

January-February 1990 Edition

# RE RUN

## RUN Programs on Disk

For the C-64 and C-128



*Plus: Extra Bonus Programs!*



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# Introduction

*January–February '90 ReRUN*

WRITING THE FIRST ReRUN introduction of this new decade gives me pause to reflect on the current status of Commodore 64 and 128 software development. With game and entertainment software dominating the scene, introductions of new productivity software have all but ground to a halt. This is an unfortunate scenario, since useful programs are the primary reason that most computerists appreciate their computers.

While this January–February 1990 edition of ReRUN offers its share of entertainment programs, it also offers some heavy-hitting applications—a rarity these days! For instance, the pride of this disk is RUNbase 128, a full-featured database for the C-128 in 80-Column mode that was published in the January 1990 issue of *RUN*.

RUNbase uses a multiple-menu system that enables you to highlight your desired option with a cursor key and select it by pressing return. This intuitive design, coupled with almost instantaneous program action, allows even first-time novice users to quickly build useful databases. If you're looking for a way to catalog and keep track of virtually anything from your software collection to your small-business inventory, RUNbase 128 is the answer.

Money Manager is another productivity program from the January issue. A personal financial-management program, it works both on the C-64 and on the C-128 in 40- or 80-Column mode. Because of space constraints, we were forced to limit the size of the magazine version, but the enhanced version you'll find on this disk contains a newly developed bank-statement reconciliation option. Personally, I enjoy using Money Manager because of its accuracy and overall usefulness, but it gets me a little discouraged since it serves to remind me how frequently my expenditures exceed my income.

By now, most long-time *RUN* readers know that our magazine merged with *Commodore Magazine* in the fall of 1989. In the process, we acquired two of its most popular columns, 128 Mode and Gold Mine. This edition of ReRUN contains 128 Buttons, a program published in the 128 Mode column of January. It gives programmers all they need to make screen “buttons” for their own programs.



Turning from productive software and to *RUN*'s February issue, Foosball for the C-64 is the next program in this edition of ReRUN. With nine skill levels, two ball speeds and a choice of either a human or computer opponent, there's plenty to keep you occupied.

Next on the list is Duo, a C-64 version of the popular card game, Uno. You play against the computer in a race to see if you can match and discard all your cards before the computer does. The first to score 100 points wins the game. Played with either the keyboard or a joystick, Duo is an extremely addictive game.

By now, many *RUN* readers and ReRUN subscribers are familiar with RUN Paint, our acclaimed 64/128 graphics program. Super-Fonts, a character-enlarging program published in February, takes an existing 8-bit font file and creates a new 16-bit font from it, giving RUN Paint larger, more clearly defined fonts.

Moving along, there's Fast-40, a utility program that allows the C-128's 40-Column mode to take advantage of Fast (2 MHz) mode without blanking the screen. The control/plus key combination gradually decreases the amount of visible area on the screen while increasing the system operating speed. Similarly, control/minus reveals more of the screen while decreasing the processing speed.

NICK, from the February 128 Mode column, is a programmer's tool that complements Basic 7.0 sprite commands. It reports (with good sensitivity) the collision of sprites on the screen.

No less than three bonus programs are on this edition of ReRUN. Basic U.S. Map is a C-128 program that draws a map of the 48 contiguous states on the 40-column screen and gives you the option of saving it to disk as a binary file. Next, there's Monitor Wedge, a useful utility for the C-128's built-in machine language monitor. Monitor Wedge allows you to toggle between screen and printer output when working within the monitor.

Finally, we wrap things up with a C-64 game called Traffic Jam. The object is to walk across seven lanes of traffic in 40 seconds without getting run over.

That's the lineup for this edition of ReRUN. May all your New Year's resolutions last until we publish the next edition!



