Smart Automotive Solution Guide

AVNET®
Reach Further™

Drive into a world of possibilities

INNOVATIONS THAT REVOLUTIONIZE YOUR RIDE

Embrace a new era of mobility with Avnet's trusted suite of solutions for automotives. Leverage in-car infotainment or driver assistance systems for a more stylish and empowered ride, while enjoying the comfort and security of keyless entry or automotive telematics platform. It's all about elevating your ride.

Car Infotainment Solution

The NXP i.MX6-based solution facilitates a comprehensive suite of features including navigation, parking guidance, bird's view system, 360° full panorama view and driving lane detection, setting new standards in ADAS capabilities.

Features

- High-definition TFT digital / multi-touch screen
- Audio effect processing system
- GPS navigation and video parking assist systems
- USB port, SD/MMC slot for external media sources
- Android OS 5.0

Systems

- NXP i.MX6 Quad core 1.0GHz
- Flash (Toshiba / Micron)
- DDR (ISSI / Micron)
- Wi-Fi / BT (Murata)
- LTE (Huawei)
- GPS (STMicroelectronics)
- Video Decoder

Automotive Telematics Platform (ATOP)

Avnet's unique automotive telematics platform integrates market-leading wireless standards, simplifying processes such as making emergency calls, road gantry payments and stolen-vehicle tracking. A simple USB cable setup offers serial communication, debugging and power supply.

Features

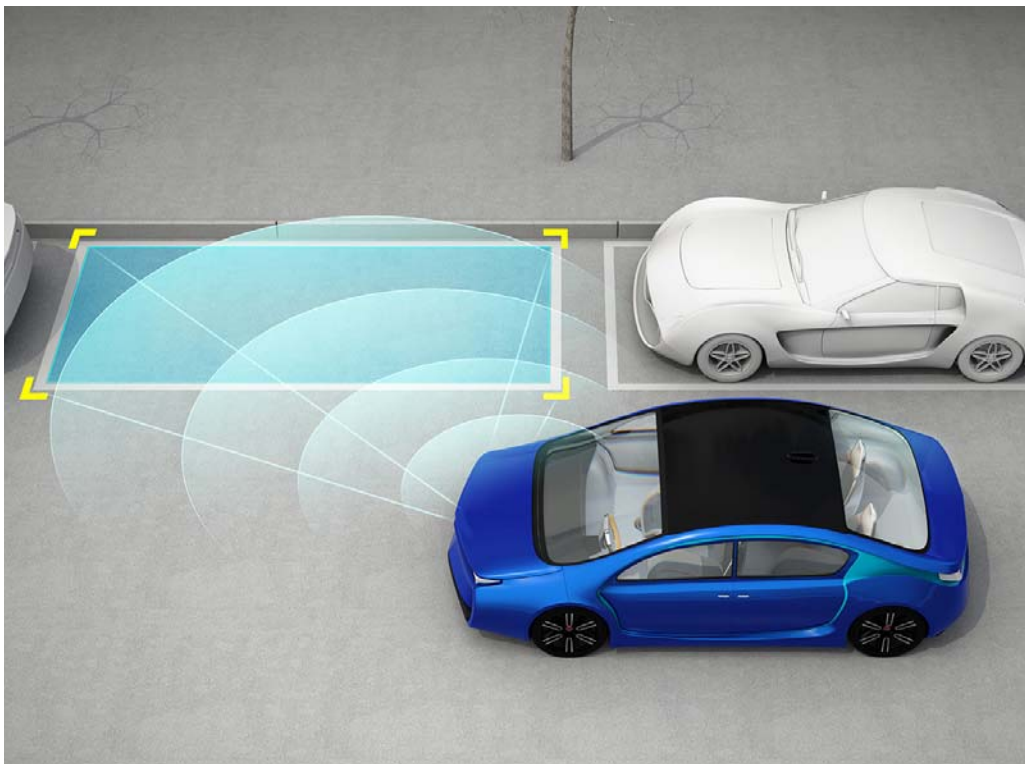
- 3G cellular / 2.5G GSM for voice and data communication
- Access to GPS / GLONASS
- NFC for short range communication
- SmartMX smartcard with Java card JCOP OS
- J9 Virtual Machine for application portability and easy creation
- eCall pushbutton, user LEDs and buttons
- Micro SD card slot

Systems

- Telit: ATOP

Advanced Driver Assistance Systems (ADAS)

With NXP i.MX6D processors to support advanced functions such as parking guidance and navigation, ADAS gives you complete control of your vehicle for a more enjoyable ride.



Features

- ARM Cortex A9, dual-core, high speed processor
- GPS navigation system
- Video parking assist system
- 360° full panorama view system
- Bird's eye view system

Systems

- NXP i.MX6 Dual core
- Onsemi (Aptina) CMOS sensor, ISP
- Flash (Toshiba / Micron)
- DDR (ISSI / Micron)
- SERDES (Maxim)

Tire Pressure Monitoring System (TPMS)

Avnet's TPMS solution provides real-time, reliable information for drivers. Based on the industrially recognized Infineon SP37 sensors and TDA receivers, the system alerts drivers on reduced air tire pressure to help avoid preventable road accidents.

