



Introduction to Vitis for accelerated platforms

Vitis Introduction

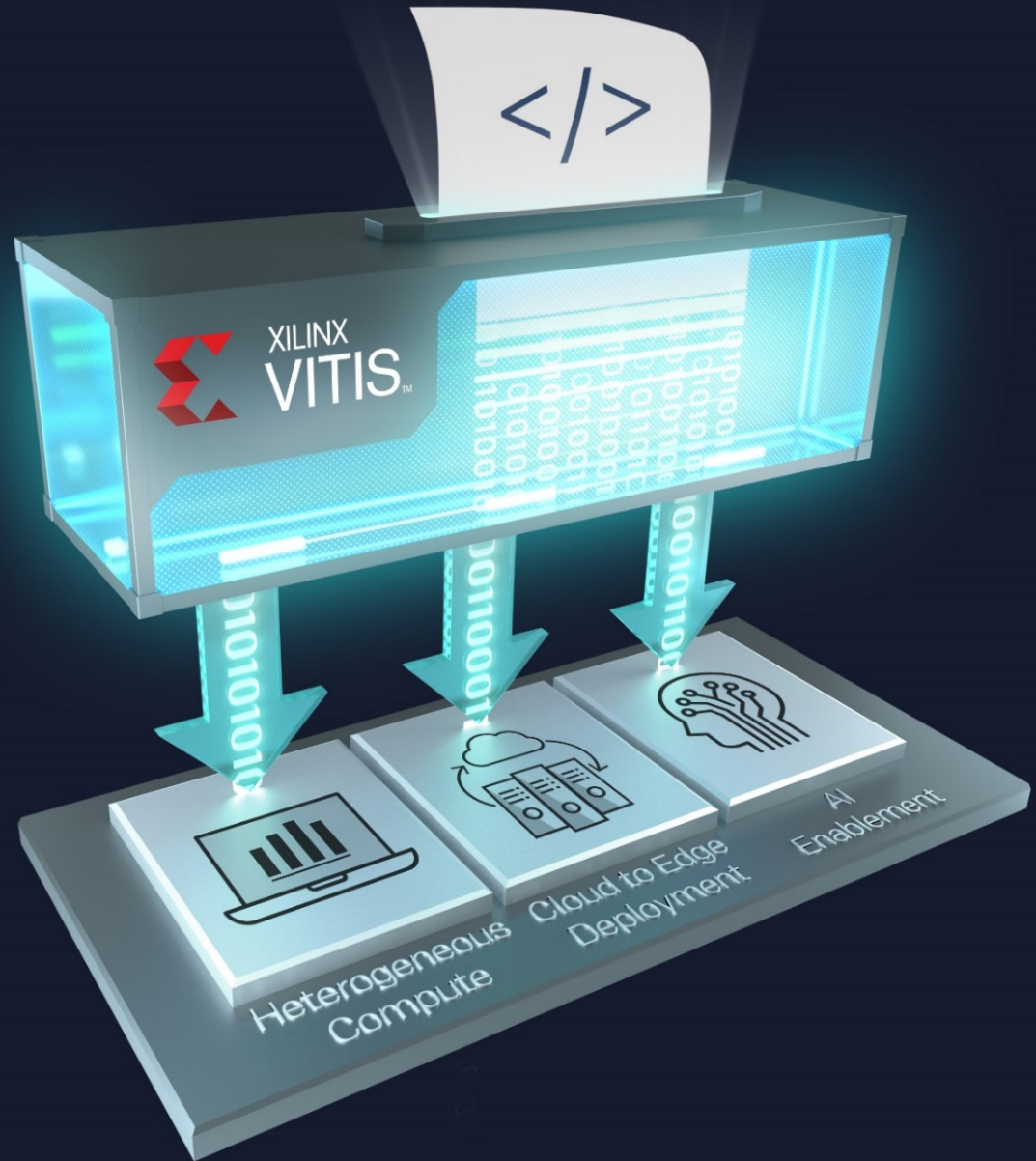




