WEBINAR

Simplify Your GUI Development with Embedded Wizard and MCUXpresso

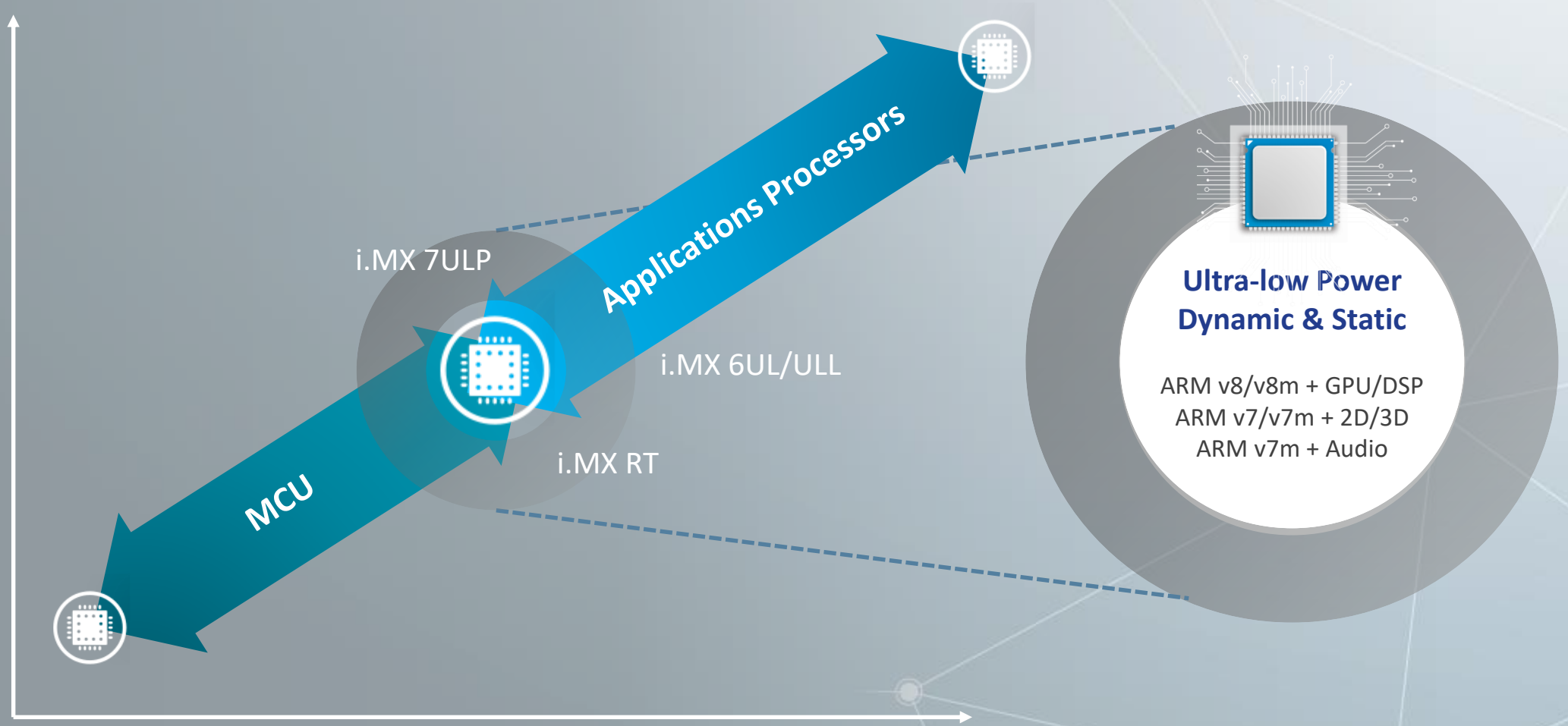
NXP

Embedded Wizard

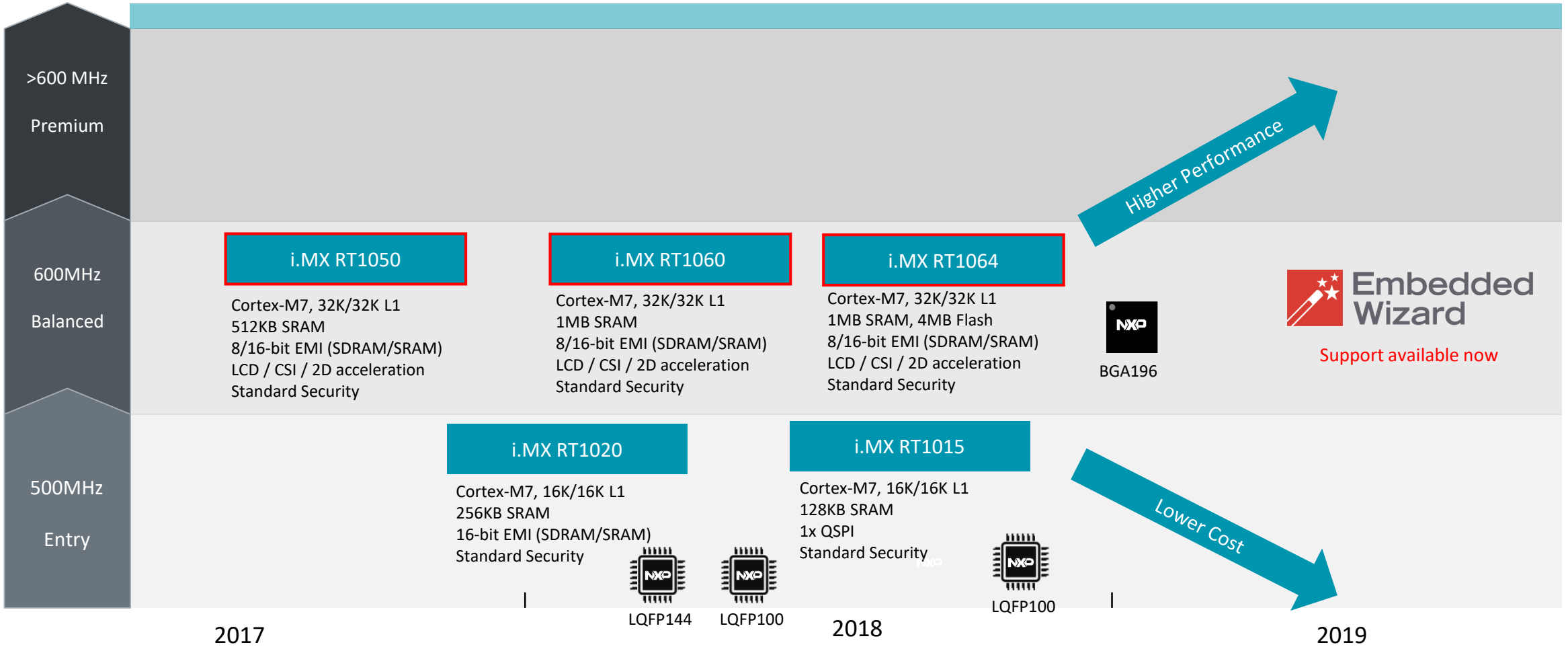
GUI Solutions by TARA Systems

SCALABILITY OF EMBEDDED PROCESSING

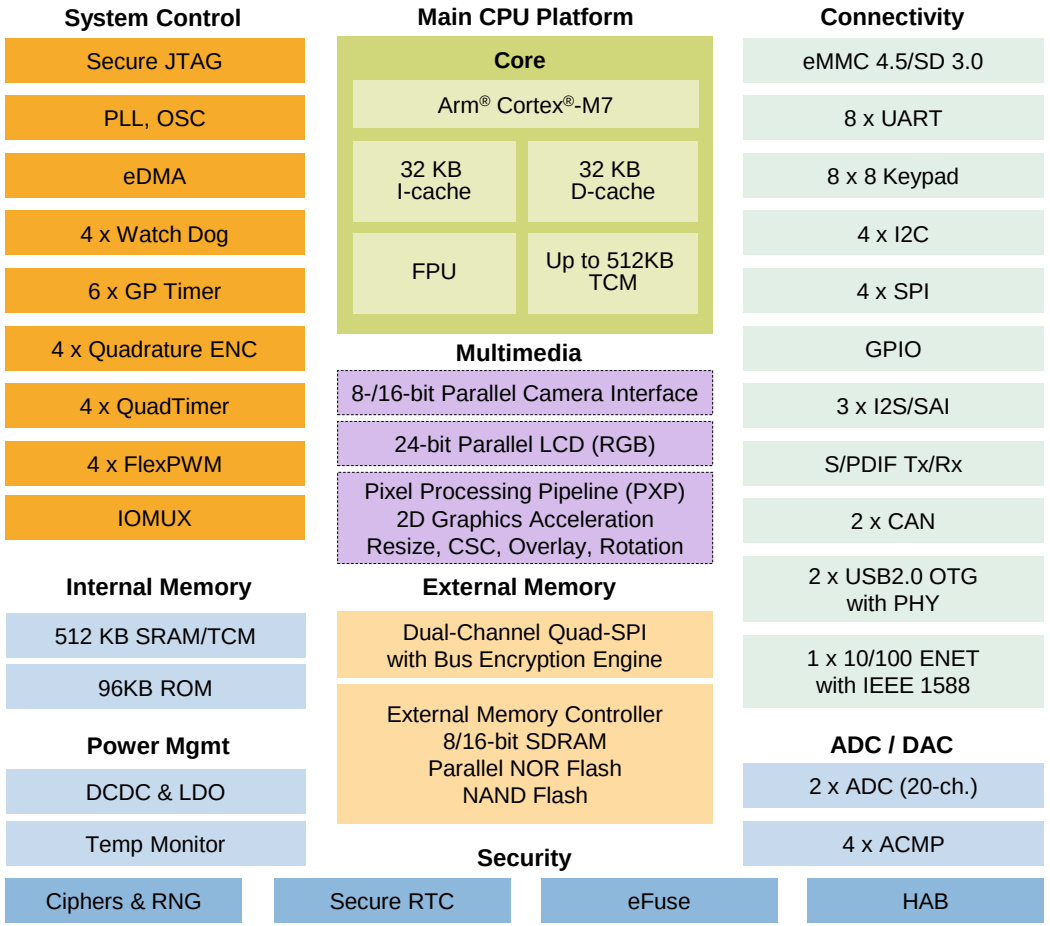
THE NEW NORMAL



Low Power i.MX RT Roadmap



i.MX RT1050: Block Diagram



Available on certain product families

Specifications

- Package: MAPBGA196 | 10x10mm^2, 0.65mm pitch (130 GPIOs)
- Temp / Qual: -40 to 105°C (Tj) Industrial / 0 to 95°C (Tj)

Consumer High Performance Real Time System

- **Cortex-M7 up to 600MHz** , 50% faster than any other existing M7 products
- 20ns interrupt latency, a **TRUE Real time processor**
- 512KB SRAM, configurable to 512KB TCM

Rich Peripheral

- Motor Control: Flex PWM X 4, Quad Timer X 4, ENC X 4
- 2x USB, 2x SDIO, 2x CAN, 1x ENET with 1588, 8xUART, 4x SPI, 4X I2C
- **8/16-bit CSI interface and 8/16/24-bit LCD interface**
- **PXP 2D Graphics Acceleration**
- Quad SPI interface, with Bus Encryption Engine
- Audio interface: 3x SAI/ SPDIF RX & TX/ 1x ESAI
- SDRAM interface

Security

- TRNG&PRNG(NIST SP 800-90 Certified)
- 128-AES cryptography
- Bus Encryption Engine: Protect QSPI Flash Content

