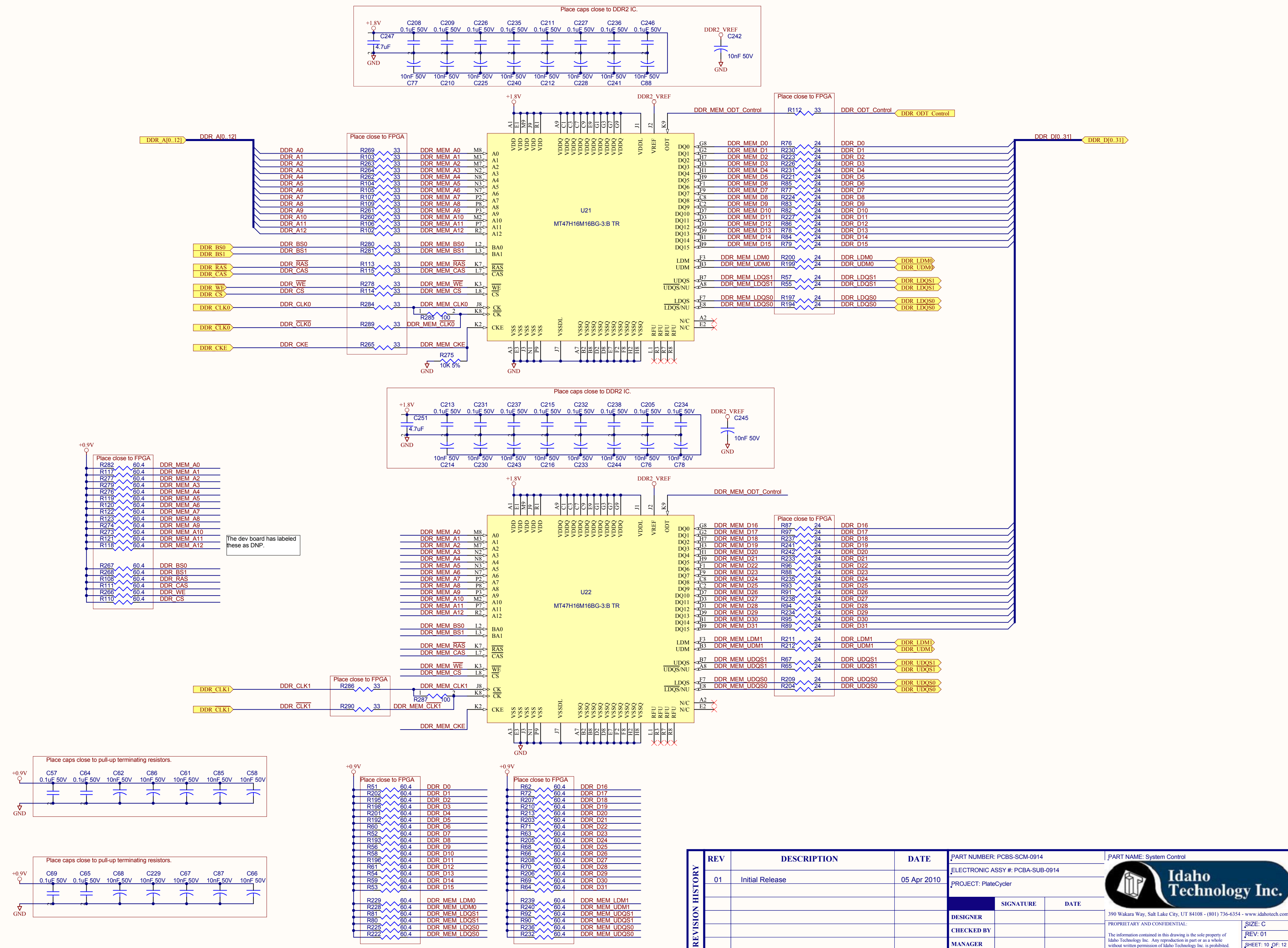
SIZE: C
REV: 01
SHEET: 9 OF: 12



Place caps close to DDR2 IC.
+1.8V
C247 4.7uF
C208 0.1uF 50V
C209 0.1uF 50V
C226 0.1uF 50V
C235 0.1uF 50V
C211 0.1uF 50V
C227 0.1uF 50V
C236 0.1uF 50V
C246 0.1uF 50V
10nF 50V C77
10nF 50V C210
10nF 50V C225
10nF 50V C240
10nF 50V C212
10nF 50V C228
10nF 50V C241
10nF 50V C88
DDR2_VREF
C242 10nF 50V
GND
DDR_A[0..12]
Place close to FPGA
DDR_A0 R269 33 DDR_MEM_A0
DDR_A1 R103 33 DDR_MEM_A1
DDR_A2 R263 33 DDR_MEM_A2
DDR_A3 R264 33 DDR_MEM_A3
DDR_A4 R262 33 DDR_MEM_A4
DDR_A5 R104 33 DDR_MEM_A5
DDR_A6 R105 33 DDR_MEM_A6
DDR_A7 R107 33 DDR_MEM_A7
DDR_A8 R109 33 DDR_MEM_A8
DDR_A9 R261 33 DDR_MEM_A9
DDR_A10 R260 33 DDR_MEM_A10
DDR_A11 R106 33 DDR_MEM_A11
DDR_A12 R102 33 DDR_MEM_A12
DDR_BS0 R280 33 DDR_MEM_BS0
DDR_BS1 R281 33 DDR_MEM_BS1
DDR_RAS R113 33 DDR_MEM_RAS
DDR_CAS R115 33 DDR_MEM_CAS
DDR_WE R278 33 DDR_MEM_WE
DDR_CS R114 33 DDR_MEM_CS
DDR_CLK0 R284 33 DDR_MEM_CLK0
R285 100
DDR_CLK0 R289 33 DDR_MEM_CLK0
DDR_CKE R265 33 DDR_MEM_CKE
R275 10K 5%
U21
MT47H16M16BG-3:B TR
DDR_MEM_ODT_Control R112 33 DDR_ODT_Control
DDR_D[0..31]
DDR_MEM_D0 R76 24 DDR_D0
DDR_MEM_D1 R230 24 DDR_D1
DDR_MEM_D2 R223 24 DDR_D2
DDR_MEM_D3 R226 24 DDR_D3
DDR_MEM_D4 R231 24 DDR_D4
DDR_MEM_D5 R221 24 DDR_D5
DDR_MEM_D6 R85 24 DDR_D6
DDR_MEM_D7 R77 24 DDR_D7
DDR_MEM_D8 R224 24 DDR_D8
DDR_MEM_D9 R83 24 DDR_D9
DDR_MEM_D10 R82 24 DDR_D10
DDR_MEM_D11 R227 24 DDR_D11
