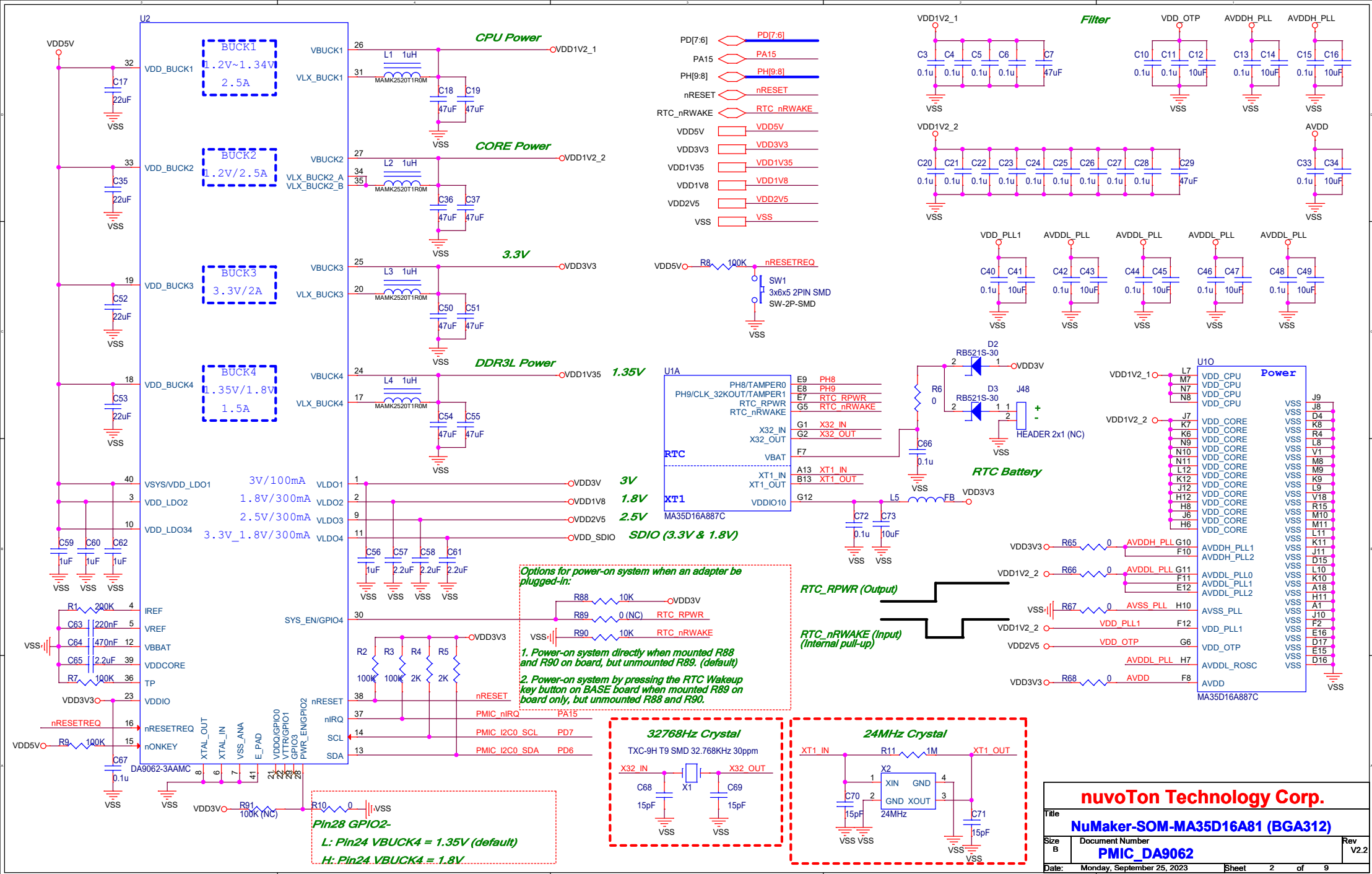


nuvoTon Technology Corp.		
Title	NuMaker-SOM-MA35D16A81 (BGA312)	
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B	System Block	V2.2
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U1C

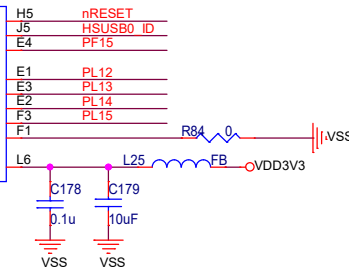
nRESET/WDT_nRST
HSUSB0_ID
PF15/HSUSB0_VBUSVLD

PL12/EPWM0_SYNC_IN/UART7_nCTS/ECAP1_IC0/UART14_RXD/SPI0_SS0/I2S1_LRCK/SC1_CLK/EBI_AD0/HSUSBH_PWREN/I2C2_SDA/TM0/EPWM0_CH2/EBI_AD11/RGMII0_PPS/RMII0_PPS
PL13/EPWM0_SYNC_OUT/UART7_nRTS/ECAP1_IC1/UART14_TXD/SPI0_CLK/I2S1_BCLK/SC1_DAT/EBI_AD1/HSUSBH_OVC/I2C2_SCL/TM0_EXT/EPWM0_CH3/EBI_AD12/RGMII1_PPS/RMII1_PPS
PL14/EPWM0_CH2/UART7_RXD/CAN1_RXD/SPI0_MISO/I2S1_D1/SC1_RST/EBI_AD2/TM2/INT0/EBI_AD13
PL15/EPWM0_CH1/UART7_TXD/TRACE_CLK/CAN1_TXD/SPI0_MISO/I2S1_DO/SC1_PWR/EBI_AD3/TM2_EXT/INT2/EBI_AD14
JTAGSEL

nRESET/HSUSB0_ID,VBUSVLD/HSUSBH_PWREN,OVC/PWM_0/UART_7,14/CAN_1/SPI_0/SC_1/I2C_2/INT_0,2

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Note: The VDDIO0 is the input voltage of I/O group 0 and its voltage is 3.3V only.



U1E

PK8/EPWM1_CH0/I2C3_SDA/SPI3_CLK/EADC0_ST/EBI_AD15/EBI_MCLK/EBI_ADR15/TM8/QEI1_INDEX
PK9/I2C3_SCL/CCAP0_SCL/EBI_AD0/EBI_ADR0
PK10/CAN1_RXD/CCAP0_PIXCLK/EBI_AD1/EBI_ADR1
PK11/CAN1_TXD/CCAP0_HSYNC/EBI_AD2/EBI_ADR2
PM0/I2C4_SDA/CCAP0_VSYNC/EBI_AD3/EBI_ADR3
PM1/I2C4_SCL/SPI3_I2SMCLK/CCAP0_SFIE/EBI_AD4/EBI_ADR4
PM2/CAN3_RXD/CCAP0_DATA0/EBI_AD5/EBI_ADR5
PM3/CAN3_TXD/CCAP0_DATA1/EBI_AD6/EBI_ADR6
PM4/I2C5_SDA/CCAP0_DATA2/EBI_AD7/EBI_ADR7
PM5/I2C5_SCL/CCAP0_DATA3/EBI_AD8/EBI_ADR8
PM6/CAN0_RXD/CCAP0_DATA4/EBI_AD9/EBI_ADR9
PM7/CAN0_TXD/CCAP0_DATA5/EBI_AD10/EBI_ADR10
PM8/I2C0_SDA/CCAP0_DATA6/EBI_AD11/EBI_ADR11
PM9/I2C0_SCL/CCAP0_DATA7/EBI_AD12/EBI_ADR12
PM10/EPWM1_CH2/CAN2_RXD/SPI3_SS0/CCAP0_DATA8/SPI2_I2SMCLK/EBI_AD13/EBI_ADR13
PM11/EPWM1_CH3/CAN2_TXD/SPI3_SS1/CCAP0_DATA9/SPI2_SS1/EBI_AD14/EBI_ADR14

