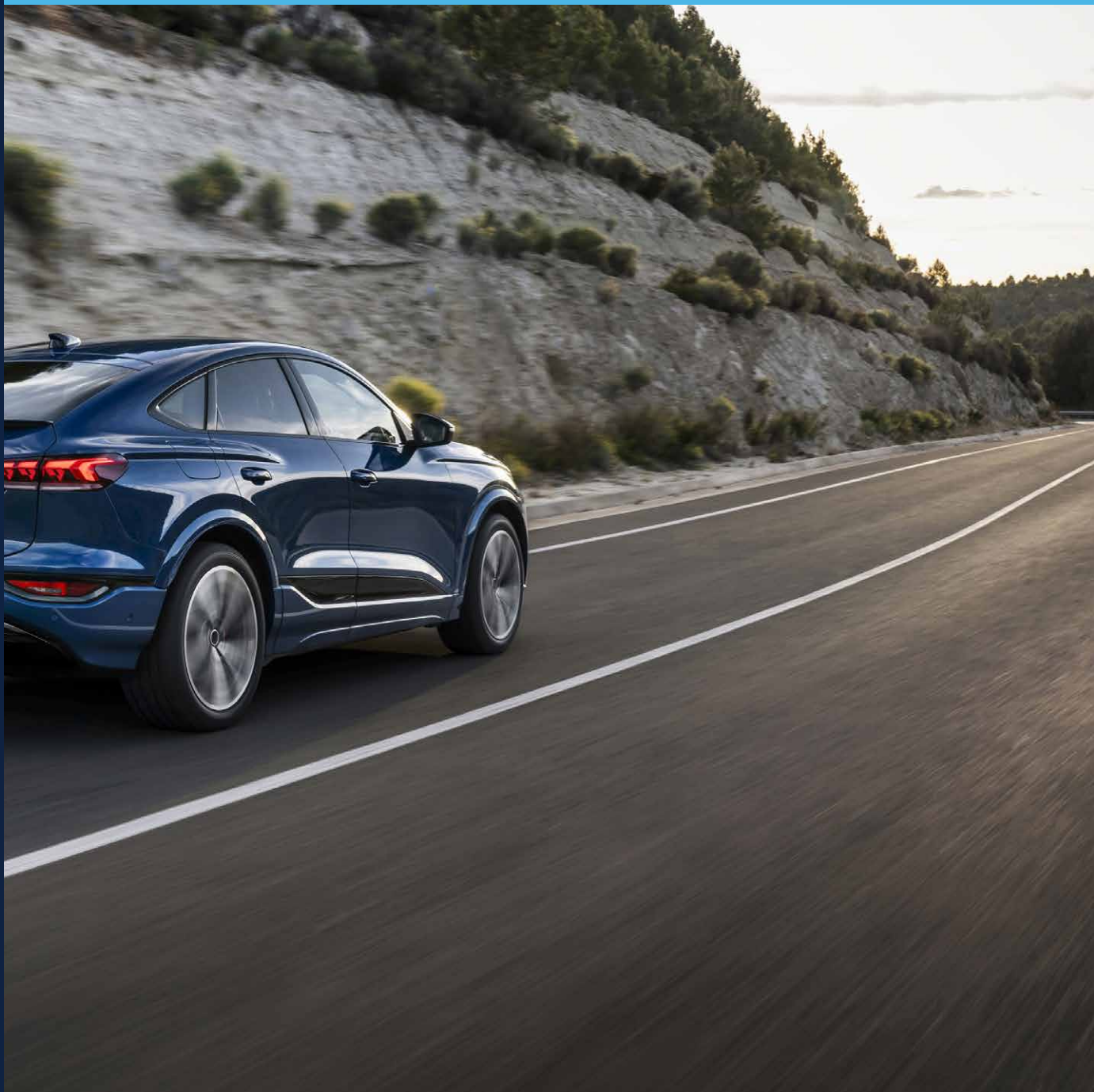




AutoDevKit

a new approach for developing
automotive & transportation
applications

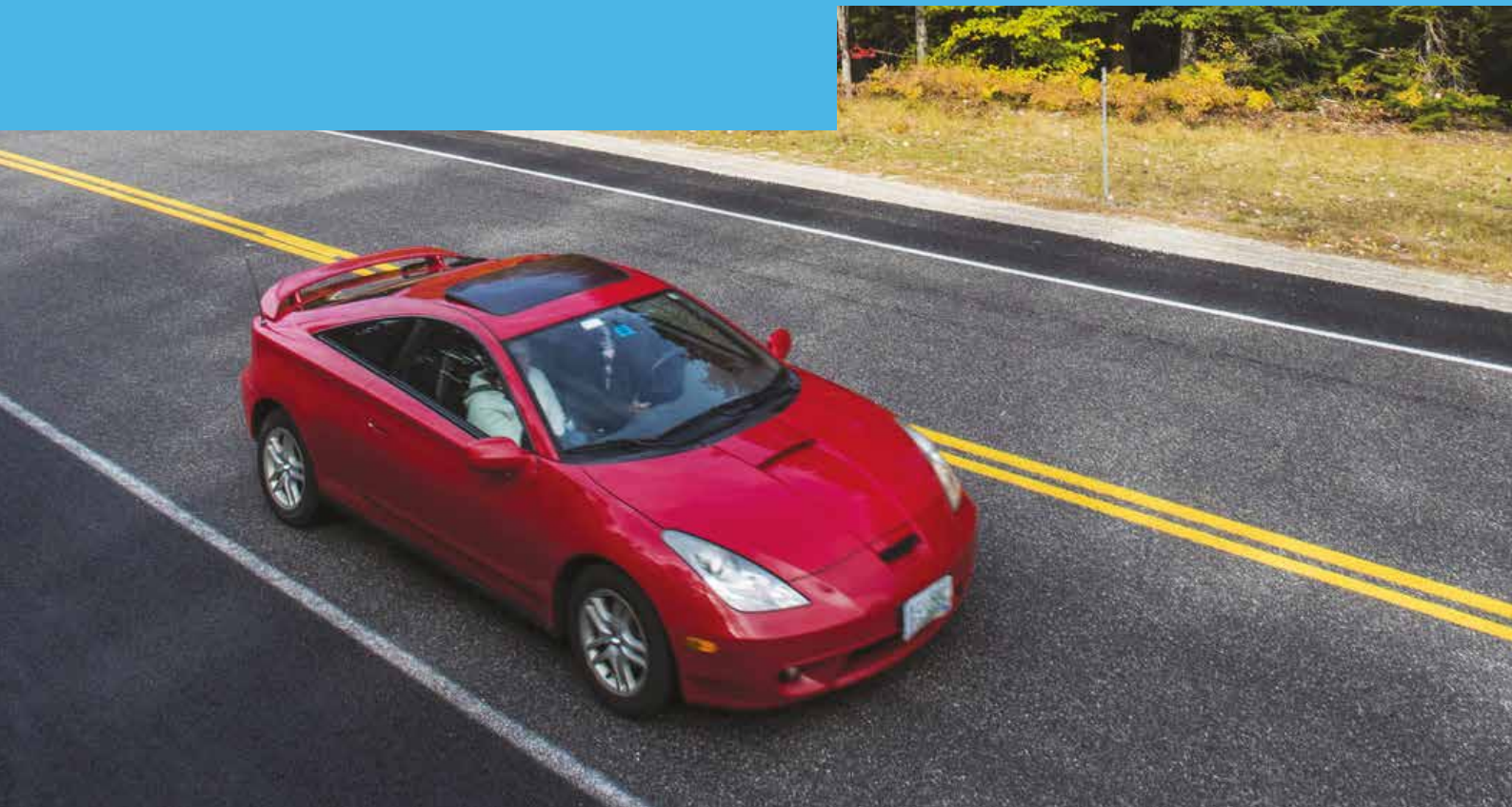
2025 Edition



Contents

- 4 Overview
- 5 Software environment
- 6 Developer community
- 9 Automotive function boards
- 22 SPC5 MCU discovery boards
- 26 Industrial-grade solution
evaluation tools
- 28 Demonstrators

AutoDevKit overview



A practical, simple, and low-cost development initiative for automotive application engineers

A new development flow and ecosystem tailored for the Automotive & Transportation market, this innovative platform delivers engineers the best and easiest way for quick evaluation and rapid prototyping within a common, integrated and flexible environment.

