2022 Mid-Large OLED Display Semi-Annual Report

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Contents

Contents

2. Analysis of Mid-Large OLED Industry Issues

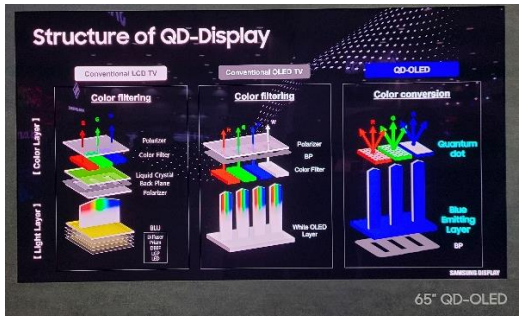
2.1 IT Line Investment Status and Prospect

- **Samsung Display**
  - *** RGB 2stack tandem **K line investment for IT is under consideration. The glass size is ****x****mm^2.
  - The 8.7G vertical evaporation method and oxide TFT technology were first applied to the Ph-1, but there is a possibility that the 8.7G half-cut ****** ******* ***and **** *** technology will be applied.
  - **** ****** evaporator supplier is *****, and the ******* evaporator supplier is ***** *****. It is also being considered that ***** evaporator is placed on the ph-2, or that ******** evaporator is installed for both ph-1 and ph-2.
  - Since ******* started developing evaporator later than ******, when ******* equipment is ordered, there is a possibility that the panel mass production time will be later than originally expected.
  - The ph-1 is expected to be ordered in **** ***** *** and the ph-2 in **** *** *****, but there is a possibility that it will be delayed depending on the development situation.
  - Investment in the 6G RGB 2stack tandem line in the A4 (L7-2-2) site is also being considered.
  - The existing A3 **** *** line was converted to an **** *** line, leaving a **K-scale deposition capper.
  - In order to supplement the idol capper of the A3 evaporator, only the **** *** line was invested in the first **K scale in the first half of 2022 and has been partially operating from the third quarter.
  - In the first half of 2023, an additional **K investment is planned for the **** *** line, and an evaporator for mass production of panels for Apple iPad is also expected to be invested.

3.6 OLED Display Trend Analysis for TV

- **Samsung Display**
  - Samsung Display exhibited 65-inch QD-OLED TVs at SID 2022 and K-Display 2022 and exhibited 77-inch QD-OLED TVs for the first time at IMID 2022.
  - The 77-inch QD-OLED TV had 4K resolution, a contrast ratio of 1,000,000:1, and a refresh rate of 120 Hz. Most of the specifications were similar to that of the previously released 65-inch QD-OLED TV, but there was some improvement ****** *******

QD-OLED TV exhibited by Samsung Display

	55 / 65" QD-OLED TV	77" QD-OLED TV
Size [inch]	55 / 65	77
Resolution	3840 x 2160(80/68ppi)	3840 x 2160(57ppi)
Feature	- Color Gamut: 90% @BT2020 - Peak Luminance: 1,500nits - Luminance preservation rate: 81%(@60˚) - Color shift: 0.0006(@60˚)	- Contrast ratio: 1,000,000:1 - Refresh rate: 120 Hz - Peak Luminance: > 1500nits
Picture		

