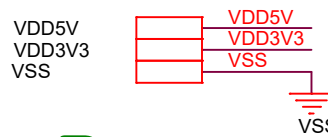


CON2			CON3		
PL4	1	2	nRESET	1	2
PL5	3	4	RTC nRWAKE	3	4
PN14	5	6	VSS	5	6
PD15	7	8	PN15	7	8
PN12	9	10	PK15	9	10
PN13	11	12	PK14	11	12
PN7	13	14	PK13	13	14
PN6	15	16	PK12	15	16
PN5	17	18	PL3	17	18
PN4	19	20	PL2	19	20
PN3	21	22	PL1	21	22
PN2	23	24	PJ15	23	24
PN1	25	26	PJ14	25	26
PN0	27	28	PJ13	27	28
VSS	29	30	PJ12	29	30
PN10	31	32	PL15	31	32
VSS	33	34	PL14	33	34
VSS	35	36	PL13	35	36
PD9	37	38	PL12	37	38
PD8	39	40	PL11	39	40
PC4	41	42	PL10	41	42
PC5	43	44	PD14	43	44
PC0	45	46	PA14	45	46
VSS	47	48	PA13	47	48
PC1	49	50	PA12	49	50
VSS	51	52	PA11	51	52
PC2	53	54	PA10	53	54
PC3	55	56	PA9	55	56
PC7	57	58	PA8	57	58
PC6	59	60	PA7	59	60
VSS	61	62	PA6	61	62
E MDIP0	63	64	PA5	63	64
E MDIN0	65	66	PA4	65	66
VSS	67	68	PA3	67	68
E MDIP1	69	70	PA2	69	70
E MDIN1	71	72	PA1	71	72
VSS	73	74	PA0	73	74
E MDIP2	75	76	PF14	75	76
E MDIN2	77	78	E LED0	77	78
VSS	79	80	E LED1	79	80
E MDIP3	81	82	E LED2	81	82
E MDIN3	83	84	F LED0	83	84
VSS	85	86	F LED1	85	86
F MDIP0	87	88	F LED2	87	88
F MDIN0	89	90	EADC0_CH7	89	90
VSS	91	92	EADC0_CH3	91	92
F MDIP1	93	94	EADC0_CH6	93	94
F MDIN1	95	96	EADC0_CH2	95	96
VSS	97	98	EADC0_CH5	97	98
F MDIP2	99	100	EADC0_CH1	99	100
F MDIN2	101	102	EADC0_CH4	101	102
VSS	103	104	EADC0_CH0	103	104
F MDIP3	105	106	VSS	105	106
F MDIN3	107	108	HSUSB0_D+	107	108
VSS	109	110	HSUSB0_D-	109	110
PE15	111	112	VSS	111	112
PE14	113	114	HSUSB1_D+	113	114
HSUSB0_ID	115	116	HSUSB1_D-	115	116
PF15	117	118	VSS	117	118
	119	120		119	120

DF40C-120DS-0.4V (51) (Pitch 0.4mm, female)

CON3			CON3		
VDD5V	1	2	VDD5V	1	2
VDD5V	3	4	VDD5V	3	4
VDD5V	5	6	VDD5V	5	6
VSS	7	8	VSS	7	8
PH3	9	10	PH4	9	10
PH2	11	12	PH5	11	12
PH1	13	14	PH6	13	14
PH0	15	16	PH7	15	16
PI15	17	18	PC12	17	18
PI14	19	20	PC13	19	20
PI13	21	22	PC14	21	22
PI12	23	24	PC15	23	24
PI11	25	26	PH12	25	26
PI10	27	28	PH13	27	28
PI9	29	30	PH14	29	30
PI8	31	32	PH15	31	32
PB15	33	34	VSS	33	34
PB14	35	36	PG10	35	36
PB13	37	38	VSS	37	38
PB12	39	40	PG9	39	40
PB11	41	42	PG8	41	42
PB10	43	44	PK4	43	44
PB9	45	46	PK5	45	46
PB8	47	48	PK6	47	48
PK3	49	50	PK7	49	50
PK2	51	52	PM15	51	52
PK1	53	54	PM14	53	54
PK0	55	56	PM13	55	56
PI7	57	58	PM12	57	58
PI6	59	60	VSS	59	60
PI5	61	62	PL6	61	62
PI4	63	64	VSS	63	64
PI3	65	66	PG15	65	66
PI2	67	68	PG14	67	68
PI1	69	70	PG13	69	70
PI0	71	72	PG12	71	72
PD13	73	74	PG11	73	74
PD12	75	76	PG7	75	76
PD11	77	78	PG6	77	78
PD10	79	80	PG5	79	80
PL9	81	82	PG4	81	82
PL8	83	84	PG3	83	84
PL7	85	86	PG2	85	86
PH9	87	88	PG1	87	88
PH8	89	90	PG0	89	90
VSS	91	92	VSS	91	92
PK10	93	94	PD0	93	94
VSS	95	96	PD3	95	96
PK9	97	98	PD4	97	98
VSS	99	100	PD2	99	100
PM2	101	102	VSS	101	102
PM3	103	104	PD1	103	104
PM4	105	106	VSS	105	106
PM5	107	108	PD5	107	108
PM6	109	110	VSS	109	110
PM7	111	112	PM1	111	112
PM8	113	114	PK8	113	114
PM9	115	116	PK11	115	116
PM10	117	118	PM0	117	118
PM11	119	120	VSS	119	120

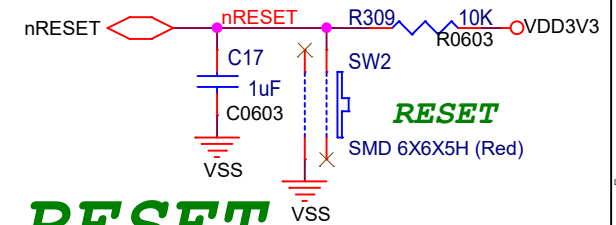
DF40C-120DS-0.4V (51) (Pitch 0.4mm, female)



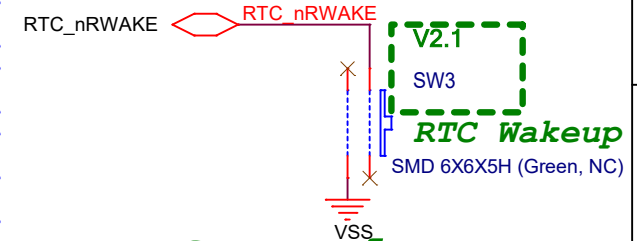
Power

PA[14:0]	PA[14:0]
PB[15:8]	PB[15:8]
PC[7:0]	PC[7:0]
PC[15:12]	PC[15:12]
PD[5:0]	PD[5:0]
PD[15:8]	PD[15:8]
PE[15:14]	PE[15:14]
PF[15:14]	PF[15:14]
PG[15:0]	PG[15:0]
PH[9:0]	PH[9:0]
PH[15:12]	PH[15:12]
PI[15:0]	PI[15:0]
PJ[15:12]	PJ[15:12]
PK[15:0]	PK[15:0]
PL[15:0]	PL[15:0]
PM[15:0]	PM[15:0]
PN[7:0]	PN[7:0]
PN[15:10]	PN[15:10]

GPIO



RESET



RTC Wakeup

HSUSB0_ID	HSUSB0_ID
HSUSB0_D+	HSUSB0_D+
HSUSB0_D-	HSUSB0_D-
HSUSB1_D+	HSUSB1_D+
HSUSB1_D-	HSUSB1_D-

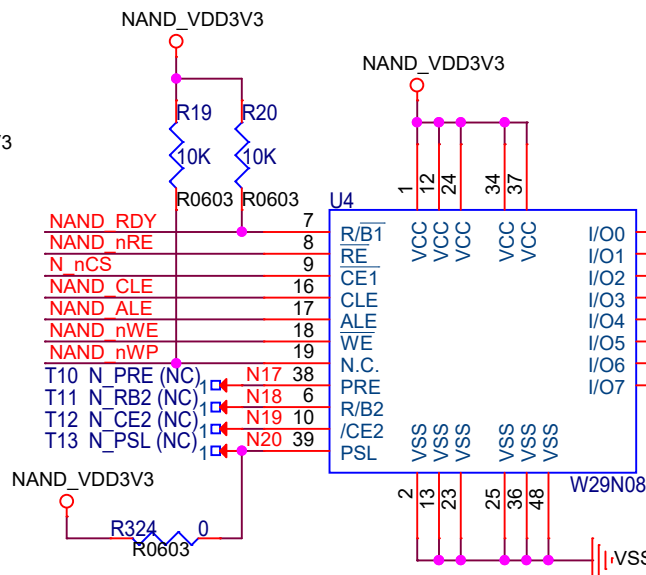
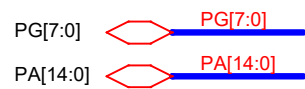
HSUSB

EADC0_CH[7:0]	EADC0_CH[7:0]
E_MDIP[3:0]	E_MDIP[3:0]
E_MDIN[3:0]	E_MDIN[3:0]
E_LED[2:0]	E_LED[2:0]
F_MDIP[3:0]	F_MDIP[3:0]
F_MDIN[3:0]	F_MDIN[3:0]
F_LED[2:0]	F_LED[2:0]

Ethernet

nuvoTon Technology Corp.