The ecosystem accelerates prototype development, enabling rapid iteration and innovation. With a unified and cohesive platform, engineers can work more efficiently, while the system's flexibility adapts to specific project needs.

KEY FEATURES

- Focus on developing your application without worrying about hardware and software details.
- Assemble and reassemble components without compatibility issues.
- Expand and customize your application by adding components, optimizing costs, changing compilers, and integrating real-time OS and Eclipse-compatible plugins.

AutoDevKit Ecosystem

User-friendly MCU
discovery and
function boards

Ready-to-use system
solution
demonstrators



Pre-built embedded software
with example code

AutoDevKit

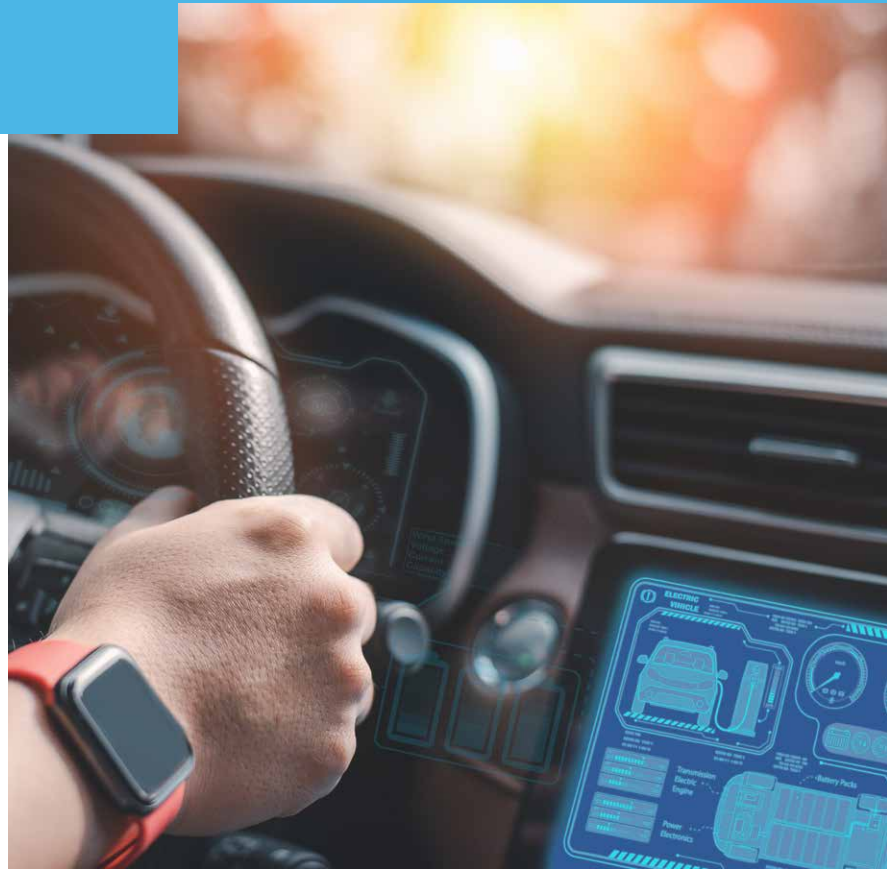
Software environment



AutoDevKit ecosystem includes a complete set of software and firmware components to develop your application prototype.

Thanks to its user-friendly graphical interface, AutoDevKit Studio ([STSW-AUTODEVKIT](#)) can be used either at high level with easy-to-use methods or at very low-level board/chip through advanced functions and features.

The AutoDevkit ecosystem also comes with an extensive collection of demo and application code so you can reduce your design cycle and quickly start using the board. Easily integrated into SPC5-Studio and AutoDevKit Studio IDEs.



SPC5-Studio development environment for SPC5 MCUs

SPC5-Studio is a free Eclipse integrated development environment that has been designed specifically for SPC5 automotive MCUs. It includes everything you need to graphically design and compile your SPC5 automotive application:

- Integrates an optimized GNU 'C' compiler by HighTec on a 30-day full-featured trial license
- Works with a growing library of low-level drivers

The artificial intelligence (AI) plug-in ([SPC5-STUDIO-AI](#)) for the SPC5-STUDIO development environment supports general-purpose SPC58 automotive microcontrollers. It provides neural network architects a seamless way to generate, execute and validate pre-trained NN models on automotive MCUs. It automatically converts pre-trained neural networks into optimized Ansi C code, ready to be compiled.



AutoDevKit

Developer community

STMicroelectronics is dedicated to providing comprehensive educational materials and support for engineers, developers, and technology enthusiasts. Here, you will find a wealth of information designed to help you deepen your understanding of STMicroelectronics products and technologies.

https://www.st.com/content/st_com/en/support/learning.html



Visit the ST community pages.

Looking for solutions and tips to overcome your design challenges? Join discussions, ask questions, and share insights with other community members as well as our technical staff. You can also follow online courses to increase your skills.

<https://community.st.com/>

With dedicated product forums and knowledge base, developers can quickly access and search for the most relevant information and solutions for their projects.



Visit the [AutoDevKit ecosystem community page](#)



Subscribe to our Automotive newsletter for the latest news about our most recent products, solutions and development tools.

Automotive function boards

Part number	Application	Description	Page
<u>AEK-AUD-C1D9031</u>	Audio	Very compact vehicle warning sound (AVAS) evaluation board	9
<u>AEK-AUD-D903V1</u>	Audio	45 W Class-D audio amplifier evaluation board	9
<u>AEK-COM-IS0SPI1</u>	Communication	Configurable dongle that converts SPI signals into isolated SPI signals	10
<u>AEK-COM-10BASET</u>	Communication	10BASE-T1S MAC-PHY evaluation board to connect different protocols of a car zone to the automotive Ethernet protocol	10
<u>AEK-CON-C1D9031</u>	Connector	AVAS connector board used to bridge the AEK-AUD-D903V1 and the AEK-MCU-C1MLIT1 boards	11
<u>AEK-LCD-DT028V1</u>	Mini-infotainment	2.8" LCD touchscreen expansion board for a graphical user interface (GUI)	12
<u>AEK-LED-21DISM1</u>	Lighting	Flexible LED driver board for high-brightness LED front lighting applications	12
<u>AEK-MOT-2DC40Y1</u>	Motor Control	Dual DC motor driver board for highly compact motor control solutions	13
<u>AEK-MOT-3P99081</u>	Motor Control	CAN-controlled BLDC motor evaluation board	13
<u>AEK-MOT-MR200G1</u>	Motor Control	Vehicle mirror controller board (folding, unfolding, X-Y inclination, dimming, and defrosting)	14
<u>AEK-MOT-SM81M1</u>	Motor Control	Programmable stepper motor driver evaluation board	14
<u>AEK-MOT-TK200G1</u>	Motor Control	Power liftgate controller board able to drive up to three DC motors	15
<u>AEK-MOT-WINH92</u>	Motor Control	Window lift DC motor driver board with anti-pinch mechanism	16
<u>AEK-POW-BMS63EN</u>	Smart Power	Battery management (BMS) evaluation board	17
<u>AEK-POW-BMSHOLD</u>	Smart Power	Ready-to-use battery pack holder	17
<u>AEK-POW-BMSLV</u>	Smart Power	Battery management (BMS) evaluation board for low-voltage applications	18
<u>AEK-POW-BMSNOTX</u>	Smart Power	Non-isolated battery management (BMS) node dedicated to auxiliary battery packs	18
<u>AEK-POW-BMSWTX</u>	Smart Power	Battery management (BMS) evaluation board ensuring an isolated connection to an external MCU	19
<u>AEK-POW-LDOV01S</u>	Smart Power	Linear voltage regulator evaluation board with configurable output voltage	20
<u>AEK-POW-LDOV02J</u>	Smart Power	Linear voltage regulator evaluation board with configurable output voltage and advanced diagnostics	20
<u>AEK-POW-SPSB081</u>	Smart Power	Automotive power management evaluation board with enhanced functions	21

