



*TouchWare™ Software for
Windows CE .NET™
OEM Developer's Guide*

3M Touch Systems

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CHAPTER 1

Introduction

The TouchWare™ software for Windows CE .NET™ OEM Developer's Guide describes the steps necessary to integrate 3M Touch Systems TouchWare™ software into a Microsoft Windows CE .NET™ system build. This kit contains the following items:

1. The TouchWare™ software touch screen driver for Windows CE .NET™ is the software the system uses to communicate with the touch screen. It provides “mouse emulation” touch screen functionality for applications running under Windows CE .NET™.
2. TouchWare™ software for Windows CE .NET™ adds an applet to the Windows CE .NET™ control panel. This applet allows the user to calibrate the touch screen and to adjust certain touch screen preferences.
3. The source files for the touch screen control panel are included to allow modification of the control panel or integration of touch screen functions into an application, as required.

TouchWare™ software for Windows CE .NET™ supports the serial RS-232 controller on the X86 platform only.

To successfully install TouchWare™ software for Windows CE .NET™, you need to install the following components:

1. The drivers for the controller
2. The TouchWare™ software control panel. If you like the way the control panel looks as delivered, you can use the binary files supplied and concentrate on the drivers only. If you want to change the control panel, you must install both the drivers (using Microsoft Windows CE .NET™ Platform Builder ®) and the TouchWare™ software control panel sources (using Microsoft eMbedded® Visual Tools VC++).

The process involves 5 steps.

1. Copying the appropriate binary files for your controller to the platform.
2. Install touch screen driver DLLs.
3. Install touch screen driver registry settings.
4. (Optional) Modifying the TouchWare™ software control panel using eMbedded Visual C++.
5. Building the program.

What You Need to Know

This document assumes you are familiar with and have the skills necessary to successfully modify, build, and run the Windows CE .NET™ operating system on your target hardware.

CHAPTER 2

Installing TouchWare™ Software for Windows CE .NET™

Step 1: Copy Binary Files to the platform

From the supplied source packet (\x86 directory), copy the files listed below to \WINCE420\PLATFORM\<PLATFORMNAME>\FILES\:

- MTmouse.dll - mouse DDI touch screen driver
- MTTchCmn.dll - common functions
- MtsUtils.dll - control utilities
- MtsLin.dll – linearization function
- MTTchSer.dll - serial touch screen driver

If you are NOT changing the control panel also copy:

- MtsPanel.cpl - control panel applet

Step 2: Install Touch Drivers

Cut and paste the **x86\Platform.bib.txt** file into the end of your Platform.bib file.

```
; *****  
; * Platform.bib for *  
; * 3M Touch Systems TouchWare™ for Windows CE .NET *  
; * Copyright © 1999–2003 3M *  
; *****  
IF ODO_NOTOUCH !  
; --- Touch Driver ---  
; files: MTmouse.dll - Mouse DDI touch screen driver  
; MTTchCmn.dll - common functions  
; MTTchSer.dll - serial touch screen driver  
; MtsLin.dll - linearization function  
; MtsPanel.cpl - control panel  
; MtsUtils.dll - control panel utilities  
MTmouse.dll $( _FLATRELEASEDIR )\MTmouse.dll NK SH  
MTTchCmn.dll $( _FLATRELEASEDIR )\MTTchCmn.dll NK SH  
; Include Serial touch screen driver in Windows CE .NET image
```

```

    MTTchSer.dll      $( _FLATRELEASEDIR )\MTTchSer.dll  NK  SH

; Control panel files.
; Remove them if you do not want a control panel.

    MtsPanel.cpl     $( _FLATRELEASEDIR )\MtsPanel.cpl   NK  SH
    MtsUtils.dll     $( _FLATRELEASEDIR )\MtsUtils.dll   NK  SH
    MtsLin.dll       $( _FLATRELEASEDIR )\MtsLin.dll     NK  SH

ENDIF
; *** end TouchWare™ for Windows CE .NET *****

