

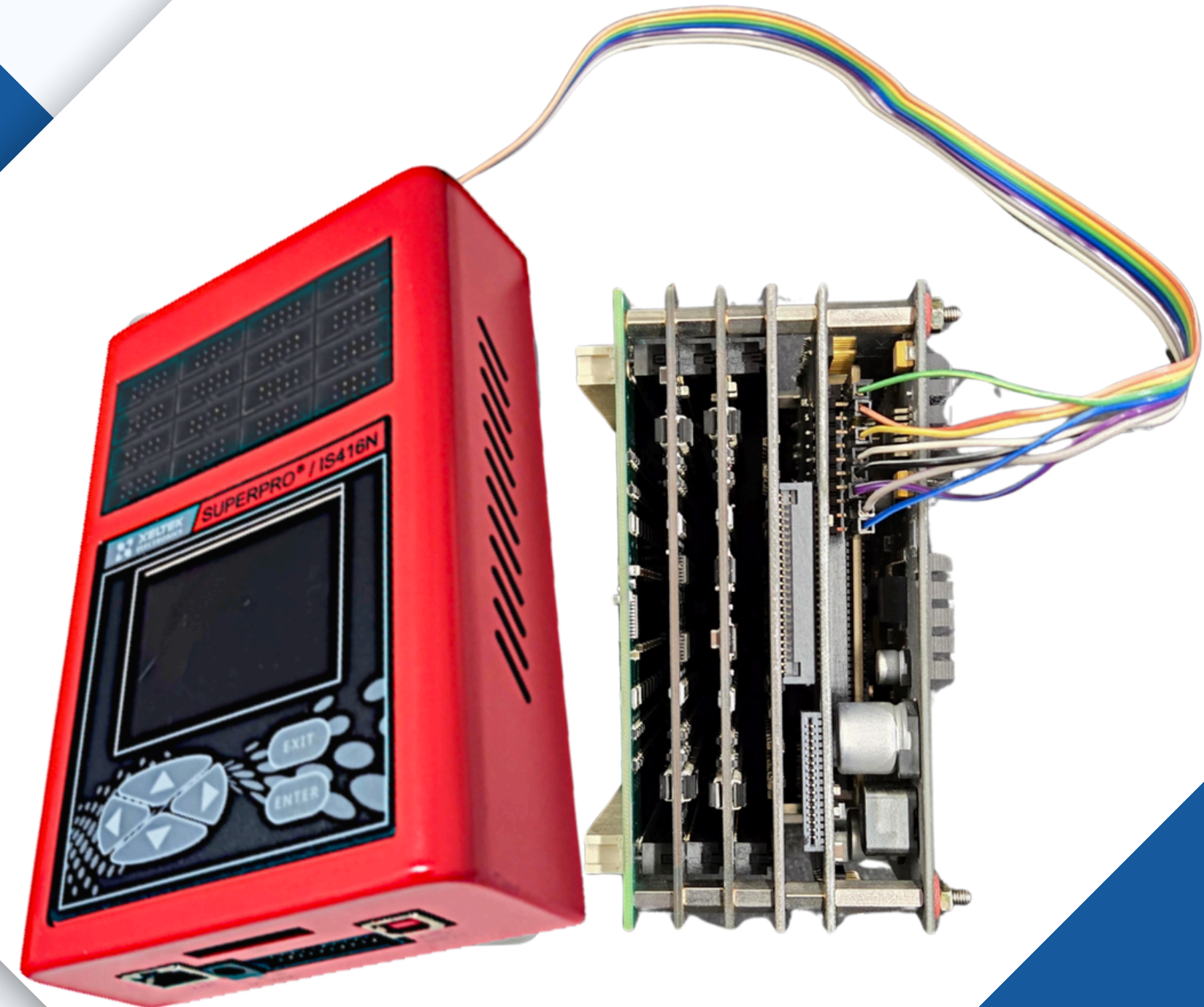
XELTEK SUPERPRO IS416N

16 CHANNEL ISP PROGRAMMER

SILICON VALLEY, CALIFORNIA, USA

+1 408-530-8080

SALES@XELTEK.COM



WWW.XELTEK.COM

INTRODUCTION

The SuperPro IS416N is a high-performance 16-channel In-System Programmer (ISP) engineered to handle the rigorous demands of modern electronic manufacturing. The IS416N delivers exceptional speed, reliability, and flexibility. It supports virtually all major serial protocols and can program up to 16 serial devices simultaneously. This complete, scalable solution ensures faster throughput, reduced handling, and seamless integration with ICT, FCT, ATE systems, and automated test fixtures.

IN-SYSTEM PROGRAM

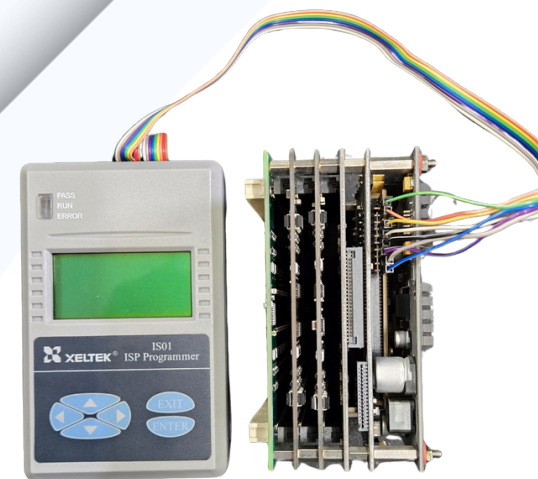
All modern electronic products rely on programmable devices such as NOR/NAND Flash, eMMC, EEPROM, MCU, and CPLD.

An IC programmer embeds customer code and data into these devices, making it an essential tool in electronic production similar in importance to chip mounters.

In traditional mass production, chips are programmed manually or automatically before being transferred to SMT assembly. This process is known as off-line programming.

In contrast, In-System Programming (ISP), or in-circuit programming, programs devices directly on the circuit board. Widely adopted in Europe and the United States, ISP is now increasingly used in the R&D stage by domestic enterprises.

