

Renesas Starter Kit+ for RX63N & Renesas Starter Kit+ for RX63N (256K)

CPU Board Schematics

REV	REF	DATE	DRAWN BY
A1	Prototype	24.01.2011	YOI
A2	Prototype	18.02.2011	YOI
A3	Prototype	10.03.2011	YOI
1.00	TRAC#2286	21.02.2012	YOI
2.00	TRAC#2432	10.05.2012	YOI
2.10	Release TRAC#2432, #2720	21.08.2012	YOI
2.20	Release TRAC#2932	15.11.2012	YOI
3.00	Release RSK+RX63N-256K	01.08.2014	YOI

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5	On-board Memory-1
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Note:

R : Fixed Resistor
RV : Potentiometer
U : Integrated Circuit
X : Crystal
RES : Reset Switch
SW : Switch
LED : Light Emitting Diode
PWR : Power Jack
J : Connector, Jumper

* "DNF" marking means that component does not fit by default.

Board Variation:

R0K50563NC000BE : RSK+RX63N Board
 *Board mounts R5F563NBDDFC (ROM 1MB, RAM 128KB)

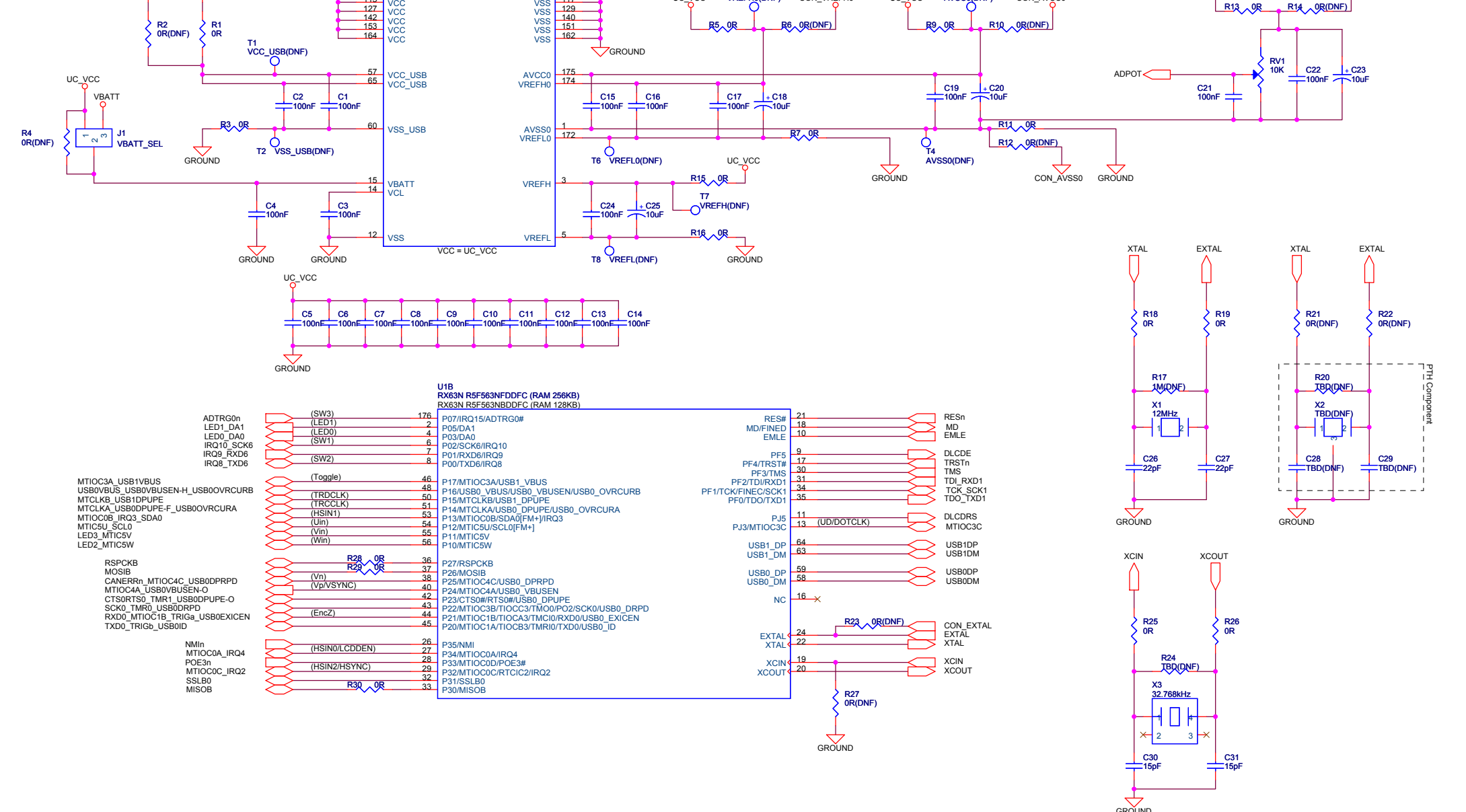
R0K50563NC010BE : RSK+RX63N(256K) Board
 *Board mounts R5F563NFDDFC (ROM 2MB, RAM 256KB)

REEL Drawing No. D010172_04

Renesas System Design Co., Ltd.			
Title	RSK+RX63N-256K & RSK+RX63N [INDEX]		
Size	Document Number		Rev
	R20UT0437EG0300		3.00
Date:	Friday, August 01, 2014	Sheet	1 of 12

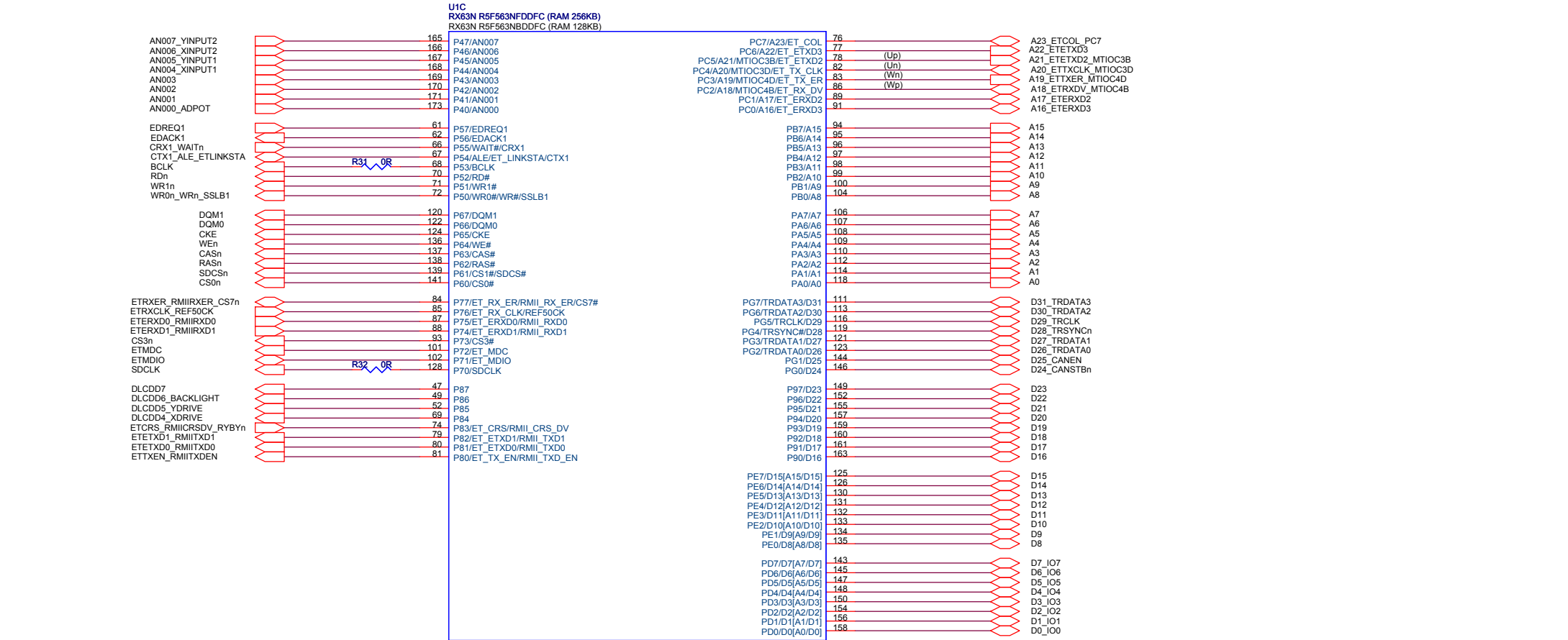
RX63N Microcontroller-1

Note:
Microcontroller's pins are not described by the full pin function.
For full pin function details, refer to RX63N datasheet.

