

Etron Technology, Inc. Since 1991

2023 Third Quarter Investor Conference

Nov 9 , 2023

Disclaimer

- The forward-looking statements contained in the presentation are subject to risks and uncertainties and actual results may differ materially from those expressed or implied in these forward-looking statements.
- Etron makes no representation or warranty as to the accuracy or completeness of these forward-looking statements and nor does Etron undertake any obligation to update any forward-looking statements, whether as a result of new information or future events.

Bussiness Overview

Etron Technology, Inc.



- Fabless IC Design House since 1991
- IPO in Taipei Exchange, 1998 (TPEX: 5351.TW)
- Patents : USA 224 ; Total 803 (As of October 2023)
- Number of Employees : 420 (As of October 2023)
- Headquarters: Taiwan Hsinchu Science Park
- Global Location :
 - USA : Santa Clara, CA
 - China : Shanghai, Shenzhen , HK
 - Asia : Japan Tokyo
- World-Class Fabless IC design Company with Creativity and Innovative Products
- Leader in Long-term Dedication to Application-Driven Buffer Memory
- Pioneer of Known-Good-Die Memory Combined with Heterogeneous Integration
- USB4.0 Type-C Switch Chip (20Gbps), Thunderbolt 3 (40Gbps) and Power Delivery (PD3.0 up to 100W) Controller
- World's Best Performance/Cost 3D Depth-Map Object-Capture Chip and Platform
- Global leading provider of differential privacy computing software and hardware solutions.

Etron

Group Companies Working with Customers in Multiple Applications



Intelligence^N

Brain: Memories/DRAM+AI **Etron** 鈺創科技
Etron Technology, Inc.

eYS3D Microelectronics 鈺電電子有限公司
MultipleVisions Computing



Smart Memory

3D Eyes/XR/Object Capture



Nerves: USB4.0; SERDES **eEver** 鈺群科技
eEver Technology, Inc.

Connectivity

Privacy

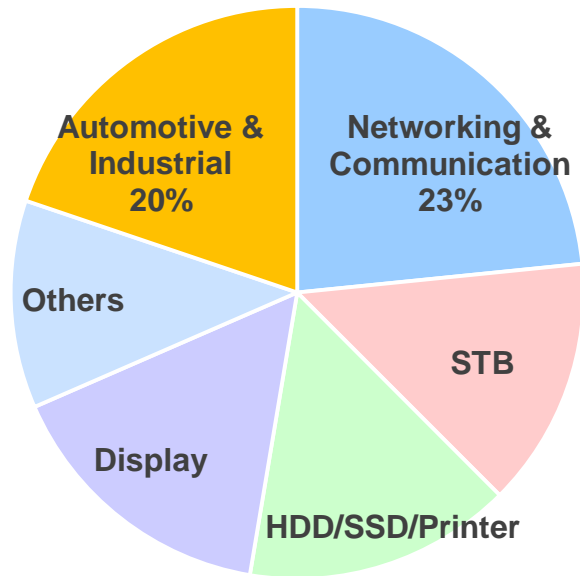
DCloak Differential Privacy Computing
帝爾智慧科技



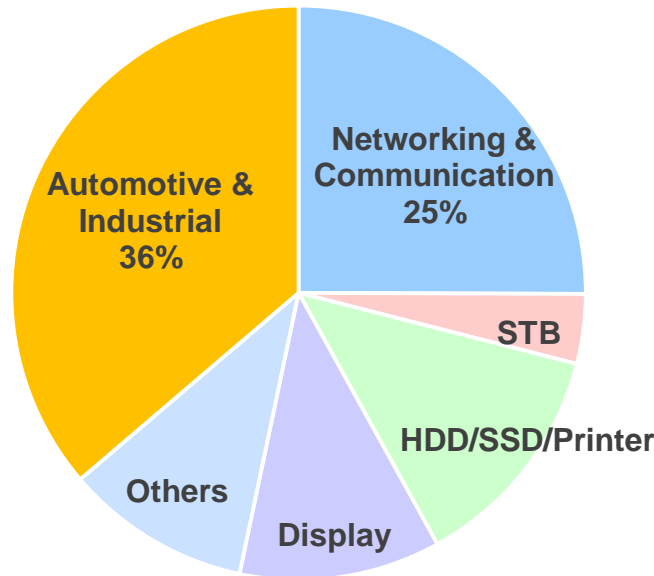
DRAM Revenue (By Applications)

- Continuously focusing on automotive/industrial and networking applications. As of 2023 Q3, these two major applications account for more than 50% of the company's total revenue

