CH340

UNIT JUN R3 Development Board

v1.0

2025-09-30
Rev. A

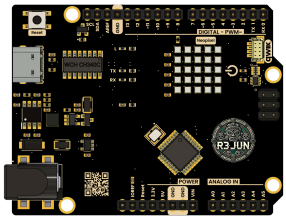
Professional electronic component

PRODUCT OVERVIEW

UNIT JUN R3 is a versatile and modular development board based on the ATmega328P microcontroller, compatible with the UNO-style form factor. Designed for rapid prototyping, it is well-suited for embedded systems education, interactive projects, and wearable technology. The board offers flexible power input options, modern connectivity, and user-friendly interfaces to streamline development workflows. It also features an integrated 5×5 NeoPixel LED matrix, ideal for creating visual indicators, feedback systems, or simple dynamic displays.

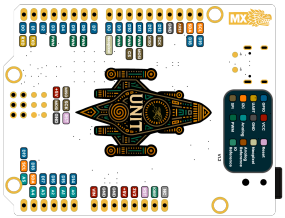
PRODUCT VIEWS

TOP VIEW



Component placement and connectors

BOTTOM VIEW



Underside components and connections

KEY TECHNICAL SPECIFICATIONS

CONNECTIVITY

Interfaces:	**I2C, SPI, UART, ADC**
Connector:	**QWIIC + Pin Headers**

KEY FEATURES

Microcontroller
PY32F003L24D6TR (32-bit ARM Cortex-M0)

Clock Speed Internal
Up to 24 MHz

ADC
12-bit ADC with multiple channels

Memory
16KB Flash, 2KB SRAM

SPI
1 channel

I2C
1 channel

UART
1 channel

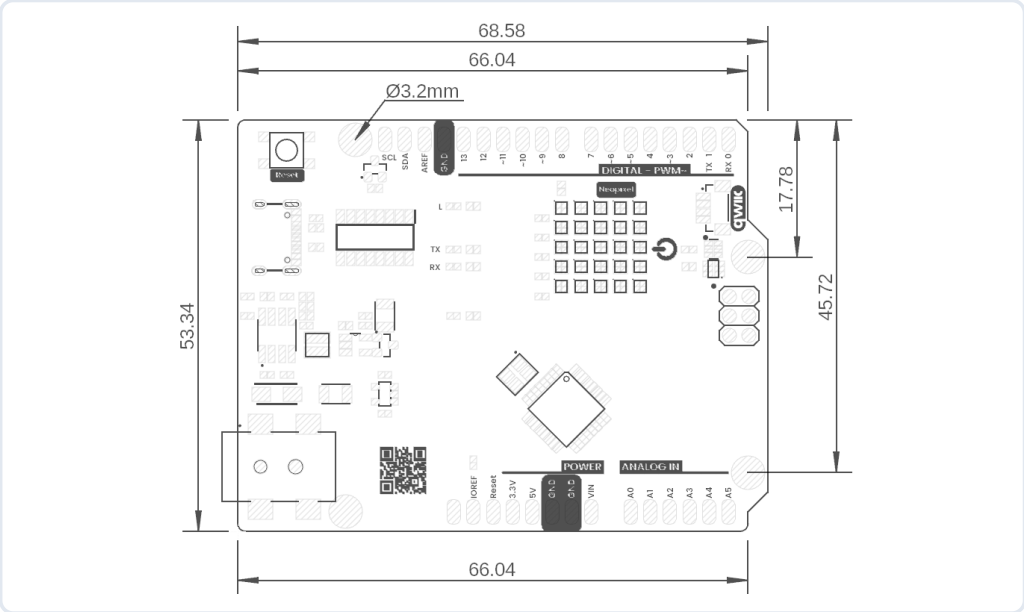
ADDITIONAL TECHNICAL INFORMATION

📦 OVERVIEW

FEATURE	DESCRIPTION
Microcontroller	ATmega328P (8-bit AVR)
Memory	32KB Flash, 2KB SRAM, 1KB EEPROM
Clock Speed	16 MHz
Power Supply	USB-C (5V)
Interfaces	UART, I2C, SPI, PWM, ADC, GPIO
NeoPixel Matrix	5x5 RGB LED Matrix (WS2812B)
Connectivity	USB-C for programming and power
Form Factor	UNO-compatible (68.6mm x 53.4mm)
Development IDEs	Arduino IDE, PlatformIO
Onboard Features	Built-in NeoPixel matrix, user LED, reset button

