

# Reset and Preset With Various Flip-Flop Chips

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# Four Popular 74LS Flip-Flop Chips

- Summaries of key characteristics of four 74LS positive-edge-triggered flip-flops:

Part Number	FFs per chip	Output(s)	Reset (a.k.a. Clear)	Preset	DIP package pins
74LS74A	2	Q and Q <sub>̄</sub>	1 each FF asynchronous	1 each FF asynchronous	14-pin
74LS174	6	Q	1 per chip asynchronous	none	16-pin
74LS175	4	Q and Q <sub>̄</sub>	1 per chip asynchronous	none	16-pin
74LS273	8	Q	1 per chip asynchronous	none	20-pin

# Converting a Flip-Flop Reset Input to Preset

- Many useful flip-flop chips contain only *reset* inputs and no *preset* (which sets  $Q=1$ )
- However, in some cases (for example, a one-hot encoded controller) a preset function is needed
- There are two main solutions when a preset function is needed
  - 1) Use a low-density (2 FFs per chip) chip such as the 74LS74A
  - 2) Effectively convert a reset function into a preset by one of several means such as the one shown here. Note that this can be done on a per-FF basis even when the *reset* input is shared among all FFs on the chip

