



Microchip MCU IDE Update

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Microchip IDEs

A dark, long-exposure photograph of a city street at night. The image shows light trails from moving vehicles, creating streaks of light across the road. In the background, several tall, illuminated skyscrapers are visible against the dark sky. The overall scene is a high-contrast, black and white representation of a busy urban environment.

Microchip IDEs

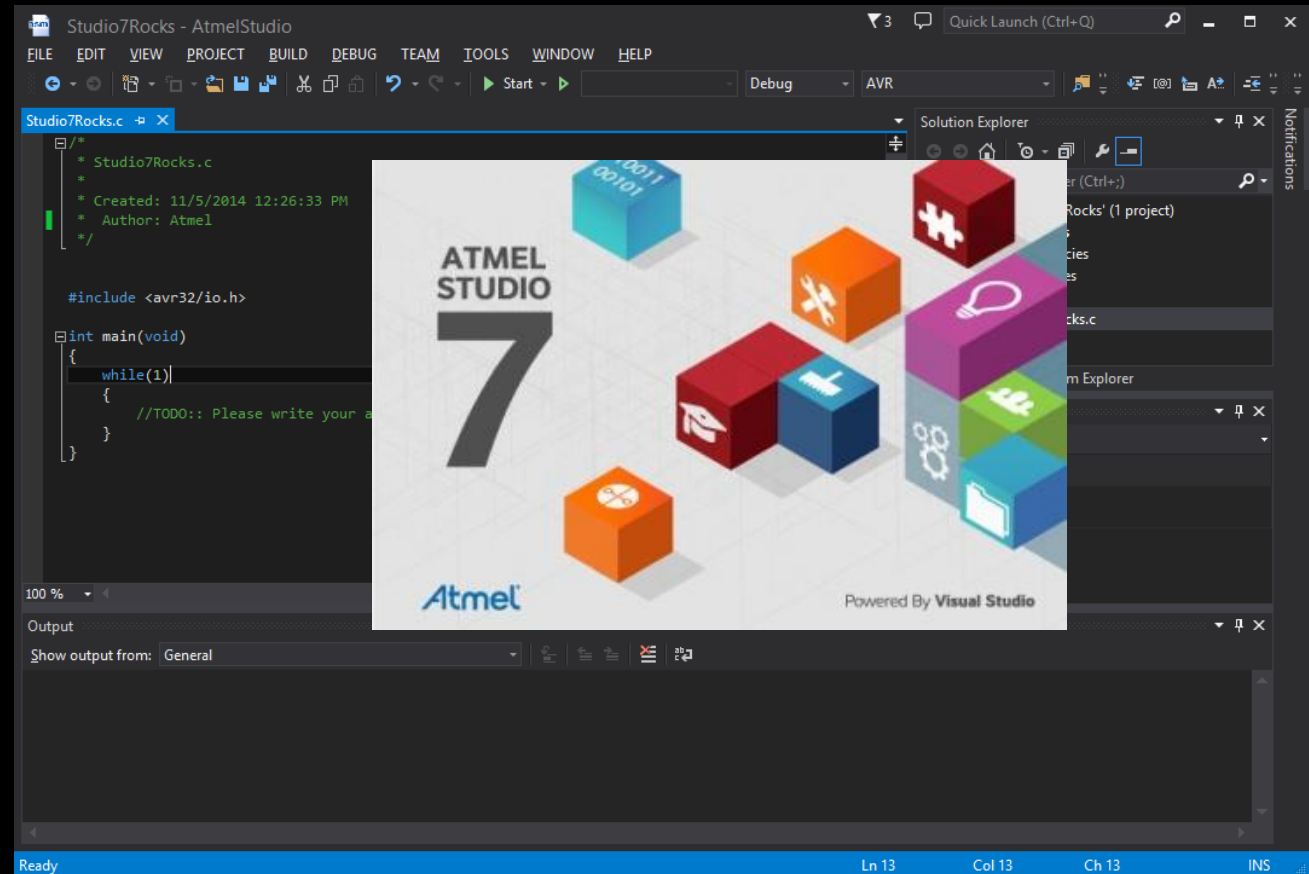
		AVR® MCU	PIC® MCU	dsPIC® DSC	SAM MCU	CEC1702
IDEs	MPLAB® X IDE	✓	✓	✓	✓	✓
	MPLAB Xpress		✓	✓		
	Atmel Studio	✓			✓	



Atmel Studio and Atmel Start

Atmel Studio

- > Professional IDE for coding
- > Based on Microsoft Visual Studio
- > Support all Atmel devices: from Tiny to Cortex-M7
- > Free Compiler (GCC)
- > No Limit on Flash Size
- > FREE!