DDR_MEM_D12 R86 24 DDR_D12
DDR_MEM_D13 R78 24 DDR_D13
DDR_MEM_D14 R84 24 DDR_D14
DDR_MEM_D15 R79 24 DDR_D15
DDR_MEM_LDM0 R200 24 DDR_LDM0
DDR_MEM_UDM0 R199 24 DDR_UDM0
DDR_MEM_LDQS1 R57 24 DDR_LDQS1
DDR_MEM_LDQS1 R55 24 DDR_LDQS1
DDR_MEM_LDQS0 R197 24 DDR_LDQS0
DDR_MEM_LDQS0 R194 24 DDR_LDQS0
Place caps close to DDR2 IC.
C251 4.7uF
C213 0.1uF 50V
C231 0.1uF 50V
C237 0.1uF 50V
C215 0.1uF 50V
C232 0.1uF 50V
C238 0.1uF 50V
C205 0.1uF 50V
C234 0.1uF 50V
10nF 50V C214
10nF 50V C230
10nF 50V C243
10nF 50V C216
10nF 50V C233
10nF 50V C244
10nF 50V C76
10nF 50V C78
C245 10nF 50V
+0.9V
R282 60.4 DDR_MEM_A0
R117 60.4 DDR_MEM_A1
R277 60.4 DDR_MEM_A2
R279 60.4 DDR_MEM_A3
R276 60.4 DDR_MEM_A4
R119 60.4 DDR_MEM_A5
R120 60.4 DDR_MEM_A6
R122 60.4 DDR_MEM_A7
R123 60.4 DDR_MEM_A8
R274 60.4 DDR_MEM_A9
R273 60.4 DDR_MEM_A10
R121 60.4 DDR_MEM_A11
R118 60.4 DDR_MEM_A12
The dev board has labeled these as DNP.
R267 60.4 DDR_BS0
R268 60.4 DDR_BS1
R108 60.4 DDR_RAS
R111 60.4 DDR_CAS
R266 60.4 DDR_WE
R110 60.4 DDR_CS
U22
MT47H16M16BG-3:B TR
DDR_MEM_D16 R87 24 DDR_D16
DDR_MEM_D17 R97 24 DDR_D17
DDR_MEM_D18 R237 24 DDR_D18
DDR_MEM_D19 R241 24 DDR_D19
DDR_MEM_D20 R242 24 DDR_D20
DDR_MEM_D21 R233 24 DDR_D21
DDR_MEM_D22 R96 24 DDR_D22
DDR_MEM_D23 R88 24 DDR_D23
DDR_MEM_D24 R235 24 DDR_D24
DDR_MEM_D25 R93 24 DDR_D25
DDR_MEM_D26 R91 24 DDR_D26
DDR_MEM_D27 R238 24 DDR_D27
DDR_MEM_D28 R94 24 DDR_D28
DDR_MEM_D29 R234 24 DDR_D29
