


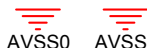





# R7S910018 Evaluation board RTK7910018C00000BE SCHEMATICS (RZ/T1, BGA320)

TITLE	PAGE
Index	1
RZ/T1-1	2
RZ/T1-2, Serial-flash	3
NOR-flash, SDRAM	4
EtherCAT	5
Audio-codec, USB, LAN	6
Serial(USB), DBGIF	7
DSMIF, PMOD, CAN, SW	8
Power	9
Application Header	10

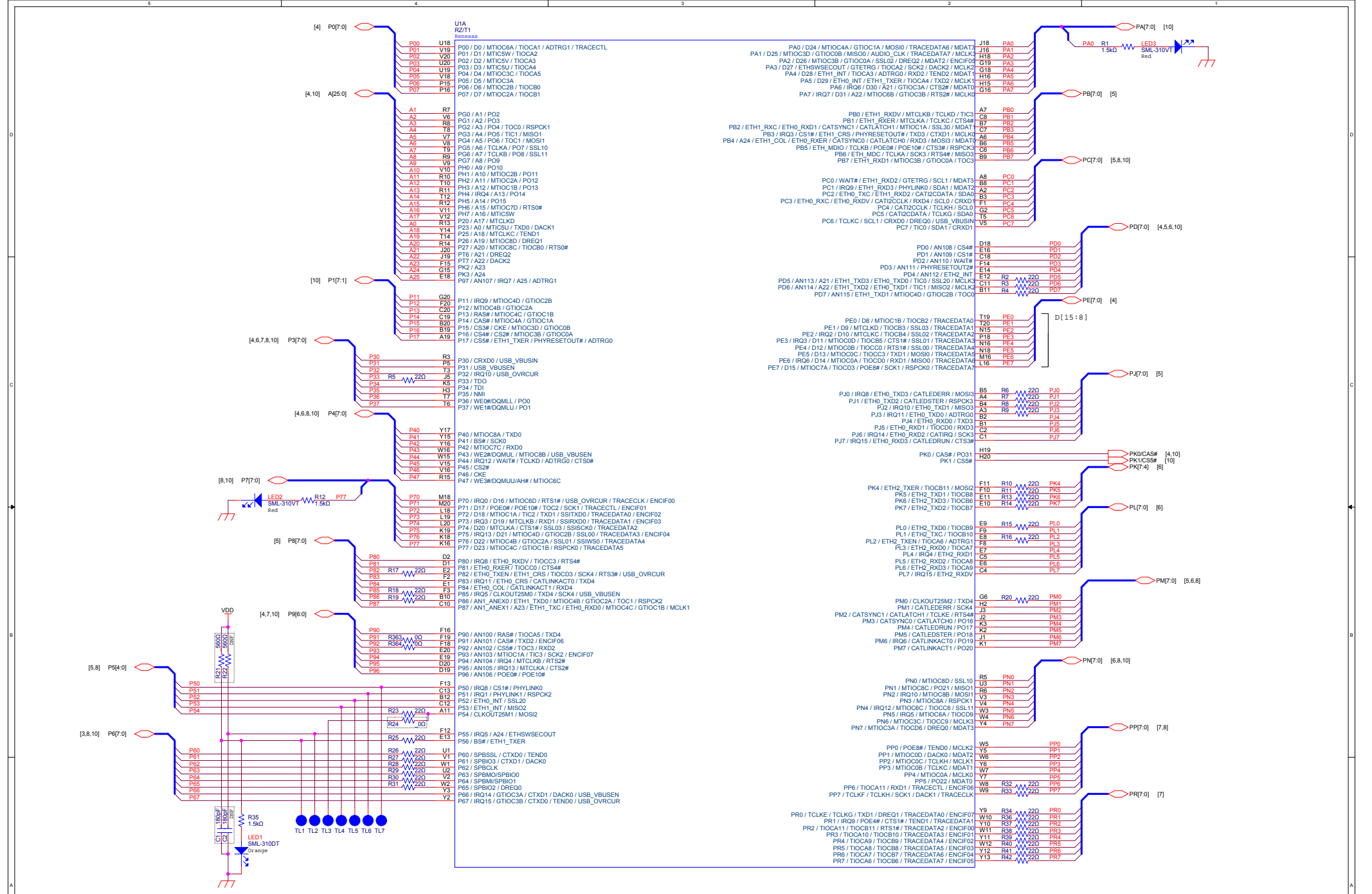
## Note:

-  Digital GND (VSS)
-  Digital GND for USB
-  Analog GND
-  Analog GND for ADC
-  Analog GND for ADC Reference
-  Analog GND for PLL
-  Not mounted (Do Not Fit)

VIN = System Power (5V or 7V-12V input)  
D5V = Digital 5V  
D3.3V = Digital 3.3V for External device  
A3.3V = Analog 3.3V for External device  
D1.2V = Digital 1.2V  
A1.2V = Analog 1.2V  
VCCQ33 = 3.3V for RZ/T1 I/O & USB  
AVCC = Analog 3.3V for ADC  
VDD = Digital 1.2V for RZ/T1 Core  
AVDD = Analog 1.2V for PLL & USB

