

SDC4 Design Guide

Jan 17, 2013

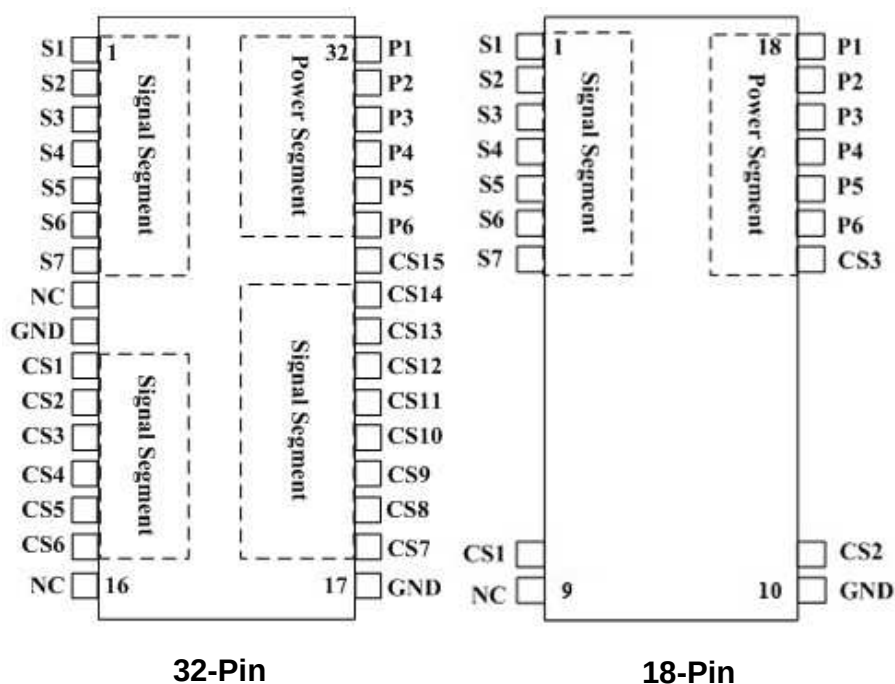
Revision History

Revision	Date	Description	Remark
1.0	01/13/2013	Official release	

Introduction

Apacer's SATA-Disk Chip (SDC4) is well-built and designed for embedded flash memory data system with sturdiness. It is equipped with a built-in micro controller and file management firmware as well as packaged in either the standard 32-pin DIP or the specific 18-pin DIP for easy and economical mounting to a system board. This product is specialized in storage applications with expanded functionality and is a cost efficient replacement for a conventional arrangement.

SATA-Disk Chip Pin Assignment



Signal Description

P1~ P6 – Used to connect to power supply of 3.3 volts as the power segment.

S1~ S7 – This is a bi-directional data bus between the Host System and the SDC.

32-Pin

CS1~CS5, CS8~CS14– Reserved.

CS6– Used to indicate serial ATA physical layer communication.

CS7– Used to indicate that SDC is active and usually connected to a LED indicator on the system to report activity.

CS15– Used to protect the SDC from being written. When WP# pin is low, the SDC is write-protected to prohibit any inadvertent writes.

18-Pin

CS1– Used to indicate serial ATA physical layer communication.

CS2– Used to indicate that SDC is active and usually connected to a LED indicator on the system to report activity.

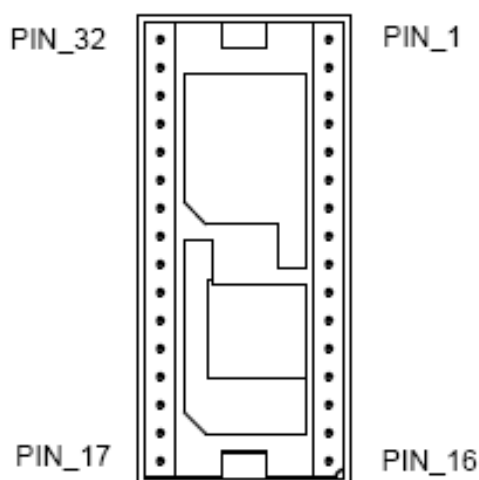
CS3– Used to protect the SDC from being written. When WP# pin is low, the SDC is write-protected to prohibit any inadvertent writes.

Pin Assignment

The following information shows the pin assignment for SDC4.

