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.

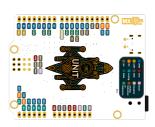
PRODUCT VIEWS

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

F	U	Ν	C	П	O	N	1	Ν	O	П	ES
-	_		_		_				_	-	

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

KEY FEATURES

6 High Accuracy Sensing

Compact Design

Precise environmental parameter measurement

Space-efficient module for embedded applications



Standard interfaces and connectors



Reliable operation in demanding environments

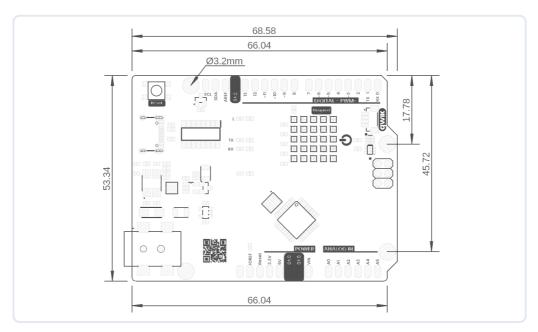
ADDITIONAL TECHNICAL INFORMATION



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

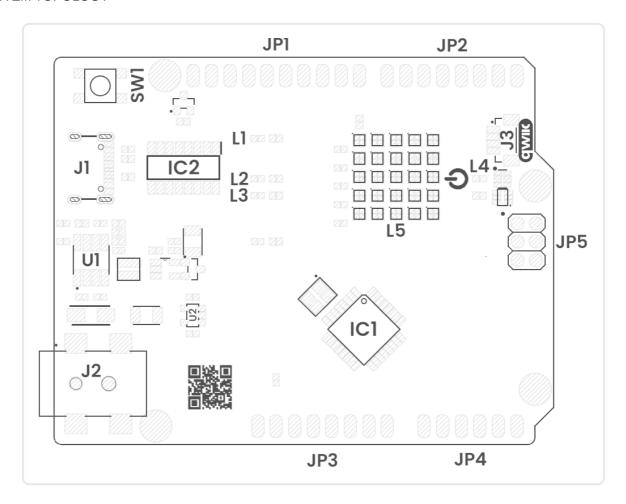
HARDWARE DOCUMENTATION

MECHANICAL DIMENSIONS



Physical dimensions and mounting specifications (measurements in millimeters)

SYSTEM TOPOLOGY



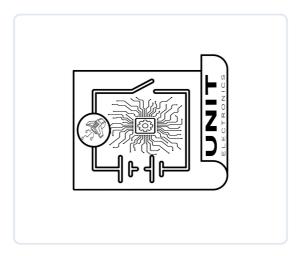
Connection topology and system integration diagram

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

	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

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

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