



TSHARC™ Drivers Manual

UniWin Driver™ Rev 6.45

Windows® XP, 7

32-Bit and 64-Bit

RS-232 and USB

All TSHARC™ Analog Resistive and Surface Capacitive Controllers

Document Revision and Copyright

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Contact Information

Microchip Technology Inc
9055 N. 51st Street Unit H
Brown Deer, WI 53223
Main Phone: 414-355-4675
Main Fax: 414-355-4775
www.microchip.com/TSHARC



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Important Documents and User Information

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<i>Mailing Address</i>	<i>World Wide Web</i>	<i>Support E-mail Address</i>
Microchip Technology Inc. 9055 N. 51st Street Unit H Brown Deer, WI 53223 Main Phone: 414-355-4675 Main Fax: 414-355-4775	www.microchip.com/TSHARC	support@microchip.com
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Release Notes

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Microchip TSHARC Windows XP, Windows 7 Universal Driver, Release 6.45

Changes:

1. Windows 7 32-bit support
2. Windows 7 64-bit support
3. Windows XP 64-bit support - USB Only
4. Deprecated Windows 2k support
5. Support for system beep (legacy beep accessible via advanced view)
6. Updated application graphics
7. Bug fixes and stability enhancements

Installation Notes

Microchip drivers use the display-driver-software settings to configure various touch screen driver setup files. Install the display and display driver cards properly before installing any TSHARC touch screen controller drivers.

If the display is not configured and working properly prior to loading the TSHARC controller drivers, the TSHARC controllers will not function properly.

While Microchip goes to great lengths to insure that all of the controllers and drivers will provide the highest possible performance and will even improve the performance and extend the life of a poor quality or failing touch screen, the overall accuracy and stability of the calibration will be dependent on the quality of the touch screen. Linearity, sheet resistance, contact resistance, tail assembly, capacitance and the printed silver linearization pattern vary between touch screen manufacturers, construction, assembly and technology. For more information regarding touch screen constructions and types, contact Microchip Technology Inc.

Please take steps to insure another manufacturer touch screen controller driver is not installed on the system. If not completely removed, the other drivers may hinder the performance of this Microchip driver. Sometimes a restore of the original operating system may be required to ensure all previous drivers are completely removed. Many touch screen manufacturer uninstall programs do not completely remove all components of their drivers. Please review the associated drivers' manuals and/or contact the driver manufacturer to learn how to remove their driver programs completely from the system. In most cases, this information is available from the manufacturer's web site.

Microchip TSHARC controllers are universal by design. Configuration of the controller is available for any number of touch screen types as well as communication and power settings. Please check the TSHARC controller board to insure that the user-configurable configuration settings are set correctly for the desired application. It is essential that the system used is set-up properly. Please review this manual to insure the system is ready.

The users' manual for each Microchip TSHARC controller board is available at www.microchip.com/tsharc.

Once the system is verified to be working properly, proceed with the TSHARC controller driver installation procedure.

This driver release does not support PS2 communication. This driver release does not support RS-232 communication with WinXP 64-bit systems.

This driver release has not been fully tested and is not supported on Win95, 98, Server 2003, Windows 2000, and ME. We recommend using the UniWin 6.20cs or previously released drivers for these older operating systems.

Installing the TSHARC Driver

Installation of the driver for each instance of a serial controller is required. It is only necessary to install the driver once for multiple USB controllers.

- Connect the TSHARC controller(s) to the computer. See specific controller's user's manual for details. Connect all controllers before setup if possible. It is possible to add more controllers to the system later.
- Turn on the computer. If using a TSHARC USB controller, Windows will load a temporary driver. Please wait until Windows completes this process. It may take a minute or two.
- Run the "Setup.exe" program. Setup.exe is included in the Microchip TSHARC driver's disk or the driver's directory. This file contains the TSHARC driver files that are accessible by double clicking the icon.
 - Please move entire driver bundle to the desktop
 - Setup.exe must be executed within an administrator account.
 - Setup.exe must be executed with administrator rights
 - Do not install directly from a USB drive or a CD ROM
 - Please unzip the files before running setup.exe

A "Welcome to TSHARC" installation screen will appear. Follow the directions on the screen. Click "Next" to proceed.

Figure 7.1: Welcome Screen

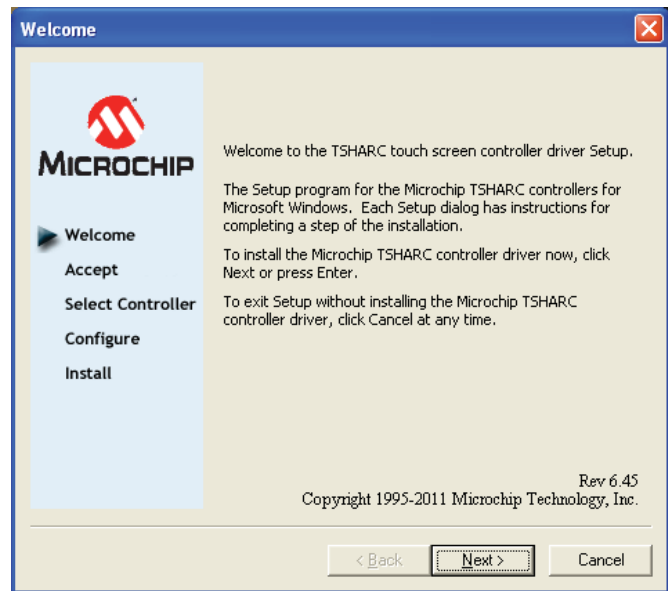
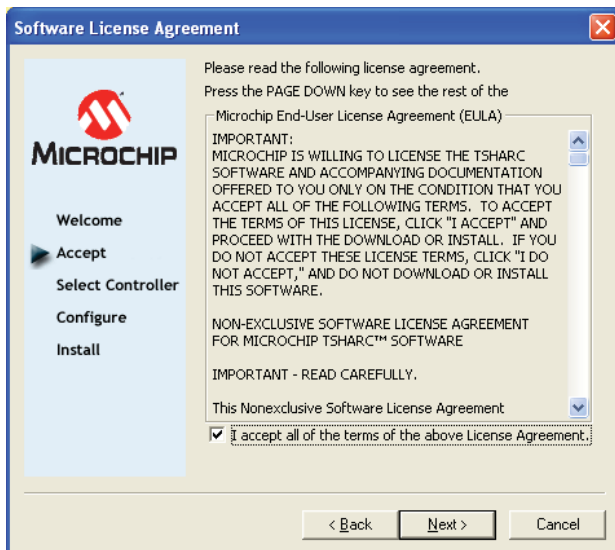


Figure 7.2: Accept MEULA



Microchip End User License Agreement

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 if there are any questions regarding the license agreement. The user must agree to Microchip's license agreement to proceed with the installation process,

Review the information and check the box at the bottom of the screen. Click "Next" to proceed.

Using a TSHARC driver with any third party touch screen controller is not in accordance with the license agreement and is strictly prohibited.

Select TSHARC Controller Type

The 12- or 10-bit controller radio button is selected on this screen.

If connecting a TSHARC-8 controller, please contact Microchip Technology for additional support.

If a Microchip TSHARC controller has been serially connected, the auto-detect button can be used to automatically configure the controller. This method is recommended and shown in Fig. 8.1.

If using a USB connected controller, select the radio button for USB.

TSHARC USB controllers are HID compliant. Installing the USB TSHARC driver is integral for controller performance. Even though a generic HID driver will load, the TSHARC driver allows for correct calibration of the system. Installing the TSHARC driver will insure proper functionality and configuration of the controller.

Options and configurations can be modified throughout this setup until the driver is installed.

Once the controller type is selected, click "Next" to proceed.

