

Sensortek Technology Corp.

昇佳電子股份有限公司

論壇簡報



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昇佳電子股份有限公司

免責聲明

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- Sensortek's actual results or developments may differ materially from those indicated by these forward-looking statements as a result of various factors and uncertainties, including but not limited to material cost increase, market demand, change in legal, financial and regulatory frameworks, government policies, financial market conditions, and other risks and factors beyond our control.
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議程

I. 公司簡介

II. 市場概況

III. 公司產品

IV. 經營實績

V. 未來發展

I. 公司簡介

關於我們

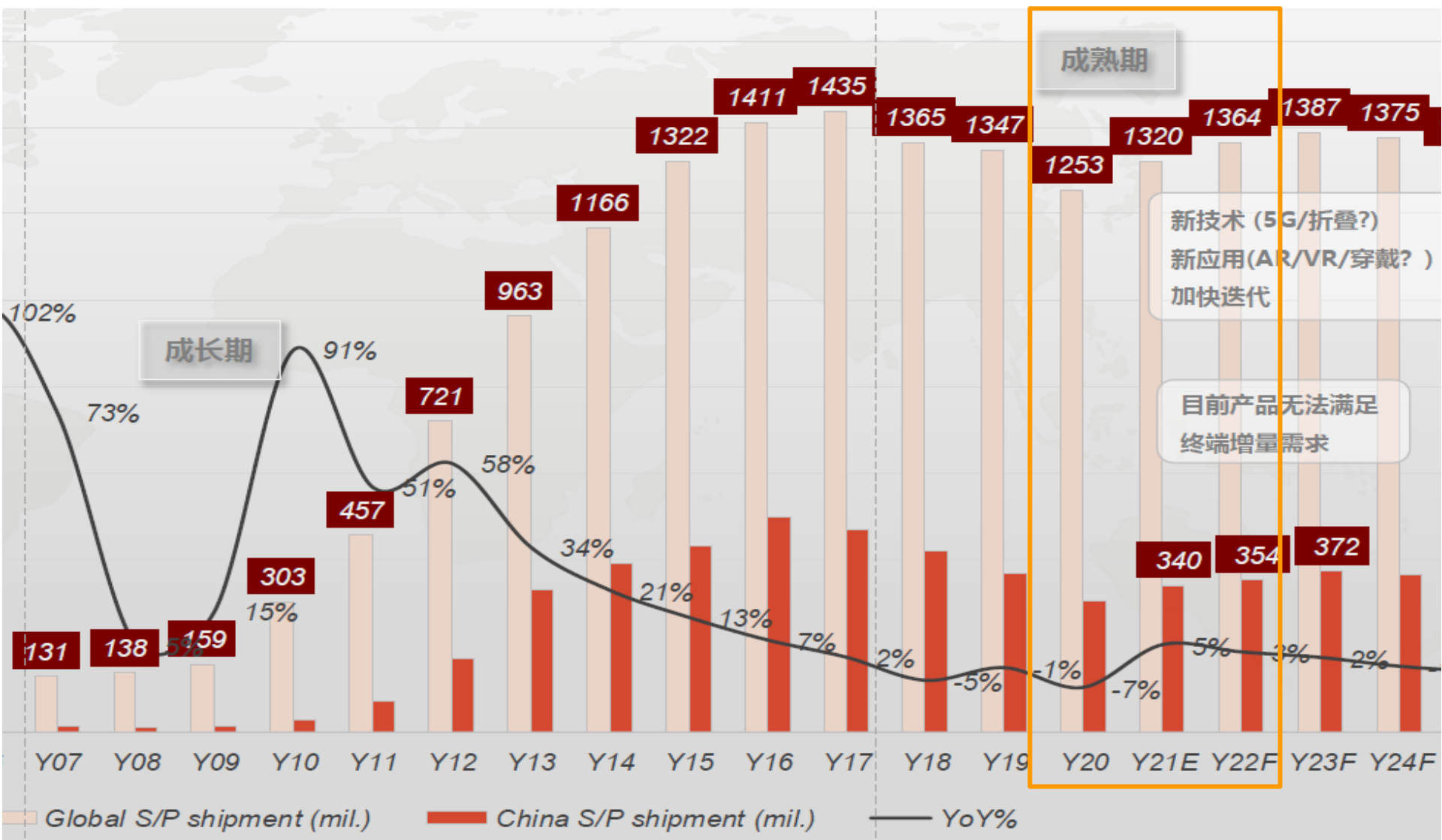
Company Name	Sensortek Technology Corp.	
Founded	December 1, 2009	
Capitalization	NT 489,126,180	
Chairman and CEO	Sheng-Su Lee	
Number of Employees	170	
Location	Tai Yuen Hi-Tech Industrial Park, Jhubei City, Hsinchu County	
Products	• 光學感測晶片 Optical Sensor - 近接感測晶片 Proximity Sensor (PS) - 環境光感測晶片 Ambient Light Sensor (ALS) - 色彩感測晶片 Color Temperature Sensor (RGB) - 閃頻偵測晶片 Flicker detection sensors • 微機電感測晶片 MEMS Sensor - 加速度感測晶片 Accelerometer Sensor (GS)	
Listing	Taipei Exchange Market (TPEX) 06/08/2020 (上櫃) Emerging Stock Market (TESM) 06/18/2019 (興櫃)	