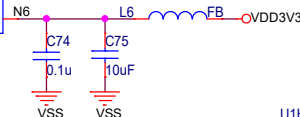
CCAP_0/PWM_1/CAN_0,1,2,3/I2C_0,3,4,5

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Note: The VDDIO2 is the input voltage of I/O group 2 and its voltage is 1.8V ~ 3.3V. This voltage should be matched with the voltage of external connected device. (The default is 3.3V on this SOM board)

P17 PK8
V3 PK9
V4 PK10
T4 PK11
U4 PM0
P7 PM1
V5 PM2
T5 PM3
U5 PM4
U6 PM5
V6 PM6
T6 PM7
T7 PM8
R6 PM9
U7 PM10
R5 PM11

VDDIO2



U1G

PG8/EPWM1_CH4/UART12_RXD/CAN3_RXD/SPI2_SS0/LCM_VSYNC/LCM_MPU_RD/EN/I2C3_SDA/EBI_AD7/EBI_nCS0
PG9/EPWM1_CH5/UART12_TXD/CAN3_TXD/SPI2_CLK/LCM_HSYNC/LCM_MPU_WR/RW/I2C3_SCL/EBI_AD8/EBI_nCS1
PG10/UART12_nRTS/UART13_TXD/SPI2_MISO/LCM_CLK/EBI_AD9/EBI_nWRL
PK4/UART12_nCTS/UART13_RXD/SPI2_MISO/LCM_DEN/LCM_MPU_RS/EBI_AD10/EBI_nWRL
PK5/EPWM1_CH1/UART12_nRTS/UART13_TXD/I2C4_SCL/SPI2_CLK/I2S1_DI/SC0_DATA/ADC0_ST/TM8_EXT/INT1
PK6/EPWM1_CH2/UART12_RXD/CAN0_RXD/SPI2_MISO/I2S1_BCLK/SC0_RST/TM6/INT2
PK7/EPWM1_CH3/UART12_TXD/CAN0_TXD/SPI2_MISO/I2S1_LRCK/SC0_PWR/CLKO/TM6_EXT/INT3
PI8/UART4_nCTS/UART3_RXD/LCM_DATA0/LCM_MPU_D0/EBI_AD11
PI9/UART4_nRTS/UART3_TXD/LCM_DATA1/LCM_MPU_D1/EBI_AD12
PI10/UART4_RXD/LCM_DATA2/LCM_MPU_D2/EBI_AD13
PI11/UART4_TXD/LCM_DATA3/LCM_MPU_D3/EBI_AD14
PI12/UART6_nCTS/UART5_RXD/LCM_DATA4/LCM_MPU_D4
PI13/UART6_nRTS/UART5_TXD/LCM_DATA5/LCM_MPU_D5
PI14/UART6_RXD/LCM_DATA6/LCM_MPU_D6
PH5/UART6_TXD/LCM_DATA7/LCM_MPU_D7
PH0/UART8_nCTS/UART7_RXD/LCM_DATA8/LCM_MPU_D8
PH1/UART8_nRTS/UART7_TXD/LCM_DATA9/LCM_MPU_D9
PH2/UART8_RXD/LCM_DATA10/LCM_MPU_D10
PH3/UART8_TXD/LCM_DATA11/LCM_MPU_D11
PH4/UART10_nCTS/UART9_RXD/LCM_DATA12/LCM_MPU_D12
PH5/UART10_nRTS/UART9_TXD/LCM_DATA13/LCM_MPU_D13
PH6/UART10_RXD/LCM_DATA14/LCM_MPU_D14
PH7/UART10_TXD/LCM_DATA15/LCM_MPU_D15
PC12/UART12_nCTS/UART11_RXD/LCM_DATA16/LCM_MPU_D16
PC13/UART12_nRTS/UART11_TXD/LCM_DATA17/LCM_MPU_D17
PC14/UART12_RXD/LCM_DATA18/LCM_MPU_CS
PC15/UART12_TXD/LCM_DATA19/LCM_MPU_TE/LCM_MPU_VSYNC
PH12/UART14_nCTS/UART13_RXD/LCM_DATA20
PH13/UART14_nRTS/UART13_TXD/LCM_DATA21
PH14/UART14_RXD/LCM_DATA22
PH15/UART14_TXD/LCM_DATA23

LCM/UART_3,4,5,6,7,8,9,10,11,12,13,14

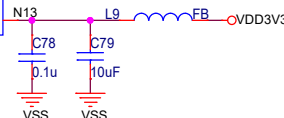
CAN_0,3/I2C_3/PWM_1/SPI_2/INT_1,2,3/CLK0

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Note: The VDDIO4 is the input voltage of I/O group 4 and its voltage is 1.8V ~ 3.3V. This voltage should be matched with the voltage of external connected device. (The default is 3.3V on this SOM board)

T10 PG8
U10 PG9
V10 PG10
R10 PK4
P10 PK5
P11 PK6
P12 PK7
T11 PI8
V11 PI9
V11 PI10
V12 PI11
U12 PI12
T12 PI13
R12 PI14
U11 PI15
V13 PH0
U13 PH1
T13 PH2
R13 PH3
V14 PH4
U14 PH5
T14 PH6
R14 PH7
T16 PC12
T17 PC13
R16 PC14
U17 PC15
R17 PH12
U18 PH13
R18 PH14
T18 PH15

VDDIO4



U1H

PD0/UART3_nCTS/UART4_RXD/QSPI0_SS0
PD1/UART3_nRTS/UART4_TXD/QSPI0_CLK
PD2/UART3_RXD/QSPI0_MISO0
PD3/UART3_TXD/QSPI0_MISO0
PD4/UART1_nCTS/UART2_RXD/I2C2_SDA/QSPI0_MOSI1
PD5/UART1_nRTS/UART2_TXD/I2C2_SCL/QSPI0_MISO1

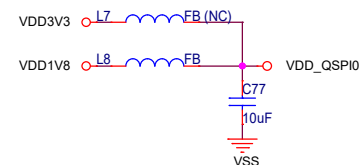
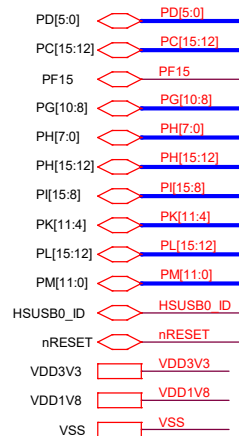
QSPI_0/UART_2,3,4/I2C_2

