

**Proposed
Draft**

**Serial ATA
International Organization**

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**Serial ATA Technical Proposal # 037
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 1 st 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		1 st Mate	2 nd Mate
	S2	A+	Differential Signal Pair A	2 nd Mate	3 rd Mate
	S3	A-		2 nd Mate	3 rd Mate
	S4	GND		1 st Mate	2 nd Mate
	S5	B-	Differential Signal Pair B	2 nd Mate	3 rd Mate
	S6	B+		2 nd Mate	3 rd Mate
	S7	GND		1 st Mate	2 nd Mate
Signal Segment "L"					
Central Connector Gap ⁴					
Power Segment "L"					
Power Segment	P1	V₃₃ Retired^b	3.3 V Power	2 nd Mate	3 rd Mate
	P2	V₃₃ Retired^b	3.3 V Power	2 nd Mate	3 rd Mate
	P3	V₃₃ Retired^b	3.3 V Power, Pre-charge	1 st Mate	2 nd Mate
	P4	GND		1 st Mate	1 st Mate
	P5	GND		1 st Mate	2 nd Mate
	P6	GND		1 st Mate	2 nd Mate
	P7	V ₅	5 V Power, Pre-charge	1 st Mate	2 nd Mate
	P8	V ₅	5 V Power	2 nd Mate	3 rd Mate
	P9	V ₅	5 V Power	2 nd Mate	3 rd Mate
	P10	GND		1 st Mate	2 nd Mate
	P11	DAS/DSS	Device Activity Signal / Disable Staggered Spinup ¹	2 nd Mate	3 rd Mate
	P12	GND		1 st Mate	1 st Mate
	P13	V ₁₂	12 V Power, Pre-charge	1 st Mate	2 nd Mate
	P14	V ₁₂	12 V Power	2 nd Mate	3 rd Mate
	P15	V ₁₂	12 V Power	2 nd Mate	3 rd 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. <u>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.</u>					

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.