

# Teensy Pro Edge 4.1 Development Board

The **Teensy Pro Edge 4.1** is the latest advancement in the renowned Teensy development board family, offering developers and engineers unmatched speed, expanded memory options, and advanced connectivity features. Built around the **ARM Cortex-M7 processor running at 600MHz** and powered by the **NXP iMXRT1062 microcontroller**, this board is engineered to handle demanding embedded applications, complex real-time processing, and high-performance prototyping.

With its combination of raw computing power and flexible I/O, the Teensy Pro Edge 4.1 is perfect for applications such as **audio processing, robotics, industrial automation, data logging, IoT devices, and advanced control systems**.

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Teensy Pro Edge 4.1[/caption]

## ⚡ **High-Performance ARM Cortex-M7 at 600MHz**

At the heart of the Teensy Pro Edge 4.1 is the **ARM Cortex-M7 processor**, running at an impressive **600MHz clock speed**. This level of performance makes it one of the fastest microcontroller development boards available on the market. Developers can run complex algorithms, signal processing routines, and machine learning inference models with ease, all while maintaining low latency and real-time responsiveness.

The **NXP iMXRT1062 microcontroller** ensures stability, efficiency, and scalability, making the Teensy Pro Edge 4.1 suitable for both experimental projects and commercial applications.

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Teensy Pro Edge

4.1[/caption]

## Expanded Memory and Storage Options

Compared to the Teensy 4.0, the Pro Edge 4.1 comes with **four times more flash memory**, offering ample space for larger codebases, libraries, and advanced embedded applications. Additionally, it includes **two dedicated pads for optional memory expansion**, giving developers the flexibility to add **PSRAM or Flash memory modules** depending on project needs.

The onboard **microSD card socket** further extends storage capabilities, enabling reliable **data logging, audio file storage, video buffering, or real-time data collection** in IoT and industrial applications.



