

Global and China Automotive Display Industry Report, 2020-2021

November 2020

STUDY GOAL AND OBJECTIVES

This report provides the industry executives with strategically significant competitor information, analysis, insight and projection on the competitive pattern and key companies in the industry, crucial to the development and implementation of effective business, marketing and R&D programs.

REPORT OBJECTIVES

- ◆ To establish a comprehensive, factual, annually updated and cost-effective information base on market size, competition patterns, market segments, goals and strategies of the leading players in the market, reviews and forecasts.
- ◆ To assist potential market entrants in evaluating prospective acquisition and joint venture candidates.
- ◆ To complement the organizations' internal competitor information gathering efforts with strategic analysis, data interpretation and insight.
- ◆ To suggest for concerned investors in line with the current development of this industry as well as the development tendency.
- ◆ To help company to succeed in a competitive market, and

METHODOLOGY

Both primary and secondary research methodologies were used in preparing this study. Initially, a comprehensive and exhaustive search of the literature on this industry was conducted. These sources included related books and journals, trade literature, marketing literature, other product/promotional literature, annual reports, security analyst reports, and other publications. Subsequently, telephone interviews or email correspondence was conducted with marketing executives etc. Other sources included related magazines, academics, and consulting companies.

INFORMATION SOURCES

The primary information sources include Company Reports, and National Bureau of Statistics of China etc.

Abstract

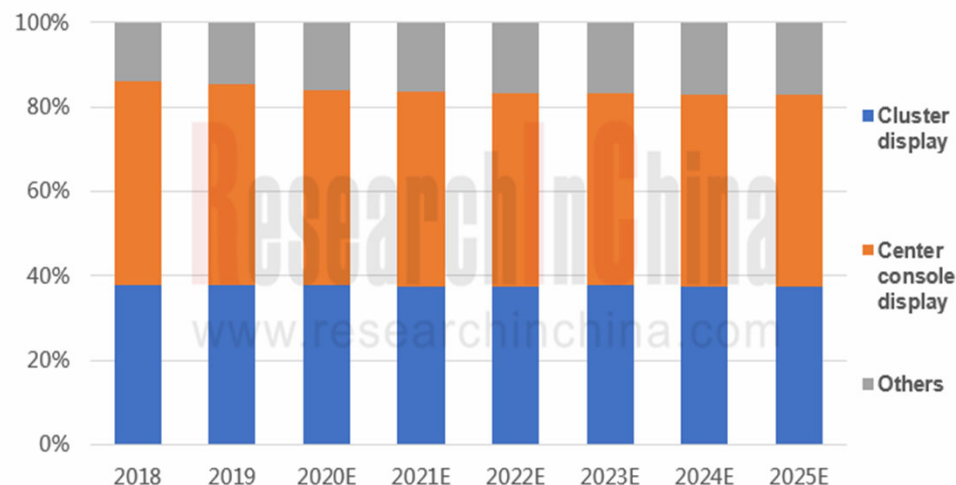
Research into Automotive Display: 10-Billion-Yuan Automotive Display Market Is Thriving.

In this report, those are analyzed and studied such as the market size, installation rate, display technology, development trends and suppliers of automotive displays (incl. cluster display, center console display, etc.).

The Center Console Display Shipments Rank First, and the Installation Rates of Rearview Mirror Displays, Rear Seat Entertainment Displays and Vehicle Control Displays Continue to Grow.

