AMD Adaptive Computing Partner SELECT

logictronix

LogicTronix

Offering Vision-AI Solutions on Edge!

FPGA Design + Machine Learning Acceleration Company

www.LogicTronix.com

LogicTronix

We are

✓**FPGA Design & Machine Learning Acceleration Company**

Expertise (Design Service) & IP Cores:

❖10+ Years of experience and expertise in Xilinx FPGA families, for sensor data acquisition, embedded product design with 7 series & MPSOC FPGAs and Versal for high end applications.

❖FPGA based development for Computer Vision, Sensor Fusion, Embedded Solutions, etc.

❖Machine Learning Acceleration with FPGA for Surveillance/Security, Automotive (ADAS), Industrial, Medical and Smart City Applications.

❖Offering IP Cores in Machine Learning Computer Vision, Cryptographic-hashing, etc.

Solutions:

❖Smart City and Smart Parking Solutions: **TVAS and ANPR Solution** (AI in edge solution with FPGA)

❖Sensor Fusion + Machine Learning Acceleration with FPGAs for Automotive Application

❖Event Camera based Machine Learning for Smart Traffic System and Surveillance.

Mission and Vision:

❖Mission:

- Accelerating Real World Vision Solutions with AI and Machine Learning.
- Offering Autmotive Grade of Sensor Fusion and ML Solution (ADAS 2.0).
- Providing optimized and user-friendly **Vision Edge AI Solutions**.

❖Vision:

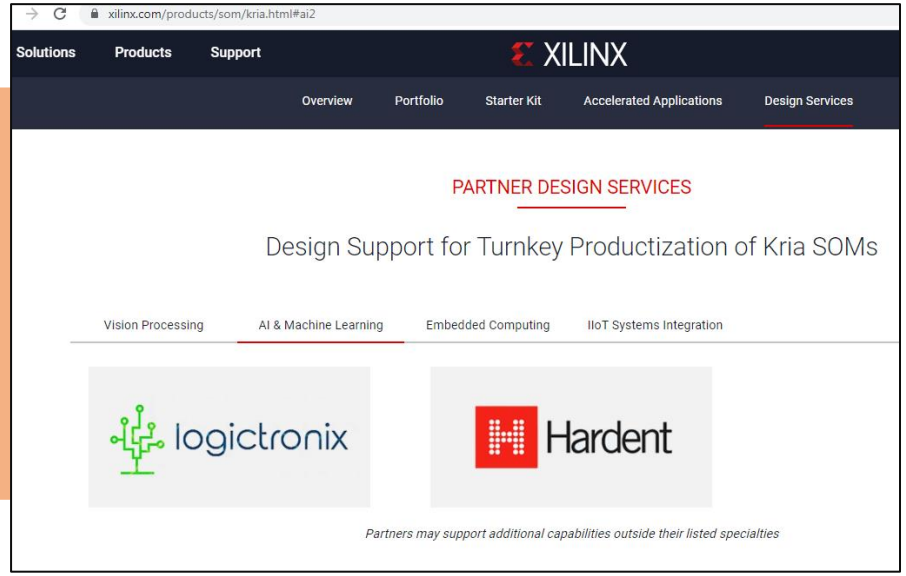
- Being the top-notch “Vision Edge AI - Company”

We are:

❖ AMD-Xilinx ACP Partner

❖ Design Service Partner for

Machine Learning for Xilinx Kria SoM FPGAs



AMD-Xilinx Partner Profile Link: xilinx.com/alliance/memberlocator/1-1dturdk.html

We have:

- **Xilinx Certified Engineering Teams with expertise on:**
  - ✓ FPGA Design with Xilinx Tools (RTL and IP Designs)
  - ✓ Embedded Linux Application Development
  - ✓ Machine Learning Acceleration with AI/ML Tools
- **Availability of Xilinx based Resources , Hardware's (FPGAs) and Tools:**
  - ✓ Number of Xilinx based FPGA devices
  - ✓ Number of Xilinx Licensed Tools
  - ✓ Analyzers, Measurement tools and Instruments
- **Xilinx Early Access and Support**
  - ✓ As a Xilinx Partner we have early access to Xilinx upcoming releases, upcoming tools, platforms and methodologies. These resources gives us advantage while selecting proper platform and solution for customers.

