



STRATOS™ Explore Development Kit (USX)

STRATOS™ Explore is a high-end development kit for advanced haptics applications and use cases. This development kit is the first product to use Ultrahaptics' advanced STRATOS hardware platform. The platform's enhanced performance, fully embedded architecture and potential for larger interaction zones dramatically widen the range of possible applications.

Ultrahaptics' patented algorithms control ultrasound waves to create haptic sensations in mid-air – shapes and objects that cannot be seen, but can be felt. No controllers or wearables are needed; the “virtual touch” technology uses ultrasonic transducers to project sensations directly onto the user's hands.

STRATOS is a flexible platform designed to accommodate larger array sizes, future developments such as rich haptic textures and individual finger targeting, and multiple types of transducers, operating systems and tracking cameras.



High-performance haptic sensations

STRATOS enables the creation of more complex haptic sensations suitable for 3D shapes, immersive effects and high-quality HMI control applications. This is achieved through the use of the time-point streaming* mode of operation for faster update rates and the capability to create a higher number of ultrasonic focal points.

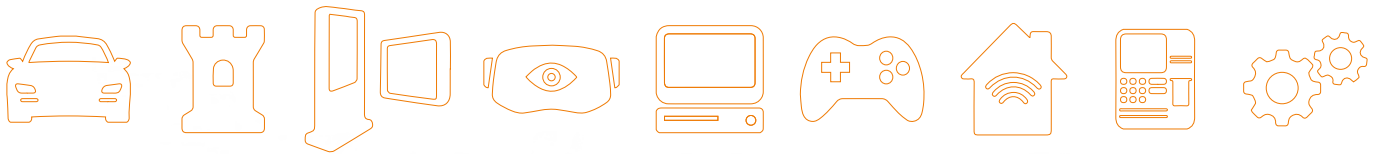
Designed for simple integration

The STRATOS architecture offers straightforward production-ready system integration, lower cost and reduced host CPU load. A future update will include a high-speed SPI interface, simplifying direct connection to the STRATOS solver. Processor load is minimized as all the solving for haptic output is performed on the STRATOS FPGA.

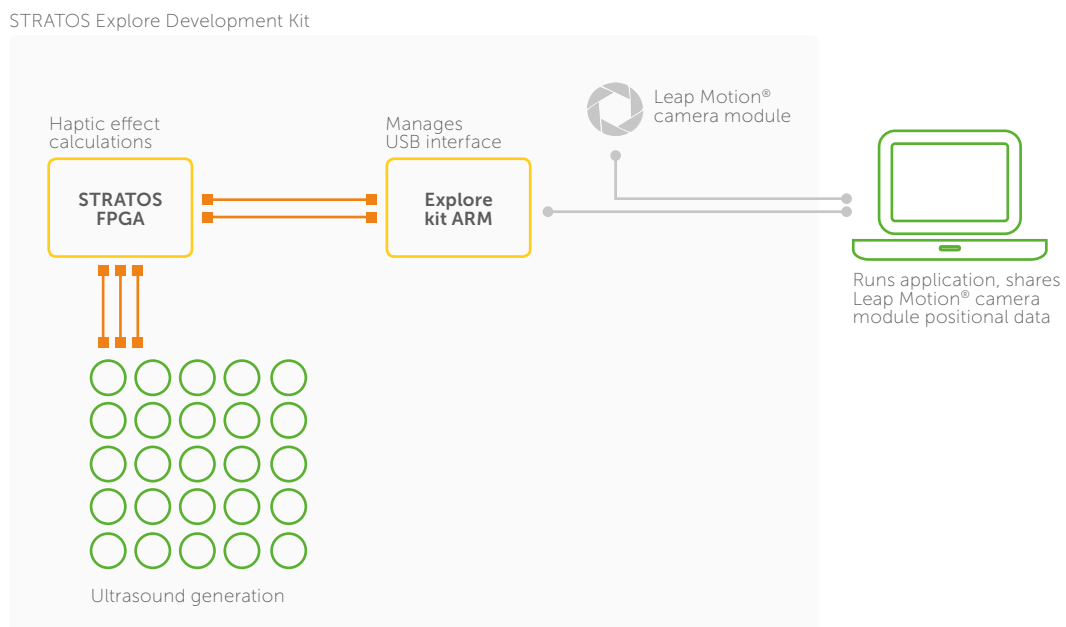
*Time-point streaming allows for rapid update signals to be sent to the transducer array for the creation of ultrasonic haptic sensations. It unlocks the capability of using both amplitude modulation and spatio-temporal modulation techniques for the haptic rendering of 3D objects and surfaces.