The [**AutoDevkit Studio**](#) comes with an extensive collection of demo and application code so you can reduce your design cycle and quickly start using the board.

MCU Discovery boards

Part number	Description	Page
<u>AEK-MCU-C1MLIT1</u>	Full-featured 1-Mbyte SPC58 MCU discovery board	22
<u>AEK-MCU-C4MINI1</u>	All-in-one, fast-prototyping, user-friendly motor control evaluation board based on a 4-Mbyte SPC58 automotive MCU	22
<u>AEK-MCU-SPC5LNK</u>	Programmer and debugger dongle for SPC58 automotive microcontrollers	23
<u>SPC582B-DIS</u>	Low-cost 1-Mbyte SPC582B Discovery kit	24
<u>SPC58EC-DISP</u>	Flexible 4-Mbyte SPC58EC Discovery kit	24
<u>SPC584B-DIS</u>	Low-cost 2-Mbyte SPC584B Discovery kit	25
<u>SPC584B-DISP</u>	Flexible 2-Mbyte SPC584B Discovery kit	25

Industrial function boards

Part number	Application	Description	Page
<u>AEK-SNS-2TOFM1</u>	Sensors	Predefined gesture detection system based on time-of-flight (ToF) ranging sensors	26
<u>AEK-CON-SENSOR1</u>	Connector	MEMS sensor connector board for SPC5 Discovery boards (DIL 24 socket)	27

Demonstrators

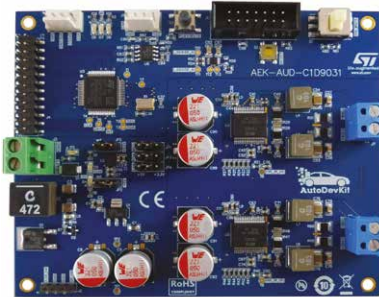
Part number	Description	Page
<u>AEKD-AICAR1</u>	Automotive edge AI solution for car state classification	28
<u>AEKD-STEREOAVAS</u>	Integrated stereo AVAS solution	29
<u>AEKD-TRUNKL1</u>	Fully assembled power liftgate demonstrator kit with model-based design approach	30
<u>AEKD-BLINDSPOTA1</u>	Blind-spot detection simulation kit	31
<u>AEKD-BLINDSPOTB1</u>	Set of assembled boards for blind-spot detection simulation	31

AutoDevKit

Automotive function boards

AEK-AUD-C1D9031

Very compact vehicle warning sound (AVAS) evaluation board



BOARD FEATURES

- Two integrated audio amplifiers for stereo mode or two separate audio channels
- Compact design to strategically place different modules around the vehicle
- All modules can be controlled by a central MCU via CAN interface

Key products

- [FDA903D](#) 45 W Class-D audio amplifier
- [SPC582B60E1](#) 1-Mbyte automotive MCU

Additional resources

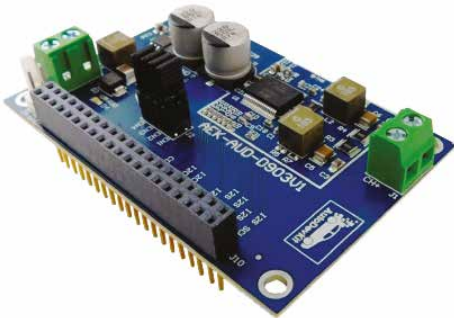
- Integrated stereo AVAS demonstrator ([AEKD-STEREOAVAS](#))

AutoDevKit Studio example code

- Simulate car engine sounds with real-time diagnostics [SPC582Bxx_RLA_AEK_AUD_C1D9031]

AEK-AUD-D903V1

45 W Class-D audio amplifier evaluation board



Key products

- [FDA903D](#) 45 W Class-D audio amplifier in a PowerSSO-36 slug-down package

BOARD FEATURES

- Designed for use with the AEK-MCU-C1MLIT1 Discovery board
- FDA903D controlled via I²C and I²S interfaces and GPIOs

Additional resources

- Full-featured 1-Mbyte SPC58 MCU discovery board ([AEK-MCU-C1MLIT1](#))
- AVAS connector board used to bridge the AEK-AUD-D903V1 and the AEK-MCU-C1MLIT1 boards ([AEK-CON-C1D9031](#))

AutoDevKit Studio example code

- Reproduce a sound using a mono WAV file with complete diagnostics [SPC582Bxx_RLA_AEK_AUD_D903V1]

AEK-COM-ISOSPI1

Configurable dongle that converts SPI signals into isolated SPI signals



BOARD FEATURES

- Converts standard SPI signals to/from isolated SPI signals with a high level of noise immunity
- Native compatibility with the L9963E isolated SPI port

Key products

- **L9963T** SSPI to isolated SPI bi-directional transceiver
- **USBLC6-2SC6Y** Automotive ESD protection device

Additional resources

- Flexible LED driver board ([AEK-LED-21DISM1](#))

AutoDevKit Studio example code

- Driver for the AEK-LED-21DISM1 Flexible LED driver board [SPC58EC - ISOSPI1_LEDdriver]
- Configures the registers in the AEK-LED-21DISM1 Flexible LED driver board [SPC582B - ISOSPI1_LEDdriver]

AEK-COM-10BASET

10BASE-T1S MAC-PHY evaluation board to connect different protocols of a car zone to the automotive Ethernet protocol



BOARD FEATURES

- For automotive zonal architecture implementations
- Manages different protocols: 10BASE-T1S, CAN, CAN-FD, and SPI
- It can be used as a gateway, converting a 10BASE-T protocol signal to other protocol signals used in a car zone subsystem

Key products

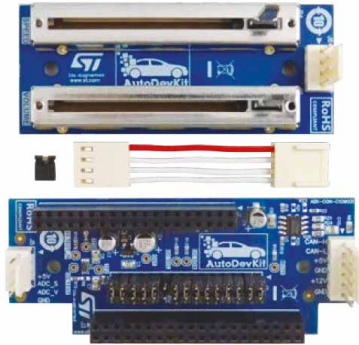
- **SPC58EC80EC** 4-Mbyte Automotive MCU
- **L5963DN-EHT** dual switching regulator
- **SPSB0813** PMIC with LIN and CAN-FD

AutoDevKit Studio example code

- Simulation of a domain control zone application [SPC58ECxx_RLA AEK-COM-10BASET CAN-ETH Gateway]

AEK-CON-C1D9031

AVAS connector board used to bridge **AEK-AUD-D903V1** and **AEK-MCU-C1MLIT1** boards



