

Preliminary

FIPS 201 Fingerprint Sensor + Smart Card Reference Design

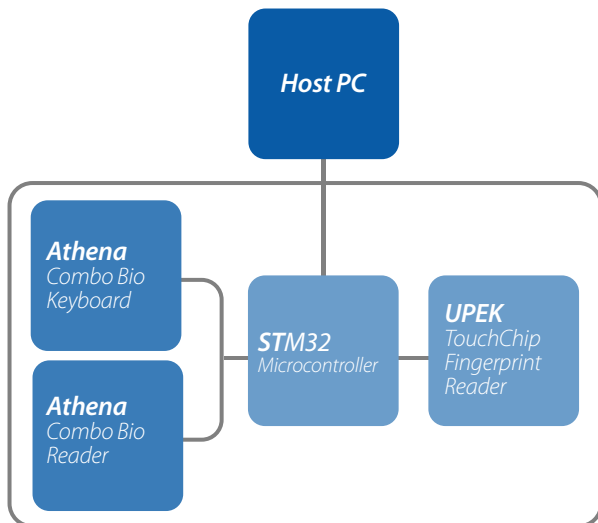
■ Growing market for FIPS 201 certified combined fingerprint and smart card authentication

Demand is growing for stronger identity credentials in order to increase security and reduce fraud. Examples include government and enterprise ID cards, health cards, payment cards and various high security cards.

The leading solution emerging to satisfy this demand combines the security and convenience of fingerprint authentication with the portability and security of smart cards. Market analysts estimate that this market will grow 50% per year and become a multi-billion dollar industry.

UPEK, Athena, and STMicroelectronics have combined their advanced technology in fingerprint sensors, smart card readers, keyboards, and microprocessors to offer a reference design architecture for multi-factor FIPS 201 compliant authentication peripherals.

■ Reference Design Architecture



Fingerprint Reader



Fingerprint Reader + Smart Card Reader

Fingerprint Reader +
Smart Card Reader +
Keyboard





UPEK TouchChip Fingerprint Sensor (TCS1)

- FIPS 201 certified by the FBI and GSA
- Proven technology shipping on millions of notebook PCs
- Silicon-based technology enables low-cost, high volume, and small footprint
- Patented active capacitance technology ensures reliability and ease-of-use

Sensor size	20.4 x 27 x 3.5mm
Image area (mm)	12.8 x 18mm
Image area (pixels)	256 x 360 pixels
Image resolution	508 DPI
Power supply	4.4 to 5.5v (FIPS 201 @ 4.55v)
Current: imaging	20 mA @5V
Current: sleep	70 uA @5V
Operating temperature	-30°C to +85°C
Image capture speed	Up to 14 frames/second
ESD protection	IEC 61000-4-2 Level 4 +/-15kV



Athena Smart Card Reader technology

- Fastest keyboard-integrated smart card reader available
- Secure PIN Entry option
- CCID support option
- Single USB composite device
- FIPS 201 compliant solution

Smartcard Support	ISO7816 T=0,T=1,EMV, JICSA, memory cards (optional)
Card-Reader communication	Over 500 Kbps at 4 MHz
Operating System Support	Windows 2K, XP, Vista, 7
Smart Card Reader Approvals	Microsoft WHQL 2000, XP, Vista PC/SC Compliant, EMV Level 1 compliant



STMicroelectronics STM32 Microcontroller

Leading-edge architecture with the Cortex-M3 core from ARM running up to 72MHz

- Excellent real-time behavior
- Outstanding power efficiency
- Superior and innovative peripherals including USB 2.0 interface and ISO 7816 Smart Card interface
- Maximum integration
- Easy development, fast time to market
- Pin-to-pin and function compatibility through the entire family

Multiple communication peripherals	Up to 5 USARTs, 3 SPI, 2 I2C, USB OTG, 2 audio class I2S, 2 CAN, SDIO, Ethernet with PTP IEEE1588
External Memory Interface	NAND, NOR Flash, SRAM, CF, LCD parallel interface
Digital to Analog Converter	2 12-bit DACs
Analog to Digital Converter	Up to 3 12-bit ADC (1 us conversion time)
DMA	Up to 12 channels
16-bit timers	Up to 6 standard timer, up to 2 motor control PWM timers
Die form and small packages available	From 10x10mm LFBGA144 down to 5x5mm LFBGA64 or CSP64
Memory	Up to 512KB Flash, up to 64KB SRAM



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