Vol 2 Issue 4 Jul / Aug 94

# COCO - LINK

## A New Look For The Future

## THE COLOUR COMPUTER MAGAZINE

In the days of yore the printed word was produced after many years of work with quill & ink.

Now we have the printer and the years have been reduced to hours and minutes.

## THIS ISSUE

# REMCOMS

Remins Computer Software

EVERYTHING YOU NEED FOR YOUR COCO 1, 2 AND 3

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## AUSTRALIAN PRODUCTS

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|---|---|---|---|
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WHEN ORDERING PRODUCTS WHICH MUST BE OBTAINED FROM THE USA, PLEASE ALLOW A MINIMUM OF 21 DAYS FOR DELIVERY.

TO ORDER CONTACT:

REMCOMS
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KIRWAN QLD 4817
PHONE/FAX:077 734 884

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WARWICK FARM NSW 2170
PHONE: 02 822 4678

(PLEASE LEAVE MESSAGE ON ANSWERING MACHINE IF OFFICE UNATTENDED)

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## ADVERTISERS

# REMINS RAMBLING

I can't believe these months have gone by so fast. Here it is nearly halfway through the year. By the time you turn around again it will be Christmas! Gosh, what a thought.

What a busy month it has been. So far I have had to fly down to Melbourne to be with a sick relative and next week I have a trip to Brisbane to pick up another (oh God) yes, another system.

We were sorry to hear that the National OS9 User Group will not produce their newsletter after August. I hope their fears that the members of the User Group will be lost do not come true, the guys provide tremendous support, as I have found out over the past year.

Fred will be setting up 'Freds Bulletin Board' over his June break (and he thought he was going to rest). The timings will be the same as in Melbourne, 8.30pm to 7.00am. So all you BBS users can call. Knowing Fred there will be all sorts of goodies on there, ranging from the latest news in the CoCo world and heaps I understand in the OS9 field. More on that later.

What an interesting response from readers about my oversight in not putting the Public Domain Software ad in the last issue. My only excuse is that my trip to Melbourne caught me off guard. They wanted to know if the Public Domain software was still available? Well funny you should ask! Robbie has asked me to take over this because of his busy schedule, so we have taken up the challenge. I will attempt to get a new advertisement done by the time this issue goes out, if I don't just give me a call.

It has also been a busy month in that I am looking at getting the MM1 developed here in Australia. This issue contains some information about the MM1 in a Question and Answer format. If anyone wants more info please give us a call.

I finally got the software from Owlware (five months later). It contained the updated version of Window Writer (version 1.3A). I have to admit it was worth the wait, for me anyway. Unfortunately, one of our customers works his Window Writer from disk (ours is on the hard drive) and his is taking some time to work out. I have asked him to do a review, so that should make for an interesting comparison.

Owlware still have 512K upgrades and of course the Window Writer 1.3A programme. We use Window Writer to produce this magazine, I reckon it's the best thing since sliced bread and so easy to use.

We are still awaiting a parcel from Kala Software. Their first parcel never made it, so I hope their second attempt is more successful. I am keen to see their Ultimuse programme in action. More I hope, on that later.

For all those who asked about the Radical software we advertised last issue it appears that their forecast for August 1993 was premature, although work is still being done. I certainly will keep you up-to-date on their progress.

And more good news, it seems that Microcom Technologies have not completely folded at all, they still have CoCo software and books in stock. See the ad later in this issue for more details.

**PROGRAMMING COMPETITION**

Farna Systems and the '68 micro' magazine is running a competition. All computer types supported by 268'm are eligible. Send a disk with a running copy of the programme as well as an ASCII listing of the source code or BASIC listing, running or installing instructions and a description to;

FARNA Systems PC
Box 321
WR GA 31099
USA

Entries close September 1 1994.

# LETTERS TO THE EDITOR

Dear Fred/Ros

A small letter to let you know that without COCO-LINK a lot of people like myself would have no one to ask for help.

A couple of weeks ago I was having trouble with my CoCo and I was talking to John Morris about it. I then sent my CoCo to him and since then no more problem.

My point is this, if there was no COCO-LINK I would not have found John Morris and I would still have the problem. So thank you and keep up the good work.

STEPHEN QUINN

Stephen,

We know exactly how you feel, because we were in the same boat a few years back. The problem was that Fred being in the Army was getting posted all over the coutry side and therefore contact with other cocoists was pretty hard. When we found out about CoCo-Link it was as if all our xmas's had come at once. It was for this reason that we decided to continue the magazine when Robbie decided that he had simply run out of time to do so. As we keep saying, for as long as the magazine helps people and there are still interested cocoists, it will continue.

Ros.

Dear Fred and Roslyn

I have a problem with the programme "Newspaper 09". I purchased it along with a heap of other OS9 software in the "Unbelievable Offer #4". Sometimes it works fine BUT... The error occurs when EXITING the sub programms back to the Main Menu. Some of the Errors are:- when exiting the Layout programme I quiet often get #0 ERROR or #194 ERROR, or when exiting Disk menu back to Main Menu #203 ERROR. Anyway, no matter what ERROR occurs, the system just LOCKS up, requiring a total reboot. Most annoying. Have you experienced any of these problems?

I have a COCO 3 512K, OS9 Level 2 patched with shell+, and most other goodies from the OS9 Usergroup PD files. Even when Newspaper 09 works OK, you can see the error message flash up on the screen for a split second, between Menus. I'd appreciate any HELP you can muster.

As for the rest of the COCOPRO package, its great. I've found many of the tools very useful, and I'm exploring the 'data windows' programme. I would recommend the package to any OS9 user.

I see in this months 'Australian OS9 Newsletter' that you intend to continue with an OS9 column in the COCO-LINK. This is great news to me. I have found it very interesting to date. When you have no one local to talk to about OS9, reading and re-reading different articles is very useful in muting out different problems.

Lastly, could I place an ad in COCO-LINK.

Keep up the good work with the Mag.

JOHN McGRATH

John,

I have spoken to Fred about your problem with Newspaper 09 and he says that when he was using it, it sometimes did the same thing. The reason he did not do anything about it was due to him now using Window Writer to do all the word processing.

I will put your problems into a letter and send them to the authors of the programme to see if they can answer them for me. In the mean time is anyone else out there with the programme having the same problems and if so, have you found a cure?

With the OS9 articles, believe me I will be relying heavily on all the OS9 guru's out there to keep it going and of course I will convince Fred to do some as well on those rare occasions that he gets home.

I have put your ad in the 'For Sale' column of this issue. Hopefully someone can help you there.

Ros.

******MICROCOM TECHNOLOGIES******

The following is list of software and books still available from Microcom Technologies:

BOOKS:
500 Poke, Peeks & Execs .....$25
Supplement to above .....$15
300 Pokes, Peeks & Execs.....$25
(For the CoCo 3)
Utility Routines Vol 1.....$20
3 Unravelled Books.....$50

SOFTWARE:
Word Power 3.3.....$55
Calender Maker.....)
Screen Dump.....)
Super Tape/Disk Transfer).EACH.$25
VCR Tape Organiser.....)
Home Bill Manager.....)
Computerized Cheque Book)
Basic Windows Programme.....$20
Disl Utility.....$20
File Transfer (Multi Vue).....$25
Multi Edit.....$12
TW-80.....$12
VIP Writer III.....$50
Autoterm.....$35
CoCo OS-9 Ram Disk.....$20
OS-9 Programming System.....$35
Memory Master.....$20
Wild & MV(DIR Assistant OS-9)..$20
Colour Demon Seed.....$20
CoCo NewsRoom.....$20
XT-Rom.....$25

(Please allow minimum of 21 days for delivery. Postage confirmed when order placed).

For orders contact REMCOMS:
Fax/Phone: 077 734 884

# THE PRINTED WORD

THE PRINTED WORD:
by
F.G. Swygert

Which printer is right for you? Here are your options...

Personal computers came along and people heralded the "paperless" office. Now people had access to all sorts of information right on the screen. Little did they realize at that time that computers would generate more paperwork than ever before! Information on the screen is fine, but it is difficult to handle and can't always be taken home, to conferences, worked on during flights, etc. In fact, a computer is pretty much useless without a printer.

Before the personal computer, it was difficult, time consuming, and costly to get reports. Now, all one has to do is send the report to a printer and there it is! Here at Robins Air Force Base, it happens on our network all the time. Someone needs some information? Send it to the 2000 line per minute band printer and a 1500 line report is generated in a minute or so (a line in this case is 136 characters... that's 4,533 cps, and yes, it IS that fast!). Instead of creating less paper, the computer generated much more.

So that brings us to this issues topic - computer printers. In the early days one really had to have a printer of some sort because there were no video terminals. Everything was routed through the printer, as it served as a "display" as well as an output device. This could be simulated with an OS-9 system easily by routing standard output to the printer instead of the screen. Try it a while and you'll really appreciate your monitor. Many computer hobbyist worked with rebuilt (and expensive, usually $1,200 - $1,500, in 1977 dollars) Teletype machines. These served three purposes: input, output and mass storage. Most Teletypes have a paper tape punch that could store messages in five bit code. So programmes consisted of rolls of 3/4" wide paper tape. These could then be stored and read back into the computer through the same device that punched the tape. A paper tape could be used about 10-12 times before it started to show wear and produce errors. Luckily, my experience with this type of storage was with an actual teletype machine used to send message, not computer storage! Teletypes are basically 80 column dot-matrix printers.

Some long time computer users will remember things such as the TRS-80 TP-10 and Sinclair 40 column thermal printers. These were essentially cash register mechanisms converted for computer use. The first such printer was made by South West Technical Products Co. It cost an amazing $250. Amazing was the low price... the least expensive printer until that time was the used teletypes, which were big and noisy also. The next company to break the $1,000 barrier in computer printers was Centronics with their model 1779 in 1977. This was a large dot-matrix printer that printed 80 columns at a speed of around 80 cps. Centronics printers soon became so popular that every printer maker adopted their interface connection as the standard. I'll bet some of you didn't even know there was a "Centronics" company that once made printers. That's where the name of the connector came from though. Soon after 1978 Epson, a Japanese company, introduced their first printer in the US for under $600.

A lot has changed since then. A reasonable quality printer can be purchased new for around $150. The $1,500 that at one time bought a used teletype can now purchase a very well equipped laser printer.

Which Printer Is Right For Me?

There are basically three types of printers sold today: dot-matrix, ink-jet and laser. Daisy wheel printers are still occasionally found, but have been far outdated by inexpensive lasers and are generally not a good purchase. Daisies have the disadvantages of being slow and inflexible. They can only type text in the size and type of the wheel installed. Unless you are really hurting for a printer and find one at a really low price, stay away from them! Of course, there are still some companies with the need to fill in forms and don't want dot-matrix, so there is still a small demand for the occasional daisy wheel printer. This demand is generally filled by companies who specialise in rebuilding the old, very reliable Diablo models (Diablo is a Xerox company).

Dot-Matrix

Most low-cost ($100-$200) printers today are dot-matrix types. They are so called because they print tiny dots in a matrix to make each letter. Look closely at a printed page from a dot-matrix printer and you can easily see the dots, especially if it is a nine pin. The numbers of pins (either nine or twenty four) determines the print quality. This number represents the number of pins, or dots, tall each character is. The more dots, the better the print quality. Nine pin printers usually print two rows of dots slightly overlapping to produce near letter quality (NLQ) print. That's one reason they are slow in NLQ mode. Twenty four pin printers don't have to make two passes (though some do) for NLQ print, so are much faster.

