Ethernet and RS-485 I/O

6SLX25FTG256
U1B0

Pin	Signal
D11	IO_L66P_SCP1_0
D12	IO_L66N_SCP0_0
B14	IO_L65P_SCP3_0
A14	IO_L65N_SCP2_0
F10	IO_L64P_SCP5_0
E11	IO_L64N_SCP4_0
C13	IO_L63P_SCP7_0
A13	IO_L63N_SCP6_0
B12	IO_L62P_0
A12	IO_L62N_VREF_0
F9	IO_L40P_0
D9	IO_L40N_0
C11	IO_L39P_0
A11	IO_L39N_0
D8	IO_L38P_0
C8	IO_L38N_VREF_0
E10	IO_L37P_GCLK13_0
C10	IO_L37N_GCLK12_0
E7	IO_L36P_GCLK15_0
E8	IO_L36N_GCLK14_0
B10	IO_L35P_GCLK17_0
A10	IO_L35N_GCLK16_0
C9	IO_L34P_GCLK19_0
A9	IO_L34N_GCLK18_0
B8	IO_L33P_0
A8	IO_L33N_0
D6	IO_L7P_0
C6	IO_L7N_0
C7	IO_L6P_0
A7	IO_L6N_0
F7	IO_L5P_0
E6	IO_L5N_0
B6	IO_L4P_0
A6	IO_L4N_0
D5	IO_L3P_0
C5	IO_L3N_0
B5	IO_L2P_0
A5	IO_L2N_0
C4	IO_L1P_HSWAPEN_0
A4	IO_L1N_VREF_0
D7	VCCO_0
D10	VCCO_0
B9	VCCO_0
B4	VCCO_0
B13	VCCO_0

REFCLK

50 MHz clock

LAN8720
U7A

Pin	Signal
17	TXD0
18	TXD1
16	TXEN
8	RXD0/MODE0
7	RXD1/MODE1
10	RXER/PHYAD0
11	CRS_DV/MODE2
14	INT-/REFCLKO
12	MDIO
13	MDC
15	RST-

LAN8720
U7B

Pin	Signal
4	XTALO
5	XTALI/CLKIN
0	GND
6	VCR
9	VIO
1	VA2
19	VA1

U7C
LAN8720

Pin	Signal
21	TX+
20	TX-
23	RX+
22	RX-
24	RBIAS
3	LED1/REGOFF
2	LED2/INTSEL

R18 4.7k
R1 4.7k
R17 4.7k
R16 1.0k

GND   +1V8   GND

C66 0.1uF
GND
+3V3

RXD 1
TXE 2
GND 3 R60 4.7k
TXD 4
GND 5
VCC 8
U15
6
7

RS-485
J13 1 2_MTA 2
J12 1 2_MTA 2

GND

C69 470pF   C24 1.0uF
+1.2V   +1V8

C25 0.1uF
GND

C26 0.1uF   C27 0.1uF   R12 49.9   R13 49.9   R14 49.9   R15 49.9
GND   GND

C51 0.1uF
GND
L1 FB   +3V3

J2

Pin	Signal		Pin
1	TD+	LA / LC	9 / 10
4	CTT		
2	TD-	RA / RC	12 / 11
			GND
3	RD+		
5	CTR	RJ45	
6	RD-		
7	CG1	S1	S1
8	CG2	S2	S2
			GND

