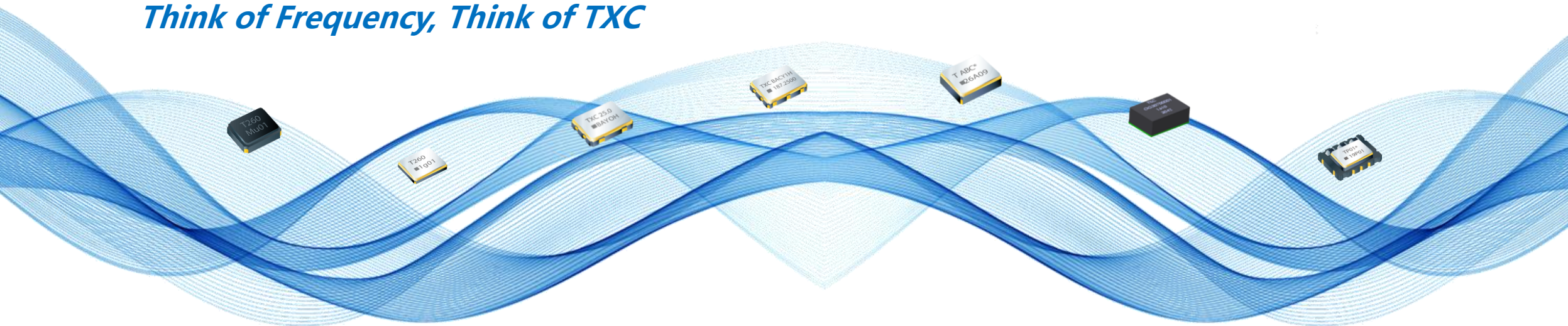


TXC

Making Every Connection Better

Precise Clock for Seamless Synchronization & Ultimate Data Transmission

Think of Frequency, Think of TXC



Market Leader with Sustainability



40 Years in Timing Industry, Founded in 1983 & Headquarters in Taiwan



Listed in Taiwan Stock Exchange, Since 2000



Ranked No. 1 in Worldwide Timing Market, QYR 2023, Jul



Ranked No. 1 in Worldwide MHz Crystal Market, QYR 2023, Jul & TXC Shipment



Preferred Supplier for Tier 1 in Network Infrastructure Market, 2008 ~ Present



Global Ranking No. 3 in Automotive Market, 54% YoY, 2022, QYR 2023, Jul



Timing Industry Leader in Product Miniaturization, 2012 ~ Present



Smallest and Innovative Devices Integration by Ceramic Packaging, Since 2013

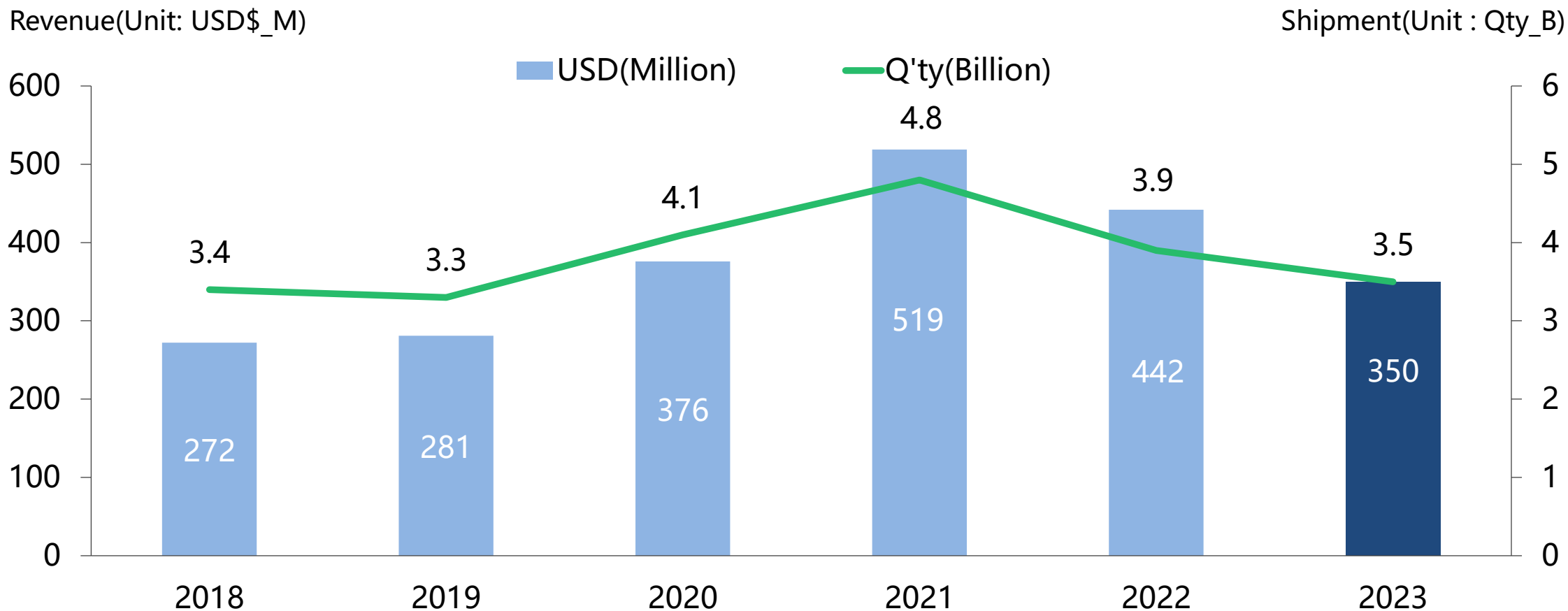
Worldwide Timing Market Overview

Rank		Vendors	Revenue (Million_USD)			Market Share (%)	
2021	2022	Company Name	2021	2022	YoY%	2021	2022
1	1	TXC	\$519	\$442	-14.8%	11.7%	11.1%
2	2	Epson	\$425	\$379	-10.7%	9.6%	9.5%
3	3	NDK	\$366	\$352	-3.9%	8.3%	8.8%
4	4	KCD(Kyocera)	\$359	\$311	-13.4%	8.1%	7.8%
7	5	Sitime	\$218	\$283	29.6%	4.9%	7.1%
5	6	KDS	\$338	\$268	-20.6%	7.6%	6.7%
6	7	Microchip	\$222	\$226	2.1%	5.0%	5.7%
8	8	TKD	\$176	\$128	-26.8%	4.0%	3.2%
11	9	Rakon	\$121	\$114	-5.9%	2.8%	2.9%
13	10	Hosonic	\$113	\$110	-2.2%	2.6%	2.8%
Other Companies			\$1,565	\$1,375	-12.1%	35.4%	34.5%
Total Revenue			\$4,422	\$3,988	-9.8%	100.00%	100.00%

