

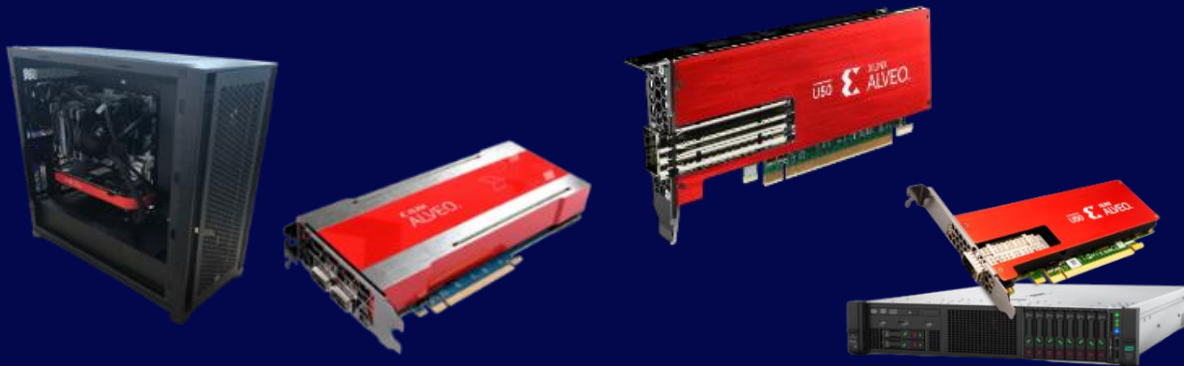
IP Cores & Solutions for FPGA Accelerator

IP Cores & Solutions for FPGA Accelerator

IP Cores & Reference Design

- Data Storage
- Networking
- Security & Search

Accelerator Cards & Turnkey Systems



NVMeTCP
IP-CORE SERIES

NVMe
IP core

TOE^{xxG}
IPcore series
TCP Offloading Engine IP Core

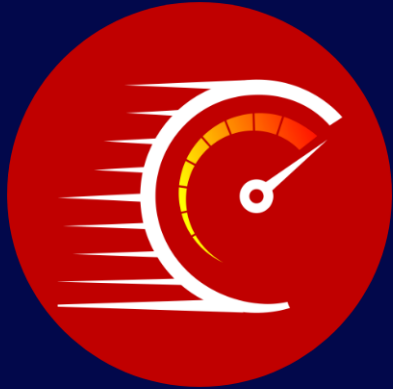
UDP^{xxG}
IPcore series
User Datagram Protocol IP Core

AES256
XTS IP CORE

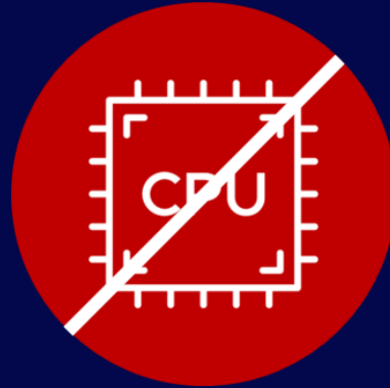
AES256
GCM IP CORE SERIES

Low-Latency
Networking IPs
for Fintech Applications

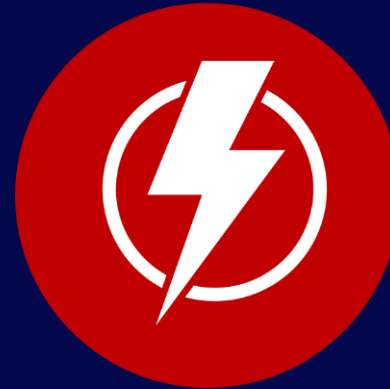
IP Cores Philosophy & Advantage



High
performance



No CPU Load &
No external
memory required



Low
resources usage



Easy to Use
Prove reference
design

Market Segments & Applications



Aerospace



Automotive



Test & Measurement



Medical



Manufacturing & Equipment



Accelerated Computing

DG's Turnkey Accelerator Systems for AI



- Form factor for Server & Edge AI Computing
- Alveo AI Accelerator Card
- Pre-installed and ready to use
 - Vitis AI Development tools for Alveo Card
 - Alveo Card Machine Learning Suite

<https://dgway.com/AcceleratorCards.html>

Why FPGA Accelerator for AI?

