 **upek.**
UPEK Embedded Fingerprint Sensor Solutions





Proven technology

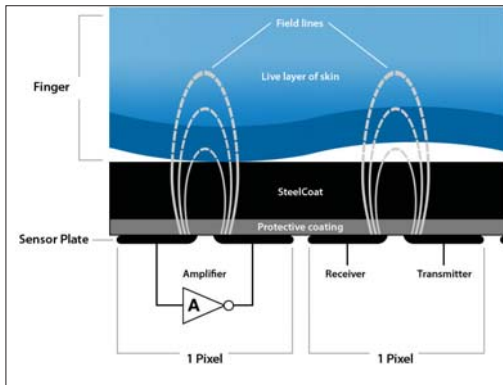
UPEK'S PROVEN, EASY-TO-INTEGRATE FINGERPRINT SENSORS ARE THE **MOST SECURE AND EASIEST TO USE** ON THE MARKET.

Proven

UPEK's proven silicon fingerprint sensors and solutions have been **embedded into millions of devices** such as laptops, mobile phones, USB flash drives, external hard disk drives, garage door openers, car alarms, safes, POS terminals and other devices by trusted names including Dell, IBM/Lenovo, Sony, Toshiba, SanDisk, Honeywell, Craftsman and others.



UPEK offers the only silicon fingerprint sensor that is **FIPS 201** certified by the FBI for U.S. Homeland Security Presidential Directive 12 (HSPD 12) applications, enabled by UPEK's new Enhanced Image Mode (EIM).



Easy to use

UPEK's proprietary **HD3D™ Sensing** technology senses 3-D ridges and valleys of a fingerprint to achieve the highest quality imaging, resulting in the most convenient user experience in the broadest range of environments.



Secure

UPEK fingerprint sensors take user authentication from the weakest link to the strongest link in a security architecture. **Live-layer sensing** senses the surface and subsurface of the skin and 3rd generation **anti-spoofing technology** counters attempts to fool the sensor with a fake fingerprint.



Robust

Fingerprint sensors need to withstand human interaction and the elements. UPEK fingerprint sensors are shielded by a polymer coating to protect against repetitive use and ESD. UPEK's **Steel-Coat™ protective coating** delivers added durability when the fingerprint sensor is exposed to more demanding environments.

Integration Ease and Flexibility


UPEK offers **development kits, reference designs, and integration support** to facilitate ease of integration and fast time to market. UPEK also offers a wide range of interface options (USB, SPI, UART, Parallel) and a variety of configurations including:

- **sensors** for high quality fingerprint image capture.
- **chipsets** consisting of a sensor and a Digital ID Hardware Engine™ companion processor that performs all biometric processes (image capture, image reconstruction (for swipe sensors), template extraction, and template matching) in a secure hardware package - the TCD50D ASIC. The TDC50D is up to 10x faster than earlier processors and can store up to 100 fingerprint templates, making it an excellent choice for self-contained applications.
- **modules**, which are chipsets that are fully assembled and tested on a circuit board for easy drop-in integration.

UPEK also offers a range of fingerprint sensor form factors to optimize cost and usability depending on the application, including:

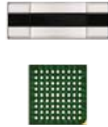
- **TouchChip “touch” sensors** which a person simply places their finger on, like pushing a button. TouchChip sensors are ideal for devices and applications involving multiple users or no training. The large touch sensor is optimized for usability and the medium touch sensor is optimized for cost-sensitive applications.
- **TouchStrip “swipe” sensors** which a person slides their finger across. TouchStrip sensors are ideal for personal or high volume devices and applications. The wide swipe sensor is optimized for usability and the compact swipe sensor is optimized for more cost-sensitive applications.

