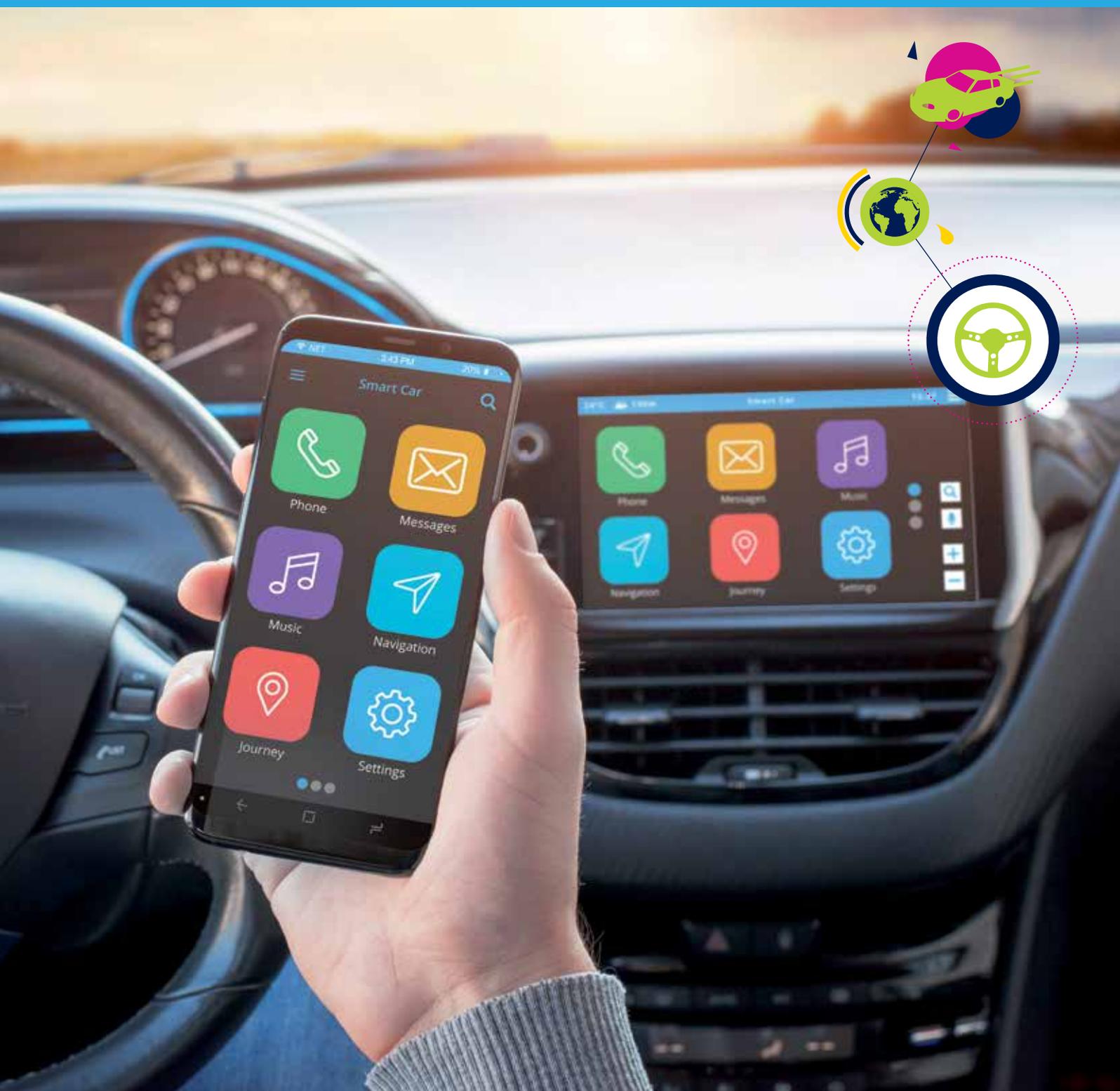
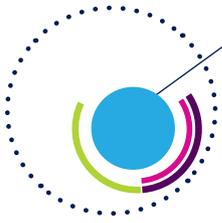




life.augmented

Solutions for Smarter Driving In-vehicle Infotainment





Content

Smart Driving	3
In-Vehicle Infotainment	4
Key Applications	5
Infotainment Head Unit	6
Terrestrial Tuners.....	7
Automotive Sound Systems	8
Key Technologies.....	9
Development Tools.....	10





Smart Driving

It is estimated that 80% of all innovations in the automotive industry today are directly or indirectly enabled by electronics. With vehicle functionality improving with every new model this means a continuous increase in the semiconductor content per car. With over 30 years' experience in automotive electronics, ST is a solid, innovative, and reliable partner with whom to build the future of transportation.

