

EPIC Online Technology Meeting - Mini/Micro LED

# Development of Micro LED Display and Future Opportunities

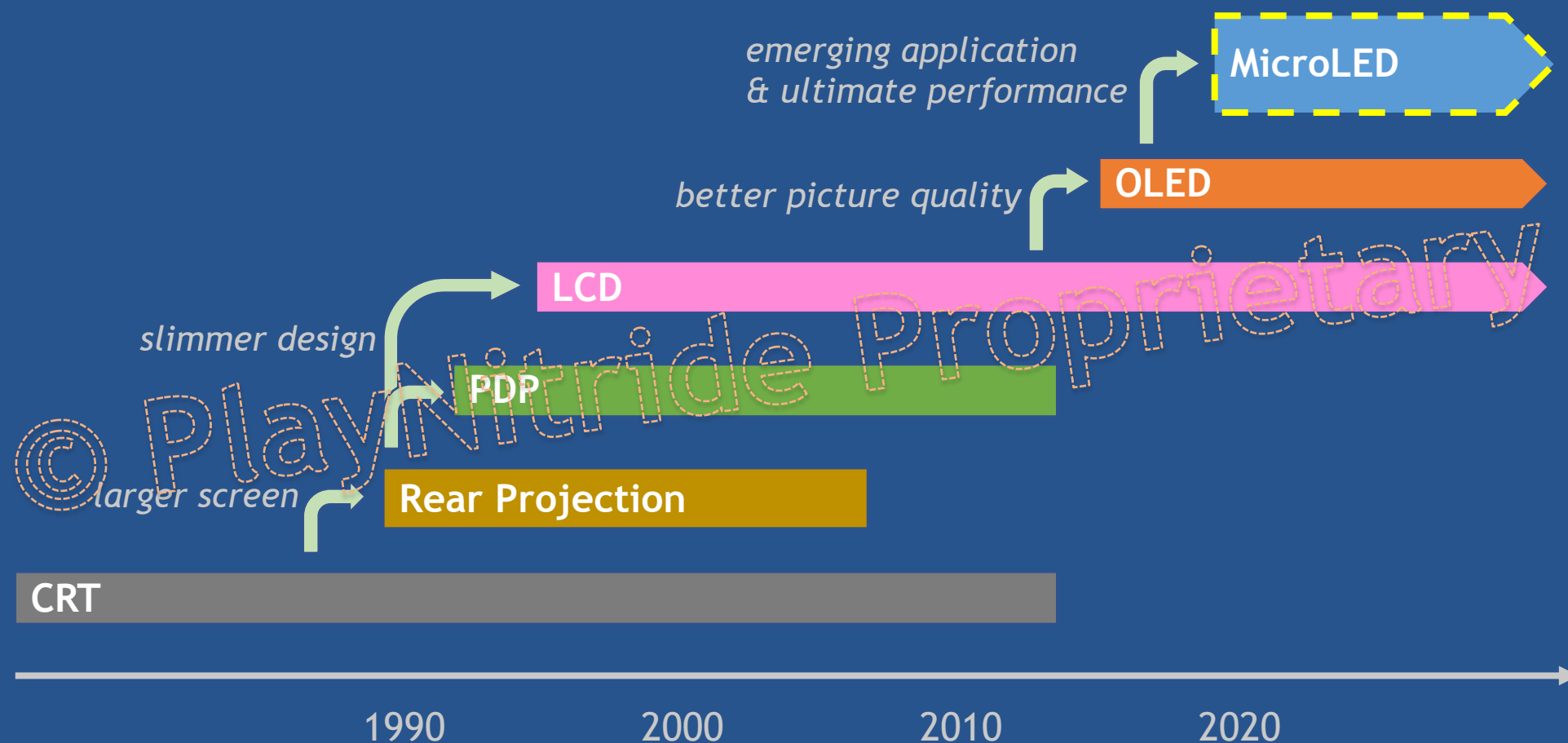
Falcon Liu

Marketing Director

PlayNitride Display Co., Ltd.



