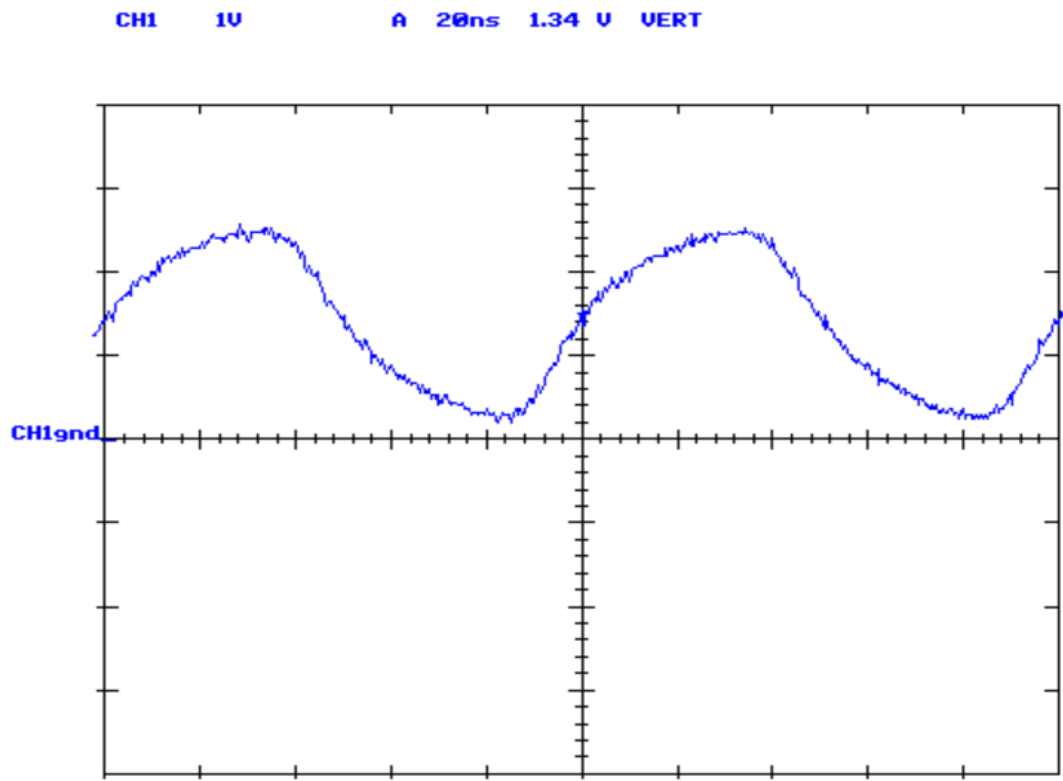


Hermes External 10MHz Design Comments by KF4BQ

Original measured signal after diff pair:

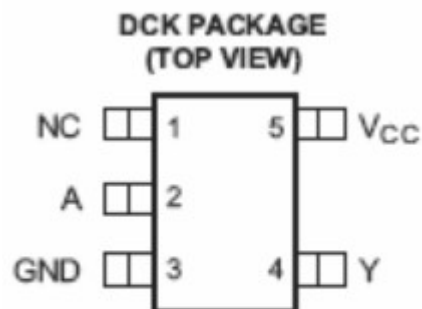


Slow edge speeds and noise is received by the FPGA.

Change:

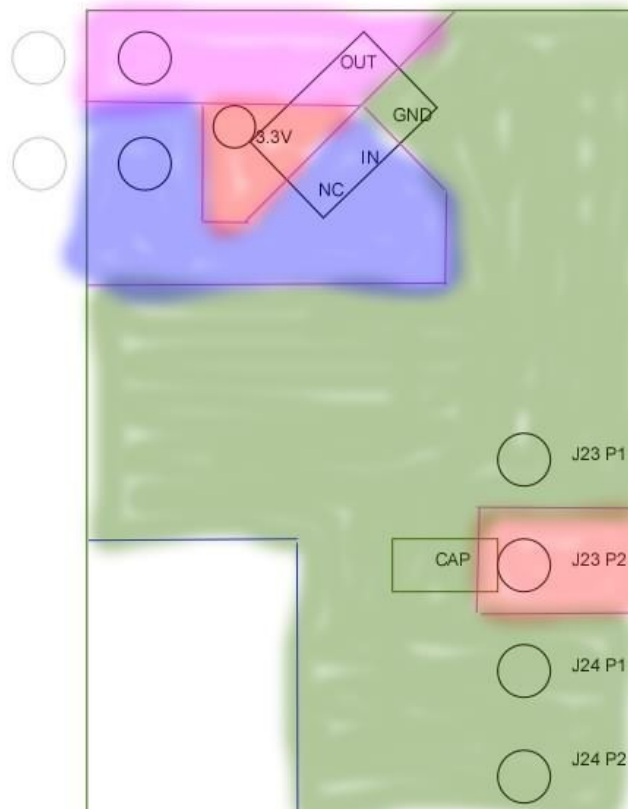
Add PCB with SN74LVC1G14 (had DCK package type on hand)

Device has single input (A) and output (Y). Need +3.3V on Vcc and GND.



