

CMOS 16-BIT SINGLE-CHIP MICROCONTROLLER
S5U1C17803T1 Manual
(Software Evaluation Tool for S1C17803)

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Configuration of product number

Devices

S1 C 17xxx F 00E1 00

Packing specifications

00: Besides tape & reel	
0A: TCP BL	2 directions
0B: Tape & reel BACK	
0C: TCP BR	2 directions
0D: TCP BT	2 directions
0E: TCP BD	2 directions
0F: Tape & reel FRONT	
0G: TCP BT	4 directions
0H: TCP BD	4 directions
0J: TCP SL	2 directions
0K: TCP SR	2 directions
0L: Tape & reel LEFT	
0M: TCP ST	2 directions
0N: TCP SD	2 directions
0P: TCP ST	4 directions
0Q: TCP SD	4 directions
0R: Tape & reel RIGHT	
99: Specs not fixed	

Specification

Package

[D: die form; F: QFP, B: BGA]

Model number

Model name

[C: microcomputer, digital products]

Product classification

[S1: semiconductor]

Development tools

S5U1 C 17000 H2 1 00

Packing specifications

[00: standard packing]

Version

[1: Version 1]

Tool type

Hx: ICE
Dx: Evaluation board
Ex: ROM emulation board
Mx: Emulation memory for external ROM
Tx: A socket for mounting
Cx: Compiler package
Sx: Middleware package

Corresponding model number

[17xxx: for S1C17xxx]

Tool classification

[C: microcomputer use]

Product classification

[S5U1: development tool for semiconductor products]

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1. Overview

S5U1C17803T1 (S5U1C17803T1: Software eValuation Tool for S1C17803) is a board for development support and evaluation of single-chip microcontroller S1C17803 made by Seiko Epson. S5U1C17803T1 is made up of CPU board, LCD board, and audio board. It has built-in S1C17803 and peripheral circuits, extension connectors, and power circuit, and it is possible to perform the functions of LCD display, sound output, battery backup, and infrared emission/reception. The functions can also be extended through the extension connectors.

Connecting the S5U1C17803T1 to on-chip ICE S5U1C17001H^{*1} (ICDmini) made by our company offers a software development environment for S1C17803.

In addition, sample software for function checking is included with the shipment package.

This document should be used together with the circuit diagrams and parts list of this product.

Note: Components on the S5U1C17803T1 are subject to change without notice.

■ S5U1C17803T1 CPU board

1) CPU	S1C17803F (TQFP15-128) (U1)
2) Input power voltage	External power supply +5.V (DC) Coin battery for battery backup (CR2032) +3.0V (DC)
3) CPU clock	OSC1: 32.768kHz crystal resonator (X1) OSC3: 33.333MHz crystal resonator (X2)
4) Built-in devices	Power supply switch (SW8) Reset switch (SW10) Key switches (SW1 to SW6) ED jog encoder (SW7) Power switch (SW9) Function switching jumpers (JP1 to JP6) ICD Mini interface connectors (CN5, CN6) LCD board interface connectors (CN4, CN8) Audio board interface connectors (CN1 to CN3) Extension connectors (CN7, CN9*2) NOR flash memory (U9) SRAM (U10) EEPROM (U7) 3-color LED (D1) Infrared emitting diode (D2) Infrared receiving modules (U8) (U6*3)

■ S5U1C17803T1 LCD board

1) Built-in devices	LCD module (3.5-inch B&W QVGA resistive-film touch panel included) CPU board interface connectors (CN1, CN3) LCD module interface connectors (CN2, CN4)
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■ S5U1C17803T1 audio board

1) Built-in devices	Digital audio DAC (U6) Stereo jack (J1) DIP switch (for I2S clock input switching) (SW1) CPU board interface connectors (CN1 to CN3)
2) Clock	11.2896MHz crystal resonator (for digital audio DAC input) (X1)

*1 Use S5U1C17001H1200 (ICDmini Ver1.1) and later.

*2 Connector CN9 of CPU board is not yet fitted when shipped.

*3 Infrared receiving module U6 of CPU board is not yet fitted when shipped.

2. Name and Function of Individual Component

2. Name and Function of Individual Component

2.1 Name of Individual Component

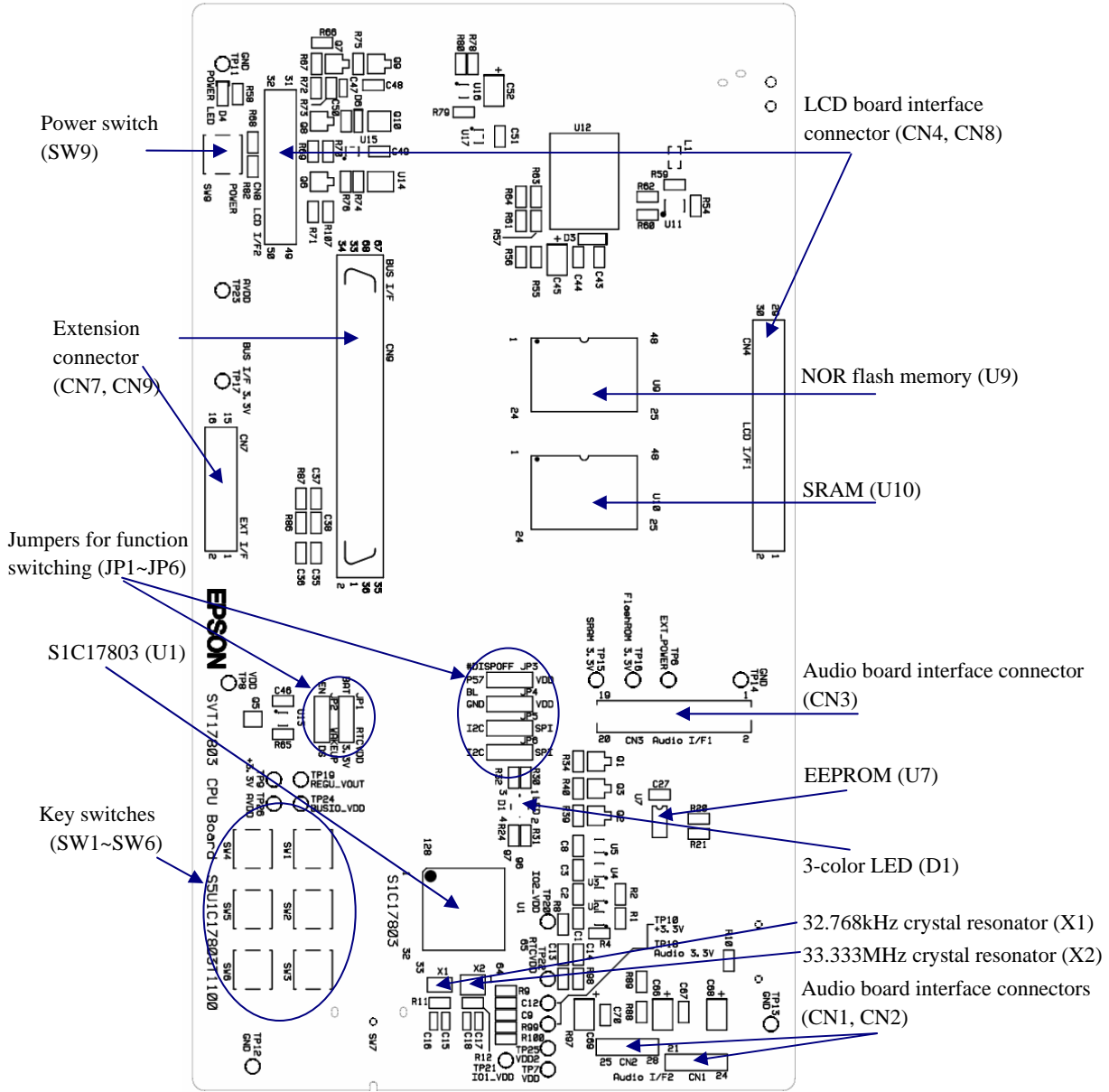


Figure 2.1 Names of individual components of S5U1C17803T1 CPU board's front surface

2. Name and Function of Individual Component

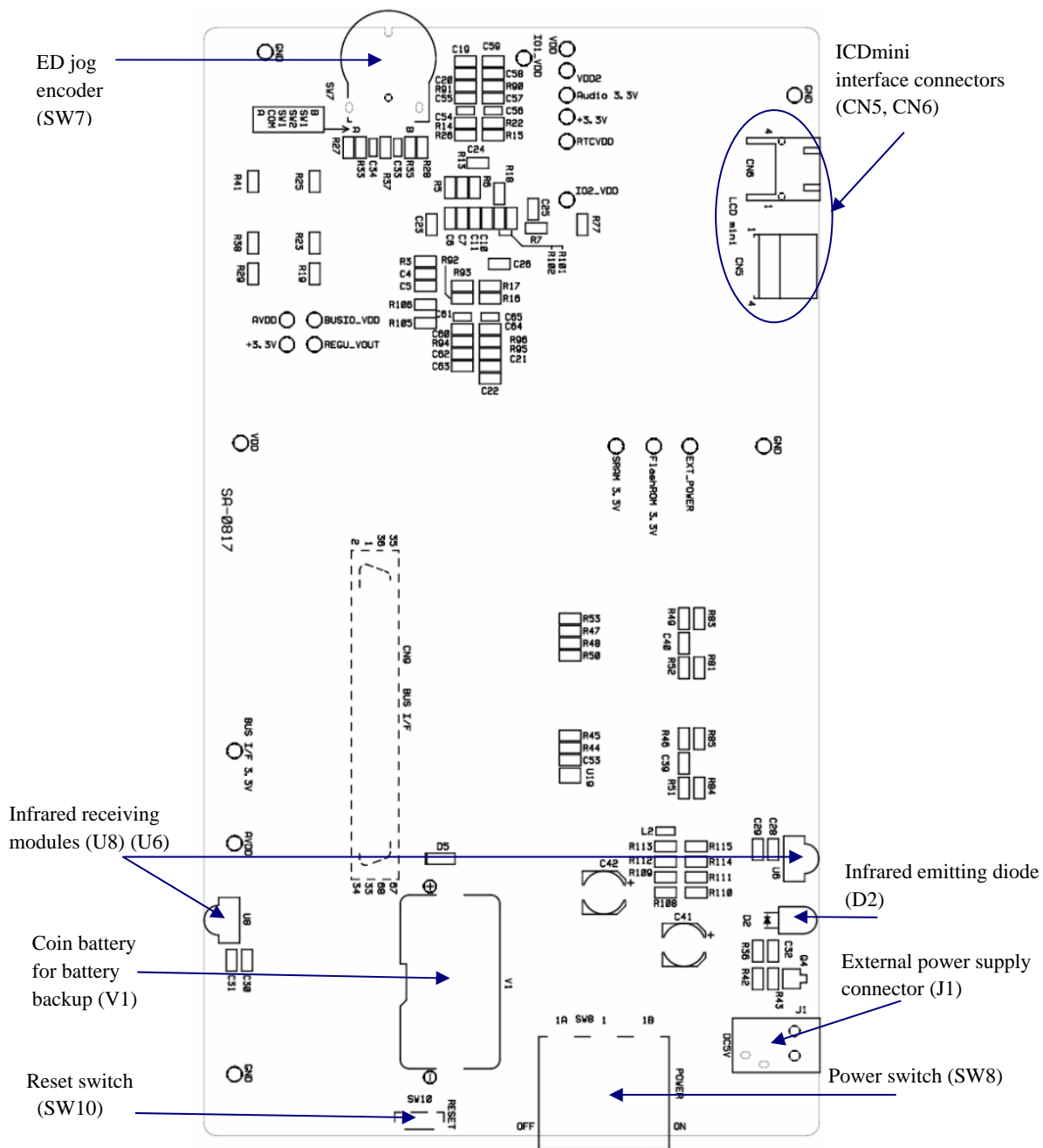


Figure 2.2 Names of individual components of S5U1C17803T1 CPU board's rear surface

