MICROCHIP

TSHARC[™] Win CE Drivers Manual Windows® CE version 6.0 RS-232, USB & PS/2 Rev 1.18a

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3. Introduction

Before you Begin

- *Platform Builder 6.0* must already be installed and configured on your Windows development system.
- Please be sure no instances of *Platform Builder 6.0* are currently running.
- Navigate your system to find the TSHARCCE60V118a.MSI executable file.

Supported Features

3, 4, 7, and 20 Point Calibration Right-Click Emulation Hardware Beep Support Configurable Data Stream Rate

Supported Processors

Hampshire has recompiled the source code for the TSHARC WinCE driver to support the following processors.

ARMV4I MIPSII MIPSII_FP MIPSIV MIPSIV_FP SH4 X86

RS-232 Specific Information

Port Assignment

The driver loads based on the "Port" value entry within the "TSHARCS.reg" file. This value corresponds with the available port.

- "Port"=dword: 1" assigns the port to the first available port defined in the "platform.reg" file.
- "Port" ="dword: 2" assigns the port to the second available port defined in the "platform.reg" file.

Baud Rate Configurations

If using a TSHARC® controller using other than a 9600 baud rate, the baud rate may be changed via the "Baud" registry entry. This may also be found in the "TSHARCS.REG" file.

TSHARC controllers are 9600 Baud by default.

PS/2 Specific Information

The 8042 input driver must be included in the OS Design in order for the TSHARC PS/2 driver to function on CE device.

USB Specific Information

The USB host controller and the UHCI component must be installed in order for USB to function. These components are added automatically after adding the "USB TSHARC Touch Screen Driver" component to the OS Design.

4. Running the TSHARC Microsoft Installer File



Figure 1: TSHARC CE 6.0.msi Welcome

Running the Microsoft Installer application will begin with a Welcome screen. This screen shows you what version of the driver you are installing, and for what CE platform version.

Platform builder must be installed before running the .MSI file. If you realize that Platform Builder is not present on your system, please select 'Cancel' to abort the installation process.

License Agreement

🞼 TSHARC CE 6.0 Touch Screen Co	ntroller Driver 1.18a						
License Agreement							
Please take a moment to read the license agreement now. If you accept the terms below, click "I Agree", then "Next". Otherwise click "Cancel".							
IMPORTANT: MICROCHIP IS WILLING TO LICENSE THE TSHARC SOFTWARE A ACCOMPANYING DOCUMENTATION OFFERED TO YOU ONLY ON TH CONDITION THAT YOU ACCEPT ALL OF THE FOLLOWING TERMS TO ACCEPT THE TERMS OF THIS LICENSE, CLICK "I ACCEPT AND PROCEED WITH THE DOWNLOAD OR INSTALL. IF YOU DO NOT ACCEPT THESE LICENSE TERMS, CLICK "I DO NOT ACCEPT," AND DO NOT DOWNLOAD OR INSTALL THIS SOFTWAR							
NON-EXCLUSIVE SOFTWARE LICENSE AGREEMENT							
O I <u>D</u> o Not Agree	• LAgree						
	Cancel < <u>B</u> ack <u>N</u> ext >						

Figure 2: End User License Agreement

The End User License Agreement must be read and agreed-to before proceeding with the installation.

If you do not agree with the EULA statement, please select 'Cancel', and exit the installation application.

TSHARC drivers are available at no charge to TSHARC touch screen controller board or chip customers only. Any unlawful use of TSHARC drivers is in strict violation of the United States and international copyright laws. Please contact Microchip Technology Inc. if you have any questions regarding the license agreement.

Using a TSHARC Driver with any third party touch screen controller is strictly prohibited unless authorized in writing by Microchip Technology Inc.

Select Installation Folder

🞼 TSHARC CE 6.0 Touch Screen Controller Driver 1.18a	
Select Installation Folder	
	MICROCHIP
The installer will install TSHARC CE 6.0 Touch Screen Controller Driver 1.18	Ba to the following folder.
To install in this folder, click "Next". To install to a different folder, enter it be	ow or click "Browse".
<u>F</u> older:	
C:\WINCE600\	Browse
	Disk Cost
Cancel < <u>B</u> ack	Next >

Figure 3: Select Installation Folder

Enter the root directory of your Windows CE installation and then click on the "Next" button. For most configurations, the default path is appropriate. Select "Next" to proceed with installation.