Figure 7.3: Select Controller

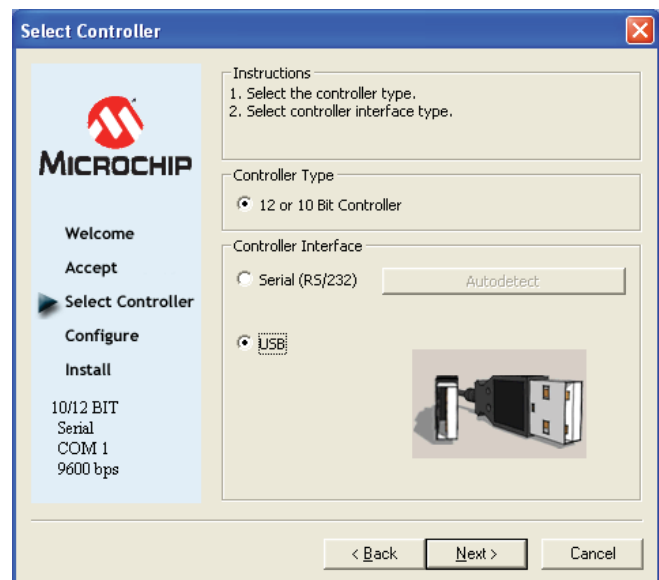
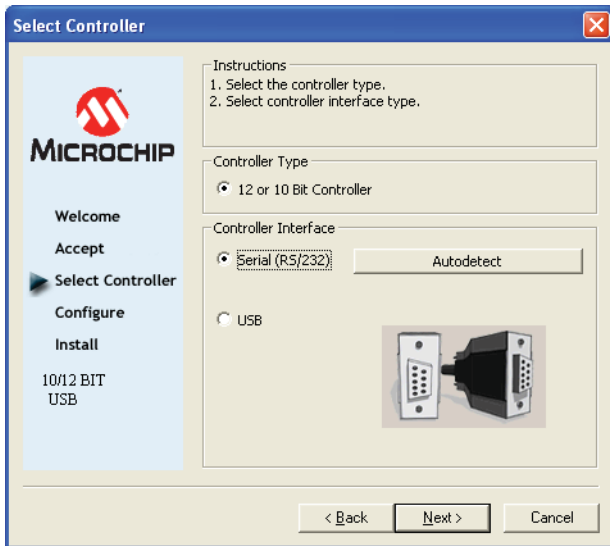


Figure 8.1: Autodetecting Serial Controller



Automatically Detect a Serial TSHARC Controller

Selecting the “autodetect” option will automatically detect the TSHARC RS-232 touch screen controller product on any of the system’s available COM ports.

Autodetect will only find a serially connected controller.

USB controllers will not be found using autodetect, but will not be affected by running the autodetect.

Manual configuration of the serially connected controller is available. Fig. 8.2 shows this procedure.

To run the autodetect, click the “Autodetect” button and wait a moment to find the controller. A window will appear. Once a controller is detected, click “OK” to accept and close the window. Click “Next” to continue the installation process.

If another instance of the RS232 driver is present on the system, the corresponding COM port will not be scanned. Only available COM ports will be scanned using the autodetection feature.

When autodetect is used, installation will skip to Fig. 8.3.

Additional configuration of your system may be required for 64-bit Win7 operation. Please see the “Manual Serial Controller Setup” section for details.

RS-232 communication is not supported in 64-bit WinXP.

Manual Serial Controller Setup

To manually install the TSHARC serial controller, select the “Serial” communication radio button and then select “Next”.

Select the appropriate settings for the controller using the radio buttons as shown in Fig 8.2. Labeled on this screen are the default settings.

If using a custom controller from Microchip that is set to another baud rate, select the appropriate baud rate here.

All standard Microchip TSHARC chips and production boards are 9600 baud. This is used as the ‘default’ setting.

Select “Next”.

Additional Win7 64-bit RS-232 installation instructions can be found within this manual under “Trouble Shooting”

Figure 8.2: Serial Configuration

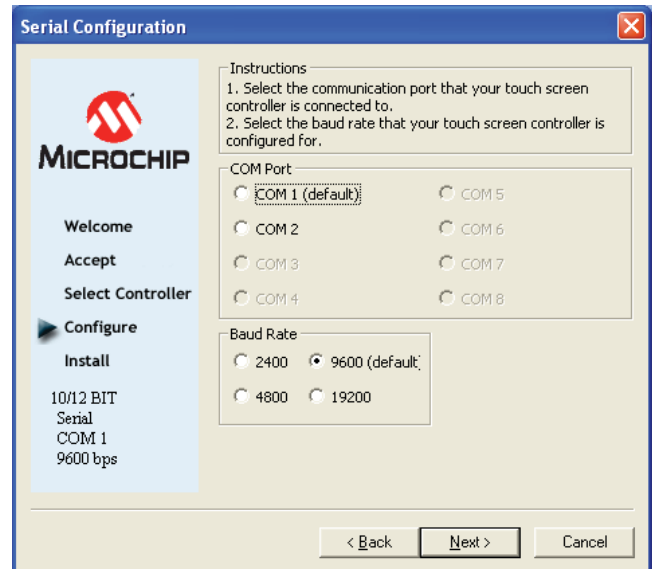
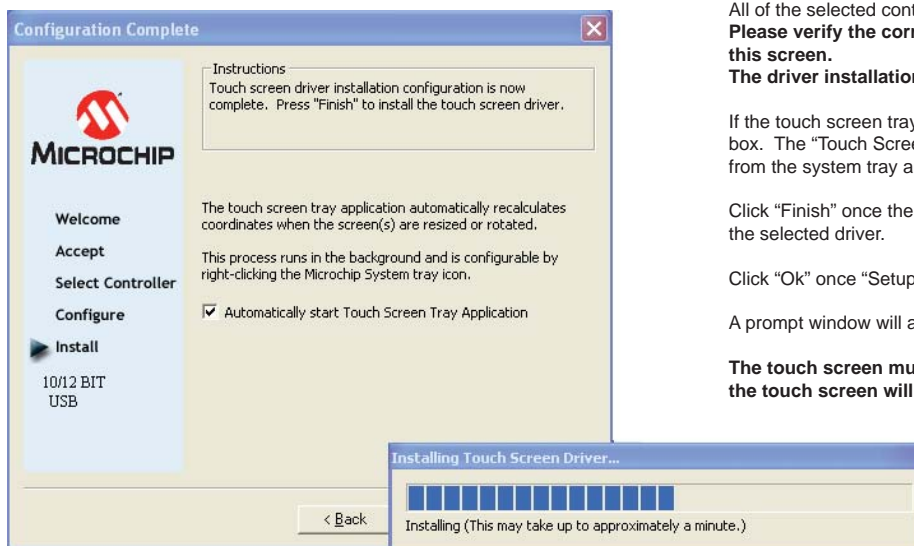


Figure 8.3: Configuration Complete



Completing the Installation Process

All of the selected controller attributes are listed on this screen.

Please verify the correct configuration information located at the bottom left of this screen.

The driver installation will be completed once “Finish” has been selected.

If the touch screen tray-application to the “System Tray” is desired, select the check box. The “Touch Screen Tray Application” will launch the TSHARC control panel from the system tray and provide display rotation support. **More details on page 9.**

Click “Finish” once the driver is configured. It may take a couple minutes to install the selected driver.

Click “Ok” once “Setup is now complete” appears.

A prompt window will appear if a reboot is required.

The touch screen must be calibrated by running the calibration routine before the touch screen will work properly. More details are on Page 9.

TSHARC Tray Application

The TSHARC tray application is installed by default. This application is necessary on systems:

- Requiring Multi-Monitor support.
- That require support for display rotations.
- Requiring the Control Panel Icon in the system bar tray.

Two menu items in TSHARC tray menu that appear when right-clicking the tray application are “Start Tray Application on Startup” and “Do Not Start Tray Application on Startup”.

If the “Start Tray Application on Startup” menu item is selected, then the TSHARC tray application will launch automatically after logging into the system.

If the “Do Not Start Tray Application on Startup” menu item is selected, then the TSHARC tray application will not launch automatically after logging into the system.

