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Intelligent Cockpit Domain Controller and SoC Market Analysis Report, 2023Q2

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Cockpit domain controller and chip in 2023Q2

On May 17, 2023, the “White Paper on Automotive Intelligent Cockpit Levels and Comprehensive Evaluation” prepared by China-SAE together with industry professionals was officially released. It defines five levels of intelligent cockpits from L0 to L4.

Level	Key Feature	HMI	Connected Service	Scenario Extension
L0 Functional cockpit	Task execution is carried out in in-cabin scenarios; the cockpit makes a passive response to the needs of driver and passengers in the cockpit; IVI service capability is available.	Passive interaction	IVI service	Partial in-cabin scenarios
L1 Perception intelligent cockpit	Task execution is carried out in in-cabin scenarios; the cockpit has the ability to actively perceive occupants in the cockpit in partial scenarios, and task execution requires driver's authorization; occupant-oriented cockpit domain service capability is available.	Authorized interaction	Cockpit domain service	Partial in-cabin scenarios
L2 Partial cognitive intelligent cockpit	Tasks execution can be carried out across partial in/out-cabin scenarios; the cockpit has the ability to actively perceive occupants in the cockpit in partial scenarios, and partial tasks can be executed actively; continuously upgradable connected cloud service capability is available.	Partially active interaction	Upgradable connected cloud service	Partial in/out-cabin scenarios
L3 High-level cognitive intelligent cockpit	Tasks execution can be carried out across partial in/out-cabin scenarios; the cockpit has the ability to actively perceive occupants in the cockpit in all scenarios, and partial tasks can be executed actively; open connected cloud service capability is available.	Partially active interaction	Open connected service	All in-cabin scenarios / partial out-cabin scenarios
L4 Full cognitive intelligent cockpit	Tasks execution can be carried out across all in/out-cabin scenarios; no driver in the cockpit is allowed; the cockpit has the ability to actively perceive occupants in the cockpit in all scenarios, and all tasks can be executed actively; cloud control platform service capability is available.	Active interaction	Cloud control platform service	All in/out-cabin scenarios

Source: China-SAE

Intelligent cockpit levels by Function

Referring to China-SAE's automotive intelligent cockpit levels and combining cockpit functions of mainstream vehicle models on market, ResearchInChina presents the intelligent cockpit levels in the form of specific function parameters, and divides intelligent cockpit into 4 levels.

Core Function	Intelligent Cockpit Level	Large Center Console Screen (>10 inches)	Mobile Network	OTA	Remote Control via Mobile APP	Driver Monitoring	In-cabin Monitoring	V2X	Health Monitoring	Metaverse Application
IVI	L0	√								
Connectivity	L1	√	√		√					
In-cabin perception, upgradable	L2	√	√	√	√	√				
All-scenario perception, cloud service	L3	√	√	√	√	√	√	√		
No driver, cloud control, AR application	L4	√	√	√	√	√	√	√	√	√

Source: ResearchInChina

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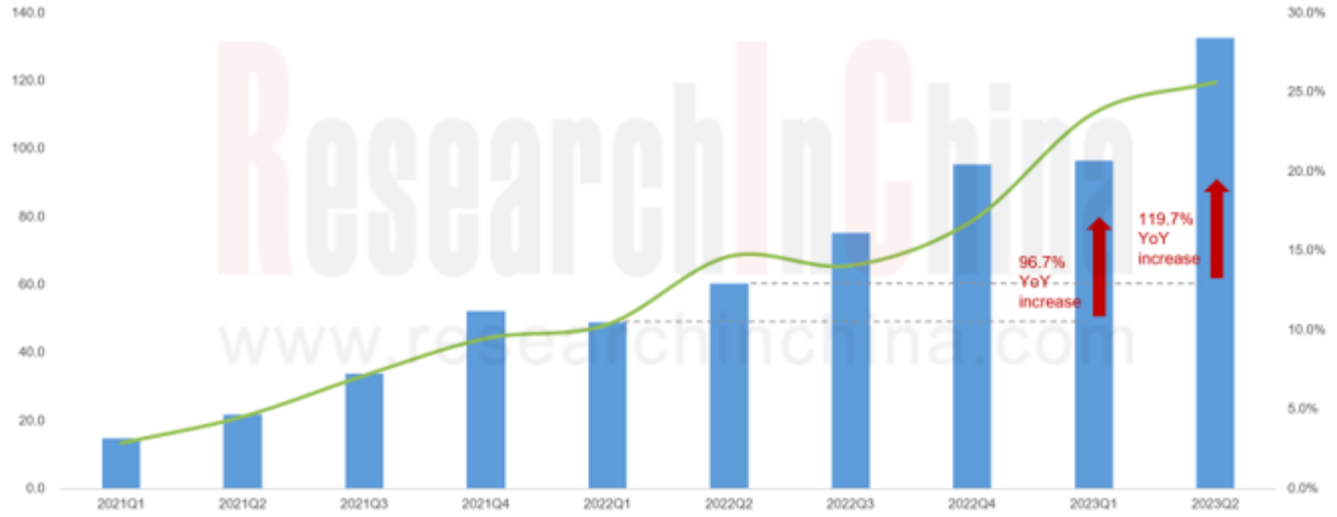
By Intelligent Cockpit Level, L1 surged by 105% on a like-on-like basis, and L2 soared by 171%

This Report only studies vehicle models with both L1+ intelligent cockpit functions (including L1, L2, L3 and L4) and cockpit domain controllers.

