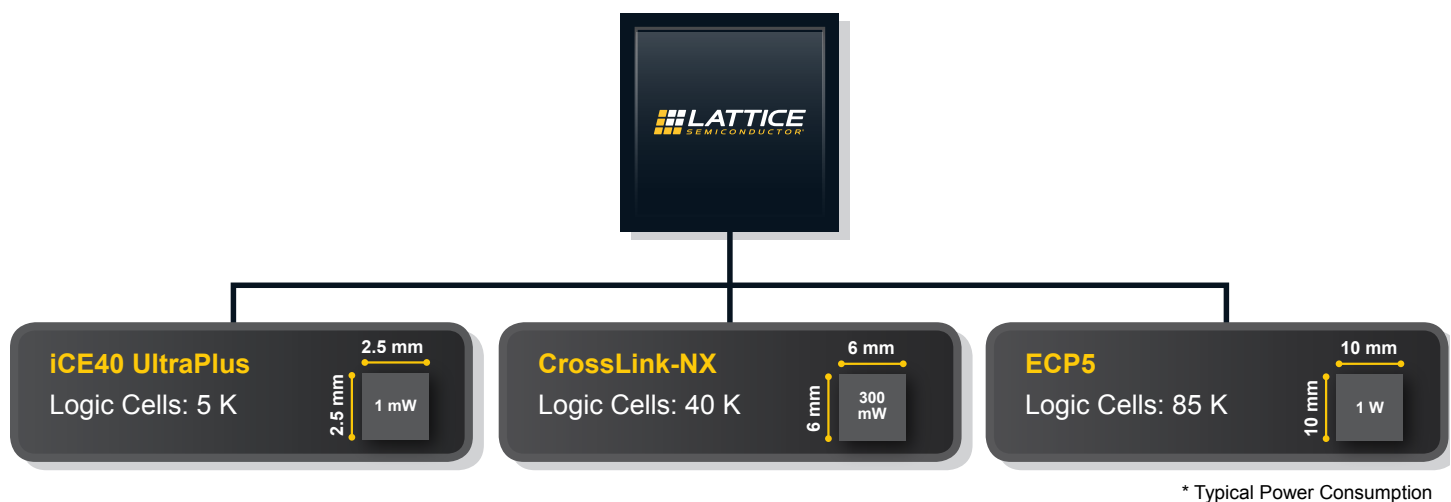


Commitment to Defense Industry

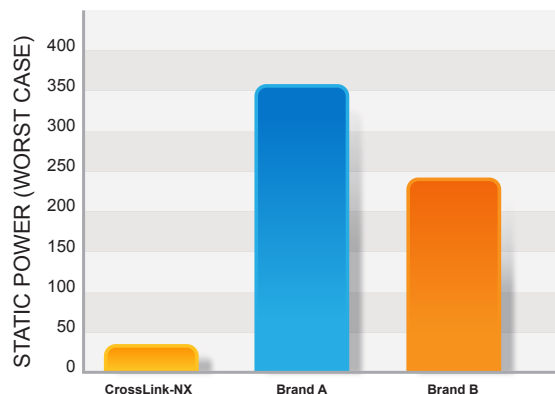
Headquartered in the U.S. for over 35 years, Lattice is the leading developer of low power programmable semiconductors. Lattice is the largest volume supplier of FPGAs in the world, and the company's technology is used in many electronics applications in use today. Lattice's long-standing relationships and commitment to world-class support lets customers quickly and easily create state-of-the-art integrated defense solutions.

The Lattice Nexus™ FPGA development platform is the only one in the low power FPGA industry supporting a 28 nm, FD-SOI manufacturing process. Lattice Nexus FPGAs deliver lower power consumption, smaller form factors, and much higher reliability in comparison to similar competing FPGAs. The Lattice Nexus platform enables the creation of FPGAs with inherent radiation tolerance, a wide operating temperature range, and support for on-chip crypto solutions. Lattice FPGAs are an ideal hardware platform for the development of SWAP-C optimized defense platforms for long lasting mission critical systems.

