

The Acquisition SDK Programming Model allows Vantage *NXT* users to program Vantage *NXT* Research Ultrasound Systems without MATLAB<sup>®</sup> dependencies. The Acquisition SDK is comprised of a C-based API that offers familiar data structures and naming conventions, enabling easy porting of MATLAB scripts.

The Acquisition SDK is an ideal complement for users who aim to develop applications intended for commercialization or for integration of their legacy or third-party software to run on the Vantage *NXT* Platform.

## The Acquisition SDK provides programmatic control of:

- Hardware communication
- Acquisition sequence definitions to acquire raw RF data only (no image reconstruction, processing, display or GUI included)
- Sequence loading, start and stop
- Direct Memory Access (DMA) management

## And features:

- Hardware C-API with error checking for sequence correctness
- Example code
- Documentation



## Supported functionality:

- Configurations supported: Vantage NXT 256, Vantage NXT 128
- Programming languages supported: C/C++ (users may utilize other languages, including Python)\*
- Vantage NXT UTAs supported: 260-S, 260-D, 408-GE, 128 LEMO, 160-DH/32 LEMO, 160-SH/8 LEMO, 160-SI/8 LEMO
- Licensable options supported: Triggers, Analog Inputs, GPU Toolkit with GPU Direct (for Linux OS only)

\* *Wrapper functions for other languages must be generated by the end user.*

## Complementary Programming Models to Increase User Productivity & Performance

### MATLAB Programming Model Benefits:

- Rapid prototyping:
  - Leverage the flexibility of Verasonics' native image reconstruction
  - Develop custom processing functions written in other programming languages
- Utilize Verasonics' comprehensive set of example scripts, VSX GUI display, built-in Help System, and several other Verasonics-developed utilities and toolboxes
- Utilize MATLAB's built-in tools and capabilities

### Acquisition SDK Programming Model Benefits:

- Implement sequences and algorithms prototyped in MATLAB
- Optimize code to run more efficiently without MATLAB dependencies
- Develop software using other programming languages
- Commercialize MATLAB-free products

## Future considerations

Additional capabilities to be added to the Acquisition SDK in 2025 and beyond include:

- Vantage NXT 64LE Configuration
- Vantage NXT HIFU Configuration
- Extended Transmit
- Vantage NXT UTA 64 LEMO
- And more

