MEMOTECH FLOPPY DISC SYSTEM

SuperCalc™

SuperCalc®

User's Guide & Reference Manual

Documentation 1.2
November 1983

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San Jose, California 95131
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Preface

SuperCalc is the original spreadsheet developed by Sorcim Corporation. SuperCalc is part of a family of products from Sorcim Corporation, including SuperWriter and SuperCalc^2, an enhanced version of SuperCalc with even more features.

Files produced by SuperCalc and SuperCalc^2 can be used interchangeably with a few exceptions. Please see Appendix D for a discussion of compatability between files produced by each program.

The SuperCalc distribution diskette you received cannot be used to start (boot) your computer. You must should copy the SuperCalc program files and your computer's start up files to a new disk or you must start your computer with the system disk, then use a disk with SuperCalc. In either case, refer to Appendix C for information on how to start your system and use SuperCalc and how to make backup copies of SuperCalc for your protection.

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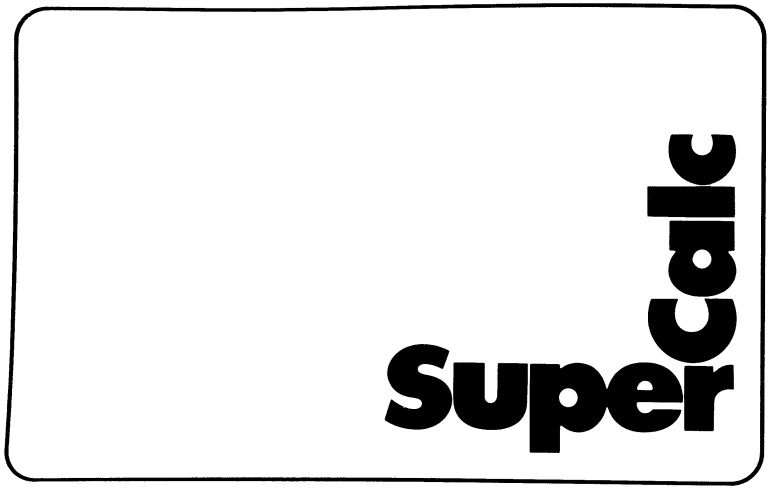

Welcome to SuperCalc

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1. Welcome to SuperCalc

What is SuperCalc

The SuperCalc program turns your microcomputer into a powerful electronic spreadsheet. With SuperCalc you can:

- Lay out your spreadsheet in a convenient manner.
- Perform any type of spreadsheet calculation that you once did with paper and pencil.
- Perform a large number of calculations quickly.
- Supply headings and text material without affecting the calculations.
- Print professional-looking reports.
- Include the report information in other documents.

The SuperCalc spreadsheet consists of a two dimensional grid containing cells at the intersection of each row and column. SuperCalc has the facilities to enter information into these cells and to interrelate them using the powerful but easy to use logical commands and built in mathematical functions.

Because many computations are performed swiftly, you can easily set up *what-if* modeling spreadsheets. And SuperCalc's spreadsheet memory management is so advanced that you can actually put more into a SuperCalc spreadsheet than you could with any other spreadsheet package. Because of this, you can build your spreadsheet without having to worry about where you put calculations or how many rows or columns you have between calculations.

SuperCalc Applications

The uses for SuperCalc are limited only by your imagination. Some of the more common uses are:

- Balance sheets
- Cash flow analysis/forecasting
- General ledger
- Inventory records
- Job cost estimates
- Market share analysis and planning
- Patient records
- Profit projections
- Profit statements
- Project budgeting and control
- Salary records
- Sales projections and records
- Tax estimation

Illustration 1-1: SuperCalc Applications

SuperCalc is easy to use

With SuperCalc you manipulate data on your electronic spreadsheet instead of using paper and pencil. SuperCalc edits, formats, stores, calculates and prints at your command. You don't have to be a computer programmer to use SuperCalc.

You don't need to remember a long list of commands. SuperCalc prompts you with the options for each command.

SuperCalc contains built-in AnswerScreens that provide immediate help on screen. Just press the AnswerKey (?) or (F1) and SuperCalc explains your available options. You are always returned to the same place you left on your spreadsheet.

This book is your complete reference to SuperCalc. It describes every aspect of the program and is organized to make that information readily available.

Slash Command Map

The SuperCalc Slash Commands Map shows the route to every command. This overview shows the big picture of the SuperCalc command structure. Use it to assist you in moving through the program.

How to Use SuperCalc

SuperCalc is a powerful tool for solving all types of financial, business or mathematical problems. SuperCalc acts as a simple means to tap the power of your computer to do time-consuming, repetitive calculations.

Solving any problem, from the simplest to the most complex, requires that you organize it in a logical manner. The designers of SuperCalc recognized the importance of logical, practical commands to make the spreadsheet easy to use.

SuperCalc's simple, common sense approach to commands helps you organize your problem. For example, if you want to change your spreadsheet, you can insert, delete or move a column/row and SuperCalc adjusts your formulas automatically.

Once your problem has been clearly defined, data can be changed easily and numbers recalculated quickly. SuperCalc displays data in the format you select, thus aiding you in developing professional looking reports. Once generated, spreadsheets can be stored on disk to access, edit and print later.

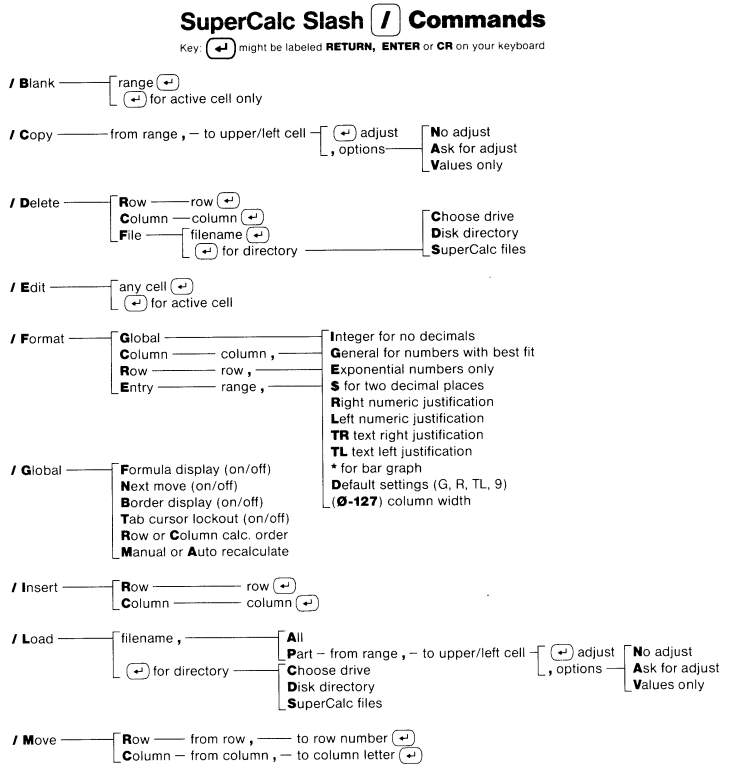


Table 1-2: SuperCalc Command Map

SuperCalc Command Map

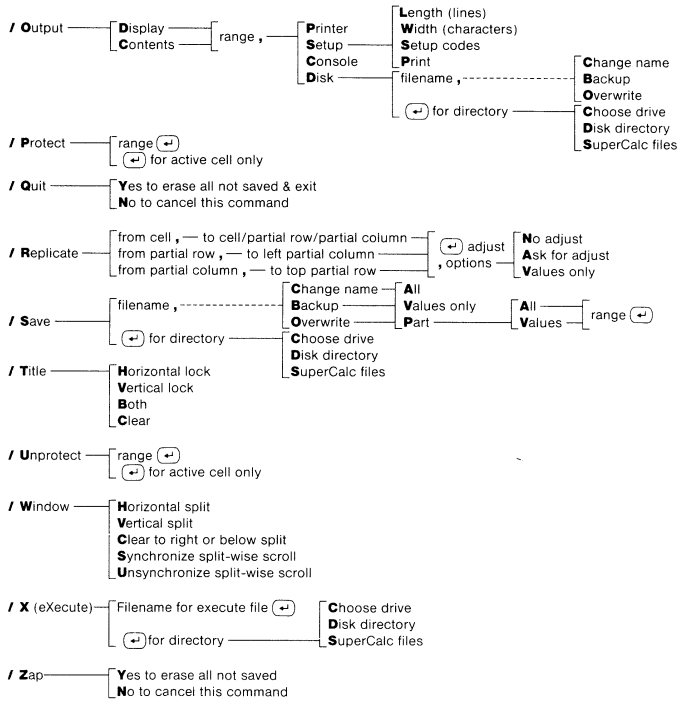
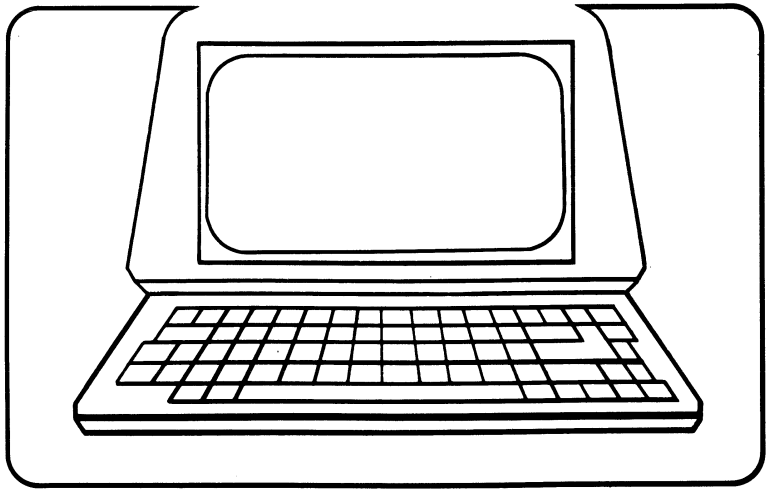


Table 1-2: SuperCalc Command Map (continued)



Getting Started

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2. Getting Started

For New Users

This section tells you how to start up SuperCalc on your computer. Before you use your new SuperCalc disk though, look at the SuperCalc Installation Appendix.

In order to help you start to use SuperCalc, this section also gives you some information about CP/M and MS DOS operating systems.

In this manual, CP/M also refers to CP/M-86 and concurrent CP/M-86. MS DOS also refers to the DOS used with the IBM Personal Computer.

This additional information is given only as a convenience. This section does not replace the manuals that came with your computer system. It is meant only to give you some essential information and to guide you in what topics to look up in your systems manual.

The topics we will cover are:

1. Turning On Your Computer.
2. Inserting Your Operating System Diskette.
3. Booting (Loading) Your Operating System.
4. Viewing Your Disk Directory.
5. Using Your SuperCalc Distribution Diskette.
6. Backing Up Your Distribution Diskette.
7. Installing SuperCalc.
8. Starting SuperCalc.
9. Removing the Diskette(s).
10. Shutting Down Your Computer.

After you have gone through the start-up procedure once, you may find it helpful to make some *mini-documentation* of your own. It doesn't have to be anything fancy, just some simple labels and check lists to remind you of the key points.

Here are examples of the kind of things that can be especially useful during the first few times that you use a computer — or when you come back to it after being away for some time.

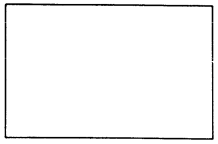
1. START-UP CHECKLIST. Your computer's documentation should include start-up procedures that are more specific than the ones in this guide. If it does not — or if they are not clear and concise — make yourself a checklist and post it near your computer. (If the manual does have something like that, make a copy of it and post it.)
2. WHICH DRIVE IS WHICH. If your disk drives are not labeled (A, B, etc.), put labels on them.
3. HOW TO INSERT A DISK. You may also find it helpful to put labels on your drives that indicate which way the diskette should face when you insert it. For example, *DISK LABEL UP* or *DISK LABEL LEFT.*

Before starting this practice session, get your system manuals out and have them handy. You should at least have the manual for your operating system and a manual that shows you how to power up and boot (load) your system from a system diskette. You will also need a pencil, note pad, and perhaps some labels.

It will be helpful if someone who is experienced can guide you through the start-up procedure the first time, but it is not necessary.

Turning On Your Computer

For this step, you must consult your computer manual, because different computer systems have different requirements. The procedure is usually very simple. It may be a matter of being sure the computer is plugged in and then turning a key or pressing a switch. Or you may have to turn on more than one piece of equipment.



Inserting Your Operating System Diskette

A *system diskette* is one that has the operating system on it, including a portion called the *boot track* that allows it to start itself. The diskette should be clearly labeled, but if you are not sure that a diskette is a system diskette, go ahead and try it. You won't hurt the diskette or the system.

Your computer's disk drive has slots (probably two or more) where you can insert diskettes. The slots may be vertical or horizontal, and they may have small doors.

Open the drive door, if there is one, to the slot for drive A. Drive A is usually the *system drive.* If you do not know which drive is drive A, check the documentation that came with your disk drives. Your documentation may call this *Drive zero,* which is the same as *Drive A.* (If you cannot locate your documentation, the next step suggests a way to determine which is the system drive.)

When you insert the diskette in the slot, the label on the diskette must face a certain way. On most computers, the diskette label should face towards the drive door, with the edge with the open slot inserted first. (If you put the diskette in wrong, you won't hurt anything. You can take it out, reverse it and put it back in.)

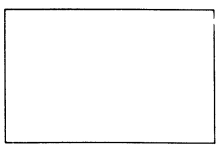
Slide the diskette in. You will hear a change in the sound of the drive, and feel the diskette seat in place. You may have to press it into place, but no force is needed. If it does not go all the way in, do not force it. Get assistance.

When the diskette is in place, slide the door closed if there is a door.

Booting (Loading) Your Operating System

This step gives the operating system control of your computer. It is necessary to do this before you can start SuperCalc.

Here again you will have to consult your manual. Some computer systems have a button or a switch to press, some may require you to perform a different sequence of actions. When you have put the system diskette in the proper drive, your system may load itself automatically.



For the moment, let's assume that you have a switch or button to press. Do that, and watch the drives. Usually, there is a small light over each drive. When the system attempts to access a diskette in a drive, the light for that drive will light.

When you press the button or switch, the light goes on for the drive known as the system drive. If your system diskette is not in that drive, remove it, and put it in the drive that lit. (Most drives have a button that you push to remove the diskette. If there is a door, it will slide open, and the diskette will move a little distance out, so that you can easily pull it the rest of the way.) Then, insert the diskette in the correct drive and proceed. Inserting the diskette may be enough; if not, re-boot.

When the system is loaded, it will write some text on your terminal screen and may ask for today's date or other information. Type any requested information and press the ↵ key.

When the system startup is completed, the system displays a *prompt,* such as A>. This prompt means that the system is ready to accept your commands.

Viewing Your Disk Directory

Your operating system has a command called *DIR* that shows you a list of the contents of that diskette. Your system manual gives you information on the DIR command.

All you have to do is type **DIR** and press the ↵ key. On your screen you should see a list of the files on your system diskette. (If not, check further in the manual, or get assistance.)

Using Your SuperCalc Distribution Diskette

Your SuperCalc distribution disk contains several files. The files you have depends upon the type of computer system you have. Appendix B contains a complete list of SuperCalc Files.

Backing Up Your Distribution Diskette

You should never work with your distribution SuperCalc diskette. Rather, you should always work with a copy. That way, you will not have to be concerned that you may accidentally harm your SuperCalc diskette.

We recommend that you make three copies of your distribution diskette. Use your operating system copy utility to make the copies. Then, store your distribution diskette in a safe place. You normally will not need to use it again. Also, store one of the copies, preferably in another location. The other two copies are for your daily use.

Installing SuperCalc

SuperCalc needs to be *installed* to work properly on some computer systems. On other systems, no installation is needed. Refer to the Installation Appendix.

Starting SuperCalc.

Type **SC** and press the ↵ key. SuperCalc loads and displays a page of information. You then have the choice of pressing ? or F1 for Help or pressing any other key to continue.

Press ? or F1.

After you have looked at the help display, press any key.

If you do not want to begin working with SuperCalc right now, you can stop by typing:

/

Q (for Quit), and

Y (for Yes).

You should see the A> prompt.

Removing the Disk(s)

On some drives there is a button near the disk drive door or slot. Push it, and the drive door should open and the diskette slide partly out. On other drives, just pull the door open. Gently pull the diskette all the way out and put it in its protective jacket. Do this with all diskettes in the drives before shutting down the system.

Shutting Down Your Computer

Here again you will have to consult your system manual. This may be a simple matter of turning off a key or pressing one switch, or you may have to turn off several items of equipment. It is a good idea to make a note for yourself of the appropriate steps for your system.

System Concepts

Here are a few operating system concepts that are especially relevant to SuperCalc. The information given here is basic and is meant only to suggest further study in your system documentation. These particular concepts have been selected for mention because they affect the following operations:

- Loading and executing SuperCalc.
- Using commands to look at file directories, to erase files, to rename files, and to copy files.

Useful System Commands

The following commands can be directly executed only when no other programs are running and the system is in control. You cannot use them while you are running SuperCalc. Here is a list of commands that are useful in conjunction with your use of SuperCalc and files. The commands should also be explained in your system operations manual.

The MS DOS operating system commands are:

DIR	Displays disk file directory
RENAME	Renames a disk file
COPY	Copies disk files

DISKCOPY	Copies entire disk
ERASE	Erases a disk file
CHKDSK	Displays status of a disk

The CP/M, CP/M-86, and Concurrent CP/M-86 operating system commands are:

DIR	Displays disk file directory
REN	Renames a disk file
ERA	Erases a disk file
PIP	Copies a disk file
STAT	Displays status of a disk

Disk Drive Designation

Files are assumed to be on the diskette in your default or logged drive unless you specify otherwise. This means that you can refer by name alone to any file located on that diskette. References to files on other drives must include a drive designation that consists of the drive's identifying letter and a colon, as in B:LESSON5.CAL.

Note: SuperCalc *must be* on your logged disk. If SuperCalc is on drive B, then you must type **B:** ↵ before you type **SC**. You cannot type B:SC.

File Names and File Name Extensions

Files on a disk have individual names that are kept in a directory on the disk. Each name on a disk must be unique. (Different disks may have documents with the same name.)

Valid CP/M file names must start with an alphabetic character while MS DOS file names may also begin with any numeral or certain symbols. File names may be from one to eight characters long. The name may not contain blank spaces or any of these characters:

. , : = ; ( ) * ? < >

Special File Name Extensions

File names can have an extension of up to three characters, such as SC.COM or REPORT.TXT. The File name and extension are separated by a period (.) as shown.

Some extensions have special significance. Special extensions to note are:

.COM and **.CMD** (as in SC.COM or SC.CMD)

The .COM extension or the .CMD extension (in 8086 systems only) identifies a file that can be *loaded* and *executed* by typing its name alone. For example, we load and execute (start up) SuperCalc by typing SC.

.CAL (as in LESSON3.CAL)

The .CAL extension has a special meaning to SuperCalc. It identifies SuperCalc spreadsheets. When you save a spreadsheet, you can specify a file name with or without an extension. If you do not specify an extension, SuperCalc automatically gives the resulting file a .CAL extension. Similarly, when you load a spreadsheet, the .CAL extension is assumed unless you specify an extension.

When you look at a disk directory, the .CAL extension is a quick way to locate the SuperCalc spreadsheets.

.CAL files from SuperCalc are written in a special format. They cannot be read by other programs. Use the SuperData Interchange program or .PRN files (described below) to read your spreadsheets into another program.

.OVL (as in SC.OVL)

The .OVL extension also identifies special program files. Part of the SuperCalc program is kept in a file named SC.OVL. This file must be on your program disk for SuperCalc to run properly.

.HLP (as in SC.HLP)

The SC.HLP file contains all the Help text for SuperCalc. This file must also be on the SuperCalc disk.

.BAK (as in REPORT.BAK).

SuperCalc can save the previous version of a spreadsheet when you save a new revised version, if you so specify. This previous version is called a *backup* file, and the extension .BAK replaces the previous extension (.CAL).

.PRN (as in REPORT.PRN)

The .PRN extension has a special meaning. It is used for disk files that can be printed by certain system utility programs (for example, the CP/M command PIP or the MS DOS command TYPE). Spreadsheets can be set up in what is called *print image,* meaning that the contents of the disk file can be printed as text. SuperCalc allows you to output a spreadsheet as a print-image file and assigns an extension of .PRN automatically.

Print image files are also useful if you need to transfer a spreadsheet or a portion of a spreadsheet to another program. For example, if you want to include a section of a SuperCalc spreadsheet in a document prepared with SuperWriter™ or another word processing program), you would use SuperCalc to prepare that section as a .PRN file. The word processor could then include that .PRN file in the document.

.XQT(as in AUDIT.XQT)

The .XQT extension tells SuperCalc that the file contains *commands* to be executed. SuperCalc interprets each character in an .XQT file as if it had been entered directly from the keyboard.

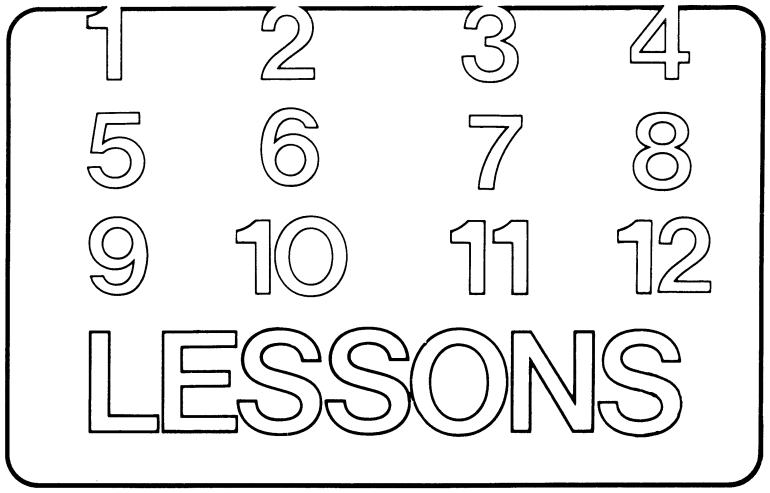
Write-Protecting a Disk

An entire diskette can be physically write-protected. When it is protected, no one can write on it or erase it. The system detects this protection and gives you a message if you try to write or erase information on that diskette.

Write protection is controled by covering a small square notch with adhesive tape. With some computer systems, you cover the notch to write-protect the diskette. With other computer systems, the situation is reversed, you uncover the notch to write-protect the diskette. Check with your computer documentation.

Write-Protecting a File

The CP/M system allows you to *write-protect* individual files by name on a diskette (see CP/M .STAT command). When you do this, the file cannot be written over or erased. If you try to write over or erase a protected file, the CP/M system will give an error message. Consult your CP/M manual on the STAT command for information on how to write-protect a file.



Learning To Use SuperCalc

3

3. Learning To Use SuperCalc

The follcwing eleven lessons are provided to teach you the basic skills needed to use SuperCalc. Each lesson walks you through key features of SuperCalc building your knowledge of the program. The individual lessons are designed to augment the reference section.

Sit down at your terminal, place your disk in the system and let's learn about this powerful tool: SuperCalc.

LESSON 1

Moving the Active Cell Around the Spreadsheet

Imagine that you are examining a map through a magnifying glass. When you use the SuperCalc program, think of the video screen or *display window* as your magnifying glass; through it, you can view any area of your map or SuperCalc spreadsheet. You will make the display window move or *scroll* to show you different parts of your spreadsheet.

In the same way that you use latitude and longtitude measurements to designate a unique location on a map, you will learn to locate and enter data on the SuperCalc spreadsheet in positions specified with reference to alphabetically designated columns and numerically designated rows. A unique letter and number combination names every location on your spreadsheet. In this lesson, you will also learn how to point to, or specify, a unique address on the display area of your worksheet by using a pointer or cursor. This chapter assumes that you know how to load the SuperCalc program from your diskette. If you do not, please read Chapter 2.

When the SuperCalc program begins running you should see the title page on the screen:

```
SuperCalc (Reg)
Version 1.12
    CP/M
 S/N 000000

Copyright 1983
 SORCIM CORP.
 San Jose, CA
```

Screen 3-1: Copyright Screen

A message appears at the bottom of the screen similar to the following two lines:

> Enter ? for HELP or *return* to start.
>
> Function Keys: F1 = HELP; F2 = ERASE LINE/RETURN TO SPREADSHEET

Press the **Return** key. From this point on the **Return** key will be referred to as (↵) for carriage return.

```
    :  A  :  B  :  C  :  D  :  E  :  F  :  G  :  H
 1:
 2:
 3:
 4:
 5:
 6:
 7:
 8:
 9:
10:
11:
12:
13:
14:
15:
16:
17:
18:
19:
20:
)A1
Width:  9  Memory:451 Last Col/Row:A1      ? for HELP
  1)
```

Screen 3-2: Sample Spreadsheet Screen

Let's examine the screen. You will note that columns A through H and rows 1 through 20 are represented. If your screen displays only 40 characters per line you will see only columns A through D. You can see that the coordinate A1 is highlighted. On some terminals, you will see a bright underscore at that position. Some terminals may have *inverse video,* which means that you will see a bright bar or perhaps your terminal uses < > as an indicator. This is the *spreadsheet cursor* and designates the Active Cell. The Active Cell is the location where data is entered.

Any coordinate-for instance, A1, B3, B6, or G19-is called a *cell* because it represents a unique position on our *spreadsheet*. The spreadsheet cursor can be positioned to any cell on the screen. This is accomplished by pressing any of the arrow keys at the right side of your keyboard.

Let's press the **right arrow**. The spreadsheet cursor should have moved one cell to the right, to B1. Again press the same key, to move to C1. Try the down direction. Experiment, using these four keys to move the Active Cell indicator around to different locations on the spreadsheet display.

Note: If you do not have arrow keys you can use the **D, S, E, X** keys along with the Control key (CTRL) to move right (CTRL D), left (CTRL S), up (CTRL E), and down (CTRL X). When one of these keys is pressed in conjunction with the (CTRL) key, it moves the cursor in the same direction as the corresponding arrow key. For convenience we will refer only to the arrow keys in this manual.

Scrolling

What happens if you try to go above Row 1 or to the left of Column A? Nothing. You have reached the spreadsheet margin in these directions. But what about moving to the right or down? Try it, if you haven't already. You will quickly discover that when you move as if to go off the screen to the right or downwards, the columns or rows appear to renumber themselves. Actually those cells that were *off-screen*, beyond the range of your display window, are brought into view, a column or row at a time.

Move one column to the right beyond the edge of the screen. You see that the columns change from A through H, to B through I. At any given moment you will be looking at only a portion of the potentially usable spreadsheet. This is what we mean by the *display window*. As we move this window either horizontally or vertically, we are *scrolling* the display.


```
    :  W  :: X  :: Y  :: Z  :: AA  :: AB  :: AC  :: AD  :
  1:
  2:
  3:
  4:
  5:
  6:
  7:
  8:
  9:
 10:
 11:
 12:
 13:
 14:
 15:
 16:
 17:
 18:
 19:
 20:
 AD1
Width:  9  Memory:451 Last Col/Row:A1      ? for HELP
  1:
```

Screen 3-3: Right-Scrolled Spreadsheet

Try moving off the screen to the right, but this time continue to hold the key down instead of just striking it once. If your keyboard is so equipped, you will see the screen continue to scroll until you stop pressing the key.

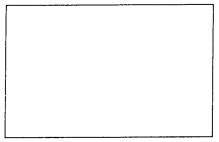
If your keys do not *repeat* when you hold them down, your terminal may have a special **Repeat** Key. Use it with the arrow key for the same result.

Continue to *scroll* the screen until you come to column Z. Note that the remaining columns are represented by two letters, AA, AB, and so on.

The Status, Prompt, and Entry Line

Notice the three lines at the bottom of your screen. The top line is the Active Cell and spreadsheet cursor *status* line. The SuperCalc program uses this line to report to you the cursor status.

The first character is an arrow and is displayed using one of these symbols (∧ ∨ < >). The arrow indicates the direction in which the spreadsheet cursor will move when you use the (↵). To change the direction of the cursor movement, press an arrow key that points in another direction from which the cursor is presently moving.



The next entry on the status line is the *address* of the current Active Cell. The status line allows you to read from your spreadsheet the location of the Active Cell more conveniently than you could by visually triangulating the cursor position with respect to the spreadsheet borders.

If the current Active Cell is empty, there will be nothing else displayed on the *status* line; however, if the Active Cell contains text, number, or formulas, the contents of the cell will appear as you entered it.

Now move the spreadsheet cursor around, and watch the status line as the Active Cell and direction indicators change.

The second line is the *prompt* and secondary status line. This line will display the current cell width, available memory, and indicate spreadsheet size by giving the right-most column and lowest line number used for your current application. When you are in command-entry mode the message displayed here will change depending on what command you are currently using. The prompt message lists your options at any given moment.

The bottom line is the *entry* line. It displays a 1> at the left margin. This line allows us to communicate with the SuperCalc program. It displays the information we type in at the keyboard-data, command, or responses to prompt messages. The entry line is your scratch pad. It allows you to check and edit the data or text you wish to enter before you commit it to the spreadsheet. As we input characters, the entry line cursor will move to indicate where the next character will appear. At the left-hand margin, the number 1 will change to 2, 3, etc. as the cursor moves.

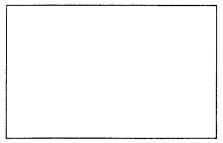
The GoTo Command

It is natural to wonder if there isn't some way to move the spreadsheet cursor quickly to a desired position without using a stepwise combination of arrow keys. There is. Typing (=) initiates the *GoTo* command.

What if you mistyped (=)? What can you do about it? You can use the left arrow key to backspace and then try again. We'll explain this feature more fully later on, but for now you know how to correct a mistake.

