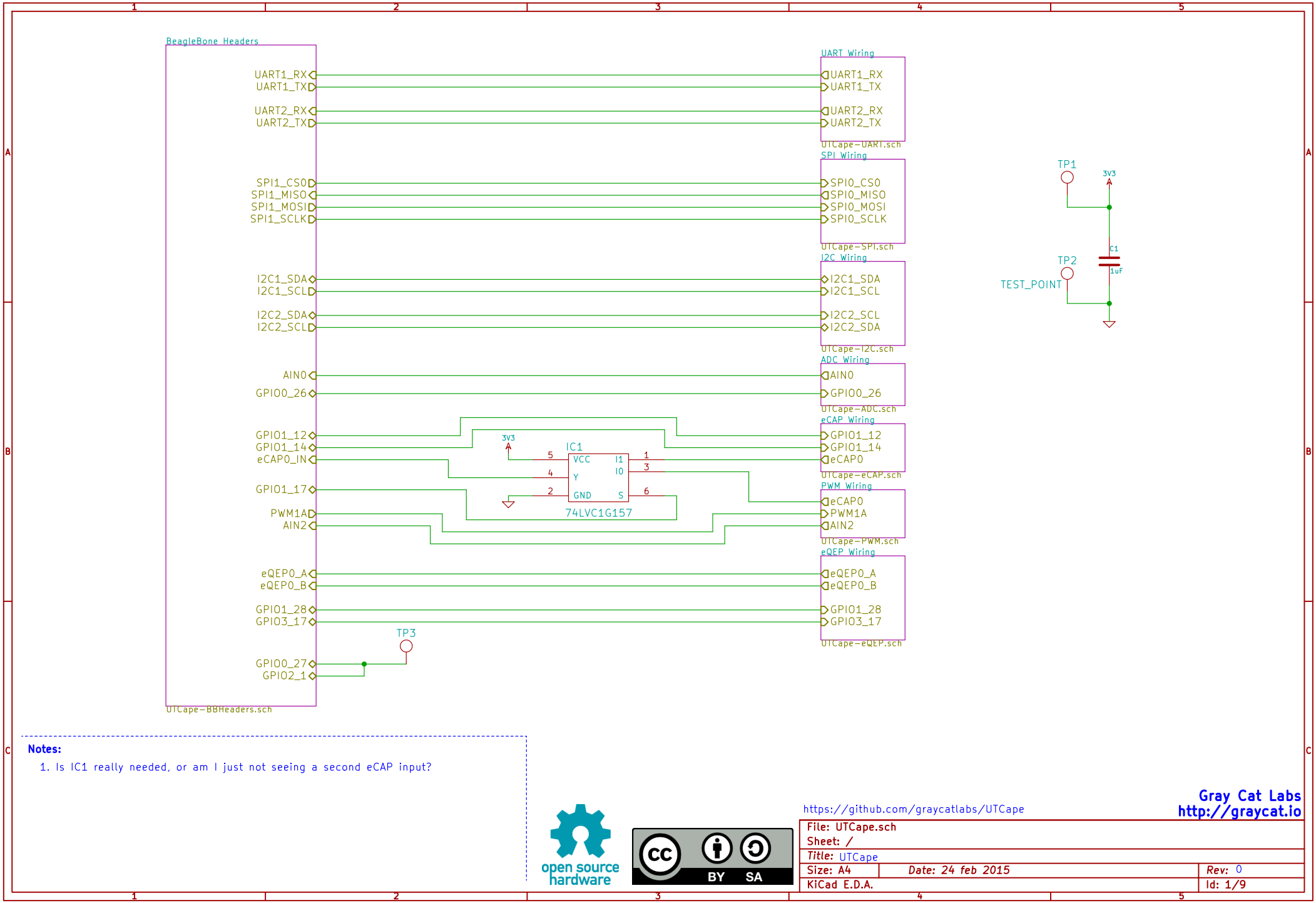


Notes:

1. Is IC1 really needed, or am I just not seeing a second eCAP input?

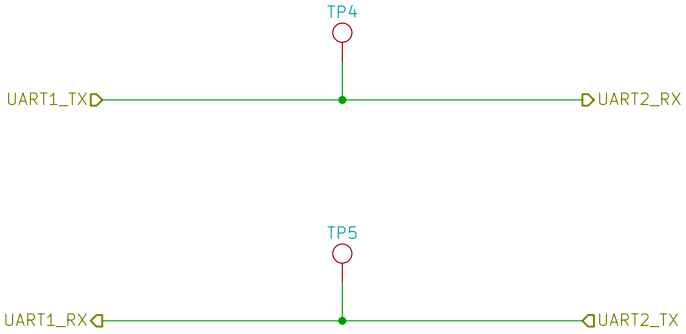
open source hardware

https://github.com/graycatlabs/UTCape

Gray Cat Labs
http://graycat.io

File: UTCape.sch		
Sheet: /		
Title: UTCape		
Size: A4	Date: 24 feb 2015	Rev: 0
KiCad E.D.A.		Id: 1/9