2. Name and Function of Individual Component

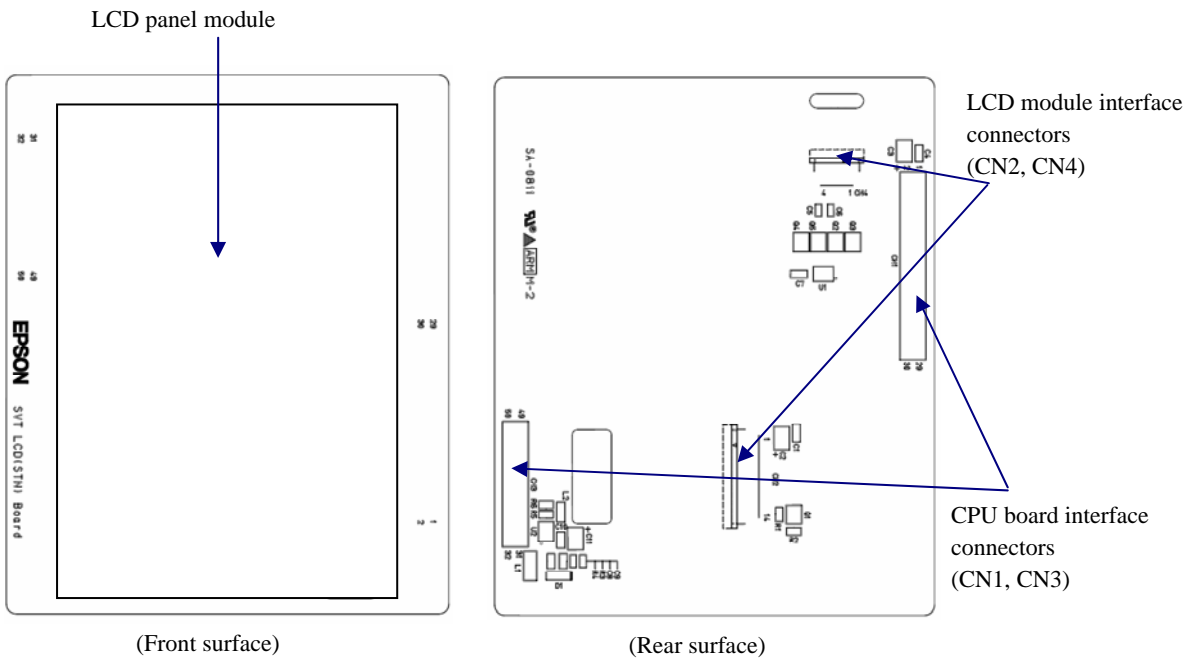


Figure 2.3 Names of individual components of S5U1C17803T1 LCD board

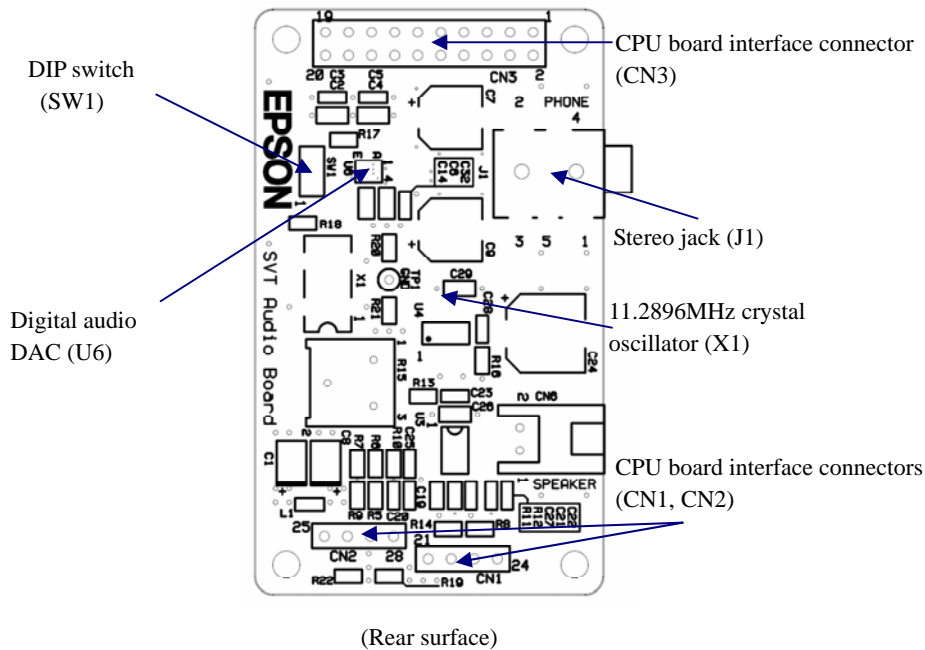


Figure 2.4 Names of individual components of S5U1C17803T1 audio board

2. Name and Function of Individual Component

2.2 Functions of Individual Component

2.2.1 Jumper and DIP switch functions

Table 2.1 List of Functions of the Jumpers on CPU Board

Jumper Name	Jumper Type	Settings When Shipped	Selectable Function
JP1	Pin	3.3V: RTCVDD supplied from board	BAT: RTCVDD supplied from coin battery
JP2	Pin	EN: Standby/wakeup ^{*1} circuit enabled	DS: Standby/wakeup circuit disabled
JP3	Pin	VDD: LCD display is normally enabled	P57: LCD display's enable/disable is controlled by P57
JP4	Pin	VDD: LCD backlight ON	GND: LCD backlight OFF
JP5	Pin	SPI: Output SPI(US_SDI1) to CN3	I2C: Output I2C(I2CM_SDA) to CN3
JP6	Pin	SPI: Output SPI(US_SDO1) to CN3	I2C: Output I2C(I2CM_SCL) to CN3
R108, R109, R110, R111	Resistor	R108=R109=0Ω R110=R111=OPEN: VDD=5V	R108=R109=OPEN R110=R111=0Ω: VDD=3.3V ^{*4}
R112, R113, R114, R115	Resistor	R112=R113=0Ω R114=R115=OPEN: AVDD=5V	R112=R113=OPEN R114=R115=0Ω: AVDD=3.3V
R22, R26, R90, R91	Resistor	R22=10kΩ, R90=0Ω, R26=R91=OPEN: Built-in regulator function ^{*2*4} enabled	R22=R90=OPEN, R26=10kΩ, R91=0Ω: Built-in regulator function disabled
R3 ^{*3}	Resistor	R3=0Ω: BUSIO_VDD power supplied	R3=OPEN: BUSIO_VDD power not supplied
R5 ^{*3}	Resistor	R5=0Ω: AVDD power supplied	R5=OPEN: AVDD power not supplied
R6 ^{*3}	Resistor	R6=0Ω: RTCVDD power supplied	R6=OPEN: RTCVDD power not supplied
R7 ^{*3}	Resistor	R7=0Ω: IO2_VDD power supplied	R7=OPEN: IO2_VDD power not supplied
R9 ^{*3}	Resistor	R9=0Ω: IO1_VDD power supplied	R9=OPEN: IO1_VDD power not supplied

*1 For details on standby/wakeup circuit, refer to the S1C17803 technical manual.

*2 For details on built-in regulator function, refer to the S1C17803 technical manual.

*3 By removing the resistor and inserting an ammeter in between, each power source of the S1C17803 unit can be measured with ammeter.

*4 If used with VDD=3.3V, the built-in regulator function cannot be enabled.

Table 2.2 List of DIP Switch Functions of the Audio Board

Name of Switch	Settings When Shipped	Selectable Function
SW1 ^{*5}	OFF: The clock feeding the digital stereo DAC is I2S_MCLK of S1C17803	ON: The clock feeding the digital stereo DAC is 11.2896MHz crystal oscillator

*5 If using with it turned ON, change the OSC3 frequency to a multiple of 11.2896MHz.

2. Name and Function of Individual Component

2.2.2 Functions of Each Portion of CPU Board

Table 2.3 List of Components and Functions of Each Portion of CPU Board

Component Name	Location	Function
Power switch	SW8	The board is supplied with power when the power cable is connected to the connector (J1) for external power supply and this SW is turned ON.
Reset switch	SW10	S1C17803 is reset by pressing this SW.
Key switch	SW1 to SW6	It is connected to S1C17803 ports P44 and AIN3. Pressing this SW makes P44 to be at LOW level, and changes in AIN3 voltage depend on the pressed SW.
ED jog encoder	SW7	It is connected to S1C17803 ports P42, P43, and P44. It is normally at the HIGH level, and it is made to be at LOW level through this SW operation.
Power switch	SW9	Power control using the standby/wakeup circuit is possible by pressing this SW.
ICDmini interface connector	CN5, CN6	Communication with ICDmini is possible by connecting CN5 to the 4-pin connector for ICDmini target connection, and CN6 to the 4-pin connector for ICDmini flash-write power supply.
LCD board interface connector	CN4, CN8	LCD board can be controlled by respectively connecting CN4 to LCD board's CN1, and CN8 to LCD board's CN3.
Audio board interface connector	CN1, CN2, CN3	Audio board can be controlled by respectively connecting CN1 to audio board's CN1, CN2 to audio board's CN2, and CN3 to audio board's CN3.
Extension connector	CN7, CN9	Used when it is desired to connect externally to board and others.
NOR flash memory	U9	This memory is connected to external bus of S1C17803.
SRAM	U10	This SRAM is connected to external bus of S1C17803.
EEPROM	U7	This EEPROM is connected to I2C of S1C17803.
3-color LED	D1	This 3-color LED is controlled from ports PC1 to PC3 of S1C17803 via transistor.
Infrared emitting diode	D2	Infrared emitting diode is controlled by the S1C17803 remote controller (REMC) output terminal via transistor.
Infrared receiving diode	U8, U6	Infrared receiving module is connected to the S1C17803 remote controller (REMC) input terminal.

2.2.3 Functions of Each Portion of LCD Board

Table 2.4 List of Components and Functions of Each Portion of LCD Board

Component Name	Location	Function
LCD module	-	QVGA panel module with black-and-white STN panel (includes resistive-film touch panel).
CPU board Interface connector	CN1, CN3	Connectors for connecting to CPU board.
LCD module interface connector	CN2, CN4	Connectors for connecting to LCD module.

2. Name and Function of Individual Component

2.2.4 Functions of Each Portion of Audio Board

Table 2.5 List of Components and Functions of Each Portion of Audio Board

Component Name	Location	Function
Digital audio DAC	U6	Audio output is possible through command output via SPI and digital audio data input via I2S.
Stereo jack	J1	Stereo minijack (3.5mm diameter) for audio output.
DIP switch	SW1	The clock source for input to digital audio DAC can be switched. Set to "ON" if inputting from the 11.2896MHZ crystal oscillator built onto this board. Set to "OFF" if inputting from the I2S_MCLK terminal of S1C17803.
CPU board interface connector	CN1, CN2, CN3	Connectors for connecting to CPU board.
11.2896MHz crystal oscillator	X1	Crystal oscillator for digital audio DAC input.

