The Ecotrons ACU (Automated-driving Control Unit) integrates computer vision and sensor-fusion dedicated processor, NXP S32V234, and the PowerPC MPC5744. The control strategy can be developed with EcoCoder, our model-based design tool in Simulink. By combining the power of S32V234 and MPC5744, the Ecotrons ACU is not only able to sense the vehicle surrounding environments through different sensors at decent throughput, but also, based on the acquired data, control the vehicle dynamics to realize various ADAS functions, such as adaptive cruise control, automatic emergency brake, lane keeping assistance, etc.

- Main processors:
  - NXP S32V234 & MPC5744P
- SDRAM: 2 x 1GByte Speed can be 1066MT/s
- eMMC: 16GByte
- 5 CAN buses (support radar input)
- 8 HD camera
- 1 RS232
- Ethernet port which supports Lidar input

Ecotrons ACU is designed to be the master controller of an Advanced Driver Assistance System and it enables customers to integrate computation-intensive data processes, sensor fusion functions, and the vehicle control strategy into one control unit. It provides a hardware platform for users to program the application software for their automated driving controls. This ACU can meet the need for L3 level autonomous driving.
S32V Key Features

- **Truly Automotive Design**
  - Zero defects target, long term reliability, functional safety
- **Balanced Vision Performance / Power**
  - 9.2K DMIPS (General Purpose 4xA53)
  - From 80GMACS (S32V2) Up to 1800 GMAC (S32V3)
- **Built for ISO26262**
  - ASILB to ASILD Safety Concept at up to 9.2K DMIPS
- **Scalable SW Enablement Package**
  - From libraries to SDK’s to fully enabled applications from NXP 3rd parties
- **Scalable Hardware Configurations**
  - Multi chip configurations, Expandable via PCIe, Zipwire

**NXP MPC5744P**

- 2 x e200z4 in delayed lockstep operating up to 200 MHz
- Built to support functional safety (ISO 26262 / ASIL D)
- 4 x 12 bit analog-to-digital converters (ADC), each with 16 channels
- Up to 2.5 MB flash memory
- Up to 384 KB of total SRAM
- 3 x FlexCAN
- 2 x LINFlexD
- 4 x DSPI
- Dual-channel FlexRay™ controller
- Ethernet

**ACU Software Structure**