

REV	REF	DATE	DRAWN BY
1.00	Release	29.11.2019	KOS

Renesas Starter Kit+ for RX72N CPU Board Schematics

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Note:

C : Capacitor
D : Diode
J : Connector, Jumper
L : Inductor
LED : Light Emitting Diode
MR : Resistor Array
PWR : Power Jack
R : Fixed Resistor
RES : Reset Switch
RV : Potentiometer
SW : Switch
T : Test Point
U : Integrated Circuit
X : Crystal, Oscillator

* "DNF" marking means that component is not fitted by default.

**The following off-page connectors used in this schematics do not indicate the signal direction.



Board Code:

RTK5572NNDC00000BE : RSK+RX72N MP Board
 RTK5572NNHC00000BE : RSK+RX72N MP Board (Encryption version)

Abbreviations:

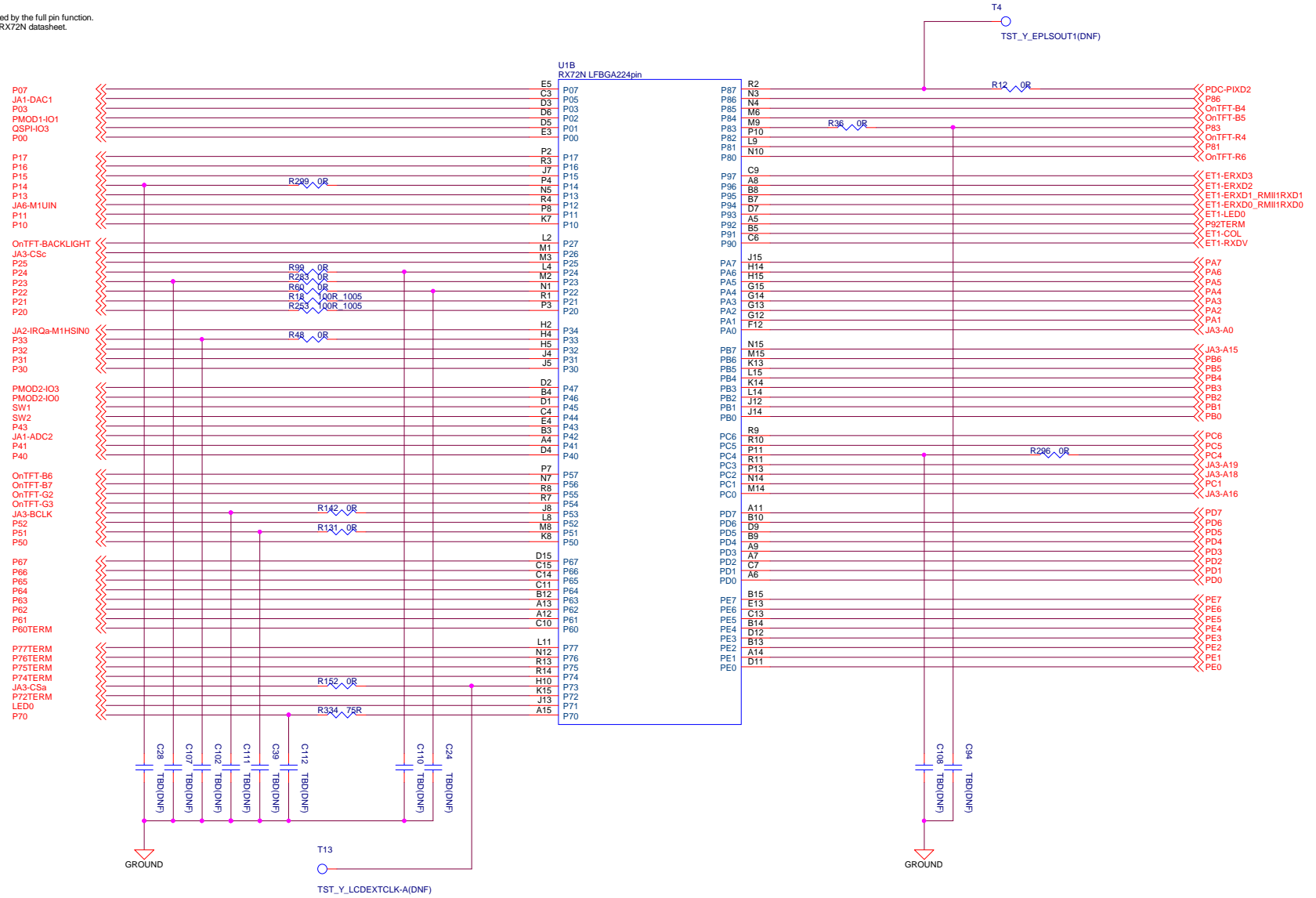
CAN : Controller Area Network
IIC : Philips(TM) Inter-Integrated Circuit Connection Bus
LED : Light Emitting Diode
MCU : Microcontroller Unit
PDC : Parallel Data Caputre Unit
PSU : Power Supply Unit
RSK : Renesas Starter Kit
SDHI : SD Host Interface
SSI : Serial Sound Interace
TFT : Thin Film Transistor
USB : Universal Serial Bus

REE Drawing No. D016482_04

Renesas Electronics Corporation			
Title RSK+RX72N [Index]			
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RX72N Microcontroller-2

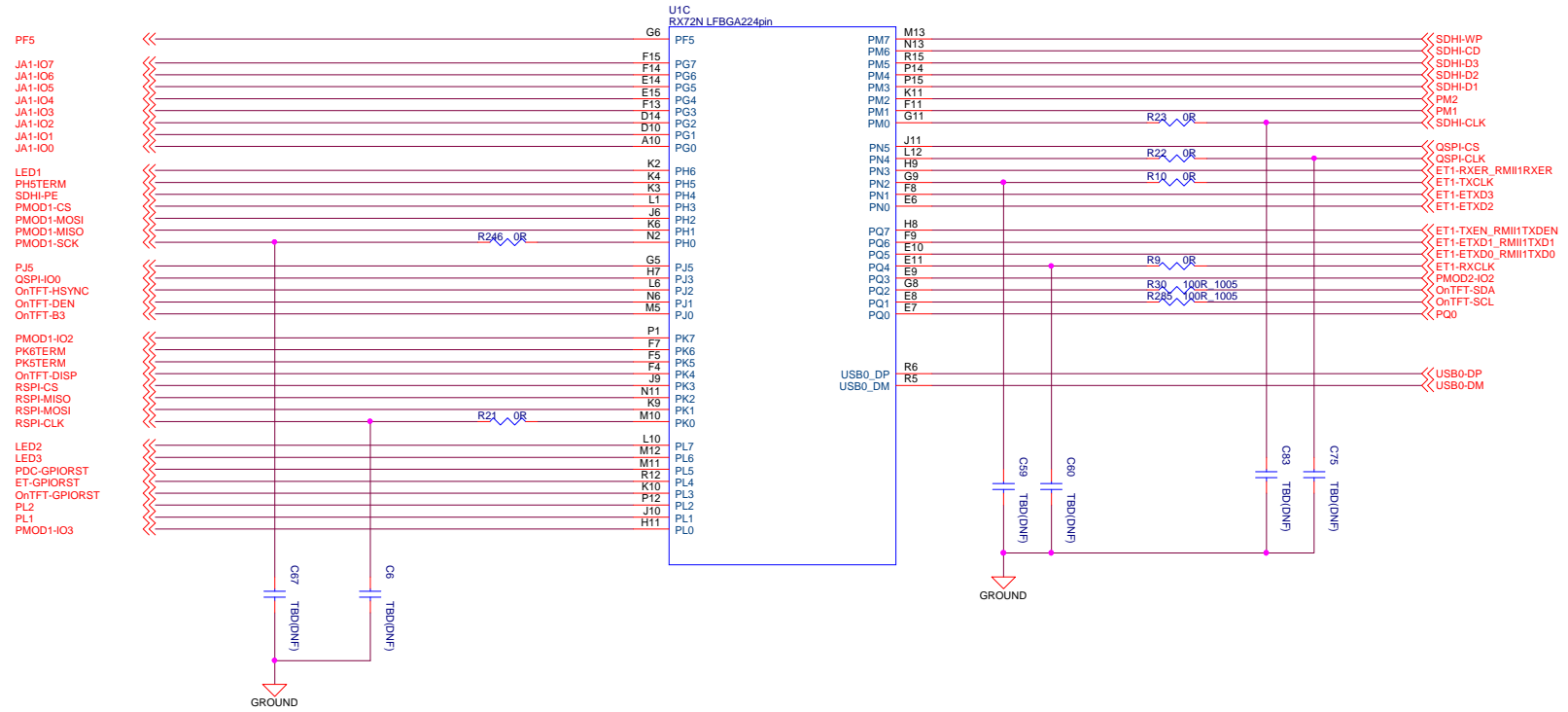
Note:
 Microcontroller's pins are not described by the full pin function.
 For full pin functions details, refer to RX72N datasheet.