Source: QYR Research Jul. 2023

Revenue Growth By Years

Organic & Sustainable Business Expansion



Timing Devices is Essential Key to All Electronics



Quartz offers the most Clear & Low Noise Clock to make every Connections Better

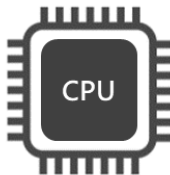
Clock Reference/Generation

Radio Frequency



5G NR
GPS
Wi-Fi 6/BT
NFC
UWB

Electronic Devices



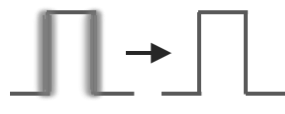
Interface
GPU/MCU
PMIC
DRAM
USB

Clock Synchronization/Attenuation

Network Infrastructure & Enterprise Devices



SyncE & IEEE 1588



Access Network
Front/Mid/Backhaul
Core Network
IDC
Optical Module



Crystal

Seam Seal



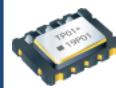
Glass Seal



Tuning Fork



Temperature Sensor Crystal (TSX)



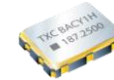
Oscillator

Crystal Oscillators (XO)

CMOS



Differential



Programmable



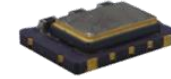
Voltage Controlled Oscillators (VCXO)



Temperature Compensated Oscillators (TCXO)



Temperature Compensated Oscillators (S3TCXO)



Oven Controlled Oscillators (OCXO)



Global Presence

- ◆ R&D
- ◆ Manufacture Plant
- ◆ Sales Operation
- ★ Lab Service

3

R&D Centers

15

Sales Office

4+1

Plants

Great Asia

- ★ Taiwan ◆◆◆
- Shin Yokohama ◆
- ★ Osaka ◆◆
- Korea ◆◆

China

- ★ Ningbo ◆◆◆◆
- Chongqing ◆◆◆◆
- ★ Shenzhen ◆◆◆◆
- Wuhan ◆◆◆◆
- ★ Shanghai ◆◆◆◆
- Suzhou ◆◆◆◆
- Beijing ◆◆◆◆

North America

- ★ San Jose ◆◆
- Brea ◆◆
- Toronto ◆◆

Europe

Frankfurt

3,500 Employee

Manufacture Facilities

1991

✓ Automotive IATF 16949



Taiwan, Ping Cheng (PCF)

• MHz Crystal

• TSX

• XO

• TCXO

• VCXO

• OCXO

1999

✓ Automotive IATF 16949



China, Ningbo (NGB)

• kHz/MHz Crystal

• TSX

• XO

• TCXO

2013



China, Chongqing (CKG)

• MHz Crystal

• TSX

2021

✓ Automotive IATF 16949



China, Ningbo (TETC)

