

Lab 5

SRT-2 division

$$Q_0 = 1$$

$$P = P + B$$

{ 1, 0, 1 }

$$Q_0 = 0$$

$$Q_0 = 1$$

$$P = P - B$$

Q	0	0	1
Q ^x	1	0	0

$$Q = Q - Q^x$$

Con

$$if P[8] = 1 \text{ \& } cnt = 7$$

$$P = P + B$$

$$Q = Q - 1$$

$$RShift \quad P \gg K (\text{Shift unit})$$

SRT-2 division

COUNT	P	A	B
000	0 0000 1110 0 0011 1010 1 0011 0100	1000 1101 0011 0100 0110 1000	00010 0111 01001 1100 $k=2$
001	01110 1000 - 01001 1100 00100 1100	1101 0001	
010	01001 1001 - 01001 1100 1111 1101	1010 0011 000	
011	0 1111 1011	0100 0110 0000	
100	0 1111 0110	1000 1100 00000	
101	0 1110 1101	0001 1000 00 0000	
110	0 11101 1010	0011 0000 000 0000	
111	11011 0100	0110 0000 0000 0000	
COR.	+ 01001 1100 00101 0000	0110 0000 0000 0001	
SHIFT	00 001 0100 = 20 = rest	0101 1111 $C=95$	

SRT 4 division

$P[8:3]$ 6 bits

$b = B[7:4]$ 4 bits \rightarrow se A dan tabel sel

$\uparrow, b \rightarrow 2_0$

$P.A \ll 2$

$$x = 3725$$

$$y = 39$$

$$\begin{array}{r} 3725 \\ 2048 \quad 2^8 \\ \hline 1677 \\ 1024 \\ \hline 653 \\ 512 \quad 2^9 \\ \hline 141 \\ 128 \quad 2^7 \\ \hline 13 \\ 8 \\ \hline 5 \\ 4 \\ \hline 1 \end{array}$$

$$X = 0000.1110.1000.1101$$

$$Y = 0010.0111$$

$$\begin{array}{r} 39 \\ 32 \quad 2^5 \\ \hline 7 \end{array}$$

CNT	P	A	B
000	$\begin{array}{r} 000001110 \\ 000111010 \\ \hline 001110100 \end{array}$	$\begin{array}{r} 10001101 \\ 00110100 \\ 01101000 \\ 0 \end{array}$	$\begin{array}{r} 000100111 \\ 010011100 \\ k=2 \end{array}$
001	$\begin{array}{r} 010011100 \\ \hline 111011000 \\ 110110000 \end{array}$	$\begin{array}{r} 11010001 \\ 00 \end{array}$	
010	+0		

SRT-2 division

COUNT	P	A	B
000	0 0000 1110	1000 1101	00010 0111
0	00011 1010	0011 0100	01001 1100 $K=2$
1	00111 0100	0110 1000	
001	01110 1000		
-	01001 1100		
	00100 1100	1101 0001	
010	01001 1001		
-	01001 1100		
	11111 1101	1010 0011	
0		000	
011	11111 1011	0100 0110	
		0000	
100	11111 0110	1000 1100	
		00000	
101	11110 1101	0001 1000	
		00 0000	
110	11101 1010	0011 0000	
		000 0000	
111	11011 0100	0110 0000	
		0000 0000	
COR. +	01001 1100	0110 0000	
	00101 0000	0000 0001	
SHIFT	00001 0100	0101 1111	
	= 20 = rest	$C=95$	

$$x = 1107 = 0000.0100.0101.0011$$

$$y = 11 = 0000.1011$$

$$\begin{array}{r} 1107 - \\ \underline{924} \quad 2^9 \\ 183 \\ \underline{64} \quad 2^6 \\ 119 \\ \underline{16} \end{array}$$

COUNT	P	A	B
00	00000 0100 $p=8$ $z_0=1$ 00100 0101	0101 0011 0011 0000	$\frac{0000}{k=4}$ 1011 <u>1011</u> 0000 $b=11$
00	10001 0100 01011 0000 $p=12$ $z_1=2$ 00110 0100	1100 0001 00	
01	11001 0011 - 10110 0000 00011 0011 $z_2=1$	0000 0110 0000	
10	01100 1100 - 01011 0000 00001 1100 $z_3=0$	0001 1001 000000	
11	00111 0000 0000 0011	01100100 00000000 0101 100100	