Figure 9.1: System Tray Application



Launching the TSHARC UniWin Control Panel

Use the TSHARC control panel to configure and calibrate the touch screen.

To run the TSHARC control panel:
Start> Programs> Microchip TSHARC Control Panel

Note: If the user selected the “start touch screen tray application” as shown in Fig. 9.1, then the TSHARC Control Panel icon will also be in the system tray. It is possible to also launch the control panel using this icon in the system bar tray.

Screen Selection Tab

Use this tab to select and configure the current monitor. The system can use multiple monitors, but each requires its own configuration.

Note: Microchip’s TSHARC control panel is configured to run a calibration if left idle for 10 seconds. Use of this auto-launched calibration will quickly calibrate the touch screen. Complete this calibration routine or the routine will time out after 10 seconds if left idle. Pressing the “Esc” key will also terminate this calibration routine.

If you do not have a multi-monitor application, skip to the “Calibration Modes” section.

This screen shows a graphic representation of the monitors installed on the system.

Select the image of the display whose properties you would like to adjust. Upon selecting a monitor, all subsequent configuration settings will be associated with that monitor.

Once one of the monitors has been configured and calibrated, it is necessary to return to this tab and select the other display to adjust its associated properties.

Every time a controller attribute is changed or configured, the APPLY button must be pressed to retain the settings.

Figure 9.2: Screen Selection Tab

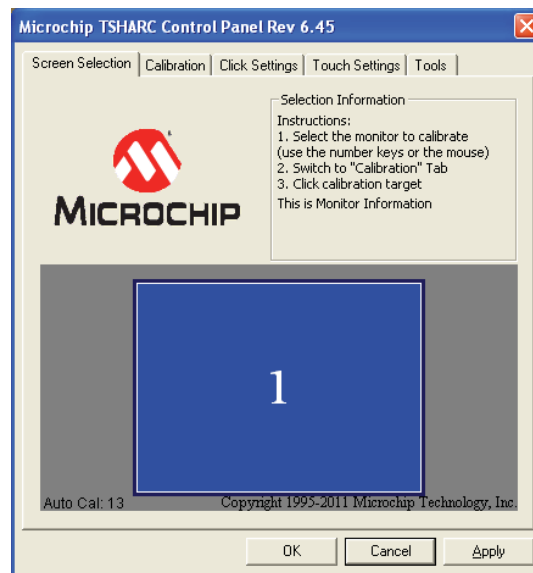
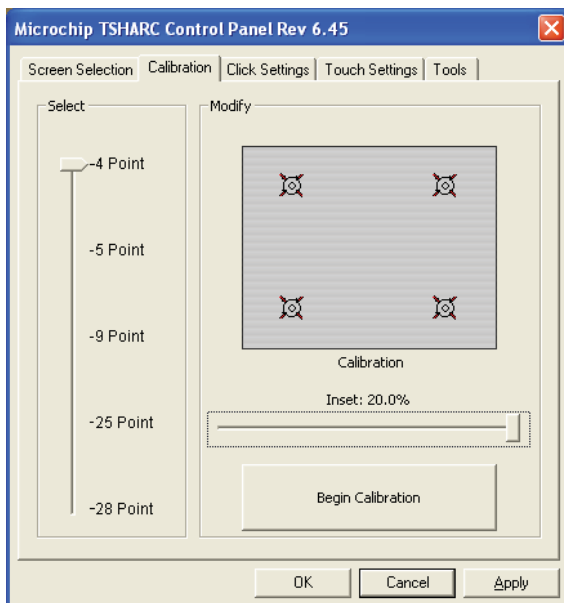


Figure 9.3: Calibration Tab



Calibration Options Tab

The Calibration Selection Tool is located on the left hand side of the Calibration Tab.

The Calibration Routine map is shown on the right side of the tab.

This also shows a slide-bar used to select the inset percentage for that calibration. This option is detailed in the “Calibration Inset Option” on page 10.

The more points used during a calibration, the more precise the calibration results will be.

The button on the bottom right of the Calibration Tab will run the selected calibration mode.

While most 4- and 8-wire sensors will only require a 4 or 5 point routine, some 4-, 5-, and 8-wire sensors will need more points to insure a good calibration.

Please be sure to pick the calibration routine option that yields the best possible calibration for your integrated system.

Calibration Inset Option

Use calibration inset to bring the calibration routine targets away from the edge of the display. This eliminates any physical limitations put into place by the screen's bezel.

Adjust the value of inset by using the slide-bar at the bottom of the Calibration tab.

It may be necessary to fine-tune the inset percentage to get the best possible bow correction. Different calibrations have different defaults and allowed ranges for insets. Microchip recommends using the smallest inset possible when performing a calibration. Default recommended calibration inset values depend on the number of points selected.

4pt., 5pt. – 20% Inset

9pt., 25pt., 28pt. – 2% Inset

Set parameters for calibration and begin calibration by touching, or clicking, the large "Begin" button.

Figure 10.1: Inset Calibration Targets

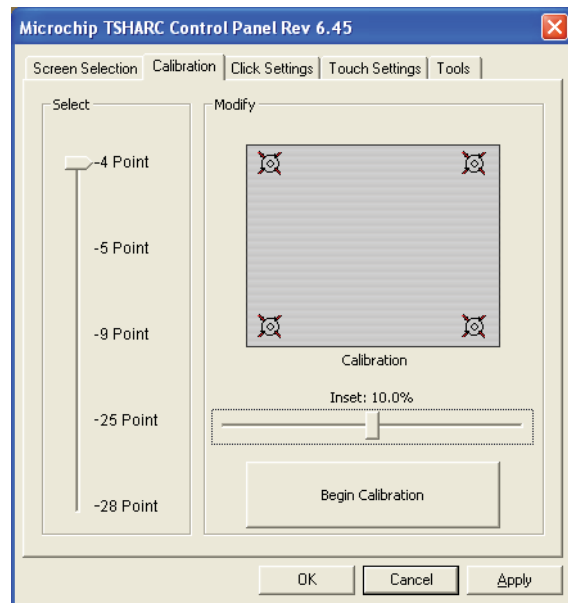


Figure 10.2: Calibration Point



Calibration Routine

It is important that all calibration routines be completed using a finger or a stylus.

Using the available mouse will not calibrate the touch screen, but will shrink the targets during a routine.

Each target of the calibration routine will appear one at a time.

TOUCH and HOLD the center of each target as directed by the text displayed adjacent to each target. Hold the center of each calibration target until it shrinks and the "Hold" text changes to "Release".

Touch the center of each target as accurately as possible. Microchip's specially designed calibration targets assist in calibrating the touch screen as accurately as possible. If using a stylus during operation, calibrate with a stylus. Be sure to position in front of the touch screen as it will normally be used, sitting or standing. This will reduce error when calibrating the touch screen.

The calibration screen will automatically time out and return to the control panel if the first point if the first target is not activated within 10 seconds. This time-out feature insures that the user can exit the calibration screen in the event that the user has incorrectly calibrated the touch screen or the touch screen has been damaged or disconnected from the host computer.

In-Process Calibration Test

This is the last screen of calibration process.

Touch the screen and observe if the calibration target is displayed under your finger or stylus.

Check many different points on the screen, as one inaccurately calibrated point may not be noticeable immediately. Also, check along all edges to insure accuracy.

There is a timer displayed on the Cancel button. When this timer expires, the settings will not be saved, and you will return to the Calibration Tab screen.

Select "Accept" to apply and record your calibration data. Select "Cancel" to return to the calibration tab without recording calibration data. Either selection will return the user to the Calibration tab.

Once returned to the Calibration tab, select, "OK" or "Apply" to save settings.

Note that if using multiple touch-screen monitors return to the "Screen Selection" tab shown in Fig. 9.2 and select another monitor to calibrate following this same process for each monitor.

Note: The drawing test is now located in the Tools tab. Shown in Fig. 12.1 is the drawing test in the "Drawing Test" section.