Atmel Embedded Software

> Atmel Software Framework

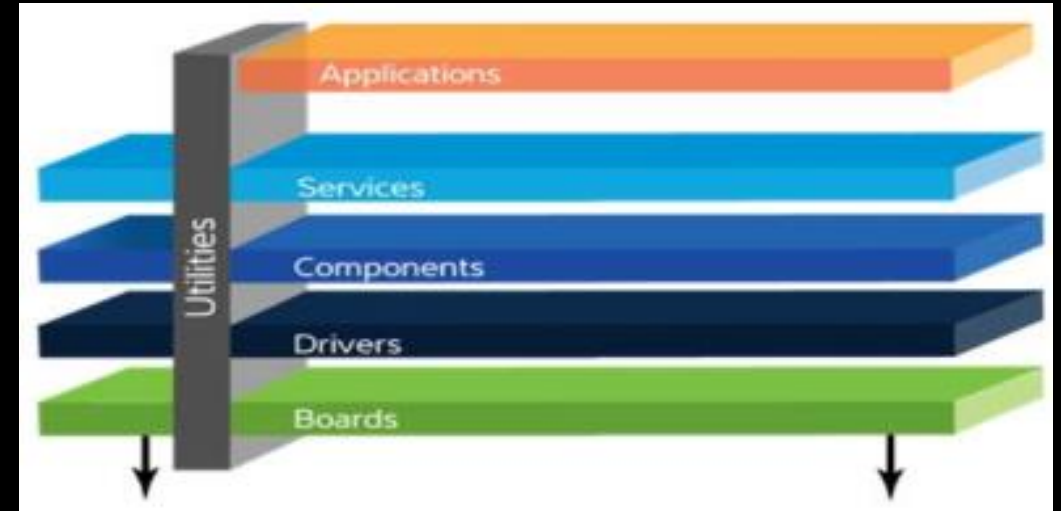
- > 2000+ examples & reference designs
- > Common API across AVR & ARM MCUs
- > ASF Explorer wizard with automated dependency management in Studio

> Atmel Gallery

- > Extension manager integrated in Atmel Studio
- > ~100 Free, eval & 3rd party commercial software packages & plug-ins available
- > Moderated by Atmel for content quality

> Next Gen ASF - ASFv4

- > Targeting better performance, lower flash and ram footprints
- > simple, consistand interfaces
- > Production ready code shortens time to market