• kHz/MHz Crystal

• XO

2024 Under Construction

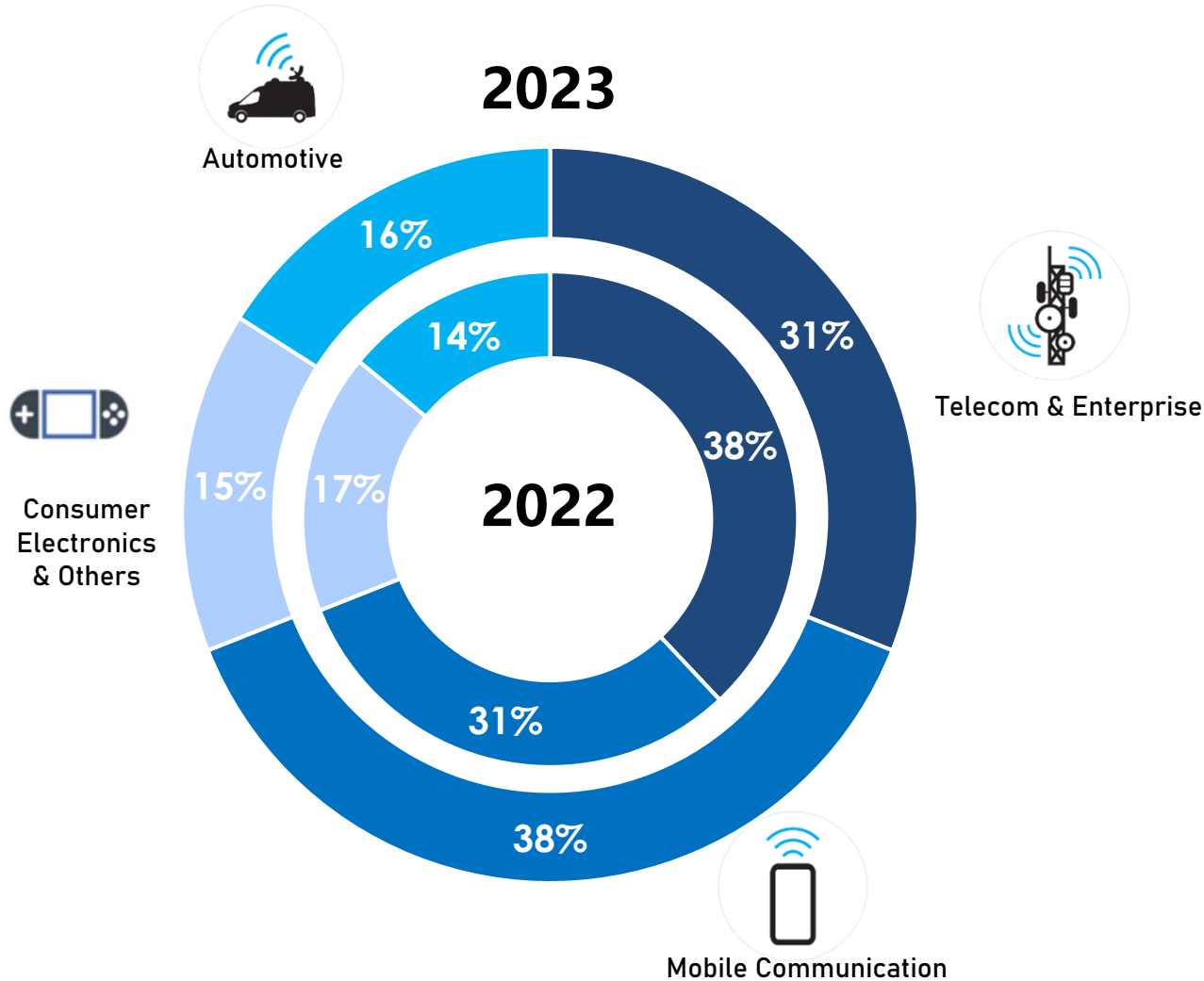


Indonesia, Surabaya (SUB)

- 4+1 manufacturing facilities
- 200+ automated production lines
- 430M+ monthly capacity(Timing Devices)
- 3 R&D centers (PCF, NGB & CKG)
- 400+ engineers

Revenue Growth By Segments

Diversified Market & Customer Matrix



Key Diversified Growth Drivers

5G Mobile Devices

Miniature Product , High Frequency Products

5G Telecom & Infrastructure

Precise & Ultra Low Phase Noise Oscillators

High Speed Datacom

Ultra High Frequency & Ultra Low Phase Jitter Oscillators

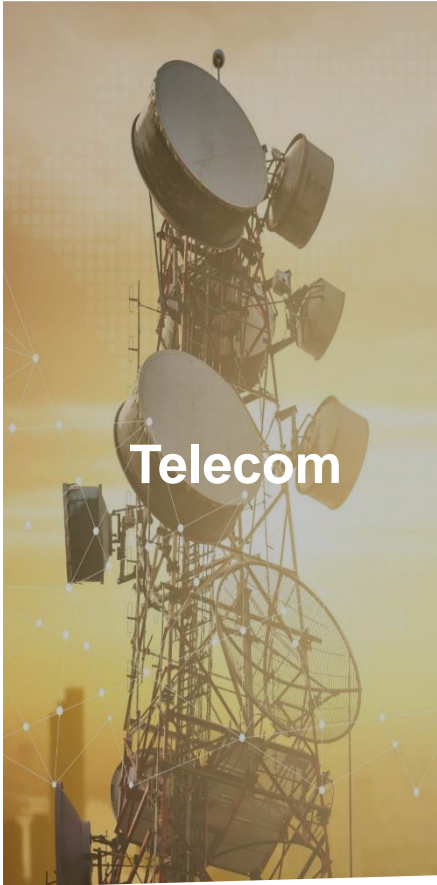
Vehicle Electrifications

Mass Adoption on Crystal & Oscillator for Autonomous Driving

Our Focuses

Provide the Cleanest & Most Stable Clock source to every hearts of Electronics

Precise Stability & Ultra Low Phase Noise & Jitter



Telecom

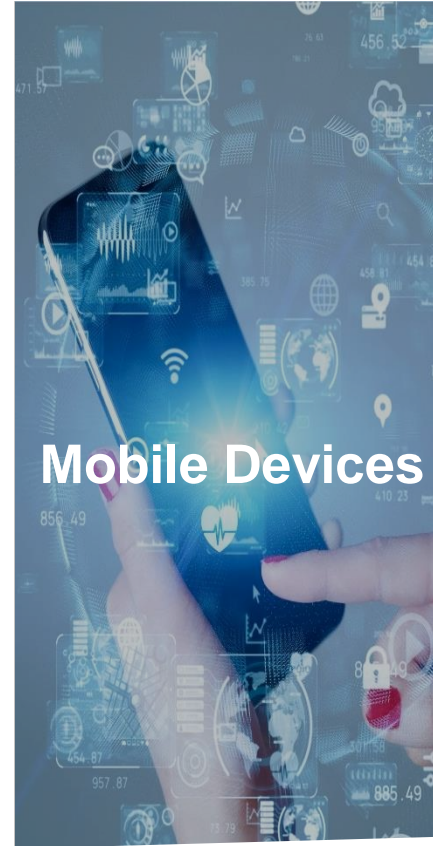


Datacom

High Frequency, Ultra Stability & Miniature

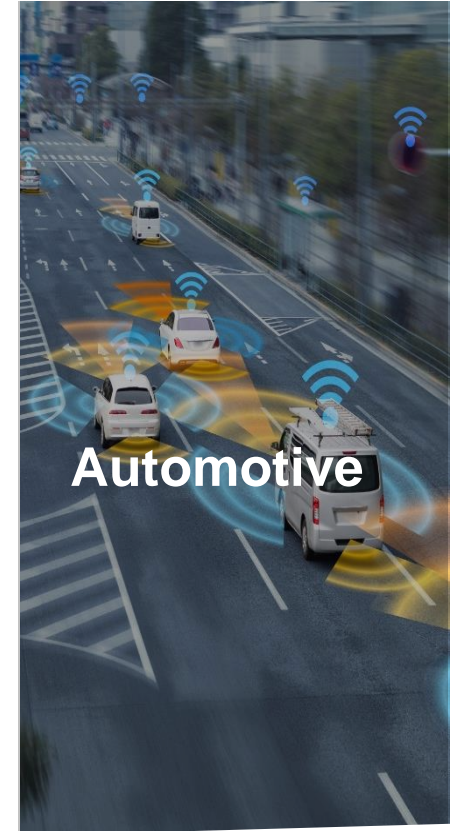


Connectivity



Mobile Devices

High Reliability & Quality

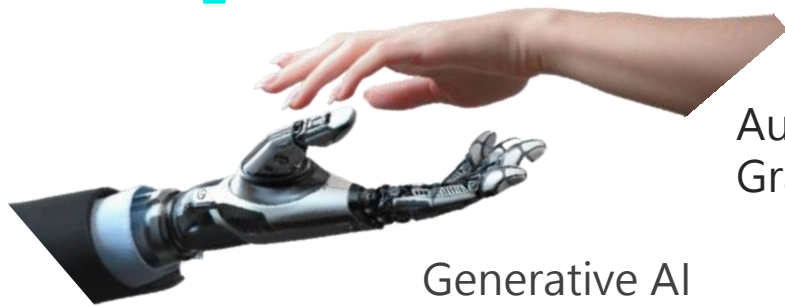


Automotive

Advanced Crystal & Oscillator Growth Target in AI Ecosystem

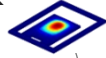
Features Requirement of HPC/High Speed Transmission/Meta-mobility