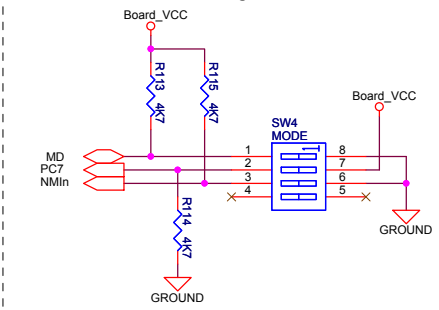


RX63N Microcontroller-2

Note:
Microcontroller's pins are not described by the full pin function.
For full pin function details, refer to RX63N datasheet.



MCU & Emulator Mode Setting

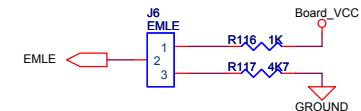


MCU Operating Mode Configuration

SW4 Pin1	SW4 Pin2	Operating Mode
OFF	Don't care	Single Chip Mode
ON	OFF	Boot Mode (SCI)
ON	ON	User Boot Mode USB Boot Mode

Power Configuration for USB Boot Mode

SW4 Pin3	Power Configuration
OFF	Bus Powered
ON	Self Powered



Emulator Configuration

J6	Emulator Configuration
Shorted Pin1-2	E1 debugging with Hot plug-in
Shorted Pin2-3	E1 normal debugging
Microcontroller single operation (without E1/E20)	
all open	DO NOT SET

Chip Select

CSn	Interface
CS0n	On-board NOR Flash (BD_CS0n) / Application Header JA3 (CON_CS0n)
CS3n	Application Header (JA3)
CS7n	On-board NOR Flash (CS7n)
SDCSn (CS1n)	On-board SDRAM (BD_SDCSn) / Application Header JA3 (CON_SDCSn)

RSPI Slave Select

SSL	Interface
SSLB0	On-board SPI Serial Flash
SSLB1	Generic LCD Connector (TFT)

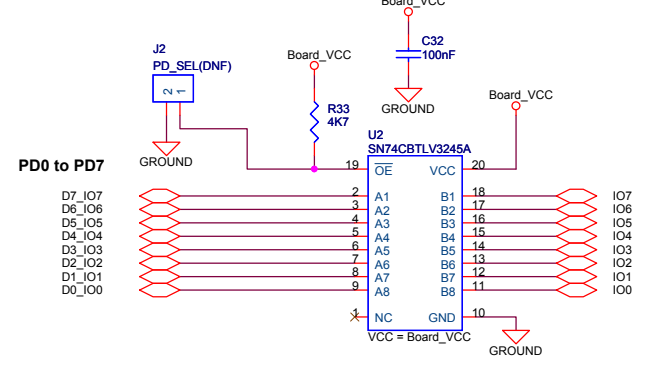
Renesas System Design Co., Ltd.

Title: RSK+RX63N-256K & RSK+RX63N [Micon-2, MCU & Emulator Mode Setting]

Size: Document Number R20UT0437EG0300 Rev 3.00

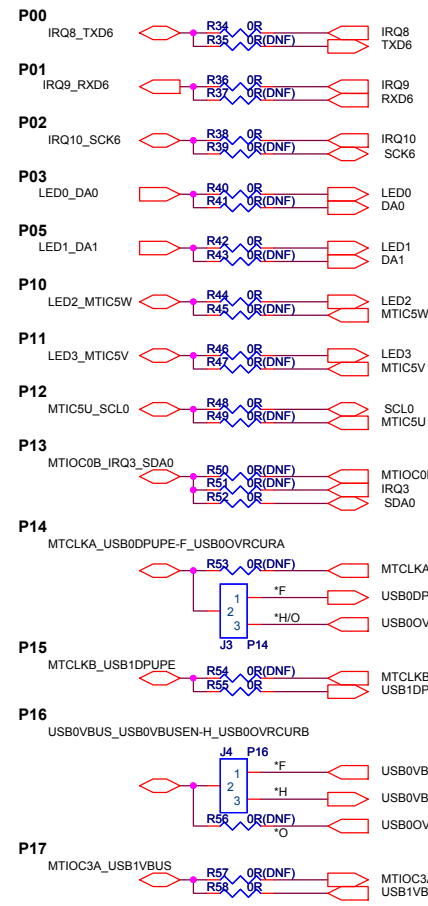
Date: Friday, August 01, 2014 Sheet 3 of 12

MCU Pin Function Select



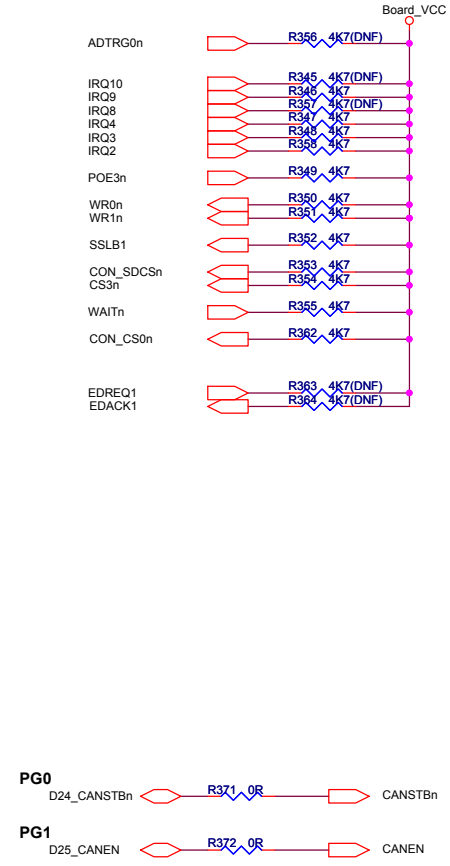
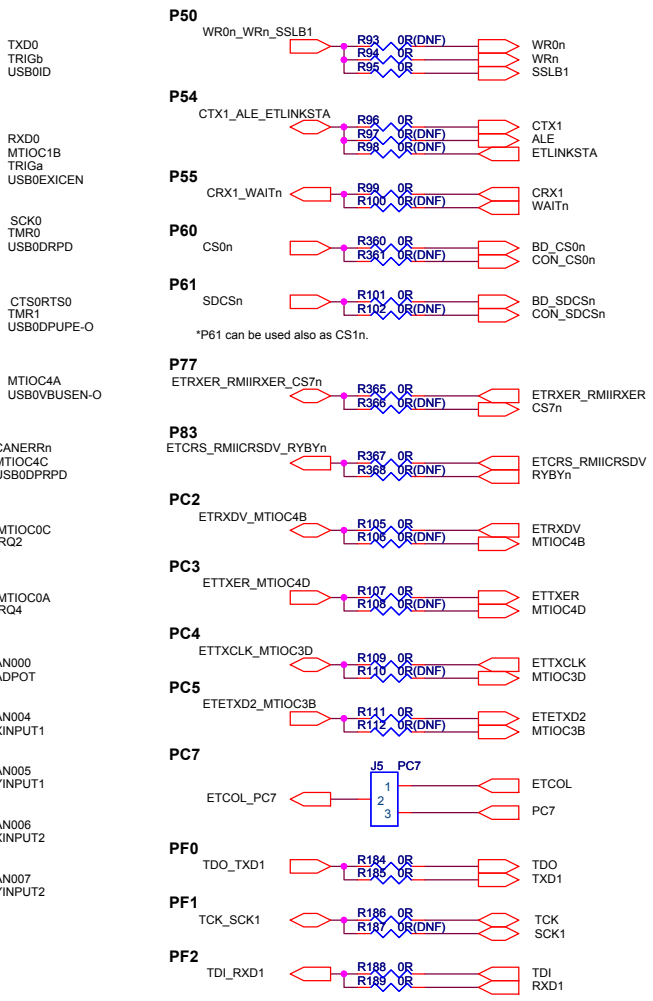
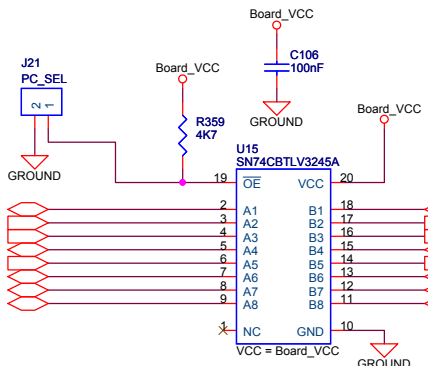
PD0 to PD7

