



TXC General Overview

Q4 2012 Sales & Marketing Division

TXC Think of Frequency

Think of TXC



Vision

To become one of the best managed “Crystal & Oscillator” companies in the world – based on Competitive Product offering and Service Excellence to customers, growth sustainability, revenues-profit performance, values to the shareholders, quality brand name, and employee satisfaction.”



*Peter Lin
President*

*Paul Lin
Chairman &
Founder*

Mission

To achieve a Win-Win-Win partnership in the Supplier-TXC-Customer relationship.

#4 Largest Crystal & Oscillator Manufacturer
9.2% Market Share (2011)

Plant Chongqing, China
(Est. Q4'12)

National Quality Award
The Highest National Honor

CSR Award
By Commonwealth Magazine

CSR Award
By Commonwealth Magazine

TWSE: 3042
Listed in Taiwan Security Exchange

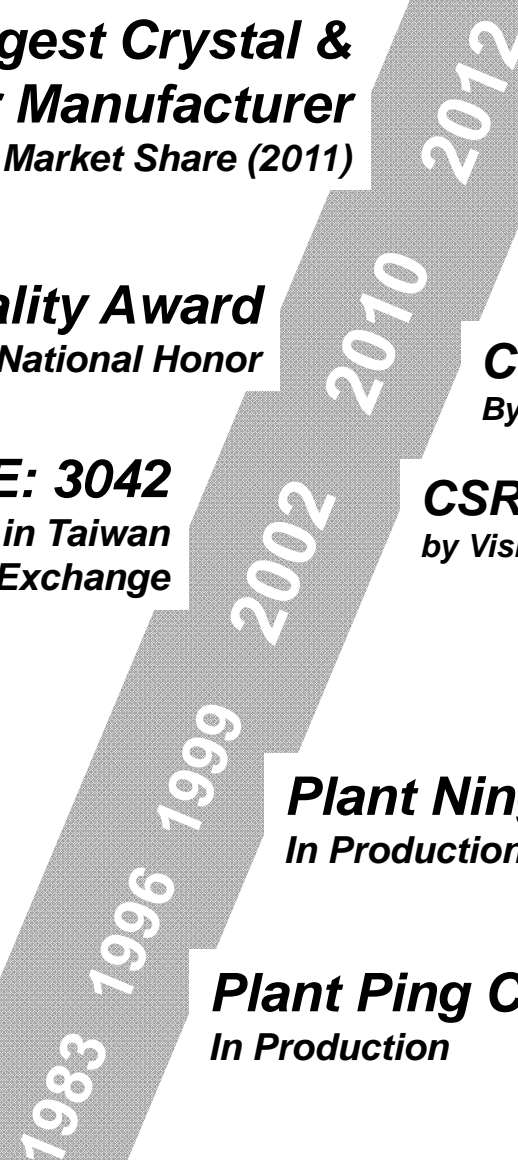
CSR Award
by Vision Magazine

Almost **30** years in frequency control market

Plant Ningbo, China