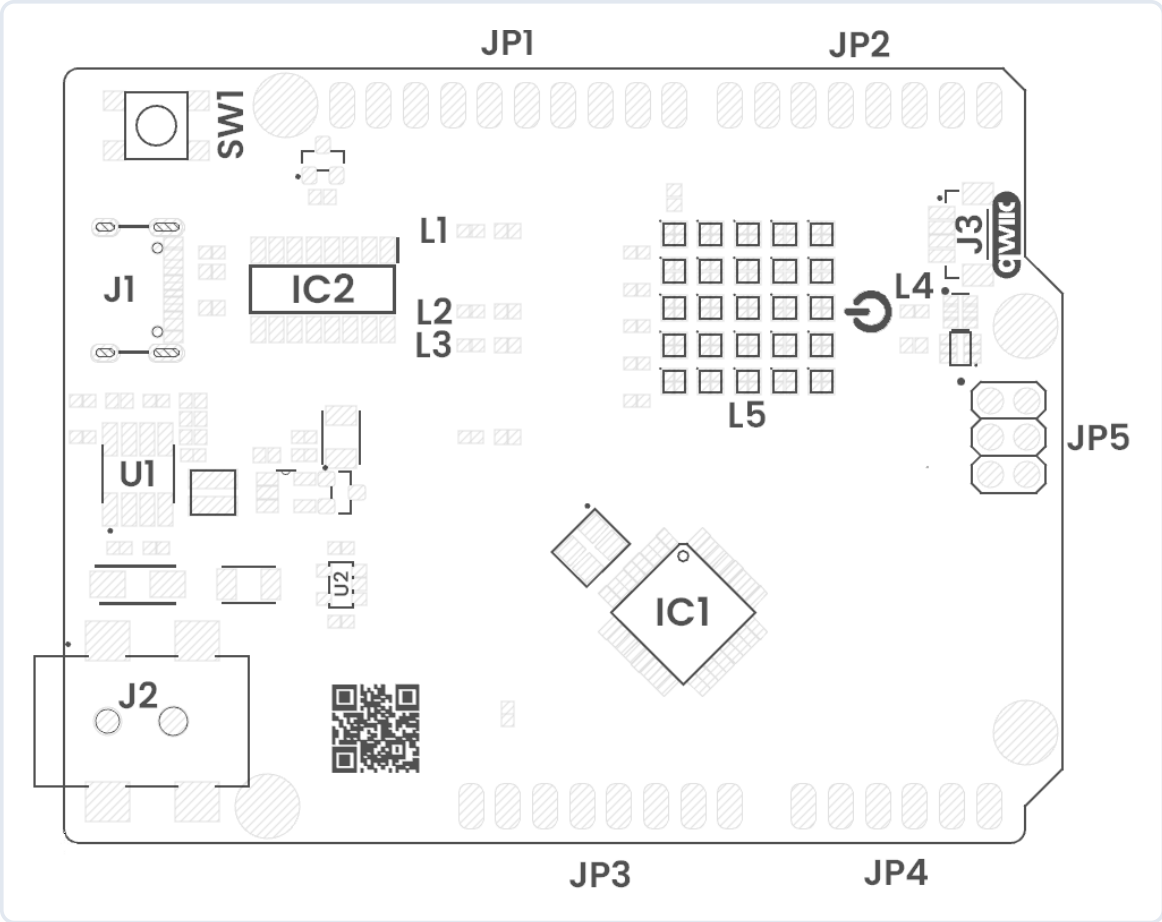
HARDWARE DOCUMENTATION

MECHANICAL DIMENSIONS



Physical dimensions and mounting specifications (measurements in millimeters)

