

An 512 kByte RAM disk and Centronics port for the Epson PX-8

From: Fritz Chwolka dyndns.org site. The original design and realisation is by Stephan Hruschka & Mark Wahl

The schema is quite low resolution, but very similar to the original non-intelligent 128 kByte RAM disk design, so unreadable information can be deduced from that.

According to the tt.doc description, the Centronics port is supported by the OS and automatically set as the default printer.

The main difference with the standard 128 Intelligent RAM Disk is the omission of the processor. The PX-8 design allowed for both an intelligent and a non-intelligent RAM disk. The intelligent RAM disk is based on dynamic RAM and contains a processor for both refresh and command handling. The non-intelligent RAM disk used several I/O port to set addresses and one to read or write the data. The 512 kByte RAM disk is a variation of the latter type. The non-intelligent RAM disk was used in the PX-8 Multi-unit and the PX-4 expansion unit.

With the schema and board layout came a patched OS ROM, which modified the OS to format the full 512 kByte at startup and changes the Disk Parameter Block.

Below is my interpretation and translation from the OCRed tt.doc document.

1. Overview

The new patched allows the usage of the RAM disk and the Centronics printer interface. The RAM disk is divided into two disks; A and I. Both disks have a maximum capacity of 256 kByte, and can be write protected independently. This allows for example, to load drive I with all programs and write-protect it, while use drive A as work disk.

The Centronics interface is set to default printer interface. The screen dump function (Control-PF5) is supported.

2. Installation

To use the RAM disk, the new operating system has to be installed in the PX-8. For this the smallest cover at the back of the PX-8 must be opened (top left as seen from the back of the PX-8). The ROM behind has to be removed and the

patched ROM installed. Then you can install the RAM disk and press the Initial Reset next to ROM 2. Make sure the write protect is off (switches on the RAM disk are on). The RAM disks are checked for size and formatted and the detected size is written to a special directory entry on the disk. At the same time the Disk parameters are set in the system. This is independently done for drive A and I. Now the write protect can be enabled. At restart the OS will retrieve the data from the directory entry to set the Disk parameters.

3. Changes to the RAM disk size

If the number of RAM chips on the RAM disk changes, the RAM disk must be reinitialized. This can be done by removing the write protect and erasing the special directory entry specifying the RAM disk size. Then reset the system with an Initial Reset (Red button next to ROM 2). All files on the disk will be erased. Both A and I have the special directory entry. It is possible to change each drive independently. (As long as the battery backup remains connected and keep the unchanged drive write protected).

4. Special remarks

The RAM disk size displayed in the System Menu (CTRL-HELP) is NOT the size of drive A! The RAM disk size should not be changed with CONFIG.COM, as this will result in an unrecognised external RAM disk. A RESET is needed to restore the RAM disk.

With CONFIG.COM it is not possible to select the parallel interface for the default printer. Is the printer set to SERIAL or RS232, then STAT LST: ??? must be used to reset to the parallel interface. After an Init Reset the parallel interface is set for the default printer.

5. Usage without RAM disk

If the RAM disk is not connected, the operating system works normal. Only the default printer setting is set to the non-existing parallel interface. This is easy to correct with CONFIG or STAT.

The routine for the original Epson external RAM disk is no longer part of the OS.

If the RAM disk was used with the PX-8, and one want to use it without, then a main reset is needed. This is also true if the reverse is the case.

Part list

The data can be downloaded [here](#).

In the original file set:

- t1.bmp to t4.bmp - the schematic and board layout.
- px-8-org.epr - Original PX-8 OS ROM
- px060688.epr - Patched PX-8 OS ROM
- crc and crcheck.exe - crc of the original and patched ROM and a DOS program to calculate the crc
- pxdiff - description of the ten locations that were patched
- tt.doc - an OCRed file of the original text produced with the project
- read.me - added file (by Fritz?)

Some added files:

- tt.txt - correction of the OCR result as text. Still full of OCR errors and in German. The source of most info on this page.
- board.tif and schema.tif - converted schema and board layout with the two halves stiched together.