Uranus Ultra
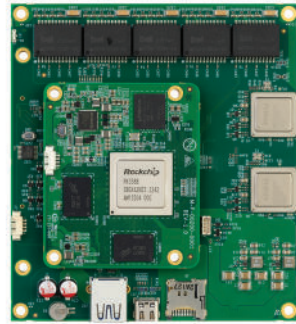## 360º 3D Video & AI Situational Awareness Platform

The Uranus Ultra platform provides 360º 3D situational awareness and advanced airborne threat protection, integrating up to 12 SD/HD camera inputs. Powered by dual Hailo AI accelerators, it enables real-time monitoring across all cameras simultaneously, delivering instant alerts on potential threats.

Designed for mission-critical environments, Uranus Ultra enhances threat detection and response for urban and open terrain combat, supporting Armored Fighting Vehicles (AFVs), observation posts, and various defense and surveillance applications. This high-performance platform ensures defense teams are equipped with precise, actionable intelligence to navigate complex operational challenges.
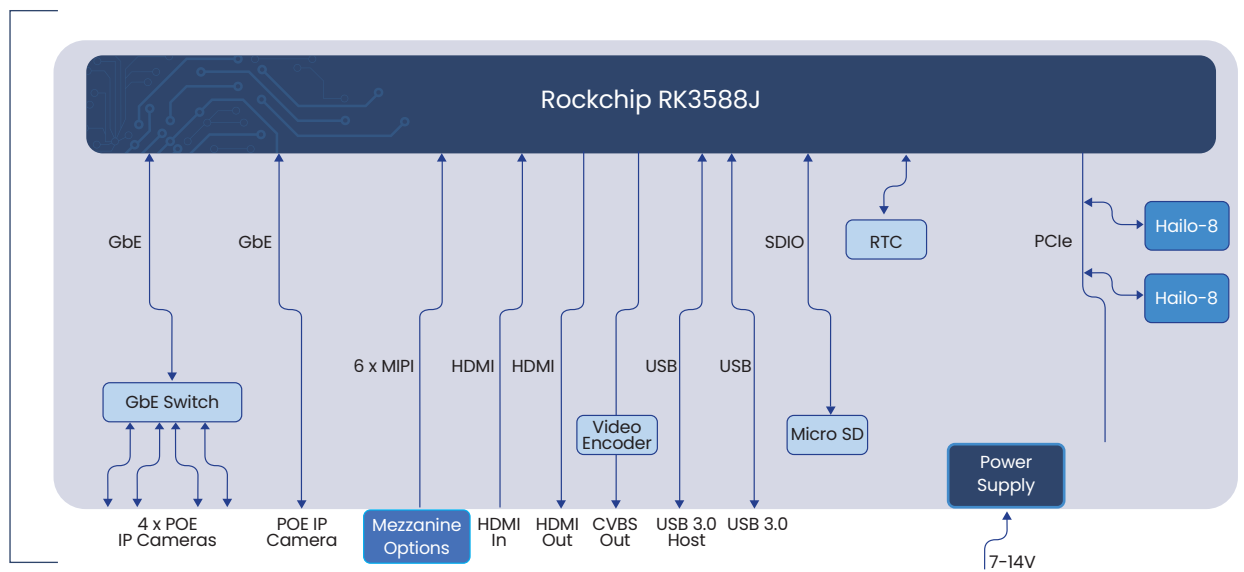
Key Features and Benefits

- **Full situational awareness coverage** delivering 360º 3D coverage, including airborne views, with precise, AI-driven threat detection and classification to eliminate blind spots and maximize operator safety

- **Flexible & customizable** for diverse operational requirements with a highly modular design in order to meet specific needs and future updates

- **AI-enabled,** incorporating edge computing AI, providing intelligent, real-time analytics and decision-making capabilities. Open architecture supporting customers proprietary AI based implementations

- **Up to 8K video** encoding and decoding for exceptionally high-resolution video streaming in real time scenarios

- **Super large 64GB EMMC and 8GB LPDDR4,** delivering powerful memory capacity and performance for real-time data processing

- **Ultra-low latency,** ensuring real-time video transmission for mission-critical applications

- **H.265 efficiency** for compressing high-quality video using less bandwidth

- **Strong network communication capabilities,** supporting a variety of miniature and low-power stable wireless communications for uninterrupted transmission in challenging environments

