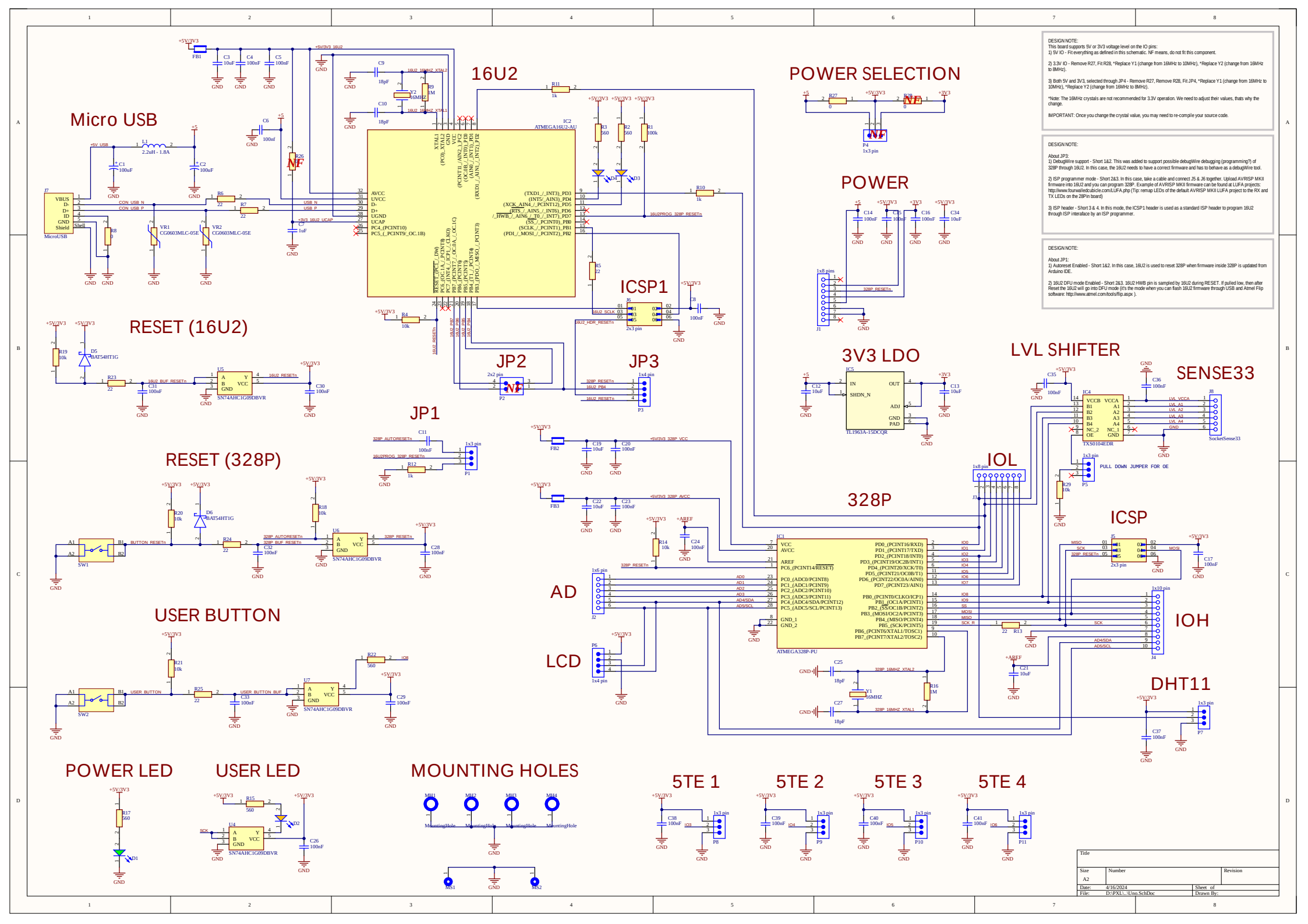
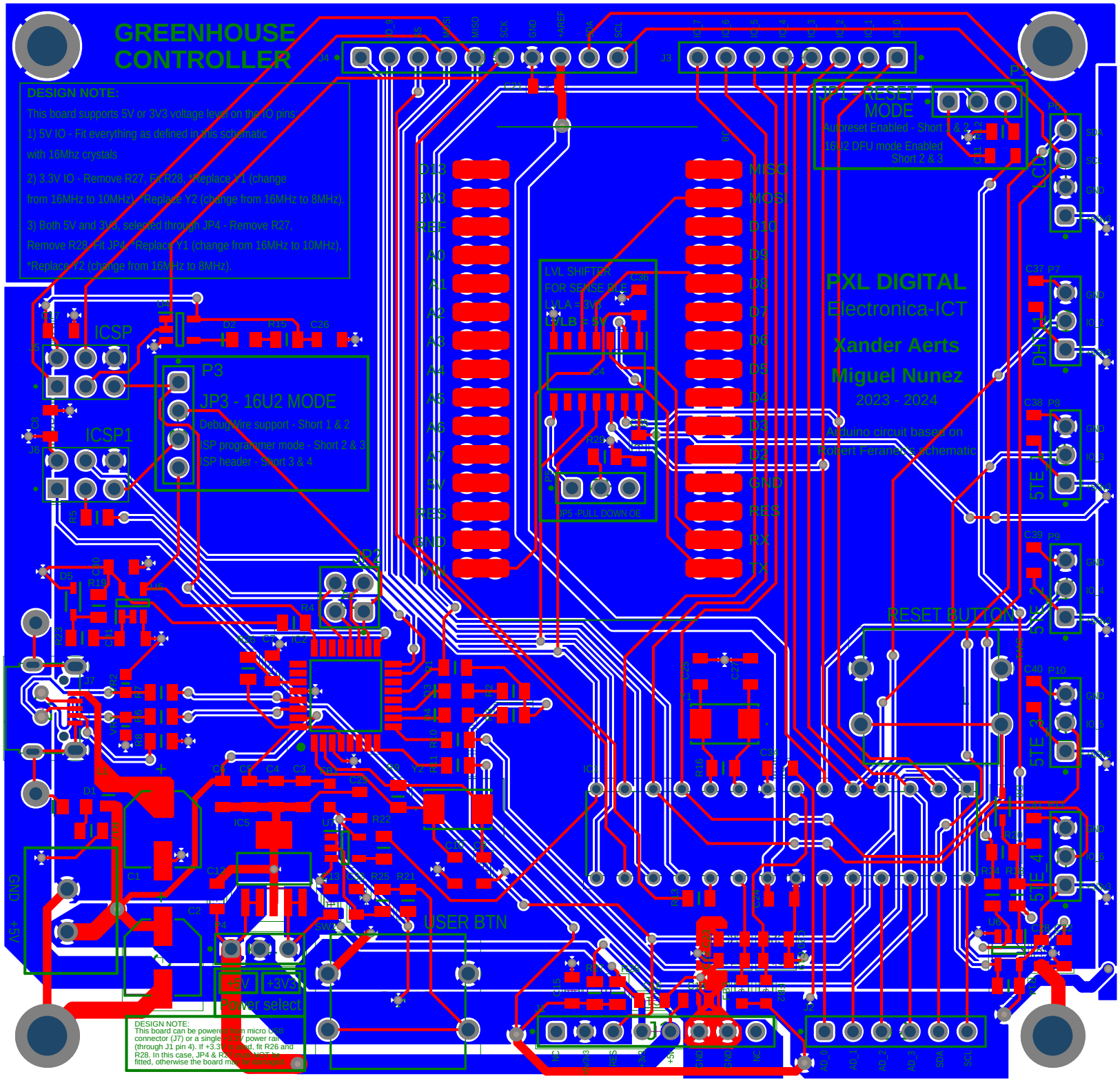