Title		
NuMaker_MA35D1_Base		
Size A	Document Number	Rev V2.1
SOM Connectors		
Date:	Tuesday, January 31, 2023	Sheet 2 of 22



PG0	Secure Boot
L	Secure Boot Enable
H	Secure Boot Disable

PG1	Boot Source QSPI0, SD/eMMC I/O Voltage
L	3.3V
H	1.8V

PG3	PG2	Boot Source
L	L	QSPI0 Flash
L	H	SD/eMMC
H	L	NAND Flash
H	H	USB

PG7	PG6	Booting from QSPI0
L	L	SPI-NAND, 1-bit
H	L	SPI-NOR, 1-bit

PG6	Booting from SD/eMMC
L	SD0/eMMC0 booting
H	SD1/eMMC1 booting

PG7	Booting from SD/eMMC
L	eMMC 4-bit booting
H	eMMC 8-bit booting

PG5	PG4	Booting from NAND
L	L	Ignore
L	H	NAND flash page 2KB
H	L	NAND flash page 4KB
H	H	NAND flash page 8KB

PG7	PG6	Booting from NAND
L	L	Ignore
L	H	BCH T12
H	L	BCH T24
H	H	NO ECC

PG4	Booting from USB
L	USBD booting
H	USBH booting

PG5	Booting from USBH
L	USBH port 0 booting
H	USBH port 1 booting

PG6	Booting from USBH
L	Over-current low-active detect
H	Over-current high-active detect

The diagram shows a 16-channel digital input module. A 16-pin DIP switch (SW4) is connected to a 16-pin connector. The connector pins are labeled PG0 through PG7 on the left and N21 through N28 on the right. Each channel (PG0 to PG7) has a 10K pull-up resistor (R25 to R32) connected to VDD3V3 and a 10K resistor (R0603) connected to the input pin. The inputs are also connected to a common ground (VSS). The circuit is powered by VDD3V3 and grounded to VSS.

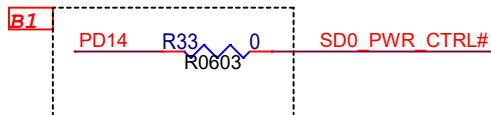
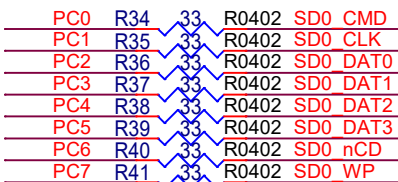
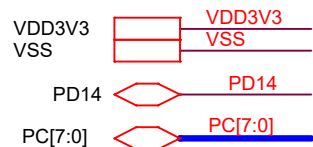


Title	NuMaker_MA35D1_Base
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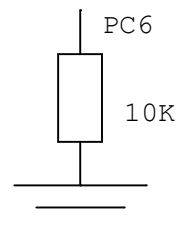
Size A	Document Number Power-on Setting and NAND Flash
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Rev	
V2.1	

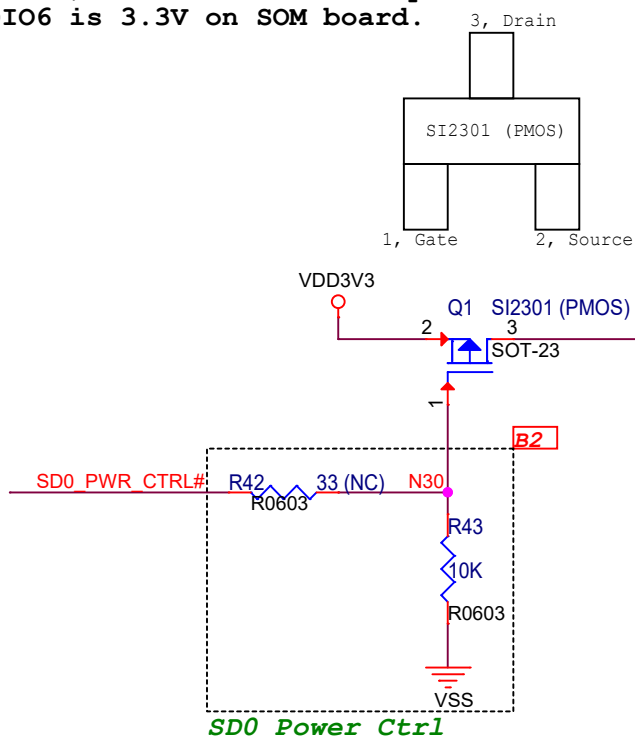
Note: These GPIO PG0~PG7 pins are internal pull-low inside MA35D1 chip.



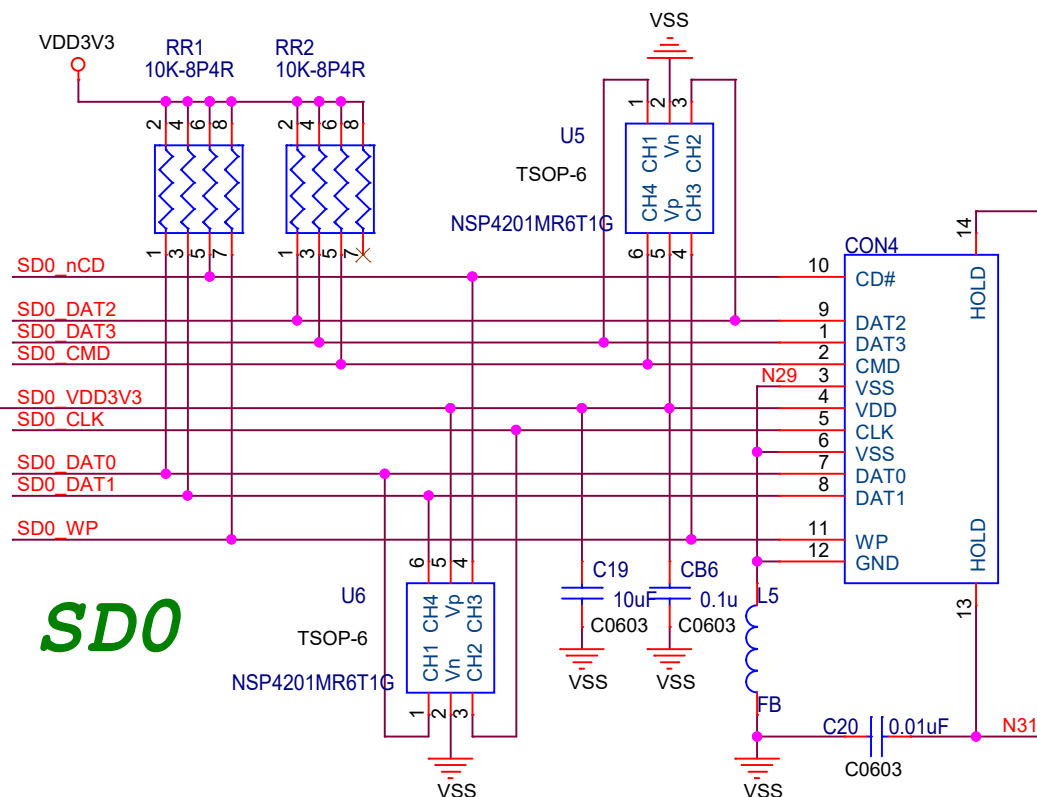
Note: If these PC0~PC5 pins (eMMC0_xxx) are used to connect with eMMC device and act as the booting source, please pulls the PC6 pin (SD0_nCD) to low.



Note: These GPIO PC0~PC7 pins belong to I/O group 6 (VDDIO6) and the default input voltage of VDDIO6 is 3.3V on SOM board.



