# xperix

# Why Xperix?

*1* Xperix's multi-award winning fingerprint algorithm is at the heart of every Xperix product. Xperix's highly sophisticated fingerprint technology has been recognized by numerous competitions and compliances including FBI IQS, STQC, FVC and NIST MINEX.

**The World's Best Performing Fingerprint Algorithm**

**The World's Most Widely Used Biometric Technology**

*2* Xperix's biometric technology is used across wide areas of applications including physical access control, public/civil ID projects, fintech, forensic science and mobile authentication. Xperix's biometrics is one of the most widely used technology and supports over 1 billion people globally providing protection, security and convenience.

*3* When it comes to the security solutions, our focus is on delivering the best quality products that offer high performance and reliability throughout their lifecycle. At Xperix, ISO9001/14001 standards are applied to ensure quality throughout the manufacturing process.
Xperix operates South Korea's largest dedicated biometrics research and manufacturing facility to ensure  precise quality control.

**Product Quality & Reliability**

Quality

## Global Sales Channel

**4** Xperix has established strong sales channels and networks in over 133 countries and over 75% of revenue is derived from authorized sales channels. Xperix provides structured/bespoke product trainings, webinars, marketing supports with our partnership programs to support our partners extend their competency and revenue.
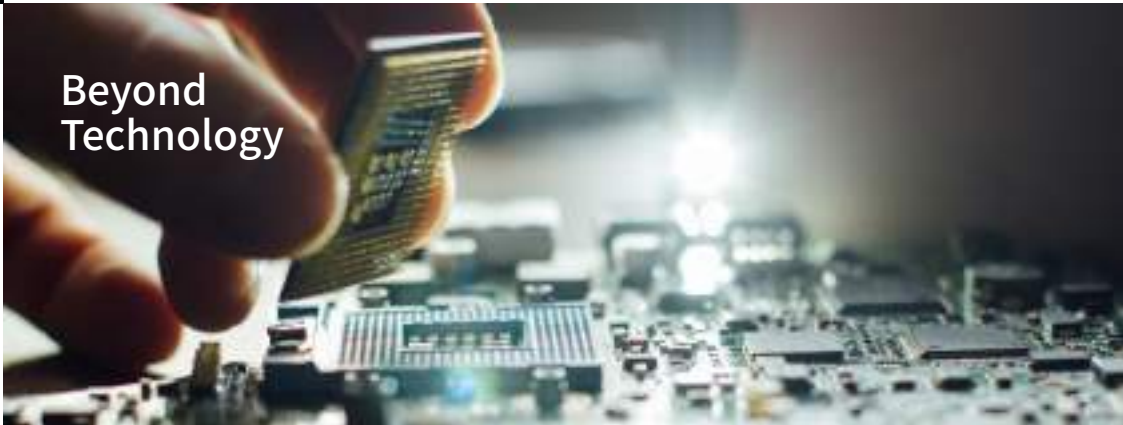
## Technology Partnerships

**5** Xperix developed alliance with influencing global security technology partners to provide extensive application possibilities to fulfill each customer's unique requirements. In order to maximize user benefits with superior features and solutions, we have integrated over 70 of the best-of-breed leading solutions from the world's leading security vendors.

## End-to-end Solution Provider

**6** Xperix is uniquely suited to offer versatile biometric-based security solutions for wide array of applications. From telecommunication, banking, healthcare, BVR (Biometric Voter Registration) & national ID, Xperix is committed to providing innovative, superior-quality products that help businesses of any kind meet their security needs.

## Beyond Technology

**7** Commitment to research and development has always been a key element of Xperix's success. Over 40% of Xperix's employees are engaged in R&D efforts and Xperix invests more than 16% of turnover to R&D every year. With our years of expertise in biometrics and security, Xperix owns over 100 technology patents and continuously introduces technology initiatives to the industry.

