

Frictionless Creation of Brilliant Graphics on Microcontrollers

Introducing Storyboard within the MCUXpresso SDK

January 28, 2020



SECURE CONNECTIONS
FOR A SMARTER WORLD



PUBLIC

Today's Speakers



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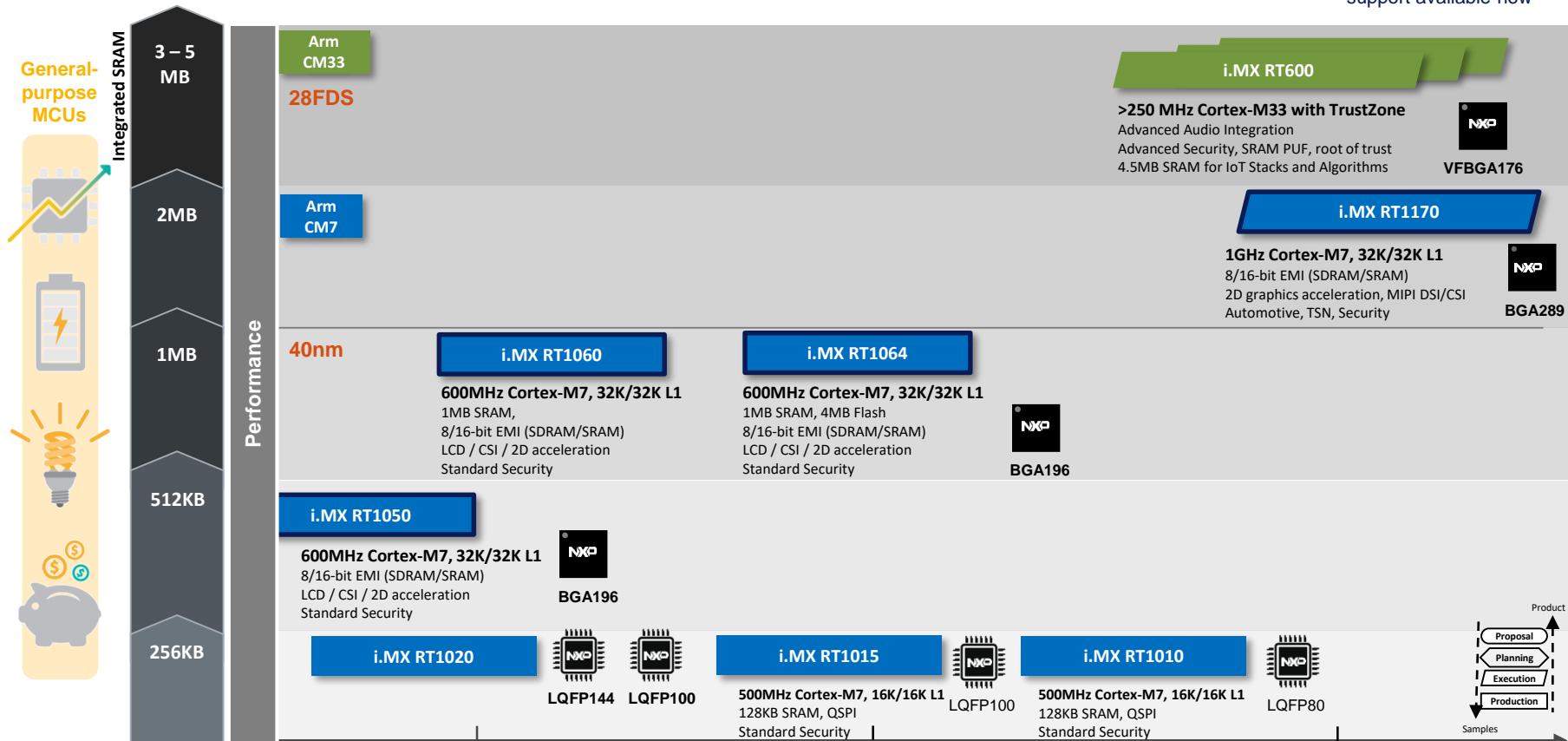


