

M I C R O T E K , I N C .

PRELIMINARY INSTRUCTION MANUAL FOR THE
APPLE DUMPLING-GX PARALLEL PRINTER INTERFACE CARD

For Text and Hi-Resolution
Graphics Printing and Screen Dumping
from the Apple II/II+ Computers.

NOTE: Please, BEFORE INSTALLING THE APPLE
DUMPLING-GX IN YOUR APPLE, THOROUGHLY
READ THE INSTALLATION INSTRUCTION!
FAILURE TO FOLLOW THESE INSTRUCTIONS
MAY RESULT IN DAMAGE TO BOTH THE APPLE
DUMPLING-GX AND THE APPLE ITSELF!

TABLE OF CONTENTS

	<u>Page</u>
Introduction to the Microtek Apple Dumpling-GX	1
Before Installation of the Apple Dumpling-GX	1
DIP Switch Selection	2
Installation of the Apple Dumpling-FX	2
Basic Printer Operation with the Apple Dumpling-GX	3
Instructions for Use of the Apple Dumpling-GX:	
Printer Commands for Text Applications and Block Graphics	4
Text Features and Commands	5
Graphics Screen Dump Features and Commands	7
Chart Recorder Mode	9
Sample Program to Test Apple Dumpling-GX	10
Command Summary Page	11
Centronics 739	12
PASCAL and CP/M Capability	13
Advanced Techniques	14
Notes	15
Parts List	16
WARRANTY	17

INTRODUCTION TO THE MICROTEK APPLE DUMPLING-GX

The Microtek Apple Dumpling-GX is the most versatile and flexible parallel printer interface for text and graphics applications with the Apple computer available today. The Apple Dumpling-GX will function with any parallel printer available today on a text-only basis by appropriate utilization of the boards DIP switch. It further can be used as a general purpose 7 or 8 bit output port as desired.

In the graphics mode of operation, the Apple Dumpling-GX is designed in two versions: One version is designed specifically for the IDS (Integral Data Systems) Prism (in Black and White) and the Paper Tiger. This version of the Apple Dumpling-GX has a special PROM and cable required for the IDS printers.

The other version of the Apple Dumpling-GX can be used in the graphics mode with Epson, Anadex, Okidata, C-Itoh, NEC, and Centronics. One single version of the Apple Dumpling-GX, by appropriate selection of the DIP switches on board to tell the card which printer is on line.

BEFORE INSTALLATION OF THE APPLE DUMPLING-GX

Before you install the Apple Dumpling-GX in your Apple, there is a preliminary set of steps to perform to insure correct operation the first time you try it:

- 1) Inspect the foam Microtek box, the actual card and cable itself. If there appears to be any PHYSICAL damage at all, contact your dealer, or the Service Department at Microtek immediately. DO NOT ATTEMPT TO INSTALL ANY ELECTRONIC COMPONENT THAT HAS ANY PHYSICAL DAMAGE TO IT! IT COULD CAUSE ADDITIONAL DAMAGE TO YOUR COMPUTER!
- 2) Whichever version of the Apple-Dumpling-GX you have, you are provided with two pieces: The actual PC Board itself, and a cable. If you have an IDS printer, the cable should be terminated in a DB-25 connector. (Just like those used in RS-232C applications). For any other printer interface application, the termination will be a 36 pin Amphenol Centronics style connector.
- 3) The first selection on the DIP switch is position #8. There are two choices: UP=ON, and DOWN=OFF. Switch #8 must be in the UP=ON position at ALL times for the Apple Dumpling to work properly.
- 4) The selection of strobe and acknowledge signals is also set on the DIP switch, positions 6 and 7.

POSITION 6: UP=STB, DOWN=STB

POSITION 7: UP=ACK, DOWN=ACK

For all graphics applications on the Epson, Anadex, C-Itoh, NEC, and Okidata printers, both the Strobe and Acknowledge signals should be NOT: Therefore Positions 6 and 7 of the DIP switch should

be set for STB and ACK, in the upper or ON positions. You should now have positions 6, 7, and 8 all in the up, or ON position.

- 5) Some printers require different STR and ACK conditions before they will be operational. These applications will be for text and block graphics only. If your printer is not one of those listed, check your printer manual for the correct STR and ACK signals, and set the DIP switch positions 6 and 7 accordingly. If you happen to set these switches in the incorrect position, NO DAMAGE WILL RESULT. YOU WILL MERELY GET NO PRINTOUT!
- 6) The selection of the printer on the DIP switch is the next step for you. Follow the chart to properly set the first 5 positions of the DIP switch for your particular printer.

