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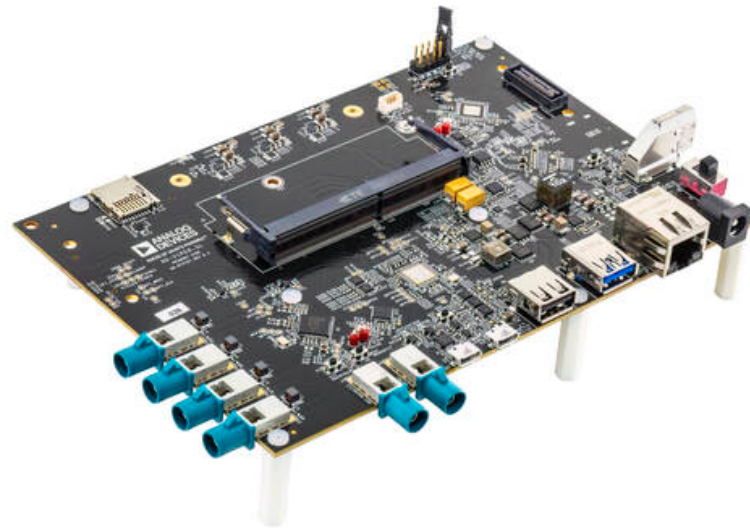
Analog Devices Wiki

This version (23 Jan 2025 19:53) was *approved* by Daniel McGinley [<https://ez.analog.com/members/dmcginley>].
The Previously approved version (</resources/eval/user-guides/ad-gmsl522-sl?rev=1737660682>) (23 Jan 2025 19:31) is available.

AD-GMSL522-SL: GMSL Carrier Board

Overview

The **AD-GMSL522-SL** is a Gigabit Multimedia Serial Link (GMSL) [<https://www.analog.com/en/solutions/gigabit-multimedia-serial-link.html>]-enabled NVIDIA Jetson Xavier NX-based hardware and software solution that allows for prototyping with GMSL technology. This solution creates a scalable, user friendly, GMSL platform for receiving and transmitting data over GMSL. It supports two forms of camera input -- either straight CSI data coming through a SAMTEC connector from a GMSL evaluation kit, or via camera modules using GMSL2 or GMSL1 technology to connect to the on-board MAX96724 [<https://www.analog.com/MAX96724>] via COAX connectors. The package also includes software tools to enable development of GMSL applications. Among these tools are modified L4T kernels that support certain camera modules and documentation that allows any user to update these kernels for their specific hardware needs. The design also incorporates the MAX96724GTN/VY+ Quad tunneling GMSL2/1 to CSI-2 deserializer and MAX96717GTJ/VY+ CSI-2 to GMSL2 serializer and provides a reliable platform to evaluate high-bandwidth GMSL.



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guides/ad-viper-sl/ad-viper-sl_angle.jpg?id=resources%3Aeval%3Auser-guides%3Aad-gmsl522-sl)