Figure 10.3: In Process Calibration Test

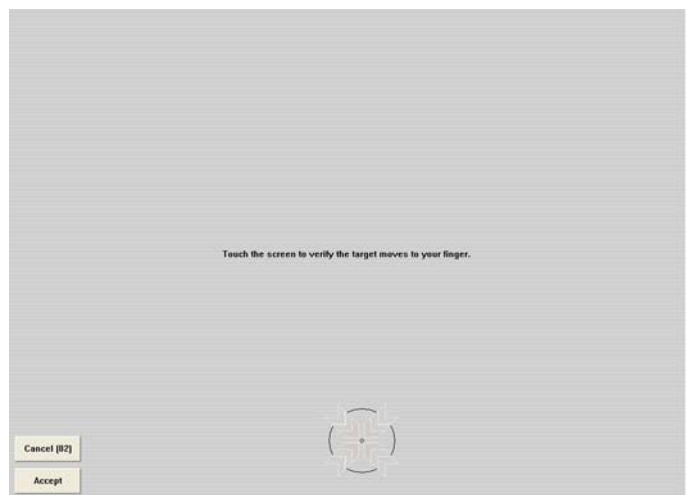
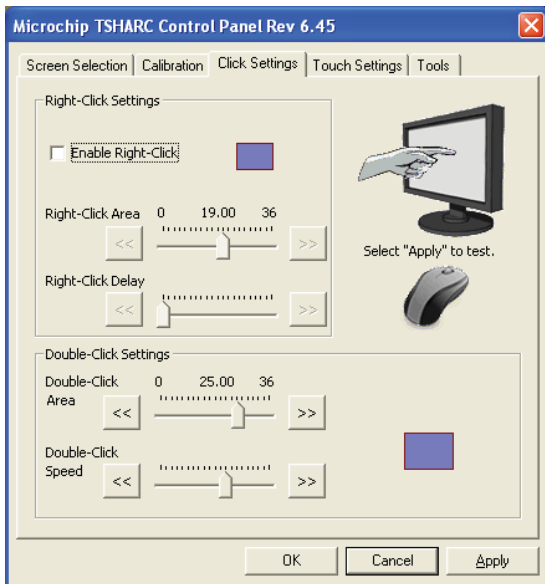


Figure 11.1: Click Settings Tab



Click Settings Tab

Right Click

Microchip developed the "timed hold" right-click mouse event. This allows the user to initiate a "right click" by holding down a touch point for a specified period. Check the "Enable Right-Click" box to enable the right click option.

Right Click Area

The event area should be set to an area that is slightly larger than the activator tip. If the activator is a fingertip, the right click area should be at least as big as your fingertip.

Right Click Delay

Set the "Right-Click Delay" value to the preferred time needed to produce a right click event.

Double Click Area

Set the area that will allow for a double left-click event. This area should be set to an area that the user can accurately touch twice. If this area is too small, the user may not be able to create a double left-click. If the area is too large, the user may activate double-clicks when not intended.

Double Click Speed

Set this to allow a sufficient amount of time needed to perform a double touch in the specified area. If this setting is too high, the user may not be able to touch quickly enough to create a double left-click. If the setting is too low, the user may commonly issue double-clicks when not intended.

Click or touch "Apply" to apply selections. Click "OK" to apply and exit the control panel.

Touch Settings Tab

Touch Sound

Check "Enable touch sound" to enable a sound when sending a touch point.

To change the .wav file played:

- Go to the Start menu and select the Control Panel
- Open "Sound and Audio Devices" and select the "Sounds" tab
- Locate "Default beep". This entry is selected by the UniWin driver to play on each touch event
- Select "Apply" to apply the changes

Normal

This mode emulates a standard mouse. Selecting "Normal" will allow for single click, double click, drawing, dragging and right click option. This mode will allow the cursor to operate as a computer mouse typically would.

Touch-down

Touch-down mode will allow for a click event to take place at "touch-down". This mode will allow the cursor to operate as a single button-press or a single left-click of the computer mouse. The user will not be able to draw or drag if selecting this option.

Touch up

A touch is sent only at touch-up in this mode. Once lifted, the touch will register as a single left-click or button press. It also disables right click.

Click or touch "Apply" to apply the selection. Click "OK" to apply and exit the control panel.

Figure 11.2: Touch Settings Tab

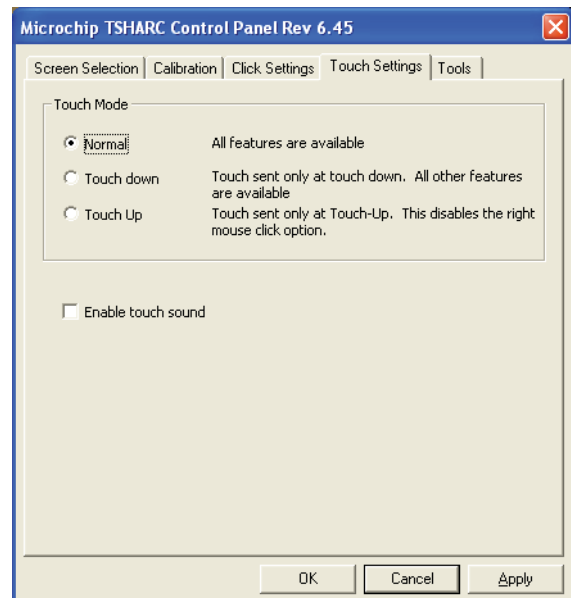
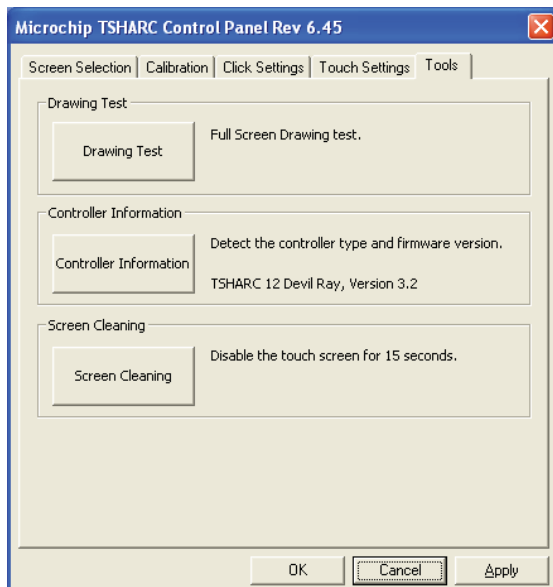


Figure 11.3: Tools Tab



Tools Tab

Drawing Test

The drawing test will display a full screen window to test calibration. Please refer to Fig. 12.1 for clarification.

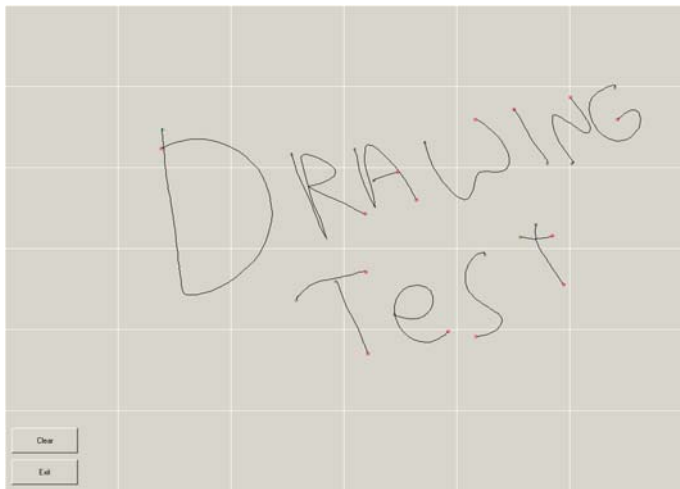
Controller Information

The control panel will identify the type of controller. This information will appear directly next to the button. This includes controller type and firmware version.

Screen Cleaning

This button will disable the touch screen for 15 seconds. During this time, clean the screen without touch input. A countdown timer is displayed below the description.