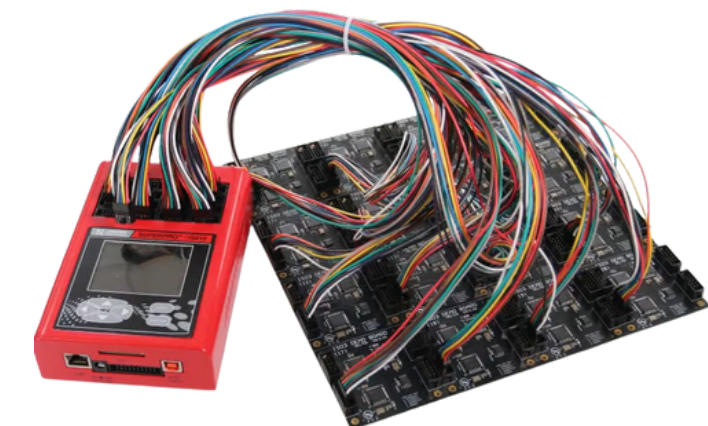
ISP SOLUTIONS



Single Channel



Programming Station



Gang Programmer

ABILITIES OF SUPERPRO IS416N

Extensive Device Support

Powered by Xeltek’s comprehensive algorithm library, the SPis416 supports nearly all serial protocol programmable devices and parallel protocol chips such as NOR/NAND Flash, eMMC, EEPROM, and MCU.

High Efficiency

Equipped with 16 programming channels for parallel operations, delivering faster throughput for production lines.

Industrial-Grade Design

Engineered for demanding environments and complex target boards, including support for long-line drive (up to 2m for certain chips) and drive isolation control for stable performance.

Proven Reliability

Backed by Xeltek’s rich ISP engineering experience, ensuring consistent and reliable programming even in complex circuit boards.

Flexible Integration

Supports DLL/API for seamless integration with ICT, ATE, or other production equipment enabling full ICT/ATE+ISP workflows or custom development.

Automation & Ease of Use

Provides batch processing tools, script file support, and multiple operation modes:

PC software (USB/LAN), stand-alone (keyboard + LCD + SD card), ATE interface, command line, and scripting.

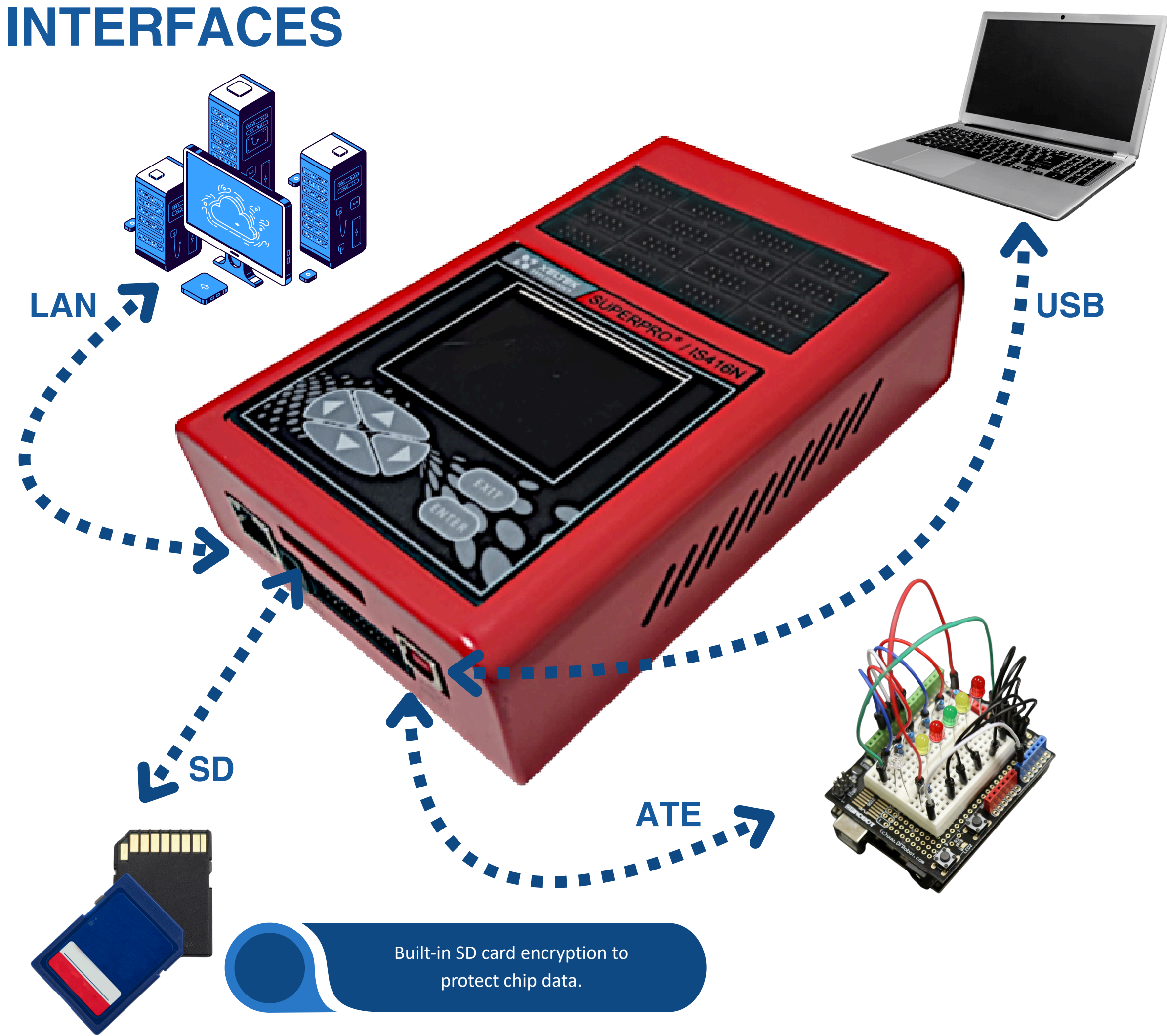
Intellectual Property Protection

Utilizes Xeltek’s SD card encryption technology to protect customer data and control production quantity.