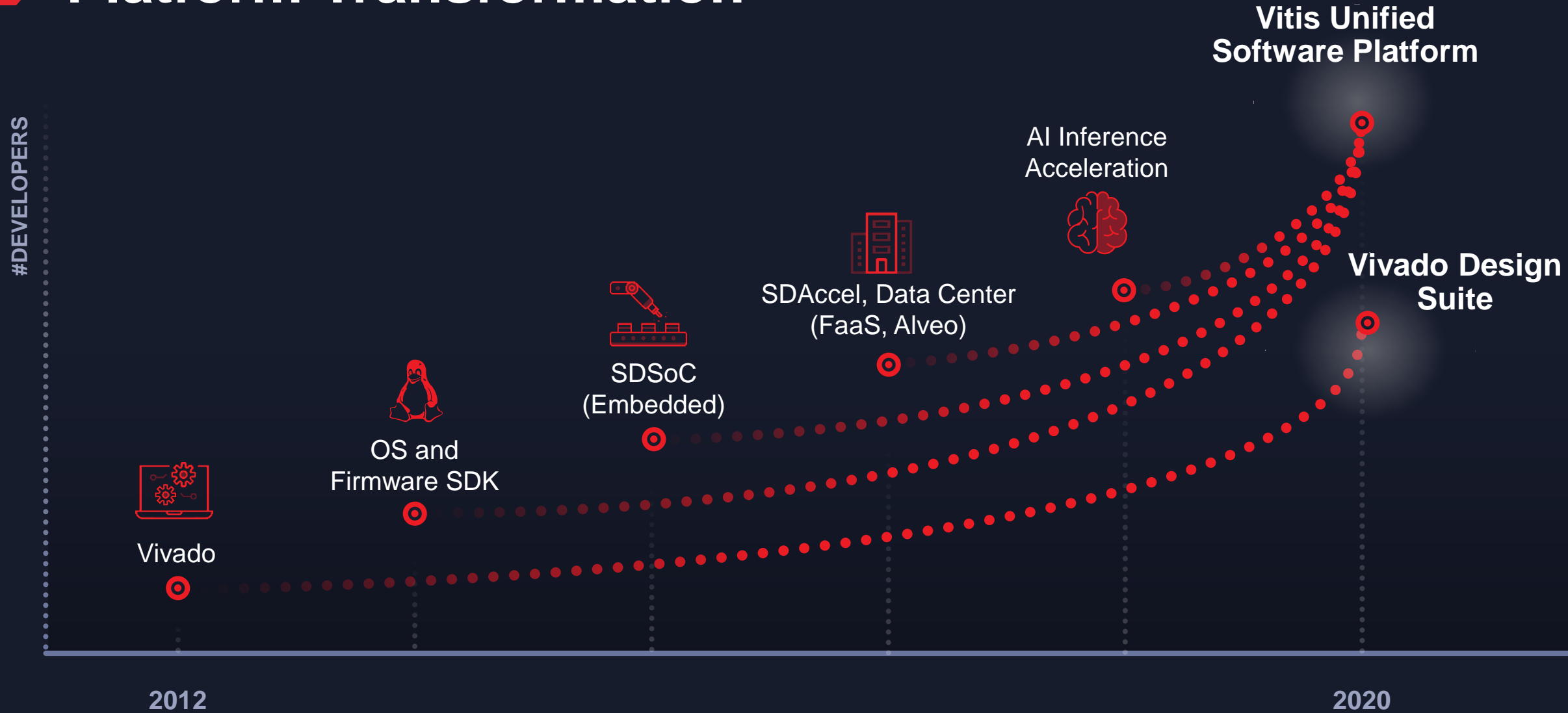
Unified Software Platform

- Standards-Based, Open*
- Unified Methodology Edge to Cloud
- Available for Free

