

Faktoren: $\underbrace{(-1)^s \times a \times 2^{\alpha - \text{bias}}}_X$ und $\underbrace{(-1)^t \times b \times 2^{\beta - \text{bias}}}_Y$

$$Z = X \cdot Y$$

$$Z = \underline{(-1)}^u \cdot c \cdot 2^{\gamma - \text{bias}}$$

$$(-1)^s \cdot a \cdot 2^{\alpha - \text{bias}} \cdot (-1)^t \cdot b \cdot 2^{\beta - \text{bias}}$$

$$= \underline{(-1)}^{s+t} \cdot a \cdot b \cdot 2^{\alpha - \text{bias} + \beta - \text{bias}}$$

$$\Rightarrow u = s+t = s+t$$

$$c = a \cdot b$$

$$\gamma = \alpha - \text{bias} + \beta$$

$$X = 3.75$$

$$X: 3 = 11$$

$$Y = 10.625$$

$$0.75 = \frac{3}{4} = 0.110$$

$$\begin{array}{r} 0.75 \cdot 2 = 1.5 \\ 0.5 \cdot 2 = 1.0 \\ 0.25 \cdot 2 = 0.5 \\ \vdots \end{array}$$

$$(3.75)_{10} = (11.11)_2$$

$$Y = 1.7 \cdot 10$$

$$11.11 = 1.111 \cdot 2^1$$

$$s=0$$

$$\underline{f} = 111000...$$

$$e - \text{bias} = 1$$

$$b - \text{bias} = (325:16) = 227$$

$$\left. \begin{array}{l} e = 1 + b - \text{bias} = (128)_{10} = 10000000 \\ b - \text{bias} = (325:16) = 227 \end{array} \right\}$$

$$3.75 = (0 \ 1000 \ 0000 \ 111 \ \overbrace{0 \dots 0}^{20 \text{ bits}})$$

Faktoren: $(-1)^s \times a \times 2^{\alpha - \text{bias}}$ und $(-1)^t \times b \times 2^{\beta - \text{bias}}$

$$10.625$$

$$\begin{array}{rcl} 10 : 2 = 5 & + & 0 \\ 5 : 2 = 2 & + & 1 \\ 2 : 2 = 1 & + & 0 \\ 1 : 2 = 0 & + & 1 \end{array}$$

$$(10)_{10} = (1010)_2$$

$$\begin{array}{r} 0.625 \cdot 2 = 1.25 \\ 0.25 \cdot 2 = 0.5 \\ 0.5 \cdot 2 = 1.0 \\ \vdots \end{array}$$

$$0.625 = 0.101$$

$$10.625 = 1010.101$$

$$1010.101 = 1.010101 \cdot 2^3$$

$$t=0$$

$$b = 010101 \overbrace{0 \dots 0}^{17}$$

$$3 = \beta - \text{bias} \Rightarrow \beta = 3 + 127 = 130 = 10000010$$

$$(0 \ 10000010 \ 010101 \overbrace{0 \dots 0}^{17})_2 = 10.625$$

$$s = 0$$

$$e = 111 \ 0 \dots 0$$

$$\alpha = 10000000$$

$$v = t \oplus s = 0$$

$$c = \bar{a} \cdot \bar{b}$$

$$010101 \overbrace{0 \dots 0}^{17} \cdot 111 \overbrace{0 \dots 0}^{20}$$

$$\bar{a} = 1.111 \ 0 \dots 0 \quad \} 24\text{-bits} \Rightarrow \bar{a} \cdot \bar{b} \Rightarrow 48\text{-bits}$$

$$\bar{b} = 1.0101010 \dots 0 \quad \} 24\text{-bits}$$

$$1.111 = (1.875)_{10}$$

$$1.010101 = (1.328125)_{10}$$

$$c = \bar{a} \cdot \bar{b} = 2.490234375$$

$$= 10.011111011$$

$$= \underbrace{1.0011111011}_{\bar{c}} \cdot \underline{\underline{2^7}}$$

$$j = \alpha + \beta - \text{bias} = 128 + 3 = 131$$

$$= 10000011$$

$$z = (-1)^v \cdot c \cdot 2^{j - \text{bias}} \quad v = 0$$

$$= (-1)^v \cdot \bar{c} \cdot 2^{\overbrace{j+1}^{\bar{r}} - \text{bias}} = (-1)^v \cdot \bar{c} \cdot 2^{\bar{r} - \text{bias}}$$

$$v = 0$$

$$\bar{c} = 1.0011111011$$

$$\bar{r} = 132 = 10000100$$

$$0.490234375 \cdot 2 = 0.98046875$$

$$0.98046875 \cdot 2 = 1.9609375$$

$$0.9609375 \cdot 2 = 1.921875$$

$$0.921875 \cdot 2 = 1.84375$$

$$0.84375 \cdot 2 = 1.6875$$

$$0.6875 \cdot 2 = 1.375$$

$$0.375 \cdot 2 = 0.75$$

$$0.25 \cdot 2 = 0.5$$

$$0.5 \cdot 2 = 1.0$$

$$10.625 - 3.25 = \underline{\underline{39.84375}}$$

$$z = (0 \ 10000100 \ 00111110110 \dots 0)$$