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by Paul Pappas

Something happened recently that made a lot of ADAM owners sit up and take notice. Orphanware, one of the first and most prolific ADAM hardware producers, was put on the block and sold by founder "Big" John Lingrel to Ron Collins. At this time it is unclear whether Ron will simply sell off the remaining inventory or continue to produce new products. As little as a year ago this might have crippled ADAM hardware development, but thanks to recent efforts by organizations like ADAM's House, E&T Software, In-House Service Reps, and TriSyd Video Games, ADAM hardware development shows no signs of slowing down.

Since the future of Orphanware products is in doubt, there may be a run on Orphanware products, some of which were rather expensive. I am most interested in the 80 column board, a pricey item which sounds great but mainly benefits the avid CP/M user. In the interest of those who may be tempted to "get one while they can," listed is an updated review which I hope helps you decide if the 80 Column Board is right for you.

Orphanware's 80 Column Board

Orphanware's 80 Column Board is not a board at all but an integrated special Orphanware serial interface and a commercially available terminal board manufactured by Digital Research Computers. Enclosed in a white plexiglass box about the size of a disk drive, the unit is powered by a Colecovision game power supply and connects to the ADAM via a cable to the side expansion port.

The unit will work with any other peripheral you may have (like an EVE SP-1). Orphanware offers cables with multiple connectors so you may attach other units to the side expansion port. The unit emulates the Adds, Beehive, LSI ADM-3, and Heath 19 terminals. This means the board may be configured to work with virtually any program. Outputs are available to drive monitors requiring separate sync and video signals. An IBM keyboard may be attached to the unit. A speaker may be attached for audible beeps (Control-G). Word wrap may be enabled or disabled. If you use the proper (read expensive) monitor you could display up to 48 rows and 96 columns of text per screen. There are all functions of the terminal board inside the unit.

Now for the bad news. The unit does not support color or audio and requires an 80 column monochrome monitor. Monochrome monitors retail for around $80. Your television will not work. The software supplied with the unit supports CP/M (only minimal SmartBASIC support is available), so to use Smart-BASIC, SmartWriter, SmartLOGO, etc., or video games you need a video switch to select the ADAM's or the 80 Column Board's video display. If you want a color display for ADAM programs you will need two monitors, one monochrome and one composite color (or a television). There are monitors that display both monochrome and composite color eliminating the need for a video switch and two monitors, but such monitors are expensive ($400 and up). The unit does not support the cursor controls of ADAM CP/M, so programs like FORMAT do not display the current block number properly. Most annoying of all, there is no on/off switch. This problem can be solved by purchasing a gadget from the local hardware store which looks like a light switch but interfaces between any electrical plug and wall socket.

```
TO DEC :HEXN
IF EMPTYP :HEXN [OP 0]
IF EMPTYP BL :HEXN [OP SUM ASCII :HEXN
 IF NUMBERP :HEXN [-48] [-55]]
OP 16 * ( DEC BL :HEXN ) + DEC LAST
 :HEXN
END

TO .INSTALL :BASE.ADR :BYTE.LIST
IF EMPTYP :BYTE.LIST [STOP]
END
```

