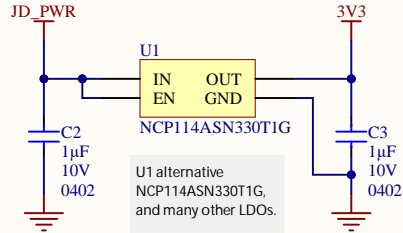


## 3V3 regulator

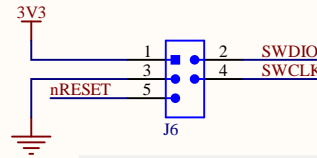
Recommendation: consider replacing NCP114 with an LDO that is robust to repeated spikes of 8V or more on its input in case there is noise on the Jacdac bus.

This component is a power-consumer.



U1 alternative  
NCP114ASN330T1G,  
and many other LDOs.

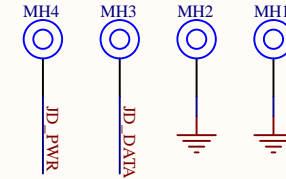
## Programming/debug connector



"Hack-connect XS" SWD adapter.

<https://arcade.makecode.com/hardware/dbg>

## Mounting holes

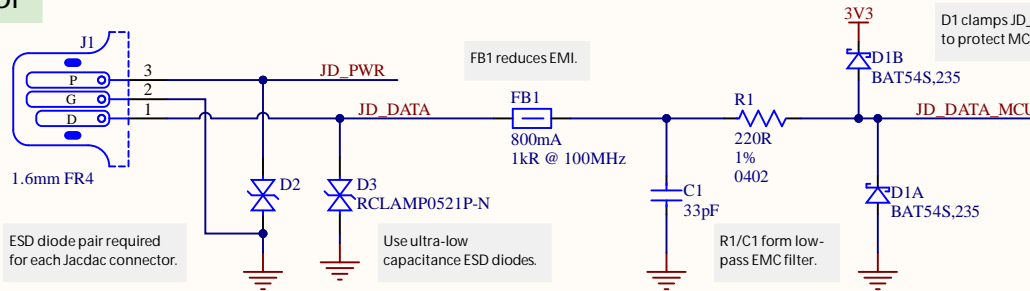


Mounting holes are electrically connected to the Jacdac bus nets so they can be used as an alternative to the PCB edge connector. Please use the following reference designators and net mapping:

MH1 & MH2: GND  
MH3: JD\_DATA  
MH4: JD\_PWR

This design uses Jacdac 'small' mounting holes: PTH with finished diameter of 2.1mm, annular copper ring of 3.0mm diameter & copper/component keepout of 5.0mm. The mounting holes must be on 2.5mm pitch. Mounting holes should have appropriate silkscreen marker, and MH1 should have a pin 1 marker on the top side.

## Jacdac connector



ESD diode pair required for each Jacdac connector.

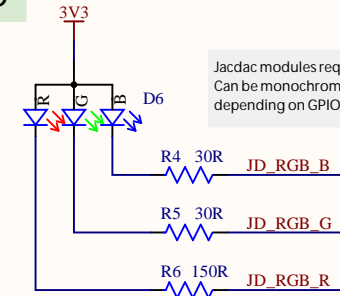
Use ultra-low capacitance ESD diodes.

FB1 reduces EMI.

D1 clamps JD\_DATA to protect MCU.

R1/C1 form low-pass EMC filter.

## Status LED



Jacdac modules require a status LED. Can be monochrome or multicolor depending on GPIO availability.

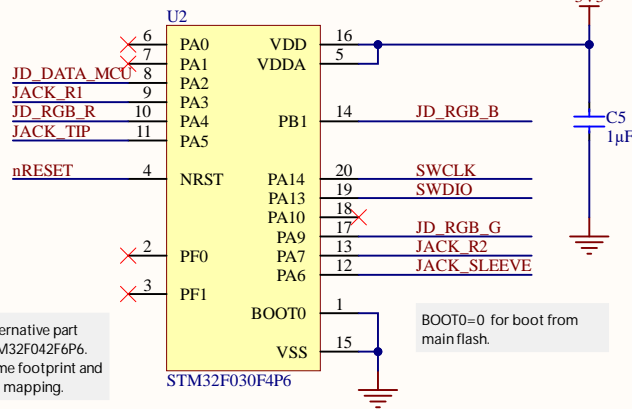
Tuoahan TZ-P4-1615RGBTCA1-0.55T RGB is footprint-compatible alternative for D6. If using alternative part recalculate R4-R6.

## MCU

U2 critical pin mappings:  
PA2 USART1\_TX for JD data  
PA4 TIM14\_CH1 for RGB\_R  
PA9 TIM1\_CH2 for RGB\_G  
PB1 TIM3\_CH4 for JD\_RGB\_B

PA3 aux R1  
PA5 aux tip  
PA6 aux sleeve  
PA7 aux R2

JD\_DATA doesn't need WAKEUP pin because deepest sleep isn't used.

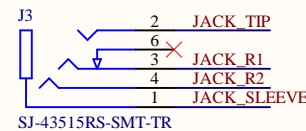


Alternative part  
STM32F042F6P6.  
Same footprint and pin mapping.

BOOT0=0 for boot from main flash.

## AUX input

Many simple input devices for accessibility applications use a 3.5mm plug. Examples include buttons and triggers from Logitech and AbleNet. This Jacdac module dynamically detects what type of input device is connected and presents the associated Jacdac service.



Xbox adaptive controller input device specification is at:  
<https://compass-ssl.xbox.com/assets/06/02/0602069a-edfb-41f3-bd18-b2cc4c96e4fa.pdf?n=Xbox-Adaptive-Controller-technical-input-spec.pdf>

## Microsoft

### PROJECT DESCRIPTION

Jacdac module that interfaces to access switch devices

### SHEET DESCRIPTION

Complete design

PROJECT FILENAME JacdacAccessSwitchInput 34.PrjPCB

PROJECT CODENAME JacdacAccessSwitchInput

SHEET FILENAME JacdacAccessSwitchInput 34.SchDoc

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LAST MODIFIED 21/12/2021

PAGE 1 OF 1

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REVISION 1.4

PCB ID 34-1.4