- Adaptive Computing Architectures
- High Energy efficient
- High performance / Low latency / Nano-seconds time precision
- Fully programmable control flow and data flow



Alveo V70 AI Accelerator Card

400 TOPS(INT8) @ 75 Watts

VS

NVIDIA A100: 624 TOPS(INT8) @ 300 Watts



Compact & High performance & High energy efficient AI Interface Card for Cloud & Edge AI

AI Inference performance comparison



AMD ALVEO™ V70
AI inference accelerator

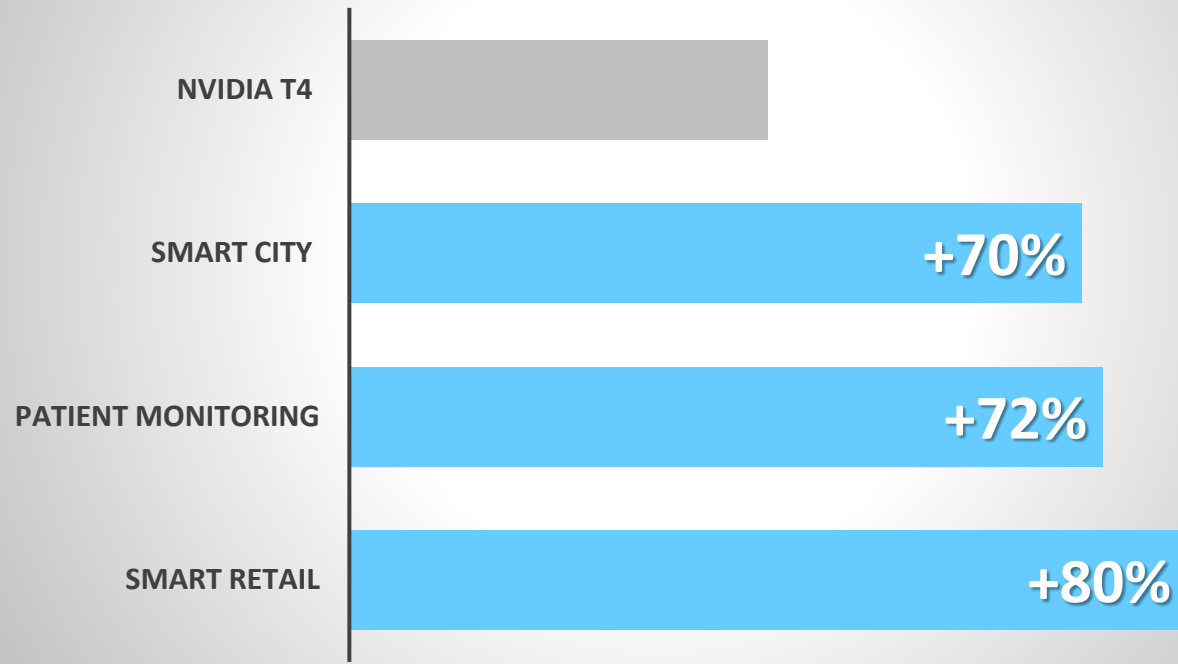
AMD XDNA AI Engine | **400 TOPS** of AI compute

PCIe® 5.0 | **75W TDP**

Cloud-to-Client Symmetry for AI developers

AMD ALVEO™ V70 Accelerator Card

Leadership AI inference performance at 75Watts!



