Arduino

Variant: 5V/3V3

3/1/2020 V1I1

RELEASED 02-FEB-2020

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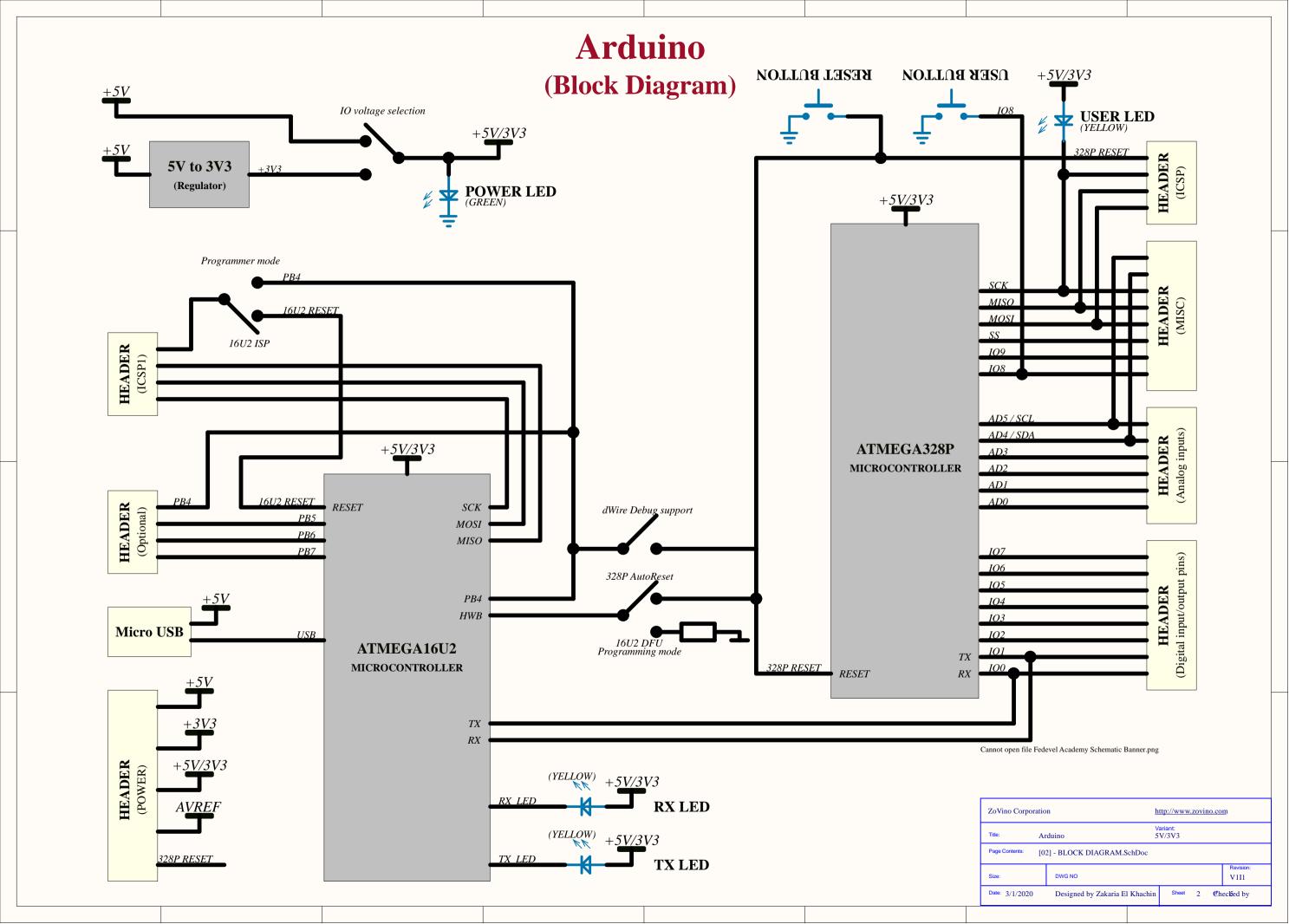
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DESIGN CONSIDERATIONS