3. Block Diagram

3. Block Diagram

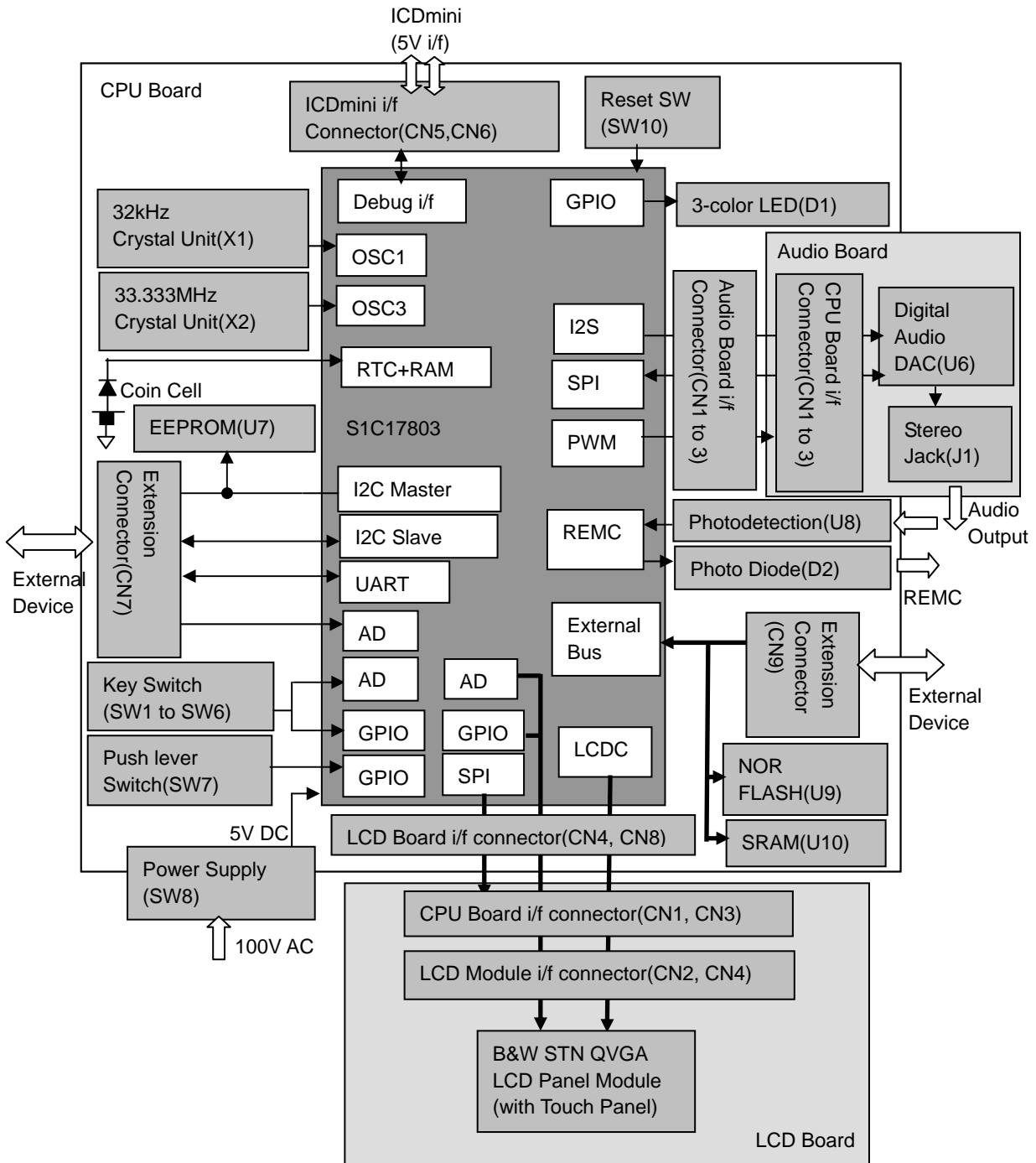


Figure 3.1 S5U1C17803T1 Block Diagram

4. Connectors

4.1 CPU Board Connectors

4.1.1 LCD board interface connectors (CN4, CN8)

Table 4.1 LCD Board Interface Connector (CN4) Pin Assignment Table

No.	Name	I/O	Function	No.	Name	I/O	Function
1	VDD	-	Power supply terminal (+)	16	NC	-	Unconnected
2	VDD	-	Power supply terminal (+)	17	NC	-	Unconnected
3	DAT0	I/O	PC0/I2S_SDO/FPDAT0	18	GND	-	Power supply terminal (-)
4	DAT1	I/O	PC1/I2S_WS/FPDAT1	19	NC	-	Unconnected
5	DAT2	I/O	PC2/I2S_SCK/FPDAT2	20	NC	-	Unconnected
6	GND	-	Power supply terminal (-)	21	NC	-	Unconnected
7	DAT3	I/O	PC3/I2S_MCLK/FPDAT3	22	NC	-	Unconnected
8	DAT4	I/O	PC4/TMH/FPDAT4	23	GND	-	Power supply terminal (-)
9	DAT5	I/O	PC5/TML/FPDAT5	24	FRAM	I/O	P54/#SMRD/FPFRAME
10	GND	-	Power supply terminal (-)	25	LINE	I/O	P55/#SMWR/FPLINE
11	DAT6	I/O	PC6/EXCL0/FPDAT6	26	GND	-	Power supply terminal (-)
12	DAT7	I/O	PC7/ATMB/FPDAT7	27	SFT	I/O	P56/REMC_IN/FPSHIFT
13	NC	-	Unconnected	28	GND	-	Power supply terminal (-)
14	GND	-	Power supply terminal (-)	29	RDY	I/O	P57/REMC_OUT/FPDRDY
15	NC	-	Unconnected	30	GND	-	Power supply terminal (-)

Table 4.2 LCD Board Interface Connector (CN8) Pin Assignment Table

No.	Name	I/O	Function	No.	Name	I/O	Function
31	NC	-	Unconnected	41	BL	O	(JP4) VDD or GND
32	NC	-	Unconnected	42	GND	-	Power supply terminal (-)
33	NC	-	Unconnected	43	GND	-	Power supply terminal (-)
34	GND	-	Power supply terminal (-)	44	AD0	I	P01/AIN1
35	SDO	I/O	P51/US_SDO1/ #WDT_NMI/REMC_OUT	45	AD1	I	P02/AIN2
36	SDI	I/O	P50/US_SDI1/ CMU_CLK/REMC_IN	46	INT	-	Unconnected
37	CLK	I/O	P52/US_SCK1/ WDT_CLK/I2CS_SCL	47	XL	I/O	P26/#SMRD
38	XCS	I/O	P53/#US_SSI1/ #ADTRG/EXCL0	48	XH	I/O	P27/#SMWR
39	RST	I/O	(JP3) P57 or VDD	49	NC	-	Unconnected
40	PWR	-	Power supply terminal (+)	50	NC	-	Unconnected

4.1.2 Audio board interface connectors (CN1 to CN3)

Table 4.3 Audio Board Interface Connector (CN1) Pin Assignment Table

No.	Name	I/O	Function	No.	Name	I/O	Function
21	GND	-	Power supply terminal (-)	23	5V	-	5V power supply terminal (+)
22	3.3V	-	3.3V power supply terminal (+)	24	GND	-	Power supply terminal (-)

4. Connectors

Table 4.4 Audio Board Interface Connector (CN2) Pin Assignment Table

No.	Name	I/O	Function	No.	Name	I/O	Function
25	VDD	-	Power supply terminal (-)	27	TMH	I/O	P34/TMH
26	TML	I/O	P35/TML	28	VDD	-	Power supply terminal (-)

Table 4.5 Audio Board Interface Connector (CN3) Pin Assignment Table

No.	Name	I/O	Function	No.	Name	I/O	Function
1	GND	-	Power supply terminal (-)	11	NC	-	Unconnected
2	3.3V	-	3.3V power supply terminal (+)	12	XRST	I/O	P15/#ADTRG
3	GND	-	Power supply terminal (-)	13	GND	-	Power supply terminal (-)
4	GND	-	Power supply terminal (-)	14	MCKO	I/O	P13/I2S_MCLK
5	DO	I/O	(JP6) P51/US_SDO1/ #WDT_NMI/REMC_OUT or P41/P41/US_SDO0/ I2S_WS_I2CM_SDA	15	WSO	I/O	P11/I2S_WS
6	DI	I/O	(JP5) P50/US_SDI1/ CMU_CLK/REMC_IN or P40/US_SDI0/ I2S_SDO/I2CM_SDA	16	GND	-	Power supply terminal (-)
7	XCS	I/O	P14/CMU_CLK	17	GND	-	Power supply terminal (-)
8	CLK	I/O	P52/US_SCK1/ WDT_CLK/I2CS_SCL	18	GND	-	Power supply terminal (-)
9	GND	-	Power supply terminal (-)	19	SCKO	I/O	P12/I2S_SCK
10	GND	-	Power supply terminal (-)	20	SDO	I/O	P10/I2S_SDO

4.1.3 Extension connectors (CN7, CN9)

Table 4.6 Extension Connector (CN7) Pin Assignment Table

No.	Name	I/O	Function	No.	Name	I/O	Function
1	VDD	-	Power supply terminal (+)	9	P25/ #I2CS_BRST	I/O	P25/#I2CS_BRST
2	AVDD	-	Analog power supply terminal (+)	10	P31/SIN	I/O	P31/SIN
3	P00/AIN0	I	P00/AIN0	11	P32/SOUT	I/O	P32/SOUT
4	P15/ #ADTRG	I/O	P15/#ADTRG	12	P33/#SCLK	I/O	P33/#SCLK
5	P20/ US_SDI0	I/O	P20/US_SDI0	13	P40/ I2C_SDA	I/O	P40/I2C_SDA
6	P21/ US_SDO0	I/O	P21/US_SDO0	14	P41/ I2C_SCL	I/O	P41/I2C_SCL
7	P22/ I2CS_SDA/ US_SCK0	I/O	P22/I2CS_SDA/ US_SCK0	15	GND	-	Power supply terminal (-)
8	P23/ I2CS_SCL/ #US_SSI0	I/O	P23/I2CS_SCL/ #US_SSI0	16	GND	-	Power supply terminal (-)

Table 4.7 Extension Connector (CN9) Pin Assignment Table

No.	Name	I/O	Function	No.	Name	I/O	Function
1	+5V	-	5V power supply terminal (+)	35	A9	I/O	P71/A9
2	+5V	-	5V power supply terminal (+)	36	A10	I/O	P72/A10
3	NC	-	Unconnected	37	A11	I/O	P73/A11
4	NC	-	Unconnected	38	A12	I/O	P74/A12
5	+3.3V	-	3.3V power supply terminal (+)	39	A13	I/O	P75/A13
6	+3.3V	-	3.3V power supply terminal (+)	40	A14	I/O	P76/A14
7	NC	-	Unconnected	41	A15	I/O	P77/A15
8	NC	-	Unconnected	42	A16	I/O	P80/A16
9	D0	I/O	P90/D0	43	A17	I/O	P81/A17
10	D1	I/O	P91/D1	44	A18	I/O	P82/A18
11	D2	I/O	P92/D2	45	A19	I/O	P83/A19
12	D3	I/O	P93/D3	46	A20	I/O	P84/A20/#CE1
13	D4	I/O	P94/D4	47	A21	I/O	P85/A21
14	D5	I/O	P95/D5	48	A22	I/O	P86/A22
15	D6	I/O	P96/D6	49	NC	-	Unconnected
16	D7	I/O	P97/D7	50	#CE1	I/O	PA1/#CE1
17	D8	I/O	PB0/D8	51	#RD	I/O	PA4/#RD
18	D9	I/O	PB1/D9	52	#WRL	I/O	PA5/#WRL
19	D10	I/O	PB2/D10	53	#BHE	I/O	PA6/#WRH/#BSH
20	D11	I/O	PB3/D11	54	#BLE	I/O	P60/A0/#BSL
21	D12	I/O	PB4/D12	55	RY/#BY	I/O	PA3/#CE3
22	D13	I/O	PB5/D13	56	NC	-	Unconnected
23	D14	I/O	PB6/D14	57	CLE	I/O	P40/US_SDI0/ I2S_SDO/I2CM_SDA
24	D15	I/O	PB7/D15	58	ALE	I/O	P41/US_SDO0/ I2S_WS/I2CM_SCL
25	NC	-	Unconnected	59	#SMRD	I/O	P26/#SMRD
26	A0	I/O	P60/A0/#BSL	60	#SMWR	I/O	P27/#SMWR
27	A1	I/O	P61/A1	61	#SMWP	I/O	PC0/I2S_SDO/FPDAT0
28	A2	I/O	P62/A2	62	NC	-	Unconnected
29	A3	I/O	P63/A3	63	#RESET	I	#RESET
30	A4	I/O	P64/A4	64	NC	-	Unconnected
31	A5	I/O	P65/A5	65	VSS	-	Power supply terminal (-)
32	A6	I/O	P66/A6	66	VSS	-	Power supply terminal (-)
33	A7	I/O	P67/A7	67	VSS	-	Power supply terminal (-)
34	A8	I/O	P70/A8	68	VSS	-	Power supply terminal (-)

4. Connectors

4.2 LCD Board Connector

4.2.1 CPU board interface connector (CN1, CN3)

Table 4.8 CPU Board Interface Connector (CN1) Pin Assignment Table

No.	Name	I/O	Function	No.	Name	I/O	Function
1	VDD	I	Power supply terminal (+)	16	NC	-	Unconnected
2	VDD	I	Power supply terminal (+)	17	NC	-	Unconnected
3	DAT0	-	Unconnected	18	GND	-	Power supply terminal (-)
4	DAT1	-	Unconnected	19	NC	-	Unconnected
5	DAT2	-	Unconnected	20	NC	-	Unconnected
6	GND	-	Power supply terminal (-)	21	NC	-	Unconnected
7	DAT3	-	Unconnected	22	NC	-	Unconnected
8	DAT4	O	LCD display data bus	23	GND	-	Power supply terminal (-)
9	DAT5	O	LCD display data bus	24	FRAM	I	LCD display frame clock
10	GND	-	Power supply terminal (-)	25	LINE	I	LCD display data line clock
11	DAT6	O	LCD display data bus	26	GND	-	Power supply terminal (-)
12	DAT7	O	LCD display data bus	27	SFT	I	LCD display data shift clock
13	NC	-	Unconnected	28	GND	-	Power supply terminal (-)
14	GND	-	Power supply terminal (-)	29	RDY	-	Unconnected
15	NC	-	Unconnected	30	GND	-	Power supply terminal (-)

Table 4.9 CPU Board Interface Connector (CN3) Pin Assignment Table

No.	Name	I/O	Function	No.	Name	I/O	Function
31	NC	-	Unconnected	41	BL	-	LCD backlight ON/OFF control
32	NC	-	Unconnected	42	GND	-	Power supply terminal (-)
33	NC	-	Unconnected	43	GND	-	Power supply terminal (-)
34	GND	-	Power supply terminal (-)	44	AD0	O	Touch panel data
35	SDO	-	Unconnected	45	AD1	O	Touch panel data
36	SDI	-	Unconnected	46	INT	-	Unconnected
37	CLK	-	Unconnected	47	XL	I	Touch panel control
38	XCS	-	Unconnected	48	XH	I	Touch panel control
39	RST	I	LCD module ON/OFF control	49	NC	-	Unconnected
40	PWR	I	LCD step-up circuit ON/OFF control	50	NC	-	Unconnected

4.2.2 LCD module interface connectors (CN2, CN4)

Table 4.10 LCD Module Interface Connector (CN2) Pin Assignment Table

No.	Name	I/O	Function	No.	Name	I/O	Function
1	VDD	-	LCD module power supply terminal (+)	8	D0	O	LCD display data bus
2	VSS	-	LCD module power supply terminal (-)	9	D1	O	LCD display data bus
3	VLCD	-	LCD driving power supply terminal (+)	10	D2	O	LCD display data bus
4	FLM	O	LCD display frame clock	11	D3	O	LCD display data bus
5	NC	-	Unconnected	12	XOFF	O	LCD module ON/OFF control
6	CL1	O	LCD display data line clock	13	VLED	-	LCD backlight power supply terminal (+)
7	CL2	O	LCD display data shift clock	14	VLSS	-	LCD backlight power supply terminal (-)