16U2
Micro USB
POWER SELECTION
POWER
RESET (16U2)
ICSP1
JP2
JP3
JP1
3V3 LDO
LVL SHIFTER
SENSE33
RESET (328P)
328P
IOL
ICSP
IOH
AD
LCD
USER BUTTON
DHT11
POWER LED
USER LED
MOUNTING HOLES
5TE 1
5TE 2
5TE 3
5TE 4
DESIGN NOTE:
This board supports 5V or 3V3 voltage level on the IO pins:
1) 5V IO - Fit everything 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 16MHz to 8MHz).
3) Both 5V and 3V3, selected through JP4 - Remove R27, Remove R28, Fit JP4, *Replace Y1 (change from 16MHz to 10MHz), *Replace Y2 (change from 16MHz to 8MHz).
*Note: The 16MHz crystals are not recommended for 3.3V operation. We need to adjust their values, thats why the change.
IMPORTANT: Once you change the crystal value, you may need to re-compile your source code.
DESIGN NOTE:
About JP3:
1) DebugWire support - Short 1&2. This was added to support possible debugWire debugging (programming?) of 328P through 16U2. In this case, the 16U2 needs to have a correct firmware and has to behave as a debugWire tool.
2) ISP programmer mode - Short 2&3. In this case, take a cable and connect J5 & J6 together. Upload AVRISP MKII firmware into 16U2 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 16U2 through ISP interalace by an ISP programmer.
DESIGN NOTE:
About JP1:
1) Autoreset Enabled - Short 1&2. In this case, 16U2 is used to reset 328P when firmware inside 328P is updated from Arduino IDE.
2) 16U2 DFU mode Enabled - Short 2&3. 16U2 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).
PULL DOWN JUMPER FOR OE
ATMEGA16U2-AU
ATMEGA328P-PU
SN74AHC1G09DBVR
TXS0104EDR
TL1963A-15DCQR
SocketSense33
Title
Size
A2
Number
Revision
Date: 4/16/2024
Sheet of
File: D:\PXL\..\Uno.SchDoc
Drawn By:


GREENHOUSE CONTROLLER
DESIGN NOTE:
This board supports 5V or 3V3 voltage level on the IO pins.
1) 5V IO - Fit everything as defined in this schematic with 16MHz crystals
2) 3.3V IO - Remove R27, R28, *Replace Y1 (change from 16MHz to 10MHz), *Replace Y2 (change from 16MHz to 8MHz).
3) Both 5V and 3V3 selected through JP4 - Remove R27, Remove R28, Fit JP4, *Replace Y1 (change from 16MHz to 10MHz), *Replace Y2 (change from 16MHz to 8MHz).
ICSP
ICSP1
P3
JP3 - 16U2 MODE
Debugwire support - Short 1 & 2
ISP programmer mode - Short 2 & 3
ISP header - Short 3 & 4
JP1 - RESET MODE
Autoreset Enabled - Short 1 & 2
16U2 DFU mode Enabled - Short 2 & 3
LVL SHIFTER FOR SPARE PINS
PXL DIGITAL
Electronica-ICT
Xander Aerts
Miguel Nunez
2023 - 2024
Arduino circuit based on Robert Fernandez's schematic
RESET BUTTON
USER BTN
Power select
+5V
+3V3
DESIGN NOTE:
This board can be powered from micro usb connector (J7) or a single +3-3V power rail (through J1 pin 4). If +3.3V is used, fit R26 and R28. In this case, JP4 & R27 must NOT be fitted, otherwise the board may be damaged.

Board Stack Report