Resenas Electronics Corporation		
Title: RSK+RX72N [Micon-2]		
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RX72N Microcontroller-3

Note:
 Microcontroller's pins are not described by the full pin function.
 For full pin functions details, refer to RX72N datasheet.

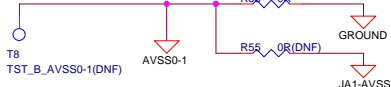


MCU Pin Function Select-1

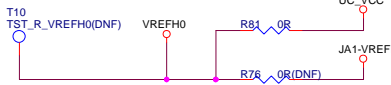
AVCC0 (Pin B2), AVCC1 (Pin C2)



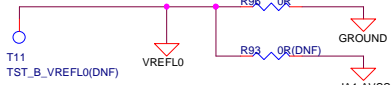
AVSS0 (Pin B1), AVSS1 (Pin C1)



VREFH0 (Pin A2)



VREFL0 (Pin A3)



RES# (Pin G7)



PL5 (Pin M11)



PL3 (Pin K10)



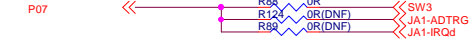
EMLE (Pin F6)



MD_FINED (Pin G4)



P07 (Pin E5)



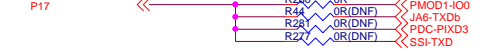
P03 (Pin D3)



P00 (Pin E3)



P17 (Pin P2)



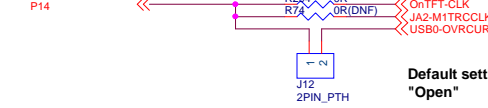
P16 (Pin R3)



P15 (Pin J7)



P14 (Pin P4)



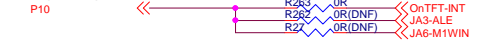
P13 (Pin N5)



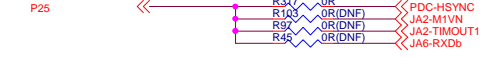
P11 (Pin P8)



P10 (Pin K7)



P25 (Pin M3)



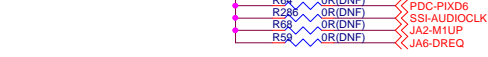
P24 (Pin L4)



P23 (Pin M2)



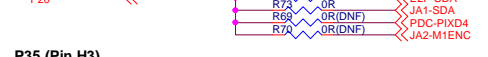
P22 (Pin N1)



P21 (Pin R1)



P20 (Pin P3)



P35 (Pin H3)



P33 (Pin H4)



P32 (Pin H5)



P31 (Pin J4)



P30 (Pin J5)



P43 (Pin E4)



P41 (Pin A4)



P40 (Pin D4)



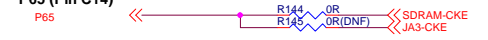
P52 (Pin L8)



P51 (Pin M8)



P50 (Pin K8)



P67 (Pin D15)



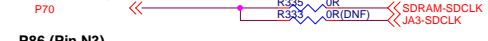
P66 (Pin C15)



P65 (Pin C14)



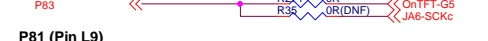
P64 (Pin C11)



P63 (Pin B12)



P62 (Pin A13)



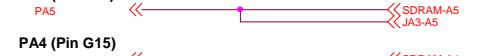
P61 (Pin A12)



P70 (Pin A15)



P86 (Pin N3)



P83 (Pin M9)



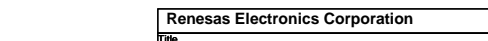
P81 (Pin L9)



PA7 (Pin J15)



PA6 (Pin H14)



PA5 (Pin H15)



PA4 (Pin G15)



PA3 (Pin G14)

