

## TouchSense® Force Feedback Development Kit

for Simulators, Arcade Systems, and Gaming Peripherals

Immersion's TouchSense® Force Feedback Development Kit lets simulator, arcade system, and peripheral manufacturers quickly and easily include force feedback in new concept designs for test and evaluation.

Immersion force feedback lets you think big and create wildly fun and interactive user experiences with devices from weapons to sporting equipment and joysticks to musical instruments. TouchSense Force Feedback Electronics includes a dedicated force processor that supports simultaneous effects. The Immersion Studio for Gaming authoring tool further saves development time. Drivers, documentation, and engineering support help you innovate quickly.

### Highlights

- Powerful, realistic gaming effects delivered with up to 125W output
- Force Feedback Electronics with control loop reduces communications overhead for fast response time
- Wiring hub provides convenient connections to other system components
- Force feedback authoring tool for fast haptic development and quick edits to prebuilt effects



The force feedback development kit makes it fast and easy to test and fine tune force feedback in gaming peripheral design concepts.



Immersion Studio for Gaming files can be played independently, so you can test and edit without recompiling, which saves time. You can save, copy, modify, or combine effects to create a library of your favorite force feedback sensations.

# TouchSense Force Feedback Electronics provides a convenient wiring hub for passing user interactions with other system components to the game or simulator engine.

## Prototype Force Feedback in New Designs

For arcade systems and console peripherals, the TouchSense Force Feedback Development Kit includes:

- TouchSense Force Feedback Electronics
- Immersion drivers for Microsoft Windows
- Immersion Studio for Gaming authoring tool
- Power supply
- Reference manual
- Engineering support

The kit supplies fast and efficient integration of powerful, realistic, simultaneous force feedback effects. Electronics configurations support for up to 4 inputs (such as for steering, throttle, amplifier, or other accessory) and up to 16 function buttons to support additional features. The Force Feedback Electronics board also provides a convenient wiring hub for passing user interactions with other system components to the game or simulator engine.

## Robust, Realistic TouchSense Technology

Immersion's force feedback supplies tactile and kinesthetic realism for an immersive user experience. The board's dedicated force processor (up to 1 KHz loop rate) supports simultaneous effects such as cornering forces with road vibrations or light saber hum with jolts when clashing with an opponent's weapon.

Force Feedback Electronics can be set to automatically play realistic force effects, which lowers communications to your system processor and provides fast response. With power output up to 125W, forces can be extremely strong to boost excitement and intensify the virtual reality experience. Immersion force feedback technology lets you build immersive and highly realistic user experiences and environments.

## Fast Development for Better Results

The Immersion Studio for Gaming authoring tool includes prebuilt force feedback effects that can save precious development time. Prebuilt effects saved as Immersion Force Resource (IFR) files can be used for actions not tied to a game engine, such as button response. These effects can be called with a single line of code.

Effect designers can also save time by playing a suitable prebuilt effect and copying or editing its parameters to fit a specific need. IFR files can be played independently, so you can test/edit/test without recompiling, which saves time. Faster iteration helps you achieve better results.

Immersion Studio for Gaming features include:

- **Compound Effect View:** Supplies a timeline and graphical display to aid in aligning sensations to sound and other force feedback effects.
- **Sound Effect Loading:** Adds sound effects by directory in order to synchronize force feedback sensations to sound files.
- **Intuitive Graphical Metaphors:** Adjusts force feedback parameters using easy-to-understand pictorial controls. Depending on the hardware device you are designing for, you can see and feel waveforms, grids, springs, and other effects and adjust parameters by dragging points, adjusting sliders and dials, or typing in numbers directly.
- **Fully Customizable Effects and Numerous Preset Examples:** Lets you create your own custom sensations or draw from the many predefined effects (for example, lasers, cannons, mud, slippery ice).

### Specifications

- Force processor loop rate: up to 1 KHz
- Amplifier output: up to 125W per motor
- Potentiometer and encoder inputs: automatic calibration and ranging, optional self-centering spring
- Output channels: 1 or 2 PWM
- Function button support: up to 16 digital
- USB DirectX drivers: Windows XP or Vista (DirectX 7.0 or later required)
- Commercial operating temperature: 0–50°C
- Board status indication: LEDs
- Compliance: RoHS
- Warranty: 12 months
- Board size: 3 x 5 in



Including powerful force feedback in your system is as easy as dropping in the small 3 x 5 inch TouchSense board.

### Configured for your design

Contact us to discuss your project and help select a Force Feedback Electronics board configuration to support your analog and digital design needs.

For more information about adding force feedback to your simulator or arcade game, visit [www.immersion.com/products/arcade-electronics/](http://www.immersion.com/products/arcade-electronics/) or email us at [GamingSales@immersion.com](mailto:GamingSales@immersion.com).



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## About Immersion

Haptic (touch) technology is the future of user experience in digital devices. Founded in 1993, Immersion harnesses human touch to create user experiences that deliver a more compelling sense of the digital world. Using one of Immersion's adaptable high fidelity haptic systems, partners can achieve a competitive advantage and greater revenue opportunities with products that are more intuitive, satisfying, efficient, and safe. With Immersion technology, world-class companies can deliver improved user experiences in products such as widely popular video games, leading video console gaming systems, advanced automotive driver controls, and award-winning mobile phones. Immersion manufactures its own line of medical simulators that incorporate touch technology. These virtual reality training tools, installed around the world, enable practitioners to improve their practice of sophisticated life-saving surgical procedures prior to operating on patients. With over 700 issued or pending patents in the U.S. and other countries, Immersion is the leading innovator in touch-enabled user experiences that bring the digital universe to life.

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