DIP Switch Selection

APPLE DUMPLING-GX DIP SWITCH PRINTER SELECTION TABLE

IDS Paper Tiger/Prism. (GX-IDS Version Only) to enable graphics:

Epson MX70, 80, 100	1, 2, 3, 4, 5	ON
Okidata 82A, 83A with Okigraph, 84	1, 2, 4, ON	3, 5 OFF
Okidata 80, 82, 83, 82A, 83A for text only	1 - 5	ANY POSITION
Anadex DP9000, 9001, 9500, 9501	1, 2, 3, 4	ON 5 OFF
C-Itoh Prowriter 8510A	1, 2, 3, 5	ON 4 OFF
NEC-8023-A	1, 2, 3, 5	ON 4 OFF
*Centronics 739	1, 2, 4, 5	ON, 3 OFF

*For Centronics 739 printers, special installation techniques are required. See the appropriate section of the manual.

INSTALLATION OF THE APPLE DUMPLING-GX

FOLLOW THESE DIRECTIONS CAREFULLY! FAILURE TO FOLLOW THEM MAY RESULT IN DAMAGE TO BOTH THE APPLE DUMPLING-GX AND YOUR APPLE.

- 1) The Apple Dumpling-GX comes in two pieces. The actual PC Card, and the Cable. If not already on the board, the 34 pin edge connector must be mated to the mating connector on the supplied cable. With the component side up, and the fingers of the board towards you, gently

yet firmly, place the female connector of the cable onto the pins on the board. This should be done so that the cable is extending to your RIGHT! The cable WILL NOT COVER ANY COMPONENTS ON THE BOARD!

- 2) CAUTION! Turn the power to both the Apple and the printer, OFF! NEVER CONNECT ANY PERIPHERAL BOARD INTO THE APPLE WITH THE POWER ON.
- 3) Remove the cover to the Apple computer. Viewed from the front (keyboard side) there are eight (8) slots, Slots 0-7, Left to Right. Place the Apple Dumpling into any slot except Slot 0. The Apple Dumpling should be gently but firmly seated into it's slot, component side to the right, with the cable draping to the rear of the computer, through one of the slits in the case. If the cable covers any components, re-read the instructions and try again. There is only one correct way to install the Apple Dumpling. If possible, use SLOT #1, as this is the most commonly used slot. If you are using PASCAL or CP/M, you MUST USE SLOT #1.
- 4) Draping the cable through one of the slits will permit recovering the Apple.
- 5) Neatly drape the cable to your printer, (MAKE SURE THE POWER TO THE PRINTER IS OFF!) and plug the Centronics connector, (or DB-25 for IDS's) into the rear of the printer. For those printers with 36 pin Amphenol connector inputs, there are often connector clamps to hold the connector firmly in place. USE THEM!
- 6) Double check your installation of the Apple Dumpling. If you are sure that everything has been performed correctly, turn the power ON to both the printer and the Apple.

BASIC PRINTER OPERATION WITH THE APPLE-DUMPLING

In the discussion that follows, we will assume that you have placed the Apple Dumpling into SLOT #1. If you have used some other SLOT, then change all references to SLOT #1 to the SLOT # you have actually used. The term, (CTRL-I) as used throughout the manual signifies typing in the letter "I" while holding down the CTRL key. The term (RET) signifies a single depression of the RETURN key.

PR#1 (RET)

This command turns on, or initializes the Apple Dumpling. If everything is working correctly, you will see the printer do one or two carriage returns, and print the prompt symbol. From this point on, everything you type on the keyboard will be printed on the printer, and shown on the monitor, until you turn the Apple Dumpling off by:

PR#0 (RET), or hitting the RESET key

If nothing happens when you type in PR#1, check to see that all of the preparation of the DIP switches on the Apple Dumpling are correct, and that you have carefully followed all of the instructions in the installation section.

REMEMBER: The first SLOT on the left is SLOT#0, not SLOT#1. If you have typed in the incorrect SLOT#, you will "hang-up" the Apple, and have to hit the RESET key. Also, make sure that all 34 pins of the Apple Dumpling are inserted into the female connector of the cable. It is easy to miss a pair of pins at either end.

You may use PR#1 and PR#0 commands in your own basic programs to selectively output to the printer portions of your program:

```
100 PRINT "THIS LINE WILL NOT GO TO THE PRINTER"  
  
110 PR#1  
  
120 PRINT "THIS LINE PRINTS ON THE PRINTER"  
  
130 PR#0  
  
140 END
```

Only the text in line 120 will go to the printer and monitor, while the text in line 100 will only go to the monitor. Text, or graphics which go to both the printer and the monitor is called ECHO. We will be using this term often throughout the manual.