Table 4.11 LCD Memory Interface Connector (CN4) Pin Assignment Table

No.	Name	I/O	Function	No.	Name	I/O	Function
1	LEFT	O	Touch panel control	3	RIGHT	I	Touch panel data
2	TOP	O	Touch panel control	4	BOTTOM	I	Touch panel data

4.3 Audio Board Connectors

4.3.1 CPU board interface connectors (CN1 to CN3)

Table 4.12 CPU Board Interface Connector (CN1) Pin Assignment Table

No.	Name	I/O	Function	No.	Name	I/O	Function
21	GND	-	Power supply terminal (-)	23	5V	-	5V power supply terminal (+)
22	3.3V	-	3.3V power supply terminal (+)	24	GND	-	Power supply terminal (-)

Table 4.13 CPU Board Interface Connector (CN2) Pin Assignment Table

No.	Name	I/O	Function	No.	Name	I/O	Function
25	VDD	-	Power supply terminal (-)	27	TMH	I	PWM signal input
26	TML	I	PWM signal input	28	VDD	-	Power supply terminal (-)

4. Connectors

Table 4.14 Audio Board Interface Connector (CN3) Pin Assignment Table

No.	Name	I/O	Function	No.	Name	I/O	Function
1	GND	-	Power supply terminal (-)	11	NC	-	Unconnected
2	3.3V	-	3.3V power supply terminal (+)	12	XRST	-	Unconnected
3	GND	-	Power supply terminal (-)	13	GND	-	Power supply terminal (-)
4	GND	-	Power supply terminal (-)	14	MCKO	I	Digital audio DAC master clock input
5	DO	I	Digital audio DAC control signal input	15	WSO	I	Digital audio DAC LR clock input
6	DI	-	Unconnected	16	GND	-	Power supply terminal (-)
7	XCS	I	Digital audio DAC control signal input	17	GND	-	Power supply terminal (-)
8	CLK	I	Digital audio DAC control signal input	18	GND	-	Power supply terminal (-)
9	GND	-	Power supply terminal (-)	19	SCKO	I	Digital audio DAC bit clock input
10	GND	-	Power supply terminal (-)	20	SDO	I	Digital audio DAC PCM data input

5. Sample Software Operations

S5U1C17803T1 is shipped with sample software installed.

Here, the operations method is described.

ED jog encoder/touch panel/key switch input, LCD display function, infrared emitting/receiving function, sound output function, battery backup function, each type of communication function, and others can be checked by using this software.

Refer to the source code for detailed explanation of the sample software.

For the sample software development environment, refer to “S5U1C17001C Manual”.

For the details of each peripheral of S1C17803, refer to “S1C1780 Technical Manual”.

5.1 Jumpers and DIP Switches

Switch and use JP1, JP2, and JP4 as desired.

In addition, use the default settings for other jumpers and DIP switches.

5.2. Basic Function Operations Method

5.2.1 Function Overview

The following basic functions are installed.

Table 5.1 Sample Software Basic Function

Function	Explanation
Rice cooker	It is possible to do settings for cook, warm, menu, schedule, and time. The status is displayed on LCD display or LED.
Washer	Displays image of washer on LCD.
AutoDemo	Repeatedly executes rice cooker demo images.
Image	Displays differences in image quality due to gray scale, and each country's greetings.
Setting	Performs communications setup and language setup.
Diagnosing	Checks the functions of S5U1C17803T1 hardware.

5.2.2 Program Startup

Turn on the power to S5U1C17803T1.

Pressing the power switch of S5U1C17803T1 operates the wakeup circuit, starts the supply to main power, and displays the opening screen. The main screen is displayed after 3 seconds.

* Note: For the wakeup circuit, refer to S1C17803 technical manual.

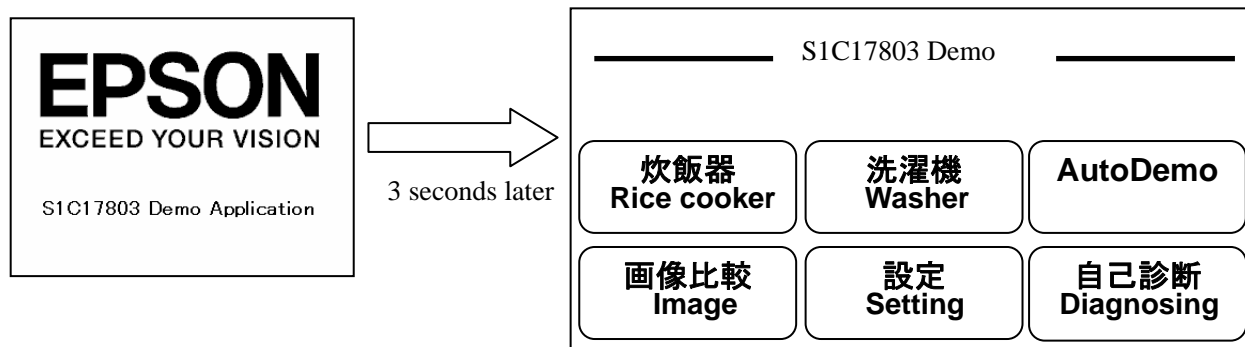


Figure 5.1 Sample Software Main Screen

5. Sample Software Operations

5.2.3 Function selection menu

The function selection menu is displayed on the LCD panel.

Selection can be done through touch panel, key switches (SW1 to SW6), and ED jog encoder (SW7).

Selection by touch panel

Touch the menu directly.

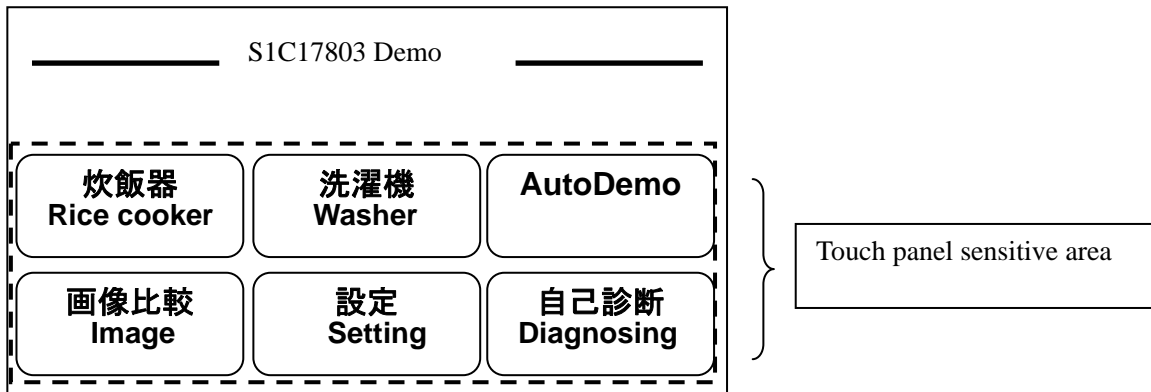


Figure 5.2 Touch Panel Sensitive Area

Selection by key switches (SW1 to SW6)

Press the tactile switch corresponding to the displayed screen.

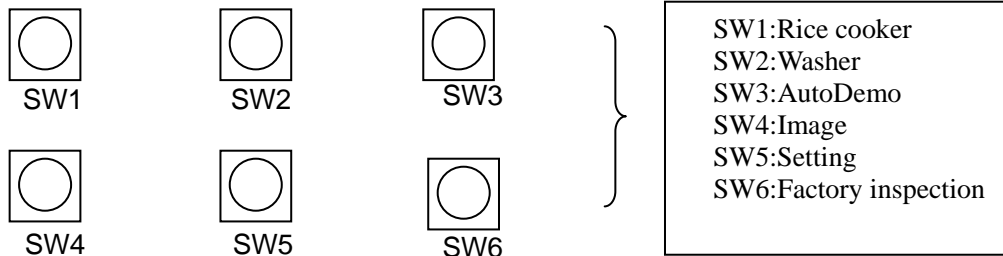


Figure 5.3 Key Switch Diagram

Select by ED jog encoder (SW7)

Move the cursor by using the ED jog encoder (SW7).

Confirm by pressing the [PUSH] switch.

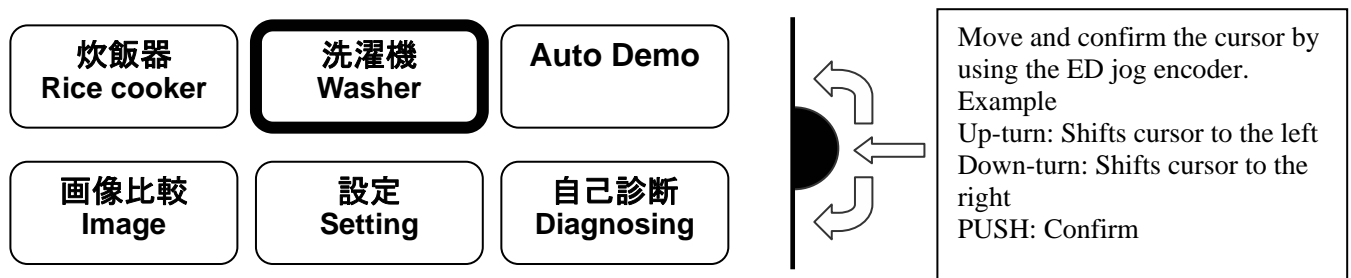


Figure 5.4 ED Jog Encoder Diagram

5.2.4 Rice cooker demo

The display function of the rice cooker is installed.

In the rice cooker demo, the settings for cook/warm/schedule/time and the setting for rice-cooking type are done through touch panel or key switch operations, and communications (infrared emission/reception (REMC), UART, SPI, I2C).

The response to the above-described operations can be confirmed through LCD panel display, LED light-up, or audio output.

Table 5.2 Main Menu for Rice Cooking Demo

Menu Item	Content
Menu	Moves to the rice-cooking menu screen.
Cook	Displays rice-cooking animation.
Timer	Moves to the schedule setup screen.
Warm	Displays keep-warm animation.
Clock	Moves to the time setup screen.
Cancel	Cancels rice cooking and keep-warm. Pressing for 5 times continuously returns to the function selection menu.

- Menu**

The rice-cooking type can be selected by using this function.

The icon of the selected rice-cooking type is displayed.

Table 5.3 Individual Rice-Cooking Icons of Rice-Cooking Demo

Menu Item	Content
Rice	Displays the selection item at the top-left of main screen.
Quick	
Brown	
Porridge	
Cake	
Back	Returns to the main screen of rice-cooker demo.

- Schedule and time settings**

The current time setting and schedule time setting are done using this function.

Table 5.4 Settings of Time and Schedule of Rice Cooking Demo

Menu Item	Content
↑	Increase in schedule time.
↓	Decrease in schedule time.
Choice	Hour/minute selection.
Cancel	Returns to the main screen of rice-cooker demo.
Set	Schedule and time settings / returns to the main screen of rice cooker demo.

After schedule setup, the LED lights up in green.

In addition, after time setup, sound guidance can run. "Timer will be set.Timer has been set."

- Rice cooking**

"Rice" icon is displayed when the [Cook] key is pressed on the main screen of rice cooker demo or upon the scheduled time of rice-cooking schedule.

5 seconds later, animation display is started.

After the animation display ends, sound guidance gives off "Rice has been cooked.Will keep rice warm." and it goes into keep-warm condition.

5. Sample Software Operations

- **Keep warm**

The keep-warm icon is displayed when the [Warm] key is pressed on the main screen of rice cooker demo or when LED light automatically switches green→red after completion of rice cooking.

The schedule and rice cooking are canceled, and it goes into keep-warm condition.

- **Communication function**

In the rice cooker demo, 2 units of S5U1C17803T1 are used, and slave-side operations can be done at the master side through communications. When an operation is performed on the master, the same operation as the master is carried out on the slave.

The master is dedicated for sending and the slave is dedicated for receiving.

The communication type can be selected from among infrared emission/reception (REMC), UART, I2C, and SPI. This setting can be done at the [Setting] menu.

After power-on, the default is Master and infrared emission/reception (REMC) mode.

For other than infrared emission/reception (REMC), it is necessary to connect 2 units of S5U1C17803T1 by cable.

