

Porting S60 Apps to UIQ/S80/S90 *Via* Peroon's **DIMA** Technology



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1. Peroon R&D Ltd. – Company Overview

Peroon R&D Ltd. is a leading provider of mobile porting solutions. Established in 2001, Peroon provides its clients with mobile porting solutions and mobile product creation services.

Peroon customers include original equipment manufacturers, mobile OS vendors, ISVs, hardware manufacturers and mobile operators.

As a Symbian Platinum Partner, Peroon specializes in developing software and technologies for Symbian OS phones and works in close relationships with Symbian and Symbian OS licensees.

Peroon is the largest Symbian OS development house in Israel. It operates as the only Symbian Training Partner in Israel offering advanced training and consulting services to the Symbian OS developer community.

Peroon Porting Solutions

Based on its patent-pending Direct Mapping ("DIMA") technology, Peroon is the only solution provider allowing a single Nokia S60 C++ application to simultaneously support dozens of Nokia S80/S90, UIQ and WinCE, based mobile devices, without changing the original source code. Using its DIMA core technology, Peroon also develops custom porting products for leading companies in the mobile industry in order to solve their mobile software compatibility issues.

Peroon Consulting Services

Peroon Consulting Services is comprised of a pool of experts which provide its knowledge to customers throughout the lifecycle of the customer's product development project. Peroon can assist by identifying key tasks when bringing in a new technology into Symbian, or when adapting Symbian OS to new hardware.

Peroon organizes courses for programming on the Symbian OS. Peroon's training program is backed up by its engineering organization which provides practical approach to all courses.

Peroon Software Engineering Services

Peroon offers its customers flexibility of choice in Symbian OS subcontracting services. From small and major applications development to larger scale Symbian OS phone projects, Peroon's dedicated software engineering organization has the capability to design, implement, integrate, test and maintain products according to customer specifications. Our combination of technology and know-how assures the best quality and performance available today.

2. Peroon's Porting Solutions Overview

DIMA is Peroon's core porting technology enabling a C++ application, developed for one mobile OS platform to be naturally supported on a different platform without altering the original application source code.

The original application's code references the native C++ APIs, provided by the original operating system. While running on the target OS, the application references, at runtime, a set of DIMA's interface libraries which map the original platform's APIs to the target platform's corresponding APIs. In this manner the original source code can run in the new environment, while retaining its original logic and flow and obtaining the target platform's look and feel.

Each and every ported application in the target platform environment requires a set of DIMA DLLs, loaded into memory according to the common rules of DLL handling. The resulting memory and performance implications are minimal.

At build time, DIMA technology allows rebuilding the original source code using the target OS development and build-time environment, using DIMA header files and libraries, to build a native target OS application.

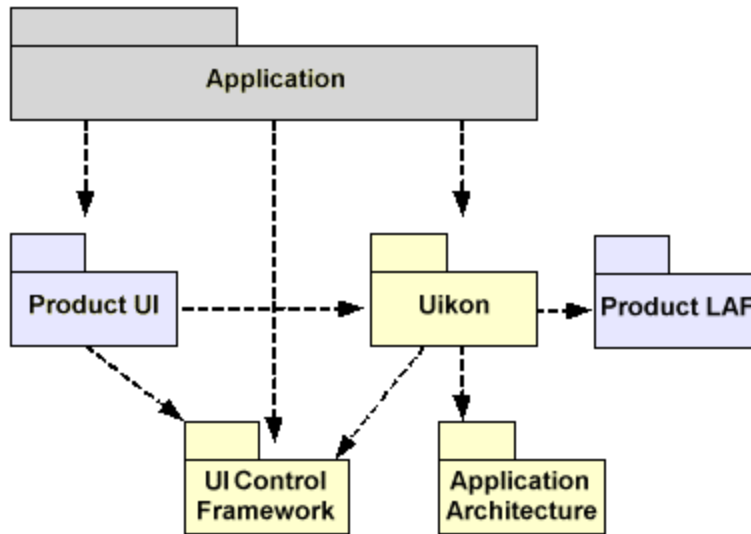
Based on its patent-pending DIMA technology, Peroon has developed the following porting solutions:

- **S2S** for porting Nokia Series 60 C++ applications to UIQ
- **N2N8** for porting Nokia Series 60 C++ applications to Nokia Series 80.
- **N2N9** for porting Nokia Series 60 C++ applications to Nokia Series 90.

Via DIMA based products a single Nokia Series 60 C++ application natively supports dozens of Nokia S60, S80, S90, UIQ and Microsoft based devices, without changing the original source code.

