

## About Quadric

Quadric is an emerging semiconductor intellectual property (IP) licensing company developing an innovative general purpose neural processing unit (GPNPU) architecture. The Quadric GPNPU is targeted to run neural network (NN) inference workloads in a wide variety of edge and endpoint devices, ranging from battery operated smart-sensor systems to high-performance automotive or autonomous vehicle systems. Unlike other NPUs or neural network accelerators in the industry today that can only accelerate a portion of a machine learning graph, the Quadric GPNPU executes both NN graph code and conventional C++ DSP and control code. The Quadric GPNPU simplifies system-on-chip (SoC) architecture by replacing cumbersome two core and three core designs with a single-core subsystem that accelerates complete application code for image, video, audio, radar and other sensor datapaths.

## Quadric Architecture

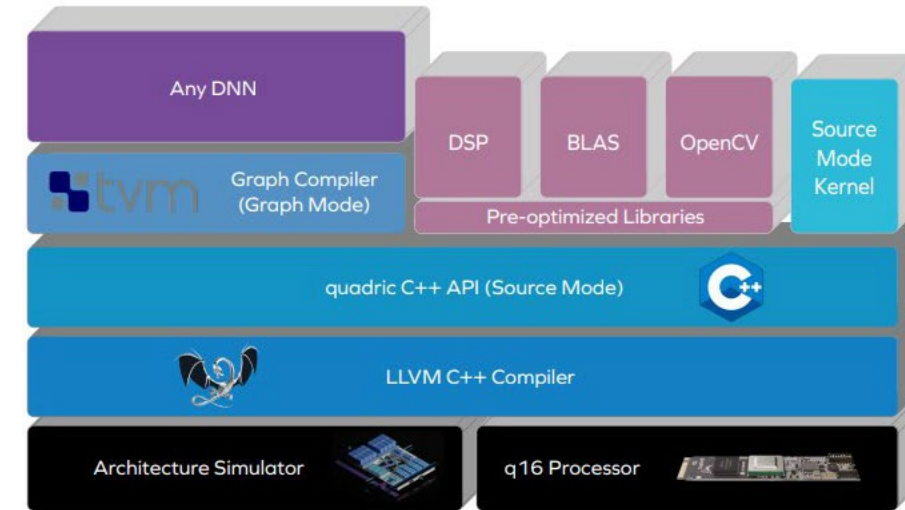
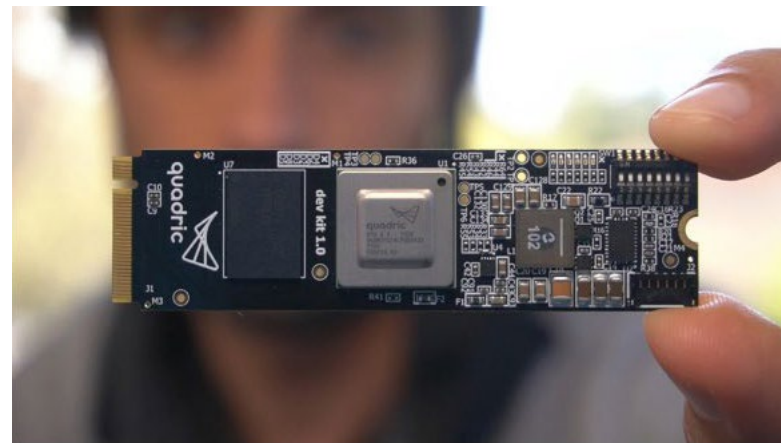
The quadric GPNPU architecture is the world's most advanced, low-power, parallel processor. A hybrid dataflow + Von Neumann machine provides high-performance computing for various workloads including, but not limited to, Deep Neural Networks, Computer Vision, Digital Signal Processing, BLAS, and more. Fundamentally, the architecture provides performance and efficiency by

- Integrating control and graph code into a single fine-grained code stream
- Re-imagining data access to a massively parallel array of execution units via sophisticated compiler technology without requiring multithreaded coding.
- Prioritizing spatial and temporal data locality without the use of caches.
- Allowing for queued, asynchronous data transfer to/from DDR, streamlining data access and computation.

## Silicon Catalyst Start Date: 2019

### Quadric Dev Kit

The quadric Developer Kit is an easy-to-use system that hosts quadric's first-generation processor, the q16. The device is a powerful software-controlled system capable of performing a wide range of algorithms. The q16 processor onboard is a hybrid data-flow + Von Neumann machine which provides high performance computing for any workload.



## Quadric SDK

Developers use the Quadric SDK to evaluate, compile and deploy their AI inferencing and custom algorithms on quadric emulators or hardware. The Quadric SDK also supports what-if analysis across all dimensions of architecture. Software written once and be recompiled, reprofiled and deployed to any size of the architecture.

## Software Developer Friendly

Modern SoCs host applications that increasingly intermix classical C/C++ code with newly emergent machine learning inference code. Only Quadric empowers application developers to freely choose the coding style appropriate for each element of their algorithms, easily intermixing deep neural network graph code with classic C++ code on one high-performance architecture.