32 Pins (16x2)

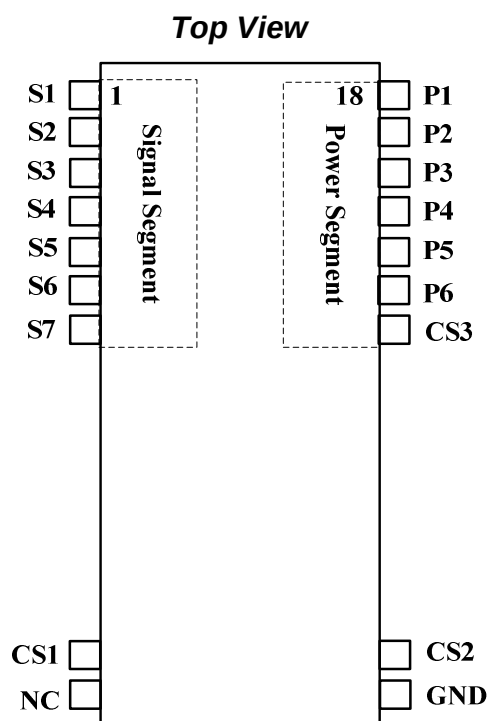
Top View



Pin	Name	Type*	Pin	Name	Type*
1	S1	GND	17	GND	GND
2	S2	RX+	18	CS7	Data Act.
3	S3	RX-	19	CS8	RS
4	S4	GND	20	CS9	RS
5	S5	TX-	21	CS10	RS
6	S6	TX+	22	CS11	RS
7	S7	GND	23	CS12	RS
8	NC	-	24	CS13	RS
9	GND	GND	25	CS14	RS
10	CS1	RS1	26	CS15	RS/VA ^{#1}
11	CS2	RS	27	P6	NA
12	CS3	RS	28	P5	NA
13	CS4	RS	29	P4	NA
14	CS5	RS	30	P3	NA
15	CS6	PHY RDY	31	P2	GND
16	NC	-	32	P1	VCC3.3

#1 VA: Write Protect / CoreDestroyer / Full-Erase , VA is shard by the three Apacer valued-added functions. In default, it will be set to WP. For those pins defined as VA usage, it has internal pull-high 4.7k to Vcc.

18 Pins (7x2 + 2x2)



Pin	Name	Type*	Pin	Name	Type*
1	S1	GND	10	GND	GND
2	S2	RX+	11	CS2	Data Act.
3	S3	RX-	12	CS3	RS/VA ^{#1}
4	S4	GND	13	P6	NA
5	S5	TX-	14	P5	NA
6	S6	TX+	15	P4	NA
7	S7	GND	16	P3	NA
8	CS1	PHY RDY	17	P2	GND
9	NC	-	18	P1	VCC3.3

#1 VA: Write Protect / CoreDestroyer / Full-Erase , VA is shard by the three Apacer valued-added functions. In default, it will be set to WP. For those pins defined as VA usage, it has internal pull-high 4.7k to Vcc.