Source: UBI Research DB

4. Line Status by Panel Maker

4.3 Others

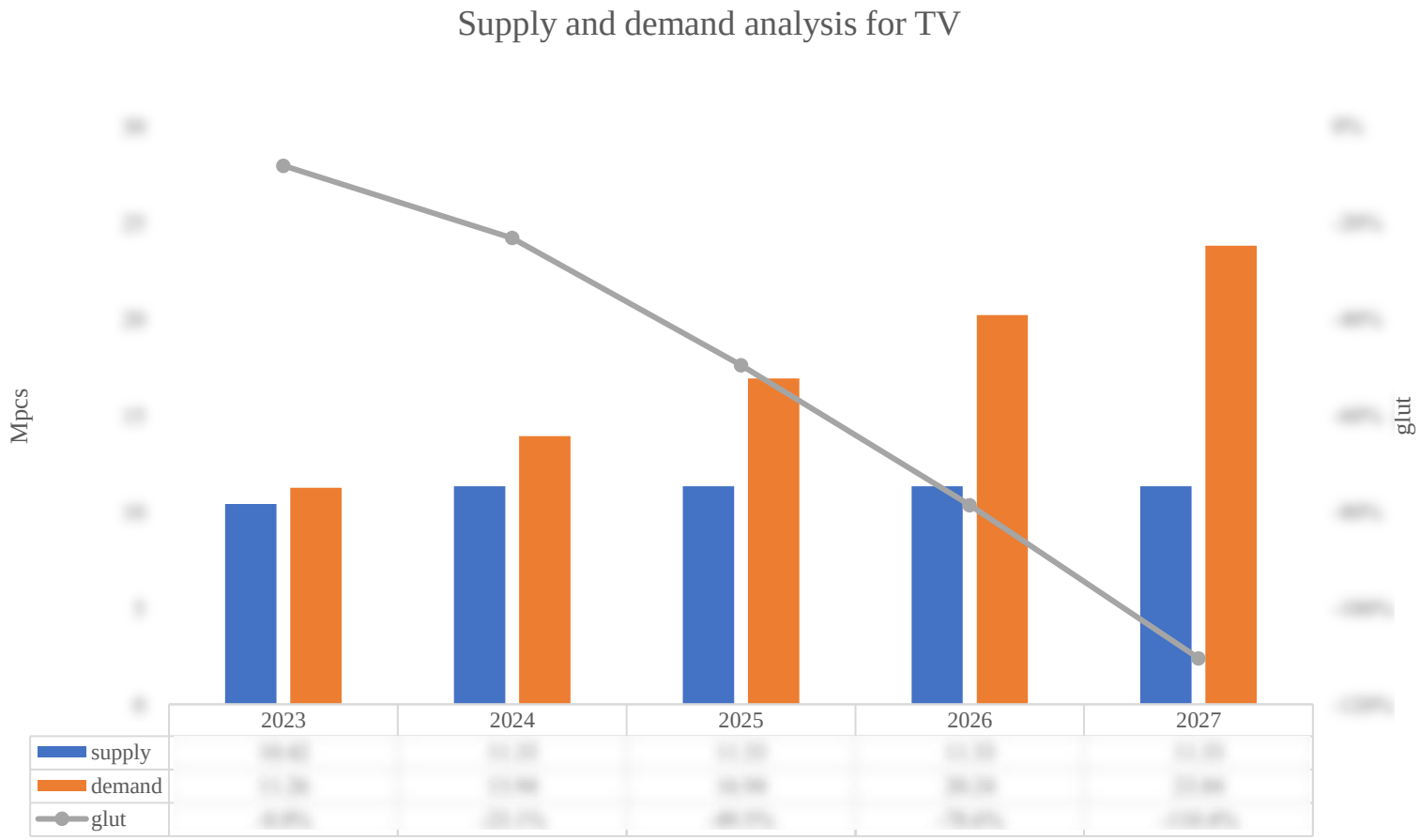
- **BOE B6**
  - A monthly **K **** *** R&D line is in operation.
  - The actual production volume is very small, ***** **** sheets per year.
  - There is a panel reliability issue, and it was investigated that the panel lifetime is less than 50% of that of LG Display's Class A products even on the basis of LT50.

- **BOE B12**
  - The setup of the equipment for Ph-2 has been completed, and trial production began in ***** ***** ****.
  - At Ph-2, displays for ****** will also be produced.
  - The Ph-3 line is composed of Apple's RGB tandem for iPad concept.

- **Tianma Xiamen**
  - Ph-2 investment is being considered, and Ph-2 is likely to proceed in ***** *****. It is expected to target mid-size models such as *** and *****.

8. OLED Demand and Supply Analysis for TV

8.1 OLED Demand and Supply Analysis for TV by Year



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9. OLED Market Forecast

9.2 Market Forecast by Panel Maker

- **Sales forecast**

> Revenue forecast (US$ million)

Company	Application	2022	2023	2024	2025	2026	2027
JOLED	Monitor						
LG Display	Tablet						
	TV						
	Automotive						
Samsung Display	Tablet						
	TV						
	Monitor						
	Notebook						
	etc						
Total							

- **Shipment forecast**

> Shipment forecast (M pcs)