**Connecting
People**



XTAL/XO

Photo Blank
Technology



Ultra
Miniature



Automotive
Grade



Generative AI

Advanced
Performance



Ultra High Frequency/Stability
Ultra Low Phase Noise/Jitter

Automotive



5G Infrastructure

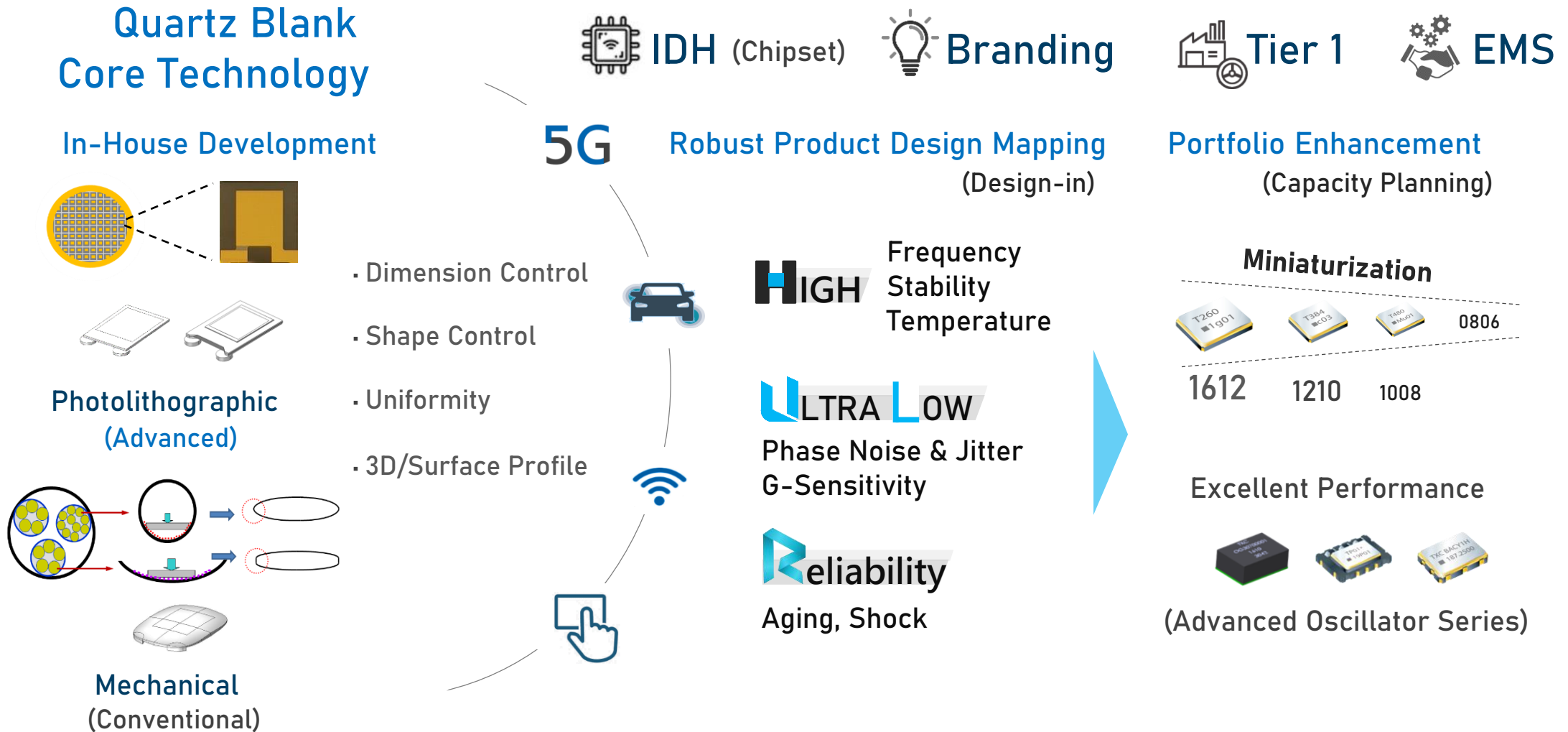


Mobile Communication

AloT Industry

Our Core Competitiveness

Improvement and Enhancement of Technology



Increase Data Traffic is folding Business growth

Data Transmission Upgrade for Advanced Oscillators Deployment

ThermSym Hercules Chronos Eros

OCXO
 Industry-wide Smallest(5x3 mm) ppt Level
 -40 to 105°C OT

Infrastructure
 +20%
 RU/DU/CU/Core/RAN

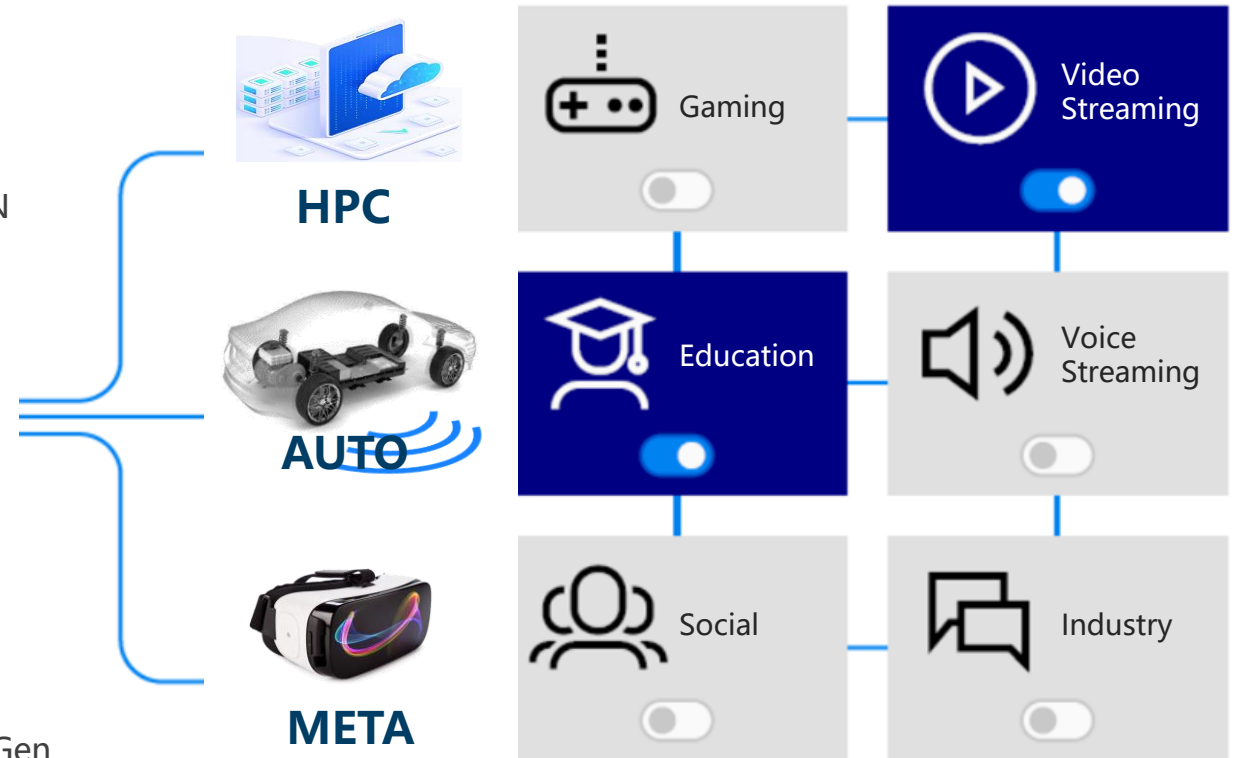
Data Computing
 +25%
 Server/Switch/IDC/Edge

S3-TCXO
 -40 to 105°C OT
 Standard PKG 7050/5032

CMOS/Diff XO
 Portfolio Optimization
 Ultra Low PN & PJ

Optical/Smart NIC
 +26%
 100/200/400G/Next Gen

Mobile Network Traffic Growing **3 – 5 times** in the Next 5 Years