For general purpose use, a twenty four pin printer will please most people. Graphics and text are clear and sharp, and the average cost is under $250. For the frugal, or as a second draft printer, the nine pin can't be beaten. Average prices are around $150, and many can be found for less. There are price exceptions - very high speed business dot-matrix printers run from $300(300cps) to $1,350 (500 cps) for nine pin models.

These are usually used for high speed listings and long reports or forms.

There are many high quality dot-matrix printers in the $200-$250 range that have many features found in more expensive ink-jet and laser printers. They have sheet feed paper trays built in as well as tractor feeds for continuous paper. Print speeds are around 180 cps in NLQ mode (about 2ppm). They are quieter than many older dot-matrix types (noise has to be the boon of dot-matrix printers!) The best of the lot are the Citizen GSX-220 and Epson AP-3250 (both 24 pin and just under $200). Epson also makes a nine pin model, the AP-2250, prices at around $150. Citizen offers a colour kit for the GSX-220 for $60-$65 more.

Ink Jets

Many ink-jets approach the cost of a high quality dot-matrix printer, beginning in the $225-$300 range and working up to as much as $2,500+ for some high quality colour models (we'll concentrate on the lower cost ones in this article). They also give laser-like output at a fraction of the initial cost. In fact, a few ink-jets print at higher resolutions than low cost lasers, making them more attractive for low volume graphics work. The Epson Stylus 800 is one, printing 360x360 dpi (dots per inch). Hewlett-Packard's DeskJet 520 prints at 600x300 dpi. Ink-jets are also very quiet, even quieter than many lasers.

Ink-jets lack the speed of lasers though, usually printing at 2-3 ppm (pages per minute). The cost of printing is also higher when using manufacturer recommended supplies. If you don't need a high volume of high quality printed material, then an ink-jet is a definite consideration. If you print more than 100 or so pages a week, a laser might be more cost effective in the long run.

One big field enjoyed by the ink-jet today is colour printing. Colour lasers are available, but they run $5,000 and up. Good laser-like quality colour ink-jets start as low as $400. One of the best, the Canon BJC-600, is under $600.

Laser Printer

If you need letter quality correspondence or high resolution graphics printed, you probably need a laser (provided you need more than 100 pages a week). Good laser printers now start around $500, making them affordable for more people than ever before. The typical low cost laser will print 4 ppm, 300x300 dpi, and come with only 512K of RAM, 1MB is needed in most cases to print full page graphics. Move up to a slightly faster model ($600+), around 6 ppm, and you will usually have 1MB initally. Since 1MB upgrades cost anywhere from $50-$150, it might be a good idea to get the faster printer. An exception is the Okidata 400e. This printer incorporates special memory enhancement techniques that make 512K work like 1MB. Moving up to the $1,000-$1,500 range will buy 2MB or more of RAM and 600x600 dpi, and in many cases Postscript capability.

There are generally two types of laser printers - true lasers and LED types. The true laser has a single laser gun that scans back and forth (much like a TV tube gun) and a rotating mirror that aims the laser beam. A LED printer has a print head made up of many tiny laser LEDs. The LED type has fewer moving parts and should last longer before any major service is needed and is more rugged than a true laser. The rotating mirror can become misaligned after a time or during moving, causing unfocused printing. If you need to move the printer often, consider an LED model. All Okidata and many Sharp and Texas Instruments models are LED types.

Overall Costs

The initial cost of a printer is only a small part of the overall cost. How much will it cost to use the printer? The cost of consumables often exceeds the cost of the printer in the first year of printing. Of course, if you do little printing (such as the typical home user) consumable cost is of less importance.

You should also keep your dot-matrix printer even if you get an ink-jet or laser. Although your first reaction may be to use the more expensive printer all the time to "get your money's worth" out of it, you will save in the long run by using the dot-matrix for long listings and draft work and save the ink-jet/laser for the final copy and proofs. Another cost saving tip is to only print what really needs to be printed. Maximise your screen editing and reviewing first, then print a draft copy on the dot-matrix. If you do this you will minimise printing and maximise savings. If you must use your ink-jet/laser for drafts, make sure you set it for draft mode or turn the darkness level down to minimise ink/toner usage.

Recycle!

Another way to reduce costs is to reuse ink products. Ribbons can be re-inked several times with aftermarket devices or through special services. Remanufactured and recharged toner cartridges are available, and refill kits are marketed for the popular HP 5x0 and Canon ink-jets (there isn't a refill kit for the Epson Stylus yet).

There are a few things to be aware of when using remanufactured products. Ribbons are pretty easy - if they are cloth type and aren't frayed, they can be reused about five to six times. Ink-jet cartridges are the same, but there is an added problem: all manufacturers recommend that refilled cartridges NOT be used. Any damage caused by a refilled cartridge will void the warranty. Most users will consider this a ploy to get them to spend more on OEM cartridges, but the truth of the matter is that the cartridges were really designed for one time use. They all have very

tiny holes and some circuitry made into them. It is possible (but not likely) that damage to the circuit or leaking ink could damage the printer. The manufacturer is just looking out for himself, since he has no quality control over refilled cartridges. Do be careful and follow refill instructions to the letter, as the cartridges are easily damaged.

Laser cartridges are a different story altogether. No manufacturer is known to void the warranty if a remanufactured cartridge is used, but manufacturers do exclude damage caused by a cartridge not of their own manufacture from warranty service. There are really three different ways of reusing laser cartridges. They can be recharged (simply refilled with new toner, old imaging drums retained), remanufactured (refilled and worn parts replaced, but not the drum), or reconditioned (remanufactured with recoated imaging drums... in some cases the drums are "hard coated"). One can get recharging materials and instructions from several sources. The best source for instructions and material sources in Synergetics, run by Don Lancaster (anyone who has been in the electronics hobby for long has probably read one or more of his books). If you buy reused laser cartridges, make sure they have at least a replacement guarantee, as occasionally a drum will go bad after a few pages.

Paper

Paper is a big consideration for ink-jet and laser printers. There are premium 24 pound "laser" papers available for around $12-$14 per ream (500 sheets; Hammermill Laser Plus). If quality of output is the number one priority, get it. If good quality output is needed but economy is still an issue, 20 pound copier paper will give very good results. In my Air Force office, that's all we use in all our lasers - the same paper used in our copiers. The master for this magazine, however, is printed on 24 pound laser paper. But then it will be used to reproduce nearly 300 others, so the quality of the original has to be very good. Ink-jet printers need paper with a high cotton content, according to most ink-jet vendors. Paper that absorbs ink too fast will bleed and produce "fuzzy" output. It is best to try a sample sheet before buying large quantity of paper.

Average Consumable Costs:

Laser Paper: Hammermill Laser Plus
$14.00/ream ..... $0.028/sheet

20 pound bond:(fanfeed about the same)
$03.00/ream ..... $0.006/sheet

HP Laser Cartridge: (average new)
$80.00 ..... $0.020/sheet

HP Laser Cartridge: (average reman.)
$40.00 ..... $0.010/sheet

Ink-Jet Cartridge: (average new)
$25.00 ..... $0.050/sheet

Ink-Jet Cartridge:(average refill kit)
$12.00 ..... $0.012/sheet

Ribbons: (average-vary widely)
$04.00 ..... $0.008/sheet

Re-inked Ribbons (average)
$02.00 ..... $0.004/sheet

Average Total Consumable Costs (rounded to nearest penny):

Laser w/new HP cartridge,
24 # paper: ..... avg. $0.05/sheet

Laser w/recharged cartridge,
20 # paper: ..... avg. $0.02/sheet

Ink-Jet w/new cartridge,
24 # paper: ..... avg. $0.08/sheet

Ink-Jet w/refill cartridge,
20 # paper: ..... avg. $0.02/sheet

Dot-Matrix w/new ribbon,
20 # paper: ..... avg. $0.02/sheet

Dot-Matrix w/reinked ribbon,
20 # paper: ..... avg. $0.01/sheet

Only when using the highest quality materials is there much difference between a laser and an ink-jet in cost. When using remanufactured/filled cartridges and medium quality paper, consumable prices are nearly the same. The prices for ribbons are nearly impossible to estimate due to the wide variety and capacity available. An average of 500 sheets per ribbon was used (considering maximum quality output), with the ribbon price being an average for most Epson compatible 80 column styles. One will have to use the price of their particular printer's ribbons to come up with a reasonable estimate, and the manufacturers recommended ribbon life.

EDITORS NOTES:

Obviously because this article was written by Frank Swygert (FARNA Systems U.S.A) all prices and weights are in their currency and weight.

At the end of each of the three printer reviews, I have given the details of the equivalent Australian design printers, with the R.R.P. Details have been provided by various companies here in Townsville as well as the Canon head office in Sydney, so prices obviously can vary.

(Reprinted by permission 68 'micros )

I have a parakeet named coco who is named after the computer. As I am fond of both, I wondered if I could put coco inside coco. This basic programme is the result.

Line 1 has the triple speed poke 65497,0, leave this line out if you intend to run this programme before its completion. CoCo does not like to save programmes after running so fast, it must get tired.

Those who have the speech/sound pak, line 2725 has the slow down poke 65496,0, this poke must be left in because Mr Speech Pak will not be rushed and will refuse to utter a word ..... to me anyway.