One kit — endless possibilities, in multiple applications

- **Automotive:** Mid-air control of infotainment systems and dashboard functions.
- **Location-based entertainment:** Entirely new, magical visitor experiences and improved operational efficiency.
- **Digital signage:** A new way for brands to connect with customers and increase engagement, dwell time and recall.
- **AR/VR:** Immersive experiences and intuitive interaction with virtual objects.
- **Computing:** An extra dimension to 3D imaging and interaction with virtual objects.
- **Gaming:** Augmentation of gesture-controlled gaming.
- **Smart home:** Invisible, touch-less and responsive controls that come to you when you need them.
- **Kiosks, ATMs and interactive information screens:** Ultra-clean, low-maintenance and more secure public interfaces.
- **Industrial and medical:** Touch-less HMI to improve health and safety.



STRATOS Explore Development Kit Architecture



The STRATOS Explore Development Kit includes:

- 16x16 transducer array (Murata transducers), control board and frame structure.
- Leap Motion® camera module for hand tracking and gesture recognition.
- Software Development Kit with high performance Time Point Streaming*, supporting C# and C++ API and Unity® integration.
- Support for Windows, OSX and Linux based platforms.
- Sensation Editor tool to assist with customisation and development of sensations.
- Mid-air haptics demonstration suite.
- Multi-region (US/UK/EU) power supply and USB cables.
- Access to software development kit, tools and examples at developer.ultrahaptics.com.
- Cover material samples pack available free-of-charge with each kit.

STRATOS Explore kit specification:

- Supports up to 8 focal points and 40kHz haptic refresh rate for fine sensation control
- Focal point size: 8.6mm diameter
- Interaction zone: for 16x16 transducer array approx. 50-700mm, $\pm 30^\circ$ cone centred around the top surface of the transducer board
- Maximum potential array size: 2048 transducers
- Maximum potential interaction zone: >1.5m
- Direct connection to STRATOS FPGA using high-speed SPI bus
- Product dimensions: 242mm L x 207mm W x 34mm H
- Array dimensions: 25mm H x 165mm W x 165mm D

The STRATOS Explore Development Kit is available to buy from the following distributors:

- Arrow: <https://www.arrow.com/en/manufacturers/ultrahaptics>
- Cornes: ctl-comm@cornes.jp (email)

Product name	Product code
STRATOS Explore Development Kit	USX

Faster prototyping and reducing time-to-market

Ultrahaptics offers two programs designed to help businesses create new concepts, accelerate prototyping and validation, and then integrate mid-air haptics for their applications.

The **Evaluation Program** includes a STRATOS Explore Development Kit, as well as training, access to impactful haptic demos and a Sensation Tools Suite software license, enabling teams to assess the potential presented by Ultrahaptics' technology, to sell the concept to internal stakeholders and to design bespoke mid-air haptic sensations for their application.

The **Acceleration Program** is our most comprehensive customer program. In addition to the benefits of the Evaluation Program, the Acceleration program includes an additional STRATOS Explore Development Kit and additional Sensation Tools Suite user licenses. It also includes more extensive technology training and design coaching, as well as a limited public demonstration license to assist businesses in developing their hardware and haptic design skills through to a compelling public demonstration of their application.

More information is available at: www.ultrahaptics.com and info@ultrahaptics.com