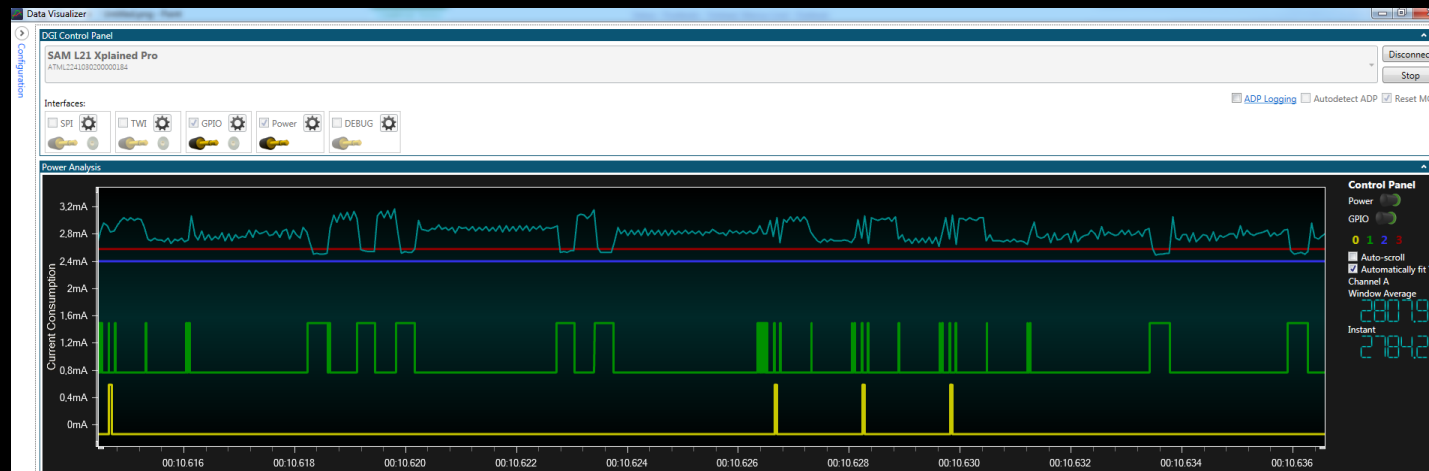
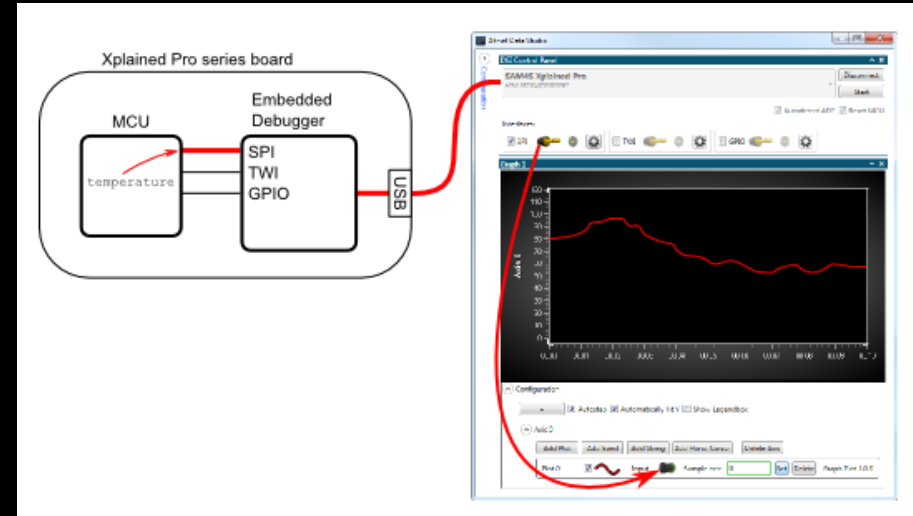
Atmel Data Visualizer

> Available in Atmel gallery

- > Processes and renders data collected while debugging
- > Uses EDBG Data Gateway Interface, or serial port on custom boards
- > Renders GPIO, SPI, TWI, USART.. Today.
- > Roadmap covers touch, motor feedback, wireless...
- > Power data supported starting with SAML21-XPRO

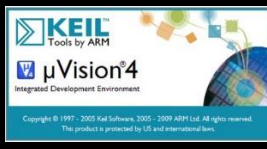
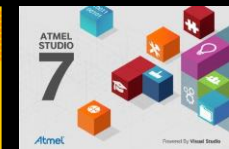
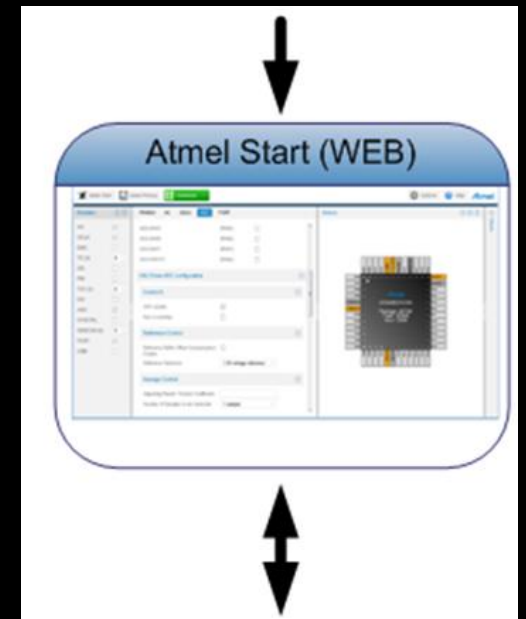
> Can run as stand alone application