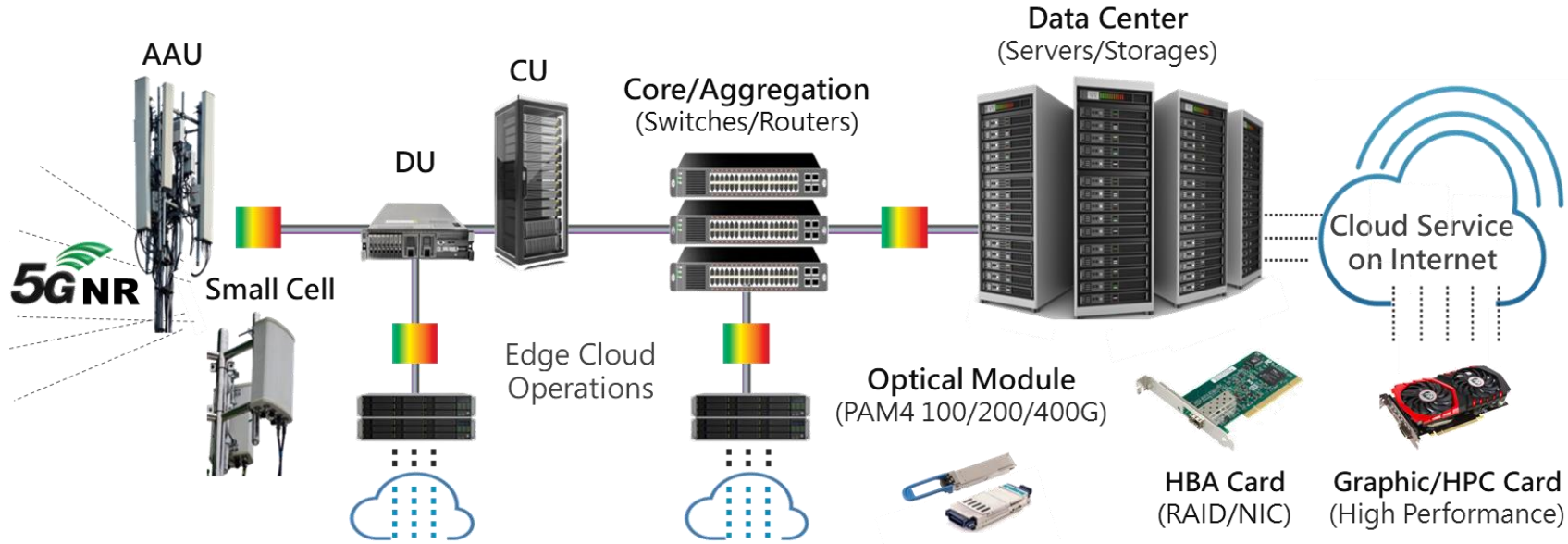
+% CAGR of equipment or device sales revenues projection during 2022-2025

Data Traffic (EB per Month): 2021: **84**, 2024: **255**, 2027: **368**

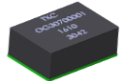
Source: Ericsson Mobility Report, June 2023

Telecommunication & Enterprise

Extra High-Frequency, Ultra-Low Phase Noise & Jitter & Stability Performance



ULTRA High Stability



OCXO

Stratum 3E & 24hrs Holdover
5x3 mm, ± 3 ppb, 105°C
Frequency up to 1.5G



Precise TCXO

± 50 ppb, 105°C
Frequency up to 1.5G



VCTCXO

± 280 ppb, 105°C, -170dBc/Hz

ULTRA Low PJ & PN



VCXO

Phase Jitter@12k - 20MHz, 50 fs
Phase Noise@10Hz, -80dBc/Hz



Diff XO

Phase Jitter@12k - 20MHz, 50 fs
 ± 20 ppm, 105°C



CMOS XO

Phase Jitter@12k - 20MHz, 50fs
Phase Noise@1MHz, <-170 dBc/Hz



Programmable XO

Phase Jitter@12k - 20MHz, 70 fs
Frequency up to 1.5 - 2.1GHz
(XO Series Selection for fast L/T)

