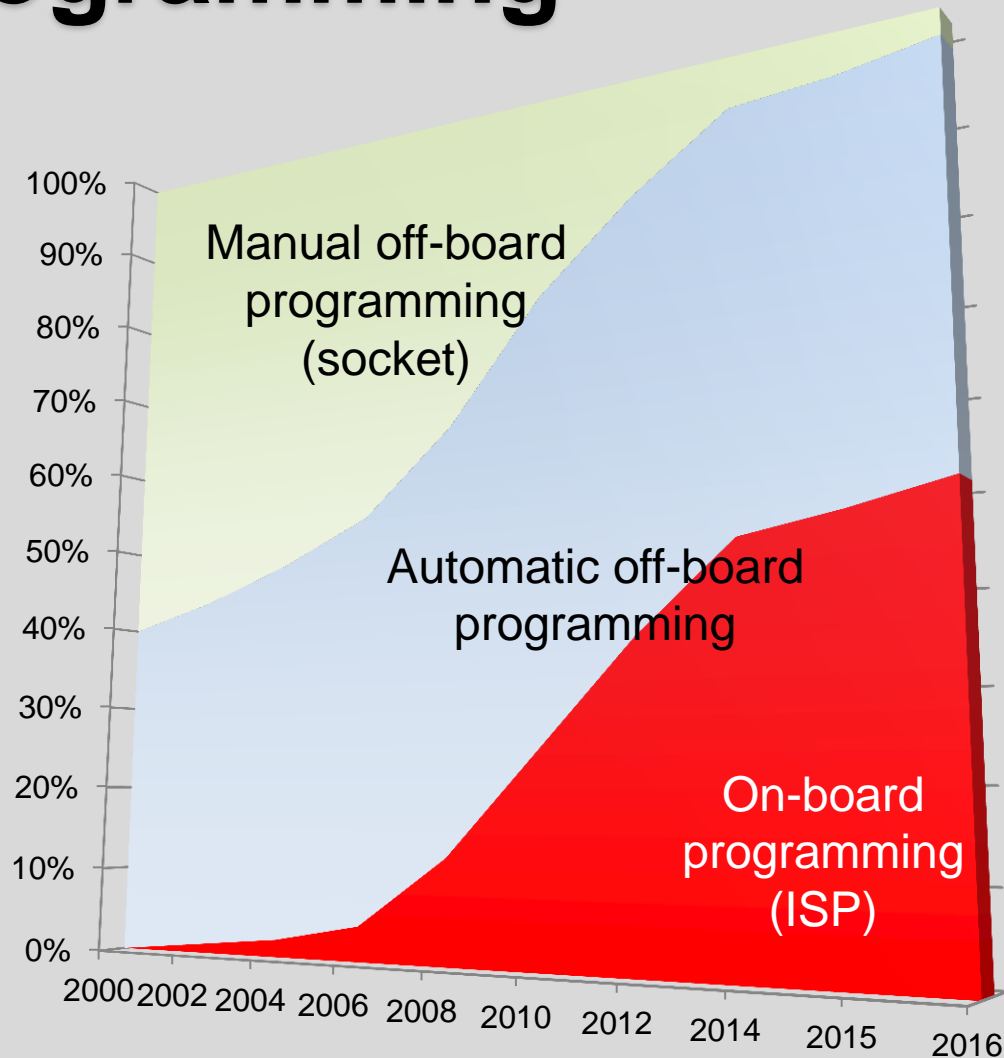


WriteNow! In-System Programmers

Competitive Advantages

The Market of Device Programming

- In-System Programming (ISP) will rapidly grow in the next years
- Automotive industry is a leading ISP adopter
- Algocraft aims to become a key player in this market



Market Needs

- The global, electronics manufacturing market requires high volumes and low-production costs
- Programming time is a key factor
- The WriteNow! technology has been designed to achieve high-speed programming, without sacrificing high quality and flexibility





Four Models for Your Needs

- True parallel, high-speed programming
- Compact size
- Standalone operation, no PC required
- Universal device support
- Extended connectivity (RS-232, LAN, low-level I/O interface)
- Easy to install and to use