Supported Protocols

- **Serial Protocols:** SPI, I²C, JTAG, BDM, UART, MON, SCI, SWD, SBW, C2D, ICC, SWIM, SDQ, DBG, ICE, CSI, LIN, etc. These typically require fewer lines and are the most common for online programming.
- **Parallel Protocols:** NOR Flash, NAND Flash, etc. These require more lines and are less frequently used for ISP projects.

INTERFACES



Modes

S/W Online (USB / LAN, PC)

- Operate via software
- Interface: PC software

Recommended as the first mode for testing before switching to others

Stand-Alone (Keyboard & OLED, SD)

- Run operations via built-in keypad
- Interface: OLED display & keypad
- No computer required
- SD card encryption

ATE Port (ATE Port, SD)

- Select project via ATE I/O
- Interface: OLED display, ATE output
- No computer required
- Suitable for automatic production lines

Command Line Terminal (USB / LAN, SD)

- Operate via PC command line
- Interface: OLED display, ATE output
- Requires a computer and technical expertise
- SD card encryption available

Script Mode (USB / LAN, PC)

- Run scripts using the xltbash.exe tool
- Interface: File log + ATE output
- Requires a computer
- Easy to learn, suitable for automation and integration with ICT test
- Minimal technical expertise required

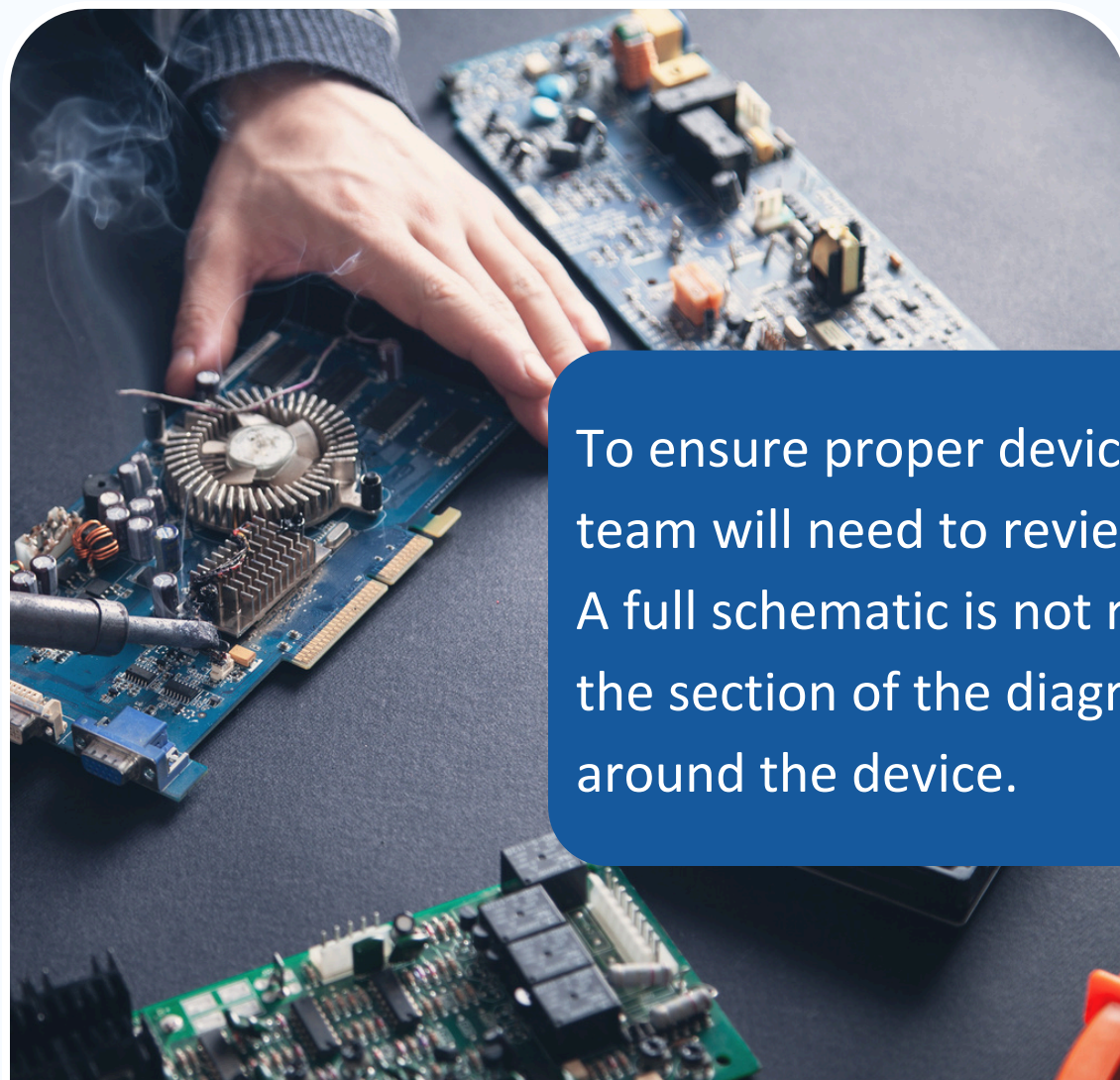
API/DLL Mode (USB / LAN, PC)

- Control via DLL/API (e.g., VC++, VB, LabVIEW)
- Interface: API result + ATE output
- Requires a computer and professional engineer
- Best for automatic production line integration with ICT test
- Provides the highest flexibility

PURCHASE INSTRUCTIONS

The SuperPro IS416N requires either a device algorithm license or a device algorithm development in order to enable programming functionality.