The prompt line now reads:

Enter cell to jump to.



This is typical of the helpful conversational efforts you can expect from the prompt line. Now type **M31** or **m31**. Either will work. (The SuperCalc program accepts either lower case or upper case letters for any entries, but you cannot use a lower case letter *l* for the numeral one, *1*.) But for any action to occur, you must press the return key, (↵). It's a good habit to check your work first, by reading the entry line.

Now press (↵), if you haven't done so already. If you did everything right, we have very quickly moved to the part of the spreadsheet where M31 is located. Cell M31 now appears at the top leftmost corner of your display window. See if you can use the (=) to find out how large the spreadsheet is. When you are finished, *GoTo* A1 again.

Here is an additional feature of the *GoTo* command. Move the Active Cell to anywhere near the middle of the screen, say to E8. Enter (=) but specify no cell, just press (↵). Notice how the Active Cell remains E8, yet the display window is repositioned so that the Active Cell appears at the top left corner.

We have now used the arrow keys and the (=) key. Remember that for most situations, any entry must be followed by pressing the (↵) key. The SuperCalc program will then accept and display our entry.

Press the (↵) keys a few times, and notice that the position of the Active Cell advances to the next cell. The direction taken-left, right, up, or down depends on which arrow key was last used.

Press the **down arrow**, and then (↵) a few times. Now the **left arrow**, and (↵) several times. The arrow keys set the direction, and then the (↵) advances the spreadsheet cursor cell by cell. (Remember you can always check the status line to find the current direction.)

The Quit Command

What about some of the other operations? Let's try (/). Press the (/) key. The prompt line changes and now says:

Enter: B,C,D,E,F,G,I,L,M,O,P,Q,R,S,T,U,W,X,Z,?

The prompt line is telling you that these letters represent the only meaningful actions you can take now that you have entered the (/).

Each letter designates an option of the / commands. Whenever you wish to examine this command option list in its expanded form, press ? or F1 and the list will be displayed on your screen. To return to your spreadsheet display, press ↵. We will explore many of these commands soon, but for now you should know about one in particular.

Press the **Q** key. What happened? First the **/Q** was automatically interpreted by the SuperCalc program so that your **/Q** appears on the entry line as **/Q**uit. Second, the prompt line changes. It now reads:

EXIT SuperCalc? Y(es) or N(o).

If you want to stop here and continue the lesson later, press the **Y** key; otherwise, press **N**.

What you have learned in this lesson?

In this lesson you have seen the display window scroll and learned what *current direction* means.

You have also learned how to:

- Identify the spreadsheet cursor and locate the Active Cell.
- Move the spreadsheet cursor anywhere on the spreadsheet.
- Move the cursor with the four arrow keys, the alternate diamond keys, and the ↵.
- Use the = (or *GoTo*) command, either as a shortcut to a new location, or to reposition the spreadsheet with respect to the active cell.
- Read the Active Cell location, current direction, and column display width on the status line.

LESSON 2

Data Entry — Numbers, Text and Simple Formulas

From Lesson 1 you have gained a general understanding of the control and display characteristics of the SuperCalc program. In this lesson, you will learn how to enter data. You will also learn how to use the *zap* command **/Z** to clear the spreadsheet, the *in-line editing* features, and the edit command **/E**.

If the SuperCalc program is not already loaded, load it now. (See Chapter 2 if you are not sure how to do this.)

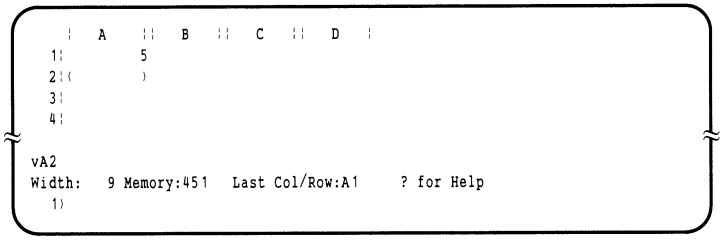
Now let's actually make some entries on our spreadsheet.

In this exercise, we will be entering numbers down the column, so we want to set the spreadsheet cursor to move *down*. Do so by pressing the **down arrow**. Now use the *GoTo* command to place the Active Cell marker at A1.

Enter the number **5** on the entry line. Do not press ↵ yet. You may cancel an operation at any time by pressing the CTRL key and the Z key simultaneously. If you start to do something but then change your mind, pressing CTRL Z or CTRL C or F2 will allow you to start over without affecting the spreadsheet.

You have *5* on the entry line. Now press ↵.

Pressing ↵ will enter whatever is currently shown on the entry line; that is, the characters you have typed will be sent to the active cell, and the entry line will be cleared. In our example, the data item *5* should now appear on the screen in cell A1.



Screen 3-4: Active Cell Cursor Movement (Down)

Notice that the spreadsheet cursor moved to A2. Enter **6**, but do not press (↵) yet. Did you notice that before you typed 6, there was a **1**> at the left edge of the entry line? Now there is a **2**>. You will see this number increase each time you type a character on the entry line. The number you see is always one more than the number of characters you have typed. For now, this information helps you fit your data into the column width you have — remember the *9* on the status line. In a later lesson, you will learn how to change the column width, and this character count will be even more helpful.

Now press (↵), and cell A2 will contain the value 6. Cell A3 has become the Active Cell.

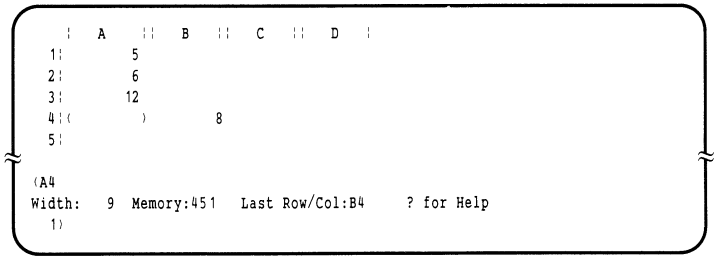
Let's try another entry, **12** and (↵).

The same thing should have happened. The spreadsheet cursor is progressing down the column, automatically anticipating the location of your next entry.

Now press the **right arrow**. Enter **56**, press (↵). What happened?

56 appears in B4, and the spreadsheet cursor has moved to cell C4. After each entry, the spreadsheet cursor will continue to move automatically to the next cell. The direction it will move has been set by whichever of the arrow keys was last used. For instance, suppose we wish to change the contents of cell B4. Press the (left arrow). Enter **8** and press (↵).

This will replace the previous entry of *56*. But, in addition, the spreadsheet cursor continues now in a leftward direction to A4.



Screen 3-5: Active Cell Cursor Movement (Left-Right)

Try entering different letters and numbers as data, using the arrow keys to change direction. You can erase the entry line using (CTRL | Z). To enter text, precede the entry with the double quote key ("). Take a few minutes to experiment.

Generally speaking, there are two kinds of entries, text and numbers. When your entry is preceded by a double quote ("), it is regarded as *text*. When it is preceded by a single quote ('), it is regarded as *repeating text*. Otherwise it is regarded as a number or formula.

Headings, labels, and explanatory notes are examples of text entries. Mathematically they are regarded as having a *value of zero*. If you forget to lead text with quotation marks, the computer will respond with an error message. The quotation marks should not be closed. Otherwise, the closing quotation marks will be included in the displayed text.

For example:	"Sample Text	Right
	"Sample Text"	Wrong
	Sample Text	Formula Error (Use in-line editor or (CTRL | Z) or (CTRL | C) or (F2) to erase the entry line and start again.

The Zap Command

Let's try some examples, but first let's start with a fresh screen.

Remember we used the *quit* command to exit from the SuperCalc program altogether in Lesson 1. Now we will use another command, *zap*.

Enter (/), and note that the prompt line again displays for us all possible (/) commands.

Enter **Z**. The prompt now reads:

Zap-ENTIRE-worksheet?

The effect of the *zap* command is to clear the entire spreadsheet and return everything to its original state, just as it was when you first loaded the SuperCalc program. Because the effect is so drastic, the program uses the prompt line to remind us that the entire spreadsheet will be emptied and to verify that we really want to do this. The prompt asks:

Y(es) to clear everything, else N(o)?

We do want to clear everything, so enter **Y**, and the SuperCalc program will do just that. Whatever we had put on the spreadsheet is now gone, permanently.

Text and Numerical Entries

Now enter **"Oranges** in cell B1 and **250** in B2. Remember to lead off Oranges with quotation marks ("). Notice that text is left-justified and numeric values are right-justified within the column.

```
      A       B       C       D
 1         Oranges
 2              250
 3
 4


vB3
Width:   9  Memory:451   Last Row/Col:B2     ? for Help
 1
```

Screen 3-6: Entry Left-Right Justification

Move the Active Cell back to B2 and watch the middle of the Status Line. It will say Form=250. Move the cursor to B1; the same line will say Text="Oranges.

```
    :   A   ::   B   ::   C   ::   D
 1:         Oranges
 2:               250
 3:         (       )
 4:


( B1           Text:"Oranges
Width:  9  Memory:451 Last Col/Row:B1      ? for HELP
 1)
```

Screen 3-7: Status Line Update

You will soon learn how to change the normal justification of both text and numbers.

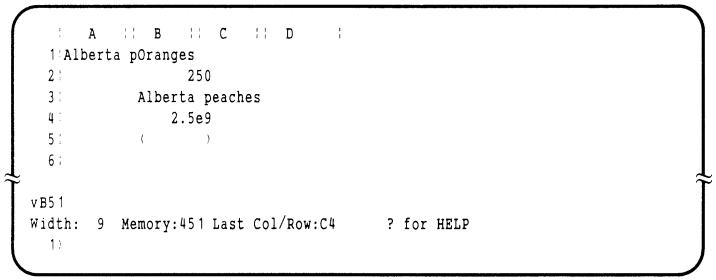
How wide are the columns? How large a number can we enter? How much text? Remember we mentioned *display width* earlier when looking at the status line. Note again the *9* on the status line.

The 9 tells us that the column currently accessed (the column with the Active Cell) is set to display nine characters. Nine is the standard, or *default*, value for the display width of all columns unless you specify otherwise. You will soon learn how to specify display widths. Text may contain 115 characters; formulas may contain as many as 116 characters. The maximum column width is 127.

Move the spreadsheet cursor to B3, and type **"Alberta peaches**. This piece of *text* is certainly longer than nine characters, but the SuperCalc program allows display of your text to extend over neighboring cells if they are unused. Now go to A1 and try the same thing.

Your entry did not display in full because B1 is occupied. But the entire entry was accepted in cell A1 even if only a portion of it (the first nine characters) is displayed. (Notice that the status line indicates the contents of A1 as Text="Alberta peaches).

Move to B4. Enter, without commas, **2500000000**. The number is too large to display. The SuperCalc program converts it to scientific notation, a more compact format, and displays it as 2.5e9, which is the display form of the expression 2.5×10^9, or the conventional abbreviation of 2,500,000,000. The SuperCalc program provides many different display and format options. These will be described in more detail later.



Screen 3-8: Entry Length/Active Cell Size

If exponential numbers are new to you, here is a quick look at what they are and how the SuperCalc program displays them. Exponential numbers are displayed as *powers of 10*. You will soon see what this means.

Go to Cell C1 and set column C to exponential display. Use the format command to do this. Enter **/F** for the command, and **C** for Column. When the prompt asks you what column to format, you can press the ↓ or the ↵ key to tell the SuperCalc program to use the current column (C). Press **E** for Exponential format, then ↵.

Press the **down arrow** to set the current direction as down. Now enter **1776**. Cell C2 shows *1.776e3*. What does this mean? e3 means *exponential 3* or *10 to the power of 3*. 10 to the power of 3 is 1000; 1.766 times 1000 is 1776. That's all that 1.776e3 means.

Try entering **1000**. Is 1e3 what you expected? What will 100 be? Try it. Now enter **2000**, and then enter **.002**. Notice that 2000 is 2e3 and that .002 is 2e-3. e3 is thousands; e-3 is thousandths. What is -2000? Try it and see.

What happens if you enter a number in exponential notation? Let's try it. Enter **567e13**. Are you surprised to see it display as 5.67e15? The SuperCalc program prefers to put the decimal point just after the first digit and will adjust the exponent value to do so.

Explore on your own — entering numbers as you ordinarily would, and entering them in exponential form. Try to guess beforehand what the display will be.

When you feel comfortable with exponential notation, let's give the SuperCalc program a little job to do.

Press the down arrow, (**v**) to set the cursor direction and then press =**C6** ↵.

In cell C6 enter **93000000**. That is 93 million, which is the number of miles between the earth and the sun. 9.3e7 is 9.3 times 10 million, which seems right. Now in cell C7, enter **5280*C6**. The value displayed, 4.910e11, is the number of feet in 93 million miles. Let's try inches. Enter **12*C7** in cell C8. The display shows that the sun is 5.892e12 inches from the earth.

So 5.892e12 is the number of inches between the earth and the surface of the sun? Well, not really. It is the number of inches in 93 million miles, but 93 million is the number of miles between here and the sun expressed *to the nearest million*.

What 5.892e12 really tells us is that there are about 5.9 times 1,000,000,000,000 inches between here and the sun. Only the first two digits of 5.892 are significant, because only the 93 was significant in 93 million miles.

Why bring this up? Because that is the point of scientific notation. Scientific notation allows us to quickly grasp the essential points of a number and discard the unessential.

The first part of the number gives us the essentials (and probably some others that we can discard). The exponent value, the number after *e*, tells us whether we are talking about 10s, 100s, 1000s, or millions, billions, trillions (or billionths and trillionths).

In short, exponential or scientific numbers give us the essentials, the significant digits and the general magnitude of the value.

Three types of exponential expressions may occur:

1. 1.776e3; 1.776×1000 or 10^3
2. 1.776e-3; $1.776 \times 1/1000$ or 10^{-3}
3. -1.776e3; -1.766×1000 or 10^3 (a negative number).

In-Line Editing

Right now, let's investigate the SuperCalc program's *in-line* editing feature. If you have used the exponential notation section of the lesson, *zap* your spreadsheet and re-enter your original data as show on page 3-10, and above.

Move the Active Cell to B5. Type this incorrect spelling, **"Pinapples**, but *do not* press (↵). As you know, you could use a *left* arrow to backspace and re-type from the point of the error. The *right* arrow key just moves in the opposite direction.

Using the left and right arrows, move back and forth across your text, but take care not to backspace beyond the leftmost character. Notice that nothing is changed and the position of the cursor is on the *a*. Notice, too, that the number 5 appears at the left of your entry line. This indicates that the cursor is located at the fifth character position on your entry line.

Press the **up arrow** key, and see what happens.

```
    A     B     C     D     E     F     G     H
 1 Alberta pOranges
 2                250
 3           Alberta peaches
 4               2.5e9
 5           '         '
 6


 B5
Width:  9  Memory:451 Last Col/Row:B4      ? for HELP
 5 "Pin-apples
```

Screen 3-9: Entry Line Editing

A space has been created for us just ahead of the *a* so that we may insert the correction without having to re-type good text. Enter **e**. Your entry line now says **"Pineapple**. What if you had needed to insert several characters, or to delete some?

Press the up arrow key continuously, or press the key several times, to generate a large gap in the text. Press the down arrow key and notice that the gap is reduced by one character. Hold the down arrow key down, or press

the key several times, and watch the blank spaces be deleted. Go ahead and enter **"Pineapples**, and then make up other examples. Practice with these keys until you are comfortable with this *in-line editing* feature. Try it with numeric entries, too.

Regardless of where the cursor is positioned on the entry line, all of the visible text or numeric values will go into the Active Cell when you press (↵).

You have discovered that the arrow keys have two different uses. They move the active cell around the spreadsheet *until* you type a character on the entry line. Then the SuperCalc program recognizes that you have begun to enter data.

Once you begin to enter data instead of positioning the spreadsheet cursor the arrow keys have an editing function until you press (CTRL Z) or successfully complete the cell entry.

The Edit Command

We have seen how to edit data *before* we actually enter it into the Active Cell. How can we edit data that we have already sent to a cell? Of course, we could enter the data again in its entirety. The new entry would replace the old one. But there is a better way. We can use a new command, the *edit* command **/E**.

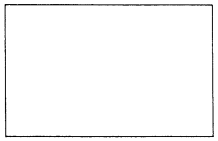
Make B4 the Active Cell (use *GoTo* or move the spreadsheet cursor). Enter **/E**, for *edit*. You see the prompt line now says:

From?

Enter cell. It is asking where to find the material to be edited.

Because in this case we want to edit the contents of the Active Cell, we don't have to give a cell address. Simply press (↵), and the SuperCalc program will bring the Active Cell's contents to the entry line.

Make your changes, using the arrow keys. For instance, delete two zeros from 2500000000. When your change is complete, press (↵), and your modified entry replaces the old one in B4. If you haven't done this, try it now.



You may sometimes wish to edit the contents of a cell and enter them into *another* cell. For example, position the Active Cell to B5 (our destination cell). Enter **/E**. In response to the prompt, *From?*, enter **B4** (our source cell), and press (↵). The contents of B4 will be copied to the entry line. After you have made your change, press (↵) and the edited version of B4 will be copied back to B5.

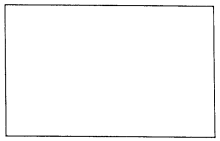
Note that no matter where it comes from, the *new* or *edited* data on the entry line is always entered into the *Active Cell*. In our first example, the original contents of B4, the Active Cell, were modified and replaced by our edited version. In the second example, the contents of B4 were *not* changed. The edited material went into B5, the Active Cell, and the source material remained unchanged in B4.

If you want to stop here, use the *quit* command. Or if you wish, continue on to Lesson 3.

What have you learned in this lesson?

In this lesson you have learned how to:

- Make number and text data entries
- Cancel an operation by using (CTRL | Z) or (CTRL | C) or (F2)
- Replace one data entry with another
- Set the direction in which the spreadsheet cursor moves
- Recognize and use exponential notation
- Do *in-line* editing
- Use **/E**, the *edit* command



LESSON 3

Blanking, Protecting, Unprotecting, and Saving Your Work

In Lesson 2, we expanded our knowledge to include the fundamentals of data entry for the purposes of creating text or for entering numeric data to be used in actual calculations. In this lesson, you will gain more experience entering data. You will learn to blank, protect, unprotect, and save your data. You will also learn to use the **/G** command to make some general or *global* changes in your spreadsheet display and to use the **/F** command to make certain formatting changes.

If you are continuing directly on from lesson 2, do a **/Z** command so that we may start with an empty screen. Otherwise, load the SuperCalc program in accordance with the instructions in *Getting Started*.

Use the **down arrow** to set the current direction. Use the GoTo command to go to A1. Enter **"Apples**. At A2 enter 5. Continue in this way with A3 through A9, entering values of **8**, **3**, **11**, **4**, **9**, **6**, and **12** respectively.

In Lesson 2, we learned how to modify a cell's contents, to *edit*. But what if we want to *blank* a cell, to clear out its contents?

We can do that with a new command, the *blank* command. It can be used to blank out, or erase, data that you have already entered in any portion of your spreadsheet. You can blank an individual entry or cell, partial or complete rows or columns, or entire blocks (rows *and* columns) of cells. We will try an example of each in this lesson.

Enter (/) and note the prompt line. Now enter **B**. The interpretive prompting feature of SuperCalc fills out the rest of the word, **/B**lank. And the prompt line changes to say:

Enter range.

You must now specify the portion, or range, of the spreadsheet that you wish to blank.

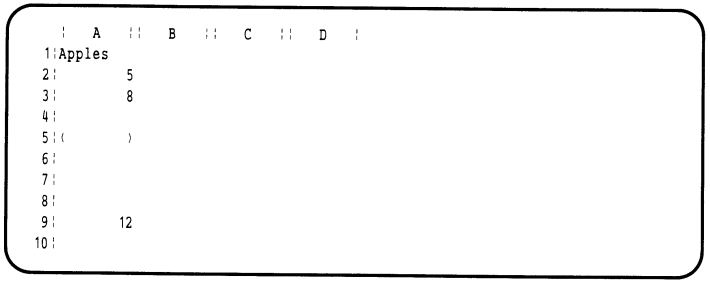
Type **A4** and press (↵). The contents of A4 have been *blanked*, that is erased. Or you can place the spreadsheet cursor on the cell you wish to blank, enter **/B**, and with no cell reference, press (↵). Try doing this with cell

A5. When working regularly within the SuperCalc program, use whichever method is more convenient for you. Remember that since the cursor can only point to an individual cell, the **/B** ↵ method of the **/B** command will only affect an individual entry.

Enter **/B** again. Now in response to the prompt:

Enter range.

specify A6 through A8 by typing **A6:A8**. Press ↵. This is how we can specify a range of cells for either a row or a column. The range that you designate will always include the end points.



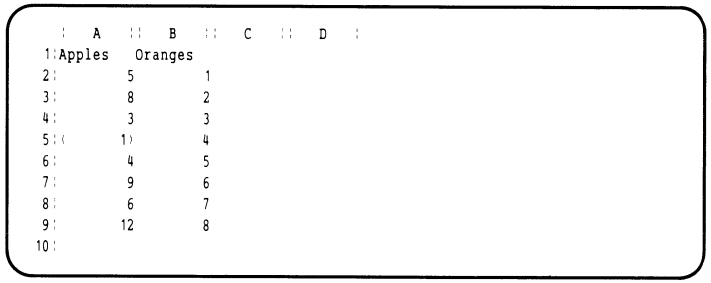
	A	B	C	D
1	Apples			
2		5		
3		8		
4				
5				
6				
7				
8				
9		12		
10				

Screen 3-10: Blanking Cell Contents

The Protect Command

Now let's use **/P** to *protect* a cell. Enter **/P**. We use the protect command in the same way as the *blank* command. That is, enter a cell or a range. For example, enter **A5**. Press ↵. Move the cursor to A5 and note that a *P* appears now next to the *Form* display on the status line. This indicator tells you that the Active Cell is *protected*.

Re-enter the numbers we just blanked out. Create a new column of numbers in column B. Label it **"Oranges**. Enter those numbers in column B as shown in the diagram.



	A	B	C	D
1	Apples	Oranges		
2		5	1	
3		8	2	
4		3	3	
5		10	4	
6		4	5	
7		9	6	
8		6	7	
9		12	8	
10				

Screen 3-11: Protecting Cell Contents

If your terminal provides half-intensity display, you will also see the protected cells at half intensity. On machines equipped for color, protected cells are displayed in a distinctive color.

Let's continue by protecting a range of cells.

Type **/P** and enter **A8:B8**. Press ↵. This will protect that portion of row 8.

What is the significance of what we have done?

Remember we said that **/B** could blank out an entire block of cells. Let's attempt to blank out that block of cells from row 2 through row 8 for both columns A and B. How do we specify this?

Enter **/B**. Now enter **A2:B8**. (We define the range for a *block* of cells as a diagonal, top leftmost cell followed by the lower rightmost cell in the block).

Now press ↵, and let's consider the results of our actions.

Row 1, with our titles, should remain because it lies outside the range of the block-definition we used with the *blank* command. A5 and row 8 remain because they were protected. Row 9 remains, not because it was protected but because it, too, was beyond the range we blanked out.

Try to change the contents of A9. Now try the same thing with A5 or B8. Because these cells have been protected, they cannot be changed or blanked out. This feature can provide you with a large measure of safety when you are working around information that has taken you time to develop, and which you cannot afford to accidentally lose. However, blank cells within a protected range are not protected.

The Unprotect Command

The *unprotect* command **/U** can be used to unprotect cells, partial rows, partial columns, or blocks of calls. We could use the command twice to unprotect cell A5 and row 8, but can we do it with just one **/U** command?

Yes. **U**nprotect the *block*, row 5 through 8 of columns A and B. What is the proper range specification? Did you say **A5:B8**? Correct.

Formula and Numeric Display Options

Move the Active Cell to A2. Enter **3+5**. What happened? The value of the expression, 8, was placed in A2. If the spreadsheet cursor is not at A2, move it there and examine the status line. The rightmost display will read *Form=3+5*, our original expression.

What has the SuperCalc program actually stored, *3+5* or the *8*?

However complicated the expression is, the SuperCalc program will calculate the result and display it. This allows us to use the entry line like a scratch pad. For instance, we may be adding two columns of numbers but only be interested in their total value.

Again at A3 enter **1+A2**. The SuperCalc program will recognize this as a formula referring to cell A2 and will quickly calculate and display the value based upon the value in A2. Further, if we change the contents of A2 — for instance, to *5* — we should observe that the new value of A3 will be recalculated as well. Try it!

Now move the Active Cell to A3. The screen displays *6* there, the current value, while the status line displays *Form=1+A2*. The SuperCalc program is keeping track of both. In A4, let's enter **A3*.65**. (The * means multiply and is equivalent to the *x* sign in conventional notation. Division is represented by */*.)

Locate the active cell at A10. Enter **SUM(A2:A9)**.

SUM is a built-in function. The SuperCalc program provides many special built-in functions, including SQRT (square root), AVERAGE (arithmetic mean), NPV (net present value), IF conditionals, trigonometric functions, and many more. For SUM we can specify ranges (as we have done in this example) and cells, for example, *SUM(A8,B9:B12)*. Now change the value of A9 to **5**. Watch the sum be recalculated.

The Global Command — Formatting Options

Earlier we determined that the SuperCalc program is keeping track of our formulas although it only displays their current values on the spreadsheet. How can we review all the original formulas more clearly? Enter **/G**.

Note that SuperCalc's interpretive prompting fills this out to read **/G**lobal. What could this conceivably mean? The prompt line now reads:

F(orm.), N(ext), B(order), T(ab), R(ow), C(ol.), M(an.), A(uto)?

We could think of the **/G** command as a way to make overall or *global* changes to the spreadsheet, rather than specific or local changes. It is as if we had a map of California before us and we could, at will, transform it into a topographical map, a population density map, a tourist attraction map, etc.

Our concern here is with formulas, so Enter **F** and see your formulas displayed.

```
    ¦   A    ¦¦   B    ¦¦   C    ¦¦   D    ¦
 1¦Apples    Oranges
 2¦ 5
 3¦ 1+A2
 4¦ A3*.65
 5¦ 11
 6¦
 7¦
 8¦ 6          7
 9¦ 5          8
10¦ SUM(A2:A9)
11¦(          )
12¦
```

Screen 3-12: Global Command/Formula Display

To return to the other style of display (cell values), simply repeat the sequence **/G,F**. The SuperCalc program will alternate or flip-flop between the two display modes.

Determining Column Width

Enter **9** in cell B10.

In formulas mode (**/G,F**), you will notice one problem. The SUM formula in A10 has two characters more than our column width, which is only 9. Let's widen the column to accommodate our entry.

Enter **/F** for *format*. The prompt line will respond with:

> Enter Level: G(lobal), C(olumn), R(ow), or E(ntry).

The *G* in this case is not the same as the **/G** command. Here it simply qualifies the **/F** command. But its meaning is similar; that is, *for all* or *every*.

Now enter **G**. The prompt line now displays:

> Define Formats: (I, G, E, $, R, L, TR, TL, *, D, column width).

As you can see, the **/F** command has many possible parameters; however, for now, let's enter a new column width by typing **12** and (↵). Now move the cursor to column B and note the status line displays *12*. Notice that we changed *all* columns to a width of 12 characters. We could have specified the new width for just a single column by **C** for column level, rather than **G** for global.

Now that we are using commands with several levels of prompts, it may be useful to point out another use for the left arrow key — one that you may have discovered for yourself already. Backspacing with the left arrow will always take us back to the prior *step* in a command, to a less completely specified statement.

For instance, enter **/F**ormat,**G**lobal,**12** again. Now backspace once with the **left arrow** (or (CTRL | S)). Backspace again and see that the prompt changes to its earlier message:

Enter level: G(lobal), C(olumn), R(ow), or E(ntry).

If we wished, we could then enter a level other than G(lobal), and continue on with the command sequence. Instead, let's backspace once more.

You will see the list of (/) command options on the prompt line. Backspace again. And now we have finally backed all the way to the original prompt.

Of course, no matter how far we have gone in specifying some command, range, or option, we can always use (CTRL | Z) to abort; simultaneously pressing the (CTRL) key and (Z) will return us to the original prompt. Now, if you are still in formulas mode, return to the display mode that displays cell values rather than formulas, **/G**lobal,**F**ormula.

The Save Command

We will want to save the work we have done in this lesson so that we may use it later. We can do this with the *save* command, **/S**. This command makes a copy of our entire spreadsheet and stores it on a diskette located on either drive A or drive B, depending on which we specify.

Enter **/S**. The prompt requests:

> Enter File name.

You can respond to this in one of several ways, depending on where you want to store your file. If you wish to save it on the disk on the system drive (the same disk that has the SuperCalc program), enter **WORK1** and (↵). Or you can specify the drive to use by entering either **A:WORK1**, (↵) or **B:WORK1**, (↵). Do not leave any blank spaces in your file name. The computer will not accept *TOM 1*, but only *TOM1*. (If you have more than two disk drives, you can specify C:WORK1 or D:WORK1, and so on.) If you are unsure what is meant by *system drive*, review that material in *Getting Started*.

After you have entered the file name, the prompt line inquires further:

> A(ll), V(alues), or P(art)?

Since we wish to save both our formulas and our values, enter **A**, for all. Your disk drive unit will whir and click contentedly for a few moments.

We will use this file to *load* our work back into the system when we resume with Lesson 4, so keep the disk handy. Now enter **/Q** and exit from the SuperCalc program. All our work *disappears*. It is gone irretrievably *unless* you specifically save it with the *save* command before exiting.

What have you learned in this lesson?