R = Fixed Resistors  
RA = Resistor Array  
C = Ceramic Caps  
CE = Tantalum Electrolytic Caps  
CP = Decoupling Caps

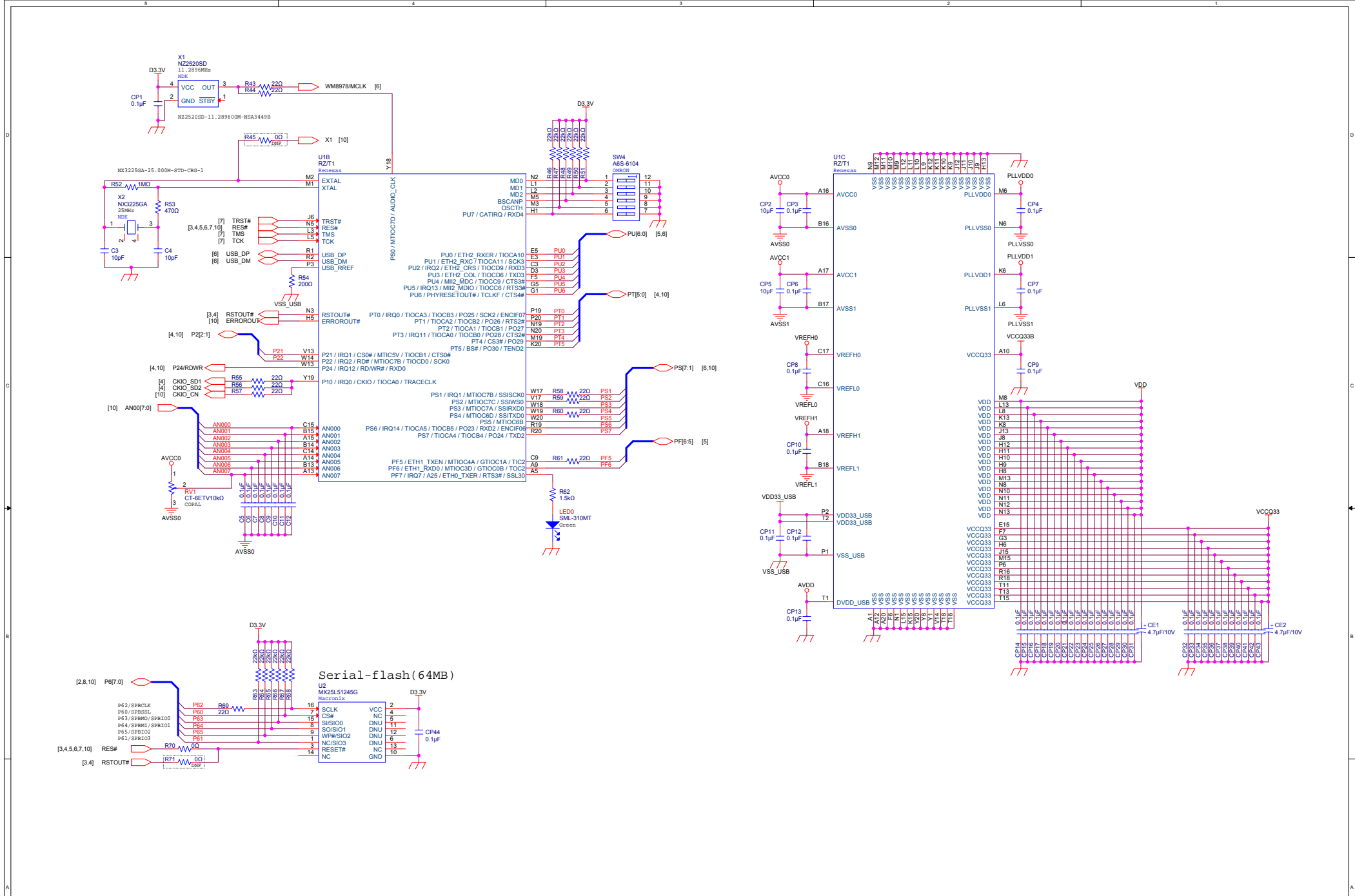
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	DATE		15-09-17						R20UT3241EG0200	



