Quick Start Guide

TWL-SDK

Version 2008/11/04

The content of this document is highly confidential and should be handled accordingly.

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Table of Contents

Revision History

Version	Description
2008/11/04	Added a detailed list of supported build platforms and a note regarding build environments to 3 Setting the Environment Variables.
2008/09/30	Removed the “Updating the IPL” section.
2008/09/10	Initial version.

1 Introduction

This document explains how to install TWL-SDK and create a simple application.

This document contains the following sections.

1. Introduction
2. Preparing the Development Tools
3. Setting the Environment Variables
4. Building the TWL-SDK Tree
5. Trying the Samples
6. Writing a Simple Program
7. Using Build Switches

2 Preparing the Development Tools

The build for the current TWL-SDK has been confirmed for Microsoft Windows XP Professional Service Pack 2.

The following tools are necessary to build (compile, etc.) the TWL-SDK.

- CodeWarrior for NINTENDO DS
- Cygwin

In addition, one of the following tools must be used for debugging.

- IS-TWL-DEBUGGER (software/hardware)
  Supported platforms: LIMITED ROM
  HYBRID ROM (Runs on Nintendo DSi)
  HYBRID ROM (Runs on Nintendo DS and Nintendo DS Lite)
  NITRO ROM
- IS-NITRO-DEBUGGER / IS-NITRO-EMULATOR
  Supported platforms: HYBRID ROM (Runs on Nintendo DS and Nintendo DS Lite)
  NITRO ROM

Note: When a program has been built in an environment where only IS-NITRO-DEBUGGER was installed, that program's code will be able to display strings when run on IS-NITRO-DEBUGGER, but will not be able to display strings when run on IS-TWL-DEBUGGER software and hardware. If you want to also display strings when the program is run on IS-TWL-DEBUGGER software and hardware, you must build the program in an environment where the IS-TWL-DEBUGGER software is installed.

CodeWarrior for NINTENDO DS, IS-TWL-DEBUGGER (software), and IS-NITRO-DEBUGGER are available from www.warioworld.com. For all other tools, please contact the distributors.

For information on installing Cygwin, see `CygwinPackageList.rtf` in the `$TwlSDK/docs/SDKTools` directory after unzipping the SDK.

For installation procedures, see the documentation for the individual tools.

3 Setting the Environment Variables

The two environment variables TWLSDK_ROOT and TWLSDK_PLATFORM must be set for TWL-SDK.

Set TWLSDK_ROOT to the absolute path of the expanded TWL-SDK directory. If nothing is set, the default value is C:\TwlSDK. This directory is referred to below as $TwlSDK.

TWLSDK_ROOT can also be configured with the $TwlSDK/setup script once the TWL-SDK has been extracted. The configuration procedure using the setup script is shown below.

```
% cd $TwlSDK
% source setup
```

Set the platform for the target build in the environment variable TWLSDK_PLATFORM. This environment variable specifies the code that must be generated for the platform. If nothing is set, the build will end with an error. For more information on TWLSDK_PLATFORM and other build options, see $TwlSDK/docs/SDKRules/Rule-Defines.html after extracting the SDK.

4 Building the TWL-SDK Tree

The unzipped TWL-SDK contains pre-built libraries and tools. Normally, there is no need to build everything from the top of `$TwlSDK`.

The following example shows a build of a 3D_Pol_LightColor sample demo.

Start a shell (for example `bash`) with Cygwin, go to `$TwlSDK/build/demos/gx/UnitTours/3D_Pol_LightColor`, and enter `% make` to start the build.

If an error occurs during the process, it is possible that a mistake was made in the settings or that a bug may exist in the package. Review the settings before contacting the distributor.

In Chapter 3 Setting the Environment Variables, the value that was specified for the environment variable `TWLSDK_PLATFORM` will determine which platform code will be generated for.

