

# OS-9 Newsletter.®

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Bellingham OS-9 Users Forum

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## Updates

by Chris Burke

The Rocket is a proposed 14MHz 68000 processor upgrade with OSK for the CoCo3. It plugs into the 40-pin processor socket, but right now, it's in the early prototype stages. One hand-wired prototype has been built *and was on display at the PNW CoCoFEST*. Burke & Burke is debugging the hardware and developing software for this prototype. If there's enough interest from the CoCo 3 owners (roughly 100 advance orders), **The Rocket** with OSK and no on-board memory would sell for \$195.

### BREAKTHROUGHS

#### Motorola's 68306 integrated CPU

This is a full 16-bit data, 32-bit address 68000, with a 16.7 MHz maximum clock and on-board logic for interrupt vectoring, interrupt priority encoding, device selects, DTACK generation, and all of those otherwise troublesome 68000 support functions. The 68306 also includes a fully integrated DRAM controller which can multiplex any number of address bits from 16 (256K DRAMs) to 30 (giant, non-existent DRAMs). The 68306 also includes a DUART (dual serial port) and 16 parallel I/O lines on-chip. This is a 132-pin IC with pins 1/40 of an inch apart!

#### Burke & Burke's K16 Bus synchronization circuit.

This circuit allows the 68000 to synchronize to the CoCo's 8-bit 2 MHz bus in real-time, to accomplish 8-bit, 16-bit, and 32-bit transfers. To the rest of the CoCo hardware, **The Rocket** looks just like a 6809E microprocessor. The entire CoCo hardware looks like a 64K block of memory-mapped I/O to **The Rocket's** 68306. Thus, **The Rocket** can access any CoCo memory location or peripheral, including the MMU and the graphics controller, joysticks, keyboard, and anything connected to the Multi-PAK, through its 64K "window".



In the last two issues we have had reviews of the Mid America CoCoFEST and the Chicago CoCoFEST, so now it's time to blow our own horn. The PNW CoCoFEST has come and gone and here is a partial review of what happened. A complete review is not possible because there were just too many things scheduled at the same time to allow you to "see all". But I can report on what I saw and the general comments from people I spoke to.

#### The Site:

Marcus Whitman Jr. High was the location of this year's event. It was a little difficult to find. Fortunately, I had a map. It would probably have been a good idea for a map to have been printed in the last issue of the *OS-9 Newsletter* or sent to those who pre-registered in advance. However, the school was an impressive location. Actually a little too big for our event. The vendors were located in the main entry area which serves as an auditorium/lunch-room. The room was so large in fact, that official announcements were difficult to hear. I would

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## The Rocket

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### Microware's Industrial OSK

This version of OSK is much less expensive than a full Professional OSK setup. It's missing the development tools, a windowing system, the RBF disk manager, operating system manuals, and some utility programs. **The Rocket** adds back a compatible disk manager, a windowing system based on OS9 Level 2 windows, some of the missing utilities, and minimal development tools (editor, ASM-like assembler, reduced manual).

### Fast 6309 emulator

Software emulation of the 6809/6309 under OSK. Since we don't have to emulate the CoCo hardware too, this emulator is expected to run faster than others.

### COMPROMISES

#### 14MHz vs. 16.7MHz clock speed

Avoids memory wait-states with low-cost 100ns memory.

#### No DMA or coprocessor capability

To reduce cost.

#### One SIMM bank

Sockets for two identical SIMMS, giving on-board RAM capacity of 512K, 2MB, or 8MB. The base price includes no memory; a version populated with 2MB would cost \$295.

#### Limited device drivers included

Drivers for RS-232 Pak, standard floppy controller, Burke & Burke hard disk, DISTO SCSI hard disk, DISTO Super Controller 2 (no-halt floppy controller), keyboard/monitor.

#### Limited expansion

No expansion bus. The on-chip serial ports and parallel I/O are brought out unbuffered to an expansion connector, along with power, ground, and reset. The serial port baud rate oscillator crystal is not populated.

#### No C Compiler included

The OSK version of GCC (not included) should work, but you'll need RMA and RLINK or equivalent (not included). We're also investigating a stand-alone "shareware" C compiler, but there's nothing to report on this yet.

### OTHER ISSUES:

Several people asked whether **The**

**Rocket** can be used with 1MB and 2MB CoCo upgrade boards. Electrically, yes. Mechanically it is rather tricky. You pretty much have to install one on top of the other, and I can't recommend a specific procedure. Keep in mind that with **The Rocket**, this extra memory is accessed only through the 64K window. Its main uses would be for a large RAM disk and for graphics screens. **The Rocket** has its own main memory on-board.

The board also has a 6809E/6309E socket, and a jumper which lets either the 68000 or the 6809 run after RESET. This allows a CoCo with **The Rocket** installed to operate as a standard CoCo 3 when the jumper is installed.

**The Rocket** is a full 16-bit processor. A very early prototype shown at the Chicago CoCoFEST used an 8/16-bit processor, the 68008, at 8MHz. This very early prototype did not use any actual Rocket circuits (even the bus synchronizer was different, a K8 instead of a K16), but it demonstrated the concept of a 68000 installed in the 6809E socket. The actual Rocket is nearly twice as fast, and has twice the memory width of the 68008 for essentially 4 times the performance. It also has full 32-bit addressing vs. the 1MB address limit of the 68008.