SYSTEM TOPOLOGY



Connection topology and system integration diagram

Click image to open in full size

COMPONENT REFERENCE

REF.	DESCRIPTION
IC1	ATMEGA 328P Microcontroller
IC2	CH340 USB to Serial Controller
U1	MP1482 5V Step-Down Regulator
U2	AP2112K 3.3V Regulator
SW1	Reset Push Button
L1	Built-In LED
L2	Tx LED
L3	Rx LED
L4	Power On LED
L5	Neopixel Matrix
J1	USB Type-C Connector
J2	5mm DC Barrel Power Jack
J3	QWIIC Connector (JST 1mm)
JP1	Header for GPIOs
JP2	Header for GPIOs
JP3	Header for Power Supply and System Functions
JP4	Header for GPIOs (Analog)
JP5	Header for GPIOs (SPI)

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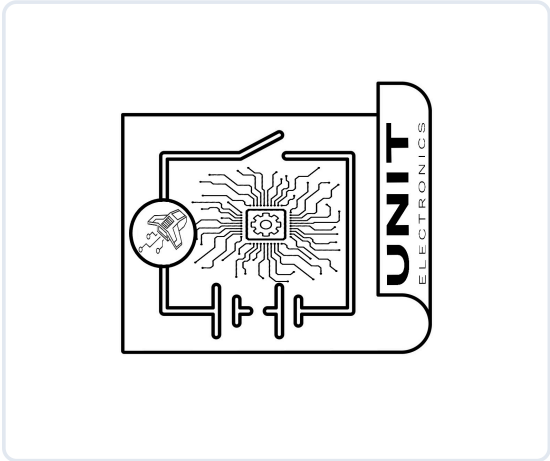
CIRCUIT SCHEMATIC



Complete circuit schematic showing all component connections

View Complete Schematic PDF

PIN DESCRIPTION

Detailed pin assignment and electrical specifications

SIGNAL DESCRIPTION

PIN LABEL	FUNCTION / NOTES
D0	RX – Serial Receive
D1	TX – Serial Transmit
D2	Digital I/O – Interrupt capable
D3	PWM – Pulse Width Modulation
D4	Digital I/O
D5	PWM – Pulse Width Modulation
D6	PWM – Pulse Width Modulation
D7	Digital I/O
D8	Digital I/O
D9	PWM – Pulse Width Modulation
D10	SPI CS – Chip Select
D11	SPI MOSI – Master Out Slave In
D12	SPI MISO – Master In Slave Out
D13	SPI SCK – Serial Clock
A0	Analog Input – 10-bit ADC
A1	Analog Input – 10-bit ADC
A2	Analog Input – 10-bit ADC
A3	Analog Input – 10-bit ADC
A4	I2C SDA – Serial Data Line
A5	I2C SCL – Serial Clock Line
VCC	Power Supply – 5V/3.3V (design)
GND	Ground – Common reference

