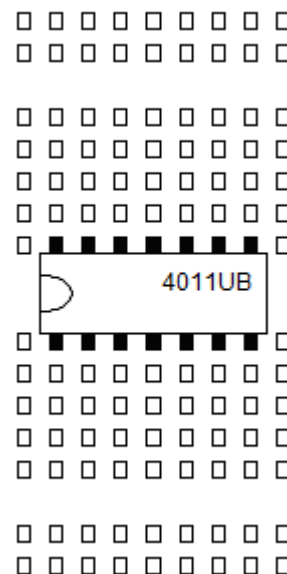


Using Integrated Circuits

When using an integrated circuit on breadboard you should always

- insert it across the central gap
- have the dent on the left, so that pin 1 is bottom left
- connect the power supply first with colour coded wire
- use red wire for +5 V, green for 0 V and black for -5 V
- ensure that unused logic system inputs are held high or low
- ensure that there is a sink for leakage currents at op-amp inputs
- leave unused outputs to do what they want
- check that it doesn't get hot when the power supply goes on



Integrated Circuit	Notes
4001	Four independent two-input NOR gates.
4011	Four independent two-input NOR gates.
4013	Two independent D-type flip-flops.
4023	Three independent three-input NAND gates.
4024	One falling-edge triggered seven-bit counter.
4042	Four latches with a common enable input EN. P must be held high for EN to be active-high.
4051	Eight input multiplexer which can also function as a demultiplexer. Input T is connected to output Q _N where N is the binary number CBA. The other outputs float, so pull-up or pull-down resistors are required.
4069	Six independent NOT gates.
4070	Four independent two-input EOR gates.
4071	Four independent two-input OR gates.
4081	Four independent two-input AND gates.
4511	BCD-to-seven segment LED decoder. The latched outputs source current. The state of the inputs DCBA determines the pattern at the outputs gfedcba. \overline{LT} sets gfedcba when it is low, so it is high in normal use. \overline{BL} resets gfedcba when it is low, so it is high in normal use. \overline{EN} freezes gfedcba when it is high, so it is low in normal use.
40106	Six independent Schmitt Trigger NOT gates.
TL084	Four independent op-amps. Each output can source or sink up to 40 mA.
L272M	Two independent op-amps. Each output can source or sink up to 1 A.
PICAXE-18	Microcontroller with five inputs and eight outputs. \overline{R} should be pulled high with 4.7 k Ω in normal use. Hold the programming pin P _{in} low with 10k Ω . There is an analogue-to-digital converter at pin I ₀ .