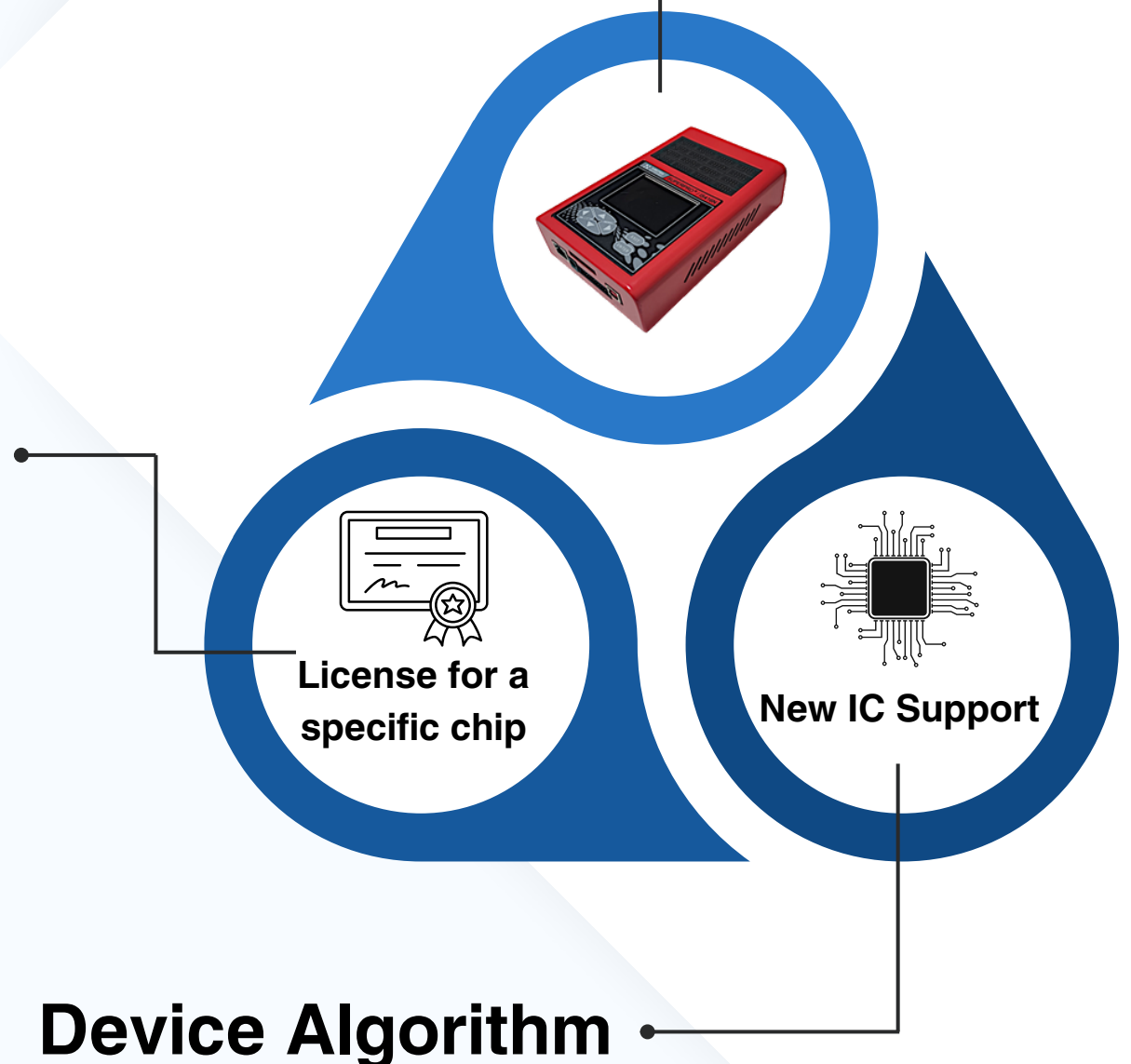
For new IC support, additional non-recurring engineering (NRE) charges will apply.



To ensure proper device support, our Xeltek engineering team will need to review your PCB schematic. A full schematic is not required, you may simply provide the section of the diagram that shows the connections around the device.

Device License

Programmer



Device Algorithm

ADVANTAGES

SUPPORT

Extensive Device Support

- Supports chips from 711+ IC manufacturers and over 143K+ devices (as of 2025).
- We have extensive programming experience and a large number of successful implementation cases, providing customers with a reliable guarantee of quality and performance.

QUICK

Rapid Response & Updates

- We maintain cooperation agreements with major IC manufacturers, giving us early access to the latest programming data and enabling us to deliver rapid chip support.
- Our team of senior engineers enables us to quickly provide customized online programming solutions, ensuring shorter lead times and optimized workflows.

COST

High Cost Performance

- Compared with competitors, pricing is typically 50% lower or even less while delivering the same or better performance.

FLEXIBILITY

Operation & Integration

- Offers a variety of operating methods and modes to meet diverse application needs, along with rich APIs and scripting tools that simplify system integration and control at any level.

HARDWARE & ELECTRICAL SPECIFICATIONS

- **ISP Protocol Support:** I²C, SPI, UART, BDM, MW, JTAG, CAN, RS232
- **PC Interface:** USB 2.0 (high-speed), LAN (100M)
- **Off-line Memory Media:** SD card
- **Keypad & Display:** 6-key keyboard, LCD (40 characters × 4 lines)
- **Power Supply:** DC 12V / 1.5A (with power adapter)
- **Main Unit Dimensions / Weight:** 184 × 160 × 78 mm; 0.8 kg
- **Package Dimensions / Weight:** 310 × 250 × 145 mm; 1.65 kg
- **Operating Environment:** 0–50 °C; 20%–80% humidity

WARRANTY

Hardware Warranty

- Two-year coverage for hardware repair services from the purchase date.

Shipping for RMA Items

- Xeltek covers FedEx Ground shipping for return shipments to domestic (USA) addresses.
- International customers are responsible for shipping costs both ways.