Figure 12.1 Drawing Test



Drawing Test

Run a "Drawing Test" to insure an accurate calibration.

Select the Tools Tab of the control panel and click or touch the "Drawing Test" button to begin the test. This is a simple drawing program used to determine if the touch screen is working properly.

Draw on the screen with a finger or stylus and notice if the screen is displaying the movement accurately. The green circles indicate a "pen down" while the red indicates a "pen up" on the touch screen. A "Clear" button is included so the user can start the drawing test over within the same trial run.

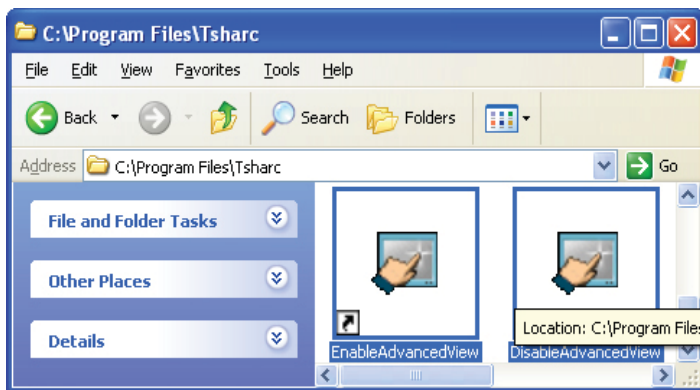
Click or touch "Exit" to exit the drawing test screen.

Uninstalling the Driver

- 1) Open Add/Remove Programs
(Start Menu -> Settings -> Control Panel->Add/Remove Programs)
- 2) Select "Touch Screen Controller Uninstall" from the list. This will run the Microchip TSHARC uninstall program.
- 3) Click "Remove" button
- 4) Read the Message Box and then accept.
- 5) Reboot the system when prompted

Advanced View Features

Figure 12.2: Enable/Disable Advanced View Shortcuts



Enabling/Disabling Advanced View

By default, all of the most commonly used features are displayed in the TSHARC control panel and the TSHARC tray application.

Some of the less frequently used advanced features are hidden from the interface.

To make these interface features visible, double-click the shortcut labeled "EnableAdvancedView" in the "<system root>/Programs Files/Tsharc" directory.

If advanced view is enabled,

- Additional linearization/alignment options will appear in the "Calibration" tab.
- The Edge Acceleration tab will be available.
- Additional rotation direction options will appear in the TSHARC tray application.
- There is an added option for legacy hardware beep support in the Touch Settings tab.

To hide these advanced features from the interface, double-click on the "DisableAdvancedView" shortcut.

Linearization / Alignment

Linearization and alignment options additionally appear in advanced view for advanced users that wish to have control over linearization and alignments.

In the "Advanced View" Calibration Tab, 9, 25 and 28 point options appear as linearizations. Four and Five point option appear as either alignments or calibrations.

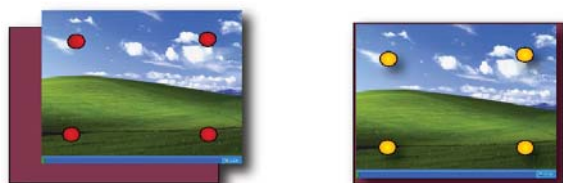
If the "Use linearization" check box is checked, the 4 and 5 point options will appear as alignment, otherwise these options will appear as calibrations.

Since a linearization must occur before an alignment, an alignment will not be allowed if a linearization has not yet been performed.

Figure 12.3: Linearization



Figure 12.4: Alignment



Edge Acceleration Tab

Edge acceleration enables the user to systematically accelerate the cursor to the edge of a touch screen display without touching the active area edge.

Without this feature, it is generally difficult to reach the outer edge because of the limitations the display bezel may impose on the user to reach the edge of the display.

Use edge-acceleration for systems that implement an “auto-hide” task bar or buttons at the edge of the display.

The Edge Acceleration tab enables the user to set the point at which edge acceleration will take effect. Adjust each edge between 0% and 25% of the total display area.

To move the edge, click and drag one of the four arrows located around the inner rectangle. The corresponding percentage of total area will change as the arrows move. Be careful not to set these percentages too high, as it will make it difficult to use the touch screen normally. Typically, values should be set at approximately 5% if using this utility.

Figure 13.1: Edge Acceleration Tab

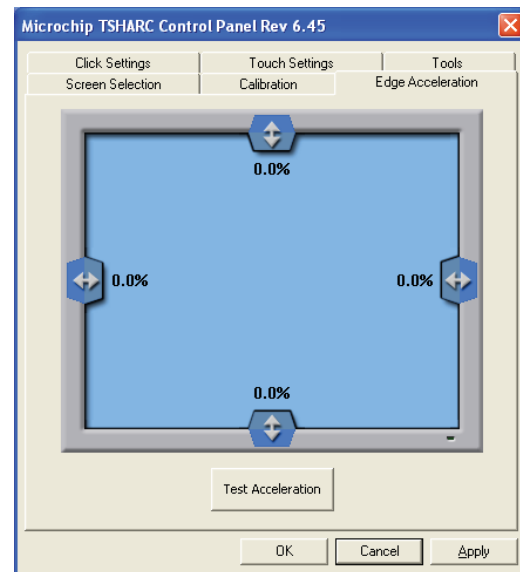
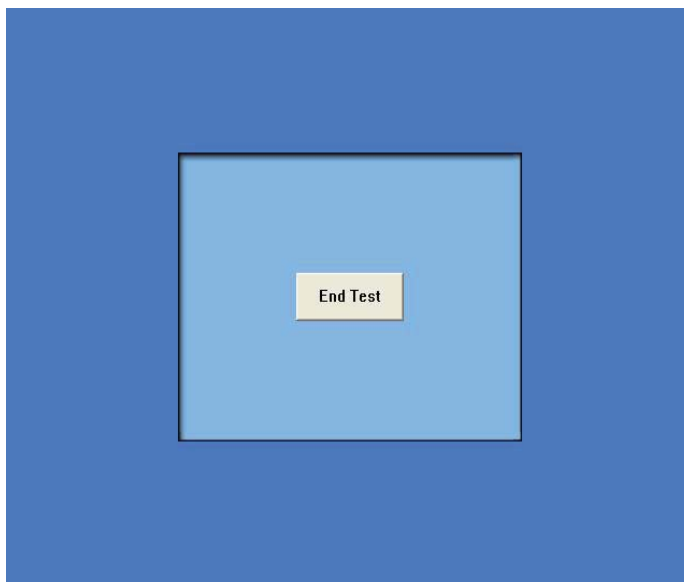


Figure 13.2: Edge Acceleration Test Screen



Edge Acceleration Test

Use the “Test Acceleration” button to test edge acceleration settings before applying them. Ending this test will return the user to the “Edge Acceleration” tab. If needed, adjust the edge acceleration settings and test these settings again until the user has achieved correct performance.

The cursor will not be directly under the stylus or fingertip when in the shaded region.

Enabling / Disabling EEPROM Communication

Calibration and touch data is stored in the registry or both the registry and EEPROM.

By default, only the registry is used to store calibration and touch data to ensure maximum performance when saving calibration and touch setting.

For controllers that support EEPROM, the driver can be configured to write to both the registry and EEPROM.

- The controller may be taken from one system to another system while still retaining calibration and touch settings.
- Calibration and touch settings are retained even if the driver is uninstalled and re-installed.

To enable this functionality, double-click the shortcut “EnableEEPROM” in the “<system root>/Programs Files/Tsharc” directory.

If EEPROM support is enabled, the driver will write to both the registry and EEPROM when writing calibration or touch settings.

To disable this functionality, there is a shortcut labeled “DisableEEPROM” that can be double-clicked in this same directory.

If EEPROM support is disabled, the driver will only write to the registry.