Technical Manager  
RUN Magazine



# Directory

PAGE	DOCUMENTATION	DISK FILENAME	FILE TYPE
		* MENU 128 _____	BASIC
		MENU 64 _____	BASIC
1	<b>RUNBASE 128</b>	* RUNBASE 128 _____	BASIC
3	<b>MONEY MANAGER</b>	MONEY MANAGER _____	BASIC
		BANK RECON _____	BASIC
7	<b>C-128 BUTTONS</b>	* 128 BUTTONS _____	BASIC
8	<b>FOOSBALL 64</b>	FOOSBALL 64 _____	ML
		FOOSBALL.HEX _____	BASIC
9	<b>DUO</b>	DUO _____	BASIC
10	<b>SUPERFONTS</b>	SUPERFONTS _____	BASIC
11	<b>FAST-40</b>	* FAST-40 _____	BASIC
13	<b>NICK</b>	* NICK _____	BASIC
14	£ <b>BASIC U.S. MAP</b>	* BASIC U.S. MAP _____	BASIC
15	£ <b>MONITOR WEDGE</b>	* MONITOR WEDGE _____	ML
16	£ <b>TRAFFIC JAM</b>	TRAFFIC JAM _____	BASIC

\* — C-128 mode only

£ — Bonus program

Before you run a program, carefully read the documentation that pertains to it.



# How To Load

## LOADING FROM MENU

To get started, C-64 users should type LOAD "MENU 64",8 and press the return key. When you get the Ready prompt, the menu is loaded and you should type RUN to see a list of the programs on your disk. C-128 users need only press the shift and run-stop keys. When all the programs are displayed on the screen, you can run the one you select by pressing a single key.

## LOADING FROM KEYBOARD

If you do not wish to use the menu program, follow these instructions.

**C-64:** To load a C-64 program written in Basic, type: LOAD "DISK FILENAME",8 and then press the return key. The drive will whirl while the screen prints LOADING and then READY, with a flashing cursor beneath. Type RUN and press the return key. The program will then start running. To load a C-64 program written in machine language (ML), type: LOAD "DISK FILENAME",8,1

**C-128:** All C-64 programs can be run on the C-128 as long as your computer is in C-64 mode. All C-128 programs are clearly labeled on the directory page. Your C-128 *must* be in C-128 mode to run these programs. To load a C-128 mode program, press the F2 key, type the disk filename and then press the return key. When the program has loaded, type RUN.

## MAKING COPIES OF ReRUN FILES

Many programs on your ReRUN disk have routines that require a separate disk onto which the program writes or saves subfiles. To use these programs, you must first make a copy of the original program onto another disk that has enough free space on it to hold these newly written subfiles.

It's simple to make a copy of a Basic program. Just load it into your computer as outlined above, and then save the program back onto a separate disk that has plenty of free space for extra files.

Copying an ML program is not so simple. You cannot simply load and save an ML program; you'll need to use a disk-backup utility program, such as the one on your Commodore Test Demo disk.



# RUNbase 128

*By William Coleman*

WHILE THERE ARE SEVERAL good databases available for the C-128, they all offer more options and complexity than I ever need. So, I wrote RUNbase 128, a simple, easy-to-use database for the C-128 in 80-Column mode. RUNbase can handle about 2000 records, so it's ideal for a great variety of purposes.

When you run the program, a Main menu with 12 options appears. Highlight your choice by using the cursor-up and -down keys; then press return. Following are descriptions of the options.

**Create a Database** generates a new RUNbase 128 database. When the program asks how many fields you want, enter a number from 1 to 16. Then you're asked for the name, size and type of each field. Use the cursor-up and -down keys to scroll through the list of fields and make your responses. RUNbase allows up to 47 characters in a field and supports the following types:

- **Text**—unshifted and shifted alphanumeric characters and symbols
- **Uppercase**—shifted characters only
- **Numeric**—numerals 0-9 and . + -
- **Logical**—a single character only: Y(es)/N(o), T(rue)/F(alse)

As you enter each field, the program displays the total number of characters in the record so far (the maximum is 255).

Once you've entered all the fields, a prompt for a filename appears. At this point, you can return to the How Many Fields prompt by pressing the up-arrow key. Enter a filename, and the database is created on the disk; then the program returns to the Main menu.

**Open a Database** in the Main menu opens a previously defined RUNbase database. When you're prompted for the filename, enter it completely, without wild cards such as \*. Once the database is open, its name and record count appear at the bottom of the Main menu. If a database is currently open, it is closed before the new one is opened.

**Close Database** closes the current database and updates the index file (see Index Database and Search below) on the disk.