J0006D21B

R9 12.1k   GND

R10 330
R11 330

C8 0.47uF   C9 4.7uF   C10 100uF   +1V8
GND

Notes:
1. ANSI/IEEE 802.3 PHY configured for 100 Mbps full duplex operation with no negotiation.
2. Remove R18 to enable all modes with auto-negotiation.
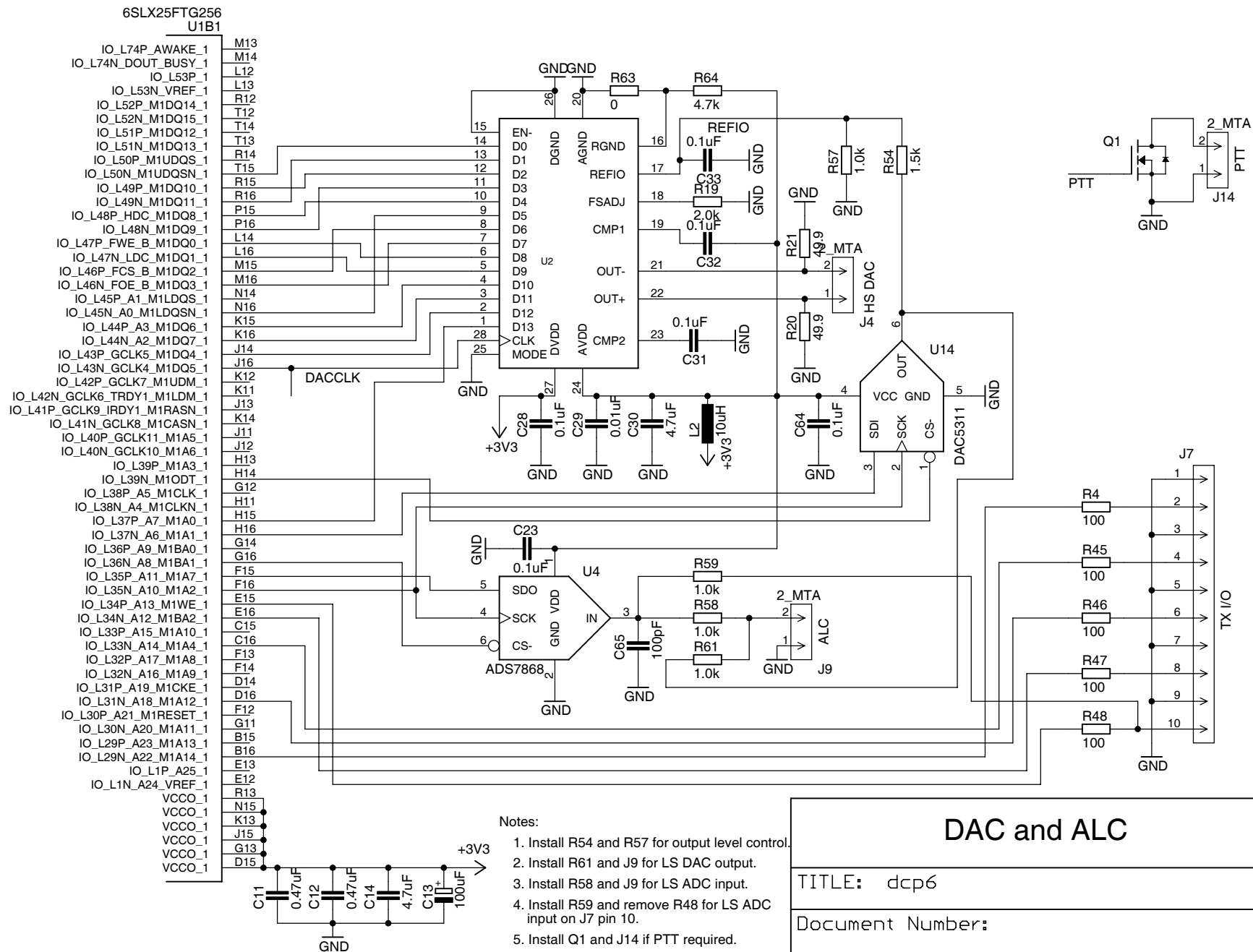3. U7 internal 1.2V regulator enabled.