In Production

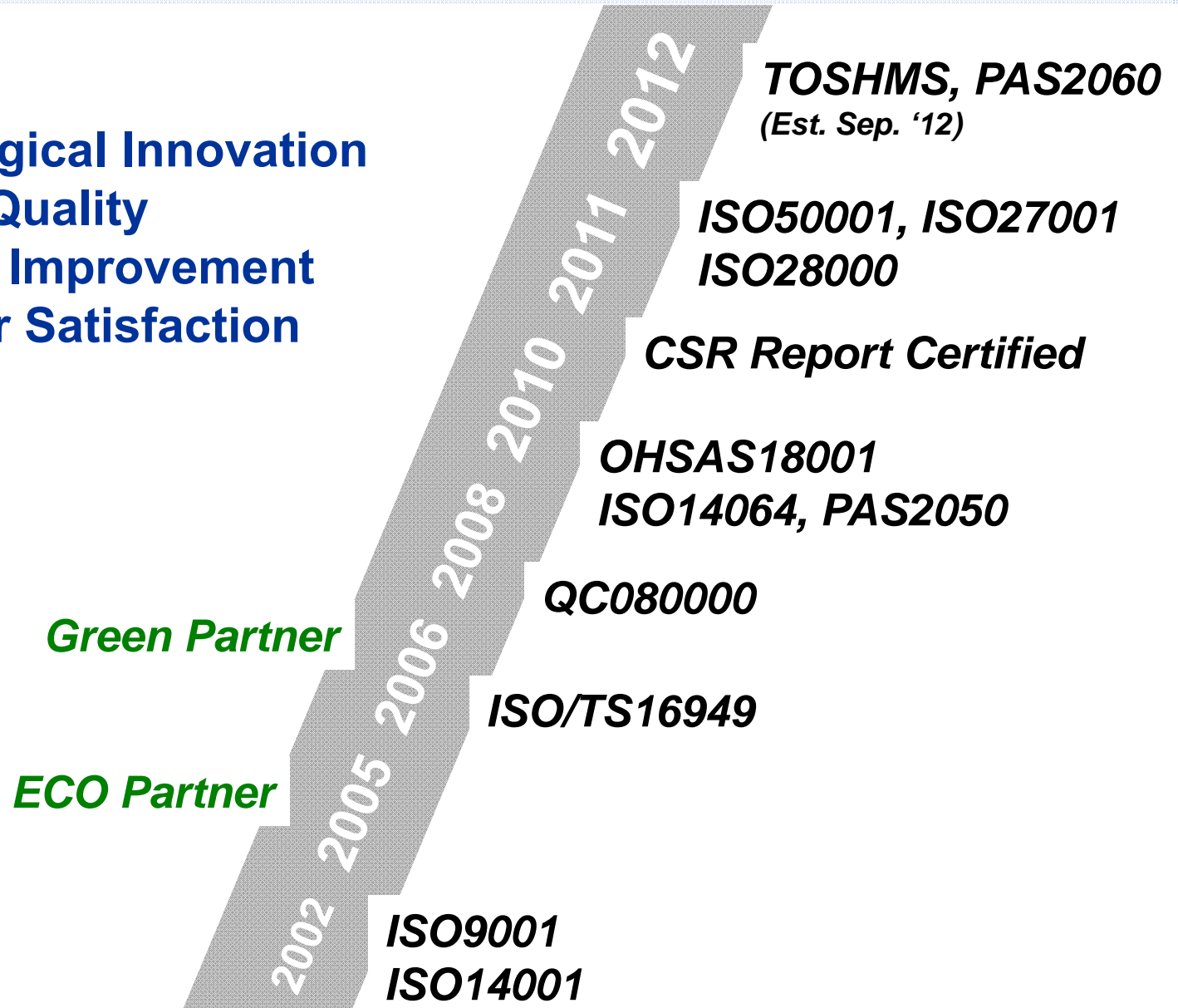
Incorporated

Plant Ping Cheng, Taiwan
In Production



Quality Policy

- Technological Innovation
- Reliable Quality
- Continue Improvement
- Customer Satisfaction



CORE
Products

Basics
Crystal, XO, TCXO, MO

Compact Size, Low Power

AOM
Advanced Oscillator & Module
XO/SO, VCXO, TCXO, OCXO

High Stability, High Frequency, Low Jitter

ACAP
Automotive Crystal Application Product

Crystal, XO
Wide OTR, High Shock and High Vibration Resistance

PC

Desktop, NB, Tablet

Mobile

Mobile Phone, GPS, Smart Grid

Digital Home

Set Top Box, Digital Camera, Gaming, Smart TV

Infrastructure/Networking

Base Station, Small Cell, Server, Storage, Switch

Automotive

Non-Safety, Safety

Diversified
Products

Sapphire
Wafer

Power
Management
Component
(PMC)

Information available on request

Scale Economics

Headquarters

Taipei, Taiwan



Ping-Cheng Factory (PCF)

Taoyuan, Taiwan
32,277 sq. m
(347,301 sq. ft)



