WANG SYSTEMS NEWSLETTER NO. 5

THINGS WILL CHANGE

The *Wang Systems Newsletter* is now a monthly publication. We appreciate your comments and input for the *Newsletter*. The last page of the *Newsletter* has been added to provide you with a convenient and fast means of communication to Wang Laboratories.

NEW PRODUCTS RELEASED

2282

The Model 2282 Graphic CRT interfaces directly with the 2200 via the line printer controller board and provides a high contrast plotting and fully automatic alphanumeric lettering capability. The Graphic matrix on the 12" diagonal CRT consists of 800 X by 512 Y addressable locations (Dots). The 2282 is controlled and programmed by the System 2200 with the PLOT statement.

2231W-3

The Model 2231W-3 Line Printer uses a nominal 7 x 8 dot matrix to print an ASCII set of 112 characters. The printer when attached to the 2282 CRT provides an accurate hardcopy of the graphics information on the Graphic CRT. The hardcopy is generated by printing strips of 800 x 8 dots on the paper until the image on the CRT is reproduced. The printer can operate directly from the System 2200 CPU.

APPLICATION BULLETINS

The following are new Application Bulletins released:

Number	Subject
24	Integrated Support System (ISS) Release 3.2

PRODUCT BULLETINS

The following are new Product Bulletins released:

Number	Subject
152	To be announced
153	Model 2282 Graphic CRT/Model 2231W-3 Printer

MANUALS

The following is a list of new and reprinted manuals:

New Manuals

    2200 Medical Demo (700-4270)
    2271 Printer User Manual (700-4276)
    2281 Printer User Manual (700-4264)
    GBS Demo (700-4293)
    GBS-Mod III (Disk) System Manual (700-4283)
    2210 Introductory Reference Manual (700-4330)

Reprints

    Word Processor 20 Data Sheet (700-3892C)
    2261W Line Printer Data Sheet (700-4144A)
    2270 Diskette Drive Data Sheet (700-3677C)
    2200 GIO Microcommands Card (700-3782A)
    2227B Buffered Asynchronous Communications Controller Data Sheet (700-3830B)
    Option 62B Communications Controller Data Sheet (700-4145A)
    2201 Output Writer Reference Manual (700-3113C) (Stock Reprint)
    2200 Summary Syntax Card (700-3500C)
    5581 Daisy Wheel Printer Data Shee (700-4179A)
    2236 Interactive Terminal And 2236MXC Multiplex Controller (700-4154A)
    2200 Sort Statements Manual (700-3559E) (Stock Reprint)
    2281 Printer Data Sheet (700-4146A)
    SPARK Invoicing & Accounts Receivable Systems Manual (700-4130A) (Stock Reprint)
    2200 Plotter Utilities Manual (700-3838B) (Stock Reprint)
    2200VP BASIC-2 Language Reference Manual (700-4080A) (Stock Reprint)
    2200 Sequential Analysis (Diskette) User Manual (700-3666B) (Includes Minidiskette Procedure)

DATA SHEETS

The following is a list of Data Sheets released:

    Option 62 Buffered Asynchronous Communications Controller Data Sheet (700-4243)
    Model 2209A Nine-Track, Reel-to-reel Magnetic Tape Drive (700-4261)
    Model 2231W-3 Line Printer (700-4375A)
    Model 2282 Graphic CRT (700-4378A)
    2210 CRT/Keyboard/Minidiskette Console (700-4262)

DID YOU KNOW

● THAT you can receive back issues of the *Systems Newsletter* by request. The current number is 5, and copies are available from No. 1 through No. 4.

● THAT the 2200VP utilizes a new random number generator that is faster, gives more statistically independent random numbers, and produces a different starting random number.

● THAT the ROTATE verb can only be used for both to the left and to the right on the 2200VP CPU only.

● THAT you can save 13 keystrokes by utilizing a function key.

        100 DEFFN' 16 "PRINT HEX(03)"; HEX(0D)

● This clears the CRT except for ": " Try it!

● THAT all Data Sheets, Product Bulletins, and Application Bulletins will be automatically mailed to vendors. For any specific required bulletin, contact your local District Analyst.

WANG SLANG

BINARY
A base two-number system used in Wang Computers because numbers can be manipulated using ON/OFF (0, 1) in circuitry.