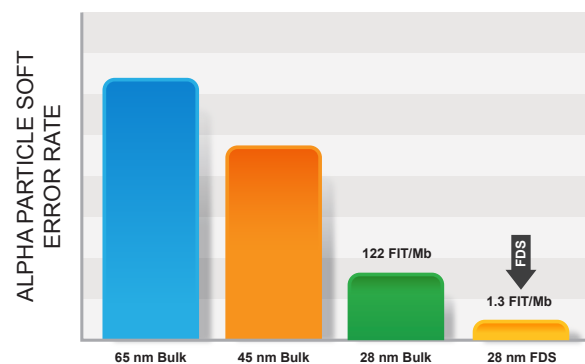
Focused on Low Power, Smaller Form Factors



Power Consumption



Reliability



Lattice NEXUS is changing the FPGA landscape

Product Offering

MachXO3D™ - Enhance Secure Control Applications with Hardware Root-of-Trust and Dual Boot Capabilities

MachXO3D FPGAs enables secure system control by enabling a hardware-based Root-of-Trust and supporting pre-verified cryptographic functions such as ECDSA, ECIES, AES, SHA, HMAC, TRNG, Unique Secure ID and Public/Private Key Generation. The devices help systems protect, detect, and recover from a variety of threats by providing data security, equipment security, data authentication, design security, and brand protection.

ECP - Break the rules of power, size and cost in your connectivity and acceleration applications

The Lattice ECP3™, ECP5™ and ECP5-5G™ families are optimized for data and control path bridging and interfacing. The FPGAs are architected with high-performance SERDES, full-featured DSP blocks, and state-of-the-art memory interfaces to support a wide range of applications including situational awareness and signal processing guidance systems.

Futureproof your control PLD and bridging designs

The award-winning MachXO2™ FPGA family and MachXO3™ family can be used to quickly implement system control functions and I/O expansion and bridging in applications such as software defined radios, secure server control, and sensor fusion.

Production ready, lowest power ML/AI solution with flexible interfaces

Lattice's iCE40™ family offers the world's smallest FPGAs at very low power to enable flexible and fast reprogrammability on a standard platform – perfect for implementing unique features on handheld devices and wearables.

Embedded Vision and Processing

CrossLink™-NX offers up to 75 percent lower power in comparison similar FPGAs and small form factor packaging as small as 4 mm x 4 mm. CrossLink-NX delivers best-in-class performance for smart and embedded vision applications. With a memory-to-logic cell ratio of up to 170 bits per logic cell, CrossLink-NX is a compelling device option for accelerating AI inferencing. High-speed I/O IP blocks available on CrossLink-NX include hardened PCI Express Gen II, MIPI D-PHY at 2.5 Gbps, and programmable differential I/O at up to 1.5 Gbps.