Scott Snider
Product Marketing Manager
Crank Software



Nik Schultz
Field Application Engineer
Crank Software

i.MX Series MCU Roadmap



The MCUXpresso Ecosystem



> Core Technologies from NXP

- MCUXpresso IDE
- MCUXpresso SDK
- MCUXpresso Config Tools
- MCUXpresso Secure Provisioning Tool

> Enabling Software Technologies

- Run time software libraries and middleware
- Enable customers to focus on differentiation
- From NXP and partners

> Enabling Tools Technologies

- Partner IDEs
- Debug Probes
- Development Boards
- From NXP and partners

MCUXpresso SDK

Software framework and drivers

Architecture:

- CMSIS-CORE compatible
- Single driver for each peripheral
- Transactional APIs w/ optional DMA support for communication peripherals

Integrated RTOS:

- Amazon FreeRTOS
- RTOS-native driver wrappers

Enabling Technologies:

- Wired and wireless connectivity
- Graphics/HMI
- Motor Control
- ML/AI
- Cloud connectivity
- Storage
- ...and more

Reference Software:

- Peripheral driver usage examples
- Application demos
- FreeRTOS usage demos
- IoT connectivity examples

License:

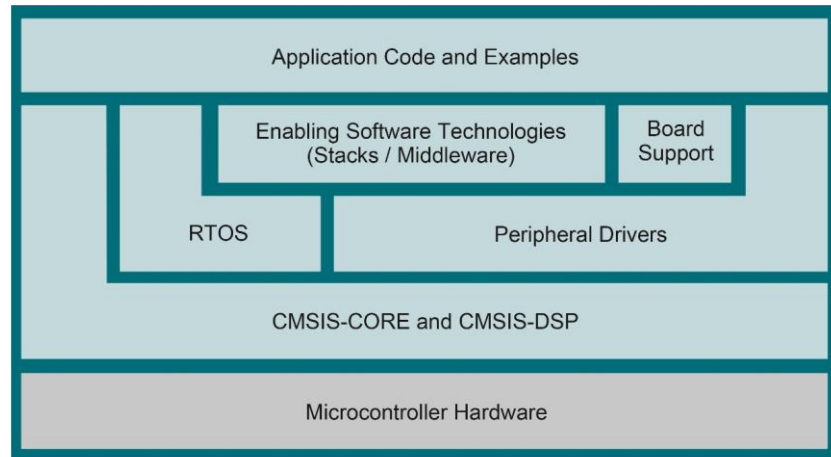
- BSD 3-clause for startup, drivers, USB stack
- All code Black Duck scanned

Toolchains:

- MCUXpresso IDE
- IAR®, ARM® Keil®, GCC w/ Cmake

Quality:

- Production-grade software
- MISRA 2004 compliance
- Checked with Coverity® static analysis tools



Storyboard is now available in the MCUXpresso SDK!



NXP has partnered with Crank Software to offer Storyboard as an **Enabling Software Technology**. Fully integrated Storyboard example projects are available in the MCUXpresso SDK for supported devices.

The screenshot shows the NXP MCUXpresso SDK Builder interface. The main content area is titled 'SDK Builder' and contains 'Developer Environment Settings'. Below the settings, there is a search bar and two buttons: 'Select All' and 'Unselect All'. A table lists available libraries, with 'Crank Storyboard GUI' selected (checkbox checked). The table has columns for Name, Category, Description, and Dependencies.