DEBUGGING
The process of finding and correcting errors - bugs - in a program so it will work as intended. Built-in options in Wang equipment makes this job an easy one.

FULL-DUPLEX
The ability to transmit in both directions at the same time. One full-duplex line is equivalent to two half-duplex lines used in opposite directions.

HALF-DUPLEX
The ability to transmit in either direction but only in *one* direction at a time.

INTERFACE
It often happens that it is necessary to connect two devices that do not "speak each other's language." A device is then used to transform signals received from and/or transmitted to a Wang computer to a peripheral in a "language" each understands.

SIMPLEX
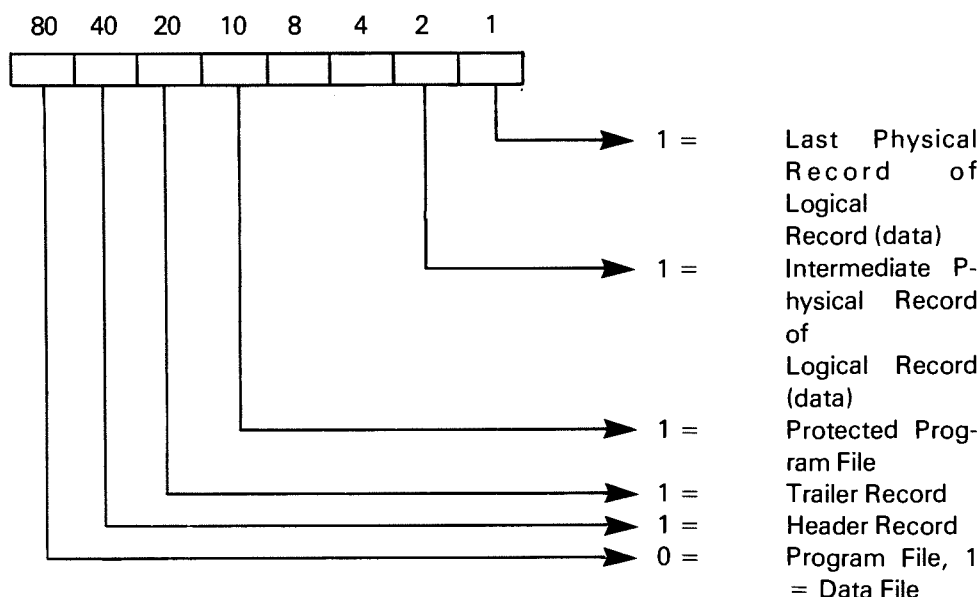The ability to transmit in one direction *only*.

PROFESSOR L. O. BYTE'S CORNER

Here are a couple of questions received by Professor Bytes. Don't you have a question??

Q.   How does the Wang disk unit write files on a disk?

A.   With read/write heads. Along with writing the value assigned to the variables, the system also writes some control information. Below is some information that could be helpful.

1.   SOB (start of block) - identifies type of record

80	40	20	10	8	4	2	1

1 = Last Physical Record of Logical Record (data)

1 = Intermediate Physical Record of Logical Record (data)

1 = Protected Program File

1 = Trailer Record

1 = Header Record

0 = Program File, 1 = Data File

2.   PRN (physical record number) - Data (nonheader and nontrailer) records have a second control byte specifying the physical record number within the logical records.

3.   SOV (start of value) - precedes each value in a data record.

    count (no. of bytes in value)

    type: 0 = numeric, 1 = alphanumeric
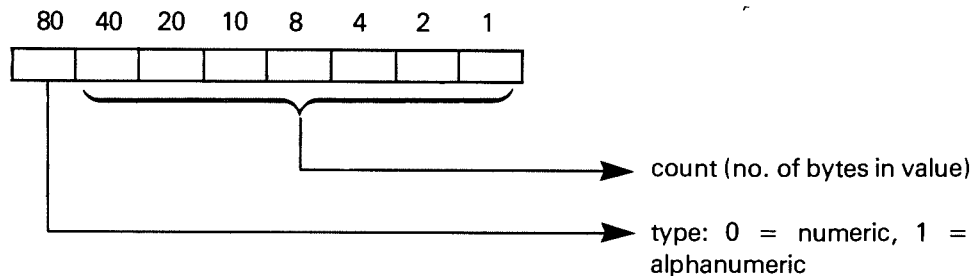
4.   EOB (end of block) - indicates the end of valid data in a physical block.