BOARD FEATURES

- Includes a connector with two sliders: one to manage the speed (engine rpm) and the other for the volume

Key products

- **L9616** High-speed CAN transceiver

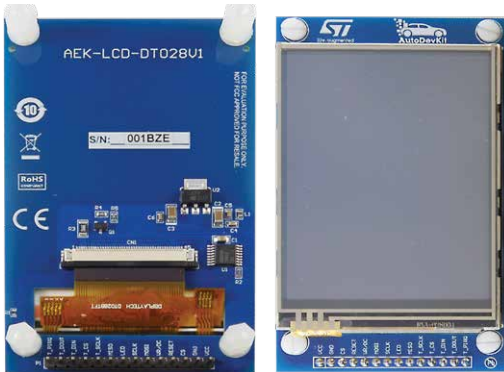
Additional resources

- Full-featured 1-Mbyte SPI MCU discovery board (**AEK-MCU-C1MLIT1**)
- 45 W Class-D audio amplifier evaluation board (**AEK-AUD-D903V1**)



AEK-LCD-DT028V1

2.8" LCD touchscreen expansion board for a graphical user interface



BOARD FEATURES

- 240 x 320 pixel resolution
- Designed for SPC58 MCU discovery boards

Additional resources

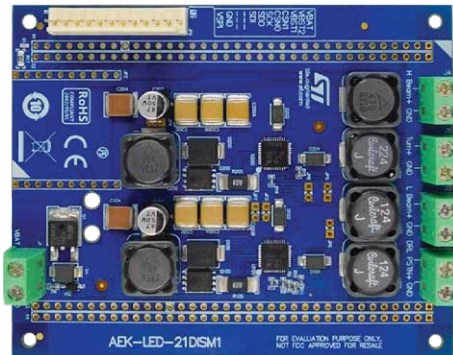
- Integrated stereo AVAS demonstrator ([AEKD-STEREOAVAS](#))
- Versatile edge AI solution demonstrator kit for car state classification ([AEKD-AICAR1](#))
- Fully assembled power liftgate demonstrator kit ([AEKD-TRUNKL1](#))

AutoDevKit Studio example code

- Calibration and identification function for 4 different colored rectangles of the touchscreen. Demo for SPC58 4M Platform [SPC58ECxx_RLA AEK-LCD-DT028V1 – LCD Touch]
- Draw and display basic geometric figures, vertical and horizontal lines, char or strings, and display pictures retouched with GIMP software for SPC58 1M Platform [SPC582Bxx_RLA AEK_LCD_DT028V1- 1LCD NO touch]
- Calibration and identification function for 4 different colored rectangles of the touchscreen [SPC582Bxx_RLA AEK_LCD_DT028V1- 1LCD touch]

AEK-LED-21DISM1

Flexible LED driver board for high-brightness LED front lighting applications



BOARD FEATURES

- Able to control four LED strings
- Watchdog and limp home functions
- Very accurate LED current setting

Additional resources

- Fully assembled power liftgate demonstrator kit ([AEKD-TRUNKL1](#))
- Set of assembled boards for blind-spot detection simulation kit ([AEKD-BLINDSPOTB1](#))

AutoDevKit Studio example code

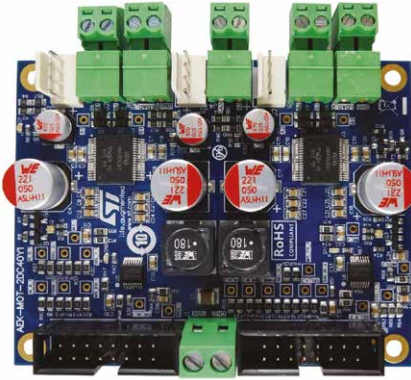
- Test application for controlling the LED drivers [SPC58ECxx_RLA AEK-LED-21DISM1]
- Test warning system that detects a vehicle in the blind spot zone and informs the driver [SPC58ECxx_RLA BlindSpot]

Key products

- Two embedded high-power, flexible [L99LD21](#) LED drivers

AEK-MOT-2DC40Y1

Dual DC motor driver board for highly compact motor control solutions



Key products

- **VNH7040AY** automotive grade multiple DC motor driver up to 35 A

BOARD FEATURES

- Very compact solution
- Embeds all driver and signal decoding functions
- Three independent encoder inputs

Additional products

- **VN7E010AJ** High-side driver with MultiSense analog feedback and improved high-precision current sensing
- **VN7050AJ** High-side driver with MultiSense analog feedback

AutoDevKit Studio example code

- Test application for setting the motor rotation speed [SPC58ECxx_RLA AEK_MOT_2DCxxx]
- Test application for a feedback-based control loop mechanism [SPC58ECxx_RLA AEK_MOT_2DCxxx]

AEK-MOT-3P99081

CAN-controlled BLDC motor evaluation board



Key products

- **L9908** 3-phase motor gate driver unit
- **SPC560P** 32-bit Power Architecture MCU

BOARD FEATURES

- The firmware allows to drive the board from an external controller via CAN
- Wide range of system compatibility (12, 24, and 48V)
- Smart logic for current acquisition and processing

Additional products

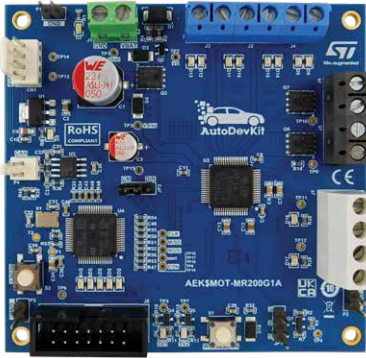
- **STD105N10F7AG** 80 A N-channel STripFET F7 Power MOSFET
- **LD1117** Adjustable, fixed low dropout voltage regulator
- **L7987L** 61 V, 2 A asynchronous step-down switching regulator with adjustable current limitation
- **L4995** 5 V low dropout voltage regulator

AutoDevKit Studio example code

- Example code for using CAN messages to drive a BLDC motor [SPC560Pxx_RLA_AEK_MOT_3P99081_3Phase_Motor_Control_L9908_via_CAN]
- Test application for controlling a 3-phase BLDC motor [SPC58ECxx_RLA_MainEcuForBLDCControl-L9908]

AEK-MOT-MR200G1

Vehicle mirror controller board



Key products

- **L99DZ200G** Multi-output driver with LIN and HS-CAN
- **SPC582B60E1** 1-Mbyte automotive MCU

BOARD FEATURES

- Folding, unfolding, X-Y inclination, dimming, and defrosting
- Dedicated connectors for external encoders to detect the effective position of the side mirror for safety features or specific user profiles
- Able to drive two LED strings for turning signals or puddle lights

Additional products

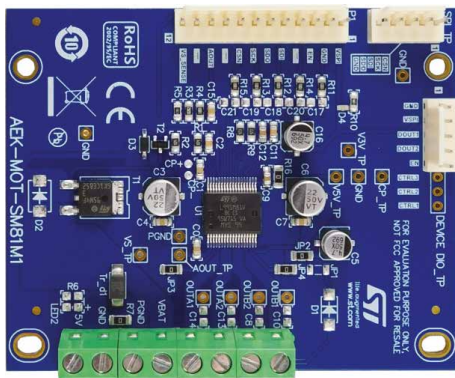
- **STL64N4F7AG** - Automotive-grade N-channel 40 V, 7.0 mOhm typ., 4 A STripFET F7 Power MOSFET in a PowerFLAT 5x6 package
- **STL19N3LLH6AG** - Automotive-grade N-channel 30 V, 25 mOhm typ, 10 A STripFET H6 Power MOSFET in a PowerFLAT 5x6 package
- **LD1117** - Adjustable and fixed low drop positive voltage regulator

