Company & Product Summary

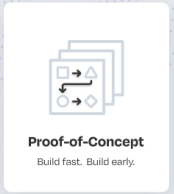
XEM7305

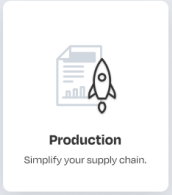
FPGA Development & Integration Module

Opal Kelly

Opal Kelly

- 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 SYZYGY connectivity standard in 2017
- ISO 9001:2015 QMS, certified 2019





OUR CUSTOMERS

Over 2,000 corporate customers

Over 200 Universities worldwide

CUSTOMER SEGMENTS

Research Organizations

National Laboratories

Military / Aerospace

Scientific Instrumentation

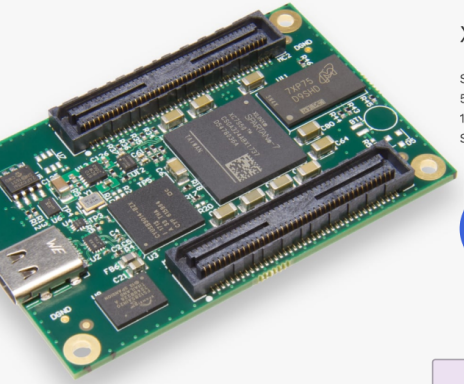
Commercial

Texas Instruments · Qualcomm · Cirrus Logic · Sandia National Laboratories · Analog Devices

Microsoft · Massachusetts Institute of Technology · Samsung · Microchip · maxim integrated

National Semiconductor · Agilent Technologies · Google · intel

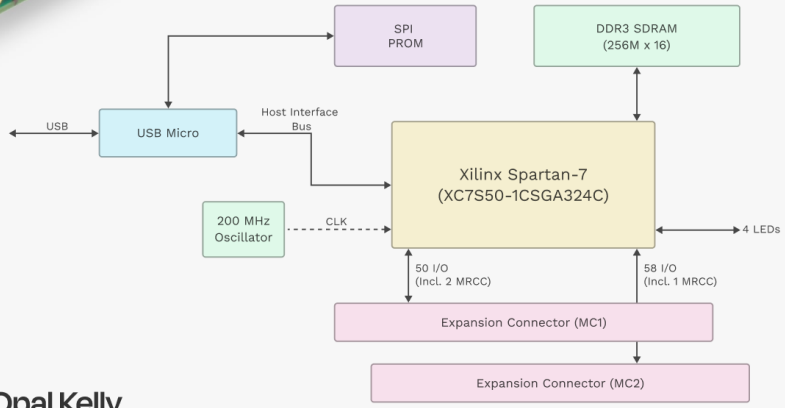
XEM7305



Xilinx Artix-7 XC7S50

SuperSpeed USB 3.0 interface
512 MiB DDR3 memory
108 I/O including MRCC
Samtec 0.8mm board-to-board connectors

FrontPanel® SDK



Host Interface	USB 3.0 Type C, SuperSpeed FrontPanel Support
FPGA	XC7S50-1CSGA
Memory	512 MiByte DDR3, 32-bit wide data interface
NV Memory	16 MiB System Flash
Oscillator	200 MHZ
FPGA I/O Voltage	Up to +3.3V

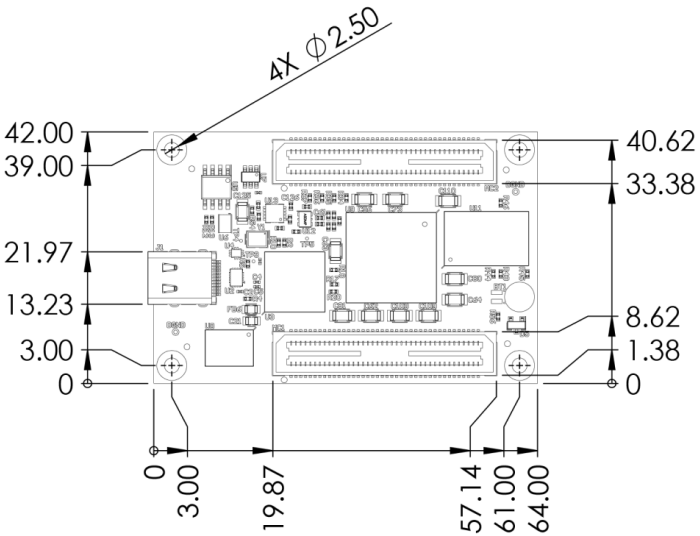
	MINIMUM	TYPICAL	MAXIMUM	UNITS
DC Input	+4.5	+5.0	+5.5	VDC
DC Input Ripple	-	-	50	mVp-p
Operating Temperature	0	-	+70	°C
Storage Temperature	-50	-	+100	°C
Weight		15		grams
Oscillator Frequency		200		MHz
Oscillator Freq. Stability		± 50		ppm
Oscillator Jitter		2.5		ps RMS