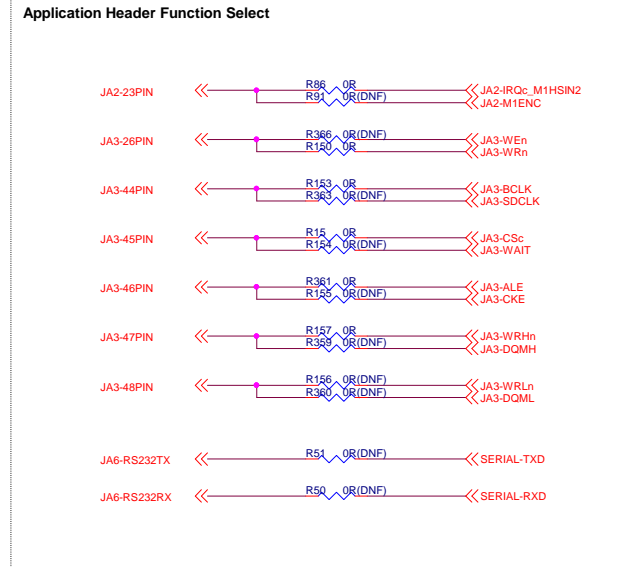
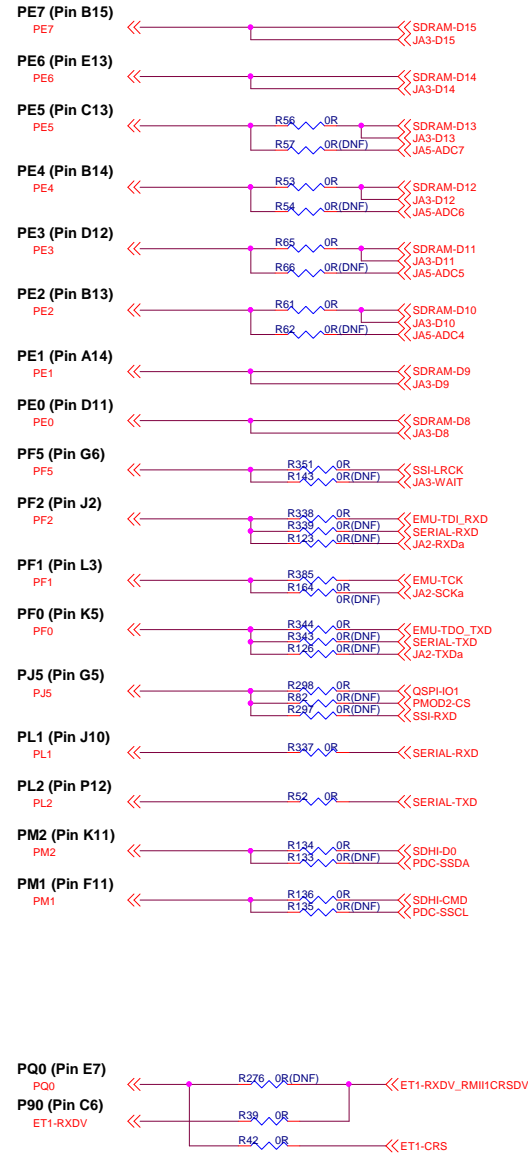
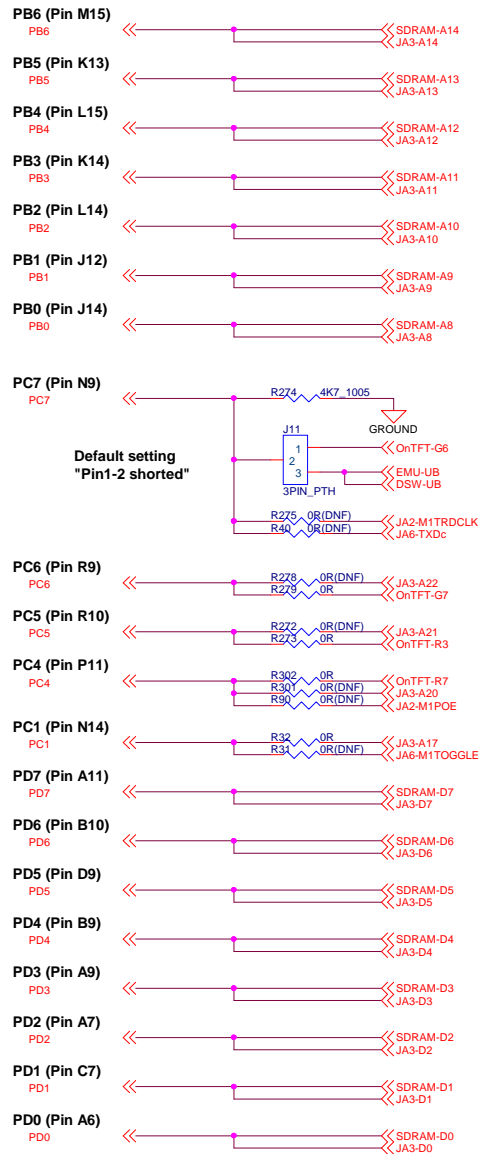


PA2 (Pin G13)

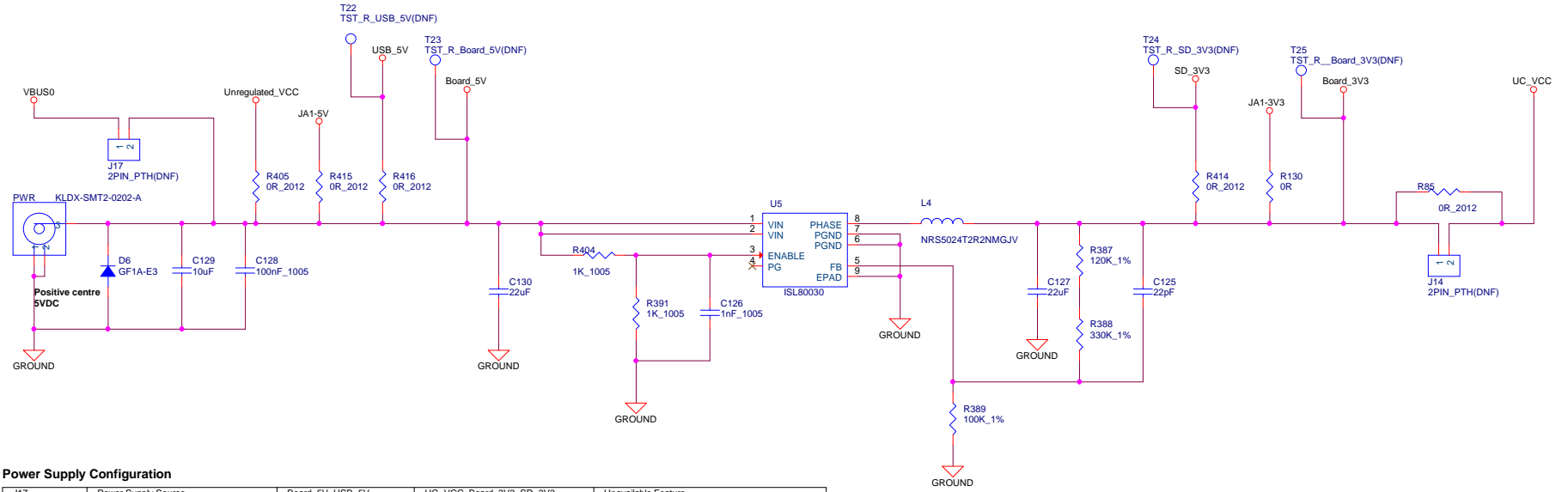
PA1 (Pin G12)

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MCU Pin Function Select-2

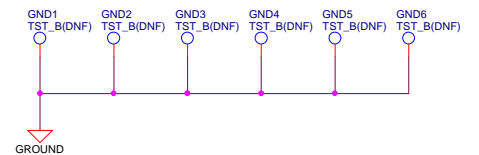
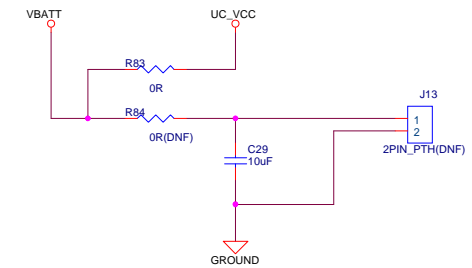