EOB = X' FD'

5.   EOF (end of file) - indicates the end of valid data in a program trailer block.

EOF = X' FE'

Q.   Some of Wang's T/C Utilities write files in T/C format only. How can I convert that file to a more usable form?

A.   With a good program. But to help, here are two programs that can be adapted for your particular situation.

```
10 REM WRITE TO TC FILE FORMAT, COPYRIGHT WANG LABS, 1977
20 GOTO 1000
100 RETURN
120 COM X1$8,X$4
140 COM X$(4)62,A1$(5)2,I$(4)64
1000 GOSUB 8000: REM OPEN FILE FOR TC STORAGE
1500 REM ********** USER --OPEN YOUR FILE **********
2000 REM *** USER ROUTINE FOR RETRIEVAL OF RECORDS 2000-5999 **
2010 REM
2020 REM ***** BEFORE GOING TO 6000 INSURE THAT *****
2030 REM *****  THE RECORD TO STORE IS IN I$() *****
2040 REM *****  THE RECORD COUNT IS IN A1$(5) *****
2050 REM *****  AND A1$(1) IS SET TO EITHER  *****
2060 REM *****  HEX(0000) -- NOT END OF FILE *****
2070 REM *****  HEX(0100) -- END OF FILE  *****
6000 GOSUB 7000: REM STORE RECORD IN TC FORMAT
6010 IF A1$(1) HEX(0100)THEN 2000
6100 REM ***** END OF FILE INDICATOR ON *****
6900 STOP "FILE STORED"
7000 IF A1$(5) = HEX(0000)THEN 7020: X2 = VAL(STR(A1$(5),2)): IF X3 + X2<249
  THEN 7010:BIN(STR(X$(1),2,1)) = X3: DATA SAVE DC #2,X$(): X3-3
7010 MAT COPY A1$()<10,1>TO X$()<X3,1>: MAT COPY I$()<1,X2>TO X$()<X3+
  1,X2>: X3 = X3 + X2 + 1
7020 ON VAL (A1$(1))GOTO 7030: RETURN
7030 STR(X$(1),1,1) = HEX(F0): BIN(STR(X$(1),2,1)) = X3: DATA SAVE DC #2,X$
  (): DATA SAVE DC #2,END: RETURN
8000 PRINT HEX(03);: INPUT "ENTER TC FILE DEVICE ADDRESS 1 = 310 2 = B10
  3 = 320 4 = B20",A: ON A GOTO 8010,8020,8030,8040: GOTO 8000
```

```
8010 SELECT #2310: GOTO 8050
8020 SELECT #2B10: GOTO 8050
8030 SELECT #2320: GOTO 8050
8040 SELECT #2B20
8050 PRINT HEX(03);: INPUT "ENTER TC DATA FILE NAME",X1$: PRINT HEX(03);:
     INPUT "ENTER NUMBER OF SECTORS TO OPEN FILE",A: DATA SAVE DC OPEN
     T#2,A, X1$: X3 = 3: INIT (00)X$(): RETURN


10 REM READ FROM TC FORMAT FILE, COPYRIGHT WANG LABS INC, 1977
40 GOTO 1000
100 RETURN
110 DIM Y1$(1)8
130 DIM Y$(4)62,A2$(1)1,O$(4)64
1000 GOSUB 8000: REM OPEN TC FILE TO READ
1020 REM
1200 REM ***** USER -- OPEN FILE TO STORE TC RECORDS *****
1210 REM
1215 REM ***** NOTE -- T#1 RESERVED *****
1220 REM
1500 GOSUB 7000: REM GET RECORD FROM TC FILE
1700 REM
2000 REM ***** USER CODE TO STORE TC RECORDS *****
2010 REM ***** EACH TIME THIS CODE IS ENTERED *****
2020 REM ***** THE RECORD TO STORE IS IN O$() *****
2030 REM ***** AND THE RECORD BYTE COUNT IS IN Y4 *****
2040 REM ***** THE USER WOULD NORMALLY COPY *****
2050 REM ***** THE VALID DATA FROM O$() 1,Y4 *****
2060 REM ***** INTO HIS BUFFER FOR SUBSEQUENT *****
2070 REM ***** STORAGE. ******
6000 IF E$ <> HEX(01)THEN 1500
6010 REM ********** END OF FILE **********
6020 REM
6030 REM ***** USER -- CLOSE YOUR FILE *****
6900 STOP
7000 MAT COPY Y$() Y3,1 TO A2$() 1,1 : Y4 = VAL(A2$(1)): MAT COPY Y$()< Y3 + 1,
     Y4 > TO O$()<1,Y4>: Y3 = Y3 + Y4 + 1: IF Y3<>Y5THEN 100: IF STR(Y$(1),1,1)<>
     HEX (F0)THEN 8020
7010 E$ = HEX(01): RETURN
8000 E$ = HEX(00): GOSUB 8030
8010 DATA LOAD DC OPEN T#1,Y1$(1):Y1 = 0
8020 DATA LOAD DC #1, Y$(): Y5 = VAL(STR(Y$(1),2)): Y3 = 3: RETURN
8030 PRINT HEX (03);: INPUT "ENTER TC FILE DEVICE ADDRESS. 1 = 310 2 = B10
     3 = 320 4 = B20",Y: ON YGOTO 8040,8050,8060,8070: GOTO 8030
8040 SELECT #1310: GOTO 8080
8050 SELECT #1B10: GOTO 8080
8060 SELECT #1320: GOTO 8080
8070 SELECT #1B20
8080 INIT(20)Y1$()
8090 PRINT HEX(03);"ENTER FILE NAME ";: INPUT Y1$(1): RETURN
```