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 :HEXN
END


TO .INSTALL :BASE.ADR :BYTE.LIST
IF EMPTYP :BYTE.LIST [STOP]
END

TO PRDRIVE
 40 C9]
CLEARSCREEN
ERALL
RECYCLE
END


MAKE "STARTUP [PRDRIVE]
```

Listing 1—STARTUP

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At around $220 this product is overpriced. The terminal board retails for $99 (quantity one) and the Colecovision game power supply is available at Radio Shack for $5. The construction cost of the plexiglass case may well be greater than the serial board. The same effect can be accomplished with a serial interface, a surplus (read cheap) terminal, and software to modify the appropriate CP/M BIOS I/O routines.

Anyone with a base knowledge of CP/M and assembler language can create the software. I chose to configure my ADAM as described earlier for 80 column CP/M displays. However, the 80 Column Board does perform as advertised and provides the non-technical CP/M user with 80 column CP/M displays.

ADAM And SmartLOGO

In much the same way an external printer expands the print capabilities of the ADAM, SmartLOGO enhances the graphics and sound capabilities. Where SmartBASIC has almost no built-in facilities for sound and graphics, SmartLOGO is a programming language with an emphasis on sound and graphics. Unlike SmartBASIC, SmartLOGO does not require you learn Z-80 Assembly Language and discover undocumented features of ADAM's operating system (EOS) to create complex graphic displays.

You may think SmartLOGO would be difficult to learn, actually it is no more difficult to use than SmartBASIC, and is based on superior computer language concepts. SmartLOGO has a built-in text editor, ideally suited for the creation of programs, plus more and better commands for the manipulation of tape/disk files. Built-in commands allow the programmer to save/restore graphic displays to/from files. Instead of SmartBASIC's poorly written manual, SmartLOGO has an excellent 350 + page manual, divided into introductory and advanced concepts. The package includes an excellent interactive tutorial on SmartLOGO, which alone is worth the purchase price (around $20 from most ADAM dealers). In my opinion, SmartLOGO is greatly superior to SmartBASIC. Apple IIs and Commodore 64s have LOGO, but the ADAM version is the best.

Currently, no graphic design package available for the ADAM comes close to the capabilities of SmartLOGO. But SmartLOGO's capabilities don't stop

backwards to beat SmartBASIC into submission, when a truly incredible design package could easily be written in SmartLOGO.

About the only thing SmartLOGO lacks is the ability to print its pictures. Unlike SmartBASIC, there is no commercial program which prints SmartLOGO pictures on an external printer. Even printing ordinary text from SmartLOGO was once just a dream because like ADAMCalc, SmartLOGO uses its own printer drivers instead of the operating system's, making standard external printer patches ineffective. As luck would have it, I came across a SmartLOGO external printer patch created by David Clark and published in the now defunct "Expandable Computer News." The program STARTUP (see Listing 1), which acts like SmartBASIC's HELLO program and is run automatically when you boot SmartLOGO, modifies SmartLOGO's internal printer routines. This opened the door for some interesting possibilities, one of which is described later.

I have always been rather fascinated by plotters. A plotter is a device that literally draws pictures using markers or pens. Some time ago I was able to purchase a new Epson HI-80, four pen, 10 color plotter. This plotter is a fitting peripheral for the ADAM because it too is an orphan, abandoned by Epson because the printer giant did not know what to do with it. If you have any doubts about its quality, *PC Magazine* voted it Editor's Choice for "Plotter Of The Year" a few years ago, and it is still one of the best (but in my zeal for the underdog I digress).

My goal was to utilize the plotter under SmartLOGO, since the HI-80 uses the same interface as an external printer. The only problem was SmartLOGO's incompatibility with an external printer. But as detailed earlier, that obstacle was overcome, making the rest quite simple. The program PLOT (see Listing 2, page 280) was used to create the geometric pattern (see Figure 1, page 280) on the monitor screen while simultaneously directing the HI-80 to plot the design. This particular design was produced to demonstrate some aspects of SmartLOGO and the ADAM.

The details of how the program operates is beyond the scope of this article, but notice the small size of the program. The equivalent SmartBASIC

CP/M displays.

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Currently, no graphic design package available for the ADAM comes close to the capabilities of SmartLOGO. But SmartLOGO's capabilities don't stop there. SmartLOGO has the ability to draw and animate (that's right, animate) pictures. Would you like to make fish swim or cars race down a track? How about creating a video game with the same action as those found in arcades. You can do it with SmartLOGO alone. No assembler language or EOS calls required. On a personal note, I have never understood why ADAM programmers bend over

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The details of how the program operates is beyond the scope of this article, but notice the small size of the program. The equivalent SmartBASIC program would be much larger and more complex. Also, the plot is a true representation of the design, unlike the display which is only an approximation due to the relatively low resolution of the television screen. To see the difference yourself boot SmartLOGO, LOAD CURVES (this procedure comes with SmartLOGO), and issue the following commands: HT, CS, and SPIRAL 1 127 1 155. Enter CS and

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► THE ADAM FORUM

ERALL when you are finished (enter these commands one at a time followed by the RETURN key).

As you can imagine, the possibilities are endless. Business and scientific charts, Computer Aided Design (CAD) programs, video games, and plain old pretty pictures can be generated with SmartLOGO. I hope I inspired some of you to take a serious look at Smart-LOGO's capabilities, and especially hope companies producing ADAM products will consider creating new SmartLOGO products (like a graphic print program for external printers).

Alternate Keyboard Attachment

If you find ADAM's keyboard cable in your way due to its connection to the front of the memory console, instead of the side or back like most other computers, there is a simple solution. As you proably know, ADAM uses a network to communicate with its printer, disk drives, tape drives, and keyboard. Since the disk drives and keyboard use the same modular connector to access the network, you can plug the keyboard into the jack on the side of the console, effectively moving the cable out of the way. But if you have a disk drive you lose that option, since

its an even bigger mess to attach the disk drive to the front jack.

If only you could attach both keyboard and disk drive to the side jack. There is an inexpensive method to accomplish this connection. If you compare the ADAM's modular connector to a telephone you find they are the same except the telephone only uses the four center conductors, where ADAM uses all six. If we had a telephone duplex adaptor with all six conductors our task should be simple, just plug and go. It turns out the task is a bit more complex, but certainly not difficult.

The AT&T duplex adaptor has all six conductors, even though the outer two are generally not used (this is the only brand I know of which includes all six conductors, so be sure you use the white AT&T brand). However, it requires modification because the adaptor's plug has plastic flanges over the outer two conductors, while all six conductors are exposed in the two jacks. Use a sharp knife and a bit of caution to trim away the flanges. Now it's ready to connect and use, except the memory console's side plug is too low to the ground for the plug to fit. Buy four self-stick rubber feet about one half inch thick. Place them over the rubber feet