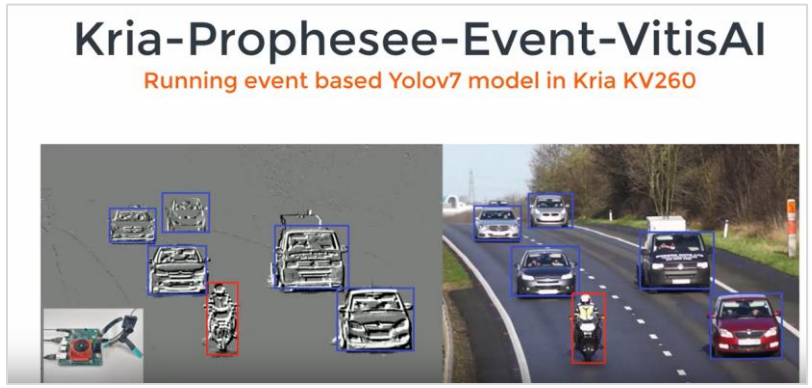
LogicTronix Automotive Experience:

Some of Automotive Experience of LogicTronix:

1. Worked on Multi Camera , LiDAR and Ultrasonic sensor integration and fusion in Xilinx FPGA for ADAS.
2. ECU test system development with Xilinx MPSoC FPGA.
3. Work experience with GMSL2, FPD link III , Automotive Ethernet and few more Automotive interfaces.
4. LogicTronix Offers AXI CAN (FD + Classical) IP Core for Automotive Application.
5. LogicTronix Offers AXI DSI3 IP core for Automotive application.
6. And, few more IP Cores and Design experiences.

LogicTronix Solutions:

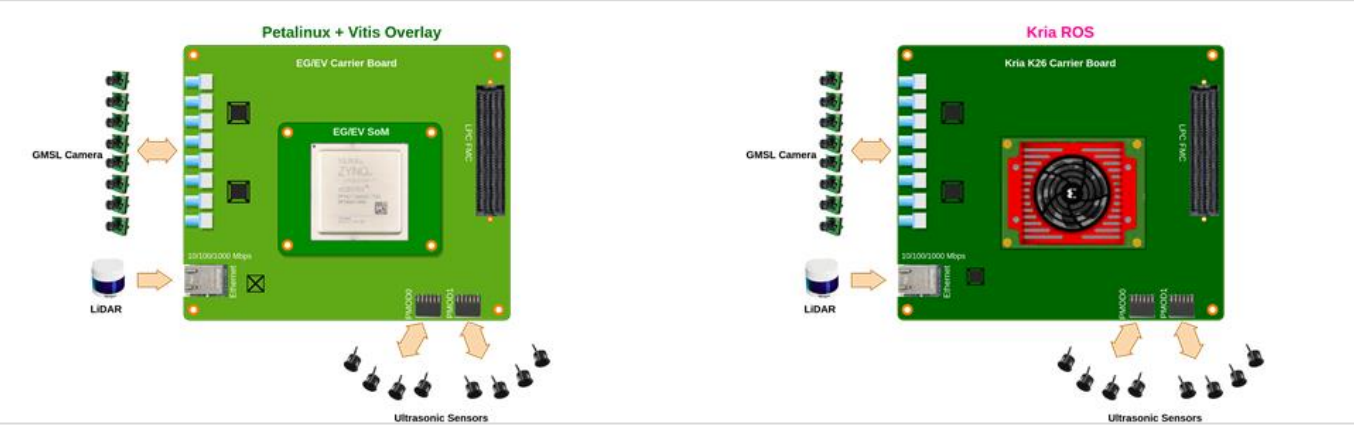
1. ANPR - License Plate Recognition System
2. TVAS - Traffic Video Analytics System
3. Passenger Counting Solution
4. AI Solution for Construction sites
5. Traffic Analysis with Event Based Vision and Machine Learning