Ease of Use

- **MCUXpresso with SDK**
- FreeRTOS

i.MX RT1050 Evaluation Kit

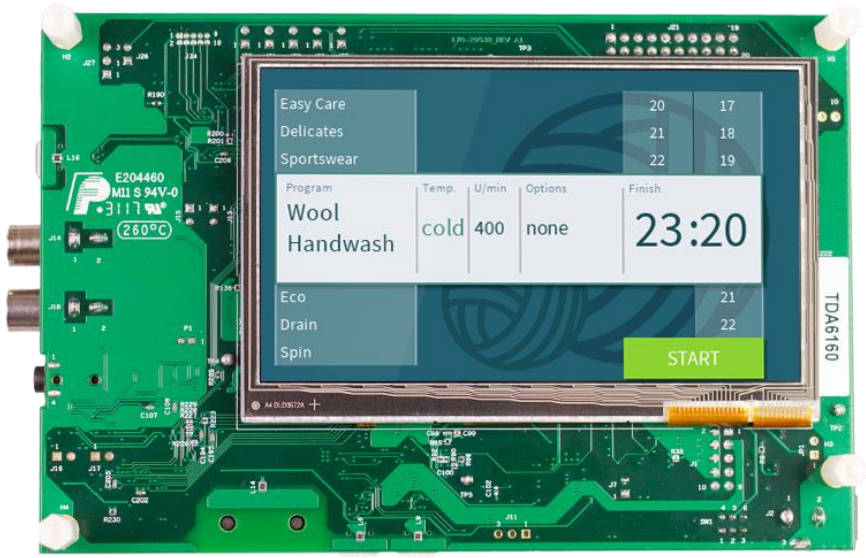
Part Number: IMXRT1050-EVKB
Optional Display (4.3”): RK043FN02H-CT

Processor
- NXP Semiconductors MIMXRT1052DVL6B 600MHz ARM Cortex-M7

Memory
- 256 Mbit SDRAM memory
- 512 Mbit Hyper Flash
- Footprint for QSPI Flash
- TF socket for SD card

Display
- Parallel LCD connector
- Camera Connector

Audio
- Audio Codec
- 4-pole Audio Headphone Jack
- External speaker connection
- Microphone
- SPDIF Connector



Embedded Wizard port available now

Connectivity
- Micro USB Host connector
- Micro USB OTG connector
- Ethernet (10/100T) connector
- CAN Transceivers
- ARDUINO interface