Features

- Pressure sensor for 450 kPa range
- Operating temperature range -40°C to 125°C
- Supply voltage range from 1.9V up to 3.6V
- Z-axis acceleration sensor for motion detection
- RF transmission data 4.2 kbit/s
- Manchester coded in ASK mode
- RF transmitter for ISM Band 434 MHz
- Selectable output power of up to 8 dBm

Systems

- Pressure sensor: SP370
- Receiver: TDA5210

Adaptive Front-lighting System (AFS)

Excessive glare from headlights around curves or hilly terrain may obscure the driver's vision, especially at night. The Adaptive Front Lighting System (AFS) by ST platform, based on integrated automotive microcontrollers, helps drivers spot objects and prevent accidents.

Features

- Auto direction change (microcontroller SPC560D30L1 via LIN bus controls STM8AF and L9942 combined stepping motor, connected to car system by CAN bus)
- Horizontal and vertical headlight position adjustments
- Steering wheel angle control
- Real-time monitoring via L9942 registered-data

Systems

- Automotive-grade 32-bit Flash MCU ST SPC56D
- Modular STM8AF series is flexible and shortens development TAT
- L9942 – Stepping Motor Driver

Sensorless BLDC Controller

Minimizing PCB board space, Avnet's sensorless BLDC controller solution is based on the NXP S12ZVML family, which builds a compact and power efficient 3-phase BLDC motor control platform for automotive parts such as water pumps, oil pumps and wipers.

Features

- S12Z core, 50 MHz Bus
- 32KB to 128KB flash and up to 512 Bytes EEPROM with ECC
- Built-in automotive voltage regulator between 3.5V and 40V
- CAN 2.0A/B software compatible
- Built-in gate drive unit (GDU) with charge pump
- Built-in LIN physical layer meets automotive OEM specifications for LIN conformance and EMC requirements

Systems

- NXP: S12ZVML
- NXP: BUK6226

Passive Keyless Entry / Start Systems

Don't worry about forgetting your car keys as recognition is enabled via the base station board sending a 125kHz carrier frequency to the key tag which then responds with an ultra-high frequency (434MHz). Password protection and crypto mode provide greater peace of mind during immobilization.

Features

- Single-chip security transponder and keyless entry solution with on-chip multi-channel UHF transmitter
- 16-bit RISC architecture (MRK III)
- Key localization (within 5 cm) with the 3D LF interface using RSSI (receive signal strength indicator) over wide dynamic range
- LCD and GUI support

Systems

- Key FOB: NCF29A1
- MCU: SKEAZ128MLH4
- Power IC: UJA1169TX
- RF Receiver: NCK2912
- LF Driver: NJJ29C0

Battery Management System

Protect battery health in your electric or hybrid vehicle with the self diagnostics and monitoring system. Lifetime of the pack is increased and energy delivery to the automotive application is enhanced with a cell balancing function, which provides over-charge and over-temperature protection too.

Features

- Monitors up to 256-series cells (16x16s)
- Operating voltage: 12V to 79.2V
- Highly accurate monitoring with internal Vref
- Built-in secondary monitors / comparators
- 1-Mb/s stackable differential isolated UART for daisy-chain communications
- AEC Q-100 Grade 2

Systems

- Battery Monitor IC: BQ76PL455A-Q1
- MOSFET: BSS138BKW
- COMMON Filter: PE01812
- COMMON Filter: AE2002
- Connectors: 34691-0200 / 34691-0160

Matrix LED Lights Driver

Avnet's matrix LED headlamps integrate DRL, turn signals and combination tail lamps to vary between high and low beam intensity and direction, allowing flexible control according to road conditions.

Features

- Input: 9V-16V (MAX26V)
- LM3424 SEPIC circuit,
  composed buck-boost for the LED CC control
- External CAN bus interface,
  BCM through CAN bus to control the LED
- Powered by 36 ORSAM LUW CEUP. CE - 7 M8M 2W LEDS

Systems

- MCU: ATmega16M1
- LED Driver: TPS92661
- DC/DC: LM3424Q
- DC/DC: LM53603-Q1
- CAN: SN65HVDA1040A-Q1

The Internet of Things has shaped consumer expectations and transformed product development processes. As the global leader in technology solutions and services, Avnet partners the best in the industry to help you enhance product development life-cycles plus shorten your time-to-market. Our long-standing manufacturer relationships, broad product portfolio and world-class services capabilities can help accelerate your IoT initiatives.

Get in touch with the Avnet team today to find the right application for your business and harness growth opportunities within the Internet of Things.

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