Power Supply Unit

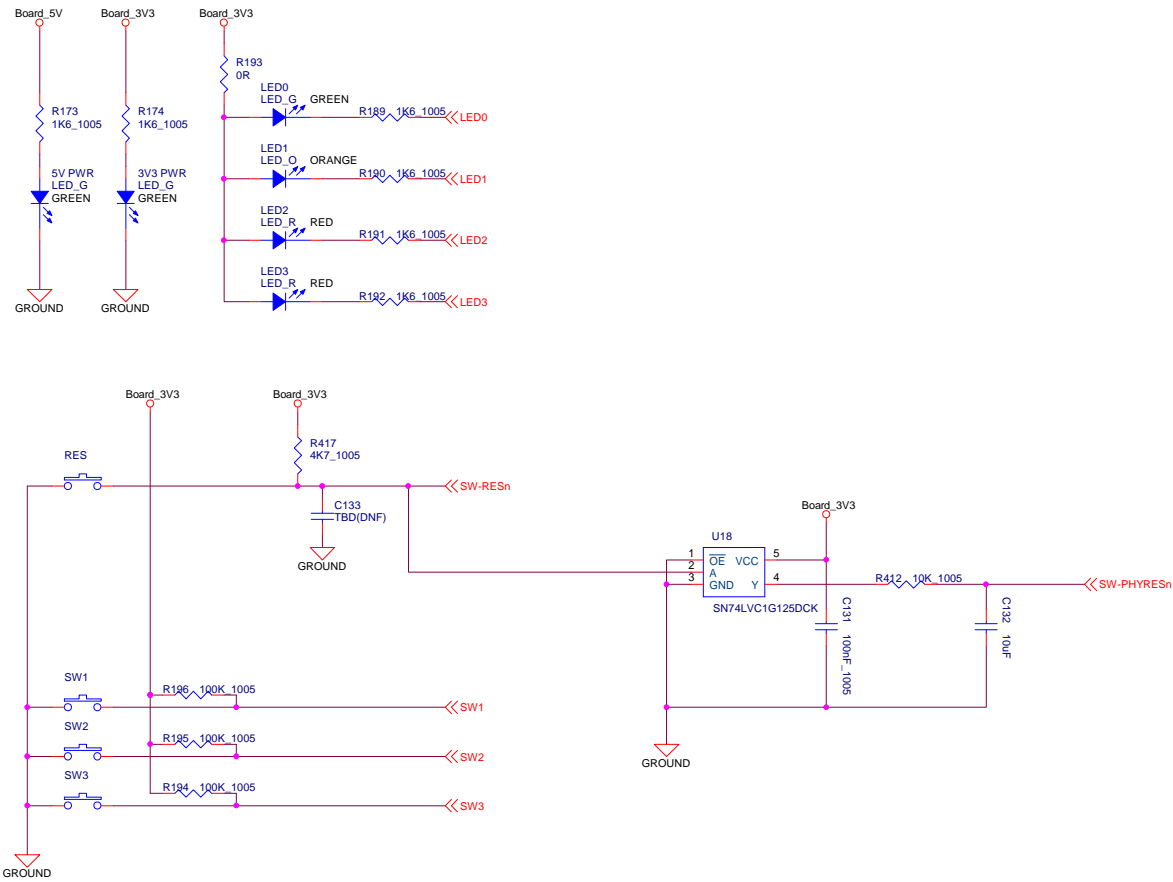


Power Supply Configuration

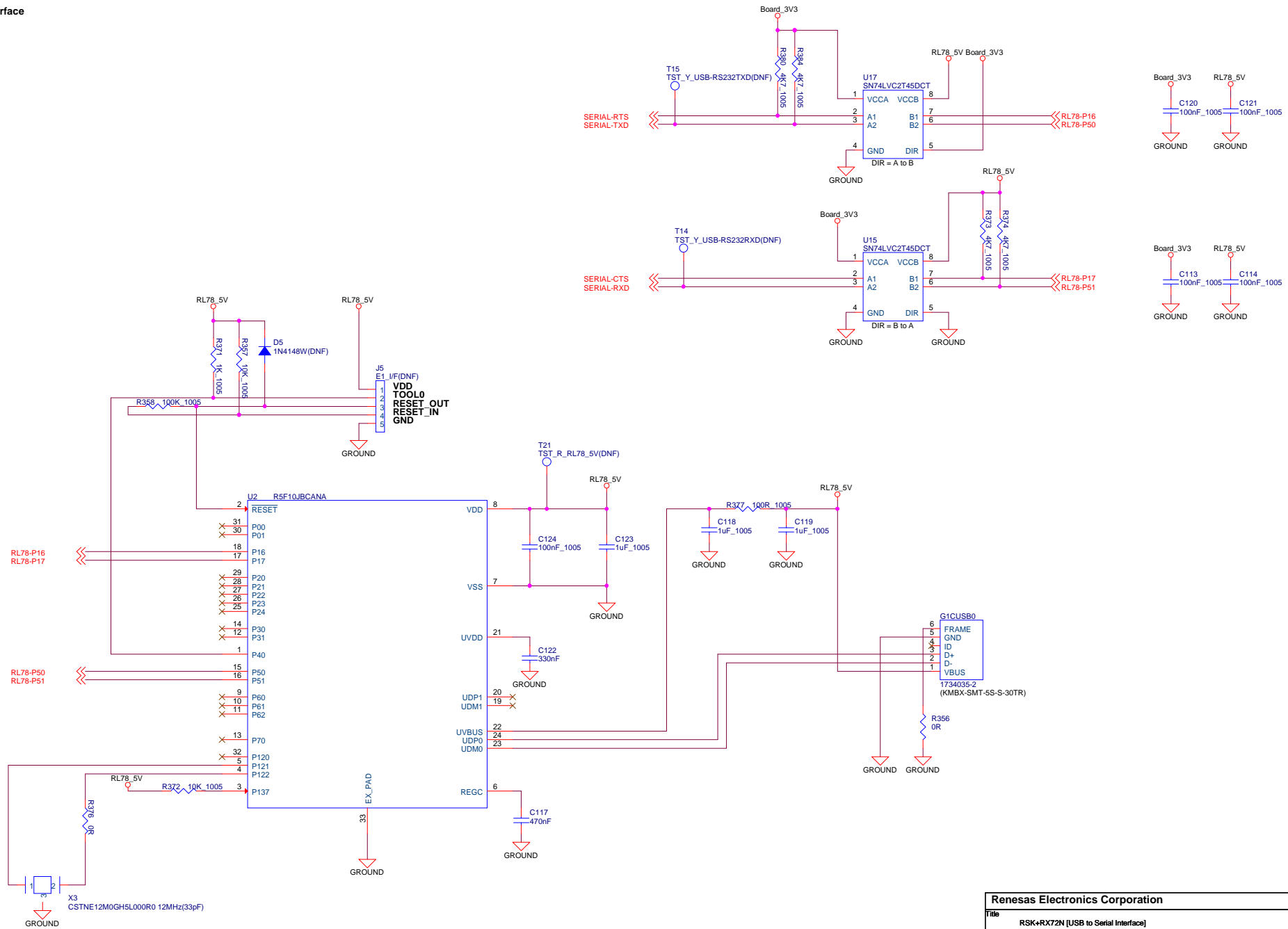
J17	Power Supply Source	Board 5V, USB 5V	UC_VCC, Board 3V3, SD 3V3	Unavailable Feature
open	PWR / Unregulated_VCC / JA1-5V	5V	3.3V	USB (Function-Buspowered)
shorted pin	VBUS	5V	3.3V	USB (Host), USB (Function-Selfpowered)



Switches, LEDs, RESET



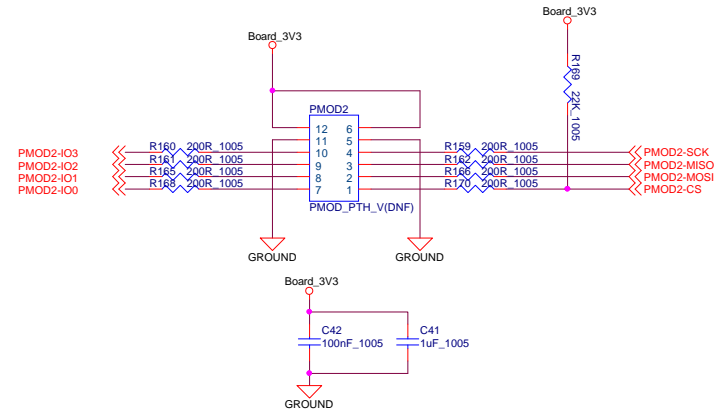
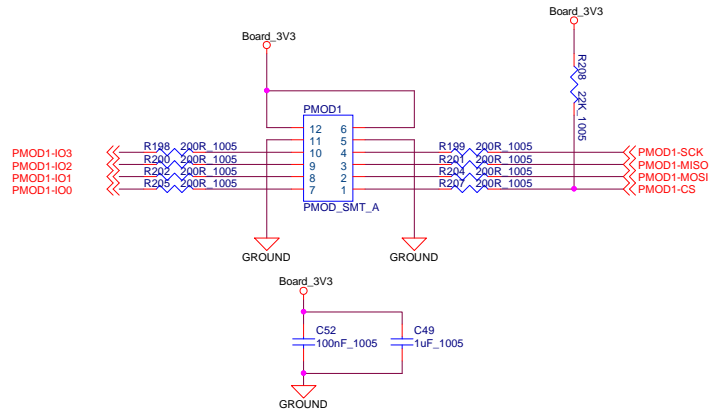
USB to Serial Interface