**Edit Database** enables you to add to or alter an open database. The Edit submenu provides the following choices: Edit Record, Add Record, Next Record, Previous Record, Goto Record, Goto Top, Goto Bottom, Search, Toggle Delete and Exit. Most of these are self-explanatory, but a few need some comment.

First of all, when using Edit Record and Add Record, you use the cursor keys to scroll through the fields. But if you scroll up past the top field, the operation aborts. The delete and insert keys function normally.

Second, the Toggle Delete option marks and unmarks a record for deletion. A deleted record won't appear in reports (see Print Reports below), but it isn't removed from the database unless you use the Main menu Pack option (below).

Finally, the Search option uses the index fields (see Index Database below) to search through an indexed database. If you don't have an index set up, Search is inoperative.

**View Database** in the Main menu opens a submenu with three options: View Records, Statistics and Exit. View Records lets you step through your records, one at a time. Statistics displays a description of each field, the number of records in the database, and the names of the index fields.

**Pack Database** in the Main menu removes all records from the database that have been marked for deletion and "packs" the remaining records together to fill the gaps. For large databases, this process may require several minutes.

**Index Database** sets the index fields. For viewing purposes, the database is sorted alphanumerically by these fields, but with lowercase *preceding* uppercase. Two fields—primary and secondary—can be active at one time, but, due to space limitations, only 20 characters are significant for sorting purposes, the first 15 in the primary field and five in the secondary. However, this should be adequate for most databases.

**Import SEQ File** reads a non-RUNbase sequential file from disk and adds it to the current database, one field at a time. Fields in the sequential file must be separated by a carriage return, and empty fields must consist of a single space followed by a return. After using Import, you must re-index to update the index file.

**Export SEQ File** is the reverse of Import. It writes the current RUNbase database to disk as a sequential file, with fields separated by a carriage return.

**Print Reports** displays a submenu with Report, Dump and Exit



options. The Report option generates customized reports of the database contents. When you select this, the program asks for the page width—the width of the printed part of the report—and the left margin. The total report width is the page width plus the left margin. Then it asks for a report title, which is printed at the top of each page. Next it presents a list of all the fields in the database. Select the ones you want to print, and they are added to the list on the screen. If there isn't enough room on the page for a field, selecting it won't work. Choose Done to start printing the report.

The Dump option lists all the fields for each record to the screen or printer, regardless of the total report width.

The **Disk Drive Stuff** submenu offers Directory, Change Drive and Exit options.

**Back to Basic** stops RUNbase and returns you to the Basic operating system. If the current database has been modified, the file is updated before the program quits.

That's all there is to it. Short and sweet. . .and handy!

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RUN it right: C-64 or C-128, in 40- or 80-Column mode

# Money Manager

*By Rex Day*

MONEY MANAGER MAINTAINS and balances a checkbook, records payments by category and generates reports summarizing month-to-date, year-to-date and average monthly payments. The EZ Budget part of the program provides a simple but effective way to prepare monthly and yearly financial plans by comparing estimated expenses with anticipated income and then making adjustments. Later it compares actual income and expenses with the budget. Money Manager is easy to use, with menus and on-screen prompts, as well as Help messages that are available throughout.

## CATEGORY CODES

The first time you run Money Manager, follow the prompts to select up to 38 category codes for your checkbook payments and



budgets. I've supplied the following codes, which you can use or replace with your own. They are easy to remember, since each one consists of the first three letters of the category it designates:

hou	housing	gas	gasoline
uti	utilities	ent	entertainment
tel	telephone	res	restaurant
ins	insurance	clo	clothing
sav	savings	don	donation
cha	charge accounts	med	medical
cas	cash	equ	equipment
gro	groceries	xxx	(four blank categories)
aut	automobile	mis	miscellaneous

The program accepts codes up to four characters long, so you can add characters to mine to further identify categories or to identify tax-deductible payments. Codes you may not need can just remain, and you can later replace them with others by using the new code in a transaction and by following the on-screen prompts to replace unused codes. Don't worry—the program does not print any unused codes in reports.

You can edit codes when you're first setting up the program and at the beginning of a year, but once you start entering transactions, all you can do is replace unused codes with new ones. The four xxx blanks are supplied specifically for this purpose.

