

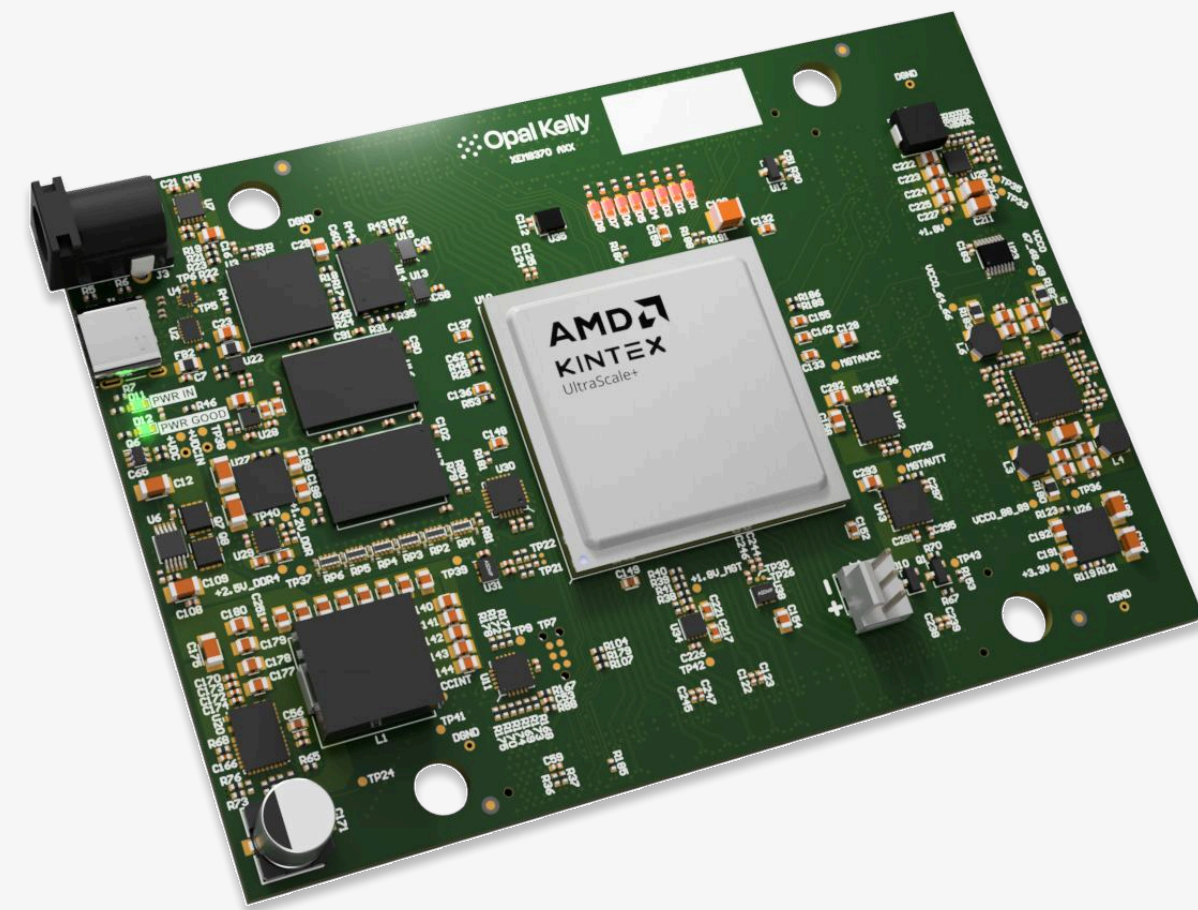
## Company & Product Summary

# XEM8370

FPGA Development Board and Integration Module

 **Opal Kelly**

# XEM8370

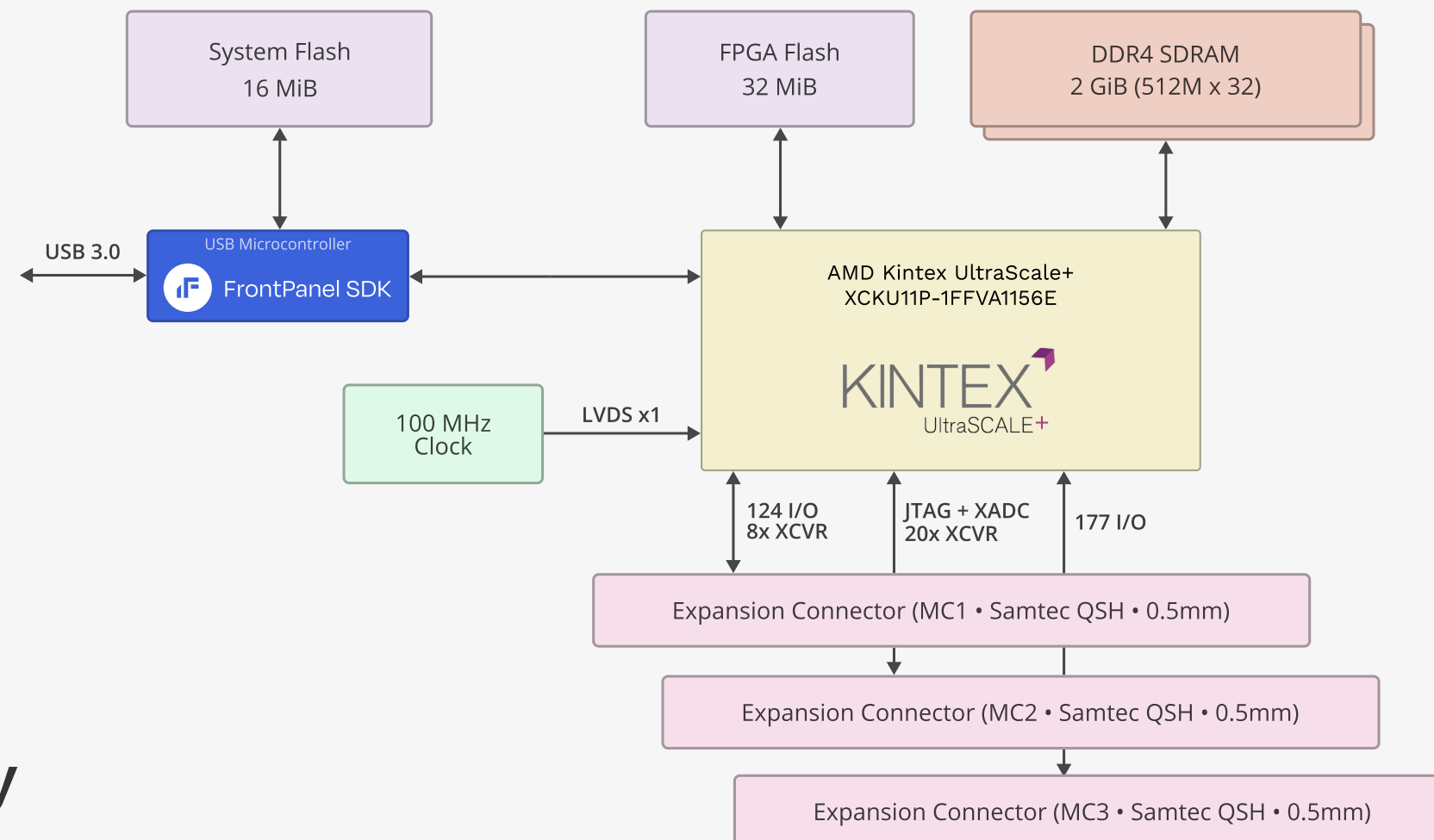


## Xilinx Kintex UltraScale+ XCKU11P-1FFVA1156E

SuperSpeed USB 3.0 interface  
2 GiB DDR4 memory  
32 MiB FPGA Flash  
16 MiB Serial Flash  
Adjustable Voltage I/O