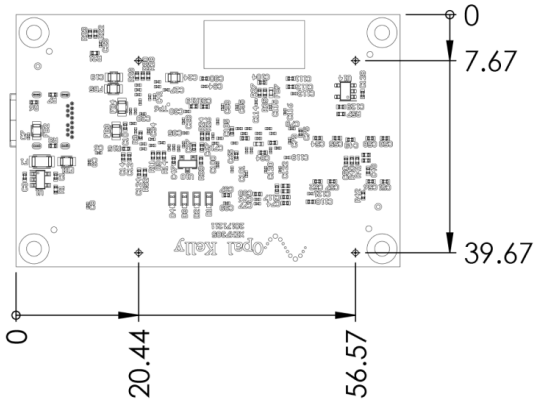
FEATURE	XEM7305-S50
FPGA	XC7S50-1CSGA
Slice Count	8,150
D Flip-Flops	65,200
Distributed RAM	600 Kib
Block RAM	2,700 Kib
DSP Slices	120
Clock Management Tiles	5

Opal Kelly

XEM7305

Mechanical Drawings

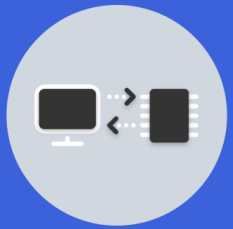




All dimensions in millimeters (mm)

Opal Kelly

FrontPanel® System Components



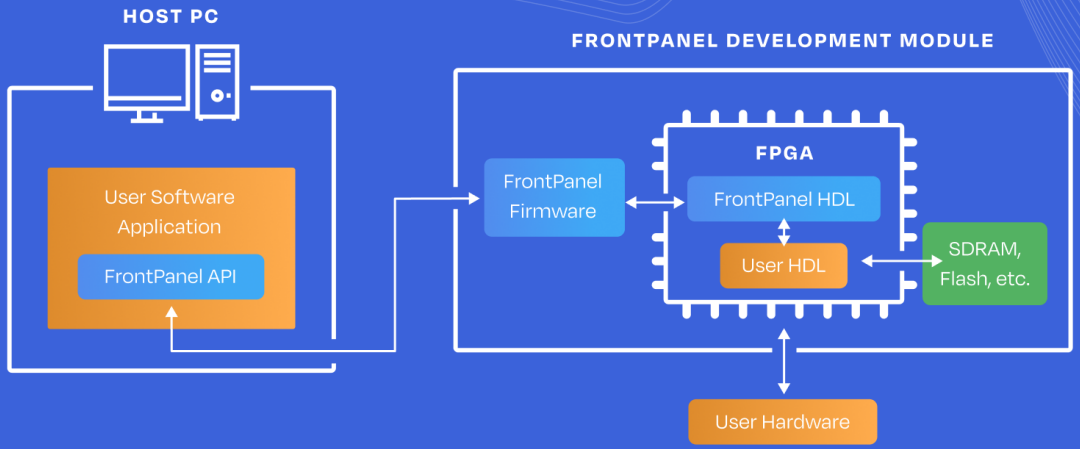
Software API and a robust driver to communicate with your device over USB, PCI Express and the internet.

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.