ST's Smart Driving products and solutions are making driving safer, greener and more connected through the combination of several of our technologies.

SAFER

Driving is safer thanks to our Advanced Driver Assistance Systems (ADAS) products – vision processing, radar, imaging and sensors, as well as our adaptive lighting systems, user display and monitoring technologies.



GREENER

Driving is greener with our automotive processors for engine management units, engine management systems, high-efficiency smart power electronics at the heart of all automotive sub-systems and Silicon Carbide devices for hybrid and electric vehicle applications.



MORE CONNECTED

And vehicles are more connected using our infotainment-system and telematics processors and sensors, as well as our radio tuners and amplifiers, positioning technologies, and secure car-to-car and car-to-infrastructure (V2X) connectivity solutions.



ST supports a wide range of automotive applications, from Powertrain for ICE, Chassis and Safety, Body and Convenience to Telematics and Infotainment, paving the way to the new era of car electrification, advanced driving systems and secure car connectivity.





In-Vehicle Infotainment



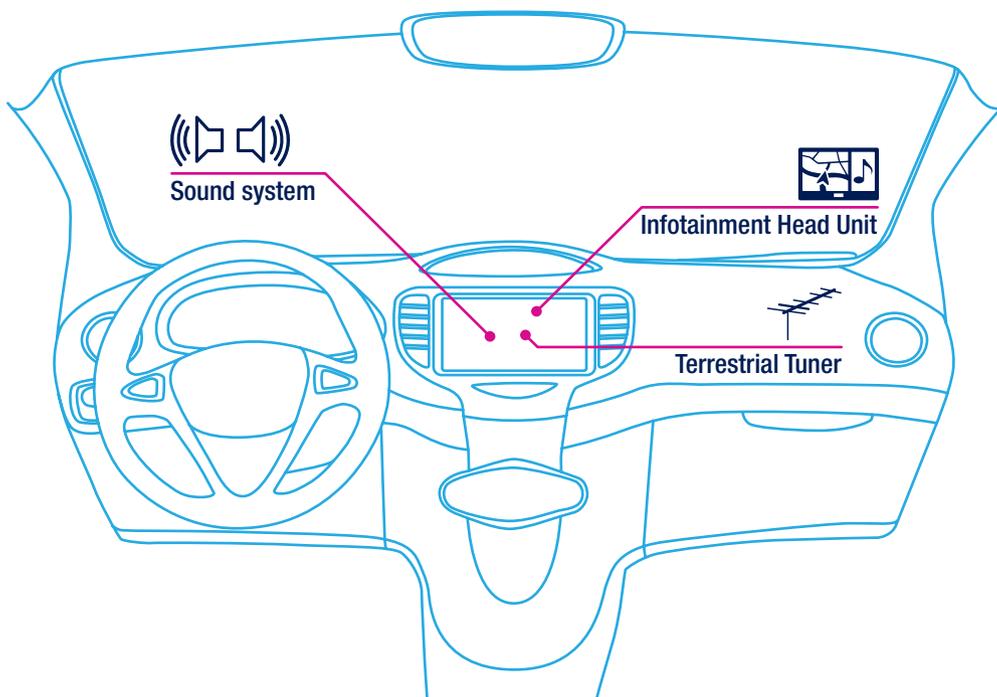
Consumer experiences with personal electronics are shaping expectations for in-vehicle infotainment systems making it a fast-evolving segment of the automotive industry. Vehicle occupants expect to be entertained, connected and able to seamlessly access information and content from a variety of sources.

4

At ST, we have been developing innovative integrated circuits for in-vehicle Infotainment since our first car radio ICs. Our latest designs provide IC solutions for complex infotainment cluster, integrating advanced audio and video features, mirroring smartphones and multimedia devices and running apps, while transmitting data quickly and securely inside and outside the car. Greater processing power, high in-car bandwidth and secure external communication links together with multi-standard radio receivers and world-class audio amplifiers all combine to ensure that you can build infotainment systems for all your markets.

Our extensive infotainment portfolio covers the full application spectrum from high-end integrated platforms (featuring multi-channel digital radio and outstanding full-digital audio amplifiers) to simple, cost-effective entry-level car-radio solutions.