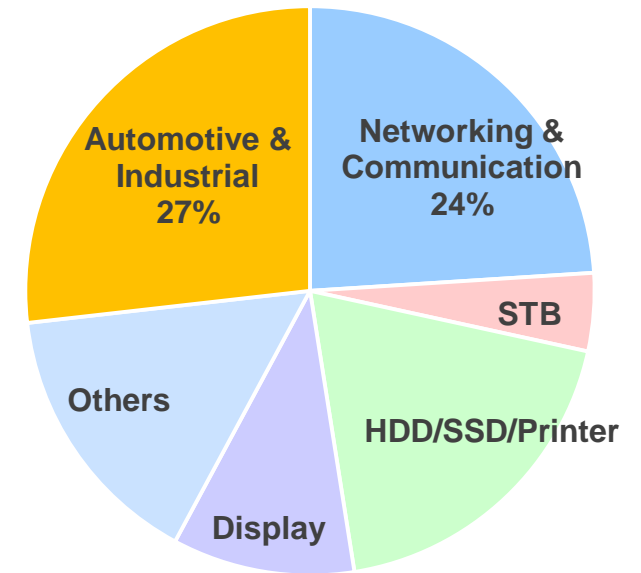
2021 Revenue



2022 Revenue



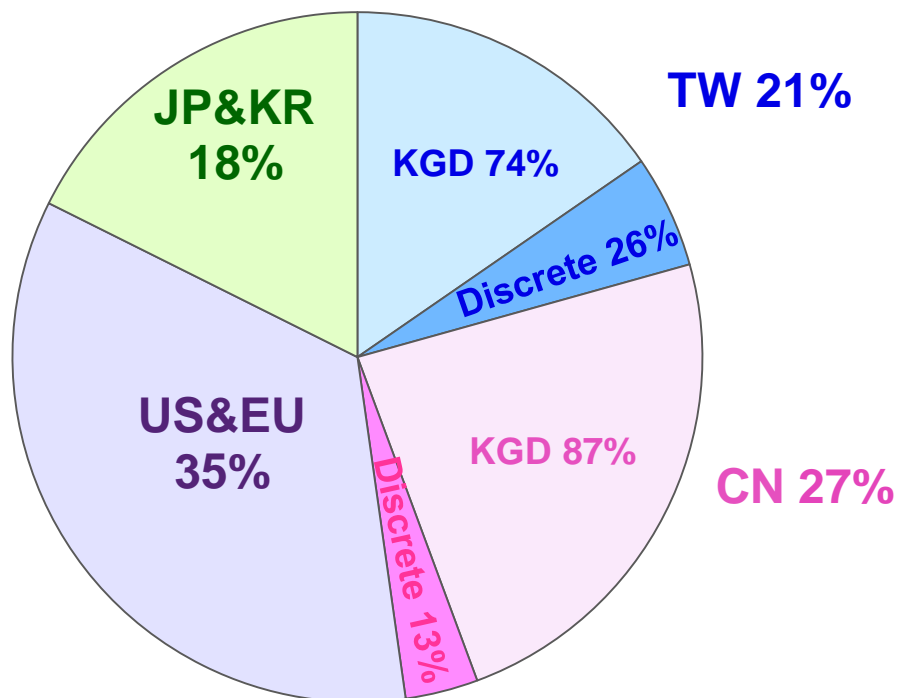
2023 Q1~Q3 Revenue



DRAM Revenue (By Regions)

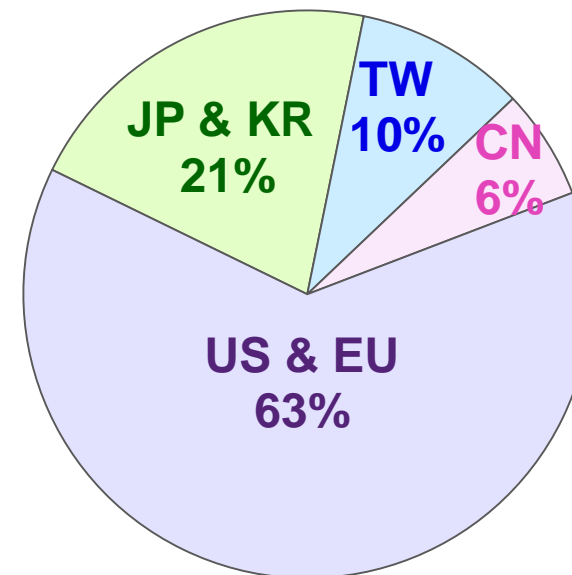
- Revenues >70% from US/EU/JP/KR/TW
- Discrete Business : Revenues > 80% from US/EU/JP/KR End Customers