FrontPanel® SDK



**Host Interface** USB 3.0 Type C, SuperSpeed FrontPanel Support

**FPGA** XCKU11P-1FFVA1156E  
XCKU11P-3FFVA1156E (optional)

**Memory** 2 GiByte DDR4, 32-bit wide data interface

**NV Memory** 16 MiB System Flash  
32 MiB FPGA Flash

**Oscillator** 100 MHz fixed fabric oscillator  
6 pin 2.5×2.0mm or 2.5×3.2mm

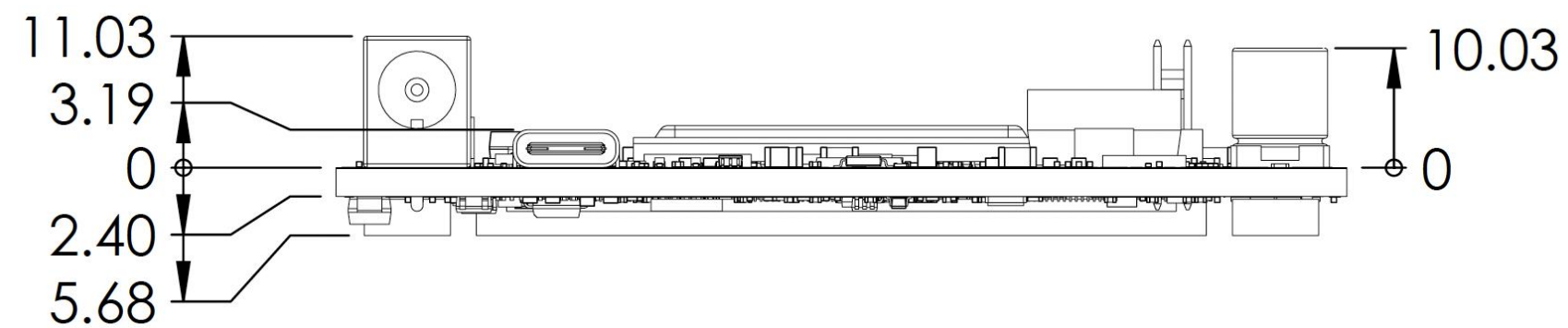
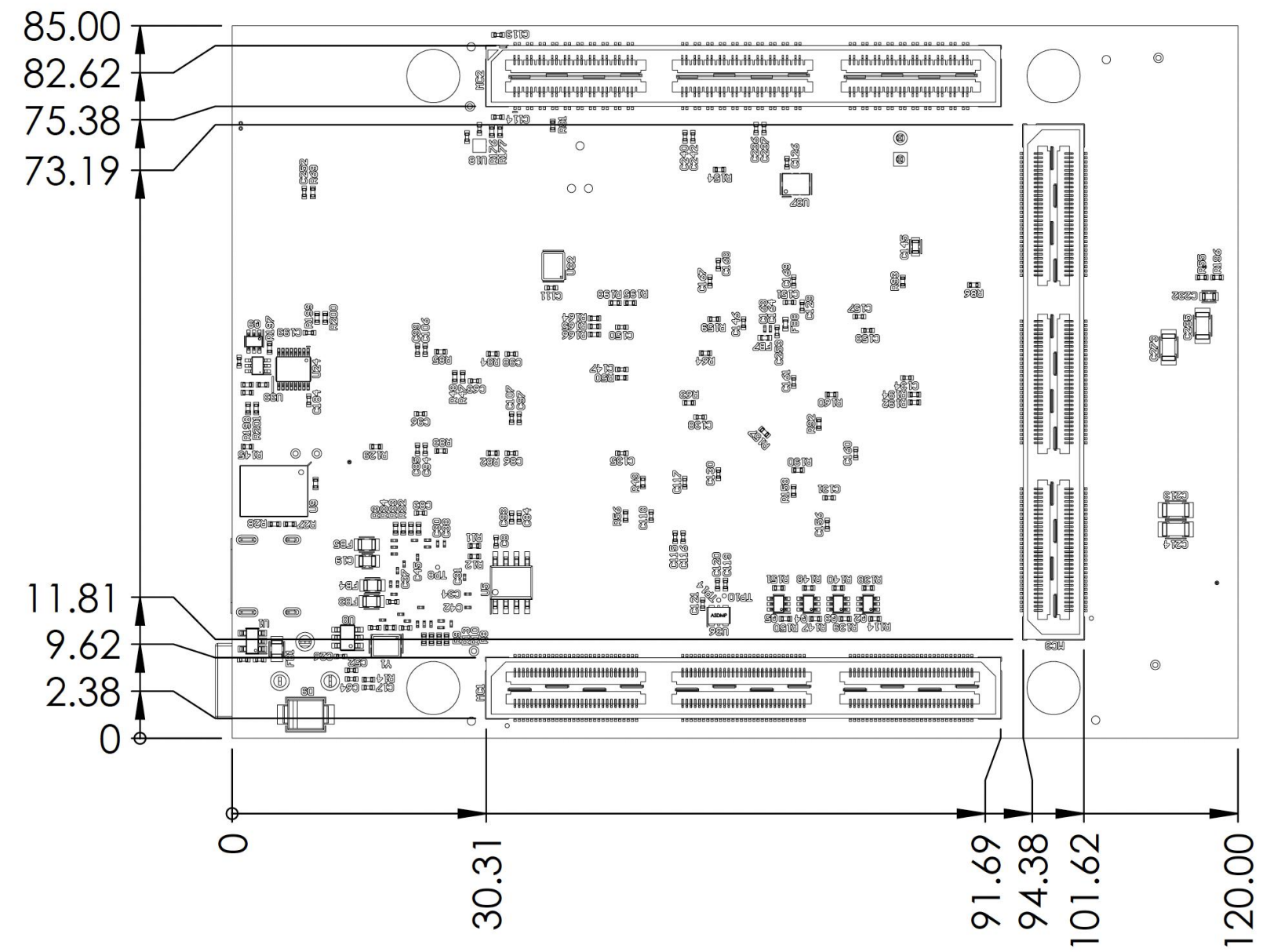
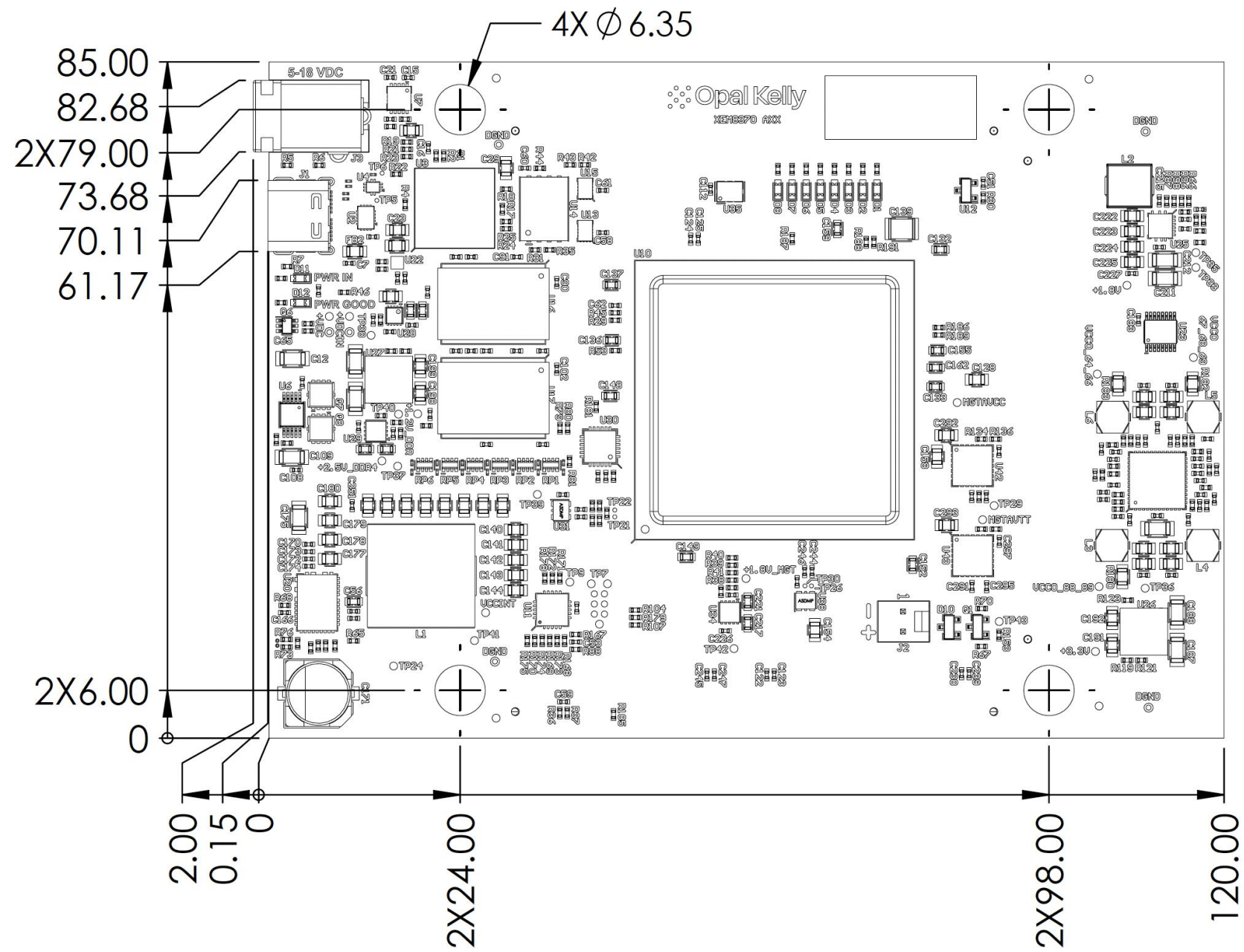
**FPGA I/O Voltage** Up to +3.3V

