



# MARS: Modular Automotive Reference System



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*Leading-edge Platform to Optimize Automotive Image Sensor Systems from ON Semiconductor.*

## Modular Automotive Reference System

The Modular Automotive Reference System (MARS) is a complete imaging solution for camera system developers and software developers working on automotive imaging applications. MARS gives engineers and software developers the fundamental building blocks needed to create next generation imaging systems, while reducing the design effort and resources required to develop a working solution.

Using the modular mix & match approach offered by this unique compact form factor platform, designers can bring together different combinations of image sensors, co-processors (Image Signal Processor) and communication standards. The component boards have consistent signal/power interconnect definitions to enable users to swap individual boards, creating a wide range of options for experimenting, while eliminating the need for constructing custom boards. The result is a highly flexible solution where the various modules are fully interchangeable.

For videos, tools and more information visit [www.onsemi.com/MARS](http://www.onsemi.com/MARS)

### Features

- Ready to use camera solution
- Compact form factor
- Modular and interchangeable building blocks
- Supported by comprehensive ecosystem
  - Software development platforms
  - Lens partners
  - Schematic, gerbers, BOM

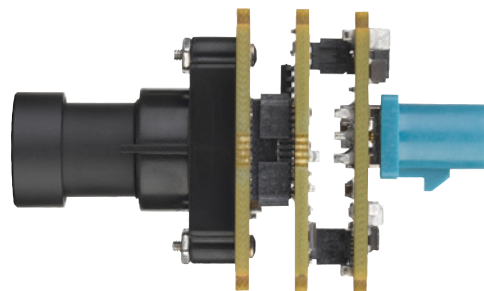
### Benefits

- Accelerates development cycles
- Reduces need for technical resources
- Reduces development costs
- Eliminates redundant work



## Automotive Applications

- ADAS
- Autonomous driving
- Viewing systems
- Backup cameras
- Surround view systems
- Electronic mirrors
- In-cabin cameras for
  - Gesture recognition
  - Driver eye monitoring
  - Light level inspection



### Individual MARS Board Order Descriptions

Sensor Board OPNs	Short Description	Sensor Board Description
MARS1-AR0230ATS-GEVB	2.1 MP, 1/2.7" MARS Sensor Board	MARS sensor board with 2.1 MP, 1/2.7" high-dynamic range color AR0230AT image sensor
MARS1-AR0231AT6-GEVB	2.3 MP, 1/2.7" MARS Sensor Board	MARS sensor board with 2.3 MP, 1/2.7" high-dynamic range color AR0231AT image sensor with LED Flicker Mitigation and BSI pixel technology for superior low-light performance
MARS1-AR0132AT6-GEVB	1.2 MP, 1/3" MARS Sensor Board	MARS sensor board with 1.2 MP, 1/3" high-dynamic range color AR0132AT image sensor
MARS1-AR0136AT3-GEVB	1.2 MP, 1/3" MARS Sensor Board	MARS sensor board with 1.2 MP, 1/3" high-dynamic range color AR0136AT image sensor and BSI pixel technology
MARS1-AR0140AT3-GEVB	1.0 MP, 1/4" MARS Sensor Board	MARS sensor board with 1.0 MP, 1/4" high-dynamic range color AR0140AT image sensor
MARS1-AR0135AT2-GEVB	1.2 MP, 1/3" MARS Sensor Board	MARS sensor board with 1.2 MP, 1/3" global shutter AR0135AT image sensor with high global shutter efficiency and superior NIR performance
Co-Processor Board OPNs		Image Co-Processor Description
MARS1-AP0200AT2-GEVB	Up to 2.0 MP MARS Image Co-processor Board	MARS Image Co-Processor (ICP)AP0200AT High-Dynamic Range (HDR) ICP with built-in MJPEG and H.264 encoder and Ethernet-MII, RMII, GMII output interface
MARS1-AP0202AT2-GEVB	Up to 2.0 MP MARS Image Co-processor Board	MARS Image Co-Processor (ICP) with AP0202AT High-Dynamic Range (HDR) ICP with parallel output
MARS1-AP0100AT2-GEVB	Up to 1.2 MP MARS Image Co-processor Board	MARS Image Co-Processor (ICP) with AP0100AT High-Dynamic Range (HDR) ICP with sophisticated lens distortion correction and integrated video encoder for NTSC/PAL output
MARS1-AP0101AT2-GEVB	Up to 1.2 MP MARS Image Co-processor Board	MARS Image Co-Processor (ICP) with AP0101AT High-Dynamic Range (HDR) ICP and parallel output
MARS1-AP0102AT2-GEVB	Up to 1.2 MP MARS Image Co-processor Board	MARS Image Co-Processor (ICP) with AP0102AT High-Dynamic Range (HDR) ICP with sophisticated lens distortion correction and parallel output
Serializer OPNs		Serializer Description
MARS1-TI913-GEVK	MARS Serializer Board	Texas Instruments DS90UB913 Parallel to LVDS FPD-Link Serializer
MARS1-MAX96705-GEVB	MARS Serializer Board	Maxim MAX96705 Parallel to LVDS GMSL Serializer
Deserializer OPNs		Deserializer Description
MARS1-TI914	MARS Deserializer Board	Texas Instruments DS90UB914 LVDS to Parallel FPD-Link Deserializer
MARS1-MAX9706	MARS Deserializer Board	Maxim MAX96706 LVDS to Parallel GMSL Deserializer
Ethernet PHY OPNs		Ethernet PHY Description
MARS1-KSZ8081MNX-GEVB	MARS Ethernet PHY Board	MARS Micrel KSZ8081MNX-GEVB Ethernet PHY Board
Demo3 Adapter Board OPNs		Demo3 Adapter Board Description
MARS1-DEMO3-ADAPTER-GEVB	MARS Parallel to Demo3 Adapter	MARS Adapter for adapting the parallel serializer boards into Demo3 Demo Kit Tool
Demo3 Board OPNs		Demo3 Board Description
AGB1NOCS-GEVK	Demo3	Demo3 Demo Kit Tool

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