*Open source Xilinx Runtime library (XRT), Accelerated libraries, AI Models

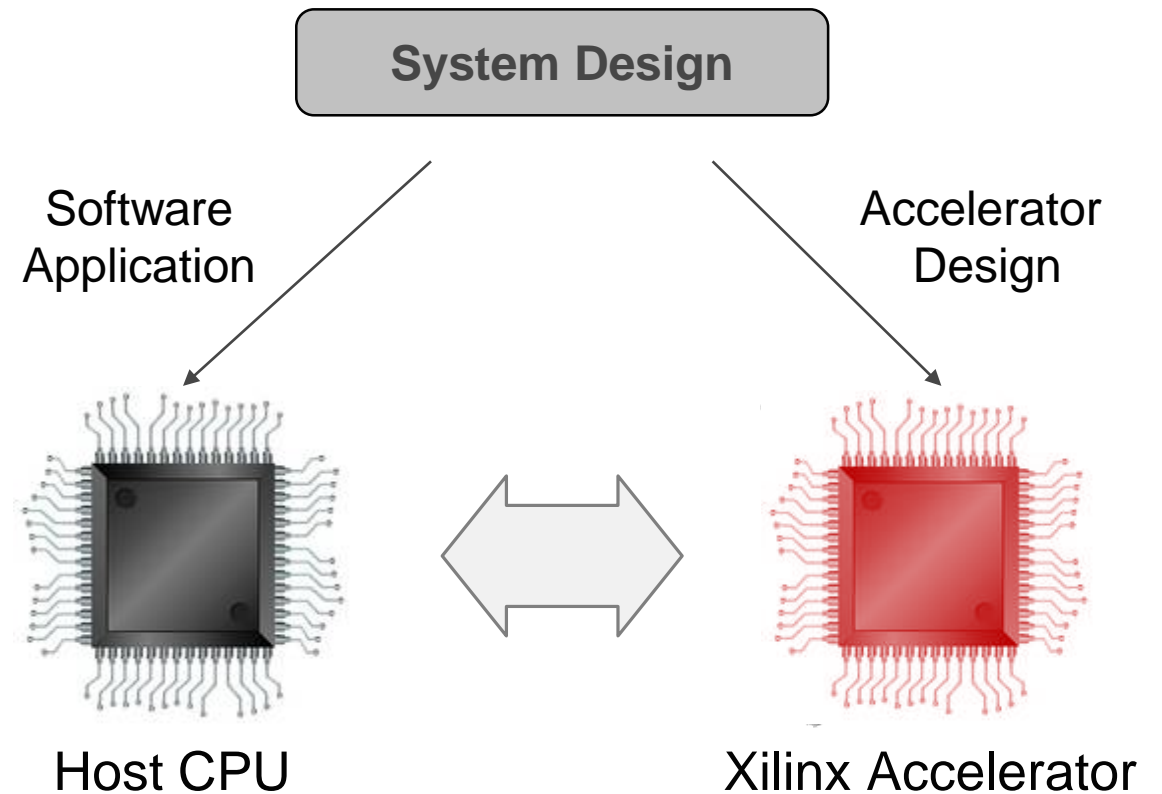


Platform Transformation



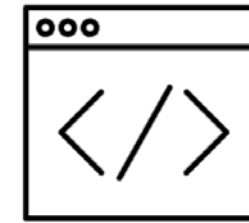
Accelerator system overview

- ▶ System consists of:
 - Server/host CPU(s)
 - One or more accelerators
- ▶ Design consists of:
 - Software application running on host CPU
 - Accelerator design running on Xilinx platform

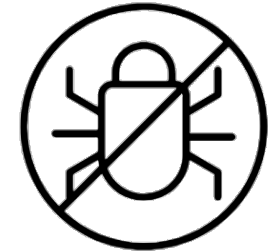


Vitis Unified Software Platform for All Developers

- ▶ Development of host applications in OpenCL/C/C++
- ▶ Development of accelerators in RTL, OpenCL/C/C++
- ▶ Tools for debug, profiling, and performance analysis
- ▶ Support for both GUI and command-line users
- ▶ Fully integrated Eclipse-based IDE