Using 2 sided PCB material I cut a L shaped board of approx 1" X .71". This board will span from J20, J23, and J24. J20 pin 2 is output (Y). J20 pin 4 is input (A). 3.3VD power is picked up from J23 pin 2. J23 pin 1 is tied to DGND, but could be left floating: this is the power to the onboard 10MHz TXCO. DGND is picked up from J24 pin 2. DGND is also jumpered to J23 pin 1 for grounding the input connector.

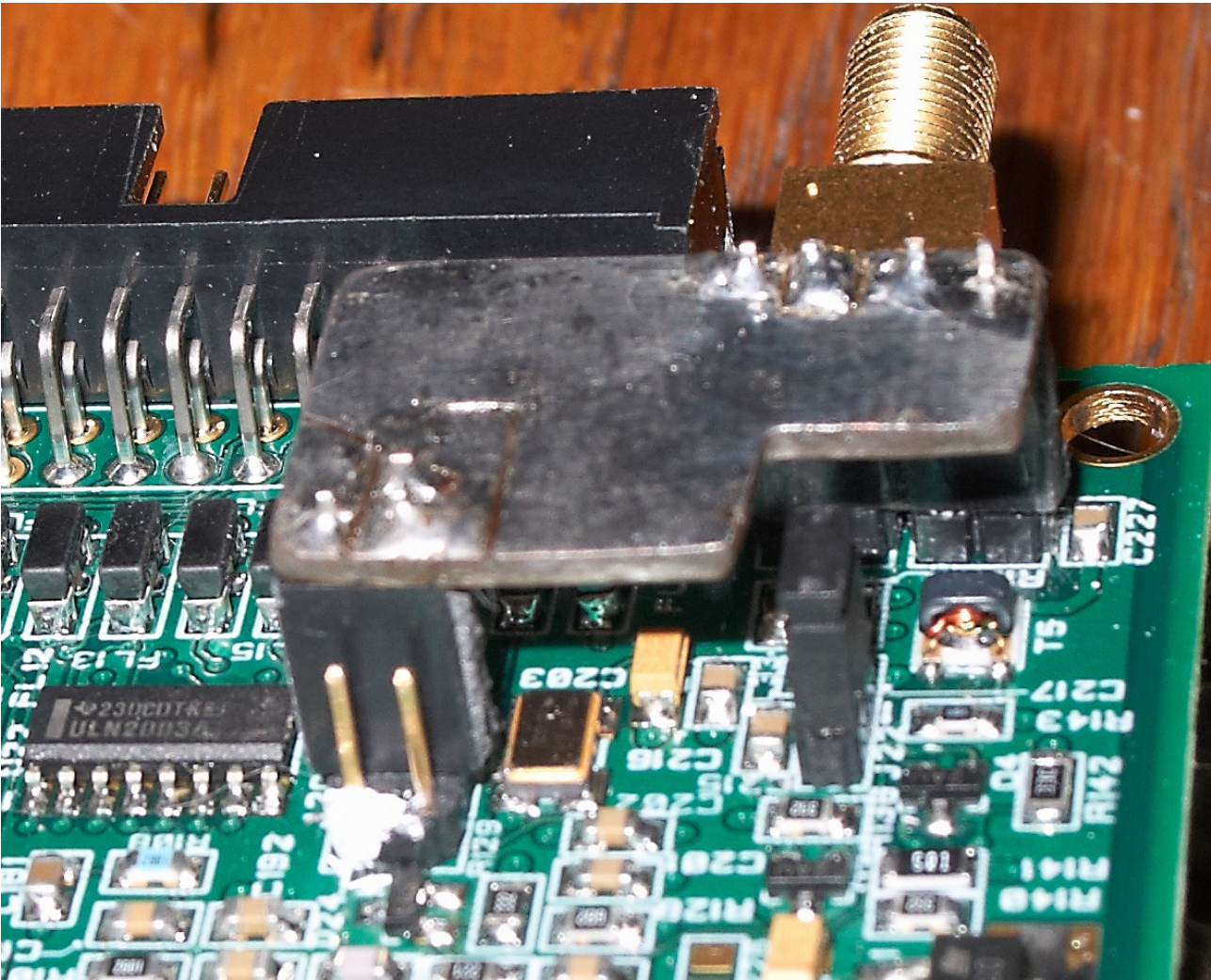
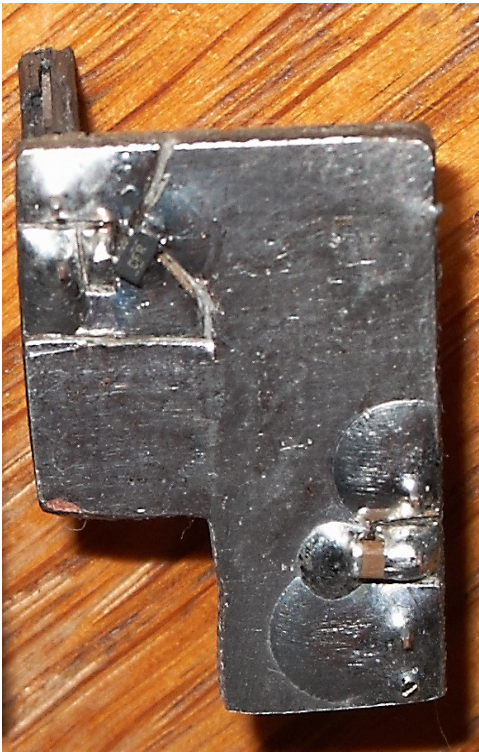
A example (not scaled) is shown below. The top of the board is mostly DGND. The bottom of the board is mostly 3.3VD. The hole near the 74LVC1G14 is the 3.3VD power feed thru to pick up the bottom connection.