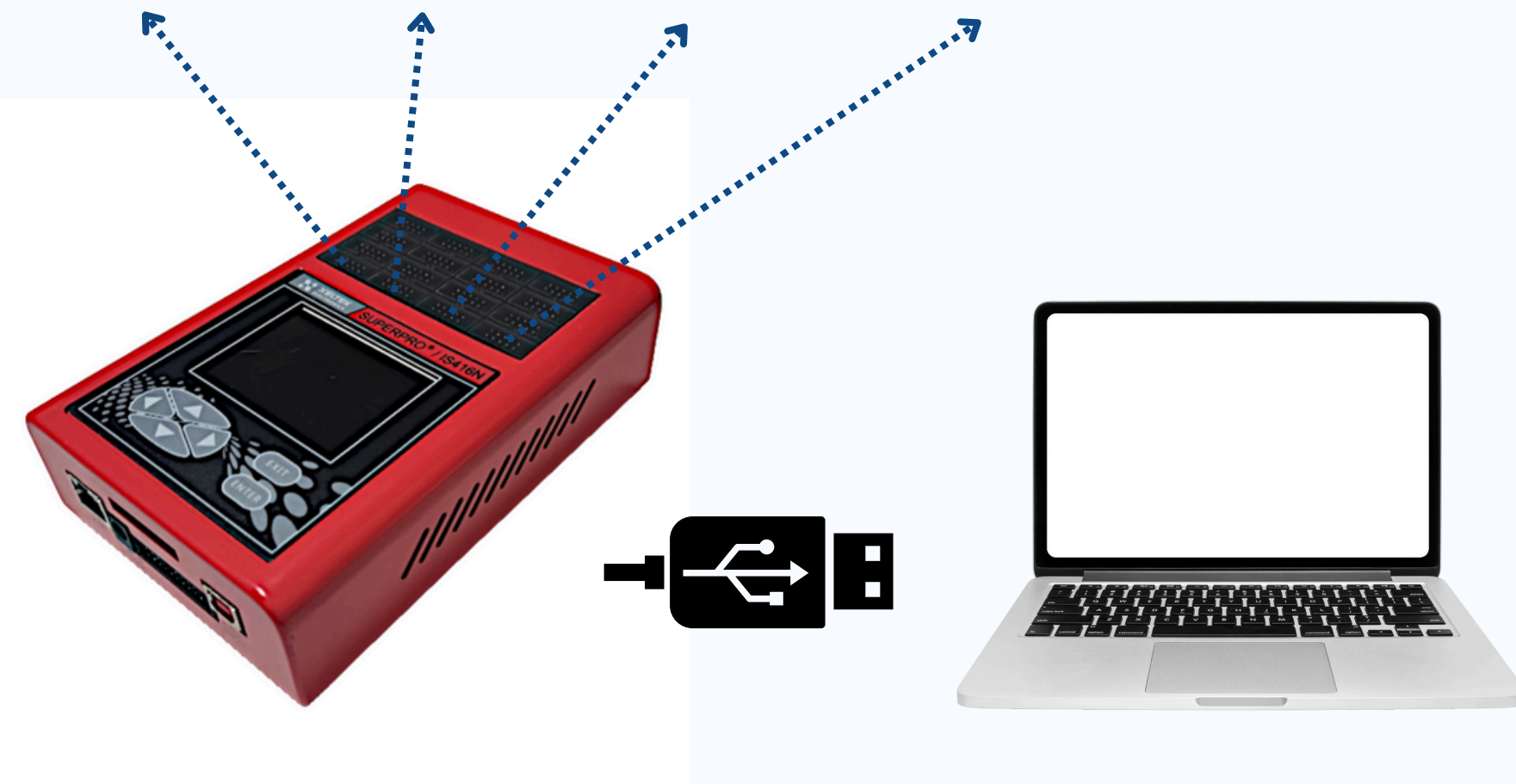
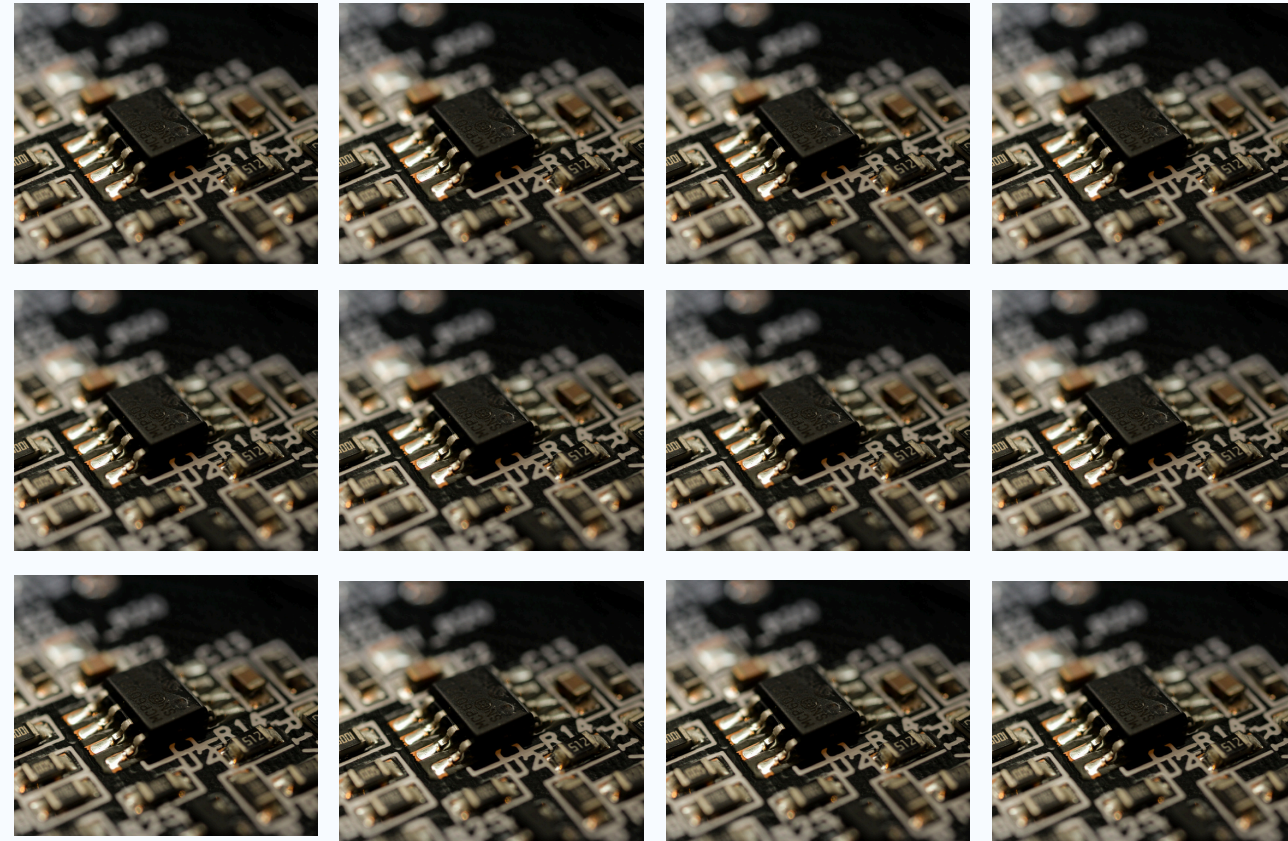
Technical Support

- Support available Monday–Friday, 6:00 AM – 4:30 PM (PST).
- Contact via email for faster response (written requests are prioritized over phone calls due to high call volume).
- Calls are handled in the order they are received.
- Out-of-Warranty Services
- Service fees apply for repairs and support beyond the warranty period.