DDR_MEM_D30 R95 24 DDR_D30
DDR_MEM_D31 R89 24 DDR_D31
DDR_MEM_LDM1 R211 24 DDR_LDM1
DDR_MEM_UDM1 R212 24 DDR_UDM1
DDR_MEM_UDQS1 R67 24 DDR_UDQS1
DDR_MEM_UDQS1 R65 24 DDR_UDQS1
DDR_MEM_UDQS0 R209 24 DDR_UDQS0
DDR_MEM_UDQS0 R204 24 DDR_UDQS0
DDR_CLK1 R286 33 DDR_MEM_CLK1
R287 100
DDR_CLK1 R290 33 DDR_MEM_CLK1
Place caps close to pull-up terminating resistors.
C57 0.1uF 50V
C64 0.1uF 50V
C62 10nF 50V
C86 10nF 50V
C61 10nF 50V
C85 10nF 50V
C58 10nF 50V
Place caps close to pull-up terminating resistors.
C69 0.1uF 50V
C65 0.1uF 50V
C68 10nF 50V
C229 10nF 50V
C67 10nF 50V
C87 10nF 50V
C66 10nF 50V
R51 60.4 DDR_D0
R202 60.4 DDR_D1
R195 60.4 DDR_D2
R198 60.4 DDR_D3
R201 60.4 DDR_D4
R192 60.4 DDR_D5
R60 60.4 DDR_D6
R52 60.4 DDR_D7
R193 60.4 DDR_D8
R56 60.4 DDR_D9
R58 60.4 DDR_D10
R196 60.4 DDR_D11
R61 60.4 DDR_D12
R54 60.4 DDR_D13
R59 60.4 DDR_D14
R53 60.4 DDR_D15
R229 60.4 DDR_MEM_LDM0
R228 60.4 DDR_MEM_UDM0
R81 60.4 DDR_MEM_LDQS1
R80 60.4 DDR_MEM_LDQS1
R225 60.4 DDR_MEM_LDQS0
R222 60.4 DDR_MEM_LDQS0
R62 60.4 DDR_D16
R72 60.4 DDR_D17
R207 60.4 DDR_D18
R210 60.4 DDR_D19
R213 60.4 DDR_D20
R203 60.4 DDR_D21
R71 60.4 DDR_D22
R63 60.4 DDR_D23
R205 60.4 DDR_D24
R68 60.4 DDR_D25
R66 60.4 DDR_D26
R208 60.4 DDR_D27
R70 60.4 DDR_D28
R206 60.4 DDR_D29
R69 60.4 DDR_D30
R64 60.4 DDR_D31
R239 60.4 DDR_MEM_LDM1
R240 60.4 DDR_MEM_UDM1
R92 60.4 DDR_MEM_UDQS1
R90 60.4 DDR_MEM_UDQS1
R236 60.4 DDR_MEM_UDQS0
R232 60.4 DDR_MEM_UDQS0