Note: The power of SD0_VDD3V3 is always ON (uncontrollable) by default. (R42 is NC on this BASE board by default)



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Title
NuMaker_MA35D1_Base

Size
A Document Number
SD0

Rev
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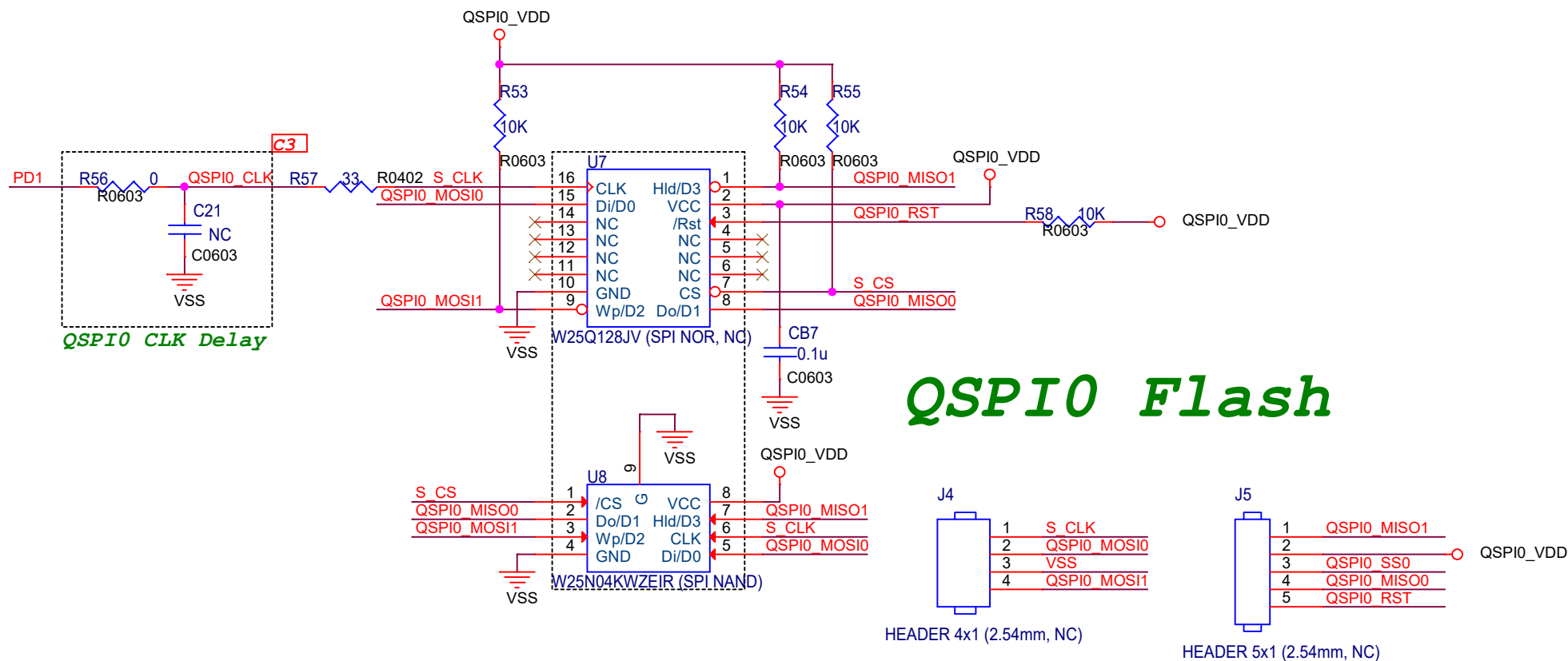
VDD3V3 VDD3V3
VDD1V8 VDD1V8
VSS VSS

PD[5:0] PD[5:0]

Note: These GPIO PD0~PD5 pins belong to I/O group 5 (VDDIO5) and the default input voltage of VDDIO5 is 1.8V on SOM board.

Note: Please make sure whether it is on same voltage setting of VDDIO5 on SOM board when QSPI0 device is exchanged.

PD0	R47	33	R0402	QSPI0 SS0
PD1				
PD2	R49	33	R0402	QSPI0 MOSI0
PD3	R50	33	R0402	QSPI0 MISO0
PD4	R51	33	R0402	QSPI0 MOSI1
PD5	R52	33	R0402	QSPI0 MISO1



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Title
NuMaker_MA35D1_Base

Size
A Document Number
QSPI0

Rev
V2.1

Date: Monday, January 30, 2023

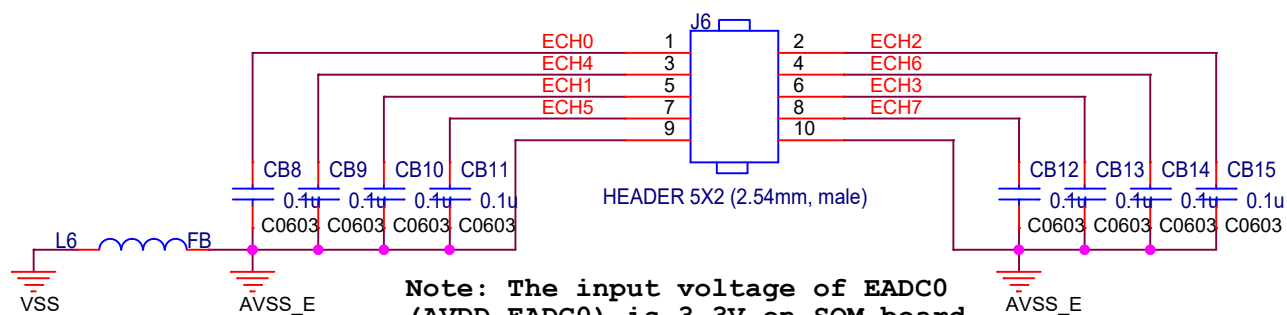
Sheet 5 of 22

VSS  VSS

EADC0_CH[7:0]  EADC0_CH[7:0]

EADC0_CH0	R59_33	R0402	ECH0
EADC0_CH4	R60_33	R0402	ECH4
EADC0_CH1	R61_33	R0402	ECH1
EADC0_CH5	R62_33	R0402	ECH5
EADC0_CH2	R63_33	R0402	ECH2
EADC0_CH6	R64_33	R0402	ECH6
EADC0_CH3	R65_33	R0402	ECH3
EADC0_CH7	R66_33	R0402	ECH7

EADC0



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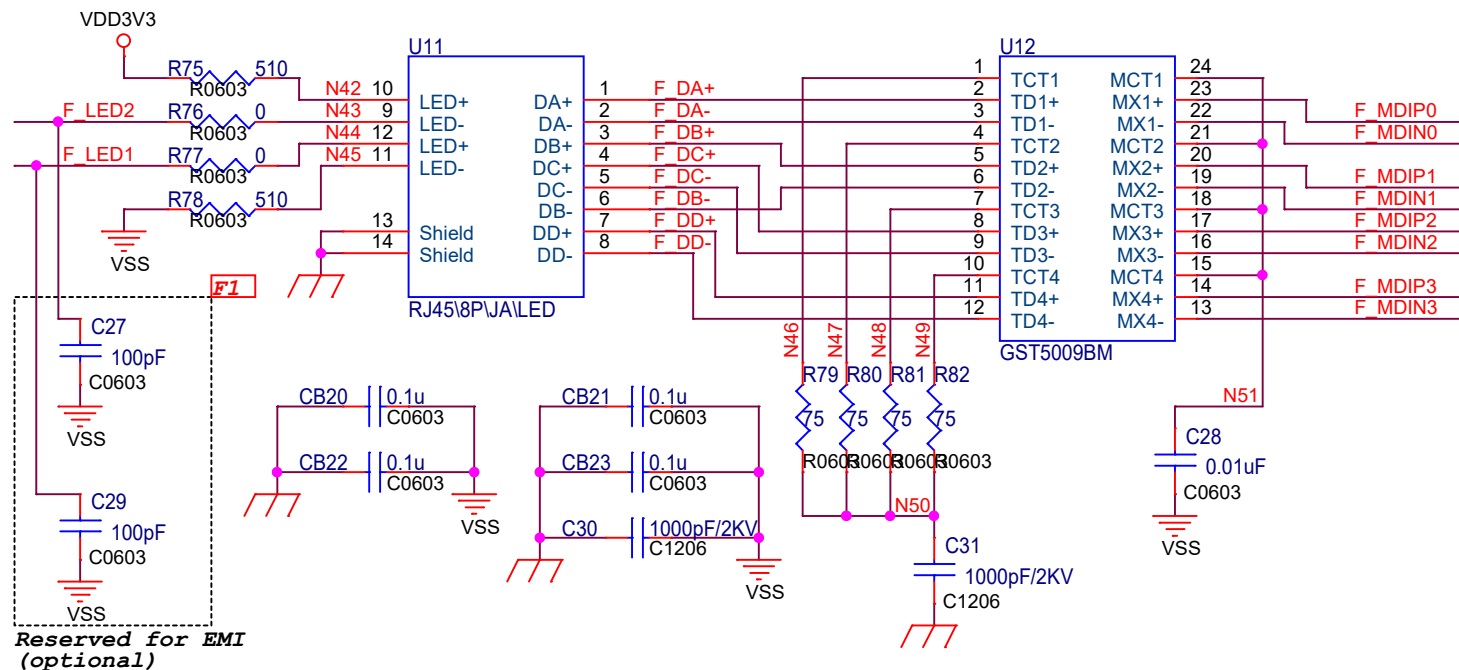
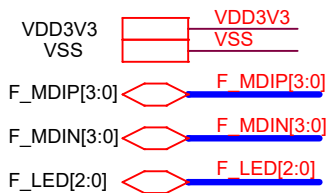
Title
NuMaker_MA35D1_Base

Size
A Document Number
EADC0

Rev
V2.1

Date: Monday, January 30, 2023

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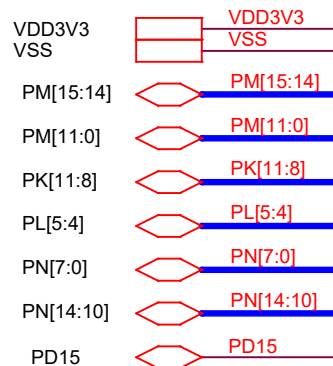
nuvoTon Technology Corp.

