**Symmetricom®**

# Windows SDK for PCI-SG 2U / GPS-PCI 2U

**Software Development Kit for Windows 2000/XP and Symmetricom PCI-SG 2/2U & GPS-PCI 2/2U Cards**

**KEY FEATURES**

- Windows 2000/XP SDK
- Full-Featured Function Set for Faster PCI Timing Card Integration
- Windows 2000/XP Kernel Mode Driver
- Code Examples
- Test Application/Control Program
- Complete Documentation

Windows® SDK for PCI is a full-featured software development kit that speeds integration of Symmetricom PCI-SG 2U/GPS-PCI 2U products into an application. The SDK is an easy-to-integrate and highly reliable alternative to writing lower-level code to address a card's memory registers directly. The function calls and device drivers in the SDK make interfacing to the Symmetricom PCI card straightforward and help keep your software development focused on the end application.

Included in the SDK is the Windows 2000/XP kernel mode device driver for the 32-bit PCI interface. The SDK includes .h, .lib, and DLL files for linking applications to drivers.

The SDK functions address each Symmetricom PCI timing card feature, and the function names and parameters provide intuitive insight into the capability of each function. The target programming environment is Microsoft® Visual C++.

Programmers will find the SDK an invaluable resource in accelerating the integration of Symmetricom PCI cards into applications, saving both time and money. By using the SDK, you will leverage Symmetricom's timing expertise and confidently integrate the Symmetricom PCI card into your application. Included in the SDK is Symmetricom's TT_PCI_Panel.exe application program source code, which may be used to ensure proper operation of the PCI card.



PCI-SG 2U / GPS-PCI 2U WINSDK Software

# SDK Function Reference List

## BASIC FUNCTIONS

- TT_OpenDevice: Attaches the calling application to the specified Symmetricom device.

- TT_ReadTime: Retrieves the current time value from the device. In GPS mode, time is always maintained in UTC. In other modes, time is application specific.

- TT_FileTimeToSystemTimeEx: Converts a 64-bit file time to system time format.
- TT_SystemTimeExToFileTime: Converts a system time to 64-bit file time format.
- TT_GetDeviceInfo: Returns static information about the board.
- TT_GetMode: Retrieves the board's current operating mode.
- TT_SetMode: Sets the board's current operating mode.
- TT_CloseDevice: Detaches the calling application from the specified Symmetricom device. It performs resource de-allocation and other cleanup operations.

- TT_GetRegister: Returns the contents of the register at the address specified.

- TT_SetRegister: Sets the contents of the register at the address specified.

- TT_ConfigurationSettings: Allows the saving and restoring of board configuration settings.

- TT_GetOutputBNCSource: Returns the source setting that will be available on the output BNC.

- TT_SetOutputBNCSource: Sets the source that will be available on the output BNC.

- TT_GetHardwareStatus: Returns the contents of the status register.

## EVENT FUNCTIONS

- TT_Callback: Placeholder for a user-defined callback routine to be executed upon external, periodic, or time compare events.

- TT_GetExternalEvent: Returns the current status of the external input event.

- TT_GetExternalEventTriggerEdge: Returns the rising or falling trigger status of the external event.

- TT_GetExternalEventTriggerSource: Returns the source setting of the trigger for the external event.

- TT_GetSynthesizerOnTimeEdge: Returns the polarity of the on time edge of the synthesizer.

- TT_GetRateGenerator: Returns the current settings of the rate generator.

- TT_GetSynthesizer: Returns the current status of the synthesizer settings.

- TT_GetSynthesizerRunStatus: Returns the current status of the synthesizer Run/Stop.

- TT_GetTimeCompare: Returns the current settings for the time compare event.

- TT_RegisterCallback: Registers a callback routine to be executed upon external, periodic, or time compare events.

- TT_SetExternalEvent: Enables/disables the external input event.
- TT_SetSynthesizer: Sets the current synthesizer settings.
- TT_SetSynthesizerRunStatus: Sets Run/Stop status of the synthesizer.
- TT_SetSynthesizerOnTimeEdge: Sets the polarity of the on time edge of the synthesizer.
- TT_SetTimeCompare: Enables/disables the time compare event.

## EXTERNAL 1 PPS MODE FUNCTIONS

- TT_GetLeapSecond: Returns the current status of the hardware to add a leap second at the end of the current day.

- TT_PresetTime: Sets the current time in the device.
- TT_ReadDiagnosticRegister: Returns the error and oscillator values from the diagnostic register.

- TT_SetLeapSecond: Enables/disables the hardware to add a leap second at the end of the current day.

## GENERATOR MODE FUNCTIONS

- TT_StartGenerator: Starts the free-running time generator (clock).
- TT_StopGenerator: Stops the free-running time generator (clock).

## GPS MODE FUNCTIONS

- TT_ReadGpsInfo: Returns the GPS position consisting of latitude, longitude, and elevation, and satellite signal information.

- TT_PresetPosition: Used to preset the GPS position. Presetting an initial position will speed up acquisition time.

## TIME CODE MODE FUNCTIONS

- TT_GetPhaseCompensation: Gets the current phase compensation for the device.

- TT_ReadTimecodeInfo: Reads the Locked/Valid status for the time code input.

- TT_SetPhaseCompensation: Sets the phase compensation for the device.

The PCI cards have different user-configurable operating modes. Some of the above functions may not be available depending on the mode selected or if GPS is installed.

## LICENSING

The Symmetricom Windows SDK for PCI is sold as a seat license. Distribution of embedded Symmetricom software in customer applications is royalty free.

## MINIMUM SYSTEM REQUIREMENTS

- **Software:** Microsoft Visual C++
- **Operating System:** Microsoft Windows 2000/XP
- **Hardware:** PC-compatible system with a Pentium or faster processor; one free standard height PCI slot required for PCI-SG 2U/GPS-PCI 2U (PCI-SG 2/ GPS-PCI 2 are also compatible with the Windows for SDK driver).
- **Memory:** Minimum 128 Mbytes; 256 Mbytes recommended

## ORDERING INFORMATION

- 183-0021 PCI-SG 2U / GPS-PCI 2U Windows Developer's Kit
- 183-0021-U PCI-SG 2U / GPS-PCI 2U Windows SDK Upgrade

The SDK includes the interface library, TT_PCI_Panel.exe application program source code, utilizing the interface library, and a User's Guide containing the library definitions.