If you are working on a program listing, and would like to get a program listing on your printer, type in:

```
PR#1 (RET)
```

and

```
LIST (RET)
```

This will result in your program listing being sent to the printer. After the printing or listing is done, type in PR#0, which turns off the Apple Dumpling and kills subsequent output to the printer.

In this mode, the Dumpling is operating in Default mode, and the printout will be identical to the screen, because the Apple issues a carriage return after 40 characters.

INSTRUCTIONS FOR USE OF THE APPLE DUMPLING-GX

PRINTER COMMANDS FOR TEXT APPLIATIONS AND BLOCK GRAPHICS:

Upon initialization of the Apple Dumpling, (PR#1), a certain number of default conditions exists. This allows the user to immediately use his Dumpling without any additional commands necessary. This is especially useful when running certain programs which define most or all of the printer

parameters required for their own application; ie., Visi-Calc, Word-Pro, etc. The initial conditions are:

Left Margin = Off. No limit or definition. Ø

Right Margin = Off. No limit or definition. Ø

Page Length = OFF, or not defined. Ø

Eighth Bit = OFF

The eighth bit is used to enable block graphics, or alternate character sets in various printers. Some printers will not be affected by 8th bit on.

Auto Line Feed Is ON

When these values are Ø, the function is disabled.

Bell is OFF

Screen Echo is ON

TEXT FEATURES AND COMMANDS

PR#n (where n = any number from 1 to 7)

Turns on, or initializes the Apple Dumpling-GX in the appropriate SLOT#. All subsequent commands will appear on both the Monitor and the Printer. (ECHO ON). All other conditions are as described in the Default section above.

PR#0

Turns off the Apple Dumpling-GX. All commands that had been issued to the Dumpling while it was ON previously are now forgotten. Upon reinitialization, any command definitions required must be restated.

(CTRL-I) A

Turns on the Auto-Line Feed. This is the normal default condition. If your printer performs a double line feed after each carriage return, then check your printer manual, to see if the printer provides for it's own automatic line feed. If it does, refer to the printer manual to see how the auto line feed may be disabled. Most printers have DIP switches for that purpose.

(CTRL-I) K

Removes, or doesn't allow the Dumpling to issue a line feed command after each carriage return.

(CTRL-I) B

Enables the printer bell, if one is available. The printer bell may be rung by (CTRL-G). This is a normal default condition. Check your printer manual to see if this feature is applicable to you.

(CTRL-I) C

Disables the bell in the printer, if there is one. This is normal default condition.

(CTRL-I) I

Turns on ECHO to screen. Whatever data is being sent to the printer will also appear on the Monitor. This command must be restated after Line Length is defined, if Screen Echo is desired. Otherwise, Screen Echo is a normal default condition.

(CTRL-I) D

Turns off echo to screen. This is also accomplished by setting line length.

(CTRL-I) X

Suppresses the eighth bit (Bit 7). This is a normal default condition.

(CTRL-I) H

Enables the eighth bit. (Bit 7). This allows the high order bit to be outputted to the printer. On some printers this has had no effect. But on some, it permits block graphics, (Epson MX80), and others alternate character sets. Remember that when Block graphics are being used, the standard alpha numeric ASCII character set is not accessible. You would have to turn off Bit 7, (CTRL-I X) to get back to normal. Check your printer manual for the effects of using the high order bit.

(CTRL-I) nN (where n = any number from 1 to 256)

This sets the line length to the number of characters, (and spaces) from the left side (NOT LEFT MARGIN) until a carriage return is issued. After issuing this command, the Screen ECHO is disabled, so (CTRL-I I) may be used to reinstate Screen ECHO. A carriage return will automatically be sent after "n" characters is printed. If the line length is left undefined, as is the case upon default condition initialization, the Dumpling will not issue a carriage return until it receives one from the Apple. Many programs have this feature already built in to simplify your set-up.

NOTE: That when listing BASIC programs from the Apple, the printing will be automatically formatted for 40 columns, unless otherwise stated:

(CTRL-I) 080N

CAUTION: WHEN SETTING LINE LENGTHS, AND OTHER VARIABLES CALLED "n", USE 3 DIGITS TO DEFINE THE NUMBER, EVEN THOUGH ONLY 2 ARE NEEDED. HAVING THE LEADING 0 WILL INSURE ACCURATE DEFINITION OF LENGTHS: FOR EXAMPLE, LINE LENGTH of 132 would be (CTRL-I) 132N or for 40 columns, (CTRL-I) 040N.

(CTRL-I) n L

Sets the left side margin to the "nth" column. All printouts will begin "n" spaces in from the left side of the carriage. Can be thought of as a permanent TAB statement. Default condition is undefined.