Figure 13.3: Enable/Disable EEPROM Shortcuts

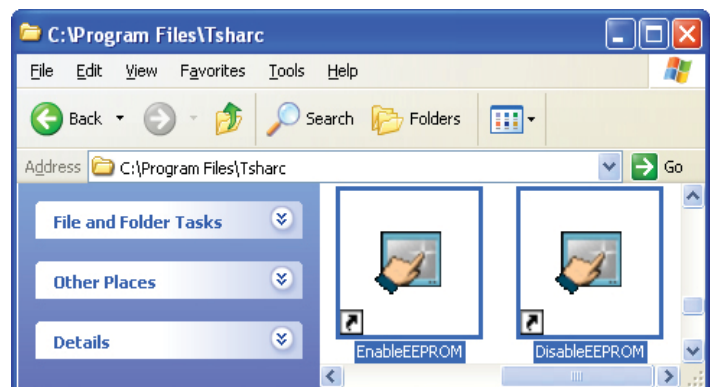
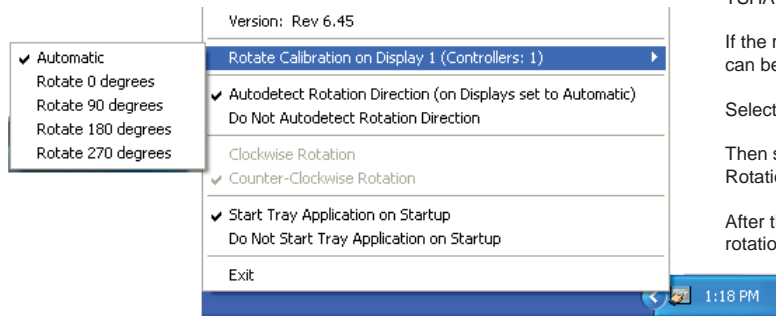


Figure 14.1: Rotation Tray Menu



Rotation Tray Menu

In advanced view, four additional menu items appear when right-clicking on the TSHARC tray menu.

If the reported rotation direction from the display driver is known, the TSHARC driver can be adjusted accordingly to match the rotation report.

Select the menu item "Do Not Detect Rotation Direction".

Then select the rotation direction "Clockwise Rotation" or "Counter-Clockwise Rotation" that corresponds to the system's display driver.

After this is selected, the autodetect rotation screen will not appear after a 90 degree rotation clockwise or counter-clockwise.

Compatibility Mode

Some display drivers fail to report the orientation or incorrectly report zero degrees when the rotation orientation is not at 0 degrees.

In this scenario, it is not possible to detect all four orientations.

Compatibility mode will analyze the display resolution to detect this scenario and then enable compatibility mode such that only the display resolution is used to determine the display orientation. **In compatibility mode only landscape mode and portrait mode are supported rather than all four orientations.**

Figure 14.2: Compatibility Mode Activated Menu

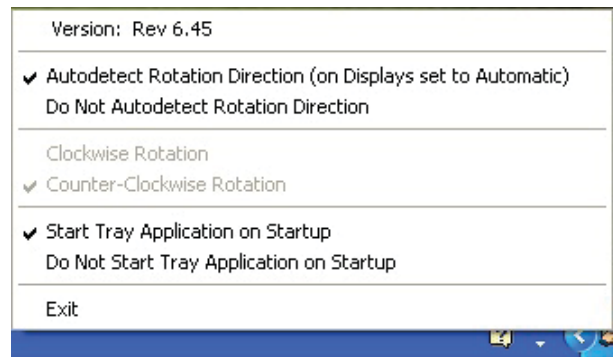
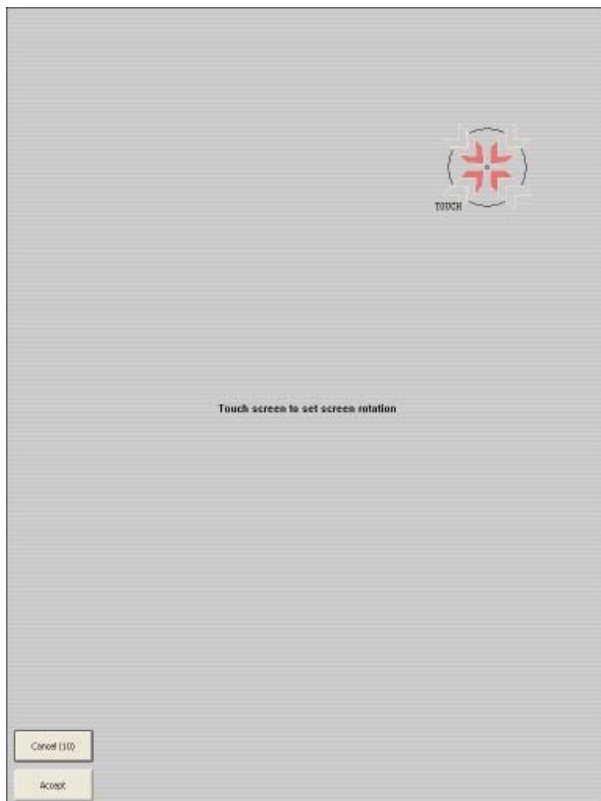


Figure 14.3 Auto Detect Rotation Screen



Auto Rotation Screen

A calibration routine must be completed before implementing Rotation Support. This insures the original rotation state is recorded.

The first time after a 90 degree display rotation, clockwise or counter-clock, a rotation detection screen appears with a target in the upper-right side.

After touching this target, the window disappears and the sensor will be calibrated in the new orientation.

This window only appears once after installation regardless of how many times a calibration routine is run.

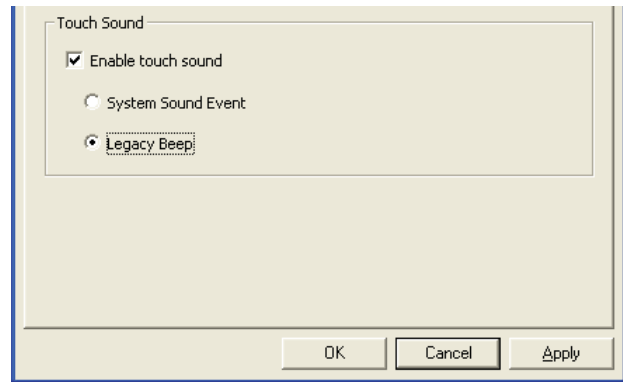
Legacy Beep

Figure 15.1: Legacy Beep Selection

The Legacy hardware beep is still available with the UniWin driver version 6.41.

This beep is played through the hardware, not the speakers of the system.

To select the Legacy Beep option, Advance View must be activated. Select "Enable Sound" and then choose "Legacy Beep".



Command Line Options

The UniWin Driver will support customized setup and calibration command line options.

These commands will allow the user to pre-configure the TSHARC driver setup and calibration programs to run in an application-specified manner.

"Setup.exe" Installation Command Line Switches

Use "Setup.exe" to install the TSHARC touch screen controller driver. Customize this procedure during setup. Common use of this feature is to eliminate the choices available to the user during the setup process. The selected TSHARC touch screen controller, the communication and the communication port location, the baud rate and the controller type are all able to be identified. Review the following switches to determine if a specific command line setup operation is to be used.

Note: TSHARC standard products require the user to install the TSHARC-10 or TSHARC-12 controller board option only. The TSHARC-8 command is for legacy support only. TSHARC standard products support 9600 baud by default.

Run these files from the "Run" command in the start menu.

NOTE: Use " " in the data path. No " " is needed when running from the command prompt.

Example: "C:\Program Files\Tsharc\hwincal.exe" or, from the Start> Programs > Microchip TSHARC Control Panel properties screen or from the command prompt.

Place these commands together into a single command line in any order. Certain configurations require multiple commands to be set on a single command line.

