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Newsletter

NUMBER 4 - APRIL 23, 1986

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BASIC-2C PRODUCT STATUS

The Basic-2C compiler is now supported in the following environments:

SINGLE USER MS-DOS SYSTEMS

IBM PC
IBM PC-AT
IBM PC-AT
SPERRY PC
IT
IBM PC-XT
AT&T 6300
WANG PC
WANG APC
ZENITH 150 SERIES
NCR PC6
SPERRY PC
COMMODORE
CIT
COMMODORE

COMPAQ PORTABLE
COMPAQ 286 PORTABLE
COMPAQ DESKPRO
COMPAQ 286 DESKPRO
COMPAQ PLUS
TANDY 3000

NETWORKED MS-DOS SYSTEMS

NOVELL NETWORKING
TELEVIDEO PERSONAL MINI
NORTH STAR DIMENSION SERIES

MULTI-USER XENIX SYSTEMS

WANG APC

ADDITIONAL TRAINING SEMINAR ANNOUNCED FOR XENIX/APC VERSION OF BASIC-2C

In response to the tremendous success of our recent training seminar on the Xenix implementation of Basic-2C, we are pleased to announce that another seminar has been scheduled for Tuesday, May 20th.

The seminar will provide participants with a working knowledge of the Basic-2C compiler under the Xenix operating system. Participants will use Wang Advanced Professional Computers (APC) to ensure hands-on training.

The seminar, which will be conducted at our Northbrook, Illinois office, is targeted towards the novice Basic-2C user. Attendees should have programming experience in Wang Basic-2 and should possess some familiarity with the MS-DOS and Xenix operating systems.

Attendance will limited to 10 people to provide each participant the greatest individual exposure to materials.

Topics to be covered include:

- Introduction to Basic-2C
- Introduction to the Xenix operating system
- Installation of the Compiler under Xenix
- Porting of Programs and Data
- Program Compilation
- Basic-2C program operation under Xenix
- Configuration of End-User Systems
- Advanced Topics if time permits

Attendance fee is \$100.00 per person. Discounts apply for multiple attendees from the same company.

FOR MORE DETAILS, AND TO CONFIRM YOUR ATTENDANCE, CONTACT MR. MARK PHINICK AT (312) 291-0850.

HOPE TO SEE YOU THERE

NEW HEADQUARTERS

Because of your support for the Basic-2C Compiler, Niakwa has outgrown its current facilities in Northbrook, Illinois. Therefore, ground was broken this past month for a new 14,000 square foot two-story building in Lincolnshire, Illinois. Lincolnshire is about 10 miles northwest of Northbrook and about 30 minutes north of Chicago's O'Hare Airport. Niakwa expects to occupy its new headquarters in early fall.

Many thanks to our valued customers. This could not have been possible without your continued loyalty and support.

"APPROVED COMPATIBLES" - OUR POLICY

Over the course of the past year, Niakwa has periodically issued Product Releases stating which computers have been added to the "Approved Compatibles" list for the IBM (MS-DOS) version of Basic-2C. At this time, we would like to explain exactly what this means.

What is an "Approved Compatible"?

An "Approved Compatible" is a computer that Niakwa supports for use with Basic-2C. There are two elements involved in making the determination of whether to support a particular machine:

Testing

All "Approved Compatibles" have been thoroughly tested by Niakwa staff for operation with Basic-2C. The Basic-2C compiler is a complex software product. In essence, it emulates the operating environment of a Wang 2200 mini-computer. This requires that Basic-2C utilize low level operating system routines not commonly used by standard MS-DOS programs. Niakwa has specific testing procedures which check the operation of various functions in Basic-2C which rely on low level operating system calls or specific hardware capabilities. These are the areas most likely to fail if a machine is not a "true" compatible.

Future Availability

In approving a particular machine as a compatible, Niakwa commits to ensuring continued compatibility with future releases of Basic-2C. This means that before Niakwa can support a particular machine as an "Approved Compatible", we must have guaranteed access to the machine for future testing with new releases of Basic-2C.