In this lesson you have learned:

- How to blank the contents of a cell or group of cells by using the **/B** command.
- How to protect and unprotect cells, using the **/P** and **/U** commands, and what protection does for a cell.
- That in an arithmetic expression, * means multiply and / divide.
- That you can enter numerical expressions and formulas, that the SuperCalc program will calculate and display the results, and that it will continue to recalculate as necessary.
- How to use the *global* command, **/G**, to display formulas or their calculated values on the spreadsheet display.
- How to use the *format* command, **/F**, to change column display width.
- How to use the backspace (left arrow) key to return to an earlier step in a command sequence.
- How to create a file and *save* your work by using the **/S** command.

LESSON 4

Load, Copy and Replicate

In Lesson 3, we began to see the power of the SuperCalc program — in particular, its ability to recalculate automatically all values that depend upon the values in other cells. In this lesson we will gain even more insight into its versatility. You will learn to use the *load* command **/L**, *copy* command **/C**, *replicate* command **/R**, and the *current—cell key* (ESC). The **/C**, **/R** and (ESC) commands are basically time saving commands.

The Load Command

We are going to continue using the spreadsheet we began to develop in Lesson 3. Let's retrieve the file we created at the end of that lesson. We will use the *load* command, **/L**, do this. (If the file is not on the disk that has the SuperCalc program, be sure to insert the disk with the file into your other disk drive.)

Enter **/L**oad. How you respond to the prompt message:

> Enter File Name, (or <RETURN> for Directory)

depends on where you have stored the file. To see the directory of your disk, press (↵) and the SuperCalc program will give you three options:

> C(hoose) alternate disk drive: to change your current disk (given at the top of the screen).
>
> D(isk) Directory: to see the directory of your current disk.
>
> S(uperCalc) format files only: to see the SuperCalc files of your current disk.

Pressing (CTRL | Z) or (CTRL | C) (or (F2) on some computers) takes you out of this menu and back to where you left off. If your file is on the SuperCalc disk, enter the file name without specifying the drive. So you enter **WORK1** and press (↵). If the file is not on the system drive, you should designate the appropriate drive by entering **A:WORK1** or **B:WORK1** (depending on which disk your file is on), before pressing (↵).

The disk drive will respond with some clicking, and the prompt line will change to read:

A(ll) or P(art)?

Enter **A**, for *all*, and the material we saved from our last effort will be copied from the disk and appear on the screen.

The Copy Command

Now that we have restored our work from the previous lesson, let's investigate another command, **/C**. The *copy* command is easy to use. You can copy a single cell, a partial row or partial column, or a block of cells.

In this first example, we will copy the data in column A into column C. Enter **/C**. The prompt line responds with:

From? (Enter Range).

In response, enter **A1:A10**, ↵. This time the prompt asks:

To? (Enter Range), then ↵ or , for Options.

We just want a *standard* copy this time — we will look at *options* later. So enter **C1** and press ↵.

Now use the *copy* command to copy the contents of cell A10 to B10.

Change the display to show formulas by entering **/G**lobal,**F**ormula and look at the contents of B10 and column C. The formulas have been adjusted automatically relative to the columns to which they were copied. All cell references have changed to reflect the new location of the formulas. If we had moved to a new row, as well as a new column, relative row designations also would have been adjusted.


```
   :     A     :     B     :     C     :
 1:Apples      Oranges     Apples
 2: 5                      5
 3: 1+A2                   1+C2
 4: A3*.65                 C3*.65
 5: 11                     11
 6:
 7:
 8: 6           7          6
 9: 5           8          5
10: SUM(A2:A9)  SUM(B2:B9)  SUM(C2:C9)
11:
12:
```

Screen 3-13: Copy Command/General

Generally, this automatic adjustment is exactly what we want. But there are other options open to us. For instance, we can specify that there be no adjustment or we can tell the SuperCalc program to ask whether each occurrence of a cell reference should be adjusted or left alone. We will try this soon.

The *copy* command makes a one-to-one copy of its source material into a destination of the same type of size; cell to cell, row to row, or column to column. But suppose you want to repeat a series of values and formulas many times, perhaps to compare alternative cases.

The Replicate Command

You can use another very powerful command, *replicate* **/R**, to do that. It will make a *one-to-many* copy of a cell, a partial row, or a partial column and will distribute these copies over a destination range that is larger than the source range. Make sure the display shows formulas.

Let's *replicate* a single cell, A10.

Enter **/R**. For *From*, enter **A10**, ↵. For *To?*, enter the range D10 through F10, by typing **D10:F10** and ↵. Note how the command performs.

	A	B	C	D	E	F
1	Apples	Oranges	Apples			
2	5		5			
3	1+A2		1+C2	1+D2	1+E2	1+F2
4	A3*.65		C3*.65	D3*.65	E3*.65	F3*.65
5	11		11			
6						
7						
8	6	7	6			
9	5	8	5			
10	SUM(A2:A9)	SUM(B2:B9)	SUM(C2:C9)	SUM(D2:D9)	SUM(E2:E9)	SUM(F2:F9)
11						
12	A2+A2	A2+B2	A2+C2	A2+D2	A2+E2	A2+F2

Screen 3-14: Replicate Command

Try replicating the partial column A3 through A4 into D3 through F3. These columns, D through F, now have data in rows 3, 4, and 10.

The *replicate* command has the same formula-adjustment options as the *copy* command. Let's try one of them now.

Enter into cell A12, the formula **A2**+**A2**.

Now enter **/R**eplicate,**A12** ↵,**B12:F12**. After you enter F12 enter a comma , instead of ↵ to get the options. They will be displayed on the prompt line

N(o Adjust.), A(sk for Adjust.), V(alues)

Enter **A**. This option allows you to specify adjustment or non-adjustment to specific cells. Entering **N** for No adjustment will allow you to replicate a formula with no adjustment for the destination; and **V** for Values will only replicate the values of the formulas, not the formulas themselves.

The prompt changes to say:

Source cell A12, Adjust A2 (Y or N)?

and the first A2 is highlighted on the entry line.

Respond with **N**, for no adjustment. Now the second reference to A2 is highlighted on the entry line. Let's respond with **Y**. You see that the first part of our formula remained unchanged while the second was adjusted, according to our responses. In this way, we can specify one component of a cell to be held constant, while other components are adjusted relative to their new location.

	A	B	C
1	Apples	Oranges	Apples-1
2	5	1	8
3	1+A2	2	1+C2
4	A3*.65	3	C3*.65
5	11	4	11
6	4	5	4
7	9	6	9
8	6	7	6
9	7	8	7
10	SUM(A2:A9)	SUM(B2:B9)	SUM(C2:C9)
11			
12	A2+A2	A2+B2	A2+C2
13			

Screen 3-15: Replicate Command (Cont'd)

Replicate cell A1 into the range D1 through F1, then use **/E**dit to edit the contents of C1 through F1 so they will be *Apples-1*, *Apples-2* and so forth. Change C2 and then enter data as needed to make your spreadsheet look like the one above. You are going to save this spreadsheet and do more work with it later.

It's very important to save the work we have completed up to this point. We will use it again in Lesson 5. If you want to save it on the same disk as the SuperCalc program, enter **/S** then **WORK1** ↵, otherwise, specify the drive that has your destination disk. (If you want to jog your memory about the save command, try *help* ? or F1, or look back at Lesson 3.

To help protect your work, the SuperCalc program checks to see if you already have a file with the same name on your destination disk. If you do, the SuperCalc program prompts you with:

File already exists:

and offers three alternatives:

C(hange name), B(ackup), O(verwrite)?

If you no longer need the original version of the file then you would press the **O**. Otherwise press **C** to rename your file or use the Backup option which will change the existing file to:

filename.BAK

and automatically write your spreadsheet to disk under the specified filename. If there is a previous backup it will now be lost when you use the backup option. In this case, you can overwrite because you won't need the old *WORK1* file created in Lesson 3. The spreadsheet developed in this lesson is the one we will use later.

Try replicating a row, or rows, or a block. If a practical application of your own comes to mind, try to begin an example on the screen. If you want to save this first effort of your own, be sure to use a different name — for example, TRIAL or MYTRY. (Safety tip: It is a good idea to choose a name substantially different from WORK1, so that there is less chance of inadvertently overwriting the material you will need on this tutorial. *WORK2*, for example, is so close that it might cause you some confusion.)

By now you have probably realized that the SuperCalc program offers you a great many command options. This makes it a tremendously powerful and versatile tool. We will not discuss all the options in this tutorial section. Instead, we encourage you to investigate them on your own. You should find it easy to make the best possible use of the SuperCalc program by combining what you learn here with information available in the reference section of this guide and through the *help* function, (?) or (F1), built into the SuperCalc program itself.

The Current-Cell Key: ESCAPE Key

This is a good time to become acquainted with the *current-cell* key. It can be used to boost the efficiency of certain kinds of data manipulation, which use the *copy* and *replicate* commands. The (ESC) key serves as the current-cell key.

Whenever a cell or range is required by the SuperCalc program, the Active Cell coordinate will be placed on the entry line if we simply press the (ESC) key.

Let's set up an example and learn how to use this feature. Start with a fresh screen. After you have saved any work you want for later, use the *zap* command.

Enter **468** into A1. Use the *replicate* command to fill every cell on the visible screen with *468*. Can you do this? Try it before reading on.

Here is how your entries should have looked. First, enter, **/R**eplicate,**A1**,**B1:H1**. Then, **/R**eplicate,**A1:H1,A2:A20**. Or, **/R,A1,A2:A20**. Then, **/R,A1:A20,B1:H1**. Now you should have *468* everywhere for the purposes of our example.

Enter **/B**, for *blank*. The SuperCalc program now wants you to specify a cell or a range to be blanked. Let's start with a single cell.

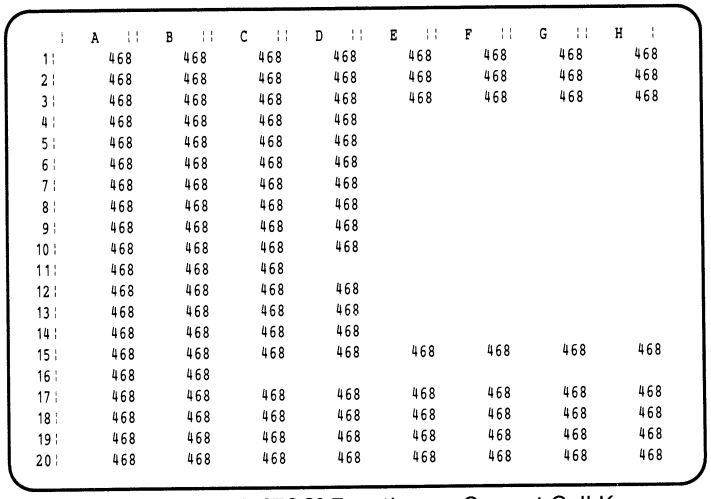
Press the (ESC) key. The address of the Active Cell will appear on the entry line. Use the **arrow** keys to move the spreadsheet cursor to another location — for example, C11. Notice the Active Cell address on the entry line change as we go.

Now press (↵). Observe. Notice that the latest Active Cell was blanked, and that the Active Cell location has returned to its original place. Again, enter **/B**lank, and press (ESC).

Use the **arrow** keys to make cell C16 be the Active Cell. The entry line now reads **/B**lank,**C16**.

We can use this to begin a range specification. Just enter (:). The line now reads **/B**lank,**C16:C16**. Now move the spreadsheet cursor to cell H16. Notice that the second address of our range is incremented as we go. Now press (↵). The cells in the range C16 through H16 have been blanked.

In brief, this is what happens. Once we have set the (ESC) function, the arrow keys will temporarily move the spreadsheet cursor. As the location of the Active Cell changes, the cell location shown on the entry line will also change. Pressing the (:) locks in the Active Cell as the corner cell of a range or block. You can then use the arrow keys to move the spreadsheet cursor to specify the limit of the range. The (ESC) movement of the Active Cell is only temporary; when you terminate the (ESC) function, the Active Cell returns to its starting position.



	A	B	C	D	E	F	G	H
1	468	468	468	468	468	468	468	468
2	468	468	468	468	468	468	468	468
3	468	468	468	468	468	468	468	468
4	468	468	468	468				
5	468	468	468	468				
6	468	468	468	468				
7	468	468	468	468				
8	468	468	468	468				
9	468	468	468	468				
10	468	468	468	468				
11	468	468	468					
12	468	468	468	468				
13	468	468	468	468				
14	468	468	468	468				
15	468	468	468	468	468	468	468	468
16	468	468						
17	468	468	468	468	468	468	468	468
18	468	468	468	468	468	468	468	468
19	468	468	468	468	468	468	468	468
20	468	468	468	468	468	468	468	468

Screen 3-16: [ESC] Function — Current Cell Key

Here is another sample. Enter **/B**lank. Press (ESC). Move the spreadsheet cursor to D4, press (:) and move again to H14, press (↵). We have blanked cells in the block from D4 to H14.

By using the (ESC) key and placing the Active Cell at the appropriate points, we can let the SuperCalc program define our statements. At first, this may seem a little difficult, but with some practice, you will begin to find it increasingly useful. This feature allows us to modify our screen simply by pointing with the Active Cell to the boundary of the range of cells we wish to blank without our having to blank each cell individually.

Here are some examples you can try using *replicate* and (ESC). Enter in E5, **"aac**. Enter **/R**eplicate. Press (ESC). place the Active Cell at E5, then press (,) or (↵). Now press (ESC) again for the *To?* portion of our entry. Move the Active Cell to E6, enter (;), and move the Active Cell to E13, then press (↵). SuperCalc replicates the data in column E into a block.

One more example. **/R**eplicate, (ESC), move the Active Cell to E5, enter (:), move to E13, press (↵). Press (ESC), move to G7, enter (:), move to J7, press (↵).

The (ESC) function can be used any time you can specify a cell or range on the entry line. Pressing any other keys besides (↵) and (ESC) will allow you to resume formula entry, but remain in (ESC) mode. When another arrow key is pressed the current cell is again placed on the entry line. Only (↵) and (ESC) will take you out of (ESC) and allow the use of your arrow keys for editing. You can use (ESC) in commands or with data. For example, you can use it to provide cell locations in formulas.

There is no need to save any of this work. At this point you may quit or continue on to Lesson 5.

What have you learned in this lesson?

- How to use the *load* command **/L**, to bring a spreadsheet in the SuperCalc program from a disk file and to view the directory of any disk.
- How to use the *copy* command, **/C**.
- That the SuperCalc program will adjust formulas automatically when data are moved to new locations — or that the program will let you specify whether to leave part or all of a formula unchanged.
- How to use the *replicate* command, **/R**, to make a *one-to-many* copy of a cell, a partial row, or a partial column and to distribute the copies over a range.
- That you can use the (ESC) key to bring the Active Cell location to the entry line and can then change the location by using the arrow keys to move the spreadsheet cursor. You have also learned the special use of (:) with the (ESC) function.

LESSON 5

Move, Insert, Delete

You have learned to use the *GoTo* command, the (ESC) key, and many important (/) commands. You can *save* and *load* your spreadsheet. Now will will introduce some new commands and techniques that can greatly simplify the development of a complex display.

If you are continuing directly on from Lesson 4, use the *zap* command so that you will begin with an empty spreadsheet. Otherwise, start up the SuperCalc program.

We will continue to develop the spreadsheet that we saved in Lesson 4.

Use **/L** to *load* the file WORK1. (You can use (?) or (F1) for help or check back to Lesson 4 if you want a refresher on how to use *load*.)

The Move Command

Suppose Column B, labeled *Oranges*, really belongs to the right of *Apples—4*, at Column F. With what you know already, you could use copy to *move* it there and then use **B**lank to erase Column B. But there is a better way.

Enter **/M** for *move*, and read the prompt:

R(ow) or C(olumn)?

Enter **C**, and the prompt changes to:

From? Enter column.

We want to move Column B, so enter **B**, (↵). The new prompt, *To?*, asks where we want the material to go. Enter F, for Column F.

But isn't Column F already occupied?

Press (↵) and note what happens.

Our column has been moved and the formulas adjusted. The *gap*, which we might have expected Column B to leave behind, had been filled. The SuperCalc program moved our entries for former Columns C through F one column to the left, in effect, vacating Column F and making it available to us. The program has neatly moved all the columns and adjusted all the formulas to reflect the new locations.

	A	B	C	D	E	F
1	Apples	Apples-1	Apples-2	Apples-3	Apples-4	Oranges
2	5	8	3	4	5	1
3	1+A2	1+B2	1+C2	1+D2	1+E2	2
4	A3*.65	B3*.65	C3*.65	D3*.65	E3*.65	3
5	11	11	6	7	8	4
6	4	4	10	11	12	5
7	9	9	13	14	15	6
8	6	6	1	2	3	7
9	7	7	4	5	6	8
10	SUM(A2:A9)	SUM(B2:B9)	SUM(C2:C9)	SUM(D2:D9)	SUM(E2:E9)	SUM(F2:F9)
11						
12	A2+A2	A2+B2	A2+C2	A2+D2	A2+E2	A2+F2
13						

Screen 3-17: Move Command

The Insert and Delete Commands

Here are two other complementary commands that can create or delete intermediate columns and rows. They are *insert* and *delete*.

Let's insert a new row between rows 9 and 10.

Enter **/I**, followed by **R** for row. Respond to the next prompt by entering **10** (↵), and a *new* row appears.

Look at the formulas in row 11, and you will see they are unchanged. The SuperCalc program has no way of knowing if you want to include the new row in the SUM equations—you would have to change them yourself.

Nevertheless, the SuperCalc program does know the range we have specified in our SUM formulas.

Now let's insert another row at 7. **/I**nsert,**R**ow,**7**.

Look at the SUM formulas in row 12. They have been adjusted, extended automatically from A2:A9 to A2:A10, because the row we just inserted fell within the range we had described. Your screen display should look like the one below.

Now enter **/D** and **R** (for row). For row number, enter **14** and ↵. Row 14 is deleted. If we delete row 7, will the SUM formulas be adjusted back to A2:A9? Try it and see.

Let's delete a column, and try an experiment as well. Let's find out what happens to a value that depends on one that we delete. Enter into cell E9 the equation, **F2**. E9 will contain whatever value F2 contains. Change the display to show cell value (**/G,F**).

	A	B	C	D	E	F
1	Apples	Apples-1	Apples-2	Apples-3	Apples-4	Oranges
2	5	8	3	4	5	1
3	1+A2	1+B2	1+C2	1+D2	1+E2	2
4	A3*.65	B3*.65	C3*.65	D3*.65	E3*.65	3
5	11	11	6	7	8	4
6	4	4	10	11	12	5
7						
8	9	9	13	14	15	6
9	6	6	1	2	3	7
10	7	7	4	5	6	8
11						
12	SUM(A2:A10)	SUM(B2:B10)	SUM(C2:C10)	SUM(D2:D10)	SUM(E2:E10)	SUM(F2:F10)
13						
14	A2+A2	A2+B2	A2+C2	A2+D2	A2+E2	A2+F2
15						

Screen 3-18: Delete/Insert Command

Now enter **/D**elete,**C**olumn,**F**, ↵. The column entitled Oranges has been deleted. E9 displays *ERROR*. The SuperCalc program has no value to use in calculating the value of E9, and warns us of that with this message. Once a cell is in error, any reference to it will display a similar error message. As you see, the SUM value also indicates ERROR.

	A	B	C	D	E	F
1	Apples	Apples-1	Apples-2	Apples-3	Apples-4	
2		5	8	3	4	5
3		6	9	4	5	6
4		3.9	5.85	2.6	3.25	3.9
5		11	11	6	7	8
6		4	4	10	11	12
7		9	9	13	14	15
8		6	6	1	2	3
9		7	7	4	5ERROR	
10						
11		51.9	59.85	43.6	51.25ERROR	
12						

Screen 3-19: Delete Command—ERROR Display

If cell E9 should, in fact, have *F2* in it, we could simply enter that formula again, and everything would be set right. Now put a number or F2 into E9, whichever you wish. Notice that the error display in the SUM value also goes away. It is replaced by the recalculated value.

If we delete row 10, will this affect our range specification for the SUM formulas in row 10? No, because row 10 is beyond the range. Delete row 10.

What will happen if we delete row 9? Try it.

It produced an ERROR in the SUM formula.

The general rule is to not delete either of the boundaries specified in a range like the one in our example. Our example was *SUM(A2:A9)*. Deleting either A2 or A9 will cause an ERROR condition because the SuperCalc program cannot guess your exact intentions. These warnings help us avoid inadvertently leaving references to nonexistent cells after a *delete* command.

Use the *blank* command to blank out the block from A7 to E9. Now reenter **SUM(A2:A6)** in A7, and then use replicate to place it in cells B7 through E7.

Use the **/I**, the *insert* command, to create a new column at A for labels.

Now enter **"Variable A** in Cell A2, **"Formula 1** and **"Formula 2** in A3 and A4, respectively. Enter **"Variable B** and **"Variable C** in A5 and A6, and **"Total** in A7.

When you show formulas, your screen should look like this.

	A	B	C	D	E	F
1		Apples	Apples-1	Apples-2	Apples-3	Apples-4
2	Variable A	5	8	3	4	5
3	Formula 1	1+B2	1+C2	1+D2	1+E2	1+F2
4	Formula 2	B3*.65	C3*.65	D3*.65	E3*.65	F3*.65
5	Variable B	11	11	6	7	8
6	Variable C	4	4	10	11	12
7	Total	SUM(B2:B6)	SUM(C2:C6)	SUM(D2:D6)	SUM(E2:E6)	SUM(F2:F6)
8						
9						

Screen 3-20: Correcting an ERROR Condition

At this point, use **/S** to save your work. This time, let's call it *Lesson 5.* It will be used later.

Now that you have saved your work, let's try something new. We should start with a fresh spreadsheet, so use the *zap* command.

As we have seen, doing insertions and deletions at the boundaries of specified ranges creates problems. But because you will often want to add or delete from lists—including, naturally, the beginning or end of the list—here is a useful suggestion.

Avoiding Errors

At B1 enter **"Title**. In cells B2 through B4, enter some numbers. At B5 enter **"--------**. At B6 enter **SUM(B1:B5)**. Notice that our range specification includes our text line and the ledger line (----). This is harmless because, mathematically, *text* is regarded as having the value of zero and, therefore, has no effect on the calculation.

	A	B	C
1		Title	
2		3	
3		4	
4		5	
5		---------	
6		SUM(B1:B5)	
7			
8			
9			

Screen 3-21: Column Error Correction

Now you may insert or delete as you wish. Enter **/I**nsert,**R**ow,**5** ↵, and add the number **9**. Now delete row 2, **/D**elete,**R**ow,**2** ↵. As you can see, you can add entries or remove entries without concerning yourself with the top and bottom of the column.

Repeating Text

By the way, here is an easy way to put in lines of repeating characters like the **-----** you entered in cell B5. The SuperCalc program has a function to repeat text. Go back to cell B5 and enter **'-** and press ↵.

As you see, the single quote (') causes the display of - to be repeated to fill the cell display, and in fact to continue displaying to the right until it meets a non-blank cell. Not bad for three keystrokes. Take a look at the contents of cell B5. As you see, they are what you typed in.

Experiment with this one a bit. Find some open space and try:

'369 and press ↵.
'abcd and press ↵.
'* and press ↵.
' * and press ↵.

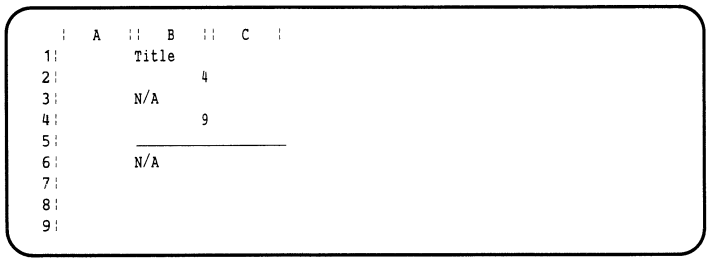
And so on. Try your name. . .

You can prevent repeating text from extending all the way to the right boundry of the spreadsheet. Enter a null text entry into a cell on the row containing repeating text where you want the repeating text to stop. Enter only the double quote character ("). This cell becomes a text cell that has no actual text in it. Its purpose is to block the repeating text.

Unavailable Data

Sometimes you may be working on a complex spreadsheet with many values which are functions of other values. Because your data may be incomplete, you may mistakenly view some totals or values as significant when in fact they are not yet complete.

Here is what you can do in such cases. Using the example we started above, now enter **NA** ↵ into cell B3, for instance. This tells the SuperCalc program that you intend to have a value here at some future time so the value of the cell should be considered as *Not Available* rather than zero. You will see that as soon as we enter **NA** ↵, cell B6 is also flagged and N/A when values are shown, or NA as formulas.



```
    ¦  A   ¦¦  B   ¦¦  C   ¦
  1¦       Title
  2¦                4
  3¦       N/A
  4¦                9
  5¦       ----------------
  6¦       N/A
  7¦
  8¦
  9¦
```

Screen 3-22: Unavailable Data Place Holding

NA and ERROR behave identically; the difference is the display: *N/A* or *ERROR*. By using NA, you inform yourself of the ramifications of any incompleteness or oversights.

You may either *quit* here or continue on to Lesson 6.

What have you learned in this lesson?

In this lesson you have learned:

- How to use the *move*, *insert*, *delete* commands. (**/M**, **/I**, **/D**).
- That those commands automatically adjust your formulas to fit the new spreadsheet.
- That when you delete cells which are referred to by formulas elsewhere, you get error messages. You learned how to fix that error.
- How to use ^ to repeat the display of one or more characters.
- How to use **NA** to make sure that you do not forget to enter important information.

LESSON 6

Format

By now you have learned many of the basics that you need in order to use the SuperCalc program. You may remember that when we introduced the *format* command, **/F**, in Lesson 3, we used it to change the display width of all the columns on the spreadsheet. But the prompt line indicated that there were a number of other options available to us with this command. In this lesson, we will examine these options more closely.

We will use the spreadsheet that we have been developing in previous lessons. It is the one you saved under the name *Lesson 5* in the last lesson.

If you are continuing directly on from Lesson 5, use **/Z** now, so that you will have a fresh start. Otherwise, bring up the SuperCalc program.

Now *load* the file, Lesson 5.

Integer Format

Look at your spreadsheet. Is it displaying formulas? We will want to look at cell *values*, not formulas, in this example. Use the *global* options command, **/G**, if you need to change the display.

Change cell B5 to 11.4.

Enter **/F**, and note the prompt line:

G(lobal), C(olumn), R(ow), or E(ntry)

This means we can specify whether our format change will affect all cells, a column only, a row only, a cell, or a range of cells.

Let's enter **C** for column. The prompt line now asks what column we want to affect. Enter the column letter, in this case, **B**. Press ↵.

Now the prompt gives us a variety of options:

Define Formats: (I,G,E,$,R,L,TR,TL,*,D, column width).

Enter **I** for *integer* format. Press ↵. Look at the entries on the display, and see what happened to the value in B4, B5 and B7.

Only the integer portion of the values is displayed. The *integer* format will display the numbers in the range given, rounded to the nearest whole number.

Note: The *integer* format is not to be confused with the INT function. The values in cells with the *integer* display format set are not changed in any way. Errors are likely to occur in subsequent real equations because the actual values will not reflect the displayed values. The formulas will take into consideration any fractional values not shown. This is also true when using the $ display format.

	A	B	C	D	E	F
1		Apples	Apples-1	Apples-2	Apples-3	Apples-4
2	Variable A	5	8	3	4	5
3	Formula 1	6	9	4	5	6
4	Formula 2	3.9	5.85	2.6	3.25	3.9
5	Variable B	11.4	11	6	7	8
6	Variable C	4	4	10	11	12
7	Total	30.3	37.85	25.6	30.25	34.9
8						
9						

Screen 3-23: $ Display Format

Until now we have always used the SuperCalc program's standard or *default* display format to display numbers. That is the *G* or *general* format. We have seen that with *general* format, numbers too large to display in ordinary notation will be converted to scientific or exponential notation automatically. In *integer* format, numbers too large to display will appear as a series of >>>>>s at the cell location. (In fact, whatever the format, >>>>>s will be displayed whenever a number cannot be shown. The SuperCalc program will round off as necessary, even if it can only display one significant digit, the E, and the exponent.)

Enter **123456789** at cell B5.

Now reduce the display width to 8. Do you remember how? **/F,G,8.**

	A	B	C	D	E	F
1		Apples	Apples-1	Apples-2	Apples-3	Apples-4
2	Variable	5	8	3	4	5
3	Formula	6	9	4	5	6
4	Formula	3.9	5.85	2.6	3.25	3.9
5	Variable	)))))))	11	6	7	8
6	Variable	4	4	10	11	12
7	Total	)))))))	37.85	25.6	30.25	34.9
8						
9						

Screen 3-24: Oversized Integer Display

Notice the >>>>>>. Now change the column widths back to 12.

Again enter, **/F**ormat,**C**olumn,**B**, ↵. This time specify **G**, for general format, and ↵. Notice that the fractional portion of our data values has been restored.

	A	B	C	D	E	F
1		Apples	Apples-1	Apples-2	Apples-3	Apples-4
2	Variable A	5e0	8	3	4	5
3	Formula 1	6e0	9	4	5	6
4	Formula 2	3.9e0	5.85	2.6	3.25	3.9
5	Variable B	1.2345679e8	11	6	7	8
6	Variable C	4e0	4	10	11	12
7	Total	1.2345681e8	37.85	25.6	30.25	34.9
8						
9						

Screen 3-25: General Display Format (return from integer format)

Exponential Notation

For scientific or exponential notation, enter **/F**ormat,**C**olumn,**B**, ↵,**E**xponent,↵. This format displays numbers as a power of 10. For example, 1776 is 1.776E3, or 1.776 x 10^3; 1,000,000 is 1.0E6, or 1.0 x 10^6.