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U16 PD0
V17 PD1
V16 PD2
U15 PD3
V15 PD4
T15 PD5

VDDIO5

Note: The VDDIO5 is the input voltage of I/O group 5 and its voltage is 1.8V ~ 3.3V. This voltage should be matched with the voltage of external connected device. (The default is 1.8V on this SOM board)



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NuMaker-SOM-MA35D16A81 (BGA312)

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VDDIO0/2/4/5 Rev V2.2

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U1D

NAND/UART_1,2,3,4,5,8,16

PowerOnSetting

INT_0_1,2,3/UART_5,6,9

SC_1/PWM_0,1

SPI_3/I2S_1/CLKO/PWM_0,1/CAN_0,1

JTAG/I2S_0

QSPI_1/PWM_0/UART_1,15,16

I2C_0/I2S_1/SC_1

QSPI_1/PWM_1

I2C_3,4/I2S_0/SC_1/SPI_2

UART_1,10,11/CAN_3

SPI_3/PWM_0/UART_11,12/CAN_0/I2C_2/SC_0

SPI_3/PWM_0,1/UART_2,13,14/INT_0,1,2,3

CAN_0,3/SC_0/I2C_5

CAN_2,3/SC_1/I2C_5/INT_1

SPI_3/PWM_1/UART_1,2,16

INT_0_1,2,3

PWM_0/UART_13,14,15/CAN_1/I2C_3,4/I2S_1

CAN_2,3/I2C_2,3,4/I2S_1

PWM_0,1/UART_10,11/INT_1,2,3

UART_0

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PA0/UART1_nCTS/UART16_RXD/NAND_DATA0/EBI_AD0/EBI_ADR0
PA1/UART1_nRTS/UART16_TXD/NAND_DATA1/EBI_AD1/EBI_ADR1
PA2/UART1_TXD/NAND_DATA2/EBI_AD2/EBI_ADR2
PA3/UART1_RXD/NAND_DATA3/EBI_AD3/EBI_ADR3
PA4/UART3_nCTS/UART2_RXD/NAND_DATA4/EBI_AD4/EBI_ADR4
PA5/UART3_nRTS/UART2_TXD/NAND_DATA5/EBI_AD5/EBI_ADR5
PA6/UART3_RXD/NAND_DATA6/EBI_AD6/EBI_ADR6
PA7/UART3_TXD/NAND_DATA7/EBI_AD7/EBI_ADR7
PA8/UART5_nCTS/UART4_RXD/NAND_RDY0/EBI_AD8/EBI_ADR8
PA9/UART5_nRTS/UART4_TXD/NAND_nRE/EBI_AD9/EBI_ADR9
PA10/UART5_RXD/NAND_nWE/EBI_AD10/EBI_ADR10
PA11/UART5_TXD/NAND_CLE/EBI_AD11/EBI_ADR11
PA12/UART7_nCTS/UART8_RXD/NAND_ALE/EBI_AD12/EBI_ADR12
PA13/UART7_nRTS/UART8_TXD/NAND_nCS0/EBI_AD13/EBI_ADR13
PA14/UART7_RXD/CAN3_RXD/NAND_nWP/EBI_AD14/EBI_ADR14

PG0/EPWM0_CH0/UART7_TXD/CAN3_TXD/SPI0_SS0/EADC0_ST/EBI_AD15/I2S1_MCLK/QEI0_INDEX/TM1_CLKO/INT0/EBI_ADR15/PowerOnSetting
PA15/EPWM0_CH2/UART9_nCTS/UART6_RXD/I2C4_SDA/CAN2_RXD/EBI_ALE/QEI0_ATM1/RGMIO_PPS/RMIO_PPS
PG1/EPWM0_CH3/UART9_nRTS/UART6_TXD/I2C4_SCL/CAN2_TXD/EBI_nCS0/QEI0_B/TM1_EXT/RGMII_PPS/RMII_PPS/PowerOnSetting
PG2/EPWM0_CH4/UART9_RXD/CAN0_RXD/SPI0_SS1/EBI_ADR16/EBI_nCS2/QEI0_ATM3/INT1/PowerOnSetting
PG3/EPWM0_CH5/UART9_TXD/CAN0_TXD/SPI0_I2SMCLK/EBI_ADR17/EBI_nCS1/EBI_MCLK/QEI0_B/TM3_EXT/I2S1_MCLK/PowerOnSetting
PG4/EPWM1_CH0/UART5_nCTS/UART6_RXD/SPI3_SS0/QEI1_INDEX/EBI_ADR18/EBI_nCS0/I2S1_DO/SC1_CLK/TM4/INT2/ECAP1_IC2/PowerOnSetting
PG5/EPWM1_CH1/UART5_nRTS/UART6_TXD/SPI3_CLK/ECAP0_IC0/EBI_ADR19/EBI_ALE/I2S1_DIVSC1_DAT/TM4_EXT/PowerOnSetting
PG6/EPWM1_CH2/UART5_RXD/CAN1_RXD/SPI3_MOSI/ECAP0_IC1/EBI_nRD/I2S1_BCLK/SC1_RST/TM7/INT3/PowerOnSetting
PG7/EPWM1_CH3/UART5_TXD/CAN1_TXD/SPI3_MISO/ECAP0_IC2/EBI_nWR/I2S1_LRCK/SC1_PWR/TM7_EXT/PowerOnSetting

PG11/JTAG_TDO/I2S0_MCLK/NAND_RDY1/EBI_nWRH/EBI_nCS1/EBI_AD0
PG12/JTAG_TCK/SW_CLK/I2S0_LRCK/EBI_nWRL/EBI_AD1
PG13/JTAG_TMS/SW_DIO/I2S0_BCLK/EBI_MCLK/EBI_AD2
PG14/JTAG_TDI/I2S0_DIN/NAND_nCS1/EBI_ALE/EBI_AD3
PG15/JTAG_nTRST/I2S0_DO/EBI_nCS0/EBI_AD4

PD6/EPWM0_SYNC_IN/UART1_RXD/QSPI1_MOSI/I2C0_SDA/I2S0_MCLK/EPWM0_CH0/EBI_AD5/SPI3_SS1/TRACE_CLK
PD7/EPWM0_SYNC_OUT/UART1_TXD/QSPI1_MISO/I2C0_SCL/I2S1_MCLK/EPWM0_CH1/EBI_AD6/SC1_nCD/EADC0_ST
PD8/EPWM0_BRAKE0/UART16_nCTS/UART15_RXD/QSPI1_SS0/I2S1_LRCK/EPWM0_CH2/EBI_AD7/SC1_CLK/TM0
PD9/EPWM0_BRAKE1/UART16_nRTS/UART15_TXD/QSPI1_CLK/I2S1_BCLK/EPWM0_CH3/EBI_AD8/SC1_DAT/TM0_EXT
PD10/EPWM1_BRAKE0/UART16_RXD/QSPI1_MOSI/I2S1_DIV/EPWM0_CH4/EBI_AD9/SC1_RST/TM2
PD11/EPWM1_BRAKE1/UART16_TXD/QSPI1_MISO/I2S1_DO/EPWM0_CH5/EBI_AD10/SC1_PWR/TM2_EXT

