


Adtron S35P and Ganged Sockets Technical Bulletin

Introduction

The S35P-01N supports socket ganging. This essentially converts the two card drives into one logical unit containing twice the capacity of an individual card. This document identifies the precautions you must follow if the sockets are ganged on the S35P-01N.

ESD Caution

 Before handling any media devices, make sure you are working in an ESD-safe environment. Static electricity may be discharged through the device. In extreme cases, this may permanently interrupt the operation or destroy the card. To prevent this, touch a grounded device, such as a computer case, prior to inserting the drive.

Ganging Sockets

To combine the capacity of two identical ATA flash cards into one LUN (LUN 0), place a jumper on pins 3 and 4 of JP3 (see Figures 1 and 2). For detailed information, see the *Adtron S35P Installation Manual*.

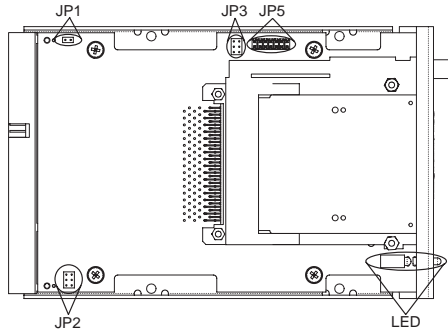


Figure 1 Jumper and LED Locations

Gray pins are ground.

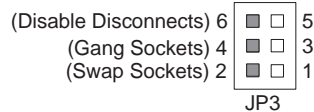


Figure 2 JP3 Jumper Pins

Capacities of Ganged Sockets

You can use ATA PC Cards of any capacity to form a ganged pair, but both cards must have the same capacity. This is a requirement of the RAID algorithm used in the S35P. Adtron recommends that you use the same make and model of ATA PC Cards for ganged sockets. Once detected, the ganged pair reports exactly twice (2x) the capacity of the individual cards.

LEDs and Ganged Sockets

The LEDs behave differently when sockets are ganged. The LED for the socket labeled 1 indicates power, and the LED for the socket labeled 2 indicates activity. In other words, the socket 1 LED should remain lit green, and the socket 2 LED should flash orange when the host is accessing the cards.

Exchanging Cards with Ganged Sockets

When the sockets are ganged, data blocks are written in an alternate fashion across the cards. One card ultimately contains the odd-numbered blocks, while the other contains the even-numbered blocks. Because these blocks reside on separate cards, you cannot exchange the cards (that is, move the card in the socket labeled 1 to the socket labeled 2 or vice versa). Exchanging cards across ganged drives results in data loss.

It is important to note that the socket labeled 2 contains even-numbered blocks, including block zero, which typically holds the master boot record (MBR).

Removing Cards with Ganged Sockets

Because ganged sockets create one, large logical drive, the host can access data only when both cards are present. If one card is removed, the host no longer has access to the data, even if you re-insert a card in the empty socket. To have the drive recognize the cards, you must REMOVE both cards, and then re-insert them. Once both cards are recognized, the host can access the data again.

It is important to note that the LED does not indicate an error status (that is, it does not go dark) when a single card is removed and re-inserted. To ensure the host has access, it is recommended that you always remove both cards if you need to remove/replace a single card.

Formatting Ganged Sockets

S35P units configured for ganged sockets do **NOT** support the SCSI Format command. However, a file system format is generally required for newly-ganged ATA cards. Until the format is completed, you might notice some irregularities when using ganged sockets, or you might not be able to access the drive at all.

Most ATA PC Cards are factory-formatted with the appropriate partition table and DOS MBR to provide a single DOS partition for that card. When factory-formatted ATA PC Cards are installed as a ganged set, the host system reads the format information from block zero of the drive. This often creates confusion in the ganged application because the "block zero" card presents its partition table for the gang, which only represents the number of blocks contained in one card, not in both. This partition table also points to the wrong block for the MBR, which is moved when the cards are ganged and blocks are allocated in an alternate fashion. Because of this, the system will not be able to find the first partition or its directory. When this occurs, most systems will not assign a drive letter, and you will not be able to mount or access the drive.

To resolve this issue, you must use the operating system tools to create a new file system on the ganged media. Depending on the circumstances, you may have to delete any existing (factory-formatted) partitions before creating a new partition. OS-dependent options for disk management are as follows:

- **DOS:** Run `FDISK` to create a new partition table, and then use `FORMAT` to create a FAT file system.
- **Windows:** Use the Disk Management tools (under Start > Settings > Control Panel > Administrative Tools > Computer Management > Disk Management). You can also right-click My Computer and select Management to access these options.
- **Unix or Linux:** Use `_mkfs_` and specify your favorite file system.

Notice

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