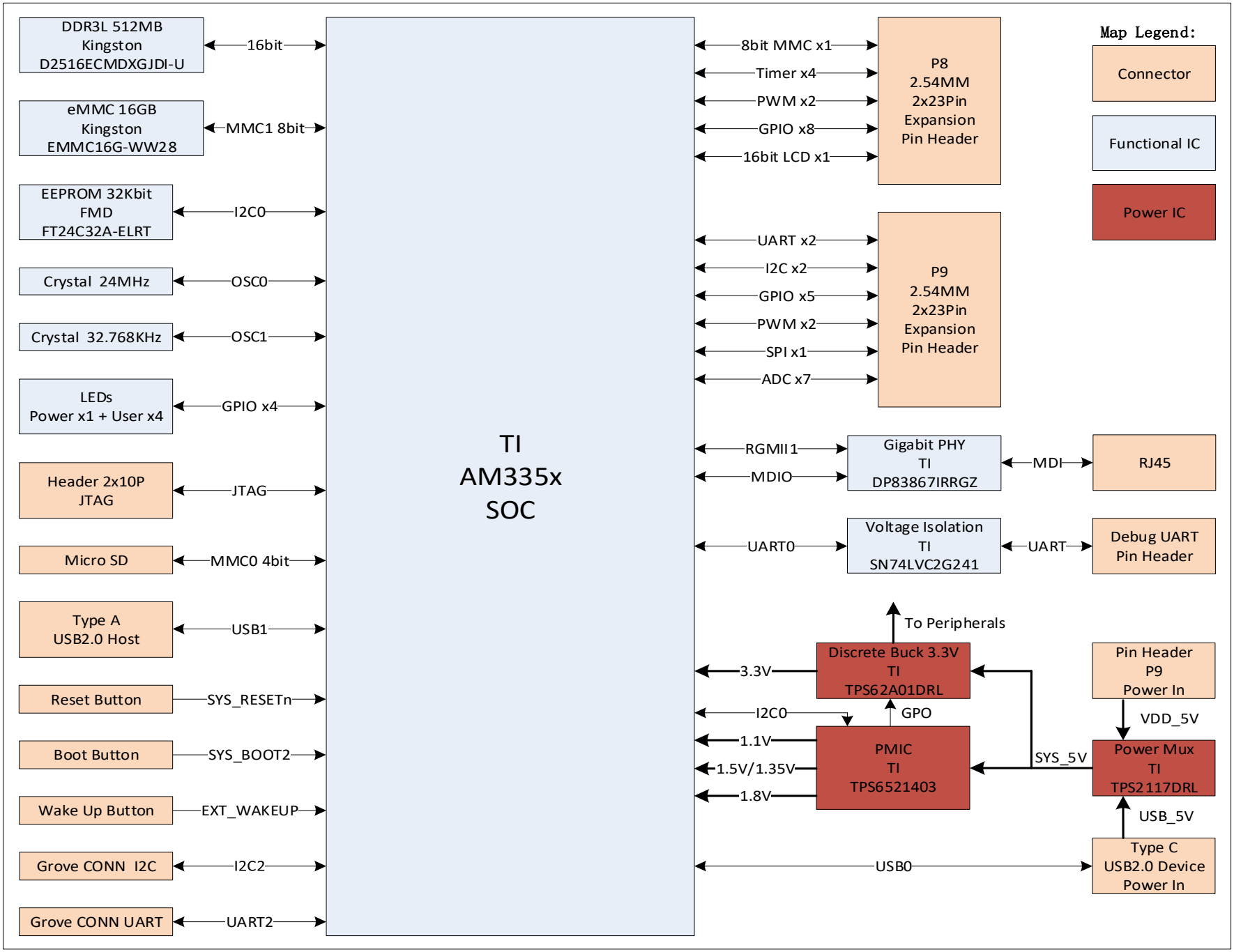
TABLE OF CONTENTS

PAGE	CONTENTS
01	Title, Revision History
02	Block Diagram
03	Power Management
04	AM335x 1/3, JTAG
05	AM335x 2/3, USB, UART
06	AM335x 3/3, Power
07	Boot Configuration, LED
08	DDR3 Memory
09	eMMC Flash
10	Gigabit Ethernet
11	Exp Conn, uSD, EEP, Grove

REVISION HISTORY

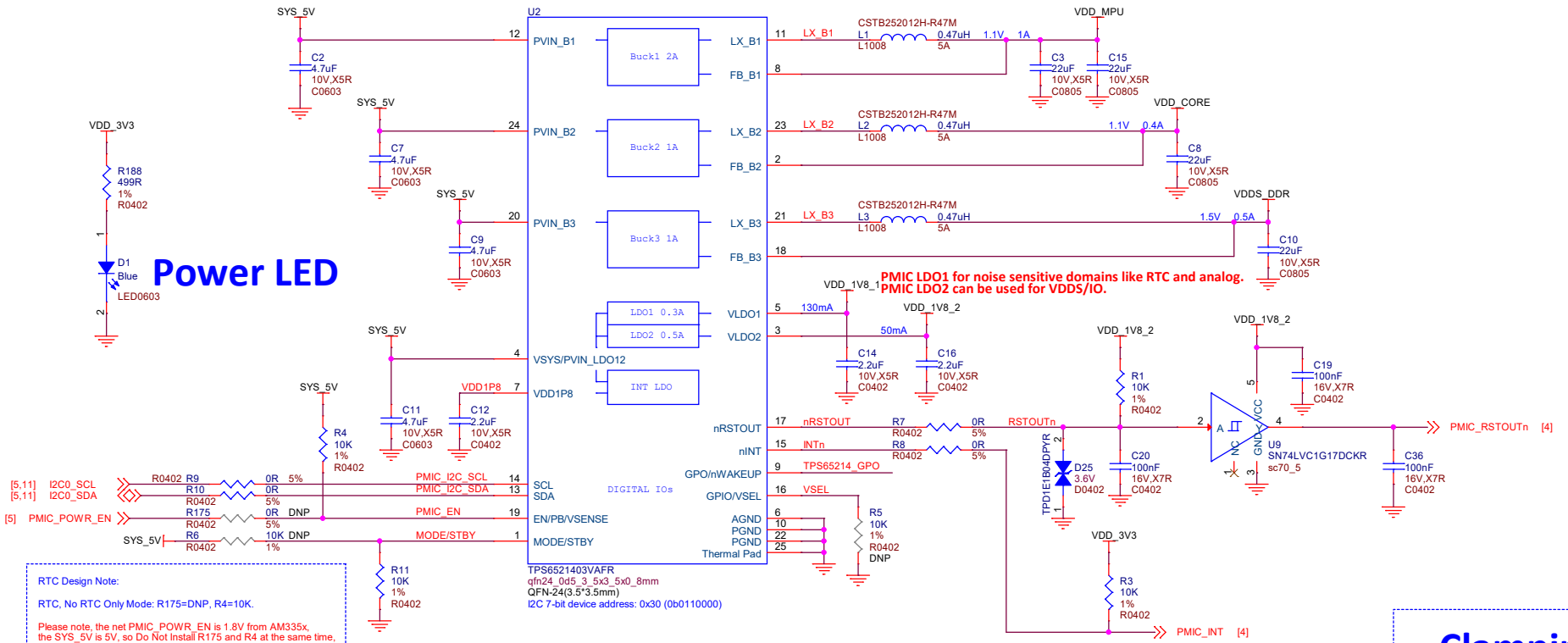
VER #	DATE	REVISION	DESCRIPTION OF CHANGES	AUTHOR
V1.0	10 Jun 2025	BeagleBone Green Eco_V1.0_SCH_250610	Initial Release.	Junqing.Xin
V1.0	14 Aug 2025	BeagleBone Green Eco_V1.0_SCH_250814	Page 5: Removed the Wake-Up button (Changed S3 to DNP, R211 from 0R to DNP).	Junqing.Xin