REVISION HISTORY

REV	DESCRIPTION	DATE
01	Initial Release	05 Apr 2010

PART NUMBER: PCBS-SCM-0914
ELECTRONIC ASSY #: PCBA-SUB-0914
PROJECT: PlateCycler

PART NAME: System Control

	SIGNATURE	DATE
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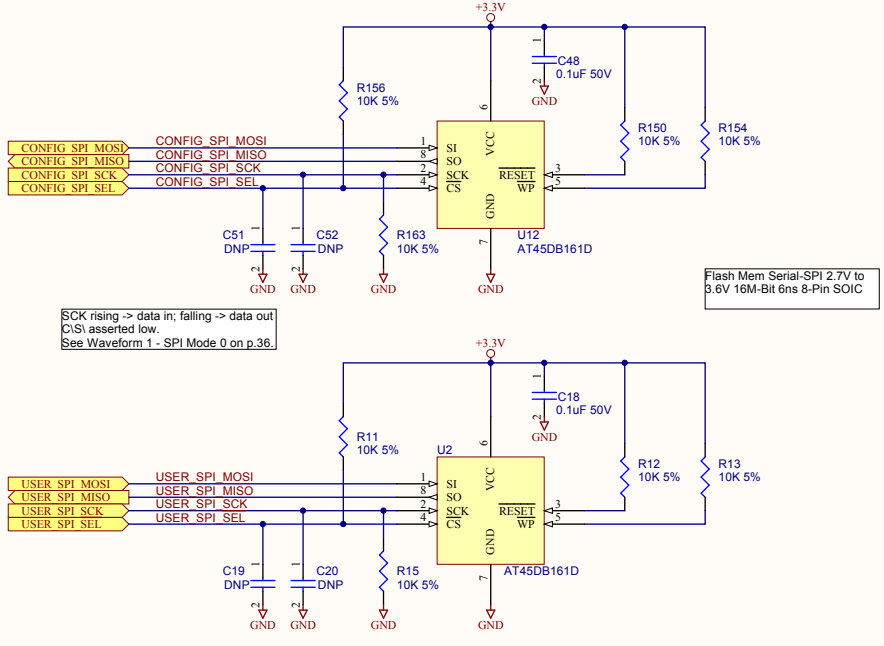
SIZE: C
REV: 01
SHEET: 10 OF: 12

FILENAME: System Control - SDRAM.SchDoc



REVISION HISTORY	REV	DESCRIPTION	DATE
	01	Initial Release	05 Apr 2010

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PART NAME: System Control
ELECTRONIC ASSY #: PCBA-SUB-0914
PROJECT: PlateCycler