### CURRENT STATUS:

A lot of software must be written, and a lot of deals must be made, before **The Rocket** is a "product". We're debugging the prototype - works well so far.

Deadline for advance orders has been extended to July 31, 1993. The deadline is a courtesy to people who have placed advance orders, so that we don't tie up their money forever. If we aren't real close to 100 orders by July 31, then anybody who "wants out" gets a full refund.

*Editor's note: At the PNW CoCoFEST, Chris verified that coming in the door he had around 50 advance orders. By the end of the FEST, everyone I talked to had bought **The Rocket**, so I am assuming that Burke & Burke must now have at least 70 - 80 advance orders.*

## OS-9 Newsletter

Editor: Rodger Alexander

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**Submissions** are welcomed in any format and can be mailed to the above address or sent via electronic mail to the editor, Rodger Alexander, on Delphi (UserID: SALZARD) or FidoNET (1:301/3401@fidonet.org) or Internet (ralexander@nwrdc.wednet.edu). Unfortunately, we do not have funds to reimburse authors of selected articles, however a complimentary copy of the **OS-9 Newsletter** containing your article will be mailed to you PLUS the satisfaction that you'll have the admiration and appreciation of all of our readers.

The **Bellingham OS-9 Users Group** is a hobbyist club, organized for the purpose of providing information, services, products, and events that support the OS-9 operating system for 6809/68xxx based computers. Our efforts are not intended to earn or generate any profit for the club or any of its members.

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suggest that a public address system be used next year if PNW CoCo FEST IV will be at the same location.

Some of the sessions were presented in this large area where all of the vendors were located. This worked out very well for Burke & Burke and the Telecommunications/BBS demo and the Kix30 and OS-9000 demos. Some of the other presentations were held upstairs in standard classrooms. VCR's, overhead projectors, lots of chalkboards and excellent lighting made these facilities a great improvement over last year's event. But again there was a coordination problem between the beginning and ending of each event. Some events ran overtime causing late arrivals and interruptions at the next scheduled event. One of the most exciting demonstrations was the packet radio demo presented by **Scott Honaker** and **Tom McPhearson**, but I was not able to attend due to my presentation running way overtime.

I suppose I'm being a little negative, but there were some problems that I would like to see addressed next year. However, overall it was a fantastic event! Friday night's schedule of events was nothing like I had posted in the OS-9 Newsletter. It was much better! Here is an actual list of all of the presentations that actually happened at the FEST:

#### **The Sessions:**

Friday: 7:15 - 8

#### **Where Are CoCo users in the Real World:**

A group discussion that looked to the possible future of the CoCo through the success of Chris Burke's Rocket 68K board and the evolution of OS-9 Level III via Gale Force's *NitrOS9 Expeditor* upgrades.

#### **Q & A on PC DOS & Windows:**

This was specifically designed for IBM type PC users

**Q & A on Macintosh** by Fred Howard & Mike Bussman  
8 - 8:45

#### **The future of the computer industry, according to Microsoft**

This was a general presentation for everyone at the FEST presented by Scott Honaker from the Product Support division of Microsoft. Due to Microsoft's dominance in the industry, its pretty much a safe bet that the view from Microsoft's position will pretty much be the way of the future. Scott covered the future release of new products and the continued growing success and advances of GUI's (Graphical Users Interface such as Windows and Multi-View type products).

8:45 - 10

#### **Controlling Motors via Computer (CoCo-2)** by Paul Sorey

Paul has an animated sculptor of 250 moving panels on display at a museum in Seattle, Paul had a video tape of the museum presentation plus samples of the circuit boards and how he interfaced them to a CoCo-2.

#### **MultiMedia Presentation via Computer** by Rodger

Alexander

See the article on this subject elsewhere in this issue.

#### **Surface Mounted Circuit Boards** by Scott Honaker

It's so easy! No more acid baths, photo etching techniques, etc. Just glue the componets where you want them and "paint" the traces between your component leads. Scott made a "Power ON" Led circuit on a CoCo-3 case....no wires. We'll repeat this presentation at the July meeting of the 68xxxMUG meeting.

#### **Computerized Investing** by Ann Copeland, Ph.D. CFP

I wanted to see this one real bad, but was otherwise occupied. Dr. Copeland had her presentation organized into three separate presentations: 1. SIMPLE(?) BOOKKEEPING using spreadsheets and portfolio management programs; 2. INVESTMENT ANALYSIS using software to track investment performance; 3. ON-LINE SERVICES using Bulletin Boards such as Compuserve, Prodigy, etc. to track investments and buy/sell stocks. Dr. Copeland's handout was very informative!

Saturday 8 - 10 am

#### **Swap Meet and Vendors**

The large "Cafetorium" had vendors located all along it's perimeter. Each side of the room was more than 75 feet. Along one side was a huge pile of computer hardware from the **Computer Bank Charity**. During lunch they auctioned off a lot of equipment. Four IBM type XT Computers with two floppy drives in each and matching monochrome monitors sold for \$30 each. They literally had a couple of tons of computer hardware. WOW!

The next group of tables was stacked with CoCo hardware and software items from Terry Laraway's "CoCo Etc." If you can't find something, chances are, Terry has it. He even had a 350 watt HAM transceiver.

Next to Terry was Chet Simpson from **Hyper-Tech Software** showing off his *Studio-29* image editor and animator.

Along the second wall was **Alan Dagas** with his collection of complete CoCo-3 set ups with lots of disk drives, CM-8 monitors, CoCo's, software, etc., etc.

