FPGA Development Kit for Embedded Systems
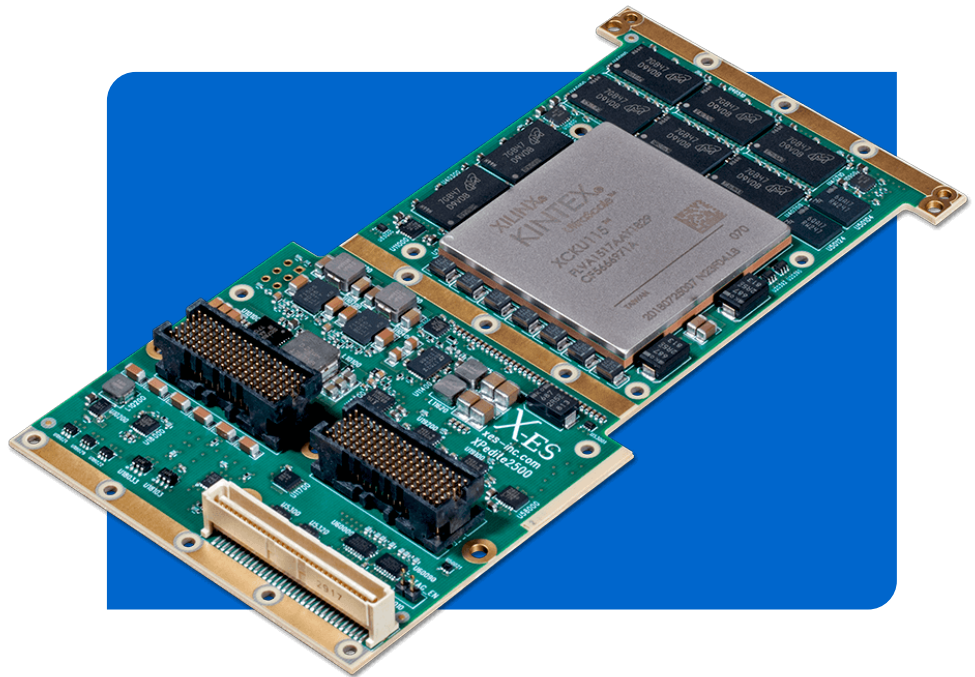
① FPGA Development Kit

X-ES provides an FPGA Development Kit (FDK) for FPGA-based products to help you deploy FPGA solutions as quickly as possible.

The FDK delivers a pre-validated environment for rapid application development, offering an optimized library of IP, design resources, and software components that can easily be used as the basis for custom designs.

With the X-ES FDK, you can:

- Save time by using pre-configured IP blocks for hardware interfaces.

- Reduce development effort by starting from a validated design.

- Reduce project risk with an example design and software drivers that have been fully tested.

- Create portable FPGA code based on industry-standard bus interfaces (AXI/Avalon/AHB).

Supported FPGA Architectures

- AMD (formerly Xilinx)
- Microsemi
- Altera

Supported Operating Systems

- Linux
- Wind River VxWorks

② What's Included

IP Blocks

The FDK for each X-ES board includes IP blocks for all external hardware interfaces, which can be used with third-party design tools to create a working FPGA design. The IP blocks, such as PCI Express, flash, and memory interfaces, are pre-configured and can be used out of the box, greatly reducing the time spent on interface development.

Interface Test IP blocks enable validation of low-level board interfaces, including high-speed serial links.

These IP blocks are placeholders for testing the interfaces and can quickly be replaced with application-specific customer IP.

The DevID IP block describes the contents of the FPGA load.

This is used by the software to discover IP in the FPGA and load the appropriate drivers. The DevID block can be easily extended to cover customer IP.

All X-ES IP blocks support industry-standard interface protocols, allowing for seamless integration with third-party and customer IP. The FDK gives you the flexibility to use only the IP blocks you need, and source code is provided for customization.

Example Design

The X-ES FDK comes with a fully tested, board-specific example design with all the HDL code, constraints, and files needed to build an FPGA image. This design can be used as a starting point for custom development, or the individual configured IP blocks can be pulled into a new or existing design.

Example designs are compatible with the latest generation of FPGA development tools, making it easy to start work on your application.
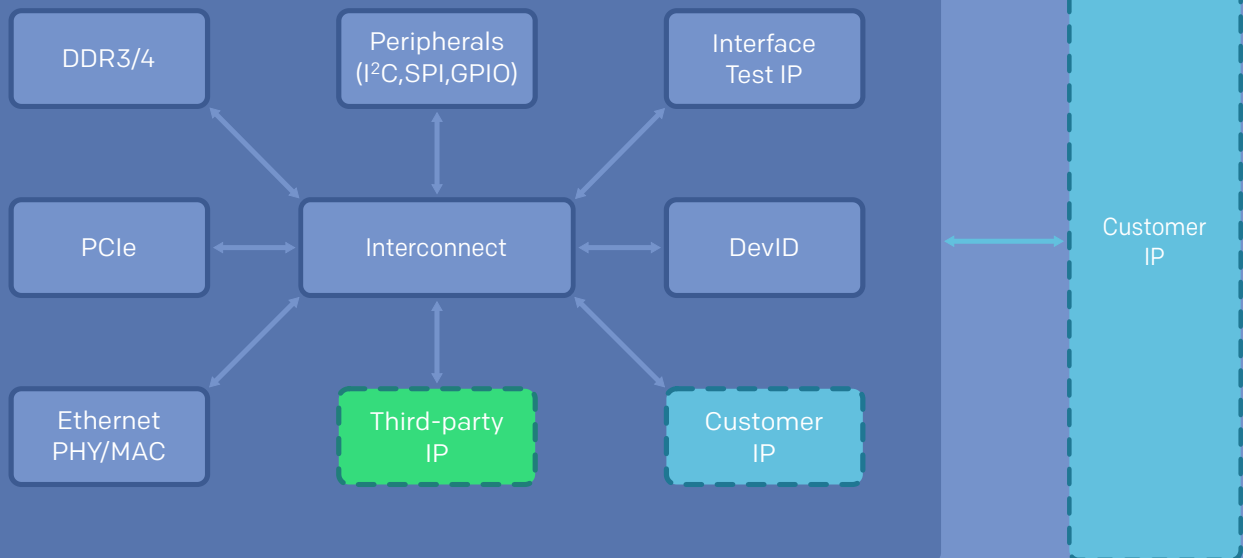
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Software

The FDK includes software drivers and utilities to discover, set up, control, and communicate with the FPGA and included IP. Software drivers are provided for low-level peripherals as well as data movement using standard APIs.

All FDK software is written in ANSI C with source code provided.