```
TO SPIRAL :SIDE :ANGLE :INC :MAX
FD :SIDE PROUT
RT :ANGLE
IF :SIDE > :MAX [STOP]
SPIRAL :SIDE + :INC :ANGLE :INC :MAX
END

TO PLOT :SIDE :ANGLE :INC :MAX
CS
HT
WINDOW
HOME
SETUP
SETTEXT 23
PRINTER
SPIRAL :SIDE :ANGLE :INC :MAX
NOPRINTER
SETTEXT 0
END

TO PROUT
MAKE "X INT XCOR
MAKE "Y INT YCOR
( PRINT [DA] :X [,] :Y )
END

TO SETUP
```

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WINDOW
HOME
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NOPRINTER
SETTEXT 0
END

TO PROUT
MAKE "X INT XCOR
MAKE "Y INT YCOR
( PRINT [DA] :X [,] :Y )
END

TO SETUP
PRINTER
PR [DF]
PR [IF 1,1]
PR [MA 1255,960]
PR [OR]
PR [IM 31,11]
PR [IF 10,1]
NOPRINTER
END
```

Listing 2—PLOT

already on the console. Now you can plug and go. I suggest you attach the keyboard cable to the lower jack on the duplex jack to minimize strain. Total cost should be around $4.

There you have it. The cheapest and easiest hardware modification you are likely to see. By the way, the duplex adaptor has one other use. Flanges or not, you can use it as an inline coupler for ADAM cables. Just plug the cables you wish to join into the duplex adaptor.