Look at your spreadsheet. As you can see, the SuperCalc program converted all our data to this format. If the data does not look familiar to you, you may wish to experiment a bit. Enter some ordinary numbers in this column in row 9 or 10, and watch how the program displays them. See Lesson 2 if you need more explanation on exponential notation.

$ Format

The next format option may be more familiar to you. Enter **/F**ormat,**G**lobal,**$**, ↵. The dollars and cents format comes into view. Numbers will be rounded to the nearest cent. (Note that the SuperCalc program adds the *.00* to whole numbers, but does not insert a *$*).

	A	B	C	D	E	F
1		Apples	Apples-1	Apples-2	Apples-3	Apples-4
2	Variable A	5e0	8.00	3.00	4.00	5.00
3	Formula 1	6e0	9.00	4.00	5.00	6.00
4	Formula 2	3.9e0	5.85	2.60	3.25	3.90
5	Variable B	1.2345679e8	11.00	6.00	7.00	8.00
6	Variable C	4e0	4.00	10.00	11.00	12.00
7	Total	1.2345681e8	37.85	25.60	30.25	34.90
8						
9						

Screen 3-26: $ Format

Individual and Global Format Changes

Let's change the format for a single cell. Move the spreadsheet cursor to C6, making that the Active Cell.

Enter **/F**ormat,**E**ntry. Notice that the prompt line reads:

Enter range.

We could specify a range of cells—that is, a partial row or a partial column—at this point. Or we could specify a single cell. Let's change the format of C6, the Active Cell. Of course, you could type **C6** on the entry line. Instead, press . or ↵ and see what happens.

The SuperCalc program automatically added C6, the Active Cell, to the entry line. Now enter **E** for Exponent and press ↵. Note the change on your spreadsheet from *4.00* to *4e0*.

Now suppose we wished to convert all the display back to the *general* format. Could we make a *global* change? Let's try it. Enter **/F**ormat,**G**lobal,**G**eneral ↵.

	A	B	C	D	E	F
1		Apples	Apples-1	Apples-2	Apples-3	Apples-4
2	Variable A	5e0	8.00	3.00	4.00	5.00
3	Formula 1	6e0	9.00	4.00	5.00	6.00
4	Formula 2	3.9e0	5.85	2.60	3.25	3.90
5	Variable B	1.2345679e8	11.00	6.00	7.00	8.00
6	Variable C	4e0	4e0	10.00	11.00	12.00
7	Total	1.2345681e8	37.85	25.60	30.25	34.90
8						
9						

Screen 3-27: General Format/Global Change Attempt

Well, everything has changed, *except* those cells where we have been changing formats. Why? The SuperCalc program will change all the formats when **G**lobal is indicated—except those that you have specified by the **C**olumn, **R**ow, or **E**ntry options. It leaves these untouched, because you set them individually.

What can we do so that *global* changes will include any column, row, or cell that was formatted individually? Column B, for example? If you said we must *undo* the individual format, you were right.

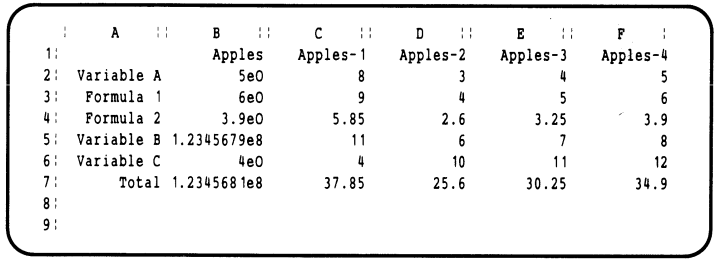
Position the Active Cell to column B. Enter **/F**ormat,**C**olumn, ↵. Now enter **D**, for default, and press ↵. Notice that column B has changed to *general* format.

When a *format* setting that refers to a column or row is defaulted, it changes back to whatever format operates on the next level. An entry level format, entered as a cell or a range of cells, is the *highest* level. The next levels, in order, are row, column, and finally the global formats. In this case, the column defaulted to the existing global format because there was no intervening row format.

See if you can *default* the format on C6.

Display Format: Justification

Enter **/F**ormat,**R**ow,**1**, ↵. You will see these options (. . .*R,L,TR,TL*. . .) on the prompt line. They allow us to change the setting of right or left justification. The standard or *default* values are left-justified text and right-justified numbers. Let's shift the text on row 1 so that all text entries are right justified. Can you do it? Of course you can. **TR** stands for *Text Right*.



	A	B	C	D	E	F
1		Apples	Apples-1	Apples-2	Apples-3	Apples-4
2	Variable A	5e0	8	3	4	5
3	Formula 1	6e0	9	4	5	6
4	Formula 2	3.9e0	5.85	2.6	3.25	3.9
5	Variable B	1.2345679e8	11	6	7	8
6	Variable C	4e0	4	10	11	12
7	Total	1.2345681e8	37.85	25.6	30.25	34.9
8						
9						

Screen 3-28: Text Right Justification

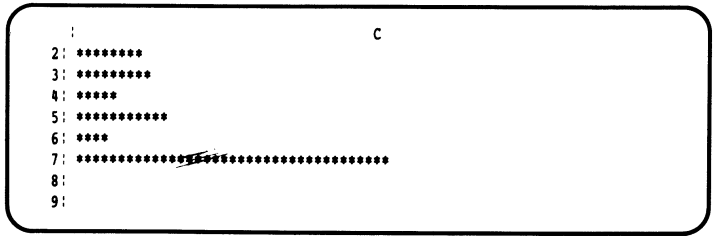
Now that you have done that, let's try another one.

Enter **/F**ormat,**G**lobal,**L**, ↵. All numbers will now be justified to the left.

Format entries may be entered in combination; for example, **/F,G,R,$**. Try this one, and you will see the numbers right-justified in dollars and cents format.

Graphic Display

We have one more *format* option to try: *graphic* display. Place the Active Cell at C2. Enter =↵ to put C2 at the upper left of our screen. Enter **/F**ormat,**G**lobal. Enter the * to specify *graphic* format. We will also need some display space, so enter **75** as our column width. Press ↵. If your values in column C are less than 75, you will see them represented by bar graphs composed of asterisks. Values greater than 75 will fill the column and the screen width; you cannot tell if they are 75 or larger.



	C
2	********
3	*********
4	*****
5	**********
6	****
7	**********
8	
9	

Screen 3-29: Graphic Display

It is possible, however, to make the column display wider than the screen. The display area for your spreadsheet is 75 characters wide. You can specify a column width of up to 127 characters. You won't be able to see the whole line, however, on your screen. You can see only the first 75 characters, unless you output your spreadsheet to the printer. (**/O**utput will be discussed later in Lesson 9.)

This was a very brief look at the *graphic* format option. In practice, you will want to make the graphic display fit within a column width of convenient size and still give a comparison of values. In Lesson 8, we will find out how to do this by *scaling* the values in order to fit them within the column.

There is no need to save our work from this lesson. But remember we will use the file Lesson 5 again, so do not overwrite it.

Now you may either *quit* or continue on to Lesson 7, as you wish.

What have you learned in this lesson?

In this lesson you have learned:

- That formats can be entered globally, by column, row or cell (including a range of cells).
- The Integer, General, Exponential, and $ formats of display.
- How to change individual column widths.
- How to *default* formats.
- How to alter justification for text or numbers.
- How to transform numerical values into graphic display.

LESSON 7

Title Lock and Window (Split Screen)

You now know enough about the SuperCalc program and its many commands to put it to practical use. You have used the different *format* options. This lesson adds two more commands to your store of tools.

One of them, *title* lock, is useful if you want to keep a portion of the spreadsheet locked in place while you scroll the rest of the screen. Although it is called *title lock* because locking titles can be especially useful, any part of the screen can be locked. The other command, *window*, lets you *split* your screen and look at different parts of your spreadsheet at the same time. Let's try them now.

Title Lock

First, of course, start the SuperCalc program, if it is not already running. Or, if you are continuing directly on from Lesson 6, *zap* the screen so that you will have a fresh spreadsheet.

Now *load* the file that we saved under the name Lesson 5. What can *title* lock do for us? Place the Active Cell at A1. Enter **/T**. The prompt line asks:

H(oriz), V(ert), B(oth), or C(lear)?.

The SuperCalc program wants to know which titles you want locked in place.

Press **V**, for vertical titles.

Now scroll the screen so as to move off the screen to the right. You will see that the titles at the left of our screen are *locked* in place, while the rest of the screen scrolls as usual. The position of the Active Cell when you enter the **T** command determines how much of the screen will be locked in place.

Go back to A1 by using the (=) command. Use the **H** option to lock the top row of titles in place.

Move the spreadsheet cursor down the screen, and watch the information scroll up while the row 1 titles stay in place. Now, go back to A1 by using the (=) command.

Now let's clear the locked row. Enter **/T**. Then enter **C**, for *Clear*. We are telling the SuperCalc program that we do not want anything locked. Use the **/I** command to insert a new row 1 for an additional title.

	A	B	C	D	E	F
1			Sample Spreadsheet			
2		Apples	Apples-1	Apples-2	Apples-3	Apples-4
3	Variable A	5	8	3	4	5
4	Formula 1	1+B3	1+C3	1+D3	1+E3	1+F3
5	Formula 2	B4*.65	C4*.65	D4*.65	E4*.65	F4*.65
6	Variable B	11	11	6	7	8
7	Variable C	4	4	10	11	12
8	Total	SUM(B3:B7)	SUM(C3:C7)	SUM(D3:D7)	SUM(E3:E7)	SUM(F3:F7)
9						

Screen 3-30: Title Lock Example

At C1, enter **"Sample Spreadsheet**.

This time let's lock both the horizontal and vertical titles with one command. Position the Active Cell at A2. Enter **/T**. Enter **B**, for *Both*. This locks column A and rows 1 and 2.

Move the spreadsheet cursor down and to the right to make the display scroll both up and to the left. Note that rows 1 and 2 and column A stay in place.

Window — Split Screen

What if you want to view two widely separated areas of your spreadsheet at the same time? The *window* command will allow you to do this. We will use one of the sample programs on your SuperCalc program disk to demonstrate *window*. But we will need to have a new spreadsheet.

Use the *zap* command to clear everything.

Now let's load that sample program. Use **/L** and enter the file name, **SAMPLE**. SAMPLE is a complete sample SuperCalc spreadsheet. We will study it more closely later. For now, just scroll to column N, and notice that we have columns representing months and total column for the year.

Go back to A1, and scroll down to row 20 to see *Net Income*. Go back to A1. Now move the Active Cell to column D. This will designate where we wish to *split* the screen.

Enter **/W**, for *window*. The prompt reads:

H(oriz), V(ert), C(lear), S(ynch), or U(nsynch).

We are going to split the screen vertically into two separate display windows, so enter **V**.

Notice that now, starting at column D, there is a second set of row numbers. This is the left-hand border of our new display. You should realize that the spreadsheet itself has not been split. We have simply created two display windows through which to view it. Either window may now be scrolled independently.

```
               A                  B        C              L        M        N
1 THIS IS A SAMPLE SUPERCALC WORKSHEET          1
2                                               2
3                                JAN      FEB   3       NOV      DEC    TOTAL
4 NET SALES                     1000     1100   4      2594     2853    21384
5                                               5
6 COST OF GOODS SOLD             300      330   6       778      856     6415
7 ----------------------------------------------7 ---------------------------
8 GROSS PROFIT                   700      770   8      1816     1997    14969
9                                               9
10 RESEARCH & DEVELOPMENT        160      176  10       415      456     3421
11 MARKETING                     200      224  11       621      696     4827
12 ADMINISTRATIVE                140      151  12       302      326     2657
13 --------------------------------------------13 ---------------------------
14 TOTAL OPERATING EXPENSES      500      551  14      1338     1479    10905
15                                             15
16 INCOME BEFORE TAXES           200      219  16       477      519     4064
17                                             17
18 INCOME TAXES                   80       88  18       191      207     1626
19 --------------------------------------------19 ---------------------------
20 NET INCOME                    120      131  20       286      311     2438
 N3          P Text="TOTAL
Width:  9  Memory:451 Last Col/Row:N20    ? for HELP
 1
```

Screen 3-31: Vertical Split-Screen

Scroll the display and notice that the left-hand window remains still.

Now press the (;) key. This will transfer us to the *other* window. Regardless of which window we are working in at a given moment, the (;) key will serve to move us over to the other.

Instead of splitting our screen vertically into a right and a left half, we could split it horizontally. However, before we can split the display horizontally, we must return to a single window display by pressing **/W**indow, and **C**lear. Then set the Active Cell at the point at which you wish to split the screen horizontally. For our example, move the Active Cell to row 15 and then enter **/W**indow,**H**orizontal. This leaves us on the lower screen.

```
   :  D   ::   E   ::   F   ::   G   ::   H   ::   I   ::   J   ::   K    :
 1:
 2:
 3:     MAR      APR      MAY      JUN      JUL      AUG      SEP      OCT
 4:    1210     1331     1464     1611     1772     1949     2144     2358
 5:
 6:     363      399      439      483      531      585      643      707
 7:--------------------------------------------------------------------------
 8:     847      932     1025     1127     1240     1364     1501     1651
 9:
10:     194      213      234      258      283      312      343      377
11:     251      281      315      352      385      442      495      555
12:     163      176      190      206      222      240      259      280
13:--------------------------------------------------------------------------
14:     608      670      739      816      900      994     1097     1212
   :           A           ::   B   ::   C   ::   D   ::   E   ::   F    :
15:
16:INCOME BEFORE TAXES           200      219      239      261      285
17:
18:INCOME TAXES                   80       88       96      105      114
19:--------------------------------------------------------------------------
 N3          P Text="TOTAL
Width:  9  Memory:451 Last Col/Row:N20    ? for HELP
 1
```

Screen 3-32: Horizontal Split-Screen

Scroll down so we can see Net Income. Press (;) Move the cursor to B4 and change the value. Watch as recalculation takes place. Within seconds you will see the Net Income change in the lower window.

When you wish to remove the split screen, enter **/W** and then **C** for clear split.

The **S** option indicates to the SuperCalc program that we wish to scroll both windows in a *synchronized* fashion. That is, we want them to scroll simultaneously. Let's try it.

Split the screen vertically at D again, but now enter **/W**,**S**ynchronous. Now scroll the displays together by moving the spreadsheet cursor parallel to the split. To *unsynchronize* the displays so that only one window will scroll at a time, enter **/W**indow,**U**nsynchronous.

With split screen in effect, each window has its own *global* identity for both the *global* options and *format* commands. For instance, we could specify formula display in one window and cell value display in the other. Similarly, we could use *format* to specify General format in one window and Integer in the other. We could even look at the same data, if we wished, in two different formats at once.

Scroll both displays to show January through April. Now change to display formulas for one side of the screen. Enter **/W**,**S**. Now you can scroll through the data in one window and compare it to the formulas as you go.

The *window* and *title* lock affect the way our spreadsheet is displayed. The effect is temporary and may always be reversed. When you *save* your spreadsheet to a disk, the *title* lock and *split screen* information is included. When you load your work back to the screen, it will look exactly as it did before.

If you want to take a break now, use *quit* to exit from the SuperCalc program.

What have you learned in this lesson?

In this lesson you have learned:

- How to lock any number of rows or columns in place so that they will remain in place while the rest of the screen scrolls.
- How to split the screen, either horizontally or vertically, into two windows and how to move back and forth from one *window* to the other.
- How to *synchronize* the windows.
- That you can specify different global display options (cell values or formulas) and **G**lobal level format options for each window.

LESSON 8

Graphic Format Option & Recalculation Options

In this lesson we will look more closely at some of the options available with two of the SuperCalc program's most powerful commands, *format* and *global* options. By now you have enough experience to appreciate what they can do for you. We will need to start with a fresh screen—so use *zap* if you are continuing directly from Lesson 7.

We touched briefly on graphic representation of data in Lesson 6 and promised that you would learn more about it. Now it's time to work a bit with it, so that you will feel confident to try it with your own data. Let's enter some numbers in column A, from row 1 to row 20; use numbers between 1 and 50.

	A	B	C
1	45		
2	3		
3	12		
4	50		
5	23		
6	13		
7	8		
8	31		
9	29		
10	6		
11	43		
12	21		
13	9		
14	17		
15	25		
16	36		
17	48		
18	23		
19	7		
20	41		

Screen 3-33: Graphic Format Option

Now enter **/F**ormat,**C**olumn,**A** ↵,***,50,** ↵.

We have done two things—we have changed to graphic display, and we have increased the width of column A to 50, in order to accommodate our largest number.

Suppose we wish to have the number itself displayed as well. Try this: Enter **/F**ormat,**C**olumn,**A**, ↵, **D**efault, ↵ to bring column A back to the default format. Enter **/G**lobal,**F**ormulas to show formulas. Enter at B1, the *formula,* **A1**. Enter **/R**eplicate,**B1**, ↵ **B2:B20** ↵.

```
    :  A   ::   B   ::   C   :
  1: 45       A1
  2: 3        A2
  3: 12       A3
  4: 50       A4
  5: 23       A5
  6: 13       A6
  7: 8        A7
  8: 31       A8
  9: 29       A9
 10: 6        A10
 11: 43       A11
 12: 21       A12
 13: 9        A13
 14: 17       A14
 15: 25       A15
 16: 36       A16
 17: 48       A17
 18: 23       A18
 19: 7        A19
 20: 41       A20
```

Screen 3-34: One-to-One Graphic Display

Enter **/F**ormat,**C**olumn,**B** ↵,***,50,** ↵. Enter **/G**lobal,**F**ormulas.

Now we have a one-to-one graphic display. But what if the values we wish to display are as large as 600 or 1000? Let's put a *scaling* formula into column B, so our largest value will be equal to the column width. You may remember from Lesson 6 that we could make column B longer—up to 127 characters—but it would be difficult to view beyond the screen width, so we will leave it at 50 characters.

If we divide any value in Column A by the maximum value within our sample from A1 to A20, the result will express its *size* (relative to the maximum). And since our maximum, whatever it is, will be represented by 50 characters (*) of display, we can multiply the size by 50 to determine our *scaled* value.

Now we have an opportunity to use another built-in function: *MAX*. The value of *MAX* will be the largest value within the specified range or list. We will use *MAX* to scale our graphic displays so that they are relative to the maximum value. Our formula will look like this: A1*50/MAX(A1:A20).

Enter **/G,F**. Enter **A1*50/MAX(A1:A20)** at B1. Now we will use one of the replicate options. Enter **/R,B1,** ↵ **B2:B20** and the , for options. Enter **A**, for *A(sk for Adjust)*. Respond **Y** for *yes* for the first A1, then **N** for *no* for the other two values in the formula.

Your formulas should look like the example.

```
    :  A   ::   B                                                  :
  1: 45       A1*50/MAX(A1:A20)
  2: 3        A2*50/MAX(A1:A20)
  3: 12       A3*50/MAX(A1:A20)
  4: 50       A4*50/MAX(A1:A20)
  5: 23       A5*50/MAX(A1:A20)
  6: 13       A6*50/MAX(A1:A20)
  7: 8        A7*50/MAX(A1:A20)

    :  A   ::   B                                                  :
  1:        45 *********************************************
  2:         3 ***
  3:        12 ************
  4:        50 **************************************************
  5:        23 ***********************
  6:        13 *************
  7:         8 ********
  8:        31 *******************************
```

Screen 3-35: Scaled Graphic Display (MAX)

Enter **/G,F** to return to the graphic display. Our graph looks the same but now change the value in any cell to, say, **75**. Notice that all the other lines are *scaled*, relative to 75. Enter **150**.

You may wish to *save* this example for your own use later. Use save and call the file GRAPH or something easy to remember.

Now let's change our formula to scale from the minimum to the maximum value in A1 through A20. Go to B1 and use *edit.* We will insert new information into the formulas:

(A1-MIN(A1:A20))*50/(MAX(A1:A20)-MIN(A1:A20))

Move the cursor to the beginning of the line, not too far, and insert a space and a ⓘ before the *A1*. Move right to the * and insert 13 spaces before it. Then replace the blanks with **-MIN(A1:A20))**. Move to the next *M* and insert ⓘ before it. Then go to the end of the line and insert **-MIN(A1:A20))**. Then press ↵.

Replicate it for B2 through B20, using the *adjust* option. Be careful to adjust only the first cell reference.

Enter: **/R**eplicate,**B1,B2:B20,A,Y,N,N,N,N,N,N**.

Enter **/G**,**F**. Notice how the results of the formula on the following page differ from those of our first formula. Try different values to test and verify your work.

```
   ¦  A   ¦¦   B   ¦¦   C   ¦¦   D   ¦¦   E   ¦¦   F   ¦¦   G   ¦¦   H   ¦
 1¦ 45      (A1-MIN(A1:A20))*50/(MAX(A1:A20)-MIN(A1:A20))
 2¦  3      (A2-MIN(A1:A20))*50/(MAX(A1:A20)-MIN(A1:A20))
 3¦ 12      (A3-MIN(A1:A20))*50/(MAX(A1:A20)-MIN(A1:A20))
 4¦ 50      (A4-MIN(A1:A20))*50/(MAX(A1:A20)-MIN(A1:A20))
 5¦ 23      (A5-MIN(A1:A20))*50/(MAX(A1:A20)-MIN(A1:A20))
 6¦ 13      (A6-MIN(A1:A20))*50/(MAX(A1:A20)-MIN(A1:A20))
 7¦  8      (A7-MIN(A1:A20))*50/(MAX(A1:A20)-MIN(A1:A20))

   ¦  A   ¦¦   B                                          ¦
 1¦       45 **********************************************
 2¦        3 ***
 3¦       12 ************
 4¦       50 **************************************************
 5¦       23 ***********************
 6¦       13 *************
 7¦        8 ********
```

Screen 3-36: Scaled Graphic Display (MIN/MAX)

Recalculation Options

We can suspend the automatic recalculation by specifying *manual* in the **G**lobal options. Enter **/G**lobal, then **M** for *manual*. Now try entering new numbers for the graph.

If you enter a new value in column A, notice that the program takes some time to go through all the necessary recalculation of formulas. It may take even longer with a larger spreadsheet, because the SuperCalc program recalculates automatically every time we enter a new value.

As you can see, the time required for their entry is greatly reduced.

This is fine, but what does *manual* recalculation mean? Certainly, we don't do it ourselves with pencil and paper. How can we get the SuperCalc program to do it? By now you have used almost every option offered. You may have wondered what the ⓘ is for.

Besides its usual exclamatory function in text, ⓘ has a very special meaning to the SuperCalc program: Pressing ⓘ *forces* a recalculation.

Try pressing ⓘ.

Manual mode allows you to make periodic recalculations at your convenience. This is helpful in decreasing time and delays and increasing accuracy when you're doing complicated or cumulative operations. When you wish to reestablish automatic recalculation, enter **/G**,**A** for *automatic*.

Note: When in Manual mode, SuperCalc recalculates on Load and Save commands.

Order of Recalculation

When the SuperCalc program recalculates, it does so in a certain order. You can change that order. Usually, the order of calculation will not affect the results of your recalculations, and you can ignore it. But there are times when it can make a difference. Let's explore this problem.

First, use *zap* to get a fresh spreadsheet.

Enter **4** into cell A1, **6** into A2, and **SUM(A1:A2)** in A3. Now enter **A3** into B1.

Look at the values. Everything seems fine. A3 and B1 both display 10. Now change the value in A1 to **3**.

Observe that B1 does not yet contain the 9, which is the new result in A3. Why?

The SuperCalc program recalculates row by row. First row 1, then row 2, then 3, and so forth. Obviously, A3 was still 10 when B1 referenced its value during recalculation.

Now enter **/G**. The prompt line now says:

F(orm), N(ext), B(order), T(ab), R(ow), C(ol), M(an), A(uto)?

We have just determined that in our example recalculation should proceed column by column, so let's enter **C**. This will change the order of recalculation.

Enter **5** in A1. And now everything seems to work, because the SuperCalc program is proceeding down columns as it recalculates. Both A3 and B1 display 11.

It is possible to create a situation where neither order of calculation can give us current values in all cells.

Here is an example. First, zap the spreadsheet.

Enter **5** in cell A1. In C1, enter **A1**. In A3, enter **A1**. Now *GoTo* B2 and enter **C1**+**A3**. You can see a problem coming up, can't you?

Of course, at the moment all looks fine—C1 and A3 display 5, B2 displays 10. Now go to A1, and enter **4**.

Cells C2 and A3 display 4, which is correct. But B2 has 9. When it was calculated, one of the cells was 4, the other was 5.

Change the order and try again. **/G,C**. Then enter **6** in A1. C1 and A3 show 6, but B2 shows 10. When it was calculated, one cell had 6 and the other had the leftover 4.

Press (!). Now B2 has 12, the correct value. You have forced a second recalculation and have the correct value.

This example is unrealistic and improbable. Still you should be aware that it is possible to create situations involving out-of-order references, which give misleading values.

In a case like this one, we can press (!) and cause a second recalculation, which gives us the correct values. You see that you can use (!) in automatic mode as well as in manual mode. Generally, of course, you don't need to.

Cases of out-of-order references like this one are called *forward* references, because the reference is *forward* to a value not yet recalculated. They can occur in actual spreadsheets, perhaps because a spreadsheet is especially complex or because it has been amended or changed in ways very different from its original design.

A real-life example of forward reference might happen like this. You build a spreadsheet with a table of expenditures by category (columns) and locations (row). You SUM the rows and columns to get totals.

Everything works fine. Later, you add a table comparing various category and location totals. Everything still works fine, because you know where the second table should be. Then, someone else adds new material to the spreadsheet, and moves one of your tables to a new location. . . Now the comparison table shows incorrect values, but they might seem reasonable.

One way to check for such cases is to press (!) and see if any value changes. If so, it is time to re-do the spreadsheet.

The *circular* reference is another case that you will certainly want to avoid. Here is an example:

First *zap* the spreadsheet. Now in cell A1, enter **1**+**B1**. It shows as 1, since there is nothing in B1. In cell B1, enter **1**+**A1**. Suddenly you have 3 and 4. Got the idea? Press (!) a few times, and watch the values increase. They will never stop changing, because there is no logical place to stop calculating.

You might like to experiment by making up some forward or circular references and trying them out.

When you wish, you can *quit*—or you can *zap* these offending formulas into the oblivion they deserve, and go on to the next lesson.

What have you learned in this lesson?

In this lesson, you have learned:

- How to make practical use of the * *format* option for the graphic display of data by scaling values to fit the display width.
- The difference between the *manual* calculation option and automatic recalculation.
- That the (!) key causes a recalculation to occur when you press it.

- What order of calculation means, and how to change it by using the *global* options command.
- What a forward reference is, and how to use (!) to get the correct value for such a case.
- What a circular reference is, and that there is no correct value for such a case.

LESSON 9

Output

We have worked with all but one of the SuperCalc commands and have come to appreciate the power and flexibility of the SuperCalc program and its electronic spreadsheets.

But so far we can't photocopy those spreadsheets, put them in a binder, or have them reformatted later into some special report layout. In this lesson, we will discuss the *output* command. It makes those things possible.

The *output* command will make a copy of our spreadsheet and send that copy to any of three places, depending on our specification. We can send the *output*—that is, the copy of all or part of our spreadsheet—to our computer system's printer which will print it out immediately. Or we can send it to the *console*, our terminal, where it will temporarily replace the usual SuperCalc display. Or we can send the output to a disk drive; in this case, the output will be *saved* or *stored* as a special sort of disk file, *different* from the ones we have created in the past with the *save* command.

Let's try this new command now. First, be sure that you have a fresh spreadsheet. Start up the SuperCalc program, or use *zap*, if necessary.

Now *load* the file that we created in Lesson 5. (You may have made some practice files of your own. This is the one we stored as Lesson 5.)

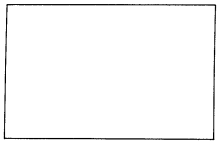
Enter **/O**. Now the prompt line reads:

D(isplay) or C(ontents) report?

Display means that the output will reproduce exactly what you see on the screen. Let's try that first.

Enter **D**.

You see that the prompt line requests the range of the material you wish to **O**utput. Let's specify the range a little differently. Enter **ALL** for the range. This is the same as A1:Last Col/Row, which describes the entire spreadsheet. Press (↵).



The prompt now says:

Enter Device: P(rinter), S(etup), C(onsole), or D(isk).

Enter **C**, and the report will be listed on your screen or **C**onsole. If your report is several pages the SuperCalc program displays them one at a time. Pressing (↵) will display or print the next page; (CTRL | Z) or (F2) will return you to the SuperCalc spreadsheet. There may seem to be no reason to output your document to the console, but sometimes you may want to check your output before printing it.

Notice that you retain the borders on your display output. To exclude the borders from your output enter **/G**lobal, then **B** for **B**order before you enter **O**utput. To bring them back, enter **/G**lobal,**B**order again. Try it.

Now let's try sending output to the printer, printing only part of the spreadsheet. We will use a range specification that is a little different than the one we used earlier. *Be sure your printer is turned on.* (If you don't have a printer hooked up to your system, just skip to the the next example.)

Enter **/O**utput,**D**isplay,**A1:D8**, (↵). Then enter **P** to output to the **P**rinter.

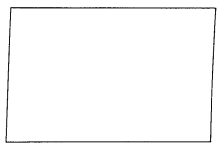
You're probably wondering how you can utilize some of your printer features, such as compressed type or bold print, or how to print on continuous forms. Or maybe you want to change the format of your printed page. Never fear, there is a way.