Ethernet and RS-485 I/O

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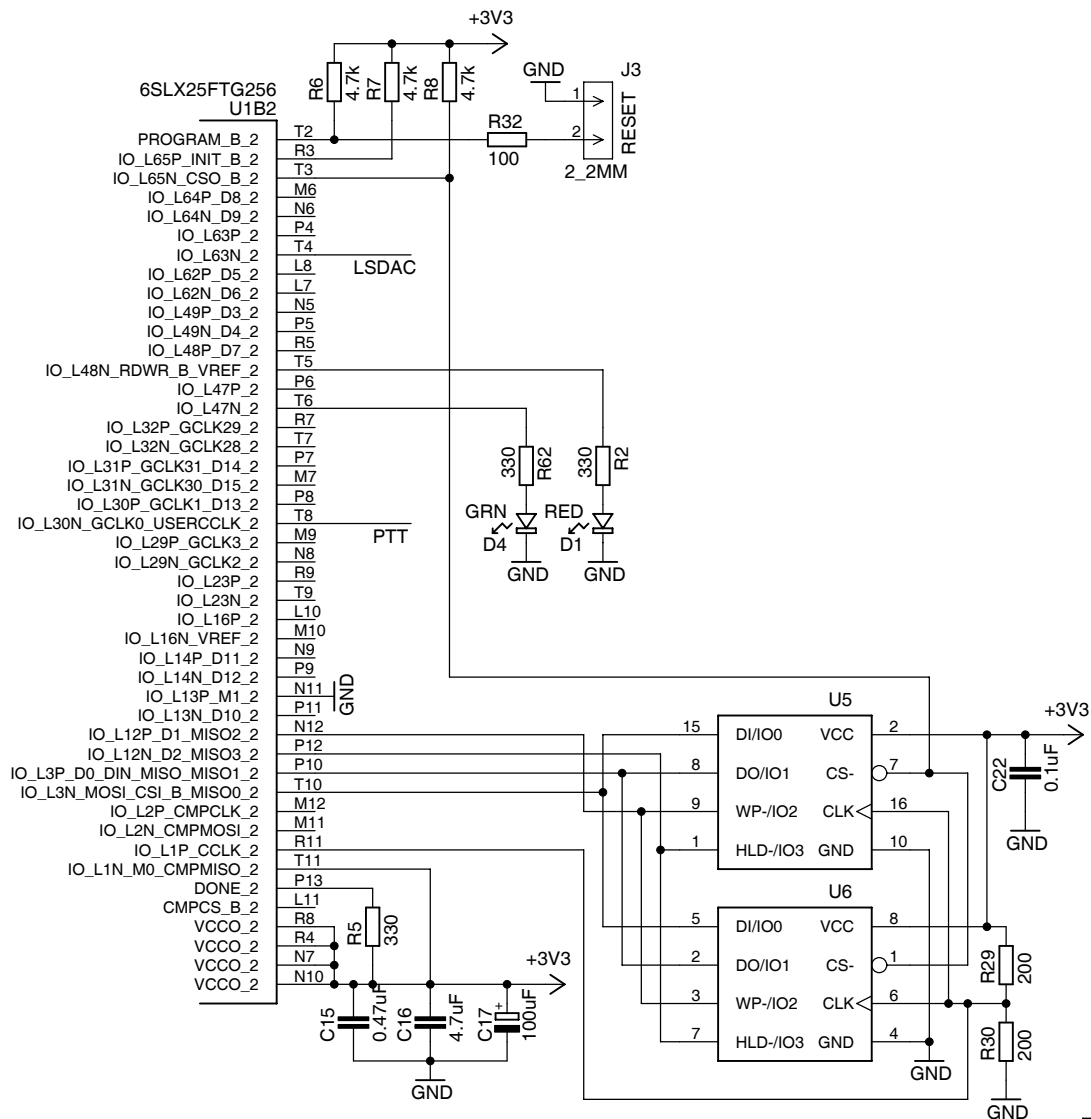Date: 6/7/2012 18:59:55 UTC   Sheet: 1/6