UART1 and UART2 are just wired together, TX on one and RX on the other
No need to get much fancier than that

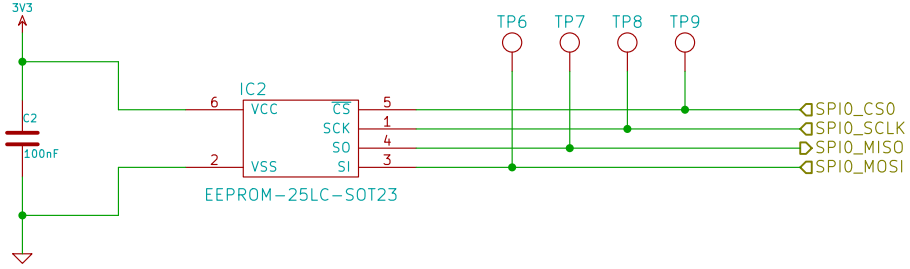


Notes:

1. Should this include CTS/RTS flow control?

File: UTCape-UART.sch		
Sheet: /UART Wiring/		
Title: UART Unit Test Wiring		
Size: A4	*Date: 24 feb 2015*	*Rev:*
KiCad E.D.A.		Id: 2/9

Test SPI by writing some data to the EEPROM on SPI0 then reading it back

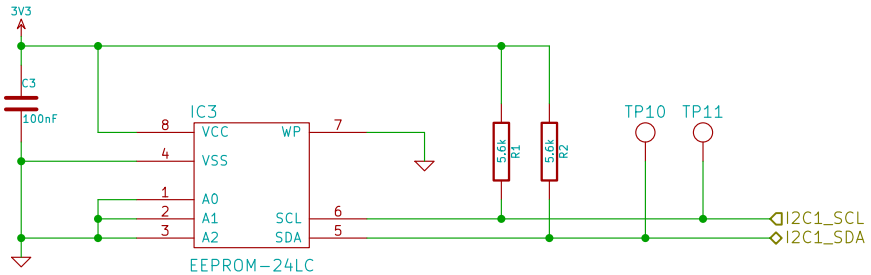


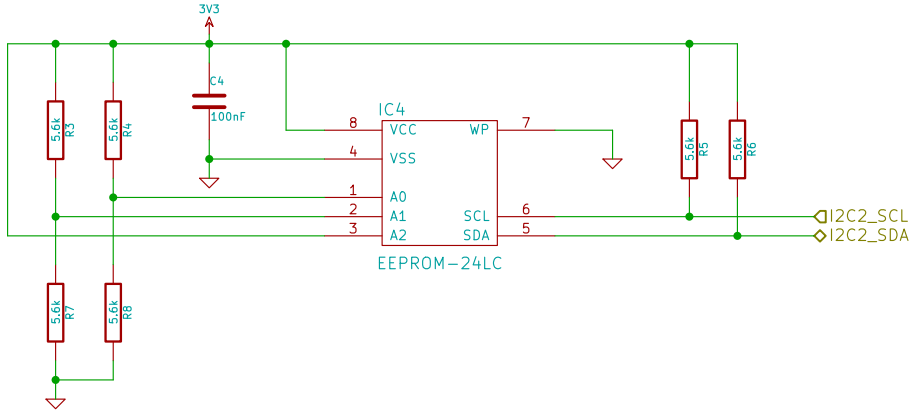
Notes:

1. Software should randomize start address to prolong EEPROM life

File: UTCape-SPI.sch		
Sheet: /SPI Wiring/		
Title: SPI Unit Test Wiring		
Size: A4	Date: 24 feb 2015	Rev:
KiCad E.D.A.		Id: 3/9

I2C can be tested be writing data to the EEPROM on I2C1 and then reading it back





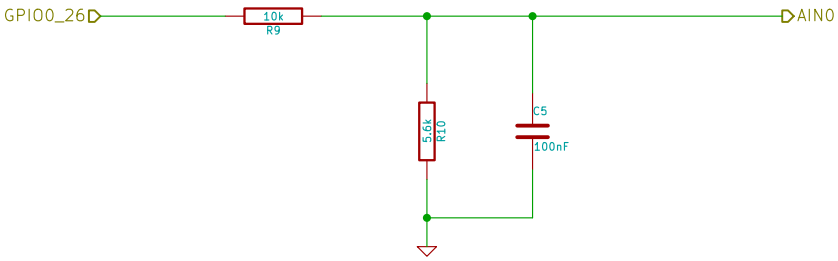
Optional cape ID EEPROM

Notes:

1. The cape ID EEPROM isn't good for testing because the BBB muxes the I2C2 pins at boot, whereas the I2C1 pins must be muxed from userspace before using
2. Software should randomize start address to prolong EEPROM life

File: UTCape-I2C.sch		
Sheet: /I2C Wiring/		
Title: I2C Unit Test Wiring		
Size: A4	Date: 24 feb 2015	Rev:
KiCad E.D.A.		Id: 4/9

Test ADC by confirming AIN0 reads 0V when GPIO0_26 is low,
and about 1.18V when GPIO0_26 is high

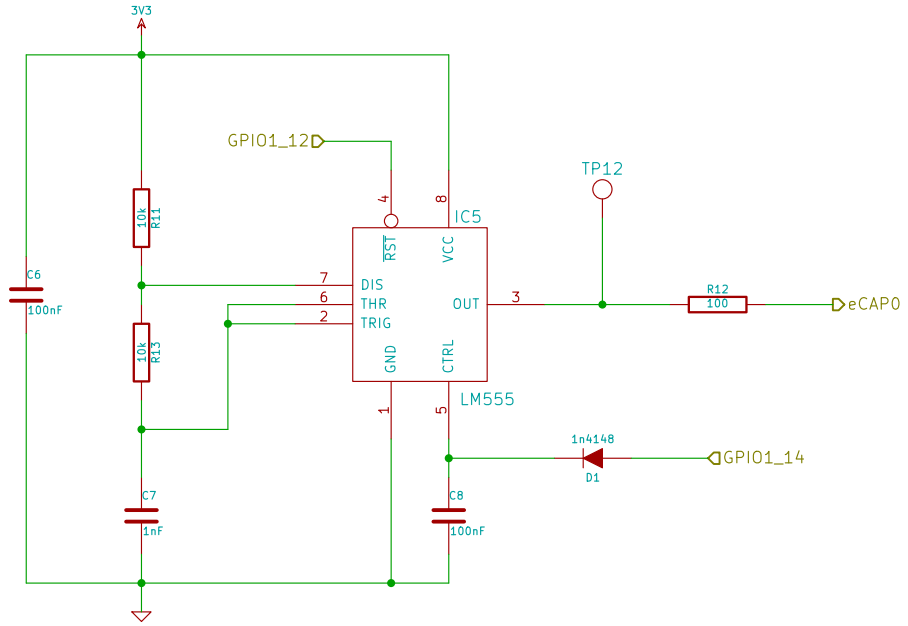


Notes:

1.

File: UTCape-ADC.sch		
Sheet: /ADC Wiring/		
Title: ADC Unit Test Wiring		
Size: A4	*Date:* 24 feb 2015	*Rev:*
KiCad E.D.A.		Id: 5/9

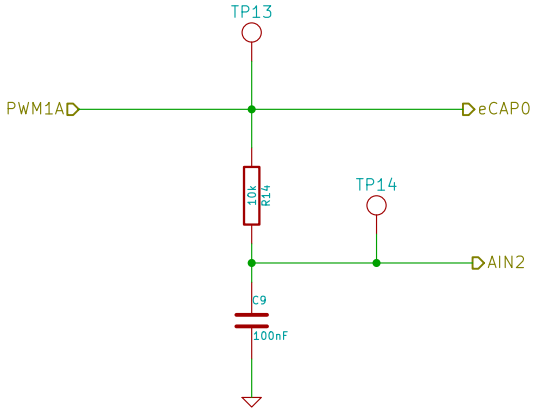
When GPIO1_14 is high eCAP0 should measure 21kHz,
when GPIO1_14 is low it should measure 36kHz



