JMO

2025

JMO Smart Cluster:

Your Intelligent Companion for the Future of Riding

CODICO sample shop - April 2025

Development History and Strategic Transformation

From Display Manufacturing to Intelligent Solution Provider

- Established in **2011**, specializing in display manufacturing,
  Strategic shift in **2015** toward embedded solutions

Deep Industry Focus

- Continuously dedicated to smart cluster + automotive surround-view systems
  Collaboration with global top-tier supercar brands, enhancing brand influence

Certifications & Industry Recognition

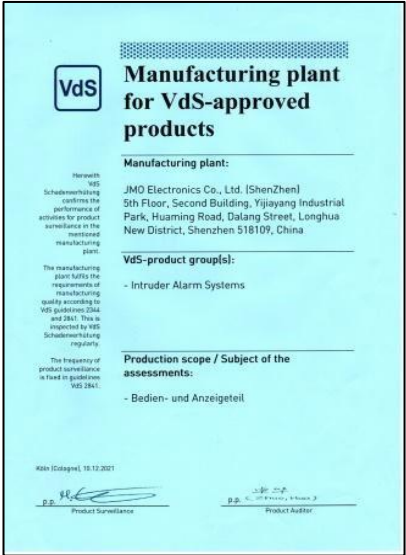ISO 16949, ISO 9001/14001, VDS certification, reflecting our commitment to high standards and premium quality.
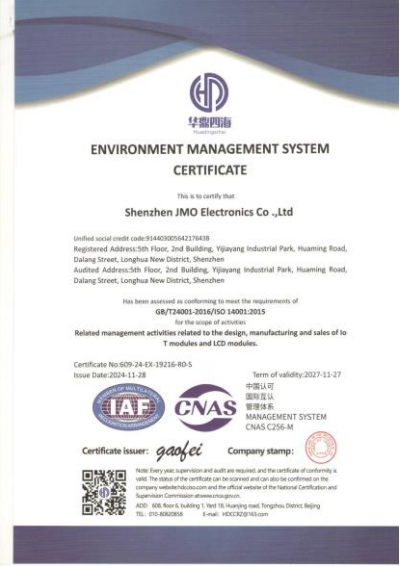
Company Certification

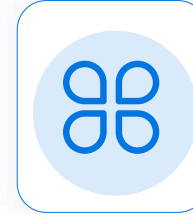IATF 16949

ISO9001

VDS

ISO14001

Market Expansion Strategy

Emerging Market Development

Smart Upgrade Solutions for Electric Motorcycles
Compliance with SEA/LATAM Localization Requirements
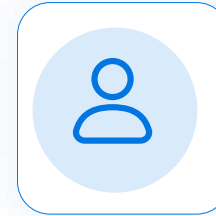
Low-Speed EV Market Expansion

Scenario-Based Product Adaptation:
- ✔ Logistics Fleet Electrification
- ✔ Industrial Forklift Customization

ADAS Regulations

"California Mandate (2024): ADAS(ARAS) becomes mandatory for electric motorcycles, accelerating smart riding technology adoption in the two-wheeler sector."

Smart Mobility Incentives

Gadkari emphasizes use of AI, advanced technology to improve road safety

The economic loss due to road accidents is estimated at 3% of the country's GDP, he said. He stressed that improving road safety is a top priority for the government, and measures are already underway to address this issue.

Online Desk · Agencies
Published On Oct 25, 2024 at 08:16 AM IST

FAME II Policy Upgrade

• 20% Price Rebate: FAME II now subsidizes smart dashboards with ADAS functionality, reducing consumer costs by 20% to accelerate smart riding adoption.

• Pilot City Mandate: Bengaluru and 9 other cities require pre-installed collision warning systems, enhancing urban road safety and tech development.

Localization Incentives - Powering Make in India

• Duty Relief: Custom tariff exemptions for domestic EV component manufacturing

• Land Benefits: Priority industrial zone allocation with 50% subsidy

• Supply Chain Boost: Accelerating full-industry chain development

Market Trends

Surging E-Motorcycle Market in EU & US

Per Statista data, the sales of electric two-wheelers in Europe and America rose by 15% in 2023. The market potential is huge. By 2025, the stock of electric motorcycles in the region is expected to break 5 million units, with a CAGR of 18%.

Rising Safety Demand in E-Motorcycle Market

Surveys indicate that 80% of electric motorcycle users in Europe and America want ADAS (ARAS) features, driven by rising safety needs. In the high-end market, the share of models with ADAS has jumped from 30% in 2020 to 60% in 2023.

Connectivity & Experience Demands

90% of electric motorcycle users in Europe and America want CarPlay and other phone connectivity features. They also need large screens for multitasking, like showing navigation and camera feeds together, to improve riding experience.

Smart Cluster Series

7inch Smart Cluster

Qualcomm QWM2290 chipset to meet smart connectivity demands.

