

PT69-5/PT69-5A Quick Start

Plug power to PT69-5/A - the connector is not the same as a Floppy connector. Plug a floppy power cable in the PT69-5/A will damage/destroy it.

Plug a RS232 cable in J6 - Board is set to 9600 baud. 8 bits- no parity

SD/IDE Adapter Power Source

No power cable is needed for SD/IDE adapters supplied by Peripheral Technology. The PT supplied boards were modified to supply power through the 40 pin connector. You will need to connect a power source to one of the power connectors for all other SD/IDE boards. Please note that the power LED will still light even if you don't plug power to the SD/IDE board, but the board will not function.

PT69-5

The PT69-5 has a 40 pin port for connection to a WD1002HDO HD controller. An HDOIDE adapter board is available that converts the WD1002HDO port to an IDE port. This only requires rewiring the connector since the signals on the two types of controllers are the same. Be careful not to plug the 40 conductor cable in backwards. You can melt traces and melt the 40 conductor cable since plugging the cable in backwards will short the 5V supply to ground.

Plug the 40 pin cable in WD1002 Port J11 with the stripe on the cable toward the 2797.

Plug the other end of the 40 pin cable to the HDOIDE adapter.

Plug HDOIDE into SD Memory to IDE adapter - Be careful you can plug the cable in wrong .

The index bump can be plugged in shifted from correct position.

Plug a source of power to the SD to IDE adapter.

PT69-5A

Plug the 40 pin cable in IDE Port J11 with the stripe on the cable toward the dot .

Plug the other end of the 40 conductor cable in the SD/IDE board. Should you plug the cable in backwards, it will likely melt the ribbon cable and burn traces.

PT69-5 or PT69-5A

Flex or OS9 is selected by the position of the jumper J2. J2 is the jumper strip near R5. It is not marked on silkscreen on some boards . No jumper selects FLEX. Position 1 boots OS9. You can attach a switch to this header and run to the front panel of your computer for easy switching between FLEX and OS9. You may need to power off the computer after changing J2. Sometimes the SD card doesn't boot after a change until you power down the computer.

SD Memory Card

These instructions assume you have a pre-loaded SD memory card. If not, you need to load FLEX and/or OS9 to the SD memory card. There are separate instructions for this. Install the SD memory card. You need to press reset or power down and restart the system when you change the memory card.

FLEX - J2 - position 2

"W" to boot from HD. It should boot almost instantly.

FLEX Drive numbers:

- 0 - HD Boot Partition - 16MB - Partition 0 - System
- 1 - HD Partition 1 - Contains SD BASIC compiler files
- 2 - Floppy - Hardware Drive select 0
- 3 - HD Partition 2

All partitions are allocated as 16MB of drive space.

You don't have to format all of the 16MB if you want a smaller partition.

Format doesn't check for bad data entry. Number of cylinders can be between 2 and 256.

256 cylinders gives approx 16MB of user space.

OS9 - J2 - Position 1

OS9 tries to boot from floppy first. To boot from HD, don't have a USB stick in GoTek or a disk in a real drive. Should the boot from floppy fail, the bootstrap will then try to boot from HD. It takes between 5 and 10 seconds for the bootstrap to give up on trying to boot from floppy before booting from SD Memory.

/h0 - 322580 sectors
/h1 - 325,525 sectors
/d0
/d1

OS9 will support up to 4GB per partition

There is some redefinition of OS9 Descriptor entries.

Drive number is the partition number - can be 0 to 8. The is set by drive count in the WD1002 driver. The step rate entry is now the hardware drive number. 0=Master, 1=Slave. There is currently no checking for valid entries for the partition or Master/Slave select.

If you want a 4GB partition use 500 tracks, 256 sectors/track, 256 heads per track for the descriptor. User option /32/ in the format line. ex FORMAT /H1 /32/ sets the cluster size to 32. Don't select surface/logical format or verify. It will take many hours (days?) and is not needed.

SD Memory Usage and Allocation

SD memory has a 512 byte sector size. SD memory transfers 16 bits at a time for 256 read or writes per sector. Since a 6809 is an 8 bit processor, half of the 16 bits of data is lost. The result is we have the 256 bytes per sector we need. While SD memory can be placed in an 8 bit mode, this would result in needing to read or write 512 bytes when OS9/FLEX only wants 256 bytes per sector. The overhead to block and unblock 256 sector size to 512 bytes would be great and not necessary considering the low cost of mass storage.

Since half of the storage is discarded, a 32GB SD card provides 16GB of usable memory for FLEX and OS9.

FLEX - is assigned the first 4GB of space (8GB for the SD device). This would allow up to 256 16MB partitions to be used.

OS9 starts at 4GB and every partition is 4GB in size, although you need not format all of it.

0-4 GB FLEX - Contains 256 16MB partitions in this space

4-8 GB OS9 - Boot Partition - Partition 0

9-12 GB OS9 Partition 1

13-16 GB OS9 Partition 2

-----Limit for 32GB SD card

17-20 GB OS9 Partition 3

21-24 GB OS9 Partition 4

25-28 GB OS9 Partition 5

29-32 GB OS9 Partition 6

-----Limit for 64 GB SD Card

33-36 GB OS9 Partition 7

The eighth partition would require a 128 GB SD Card.

The current driver is set for 8 partitions. It is possible for the OS9 driver to handle up to 16 partitions. The drive count in driver "WD1002" would need to be changed from 8 to 16 and reassembled. Since Level 1 OS9 typically has a shortage of memory it's probably not a good thing to set this to 16 partitions by default. The extra partitions need more memory from the available RAM for tables. 16 Partitions (15 - Since FLEX gets one) is the limit for the IDE interface. We are out of bits. LBA mode has 0-27 bits of address space. Bits 24-27 are used to select 16 4GB partitions.