GENERAL BUSINESS SYSTEMS (GBS)

Currently under development is a Distributor version of GBS. This special version is a combination of GBS Modules I and II. It exists only in the hard disk version and runs on the same configuration as the current GBS package. It is a single user system. This package is specifically aimed at the Distributor marketplace. File size requirements for this market ruled out the necessity of creating a diskette-based version. In order to tailor this system for the Distributor, backorders and recommended purchases have been added to the original GBS.

Also, a simplified service charge calculation will replace the more sophisticated average daily balance method used currently in GBS. This new method simply computes a percentage charge based on the amounts accumulated as due over 30 days disregarding any previous service charges. If you are using the hard disk version of GBS now and would like a copy of the Aging program with the simple service charge calculation, just send your request to Bob Soucy, in Lowell. The entire GBS Distributor Module will be available in the near future.

Recently, a number of Errata Sheets covering GBS software were issued to everyone listed in our files as having obtained GBS materials. Since that time a few more problems have been uncovered. These problems have been researched, corrected, and additional Erratas covering them will be forthcoming. Only those Erratas which pertain to versions of GBS which you have previously ordered will be sent to you.

Please note there will be an Errata #30 which covers the program ACCT040B in the diskette version only. An Errata #5 previously issued on this program stated that there was no problem with this program on a "T" processor. It has come to our attention recently that there is a problem if you have a large A/R file. This program will write an erroneous END record which could cause loss of data. Therefore the statements 6490, 6740, 6760, 6770, 6775, and 6780 must be deleted from the program ACCT040B. An official Errata will be sent out soon.

It has come to my notice that an error exists in the *Hard Disk Technical Guide*. It mentions setting up and scratching a 5 or 10 meg platter and establishing 10 library sectors to hold the catalog. If you are putting up a full GBS mod, this is likely to be an insufficient amount of sectors in the catalog. You should let the system default to 24 library sectors. The statement should read

> SCRATCH DISK F END = 9791 (5 meg) or
> SCRATCH DISK F END = 19582 (10 meg)

KFAM - 4 Hints

If you are contemplating installing GBS and modifying it to run with KFAM-4, beware of a couple of side effects. First, GBS makes much use of RPL programs created with the RPL utility software. There are several file dumps and a few other programs which utilize this software and which access KFAM master files. These master files are KFAM-3 files. The RPL utility software only supports KFAM-3 files, not KFAM-4 or 5 files. There is no RPL software which supports KFAM-4 or 5 files. Thus, any current GBS programs written with RPL and accessing KFAM files will not work in a higher KFAM level environment. You will have to write replacement programs in BASIC to handle the situation. Bear in mind, however, that you may still use those RPL programs, as they exist in GBS, that act on sequential files.