AutoDevKit Studio example code

- Ready-to-use demo that enables doorzone functions and features [SPC582Bxx_RLA_AEK-MOT-MR200G1_Doorzone]
- Test application used to allow an external MCU board to drive via CAN the AEK-MOT-MR200G1 [SPC58ECxx_RLA_4M_CAN_cmd_sender_for_MR200G]

AEK-MOT-SM81M1

Programmable stepper motor driver evaluation board



Key products

- **L99SM81V** Programmable stepper motor driver with micro-stepping and stall detection

BOARD FEATURES

- Full set of I/Os for MCU control and feedback signaling
- Coil voltage monitoring for stall detection
- Reverse battery protection

Additional products

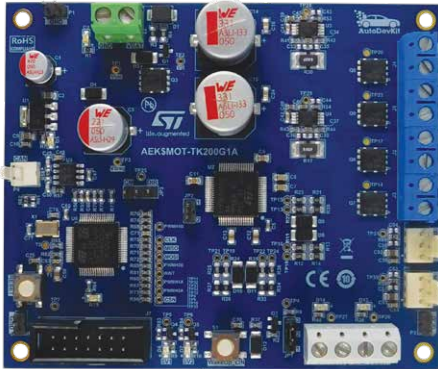
- **STPS3L40** 40 V, 3 A SMD power Schottky rectifier
- **STPS0540ZY** 40 V, 0.5 A power Schottky rectifier
- **SMAJ40CA-TR** 400 W, 40 V transient voltage suppressor
- **STD95N4F3** N-channel 40 V, 80 A, STripFET Power MOSFET

AutoDevKit Studio example code

- Test application with basic left and right rotation [SPC58ECxx_RLA_AEK_MOT_SM81M1]

AEK-MOT-TK200G1

Power liftgate controller board able to drive up to three DC motors



Key products

- **L99DZ200G** Multi-output driver with LIN and HS-CAN
- **SPC582B60E1** 1-Mbyte automotive MCU

BOARD FEATURES

- Additional high-side outputs to drive bulbs, relays, and LEDs
- CAN bus interface for remote control
- Thermal warning and thermal shutdown protection

Additional products

- **SM6T36CAY** 600 W, 30.8 V transient voltage suppressor
- **STTH3R02-Y** 200 V, 3 A ultrafast diode
- **STL64N4F7AG** N-channel 40 V 4 A STripFET F7 Power MOSFET
- **STL260N4F7** N-channel 40 V 120 A STripFET F7 Power MOSFET
- **STL76DN4LF7AG** N-channel 40 V, 40 A STripFET F7 Power MOSFET
- **LD1117** Adjustable, fixed low dropout voltage regulator
- **TSC103IYPT** High-voltage, high-side current sense amplifier

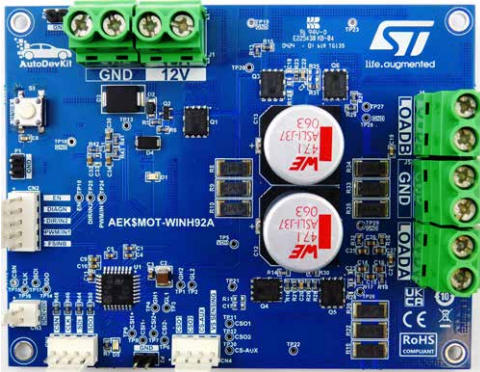
AutoDevKit Studio example code

- Demo code to control two DC motors in a loop or three DC motors using CAN commands [SPC582Bxx_RLA_AEK-MOT-TK200G1_MotorControl]
- Demo code to control two DC motors and turn on/off two LED strings [SPC582Bxx_RLA_AEK-MOT-TK200G1_MotorControl_via_CAN]
- Demo code to control one DC motor in clockwise or in counter-clockwise mode [SPC58ECxx_RLA_MainECUFor_AEK-MOT-TK200G1Control Test Application]



AEK-MOT-WINH92

Window lift DC motor driver board with anti-pinch mechanism



BOARD FEATURES

- Programmable gain current sensing for advanced anti-pinching algorithms
- Diagnostic pin to alert the microcontroller in case of faults
- Fault detection capabilities

Key products

- **L99H92** Flexible H-bridge gate driver with configurable current sensing, advanced diagnostics and protection features

Additional products

- **STPS2H100ZFY** 100V, 2A Power Schottky rectifier
- **SM30T33CAY** 28 V DC, bidirectional transient voltage suppressor
- **STTH102AY** 200 V, 1 A ultrafast diode
- **STL285N4F7AG** 40 V, 120 A STripFET F7 Power MOSFET
- **TSC103IYPT** High-voltage, high-side current sense amplifier

AutoDevKit Studio example code

- Sample code to configure the board for windows lift application [SPC58ECxx_RLA – AEK_MOT_WINH92 Window Lift Test application]
- Sample code to configure the board to drive one bidirectional DC motor [SPC58ECxx_RLA_AEK_MOT_WINH92 Full Bridge Test application]
- Sample code to configure the board to drive two unidirectional DC motors [SPC58ECxx_RLA_AEK_MOT_WINH92 Dual Half Bridge Test application]



AEK-POW-BMS63EN

Battery management (BMS) evaluation board



Key products

- **L9963E** Battery management chip

BOARD FEATURES

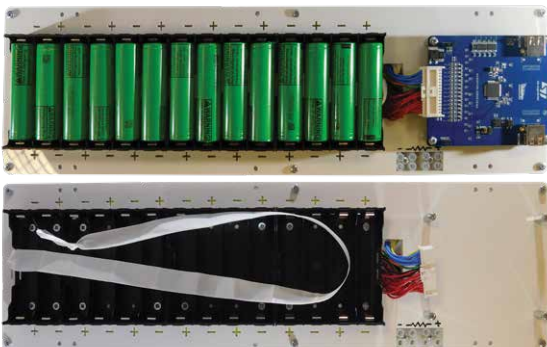
- Able to be connected as a node in a daisy chain configuration (up to 31 boards can be connected). Each node can manage 4 to 14 battery cells.
- Elaborate monitoring network to sense the voltage, current, and temperature of each battery cell

AutoDevKit Studio example code

- Sample code to estimate the SOC of a single node with 14 connected cells [SPC58EC - AEK_POW_BMS63EN_SOC_Estimation_Single]
- Sample code to estimate the SOC of 3 nodes, each connected with 14 connected cells, in a centralized configuration [SPC58EC - AEK_POW_BMS63EN_SOC_Estimation_Centralized]
- Sample code to estimate the SOC of 3 nodes, each connected with 14 connected cells, in a dual access ring configuration [SPC58EC - AEK_POW_BMS63EN_SOC_Estimation_DualRing]

AEK-POW-BMSHOLD

Ready-to-use battery pack holder



HOLDER FEATURES

- Designed for use with AEK-POW-BMS63EN, AEK-POW-BMSNOTX, AEK-POW-BMSWTX battery management (BMS) evaluation boards
- Able to hold up to 14 cells connected in series
- Ribbon helps to remove battery cells easily
- Includes mounting kit to stack up to 3 or 4 holders

AEK-POW-BMSLV

Battery management (BMS) evaluation board for low-voltage applications



BOARD FEATURES

- Able to connect to a battery pack and to monitor both the SOC and SOH of each battery cell
- Two CAN ports for flexible networked connections
- Configurable fault collection control unit for advanced protection

Key products

- **L9963E** Battery management chip
- **L9963T** SPI to isolated SPI bi-directional transceiver
- **SPC58EC80E5** 4-Mbyte automotive MCU