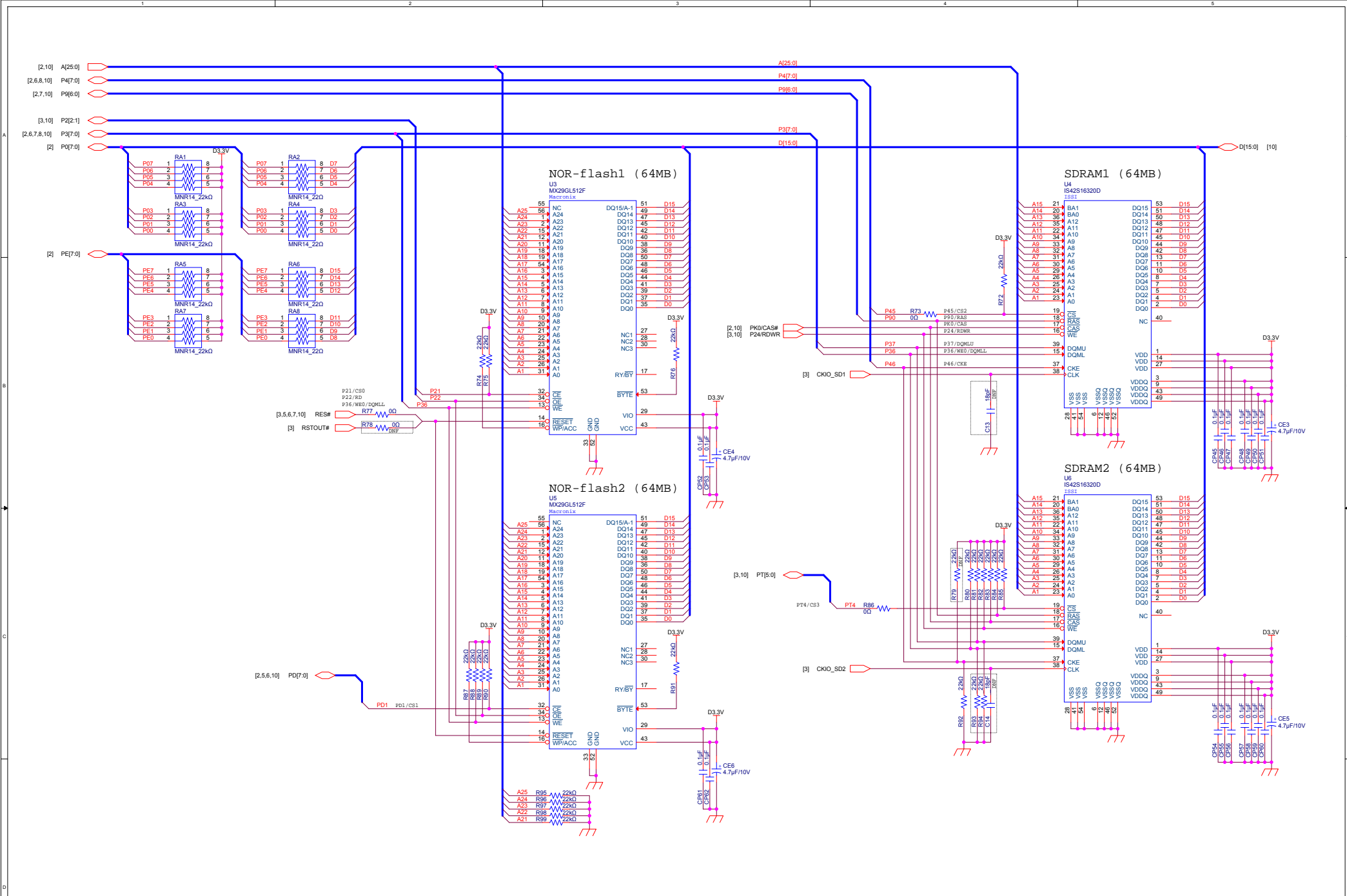
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DATE	15-09-17

