

$$T_{\max} = 0.012 [11(4)+10(4)(8)+8+10]$$

$$= 0.012 [382] = 4.584 \text{ Milliseconds}$$

C. Average Time

$$= 0.012 [6.1L_M + 5L_M L_C + L_C + 10] \text{ Milliseconds}$$

$$\text{Example: } L_C = 8$$

$$L_M = 4$$

$$T_{\text{ave}} = 0.012 [6.1(4)+5(4)(8)+8+10]$$

$$= 0.012 [202.4] = 2.429 \text{ Milliseconds}$$

II Divide

L_D = Length of Dividend Field

L_R = Length of Divisor Field

L_S = Number of Significant Digits in Divisor
(Excludes High Order 0's and Blanks)

A. Average Time

$$= 0.012 [3.25L_D^2 + 14.25L_D + 3.5L_D L_R - 3L_D L_S - 1.75L_R^2$$

$$+ 5.75L_R - 2L_S^2 - 5L_S + 15.5] \text{ Milliseconds}$$

$$\text{Example: } L_D = 8$$

$$L_R = 4$$

$$L_S = 2$$

$$T_{\text{ave}} = 0.012 [3.25(64)+14.25(8)+3.5(8)(4)-3(8)(2)$$

$$-1.75(16)+5.75(4)-2(4)-5(2)+15.5]$$

$$= 0.012 [378.5] = 4.542 \text{ Milliseconds}$$

B. Maximum Time

$$= 0.012 \left[5.5L_D^2 + 20.5L_D + 6L_D L_R - 5L_D L_S - 3L_R^2 + 7L_R - 3.5L_S^2 - 7.5L_S + 21 \right] \text{ Milliseconds}$$

Example: Quotient $\frac{99999999}{99999990}$

L_D	8	$L_D =$	8
L_R	0010	$L_R =$	4
	L_S	$L_S =$	2

$$T_{max} = 0.012 \left[5.5(64) + 20.5(8) + 6(8)(4) - 5(8)(2) - 3(16) + 7(4) - 3.5(4) - 7.5(2) + 21 \right]$$

$$= 0.012 \left[600 \right] = 7.200 \text{ Milliseconds}$$

A simpler formula can be used if $L_S = L_D$ as would be the case in floating decimal operation.

C. Average Time (If $L_S = L_R$)

$$= 0.012 \left[3.25L_D^2 + 14.25L_D + 0.5L_D L_R - 3.75L_R^2 + 0.75L_R + 15.5 \right] \text{ Milliseconds}$$

Example: $L_S = L_R = 4$
 $L_D = 8$

$$T_{ave} = 0.012 \left[3.25(64) + 14.25(8) + 0.5(8)(4) - 3.75(16) + 0.75(4) + 15.5 \right]$$

$$= 0.012 \left[296.5 \right] = 3.558 \text{ Milliseconds}$$

D. Maximum Time (If $L_S = L_R$)

$$= 0.012 \left[5.5L_D^2 + 20.5L_D + L_D L_R - 6.5L_R^2 - 0.5L_R + 21 \right] \text{ Milliseconds}$$

Example: Quotient \cdot 99999

L_D

$\sqrt{99999000}$

$L_S = L_R = 4$

L_R

1000

$L_D = 8$

$$T_{max} = 0.012 [5.5(64) + 20.5(8) + 3(4) - 6.5(16) - 0.5(4) + 21]$$

$$= 0.012 [463] = 5.556 \text{ Milliseconds}$$

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