LogicTronix Solutions:

6. MultiChannel + MultiModel ML in Xilinx Platform
7. Retail Analytics Solution for Shopping Marts
8. ADAS Sensor Fusion – System Development
9. Thermal Vision Solution with AI feature
10. High Speed Object Counting for Industrial Application

ADAS Sensor Fusion Platform



LogicTronix-Xilinx Webinar on Kria-AI/ML

pages.xilinx.com/EN-WB-2022-03-03-Logictronix_LP-Registration.html

AMD
XILINX

Kria SOM - KV260 Development and Machine Learning Acceleration

Webinar

Summary

Presented in collaboration with Xilinx Kria SOM partner Logictronix, this webinar will focus on the methodologies about Machine Learning Acceleration, developing ML based solution on Xilinx Kria KV260 Vision AI Starter Kit, creating custom Accelerated Applications for Kria SOMs. During the webinar, we will also discuss how to use Petalinux or Yocto layers for creating customization on real world solutions and creating Vitis Video Analytics SDK based pipelines for ML inference.

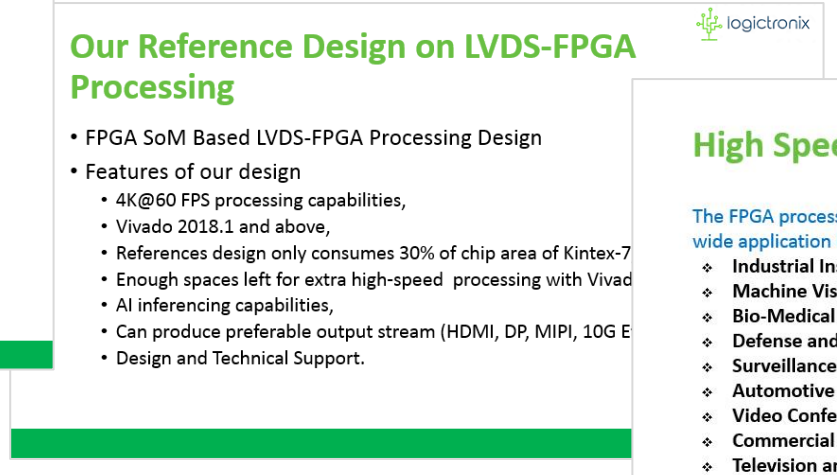
WATCH ON-DEMAND

bit.ly/KriaSoM_Webinar

LogicTronix's Machine Vision solution with Xilinx FPGAs

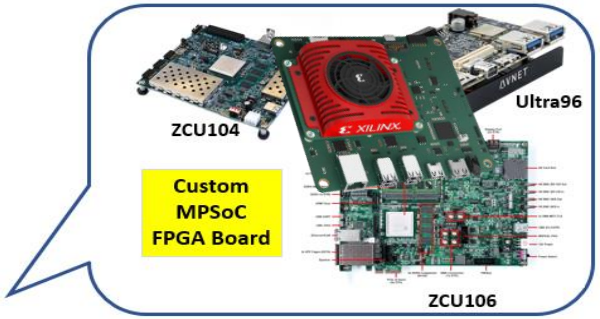
❖Machine Vision with High Speed Camera and Machine Learning

- ➢Targeted to industrial customers
- ➢For LVDS Stream Processing with FPGA is prototyped with Xilinx 7 Series FPGA then we will migrate it into Kria SoM.