# Roadmap for display technology



# PixeLED Matrix™ tiling display technology

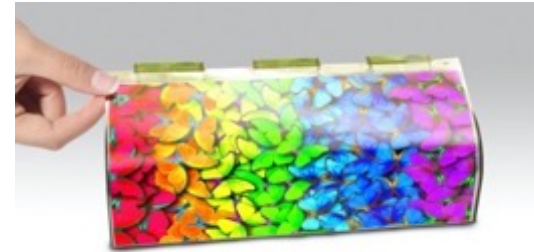


*PixeLED Matrix™* is the only achievable technology of MicroLED on PCB

## *PixeLED Matrix™* Applications

- Consumer Product (ex. TV)
- Commercial Product (ex. Digital Signage / Public Display)
- Automotive Product (ex. Exterior Light / Smart Tail Light)

# Flexible display announced in April 2020



**PlayNitride and AUO Team Up to Develop High Resolution Flexible MicroLED Display Technology**

## **9.4" flexible MicroLED display**

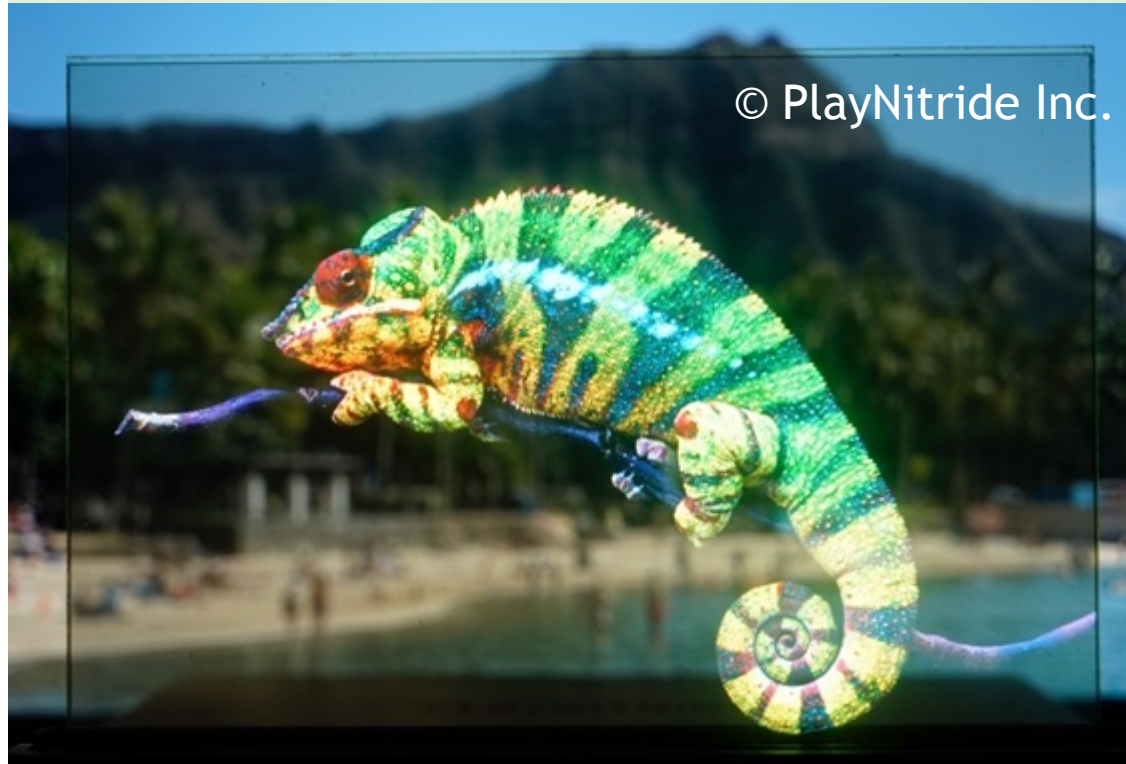
- more than 5.5 million MicroLED chips
- less than 30µm MicroLED chip
- LTPS plastic backplane
- 228 ppi

