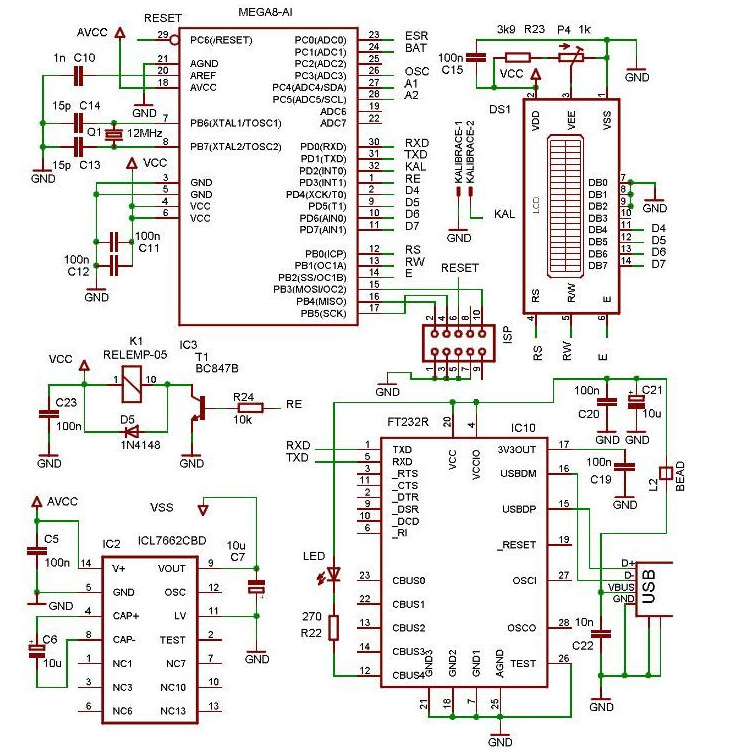
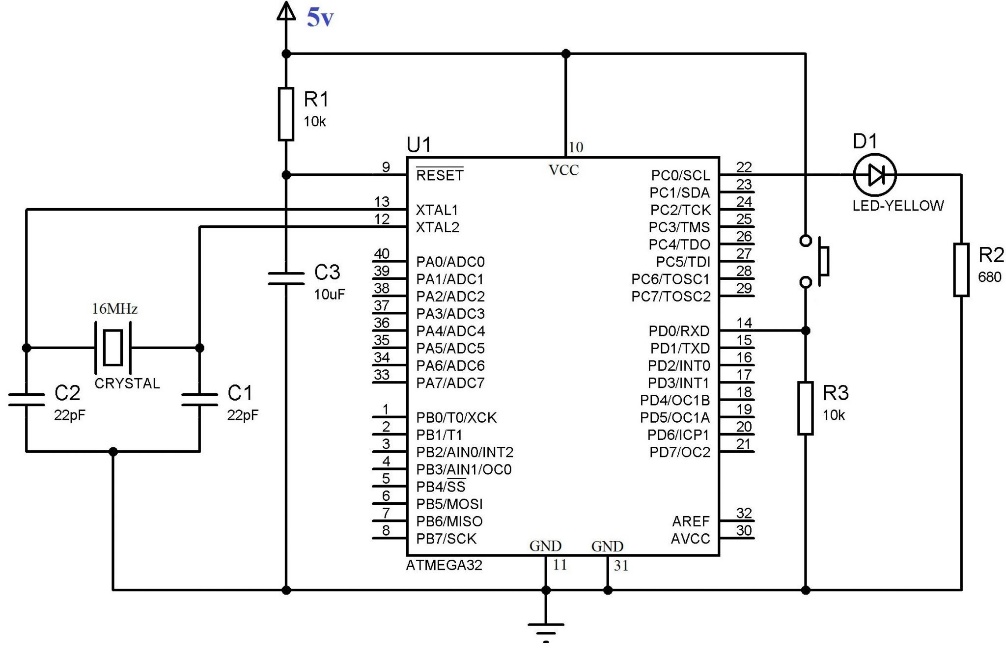
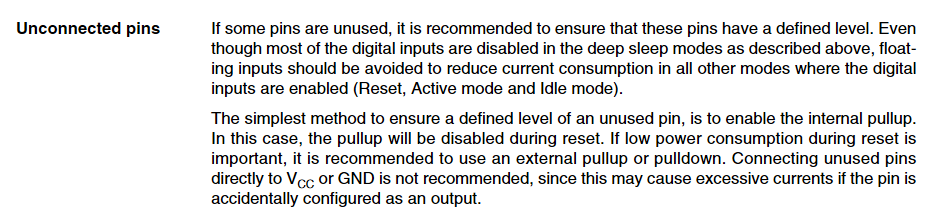
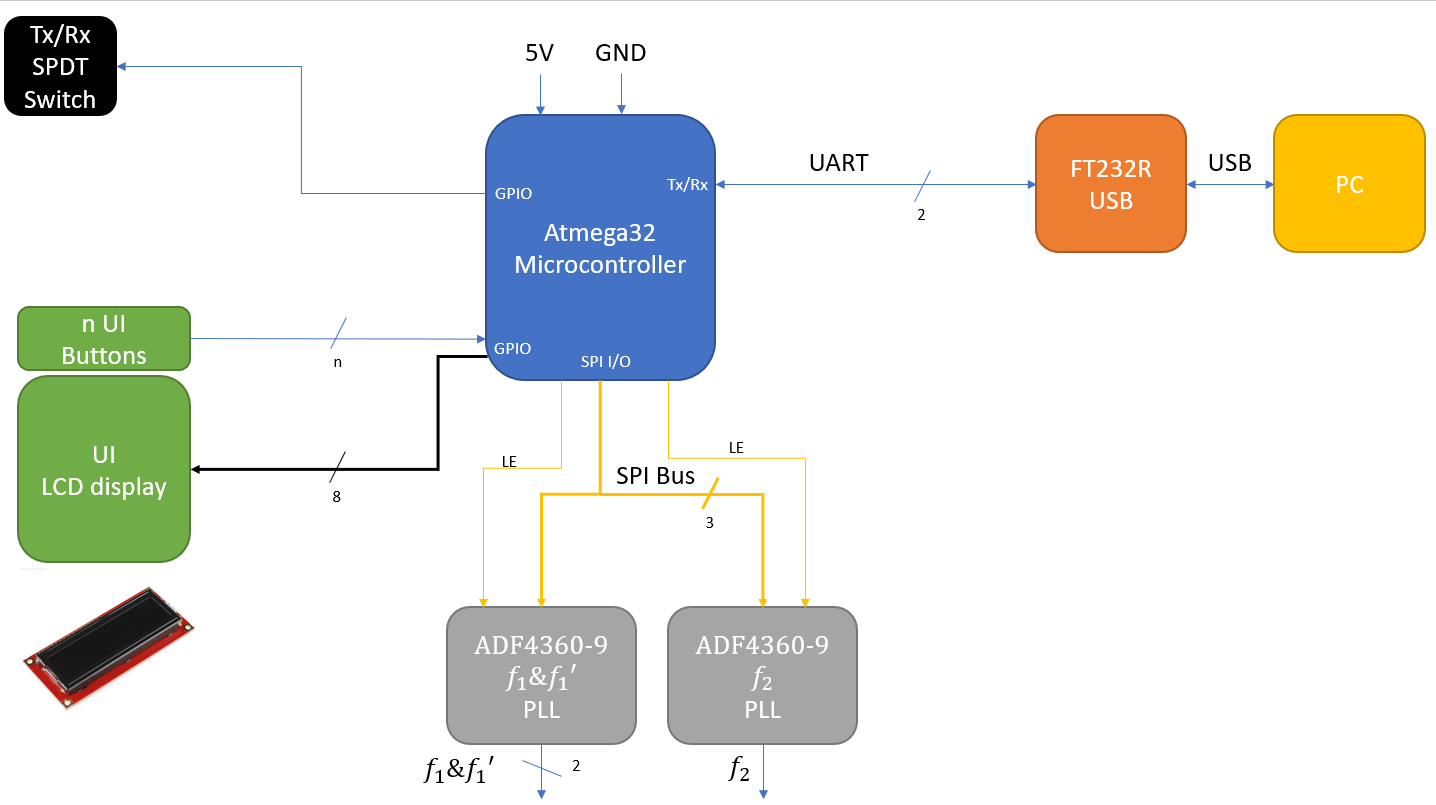
