

IDEX Biometrics



19 October 2021

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IDEX Biometrics

The next evolution of payment cards



Reduced fraud

Identity protection

Top of wallet

Low cost

More convenient

Investment Highlights

Oslo Børs: **IDEX** Nasdaq: **IDBA**

Massive addressable market

- One of only two suppliers and partnered with the ecosystem leaders; TAM of 400 million units/yr. expected by 2024
- TrustedBio™ is the only true “pure play” in the contactless card space
- First solution that enables the cost point and user experience to accelerate market activation

Accelerating commercial momentum

- Infineon/IDEX technical and commercial partnership
- High demand for Infineon/IDEX reference platform with building design win momentum
- Growing backlog from existing customers
- Multiple new design wins and orders from integrators and card manufacturers

Opportunities in adjacent markets

- DCEP hardware wallets, Crypto currency wallets, ID, Cyber Security/Access Control
- Volume production orders from Asian customer

Large-scale certification gives us advantage in rapidly changing markets

- Certification from two leading payment networks (EMVCo® certified) represents barrier to near-term entry
- Two certifications from China UnionPay afford head start with DCEP

2021: a pivotal year

- 🌀 **IDEMIA actively marketing IDEX based F.CODE™ cards**
 - IDEMIA's first Biometric Payment Card offering based on IDEX's TrustedBio™ sensor
 - Most integrated Biometric Payment Card solution available today
 - Building order backlog in response to accelerating customer demand
- 🌀 **Announced Infineon technical and commercial partnership**
 - Joint solution: TrustedBio Max™ + latest generation Infineon Secure Element (not possible with competitors' sensors)
 - Infineon has been the leading provider of secure elements (SEs) for more than two decades
 - Full transactions ~3X faster than any solution available; contactless EMV transactions in 0.5 seconds
- 🌀 **TrustedBio Max™ product launch**
 - The most advanced and integrated biometric payment solution ever created
 - Integrated sensor, biometric ASIC, biometric matching hardware, software, and algorithm enables groundbreaking low-cost, simplified manufacturing and industry leading performance
- 🌀 **Progressing as planned: Digital Currency Electronic Payment (DCEP) initiative of the People's Bank of China**
 - IDEX featured in Digital RMB trials conducted by the Postal Savings Bank of China and China Construction Bank
 - Selected by Goldpac as a strategic technology partner; initial orders received for DCEP solution
 - IDEX selected for Digital RMB hardware wallet by Union Smart