- > Pluggable view in Studio 7, stand alone for other IDEs

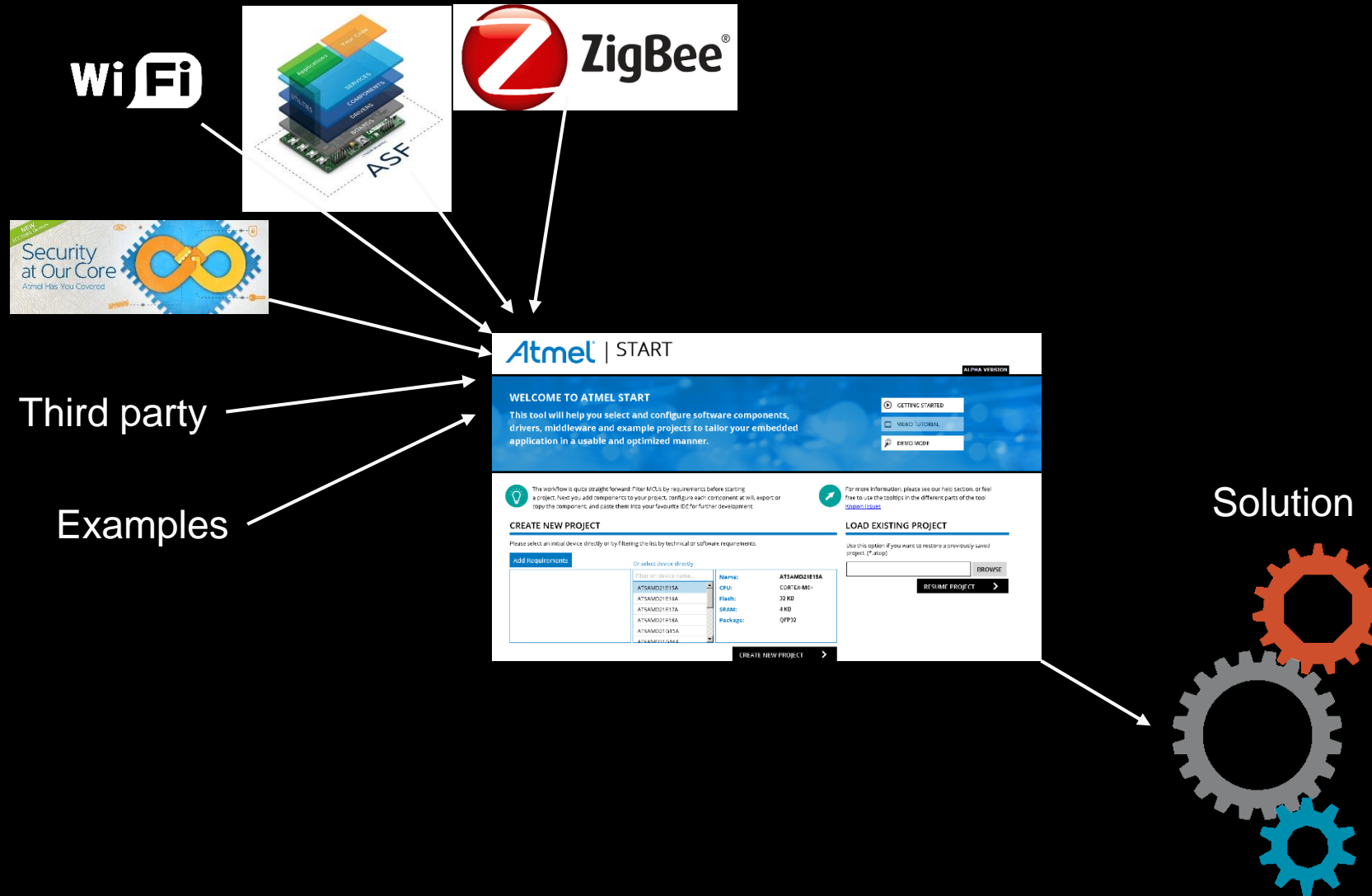


Atmel Start

- > **Explore and configure software & devices**
 - > Repository of Atmel Products and supporting device drivers & software components
 - > Select from Atmel, 3rd party and Open community SW components
- > **Visual software and device configuration**
 - > Device Pin mux & System clock
 - > Peripheral SW Configuration
 - > Middleware & Example SW Configuration
 - > Code generation & delivery
- > **No installation - Web based, Central**
part of Atmel Open Dev Platform
- > **Software package delivery to any IDE**



