

Chapter 1 : Empress for VxWorks Simulator BSP

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Building these features into a VxWorks database application in the simulator environment is no different than building them into any VxWorks cross-development environment using a standard board support package BSP. A typical cross development environment is shown in Figure 1 Here, several people developers, testers, documentation writers, etc. The virtual disk device will be used in the examples below. Installing the Empress Ultra Embedded To install it, you just un-zip the file to your preferred directory on the host. For this document, the Empress package was installed at C: They are used to compile application source code on the host. The Empress loadable library is a relocatable object module that can be executed in the VxWorks kernel space. The Empress loadable library can be downloaded and dynamically linked to the operating system by the VxWorks object module loader. Building applications with Empress for VxWorks 6. Specify the target build spec: Running applications with Empress for VxWorks 6. The sampledb database contains two tables with following definitions: The samples directory contains following files needed to build and run Empress sample programs: No database is required. It is an Empress Database export file that contains all the data required to run sample programs. How to Build Sample Programs On the Windows host, please use the following steps to build any of the Empress sample programs: Fill in the name of the Project [e. Keep clicking on the Next tab until Build Specs window is shown. Click Finish Step 5: Right click on the new finished project and choose Properties Step 6: Click on the tab Step 7: Click tab and then Yes tab when prompted. Fill in the name of the file e. Copy and paste from the sample program [e. Click on Project tab Step Click on Build Project tab Congratulations, you have created your first Empress sample project. They all result in a command-line window that runs the simulator. This is one of them using the VxWorks 6. Change to the Empress directory [e. Change up one directory [e. Run vxsim from this location. VxWorks Simulator vxsim The following steps involve running shell commands via the VxWorks command shell. Import data into sampledb from the database export file on the host. Execute entry point For hello. Empress Ultra Embedded V

Chapter 2 : Locate by Platform - VxWorks: - Wind River Workbench - Wind River Board Support Packages

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You will also experiment with WindView and see how to use it to measure the performance of the system. You want to create a new downloadable project. Call the project Simple. You can use your workspace for a previous course. If this is the first time you are doing VxWorks development, you need to create a Workspace for your VxWorks projects somewhere in your Z: Tornado keeps information about each VxWorks project in a separate directory in your Workspace. Our target systems, a. Use the Ignu toolchain for all projects that will run on the purpleboxes. Finish the project creation which should also create your VxWorks workspace if you did not already have one. Create and Build the Simple Project Copy simple. On the Files tab, right click on the Simple project and add this copied file to the project. On the Builds tab, you should see the Ignu build under Simple Builds. Right click on the Simple Builds and rebuild simple. You will be asked to regenerate dependencies. Note that Tornado is rather good at figuring out the dependencies and what needs to be rebuilt. Be warned that it is not perfect however. There may be occasions when you have to explicitly rebuild the dependencies for your project. Whenever you do a build the Build Output window appears. If any errors occur you can double click on the error to go to the location of the error in your source files. If all goes well, the build creates a simple. Start the Target System and Target Server The next step is to get the target system started and have Tornado connect to it. When the purplebox powers up it ftp to the development station and download a standard VxWorks image. You have to start an FTP server on the development station before powering up the target system. Connect the power for the AVerKey iMicro video convertor. Note that the power plug for the AVerKey and the purpleboxes are the same size but output different voltages. The power plug for the AVerKey is tied down so that, with normal efforts, it can only reach to the power input on the AVerKey. Connect the power for the purplebox. Switch to viewing the purplebox monitor by pressing the middle of the three small buttons on the lower right of the monitor. You will see the purplebox bios and VxWorks bootrom start. VxWorks will indicate that it will start the image load after a timeout period. Switch back to view the development system. You should see the purplebox connect and download the VxWorks image file. Look back at the target monitor and verify that the target is ready by seeing the text: Start a target server that will serve as a proxy on the development system for the purplebox. You must select the target for your development system. If you do not know the number of your development host and target, it should be on the label on the purplebox. If you do not see the list of all the targets, you need to run the target server registry file Tornadoregistry-targets to install that information. Exit Tornado and run the file found in the directory c: After you started the target server, look at the red bullseye target in the lower right of the development system screen. There should not be an exclamation point through the bullseye. You can double click the bullseye to see that a successful connection was made, or to see the error if there is a bullseye. If the connection was successful, you must establish the connection between Tornado and the target server. You should only see one target server available. Interact with the Target System While you are developing your VxWorks applications, you will primarily interact with the target through a remote shell. Start the shell from the icon to the right of the target indicator. You should now see your shell window through which you will interact with the target. There are many commands that you can execute from the shell. Typing help will give you brief information about some of the commands. Right click on the Simple Files and download simple. Run the program by executing the initialization function, progStart. You can run any function by just typing its name in the shell window. Gathering Data about the System WindView is the Tornado tool that can gather detailed information about the target system. Start WindView by clicking its toolbar button. There are several WindView configuration screens. While your application is running VxWorks will save timing data for when events occur. On the Upload Mode screen, you can choose to upload this data to the development station continually or defer it until after the data gathering stops. The on-target buffers are limited. The number and size of the buffers can be changed in the Advanced options on the Upload Mode Configuration screen. If you continually

