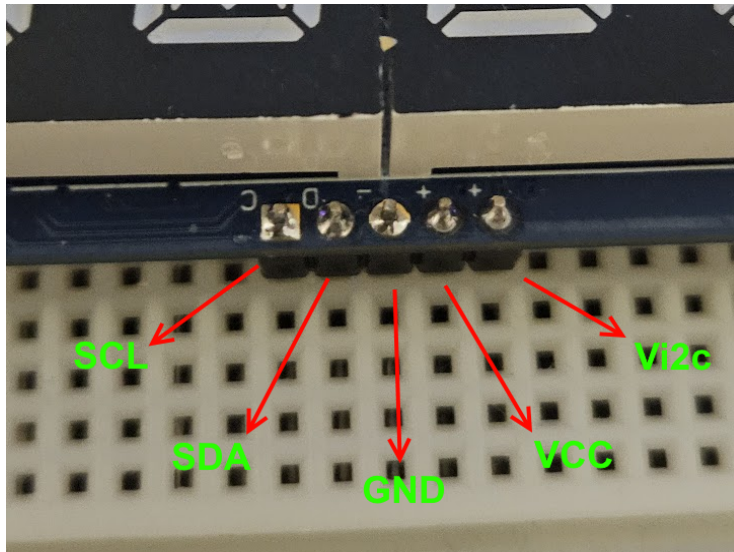


Adafruit 4-digit 0.54" 14-seg Alphanumeric Display Guide:

Updated: Apr. 04, 2023

1. Wiring:



Connect the display to the zen cape (example further down):

- **SCL** to P9_17
- **SDA** to P9_18
- **GND** to DGND (e.g. P9_2)
- **VCC** to VDD_3V3 (e.g. P9_4)
- **Vi2c** to VDD_3V3 (can connect this to VCC)

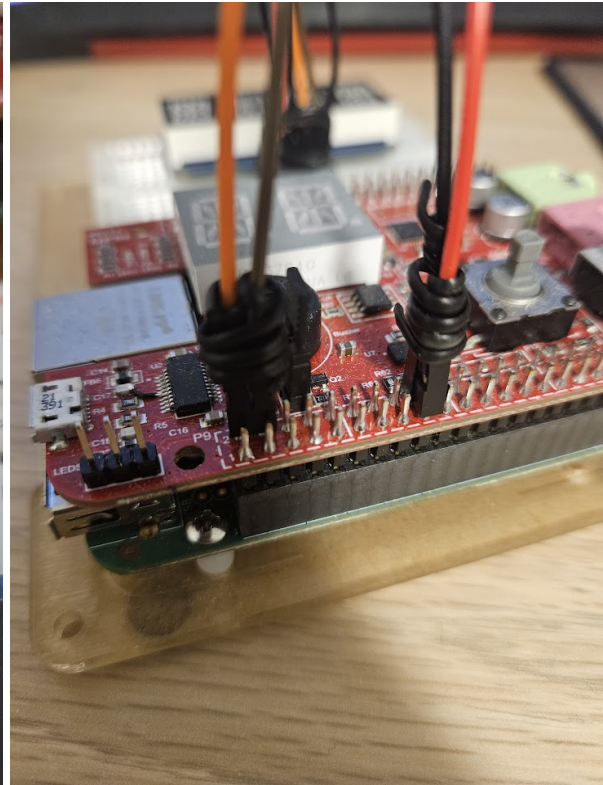
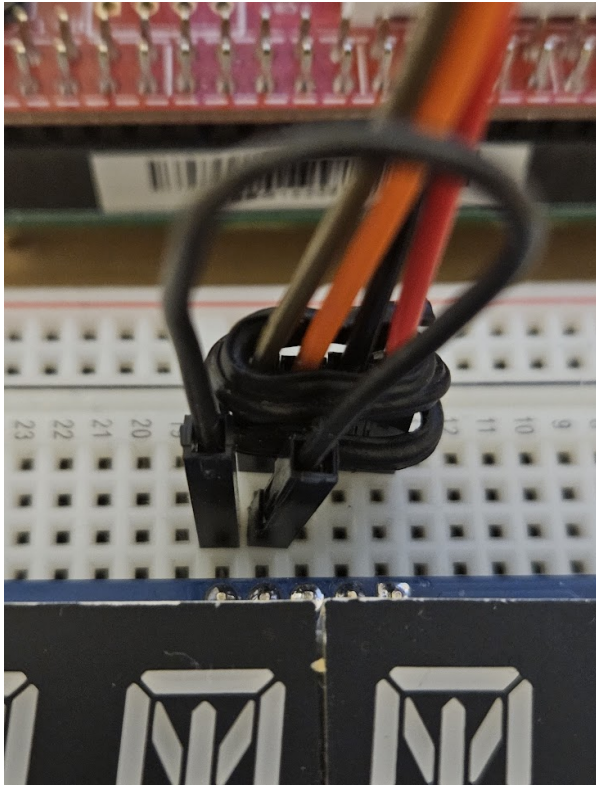
More info on the pins at:

<https://learn.adafruit.com/adafruit-led-backpack/pinouts#header-pin-through-hole-pads-3127665>

BeagleBone pins (from GPIOGuide.pdf)

P9				P8			
DGND	1	2	DGND	DGND	1	2	DGND
VDD_3V3	3	4	VDD_3V3	GPIO_38	3	4	GPIO_39
VDD_5V	5	6	VDD_5V	GPIO_34	5	6	GPIO_35
SYS_5V	7	8	SYS_5V	GPIO_66	7	8	GPIO_67
PWR_BTN	9	10	SYS_RESETN	GPIO_69	9	10	GPIO_68
GPIO_30	11	12	GPIO_60	GPIO_45	11	12	GPIO_44
GPIO_31	13	14	GPIO_50	GPIO_23	13	14	GPIO_26
GPIO_48	15	16	GPIO_51	GPIO_47	15	16	GPIO_46
GPIO_5	17	18	GPIO_4	GPIO_27	17	18	GPIO_65
I2C2_SCL	19	20	I2C2_SDA	GPIO_22	19	20	GPIO_63
GPIO_3	21	22	GPIO_2	GPIO_62	21	22	GPIO_37
GPIO_49	23	24	GPIO_15	GPIO_36	23	24	GPIO_33
GPIO_117	25	26	GPIO_14	GPIO_32	25	26	GPIO_61
GPIO_115	27	28	GPIO_113	GPIO_86	27	28	GPIO_88
GPIO_111	29	30	GPIO_112	GPIO_87	29	30	GPIO_89
GPIO_110	31	32	VDD_ADC	GPIO_10	31	32	GPIO_11
AIN4	33	34	GNDA_ADC	GPIO_9	33	34	GPIO_81
AIN6	35	36	AIN5	GPIO_8	35	36	GPIO_80
AIN2	37	38	AIN3	GPIO_78	37	38	GPIO_79
AIN0	39	40	AIN1	GPIO_76	39	40	GPIO_77
GPIO_20	41	42	GPIO_7	GPIO_74	41	42	GPIO_75
DGND	43	44	DGND	GPIO_72	43	44	GPIO_73
DGND	45	46	DGND	GPIO_70	45	46	GPIO_71

Example wiring:



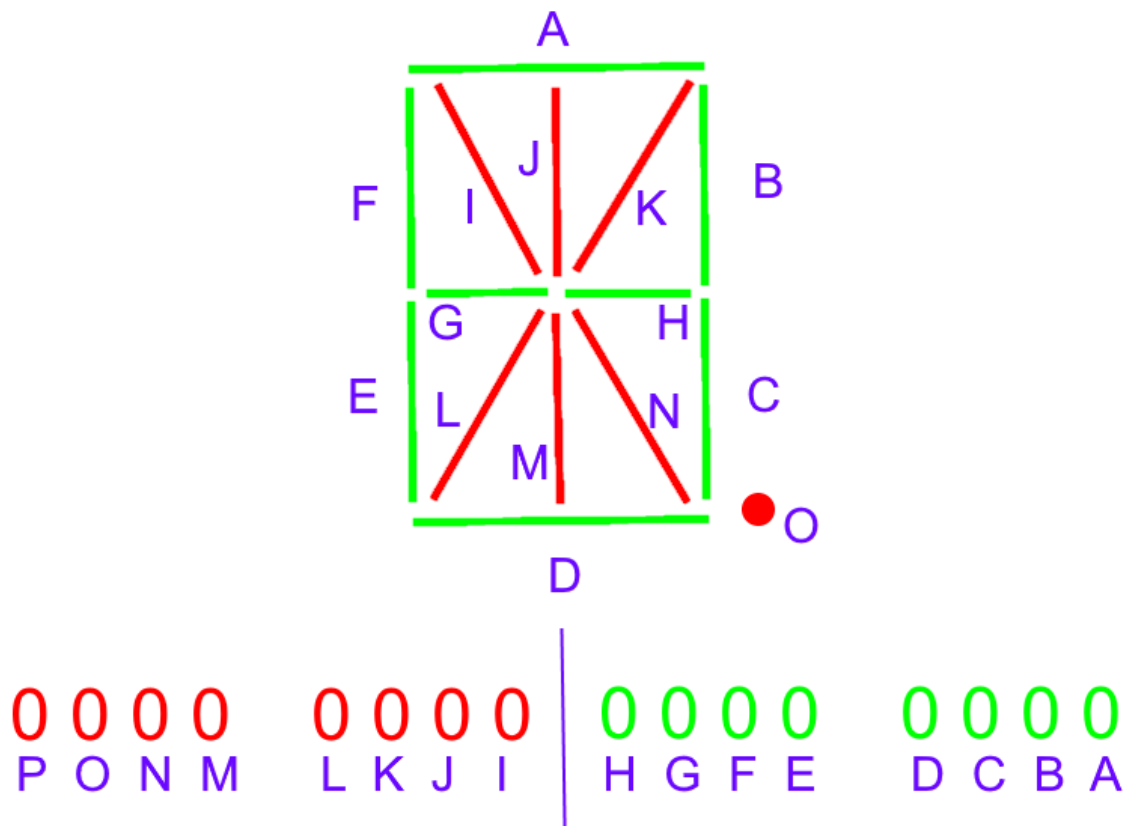
2. Turning on the display:

1. Enable I2C1
 - config-pin P9_17 i2c
 - config-pin P9_18 i2c
2. Turn on display
 - For I2C1 →
 - **First** “i2cset -y 1 0x70 0x21 0xff” to turn on the oscillator.
 - Then “i2cset -y 1 0x70 0x81 0xff” to turn on the display. (turn off using 0x80 instead of 0x81)
3. Drive bits to registers to turn on digits
 - The registers (0x00, 0x01), (0x02, 0x03), (0x04, 0x05), (0x06, 0x07) correspond to the (green, red) segments shown in the diagram below for each digit on the display.
 - Toggle the corresponding bit as mapped in the diagram and drive the 8 bits to the register to turn on that segment (convert to hex).



- E.g. “i2cset -y 1 0x70 0x00 0xff” sets an “8” as the first digit

Digit segment mappings:



Example digit values using diagram above:

- 0: Green → 0x3F, Red → 0x00
- 1: Green → 0x06, Red → 0x00
- 2: Green → 0xDB, Red → 0x00
- 3: Green → 0xCF, Red → 0x00
- 4: Green → 0xE6, Red → 0x00
- 5: Green → 0xED, Red → 0x00
- 6: Green → 0xFD, Red → 0x00
- 7: Green → 0x07, Red → 0x00
- 8: Green → 0xFF, Red → 0x00
- 9: Green → 0xEF, Red → 0x00

3. Troubleshooting:

- Make sure the pins used are configured to I2C:
 - config-pin P9_17 i2c
 - config-pin P9_18 i2c
- "i2cset -y 1 0x70 0x21 0xff" must be set before "i2cset -y 1 0x70 0x81 0xff"
- You must set the pins and registers again if you've rebooted your board.