2023 Q1~Q3 Revenue



> 72% from
US/EU + TW + JP/KR

2023 Q1~Q3 Revenue in Discrete

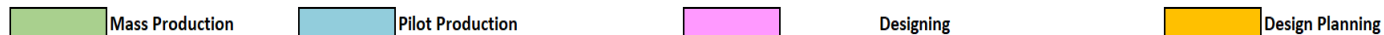


> 84% from
US/EU + JP/KR

Continuously Expanding Product Portfolio to Provide Customers with a Diverse and Enriched Selection

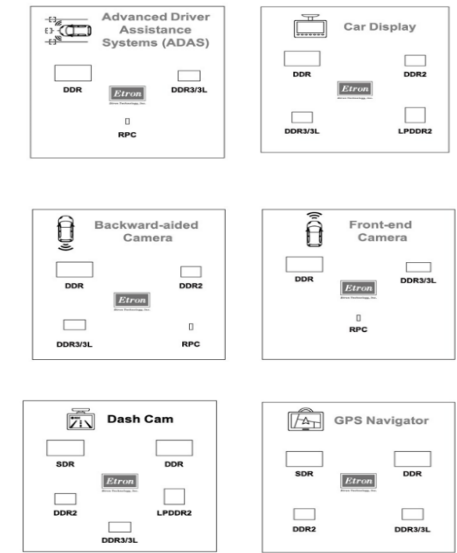
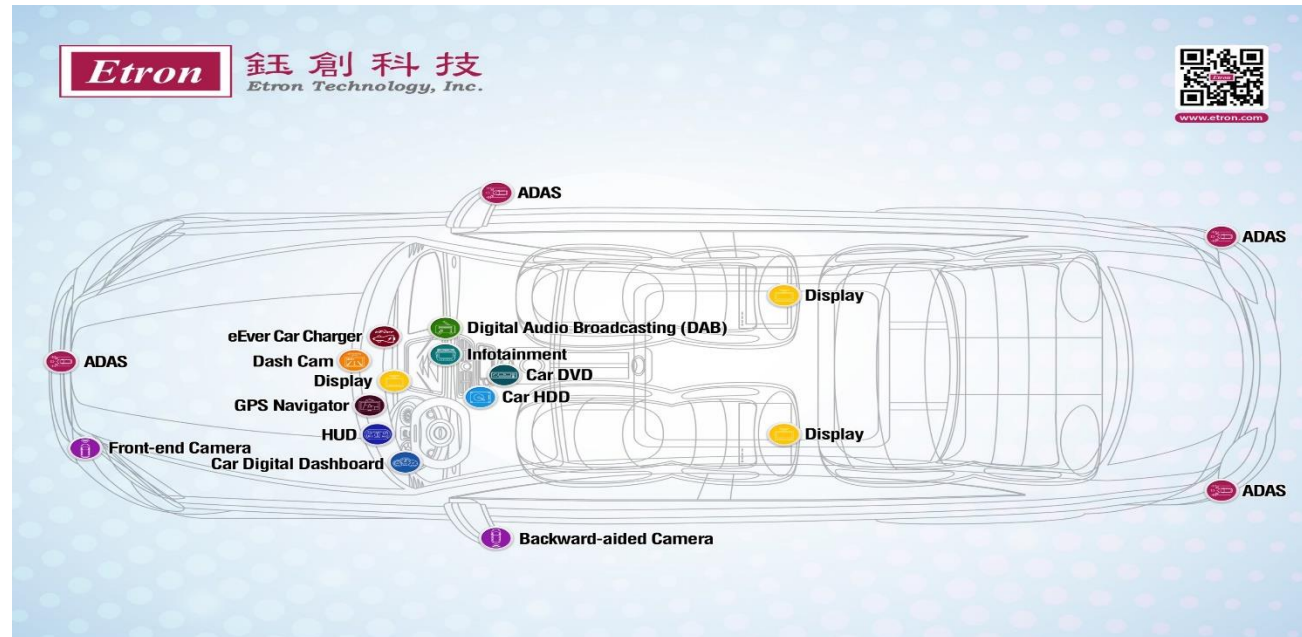
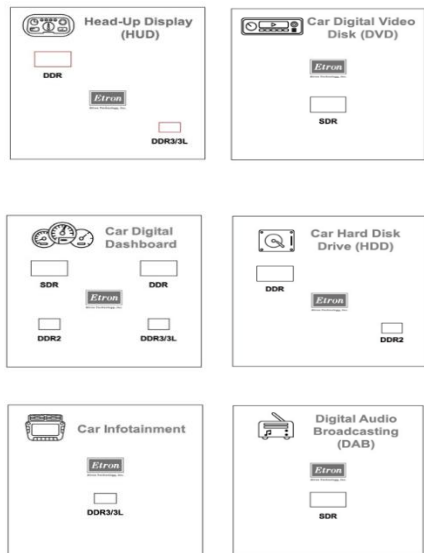
- Etron's complete line of specialty DRAM products includes SDR, DDR, DDR2, DDR3, DDR4, LPDDR2 and LPDDR4/4X, which provide densities ranging from 16Mb to 16Gb, and I/O numbers from 4 to 64 bits