	MINIMUM	TYPICAL	MAXIMUM	UNITS
DC Input	+5.0		+180	VDC
DC Input Ripple	-	-	50	mVp-p
Operating Temperature	0	-	+70	°C
Storage Temperature	-50	-	+100	°C
Weight		91.5		grams
Oscillator Frequency		100		MHz
Oscillator Period Jitter		2.5		ps RMS
Oscillator Stability		±25		ppm

FEATURE	XCKU11P
FPGA	XCAU11P
System Logic Cells	653,100
CLB Flip-Flops	597,120
CLB LUTs	298,560
Distributed RAM (max)	9.1 Mb
Block RAM	600 blocks (21.1 Mb)
UltraRAM	80 blocks (22.5 Mb)
DSP Slices	2,928
GTY Transceivers (16.375 Gbps)	8

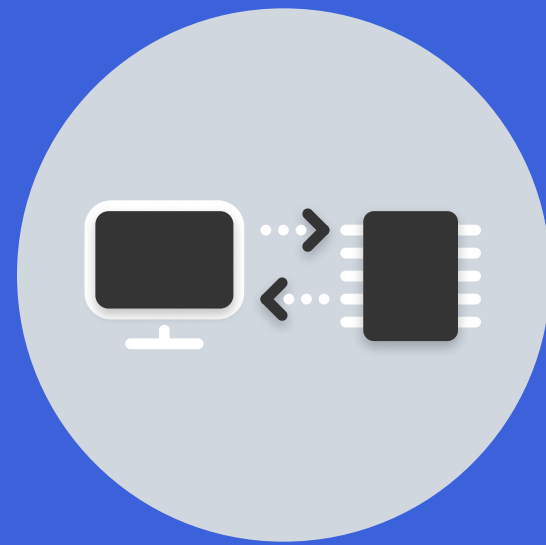
# XEM8370

## Mechanical Drawings



All dimensions in millimeters (mm)

# FrontPanel<sup>®</sup> System Components



Software API and a robust driver to communicate with your device over USB, PCI Express and the internet.