	SIGNATURE	DATE
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MANAGER		

FILENAME: System Control - Serial Flash.SchDoc

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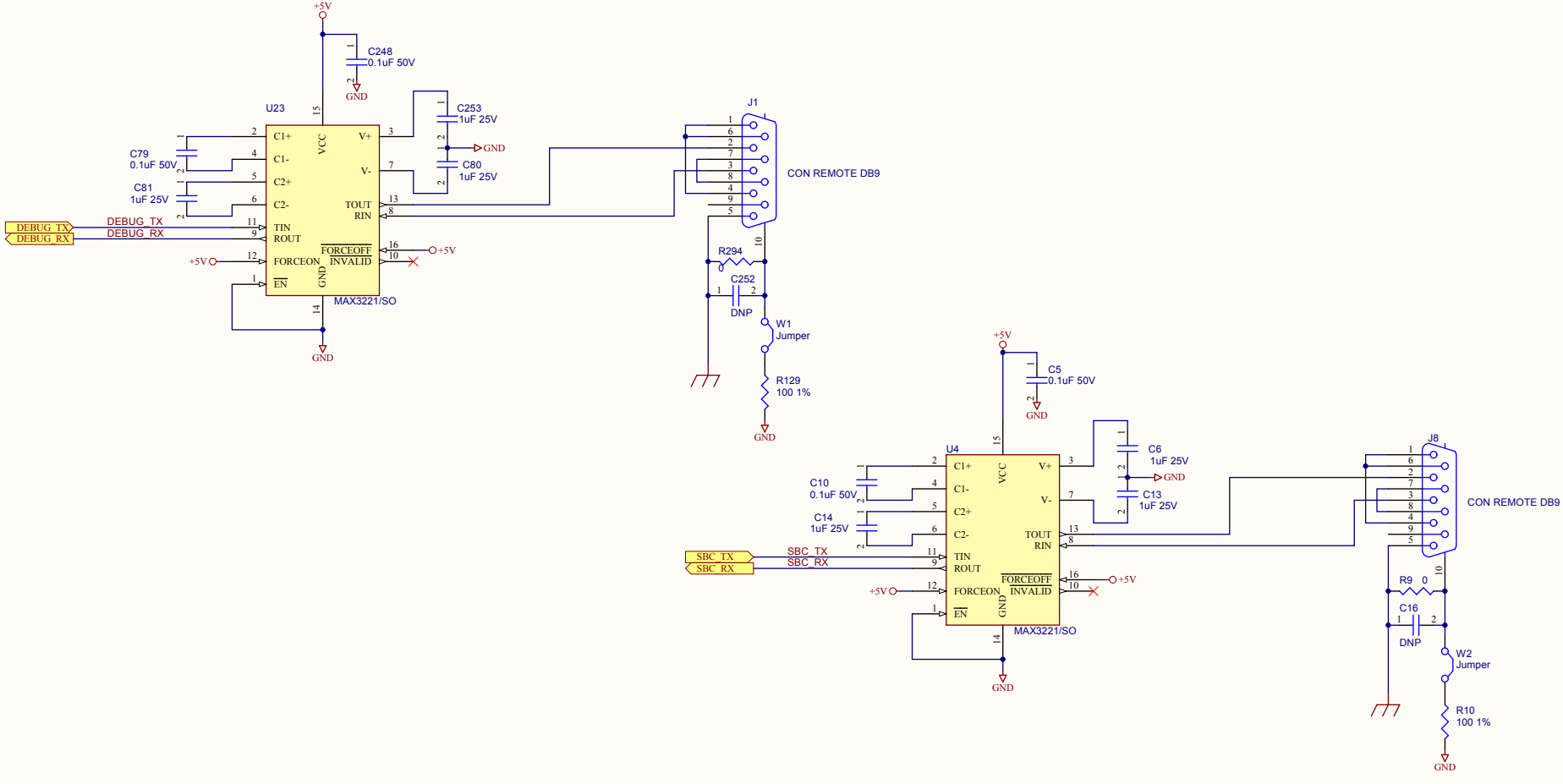
SIZE: B
REV: 01
SHEET: 11 OF: 12



REVISION HISTORY	REV	DESCRIPTION	DATE
	01	Initial Release	05 Apr 2010

PART NUMBER: PCBS-SCM-0914
PART NAME: System Control
ELECTRONIC ASSY #: PCBA-SUB-0914
PROJECT: PlateCycler

	SIGNATURE	DATE
DESIGNER		
CHECKED BY		
MANAGER		

FILENAME: System Control - Serial Port.SchDoc

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