

Baud Rate Register

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- This register has 2 main blocks : DIV_Mantissa(USART_DIV) and DIV_Fraction.
- DIV_Mantissa is the before decimal part.
- DIV_Fraction is the after decimal part.
- Fractional Baud Rate Generation: (Standard)
$$\text{Tx/Rx Baud} = \text{fCK}(\text{freq clk}) / 8 * (2 - \text{OVER8}) * \text{USARTDIV}$$

fck is clk fed to USART(APB1 Or APB2).
USARTDIV is an unsigned fixed point number that is coded on the USART_BRR register. (Refer pg 981 = rm-stm32f429xx).
- The formula for calculating the BRR depends on the oversampling mode:
- OVER8 = 0: Oversampling by **16**, $\text{USARTDIV} = \text{fCK} / (16 * \text{baud})$
- OVER8 = 1: Oversampling by **8**, $\text{USARTDIV} = \text{fCK} / (8 * \text{baud})$
- Here baud is desired baud rate.