NVIDIA T4

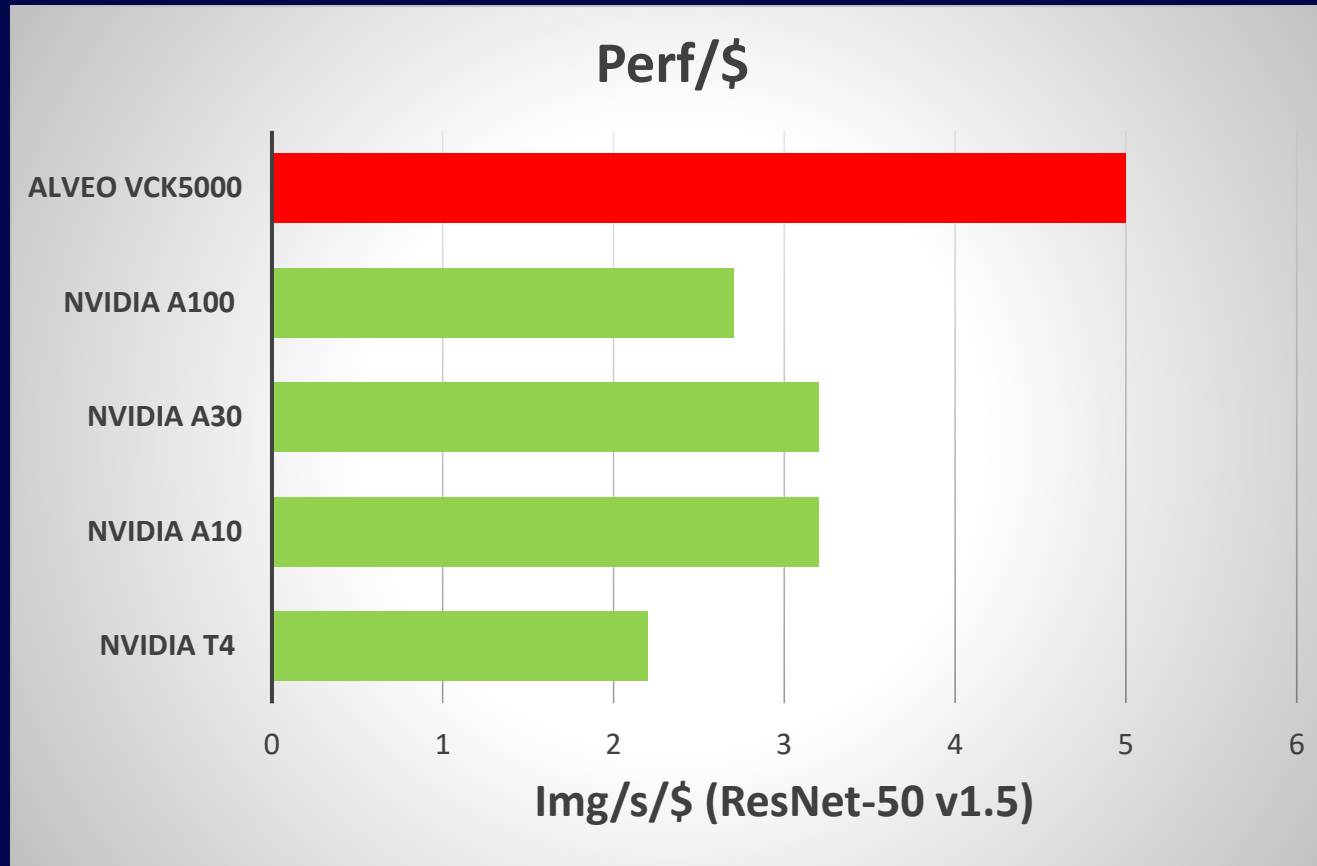
- 320 Tensor Cores
- 130 TOPS (INT8)
- 70Watts