Block Diagram

seeed studio	https://www.seeedstudio.com	
	Title: BeagleBone Green Eco	
Size: A3	Document Number: P02_Block Diagram	Rev: V1.0
Draw By: Junqing.Xin	Date: Wednesday, July 16, 2025	Sheet: 2 of 11

PMIC



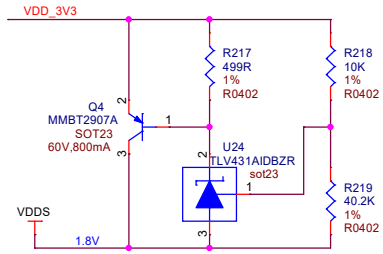
Power LED

RTC Design Note:

RTC, No RTC Only Mode: R175=DNP, R4=10K.

Please note, the net PMIC_POWR_EN is 1.8V from AM335x, the SYS_5V is 5V, so Do Not Install R175 and R4 at the same time, if not, maybe damage the AM335x !

Clamping Circuit



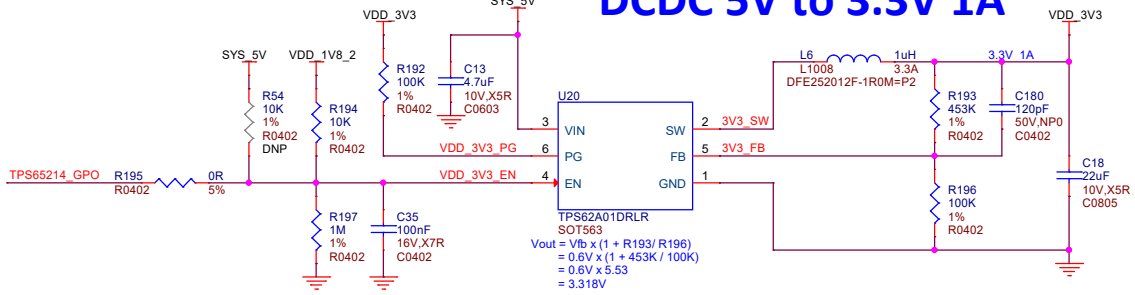
Review Note:

Clamping Circuit For AM335x Power-Down Requirements

The AM335x datasheet requires that the voltage difference between the power rails VDDS (1.8V) and VDDSHVx [1-6] (3.3V) of the AM335x processor be less than 2V during the entire power-down sequence.

This is a clamping circuit between the VDDS and VDD_3V3 outputs of the TPS62A01DRL DCDC IC. The clamping circuit is related to power down issues (see https://octavosystems.com/osd335x/clamping/ for more information). This may not be needed in your application if the power down conditions do not apply to your application.

