

IIOT CORE — LAYER 0

The Backbone of Intelligence Industrial Operations



Overview

The Manufacturing Intelligence Platform (MIP) is a modular, layered architecture that enables secure, scalable, and intelligent industrial automation. At its foundation, the IIoT Core captures high-fidelity operational data using a vendor-neutral, protocol-flexible approach. Built on global namespace standards, it ensures seamless integration, full traceability, and supports Symmetrical Parallel Aggregation (SPA™) based data orchestration for advanced analytics and control.



Key Features

- Supports multiple industrial protocols (Modbus, OPC UA, MQTT, etc.)
- Native integration with structured data formats (global namespace compliant)
- Real-time local data capture, normalization, and timestamping
- Supports buffering, retries, and failover for telemetry resilience
- Designed for deployment across legacy and modern equipment environments

Use Cases

- Normalize and timestamp sensor, actuator, and controller data at the edge
- Serve as a physical + logical foundation for deploying edge intelligence
- Enable real-time data acquisition without reliance on upstream systems
- Provide structured signal inputs for control, batching, and analytics layers
- Support local compute, buffering, and fail-safe telemetry during outages

How it Works

The IIoT Core module sits at the foundational layer of the MIP Stack, connecting directly to industrial hardware through multi-protocol support (e.g., Modbus, OPC UA). It captures, normalizes, and timestamps operational data locally before routing it to edge modules or cloud layers. The core supports resilient buffering, failover logic, and secure handshake protocols for continuous telemetry flow.

Advantages

- Decouples edge devices from cloud dependencies
- Improves data reliability and traceability
- Speeds deployment across legacy and new systems
- Normalizes telemetry for structured analytics
- Enables buffering and fault-tolerant operation at the source