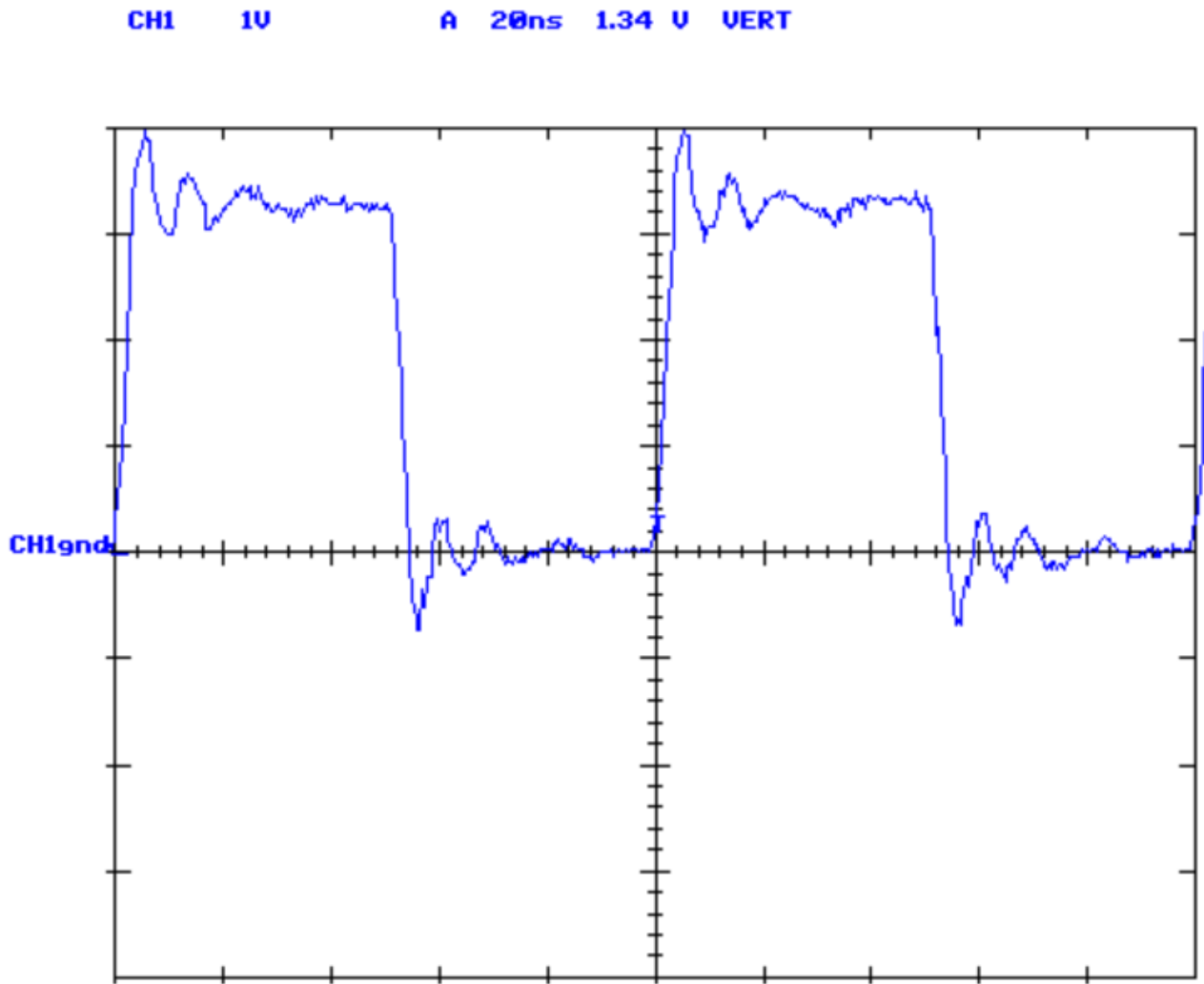
Hermes 10MHz Schmitt Buffer (not to scale)

A .1uF cap was put on the top side to decouple the power once on the board.
Three 2 pin Female sockets were installed on the bottom to pick up J20,23,24.

A picture of a finished board :



Scope plot of 74LCV1G14 output to FPGA:



Edge rates are much faster now to feed to FPGA

73, Mike Collins KF4BQ