Schematic Reference

Fig.1: 16x2

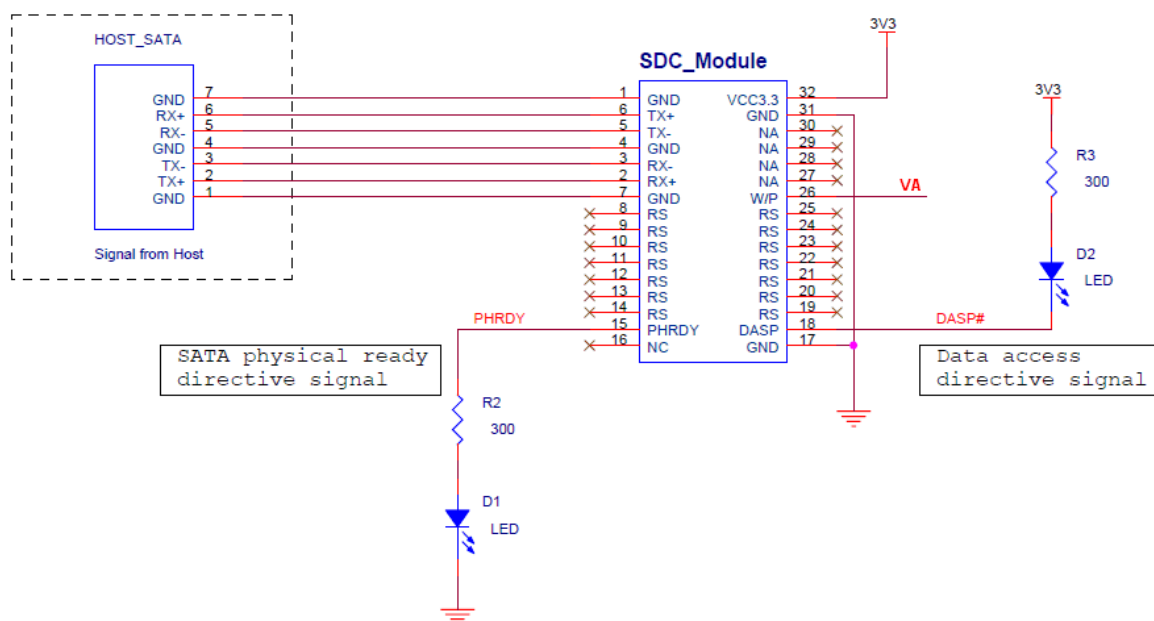
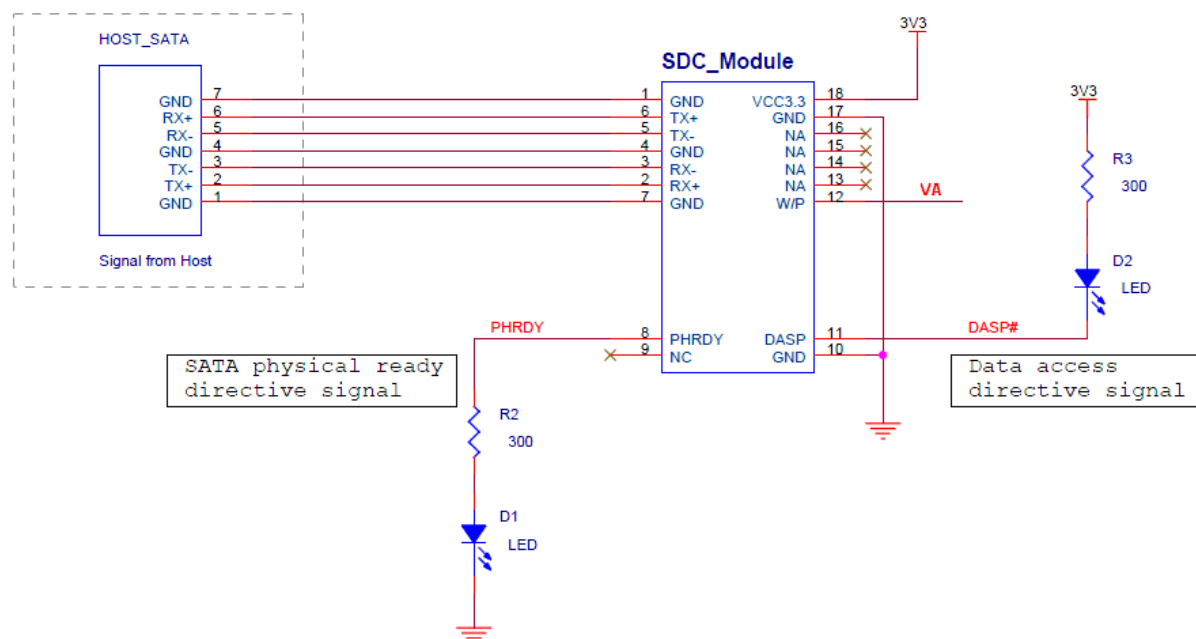