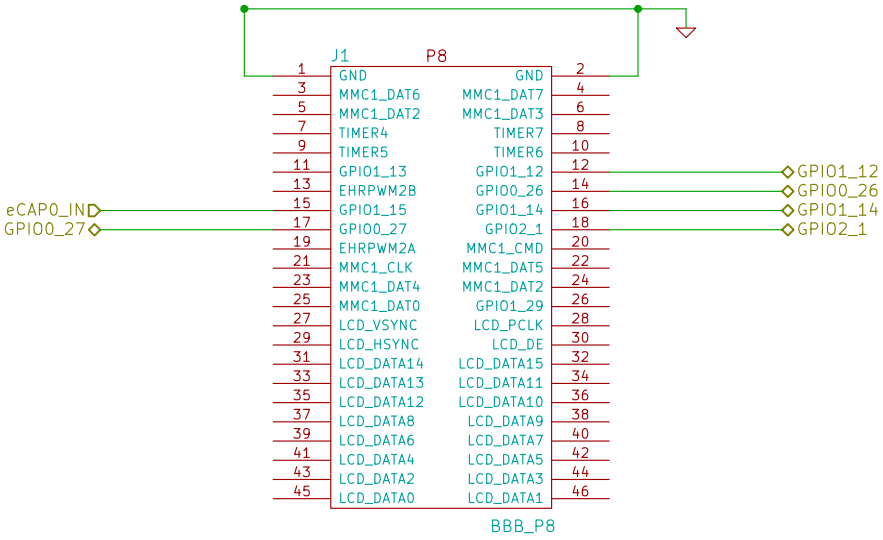
Notes:

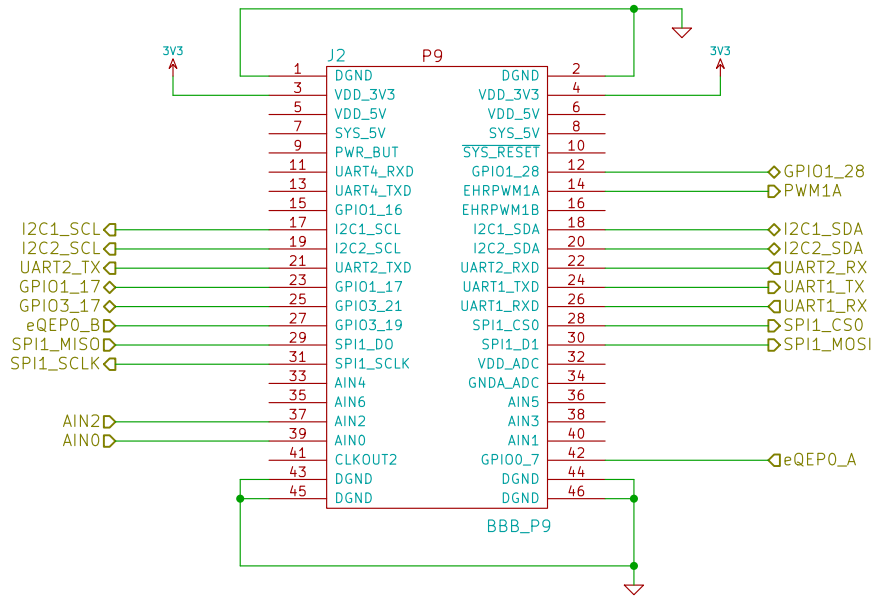
1. GPIO1_12 must be set high to enable the astable circuit to test the eCAP.
   It can be set low when not in use to avoid noise coupling

File: UTCape-eCAP.sch		
Sheet: /eCAP Wiring/		
Title: eCAP Unit Test Wiring		
Size: A4	Date: 24 feb 2015	Rev:
KiCad E.D.A.		Id: 6/9

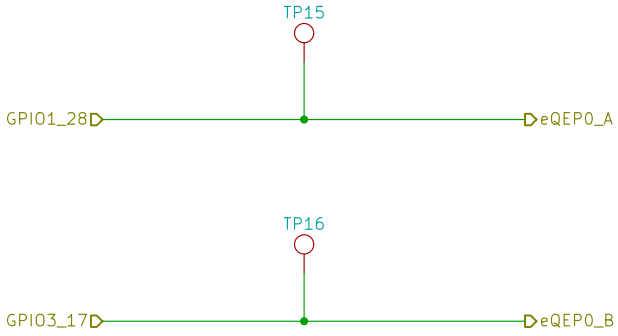


File: UTCape-PWM.sch		
Sheet: /PWM Wiring/		
Title: PWM Unit Test Wiring		
Size: A4	Date: 24 feb 2015	Rev:
KiCad E.D.A.		Id: 7/9





File: UTCape-BBHeaders.sch		
Sheet: /BeagleBone Headers/		
Title: BeagleBone Headers		
Size: A4	Date: 24 feb 2015	Rev:
KiCad E.D.A.		Id: 8/9



File: UTCape-eQEP.sch		
Sheet: /eQEP Wiring/		
Title: eQEP Unit Test Wiring		
Size: A4	Date: 24 feb 2015	Rev:
KiCad E.D.A.		Id: 9/9