



AutoDevKit

α new development approach
to Automotive & Transportation
applications





Contents

- 4 An overview
- 5 AutoDevKit in numbers
- 6 Software environment
- 7 AutoDevKit Automotive Applications
- 10 AEK MCU discovery and functional boards
- 13 Featured ST core products
- 14 Featured ST additional products
- 16 Board information sheets
 - Automotive Grade functional boards
 - Automotive Grade discovery boards
 - Industrial Grade boards
 - Third-party modules and sensors
 - AutoDevKit Demonstrators

AutoDevKit

An Overview



A VIABLE, SIMPLE, LOW-COST TOOLSET FOR AUTOMOTIVE APPLICATION ENGINEERS

A new development flow and toolset dedicated to the Automotive & Transportation market delivering engineers the best and easiest way for quick evaluation and rapid prototyping in a common, integrated and flexible environment supporting complete ECU-like development.

KEY FEATURES

- Focus on developing your application without bothering about hardware and software implementation details
- Assemble and re-assemble hardware and software components without compatibility issues
- Expand and customize your application adding new components, scaling your microcontroller for cost optimization, changing the compiler, adding a real-time operating system and other Eclipse-compatible plugins

AutoDevKit Ecosystem

AEK MCU Discovery
and Functional
Boards

AEKD System
Solution
Demonstrators



STSW Embedded
Software

Find out more at www.st.com/autodevkit

Software download www.st.com/autodevkitsw

Join our Community at <https://community.st.com/autodevkit>

AutoDevKit

In numbers

Current Version: 2.2.1

72

Boards

Core
products

61



AutoDevKit

28

Software
Components

Additional
products

63

4 Demonstrator kits



70+ Example codes

- **Init & Turn Off**
`init100W4V1(); turnOffBus()`
- **Voltage open loop regulation**
`SetOpenLoopProgrammableOutputVoltage
(SET_VOLTAGE, V_BUS_TO_SET, CURRENT_VALUE)`
- **Fixed & programmable voltage**
`setFixedOutputVoltage(VOLT,CURR)
setProgrammableOutputVoltage(VOLT,CURR)`

29

Videos on



124

Products covered by the AutoDevKit ecosystem and counting...

AutoDevKit Software Environment

AutoDevKit ecosystem includes software and firmware components to develop your application prototype.



With its graphical user interface for easy configuration and setup, **AutoDevKit Studio (STSW-AUTODEVKIT)** contains software components for functional boards where engineers can benefit from very high-level and easy-to-use methods or access very low-level board/chip advanced functionalities and features.

MOBILE APPS

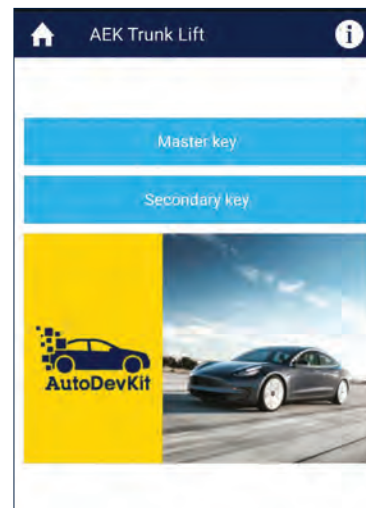
AEK Explorer

STSW-AEKEXPLORER for Android/iOS is a fast and smart way to explore ST's AutoDevKit development ecosystem using your smartphone or tablet to quickly generate a project on the fly to be downloaded and imported in **AutoDevKit Studio**.



AEK Controller

The AEK Controller app is the easiest way to control our AEK system solution demonstrators, kits and assemblies. Using this mobile app (Android only) on a handheld device, developers can easily test and debug prototypes via Bluetooth for an enhanced interaction, speeding up the development phase for a wide range of automotive applications.

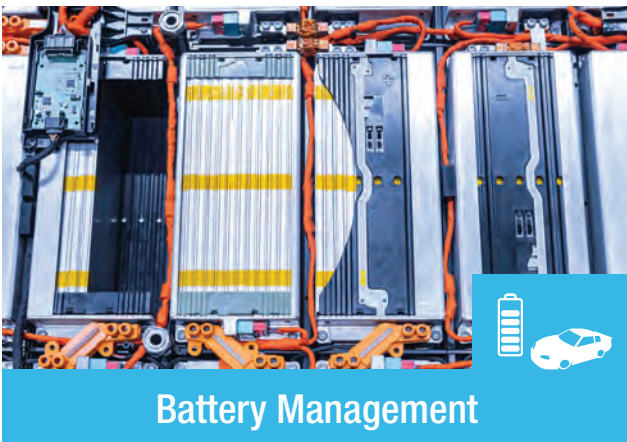


AutoDevKit

Automotive

Applications

Power and Lighting



Motor Control



Artificial Intelligence, Audio and Safety



AutoDevKit

AEK MCU discovery and functional boards

NUMBER OF BOARDS BY FUNCTION

MCU Discovery	6
Motor Control	13
Power & Lighting	7
Audio	2
Sensor	3
Communication	5
Actuator	33
Infotainment	1
Connection	2



Automotive Grade functional boards

Part number	Application	Description	Page
AEK-LED-21DISM1	Lighting	LED driver based on L99LD21	16
AEK-MOT-SM81M1	Motor Control	Stepper motor driver based on L99SM81V	17
AEK-MOT-2DC40Y1	Motor Control	Dual DC motor driver based on VNH7040AY	18
AEK-MOT-2DC70S1	Motor Control	Dual DC motor driver based on VNH7070BAS	19
AEK-MOT-3PP99081	Motor Control	Specific CAN-controlled brushless motor evaluation board based on SPC560P and L9908	20
AEK-MOT-3PP9908M	Motor Control	Specific CAN-controlled brushless motor evaluation board based on SPC560P and L9908 with BLDC motor included	20
AEK-MOT-MR200G1	Motor Control	Vehicle mirror controller board based on L99DZ200G multioutput driver and SPC582B60E1 Chorus 1M microcontroller	21
AEK-MOT-TK200G1	Motor Control	Power liftgate controller board based on L99DZ200G multioutput driver and SPC582B60E1 Chorus 1M microcontroller	22
EV-VNH7x	Motor Control	H-Bridge for driving DC motors	23
EV-VNHD7x	Motor Control	Full Bridge for driving DC motors	23
EV-VN7x	Actuator	High-side driver actuator	24
EV-VND7x	Actuator	Dual high-side driver actuator	24
EV-VNQ7x	Actuator	Quad high-side driver actuator	24
AEK-POW-BMS63EN	Smart Power	Battery management system module based on L9963E	25
AEK-POW-BMSHOLD	Smart Power	Battery holder for cylindrical batteries and battery management system node for automotive applications	26
AEK-POW-LDOV01J	Smart Power	Automotive Grade LDO with configurable output voltage based on the L99VR01STR	27
AEK-POW-LDOV01S	Smart Power	Automotive Grade LDO with configurable output voltage based on the L99VR01STR	28
AEK-POW-LDOV02J	Smart Power	Automotive Grade LDO with configurable output voltage and diagnostic features based on L99VR02J	29
AEK-POW-SPSB081	Smart Power	Automotive power management IC evaluation board with LIN and CAN-FD	30
AEK-USB-2TYPEC1	Communication	Dual USB Type-C and PD dual port interface based on STUSB1702	31
AEK-COM-ISOSPI1	Communication	SPI to isolated SPI dongle based on the L9963T transceiver	32
AEK-AUD-D903V1	Audio	45 W Class D audio amp based on FDA903D	33
AEK-AUD-C1D9031	Audio	AVAS solution based on SPC582B60E1 Chorus family MCU and FDA903D Class D audio amplifier	34
AEK-LCD-DT028V1	Mini-infotainment	Display expansion board with resistive touch for Chorus family	35
AEK-CON-C1D9031	Connector	AVAS application dedicated connector	36
STEVAL-MKI206V1	Sensor	MEMS adapter board	37



MCU Discovery boards

Part number	Description	Page
AEK-MCU-C1MLIT1	SPC58 2B Line Chorus (1 Mbyte) discovery board	38
AEK-MCU-C4MLIT1	SPC58 C Line Chorus (4 Mbytes) discovery board	39
SPC582B-DIS	Discovery Kit for SPC58 2B line	40
SPC58EC-DISP	Discovery Kit for SPC58 C line	41
SPC584B-DIS	Discovery Kit for SPC58 4B line in eQFP64	42
SPC584B-DISP	Discovery Kit for SPC58 4B Line in eTQFP144	43



Industrial Grade functional boards

Part number	Application	Description	Page
AEK-COM-BLEV1	Communication	Bluetooth communication board based on BlueNRG-1	44
AEK-COM-GNSST31	Communication	GNSS positioning board based on Teseo-LIV3F	45
X-NUCLEO-NFC06A1	Communication	NFC Board based on ST25R3911B	46
VL53L1X-SATEL	Sensors	Time-of-Flight (TOF) laser ranging	47
AEK-SNS-2TOFM1	Sensors	Predefined gesture detection system based on FlightSense technology sensors	48
AEK-CON-SENSOR1	Connector	Connector board for SPC5 MCU discovery boards and MEMS sensor boards	49

Third-party functional components

Part number	Application	Description	Page
RLIDAR_A1M8	Sensors	LIDAR Sensor	50
	Sensors	Ratiometric Hall effect sensor	51



Demonstrators

Part number	Description	Page
AEKD-AICAR1	Automotive AI on the edge for car state classification	52
AEKD-STEREOAVAS	Integrated Stereo AVAS	53
AEKD-TRUNKL1	Power liftgate zonal ECU implemented with model-based design approach	54
AEKD-BLINDSPOTA1	Blind-spot detection simulation kit	55
AEKD-BLINDSPOTB1	Set of assembled boards for blind-spot detection simulation	55

AutoDevKit

Featured ST core products

61

ST core products

ST core products and their corresponding AutoDevKit boards

Core product	# of products	Function	Boards hosting the core products
AIS2DW12	1	Automotive 3-axis accelerometer	AEK-CON-SENSOR1
ASM330LHH	1	Automotive 6-axis inertial module	AEK-CON-SENSOR1
BlueNRG-1	1	Bluetooth network processor	AEK-COM-BLEV1
FDA903D	1	Class D audio amp	AEK-AUD-D903V1 AEK-AUD-C1D9031
IIS2ICLX	1	2-axis Digital Inclinometer	AEK-CON-SENSOR1
IIS3DWB	1	3-axis digital vibration sensor	AEK-CON-SENSOR1
L9908	1	Automotive 3-phase motor gate driver unit	AEK-MOT-3P99081 AEK-MOT-3P9908M
L9963E	1	Automotive chip for battery management applications with daisy chain up to 31 devices	AEK-POW-BMS63EN
L9963T	1	Automotive general purpose SPI to isolated SPI transceiver	AEK-COM-ISOSPI1
L99DZ200G	1	Automotive Door Zone device	AEK-MOT-TK200G1 AEK-MOT-MR200G1
L99LD21Q6	1	LED driving	AEK-LED-21DISM1
L99SM81VQ6	1	Stepper motor drive	AEK-MOT-SM81M1
L99VR01J	1	Linear Voltage Regulator	AEK-POW-LDOV01J
L99VR01S	1	Linear Voltage Regulator	AEK-POW-LDOV01S
L99VR02J	1	Linear Voltage Regulator	AEK-POW-LDOV02J
SPC560P50L5	1	Single core MCU 512kB flash	AEK-MOT-3P99081 AEK-MOT-3P9908M
SPC582B60E1	1	Single core MCU 1MB flash	AEK-MCU-C1MLIT1 AEK-MOT-TK200G1 AEK-SNS-2TOFM1 AEK-MOT-MR200G1 AEK-AUD-C1D9031 SPC582B-DIS
SPC58EC80E5	1	Dual core MCU 4 MB flash	AEK-MCU-C4MLIT1 SPC58EC-DISP
SPSB081	1	Automotive Power management IC with LIN and CAN-FD	AEK-POW-SPSB081
ST25R3916	1	High performance NFC universal device and EMVCo reader	X-NUCLEO-NFC06A1
STUSB1702	1	USB Type-C interface	AEK-USB-2TYPEC1
Teseo-LIV3F	1	GNSS global positioning	AEK-COM-GNSST31
VL53L1X	1	Time-of-Flight(TOF) laser ranging	VL53L1X-SATEL AEK-SNS-2TOFM1
VN7xxx	33	High-side actuator	EV-VNx7xxx AEK-MOT-2DC40Y1 AEK-MOT-2DC70S1
VNH7xxx	5	Multi DC motor drive	AEK-MOT-2DC70S1 AEK-MOT-2DC40Y1 EV-VNH7xxx EV-VNHD7xxx

