



CASE STUDIES OF MAPUSOFT SOLUTIONS

Automotive

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CASE STUDY

1

Continental Automotive

BACKGROUND

Continental Automotive, commonly known as Continental, is a leading German automotive manufacturing company specializing in tires, brake systems, automotive safety, power train and chassis components, tachographs, and other parts for the automotive and transportation industries.

PROJECT

Continental was developing a next generation Multimedia Entry systems (without Navigation) on cars for one of their Japanese automotive client. Since μ ITRON is the predominant standard used across most of the Japanese industries, the client developed application based on μ ITRON interface standard for Renesas target platform. As a part of their Windows/.NET based test platform, Continental wanted to run the μ ITRON application natively on their test platform with hooks connected to various other window's based test tools. The μ ITRON simulators available from Renesas neither works under .NET framework nor integrated with other native windows test tools, hence MapuSoft solution was selected.

PRODUCT

micro-ITRON
 **OS SIMULATOR**

μ ITRON OS Simulator on Windows/.NET framework for μ ITRON application development, simulation and testing on host.

SOLUTION

With MapuSoft's μ ITRON OS Simulator, Continental was immediately able to start their application development on a host (Windows), integrate applications for simulation and testing and was able to integrate with various automated test tools that were available on the native Windows platform.



CASE STUDY

2

Green Intelligent Transportation System

BACKGROUND

Green Intelligent Transportation Systems (Green-ITS) is a world class research program sponsored by Ontario Research Fund, focused on addressing serious environmental and safety concerns through an integrative approach that encompasses the entire automotive transportation paradigm in Canada. Green-ITS is a highly collaborative effort initiated thru University of Waterloo, University of Toronto in partnership with various industry experts.



PROJECT

MapuSoft offered its products and services to the University of Waterloo’s R&D team for its Green-ITS Program on an ongoing basis since 2010. MapuSoft’s tools were to allow the University of Waterloo to develop reusable software components which can be deployed under various computing environments. There was a requirement that programs developed under the university’s academic environment must be deployable within the automotive industry. The university wanted the development to be done using VxWorks and POSIX interfaces as they are prominently used in the industry. However, they wanted to run the application on Linux, QNX and Windows to collect various performance data.

PRODUCT

OSCHANGER®

OS Changer Porting Kit to migrate VxWorks software to QNX and Linux target

Cross-OS®
Development Platform

Cross-OS development platform including Linux/POSIX Interface for QNX, Linux and Windows target platform

AppCOE™

Application Common Operation Environment (AppCOE) IDE with Application/Platform profiling tools

CASE STUDY

2

Green Intelligent Transportation System

SOLUTION

MapuSoft's Cross-OS development framework allowed the researchers to re-use code across various target OS environments, even though the code may have been developed for use on one specific OS. MapuSoft tools support a simulated environment where the real-time applications could run on host machines for modular testing and system integration without the real target OS and hardware. This gave the development team flexibility where the students were able to use standard low cost PC's for development without having to purchase the high cost development tools and target operating systems. In addition, MapuSoft's Profiling tools allows the researchers to collect performance and timing data on various embedded targets for analysis.



CASE STUDY

3

Simple Devices Inc. (now part of Universal Electronics)

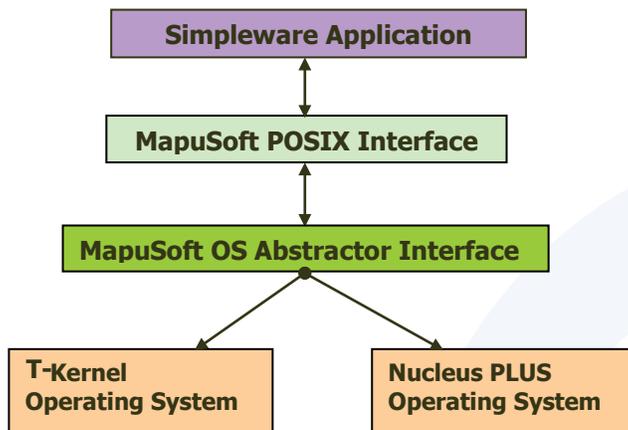
BACKGROUND

Simple Devices (SD), a privately held company based in San Mateo, California, provides software and firmware solutions that enable devices such as TVs, set-top boxes, stereos, automotive audio systems and other consumer electronic products to wirelessly connect and interact with home networks and interactive services to deliver digital entertainment and information. SDs' multimedia connectivity software has an excellent track record with industry-leading customers in the automotive, home entertainment and wireless networking industries.

For this project, SD partnered with Blaupunkt GmbH [German manufacturer of electronics equipment, noted for its home and car audio equipment] to develop a next generation infotainment product for mainly the Japanese market.

PROJECT

SD wanted to migrate their legacy "Simpleware application" running on open-source Linux platform to T-Kernel (Japanese uITRON based OS) and also Nucleus PLUS.



PRODUCT

OSCHANGER[®]

POSIX OS Changer Porting Kit for T-Kernel and Nucleus PLUS target RTOS



CASE STUDY

3

Simple Devices Inc. (now part of Universal Electronics)

SOLUTION

Due to its multi-OS support environment MapuSoft was able to propose a solution which allowed the “Simpleware application” to run on not just one but two Operating Systems. In addition, MapuSoft also successfully completed custom engineering work for Simple Devices (e.g. DLL support for T-Kernel). MapuSoft’s OS Changer Porting Kit allowed them to migrate their Linux-based legacy code by offering a POSIX compliant interface across T-Kernel and Nucleus PLUS platform.



CASE STUDY

4

Ferrari S.p.A., Modena, Italy

BACKGROUND

Ferrari S.p.A. is a sports car manufacturer based in Maranello, Italy. It was founded in 1939 and built its first sports car in 1940. Ferrari currently builds about 7,600 sports cars a year and is now one of the most successful sports car companies in the world.

PROJECT

Ferrari's Telemetry Data Logger ECU (Engine Control Unit) application consists of 100k lines-of-code that needed to be ported from a VxWorks® real-time operating system to Linux. Manual porting of the software from a VxWorks RTOS to a general purpose Linux OS platform is risky and time consuming. A Data Logger application is an on-board device that gathers data from the engine, transmission, suspension, frame components and other key elements, then encrypts and transmits the data to a trackside support team.

PRODUCT

Rapid Software Reuse on any Operating System with Performance Optimization

SOLUTION

MapuSoft's OS Changer Porting Kit automated the porting effort and allowed Ferrari to quickly migrate their application from VxWorks to Linux. OS Changer's core performance features hardened Linux to behave like an RTOS in order to make this migration feasible. MapuSoft also added support for additional VxWorks features under a service agreement in order to eliminate any effort related to manual porting.

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