

PRODUCT BRIEF – MECEL BETULA SUITE



AUTOMOTIVE BLUETOOTH® PLATFORM

Mecel Betula Suite significantly simplifies implementation of Bluetooth connectivity in automotive systems.

Mecel Betula Suite is defined by a complete automotive Bluetooth platform including a global interoperability program.

With ensured global compatibility of mobile phones and reduced development need, extensive and continuous customer value is achieved. ■■■■



A COMPLETE BLUETOOTH SOLUTION



Mobile devices are today a crucial part in many peoples lives. Whether it's accessing emails, streaming music or managing contacts - such scenarios are now expected to be fully accessible and functional in automotive environments. Reduced development effort and increased knowledge of Bluetooth device interoperability then become two decisive aspects to achieve successful product realizations with pleased end users as reward.

Mecel's solution to assist in described situations is Mecel Betula SDK, dedicated to help the integrators create robust Bluetooth features faster than ever, in any desired environment. In addition, Mecel removes the entire burden for interoperability management by handling the tests and analysis.

MECEL BETULA SUITE

Mecel Betula Suite is comprised of two main elements, where **Mecel Betula Software Development Kit (SDK)** is the key component which significantly eases the implementation burden and reduces the engineering cost. Together with the **Mecel Betula Interoperability (IOP)** program, Mecel can ensure world-wide mobile phone compatibility.

One of recent additions to the Suite is a complete **Android version** of Mecel Betula SDK, enabling extensive Bluetooth functionality in a widely popular operating system now reaching automotive products.

MECEL BETULA SDK

Automotive Bluetooth platform software development kit
The Mecel Betula SDK provides the automotive industry with a comprehensive Bluetooth platform. It contains all necessary Bluetooth profiles and a majority of applications needed to deliver full Bluetooth functionality.

The powerful user interface (high level abstraction) will assist in creating quality software rapidly and cost-effectively. The result is less work for end-product developers.

Features:

- Built-in application logic
- Powerful API
- Interoperability program
- Mecel Betula Head Unit Concept, testable PC-version

MECEL BETULA INTEROPERABILITY

Extensive global Bluetooth testing

Bluetooth interoperability describes how a certain Bluetooth device, for example a hands free in-car radio, functions with mobile phones.

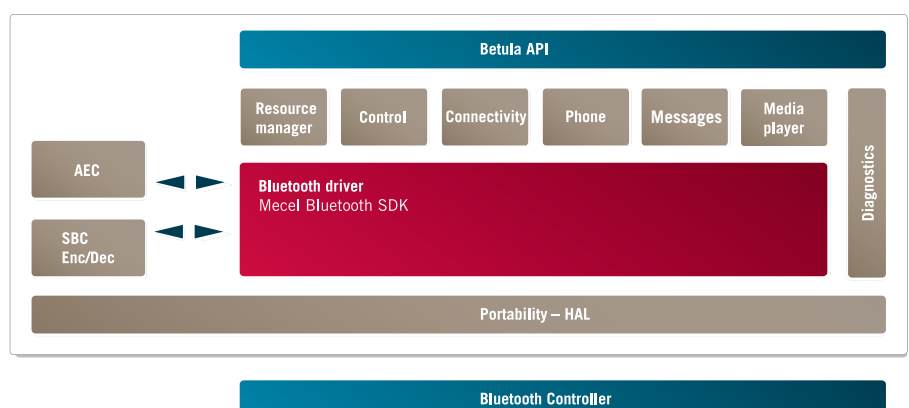
Even though Bluetooth devices are certified according to standards provided by the Bluetooth SIG organization, the interoperability between devices may still fail due to new combinations of devices.

Mecel provides an extensive global testing program, in which a majority of the current and coming mobile phones are tested against the Mecel Betula SDK.

Test Specification

The mobile phones are verified against a thoroughly developed test specification, which meets several standards such as Bluetooth SIG, CTIA (Cellular Telecommunications & Internet Association – US) and CCAP (Car Communication Application Promotion – Asia). The test specification is also the result of over a decade's experience of implementing and testing Bluetooth features at Mecel.

Mecel Betula SDK – Graphical overview



MECEL BETULA INTEROPERABILITY Cont.

Test Execution

Mecel utilizes test houses well established on all continents. Knowledge and experience of the respective local market guarantees intelligent selection of mobile phones to be tested. In addition to the IOP testing, Mecel actively participates in UPF's (UnPlugFests – test sessions hosted by Bluetooth SIG) in order to evaluate new profile enhancements of Mecel Betula SDK.

Database – Presentation of Test Results

The Mecel Betula IOP Program generates a large database that presents interoperability between all tested phones and Bluetooth devices using Mecel Betula SDK.