How does Niakwa Decide Which Machines to Evaluate?

Two elements are involved in our decision whether to evaluate a particular machine for compatibility:

Demand

The greater the demand for support of a particular machine, the more likely it is that Niakwa will evaluate it. If you have a high demand for a particular machine, tell us about it!

<u>Availability</u>

There are many "IBM Compatibles" on the market today. Niakwa cannot purchase or rent computers for the sole purpose of evaluation. We therefore require that a machine be loaned to us for a 2-3 week period for the initial evaluation. A further requirement is that we have a guarantee from the supplier that they will loan the machine to us again at future times for testing with new releases of Basic-2C.

NEW ADDITIONS TO THE APPROVED COMPATIBLES LIST

Novell Compatible - Televideo Personal Mini - PM/4T, PM/16T

The Televideo Personal Mini has been evaluated and approved for use as a Novell compatible file server in a network environment. Operation of the Basic-2C compiler with the Novell support file (RTPINET) on the Personal Mini is identical to operation on other Novell dedicated file servers.

Software Requirements

The Televideo Infoshare operating system, version 1.2 or greater, is required. This is Televideo's OEM version of Novell's Netware version 4.61. Note, Infoshare version 1.1 is NOT supported by Basic-2C.

Workstation Requirements

Only IBM PCs or "Approved Compatibles" are supported by Basic-2C as workstations. The requirement for each workstation to have a minimum of 256k memory and one diskette drive still applies to the Televideo configurations. Please refer to Televideo for details on what specific workstations are supported by them for use with the Personal Mini. Note that Niakwa does support the Televideo Tele-XT as an "Approved Compatible".

Further Information

Please refer to the Niakwa "Novell Network Support" memo of 1/15/86 for further details on Basic-2C interface with a Novell compatible network.

NOVELL COMPATIBLE - NORTH STAR DIMENSION SERIES

The North Star Dimension Series central file server units have been evaluated and approved for use as a Novell compatible file server in a network environment. Operation of the Basic-2C compiler with the Novell support file (RTPINET) on the Dimension is identical to operation on other Novell dedicated file servers.

Software Requirements

The North Star Netware operating system, version 1.1.1 or greater, is required. This is North Star's OEM version of Novell's Netware version 4.61. Note, Infoshare version 1.1 is NOT supported by Basic-2C.

Workstation Requirements

Only IBM PCs or "Approved Compatibles" are supported by Basic-2C as workstations. These can be connected to the North Star Dimension by Corvus Omninet cards which are available from North Star. The requirement for each workstation to have a minimum of 256k memory and one diskette drive still applies to the North Star configurations. Please refer to North Star for details on which specific workstations are supported by them for use with the Dimension.

Technical Notes

There are two points in the installation and use of the Omninet boards which could cause some minor confusion:

1. The documentation for setting the dip switches on the Omninet board is somewhat confusing. What we found to work is to set the boards as follows:

Central File Server Board: 1-6 down; 7-8 up

PC: 1-2 down; 3-6 up; 7-8 down to yield workstation number three. Of course each workstation board must be set to give a unique worksation number. Switches 1-6 determine the worksatation number (down is ON). Switches 7-8 should always be down in the workstation board.

2. The program to execute to gain access to the network from a PC as a work station is NETXXO where XX is the DOS version (20, 30, or 31). Note the last character is a letter 0, not a number zero.

Further Information

Please refer to the Niakwa "Novell Network Support" memo of 1/15/86 for further details on Basic-2C interface with a Novell compatible network.

SINGLE USER COMPATIBLES

AT&T 6300 Plus under MS-DOS

The AT&T 6300 Plus has been tested and approved for use with the IBM version of Basic-2C. The 6300 Plus is compatible with the IBM AT. It uses an Intel 80286 processor operating at about 7 MHz. This makes it about 20% faster than the IBM AT, although not quite as fast as the Compaq 286 series or the Sperry IT.

