

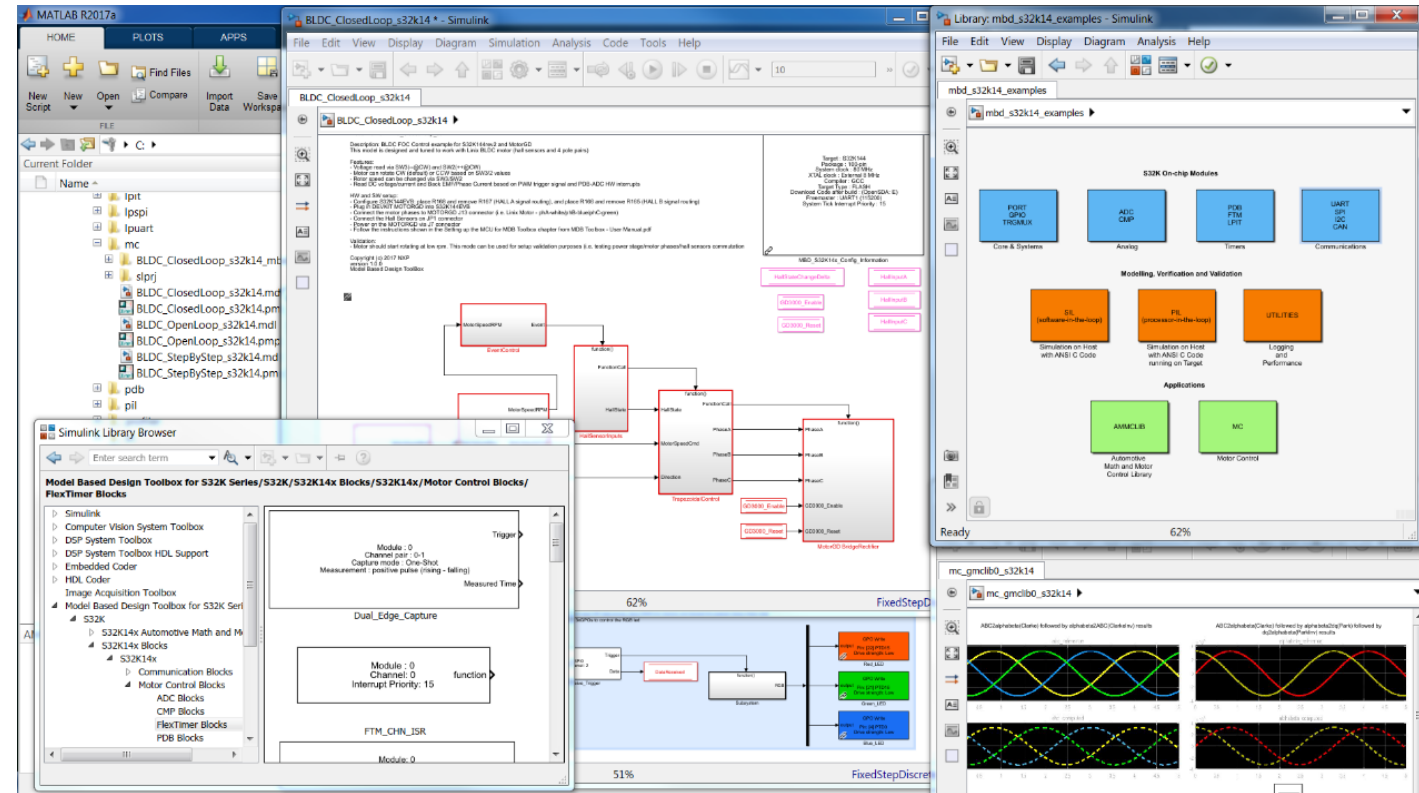
MODEL-BASED DESIGN TOOLBOX ENABLING FAST PROTOTYPING AND DESIGN

- WHO ARE WE AND WHAT DO WE DO ?
- WHAT IS IT ?
- WHAT WE DELIVER ?
- WHAT WE COVER ?