DAC and ALC

6SLX25FTG256
U1B1

Pin	Signal
M13	IO_L74P_AWAKE_1
M14	IO_L74N_DOUT_BUSY_1
L12	IO_L53P_1
L13	IO_L53N_VREF_1
R12	IO_L52P_M1DQ14_1
T12	IO_L52N_M1DQ15_1
T14	IO_L51P_M1DQ12_1
T13	IO_L51N_M1DQ13_1
R14	IO_L50P_M1UDQS_1
T15	IO_L50N_M1UDQSN_1
R15	IO_L49P_M1DQ10_1
R16	IO_L49N_M1DQ11_1
P16	IO_L48P_HDC_M1DQ8_1
	IO_L48N_M1DQ9_1
L14	IO_L47P_FWE_B_M1DQ0_1
L16	IO_L47N_LDC_M1DQ1_1
M15	IO_L46P_FCS_B_M1DQ2_1
M16	IO_L46N_FOE_B_M1DQ3_1
N14	IO_L45P_A1_M1LDQS_1
N16	IO_L45N_A0_M1LDQSN_1
K15	IO_L44P_A3_M1DQ6_1
K16	IO_L44N_A2_M1DQ7_1
J14	IO_L43P_GCLK5_M1DQ4_1
J16	IO_L43N_GCLK4_M1DQ5_1
K12	IO_L42P_GCLK7_M1UDM_1
K11	IO_L42N_GCLK6_TRDY1_M1LDM_1
J13	IO_L41P_GCLK9_IRDY1_M1RASN_1
K14	IO_L41N_GCLK8_M1CASN_1
J11	IO_L40P_GCLK11_M1A5_1
J12	IO_L40N_GCLK10_M1A6_1
H13	IO_L39P_M1A3_1
H14	IO_L39N_M1ODT_1
G12	IO_L38P_A5_M1CLK_1
H11	IO_L38N_A4_M1CLKN_1
H15	IO_L37P_A7_M1A0_1
H16	IO_L37N_A6_M1A1_1
G14	IO_L36P_A9_M1BA0_1
G16	IO_L36N_A8_M1BA1_1
F15	IO_L35P_A11_M1A7_1
F16	IO_L35N_A10_M1A2_1
E15	IO_L34P_A13_M1WE_1
E16	IO_L34N_A12_M1BA2_1
C15	IO_L33P_A15_M1A10_1
C16	IO_L33N_A14_M1A4_1
F13	IO_L32P_A17_M1A8_1
F14	IO_L32N_A16_M1A9_1
D14	IO_L31P_A19_M1CKE_1
D16	IO_L31N_A18_M1A12_1
F12	IO_L30P_A21_M1RESET_1
G11	IO_L30N_A20_M1A11_1
B15	IO_L29P_A23_M1A13_1
B16	IO_L29N_A22_M1A14_1
E13	IO_L1P_A25_1
E12	IO_L1N_A24_VREF_1
R13	VCCO_1
N15	VCCO_1
K13	VCCO_1
J15	VCCO_1
G13	VCCO_1
D15	VCCO_1

U2

EN- 15
D0 14
D1 13
D2 12
D3 11
D4 10
D5 9
D6 8
D7 7
D8 6
D9 5
D10 4
D11 3
D12 2
D13 1
CLK 28
MODE 25

DGND 26 AGND 20 RGND 16
REFIO 17
FSADJ 18
CMP1 19
OUT- 21
OUT+ 22
CMP2 23
DVDD 27 AVDD 24

DACCLK

R63 0
R64 4.7k
REFIO
C33 0.1uF
R19 2.0k
C32 0.1uF
R21 49.9
R20 49.9
R57 1.0k
R54 1.5k

C28 0.1uF
C29 0.01uF
C30 4.7uF
L2 10uH
+3V3

J4 HS DAC 2 MTA

U14 DAC5311
OUT
VCC GND 5
SDI SCK CS-
3 2 1
C64 0.1uF

C23 0.1uF
U4 ADS7868
SDO GND VDD
SCK IN
CS-
5 4 6 3
C65 100pF

R59 1.0k
R58 1.0k
R61 1.0k
J9 ALC 2 MTA

Q1
PTT
J14 PTT 2 MTA
GND

J7 TX I/O
R4 100
R45 100
R46 100
R47 100
R48 100

C11 0.47uF
C12 0.47uF
C14 4.7uF
C13 100uF
+3V3

Notes:

1. Install R54 and R57 for output level control.
2. Install R61 and J9 for LS DAC output.
3. Install R58 and J9 for LS ADC input.
4. Install R59 and remove R48 for LS ADC input on J7 pin 10.
5. Install Q1 and J14 if PTT required.
6. Install R63 for internal reference or R64 for external reference.

