

Software Considerations for Embedded Systems Development | Webinar

18 May 2021

Agenda

- Embedded system requirements
- Ecosystem considerations
- Flexibility offered with open source solutions
- Overview: Software as a foundation
- Benefits of third party partners

Embedded development requirements: Do more, faster

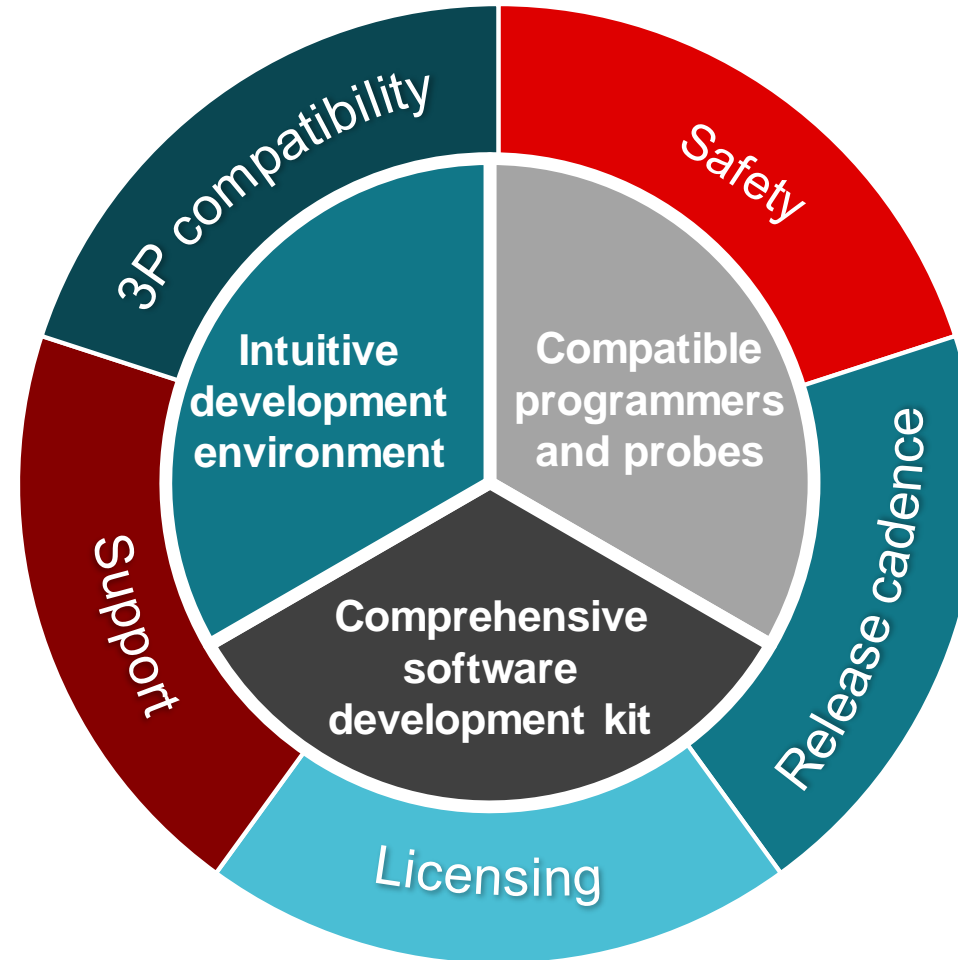
- SoC's have more capabilities
 - Compute elements
 - Interfaces
 - Sophisticated memory options
- Time to market continues to shrink
 - Release more products
 - Reduce development time
- Robust and growing software and tools ecosystem is essential
 - Productivity enhancing tools
 - Expanding array of compatible software
 - Open source options