According to ResearchInChina, from 2021Q1 to 2023Q2, the installations of intelligent cockpit domain controllers in passenger cars in China showed an overall upward trend. In 2023Q1, the installations surged by 96.7% on an annualized basis to 964,800 units, and the installation rate was 23.7%; in 2023Q2, the installations reached 1,325,700 units, soaring by 119.7%, and the installation rate was 25.6%.

Installations and Penetration Rate of Intelligent Cockpit Domain Controllers in New Passenger Cars in China, 2021Q1-2023Q2

(unit: 10,000 units, %)



Source: ResearchInChina

Share of Intelligent Cockpit by OEM Type

Currently, cockpit domain controller and intelligent driving domain controller are very similar in hardware architecture, both being the SoC+MCU solution. The core of cockpit domain controller is cockpit SoC, and single-chip multi-system solutions prevail at present. In 2023Q2, single-SoC solutions swept 92.6%, largely from Qualcomm and AMD; dual-SoC solutions made up 7.4%, mainly Qualcomm 8155.

From the sales of models of differing intelligent cockpit levels, it can be seen that in 2023Q2, the sales of models equipped with L1 intelligent cockpit with cockpit domain controller reached 950,000 units, jumping by 104.7% from the prior-year period, of which joint venture and Chinese independent automakers each occupied more than 40%; the sales of models with equipped with L2 intelligent cockpit with cockpit domain controller were 357,000 units, a like-on-like spurt of 170.5%, of which Chinese independent automakers accounted for 61%, and emerging car brands shared 32.4%; the sales of models equipped with L3 intelligent cockpit with cockpit domain controller were 1,8000 units, of which emerging car brands swept 98.8%.

Cockpit Level	OEM Type	2022Q1	2022Q2	2023Q1	2023Q2
Share of L1	Joint venture	41.8%	46.2%	52.6%	49.8%
	Emerging	11.2%	9.9%	1.9%	4.5%
	Chinese Independent	47.0%	44.0%	45.5%	45.8%
L1 with cockpit domain controller (10,000 vehicles)	**Total**	**40.7**	**46.4**	**68.7**	**95.0**
Share of L2	Joint venture	3.9%	4.5%	7.0%	6.5%
	Emerging	26.9%	19.5%	27.8%	32.4%
	Chinese Independent	69.2%	76.0%	65.2%	61.0%
L2 with cockpit domain controller (10,000 vehicles)	**Total**	**8.1**	**13.2**	**25.0**	**35.7**
Share of L3	Emerging	77.6%	90.2%	97.3%	98.8%
	Chinese Independent	22.4%	9.8%	2.7%	1.2%
L3 with cockpit domain controller (10,000 vehicles)	**Total**	**0.2**	**0.8**	**2.7**	**1.8**
L1-L3 with cockpit domain controller (10,000 vehicles)	**Total**	**49.1**	**60.3**	**96.5**	**132.6**

Source: ResearchInChina

Share of Intelligent Cockpit Chips

Different types of OEMs vary greatly not only in layout of intelligent cockpit level but also in selection of cockpit domain control chip for vehicle models in different price range.

When it comes to intelligent cockpit chips, people often think that the vast majority of master chips for models with an intelligent cockpit are Qualcomm SA8155P. Actually, ResearchInChina's statistics shows that in models priced at RMB100,000-200,000, Qualcomm SA8155P boasts the highest share, but only 38%. In the intelligent cockpit domain control master chip market for models in the price ranges of RMB200,000-300,000 and RMB300,000-500,000, Qualcomm SA8155P makes up 21.9% and 31.2%, respectively.

Intelligent Cockpit Domain Control Chip for Models Priced at RMB200,000-300,000	2023Q2
Qualcomm 8155	21.9%
AMD Ryzen V1000	20.1%
Qualcomm 820A	17.7%
Qualcomm 6350	15.3%
Qualcomm 6125	12.3%
Samsung V9	4.6%
Huawei Kirin 990A	3.2%
Intel A3950	2.1%
Intel A3960	1.7%
Others	1.2%

Source: ResearchInChina

The huge development potential of intelligent cockpits and the high differentiation in market segments bring market opportunities to latecomers of intelligent cockpit chips and domain controllers as well.
This Report provides in-depth analysis of intelligent cockpit domain controller and master chip market segments via a detailed and accurate database, and also demonstrates the industry development trends through expert interviews. Intelligent cockpit domain controller and SoC players and participants can also know the competitive pattern of the industry in this Report, and thus find their niche.

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