

# x87 FPU Instruction Cheat Sheet

## Load and Store

Instruction	Type	Size (Bytes)
flds adr	float	4
fldl adr	double	8
fldt adr	long double	10
fstps adr	float	4
fstpl adr	double	8
fstpt adr	long double	10

## Arithmetic

Instruction	Operation	Effect
fadd	ST(0)+ST(1)	ST(0)=result
faddp	ST(1)+ST(0)	ST(1)=result, pop ST(0)
fsub	ST(0)-ST(1)	ST(0)=result
fsubp	ST(1)-ST(0)	ST(1)=result, pop ST(0)
fmul	ST(0)*ST(1)	ST(0)=result
fmlp	ST(1)*ST(0)	ST(1)=result, pop ST(0)
fdiv	ST(0)/ST(1)	ST(0)=result
fdivp	ST(1)/ST(0)	ST(1)=result, pop ST(0)

## Comparisons

Instruction	Meaning
fcom	Compare ST(0) with ST(1)
fcomp	Compare + pop ST(0)
fcompp	Compare and pop ST(0) and ST(1)
fucomi	Set ZF/PF/CF flags

## Conversion / Integer

Instruction	Action
fild adr	Load int
fistpl adr	Store int

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fimul adr	Multiply by int
fidiv adr	Divide by int
frndint	Round ST(0) to int

### Control

Instruction	Action
finit	Initialize FPU
fstcw adr	Store Control Word
fldcw adr	Load Control Word

### Data Types

Directive	Meaning
.float	32-bit float
.double	64-bit float
.tfloat	80-bit float (long double)