

X3T9.2/87-57

warren group

15234 Transistor Lane, Huntington Beach, CA. 92649

(714) 894-8180

Home of good engineering and the good word

March 15, 1987

To: John Lohmeyer, Chairman X3T9.2
From: Carl Warren
Subject: Address change, P-1134 status and printer proposal

Please note, that my address has changed and that I'm no longer associated with Mini-Micro Systems.

Regarding the status of IEEE P-1134. I've enclosed a copy of our February mailing (if possible please include it in your next mailing). We will be meeting again March 26-27 at the Irvine Hilton beginning at 8:30 am. The meeting is hosted by Western Digital.

← It's very large. If anyone wants a copy, call me. John

You will notice by the attached mailing list, that IBM has joined both IEEE P-996 on the AT Bus and IEEE P-1134 on the AT BIOS. They are expecting to provide us with a great deal of help, up to an including declassifying documents for our use.

At the last meeting I was able to attend, I agreed to start work on a proposal for managing raster printers in the SCSI environment. Since then I was able to get the assistance of a number of companies who are interested. These include:

Rob Oster, Genicom
23801 Calabasas Road
Calabasas, Ca. 91302
(818) 710-1881

Genicom has developed a raster image processor (RIP) for their laser printer and the ASCII Coded Escapement Language (ACE). This is a low-over head language that allows manipulation of the bit-map within the printer.

Phil Kilcoin, Imagen Corp.
2650 San Tomas Expressway
Santa Clara, Ca. 95051
(408) 986-9400

These are the people that are the developers of the document description language (DDL). This is also a low-overhead language

that permits the manipulation of the bit map and complete rotations.

Although in the past few weeks it has been reported that IBM has settled on Adobe's PostScript, that is only partially true. IBM has multiple plans and has made agreements with Imagen for DDL as well. They also plan to use their own Intelligent Printer Data Stream (IPDS) as part of the control language plan for their forth-coming laser printer.

Consequently, rather than resolve the delemma facing printer and interface manufacturers, the problem is even tougher. However, I believe there is light at the end of the control sequence tunnel for raster style device control.

The answer lies partly in the SCSI for scanner control portion of the document, and the Direct Graphics Interface Specification as developed by:

Graphic Software Systems.
Tom Clarkson, Chairman
9590 SW Gemini Drive
PO BOX 4900
Beaverton, OR 97005-7161
(503) 641-2200

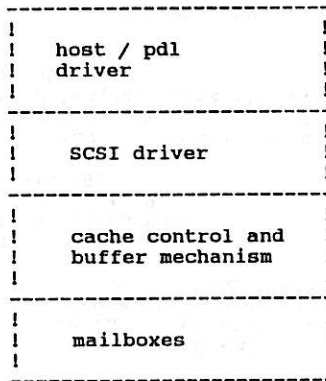
This is a board level interface designed to take advantage of future silicon graphics processors. Currently, DGIS is defined specifically for CRT display devices and not output. However, due to the need for a 1:1 ratio, especially for laser printers, I'm convinced that GSS could be persuaded to extend the definition. The natural extension, is SCSI.

By combining an extended DGIS and SCSI, what the page description language (PDL) is no longer has significance at the host to device level. It would establish very definitive rules for how the device driver is written in relationship to the PDL of choice.

Another factor that makes this approach acceptable is that only one page of the mode select is required, rather than multiple pages since only one type of device is sensed, or allowed.

The device driver, however, would be layered. The top layer would be the PDL specific approach and managing any hooks to the operating environment. Although this is outside the SCSI specification it has to be defined so that the mode select page

is properly understood. The second layer is SCSI specific and manages the proper handshakes and device control allowed. For example, SCSI COPY is acceptable since a SCSI connection to a printer would always imply a high-speed cache buffer ranging from 256K bytes to 1M byte (roughly equivalent to a full graphics page).



raster device primitive control layer

Course of action:

1. Query the PDL vendors to see if there are any special codes that are common in the PDLs that might be beneficial in adding to the CCS (i.e rotate).
2. Ask GSS to consider developing a document that enriches DGIS for raster style output with hooks to SCSI.
3. Develop a one page mode select page.
4. Establish a throttling mechanism for ensuring maximum device speed when encountering a mix of text and graphics

It is possible that the idea solution is to always treat every byte as a bit-mapped entity. One method of doing so is to adopt the tagged image file format (TIFF) developed for scanners. DEST corp., who is already on X3T9.2 can supply the necessary documents.

Should TIFF be used, it would be for the internal cache/buffer of the SCSI printer controller. Every file would be converted. If it is already in the TIFF format a pass through is achieved and performance goes up. This conversion would always be at the device side, since the implication is that any garden variety host adapter would be sufficient to attach a SCSI printer.

Carl Warren
Carl Warren