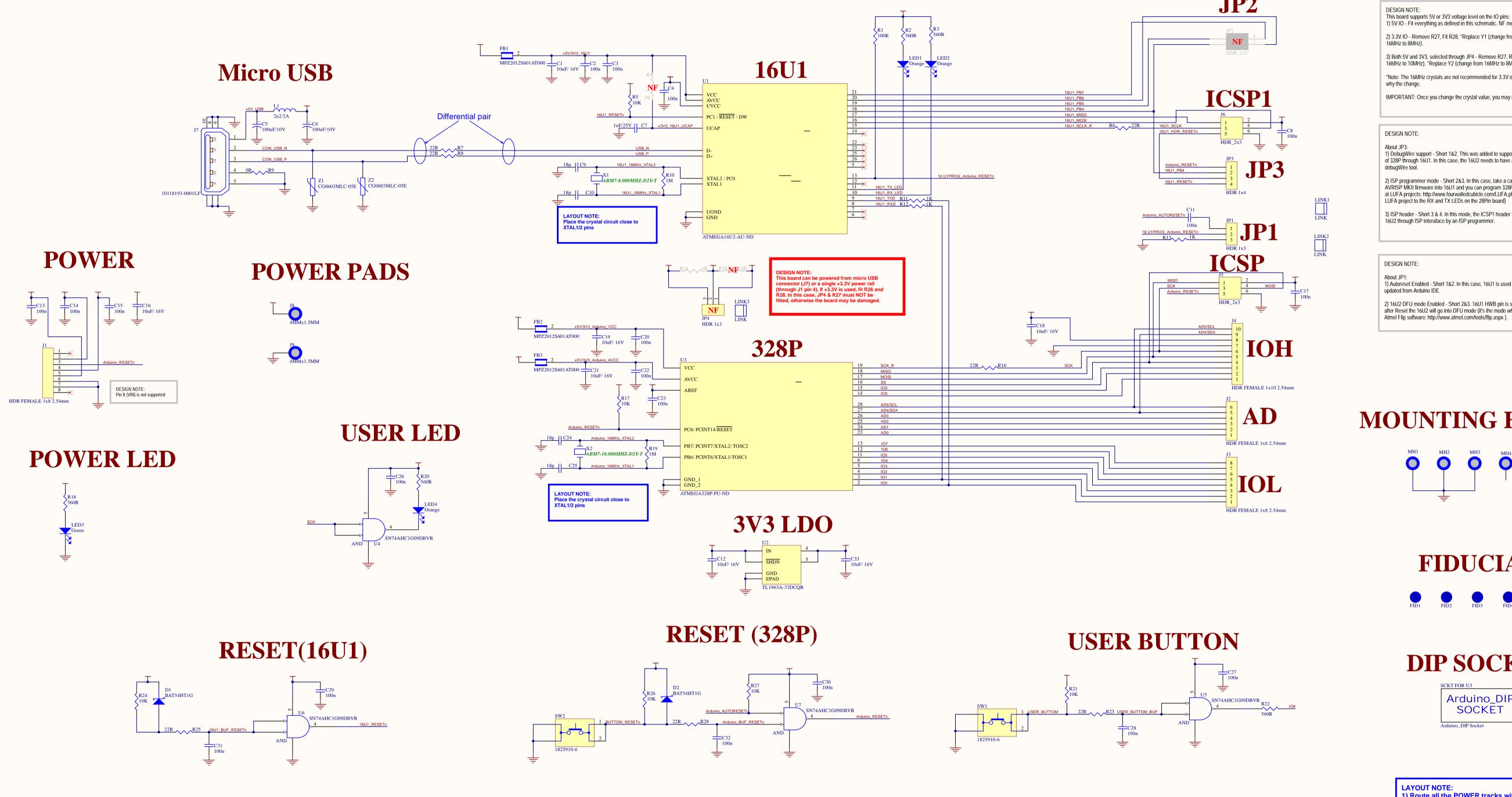
DESIGN NOTE: Example text for informational design notes.

DESIGN NOTE: Example text for cautionary design notes. DESIGN NOTE: Example text for critical design notes.

DESIGN NOTE: Example text for debug notes.

LAYOUT NOTE: Example text for critical layout guidelines. 

ARDUINO SCHEMATIC



1) 5V IO - Fit everything as defined in this schematic. NF means, do not fit this component.

2) 3.3V IO - Remove R27, Fit R28, *Replace Y1 (change from 16MHz to 10MHz), *Replace Y2 (change from

3) Both 5V and 3V3, selected through JP4 - Remove R27, Remove R28, Fit JP4, *Replace Y1 (change from

*Note: The 16MHz crystals are not recommended for 3.3V operation. We need to adjust their values, thats

 $\label{thm:local_equation} \textbf{IMPORTANT: Once you change the crystal value, you may need to re-compile your source code.}$

1) DebugWire support - Short 1&2. This was added to support possible debugWire debugging (programming?) of 328P through 16U1. In this case, the 16U2 needs to have a correct firmware and has to behave as a

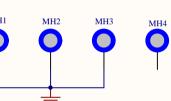
2) ISP programmer mode - Short 2&3. In this case, take a cable and connect J5 & J6 together. Upload AVRISP MKII firmware into 16U1 and you can program 328P. Example of AVRISP MKII firmware can be found at LUFA projects: http://www.fourwalledcubicle.com/LUFA.php (Tip: remap LEDs of the default AVRISP MKII LUFA project to the RX and TX LEDs on the 28Pin board)

3) ISP header - Short 3 & 4. In this mode, the ICSP1 header is used as a standard ISP header to program

1) Autoreset Enabled - Short 1&2. In this case, 16U1 is used to reset 328P when firmware inside 328P is

2) 16U2 DFU mode Enabled - Short 2&3. 16U1 HWB pin is sampled by 16U2 during RESET. If pulled low, then after Reset the 16U2 will go into DFU mode (it's the mode when you can flash 16U2 firmware through USB and Atmel Flip software: http://www.atmel.com/tools/flip.aspx).

