# Introduction to M55H

Axera's automotive-grade main control chip M55H excels in image processing, computational power, security, and energy efficiency.

- M55H features Axera's proprietary AI ISP technology, which optimizes sensor modeling and image processing. Leveraging its AI algorithm, this chip empowers vehicles to better perceive complex driving environments and ensure safe driving in black-light scenarios.

  - Full-color imaging in black-light scenarios

  - AI HDR imaging

  - DIS

  - AI scene enhancement (e.g. dehazing and purple fringe removal)

  - Demosaic

  - Multi-spectral fusion with RGB-IR support and latency optimization, delivering exceptional image quality to meet the demands in various automotive scenarios

- Powered by our self-developed AXNeutron NPU, M55H supports low-bitwidth mixed precision and comes with a high-performance toolchain. This flexibility allows for the continuous evolution of AI algorithms, delivering up to twice the computing power than its domestic competitors in benchmark tests. The chip also supports mainstream CNN with its abundant operators and instruction lists.

- The M55H is China's first domestically-produced ADAS chip that fully supports data closed-loop processing. It features robust 4K@30 fps codec and includes essential security features such as hardware-level data encryption and desensitization coding, aligned with national encryption standards.

- Engineered with energy efficiency in mind, our ultra-low power ADAS chip features optimized thermal designs. This energy-efficient design has already been successfully deployed in mass production for smart front-view all-in-one solutions and applied to integrated systems for CMS electronic rear-view mirrors and driver monitoring systems (DMS/OMS).

M55H, the latest automotive main control chip from Axera, makes a significant breakthrough in image processing, computing capability, security, and power consumption, providing powerful technical support for our partners to design a cost-effective smart driving solution.

Empowered by its innovative AI ISP, M55H excels in night vision, stabilization, dehazing, and removing purple fringes, enabling vehicles to better perceive complicated driving scenarios and making driving safer.

M55H also supports Chinese domestic encryption standards for hardware-level data

encryption. Its optimized heat dissipation with low power consumption enables you to develop a compact, cost-effective driving system.

The M55H has already gained significant traction in the automotive industry, being implemented in various models and receiving high praise from customers. Axera is committed to collaborating with partners to advance intelligent driving, making travel safer and more convenient for everyone.

**Future Prospects:**

With its array of innovative technologies and unique advantages, the M55H is poised to play a crucial role in the evolution of intelligent driving. It provides powerful sensing, computing, and data processing capabilities across various scenarios, demonstrating excellent performance and stability in production applications such as front-view all-in-one solutions, CMS electronic rearview mirrors, and DMS/OMS dual systems.