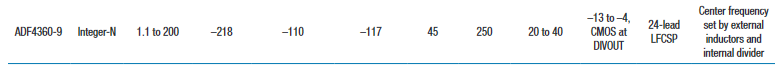
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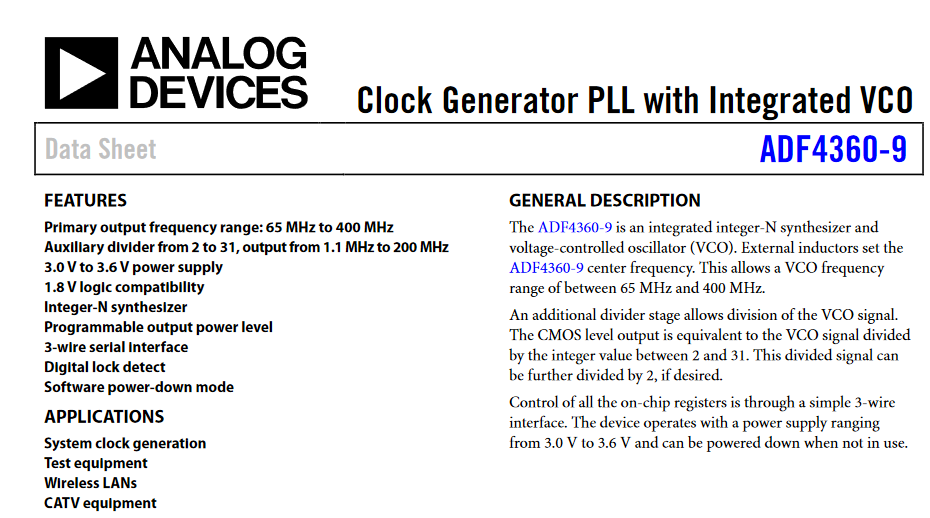
# Good resources