Highly Experienced Leadership Team



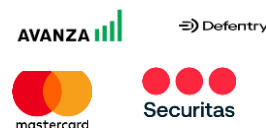
Vince Graziani
CEO



James A. Simms
CFO



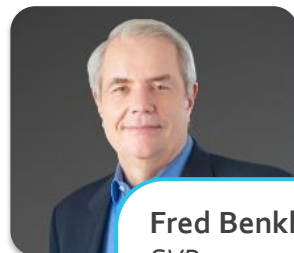
Catharina Ekløf
CCO



Stan Swearingen
SVP



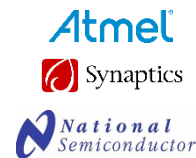
Anthony Eaton
CTO



Fred Benkley
SVP

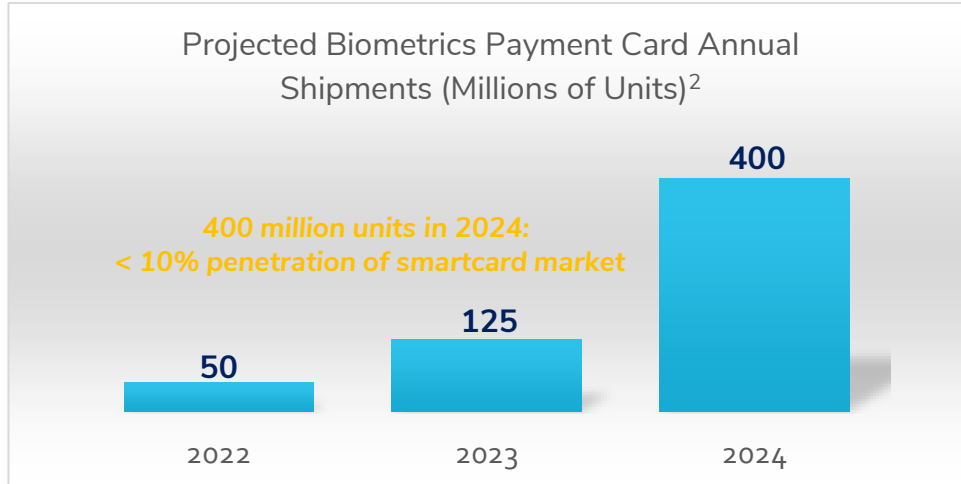


Chris Ludden
SVP



Payment Cards – Very Large and Growing Market

22 billion payment cards in circulation and growing to over 29 billion by 2023¹
~5 billion new smartcards issued annually



- **Strong growth universally forecast**
- **Contactless cards growing even faster**
 - Pandemic driving public awareness
- **Combining Convenience and Security**
 - Infrastructure already in place
 - Removes contactless \$ limits
 - “Top of wallet” payment device

⁽¹⁾ Nilson Report

⁽²⁾ Chart based on average of industry analyst estimates excluding highest estimate, 2024 is IDEX estimate.

Digital Currency Electronic Payment: “DCEP”



Central Bank Issuing Digital RMB



Regional Banks

Industrial and Commercial Bank of China
Bank of China
China Construction Bank
Bank of Communications
Agricultural Bank of China
Postal Savings Bank of China



- Announced IDEX pilots

Digital Payment

- Digital wallet
- Hardware wallet
- Third party

Hardware Wallet Opportunity

- Deployment by 2022 Olympic games
- Financial inclusion for 225 million unbanked citizens
- 40% of population not using a smartphone

\$1B+ potential



Card Manufacturing Partners

金邦達 Goldpac

GED Giesecke & Devrient

 恒宝股份
HENGBAO CO., LTD.



楚天龙
CHUTIAN DRAGON

IDEX is uniquely positioned to support the impending deployment of DCEP in China

IDEX TrustedBio Max™: Proprietary Advantages

The most complete solution for card-based biometric authentication

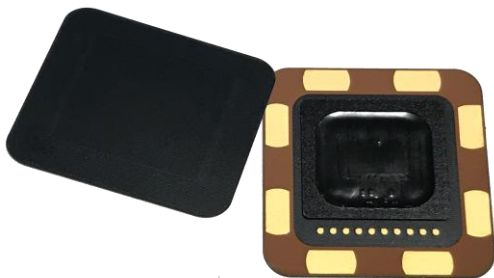
SENSOR & ASIC

+

ALGORITHMS & SOFTWARE

+

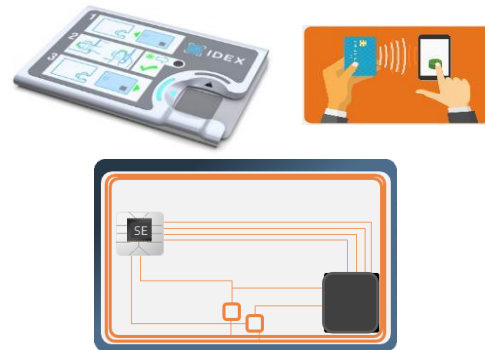
SYSTEMS & SOLUTIONS



*Wide-area polymer sensor,
ASIC: MCU, PMU, Hardware accelerator,
Flexible, low-cost package design*



*Biometric authentication algorithm
Embedded software for sensor, MCU, SE*



*Card architecture, reference design
Enrolment solutions, system concepts*

*TrustedBio™: A single hardware platform that enables multiple products through firmware;
supports multiple Secure Element architectures and multiple applications*



