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LaserWriter IIg: How Printer Handles Three Communication Ports

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TOPIC -----

How does the Apple LaserWriter IIg handle print jobs among the three communication ports?

DISCUSSION -----

The LaserWriter IIg has three communication ports that can be active simultaneously. Special arbitration logic controls the activity between the three ports. The port arbitration has nothing to do with the LocalTalk or EtherTalk PAP layer connection arbitration.

Because PostScript can process only one job at a time, only one port can have access to the printer at any given time. The ports are polled in a round-robin fashion until activity is sensed in one of the three ports. Polling is then terminated as a connection is established and execution of a job begins. A connection, in this sense, refers to the dedication of the printer to a communication port while PostScript jobs are received from a host. AppleTalk ports may process multiple jobs during a single connection while the other serial port connections consist of only one job. A non-AppleTalk connection is considered terminated when an EOF (end-of-file indicated end-of-job) character is received.

The port arbitration cycle begins whenever a connection is terminated by a host. The polling order is determined by starting with whichever port has gone unpolled for the longest period of time. The port waiting the next longest is the next to be polled, with the last active port being the last to be polled again. This procedure ensures that one port will not dominate the printer. If a port is opened directly by an active PostScript job, that port is excluded from arbitration until it is again closed. An example of this type of port activity is when a serially connected sheet feeder is opened by a PostScript job.

All three ports respond to status request, with current printer status, unless they are excluded from the port arbitration cycle due to being opened directly by a PostScript job or just configured inactive. Directly opened ports may either respond with stale status or not respond at all.

Ports that are not arbitrated due to configuration may not respond or even appear on the network.

Polling an AppleTalk Port

Printer

AppleTalk Port Driver

inquire-> Any Open Conn on this port since last inquire or last closed connect (which ever occurred last)?

YES = True
NO = False

If True-> GetNextjob - uses PAP connect arbitration to get oldest of valid OpenConn request for this port.*

If no OpenConn is received by 5 second time-out, GetNextJob cancelled and port arbitration cycle resumed.

If OpenConn is received in time, connection established and PostScript job is read and executed.

At end of job, close connection and resume port arbitration cycle.

If False-> Poll next port

*GetNextJob is active on only one AppleTalk port at a time and never for more than 5 second timeout.

Polling a Serial Port

inquire-> Any characters received on this port since last inquire or last EOF (whichever occurred last?)

Yes = True
No = False

If True-> Open connection established and PostScript job is read and executed from that port.

At end of job, close connection and resume port arbitration cycle.

If False-> poll next port

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