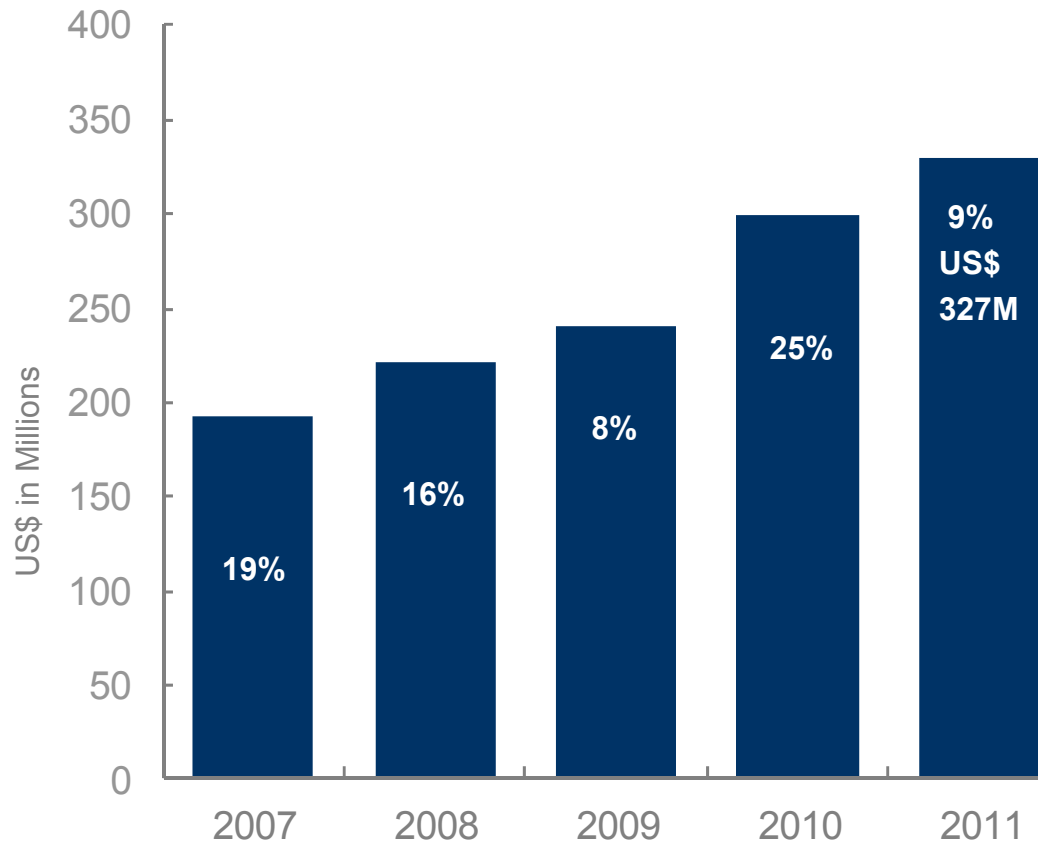
Ningbo Factory (NGB)

Zhejiang, China
56,979 sq. m
(613,094 sq. ft)