Those who don't have the speech pak can change line 2730 to 2703 goto 2730 and leave out the rest.

```
1 POKE 65497,0:REM TRIPLE SPEED
5 CLS
10 PRINT@39,"*****COCO*****"
20 PRINT@103,"******BY******"
30 PRINT@167,"*BILL
BALDACCHINO*"
40 PRINT@231,"***ROSELANDS**"
50 PRINT@295,"*****N.S.W****"
60 PRINT@426,"PRESS ANY KEY"
70 A$=INKEY$:IF A$=""THEN70
80 PALETTE CMP
90 HSCREEN4;
100 PALETTE0,0
110 'BODY
120 HCIRCLE(437, 14),3,1
130 HCIRCLE(503,66),81,
1,1,.40,.63
140 HCIRCLE(370,66),170,1,1,
.98,.04
150 HCIRCLE(449,64),95,1,1,
.07,.13
160 HCIRCLE(451,65),92,1,1,
.90,.96
170 HCIRCLE(407,37),95,1,1,
.88,.96
180 HCIRCLE(575,1),90,1,1,
.35,.45
190 HCIRCLE(460,17),29,1,1,
.56,.87
200 HCIRCLE(443,18),15,1,1,
.55,.64
210 HCOLOR1:'TREE
220 HLINE(430,16)-(428,21),PSET
230 HLINE(440,90)-(440,95),PSET
240 HLINE(440,95)-(365,101),
PSET
250 HLINE(365,101)-(369,116),
PSET
260 HLINE(369,116)-(410,111),
PSET
270 HLINE(410,111)-(455,109),
PSET
280 HLINE(454,109)-(475,125),
PSET
290 HLINE(483,122)-(475,115),
PSET
300 HLINE(493,149)-(492,130),
PSET
310 HLINE(492,130)-(490,120),
PSET
320 HLINE(490,120)-(485,112),
PSET
330 HLINE(485,112)-(474,116),
PSET
340 HLINE(630,185)-(590,170),
PSET
350 HLINE(590,170)-(560,150),
PSET
360 HLINE(560,150)-(543,143),
PSET
370 HLINE(543,143)-(526,132),
PSET
380 HLINE(526,132)-(524,128),
PSET
390 HLINE(524,128)-(517,123),
PSET
400 HLINE(517,123)-(500,118),
PSET
410 HLINE(500,118)-(500,122),
PSET
420 HLINE(500,122)-(498,126),
PSET
430 HLINE(498,126)-(500,130),
PSET
440 HLINE(500,130)-(501,146),
PSET
450 HLINE(635,175)-(600,160),
PSET
460 HLINE(600,160)-(583,145),
PSET
470 HLINE(583,145)-(575,145),
PSET
480 HCIRCLE(479,124),5,1,1,
.90,.40
490 HCIRCLE(496,146),4,1,1,
.01,.51
500 HLINE(575,145)-(538,120),
PSET
510 HCIRCLE(541,117),9,1,1,
```

```
.81,.33
520 HCIRCLE(541,110),9,1,1,
.65,.15
530 HLINE(535,108)-(517,102),
PSET
540 HLINE(517,102)-(510,102),
PSET
550 HLINE(510,102)-(517,96),
PSET
560 HCIRCLE(467,60),75,1,1,
.24,.32
570 HCIRCLE(515,55),95,1,1,
.25,.33
580 HCIRCLE(438,173),128,1,1,
.70,.85590
HCIRCLE(642,181),12,1,1,
.35,.83
600 'PLUMAGE AROUND CERE
610 HCIRCLE(430,25),9,1,1,
.43,.72
620 HCIRCLE(430,28),8,1,1,
.51,.74
630 HCIRCLE(433,30),9,1,1,
.51,.69
640 HCIRCLE(433,32),9,1,1,
.60,.73
650 HCIRCLE(442,32),13,1,1,
.47,.61
660 HCIRCLE(442,35),12,1,1,
.57,.65
670 HCIRCLE(451,33),16,1,1,
.38,.57
680 HLINE(440,39)-(440,33),PSET
690 HLINE(442,34)-(446,38),PSET
700 HLINE(440,36)-(440,40),PSET
710 HCIRCLE(468,38),25,1,1,
.46,.55
720 HCIRCLE(470,38),25,1,1,
.48,.55
730 HCIRCLE(460,30),20,1,1,
.41,.45
740 'CERE
750 HLINE(430,21)-(435,18),PSET
760 HCIRCLE(437,19),3,1,1,
.50,.01
770 HLINE(439,17)-(441,24),PSET
780 HLINE(441,24)-(438,25),PSET
790 HCIRCLE(445,26),7,1,1,
.95,.50
800 HCIRCLE(440,24),6,1,1,
.01,.27
810 HLINE(443,26)-(452,21),PSET
820 HLINE(452,21)-(450,18),PSET
830 HLINE(450,18)-(440,18),PSET
840 HLINE(452,15)-(442,11),PSET
850 HLINE(442,11)-(437,10),PSET
860 HLINE(452,15)-(451,18),PSET
870 HCIRCLE(442,14),15,1,1,
.71,.06
880 'EYE
890 HCIRCLE(472,16),8,1,1,
.51,.98
900 HCIRCLE(472,14),8,1,1,
.01,.51
910 HCIRCLE(472,16),5,1
920 HCIRCLE(472,16),3,0
930 HCIRCLE(472,16),2,0
940 HCIRCLE(527,28),75,1,1,
.52,.57
950 HLINE(450,17)-(455,17),PSET
960 HLINE(444,35)-(462,39),PSET
970 HLINE(462,39)-(466,36),PSET
980 HLINE(466,36)-(474,36),PSET
990 HLINE(474,36)-(480,28),PSET
1000 HCIRCLE(490,15),35,1,1,
.18,.39
1010 ' CHECK COLORS
1020 HPAINT(488,22),3,1
1030 'PAINT
1040 HPAINT(441,16),1,1
1050 HPAINT(448,26),1,1
1060 HPAINT(450,50),6 ,1
1070 PALETTE6,63
1080 HPAINT(451,11),2,1
1090 PALETTE 3,63
1100 HPAINT(440,108),1,1
1110 PALETTE1,34
1120 HPAINT(474,120),7 ,1
1130 HPAINT(497,130),7 ,1
1140 PALETTE6,23
1150 'FEET
1160 HCOLOR15
1170 HLINE(457,97)-(455,109),
PSET
1180 HLINE(459,97)-(457,111),
PSET
1190 HLINE(461,97)-(459,109),
PSET
1200 HLINE(467,97)-(469,105),
PSET
1210 HLINE(469,97)-(471,107),
PSET
1220 HLINE(471,97)-(473,105),
PSET
1230 HLINE(507,101)-(499,117),
PSET
1240 HLINE(505,101)-(497,119),
PSET
1250 HLINE(503,101)-(495,117),
PSET
1260 HLINE(496,101)-(488,113),
PSET
1270 HLINE(498,101)-(490,113),
PSET
1280 FOR X=5TO35STEP4
1290 HCIRCLE(472,16),X,0,1,
.0,.3
1300 NEXT X
1310 FOR X=12TO28STEP5
1320 HCIRCLE(445,7),X,0,1,.78,.08
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1330 NEXT X
1340 FOR X=5TO30STEP5
1350 HCIRCLE(485,25),X,0,1,
.09,.25
1360 HCIRCLE(485,27),X,1,1,
.09,.25
1370 NEXT X
1380 FOR X=12TO28STEP5
1390 HCIRCLE(505,34),X,1,1,
.09,.22
1400 HCIRCLE(505,32),X,0,1,
.09,.22
1410 HCIRCLE(515,40),X,1,1,
.12,.18
1420 HCIRCLE(515,42),X,0,1,
.12,.18
1430 HCIRCLE(530,48),X,1,1,
.21,.27
1440 HCIRCLE(530,50),X,0,1,
.21,.27
1450 NEXT X
1460 HCOLOR2
1470 HCIRCLE(455,35),2,0
1480 HCIRCLE(465,33),4,0
1490 HCIRCLE(465,33),2,0
1500 HCIRCLE(461,29),3,0
1510 HCIRCLE(461,29),2,0
1520 HCIRCLE(474,28),3,0
1530 HCIRCLE(474,28),2,0
1540 HCIRCLE(400,66),110,2,1,
.85,.89
1550 HCIRCLE(402,66),110,2,1,
.85,.89
1560 HCIRCLE(406,67),110,2,1,
.85,.89
1570 HCOLOR7
1580 HCIRCLE(475,67),28,,2
1590 HPAINT(475,67),7,7
1600 HCIRCLE(505,72),25,,2
1610 HPAINT(510,69),7,7
1620 HCIRCLE(455,70),22,,2
1630 HPAINT(440,70),7,7
1640 HCOLOR4
1650 HCIRCLE(520,120),3,,2.2
1660 HPAINT(520,120),4,4
1670 HCIRCLE(510,110),3
1680 HPAINT(510,110),4,4
1690 HCIRCLE(540,109),5
1700 HPAINT(540,109),4,4
1710 HCIRCLE(440,99),3
1720 HPAINT(440,99),4,4
1730 HCIRCLE(420,105),3
1740 HPAINT(420,105),4,4
1750 HCIRCLE(560,145),10,,.6
1760 HPAINT(560,145),12,4
1770 HDRAW"S3"
1780 HCOLOR2
1790 PALETTE7,52
1800 'H
1810 HDRAW"BM40,5;R10;D22;R8;
U22;R10;D54;L10;U22;L8;D22;
L10;U54"
1820 HDRAW"BM40,1;R12;D6;R2;
E6;R12;D55;G8;L12;U6;L2;G6;L12;
U54;E8"
1830 HPAINT(42,12),7,2
1840 HPAINT(38,15),2,2
1850 'E
1860 HDRAW"BM90,5;R23;D11;L13;
D11;R7;D10;L7;D11;R13;D11;
L23;U54"
1870 HDRAW"BM92,1;R25;D18;G6;
D14;G4;D3;R12;D11;G7;L29;
U56;E7;R4"
1880 HPAINT(92,7),7,2
1890 HPAINT(95,2),2,2
1900 'L
1910 HDRAW"BM136,5;R10;D42;R13;
D12;L23;U54"
1920 HDRAW"BM137,1;R14;D43;R14;
D11;G10;L24;U59;E8"
1930 HPAINT(138,7),7,2
1940 HPAINT(139,3),2,2
1950 'L
1960 HDRAW"BM186,5;R10;D42;R13;
D12;L23;U54"
1970 HDRAW"BM187,1;R14;D43;R14;
D11;G10;L24;U59;E8"
1980 HPAINT(188,7),7,2
1990 HPAINT(189,3),2,2
2000 'O
2010 HDRAW"BM234,5;R24;D54;
L24;U54"
2020 HDRAW"BM242,16;R8;D30;
L8;U30"
2030 HDRAW"BM237,1;R26;D54;G9;
L26;U57;E9"
2040 HPAINT(236,7),7,2
2050 HPAINT(240,3),2,2
2060 HPAINT(243,20),2,2
2070 'M
2080 HDRAW"BM40,73;R7;F10;E10;
R7;D54;L7;U41;G10;H10;D41;
L7;U54"
2090 HDRAW"BM41,69;R9;F8;E8;
R12;D58;G6;L12;U32;G8;D16;G8;
L12;U58;E6;R3"
2100 HPAINT(42,75),7,2
2110 HPAINT(44,71),2,2
2120 'Y
2130 HDRAW"BM90,73;R9;D19;R7;
U19;R9;D22;G8;D24;L8;U24;H10;
U20;R3"
2140 HDRAW"BM90,69;R12;D6;E6;
R11;D27;G8;D25;G4;L15;U28;H10;
U20;E6;R3"2150
HPAINT(92,85),7,2
2160 HPAINT(92,71),2,2
2170 'N
2180 HDRAW"BM150,73;R9;F11;
U11;R9;D54;L9;U20;H11;D31;
L9;U54"
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2190 HDRAW"BM150,69;R11;F4;E4;
R14;D57;G6;L11;U8;G8;L15;U58;
E5;R3"
2200 HPAINT(152,76),7,2
2210 HPAINT(152,71),2,2
2220 'A
2230 HDRAW"BM216,73;R14;D54;
L11;U22;L8;D22;L11;U37;E17"
2240 HDRAW"BM220,85;D10;
L11;E10"
2250 HDRAW"BM216,69;R18;D57;
G6;L14;U4;G4;L18;U40;E24"
2260 HPAINT(218,75),7,2
2270 HPAINT(218,71),2,2
2280 HPAINT(218,90),2,2
2290 'M
2300 HDRAW"BM254,73;R7;F10;E10;
R7;D54;L7;U41;G10;H10;D41;L7;U5
4"
2310 HDRAW"BM254,69;R9;F8;E8;
R12;D58;G6;L12;U32;G8;D16;G8;
L12;U58;E6;R3"
2320 HPAINT(256,75),7,2
2330 HPAINT(256,71),2,2
2340 'E
2350 HDRAW"BM310,73;R23;D11;
L13;D11;R7;D10;L7;D11;R13;D11;
L23;U54"
2360 HDRAW"BM314,69;R25;D16;G8;
D12;G4;D4;R10;D14;G6;L28;U57;
E7;R4"
2370 HPAINT(312,75),7,2
2380 HPAINT(316,71),2,2
2390 'I
2400 HDRAW"BM40,136;R8;D50;L8;
U50"
2410 HDRAW"BM40,134;R12;D51;G7;
L12;U51;E6"
2420 HPAINT(42,138),7,2
2430 HPAINT(37,142),2,2
2440 'S
2450 HDRAW"BM73,136;R16;D10;
L10;D9;R16;D22;G9;L19;U11;R11;
U10;L13;U22;E7"
2460 HDRAW"BM73,134;R20;D13;G4;
R12;D26;G15;L26;U15;E6;L10;
U24;E13;R5"2470
HPAINT(75,139),7,2
2480 HPAINT(64,154),2,2
2490 'C
2500 HDRAW"BM134,136;R24;D16;
G6;U11;L7;D29;R7;U9;R9;D19;
L26;U50"
2510 HDRAW"BM137,133;R26;D21;
G11;R14;D24;G6;L35;U52;E9;R5"
2520 HPAINT(136,139),7,2
2530 HPAINT(131,155),2,2
2540 'O
2550 HDRAW"BM182,136;R24;D50;
L24;U50"2560
2570 HDRAW"BM184,133;R27;D54;
G8;L32;U54;E9;R5"
2580 HPAINT(186,139),7,2
2590 HPAINT(186,135),2,2
2600 HPAINT(194,156),2,2
2610 'C
2620 HDRAW"BM230,136;R24;D16;
G6;U11;L7;D29;R7;U9;R9;D19;
L26;U50"
2630 HDRAW"BM233,133;R26;D21;
G11;R14;D24;G6;L35;U52;E8;R7"
2640 HPAINT(232,139),7,2
2650 HPAINT(234,135),2,2
2660 'O
2670 HDRAW"BM283,136;R24;D50;
L24;U50"2680
HDRAW"BM286,134;R27;D54;
G7;L35;U52;E9;R7"
2690 HDRAW"BM291,146;R8;D26;
L8;U26"
2700 HPAINT(285,138),7,2
2710 HPAINT(280,156),2,2
2720 HPAINT(294,156),2,2
2725 POKE 65496,0:REM RETURN TO
NORMAL SPEED
2730 'SPEECH
2740 HCOLOR5:HPRINT(50,90),
"PRESS ANY KEY"
2750 X=&HFF00: Y=&HFF7E
2760 POKE X+1,52:POKE X+3,63
2770 POKE X+35,60
2780 A$ = "HEHLLOW.MINAEME.IS.
COWCOW": GOSUB2810
2790 A$="PLAY WITH ME.PLEASE":
GOSUB2810
2795 A$="I WAS CREATED WITH
COWCOW MAX FTHREE":GOSUB2810
2800 GOTO 2780
2810 FOR I=1 TO LEN(A$)
2820 IF PEEK(Y) AND 128=0
THEN2820
2830 POKE Y, ASC(MID$(A$,I,1))
2840 NEXT I
2850 IF PEEK(Y) AND 128=0 THEN
2850
2860 POKE Y,13
2870 A$=INKEY$:IFA$=""THEN2870
2880 RETURN
```