	SDR		DDR			DDR2			DDR3				DDR4				LPDDR2	LPDDR4/LPDDR4x			RPC			SPI NAND	
	63nm	38nm	63nm	45nm	38nm	45nm	38nm	25nm	38nm	25nm	20nm	1xnm	25nm	20nm	1xnm	1anm	38nm	25nm	20nm	1xnm	38nm	25nm	20nm	1.8V	3.3V
16M	Mass Production		Mass Production																						
32M	Mass Production		Mass Production																						
64M	Mass Production	Mass Production	Mass Production		Mass Production																				
128M	Mass Production	Mass Production	Mass Production	Mass Production	Mass Production	Mass Production	Designing																		
256M	Mass Production	Mass Production	Mass Production	Mass Production	Mass Production	Mass Production	Mass Production	Mass Production	Mass Production	Mass Production							Mass Production				Mass Production				
512M		Mass Production		Mass Production	Mass Production	Mass Production	Mass Production	Mass Production	Mass Production	Mass Production												Design Planning			
1G				Mass Production			Mass Production		Mass Production	Mass Production												Design Planning			Mass Production
2G							Mass Production		Mass Production	Designing							Mass Production	Design Planning					Design Planning	Mass Production	Mass Production
4G									Mass Production	Designing	Design Planning	Mass Production	Designing	Mass Production			Mass Production	Design Planning	Design Planning				Design Planning	Mass Production	Mass Production
8G									Mass Production					Mass Production			Mass Production	Design Planning	Design Planning					Mass Production	Mass Production
16G															Mass Production				Design Planning						



Responding to the Rise of Electric and Autonomous Vehicles: Strategic Moves in the Automotive Sector

- SEMI projected the global automotive electronics market will surpass \$400 billion by 2028, at a CAGR of 7.9%. The automotive sector has become a key focus for major tech companies
- Etron's specialty DRAM products target various automotive applications, including Infotainment, Navigator, CD/DVD, HDD, DAB, HUD, Dash Cam, Display, Surrounding Camera, ADAS, etc.



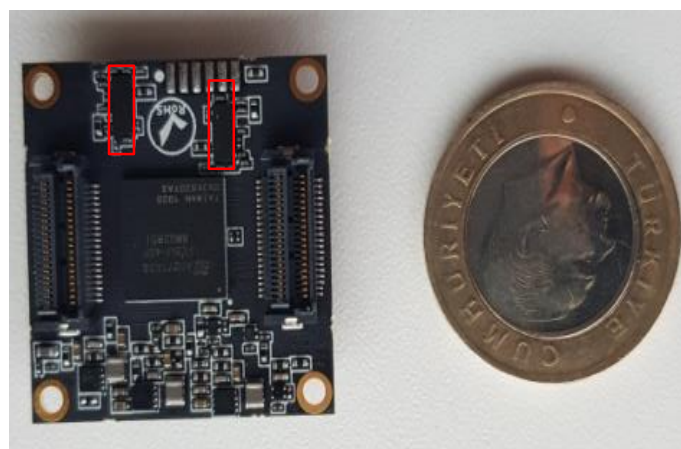
RPC DRAM[®] Has Successfully Entered the Supply Chain of Leading Global Automotive Manufacturers

- Etron's Innovative Low-Pin-Count DRAM
- The 1st WLCSP for Small Form Factor and Low Power Applications
- Provide Total Solution - Controller + DRAM
- Automotive Qual AEC-Q100 Level 2
- Applications Cover Automobile, FPGA, Camera, etc.
- Entered Leading Global Automotive Manufacturers' Supply Chain through Supporting Customer's IR Thermal Sensor