KEY APPLICATIONS



SOLUTIONS

ST's key products and solutions for In-Vehicle Infotainment applications include:

Audio Power Amplifiers	GNSS	Power Management	EOS and ESD Protection	Infotainment & Digital Audio Processors and Secure Processors
Tuners	Bluetooth, USB and Connectivity	Sensors	MEMS Microphones	
HW & SW Development Tools – Sample Kits, Evaluation Kits, Product Selectors				



FIND OUT MORE

www.st.com/in-vehicle-infotainment

Infotainment Module
 Terrestrial Tuner
 Sound System

Positioning system
 Infotainment Head Unit
 Digital Clusters



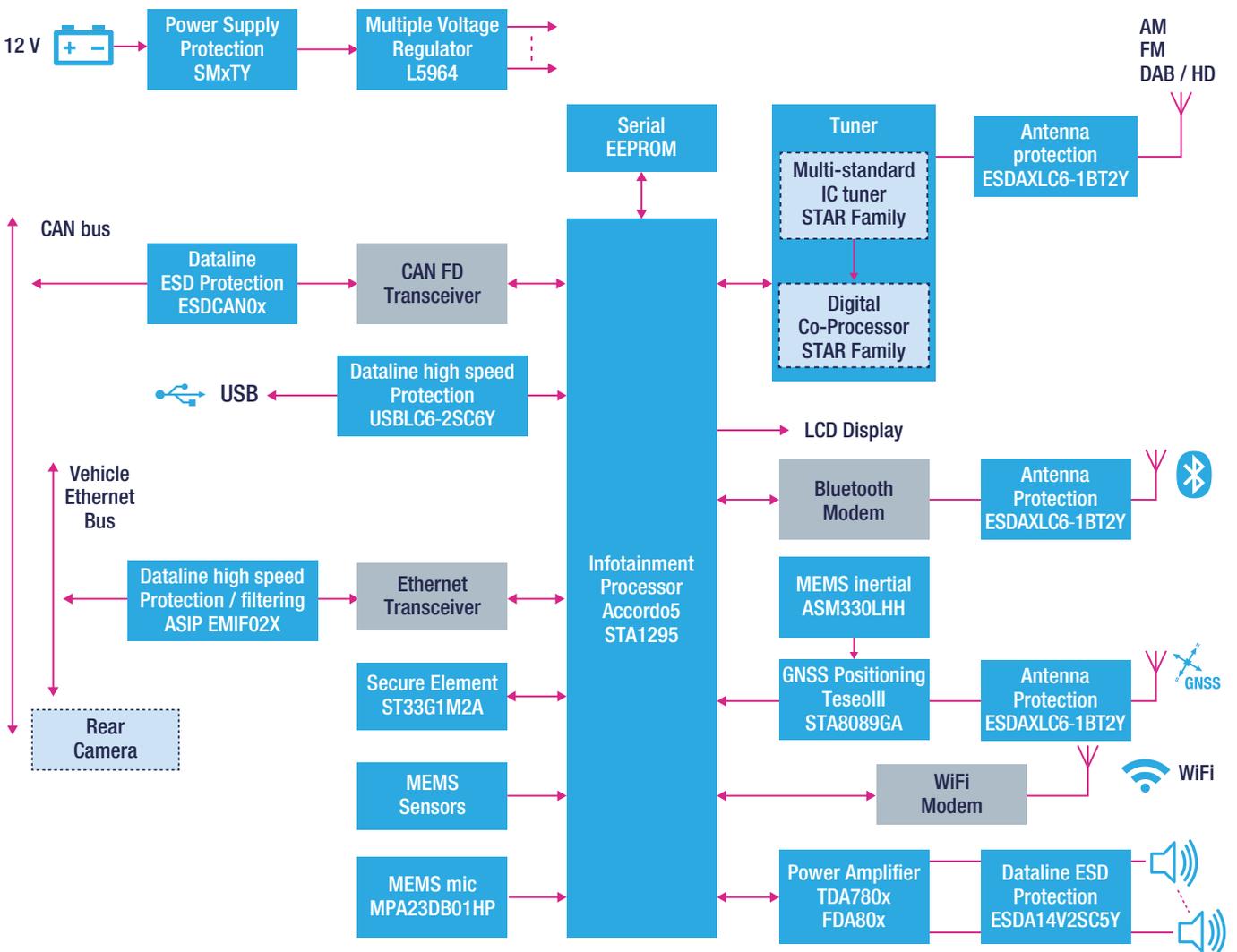
INFOTAINMENT HEAD UNIT

The infotainment module aggregates all the infotainment functions of the vehicle, including tuner reception, media connectivity, audio playback, navigation and human-machine interface.