Title
NuMaker_MA35D1_Base

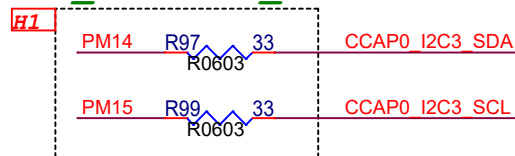
Size A Document Number
Ethernet 1 (PF)

Rev
V2.1

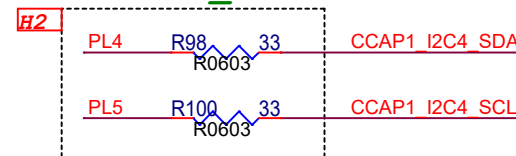
Date: Monday, January 30, 2023 Sheet 8 of 22



I2C_3 (TRACE DATA2/3)

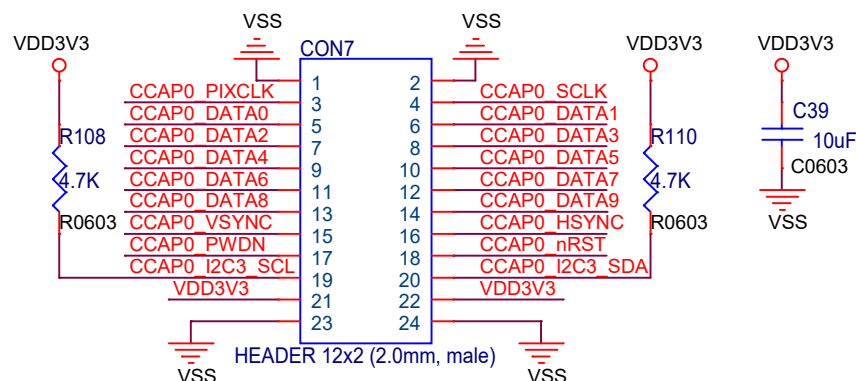


I2C_4



CCAP0 Connector

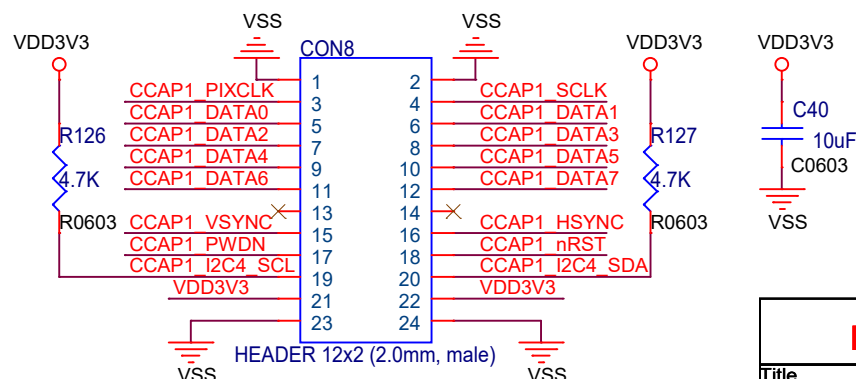
PM2	R10133	R0402	CCAP0_DATA0
PM3	R10233	R0402	CCAP0_DATA1
PM4	R10333	R0402	CCAP0_DATA2
PM5	R10533	R0402	CCAP0_DATA3
PM6	R10433	R0402	CCAP0_DATA4
PM7	R10633	R0402	CCAP0_DATA5
PM8	R10733	R0402	CCAP0_DATA6
PM9	R10933	R0402	CCAP0_DATA7
PM10	R11133	R0402	CCAP0_DATA8
PM11	R11233	R0402	CCAP0_DATA9
PK9	R11333	R0402	CCAP0_SCLK
PK10	R11433	R0402	CCAP0_PIXCLK
PK11	R11533	R0402	CCAP0_HSYNC
PM0	R11633	R0402	CCAP0_VSYNC
PM1	R11733	R0402	CCAP0_nRST
PK8	R11833	R0402	CCAP0_PWDN



Note: These GPIO PK8~PK11 and PM0~PM11 pins belong to I/O group 2 (VDDIO2) and the default input voltage of VDDIO2 is 3.3V on SOM board.

CCAP1 Connector

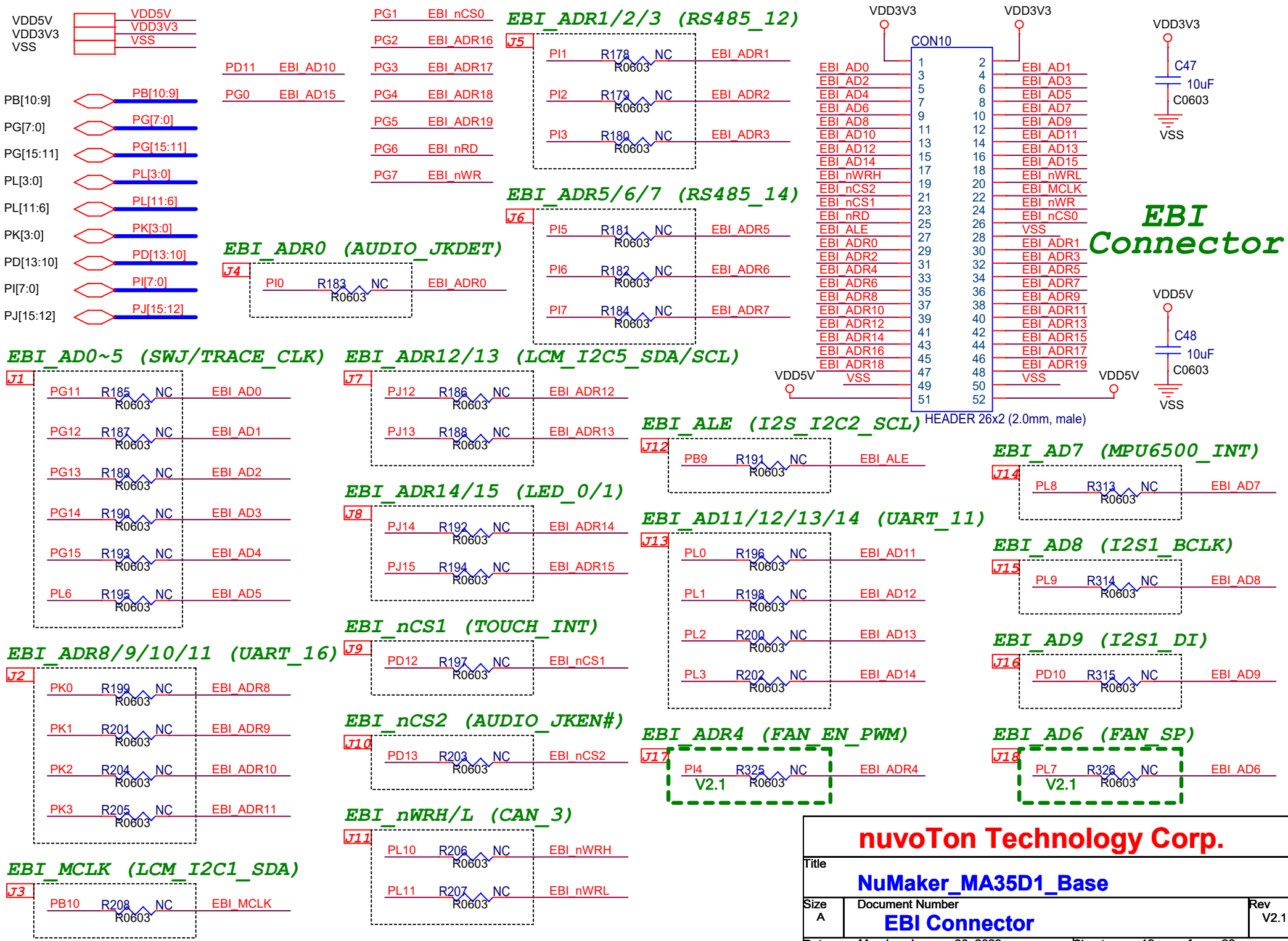
PN0	R11933	R0402	CCAP1_DATA0
PN1	R12033	R0402	CCAP1_DATA1
PN2	R12133	R0402	CCAP1_DATA2
PN3	R12233	R0402	CCAP1_DATA3
PN4	R12333	R0402	CCAP1_DATA4
PN5	R12433	R0402	CCAP1_DATA5
PN6	R12533	R0402	CCAP1_DATA6
PN7	R12633	R0402	CCAP1_DATA7
PN10	R12933	R0402	CCAP1_SCLK
PN11	R13033	R0402	CCAP1_PIXCLK
PN12	R13133	R0402	CCAP1_HSYNC
PN13	R13233	R0402	CCAP1_VSYNC
PN14	R13333	R0402	CCAP1_nRST
PD15	R13433	R0402	CCAP1_PWDN



Note: These GPIO PN0~PN14 pins belong to I/O group 7 (VDDIO7) and the GPIO PD15 belong to I/O group 1 (VDDIO1), these default input voltages of VDDIO7 and VDDIO1 are 3.3V on SOM board.

nuvoTon Technology Corp.