PL0/EPWM1_CH0/UART11_nCTS/UART10_RXD/I2C3_SDA/SPI2_MOSI/QSPI1_MOSI/I2S0_LRCK/EBI_AD11/SC1_CLK/TM5/QEI1_A
PL1/EPWM1_CH1/UART11_nRTS/UART10_TXD/I2C3_SCL/SPI2_MISO/QSPI1_MISO/I2S0_BCLK/EBI_AD12/SC1_DAT/TM5_EXT/QEI1_B
PL2/EPWM1_CH2/UART11_RXD/CAN3_RXD/SPI2_SS0/QSPI1_SS1/I2S0_DIVEBI_AD13/SC1_RST/TM7/QEI1_INDEX
PL3/EPWM1_CH3/UART11_TXD/CAN3_TXD/SPI2_CLK/QSPI1_CLK/I2S0_DO/EBI_AD14/SC1_PWR/TM7_EXT/ECAP0_IC0
PL4/EPWM1_CH4/UART2_nCTS/UART1_RXD/I2C4_SDA/SPI3_MOSI/QSPI1_MOSI/I2S0_MCLK/EBI_nRD/SC1_nCD/TM9/ECAP0_IC1
PL5/EPWM1_CH5/UART2_nRTS/UART1_TXD/I2C4_SCL/SPI3_MISO/QSPI1_MISO/I2S1_MCLK/EBI_nWR/SC0_nCD/TM9_EXT/ECAP0_IC2

PI0/EPWM0_CH0/UART12_nCTS/UART11_RXD/I2C2_SDA/SPI3_SS0/SC0_nCD/EBI_ADR0/TM0/ECAP1_IC0
PI1/EPWM0_CH1/UART12_nRTS/UART11_TXD/I2C2_SCL/SPI3_CLK/SC0_CLK/EBI_ADR1/TM0_EXT/ECAP1_IC1
PI2/EPWM0_CH2/UART12_RXD/CAN0_RXD/SPI3_MOSI/SC0_DAT/EBI_ADR2/TM1/ECAP1_IC2
PI3/EPWM0_CH3/UART12_TXD/CAN0_TXD/SPI3_MISO/SC0_RST/EBI_ADR3/TM1_EXT

PL6/EPWM0_CH0/UART2_RXD/CAN0_RXD/QSPI1_MOSI/TRACE_CLK/EBI_AD5/TM3/ECAP1_IC0/INT0
PL7/EPWM0_CH1/UART2_TXD/CAN0_TXD/QSPI1_MISO/EBI_AD6/TM3_EXT/ECAP1_IC1/INT1
PL8/EPWM0_CH2/UART14_nCTS/UART13_RXD/I2C5_SDA/SPI3_SS0/EPWM0_CH4/I2S1_LRCK/EBI_AD7/SC0_CLK/TM4/ECAP1_IC2/INT2
PL9/EPWM0_CH3/UART14_nRTS/UART13_TXD/I2C5_SCL/SPI3_CLK/EPWM1_CH4/I2S1_BCLK/EBI_AD8/SC0_DAT/TM4_EXT/QEI0_A/INT3
PL10/EPWM0_CH4/UART14_RXD/CAN3_RXD/SPI3_MOSI/EPWM0_CH5/I2S1_DIVEBI_AD9/SC0_RST/EBI_nWRH/QEI0_B
PL11/EPWM0_CH5/UART14_TXD/CAN3_TXD/SPI3_MISO/EPWM1_CH5/I2S1_DO/EBI_AD10/SC0_PWR/EBI_nWRL/QEI0_INDEX

PK2/EPWM1_CH0/UART16_RXD/CAN2_RXD/SPI3_I2SMCLK/SC0_PWR/EBI_ADR10/QEI0_A
PK3/EPWM1_CH1/UART16_TXD/CAN2_TXD/SPI3_SS1/SC1_nCD/EBI_ADR11/QEI0_B
PJ12/EPWM1_CH2/UART2_nCTS/UART1_RXD/I2C5_SDA/SPI3_SS0/SC1_CLK/EBI_ADR12/TM2/QEI0_INDEX
PJ13/EPWM1_CH3/UART2_nRTS/UART1_TXD/I2C5_SCL/SPI3_MOSI/SC1_DAT/EBI_ADR13/TM2_EXT
PJ14/EPWM1_CH4/UART2_RXD/CAN3_RXD/SPI3_MISO/SC1_RST/EBI_ADR14/TM3
PJ15/EPWM1_CH5/UART2_TXD/CAN3_TXD/SPI3_CLK/EADC0_ST/SC1_PWR/EBI_ADR15/TM3_EXT/INT1

PI4/EPWM0_CH4/UART14_nCTS/UART13_RXD/I2C3_SDA/SPI2_SS1/I2S1_LRCK/EBI_ADR4/INT0
PI5/EPWM0_CH5/UART14_nRTS/UART13_TXD/I2C3_SCL/I2S1_BCLK/EBI_ADR5/INT1
PI6/EPWM0_BRAKE0/UART14_RXD/CAN1_RXD/I2S1_DIVEBI_ADR6/QEI1_INDEX/INT2
PI7/EPWM0_BRAKE1/UART14_TXD/CAN1_TXD/I2S1_DO/EBI_ADR7/ECAP0_IC0/INT3
PK0/EPWM0_SYNC_IN/UART16_nCTS/UART15_RXD/I2C4_SDA/I2S1_MCLK/EBI_ADR8/TM7/ECAP0_IC1
PK1/EPWM0_SYNC_OUT/UART16_nRTS/UART15_TXD/I2C4_SCL/EADC0_ST/EBI_ADR9/TM7_EXT/ECAP0_IC2

PD12/EPWM0_BRAKE0/UART11_TXD/UART10_RXD/I2C4_SDA/TRACE_DATA0/EBI_nCS1/EBI_AD4/QEI0_INDEX/TM5/I2S1_LRCK/INT1
PD13/EPWM0_BRAKE1/UART11_RXD/UART10_TXD/I2C4_SCL/TRACE_DATA1/EBI_nCS2/EBI_AD5/ECAP0_IC0/TM5_EXT/I2S1_BCLK
PD14/EPWM0_SYNC_IN/UART11_nCTS/CAN3_RXD/TRACE_DATA2/EBI_MCLK/EBI_AD6/ECAP0_IC1/TM6/I2S1_DIV/INT3
PD15/EPWM0_SYNC_OUT/UART11_nRTS/CAN3_TXD/TRACE_DATA3/EBI_ALE/EBI_AD7/ECAP0_IC2/TM6_EXT/I2S1_DO
PM12/EPWM1_CH4/UART10_nCTS/TRACE_DATA0/UART11_RXD/I2C2_SDA/SC1_nCD/EBI_ADR8/I2S1_MCLK/TM8
PM13/EPWM1_CH5/UART10_nRTS/TRACE_DATA1/UART11_TXD/I2C2_SCL/EBI_ADR9/ECAP1_IC0/TM8_EXT
PM14/EPWM1_BRAKE0/UART10_RXD/TRACE_DATA2/CAN2_RXD/I2C3_SDA/EBI_AD10/I2S1_MCLK/INT0
PM15/EPWM1_BRAKE1/UART10_TXD/TRACE_DATA3/CAN2_TXD/I2C3_SCL/EBI_AD11/ECAP1_IC2/TM10_EXT/INT2

PE14/UART0_TXD
PE15/UART0_RXD

VDDIO1

Note: The VDDIO1 is the input voltage of I/O group 1 and its voltage is 3.3V only.