## PROGRAM OPTIONS

After you've established the category codes, the main menu appears, offering nine options: Add Transactions, View/Change Transactions, Check Register, Payment Analysis, Search Transactions, EZ Budget, Bank Reconciliation, New Month and Quit.

Select the Add Transactions option to enter your checkbook activities, doing so in the order that they appear in your checkbook. As you enter each transaction, your new balance appears on the screen, and data is accumulated for monthly and year-to-date reports.

A minimal number of keyboard entries are needed for each checkbook transaction, since Money Manager automatically repeats the date until you change it, and it enters the month and year in new dates. It also skips the Deposit field when a payment is entered, and check numbers are incremented by one, so you don't have to enter the number unless it's out of consecutive order.



You can quickly review and make changes in transactions by pressing the P key for the previous transaction or the N key for the next, or you can do it through the View/Change Transaction option in the Main menu.

Money Manager makes it easy to split one check payment among two or more categories. Just enter the amount to be charged to the first code and then type S, for split, at the Help prompt. The check number, date and description are automatically placed in the next transaction, so that you have to enter only the amount for the category code.

You'll find this option particularly useful when you write checks for cash. You should be sure to keep either receipts or memos about your cash expenditures; then, at the end of the month, enter the total as a negative payment in the cash category, using a description such as "distribution of cash" and blanking out the check number. Then enter the amount for each category code, using the split-check technique.

The Print Check Register and Payment Analysis options print a list of checkbook transactions for the month to date and a report, listing your month-to-date, year-to-date and average monthly payments according to category.

For a complete listing of a month's activity, select the Check Register and Payment Analysis options after the last checkbook transaction has been entered for the month.

## **SEARCH AND RECONCILE**

The Search Transactions option searches all payments for a specified category code or description, with the payments listed on the screen or printer for the months specified. You can end the description for a wild card search with an asterisk, or with an exclamation point if you want to search anywhere, upper- or lowercase, as explained in a Help message. You can use this option anytime to show payment trends to a specific vendor, such as a utility company, and it's useful at the end of the year to identify payments for income tax or other purposes.

The Bank Reconciliation option provides a quick and easy way to reconcile your bank statement. It asks you to input the last check number cleared by the bank and the last deposit appearing on the statement. This establishes a reconciliation point that the program uses to compute the outstanding checks and the balance. The checks you entered in Money Manager are then displayed on the screen

by the Reconciliation program and checked off according to the list of cleared checks on the statement. This is easily accomplished by first sorting the returned checks in numerical sequence or by using the presorted list on the statement.

The program then computes the bank reconciliation, showing any difference between the adjusted bank balance and the checkbook balance. If the difference is other than zero, the reconciliation can be recycled to find the cause of the discrepancy. Any remarks needed on the printed copy can be entered from the keyboard.

The New Month option is handy for switching months without restarting the program. Transactions are stored on disk by month, so an earlier month's activity can be recalled quickly for viewing or printing reports. Any correction to an earlier file must also be entered as a transaction in the current month, so your checkbook balance and year-to-date totals are properly updated.

## **EZ BUDGET**

The menu for the budget portion of Money Manager offers seven options: Prepare Budget, Revise Budget, Budget Analysis, New Month, Print Budget, Return to Main Menu and Quit. With Prepare Budget, you can establish budgets for as many months of the year as you wish, then later update them using Revise Budget. When you select one of these options, the category codes you have in Money Manager are listed on the screen, with instructions to enter or change the budgeted amounts.

You must also enter your estimated income (anticipated deposits to your checking account) for the month, to be compared to your estimated expenses. If the results of the comparison don't please you, you can make changes in your budget and immediately see their effects. Change the budget as much as you want until it's balanced and best meets your financial needs. If you go on to prepare a budget for another month, you can start from the one you've already created, so you have to enter only the amounts that differ.

The Budget Analysis option prepares monthly and year-to-date reports that compare your actual income and expenditures to your budget. These reports help detect adverse spending trends and provide information for future planning and budget revision.

The Print Budget option prints the budget for the entire year on your printer. The amounts for each month are listed by category code, with columns for totals and percents. This shows a complete financial plan for the year, which you can easily review and modify.