里程碑

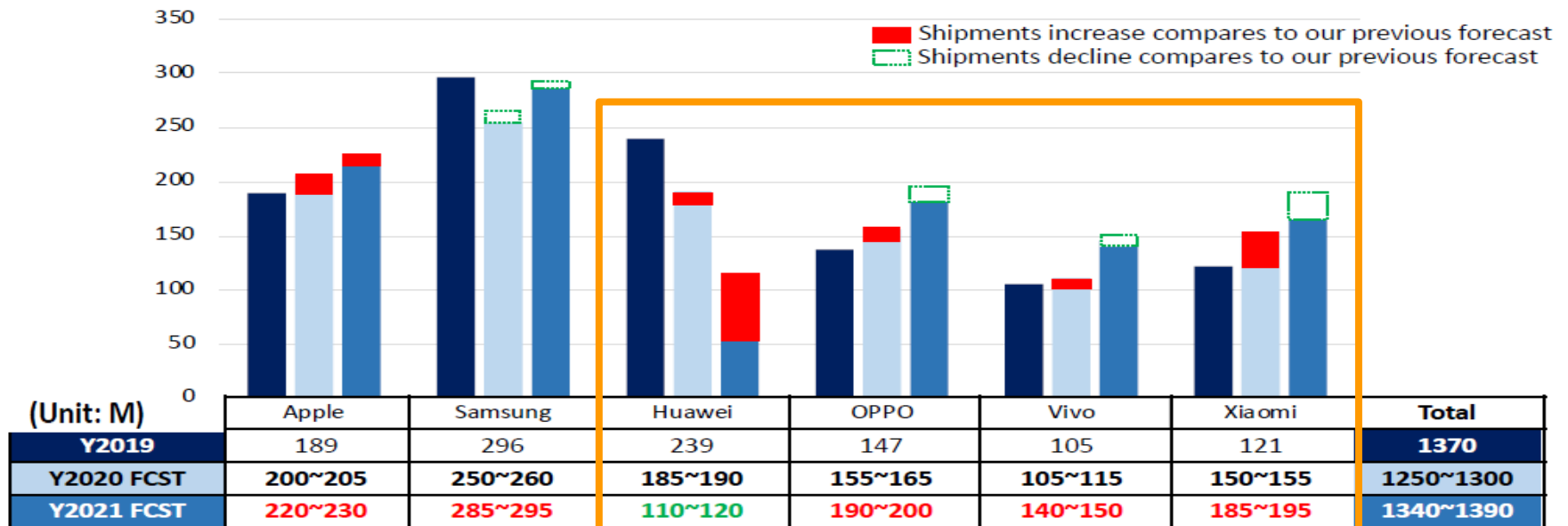
- 2009: Team established
- 2010: [Optical] Proximity (PS) & ambient light sensors (ALS)
- 2012: [MEMS] Accelerometers (g-sensors)
- 2013: Spinoff
- 2017: [Optical] Invisible PS+ALS solution
- 2018: [Optical] Under display & slit type PS+ALS solution
[MEMS] Low-power g-sensors
- 2019: [Optical] RGB sensors for smartphone screens
Listed at the Emerging Stock Market (TESM) 興櫃
- 2020: Listed at the Taipei Exchange Market (TPEX) 上櫃
[Optical] 3ch RGB + flicker sensors for smartphone cameras
- 2021: [Optical] high sensitivity PS+ALS (x10) for AMOLED screens
[Optical] Under display & slit type PS+RGB for screens