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+3V3

GND

R6 4.7k
R7 4.7k
R8 4.7k

R32 100

J3
1
2
RESET
2_2MM

6SLX25FTG256
U1B2

Signal	Pin
PROGRAM_B_2	T2
IO_L65P_INIT_B_2	R3
IO_L65N_CSO_B_2	T3
IO_L64P_D8_2	M6
IO_L64N_D9_2	N6
IO_L63P_2	P4
IO_L63N_2	T4
IO_L62P_D5_2	L8
IO_L62N_D6_2	L7
IO_L49P_D3_2	N5
IO_L49N_D4_2	P5
IO_L48P_D7_2	R5
IO_L48N_RDWR_B_VREF_2	T5
IO_L47P_2	P6
IO_L47N_2	T6
IO_L32P_GCLK29_2	R7
IO_L32N_GCLK28_2	T7
IO_L31P_GCLK31_D14_2	P7
IO_L31N_GCLK30_D15_2	M7
IO_L30P_GCLK1_D13_2	P8
IO_L30N_GCLK0_USERCCLK_2	T8
IO_L29P_GCLK3_2	M9
IO_L29N_GCLK2_2	N8
IO_L23P_2	R9
IO_L23N_2	T9
IO_L16P_2	L10
IO_L16N_VREF_2	M10
IO_L14P_D11_2	N9
IO_L14N_D12_2	P9
IO_L13P_M1_2	N11
IO_L13N_D10_2	P11
IO_L12P_D1_MISO2_2	N12
IO_L12N_D2_MISO3_2	P12
IO_L3P_D0_DIN_MISO_MISO1_2	P10
IO_L3N_MOSI_CSI_B_MISO0_2	T10
IO_L2P_CMPCLK_2	M12
IO_L2N_CMPMOSI_2	M11
IO_L1P_CCLK_2	R11
IO_L1N_M0_CMPMISO_2	T11
DONE_2	P13
CMPCS_B_2	L11
VCCO_2	R8
VCCO_2	R4
VCCO_2	N7
VCCO_2	N10

LSDAC

PTT

GND

330 R62
330 R2

GRN D4
RED D1

GND GND

R5 330

C15 0.47uF
C16 4.7uF
C17 100uF
+3V3

GND

U5
15 DI/IO0   VCC 2
8 DO/IO1   CS- 7
9 WP-/IO2   CLK 16
1 HLD-/IO3   GND 10

+3V3
C22 0.1uF
GND

U6
5 DI/IO0   VCC 8
2 DO/IO1   CS- 1
3 WP-/IO2   CLK 6
7 HLD-/IO3   GND 4

GND

R29 200
R30 200
GND

Notes:

1. Mode bits set to 01 to select master SPI.

2. Atmel AT45DB (B, C and D); Numonyx M25P, M25PE, M45PE and N25Q; Spansion S25FL032P, S25FL064P and S25FL129P and Winbond W25Q (V and BV) supported.

3. Install 16-pin flash at U5 or 8-pin flash at U6.
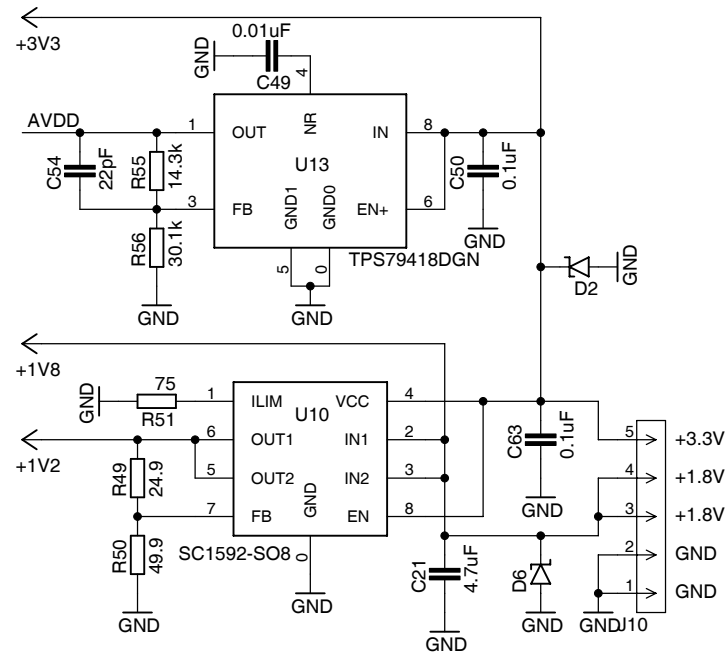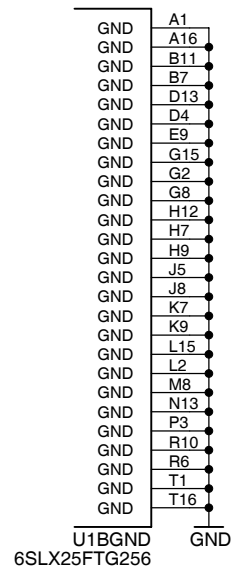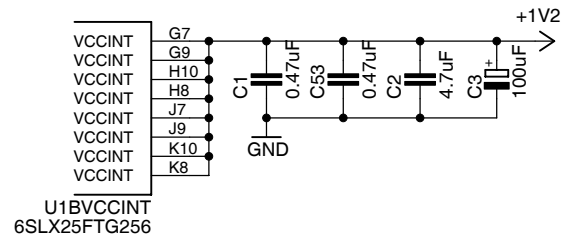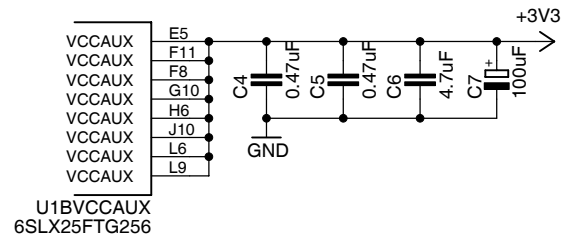
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Flash Memory