Fig.2: 7x2 + 2x2



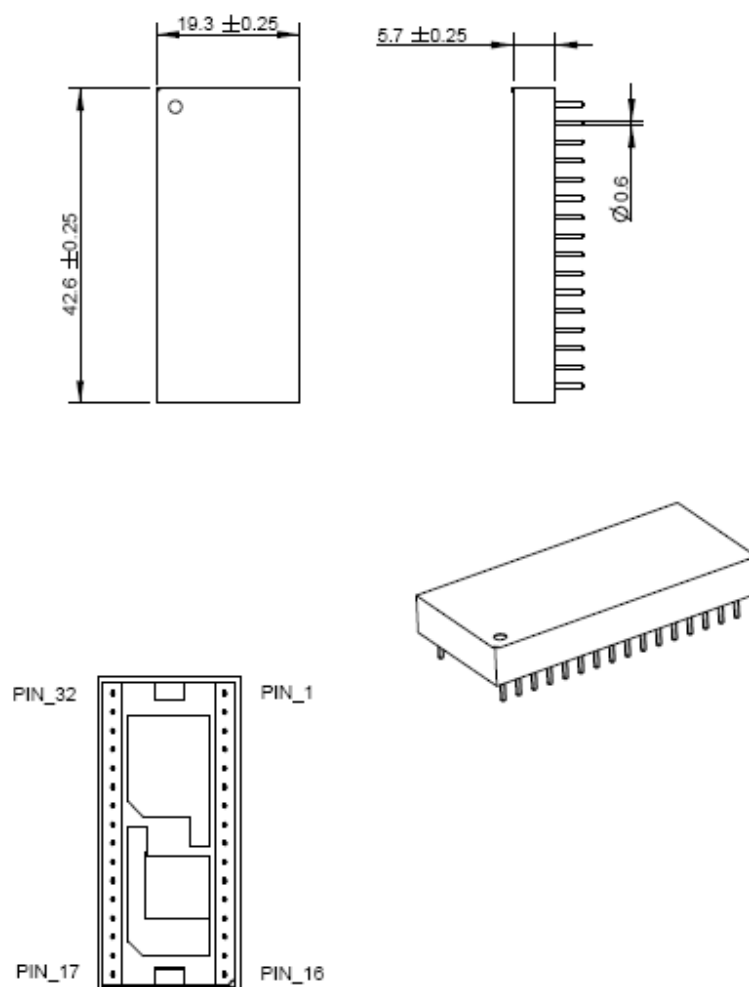
VA Signal Activity

The following table indicates how to enable / disable the VA functions for the host.

Type & Pin #	Function State	Signal State from Host
32 Pin (#26) 18 Pin (#12)	Enable	Low-active signal
	Disable	Floating signal