AutoDevKit

Featured ST additional products

63

ST additional products

Part number	Brief Description
<u>A5973AD</u>	Up to 1.5 A step-down switching regulator
<u>BALF-NRG-01D3</u>	50 Ω nominal input balun for BlueNRG transceiver
<u>BAT20J</u>	23 V, 1A Signal Schottky Diode
<u>BAT46JFILM</u>	100 V, 150 mA Signal Schottky Diode
<u>ESDA25LY</u>	Automotive dual Transil
<u>ESDARF02-1BU2CK</u>	ESD protection device for high-speed Interface
<u>ESDLIN1524BJ</u>	Automotive Transil, TVS for LIN bus
<u>L4995AJ</u>	5 V, 500 mA Low Drop Voltage Regulator
<u>L4995RJ</u>	5 V, 500 mA Low Drop Voltage Regulator
<u>L7987L</u>	61 V, 2 A step-down switching regulator
<u>L9616</u>	CAN bus transceiver
<u>LD1117</u>	Low drop adjustable voltage regulator
<u>LD1117A</u>	Low drop adjustable voltage regulator
<u>LD1117S33TR</u>	Low drop adjustable voltage regulator
<u>LD1117S50TR</u>	Low drop adjustable voltage regulator
<u>LD39050</u>	500 mA voltage regulator
<u>LD39100PURY</u>	1 A voltage regulator
<u>LDS3985</u>	300 mA voltage regulator
<u>LK112</u>	Voltage regulator with shutdown
<u>M93S46-WMN6TP</u>	1-Kbit serial EEPROM
<u>M93S46-W</u>	1-Kbit serial EEPROM

Part number	Brief Description
<u>SM4T26AY</u>	Automotive 400 W TVS
<u>SM6T36A</u>	600 W, 30.8 V TVS in SMB package
<u>SM6T36CAY</u>	600 W, 30.8 V TVS in SMB package
<u>SM6TY</u>	Automotive 600W TVS
<u>SMA6T56AY</u>	Automotive 600W TVS
<u>SMA6T68AY</u>	Automotive 600W TVS
<u>SMAJ40CA-TR</u>	400 W TVS in SMA package
<u>SMCJ24CA-TR</u>	1500 W, 24 V TVS in SMC
<u>ST2378ETTR</u>	8-bit Dual supply ESD protection
<u>ST3232EB</u>	15 kV RS-232 interface with ESD protection
<u>STD105N10F7AG</u>	NMOS 100 V 0.068 Ω STripFET MOSFET
<u>STD28P3LLH6AG</u>	PMOS -30 V 0.027 Ω STripFET MOSFET
<u>STD45P4LLF6AG</u>	PMOS -40 V, 12 m Ω typ. STripFET MOSFET
<u>STD95N4F3</u>	NMOS 40 V, 5.0 m Ω typ. STripFET MOSFET
<u>STD95P3LLH6AG</u>	PMOS -30 V, 5.0 m Ω typ. STripFET MOSFET
<u>STL19N3LLH6AG</u>	NMOS 30 V, 25 m Ω typ. STripFET MOSFET
<u>STL260N4F7</u>	NMOS 40 V, 1.05 m Ω typ. STripFET MOSFET
<u>STL64N4F7AG</u>	NMOS 40 V, 7.0 m Ω typ. STripFET MOSFET
<u>STL76DN4LF7AG</u>	NMOS 40 V, 5.0 m Ω typ. STripFET MOSFET
<u>STL8N10LF3</u>	NMOS 100 V, 25 m Ω typ. STripFET MOSFET

AutoDevKit

Featured ST additional products

Part number	Brief Description
STM6315	Open drain microprocessor reset
STPS0540-Y	Automotive 40 V, 0.5 A Schottky Rectifier
STPS2H100A	100 V, 2 A Schottky Rectifier
STPS2H100ZFY	100 V, 2 A Schottky Rectifier
STPS2L40	40 V, 2 A Schottky Rectifier
STPS2L60-Y	60 V, 2 A Schottky Rectifier
STPS2L60A	60 V, 2 A Schottky Rectifier
STPS340	40 V, 3A Schottky rectifier
STPS3L40UF	40 V, 3A SMD Low Drop Schottky Rectifier
STPS5L60	60 V, 5 A Schottky Rectifier
STPS5L60-Y	60 V, 5 A Schottky Rectifier
STR2N2VH5	NMOS 20 V, 0.025 Ω typ. STripFET MOSFET
STS10P4LLF6	PMOS -40 V, 0.0125 Ω typ. STripFET MOSFET
STL9P3LLH6	PMOS -30 V, 12 Ω STripFET MOSFET
STL6N2VH5	NMOS 20 V, 0.025 Ω STripFET MOSFET
STTH102AY	Automotive 200 V, 1 A ultrafast diode
STTH3R02AFY	Automotive 200 V, 3 A Ultrafast Diode
TSC1031	Current sense amplifier
TSC1031YPT	High voltage, HS current sense amplifier
TSX711ILT	Precision rail-to-rail 16 V CMOS op amp
USBLC6-2P6	ESD protection device for USB 2.0
USBLC6-2SC6Y	ESD protection device for USB 2.0

AutoDevKit

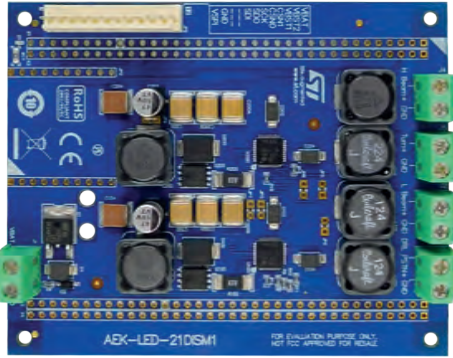
Automotive Grade functional boards

ID Cards & Key Products

AEK-LED-21DISM1

Automotive-grade LED driver featuring **L99LD21Q6**



Board Picture	Key Product features
	<ul style="list-style-type: none">• SPI bus for control and diagnostics• Watchdog and limp home protection• Boost in peak current mode control• Bucks with Integrated switching MOSFETs• Very accurate LED current setting• Integrated PWM generation unit with 10-bit resolution and phase shift• Protection and diagnostics
Demonstrators	Additional Products
<ul style="list-style-type: none">• AEKD-TRUNKL1 Power liftgate zonal ECU implemented with model-based design approach• AEKD-BLINDSPOTB1 Blind-spot detection simulation kit	<ul style="list-style-type: none">• STL40N75LF3 - N-channel 75 V, 16 mOhm typ. STripFET MOSFET• STD45P4LLF6AG - P-channel -40 V, 12 mOhm typ. STripFET F6 MOSFET• STPS2L60-Y - 60 V, 2 A Schottky rectifier• STPS5L60-Y - 60 V, 5 A Schottky rectifier• SM6T36A - 600 W, 30.8 V TVS in SMB
Component & Key Primitives	Demos available on SPC58EC
<p>AEK-LED-21DISM1 Component RLA</p> <ul style="list-style-type: none">• Init ClearAndTrigger()• Turn-on LED light ActivateBuckDev()• Turn-off LED light DeActivateBuckDev()	<ul style="list-style-type: none">• SPC58ECxx_RLA AEK-LED-21DISM1 Test Application for Discovery <i>Turn-on a LED string</i>• SPC58ECxx_RLA Adaptive Front-Lighting (AFL) <i>Adaptive Front-Lighting application</i>• SPC58ECxx_RLA BlindSpot Application for Discovery <i>Code for the Blindspot application</i>



Board Picture	Key Product features
	<ul style="list-style-type: none"> • Up to 1.35 A current capability • Settable: Full step, Half step, Mini step, 1/8 Micro step, 1/16 Micro step • 10-bit equivalent current loop • 4 programmable decay modes • Thermal warning and shutdown • SPI bus for control and diagnostics
Demonstrators	Additional Products
<ul style="list-style-type: none"> • AEKD-AFL001 AutoDevKit adaptive front lighting kit • AEKD-AFLPANEL1 Adaptive Front Light testing and prototyping kit on plexiglass panel 	<ul style="list-style-type: none"> • STPS3L40UF - 40 V, 3 A SMD low drop power Schottky rectifier • STPS0540-Y - Automotive 40 V, 0.5 A power Schottky rectifier • SMAJ40CA-TR - 400 W TVS in SMA package • STD94N4F3 - N-channel 40 V, 5.0 mOhm, 80 A, DPAK STrIPFET MOSFET
Component & Key Primitives	Demos available on SPC58EC
<p>AEK-MOT-SM81M1 Component RLA</p> <ul style="list-style-type: none"> • Init init_AEK_MOT_SM81M1() • Turn right RotationGrade() • Delay osalThreadDelayMilliseconds() • Turn Left RotationGrade() 	<ul style="list-style-type: none"> • SPC58ECxx_RLA AEK_MOT_SM81M1 Test Application for Discovery <i>Basic test with left and right rotation</i> • SPC58ECxx_RLA Adaptive Front-Lighting (AFL) <i>Adaptive Front-Lighting application</i>

AEK-MOT-2DC40Y1

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



Board Picture	Key Product features
	<ul style="list-style-type: none"> • Integrated H-bridge motor driver • 3 V CMOS-compatible inputs • PWM operation up to 20 kHz • Standby mode • Undervoltage & thermal shutdown • Overvoltage clamp • Cross-conduction protection • Current and power limitation • Current Sense diagnostic functions • 38V V_{CC} (max.)
Additional Products	Demos available on SPC58EC
<ul style="list-style-type: none"> • VN7E010AJ - High-side driver with MultiSense analog feedback with improved high precision current sensing • VN7050AJ - High-side driver with MultiSense analog feedback 	<ul style="list-style-type: none"> • SPC58ECxx_RLA AEK_MOT 2DCxxx Test Application for Discovery <i>Basic test setting motor rotation speed</i> • SPC58ECxx_RLA AEK_MOT 2DCxxx Proportional Integrative Derivative Test Application for Discovery • SPC58ECxx_RLA AEK_MOT 2DCxxx Incremental Encoder Test application for Discovery
Component & Key Primitives	
<p>AEK-MOT-2DCxxx Component RLA</p> <ul style="list-style-type: none"> • Init AEK_MOT2D_initMotor() • Set motor speed and direction AEK_MOT2D_setSpeedMotor() • Brake motor AEK_MOT2D_brakeMotor() 	

AEK-MOT-2DC70S1

Automotive-grade multiple DC motor driver up to 15A featuring **VNH7070BAS**



Board Picture		Key Product features	
		<ul style="list-style-type: none"> • Integrated H-bridge motor driver • 3 V CMOS-compatible inputs • PWM operation up to 20 kHz • Standby mode • Undervoltage & thermal shutdown • Overvoltage clamp • Cross-conduction protection • Current and power limitation • Current Sense diagnostic functions 	
Additional Products		Demos available on SPC58EC	
<ul style="list-style-type: none"> • VN7E010AJ - High-side driver with MultiSense analog feedback with improved high precision current sensing • VN7050AJ - High-side driver with MultiSense analog feedback 		<ul style="list-style-type: none"> • SPC58ECxx_RLA AEK_MOT 2DCxxx Test Application for Discovery <i>Basic test setting motor rotation speed</i> • SPC58ECxx_RLA AEK_MOT 2DCxxx Proportional Integrative Derivative Test Application for Discovery • SPC58ECxx_RLA AEK_MOT 2DCxxx Incremental Encoder Test application for Discovery 	
Component & Key Primitives			
<p>AEK-MOT-2DCxxx Component RLA</p> <ul style="list-style-type: none"> • Init AEK_MOT2D_initMotor() • Set motor speed and direction AEK_MOT2D_setSpeedMotor() • Brake motor AEK_MOT2D_brakeMotor() 			