- **Continuous recording,** enabling post-event debriefings and continuous improvement of the AI model through real-world data

- **Octa ARM core platform and ~60 tops AI acceleration** with powerful processing capabilities for AI-driven insights and real-time data analysis
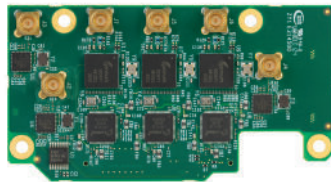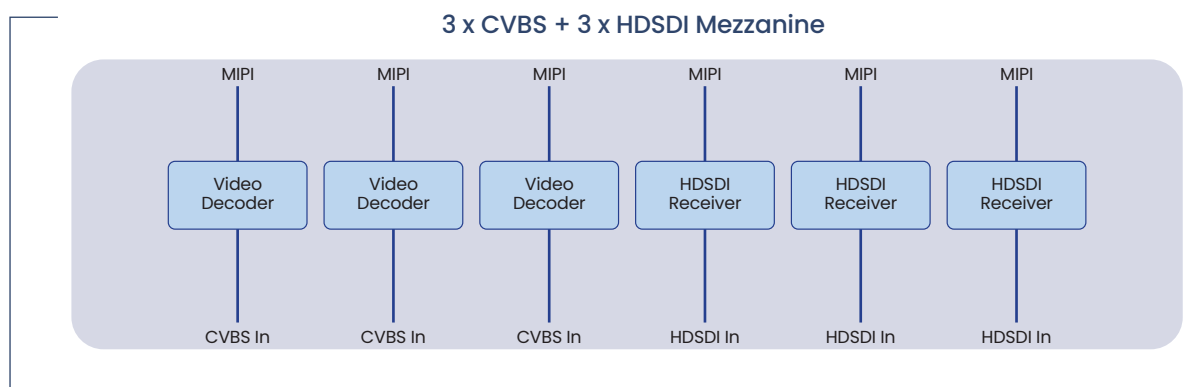
Uranus Ultra Main Board

Block Diagram

Rockchip RK3588J

GbE | GbE | 6 x MIPI | HDMI | HDMI | USB | USB | SDIO | RTC | PCIe | Hailo-8 | Hailo-8

GbE Switch

Video Encoder

Micro SD

Power Supply

4 x POE IP Cameras | POE IP Camera | Mezzanine Options | HDMI In | HDMI Out | CVBS Out | USB 3.0 Host | USB 3.0 | 7-14V

Mezzanine

Block Diagram

3 x CVBS + 3 x HDSDI Mezzanine

MIPI | MIPI | MIPI | MIPI | MIPI | MIPI

Video Decoder | Video Decoder | Video Decoder | HDSDI Receiver | HDSDI Receiver | HDSDI Receiver

CVBS In | CVBS In | CVBS In | HDSDI In | HDSDI In | HDSDI In

Technical Specifications

SOC	RockChip RK3588J
CPU	Octa-core 64-bit (4×Cortex-A76+4×Cortex-A55), 8nm lithography process clock speed up to 2.2GHz
GPU	ARM Mali-G610 MP4 quad-core GPU Support OpenGL ES3.2/OpenCL 2.2/Vulkan1.1, 450 GFLOPS
NPU	NPU computing power up to 6 TOPS Support INT4/INT8/INT16 mixed operation Support framework switching of TensorFlow/MXNet/PyTorch/Caffe
ISP	Integrated 48MP ISP with HDR&3DNR
VPU	Video decoding: 8K@60fps H.265/VP9/AVS2 8K@30fps H.264 AVC/MVC 4K@60fps AV1 1080P@60fps MPEG-2/-1/VC-1/VP8 Video encoding: 8K@30fps encoding, support H.265 / H.264 Up to 32-channel 1080P@30fps decoding and 16-channel 1080P@30fps encoding can be achieved
RAM	8GB64bit LPDDR4 (Industrial grade)
Storage	64GB eMMC (industrial grade) Micro-SD (up to 2TB)
AI Acceleration	Dual Hailo-8
Video In	5 x POE IP Camera HDMI in 3 x CVBS (PAL/NTSC) 3 x HDSDI
Video Out	1 x CVBS 1 x HDMI
USB	Dual USB 3.0