Opal Kelly

FrontPanel® System Architecture



Opal Kelly

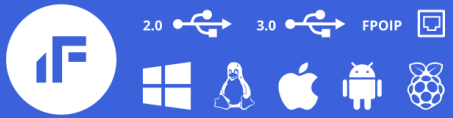
Build high-performance software-connected FPGA applications for prototypes, proof-of-concept, and production

FrontPanel® 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)

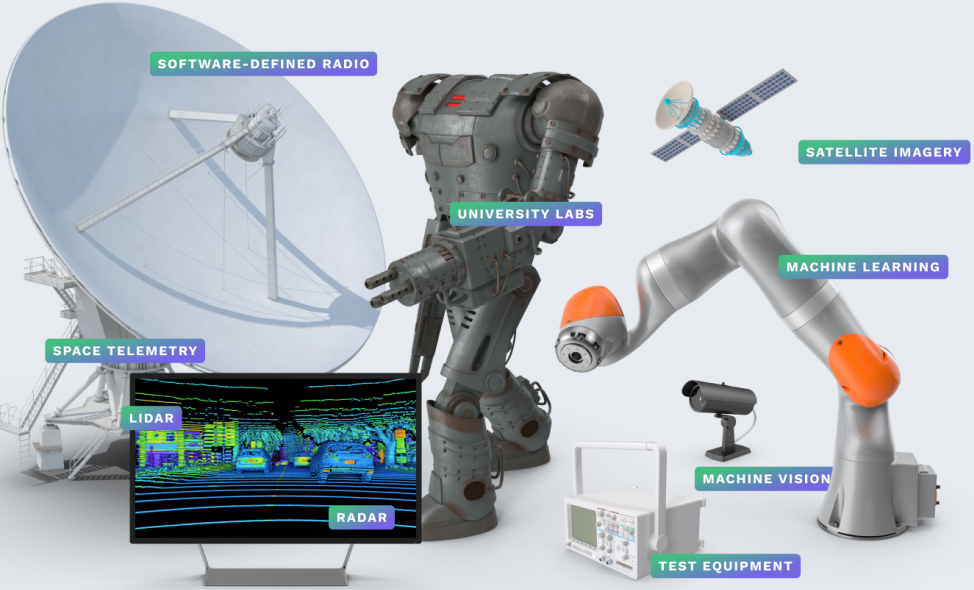
FrontPanel® over IP (FPoIP)

- 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



Opal Kelly

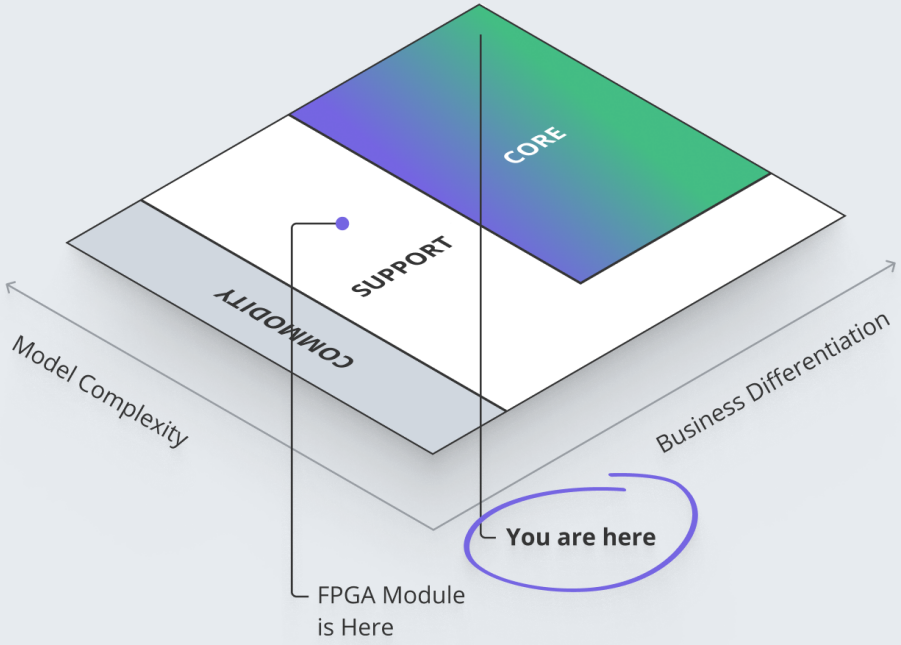
Applications & Deployments



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

Opal Kelly

Focus on Your Core Expertise



Reduce time to market

Build a team that strengthens your core

Simplify your supply chain

Opal Kelly