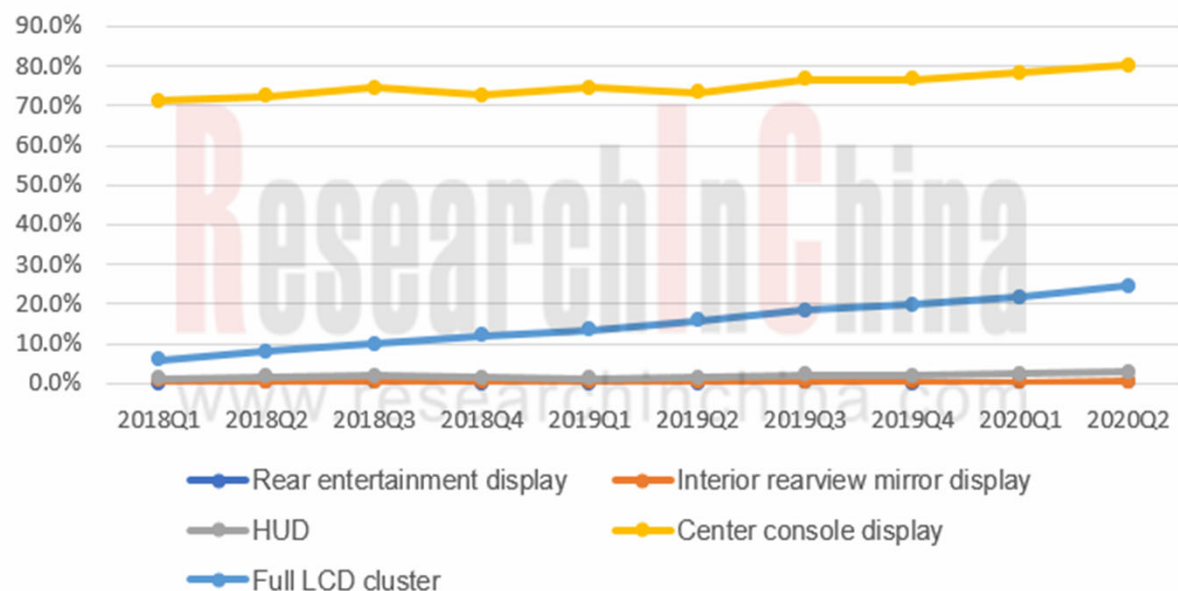
Being bound up with automobile sales, automotive display shipments worldwide edged down 1.5% year-on-year to approximately 159 million units in 2019 when auto sales continued a bearish trend. In 2020, the COVID-19 pandemic drags down global automobile sales (a like-for-like slump of 25.5% in H1 2020, and may recover a bit in H2 2020), with a projected year-on-year plunge of 20% or so. Against this, global automotive display shipments are expected to fall 12.1% year-on-year to 140 million units in 2020. In the long run, the automotive display market, however, will resume growth alongside intelligent connected vehicles at a gallop, with shipments projected to reach 180 million units by 2025.

Global Automotive Display Shipment Structure, 2018-2025E



In the Chinese market, the installation rate of console displays exceeds 80%, while full LCD cluster displays see the fastest installation rate, accompanied by a marked rise in installation rates of rearview mirror displays, HUD, center console displays, among others.

Installation Rates of Automotive Displays for Chinese Passenger Cars, 2018-2020



In 2019, the automotive display shipments of global panel vendors grew concentrated ever, especially the top five's rose by 4.3 percentage points. JDI led the pack in the market, while Tianma Microelectronics, the largest Chinese automotive panel supplier, took the third place in the world with its shipments growing at a far higher rate than those of JDI and LGD; however, BOE saw the quickest shipment growth rate as high as 73.2%. Chinese players are growing strong.

Automotive Display Technology: Given LCD Overcapacity, Suppliers Are Racing to Develop New Technologies such as AMOLED

LCD still prevails in the automotive display market, but Japanese and Korean panel makers led by JDI and LGD have been gearing from a-Si products to LTPS and even AMOLED to suit to the changing automotive demand.

Moreover, the rapid release of new LCD capacities will lead to a severer oversupply, ever lower prices and less meager profits, forcing vendors to cut production and seek for a transition and even a retreat from the LCD market.

BOE: it announced at the end of 2019 that it would stop investing in LCD capacity, but focus on OLED and next-generation Mini LED and Micro LED instead, with a plan to spawn Mini LED in Q4 2020.

LGD: It will stop production of LCD panels in South Korea before the end of 2021 to slash losses.

AUO: It trims LCD capacity and quickens to develop new products.

With the CASE (connected, autonomous, shared, electrified) trend in the automotive sector, automotive displays tend to be bigger, and in the form of conjugate displays and multi-displays. The rising of novel automotive displays such as vehicle control displays and curved displays has brought opportunities to Chinese vendors. Major suppliers have rolled out new technical solutions like AMOLED and Mini LED successively in 2020.

LGD: In February 2020, it provided a digital cockpit based on an OLED curved display for the new Cadillac Escalade. In June 2020, it announced that it will develop a retractable display before 2024.

Tianma Microelectronics: The ACRUS technology, debuted in January 2020, raises the contrast to over 30,000:1 by laminating LTPS double-layer panels.