Next to Alan was **Burke & Burke**. Chris needed a large area to accommodate his very popular presentation of the Rocket. The Rocket board, plugged into a CoCo-3, was on display surrounded by a classroom of chairs. On the second table was a display of other Burke & Burke products. Chris was busy all day long "selling".

The area in front of the stage was mostly occupied by **SBUG**, otherwise known to us as Andre La Velle. Andre had 4 tables stacked high with computer hardware and software. Most of it was for the CoCo, but some items were for IBM type computers. Andre was the only source I saw that had 512K memory kits for sale.

Next to Andre was **Bob van der Poel**. Bob has produced a great del of assorted software for the CoCo and OSK systems, but the only software he had on display was "VED" and "VPrint" for the CoCo.

The fourth side was a little crowded. In the far corner

## PNW CoCoFEST

*Continued from Page 3*

was the **Bellingham OS-9 Users Forum** (That's me!) set up on two tables displaying used CoCo hardware and a few software items. We had one of our GIMIX computers up and running with two terminals just for curiosity sake. Our Forum's products were displayed on the second table. We gave away free samples of the *OS-9 Newsletter* and sold back issues for 50 cents. We sold out of our *OS-9 Level Two Tutorial*. We also sold out of the *PD Library* disk that we brought along.

Next to us was **Tacoma BBS**. Chris Johnson and Randy Kirshenmann had a complete RiBBS Bulletin Board system hooked up between their two computer located 50 feet apart. Those who never have logged onto a BBS had the opportunity to log on with the SYSOP standing right next to them guiding their every move. What a super idea!

Next to Randy and Chris was the **Longview/Kelso CoCo Club** with Allen Morgan's KIX\30 OSK machine and Mark Johnson's 486 PC running OS-9.000. Looked like a 68K system to me.

Next in line was Mike McKenzie representing **Gale Force Enterprise**. *NitrOS9* was the big selling item. I bought one.

The final two tables were **Eversoft Games** and **Paul Sorey's** video tape display of his CoCo controlled animated sculptor. Eversoft, as always, had some real great super fast graphic games that showed of the CoCo. There was always a group of game enthusiast hanging around their table and playing Eversoft's amazing games. They looked like they made more sales this year than last.

We were expecting to see some products from Sub Etha and CoNect at Andre's tables, but those products never showed up. Also, the Gonzales Brothers, distributors of the MM/1 never showed leaving Bernie Bersherse without a computer to demonstrate on. Thanks a lot guys! <Grrrrrrrr>.

10 - 10:45

### **Computer Animation** by Chet Simpson

Chet had a graphics animation program for Disk Extended Color Basic. It starts out very much like an ICON editor and then has a second program that combines the individual "images" like frames in a cartoon movie. The program is very fast and flips the pictures at 40 frames/second for smooth, better than motion picture quality. Chet was selling his program for \$2.50 with a Jurassic Park pin thrown in for free.

### **KIX30 Demonstration** by Allen Morgan

The Kix30 by Frank Hogg Labs is the latest in the list of 68K machines running OS-9 on a 68000 CPU platform. Speed is the key word here. Unfortunately, Allen is still waiting for his video board so he is using the CoCo-3 as a terminal for the Kix30.

### **Microsoft Works**, by Fred Howard and Mike Bussman

I am assuming that the latest version of Works (Version 3) was demonstrated. The advantage of Works is that it can

run very fast on a simple XT machine with the ease of a Windows applications. A true "WYSIWYG" software. The program combines an excellent word processor, database, spreadsheet and telecommunication program. A good choice for someone starting out on an inexpensive PC System.

10:45 - 12

### **The Rocket** by Chris Burke

Check out the latest update on The Rocket elsewhere in this issue. Everyone I talked to bought it, including me! I also bought his latest upgrade to the 6309 Booster. (Latest version is 2.03)

### **MIDI Demo** by Gary Combs

This was an Atari set up. They entirely remodeled the school's library into a recording studio with an incredible sound system with a multi-channel mixer, sampler, synthesizer, all controlled by a fancy Roland Keyboard and Computer. This was more than a MIDI demo, it was a complete sound studio.

### **Aldus Pagemaker** by Fred Howard and Mike Bussman

Another session I wanted to see badly. Pagemaker is the industry standard for Desk Top Publishing, such as putting together a Newsletter <g>.

Noon - 2pm

### **Luncheon and Bob van der Poel**

Bob's subject might have been considered to be anti-computer. Remember the promises made ten years ago about how computers were going to free us from the drudgery of our jobs? How our work hours would be reduced and we would have more free time at home. That people would be able to stay at home and do their work on their computer which would be "networked" to the office. But in fact, just the opposite has happened. We still drive to work everyday with the computers generating twice the paper work we had before. And then we go home to do additional work on our own computers. We are now working harder, longer and in some cases for less money.

Bob related a story to us about the Pizza Pizza telephone operators. This was a real situation where a central location of operators answered a central phone number and then contacted the closest Pizza Pizza store to make and deliver the Pizzas to the callers. The operators wanted more money, so they organized and threatened to strike. The owners fired the operators and contracted individuals working out of their homes (housewives, students, etc.). They got 50 cents per order. Their orders were monitored and if they received more than 4 complaints their contracts were terminated. Ouch! So what's in store for us in the next ten years?