Atmel Start



Atmel Start

Dashboard and software configuration

[RETURN TO FRONT PAGE](#) [VIEW CODE](#) [SAVE CONFIGURATION](#) [EXPORT SOFTWARE COMPONENTS](#) [HELP AND SUPPORT](#)

MY SOFTWARE COMPONENTS

EXAMPLE

GFX Mono Menu Example

MIDDLEWARE

Monochrome Text(0) Monochrome Font(0) Monochrome Graphics(0) Monochrome Display(0) Monochrome Widget(0)

Monochrome Display Con...(0)

DRIVERS

External IRQ(0) SPI(0)

SPI(0)

Serial Peripheral Interface (SPI) master communication in synchronous/blocking mode

USER GUIDE

RENAME COMPONENT

REMOVE COMPONENT

COMPONENT SETTINGS

Driver: HAL:Driver:SPI Master Sync

Instance: SERCOM5

CLOCKS

Slow: Generic clock generator 0

Core: Generic clock generator 0

SIGNALS

MISO: PB16

MOSI: PB22

SCK: PB23

ATMEL:SAML21_DRIVERS:0.0.1::HAL:DRIVER:SPI_MASTER_SYNC CONFIGURATION

BASIC CONFIGURATION

ADVANCED CONFIGURATION

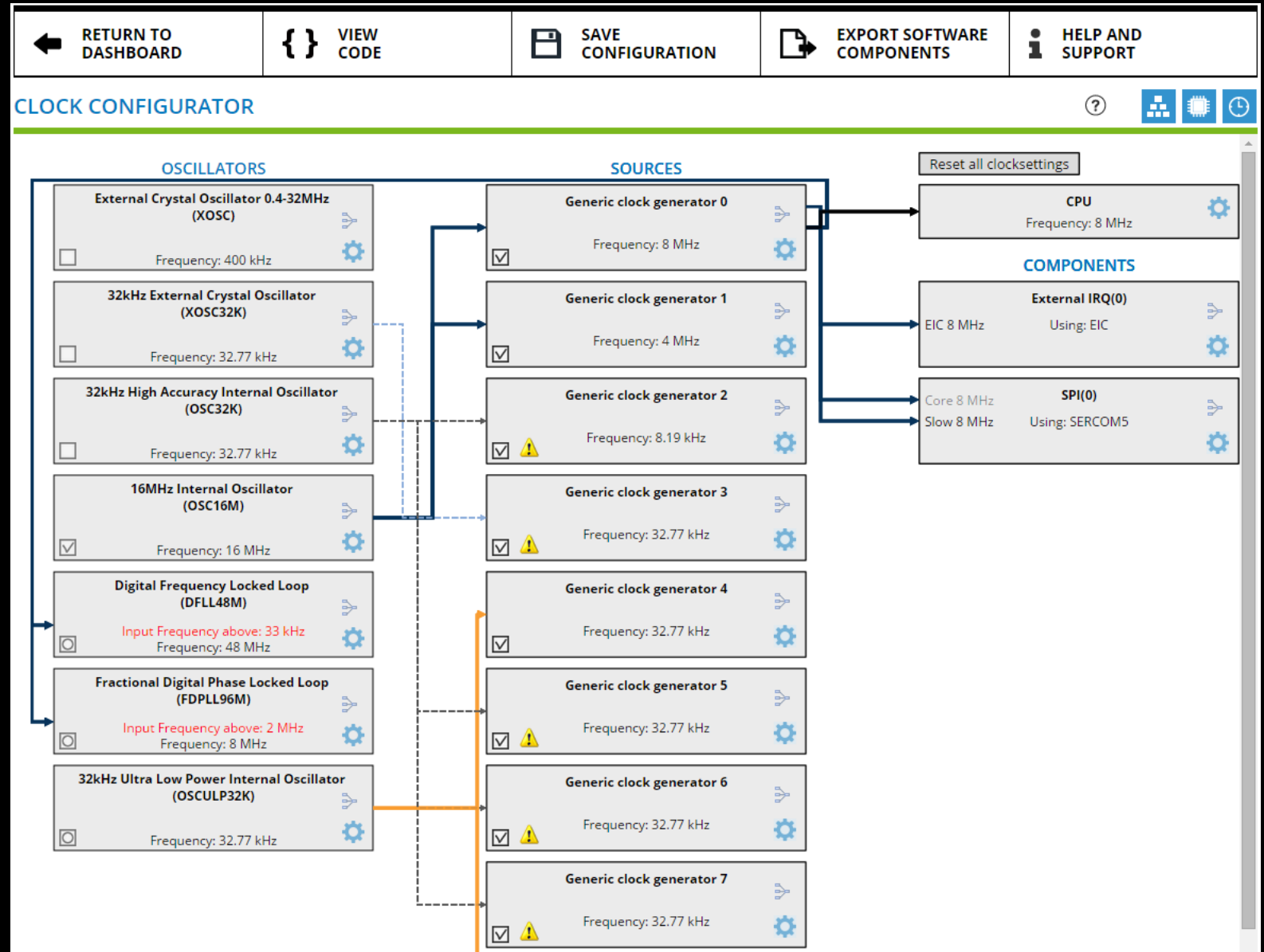
Receive buffer enable: ☒

Character Size: 8 bits

Enable: ☐

Atmel Start

Clock configuration



RETURN TO DASHBOARD

VIEW CODE

SAVE CONFIGURATION

EXPORT SOFTWARE COMPONENTS

HELP AND SUPPORT

PINMUX CONFIGURATOR

# ↑	Pin label		Board label		Mode	Signal	
	Pad	User	Header	Pin		Label	Mode

External IRQ(0)

61	PB00	BUTT...	EXT3	ADC+	Digital input	EXTIN...	Enabled
62	PB01	BUTT...	EXT3,DG...	ADC...	Digital input	EXTIN...	Enabled

PORT

23	PB10	LED1	LEDs,EXT3	Yell...	Digital output	P/42	
40	PB17	MON...	EXT3	SPI_...	Digital output	P/49	
51	PA27	MON...	EXT3	SPI_...	Digital output	P/27	
59	PB30	MON...	EXT3	GPI...	Digital output	P/62	

SPI(0)

39	PB16	MISO	EXT3,EX...	SPI_...	Digital input	MISO	
49	PB22	MOSI	EXT3,EX...	SPI_...	Digital output	MOSI	
50	PB23	SCK	EXT3,EX...	SPI_...	Digital output	SCK	