Renesas System Design Co., Ltd.			
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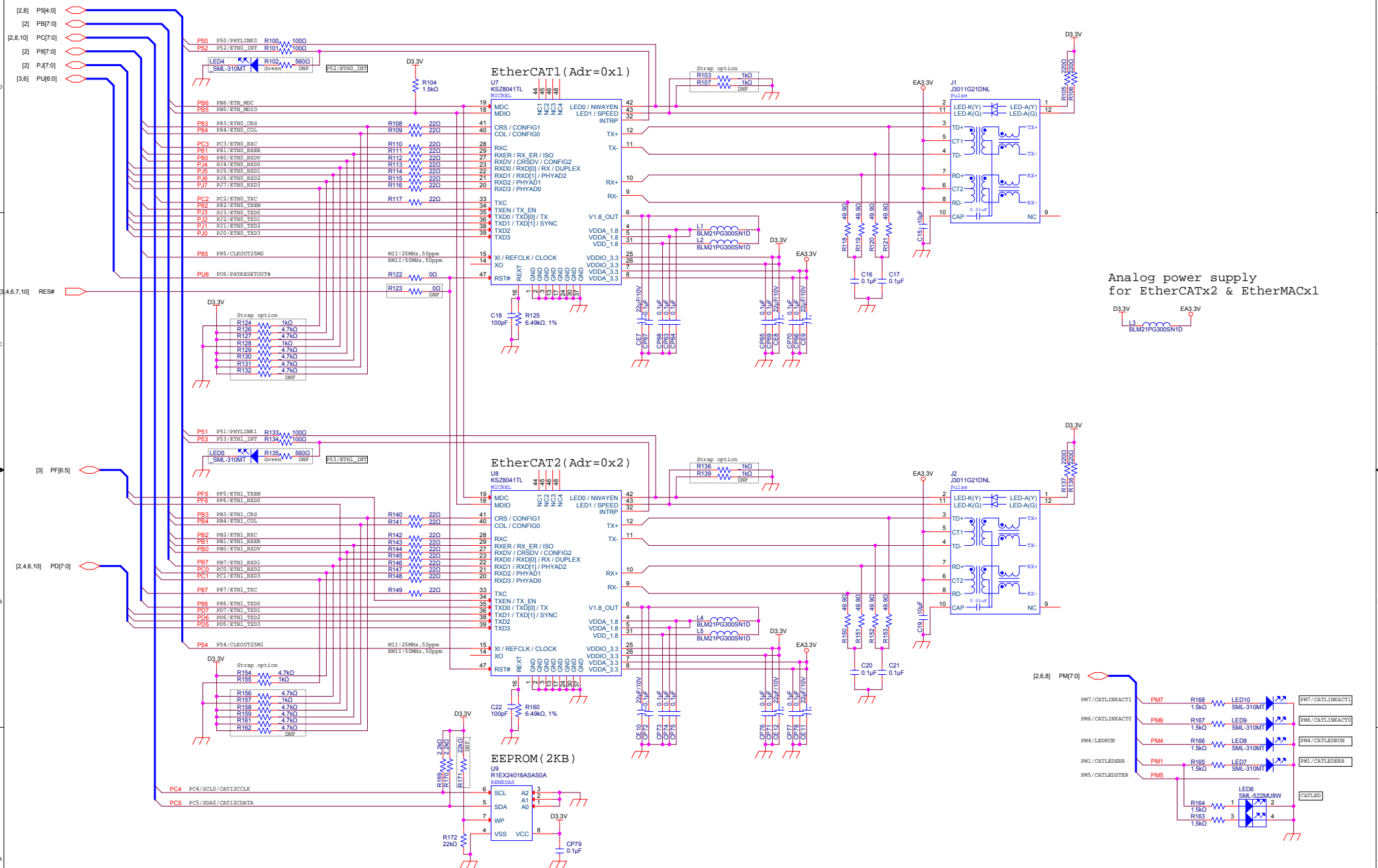
RTK7910018C00000BE	
RZ/T1-1	
( 2 / 10 )	
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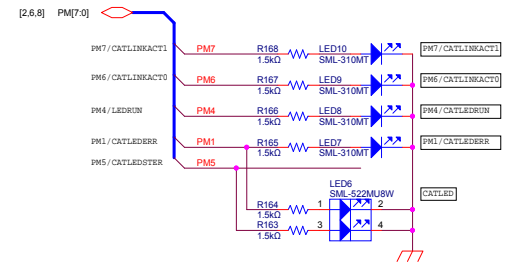
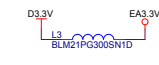
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					RZ/T1-2, Serial-flash ( 3 / 10 )	
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DATE		15-09-17				