G3 PA0 NAND DATA0
H3 PA1 NAND DATA1
K1 PA2 NAND DATA2
F4 PA3 NAND DATA3
K2 PA4 NAND DATA4
G4 PA5 NAND DATA5
J3 PA6 NAND DATA6
H4 PA7 NAND DATA7
J4 PA8 NAND RDY
K3 PA9 NAND nRE
K5 PA10 NAND nWE
L2 PA11 NAND CLE
K4 PA12 NAND ALE
L1 PA13 NAND nCS
M5 PA14 NAND nWP

M2 PG0
G15 PA15 PMIC_nIRQ
M1 PG1
L3 PG2
M4 PG3
L4 PG4
M3 PG5
L5 PG6
N4 PG7

P4 PG11
P2 PG12
R2 PG13
R1 PG14
P3 PG15

U1 PD6 PMIC_I2C0_SDA
R3 PD7 PMIC_I2C0_SCL
U2 PD8
V2 PD9
U3 PD10
T3 PD11

M18 PL0
N18 PL1
P18 PL2
L18 PL3
K18 PL4
J18 PL5

K15 PI0
H15 PI1
J15 PI2
L15 PI3

H17 PL6
J17 PL7
K17 PL8
L17 PL9
M17 PL10
N17 PL11

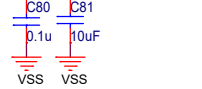
K16 PK2
J16 PK3
L16 PJ12
M16 PJ13
P16 PJ14
N16 PJ15

N15 PI4
M15 PI5
F16 PI6
P15 PI7
H16 PK0
G16 PK1

M14 PD12
G14 PD13
L14 PD14
F15 PD15
N3 PM12
N1 PM13
N2 PM14
P1 PM15

T1 PE14
T2 PE15

M6 L10 FB VDD3V3



Power-on Setting

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	Bootling from QSPI0
L	L	SPI-NAND, 1-bit
H	L	SPI-NOR, 1-bit

PG6	Bootling from SD/eMMC
L	SD0/eMMC0 bootling
H	SD1/eMMC1 bootling

PG7	Bootling from SD/eMMC
L	eMMC 4-bit bootling
H	eMMC 8-bit bootling

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

PG4	Bootling from USB
L	USBD bootling
H	USBH bootling

PG5	Bootling from USBH
L	USBH port 0 bootling
H	USBH port 1 bootling

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

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

PA[15:0] PA[15:0]

PD[15:6] PD[15:6]

PE[15:14] PE[15:14]

PG[7:0] PG[7:0]

PG[15:11] PG[15:11]

PI[7:0] PI[7:0]

PJ[15:12] PJ[15:12]

PK[3:0] PK[3:0]

PL[11:0] PL[11:0]

PM[15:12] PM[15:12]

VDD3V3 VDD3V3

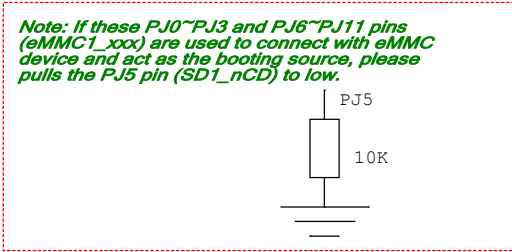
VSS VSS




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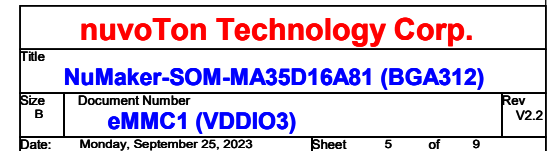
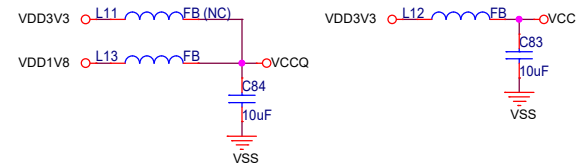
Title NuMaker-SOM-MA35D16A81 (BGA312)

Size B Document Number VDDIO1 Rev V2.2

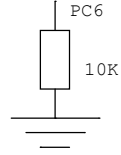
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VDD3V3  VDD3V3
VDD1V8  VDD1V8
VSS  VSS



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.



U1I
PC0/I2C4_SDA/SD0_CMD/eMMC0_CMD
PC1/I2C4_SCL/SD0_CLK/eMMC0_CLK
PC2/CAN0_RXD/SD0_DAT0/eMMC0_DAT0
PC3/CAN0_TXD/SD0_DAT1/eMMC0_DAT1
PC4/I2C5_SDA/SD0_DAT2/eMMC0_DAT2
PC5/I2C5_SCL/SD0_DAT3/eMMC0_DAT3
PC6/CAN1_RXD/SD0_nCD
PC7/CAN1_TXD/SD0_WP
eMMC_0
CAN_0,1/I2C_4,5/SD_0

VDDIO6

MA35D16A887C

Note: The VDDIO6 is the input voltage of I/O group 6 and its voltage is 3.3V only.



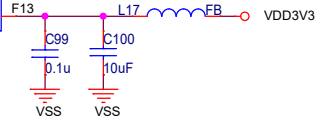
U1J
I2C_1,2,4,5/SPI_1/SC_0

PN0/I2C2_SDA/CCAP1_DATA0
PN1/I2C2_SCL/CCAP1_DATA1
PN2/CAN0_RXD/CCAP1_DATA2
PN3/CAN0_TXD/CCAP1_DATA3
PN4/I2C1_SDA/CCAP1_DATA4
PN5/I2C1_SCL/CCAP1_DATA5
PN6/CAN1_RXD/CCAP1_DATA6
PN7/CAN1_TXD/CCAP1_DATA7
PN10/CAN2_RXD/CCAP1_SCLK
PN11/CAN2_TXD/CCAP1_PXCLK
PN12/UART6_nCTS/UART12_RXD/I2C5_SDA/CCAP1_HSYNC
PN13/UART6_nRTS/UART12_TXD/I2C5_SCL/CCAP1_VSYNC
PN14/UART6_RXD/CAN3_RXD/SPI1_SS1/CCAP1_SFIED/SPI1_I2SMCLK
PN15/EPWM2_CH4/UART6_TXD/CAN3_TXD/I2S0_MCLK/SPI1_SS1/I2SMCLK/SC0_nCD/EADC0_ST/CLK0/TM6
PK12/EPWM2_CH0/UART1_nCTS/UART13_RXD/I2C4_SDA/I2S0_LRCK/SPI1_SS0/SC0_CLK/TM10/INT2
PK13/EPWM2_CH1/UART1_nRTS/UART13_TXD/I2C4_SCL/I2S0_BCLK/SPI1_CLK/SC0_DAT/TM10_EXT
PK14/EPWM2_CH2/UART1_RXD/CAN3_RXD/I2S0_DI/SPI1_MOSI/SC0_RST/I2C5_SDA/TM11/INT3
PK15/EPWM2_CH3/UART1_TXD/CAN3_TXD/I2S0_DO/SPI1_MISO/SC0_PWR/I2C5_SCL/TM11_EXT