HEWLETT PACKARD DESKJET 500
by
John Wainwright

Like many old CoCo users, my first full-sized printer was a Tandy DMP-105 hooked to my old Grey F-Board CoCo. It looked pretty good then, and still works today, but times have changed. I now have an MM/1 and can run typesetting and graphics programmes that are completely independent of the screen display resolution. For those of us who are not accustomed to using the terms "kilo" and "mega" when discussing our computer budgets, there is no monitor available that will accurately show the output of these programmes unless you break the page into pieces the size of an address label and display it one section at a time (300 DPI on an 8"x10" page would take a monitor with 2400x3000 resolution - we won't talk about 1200 DPI). For this, you need a printer that will handle all that data in a reasonable time.

The good news is that a 300 DPI printer can now be found for just a little more than I paid for that old DMP-105.

The manual is as good as most. It contains lots of diagrammes to help the new user load paper, set the DIP switches, change ink cartridges and so forth. To control the advanced features, there is a table listing all the possible commands, and a few (very few) examples of command lines. Like a lot of today's hardware manuals, this is the "little book" - with information in the back on how to order the "big book". There are several references to using the "included Windows software", which probably explains the salesman's doubtful attitude when I told him I didn't plan to use it on an MS-DOS computer. He was pretty sure that it wouldn't print at all without the windows driver installed in the computer. Rest assured, all the fancy features are OPTIONAL, the thing understands ASCII text. The same methods you use to send control sequences to any other printer will work with this one.

The Hewlett Packard DeskJet500 is an ink jet printer. The image is produced by spraying ink through 50 nozzles on the printhead. For best print quality, very smooth paper is needed. Copier paper works much better than "fancy" textured bond paper.

When the ink in the cartridge is exhausted, the cartridge, which includes the printhead, is replaced. The recommended replacement cartridge is the HP51626 "high capacity" cartridge, which is supposed to be good for about 2000 pages. The cost of the cartridge at the time of this writing is about $28US, which would make the cost for ink just under 1.5 cents per page. The ACUTAL number of pages produced per cartridge will depend on the type of print and the resolution selection (75-300DPI). The older HP51608 cartridge has less capcity, but it has a hole in the top, and can be refilled with kits supplied by third party sources (refilling is NOT RECOMMENDED by the manufacturer). Other third party cartridges and refill systems are available.

The "standard" warning applies - the user must take full responsiblity for any consequences in deciding to ignore the manufacturers instructions. I have used the refill kits for the 51608 cartridge with good results and I have not heard of anyone damaging his printer by using one, but if a user did manage to cause some damage with a refilled cartridge, he would probably find that he has voided his warranty.

The DJ500 comes with both serial and parallel interfaces built in, with serial baud rates from 1200 to 19,200. The paper tray will hold about 100 sheets of paper in standard letter, legal, or European A4 size. It will also print envelopes (one at a time). There is no tractor feed option.

There is a default 1/2" top margin, 1/4" side margins, and 1/2" bottom margin. The top margin can be changed, but the bottom 1/2" of the paper is described in the manual as the "unprintable area". This must be taken into account when setting up printing software.

There are three internal typefaces which can be printed in several sizes in portrait or landscape mode. Many more fonts are available on plug-in cartridges. Epson and IBM Proprinter emulation is also possible with optional cartridges. Memory cartridges can be installed to allow downloading fonts from other sources.

For OSK users, versions of Ghostscript, TeX, and gnuplot have been written with drivers for the DJ500. These programmes completely ignore the printer's fonts, build their own, and send them as graphics images to the printer. The quality of the output ALMOST as good as a laser.

A CoCo -> DeskJet screen dump has been posted on DELPHI, and a screen dump for the MM/1 to HPCL (HP's printer control language) is available on CIS. The latter was posted by Bob Van der Poel, originally written for an HP Laserjet, but it also works with the DeskJet.

I now have both a DeskJet500 and an Epson Action Printer 5000 (the AP5000 is about the same as the LQ570). The Epson, with its optional film ribbon, will print text and graphics with excellent quality, and it will take both tractor feed and single sheets (with options available for cut sheet bin feeders). The DeskJet is faster on complicated graphics but needs very smooth paper. The Epson will print quite well on a grocery sack. Since the only thing that "hits" the paper in a DeskJet is ink, it will NOT do carbons.

If I had to pick just one of them, it would be the DeskJet. This decision is not based on print quality or cost, since they are very close in both areas. My choice is based on the relative noise levels. Compared to the Epson (or any other impact printer), the DeskJet is almost silent. I LIKE that.

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AUSSIE COMPARISON - HP DeskJet 500C

Print Speed:
Draft...240cps LQ...167cps
Draft..3ppm
Normal..4ppm
Presentation Mode..7ppm

Resolution:
LQM...300 x 300 dpi
DQM...300 x 150 dpi

Fonts:
Portrait - 18 different fonts
Landscape - 3 different fonts

Interface: Parrallel (Centronics)
Buffer Size: 48KB
Life: 60,000 page life
Warranty: 3 yr limited warranty

R.R.P: $700

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STAR NX2480 Rainbow
by
Terry Simons

The Star 2480 Rainbow is a 24 pin colour dot matrix printer. It comes standard with a push and pull pin-feed tractor and a single sheet loader. While you only use one, all are included for your choice. I find no problem with the push feed tractor and leave the pull tractor in the box. Or you may, with the flip of a lever, go to pressure feed for single sheets. Also available as an option is a multi-sheet single sheet feeder which will handle up to 50 single sheets in one loading.

Stars have dip switches to set the defaults. The 2480 is set from the front panel with a relatively simple guide.

While fonts are customarily set within a word processor, the 2480 allows you to set font/pitch/colour/Zoom and other options from the front panel.

The 2480 comes with draft/high speed draft and 10 selectable NLQ fonts, from you processor or the printer panel. Script font, while perhaps not the most legible on a nine pin, has a high quality print and legibility, on the 24 pin 2480. Orator font comes in two varieties. As indicated by the name, it is easily legible, at arms length.

ZOOM, a new feature, allows you to do a 67 or 50% reduction in text or graphics. For text it does exactly that, a handy feature for someone preparing a newletter. For graphics, it's really neat to see a MAX III picture print in a 2"x 1 5/8" full colour graphic with no loss of picture quality. In a practical sense, this will save me running to Kinko's on those occasions when I need a colour graphic reduction for a card or Christmas letter.

The 2480 took another jump in buffer size. Now at 47K it will handle most any size letter, that would handle many manuals in buffer. No need to wait for your printer to finish before you have your computer back. For graphics and colour you not only have the text or graphic dot info, but the colour command structure as well. Colour graphics take a tremendous amount of print memory. A full MAX III 16 colour dump is probably over a Meg. Ergo the 47K buffer is a needed and handy feature.

The NX2480 is an excellent printer for those who demand the best dot matrix can provide.

Using my CoCo for business and serving a large group like MI&CC, I look for several features. Reliability, speed, character clarity and variety capability. I find them all in the latest Star printers.

NX2480 Specs:

Print Speed...10cpi....12cpi....15cpi
Draft.....220cps...264cps...330cps
NLQ..... 67cps....80cps...100cps

Print head: Bi-directional
Life: 100 million dots

Line Spacing: 1/6, 1/8, n/60th, n/72nds, to n/360th inches.

Print buffer: 47K

The colour ribbon prints:
black, red, blue, violet, yellow, orange and green.

Interface: Serial to parallel convertor required for the CoCo.

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AUSSIE COMPARISON - STAR LC24-30

Print Speed...10cpi1...2cpi...15cpi
Draft.....160cps...192cps.240cps
LQ.....53cps....64cps..80cps

Print Head: Bi-directional
Life: 100 million dots

Ribbon: Colour fabric carbon ribbon (standard)
Black fabric carbon ribbon (optional)

Interface: Parrallel (centronics)

R.R.P: $479.00

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P.C.C.C
Peninsular Colour Computer Club

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The PCCC is a user group which could arguably be the longest running CoCo user group in Australia. The club has been going strong for over 11 years that I know of and is still a plethora of information on the CoCo.

They are based on the Mornington Peninsular (Frankston), and can be contacted by phoning;

Greg MacKenzie (059) 838 991

Bob Charleston (059) 791 922

Stan Blazejewski (03) 580 4605

**********

**********

OPERATING
SYSTEM
NINE

Disk organisation, multi-user notes, efficient RAM use, and some great utilities.

NOTE: Although based on CoCo OS-9, this column is good for OS-9/68000 beginners also!

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It's amazing how many words one can write about an Operating System before getting to the point - a fulltext search for "user data" shows no hits. Time to spin my centricities thataway.

The 'power' of a computer can be summed up in the amount of data it is capable of handling in a given amount of time, it's thruput. As many CoCoists have discovered, a CoCo's thruput isn't that bad, in fact, it seems to stray up towards the 286 range at times. This isn't enough to do fancy graphics in real time - just too many bytes to shove down the buss. On the other hand, that's several times what's needed to perform actual work - humans don't create data very fast, even an 8 bit buss can keep up with 2 or 3 of 'em.

Anyone who has grown up with a CoCo system using basic knows that it was based on the then current technology (early 80s) of the cassette recorder, with extensions to use the current hot stuff, a floppy drive. The operating system built into the machine represents a level of complexity roughly equal to the supplied hardware.