Debug
- JTAG connector
- On board DAP-Link debugger

Sensor
- 6-Axis Ecompass (3-Axis Mag, 3-Axis Accel) sensor FXOS8700CQ

Tools & OS Support
- MCUXpresso, IAR, Keil
- SDK with FreeRTOS

Others
- All in one board design
- 4 layer through hole PCB

Learn more at: www.nxp.com/mcuxpresso/sdk

MCUXpresso Software and Tools

for LPC & Kinetis MCUs and i.MX RT crossover processors

MCUXpresso IDE

Edit, compile, debug and optimize in an intuitive and powerful IDE

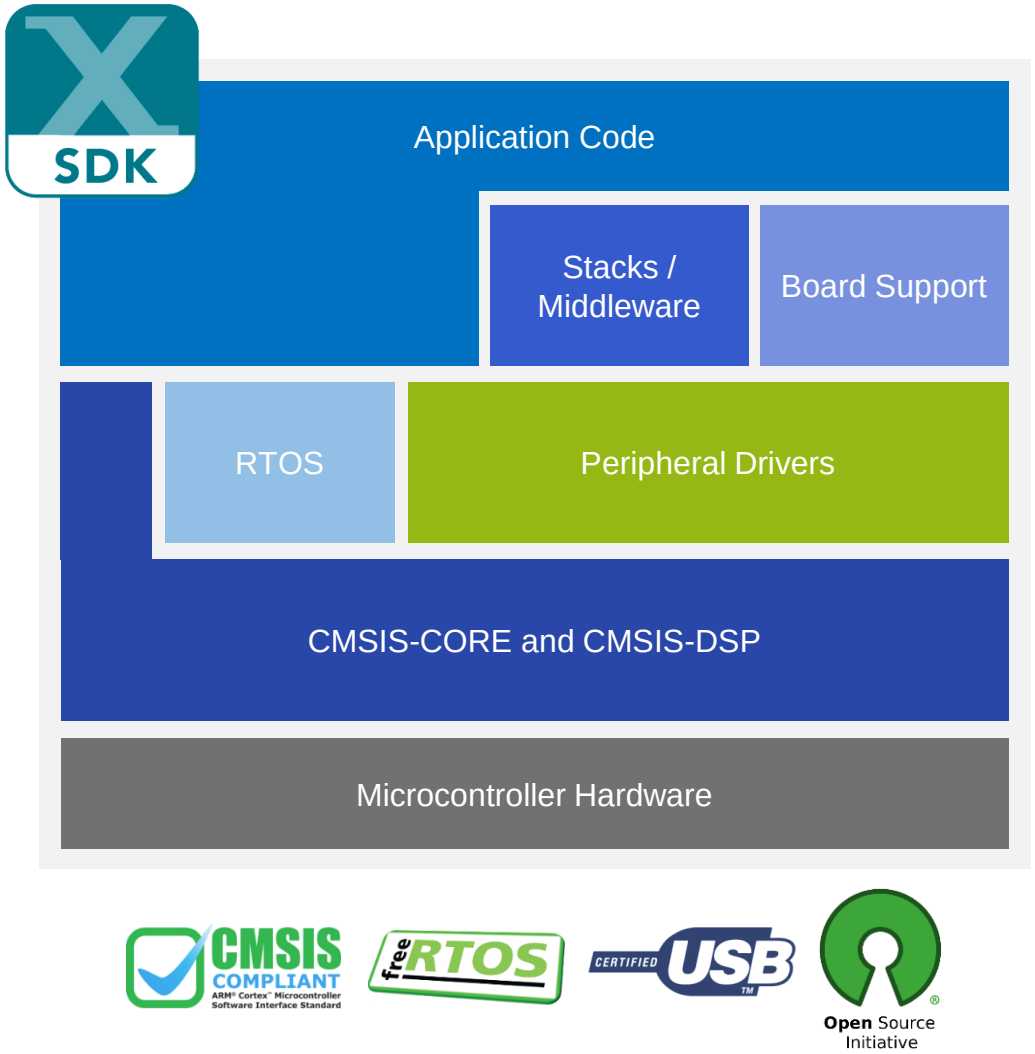
MCUXpresso SDK

Runtime software including peripheral drivers, middleware, RTOS, demos and more

MCUXpresso Config Tools

Online and desktop tool suite for system configuration and optimization

Learn more at: www.nxp.com/mcuxpresso/sdk



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

Integrated Stacks and Middleware:

- USB Host, Device and OTG
- lwIP, FatFS, LittleFS
- Crypto acceleration plus wolfSSL & Arm Mbed TLS
- AWS IoT and Microsoft Azure IoT
- SD and eMMC card support
- TensorFlow Lite and ARM CMSIS-NN (eIQ™ ML Software)

Reference Software:

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

License:

- BSD 3-clause for startup, drivers, USB stack

Toolchains:

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

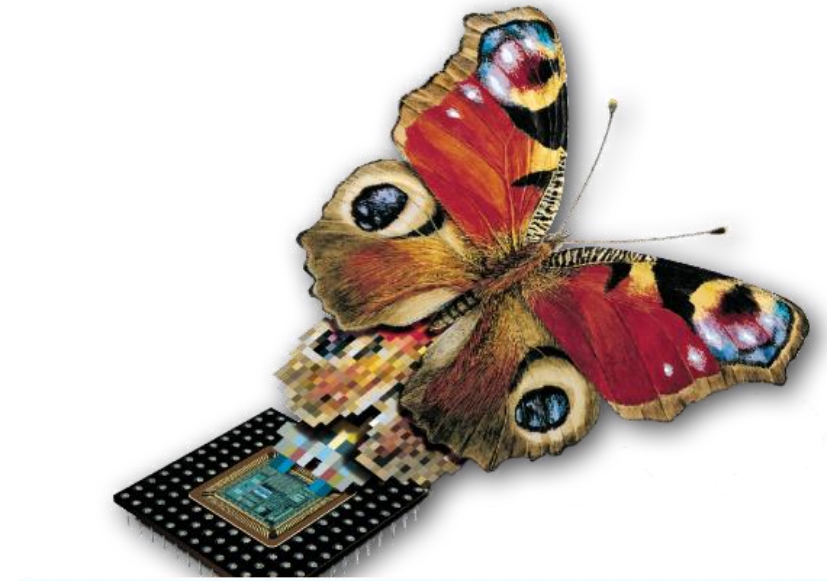
Quality:

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

TARA Systems

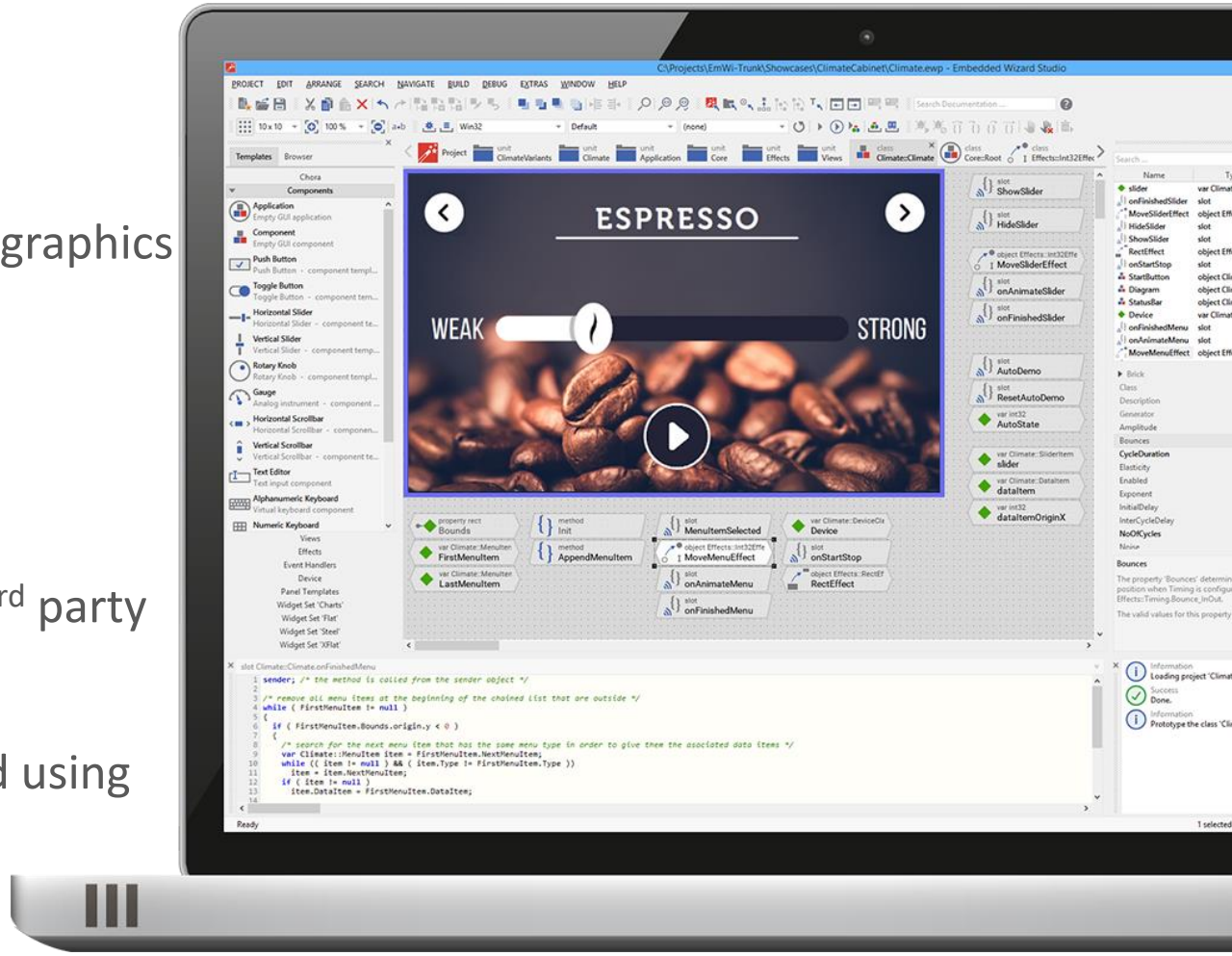
Who we are

- TARA Systems founded in 1990 in Munich, Germany
- Privately owned limited company
- Started in the domain of Consumer Electronics
- Strong engineering background in embedded systems
- 2 business units
  - Software for Consumer Electronics
  - GUI Solutions



What is Embedded Wizard?