# C-128 Buttons

*By Mark Jordan*

BERKELEY SOFTWAREWORKS, WITH GEOS, was the first to implement the desktop metaphor for the C-64/128 family. The key hardware component that made this possible was the mouse, which let you move in an immediate one-to-one relationship with the screen.

Unfortunately, with the exception of GEOS, RUN Paint and Basic 8, little software for Commodore computers has come along that makes use of the point-and-click phenomenon. That's a great pity because, with the C-128's excellent Basic and the VIC chip's admirable sprite power, buttons are easy to do. And what are buttons? They're simply predefined areas of the screen that are point-and-clickable. Sometimes they're visible; sometimes they're not.

C-128 Buttons shows how easily buttons can be added to any C-128 program. As it stands, the program merely demonstrates the buttons concept within the C-128 sphere. But with a little study of its principles, you can get started buttoning up your own programs, large and small.

In general, the program works as follows. Sprite 1 is defined as the pointer sprite, matching the interrupt mouse driver that comes with the 1351 mouse. (Be sure you have that driver on the disk that's in the drive when you run this program.) Sprites 2-7 are the movable buttons. Sprite 8 is the home button.

The program first lets you place the buttons wherever they feel right, an important design concept in the desktop metaphor. With that done, you can point to any button and get it to execute. In this program, that means the computer tells you which button you pressed—no big deal until you put it to work (the remarks in the listing tell how). The home button just takes you back to the beginning.

Obviously, the primary purpose of this program is to press some buttons in your creative mind.



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RUN it right: C-64; one or two joysticks

# Foosball 64

*By Tony Brantner*

DO YOU CRAVE THE THRILL of athletic competition, but hate working up a sweat? Then take on either another armchair athlete or your C-64 in Table Soccer, a computer simulation of the tabletop simulation of the fast-paced field game. If you play against another person, two joysticks are needed; if you play against the computer, plug the one joystick into port 2.

The number of players and the ball speed—1 for slow and 2 for fast—are chosen at the opening menu. When you're playing the computer, you can also choose a skill level from 1, the easiest, to 9. For each choice, move joystick 2 up or down to display the number you want, then press the firebutton.

At the start of play, and after each goal, the ball is placed in the center of the field. During play, joystick 2 controls the yellow team and joystick 1 or the computer controls the red. Each team has three lines of players, but at any given time only the line that's closest to the ball is active. Move your joystick up or down to shift your active line from side to side, and press the firebutton to kick the ball toward the opposing goal.

One point is awarded for each goal, and the first player to score nine points is the winner. To play again, press the firebutton on joystick 2.

You can freeze play at any time by pressing the Commodore key, and then continue playing by pressing it again. The run-stop key returns you to the opening menu.



# Duo

By Robert Cook

DUO, THE C-64 VERSION of the card game Uno, is designed for two players—you and the computer. The object is to be first to score 100 points or more. You score points by winning a hand, which happens when you're first to play all your cards or when your opponent's hand grows to 18 cards or more. You can play from the keyboard or with a joystick plugged into port 2.

The Duo deck contains 100 cards—eight each of 0–9, Skip a Turn and Draw 2 cards, plus four wild cards. All but the wild cards belong to either the red, blue, green or yellow suit. You determine a wild card's suit when it's played.

The computer deals the first hand; then the winner of each subsequent hand deals. Each player gets six cards per hand, and an additional card is placed face-up beside the deck to start the discard pile.

At your turn, you may either play a card to the discard pile or draw a card from the deck. You may discard anything that matches the top card on the pile in either color, number or action (Skip or Draw 2), and a wild card may be played at any time.

To discard, first choose a card by moving the arrow onto it using either the keyboard or the joystick. With the keyboard, press the horizontal cursor key to move the arrow right and the vertical cursor key to move it left. With the joystick, press the lever right or left. Press the return key or the joystick firebutton to play the card. If you try to play an illegal card, a buzzer will alert you to your mistake.

If you can't or don't want to discard, press the ↑ key or push the joystick up to move the arrow onto the deck; then press return or the firebutton to draw a card. You can move the arrow off the deck before drawing by pressing shift/↑ or pushing the joystick down.