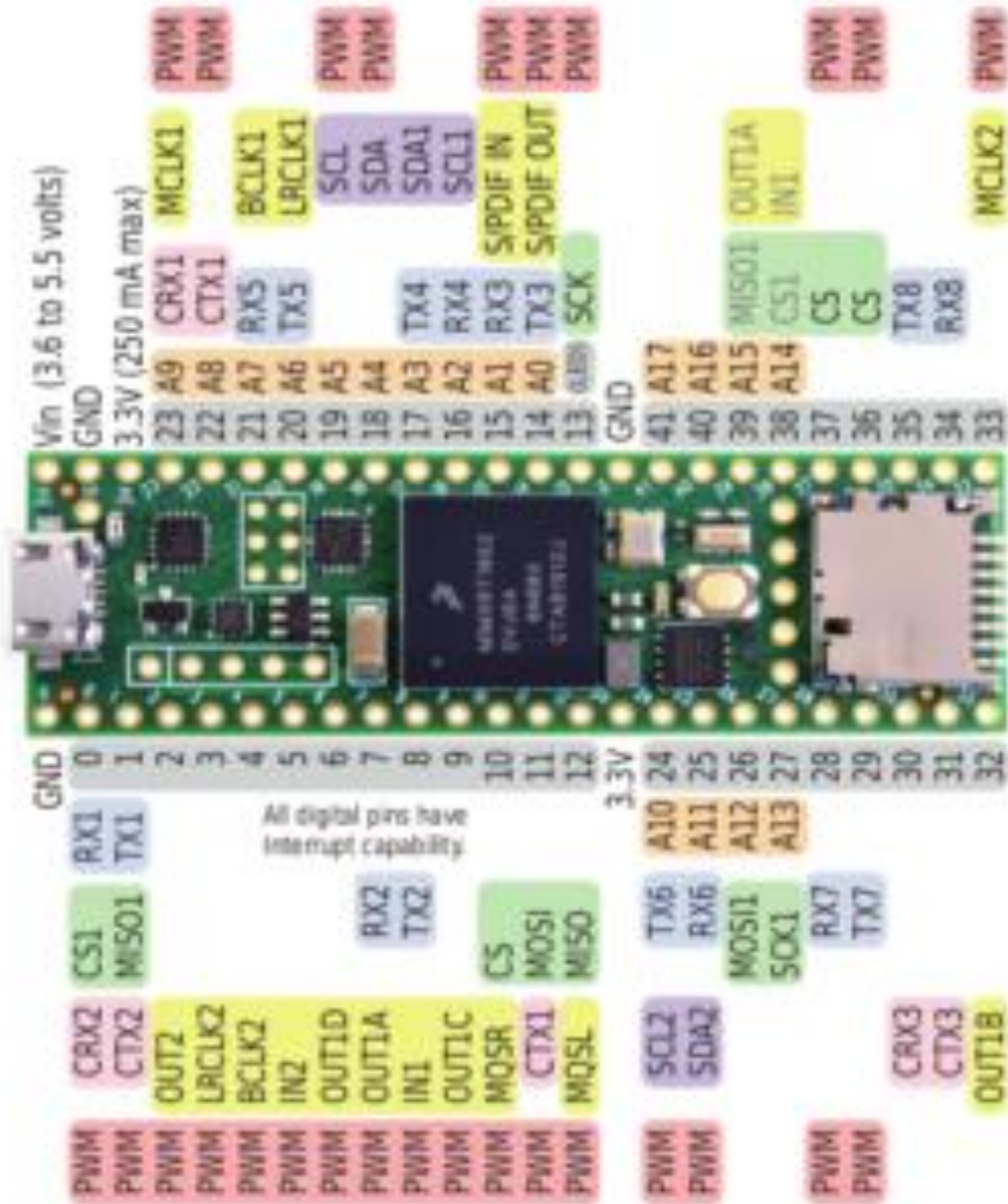
## ‡ Rich I/O and Connectivity Features

One of the standout qualities of the Teensy Pro Edge 4.1 is its expanded **input/output capability**, making it a versatile platform for interfacing with external hardware and sensors. Key I/O features include:

- **Ethernet PHY** for wired networking and IoT integration.
- **USB Host Port**, allowing direct connection of USB devices such as keyboards, MIDI controllers, and external peripherals.
- **High pin count** with versatile I/O options for GPIO, serial communication, SPI, I<sup>2</sup>C, CAN, and PWM.
- **Onboard SD card socket** for storage and logging.

With these I/O enhancements, the board becomes a central hub for projects that require **real-time data communication, device interconnectivity, or high-bandwidth applications**.





### ▀ Compact, Familiar Form Factor

Measuring **2.4 inches by 0.7 inches**, the Teensy Pro Edge 4.1 maintains the same physical dimensions as the popular **Teensy 3.6**, making it easy to integrate into existing projects or upgrade from older designs. Its compact footprint allows it to fit seamlessly into embedded systems, while still providing more performance and greater expansion options than its predecessors.

## ✂ □ Software and Ecosystem Support

The Teensy Pro Edge 4.1 is supported by the **Arduino IDE** through the Teensyduino add-on, making it accessible to both beginners and advanced developers. It also supports low-level programming in **C and C++**, giving engineers full control over hardware and performance optimization.

Additionally, developers benefit from a large, active community that contributes libraries, tutorials, and project examples. Whether you're building an **audio DSP system, robotics controller, or industrial IoT device**, the Teensy ecosystem ensures strong support and rapid prototyping.

## 🌐 Real-World Applications

The performance and versatility of the Teensy Pro Edge 4.1 make it ideal for a wide range of real-world use cases, including:

- **Audio Processing** – Create advanced synthesizers, effects units, and real-time audio analysis tools.
- **Robotics** – Control motors, sensors, and autonomous navigation systems with precision.
- **Industrial Automation** – Enable machine control, predictive maintenance, and process optimization.
- **IoT Devices** – Deploy connected devices with Ethernet, USB, and SD-based data logging.
- **Data Acquisition** – Collect, store, and process sensor data in real-time.
- **Prototyping and Research** – Experiment with advanced algorithms, AI/ML inference, and custom electronics.

## ✓ Why Choose Teensy Pro Edge 4.1?

The **Teensy Pro Edge 4.1** delivers a balance of **high-speed performance, expanded memory, rich I/O, and a compact form factor**, making it one of the most capable development boards available today. Whether you are a hobbyist, student, or professional engineer, this board provides the tools to build advanced embedded systems and intelligent devices with ease.

Backed by the robust Teensy ecosystem and developer community, the Pro Edge 4.1 ensures that your projects are supported from **concept to production**.