* <https://atmega32-avr.com/atmega8-ft232r-usb-esr-meter-circuit/>
  + Explain how to set up the usb programming interface
  + 
  + 
* You can use an on board clock (default) if you want. I’m not sure of the advantages of a discrete oscillator besides faster boot times
* 
* <https://www.analog.com/en/parametricsearch/11183#/p6694=|Yes&p4781=|Dual%20PLL|Fractional-N%20PLL&ps2=2.41|19>

# Preliminary Block Diagram for Subsystem D







Alex changes to schematic:

* Changed MCU to ATmega324A-PU. This one has wider range of acceptable VCCs (1.8-5.5V), but same package and pinout.
* Added diode between reset and ground, as recommended in AVR hardware considerations document. Not sure how necessary this is.
* Added decoupling capacitors to VCC and AVCC as recommended in AVR hardware document.
* Added series resistor to reset line, so decoupling cap isn’t shorted to ground (AVR hardware document)
* Added VCC to pin 2 of programming header (confirm this is correct)

Alex Questions

* Is that PLL chip ok to solder? Do we want one with multiple outputs?
* How do we get I and Q clocks? Do we need some sort of inverting chip?
* Do we want to use SPI or JTAG to program?
* Do we need the external oscillator on the MCU?
* Does I2C need external pull-up resistors?