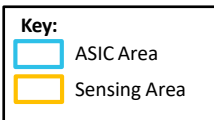
IDEX's Optimized Biometric System-on-Chip

Leveraging the power of Moore's Law

IDEX "Off-Chip" BSoC

Characteristics:

- ✓ **Large sensor area:**
Maximum image capture
- ✓ **Biometric MCU:**
Image processing/matching
- ✓ **PMU:**
Energy harvesting and power management
- ✓ **Reduced silicon area:**
Lowest possible cost



ASP:

~\$3.50

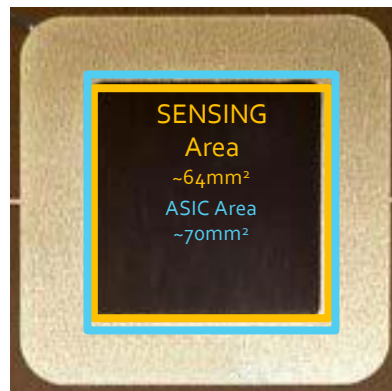
Competitor Silicon Sensor

Characteristics:

- ✗ **Limited sensor area:**
Reduced image capture

Additional Costs:

- ✗ MCU
- ✗ PMU
- ✗ Manufacturing complexity
+ \$10-\$15

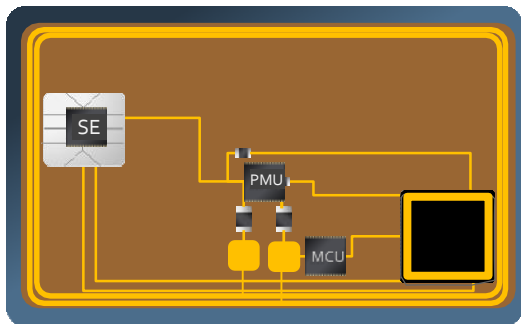


vs.

~\$5.50

IDEX Biometric System Solution

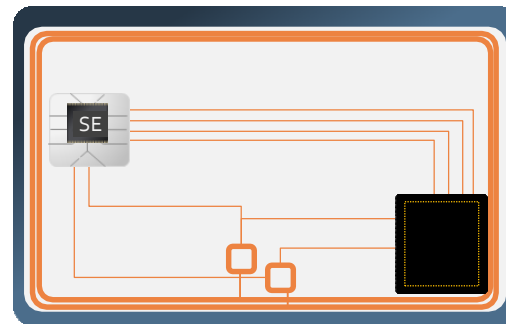
IDEX TrustedBio™: the only fully integrated biometric solution



Silicon sensor-based Biometric Payment Cards

- + Fingerprint Sensor (Silicon)
- + Biometric processor
- + Biometric algorithms: image capture, matching, anti-spoof
- + Power management unit
- + Complex inlay/Flex Circuit

\$15-\$20



IDEX TrustedBio™ - based Biometric Payment Cards

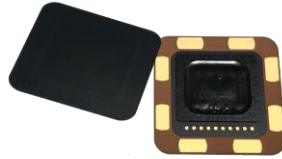
- EMVco – Certified Secure Element Device (Infineon, STM, NXP,...)
- Passive inlay includes antennae for NFC and energy harvesting
- Low-cost manufacturing

~\$5 (at scale)

IDEX & Infineon: Complete solution

IDEX:

- IDX3409 Biometric SoC
 - MCU 200 Mhz
 - Power management(PMU)
 - Hardware accelerator
- Biometric Algo
- Biometric MCU Software
- SE SDK
- Card Operating System