In the absence of other specified build options, setting `TWLSDK_PLATFORM` to `TWL` will generate a Release build of a HYBRID ROM for ARM by default, and setting `TWLSDK_PLATFORM` to `NITRO` will generate a Release build of a NITRO ROM for ARM by default. For more information on ROM types and how to generate them, after unzipping the TWL-SDK, see `$TwlSDK/docs/TechnicalNotes/AboutTwlApplication.pdf`.

5 Trying the Samples

Run the samples to verify whether the build has completed successfully.

1. Start IS-TWL-DEBUGGER (software).

   (For NITRO code, start `IS-NITRO-DEBUGGER` instead.)

2. On the **File** menu, click **Open**.

3. Specify an SRL file in the **Open** dialog box.

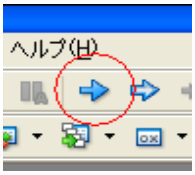
   In this example, we specify the file shown below, which was created in the build we just completed in the previous section.

   ```
   $TwlSDK/build/demos/gx/UnitTours/3D_Pol_LightColor/bin/ARM9-TS.HYB/Release/main.srl
   ```

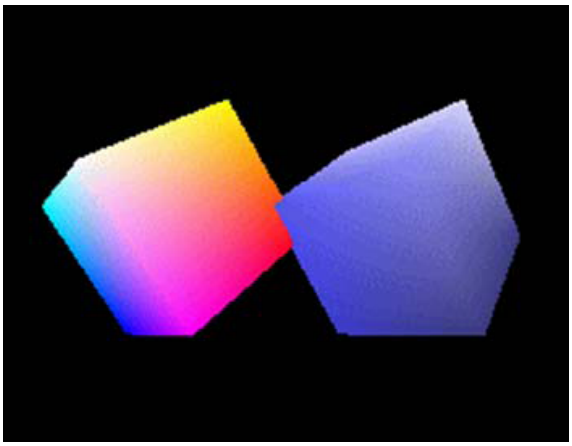
   (For Nitro code, use `$TwlSDK/build/demos/gx/UnitTours/3D_Pol_LightColor/bin/ARM9-TS/Release/main.srl`.)

4. On the **Debug** menu, click **Run**.

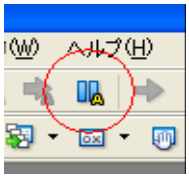
   (Alternatively, you can click the **Run** button located on the toolbar of the IS-TWL-DEBUGGER (software), as shown in the red circle below.)



5. If everything is working properly, the following two cubes are displayed on the upper screen of the IS-TWL-DEBUGGER (software). The color of the cube on the right changes constantly.



6. Click the **Pause** button (as shown in the red circle below) to stop execution of the file.



6 Writing a Simple Program

This section describes how to write a simple program.

1. Make an appropriate work directory and copy the following files into it.

   ```
   $TwlSDK/build/demos/_template/src/main.c
   $TwlSDK/build/demos/_template/makefile
   ```

2. Make the following changes to `main.c`.

   Lines numbered 16 and later

   ```
   #include <nitro.h>
   void NitroMain(void)
   {
       OS_Init( );
       OS_Printf( "Hello World of TWLid. \n" );          ← Add this line
       while (1){}
   }
   ```

3. Run `make`. If an error or warning is displayed, review step 2 to check for errors.

4. Start IS-TWL-DEBUGGER. On the **File** menu, click **Open,** as you did in the previous section, then specify `bin/ARM9-TS.HYB/Release/main.srl` in the work directory. (For NITRO code, specify `bin/ARM9-TS/Release/main.srl` instead.)

5. Click the **Run** button. The debug output window displays the following.

   ```
   Hello World of TWLid.
   ```

6. Click the **Pause** button to stop the `.bin` file emulation.

7 Using Build Switches

TWL-SDK has several build settings. The `Release` versions of the libraries will be linked by default, but the `Debug` and `ROM` versions can be built by changing macro build-time settings using *build switches*.

See `$TwlSDK/docs/SDKRules/Rules-Defines.html` for more information on build switches.