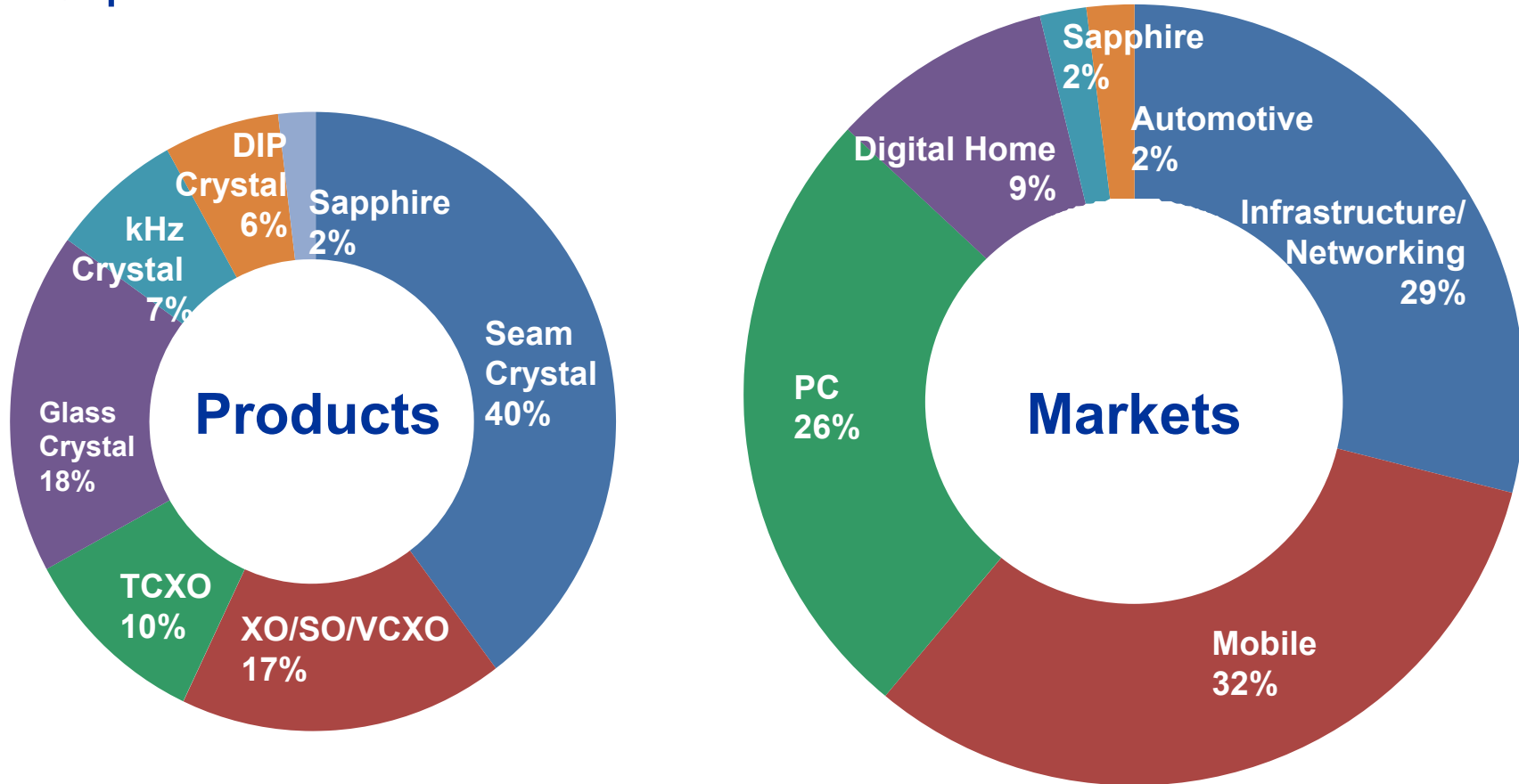


Product	Units/month	Site
DIP Crystal	25M	China
Glass Seal Crystal	60M	China
Seamseal Crystal	118M	Taiwan China