2 - 2:45

### **IMS MM/1 Demo** by Bernie Bersherse

Bernie came all the way down from Alaska to do his presentation, but the local MM/1 distributor never showed with the computer. <Grrrrrrrr>

### **Super Paint Demo** by Fred Howard and Mike Bussman

This was another IBM type software demonstration. I am not familiar with this product and did not attend so I have no comments---sorry.

*Continued on next page*

**Where is the Support**, featuring Terry Laraway, Dennis Mott, Chris Johnson and Allen Morgan

If you have trouble getting software or hardware support and can't find CoCo items, these are the guys that know. But I didn't get to go <sob>.

2:45 - 3:30

**Connect to the World**, featuring Dennis Mott and Allen Morgan

The subject here was Telecommunications and telecommunications services such as Compuserve, Delphi, FidoNET and OCN (OS-9 Community Network)

**CoCo Towers** by Rodger Alexander and Gene Elliott

This was actually a repeat from last year, but with a twist. Rodger demonstrated the CoCo installed into a mini tower case for a permanent OS-9 System while Gene's presentation featured a midi sized tower with the concept that the computer should be removable and even while in the tower, it should be fully accessible as a CoCo-3 including being able to plug in ROM Paks.

**OS9000 Demo** by Mark Johnson

This was excellent because you got to see Microware's OS9000 running in an Intel 486 machine right next to Microware's OSK running in FHL's KIX130. Could you tell the difference? Which one was faster?

3:30 - 4:15

**Packett Radio Demo** by Scott Honaker and Tom McPhearson

Why pay long distance fees, connect fees, etc. You can do it for free on amateur radio and you don't have to learn Morse

Code. Haven't you heard? There is a new license class call "NO CODE TECHNICIAN CLASS". This class of license is designed specifically for computer telecommunications. You can have free access to Internet. You can send a message to Florida in less than 6 hours. Try to do that on FidoNET! You don't need to wait for Xmodem error correction protocol. Packet has automatic error detection/correction. And it's FREE!!!!!! Wake up you guys!

**C Programming Concepts** by Randy Kirschenmann

Randy is a local talent whose expertise on C programming is sought from CoCo C programmers all over the country on FidoNET. Recent articles on C in the *OS-9 Newsletter* have revealed Randy as an excellent teacher. His logical step by step presentations have made C almost understandable.

**The End of another CoCoFEST**

After loading everything back into the station wagon, my wife Barbara and I drove to the nearest "Olive Garden Restaurant" where we broke bread with Bob van der Poel, Alan Dages and his wife Babs, Chet Simpson and his girl friend Gayla, and Terry Laraway. We critiqued the FEST and compared notes. Alan Dages and Babs took off early, but left the official word that Atlanta CoCoFEST is on for this October. Start saving your airfare for the east coast. For those of us not heading for Atlanta or Chicago, PNW CoCoFEST IV will be June 24-25, 1994

# C data types

by Randy Kirschenmann

The C language comes equipped with four basic data types to handle our programming needs: **char**, **int**, **float** and **double**. The integer type, **int**, can also be designated as **signed** (the default) or **unsigned**, or specified as **long** or **short**. Also **float** can be specified as **long float**, which is the same as **double**. The internal representations of these data types are machine dependant and vary from one implementation to the next. With the assumption that the majority of readers are learning C on their CoCo 3, using Microware's C compiler, most of the discussion which follows will be directed to this specific implementation.

The sizes of the basic data types are (on the CoCo):

Data Type	Size	Internal Representation
CHAR	1	two's complement binary
INT	2	two's complement binary
UNSIGNED	2	unsigned binary
LONG	4	two's complement binary
FLOAT	4	one sign bit, 23 bit mantissa, 1 byte exponent
DOUBLE	8	one sign bit, 55 bit mantissa, 1 byte exponent

The specifications **unsigned** and **long** are the same as **unsigned int** and **long int**. **Short** and **short int** are identical to **int**. ANSI C also has an unsigned char type that is not implemented in Microware's version for OS-9. So, with all this in mind, what can be done in C?

Most programs need to process text. We want to write messages to the screen or input control information from the keyboard. The character string makes this possible, and the character array allows the programmer to manipulate this kind of data. The C language's character string always has, as its last character, a null byte. This is the end of string signal to the functions you'll be using to process character data. When you define a string, such as "Hi, I'm a string", hidden from us and tacked on the end is the null byte, represented as the character '\0' (which at first looks like two characters) and translated in memory as one byte of

# C data types

Continued from page 5

binary zeros. Also when you build an array of characters such as:

```
char ch[10];
```

and initialize it with data, or if you are inserting characters into it yourself without utilizing one of the C libraries string functions, you must insure that the last character is '\0'. Fortunately, the string functions you will most often be using will take care of this for you. Of course, if you don't need to process this array as a string the terminating null will not be needed. But in most instances character arrays, used as strings, must be at least one byte longer than the number of characters you want to read or write... leave room for the terminating null.