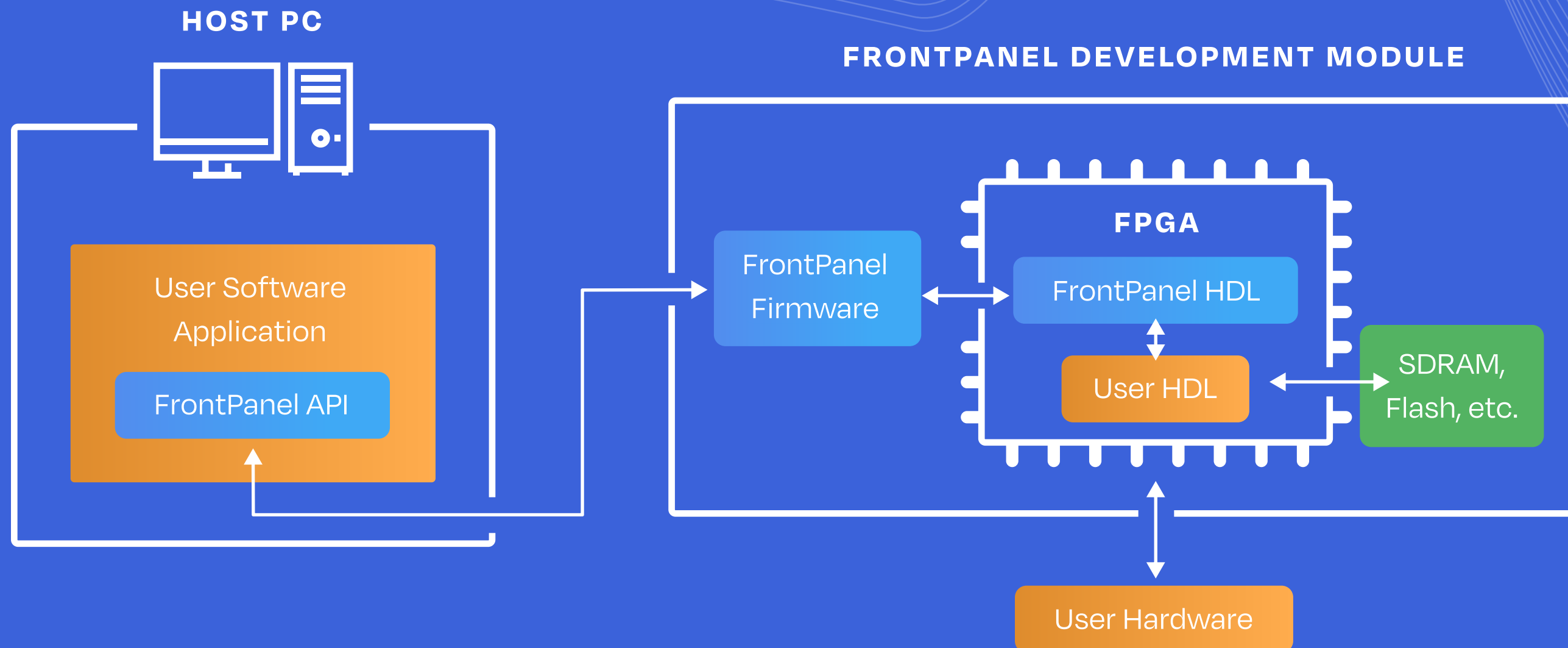


Proprietary device firmware to manage FPGA configuration and communication as well as other device management and monitoring.



Lightweight FPGA IP blocks that integrate with your HDL to make host communication simple and easy.

# FrontPanel<sup>®</sup> System Architecture



Build high-performance software-connected FPGA applications for prototypes, proof-of-concept, and production

## FrontPanel<sup>®</sup> SDK

- Multi-platform, multi-language
- Easy to use. High performance. Stable and reliable.
- USB 2.0, USB 3.0, PCI Express, and TCP/IP
- C++, C# (.NET), Python, Java, Ruby APIs
- Windows DLL / Shared Object for 3rd-party integration (e.g. MATLAB, LabView)

## FrontPanel<sup>®</sup> over IP (FPoIP)

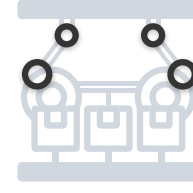
- Familiar API, extended over TCP/IP networks
- Protocol, server, and client implementations
- Server for USB-based devices: Windows, Linux, and macOS hosts
- Lua-based server-side scripting for latent conditions
- Javascript implementation for in-browser operation




- Founded 2004.
- Leading producer of powerful FPGA modules for high-performance data acquisition, instrumentation, and test & measurement
- Focus on lifecycle-managed modules for prototypes, proof-of-concept, and production use
- Modules include the FrontPanel SDK — a multi-platform, multi-language, FPGA-agnostic framework for professional-grade hardware / software connectivity
- Introduced SYZGY connectivity standard in 2017
- ISO 9001:2015 QMS, certified 2019