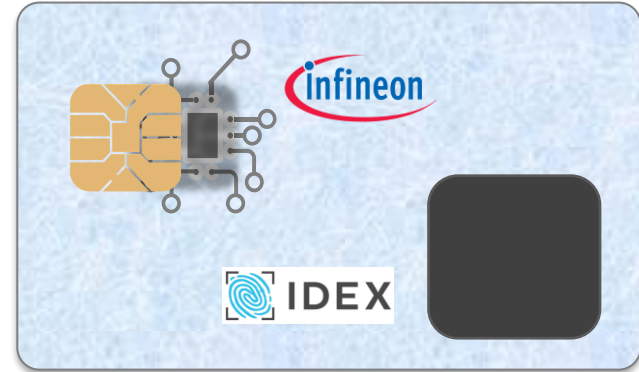
Infineon:

- SLC38 SE ASIC



Integration:

- Hardware system
- Algorithm compiled for SLC38
- PMU synchronization and optimization
- Documentation and support

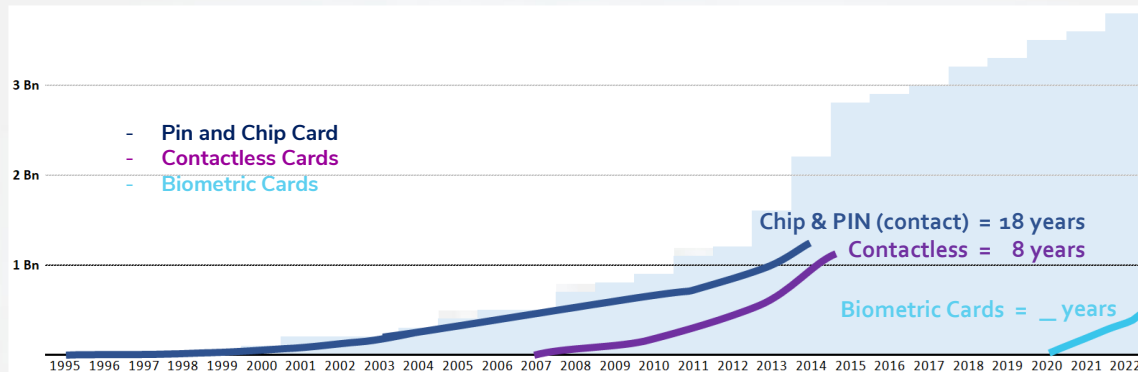


Game Changing Performance:

- Biometric process: ~250ms
- Total transaction time (including EMV): ~500ms
- Presentation attack detection (PAD)
- False Reject Rate: Less than 3%

A solution that will accelerate market activation: A seamless user experience; low card cost (~\$5)

IDEX Commercialization Status



IDEX Commercialization Status

- TrustedBio shipping to multiple customers
- Production volumes targeted for Q3
- DC/EP initiative in China: Multiple design wins

FY 2020-2021

FY 2022-2024

FY 2025 and Beyond

Vetting Phase

Production Volume Ramp

Broad Market Use

- ✓ Technology Proof of Concept
- ✓ EMVCo ® Certification
- ✓ Institutions order cards for testing
- ✓ Introduction of IDEX TrustedBio™ solutions under \$5/card
- ✓ Initial production volume orders

- ✓ “Soft” or “Mass” Commercial launches
- ✓ Significant increase in unit volumes
- ✓ Biometric card market penetration of 5-10%
- ✓ Increased availability to global consumers

- ✓ Next-gen features
 - integrated display
 - card not-present solution
- ✓ Broad retail and Fintech adoption
- ✓ Market penetration > 10%
- ✓ Advance toward market saturation



⁽¹⁾ Eurosmart, 2000-2018

⁽²⁾ ABI Research, 2019-2022

Investment Highlights

Oslo Børs: **IDEX** Nasdaq: **IDBA**

-  **Massive addressable market for payment cards**
-  **Accelerating commercial momentum**
-  **Large-scale certification gives us advantage in rapidly changing markets**
-  **Opportunities in adjacent markets**
 - Digital currency, crypto-currency, cyber security, logical access control**

Thank You



IDEX