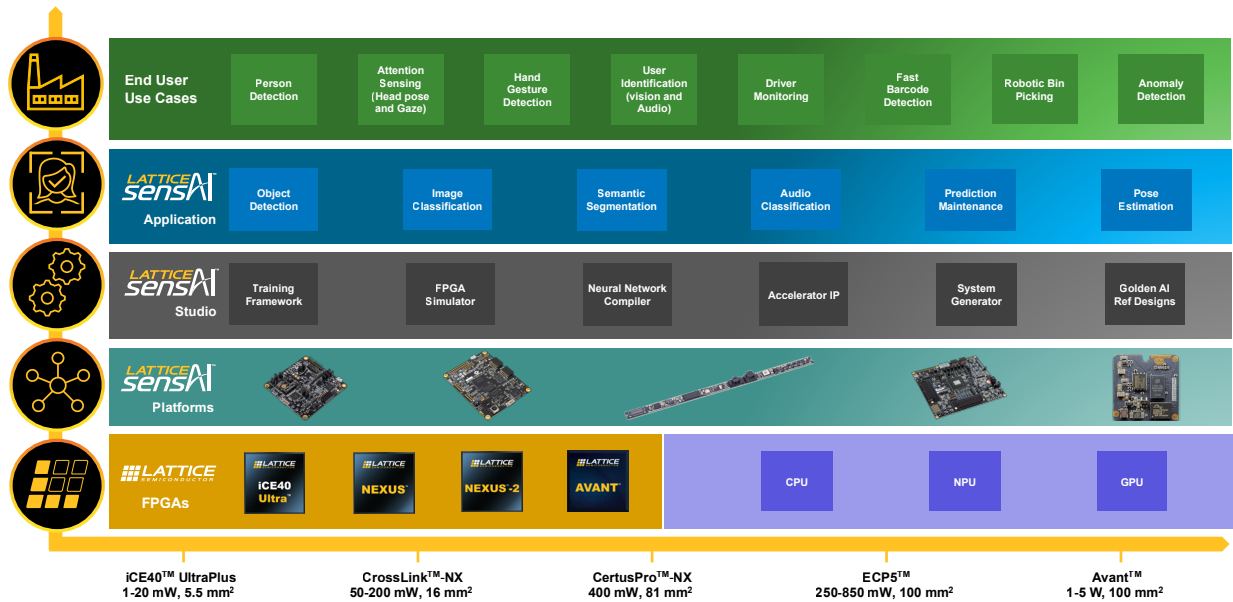


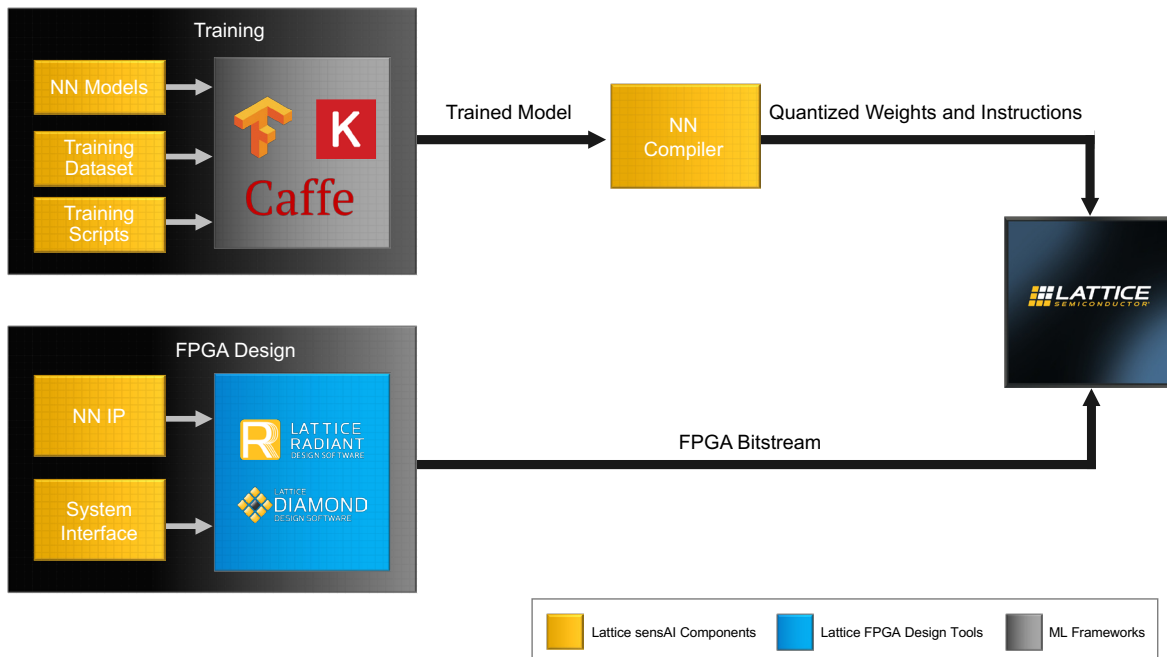
Lattice sensAI™ Solution Stack

Optimizing AI for Far-Edge Near-Sensor Device

Lattice sensAI is an adaptable AI/ML solution stack, designed for low-power, small-footprint FPGA-based artificial intelligence (AI) and machine learning (ML) applications, primarily at the far-edge near-sensor devices. It provides a combination of FPGA hardware, software tools, IP cores, and production-ready use cases for targeted applications, enabling AI inference in embedded systems.



Complete technology stack for ultra low power flexible inferencing



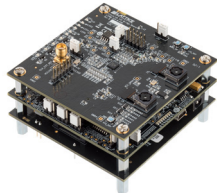
Rapid design space exploration - Performance vs Power vs Accuracy tradeoffs

Lattice sensAI Hardware Platforms



■ CrossLink-NX-33 Voice and Vision Machine Learning Board

- Key Features:
 - Support MIPI CSI-2 receiver (Soft D-PHY) interface for high resolution camera data
 - Optimized for fast prototyping vision-based AI acceleration.



■ CertusPro-NX Voice and Vision Machine Learning Board

- Key Features:
 - CertusPro-NX FPGAs feature the large internal memory and DSP resources, plus a high-speed FPGA fabric
 - Flexible connectivity: PMOD, high-speed connectors, and SuperSpeed USB



■ Avant-E Evaluation Board

- Key Features:
 - Ability to expand the usability of the Avant-E FPGA with FMC HPC, PMOD, and Raspberry PI connectors