DCDC 5V to 3.3V 1A



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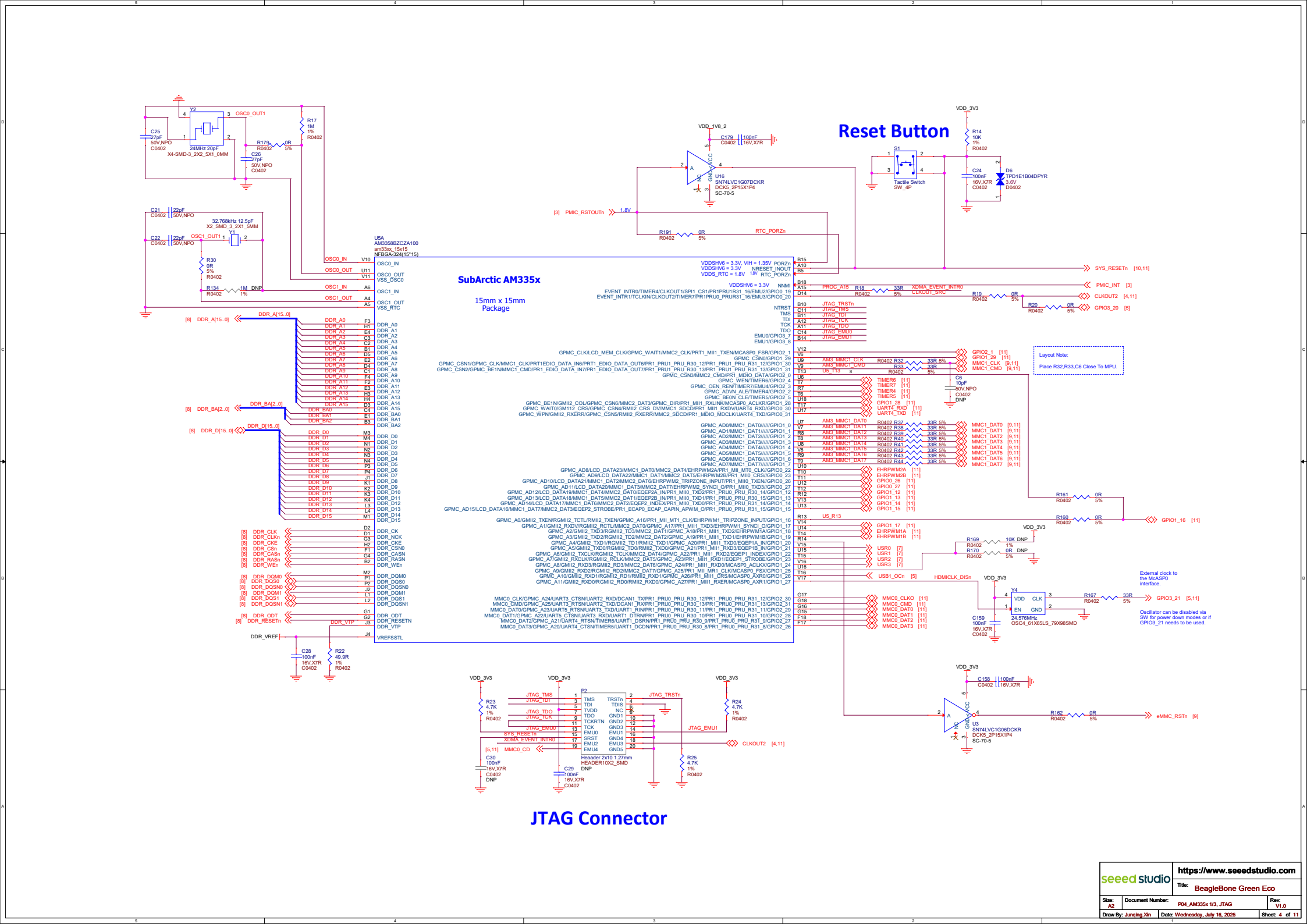
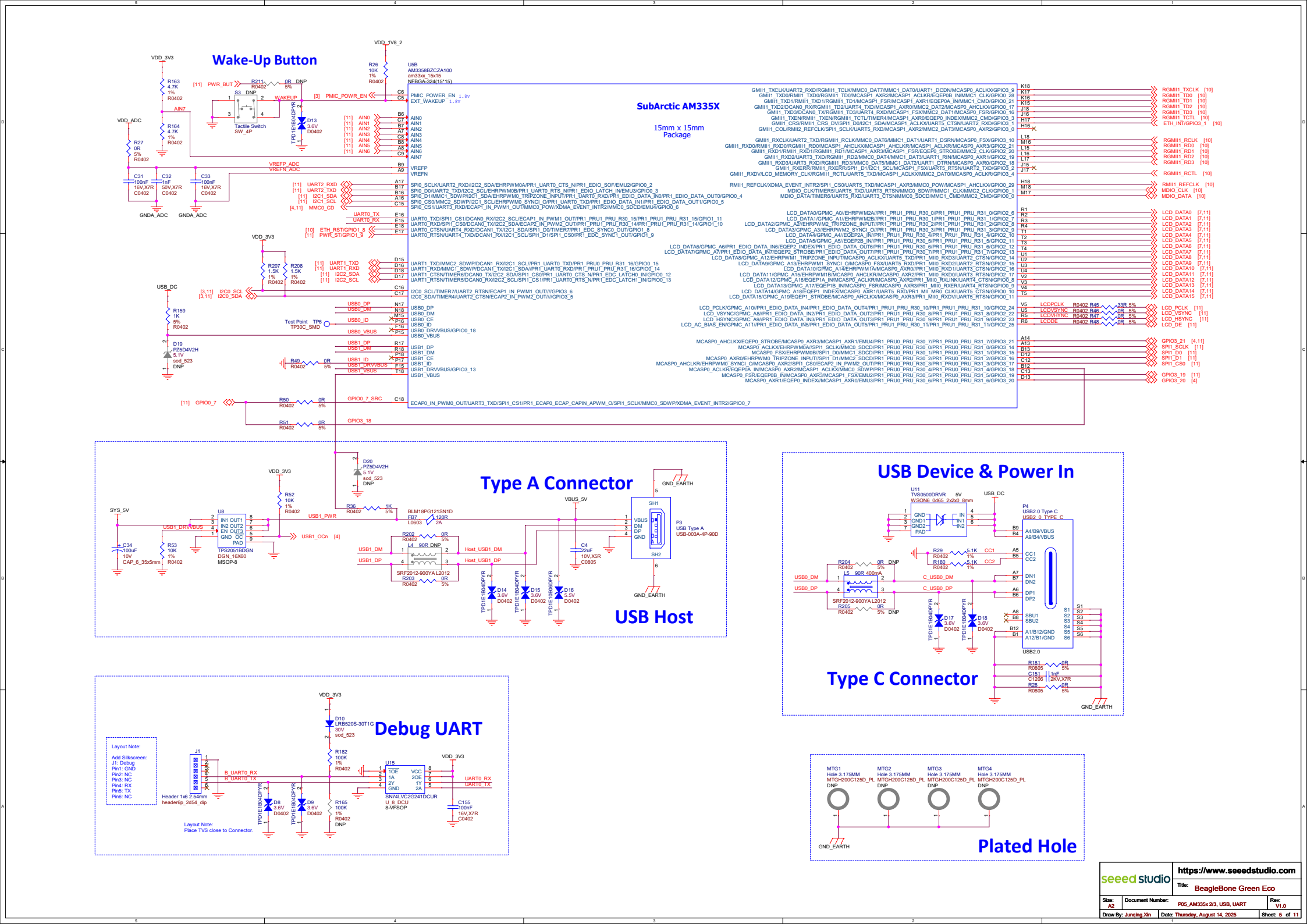
Draw By: Junqing.Xin	Date: Wednesday, July 16, 2025	Sheet: 3 of 11


Reset Button
SubArctic AM335x
15mm x 15mm
Package
JTAG Connector
Layout Note:
Place R32,R33,C6 Close To MPU.
External clock to the McASP0 interface.
Oscillator can be disabled via SW for power down modes or if GPIO3_21 needs to be used.
seeed studio
https://www.seeedstudio.com
Title: BeagleBone Green Eco
Size: A2
Document Number: P04_AM335x 1/3, JTAG
Rev: V1.0
Draw By: Junqing.Xin
Date: Wednesday, July 16, 2025
Sheet: 4 of 11