CCAP_1/PWM_2/UART_1,6,12,13/CAN_0,1,2,3/INT_2,3/CLK0

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Note: The VDDIO7 is the input voltage of I/O group 7 and its voltage is 1.8V ~ 3.3V. This voltage should be matched with the voltage of external connected device. (The default is 3.3V on this SOM board)



U1M
EADC

EADC0_CH0
EADC0_CH4
EADC0_CH1
EADC0_CH5
EADC0_CH2
EADC0_CH6
EADC0_CH3
EADC0_CH7
VREF_EADC0

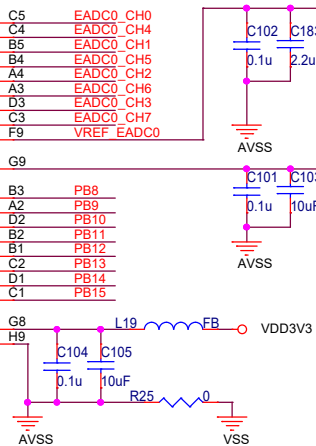
AVDD_EADC0

PB8/EPWM2_BRAKE0/UART2_nCTS/UART1_RXD/I2C2_SDA/SPI0_SS1/SPI0_I2SMCLK/ADC0_CH0/EBI_nCS0/TM4/QEI2_INDEX/KPI_ROW6
PB9/EPWM2_CH4/UART2_nRTS/UART1_TXD/I2C2_SCL/SPI0_CLK/I2S0_MCLK/CCAP1_HSYNC/ADC0_CH1/EBI_ALE/EBI_AD13/TM0_EXT/I2S1_MCLK/SC0_nCD/QEI2_A/KPI_ROW7
PB10/EPWM2_CH5/UART2_RXD/CAN0_RXD/SPI0_MOSI/EBI_MCLK/CCAP1_VSYNC/ADC0_CH2/EBI_ADR15/EBI_AD14/TM5/I2C1_SDA/INT1/QEI2_B
PB11/EPWM2_BRAKE1/UART2_TXD/CAN0_TXD/SPI0_MISO/I2S1_MCLK/CCAP1_SFIED/ADC0_CH3(VSENSE)/EBI_nCS2/EBI_ALE/TM5_EXT/I2C1_SCL/INT2/QEI2_INDEX
PB12/EPWM2_CH0/UART4_nCTS/UART3_RXD/I2C3_SDA/CAN2_RXD/I2S1_LRCK/ADC0_CH4(YM)/EBI_ADR16/ECAP2_IC0
PB13/EPWM2_CH1/UART4_nRTS/UART3_TXD/I2C3_SCL/CAN2_TXD/I2S1_BCLK/ADC0_CH5(YP)/EBI_ADR17/ECAP2_IC1
PB14/EPWM2_CH2/UART4_RXD/CAN1_RXD/I2C4_SDA/I2S1_DV/ADC0_CH6(XM)/EBI_ADR18/ECAP2_IC2
PB15/EPWM2_CH3/UART4_TXD/CAN1_TXD/I2C4_SCL/I2S1_DO/ADC0_CH7(XP)/EBI_ADR19

ADC/PWM_2/UART_1,2,3,4/CAN_0,1,2/I2C_2,3,4/SPI_0/I2S_1/INT_1,2

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Note: The AVDD_EADC0 and AVDD_ADC0 are the input voltages of EADC0 and ADC0 (includes the I/O voltage of PB8~PB15), their input voltages are 3.3V only.



**mount R96 when using external VREF
unmount R96 when using internal VREF**

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Title			
NuMaker-SOM-MA35D16A81 (BGA312)			
Size	Document Number	Rev	
B	VDDIO6/7/ADC/USB	V2.2	
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U1K

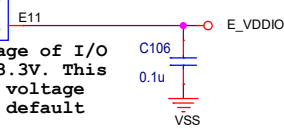
CCAP_1 PE0/UART9_nCTS/UART8_RXD/CCAP1_DATA0/RGMII0_MDC/RMII0_MDC
 PE1/UART9_nRTS/UART8_TXD/CCAP1_DATA1/RGMII0_MDIO/RMII0_MDIO
 PE2/UART9_RXD/CCAP1_DATA2/RGMII0_TXCTL/RMII0_TXEN
 PE3/UART9_TXD/CCAP1_DATA3/RGMII0_TXD0/RMII0_TXD0
 PE4/UART4_nCTS/UART3_RXD/CCAP1_DATA4/RGMII0_TXD1/RMII0_TXD1
 PE5/UART4_nRTS/UART3_TXD/CCAP1_DATA5/RGMII0_RXCLK/RMII0_REFCLK
 PE6/UART4_RXD/CCAP1_DATA6/RGMII0_RXCTL/RMII0_CRSDV
 PE7/UART4_TXD/CCAP1_DATA7/RGMII0_RXD0/RMII0_RXD0
 PE8/UART13_nCTS/UART12_RXD/CCAP1_SCLK/RGMII0_RXD1/RMII0_RXD1
 PE9/UART13_nRTS/UART12_TXD/CCAP1_PIXCLK/RGMII0_RXD2/RMII0_RXERR
 PE10/UART15_nCTS/UART14_RXD/SPI1_SS0/CCAP1_HSYNC/RGMII0_RXD3
 PE11/UART15_nRTS/UART14_TXD/SPI1_CLK/CCAP1_VSYNC/RGMII0_TXCLK
 PE12/UART15_RXD/SPI1_MOSI/CCAP1_DATA8/RGMII0_TXD2
 PE13/UART15_TXD/SPI1_MISO/CCAP1_DATA9/RGMII0_TXD3

SPI_1

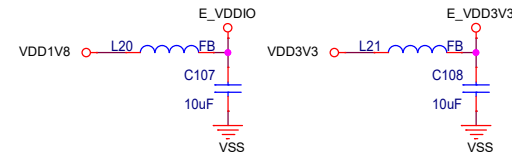
RGMII_0/RMII_0/UART_3,4,8,9,12,14,15

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C12 PE0 RGMII0_MDC
 B12 PE1 RGMII0_MDIO
 A12 PE2 RGMII0_TXCTL
 D11 PE3 RGMII0_TXD0
 C11 PE4 RGMII0_TXD1
 A11 PE5 RGMII0_RXCLK
 B11 PE6 RGMII0_RXCTL
 C10 PE7 RGMII0_RXD0
 A10 PE8 RGMII0_RXD1
 B10 PE9 RGMII0_RXD2
 D10 PE10 RGMII0_RXD3
 A9 PE11 RGMII0_TXCLK
 B9 PE12 RGMII0_TXD2
 C9 PE13 RGMII0_TXD3



