PCI Linux SDK

Software Development Kit for Linux and Symmetricom bc635/637PCI-U/CPCI/PMC Cards

KEY FEATURES

- Linux SDK
- Full-Featured Function Set for Faster PCI Timing Card Integration
- Linux Kernel Mode Driver
- Code Examples
- Test Application Program
- Complete Documentation

The PCI SDK for Linux® is a full-featured software development kit that speeds integration of Symmetricom PCI 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 a Symmetricom PCI card straightforward and help keep your software development focused on the end application. Included in the SDK is the kernel mode device driver for the 32-bit PCI interface. The SDK includes an interface library accessing all bc635/637PCI features, and example programs with source code.

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 GNU, GCC, C/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 can leverage Symmetricom's timing expertise and confidently integrate a Symmetricom PCI card into your application.

Included in the SDK is Symmetricom's pcidemo application program, which can be used to ensure proper operation of the PCI card. The example program includes sample code, exercising the interface library, and conversion examples of the ASCII format data objects passed to and from the device into a binary format suitable for operation and conversion. The example program was developed using discrete functions for each operation, allowing the developer to clip any useful code and use it in their own applications.

PCI-LXDRV Software

SDK Function Reference List

BASIC FUNCTIONS

- bcStartPCI: Opens underlying device layer
- bcStopPCI: Closes underlying device layer
- bcStartInt: Starts the interrupt thread to signal interrupts
- bcStopInt: Stops the interrupt thread and releases any used resources
- bcSetInt: Enables an interrupt source
- bcReqInt: Returns the interrupt value currently enabled
- bcShowInt: Interrupt service routine

- bcReadReg: Returns requested register contents
- bcWriteReg: Set requested register contents
- bcCommand: Send SW reset command to board

- bcReadBinTime: Reads TFP major time in binary format
- bcReadDecTime: Reads TFP major time in BCD format
- bcSetTimeFormat: Format major time to binary or grouped decimal
- bcReqTimeFormat: Returns selected time format
- bcSetBinTime: Sets TFP major time in binary format
- bcSetDecTime: Sets TFP major time in BCD format
- bcSetYear: Programs year value
- bcSetYearAutoIncFlag: Enables or disables year auto-increment features that occurs at the beginning of the year
- bcSetLocalOffsetFlag: Enables or disables local time offset in conjunction with bcSetLocOff
- bcSetLocOff: Commands board to report time at an offset relative to UTC
- bcSetLeapEvent: Inserts or deletes leap second data (in non-GPS modes)
- bcSetMode: Selects TFP operating mode
- bcSetTcIn: Selects time code format for time code decoding mode
- bcSetTcInMod: Selects time code modulation for time code decoding mode

- bcReqYear: Returns current year
- bcReqTimeData: Returns selected time data from the board
- bcReqTimeCodeData: Returns selected time code data from the board
- bcReqOtherData: Returns selected data from the board
- bcReqVerData: Returns firmware version data from the board
- bcReqSerialNumber: Returns board serial number
- bcReqHardwareFab: Returns hardware fab part number
- bcReqAssembly: Returns assembly part number
- bcReqModel: Returns TFP model identification
- bcReqTimeFormat: Returns selected time format

EVENT FUNCTIONS

- bcSetHbt: Selects a user programmable periodic output
- bcSetPropDelay: Programs propagation delay compensation
- bcSetStrobeTime: Sets strobe function time

OSCILLATOR FUNCTIONS

- bcSetClkSrc: Enables or disables on-board oscillator
- bcSetDac: Modifies oscillator DAC value
- bcSetGain: Modifies on-board oscillator frequency control algorithm
- bcSetJam: Enables or disables jamsynch feature
- bcForceJam: Forces TFP oscillator to jamsynch
- bcAdjustClock: Advances or retards TFP internal clock
- bcReqOscData: Returns TFP oscillator data

GENERATOR MODE FUNCTIONS

- bcSetGenCode: Selects time code generator format
- bcSetGenOff: Commands an offset to the on-board timecode generation function

GPS MODE FUNCTIONS

- bcGPSReq: Returns a GPS data packet
- bcGPSSnd: Sends a GPS receiver data packet
- bcGPSMan: Manually sends and retrieves GPS receiver datapackets
- bcSetGPSOperMode: Directs the GPS receiver to function in static or dynamic mode
- bcSetGPSTmFmt: Commands TFP to use GPS or UTC time base

RTC FUNCTIONS

- bcSyncRtc: Synchronizes RTC to current TFP time
- bcDisRtcBatt: Commands RTC circuit and battery to disconnect after power is turned off

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 PCI LXDRV is sold as a seat license.

MINIMUM SYSTEM REQUIREMENTS

- Software/operating system: Linux Kernel 2.0.31 and above
- Hardware: PCI/CPCI/PMC x86 processor
- Memory: 32 Mb
- Development environment: Any 32-bit C based development environment

ORDERING INFORMATION

- PCI-LXDRV