```

Step 3: Modify Platform.reg

Cut and paste the **x86\Platform.reg.txt** file into the end of your Platform.reg file.

```

; *****
; * Platform.reg for *
; * 3M Touch Systems TouchWare™ for Windows CE .NET *
; * Copyright © 1999-2003 3M *
; *****
; Touch screen driver settings
; -----
[HKEY_LOCAL_MACHINE\HARDWARE\DEVICEMAP\TOUCH]
    "DriverName"="MTmouse.dll"
[HKEY_LOCAL_MACHINE\HARDWARE\DEVICEMAP\TOUCH\Parameters]
    "VersionMajor"=dword:5
    "VersionMinor"=dword:6
    "VersionReleaseType"=dword:1
; CommPort set to serial port used by touch screen controller.
; CommPort is one of the following:
; 1-4 = COM1-COM4 Serial Port touch screen
[HKEY_LOCAL_MACHINE\HARDWARE\DEVICEMAP\TOUCH\Parameters\0000]
; For serial (RS232) controller set dword: to 1 or 2 (COM1 or COM2).
; Remember that Windows CE .NET uses the first COM port for
; debugging so that PC COM2 is Windows CE .NET COM1

; Commport is set to 1 (default) COM1 without debugging
; or COM2 with debugging port.
    "CommPort"=dword:1

; Baudrate is set to 9600 baud (default) 9600 = 0x2580.
    "Baudrate"=dword:2580
"Is_X_Horiz"=dword:1
"Flip_X"=dword:0
"Flip_Y"=dword:0
; TouchMode is one of the following:
; 0 = desktop (default)
; 1 = drawing
; 2 = button
[HKEY_CURRENT_USER\ControlPanel\MtsTch\0000]
    "TouchMode"=dword:0
    "SwapMouseButton"=dword:0
    "HorizontalOffsetOn"=dword:0
    "VerticalOffsetOn"=dword:0
    "VerticalCursorOffset"=dword:0
; *** end TouchWare™ for Windows CE .NET *****

```

Step 4: (Optional) Setting up the Control Panel

Note: Not available with *TouchWare™ Software for Windows CE .NET™* part 19-657

1. Start eMbedded Visual C++.
2. Click on File / Open Workspace and locate MtsPanel.vcw in the folder you created when you installed TouchWare™ software.
3. After changing the control panel skin and rebuilding it, copy MtsPanel.cpl to your platform, \WINCE420\PLATFORM\\FILES\.

Step 5: Build

After making the necessary platform modifications, the project may be built as usual. The TouchWare™ software applet should appear on the Windows CE .NET™ control panel. It may be used to calibrate the touch screen and configure touch screen preferences.

APPENDIX A

Frequently Asked Questions

What TouchWare™ software drivers are loaded for the touch screen?

TouchWare™ software loads the following drivers:

- MTmouse.dll – touch screen mouse driver
- MTTchCmn.dll – touch screen common functions
- MTTchSer.dll – touch screen serial port driver
(for RS-232 serial touch screen controller used)

How can I start the TouchWare™ software control panel from my application? Do I need to run the control panel that exposes other applets to the user?

An application may start the TouchWare™ software control panel without running Control.exe (which will show all control panel applets to the user).

The TouchWare™ software control panel may be started programmatically by running Ctlpnl.exe and passing it the name of the TouchWare™ software control panel applet.

Example:

```
CreateProcess ( TEXT(“Ctlpnl.exe”),  
              TEXT(“MtsPanel.cpl”), NULL, NULL, 0, 0,  
              NULL, NULL, NULL, NULL );
```

How can I adjust the double-click properties of TouchWare™ software?

Use the Mouse control panel applet to adjust the double-click properties. Since the touch screen emulates the mouse, this setting controls the double-click sensitivity for the touch screen as well.

How much space do the TouchWare™ software touch screen drivers add to my Windows CE .NET™ image?

Driver	Bytes
MTTchCmn.dll	20992
MTTchSer.dll	5632
MtsLin.dll	18944
MtsPanel.cpl	20480
MtsUtils.dll	20992
MTmouse	3584

Altogether, adding these files into your Windows CE .NET™ platform will add 90624 bytes to the image (nk.bin).