Browsing Fold	der Lo j¦∰⊺s⊢	DCation	uch Screen Con	troller Driver 1.18a		_ 🗆 ×
	Sel	🞼 Browse for F	Folder			×
		<u>B</u> rowse:	WINCE600		•	
	The ii	CRC OSDesigns				der.
	To in:	OTHERS PLATFORM PRIVATE				ľ.
	Eo C:					
		r <u>F</u> older:	C:\WINCE600\			
				ОК	Cancel	
				Cancel < Ba	ack <u>N</u> e	xt>

Figure 4: Browse for Folder

The TSHARCCE60V118a.msi copies files to the development system. To select a different file path, please browse to the desired location. Select "OK" to exit.

Verifying Disk Space

elect Installatio	n Folder	au -		
TSHARC CE 6.0 Tou	ch Screen Controller Driver 1.	LBa Disk Space	× *	
he list below includes the 18a to, along with each c	Invesyou can install I SHARC CB Inve's available and required disk	: 6.0 Touch Screen Co space.	ntroller Driver	
Volume	Disk Size	Available	Require	
⊒A:	0KB	0KB	Ok	
■C:	59GB	26GB	3204k	
•			•	
		1	OK	

Figure 5: Disk Cost View

The Disk Cost View shows the amount of space available on each hard drive included on the development system.

Click on the "OK" button to exit.

Confirm Installation							
	🞼 TSHARC CE 6.0 Touch Screen Controller Driver 1.18a						
	Confirm Installation						
	The installer is ready to install TSHARC CE 6.0 Touch Screen Controller Driver 1.18a on your computer.						
	Click "Next" to start the installation.						
	Cancel <back next=""></back>						

Figure 6: Confirm Installation

The "Confirm Installation" screen is the last opportunity to abort the installation of the driver on the development system.

Select "Next" to continue with the installation.

Install Status Screen



Figure 7: Install Status Screen

Once installation is complete, please select "Next".

Driver Updates Report



Figure 8: Changes Made Since Previous Version

A document on changes made to the driver will appear.

Select "Next" to proceed.

Installation Complete



Figure 9: Installation Complete

The installation of the TSHARC® driver is now complete.

Driver File Locations

Upon successful installation of the TSHARC driver, the TSHARC Driver files will now be copied according to the following:

- The Serial files are copied to "<WINCEROOT>\PUBLIC\COMMON\OAK\DRIVERS\TSHARC\TSHARCS"
- The PS/2 files are copied to "<WINCEROOT>\PUBLIC\COMMON\OAK\DRIVERS\TSHARC\TSHARCP"
- The USB files are copied to "<WINCEROOT>\PUBLIC\COMMON\OAK\DRIVERS\TSHARC\TSHARCU"

The TSHARC driver components are now added to the Windows CE catalog.

5. Adding a TSHARC Driver Component to an OS

Adding the TSHARC driver component to your OS design is an integral step in the Image Building Process. Often this step is over-looked or performed incorrectly.

The TSHARC driver was designed to make this process simple to execute.

These steps show how to add the TSHARC controller's component to your image design.

L	Launch "Visual Studio 2005"									
9	🔀 Start Page - Microsoft Visual Studio									
Γ	File	Edit View Project Target	Tools	: Window	Community Help					
		New 🕨		Project	Ctrl+Shift+N		-			
1		Open 🕨	٦	File	Ctrl+N		10			
Í.		Close		Project Fro	om Existing Code		- X			
	a'	Close Solution								
Ľ.		Save Selected Items Ctrl+S			Microsoft	al Studio 2005				
		Save Selected Items As			VISU					
	9	Save All Ctrl+Shift+S			Pacent Drojects	MSDN: Windows Embedded Developer Center				
11	Figure 10: Opening a New Project within Visual Studio									
	Figure To. Opening a New Froject within visual Studio									

Platform Builder is accessed via Visual Studio 2005.

The Platform Wizard is a Windows CE tool used to create a Windows CE Operating System. It allows for the selective inclusion of many different peripheral devices and other system dependencies.

Other options may be desirable for the particular image build. This document only shows how to add the TSHARC driver component.

