Indy Reader Chip Features

<table>
<thead>
<tr>
<th>Indy R500</th>
<th>Indy R1000</th>
<th>Indy R2000</th>
</tr>
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<tbody>
<tr>
<td><strong>Air Interface Protocols</strong></td>
<td>EPCglobal UHF Class 1 Gen 2 / ISO 18000-6C</td>
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<td>DSB and PR-ASK transmit modulation modes</td>
<td>Dense reader mode (DRM)</td>
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<td><strong>Integrated Power Amplifier</strong></td>
<td>Configurable. External power amplifier supported for high performance applications</td>
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<td><strong>Modem</strong></td>
<td>Configurable digital baseband</td>
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<tr>
<td><strong>Operating Frequencies</strong></td>
<td>840–960 MHz</td>
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</tr>
<tr>
<td><strong>Package</strong></td>
<td>64-pin 9 mm2 QFN</td>
<td>56-pin 8 mm2 QFN</td>
</tr>
<tr>
<td><strong>Power</strong></td>
<td>Advanced power management</td>
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<td><strong>Process</strong></td>
<td>0.18 µm SiGe BiCMOS</td>
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</tr>
<tr>
<td><strong>RSSI</strong></td>
<td>Configurable</td>
<td>Configurable</td>
</tr>
<tr>
<td><strong>Sensitivity</strong></td>
<td>-68 dBm (DRM)</td>
<td>-75 dBm (DRM) with a 5 dBm carrier at Rx port</td>
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<tr>
<td><strong>Transmit Phase Noise</strong> (at 250 kHz offset)</td>
<td>-126 dBm/Hz</td>
<td>-116 dBm/Hz</td>
</tr>
<tr>
<td><strong>Supported Regions</strong></td>
<td>US, Canada and other regions following US FCC Part 15 regulations</td>
<td>Europe and other regions following ETSI EN 302 208 China, India, Japan, Korea, Malaysia, Taiwan</td>
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About Impinj

Impinj®, Inc. is the world’s leading provider of UHF Gen 2 RFID solutions. Impinj draws on its technical expertise and industry partnerships to deliver a wide range of products and solutions comprising high-performance tag chips, readers, reader chips, software, antennas, and systems integration. Impinj products provide unprecedented performance, integration, and cost effectiveness to a global customer base in applications across numerous vertical markets, including inventory management, asset tracking, authentication, and serialization.

Impinj and Indy are either registered trademarks or trademarks of Impinj, Inc. Other brands and names may be claimed as the property of others.

UHF GEN 2 RFID TRANSCEIVERS

Indy® Reader Chip Family

The “Powered by Impinj” shield is your assurance of RFID integrity.
Indy Reader Chip Family—Performance and Flexibility

Key Building Blocks Address All Market Segments

The Impinj UHF RFID product line includes the Indy reader chip family, based on award winning technology acquired from Intel Corporation. These highly integrated, high-performance reader chips and supporting software deliver the key building blocks for a wide spectrum of UHF RFID readers. By reducing the complexity of reader designs while delivering unprecedented capabilities, Indy reader chips drive down the cost of design and manufacturing. And with a price/performance range encompassing good performance for the most cost-sensitive applications to the highest performance reader chip available, the Indy reader chip family addresses all reader segments.

**Performance and Flexibility**

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<th>Indy R500</th>
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<tr>
<td>Good</td>
<td>Up to 180 tags/sec read rate</td>
<td>Up to 100 tags/sec read rate</td>
</tr>
<tr>
<td>Better</td>
<td>Integrates up to 90% of the components in a traditional discrete reader design</td>
<td>Includes integrated and flexible DRM support</td>
</tr>
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<td>Incorporates the complete transmit, receive, demodulation, and baseband functions of the UHF Gen 2 standard</td>
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<td>Improves Tx phase noise to ease support for global regulatory requirements</td>
<td>Increased protocol configurability and access to advanced radio features</td>
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**Common Attributes**

Performance and flexibility: Indy reader chips have all of the performance and flexibility needed to enable the full range of UHF RFID applications and reader form factors, all based on a common Indy platform.

Simplicity and cost: High integration lowers design complexity, reduces reader size, cuts manufacturing costs, and increases reliability.

Support for worldwide standards: Reader chip and firmware support EPCGlobal UHF Gen 2 and ISO 18000-6C specifications, regional regulatory requirements and the full 840-960 MHz band.