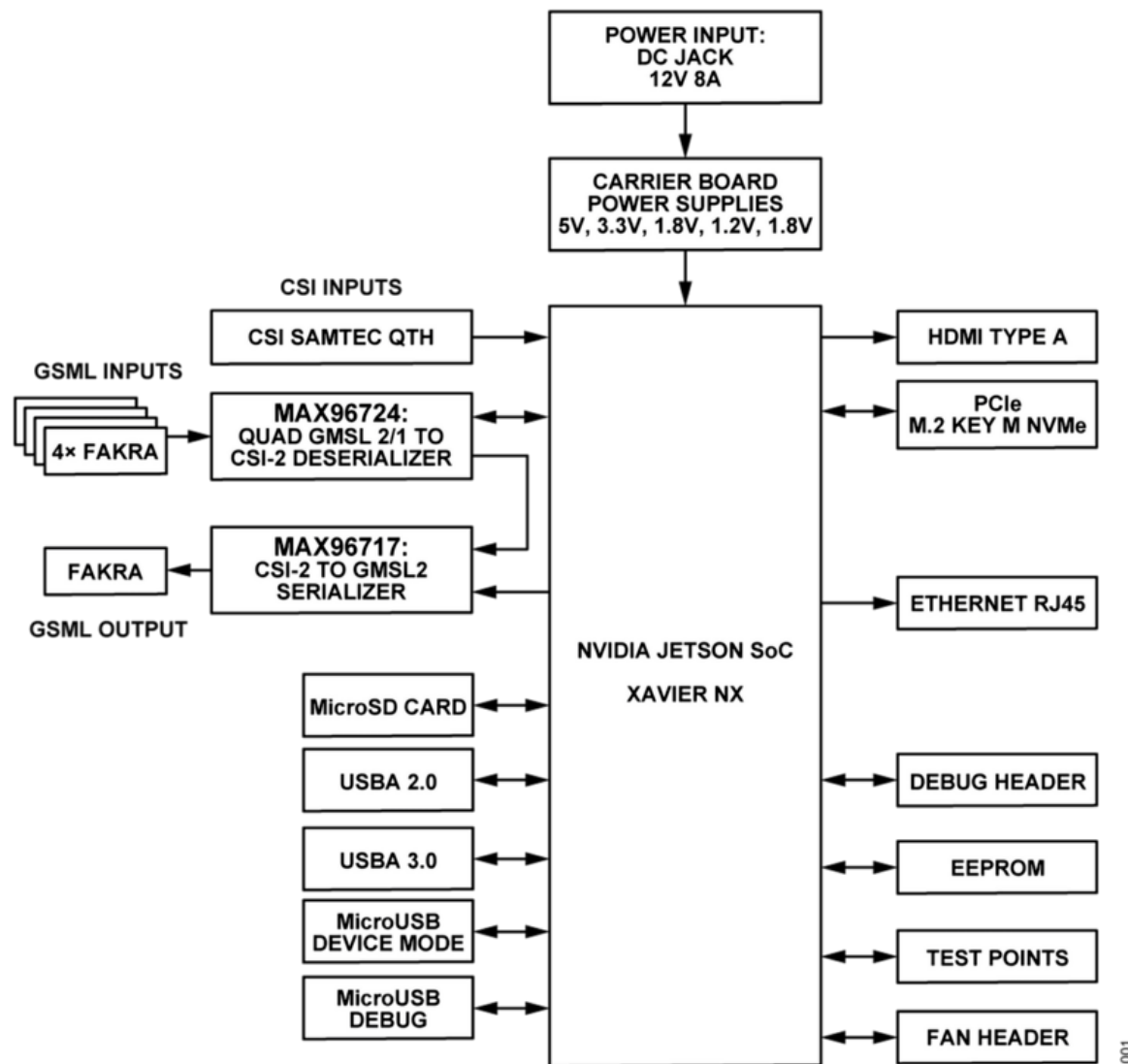
Features

- Hardware solution that bridges the gap between GMSL2 technology and the NVIDIA Jetson
- On-board MAX96724 that allows 4x GMSL2/1 camera inputs that allows for camera module bring-up, debug, and video streaming
- On-board MAX96717 that can be used for camera emulation and head-unit debug
- Enables development of GMSL applications with NVIDIA Jetson SoC
- SAMTEC connector that allows connection of any GMSL DPHY EV Kit to the NVIDIA Jetson
- Additional inputs: USB (Universal Serial Bus), Ethernet, PCIe, and microSD card

Applications

- ADAS Camera Solutions
 - Sensor Fusion ECU
 - Driver and Occupant Monitoring
 - In-cabin Infotainment
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System Architecture



