GPIO -------------->Have 7 memory space and address,that memory space is called Registers

GPIOA------------>0x4002 0000 - 0x4002 03FF

|  |
| --- |

|

All registers for GPIOA have been inside

Different address space but only one register

**Registers:**

**----->**MODER

**------>**OTYPER

**------>**PUPDR

------>IDR

------>ODR

**----**-->BSRR

------>LCKR

------>AFRL

------>AFRH

==> GPIOA base address will be ------> 0x4002 0000

==> When we know that base address of GPIOA and we know that offset 0x00 then we know the place.

A= Base address(20) + offset(2)

then the base address will be A(22)

{base address + offse}

**MODER REGISTER:**

**A** = base address + offset : **0x00**

*start address will be* **A**

**OTYPER REGISTER:**

base address + offset : **0x04 --------->Increase by 4**  [increase by 4].

*UL ---> Unsigned Long*

*pheriphereal base| 4002 0000*

| | Difference offset

| |

pheripheral offset | 2 0000

| Base |
| --- |

|

| 4000 0000

Pheripheral Base (Pheripheral + AHB1 PHERIPH-OFFSET)

**\***If both address are same the offset will be zero.

[GPIOA-OFFSET =0X0000UL]

GPIOA-Base (AHB1ENR-BASE + GPIO-OFFSET)

\* When we use the (Volatile unsigned int \*) then we call as address

\* When we do the Integer pointer type cast (RCCBase + AHB1EN\_R\_OFFSET) will be changed as address.

WE USE OUTSIDE “\* POINTER” IT HELPS TO FIND THE VALUES OF THE ADDRESS

(\*(volatile unsigned int \*)(RCC\_BASE + AHB1EN\_R OFFSET))