When you play a number or wild card or draw a card, your turn ends, but if you play a Skip or Draw 2 card, your opponent forfeits a turn, and you can go again right away. Draw 2 also makes your opponent draw two extra cards from the deck.

As I mentioned, a wild card can be played at any time. After you play it, cycle through the colors and press return or the firebutton to assign it the color you want it to have.

If you play out your cards, your score is the total value of your opponent's hand. If your opponent's hand gets too big, your score is the difference between the values of the hands, assuming your opponent's is larger. Card values are: 0-9, face value; action cards, 20 points; wild cards, 50 points.

No matter how play ends, the winner receives an additional 10 points just for winning, while the loser receives no points at all. After the score display is updated, press return or the firebutton to begin the next hand. When all the cards in the deck are drawn, a hand ends with no winner. The first player to score 100 points wins. At the prompt, press Y to play again, or N to return to Basic.

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RUN it right: **C-64 or C-128; printer; RUN Paint work disk containing a font file**

# Super Fonts

*By Robert Rockefeller*

RUN PAINT CAN USE two types of fonts: normal Commodore character sets and 16-bit fonts that are four times as big.

Creating the 16-bit fonts requires a RUN Paint work disk and a font file saved on that disk. Load Super Fonts from Menu 64; then place a RUN Paint work disk in the drive. Press any key to create a file named "RPU.CONVERT16" on that disk. Next, load and run RUN Paint. Then re-insert the work disk with the "RPU.CONVERT16" file on it. To execute, click on UTILITY on the DISK LOAD submenu and CONVERT16 on the utility screen.

After the utility executes, you get a prompt saying "hires or medres (h/m) ?". Enter h to convert a character set to a 16-bit font for use in Hi-Res mode, or m to do the same thing in Med-Res mode. A list of all the font files on the disk will appear.

Click on the font you wish to convert. The converted file will output to the disk with a slightly different filename. For example,



an 8-bit font that's named RPF.ITALICS will be converted to a 16-bit hi-res font named RPF.HBITALICS and to a med-res font named RPF.MBITALICS.

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RUN it right: **C-128 in 40-Column mode or C-128 in 64 mode**

# Fast-40

*By Bret Timmins*

ONE OF THE BEST FEATURES of the C-128 is its speed increase over earlier Commodore computers when plowing through a lot of data or recalculating numbers frequently. However, in 40-Column mode, the extra speed comes with a trade-off: The VIC-II, the graphics chip that handles 40-column displays, won't work properly at speeds higher than 1 MHz (Slow mode) and must be turned off during 2 MHz (Fast mode).

To alleviate this situation, I've written Fast-40, a small machine language program for the C-128 that speeds up 40-column Basic and machine language programs from 20 to 100 percent. In the process, it keeps all or part of the screen visible, the amount depending on the speed increase chosen.

There are two distinct versions of this program: Fast-40 128 and Fast-40 64. Run the version appropriate for your computer.

## **SPEEDING THINGS UP**

Although nothing appears to change after running Fast-40, your C-128 is processing data about 20 percent faster than its normal 40-column speed. This is the maximum speed at which Fast-40 can operate and still display the entire screen.

To speed processing further, hold down the control key and press the plus key. A blank, light gray line will cover the first row of the screen. Pressing control/plus again will blank the second line of the screen, and so on. Each blank line represents a speed increase of three to four percent. Control/plus can be held down until all but the bottom row of the screen is blank, for a 98 percent increase in speed over normal 1 MHz mode.



To decrease the speed and see more of the screen, press control/minus. Holding down control/minus for a couple of seconds will return the screen to normal, but leave the processing speed 20 percent faster.

You can, from within a program, set the speed at which Fast-40 operates by poking memory location 6415 in the 128-mode version, or 52515 in the 64 version, with a value from 50 to 242. Fast-40 uses this value to determine how many lines should be blank on the screen. The default value is 50—no blank lines and a 20 percent speed increase. The maximum value is 242—24 blank lines and a 98 percent speed increase. For smooth screen transitions, this memory location should be poked only with values from 50 to 242 that are in increments of eight: 50, 58, 66, 74, and so on.