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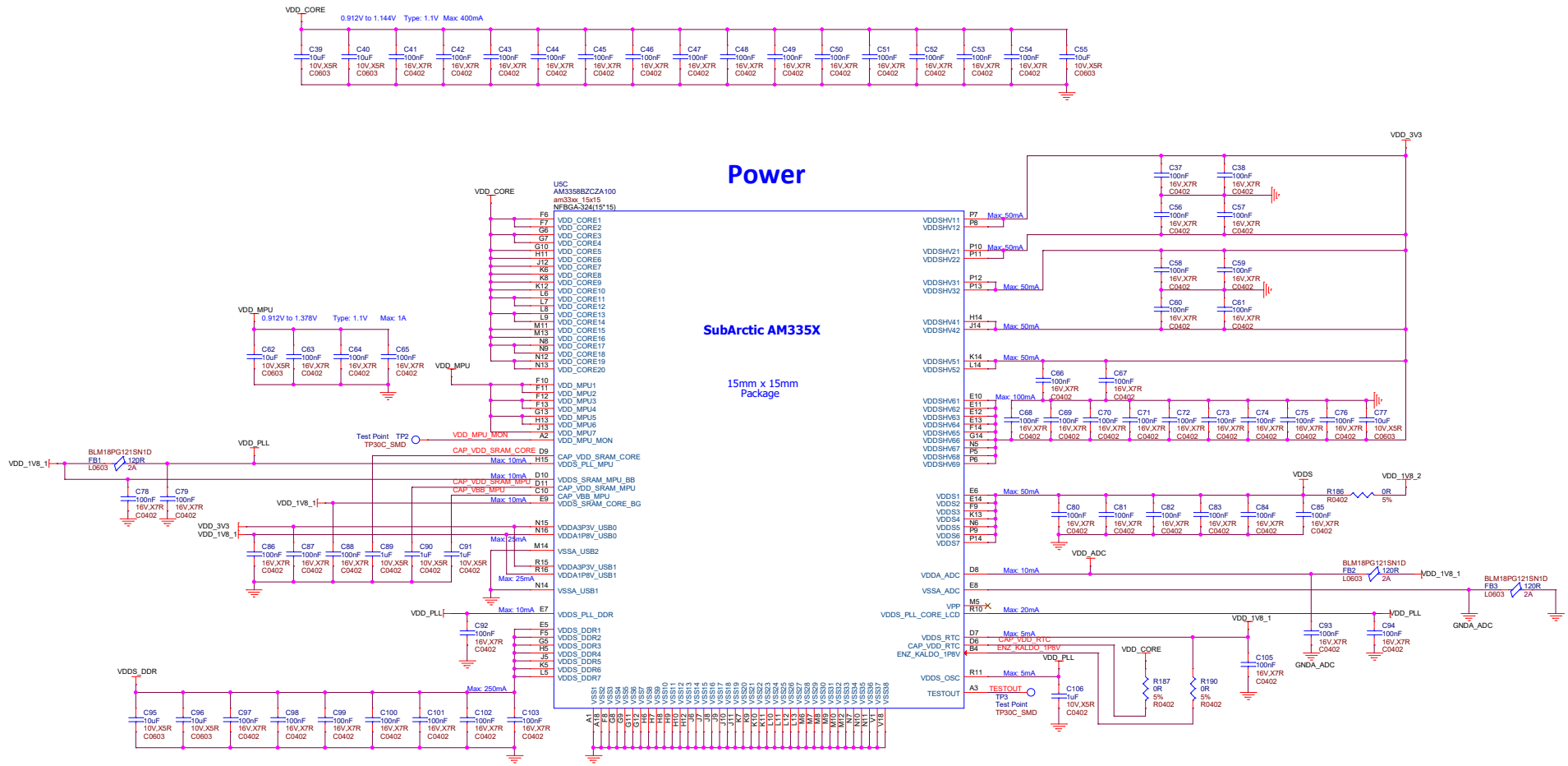
Draw By: Junqing.Xin	Date: Thursday, August 14, 2025		Sheet: 5 of 11



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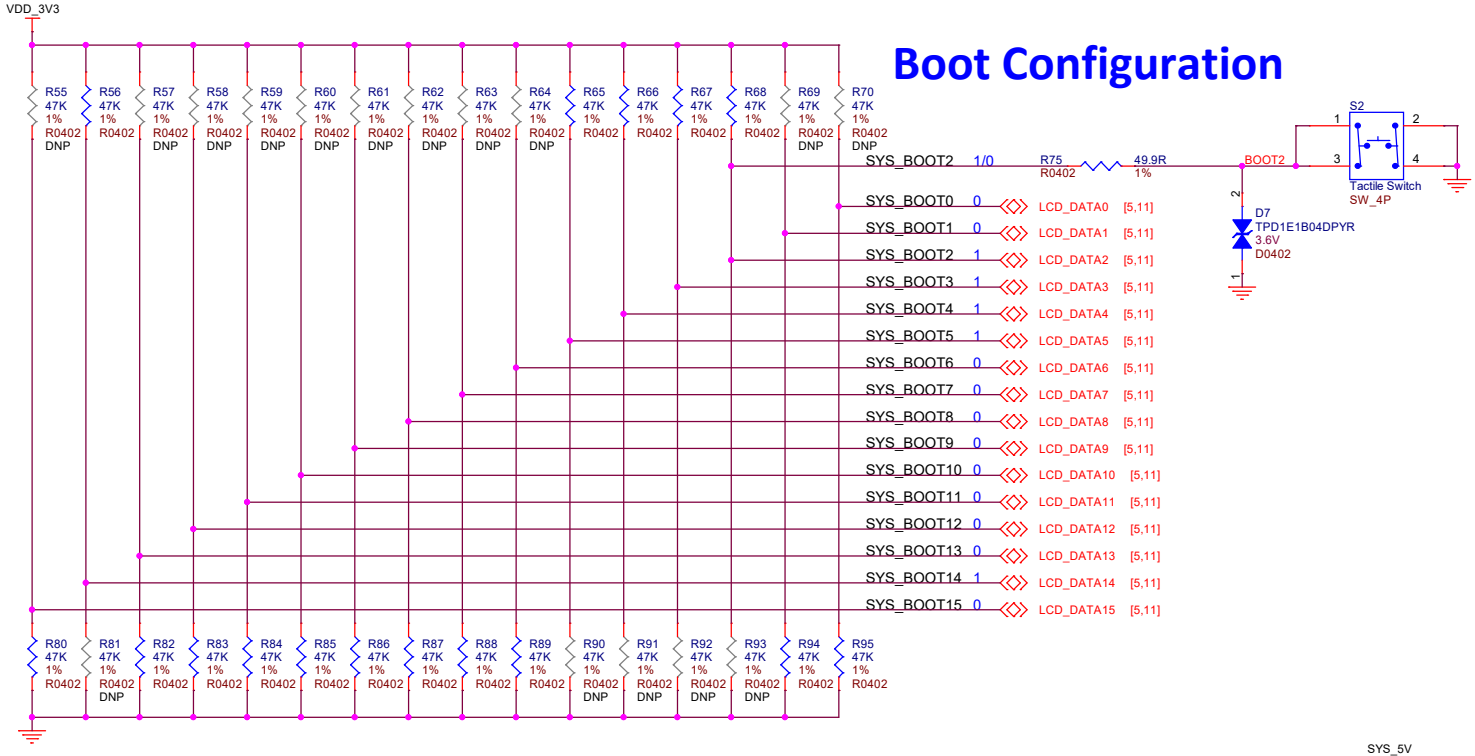
Draw By: Junqing.Xin	Date: Wednesday, July 16, 2025		Sheet: 6 of 11

