XCORE.AI

THE FAST, FLEXIBLE, ECONOMICAL PROCESSOR FOR THE AIoT

THE AIoT BIG BANG

We're entering a new era. One where intelligence is embedded in the fabric of the world around us – our homes, vehicles, workspaces and cities, even the things we wear.

This is the Artificial Intelligence of Things (AIoT), creating a world where we will all enjoy a more natural interaction with the technology that surrounds us.

The variety of devices and markets together with the need for speed, reliability and security, creates a real challenge for product designers. In future, processing and decisioning need to move from the Cloud to the edge for simpler, safer and more satisfying connected experiences.

The AIoT: 2025

65
BILLION DEVICES

180
ZETABYTES OF DATA

3
TRILLION $ SPEND

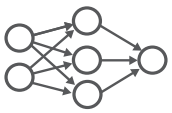
GARTNER
BUSINESS INSIDER INTELLIGENCE 2019

AIoT PRODUCTS NEED A NEW PROCESSOR

HIGH SPEED

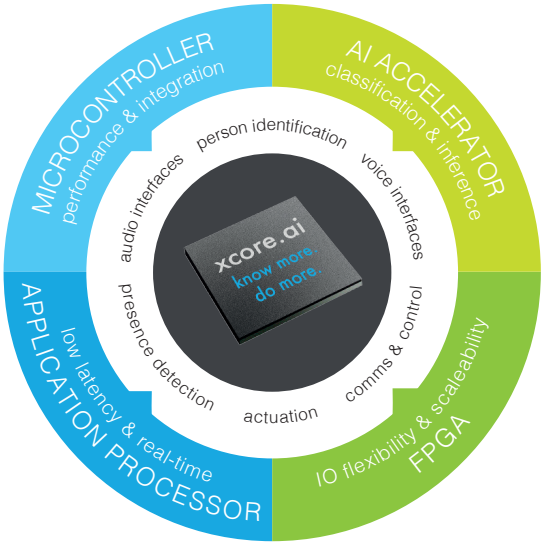
LOW ENERGY

FAST INFERENCING



HIGH FLEXIBILITY

LOW COST



XCORE.AI IS THE ANSWER

Introducing a fast, flexible and economical platform for the AIoT, which delivers high performance, AI, DSP, IO and control in a single device.

Traditionally this type of capability would be deployed either through a powerful (and costly) applications processor or a microcontroller with additional components to accelerate key capabilities.

For the AIoT, which involves new and specialised tasks, such as real-time inferencing and decisioning at the edge, as well as signal processing, control and communications, xcore.ai is the answer.

xcore.ai is the new crossover processor that delivers on flexibility and economics without sacrificing performance.

XMOS

BRINGING TECHNOLOGY TO LIFE

ON-DEVICE INTELLIGENCE

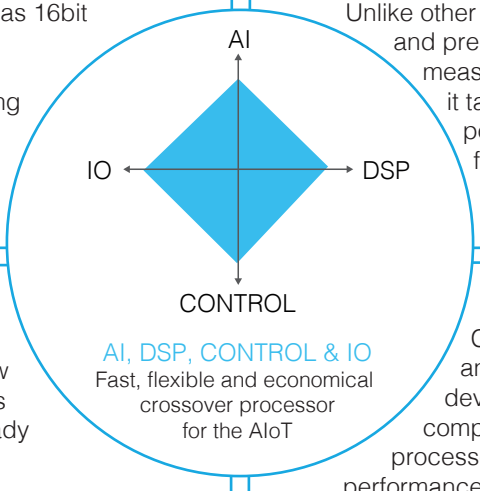
xcore.ai enables developers to embed intelligence at the edge. With fully programmable ports, fast processing and neural network capabilities, xcore.ai processes data locally and takes actions on device - within nanoseconds.

With highly efficient computation of deep neural networks, inferences and characterisation of 8bit and binarized network models are supported (as well as 16bit and 32bit). xcore.ai is programmable in C using industry standard tools, and developers can access machine learning capabilities and fine tune their models for accuracy and performance using standard frameworks such as TensorFlow Lite.

COMPUTE

xcore.ai is architected to deliver tailored, functional performance for AIoT applications. With 16 logical cores, the new crossover processor provides efficient, high performance compute at the edge, enabling sensing, signal processing, machine learning, control and communication to all be processed concurrently.

Unlike other processors, xcore.ai is lightning fast and predictable, with execution determinism measured in single cycles – which means it takes milliseconds to boot from zero-power and nanoseconds to transition from low power standby to full performance.



FLEXIBILITY

Utilising the four types of compute on xcore.ai, manufacturers can design new intelligent product types for the AIoT, as well as enhancing electronics that already surround us.

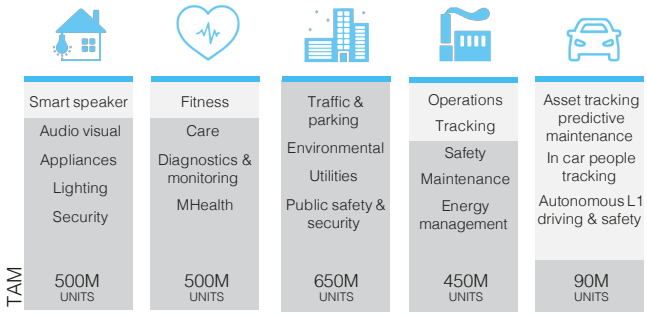
xcore.ai has the highest processing power and most flexibility for the cost. This means that electronics manufacturers (no matter their size) can embed more intelligence in IoT devices to make life simpler, safer and more satisfying for all.

COST

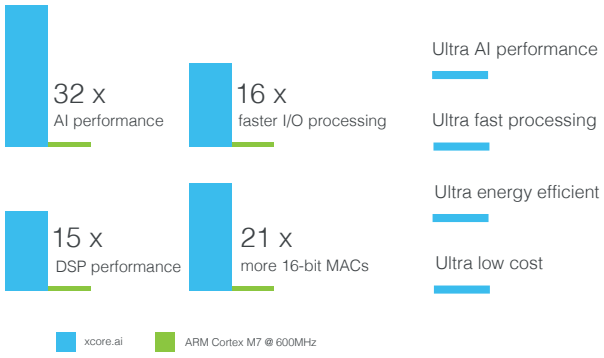
Cost is a significant consideration for any designer of smart products. Today's devices require either multiple discrete components or bigger, more expensive processors or SoCs to deliver sufficient performance, inferencing and connectivity.

With flexible forms of compute and connectivity in a single device, xcore.ai keeps the eBOM costs low, and design potential high.

APPLICABLE ACROSS MARKETS



PERFORMANCE BENCHMARKS



ABOUT US

XMOS is a deep tech company at the leading edge of the AIoT. Since our inception in 2005, we've had our finger on the pulse, recognising and addressing the evolving market need. Our processors put intelligence, connectivity and enhanced computation at the core of smart products.

RIGHT TECHNOLOGY

With over 100 patents worldwide, our tech powers hundreds of connected devices and is designed to meet the diverse demands of the AIoT.

RIGHT TIME

Already enjoying strong partnerships with leading IoT companies, we're perfectly positioned for the AIoT.

RIGHT TEAM

Experts in semiconductors, computer science and binarized neural networks, we're supported by industry leading advisors and board members.

XCORE.AI

XMOS

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