P2

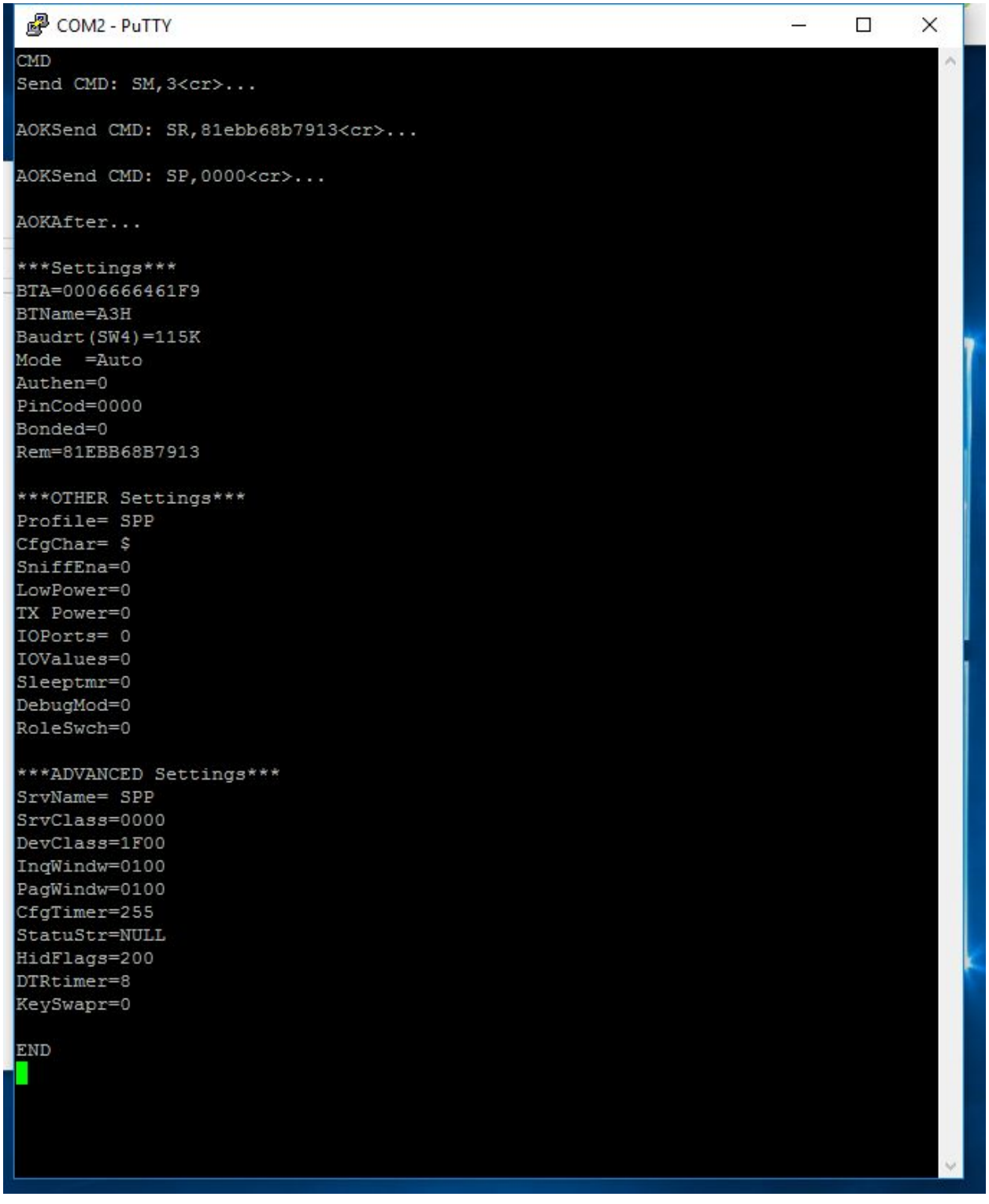
We routed the UART0 signals by specifying the proper PMOD pins (JA-2, JA-3) in the constraints file for the hardware. We also made sure that UART0 was routed through the EMIO interface.