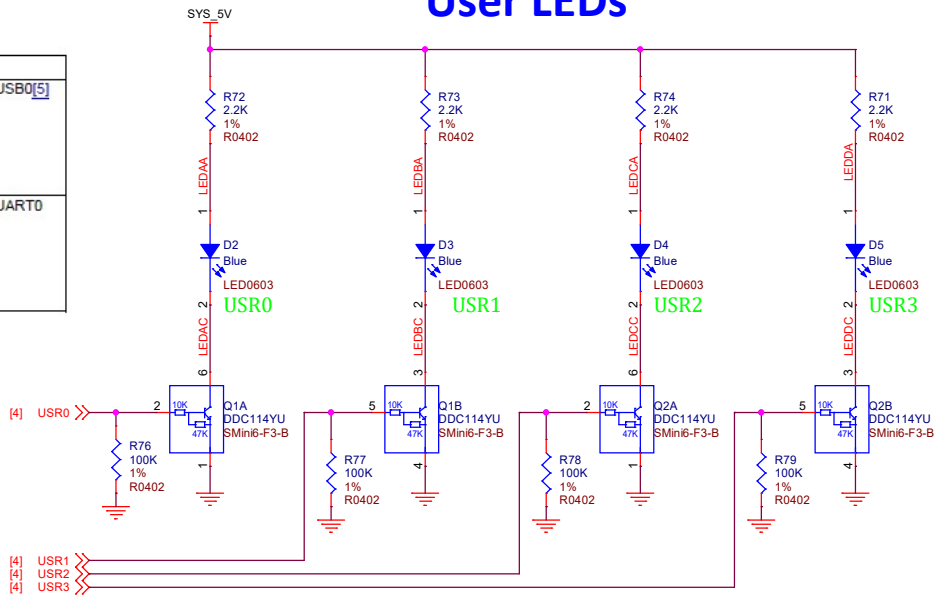
Boot Configuration



uSD BOOT Button

SYSBOOT[15:14]	SYSBOOT[13:12]	SYSBOOT[11:10]	SYSBOOT[9]	SYSBOOT[8]	SYSBOOT[7:6]	SYSBOOT[5]	SYSBOOT[4:0]	Boot Sequence			
00b = 19.2MHz 01b = 24MHz 10b = 25MHz 11b = 26MHz	00b (all other values reserved)	Don't care for ROM code	Don't care for ROM code	Don't care for ROM code	Don't care for ROM code	0 = CLKOUT1 disabled 1 = CLKOUT1 enabled	11100b	MMC1	MMC0	UART0	USB0[5]
00b = 19.2MHz 01b = 24MHz 10b = 25MHz 11b = 26MHz	00b (all other values reserved)	Don't care for ROM code	Don't care for ROM code	Don't care for ROM code	Don't care for ROM code	0 = CLKOUT1 disabled 1 = CLKOUT1 enabled	11000b	SPI0	MMC0	USB0[5]	UART0
0 1	0 0	0 0	0	0	0 0	1	1 1 1 0 0				

User LEDs



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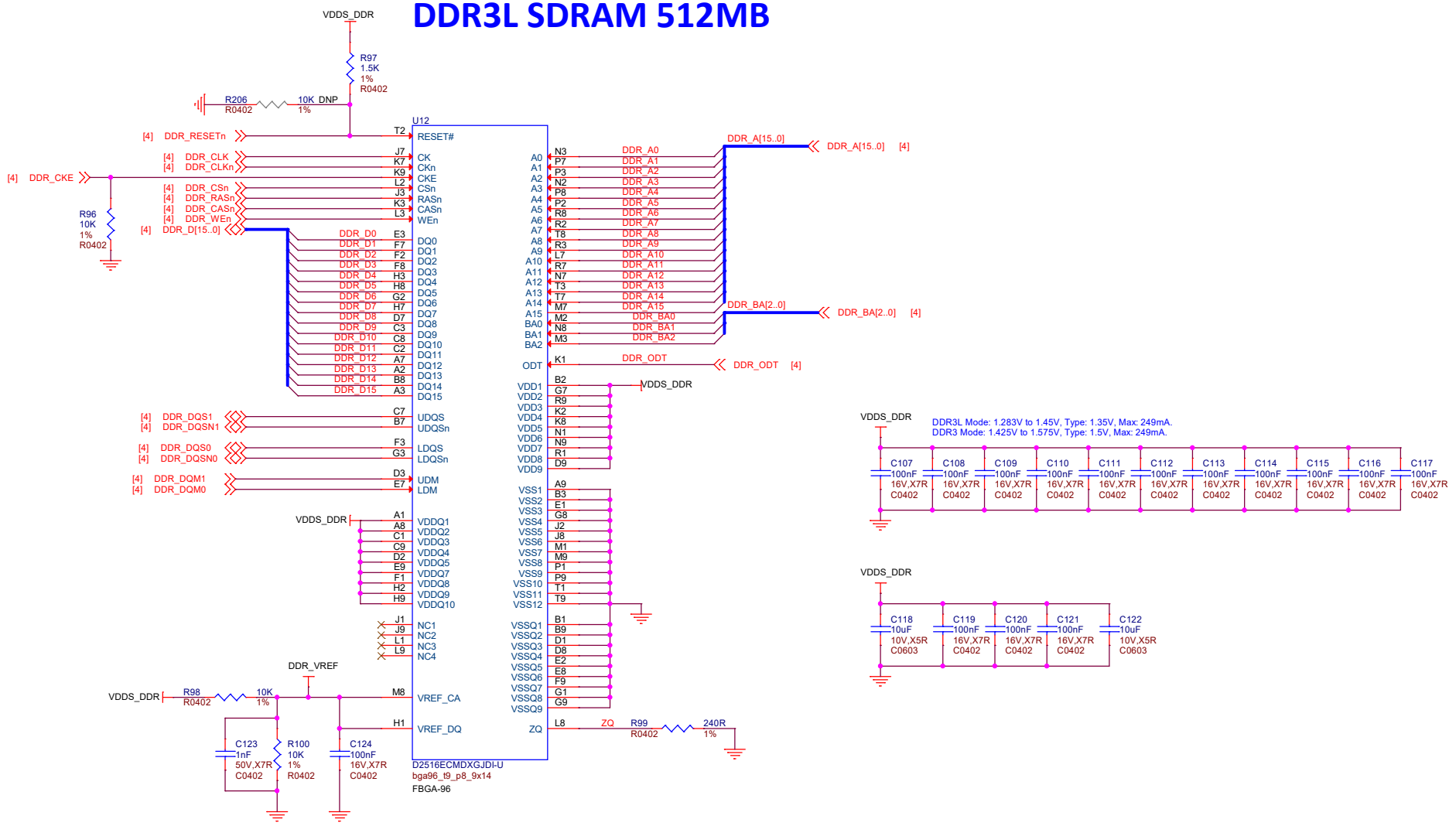
Draw By: Junqing.Xin	Date: Wednesday, July 16, 2025		Sheet: 7 of 11