ADAM Printer Ribbons

One of the most common questions I receive from ADAM owners is; "Where can I find printer ribbons for my ADAM?" I estimate over fifty percent of the information requests I receive contain that question. Of course we (meaning you and I) know of a dozen ADAM dealers who sell ADAM printer ribbons. But even that knowledge won't help when your last ribbon dies at 3:00 pm, and your report is due 8:00 am the next morning. For those times when you need a ribbon "right now," here is a list of ribbons compatible with the ADAM printer and (sometimes) available at your local office supply store.
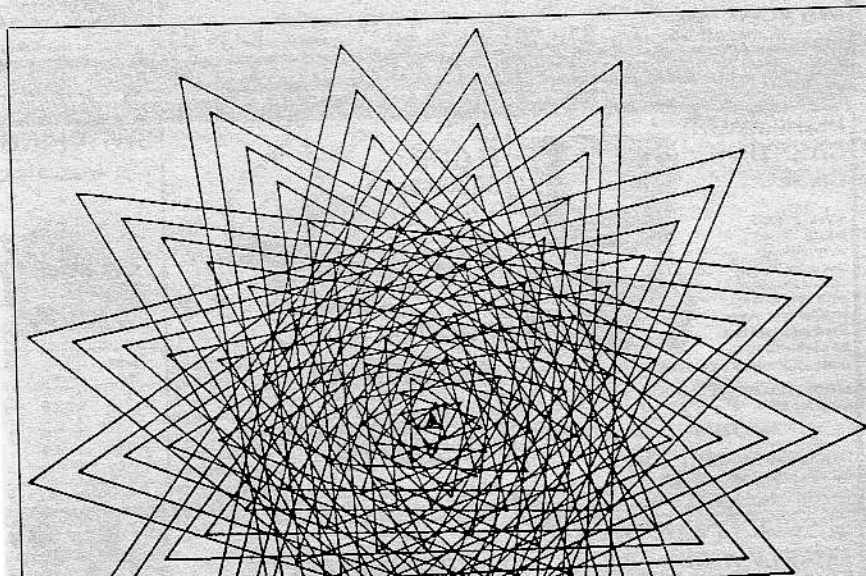
Carousel—310; Digital—310W, LQP-01, LQP-8E; Diablo—1200, 1340, 1641, Hytype 1; MDS—2300, 2307; Muliterm—T3000; Trend Data—4000; Xerox—122, 124, 126, 128, 151, 152, 800, 850, 860, 1550, 3010, 3010WP.

Unreleased Software

I often receive letters asking about the availability of the many programs advertised but never released for the ADAM. Often by way of individuals sympathetic to ADAM users, many of these products were obtained by ADAM user groups, most notably NIAD (to whom we all owe sincere thanks). Eventually diagnostic and utility software plus technical documents began to surface as well. Although the items were never placed in the public domain, an agreement was reached where most could be freely distributed so long as they were not represented as an official Coleco product. Since these items are treated as public domain (for distribution) they are available from most ADAM retailers and user groups for as little as $5 each. To give you an idea of the quality of the software, presented is a review of my personal favorite. Keep in mind most "unreleased" software is of the same high quality and sold at bargain basement prices.

The unreleased supergame entitled "The Best of Electronic Arts" contains two supergames, Pinball Construction Set and Hard Hat Mack. Pinball Construction Set is arguably the best supergame ever created for the ADAM. The graphics, sound, and playability are first rate, even better than the Apple version. The game not only lets you play electronic pinball machines, but lets you design the pinball machine from the ground up, and I do mean the ground up! You design the size, shape, function, and color of the board, flippers, bumpers, spinners, and everything else that makes up a pinball game. The sound and point value of the bumpers and related items are user selectable. You even set game speed, bumper bounce strength, and high/low gravity. The program is icon (a shape which represents a function) driven. You move a pointing hand to the icon that represents the function you want to use

those times when you need a ribbon "right now," here is a list of ribbons compatible with the ADAM printer and (sometimes) available at your local office supply store.

Carousel—310; Digital—310W, LQP-01, LQP-8E; Diablo—1200, 1340, 1641, Hytype 1; MDS—2300, 2307; Muliterm—T3000; Trend Data—4000; Xerox—122, 124, 126, 128, 151, 152, 800, 850, 860, 1550, 3010, 3010WP.