ľ	New Project					<u>?</u> ×
	Project types:		Templates:			0 0 0 0-6- 0-6- 0-6- 0-6-
	Visual C++ ATL CLR Ceneral MFC Smart Device Win32 Other Project Ty Platform Builder	e /pes for CE 6.0	Search Online Templates			
	A project for creati	ing a Windows Embe	dded CE 6.0 operating system			
	Name: OSDesignTest					
	Location: C:\WINCE600\OSDe		esigns		-	Browse
	Solution Name: OSDesignTest			Create directory for solution		
				40	<	Cancel

Figure 11: Build New Project

CE 6.0 OS Design Wizard

Windows Embedded CE 6.0 OS Design Wizard	? ×
Welcome to the Windows Embedded CE 6.0 OS Design Wizard	
This wizard guides you through the process of creating an OS design for a CE 6.0 based platform. An OS design defines the characteristics of a CE 6.0 OS. You can create an OS design by choosing a design template and one or more board support packages (BSPs). A BSP includes an OEM adaptation layer (OAL) and device drivers. This wizard helps you: Choose a BSP. Choose a BSP. Choose a design template. Add items to your OS design or remove items from it. To continue, click Next.	
< Previous Next > Finish Can	ncel

Figure 12: Welcome to the CE 6.0 OS Design Wizard

In this design wizard, you will choose a BSP, choose a design template, and customize your OS design.

Board Support Package Selection							
	Windows Embedded CE 6.0 OS Design Wizar	d <u>? ×</u>					
	Board Support Packages						
	Available BSPs:						
	□ Aruba Board: ARMV4I ☑ CEPC: x86	A BSP contains a set of device drivers that are added to your OS design.					
	 Device Emulator: ARMV4I H4Sample OMAP2420: ARMV4I MainstoneIII PXA27X: ARMV4I 	Select one or more BSPs for your OS design.					
\mathbf{Q}		A BSP for a Windows Embedded CE PC-based hardware reference platform. The platform uses the OS based on the x86 architecture.					
		Note: Only BSPs supported by installed CPUs are displayed in the list.					
	< Prev	ous Next > Finish Cancel					

Figure 13: Board Support Package Selection Screen

Many different board support packages are available with the TSHARC driver. While many CE systems seen are X86, please make sure the correct BSP for the image build is selected.

Failure to include the correct BSP may result in a non-functioning image build.

Design Templates

indows Embedded CE 6.0 OS Design Wizard	?×	
Available design templates: Consumer Media Device Custom Device Industrial Device PDA Device Phone Device Small Footprint Device Thin Client	A design template is a set of predefined catalog items. Choose the design template that is most closely aligned with the purpose of your target device. Provides the starting point for an industrial automation device such as a human-machine interface (HIVI1) panel or a programmable logic controller (PLC).	
< Previous	Next > Finish Cancel	

Figure 14: Platform Configuration Selection

Design templates are ready-configured system builds made available by Platform Builder. These different configurations try to include the necessary dependencies and components for your particular application.

The TSHARC driver has been verified using the "Industrial Controller" Design Template. Other design templates may work, but the Industrial Controller configuration is strongly recommended.

 Windows Embedded CE 6.0 OS De	sign Wizard		? ×
Applications Medi	а		
Windows Embedded CE Error V. TC Compact Framework 2 Console Window DCOM Internet Browser Network User Interface Waveform Audio Windows Internet Services	r Reporting .0	Catalog items related to generatin report and uploading the report to when an application encounters a	g an error Microsoft problem.
	< Previous	Next > Finish	Cancel

Figure 15: Application and Media Selection

This screen allows for the addition of applications and media support to the OS build. This is completely optional and dependent only on the individual project's requirements. TSHARC controllers do not require the addition of peripheral applications or media packages, unless system beep is required. If beep is required, then Waveform Audio Support much be added.

Application and Media Selection Windows Embedded CE 6.0 OS Design

Networking and Communications

New Platform Wizard - Step 6	×					
Networking & Communications Select items for networking and communications to include in your OS design.						
Items:	A technology that enables applications running at different times to communicate across heterogeneous networks and systems that may be temporarily offline.					
	Estimated size of these items: 3954 KB					
(2) Kack	Next > Finish Cancel					

Figure 16: Networking and Communications

If any additional support for networking or communications are required, please select them here.

Select "Next" to continue.

Completing Platform Builder Wizard

v	Windows Embedded CE 6.0 OS Design Wizard	<u>?</u> ×
	OS Design Project Wizard Complete	
	You have completed the wizard. Press Finish to create your OS Design project.	
	< Previous Next > Finish Cance	

Figure 17: Completed Platform Wizard

Please select "Finish" to complete the Wizard.

Adding the TSHARC Catalog

Adding the TSHARC Device Driver as a catalog item is essential for correct driver implementation.