AEK-MOT-3P9908M / AEK-MOT-3PP99081

CAN-controlled brushless motor evaluation board featuring **L9908** and **SPC56 MCU** with or without BLDC motor included

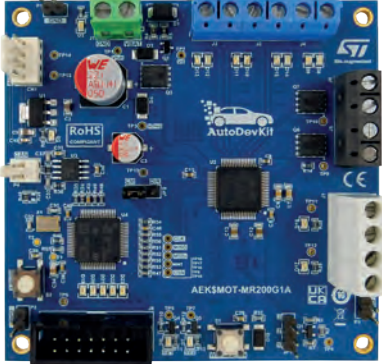


Board Picture	Key Product features
	<ul style="list-style-type: none"> • Automotive BLDC motor pre-driver • Wide range of systems compatibility (12 V - 24 V - 48 V) • 3 independent low-side Current Sense Amplifiers • Smart Logic for current acquisition and processing • MOSFET High Side Driver pins robustness at -14 V (transient)
Additional Products	Additional Products
<ul style="list-style-type: none"> • STPS5L60 - 60 V, 5 A Low Drop Power Schottky Rectifier • SMA6T56AY - Automotive 600 W, 47.6 V TVS in SMA • STPS2L60 - 60 V, 2 A Low Drop Power Schottky Rectifier • STPS2H100 - 100 V, 2 A Power Schottky Rectifier • STPS2L40 - 40 V, 2 A Low Drop Power Schottky Rectifier • STD105N10F7AG - Automotive-grade N-channel 100 V, 6.8 mOhm typ., 80 A STripFET F7 Power MOSFET in a DPAK package • LD1117 - Adjustable and fixed low drop positive voltage regulator 	<ul style="list-style-type: none"> • L7987L - 61 V, 2 A asynchronous step-down switching regulator with adjustable current limitation • L4995 - Automotive 5 V, 500 mA Low Drop Voltage Regulator • STM6315 - Open drain microprocessor reset • USBLC6-2 - ESD Protection for USB 2.0 High Speed • M93S46-W - 1-Kbit MICROWIRE serial access EEPROM with block protection
Component & Key Primitives	Demos available on SPC5
<p>AEK-MOT-3P9908x Component RLA Command to send via CAN</p> <p>key-press to switch the application between the START/STOP of the BLDC motor</p> <p>turnUpRampSpeedBLDC to increase the target speed of the BLDC motor</p> <p>turnDownRampSpeedBLDC to decrease the target speed of the BLDC motor</p>	<ul style="list-style-type: none"> • SPC560Pxx_RLA_AEK_MOT_3P99081_3Phase_Motor_Control_L9908_via_CAN • SPC58ECxx_RLA_MainEcuForBLDCControl-L9908 Test Application To be flashed to the external discovery board

AEK-MOT-MR200G1

Vehicle mirror controller board based on **L99DZ200G** multioutput driver and **SPC582B60E1** MCU

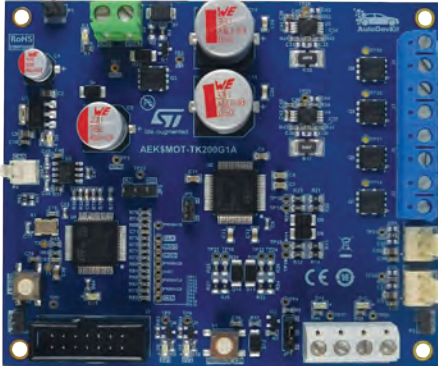


Board Picture	Key Product features
	<ul style="list-style-type: none"> • AEC-Q100 qualified • Operating range: from 6 to 28 V • Fully programmable control logic via Serial communication: ST-SPI 24-bit • Advanced high-speed CAN transceiver (ISO 11898-2:2003 /-5:2007, SAE J2284 compliant, SAE J2962-2 compliant) • LIN 2.2a compliant (SAEJ2602 compatible, SAE J2962-1 compliant) transceiver
Additional Products	Additional Products
<ul style="list-style-type: none"> • SM6T36CAY - Automotive 600 W, 30.8 V TVS in SMB • STTH3R02-Y - Automotive 200 V, 3 A Ultrafast Diode • STL64N4F7AG - Automotive Grade N-channel 40 V, 7.0 mOhm typ., 4 A STripFET F7 Power MOSFET in a PowerFLAT 5x6 package • STL260N4F7 - Automotive Grade N-channel 30 V, 25 mOhm typ, 10 A STripFET H6 Power MOSFET in a PowerFLAT 5x6 package 	<ul style="list-style-type: none"> • LD1117 - Adjustable and fixed low drop positive voltage regulator
Component & Key Primitives	Demos available on SPC5
<p>AEK-MOT-MR200G1 Component RLA</p> <ul style="list-style-type: none"> • AEK_MOT_MR200G1_MotorDriver() <i>Configures and Activates HS outs in order to rotate clockwise, counterclockwise or stop a connected Motor</i> • AEK_MOT_MR200G1_ECV_Drive() <i>Drives Electrochromic out to target voltage value</i> • AEK_MOT_MR200G1_Heater_Enable() <i>Switches ON/OFF Heater Out</i> • AEK_MOT_MR200G1_HSOutputsControl() <i>Switches ON/OFF Bulbs drivers</i> • AEK_MOT_MR200G1_get_ADC_data_voltage_X() <i>Returns X position data related to a connected encoder</i> • AEK_MOT_MR200G1_get_ADC_data_voltage_Y() <i>Returns Y position data related to a connected encoder</i> • AEK_MOT_MR200G1_get_ADC_data_current() <i>Returns the current absorbed by the motor selected</i> 	<ul style="list-style-type: none"> • SPC582Bxx_RLA_AEK-MOT-MR200G1_Doorzone <i>Configures the MR200G1 as Doorzone Driver</i> <i>The board cyclically:</i> <ul style="list-style-type: none"> - Drives HIGH/LOW each HS out (3Motor and 2Bulb drivers) - Switches ON/OFF ECV - Switches ON/OFF HEATER - Interprets any CAN message received and performs an action • SPC58ECxx_RLA_4M_CAN_cmd_sender_for_MR200G <i>Demo to be flashed on a 4M board</i> <i>Configures the 4M as a "CAN message sender" ECU.</i> <i>Able to send messages recognizable by any AEK-MOT-MR200G1 board programmed with the AEK-MOT-MR200G1_Doorzone demo</i>

AEK-MOT-TK200G1

Power liftgate controller board based on **L99DZ200G** multioutput driver and **SPC582B60E1** MCU

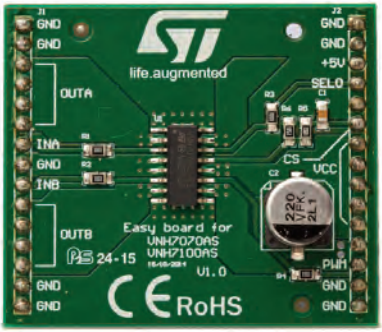


Board Picture	Key Product features
	<ul style="list-style-type: none"> • AEC-Q100 qualified • Operating range: from 6 to 28 V • Fully programmable control logic via Serial communication: ST-SPI 24-bit • Advanced high-speed CAN transceiver (ISO 11898-2:2003 /-5:2007, SAE J2284 compliant, SAE J2962-2 compliant) • LIN 2.2a compliant (SAEJ2602 compatible, SAE J2962-1 compliant) transceiver
Additional Products	Additional Products
<ul style="list-style-type: none"> • SM6T36CAY - Automotive 600 W, 30.8 V TVS in SMB • STTH3R02-Y - Automotive 200 V, 3 A Ultrafast Diode • STL64N4F7AG - Automotive Grade N-channel 40 V, 7.0 mOhm typ., 4 A STripFET F7 Power MOSFET in a PowerFLAT 5x6 package • STL260N4F7 - N-channel 40 V, 1.05 mOhm typ., 120 A STripFET F7 Power MOSFET in a PowerFLAT 5x6 package 	<ul style="list-style-type: none"> • STL76DN4LF7AG - Automotive Grade N-channel 40 V, 5 mOhm typ., 40 A STripFET F7 Power MOSFET in a PowerFLAT 5x6 package double island package • LD1117 - Adjustable and fixed low drop positive voltage regulator • TSC103IYPT - High voltage, high side current sense amplifier
Component & Key Primitives	Demos available on SPC5
<p>AEK-MOT-TK200G1 Component RLA</p> <p><code>AEK_MOT_TK200G1_Init()</code> <i>Initializes the driver and clears the L99DZ200G status registers</i></p> <p><code>AEK_MOT_TK200G1_HSOutputsControl()</code> <i>Sets the high-side outputs and their configuration</i></p> <p><code>MotorCounterClockwise()</code> <i>Turns the motors counterclockwise</i></p> <p><code>MotorClockwise()</code> <i>Turns the motors clockwise</i></p> <p><code>StopMotor()</code> <i>Breaks the motor</i></p>	<ul style="list-style-type: none"> • SPC582Bxx_RLA_AEK-MOT-TK200G1_MotorControl Test Application for discovery <i>To drive two DC motors and turn on/off two LED strings</i> • SPC582Bxx_RLA_AEK-MOT-TK200G1_MotorControl via CAN - Test Application <i>To show how the microcontroller SPC58ECxx hosted on the AEK-MCU-C4MLIT1 board is able to control the AEK-MOT-TK200G1 board via the CAN bus</i> • SPC58ECxx_RLA_MainECUFor_AEK-MOT-TK200G1Control - Test Application <i>To drive the AEK-MOT-TK200G1 board through a domain controller (the AEK-MCU-C4MLIT1 board) via CAN messages</i>

EV-VNH7040AY – EV-VNH7070AS
 EV-VNH7070AY – EV-VNH7100AS
 EV-VNH7100BAS – EV-VNHD7008AY – EV-VNHD7012AY

Automotive-grade DC motor driver featuring **VNH7xxx** fully integrated H-Bridge Motor Driver



Board Picture	VNH7070BAS features
<p style="text-align: center;">EV-VNH7070BAS</p> 	<ul style="list-style-type: none"> • Integrated H-bridge motor driver • 3 V CMOS-compatible inputs • PWM operation up to 20 kHz • Standby mode • Undervoltage & thermal shutdown • Overvoltage clamp • Cross-conduction protection • Current and power limitation • Current Sense diagnostic functions • 38V V_{CC} (max.)
Component & Key Primitives	Demo available on SPC58EC
<p>AEK-EV-VNHx7xxx Component RLA</p> <ul style="list-style-type: none"> • Init Motor initMotor() • Set motor speed and direction setSpeedMotor() • Brake motor brakeMotor() 	<ul style="list-style-type: none"> • SPC58ECxx_RLA EV-VNHx7xxx Test Application for Discovery <i>Spin motor clockwise and counterclockwise with different speeds</i>

EV-VN7x: High-side driver actuator
 EV-VND7x: Dual high-side driver actuator
 EV-VNQ7x: Quad high-side driver actuator