The model we tested had a 1.2MB diskette drive and a color monitor and operated under DOS 3.1. There was no difficulty in using the 1.2MB drive for security. The GOLDKIBM program was not needed. The noise suppression option should be used on the color monitor (see chapter 5, \$OPTIONS, of the Basic-2C reference guide).

NCR PC 6

The NCR PC 6 has been tested and approved for use with the IBM version of Basic-2C. The PC 6 is compatible with the IBM PC. It uses an Intel 8088-2 processor operating at 8 MHz. This makes it about 35% faster than the IBM PC. Our benchmarks showed it to be slightly faster than other machines using the 8088-2 at 8 MHz., including the Sperry PC and Zenith 158.

The machine we tested had a monochrome monitor, which, like most "compatibles", acts like an IBM color/graphics monitor in that true underlining is not available. The default replacement for the underline attribute produces bright white on a gray background.

Tandy 3000

The Tandy 3000 has been tested and approved for use with the IBM version of Basic-2C. Our benchmark tests indicate that it is comparable to the Compaq 286 series and the Sperry IT. It uses an Intel 80286 processor operating at about 8 MHz, which makes it about 30% faster than the IBM AT.

The machine we tested had a 1.2MB diskette drive and a color monitor, and operated under DOS 3.1. There was no difficulty in passing security using the 1.2MB drive. and the GOLDKIBM program was not needed. As in most "compatibles", true underlining using the IBM color/graphics monitor is not available. The default replacement for the underline attribute produces bright white on a blue background.

There is one "hook", however, in our approval of the Tandy 3000 as an "Approved Compatible". Whenever exiting the RunTime Program, an "unexpected interrupt" error message appears on the screen. The system is not hung, however, and processing may continue as usual after the error.

MACHINES WE HAVE TESTED BUT DO NOT SUPPORT

This list is comprised of "IBM Compatibles" which we have tested and have NOT passed our tests for compatibility with Basic-2C.

NEC APC III

The NEC APC III requires use of the SLE board and software to achieve IBM "compatibility". Use of the SLE emulation was necessary to even get past RTP security. Although the IBM version of the RunTime program does operate in this environment, operation is not fully compatible with other IBM and "Approved Compatibles". The incompatibilities were all related to screen handling:

There is no bright mode.

Background color combinations differ from standard IBM combinations. The default replacement for the underline yields dim white on a black background which is indistinguishable from non-underlined text.

There are some differences in the displayable character set for ASCII characters above HEX(7F).

Screen output is relatively slow, although certainly acceptable.

Outside of this, the NEC APC III did pass all of our tests. It uses an 8086 operating at 8 MHz which makes it about 40% faster than an IBM PC (except for screen output).

Panasonic FT-70 - Executive Partner Portable

This is an interesting little machine. It has a plasma screen and uses an 8086-2 operating at 8 MHz. Again, all compatibility tests except for screen handling were passed successfully. Screen handling was basically OK, but some video attributes produced different character fonts as opposed to attributes! Since there was no technical documentation with the machine we tested, we could not tell if there was a way around this.

Note that the machine is available only as a dual floppy. Also note that the 8086-2 is a dual clock speed chip. Using the slower speed produces very slow response times. Using the higher speed produces response times about 50% faster than an IBM PC. This is in the same class as the AT&T 6300, Compaq Deskpro and Wang PC.

Epson Equity |

The Epson Equity I passed all compatibility tests with no problem. However, our supplier could not commit to providing a machine for evaluation with future releases of Basic-2C. Therefore, we do not currently support this machine as an "Approved Compatible".

The Equity I uses an 8088 running at 5 MHz. Our benchmarks showed it to be slightly slower than an IBM PC - a most unusual result!

HP Vectra

The HP Vectra is an IBM AT "compatible" which uses an 80286 running at 8 MHz. This makes it one of the fastest machines we have evaluated, in a class with the Compaq 286, Sperry IT, and Wang APC under MS-DOS.

All compatibility tests were passed with one serious exception. Attempts to format a diskette in 2200 format fail with an 193 error. This occurs on both 360k and 1.2MB drives. All other access to pre-formatted 2200 format diskettes works with no problem. We think that the problem with the formatting capability is due to an incompatibility in the HP Vectra BIOS.