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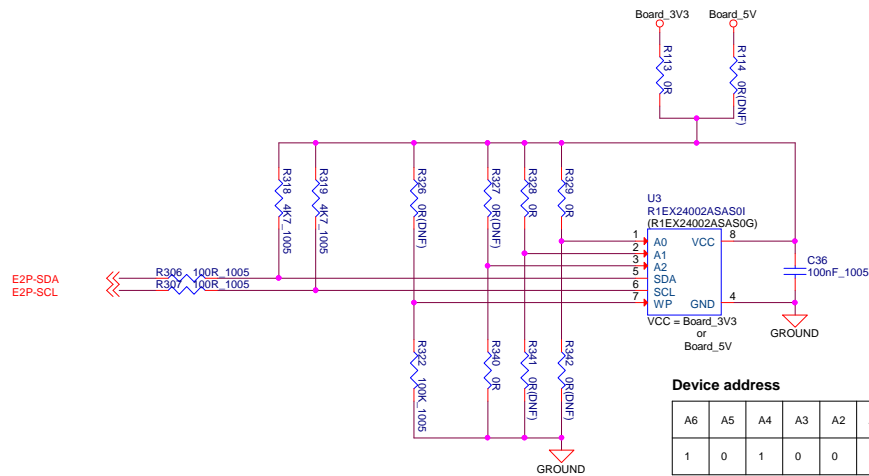
Pmod connectors

PMOD1: Angle type connector
 PMOD2: Vertical type connector (spare)

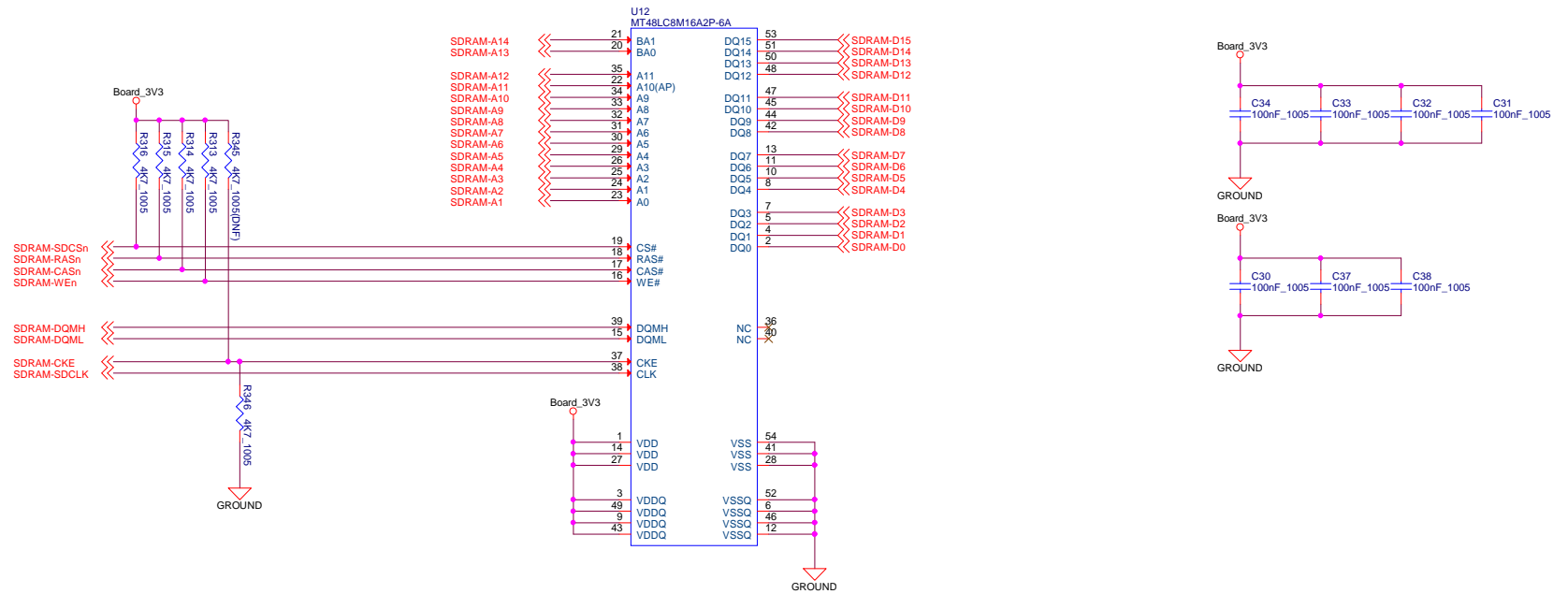


IIC EEPROM(2Kbits) - RIIC

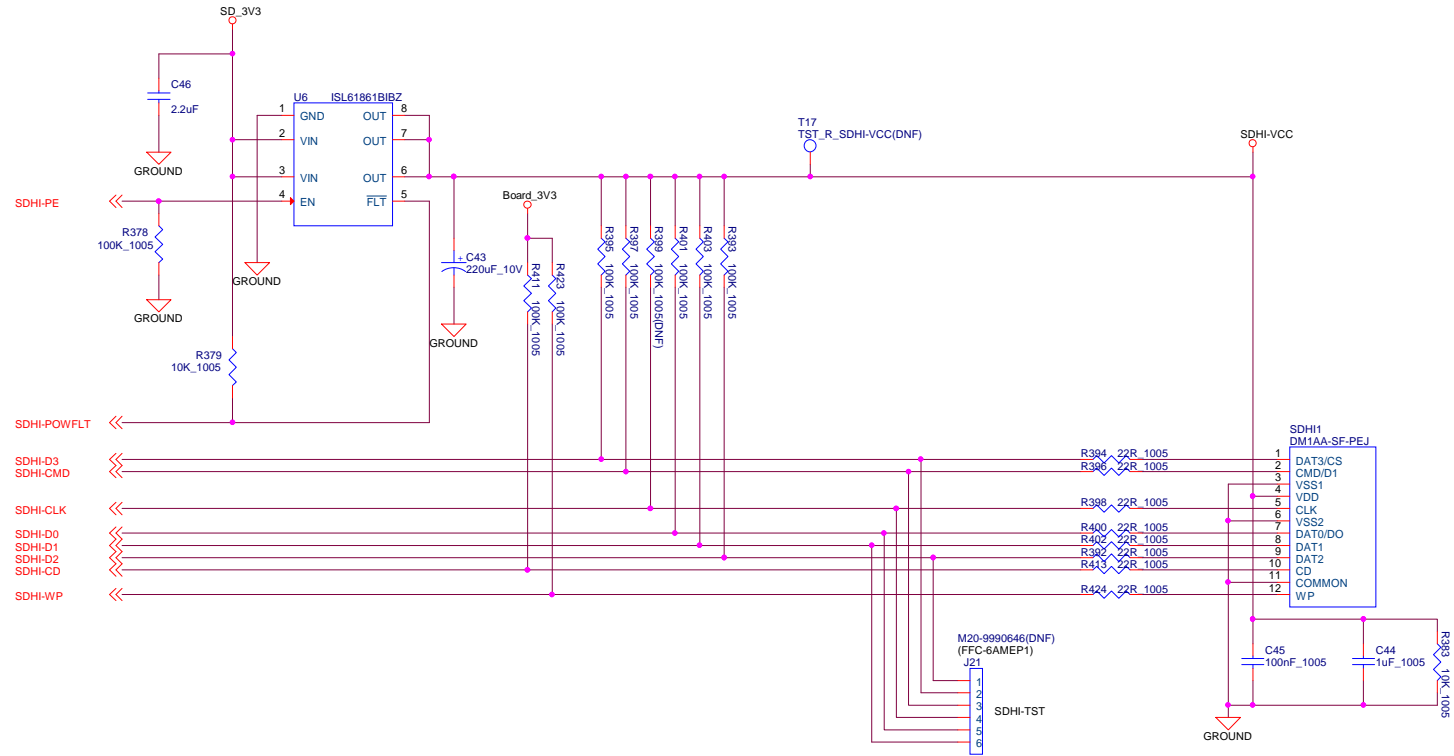
Warning:
 NEVER FIT R113 and R114 simultaneously.