33 boards featuring various currents, number of channels and diagnostics

Board Picture		VN7050AS features	
<p style="text-align: center;">EV-VN7050AS</p>		<ul style="list-style-type: none"> • Operating voltage range 4 to 28 V • Max. transient supply voltage 40 V • Typ. on-state resistance (per channel) 50 mΩ • Current limitation (typ.) 30 A • MultiSense analog feedback • Protection: Undervoltage shutdown, overvoltage clamp, load current limitation, fast thermal transients, ground & V_{CC} loss • Configurable latch-off protection • Reverse battery with external components 	
Demonstrators		Demos available on SPC58EC	
<ul style="list-style-type: none"> • AEKD-AFL001 AutoDevKit adaptive front lighting kit • AEKD-AFLPANEL1 Adaptive Front Light testing and prototyping kit on plexiglass panel • AEKD-BLINDSPOTB1 Blind-spot detection simulation kit 		<ul style="list-style-type: none"> • SPC58ECxx_RLA EV-VNx7xxx Test Application for Discovery <i>Turn-on an LED string</i> • SPC58ECxx_RLA Adaptive Front-Lighting (AFL) <i>Adaptive Front-Lighting application</i> • SPC58ECxx_RLA BlindSpot Application for Discovery <i>Code for the Blindspot application</i> 	
Component & Key Primitives			
<p>AEK-EV-VNx7xxx Component RLA</p> <ul style="list-style-type: none"> • Init Multisense diagnostics ActiveSEnable() • Turn-on the actuator switch ActiveINchannel() • Read diagnostic data with ADC ADCinit() ADCstartConversion() 			



Battery management system module based on L9963E

Board Picture	Key Product features
	<ul style="list-style-type: none"> • AEC-Q100 qualified • Measures 4 to 14 cells in series, with 0 μs desynchronization delay between samples • Coulomb counter supporting pack overcurrent detection • 2.66 Mbps isolated serial communication with regenerative buffer, supporting dual access ring • Intelligent diagnostic routine providing automatic failure validation • 9 GPIOs, with up to 7 analog inputs for NTC sensing • Full ISO26262 compliant, ASIL-D systems ready
Additional Products	Component & Key Primitives
<ul style="list-style-type: none"> • SMA6T68AY - Automotive 600 W 68 V TVS in SMA • STL8N10LF3 - Automotive Grade N-channel 100 V, 25 mΩ typ., 7.8 A STripFET™ F3 Power MOSFET in a PowerFLAT™ 5x6 package • STD105N10F7AG - Automotive Grade N-channel 100 V, 6.8 mOhm typ., 80 A STripFET F7 Power MOSFET in a DPAK package • USBLC6-2SC6Y - Automotive ESD protection for high speed interfaces 	<p>AEK-POW-BMS63EN Component LRA</p> <ul style="list-style-type: none"> • Init & Turn Off AEK_POW_BMS63EN_Init() AEK_POW_BMS63EN_EnterSleepMode() • Balancing AEK_POW_BMS63EN_EnableCellBalancing() • Diagnostic AEK_POW_BMS63EN_PCBOpenDiagnostic()
Demos available on SPC58	
<ul style="list-style-type: none"> • SPC582B - AEK_POW_BMS63EN_SOC_Estimation_Single Application for Discovery To estimate SOC of a single node with 14 connected cells for MCU 1M • SPC58EC - AEK_POW_BMS63EN_SOC_Estimation_Single Application for Discovery To estimate SOC of a single node with 14 connected cells for MCU 4M • SPC58EC - AEK_POW_BMS63EN_SOC_Estimation_Centralized Application for Discovery To estimate SOC of 3 nodes, each connected with 14 connected cells, in Centralized configuration for MCU 4M • SPC58EC - AEK_POW_BMS63EN_SOC_Estimation_DualRing Application for Discovery To estimate SOC of 3 nodes, each connected with 14 connected cells, in dual access ring configuration for MCU 4M 	



Battery holder for cylindrical batteries and battery management system node for automotive applications

Board Picture	Key Product features
	<p>It is an extension to quickly create a battery pack to evaluate ST BMS Solution, no Key Product inside</p>
Holder features	Associated Boards
<ul style="list-style-type: none"> • 14-slot battery holder for cylindrical INR 18650 battery cells (not included) • Proper housing for the AEK-POW-BMS63EN BMS node (not included) • Easy battery removal supported by a satin ribbon • Low-side current sensing through an external resistor included in the package a 100 mΩ, 10 W resistor • Five NTC thermistors • Stackable kit to build a compact battery pack 	<ul style="list-style-type: none"> • AEK-POW-BMS63EN - Battery management system module based on L9963E • AEK-COM-ISOSPI1 - SPI to isolated SPI dongle based on the L9963T transceiver



Automotive-grade LDO with configurable output voltage and diagnostic features based on **L99VR01JTR**

Board Picture	Key Product features			
	<ul style="list-style-type: none"> • AEC-Q100 qualified • Operating DC power supply voltage range from 2.15 V to 28 V • Low quiescent current consumption • User-selectable output voltage (0.8 V; 1.2 V; 1.5 V; 1.8 V; 2.5 V; 2.8 V; 3.3 V or 5 V) • Output voltage precision $\pm 2\%$ • Programmable autonomous watchdog through external capacitor • Fast output discharge • Advanced thermal warning and output overvoltage diagnostic • Programmable short-circuit output current • Wide operating temperature range (T_J = -40°C to 175°C) 			
Additional Products	Demos available on SPC58			
<ul style="list-style-type: none"> • STTH102AY - Automotive 200 V, 1 A ultrafast diode • STPS0540ZY - Automotive 40 V, 0.5 A power Schottky rectifier • SMCJ24CA-TR - 1500 W, 24 V TVS in SMC 	<ul style="list-style-type: none"> • SPC58ECxx_RLA AEK_POW_LDOV01x DC-DC Voltage Regulator Test Application for Discovery • SPC582Bxx_RLA AEK_POW_LDOV01x DC-DC Voltage Regulator Test Application for Discovery 			
Component & Key Primitives				
<p>AEK-POW-LDOV01x Component RLA</p> <table border="0"> <tr> <td data-bbox="148 1476 497 1562"> <ul style="list-style-type: none"> • Init & Power AEK_POW_LDOV01x_init() AEK_POW_LDOV01x_power_on() </td> <td data-bbox="560 1476 975 1562"> <ul style="list-style-type: none"> • Voltage Settings AEK_POW_LDOV01x_setOperationMode() AEK_POW_LDOV01x_getVout() </td> <td data-bbox="1013 1476 1437 1535"> <ul style="list-style-type: none"> • Warning Detection AEK_POW_LDOV01x_getWarningStatus() </td> </tr> </table>		<ul style="list-style-type: none"> • Init & Power AEK_POW_LDOV01x_init() AEK_POW_LDOV01x_power_on() 	<ul style="list-style-type: none"> • Voltage Settings AEK_POW_LDOV01x_setOperationMode() AEK_POW_LDOV01x_getVout() 	<ul style="list-style-type: none"> • Warning Detection AEK_POW_LDOV01x_getWarningStatus()
<ul style="list-style-type: none"> • Init & Power AEK_POW_LDOV01x_init() AEK_POW_LDOV01x_power_on() 	<ul style="list-style-type: none"> • Voltage Settings AEK_POW_LDOV01x_setOperationMode() AEK_POW_LDOV01x_getVout() 	<ul style="list-style-type: none"> • Warning Detection AEK_POW_LDOV01x_getWarningStatus() 		

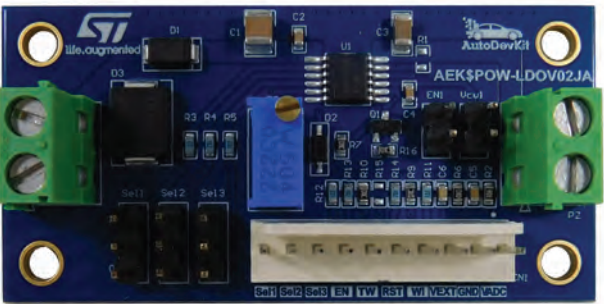


Automotive-grade LDO with configurable output voltage featuring **L99VR01STR**

Board Picture	Key Product features			
	<ul style="list-style-type: none"> • AEC-Q100 qualified • Operating DC power supply voltage range from 2.15 V to 28 V • Low quiescent current consumption • User-selectable output voltage (0.8 V; 1.2 V; 1.5 V; 1.8 V; 2.5 V; 2.8 V; 3.3 V or 5 V) • Output voltage precision $\pm 2\%$ • Fast output discharge • Thermal shutdown and short-circuit current limitation 			
Additional Products	Demos available on SPC58			
<ul style="list-style-type: none"> • STPS2H100ZFY - 100 V, 2 A Power Schottky Rectifier • BAT46JFILM - 100 V, 150 mA Signal Schottky Diode • TSX711ILT - Precision (200 μV), rail-to-rail 16 V CMOS op amp, single, GBP 2.7 MHz 	<ul style="list-style-type: none"> • SPC58ECxx_RLA AEK_POW_LDOV01x DC-DC Voltage Regulator Test Application for Discovery • SPC582Bxx_RLA AEK_POW_LDOV01x DC-DC Voltage Regulator Test Application for Discovery 			
Component & Key Primitives				
<p>AEK-POW-LDOV01x Component RLA</p> <table border="0"> <tr> <td data-bbox="143 1470 494 1564"> <ul style="list-style-type: none"> • Init & Power AEK_POW_LDOV01x_init() AEK_POW_LDOV01x_power_on() </td> <td data-bbox="542 1470 973 1564"> <ul style="list-style-type: none"> • Voltage Settings AEK_POW_LDOV01x_setOperationMode() AEK_POW_LDOV01x_getVout() </td> <td data-bbox="1005 1470 1436 1533"> <ul style="list-style-type: none"> • Warning Detection AEK_POW_LDOV01x_getWarningStatus() </td> </tr> </table>		<ul style="list-style-type: none"> • Init & Power AEK_POW_LDOV01x_init() AEK_POW_LDOV01x_power_on() 	<ul style="list-style-type: none"> • Voltage Settings AEK_POW_LDOV01x_setOperationMode() AEK_POW_LDOV01x_getVout() 	<ul style="list-style-type: none"> • Warning Detection AEK_POW_LDOV01x_getWarningStatus()
<ul style="list-style-type: none"> • Init & Power AEK_POW_LDOV01x_init() AEK_POW_LDOV01x_power_on() 	<ul style="list-style-type: none"> • Voltage Settings AEK_POW_LDOV01x_setOperationMode() AEK_POW_LDOV01x_getVout() 	<ul style="list-style-type: none"> • Warning Detection AEK_POW_LDOV01x_getWarningStatus() 		




Automotive-grade LDO board with configurable output voltage and diagnostic features based on **L99VR02J**