Ecosystem considerations

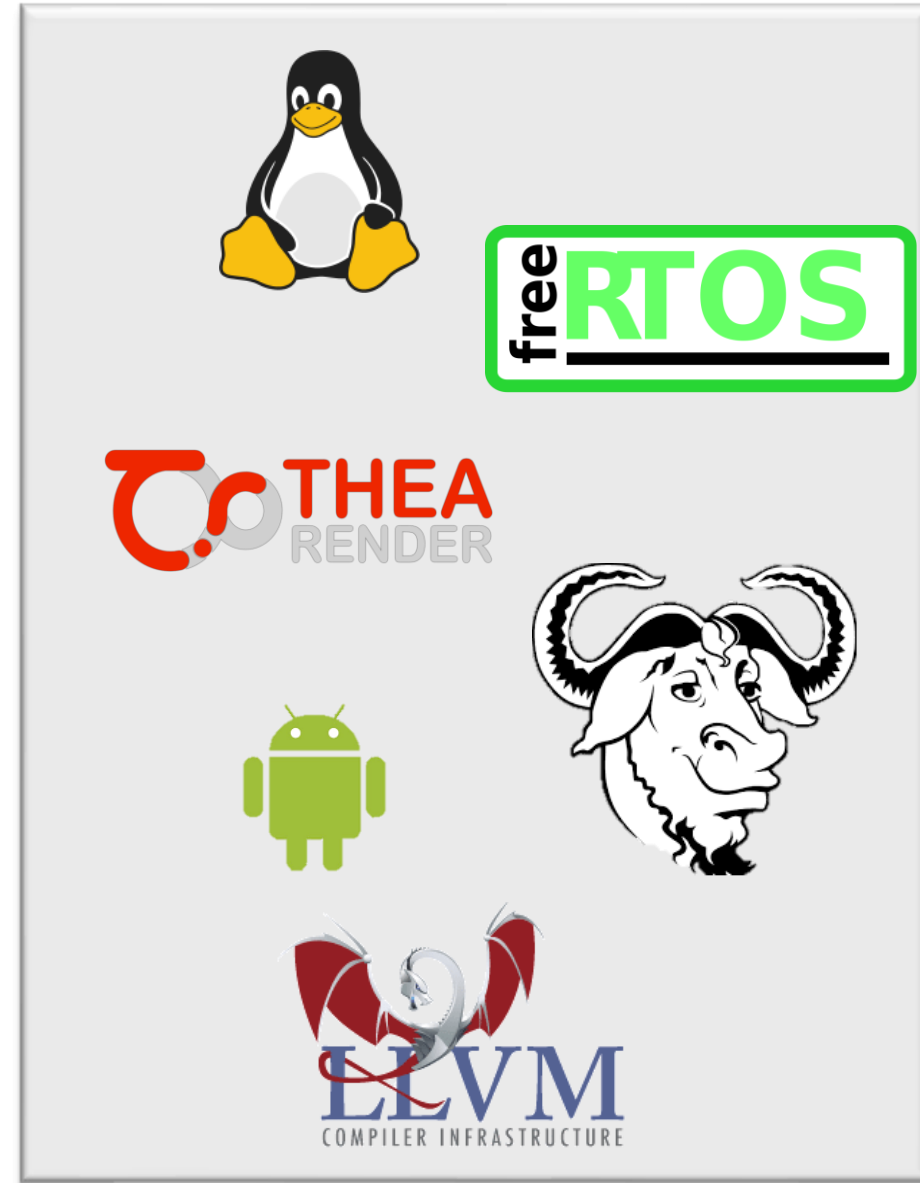
Your ecosystem should:

- Be fast, robust, and scalable
- Support ease of integration
- Provide a flexible foundation and allow you to differentiate your offering



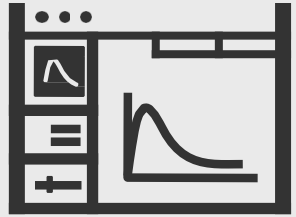
Open source advantages

- Leveraged investment
 - Large ecosystem of available components
 - Robust, diverse use cases
 - Common standards for better interoperability
- Retained ownership
 - Clear and open licenses
 - Own development, customization
 - Contribute to longevity
- Deep support bench
 - Access to community of developers
 - Third party support options



Software development ecosystem for Arm[®]-based processors

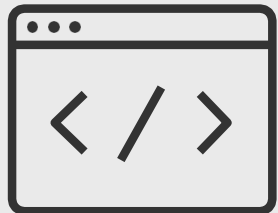
Open source focus with clear licensing for common components



Debug and trace tools Provide system visibility and analysis; Measure performance



Processor SDK
Linux and Free RTOS
fully tested and integrated with regular release updates



C/C++ compiler
Optimize code for performance and code size, maximizing entitlement using **GCC** or **LLVM**