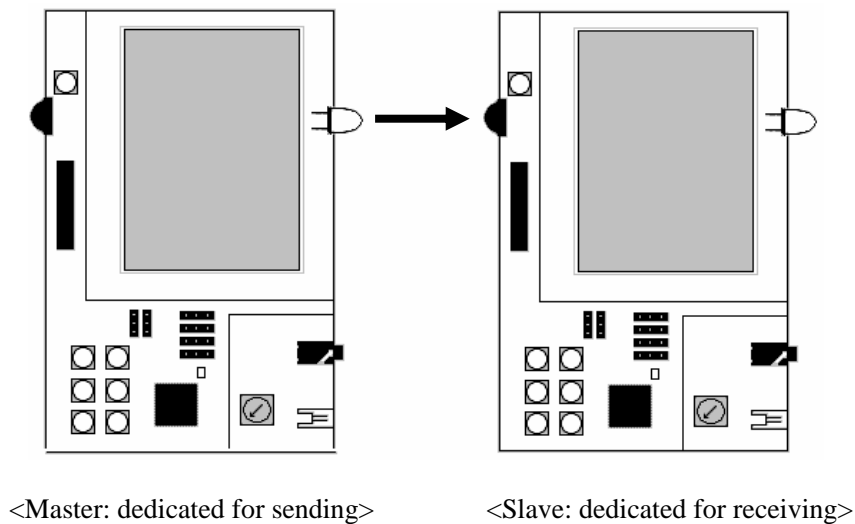


Figure 5.5 Connection for Infrared Emission/Reception (REMC)

I2C connection

The SDA and SCL terminals are connected with 5V pull-up using 10kΩ resistor.

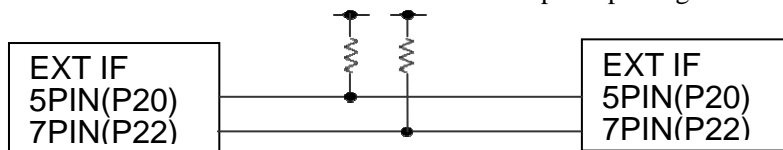


Figure 5.6 I2C Connection

UART connection

The SDI and SDO terminals are cross-connected.

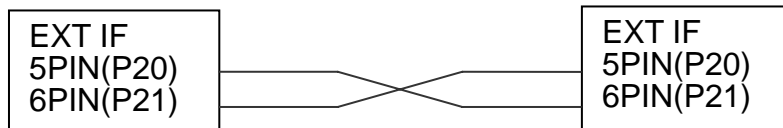


Figure 5.7 UART Connection

SPI connection

The SDI and SDO terminals are cross-connected, and the SCK and SSI terminals are straight-connected.

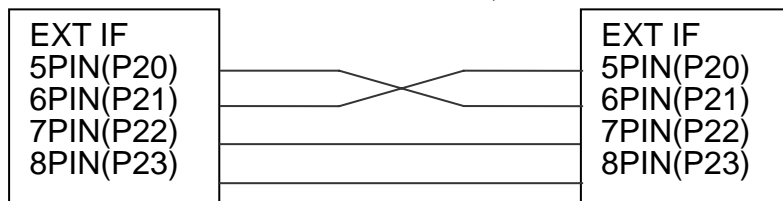


Figure 5.8 SPI Connection

5.2.5 Washer demo

The display function of the washer is installed.
Pressing whichever key switch returns to the main screen.

5.2.6 AutoDemo demo

The images are displayed in sequence.
Pressing whichever key switch returns to the main screen.

5.2.7 Image comparison demo

2-gradation, 4-gradation, and 16-gradation images are displayed.
Pressing whichever key switch returns to the main screen.

5.2.8 Settings

Various types of settings are performed. (The settings are only valid for the rice cooker demo.)
Selections are made for communication's master/slave selection, communication type (infrared emission/reception (REMC), UART, I2C, SPI) selection, and sound guidance's Japanese/English selection.
During power-on (default settings), Master, REMC, and Japanese are set up.

Table 5.5 Various Setting Menu Items

Menu Item	Content
Master/Slave	Selection of Master/Slave for communications.
REMC, UART, I2C, SPI	Selection of communication type.
Japanese/English	Sound guidance's Japanese/English selection.
Cancel	Returns to main screen.
Set	Setting's reflection / return to main screen.

*Note: REMC is the name of infrared emitting/receiving function.

5. Sample Software Operations

5.3 Self-Diagnostic Mode

S5U1C17803T1 is installed with self-diagnostic mode that observes whether the hardware is working normally.

5.3.1 Basic Functions

Table 5.6 Basic Functions of Self-Diagnostic Mode

Item	Explanation
LCD check	Diagnoses the LCD panel.
Key-input check	Diagnoses the input of SW1-7.
SRAM check	Write & read test for entire SRAM.
EEPROM check	Write & read test for entire EEPROM.
LED check	LED light-up test.
Touch panel check	Diagnoses the input of touch panel.
AUDIO check	Diagnoses the sound output.
Infrared emitting/receiving (REMC) check	Diagnoses infrared sending and receiving.

5.3.2 LCD check

The LCD panel is checked.

All unlit → All lit → Displayed in checkered pattern sequence.

It automatically moves to the next check.

5.3.3 Key-input check

The key switches (SW1 to SW6) and ED jog encoder (SW7) are checked.

The pressed key switch is displayed on the LCD panel.

In addition, the cursor is moved by the up-down turn of the ED jog encoder (SW7).

Pressing SW7 moves to the next check.

5.3.4 SRAM/EEPROM check

SRAM write & read check, and EEPROM write & read check are performed.

If write-and-read is successful, OK is displayed.

If write-and-read failed, NG is displayed.

Pressing whichever key switch moves to the next check.

5.3.5 LED check

LED light-up is checked. It lights up in the sequence of

RED → YELLOW → CYAN → BLUE → MAGENTA → WHITE → OFF → RED ...

.

Pressing whichever key switch moves to the next check.

5.3.6 Touch panel check

The touch panel is checked.

If signs are displayed at 4 corners of the panel and pressed, it is black filled.

Pressing whichever key switch moves to the next check.

5.3.7 Audio check

Sound data is reproduced from the ear phone jack.
Sound scale is outputted from the buzzer.

Pressing whichever key switch moves to the next check.

5.3.8 Infrared emission/reception (REMC) check

It checks whether infrared sending/receiving can be done properly.

Prepare testing-side (dedicated use for infrared communication check, receiving→sending) S5U1C17803T1 (testing board) and under-testing-side (sending→receiving) S5U1C17803T1 (under-testing board), totaling 2 units.

Load the infrared communication test dedicated program “S5U1C17803T1_remc” to the testing board.

If operating normally, the data sent from S5U1C17803T1 is displayed to the testing board, and then the data sent from testing board is received.

If communication is successful, the send data sent from under-testing side is displayed by the testing side.

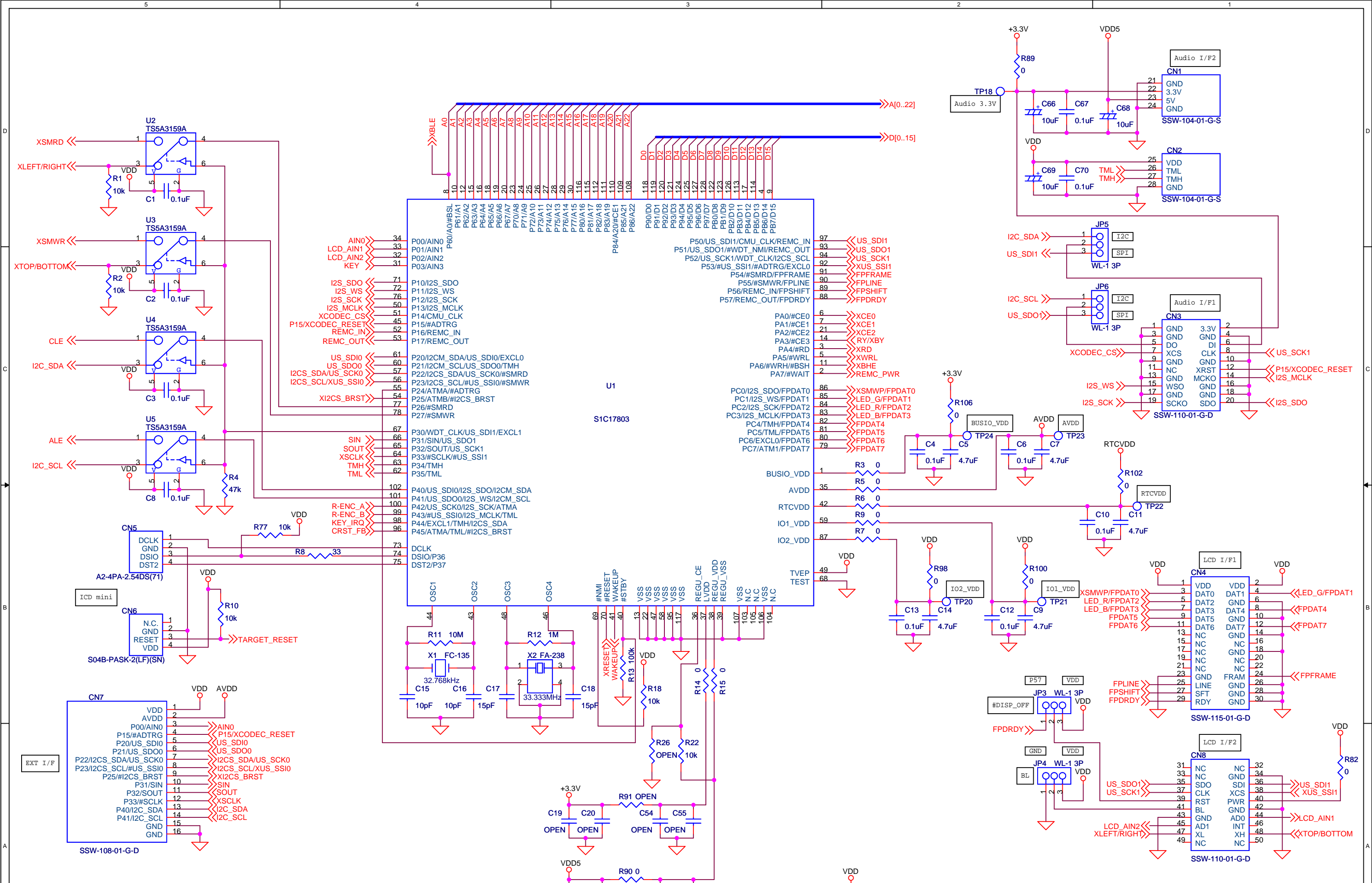
If communication failed, the send data sent from testing side is displayed by the under-testing side.

When the infrared emission/reception (REMC) check is completed, the self-diagnostic mode ends automatically and returns to the main screen.