Mobile Connectivity & Devices Ecosystems

Miniature, Higher Frequency & Ultra Low Phase Noise



HIGH Frequency Accuracy & Stability

World's Smallest Series



MHz Crystal

Miniature, 1.0 x 0.8 (mm)
8 – 320 MHz

1612

1210

1008

Next 0806



TSX(TH+Xtal)

Miniature, 1.6 x 1.2 (mm)
19.2 – 76.8MHz



XO(CMOS/Differential/PLL)

PJ@12k – 20MHz, 0.05 – 0.3 ps
Low EMI CMOS XO




TCXO(CMOS/Clipped)

PN@100kHz, -166 dBc/Hz
Stability, ±0.5 ppm

Electrification & Smarter Vehicles


Define Key Growth Applications with Strong Forecast & Projections

Automotive Grade, AEC-Q100, AEC-Q200 & Other Specified Compliances



XO
(G1 Grade)

Autonomous
+43%





XTAL
(Glass Type)

Safety & Motion
+16%



Smart Cockpit
+33%



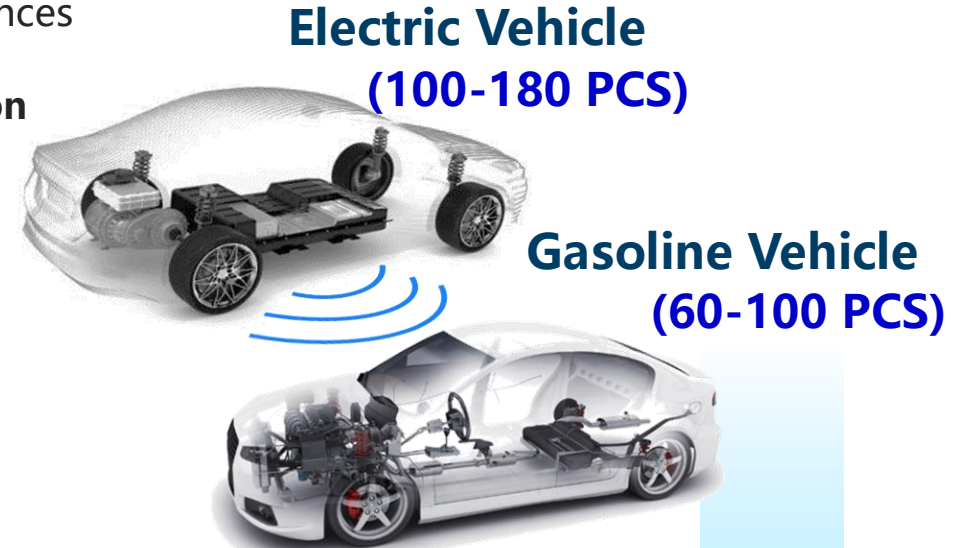

TCXO
(2016 Size)

Body Control
+36%

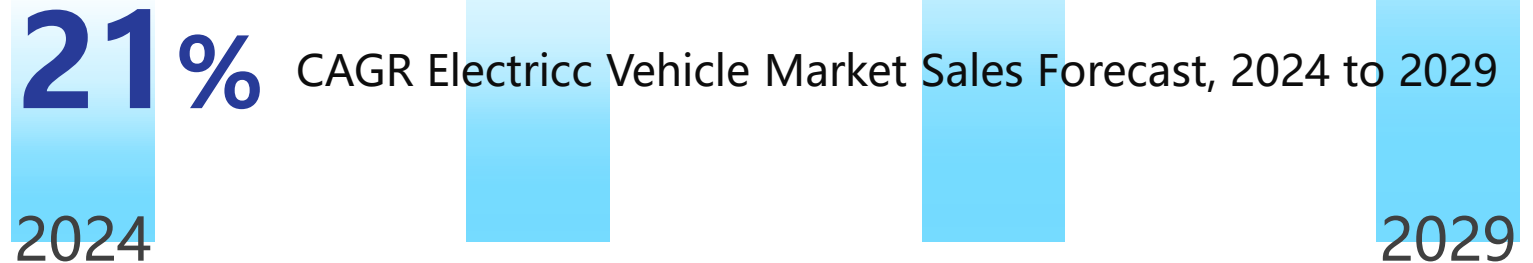



XTAL
(Seam Type)