HARDWARE & ELECTRICAL SPECIFICATIONS

- **High-Speed ISP Programmer** – Industrial-grade quality for large-scale production
- **Wide Protocol Support** – SPI, I²C, JTAG, BDM, UART, MON, SCI, SWD, SBW, C2D, ICC, SWIM, SDQ, DBG, ICE, CSI, LIN
- **Extensive Device Support** – Compatible with devices from ABOV, Altera, Atmel, Cypress, Fujitsu, Infineon, Lattice, Microchip, Micron, NXP, Renesas, Samsung, ST, Texas Instruments, Toshiba, Winbond, Xilinx, Zilog, and more
- **High Parallelism** – Programs up to 16 serial devices or 4 parallel NAND/NOR/eMMC devices simultaneously
- **Flexible ISP Options** – Supports mixed device programming (different models/types in one unit)
- **General Control Ports** – Signal isolation, relay isolation, power control, click detection, LED expansion, and more
- **Three Modes of Operation:**
- **Online Mode** – Connected to PC via USB 2.0
- **Off-line Mode** – Standalone with keypad, LCD, SD card
- **Network Mode** – LAN connection, local or remote control
- **Advanced Pin-Driver Technology** – Cleaner signals, wide voltage range, higher clock frequency (1.2V–5.0V Vcc)
- **Built-in Safety Features** – Voltage self-calibration, self-diagnosis, over-current/over-voltage/ESD protection
- **Production & Quality Control** – Logging, statistics, encryption, and rights management for IP protection
- **Optional Web Programmer** – Centralized server management, QC monitoring, real-time statistics, remote project updates
- **Customizable** – Special functions, socket adapters, and algorithm software available

CASE ANALYSIS-1



Requirements

The target board contains 12 units of 24C16 devices, with a required total programming time of less than 3 seconds per board.

Solution

The SuperPro IS416N features 16 independent channels, allowing all 12 devices to be programmed simultaneously in under 3 seconds using the standard operation mode.

Summary

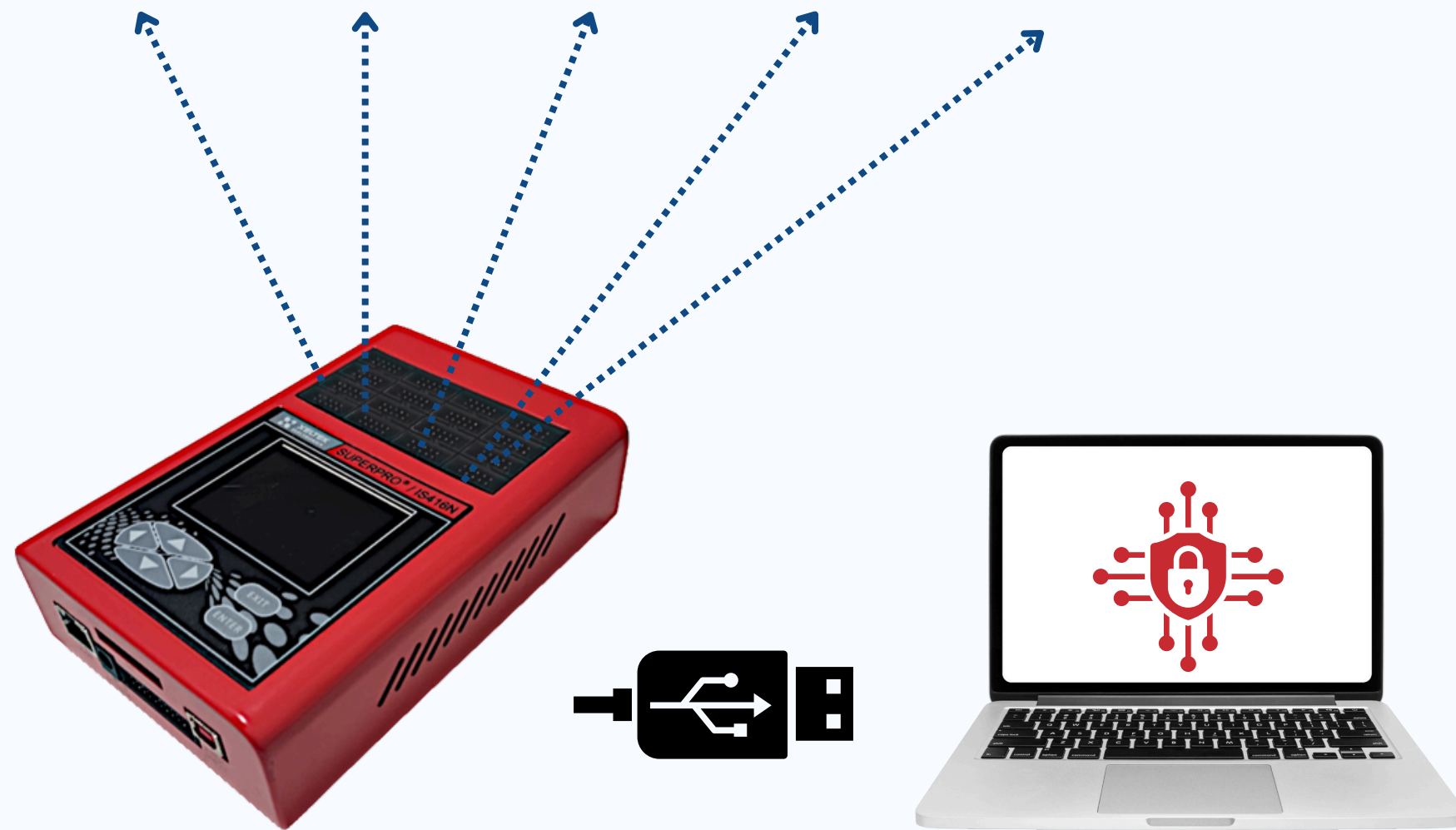
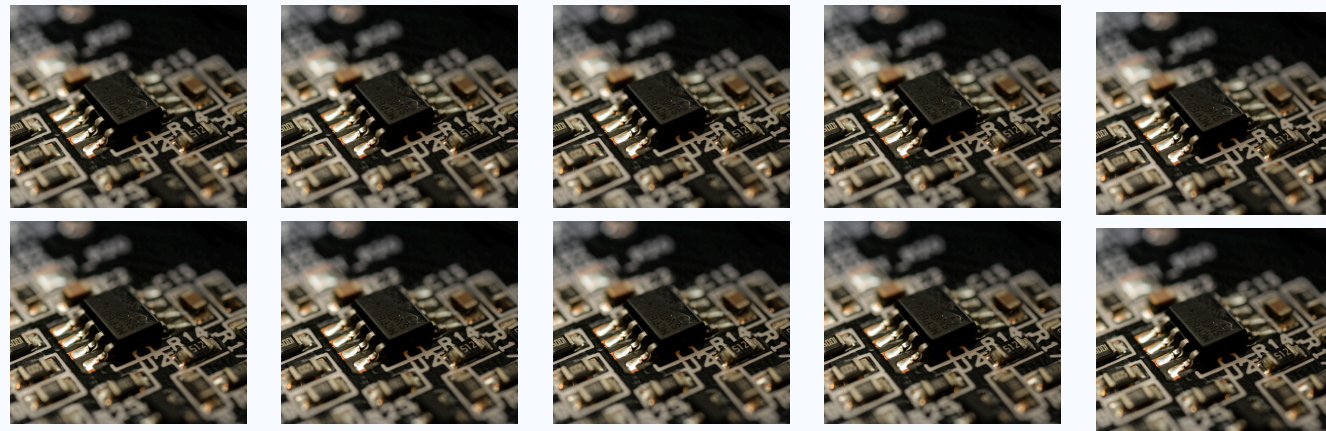
For boards with up to 16 devices, the IS416N can program all devices in parallel efficiently. In this case, the standard mode is sufficient to meet the customer's programming requirements.