With the increasing use of smartphones, the demand for user-friendly, hands-free interfaces for text messaging and audio or video phone calls is pushing carmakers to address safety concerns and encouraging them to develop car communication and connectivity solutions that make using these advanced services safe.

ST offers a wide range of products to help develop all of the building blocks in an infotainment module including highly integrated and scalable processors for car radio and audio systems and displays, all standards of analog/digital terrestrial and digital satellite tuner receivers, multi-constellation GNSS positioning devices, sensors and any flavor, Class AB, SB and D, of audio power amplifiers.

Infotainment Head Unit



FIND OUT MORE

www.st.com/infotainment-head-unit



TERRESTRIAL TUNERS

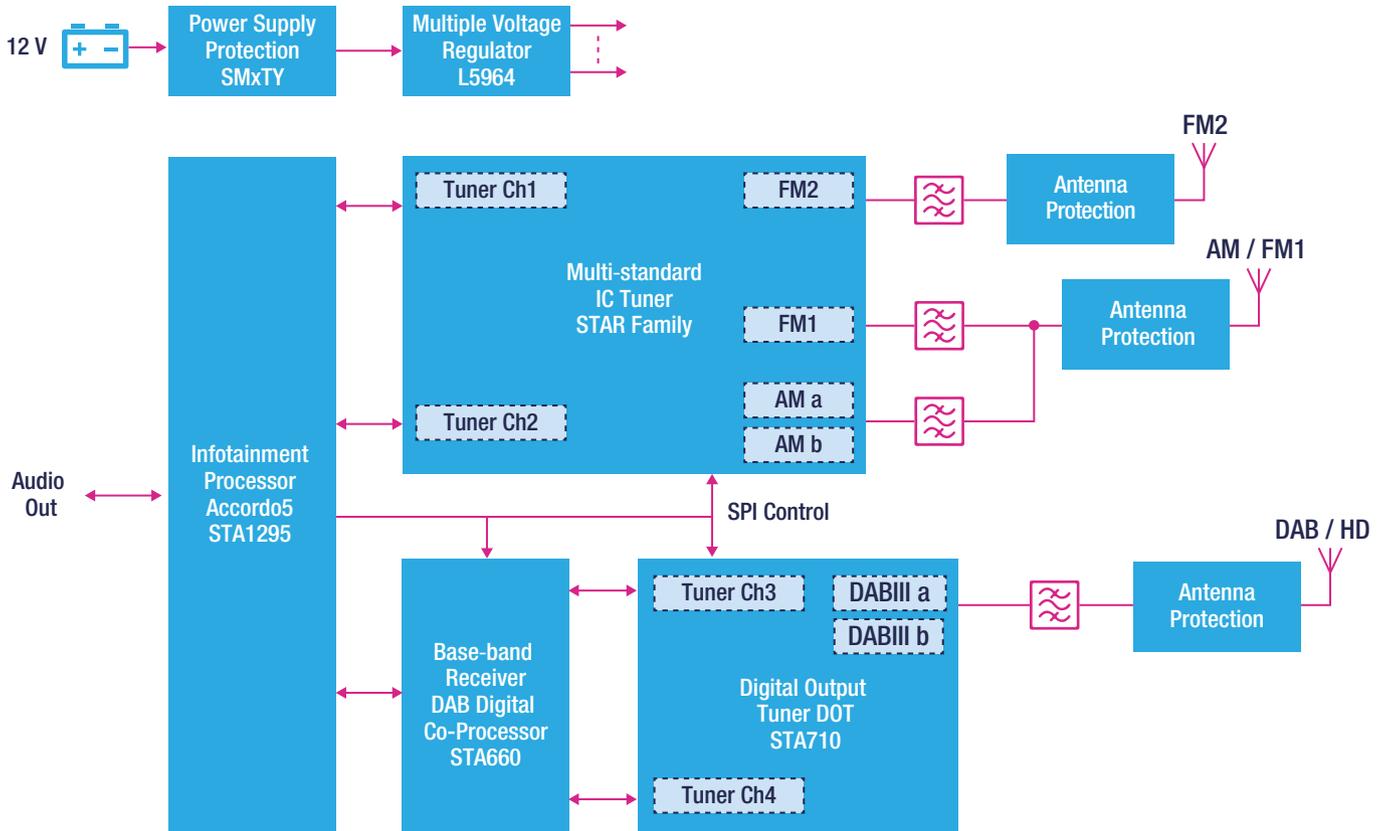
The market demands for tuner platforms are continuously increasing in terms of usage, complexity and scalability. A tuner platform should cover all variants from a simple single AM/FM tuner to a Multi-Standard/Multi-Channel receiver covering AM/FM phase diversity and digital standards such as DAB, DRM or HD Radio™.

