Proposed Draft

Serial ATA International Organization

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Title : Standard SATA Connector 3.3V Power Pin Assignments

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Document History

Version	Date	Comments
0	8/31/2011	Initial release.
0.1	9/7/2011	Modified text after 1st week review
0.2	9/28/2011	Addend comment for “obsolete” clarification
0.3	10/5/2011	Remove proposed changes to “obsolete” definition. Added changes to “retired” definition.
1.0	10/10/2011	Incorporated additional changes to “retired” definition.
1.1	10/12/2011	Editorial change to introductory paragraph. Changed “reserved” to “retired”.

Introduction

The Standard SATA Connector (3.5-inch & 2.5-inch HDD) pin assignment table allocates 3.3V Power to pins P1 and P2 and 3.3V Power, Pre charge to pin 3. Industry usage of these pins for the intended purpose is limited to a small number of receptacles and Gen I devices. To repurpose these pins for a future use deemed necessary by the Serial ATA International Organization, these pins shall be reassigned as retired.

1 Technical Specification Changes

1.1 Section 6.1.3.2 Standard SATA Connector (3.5-inch & 2.5-inch HDD)

Table 3 details the pin names, types, and contact order of the two SATA plug options. A brief description is also included for signal, ground and power pins. There are total of 7 pins in the signal segment and 15 pins in the power segment.

Table 1 – Signal and Power SATA Plug and Nominal Mate Sequence

	Name	Type	Description	Cable Usage[2,3]	Backplane Usage[3]
Signal Segment Key					
Signal Segment	S1	GND		1st Mate	2nd Mate
	S2	A+	Differential Signal Pair A	2nd Mate	3rd Mate
	S3	A-		2nd Mate	3rd Mate
	S4	GND		1st Mate	2nd Mate
	S5	B-	Differential Signal Pair B	2nd Mate	3rd Mate
	S6	B+		2nd Mate	3rd Mate
	S7	GND		1st Mate	2nd Mate
Signal Segment "L"					
Central Connector Gap[4]					
Power Segment "L"					
Power Segment	P1	~~V_{33}~~Retired[5]	~~3.3 V Power~~	2nd Mate	3rd Mate
	P2	~~V_{33}~~Retired[5]	~~3.3 V Power~~	2nd Mate	3rd Mate
	P3	~~V_{33}~~Retired[5]	~~3.3 V Power, Pre-charge~~	1st Mate	2nd Mate
	P4	GND		1st Mate	1st Mate
	P5	GND		1st Mate	2nd Mate
	P6	GND		1st Mate	2nd Mate
	P7	V_5	5 V Power, Pre-charge	1st Mate	2nd Mate
	P8	V_5	5 V Power	2nd Mate	3rd Mate
	P9	V_5	5 V Power	2nd Mate	3rd Mate
	P10	GND		1st Mate	2nd Mate
	P11	DAS/DSS	Device Activity Signal / Disable Staggered Spinup[1]	2nd Mate	3rd Mate
	P12	GND		1st Mate	1st Mate
	P13	V_{12}	12 V Power, Pre-charge	1st Mate	2nd Mate
	P14	V_{12}	12 V Power	2nd Mate	3rd Mate
	P15	V_{12}	12 V Power	2nd Mate	3rd Mate
Power Segment Key					

NOTE:
1. The corresponding pin to be mated with P11 in the power cable receptacle connector shall always be grounded. For specific optional usage of pin P11 see section **Error! Reference source not found.**.
2. Although the mate order is shown, hot plugging is not supported when using the cable connector receptacle.
3. All mate sequences assume zero angular offset between connectors.
4. The signal segment and power segment may be separate.
5. Previous versions of this specification assigned 3.3 V to pins P1, P2 and P3. In addition, device plug pins P1, P2 and P3 were required to be bused together.

Mating Configuration Notes

- All pins are in a single row with 1.27 mm (.050") pitch

- All ground pins in the Serial ATA device plug power segment (connector pins P4, P5, P6, P10, and P12) shall be bussed together on the Serial ATA device.
- The connection between the Serial ATA device signal ground and power ground is vendor specific.
- The following sets of voltage pins in the Serial ATA device plug power segment shall be bussed together on the Serial ATA device:

~~P1, P2, and P3~~	~~3.3 V power delivery and precharge~~
P7, P8, and P9	5 V power delivery and precharge
P13, P14, and P15	12 V power delivery and precharge

4.2.2.7 retired

A keyword indicating that the designated bits, bytes, fields, ~~and~~ code values or physical resources (such as pins on a connector) that had been defined in previous standards are not defined in this standard and may be reclaimed for other uses in future standards. Retired pins on a connector should be left not connected. If retired bits, bytes, fields, ~~or~~ code values or physical resources (such as pins on a connector) are utilized before they are reclaimed, they shall have the meaning or functionality as described in previous standards.