Disk Basics's compatibility problems with hard drives aren't due to some evil plan on behalf of Tandy's Master Agenda - the assumption was made that a few floppies was as far as a CoCo would go. OS9 (in it's desktop incarnation) has the opposite problem. It does what it does, hardware be hanged. The CoCo has enough trouble keeping up, and OS9 has compatibility problems with floppy drives beyond those caused by cheap halting controllers. This makes the expense of a hard drive easier to justify - besides the obvious speed and capacity advantages the user is moving into the environment the OpSys expects, and the surprises are usually pleasant. All that's missing is a tape backup (SBF) driver for 6x09 OS9. (Wanna be a rock and roll star and have folks kiss your feet at CoCoFests? Write 6x09 SBF).

Regardless of your actual storage capabilites, OS9 demands it's space. the floppy solution outlined last month allows a pretty complete system to squeeze into a 2 floppy machine. Or chuck the whole thing and spend your fishin' money on that hard drive.

If programming is your bent, there are additions to the system directories - /dd/DEFS and /dd/LIB. Once the system files are nestled away on /dd, we get to the good stuff - actual user data. (There! I said it!)

With floppies, organisation doesn't get that deep. It's still helpful to look at how larger devices are organised - you might buy one someday. I use three main data branches to keep my intellect intact:

/SRC is split into billions of subdirectories. Branches for different languages fan into little directorilets to contain separate projects and versions. SRC has it's own CMDS directory for strange execs, alternate runb merges, etc. The important thought is, SRC is untested work which should be quarantined.

/USR. This is where the work gets done. With an array of sensible subdirs like DESK, GAMES, GFX, TCOM .... an inexperienced user can be told "Just click USR, then anything ...."

/CONECT is my company, which has tax implications and deserves it's own branch. You no doubt have a similar all consuming advocation that deserves it's own - that novel or all of those not ready for prime time gfx. (See mulituser.)

Beyond this, you can of course add anything you want. In fair trade, the machine can add anything IT wants - don't be surprised to see strange files or directories pop up in root, sys, cmds, or even see a programmer cheat and put stuff in "your" user data directories!

The general rule is, when in doubt, leave it. Remembering what your different programmes use for 'scratch' file names can be helpful - you can be certain many errors you see are accompanied by a strangely named scratch file someplace... Often a blown save or badly timed power sag can be remedied, at least in part.

MULTIUSER SYSTEMS

As with almost any computer, the easy way to allow others to bang around is with a BBS programme - but this is far from the only option. One of the neat things OS9 allows is giving a caller a normal shell - anyone who is old enough to remember dialup timeshare systems will get a kick out of setting their OS9 system up as the 'mainframe'.

Although this does make an easy to use BBS (if your users know OS9), there are a few things to do before allowing John Public his own process number. Mostly, this is a matter of removing public permissions from files or entire directories, using attr (Don't forget to make attr itself private!).

Beyond that, the level of security on your system depends on what you allow users to do. If they have access to any languages or assemblers, hackers can always slip in easily enough, although letting the average joe play with your Basic09 or C may not immediately be a problem.

Strangely enough, this is not in violation of your Tandy software license - the software is still running on ONE computer - Tandy

explicitly allowed terminals if the software supported it, most OS9 software does by default. Third party software depends on the third party.

I have seen systems which allowed a user to upload an executable to (user) CMDS then run it. This is a terrifically stupid idea - allowing folks to debug their virus at home, then phone it over and install in a single session.

Even after all this, there is a backdoor in. The stock shell will let anybody do raw disk reads and writes. A little diddling with /sys/password and anyone can make themselves superusers for a day. Shell+ strips out the character needed to pull this off - (unless you already are superuser). Use it!

USING YOUR RAM EFFICIENTLY

I've received quite a few letters concerning memory management and similar concerns, so we are wading in there again.

Once an OS9 system passes about 256K, it starts getting good. The reason is simple, OS9 itself runs around 200K unless special efforts are made to squash it down. 128K machines can barely get up a shell before MEM errors start. I had an aggravating reintroduction to the marvels of 128K recently, while setting a hard disk for a customer, (2 rooms full of CoCo stuff and the only machine besides this one that was up was a 128K 6309. Go figure.) You have my condolences. 512K is a decent size, and 2 megs is astounding. You'd think with all that RAM there is no need to worry. You'd be wrong. The rub is, the 6x09 can't handle more than 64K at a time. While RAM can increase the number of these 64K chunks available, they don't get any bigger.

There are ways - the Sierra games (and flight simulator) use a virtual RAM driver to flip blocks of RAM in and out, effectively gaining use of more RAM. Bruce Isted has written a public domain package to do the same thing. Besides giving hackers a way to play, VRNn can replace both the AGIVIRQDr and FT drivers, easing up yet another form of RAM cram - OS9Boot also has to fit in 64K!

Although the above programmes do the job, they aren't really well suited for day to day use. Not many have them so few write programmes to use them. You can of course write your own, but others will have a bear of a time getting it running - just what OS9 doesn't need.

Anyone who is interested in the internal workings of all of this should scrounge up a copy of Kevin Darlings utility package KDUtil(pd, available every where). A few of these are real jewels.

SMap displays a graphic of system memory use, and fills a serious hole in the toolbox. With SMap, one need never be surprised with a 237 error - they are easy to see coming as the block gets fuller, and fuller..... (Note that under OS9 'System RAM' isn't the amount on your system but the amount the Operating System has - 64K at best. Flat out of RAM is a 207 error).

The neatest util in this package has to be PMap. PMap lists all of the current processes, and the actual physical RAM blocks each one uses. Watching PMap for a while is more enlightening than pages of manual. You can watch data blocks building up from the bottom, programme descending from above, and guess how long till they collide in the middle. Show your DOS friends how OS9 will map the same block of code (say shell) into as many processes as need it - 512K=576K? When nine shells are running!

Each line in PMap has 8 slots, since normally you only have eight blocks per process. Even the smallest utility needs some data space, so the smallest process can normally be in 2 blocks. Lots of things allow the user to increase the number of data blocks to fill up all 8 - thats what copy....$56K is all about. What if you need more?

A workaround you may already be using is a pipe. The example I generally use is DSave. DSave uses copy, and makdir, and shell.... and it's pretty big itself. Cramming all this in one process wouldn't leave much data space for anyone, and copy likes large chunks of data space. So DSave runs by itself, and commands are piped to a separate process - doubles the space.

Another way is to split programmes into logical sections. My word processor (DynaStar) has a decent size buffer - only because the printer code is a separate programme. The speller makes a third unit, and all benefit from the extra room.

A more esoteric fix is the data module. Although these aren't a feature of the stock shell, they are included in shell+. Although not universal, shell+ is pretty popular and isn't that hard to install, avoiding the problems VRN has. Oh yah - data modules. As mentioned above, OS9 has no problems with mapping the same programme code into multiple processes. Pulling the same trick with data blocks gives any number of processes access to them - the data module becomes the common meeting ground for all of these otherwise unrelated processes.

Total RAM would seem to be an absolute limit, but our DAT memory system clouds the issue. Since memory is handed out in blocks, anything loaded off disk has to take a whole block for programme. This is NOT a good thing - piddly little 200 byte utilities hogging 16K each (block of programme, block of data) will rapidly eat up your RAM, and the need to keep unlinking and reloading will rapidly eat up your patience.

This is the reason for merged files. Since OS9 is loading by the file, not by the utility, it makes sense to form each file into block sized chunks. Actually, 256K bytes (one page) smaller than a block (7936 bytes total) seems to be about the limit before it spills over into another block.

However, once a group of utilities is loaded as a unit, it remains a unit. Think of the result as one big multifunction utility. Only the first module gets a link count, and the remainder tag along. Unlinking that first util to 0 drops the whole ball of wax. It's important to keep this in mind when making up merged files, and start them with a util thats not likely to be unlinked.

For an example, I'm going to trot out DSave again. With most utils in merged files, I didn't see a need to keep individual copies on the disk as well. Worked fine until I ran DSave, which tried to load copy. It wasn't there, so errored out - but DSave runs with error abort turned off, and copy is in RAM anyway. So far so good. At the end of the run, DSave unlinks copy. This part worked all too well, since my alphabetised merged file had copy first. The whole thing disappeared - and mdir was one of the things that went. I couldn't even see what had happened! If you cheat and peek at the file list, you'll see copy is now safely in the middle!

Another problem to avoid is overly big merged files. When OS9 maps one into a process space, it has to map the whole thing in. This is why you want to keep the size down to a block or two. Looking at the listings again, you'll see I put copy in the 1 blocks util file, not the 2 block DBoot file where it logically belongs. Allows another data block for the memory hungry copy command.

Some things aren't worth merging. DSave (hehe #3) and os9gen are too big to mess with. Some merges are more for the users convenience than the systems - many recommend merging runb.gfx2, syscall, and inkey$ together. The same thing can be done to Basic09, at the loss of some data space. The extra modules don't appear in B09 workspace at first, but magically appear on cue - with no further loads from disk. I have a second copy (TBasic09) without the added stuff for those really big programmes.

While we are here, I discovered a neat feature recently. Properly set up, the newer gshells will call runb for you if a packed B09 file is clocked on. Well, runb got clobbered in a recent hard drive crash. Whats an Operating System to do? Why, use Basic09 itself, of course. The only way I knew this had happened was after quitting a programme. Instead of disappearing she went to the Basic09 prompt, since B09 doesn't die when a programme ends like runb does.

Shell+ was mentioned above. This shell adds a lot, but there is a cost. Tandy did their own file merging so the original shell has vital utilities like echo and load merged with it. Keeping the bigger and better shell+ small enough (remember, shell gets mapped everyplace - we sure don't want it hogging extra blocks) requires most of these be removed. The docs suggest shell, load, list, merge, del and dir - good choices if you think about it.

Keeping shell+ down to a block can cause some strange problems if your cmds directory has been stripped down to save disk space. For instance, startup might appear to not run at all! Why? Because startup aborts on error. Any startup that still begins 'echo Welcome to OS9 on...' is going to abort right there, since echo is no longer merged into shell. The error code goes to the shell thats running startup, but this shell dies with startup - you don't even see the error.

The solution is to load your merged files right away on the first few lines of startup. At least the sutil file - then you can use echo to print status reports, display to set up windows, and such.

FILE LISTS

To make up these files, chd to cmds and use merge file1 file2 file3 >/utilfile (thats merge space, filenames separated with spaces, >/putemhere). Then reset the execute attribute - attr utilfile e pe for single users systems.

My shell+ boot looks like this:

'shell'(one block)-shell+,load,list,merge,del,dir

'sutil'(one block)-mfree,date,copy,deiniz,display,echo,iniz,link,procs,rename,setime,tmode,unlink

'dboot'(two blocks)-attr,deldir,edit,format,free,ident,makdir,backup,cobbler

separate - dsave,os9gen,xmode

missing - pwd,pxd,wcreate

NOTE: Some programmes use pwd or pxd, so you might want to keep a disk copy in case it comes up. Users can run the built in shell+ equivalent, pwd and ,pxd, but without hacking programmes don't know these are available.

(Reprinted by permission of 68 'micros)

*****MINI RS232 PORT*****

The Mini is CoNects low cost replacement for the Tandy Deluxe RS232 Pak. It is completely compatible with existing software and therefore is the port of choice for disk basic users. Users of more esoteric OS-9 drivers, such as the serial mouse package, will also find this replacement unit a 'drop in' replacement.

The 'Mini' is housed in a ROMPak game case! Modem connection is made by a female DB25 connector on the top. This unit requires a 12V source, either the Multipak or an external supply connected through a miniplug on the units side.