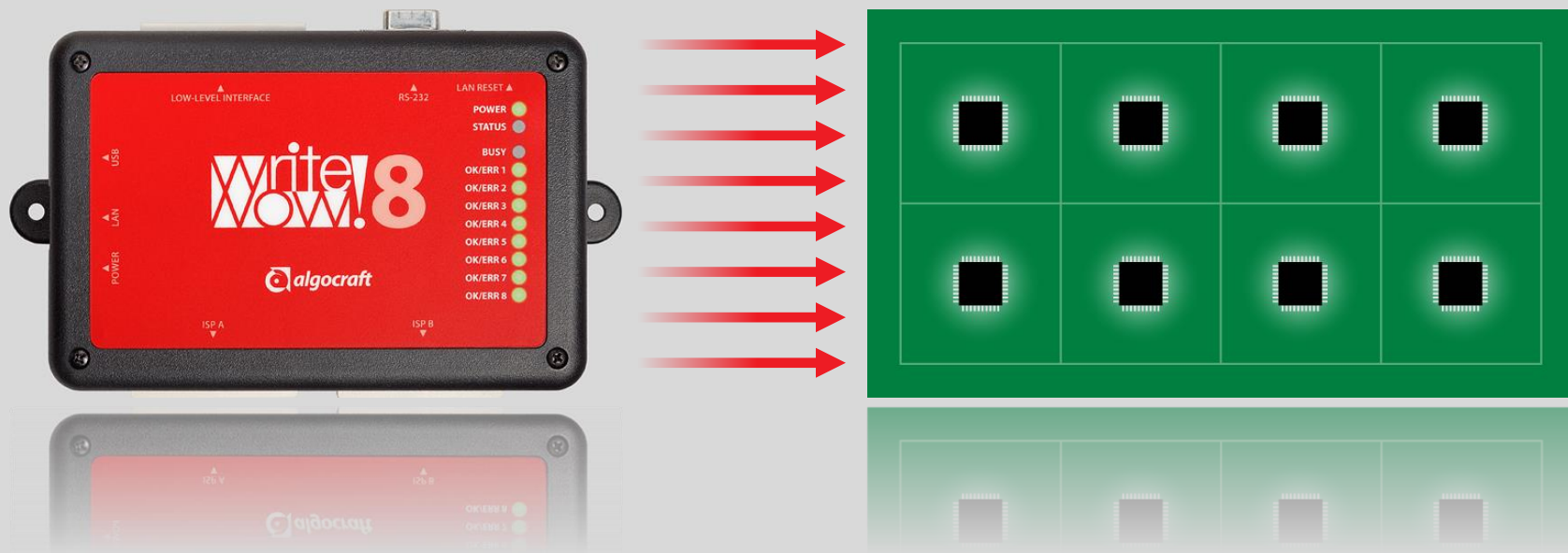


True Parallelism

- Frequently, PCBs are grouped into PCB panels
- To program all of the devices in a panel, a traditional approach consists of using either multiple programming tools (with added costs and complexity) or a demultiplexing solution (with slow overall programming time)
- WriteNow! programs up to 8 devices at once, drastically reducing programming times, costs, and system complexity