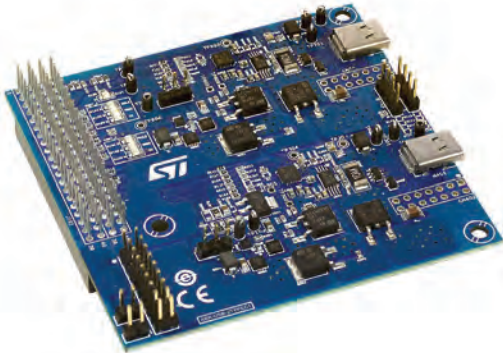
Board Picture	Key Product features			
	<ul style="list-style-type: none"> • AEC-Q100 qualified • Operating DC power supply voltage range from 2.15 V to 28 V • Low quiescent current consumption • User-selectable output voltage (0.8 V; 1.2 V; 1.5 V; 1.8 V; 2.5 V; 2.8 V; 3.3 V or 5 V) • Output voltage precision $\pm 2\%$ • Fast output discharge • Thermal shutdown and short-circuit current limitation 			
Additional Products	Demos available on SPC58			
<ul style="list-style-type: none"> • STTH102AY - Automotive 200 V, 1 A ultrafast diode • STPS0540ZY - Automotive 40 V, 0.5 A power Schottky rectifier • SMCJ24CA-TR - 1500 W, 24 V TVS in SMC 	<ul style="list-style-type: none"> • SPC58ECxx_RLA AEK_POW_LDOV02J DC-DC Voltage Regulator Test Application for Discovery • SPC582Bxx_RLA AEK_POW_LDOV02J DC-DC Voltage Regulator Test Application for Discovery 			
Component & Key Primitives				
<p>AEK-POW-LDOV01x Component RLA</p> <table border="0"> <tr> <td data-bbox="148 1497 502 1644"> <ul style="list-style-type: none"> • Init & Power AEK_POW_LDOV02J_initAll() AEK_POW_LDOV02J_DeinitAll() AEK_POW_LDOV02J_power_on() AEK_POW_LDOV02J_power_off() </td> <td data-bbox="539 1497 975 1614"> <ul style="list-style-type: none"> • Voltage Settings AEK_POW_LDOV02J_getOperationMode() AEK_POW_LDOV02J_setOperationMode() AEK_POW_LDOV02J_getVout() </td> <td data-bbox="1011 1497 1441 1556"> <ul style="list-style-type: none"> • Warning Detection AEK_POW_LDOV02J_getWarningStatus() </td> </tr> </table>		<ul style="list-style-type: none"> • Init & Power AEK_POW_LDOV02J_initAll() AEK_POW_LDOV02J_DeinitAll() AEK_POW_LDOV02J_power_on() AEK_POW_LDOV02J_power_off() 	<ul style="list-style-type: none"> • Voltage Settings AEK_POW_LDOV02J_getOperationMode() AEK_POW_LDOV02J_setOperationMode() AEK_POW_LDOV02J_getVout() 	<ul style="list-style-type: none"> • Warning Detection AEK_POW_LDOV02J_getWarningStatus()
<ul style="list-style-type: none"> • Init & Power AEK_POW_LDOV02J_initAll() AEK_POW_LDOV02J_DeinitAll() AEK_POW_LDOV02J_power_on() AEK_POW_LDOV02J_power_off() 	<ul style="list-style-type: none"> • Voltage Settings AEK_POW_LDOV02J_getOperationMode() AEK_POW_LDOV02J_setOperationMode() AEK_POW_LDOV02J_getVout() 	<ul style="list-style-type: none"> • Warning Detection AEK_POW_LDOV02J_getWarningStatus() 		



Automotive power management IC evaluation board with LIN and CAN-FD based on **SPSB081**

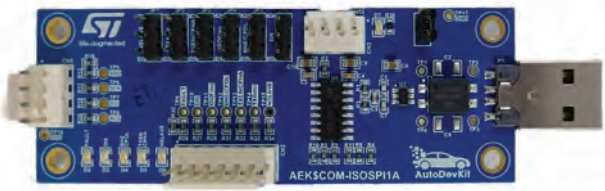
Board Picture	Key Product features			
	<ul style="list-style-type: none"> • AEC-Q100 qualified • One 5 V (or 3.3 V for SPSB0813 and SPSB081C3) low drop voltage regulator (V1) for microcontroller and peripheral supply • One configurable 5 V or 3.3 V, selectable via SPI, low drop voltage regulator V2 tracker for V1 and with off-board protection • Very low quiescent current in standby modes (typ. 15 μA) • LIN transceivers ISO 17987-4/2016 compliant (only for SPSB0815 and SPSB0813) • CAN-FD transceiver (ISO 11898-2/2016, SAE J2284 compliant) with local failure and bus failure diagnosis 			
Additional Products	Demos available on SPC58			
<ul style="list-style-type: none"> • STTH102AY - Automotive 200 V, 1 A ultrafast diode • SMAJ40CA-TR - 400 W, 40 V TVS in SMA • ESDLIN1524BJ - Automotive Transil, TVS for LIN bus 	<ul style="list-style-type: none"> • SPC58ECxx_RLA – SPSB081 Test Application for Discovery <i>To set V2 to ON, a PWM and 2 timer, and send them to the outputs for 4M MCU</i> • SPC582Bxx_RLA – SPSB081 Test Application for Discovery <i>To set V2 to ON, a PWM and 2 timer, and send them to the outputs for 1M MCU</i> • SPC582B – AEK_POW_SPSB081_2nodes_CAN <i>To establish a CAN-FD communication between two SPSB081 devices</i> 			
Component & Key Primitives				
<p>AEK-POW_SPSB081 Component RLA</p> <table border="0"> <tr> <td data-bbox="148 1497 430 1583"> <ul style="list-style-type: none"> • Init & Power AEK_POW_SPSB081_init() <i>To initialize the device</i> </td> <td data-bbox="467 1497 930 1583"> <ul style="list-style-type: none"> • Voltage Settings AEK_POW_SPSB081_V2_Regulator_Config() <i>To set the voltage regulator working mode</i> </td> <td data-bbox="962 1497 1458 1711"> <ul style="list-style-type: none"> • Configuration AEK_POW_SPSB081_WDT_Time_Config() AEK_POW_SPSB081_OUTx_DrvConfiguration() AEK_POW_SPSB081_Enable_CAN_Active_mode() AEK_POW_SPSB081_get_LIN_TXD_Dom() <i>To configure watchdog time, outputs, CAN and LIN Transceivers</i> </td> </tr> </table>		<ul style="list-style-type: none"> • Init & Power AEK_POW_SPSB081_init() <i>To initialize the device</i> 	<ul style="list-style-type: none"> • Voltage Settings AEK_POW_SPSB081_V2_Regulator_Config() <i>To set the voltage regulator working mode</i> 	<ul style="list-style-type: none"> • Configuration AEK_POW_SPSB081_WDT_Time_Config() AEK_POW_SPSB081_OUTx_DrvConfiguration() AEK_POW_SPSB081_Enable_CAN_Active_mode() AEK_POW_SPSB081_get_LIN_TXD_Dom() <i>To configure watchdog time, outputs, CAN and LIN Transceivers</i>
<ul style="list-style-type: none"> • Init & Power AEK_POW_SPSB081_init() <i>To initialize the device</i> 	<ul style="list-style-type: none"> • Voltage Settings AEK_POW_SPSB081_V2_Regulator_Config() <i>To set the voltage regulator working mode</i> 	<ul style="list-style-type: none"> • Configuration AEK_POW_SPSB081_WDT_Time_Config() AEK_POW_SPSB081_OUTx_DrvConfiguration() AEK_POW_SPSB081_Enable_CAN_Active_mode() AEK_POW_SPSB081_get_LIN_TXD_Dom() <i>To configure watchdog time, outputs, CAN and LIN Transceivers</i> 		



Board Picture	Key Product features
	<ul style="list-style-type: none"> • Type-C attach and cable orientation detection • Power role support: source • Integrated power switch for V_{CONN} supply • I²C interface and interrupt • Integrated V_{BUS} voltage monitoring • Integrated V_{BUS} and V_{CONN} discharge path • Integrated BMC transceiver • V_{BUS} switch gate driver • Accessory mode support
Demonstrator	Additional Products
<ul style="list-style-type: none"> • AEKD-USBTYPED1 USB Type-C and USB Power Delivery evaluation kit based on automotive-grade SPC58 MCU 	<ul style="list-style-type: none"> • USBL6-2SC6Y – ESD protection • TSC1031 - Current sense amplifier • LD1117A - Low drop voltage regulator • SM4T26AY - Automotive 400W TVS • ESDA25LY - Automotive dual Transil • STL9P3LLH6 - PMOS -30 V, 12 Ω • STL6N2VH5 - NMOS 20 V, 0.025 Ω • STD28P3LLH6AG - PMOS -30 V 0.027 Ω
Component & Key Primitives	Demo available on SPC58EC
<p>Driver is embedded in USB PD version 2.0 application</p>	<p>SPC58ECxx_RLA USB Type-C Power Delivery Application for Discovery <i>Full stack USB Power Delivery version 2.0</i></p>



SPI to isolated SPI dongle based on the **L9963T** transceiver

Board Picture	Key Product features
	<ul style="list-style-type: none"> • AEC-Q100 qualified • Full ISO26262 compliant, ASIL-D systems ready • Compatible with both 3.3 V and 5 V logic • Supports both XFMR and Capacitive isolation • 10 MHz SPI peripheral for SPI Slave operation. Configurable SPI frequency (250 kHz to 8 MHz) for SPI Master operation • 333 kbps and 2.66 Mbps Vertical InterFace (VIF) for isolated SPI communication • Low standby current
Additional Product	Demos available on SPC58
<ul style="list-style-type: none"> • USBLC6-2SC6Y - Automotive ESD protection for high speed interfaces 	<ul style="list-style-type: none"> • SPC58EC - ISOSPI1_LEDdriver Test application for Discovery <i>To drive an AEK-LED-21DISM1 board</i> • SPC582B - ISOSPI1_LEDdriver Test application for Discovery <i>To write a data in the AEK-LED-21DISM1 board registers</i>
Component & Key Primitives	
<p>AEK-COM-ISOSPI1 Component RLA</p> <ul style="list-style-type: none"> • Configuration config_Transceiver() <i>configures the Device according to the UI configuration settings</i> • Slave API AEK_COM_ISOSPI_SetAsSlave() <i>Configures a slave SPI communication (CLK received from an external board)</i> • Master API AEK_COM_ISOSPI_SetAsMaster() <i>Configures a master SPI communication (CLK generated by the ISOSPI board)</i> • Communication AEK_COM_ISOSPI_EnableTransceiverComm() <i>Enable transceiver SPI/ISOSPI communication</i> 	



Board Picture	Key Product features
	<ul style="list-style-type: none"> • 1 x 45 W class D digital input power amp • I2S and TDM digital input (4/8/16CH TDM) • Input sampling frequency: 44.1 kHz, 48 kHz, 96 kHz, 192 kHz • Full I2C bus driving (3.3/1.8 V) • Wide operating supply range from 3.3 to 18 V • 2 Ω load driving • Power limiting function • I2C bus diagnostics • I_{LOAD} current monitoring through I2S
Demonstrators	Additional Products
<p>AVAS KIT Including:</p> <ul style="list-style-type: none"> • AEK-MCU-C1MLIT1 • AEK-CON-C1D9031 <p>Engine Sound Simulator with Connector Board</p>	<ul style="list-style-type: none"> • STS10P4LLF6 - P-channel 40 V, 0.0125Ω typ., 10 A MOSFET • SM6TY - Automotive 600 W TVS
Component & Key Primitives	Demos available on SPC58
<p>AEK-AUD-D903V1 Component LRA</p> <ul style="list-style-type: none"> • Init & set PLAY status AEK_903D_Init() AEK_903D_SetDefaultRegisters() AEK_903D_SelectOverCurrentProtectionLevel() AEK_903D_Play() • Play a wave file stored in Flash memory playSound() • Diagnostic functions AEK_903D_Diagnostic() AEK_903D_TriggerOpenLoadInPlayDetection() AEK_903D_CheckOpenLoadInPlayDetection() 	<ul style="list-style-type: none"> • SPC58ECxx_RLA AEK_AUD_D903V1 Mono audio - Test Application <i>To play an audio wave file</i> • SPC582Bxx_RLA AEK_AUD_D903V1 Mono audio & Diagnostic - Test Application <i>To play a mono wave file and carry out the complete diagnostic</i> • SPC582Bxx_RLA AEK_AUD_D903V1 Stereo audio and Diagnostic - Test Application <i>To play a stereo wave file and carry out the complete diagnostic</i> • SPC582Bxx_RLA AEK_AUD_D903V1 Engine Sound Simulator with Connector Board <i>To prototype the AVAS application together with the AEK-AUD-D903V1 board</i>