10.1inch 360°Surround View System

Qualcomm QCM6115 & QCS6490

4-Camera Seamless Stitching & Low-Latency Processing

Available June 2025

10.25inch Shared Display Smart Cluster

Qualcomm QCM6125 & QCM6115

Dual-OS Architecture:

RTOS + Android

Advanced ARAS Support

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2W Cluster

Performance Edge for 2290 Smart Cluster

QCM2290 Processor

🚀 30% Faster Processing

• Optimized for 7" displays with quad-core Cortex-A53

• Benchmarked: 1.8x faster UI rendering vs. previous gen

⚡ 20% Power Reduction

• Dynamic voltage scaling for energy-efficient operation

• 4000nits brightness at <3W power draw

❄ Extreme Environment Ready
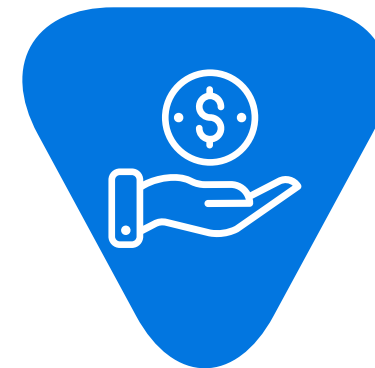
• 30°C to 75°C operating range

Advanced ADAS Integration
(Optional)

🛡 95%+ Accuracy Alerts

• Forward Collision Warning (FCW)

• Lane Departure Warning (LDW)

📷 High-Performance Vision Processing

• 2*AHD automotive grade cameras

• 30ms end-to-end latency (benchmarked)

Smart Connectivity Experience

Seamless Mobile Integration

▦ 99% Reliable Wireless CarPlay

• Instant pairing with <1s connection time

• 60fps smooth screen mirroring (tested with iPhone 15 Pro)

🗺 Premium Offline Navigation

• 98% route accuracy

QWM2290 - Overview

Chipset/OS	QWM2290
Processor	Cortex A53 quad-core CPU and a built-in Adreno™ 702 GPU
Wi-Fi /BT	IEEE 802.11 a/b/g/n/ac , BT 5.0
GNSS	GPS / BDU / GLONASS / Galileo/QZSS / SBAS Ranging Support
Memory	1GB+8GB,2GB+16GB
Interface	1xLCD (MIPI-DSI)**, 2xCamera (MIPI-CSI)**, 2xCCI I2C, 2xAnalog Audio Out**, 2x DMIC, 1xUSB 3.1(OTG Support), 1xUSIM, 3xUART, 37xGPIO**, 1xSDC 3.0, 1xADC**, 2xI2C**, 1xI3C**, 1xSPI**, 1xTouch Interface (I2C), 1xVIB_DRV, 1xWi-FI + BLE + FM ANT, 1xMain ANT, 1xDIV ANT, 1xGNSS ANT
Cellular Bands Supported	WW : B1 /B2 /B3 /B4 /B5 /B7 /B8 /B12 /B13 /B18 /B19 /B20 /B25 /B26 /B28 /B38 /B40 /B41 /B66 /B71*	GSM – 900/1800 MHz

7inch QCM2290 Smart Digital Cluster

Our Product：

a) 7 inch (800X480) capacitive display with touch function

b) Automotive grade display

c) Supports CarPlay connectivity(optional)

d) Linux System

e) Supports 4G/Wi-Fi network communication

f) Supports navigation and positioning functions

g) Adjust the screen brightness based on the natural light

h) Cameras and ARAS(optional)

i) Waterproof rating:IP66

7inch 2290 Smart Digital Cluster with Snapdragon

Specification

Items	7.0 inch Smart Digital Cluster
Cover Lens	Surface with AG,AF, IK07 / LOCA
TP (Touch Panel)	Support Touch Function
Bonding	LOCA
Display	7 inch display
Resolution	800*480
Brightness	850cd/m², Sunlight readable
Operation Temperature	-30°C ~ 75°C
Store Temperature	-30°C ~ 85°C
PCBA	Frequency: 845MHz/Memory: 1GB+8GB, 2 GB LPDDR3 + 16 GB eMMC/Quad-core 64-bit ARM Cortex-A53 processor @2.0GHz
Housing	Front Housing: PC+ABS / Rear Housing: 6061 Aluminum Alloy
IP Grade	IP66
Interface	JAE-26PIN Waterproof Automotive Connector
Dimensions	217.39 X 126.60 X 80.0mm
Input Voltage	DC12V
OS	Linux system

10.25inch QCM6125 Smart Digital Cluster

Our Product：

a) 10.25 inch (1280X480) capacitive screen with touch function

b) Waterproof rating:IP66

c) Supports CarPlay connectivity(optional)

d) Supports shared display:
    Left: RTOS & Right: Android system

e) Supports front and rear cameras

f) Supports 4G/Wi-Fi network communication

g) Supports navigation and positioning functions

h) Supports ARAS(optional)

