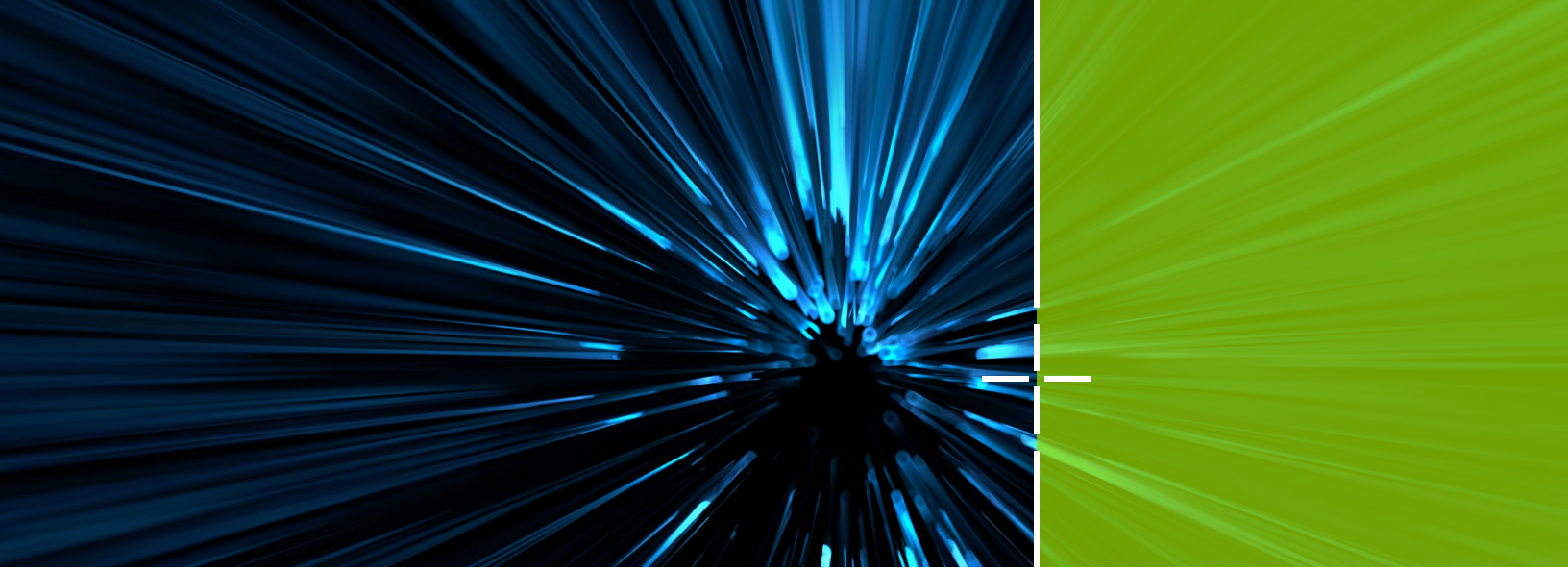

SOLUTION BRIEF

Axera A6 - Black Light Cameras in the Professional Security Market

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ARM IP

- Arm Cortex-A7

OVERVIEW & GOAL

With the rapid development of the professional security industry, IPC is no longer limited to the traditional monitoring mode, and is increasingly deployed in the field of AI. Throughout the development of the information industry, the chip carrying high-performance computing has always determined the infrastructure and capacity ceiling of the new computing platform. Specifically, in the field of intelligent vision, it is important that AI vision chips can determine whether devices can quickly and effortlessly perceive the world.

Axera has self-developed AI image signal processing (ISP) technology, and with the joint architecture design of ISP and NPU, the energy-efficiency ratio of chip products can be effectively improved. AI-ISP provides a wealth of functions in traditional ISP,

such as white balance adjustment, autofocus, and exposure control, to ensure that the original image acquired from the sensor is of good quality. Based on the processing power given by AI ISP, AX620U not only achieves excellent picture quality in dark light environments, but also has high computing power, which makes it able to maintain a leading edge and exceptional performance among many edge side or end-side chips.

APPLICATION

- Artificial Intelligence
- Smart Cities
- Vehicle-borne IoT
- Smart Healthcare
- Smart Homes
- Industrial
- Arm Fixed Virtual Platform

CHALLENGE

At present, as the image has become an important way to record life, people's pursuit of picture and video quality is getting higher, which also puts higher requirements on ISP chips. Like the "translation" between human vision and imaging devices, the ISP is responsible for optimizing the output signal of the front-end image sensor, so that the final digital image is as close to the real scene as possible, and potentially even better. However, because the lenses and sensors that come with them are approaching their physical limits, the overall technology of traditional ISPs hits a ceiling. Changes in lighting conditions and environment may have a significant impact on image quality, which requires processing algorithms to be able to adapt to different scenes, especially in low light and high dynamic scenes where image distortion and information loss are inevitable. In this context, Axera has innovatively introduced AI into ISP, using this technology to bring significant improvements in image quality in a variety of visual processing scenarios.

SOLUTION & BENEFITS

A6 is widely used in professional security applications because it supports 600W ultra-clear real-time image, and can see high-definition pictures through AI-ISP algorithms in full black scene.

Its main controller, AX620U, is based on the Arm Cortex-A7, which provides a high-quality CPU processor for this solution with its efficient energy utilization, integration, good flexibility and wide ecosystem support. As a result, it shows excellent processing performance at low-power consumption and helps improve the user experience.

In addition, the AX620U chip integrates a new generation of AI-ISP and a stable LINUX system through the latest SDK development kit of AX620U.

The system can provide the following functions:

- Support software customization, as well as PTZ humanoid and vehicle-tracking functions.
- Support ONVIF, GB28181, HK, and other protocols.
- AI application: electronic fence, cross-border, departure, passenger flow statistics.
- Supports soft-light sensitive dual-light boards (white and infrared lights can be customized).
- Support alarm output and power amplifier function.
- External expansion board supports TF card function.
- Support plugin-free multibrowser.
- Support video occlusion alarm and cover the privacy area.
- Support mobile phone and computer remote monitoring.

The Arm Cortex-A7 processor in this solution has the following significant advantages:

- High energy efficiency: The Cortex-A7 is designed with a focus on energy efficiency and is able to provide excellent processing performance at low power consumption, which is especially important for device heating issues.

- Cost effective: It is a low-cost solution for entry-level and mid-market products that is able to reduce the overall cost of the device, without sacrificing too much performance.
- Extensive ecosystem support: As a member of the Arm Cortex-A family, the Cortex-A7 enjoys extensive software and hardware ecosystem support, including the operating system, development tools, and application software, enabling developers to quickly develop and deploy products.
- High integration: Although compact, the Cortex-A7 processor has full functions, built-in floating-point unit (FPU), Arm NEON multimedia accelerator, and so on, and supports advanced instruction set, which is suitable for processing multimedia applications and improving user experience.
- Low-power dissipation: At 28 nm, the Cortex-A7 can operate in the 1.2-1.6 GHz frequency range while maintaining low-power consumption, making it ideal for energy-sensitive applications.