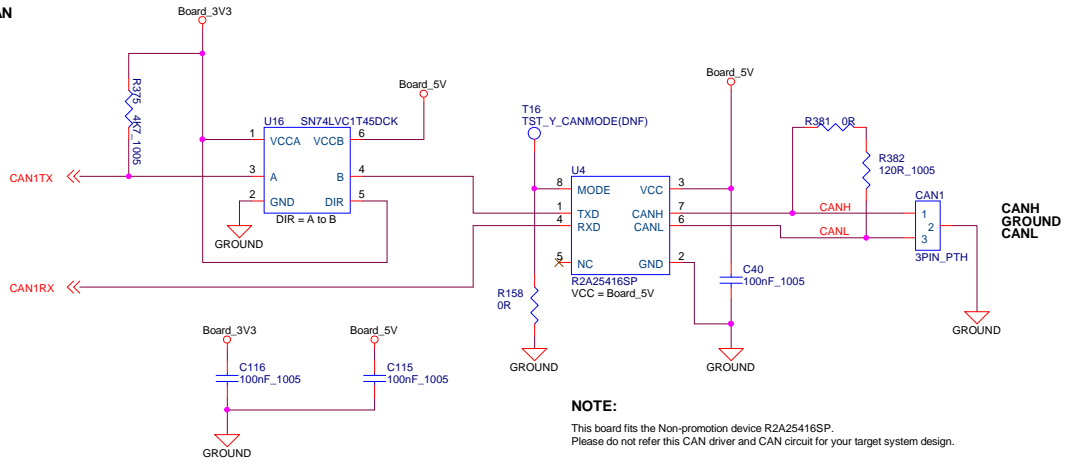
SDRAM(128Mbits)



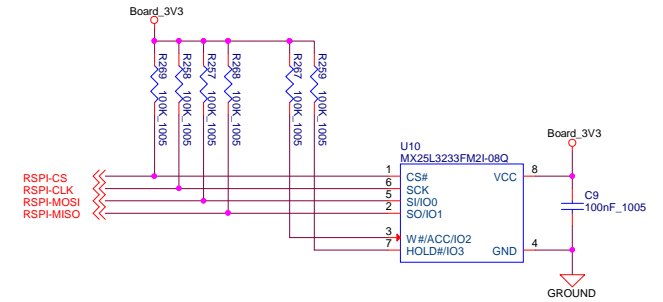
SDHI



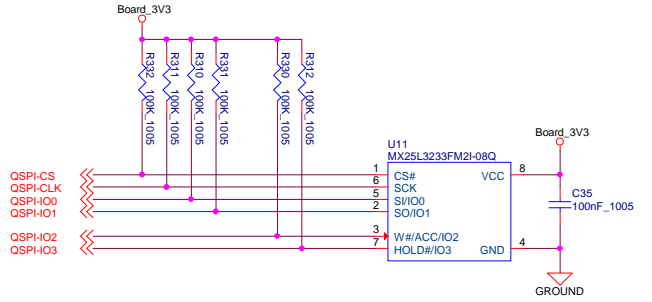
CAN



RSPI- SPI Serial Flash(32Mbits)



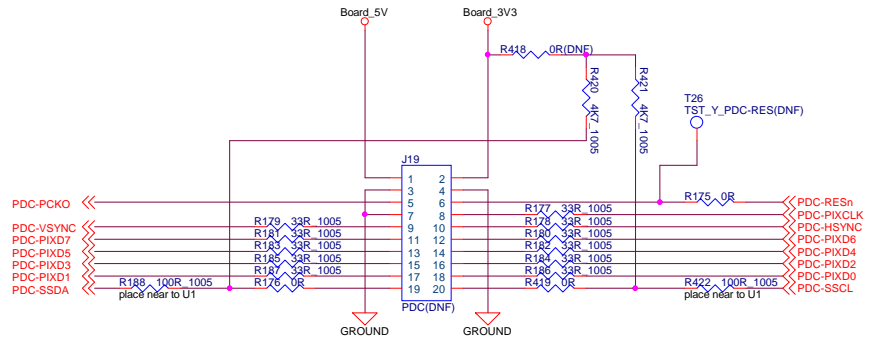
QSPI- SPI Serial Flash(32Mbits)



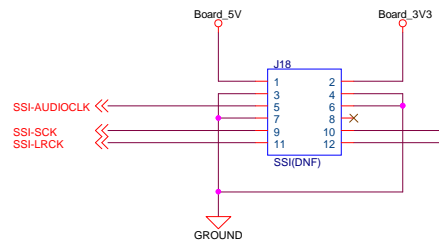
PDC

Warning:

When the voltage of your PDC target system differs from this board, please do not supply a board power to your system directly.
When the voltage of your PDC target system differs from this board, please do not fit resistor R418.
Please fix pull-up resistor on your PDC target system.