Table 15.1: Setup.exe Command Line Switches

Command	Usage	Example / Description
Com<Number>	-Com<Number> between 1 and 8	"C:\Program Files\Tsharc\setup.exe" -com2 Sets the default communication port to communication port number placed in the number field.
Serial	-Serial	"C:\Program Files\Tsharc\setup.exe" -Serial Sets the default communication during setup to be Serial
USB	-USB	"C:\Program Files\Tsharc\setup.exe" -USB Set the default communication during setup to be USB
Silent	-Silent -Serial -Com<x> -Silent -USB	"C:\Program Files\Tsharc\setup.exe -Silent -Serial -Com1 -9600" Sets the setup to Serial, Com port 1, at 9600 Baud "C:\Program Files\Tsharc\setup.exe -Silent -USB" Sets the setup to USB Administrative rights must be established to correctly perform a silent installation on Windows 7 systems.

“Hwincal.exe” Calibration Command Line Switches

The Hwincal.exe program calls the TSHARC control panel. In addition to calling the control panel, it is possible to perform specific functions using the switches listed in Table 16.1. These commands must be run from the Program files/Tsharc/ directory. They are typically used in combination with associated commands.

Example: Hwincal -q4 -i20 -d2 which will perform a quick 4 point calibration with a 20% inset on display two.

These files can be run from the “Run” command in the start menu.

NOTE: Use “ ” in the data path. No “ ” is needed when running from the command prompt.

Example: “C:\Program Files\Tsharc\hwincal.exe” from the Start> Programs > Microchip TSHARC Control Panel properties screen or from the command prompt
You may string these commands together into a single command line in any order you like.

Table 16.1: Hwincal.exe Command Line Switches

Command	Usage	Example / Description
-q	-q<number> Use this parameter for a quick calibration where <numpoints> is set to a number of calibration targets supported in the control panel. Usage of this parameter results in a bypass of the normal control panel startup and will go directly to the calibration screen. This parameter is required for any kind of quick calibration. If the “-cal” and “-align” parameter are not specified, the default type is a linearization type.	“C:\Program Files\Tsharc\hwincal.exe” -q5 Starts “Quick Calibration” program with 5 point calibration. If no calibration number matches, one with more points is selected. Defaults: Four points is the default number of calibration targets.
-i	-i<inset percentage> This parameter specifies the inset percentage in the calibration targets and how close they will appear from edge of the display. This parameter must also be used in conjunction with the “-q” parameter.	“C:\Program Files\Tsharc\hwincal.exe” -i10 Starts the calibration program with 10% inset. Some other example inset percentages are 5, 10, 15, 20. Defaults: same as defaults found in the control panel
-d	-d<displayID> This parameter specifies the display ID to use for the calibration. The <displayID> can be determined by looking at the “Screen Selection” tab on the TSHARC control panel or at the Windows display settings applet (found by opening the Windows Control Panel, click on the “Display” icon and then clicking on the “Settings” tab). This parameter must also be used in conjunction with the “-q” parameter.	“C:\Program Files\Tsharc\hwincal.exe” -d2 Starts the calibration program on the #2 display. Defaults: The default is the primary monitor
-Align	-Align This parameter causes an alignment to be stored as a result of touching the calibration targets. This parameter must also be used in conjunction with the “-q” parameter.	“C:\Program Files\Tsharc\hwincal.exe” -Align Sets the calibration type to alignment for quick calibration.
-Lin	-Lin This parameter causes a linearization to be stored as a result of touching the calibration targets. This parameter must be used in conjunction with the “-q” parameter. If “-align” and “-cal” are not specified, this is the default that is selected.	“C:\Program Files\Tsharc\hwincal.exe” -Lin Sets the calibration type to linearization for quick calibration.
-Cal	-Cal This parameter causes a calibration to be stored as a result of touching the calibration targets. This parameter must also be used in conjunction with the “-q” parameter.	“C:\Program Files\Tsharc\hwincal.exe” -Cal Sets the calibration type to calibration for quick calibration.
-e	-e<0 or 1> This parameter either enables or disables read and write access to EEPROM. Using “0” with the “-e” command will disable EEPROM, while “1” will enable EEPROM access.	“C:\Program Files\Tsharc\hwincal.exe” -e0 Disables read/write functionality to EEPROM. Defaults: EEPROM support is disabled by default.
-v	-v<0 or 1> This parameter enables or disables the advanced view of the control panel. Using “0” with the “-v” command will disable advanced view of the control panel, while “1” will enable advanced view.	“C:\Program Files\Tsharc\hwincal.exe” -v1 Enables advanced view of the control panel. Defaults: Advanced view is disabled by default when viewing the control panel.
-solo	-solo This parameter causes only the target display to be covered instead of the default behavior which is to cover all of the displays. Also, when the -solo option is used, the mouse cursor will not move during calibration. Usage: This parameter must be used in conjunction with the “-q”, “-i”, and “-d” parameters.	“C:\Program Files\Tsharc\hwincal.exe” -solo Starts the calibration program on the display identified by -d.
-kick	-kick This parameter is used to update changes made to the driver. For example, if the registry is updated, the -kick command must be executed for the changes to take effect.	“C:\Program Files\Tsharc\hwincal.exe” -kick

Using the UniWin 6.45 driver on XP Embedded Systems

Installing the driver directly on an XPE target

If there are existing XPE systems already setup with all the necessary driver components, installing the UniWin 6.45 driver directly on the target XPE system may be the most convenient option. However, to ensure maximum compatibility with the UniWin 6.45 driver and for convenience, it is often preferred to use Microsoft Windows Embedded Studio to generate XPE image file with the required component dependencies automatically selected with the UniWin 6.45 driver automatically installed. The documentation below describes how to use Microsoft Windows Embedded Studio in conjunction with the UniWin 6.45 driver.

Importing the TSHARC Components into the component database

In order for the TSHARC components to become available within the Target Designer application, it is necessary to first import the TSHARC components into the component database. The following steps describe this process:

1. Start the Microsoft Component Database Manager application.
2. Click on the "Import" button from within the "Database" tab. The "Import SLD" dialog will now appear.
3. Click on the "... " button that is located to the right of the "SLD file" text box. Select the "xpe.sld" file from the UniWin 6.45 driver installation directory.
4. Click the "Open" button.
5. If this is the first time importing this SLD file, the "Copy repository files to repository root" checkbox must be checked; otherwise this checkbox should be left blank.
6. Click the "Import" button. The message "Import Succeeded. Changes to the database have been committed. File(s) Processed: 1, File(s) Succeeded: 1" should now appear. The TSHARC component has now been successfully imported into the database.

Generating compatible set of components using Target Designer

There are different methods for creating an XP Embedded image using Target Designer such that it works with the target machine's devices. Two methods that we recommend are as follows:

- Generating compatible components using a PMQ file. Generally, the easiest method is to generate a PMQ file on the target system and import this into Target Designer. After this, components can be added and/or removed.
- Generating compatible components using a Target Designer macro. If size is a concern, sometimes it is easier to start with one of the macros that Target Designer provides. After verifying that a macro is compatible with the target system, additional components can then be added and/or removed based on needs.

Generating compatible components using a PMQ file

1. There is a utility application TAP.EXE (Target Analyzer) in the utilities subdirectory off of the Windows Embedded directory. This application should be run with Windows XP environment from the target machine. After this application is run a "devices.pmq" file will be generated. This file needs to be copied to the XP Embedded machine or removable media for later use. If it is not possible to run tap.exe from an XP operating system of the target machine, the DOS application TA.EXE may be used instead. It is worth noting however that the PMQ file generated from TA.EXE contains less information than the PMQ file generated from TAP.EXE.
2. Start the Target Designer application.
3. Select "File->New" from the menu and choose a name for the configuration.
4. Select "File->Import..." from the menu. A dialog should now appear asking for a file to import.
5. Select the PMQ file generated from running TAP.EXE or TA.EXE on the target machine.
6. Click the "Open" button. An "Import File" dialog should now appear.
7. Click the "Start" button. The appropriate components will now be added to the configuration.
8. Click the "Close" button. The detected components will be displayed.
9. The TSHARC component can now be added to the configuration. This component can be found under "Hardware : Devices : Mice and other pointing devices". Right-click this component and select "Add".
10. Additional components for the image can now be added and/or removed based on needs. Templates are available in Target Designer to simplify this process so an appropriate set of components can be selected.