No software components

Atmel
ATSAML21J18B
Package: TQFP64
Flash: 264 Kb
Ram: 40 Kb

Legend:
■ Analog
■ Digital
■ Ground
■ Input Supply
■ Reset

PIN CONFIGURATION SETTINGS

Pin 49 (PB22) is used as MOSI with SPI(0).

User label:

MOSI

Pin mode:

Digital output

Initial level:

Low

Atmel Start

> What it is or will be

- > Software deployment engine
- > SW/HW configuration engine
- > Dependency management
- > Atmel solutions/Example explorer
- > Code generator
- > Analytics on usage

> What it isn't

- > Replacement for Atmel Studio/IDEs
- > Debugger/Programmer
- > Intended to replace device selector on atmel.com



MPLAB X IDE

MPLAB X IDE

- > Support PIC, dsPIC, AVR, and SAM devices
- > Supporting: Windows, Linus and macOS
- > Supporting many compilers:
 - > AVR and ARM GCC
 - > MPLAB XC8/16/32
 - > Third party
- > Support many Debuggers/Programmers
 - > MPLAB ICD 4, MPLAB PICKit 4, MPLAB Snap
 - > Atmel-ICE
 - > SEGGER J-Link



MPLAB X IDE

What's new?

Import Studio & Start Projects

AVR arm

MPLAB® X IDE

I/O View

Studio to MPLAB X

**Xplained Kit recognition
AVR Kit support**

The screenshot displays the MPLAB X IDE v4.13.0 interface. The main window shows a C source file with AVR-specific code, including configuration for the AVR microcontroller (e.g., #define F_CPU, #include <avr/io.h>). The left sidebar shows the Project Explorer with a tree view of the project files. The right sidebar shows the I/O View, which lists various peripherals and their current values. A green arrow points from the text 'Import Studio & Start Projects' to the IDE. A green banner with the text 'Studio to MPLAB X' is overlaid on the IDE. An Xplained Kit board is shown at the bottom right of the IDE window.