**Proof-of-Concept**  
Build fast. Build early.



**Prototype**  
Focus on your core.



**Production**  
Simplify your supply chain.

**OUR CUSTOMERS**

Over 2,000 corporate customers  
Over 200 Universities worldwide

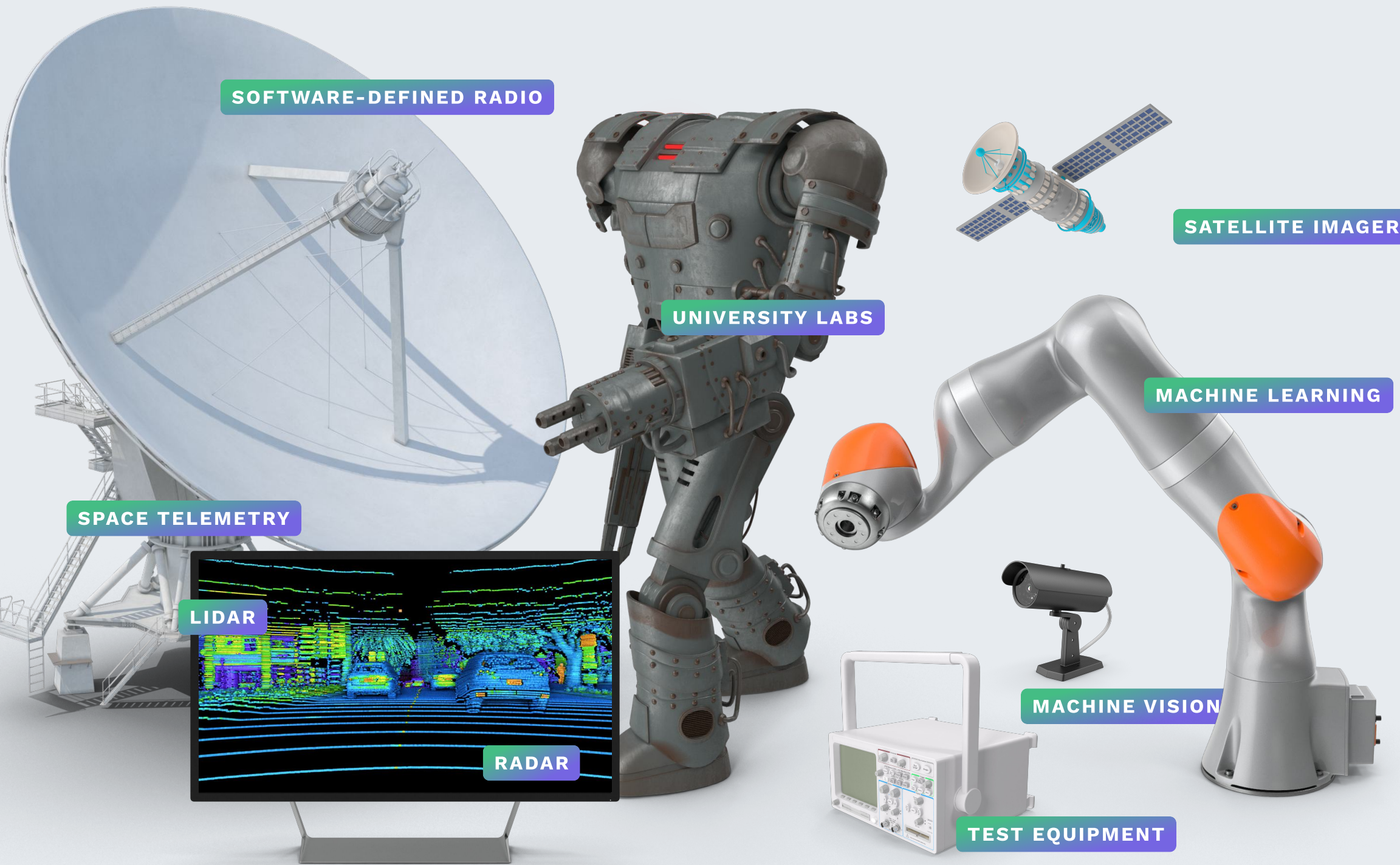


**CUSTOMER SEGMENTS**

Research Organizations  
National Laboratories  
Military / Aerospace  
Scientific Instrumentation  
Commercial