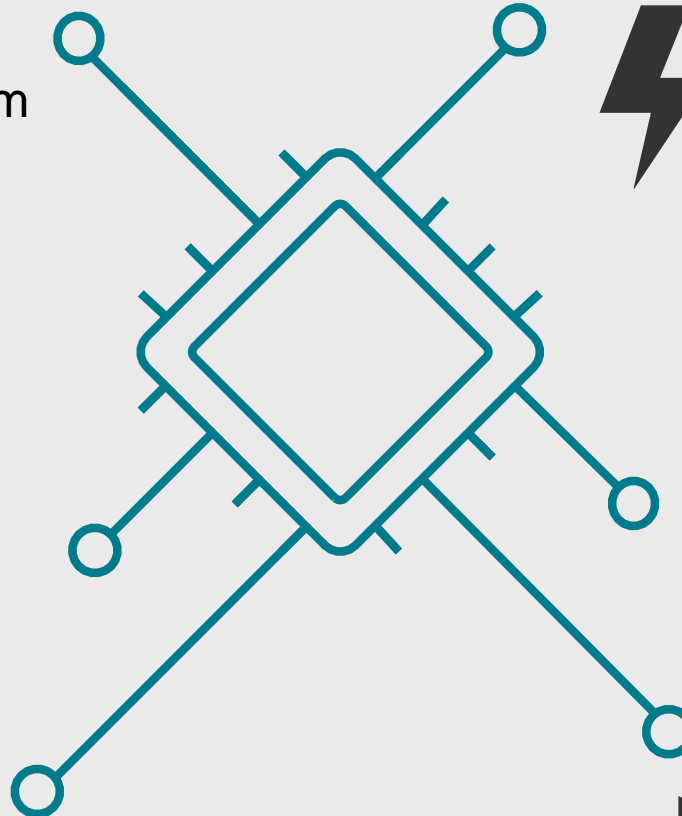
UniFlash
Program on-board flash memory



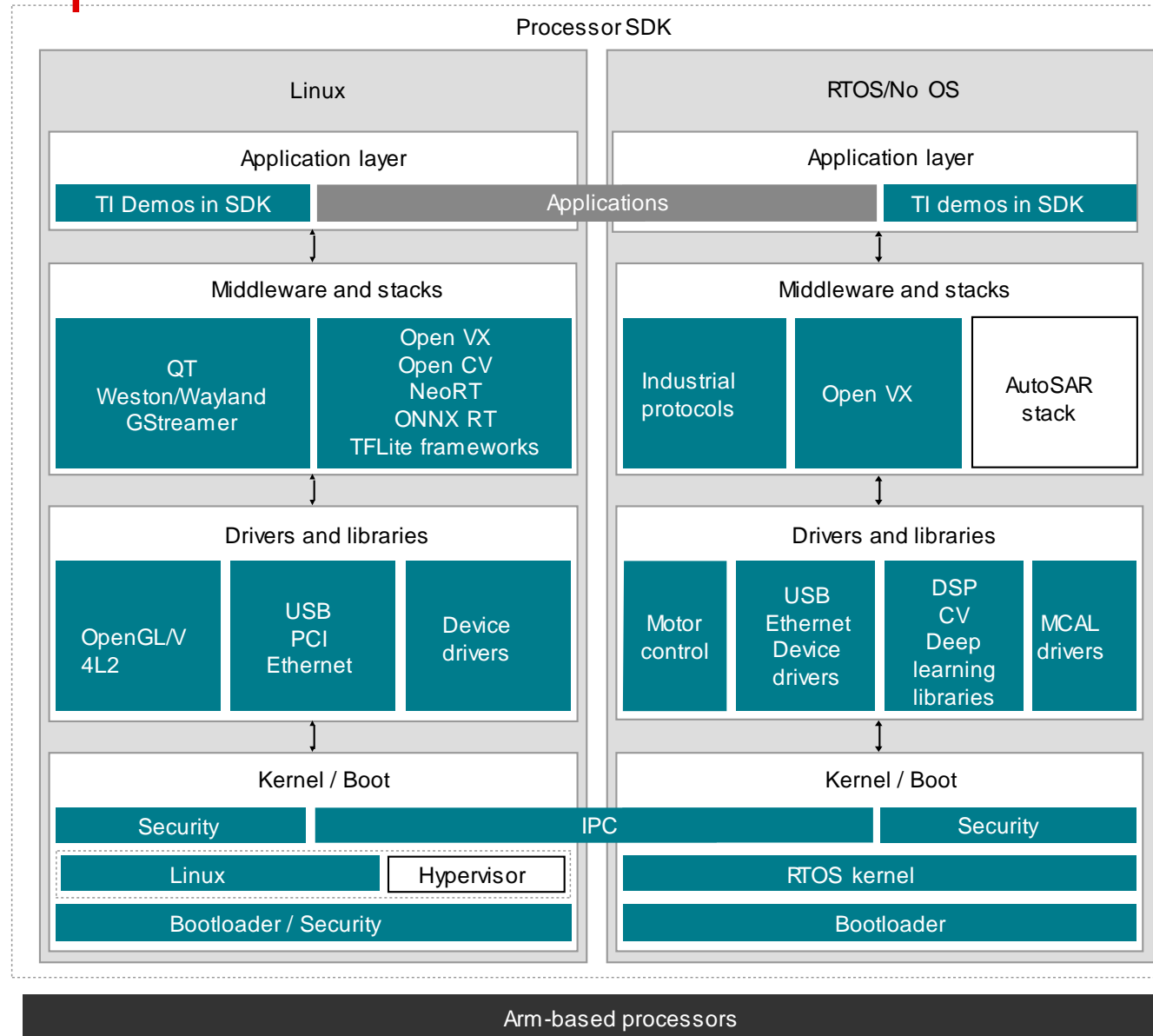
SysConfig
Configure pins, peripherals and target software