(CTRL-I) n R

Sets right margin (or where a carriage return occurs) to "n" spaces from the left side of page, but NOT FROM LEFT MARGIN. The Dumpling will not cut a word off in the middle if "n" spaces have occurred, but will wait until the first "space" after "n" spaces from left side have passed. A right margin of "Ø", or the default condition disables this feature.

(CTRL-I) n P

Sets page length to "n" lines. The printer will print 6 linefeeds after "n" lines. Continuous form paper typically has 66 lines per page (depending upon your printer - check your printer manual). So one possible setting is (CTRL-I) 60P. Your printer would then skip over the perforations between pages with 6 line feeds.

(CTRL-I CTRL-Y)

Changes the control character from I to Y. Any letter may be used, but you should avoid characters normally used by the printer or text control characters such as CTRL-M.

(CTRL-Y CTRL-I)

Returns the command character back to CTRL-I.

(CTRL-I) S

Cumps the present text on the screen to the printer. The text will be printed 20 spaces in from the left side of the paper, as though (CTRL-I) 020L had been used. Only 40 column screens are printed. 80 column boards are NOT supported.

(CTRL-I) E

Extended Text Screen Dump command. First Dumps page 1, then continues with page 2. All features of (CTRL-I) S apply.

(CTRL-I) Z

Bypasses all firmware on the Apple Dumpling. Effectively turns the Dumpling into a transparent parallel port utilizing hand shaking only. Some programs prefer to talk directly to the printer, and bypass Dumpling software, i.e., ZOOM graphics. This feature is especially useful for software development.

In order to reinstate the firmware, the card must be turned OFF, then re-vitalized.

PR#0
PR#N

GRAPHICS SCREEN DUMP FEATURES AND COMMANDS

The Apple Dumpling is also designed for Hi Resolution graphics to be outputted from the Apple to the printer. For dot addressable printers listed for use, the Dumpling MUST have the Dip switches set according to the chart on page 2. The text and block graphics mode do not care about positions 1 - 5 of the DIP switch.

All graphics commands must be initiated with (CTRL-I) G, and then, if needed, followed by any of the available options or combinations thereof. All commands must be terminated with a carriage return.

G (CTRL-I) G

Dumps Hi-Resolution screen graphics to the printer from page 1.

2 (CTRL-I) G 2

Dumps Hi-Resolution screen graphics to printer from page 2.

B (CTRL-I) G B

Dumps Hi-Resolution screen graphics to printer: First page 1, then page 2.

2B (CTRL-I) G 2 B

Dumps Hi-Resolution screen graphics to printer: First page 2, then page ¹2.

The "B" says that the initial-chosen page is dumped, then alternate page is dumped.

R (CTRL-I) G R

Rotates the picture 90 degrees in a clockwise direction on printer. Some printers require the use of this command when printing double-size "D" images.

D (CTRL-I) G D

Prints the graphics screen (in this case, page ¹2) Double Size on the printer. Some printers don't have enough horizontal positions to print a double size image, so the "R" option must be used in certain cases. If your ocmputer stops functioning, and the printer stops printing while using "D", reset the Apple, reset the printer by turning it OFF and ON again, and rerun the dump routine with: (CTRL-I) G D R

I (CTRL-I) G I

Inverts the printed image. Normally, the white dots on the screen appear as black dots on the printed output. For many applications this is fine; graphs, charts, etc. But, if you're printing the picture of a person, it would appear to be the negative of the image you want, so using the "I" option is available. The use of the "I" option is a very creative tool for experimental work. Consider alternating sets of dumps of several lines without line feeds, alternating Inverted and Non-inverted images!

E (CTRL-I) G E

Prints an "emphasized" image on Epson's only. The printer will print two dots, close together, for every dot normally expected to print. The result is a much denser, higher resolution image. The sacrifice is that printing time is doubled. Not available for Anadex or Centronics printers.

L (CTRL-I) G L

Print the image beginning at the left margin previously set in text mode by:

(CTRL-I) n L

Depending upon which printer is being used, the printer's specific print density (CPI) may affect the left margin. If "L" is not used, it is defaulted to print the image in the center of an 8½" page. For all but double-size non-rotated. Double-size non-rotated images are centered for 15" page.