Product matrix

		TouchChip (touch sensor)				TouchStrip (swipe sensor)	
		Large area (12.8 x 18mm sensor surface)		Medium area (10.4 x 14.4mm sensor surface)		Wide (5 x 13.8mm package)	Compact (4.4 x 12mm package)
		FIP 201 (Standard coating)	SteelCoat	Standard coating	SteelCoat	SteelCoat	SteelCoat
Sensor (image capture)	Parallel	TCS1C 	TCS1S 	TCS2C 	TCS2S 	TCS4H 	TCS5C 
	SPI						
	USB						
Chipset (match-on-device)	SPI & UART	TouchChip sensor + TCD50D <i>TCKDEARE</i>				TCS4K + TCD50D <i>TCKDESWP</i>	TCS5B + TCD50D <i>TCKDESWP</i>
	USB	OR + STM32 (image capture; USB Only) <i>TCKDESTM</i>					
Module (match-on-device)	SPI & UART	TCES4KS <i>TCKDSMOD</i>					
	USB	TCEFC1 <i>TCKDSMOD</i> 					

Development Kits in Italics

Development Kits

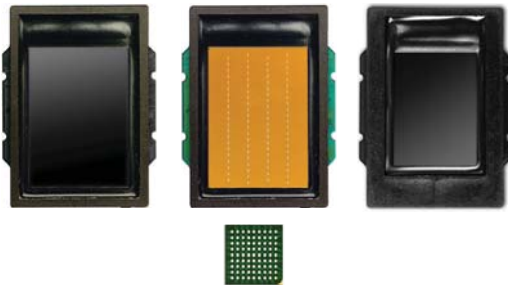


Swipe Sensor Chipset Integration Kit (TCKDESWP)

Interface options: USB, UART, SPI

- 3 TouchStrip Fingerprint Modules (TCESC4K)
- 10 TouchStrip Fingerprint Sensors (TCS4K)
- 10 Digital ID Hardware Engine companion processors (TCD50D)
- 1 Universal Module Adapter
- 1 Set of cables, jumpers, transformer etc. for UMA

Partner Program level: Premium

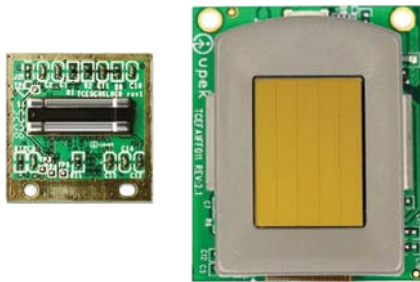


Touch Sensor Chipset Integration Kit (TCKDEARE)

Interface options: USB, UART, SPI

- 3 TouchChip Fingerprint Modules (TCEFC1)
- 5 TouchChip Fingerprint Sensors - large area & SteelCoat (TCS1S)
- 5 TouchChip Fingerprint Sensors - large area & FIPS 201 (TCS1C)
- 5 TouchChip Fingerprint Sensors - medium area & SteelCoat (TCS2S)
- 10 Digital ID Hardware Engine companion processors (TCD50E)
- 1 Universal Module Adapter
- 1 Set of cables, jumpers, transformer etc. for UMA

Partner Program level: Premium

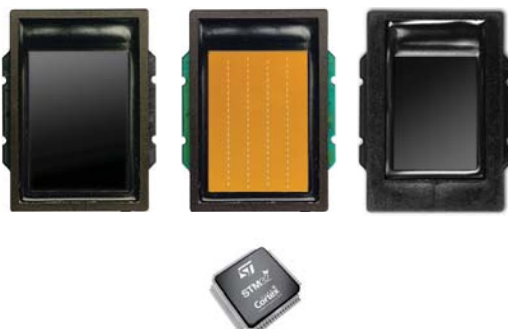


Module Integration Kit (TCKDSMOD)

Interface options: Touch: USB. Swipe: USB, UART, SPI

- 2 TouchStrip Fingerprint Modules (TCESC4K)
- 2 TouchChip Fingerprint Modules (TCEFC1)
- 1 Universal Module Adapter
- 1 Set of cables, jumpers, transformer etc. for UMA

Partner Program level: Select



Embedded STM32 USB Integration Kit (TCKDESTM)

Interface options: USB via STM32 USB controller

- 3 EikonTouch EIM USB Modules with mini USB connector
- 5 TouchChip Fingerprint Sensors - large area & SteelCoat (TCS1S)
- 5 TouchChip Fingerprint Sensors - large area & FIPS 201 (TCS1C)
- 5 TouchChip Fingerprint Sensors - medium area & SteelCoat (TCS2S)
- 1 USB Cable Type A to Type Mini-B plug