Mini RS232.....$85
Power supply.....$15
(Y cable systems)

(Postage to be confirmed)

**********

# BACK TO BASICS

by

FRED REMIN

**********

In the last issue I went through in some detail a set of procedures for beginners to get started into basic programming. Be aware that the procedures that I outlined were a suggestion only and that each individual can come up with their own, ie, that which is more comfortable and or understandable to you.

Lets take a few minutes now to talk about the physical typing in of a programme. The following rules apply whether you are using a tape or disk system and could be considered the GOLDEN rules.

With a tape system always use a fresh tape when you start to type in your programme, this is also a good idea when using disks, although with a disk system you may have a special disk set aside for this task.

As you type in the 4,000 lines remember the GOLDEN rule, ALWAYS DO A SAVE AFTER A NUMBER OF LINES.

Lets say the programme is called "BLOGGS", this means that you would type in for example 20 lines and then save what you have to tape or disk under the name "BLOGGS1".

Then do another 20 or so lines and then do another save under the name "BLOGGS2", continue with this system until you have typed in the complete programme. You could, depending on the length of the programme and your typing speed and technique, end up with "BLOGGS20".

WHY, well lets face it computers are about as infallible as humans and things can go wrong, by systematically doing a save, you can simply load in the last one that you did. It is a happy computerist who only needs to retype 10 lines rather than 1,990 because the system crashed or the cat said hello to the computer or the kids decided to play with the power cord.

Another trick of the trade for when typing in programmes is to systematically run the programme to see if everything is working up to that stage. This can save you a lot of frustration later on, particularly with the dreaded "syntax error".

There are a few draw backs to this however, for example if there is a GOSUB in the procedure that you have just typed in, you will need to ensure that you have somewhere for the computer to got to or it will crash out on you.

To explain, lets say that you are typing in the following lines;

```
10 CLS
20 GOSUB 200
30 PRINT"YO !! RIN-TIN-TIN"
```

If the above set of lines were run the way that they are at the moment, then the computer would come up with an error, ie it would be looking for line 200 which does not exist. In order to fix this you would have to put in a line 200. For example;

```
10 CLS
20 GOSUB 200
30 PRINT"YO !! RIN-TIN-TIN"
200 RETURN
```

Another problem with this system is if your programme contains any pokes that change things from the stock standard. A good example of this would be the speed poke, 65497,0 on the CoCo 3 and 65495,0 on the CoCo 2. If you were to run a set of lines containing the speedup poke, then you will have problems in any further saves or loads to either tape or disk as the computer is not normally geared for this type of save at increased speed.

Another trick of the trade for those with tapes is to keep an eye on the counter each time you do a save and write this down, also after each save, fast forward the tape a foot or two. This will ensure that you can go directly to the last save without having to rewind the tape to the beginning each time you want to load in the last save. Besides those I/O errors are a pain in the butt.

DATA statements!! These can be a real pain to type in, particularly when there are at least 2 million of the damn things,(well at least 5 or 6). The best way to tackle this situation that I have found is to have someone with a pencil actually read out the statements and then mark them off as you type them in. This way it may be a little slower but by cripes it can save you a lot of time later when the programme won't work due to a "comma" or a "fullstop" in one of the data statements. It will also ensure that you type in the correct letters or numbers including of course the right amount. There is nothing worse than running a programme only to find that it comes up with an "out of data" error, and there are 40 or 50 data statements containing about 30 or 40 bits of information in each line.

If you do not have a willing helper, then still use the pencil but mark them off as you type them in and then check each one as you go, again slow but well worth it in the long run.

Well that is about all I can think of for this time, on this subject anyway, next time (when ever that is), I will start to delve a little deeper into some of the commands available in the CoCo and how to best utilise them.

Remember, if you have a particular subject you would like me to cover or a burning question, then drop me a line and I will see if I can answer it for you.

Until next time, read the instructions and happy cocoing.

# THE RANDOM FUNCTION

IS YOUR COCO PSYCHIC?
**********

It can sure look like it! What I'm talking about is the RND command, Have you ever asked yourself "how random is the RND comand?"

**N.B. In this article, reset means to turn off the coco and then turn it on again.**

Type in the following few lines and then save it.

```
10 FOR L=1 TO 10
20 PRINT RND(10)
30 NEXT L
40 END
```

Now RESET the coco and run the programme, write down the numbers. RESET the coco again and run it again. Notice something about the second set of numbers? Try it as many times as you want. More proof? Retypr line 30, save the programme, reset the coco and run it again:

```
30 PRINT RND(L)
```

More proof? Enter the following lines and save the programme.

```
11 X=RND(100)
12 Y=RND(5)
13 FOR D=1TO X STEP Y
14 Z=RND (D)
15 NEXT D
```

Run the programme a few times RESETTing the coco each time. Satisfied!

The RND command looks at memory location 280 (&H118) for its starting point. There are two ways to get a more random RND;

```
POKE 280,PEEK(275)
```

Location 275 (&H113) has a constantly changing value, therefore depending on when you enter the poke decides the starting point for RND. Load up the first programme and enter;

```
10 POKE 280,PEEK(275)
```

Save then run the programme a number of times (RESETTing the computer each time).

Another way is the RND(-TIMER) command. This command on its oewn will give you a long unusable decimal. Load the first programme and enter;

```
30 PRINT INT(RND(-TIMER)*10+.5)
```

Save then run the pogramme a number of timmes (RESETTing the coco each time). Notice the difference?

Substitute the 10 in line 30 for the highest number that you need. The +.5 is there to compensate for the rounding down of the INT command.

Well there you have it, a RND that actually looks like a random number.

Just to show you that the RDN(-TIMER) isn't perfect, type in the following programme;

```
10 ON BRK GOTO 80
20 HSCREEN 2
30 X=INT(RND(-TIMER)*320+.5)
40 Y=INT(RND(-TIMER)*192+.5)
50 X=INT(RND(-TIMER)*15+.5)
60 HSET (X,Y,C)
70 GOTO30
80 END
```

For the CoCo 1 and 2 substitute:

```
20 PMODE3:SCREEN1,0:PCLS
30 X=INT(RND(-TIMER)*256+5)
60 SET (X,Y,C)
```

And leave out lines 10 and 80. Run the programme (no need to reset the coco). Hey presto!! Lines. Random?? Experiment with the programmes and modify them as you wish.

Back to the original question. Reset the coco and riun the first programme. The numbers I get are: 5-4-2-7-5-4-6-3-2-9.

SO, can your CoCo read my CoCo's CPU?

And besides that just as an after thought, what if you used the RND function to select your lotto numbers? I wonder if it would be as random as the numbers actually seem to be? Interesting??

**********XPANDER**********

The XPANDER started out as one part of the PoCo project, it was never designed to replace the Multipak but to eliminate it entirely.

The layout of an Xpanded CoCo is the first feature to catch the eye - a floppy and/or a hard drive case is plugged directly into the computer. Likewise, the modem is connected directly to the CoCo. The ROMPak port is still available, and in fact a ROMPak may be inserted and run. The only external evidence of the Xpander is an aluminium case bottom.

The 'CoCo Kit' version provides a new lower case shell, moving the motherboard as far down as is practical. Still, it is a fairly crowded package! There is no easy way to install the 2 Meg upgrade when both internal slots are filled, it can be done - but it is a real challenge.

The Xpander is an excellent way to install a CoCo into a PC style case, the entire electronics package is 12"x7"x3.25" and fits nicely in a baby AT case! For such repackaging a board only version is available without the lower case half or 12/-12V power supply.

CoCo Kit:
(Xpander, lower case shell, 12/-12V power supply).....$230

Xpander Board Only.....$175

(Please allow a minimum of 21 days for delivery from the USA.)

**********

# RADICAL ELECTRONICS INC

## COLOUR SCHEMATIC DESIGNER V 3.0

This programme is for drafting schematic diagrams for electrical circuits.

REQUIREMENTS:
512K COCO 3
1 DISK DRIVE
MOUSE WITH TANDY (OR EQUIVALENT) HI-RES INTERFACE

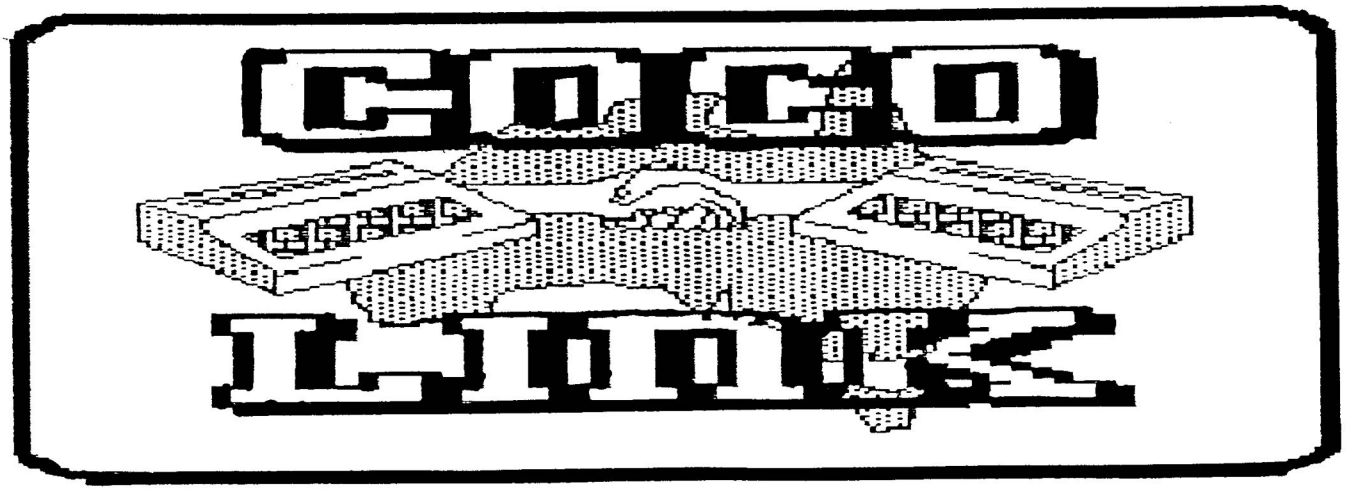
FEATURES:
Object orientated programme with 6400 symbol buffer 64K text
Postscript output (laser printer support)
Node list generator
Supports IBM graphics, Epson FX/LX and Tandy DMP Printers
Block copy, load, save - allows generation of a library of circuits
64 symbols available at once, editor built in
Line draw functions (vert/horiz lock, linking, anchor to port or other lines)
Adjustable mouse settings
Exit to basic and return without the loss of data

(*See the review on this product in CoCo-Link Jul/Aug 93 Vol 1 No 4 Page 7*)

PRICE: $60 + $5 p+p

REMCOMS
100 Whitsunday Dve
KIRWAN QLD 4817

PHONE/FAX: 077-734 884



# Yesterday, Today, Tomorrow

A few days ago, or was it weeks, it's hard to tell these days, I was talking to an IBMist about computing and as is the norm this person started putting down the CoCo.

Now I am a very placid sort of person but when it comes to my CoCo I am fiercely loyal, why, because my CoCo can do anything that I need it to do, does it faster and cheaper than other machines and I OWN IT.

The conversation however did make me reflect on what my future was with the CoCo and computing in general. In doing so I reviewed what I had started with and how I progressed to what I have now. I then looked at my options for the future. This is what I came up with.

In 1984 I knew nothing about computers apart from that they were used to play games, I did however buy a CoCo 2 16K for the kids. From this small beginning I have built up to my current system of a CoCo III (2 Meg), 40 Meg hard drive, RGB monitor, 2 X 40 Trk 5 1/4, 1 X 80 Trk 5 1/4, DMP136 Colour printer and a miriad of other periphals including tapes, speech paks etc.