Generating compatible components using a Target Designer macro

1. Start the Target Designer application.
2. Select "File->New" from the menu and choose a name for the configuration.
3. Add a template that best describes the target machine or a macro from "Software : Test & Development". Note: All our SLD files have been verified as correct working with the "WinLogon Sample Macro" since this macro results in an image that works correctly on most hardware platforms.
4. Additional components for the image can now be added and/or removed based on needs. Templates are available in Target Designer to simplify this process so an appropriate set of components can be selected.

Selecting TSHARC components and building using Target Designer

1. Any combination of TSHARC components that is appropriate for the XPE target machine can now be added to the configuration. This component can be found under "Hardware : Devices : Mice and other pointing devices". Right-click this component and select "Add". For example, if there is a TSHARC controller connected to COM1, choose the "TSHARC 6.45 COM1" component. Note: If using the "TSHARC 6.45 USB" component, it is important that the proper universal host controller must be added to the configuration. Usually this is automatically done during the process of importing a .PMQ file, however if the proper universal host controller is not added to the configuration, all USB devices will fail to respond when attached to USB ports. The proper host controller can usually be found under "Hardware : Devices : Universal Serial Bus Controllers". For example, for a recent VIA motherboard, the "VIA Rev 5 or later Universal Host Controller" should enable USB devices to work.
2. Select "Configuration->Check Dependencies" from the Target Designer menu.
3. If the current Target Design configuration has dependency errors, continue to resolve these dependency errors and run the previous step until all dependencies have been resolved. Please see the Target Designer documentation on the appropriate ways to resolve dependencies.
4. Select "Configuration->Build Target Image" from the menu.
5. Click the "Build" button. By default, these files are created in the "C:\Windows Embedded Images" directory.
6. Copy XPE files that were generated to the XPE storage drive. Please see the Microsoft Windows Embedded Studio documentation on transferring XPE image files onto an XPE storage drive.

Removing the TSHARC components from the database

1. Start the Microsoft Component Database Manager application.
2. Click on the "Packages" tab.
3. Select "TSHARC 6.45 components" and click on the "Delete" button. Note: Change permissions on the "Repositories" share are required to delete packages from the repository (with the "Delete all repository files" checkbox selected) using the Microsoft Component Database Manager application.

Troubleshooting

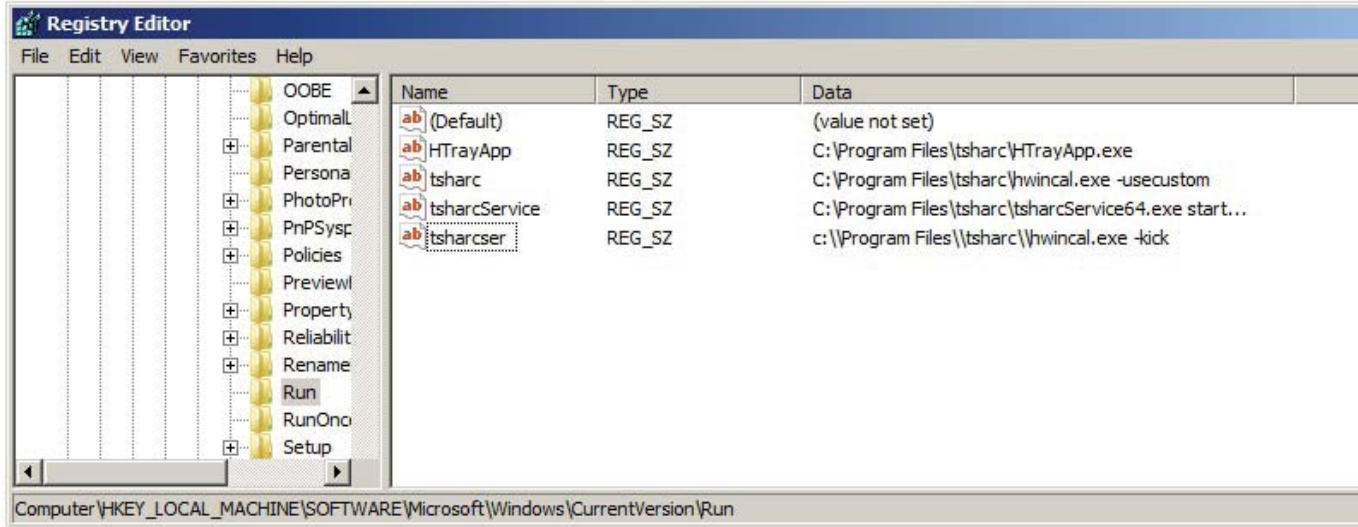
Additional Win7 64-bit RS-232 Installation Instructions

If using a serial port expansion card on a win7 64-bit system, it may be necessary to implement a -kick command at each boot due to a possible conflict with the third party serial port driver.

To modify the registry via the system regeditor

- Browse to the "HKEY_LOCAL_MACHINE\SOFTWARE\Microsoft\Windows\CurrentVersion\Run"
- Create a string value (REG_SZ) with the name "tsharcser" and a value of "c:\Program Files\tsharc\hwincal.exe -kick"

If the system drive is a driver other than C, please replace "c:" in the above string with the drive Windows is installed on.



Common Errors

- Touch screen connections
Check the touch screen overlay connection to make sure that it is connected to the TSHARC controller properly. Refer to the TSHARC controller user's manual for the proper pin-out for the controller, which is available online at www.microchip.com/TSHARC.
- Driver not installed properly
Please move entire driver bundle to the desktop
Do not install directly from a USB drive or a CD ROM
Please unzip the files before running setup.exe
- A USB controller will operate in a default mode when first plugged in; however, it will not be calibrated.
The Microchip TSHARC driver must be installed to calibrate the touch screen as well as enable all other Microchip TSHARC features.

Issue	Cause	Solution
Touch screen does not respond.	<ol style="list-style-type: none"> 1. Controller is not plugged in 2. Touch screen not plugged in 3. Driver has been uninstalled 4. Hardware failure 5. User did not wait for driver to auto-install 	<ol style="list-style-type: none"> 1. Check connections between the touch screen and the controller, as well as between the controller and computer 2. Plug the controller into a different port 3. Reinstall the TSHARC driver 4. Wait a minute or two and try again 5. If that fails, reboot and check touch screen again
Touch screen moves, but it does not follow the stylus	<ol style="list-style-type: none"> 1. Controller not calibrated 2. Driver not installed 3. Touch screen is not plugged in correctly 	<ol style="list-style-type: none"> 1. Run the calibration through Microchip TSHARC Control Panel 2. Install the TSHARC driver 3. Verify the touch screen pin-out
When calibrating an "Error in Calibration" message appears.	<ol style="list-style-type: none"> 1. The driver is not installed correctly 2. The touch screen is not connected correctly 	<ol style="list-style-type: none"> 1. Verify the pin-out of the controller matches the pin-out of the touch screen 2. Uninstall the driver then reinstall the driver

If, after these suggestions are exhausted, customer support is still required, please have the following available:

- Controller type
- Communication type
- Firmware version
- Operating System
- Details of the specific problem encountered

Having this list available will allow for more accurate and timely customer support. This will help determine what the problem may be. Contact Microchip for customer support via online, e-mail, or telephone.

Mailing address:	World Wide Web:	Support E-mail Address:
Microchip Technology Inc 9055 N. 51st Street Unit H Brown Deer, WI 53223 Main Phone: 414-355-4675 Main Fax: 414-355-4775	www.microchip.com/TSHARC	support@microchip.com

Notes



Microchip Technology Inc.

9055 N. 51st Street Unit H
Brown Deer, WI
53223

Main Phone: 414-355-4675

Main Fax: 414-355-4775

www.microchip.com/TSHARC

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Microchip Technology Inc. 9055 N. 51st Street, Suite H, Brown Deer, Wisconsin 53223
Ph: 414-355-4675 www.microchip.com Fax: 414-355-4775