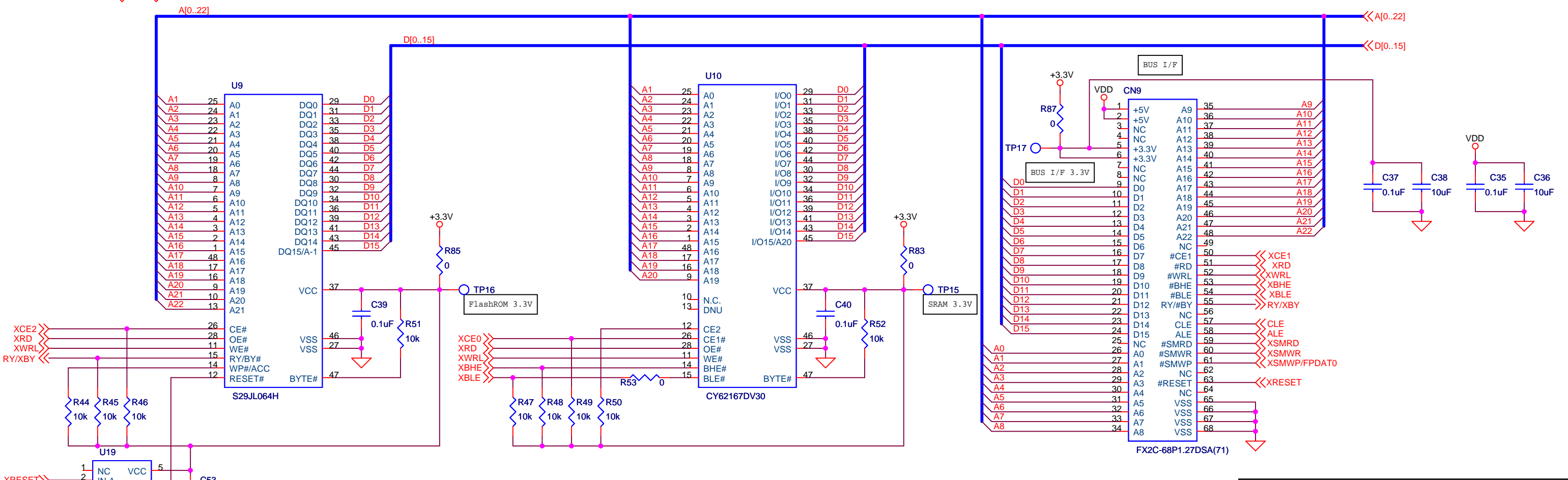
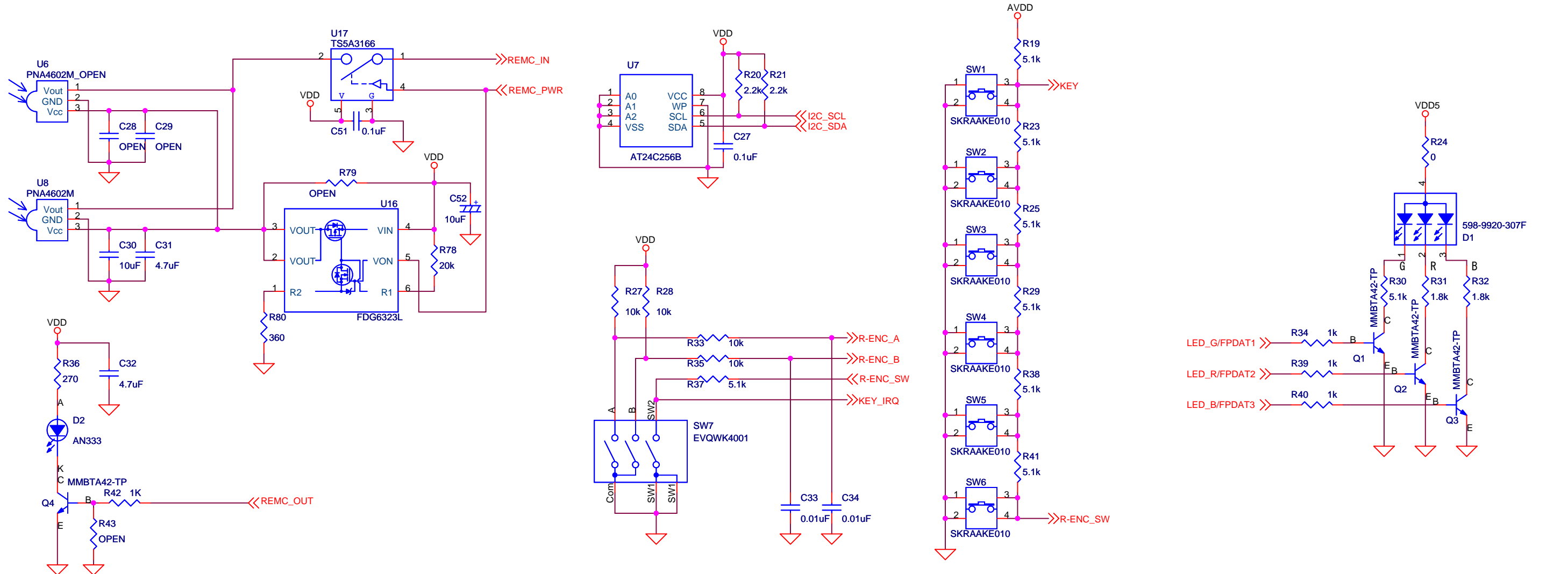
Appendix A Sample Software File Structure

The configuration of the sample software is shown below.

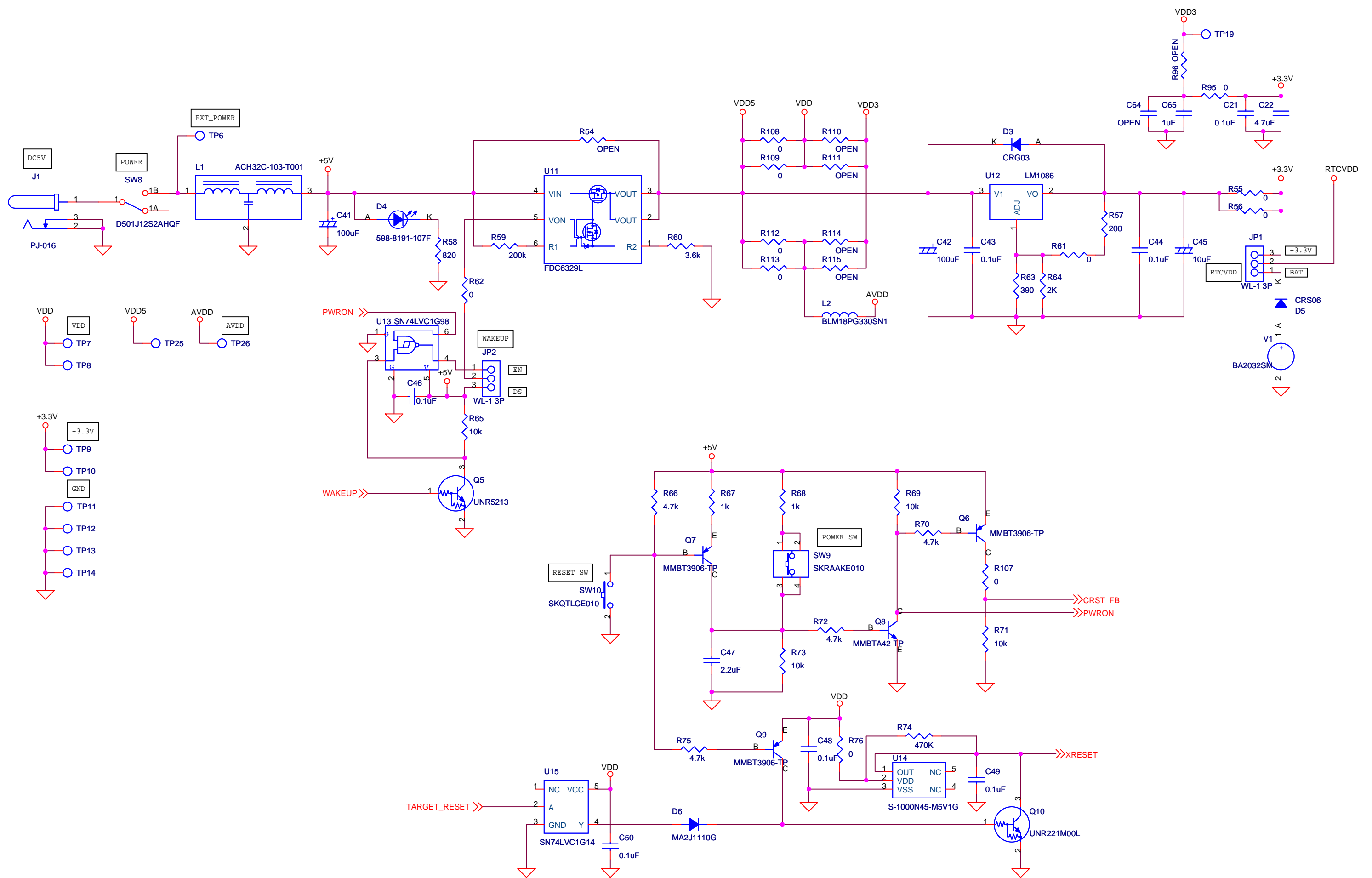
SVT17803	
— aud_md1	Audio control program
— driver	Driver source group
— header	Header definition
— led_md1	LED control program
— picture	Image data
— pnl_md1	Panel control program
— remc_md1	Remote-control control program
— rtc_md1	RTC control program
— tim_md1	Timer control program
— ui_md1	User I/F control program
— usi_md1	Communication control program
— boot.c	Boot process
— vector.c	Vector table definition
— vector.h	
— main.c	Main program
— demoMain.h	
— demoCooker.c	Rice cooker demo program
— demoCooker.h	
— demoImage.c	Image display program
— demoImage.h	
— demoSetting.c	Settings control program
— demoSetting.h	
— demoTest.c	Factory inspection program
— demoTest.h	
— SVT17803_gun17IDE.lds	Linker script file
— SVT17803_gun17IDE.cmd	GDB command file
— SVT17803_gun17IDE.par	Parameter setup file
— SVT17803_gun17IDE.mak	Make file
— .cdtproject	Project file
— .gnu17project	Project file
— .project	Project file
— GDB17 Launch for SVT17803.launch	Project startup file



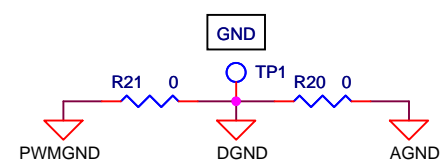
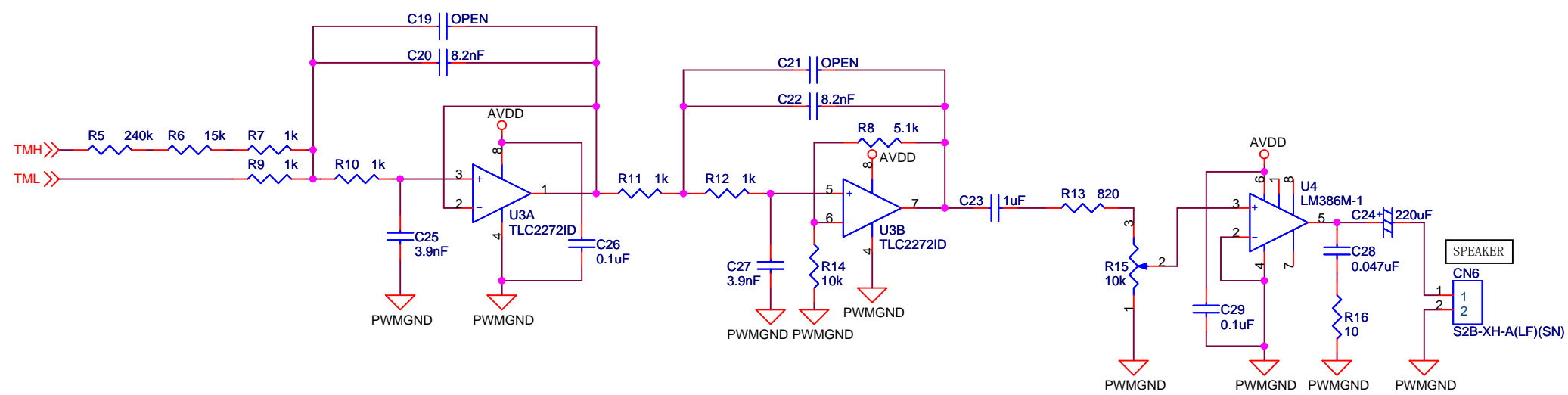
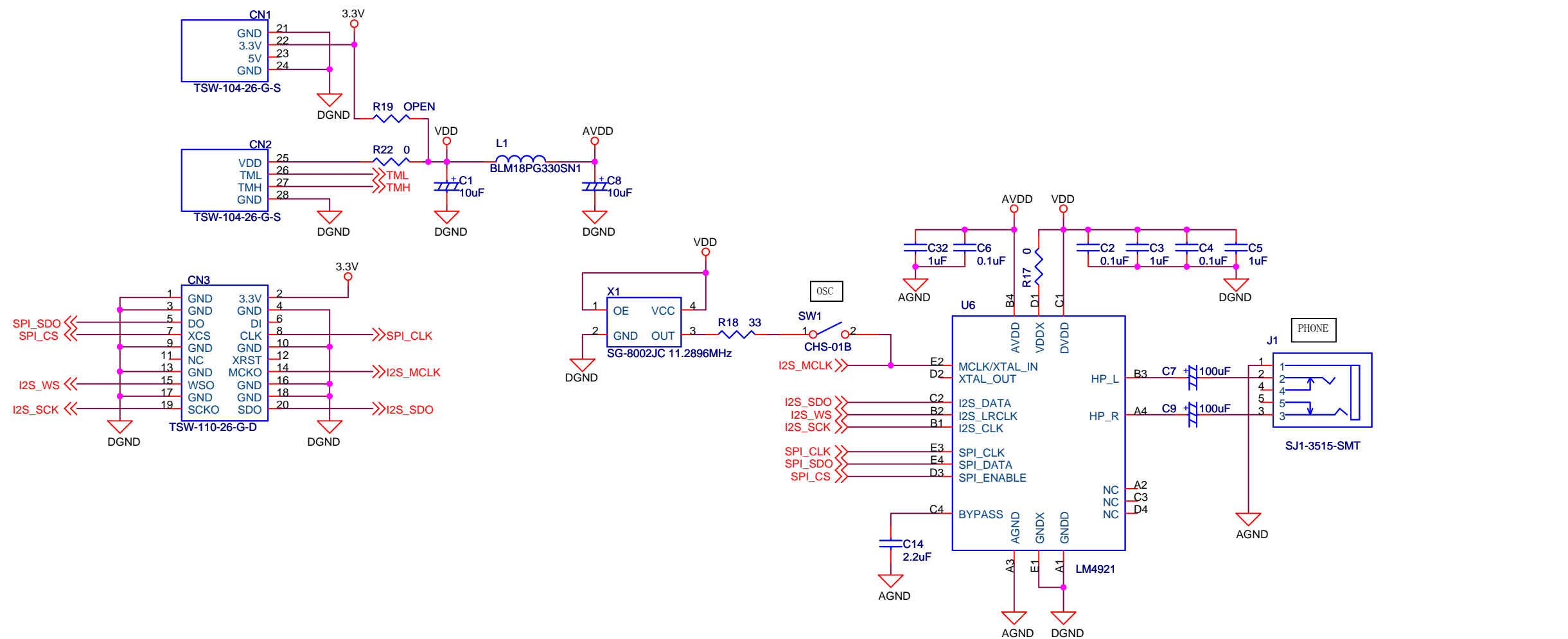
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Size	Document Number	Rev
A3	DR-4333-3201	1.0
Date:	Friday, September 04, 2009	Sheet 1 of 3