Another little hint if you are modifying MOD I including Accounts Receivable to run on KFAM-4, beware that the Purge program calls in a module name "BUILDKEY" which is actually modified KFAM-3 software. So, if you are working with KFAM-4, this module must be reworked considerabley.

We do not currently have any plans to generate a KFAM-4 or 5 version of GBS. We will, however, pass on any feedback regarding this change as it is received. In this regard, we want to encourage any GBS feedback, positive or negative. Please direct all comments to Bob Soucy in Lowell.

If you change the blocking factor in the A/R file, be aware that in addition to the obvious Put/Get modifications and other application program changes required, the program BUILDKEY must be changed. This is a special KFAM type program which acts on the Accounts Receivable file making reference to the blocking factor and record length. The following three statements are shown as they exist in the GBS package now. These statements will have to be modified if the blocking factor or record length is changed.

```
64 DIM A9$(5)49                    (blocking factor and record length)
4250 V5$,V8$ = HEX (05)            (blocking factor)
4310 V1$ = HEX (41 32 00 03 11 0C)
                    (32 = record length in HEX)
```

In maintaining our ongoing support of GBS, this group of questions and their answers are published for your information. If you have specific questions not covered, they should be directed to Bob Soucy, Lowell, MA.

Q.   In MOD 3, I entered an Accounts Payable Trade Account Number through the "MOD 3 INIT" program; then, when I ran the A/P Transaction Entry program it gave the error message "INVALID TRADE ACCOUNT - RUN CLEAR FILE TO CORRECT" Why does this happen?

A.   The program "MOD3INIT" must be run when setting up MOD 3 to establish the Control File which contains information pertinent to the rest of the system. Usually when this is done, the Chart of Accounts Master File has not yet been established so the program "MOD3INIT" does not endeavor to verify the A/P Trade Account at this time. The A/P Trade Account must be a "postable" account number (level 2, nonmaster). The A/P Transaction Entry program will check for this criteria and display the message if not satisfied. You may run the Clear File program at this point and reenter the account number. Clear File will verify that this is a legitimate "postable" account.

Q.   I entered Journal Entries, sorted and merged them, and ran the Trial Balance program. Nothing appeared on the report. Why?

A.   There are two Journal Entry files that may be posted to the "Old" and the "New." This is to allow the user to post transactions for the next month while still having this month open. When this month is finally closed, the "Old" file is sorted and merged and becomes the input to the Trial Balance. After all the month-end Genral Ledger programs have been run, the "Reset Journal Entries" program will copy the data from the "New" file to the "Old" file and blank out the "New" file so it will be free to accept data at the next month-end transition. The problem above was encountered because the user made all the entries to the "New" file instead of the "Old" file. Ordinarily, postings are made to the "Old" file with the exception of the month-end procedure described here.

Q.   Is there any problem with combining all the subroutines required for a GBS program and saving them as one program along with the application module?

A.   The one thing to beware of when doing this is the COM statements. These COM statements exist in all the subroutines between statement numbers 170 and 176. If these modules are combined, one COM statement will wipe out another as you load the next subroutine so you must take care to rearrange the statement numbers to preclude this.

BITS & BYTES

GENERAL

Did you ever make a mistake in resaving a program after you've made some corrections? Or did you ever wish that you hadn't made the name of the program that ""long""? Making use of the function keys can save you time and eliminate some effort. The program below, adapted to use, could be helpful. Try it!

```
10 SELECT #1310: SELECT DISK 310
20 REM PROGRAM NAME
30 B$ = TIMESAVE"
40 DEFFN' 30 "SCRATCHT#1,B$";HEX(OD)
50 DEFFN' 31 "SAVE DCT(B$)#1,B$";HEX(OD)
                    OR
10 REM TEST2 PROGRAM FOR SAVE FUNCTION
30 DEFFN' 1"SELECT #1, 310""; HEX (3A); "B$ = ";
 HEX (22); "TEST2"; HEX (22); HEX(3A);
 "SCRATCHT #1, B$"; HEX (0D)
40 DEFFN' 2 "SAVE DCT(B$)#1, B$"; HEX(0D)
```

In *Newsletter No. 4*, there were two definitions under "WANG SLANG" that were misleading. They are now restated more accurately.