Board Picture	Key Product features
	<ul style="list-style-type: none"> • 1 x 45 W class D digital input power amp • I2S and TDM digital input (4/8/16CH TDM) • Input sampling frequency: 44.1 kHz, 48 kHz, 96 kHz, 192 kHz • Full I2C bus driving (3.3/1.8 V) • Wide operating supply range from 3.3 to 18 V • 2 Ω load driving • Power limiting function • I2C bus diagnostics • I_{LOAD} current monitoring through I2S
Demonstrator	Additional Products
<p><u>AEKD-STEREOAVAS</u> - Integrated Stereo AVAS</p>	<ul style="list-style-type: none"> • <u>STS10P4LLF6</u> - P-channel 40 V, 0.0125 Ω typ., 10 A MOSFET • <u>SM6TY</u> - Automotive 600 W TVS
Component & Key Primitives	Demo available on SPC582B
<p>AEK-AUD-D903V1 Component LRA</p> <ul style="list-style-type: none"> • Init & set PLAY status AEK_903D_Init() AEK_903D_SetDefaultRegisters() AEK_903D_SelectOverCurrentProtectionLevel() AEK_903D_Play() • Play a wave file stored in Flash memory playSound() • Diagnostic functions AEK_903D_Diagnostic() AEK_903D_TriggerOpenLoadInPlayDetection() AEK_903D_CheckOpenLoadInPlayDetection() 	<p>SPC582Bxx_RLA_AEK_AUD_C1D9031 Avas Compact Test Application</p> <p><i>The demo shows how to simulate car engine sound, performing diagnostic in real-time, in two different states: PLAY and MUTE</i></p>





Board Picture	Board features
	<ul style="list-style-type: none"> • 2.8" (240 x 320 pixel) TFT SPI LCD with resistive touch managed by an SPI touch screen controller available on the board • PCB header connector interfacing with SPC5 MCU discovery boards • 3.3 V LDO voltage regulator for I/O signals • 53 mm x 87 mm • WEEE and RoHS compliant
Demonstrators	Additional Products
<ul style="list-style-type: none"> • AEKD-STEREOAVAS - Integrated Stereo AVAS • AEKD-AICAR1 - Automotive AI on the edge for car state classification • AEKD-TRUNKL1 - Power liftgate zonal ECU implemented with model-based design approach 	<ul style="list-style-type: none"> • STR2N2VH5 - N-channel 20 V, 0.025 Ohm typ., 2.3 A STripFET H5 Power MOSFET • LD1117S33TR - Adjustable and fixed low drop positive voltage regulator
Component & Key Primitives	Demos available on SPC58
<p>AEK-LCD-DT028V1 Component RLA</p> <p>AEK_LCD_set_touchFeedback() <i>Reset the LCD Touch in order to detect a new touch</i></p> <p>AEK_LCD_get_touchFeedback() <i>Detect if LCD touch has been touched</i></p> <p>AEK_ILI9341_drawLine() <i>Draw a line</i></p> <p>AEK_ILI9341_clearScreen() <i>Clear the screen</i></p> <p>AEK_ILI9341_drawstring() <i>Draw a string</i></p>	<ul style="list-style-type: none"> • SPC58ECxx_RLA AEK-LCD-DT028V1 LCD Touch Test Application • SPC582Bxx_RLA AEK_LCD_DT028V1 1LCD NO touch Test Application • SPC582Bxx_RLA AEK_LCD_DT028V1 1LCD touch Test Application



Board Picture	Key Product features
	<p>Connector board, to be used in AVAS System. No key product inside</p>
Demonstrator	Additional Products
<p>AVAS KIT Including:</p> <ul style="list-style-type: none"> • <u>AEK-MCU-C1MLIT1</u> • <u>AEK-AUD-D903V1</u> <p>Engine Sound Simulator with Connector Board</p>	<ul style="list-style-type: none"> • Sliders for volume and acceleration • <u>LK112</u> - VREG with shutdown • <u>L9616</u> - CAN bus transceiver



Board Picture	Key Product features
 A red printed circuit board (PCB) for the STEVAL-MKI206V1. It features a central integrated circuit (U1) and three capacitors (C1, C2, C3). The board has a 24-pin DIL socket (JP1) at the bottom and a 24-pin header (JP2) at the top. Various pins are labeled: VDD, VDDIO, SNO, SDI, SCL, CS, INT2, INT1, and GND. A warning label reads: "FOR EVALUATION ONLY NOT FCC APPROVED FOR RESALE". The ST logo is visible at the bottom.	<p>Connector board, used in Trunk System with AIS2DW12 MEMS device mounted</p>
Key Board Features	Demonstrator
<ul style="list-style-type: none">• Complete AIS2DW12 pinout for a DIL 24 socket• Fully compatible with AEK-CON-SENSOR1 board• RoHS compliant• WEEE compliant	<ul style="list-style-type: none">• AEKD-TRUNKL1 - Power liftgate zonal ECU implemented with model-based design approach  A photograph of a demonstrator setup. It shows a white car with a green PCB (the STEVAL-MKI206V1 board) mounted on its rear. The car is placed on a white and yellow base. The base has the ST logo and an NFC symbol. A yellow label on the base reads "AEKD-TRUNKL1".

AutoDevKit

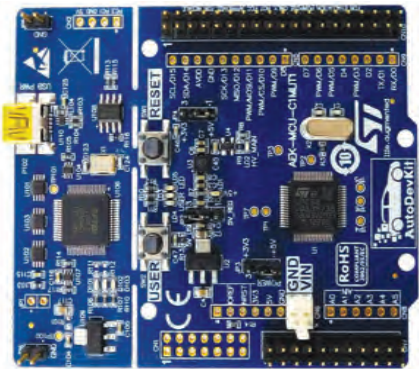
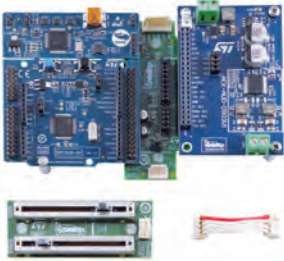

Automotive Grade discovery boards

ID Cards & Key Products

AEK-MCU-C1MLIT1

Automotive-grade MCU Discovery board featuring **SPC582B60E1** Microcontroller

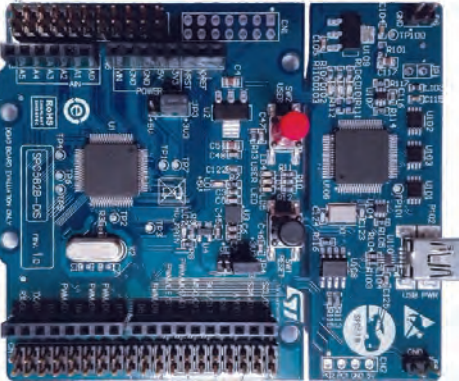


Board Picture	Key Product features
	<ul style="list-style-type: none"> • 32-bit Power Architecture technology CPU • e200z2 single core • Core frequency as high as 80 MHz • Variable Length Encoding (VLE) • 1088 KB (1024 KB code + 64 KB data) on-chip flash memory • Boot assist Flash (BAF) supports factory programming • 6x LINFlex, 4x DSPI, 7x CAN-FD • 1x 12-bit SAR with up to 27 channels
Demonstrators	Additional Products
<p>AVAS KIT Including:</p> <ul style="list-style-type: none"> • AEK-MCU-C1MLIT1, • AEK-AUD-D903V1, • AEK-CON-C1D9031 <p>Engine Sound Simulator with Connector Board</p>  <hr/> <ul style="list-style-type: none"> • AEK-AUD-C1D903V1 AVAS compact solution 	<ul style="list-style-type: none"> • LD39050 - 500 mA VREG • USBLC6-2 - Protection for USB 2.0 • M93S46-W - 1-Kbit serial EEPROM • LD1117 - Low drop adjust VREG • STM6315 - Microprocessor reset
Component & Key Primitives	Demo available
<p>SPC582BXX Platform Component LRA</p> <ul style="list-style-type: none"> • Basic low-level drivers for MCU peripherals 	<p>MCU Peripherals demo available</p>

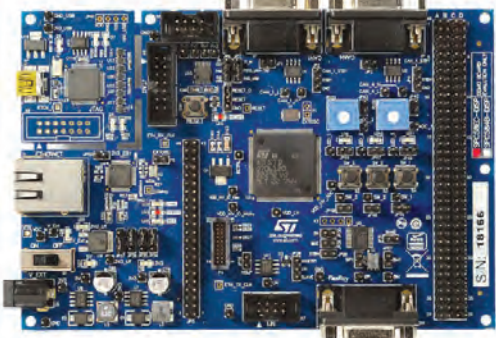


Board Picture	Key Product features
	<ul style="list-style-type: none"> • 32-bit Power Architecture technology CPU • e200z420n3 dual core • Core frequency as high as 180 MHz • Variable Length Encoding (VLE) • 4224 KB (4096 KB code + 128 KB data) on-chip flash memory • Low power capabilities • Integrated HSM for security hardware • 18x LINFlex, 8x DSPI, 8x CAN-FD, 2x FlexRay, • 1x Ethernet controller
Demonstrators	Additional Products
<ul style="list-style-type: none"> • AEKD-AFL001 AutoDevKit adaptive front lighting kit • AEKD-AFLPANEL1 Adaptive Front Light testing and prototyping kit on plexiglass panel • AEKD-BLINDSPOTB1 Blind-spot detection simulation kit • AEKD-USBTYPEC1 USB Type-C and USB Power Delivery evaluation kit 	<ul style="list-style-type: none"> • STPS340 - 40 V, 3 A Schottky rectifier • LD1117A - Low drop adjust VREG • LD1117 - Low drop adjust VREG • A5973AD - Up to 1.5 A step-down • ST3232EB - 15kV ESD for RS-232 • USBLC6-2 - Protection for USB 2.0 • M93S46-W - 1-Kbit serial EEPROM • STM6315 - Microprocessor Reset
Component & Key Primitives	Demo available
<p>SPC582BXX Platform Component LRA</p> <ul style="list-style-type: none"> • Basic low-level drivers for MCU peripherals 	<p>MCU Peripherals demo available</p>



Board Picture	Key Product features
	<ul style="list-style-type: none"> • 32-bit Power Architecture technology CPU • e200z2 single core • Core frequency as high as 80 MHz • Variable Length Encoding (VLE) • 1088 KB (1024 KB code + 64K B data) on-chip flash memory • Boot assist Flash (BAF) supports factory programming • 6x LINFlex, 4x DSPI, 7x CAN-FD • 1x 12-bit SAR with up to 27 channels
Additional Products	Demonstrators
<ul style="list-style-type: none"> • LD39050 - 500 mA VREG • USBLC6-2 - Protection for USB 2.0 • M93S46-W - 1-Kbit serial EEPROM • LD1117 - Low drop adjust VREG • STM6315 - Microprocessor Reset 	<p style="text-align: center;">MCU Peripherals demo available</p>
Component & Key Primitives	
<p>SPC582Bxx Platform Component LRA</p> <ul style="list-style-type: none"> • Basic low-level drivers for MCU peripherals 	

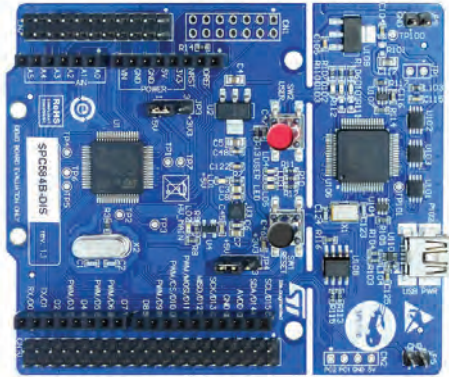


Board Picture	Key Product features
	<ul style="list-style-type: none"> • 32-bit Power Architecture technology CPU • e200z420n3 dual core • Core frequency as high as 180 MHz • Variable Length Encoding (VLE) • 4224 KB (4096 KB code + 128 KB data) on-chip flash memory • Low power capabilities • Integrated HSM for security hardware • 18x LINFlex, 8x DSPI, 8x CAN-FD, 2x FlexRay • 1x Ethernet controller
Additional Products	Demo available
<ul style="list-style-type: none"> • STPS340 - 40 V, 3 A Schottky rectifier • LD1117A - Low drop adjust VREG • LD1117 - Low drop adjust VREG • A5973AD - Up to 1.5 A step-down • ST3232EB - 15kV ESD for RS-232 • USBLC6-2 - Protection for USB 2.0 • M93S46-W - 1-Kbit serial EEPROM • STM6315 - Microprocessor reset 	<p style="text-align: center;">MCU Peripherals demo available</p>
Component & Key Primitives	
<p>SPC58ECxxxx Platform Component LRA</p> <ul style="list-style-type: none"> • Basic low-level drivers for MCU peripherals 	