P3

Configuration Registers
Control_reg0
mode_reg0
Baud_rate_gen_reg0
Baud_rate_divider_reg0

Interrupt Registers
Intrpt_en_reg0
Intrpt_dis_reg0
Intrpt_mask_reg0
Chnl_int_sts_reg0
Channel_sts_reg0

Tx/Rx FIFO
TX_RX_FIFO0


COM2 - PuTTY
CMD
Send CMD: SM,3<cr>...
AOKSend CMD: SR,81ebb68b7913<cr>...
AOKSend CMD: SP,0000<cr>...
AOKAfter...
Settings
BTA=0006666461F9
BTName=A3H
Baudrt(SW4)=115K
Mode =Auto
Authen=0
PinCod=0000
Bonded=0
Rem=81EBB68B7913
OTHER Settings
Profile= SPP
CfgChar= $
SniffEna=0
LowPower=0
TX Power=0
IOPorts= 0
IOValues=0
Sleeptmr=0
DebugMod=0
RoleSwch=0
ADVANCED Settings
SrvName= SPP
SrvClass=0000
DevClass=1F00
InqWindw=0100
PagWindw=0100
CfgTimer=255
StatuStr=NULL
HidFlags=200
DTRtimer=8
KeySwapr=0
END

P4

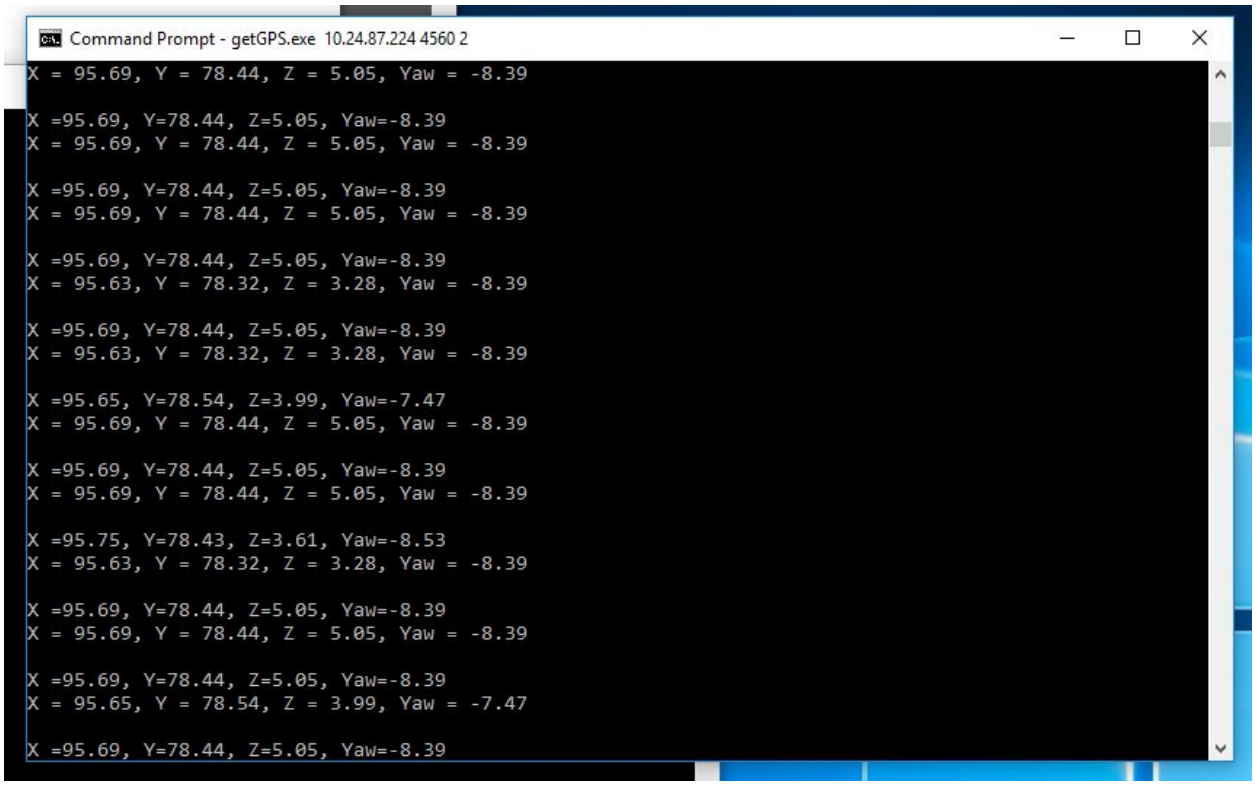
MSP_RAW_IMU: 102
MSP_ATTITUDE: 108
MSP_SET_RAW_RC: 200

P6

See MP-4/p6.xlsx for the table.

The accelerometer calculated orientation is very similar to the device calculated orientation. The gyroscope calculated orientation is not accurate at all. This is most likely caused by the time delay between samples. If the delay is too large the samples will not accurately represent the quad's movement. Similarly, if the time delay is not consistent, that will also introduce error.

P7



P8

First we increased the Kp value until the quad started to oscillate. We noticed that the quad was oscillating in one direction, so we increased Ki until the steady state error was removed. Then we increased Kd until the settling time was adequate.