QCM6115/6125 Module Spec

Chipset/OS	QCM6115/6125
Processor	Quad-core ARM® Cortex™-A73,2.0GHz+Quad-core ARM Cortex™-A53,1.8GHz
Wi-Fi /BT	2.4G+5G, 802.11 a/b/g/n/ac, BT 5.0
GNSS	GPS/Beidou/GLONASS
Memory	3GB+32GB, 4GB+64GB
Interface	3 x UART Up to 4 I2C Up to 3.4Mbps 1 x USB2.0/3.1, Support OTG, Support DP over Type-C 33 GPIOs CAM: Three 4-lanes CSIs(4/4/4 or 4/4/2/1) D-PHY 1.2 at 2.5 Gbps per lane or C-PHY 1.0 at 10 Gbps(3.42 Gbps/trio) Display: 1x 4-lane MIPI_DSI; up to (2520*1080)@60fps
RF	LTE FDD:B1/3/5/8 LTE TDD: B34/38/39/40/41 WCDMA: B1/8

Customizable designs including vibration resistant cameras for drive recording and rider safety (ARAS)
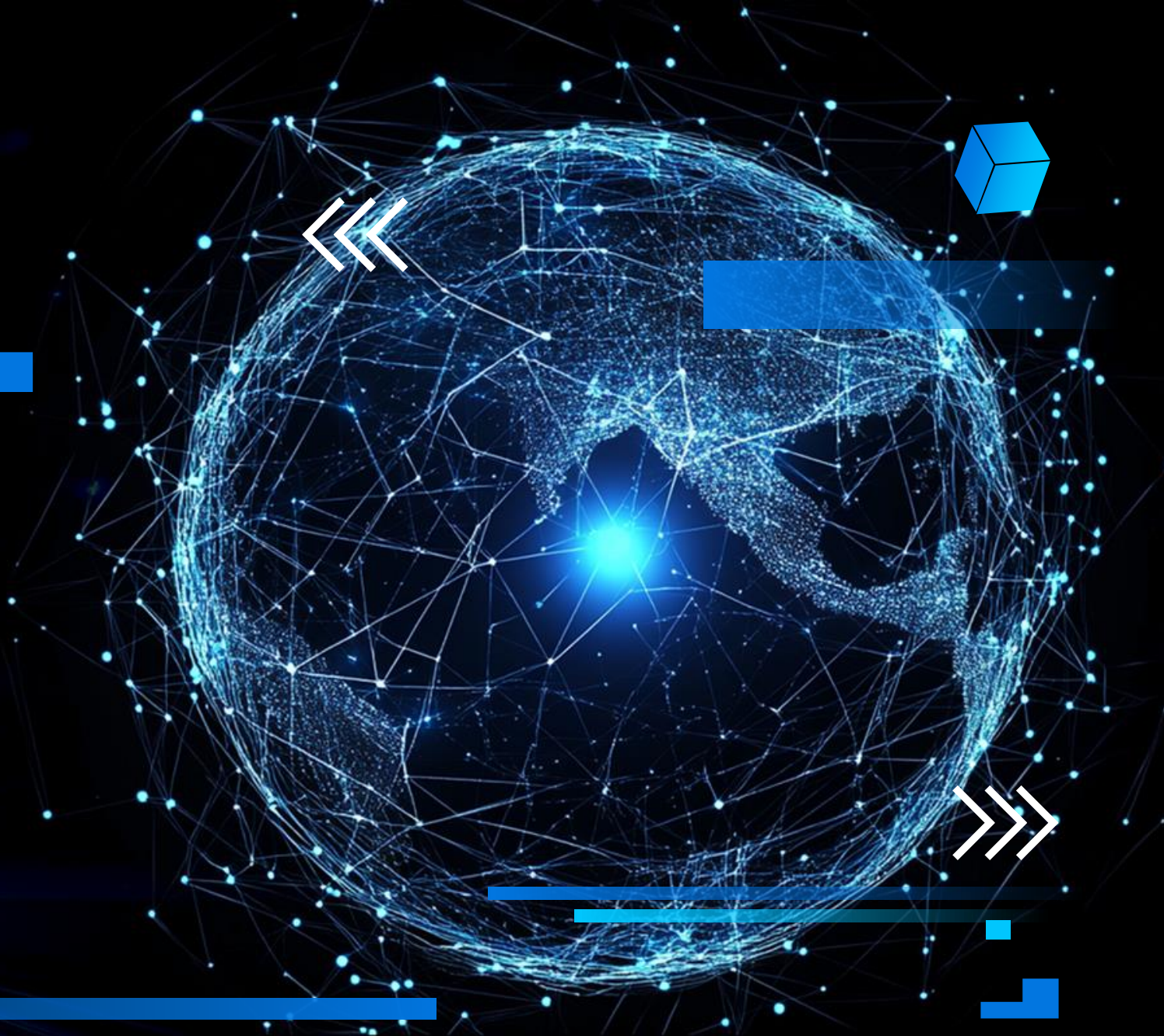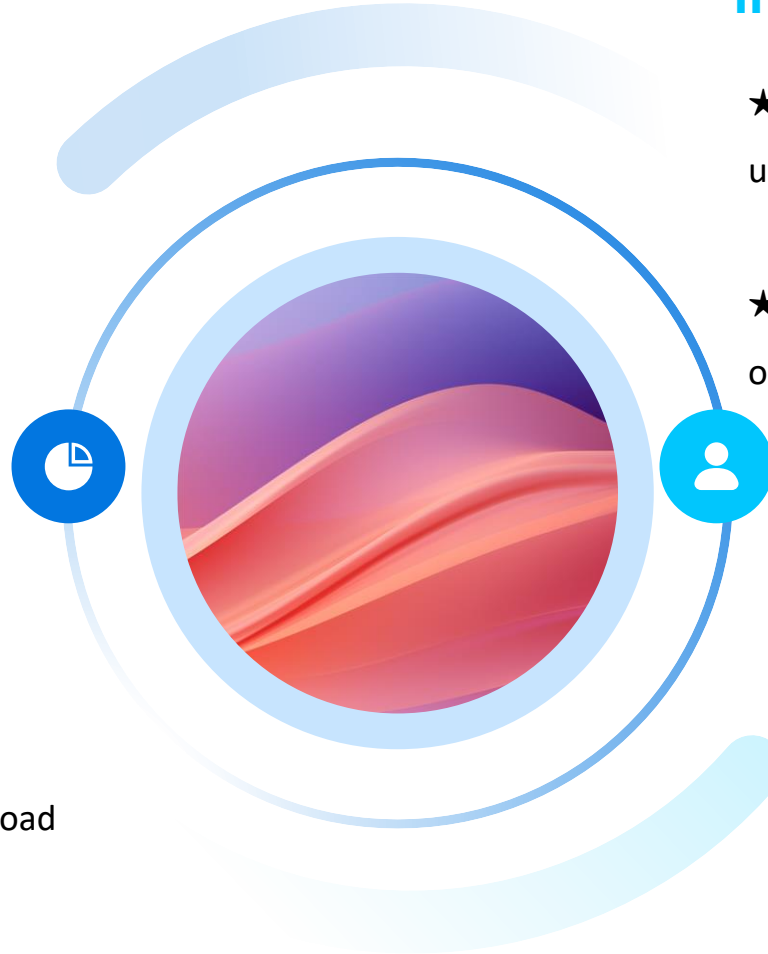
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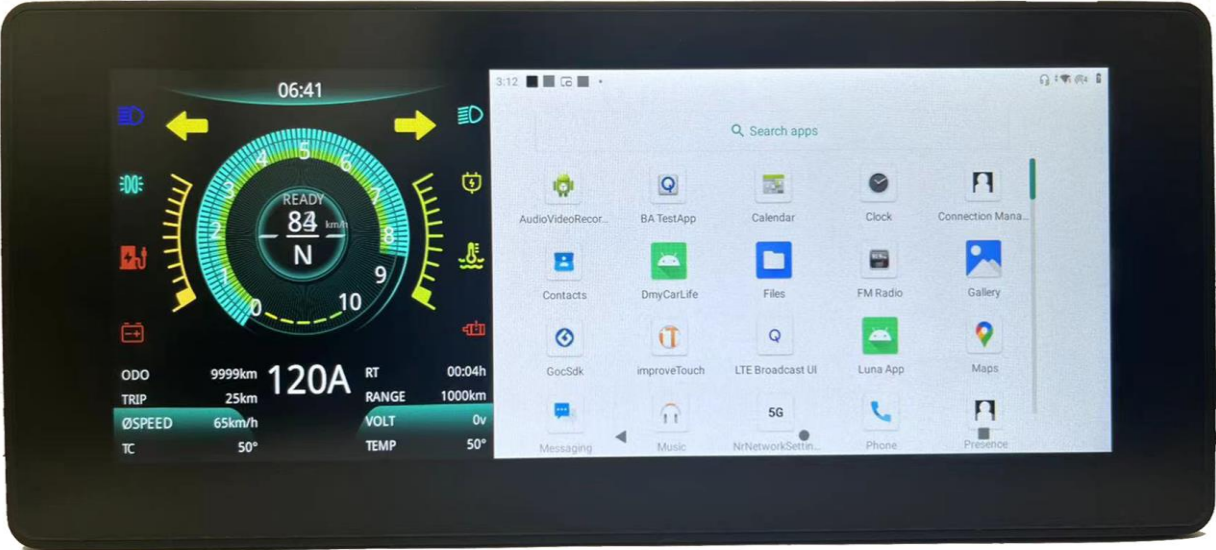
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4W Dashboard