SSI

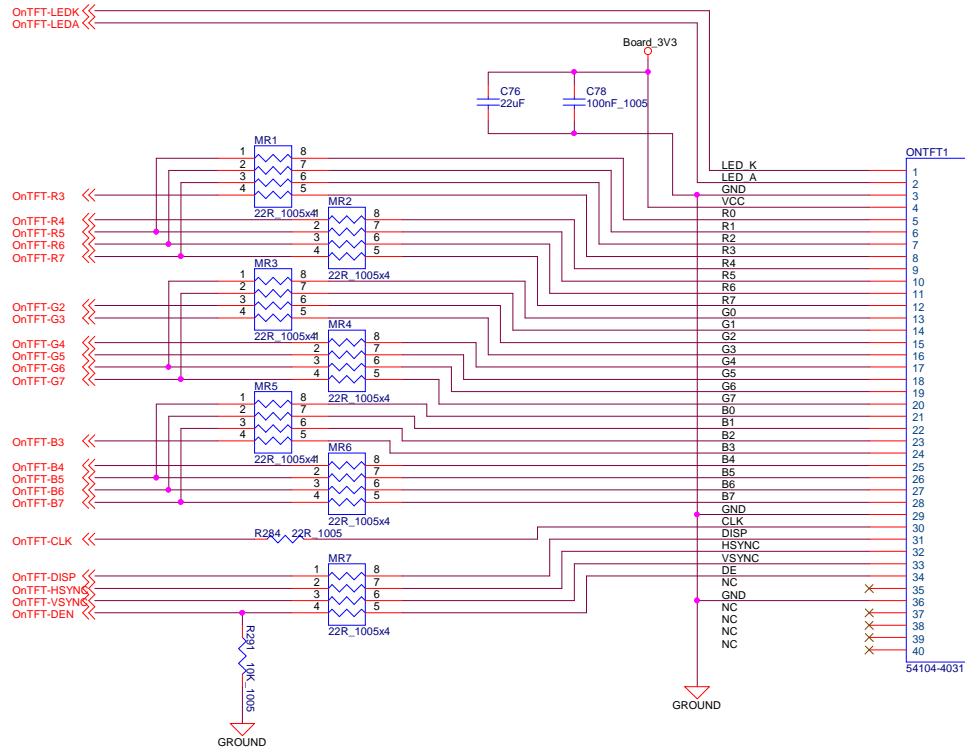


On-board TFT

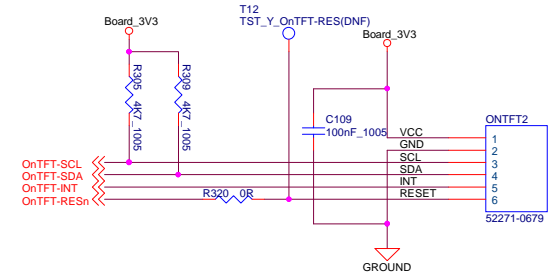
Note:

On-board TFT circuit is the design based on NHD-4.3-480272EF-ATXL#-CTP (4.3" 480x272 with Capacitive Touch).

Display Interface



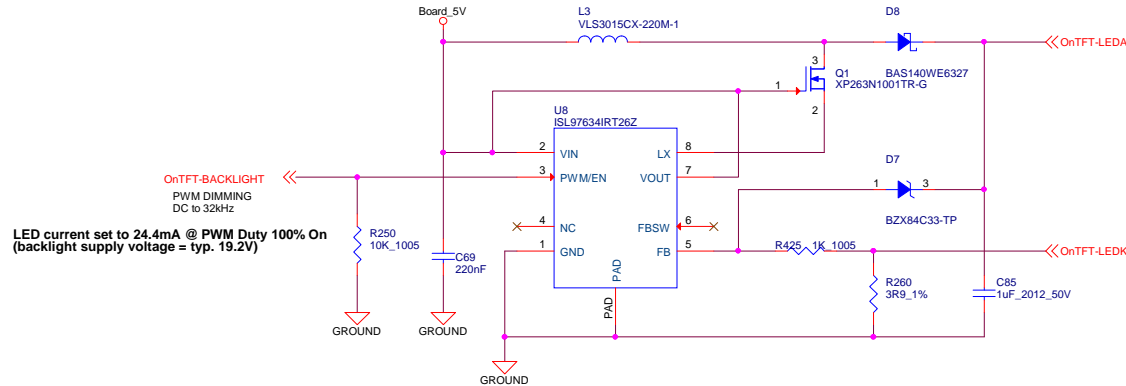
Capacitive Touch Interface



Device address for touch panel driver

A6	A5	A4	A3	A2	A1	A0
0	1	1	1	0	0	0

LED Backlight



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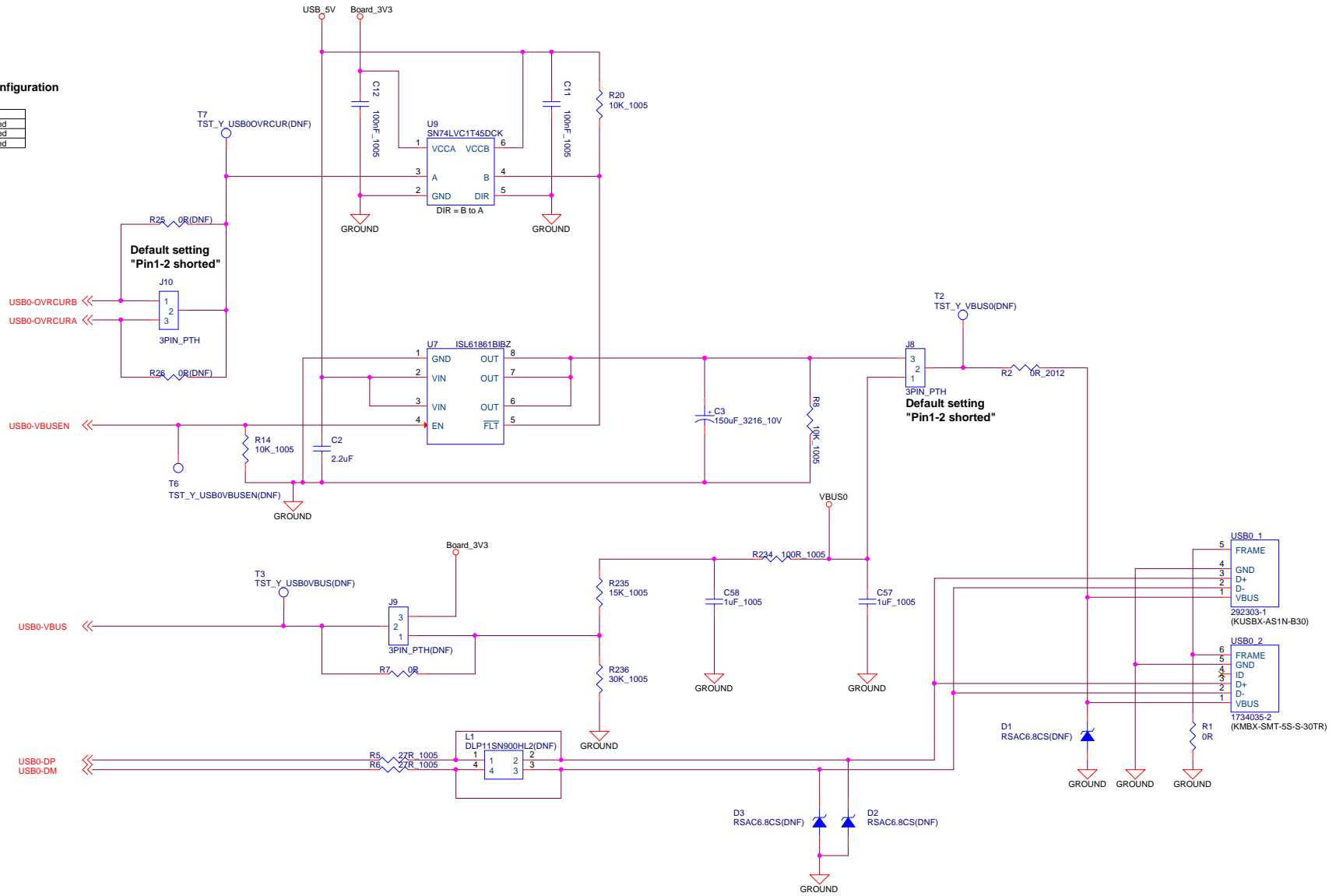
USB0 Host/Function