Title		
NuMaker_MA35D1_Base		
Size	Document Number	Rev
A	CCAP 0/1 Connectors	V2.1
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Microphone

Speaker

SPK OUT

Codec

I2C_2 (EBI_ALE)

I2S_0 (SC_0)

AUDIO_JKEN# (EBI_nCS2)

AUDIO_JKDET (EBI_ADR0)

Earphone

nuvoTon Technology Corp.

NuMaker_MA35D1_Base

NAU88C22 Audio Codec

Rev V2.1

Date: Monday, January 30, 2023

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Microphone

Speaker

SPK OUT

Codec

I2C_2 (EBI_ALE)

I2S_0 (SC_0)

AUDIO_JKEN# (EBI_nCS2)

AUDIO_JKDET (EBI_ADR0)

Earphone

nuvoTon Technology Corp.

NuMaker_MA35D1_Base

NAU88C22 Audio Codec

Rev V2.1

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Microphone

Speaker

Codec

Earphone

I2C_2 (EBI_ALE)

I2S_0 (SC_0)

AUDIO_JKEN# (EBI_nCS2)

AUDIO_JKDET (EBI_ADR0)

nuvoTon Technology Corp.

Title

NuMaker_MA35D1_Base

Size A

Document Number

NAU88C22 Audio Codec

Date: Monday, January 30, 2023

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Rev V2.1

Microphone

Speaker

Codec

Earphone

I2C_2 (EBI_ALE)

I2S_0 (SC_0)

AUDIO_JKEN# (EBI_nCS2)

AUDIO_JKDET (EBI_ADR0)

nuvoTon Technology Corp.

NuMaker_MA35D1_Base

NAU88C22 Audio Codec

Title

Size A

Document Number

Date

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Rev V2.1

Microphone

Speaker

Earphone

Codec

I2C_2 (EBI_ALE)

I2S_0 (SC_0)

AUDIO_JKEN# (EBI_nCS2)

AUDIO_JKDET (EBI_ADR0)

SPK OUT

nuvoTon Technology Corp.

NuMaker_MA35D1_Base

NAU88C22 Audio Codec

Rev V2.1

Date: Monday, January 30, 2023

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Microphone

Speaker

SPK OUT

Codec

I2C_2 (EBI_ALE)

I2S_0 (SC_0)

AUDIO_JKEN# (EBI_nCS2)

AUDIO_JKDET (EBI_ADR0)

Earphone

nuvoTon Technology Corp.

NuMaker_MA35D1_Base

NAU88C22 Audio Codec

Rev V2.1

Date: Monday, January 30, 2023

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Microphone

Speaker

Earphone

Codec

I2C_2 (EBI_ALE)

I2S_0 (SC_0)

AUDIO_JKEN# (EBI_nCS2)

AUDIO_JKDET (EBI_ADR0)

nuvoTon Technology Corp.

NuMaker_MA35D1_Base

NAU88C22 Audio Codec

Rev V2.1

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Microphone

Speaker

Earphone

Codec

I2C_2 (EBI_ALE)

I2S_0 (SC_0)

AUDIO_JKEN# (EBI_nCS2)

AUDIO_JKDET (EBI_ADR0)

nuvoTon Technology Corp.

NuMaker_MA35D1_Base

NAU88C22 Audio Codec

Rev V2.1

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Microphone

Speaker

Codec

Earphone

nuvoTon Technology Corp.

NuMaker_MA35D1_Base

NAU88C22 Audio Codec

Rev V2.1

Microphone

Speaker

Codec

Earphone

I2C_2 (EBI_ALE)

I2S_0 (SC_0)

AUDIO_JKEN# (EBI_nCS2)

AUDIO_JKDET (EBI_ADR0)

nuvoTon Technology Corp.

Title

NuMaker_MA35D1_Base

Size A

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NAU88C22 Audio Codec

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Rev V2.1

Microphone

Speaker

Codec

Earphone

I2C_2 (EBI_ALE)

I2S_0 (SC_0)

AUDIO_JKEN# (EBI_nCS2)

AUDIO_JKDET (EBI_ADR0)

nuvoTon Technology Corp.

NuMaker_MA35D1_Base

NAU88C22 Audio Codec

Title

Size A

Document Number

Date

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Rev V2.1

Microphone

Speaker

Codec

Earphone

I2C_2 (EBI_ALE)

I2S_0 (SC_0)

AUDIO_JKEN# (EBI_nCS2)

AUDIO_JKDET (EBI_ADR0)

nuvoTon Technology Corp.

Title

NuMaker_MA35D1_Base

Size A

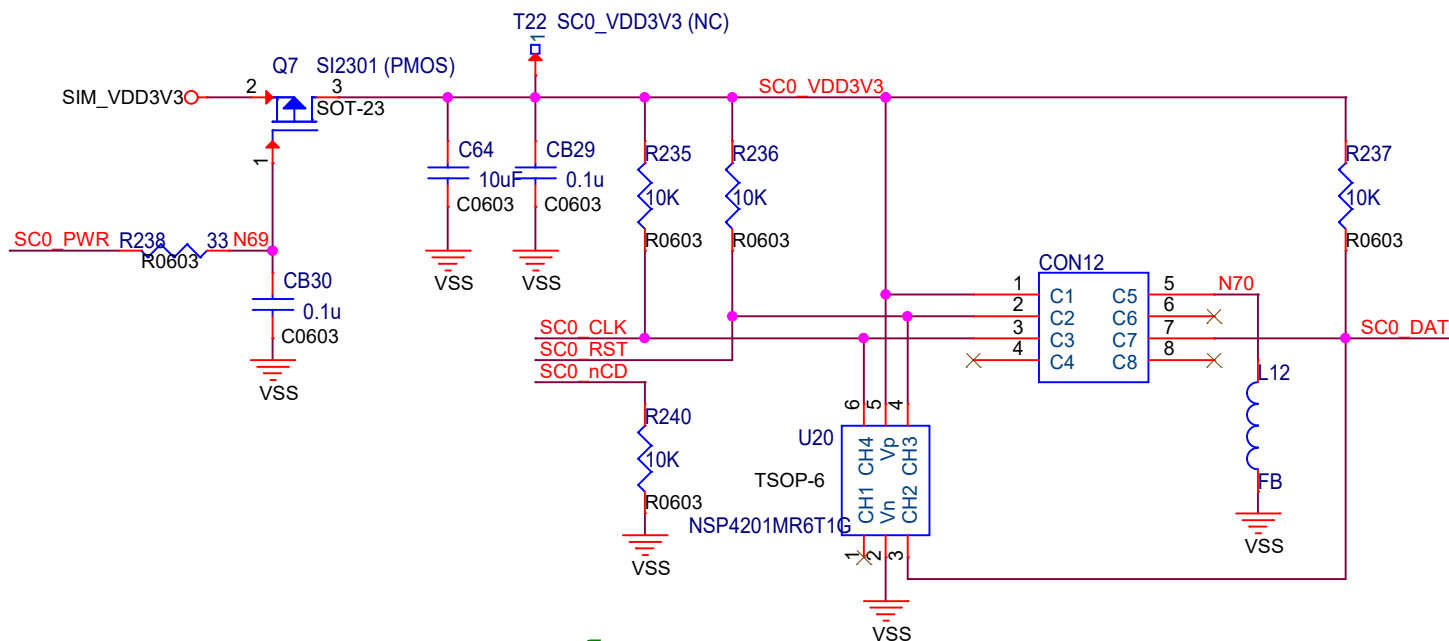
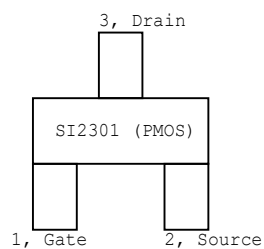
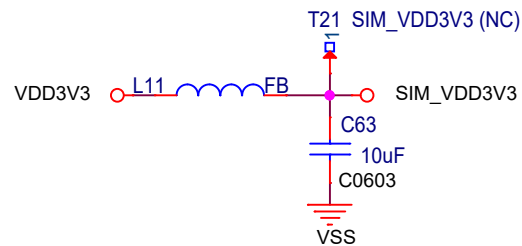
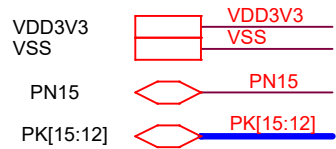
Document Number