4W Smart Dashboard for Aftermarket

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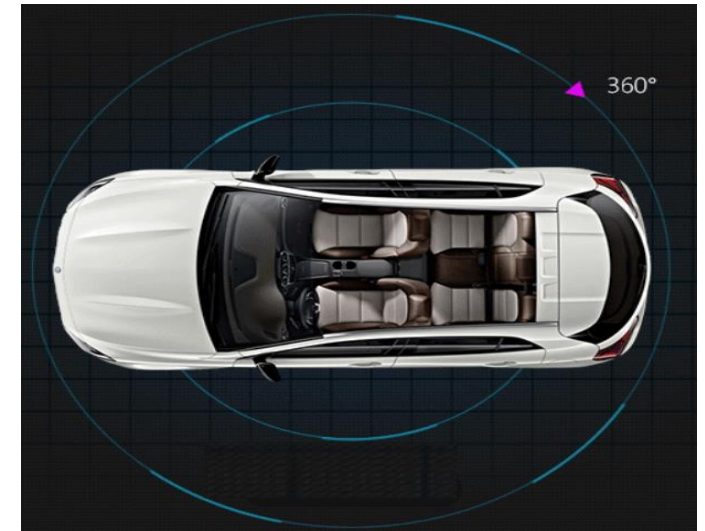## Innovation

★ Advanced processing algorithms ensure ultra-clear visual output

★ Elevates vehicle safety standards & optimizes driving convenience

Low Cost

▲ Adapt to entry-level vehicles

▲ Cost-effective design with broad compatibility

360°

6115 4W smart dashboard total solution for aftermarket applications

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Wireless communication

Qualcomm 6115 platform

10.1inch touch display

Navigation

800*1280 resolution

Quick start

360 Cameras

Carplay function

AHD Cameras

AI voice assistant

WIFI

BT/4G

ADAS

Fast reverse

OTA update

QCM6115 4W Smart dashboard – 360 degree surround view

360 camera panoramic rendering

Front Camera

220°

Left Camera 220° 220° Right Camera

Rear Camera 220°
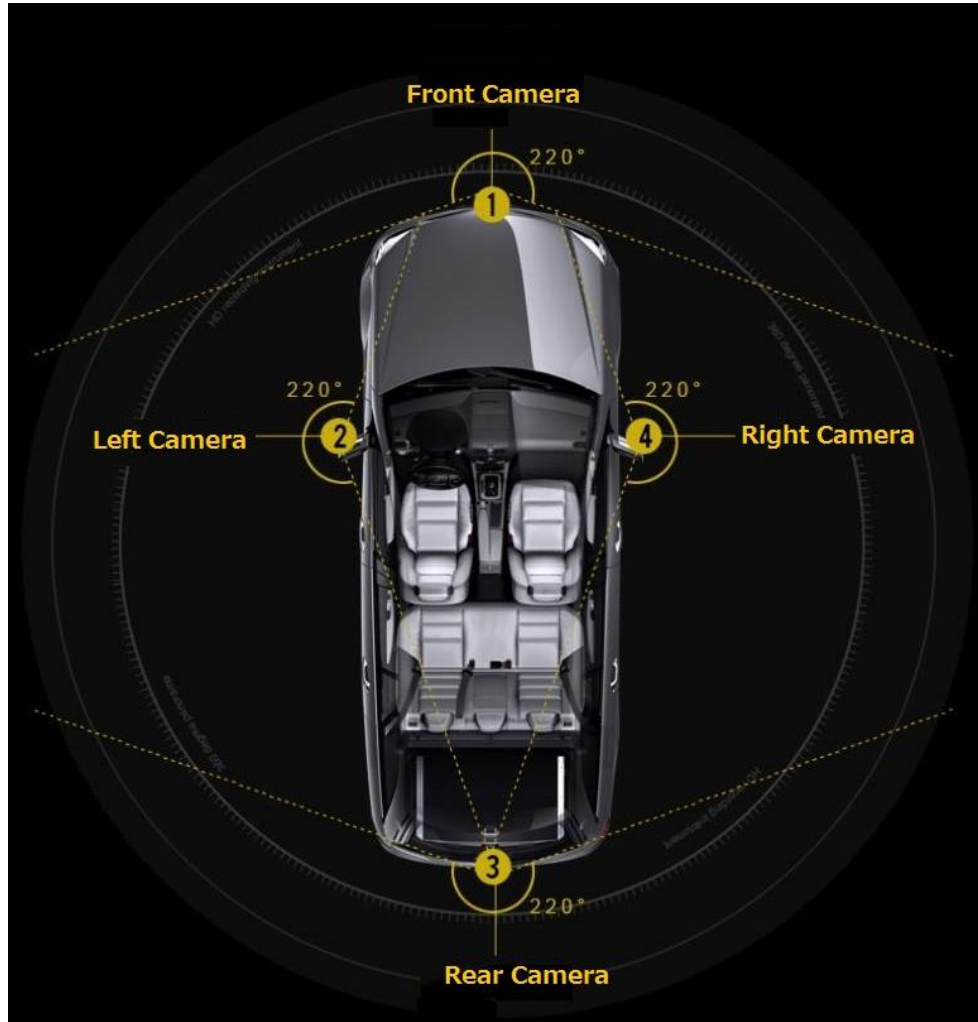
Front   Rear   Left   Right