kHz Crystal	22M	Taiwan China
TCXO	16M	Taiwan
XO/MO/SO/VCXO	12M	Taiwan
Total Capacity	253M	

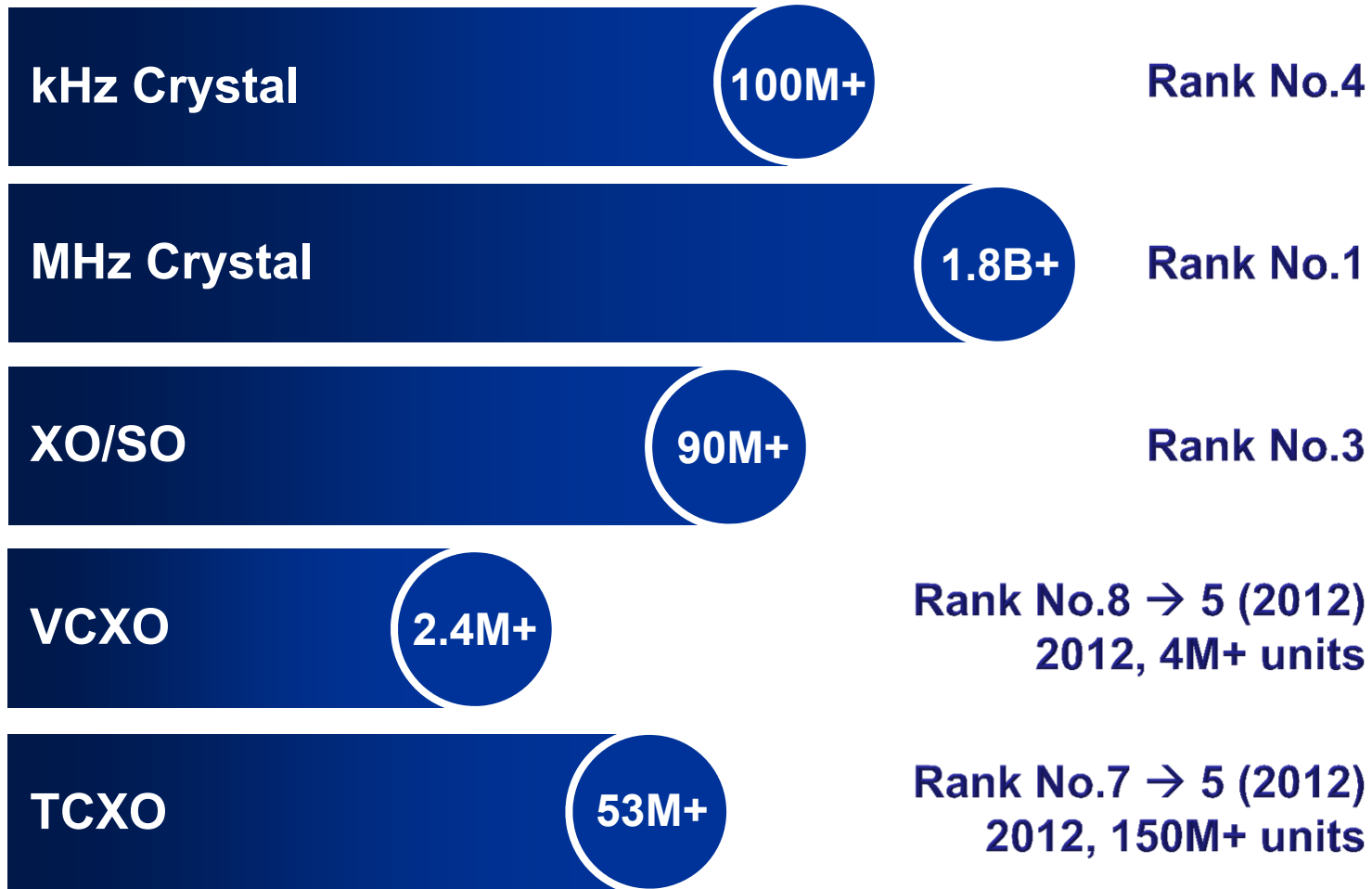
Consistent growth for the past 10+ years