NAU88C22 Audio Codec

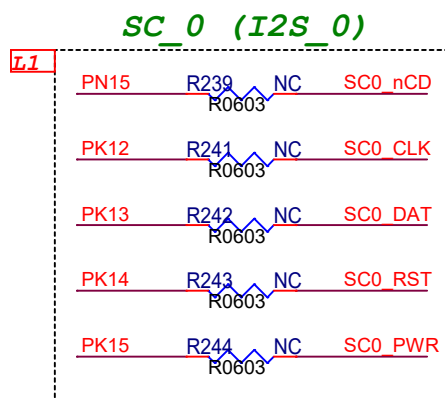
Date: Monday, January 30, 2023

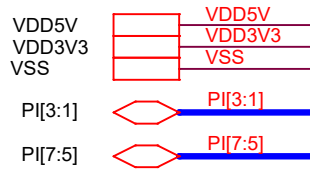
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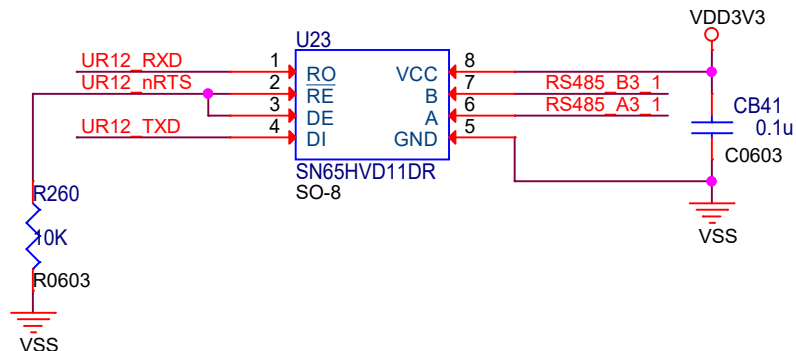
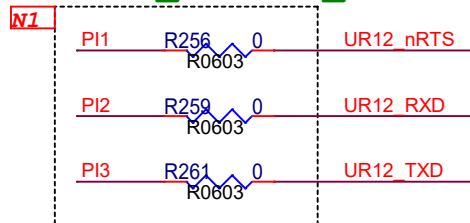


SIM Card

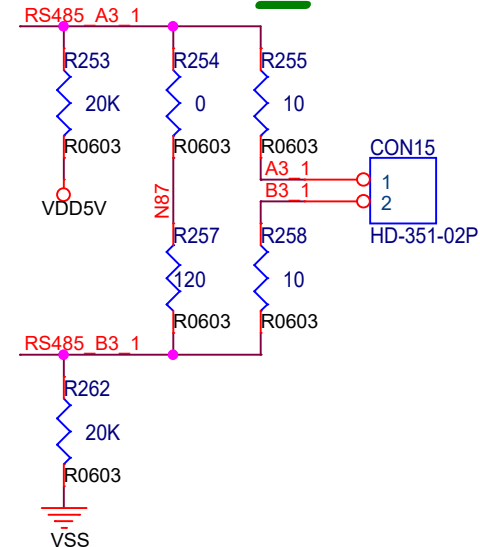




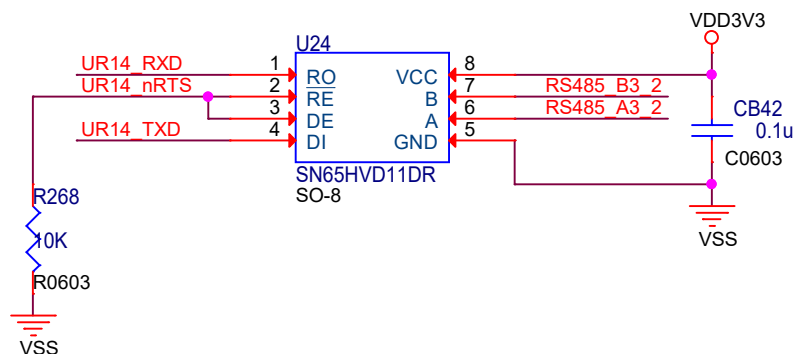
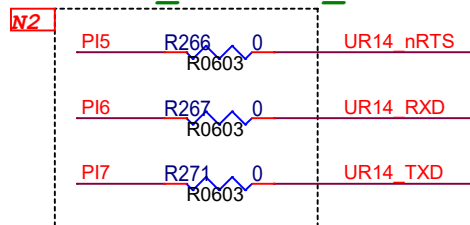
RS485_12 (EBI_ADR1/2/3)



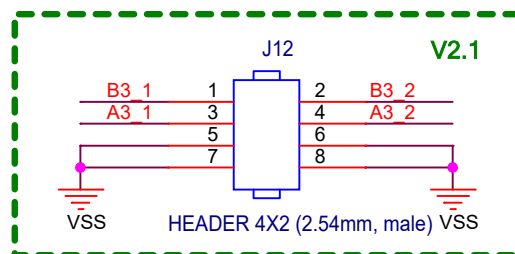
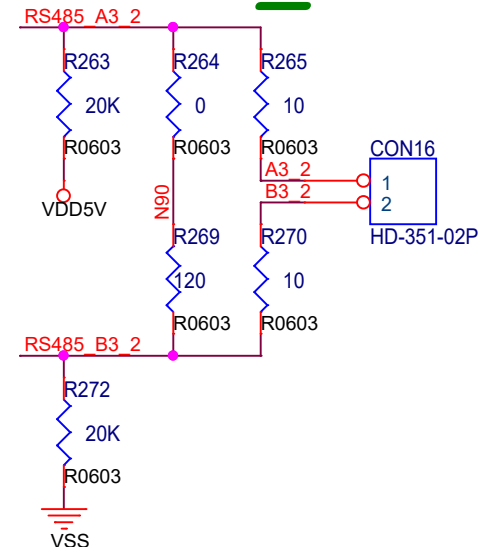
RS485_12



RS485_14 (EBI_ADR5/6/7)



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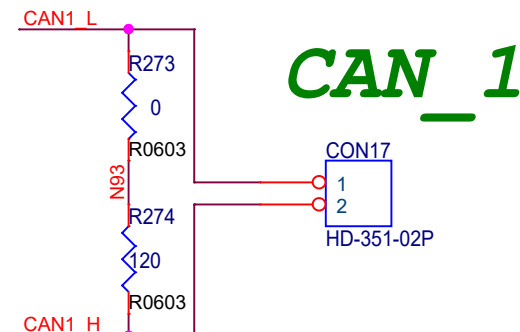
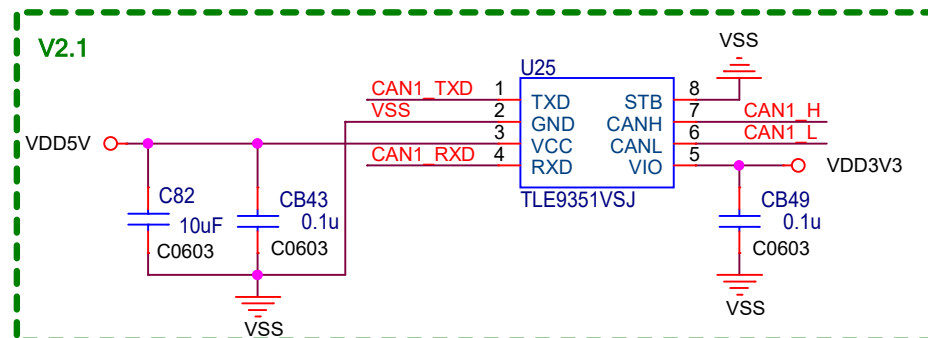
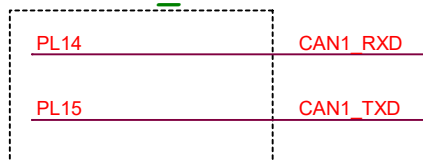
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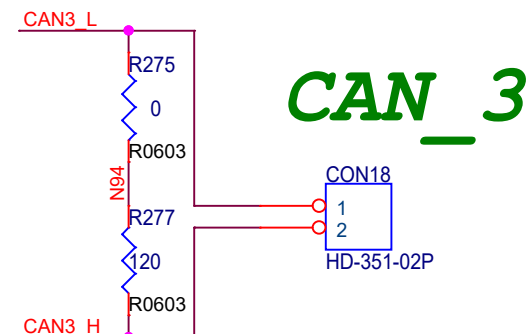
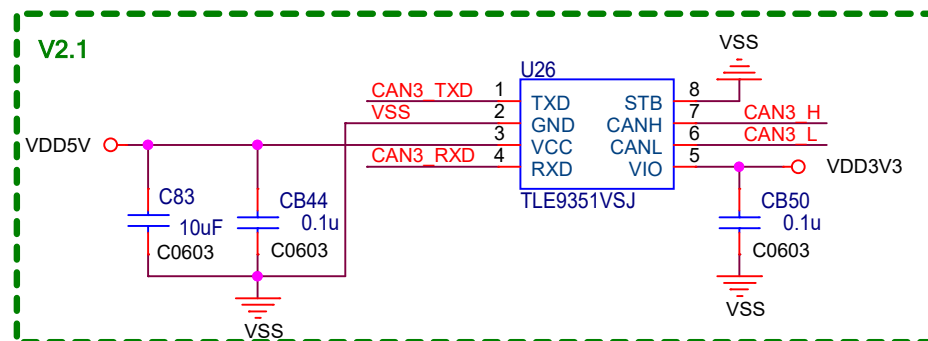
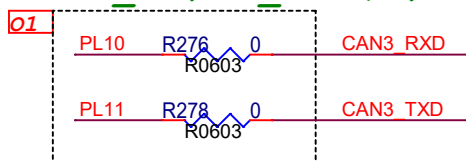
VDD5V
VDD3V3
VSS