Niakwa will re-consider the HP Vectra for inclusion as an "Approved Compatible" for the next release of Basic-2C.

Tandy 1200

The Tandy 1200 was tested using an IBM operating system. All compatibility tests were passed except for one serious exception. Any attempt to access a diskette in 2200 format in a 360k drive fails with an error code P48. Therefore we do not support the Tandy 1200 as an "Approved Compatible".

The Tandy 1200 uses an 8088 processor operating at 5 MHz. Our benchmarks showed it to be comparable to the IBM PC - the slowest machine we have evaluated.

Tandy 2000

This machine is an MS-DOS based machine but is not intended to be "IBM Compatible". Basic-2C does not operate on this machine.

Texas Instruments Professional

The TI Professional requires emulation software to achieve IBM "compatibility". Basic-2C does not operate in this environment.

DEC Rainbow

This MS-DOS based machine is not IBM "compatible". Basic-2C does not operate on this machine.

USING MACHINES NOT ON OUR APPROVED LIST

We realize that in many cases, a distributor may wish to use a machine that is not on our approved list. However, the following points should be understood:

Typical Problems Encountered

If you are considering using a non-approved compatible, you should be aware of some of the more common problems you may encounter:

- 1. Security check on some PCs which are not 'true' versions of an "IBM Compatible", the security check will not work. If this occurs, you are out of luck!
- 2. Screen handling some "compatibles" have slight variations in the screen handling routines. See the evaluation of the NEC APC III in this newsletter for an example. You should check programs which rely on video attributes or unusual characters.
- 3. Access to 2200 format diskettes this is another area of possible incompatibility.
- 4. Computers which rely on a separate board or software emulation to achieve IBM compatibility typically will NOT work.
- 5. Other although the above listed items are the most frequently encountered incompatibilities, we strongly urge you to test your software thoroughly on any non-approved compatible.

No Support

If you report a problem while using a machine that is not on our approved list, and Niakwa determines that the problem is specific to the machine you are using, Niakwa will NOT be able to offer any assistance in resolving the problem.

Compatibility with Future Revisions of Basic-2C

This is really the most critical issue. In supporting a particular machine as an "Approved Compatible", Niakwa will commit to testing all new releases of Basic-2C on that machine to ensure that no incompatibilities have been introduced. Although it is likely that non-approved compatibles which work with the current revision of Basic-2C will encounter no difficulties with new revisions, the chance does exist that some incompatibilities may be introduced.

DISKETTE FORMATS

One of the factors in determining the compatibility of diskettes is the format of the diskette. The format of a diskette is actually comprised of two components: the physical format of the diskette, and the file structure placed on the diskette.

The physical format of the diskette refers to the number of tracks per side, number of sectors per track, and number of bytes per sector. The file structure of the diskette refers to the method used for storing and cataloging information on the diskette. While some software does have the capability of utilizing diskettes without a file structure, most file transfer utilities require that a specific file structure be placed on the diskette.

Following is a summary of the different physical formats and file structures typically used with 360k DSDD and High Density 1.2MB diskettes. This should be used in conjunction with the Diskette Hardware/Media Cross Reference Table (elsewhere in this newsletter) in determining media compatibility.

5 1/4" DSDD (360k unformatted capacity)

2200 Format:

40 tracks/side 16 sectors/track 256 bytes/sector

Totals:

1280 sectors

320k formatted capacity

2200 Format diskettes have a file structure based upon an Index/Catalog system.

MS-DOS Format:

40 tracks/side 9 sectors/track 512 bytes/sector

Totals:

720 sectors

360k formatted capacity

MS-DOS format diskettes have a file structure based upon a Directory system.

Xenix tar Format:

40 tracks/side 9 sectors/track 512 bytes/sector

Totals:

720 sectors
360k formatted capacity

Xenix tar format diskettes have a unique file structure.

DISKETTE FORMATS (Cont.)