upload data, you will probably not run out of buffer space but the system performance is degraded. With the Deferred Upload, the system fill the buffers and then stop gathering data. Use the Deferred Upload for now. To gather data from your running application for a longer period of time you can control what events are logged. You specify this from the Event Logging Level screen. Look at the different logging levels and the choices at each level. You may need to adjust these while you are running some of your experiments. Select the Log Overview tab. This gives an indication of how much data WindView has gathered. Set the Refresh Controls to refresh every second. Start WindView logging data by pressing the green Go toolbar button. Watch the event log overview. You can either let the buffers fill and have data gathering automatically stop or you can manually stop the data gathering with by pressing the red Stop toolbar button. Upload the data to the development station by pressing the Upload Event Log toolbar button. This will display a WindView Event Graph similar to the one below but for the application that you downloaded. Explore the capabilities of this WindView Event Graph. What do the icons represent on the graph? What does each interval represent? How do you zoom in for a more detailed view? Can you filter what events are displayed? How do you do measure the interval between two points? The real value for analysis is to get the actual data. Export the data to a comma separated values text file which can be easily read by Excel. Be careful when you export data. If you have zoomed in on the data, only that data will be exported. Look at this data file. Compute the average interval between executions of the simple task. What is the minimum? Make a histogram of the values. Can you say anything about the distribution of the values?

Chapter 3 : vxworks_application_programmers_guide_ - OS - æ“•ä½œç³»ç»ÿ - ç •å†œç½²î¼^ã...”ç«™èµ,

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The file name appears in the Workspace window as a sub-item of the project. You can now edit your file by double-clicking on the icon textedit will be used. Notice that there is a sub-folder called External dependencies. It will contain all the. Select the Builds sub-window bottom tab in the Workspace window. A triangle icon appears. A new window is displayed. The compiler options are displayed. Set the optimization level to 2, and disable the debugger click Include debug info button to have it released. Click Apply, OK, and go back the Files sub-window by clicking on its tab. You can now build the executable code for VxWorks. The compiler window is displayed, giving eventual errors. If no error has been found, you can download your application in the memory of the VxWorks system. First, in the workspace window, specify the target empty line at the top , usually named `iota-ppc iota`. Still in the Workspace window Files sub-window , click on the icon of your project with the right button of the mouse. The executable code is then transferred in the memory of the VxWorks machine. Each time you reset the VxWorks machine, you must then re-download the software you wrote prior to use it. This will open a shell on the VxWorks system. Notice that there is no main function in a VxWorks software. You launch only tasks represented by functions. Though you can use functions returning any type of value in a VxWorks software, only functions returning `int` can be used as task entries. Here is a short list of useful WindSh commands: Unlike `td`, the task will still be displayed in the list if you type `i`. The system will resume the execution of the task at the point it was suspended. To learn other commands, just type: Use the normal C syntax to run a library function from WindSh. Create and add source files using the procedure described above for the test. You must now specify to the compiler the paths of your. Display the compiler options window as for setting the optimization level. Regenerate dependencies each time a new source file has been added in the project. Hence, all the tasks are suspended. You normally want to avoid this situation and run your task according to a suitable schedule. In the previous example, edit `test`. First, at the beginning of the file:

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3 | Wind River VxWorks Platforms This release contains the latest versions of the VxWorks operating system, Wind River Workbench, Wind River Diab.

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Exceptions to this generalization include the VxWorks Although this model afforded performance and flexibility when developing applications.1 Introduction 1 VxWorks Configuration and Build 3 1. see the the VxWorks Kernel Programmer's Guide.1 Introduction This guide describes how to use VxWorks facilities in the development of real.

Chapter 6 : IOTA - How to write software for VxWorks

VxWorks Application Programmer's Guide, iv Configuring VxWorks For Real-time Processes .. 14 Basic RTP Support .. 14 RTP Virtual Memory Management .. 15 MMU Support for RTPs .. 15 Additional Component Options .. 15 Configuration and Build Facilities .. 16 About RTP Overlapped Virtual.

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facility can be found in the VxWorks Kernel Programmer's Guide. NOTE: You can also include the translation layer directly in `sysLib.c`, although this is not the preferred method.

Chapter 8 : Introduction to VxWorks Programming

VxWorks Application Programmer's Guide, iv VxWorks Header Files ..

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