2011 revenues by Segments US\$327M



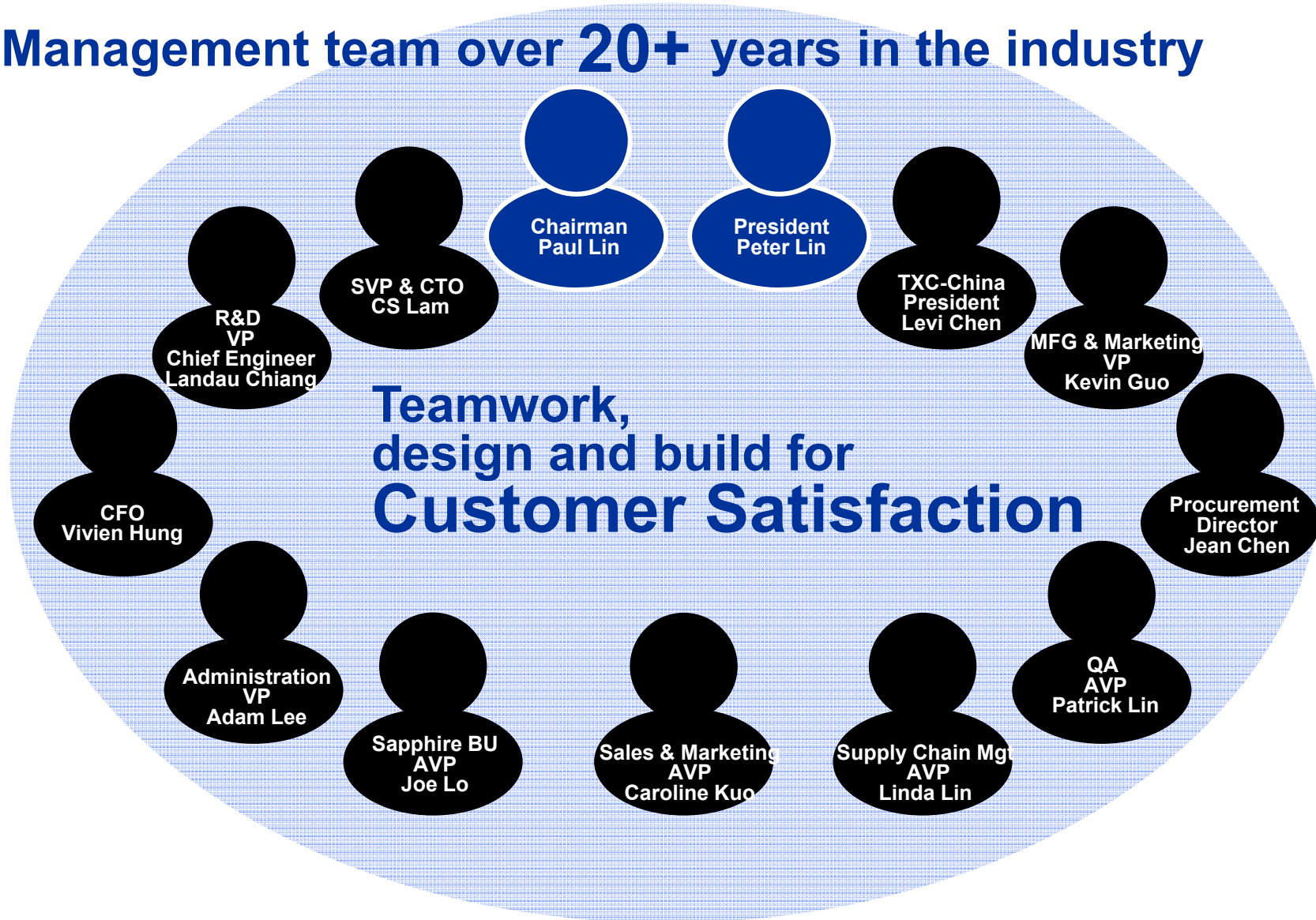
2011 shipped **2B+** units



2009 Rank	2010 Rank	2011 Rank	Company Name	2009 Revenue \$	2010 Revenue \$	2011 Revenue \$	(09-10) Change %	(10-11) Change %	2010 Market Share	2011 Market Share
1	1	1	Epson Toyocom	641.2	793	592	23.67%	-25.35%	22.7%	16.7%
2	2	2	NDK	459.1	547	557	19.15%	1.83%	15.7%	15.7%
4	3	3	KDS	271.3	391	389	44.12%	-0.51%	11.2%	11.0%
5	4	4	TXC	240.5	301	327	25.16%	8.64%	8.6%	9.2%
3	5	5	KED	292.4	297	265	1.57%	-10.77%	8.5%	7.5%
6	6	6	Vectron	147.9	205	196	38.61%	-4.39%	5.9%	5.5%
8	8	7	Rakon	81.5	106	111	30.06%	4.72%	3.0%	3.1%
7	7	8	Hosonic	97.3	109	101	12.02%	-7.34%	3.1%	2.9%
-	9	9	Taitien	-	75	79	-	5.33%	2.2%	2.2%
11	11	10	Micro Crystal	47.5	57	63	20.00%	10.53%	1.6%	1.8%
9	10	11	TEW	60.1	66	59	9.82%	-10.61%	1.9%	1.7%
10	12	12	Pericom	47.6	56	52	17.65%	-7.14%	1.6%	1.5%
12	13	13	River	40.8	47	52	15.20%	10.64%	1.3%	1.5%
13	14	14	Connor-Winfield	35.1	39	41	11.11%	5.13%	1.1%	1.1%
15	16	15	CTS	27.2	35	37	28.68%	5.71%	1.0%	1.0%
			Total Revenues	2,900	3,491	3,539	20.37%	1.37%		