APPENDIX B

Files Contained In Distribution Media

Table 1: Pre-built Modules

Path	Description
\tw561ce\x86\MTTchSer.dll	Touch screen serial port driver
\tw561ce\x86\MTmouse.dll	Touch screen mouse emulator
\tw561ce\x86\MTTchCmn.dll	Touch screen common functions
\tw561ce\x86\MtsLin.dll	Touch screen linearization function
\tw561ce\x86\MtsUtils.dll	Touch screen control panel utilities
\tw561ce\x86\MtsPanel.dll	Touch screen control panel applet

Table 2: Configuration files

Path	Description
\tw561ce\x86\platform.bib	Touch screen platform.bib
\tw561ce\x86\platform.reg	Touch screen platform.reg

Table 3: Control Panel Source Files
(Not available with TouchWare™ Software for Windows CE .NET™ part 19-657)

Path	Description
\tw561ce\Cepanel\INCLUDE\APISET.H	API header
\tw561ce\Cepanel\INCLUDE\BLOCK1.H	Block1 header
\tw561ce\Cepanel\INCLUDE\BLOCK2.H	Block2 header
\tw561ce\Cepanel\INCLUDE\CEFOOBAR.H	Platform builder link 'fix'
\tw561ce\Cepanel\INCLUDE\CPL.H	Control Panel header
\tw561ce\Cepanel\INCLUDE\ENUMS.H	Enum header
\tw561ce\Cepanel\INCLUDE\MTSAPI.H	MtsUtils.dll API functions
\tw561ce\Cepanel\INCLUDE\MTSLIN.H	Mtslin.dll header
\tw561ce\Cepanel\INCLUDE\MTSTYPES.H	Types header
\tw561ce\Cepanel\INCLUDE\MTSUTILS.H	3M Touch Systems Utility header
\tw561ce\Cepanel\LIB\X86REL\MtsPanel.lib	MtsPanel.cpl import library
\tw561ce\Cepanel\LIB\X86REL\MtsUtils.lib	MtsUtils.dll import library
\tw561ce\Cepanel\LIB\X86REL\MtsPanel.lib	MtsPanel.dll import library
\tw561ce\Cepanel\MtsPanel\CEARROW.H	Cursor offset
\tw561ce\Cepanel\MtsPanel\MISC.CPP	Miscellaneous control panel functions
\tw561ce\Cepanel\MtsPanel\MTSFREQ.H	Frequency header
\tw561ce\Cepanel\MtsPanel\MtsPanel.cpp	Control panel main module source
\tw561ce\Cepanel\MtsTouch\MtsPanel.def	Control panel export definitions
\tw561ce\Cepanel\MtsTouch\MtsPanel.h	Control panel header file
\tw561ce\Cepanel\MtsTouch\MtsPanel.ico	3M Touch Systems icon
\tw561ce\Cepanel\MtsTouch\MtsPanel.rc	Control panel resources
\tw561ce\Cepanel\MtsTouch\MtsPanel.vcp	Control panel project file
\tw561ce\Cepanel\MtsTouch\MtsPanel.vcw	Control panel workspace
\tw561ce\Cepanel\MtsPanel\MTSPEN.H	Pen header
\tw561ce\Cepanel\MtsTouch\PAGE1.CPP	Control panel property sheet page 1 source
\tw561ce\Cepanel\MtsTouch\PAGE2.CPP	Control panel property sheet page 2 source
\tw561ce\Cepanel\MtsTouch\PAGE3.CPP	Control panel property sheet page 3 source
\tw561ce\Cepanel\MtsTouch\PAGE4.CPP	Control panel property sheet page 4 source
\tw561ce\Cepanel\MtsTouch\PAGE5.CPP	Control panel property sheet page 5 source
\tw561ce\Cepanel\MtsTouch\RESOURCE.H	Control panel resource header
\tw561ce\Cepanel\MtsTouch\SHEET.CPP	Control panel property sheet source