**Development of MicroLED display is getting faster and faster!**

# Transparent & Wearable MicroLED displays



SID Display Week 2019  
Best New Display Technology Award with Tianma

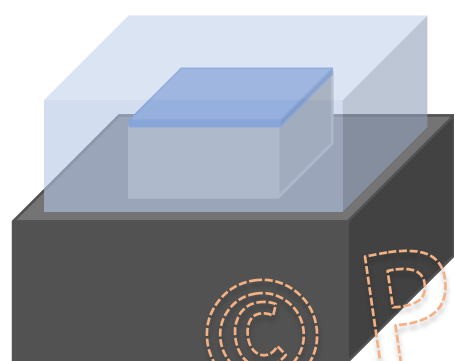


7.56" high transparency & frameless  
MicroLED display

1.25" high chip density &  
high brightness MicroLED display



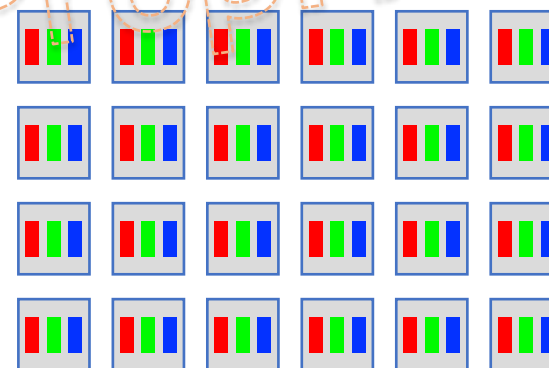
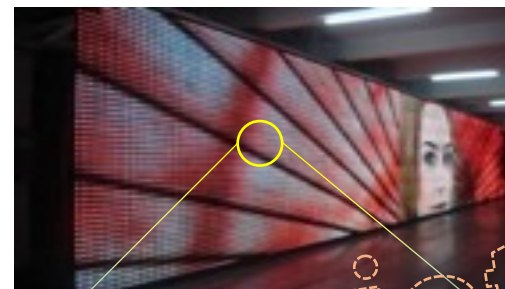
# What is MicroLED display



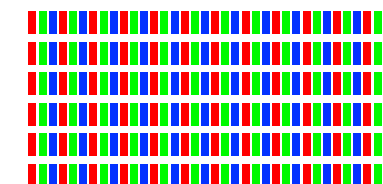
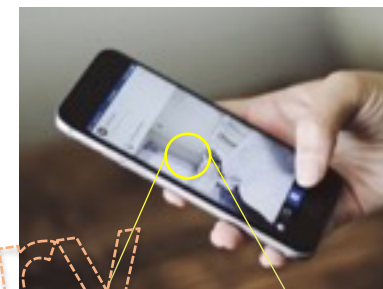
LED Chip

from  $>1\text{mm}$  to  $<50\mu\text{m}$

MicroLED



LED Chip



MicroLED

# Advantages of MicroLED display

## Ultra-low Power Consumption

10% of LCD power consumption in theory

## Good Reliability

As long as 100,000 hours of LEDs

## High Brightness

Readable under sunshine (>5000 nits)

## Fast Response

On/off switching within nano-seconds

## Ultra-high Resolution

More than 2000 dpi with Si backplane

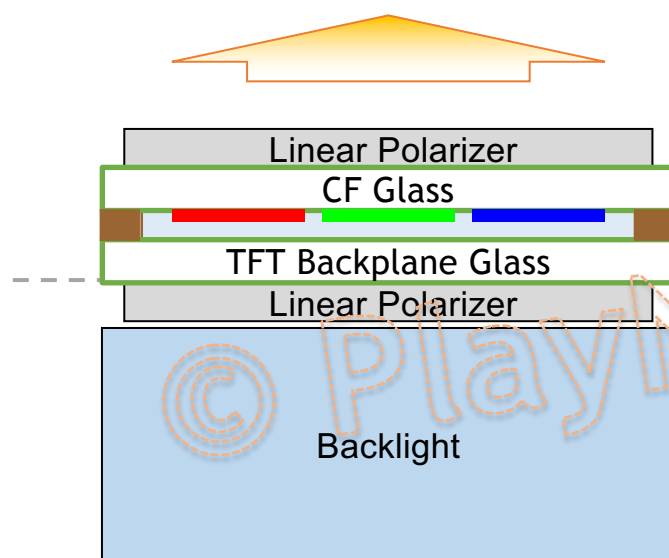
## Flexible Display with Any Shape

Total thickness less than 30 micron

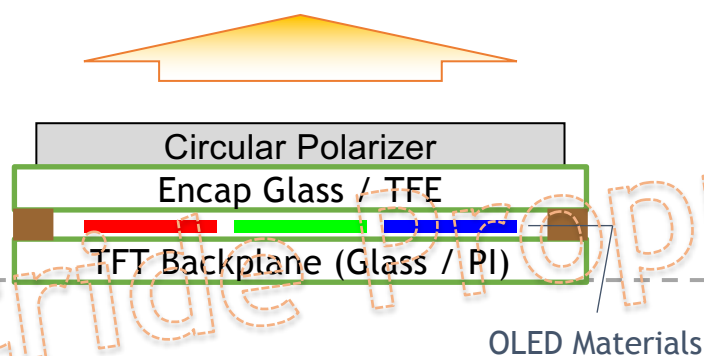


# Simple is good !

## LCD structure



## OLED structure



## MicroLED structure

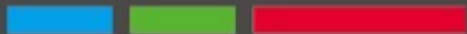


**Simpler structure, more flexibility and higher transparency!!**

# Perfect for automotive applications



# About PlayNitride 鎔創顯示科技



# About PlayNitride



PlayNitride is a Taiwan-base company. Through the breakthrough innovations and diverse business models, PlayNitride has become a leading company of MicroLED technology