DDR3L SDRAM 512MB



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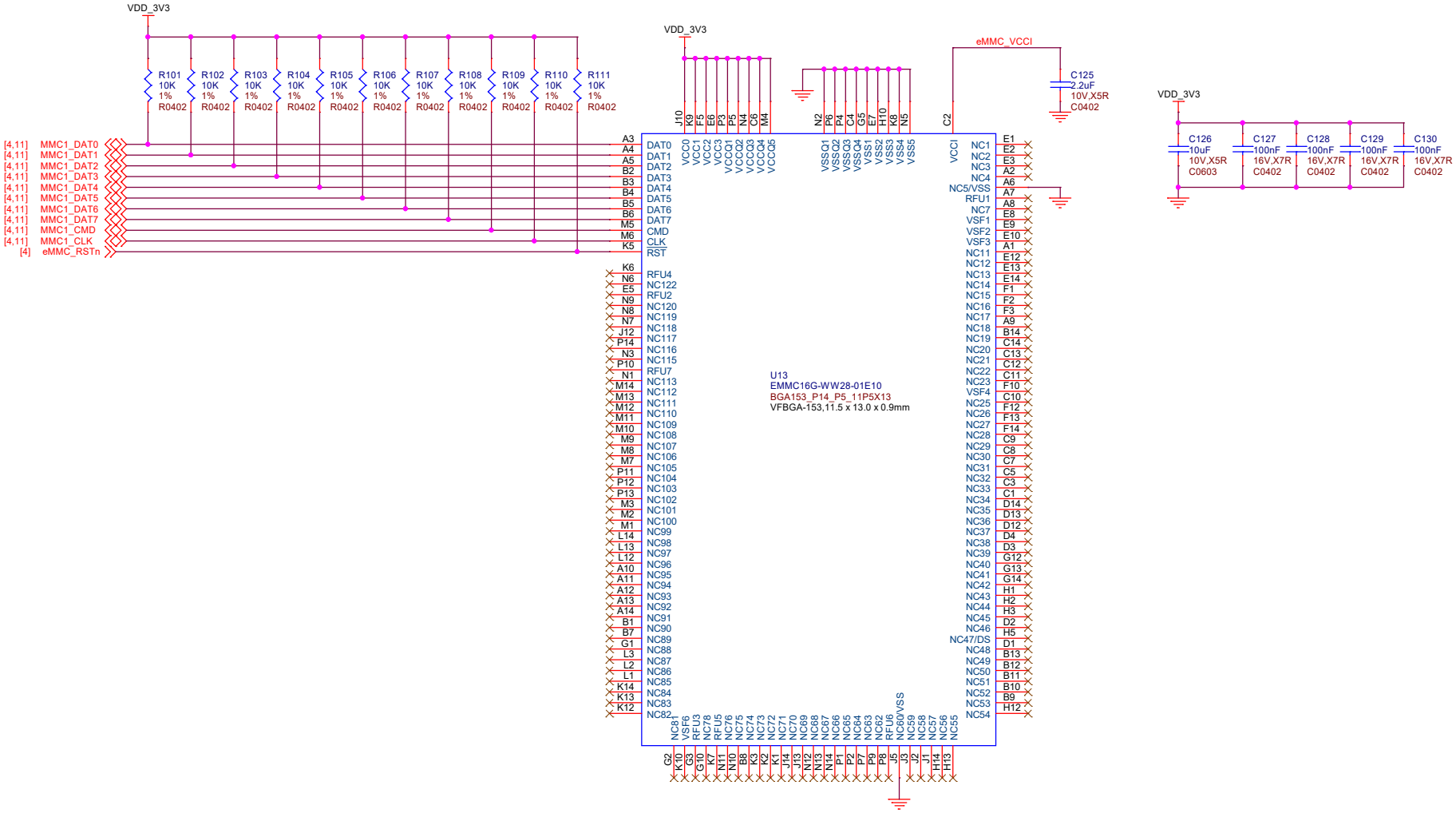
Size: A3	Document Number: P08_DDR3 Memory	Rev: V1.0
Draw By: Junqing.Xin	Date: Wednesday, July 16, 2025	Sheet: 8 of 11