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6SLX25FTG256
U1B3

Pin	Signal
B3	IO_L83P_3
A3	IO_L83N_VREF_3
F6	IO_L55P_M3A13_3
F5	IO_L55N_M3A14_3
E4	IO_L54P_M3RESET_3
E3	IO_L54N_M3A11_3
F4	IO_L53P_M3CKE_3
F3	IO_L53N_M3A12_3
B2	IO_L52P_M3A8_3
A2	IO_L52N_M3A9_3
G6	IO_L51P_M3A10_3
G5	IO_L51N_M3A4_3
C1	IO_L50P_M3WE_3
B1	IO_L50N_M3BA2_3
D3	IO_L49P_M3A7_3
D1	IO_L49N_M3A2_3
C3	IO_L48P_M3BA0_3
C2	IO_L48N_M3BA1_3
K5	IO_L47P_M3A0_3
K6	IO_L47N_M3A1_3
E2	IO_L46P_M3CLK_3
E1	IO_L46N_M3CLKN_3
L4	IO_L45P_M3A3_3
L5	IO_L45N_M3ODT_3
H4	IO_L44P_GCLK21_M3A5_3
H3	IO_L44N_GCLK20_M3A6_3
J6	IO_L43P_GCLK23_M3RASN_3
H5	IO_L43N_GCLK22_IRDY2_M3CASN_3
K3	IO_L42P_GCLK25_TRDY2_M3UDM_3
J4	IO_L42N_GCLK24_M3LDM_3
F2	IO_L41P_GCLK27_M3DQ4_3
F1	IO_L41N_GCLK26_M3DQ5_3
G3	IO_L40P_M3DQ6_3
G1	IO_L40N_M3DQ7_3
H2	IO_L39P_M3LDQS_3
H1	IO_L39N_M3LDQSN_3
J3	IO_L38P_M3DQ2_3
J1	IO_L38N_M3DQ3_3
K2	IO_L37P_M3DQ0_3
K1	IO_L37N_M3DQ1_3
L3	IO_L36P_M3DQ8_3
L1	IO_L36N_M3DQ9_3
M2	IO_L35P_M3DQ10_3
M1	IO_L35N_M3DQ11_3
N3	IO_L34P_M3UDQS_3
N1	IO_L34N_M3UDQSN_3
P2	IO_L33P_M3DQ12_3
P1	IO_L33N_M3DQ13_3
R2	IO_L32P_M3DQ14_3
R1	IO_L32N_M3DQ15_3
M5	IO_L2P_3
N4	IO_L2N_3
M4	IO_L1P_3
M3	IO_L1N_VREF_3
N2	VCCO_3
K4	VCCO_3
J2	VCCO_3
G4	VCCO_3
D2	VCCO_3

TXD
TXE
RXD

R3 100
R43 100
R44 100
R52 100
R53 100

RX I/O
J11
10 9 8 7 6 5 4 3 2 1
GND

GND GND
+1V8
C36   C68   L3 10uH   C41   C39
      4.7uF   4.7uF
0.1uF
C35   C38
0.1uF   0.1uF
GND   C40   GND
C34   0.1uF   C37
0.1uF   +3V3   0.1uF
           GND
29 20 13   33   45 36 34 5 4

U3
AD9255/65

CS- 32
SCK 31
SDIO 30
DVDD SVDD AVDD
VIN+ 42
VIN- 43
VCM 46
RBIAS 47
VREF 38
SENSE 37
CLK+ 2
CLK- 3
SYNC 1
OR+ 28
OR- 27
D15 26
D14 25
D13 24
D12 23
D11 22
D10 21
D9 19
D8 18
D7 17
D6 16
D5 15
D4 14
D3 12
D2 11
D1 10
D0 9
DCO+ 8
DCO- 7
OE- 6
LVDS LVDS_RS GND DITHER PDWN
44   41   0   35   48
GND
GND