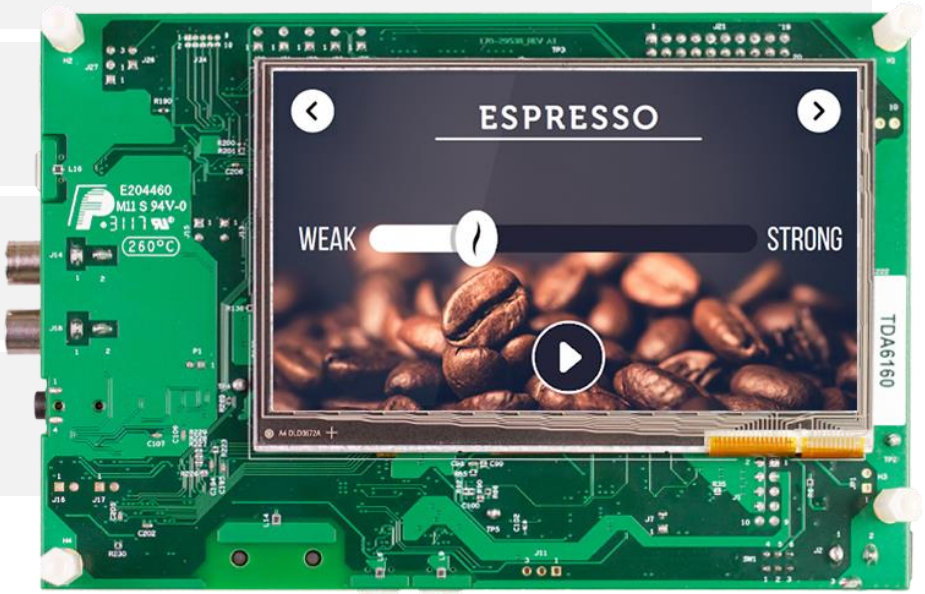
- TARA's own and independent GUI solution
- GUI development and instant prototyping tool
- Follows a code generation model – not just a pure graphics library or runtime interpreter
- MCU and MPU type target hardware
- Evolved over 25 years
- No external dependencies, open source or other 3rd party stacks
- Customers worldwide, >100 Mio. devices deployed using Embedded Wizard technology



Embedded Wizard

Benefits for i.MX RT series

- Full-featured **IDE** to develop HMIs
- Utilizing RT's built-in **Pixel Processing Pipeline** to achieve high FPS with low CPU load
- State-of-the-art GUIs with **high-performance** animations and transitions
- Generation of **pure ANSI C** source code with no further dependencies
- Very **low** RAM and flash **footprint**
- HMIs run on **bare metal** or with **any** (RT)OS
- **Reasonable** business model - no royalty fees per device!



Embedded Wizard

Live Demo

Information on NXP Devices and Enablement

- Visit nxp.com for information on devices
  - i.MX RT range of crossover processors: nxp.com/imxrt
  - MIMXRT1050 evaluation kit: nxp.com/mimxrt1050
  - i.MX Processor Community: https://community.nxp.com/community/imx

- MCUXpresso Software and Tools Web Pages
  - MCUXpresso Software and Tools: www.nxp.com/mcuxpresso
    - MCUXpresso SDK: www.nxp.com/mcuxpresso/sdk
    - MCUXpresso IDE: www.nxp.com/mcuxpresso/ide
    - MCUXpresso Config Tools: www.nxp.com/mcuxpresso/config

- MCUXpresso Software and Tools Community
  - MCUXpresso Software and Tools: https://community.nxp.com/community/mcuxpresso
    - MCUXpresso SDK: https://community.nxp.com/community/mcuxpresso/mcuxpresso-sdk
    - MCUXpresso IDE: https://community.nxp.com/community/mcuxpresso/mcuxpresso-ide
    - MCUXpresso Config Tools: https://community.nxp.com/community/mcuxpresso/mcuxpresso-config

Further Information

- Download Free Edition
  www.embedded-wizard.de/download
- Showcases and demos
  www.embedded-wizard.de/demo
- Online knowledge base
  doc.embedded-wizard.de
- Open community support forum
  ask.embedded-wizard.de
- YouTube channel
  www.youtube.com/c/EmbeddedWizard
- Follow us on Twitter
  www.twitter.com/EmbeddedWizard

SECURE CONNECTIONS
FOR A SMARTER WORLD