US\$ in Millions
Source - CS&A Marketing Report

Management team over 20+ years in the industry



Total employees **2,300+**

Sales & Marketing

120+

Engineering

500+

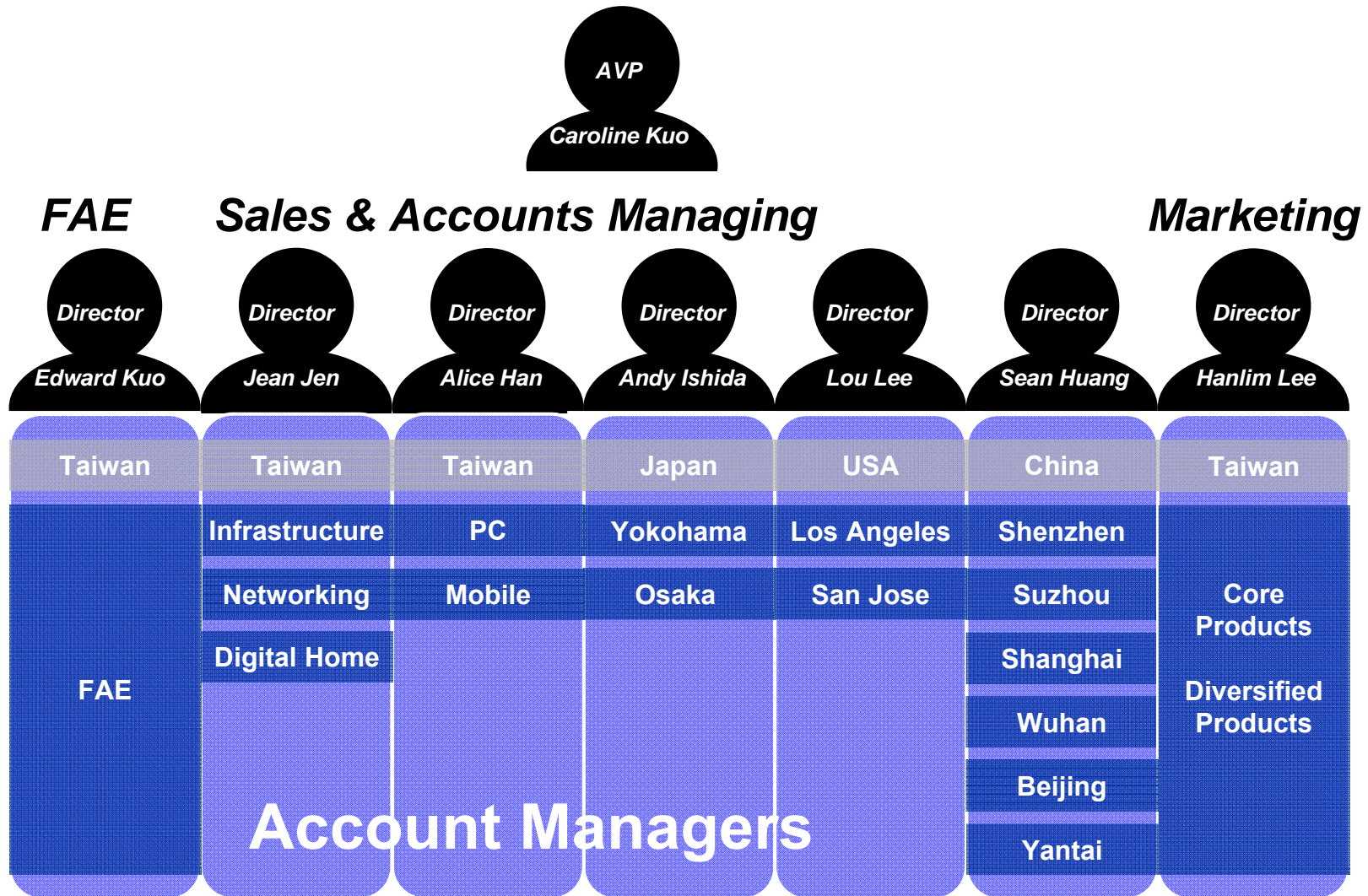
Operators

1,200+

220+ engineers trained in
The SIX SIGMA
since 2005



Establish long term Relationships



**Service worldwide
Customers**



*IC Design
Houses*

*Global
Brand
Names*

Enterprises

EMS

- **Technology**

In-House Design, Simulation, and Processing Capabilities

- **Quality**

Assurance on Design and Production

- **Service**

Global Sales, Marketing and FAE Support

- **Cost Efficiency**

Economy of Scale Production in both Taiwan and China Factories

- **Time to Market**

Leader in Crystal & Oscillator Miniaturization

- **Flexibility**

Agile Sampling Capability and Quick Ramp Up to Volume

- **Crystals and Oscillators**

		2012	2013	2014	2015	2016
Product Size	MHz Crystal	<ul style="list-style-type: none"> ♦1210 Seam 36~54MHz ♦2520 TSX (Crystal+Thermistor) ♦2520 Glass 	<ul style="list-style-type: none"> ♦1210 Seam 24~54MHz ♦2016 TSX ♦2016 Glass 	<ul style="list-style-type: none"> ♦1612 TSX ♦1612 Glass 	<ul style="list-style-type: none"> ♦1008 Crystal/MEMS 	<ul style="list-style-type: none"> ♦0806 MEMS
	kHz Crystal	<ul style="list-style-type: none"> ♦2012 ▲ ♦1610 		<ul style="list-style-type: none"> ♦1210 TBD (Crystal/MEMS) 		
	XO/MO/SO	<ul style="list-style-type: none"> ♦2016 CMOS XO ♦2520 CMOS MO ♦5032 LVPECL/LVDS XO/MO ♦7050 & 5032 HCSL XO ♦5032 LVPECL/LVDS SO 	<ul style="list-style-type: none"> ▲♦1612 CMOS XO ♦2016 CMOS MO 	<ul style="list-style-type: none"> ♦1612 CMOS MO ♦1210 CMOS XO/MO ♦3225 LVPECL/LVDS/HCSL XO/MO 		
	TCXO & VCTCXO	<ul style="list-style-type: none"> ▲♦2016 	<ul style="list-style-type: none"> ♦1612 	<ul style="list-style-type: none"> ♦1210 		
	VCXO	<ul style="list-style-type: none"> ♦5032 LVPECL 	<ul style="list-style-type: none"> ♦3225 LVPECL 			