Innolux: In July 2020, it launched a 29-inch free-form curved display incorporating a cluster board and a CID display, and planned to achieve mass production in 2022.

TCL CSOT: In October 2020, the 48" 8K In-cell Touch AM Mini-LED backlight curved automotive display was released, as the first 5096 partition AM Mini-LED backlight and 100% NTSC display in the automotive industry and the world's first 6.7" AMOLED cloud scroll display.

48" 8K In-cell Touch AM Mini-LED Backlight Curved Automotive Display of TCL CSOT



Automotive Display Installation: Integrated Displays Grow a Standard Configuration, and OLED/AMOLED Displays Begin to Penetrate in High-end Cars.

At present, automotive dual-displays or even triple-displays represent a trend. A larger display spans the entire center console, featuring the functionality involved with the copilot. As per the center console display configuration of Chinese passenger cars in 2018-2020, the installation rate of multi-displays was up from 0.3% in 2018 to 1.3% in Q2 2020. The interiors of Mercedes-Benz, Volkswagen, Chang'an and other models in 2020 reveal that dual-displays have almost become the standard.

Mercedes-Benz's Dual 12.3-inch HD Displays



24.6-inch Super Smart Dual-displays + 8-inch LCD Air Conditioner/Seat Touch Display of New Chery Tiggo 8 PLUS



The multi-display layout is basically available in models priced above RMB150,000, except Chang'an Benni E-Star launched in April 2020, a mini-car priced below RMB100,000 that has full LCD cluster & center console dual-displays, signaling the penetration of dual-displays into the medium and low-end models.

Full LCD Dual-display of Chang'an Benni E-Star



With the evolvement of intelligent connectivity technology, cars are growing to be mobile smart terminals. In addition to cluster & center console dual displays, HUD, electronic rearview mirror displays, copilot recreation displays, rear seat entertainment displays, and transparent A-pillars have emerged. HOZON U, for instance, launched in 2019, is equipped with a vehicle control display and transparent A-pillars besides dual displays. ENOVATE ME7 unveiled in September 2020 carries 5 high-definition displays including a cluster display, a center console display, a copilot display and dual displays in the rear row.

According to the concept models released by OEMs, curved displays will shine in the automotive display field in future. Luxury brand cars and new energy vehicles are first making use of OLED displays.

Previously, only small displays such as transparent A-pillars, and Audi virtual rearview mirror displays applied OLED. In 2020, some production models use OLED on large displays for center consoles and the copilot. Mercedes-Benz S-class launched in August 2020 is provided with a 12.8-inch OLED curved center console display; the 2021 Cadillac Escalade will be packed with the industry's first large-size curved OLED cluster display; Nissan's IMQ concept uses a 33.1-inch curved display; Audi-Aicon concept adopts a surrounded display.

The 2021 Cadillac Escalade equipped with Curved OLED Display



1. Automotive Cluster and Console**1.1 Automotive Cluster****1.1.1 Introduction****1.1.2 Information Display****1.1.3 Classification****1.1.4 Development Course****1.1.5 Assembly****1.1.6 Industry Chain Map****1.1.7 Cluster Display Products of Main Suppliers****1.2 Console Display****1.2.1 Console Platform****1.2.2 Console Classification****1.2.3 Main Layout Ways of Console****1.2.4 Automotive Display Industry Chain Map****1.2.5 Console Products of Major Suppliers****1.3 Onboard Display****1.3.1 Classification of Onboard Displays****1.3.2 Classification of Display Technologies****1.3.3 Automotive Cluster Display Technology****1.3.3 Automotive Cluster Display Technology: TFT-LCD Display****1.3.3 Automotive Cluster Display Technology: AMOLED Display****1.3.3 Automotive Cluster Display Technology: Mini LED Display****1.3.3 Automotive Cluster Display Technology: Micro LED Display****2. Automotive Display Configuration Data****2.1 Onboard Display Installation****2.1.1 2 Display Installations (Before Market) for Passenger Vehicles in China (by Application), 2018-2020****2.1.2 Installation Rate of Onboard Displays for Passenger Vehicles in China (by Type), 2018-2020****2.2 Installation of Instrument Cluster Display****2.2.1 Cluster Installations for Passenger Vehicles in China (by Type), 2018-2020****2.2.2 Installation of Clusters for Passenger Vehicles in China (by Size), 2018-2020****2.2.3 Full LCD Cluster Installations for Passenger Vehicles in China, 2018-2020****2.3 Installation of Console Display****2.3.1 Installation Rate of Console Display for Passenger Vehicles in China, 2018-2020****2.3.2 China's Passenger Vehicle Console Display Market (by Product), 2018-2020****2.3.3 China's Passenger Vehicle Console Display Market (by Size), 2018-2020****2.3.4 China's Passenger Vehicle Large-Size Console Display Market, 2018-2020****3. Automotive Display Market and Technology Trends****3.1 Status Quo of Onboard Display Market**