ASYNCHRONOUS

A method of data transmisson not required to be in perfect time. To establish the occurrence of characters, additional bits are included in the transmission. The penalty associated with asynchronous transmission is the loss of efficiency associated with transmitting the extra bits.

Start Bit	DATA	Stop Bit(s)	ST		DATA	SP		ST	DATA	SP	

SYNCHRONOUS

A method of data transmission that uses no redundant information (such as the start and stop bits in asynchronous transmission). So, identify the beginning and end of characters. The timing pulse is supplied by sync characters transmitted prior to data; usually, synchronization can be achieved in two or three character times - a more efficient method of transmission.

WANG CLASSIFIED AD SECTION

10 - Software

GENERAL LEDGER SYSTEM

Hilltop Enterprises, Inc., has an excellent General Ledger System available for licensing to Wang-approved software vendors. The system is intended for the unsophisticated users of the PCSII and up. Designed by an accountant, the system provides complete audit trails of all transactions as well as the balance sheet and income statement. The annual license fee is $200 which includes all enhancements, plus $800 for the first installation, and $500 for each one thereafter. Selling price is normally $2500 to the customer.

Hilltop Enterprises, Inc., P.O. Box 15267, West Palm Beach, FL 33406, (305) 964-4215

RESOURCE ESTIMATION PROCEDURE

Hilltop Enterprises, Inc., is making a resource estimation procedure available to Wang software vendors. The program and related documentation are designed to assist in developing man-hour estimates and costs for systems design and modification. It provides an invaluable tool when preparing proposals, especially on short notice.

Rock Hill, President of H.E.I., developed the procedure for use by the U.S. Army computer Systems Command. It has now been adopted by the Army, Navy, and Air Force as the standard resource estimation process. H.E.I. has tailored the procedure to the Wang customer market for use by software vendors. It is available on a single diskette which contains the programs and documentation.

Send a check or money order for $25 to: Hilltop Enterprises, Inc., P.O. Box 15267, West Palm Beach, FL 33406.

MATADOR COMPUTING

MATABASE is a data base system designed to retrieve summaries of letters, documents or articles. Retrievals are by keyword or combination of keywords. Up to 64 keywords can be combined by 'and's, 'or's and 'not's. Parentheses are allowed.

MATABASE allows for up to 64 thousand abstracts, 16 thousand keywords, 15 characters per keyword and 64 thousand abstract references for each keyword. A 2200 series computer is needed for operations with MATABASE. The computer must have at least 24K bytes memory, facilities for handling KFAM and at least 2.5M bytes 2260 disk drive.

Matador Computing, P.O. Box 6931, Houston, TX 77005, (713) 667-0260.

BACKWATER ANALYSIS COMPUTING SYSTEM - B.A.C.S

B.A.C.S. is a long-needed system for backwater analysis (flow profiles), a problem encountered by civil engineers and government agencies at all levels. Basically, B.A.C.S. determines the water level in natural or manmade channels given the geometry and initial conditions. By hand, this is a tedious interative process. Time-share programs are available, but they are hard to use and expensive. B.A.C.S. fills the gap between these extremes. More than a number-cruncher, B.A.C.S. also features extensive editing and data management subsystems. Additionally, two distinct calculation methods are included, a unique feature. A 24-page system description is available.

Libra Data Company, 12987 Clarewood, Houston, TX 77072, (713) 495-4966

12 - Miscellaneous

A new company . . . . . Jason R. Taylor Associates has been formed to provide writing services to computer manufacturers and software vendors. The firm specializes in computer user testimonial articles as promotional, advertising, marketing, and sales aids.

Contact:
Jason R. Taylor
8 Fulton Road
Lexington, MA 02173
(617) 935-1166

Please make your comments and suggestions on the form below. Then detach, fold, tape closed and mail to us. For a reply, be sure to include your name and address. Your cooperation is appreciated.

700-3137

COMMENTS:

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Attention: Prof. L. O. Byte