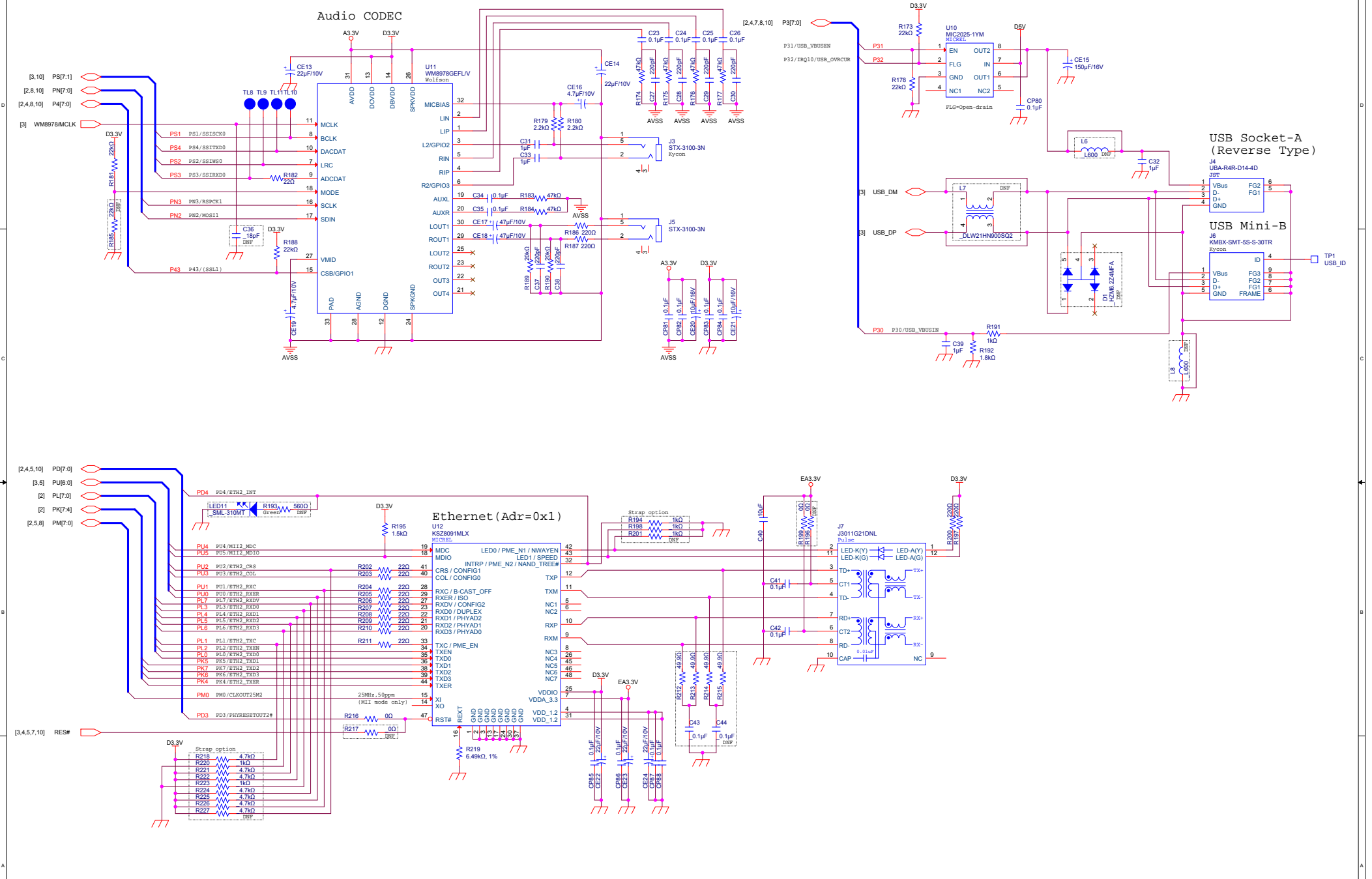
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					NOR-flash, SDRAM		
					( 4 / 10 )		
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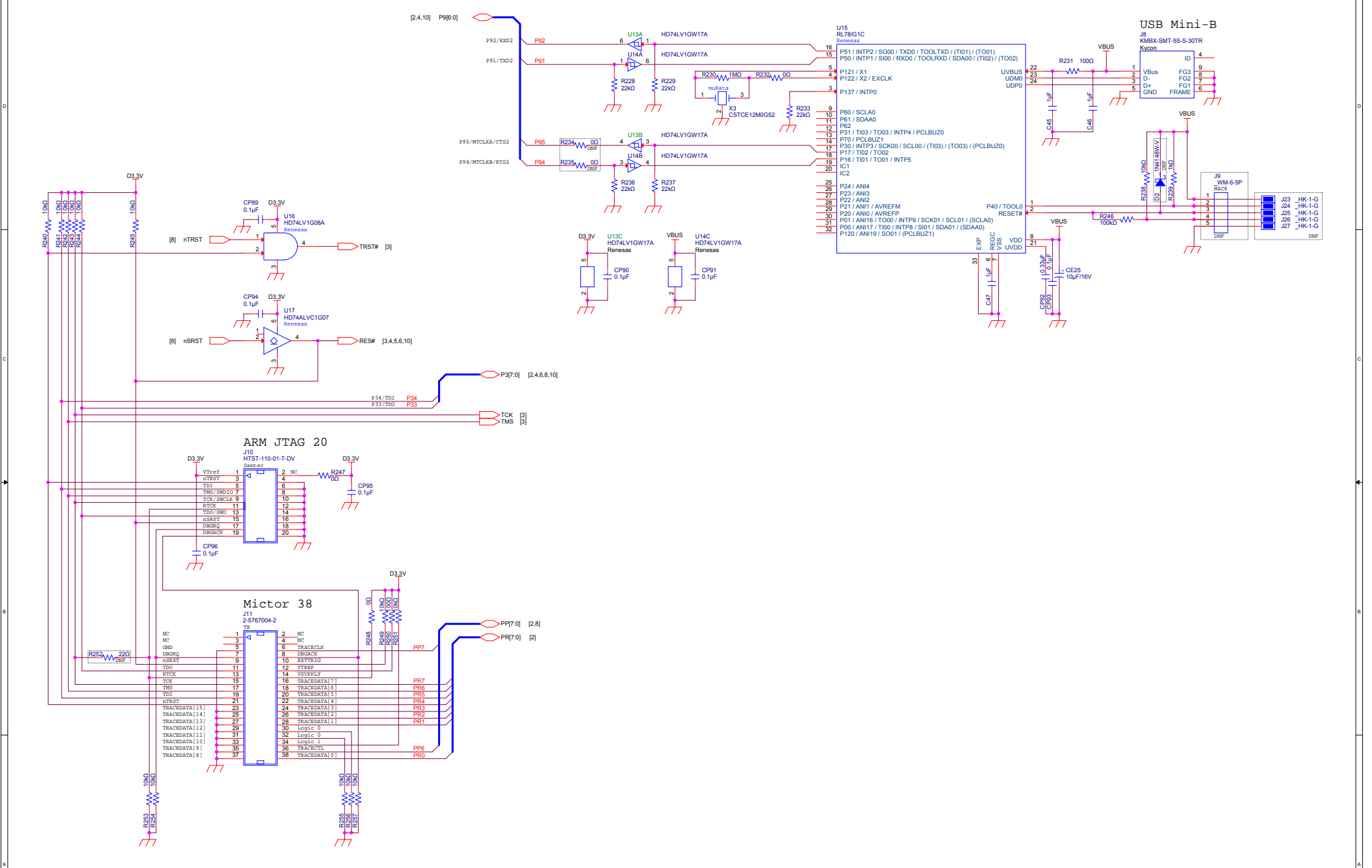
Analog power supply for EtherCATx2 & EtherMACx1