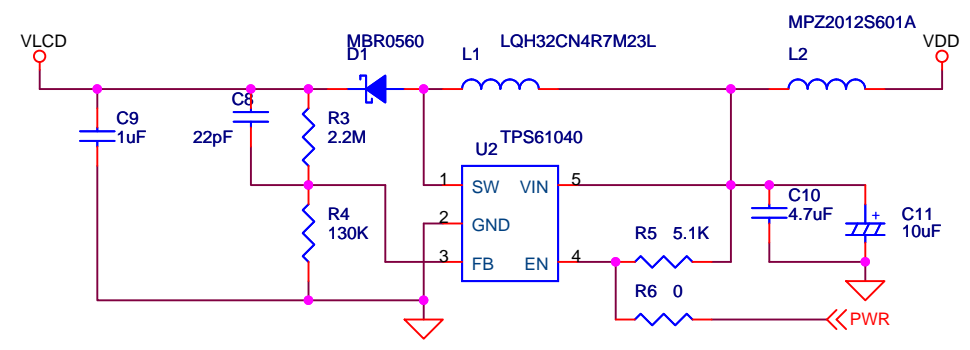
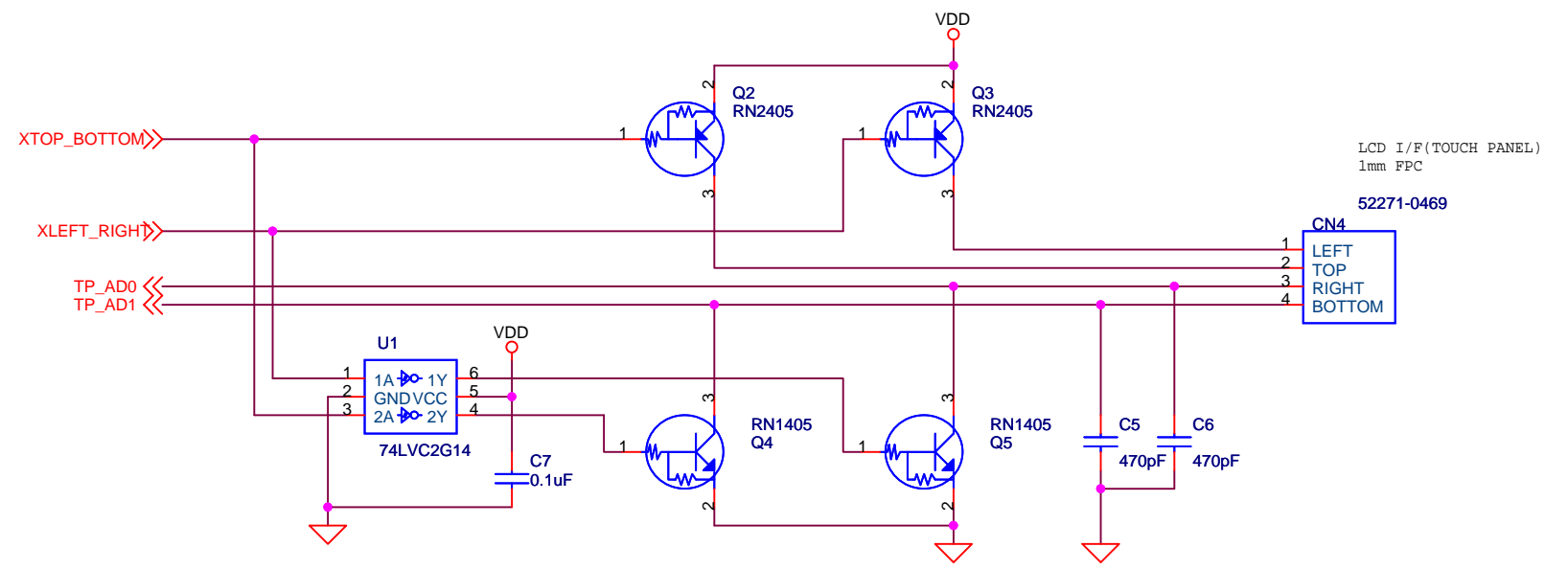
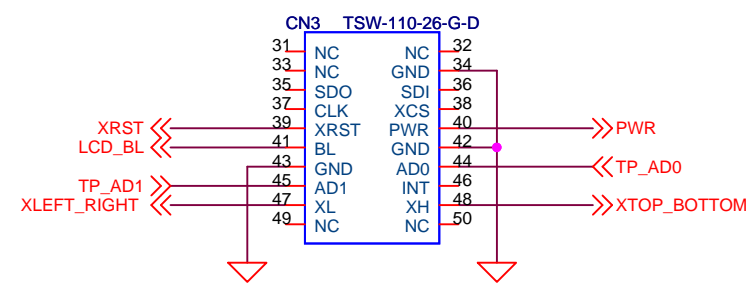
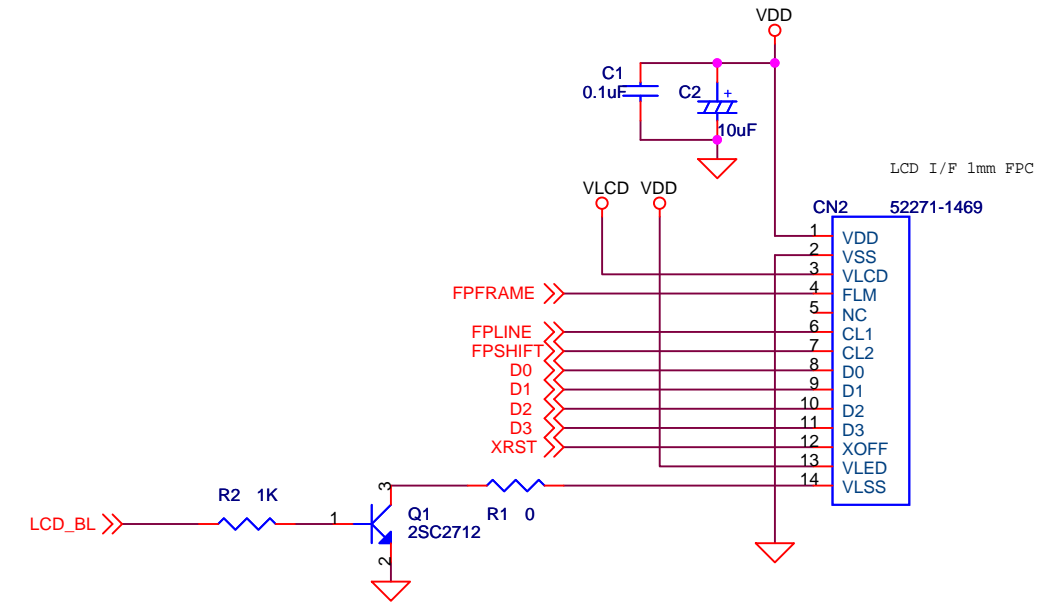
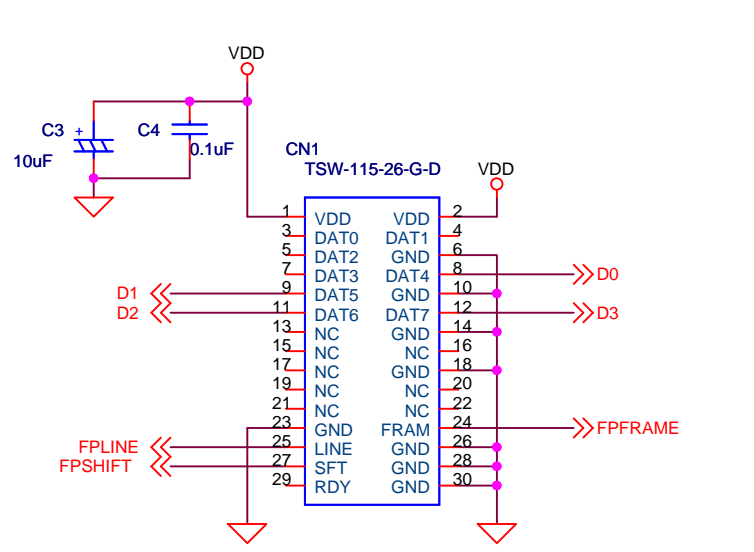
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A3	DR-4333-3201	1.0
Date:	Friday, September 04, 2009	Sheet 3 of 3



Title		
SVT17803 Audio Board		
Size	Document Number	Rev
A3	DR-4333-3204	1.0
Date:	Friday, September 04, 2009	Sheet 1 of 1



Title		
SVT17803 LCD Board		
Size	Document Number	Rev
A3	DR-4333-3202	1.0
Date:	Friday, September 18, 2009	Sheet 1 of 1

NO.	PARTS NAME	LOCATION	MODEL No.	SPECIFICATION	QUANTITY	MAKER
1	MCU	U1	S1C17803	TQFP15-128pin	1	EPSON
2	Serial EEPROM	U7	AT24C256BN-SH-B	SOIC-8,256kb	1	Atmel
3	NOR Flash	U9	S29JL064H70TFI000	TSOP-48,64Mb	1	Spansion
4	SRAM	U10	CY62167DV30LL-55ZXI	TSOP-48,16Mb	1	CYPRESS
5	Load Switch	U11	FDC6329L	SuperSOT-6	1	Fairchild
6	Load Switch	U16	FDG6323L	SC-70-6	1	Fairchild
7	Voltage Regulator	U12	LM1086IS-ADJ	TO-263	1	NS
8	Voltage Detector	U14	S-1000N45-M5V1G	SOT-23-5,4.5V	1	SII
9	Logic IC	U13	SN74LVC1G98DCKR	SC-70	1	TI
10	Logic IC	U15	SN74LVC1G14DCKR	SC-70	1	TI
11	Logic IC	U19	TC7SH34FU	SSOP-5	1	TOSHIBA
12	Logic IC	U2,U3,U4,U5	TS5A3159ADCKR	SC-70	4	TI
13	Logic IC	U17	TS5A3166DCKR	SC-70-5	1	TI
14	Photodiode	U8	PNA4602M	5V,38kHz	1	Panasonic
15	Photodiode	U6	PNA4602M_OPEN	5V,38kHz,N.M	0	Panasonic
16	IRED	D2	AN333	φ3	1	STANLEY
17	LED	D1	598-9920-307F	1210,RGB	1	Dialight
18	LED	D4	598-8191-107F	2012,Blue	1	Dialight
19	Rectifier	D3	CRG03	3516,1A	1	TOSHIBA
20	Rectifier	D6	MA2J1110G	2.5x1.25,100mA	1	Panasonic
21	Schottky Rectifier	D5	CRS06	3516,1A	1	TOSHIBA
22	Crystal	X1	FC-135 32.768kHz	32.768kHz,12.5pF,±20PPM	1	EPSON TOYOCOM
23	Crystal	X2	FA-238 33.333MHz	33.333MHz,10pF,±50PPM	1	EPSON TOYOCOM
24	EMC Filter	L1	ACH32C-103-T001	3216,50V,6A	1	TDK
25	Chip Ferrite Bead	L2	BLM18PG330SN1D	1608,Z33Ω,3A,0.025Ω	1	MURATA
26	Transistor	Q1,Q2,Q3,Q4,Q8	MMBTA42-TP	SOT-23,NPN	5	MCC
27	Transistor	Q6,Q7,Q9	MMBT3906-TP	SOT-23,PNP	3	MCC
28	Transistor	Q5	UNR521300L	SC-70,NPN,47kΩ/47kΩ	1	Panasonic
29	Transistor	Q10	UNR221M00L	SC-70,NPN,2.2kΩ/47kΩ	1	Panasonic
30	TACT Switch	SW1,SW2,SW3,SW4,SW5,SW6,SW9	SKRAAKE010	6.8x6.2	7	ALPS
31	ED jog Encoder	SW7	EVQWK4001		1	Panasonic
32	TACT Switch	SW10	SKQTLCE010	6.9x3.5	1	ALPS
33	Rocker Switch	SW8	D501J12S2AHQF		1	C&K
34	Connector	CN1,CN2	SSW-104-01-G-S	Single Row,4Positions,2.54mm	2	samtec
35	Connector	CN3,CN8	SSW-110-01-G-D	Double Row,20Positions,2.54mm	2	samtec
36	Connector	CN4	SSW-115-01-G-D	Double Row,30Positions,2.54mm	1	samtec
37	Connector	CN5	A2-4PA-2.54DS(71)	Single Row,4Positions,Right angle	1	HRS
38	Connector	CN6	S04B-PASK-2(LF)(SN)	4Positions,Side entry	1	JST
39	Connector	CN7	SSW-108-01-G-D	Double Row,16Positions,2.54mm	1	samtec
40	Connector	CN9	FX2C-68P1.27DSA(71)	68Positions,1.27mm,N.M	0	HRS

