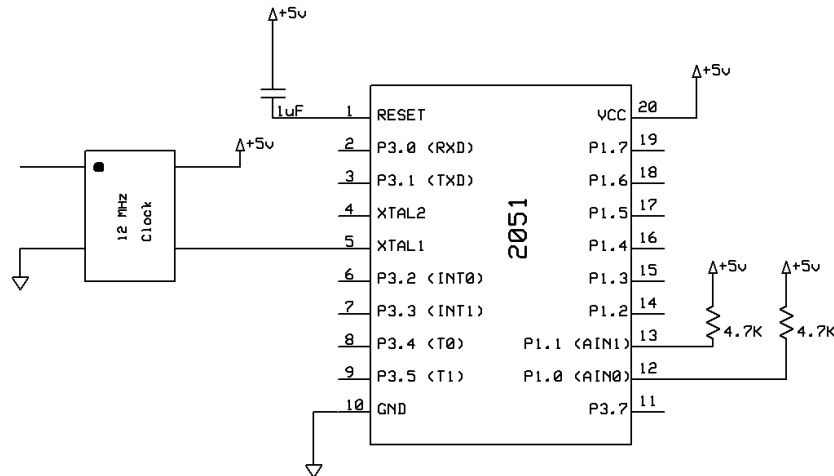


Check out the 2051.

The Atmel 2051 is an amazing implementation of the 8051 CPU core. The twenty-pin 2051 IC includes not only the 8051 CPU, but also reprogrammable flash memory. It is a little like having a miniature R31JP on a single 20-pin IC. You can find the datasheet for the 2051 on the 6.115 course website under the *burnitö* menu. A typical application schematic is shown below:



Notice that the chip requires an external TTL crystal oscillator. In the schematic above, a 12 Mhz crystal is shown, but you can use other crystals as convenient, e.g., the 10 Mhz crystal oscillator in your kit parts. Notice that the 2051 is a *reduced* implementation, providing only external port 1 and part of external port 3. Also notice that two of the port 1 pins, P1.1 and P1.0, are *open collector*. They require pull-up resistors as shown in order to function as logic level output ports capable of providing both high and low signals. Also note the one microfarad capacitor on pin 1 – this provides a reset pulse to the 2051 on first application of power, which is required in order for the IC to function properly.

You can use our lab IC burners (the same ones you used to program the R31JP ROM at the lab familiarization) to program the 2051 with an Intel Hex file that you make in RASM.