Ease of deployment: Reader chip and software enable low-level diagnostics, remote management and provisioning, and easy integration.

Development tools: Protocol firmware, programming tools, radio drivers, and schematics all enable quick time-to-market.

Breakthrough development tools:
- A multi-platform Software Development Kit (SDK) supporting Windows® XP and Windows® CE
- Example RF board schematics to enable quick layout and design
- Robust design collateral including datasheets, interface specifications, application notes and sample code
- Graphical user interface for development and debug

Rich Development Environment Eases Reader Development

Impinj provides a rich development environment to help reader manufacturers get to market quickly; to enable broad compatibility with enterprise software applications; and to improve reader deployment, provisioning and management for end users, including:

- A development platform that provides a low-cost reference design and supplies necessary hardware and software for demonstration, evaluation, and development
- Protocol firmware supporting worldwide standards
- RFID-specific drivers for low-level register access, radio control, and protocol access
- Impinj RFID transceiver interface software allowing host processor plug and play compatibility, including remote radio access, provisioning, configuration, and fault handling
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To ease reader deployment, the Indy development environment includes low-level diagnostic and device management support. The Impinj RFID transceiver interface also supports plug-in compatibility between the low-level Indy reader radio software and higher level software applications.

Representative Block Diagram

The block diagram shown is for the highest performance Indy R2000.
Indy Reader Chip Family—Performance and Flexibility

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Software Stack Diagram

Impinj® RFID Transceiver Interface

Impinj® Reader Chip

Impinj® Indy Reader Chip

Host Interface Module

Protocol Module

Control Module

Interface Module

Impinj® RFID Transceiver Interface

Impinj® Reader Chip

Host Interface Module

Protocol Module

Control Module

Interface Module

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- DSB, SSB, and PR-ASK transmit modulation modes  
- Dense reader mode (DRM)  
- Configurable for other protocols |
| **Integrated Power Amplifier** | Configurable. External power amplifier supported for high-performance applications | Configurable. External power amplifier supported for high-performance applications | Configurable. External power amplifier supported for high-performance applications |
| **Modem** | Configurable digital baseband | Configurable digital baseband | Configurable digital baseband |
| **Operating Frequencies** | 840–960 MHz | 840–960 MHz | 840–960 MHz |
| **Package** | 64-pin 9 mm QFN | 56-pin 8 mm QFN | 64-pin 9 mm QFN |
| **Power** | Advanced power management | Advanced power management | Advanced power management |
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| **Sensitivity** | -68 dBm (DRM) | -95 dBm (DRM) with a 5 dBm carrier at Rx port | -95 dBm (DRM) |
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About BarcodesInc

Who We Are
BarcodesInc is North America's leading provider of specialized digital data hardware and software solutions. Our products include barcode scanners, mobile computing devices, identification card equipment, point-of-sale systems, barcode label and receipt printers, and consumables, all of which help customers improve productivity and profitability. Our product and solution experts have been serving both small businesses and large enterprises since 1994.

We Owe Our Success To You
It’s true that data tracking is our expertise - but customer satisfaction is our true passion. We have one overriding objective: focus on you, the customer. We understand that each customer’s need is unique. That’s why we listen carefully and tailor our solutions to meet your needs. We appreciate the opportunity to serve you and strive to exceed your expectations!

Why Choose BarcodesInc?

Dedicated Account Manager
Our Account Managers will not compromise when it comes to providing you top-notch service. Your Account Manager is the primary point of contact for your business and makes it a priority to get to know you, your company and all your needs.

Highly-Trained Technical Support
Our technical staff has the broadest knowledge and every significant certification in the industry. One of our friendly experts is always available to suggest products and solutions for any situation.

Incredible Value
Our purchasing power means big savings for you. Whatever your project, our team will work hard to deliver a solution that fits your budget.

Largest Inventory in the Industry and Same-Day Shipping
Whatever your barcoding, mobile computing, or printing needs, we will fill your order and ship it the same day.

Premier Access to Top Manufacturers
BarcodesInc maintains strong strategic partnerships with the leading manufacturers in barcoding, mobile computing, printing and RFID.

Responsive Customer Service
Every phone call and email is responded to promptly, completely and accurately by our customer service team.

Easy Returns
Damaged, defective or incorrectly ordered goods may be returned without hassle.