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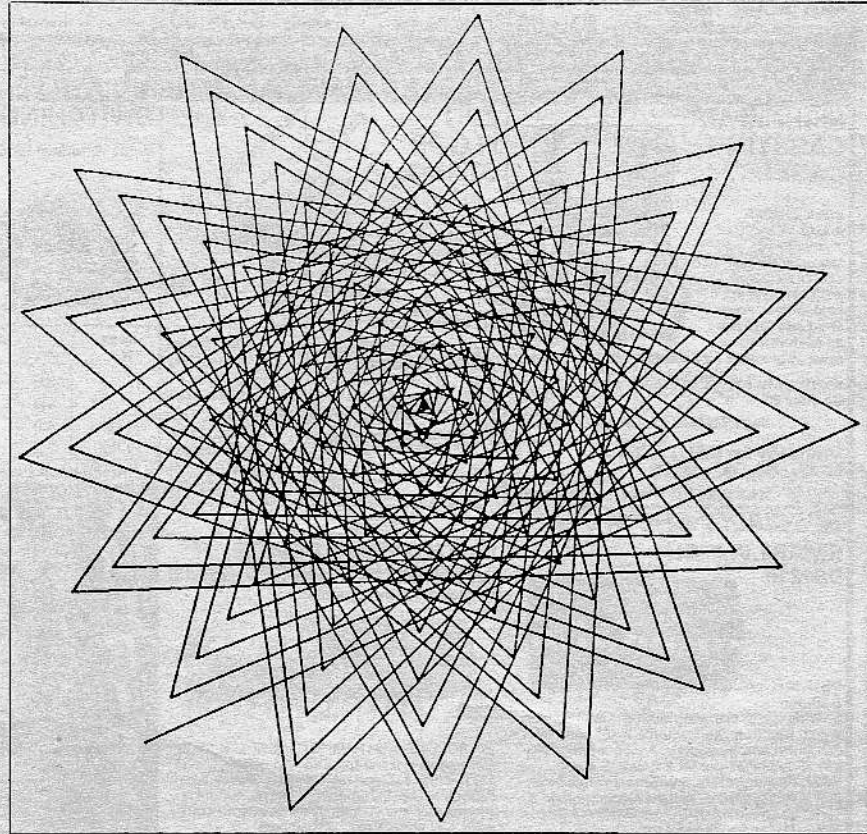

Figure 1

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► THE ADAM FORUM

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FD :SIDE PROUT
RT :ANGLE
IF :SIDE > :MAX [STOP]
SPIRAL :SIDE + :INC :ANGLE :INC :MAX
END

TO PLOT :SIDE :ANGLE :INC :MAX
CS
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HOME
SETUP
SETTEXT 23
PRINTER
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TO SETUP
PRINTER
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PR [MA 1255,960]
PR [OR]
PR [IM 31,11]
PR [IF 10,1]
NOPRINTER
END
```

Listing 2—PLOT

(paintbrush, hammer, scissors, magnifying glass, etc.) or you select one of the prebuilt bumpers (spinners, ball traps, etc.) and move it to the desired area on the board. You may modify anything about the prebuilt bumpers or build your own from scratch. Pinball has hidden bumpers that don't show up until the ball hits what appears to be the game border or a standard bumper. You even get to title your work.

Pinball has the ability to create a self-booting, menu driven tape/disk of your pinball machines. Just hit the reset button and a menu of pinball machines appear. Select the one you wish to play and off you go. The left and right flippers are controlled by the left and right fire buttons on the joystick. If you tire of the machine press a key and it's back to the menu to select a new machine. You may add or delete machines as you wish. You can even load a machine and make modifications to its design.

Need some ideas to create your own games? Pinball comes with two demo games, which you may not only play but examine and modify, and an excellent forty page instruction manual. And don't forget there is still another game on the volume, Hard Hat Mack, in which Mack tries to construct buildings against heavy odds. What more can be said? Like most other

unreleased items, Pinball Constuction Set is a superb product available at a bargain price.

On The Horizon

How would you like a free Miner 2049er game cartridge, voted "Game Of The Year" by *Electronic Games* magazine in 1983, absolutely free? Plus instructions on an undocumented feature which lets you select the game screen of your choice? It could be yours for a little effort and a twenty-five cent stamp.

Each month the author of the most interesting/informative ADAM letter (paper or electronic) will receive a free Miner 2049er game cartridge. It's my way of saying thank you for your efforts, so keep those letters coming (I had to buy a bigger mailbox, honest!).

I am always happy to hear from fellow ADAM Users. Contact me in care of the Triangle ADAM Users, 2623-A Yanceyville St., Greensboro, NC 27405-4407, (919) 375-6159. Due to the volume of mail I receive, you must enclose an S.A.S.E. if you expect a reply (no exceptions). If you leave a message on the answering machine asking me to return your call, be forewarned I will call collect. I may also be contacted via EMAIL on American People Link (PAPPASPM), Compuserve (72277, 3303), or FIDO Net's ADAM GENERAL Echo. ●