ML Acceleration Flow: for our Edge based AI-Solutions

Machine Learning Acceleration flow on FPGA



Dataset Preparation [Public/Custom]

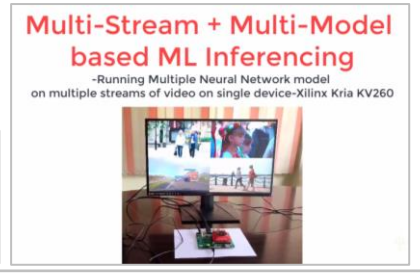
Training Neural Network [with necessary Optimization & pruning on Architecture]

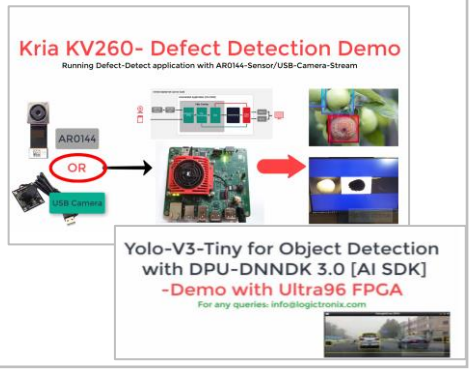
Quantizing & Compiling the trained model

Designing FPGA IP-System & Embedded Linux [Petalinux]