	X16 RPC DRAM	X16 DDR3
Switching Signals	24	47
Speed (MHz)	200-1066	800-1066
BW (GB/s)	0.8-4.27	3.2-4.27
Pad Layout	One-side pads (at short edge)	Central pads



Example 1:
Using Lattice FPGA



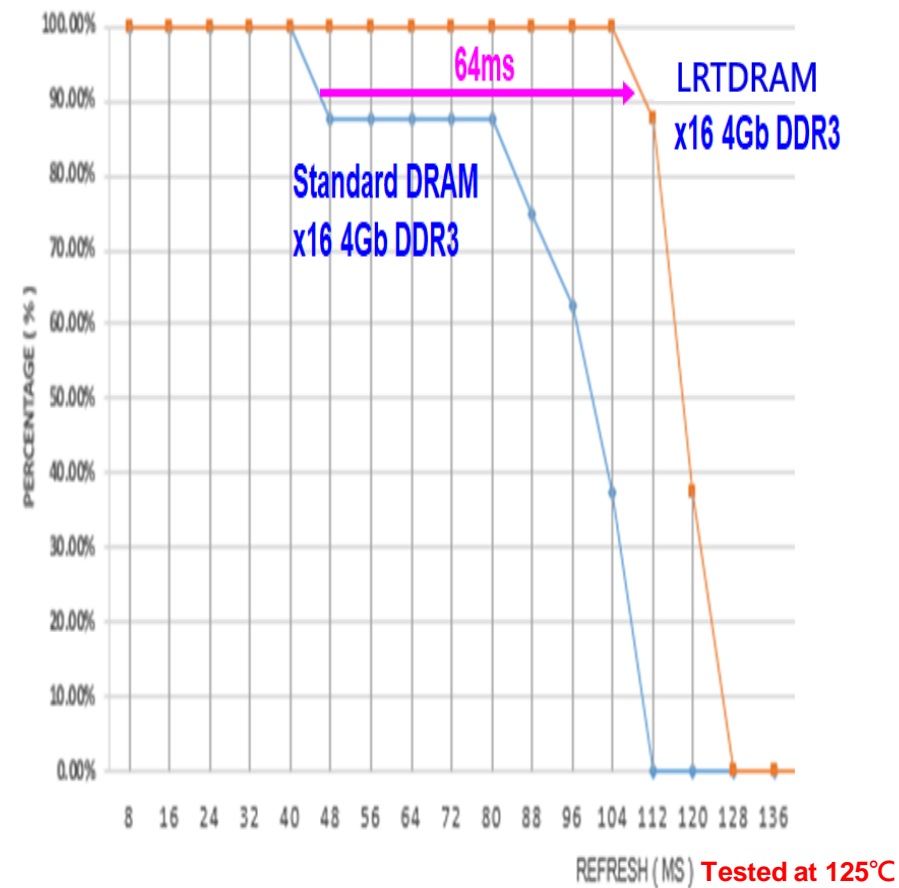
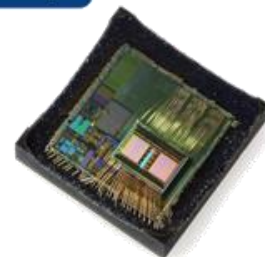
Example 2:
Thermal Camera Module for Car (3cm x 3cm)



Wafer Level Chip Size Package

LRTDRAM™ Has Completed Validation and Is in the Sampling Phase

- Etron’s Long Retention Time (LRT) Technology
- New JEDEC-Compatible DRAM with Very Long Data Retention Time (tREF), Spending Less Time Refreshing and More Time Reading & Writing Data
 - From the testing data, the tREF can be extended by additional 64ms in a high-temperature environment of 125°C, achieving 2.33 times the original duration
- Significant Performance Improvement at Higher Density & Temperature
- Target Market Includes the KGDM System/Hi and Automotive



Streaming Processor - EJ523D



- Integrated SCALER: Full Range Up & Down
- Support Audio Mixer; Resample: Full Range Up & Down
- Support H.265 10 bits HDR; PIP; OSD; MIRROR
- Support USB OUT NV12 4K/30F, 2K/120F; HEVC 4K/60F, 2K/240F ; H.264/.265; MJ



eEver
EJ523D
I2C/SIP/DDR3 Interface

USB 3.2

4K/30F or 2K/120F NV12,
4K/60F H.264/H.265 ; MJPEG

HDMI
Audio I2S
DisplayPort
Video RGB
MHL

Streaming Processor - EJ523D



- Live Stream market is expected to reach \$71.63 Billion in 2023 , CAGR 28.3%(2023-2027)