Alveo V70

- 404 TOPS (INT8)
- 75Watts



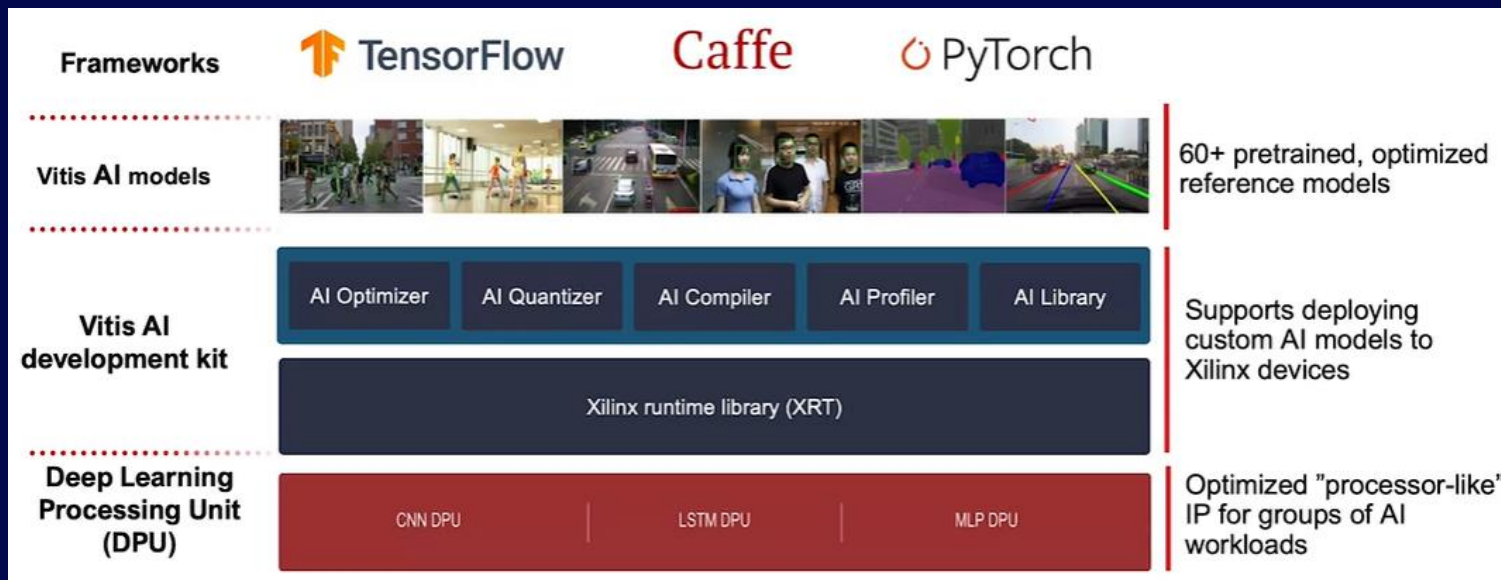
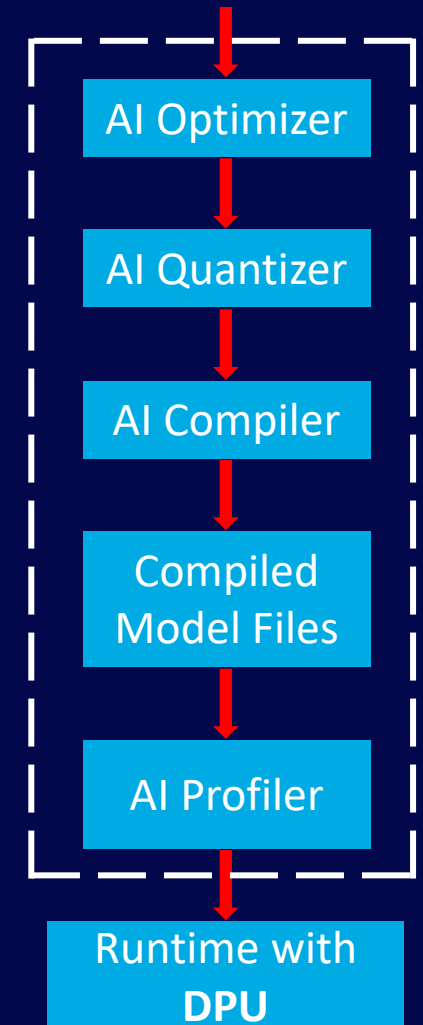
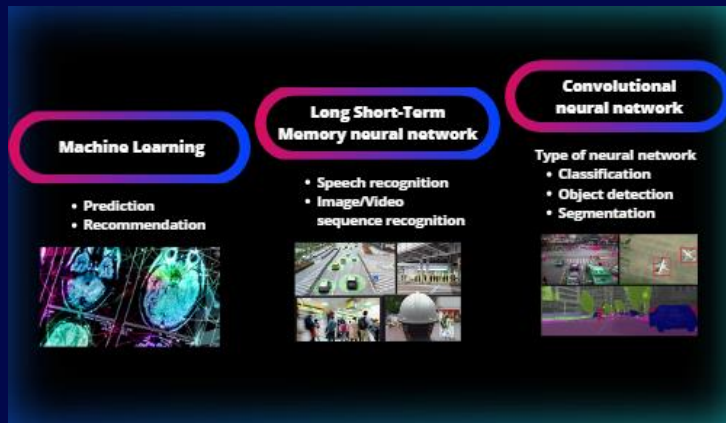
Alveo AI Accelerator Performance Comparison (Resnet50)