The vehicle manufacturers will no longer have any uncertainties about the compatibility and will with this knowledge be able to give the end customer great value. The IOP database can be presented in numerous ways to suit the needs of the OEM.

Price Competitiveness

Access to the IOP information and future subscriptions of test data are available at an extremely competitive cost. Due to thorough planning and test execution, expenses are kept to a minimum, resulting in an attractive offer to the end customer.



ACOUSTIC ECHO CANCELLATION

Together with German audio and voice processing experts, Ruwisch & Kollegen GmbH, Mecel has pre-integrated support for their signal processing modules such as acoustic echo cancellation (AEC) and noise suppression (NS) algorithms.

MECEL BETULA ON ANDROID

Full-scale Android version of Mecel Betula SDK

Mecel Betula SDK – Android version is a full-scale Android version of Mecel Betula SDK, with the powerful Betula API now reachable by Android Java apps and with intact Bluetooth robustness and quality.



The Android version of Betula also provides a complete set of automotive applicable profiles and will help car makers to evolve Bluetooth connectivity inside the vehicle. Hands free, phone book management, audio streaming/browsing, internet connectivity and message (SMS/Email) handling are important characteristics of Mecel Betula SDK.

MECEL BETULA HEAD UNIT CONCEPT

Simulate and test your Bluetooth® features

Mecel Betula Head Unit Concept is a testable PC-version of Mecel Betula SDK, encapsulated in an attractive HMI.

By using the Mecel Betula Head Unit Concept, a unique opportunity to evaluate all relevant Bluetooth automotive features is given, before a potential end-product implementation. The characteristics of the PC-tool will equal the behaviour in an end-product containing the Mecel Betula SDK.

By installing a program containing the Mecel Betula Head Unit Concept a simulated head unit will appear and key features can be tested. Mecel Betula Head Unit Concept is used widely amongst leading phone manufacturers, OEM:s, Tier1:s and other stakeholders within the Bluetooth industry.

Mecel and Bluetooth SIG

Mecel joined the Bluetooth SIG as one of the very first members back in 1998. Mecel is now a world-leading developer of Bluetooth software and associated applications, and as an associate member of the Bluetooth SIG, we are working in various workgroups bringing the standard forward.



MECEL ENGINEERING SERVICES

Mecel can contribute to a complete and production ready Bluetooth product in numerous ways. Examples of activities where Mecel will provide expertise and value are:

Porting – Mecel has experience in porting to a variety of hardware and operating system options from the leading vendors in the market.

Integration – Mecel has skills and a renowned history of integrating Bluetooth solutions such as the Mecel Betula SDK in environments where it's needed. The experience of our own core technology results in efficient work with superior quality.

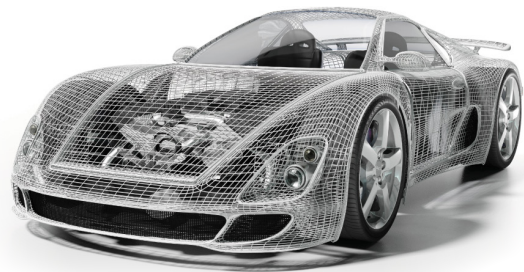
Application Development – If a complete Bluetooth product is needed, Mecel has knowledge from a great number of OEM projects where we, amongst several areas, designed and implemented the Bluetooth solution.

Support – Mecel support is available with short lead time and expertise. It covers areas from integration to application development and lasts over a defined period. Mecel can also offer support during the market presence of a product, where potential interoperability issues can be analyzed and taken into account if needed.

Profile Development – If a profile requested is not present in the Mecel Betula, Mecel can offer development resources to meet the customer's need. A new profile can be created and inserted into Mecel Betula SDK quickly.

Bluetooth Qualification – Mecel can handle all qualification work including testing and other steps prior to and including production readiness.

Complete Bluetooth Responsibility – The most convenient way to introduce a Bluetooth feature in a product is to hand over the complete responsibility to Mecel, starting from porting and ending with qualification.



For more information about Mecel's Bluetooth products and services, please contact Mecel at betula@mecel.se



AT THE FOREFRONT OF AUTOMOTIVE TECHNOLOGY

Mecel is a systems and software development company with more than 25 years of experience in developing solutions for the automotive industry. We specialize in in-car communication technologies, user interface development and consumer device interaction. As engineering consultants, we are pioneering state-of-the-art technology to produce innovative and efficient solutions that provide our clients with a definite competitive edge. We are skilled in taking on the entire procedure from initial R&D work to development and testing of the final products.

Our state-of-the-art software products:



Mecel Populus
for efficient user
interface development



Mecel Betula
for efficient Bluetooth
connectivity



Mecel Picea
for efficient AUTOSAR
development

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