AEK-POW-BMSNOTX

Non-isolated battery management (BMS) node dedicated to auxiliary battery packs



BOARD FEATURES

- Able to manage 4 to 14 battery cells
- Elaborate monitoring network to sense the voltage, current, and temperature of each battery cell

Additional products

- **STL8N10LF3** 100 V, 7.8 A STripFET F3 Power MOSFET
- **STD105N10F7AG** N-channel 100 V, 80 A STripFET F7 Power MOSFET
- **LM2902WYDT** – Low-power quad op amp

AutoDevKit Studio example code

- Example code for a centralized topology with 1 BMS IC that manages a battery pack with 14 Li-ion battery cells [SPC58EC – AEK_POW_BMSNOTX_SOC Est_SingleAccess_CHAIN]

Key products

- **L9963E** Battery management chip

AEK-POW-BMSWTX

Battery management (BMS) evaluation board ensuring an isolated connection to an external MCU



BOARD FEATURES

- Measurement and diagnostic tasks can be executed either on demand or periodically, with a programmable cycle interval
- Elaborate monitoring network to sense the voltage, current, and temperature of each battery cell
- Measurement data are available for an external microcontroller to perform charge balancing and to compute the SOC and SOH

Key products

- **L9963E** Battery management chip
- **L9963T** SPI to isolated SPI bi-directional transceiver

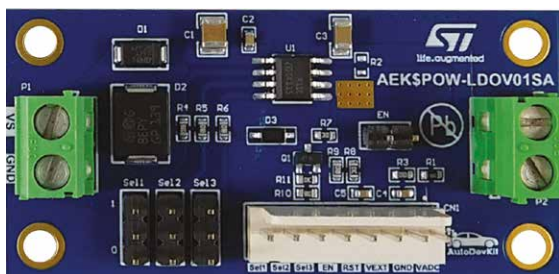
AutoDevKit Studio example code

- Demo code for monitoring the SOC and SOH of a battery pack based on an Extended Kalman Filter (EKF)
[SPC58xx - AEK_POW_BMSWTX_SOC_Estimation application]
- Demo code for a Centralized topology with 1 BMS IC that manages a battery pack with 14 Li-ion battery cells
[SPC58xx - AEK_POW_BMSWTX_SOC_Est_SingleAccess_CHAIN]
- Demo code for a Dual Access topology with 2 BMS ICs connected in daisy chain able to manage up to 28 cells
[SPC58xx - AEK_POW_BMSWTX_DualAccess_CHAIN]



AEK-POW-LDOV01S

Linear voltage regulator evaluation board with configurable output voltage



BOARD FEATURES

- Works in a standalone configuration or with an external microcontroller

Additional products

- **STPS2H100ZFY** 100V, 2A Power Schottky rectifier
- **BAT46JFILM** 100V, 150mA signal Schottky diode
- **TSX711ILT** Precision (200 μ V), rail-to-rail 16V CMOS op amp

AutoDevKit Studio example code

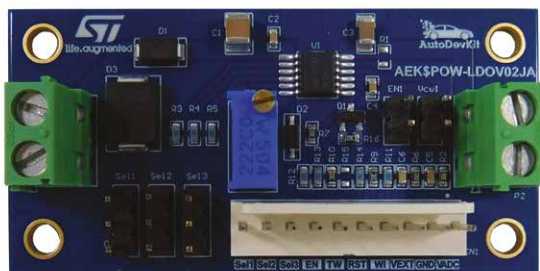
- Example code for a DC-DC voltage regulator using an SPC58EC MCU [SPC58ECxx_RLA AEK_POW_LDOV01x DC-DC Voltage Regulator]
- Example code for a DC-DC voltage regulator using an SPC582B MCU [SPC582Bxx_RLA AEK_POW_LDOV01x DC-DC Voltage Regulator]

Key products

- **L99VR01STR** Low dropout linear voltage regulator with configurable output voltage

AEK-POW-LDOV02J

Linear voltage regulator evaluation board with configurable output voltage and advanced diagnostics



BOARD FEATURES

- Works in a standalone configuration or with an external microcontroller
- IShort control and advanced thermal warning functions

Additional products

- **STTH102AY** 200 V, 1 A ultrafast diode
- **STPS0540ZY** 40 V, 0.5 A power Schottky rectifier
- **SMCJ24CA-TR** 1500 W, 24 V transient voltage suppressor

AutoDevKit Studio example code

- Example code for a DC-DC voltage regulator using an SPC58EC MCU [SPC58ECxx_RLA AEK_POW_LDOV01x DC-DC Voltage Regulator]
- Example code for a DC-DC voltage regulator using an SPC582B MCU [SPC582Bxx_RLA AEK_POW_LDOV02J DC-DC Voltage Regulator]

Key products

- **L99VR02J** Low dropout linear voltage regulator with configurable output voltage and advanced diagnostics

AEK-POW-SPSB081

Automotive power management evaluation board with enhanced functions



BOARD FEATURES

- Designed for use with the AEK-MCU-C1MLIT1 Discovery board
- Enhanced power management functions minimize power consumption

Key products

- **SPSB081** Automotive power management IC with LIN and CAN-FD

Additional products

- **STTH102AY** 200 V, 1 A ultrafast diode
- **SMAJ40CA-TR** 400 W, 40 V transient voltage suppressor
- **ESDLIN1524BJ** Transient voltage suppressor for LIN bus

AutoDevKit Studio example code

- Application code to set up the PWM and 2 timers, and send signals to the SPC58EC MCU [SPC58ECxx_RLA – SPSB081 Test Application for Discovery]
- Demo code to test CAN communication between two SPSB081 devices [SPC582B – AEK_POW_SPSB081_2nodes_CAN]

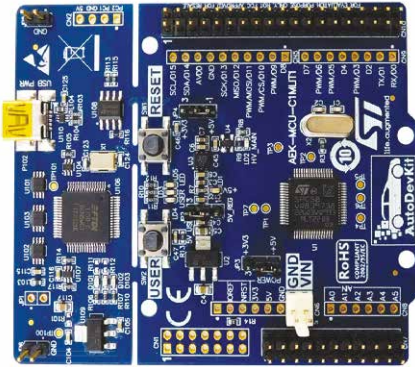


AutoDevKit

SPC5 MCU discovery boards

AEK-MCU-C1MLIT1

Full-featured SPC58 MCU discovery board hosting a 1-Mbyte SPC58 automotive MCU



BOARD FEATURES

- Full access to all I/O signals and peripherals
- Extension headers for all pins for fast prototyping
- On-board USB-JTAG PLS debugger
- 3 integrated programmers/debuggers

Key products

- [SPC582B60E1](#) 1-Mbyte automotive MCU

Additional products

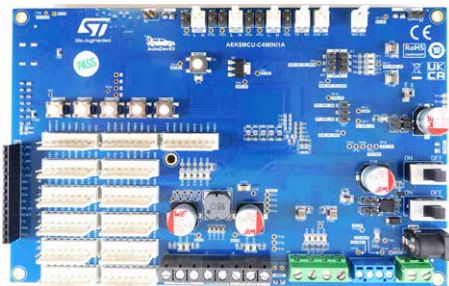
- [LD39050](#) 500 mA low-noise, low dropout voltage regulator
- [LD1117](#) 800 mA Adjustable and fixed low dropout voltage regulator
- [STM6315](#) Open-drain MPU reset circuit

Demonstrator

- [AEK-AUD-C1D9031](#) Very compact vehicle warning sound (AVAS) evaluation board

