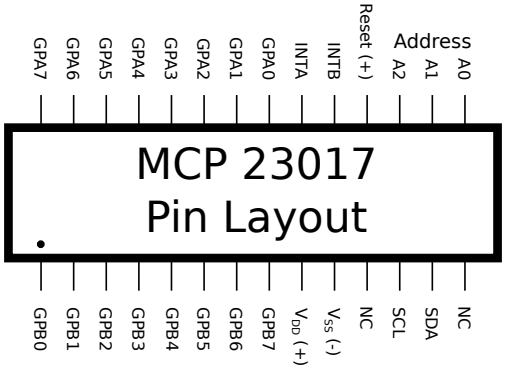
Raspberry Pi GPIOs

GPIO numbers are Broadcom/WiringPi

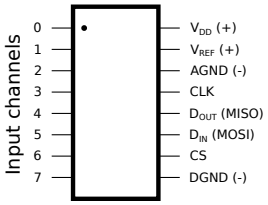
MCP 23017 Pin Layout



MCP 23017 Registers

Register	Address	Function
IODIRx	00 / 01	IO direction. 0 = output, 1 = input.
IOPOLx	02 / 03	IO input polarity. 0 = normal, 1 = reverse input reading.
GPINTENx	04 / 05	Interrupt-on-change. 0 = disabled, 1 = enabled.
DEFVALx	06 / 07	Default comparison value.
INTCONx	08 / 09	Interrupt comparison. 0 = previous value, 1 = DEFVAL.
IOCON	0A / 0B	Configuration.
GPPUx	0C / 0D	Pull-up resistors. 0 = disabled, 1 = enabled.
INTFx	0E / 0F	Interrupt flag. 0 = no interrupt, 1 = interrupt.
INTCAPx	10 / 11	Interrupt capture. Stores value of pin at time of interrupt.
GPIOx	12 / 13	Value on a port. Use this to perform I/O.
OLATx	14 / 15	Output latch.

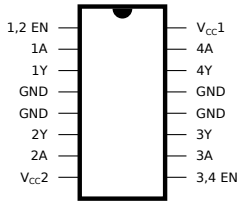
MCP 3008 10-bit ADC



Input: bit 0 is 1 (start bit); bit 1 is 1 for single-ended, 0 for differential; bits 2-4 are the input channel.

Output: bit 0 (when the clock is cycled after input bit 4) is arbitrary; bit 1 is 0; bits 2-11 are the analog value, MSB first; bits 11-20 are the analog value, LSB first; all further bits are 0.

SN754410 Quadruple Half-H Driver



Inputs A	EN	Output Y	
H	H	H	H = high
L	H	L	L = low
X	L	Z	X = irrelevant
			Z = high-impedance (off)

$V_{CC}1$ requires 5V. $V_{CC}2$ can be powered from 3V3. The output voltage appears to be slightly lower than $V_{CC}2$, and independent of the A and EN voltages.

Adafruit LED matrix backpack I²C command registers

Address	Command
00 | ROW	**Display data.** ROW is 0 to f. Even values correspond to a row on the matrix. Each bit of the register value corresponds to an LED in the row. Bit n corresponds to LED n+1 (mod 8). 1 for on, 0 for off.
20 | OSC	**System setup.** OSC is 1 to turn the oscillator on, 0 to turn it off (standby mode).
80 | DISP | FREQ	**Display setup.** DISP is 1 to turn the display on, 0 to turn it off. FREQ is 0 to turn blinking off, 2 for 2Hz, 4 for 1Hz, 6 for 0.5Hz.
e0 | BRT	**Brightness.** BRT is 0 to f. High values are brighter.

Apart from **display data**, registers are write-only, and interacting with a register in any way will execute that command. Most registers have multiple addresses. Other registers exist on the chip, but are not relevant for the LED matrix.