eMMC Flash 16GB



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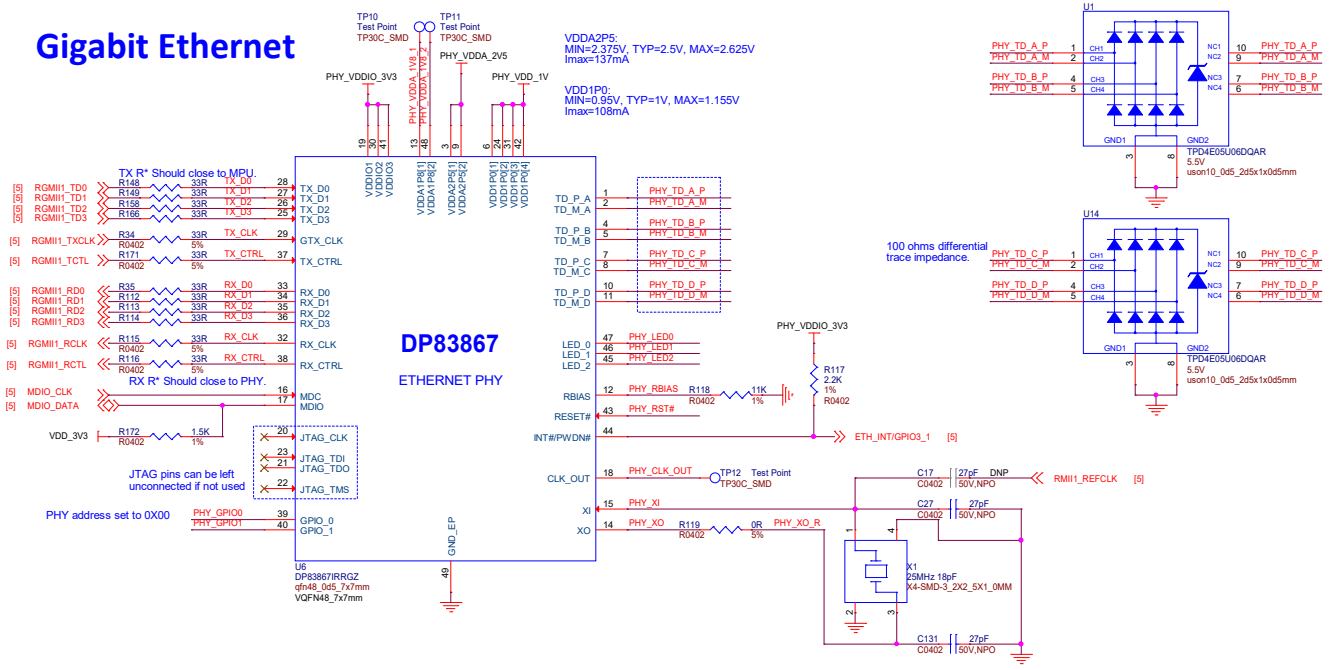
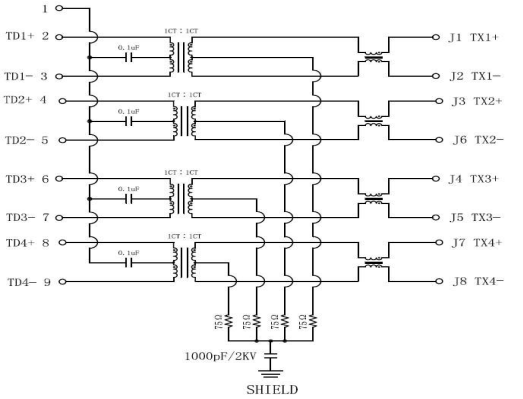
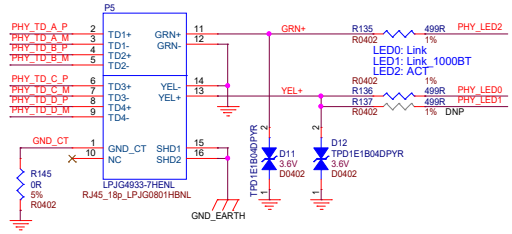
Draw By: Junqing.Xin	Date: Wednesday, July 16, 2025	Sheet: 9 of 11

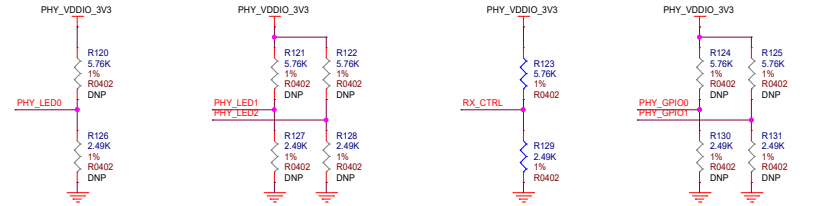
Gigabit Ethernet

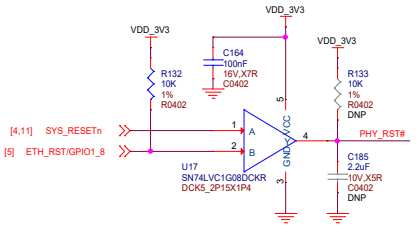


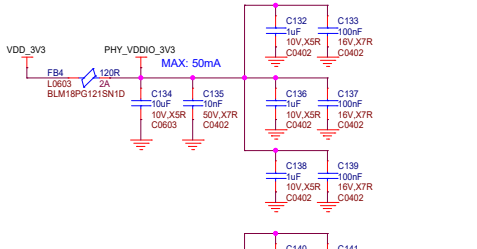




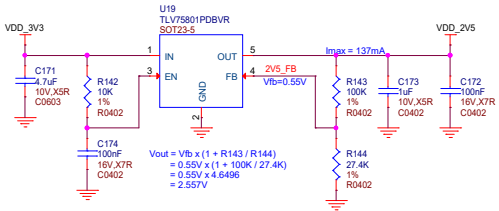
ETH Reset







3.3V to 2.5V LDO

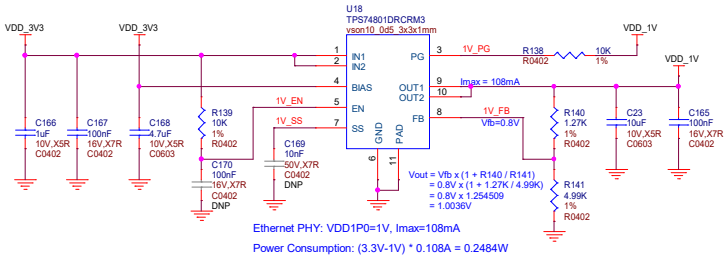


Ethernet PHY: VDDA2P5=2.5V, Imax=137mA

Power Consumption: (3.3V-2.5V) * 0.137A = 0.1096W

Thermal Junction-to-ambient: 0.1096W * 176.9°C/W=19.39°C

3.3V to 1V LDO



Ethernet PHY: VDD1P0=1V, Imax=108mA

Power Consumption: (3.3V-1V) * 0.108A = 0.2484W

Thermal Junction-to-ambient: 0.2484W * 44.2°C/W=10.98°C

There is no requirement for the sequence of the supplies when operating in two-supply mode.

Layout Note:

Place 1uF and 0.1uF decoupling capacitors as close as possible to component VDD pins, placing the 0.1uF capacitor closest to the pin.