NOTES

- 1) All commands may be listed in any order, but remember that each must begin with: (CTRL-I) G before any or several options are selected, and followed by a carriage return.
- 2) Be careful of previously set text options, especially the (CTRL-I) n L, Left margin set. If the "L" specified is too large, a "wrap-around" of the picture could occur, or the computer could crash.
- 3) When attempting to use the Apple Dumping directly from the keyboard, rather than through a program, the screen will give a SYNTAX ERROR, although the Dumping will still respond to the command. Apples often don't recognize Dumping commands as valid. To get around this problem, type a one step program:

```
10 PR#1: PRINT CHR$(9); "G":PR#0
```

This sets the Apple to recognize and pass Dumping codes directly from the keyboard.

- 4) Old Epson's without GRAPHTRAX+ don't have a method of clearing their internal printer buffer. When doing a screen dump outside or a program, turn OFF and ON the printer to clear the printer buffer.

Chart Recorder Mode

A chart recorder is a device which prints on a continuous roll of paper over extended periods of time, i.e., EKG readouts, Seismographs, spectral analysis, etc. If you need to print more informative than can be fitted on a single page, or if your program calls for a printout on specific external event controls, (as when using A/D I/O ports, event timers, etc.) a chart recorder mode may be simulated.

By using a series of successive screen dumps, either immediately successive, or under external event control until a page is full, without mid-page perforation spacing, your printer will behave like a chart recorder.

Depending on your printer, you will have to rotate the images "R" to accommodate this feature. In general, IDS, Centronics 739, Anadex 9500 series do not require rotation, but Epson's, NEC, and C-Itoh do require 90 degree rotation.

Try this program (next page) just for fun to test out your Apple Dumping and printer interface. Modify the commands, sequences, etc. to become familiar with their operation.

SAMPLE PROGRAM TO TEST APPLE DUMPLING

NOTE: LOAD PAGE 1 AND 2 WITH HI-RES PICTURES N = SLOT # DUMPLING IS IN.

```
10 PR#N: REM USE THE SLOT # INSTEAD OF 'N'
20 CS = CHR$(9): REM THIS IS CONTROL I
30 PRINT "THIS IS NORMAL PRINT"
40 PRINT "THE NEXT LINE WILL HAVE THE HIGH BIT SET"
50 PRINT
60 PRINT CS; "H"; "THIS IS PRINT WITH HIGH BIT SET"
70 PRINT
80 PRINT CS; "X"; "NOW WE ARE BACK TO NORMAL"
90 PRINT CS; "Ø1ØL"; "THIS LINE STARTS AT THE TENTH POSITION"
100 PRINT "WE WILL NOW LIST THE PROGRAM WITH A LINE LENGTH OF 80
CHARACTERS, A RIGHT MARGIN OF 70, AND PAGE LENGTH OF 10"
110 PRINT CS; "Ø7ØR": CS; "Ø1ØP"; CS; "Ø8ØN"
120 LIST
130 PR#Ø
140 PR#N
150 PRINT "HERE IS PAGE ONE OF TEXT"
160 PRINT CS; "S"
170 PRINT "HERE IS PAGE ONE AND TWO OF TEXT"
180 PRINT CS; "E"
190 PRINT "HERE IS BELLS TO PRINTER"
200 PRINT C4; "B"; CHR$(7); CHR$(7); CHR$(7)
210 PRINT "HERE IS NO BELLS TO PRINTER"
220 PRINT CS; "C"; CHR$(7); CHR$(7); CHR$(7)
230 PRINT CS; "K"; "NOW THERE IS NO LINE FEED"
240 PRINT CS; "A"; "NOW THERE IS"
250 PRINT CS; "D"; "THIS WILL NOT BE ON THE SCREEN"
260 PRINT CS; "I"; "BUT THIS WILL"
270 PRINT "HERE IS PAGE ONE OF THE HIGH-RES SCREEN . . ."
280 print CS; "G"
290 PRINT "HERE IS PAGE TWO, ROTATED, DOUBLE-SIZE, EMPHASIZED, INVERTED,
AND STARTING AT THE LEFT SIDE OF THE PAGE"
300 PRINT CS; "G2RDEIL"
305 PRINT
310 PRINT " HERE ARE BOTH PAGES A 'B' COMMAND"
320 PRINT CS; "GB"
325 PRINT
330 PRINT "THIS FINISHES THE TEST, WHAT DO YOU THINK?"
335 PR#Ø
340 END
```

APPLE DUMPLING COMMAND SUMMARY

PR#n Turns on the Apple Dumpling in Slot #n
PR#0 Turns off the Apple Dumpling

ALL SUBSEQUENT COMMANDS ARE PREFIXED BY (CTRL-I)