AEK-MCU-C4MINI1

All-in-one, fast-prototyping, user-friendly motor control evaluation board based on a 4-Mbyte SPC58 automotive MCU



BOARD FEATURES

- Designed for use with a user-friendly GUI and [2.8" LCD touchscreen expansion board](#)
- OpenOCD debugger/programmer
- System reset button
- Integrated reverse battery protection circuit

Key products

- [SPC58EC80E5](#) 4-Mbyte automotive MCU

Additional products

- [A5973AD](#) Up to 1.5 A step-down switching regulator
- [M93S46-W](#) 1-Kbit serial EEPROM with block protection
- [LD1117](#) 800 mA Adjustable and fixed low dropout voltage regulator
- [STM6315](#) Open-drain microprocessor reset circuit

AutoDevKit Studio example code

- A complete set of software packages and example code is available

AEK-MCU-SPC5LNK

Programmer and debugger dongle for SPC5 automotive microcontrollers

Different dongles are available for OpenOCD (AEK-MCU-SPC5LNK) and UDE® PLS (AEK-MCU-SPC5LNKU)



A compact, cost-effective USB-to-JTAG debugger/programmer dongle that ensures short development times through easy-to-use hardware and software fully integrated into SPC5-Studio and AutoDevKit Studio IDEs.

BOARD FEATURES

- Virtual COM port for communication between host PC and MCU via UART
- USB connector for supply and data signals
- Provides NVM programming (erase/program/verify)
- Compliant with the IEEE 1149.1 JTAG protocol

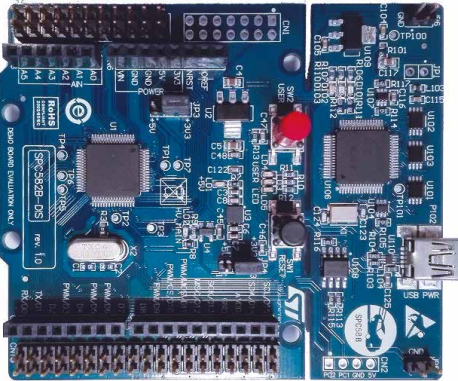
Additional products

- **ESDAVLC8-1BT2Y** bidirectional single-line ESD suppressor
- **USBLC6-2P6** ESD protection for high-speed interfaces
- **M93S46-W** 1-Kbit serial EEPROM with block protection
- **LD1117S33TR** 3.3 V low-dropout voltage regulator



SPC582B-DIS

Low-cost, 1-Mbyte SPC582B Discovery kit



BOARD FEATURES

- Full access to all I/O signals and peripherals
- Extension headers for all pins for fast prototyping
- Arduino Uno revision 3 connectivity
- Flexible board power supply
- On-board USB-JTAG PLS debugger

Key products

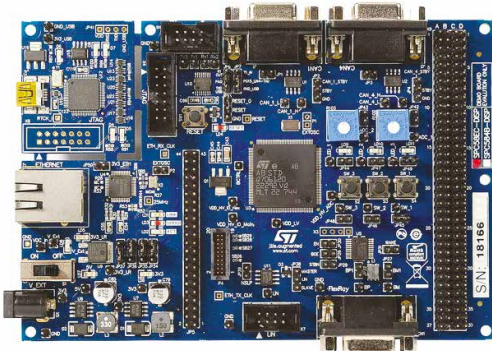
- **SPC582B60E1** 1-Mbyte automotive MCU

Additional resources

- **LD39050** 500 mA low-noise, low dropout voltage regulator
- **USBL6-2** – ESD protection for USB 2.0 high-speed interfaces
- **M93S46-W** 1-Kbit serial EEPROM with block protection
- **LD1117** 800 mA Adjustable and fixed low dropout voltage regulator
- **STM6315** Open-drain MPU reset circuit

SPC58EC-DISP

Flexible, 4-Mbyte SPC58EC Discovery kit



BOARD FEATURES

- Full access to all SPC58 CPUs, I/O signals and peripherals
- Extension headers for all pins for fast prototyping
- Arduino Uno revision 3 connectivity
- Flexible board power supply
- On-board USB-JTAG PLS debugger

Key products

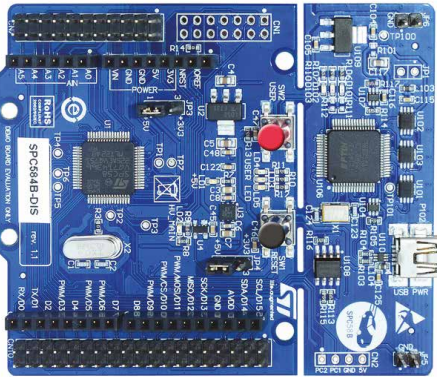
- **SPC58EC80E5** 4-Mbyte automotive MCU

Additional resources

- **ST3232EB** 15kV ESD for RS-232 drivers and receivers
- **USBL6-2** – ESD protection for USB 2.0 high-speed interfaces
- **M93S46-W** 1-Kbit serial EEPROM with block protection
- **LD1117** 800 mA adjustable and fixed low dropout voltage regulator
- **LD1117A** 1 A adjustable, fixed low dropout voltage regulator
- **STM6315** Open-drain MPU reset circuit

SPC584B-DIS

Low-cost, 2-Mbyte SPC584B Discovery kit



BOARD FEATURES

- Full access to all SPC58 CPUs, I/O signals and peripherals
- Extension headers for all pins for fast prototyping
- Arduino Uno revision 3 connectivity
- Flexible board power supply
- On-board USB-JTAG PLS debugger

Additional products

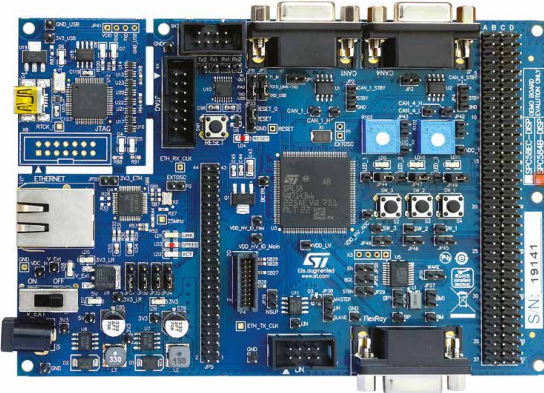
- **STPS340** 40 V, 3 A Schottky rectifier
- **ST3232EB** 15kV ESD for RS-232 drivers and receivers
- **M93S46-W** 1-Kbit serial EEPROM with block protection
- **STM6315** Open-drain MPU reset circuit

Key products

- **SPC584B70E1** 2-Mbyte automotive MCU

SPC584B-DISP

Flexible 4-Mbyte SPC58EC Discovery kit



BOARD FEATURES

- Full access to all SPC58 CPUs, I/O signals and peripherals
- Extension headers for all pins for fast prototyping
- Arduino Uno revision 3 connectivity
- Flexible board power supply
- On-board USB-JTAG PLS debugger

Additional products

- **STPS340** 40 V, 3 A Schottky rectifier
- **ST3232EB** 15kV ESD for RS-232 drivers and receivers
- **M93S46-W** 1-Kbit serial EEPROM with block protection
- **STM6315** Open-drain MPU reset circuit

Key products

- **SPC58EC80E5** 4-Mbyte automotive MCU

AutoDevKit

Industrial-grade solution evaluation tools



AEK-SNS-2TOFM1

Predefined gesture detection system based on time-of-flight (ToF) ranging sensors



Key products

- **SPC582B60E1** 1-Mbyte automotive MCU
- **VL53L1X** Long-range, high-accuracy time-of-flight ranging sensors