Enter **/O**utput,**D**isplay,**ALL**, (↵). (Remember ALL is equivalent to A1:Last Col Row), then **S** for Setup. Your display changes to show you four options:

L(ength), W(idth), S(etup) or P(rint)?

```
L = Change page length
    (Length = ) for continuous form.)
    (Now 66 lines)
W = Change page width
    (now 132 chars)
S = Manual setup codes
P = Print report
CTRL Z to cancel /O command
```

Screen 3-37: Output Format Options



and their default values. **L**ength changes the number of lines the SuperCalc program outputs per page; **W**idth is the number of characters per line output; and Manual **S**etup codes are a sequence of characters, probably control characters, that need to be sent to your printer to initiate special functions. For example, on an Epson MX-80 printer you can get compressed type, (which allows you to get more characters per inch) by sending a control sequence before printing. To do this you would enter:

/Output,**D**isplay,**ALL**, (↵), **S**etup,**S**etup,(CTRL | O), (↵), **W**idth,**233**, (↵), **P**rint.

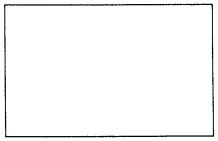
This command line sets one type of printer to print compressed type, increases the number of characters per line (if you want to print more than 132 characters), and prints. These parameters are in use until you change them or quit the SuperCalc program. When entering manual setup codes, enter the actual control sequences, *not the Hex values* for those sequences. *Make sure your printer is turned on and on-line.*

Let's try something else. Enter **/O**utput,**C**ontents, and specify **A1:F7** (↵) for the range. Enter **P** for Printer. If you don't have a printer enter **C** for **C**onsole.

If you do not have a printer connected to your computer, or if the printer is not switched on and on line, SuperCalc will try to send the output anyway. SuperCalc will not respond to the keyboard during this time. After a short time, SuperCalc will resume its normal operation.

The content report gives us a list of the actual contents of the specified cells, and any special format for each cell. The contents will be quite different from what you see on the spreadsheet. The output will look the way the Active Cell contents do when displayed on the Status line.

The last option is **D** for **D**isk. In some ways it is like the value option of the **S**ave command, but not really. When you choose this option your display is output to a disk file, but the resulting disk file is different from the normal SuperCalc file. The file is an exact copy of what would be output to a printer, in ASCII, or character, format, with a **.PRN** extension rather than **.CAL**. The disk file has the same parameters as created in **S**etup; and therefore can be printed later with whatever print utility you want to use and in the format that you want.

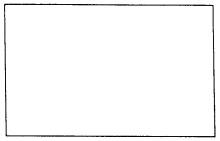


The **.PRN** files, or *print* files can be very useful. You can print or edit .PRN files using system programs. You can use SuperWriter™ or your text editor program to add information and notes, to reformat your reports, or to incorporate your reports within another document being edited by changing the extension and just loading the file in. These edited reports can then be printed.

What have you learned in this lesson?

You have learned:

- How to send *output* to a printer, the console, or a disk file.
- How to *setup* for special printers or report formats.
- The difference between display and content reports and how to specify them.
- The use of .PRN files in other programs and documents.
- How to turn off the border display.



LESSON 10

A Sample Projection Spreadsheet

By now you know enough about the SuperCalc program to be able to use it without step-by-step instructions. With this lesson we will give you some general guidance and let you put what you have learned to work.

Experiment with the sample spreadsheet. Make changes and see their effects. You will find that some changes to values of formulas will have only minor effects on the rest of the spreadsheet, but others will have major consequences. It can be surprising to see how even a slight change in a percent figure in one formula can make a great difference to the final total.

This sort of experimentation is what helps make *intuition visible,* as we suggested in the first chapter. You will find it useful in developing your own work.

This example is called SAMPLE. It will look familiar, because we used it in Lesson 7.

Make sure you **/Z**ap your spreadsheet. Load SAMPLE now by entering:

/Load,**SAMPLE,A**ll.

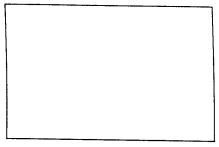
Let's take a closer look at the spreadsheet. What can you find out about it? How far does the information extend? Is there a title lock present? How is it formatted?

Move your cursor to the right until you find the last column of data. The last column is N. The data ends at row 20. An easier way of determining the size of a spreadsheet is by looking at *Last Col/Row:* on the Status Line. This shows you the lower right corner of your spreadsheet.

Notice that while you were scrolling, the titles scrolled too. There is no title lock.

How about format? GoTo B3. The Status Line says:

P Text="Jan.



What does this tell us? The *P* indicates that the cell is protected, and if you have a terminal so equipped you will have noticed that this cell, as well as the other labels in row 3 and column A are half intensity or in a different color.

As you scrolled around, you may have found that most of the figures for the months of February through December are formulas. Set the formula display to display the formulas, if you haven't already done so, and notice that all figures for the months of February through December are formulas that depend on prior months. This seems to be a yearly projection for a company. Now, set the formula display to display the values again.

The spreadsheet is a projection based on the January figures. Operating Expenses (research, marketing and administrative), taxes and net profits are projected. For example, in row 4 we see the assumption that sales will grow steadily at 10% per month. In row 18 we see that taxes are a constant 40%.

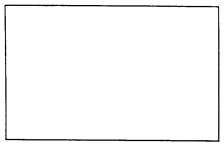
What happens if you change some of these assumptions? They can be changed easily.

You can change the constant figures in January, which the assumptions are based on. You can also change the February value for formulas, and then replicate across March through December (without options, so that the SuperCalc program adjusts automatically).

You will notice that slightly raising or lowering constant relationships, such as taxes (row 18), has a fairly predictable effect. But slightly changing the expected percentage increase in sales (row 4) can have a more marked effect. There are other places where a slight change in a value will have a significant effect, because it causes a change in trend. (For example, rows 6, 10, 11 and 12.)

What is the effect of a decline in sales (row 4)? An increased rise in marketing expenses (row 11)?

This spreadsheet is typical of a spreadsheet developed to give a quick impression of a possible project or of the prospects for an existing project. You could adapt the example for similar projections of your own. For many applications, it would be more realistic to assume seasonal changes than it is to assume constant changes (like the 10% sales growth). You might see what happens if you make sales and their associated values rise in summer and fall in winter, or some similar pattern.



In a more realistic forecast, other values might change at intervals. Certain costs might increase once in the middle of the year. Taxes might rise when sales increased beyond a certain amount.

You can use the SuperCalc conditional function (IF) to test a given value and increase the tax rate when the total exceeds a certain amount. One way to do that is to test the taxable income figure for each column (row 18).

Try this experiment. Let's say that if the taxable income is greater than $350, the tax rate rises from 40% to 42%. Insert a row at 18 and put the title **TAX RATE** at A18. Now put the following formula in B18:

IF(B16 = 350, .40, .42). **R**eplicate the formula, without options, across the row from February through December.

The spreadsheet is in integer format. To show the percentage tax rate, type **/F**ormat,**R**ow,**18**,**$**. Now the tax rate will be 40% when the taxable income is $350 or less, and 42% when it is greater. In what month does the rate increase?

Next we must change taxes (row 19). Change B19 from **B16*.40** to **B16*B18**. **R**eplicate this change, without options across row 19 from February through December.

As we mentioned above, the true and false portion of an IF statement can be a formula as well as a value. Using this, we could have done the above example without inserting a new row. This could have been done by modifying the formula in row 18. Instead of the formula that was there, we could have placed **IF(B16 = 350, B16 * .40, B16 * .42)** in B18. Then, Replicate this formula across row 18 from March through December.

The IF statement we used above has three components. These are: the expression (in this case B16 = 350); the formula to use if the expression is true (in this case .40, which is a value as a formula); the formula to use if the expression is false (.42 in this case). Where we used the = you could have used = or >= as well to suit your needs. With this information, you can modify the above formulas to suit most of your applications.

This is what you have learned in this lesson:

- How to determine the characteristics of a spreadsheet.
- How to use the IF statement.

LESSON 11

Break-Even Analysis

The idea behind a break-even analysis is a simple one. When you market a product, there are two kinds of costs. There are fixed costs, such as development and overhead; and there are variable costs associated with making the product, such as parts and labor. When you sell the product, you want to price it in such a way that you recover your fixed costs, your incremental, or variable costs, and make a profit. The break-even point is the point where you switch from loss to profit.

If you haven't already done so, **/Z**ap the spreadsheet from Lesson 10.

This example is called BRKEVN. Load it and see what it looks like.

Enter **/L**oad,**BRKEVN**, **A**ll.

The setup is simple. Let's step through an example. You will probably want to set recalculation to **M**anual mode until you have entered all of the variables. Otherwise there is more of a delay between each entry for recalculation. Enter **/G**lobal,**M**anual.

Set the retail price in B3 and the discount rate in B19. Enter any numbers you wish. In B18 set the quantity increment, such as 50, 100, or 1000, or whatever is suitable for the sale of the particular product. Then, enter your fixed and variable costs. At this point, calculate the results with ! and see the break-even point. How did we do?

Now let's tinker a bit and see what happens. You may want to return to automatic recalculation at this point by entering **/G**lobal,**A**utomatic.

Try changing some of the fixed costs, then some of the variable ones.

You will notice, for example, that increasing fixed costs delays the point where you break even, but does not have a great effect on your eventual profits. Changing variable costs has a continuing effect.

Try changing Retail Price and Discount. You can see how the profits can mount up if you chose right—or how miserable the prospects are if you chose wrong.

If you're making successive changes to a cell you might try entering **/G**lobal, then **N** for **N**ext. This disables the use of return for moving the cursor in the current direction. Notice that the direction arrow at the very left of the status line is now gone. This way you can make successive changes to a single cell without moving the cursor back every time. If you wish to move the cursor simply press the arrow keys.

Now let's look at how the spreadsheet is built. Set formula display by entering **/G**lobal,**F**ormula.

Take a look at column C, Units Sold. C2 starts with B18, which is quantity increment. C3 is C2 plus quantity increment, and so on down the column. The formula for each value consists of the value above plus the increment.

Is there an easy way of accomplishing this? Yes. Enter the initial quantity in C2 and C2 plus the increment in C3. Then **R**eplicate the formula in C3 down the column using the **A**sk for adjustment option. Enter **/R**eplicate,**C3,C4:C254,A**. You will then be asked whether to adjust each of the cells referenced in the formula being replicated. For C2 answer **Y**, for B18 answer **N**.

Now look at column D, Profit and Loss. These formulas may look rather forbidding, but once we have figured them out, we will see that the calculation is straightforward.

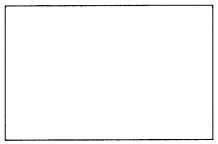
Let's start with a look at D2. The formula is:

```
C2*B3*(.01*(100 - B19)) - (B9 + (B16*C2))
```

Scrolling down that column, we see that the other formulas are similar. In D3, the formula has C3 in place of C2, but all other values are the same. This pattern continues. For each entry in column D, column C refers to the adjoining Units Sold value.

So the formula in D2 starts out with Units Sold times Retail Price (that is, C2*B3).

The .01*(100 - B19) simply subtracts the discount rate (B19) from 100 and makes it a percentage. If B19 contains 40, then .01*(100 - B19) is equal to .60. In other words, this expression is the percentage of our retail price that we get to keep. It is our wholesale price.



What about (B9 + (B16*C2))? B9 is the sum of our fixed costs. B16 is the total variable costs. B16*C2 is the total variable costs (B16) times the units sold for this particular row.

So the formula in D2 turns out to be quite straightforward: it is the Units Sold x Price - Cost.

Like the other examples in this chapter, this spreadsheet is realistic but simplified. You can use it *as is* in order to get a general idea of the effects of pricing policy on a product or to do short-term forecasting. But in actual marketing, costs and prices change.

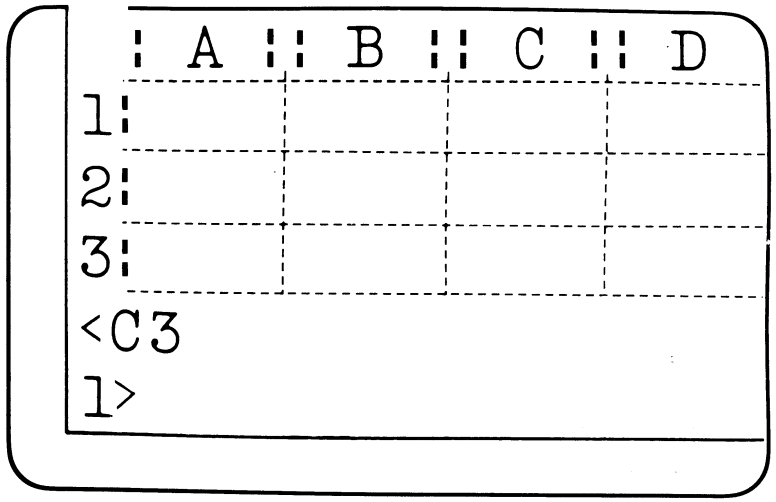
There are two ways that you might adapt this spreadsheet to show the effect of changes in prices and costs.

One way is to put changes at intervals in the spreadsheet. For example, have the numbers in the spreadsheet represent the cost for a 6 month interval of production. Change your costs, prices, and even your incremental values for production (you are producing more efficiently).

A second way is to use conditional expressions as described in the prior lesson on the Projected Balance Sheet. You could test the number of units produced. Based on that test, you could specify adjustment factors for prices and costs. Then you multiply your price and cost information by the adjustment factors, and refer to the adjusted figures in your other formulas.

This is what you have learned in this lesson:

- How to use the **G**lobal recalculation options Manual and Automatic.
- How to use the Next option of the **G**lobal command.



The Spreadsheet and Cursors

4

4. The Spreadsheet and Cursors

The Spreadsheet

SuperCalc uses your computer's memory as a large spreadsheet. The spreadsheet consists of cells organized into a rectangular grid containing 63 columns and 254 rows. Columns are designated by letters (A.Z,AA.AZ,BA.BK) and rows by numbers (1.254).

The location of a cell within the grid defines its *cell address*. You reference a cell by naming its coordinates, first the column letter, then the row number. For example, A1 is the upper left corner cell and BK254 is the lower right corner cell.

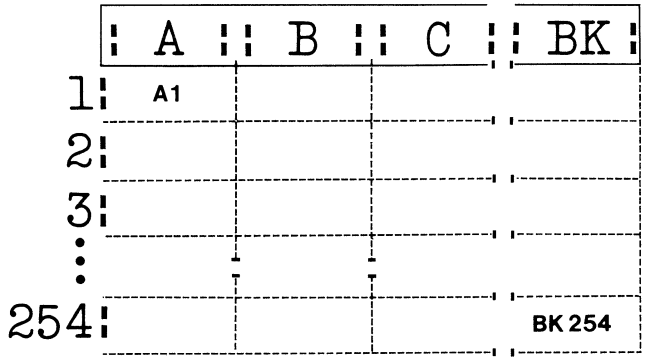


Illustration 4-1: The SuperCalc Spreadsheet

Display Window

The spreadsheet is far too large to be displayed on your terminal screen at one time. Your screen acts as a *display window* that moves over the spreadsheet showing you a portion at a time.

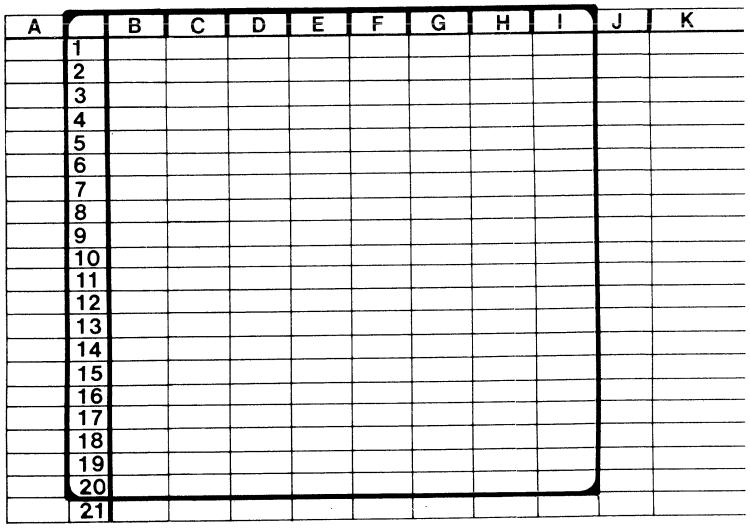


Illustration 4-2: The Display Window

You may split the screen to display two portions of the spreadsheet at a time.

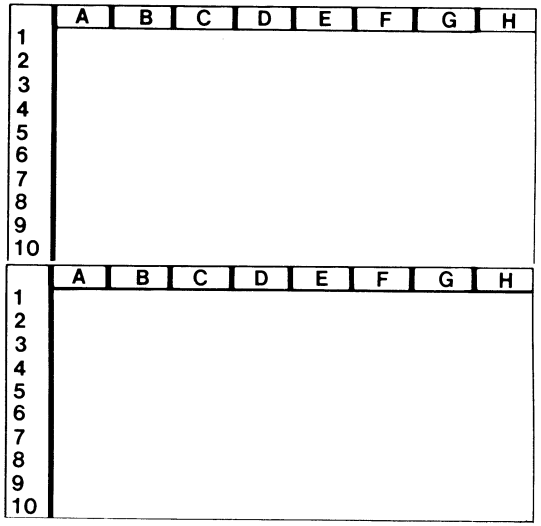


Illustration 4-3: Split Screen

Border

The screen border identifies the currently displayed columns and rows. The top border contains column letters and the left border contains row numbers. You may turn the border on or off as desired. When the border is on, it displays on screen and prints on the printer. When it is off, it does not display on screen nor print on the printer.

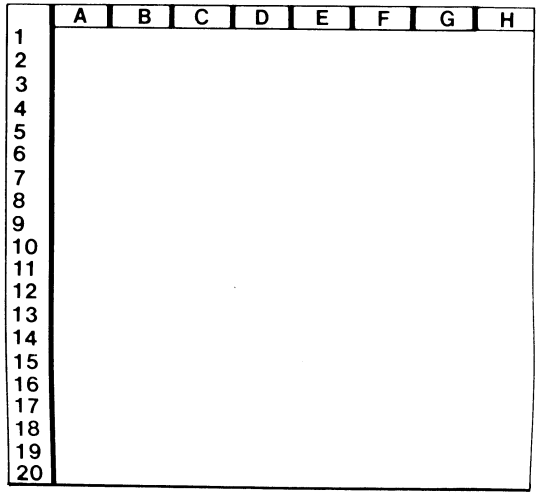


Illustration 4-4: Border

The Active Cell

The *Active Cell* is the cell affected by data entry at the present time. The *Spreadsheet Cursor* identifies the Active Cell. Only one cell is active at a time and it always displays.

- The Active cell is called the *Current Cell.*
- The column containing the Active Cell is the *Current Column.*
- The row containing the Active Cell is the *Current Row.*

The form of the spreadsheet cursor depends on your terminal. The cursor displays as:

An Underline _____
In inverse video
A set of brackets < >

The spreadsheet cursor can be set to either move automatically to an adjacent cell or to remain in the current cell upon data entry. When set to move automatically, it moves in the direction of its previous move to the adjacent cell, which then becomes the Active Cell. When set to remain stationary, the cursor does not move upon data entry.

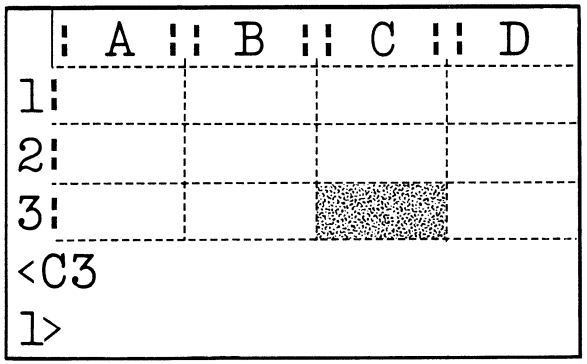
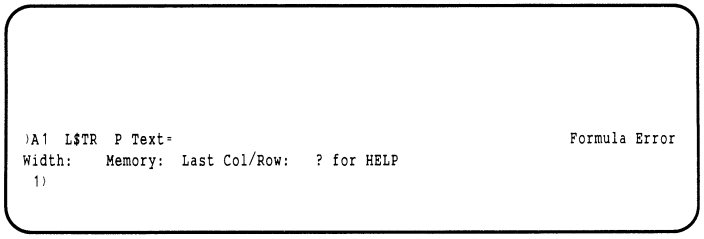


Illustration 4-5: The Active Cell

The Current Status Lines:

The bottom three lines display the Current Status.

Active Cell Status
Global Status/Prompt
Data Entry/Command



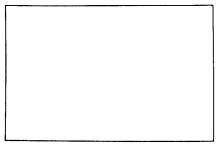
Screen 4-1: The Current Status Lines

You enter all data and commands on the Data Entry/Command line. This line contains the Edit Cursor.

The Active Cell Status and Global Status/Prompt lines display information only. You cannot move either the edit or spreadsheet cursors into the Active Cell Status or Global Status/Prompt lines.

The Global Status/Prompt and Data Entry/Command lines work together as a pair.

- When the Data Entry/Command line is in Data Entry mode, the Global Status/Prompt line displays the Global Status.
- When the Data Entry/Command line is in Command mode, the Global Status/Prompt line displays the current prompt.



The Active Cell Status Line

The Active Cell Status line displays information about the Active Cell. A sample Active Cell Status Line looks like this:

>A1 L$TR P Text="February Formula ERROR

- > — Cursor direction. The first character indicates the current direction of motion of the spreadsheet cursor. When you press (↵) to enter data into the Active Cell, the cursor moves to the adjacent cell in the direction indicated. This direction is always that of the previous cursor move. You may turn the *Next* option on and off. (See the **/G**lobal command.)
- A1 — Active Cell Address. The coordinates of the active cell display here. Commands that reference current columns or current rows use the column/row containing this cell.
- L$TR — Cell Format **E**ntry Options. Displays the options set with the **/F**ormat command at the **E**ntry level. (See the **/F**ormat command.)
- P — Protected Entry. A *P* indicates the Active Cell is protected. This position is blank for an unprotected cell. (See the **/P**rotect command.)
- Text = — Data Type. SuperCalc recognizes three types of data:

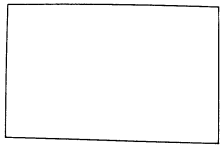
Text=	String Text
Rtxt=	Repeating Text
Form=	Formula Entry

- "February — Cell Content. Displays the literal content of the cell.
- Formula ERROR — Error Message. If an error occurs, an error message displays on the far right of the line. Press any key except (↵) to delete it and proceed.

Global Status/Prompt Line

The Global Status/Prompt is the middle Status line.

When the Data Entry/Command line is in Data Entry mode, the Global Status/Prompt line displays the Global Status.



When the Data Entry/Command line is in Command mode, the Global Status/Prompt line displays the current prompt.

The Global Status line contains the following data:

- Width:

  The column width of the Active cell. The default column width is 9.

- Memory:

  The amount of unused computer memory available in *kilobytes*. A kilobyte is 1024 characters or *bytes*. The available memory decreases as you add to your spreadsheet.

- Last Col/Row:

  The intersection of the last column and row that contains data. The cell named need not contain data. It is the composite of the last column and last row that have a non-blank cell.

- ? for Help

  A reminder that typing (?) always gives an explanation of your current options.

Data Entry/Command Line

The Data Entry/Command line contains the Edit Cursor. The number at the left indicates the current Edit Cursor position.

The Data Entry/Command line serves two functions. The character you enter into position #1 on the Data Entry/Command line determines its mode. A (CTRL | Z) or (CTRL | C) or (F2) erases (or clears) the entire Data Entry/Command line.

- The Data Entry mode enters data directly into the Active cell. The first character indicates the type of data. Any character except those that begin text and commands result in a Formula Entry.

  '' Begins Text
  ' Begins Repeating Text

- The Command mode performs specific functions. Four keys access the command mode.

  = The *GoTo* command moves the cursor directly to the designated cell.

  ! The *Recalculate* command forces a recalculation of the entire spreadsheet.

  ; The *Switch Window* command positions the spreadsheet cursor in the alternate window on a split screen.

  / Selects the (/) commands. See Chapter 7 for a complete description of the (/) commands.

- You cannot go directly between the Command and Data Entry modes, rather, you must return to the Spreadsheet mode first.

The SuperCalc Cursors

Supercalc has two cursors, the spreadsheet cursor and the edit cursor. Both are always visible. The spreadsheet cursor occupies the current Active Cell and moves to any cell on the spreadsheet. The Edit cursor resides on the Data Entry/Command Status line and moves along this line only.

Spreadsheet vs Edit Cursor

Only one cursor is active at a time. The spreadsheet cursor is active provided nothing has been entered on the Data Entry/Command line. The Edit Cursor becomes active when you begin to use the Data Entry/Command line for either Data Entry or a Command and remains active until you do one of the following:

1. Enter data into the Active Cell.
2. Execute a command.
3. *Back out* of the Data Entry/Command line using a left cursor command.
4. Use the (ESC) for current cell function.
5. Clear the Data Entry/Command line with (CTRL | Z) or (CTRL | C).

Cursor Commands

You control both cursors using two groups of cursor control keys. The groups are equivalent and may be used interchangeably.

- The arrow keys move the cursor in the direction they point.
- The Cursor Diamond keys work with the Control key. Press the Control Key and one of these keys simultaneously.

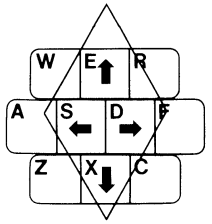
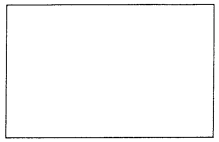


Illustration 4-6: Cursor Command Keys

Note: Some terminals do not have arrow keys. On some computers you may have to press the (NUM LOCK) key in order to activate the arrow keys.

Moving the Spreadsheet Cursor

The spreadsheet cursor moves to any cell on the spreadsheet, but not past the spreadsheet limits. When you move the cursor to a cell outside the display window, the spreadsheet scrolls to display the new location and the border adjusts to the new display window.



The cursor movement keys move the cursor one cell at a time. Use either the arrow keys or the Cursor Diamond Control Keys, whichever are more convenient.
The *GoTo* (= cell address ↵) command moves the cursor directly to the designated cell.

- If the designated cell is on the display, the cursor moves directly to it.
- If not on the display, the window adjusts to position the designated cell in the upper left corner.
- If you enter *GoTo* without a cell address (= ↵), (or specify the current cell) the Active Cell is positioned in the upper left corner.

Moving the Edit Cursor

The Edit Cursor moves left and right along the Data Entry/Command line. When you enter a new character, it replaces the one directly beneath the cursor. The Interpretive Prompting of the Command mode supplies characters for some commands. You only need to type the first letter of the command and SuperCalc fills in the rest for you.

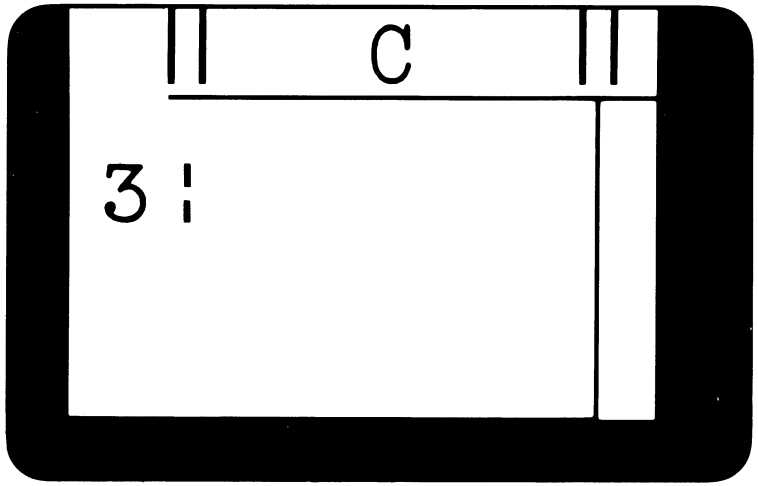
The edit cursor keys are the same arrow or Cursor Diamond keys as the spreadsheet cursor keys, but they behave differently.

The Left and Right cursor keys move the cursor along the Data Entry/Command line without changing the line.

The Down Cursor key deletes the character at the cursor position and moves the remainder of the line one character to the left.

The Up Cursor key inserts a blank space at cursor position. You can enter a character into this space.

The entire Data Entry/Command line is entered when you press ↵ regardless of the position of the edit cursor.



Cells

5

5. Cells

The cell is the basic unit of the SuperCalc spreadsheet. A cell coordinate is the location of the cell specified by column and row. Each cell has a unique coordinate. A cell contains three types of information: (1) The Cell Content, (2) the Cell Value, and (3) the Display format. The spreadsheet area displays either the cell contents or the cell values. You may designate the display format for the cell values. The format options are displayed on the Global Status line for cells formatted at the **E**ntry level. The format options for cells formated at the global, row or column level do not display.

Cell Content

The Cell Content consists of the basic data that a cell contains. It is entered into the cell in one of two ways.

- Manually from the Data Entry line.
- Automatically from another cell using the **C**opy, **R**eplicate, **M**ove or **L**oad commands, possibly with formula adjustment.

A cell may be empty, contain text, repeating text or a formula.

Empty Cell

All cells are initially empty. A cell remains empty until you enter something into it.

Text String

A leading double quotation mark (") designates a text string. A text string can contain a maximum of 115 characters.

The default format for text is left justification and can optionally be set to right justification. If the text is longer than the column width and is left justified, it will continue into adjoining cells. If these cells are occupied, SuperCalc displays as much as it can. Consider the following example. Cells A1, A2, and A3 each contain the same text string. Cells C2 and B3 each contain a numerical entry.


```
  ! A !! B !! C !! D !
1! SuperCalc  is a versatile electronic spreadsheet.
2! SuperCalc  is a versatil          250
3! SuperCalc     4/15/83
<C3
1>
```

Illustration 5-1: Text String

Repeating Text

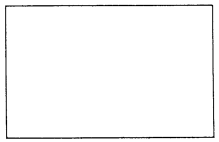
Repeating Text begins with a single quote ('). Repeating text displays from the active cell onwards to the right until it reaches a non-empty cell or Column BK.