All options should be available on a single PCB. Configuration can be managed through PCB mounting options and usable in a classical Head Unit or in a dedicated Tuner Box with additional optional features such as audio.

For terrestrial analog and digital radios ST offers a complete family of pin-to-pin compatible receivers, achieving maximum flexibility and architectural scalability, providing customers optimized solutions from entry up to premium infotainment systems.

Terrestrial Tuner

Architecture Example (FM Phase Diversity+ DAB 1.5)



FIND OUT MORE

www.st.com/terrestrial-tuner



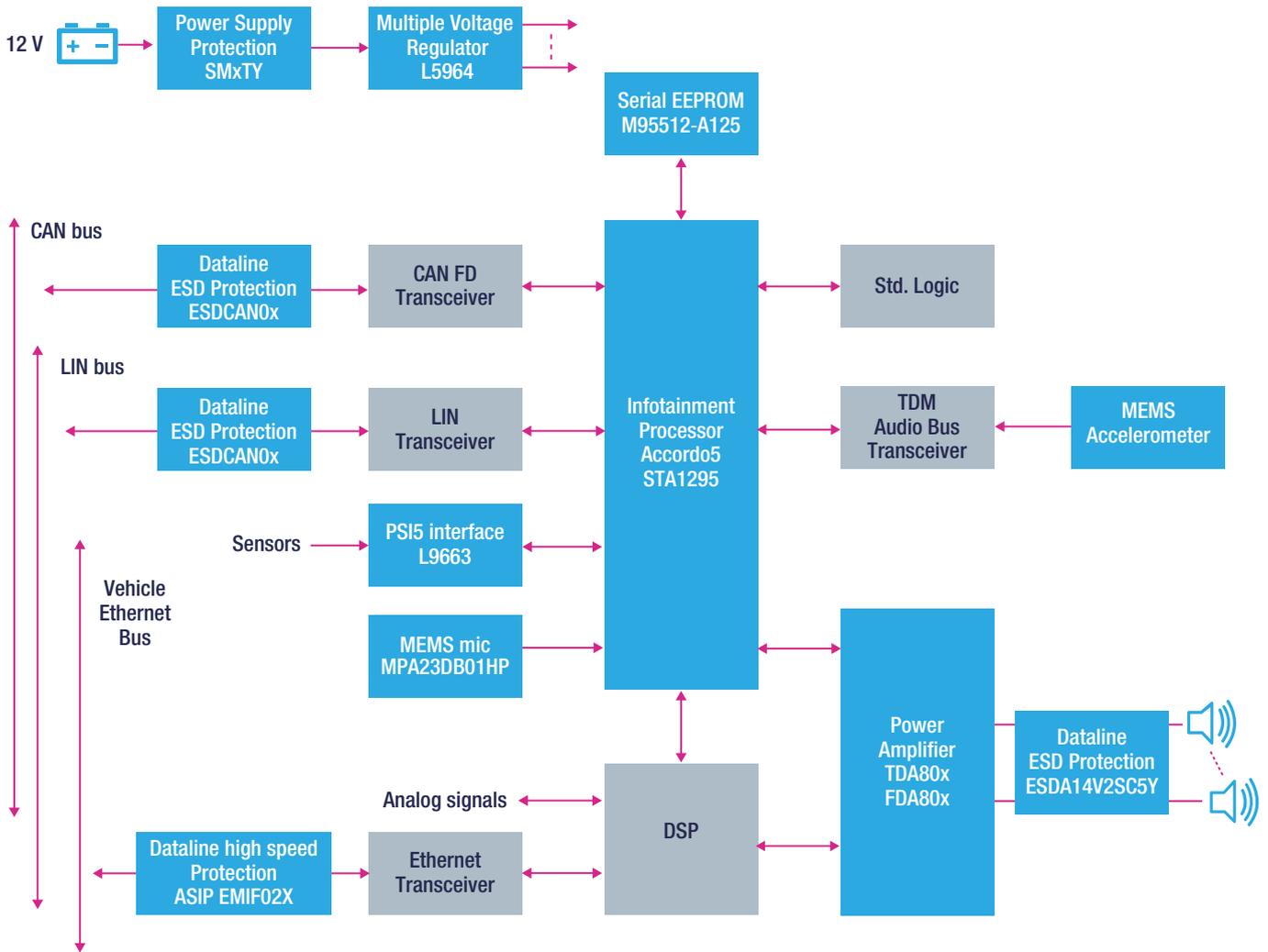
AUTOMOTIVE SOUND SYSTEMS

In-vehicle sound systems can be quite complex with multiple speakers, including sub-woofers, spread around the vehicle's interior to enhance the driving experience with high-end audio, that can satisfy the most demanding music enthusiast.

