

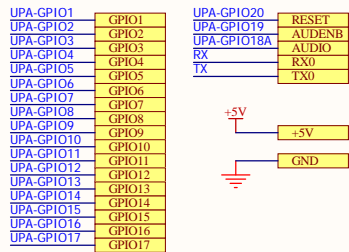
### INTERFACE FPC

GEN4 DISPLAY	DIABLO16	PICASO	PixxiLCD (via 15-to-30)	PIXXI-44	ESP32	ESP32 RGB	ESP32 QSPI	THIS ADAPTOR
1	GND	GND	GND	GND	GND	GND	GND	GND
2	PA3	IO1	IO1 or IO7	IO1	GPI017	I2C_SDA	I2C_SDA	UPA-GPIO1
3	PA2	IO2	IO2 or IO6	IO2	GPI018	I2C_SCL	I2C_SCL	UPA-GPIO2
4	PA1	IO3	IO3*	IO3	GPI016	EXT-GPIO0	GPI01	UPA-GPIO3
5	PA0	IO4	IO4*	IO4	GPI015	EXT-GPIO1	GPI014	UPA-GPIO4
6	PA9	BUS5	IO5*	IO5	GPI048	EXT-GPIO2	GPI015	UPA-GPIO5
7	PA8	BUS4	N/C	IO6	GPI047	EXT-GPIO3	GPI016	UPA-GPIO6
8	PA7	BUS3	N/C	IO7	GPI038	EXT-GPIO4	GPI021	UPA-GPIO7
9	PA6	BUS2	N/C	IO12	GPI039	EXT-GPIO5	GPI038	UPA-GPIO8
10	PA5	BUS1	N/C	IO13	GPI040	EXT-GPIO6*	GPI039	UPA-GPIO9
11	PA4	BUS0	N/C	IO14	GPI040	EXT-GPIO7*	GPI040	UPA-GPIO10
12	PA10	BUS6	N/C	IO15	GPI05	GPI038/PS-CI	GPI045	UPA-GPIO11
13	PA11	BUS7	N/C	IO16	GPI03	GPI011/AUSD-MOSI	GPI046	UPA-GPIO12
14	PA12	IO5	N/C	IO17	GPI045	GPI012/AUSD-SCLK	GPI047	UPA-GPIO13
15	PA13	RX1	N/C	IO18	GPI046	GPI013/AUSD-MISO	GPI048	UPA-GPIO14
16	PA14	TX1	N/C	IO6	GPI020*	GPI020*	GPI020*	UPA-GPIO15
17	PA15	I2C_SCL	N/C	IO7	GPI019*	GPI019*	GPI019*	UPA-GPIO16
18	N/C	I2C_SDA	N/C	N/C	GPI011*	N/C	N/C	UPA-GPIO17
19	AUDIO-OUT	AUDIO-OUT	N/C	AUDIO-OUT	GPI00	GPI00	GPI00	UPA-GPIO18
20	AUDENB	AUDENB	N/C	AUDENB	3.3V OUT	3.3V OUT	3.3V OUT	UPA-GPIO19
21	GND	GND	GND	GND	GND	GND	GND	GND
22	RESET	RESET	RESET	RESET	EN-RST	EN-RST	EN-RST	UPA-GPIO20
23	TX	TX	TX	TX	U0RXD	U0RXD	U0RXD	TX
24	RX	RX	RX	RX	U0TXD	U0TXD	U0TXD	RX
25					GND	GND	GND	GND
26					GND	GND	GND	GND
27					GND	GND	GND	GND
28					GND	GND	GND	GND
29					GND	GND	GND	GND
30					GND	GND	GND	GND

\* Not all modules have all GPIO available. Check individual product Datasheets / Schematics  
 \*\* These pins are not connected to the 4D-UPA but shows differences in power pins for the various modules

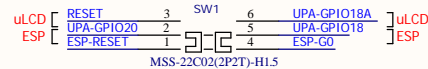
30 way FFC Cable

### gen4-uLCD BREAKOUT HEADERS also uLCD and uOLED pads



PADS with optional male pin headers - not included

### Switch to change between uLCD and ESP32 programming



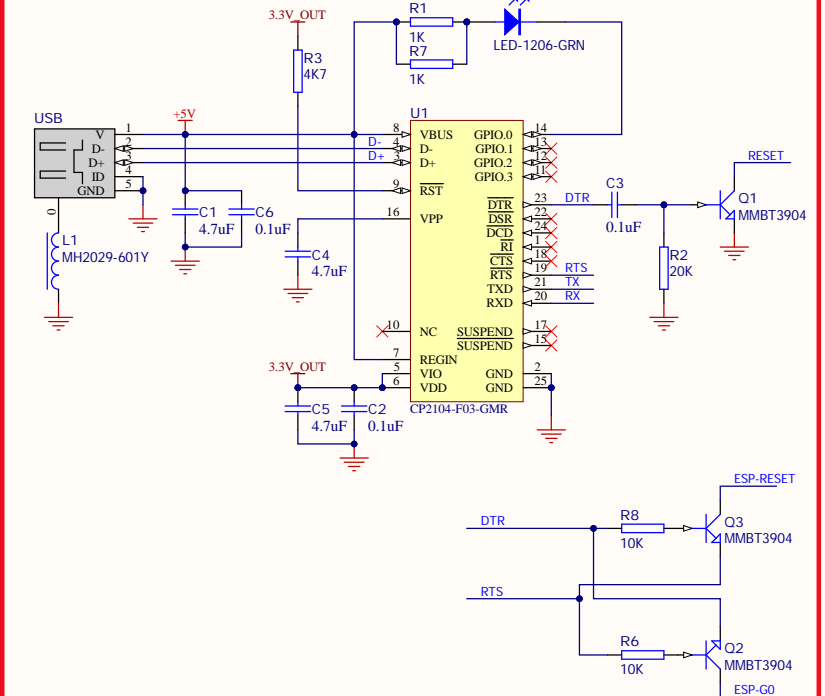
GPIO18A is the pad on the UPA, which is connected to GPIO18 (on the 30-way FFC) when the switch is in the uLCD position only.