Counting is another useful thing for computers to do. For this you'll normally use the integer data types. The char data is also an integer, however, and in many cases will be as big as you need for counting. I generally use the int type anyway, even when I'm sure my counter need not be any larger than decimal 127. Decimal 127? Where did I get such an oddball number as that? Well, the char data type is always a signed data item, of one byte. The negative numbers are those whose high bit is set on. In hex this looks like 0x80 (0x preceding the number tells the C compiler that our constant is written in hexadecimal notation). For those familiar with hex numerics, this translates to decimal 128, and the number 0x7F is decimal 127. Thus it can be seen that if the high bit is set off, the largest number we can represent in one byte is 0x7F, or decimal 127. For signed int data types the largest positive number is 0x7FFF, or decimal 32,767. The smallest negative number which can be represented by char data types is -128, and the smallest for int data types is -32,768. Unsigned int data types can only be used for positive values ranging in value from 0 to 65,535. For larger values we must resort to the long int (or long) data types. This will allow positive numbers as large as 2,147,483,647 and negatives as small as -2,147,483,648. Unsigned longs are not defined.

Signed integer math is accomplished with two's complement numerics. This can be quite confusing at first, but with some practice I'll bet you catch on to it fast enough. The number, "negative one" in a two byte int data type is represented in hexadecimal as 0xFFFF. Just imagine 0x0001 subtracted from 0x0000 with no borrowing. Similarly the char data type can be used for signed integer math in the same way. The only difference is that char data uses one byte instead of two. Always remember the numeric limits imposed by the size of the data types you choose. Unexpected things can happen when your values exceed these limits.

Some computer applications just cannot be done using integer math and for these cases the C language has provided us with floating point data types. The short form is called float and the long form is called double. Constants can be expressed either in scientific notation, such as 123.456e-7, or as decimal numbers such as 1.0. To omit the decimal in the

preceding example would signal an integer to the compiler.

One final data type defined by the C language is the register variable. The declaration of a register variable looks like

```
register int i;
register unsigned u;
register int *pi;
```

There are some advantages to declaring a variable of this type. Such a declaration will signal the compiler that the data item will be heavily used, and, when possible, it will be placed in a machine register, which may give the resulting executable code optimum size and speed. With these advantages come certain restrictions, however. Only one register variable may be declared in a given function, and the only allowable types for register variables are int, unsigned and pointer.

I hope what I've covered to this point hasn't been too boring. I wanted to lay the ground-work for future articles, which should start getting more interesting. To learn a new language it is extremely important to understand how data elements are defined, and what the limits to the values are before we can begin to use them.

==Randy Kirschenmann==

\*\*\*\*\*

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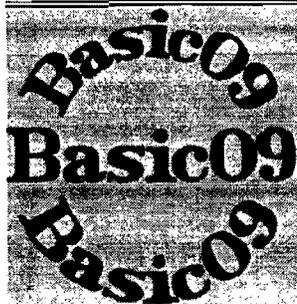
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# Interactive Media

## Controlling the Pioneer Laser Disk Player by Writing Interactive Software in Basic09

Remember waaaay back in the early 80's and late 70's when RCA and other TV manufactures were pushing 12inch movie disk players for \$1000 and up? Well, those original laser disk players are making a come back, but not as a home appliance for showing movies. Instead, they are being manufactured and marketed as an educational multimedia system!

Keep in mind that we are talking about laser disk. 12 inch CD's. If you can put half a gigabyte on a 5 inch CD, imagine what a 12 inch CD could hold? And since these are CD's (in a way), they can be scanned, stepped forward, backwards, sped up, slowed down, etc. In other words, they can be controlled. "Video Disk" have come a long way and there are thousands of titles to choose from. You can select from "JAWS the Movie" to "All About Whales" to "SPACE, pictures taken by the Voyagers" to "The Complete Art Collection of the Smithsonian Museum", etc., etc., etc., etc. Prices vary from \$25 to \$350 per disk; remember the key word here is..... EDUCATIONAL MATERIALS, and that of course gives license to quadrupling the prices in some instances.

Actually there are two types of video disk: *CAV* (*Constant Angular Velocity*, which is similar to a computer CD), and *CLV* (*Constant Linear Velocity*, which is similar to a phonograph record). The CLV disk can hold more picture data, such as a whole 2 hour movie, but there is very little control access other than stop and go. However, the CAV disk, like the CD's in our computers have tracks and sectors that can be accessed and controlled.

The level of control is the big selling point, and users are classified into three categories. The **Level One User** has access to the laser player, a remote

control (similar to your VCR remote), a television and some CAV disk.

The **Level Two User** has access to the above plus a bar code scanner, which is used with a teacher's manual or book for each specific disk. As the teacher or user reads a section in the book about a particular subject, an accompanying bar code on the page can be scanned with the bar code reader, then the user points the bar code reader at the disk player and pushes a button. Within a second or two the TV screen shows either a still or motion picture clip of the subject being read about. A Level Two User could also have access to a computer with a CD. The Compact Disk contains programmed access to the video disk player that the user can select.

The **Level Three User** has a computer and an interactive program that permits the user to select the pictures, chapter, frames or whatever the user wants in whatever order desired.

If you examine the three different level of users, you may notice that the only thing separating the level one user from the level three user is a computer and some sort of interactive software. And since most schools have computers of some sort, the only real problem is the software.

### Computer Interface:

Before we deal with the software, we have to come up with a way to hook up the Laser Disk Player to the computer. Pioneer is currently the only manufacture of "Laser Disk Players" that I am aware of, so I didn't have to search hard for some sort of support. Their customer support phone number for the West Coast is (310) 522-8600. I was able to get an owners manual which pretty much answered all of my

questions. Not only did it give an exact pin out for the 15pin D-SUB jack on the back of the laser disk player, but it also gave a wiring diagram for connecting to a standard 25 pin RS-232 jack on the serial port of most computers, including the CoCo's RS-232 PAK.

