

Smart Card/SIM Card (SC) PICtail™ Daughter Board

The SC PICtail™ Daughter Board is an expansion board used for evaluating, reading and writing data on Smart cards and SIM cards.

Features

- Supports a wide range of Smart cards and SIM cards
- Operates on a wide range of voltages from 3.3V-5.0V DC
- Includes PICtail Daughter Board and PICtail Plus Board connection interfaces
- Compatible with boards like Explorer 16 Development Board and PICDEM™ FS USB Demo Board

Getting Started

To get started, a compatible PICDEM™ demonstration board is required. In general, a board is compatible if it has a PICtail Daughter Board interface expansion port or a PICtail Plus Board interface expansion port. When connecting the SC PICtail Daughter Board to a board with the PICtail Plus connector, like the Explorer 16 Development Board, the connector should be inserted in the first slot of the demonstration board (aligned with Pin #1) to communicate using the UART1 module.

Signal Interface

Each of the Smart card signals have an outboard pin on the SC PICtail Daughter Board to check the signal status during the application development life cycle. Apart from this, if the user wants to connect the Smart card signals to different port pins of the microcontroller, then the signal wires can be directly connected from the microcontroller to the appropriate outboard pins on the SC PICtail Daughter Board.

TABLE 1:

Signals	I/O	Explorer 16 Board (J5 Port Connector)	Pin (PICtail™ Plus)	Description
SMART_VCC	O	RB9 (Pin 44)	RB0, RC0 (Pin 27, Pin 20)	Power supply to the Smart card/SIM card
SMART_RST	O	RE8 (Pin 18)	RB4, RC1 (Pin 19, Pin 22)	Reset signal to the Smart card/SIM card
SMART_CLK	O	RB15, RD1 (Pin 84, Pin 94)	RB2, RC2 (Pin 23, Pin 24)	Clock input to the Smart card/SIM card
SMART_CARD_DET	I	RB0 (Pin 11)	RB3 (Pin 21)	Smart card insertion detect signal
SIM_CARD_DET	I	RB1 (Pin 12)	RB1 (Pin 25)	SIM card insertion detect signal
SMART_I/O	I/O	UART1_RX, UART1_TX (Pin 2, Pin 4)	RC6, RC7 (Pin 9, Pin 11)	Serial input and output data line (half-duplex)

Other Information

The SC PICtail Daughter Board consists of two slots; one to insert the Smart card and the other to insert the SIM card. The SIM card and Smart card slots are connected in pin-to-pin parallel format. Therefore, for proper communication between the interfacing device and the card, either the Smart card or the SIM card has to be inserted in the SC PICtail board but not both.

Note: The board interfacing the SC PICtail Daughter Board should be able to provide the sufficient current and voltages as per the electrical specifications of the Smart card chip inserted in the slot. Therefore, the microcontroller interfacing the SC PICtail Daughter Board has to be chosen depending upon the specific application and the operating voltage requirement of the Smart card. If the microcontroller cannot support sufficient current and voltage required for the Smart card, then an external hardware circuitry has to be used to provide the current and voltage.

Board Configurations

In the SC PICtail Daughter Board, only one jumper location is available. This jumper is useful only when the SC PICtail Daughter Board is used along with the Explorer 16 Board.

Jumper	Position	Function
JP1	Pin (SRC1-CLK)	Clock to the Smart card/SIM card is fed from RD1
	Pin (SRC2-CLK)	Clock to the Smart card/SIM card is fed from RB15

Firmware

The latest Smart card software library, CCID demo, Smart card communication demo, Help files and Getting Started document are released as part of the "Microchip Applications Libraries" which can be downloaded from <http://www.microchip.com/mal>.

References

- ISO 7816-3 specifications available by license
- www.microchip.com

Americas

Atlanta - 678-957-9614
 Boston - 774-760-0087
 Chicago - 630-285-0071
 Cleveland - 216-447-0464
 Dallas - 972-818-7423
 Detroit - 248-538-2250
 Noblesville - 317-773-8323
 Los Angeles - 949-462-9523
 Phoenix - 480-792-7200
 Santa Clara - 408-961-6444
 Toronto - 905-673-0699

Europe

Austria - Weis - 43-7242-2244-39
 Denmark - Copenhagen - 45-4450-2828
 France - Paris - 33-1-69-53-63-20
 Germany - Munich - 49-89-627-144-0
 Italy - Milan - 39-0331-742611
 Netherlands - Drunen - 31-416-690399
 Spain - Madrid - 34-91-708-08-90
 UK - Wokingham - 44-118-921-5869

Asia/Pacific

Australia - Sydney - 61-2-9868-6733
 China - Beijing - 86-10-8528-2100
 China - Chengdu - 86-28-8665-5511
 China - Chongqing - 86-23-8980-9588
 China - Hong Kong SAR - 852-2401-1200
 China - Nanjing - 86-25-8473-2460
 China - Qingdao - 86-532-8502-7355
 China - Shanghai - 86-21-5407-5533
 China - Shenyang - 86-24-2334-2829
 China - Shenzhen - 86-755-8203-2560
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