II. 市場概況

全球智慧型手機銷量預估

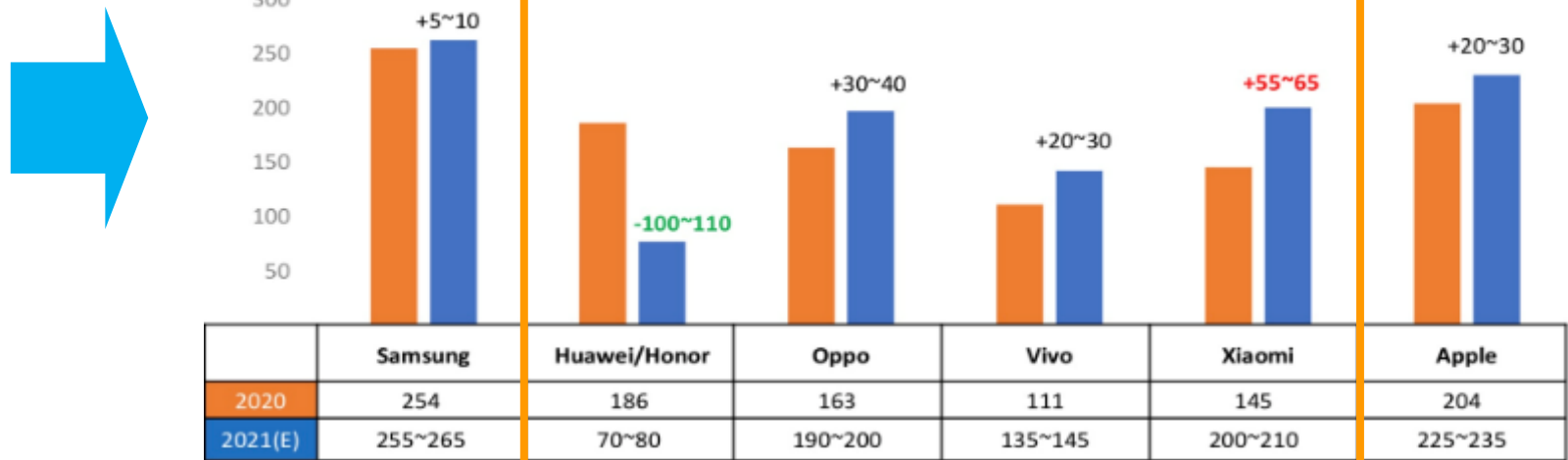


各品牌智慧型手機銷量預估



*Note: Our forecast of OPPO now includes shipments of Realme and OnePlus, Huawei includes New Honor

Figure: Worldwide Smartphone Shipment Forecast by Brand (Unit: M)



Source: Isaiah Research, August 2021

III. 公司產品

光學感測晶片 → 手機顯示屏應用

Optical sensor for displays :

Proximity Sensors (PS)

近接感測晶片 → 關屏防誤觸
turns off the display (anti-touch)

Ambient Light Sensors (ALS)

環境光感測晶片 → 調節螢幕亮度
... screen brightness control

G1: PS + ALS 2-in-1 visible solution (2010)

G2: PS + ALS 2-in-1 invisible solution (2018)

- Under-display 屏下方方案 for AMOLED displays
- Slit type 狹縫方案 for TFT displays

Color temperature Sensors (RGB)

色溫感測晶片 → 調節螢幕色溫
... screen color temperature control

G3: PS + RGB sensors (2019)

G4: PS + RGB sensors (2021)

- Slit type & under display
- for better reading experience



PS + ALS shipment

2018 : >340M pcs

2019 : >650M pcs

2020 : >720M pcs



Waterdrop Screen

狹縫(Slit) ALS/PS
狹縫(Slit) PS / 屏下 ALS
前攝旁 ALS/PS
(Aside of Front Facing Camera)



