

# Impinj E500 Series RAIN RFID Reader Chips

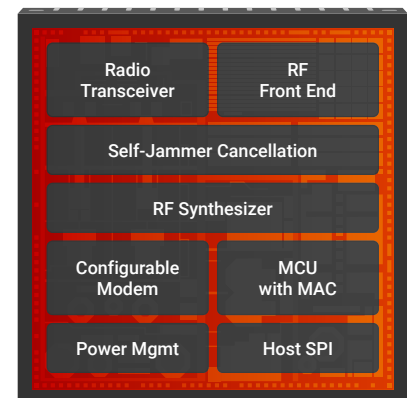


High-performance receive sensitivity for medium read range, improved read rate, and support for next-generation RAIN tags—this chip is designed for a range of IoT devices that identify, locate, and authenticate groups of tagged items quickly.

The Impinj E510 reader chip is designed for point-of-sale devices, mobile and wearable readers, smart appliances, and connected consumables. The Impinj E510 is part of a portfolio of new systems-on-chips (SoCs) built on a heritage of the Impinj Indy series that set performance standards for over a decade. Compared to the Impinj Indy R500, the Impinj E510 reader chip delivers:

- High-performance receive sensitivity with up to 14 dB better receive sensitivity reliable performance in new and emerging uses
- Up to 50% lower chip power consumption, supporting battery-powered, energy-efficient devices
- Up to 80% smaller RAIN RFID system designs ideal for small, next-generation devices

With industry-leading system integration and easy-to-use development tools, the Impinj E510 enables the development of quick-to-market IoT devices.



*Impinj E510 Reader Chip*

## Why use Impinj E500 series reader chips

**Design a range of performance RAIN RFID readers:** Build a portfolio of devices where high-performance sensitivity, mid-range distances, and fast read rates differentiate your products from the competition.

**Build small, powerful, energy-efficient products:** Target new and emerging use cases with small, efficient, wearable devices that support hands-free workflows. Design embedded readers for connected consumer applications and smart appliances.

**Accelerate innovation of next-generation IoT solutions:** Reach emerging markets quickly with a powerful, differentiated product portfolio. The ease of use, development tools, and pre-certified partner-built modules reduce the complexity and timeline of new product development.

# A new bar for performance, integration, and ease of use

## High performance, low-power design







Enables reading, writing, and authenticating of tags near and far with high sensitivity and an energy-efficient design.

## Integrated systems-on-chips in a 6x6mm package

Includes a radio modem, self-jammer cancellation, RF front-end, microcontroller, and power regulation.

## Tools for easy design and development

Brings an uncomplicated design with fewer components to integrate, a developer-friendly SDK, simple development kit, and worldwide region support.

| Impinj Reader Chip Portfolio |  |  |  |  |  |  |  |
|------------------------------|--|---|---|---|---|---|---|
|                              |  | E910  | E710  | E510  | E310  | R2000   | R500  |
| SPECS                        | Air interface protocol                       | RAIN RFID / ISO 18000-63 and EPCglobal Gen2v2 compliant                           |   |   |   |   |   |
|                              | Receive sensitivity <sup>1</sup> (dBm)       | -94   | -88   | -82   | -75   | -84   | -68   |
|                              | Maximum read rate <sup>2</sup> (tags/second) | 1,000   |   | 700   | 250   | 900   | 190   |
|                              | Typical power consumption (watts)            | 0.5   |   |   |   | 1.5   | 1.1   |
|                              | Package type                                 | 56-pin QFN  |   |   |   | 64-pin QFN  |   |
|                              | Package size (mm)                            | 6 x 6   |   |   |   | 9 x 9   |   |
| FEATURES                     | Self-jammer cancellation                     | ✓   | ✓   | ✓   | ✓   | ✓   |   |
|                              | Reader modes                                 | 15  | 15  | 11  | 5   | 4   | 4   |
|                              | Impinj adaptive tag access                   | ✓   | ✓   | ✓   | ✓   |   |   |
|                              | RAIN RFID integration                        | Radio, Modem, MAC, Baluns, and Power Detectors                                    |   |   |   | Radio + Modem   |   |
|                              | Pin- and software-compatible                 | Impinj E910, E710, E510, E310   |   |   |   | Impinj R2000, R500  |   |
|                              | Worldwide region support                     | ✓   | ✓   | ✓   | ✓   | ✓   | ✓   |

<sup>1</sup>Sensitivity measured with 10dBm antenna reflection, at chip receive pins, FCC DRM Reader Mode, 99% success rate

<sup>2</sup>Maximum tag read rate measured over the air with a large tag population in a quiet RF environment

Impinj product performance is based on Impinj's modeling and test data, actual results may vary.

Ready to discuss how Impinj can help your business?

Contact us: [www.impinj.com](http://www.impinj.com)

Impinj (NASDAQ: PI) helps businesses and people analyze, optimize, and innovate by wirelessly connecting billions of everyday things—such as apparel, automobile parts, luggage, and shipments—to the Internet. The Impinj platform uses RAIN RFID to deliver timely data about these everyday things to business and consumer applications, enabling a boundless Internet of Things.