True Parallelism

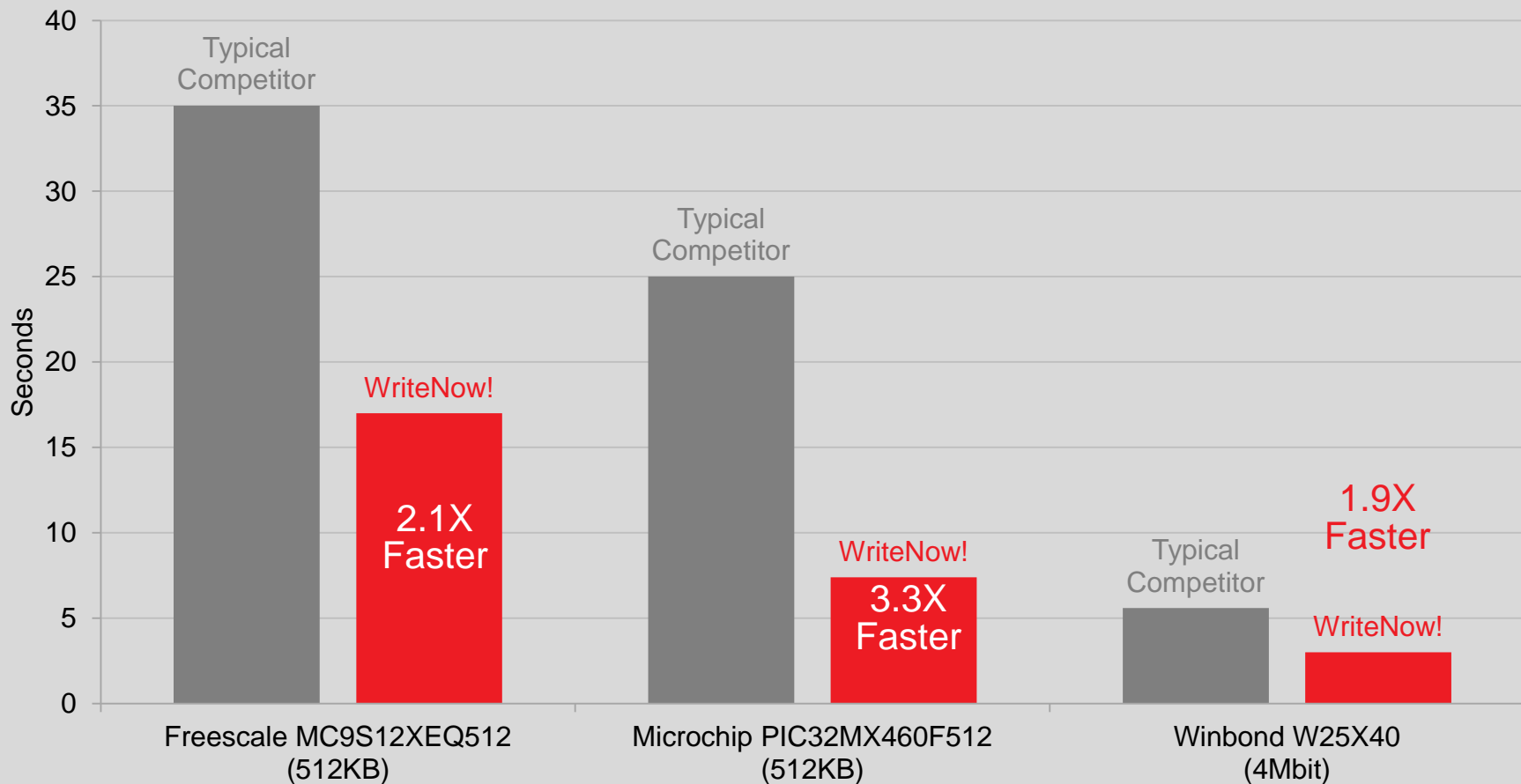


High-Speed Programming

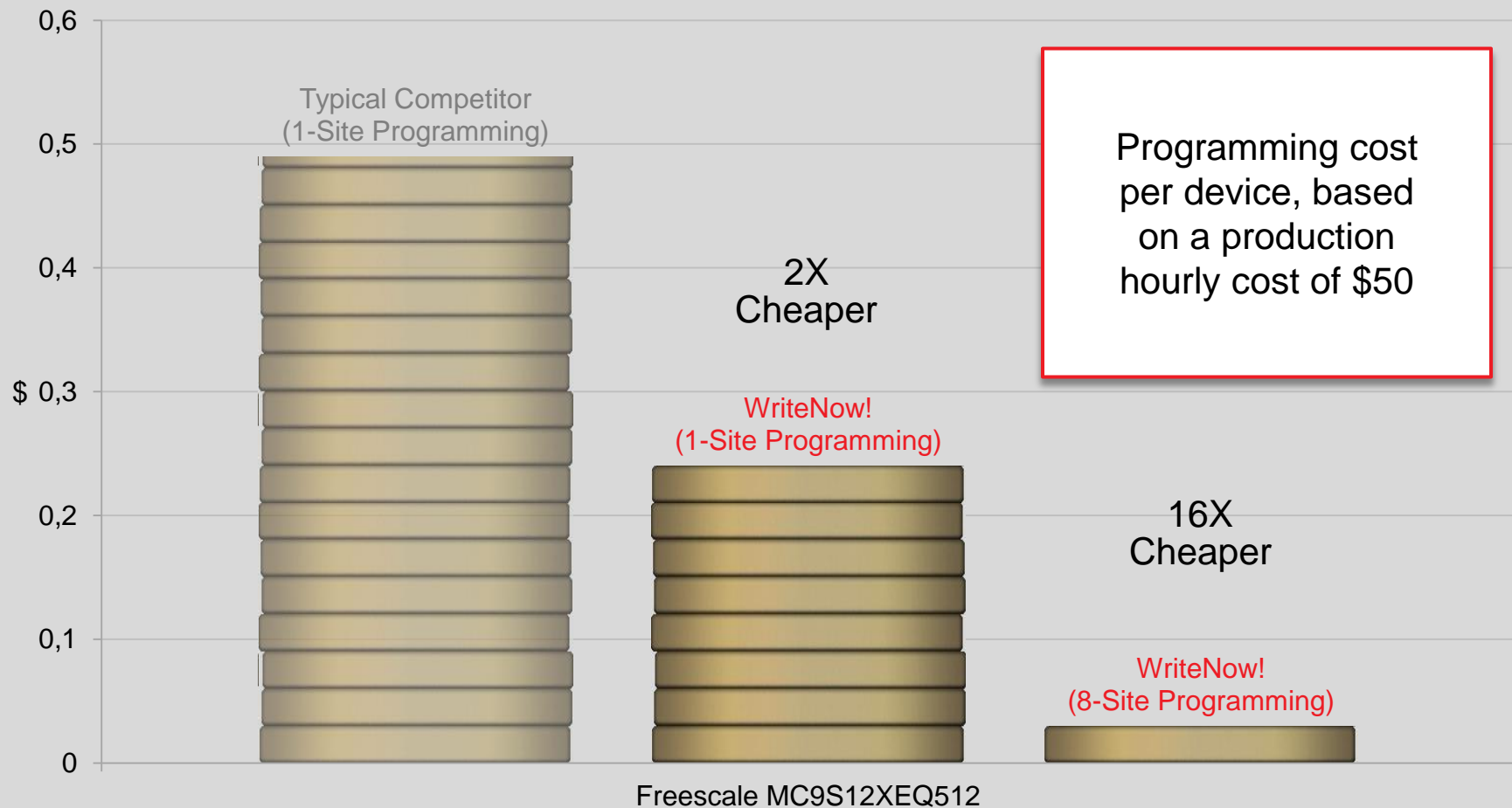
- It's a common need, nowadays, to program microcontrollers with over 1MB of Flash or serial memories with over 64MB
- The faster the programming, the lower the production costs
- The WriteNow! performances allow to reach the theoretical programming speed for any given device