NO.	PARTS NAME	LOCATION	MODEL No.	SPECIFICATION	QUANTITY	MAKER
41	DC Power Jack	J1	PJ-016	h=3,φ4.4,φ1.65	1	CUI
42	Wire Wrap Terminal	JP1,JP2,JP3,JP4,JP5,JP6	WL-1 3P	3Positions,2.54mm	6	MAC8
43	Jumper Socket	JP1,JP2,JP3,JP4,JP5,JP6	JS-1	2.54mm	6	MAC8
44	Battery Holder	V1	BA2032SM	CR2032	1	TAKACHI
45	Chip Resistor	R1,R2,R10,R18,R22,R27,R28,	RK73H2ATTD1002F	2012,10kΩ,1%,0.125W	23	KOA
46		R33,R35,R44,R45,R46,R47,R48,				
47		R49,R50,R51,R52,R65,R69,R71,				
48		R73,R77				
49	Chip Jumper Resistor	R3,R5,R6,R7,R9,R14,R15,R24,	RK73Z2ATTD	2012,0Ω,2A	30	KOA
50		R53,R55,R56,R61,R62,R76,R82,				
51		R83,R85,R87,R89,R90,R95,R98,				
52		R100,R102,R106,R107,R108,R109,				
53		R112,R113				
54	Chip Resistor	R4	RK73H2ATTD4702F	2012,47kΩ,1%,0.125W	1	KOA
55	Chip Resistor	R8	RK73H2ATTD33R0F	2012,33Ω,1%,0.125W	1	KOA
56	Chip Resistor	R11	RK73H2ATTD1005F	2012,10MΩ,1%,0.125W	1	KOA
57	Chip Resistor	R12	RK73H2ATTD1004F	2012,1MΩ,1%,0.125W	1	KOA
58	Chip Resistor	R13	RK73H2ATTD1003F	2012,100kΩ,1%,0.125W	1	KOA
59	Chip Resistor	R19,R23,R25,R29,R30,R37,R38,	RK73H2ATTD5101F	2012,5.1kΩ,1%,0.125W	8	KOA
60		R41				
61	Chip Resistor	R20,R21	RK73H2ATTD2201F	2012,2.2kΩ,1%,0.125W	2	KOA
62	Chip Resistor	R31,R32	RK73H2ATTD1801F	2012,1.8kΩ,1%,0.125W	2	KOA
63	Chip Resistor	R34,R39,R40,R42,R67,R68	RK73H2ATTD1001F	2012,1kΩ,1%,0.125W	6	KOA
64	Chip Resistor	R36	RK73H2ATTD2700F	2012,270Ω,1%,0.125W	1	KOA
65	Chip Resistor	R57	RK73H2ATTD2000F	2012,200Ω,1%,0.125W	1	KOA
66	Chip Resistor	R58	RK73H2ATTD8200F	2012,820Ω,1%,0.125W	1	KOA
67	Chip Resistor	R59	RK73H2ATTD2003F	2012,200kΩ,1%,0.125W	1	KOA
68	Chip Resistor	R60	RK73H2ATTD3601F	2012,3.6kΩ,1%,0.125W	1	KOA
69	Chip Resistor	R63	RK73H2ATTD3900F	2012,390Ω,1%,0.125W	1	KOA
70	Chip Resistor	R64	RK73H2ATTD2001F	2012,2kΩ,1%,0.125W	1	KOA
71	Chip Resistor	R66,R70,R72,R75	RK73H2ATTD4701F	2012,4.7kΩ,1%,0.125W	4	KOA
72	Chip Resistor	R74	RK73H2ATTD4703F	2012,470kΩ,1%,0.125W	1	KOA
73	Chip Resistor	R78	RK73H2ATTD2002F	2012,20kΩ,1%,0.125W	1	KOA
74	Chip Resistor	R80	RK73H2ATTD3600F	2012,360Ω,1%,0.125W	1	KOA
75	Chip Resistor	R26,R43,R54,R79,R91,R96,R110,		2012,N.M	0	
76		R111,R114,R115				
77	Tantalum Capacitor	C45,C52,C66,C68,C69	ESVB21C106M	3528,10uF,16V	5	NEC TOKIN
78	Electrolytic Capacitor	C41,C42	UWZ1C101MCL1GB	6354,100uF,16V	2	NICHICON
79	Monolithic Ceramic Capacitor	C1,C2,C3,C4,C6,C8,C10,C12,	GRM219F11H104ZA01D	2012,F,0.1uF,50V	30	MURATA
80		C13,C21,C23,C24,C25,C26,C27,				

NO.	PARTS NAME	LOCATION	MODEL No.	SPECIFICATION	QUANTITY	MAKER
81		C35,C37,C39,C40,C43,C44,C46,				
82		C48,C49,C50,C51,C53,C58,C67,				
83		C70				
84	Monolithic Ceramic Capacitor	C5,C7,C9,C11,C14,C22,C31,C32,	C2012JB1A475K	2012,B,4.7uF,10V	9	TDK
85		C59				
86	Monolithic Ceramic Capacitor	C15,C16	C1608CH1H100D	1608,CH,10pF,50V	2	TDK
87	Monolithic Ceramic Capacitor	C17,C18	C1608CH1H150J	1608,CH,15pF,50V	2	TDK
88	Monolithic Ceramic Capacitor	C30,C36,C38	GRM21BB31A106KE18	2012,B,10uF,10V	3	MURATA
89	Monolithic Ceramic Capacitor	C33,C34	GRM188B11H103KA01D	1608,B,0.01uF,50V	2	MURATA
90	Monolithic Ceramic Capacitor	C47	C1608JB0J225K	1608,JB,2.2uF,6.3V	1	TDK
91	Monolithic Ceramic Capacitor	C56,C65	C1608JB1C105K	1608,JB,1uF,16V	2	TDK
92	Monolithic Ceramic Capacitor	C54		1608,N.M	0	
93	Monolithic Ceramic Capacitor	C19,C20,C28,C29,C55,C57,C64		2012,N.M	0	
94	Test Pin	TP6,TP7,TP8,TP9,TP10,TP15,	LC-33-G-Red	N.M	0	MAC8
95		TP16,TP17,TP18,TP19,TP20,				
96		TP21,TP22,TP23,TP24,TP25,				
97		TP26				
98	Test Pin	TP11,TP12,TP13,TP14	LC-33-G-Black	N.M	0	MAC8

NO.	PARTS NAME	LOCATION	MODEL No.	SPECIFICATION	QUANTITY	MAKER
1	AudioIC	U6	LM4921ITL/NOPB	2.72x2.2	1	NS
2	OPAMP	U3	TLC2272IDR	8-SOIC	1	TI
3	OPAMP	U4	LM386M-1/NOPB	8-SOP	1	NS
4	Crystal Osillator	X1	SG-8002JC-11.2896MHz-PHB	11.2896MHz	1	EPSON TOYOCOM
5	Audio Jack	J1	SJ1-3515-SMT	φ3.5,h=2.5mm	1	CUI Inc
6	Slide Switch	SW1	CHS-01B1	1bit	1	COPAL
7	Chip Ferrite Bead	L1	BLM18PG330SN1	1608,Z33Ω,3A,0.025Ω	1	MURATA
8	Chip Resistor	R5	RK73H2ATTD2403F	2012,240kΩ,1%,0.125W	1	KOA
9	Chip Resistor	R6	RK73H2ATTD1502F	2012,15kΩ,1%,0.125W	1	KOA
10	Chip Resistor	R7,R9,R10,R11,R12	RK73H2ATTD1001F	2012,1kΩ,1%,0.125W	5	KOA
11	Chip Resistor	R8	RK73H2ATTD5101F	2012,5.1kΩ,1%,0.125W	1	KOA
12	Chip Resistor	R13	RK73H2ATTD8200F	2012,820Ω,1%,0.125W	1	KOA
13	Chip Resistor	R14	RK73H2ATTD1002F	2012,10kΩ,1%,0.125W	1	KOA
14	Chip Resistor	R16	RK73H2ATTD10R0F	2012,10Ω,1%,0.125W	1	KOA
15	Chip Jumper Resistor	R17,R20,R21,R22	RK73Z2ATTD	2012,0Ω,2A	4	KOA
16	Chip Resistor	R18	RK73H2ATTD33R0F	2012,33Ω,1%,0.125W	1	KOA
17	Chip Resistor	R19		2012,N.M	0	
18	Trimming Potentiometer	R15	3386F-1-103TLF	9.53x9.53,Single Turn,10kΩ	1	Bourns
19	Tantalum Capacitor	C1,C8	ESVB21C106M	3528,10uF,16V	2	NEC TOKIN
20	Electrolytic Capacitor	C7,C9	UWZ1C101MCL1GB	6.3x5.4,100uF,16V	2	NICHICON
21	Electrolytic Capacitor	C24	PCF0J221MCL1GS	8x7,220uF,6.3V	1	NICHICON
22	Monolithic Ceramic Capacitor	C2,C4,C6,C26,C29	GRM219F11H104ZA01D	2012,F,0.1uF,50V	5	MURATA
23	Monolithic Ceramic Capacitor	C3,C5,C23,C32	C1608JB1C105K	1608,JB,1uF,16V	4	TDK
24	Monolithic Ceramic Capacitor	C14	GRM219B11A225KA01D	2012,B,2.2uF,10V	1	MURATA
25	Monolithic Ceramic Capacitor	C20,C22	C1608CH1E822J	1608,CH,8.2nF,25V	2	TDK
26	Monolithic Ceramic Capacitor	C25,C27	C1608CH1E392J	1608,CH,3.9nF,25V	2	TDK
27	Monolithic Ceramic Capacitor	C28	GRM188B11H473KA61D	1608,B,0.047uF,50V	1	MURATA
28	Monolithic Ceramic Capacitor	C19,C21		1608,N.M	0	
29	Connector	CN1,CN2	TSW-104-26-G-S	Single Row,4Positions,2.54mm	2	samtec
30	Connector	CN3	TSW-110-26-G-D	Double Row,20Positions,2.54mm	1	samtec
31	Connector	CN6	S2B-XH-A (LF)(SN)	2Positions,Side entry type	1	JST
32	Test Pin	TP1		N.M	0	

NO.	PARTS NAME	LOCATION	MODEL No.	SPECIFICATION	QUANTITY	MAKER
1	Logic IC	U1	SN74LVC2G14DBV	SOT-23	1	TI
2	DC-CONV	U2	TPS61040DBV	SOT-23-5	1	TI
3	Transistor	Q1	2SC2712-GR	SC-59	1	TOSHIBA
4	Transistor	Q2,Q3	RN2405F	SC-59	2	TOSHIBA
5	Transistor	Q4,Q5	RN1405F	SC-59	2	TOSHIBA
6	Schottky Rectifier	D1	MBR0560	SOD123	1	MCC
7	Chip Coil	L1	LQH32CN4R7M23L	3225,4.7uH±20%,450mA,0.2Ω	1	MURATA
8	Chip Ferrite Bead	L2	MPZ2012S601A	2012,Z600Ω,2A,0.1Ω	1	TDK
9	Chip Jumper Resistor	R1,R6	RK73Z2ATTD	2012,0Ω,2A	2	KOA
10	Chip Resistor	R2	RK73H2ATTD1001F	2012,1kΩ,1%,0.125W	1	KOA
11	Chip Resistor	R3	RK73H2ATTD2204F	2012,2.2MΩ,1%,0.125W	1	KOA
12	Chip Resistor	R4	RK73H2ATTD1303F	2012,130kΩ,1%,0.125W	1	KOA
13	Chip Resistor	R5	RK73H2ATTD5101F	2012,5.1kΩ,1%,0.125W	1	KOA
14	Tantalum Capacitor	C2,C3,C11	ESVB21C106M	3528,10uF,16V	3	NEC TOKIN
15	Monolithic Ceramic Capacitor	C1,C4,C7	GRM219F11H104ZA01D	2012,F,0.1uF,50V	3	MURATA
16	Monolithic Ceramic Capacitor	C9	C1608JB1C105K	1608,B,1uF,16V	1	TDK
17	Monolithic Ceramic Capacitor	C8	C1608CH1H220J	1608,CH,22pF,50V	1	TDK
18	Monolithic Ceramic Capacitor	C10	C2012JB1A475K	2012,B,4.7uF,10V	1	TDK
19	Monolithic Ceramic Capacitor	C5,C6	C1608JB1H471K	1608,B,470pF,50V	2	TDK
20	Connector	CN1	TSW-115-26-G-D	Double Row,30Positions,2.54mm	1	samtec
21	Connector	CN3	TSW-110-26-G-D	Double Row,20Positions,2.54mm	1	samtec
22	FPC Connector	CN2	52271-1469	14Positions,1mm	1	molex
23	FPC Connector	CN4	52271-0469	4Positions,1mm	1	molex
24	LCD Panel Module		EW32F92FLW	3.5inch STN QVGA	1	EDT

Revision History

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