Deploying on FPGA with Boot System with Camera/HDMI input

Designing Custom FPGA Boards – PCB Design



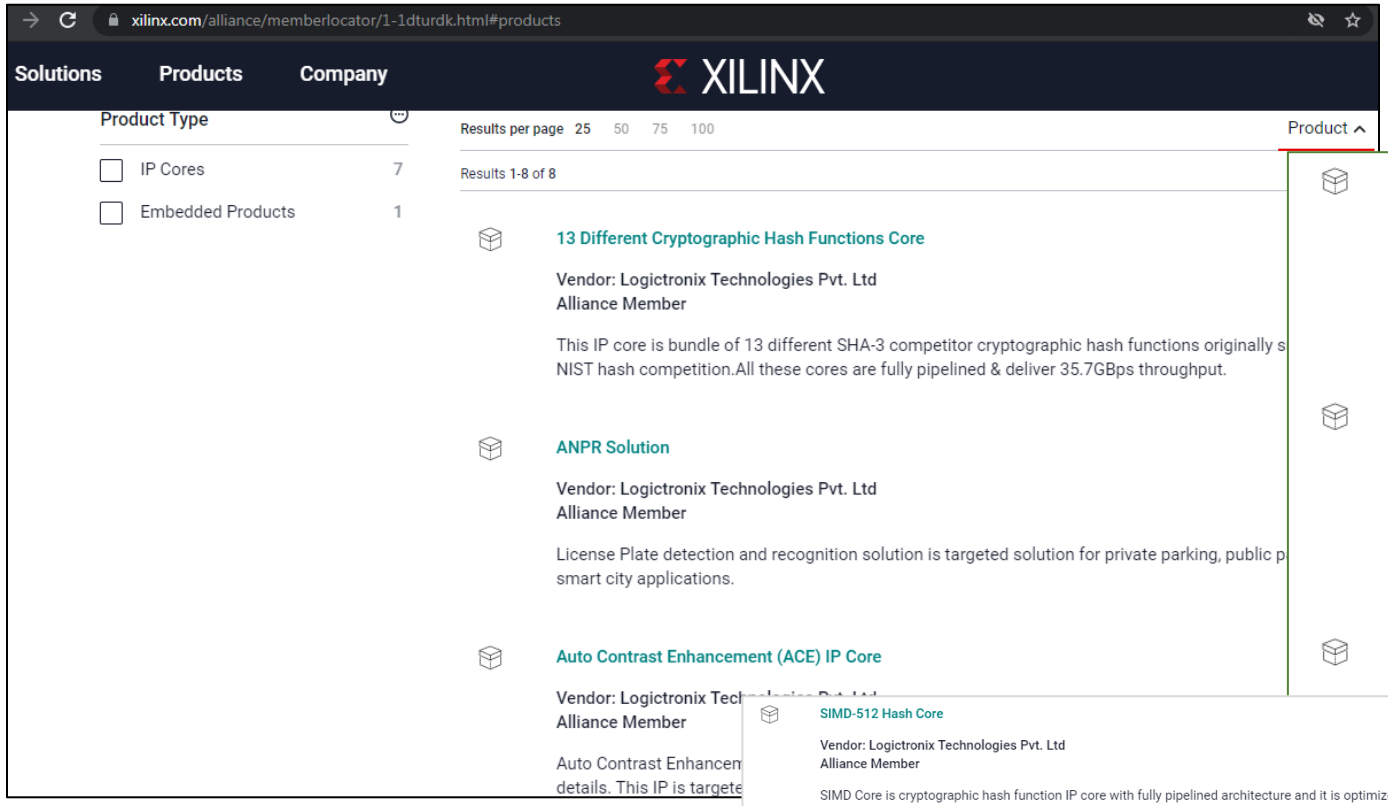


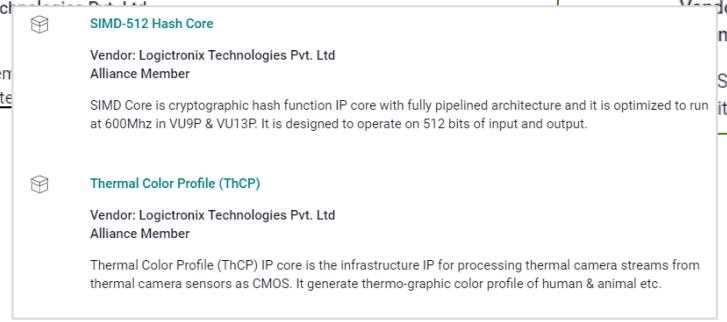
https://logictronix.com/machine-learning-with-fpga/

LogicTronix IP Portfolio on

1. HFT
2. Crypto Hashing
3. Machine Learning
4. Computer Vision

Our IP Portfolio: 25+ IP cores available for customers

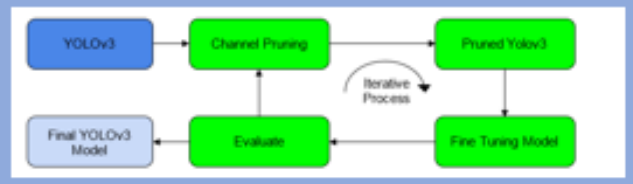




Our White Paper and Resources

Some of Our White-Paper's

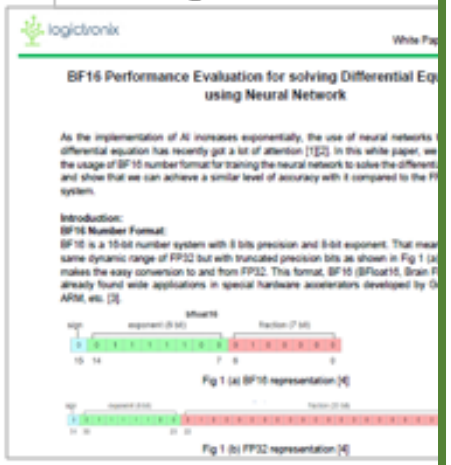
WPL053 on "Pruning Neural Network models