Traditionally used for playing music and the radio, today's vehicle audio systems include car telematics, diagnostics and in-vehicle services; eCall and hands-free calling; and navigation and telecommunication services.

To help manufacturers to design scalable, high-quality and high-performance sound systems we have an extensive portfolio of automotive-grade audio amplifiers including AB, SB (high-efficiency), SB-I and Class D with analog and digital inputs for any speaker load value, output power and operating voltage.

Automotive Sound System

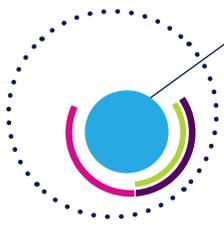


8

FIND OUT MORE

www.st.com/automotive-sound-system





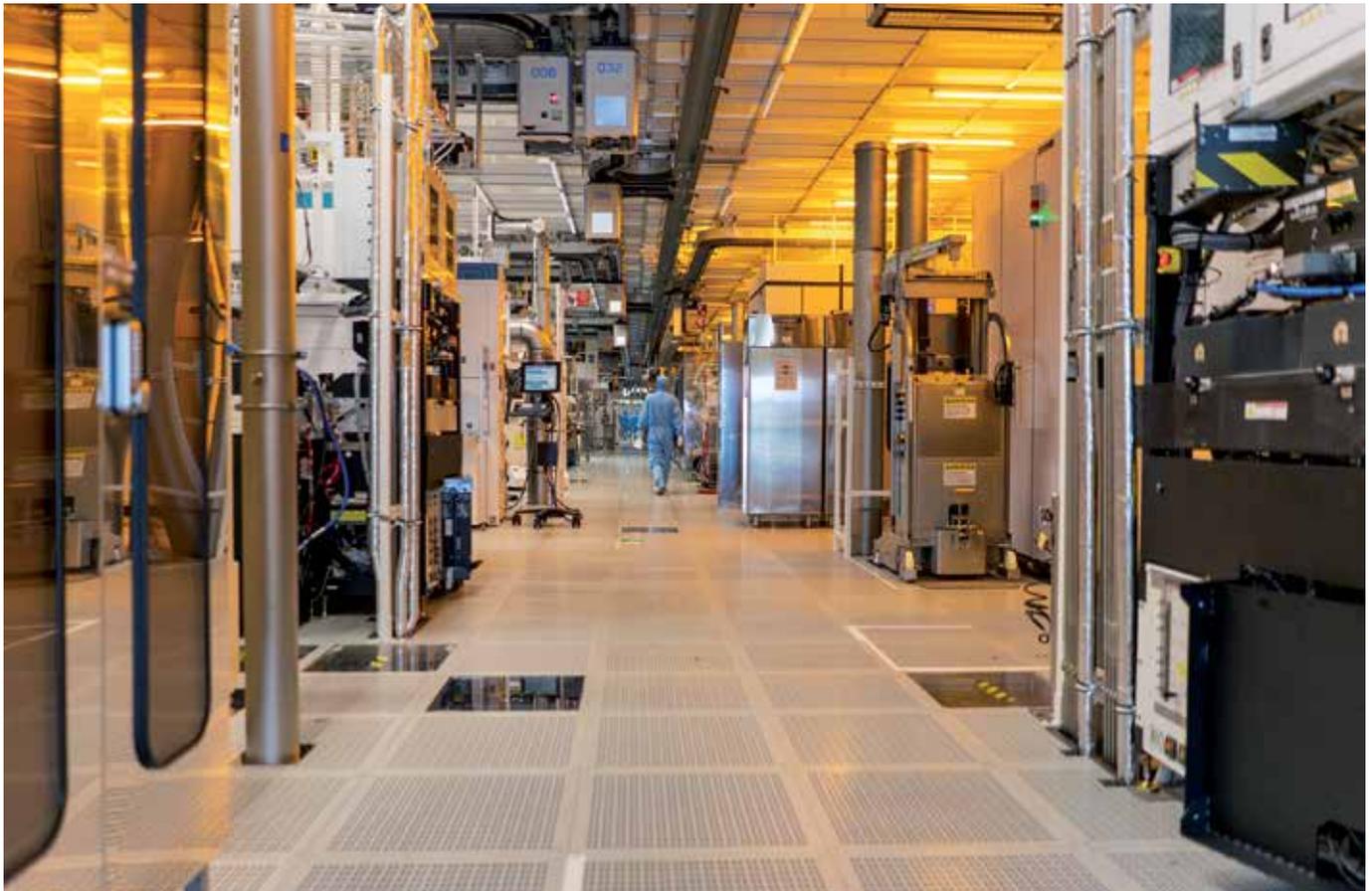
Key Technologies

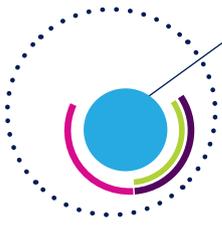
RESEARCH & DEVELOPMENT AND MANUFACTURING

To keep its technology edge, ST maintains a strong commitment to innovation, with approximately 7,400 people working in R&D and product design and spending about 16% of its revenue in R&D. Among the industry's global technology leaders, ST owns and continuously refreshes a substantial patent library (~17,000 patents; ~9,500 patent families and ~500 new patent filings per year).

The Company draws on a rich pool of chip-manufacturing technologies, including advanced FD-SOI (Fully Depleted Silicon-on-Insulator) CMOS (Complementary Metal Oxide Semiconductor), differentiated Imaging technologies, RF-SOI (RF Silicon-On-Insulator), BiCMOS, BCD (Bipolar, CMOS, DMOS), Silicon Carbide, VIPower, and MEMS technologies.