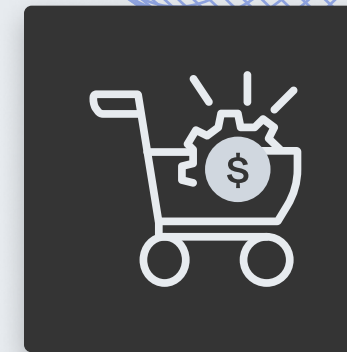
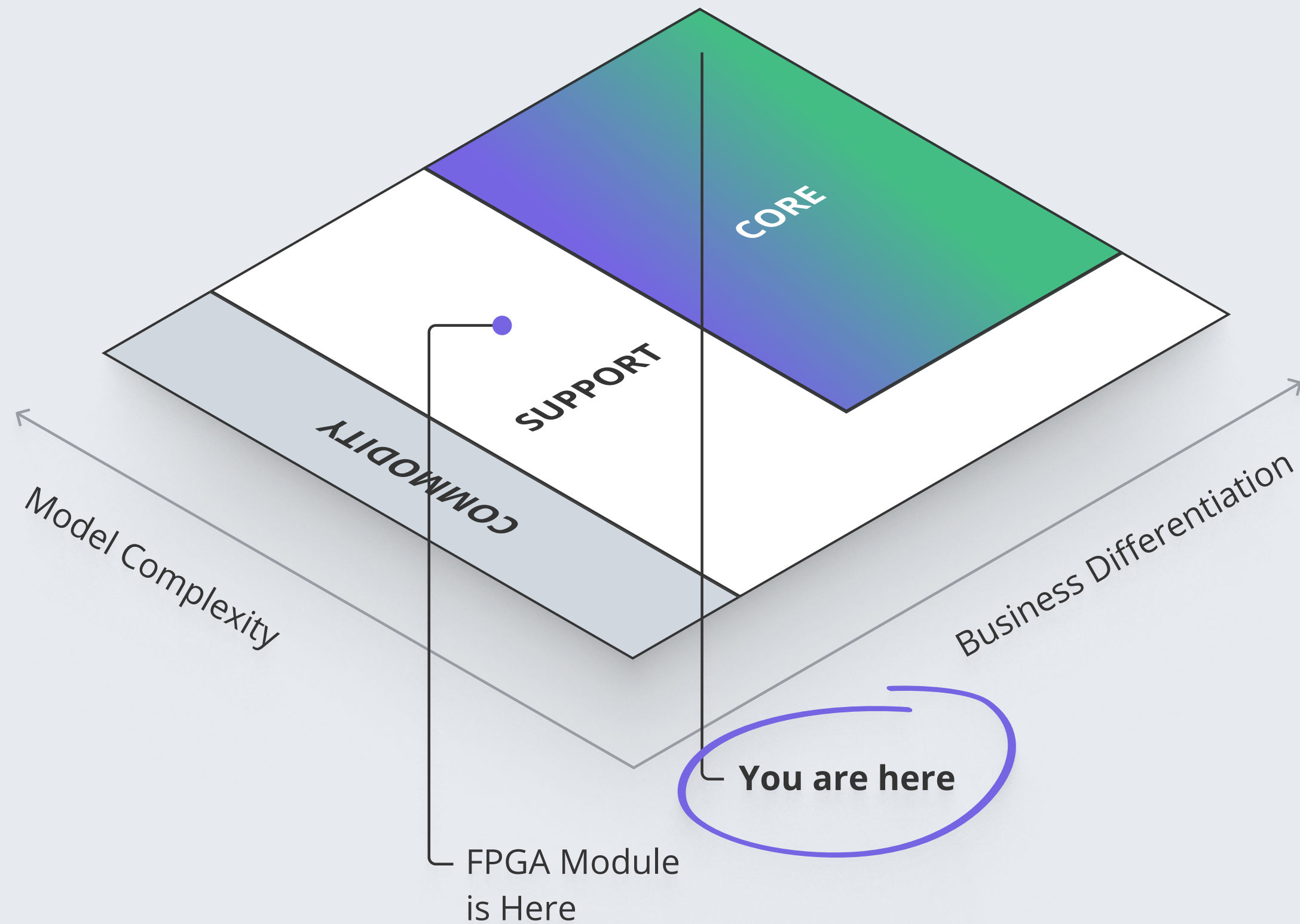
# Applications & Deployments



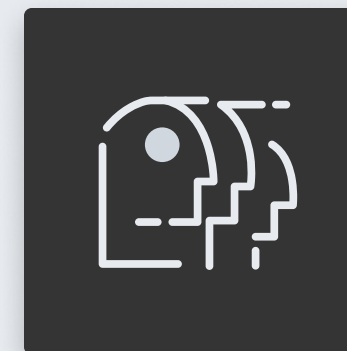
- Data Acquisition
- Instrumentation
- Test & Measurement
- Machine Vision
- Software-Defined Radio
- Education & Research
- Machine Learning / AI
- Networking
- RADAR, LIDAR
- Satellite Imagery
- Advanced / Remote Sensing
- Semiconductor Simulation, Test, and Debug



# Focus on Your Core Expertise



Reduce time to market



Build a team that strengthens your core



Simplify your supply chain