UNIT

UNIT JUN R3 Development Board

v1.0

2025-09-23
Rev. A

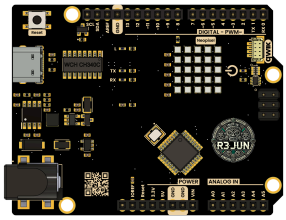
Professional electronic component

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.

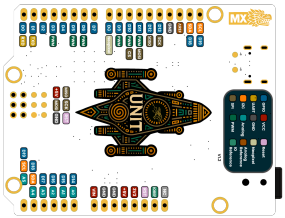
PRODUCT VIEWS

TOP VIEW



Component placement and connectors

BOTTOM VIEW



Underside components and connections

KEY TECHNICAL SPECIFICATIONS

🔌 CONNECTIVITY

Primary Interface: **GPIO (Interrupt)**

Logic Levels: **VCC-referenced (2V – 5.5V tolerant)**

Matrix 5x5: **GPIO-8**

PIN CONFIGURATION

FUNCTION	NOTES
RX	Serial Receive
TX	Serial Transmit
Digital I/O	Interrupt capable
PWM	Pulse Width Modulation
Digital I/O	
PWM	Pulse Width Modulation
PWM	Pulse Width Modulation
Digital I/O	
Digital I/O	
PWM	Pulse Width Modulation
SPI CS	Chip Select for SPI
SPI MOSI	Master Out Slave In
SPI MISO	Master In Slave Out
SPI SCK	Serial Clock
Analog Input	10-bit ADC
Analog Input	10-bit ADC
Analog Input	10-bit ADC
Analog Input	10-bit ADC
I2C SDA	Serial Data Line
I2C SCL	Serial Clock Line
Power Supply	5V or 3.3V depending on design
Ground	Common ground reference

KEY FEATURES

🎯 High Accuracy Sensing

Precise environmental parameter measurement

📐 Compact Design

Space-efficient module for embedded applications

🔧 **Easy Integration**
Standard interfaces and connectors

🏭 **Industrial Grade**
Reliable operation in demanding environments

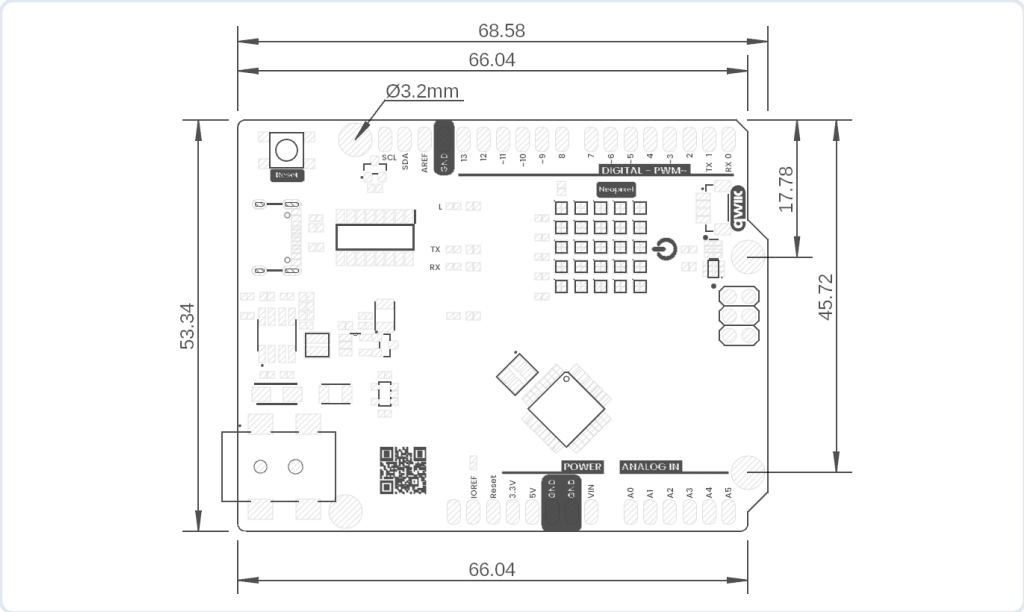
ADDITIONAL TECHNICAL INFORMATION

📦 OVERVIEW

FEATURE	DESCRIPTION
Microcontroller	ATmega328P (8-bit AVR)
Memory	32KB Flash, 2KB SRAM, 1KB EEPROM
Clock Speed	16 MHz
Power Supply	USB-C (5V) or external battery (3.3V)
Connectivity	2.4 GHz Wi-Fi, BLE 5.0, USB Device/Host support
Interfaces	UART, I2C, SPI, PWM, ADC, GPIO