Gaming



Gaming



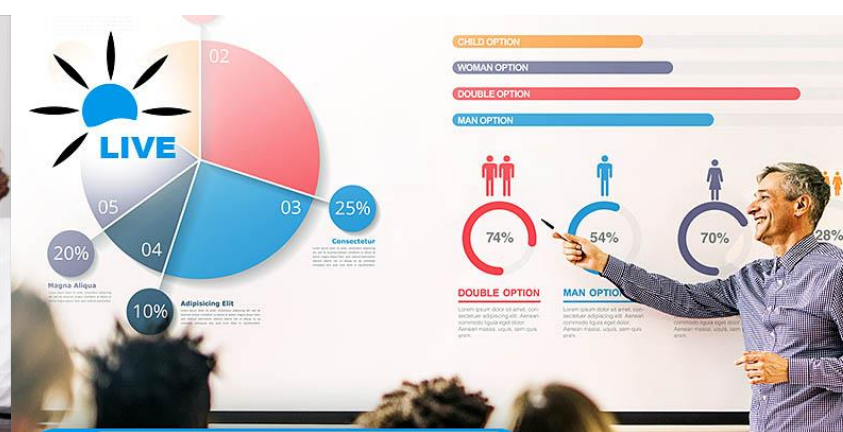
Gaming



Conference



Education



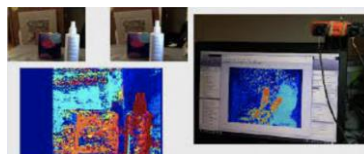
Promotion





From "Eye" to "Brain"

Work our way up from Vision to compute with AI through Silicon centric technology and Application specific Designs



Computer Vision is a combination of "Compute" and "Vision" Immitation of Human is Gateway to A.I.

Unique Vision Engine Leads to Machine Vision Opportunities



Creating Silicon Centric Solutions through the heterogeneous integration of special CV engines, sub-systems, and software.

- **Machine Vision platform – A.I. & 2D/3D Sensor Hybrid**

Integrating specialized visual engine chips with artificial intelligence chipsets to provide the most cost-effective comprehensive robotic solution. Offering chips, sub-systems, and integrated design solutions for service robots, vacuum cleaning robots, household robots, and outdoor working robots

- **ID/Authentication for access control and smart lock applications**

Make use of Stereo Vision to enable biometric technology (e.g. face ID) to identify and authenticate individuals for access control in enterprise, home, and public applications including panels, smart locks, and payment terminals



Industrial Solution



Service Robot



Factory AMR



Agriculture



Authentication



Home Robot



Commercial Bot

Pre-Processors, Application IC, Sub-systems



Now with AI

CV Engine

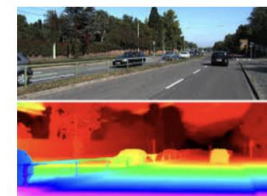
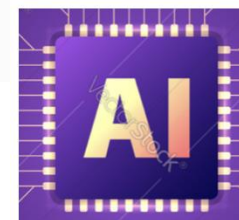
Algorithmic and Memory Define Design

Sub-Systems

Based on eYS3D Silicon for lower volume and Domain specific Business

Computing Co-Processor

ARM Powered Computation Accelerator Allows stackable and scalable computing



Intelligent Platform with Computer Vision & Sensing
A World Where Everything Moves and Sees

Computer Vision ICs
Comprehensive computer vision processing ICs. Including 3D stereo IC, dewarp IC, ISP controller ICs.

- 3D**
eSP876
- Dewarp**
eSP777
- ISP controller**
eSP270 / eSP570

eCV Platform

DeCloakFace

Easy to Add-on

Free consultation and assessment for application requirement. DeCloakFace is not subject to device condition settings and supports multiple platforms. Making it easy to add-on to existing devices and platforms.

Safe and Compliant

Through DeCloak's de-identified technology, identity verification can be done without personal data. No facial images will be stored on cloud or premise to avoid data theft.

Cloud/Edge Computing

Through cloud and edge computing, efficiency is greatly improved compared with the general traditional method. Any image data processed will be obfuscated while maintaining over 99% of identification accuracy.

**DeCloakFace
Solution
Application
Scenarios**



Digital Finance & Insurance

Through privacy protection of facial images, identity can still be accurately verified; making online banking transactions and online insurance signing smarter and safer.



Smart Medical and Health Care

Prevent personal information leakage through obfuscated facial image recognition and combining SOE cloud file searchable encryption engine for secure data retrieval to enable intelligent and privacy-protected medical and health care.