CHANGE	Renesas System Design Co., Ltd.				RTK7910018C00000BE	
					EtherCAT	
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					( 5 / 10 )	

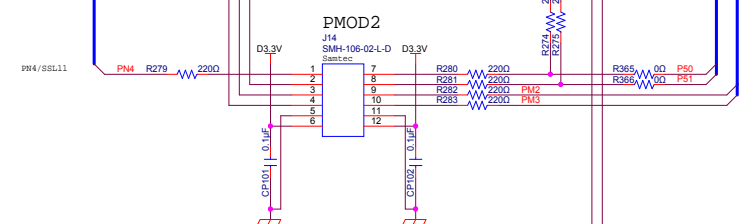
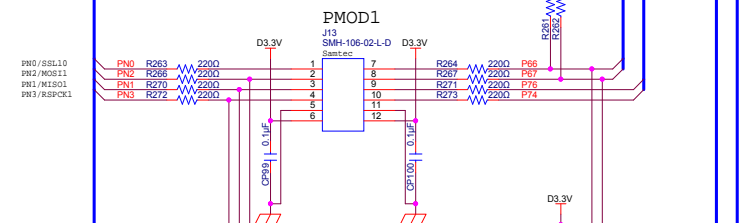
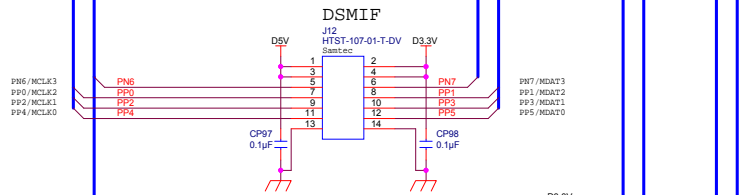


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DATE 15-09-17				Audio-codec, USB, LAN ( 6 / 10 )		
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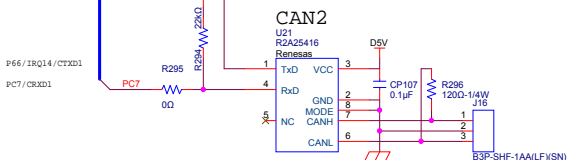
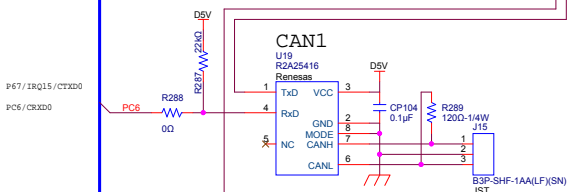


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					Serial (USB), DBGIF ( 7 / 10 )	
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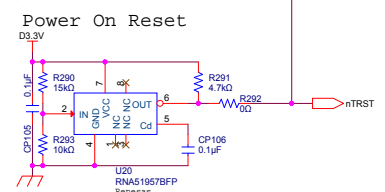
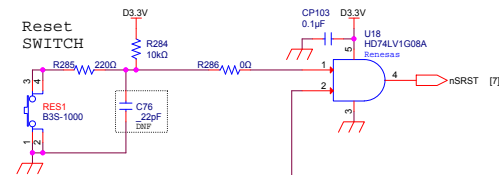
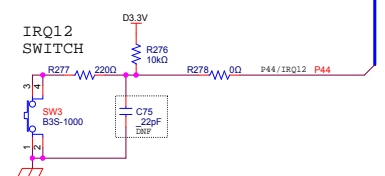
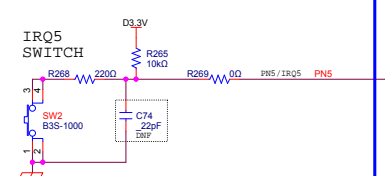
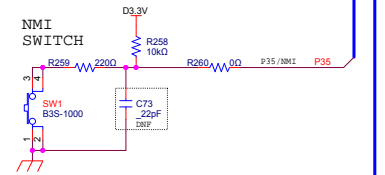
[2.5.6] PM7[7:0]  
 [2.5] P5[4:0]  
 [2.10] P7[7:0]  
 [2.3.10] P6[7:0]  
 [2.7] PP[7:0]  
 [2.6.10] PN[7:0]



[2.5.10] PC7[7:0]



[2.4.6.10] P4[7:0]  
 [2.4.6.7.10] P3[7:0]