# AUTHENTICATION SCANNERS

Faster, Smarter & Versatile
Fingerprint Security Solutions

Xperix's fingerprint-based security solutions provide high level biometric security for desktops as well as complex network environments. Our latest range of high-performance fingerprint USB scanners are supported by powerful software development kit (SDK) which features the world's best Xperix fingerprint algorithm. Xperix offers an unrivalled versatile development platform for leading security companies, system integrators and hardware manufacturers.

suprema

# BioMini Slim 3

## Ultra-slim FAP30 Standalone Authentication Scanner

BioMini Slim 3 is a FAP30 certified fingerprint scanner featuring an array of cutting-edge technologies. Along with its 15mm slim optical sensor, BioMini Slim 3 features Xperix's proprietary Multi-dynamic Range(MDR) technology, FBI PIV and Mobile ID FAP30 compliance and Android device support.

BioMini Slim 3 also provides developers more physical flexibility with its reduced form factor and the ultra-slim optical sensor ensures robust operation over time. BioMini Slim 3 provides new and advanced Live Finger Detection(LFD) technology by applying a machine learning method based AI(Artificial Intelligence) as an World-class Trained Inspector which can be upgradeable by BioMini SDK.

## Features

· True plug-n-play operation
 - HID(human interface device) protocol

· Standalone operation
 - 1.0GHz MIPS-base Xburst Core CPU
 - On-device fingerprint extraction and matching
 - O/S independent fingerprint scanner

· Enhanced Security
 - On-device template encryption
 - On-device template extraction

· World's slimmest FAP 30 optical sensor

**FBI**
· FBI PIV/FIPS201 and FBI Mobile ID FAP30 certificates
· Image compression standard: WSQ

**Multi Dynamic Range**
· Capturing high-quality fingerprint images even when the finger is dry & wet.
· Operates under direct sunlight up to 100,000 LUX

· Live Fingerprint Detection (LFD) Technology
 - Distinguishes fake fingerprints made from various materials including clay, rubber, silicon, glue, paper, film and more

· Automated power saving by smart sleep mode
· BioMini Slim 3S now consumes up to 95% less power than competitors

BM-Slim3 (OEM Module)

# BioMini Slim 2

## Ultra-slim FAP20 Authentication Scanner

BioMini Slim 2 is FAP20 certified fingerprint scanner featuring an array of cutting-edge technologies. Along with its 13.5mm slim optical sensor, BioMini Slim 2 features Xperix's proprietary Multi-dynamic Range(MDR) technology, FBI PIV and Mobile ID FAP20 compliance and Android device support.

BioMini Slim 2 also provides developers more physical flexibility with its reduced form factor and the ultra-slim optical sensor ensures robust operation over time. BioMini Slim2 provides advanced artificial Intelligence-based Live Finger Detection technology which is compliant with ISO 30107-3 PAD Level 1 & 2 Standard. Applying LFD technology, BM-Slim2 distinguishes fake fingerprints made from various materials including clay, rubber, silicon, glue, paper, film, and more.



### Features

· World's slimmest FAP 20 optical sensor

· FBI PIV and FBI Mobile ID FAP20 certificates
· Image compression standard: WSQ

**Multi Dynamic Range**
· Capturing high-quality fingerprint images even when the finger is dry & wet.
· Operates under direct sunlight up to 100,000 LUX

· Live Fingerprint Detection (LFD) Technology
  - ISO 30107-3 Compliant (PAD Level 1 & 2)
  - Distinguishes fake fingerprints made from variou materials including
    clay, rubber, silicon, glue, paper, film and more

· Automated power saving by smart sleep mode
· BioMini Slim 2 now consumes up to 95% less power than competitors

· Easy Integration
  - BioMini SDK for easy application development
  - Android, MS Windows & Linux compatible
  - Multi-threaded code design for multi-core CPU utilization



BM-Slim2 (OEM Module)

# BioMini Slim 2S

## Ultra-slim FAP20 Standalone Authentication Scanner

BioMini Slim 2S is a FBI PIV and Mobile ID FAP20 certified fingerprint scanner that provides a number of industry-leading features under its sleek design. Featuring range-leading powerful 1.0GHz CPU, BioMini Slim 2S provides high-speed extraction and matching of fingerprints within the scanner.

BioMini Slim 2S also supports true plug-n-play by featuring HID(human interface device) protocol. BioMini Slim 2S is a versatile identification solution for both public and civil ID applications.