A Turns on Auto Line Feed (Default)
K Turns off Auto Line Feed
B Enables the printer Bell
C Disables the Printer Bell (Default)
I Turns on ECHO to Screen (Default)
D Turns Off ECHO to Screen
X Suppresses 8th Bit (Default)
H Enables 8th Bit
nN Sets Line Length
nL Sets Left Side Margin
nR Sets Right Side Margin
nP Sets page length
S Text Screen Dump. Page 1.
E Text Screen Dump. Page 1 and 2.
Z Bypasses all on board firmware
(CTRL-I CTRL-Y) Changes control code prefix.
(CTRL-Y CTRL-I) Returns Control Code Prefix to normal.
G Hi-Res Graphics Screen Dump. Page 1.
G2 Hi-Res Screen Dump from Page 2.
GB Hi-Res Graphics Screen Dump. First Page 1, then Page 2.
G2B Hi-Res Graphics Screen Dump. First Page 2, then Page 1.
GR Rotates the picture CW by 90 degrees.
GD Prints Doubles Size Image. Hires Graphics.
GI Black/White Inversion.
GE Emphasized Print.
GL Prints Graphics beginning at Left Margin.

All commands may be sequenced together to perform multiple function simultaneously. This command summary is for reference only, not for actual descriptive use. See the specific command descriptions, and rules for their use to be sure that the printer will be doing what you want.

Centronics 739

READ THESE DIRECTIONS COMPLETELY BEFORE BEGINNING MODIFICATION.

If you are using a Centronics 739 printer, you have noticed that the standard 36 pin Amphenol connector is not used. A 40 pin edge connector is required. To modify your cable to work with the 739, follow these instructions:

- 1) Remove the cable from the Apple Dumpling card (CAREFULLY).
- 2) With a pair of SHARP scissors, cut the cable off within 1" of the Centronics connector. Make sure that no frayed wires are hanging on. Trim as necessary so the cable is neat on the cut end.
- 3) Purchase from your local electronics supplier, computer store, or mail order house a 40 pin edge connector. Typical part #53-40-D Robinson Nugent.
- 4) Locate pin 1 of the 40 pin connector. Locate pin 1 of the 34 pin connector on the Dumpling end of the cable.
- 5) Place the cable, layed out flat from L to R (pin 1, wire #1 should be away from you) with the 34 pin connector on the L, and the 40 pin connector on the R.
- 6) Place the 40 pin connector in a vice (not too tight) and insert the cable into the opening between the two halves. The cable edge corresponding to pin 1 should be placed next to edge of the 40 pin connector corresponding to pin 1 of it. Insert the cable until it just comes through the other side.
- 7) Holding the wire firmly in place, close the vise slowly until the cable is firmly clamped between the two halves. There may be a "click" or final "snap" on some connectors.
- 8) Remove from vice, and trim the remaining wire protruding from the connector.
- 9) Plug the 34 pin connector into the Dumpling, and the 40 pin connector into the Centronics 739 with power OFF.
- 10) Plug Dumpling into the Apple with power OFF.
- 11) Turn on printer + Apple and try the test program on page 10.

PASCAL AND CP/M CAPABILITY

The Apple Dumping is compatible with both CP/M and PASCAL 1.0 and 1.1. In both CP/M and PASCAL, all the print control functions are bypassed and the Dumping functions as a "Plain Vanilla" printer interfaced exactly as if a (CTRL-1) Z had been issued.

TECHNICAL INFORMATION

To ensure compatibility with the CP/M and PASCAL, the Apple Dumping has it's signature bytes at Cn05 and Cn07 configured to make it appear to the system as an Apple Serial Interface.

For compatibility with other software it also supports the two standard parallel card firmware entry points: Cn00 for initialization and Cn02 for data output.

CP/M and PASCAL initiate data transfer by first doing an I/O clear (LDA SCFFF) to turn off all other LK expansion ROMs. It then jumps to SC800 to initialize the card and jumps to SC9AA to output each character.

ADVANCED TECHNIQUES

The Apple Dumpling uses RAM locations set aside for it's particular slot. The various entry points to corresponding RAM locations are listed below.

Memory Locations:

N = SLOT NUMBER

COLD ENTRY = \$CN00

WARM ENTRY WITH FIRMWARE = \$CNLD - NEXT ENTRY POINT IS CSWL (\$36-\$37)

WARM ENTRY WITHOUT FIRMWARE = \$CN02

LINE LENGTH = \$0478 + \$0N
PAGE LENGTH = \$04F8 + \$0N
TEXT FLAGS = \$0578 + \$0N
 BIT 0 = ECHO TO SCREEN
 BIT 1 = LINE FEED AFTER (CR)
 BIT 2 = HIGH BIT ENABLE
 BIT 3 = BELL ON