- D7_IO7
- D6_IO6
- D5_IO5
- D4_IO4
- D3_IO3
- D2_IO2
- D1_IO1
- D0_IO0

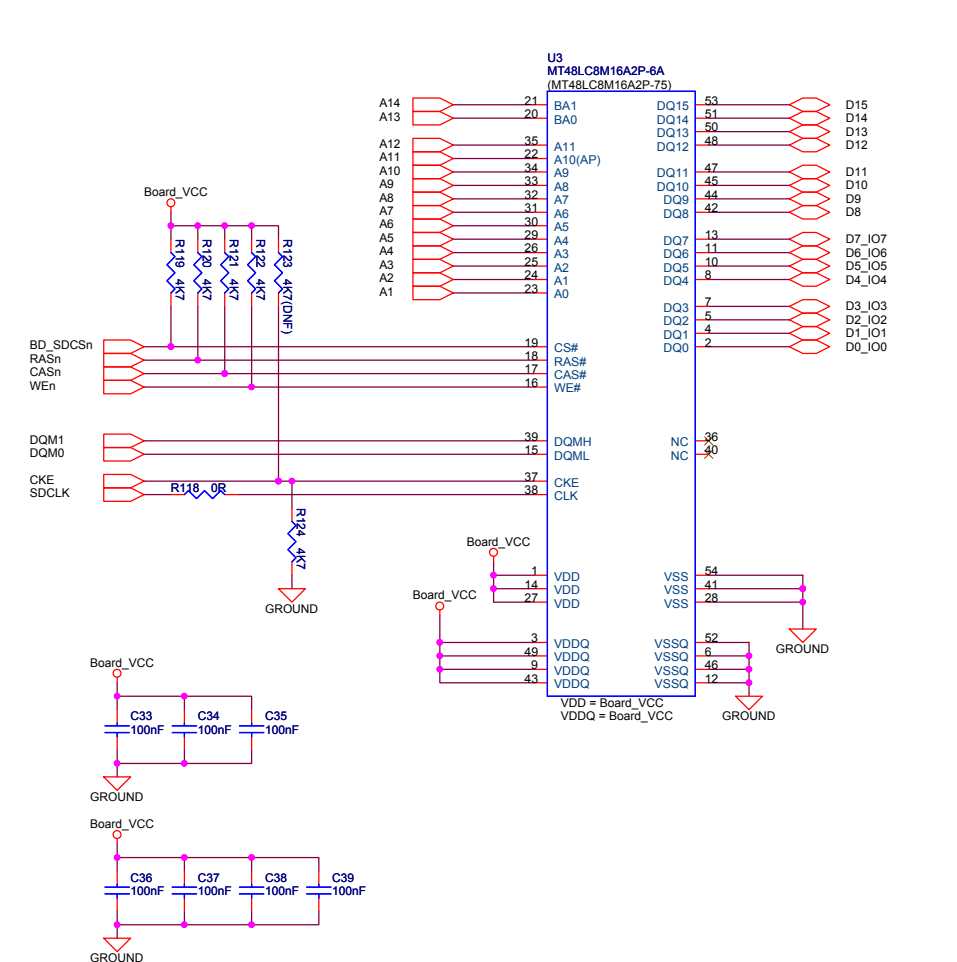


PC0 to PC7

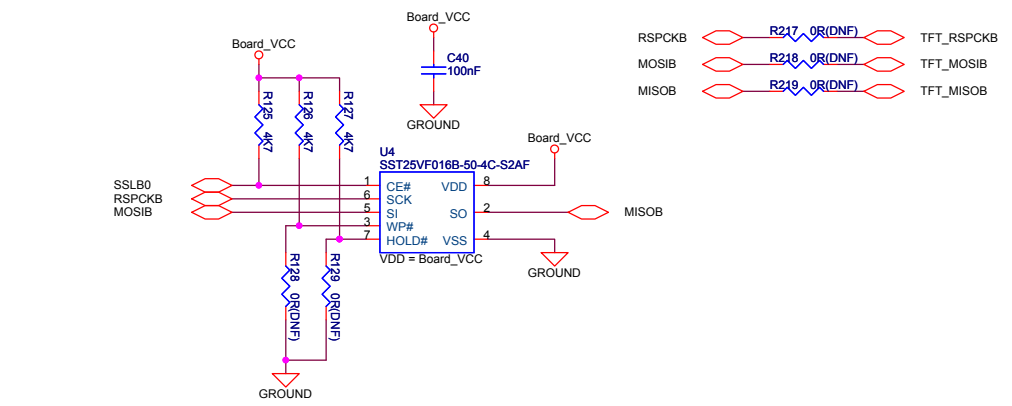
- A23_ETCOL_PC7
- A22_ETETXD3
- A21_ETETXD2_MTI0C3B
- A20_ETTXCLK_MTI0C3D
- A19_ETTXER_MTI0C4D
- A18_ETRXDV_MTI0C4B
- A17_ETERXD2
- A16_ETERXD3



SDRAM(128Mbits)

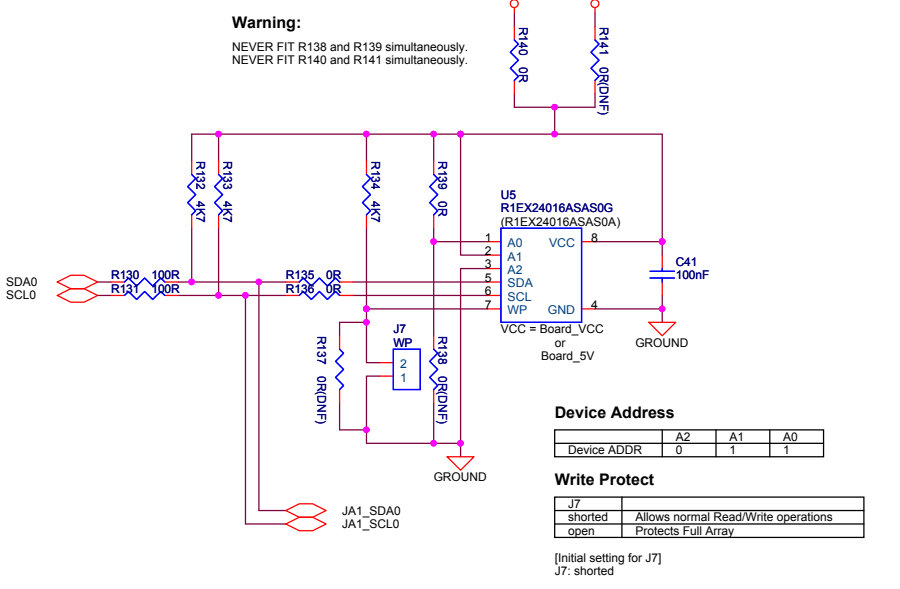


SPI Serial Flash(16Mbits)