Smart Digital Access Control

Integrating access control system of the enterprise to accurately identify employees and non-employees through cameras under complete protection of facial image privacy.



Smart Digital Retail

By tagging and labelling target audiences with consumption behavior to activate marketing campaign efficiency through facial recognition.



Smart Attendance System

Accurately record working time through facial recognition system to eliminate identity-replaced card swiping. Extinguish loopholes in personnel management and further evolve overall attendance system.

DeCloak | Fields Entered

Smart Digital Access Control & Smart Digital Retail

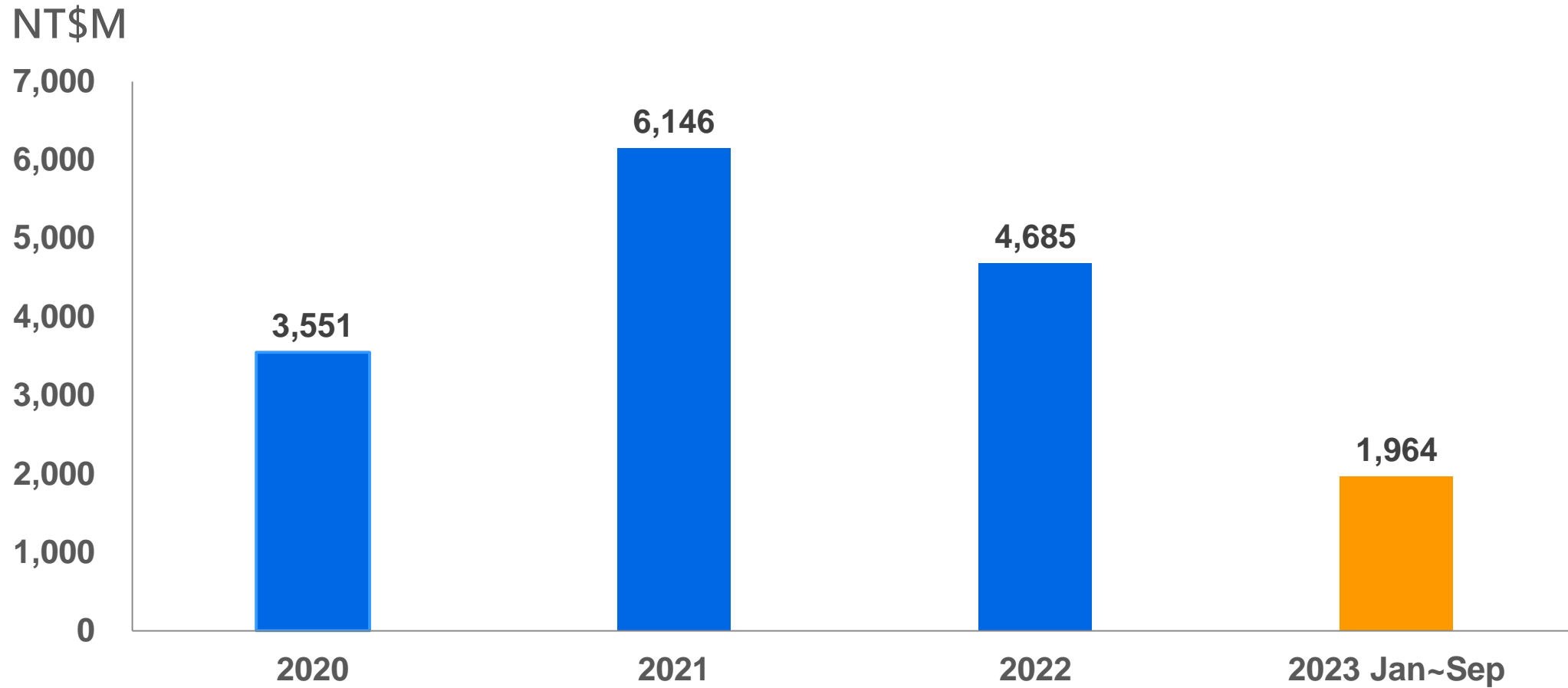
- DeCloak has successfully integrated surveillance systems for enterprises and retail shops, ensuring facial data privacy is fully protected while the targeted person can still be accurately identified through the lens
- DeCloak is currently cooperating with a subsidiary of Japan well-known chain Drug Store to co-develop next generation surveillance system. DeCloak infuses differential privacy and homomorphic encryption bundled with trustable multi-modal AI enhancing human privacy for surveillance system. Surveillance systems will be much more efficient, precise and secure