 - On-board LPDDR4 and On-board Boot Flash

Lattice sensAI IP Cores

IP Core	OPN	Key Features
CNN Advanced Accelerator	CNNADV-ACCEL-CPNX-UT	For use with CertusPro-NX FPGA, supports 1 to 4 convolution engines.
CNN Plus Accelerator	CNNPLUS-ACCEL-CNX-U	For use with CrossLink-NX FPGA, supports compact and high-performance modes

Lattice sensAI Software Tools

Software Tool	Key Features
Lattice sensAI Studio	End-to-end model zool, data labeling, model training, validation, compiler, and deployment tool.
Lattice sensAI Edge Vision Engine	A software library of edge AI and computer vision workloads running on an FPGA or a CPU.

Lattice sensAI Reference Designs

Reference Design/Demo	Supported FPGA, HW Platform	Power Consumption
Human to Machine Interfacing	CrossLink-NX-33 Voice and Vision Machine Learning Board	5 mW to 250 mW
Barcode Detection	CertusPro-NX Voice and Vision Machine Learning Board	100 mW to 750 mW
Object Classification	Avant-E Evaluation Board	1 W to 5 W
Key Phrase Detection	iCE40 UltraPlus, iCE40 UltraPlus Mobile Development Platform	1 mW to 20 mW

Lattice sensAI Stack Custom Design Services

Have custom AI solution needs? The senseAI stack includes an ecosystem of select, global design service partners that can deliver custom solutions for a range of end-applications, including smart home, smart city, smart factory, and smart cars. Please contact your local sales representative to request more information.