RSPCKB $\text{R217 } 0R(DNF)$ TFT_RSPCKB
 MOSIB $\text{R218 } 0R(DNF)$ TFT_MOSIB
 MISOB $\text{R219 } 0R(DNF)$ TFT_MISOB

IIC EEPROM(16Kbits)



Device Address

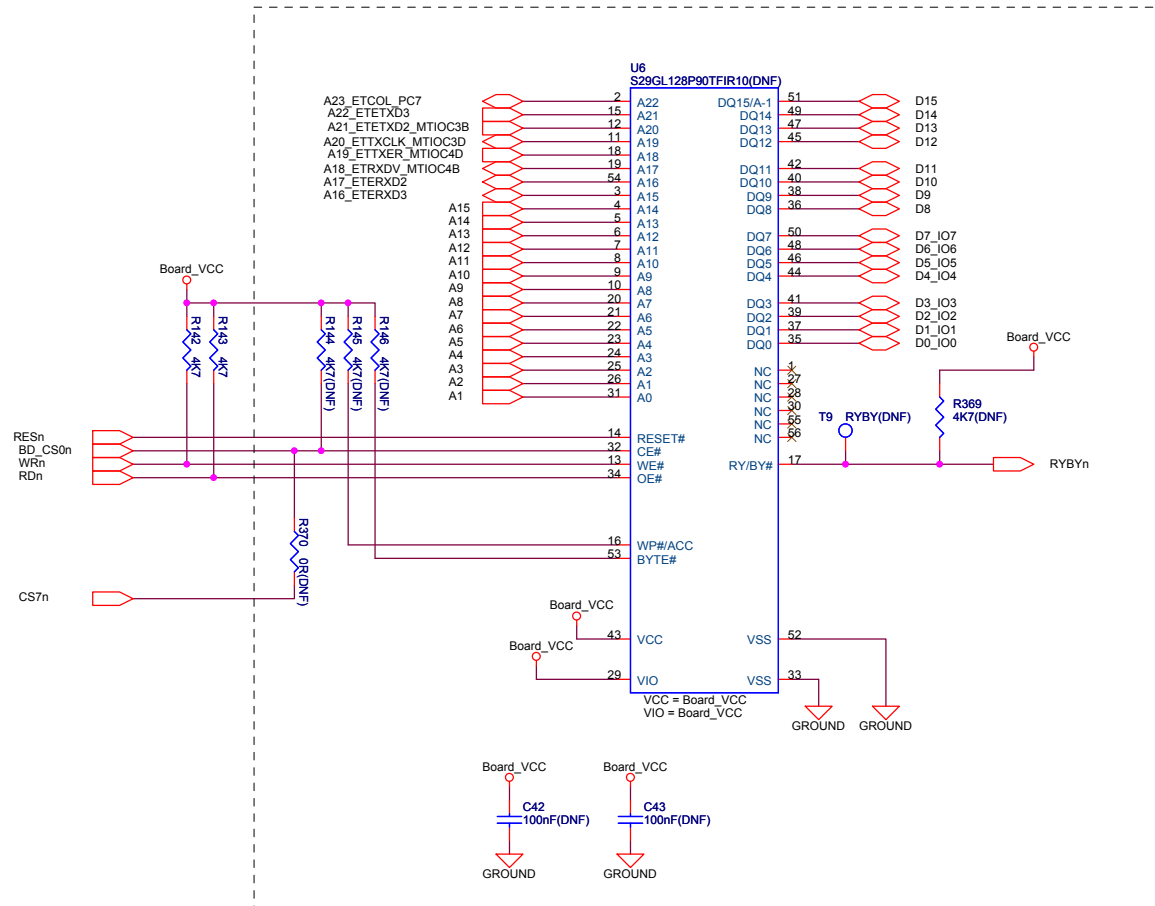
Device ADDR	A2	A1	A0
	0	1	1

Write Protect

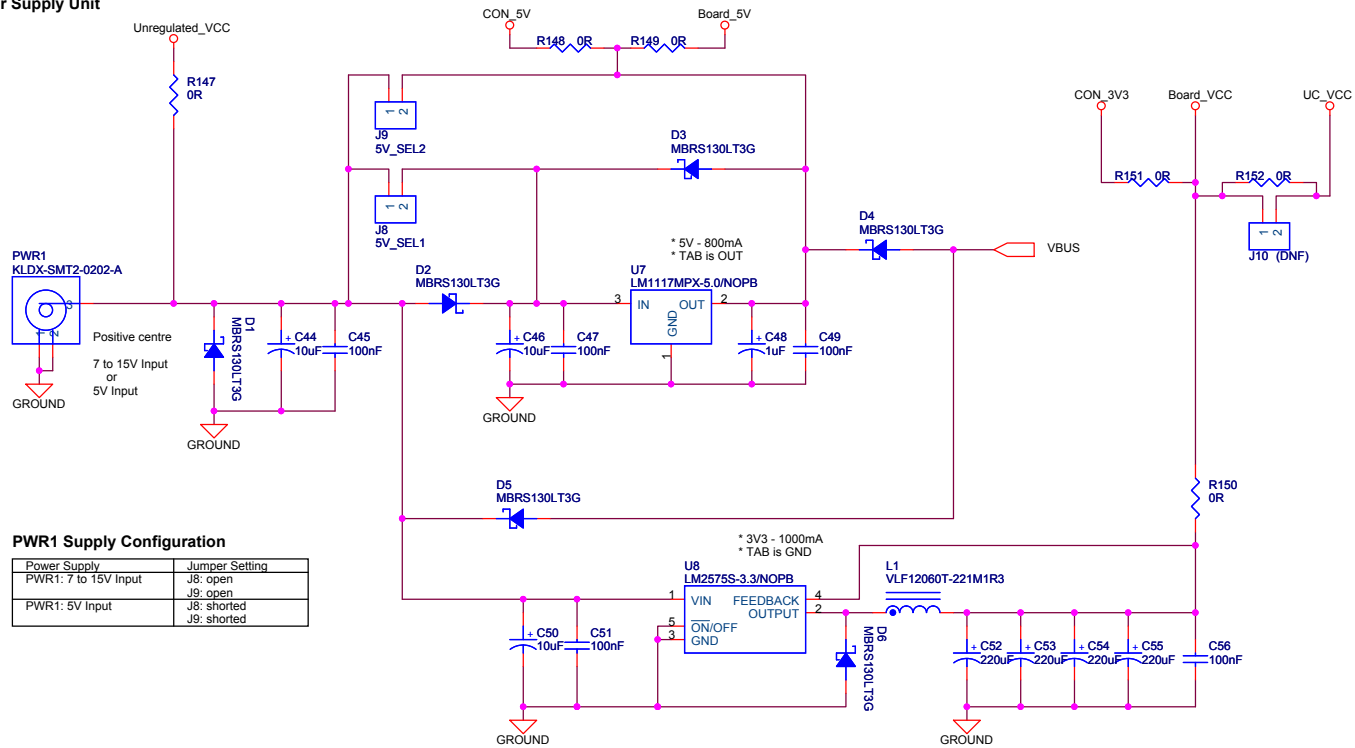
J7	shorted	open
	Allows normal Read/Write operations	Protects Full Array

[Initial setting for J7]
J7: shorted

Circuit not Fitted on RSK+RX63N CPU Board.
(Only Special Prototype Board)



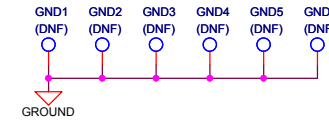
Power Supply Unit



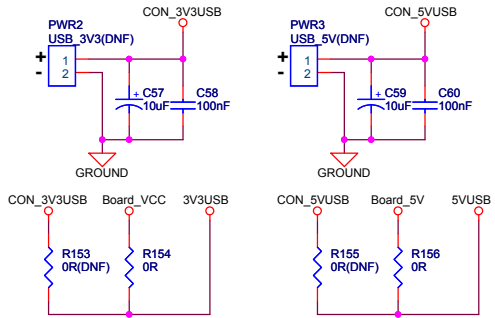
PWR1 Supply Configuration

Power Supply	Jumper Setting
PWR1: 7 to 15V Input	J8: open J9: open
PWR1: 5V Input	J8: shorted J9: shorted

