

8.3.8. π

$$\pi = 0.f * 2^2 \quad \text{where } f = \text{C90FDAA2 2168C234 C} \leftarrow \text{mantissa}$$

$$\rightarrow 12 \times 16^{-1} + 9 \times 16^{-2} + 15 \times 16^{-4} + 13 \times 16^{-5} + 10 \times 16^{-6} + 10 \times 16^{-7} + 2 \times 16^{-8}$$

$$\frac{\pi}{4} \rightarrow 0.785398163$$

2168C234 C (36-bit)

↓
0010 0001 0110 1000 1100 0010 0011 0100 1100
↑ 4 ↑ 1 ↑ 1 ↑ 3 ↑ 1 3 ↑ 1 ↑ 2

42018469 8 (36-bit)

↓
0100 0010 1101 0001 1000 0100 0110 1001 1000
↑ 4 ↑ 1 ↑ 1 ↑ 3 ↑ 4 ↑ 3 ↑ 1 ↑ 2 ↑ 1

$$\text{high } \pi = 0.\text{C90FDAA2} * 2^{+2}$$

33-bit

$$\text{low } \pi = 0.420184698 * 2^{-31} \leftarrow +2-33$$

8.3.6. Comparison and Classification Instructions

	ZF/C3	PF/C2	CF/C0	
$ST > ST(i)$	0	0	0	4500H JZ
$ST = ST(i)$	0	0	1	0100H JNZ
$ST < ST(i)$	1	0	0	4000H JNZ
Unordered	1	1	1	0400H JNZ

15 14 13 10 9 8 7
C3 C2 C1 C0

0 0 0 0 0 0 0 0 & 0100 0101 → 0000 0000
0 0 0 0 0 0 0 1 & 0000 0001 → 0000 0001
0 1 0 0 0 0 0 0 & 0100 0000 → 0100 0000
0 1 0 0 0 1 0 1 & 0000 0100 → 0000 0100

→ Not jump when the same!

8.1.4. x87 FPU Control Word

037F

64-bit
0000 0011 0111 1111
↑ ↑ ↑ ↑
X PC PC UM ZM IM

where FLD is not affected by PC