MPLAB X IDE

Plug-ins for additional features

- > FreeRTOS viewer
- > Doxygen Integration
- > LDRA Rules
- > Advanced breakpoint GUI
- > Proteus VSM simulation

MPLAB X IDE

Future

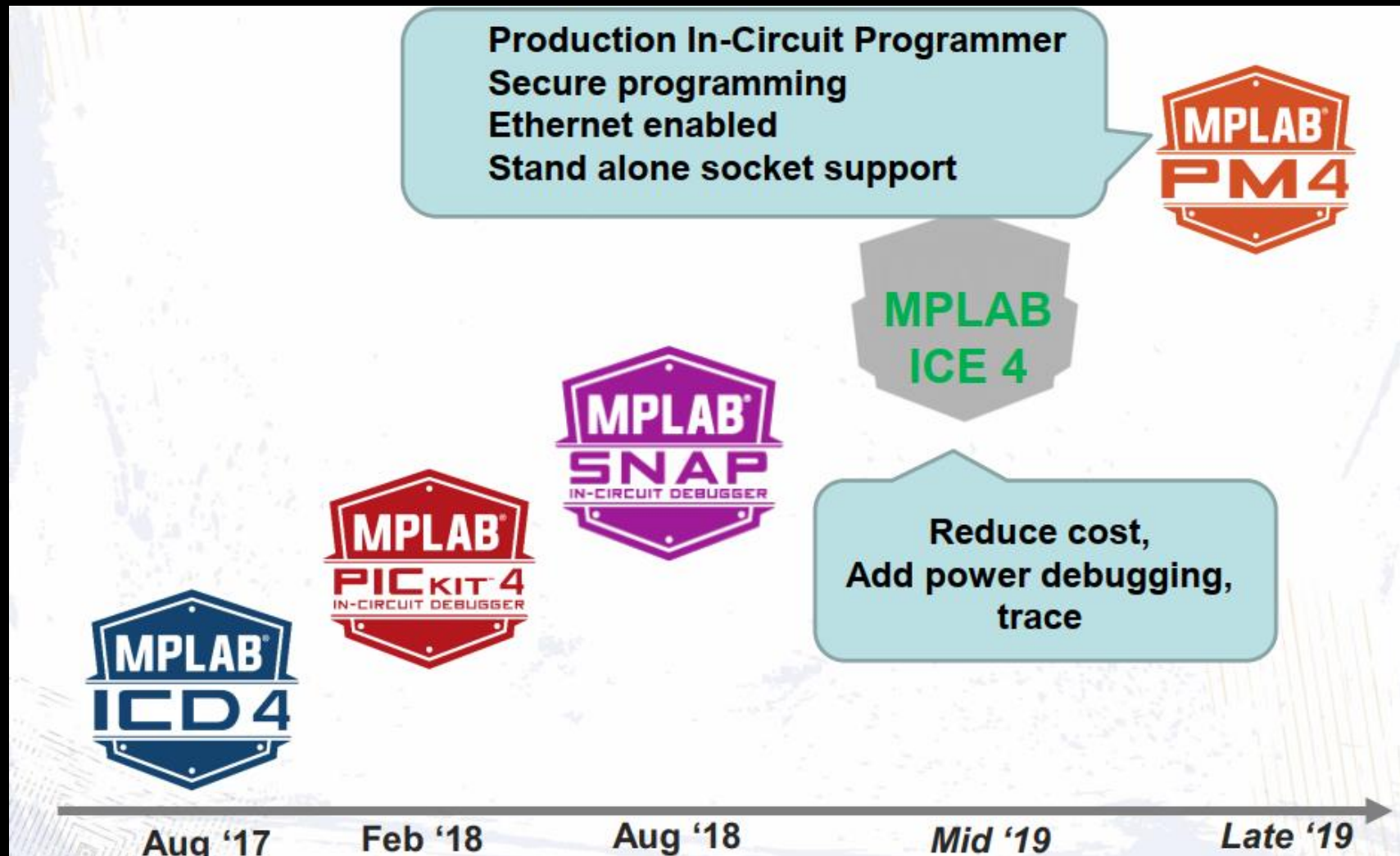
- > Context sensitive help
- > Scripting support on events
- > Code coverage support for XC compiler
- > Distribution of device support as a separate payload
 - > Smaller install base
 - > Update support without new tools
 - > Only install device support needed

Debugger/Programmer

A dark, long-exposure photograph of a city street at night. The image shows light trails from traffic moving along a road that curves into the distance. In the background, several tall, illuminated skyscrapers rise against the dark sky. The overall mood is urban and dynamic, with a focus on light and motion.