The TSHARC Driver Catalog can be found under **Third Party**, **Device Drivers**, **Touch**.



Figure 18: Adding TSHARC Component

Please select the appropriate component to add to the OS build.

Once selected, a green checkmark will appear, as shown in Fig. 18 in the red box.

Only one TSHARC interface component (Serial, PS2, USB) should be included in an OS design at any given time. The TSHARC driver supports a single controller configuration.

6. Configuring TSHARC Controller

Changing the Number of Calibration Points

Method 1:

- In "Platform Builder 6.0", click on the "Solution Explorer" tab
- Double click on the appropriate registry file <WINCEROOT>\PUBLIC\COMMON\OAK
 If Serial

\DRIVERS\TSHARC\TSHARCS\TSHARCS.reg

o If PS/2

\DRIVERS\TSHARC\TSHARCP\TSHARCP.reg

o If USB

\DRIVERS\TSHARC\TSHARCU\TSHARCU.reg

- Change the value of "CalType" appropriately
 - For 3-point calibration, set value to "dword:3"
 - For 4-point calibration, set value to "dword:4"
 - For 7-point calibration, set value to "dword:7"
 - For 20-point calibration, set value to "dword:14"
- Rebuild and recreate run-time image.

Method 2:

- Using a registry editor for the target device, change the "CalType" registry item located within the "HKEY_LOCAL_MACHINE\SOFTWARE\Hampshire\CurrentVersion\CalType" branch according to the following:
 - For 3-point calibration, set value to "dword:3"
 - For 4-point calibration, set value to "dword:4"
 - For 7-point calibration, set value to "dword:7"
 - For 20-point calibration, set value to "dword:14"
- Browse to the "Windows" directory using Windows Explorer and double-click the shortcut "TouchIOCTL". This will cause current TSHARC driver to re-read and apply the new registry settings.

Calibrating the Controller

- Select the Start menu
- Under the "Programs" group select "TSHARC Calibration"
- Touch all targets with activator tip for at least a couple seconds each.

The points used for the calibration is determined by the "CalType" registry entry described in section "Changing the Calibration Type" below.

If no shortcut is present under "Programs" group, a shortcut to the calibration application may be found in under the "Windows" directory on the CE Device.

Windows CE Calibration Registry Entries

Calibration parameters are created by Hcecal after calibration and are stored in the registry under the following key:

[HKEY_LOCAL_MACHINE\SOFTWARE\Hampshire\CurrentVersion\Global]

Upon boot, if the registry entries are not located, the driver defaults to a default un-calibrated state.

Enabling Right-Click Emulation

Method 1

- In "Platform Builder 6.0", click on the "Solution Explorer" tab
 - o If Serial, double-click "Subprojects->TSHARCS->Parameter files->TSHARCS.reg"
 - o If PS/2, double-click "Subprojects->TSHARCP->Parameter files->TSHARCP.reg"
 - If USB, double-click "Subprojects->TSHARCU->Parameter files->TSHARCU.reg"
 - Remove the semi-colons (uncomment) from the last four lines of the file.
- Rebuild and recreate run-time image.

Method 2

- Using a registry editor for the target device, change the "xEventArea", "yEventArea" and "RightClickTime" registry items located within the "HKEY_LOCAL_MACHINE\SOFTWARE\Hampshire\CurrentVersion\Global" branch according to the description of what these values are responsible for in the next paragraph.
- Browse to the "Windows" directory using Windows Explorer and double-click the shortcut "TouchIOCTL". This will cause current TSHARC driver to re-read and apply the new registry settings.

Configuring Right-Click Emulation

There are three entries that can be configured for right-click emulation found at [HKEY_LOCAL_MACHINE\SOFTWARE\Hampshire\CurrentVersion\Global]

- "xEventArea"
- "yEventArea"
- "RightClickTime"

The "RightClickTime" is the time elapsed (measured in clock ticks) on a touch that is within an area on the screen (the event area) before a right-click event is sent.

The "xEventArea" and "yEventArea" entries are horizontal and vertical components of the area that a touch remains in for a time specified by "RightClickTime" before a right-click event is sent. The Values for "xEventArea" and "yEventArea" entries can range from between 0x0000 and 0xFFFF.

The "xEventArea" and "yEventArea" are relative to the touch screen coordinates rather than the screen coordinates.