>1.5-2x improvement over GPU



Vitis AI Development Tool for Alveo Accelerator

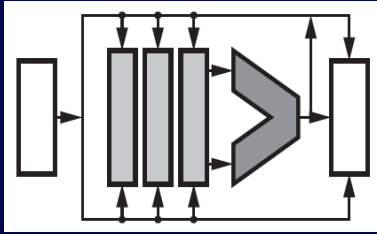


Example AI Applications

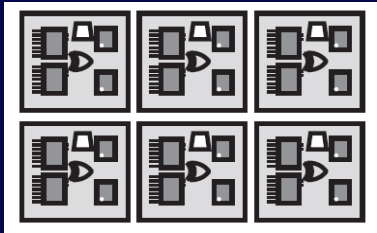
Image & Video Analytics



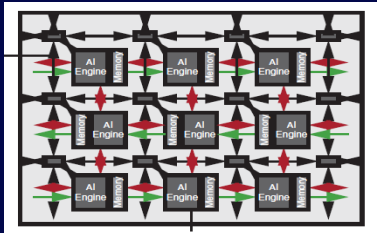
Robotic / Automation



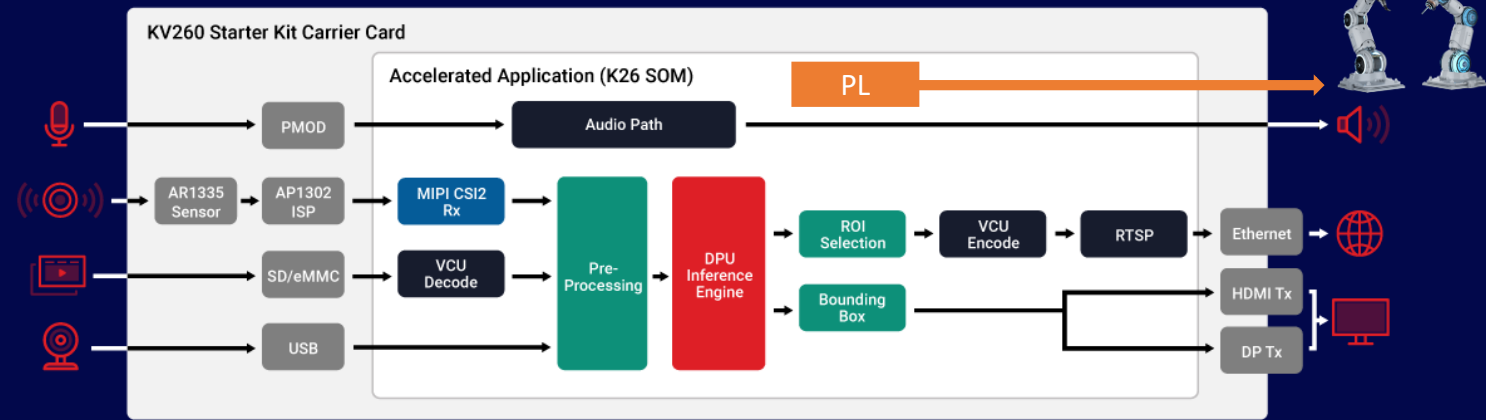
Full control flow capabilities with **high performance** & **low latency**



