

How to configure pinout for AT32F407 to use multi-channel UART?

Questions:

How to configure pinout for AT32F407 to use multi-channel UART?

Answer:

- For 100-pin AT32F407, EMAC can use up to 8-channel UART in RMII mode or in MII mode. The pins used are listed as below, in which the same color (like, red, green, purple...) is used to demonstrate that there are two pins available for UARTx to select.

Pin number	Pin name	EMAC RMII mode	EMAC MII mode
16	PC1	EMAC_MDC	EMAC_MDC
17	PC2	UART8_TX	EMAC_MII_TXD2
18	PC3	UART8_RX	EMAC_MII_TX_CLK
23	PA0		EMAC_MII_CRX_WKUP
24	PA1	EMAC_RMII_REF_CLK	EMAC_MII_RX_CLK
25	PA2	EMAC_MDIO	EMAC_MDIO
26	PA3		EMAC_MII_COL
29	PA4	USART6_TX	USART6_TX
30	PA5	USART6_RX	USART6_RX
32	PA7	EMAC_RMII_CRX_DV	EMAC_MII_RX_DV
33	PC4	EMAC_RMII_RXD0	EMAC_MII_RXD0
34	PC5	EMAC_RMII_RXD1	EMAC_MII_RXD1
35	PB0		EMAC_MII_RXD2
36	PB1		EMAC_MII_RXD3
38	PE7	UART7_RX	UART7_RX
39	PE8	UART7_TX	UART7_TX
47	PB10		EMAC_MII_RX_ER
48	PB11	EMAC_RMII_TX_EN	EMAC_MII_TX_EN
51	PB12	EMAC_RMII_TXD0	EMAC_MII_TXD0
52	PB13	EMAC_RMII_TXD1	EMAC_MII_TXD1
55	PD8	USART3_TX	USART3_TX
56	PD9	USART3_RX	USART3_RX
63	PC6	USART6_TX	USART6_TX
64	PC7	USART6_RX	USART6_RX
67	PA8	CLKOUT	CLKOUT
68	PA9	USART1_TX	USART1_TX
69	PA10	USART1_RX	USART1_RX
78	PC10	UART4_TX	UART4_TX
79	PC11	UART4_RX	UART4_RX
80	PC12	UART5_TX	UART5_TX
83	PD2	UART5_RX	UART5_RX
86	PD5	USART2_TX	USART2_TX
87	PD6	USART2_RX	USART2_RX
89	PB3	UART7_RX	UART7_RX

Pin number	Pin name	EMAC RMII mode	EMAC MII mode
90	PB4	UART7_TX	UART7_TX
91	PB5		EMAC_PPS_OUT
92	PB6	USART1_TX	USART1_TX
93	PB7	USART1_RX	USART1_RX
95	PB8	UART5_RX	EMAC_MII_TXD3
96	PB9	UART5_TX	
97	PE0	UART8_RX	UART8_RX
98	PE1	UART8_TX	UART8_TX

2. For 64-pin AT32F407, EMAC can use up to 6-channel UART in RMII mode, and up to 5-channel UART in MII mode. The pins used are listed as below, in which the same color (like, red, green, purple...) is used to demonstrate that there are two pins available for UARTx to select.

Pin number	Pin name	EMAC RMII mode	EMAC MII mode
9	PC1	EMAC_MDC	EMAC_MDC
10	PC2	UART8_TX	EMAC_MII_TXD2
11	PC3	UART8_RX	EMAC_MII_TX_CLK
14	PA0		EMAC_MII_CRD_WKUP
15	PA1	EMAC_RMII_REF_CLK	EMAC_MII_RX_CLK
16	PA2	EMAC_MDIO	EMAC_MDIO
17	PA3		EMAC_MII_COL
20	PA4	USART6_TX	USART6_TX
21	PA5	USART6_RX	USART6_RX
23	PA7	EMAC_RMII_CRD_DV	EMAC_MII_RX_DV
24	PC4	EMAC_RMII_RXD0	EMAC_MII_RXD0
25	PC5	EMAC_RMII_RXD1	EMAC_MII_RXD1
26	PB0		EMAC_MII_RXD2
27	PB1		EMAC_MII_RXD3
29	PB10		EMAC_MII_RX_ER
30	PB11	EMAC_RMII_TX_EN	EMAC_MII_TX_EN
33	PB12	EMAC_RMII_TXD0	EMAC_MII_TXD0
34	PB13	EMAC_RMII_TXD1	EMAC_MII_TXD1
37	PC6	USART6_TX	USART6_TX
38	PC7	USART6_RX	USART6_RX
41	PA8	CLKOUT	CLKOUT
42	PA9	USART1_TX	USART1_TX
43	PA10	USART1_RX	USART1_RX
51	PC10	UART4_TX	UART4_TX
52	PC11	UART4_RX	UART4_RX
53	PC12	UART5_TX	UART5_TX
54	PD2	UART5_RX	UART5_RX
55	PB3	UART7_RX	UART7_RX
56	PB4	UART7_TX	UART7_TX
57	PB5		EMAC_PPS_OUT
58	PB6	USART1_TX	USART1_TX
59	PB7	USART1_RX	USART1_RX
61	PB8	UART5_RX	EMAC_MII_TXD3
62	PB9	UART5_TX	

Type: MCU

Applicable products: AT32F407

Main function: UART

Minor function: None

Document revision history

Date	Revision	Changes
2022.2.22	2.0.0	Initial release

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