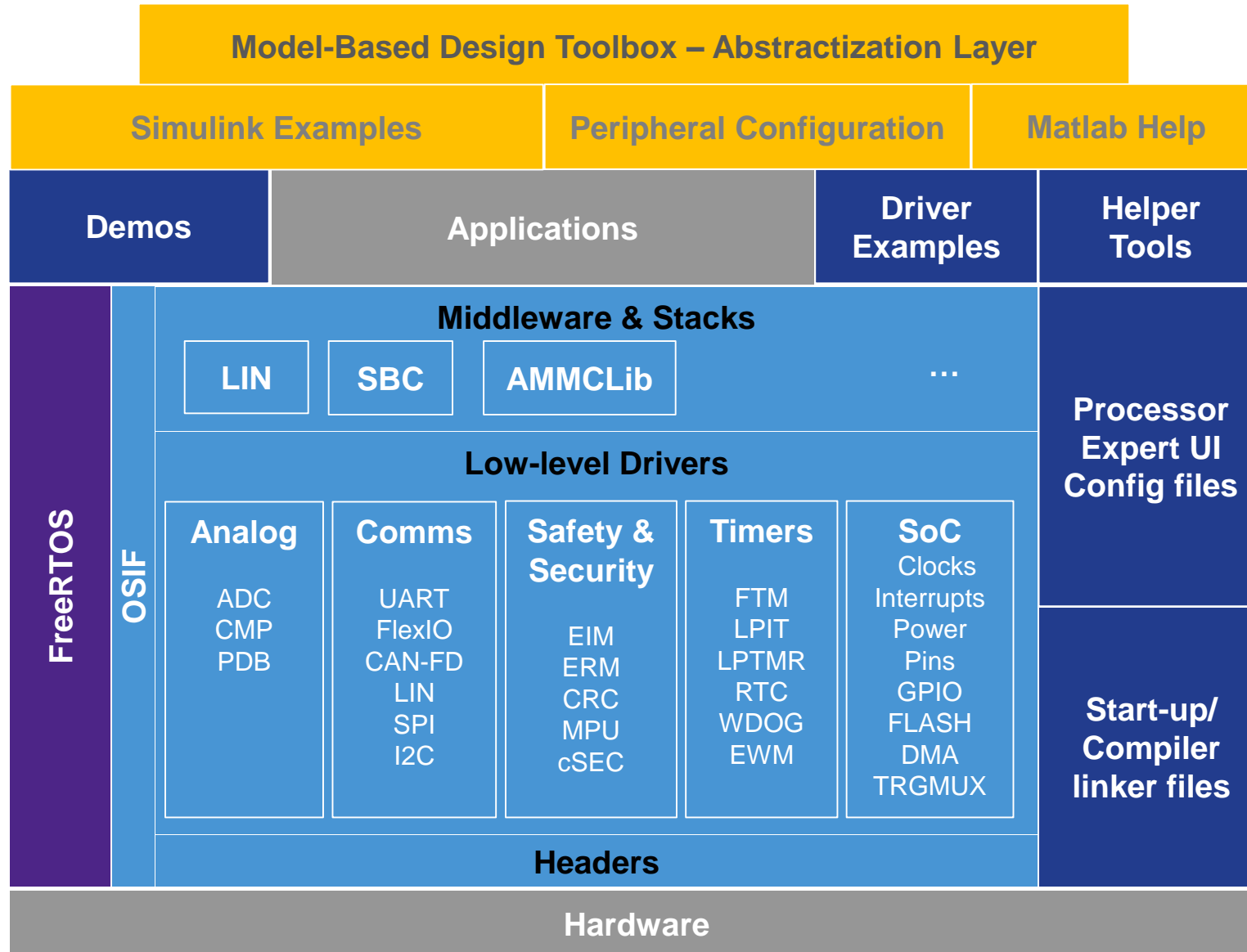


Model-Based Design Team – Who Are We & What Do We Do?