Mode:

S/W Online (USB, PC)

- Operate via software
- Interface: PC software

CASE ANALYSIS-2



Mode:

S/W Online (USB, PC)

- Operate via software
- Interface: PC software
- Encrypted data and set protocols

Requirements

The target board contains 10 SC2224 chips, each of which can be fully programmed in under 10 seconds.

Because the chip data requires confidentiality and strict production quantity control, programming must be authorized before data generation and duplication.

Solution

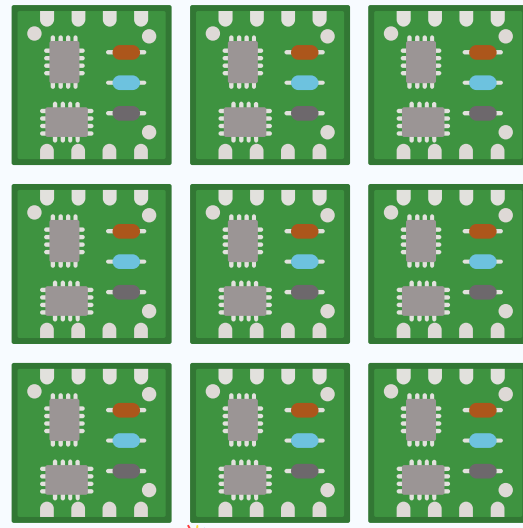
With 16 independent programming channels, a single SuperPro SPis416N can program up to 16 devices simultaneously, ensuring maximum efficiency for high-volume production. The built-in SD card encryption function safeguards sensitive chip data, preventing unauthorized duplication or misuse. Using the terminal command-line interface (CLI), the encrypted SD card can be securely decrypted on site, enabling authorized operators to initiate the programming process with full control over production quantity.

Summary

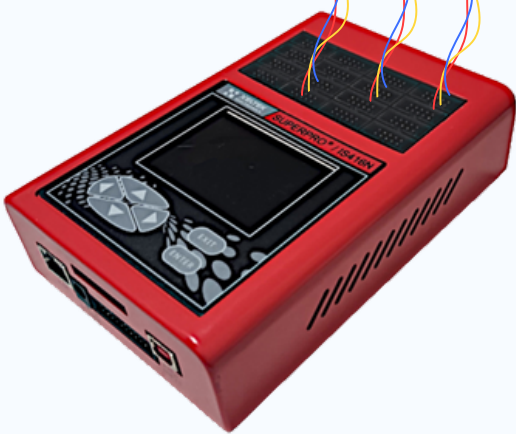
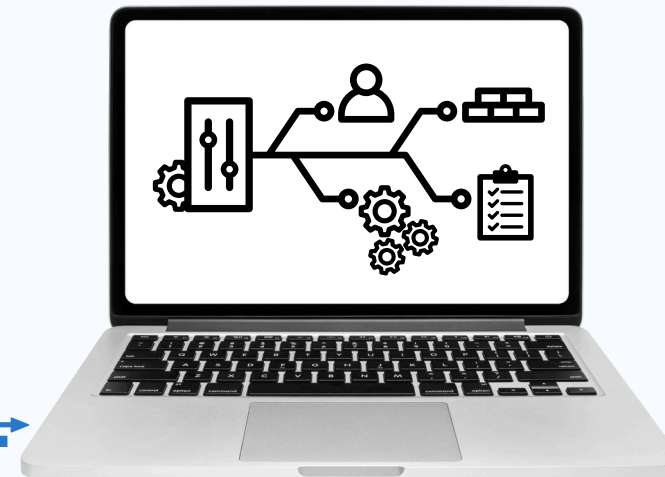
To maintain absolute confidentiality of chip data, the SD card encryption function of the SuperPro IS416 can be utilized. This feature not only protects sensitive data from unauthorized access but also enables strict production quantity control. Once the authorized programming limit is reached, the project is automatically locked and frozen, ensuring no additional devices can be programmed without approval.