Product Overview

Family	Density (LUTs)	Temp. Range (Tj)	Package Size (mm)	I/Os + Ded. I/Os	Serdes	Dist'd Ram (Kbits)	EBR SRAM (Kbits)	PLLs/ DLLs	18 x 18 Mult's	Programmability
MachXO3L-E MachXO3L-C	640	-40 C 125 C	2.5 x 2.5 to 17 x 17	100	None	5	64	1	None	Non-Volatile, Infinitely Reconfig
	1300			206 / 206		10	64	1		
	2100			268 / 279		16	74	1		
	4300			268 / 335		34	92	2		
	6900			281 / 335		54	240	2		
	9400			335 / 384		73	432	2		
MachXO3D	4300	-40 C	10 x 10 to 19 x 19	206	None	34	92	2	None	Non-Volatile
	9400	125 C		383		73	432	2		
MachXO2-HC MachXO2-HE MachXO2-ZE	256	-40 C 125 C	2.5 x 2.5 to 20 x 20	55	None	2	0	0	None	Non-Volatile Infinitely Reconfig
	640			79		5	18	0		
	1280			107		10	64	1		
	2112			206		16	74	1		
	4320			278		34	92	2		
	6864			334		54	240	2		
MachXO	256	-40 C 125 C	8 x 8 to 19 x 19	78	None	2	0	0	None	Non-Volatile Infinitely Reconfig
	640			159		6.1	0	0		
	1200			211		6.4	9.2	1		
	2280			271		7.7	27.6	2		
LatticeXP2	5K	-40 C 125 C	8 x 8 to 27 x 27	172	None	10	166	2	None	Non-Volatile Infinitely Reconfig
	8K			201		18	221	2		
	17K			358		35	276	4		
	29K			472		56	387	4		
	40K			540		83	885	4		
ECP5-U	24K	-40 C 125 C	10 x 10 to 27 x 27	197	None	194	1008	2/2	28	Volatile
	44K			245		351	1944	4/4	72	
	84K			365		669	3744	4/4	156	
CrossLink-NX	17K	-40 C 125 C	3.7 x 4.1 to 17 x 17	78	2	432	2560	2	24	Volatile
	40K			92	3	1512	1024	3	56	
LatticeECP3	17K	-40 C 125 C	10 x 10 to 35 x 35	222	4	36	700	2/2	24	Volatile
	33K			310	4	68	1327	4/2	64	
	67K			490	12	145	4420	10/2	128	
	92K			490	12	188	4420	10/2	128	
	149K			586	16	303	6850	10/2	320	

 Available as Known Good Die

Lead Free Package Options

Lattice Packages	Wirebond	Flip Chip
Wafer Pad or Bump	Lead free	Lead free
Substrate Bump or Pad Finish	Lead free	Lead free
Caps	No caps	No caps
Substrate Solder Balls	Leaded	Leaded
Package Reflow	Leaded	Leaded

Reliability	Security	Defense Longevity
- FPGAs with leaded packages and military-temp operation on demand - Single event latch-up immunity 100x better Soft Error Rate (SER) Performance - Very High Total Ionizing Dose Threshold - Integrated ECC and SEC	- Critical security features enable use in untrusted environments - Hardware-based Root of Trust with secure Unique ID - Secure and measured boot - Authorized firmware updates	- Industry's longest product life cycle - Leaded packages with pin-compatible migration - Tested for extended temperature range operation - Known good die products

Known Good Die Product Overview

Lattice's most popular FPGAs are available in die form. These die products offer a wide range of logic densities, I/Os, high performance SERDES channels, memory resources, PLLs and multipliers. The products are infinitely programmable (non-volatile) and others are programmable only once (volatile).

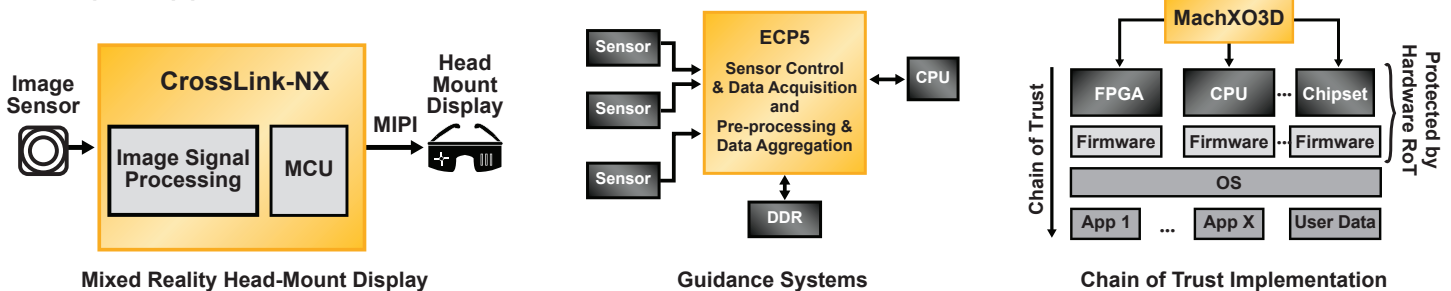
Table 2 (see page 4) lists the specific products offered by Lattice in die form and provides a high-level summary of each product family's features. For a more comprehensive understanding of each family's capabilities, please refer to the specific device family data sheets on the Lattice web site.