Note: The VDDIO8 is the input voltage of I/O group 8 and its voltage is 1.8V ~ 3.3V. This voltage should be matched with the voltage of external connected device. (The default is 1.8V on this SOM board)



VSS || R26 4.7K RGMII0_RXD2
 Pull-up to disable PLL@ALDPS mode

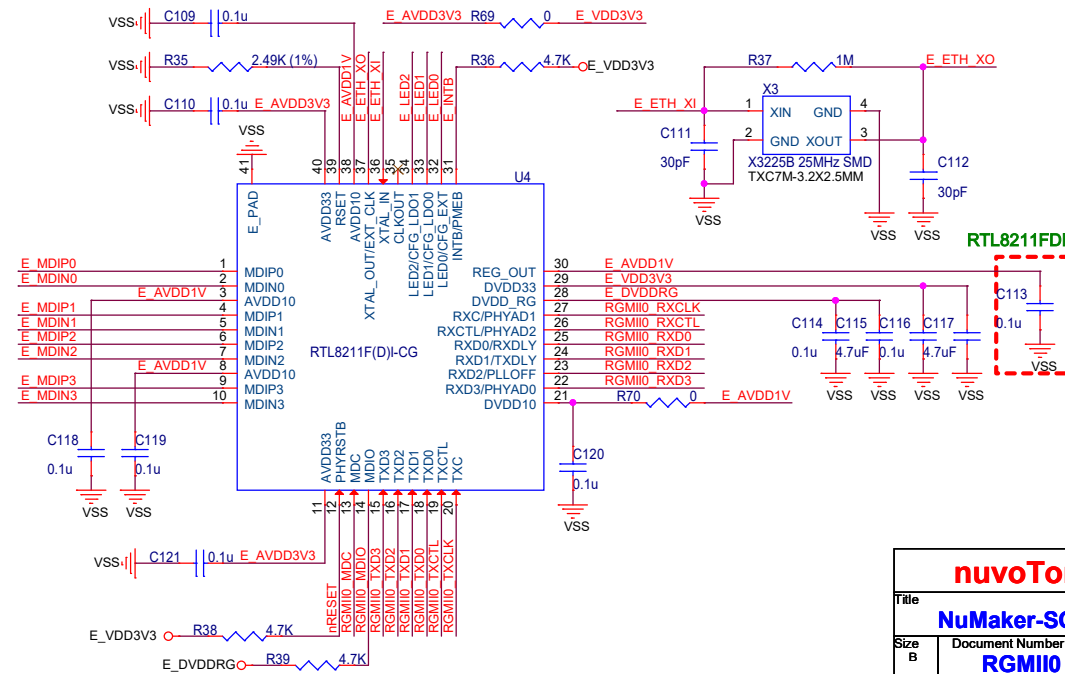


Pull-up for add 2ns delay to TXC/RXC for data latch

RGMII0_RXD3 R29 4.7K OE_DVDDRG
 R30 4.7K RGMII0_RXCLK
 R31 4.7K RGMII0_RXCTL
 PHY Address 1:3'b001

R32 4.7K E_LED0
 R33 4.7K E_LED1
 E_LED2 R34 4.7K OE_VDD3V3
 Internal 1.8V (E_LED0,1,2=0,0,1)

E_MDIP0 E_MDIP0
 E_MDIN0 E_MDIN0
 E_MDIP1 E_MDIP1
 E_MDIN1 E_MDIN1
 E_MDIP2 E_MDIP2
 E_MDIN2 E_MDIN2
 E_MDIP3 E_MDIP3
 E_MDIN3 E_MDIN3
 E_LED0 E_LED0
 E_LED1 E_LED1
 E_LED2 E_LED2
 nRESET nRESET
 VDD3V3 VDD3V3
 VDD1V8 VDD1V8
 VSS VSS



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PF0/UART2_nCTS/UART1_RXD/RGMII0_RXD3/RGMII1_MDC/RMII1_MDC/KPI_COL0
 PF1/UART2_nRTS/UART1_TXD/RGMII0_TXCLK/RGMII1_MDIO/RMII1_MDIO/KPI_COL1
 PF2/UART2_RXD/RGMII0_TXD2/RGMII1_TXCTL/RMII1_TXEN/KPI_COL2
 PF3/UART2_TXD/RGMII0_TXD3/RGMII1_TXD0/RMII1_TXD0/KPI_COL3
 PF4/UART11_nCTS/UART10_RXD/I2S0_LRCK/SPI1_SS0/RGMII1_TXD1/RMII1_TXD1/CAN2_RXD/KPI_ROW0
 PF5/UART11_nRTS/UART10_TXD/I2S0_BCLK/SPI1_CLK/RGMII1_RXCLK/RMII1_REFCLK/CAN2_TXD/KPI_ROW1
 PF6/UART11_RXD/I2S0_DVSP1_MOSI/RGMII1_RXCTL/RMII1_CRSDV/I2C4_SDA/SC0_CLK/KPI_ROW2
 PF7/UART11_TXD/I2S0_DO/SPI1_MISO/RGMII1_RXD0/RMII1_RXD0/I2C4_SCL/SC0_DAT/KPI_ROW3
 PF8/UART13_RXD/I2C5_SDA/SPI0_SS0/RGMII1_RXD1/RMII1_RXD1/SC0_RST/KPI_COL4
 PF9/UART13_TXD/I2C5_SCL/SPI0_SS1/RGMII1_RXD2/RMII1_RXERR/SC0_PWR/KPI_COL5
 PF10/UART13_nCTS/I2S0_LRCK/SPI1_SS0/RGMII1_RXD3/SC0_CLK/KPI_COL6
 PF11/UART13_nRTS/I2S0_BCLK/SPI1_CLK/RGMII1_TXCLK/SC0_DAT/KPI_COL7
 PF12/I2S0_DI/SPI1_MOSI/RGMII1_TXD2/SC0_RST/KPI_ROW4
 PF13/I2S0_DO/SPI1_MISO/RGMII1_TXD3/SC0_PWR/KPI_ROW5
 PF14/EPWM2_BRAKE0/EADC0_ST/RGMII1_PPS/RMII1_PPS/SPI0_I2SMCLK/SPI1_I2SMCLK/CCAP1_SFIE/SC0_PPS/TMO/INT0/SPI1_SS1/QEI2_INDEX/I2S0_MCLK

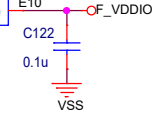
RGMII_1/RMII_1/UART_1,2,10,11,13/I2C_4,5/SPI_1/I2S_0/SC_0/CAN_2/KPI/INT_0

MA35D16A887C

Note: The VDDIO9 is the input voltage of I/O group 9 and its voltage is 1.8V ~ 3.3V. This voltage should be matched with the voltage of external connected device. (The default is 1.8V on this SOM board)

D9 PF0 RGMII1_MDC
 A8 PF1 RGMII1_MDIO
 B8 PF2 RGMII1_TXCTL
 C8 PF3 RGMII1_TXD0
 D8 PF4 RGMII1_TXD1
 A6 PF5 RGMII1_RXCLK
 A7 PF6 RGMII1_RXCTL
 B7 PF7 RGMII1_RXD0
 D7 PF8 RGMII1_RXD1
 C7 PF9 RGMII1_RXD2
 D6 PF10 RGMII1_RXD3
 A5 PF11 RGMII1_TXCLK
 C6 PF12 RGMII1_TXD2
 B6 PF13 RGMII1_TXD3
 D5 PF14