CASE ANALYSIS-3

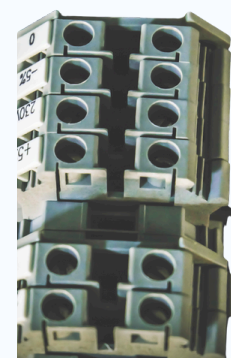
Target Boards



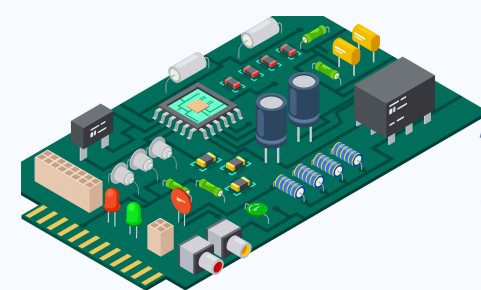
Programming Cables



ISP Programmer



PLC



Result Output Board

OK OUTPUT

NG OUTPUT

PORT1, PORT2 - OUTPUT

Requirements

The target board contains 9 units of R7F0C001 devices, with a total programming time requirement of less than 10 seconds. The programming system must be fully embedded in the production line, capable of receiving a start-up signal and automatically outputting results while rejecting unqualified circuit boards.

Solution

The SuperPro IS416 features 16 independent channels, allowing all 9 devices to be programmed simultaneously in under 10 seconds. The system can be equipped with an extended PLC interface, which enables it to receive start signals from the production line and provide individual pass/fail results for each chip.

Summary

We can provide an extended PLC interface that seamlessly integrates with the input and output ports of your production line, making system integration simple and efficient.

WORLD WIDE

Xeltek is trusted by leading companies and organizations across the globe, including:

- **Automotive:** Tesla, Valeo, Volkswagen, Mercedes-Benz, BMW, BOSCH, Continental, FUBA Automotive Electronics GmbH, Germany Micron (Xi'an) Electronic Technical Co. Ltd.
- **Consumer Electronics & Appliances:** HAIER, MIDEA, Whirlpool, HITACHI, SHARP, TCL, Philips
- **Technology & Industrial:** Siemens, Agilent, METTLER TOLEDO, TT Electronics, Flex International Ltd.
- **Security & Safety:** First Alert, Conlog, Honeywell

With a proven track record across multiple industries, Xeltek delivers reliable programming solutions that meet the demands of global leaders in automotive, consumer electronics, industrial, and government sectors.



Industrials

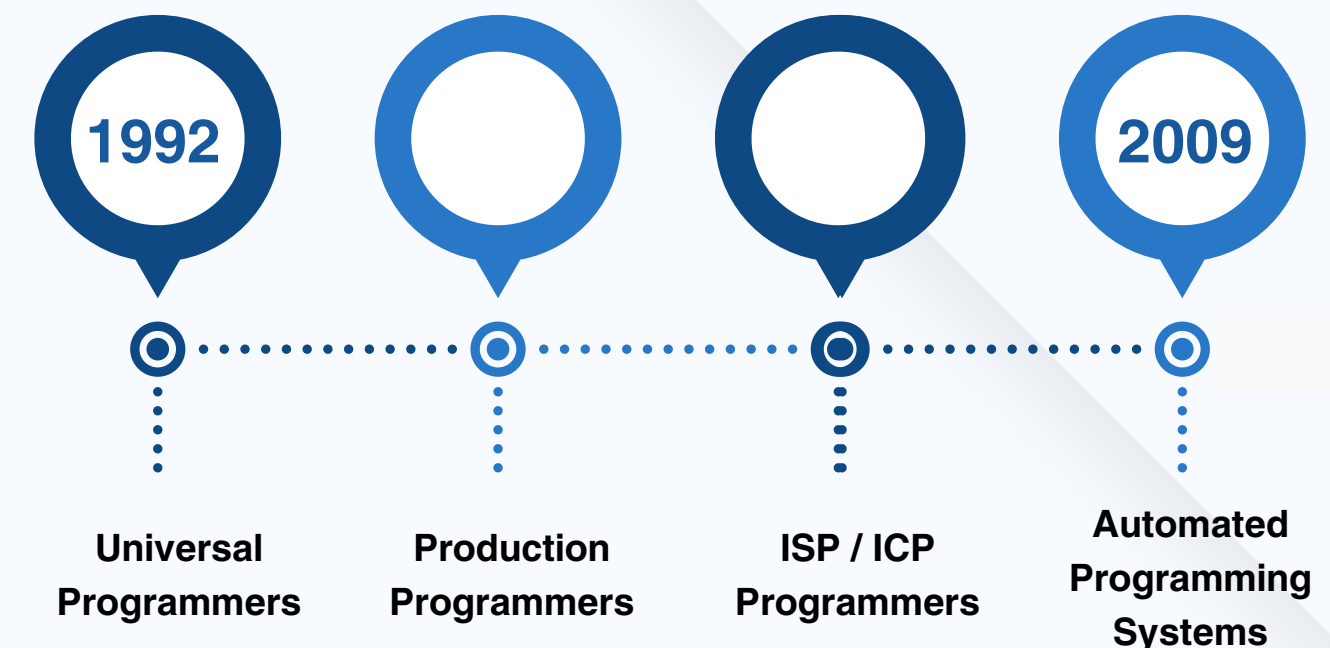
- ☑ AUTOMOTIVE ELECTRONICS
- ☑ HOUSEHOLD ELECTRIC APPLIANCES
- ☑ OEM AND TESTING SYSTEM INTEGRATION
- ☑ INDUSTRIAL CONTROL & OTHERS



XELTEK - SILICON VALLEY, CALIFORNIA, USA

Xeltek is a global leader in device programming solutions, offering a wide range of tools dedicated to both online (ISP/ICP) and offline IC programming. Our programmers support an extensive variety of devices, including NAND Flash, NOR Flash, Microcontrollers, EPROM, EEPROM, PLD, and other programmable devices.

Our product portfolio covers the full spectrum of applications from low cost engineering programmers to high-performance gang and cluster programmers, as well as advanced Automated Programming Systems (SuperBOT Series) for high-volume production.



 SALES@XELTEK.COM  **+1 (408) 530-8080**