Panorama + front view

Panorama + Rear view

Panorama + Left view

Panorama + Right view

QCM6115 4W Smart dashboard

360 camera Feature

360 camera main feature

--Assisted parking

--expanding visibility through narrow roads

--driving recorder, panoramic view

--automatic screen switching

--Blind spot detection and warning

--Driving record and playback

360 camera Introduction

Feature	Parameter
Fast reverse	≤4s
CPU occupancy	37.50%
Memory occupancy	5.60%
Look around the application startup speed	<1s
Wake up time	2.12s
Wake up and reverse time	2.23s
Switch the corresponding reverse speed	<1s
Startup speed	26s

Hardware Architecture

Qualcomm-Centric Platform Foundation

★ Precision Power-Performance Equilibrium

★ Mission-Critical Hardware Reliability

Automotive-Grade Display System

★ Temperature resistant, shock proof, and high brightness display, adaptable to various environments.

★ Available in multiple sizes and supporting multi - touch.

Software Ecosystem Integration

☆ **Multi - Platform System Support**

01

Cross-platform SDK supporting Android/Linux/RTOS

Cloud-native OTA update framework

Third-party API gateway with 200+ certified modules

02

☆ **ARAS Algorithm Integration**

Proactive Collision Mitigation

Dynamic Blind Spot Monitoring

03

☆ **Seamless Mobile-to-Vehicle Ecosystem**

Apple CarPlay® & Android Auto™ connectivity
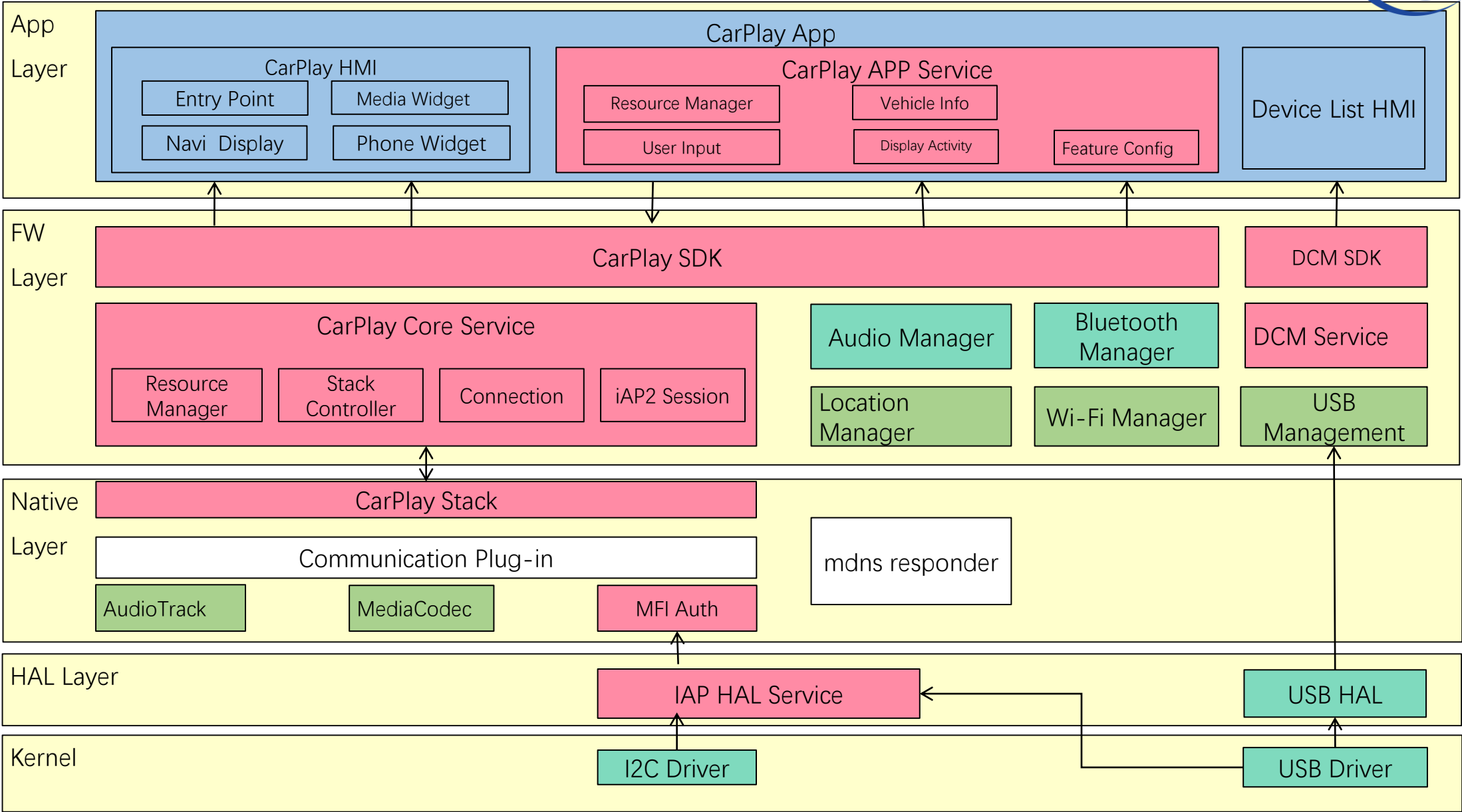
CarPlay Software Architecture on Android OS