Programming Times Comparison



Programming Costs Comparison



Universal Device Support

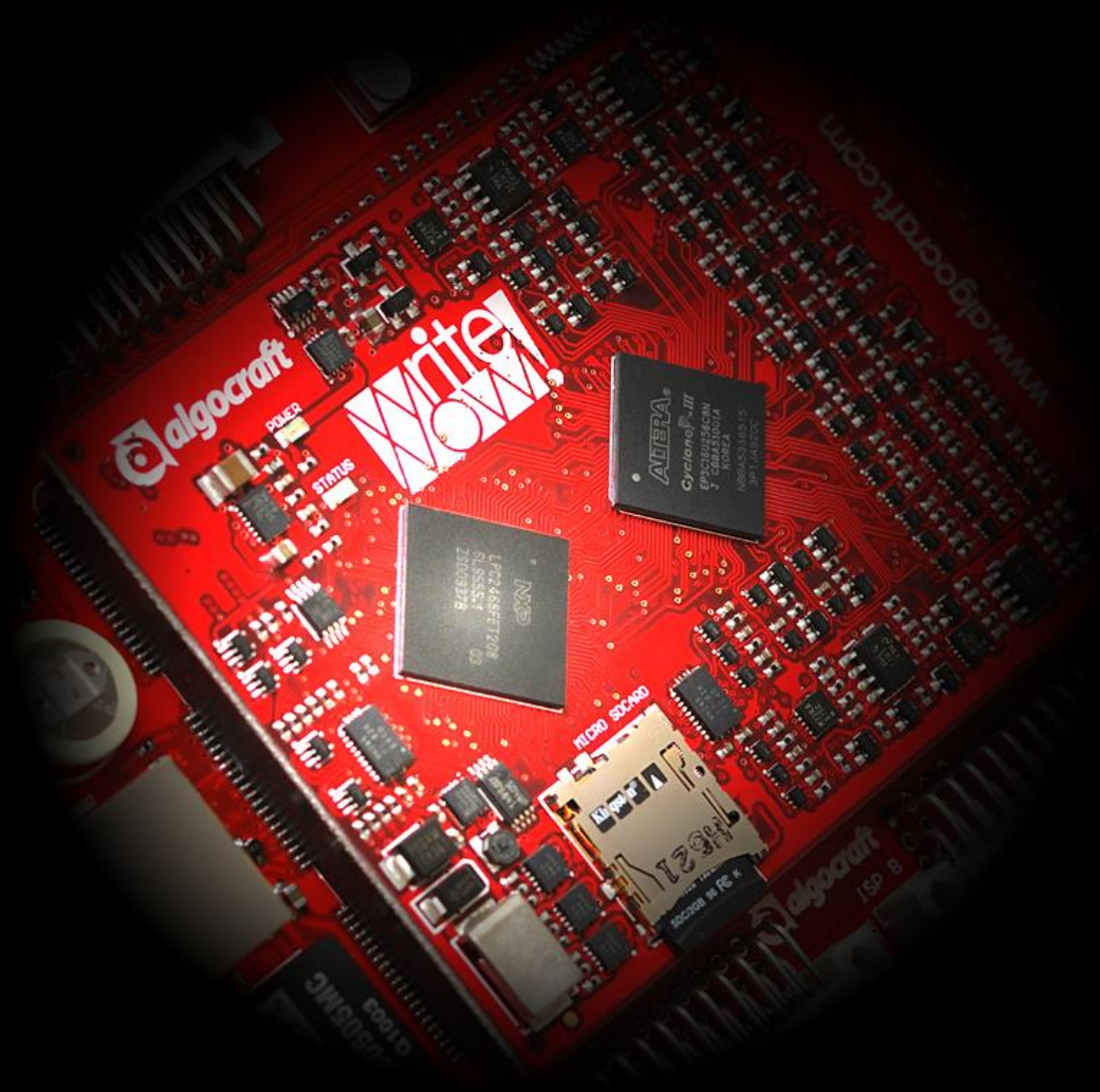
A single programming tool supporting various devices and manufacturers means:

- Only one system to learn
- Less spare parts
- Only one company to interface to
- Engineering time and costs saved
- More time to dedicate to the quality of the programming/testing flow



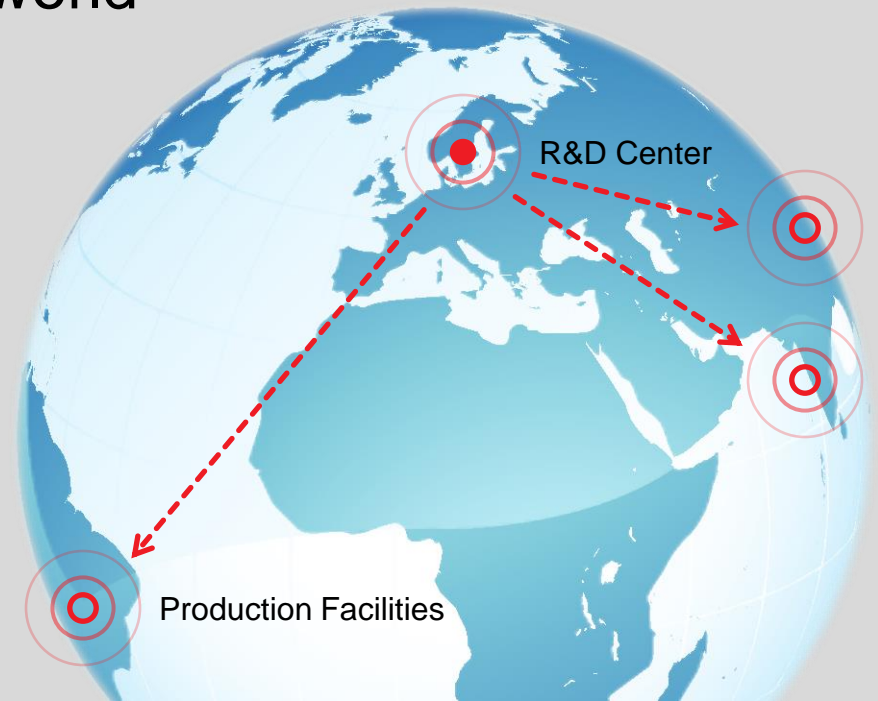
Silicon Support

- Adesto
- Atmel
- Cypress
- Infineon
- Microchip
- Micron
- Nordic Semiconductor
- NXP (Freescale)
- Renesas
- Sigma Designs
- Silicon Labs
- SST
- STMicroelectronics
- Texas Instruments
- Winbond
- New manufacturers and devices are constantly added



Worldwide Remote Connection

- Manufacturing companies often need to synchronize local data with distant production facilities
- WriteNow! allows production data to be sent over the Internet from a local R&D laboratory directly to any other WriteNow! instrument in the world
- Likewise, distant WriteNow! instruments can be remotely controlled from a local PC



Data Repository

Via LAN interface, WriteNow! programmers (clients) can read data (files) from one server. The programmers can be also controlled from a secondary interface port (RS232, I/O, LAN, etc)

- Reduce problems arising from data proliferation
- Data synchronization
- Data crypton



Variable Data Programming

WriteNow! easily allows to custom program each single device with variable data, such as:

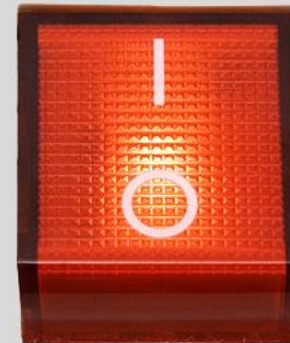
- Serial numbers
- Product vendor ID
- Batch number
- Barcode data
- And any other variable data