D3 D5
GND

R23 15   R26 15
C43 18pF
R24 15   R25 15

C82 0.1uF
C83 0.1uF

2_MTA   HS ADC
2
1
J5

R27 49.9   R28 49.9
C44 0.1uF   C52 0.1uF
GND

R22 10.0k
GND
C45 0.1uF
GND
C46 1.0uF
GND
C47 0.1uF
C48 0.1uF
R33 100
ADCCLK+
ADCCLK-

+3V3
C18 0.47uF   C19 0.47uF   C20 4.7uF
GND

Notes:
1. Install L3 if ADC power derived from 1.8V input.

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ADC

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Power supply schematic (Sheet 5/6).

Components and labels:

U1BVCCAUX — 6SLX25FTG256
VCCAUX pins: E5, F11, F8, G10, H6, J10, L6, L9
Capacitors: C4 0.47uF, C5 0.47uF, C6 4.7uF, C7 100uF → +3V3, GND

U1BVCCINT — 6SLX25FTG256
VCCINT pins: G7, G9, H10, H8, J7, J9, K10, K8
Capacitors: C1 0.47uF, C53 0.47uF, C2 4.7uF, C3 100uF → +1V2, GND

U1BGND — 6SLX25FTG256
GND pins: A1, A16, B11, B7, D13, D4, E9, G15, G2, G8, H12, H7, H9, J5, J8, K7, K9, L15, L2, M8, N13, P3, R10, R6, T1, T16 — GND

U13 — TPS79418DGN
Pins: OUT (1), NR, IN (8), FB (3), GND1, GND0, EN+ (6), 5
+3V3, GND, C49 0.01uF
AVDD, C54 22pF, R55 14.3k, R56 30.1k, C50 0.1uF, D2, GND

U10 — SC1592-SO8
Pins: ILIM (1), VCC (4), OUT1 (6), IN1 (2), OUT2 (5), IN2 (3), FB (7), EN (8), GND
+1V8, R51 75, +1V2, R49 24.9, R50 49.9, C63 0.1uF, C21 4.7uF, D6

J10 connector:
5 +3.3V
4 +1.8V
3 +1.8V
2 GND
1 GND

Notes:
1. Install U13, C49, C50 and C54 if ADC power derived from 3.3V input.
2. Install R55 and R56 only if TPS79401 substituted for TPS79418.

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Clock and JTAG

REF IN

J16

GND

R39 49.9
GND

0.01uF C61

R38 10k
GND

R37 10k +3V3

U12A
74LVC1G14
2
4
R41 24
REFCLK

U12B
74LVC1G14
+3V3
C60 0.1uF
5
VCC
GND
3
GND

10uH L4
+3V3

VDDCLK
0.01uF C56
GND

U9
4 Vdd
CTL   OUT
1   3 CLK
2 GND
GND

LSDAC
R34 2.0k
1
C57 0.1uF
C58 0.1uF
C62 + 10uF
GND

GND
C67 0.1uF
R40 49.9
CLK IN
J6 U.FL
GND

U8A
5
4
3
FIN1001
ADCCLK+
ADCCLK-

U11A
3GU04
1
7
R35 24
DACCLK

U11B
3GU04
3
5
R36 24
CLK OUT
J15 U.FL
GND

U11C
3GU04
6
2
R42 24
CLK OUT
J8 U.FL
GND

SUSPEND   P14
TCK   C14
TDI   C12
TDO   E14
TMS   A15
U1BNA
6SLX25FTG256

GND

+3V3
R31 24

J1
2 VREF   13
            11
4 TMS   9
            7
6 TCK   5
            3
8 TDO   1
10 TDI
GND
JTAG-H

GND

1 6 5 4 3
2
Z2   PESD3V3L5UY
GND

VDDCLK
U8B FIN1001
C55 0.1uF
1
VCC
GND
2

C59 0.1uF

U11D 3GU04
8
VCC
GND
4

C42 4.7uF

GND

Notes:
1. Install U9, R34, C56, C57, C58 and C62 for internal clock.
2. Install C67, R40 and J6 for external clock.
3. Install R36, R42, J8 and J15 for clock output.
4. Install C60, C61, J16, R37, R38, R39, R41 and U12 to allow reference input for internal clock.

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