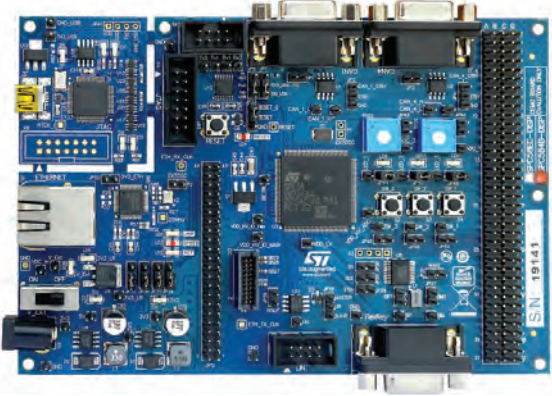
SPC584B-DIS

Automotive-grade MCU Discovery board featuring **SPC584B70E1** Microcontroller



Board Picture	Key Product features
	<ul style="list-style-type: none">• 32-bit Power Architecture technology CPU• High performance e200z420• Core frequency as high as 120 MHz• Variable Length Encoding (VLE)• 2112 KB (2048 KB code flash + 64 KB data flash) on-chip flash memory• Low power capabilities• Integrated HSM for security hardware• 14x LINFlex, 7x DSPI, 8x MCAN interfaces• 1x Ethernet controller
Additional Products	Demo available
<ul style="list-style-type: none">• STPS340 - 40 V, 3 A Schottky rectifier• LD1117 - Low drop adjust VREG• LD39050 - Linear reg 3V3• ST3232EB - 15 kV ESD for RS-232• USBLC6-2 - Protection for USB 2.0• M93S46-W - 1-Kbit serial EEPROM• STM6315 - Microprocessor reset	<p>MCU Peripherals demo available</p>



Board Picture	Key Product features
	<ul style="list-style-type: none"> • 32-bit Power Architecture technology CPU • High performance e200z420 • Core frequency as high as 120 MHz • Variable Length Encoding (VLE) • 2112 KB (2048 KB code flash + 64 KB data flash) on-chip flash memory • Low power capabilities • Integrated HSM for security hardware • 14x LINFlexD, 7x DSPI, 8x MCAN interfaces • 1x Ethernet controller
Additional Products	Demo available
<ul style="list-style-type: none"> • STPS340 - 40 V, 3 A Schottky rectifier • LD1117A - Low drop adjust VREG • LD1117 - Low drop adjust VREG • A5973AD - Up to 1.5 A step-down • ST3232EB - 15 kV ESD for RS-232 • USBLC6-2 - Protection for USB 2.0 • M93S46-W - 1-Kbit serial EEPROM • STM6315 - Microprocessor reset 	<p style="text-align: center;">MCU Peripherals demo available</p>

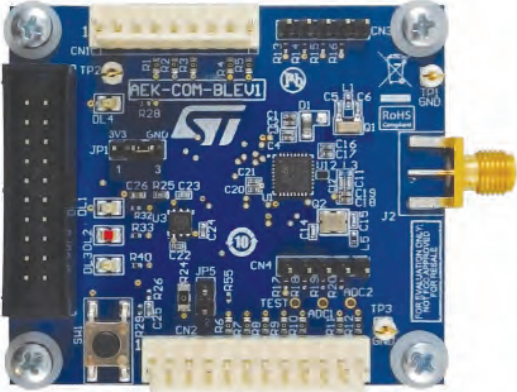
AutoDevKit Industrial Grade Boards

ID Cards & Key Products

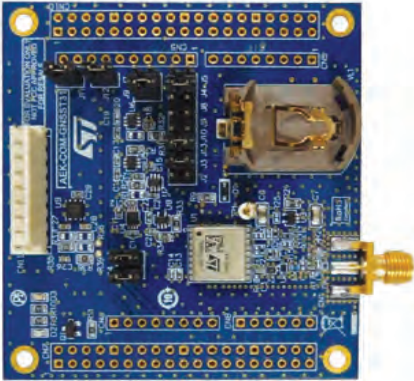
AEK-COM-BLEV1

Industrial Grade Bluetooth Network Processor featuring **BlueNRG-1**

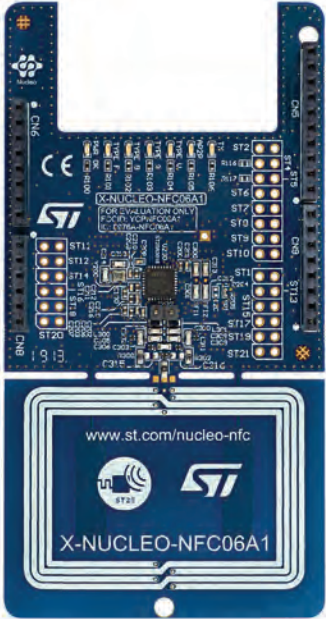


Board Picture	Key Product features
	<ul style="list-style-type: none"> • Compliant with Bluetooth v5.0 • Operating supply voltage: 1.7 to 3.6 V • Integrated linear regulator and DC-DC step-down converter • Ultra-low power Cortex-M0 32-bit core • Excellent RF link budget (up to 96 dB) • Up to +8 dBm available output power (at antenna connector) • 8.3 mA TX current (@ -2 dBm, 3.0 V) • Down to 1 μA current consumption with active BLE stack (sleep mode)
Demonstrator	Additional Products
<ul style="list-style-type: none"> • AEKD-TRUNKL1 Power liftgate zonal ECU implemented with model-based design approach 	<ul style="list-style-type: none"> • LDS3985 - 300 mA voltage regulator • BALF-NRG-01D3 - 50 Ω nominal input / conjugate matching balun to BlueNRG transceiver, with integrated harmonic filter
Component & Key Primitives	Demo available on SPC58EC
<p>AEK-COM-BLEV1 Component RLA</p> <ul style="list-style-type: none"> • Init & get connection status BLENRG_reset() BLENRG_Start_Device() status = getStatus() • Add list of commands to respond to BLENRG_Add_Cmd() • Decode command received BLENRG_Decode_Command() 	<ul style="list-style-type: none"> • SPC58ECxx_RLA AEK_COM_BLEV1 Test Application <p><i>Turn on LED on the board based on commands received from an APP via Bluetooth</i></p>




Board Picture	Key Product features
	<ul style="list-style-type: none"> • Simultaneous multi-constellation • -163 dBm tracking sensitivity • 1.5 m CEP position accuracy • 16 Mbit embedded Flash • 2.1 V to 4.3 V supply voltage range • Tiny LCC 18 pin package (9.7 x 10.1) • Free Firmware configuration • 17 μW standby current and 75 mW tracking
Additional Products	Demo available on SPC58EC
<ul style="list-style-type: none"> • LDS3985 - 300 mA voltage regulator • ESDARF02-1BU2CK - ESD Protection for high-speed Interface • BAT20J - 23 V, 1 A Signal Schottky Diode 	<ul style="list-style-type: none"> • SPC58ECxx_RLA AEK-COM-GNSST31 Test Application for Discovery <p><i>GNSS is enabled and data from GPS read and decoded</i></p>
Component & Key Primitives	
<p>AEK-COM-GNSST31 Component RLA</p> <ul style="list-style-type: none"> • Init & get connection status AEK_COM_GNSST31_Reset() cleanBuffer() • Activates the serial driver AEK_COM_GNSST31_StartSerialCfg() • Reading from serial port GNSS data AEK_COM_GNSST31_Enable_Read() • Getting the GNSS status and decoding the data getStatusGNSS() getSpeed() getAltitude() getPosition() getDate() getTime() 	

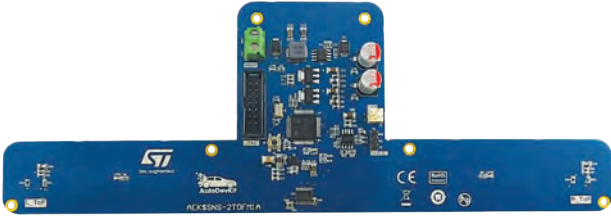



Board Picture	Key Product features
 <p>The image shows the X-NUCLEO-NFC06A1 board, which is a blue PCB with a large silver antenna at the bottom. The board is populated with various components, including the ST25R3916 IC. The text 'X-NUCLEO-NFC06A1' and the ST logo are visible on the board.</p>	<ul style="list-style-type: none"> • Dynamic power output (DPO) controls the field strength to stay within given limits • Active wave shaping (AWS) reduces over-and under-shoots • Noise suppression receiver (NSR) allows reception in noisy environment • Automatic antenna tuning (AAT) via variable capacitor • Integrated EMVCo 3.0 compliant EMD handling • Automatic gain control and squelch feature to maximize SNR • Low power capacitive and inductive card detection • Low power NFC active and passive target modes • Adjustable ASK modulation depth, from 5 to 40% • Integrated regulators to boost system PSRR • AM/PM and I/Q demodulator with baseband channel summation or automatic channel selection • Possibility to drive two independent single ended antennas • Measurement of antenna voltage amplitude and phase, RSSI, on-chip supply and regulated voltages
Demonstrator	Demos available on SPC58
<ul style="list-style-type: none"> • AEKD-TRUNKL1 Power liftgate zonal ECU implemented with model-based design approach 	<ul style="list-style-type: none"> • SPC58ECxx_RLA AEK COM NFC06A1 Read Passive TAG • SPC584Bxx_RLA AEK COM NFC06A1 Read Passive TAG • SPC582Bxx_RLA AEK COM NFC06A1 Read Passive TAG • SPC582Bxx_RLA AEK COM NFC06A1 Key Detection - Trunk System Control
Component & Key Primitives	
<p>AEK-COM-NFC06A1 Component RLA</p> <ul style="list-style-type: none"> • Init RFALInitialize() <i>Initalize RFAL (RF Abstraction Layer) and the ST25R391</i> • Operations RFALSetMode() <i>Sets the mode that RFAL will operate on the following communications</i> 	

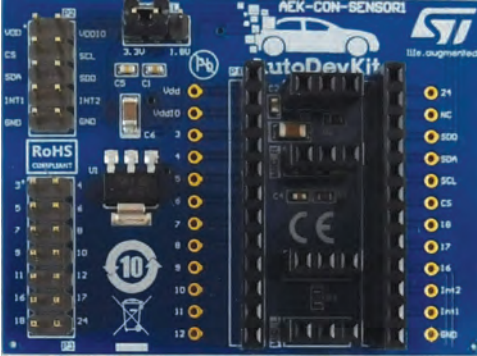


Board Picture	Key Product features
	<ul style="list-style-type: none"> • Fully integrated miniature module Time-of-Flight (ToF), laser-ranging sensor • Emitter: 940 nm invisible laser (Class1) • SPAD (single photon avalanche diode) receiving array with integrated lens • Fast and accurate long-distance ranging • Up to 400 cm distance measurement • Up to 50 Hz ranging frequency • Typical full field-of-view (FoV): 27° • Programmable region-of-interest (ROI) size on the receiving array, allowing the sensor FoV to be reduced • Programmable ROI position on the receiving array
Demonstrator	Demos available on SPC58
<ul style="list-style-type: none"> • AEKD-TRUNKL1 Power liftgate zonal ECU implemented with model-based design approach 	<ul style="list-style-type: none"> • SPC58ECxx_RLA AEK_SNS_VL53L1X1 FULL Demo I2C SW Test Application (4M) • SPC58ECxx_RLA AEK_SNS_VL53L1X1 FULL Demo Double Sensor Ranging Test Application (4M) • SPC58ECxx_RLA AEK_SNS_VL53L1X1 ULD Demo Set Threshold Test Application (4M) • SPC584Bxx_RLA AEK_SNS_VL53L1X1 ULD Threshold Demo Test Application (2M)
Component & Key Primitives	
<p>AEK-SNS-VL53L1X1 Component RLA</p> <ul style="list-style-type: none"> • Init DataInit() StaticInit() SetDistanceMode() SetMeasurementTimingBudgetMicroSeconds() SetInterMeasurementPeriodMilliseconds() • Operations StartMeasurement() WaitMeasurementDataReady() GetRangingMeasurementData() ClearInterruptAndStartMeasurement() 	



