PCMCIA Library R1.2

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Digital Objects Corp.

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Features

- Simple building blocks for user customization
- Built-in PCMCIA Interface
- Support for Function Configuration Registers (FCR)
- Support for external CIS EEPROM
- FCR bit decode implemented by user
- Includes a test primitive which can be used to test socket

General Description

The PCMCIA Library is a library of very simple PCMCIA interface primitives that can be fully customized for a specific user application. The Function Configuration Register (FCR) bits are not decoded and can be implemented in any way necessary. These primitives provide a generic PCMCIA interface and can be customized to work with any I/O device on the PC Card. The library includes a test primitive to help test the PCMCIA socket.

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AllianceCORE™ Facts

Core Specifics		
Device Family	XC3x00A	
CLBs Used	20-30, see block descriptions	
IOBs Used	32/33[1]	
System Clock f_{max}	10 MHz	
Device Features Used	Not Applicable	
Supported Devices/Resources Remaining		
	I/O	**CLBs**
XC3x42A TQ100	50/49[2]	114-124
Provided with Core		
Documentation	User Documentation	
Design File Formats	ViewLogic Schematic	
Constraint Files	Not Applicable	
Verification Tool	ViewSim Command Files	
Schematic Symbols	Viewlogic	
Evaluation Model	Prototyping board Available extra	
Reference designs & application notes	None	
Additional Items	None	
Design Tool Requirements		
Xilinx Core Tools	XACTstep 5.2.1/6.0.1	
Entry/Verification Tools	ViewLogic Schematic	
Support		
Support provided by Digital Objects Corporation		

Notes:
1. IOB count is for CIS, PCMCG1 (both 33 I/O) and PCMCG1 (32 I/O) primitives only; test primitive uses 58 I/O; I/O counts assume all signals are routed off-chip.

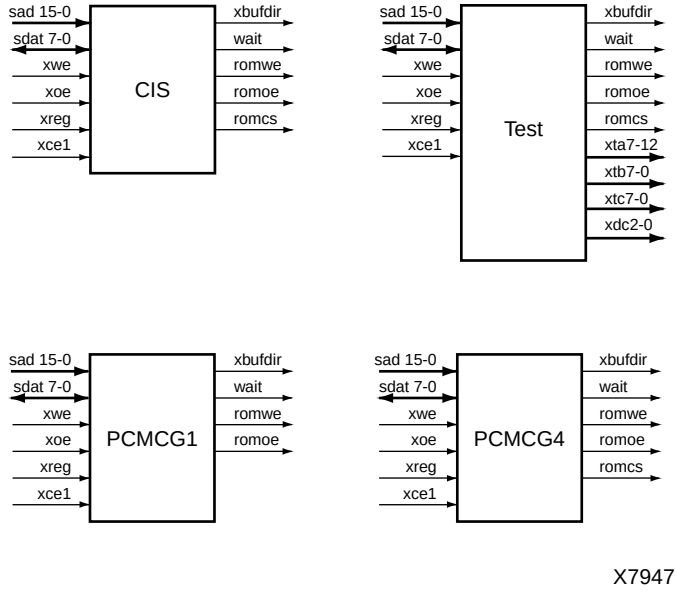

Figure 1. Xilinx PCMCIA Library Primitives

Functional Description

The PCMCIA Library consists of four primitives, as shown in Figure 1, and described below.

CIS Primitive (20 CLBs)

This primitive provides an interface to PCMCIA and allows the host to read/write directly to the CIS ROM on the PC Card. It implements all four Function Configuration Registers without implementing any specific bit decodes. The registers occupy addresses 100h, 102h, 104h and 106h in attribute memory and are read/write.

Test Primitive (28 CLBs)

This primitive is similar to the CIS primitive except that some bits of all four of the PCMCIA Function Configuration Registers are brought out and available for decode and verification. The individual bits of the registers are not decoded but are read/write

PCMCG1 Primitive (20 CLBs)

This primitive is similar to the CIS primitive except that it only implements one Function Configuration Register and CIS accesses are not supported.

PCMCG4 Primitive (30 CLBs)

This primitive is similar to PCMCG1 except that it implements four FCRs

Pinout

The pinout of each primitive has not been fixed to specific FPGA I/O, allowing flexibility with a users application. Signal names are provided for each primitive shown in Figure 1, and Table 1 below.

Table 1. PCMCIA Library Primitives Signal Pinout

Signal	Signal Direction	Description
Common Signals for all Primitives		
sad 15-0	Input	Host address
sdat 7-0	In/Out	Host data
xwe	Input	Write Enable
xoe	Input	Output Enable
xreg	Input	Attribute Memory Select from host
xce1	Input	Card Enable from host
xbufdir	Output	Controls direction of data buffer
wait	Output	Inserts delay in completion of cycle to the host
romwe	Output	Write enable to CIS EE-PROM
romoe	Output	Output Enable to CIS EE-PROM
Additional Signals for CIS and PCMCG4 Primitives		
romcs	Output	Chip Select to CIS EEPROM
Additional Signals for Test Primitive		
romcs	Output	Chip Select to CIS EEPROM
xta 7-2	Output	FCR 0 bits 7-2
xtb 7-1	Output	FCR 1 bits 7-1
xtc 7-0	Output	FCR 2 bits 7-0
xdc 2-0	Output	FCR 3 bits 2 -0

Verification Methods

The primitives have been fully tested for compatibility with all major applications and Card Services. They have recently been upgraded to use the latest Xilinx unified library elements.

Recommended Design Experience

Designers should be familiar with the PCMCIA specification, ViewLogic schematic entry and Xilinx design flows.

Available Support Products

Support products available from Digital Objects:

- PCMCIA Prototyping Card
- PCMCIA Card Debugger/Exerciser software
- CIS Generator 1.2 software

Ordering Information

To purchase or make further inquiries about this or other Digital Objects products, contact Digital Objects directly.

Related Information

Personal Computer Memory Card International Association

The PCMCIA publishes PC-Card specifications and related documents. For information, contact:

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