VDDIO9



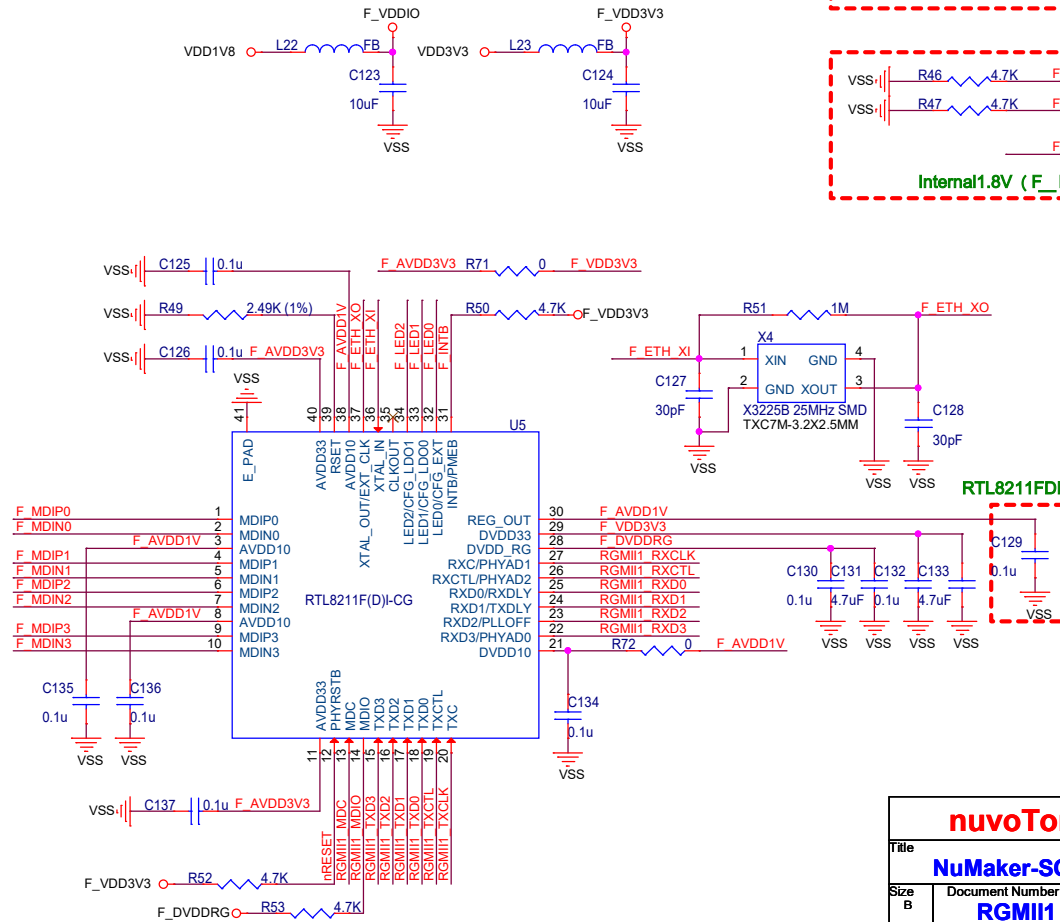
VSS || R40 4.7K RGMII1_RXD2
Pull-up to disable PLL@ALDPS mode



Pull-up for add 2ns delay to TXC/RXC for data latch

RGMII1_RXD3 R43 4.7K VDDIO9
 RGMII1_RXCLK R44 4.7K VSS
 RGMII1_RXCTL R45 4.7K VSS
PHY Address 1:3'b001

F_LED0 R46 4.7K VSS
 F_LED1 R47 4.7K VSS
 F_LED2 R48 4.7K VDD3V3
Internal 1.8V (F_LED0,1,2=0,0,1)



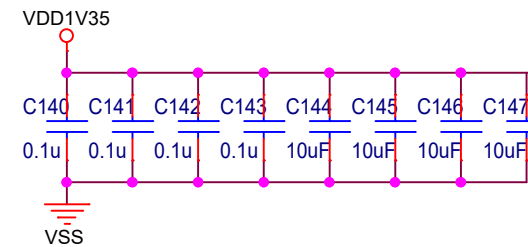
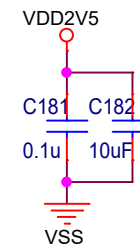
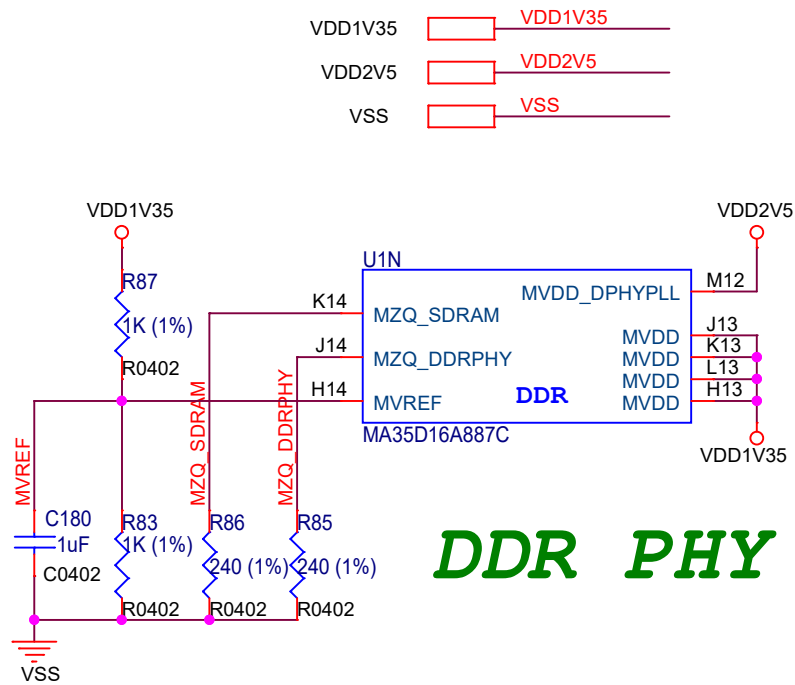
PF14 PF14
 F_MDI0 F_MDI0
 F_MDIN0 F_MDIN0
 F_MDI1 F_MDI1
 F_MDIN1 F_MDIN1
 F_MDI2 F_MDI2
 F_MDIN2 F_MDIN2
 F_MDI3 F_MDI3
 F_MDIN3 F_MDIN3
 F_LED0 F_LED0
 F_LED1 F_LED1
 F_LED2 F_LED2
 nRESET nRESET
 VDD3V3 VDD3V3
 VDD1V8 VDD1V8
 VSS VSS

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Title
NuMaker-SOM-MA35D16A81 (BGA312)

Size B Document Number **RGMII1_RTL8211F(D)I (VDDIO9)** Rev V2.2

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Title

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