Bezel-less Screen

屏下(Under-display) ALS/PS
狹縫(Slit) PS / 屏下 Under-display ALS



近接感測晶片 + 環境光感測晶片 → 前螢幕應用

G1: PS + ALS visible solution 1x

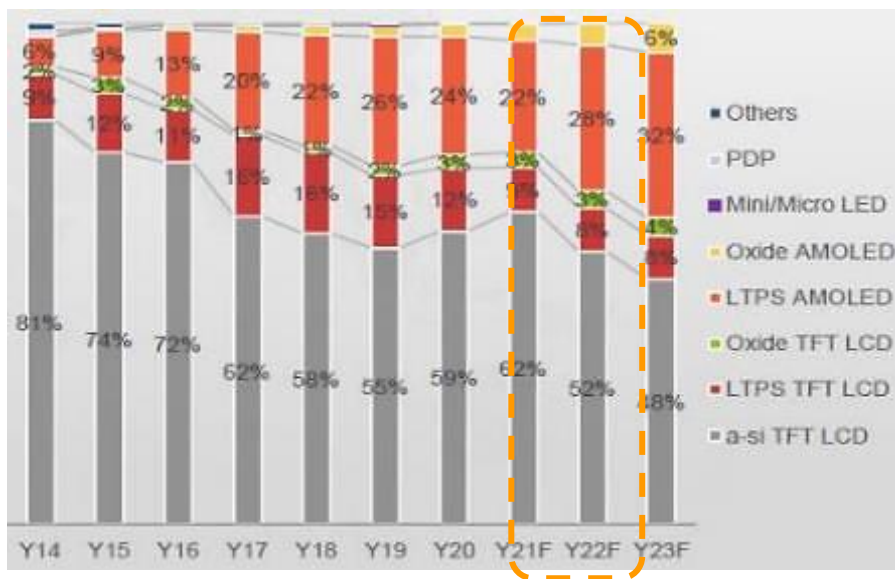
G2: PS + ALS invisible solution → 3x → 6x → 10x (2021 MP) (sensitivity)
- Under-display solution for AMOLED display

G3: PS + RGB visible solution (2019) 1x

G4: PS + RGB invisible solution (2021) > 3x (MP)

Sensitivity & feature Upgrades → ASP Boosts

感度及功能提升 → 平均價格提升



Upgrading because of increases in...

1. Display resolution
2. PPI density
(resulting in a decrease in light transmittance)
3. AMOLED penetration rate

光學感測晶片 → 手機後相機應用

Optical sensor for Cameras :

3ch RGB sensor

色溫感測晶片 → 協助後相機白平衡校正
white balance correction (2021)

Flicker detection sensors

閃頻偵測晶片 → 協助消除光源物理閃爍
Flicker detection (2021)

3ch RGB sensor :

Camera RGB sensors are used for white balance correction. Different light sources come with different color temperatures, which can create unrealistic color casts in photos. White balance is the process of removing such color casts so that objects that appear white in person are rendered white in the photo. The white balance is automatically corrected and adjusted based on the color temperatures measured by the RGB color temperature sensor and the image sensor. 環境中充斥著各種不同的光線，這些光線有著不同的色溫，因此手機數位相機在進行拍照時，需要對這些光線進行校正，才能呈現出正常的白色。依據 RGB 色溫感測器、影像感測器所測量的色溫來自動校正調整白平衡。

3ch RGB + flicker shipment

2020 : 0

2021 : Stay Tuned



1. White balance (auto) with flash
2. White balance (auto) without flash
3. White balance (fluorescent lamp) without flash
4. White balance (warm lighting) without flash
5. White balance (cold lighting) without flash
6. White balance (daylight) without flash



Flicker detection sensors :

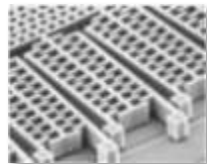
Detects the 50 Hz or 60 Hz flickers produced by incandescent or fluorescent lights. Helps eliminate the streaks and distortion effects caused by the flickering. 用於檢測環境中由白熾燈或螢光燈所產生的 50Hz 或 60Hz 光源物理閃爍。協助手機攝像頭之圖像系統能夠消除人造光源的閃爍而出現的條紋和失真效果。

微機電MEMS感測晶片

Accelerometers (G-sensors)

Rotation detection

加速度感測器 → 屏幕旋轉偵測



✓ G-sensors for smartphones

✓ Low power g-sensors for wearable & IoT devices



屏幕旋轉
Screen rotation



遊戲
Game control



自動靜音
Automatic mute

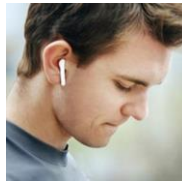


光學感測晶片 + 微機電感測晶片 穿戴裝置與非手機領域應用

True wireless stereo (TWS) earbuds

Accelerometers → click detection 敲擊偵測

Proximity sensors → on/off switch 功能啟用開關



FreeBuds 3

敲擊偵測 Click detection

- 有來電時 Incoming call
單擊接聽 Click to answer
雙擊拒接 Double click to reject
- 音樂播放 Music mode
單擊暫停 Click to pause
雙擊換曲 Double click to switch