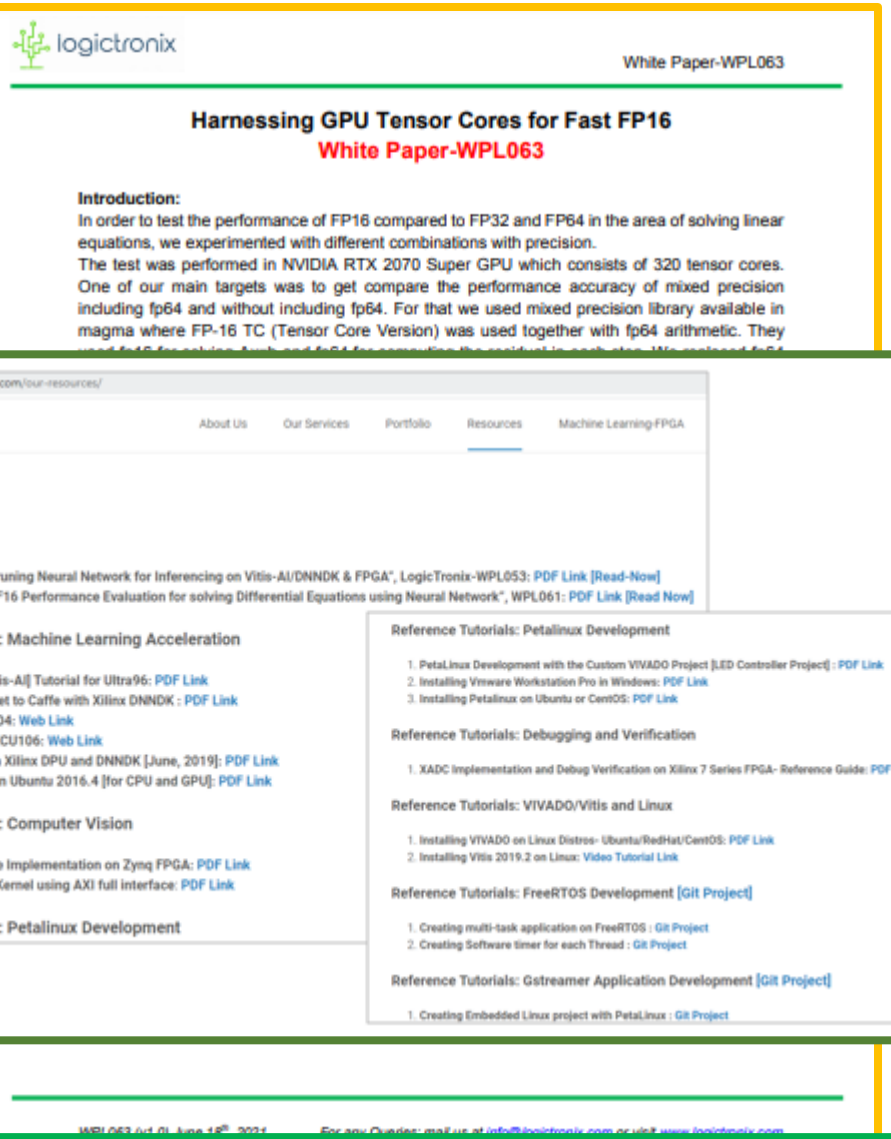


Model	Global threshold (Pruning ratio)	Input Size	GFL
License Plate Original Yolov3	-	512*512	98.
		640*640	154
		960*960	347
License Plate Pruned Model 1st Iteration	0.5	512*512	25.
		640*640	39.
		960*960	88.
License Plate Pruned Model 2nd Iteration	0.5	512*512	11.
		640*640	17.
		960*960	39.

BDD Model Original Yolov3	-	512*512	99	42.96	246.5 MB
		640*640	154.687	45.97	
		960*960	348.046	42.43	
BDD Pruned Model 1st Iteration	0.5	512*512	39.464	42.83	112.6 MB
		640*640	61.662	46.61	
		960*960	138.739	44.93	
Face+Person Original Yolov3	-	512*512	98.912	77.61	246.3
		640*640	154.549	76.96	
		960*960	347.736	62.26	
Face+Person Pruned Model 1st Iteration	0.5	512*512	40.801	70.12	113.6
		640*640	62.502	74.93	
		960*960	140.629	63.59	
Face+Person Pruned Model 2nd Iteration	0.5	512*512	18.254	76.25	50.1
		640*640	28.522	73.11	
		960*960	64.174	50.16	