+% CAGR of TXC Sales Estimation during 2022-2026

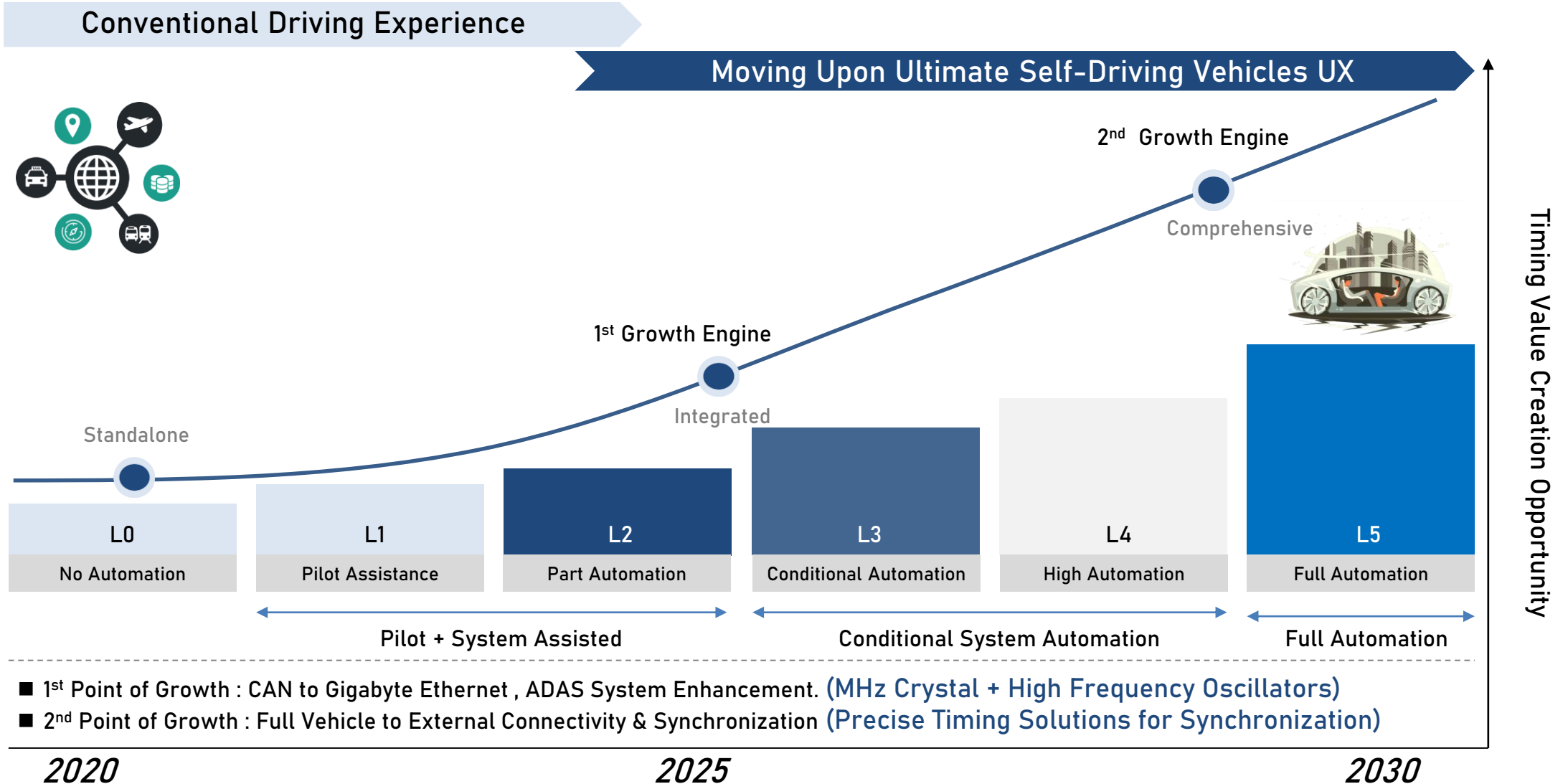


<Note: Reference to **AVG 30 PCS of Usage in Traditional Vehicle**>



Heading Toward Next Level - Autonomous Driving

Self-Driving Boost Timing Demand with New Trendy Technology



2024 CAPEX



A+ Enhancements

- ✓ Core Technology
- ✓ Advanced Process



Smart Factory

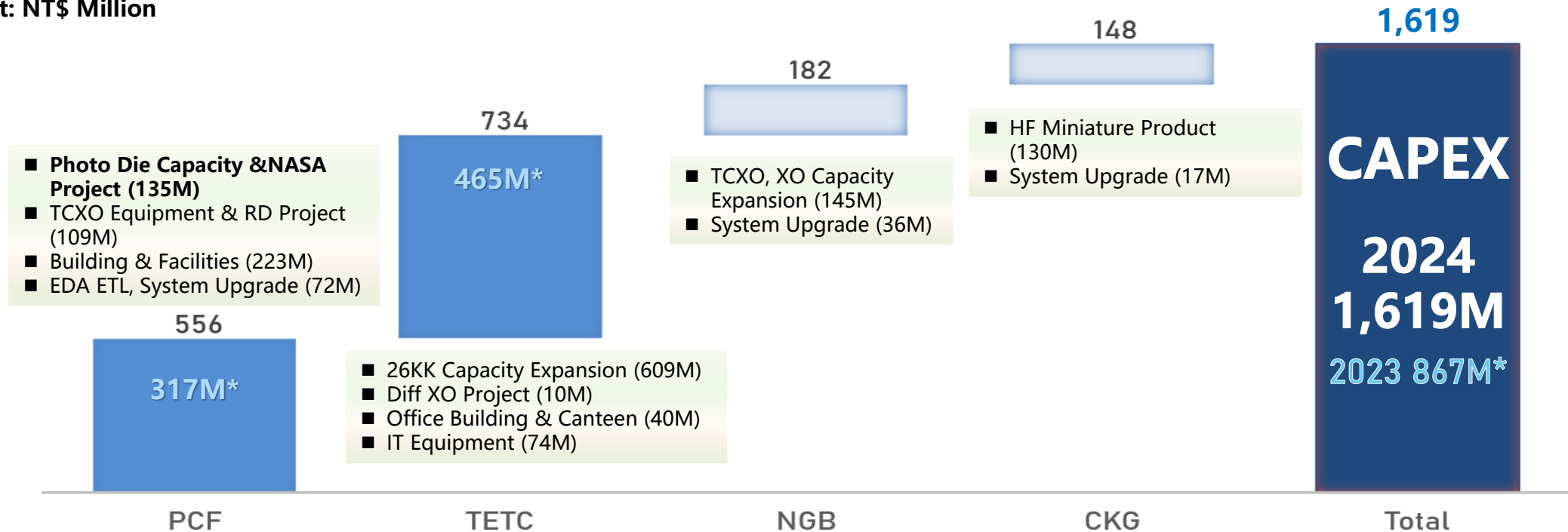
- ✓ Green & Renew Energy



Sustainability

- ✓ Environment
- ✓ Social Responsibility
- ✓ Governance

Unit: NT\$ Million



*: 2023deferredcapex

Statements of Comprehensive Income

Unit: NT\$ Million	Q1'24	Q4'23	QoQ	Q1'23	YOY
Net Revenue	2,754	3,040	-9.4%	2,298	19.8%
Gross Profit	1,000	1,148	-12.9%	793	26.0%
Operating Expenses	534	529	0.8%	448	19.2%
Operating Profit	466	618	-24.7%	345	34.8%
Non-Operating Items	181	-124	246.9%	6	3119.0%
Income before Tax	647	495	30.8%	351	84.3%
Net Income	537	408	31.7%	287	87.3%
Basic EPS (NT\$)	1.73	1.31	32.1%	0.93	86.0%
Gross Margin(%)	36.30%	37.75%		34.52%	
OPEX(%)	19.39%	17.42%		19.49%	
Operating Margin(%)	16.91%	20.33%		15.03%	
Income before Tax Margin(%)	23.50%	16.27%		15.28%	
Net Profit Margin(%)	19.51%	13.42%		12.48%	