Complex data and control Structures with **time-precision** easily implemented



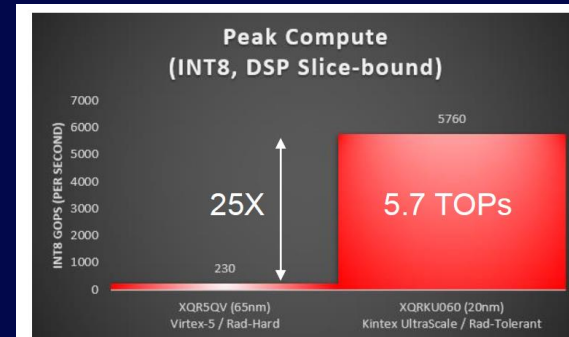
System On Chip with **AI Inference Acceleration**



Space Application

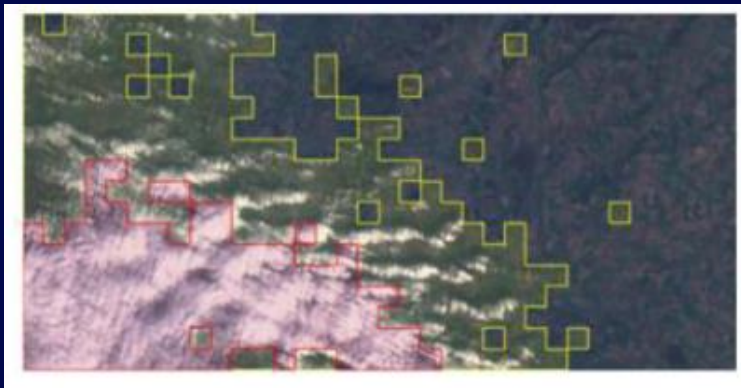
AI/ML/DL being targeted for Space application across multiple areas:

- **Computer Vision** (e.g., object detection)
- **Flight Control** (e.g., autonomous systems, ML-aided docking)
- **Self-Driving** (e.g., autonomous driving systems)



(c) Theoretical peak compute comparison (DSP Slice-bound) between recent Xilinx Space-grade FPGAs.*

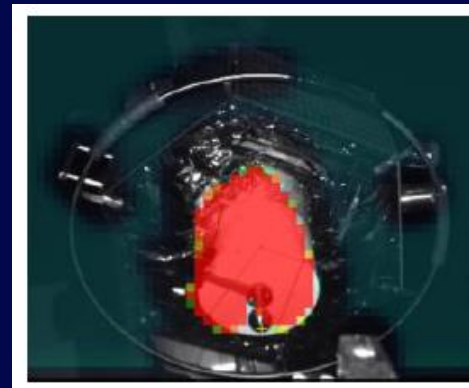
RT XQRKU060
Space-grade FPGA is radiation-tolerant with high compute density suitable to DL



Cloud Detection
(Craft Prospect, Ltd.) [1]



Object Detection in
Satellite Imagery [2]



ML-aided
Docking Assist [3]



Mars Rover (NASA)

THANK YOU

CONTACT US



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DGIPcore



DesignGateway



https://dgway.com/blog_E/



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