P46/CTXD1/IRQ14  
 P47/CTXD0/IRQ15

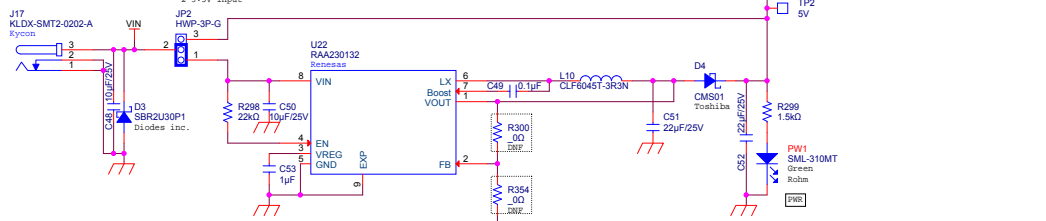
P50/IRQ8/PHYLINK0  
 P51/IRQ1/PHYLINK1

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CHANGE



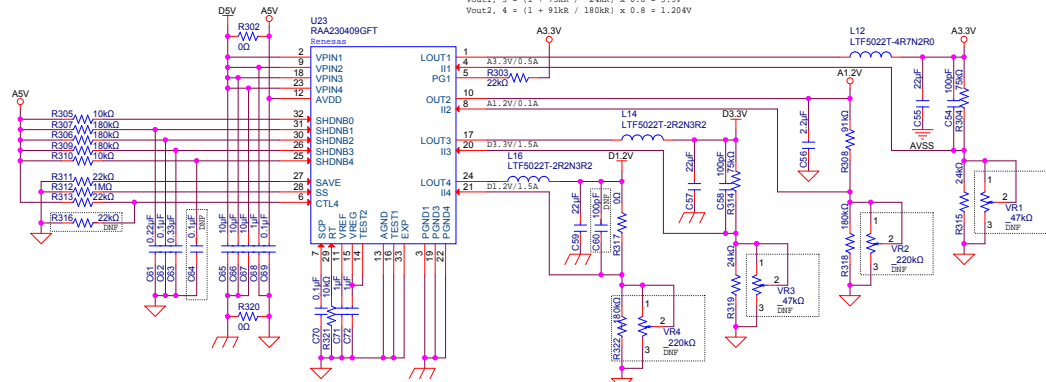
AC Adaptor



Jumper setting :  
1-2:7V-12V input  
2-3:5V input

$$Vout1.3 = (1 + 75k\Omega / 24k\Omega) \times 0.8 = 3.3V$$

$$Vout2.4 = (1 + 91k\Omega / 180k\Omega) \times 0.8 = 1.204V$$

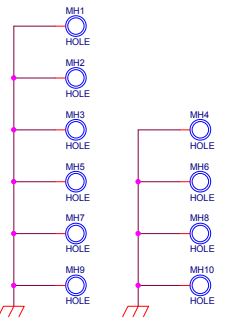


SSI(soft start time) :  $t_{sw} = 1.8 \times R_{SS}(M\Omega) + 0.24 = 2.04ms$   
 SCPI(Short circuit protect) :  $t_{SCIP} = 0.9 \times C_{SCPI}(\mu F) = 0.99s = 99ms$   
 RT(Resonator timing reg.) :  $EO8C = -0.107 \times R_T(k\Omega) + 3.05 = 1.98MHz$   
 SAVR(Power saving) : L=OFF, H=ON(Normal 15k clock freq.)  
 SHDNB\*(Voltage output) : L=OFF, H=ON  
 CTL4(Ch4 output voltage) : L=By External resistor, H=1.2V fix  

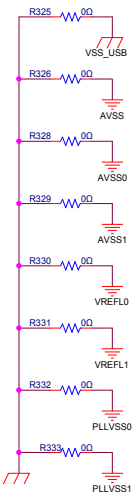
CTL4	313	316	310	317	322
H	o	x	x	o	x
L	x	o	o	o	o

 o:Mount, x:No mount

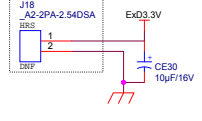
Board fixed hole.



AGND-DGND

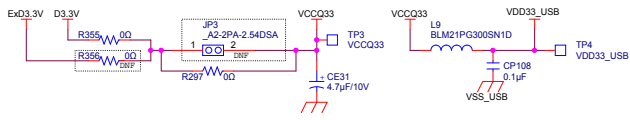


D3.3V External

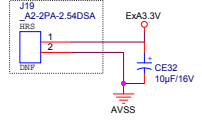


$$R = (3.3V - 150mA) / (100 \times (3.3V + 150mA)) = 203mR \rightarrow 200mR$$

$$V_f = 200mR \times 150mA = 30mV$$

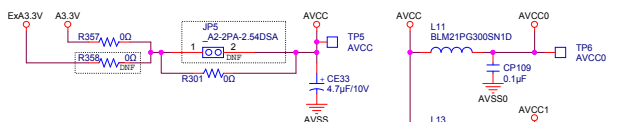


A3.3V External

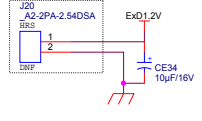


$$R = (3.3V - 42mA) / (100 \times (3.3V + 42mA)) = 724mR \rightarrow 750mR$$

$$V_f = 750mR \times 42mA = 31.5mV$$

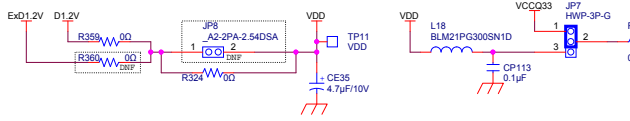


D1.2V External

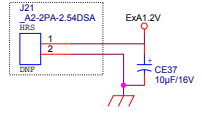


$$R = (1.2V - 800mA) / (100 \times (1.2V + 800mA)) = 38mR \rightarrow 47mR (Min.)$$