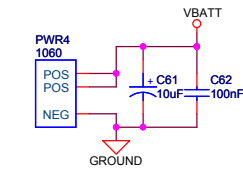
Ground Test Point



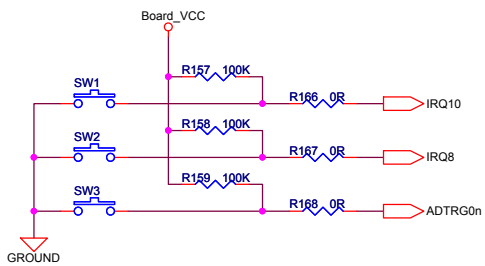
External USB Power Supply



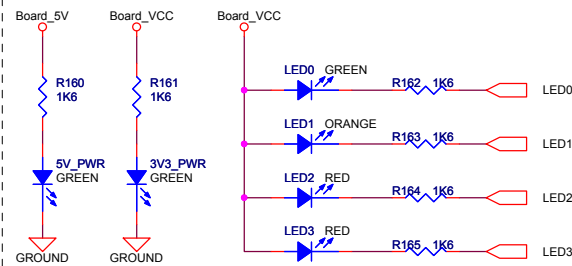
CR2032 Coin cell holder for VBATT



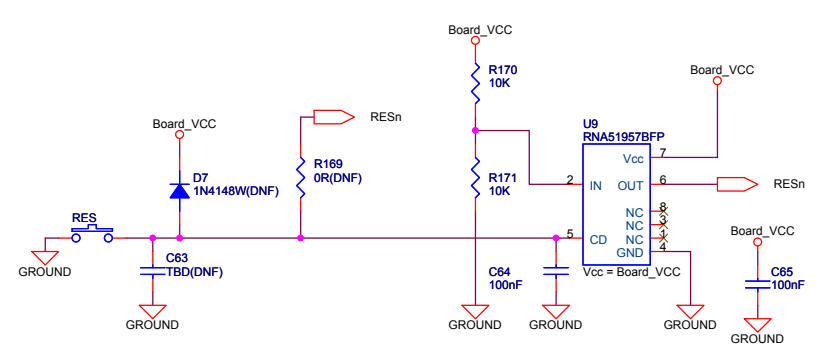
User Switches



Power & User LEDs



RESET Circuitry



Renesas System Design Co., Ltd.

Title RSK+RX63N-256K & RSK+RX63N
[PSU, RESET, Switches, LEDs]

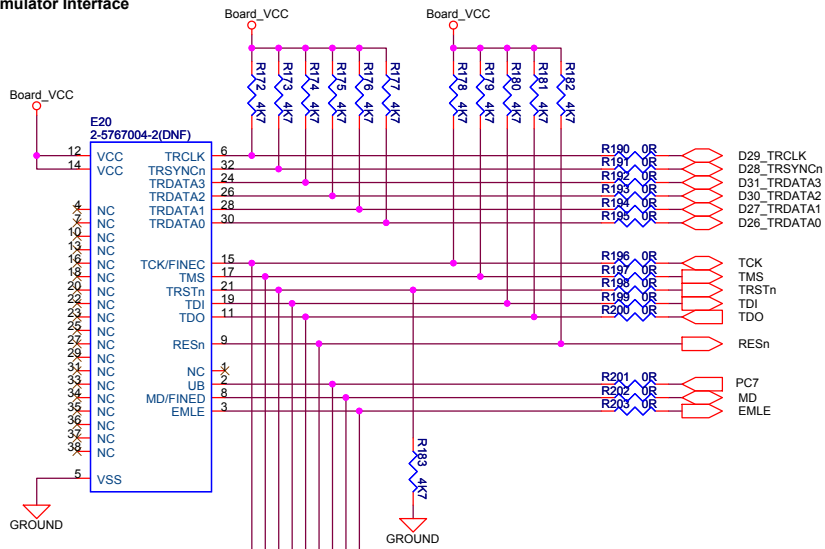
Size Document Number
R20UT0437EG0300

Rev 3.00

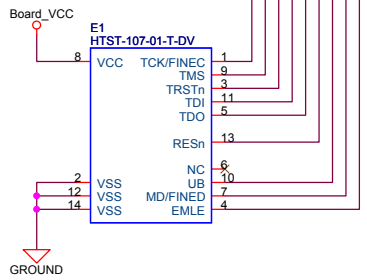
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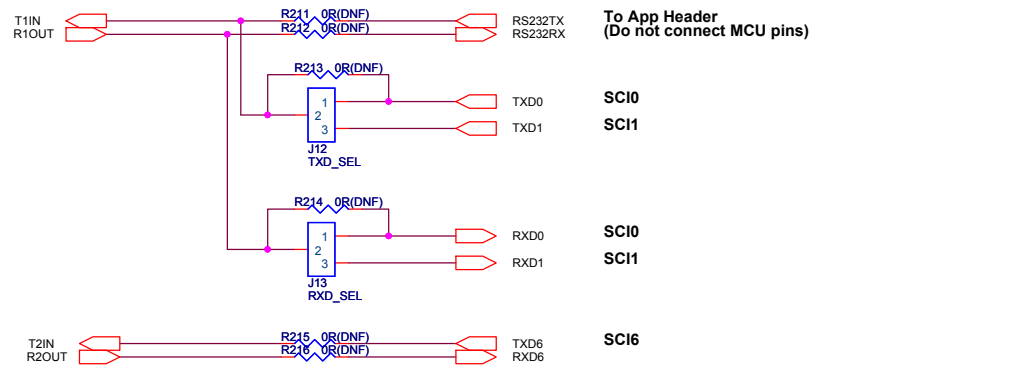
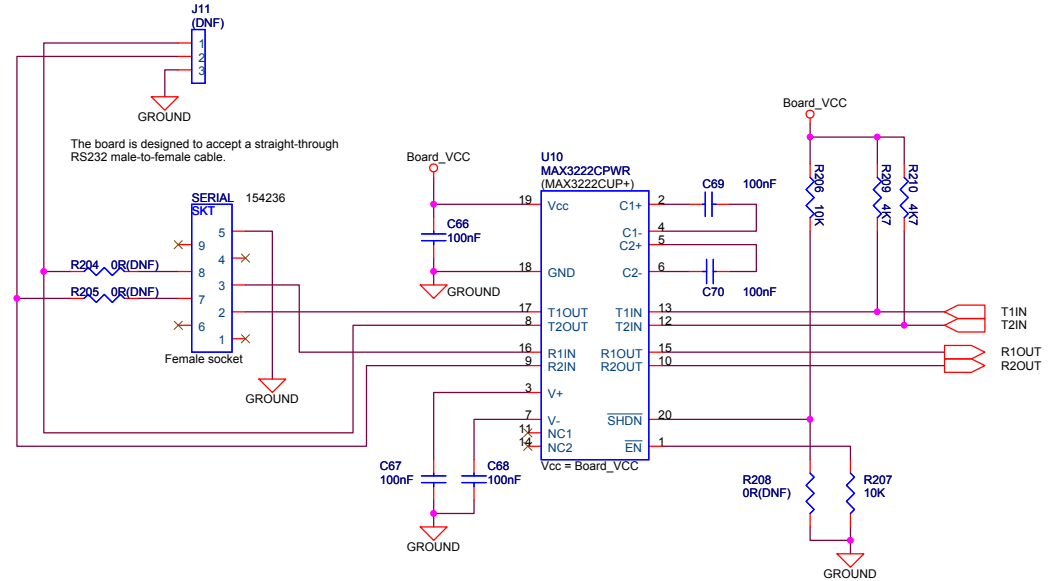
E20 Emulator Interface