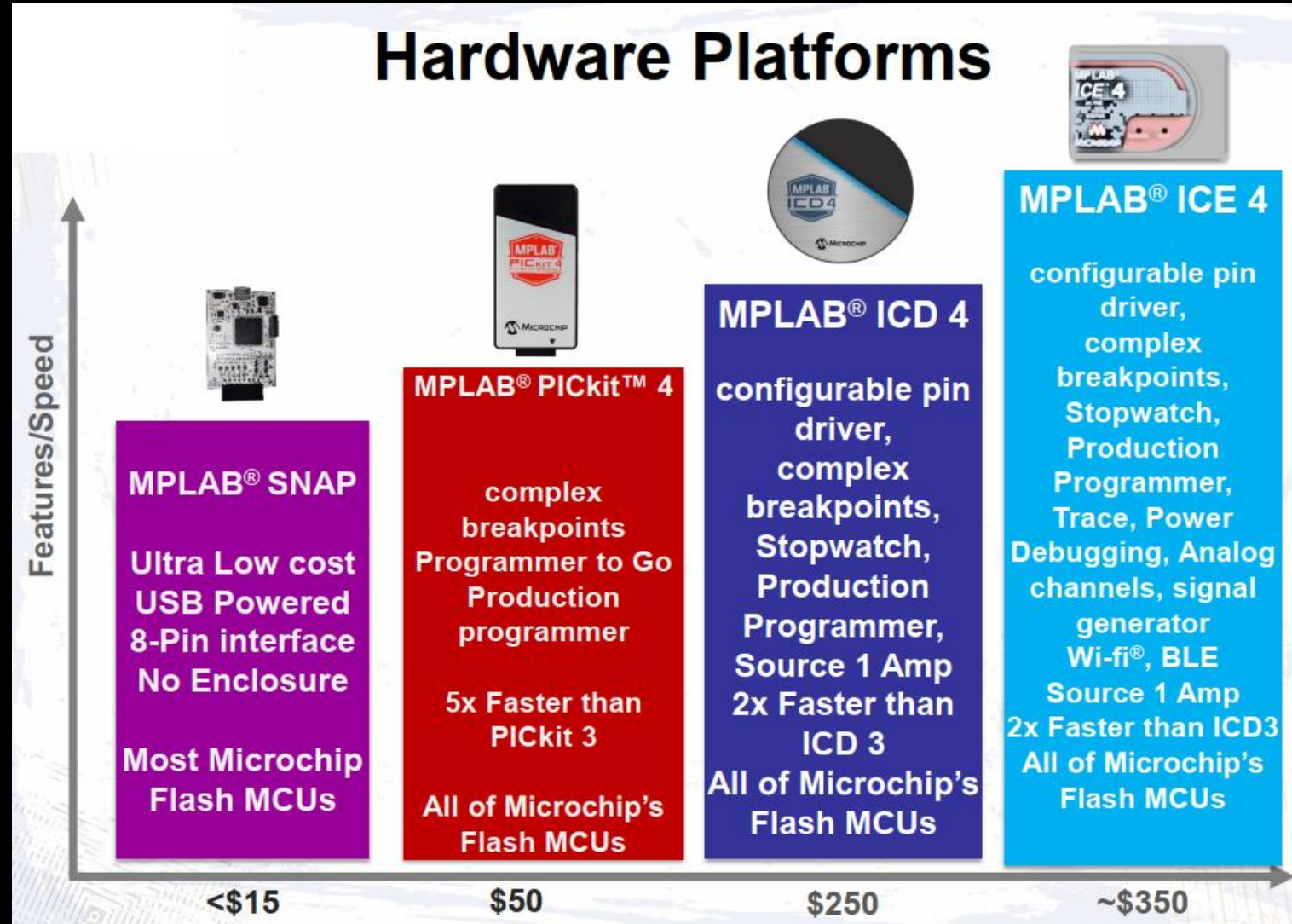
Debugger/Programmer

Roadmap



Debugger/Programmer

Roadmap





Thank You

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