DOS Backup Format:

Contains same physical format as MS-DOS diskettes but a different file structure.

Wang winchester backup format is not compatible with IBM DOS backup format. IBM DOS backup format is not compatible with different DOS versions.

e.g. DOS 2.1 is not compatible with DOS 3.0

Consequently all IBM compatibles have a DOS backup format of their own.

5 1/4" High Density (1.2MB unformatted capacity)

All 1.2MB Format diskettes have the same physical format:

80 Tracks/side 15 sectors/track 512 bytes/sector

Totals:

2400 sectors
1.2MB formatted capacity

All file structures as described above can be used on 1.2MB diskettes.

DISKETTE HARDWARE/MEDIA CROSS REFERENCE TABLE

With the number of different computers and operating systems supported by Basic-2C, choosing the best method for transferring programs and data from one computer to another has become a complex task. It is true that all machines and operating systems supported by Basic-2C use a 5 1/4" diskette drive, however, there are other factors to consider:

Type of Diskette Drive

360k 1.2MB

Diskette Capacity

360k 1.2MB

Read/Write Formats (See the section entitled Diskette Formats in this newsletter for further details)

2200 MS-DOS DOS Backup (Winchester Backup on Wang PC/APC under MS-DOS) Xenix TAR

The cross reference table on the following page may provide some useful information in choosing the right combination for a successful transfer.

Some explanation is required in order to understand how the table is put together. Down the left side of the table indicates how the diskette can be created. The first column indicates the type of hardware: a Wang PC or APC under MS-DOS, an IBM or approved compatible under MS-DOS, a Wang APC using Xenix, and a Wang 2200. The next two columns indicate the type of diskette drive and media used: 360k and 1.2MB in different combinations. The next column indicates the format in which the diskette was created: 2200, MS-DOS, DOS Backup (labeled as D/B on the chart), and Xenix TAR. The fifth column indicates whether the diskette can even be created in the given environment. The last column indicates whether or not there are standard utilities available for multi-volume backup in the specified hardware/operating system/drive type/media type combination. Note that such utilities generally require that an equivalent restore utility be present on the machine being transferred to.

Across the top of the table indicates the different environments in which the diskette may be readable, given the indicated format. Again, the same combinations of hardware, diskette drives, and formats are displayed.

Notice, too, that certain combinations make reference to various notes, which are indicated at the bottom of the page.

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		Ē	A				2200	DOS	D/B	2200	DOS	D/B	2200	DOS	D/B	2200	DOS	D/B	2200	DOS 4	TAR	5500	DOS 4	TAR	2200
C R E A T	H A N_	360k 360k 360k	360k 360k 360k	2200 DOS D/B	Y Y Y	NO Y	Y	Y	γ	Y1	Y	Υ	γ	γ		Y	γ		Y	Y		Y	Υ		Y
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	D 0 S	1.2M 1.2M 1.2M	1.2M 1.2M 1.2M	2200 1 DOS D/B	NO Y Y	NO NO Y					γ	Υ					γ								
	I B	360k 360k 360k	360k 360k 360k	2200 DOS D/B 3	Y Y Y	Y NG Y	Υ	Y		Y1	Y		Υ	Υ	γ	Y	Υ	Y	Υ	Υ		Y	Υ		γ
	COM PAT IBLE	1.2M 1.2M 1.2M	360k 360k 360k	2200 DOS D/B 3	y	Y NO Y	γ#	Y#		Y1	γ		Y*	Υ ±	Y*	Y	γ	Y	Υŧ	γ ±		Y	Y		Υ *
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	A P C	1.2M 1.2M 1.2M	1.2M 1.2M 1.2M	2200 2 DOS 4 TAR	Y	Y ND Y					Y						Υ					Y 2	γ	Y	
	5500	360k	36 8 k	2200	γ	Y	γ	N. WAS		Y1			γ			γ			γ			γ			Υ

Explanation of Notes:

- due to a bug in the Wang MS-DOS operating system, only half of a 2200 format diskette (639 sectors) can be accessed on a 1.2MB drive on a Wang APC (according to Wang, this bug will be fixed in the next release of the Wang BIOS)
- 2 special "raw" format containing 4799 sectors (refer to Addendum: Xenix for the Wang APC for details)
- 3 the format used by DOS Backup/Recover may vary between different versions of MS-DOS and IBM/Compatibles
- 4 using Xenix-DOS utilities
- * due to a hardware limitation of the 1.2MB drive, 360k diskettes which have been written to on a 1.2MB drive may not be reliable if read back on a 360k drive

CURRENT PRODUCT RELEASES

PRODUCT (OPERATING SYSTEM)	REVISION	RELEASE DATE
Basic-2C Development Packages:		
Wang PC/APC (MS-DOS) labeled as	1.03.01 1.03.00	3/20/85 3/15/85
Wang APC (Xenix)	1.03.05	3/15/86
IBM PC (MS-DOS) and Compatibles	1.03.02	6/15/85
labeled as	1.03.02	5/20/85
Basic-2C RunTime Packages:		
Wang PC/APC (MS-DOS) labeled as	1.03.01 1.03.00	3/19/85 3/15/85
Related Items:		

RTPFIX01 was originally released in September, 1985 in the /BASIC2C directory on a separate diskette. Since that time it has been included on all Development package diskettes in the same /BASIC2C directory. Refer to the memo of Sept. 25, 1985 for further details.

Corrects:

RTPFIXO1.COM

- 1. On the MS-DOS APC invalid interrupt is generated when RunTime program is exited causing operating system to hang.
- 2. On the MS-DOS APC security check fails if 1.2MB diskette drive is used.
- 3. On the Wang PC/APC, attempting to CONTINUE from 'DEVICE NOT READY' screen causes unpredictable results.

RTPWNET.TBL

6/15/85

9/12/85

RTPWNET was originally released in June, 1985 in the /BASIC2C directory on a separate diskette. It is now included on all Development package diskettes in the same /BASIC2C directory. Refer to the memo of Nov. 15, 1985 for further details.

Corrects:

On the Wang version, when operated under WANG LIO, the \$OPEN statement with line number exit causes permanent file locking.

PRODUCT REVISION LISTING (cont.)

PRODUCT (OPERATING SYSTEM) REVISION RELEASE DATE

Wang APC (Xenix) 1.03.05 3/15/86

(Running under Wang Xenix version 3.20 or greater)

IBM PC (MS-DOS)

and Compatibles 1.03.01 3/19/85 labeled as 1.03.00 3/15/85

Related Items:

GOLDKIBM.COM

6/15/85

GOLDKIBM has been included on all Rev. 1.03.02 IBM Development package diskettes in the /BASIC2C directory. Refer to the memo of June 15, 1985 for further details.

Corrects:

IBM version of Rev. 1.03 RunTime program security check fails when executed on an IBM PC AT with a 1.2MB diskette drive.

RTPINET.TBL

1/15/86

RTPINET was originally released in the /BASIC2C directory on a separate diskette labeled Novell Support Files - 1/15/86. It is now included on all IBM Development package diskettes in the same /BASIC2C directory. Refer to the memo of Jan. 15, 1986 for further details.

Contains:

Actual network interface instructions to be used by RTP for file locking, unique terminal identification, and other internal operations. For use with Novell networking software.

CONDEMON.COM

1/15/86

CONDEMON was originally released in the /BASIC2C directory on a separate diskette labeled Novell Support Files - 1/15/86, it is now included on all IBM Development package diskettes in the same /BASIC2C directory. Refer to the memo of Jan. 15, 1986 for further details.

Contains:

Program which will enable direct access to CONSOLE mode from RTP when used on a non-dedicated file server. For use with Novell networking software.

PRODUCT REVISION LISTING (cont.)

PRODUCT (OPERATING SYSTEM) REVISION RELEASE DATE

RTPFIXO1.COM

9/12/85

RTPFIX01 was originally released in September, 1985 in the /BASIC2C directory on a separate diskette. It is now included on all Development package diskettes in the same /BASIC2C directory. Refer to the memo of Sept. 25, 1985 for further details.