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App Layer

CarPlay App

CarPlay HMI
- Entry Point
- Media Widget
- Navi Display
- Phone Widget

CarPlay APP Service
- Resource Manager
- Vehicle Info
- User Input
- Display Activity
- Feature Config

Device List HMI

FW Layer

CarPlay SDK

DCM SDK

CarPlay Core Service
- Resource Manager
- Stack Controller
- Connection
- iAP2 Session

- Audio Manager
- Bluetooth Manager
- DCM Service

- Location Manager
- Wi-Fi Manager
- USB Management

Native Layer

CarPlay Stack

Communication Plug-in

mdns responder

- AudioTrack
- MediaCodec
- MFI Auth

HAL Layer

IAP HAL Service

USB HAL

Kernel

I2C Driver

USB Driver

Legend:
- Customer HMI
- Customized module
- JMO
- Apple Source Code
- AOSP

CarPlay

JMO Advantage

End-to-End Certification Process Breakdown – Compliance Assurance & Rapid Deployment

Local Lab Collaboration Strategy – Streamlined Communication for Cycle Time Reduction

Proven Display Technology Heritage

High Color Fidelity & Ultra-Fast Touch Response

Elevated Visual Performance and Intuitive User Interaction

20 Years of Display Expertise, Driven by Continuous Innovation

Delivering a Robust Technological Foundation for Product Excellence

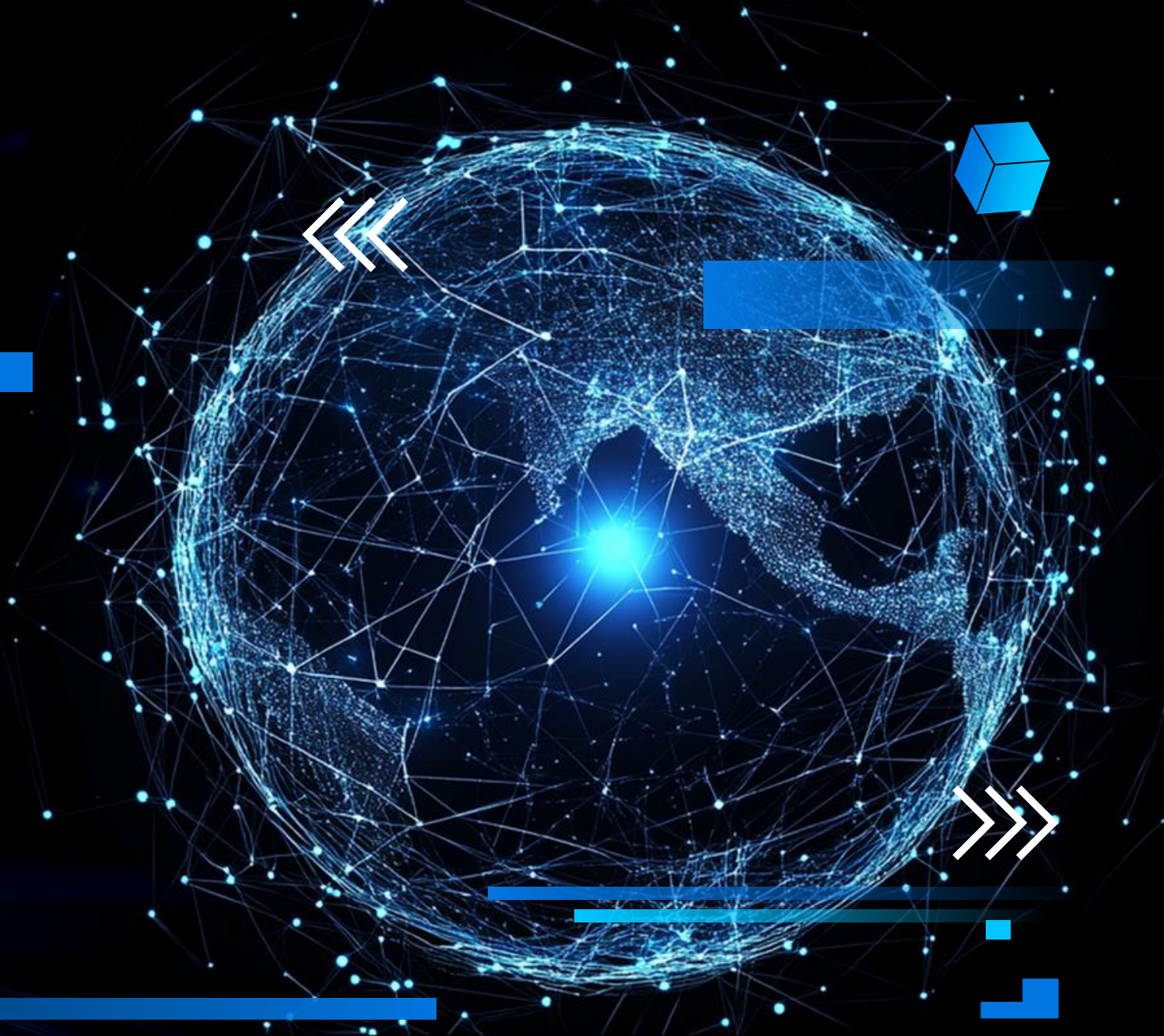## Next-Gen Display Innovation

Precision Engineering Performance

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06

PART

Customized Services

UI Design

Function Configuration

APP Development

Display Options

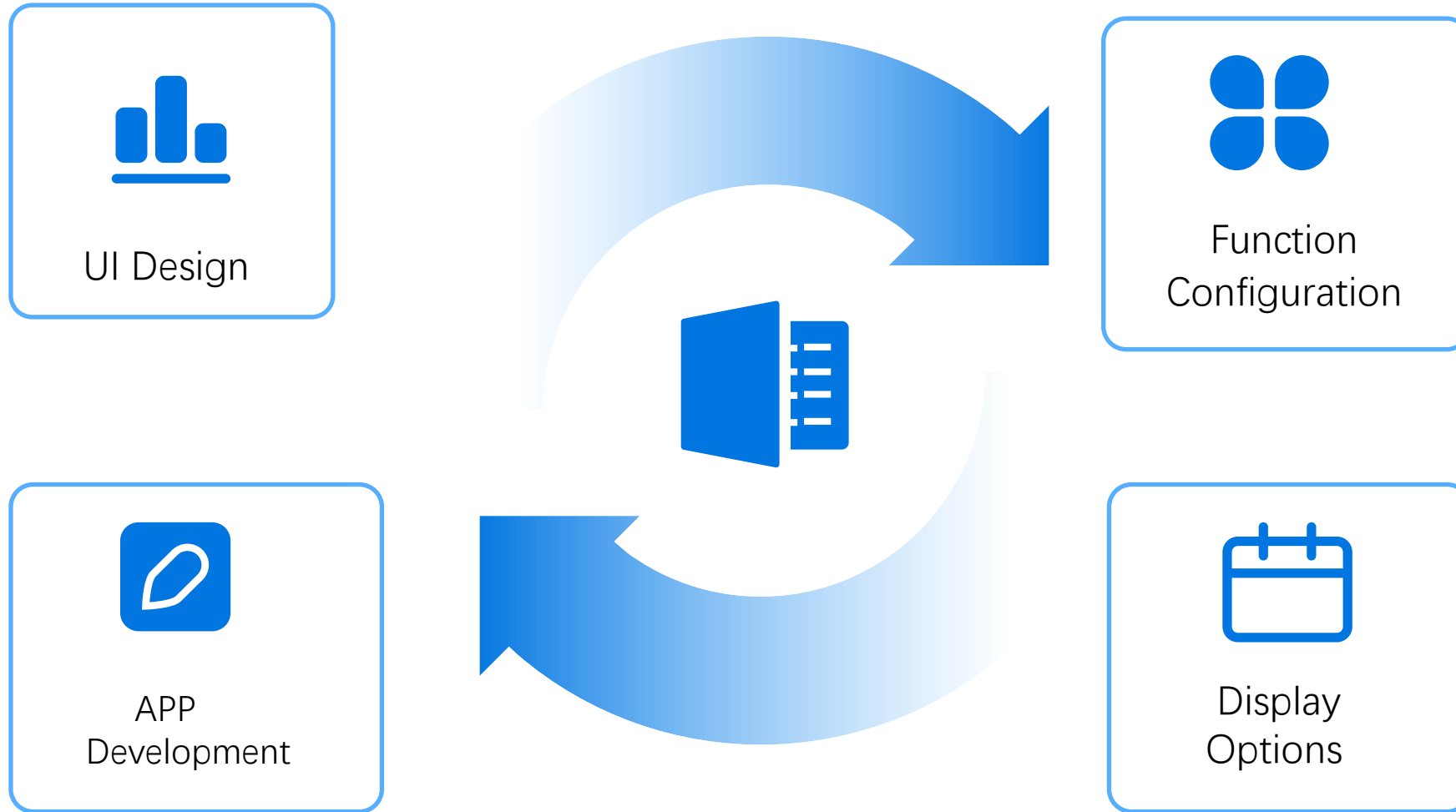# Cost Optimization

CKD (Completely Knocked Down) / SKD (Semi-Knocked Down) Shipment Models

Compliance with Local Content Regulations

Logistics Cost Reduction via Regional Assembly

Vertical Integration of Supply Chain

In-house R&D and Production of Display Modules → Cost Reduction

Enhanced Supply Chain Resilience and Competitiveness