My CoCo does spreadsheets, word processing, databases, plays games, does communications through a modem, does graphics, plays music, allows programming in C, pascal, flex, basic, Basic 09 and RSDos.

My CoCo is used to produce a magazine, does all the household finances, helps the kids with their school projects, helps me with my work by enabling me to spreadsheet the units ammunition, rations, fuel etc, it also lets me produce lesson plans, letters and instructions. In fact my CoCo as I have already said does everything that an IBM can do but does it cheaper and in a lot of cases faster.

So much for the past and the present but what about the future. Well my CoCo will adorn my desk and continue to do everything that I want it to do until it blows up and goes to that final resting place in the sky. But at the same time I also want to maintain pace with the future in computing, so where do I go from here?

In my quest for knowledge, in particular about OS9, I stumbled upon a magazine called 'Pipelines'. Pipelines is produced by MicroWare Systems Corporation, the very same people that introduced OS9 levels I and II, and distributed in Australia by Microprocessor Consultants PTY LTD in NSW.

In this magazine I found that there is now an OS9 version III and a product called Atomic OS9, both of these work on a system with the 68XXX series of chips. OS9 version III introduces two new kernels, the standard OS9 kernel can be used for both resident development and target run-time systems. The complimentary Atomic OS9 kernel is strictly for target run-time systems. Both offer higher performance and less system overhead than previous versions of OS9.

Further research informed me that one of the best platforms from which to utililise this new version of OS9 was the MM/1. I immediately contacted David Graham of BlackHawk Enterprise, the end result of this contact is that I have now on the way my own MM/1 and I have negotiated for REMCOMS to distribute the MM/1 in Australia.

What does all this mean to me, well my CoCo is still being utilised and will continue to do so, I have looked after the future in computing by purchasing an MM/1 for which I will then purchase OS9 version III. My CoCo will compliment the MM/1 in that I can still develop programmes under OS9 level II and then transport them to the MM/1.

The MM/1 will take me forward into the future of computing, why do I say this, well in reading the magazine I have found that the world of OS9 has evolved from playing games with great graphics to a system that for example controls the traffic lights and bridges in a major English city. In other words an MM/1 with OS9 Version III puts me in the league of the big boys and at the forefront of the computing future.

What does all this mean to you the CoCo user? Well it means that amongst computer users you are the smartest ones around, you are learning and developing your computer skills on a machine that will serve you faithfully for years to come and at the same time prepare you for the computing future.

But, "I have been told that I need to go for IBM because it is the biggest", may be your reaction. I would answer this by quoting Frank Swygert the editor of '68 micros' who said, "We CoCo users are loyal to our machines as IBMers are to theirs, only they tend to think they have a divine right, being blessed by the big blue so to speak. IBM did not get to be the biggest name in computers because they are the best, but because IBM was big in business, and business adopted the PC because of this endorsement".

So stick to your CoCo, learn and develop your computing skills on this amazing machine and when you are ready to go forward into the future, then consider seriously an MM/1, because each machine will compliment the other.

[][][][][][][][][][][][][][][][][][][]



[][][][][][][][][][][][][][][][][][][]

Danny Palmer.

## MM/1 Q&A

The MM/1 personal multimedia computer system is produced by BlackHawk Enterprises, Inc, in the USA and REMCOMS in Australia. Many Colour Computer users are looking for ways to upgrade their computer systems to use higher resolution graphics, more colours, high-quality stereo sound and faster processing. In response to these needs, the MM/1 has been designed to be faster than a Macintosh Classic, with a larger colour palette than an Amiga, able to use more industry standard parts than the ST, the Macintosh, or the Amiga. We invite you to take advantage of the multitasking, multiuser capabilities, while using standard tape drives, hard drives and more.

For your information we have compiled some commonly asked questions about the MM/1 along with the answers.

Q: What can the MM/1 do?

A: The MM/1 has a palette of over 16 million colours and can display images and animations with up to 256 of these colours at once while playing stereo sound. This makes the MM/1 a natural choice for graphics, animation and multimedia presentations. You can display graphics created on Amiga and PC computers and play sound files generated on Macintosh computers.

With the OS-9/68000 operating system, you can run multiple programmes simultaneously. Now, you can format floppy disks while other programmes are running! You no longer have to wait on the computer, you can have the computer wait on you.

Expand your system by connecting up to three terminals to the MM/1 to allow additional users to log in to the same MM/1. You can use the built-in network interface and the optional cable and network software to create a system of up to 128 MM/1's.

With the MM/1 Extended you can record and play stereo sound, use your Tandy joystick, add extra memory, and use the two bidirectional parallel ports for printers or for data acquisition.

Q: Will the MM/1 use my exisiting hardware?

A: The MM/1 is designed to preserve your hardware investment and save you money. As a result, the MM/1 can accept industry-standard floppy drives, SCSI hard disk drives, RGB-A monitors, mice, XT keyboards. Standard dot matrix and laser printers work fine with the MM/1. You can even add tape backup and CD-ROM drives. Support for these peripherals is built in, so there is no need for a MultiPak. The MM/1 Extended also has a built-in real-time clock. The MM/1 preserves your hardware investment and saves money.

Q: What software comes with the MM/1?

A: The MM/1 comes with a full suite of software:

- Operating System: OS-9/68000
- Languages: Microware C, Assembler, and Basic
- Windows: The MM/1 windowing software simulates the function of Colour Computer OS-9 windows, but runs faster, has better mouse support, and allows user configuration.
- Telecommunications:
- COM, a simple communications programme
- Sterm (which supports CompuServe "B" and "B+" protocols, as well as XMODEM)
- A uucp programme that allows you to transfer messages with other MM/1 and UNIX systems.

* Graphics:

- Utilities that let you convert GIF and Amiga IFF files to and from the Compact Disk-Interactive IFF format supported by the MM/1
- A programme that allows you to select the number of colours for rendering a graphics file.

* Text processing:

- The popular, configurabel micro-emacs text editors (umacs).
- The proff text formatter that can be used with umacs to format printing jobs - from simple letters and resumes, to complex dissertations.

* Utilities:

- PC File Manager from Microware which allows you to read and write PC diskettes with your MM/1.
- Standard Microware utilities such as backup, copy, del, dir, compress, diskcache, dsave, grep, list, load, more, rename, touch, and unlink.
- Utilities that support multi-user environments and let you use encrypted passwords for data security.
- UNIX-style utilities such as uucp, grep, and nroff are available for OS-9/68000 and the MM/1
- OddJob (OJ) Script Language Interpreter which allows you to initiate a series of programmes with a single command. The MM/1 is the only computer that includes OJ as part of its initial package.

Q: Is the MM/1 compatible with the IBM-PC?

A: The MM/1 is compatible with the IBM PC and its clones in these important ways:

- The MM/1 can read, write, and format PC disks
- The MM/1 can display graphics and run animations generated on PC computers.
- Programmers are porting DOS-based development environments to the MM/1 to make it easier for DOS programmers to port their software to the MM/1.

Q: Why should I buy an MM/1 and not a PC compatible?

A: A PC is fine for some things, but, if you want to work within a multitasking or multiuser environment, or need multimedia capabilities at a reasonable price, then the MM/1 is your solution.

The MM/1 includes OS-9/68000, the only truly multitasking, multiuser operating system you can buy at this price. OS-9/68000 keeps working and playing, with far less waiting. The MM/1 also includes the Microware 'C' Compiler, Microware Basic, the UMACS text editor and other software. Compare this to the PC compatible solution where a 'C' compiler alone can cost as much as $495 (US) (almost half the price of an MM/1).

Although you can achieve a form of multitasking on PCs, the multitasking capabilities od OS-9/68000 let you run multiple programmes at the same time. OS-9/68000 gives processing time to programmes only when the programmes request it, so when a programme is waiting for data it lets the other programmes run at full speed. PC multitasking software like DesqView gives each programme a specific amount of processor time whether the programme needs it or not.

In addition, multiple OS-9/68000 programmes can be run simultaneously in a single megabyte of memory with room to spare. UNIX, OS/2 and other multitasking software for PCs can require from two to six magabytes of memory.

The MM/1 also has multimedia capabilities. Multimedia makes a computer easier, more enjoyable and keeps you on the cutting edge of technology. High resolution sound and graphics are standard features of the MM/1 and make the MM/1 wel suited for multimedia programmes. Adding these capabilities to a PC can cost more than $1,200 (US). The MM/1 Extended is available for significantly less even after paying import duties to Australia.

And, the MM/1 uses industry standard PC disk drives, printers, keyboards and mice etc to keep the size of your harware investment down.

Q: What software support is there for OS-9/68000 and the MM/1?

A: The MM/1 can run virtually any text-based programme written for OS-9/68000. OS-9/68000 is popular among industrial users and there is a large software catalogue including database managers, text editors and business software.

The creation of OS-9/68000 software is becoming more prolific as business and industry alike discover the true multitasking and multiuser capabilities of the system.

Q: Where can I get my MM/1 repaired?

A: The MM/1 comes with a 90 day warranty which covers parts and labour. MM/1 prototypes have been working reliably in the field since 1990. In the unlikely event that your MM/1 needs repairs, you can return the system to BlackHawk Enterprises or REMCOMS.

The MM/1 uses industry standard disk drives, SCSI hard drives, RGB-A monitors, keyboards, mice and printers which can be serviced or repaired at many local electronics repair shops.

The Magnavox 1CM135 RGB-Analog monitor, which is affordable, provides good resolution for text and graphics, stereo sound and plugs right into the DB-9 connector on the MM/1. Adaptors are available for the Tandy CM-8 and the Magnavox 8CM515 cables.

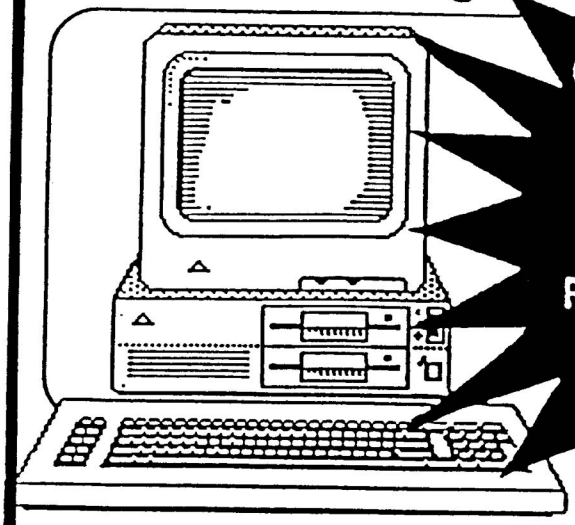
The MM/1 also works with many multiple-frequency monitors including the NEC Multisync and the Mitsubishi DiamondScan.

Q: How can I order my MM/1?

A: To learn more about the MM/1, multimedia and the future of computing or to place an order, please contact us directly by calling Roslyn Remin on (077) 734 884 Monday through Friday between 9:30am and 5:30pm EST. Or you can write to REMCOMS, 100 Whitsunday Dve, KIRWAN, QLD, 4817.

# COCO FRIENDS DISK MAGAZINE

"The most exciting new product for the CoCo Since....?"



