

## Digitally controlled DC-DC converter with L5964 for automotive applications



### Features

- Dual channel, independent, step-down regulators with integrated synchronous MOSFETs
- Output current up to 3 A each channel
- Channels can be paralleled to obtain a higher current supply
- Input voltage range from 6 to 14 V
- Digitally selectable fixed output voltages: 3.3 - 5 - 9 V
- PWM programmable output voltages with 20 mV steps over a range of 3.3 - 11 V
- Outputs protected against short-circuit and overcurrent
- Input and output voltage monitors (UV or OV) and power good signals
- Thermal protection thanks to the integrated thermal sensor
- Additional 3.3 V output by internal linear regulator
- Watchdog, reset, in/out synchronisation for available converters
- Board size: 84.7 mm x 81.3 mm
- Maximum component height: 10 mm
- Automotive grade qualified ST components
- Included in the AutoDevKit™ initiative
- CE certified
- RoHS and China RoHS compliant
- WEEE compliant

### Applications

- USB-PD 2.0 and 3.0 supplies
- Car infotainment supply
- In-car DC-DC modules and supply

### Description

The **AEK-POW-L5964V1** expansion board is designed for power car or truck body applications requiring different voltages, such as USB-PD or infotainment. It has two independent converters that can deliver a fixed or variable output voltage via MCU control. The output current can be up to 3 A per channel.

The board includes monitoring circuitries for input and output voltages, and LEDs to indicate operating status. EMI is minimized through appropriate filtering techniques.

The converters are based on the **L5964** step-down switching regulators (in buck topology) with overcurrent and overtemperature protection. The L5964 integrates the control, power switches and monitoring circuitries of both converters alongside features such as watchdog, wake-up and reset.

The **AEK-POW-L5964V1** expansion board is part of the AutoDevKit initiative. It can be plugged on top of additional boards via a 4x20 male/female connector, which is compatible with the 4x37 MCU male connector on **SPC58EC-DISP** or **AEK-MCU-C4MLIT1** evaluation boards.

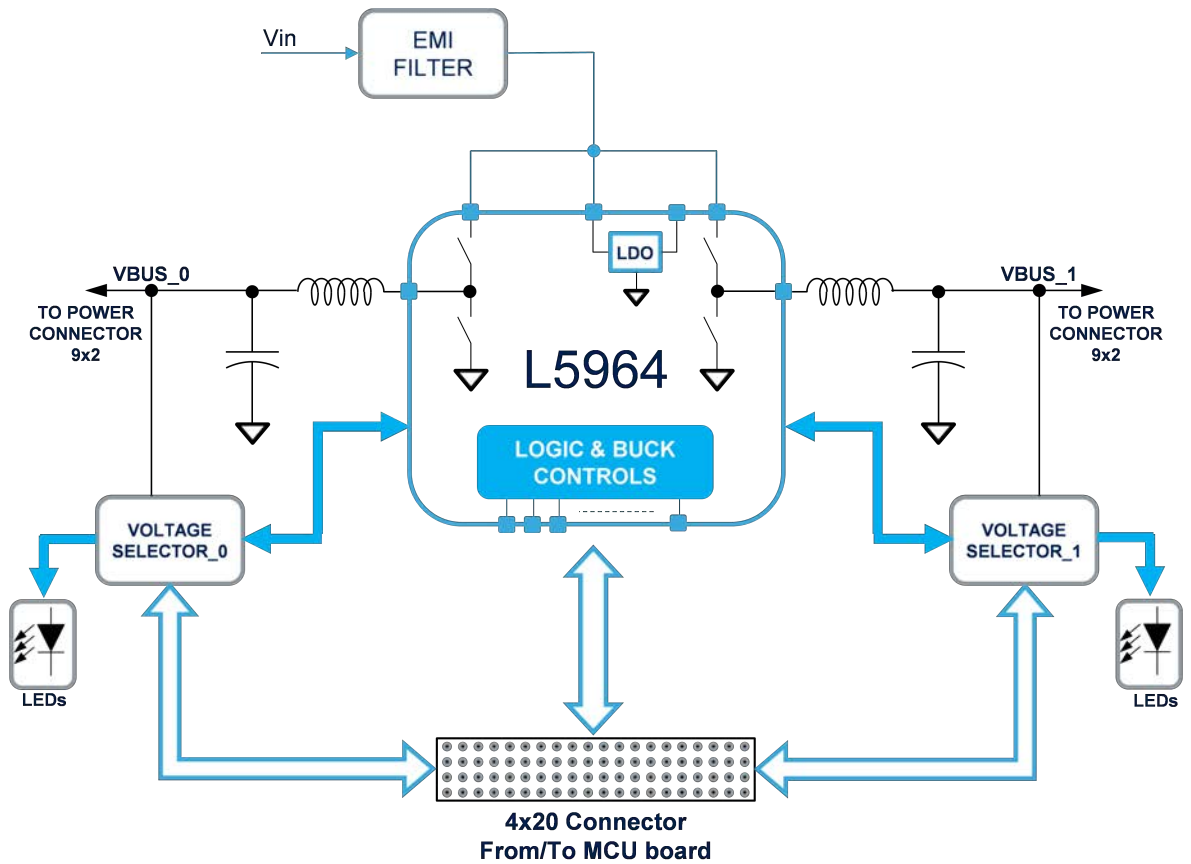
A demo application and an AutoDevKit component plugin are also provided for the **SPC5-STUDIO** tool environment.