HW

SRT 2

4813: 105

SRT 4

2396: 19

$$X = 4813$$

$$X = 0001.0010.1100.1101$$

$$\begin{array}{r} 4813 \\ \underline{4096} \quad 2^{12} \\ 717 \\ \underline{512} \quad 2^9 \\ 205 \\ \underline{128} \\ 77 \\ \underline{64} \\ 13 \\ \underline{8} \\ 5 \\ \underline{4} \\ 1 \end{array}$$

$$Y = 105$$

$$Y = 01101001$$

$$\begin{array}{r} 105 \\ \underline{64} \quad 2^6 \\ 41 \\ \underline{32} \\ 9 \\ \underline{8} \\ 1 \end{array}$$

2396

2048 2^{11}

$$\begin{array}{r} 2396 \\ \underline{2048} \\ 348 \\ \underline{256} \\ 92 \\ \underline{64} \\ 28 \\ \underline{16} \\ 12 \\ \underline{8} \\ 4 \end{array}$$

$$X = 0000.1001.0101.1100$$

$$Y = 0001.0011$$

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CNT	A	Q	$k=1$
000 $q_2=1$ $q_1=1$	0 0 0 0 1 0 0 1 0 0 0 0 1 0 0 1 0 1 0 0 1 0 0 1 0 1 1	1 1 0 0 1 1 0 1 1 0 0 1 1 0 1 0 0 0 1 1 0 1 0 0	0 0 1 1 0 1 0 0 1 0 1 1 0 1 0 0 1 0
001 $q_2=0$	0 1 0 0 1 0 1 1 0 0 1 1 0 1 0 0 1 0 1 1 1 0 0 0 1 0 0	0 1 1 0 1 0 0 1 0 0	
010 $q_3=1$	1 1 0 0 0 1 0 0 0	1 1 0 1 0 0 1 0 0 0 0	
011 $q_4=0$	1 0 0 0 1 0 0 0 1 0 1 1 0 1 0 0 1 0 1 1 1 1 0 0 0 1 1	1 0 1 0 0 1 0 0 0 0 0 1	
100 $q_5=0$	1 1 1 0 0 0 1 1 1	0 1 0 0 1 0 0 0 0 0 0 1 0	
101 $q_6=1$	1 1 0 0 0 1 1 1 0	1 0 0 1 0 0 0 0 0 0 0 1 0 0	
110 $q_7=0$	1 0 0 0 1 1 1 0 1 0 1 1 0 1 0 0 1 0 1 1 1 1 0 1 1 1 1	0 0 1 0 0 0 0 0 0 0 0 1 0 0 1	
111 (1)	1 1 0 1 1 1 1 0	0 1 0 0 0 0 0 0 0 0 0 1 0 0 1 0	
CORR	0 1 1 0 1 0 0 1 0 0 1 0 1 1 0 0 0 0	0 0 1 1 1 1 1 1 0 0 0 1 0 0 1 0	$Q-1$
SHIFT	1 0 1 0 1 1 0 0 0 88	0 0 1 0 1 1 0 1 45	

$$4813 \overline{) 105} \\ 45$$

CNT	A	Q	M
00	000001001	01011100	000010011
$q_2 = 2$	001001010 <u> </u> 9	11100000	0 <u>1001</u> 1000 $k=3$ $b=9$
00	100101011 100110000 <u> </u> 111111011 <u> </u> -1	100000100 00	
$q_1 = 0$	01	111101110 <u> </u> -3	00001000 0000
$q_2 = 0$	-10	110111000 <u> </u> -9	00100000 000000
$q_3 = -2$	11	011100000 + 100110000 <u> </u> 000010000	100000000 00000010 <u> </u> 01111110
Shift	000000010 <u> </u> 2 ✓	01111110 <u> </u> 126 ✓	