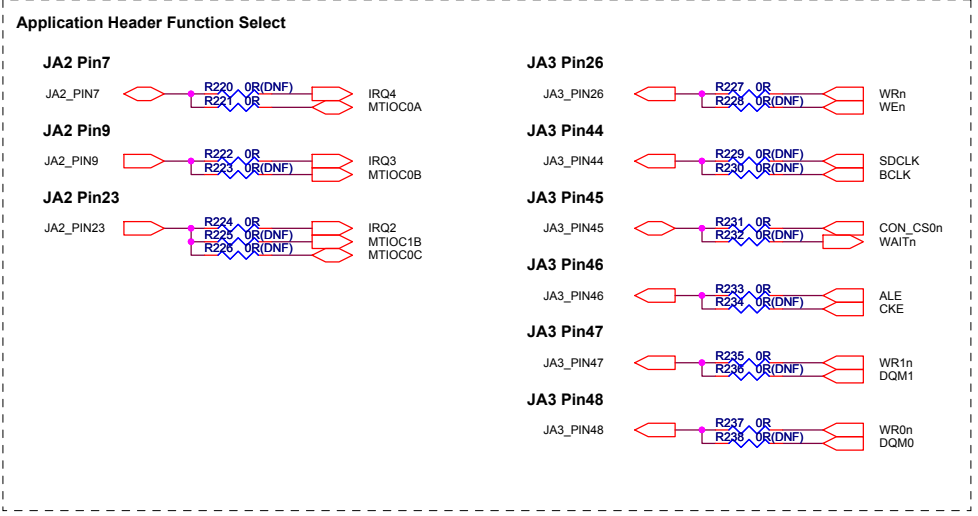
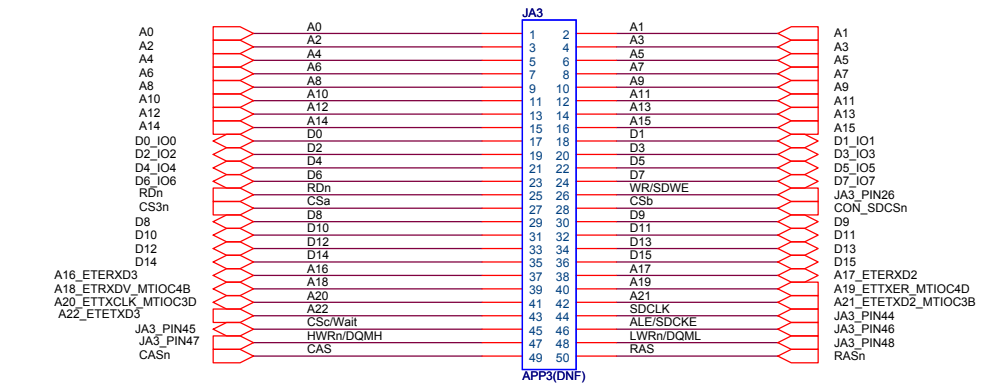
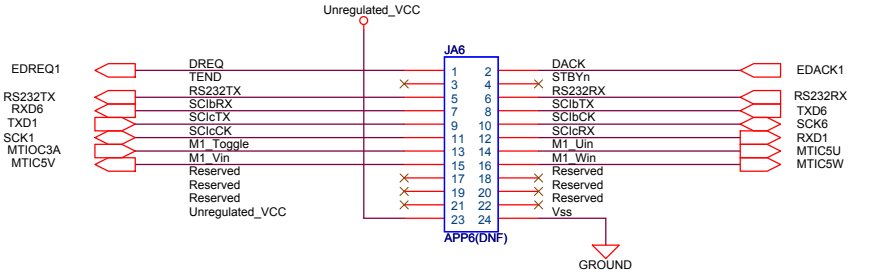
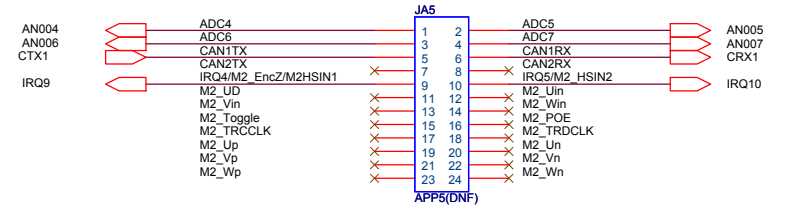
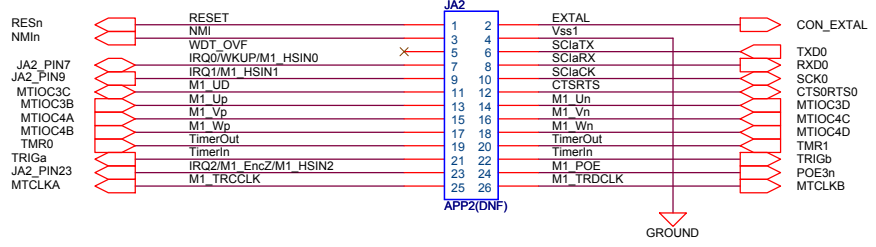
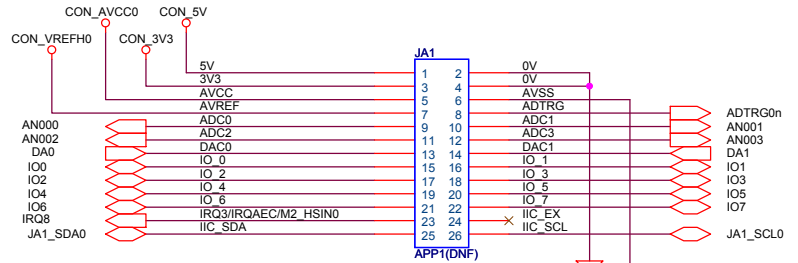
E1 Emulator Interface