**COCO FRIENDS DISK MAGAZINE (CFDM) is devoted exclusively to those who still enjoy running under RS Dos. The standard system needed to use CFDM is CoCo 3, RGB monitor, at least one disk drive, and the RS Dos which came with your CoCo 3.**

CFDM is a monthly disk based publication which is produced on a "flippie" disk. When you "Run" the "magazine" side of CFDM, you'll be greeted with a beautiful cover picture by CoCo Friend James Gibbons. Pressing any key takes you to the magazine's colorful Main Menu. There you'll find 14 sections which are filled with entries. Sections included are: About CFDM; About this Issue; Active CoCo; Advertisements; CoCo Friends Art Gallery; Articles of the Month; Family Tree; Forum; From the Editor; Letters to the Editor; Potpourri; Programs of the Month; Reviews; and Question & Answers.

Next you will enter a Section and find a number of entries written by our CoCo Friends from all over the world. Each issue of CFDM contains from 60 to 80 entries. Some sections contain documentation about the many programs and graphics found on the "flip-side" of CFDM.

The "flip-side" or "program" side of CFDM is filled with contributions of wonderful programs and graphics from our many CoCo Friends! Each issue has from 2 to 4 hi-res pics and from 8 to 15 never-before-seen programs.

**8 to 15 never-before-seen programs**

The above software is available in Australia through REMCOMS

**RICK'S COMPUTER ENTERPRISE**

PRICES:
1 ISSUE = $9.00
3 ISSUES = $25.00
6 ISSUES = $45.00

CANON BJ200e
by
Michael Rowen

The Canon BJ-200e bubble jet printer is one of many ink-jet type printers now widely available. The BJ-200e has some slight improvements over the original BJ-200. The BJ-200e was ideal for my needs since I am using it with a CoCo 3.

The BJ-200e At a Glance:

Interface: Parallel
Paper Handling: 100 sheets or 10 envelopes in built-in feeder
Paper Capability: plain paper (17-28lbs), letter, legal, A4, #10 envelopes, transparencies
Dimensions: 13.7" wide x 6.8" high x 7.6" deep
Weight: 6.6lk/3kg
Warranty: 2 year limited
Cartridge life: Avg 450 pages
Print Resolution: 360 dots per inch
Print speed: Draft 248cps, High quality 173cps, Super High Quality 124cps (about 4ppm in high speed, 2.7ppm in high quality)
Emulations: Canon Native, Epson LQ, IBM X24E
Fonts: Prestige, Courier, Orator, Roman, SanSerif, Script, Orator-S

What you get:

Unpacking the BJ-200e was simple. The printer comes with a user's manual, a quick start guide, registration card, MS-Windows print drivers, MS-Windows true-type font disk, 120VAC power cord, and an ink cartridge.

The quick start guide clearl shows you how to unpack the printer and install the ink cartridge. The only interface for the BJ-200e is a 36 pin centronics parallel (Amphenol) connector. Power is not supplied on pin 18, so you will have to use a powered parallel interface adapter if you use it with a CoCo. I use a Blue Streak Ultima adapter that I have connected power to.

Documentation:

The User's Guide does a good job walking you through set-up and maintenance as well as troubleshooting. All DIP switch selectable options and control panel controls are well explained. The section on using the printer with your software is strictly MS-Windows oriented. Because of this, there is no reference in the supplied documentation for the printer control codes or escape sequences needed to control the printer. The manual mentioned that a Programmer's Reference manual is available from Canon, I assume at extra cost. I called the Canon help desk number in the manual to ask about this vital information. They told me that the Programmer's Reference Manual would probably be overkill. Canon supplied me with three document codes that could be entered into their toll free FAX back system. These documents contained the escape sequence information I wanted. Since I had access to a FAX machine, I was able to obtain the escape sequence readily. Canon said that the information could be mailed if I did not have access to a FAX machine.

BJ-200e Physical Layout:

One of the selling points for me was the size of the BJ-200e. It weighs just over six pounds, and takes up an extremely small amount of space. The built-in paper tray is at the rear and is angled so that the paper leans back at about a 25 degree angle. This design means that you do not need to allow for any space behind the printer. The paper tray also has an adjustable paper guide and a retractable paper support. To the right of the paper tray is a paper selection switch which is used when you want to print envelopes. Prints exit at the front of the printer. A retractable support can be used to cat prints as they exit if desired. The front cover flips down for easy access to the ink cartridge. All printer control buttons and DIP switches are on the top operator panel. The DIP switches have a smallhinged cover and are well marked. The only need to access the rear of the printer is to connect the parallel port and the AC power cord. The parallel port is situated sideways. This allows easy access to the speed control switch on my parallel adapter. The paper tray also eliminates the worry of cabling interfering with normal feeding of the paper.

Printing to the BJ-200e:

As soon as I powered up the BJ-200e, I sent a text file from OS-9 to the printer. This generated a single line of smeared ink. Automatic line feeds are not enabled on the printer as it is configured from the factory. There are a number of ways to cure this. From OS-9 I simply issued an xmode/p lf to add line feeds. Automatic line feeds can be enabled by powering up the printer while holding down front control panel buttons or by enabling the automatic line feed DIP switch. Most word processors give you the option of including line feeds when printing. This can also be enabled via an escape sequence to the printer. I sent the text file again and received a very clean and crisp document. The speed of the printer is impressive.

Next I wanted to test the Epson compatibility. I configured CocoMax 3 for an Epson printer and loaded some graphics. I did have to set the printer up for automatic line feeds for it to work. Graphics printed with exceptional quality and speed. It was not necessary to put the printer into Epson emulation mode since the normal mode supports the Epson graphics character set.

I tried three different types of paper and printed envelopes. The quality of the prints were all of high quality. Very thin paper will not absorb the ink as fast and can be smudged if not allowed to dry before handling.

Special features:

The BJ-200e has a 50KB buffer that is allocated for use depending on the emulation mode. In the Native (BJ-10) mode the entire buffer is used as an input buffer. In Epson LQ mode, 11KB are used as an input buffer and 39KB are used as a download buffer for font information. The BJ-200e can also be configured for Automatic emulation mode. This mode allows automatic switching between the Epson LQ mode and the IBM X24E (BJ-10) mode based on the data being sent to the printer. This mode used 9KB as an input buffer and 41KB as a download buffer.

Overall results:

The Canon BJ-200e has much going for it. Print quality is very near laser quality. Seven different fonts are built in. Both emulation modes support the Epson graphics character set making the BJ-200e compatible with virtually all Coco software. The small size of the printer and it's low weight offer unmatched flexibility in placing and transporting the printer. Access to the ink cartridge, printer controls and the DIP switch settings are readily available from the front of the printer. The printer is very quiet (40-42dB) and fast. Perhaps the only mark against the BJ-200e is that the printer control and escape sequences were not included in the documentation. I would highly recommend this printer to Coco users.

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AUSSIE COMPARISON - CANON BJ200

Print Speed:
Draft:248cps, HQ:173cps, SHQ:124cps
Print Width: 203mm (8")
Buffer: Up to 49KB
Paper Handling: Manual Feed or Auto Sheet Feeder - 100 sheets
Interface: Parrallel (Centronics)
Fonts: Approx 11 varieties
R.R.P: $795.00

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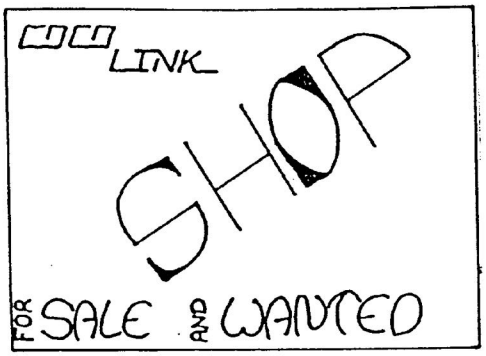


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~~Single-Sided Disk Drive - with controller, 40 tracks ..... $100~~ SOLD

Hi-Res Interface - Joystick & Mouse. Switchable between twin lead mode and single lead mode .....$15 each

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~~Disk Drive Controller - with Switchable DOS (standard Tandy DOS & Extended ADOS-3).....$70~~ SOLD

EPROM's & Modifications - EPROM's burnt and disk controllers modified. Prices vary depending on type of controller & size of EPROM required. Call for a quote.

If you are interested in any of the above give Ian Hedges a ring on: (07) 209 2921

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WANTED:

John McNabb is on the lookout for a ROM Pak called:

Diagnostic ROM - Tandy catalogue No. is 26-3019. If anyone can help give John a call on:

(03) 758 9008

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WANTED:

Disk Drive System, one or two drives, with Super Controller II if possible, but I will consider any controller. Standard Tandy drives would be OK.

Contact:

John McGrath
93 Lemon Gums Dr
TAMWORTH NSW 2340

Phone: 067-618 071 (after 7pm)

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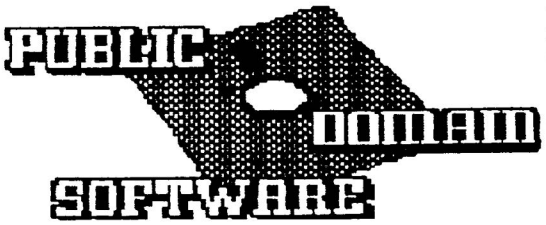
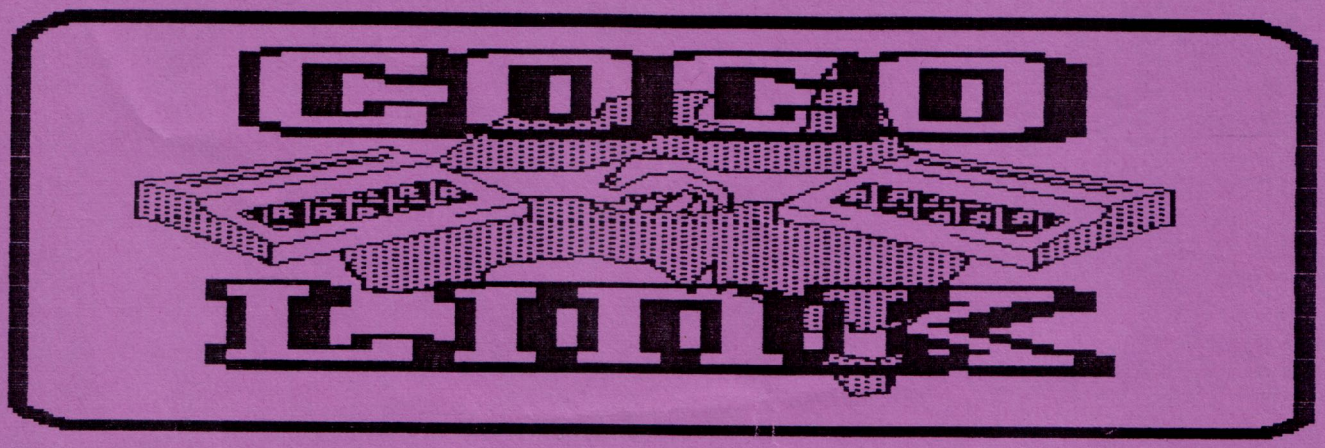



Public domain software is still available, the only difference is that it is now being managed by REMCOMS. This has come about because Robbie has simply run out of time due to other commitments to continue this valuable support asset.

In keeping with REMCOMS promise to provide support to the CoCo community at the lowest possible prices we have decided to change slightly the costs of Public Domain Software.

Single issues will still be $5, however if you supply the 2 formatted disks then you will receive 2 disks for $5.

A full catalogue of all public domain software may be obtained from REMCOMS for $2.

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**********

If you would like your name included in the above list in order to help other cocoists and to maintain contact between us, then send the above information to me for inclusion.

Do you know of the existence of a user group in your area or are you considering starting one up again? Let me know the details including the contact names and phone numbers, meeting place, times etc, and I will print it in this magazine.

REMEMBER, USER GROUPS ARE THE BACKBONE OF THE COCO COMMUNITY!

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