

## **SD Card Interface Module** **Addresses/Commands**

### **STATUS (XX00H, 8 bits)**

A READ from this address retrieves the SD card status. This address is undefined for WRITE.

Bit 0 = 0: Unit 0 (SD Card 0) inserted.

Bit 0 = 1: Unit 0 absent.

Bit 1 = 0: Unit 0 write enabled.

Bit 1 = 1: Unit 0 write protected.

Bit 2 = 0: Unit 1 inserted.

Bit 2 = 1: Unit 1 absent.

Bit 3 = 0: Unit 1 write enabled.

Bit 3 = 1: Unit 1 write protected.

Bit 4 = 0: Unit 2 inserted.

Bit 4 = 1: Unit 2 absent.

Bit 5 = 0: Unit 2 write enabled.

Bit 5 = 1: Unit 2 write protected.

Bit 6 = 0: Unit 3 inserted.

Bit 6 = 1: Unit 3 absent.

Bit 7 = 0: Unit 3 write enabled.

Bit 7 = 1: Unit 3 write protected.

## **MODE (XX01H, 5 bits)**

A WRITE to this address sets the mode of operation of the controller, and selects a specific SD card. Note that there is nothing to prevent more than one card being selected at a time; a condition which will result in unpredictable/ improper operation. This address is undefined for READ.

Bit 0 = 0: Mode 0. SD card Data and Clock lines are taken from the CTRL port (address XX01H). Power-up default.

Bit 0 = 1: Mode 1. Data and Clock lines are taken from the automatic shift register/state machine.

Bits 1-4 = 0: No SD card selected. Power-up default.

Bit 1 = 1: Unit 0 (SD Card 0) selected.

Bit 2 = 1: Unit 1 selected.

Bit 3 = 1: Unit 2 selected.

Bit 4 = 1: Unit 3 selected.

## **CTRL (XX02H, 2 bits)**

CTRL is a "bit bang" control port. Available only in Mode 0 (selected by MODE command, above), it allows direct program control of the selected SD Data and Clock lines.

Bit 0: On WRITE, this bit will be latched to the SD card Data In line.

On READ, this bit will reflect the state of the SD card Data Out line.

Bit 1: On WRITE, this bit will be latched to the SD card Clock line.

This bit is undefined for READ.

**SR\_RD** (XX03H, 8 bits)

Shift Register Read. Mode 0 or 1. On READ, data is taken from the shift register with no effect on the selected SD card (if any). This command is undefined for WRITE.

**UNIT\_RD/WR** (XX04H, 8 bits)

SD Card Read/Write. Available only in Mode 1. On READ, data is taken from the shift register. Then, "1" is clocked into the SD card input while the card output data is clocked into the shift register (this data will be available on a subsequent SR\_RD or UNIT\_RD/WR command).

On WRITE, data is loaded into the shift register. Then, the shift register is clocked into the SD card input while the SD card output data is clocked into the shift register from the other end (replacing the written data).