To determine the values for xEventArea and yEventArea, the following formula may be used: xEventArea = 65535 * (desired_event_area_width / width_of_touchscreen) yEventArea = 65535 * (desired_event_area_height / height_of_touchscreen)

These values must be entered in hexadecimal for the Registry entry.

Disabling Right-Click Emulation

To disable Right-Click emulation, "RightClickTime" should have of value or zero, or the registry entries "xEventArea", "yEventArea", and "RightClickTime" can be removed or kept absent from the registry.

Changing Calibration Timeout Values

There are two timeout values that are adjustable in the registry that correspond to the timeout value when first launching the calibration application ("CalTimeln") and the timeout value after touching all of the calibration points ("CalTimeOut"). If the countdown timer for "CalTimeIn" expires, the calibration application simply exits. If the counter for "CalTimeOut" expires then the calibration application reverts the calibration settings to the previous settings. The default value "CalTimeIn" is 15 seconds and the default value for "CalTimeOut" is 90 seconds.

Method 1:

- In "Platform Builder 6.0", click on the "Solution Explorer" tab
 - o If Serial, double-click "Subprojects->TSHARCS->Parameter files->TSHARCS.reg"
 - If PS/2, double-click "Subprojects->TSHARCP->Parameter files->TSHARCP.reg"
 - If USB, double-click "Subprojects->TSHARCU->Parameter files->TSHARCU.reg"
- Add the following lines to the end of the file:
 - [HKEY_LOCAL_MACHINE\SOFTWARE\Hampshire\CurrentVersion\Global] "CalTimeIn"=dword:F
 - "CalTimeOut"=dword:5A
- Rebuild and recreate run-time image.

Method 2:

- Using a registry editor for the target device, change the "CalTimeIn", "CalTimeOut" registry items located within the "HKEY_LOCAL_MACHINE\SOFTWARE\Hampshire\CurrentVersion\Global" branch according to timeout value(s) that are desired.
- Browse to the "Windows" directory using Windows Explorer and double-click the shortcut "TouchIOCTL". This will cause current TSHARC driver to re-read and apply the new registry settings.

Configure Touch Beep

Method 1:

The following lines may be added to the "tsharcs.reg", "tsharcu.reg" or "tsharcp.reg" file. [HKEY_LOCAL_MACHINE\SOFTWARE\Hampshire\CurrentVersion\Global] "usewincebeep"=dword:1

The "Volume & Sounds" control panel applet uses the "PanelState" registry to store its settings.

If "usewincebeep"=1

This value is queried on touch-down and changes made in the control panel can be observed immediately.

If the "usewincebeep"=2

This value is queried on touch up. Also, changes in the control panel applet will not be observed until the second touch.

The follow entry is needed to make the option to configure taps in the "Volume & Sounds" control panel applet visible:

[HKEY_LOCAL_MACHINE\ControlPanel] "Screen"=dword:3

Method 2

The Beep can also be configured using the Windows CE "Volume & Sounds" control panel applet. To use this applet, set the "usewincebeep" entry to a DWORD value of one or two in the "HKEY_LOCAL_MACHINE\SOFTWARE\Hampshire\CurrentVersion\Global" registry branch.

Enable/Disable Touch Beep

Enable

To enable the beep add the registry value "beepEnabled" and set it to one. **Disable**

To disable the beep, exclude the "beepEnabled" registry value or set to zero. **Loud Beep**

To make the beep loud, add the registry value "beepIsLoud" and set it to one. **Soft Beep**

To make the beep soft, exclude the "beepIsLoud" registry value or set to zero.

Changing the mouse event stream rate

When the mouse cursor moves and changes state as a result of a touch, the TSHARC CE driver sends a series of mouse events to the Windows CE event queue. If the mouse events are sent too fast, other CE applications and background process may take longer to process their own events while the touch screen is being touched. For this reason, a new feature has been added to the TSHARC Serial and USB drivers to allow adjustment of the speed at which the driver sends mouse events.

The default value is a minimum duration 16 clock ticks for every mouse packet (except for pen up and pen down packets which are always processed immediately).

For slower embedded devices, it may be desirable to increase this value to decrease to rate at which mouse packets are sent. For faster devices, it may be desirable to decrease this value to increase the rate at which mouse packets are sent.