- ✓ Tools **enablement** group within AMP
- ✓ Develop toolboxes to **assist** automotive customers with rapid prototyping and accelerate algorithm development on NXP MCU
- ✓ Peripheral **initialization** through UI configuration from a Model Based Design environment like Simulink™
- ✓ Supported **platforms**: MagniV S12ZVMx and S12ZVC, MPC56xx, MPC57xx, ARM S32K, DSC and Kinetis families
- ✓ Customer **support** and **training**:
<https://community.nxp.com/community/mbdt>



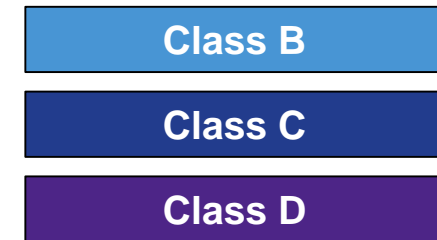
What is it ? ... the Ultimate Abstractization Layer



Model-Based Design Features

- Matlab/Simulink oriented
- Drag-drop programming
- Automatic ANSI C-code generation
- Easy to port

SDK Quality Class



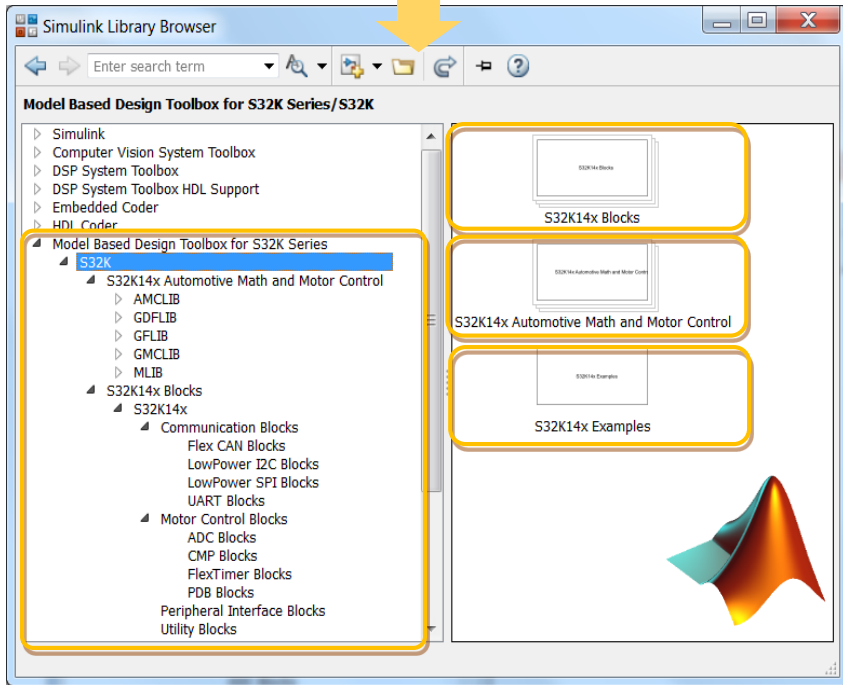
SDK Features

- Integrated **Non-Autosar SW Prod-grade SW**
- Graphical-based Configuration
- Layered Software Architecture
- Documented Source Code and Examples
- Integrated with S32 DS and other IDEs
- Featuring various Middleware
- FreeRTOS integration
- Multiple toolchains supported
- Several examples and demos

Model-Based Design Team – What We Deliver?

