



Udelv Electronic Control Unit (uECU™)

Udelv's proprietary Electronic Control Unit (uECU™) is an embedded system that controls and interfaces with other subsystems of an autonomous vehicle, namely an embedded AV compute unit, a tele-operations system, a cloud-based software and other powertrain, drivetrain and drive-by-wire systems.

The uECU™ was originally developed to interface with Intel's Mobileye SDS kit and is now made available to any L4 autonomous vehicle.





Fact Sheet:

- I. Automotive grade design with redundant real time processors
- II. End-to-end delivery cloud services to autonomous driving integration in vehicle
- III. Overcome cellular network challenges with cellular bonding (up to 3 modems) and dynamic video encoding (up to 8 camera streams)
- IV. Capture, composition, encoding and transmission in less than 8ms, and glass-to-glass in less than 85 ms with network-latency mitigated nominal performance
- V. Simultaneous support for 8 cameras using standardized MIPI CSI-2 protocol and on-board de-serializers
- VI. Ultra-low latency (less than 4 ms) integrated H.264/H.265 video codec with dynamic bit rate management
- VII. Real time processor and dual redundancy on all modules
- VIII. 5G-capable on-board modems and GPS unit to stream video data to tele-operator
- IX. 8 CAN 2.0B and FD bus channels for redundant vehicle control and delivery pod interface
- X. High speed interface with autonomous driving computer
- XI. Power management features compatible with automotive application
- XII. Custom automotive enclosure featuring liquid colling and environmental protection
- XIII. Full automotive electronics standards certification
- XIV. Comprehensive functional safety compliance with Road Vehicle Standards



Benefits:

- Integrated FPGA and real-time processing for complete automotive central computing in one unified module. Embedded hardware acceleration for application specific optimized performance.
- Comprehensive automotive interfaces and I/Os to support varied vehicle architectures.
- 8 camera channel support with embedded, accelerated video processing allows for real-time multi-stream management, gateway and distribution.
- Onboard 4G/5G communication backplane allows instantaneous networking without added telemetry hardware costs and lag. Future-proof for next generation mobile services with backwards compatibility.
- Low-cost alternative to composing multi-module vehicle EE architectures and in-vehicle networking. Integrated capabilities with reduced power draw for a reference performance output.



Versions:

The uECU™ comes in three versions, a beta development kit for R&D purposes, a pre-production unit, and an auto-grade production unit. Lead times and pricing differ from version to version and are subject to volume discounts.

	Beta Dev Kit <i>(For R&D purposes, Excl. modems)</i>	Pre-Production Unit <i>(Incl. 3 modems 4G/5G with 2 SIM cards each)</i>	Auto-grade Production Unit <i>(Incl. modems, auto- grade, IP67)</i>
Est. Lead Time	~4 to 6 weeks	~10 to 12 weeks	~25 weeks
Pricing	Please contact sales@udelv.com		