BOARD FEATURES

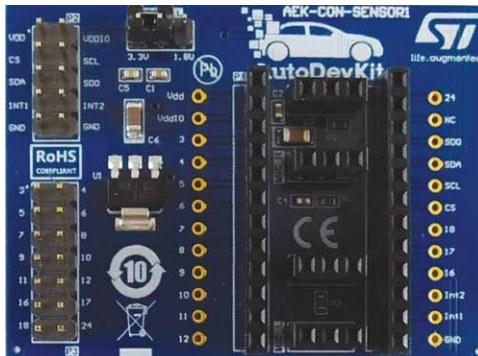
- A more cost-effective, reliable solution to retrieve and process real-time sensor data for gesture detection
- Specifically designed for placement under the car bumper
- Board control through an external domain controller via a CAN or a serial interface

Demonstrator

- **AEKD-TRUNKL1**: Fully assembled power liftgate demonstrator kit with model-based design approach

AEK-CON-SENSOR1

Industrial-grade MEMS sensor connector board for SPC5 Discovery boards (DIL 24 socket)



BOARD FEATURES

- Connects the SPC5 MCU discovery boards to the MEMS sensor boards in DIL 24 socket
- Supports several sensors: digital microphones, 2D and 3D accelerometers, and inclinometers
- Hosts a 1.8 V LDO voltage regulator for MEMS board supply

Additional products

- **AIS2DW12** Ultra-low-power 3-axis accelerometer for automotive applications
- **ASM330LHH** Automotive 6-axis inertial module with 3D accelerometer and 3D gyroscope
- **IIS2ICLX** High-accuracy, high-resolution, low-power, 2-axis digital inclinometer with embedded machine learning core
- **IIS3DWB** Ultra-wide bandwidth, low-noise, 3-axis digital vibration sensor

Demonstrator

- **AEKD-AICAR1** Versatile edge AI solution demonstrator kit for car state classification

AutoDevKit Studio example code

- Detects motion activity and accelerations including wakeup, orientation change, freefall, and tap events [SPC58ECxx_RLA_AEK_CON_SENSOR1]
- Detects freefall events [SPC582Bxx_RLA_AEK_CON_SENSOR1]
- Detects freefall events [SPC584Bxx_RLA_AEK_CON_SENSOR1]



AutoDevKit demonstrators

AEKD-AICAR1

Versatile edge AI solution demonstrator kit for car state classification



Key products

- [SPC58EC80E5](#) 4-Mbyte automotive MCU
- [AIS2DW12](#) Ultra-low-power 3-axis accelerometer for automotive applications

DEMONSTRATOR FEATURES

- Artificial Intelligence on the edge for Automotive applications
- Run a pre-trained neural network on a 'simple' MCU
- Sensor accelerations analyzed on a 6 seconds time period
- Dedicated Long-Short Term Memory (LSTM) Recurrent Neural Network for time series analysis
- Capable to work battery operated or with 12V supply
- Four car states recognized by the demo:
 - Car parked or stopped
 - Car driving on normal conditions road
 - Car driving on a bumpy road
 - Car skidding or swerving

Additional resources

- Full-featured SPC58 MCU discovery board hosting a 4-Mbyte [SPC58EC80E5](#) automotive MCU
- MEMS sensor connector board for SPC5 Discovery boards (DIL 24 socket) ([AEK-CON-SENSOR1](#))
- 2.8" LCD display expansion board with resistive touch ([AEK-LCD-DT028V1](#))
- AIS2DW12 adapter board for a standard DIL 24 socket ([STEVAL-MKI206V1A](#))

Watch the Video



AEKD-STEREOAVAS

Integrated stereo AVAS demonstrator



Key products

- [SPC58EC80E5](#) 4-Mbyte automotive MCU
- [SPC582B60E1](#) 1-Mbyte automotive MCU
- [FDA903D](#) 45 W Class-D audio amplifier

DEMONSTRATOR FEATURES

- Two integrated loudspeakers
- Current sensing for open-load detection in play or mute state
- Speaker disconnection switch
- Hardware mute button
- Plays a preloaded WAV file (car key on, neutral, and drive modes)

Additional resources

- Full-featured SPC58 MCU discovery board hosting a 4-Mbyte [SPC58EC80E5](#) automotive MCU
- Very compact vehicle warning sound (AVAS) evaluation board ([AEK-AUD-C1D9031](#))
- 2.8" LCD display expansion boards with resistive touch ([AEK-LCD-DT028V1](#))



AEKD-TRUNKL1

Fully assembled power liftgate demonstrator kit with model-based design approach



DEMONSTRATOR FEATURES

- Cost-effective solution based on Time-of-Flight sensors for reliable foot detection, reducing false activations
- Multiple control options including NFC and Bluetooth® Low Energy for opening the trunk with a mobile phone by simply approaching the phone to the NFC reader
- Equipped with motion safety subsystems using MEMS motion sensors to detect car movement during liftgate operation
- Android mobile app for remote control and alerts for operation and safety issues

Key products

- **SPC58EC80E5** 4-Mbyte automotive MCU
- **L99DZ200G** Multi-output driver with LIN and HS-CAN
- **ST25R3916** High-performance NFC universal device and EMVCo reader
- **AIS2DW12** Ultra-low-power 3-axis accelerometer for automotive applications
- **L99LD21** Flexible, high-power LED driver
- **FDA903D** 45 W Class-D audio amplifier

Additional resources

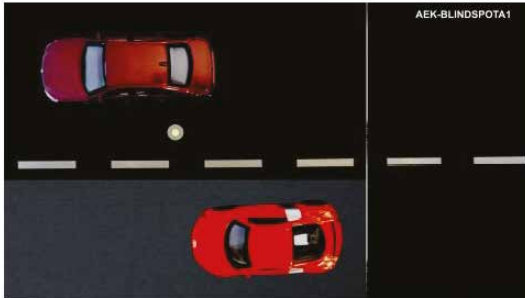
- Full-featured SPC58 MCU discovery board hosting a 4-Mbyte SPC58EC80E5 automotive MCU
- Power liftgate controller board able to drive up to three DC motors (**AEK-MOT-TK200G1**)
- Predefined gesture detection system based on time-of-flight (ToF) ranging sensors (**AEK-SNS-2TOFM1**)
- **ST25R3916** high-performance NFC universal device and EMVCo reader
- MEMS sensor connector board for SPC5 Discovery boards (DIL 24 socket) (**AEK-CON-SENSOR1**)
- Flexible LED driver board for high-brightness LED front lighting applications (**AEK-LED-21DISM1**)
- Very compact vehicle warning sound (AVAS) evaluation board (**AEK-AUD-C1D9031**)
- 2.8" LCD display expansion board with resistive touch (**AEK-LCD-DT028V1**)



Watch the Video

AEKD-BLINDSPOTA1

Blind-spot detection simulation kit and set of assembled boards



KIT FEATURES

- Ready-to-use kit designed to help developers build effective firmware for blind-spot detection systems

Key products

- [SPC58EC80E5](#) 4-Mbyte automotive MCU
- [L99LD21](#) Flexible, high-power LED driver
- [VN7050AS](#) High-side driver with MultiSense analog feedback

Additional resources

- Full-featured SPC58 MCU discovery board hosting a 4-Mbyte [SPC58EC80E5](#) automotive MCU
- Set of assembled boards for blind-spot detection simulation kit ([AEKD-BLINDSPOTB1](#))
- Flexible LED driver board for high-brightness LED front lighting applications ([AEK-LED-21DISM1](#))
- Evaluation board for VN7050AS high-side driver with MultiSense analog feedback ([EV-VN7050AS](#))



Watch the Video

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