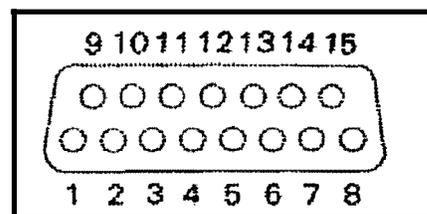


Fig. 1

Figure 1 shows the pin-out of the 15 pin D-Sub connector on the back of the 2200 series Pioneer Laser Disk Players. Figure 2 shows the wiring connections between the standard computer's RS-232 25 pin D-Sub jack and the 15 pin D-Sub jack. Making up an interface cable couldn't be easier, considering there are only 4 wires.

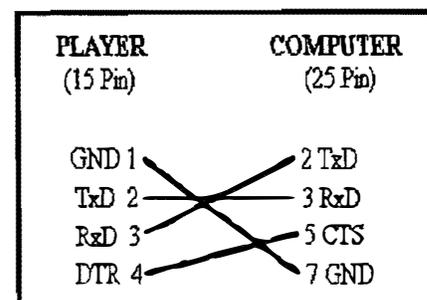


Fig. 2

Not only did the manual show the wiring for the interface cable, it also showed the ASCII Control Commands that performed 41 functions. The hand held remote that came with the Laser Player had only 8 functions.

### TESTING:

I actually tried out the interface cable on

several types of computers using several different terminal programs in order to communicate through the RS-232 port. The OS-9 on the CoCo was the easiest to work with since I could treat the Laser Player as a simple device. I plugged the 25 pin D-Sub connector on one end of my interface cable to the Deluxe RS-232 Pak and the 15 pin D-Sub connector on the back of the Laser Player. From the OS-9 prompt I typed: **echo OP >/T2. "Tah Dah "** And suddenly the 12 inch drawer on the front of the Laser Player opened. I spent about 5 minutes typing **OP** and **CO**, watching the drawer open and close. (I'm easily entertained.)

#### SOFTWARE:

Pioneer makes software for MS DOS, Windows and the Macintosh. The software is capable of producing bar code printouts to standard mail labels on a dot matrix printer. The software also provides interactive menuing control of the laser player via the computer. I had no idea how to create bar codes, but the interactive part actually looked pretty simple, or at least could be kept pretty simple. Donald Zimmerman asked me to demonstrate the CoCo operating the Laser Disk Player at the PNW CoCoFEST in Port Orchard, so I had to come up with something that would show off the CoCo. So included here with this article is my "versions 1.0" in basic09 using the concept of KISS (Keep It Simple Stupid):

By simply responding to the menu choices, you can close the disk drawer, play and stop the disk, turn the video and audio off and on, search for a specific frame on the disk, and display the frame number on the TV screen. You could obviously expand on this program since you now have the 41 ASCII Control Commands. It would be a simple task to add more options. The next evolution of an interactive program would be to write a listing that would prompt the user for a series of events so that an entire laser disk presentation could be programmed, stored and later executed.

**Next month** I'll include a table of all 41 commands and a Basic09 listing that will provide some fundamental control of the Laser Disk Player. In the mean time, check out your RS-232 Pak to make sure it works on a CoCo-3. If not, replace the 6551 PIA

### Pioneer 2000 series CONTROL COMMANDS TABLE

	COMMAND	MNEMONIC
1	Open	OP
2	Reject	RJ
3	Start	SA
4	Play	PL
5	Pause	PA
6	Still	ST
7	Step Forward	SF
8	Step Reverse	SR
9	Scan Forward	NF
10	Scan Reverse	NR
11	Multi-Speed Forward	(address) MF
12	Mult-Speed Reverse	(address) MR
13	Speed	argument SP
14	Search	(address) SE
15	Stop Marker	(address) SM
16	Frame	FR
17	Time	TM
18	Chapter	CH
19	Audio Control	argument SP
20	Video Control	argument VD
21	Display Control	argument DS
22	Clear	CL
23	Frame Number Request	?F
24	Time Code Request	?T
25	Chapter Number Request	?C
26	Player Active Mode Request	?P
27	Disc Status Request	?D
28	Communication Control	argument CM
29	CCR Mode Request	?M
30	Door Close	CO
31	LVP Model Name Request	?X
32	Key Lock	argument KL
33	REG. A Set (Display)	argument RA
34	REG. B Set (SQ Cont)	argument RB
35	REG. C Set (Miscellany)	argument RC
36	Clear Screen	CS
37	Print	argument PR
38	Lead Out Symbol	LO
39	REG. A Request (Display)	\$A
40	REG. B Request (SQ Cont.)	\$B
41	REG. C Request (Miscellany)	\$C

# OCN OS-9 Community Network "Annual Report"

The OS9 Community NetWork (OCN) is nearly two years old and the board of directors would like to report to the general membership and readers of the echos on our goals, accomplishments and future goals. Taken from the OCN's guidelines, here is a list of the original goals.

-----\*-----

The purposes of the OS-9 Community Network include, but is not limited to:

- 1) To support OS-9 and it's successors (i.e., OS-9000)
- 2) To support a large library of public domain, freeware, and shareware software.
- 3) To help distribute information in the form of a newsletter
- 4) To keep updated databases of OS-9 retailers, manufacturers, distributors, and any other companies affiliated with the above.
- 5) To keep updated databases of OS-9 support BBS's and clubs.
- 6) To keep updated databases of companies in need of programmers with OS9 experience.