CHARACTER CNT = \$05F8 + \$0N
CURRENT ESC CHR. = \$0778 + \$0N
LEFT MARGIN = \$06F8 + \$0N
RIGHT MARGIN = \$0678 + \$0N
LINE COUNTR = \$07F8 + \$0N

Custom Drivers:

Y = \$NO where N = SLOT#

Printer Status = \$C080, Y (READ)
 BIT 0 = READY STATUS .1 = PRINTER READY
 BIT 1 = PAPER STATUS .1 = PAPER OUT
 BIT 2 = BUSY STATUS .1 = PRINTER BUSY
OUTPUT LATCH = \$C080, Y (WRITE) (also clears strobe)
STROBE SET = \$C081, Y (WRITE)

EXAMPLE:

	PHA	; SAVE CHARACTER ON STACK
	LDY SLOT#	; SET Y-REGISTER TO CORRECT SLOT
CHKPAP:	LDA \$C080, Y	; CHECK STATUS FOR PAPER
	AND #02	; CHECK BIT 1
	BNE CHKPAP	; IF NO PAPER, RECHECK
CHKBSY:	LDA \$C080, Y	; CHECK STATUS FOR READY
	AND #01	; CHECK BIT 0
	BEQ CHKBSY	; IF BUSY, RECHECK
	PLA	; GET CHARACTER FROM STACK
	STA \$C080, Y	; LOAD OUTPUT LATCH
	STA \$C081, Y	; START STROBE
	STA \$C080, Y	; END STROBE
	RTS	

NOTES:

- 1) When you see (CTRL-I), enter it as explained in the text features section. Control characters do not appear on the screen, so if you enter,

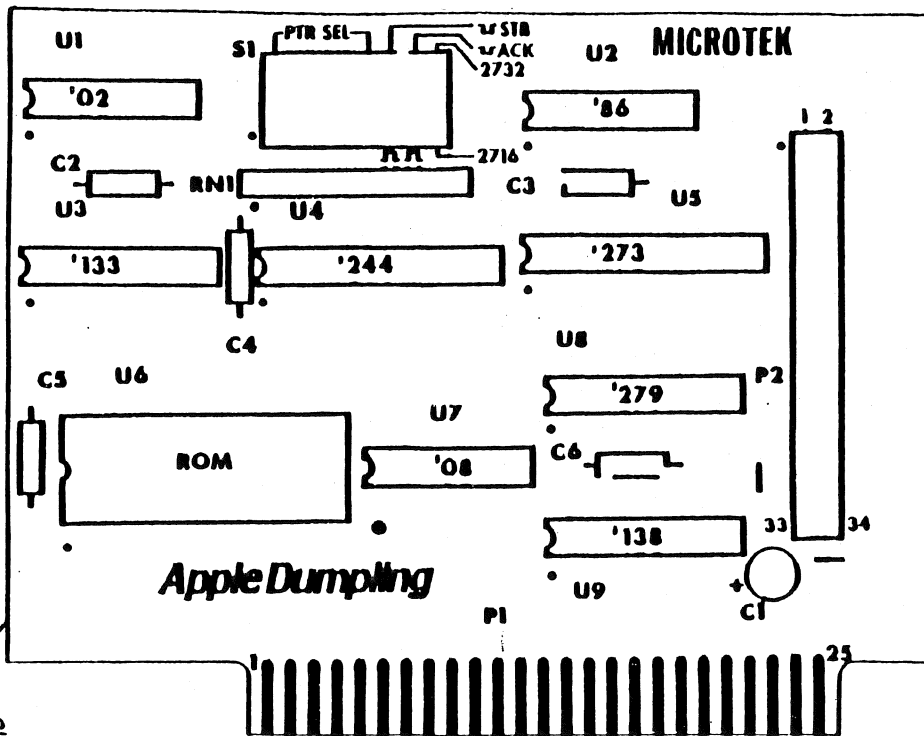
```
10          PRINT "CTRL-D"; "PR#1"
```

the screen will read

```
10          PRINT " "; "PR#1"
```

- 2) When tabbing past 40 columns, you must set line length greater than 40.

(CTRL-I) nN.




