

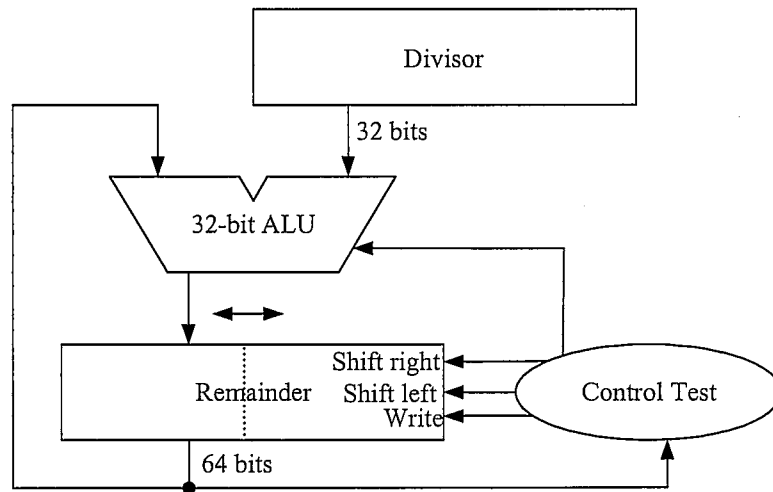
Divide $7_{ten}$ by $2_{ten}$ OR $0111_{two}/0010_{two}$					
Iteration	Step	Quotient	Divisor	Remainder <sub>h</sub>	Remainder <sub>l</sub>
3	sl0 Rem	0000	0010	<b>0011</b>	<b>1000</b>
	Rem <sub>h</sub> = Rem <sub>h</sub> - div	0000	0010	<b>0001</b>	1000
	Rem $\geq 0$ : sl1 Q	0001	0010	0001	1000
4	sl0 Rem	0001	0010	<b>0011</b>	<b>0000</b>
	Rem <sub>h</sub> = Rem <sub>h</sub> - div	0001	0010	<b>0001</b>	0000
	Rem $\geq 0$ : sl1 Q	0011	0010	0001	0000

### § 5-13 除法演算法 (Division Algorithm) 之三

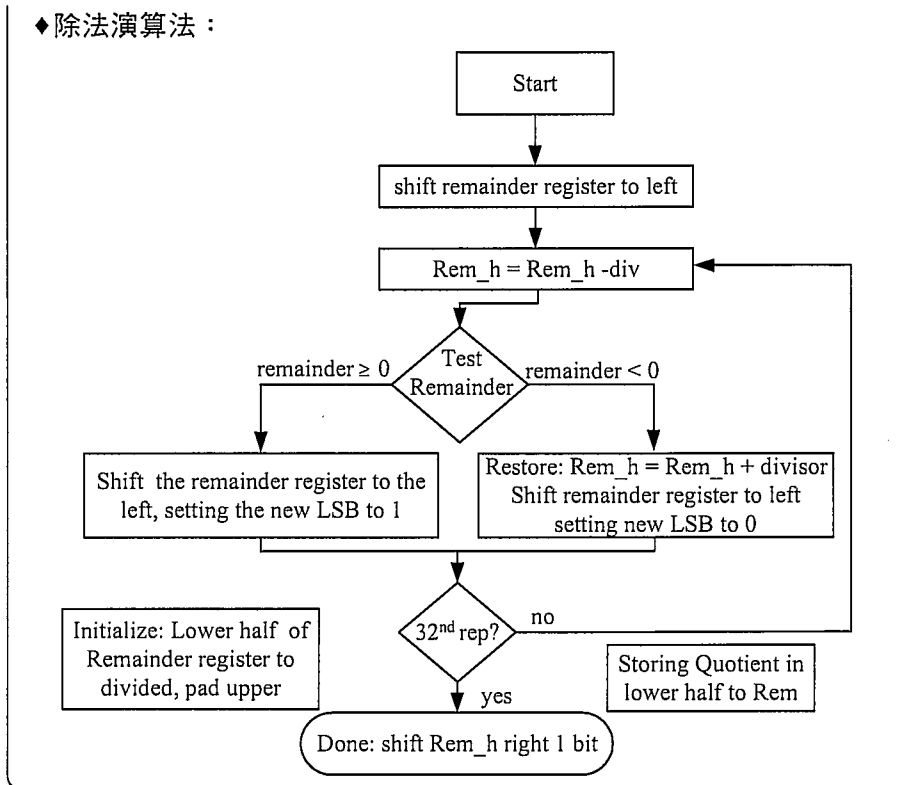
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以下列硬體架構圖以及演算法計算  $0111_2 \div 0011_2$ ，寫出執行過程中，Divisor，Remainder，Quotient等暫存器的內容。

◆ 硬體架構圖：



◆ 除法演算法：



**Ans** 執行過程如下表：

Divide $7_{ten}$ by $2_{ten}$ OR $0111_{two}/0010_{two}$				
Iteration	Step	Divisor	Remainder h	Remainder l
0	initial values	0010	0000	0111
	s10 Rem	0010	<b>0000</b>	<b>1110</b>
1	$Rem_h = Rem_h - div$	0010	<b>1110</b>	1110
	$Rem < 0: Rem_h = Rem_h + div$	0010	<b>0000</b>	1110
	s10 Rem	0010	<b>0001</b>	<b>1100</b>
2	$Rem_h = Rem_h - div$	0010	<b>1111</b>	1100
	$Rem < 0: Rem_h = Rem_h + div$	0010	<b>0001</b>	1100
	s10 Rem	0010	<b>0011</b>	<b>1000</b>
3	$Rem_h = Rem_h - div$	0010	<b>0001</b>	1000
	$Rem \geq 0: s11 Rem$	0010	<b>0011</b>	<b>0001</b>