Partner Program level: Premium

Software Development Kits (SDKs)

SDK	Biometric Services API (BSAPI)	PTAPI for chipsets	PerfectPrint
USB/Embedded	USB	Embedded	Embedded
Sensor/Chipset	Sensor only and chipset	Chipset	Sensor only
Level	Mid	Low	Low
Functions	HW abstraction layer with advanced HW handling features (e.g. power management, ESD recovery) and complete biometric functionality engine (but still enabling full implementation freedom)	Functions equivalent to commands of UPEK companion processors TCDxx. Includes functions for image grab, enrollment and verification.	Functionality for fingerprint image grabbing along with various HW configuration options to adjust sensor settings in order to obtain the desired image quality.
Applications	Most PC applications. Basic and extended features of UPEK fingerprint reader devices (such as fingerprint capture, enroll, verify, image access, navigation, etc.)	Applications integrating intelligent UPEK modules or chipsets, requiring self-contained biometric functionality.	For customers developing applications with their own matching algorithm. No template extraction and matching features included.
Details	Libraries are available in both 32bit and 64bit versions for Windows and Linux operating systems on x86 and x86_64 platforms. Server matching component and ANSI/ISO template convertor available.	SDK contains Windows DLL library for evaluation and simulation/ debug of target functionality and source code of the library ready for compilation onto target platform. Basic embedded sample for 8051 microcontroller is also included.	Perfect Print SDK supports Linux and Windows systems including Windows CE.
Supported UPEK sensors	All TouchChip and TouchStrip USB devices	Embedded platforms integrating UPEK devices based on TCDxx companion processors using any of the available interfaces (USB, UART or SPI).	UPEK touch sensor devices capturing images in Standard mode (TCRU1/2 and other devices based on ST9 USB microcontroller) as well as EIM and EIM Lite mode (devices based on Cypress and STM32 USB controllers, e.g. Eikon Touch readers). PerfectPrint does not support swipe sensors and area sensor devices based on TCDxx companion processors.
Partner Program Level	Windows: Select and Premier Linux: Community or free download from UPEK web pages	Premier	Select and Premier

UPEK Partner Program

UPEK recognizes the importance of mutually beneficial partnerships. The UPEK Partner Program provides the resources you need to work with UPEK to build a valuable partnership. The UPEK Partner Program provides the following:

- The SDKs, software and hardware that you need to integrate your product with UPEK technologies.
- High quality technical support to quickly answer any questions you may have.
- Valuable marketing program to help grow your business.

UPEK understands that different partners have different needs and therefore has created three different partner program levels to meet your specific needs. The program levels are Community, Select and Premier, each providing different benefits to our partners:

UPEK Partner Program Level	Community	Select	Premier
Development Hardware			
Hardware Kits	Evaluation Kits*	USB Reader or Module Kit**	Embedded HW Kit**
	TCKESPER01	TCKDSPER01	TCKDESWP01
	TCKESMOD02	TCKDSMOD02	TCKDEARE01
	TCKEU07		TCKDESTM01
* Evaluation kits available for \$250 at all membership levels. ** One kit of choice is included in the membership fee.			
SDKs			
VT Toolkit	•	•	•
VTAPI	•	•	•
BSAPI*		•	•
PerfectPrint for PC		•	•
PTAPI			•
PerfectPrint Embedded			•
* BSAPI for Linux is freely available			
Software			
Protector Suite for PC	•	•	•
Protector Suite for Mac	•	•	•
PS Logon for Linux	•	•	•
UPEK Evaluator	•	•	•
Support			
Internet Forum	•	•	•
Knowledge Base		•	•
Support PC Development (SW integration)		•	•
Support Embedded Devel. (HW integration)			•
Marketing			
Website listing	Community Listing	Select Listing	Premier Listing
Cooperative press releases		•	•
Participation in UPEK logo program		•	•
Collaboration for case studies, sales kits, collateral, events, demos, biz dev opps.			•
Program cost	No charge	\$1,000/year	\$2,500/year

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