1

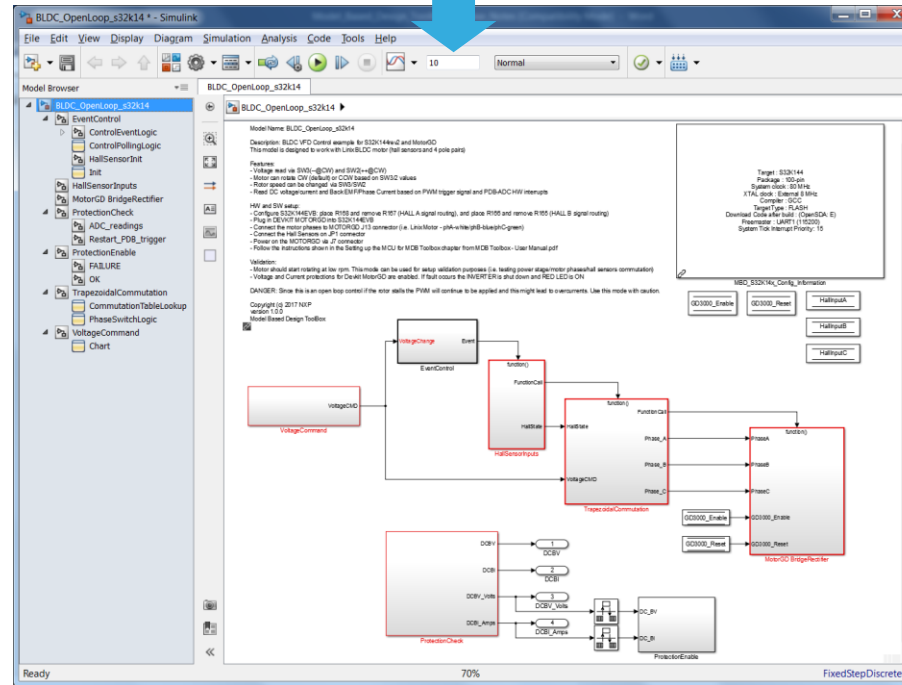
Basic/Advanced Building Blocks



- ✓ **M**ATLAB integration
- ✓ **A**utomatic ANSI C Code Generation
- ✓ **A**bstractization of peripherals
- ✓ **S**upport for: S32K, MPC5744, etc.

2

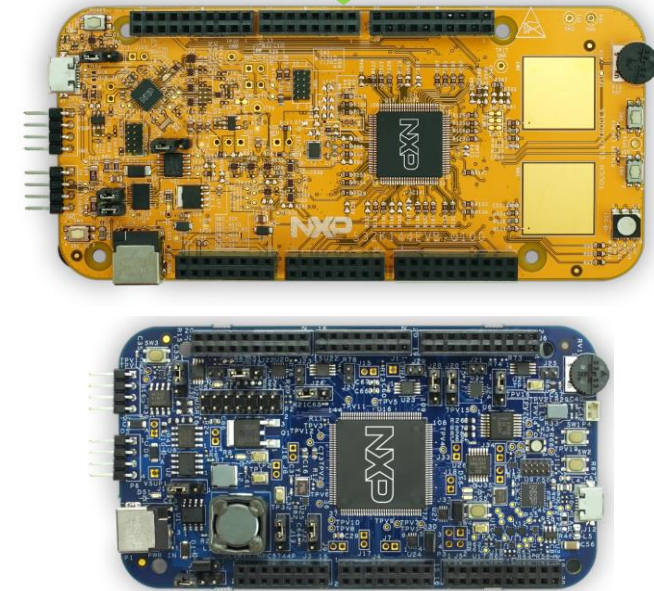
Ideas & Designs



- ✓ **M**inimal knowledge about hardware
- ✓ **U**ltra fast development – drag&drop approach
- ✓ **S**imulation environment for validation
- ✓ **T**echnical expertise

3

Easy Prototyping



- ✓ **E**asy migration between NXP solution
- ✓ **M**atching solution for TI, Arduino, Raspberry



What We Cover?

On-Chip Peripherals

- General
 - ADC conversion
 - Digital I/O
 - PIT timer
 - ISR
- Communication Interface
 - CAN driver
 - SPI driver
 - I2C
 - UART
- Motor Control Interface
 - Cross triggering unit
 - PWM
 - eTimer block(s)
 - Sine wave generation
 - ADC Command List
 - GDU (Gate Drive Unit)
 - PTU (Programmable Trigger Unit)
 - TIM Hall Sensor Port
 - FTM (Flex Timer Module)
 - PDB (Programmable Delay Block)

Configuration/Modes

- Compilers Supported
 - CodeWarrior
 - Wind River DIAB
 - Green Hills
 - Cosmic
 - IAR
 - GCC
 - RAM/FLASH targets
- Simulation Modes
 - Normal
 - Accelerator
 - Software in the Loop (SIL)
 - Processor in the Loop (PIL)
- MCU Option
 - Multiple packages
 - Multiple Crystal frequencies

Utilities

- FreeMASTER Interface
 - Data acquisition
 - Calibration
 - Customize GUI
- Profiler Function
 - Exec. time measurement
 - Available in PIL
 - Available in standalone

Embedded MCU Support

- MPC5643L
- MPC567xK
- MPC574xP
- S12ZVM
- KV10Z
- 56F82xx
- KV31/30/40/50
- S32K



SECURE CONNECTIONS
FOR A SMARTER WORLD