ST believes in the benefits of owning manufacturing facilities and operating them in close proximity to its R&D operations. ST has a worldwide network of front-end (wafer fabrication) and back-end (assembly and test and packaging) plants. ST's principal wafer fabs are located in Agrate Brianza and Catania (Italy), Crolles, Rousset, and Tours (France), and in Singapore. These are complemented by assembly-and-test facilities located in China, Malaysia, Malta, Morocco, the Philippines, and Singapore.





Development Tools

PRODUCT SELECTORS, SAMPLES, EVALUATION BOARDS

ST provides a set of Smart Selectors tuned to the needs of the Automotive Industry. Once the appropriate products have been selected, a wide range of samples and evaluation boards are available to help you get started and reduce your development times. In addition to boards, ST provides schematics, BOM and Gerber files to facilitate your hardware design, with demonstration software packages are available too.

The on-line smartest selector for Low/high-side switches and H-bridges

STEP 1 Select Line Voltage (12 V for cars or 24 V for trucks)

STEP 2 Select Device Topology (LS, HS or H-Bridge)

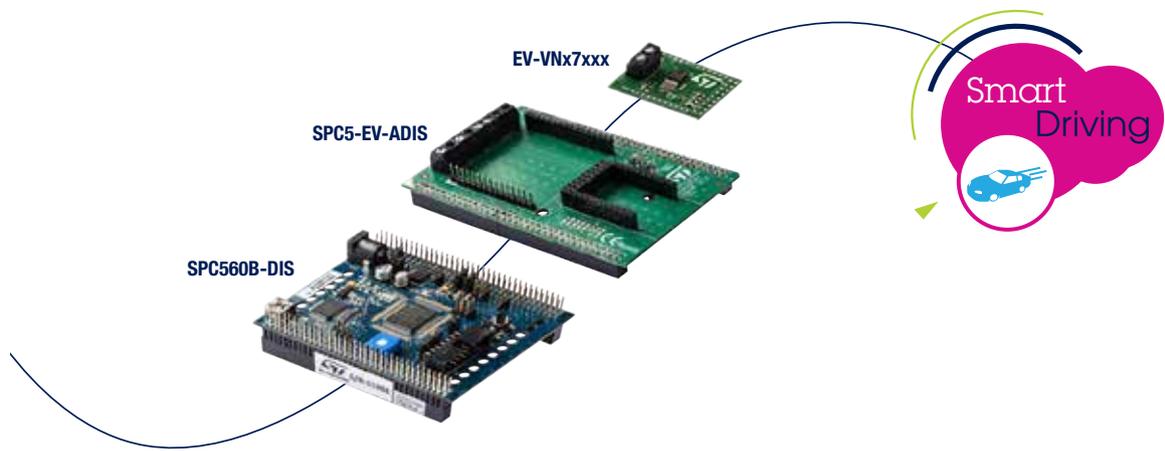
STEP 3 Adjust your choice (channels, load type, etc.)