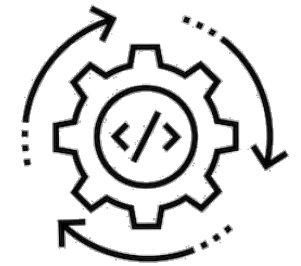
Develop



Debug

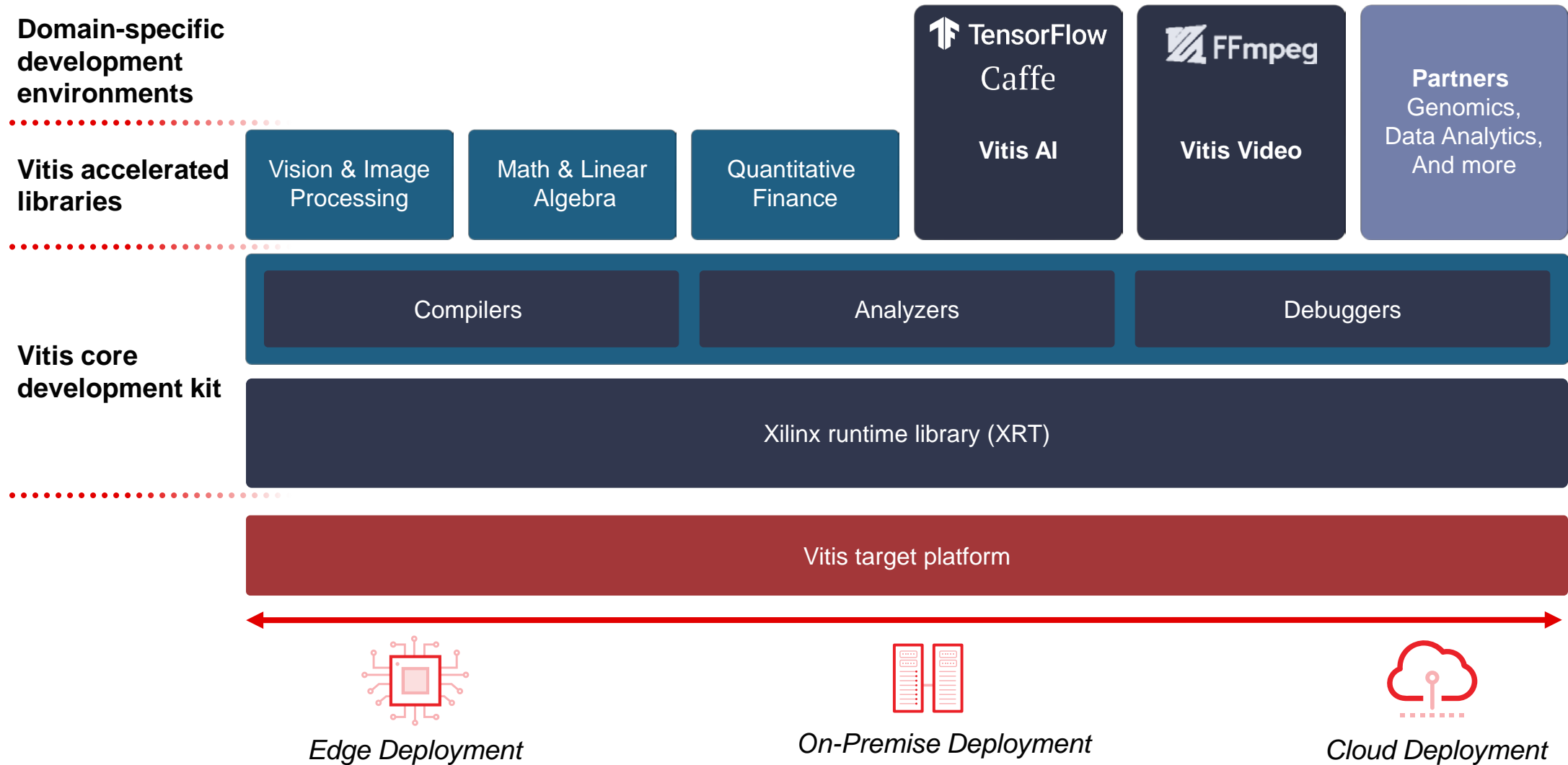


Profile



Optimize

Vitis Unified Software Platform



Build: Extensive, Open Source Libraries



Domain-Specific Libraries



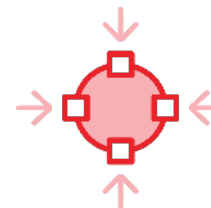
Vision &
Image



Finance



Data Analytics &
Database

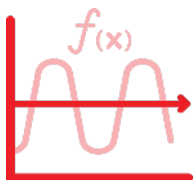


Data Compression

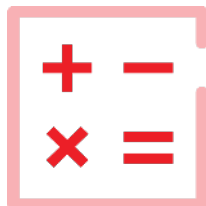


Data Security

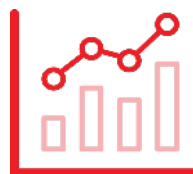
Common Libraries



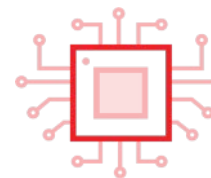
Math



Linear Algebra



Statistics



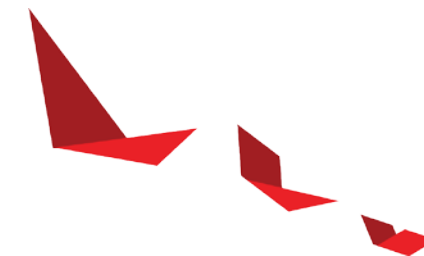
DSP



Data Management

https://github.com/Xilinx/Vitis_Libraries

Vitis AI: Deep Learning Acceleration Stack



Frameworks

Caffe

PyTorch

Vitis AI models



Vitis AI
development kit

AI Optimizer

AI Quantizer

AI Compiler

AI Profiler

Vitis drivers & runtime (XRT)

