



Robust and secure
CAN FD connections
for mobile robotic
sensors and actuators

UCANS32K146 development system for Drones and Rovers

OVERVIEW

The UCANS32K146 development system primary purpose is for the development of CAN and CAN FD connected sensors and actuators for drones and rovers, particularly for use with UAVCAN V1 protocol.

Based on the Arm® Cortex®-M4 S32K146 general purpose microcontrollers, the UCANS32K146 board provides dual CAN FD interfaces and access to ports on the processor. An EdgeLock™ SE050 secure element allows authentication and encryption development.

KEY FEATURES

- ▶ Based on S32K146 automotive MCU
- ▶ Dual CAN FD PHYs for redundancy
 - Each with two connectors for daisy chaining
- ▶ PX4/DroneCode connector standard
- ▶ DCD-LZ debug interface with SWD+Console/UART
- ▶ Peripheral interfaces
 - UART with full handshaking and 5 V/3 V switchable voltage level
 - I²C, SPI
 - RC-PWM output with internal or BEC/external power
- ▶ RGB LED and user button (e.g., for arming)
- ▶ EdgeLock SE050 Secure Element
 - Supports NFC interface
- ▶ Power management 5-12 V with overcurrent protection

RUNTIME SOFTWARE

- ▶ NuttX RTOS
- ▶ PX4 Vehicle Stack for Drones and Rovers
- ▶ UAVCAN V1
 - LibUAVCAN, LibCANARD
- ▶ SLCAN interface supporting UAVCAN debug on PC
- ▶ SocketCAN CAN network driver
- ▶ S32 Design Studio for Arm
 - SDK
 - FreeRTOS™

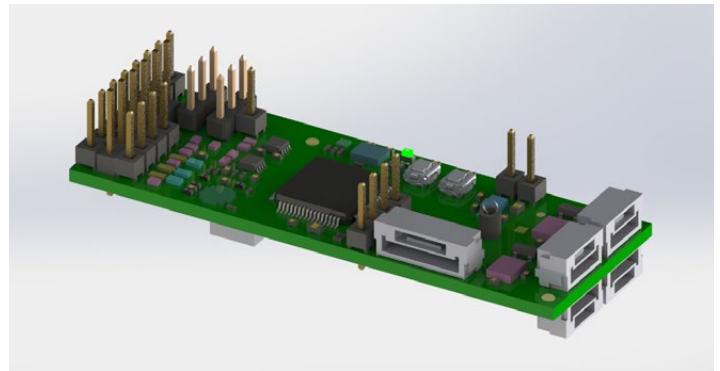
TARGET APPLICATIONS

- ▶ GPS modules, Inertial Measurement Unit (IMU), air-speed sensors, other sensors for drones, rovers, boats, AGV
- ▶ Servos, ESC, motor controllers and other PWM controlled devices
- ▶ Lighting modules, input arming or safety switches
- ▶ UART/I²C/SPI bridge to CAN/CAN FD
- ▶ Automotive test boards or projects using S32K1 MCU



Core	Arm® Cortex®-M4F	UART	RX/TX/RTS/CTS @ 3 V or 5 V 5 V Pwr-out
Speed	80 MHz	Comms	1 SCI, 1 SPI, 1 I ² C, 2 CAN FD
Flash	1 MB	RC-PWM	1-channel, internal or BEC/external power
RAM	128 KB	3.3 V Regulator	500 mA continuous, 5 V-12 V input +20 V abs. max.
FlexNVM/ FlexRAM	64K/4K (EEPROM emulation)	Temp	-40°C to +105°C/+125°C
Package	64 LQFP		

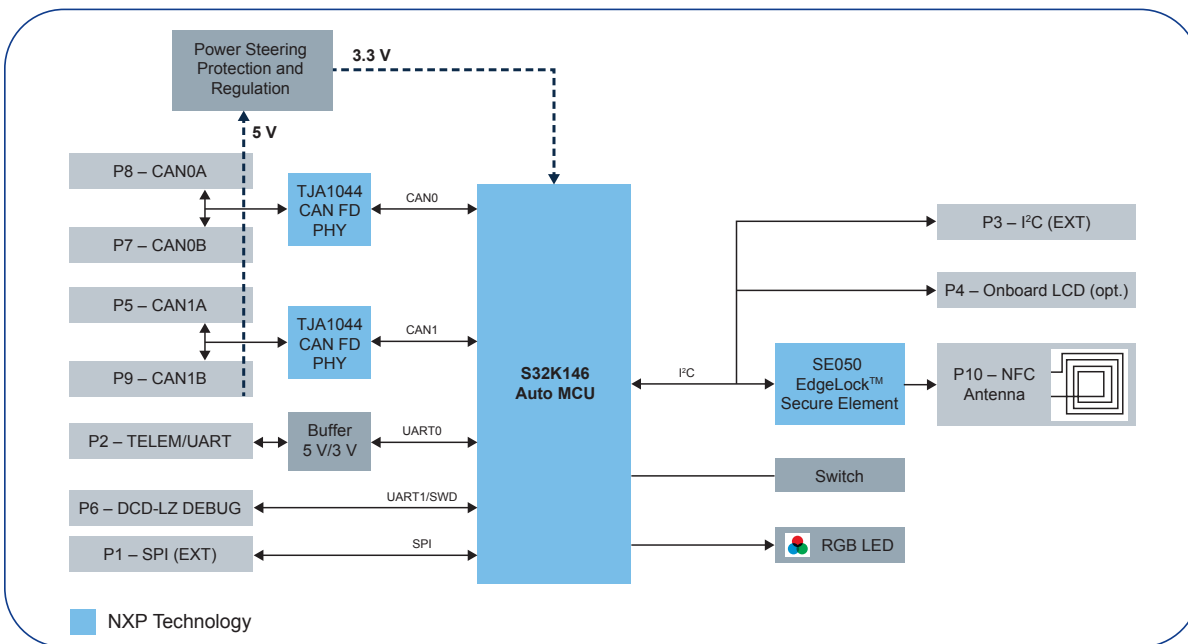
UCANS32K146 BOARD IMAGE



Part Number	Description	Kit Contains
KIT-UCANS32K146	Development System	2 x UCANS32K146 1 x DCD-LZ debug adapter 1 x debugger
UCANS32K146_1	Extra node (board)	



UCANS32K146 BLOCK DIAGRAM



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