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	Title: BeagleBone Green Eco	
Size: C	Document Number: P10_Gigabit Ethernet	Rev: V1.0
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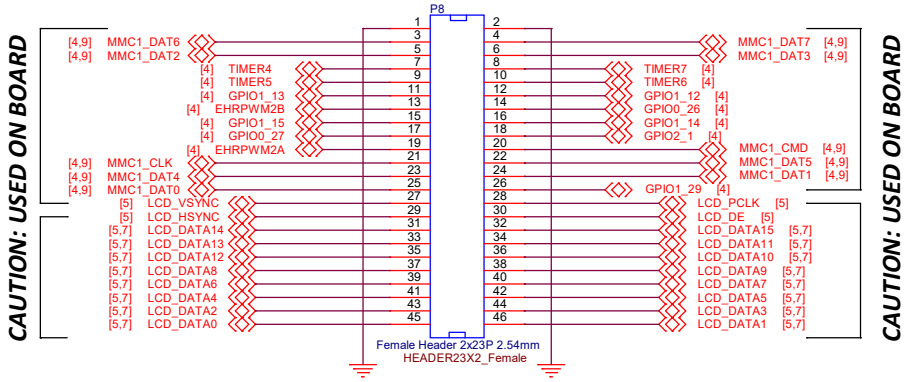
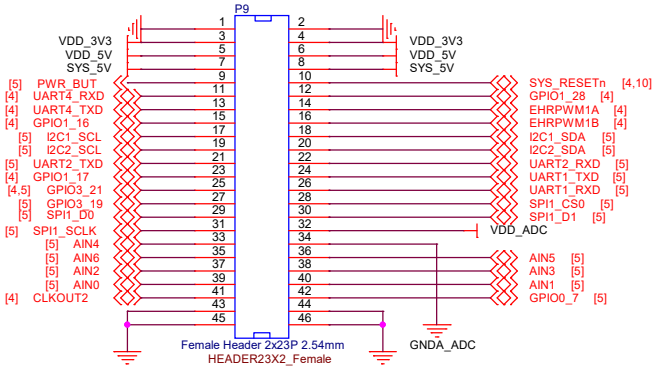
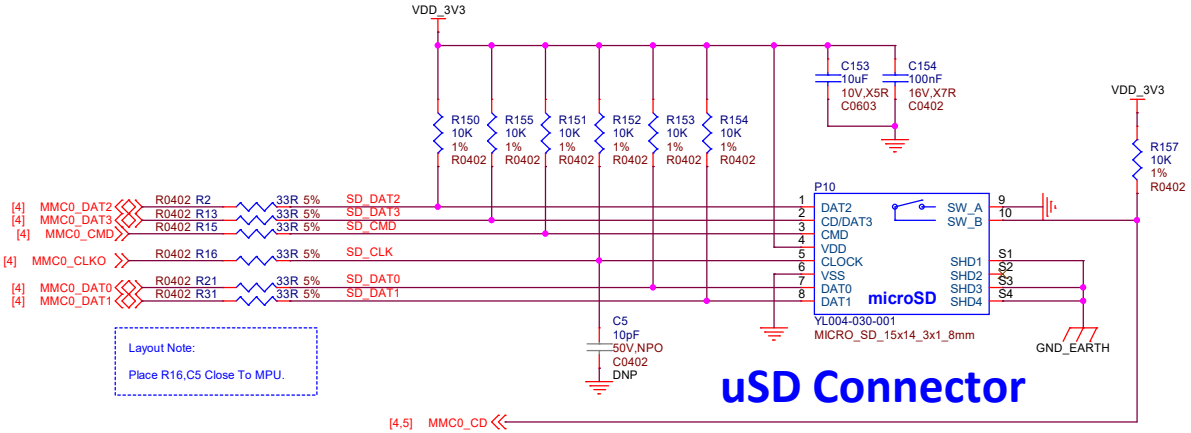


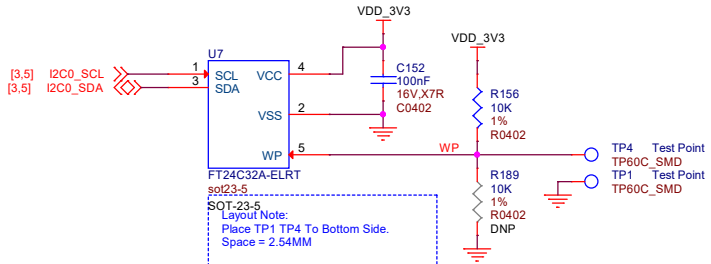
Expansion Header P8



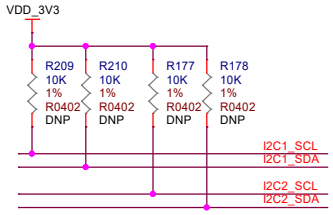
Expansion Header P9



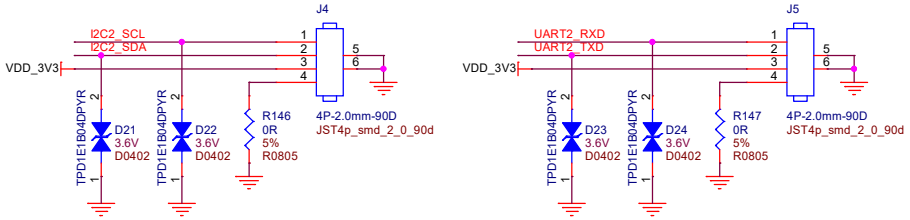
uSD Connector

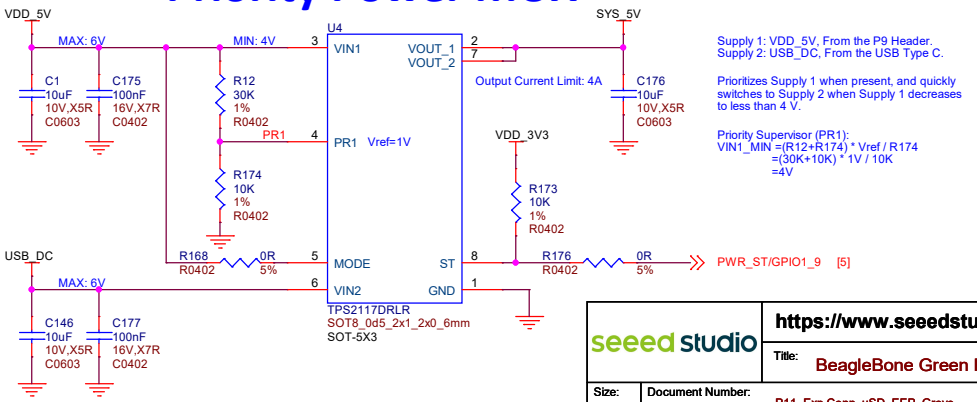


Board ID EEPROM 32Kbit



Grove Connector





Priority Power MUX

seeed studio

https://www.seeedstudio.com

Title: BeagleBone Green Eco

Size: A3	Document Number: P11_Exp Conn, uSD, EEP, Grove	Rev: V1.0
Draw By: Junqing.Xin	Date: Wednesday, July 16, 2025	Sheet: 11 of 11