Meet EyeQ®6: Our Most Advanced Driver-Assistance Chips Yet

May 25, 2022

Driving the road to the future of automobility demands multi-focal vision – the kind of vision that Mobileye is built upon. So, while we motor on ahead towards the rapidly approaching horizon of self-driving vehicles, we're also constantly looking back in our mirrors at the road we've traveled to get here, watching the road we're on right now, and preparing for what's just around the next bend.

What we see surrounding us on that road are cars and trucks enhanced by our driver-assist technology – and we're out to make them even better. Enter: EyeQ6, our latest generation of Systems-on-Chip for advanced driver-assistance systems.

Built on Decades of Experience

As the newest member of the EyeQ® family, EyeQ6 builds upon the five generations of our SoCs that have come before. Since the first iteration began production in 2007, we have shipped over 100 million EyeQs to date (and counting). The bulk of those chips have gone into consumer vehicles produced by dozens of the world's leading automakers to power the driver-assistance features in hundreds of models currently on sale around the world.

By employing highly efficient hardware accelerator architecture, EyeQ achieves state-of-the-art computer-vision performance, while requiring relatively modest TOPS numbers and consuming low levels of power – delivering an extraordinary cost/performance ratio.

EyeQ6 benefits from the expertise we've accrued over the course of the past couple of decades. That experience and know-how are encapsulated in this new chip, which comes in two versions, each designed for a different type of ADAS application. And each delivers even greater performance and efficiency than any previous iteration of EyeQ.

EyeQ6 Lite: high efficiency for core ADAS

Engineered to support Level 1-2 driver-assistance, EyeQ6L (or "Lite") boasts the best combination of high performance, low power consumption, and optimal cost efficiency of any SoC we have ever made. It's a one-box windshield solution capable of supporting all core ADAS applications.

EyeQ6 Lite offers four-and-a-half times more compute power than EyeQ4 Mid, yet it utilizes similar levels of power consumption, and all in a package roughly half the size.

As our newest solution for core ADAS applications, EyeQ6L stands to become the most prolific new member of the EyeQ family.

EyeQ6 High: centralized chip for premium ADAS

To power Level 2+ systems and above, we present EyeQ6H (or "High") – the ultimate compute platform for premium driver-assistance and partial autonomous driving.

EyeQ6H boasts three times the compute power of the preceding EyeQ5H chip, yet consumes just 25% more power. With such a dramatic increase in its performance-to-consumption ratio, our newest premium ADAS chip is capable of supporting even more advanced driver-assistance features than its predecessor. But EyeQ6H doesn't just do *better* than previous iterations of EyeQ – it also does *more*.

We've built a dedicated image signal processor (ISP), graphics processing unit (GPU), and video encoder into EyeQ6H. And we've opened up our internal development tools to allow our customers to host third-party applications directly on the SoC. So EyeQ6H can support full-surround cameras not only for driver assistance features, but also for visualization for the human driver.

Such functions might include a bird's-eye-view display and video recording, as well as driver monitoring and automated parking – all hosted directly on the SoC. That means the vehicle requires fewer additional electronic control units (ECUs), which in turn means less engineering and lower cost. It also means that, once channeled into EyeQ6H, we can run computer-vision algorithms on these feeds for human-machine interface, augmented reality, and virtual reality display – just as we do with our surround cameras for driver assistance.

This powerful new feature set elevates EyeQ6H into an all-encompassing, centralized, single-chip solution for all premium ADAS applications. The pairing of two EyeQ6H chips is slated to power the next generation of Mobileye SuperVision™ – our hands-free/eyes-on Level 2++ system – and can even support Level 3 and Level 4 systems.

Eyes on the Road Ahead

Engineering samples of EyeQ6L have already been delivered to customers, with production anticipated to commence around this time next year. As to EyeQ6H, we expect the first samples later this year, with volume production scheduled to begin by the end of 2024.

With greater performance, efficiency, and cost-effectiveness than ever before, these two new EyeQ6 SoCs stand to further enhance the driver-assistance technology market that Mobileye has been leading for the past two decades. Together with EyeQ® Ultra – our forthcoming new AV-on-chip that we currently expect to be ready for production in 2025 – they form a highly advanced, specialized, and scalable new generation of automotive-grade Systems-on-Chip to drive the evolution of enhanced mobility today, tomorrow, and in the years to come.