Name	Category	Description	Dependencies
<input checked="" type="checkbox"/> Crank Storyboard GUI	Middleware	Crank Storyboard GUI Engine	
<input type="checkbox"/> eIQ	Middleware	eIQ machine learning SDK containing the ARM CMSIS-NN library (neural network ker... (more)	

- Use the MCUXpresso SDK Builder to include Storyboard libraries and example projects in your SDK
 - Support for i.MX RT1060 and i.MX RT1050
 - All examples are Amazon FreeRTOS based
- Download Storyboard to go beyond the examples and create your own GUI application
- Seamlessly transition to licensed product from evaluation version



MCUXpresso Software and Tools

Additional Resources

Web pages

MCUXpresso Software and Tools – www.nxp.com/mcuxpresso

[MCUXpresso SDK](#)

[MCUXpresso IDE](#)

[MCUXpresso Config Tools](#)

Communities

MCUXpresso Software and Tools – <https://community.nxp.com/community/mcuxpresso>

[MCUXpresso SDK](#)

[MCUXpresso IDE](#)

[MCUXpresso Config Tools](#)

Support devices

[Supported Devices Table \(Community Doc\)](#)

CRANK SOFTWARE



Smart Home

Medical

Automotive

Industrial



About Crank Software

BUILT UPON
20+ YEARS

GUI Design & Development
Experience



GUI
SOFTWARE
&
SERVICES
COMPANY

PRIVATELY
HELD
CANADIAN
COMPANY 

**EXTENSIVE
PARTNERSHIP
ECOSYSTEM**



More than
500 Million
devices in the field



Global
DISTRIBUTION PARTNER
NETWORK

AWARDED 2019
COMPANY OF THE YEAR
IN OTTAWA

STORYBOARD DESIGNED UIs
INDUSTRY RECOGNIZED



CRANK
SOFTWARE

Get to market faster: Crank Professional Services



- Customer engineering
- Complete lifecycle mgmt
- UI design
- Prototype development
- Performance optimization
- Test and validate faster
- Access to Crank R&D experts

DEVELOPING UIs IN TODAY'S MARKET

**SMARTPHONES
HAVE
ELEVATED
EXPECTATIONS**

**DEPENDENCIES
SLOW
DEVELOPMENT
PROGRESS**

**ITERATIONS
WASTE
VALUABLE
TIME & RESOURCES**

**DELAYS
DECREASE
TIME TO
MARKET**



Solution: Storyboard software

- Built upon two decades of UI design and development experience
- Decouples front-end UI from back-end logic
- Data model and events API connects them together
- Hardware agnostic framework – working across MCUs and MPUs
- Enables collaborative workflow for designers and developers

How Storyboard helps



**ACCELERATE
DEVELOPMENT**



**EMBRACE
ITERATIONS**



**UI
FLEXIBILITY**

How Storyboard helps



ACCELERATE DEVELOPMENT

- Import from Design tools
- Integrated animation tool
- Prototype simulate without hardware



EMBRACE ITERATIONS

- Make changes without impacting progress
- Re-import modified Photoshop design files
- Compare, select, & merge changes



UI FLEXIBILITY

- Scalable from MCUs to MPUs
- Adapt to tech stack changes
- Reuse UI across different product lines or older project changes



Coca-Cola

Coca-Cola
orange

Coca-Cola
vanilla

Coca-Cola

Coca-Cola
cherry

Coca-Cola

Coca-Cola

Coca-Cola

UI optimized for old & new platform, saving significant time and money



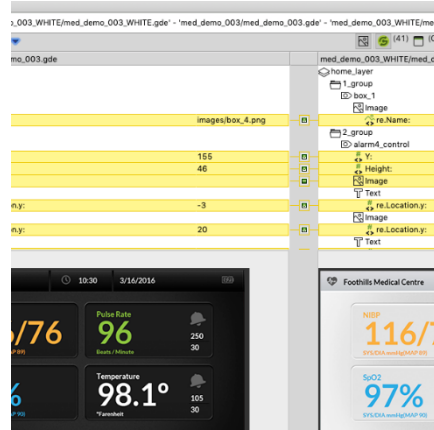
What makes Storyboard different

- Not a code generation framework
- Low barrier to entry for software development
- Front-end UI design is decoupled from the back-end logic
- Embraces design change and eases iterative development
- Rendering technologies for acceleration
- Built to leverage board features that drive performance