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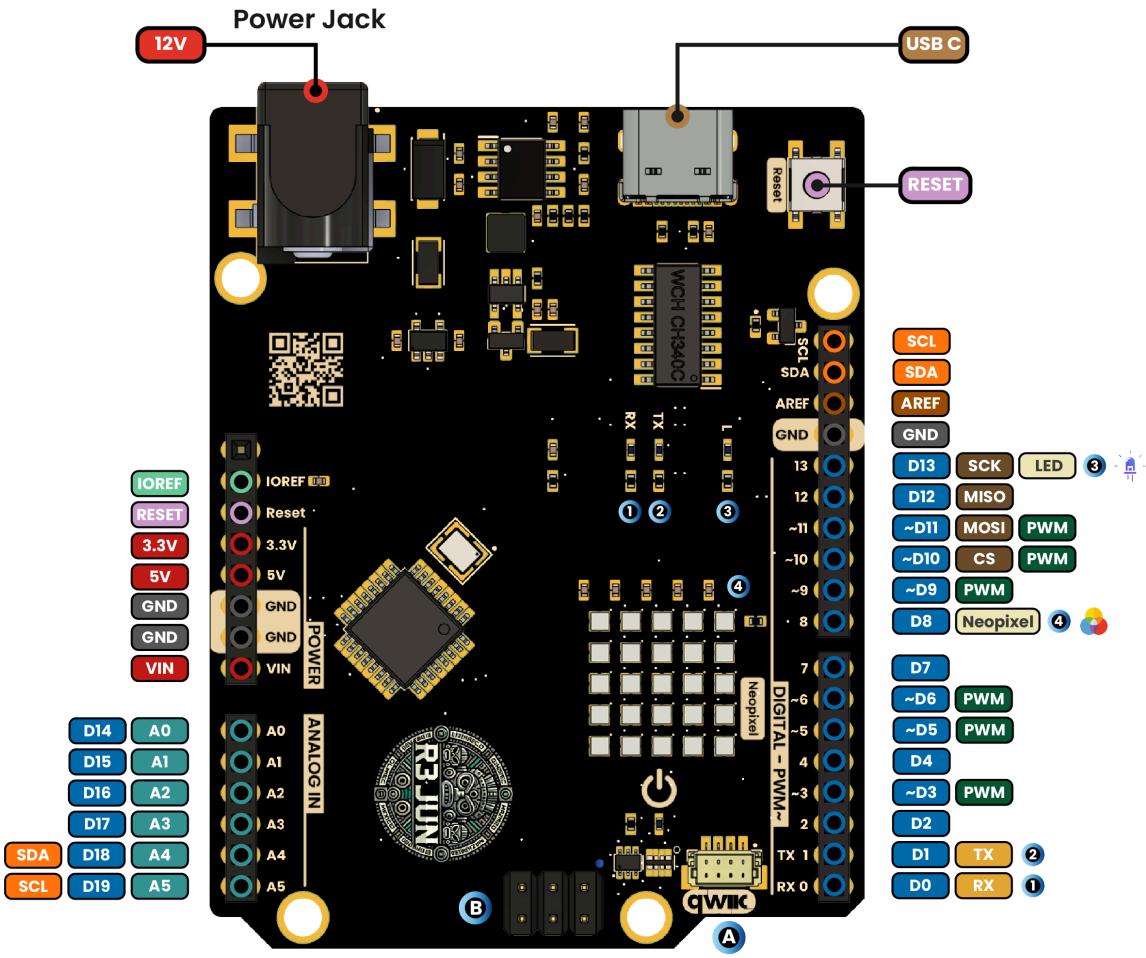
PIN CONFIGURATION LAYOUT

Physical connector layout and pin positioning

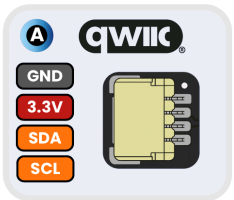
PINOUT
UNIT JUN R3

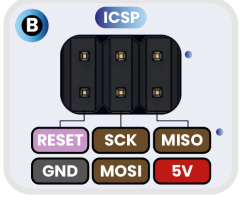
Top view



Description:

- VCC
- GND
- Reset
- Analog pins
- GPIO compatible with Arduino
- I2C
- UART
- SPI
- PWM
- Analog reference
- IO Reference
- RGB





Complete pin configuration diagram showing all connectors, pin assignments, and electrical connections for proper integration

HARDWARE SPECIFICATIONS

Complete technical documentation and specifications

BOARD DIMENSIONS

Dimensions

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BOARD TOPOLOGY

Topology

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