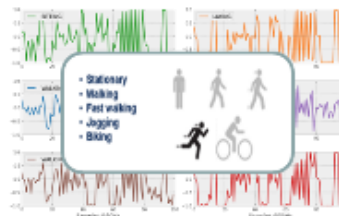
Smart watches & fitness trackers

Accelerometers → motion detection 移動偵測

Optical sensors → heartbeat detection 心律偵測 & UV sensors 紫外線感測



運動偵測 / 計步 Motion detection



抬手亮屏 / 動態心率輔助 Heartbeat detection

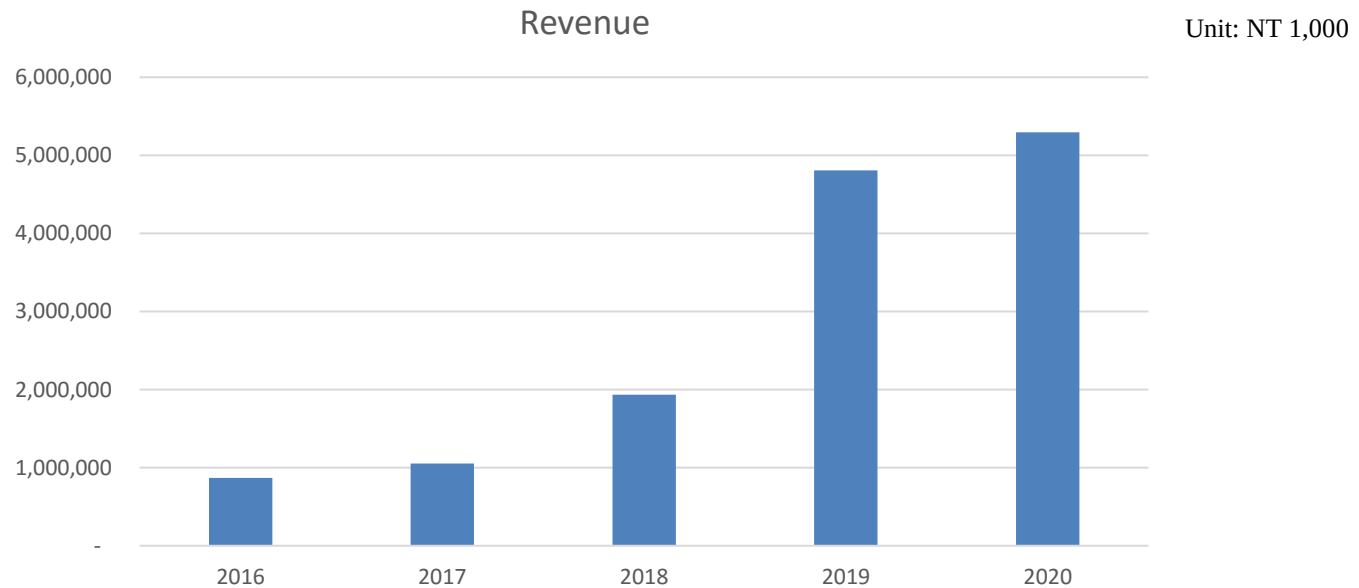


睡眠偵測 / 久坐提醒 Sleep quality monitoring



IV. 經營實績

經營實績



Item	2016	2017	2018	2019	2020
Revenue	869,687	1,053,451	1,935,513	4,806,152	5,296,054
Gross margin	137,375	158,184	649,442	2,018,872	2,127,828
Margin %	15.80%	15.02%	33.55%	42.00%	40.18%
Operating income	4,931	8,751	366,646	1,497,236	1,537,189
Net income	5,169	5,309	326,275	1,322,900	1,365,454
EPS (NT\$)	0.14	0.14	8.64	35.01	28.81

Note: The EPS values listed here are based on the capital of 37,781 thousand shares.