Code Composer Studio Develop and debug in an **Eclipse-based** environment



Processor SDK provides robust foundation



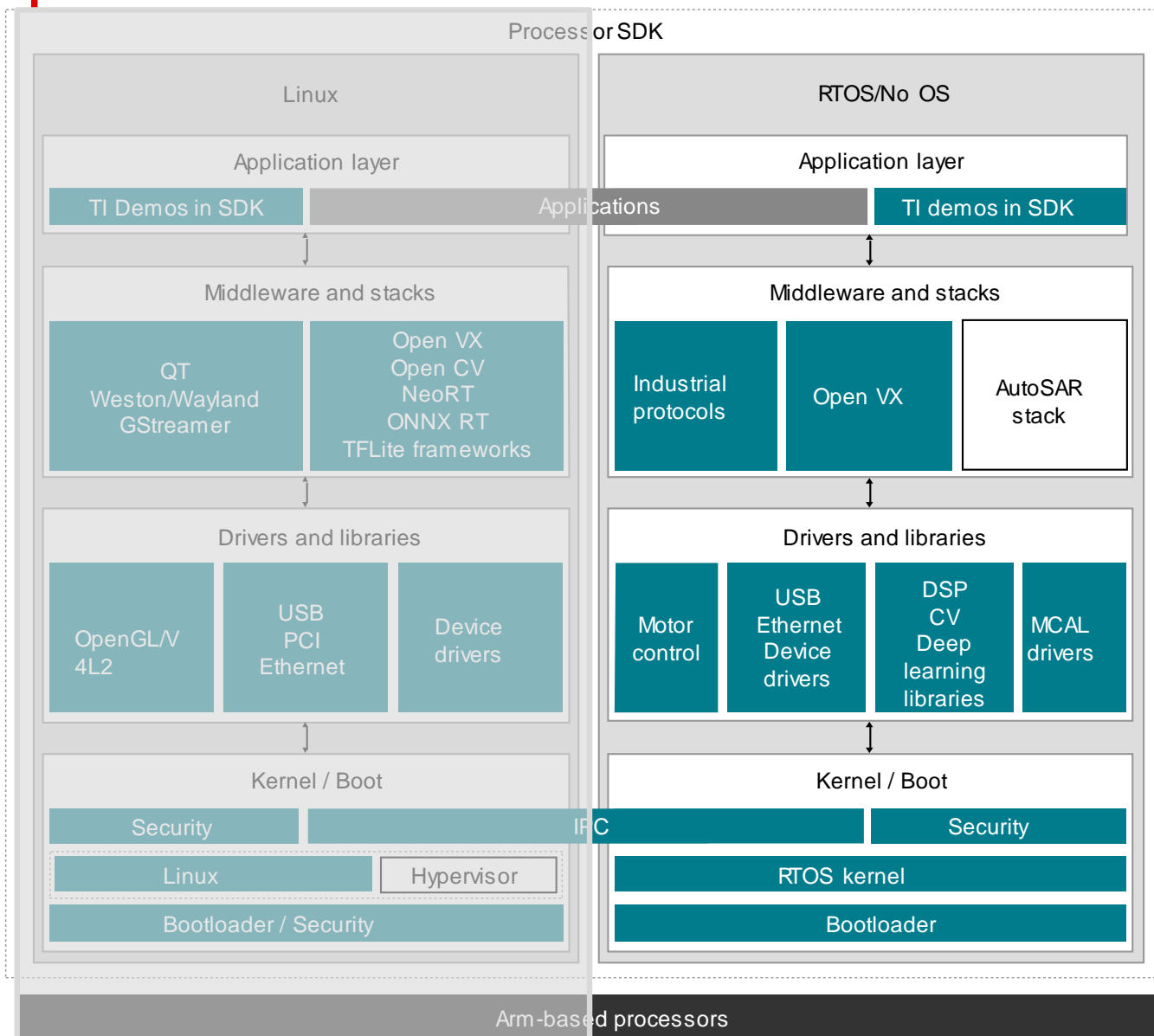
Processor SDK provides robust foundation

