

CYAN ENGINEERING

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TO: Distribution

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FROM: Larry Nicholson

SUBJECT: Improvements for Future Eric Production

For future production of the HCD automated salesman (ERIC) and for other future applications of the video disk, the following improvements are recommended. This memo should simply serve to bring ideas into focus and contains ideas from all who've been involved in ERIC.

1) Modify interface software to use frame number decoder circuitry to read data out of video frames. Three bytes per line can be stored this way (62 Mbytes/disk). Thorough error correction and possibly data duplication in the two fields of each frame will be mandatory. A promising error correcting scheme that uses only one bit per byte is the Orchard Code. See Electronics magazine, 5/5/81.

Other methods of data recording include 1 or 2 bits per line (30kHz transfer rate) or recording on the audio track. Considering that the hardware already exists and the density is fairly good, the frame number scheme is most promising.

Applications of data recording include: auto-downloading the video disk applications software into the 800 and eliminating the cartridge and use of the wrong cartridge; excellent game graphics due to mass storage of computer image data; home education type disks with infinite data (dictionaries, science books, translators).

2) Modify interface software to be a serial bus device. This will eliminate the 850 interface box and will protect Atari from other computer makers from easily using our technology to sell their products. (The interface is currently industry standard RS-232). Note that no hardware will have to be added- only 2 P.C. traces will be changed to route the serial bus clock to the 6850 ACIA on board the interface and to connect the Command line to the 6522. (A buffer transistor may be required).

The software inside the 800 will have to be changed and a handler written to accommodate the new serial bus device.

3) Add ultrasonic sensing to POP terminal to magically detect the presence of a potential customer. This will require the addition of ultrasonic hardware and software modifications to the interface.

4) Eliminate Coin-op power supply and install low-cost 1 amp, +/- 5volt supply on board the interface.

- 5) Possibly add compatibility with the Sony video disk player (RS-232) to accommodate multiple sources of disk players.
- 6) Make a semi custom or fully custom LSI chip that contains the frame number decoder, video switching logic, VSYNC logic, etc. Note that companies such as Signetics have maskable gate arrays that can be made from our current design of standard components. The cost is about the same as using MSI and yet Atari is protected against other companies stealing our design. The mask charge and turn around time should be very reasonable.
- 7) Delete circuitry to cycle power on video disk. This operation was originally intended to recover a crashed disk. However, power cycling doesn't help as it turns out. The current interface board merely issues a "reject open" command which does the proper cycling to recover most crashes.
- 8) Add some form of "key" that allows only Atari disks to be played on the P.O.P. system. This will keep the player doing its job rather than playing Apple disks or movies. This could be implemented by imbedding some form of code on the disk itself and a program inside the interface.
- 9) Cost reduce the interface and package it as a consumer/home computer peripheral.
- 10) Offer games educational type disks with video, audio & a giant data base for the home computer. (Requires the above mentioned data recovery scheme.) Note that any sort of book can be made interactive and can be more clearly conveyed with a video disk, especially when attached to a computer such as the 800.
- 11) Offer advertising to other companies on our P.O.P. terminals.
- 12) Modify the ANTIC chip to be NTSC compatible. This will allow adding animated, interactive images with high quality video disk images. It will provide roll & glitch free image switches. A bonus is being able to record Atari 800 images for commercials without any rolls. Game Example: Computer generated interactive players with high quality real images for various playfields; POP example: Split screen with interactive window of text on one part of screen and video disk salesman picture on other part. Catalog example: Move cursor on screen to picture of what you want to see more of or buy.
- 13) Add capabilities to accommodate more than one disk drive or a multi-head machine. This will cut search times dramatically for interactive applications.

I hope that enough interest has been generated this far to get these ideas implemented. As the designer of the current interface, I will be happy to discuss any questions or ideas on the subject.

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