Company & Product Summary

XEM7310
FPGA Development & Integration Module

Opal Kelly
- 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.

**OUR CUSTOMERS**
Over 2,000 corporate customers
Over 200 Universities worldwide

**CUSTOMER SEGMENTS**
- Research Organizations
- National Laboratories
- Military / Aerospace
- Scientific Instrumentation
- Commercial
XEM7310

Xilinx Artix-7 XC7A75T / A200T
SuperSpeed USB 3.0 interface
1 GBit DDR3 memory
126 I/O including MRCC, SRCC, and XADC
Samtec 0.8mm board-to-board connectors

FrontPanel® SDK

Host Interface
- USB 3.0 Type C, SuperSpeed FrontPanel Support

FPGA
- XC7A75T-1FGG
- XC7A200T-1FBG

Memory
- 1 GByte DDR3, 32-bit wide data interface

NV Memory
- 16 MIB System Flash
- 16 MIB FPGA Flash

Oscillator
- 200 MHZ

FPGA I/O Voltage
- Up to +3.3V

<table>
<thead>
<tr>
<th>Feature</th>
<th>XEM7310-75</th>
<th>XEM7310-A200</th>
</tr>
</thead>
<tbody>
<tr>
<td>FPGA</td>
<td>XC7A75T-1FGG</td>
<td>XC7A200T-1FBG</td>
</tr>
<tr>
<td>Slice Count</td>
<td>11,800</td>
<td>33,650</td>
</tr>
<tr>
<td>D Flip-Flops</td>
<td>94,400</td>
<td>269,200</td>
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<tr>
<td>Distributed RAM</td>
<td>892 Kib</td>
<td>2,888 Kib</td>
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<tr>
<td>Block RAM</td>
<td>3,780 Kib</td>
<td>13,140 Kib</td>
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<tr>
<td>DSP Slices</td>
<td>180</td>
<td>740</td>
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<tr>
<td>Clock Management Tiles</td>
<td>6</td>
<td>10</td>
</tr>
</tbody>
</table>

DC Input
- +4.5 V
- +5.0 V
- +5.5 V

DC Input Ripple
- 50 mVp-p

Operating Temperature
- 0°C
- +70°C

Storage Temperature
- -50°C
- +100°C

Weight
- 24 grams

Oscillator Frequency
- 200 MHz

Oscillator Freq. Stability
- ± 50 ppm

Oscillator Jitter
- 2.5 ps RMS
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.
FrontPanel® System Architecture
Build high-performance software-connected FPGA applications for prototypes, proof-of-concept, and production

**FrontPanel® SDK**
- Multi-platform, multi-language
- 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
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

You are here

FPGA Module is Here