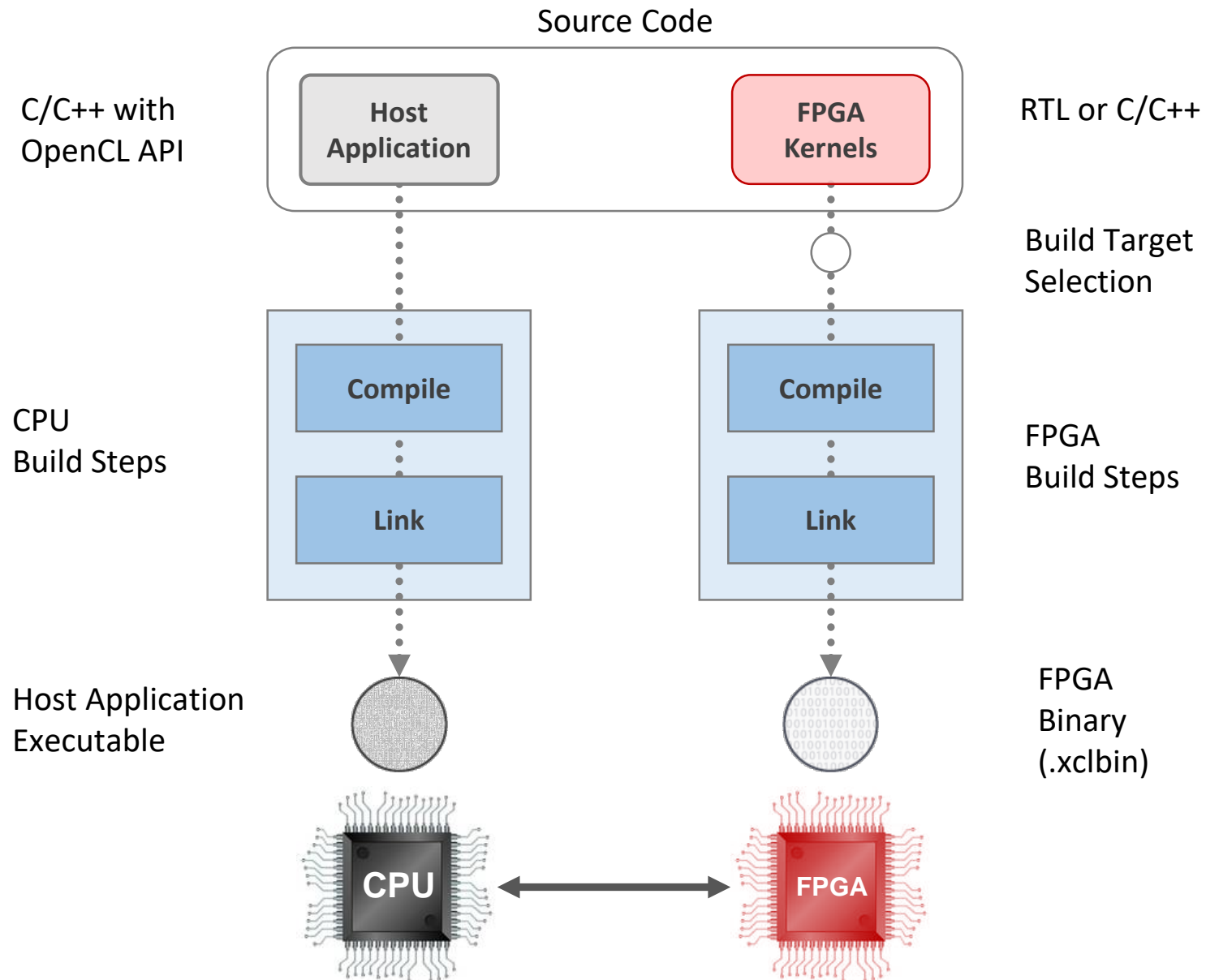
Domain Specific
Architecture (DSA)