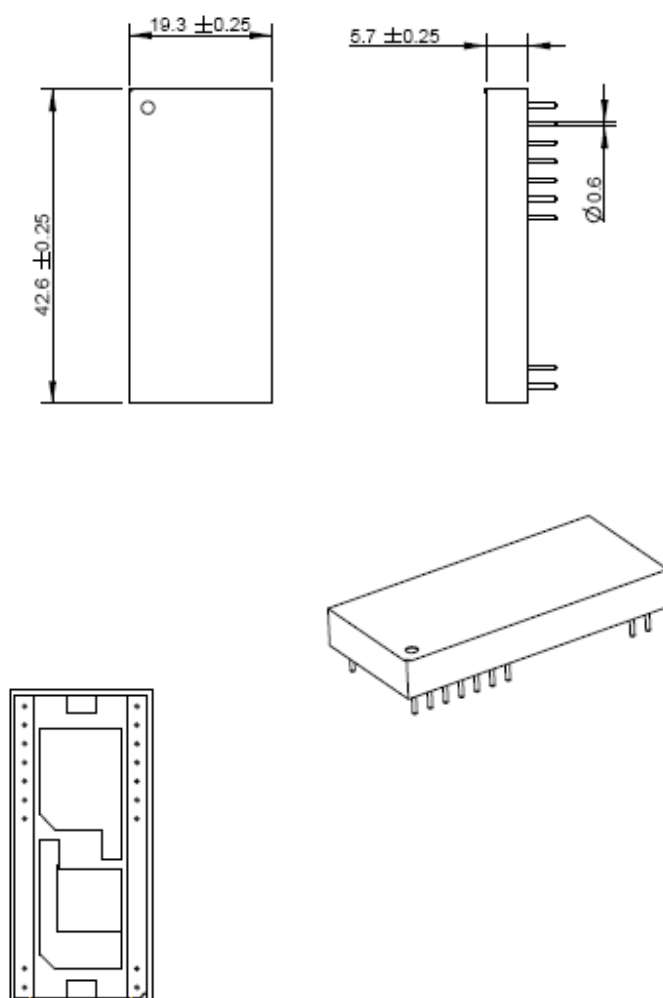
SDC4 Physical Dimensions

32 Pin (16x2)



Unit: mm
Tolerance: ± 0.25

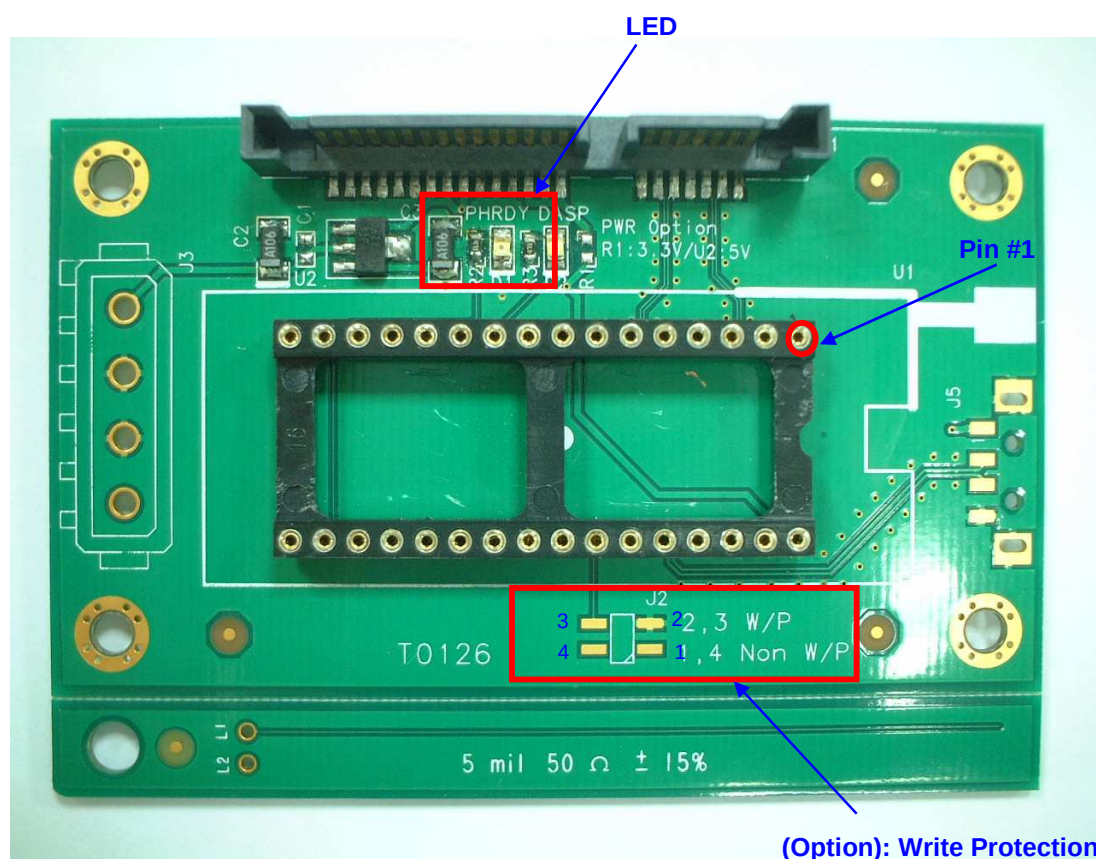
18 Pin (7x2 + 2x2)



Unit: mm
Tolerance: ± 0.25

SDC Evaluation Board

The SDC (SATA Disk Chip) evaluation board is for evaluation with the SDC functionalities through standard Serial ATA interface.



Socket

- Pin 1: The position is indicated by the red circle.

LED

- PHYRDY: Indicates the physical layer ready status between the host and device. When serial ATA physical layer communication is established, it should be steady on.
- DASP: Keeps flashing while data transfer is active.

Write Protection Jumper (Option)

- Enable: close 2 and 3
- Disable: close 1 and 4

Installation

- **SATA Disk Chip**

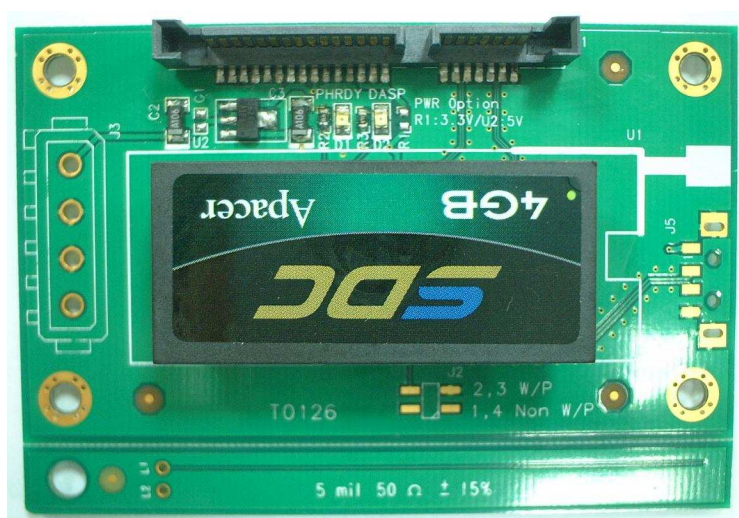
The green dot on the bottom left corner indicates the pin 1 of the SATA Disk Chip. Please do not mismatch the pin assignment during installation.



The Green Dot

- **To Plug-In**

1. Be sure the dotted spot on the SDC cover pinpoint at the pin 1 of the socket on the board.
2. Firmly and evenly plug the SDC into the socket. Once successfully plugged, the SDC is ready for use.



A moderate installation is shown above

- **To Unplug**

1. Be sure to unplug the SDC with a proper tool such as an IC puller; otherwise, damage to SDC may be caused.
2. Put both edges of the IC puller on both short ends of SCD, and firmly grab the IC puller and pull out the SDC.



IC Puller

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