Smart Medical and Health Care

- To prevent personal information leakage through obfuscated facial image recognition, and paired with SOE cloud-based secure file retrieval system to ensure medical care is smarter and safer.
- DeCloak has completed MOU process with a domestic hospital and plans to begin system implementation in December 2023

Financial Summary

Consolidated Operating Revenue



Consolidated Statements of Comprehensive Income

Expressed in millions of New Taiwan dollars	3Q23'	2Q23'	3Q22'
Operating revenue	661	741	976
Gross profit from operations	(56)	(22)	236
Gross margin from operations	-9%	-3%	24%
Operating expenses	(286)	(301)	(272)
Operating profit	(326)	(307)	(19)
Non-operating income and expenses	25	147	3
Profit attributable to Owners of the parent company	(276)	(136)	2
Basic earnings per share(in dollar of NTD)	(0.96)	(0.47)	0.01
EBITDA	(231)	(88)	48

Consolidated Balance Sheet

Expressed in millions of New Taiwan dollars	Sep.30,23'		Dec.31 ,22'		Sep.30,22'	
	Amount	%	Amount	%	Amount	%
Cash and cash equivalents	620	9%	842	10%	933	11%
Accounts receivable	767	11%	878	11%	1,185	14%
Inventories	3,048	42%	3,583	44%	3,171	39%
Total current assets	4,574	63%	5,636	69%	5,600	68%
Total non-current assets	2,711	37%	2,588	31%	2,587	32%
Total assets	7,285	100%	8,224	100%	8,187	100%
Current liabilities	2,096	29%	2,314	28%	2,100	26%
Long-term liabilities	1,438	20%	1,628	20%	1,509	18%
Total liabilities	3,534	49%	3,942	48%	3,609	44%
Total equity	3,751	51%	4,282	52%	4,578	56%
Financial analysis highlights						
Liabilities ratio	49%		48%		44%	
Current ratio(times)	2.18		2.44		2.67	

Consolidated Statements of Cash Flows

Expressed in millions of New Taiwan dollars	3Q23'	2Q23'	1Q23'
Cash and cash equivalents at beginning of year	704	669	842
Cash flows from operating activities	49	144	(330)
Capital expenditure	(37)	(14)	(78)
Cash flows from financing activities and others	(96)	(95)	235
Cash and cash equivalents at end of year	620	704	669

DRAM Market Outlook

- The DRAM industry is known for its pronounced economic cycles, and the market has been in a correction phase since the beginning of this year
- With major manufacturers actively reducing production and inventory continuing to decrease, there is a market consensus that the worst period has passed
- According to data from several research institutions, it is estimated that the global DRAM market will experience a recovery in 2024

Global DRAM Sales (Million USD)	2021	YoY	2022	YoY	2023E	YoY	2024F	YoY	Source Date
WSTS	92,960	45%	77,769	-16%	46,024	-41%	72,558	58%	2023/6
TechInsights	96,060	42%	80,364	-16%	48,058	-40%	58,150	21%	2023/8
DRAMeXchange	94,915	42%	80,087	-16%	47,010	-41%	66,295	41%	2023/10
Gartner	93,040	41%	78,680	-15%	46,556	-41%	87,392	88%	2023/10

Source: MIC, Etron MRP, Sep. 2023

Etron Revenue Outlook

- **The DRAM market is expected to enter a new cycle as inventory reaches a healthier level**
 - After a prolonged period of market correction, the general consensus now is that the bottom has been reached, and a gradual recovery is on the horizon
 - Global DRAM market is expected to experience substantial revenue growth in 2024, as projected by research institutions
- **Etron will continue to focus on networking, automotive, and industrial applications to enhance the growth potential of our business and revenue**
 - Networking has been a long-standing field of expertise for Etron, with close supply chain partnerships established with major networking giants. It is anticipated that WiFi 7 will begin to gain momentum next year, driving opportunities for related supply chain businesses
 - Currently, automotive and industrial application accounts for nearly 30% of Etron's overall revenue. This sector remains one of the most promising applications in the market for the coming years, and is expected to sustain the growth of our related businesses
- **Etron is actively expanding our base of high-quality new customers**
 - EU and US markets place a higher value on quality service and stable supply, which is also a comparative advantage of Etron. In recent years, we've actively expanded in these regions, seeking more high-quality new customers and establishing long-term strategic partnerships

Q&A

Through Semiconductor IC,
We Connect People to



Realize the Dream!



www.etrone.com