損益表

Item	Q3 21		Q1~Q3 21		Q1 21		Q2 21		Q3 20		Q1~Q4 20	
	Results	% of sales	Results	% of sales	Results	% of sales	Results	% of sales	Results	% of sales	Results	% of sales
Net Sales	1,925,603	-	4,692,621	-	1,268,541	-	1,498,477	-	1,500,516	-	5,296,054	-
Gross Profit	921,187	48%	2,158,404	46%	512,956	40%	724,261	48%	626,215	42%	2,127,828	40%
Operating Expense	241,225	13%	608,378	13%	167,906	13%	199,247	13%	175,320	12%	590,639	11%
Operating Income	680,546	35%	1,550,619	33%	345,055	27%	525,018	35%	450,895	30%	1,537,189	29%
Income before Tax	702,069	36%	1,589,236	34%	350,677	27%	536,490	36%	451,245	30%	1,550,117	29%
Net Income*	589,738	30%	1,336,223	29%	295,568	23%	450,917	30%	397,497	26%	1,365,454	26%
EPS	12.06	-	27.32	-	6.04	-	9.22	-	8.13	-	28.81	-

Unit: NT\$ thousands (except EPS)
Accounting standard: IFRS

* Listed on the English translation of our financial statements as
"Profit (loss), attributable to owners of parent"

資產負債表

Item	2021/9/30	2021/6/30	2021/3/31	2020/12/31	2020/9/30
Total Assets	6,973,430	7,034,889	6,546,874	6,213,228	5,665,950
Current Assets	5,628,478	5,738,903	5,288,197	5,718,727	5,500,709
Cash & Equivalents	2,338,478	3,402,027	2,215,010	3,086,052	1,743,561
AR	814,803	489,591	450,143	452,893	489,647
Inventory	413,657	425,377	305,180	320,395	382,448
Total Liability	2,168,520	2,793,386	2,780,120	1,665,215	1,459,386
AP	914,921	802,201	688,059	759,395	616,844
Shareholder Eqt.	4,804,910	4,241,503	3,766,754	4,548,013	4,206,564

Unit: NT\$ thousands
Accounting standard: IFRS

V. 未來發展

2021: 三種感測晶片投入手機應用

Flagship
旗艦機

Addressable Market
300-400M/year

Opticals for Displays
Under display
PS+ALS (VCSEL)
Visible
PS+RGB (VCSEL)

Opticals for Cameras
RGB + flicker sensors

High end
高階機

Addressable Market
300-400M/year

Opticals for Displays
Slit type
PS+ALS (IR LED / VCSEL)
Under display
PS+ALS (VCSEL)

Opticals for Cameras
RGB + flicker sensors

Mid range
中階機

Addressable Market
400-500M/year

Opticals for Displays
Slit type
PS+ALS (IR LED)

Opticals for Cameras
Flicker sensors

Low end
低階機

Addressable Market
400-500M/year

Opticals for Displays
Slit type
ALS only

MEMS
Accelerometers

展望2022

Flagship 旗艦機

Addressable Market
300-400M/year

Opticals for Displays
Under display
PS+ALS (VCSEL)
Visible
PS+RGB (VCSEL)

Opticals for Cameras
RGB + flicker sensors

High end 高階機

Addressable Market
300-400M/year

Opticals for Displays
Slit type
PS+ALS (IR LED / VCSEL)
Under display
PS+ALS (VCSEL)

Opticals for Cameras
RGB + flicker sensors

MEMS
Accelerometers
+ Gyroscopes

Mid range 中階機

Addressable Market
400-500M/year

Opticals for Displays
Slit type
PS+ALS (IR LED)