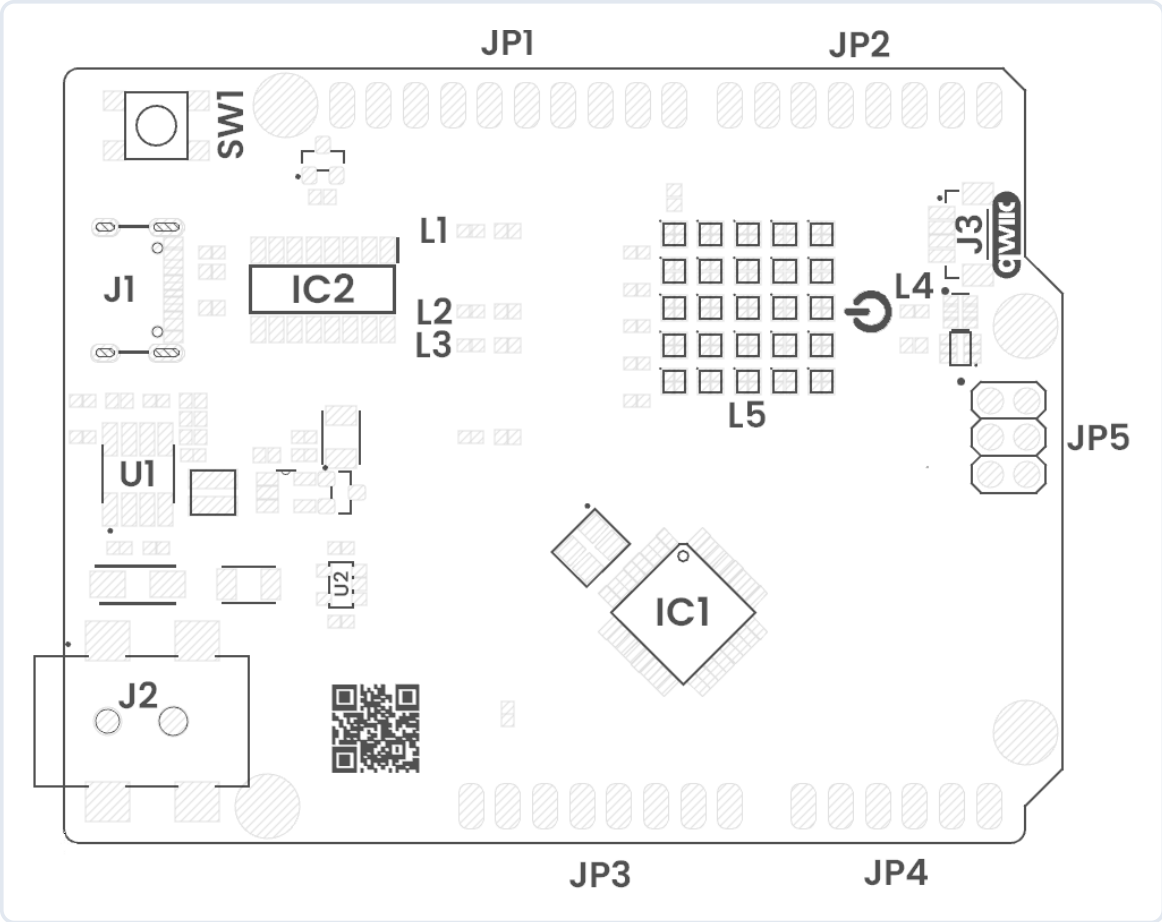
HARDWARE DOCUMENTATION

MECHANICAL DIMENSIONS



Physical dimensions and mounting specifications (measurements in millimeters)

SYSTEM TOPOLOGY



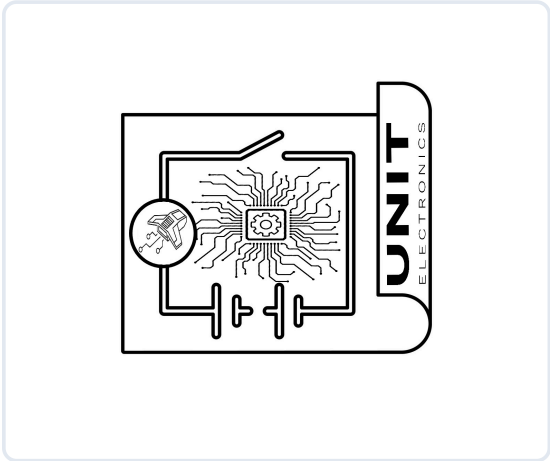
Connection topology and system integration diagram

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)

CIRCUIT SCHEMATIC



Complete circuit schematic showing all component connections

View Complete Schematic PDF

PIN DESCRIPTION

Detailed pin assignment and electrical specifications

SIGNAL DESCRIPTION

FUNCTION	NOTES
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PIN CONFIGURATION LAYOUT

Physical connector layout and pin positioning

Pin Configuration Layout

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

UNIT v1.0
Professional Technical Datasheet

Date: 2025-09-23
For commercial distribution