Balance Sheet

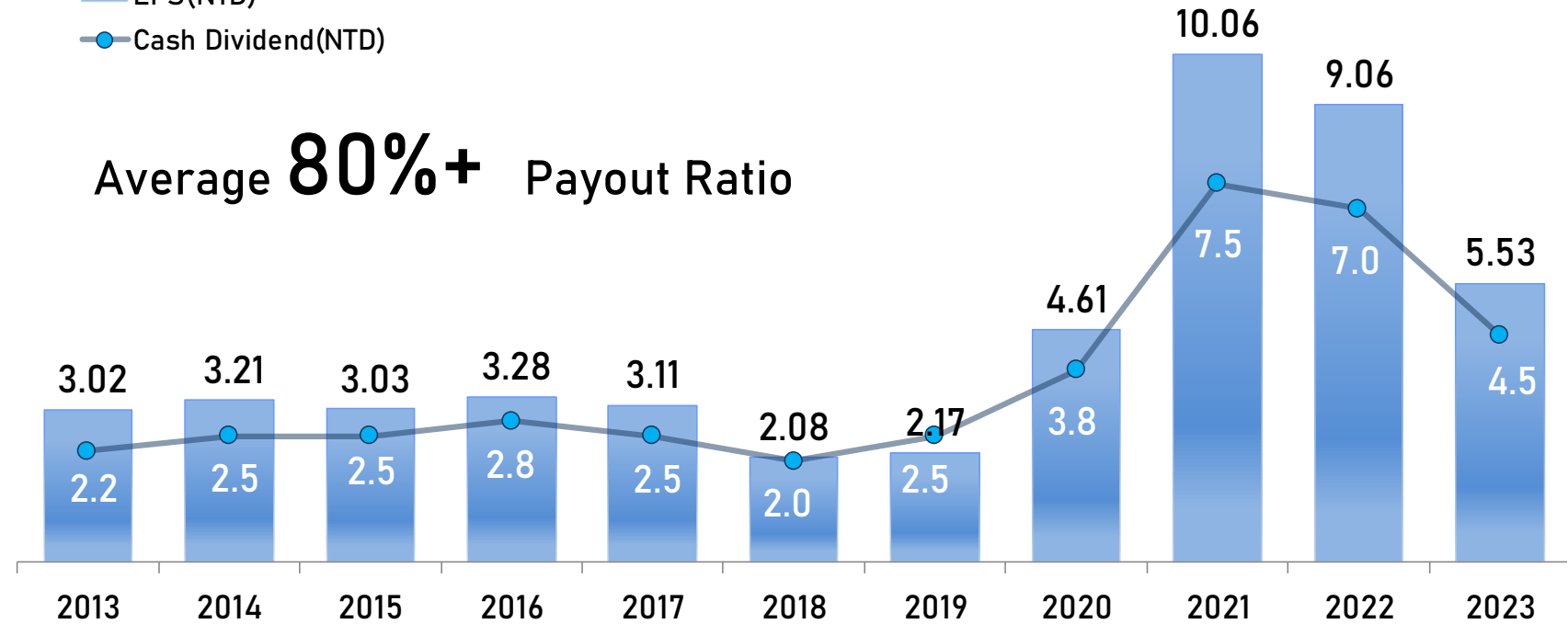
Unit: NT\$ Million	Mar. '24		Dec. '23		Mar. '23	
Item	Amount	%	Amount	%	Amount	%
Cash & Cash equivalents	4,231	21.4%	4,204	22.3%	4,456	23.1%
NR+AR	3,006	15.2%	3,255	17.3%	2,744	14.2%
Inventories	2,662	13.4%	2,470	13.1%	2,711	14.1%
Current Assets	11,519	58.2%	10,812	57.4%	10,830	56.2%
PP&E	5,798	29.3%	5,770	30.7%	6,181	32.1%
Total Assets	19,797	100.0%	18,822	100.0%	19,262	100.0%
Current Liabilities	4,274	21.6%	4,768	25.3%	3,474	18.0%
Non-current Liabilities	2,798	14.1%	2,180	11.6%	2,957	15.4%
Total Liabilities	7,073	35.7%	6,949	36.9%	6,431	33.4%
Total Shareholders' Equity	12,725	64.3%	11,874	63.1%	12,830	66.6%
A/R Turnover Days	104		115		125	
Inventory Turnover Days	134		135		164	
Inventory Turnover Days (exclu.)	121		122		149	
Current Ratio(%)	270%		227%		312%	
Debt Ratio(%)	35.7%		36.9%		33.4%	
Book Value Per Share(NT\$)	41.08		38.33		41.42	
ROA(%)	11.4%		9.1%		6.1%	
ROE(%)	17.5%		14.1%		9.1%	

EPS & DPS

High Dividends Payout, with Sustainable Business Growth

— EPS(NTD)
—●— Cash Dividend(NTD)

Average **80%+** Payout Ratio



Unit: NT\$

Share Price


Payout Ratio(%)

2013	43.6	39.9	41.1	44.5	39.0	36.0	44.0	99.8	98.0	89.4	105.5
	72.8	77.9	82.5	85.4	80.4	96.2	115.2	82.4	74.6	77.3	81.4

Healthy Growth with Value based Sustainability

Dedicate on Continuous Enhancement of Environment, Society, and Governance




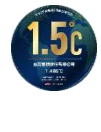
 Top 6%~20% Listed Corporates of the 10th Corporate Governance Evaluation

 Taiwan Best-in-Class 100

 The Excellent Enterprise Award in Taoyuan City

 IDB the 4th Gender Mainstreaming Benchmark Manufacturer

 BSI Sustainability Leader Award

 "Conform to 1.5°C temperature control target" label from Commonwealth Magazine

 ISO 14064 Greenhouse Gas Emissions Verification

ESG Roadmap

- ISO 50001 Energy Management System Verification
- ISO 14067 product carbon footprint Verification
- 2030 RE30% , 2050 RE100% & Net Zero Carbon

Thank You

Think of Frequency, Think of **TXC**