3 PCB

COMPONENT SIDE

- ① -1 ASSEMBLY- APPLE DUMPLING- GX (2716 ROM)
- ② -3 ASSEMBLY- APPLE DUMPLING- GX (2732 ROM)

PRODUCTION NUMBER 925

QTY	DESCRIPTION	PART NUMBER	REV
X	U6 1 ROM	2732	
X	U6 1 ROM	2716	
X	U8 1 IC	74LS279	
X	U7 1 IC	74LS08	
X	U6 1 SOCKET	DILB24P11	
X	U5 1 IC	74LS273	
X	U4 1 IC	74LS244	
X	U3 1 IC	74LS133	
X	U2 1 IC	74LS06	
X	U1 1 IC	74LS02	
X	S1 1 DIPSWITCH	206-B	
X	RNI 1 RESISTOR	2K TO 10K RES. PACK- 10PIN	
X	P2 1 HEADER	34 PIN	
X	C2,C6 5 CAPACITOR	C43C104Z CERAMIC	
X	C1 1 CAPACITOR	47µF 25V ELECT. RADIAL	
X	3 1 PCB	10405	
X	2 1 ASSEMBLY	10406-3 (2732)	
X	1 1 ASSEMBLY	10406-1 (2716)	
-3	-1		

APPROVAL W.R. Gordon	DATE 7/16-82	PARTS LIST	
		 MICROTEK 8514 Chatsworth Drive San Diego, CA 92123	
		TITLE ASSEMBLY- APPLE DUMPLING GX	
TOLERANCE NONE	SCALE 2X1	DWG. NUMBER 10406	REV 1

W A R R A N T Y

MICROTEK, INC. warrants the Apple Dumpling-GX to be free from defects in material and workmanship for a period of TWO (2) YEARS from date of purchase. During the warranty period, MICROTEK will, at its option, repair or replace, at no charge, any defective components, provided that the defective board is returned freight prepaid to MICROTEK, INC., 9514 Chesapeake Dr., San Diego, California 92123. All returned items must be accompanied by an R.A. (Return Authorization) number on the outside of the shipping carton. This number may be obtained by calling MICROTEK's Service Department at (619) 278-0633.

Unless the warranty has been registered with MICROTEK, a dated proof of purchase must be included with the defective board. This warranty does not cover damage caused by accident, misuse, misapplication, or unauthorized service or modification.

ATTENTION EPSON GRAPHTRAX II USERS

PRELIMINARY UPDATE FOR THE MICROTEK APPLE DUMPLING-GX

ERROR:

Page 6

(CTRL-I) nN Setting Line Length.

When using Epson printers with Graphtrax II, it is necessary to define line length. They do not respond to this default condition.

Page 10

Add this step to the program for Epson printers with Graphtrax II:

```
25 PRINT C$;080N: REM FOR GRAPHTRAX II, LINE LENGTH MUST BE  
DEFINED
```

ADDENDUM TO APPLE DUMPLING-GX MANUAL

There are two Okidata dip switch selections now, rather than the one outlined in the manual:

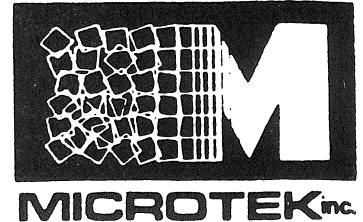
PRINTER

OKIDATA #84
OKIDATA #82A, 83A
with OKIGRAPH

DIP SWITCHES

1, 2, 4, ON 3, 5, OFF
1, 2, 3, ON 4, 5, OFF

For all Okidatas which are used for text or block graphics only, the dip switches may be set in any position.



MEMORANDUM

TO: Microtek Customers DATE: December 2, 1982
FROM: Microtek Technical Department
SUBJECT: Notice of Changes of Microtek
 Dumpling-GX Version 1.4 EPROM

The recently released Dumpling-GX version 1.4 EPROM contains several product improvements over preceding versions.

Those changes are summarized below:

1. GRAPHICS CAPABILITY WITH APPLE DOT MATRIX PRINTER.
All Dumpling-GX commands are available on the Apple Printer.
To select the switch settings for the Apple Printer, place the Dumpling-GX switches in the following positions:

Positions 1,2,6,7,8 are ON (UP)
Positions (3,4,5) are OFF (DOWN)
2. TAB SUPPORT ENABLED (DEFAULT). Tabs can now be used with most applications. To disable Tabs perform a <CTRL-I> L. To re-enable Tabs, perform a <CTRL-I> F.
3. FORMAT MODE DISABLED (DEFAULT). The formatting of BASIC program listings is disabled at power-up. To enable the Format mode, perform a <CTRL-I> R. To disable the Format mode, perform a <CTRL-I> P.
4. BYPASS ALL DUMPLING FIRMWARE. The <CTRL-I> Z function is implemented on the Dumpling-GX version 1.4. Remember, any keyboard commands will be sent EXACTLY as they appear at the Apple keyboard. See the ASCII equivalent for each key by referring to pages 6,7 & 8 of the Apple II Reference Manual.

To disable the <CTRL-I> Z command, you must turn off the Dumpling-GX card -- for example type PR#0 or turn off the Apple power switch.