Writing HP-GL Drivers for Ioline Plotters
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07/11/00

Current Ioline plotters use a serial port to communicate with the computer sending the plot file. The settings for the serial port in order to communicate with our plotters is 9600 baud, 8 data bits, no parity, 1 stop bit.

Ioline Plotters do interpret two plotting languages, DMPL and HP-GL. However, the company that wrote the DMPL language no longer exists, and finding DMPL documentation can be difficult.

HP-GL is Hewlett Packard's Graphic Language and is in wide use. For HP-GL, Ioline's plotters interpret both of the older 7475 and 7596 versions. 7475 has the origin in the lower left corner of the frame, while 7596 has the origin in the center of the frame. The default for the plotters is 7475, lower left origin. The plotter can not tell the difference between a 7475 plot and a 7596 plot so this setting has to be set by the user through the Control Center. The Control Center allows the user to switch from the default lower left origin to a center origin. If you use the lower left origin, the user will not have to worry about changing the default. For HP-GL/2, there are not different versions, and the origin location can be changed, but it is normally at one of the corners of the page. For these two reasons, if you still have a choice for your software's default location, it is best to use the lower left origin.

Ioline's HP-GL interpreters were started before HP-GL 2 was specified. This means that, currently, all of the new commands added to HP-GL 2 are not supported by our older plotters or sign cutters. Some additional commands are supported by Ioline's latest models; which are the Smartrac, the 300, the 200, and the Plotter 600 AE.

Some general guidelines for writing HPGL plot files.

UNITS
The default units for HP-GL and Ioline's plotters are 1016 units per inch. If you wish to use a different number of units per inch, refer to the HP-GL "IP" and "SC" commands. For example, one way to change to 1000 units per inch (mils) is to use the following two commands:

IP0,0,1016,1016;
SC0,1000,0,1000;

Since HPGL defaults to 1016 units per inch, the first command sets up two points that are one inch apart in the x and y directions. The second command sets up units that go from zero to 1000 in both the x and y directions. The plotter will now use mils for plotting units. You can also use these commands to increase the number of units per inch to increase the plotting resolution. Ioline's addressable resolution is 7500 units per inch.

AXIS
Ioline's X axis is the direction of paper motion. Ioline's Y axis is in direction of pen motion.

INITIALIZING THE PLOTTER
The first command in HPGL plot files should be the initialization command 'IN;'. This will do a full initialization and perform the following:
Sets absolute plotting mode.
Puts pen up, if down.
Clears any existing input windows set with the IW command.
Clears the label buffer and restores default label settings.
Clears any plot rotation (plot rotation is not recommended)

It does not affect the pen width or pen width unit mode. The PW and WU commands are HP-GL 2 commands that are not supported. The width of lines drawn are determined by the user, by the type of pen he installs. In addition the SP (Select Pen) command is ignored, since Ioline plotters only use the one pen installed by the user.

FOR CONFIGURATION
Ioline supports the following:
DF (Defaults)
IP (Input Points)
SC (Scale)
IW (Input Window)

Ioline currently doesn't support:
CO (comments)
IR (Input relative)
RP (Replot)

FOR FRAME ADVANCES
Ioline supports:
FR (FRame advance)
PG (Page advance)
Our default frame size is 72 inches wide (Y axis) by 46 inches long (X axis). If you send the command 'FR;' without having changed the frame size in the x direction, the plotter will advance the paper 46 inches and reset the coordinate axis. Ioline's plotters reset the X origin to zero after frame advances for both the "FR" and "PG" commands.

FOR PLOTTING (VECTORS)
Most plots just use:
PU (Pen Up)
PD (Pen Down)
Ioline also supports:
AA (Arc Absolute)
AR (Arc Relative)
CI (Circle)
PA (Plot Absolute)
PR (Plot Relative)

Ioline doesn't support:
AT, PE, or RT

FOR PLOTTING (POLYGONS)
Using PD with several points may be easier but we also support:
EA (Edge rectangle Absolute)
ER (Edge rectangle Relative)
EW (Edge Wedge)
RA (fill Rectangle Absolute)
RR (fill Rectangle Relative)
PM (Polygon Mode)
WG (fill Wedge)

Only the latest models support:
EP (Edge Polygon)
FP (Fill Polygon)

FOR LINE AND FILL ATTRIBUTES
Ioline supports:
LT (Line Type)

Only the latest models support:
FT (Fill Type)

Ioline doesn't support
AC, LA, PW, RF, SM, SP, UL, or WU

FOR CHARACTER DRAWING
Ioline supports:
CP (Character Plot)
DI   (absolute Direction)
DR (relative Direction)
DT (Define label Terminator)
ES (Extra Space)
LB (Label)
LO (Label Origin)
SA (Select Alternate font)
SI   (absolute character Size)
SL (character Slant)
SR (relative character Size)
SS (Select Standard font)

Only the latest models support:
DV (Define Variable text path)
SI   (absolute character Size)

Ioline doesn't support
AD, CF, SD, or TD

THE TECHNICAL GRAPHICS EXTENSION
Ioline supports:
CT (Chord Tolerance)
FR (Frame advance)
NR (Not Ready)
OH (Output Hard clip limits)
OP (Output P1, P2)
OS (Output Status)
VS (Velocity Select) P600/28 V1.03 only, P600A/28A, and the recent models

The latest models support:
DL (DownLoad character)

Ioline doesn't support
BP, EC, MC, MG, MT, OE, PS, QL, ST

THE DIGITIZING EXTENSION
The latest models support:
DP (Digitize Point)
DC (Digitize Clear)
OD (Output Digitized point)

Ioline currently doesn't support
The Palette Extension – (CR, NP, PC, SV, TR)
The Dual Context Extension (FI, FN, SB)
The Advanced Drawing Extension (BR, BZ, MC, PP)
The Advanced Text Extension (LM, SB)