USB0 Host/Function Select

J8	Function Mode
1-2 shorted	Function Mode
2-3 shorted	Host Mode

Self-powered/Bus-powered Configuration for Function Mode

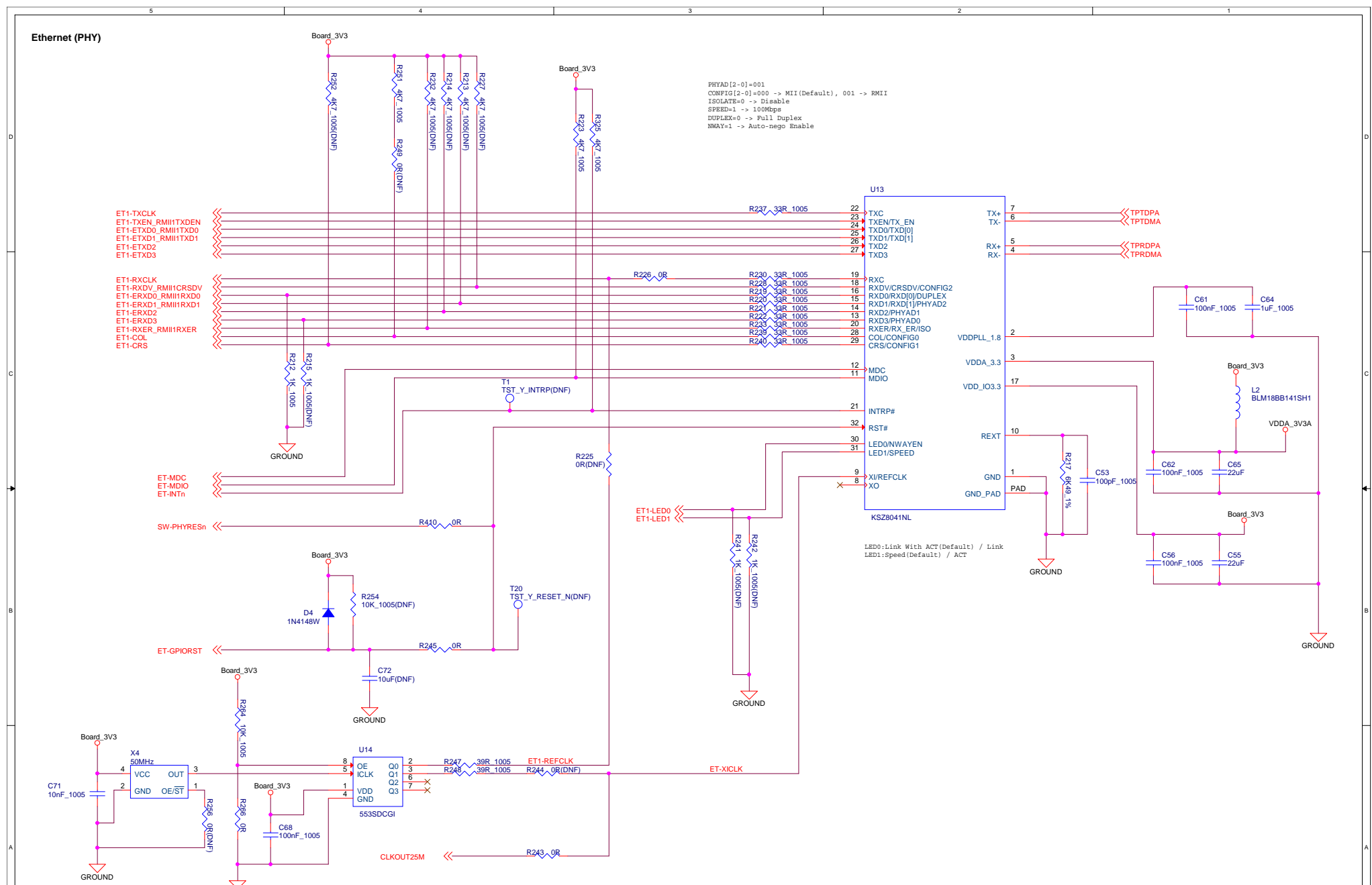
J9	R7	Self-powered
1-2 shorted	Remove	Self-powered
2-3 shorted	Remove	Bus-powered
Open	Fit	Self-powered



Ethernet (PHY)

```

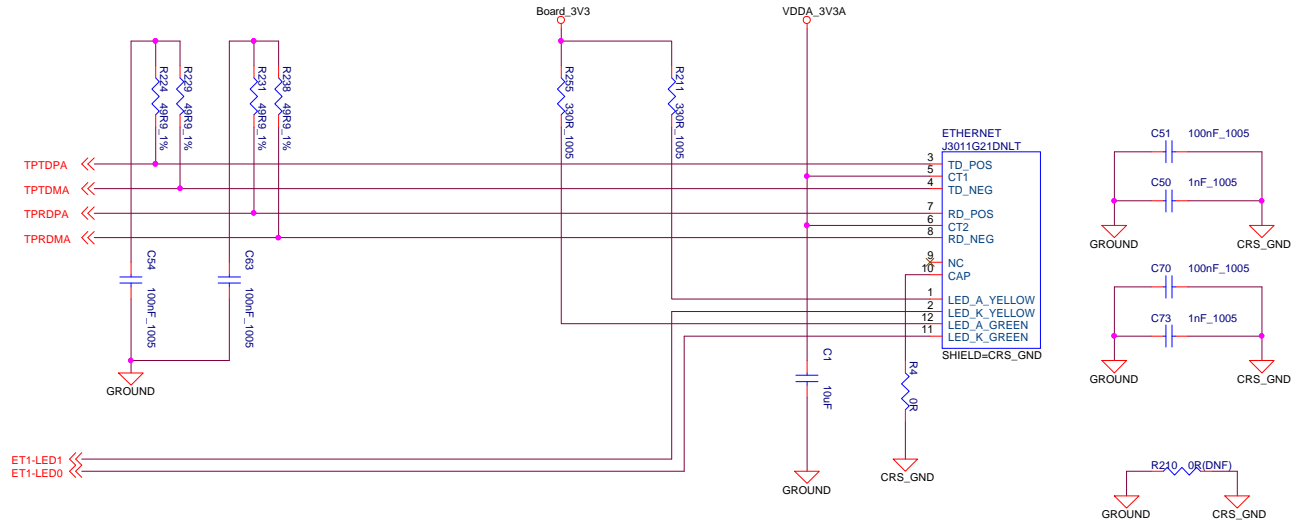
PHYAD[2-0]=001
CONFIG[2-0]=000 -> MII(Default), 001 -> RMI
ISOLATE=0 -> Disable
SPEED=1 -> 100Mbps
DUPLEX=0 -> Full Duplex
NNWAY=1 -> Auto-nego Enable
    
```



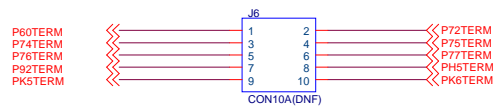
PHY Mode	R225, R244, R249, R276	R243, R226, R39, R42, R266
MII (Default)	DNF	Fit
RMI	Fit	DNF

NOTE: R276, R39, R42 Refers to page 6.

Ethernet (RJ45)



Unused-Pin



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Title RSK+RX72N [Unused-Pin]			
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Revision History

REV	DATE	PAGE	DESCRIPTION
1.00	29.11.2019	---	1st release edition.

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Title RSK+RX72N [Revision History]			
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