$$V_f = 47mR \times 800mA = 37.6mV$$

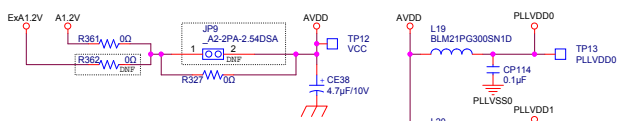


A1.2V External

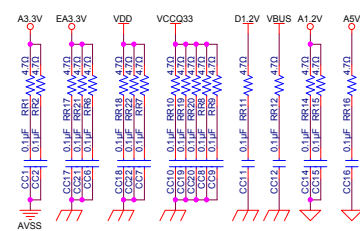


$$R = (1.2V - 60mA) / (100 \times (1.2V + 60mA)) = 507mR \rightarrow 510mR$$

$$V_f = 510mR \times 60mA = 30.6mV$$



Snubber circuit for EMC measures



CHANGE

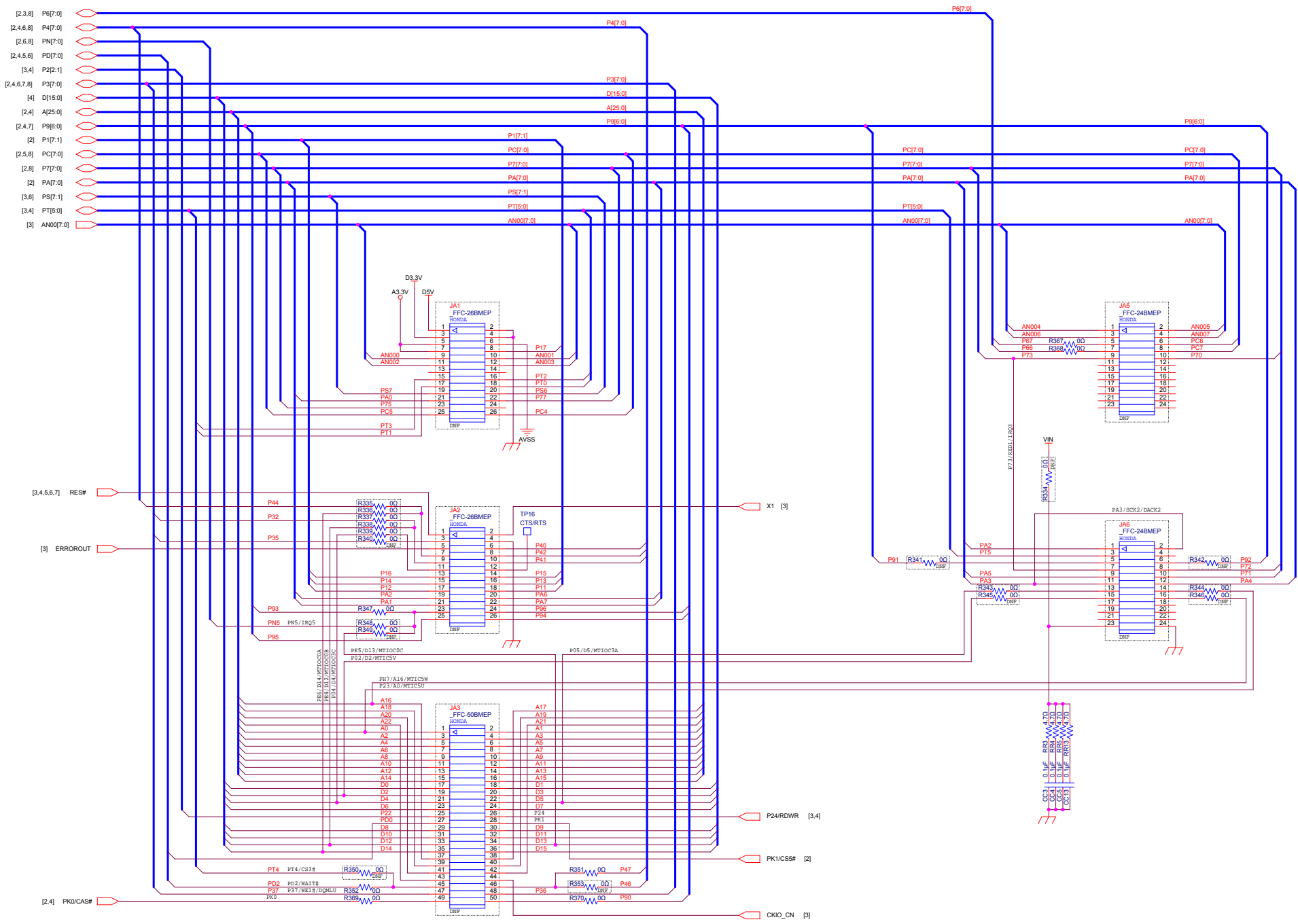
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Power ( 9 / 10 )  
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					Application Header		
					( 10 / 10 )		
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