Opticals for Cameras
Flicker sensors

MEMS
Accelerometers
+ Gyroscopes

Low end 低階機

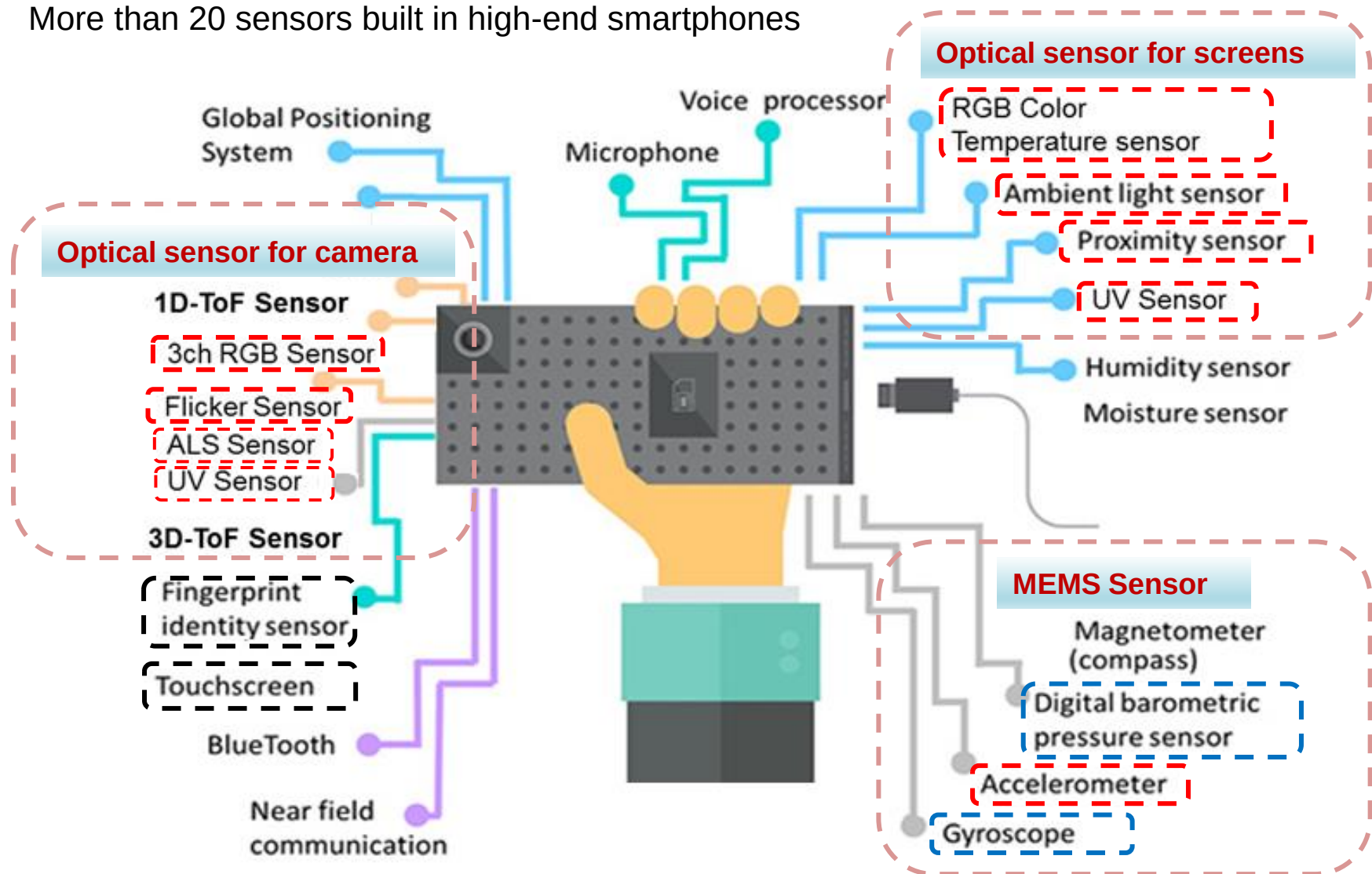
Addressable Market
400-500M/year

Opticals for Displays
Slit type
ALS only

MEMS
Accelerometers

敬請期待

More than 20 sensors built in high-end smartphones



成長動能

1. Optical sensor for smartphone screens (前螢幕應用) :
 - High sensitivity PS+ALS (x6, x10) → AMOLED penetration trend boost ASP
 - PS+RGB (with ALS) → color temperature sensor in more high-end smartphone
2. Optical sensor for smartphone rear Cameras (後相機應用) :
 - RGB sensors → white balance correction in more high-end smartphone
 - flicker sensors → flicker detection sensor in more high-end smartphone
3. MEMS sensors in smartphone (加速 MEMS sensor 在智慧手機應用) :
 - G sensors → enlarge entry-level smartphone market (擴大產能)
 - Gyroscope sensors (under development)
 - speed up to entry of mid-to-high-end smartphones
4. Extend to other applications (拓展其他非手機應用) :
 - TWS: proximity sensors & accelerometers
 - Smart watches: ambient light + UV, heartbeat sensor, accelerometers sensor
 - Smart speakers: ambient light sensors
 - AR & VR glasses : proximity sensors & Gyroscopes
 - ...and more (e.g. auto & industrial)



謝謝

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