## Features

· True plug-n-play operation
  - HID(human interface device) protocol

· Standalone operation
  - 1.0GHz MIPS-base Xburst Core CPU
  - On-device fingerprint extraction and matching
  - O/S independent fingerprint scanner

· Enhanced Security
  - On-device template encryption
  - On-device template extraction

· World's slimmest FAP 20 optical sensor

· FBI PIV/FIPS201 and FBI Mobile ID FAP20 certificates
· Image compression standard: WSQ

· Capturing high-quality fingerprint images even when the finger is dry & wet.
· Operates under direct sunlight up to 100,000 LUX

· Live Fingerprint Detection (LFD) Technology
  - Distinguishes fake fingerprints made from various materials including clay, rubber, silicon, glue, paper, film and more

· Automated power saving by smart sleep mode
· BioMini Slim 2S now consumes up to 95% less power than competitors

BM-Slim2S (OEM Module)

# BioMini Combo

## Contact/Contactless Smart Card Reader with Authentication Scanner

Suprema ID BioMini Combo has been designed specially to provide high leveled dual-authentication security solution for desktop PC and complex network environments. With its proven reliability, BioMini Combo features advanced live finger detection(LFD) technology. Packed in an ergonomic design, it features FBI PIV certified optical sensor with large platen size for easier capturing and contact smart card reader for stronger authentication.

### Features

· Two factor authentication security solutions
  for authentication purposes.

· Android support
 - Smart card SDK for Android
 - Versatile solution with custom-made Android apps

· FBI PIV/FIPS201 and FBI Mobile ID FAP20 certificates
· Image compression standard: WSQ

· Capturing high-quality fingerprint images even when the finger is dry & wet.
· Operates under direct sunlight up to 100,000 LUX

· Live Fingerprint Detection (LFD) Technology
 - Distinguishes fake fingerprints made from various materials including
   clay, rubber, silicon, glue, paper, film and more

· Interface with NFC-enabled devices
· ISO/IEC 14443 A&B(NFC), Mifare, Felica
· Compliant with ISO 7816 Contact Smartcard and EMV 2000 version 4.1
· Transmission rate : 2 Kbps to 500 kbps
· Supports 5V (55mA), 3V (50mA), 1.8V (20mA) Smart Card
· Supports SAM Slot (Optional)

### * Available Variants

Contact        Contactless        Dual

# BioMini SDK

BioMini SDK is suitable for applications where fingerprint enrollment and recognition can be done on PC or network based systems with all Xperix's Fingerprint Authentication Scanners.

## Windows / Linux

### Key Features

· World's best performing fingerprint algorithm
 : Top results in NIST MINEX tests and FVC
· FIPS 201 certified template extractor and matcher
· Fast matching speed : 100,000 match / second (with Intel Core 2 Duo)
· Supports MS Windows and Linux
· Supports multiple programming languages: VC++, VB, VB.NET, C#, Java
· Multi-threaded code design fully utilizing multi-core CPU power
· Fingerprint templates compatible with Suprema ID Products

### Specifications

· Template Size : 1024 Bytes (Configurable)
· Enrollment Time : < 0.1 second
· Verification Time : < 0.1 second
· Identification Time : 100,000 matches / second (with Intel Core2Duo)
· Programming Languages : VC, VB, C#, VB.NET, JAVA
· Database : Microsoft Access (Sample)
· Encryption : 256 bit AES
· Operating System : Windows XP / Vista / 7 / 8 / 8.1 / 10 32/64bit / Linux

## Android

### Key Features

· Fingerprint algorithm library for Android
· Sample application program with source code (Java library with JNI)
· BioMini series

### System Requirements

· Android Version : Android 4.1 (Jelly Bean / API Level 17) or above
· H/W Requirement : Quad-Core 1.7GHz, RAM 2GB
· Supported platform : ARMeabi / ARMeabi-V7a / x86
· Supported programming language : Java (Java library with JNI)
· Supported scanner : all Suprema ID's Fingerprint Authentication Scanners

### Specifications

· Version : SDK for Android
· Template Size : 1024 Bytes (Configurable)
· Enrollment Time  : > 0.3 sec
· Verification Time : > 0.1 sec
· Matcher : 1:1
· Supported Platform : Android Version 4.1 / Jelly Bean/API Level 17 or above

# Image SDK

Image SDK is a software development kit for PC based fingerprint application development. Unlike BioMini SDK that works with all Suprema ID's Fingerprint Authentication Scanners, Image SDK does not depend on a specific scanner hardware but works with general fingerprint images captured by different fingerprint sensor devices.

