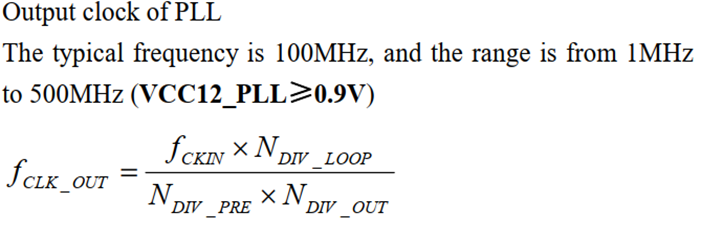
## Revision History

|  |  |  |  |
| --- | --- | --- | --- |
| **Date** | **Revision** | **Author** | **Changes** |
| 2021/1/12 | 1.0 | ZhangSheng | Initial version. |

## IP Description: (讲清楚IP的工作方式)

Reset and clock controller





## Feature set: （功能列表）

* Reset（global reset,ahb/apb reset/enable）
* Clock（cmd,cfg）

1. HSI oscillator clock
2. HSE oscillator clock
3. PLL clock
4. Adc/usb clk config

* Misc

1. Usb phy control(USB Module)
2. DMA request（handshack）select

## Feature comparison with STM32: （跟STM32的功能比较）

**Chip-Platform:**

|  |  |  |
| --- | --- | --- |
| 符号描述：   1. ✅支持 2. ❌不支持 3. ❌硬件有，但SDK计划不支持 | AiP32RV | STM32 |
| HSE/ HSI/ LSE/ LSI（reset,cfg,cmd） | ✅ | ✅ |
| Trim/Calibrate | ✅ | ✅ |
| MISC(usb\_phy\_ctrl、dma\_requeset\_control) | ✅ | ❌ |
| MCO时钟输出 | ✅ | ✅ |
|  |  |  |

## API Design: （分类列出会实现的API, API尽量一样）

|  |  |  |
| --- | --- | --- |
|  | 103 | STM32 |
| de-init | RCC\_DeInit()  Note:rcc reset 无法复位某些寄存器，需要手动reset |  |
| Config(HSE/HIS/PLL/LSI/LSE) | RCC\_HSEConfig  RCC\_PLLConfig  RCC\_HCLKConfig  RCC\_PCLK1Config  RCC\_PCLK2Config  RCC\_ITConfig  RCC\_SYSCLKConfig  RCC\_ADCCLKConfig  RCC\_OTGFSCLKConfig  RCC\_UartCLKConfig  RCC\_MCOConfig  RCC\_WaitForPllLock | RCC\_HSEConfig  RCC\_LSEConfig  RCC\_RTCCLKConfig  RCC\_PLLConfig |
| Adjust/trim | RCC\_AdjustHSICalibrationValue |  |
| Cmd(EN/DIS) | RCC\_HSICmd  RCC\_PLLCmd  RCC\_LSEConfig（放在RTC模块）  RCC\_LSICmd（放在RTC模块）  RCC\_APB1PeriphClockCmd  RCC\_APB2PeriphClockCmd  RCC\_APB2PeriphResetCmd  RCC\_APB1PeriphResetCmd  RCC\_AHBPeriphClockCmd  void RCC\_GlobaLReset | RCC\_HSICmd  RCC\_LSICmd  RCC\_PLLCmd  RCC\_APB1PeriphClockCmd  RCC\_APB2PeriphClockCmd  RCC\_APB2PeriphResetCmd  RCC\_APB1PeriphResetCmd  RCC\_AHBPeriphClockCmd  RCC\_RTCCLKCmd |
| FlagStatus | RCC\_GetFlagStatus  RCC\_GetITStatus  RCC\_ClearITPendingBit  RCC\_GetClocksFreq | RCC\_ClearFlag |

## Data structure design:

typedef struct

{

    uint32\_t SYSCLK\_Frequency; /\*!< returns SYSCLK clock frequency expressed in Hz \*/

    uint32\_t HCLK\_Frequency;   /\*!< returns AHBCLK clock frequency expressed in Hz \*/

    uint32\_t PCLK1\_Frequency;  /\*!< returns APBCLK1 clock frequency expressed in Hz \*/

    uint32\_t PCLK2\_Frequency;  /\*!< returns APBCLK2 clock frequency expressed in Hz \*/

    uint32\_t ADCCLK\_Frequency; /\*!< returns ADCCLK clock frequency expressed in Hz \*/

    uint32\_t USART\_Frequencey; /\*!< returns USART clock frequency expressed in Hz \*/

    uint32\_t USB\_Frequencey;   /\*!< returns USART clock frequency expressed in Hz \*/

} RCC\_ClocksTypeDef;