Standalone Control

- Binary codes, board parameters, programming flow (and, above all, programming intelligence) reside inside WriteNow!
- WriteNow! works either permanently connected to a PC, or in standalone
- When in standalone, a simple “start” command string can be sent by an ATE or PC to initiate the programming flow
- After the programming flow is started, the ATE or PC can switch to other tasks (e.g. starting the test of other boards)—no external resources are needed to carry out the programming flow
- In the simplest connection scenario, an ATE can control WriteNow! via low-level I/O lines (START, BUSY, ERR/OK)

Relay Barrier

- Built-in relay barrier allows ISP lines to be disconnected from the target system, thus allowing other operations (i.e., functional tests) to be performed by other equipment
- Relay trigger signal allows synchronization with an external relay barrier or demultiplexer module



Demultiplexer Module

- A wide range of WriteNow! demultiplexer modules are available in order to match any customer needs
- Handle up to 32 boards
- Relay for each demultiplexer channel (GND included)

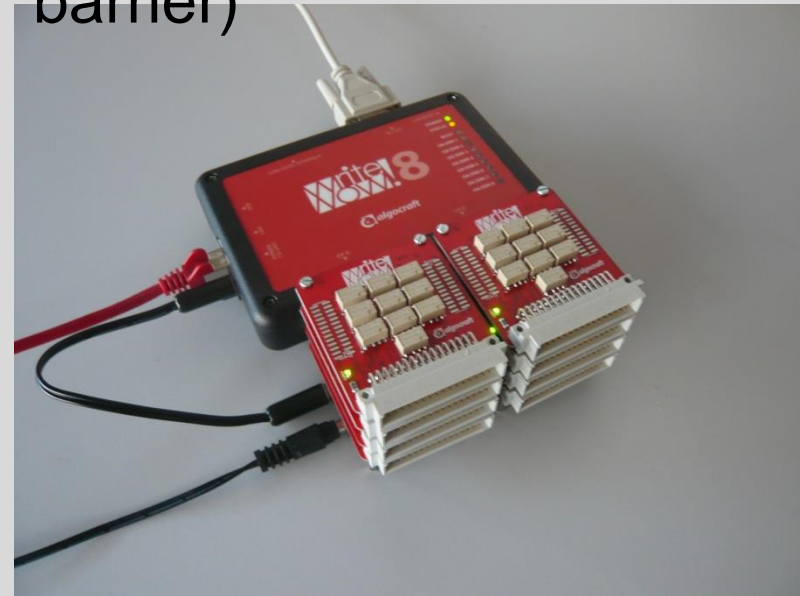
Model	Nmb. Boards (in parallel)	Nmb. Boards (in demultiplexing)
WN-PRG02A	2	8
WN-PRG04A	4	16
WN-PRG08A	8	32

External Modules

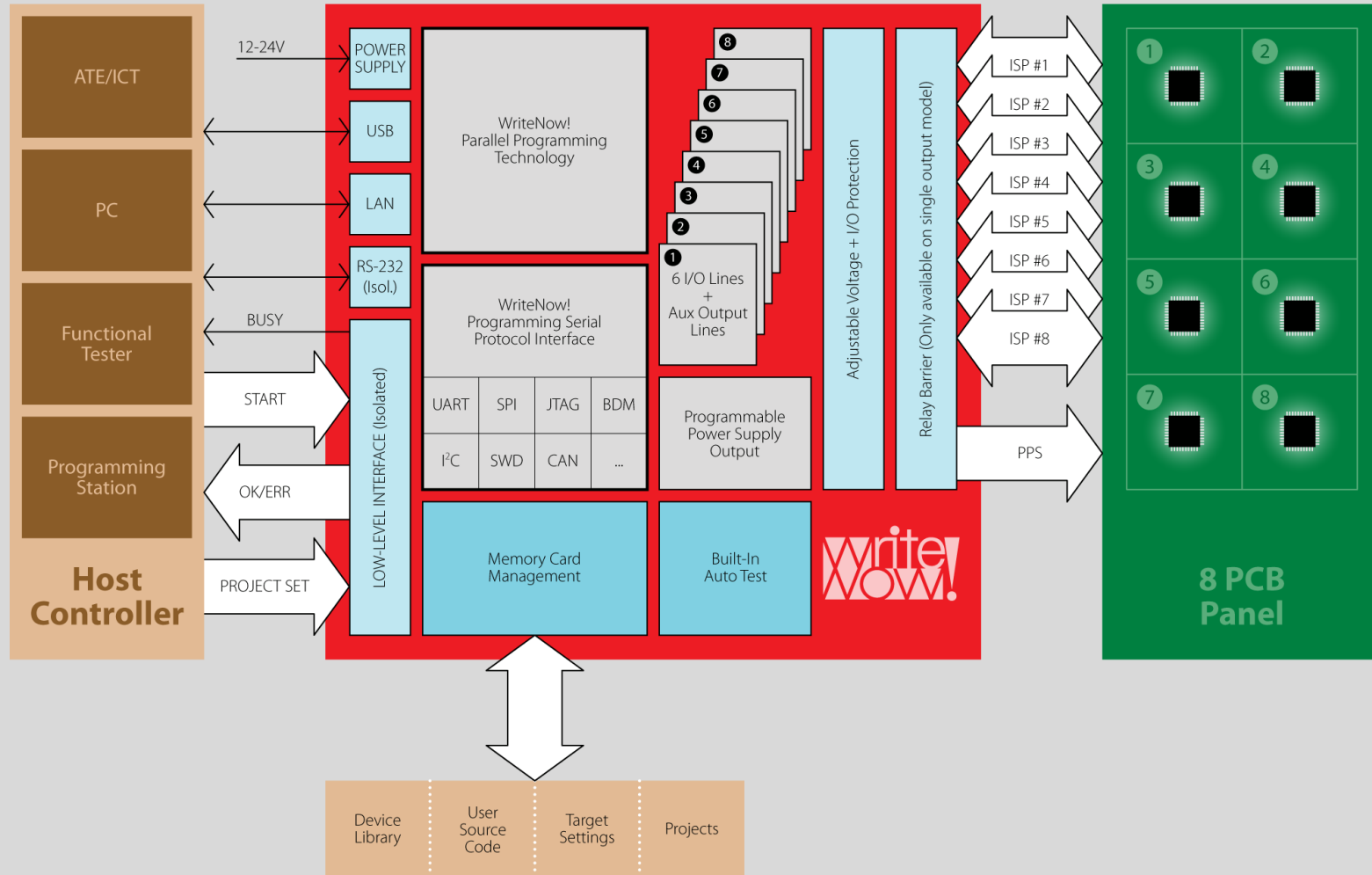
WriteNow! Programmer
with relay barrier module
(8 site in parallel)