-----\*-----

If I may, I would like to evaluate where I believe the OCN stands on each of these purposes to date.

- 1.) With the message activity on the FIDO echo, this appears to be in good health. Several of the Board of Directors frequent Internet and crosspost messages of common interest. Brian Steward and Jim Vestal are working on gating the OS9 Echo with the StG network. AcBBS network is now compatible with the FIDO echos. We are still working on getting the OS9 Echo out of FIDO zone 1 into the European and Australian zones.
- 2.) We currently have 9 OCN Libraries in 10 of the OCN regions. (Region 15, Arizona, Colorado, New Mexico, Utah, Wyoming is vacant). When a regional library receives a new piece of software, it is sent to the national library for distribution. Within three days it has

been sent to all the libraries in Canada and the U S. Access the the OCN Libraries is free to all, you do not have to be a member of the OCN to make use of the facilities.

- 3.) Alas, our efforts of publishing a newsletter have not been very successful. Others are attempting this and the OCN will support all editors to the best of our ability.
- 4.) Although some developers have prevailed, this seems to be a volatile area and the OCN has not attempted to compile a list of manufactures and distributors.
- 5.) The OCN has not worked on the compiling of Clubs and BBSes. However, other readers on the FIDO ECHO have recently taken up this job and the OCN will distribute the information as soon as they put it in the public domain.
- 6.) The OCN has not figured out how to do this yet. The 3 newspapers I read list an average of 200 ads for programmers a week. If someone has suggestions, please communicate with us.

So, you can see, the OCN has some successes, some not so successful and some not attempted yet.

*Let me interject a word about the use of the words FIDO and FIDO ECHO: The OS9 Community NetWork DOES NOT support one system of communication over another. In the beginning, the people who decided to form the OCN were users of the FIDO network because of the wide availability and inexpensiveness of use. The OCN works toward and encourages the amalgamation of all message system for the better dissemination of information.*

The Board of Directors of the OS9 Community NetWork feels it is now time to look toward the future, to seek new goals, and in general, encourage

the OS9 user to cause these operating systems to grow and become a vibrant force in the computer world. To this end, the OCN BOD asks these questions:

- o What goals or projects would you like to see started?
- o What direction would you like to see the OCN undertake?
- o Positions are vacant on the Board of Directors. Would you like to take on some of those responsibilities?
- o How can the OCN reach out to OS9 users not now being reached via the present means?

Everyone is encouraged to respond or comment to any of the above text.

Respectfully submitted,  
Dave Kelly, FidoNET@(1:133/510)  
(acting) International Co-coordinator  
June 29, 1993

\*\*\*\*\*  
**To all IMS MM/1 customers**

As of April 1, 1993 availability of additional hardware upgrades for the MM/1 will be vastly improved. Those items are briefly noted as follows :

- 1. T1, T3 and T4 I/O serial paddle boards.
- 2. The 9 Meg memory upgrade minibus.
- 3. The Motorola M68340 CPU upgrade daughter board.
- 4. Floptical drives.
- 5. CD ROM drives and drivers.

Note that the Motorolala M68340 CPU upgrade has improved the MM/1 processing speed up to 4-5 times in Dhryston tests according to information from the Developers. Software availability will also be improved.

For more information call the Ocean Beach BBS (619) 224-4878, 12/24/9600 baud. Warren Hrach, RiBBS beta sysop  
IMS Mfgr. Rep. MM1\_Tech moderator

\*\*\*\*\*



# Club Activities Report

*Bellingham OS9 Users Group - Longview/Kelso CoCo Club  
Mt. Rainier CoCo Club - Port O'CoCo Club - Seattle 68xxx Mug*

## Bellingham OS-9 Users Forum

The school is closed, Mike Pleas cut off two of his fingers with a table saw, Wes Payne was off with the U.S. Army for two weeks and Rodger and I were getting ready for the CoCo FEST in Port Orchard. Therefore, June's meeting was officially canceled!

==Barbara Alexander==

## Port O-CoCo Club

The PNW CoCoFEST III was a success, plain and simple. And that success is the result of support, ideas and effort from a lot of people.

This space is usually reserved for a report of what's going on at our club. That privilege is passed on to those who participated in the informative and fun event. Also comments and results of presentations will be buzzing back and forth on the national and regional medias. The glow of PNW CoCoFEST III will go on for months. And there is still a way **you can participate**. Check elsewhere in this issue about getting your own T-shirt and Mug. Not only can you plant seeds for FEST IV, but also you can learn about computers and chips that are the "fathers", "cousins" and "sons" of our beloved Color Computer. The Mug is literally "Chip on a cup!". The T-shirt is neon pink and batteries are not needed for you to stand out in any crowd.

**Rodger Alexander** was the moving force in getting the broad spectrum of speakers. There was definitely something for everyone! Thanks, Rodger, for all the thought, calling, and arranging you did. There is no question that your signature is on FEST III and is one of the marks of excellence on the event. Rodger's efforts brought out some of the best talent in the computer community. The program is listed

elsewhere. Thanks to each and everyone of you. We hope you enjoyed yourself as much as we appreciated your contribution to FEST III.

**Terry Laraway**, was not only a morale support for keeping the project moving, but also he assumed the responsibility of telling the world of our local event. Terry faxed, called and mailed lots of flyers and enthusiasm to individuals, groups and publications. If there is anyone more networked than Terry, I would find it hard to believe (*and that's without a modem <g>*). He also was "the walking book of knowledge" about the CoCo during the FEST. His address is elsewhere in this Newsletter. If you need information or stuff go to the Dalai Lama of the CoCo!

