

Flip-Flop Types

Electrical Engineering

Four flip-flops, what each does on the clock edge, and where each is used.

All four are variations on one storage element.

Type	On the clock edge	Typical use
D	Q takes the value of D	Registers, pipelines
T	Q toggles when T is 1	Counters, dividers
JK	Toggles when both are 1	General purpose
SR	Set, reset or hold	Rare; has a forbidden state

Almost all modern design uses D types. T and JK behaviour is built from a D flip-flop plus a little combinational logic.