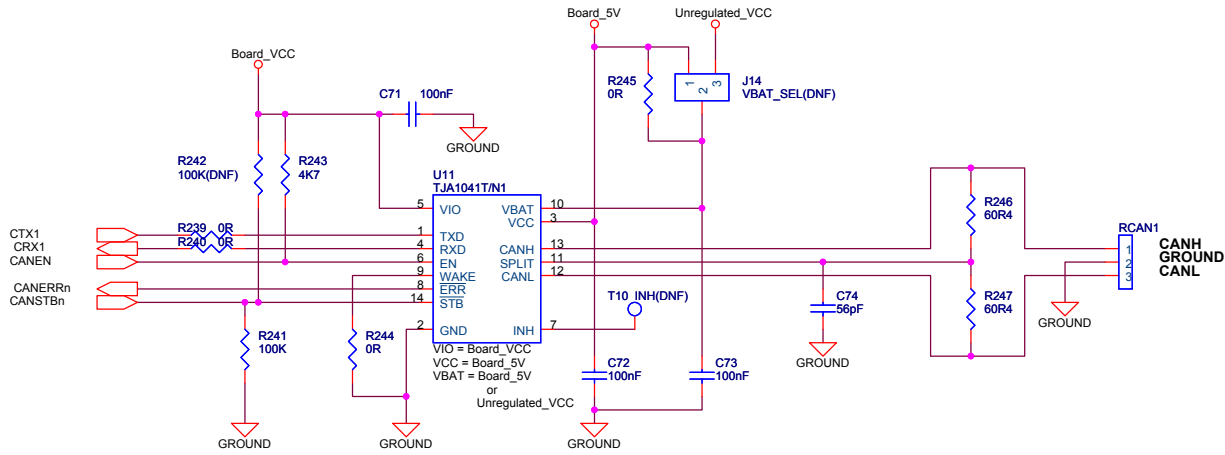


Serial Port

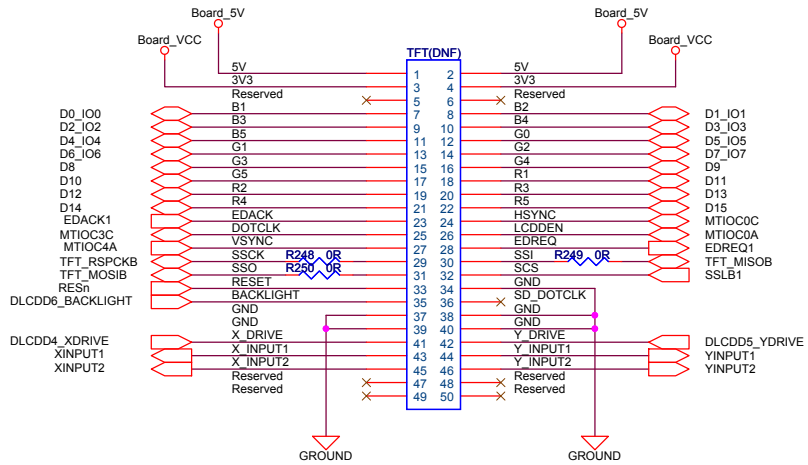


Application Headers

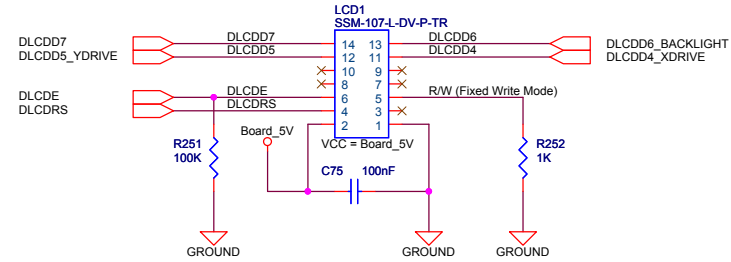




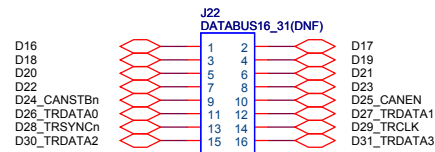
Generic LCD Connector (TFT)



Debug LCD



Data Bus Connector (bit16 to bit31)



OTG Power IC SHDN Configuration

R258	Fit	Shutdown and reduce supply current
	Remove	OTG normal operation

VBUS0 Self-powered/Bus-powered Configuration for Function Mode

J17	J20	
1-2 shorted	1-2 shorted (via R281)	Bus-powered
2-3 shorted (via R265)	All open	Self-powered

VBUS1 Self-powered/Bus-powered Configuration for Function Mode

J19	J20	
1-2 shorted	2-3 shorted	Bus-powered
2-3 shorted (via R272)	All open	Self-powered

VBUS0 Host/Function/OTG Select

J18	R269	
1-2 shorted	Remove	Host Mode
2-3 shorted	Remove	Function Mode
All open	Fit	OTG Mode

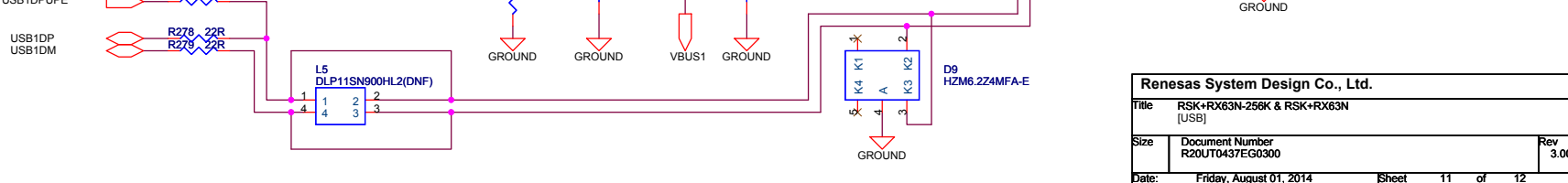
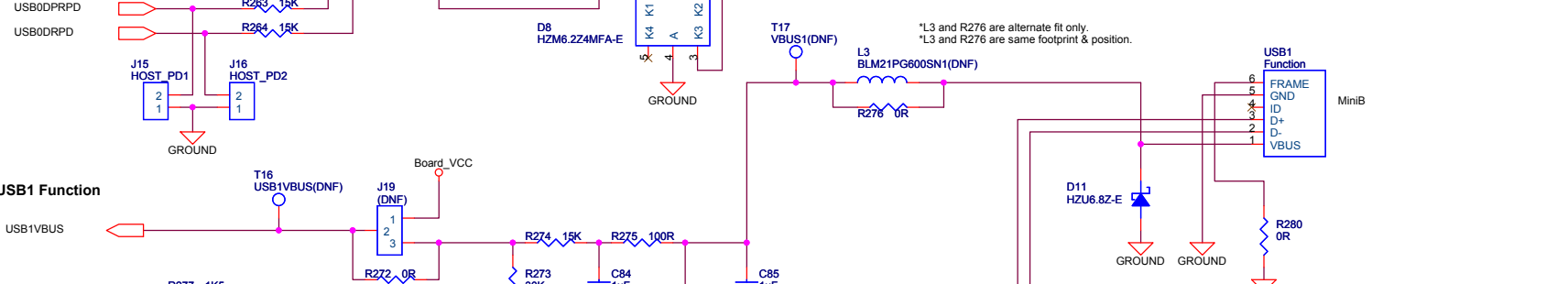
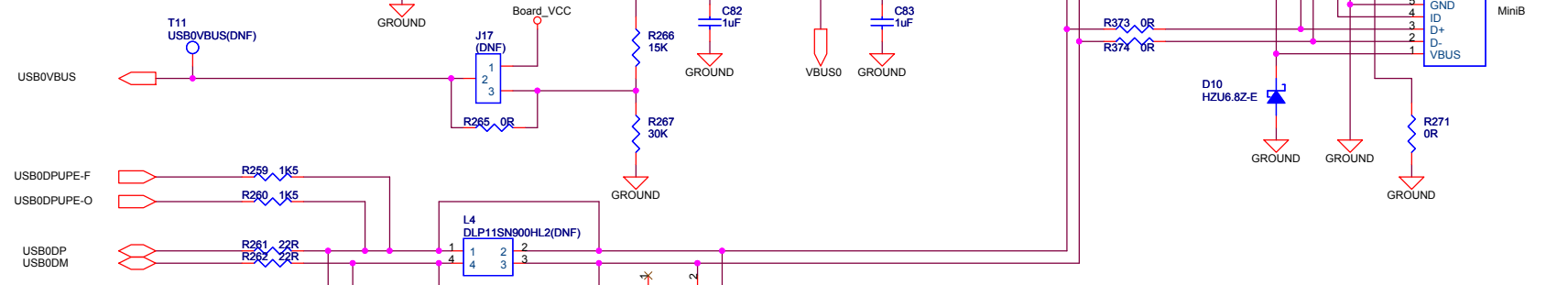
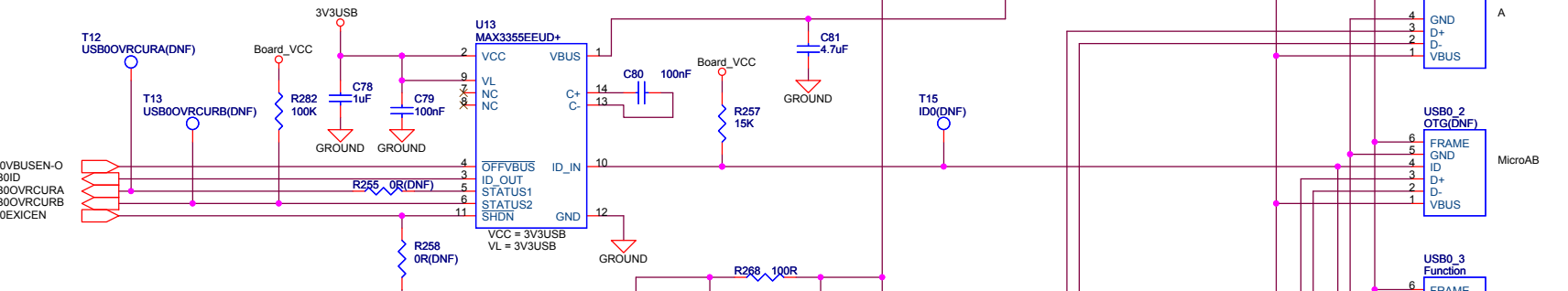
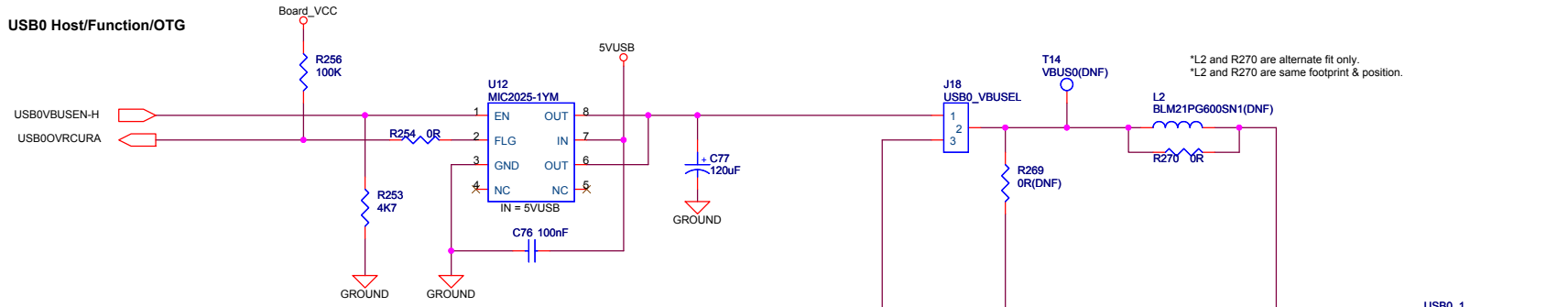
USB0DRPD, DRPD Pulldown Configuration