PL[11:10] PL[11:10]
PL[15:14] PL[15:14]
PE[15:14] PE[15:14]
PH[9:8] PH[9:8]

CAN_1

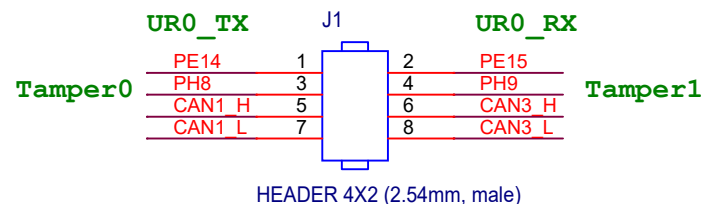


CAN_3 (EBI_nWRH/L)



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UART0 & Tamper



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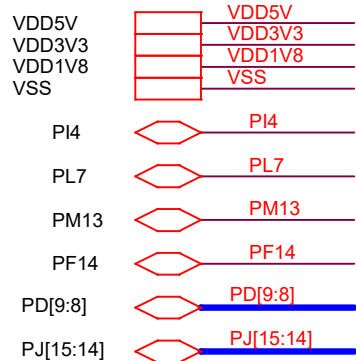
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CAN FD

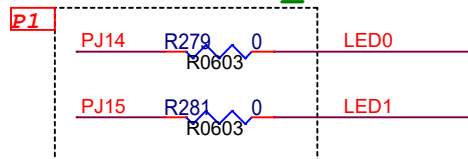
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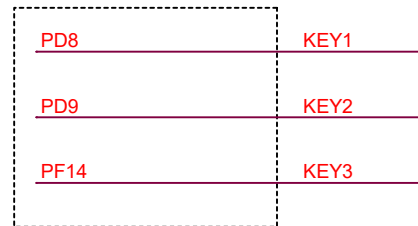
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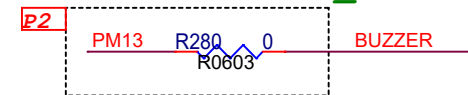
LED0/1 (EBI_ADR14/15)



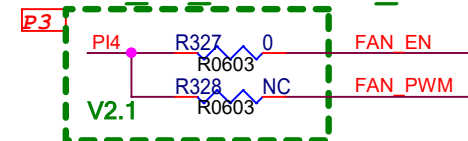
KEY1/2/3



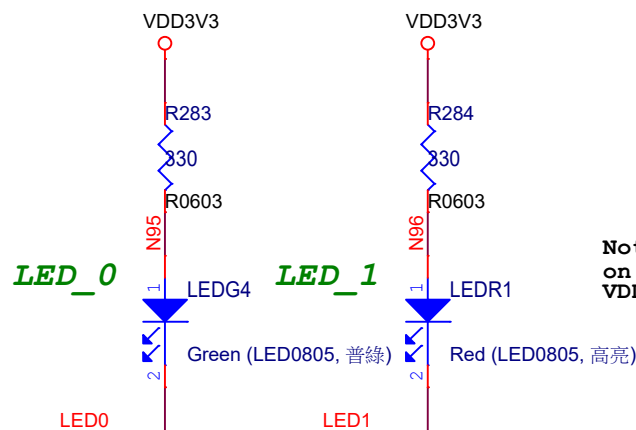
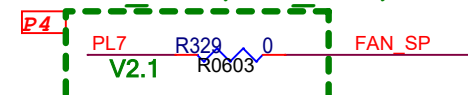
Buzzer (TRACE_DATA1)



FAN EN PWM (EBI_ADR4)



FAN SP (EBI_AD6)

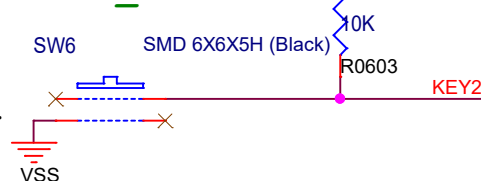


KEY_1

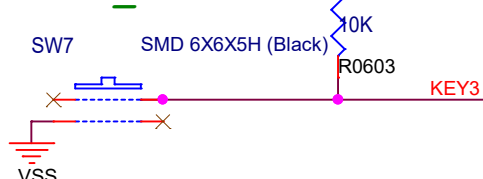


Key Buttons

KEY_2

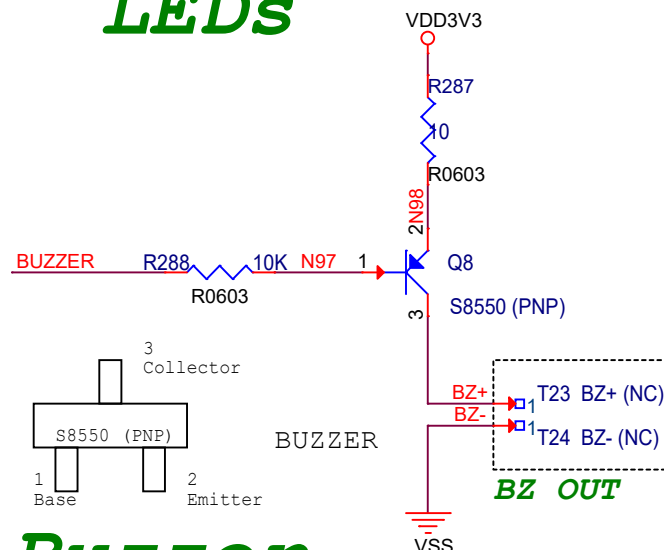


KEY_3



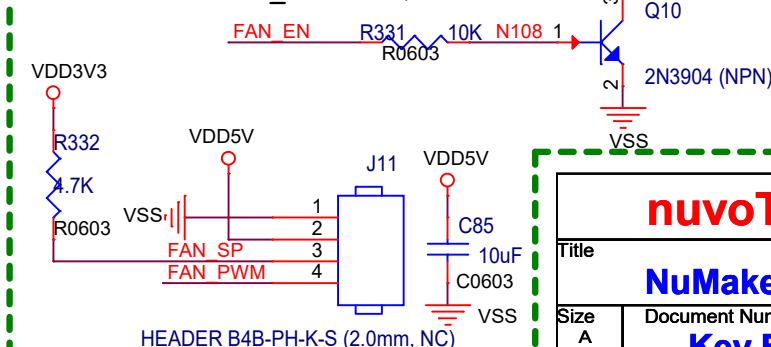
Note: PF14 I/O power supplied from F_VDDIO (VDDIO9) = 1.8V on SOM board by default.
VDDIO9: the input voltage of I/O group 9 for PF port (RGMII1).