Linux features:

- Updated to the latest Long Term support (LTS) Linux kernel, boot loader and Yocto file system on an annual basis
- Robust, commercial-grade Linaro® GNU compiler collection (GCC) toolchain
- Yocto Project™ OE Core compatible file systems support enables tailored Linux application support
- RT-Linux releases include a fully pre-emptible kernel for real-time applications



Processor SDK provides robust foundation



RTOS/No OS features:

- Robust real-time RTOS kernel (TI RTOS/Free RTOS)
- Includes network communications support, examples, and drivers
- Driver libraries can be used with or without an RTOS kernel
- Free and available as open source

Search: AM64x X

Reduce eval time by allowing browsing and running examples via browser without having to download and install anything

- Software
 - MCU+ SDK
 - MCU+ SDK for AM64X - 00.05.00.02
 - Documents
 - User Guide
 - Examples
 - Development Tools
 - AM64x General Purpose EVM (TMDS64GPEVM)
 - freertos
 - drivers
 - kernel
 - dpl
 - hello_world
 - m4fss0-0
 - r5fss0-0

- Manage Versions
- Download

Download SDK and get started in CCS

Browse SDK Example and Documentation before installation

- hello_world
 - EXAMPLI Import to CCS Cloud IDE
 - example.syscfg
 - hello_world.c

Import to CCS Cloud and get started without installing anything

TEXAS INSTRUMENTS AM64x MCU+ SDK 00.05.00

AM64x MCU+ SDK

Introduction

This is a early evaluation release and some SV below are still in development and you wont s

so all documentation pages are not yet comp

future, this package will be included within th

ake a single SDK installer that enables both l

development.

Welcome to **MCU+ SDK for AM64X**. This SDK conta

develop **RTOS and non-RTOS** based applications for

AM R5F, ARM M4F app

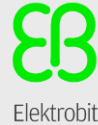
Ecosystem partners complement TI offerings

OS, platform and tools ecosystem provides a robust foundation



+ more

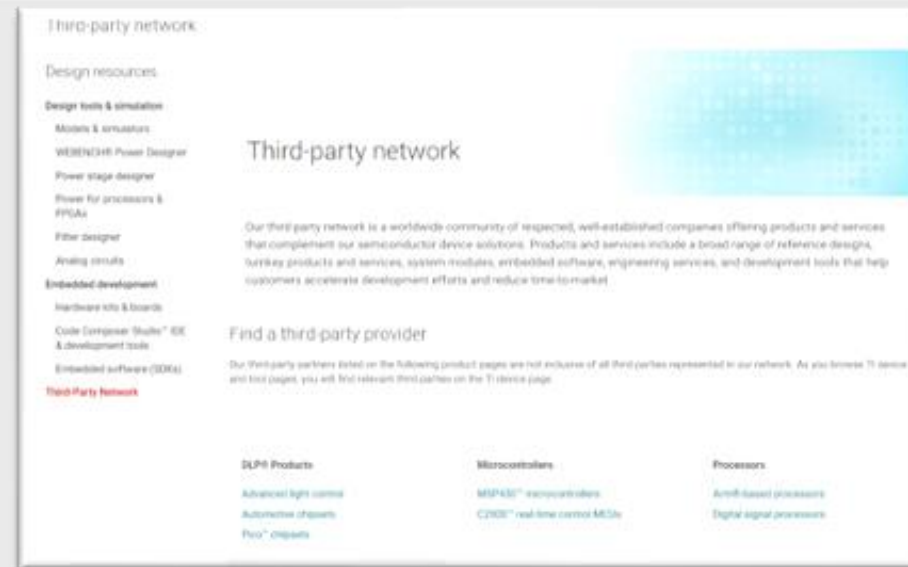
Application-specific offerings help jumpstart new development