Defense Solution Highlights

Lattice also provides commercial-off-the-shelf (COTS) FPGAs architected to offer low power, small footprint solutions for the fast prototyping and production of next-generation defense systems.

Select FPGAs offer extended temperature range support and supply chain security thanks to use of a hardware Root-of-Trust to help protect against side-channel attacks.

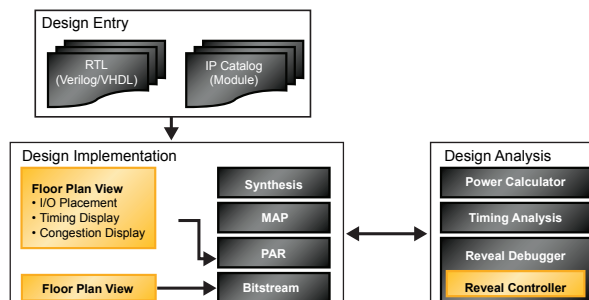
Example Applications



Development Tools

Lattice offers a full suite of easy-to-use design software. Customers can download and install their design software in minutes, and the tools support advanced design flows and secure bitstreams. Select Lattice FPGAs have a built-in security block, encrypted and authenticated bootloader, and Platform Firmware Resiliency (PFR) compliant software and hardware that is highly resilient to firmware attacks.

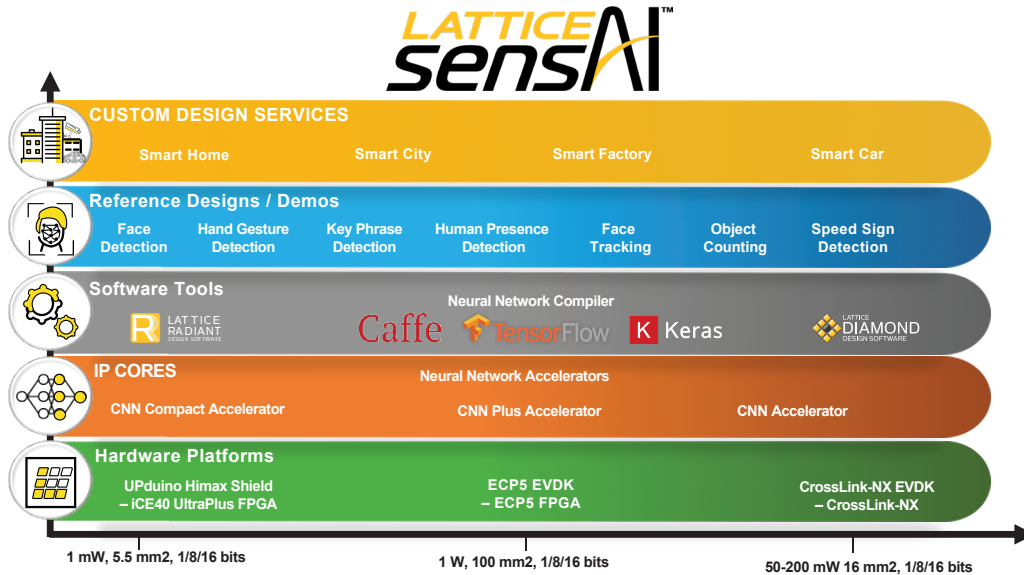
Tool Suite That Offers Predictable Design Convergence and Ensures Ease of Use



Solutions

sensAI

The full-featured Lattice sensAI™ stack includes everything you need to evaluate, develop, and deploy FPGA-based machine learning (ML) and artificial intelligence (AI) applications, including modular hardware platforms, example demonstrations, reference designs, neural network IP cores, software tools for development, and custom design services.



mVision

The Lattice mVision™ solutions stack uses modular hardware platforms, IP building blocks, easy-to-use FPGA design tools, reference designs and demonstrations, as well as a network of custom design services providers to solve design challenges in sensor connectivity, bridging, aggregation, and image signal processing systems.