If you need still more speed, you can achieve full 2 MHz mode by pressing control/F. This blanks the entire screen in the current border color. Press shift/control/F to return to 1 MHz mode. You can turn on full Fast mode when you're in Program mode with SYS 6403 for the 128 version, or SYS 52503 for the 64 version; SYS 6406 (128) or SYS 52506 (64) turns it off.

## CAVEATS

Although I made Fast-40 as uncrashable as I could, there are times when it should be disabled. Peripherals (disk drives, printers, modems, and such) require precise timing to work properly, and Fast-40 can throw this timing off. In 128 mode, this isn't much of a problem, since the operating system automatically sets 1 MHz mode each time it accesses a peripheral. However, the screen will get messy.

In 64 mode, the operating system thinks it's always working at 1 MHz, so it'll lock up if Fast-40 is active during peripheral access. Fast-40 tries to prevent this by disabling itself whenever a Load, Save or Open command is issued, either in Basic or machine language, but some programs bypass those commands and call peripherals with other routines. Fast-40 will lock up with such programs unless it's disabled before any peripheral operations are performed.

The control/X command will temporarily turn Fast-40 off while the 128 talks to peripherals, and shift/control/X will turn it back on. In Program mode, use SYS 6409 (SYS 52509 in 64 mode) to disable Fast-40, and use Fast-40's starting address, SYS 6400 (SYS 52500 in 64 mode), to turn it back on again.

Because Fast-40 is an interrupt-driven program, it can occasionally



miss and not display a change from one graphics mode to another—a change from Hi-Res Graphics to Text mode, for example. This is rare and happens only in 64 mode. Once again, control/X will temporarily disable Fast-40 before a graphics change takes place.

Note that, in 128 mode, Split-Screen Graphics modes 2 and 4 are not available with Fast-40.

## **INTERRUPT DRIVEN**

Fast-40 works by telling the C-128 to generate two raster interrupts—one at the bottom of the screen and one somewhere near the top. The bottom interrupt sets 2 MHz mode, checks for control keys and tells the VIC chip to display hi-res graphics.

For some unknown reason, hi-res graphics that are displayed at 2 MHz by the VIC chip show up as blank, light gray lines. The top raster interrupt restarts 1 MHz mode and also resets the VIC chip.

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RUN it right: **C-128**

# NICK

*By Mark Jordan*

ONE OF THE GLORIES of the C-128 is its amazing family of sprite commands—all except the Bump command, that is. Nobody should envy this function, which promises much but delivers little. It's supposed to tell you which sprites are colliding with which, but it reports the information as a number that must be interpreted to be comprehensible.

Even worse, Bump is so slow that one sprite may well move into and *through* another without Bump registering a collision. And if two sprites just nick each other, Bump couldn't care less.

This is such a problem that I finally decided to write my own version of Bump, one that would catch all the nibs, nicks and foul tips. NICK (Newly Invented Collision Kit) is the happy result.

## **NICK TO THE RESCUE**

NICK reports the numbers of the first three sprites that are



colliding at any given instant. It does this by means of machine language, which you must install and call if you want to use NICK for your own programming.

Activate NICK by loading it from Menu 128, and run it once to get an idea of NICK's power. It will show you eight careening sprites and report on the lowest three (in priority) colliding at any instant.

To install NICK in your own programs, include line 10 and lines 60000 on up in your code. These lines install two machine language routines, one of them an interrupt (at 2816).

To use NICK, you first must start the interrupt, and the SYS 2816 at the end of line 10 does that. Then, anywhere in your program that you might have used Bump—that is, anytime you want to know what sprites are colliding—just type SYS 2877: RREG A,X,Y. SYS 2877 jumps into a machine language routine, then RREG A,X,Y returns from it with the numbers of the three lowest-numbered sprites that are colliding held in variables A, X and Y.

For example, if all eight sprites were colliding, A, X and Y would hold 1, 2 and 3. However, if only the odd-numbered sprites were colliding, A, X and Y would hold 1, 3 and 5.

NICK isn't perfect. Due to the very nature of the interrupt-driven sprite commands, it's often a pixel (or even two) late in recording collisions. Also, it reports only the first three collisions. But, compared to the way Bump operates, these shortcomings are nuisances at worst.