**Tom Brooks** kept our head out of the clouds and from getting heads cut off by spinning dreams that could not become reality. In this day of niche interest groups, its important to be fiscally responsible with someone else's money. Port O'CoCo worked hard to amass what it has over the last three years. It is easy to get drunk on delusions of grandeur and order services and items that are going to end up rotting in someone's garage. Tom repeatedly brought a sense of reality to our plans. So not only were we able to cover ALL expenses, but also leave a legacy of enough money to sponsor **PNW CoCoFEST IV**. Tom's opinions are difficult to swallow at times but they have saved our asses more than once.

As for the event itself, the shining star was our new facility.. Marcus Whitman Jr. High School was graciously provided by Principal **Rick Basnaw**. **Fred Howard** represented the South Kitsap School District during the event by making rooms and equipment available to us. Both their

effort's provided us with an unparalleled location at an unbelievable cost of the lower of the two numbers in the binary numbering system. We hope that we are welcomed back next year and over the years, hope to reach the capacity of 1000 participants.

The participants took the location more or less for granted, but they sure didn't take the breakfast and the lunch for granted! **BJ's Catering** (206-871-1226) created happy tummies for everyone. If you are anywhere in the Puget Sound area and are thinking of serving food for 8 to 800, give Doris Burns a call. She has served a delicious spread from Bellevue to Olympia to Lynnwood and even to Lit'l Ol' Port Orchard for years. She certainly has the nod from the scores of people at FEST III.

The **Fathoms O'Fun** organization and the **Port Orchard Chamber of Commerce** assisted in making us a success. Also, the merchants of Port Orchard along with **Burke & Burke** supported the creation of our very popular T-shirt. It's great to go around our home town and gain support and interest for a special group like ours. Port Orchard is getting use to us CoCo nuts invading the town once a year.

Finally, the greatest thanks of all must go to the crowd at the PNW CoCo FEST III. All of the other's ideas, efforts and contributions are for not if no one shows up. So thanks for coming, thanks for buying, thanks for exchanging information and items. Thanks, thanks, thanks.

We look forward to seeing you and your friends next year.

*Ya' al' come, ya' hear*

==Donald Zimmerman==

**Seattle 68xxxMUG**

The June meeting of the Seattle 68xxxMUG featured the Laser Disk Player again. However, this time everything worked. **Rodger Alexander** was able to get a working interface cable. Hand-outs provided by Rodger listed all of the commands functions that could be controlled by the computer. The most popular, of course, was opening and closing the door/drawer. Rodger could not actually get OS-9 to run the Laser Disk Player due to the 1MHz limitation of the 6551 PIA chip in the RS-232 PAK. However, Rodger reported that the CoCo worked fine using the PAK in Extended Color Basic. He used the Telecommunication program in ROM in the RS-232 PAK. Keep in mind that the CoCo only runs at 1MHz in Extended Color Basic. *It should also be noted that replacing the 6551 with a 6551A chip resulted in the RS-232 PAK functioning properly with OS-9.*

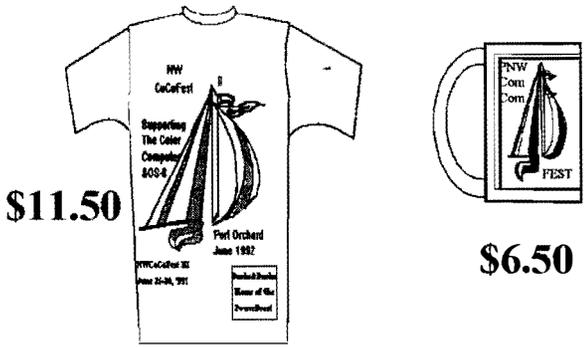
**Donald Zimmerman** brought news about the upcoming PNW CoCoFEST III in Port Orchard on June 25-26, however he didn't have any mugs or T-shirts to show us. An informational flyer was passed out by Donald and a detailed schedule was also included in the *OS-9 Newsletter* which most of those in attendance received at the meeting as regular subscribers.

Some discussion was fielded by **Scott Honaker** and others about the reality of Burke & Burke's 68K Rocket board. I guess we'll have to wait until the presentation at the CoCoFEST to see if it's for real or not.

**Roy Chapman** brought his original OS-9 and Configuration Disk that he has been unable to configure to work properly with his system. The remainder of the meeting was spent in a group effort to properly execute the OS-9 Config Utility. The configuration program operated properly but we had problems cobbling a copy of the new boot with double sided drive descriptors to a double-sided disk. I think this was a good example of multiple minds resulting in a fragmented effort.

July's meeting will feature a report on the CoCo Fest and perhaps some displays of items purchased or demonstrations of some of the presentations given at the FEST.

==Barbara Alexander==

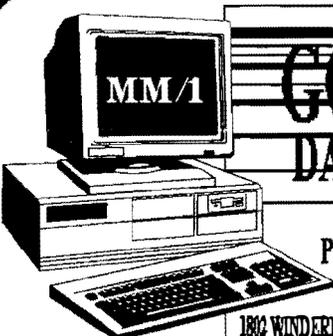


**\$11.50**

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Contact Donald Zimmerman (206) 871-0319



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**Terry Laraway's CoCo Etcetera**

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