MOUNTING HOLES



FIDUCIALS







DIP SOCKET



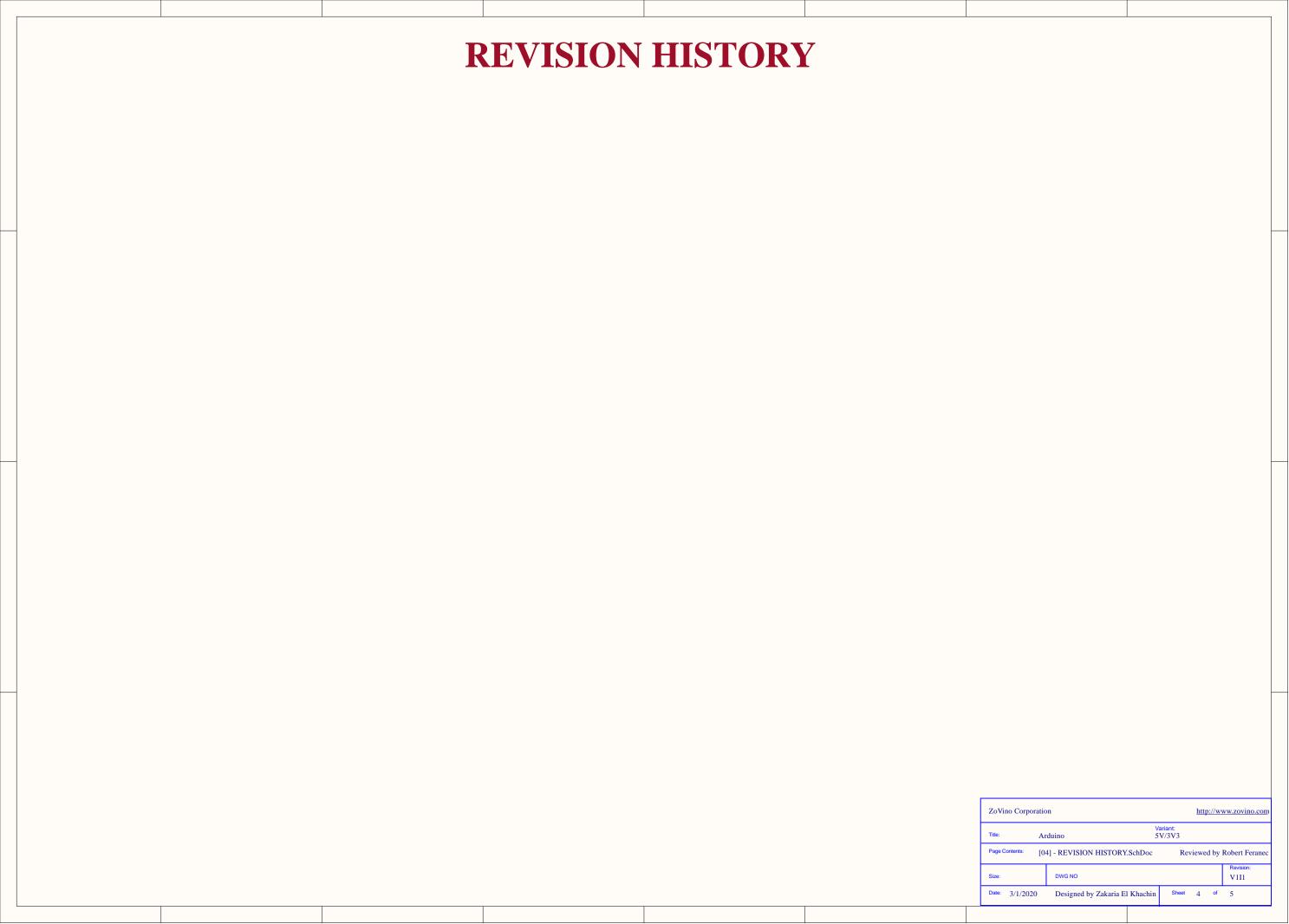
LAYOUT NOTE:

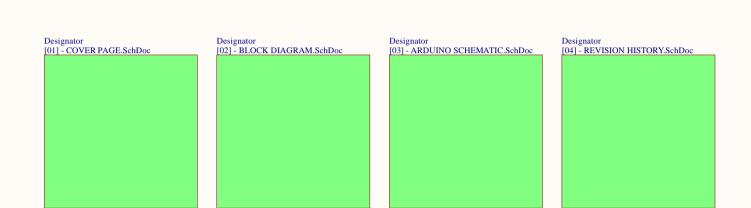
1) Route all the POWER tracks with minimum track width 0.4mm.

2) Route all the other tracks by 0.4mm and change them by the end of the design to 0.2mm. To change all of them at once, use this filter

"(not InNet('+*') and not InNet('GND')) and IsTrack and (OnLayer('L1') or OnLayer ('L2'))" and then set 0.2mm width in PCB Inspector panel.

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NOTES

Mark Not Fitted Components as

NF

DRAFT - Very early stage of schematic, ignore details.

PRELIMINARY - Close to final schematic.

CHECKED - There should not be any mistakes. Tell the engineer if you find one.

RELEASED - A board with this schematic has been sent to production.

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