To my mind, Bump is the runt of the Basic 7.0 litter. My instincts tell me to destroy the little guy, but I'm an old softy, I guess. I'll just give him a NICK, instead. So should you.

---

RUN it right: **C-128 (in 40-Column mode)**

# Basic U.S. Map

*By Kenny Lawson*

WRITING YOUR OWN adventure game and need a U.S. map, or want to help the kids learn the states of the Union? Maybe you'd like to trace the route for your next vacation trip, and later have the family color in all the states you visited. Whatever your need

for a U.S. map, my Basic U.S. Map program will draw it on-screen for you in either Standard or Multicolor Bitmap mode. All the 48 contiguous states are included (not Alaska and Hawaii), and, when saved as a binary file (automatically by the program if you desire), the map can be used in 64 mode, as long as the bitmap is located at memory address 8192. The map is left unlabelled for adaptability to your applications.

Load Basic U.S. Map and run it in 40-Column mode. First the program takes a moment to read the Data statements and check them for accuracy, reporting any error on-screen. Then it asks whether you want Standard (1) or Multicolor (2) Bitmap mode. Standard provides a clearer image, while Multicolor allows twice as many colors in an 8×8-pixel cell when using the Paint command.

Finally, it asks if you want to save the map as a binary file. Press Y or N, and, after a short delay, watch as the map is drawn before your eyes. After completion, the map is saved to disk if you so ordered, and the disk status is displayed.

You can print the map on paper by using any C-128-compatible screen dump program, such as C-128 Screen Dump in the March 1987 issue of *RUN*.

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RUN it right: C-128

# Monitor Wedge

*By Paul Locurcio*

IN ORDER TO MAKE PRINTOUTS while using the C-128's built-in machine language monitor program, you normally must exit the monitor, open a file to the printer, direct output to the printer and then re-enter the monitor. While this procedure works, it does have some drawbacks.

First, when you designate the printer for output, the monitor takes time to print a Ready prompt and show a register display. However, the prompt is superfluous, and you may not care to see the register display. The other problem occurs when you issue a Memory command to make printouts after using the Display com-



mand to send memory to the printer. The monitor will print the memory locations and ASCII representations as if the printer were a 40-column machine.

To correct these problems, I've written a program called C-128 Monitor Wedge that sends output to the printer without exiting the monitor. There are two ways to activate this Wedge. One is to enter the monitor, load the Wedge from disk using the standard monitor Load command and then type J F0C00. The other is to BLoad the Wedge, then enter the monitor and type J F0C00.

Directing output to the printer through the Wedge is easily done. Type P and hit return. If the printer is turned off, the Wedge will display a Printer Not On message at this point and wait for you to turn it on. Once the printer is on, press P again and a Printer On message will appear. If the printer is turned on when you first type P and press return, but it's off-line, the Wedge will just wait until you put it on-line; there will be no message telling you what to do.

You can use all of the monitor's listing commands while output is directed to the printer. If you press the return key with nothing entered before it, the printer will advance to the next line.

To return output to the screen, type Q and return. The screen will then display Printer Off to confirm the change.

Note that if you press the run-stop/restore combination while the printer is operating, you must type J F0C00 followed by P and return for printer output to work again.

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RUN it right: C-64; joystick

# Traffic Jam Session

*By Jeffrey Panici*

IT'S FRIDAY. FIVE O'CLOCK. The heaviest traffic of the week, and you have to walk home, crossing seven lanes of speeding cars as you go. If that weren't enough, your dinner is cooking in the oven and you've got only 40 seconds before it burns up. Another day in the big city. Aarrgghh!

That's the scenario for Traffic Jam, a fast-paced arcade-style game



for the C-64 with a joystick plugged into port 2. To play, move the person on the screen in any direction you like to avoid cars and squeeze through openings in the lane dividers. If you make it home in 40 seconds, you'll be welcomed with a musical fanfare and rewarded by a point score of 100 multiplied by your current level of play.

Alas, that's not the end of your trials. The next time you head for home, not only are those mad drivers pressing even harder on the gas, your oven timer malfunctions and gives you two fewer seconds to arrive! This goes on for 15 levels of play, at which point the game resets and you begin again. ■

# **RE** **== RUN**

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