## Key Features

· World's best performing fingerprint algorithm : Top results in NIST MINEX tests and FVC
· FIPS 201 certified template extractor and matcher
· NIST certified interoperable template and image format standards(ANSI-378/ISO19794-2/ISO19794-4)
· Image Compression Standard (WSQ)
· Fast matching speed : 100,000 match / second (with Intel Core 2 Duo)
· Multi-threaded code design fully utilizing multi-core CPU power
· Multiple Devices handling support
· Supports fingerprint images captured by 3rd party scanners
· Supports different image resolution and quality
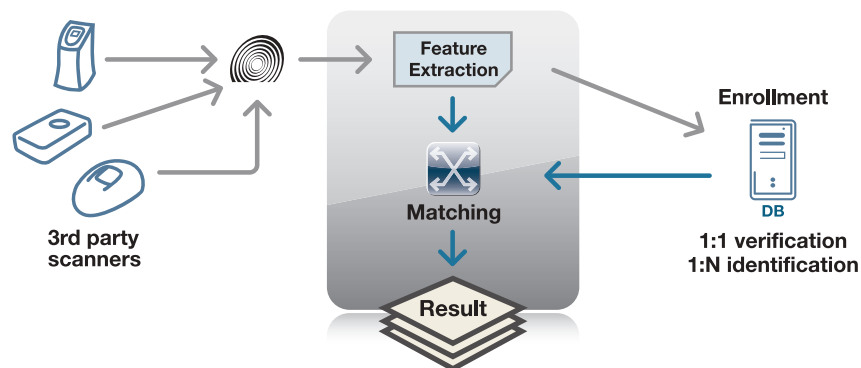· Supports multiple programming languages : Visual C++, Visual Basic, C#, VB.NET, Java

## Functions

· Enroll (Image to Template)
· Verify (1:1)
· Identify (1:N)
· Get Enrollment Quality

## Contents

· Fingerprint algorithm library for PC Windows
· Sample application program with source code in VC, VB, C# and VB.NET
· Technical documents
· HSM(USB dongle) for license control

## Operation Flow



3rd party scanners

Feature Extraction

Matching

Result

Enrollment

DB

1:1 verification
1:N identification

| Scanner Specifications | | | BioMini Slim 3 | BioMini Slim 2 | BioMini Combo | BioMini Slim 2S |
|---|---|---|---|---|---|---|
| | | Product Name | BioMini Slim 3 | BioMini Slim 2 | BioMini Combo | BioMini Slim 2S |
| Sensor | | Image Quality Standards | FBI PIV / FBI Mobile ID FAP30 | FBI PIV / FBI Mobile ID FAP20 | FBI PIV / FBI Mobile ID FAP20 | FBI PIV / FBI Mobile ID FAP20 |
| | | Live Finger Detection | Proprietary | ISO 30107-3 Compliant (PAD Level 1 & 2) | Proprietary | Proprietary |
| | | Sensor Type | Optical | | | |
| | | Resolution | 500 ppi | | | |
| | | Gray Scale | 256 level | | | |
| | | Platen Size (W x L mm) | 21.5 x 26.5 | 16.5 x 21.0 | 18.0 x 25.4 | 16.5 x 21.0 |
| | | Sensing Area(W x H mm) | 20.32 x 25.4 | 15.24 x 20.32 | 16.2 x 24.3 | 15.24 x 20.32 |
| | | Image Size (W x H pixels) | 400 x 500 | 300 x 400 | 320 x 480 | 300 x 400 |
| H/W | | Interface | USB 2.0 High Speed | | | |
| | | Operating Temperature(°C) | -10~50°C | | | |
| | | Operating humidity | 0 ~ 90% RH | | | |
| | | Ingress Protection | IP65(Sensor Surface) | IP65(Sensor Surface) | IP65(Sensor Surface) | IP65(Sensor Surface) |
| | | Dimensions (W x L x Hmm) | 83 x 45.9 x 20 | 72.8 X 40.7 X 18.5 | 95.7 x 114.8 x 52.6 | 72.8 X 40.7 X 18.5 |
| | | Weight(Kg) | 111g | 0.09 | 0.28 | 0.09 |
| S/W | | Windows | Windows 7, 8, 8.1, 10 32/64bit | Windows XP, Vista, 7, 8, 8.1, 10 32/64bit | | Standalone Operation |
| | | Linux | Ubuntu, Debian, Fedora, OpenSUSE, Cent OS 32/64bit | | | Standalone Operation |
| | | Android Android 4.1(Jelly Bean) and Above | O | | | Standalone Operation |
| | | Image Format | RAW, BMP, WSQ, ISO 19794-4 | | | |
| | | Template Type | Suprema, ISO19794-2, ANSI-378 | | | |
| Certification | | CE | O | | | |
| | | FCC | O | | | |
| | | KC | O | | | |
| | | CB | O | O | X | O |
| | | IEC62471 | O | O | X | O |
| | | WEEE | O | O | O | O |
| | | WHQL | O | O | O | X |