Board Picture	Key Product features
	<p><u>Time of Flight Sensors</u></p> <ul style="list-style-type: none"> • Multi-zone ranging sensor able to create a 64-zone mini depth map up to 4 m. • All-in-one (emitter, receiver, and processor) • System for an easy, cost effective and small footprint integration • True distance measurement, independent of target size, color, and reflectance • Accurate and high-speed distance measurement • Low power consumption
Demonstrator	Additional Products
<p>AEKD-TRUNKL1</p> 	<ul style="list-style-type: none"> • <u>SM6T36CAY</u> - Automotive 600 W, 30.8 V TVS in SMB • <u>STS10P4LLF6</u> - P-channel 40 V, 0.0125 Ω typ., 10 A MOSFET • <u>LD39100PURY</u> - 1 A voltage regulator • <u>LD1117S50TR</u> - Low drop voltage regulator • <u>LD1117S33TR</u> - Low drop voltage regulator • <u>L9616</u> - High Speed CAN bus transceiver • <u>ST2378ETTR</u> - 8-bit Dual supply ESD protection
Component & Key Primitives	Demo available on SPC58
<p>AEK-SNS-VL53L1X1 Component RLA</p> <p>Initialize_TOF() <i>Initializes the sensors structures and I2C interface</i></p> <p>Detect_foot() <i>Detects the event of a foot predefined path</i></p> <p>getDistance() <i>Measures the distance between sensors and an object</i></p>	<ul style="list-style-type: none"> • <u>SPC582Bxx_RLA AEK_SNS_2TOFM1_1M_with_CAN_for_footdetection</u> Trunk System Control



Board Picture	Key Product features
	<ul style="list-style-type: none"> • AIS2DW12 - Ultra-low-power 3-axis accelerometer for automotive applications • ASM330LHH - Automotive 6-axis inertial module: 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	Additional Product
<ul style="list-style-type: none"> • AEKD-AICAR1 Automotive AI on the edge for car state classification 	<ul style="list-style-type: none"> • LD1117S18 - Low drop adjust VREG
Component & Key Primitives	Demos available on SPC58
<p>AEK-CON-SENSOR1 Component RLA</p> <p><code>Init_mems()</code> <i>Initializes the sensors structures and SPI interface</i></p> <p><code>Configure_sensor()</code> <i>Configures the sensor</i></p> <p><code>Enable_interrupt_for_event()</code> <i>Routes an event to interrupt pin 1 or 2</i></p> <p><code>Configure_interrupts_mode()</code> <i>Chooses between latched and pulsed interrupts</i></p> <p><code>Configure_freefall()</code> <i>Configures freefall event</i></p> <p><code>Detect_freefall()</code> <i>Detects freefall event</i></p>	<ul style="list-style-type: none"> • SPC58ECxx_RLA_AEK_CON_SENSOR1: <i>Detects Activity and Get Accelerations</i> <i>Detects Freefall</i> <i>Detect sTap</i> <i>Detects Wakeup and Orientation Change</i> • SPC582Bxx_RLA_AEK_CON_SENSOR1 <i>Detects Freefall</i> • SPC584Bxx_RLA_AEK_CON_SENSOR1 <i>Detects Freefall</i>


AutoDevKit

Third-party modules and sensors

RPLIDAR A1M8

Third-party 1 dimension LIDAR module

Board Picture	Key Product features
 <p>A black, cylindrical LIDAR sensor module with a circular top surface. The top surface has the word 'RPLIDAR' printed on it. The module is mounted on a black PCB with various electronic components and a motor at the base.</p>	<p>Third-party module, no key product inside</p>
Component & Key Primitives	Demo available on SPC58EC
<p>AEK-SNS-LIDA1M8 Component RLA</p> <ul style="list-style-type: none"> • Init RPLIDAR_A1M8_initPlatform() • Read Data from LIDAR RPLIDAR_A1M8_getMeasure() RPLidar_A1M8_scan() • Stop scanning and reset RPLidar_A1M8_stop() RPLidar_A1M8_coreReset() 	<ul style="list-style-type: none"> • SPC58ECxx_RLA AEK_SNS_LIDA1M8 Test Application for Discovery <p><i>Example of receiving stream data from LIDAR device</i></p>

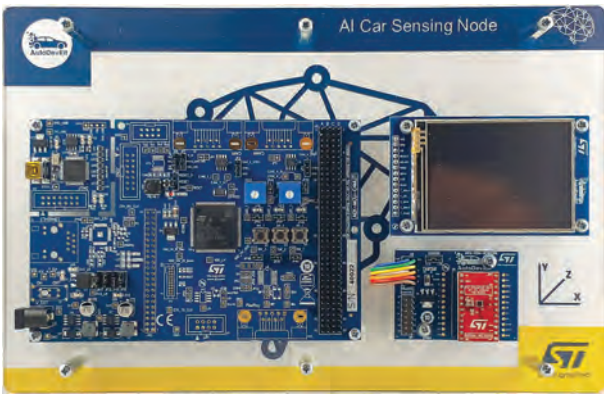
Board Picture	Key Product picture
<p>Third-party device, not included in a board</p>	
Demonstrators	Demo available on SPC58EC
<ul style="list-style-type: none">• AEKD-BLINDSPOTB1 Blind-spot detection simulation kit  <p><u>Blindspot Educational Kit</u></p>	<ul style="list-style-type: none">• SPC58ECxx_RLA Linear_Hall_Effect_Sensor Test Application for Discovery <i>Capture voltage from Hall sensor</i>
Component & Key Primitives	
<p>AEK Linear Hall Effect Sensor Component RLA</p> <ul style="list-style-type: none">• Init LinearHallADCinit()• Read the magnetic field corresponding voltage on the ADC channel 91 LinearHallADCstartConversion()	

AutoDevKit Demonstrators



AEKD-AICAR1

Artificial neural network able to provide a car state classification

Demonstrator front picture	Key Features
	<ul style="list-style-type: none"> • 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 12 V supply • Four car state recognized by the demo: <ul style="list-style-type: none"> - car parked or stoppe - car driving on normal conditions road - car driving on a bumpy road - car skidding or swerving • Size: 280 x 180 x 70 mm
Key Products	Boards
<ul style="list-style-type: none"> • SPC58EC80E5 - 32-bit Power Architecture MCU for Automotive General Purpose Applications - Chorus family • AIS2DW12 - MEMS digital output motion sensor: ultra-low-power 3-axis accelerometer for automotive applications 	<ul style="list-style-type: none"> • AEK-MCU-C4MLIT1 - MCU discovery board for SPC5 Chorus 4M automotive microcontroller with CAN transceivers • AEK-CON-SENSOR1 - Connector board for SPC5 MCU discovery boards and MEMS sensor boards in DIL 24 socket • AEK-LCD-DT028V1 - Display expansion board with resistive touch for Chorus family • STEVAL-MKI206V1A - AIS2DW12 adapter board for a standard DIL 24 socket




Watch the Video

AEKD-STEREOAVAS

Integrated stereo AVAS solution



Demonstrator picture	Key Features
	<ul style="list-style-type: none">• Two integrated loudspeakers• Current sensing for open-load detection in play or mute state• Speaker disconnection switch• Hardware mute button• Plays a preloaded wave file (car key on, neutral and drive modes)• Size: 290 x 210 x 70 mm
Key Products	
<ul style="list-style-type: none">• SPC58EC80E5 - 32-bit Power Architecture MCU for Automotive General Purpose Applications - Chorus family• SPC582B60E1 - 32-bit Power Architecture MCU for Automotive General Purpose Applications - Chorus family• FDA903D - Single-bridge Class-D power amplifier	<ul style="list-style-type: none">• AEK-MCU-C4MLIT1 - MCU discovery board for SPC5 Chorus 4M automotive microcontroller with CAN transceivers• AEK-AUD-C1D9031 - AVAS solution based on SPC582B60E1 Chorus family MCU and FDA903D Class D audio amplifier• AEK-LCD-DT028V1 - Display expansion board with resistive touch for Chorus family



Demonstrator front picture



Demonstrator rear picture



Key Products

- **SPC58EC80E5** - 32-bit Power Architecture MCU for Automotive General Purpose Applications - Chorus family
- **L99DZ200G** - Automotive Front Door device with LIN and HS-CAN providing Dual H-bridge driving
- **ST25R3916** - High performance NFC universal device and EMVCo reader
- **AIS2DW12** - MEMS digital output motion sensor: ultra-low-power 3-axis accelerometer for automotive applications
- **L99LD21** - High power LED driver for automotive applications
- **FDA903D** - 1 x 45 W class D digital input automotive power amplifier

Boards

- **AEK-MCU-C4MLIT1** - MCU discovery board for SPC5 Chorus 4M automotive microcontroller with CAN transceivers
- **AEK-MOT-TK200G1** - Power liftgate controller board based on L99DZ200G multioutput driver
- **AEK-SNS-2TOFM1** - Predefined gesture detection system based on FlightSense technology sensors
- **X-NUCLEO-NFC06A1** - NFC card reader expansion board based on ST25R3916 for STM32 and STM8 Nucleos
- **AEK-CON-SENSOR1** - Connector board for SPC5 MCU discovery boards and MEMS sensor boards in DIL 24 socket
- **AEK-LCD-DT028V1** - Display expansion board with resistive touch for Chorus family
- **AEK-LED-21DISM1** - Digitally controlled LED driver board for automotive lighting applications
- **AEK-AUD-C1D9031** - AVAS solution based on SPC582B60E1 Chorus family MCU and FDA903D Class D audio amplifier



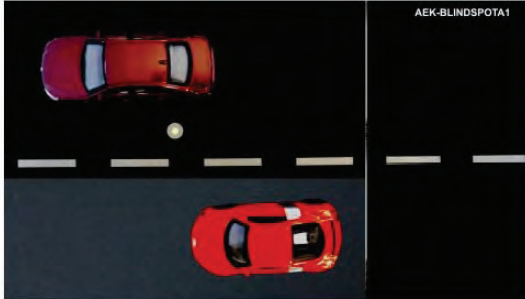
Watch the Video

BLIND-SPOT SIMULATION KIT

Educational tool



AEKD-BLINDSPOTA1



AEKD-BLINDSPOTB1



Demonstrators

- **AEKD-BLINDSPOTA1**
Blind-spot detection simulation kit
- **AEKD-BLINDSPOTB1**
Set of assembled evaluation boards

Key Products

- **SPC58EC** - 32-bit Power Architecture MCU for Automotive General Purpose Applications
- **L99LD21** - High power LED driver for automotive applications
- **VN7050AS** - High-side driver with MultiSense analog feedback for automotive application

Boards

- **AEK-MCU-C4MLIT1** - MCU discovery board for SPC5 Chorus 4M automotive microcontroller with CAN transceivers
- **AEK-LED-21DISM1** - Digitally controlled LED driver board for automotive lighting applications
- **EV-VN7050AS** - VN7050AS evaluation board
- **AEK-CON-BSPOTV1** - Blind-spot educational tool connector board with EV-VN7xxx connector



Watch the Video

At STMicroelectronics
we create
technology that
starts with You



Order code: BR2401AUTODEVKIT

For more information on ST products and solutions, visit www.st.com

© STMicroelectronics - January 2024 - Printed in the United Kingdom - All rights reserved
ST and the ST logo are registered and/or unregistered trademarks of STMicroelectronics International NV or its affiliates in the EU and/or elsewhere. In particular, ST and the ST logo are Registered in the US Patent and Trademark Office. For additional information about ST trademarks, please refer to www.st.com/trademarks.
All other product or service names are the property of their respective owners.