LEDs

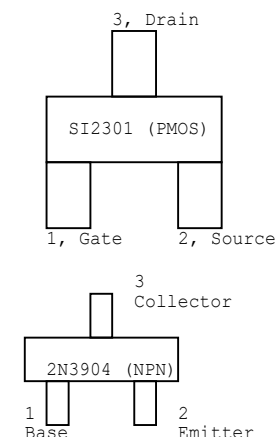


Buzzer

FAN_EN = High, FAN ON
FAN_EN = Low, FAN OFF

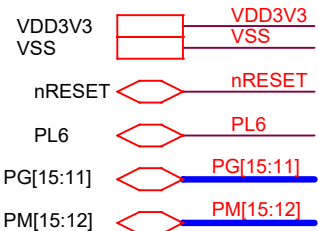


FAN



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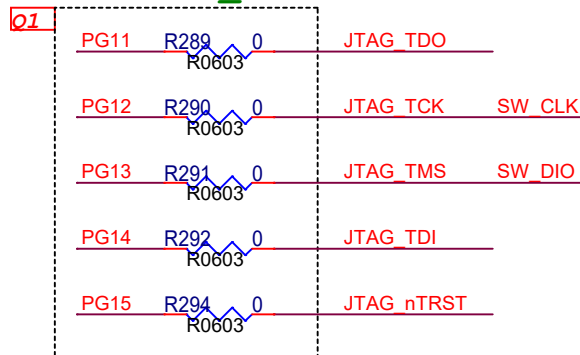
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A	Key Buttons, LEDs, Buzzer and Fan	V2.1
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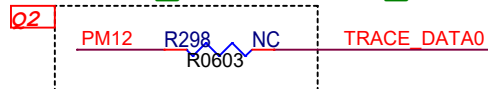
J7 HEADER 2x1 (2.54mm, male)

nRESET SWJ nRESET

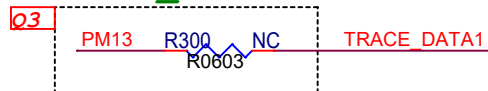
SWJ (EBI_AD0/1/2/3/4)



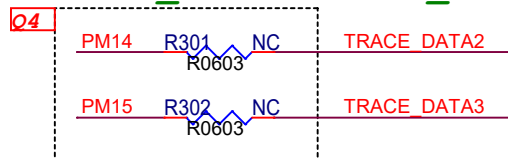
TRACE_DATA0 (LCM_RST)



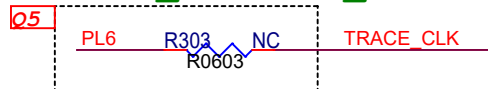
TRACE_DATA1 (Buzzer)



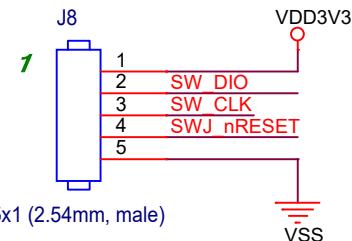
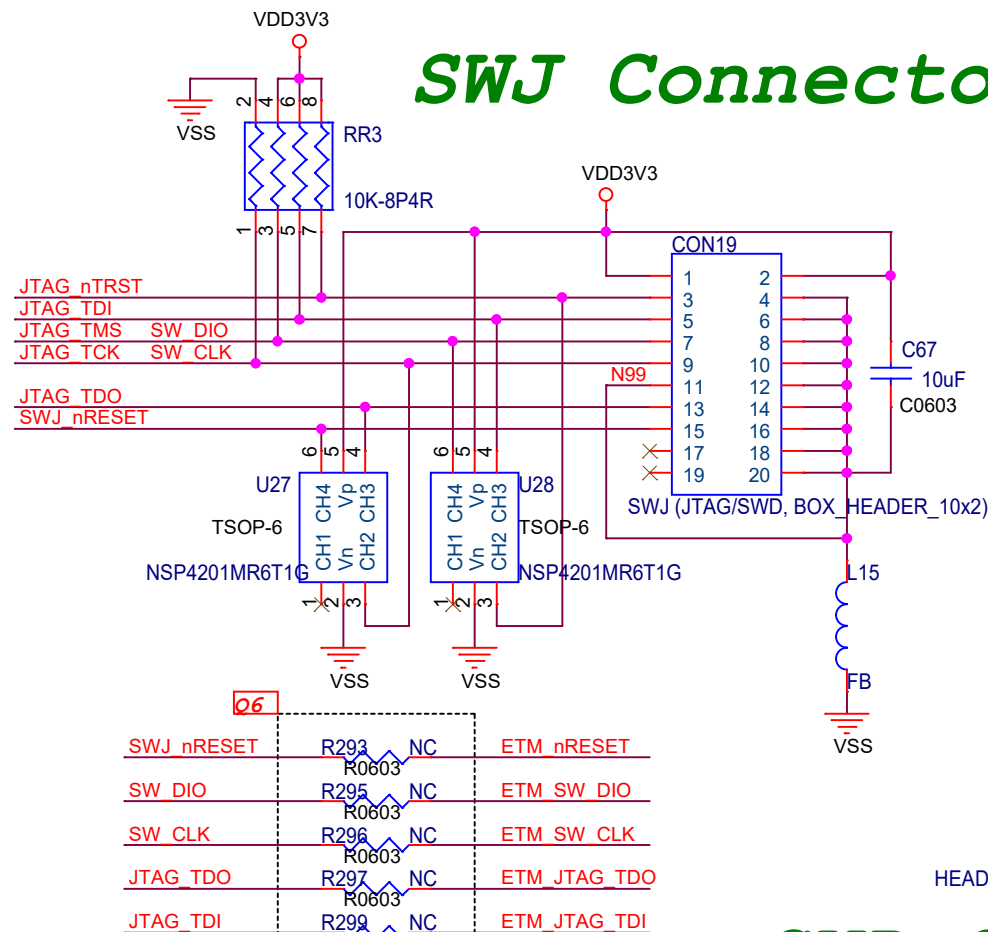
TRACE_DATA2/3 (I2C_3)



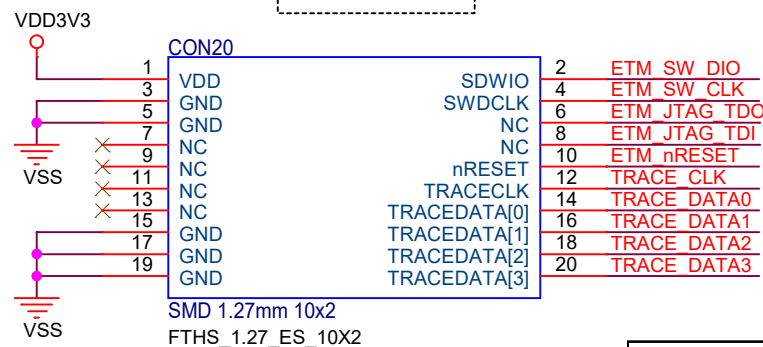
TRACE_CLK (EBI_AD5)



SWJ Connector



SWD Connector

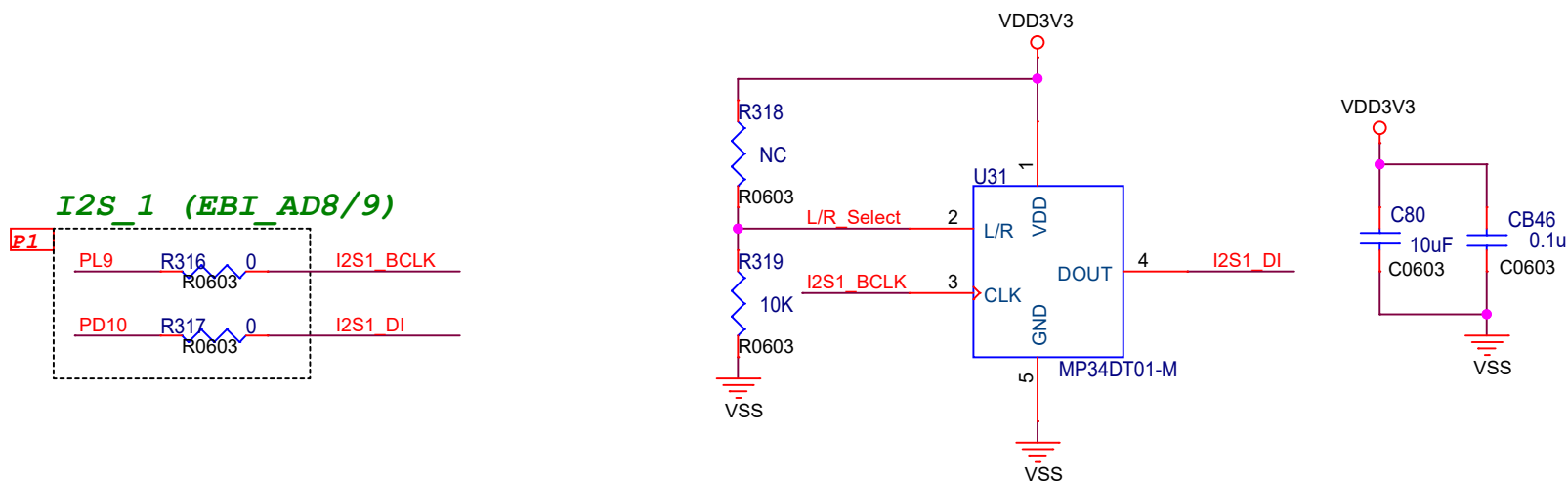
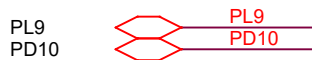
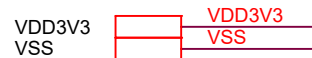


ETM Connector

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A	SWJ, SWD and ETM Connectors	V2.1
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