Repeating text displays through column BK if not interrupted. However, it does not affect the *Last Col/Row.* When printed, the repeating text extends or prints only through the boundry imposed by the *Last Col.* It will only repeat when the row is set to TextLeft. It can be a repeat of more than one character (for example '-+- +). You can stop the display by creating a blank cell (e.g. '') at the boundry you want to set.

Formula Entries

A formula is a mathematical expression that calculates a numerical value. It consists of numerical constants, cell references and function references, connected by operators. A formula may contain a maximum of 116 characters.

When a formula is entered into a cell, the value may be calculated and displayed. Calculation is controlled by the **/G**lobal,**M**anual/**A**uto command. Cell contents (formula) or value display is controlled by the **/G**lobal,**F**ormula command.



Cell Value

The Value of a cell is the result obtained by evaluating the contents of the cell. All cells have a value. There are three types of values:

- Numeric
- Not available
- Error

Each of the four types of cells may take on certain types of values.

- An Empty cell has a numeric value of zero.
- A *Text String* cell has a numeric value of zero.
- A *Repeating Text* cell has a numeric value of zero.
- A *Formula* cell may have a numeric, not available, or error value.

Cell values and types propagate. This means that the cell value may be referenced by a formula in another cell. Such a reference is to the value of the original cell, not to its content (formula).

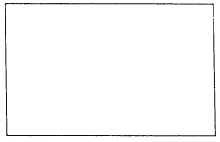
Note: Although the cell content cannot be referenced by other cells, it may be replicated or copied.

Example: Suppose that cell A5 contained the formula 2*3 and the current cell contained the formula 2*PI*A5. The value of 6 will be used in the formula to evaluate the current cell.

Cell Format

SuperCalc allows you to specify a wide array of display formats for the cell values. Altering the display format in no way alters the contents or the value, only the way it is displayed on the console or printed on the printer.

When you format a cell you tell SuperCalc how you want the cell value to look on your screen. You can specify a format for an individual cell, a group of cells, rows, columns, or the entire spreadsheet.



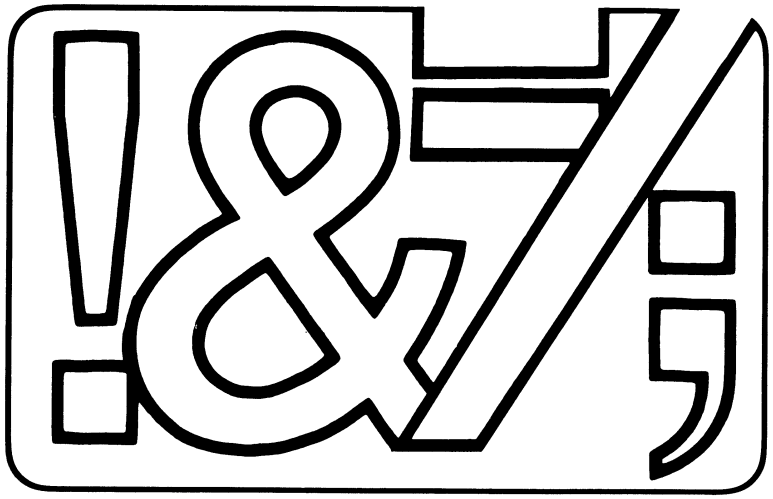
The display format options are described in detail under the **/F**ormat command (Chapter 7).

Current-Cell Reference Key (ESC)

The current-cell key is the (ESC) key. The current-cell key is a great time-saver and convenience. When you press it, the SuperCalc program puts the location of the active cell onto the entry line for you to use in a command or expression. After you press the current-cell key, the arrow and alternate diamond keys control the spreadsheet cursor. If you move the spreadsheet cursor, the Active Cell address on the entry line changes dynamically to reflect the new location. When you press (ESC) again, the address stops changing, and the arrow and diamond keys can again be used for editing.

Pressing (:) after the Active Cell address is a special case. The SuperCalc program places another Active Cell address after the colon. The address before the (:) is fixed; the address after the (:) can still be dynamically changed. For an example of how to use this feature, see Lesson 4 in Chapter 3.

The new Active Cell location is temporary. When you press (↵) to enter the command or expression, the spreadsheet cursor will return to the prior active cell location. If you are entering data into a cell, it will go into that prior location.



The Operation Modes

6

6. The Operation Modes

SuperCalc operates in three distinct modes.

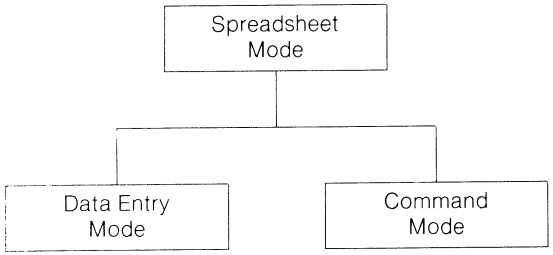


Illustration 6-1: SuperCalc Operation Modes

When you first enter SuperCalc, you are in Spreadsheet mode. You *can* move to Data Entry or Command mode. You *cannot* go directly between Data Entry and Command modes, rather you must return to Spreadsheet mode first.

Spreadsheet Mode

In Spreadsheet mode the spreadsheet cursor is active and the edit cursor is inactive. You can move the spreadsheet cursor around the spreadsheet to view cell contents and values.

The Status lines display the following:

Active Cell Status
Global Status Mode
Edit Cursor Position (The line is not used in this mode.)

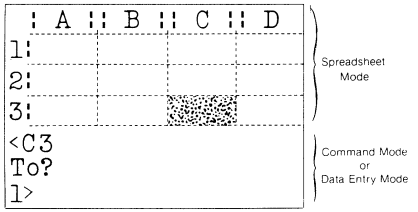


Illustration 6-2: Active Cursor

Data Entry Mode

Data Entry mode enters data directly into the Data Entry line. A ↵ enters the data in the Data Entry line into the Active Cell. The Status lines display:

Active Cell Status
Global Status
Data Entry mode

You enter Data Entry mode by typing a Text or Formula entry. Begin the entry with any letter, number or one of the characters ' " + - (. A ↵ enters the content of the Data Entry line into the Active Cell and returns SuperCalc to the Spreadsheet mode.

A Text entry begins with a double quote " character. Any printable character on the keyboard can be used in text. A text entry may be up to 115 characters.

Repeating text begins with a single quote ('). The text repeats toward the right until a non-blank cell or the right edge of the spreadsheet (column BK) is encountered. Repeating text can contain any keyboard character and be up to 115 characters. When the cell is formatted TL (Text Left) the text repeats. When formatted TR (Text Right) the text does not repeat.

SuperCalc checks that your entry constitutes a legitimate formula when you press (↵) and displays a Formula ERROR message if it is not. Formulas, then, may begin with any of the following:

A numeric constant — The characters (0-9), (.), (+), (-), (.) begin numeric constants.

A cell reference — Cell coordinate.

A mathematical function.

A special function.

A formula can contain up to 116 characters. Numeric constants can have 16 significant digits plus a decimal point. Scientific, or exponential numbers can have 16 significant digits and a decimal point, all raised to a power of ten. The limit is the 63rd power of 10. If a number contains more than 16 digits, the right-most digits after the 16th are converted to zeros.

In-Line Editor

You edit data on the Data Entry line.

- The Left and Right arrows or (CTRL S) and (CTRL D) move the edit cursor non-destructively along the edit line.
- The Down arrow (CTRL X) deletes the character immediately under the edit cursor.
- The Up arrow (CTRL E) inserts a blank character between the previous character and the present cursor position.
- (ESC) enters the Active Cell coordinates at the edit cursor position.
- (↵) enters the entire data line into the Active Cell.
- (CTRL Z) or (CTRL C) or (F2) deletes the entire Data Entry line and returns you to Spreadsheet Mode.

You can back out of the Data Entry line and into the spreadsheet mode by moving the cursor one character to the left of the beginning of the line.

Limits for Data Entry

Numbers can have up to 16 significant digits plus a decimal point and an optional sign. Exponential numbers (scientific notation) can have up to 16 significant digits, a decimal point and sign, and a signed exponent between -63 and +63. Numbers are rounded and displayed to a maximum of the 62nd power of 10 or to a minimum of the -64th power of ten.

Largest number	9999999999999999
exponential number	9.999999999999999e62
negative number	-1.0e-64
Smallest number	-9999999999999999
exponential number	-9.999999999999999e62
positive number	1.0e-64

Command Mode

Command mode directs SuperCalc to perform an action. You enter command mode with one of four command keys from the spreadsheet mode.

(!)	Recalculate
(;)	Switch Window
(=)	GoTo
(/)	Slash Commands Access
(?) or (F1)	AnswerKey

Recalculate (!)

The (!) key forces recalculation of the entire spreadsheet. In **/G**lobal,**M**anual mode, this command is the only way to recalculate values. In **/G**lobal,**A**utomatic mode, the command provides an additional recalculation. (See the **/G**lobal command.)

Window Cursor Jump (;)

The (;) key switches the spreadsheet cursor between windows on a split screen. (See the **/W**indow command.)

GoTo (=)

The (=) key moves the spreadsheet cursor directly to the cell specified. When you press (=), the bottom status line prompts for a cell address. A (↵) executes the command. The spreadsheet cursor moves to the cell specified if it is currently displayed. If not in the display window the specified cell becomes the upper left cell of the display window. The command without a cell specified shifts the display window to put the Active Cell in the upper left.

AnswerKey (?) *or* (F1)

Whenever you need help press the AnswerKey (?) or (F1). SuperCalc explains on screen your current options, then with a touch of any key, returns you to where you were to continue your work.

The Slash Commands

The SuperCalc Slash Commands perform all other functions. You never have to remember a long list of commands. When you enter the (/) key, SuperCalc prompts with the first letter of each command. You enter the first letter and SuperCalc immediately fills in the rest of the word on the command line.

Chapter 7 describes the slash commands in detail. They are:

/Blank
/Copy
/Delete
/Edit
/Format
/Global
/Insert
/Load
/Move
/Output
/Protect
/Quit
/Replicate
/Save
/Title
/Unprotect
/Window
/X(eXecute)
/Zap

When you press the (/) key, three things immediately happen.

- The bottom status line enters Command mode. The position number of the edit cursor displays first, then the (/) character.
- The middle status line changes from Global Display mode to Prompt mode. The slash command prompt displays:

  Enter B,C,D,E,F,G,I,L,M,O,P,Q,R,S,T,U,W,X,Z,?

- The edit cursor becomes active and the spreadsheet cursor inactive.

Most commands have several entry levels. When you enter a command letter, the prompt line changes to the appropriate prompt. SuperCalc continues to prompt you through the sequence of options until you execute the command.

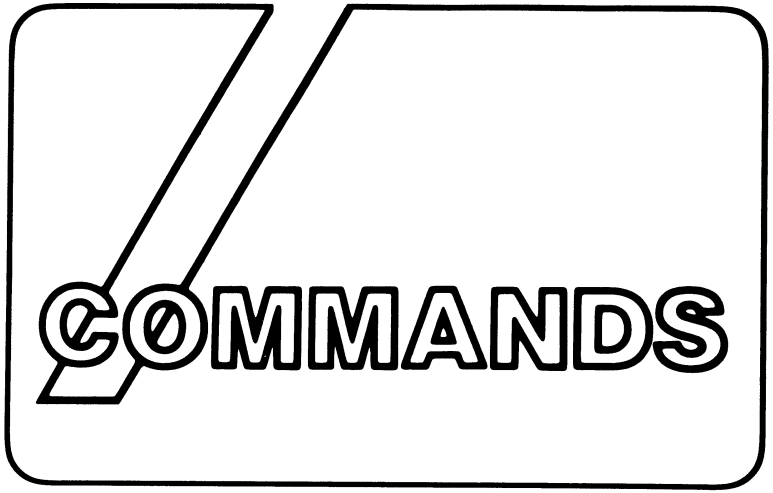
You edit commands, like data and formulas, with the in-line editor.

The Arrow keys or Cursor Diamond keys control the edit cursor.

- The Right Cursor key moves the cursor to the right without erasing characters. When the cursor is at the right-most character of a command, the Right Cursor key is inoperative.
- The Left Cursor key moves the cursor to the left within a command option and erases the option if you go *too far*. Within a command specification, such as a filename or cell range designation, the Left Cursor key does not erase characters.
- The Down Cursor key deletes the current cursor character.
- The Up Cursor key inserts a blank space at the cursor position.
- (ESC) enters the Active Cell into the current cursor position on the edit line.
- (↵) executes a command. Everything on the line executes, not just the information to the left of the cursor.
- (,) specifies that the current option is complete and proceeds to the next option of the command. If the option is the last option, the command executes.

You can *back out* of your current entry by using the Left Cursor key. In fact, you can back entirely out of a command without executing it by moving the cursor one position to the left of the slash (/) character.

Note: SuperCalc uses the (INSERT) and (DELETE) keys on some computers.



The Slash Commands

7

7. The Slash Commands

Introduction to the Slash (/) Commands

The slash commands are so named because they begin with the slash (/) key. When you type the first letter of a slash command, SuperCalc's interpretive prompting completes the rest of the word on the entry line. For example, when you enter **/B**, the Command line reads **/B**lank,. Notice that the interpretive prompting also includes the comma separating command options. When you enter the (/), the prompt line displays all the possible one letter entries. Whenever you wish further information about your option at any given moment, press the AnswerKey (?) or (F1).

Most commands have several levels of entry. When you choose one of these, the prompt line changes to show the choices available for that particular command. You are prompted through the entire sequence of options.

Commands, like data, can be edited with the in-line editor. Remember that when you press (↵), everything visible on the Command line is entered—not just the part of the command to the left of the cursor.

This chapter describes each of the slash commands. The commands are presented in alphabetical order, just as on the Prompt line. All of the options are presented in the box at the beginning of each command description. The options available at any particular point in defining a command are presented vertically. You select one of them and SuperCalc moves to the next set of options, listed in the column adjacent to the right.

The Cell Range:

Many commands require you to specify a cell range. The term *Range* means that you can enter more than one cell at once. SuperCalc uses the following range designators.

Cell	A column followed by a row. Example: J10
Column	A letter (or pair of letters) from A through BK. Example: AF
Partial Column	Two cells in the same column, separatred by a colon. Example: The range N2:N15 includes all cells in Column N from N2 through N15.
Row	A number from 1 through 254.
Partial Row	Two cells in the same row, separated by a colon. Example: The range N2:T2 includes all cells in row 2 from N2 through T2.
Block	Two cells, separated by a colon. Example: The range D5:AP75 includes all cells in the block between D5 in the upper left and AP75 in the lower right.

An empty range (entering just (↵)) means the current cell, row or column.

All means the range A1:<Last Col/Row>

(ESC) allows the arrow keys or ((CTRL S)/**E**/**D**/**X** keys) to be used to point to a cell.

Note: A cell range may be specified in ascending or descending order. For example, D10:A6 is equivalent to A6:D10.

The SuperCalc File Directory

The following commands have an option that allows you to view the disk directory prior to selecting a filename.

/Delete
/Load
/Output
/Save
/X(eXecute)

When you select the *CR for file directory* option, your spreadsheet disappears and you see a menu that gives you four choices:

C(hoose) alternate disk drive
D(isk) directory, All files
S(uperCalc) format files only

CTRL Z to enter filename.

The information at the top of the menu tells you the name of the last file that you loaded, your current work disk, and your current work file, if any.

The **C**(hoose) option allows you to change the current work disk.

The **D**(isk) option shows you the files in the directory of your current work disk. To get back to the menu press any key.

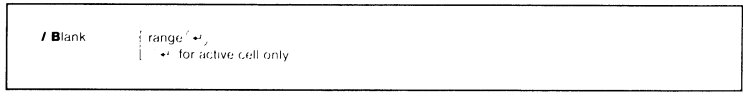
The **S**(uperCalc) option displays SuperCalc .CAL files only. This option also shows the text contents of cell A1 and the SuperCalc version used to create the file. See the Compatability of Files Appendix.

CTRL Z returns you to the command line to enter a filename.

Blank

Synopsis:

Erases the contents and resets the formatting of the cell range.



Command Description:

The **B**lank command deletes the contents of all unprotected cells in the specified range. The display format is reset to the default settings for cells formatted at the **E**ntry level. Column, Row, and Global display formats are unaffected.

Omit the Range to blank the Active Cell.

Examples:

Blank single cell: **/B**lank,**C7** ↵

Blank partial row: **/B**lank,**C7:H7** ↵

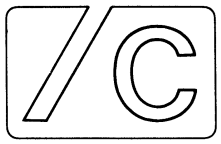
Blank block of cells: **/B**lank,**C7:H12** ↵

Blank entire column: **/B**lank,**C** ↵

Blank all unprotected cells: **/B**lank,**ALL** ↵

Special Considerations:

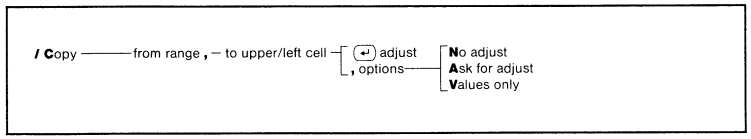
1. **B**lank sets the default display format conditions for cells that are formatted at the **E**ntry Level only. **B**lank does not affect the cell format of cells formatted at the **R**ow, **C**olumn or **G**lobal levels.



Copy

Synopsis:

Duplicates cells into a new spreadsheet location. Options allow a choice of formula adjustment or consolidation arithmetic.



Command Description:

The **C**opy command makes a one-to-one duplicate of the Source Range into the Destination Range. **C**opy duplicates the cell contents, cell values and display formats exactly. The Source Range remains intact.

The Destination Cell becomes the upper left corner of the Destination Range. The Destination Range takes on the same size and shape as the Source Range.

The options allow you to specify Formula Adjustment for the Destination Range. A ↵ provides the default option, formula adjustment. To select another option, enter a comma , and specify the remaining options.

↵ Formula Adjust — The default selection copies and adjusts formulas to their new location.

N **N**o Adjust — Copies cell contents literally with no formula adjustment.

A **A**sk for Adjust — Prompts for formula adjustment for each cell copied. The Command line displays the formula and the Prompt line displays the source cells. SuperCalc prompts for each cell reference adjustment.

V **V**alues — Copies cell values only as numeric constants. Formulas are evaluated and their values only (not the actual formulas) are copied.

Examples:

Copy cell to cell:

/Copy,**B9,C12** ↵

Copy partial column to partial column:

/Copy,**B9:B12,H9** ↵

Copy partial row to partial row:

/Copy,**B9:G9,H12** ↵

Copy block to block:

/Copy,**B9:G15,K20** ↵

Copy without adjustments:

/Copy,**B9,C12,N** ↵

Copy, ask for individual choice of adjustments:

/Copy,**B9:B15,E9,A** ↵

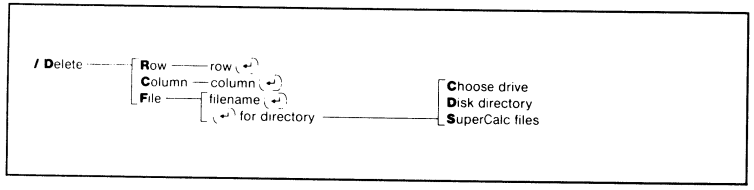
Special Considerations:

1. The left arrow key *Backs Out* of the option list to let you select the default ↵. See Chapter 4.

Delete

Synopsis:

Erases a row, column or disk file.



Command Description:

The **D**elete command erases a row or column from your spreadsheet, or a file from your disk.

Delete erases the row or column, then moves the adjacent rows or columns to fill in the gap created. Formulas adjust to compensate.

The **D**elete,**F**ile option erases a file name from the disk directory of a diskette. If a ↵ is entered, SuperCalc allows you to examine the directory of files on your disk.

Examples:

To delete row 5:

/Delete,**R**ow,**5** ↵

To delete column E:

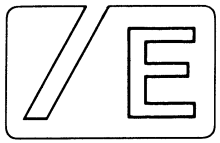
/Delete,**C**olumn,**E,** ↵

To delete file *WORK1.CAL* from drive B:

/Delete,**F**ile,**B:WORK1** ↵

Special Considerations:

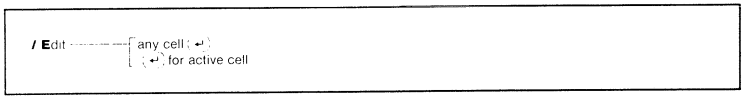
1. Formulas adjusted into cells that no longer exist are considered an ERROR. See Chapter 8 for more information on ERROR.
2. There is no provision to not adjust formulas.
3. If a deleted row or column is within the block range specified by a function reference (such as SUM(A1:D10)), the formulas adjust. If a deleted row/column range includes one of the extreme rows/columns of the block range specified by a function reference (such as SUM(A1:D10)), an error message results. You can then use the in-line editor to modify the command.
4. If a deleted row or column contains a protected cell, an error message results.
5. Rows or columns containing data cannot be reaccessed once they are deleted.
6. Files are deleted permanently, they cannot be restored even with disk-fixing utilities.



Edit

Synopsis:

Edits the contents of a cell and places it in the Active Cell.



Command Description:

The **E**dit command is used to alter the contents of a source cell and place it into the Active Cell. **E**dit copies the source cell contents to the Edit line, where it may be altered as any other data entry. A ↵ places the data on the edit line into the active cell.

You may specify any cell as the source cell. If you do not specify a source cell, e.g. press the ↵, the Active cell becomes the source cell.

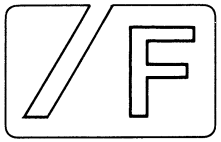
Edit uses the in-line editor. The editing commands are identical to Data Entry.

Example:

The Active Cell contains "Janaurry. **/E**dit and ↵ brings this to the entry line. Use the left arrow to move the cursor to the second *a* in Janaurry. Type *ua*. Move the cursor right to one of the *r*s in Januarry. Press the **down arrow** to delete it, and press ↵. (Remember, pressing ↵ puts the entire entry into the cell no matter where the cursor is positioned.) The Active Cell now contains "January.

Special Considerations:

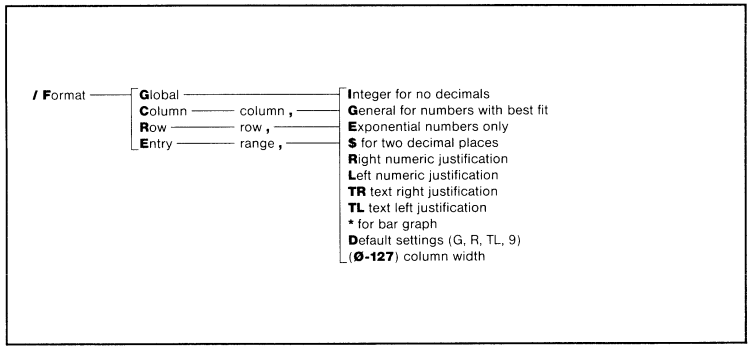
1. See the section on Edit Cursor Control for a detailed description of the cursor commands available. (Chapter 4.)
2. You cannot edit into a protected Active Cell, but you may edit another protected source cell.
3. The Current Cell (ESC) key may be used to specify a source cell. Press (ESC) to enter the current cell function, then move the spreadsheet cursor to the source cell and press (ESC) again to enter that cell. See the *ESC for Current Cell* section in Chapter 4.



Format

Synopsis:

Sets the cell display format on four levels, global, column, row and entry.



Command Description:

The **F**ormat command specifies display format characteristics. To select the display format options you first select the level of format.

Format only affects the display of the cell value. It does not affect the cell value itself or the cell content. The display format controls both the screen image and the printed output.

Successive formatting commands may result in a conflict of formats for a given cell. For example, you may format an entire spreadsheet using **G**lobal and then specify a different format for a **R**ow. Or you may format a **R**ow and a **C**olumn differently. Where formats differ, SuperCalc uses the following order of precedence.

1. **E**ntry
2. **R**ow
3. **C**olumn
4. **G**lobal

Thus, if you specify options using the **G**lobal level, then later select different options for a **C**olumn, the **C**olumn options override the **G**lobal options for that column. Similarly, if you select options for a **R**ow, the cell that intersects the column takes on the row options. Finally, any cells specified using **E**ntry override all other specifications.

SuperCalc prompts with the format options.

(I,G,E,$,R,L,TR,TL,*,D,column width)

I Integer — Displays numbers as integers, rounding as necessary to produce whole numbers. No decimal point displays.

G General — Displays numbers as an integer if the number is an integral value, or in decimal format if the column width allows. Numbers larger than the column width display in Exponential format.

E Exponential — Displays numbers in exponential form using conventional scientific notation. Numbers are expressed as a power of ten containing one significant figure to the left of the decimal point. The letter *e* separates the numeral from the order of magnitude. For example, 1776 is 1.776e3.

$ Money Format — Displays numbers with two digits after the decimal point. The character (S) does not display.

R Right justifies formula values.

L Left justifies formula values.

TR Right justifies text entries.

TL Left justifies text entries.

***** Graphic Format — Displays asterisks to represent numbers. Use this format to create a bar graph. For example the number 1 displays as 1 asterisk, the number 5 as five asterisks, etc. For an example, see Lesson 6 in Chapter 3.

D Removes previously set format options at the current format level and for the range specified.

(0-127) Enter a number (0-127) to set the column width between 0-127. Column width can be set for **G**lobal and Column formats only, not for **R**ow and **E**ntry formats.

Format Types

There are four types of display format characteristics. Each cell has one and only one format characteristic from each category in effect at any given time. When you assign a new display format option, it replaces the current one for that category.

1. Numeric representation (in value display mode)

   I Integer
   G General
   E Exponential
   $ Money format
   ***** Graphic display

2. Formula justification (in formula or value display mode)

   R Right numeric justification
   L Left numeric justification

3. Text justification

   TR Right text justification
   TL Left text justification

4. Column width

   (0-127) Set the column width to the designated number.

Examples:

Format column E to be 12 characters wide:

/Format,**C**olumn,**E,12** (↵)

Format row 7 to be TextRight:

/Format,**R**ow,**7,T**ext**R**ight, (↵)

Globally format spreadsheet for dollar format and 11 character column width:

/Format,**G**lobal,**$,11,** (↵)

Format block for exponential format:

/**F**ormat,**E**ntry,**A7:H8,E**xponential, ↵

Special Considerations:

1. A cell takes on the format of the highest format option used to define it. The precedence order is:

   Entry
   Row
   Column
   Global

2. You may specify as many options as you wish on the **F**ormat command line. However, only the last option you specify from each format type category will be in effect.

3. When SuperCalc first loads without any resident spreadsheet, all cells display as **F**ormat,**G**lobal,**D**efault,. The default sets the following:

   G General
   R Right numeric justify
   TL Left text justify
   9 column width

4. To cope with *narrow* columns when displaying numeric values, SuperCalc has several tactics:

   a. Round off and drop the right most mantissa digits (the digits to the right of the decimal point).

   b. Omit the decimal point, i.e. display in Integer format.

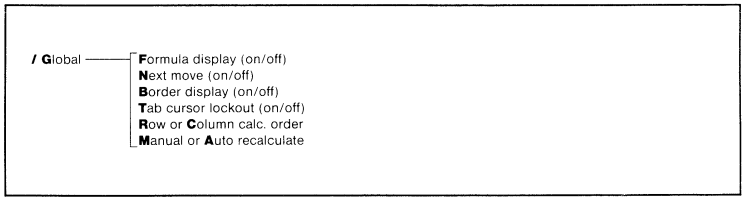
   c. Display <<<< characters when the integer will not fit in the column.

5. The number of decimal places displayed is affected by the display option and the column width selected. SuperCalc always uses a full 16 digits when calculating. This may result in displayed numbers not *adding up,* when, for example, the **F**ormat,**$** is used.

Global

Synopsis:

Set the spreadsheet global options.



Command Description:

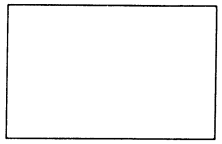
The **G**lobal command specifies the global display and calculation options. These options specify settings for the entire spreadsheet.

F The **F**orm. option alternates the spreadsheet between displaying the cell contents and the cell values. The cell contents is the literal data entered into the cell, such as a formula or a number. The cell value is the result of evaluating the cell content, such as the number produced by evaluating the formula.

- When F is off, Formula cells display the cell values.
- When F is on, Formula cells display the cell contents.

N The **N**ext option turns off/on the spreadsheet cursor *auto-advance*. The default is *on*.

- When Next is on, the spreadsheet cursor advances in the current direction after an entry of data with a ↵. The current direction displays in column one of the Active Cell Status line. It is determined by the direction of the prior cursor move.
- When Next is off, the spreadsheet cursor does not advance. The cursor direction indicator is absent from the Active Cell Status line.



B The **B**order option turns on/off the display of the column/row borders. The border is the number column along the left side and the letter row along the top of the spreadsheet. The default is *on*.

- When the border is on, it is displayed on the console and printed with the report.
- When the border is off, it does not display on the console, nor print with the report.

T The **T**ab option turns on/off the cursor lockout option. In the **T**ab mode, the cursor automatically jumps to only non-blank, non-protected cells. The **T**ab option is useful to speed data entry by skipping designated cells. The default is off.

- When the tab option is off, the spreadsheet cursor may be positioned in any cell.
- When the tab option is on, the spreadsheet cursor keys can position the cursor in non-blank, non-protected cells only.

Note: The *GoTo* (=) command can position the cursor at any cell, even when the **T**ab option is on.