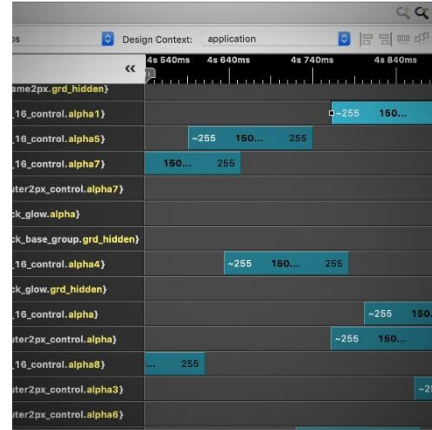
Design, develop and deploy: All in under 10 minutes



Import and re-upload files from Photoshop



Compare and merge changes between versions



Animate on timeline, add behavior via Lua scripting



Test and validate on simulator or real hardware



Storyboard Demo

Key take away(s)

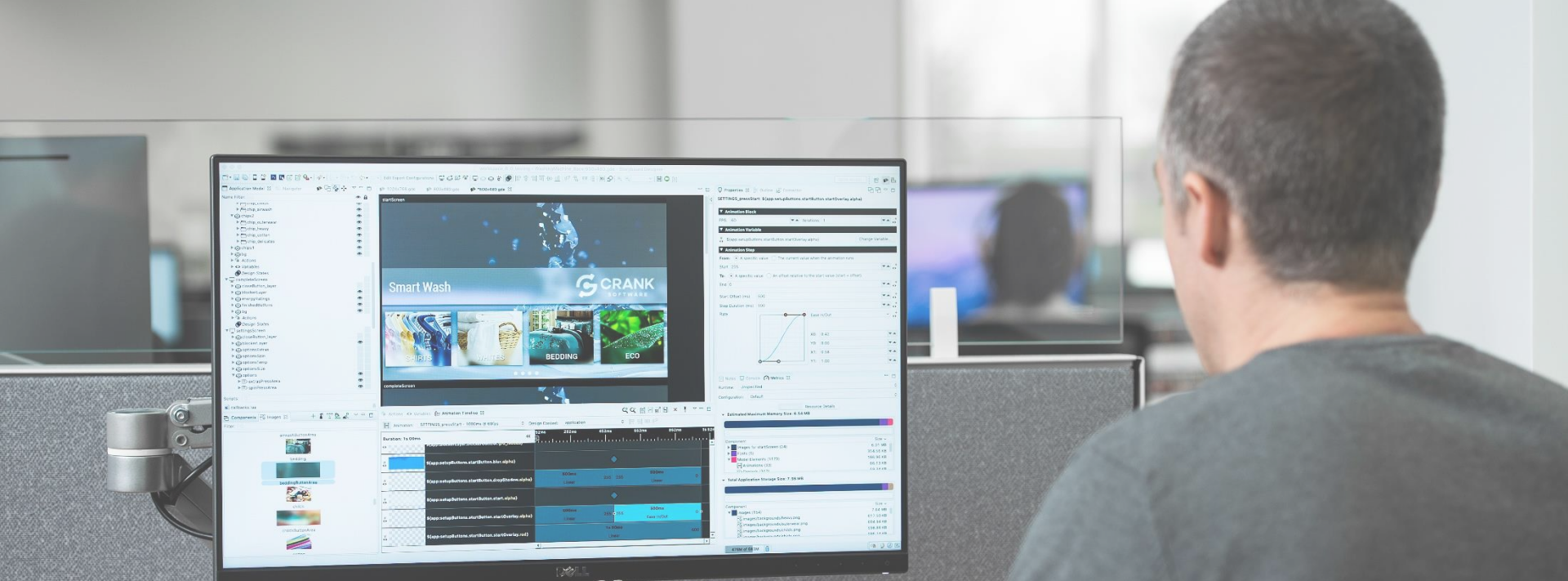


Download the free NXP MCUXpresso SDK

- *Find it at:* mcuxpresso.nxp.com
- *Learn more at:* nxp.com/mcuxpresso

Access Crank Software Storyboard UI Demo Images

- *Select the checkbox* - make it part of your evaluation process
- Visit support.cranksoftware.com to learn more



Questions?