3. Introduction - Symbian UI architecture

The elements of the Symbian OS UI architecture are shown below, with the dependency relationships illustrated.



Architectural relationships

The two key components of these are *Uikon*, a generic core UI framework, which is present on all Symbian OS phones, and a *Product UI*, UI libraries developed by a Symbian OS licensee for a particular phone or range of phones.

4. Problems DIMA solves

As presented above, Symbian OS is designed for optimal flexibility, giving mobile phone manufacturers broad scope for differentiation and innovation in user interfaces, hardware designs and connectivity. Symbian OS provides a flexible user interface (UI) framework that enables mobile phone manufacturers to differentiate their products.

Nokia Series 60 implements the AVKON UI framework, which is a powerful and material extension to Symbian's generic application and UI framework, providing the Series 60 "Look and Feel" and UI specific APIs. The UI extension to Symbian's generic application framework for Nokia Series 80 and Nokia Series 90 are known as CKON/UIKON. The UI extension to Symbian's generic application framework for UIQ is known as QIKON. Other Symbian OS licensees develop different UI frameworks.

Hence the major effort required from a developer in order port an application from Series 60 to other UI platforms e.g. Series 80/90/UIQ is to make use of the respective

CKON/UIKON/QIKON UI framework APIs, instead of the AVKON APIs used in his original Series 60 application.

Traditional methods for overcoming the differences between Symbian based UI platforms require the re-coding of native C++ and consequently the development/maintenance of separate and different software versions in order to port the application to the different Symbian based UI platforms.

Built around the concept of “one source code”, Peroon’s DIMA porting technology, enables for the first time, a single Nokia Series 60 C++ code to natively support S60, S80, S90 , UIQ based Symbian mobile handsets. Via DIMA, new devices based on Series 80/90/UIQ can immediately offer a large number of existing Nokia Series 60 applications.

5. DIMA Technology Description

DIMA enables Nokia Series 80/90/UIQ based terminals to seamlessly support Nokia Series 60 C++ application UI components. DIMA is the only technology currently available allowing developers to use single Nokia S60 C++ source code across Series 60, S80/90/UIQ devices.

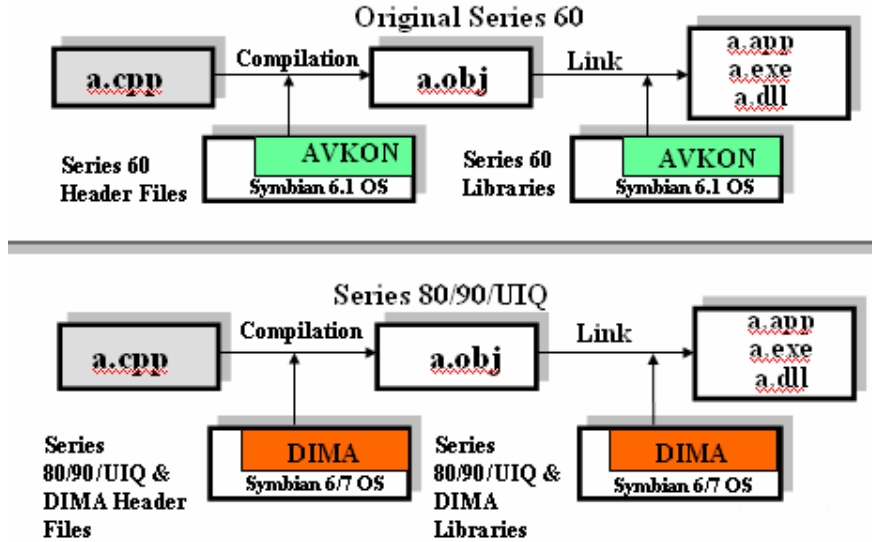
DIMA enables Nokia Series 60 C++ applications to be built as native S80/S90/UIQ applications using the standard S80/90/UIQ build procedure. DIMA recompiles Nokia Series 60 application source code with the S80/90/UIQ build tools, using DIMA header files and libraries, to create native S80/90/UIQ applications.

DIMA add-ons for Series 80/90/UIQ SDKs are comprised of:

- DIMA Build-Time environment and
- DIMA Run-Time environment

5.1. DIMA Build-Time Environments

A set of C++ and resource header files (H, RH, INL, etc. files) and pre-built libraries (LIB), allowing the building of S60 C++ apps for the S80/90/UIQ Platforms



5.2. DIMA Run-Time Environments

Pre-built dynamic library (DLL), compiled resources (RSC) and bitmap file (MBM). This environment supports the running of S60 apps built with DIMA products on the S80/90/UIQ platforms.