- 3.1.1 Global Automotive Display Shipments
- 3.1.2 Competition Pattern of Global Onboard Display
- 3.1.3 Competition Pattern of Chinese Onboard Display
- 3.2 Onboard Display Technologies of Suppliers
 - 3.2.1 Onboard Display Technology Layout of Major Suppliers
 - 3.2.2 Onboard Display Product Line of Major Suppliers
 - 3.2.3 Display Solutions of Major Suppliers
 - 3.2.4 Display Technology Trends of Suppliers
- 3.3 Onboard Display Solutions of OEMs
 - 3.3.1 Status Quo of OEM Onboard Display
 - 3.3.2 Installation of OEM Onboard Display
 - 3.3.3 OEM Onboard Display Installation Trend (I)
 - 3.3.4 Top 20 Automakers by Full LCD Cluster Installations for Passenger Vehicles in China, H1 2020
 - 3.3.5 Penetration of Full LCD Clusters from High-end Models to Entry-level Ones
 - 3.3.6 OEM Onboard Display Installation Trend (II)
 - 3.3.7 OEM Onboard Display Installation Trend (III)
- 3.4 Development Trend of Onboard Display Technology
 - 3.4.1 Ever More Deployment of 3D Automotive Displays under Intelligent Trend
 - 3.4.2 First Availability of OLED Display/AMOLED Display onto High-end Models
 - 3.4.3 Advances of Mini LED Display and Micro LED Display Technologies

- 3.4.4 Curved Multi-Form Display
- 3.4.5 Special-shaped Screen
- 3.4.6 Quick Response and High Refresh Rate
- 3.4.7 Ultra-narrow Bezel Display Technology

4. Global Console/Cluster System Solution Providers

- 4.1 Continental
 - 4.1.1 Profile
 - 4.1.2 Business Segments
 - 4.1.3 Continental Automotive Group
 - 4.1.4 Interior Business
 - 4.1.5 Global Market Share of Continental Clusters
 - 4.1.6 Major Cluster Products
 - 4.1.7 Control Panel
 - 4.1.8 Display Solutions
 - 4.1.9 Display Technologies
 - 4.1.10 Development in China
- 4.2 NIPPON SEIKI
 - 4.2.1 Profile
 - 4.2.2 Revenue and Operating Profit
 - 4.2.3 Cluster and Other New Capacity Expansion Projects
 - 4.2.4 DMS (Driver Monitor System) Integrated Cluster
 - 4.2.5 Main Vehicle Model Clusters Supported by Nippon
 - 4.2.6 OLED Display

- 4.2.7 Display Technology
- 4.2.8 Shanghai Nissei Display System Co., Ltd.
- 4.3 Denso
 - 4.3.1 Profile
 - 4.3.2 Sales (by Products/Clients)
 - 4.3.3 Cluster Manufacturing Base
 - 4.3.4 Cluster Products
 - 4.3.5 Console
 - 4.3.6 Double-curved OLED Display Screen
 - 4.3.7 Development in China
- 4.4 Visteon
 - 4.4.1 Profile
 - 4.4.2 Main Clients
 - 4.4.3 Revenue from Clusters and Displays
 - 4.4.4 Instrument Clusters Business
 - 4.4.5 Displays Business
 - 4.4.6 Display Technology
 - 4.4.7 Partner with Corning to Produce Curved Display System
 - 4.4.8 Cockpit Display Development Plan
 - 4.4.9 Performance in China in 2019
- 4.5 Marelli
 - 4.5.1 Profile
 - 4.5.2 3D Digital Clusters and Glasses-free 3D Clusters
 - 4.5.3 Intelligent Cockpit Controller