Product summary	
Digitally controlled DC-DC converter with L5964 for automotive applications	<b>AEK-POW-L5964V1</b>
Monolithic dual 3.5 A step-down switching regulator with LDO	<b>L5964</b>
AutoDevKit library plugin for SPC5-STUDIO	<b>STSW-AUTODEVKIT</b>
code generator, quick resource configurator and Eclipse development environment for SPC5 MCUs	<b>SPC5-STUDIO</b>
MCU discovery board for SPC5 Chorus 4M automotive microcontroller with CAN transceivers	<b>AEK-MCU-C4MLIT1</b>

# 1 Block diagram and schematic diagram

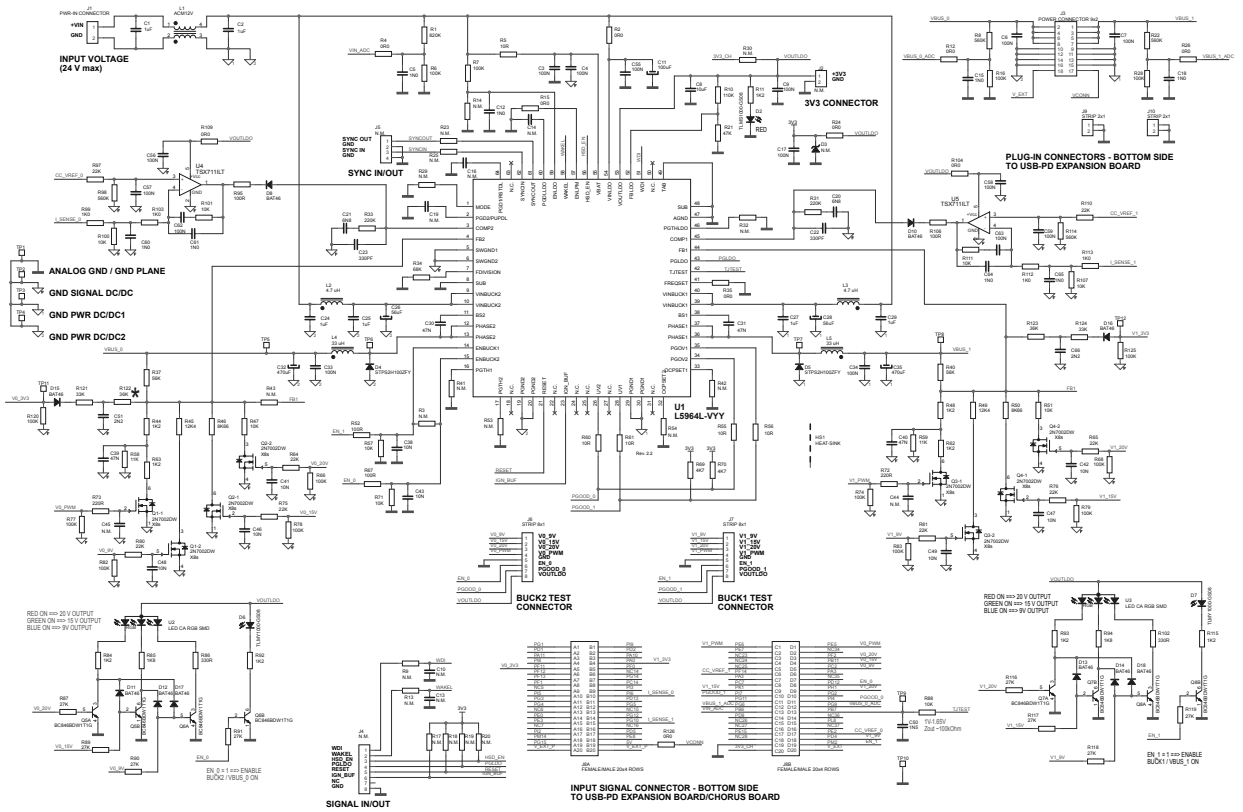
## 1.1 Block diagram

Figure 1. AEK-POW-L5964V1 block diagram



## 1.2 Schematic diagram

Figure 2. AEK-POW-L5964V1 schematic diagram



## Revision history

**Table 1. Document revision history**

Date	Version	Changes
27-May-2019	1	Initial release.

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