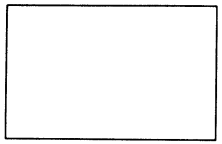
R,C Specifying **R**ow or **C**olumn determines the order that SuperCalc calculates your spreadsheet. All calculations begin with cell A1. The default is Row-wise calculation.

R **R**ow calculates cells across a row from left to right before moving down to the next row.

C **C**olumn calculates cells down a column from top to bottom before moving right to the next column.

M,A Specifying **M**anual or **A**uto determines when SuperCalc recalculates your spreadsheet. The default is Auto.

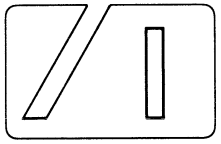
A **A**uto automatically recalculates the entire spreadsheet each time new data are entered or after a **B**lank, **C**opy, **D**elete, **L**oad, **M**ove or **R**eplicate command is executed.



M **M**anual requires you to use the (!) command to force recalculation.

Special Considerations:

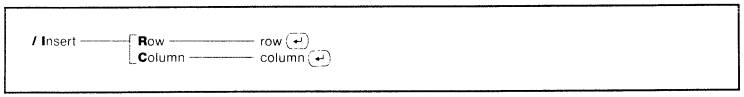
1. SuperCalc always does an automatic recalculation when loading a file.
2. The **M**anual option is especially helpful when you have a large spreadsheet and are entering a significant amount of data as you do not have to wait for recalculation each time. On the other hand, **A**uto recalculation always keeps your spreadsheet up-to-date.
3. When both the **T**ab option and **N**ext option are on, the cursor moves automatically to the next unprotected, non-blank cell after data entry.
4. See the **X**(eXecute) command.



Insert

Synopsis:

Inserts an empty row or column and adjusts formulas.



Command Description:

The **I**nsert command adds a row or column and adjusts the formulas for the remainder of the spreadsheet. Columns move to the right of the inserted column and rows move down from the inserted row. If there are cells in any row that would be pushed past 254 or column past BK, SuperCalc won't allow the insert. You must first delete an appropriate number of rows/columns, then retry the insert.

Examples:

Insert a row between rows 4 & 5:

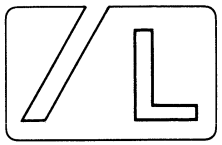
/Insert,**R**ow,**5** ↵

Insert a column between columns D & E:

/Insert,**C**olumn,**E** ↵

Special Considerations:

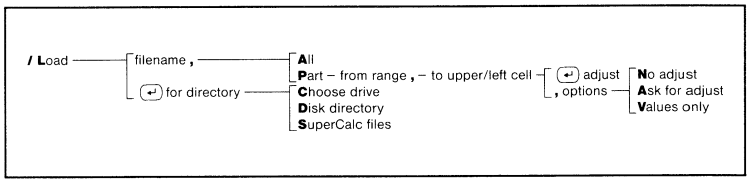
1. There is no provision to not adjust formulas.



Load

Synopsis:

Load the spreadsheet contents, values and format settings from a disk file. You may load all or part of the spreadsheet at a location you specify. Options give a choice of formula adjustment or values only or additive consolidation.



Command Description:

The **L**oad command reads the cell contents, cell values and format settings from a disk file into the current spreadsheet. You may load **A**ll or **P**art of a spreadsheet.

Enter the name of the file you wish to load preceded by the disk drive, if necessary. SuperCalc looks for a file with the .CAL extension unless you specify otherwise.

If a ↵ is entered, SuperCalc allows you to examine the directory of files on your disk.

When you load **A**ll of the spreadsheet it loads exactly in the form that it was saved.

To load a partial spreadsheet, first specify **P**art, then specify the source cell range. The destination cell becomes the upper left corner of the region to be loaded. SuperCalc assumes that the range of the destination will be the same size as the source range. **C**olumn, **R**ow, **G**lobal, and settings such as **G**lobal,**M**anual, Active Cell position, Current cursor direction and **W**indow and **T**itle information are not loaded with a partial load. Cell **E**ntry formats are loaded.

The options allow you to specify Formula Adjustment for the Destination Range. A ↵ provides the default option, formula adjustment. To select another option, enter a comma , followed by the option.

Formula Adjustment Options

↵ Formula Adjust — The default selection copies and adjusts formulas to their new location.

N **N**o Adjust — Copies cell contents literally with no formula adjustment.

A **A**sk for Adjust — Prompts for formula adjustment for each cell copied. The Command line displays the formula and the Prompt line displays the source cells. SuperCalc prompts for each cell reference adjustment.

V **V**alues — Copies cell values only as numeric constants. Formulas do not copy.

You can *Load* a disk file on top of a spreadsheet file. Corresponding cells of the disk file replace those of the current spreadsheet file. There are four cases to consider.

- A blank spreadsheet cell and a blank disk file cell result in a blank cell.
- A blank spreadsheet cell and a non-blank disk file cell result in the contents of the disk file cell.
- A non-blank spreadsheet cell and a blank disk file cell result in the contents of the non-blank spreadsheet cell.
- A non-blank spreadsheet cell and a non-blank disk file cell result in the contents of the non-blank disk file cell.

The following diagram illustrates each case:

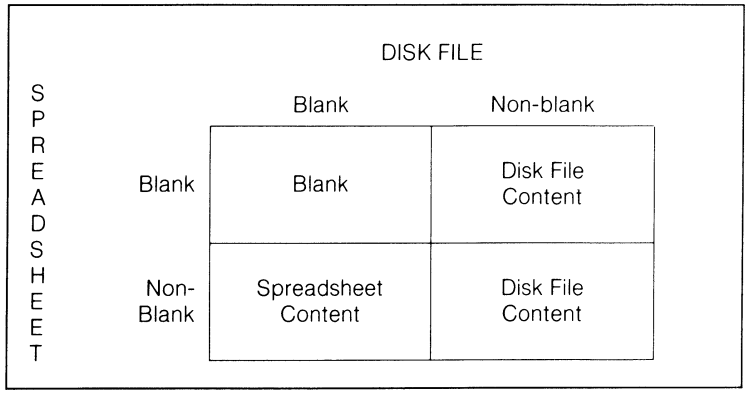


Illustration 7-1: Loading a Disk File Onto the Current Spreadsheet

Examples:

To load an entire file from the system drive:

/Load,**QUARTER,A**ll

To load part of a file on drive B:

/Load,**B:INCOME,P**art,**F4:F25,A4,V**alues

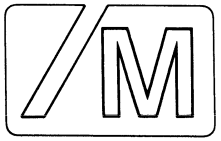
To replace a section of the current contents of the spreadsheet with that of a disk file:

/Load,**filename,P**art,**C3:F20,C3** ↵

Note: This method is a good way to link spreadsheets together ifone large spreadsheet is too large to fin in memory. For example:, load the "bottom line" of a spreadsheet, then, load the "bottom line" of a second spreadsheet into a different location, etc.

Special Considerations:

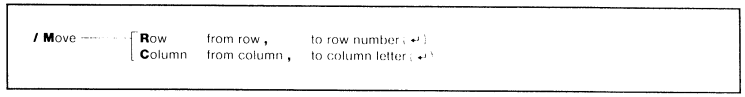
1. SuperCalc always does an automatic recalculation when loading a file.
2. If there are protected cells in the destination area, they will remain unchanged.
3. See the SuperCalc File Directory section at the beginning of this chapter.
4. If you save a spreadsheet using the values only option, when you load the spreadsheet, only values will be present.



Move

Synopsis:

Moves a row range or column range to a new location and adjusts the formulas.



Command Description:

The **M**ove command transfers a column or row to a new location. The formulas adjust without destroying any data or formatting. You move a column left or right. The columns between the old and new locations move in the opposite direction to fill in the space. You move a row up or down. The rows between the new and old location move in the opposite direction to fill in the space.

Formulas on the spreadsheet adjust as necessary to preserve references to cell contents at the new locations.

Examples:

Move row 5 between rows 11 and 12:

/Move,**R**ow,**5,12** ↵

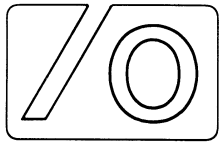
This means that row 6 becomes row 5, etc.

Move column C between columns I and J:

/Move,**C**olumn,**C,J** ↵

Special Considerations:

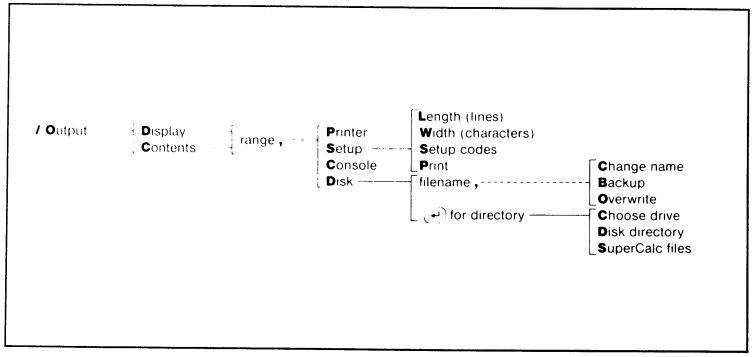
1. There is no provision to move without formula adjustment.
2. See the **D**elete and **I**nsert commands.



Output

Synopsis:

Writes all or part of the spreadsheet to the printer, the terminal or a disk file. Options allow writing the displayed information or the cell contents listing.



Command Description:

The **O**utput command writes all or part of the spreadsheet to the printer, the terminal, or a text file on disk. If you write your report to a disk file, you can use the SuperWriter™ program (or other word processing programs) to edit or reformat your report before printing. You can include SuperCalc reports in other documents as you wish.

Your first option selects the mode of the output.

D The **D**isplay option outputs the spreadsheet as it displays on the terminal. You may display the cell values in any display format or display the cell content.

C The **C**ontent option lists the cell contents one per line. The information includes the display format (entry level only), the protection status, and the cell content.

Your next option selects the range to output. Specify a cell, partial row, partial column, block or *All* for the entire spreadsheet.

Your third option selects the output device.

P **P**rinter sends your report to the printer. The default line length is 132 and the page length is 66. If your spreadsheet exceeds the line length, SuperCalc prints as many columns as it can on one page and prints the excess columns on another page. Use **S**etup to alter the defaults before printing.

S **S**etup allows you to change the default printing specifications. You may change any or all of these specifications. Use this option before printing to change such things as print 80 columns and compressed format.

L **L**ength specifies the number of lines per page. The default is 66. You may select from 0-255 lines. If you specify zero, the report prints continuously with no top or bottom margins.

W **W**idth specifies the number of characters per line. The default is 132. You may select from 0-255 characters. Width does not affect the terminal display width. You can alter the display width on a file written to disk. See Special Consideration 4.

S **S**etup (Manual mode) specifies any initialization string to send to your printer to initiate special functions, such as compressed type or bold face type. These specifications remain in effect until you either change them or quit SuperCalc, in which case the defaults are reset. They are not stored on disk with the file. When entering manual setup codes, enter the actual control sequences, not the Hex values for those sequences. The proper sequences are in your printer operator manual. Make sure your printer is turned on and on line before setting these options. For example, to put an Epson MX80 printer into compressed print mode, enter a (CTRL | O). The screen does not display anything, but the (CTRL | O) is sent to the printer. You may send a string of any length, terminated with a (↵).

P **P**rint sends your report to the printer using the specifications you have set.

C The **C**onsole option displays the output on your terminal or *console*. This option is useful for checking your report before printing.

D **D**isk sends your report to a disk file. The report is saved on the disk in the same form as it appears on your console or prints on the printer. SuperCalc gives the filename the .PRN extension unless you specify otherwise in the filename. If the file already exists, SuperCalc gives you the following options.

C **C**hange Name. You may edit or change the name of the file here.

B **B**ackup changes the extension of the existing file to BAK and then writes your spreadsheet onto the disk using the .CAL extension. Your old file remains unchanged and is available as a backup. If a .BAK file already exists, it is deleted permanently from the disk prior to the renaming.

O **O**verwrite erases the old file from the disk and creates a new file of the same name containing your current spreadsheet.

A .PRN text file can be used in conjunction with other programs such as SuperWriter to enhance the report, include it in your documents and/or otherwise use the full range of editing capability of your text editor.

Note: The .PRN file produced is not the same as the .CAL file produced by the **S**ave command. The .PRN file is an ASCII file that can be edited using SuperWriter or other text editor. SuperCalc cannot *load* a .PRN file. A .CAL file is a binary file and cannot be edited with SuperWriter.

Examples:

Output display report to the printer:

/Output,**D**isplay,**ALL,P**rinter

Output content report of row B to printer, changing to print on continuous forms:

/Output,**C**ontents,**B,S**etup,**L**ength,**O,**(↵),**P**rint

Remove borders and output to a disk file:

/Global,**B**orders
/Output,**D**isplay,**A1:J23,D**isk,**B:WORK1** (↵)

To send an initialization string to your printer to perform special functions: (In this case (CTRL | O))

/Output,**D**isplay,**ALL,S**etup,**S**etup,(CTRL | O)
(↵),**W**idth,**233,P**rint

This command line sets some printers to print compressed type, increases the number of characters per line (if you want to print more than 132 characters), and prints. These parameters are in use until you change them or quit the SuperCalc program. When entering manual setup codes, enter the actual control sequences, not the Hex values for those sequences. You will find these in the manual for your particular printer. Make sure your printer is turned on and on line.

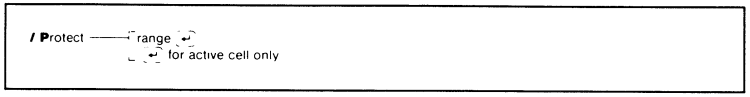
Special Considerations:

1. See **X**(eXecute) for .XQT files that can be created on a spreadsheet, then saved using the **/O**utput command.
2. See **L**oad and **S**ave for .CAL files
3. See the SuperCalc File Directory section at the beginning of this chapter.
4. You can alter the width on a file written to disk. Select the Setup Option, and specify the width. There is no disk file option here, so use (CTRL | Z) or (F2) to go back to the spreadsheet. The width setting still is in effect, so now use **/O**utput again and select the Disk write option.
5. Text cell entries that extend past the last column specified (or the last column that contains an entry if **A**ll is specified) are *clipped* to the end of the last column.

Protect

Synopsis:

Protects the cell contents and formatting of a cell range from change.



Command Description:

The **P**rotect command prevents the cell contents and display formats of non-blank cells in a cell range from change. Data may not be entered, edited or the format changed for cells that are protected.

Omit the range to protect the Active Cell singularly.

Examples:

Protect a specified cell:

/Protect,**C3** ↵

Protect a partial column:

/Protect,**C3:C9** ↵

Protect a partial row:

/Protect,**C3:G3** ↵

Protect a block:

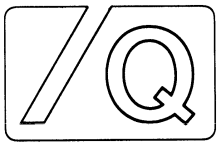
/Protect,**C3:G9** ↵

Protect the Active Cell:

/Protect ↵

Special Considerations:

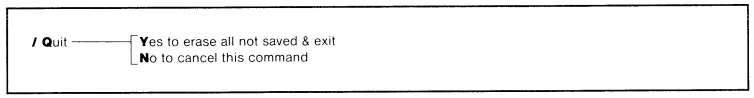
1. **B**lank, **C**opy, **R**eplicate and **L**oad all bypass protected cells. The commands operate normally on surrounding cells but leave the protected cells unchanged.
2. **D**elete will not erase a column or row that containg a protected cell.
3. **Z**ap overrides protected cells to delete the entire spreadsheet. **P**rotect has no effect on **Z**ap.
4. There is no error if you attempt to **P**rotect cells that are already protected.
5. See the **U**nprotect command which is used to reverse the protect.
6. Protected cells display with a different attribute (intensity, color) from non-protected cells on some computers.



Quit

Synopsis:

Exits from SuperCalc to the operating system.



Command Description:

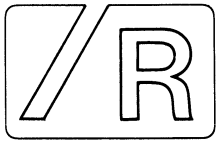
The **Q**uit command exits SuperCalc, returning you to the operating system.

Yes returns you to the operating system. The spreadsheet is erased from the computer's memory. **S**ave it before **Q**uit if you want to keep it.

No cancels the **Q**uit command and returns you to SuperCalc.

Special Considerations:

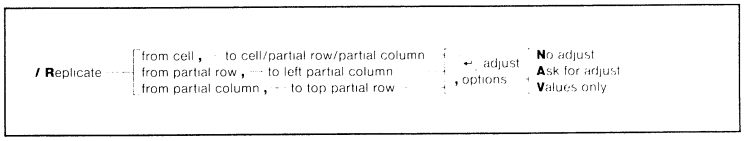
1. You can also cancel the **Q**uit command using (CTRL | C) or (CTRL | Z). Both have the same result as a **N**o reply.



Replicate

Synopsis:

Makes a one-to-many copy of a cell to a group of cells, a partial column to a group of partial columns, or a partial row to a group of partial rows. Options give a choice of formula adjustment, or values only.



Command Description:

The **R**eplicate command duplicates a one-to-many copy of the source into a destination that is equal to or larger than the source. The source may be a cell, partial row or partial column but not a block. **R**eplicate can make the following duplications:

- A single cell into a partial column or partial row.
- A partial column into a group of partial columns. Specify the destination range by the left and right cells on the top row of the destination group.
- A partial row into a group of partial rows. Specify the destination range by the upper and lower cells for the left column of the destination group.

The options allow you to specify Formula Adjustment for the Destination Range. A (↵) provides the default option, formula adjustment. To select another option, enter a comma (,) and the desired option.

(↵) Formula Adjust — The default selection copies and adjusts formulas to their new location.

N **N**o Adjust — Copies cell contents literally with no formula adjustment.

A **A**sk for Adjust — Prompts for formula adjustment for each cell copied. The Command line displays the formula and the Prompt line displays the source cells. SuperCalc prompts for each cell reference adjustment.

V **V**alues — Copies cell values only as numeric constants. Formulas are evaluated and their values only (not the actual formulas) are copied.

Examples:

Replicate a cell into a partial column:

/Replicate,**B12,E3:E8** ↵

Replicate a cell into a partial row:

/Replicate,**B12,E3:J3** ↵

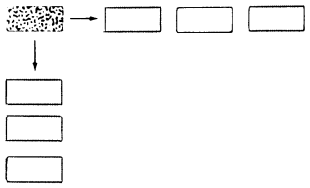


Illustration 7-2: Replicate a Single Cell.

Replicate a partial column into a group of partial columns:

/Replicate,**B3:B7,D3:J3** ↵

In this example, the partial column is five cells deep. The result will be a block of cells repeating that partial column seven times. The top of that block is on row 3.

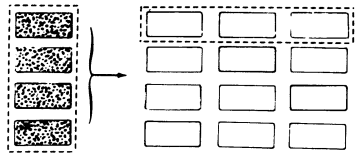


Illustration 7-3: Replicate a partial column.

Replicate a partial row into a group of partial rows:

/Replicate,**B3:F3,G3:G5** ↵

The partial row here is five cells across. The result will be a block of cells repeating the partial row three times. The left side of that block is column G.

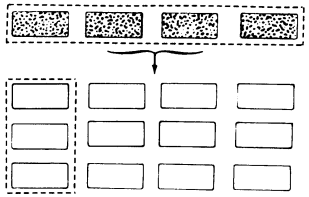


Illustration 7-4: Replicate a partial row.

Replicate without adjustment:

/Replicate,**B12,E3:E8,N**

Replicate, ask for individual choice of adjustment:

/Replicate,**B12,E3:J3,A**

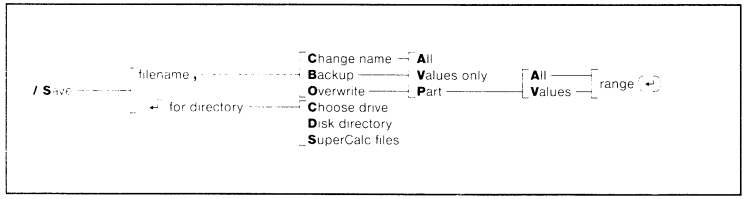
Special Considerations:

1. Using **R**eplicate to make a one-to-one copy provides results identical to the **C**opy command.
2. **R**eplicate can make multiple copies of a cell, row or column. **C**opy makes only single copies of a cell, row, column or block. **C**opy can do one thing **R**eplicate cannot do. **C**opy can duplicate a block.

Save

Synopsis:

Writes the spreadsheet on a disk file. Options give a choice of saving the entire spreadsheet or values only.



Command Description:

The **S**ave command writes the spreadsheet onto a disk file while retaining it in computer memory. You may write the entire spreadsheet or only a portion of it. You may save the cell contents or only the values.

Enter the name for your file. SuperCalc appends the file extension .CAL to the filename unless you specify another.

SuperCalc saves the file on the disk on which SuperCalc resides unless you specify another. If a ↵ is entered, SuperCalc allows you to examine the directory of files on your disk.

If you specify the name of an existing file, the program gives you the following options.

C **C**hange Name. You may edit or change the name of the file here.

B **B**ackup changes the extension of the existing file to .BAK and then writes your spreadsheet onto the disk using the .CAL extension. Your old file remains unchanged and is available as a backup. If a .BAK file already exists, it is deleted permanently from the disk prior to the renaming.

Note: To load a .BAK file, you must specify the .BAK extension.

O **O**verwrite erases the old file from the disk and creates a new file of the same name containing your current spreadsheet. Use with caution!

You then specify the part of the file to save.

A **A**ll saves the entire file on disk. The cell contents, cell values and display formats are saved. Also, the global options, title locking, window splitting and Active Cell location are saved.

V **V**alues — The Cell Values are saved as numeric constants. Display formats are also saved. The Cell Contents are not saved.

P **P**art saves the portion of the spreadsheet you specify.

- **A** **A**ll saves all the cell data for the partial spreadsheet.
- **V** **V**alues saves only the values for the partial spreadsheet.

  SuperCalc then prompts for the Cell Range.

Examples:

Save the entire file:

/Save,**WORK5,A**ll

Save the values of the spreadsheet on drive B:

/Save,**B:WORK5,V**alues

Special Considerations:

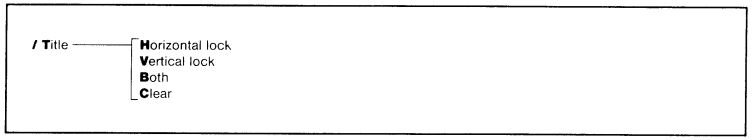
1. See the SuperCalc File Directory section at the beginning of this chapter.
2. For the **B**ackup and **O**verwrite options, SuperCalc deletes an existing file permanently from the disk, not just from the disk directory. Recovery is not possible, even with a disk utility program.

3. **S**ave writes the file in binary format on the disk. That is, the file is readable by SuperCalc but not by the SuperWriter program (or by other word processing programs).
4. Use the Sorcim program *Super Data Interchange* to convert a SuperCalc data file (.CAL) to a comma separated values file (.CSV) file. The .CSV file can be edited with SuperWriter. It can also be used for any other applications program that uses comma separated values such, as a BASIC program.
5. See the **O**utput and **X**(eXecute) commands.

Title

Synopsis:

Locks columns, rows, or both into place on the display window.



Command Description:

The **T**itle command locks columns/rows on the display window.

- A locked column scrolls vertically but not horizontally.
- A locked row scrolls horizontally but not vertically.
- A combination column/row lock does not scroll.

The **T**itle options are:

H **H**orizontal locks the current row and all rows above it.

V **V**ertical locks the current column and all columns to the left of it.

B **B**oth locks the current row and column, and all rows above and columns to the left.

C **C**lears the title lock.

Specifying a new title lock replaces a prior one.

The cursor commands cannot move the spreadsheet cursor into a title lock area. Use the *GoTo* (=) command to do this.

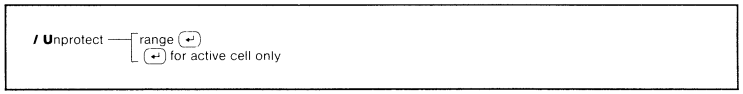
Special Considerations:

1. Any subsequent command that makes a title lock impossible to display, such as a **/F**ormat or **/W**indow command causes SuperCalc to clear the title lock. A message displays on the Active Cell Status line.
2. The title lock display is stored on a disk file. It does not transfer to the output such as to the printer or to a .PRN file. To print titles on other than the first page, you must move (or copy) the title column/rows to the desired location prior to printing. You will most likely need to print a rough draft to determine the proper column/row.
3. An alternate method to print titles for other than the adjacent column to the title lock is to format *intervening* columns to a column width of zero, then print the spreadsheet.

Unprotect

Synopsis:

Removes protection from a cell range.



Command Description:

The **U**nprotect command removes protection from a range. There is no error if you attempt to unprotect cells that are not protected.

Examples:

To remove protection from a cell:

/Unprotect,**C3** ↵

To remove protection from a partial column:

/Unprotect,**C3:C9** ↵

To remove protection from a partial row:

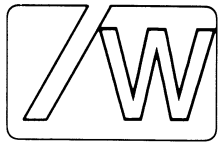
/Unprotect,**C3:G3** ↵

To remove protection from a block of cells:

/Unprotect,**C3:G9** ↵

Special Considerations:

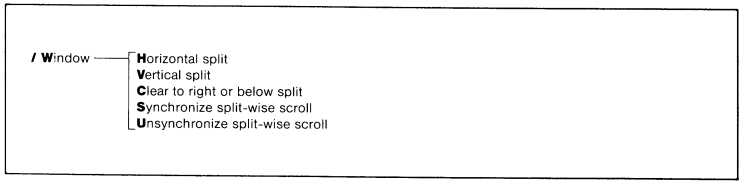
1. See the **P**rotect command.



Window

Synopsis:

Split the display window into two portions, horizontally or vertically.



Command Description:

The **W**indow command splits the display window into two separate parts. Each portion can have separate **F**ormat and **G**lobal options. **W**indow uses the current row or column to determine where to split the display.

You move the cursor between windows with the : command from the spreadsheet mode.

The **W**indow options are:

H Horizontally splits the screen. The current row moves down and the new border replaces it. The Active Cell moves down into the newly created screen.

V Vertically splits the screen. The current column moves right and the new border replaces it. The Active Cell moves right into the newly created screen.

C Clears the split screen. The window that is above or on the left displays in full. The global display options for that window remain in effect.

S **S**ynchronizes scrolling in display windows when the cursor moves parallel to the split.

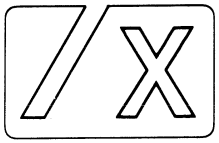
U **U**nsynchronizes scrolling. The display windows scroll independently.

Some global options can be set independently in each display window.

Special Considerations:

1. Each portion has separate **T**itle lock and global display options, i.e., (**F**ormulas, **N**ext, **B**order, and **T**ab).
2. Your spreadsheet can be **S**aved with the windows set, but cannot be **O**utput showing both windows.

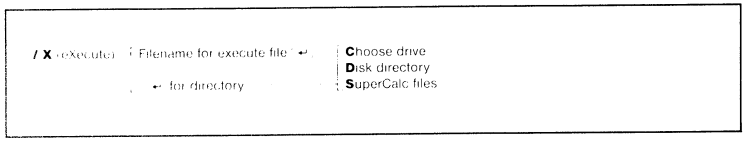
   Note: You can print any or all of the spreadsheet regardless of which window contains the Active Cell. However, the window containing the spreadsheet cursor controls the print display format.
3. SuperCalc can display the same cell in each window using different display **F**ormats or **G**lobal display options, thus the same region of the spreadsheet may be viewed as formulas and values simultaneously.
4. Each **W**indow of a split-screen display has its own **T**itle lock specification. Any lock that is meaningful is retained in both windows after a screen is split.



X(eXecute)

Synopsis:

Reads and executes commands from a disk file.



Command Description:

The **X**(eXecute) command enables you to create a disk file with commands and data that perform SuperCalc operations automatically, without any keyboard entry.

An execute file contains the exact characters you would type at your keyboard. Each line of the file contains exactly the characters you would press to execute a specific command. Characters that SuperCalc supplies through its interpretive prompting must NOT be in the file. For example, for the **Z**ap command, enter **/Z** into the execute file, not **/Z**ap or /Z(ap). Every SuperCalc operation is available, including cursor movement (represented by the keys «, v, <, > for up, down, left, and right) and data entry.

To start an **X**(eXecute) file, enter **/X**(eXecute) on the command line and then at the prompt specify the filename that you are using for your **X**(eXecute) file. The commands in the file will be carried out. You need only specify the name of the file since SuperCalc will automatically seek that name in combination with the filename extension .XQT.

You can also specify an execute filename directly when you load SuperCalc from your operating system. For example, to execute the file SAMPLE.XQT from the command line enter the following at your system prompt.

SC SAMPLE

SuperCalc loads and executes the instructions located in the .XQT file. To stop execution, press CTRL C.

Creating An Execute File

Execute files may be created directly from SuperCalc, or you may use SuperWriter or another word processing program. You may create *libraries* of execute files, and *call* them with the eXecute command.

To create an execute file from SuperCalc, enter the command key strokes as text in column A, one command per cell. **O**utput the file to disk giving it the .XQT extension. If you don't specify an extension, SuperCalc automatically gives it the .PRN extension.

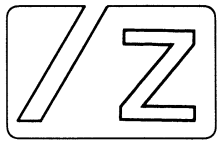
When you write an **X**(eXecute) command file to a disk, remember the following:

- The Border must be off. Use the **/G**lobal,**B**order command.
- The column width of Column A must be greater than the largest command string or commands will be truncated.
- **S**ave the file as a .CAL file before outputing it in case you want to edit it later. Use the **/S**ave command.
- **O**utput the file to disk giving it the .XQT extension. Use the **/O**utput command.