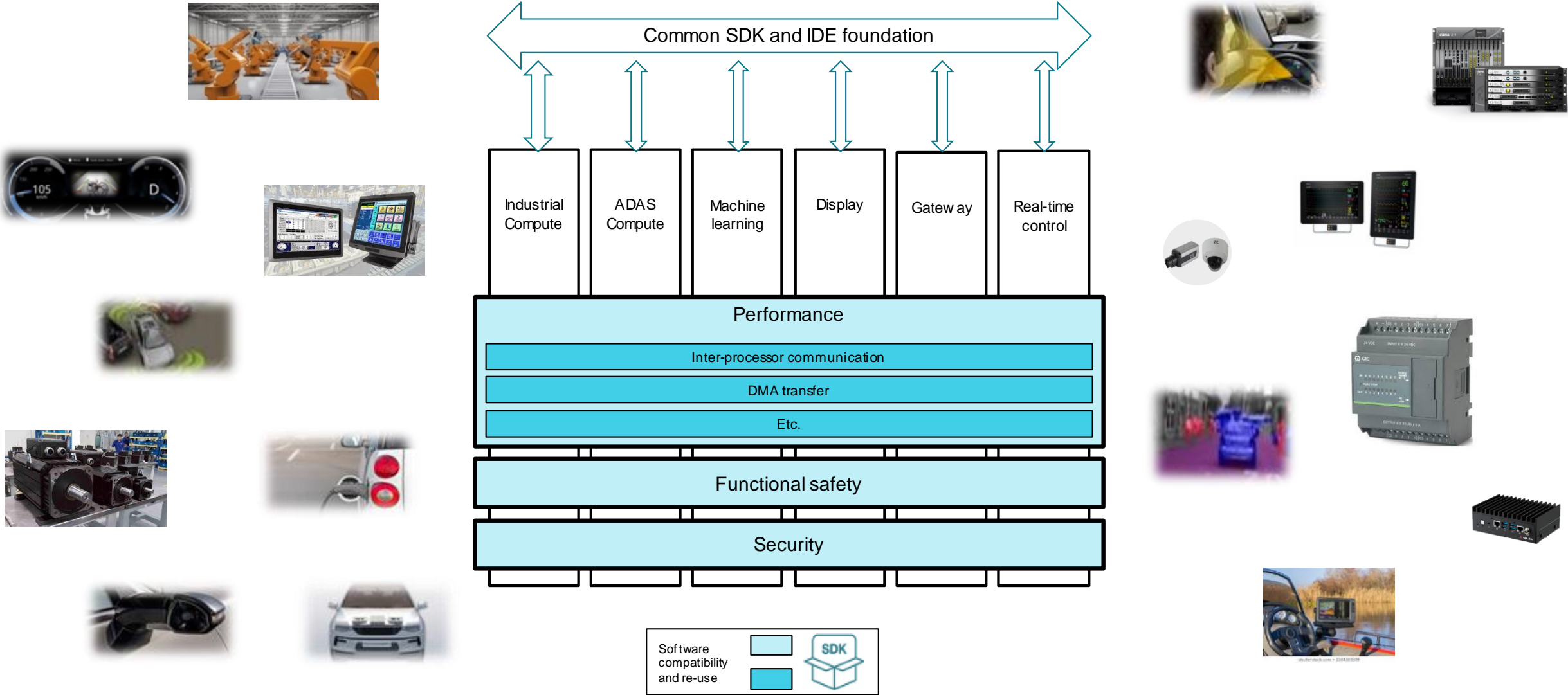
+ more

Find the right partner for you:

[https://www.ti.com/tool/
PROCESSORS-3P-SEARCH](https://www.ti.com/tool/PROCESSORS-3P-SEARCH)



Scalability and reuse: Entitlement from unified software platform



Comprehensive software development ecosystem: Do more, faster

Get started

- Intuitive development environment and robust foundational software
- Cloud based evaluation with numerous examples
- Graphical system configuration

Make it easy

- Unified and compatible software platform leverage industry standard interfaces
- Optimized for each compute element and interface
- Clear and open licensing
- Large network of compatible third party offerings
- Safety and security solutions

Finish on time

- Advanced debug tools
- Qualification packages

Thank You !!