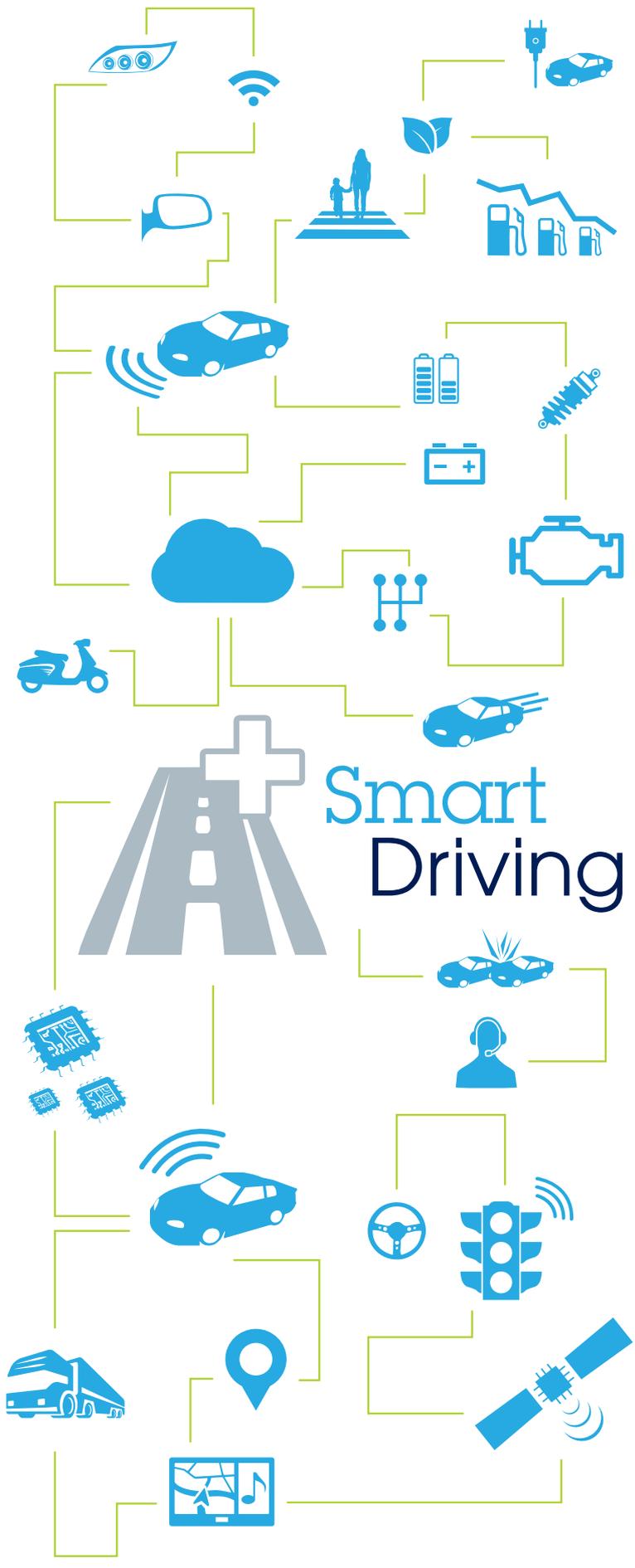
After the PCB selection...
...You can then

Get the list of the devices suitable for your application
Click "Compare" for product parametric comparison

Part Number	Technology	Package	Price	Lead Time	Thermal
TS4500	CMOS	TSOP18	0.10	10	10
TS4501	CMOS	TSOP18	0.10	10	10
TS4502	CMOS	TSOP18	0.10	10	10
TS4503	CMOS	TSOP18	0.10	10	10
TS4504	CMOS	TSOP18	0.10	10	10
TS4505	CMOS	TSOP18	0.10	10	10
TS4506	CMOS	TSOP18	0.10	10	10
TS4507	CMOS	TSOP18	0.10	10	10
TS4508	CMOS	TSOP18	0.10	10	10
TS4509	CMOS	TSOP18	0.10	10	10
TS4510	CMOS	TSOP18	0.10	10	10

Run TwisterSIM, a thermal/electrical simulator to view detailed thermal information or simply to test specific corner conditions.
www.st.com/twistersim





Smart Driving

life.augmented



© STMicroelectronics - November 2018 - Printed in United Kingdom - All rights reserved
The STMicroelectronics corporate logo is a registered trademark of the STMicroelectronics group of companies
All other names are the property of their respective owners

