

## ***Installing TSC2301 WinCE Generic Drivers on an XScale Platform***

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### **ABSTRACT**

Proper installation is required to use the TI TSC2301 WinCE generic drivers with a given host processor. This includes copying the drivers into the corresponding directories and tailoring the processor-dependent layer (PDL) files for the drivers to the hardware specifications of the processor. This application report presents an example driver installation on an Intel® XScale™ PXA250 Lubbock platform. The corresponding code is also given.

### **Introduction**

The TSC2301 Windows CE (WinCE) generic drivers are provided to help users implement designs using the TSC2301 touch-screen controller<sup>1</sup> device. The drivers are based on the standard WinCE device-driver structures, but with a split PDL for portability and adaptability to various host processors. Related documentation, including the application report *TSC2301 WinCE Generic Drivers*, document number SLAA187, can be found on the Texas Instruments Web site ([www.ti.com](http://www.ti.com)). Contact Texas Instruments through the *Contact Us* link for the WinCE driver source code.

The drivers are installed by modifying the PDL code to accommodate the specific host processor, then copying the generic driver files and the PDL files into the corresponding directories on the applied WinCE development platform. This application report describes the installation procedure for the TSC2301 generic drivers into the Intel® XScale™ PXA250 Lubbock development platform.

For consultation and service on installation and integration to other processors, contact the TI third party contractors listed on the TI Web site at [www.ti.com/analog3p](http://www.ti.com/analog3p).

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<sup>1</sup> *Programmable Touch Screen Controller with Stereo Audio CODEC—TSC2301* datasheet, literature number SLAS371

## TSC2301 Drivers

The highly integrated TSC2301 includes touch screen, keypad, and audio functions in a single device. The corresponding drivers consist of three parts: the touch-screen driver, the keypad driver, and the audio driver. All functions are controlled by the host processor through a standard serial-port interface (SPI).

Table 1 shows the TSC2301 WinCE drivers and their associated PDLs for an XScale processor.

**Table 1. TSC2301 WinCE Drivers on Lubbock Platform**

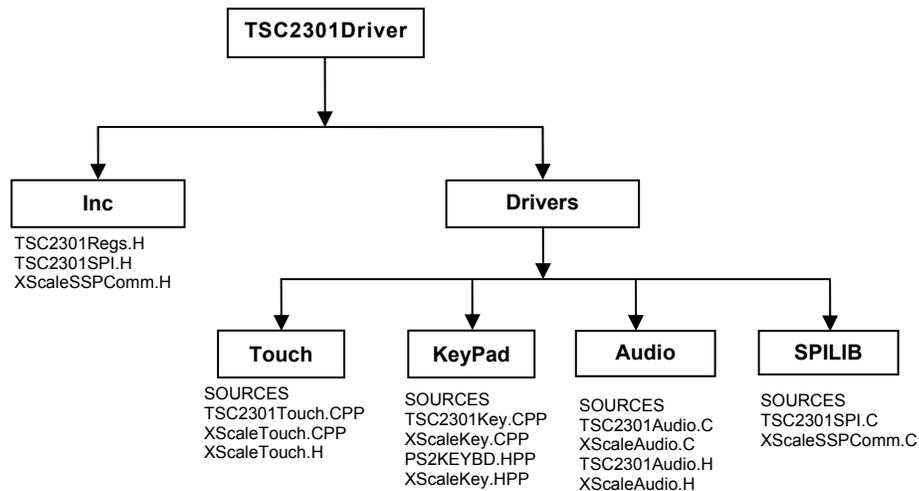
Driver Type	Driver Files	
	Generic	PDL
<b>Touch-Screen Driver</b>	TSC2301Touch.CPP	XScaleTouch.CPP XScaleTouch.H
<b>Keypad Driver</b>	TSC2301Key.CPP PS2KeyBD.HPP <sup>(1)</sup>	XScaleKey.CPP XScaleKey.HPP
<b>Audio Driver</b>	TSC2301Audio.C TSC2301Audio.H	XScaleAudio.C XScaleAudio.H
<b>SPI Interface Driver</b>	TSC2301SPI.C TSC2301SPI.H	XScaleSSPComm.C XScaleSSPComm.H
	TSC2301Regs.H	

(1) The keypad driver shares the standard WinCE keyboard model device driver (MDD) with the PS2 keyboard driver.

The generic and PDL files of the TSC2301 drivers for the Lubbock platform have been developed and provided with this application report. For more explanations on the generic drivers, refer to the application report *TSC2301 WinCE Generic Drivers*, document number SLAA187.

## WinCE Driver Package

The driver files listed in Table 1 are installed in the directory structure shown in Figure 1.



**Figure 1. WinCE Driver Directory Structure**

## Installation

1. Copy the header files for TSC2301 control registers and SPI drivers from `\TSC2301Driver\Inc\` to `C:\WINCE400\PLATFORM\XSC1BD\inc\`
2. Copy the SPI driver files in `\TSC2301Driver\Drivers\SPILIB\` to `C:\WINCE400\PLATFORM\XSC1BD\drivers\DRVLIB\`
3. Copy the touch-screen driver files in `\TSC2301Driver\drivers\Touch\` to `C:\WINCE400\PLATFORM\XSC1BD\drivers\TOUCHP\`
4. Copy the keypad driver files in `\TSC2301Driver\Drivers\KeyPad\` to `C:\WINCE400\PLATFORM\XSC1BD\drivers\kbmouse\KBDMSCOMMON\`
5. Copy the audio driver files in `\TSC2301Driver\Drivers\Audio\` to `C:\WINCE400\PLATFORM\XSC1BD\drivers\WAVEDEV\`
6. Configure the interrupts for the touch screen (`/DAV`) and keypad (`KEYIRQ`) drivers by modifying the HAL files in `C:\WINCE400\PLATFORM\XSC1BD\KERNEL\HAL\` — `cfwXsc1.c` and `intXsc1.c`
7. Configure the DMAC for the audio driver by updating header files `dmac.h` and `dmacbits.h`.

For an example of installation steps 6 and 7 in this document, refer to steps 3, 4, 6, and 7 in the installation instructions of the application report entitled *Windows CE .Net Touch Screen, Keypad and Audio Device Drivers for TSC2301*, literature number SLAA169.

## Additional Information

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Power Mgmt	<a href="http://power.ti.com">power.ti.com</a>	Optical Networking	<a href="http://www.ti.com/opticalnetwork">www.ti.com/opticalnetwork</a>
Microcontrollers	<a href="http://microcontroller.ti.com">microcontroller.ti.com</a>	Security	<a href="http://www.ti.com/security">www.ti.com/security</a>
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