CNN DPU

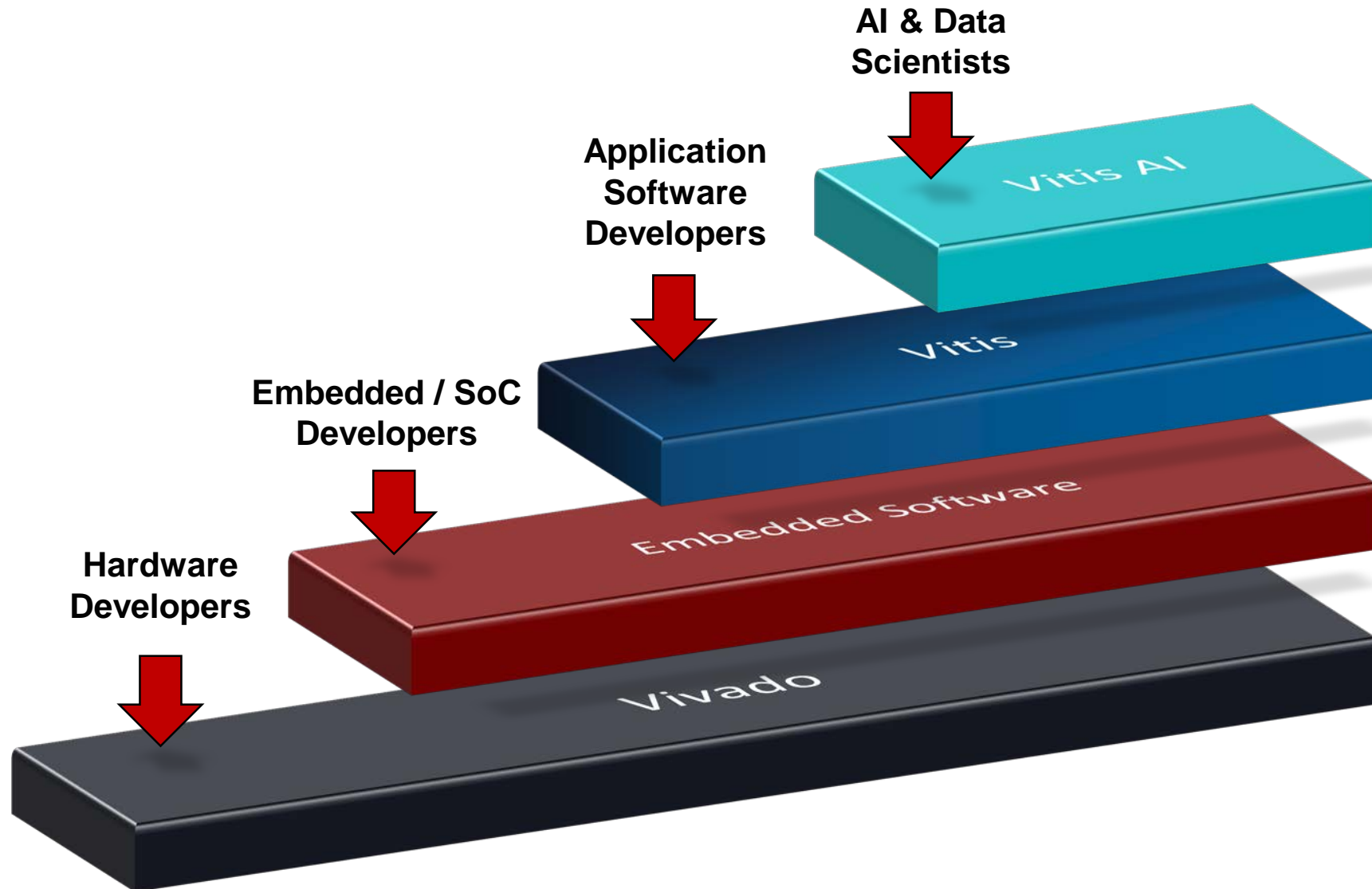
LSTM DPU

MLP DPU

Software/Hardware Build Process



Development Platforms for ALL Developers





Thank You



Resources

Time	Topics
Vitis webpages	http://www.xilinx.com/vitis
Alveo webpages	https://www.xilinx.com/alveo
Vitis Accelerated Libraries	https://github.com/Xilinx/Vitis_Libraries
User guide: UG1393	Vitis Unified Software Platform Documentation (Check for latest version)
User guide: UG1414	Vitis AI User Guide (Check for latest version)
User Guide: UG1352	Get moving with Alveo
Free ebook	Parallel Programming for FPGAs (http://kastner.ucsd.edu/hlsbook)