Method 1:

- In "Platform Builder 6.0", click on the "Solution Explorer" tab
 - o If Serial, double-click "Subprojects->TSHARCS->Parameter files->TSHARCS.reg"
 - o If PS/2, double-click "Subprojects->TSHARCP->Parameter files->TSHARCP.reg"
 - o If USB, double-click "Subprojects->TSHARCU->Parameter files->TSHARCU.reg"
- Add the following lines to the end of the file:: [HKEY_LOCAL_MACHINE\SOFTWARE\Hampshire\CurrentVersion\Global] "mouseMoveThreshold"=dword:10

Method 2:

- Using a registry editor for the target device, add or change the "mouseMoveThreshold", registry item located within the "HKEY_LOCAL_MACHINE\SOFTWARE\Hampshire\CurrentVersion\Global" branch to
- the desired minimum duration length to be applied for every mouse stream packet.
 Browse to the "Windows" directory using Windows Explorer and double-click the shortcut "TouchIOCTL". This will cause current TSHARC driver to re-read and apply the new registry settings.

7. TSHARC Component Removal

Removing a TSHARC Driver Components from an OS Design

- Click on the "Solution Explorer" tab.
- Browse to "Subprojects".
- Right-click on the appropriate TSHARC component:
 - o If Serial, right-click on "TSHARCS"
 - o If PS/2, right-click on "TSHARCP"
 - If USB, right-click on "TSHARCU"
- Left-click "Remove".

Removing TSHARC Driver Components from the Catalog

- Open the Windows Control Panel.
- Double-click on Add/Remove Programs icon.
- Select the "TSHARC Touch Screen Controller Driver" item.
- Click on the "Remove" Button.

The TSHARC driver components are now removed from the Catalog.

To remove the TSHARC files as well, the directory "<WINCEROOT>\PUBLIC\COMMON\OAK\DRIVERS\TSHARC" now can safely be deleted.

8. Additional Set-Up Notes

Establish Communication with Target CE Device

To modify the registry, add a file, or to use any of Platform Builders tools on existing target CE system, the ActiveSync tool is very necessary for making changes on a target CE device.

To connect via ActiveSync, there are multiple communication mechanisms available to connect to the target device. Usually, the easiest way to communicate with the target device is to attach a NULL modem cable between the CE device and other computer that is used for debugging, download the latest ActiveSync application, and then in the windows directory of the CE device, there is usually the executable file "repllog". Double-click this application from Windows Explorer and the device will connect to the debugging computer.

For detailed instructions on different ways to communicate with a Windows CE, please see Microsoft's documentation.

Aygshell Component - Effect on Right-Click Emulation

Windows CE has a shell extension called "aygshell" that is meant to be used with touch screen. If the touch screen is touched and held in the same region of the screen, black dots will appear and a right click will occur in the same area that is being touch. The issue with using this is component is that appears to be no way to disable this component once it has been included in the CE target image. Also, this component conflicts with the right-click feature of the driver. To remove this component, search for the "aygshell" component and remove this from the target image. A clean build should then be done to ensure it is properly removed.

If this component is component is included in the target image, it may be configured as follows:

- The "HKEY_LOCAL_MACHINE\System\GWE\Commctrl" registry subkey stores settings that affect common controls.
- UseLongDelayForGestures : DWORD
- There is no default setting. This value controls the recognition delay used by SHRecognizeGesture. If this value is set to 1, then the delay is 800 ms. Otherwise, the delay is 400 ms There is no way to disable this feature.

Saving registry settings to Persistent Storage

After calibrating the touch screen controller the calibration registry settings are automatically saved to the persistent storage if persistent storage is setup correctly on the CE device. However, if the TSHARC registry settings are edited using a registry editor or third-party application, the new registry settings may be saved using two methods.

Method 1:

Click "Start->Suspend" on the Windows CE target.

Method 2:

If changing the registry settings programmatically, call RegFlushKey() function in source code after making registry modifications.

Troubleshooting TSHARC CE Driver

In some cases there may be conflicting devices or an invalid configuration on a target CE system. In this case, it may be difficult to determine if the TSHARC driver is correctly being loaded.

To see if the TSHARC CE driver is being loaded and if there are any relevant messages being outputted due to an invalid configuration, it is often useful to see the kernel debug output from the target system.

Very often on Windows CE devices, there is a COM port available for kernel debugging. If there is such a COM port, attach a NULL modem cable between the CE device and other computer that is used for debugging. On the computer that is used for debugging, set the terminal application to 38400-N-8-1. If there is a successful communication with the device, first output from the boot loader will be seen followed by output from the CE operating system. There will be kernel debug messages from the TSHARC driver if the target system is correctly configured.

9. Notes TM

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