- Founded in 2014
- Office and fab in  
Hsinchu Science Park, Taiwan
- More than 350 employees
- Completed the **first fab** for MicroLED in mid-2019



# Awards of PlayNitride



2020  
**Innovative  
Product Award**  
of HSP 40 Year  
★★★



2020  
**SID Special  
Recognition  
Award**  
in SID Display Week  
★★★



2020  
**Gold Panel  
Awards**  
in Touch Taiwan  
★★★



2019  
**Best New Display  
Technology & Best  
Small Booth Award**  
in SID Display Week  
★★★



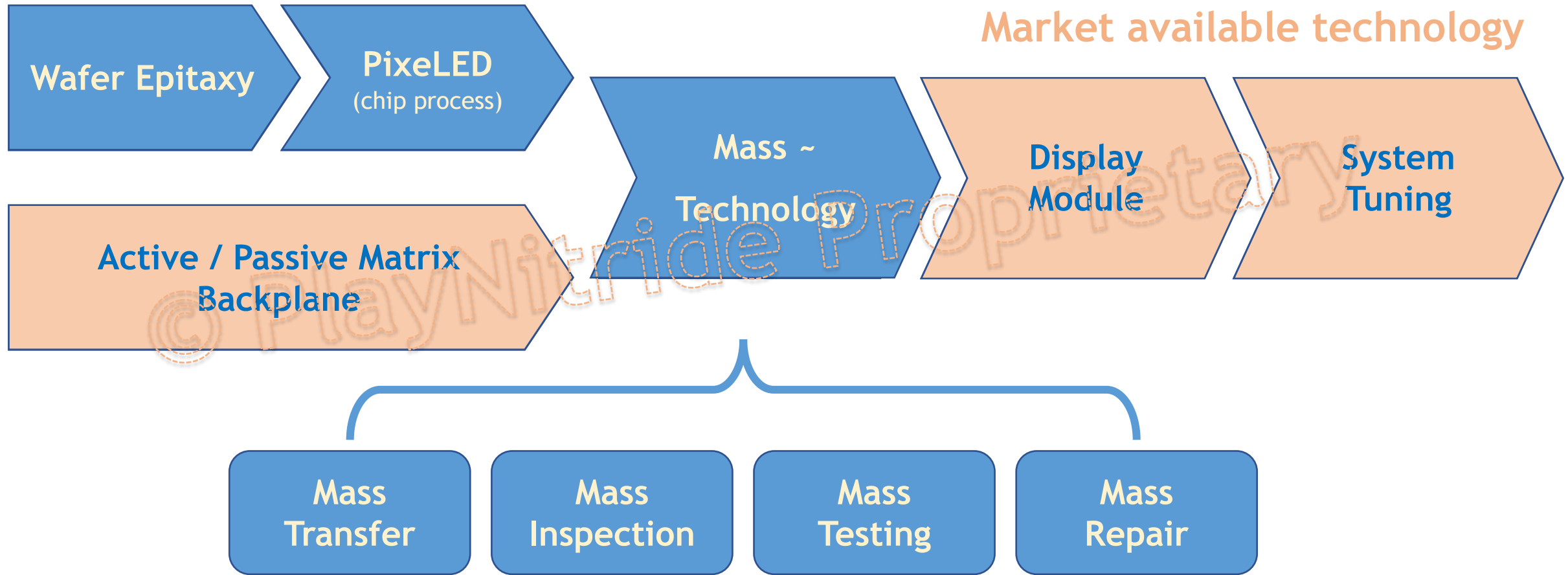
2018  
**Best Prototype  
Honoree**  
in SID Display Week  
★★★



# Role of PlayNitride at MicroLED ecosystem



## PlayNitride core technology



# Summary



- MicroLED provides ultimate visual experience
- A great opportunity with new challenges



# THANK YOU

PLAYNITRIDE