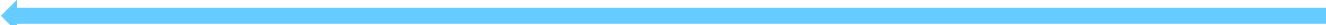
- 4.5.4 Multi-Screen Electric Cockpit
- 4.5.5 Display Technology
- 4.6 Bosch
 - 4.6.1 Profile
 - 4.6.2 Multimedia Business
 - 4.6.3 Cluster Business
 - 4.6.4 Glasses-free 3D Display
 - 4.6.5 Display Technology
 - 4.6.6 Electronic Rearview Mirror
- 4.7 Yazaki
 - 4.7.1 Profile
 - 4.7.2 Operation
 - 4.7.3 Main Products
 - 4.7.4 Cluster and Display Business
 - 4.7.5 Main Cluster Products
- 4.8 Faurecia
 - 4.8.1 Profile
 - 4.8.2 Automotive Electronics Product Line
 - 4.8.3 Operating Results in H1 2020
 - 4.8.4 Display Business
 - 4.8.5 Future Cockpit
- 4.9 Desay SV
 - 4.9.1 Profile
 - 4.9.2 Operation

- 4.9.3 Product Layout
- 4.9.4 Driving Information Display Business
- 4.9.5 Virtual Cockpit
- 4.10 Foryou General Electronics
 - 4.10.1 Profile
 - 4.10.2 Automotive Electronic Product Line
 - 4.10.3 Smart Cockpit
 - 4.10.4 Cluster and Display Business
 - 4.10.5 Electronic Rearview Mirror
 - 4.10.6 Streaming Media Rearview Mirror
- 4.11 AutoIO
 - 4.11.1 Profile
 - 4.11.2 Full LCD Cluster Products
 - 4.11.3 Full LCD Products and Vehicle Models Supported
- 4.12 Autorock
 - 4.12.1 Profile
 - 4.12.2 Major Cluster Products
- 4.13 Hangsheng Electronics
 - 4.13.1 Profile
 - 4.13.2 Smart Cockpit Layout
- 4.14 ITAS
 - 4.14.1 Profile
 - 4.14.2 Dual 12.3-Inch Through-type Full LCD Cluster
 - 4.14.3 12.3-inch Full LCD Cluster for Commercial Vehicle

- 4.15 Willing Technology
 - 4.15.1 Profile
 - 4.15.2 Development Plan
 - 4.15.3 Display Products
- 4.16 Vikeer
 - 4.16.1 Status Quo
 - 4.16.2 Dual Joint Screens

5. Global Automotive Display Suppliers

- 5.1 JDI
 - 5.1.1 Profile
 - 5.1.2 Business Layout
 - 5.1.3 Global Presence and Manufacturing Bases
 - 5.1.4 Operation
 - 5.1.5 Automotive Display Business
 - 5.1.6 Automotive Cockpit Integrated with Multiple Display Systems
- 5.2 LGD
 - 5.2.1 Profile
 - 5.2.2 Operation
 - 5.2.3 Shipment and Capacity of Display Products
 - 5.2.4 Onboard Display Business
 - 5.2.5 Onboard Display Products
- 5.3 Tianma Microelectronics
 - 5.3.1 Profile



5.3.2 Operation	5.7.3 Onboard Display Layout
5.3.3 Onboard Display Business	5.7.4 Automotive Display Products
5.3.4 Onboard Display Products	5.8 Visionox
5.4 BOE	5.8.1 Profile
5.4.1 Profile	5.8.2 Operation
5.4.2 Operation	5.8.3 Onboard Display Products
5.4.3 Production Line and Capacity of Display Panels	5.9 Others
5.4.4 Onboard Display Business	5.9.1 Onboard Display Layout of TCL CSOT
5.4.5 Onboard Display Products	5.9.2 Onboard Display Layout of CPT Technology
5.4.6 Intelligent Cockpit Display Solutions	5.9.3 Onboard Display Layout of HannStar Display
5.5 SDC	
5.5.1 Profile	
5.5.2 Onboard Display Business	
5.5.3 SDC Audi e-Tron Rearview Mirror OLED Screen	
5.5.4 QD-OLED Display Layout	
5.6 AU Optonics	
5.6.1 Profile	
5.6.2 Operation	
5.6.3 Display Shipment	
5.6.4 Onboard Display Business	
5.6.5 Onboard Display Products	
5.7 Innolux	
5.7.1 Profile	
5.7.2 Operation	

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