J15	J16	
Open	Open	Function Mode
		OTG Mode
Shorted	Shorted	Host Mode

USB0VRCURA Select

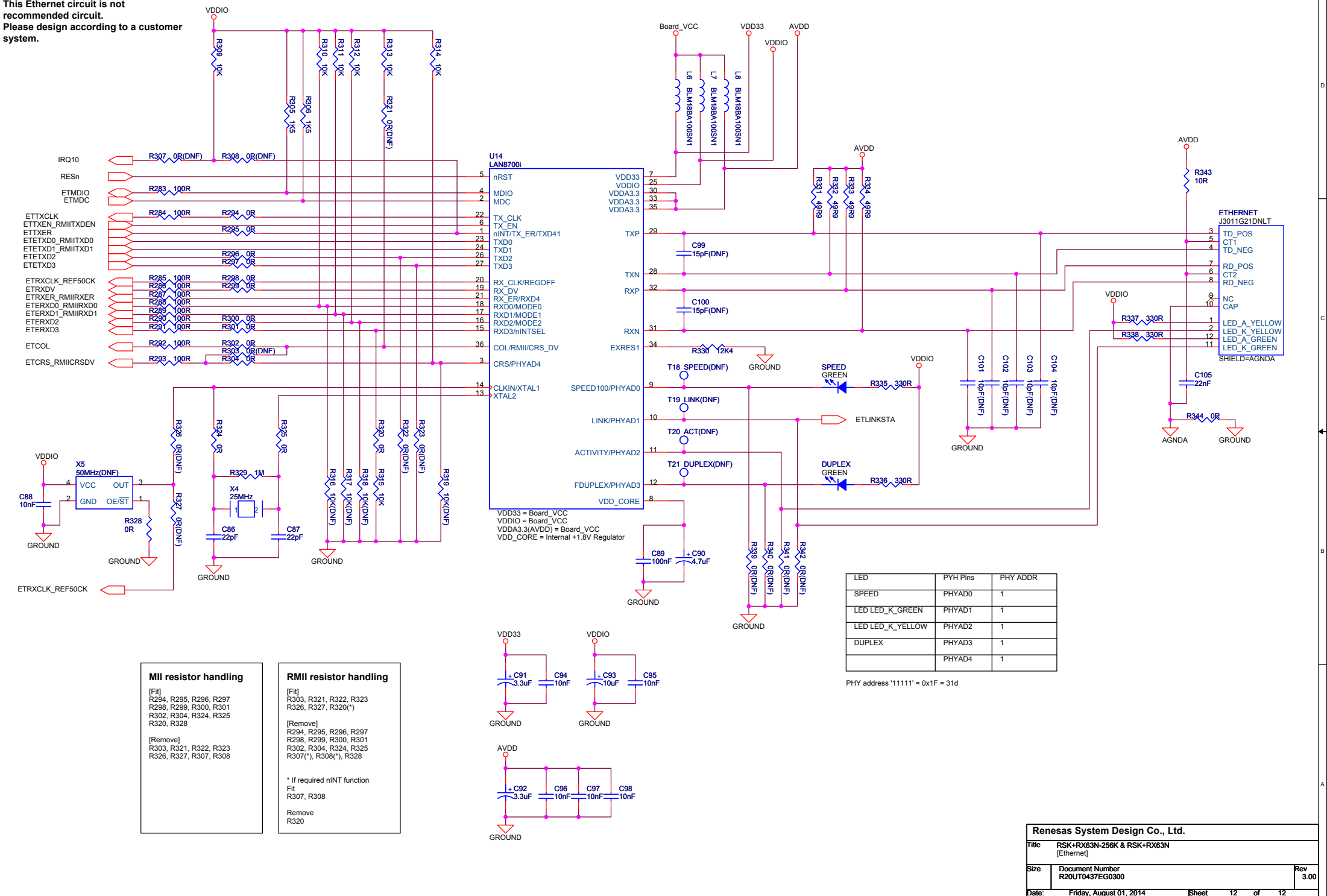
R254	R255	
Fit	Remove	Host Mode
Remove	Fit	OTG Mode

USB0 Host/Function/OTG



Ethernet

This Ethernet circuit is not recommended circuit. Please design according to a customer system.



VDD33 = Board_VCC
 VDDIO = Board_VCC
 VDDA3.3(AVDD) = Board_VCC
 VDD_CORE = Internal +1.8V Regulator

LED	PHY Pins	PHY ADDR
SPEED	PHYAD0	1
LED LED_K_GREEN	PHYAD1	1
LED LED_K_YELLOW	PHYAD2	1
DUPLEX	PHYAD3	1
	PHYAD4	1

PHY address '11111' = 0x1F = 31d

MII resistor handling

[Fit]
 R294, R295, R296, R297
 R298, R299, R300, R301
 R302, R304, R324, R325
 R320, R328

[Remove]
 R303, R321, R322, R323
 R326, R327, R307, R308

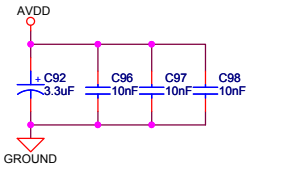
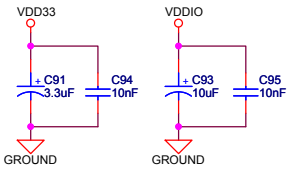
RMII resistor handling

[Fit]
 R303, R321, R322, R323
 R326, R327, R320(*)

[Remove]
 R294, R295, R296, R297
 R298, R299, R300, R301
 R302, R304, R324, R325
 R307(*), R308(*), R328

* If required nINT function
 Fit
 R307, R308

Remove
 R320



Revision History

REV	DATE	PAGE	DESCRIPTION
2.20	15.11.2012	---	RSK+RX63N Product edition.
3.00	01.08.2014	---	Adds RSK+RX63N-256K Product.

Renesas System Design Co., Ltd.			
Title	RSK+RX63N-256K & RSK+RX63N [Revision History]		
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