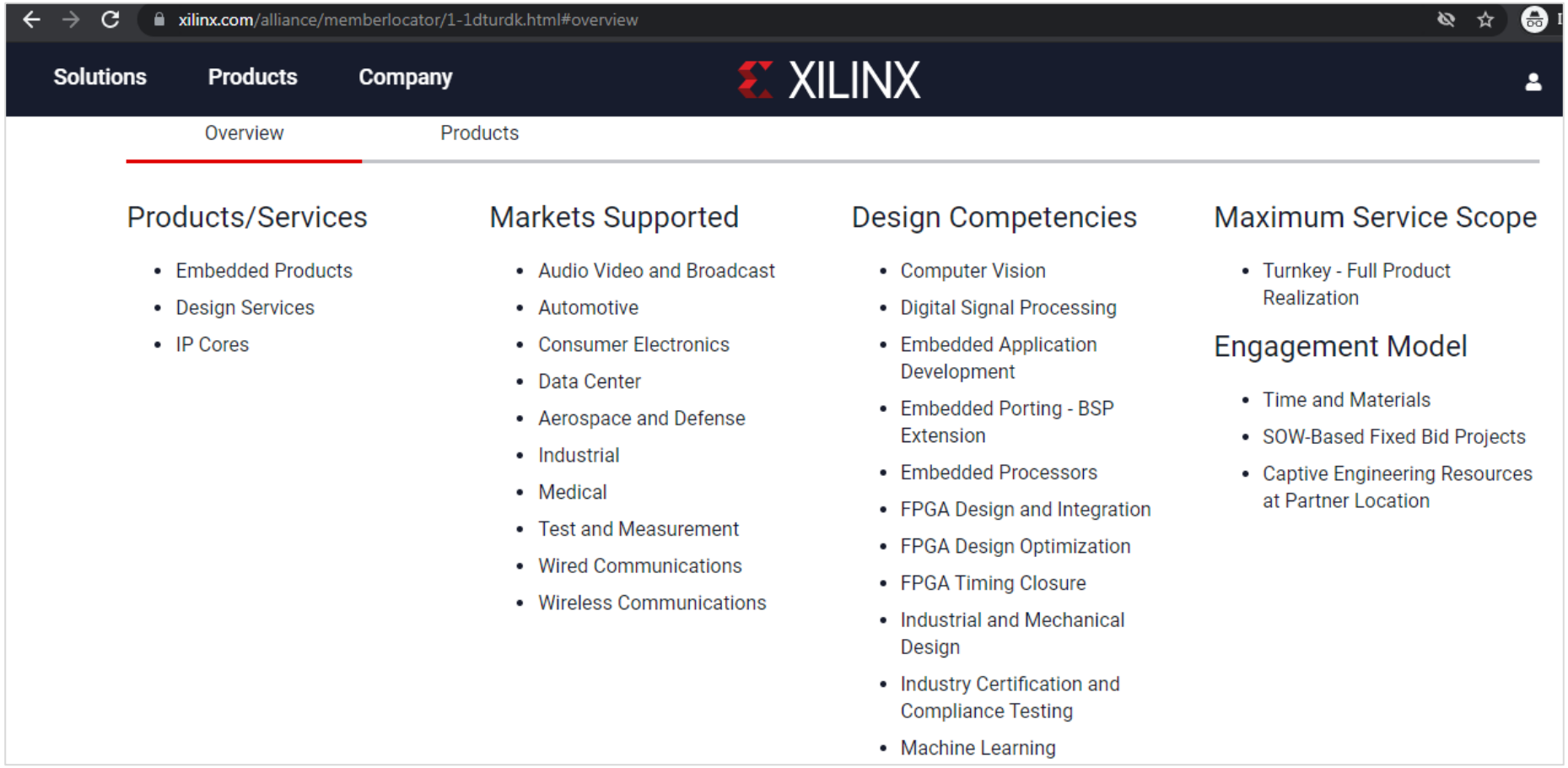
WPL061:
BF16 Performance Evaluation for solving Differential Equations using Neural Network





www.logictronix.com/our-resources/

Our Design Services:



LogicTronix IP Cores: https://www.xilinx.com/alliance/memberlocator/1-1dturdk.html

Thank you!

For any queries, please write us at: info@logictronix.com