| BioMini Combo Smart Card Specifications | Contact | Contactless | SAM slot | etc. |
|---|---|---|---|---|
| | Support ISO 7816-1,2,3,4:Integrated circuit cards Support EMV Level 1:EMV2000 specifications version 4.2 | Support ISO 14443 Part 4 Type A and B cards(up to 848 kbps) Support MIFARE encryption(up to 106 kbps) Support PCD mode for FeliCa protocol(up to 424 kbps) | Single SAM slot Dual SAM slot (Optional) | CCID Compliance, Support PC/SC |

*BioMini Slim 3, BioMini Slim 2S - MIPS-Base Xburst Core [Up to 1.0 Ghz], RAM : 32Mbyte LPDDR, Flash Memory : 32Mbyte NOR Flash Memory

| Module Specifications | | BM-Slim3 | BM-Slim2 | BM-Slim2S |
|---|---|---|---|---|
| | Product Name | BM-Slim3 | BM-Slim2 | BM-Slim2S |
| Sensor | Image Quality Standards | FBI PIV / FBI Mobile ID FAP30 | FBI PIV / FBI Mobile ID FAP20 | FBI PIV / FBI Mobile ID FAP20 |
| | Live Finger Detection | O | O | O |
| | Sensor Type | Optical | | |
| | Resolution | 500 ppi | | |
| | Gray Scale | 256 level | | |
| | Platen Size (W x L mm) | 21.5 x 26.5 | 16.5 x 21.0 | 16.5 x 21.0 |
| | Sensing Area(W x H mm) | 20.32 x 25.4 | 15.24 x 20.32 | 15.24 x 20.32 |
| | Image Size (W x H pixels) | 400 x 500 | 300 x 400 | 300 x 400 |
| H/W | Interface | USB 2.0 High Speed | | |
| | Operating Temperature(℃) | -10~50℃ | | |
| | Operating humidity | 0 ~ 90% RH | | |
| | Dimensions (W x L x Hmm) | 67.5 x 36 x 15 | 59 x 32 x 13.5 | 59 x 32 x 13.5 |
| S/W | Windows | Windows 7, 8, 8.1, 10, 32/64bit | Windows XP, Vista, 7, 8, 8.1, 10 32/64bit | Standalone Operation |
| | Linux | Ubuntu, Debian, Fedora, OpenSUSE, Cent OS 32/64bit | | Standalone Operation |
| | Android Android 4.1 (Jelly Bean) and Above | O | O | Standalone Operation |
| | Image Format | RAW, BMP, WSQ, ISO 19794-4 | | |
| | Template Type | Suprema, ISO19794-2, ANSI-378 | | |
| Certification | CE | O | | |
| | FCC | O | | |
| | KC | O | | |
| | CB | O | O | O |
| | IEC62471 | O | O | O |
| | WEEE | O | O | O |
| | WHQL | O | O | X |

*BM-Slim3, **BM-Slim2S**- MIPS-Base Xburst Core [Up to 1.0 Ghz], RAM : 32Mbyte LPDDR, Flash Memory : 32Mbyte NOR Flash Memory