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Specifications

MAX96724 Interfaces to Jetson SOM	
Interface	Detailed Description

2x I2C (Inter-Integrated Circuit)	1x I2C (Inter-Integrated Circuit), and 1x I2C (Inter-Integrated Circuit) PT: 400 kbps (kilobits per second) speeds
GPIO (General Purpose Input/Output) Signals	MFP0, MFP1, MFP4, MFP5, PWDNB
MIPI CSI-2	CSI-2 v1.3 DPHY v1.2
CSI SAMTEC Interfaces to Jetson SOM	
2x I2C (Inter-Integrated Circuit)	1x I2C (Inter-Integrated Circuit), and 1x I2C (Inter-Integrated Circuit) PT: 400 kbps (kilobits per second) speeds
GPIO (General Purpose Input/Output) Signals	ERRB, PSYNC0, RESET, LOCK
Oscillator	Configurable speed oscillator signal between 15 MHz (megahertz) and 40 MHz (megahertz)
1x SPI (Serial Peripheral Interface)	25 MHz (megahertz) Serial Peripheral Interface (SPI (Serial Peripheral Interface)) - Non-standard SPI (Serial Peripheral Interface) used for GMSL devices
CSI-2 v1.3	4x2, 2x4 CSI-2 DPHY v1.2
Power	12 V (volt), 5 V (volt), 1.8 V (volt)
GMSL Inputs	
4x High Speed COAX Connector	59S2AQ-40MT5-Z_1
GMSL2	3 Gbps (gigabits per second), 6 Gbps (gigabits per second), COAX
Protocol	GMSL1/2
PoC	5 V (volt), 8 V (volt), 12 V (volt)
GMSL Output	
1x High Speed COAX Connector	59S2AQ-40MT5-Z_1
GMSL2/3	3 Gbps (gigabits per second), 6 Gbps (gigabits per second), 12 Gbps (gigabits per second), COAX
Protocol	GMSL1/2/3
Display Outputs	
HDMI 2.0a/b	Up to 6 Gbps (gigabits per second), 4Kp60
Other Interfaces	
PCIe Gen 3/4	1x1 Gen3 + 1x4 Gen4
USB (Universal Serial Bus)	4x USB (Universal Serial Bus) 3.1 Type A
Micro USB (Universal Serial Bus) Input	USB (Universal Serial Bus) 2.0
Ethernet	10/100/1000 BASE-T Ethernet with PoE
Power	12 V (volt) Power Barrel Jack Input

Software Development

The GMSL Linux kernel drivers, the complete Linux distributions for the supported processing platforms, and software user guides can be found on the [Analog Devices GMSL GitHub repository \[https://github.com/analogdevicesinc/gmsl\]](https://github.com/analogdevicesinc/gmsl).

System Setup and Evaluation

Get complete access to hardware components, design files, and procedure on how to setup and use the AD-GMSL522-SL Carrier Board:

- [AD-GMSL522-SL Getting Started Guide \(/resources/eval/user-guides/ad-gmsl522-sl/getting-started\)](#)
- [AD-GMSL522-SL Hardware Guide \(/resources/eval/user-guides/ad-gmsl522-sl/hardware\)](#)
- [GMSL522 Labs -- Follow Along Guides \(/resources/eval/user-guides/ad-gmsl522-sl/gmsl522-labs-follow-along-guides\)](#)

Resources

- [MAX96724 Product Page \(https://www.analog.com/MAX96724\)](#)
- [MAX96717 Product Page \(https://www.analog.com/MAX96717\)](#)
- [MAX20313 Product Page \(https://www.analog.com/MAX20313\)](#)
- [AD9394 Product Page \(https://www.analog.com/AD9394\)](#)
- [AD7291 Product Page \(https://www.analog.com/AD7291\)](#)
- [MAX2008 Product Page \(https://www.analog.com/MAX2008\)](#)
- [ADM1177 Product Page \(https://www.analog.com/ADM1177\)](#)
- [MAX25206 Product Page \(https://www.analog.com/MAX25206\)](#)
- [LTC3303 Product Page \(https://www.analog.com/LTC3303\)](#)

Support

For questions and more information, please contact us on the **Analog Devices Engineer Zone**.

- [EngineerZone Linux Support \(https://ez.analog.com/linux-software-drivers/\)](#)
- [GMSL-Related Technical Support \(https://www.analog.com/en/support.html\)](#)

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