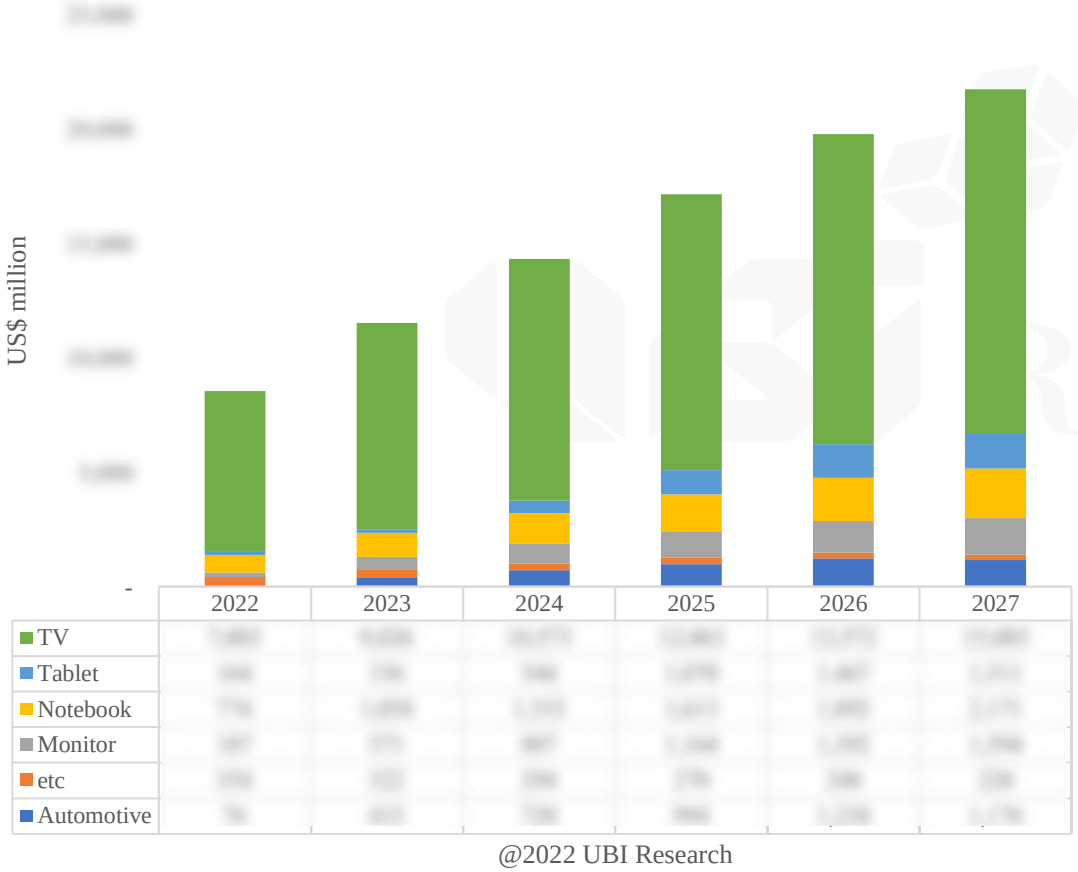
Company	Application	2022	2023	2024	2025	2026	2027
JOLED	Monitor						
LG Display	Tablet						
	TV						
	Automotive						
Samsung Display	Tablet						
	TV						
	Monitor						
	Notebook						
	etc						
Total							

9. OLED Market Forecast

9.3 Market Forecast by Application

- **Sales forecast**

Revenue forecast by applicaiton



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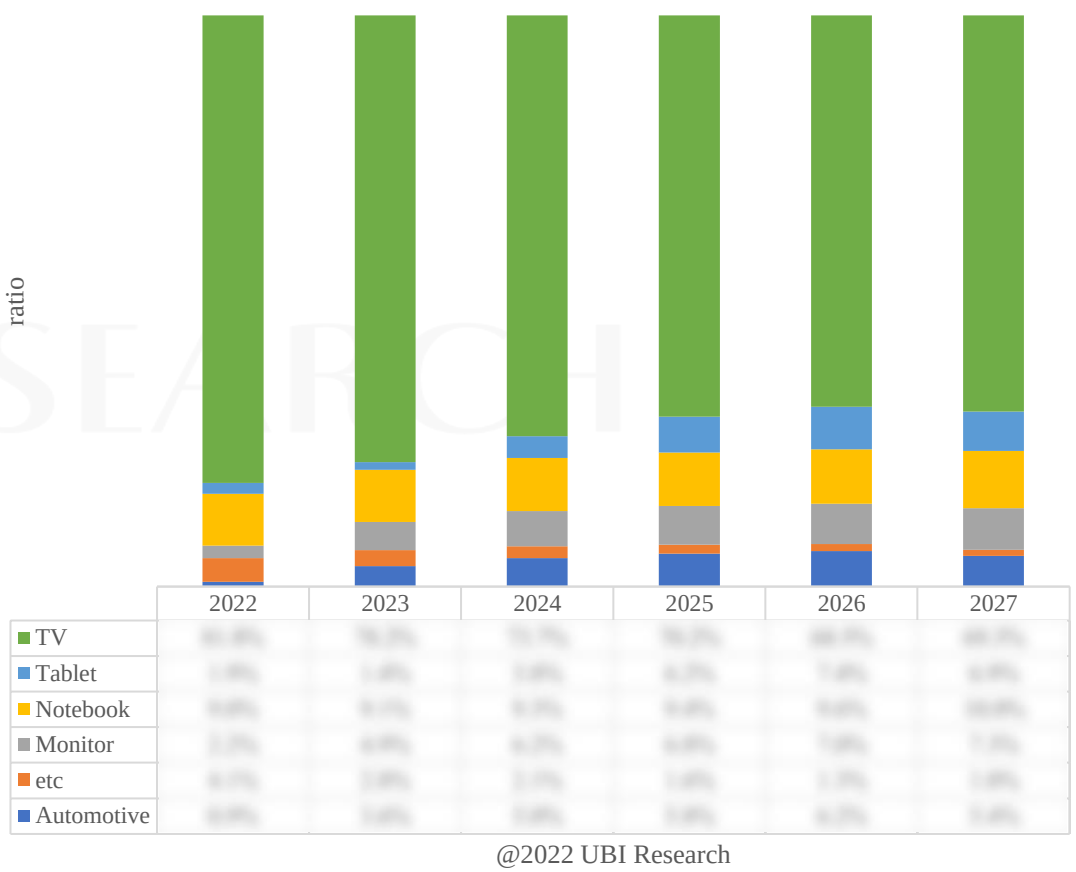
Revenue ratio forecast by applicaition



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