WriteNow! Programmer
with demultiplexer module
(32 channels with relay
barrier)



Block Diagram



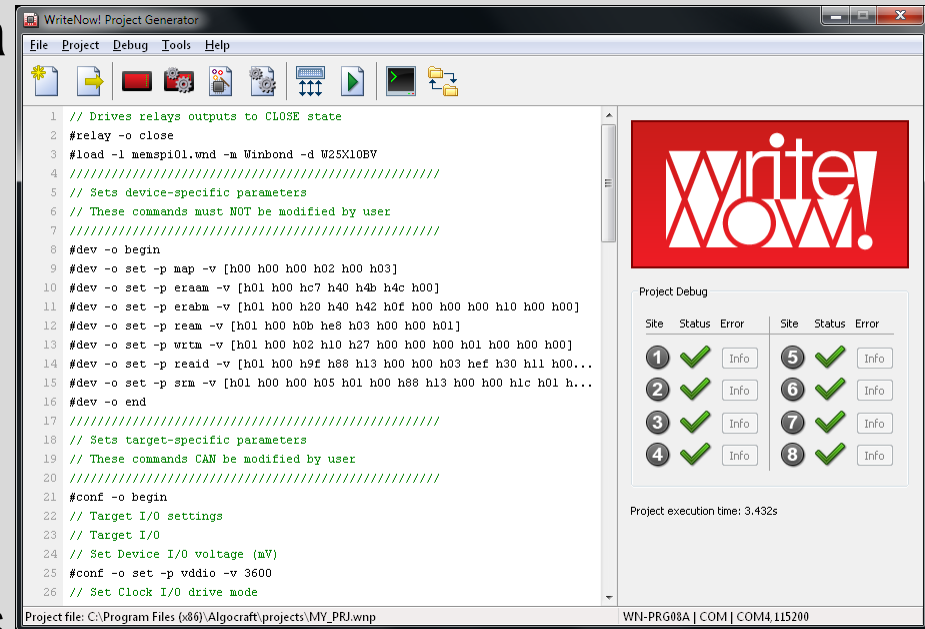


General Features				
Programming Sites	1	2	4	8
Power Supply	15-25V	15-25V	15-25V	15-25V
Device Type Support	Microcontrollers, Serial Memories	Microcontrollers, Serial Memories	Microcontrollers, Serial Memories	Microcontrollers, Serial Memories, Parallel Memories
Programming Protocols	UART, SPI, JTAG, I ² C, BDM, SWD, etc.	UART, SPI, JTAG, I ² C, BDM, SWD, etc.	UART, SPI, JTAG, I ² C, BDM, SWD, etc.	UART, SPI, JTAG, I ² C, BDM, SWD, etc.
Relay Barrier	Yes (included)	Yes (optional)	Yes (optional)	Yes (optional)
Demultiplexer Module	No	Yes (optional)	Yes (optional)	Yes (optional)
ISP Lines				
Adjustable Voltage Range	1.6-5.5V	1.6-5.5V	1.6-5.5V	1.6-5.5V
Adjustable Voltage Resolution	100mV	100mV	100mV	100mV
Bidirectional Lines	6	12	24	48
Programmable Clock Out Lines	1	2	4	8
Programmable Power Supply (PPS)				
Range	1.5-15V	1.5-15V	1.5-15V	1.5-15V
Resolution	100mV	100mV	100mV	100mV
Channels	1	2	4	8
Host Interface				
RS-232 (Isolated)	Yes	Yes	Yes	Yes
LAN (Isolated)	Yes, 100Mbit/s	Yes, 100Mbit/s	Yes, 100Mbit/s	Yes, 100Mbit/s
USB	Not yet available	Not yet available	Not yet available	Not yet available
Low-Level Interface (Isolated)	START, OK/ERR, BUSY, PRJ_SEL[0..5]	START, START_ENA[1..2], OK/ERR[1..2], BUSY, PRJ_SEL[0..5]	START, START_ENA[1..4], OK/ERR[1..4], BUSY, PRJ_SEL[0..5]	START, START_ENA[1..8], OK/ERR[1..8], BUSY, PRJ_SEL[0..5]

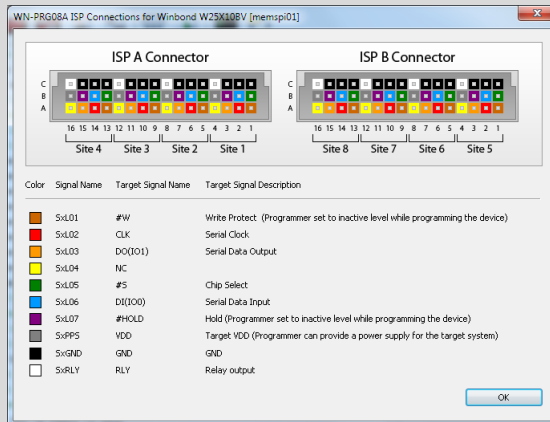
Software: Project Generator

Easily create and debug a programming Project in a few guided steps:

- Device selection
- Source file creation
- Board parameter settings
- Programming flow options
- Upload and run the Project

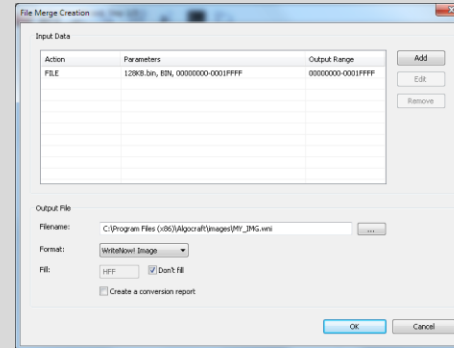


Software: Built-In Utilities

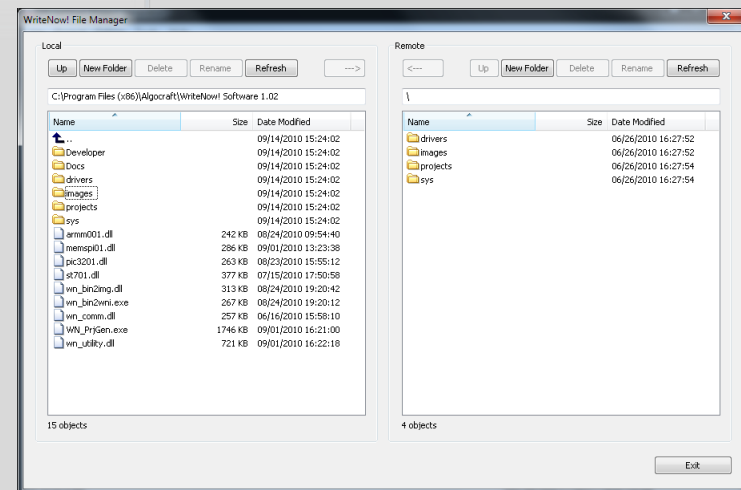


Easy ISP Signal Connections: simplifies target wiring

File Manager: allows you to easily see the WriteNow! file structure and transfer files with the PC



File Merge: combines different programming data sources (boot, application, variable data, etc.) in a single output file



Version Backup/Restore

- Instrument firmware and programming data can be backed up and restored on any instrument, at any time
- Instrument can be restored to a previous version to produce same programming results



SOLUTIONS FOR THE PROGRAMMING INDUSTRY

Learn more at www.algocraft.com