▲ World's Smallest

		2012	2013	2014	2015	2016
Product Performance	MHz Crystal	<ul style="list-style-type: none"> ♦2520/2016 Seam (RF/GPS) ♦2520 TSX ♦Seam -40~125°C (Automotive) ♦Glass -40~125°C (Automotive) 	<ul style="list-style-type: none"> ♦1612 Seam (RF/GPS) ♦2016 TSX ♦Glass -50~150°C (Automotive) 	<ul style="list-style-type: none"> ♦1210 Seam (RF/GPS) 		<p>Wide OTR High Stability</p>
	XO/MO/SO	<ul style="list-style-type: none"> ♦XO 100~800MHz (PLL) Phase Jitter < 0.3ps 	<ul style="list-style-type: none"> ♦XO CMOS -40~105°C (Automotive) ♦XO 100~200MHz (Fundamental) Phase Jitter < 0.1ps ♦SO LVPECL/LVDS <50ppm 			<p>Wide OTR Low Phase Noise</p>
	TCXO & VCTCXO		<ul style="list-style-type: none"> ♦ ±0.28/±0.14ppm -40~85°C (Telecom) ♦ ±0.5ppm -40~85°C (Automotive) ♦32kHz ±5ppm, -40~85°C (RTC) 			<p>High Stability</p>
	VCXO	<ul style="list-style-type: none"> ♦100~800MHz (PLL) Phase Jitter <0.5ps 	<ul style="list-style-type: none"> ♦100~200MHz (Fundamental) Phase Jitter <0.1ps 			<p>Low Phase Noise</p>
	OCXO	<ul style="list-style-type: none"> ♦10/13MHz (±10ppb, -10~75°C) 	<ul style="list-style-type: none"> ♦38.88MHz (±200ppb, -30~70°C) 			<p>Ultra Stability</p>

- **Diversified Products**

MOSFET

- N Channel
- P Channel
- N+P MOSFET
- Features
 - BVDSS: 20V ~ 1200V
 - RDS(ON): 3mΩ ~ 12Ω
 - VGS: 8V ~ 30V

DC-DC Power Advanced Analog

- Low Dropout Regulator
- DC/DC PWM Power
 - (Buck, Boost)
- Reset IC
- Power Switch
- MOSFET Driver
- Battery Charger/Protect IC
- WLED Driver
- Light / Proximity Sensors
- Audio Amp.

AC-DC Power Advanced Analog

- Flyback Controller
- PFC Controller

Available in Q2 2013

Applications

PC

Desktop, NB, Tablet

Digital Home

Set Top Box, Digital Camera, Gaming, Smart TV

Mobile

Mobile Phone, PND, Smart Grid

Infrastructure/Networking

Base Station, Server, Storage, Switch, Router, HDD

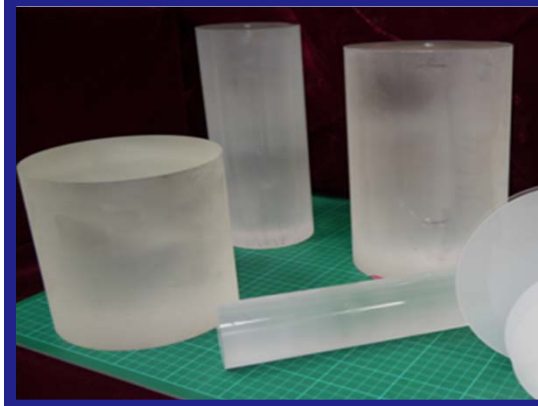
Sapphire Single Crystal

- 32kg
- 85kg



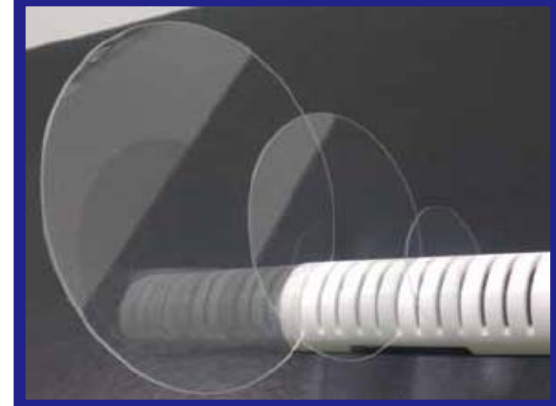
Sapphire Ingots

- 2" Ingots
- 4" Ingots
- 6" Ingots
- 8" Ingots



Sapphire Wafer

- 2" SSP Wafer
- 4" SSP Wafer
- 6" SSP Wafer
- 2" PSS Wafer
- 4" PSS Wafer



Application: High Brightness LED Lighting

SSP: Single Side Polished

PSS: Pattern Sapphire Substrate