Corrects:

On the IBM (and compatibles) attempting to CONTINUE from 'DEVICE NOT READY' screen causes unpredictable results.

Demonstration RunTime Package:

Wang PC	(MS-DOS)	1.03.02	11/1/85
IBM PC	(MS-DOS)		
and Compat	ibles	1.03.02	11/1/85

Scientific and Communications Drivers

Wang APC	(MS-DOS)	9/5/85
Wang APC	(Xenix)	4/15/86
I DM DC	(MS_DOS)	

Package Contains:

and Compatibles

1. 2227 Emulation Driver enables interactive Asynchronous communications from Basic-2C programs by emulating the functions of the 2227 board of a Wang 2200 computer.

9/5/85

- 2. 80287 Coprocessor Support Driver will enable the RunTime program to utilize the 80287 coprocessor for higher math functions, thus improving the speed of applications which make heavy use of these functions.
- 3. Plotter Driver will allow Basic-2C programs to emulate plotting functions to screens with graphics capabilities. The Xenix version has been enhanced to allow output to different screens simultaneously.

PORTING TO THE PC - UPDATE

In Newsletter Number 2 - August 1, 1985, we updated some information that had been presented in our first newsletter, having to do with alternative methods of porting programs and data from a Wang 2200 to a Wang or IBM PC for use with our compiler. We have a further update concerning one of those software packages.

McCARTHY & ASSOCIATES

Besides their 2200 terminal emulation and file transfer program, McCarthy & Associates has developed a method of converting Niakwa Basic-2C ASCII text (.SRC) source files back to the Wang 2200. It is now possible to modify programs on the PC and then transfer the modified programs to the 2200. The procedure is easy to accomplish, and worked very well in our review. The function of converting Niakwa source files back to the 2200 will also be supported in the next release of the Niakwa compiler. For further information, please contact:

McCarthy & Associates 5909 Carter Avenue Bakersfield, CA 93308 (805) 324-4291

APPLICATION STATUS - UPDATE

E. F. Paynter & Associates

An alternative sorting procedure to Sort 4 has been developed by E. F. Paynter & Associates, Indianapolis. EFPSORT is a series of three programs designed to quickly sort a simple disk-based data file using a minimum number of variables. The input file area is re-used as workspace by the programs so that no extra disk capacity is required. There may be up to 128 fields defined in the ouput file. For further information, please contact:

E. F. Paynter & Associates 6140 N. College Avenue Indianapolis, IN 46220 (317) 257-7561

DAMAGED GOLD KEY - WHAT TO DO

We think this is a good time to review the procedures involved in replacing damaged or otherwise unreadable Gold Key diskettes. If one of your end users reports that they are unable to pass the security check on the Gold Key, use the following steps to ensure replacement of the bad diskette:

- 1. Tell the user to install the backup diskette (Silver Key) and use it (25 uses) until the Gold Key can be replaced.
- 2. Have them send the damaged Gold Key back to you (the Distributor).
- 3. You (the Distributor) then forward the Gold Key to Niakwa for replacement, with \$25, if not under warranty.
- 4. Niakwa will forward a new RunTime Package to you (the Distributor) as replacement.
- Send the replacement RTP to your user with instructions to install the new Gold Key.
- 6. Collect the old Silver Key from the user and return it to Niakwa.

The reason for mentioning this is that more and more diskette returns are being sent to us directly from end user sites. In most cases, we have no idea who the companies are that we are receiving the diskettes from, since they are your clients. Please inform your users that the damaged diskettes should be sent to you (the Distributor) for replacement (a good reason for stocking a few extra RunTime Packages on your shelf). We usually send back the replacement RTP's the same day they are received, so the Silver Key should be sufficient until the new RTP arrives.

As part of Niakwa's licensing agreement with all of its Distributors, there is a subsection of EXHIBIT A - LICENSE GRANT & TERM, which is entitled "Warranty Support". This states, in effect, what is explained above. We would appreciate your cooperation in this matter.