When the switch is in the uLCD position, GPIO20 on the UPA (and 30-way FFC) is connected to RESET (making that pad and FFC pin, RESET), and GPIO18A pad is connected to GPIO18 which is typically AUDIO-OUT for uLCD based modules.

When the switch is in the ESP position, GPIO20 on the UPA's 30-way FFC is connected to ESP-RESET, and GPIO18 is connected to ESP-GO (both are controlled via the DTR/RTS circuit on the right of this schematic). Both ESP-RESET and ESP-GO are required for programming the ESP32 processor via the 30-way FFC.

The purpose of this is to reconfigure the 30-way FFC so the appropriate signals are connected when programming uLCD or ESP based products accordingly, which connect to the 30-way FFC. The 10-way and IoD-09 pads are unaffected by this switch.

### USB TO SERIAL PROGRAMMING



NOTE: PICASO, DIABLO16, PIXXI and ESP32 pinouts are quite different, and they feature a different number of GPIO.

This adaptor therefore references the GPIO from the modules as GPIOxx naming, rather than platform specific PA / IO / BUS type naming.

Please refer to the columns to the left, to map the Picaso, Diablo16, PIXXI and ESP32 GPIO to those used on this board.

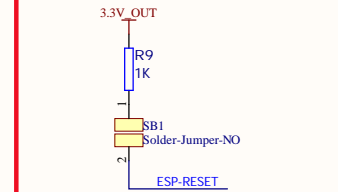
The PixxiLCD column is for all PixxiLCD devices (both Pixxi-28 and Pixxi-44) which have a 15 way FFC, and connect to the 4D-UPA via the 15-to-30 FFC cable.

For PIXXI-28 modules, these use IO1/IO2 and sometimes more, depending on the module. For PIXXI-44 modules, these use IO6/IO7.

The PIXXI-44 column is for Pixxi-44 devices which feature a 30 way FFC natively. IO6/IO7 are repeated to bring the I2C compatible pins into the same position as Diablo modules.

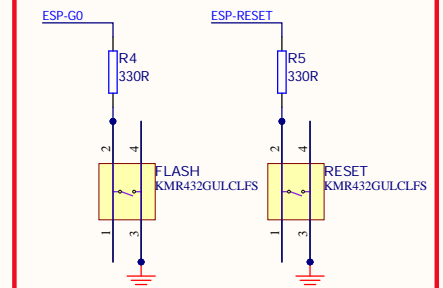
- DIABLO column, for modules such as gen4-uLCD-24DT, gen4-uLCD-43DCT etc.
- PICASO column, for modules such as gen4-uLCD-24PT, gen4-uLCD-32PT etc.
- PixxiLCD (via 15-to-30) column, for modules such as pixxiLCD-20P2, pixxiLCD-39P4CT etc
- PIXXI-44 column, for modules such as gen4-uLCD-24P4T, gen4-uLCD-43P4CT-CLB etc
- ESP32 column, for modules such as gen4-ESP32-28CT-CLB
- ESP32-RGB column, for modules such as gen4-ESP32-70T
- ESP32-QSPI column, for modules such as gen4-ESP32Q-43CT

### Enable for 4Discovery ESP Flashing



Required for both 4Discovery 5" ESP32, and 4Discovery 1.3" ESP8266

### FLASH/RESET buttons for all ESP / IoD Types

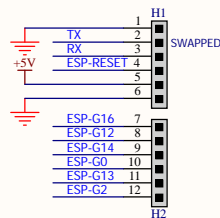


### INTERFACE 4Discovery 5" ESP



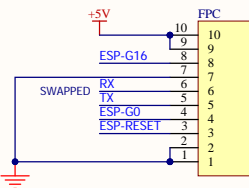
Only to program ESP32, will not power 4Discovery 5"

### INTERFACE IoD-09



PADS with optional female pin headers (2x 6way) - included

### INTERFACE gen4-IoD and 4Discovery 1.3" (ESP)



10 way FFC Cable



FID1

http://www.4dsystems.com.au

Title: **4D-UPA Universal Programmer**

Revision: 1.4  
 Date: 3/05/2024  
 Time: 11:22:56 am

4D SYSTEMS  
 TURNING TECHNOLOGY INTO ART

File: 4D-UPA-(Universal Programmer)-REV1.4.SchDoc