Special Considerations:

1. See the SuperCalc File Directory section at the beginning of this chapter.
2. See **O**utput and **S**ave.
3. An execute file must be an ASCII file. A binary file such as the .CAL files produced by the **S**ave command cannot be executed.
4. CTRL D in an execute file results in a 1/2 second delay in processing. You can use consecutive CTRL Ds to produce the delay time you want.

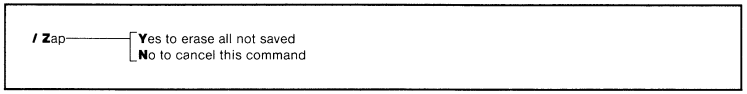
   Note: SuperCalc cannot enter a CTRL D into an .XQT file. You can enter the CTRL D using SuperWriter (or your text editor).
5. To terminate the execution of an .XQT file, and return control to the keyboard, enter a CTRL C from the keyboard.



Zap

Synopsis:

Sets the entire spreadsheet to empty cells and resets all format settings. Equivalent to a fresh start.



Command Description:

The **Z**ap command erases the cell contents and resets the display format for the entire spreadsheet. **Z**ap overrides protected cells.

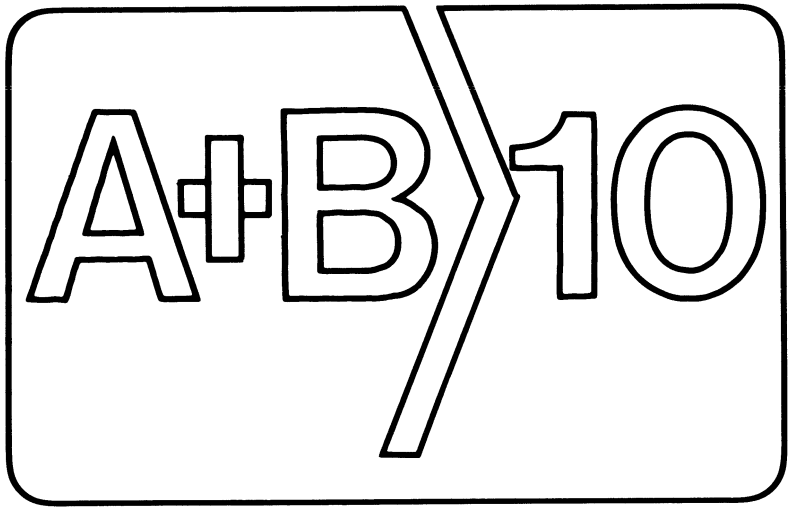
Zap is equivalent to a fresh start. All cells become empty and all format settings and modes of operation revert to their standard settings.

Examples:

/Zap,**Y**
/Zap,**N**

Special Considerations:

1. **Z**ap is the only command that overrides protection of cells.
2. Remember, when you zap the spreadsheet, nothing remains.
3. A good practice is to use the **Z**ap command when changing spreadsheets rather than just loading a new one on top of the old one.



SuperCalc Formulas

8

8. SuperCalc Formulas

SuperCalc Formulas

SuperCalc formulas specify mathematical calculations and relationships. They consist of operands and operators combined in such a way as to produce a value. When entered into a cell, a formula becomes the cell content.

A maximum of 116 characters can be entered into any one cell. You can construct a longer formula by entering parts of it into separate cells, then referencing those cells.

Formula Values

The value of a cell containing a formula is the result obtained by evaluating the content in the cell. A formula may take on three types of values.

- Numeric
- Not Available
- Error

The type of value that a formula may compute is not fixed when the formula is entered. This is in contrast to the cell type that is fixed to the formula when the cell content is non-empty and does not begin with a " or ' character.

To illuminate this difference, consider the following example. This formula defines a formula cell (Form=), but the dynamic value type is determined by the value of cell A1 and may be any of the three possible types of values.

IF(A1=1,NA,IF(A1=2,ERROR,IF(A1=3,PI)))

This expression evaluates:

If A1 = 1, the value is the Not Available value.
If A1 = 2, the value is the Error value.
If A1 = 3, the value is the numeric value 3.14159265358979

Operators

SuperCalc uses three types of mathematical operators.

Arithmetic Operator

An arithmetic operator defines the arithmetic operation performed between two numeric operands. The following SuperCalc operators are described below.

+	Addition
-	Subtraction
*	Multiplication
/	Division
^ or **	Exponent

The arithmetic operators are evaluated according to algebraic precedence. The exponent operator is evaluated first. The multiplication, division and percent operators are evaluated next. The addition and subtraction operators are evaluated last.

Examples:

1) 4 + 5 * 2 ^ 2 is the same as
   4 +(5*(2^2)) or
   24

2) -2^2 is the same as
   -(2^2) or
   -4

Parentheses

Parentheses operators define the precedence order of calculation within a mathematical formula. Operations enclosed within parentheses are calculated first. The use of parentheses overrides the algebraic precedence order of arithmetic operators. Parentheses can be nested.

Relational operators

A relational operator compares two operands and returns a value of true or false. A true comparison has a numerical value of 1, false a numerical value of 0.

The following sample compares terms *a* and *b* using the relational operators:

a = b Equal: The relation is true (1) if, and only if, *a* is equal to *b*. All other cases are false (0).

a <> b Not Equal: The relation is true (1) if *a* does not equal *b*. All other cases are false (0).

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Operands

An operand is a numerical value. It may be obtained as the result of a constant, a cell reference, the evaluation of a formula, or function.

Numeric Constants

A numeric constant is any number such as an integer or decimal number or an exponential number. SuperCalc accepts a maximum 16 decimal places for a numeric constant.

Cell References

The value of a cell may be used as an operand by naming the coordinates of that cell in a formula.

SuperCalc Functions

A SuperCalc function returns the value of a calculation. There are three types of SuperCalc functions:

- Arithmetic
- Logical
- Special

To use one of these functions, you enter its name, possibly followed by arguments. The arguments specify the values that you want to apply to the function.

Arithmetic functions

The following functions are the SuperCalc arithmetic functions. An argument may consist of a value, a range or a list.

- Value — An expression evaluating to a numeric value.
- Range — A group of cells specified by naming the top-leftmost cell and the bottom-rightmost cell, separated by a colon.
- List — One or more ranges and values separated by commas.

ABS (Value)

Returns the absolute value of the Value given.

- Equivalent to the value itself if positive.
- Equivalent to the value without its negative sign if negative. This is the additive inverse.
- Equivalent to Zero if the expression is zero.

Example: **ABS(-237)** = 237

ACOS(Value)

Returns the radian angle of the cosine value given.

Example: **ACOS(1)** = 0

ASIN(Value)

Returns the radian angle of the sine value given.

Example: **ASIN(.2)** = .2013579207903336

ATAN(Value)

Returns the radian angle of the tangent value given.

Example: **ATAN(2)** = 1.107148717794091

AVERAGE (List)

Returns the average (mean) of the range given. This function is equivalent to the SUM of the list divided by the COUNT of the list.

Example: **AVERAGE(H2:H20)**

COS(Value)

Returns the cosine of the radian angle value given.

Example: **COS(PI)** = -1

COUNT (List)

Returns the number of non-blank non-text cells described by the range.

Example: **COUNT(H2:H20)** = 18 if the list is full.

EXP(Value)

This function raises the number e exponentially to the *value*. The value of e is 2.718281828459045.

Example: **EXP(2)** = e^2 or 7.38905609893064

INT(Value)

Returns the integer of the value given; the value is not rounded.

Example: **INT(2.5832)** = 2

LN(Value)

Returns the natural log, log base e, of the value given.

Example: **LN(5)** = 1.609437912434

LOG10(Value)

Returns the common log, log base 10 of the value given.

Example: **LOG10(12)** = 1./079181246047594

MAX(List)

Returns the maximum value of the range. Blank and non-numeric cells are ignored.

Example: **MAX(A1:A20)**

MIN(List)

Returns the minimum value of the range. Blank and non-numeric cells are ignored.

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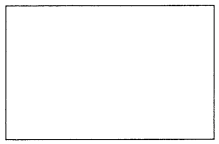

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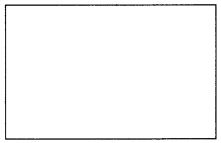

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This function raises the number e exponentially to the *value*. The value of e is 2.718281828459045.

Example: **EXP(2)** = e^2 or 7.38905609893064

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Returns the integer of the value given; the value is not rounded.

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Returns the natural log, log base e, of the value given.

Example: **LN(5)** = 1.609437912434

LOG10(Value)

Returns the common log, log base 10 of the value given.

Example: **LOG10(12)** = 1./079181246047594

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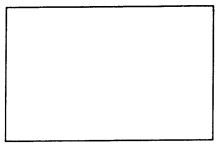

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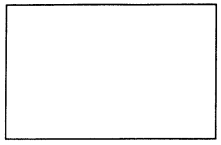

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Example: **COS(PI)** = -1

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Returns the natural log, log base e, of the value given.

Example: **LN(5)** = 1.609437912434

LOG10(Value)

Returns the common log, log base 10 of the value given.

Example: **LOG10(12)** = 1./079181246047594

MAX(List)

Returns the maximum value of the range. Blank and non-numeric cells are ignored.

Example: **MAX(A1:A20)**

MIN(List)

Returns the minimum value of the range. Blank and non-numeric cells are ignored.

PI

Returns the value of Pi to 16 significant digits.

Example: **PI** = 3.141592653589793

SIN(Value)

Returns the sine of the radian angle value given.

Example: **SIN(PI/2)** = 1

SQRT(Value)

Returns the square root of the value.

Example: **SQRT(4)** = 2

SUM(List)

Returns the sum of the values in the range. Non-numeric cells are ignored.

Example: **SUM(A4,B15,C15:C20)**

TAN(Value)

Returns the tangent of the radian angle value given.

Example: **TAN(.75*PI)** = -1

Logical Functions:

A logical function consists of a relational comparison connected by a logical operator. Complex logical expressions may be formed by using parentheses.

IF(expression1,value2,value3)

If expression 1 is true, enter value 2 into the cell. If expression 1 is false, enter value 3.

If an expression is entered into an IF function, the expression must evaluate properly to a value in order for the IF function to be valid. If the expression results in an ERROR, the expression is not evaluated.

AND(value1,value2)

A logical *AND* function has a value of true (numerical value of 1) if both value 1 and value 2 are true. If either value is false, the AND function is false (numerical value of 0).

AND(True, True)	True
AND(True, False)	False
AND(False, True)	False
AND(False, False)	False

Example: **AND(H6=5,B3<>8)**

Returns the value of 1 if both conditions are true. Returns the value of 0 if either condition is false.

OR(value 1,value 2)

A logical *OR* function has a value of true (numerical value of 1) if either value 1 or value 2 is true. If both values are false, the OR function is false (numerical value of 0).

OR(True, True)	True
OR(True, False)	True
OR(False, True)	True
OR(False, False)	False

Example: **OR(B1>=74.2,C3=3)**

Returns the value of 1 if one or both values are true. Returns the value of 0 if both values are false.

NOT(value)

The NOT function returns the opposite truth value as the stated value.

NOT (True)	False
NOT (False)	True

Example: **NOT(B5>=5.9)**

Returns the value of 1 if the value is false. Returns the value of 0 if the value is true.

Additional Examples:

IF functions are easy to work with when you remember these few simple pointers.

1. IF Functions look like this:

   IF(Expression A,Expression B,Expression C)

2. They read as follows:

   If Expression A is true, then use Expression B.

   If Expression A is false, then use Expression C.

3. In other words:

   If Expression A, then Expression B, otherwise, Expression C.

   Consider the IF function:

   IF(A1>=5000,10,5)

   If the cell A1 contained the value 455, the cell this formula resided in would show the value 5.

Now, suppose that you need to evaluate two IF functions at the same time. Consider this example:

IF(A1=5000,5,IF(A1=4000,25,0))

Notice that the IF function still reads *If Expression A, then Expression B, otherwise Expression C.* It just happens that Expression C is another IF function.

Expression B or Expression C can be a formula or another IF function. You can continue to build your formula up to 116 characters.

Note: There must always be as many closed parentheses as there are open. This is important.

Let's look at two combinations that may also be useful.

IF-AND Combinations

1. IF-AND combinations look like this:

   IF(AND(Exp Aa, Exp Ab), Exp B, Exp C)

2. They read as follows:

   If Aa and Ab are both true, then use Expression B. If either Aa or Ab is false, then use Expression C.

3. In other words:

   If Expression Aa and Ab are both true, then Expression B, otherwise Expression C.

   Example:

   IF(AND(A1>500,A1<1000),5,0)

   Both functions in Expression Aa and Ab must be true in order to evaluate Expression B.

IF-OR Combinations

1. IF-OR combinations look like this:

   IF(OR(Exp Aa, Exp Ab), Exp B, Exp C)

2. They read as follows:

   If either Aa or Ab are true, then use Expression B. If Aa and Ab are both false, then use Expression C.

   Example:

   IF(OR(A1>5000,B1<100),5,0)

   Only one of the functions, Expression Aa or Ab has to be true in order to use Expression B.

Special Functions

The SuperCalc program has four Special Functions.

ERROR

Displays *ERROR* in a cell that returns a value that cannot be calculated. You can enter the term ERROR into a cell by typing it on the data entry line.

LOOKUP(Value, Col/Row Range)

Searches for the last value in the range of numbers that is less than or equal to the search value given and returns the adjacent value to the right of the search column or below the search row. This function assumes that the search range is in ascending order of values.

A lookup table consists of two adjacent rows or columns containing data. A lookup table can be either horizontal or vertical. SuperCalc searches the left column of a vertical lookup table and returns the adjacent value in the right column. SuperCalc searches the top row of a horizontal lookup table and returns the adjacent value in the bottom row.

Note: Text strings cannot be *looked up* in a lookup table because they evaluate to zero. Only values can be looked up.

For example, a vertical lookup table might look like this:

H	I
10	F1
20	F2
30	F3
40	F4
50	F5

The statement LOOKUP(30,H) returns the value of cell F3.

N/A

Displays N/A in a cell for which data are not available. You can enter the value N/A into a cell using **NA**. Note: You enter **NA** (without a slash) and SuperCalc displays N/A (with a slash).

NPV (Discount, Col/Row Range)

Returns the present value of a group of cash returns at the given rate of discount (for example, a discount rate of 10% would be entered as 10). The cash amounts are assumed to be projected for equal time periods, such as yearly, and the discount rate is for that interval. The first cash entry is discounted once, the second twice and so forth and added to the total value. Net present value is the present value of future cash flows, discounted at the appropriate cost of capital, minus the cost of the investment.

For example, with an initial investment of $-10,000 (Cell A1) and returns of 200, 2400, 2800, 3450 and 2800 in cells B1 through F1 and a discount rate of 8%, calculate net present value in cell A2 as A2=NPV (.08,B1:F1)+A1, which would yield a Net Present Value of 573.68.

$$NPV = \sum_{j=1}^{k} A_j (1 + r)^{-j}$$

j = Period number (from 1 to k)
Aj = Cash flow at period
r = Rate of interest (discount rate)

lu·ous • su′per·het′er·o·dyne′ • man • su′per·im·pose′ • su′p i′cial • su′per·in·duce′ • su′per in·tend′ent • su·pe′ri·or • su·p e′ri·or′i·ty • su·per′la·tive • su per·man • su′per·mar′ket • su per·nu′mer·ar′y • su′per·scrib ′per·script′ • su′per·scrip′tion

Glossary

A

A. Glossary

Active Cell Status Line: The first of three lines in the Status Area. Displays the status of the active cell.

Active Cell: The cell in which the cursor is currently positioned.

Argument: Instructions that a function needs to be evaluated.

Arithmetic Operator: A symbol that represents one of the calculations possible with SuperCalc: +, -, *, /, ^ or **.

Arrow Keys: The four arrow keys. One of two sets of cursor movement keys for SuperCalc. See the Cursor Diamond Keys.

Backup: The process of duplicating a file to protect against possible loss. It is a good practice to backup all work onto a separate disk. Always backup a program distribution disk before using the program. Store the original in a safe place and use the copy.

Blank Cell: A cell without contents, but formatted at the Entry level. A blank cell requires a small amount of computer memory for the format data. See Empty Cell.

Block: A rectangle of cells specified by naming the upper left and lower right corner cells, separated by a colon.

Byte: Storage space for one character.

Cell: The unit on the spreadsheet into which you can enter a text string, repeating text or a formula. A cell is identified by is coordinates on the spreadsheet.

Cell Address: The coordinates that identify a cell. For example: A1 and AS187.

Cell Contents: The data that a cell contains. A cell may contain a text string, repeating text or a formula.

Cell Display Format: The format that determines how the cell value displays on screen and prints on reports.

Cell Location: The cell coordinates.

Cell Range: A rectangular group of cells consisting of a partial row, partial column or a block. A range is specified by naming the upper-left most and lower-right most cells, separated by a colon (:).

Cell Reference: The instruction to substitute the cell value of another cell for the cell reference. A cell reference is made by naming the cell coordinate.

Cell Value: The value of the cell contents. A text string and a repeating text cell have a numerical value of zero. A formula cell has a numerical value obtained by evaluating the formula in the cell.

Column: All cells in a vertical line, including empty cells. Columns are designated with the letters A-BK for a total of 63 columns. See Row.

Command Mode: The mode in which you enter commands to SuperCalc.

Command: An instruction to SuperCalc. Commands begin with (!), (:), (=), or (/).

Contents: See Cell Contents.

Coordinate: The intersection of a column and a row on the spreadsheet, identified by the column letter and row number.

Copy: A command to copy the contents of one cell range into another. See Replicate.

Current Cell Key: The ESC key places the current cell address on the Data Entry line. At the same time the ESC key activates the cursor movement keys for moving the spreadsheet cursor. The current cell address on the Data Entry line changes as the spreadsheet cursor is moved, Press the ESC key again to leave this mode.

Current Cell: The cell in which the cursor is currently positioned.

Current Column: The column containing the current or Active Cell.

Current Direction: The direction in which the spreadsheet cursor is set to move. The direction is set by the last movement of the cursor movement keys and can be turned on/off with **/G**lobal,**N**ext.

APPENDIX A

Glossary

Current Row: The row containing the current or Active Cell.

Cursor Diamond Keys: The Set of cursor movement Keys (CTRL-S, CTRL-E,CTRL-X,CTRL-D). The cursor diamond keys are equivalent to the arrow keys.

Data Entry Mode: The mode in which you enter data directly into the Data Entry line.

Data Entry/Command Line: The third of three lines in the Status Area.

Data: A string consisting of numbers, characters of information.

Default: The setting that the SuperCalc program assumes unless you change it. The default settings are in effect when SuperCalc is first started. For example, the default display format settings are: General, Text Left, Right, column width 9.

Destination Range: The range of cells in which to put data.

Directory: The list of filenames kept on a disk by the operating system.

Diskette: A medium that stores computer data and programs. A diskette is sometimes called a floppy disk.

Display Format: The Cell Display Format that controls how the value is displayed on screen and how it will be printed on paper.

Display Window: That portion of the spreadsheet that is currently displayed on the screen. The window may be split to display two portions of the spreadsheet at the same time. For example, one part may display formulas and the other display calculated values.

Edit Cursor: The cursor on the Edit line. Indicates where the next character will be entered.

Edit Line: The bottom line of the Status Area.

Edit: To modify or alter the contents of a cell or command.

Empty Cell: A cell that has nothing in it, either contents or formatting at the Entry level. All cells are empty when SuperCalc is first started. No computer memory is used for empty cells. See Blank Cell.

Entry: Format settings of highest priority that cannot be overridden by lower level global, row or column formatting.

Error Value: A value obtained when a formula cannot be calculated.

Exponential Display: Displays a numerical value in scientific notation. Numbers are displayed with one digit to the left of the decimal point raised to a power of 10. The letter *e* separates the significant figures from the power of 10. Example: 3.15e3 is the exponential display format for 3,150.

File: A collection of data stored together on a diskette.

Filename: The name given a diskette file in the form filename.ext. The name contains a maximum 8 characters and the extension of up to 3 characters. SuperCalc data files are automatically given the extension .CAL.

Format Precedence: The order of precedence that controls how a cell is formatted. The order of precedence is: **G**lobal, **C**olumn, **R**ow, **E**ntry.

Format a Diskette: Prepare a new diskette to receive data.

Format: See Display Format.

Formula: A mathematical statement that calculates a number. It can consist of numbers, arithmetic operators, coordinates, or functions.

Function: A built-in mathematical calculation. SuperCalc has three types of functions: Arithmetic, Logical and Special functions.

Global Status/Prompt Line: The second of three screen lines in the Status Area. This line displays the global status and prompts.

Help: Press the SuperCalc AnswerKey (?) or (F1) at any time for onscreen information about your current options. Press any key to return to the spreadsheet.

Interpretive Prompting: You only need to type the first letter of most commands to uniquely identify it and SuperCalc immediately fills in the rest of the command.

Kilobyte: Storage space for 1024 characters.

Load: To read a program or data into the computer memory.

Model: The application of arranging a problem onto a spreadsheet to manipulate data. See Template.

Nesting: One function used as an argument to another function.

Numerical Constant: A formula entry consisting of a decimal number only.

Not Available Value: A value obtained when data are not available.

Numerical Value: A value that can be expressed as a decimal number. A numerical value can be a numeric constant or the result of evaluating a formula.

Partial Column: An adjacent group of cells within a column.

Partial Row: An adjacent group of cells within a row.

Range: See Cell Range.

Replicate: To copy an entry or range of entries to another part of the spreadsheet. See Copy.

Row: All cells in horizontal line, including empty cells. Rows are designated with the numbers 1-254. See Column.

Scroll: The apparent movement of the display window over the spreadsheet to display a different part of the spreadsheet. See Display Window.

Source Range: The range of cells from which to get data.

Spreadsheet Cursor: The active cell contains the spreadsheet cursor. Data entered into the Data Entry line will go into this cell when ↵ is pressed.

Spreadsheet: A grid containing cells arranged in columns and rows on which data are entered.

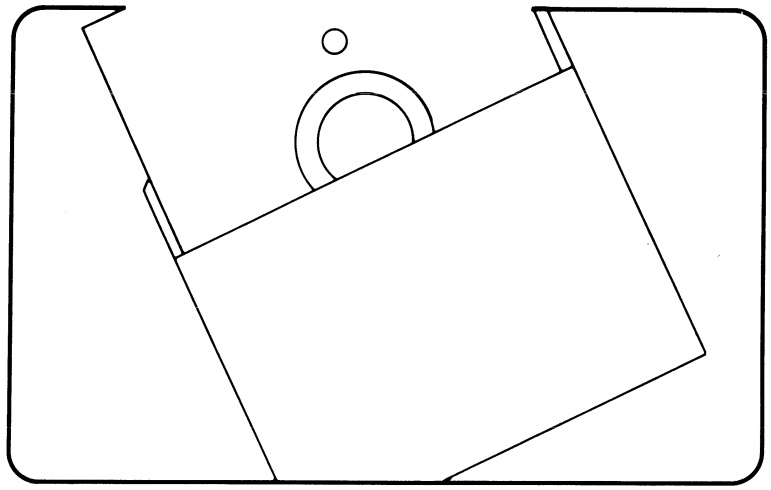
Status Area: The bottom three lines of the screen containing the Active Cell Status, Global Status / Prompt, and Data Entry / Command lines.

Target Range: The range of cells in which to put data. See Destination Range.

Template: A structured spreadsheet containing formulas and formatting instruction used for entering and/or displaying data. See Model.

Value: See Cell Value.

Window: See Display Window.



APPENDICES
SuperCalc Installation Guide

B

B. SuperCalc Installation Guide

Please read this Guide before using the original diskette that came with the SuperCalc package.

SuperCalc supports current versions of CP/M, CP/M-86, Concurrent CP/M-86, MS-DOS, and IBM DOS on selected computers.

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PART 1 Preparing a SuperCalc program disk

Purpose:

- To avoid altering or damaging the original diskette(s) shipped with your SuperCalc package.
- To be able to start your system, run the SuperCalc program, and manage your disk files with a single diskette.

IF YOU ARE NEW TO MICROCOMPUTERS:

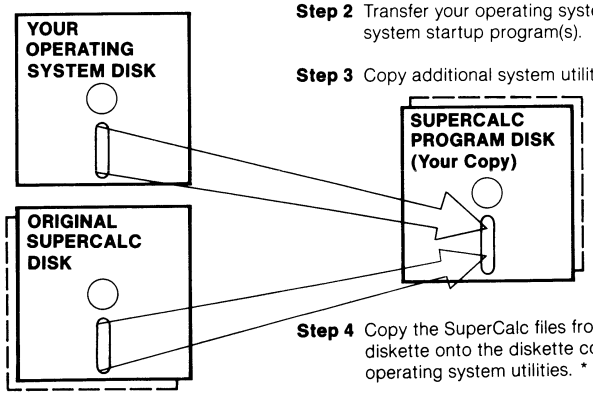
Read the "Getting Started" chapter in the SuperCalc manual. "Getting Started" is only a few pages long, and covers basic information about computers, filenames, and operating systems.

ABOUT THE ↵ SYMBOL USED IN THIS GUIDE:

Keyboards differ from one computer terminal to another. We use the ↵ symbol to represent the key that is variously labeled **RETURN**, **ENTER**, **EXECUTE**, or ↵.

Overview:

In general, here is what you do to prepare a SuperCalc program disk for daily use:



Step 1 Format a blank diskette. *

Step 2 Transfer your operating system, including the system startup program(s).

Step 3 Copy additional system utilities.

Step 4 Copy the SuperCalc files from the original diskette onto the diskette containing your operating system utilities. *

Note: If you receive SuperCalc on more than one original diskette make a copy of each of them.

* Copy the original SuperCalc diskette files onto a fixed (or "hard") disk if you have one. Do not re-format a fixed disk.

Guidelines:

(1) Unless otherwise noted, "CP/M systems" means CP/M, CP/M-86, and Concurrent CP/M-86. "DOS systems" means MS-DOS and IBM DOS.

(2) Although the examples provided in PART 1 are correct for some computers, your computer might require different commands or procedures. The examples are included to give all computer users a general idea of the disk preparation process. See the manuals that came with your computer for exact instructions.

(3) To use our examples:

- Put a copy of your operating system diskette into disk drive A.

- Put a blank diskette into drive B.
- If you have one or more "floppy" or "hard" disk drives with different names, substitute your own drive names for those in the examples.
- When entering operating system commands, you can erase typing errors with the (BACKSPACE) key.

Step 1 Formatting a blank diskette

To format a blank diskette (that is, to prepare the surface of the diskette for information storage), you need to use your formatting program.

> You should have a formatting program on your operating system diskette (or, in a few cases, on one of the other diskettes that came with your computer). The filename may be FORMAT (as with the IBM PC), or a name such as FLPYFORM, INIT, etc.

In our examples, the source drive is A and the destination (or target) drive is B. Make sure the diskette in drive B, or whichever destination drive you specify, does not contain any files you want to keep: **FORMATTING ERASES ALL DISK FILES!**

For IBM DOS, and other MS-DOS systems, combine Steps 1 and 2 (the /S transfers your operating system). At the A> prompt:

Type: **FORMAT B:/S** ↵ (then respond to prompts)

For CP/M systems:

Formatting commands and procedures vary from one brand of computer to another. The procedure is often as simple as typing the filename of your formatting program, then responding to two or three program prompts. See the manual that came with your computer.

Step 2 Transferring the operating system

To transfer your system, including the system startup program(s), use the SYSGEN command for most CP/M systems, or the SYS command (or the /S option with FORMAT) for most DOS systems.

Note that transferring does not remove any files from the source diskette, it just copies the system files to the destination diskette. At the A> prompt:

For most DOS systems:

You already tranferred your operating system at Step 1 with the FORMAT B:/S command.

For most CP/M systems:

Type: **SYSGEN** ↵ (then respond to prompts)

Step 3 Copying additional system utilities

You already transferred a number of operating system utilities at Step 2. Here are some of the utility commands you now have available:

CP/M Systems	DOS Systems	Description
DIR	**DIR**	Displays disk file directory
ERA	**ERASE**	Erases disk files
REN	**RENAME**	Renames a disk file
—	**COPY**	Copies disk files

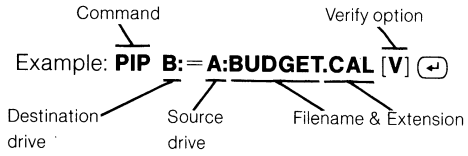
We will show you how to copy several additional operating system utilities onto your program disk: Some are required; others will make your work easier.

The list of utilities to copy follows the instructions below.

How to copy a file from one diskette to another:

For DOS systems, use the COPY command:

For CP/M systems, use the PIP command:



Note: Typing the name of the logged drive is optional (if you see an A> displayed, drive A is the "logged" or "default" drive). Your operating system assumes you mean the logged drive (for example, A:), unless you type a different drive name (such as B: or C:).

Now that you know how to use your **COPY** or **PIP** command, copy the utilities for your operating system listed below.

Procedure:

- Put your operating system diskette into drive A.
- Put the diskette you are preparing into drive B.
- If you are proceeding from Step 2, your diskettes are properly placed in drives A and B already. Substitute your own drive names if they are different.

Operating System	Utilities to copy	Description
IBM & MS-DOS	**CHKDSK.COM**	Displays disk space status.
	MODE.COM	Used by SuperCalc AUTOEXEC.
CP/M, CP/M-86, & Concurrent**	**STAT.COM**	Displays disk space status.
CP/M-86 only	**PIP.COM**	Copies disk files.
	CPM.SYS	Required to start system.
Concurrent CP/M-86 only	**FUNCTION.CMD**	Assigns keyboard functions.*
	DATA.PFK	Restores keyboard functions.*

* See "IBM Personal Computer special considerations" below for details about using **FUNCTION.CMD** and **DATA.PFK**

** For CP/M-86 and Concurrent CP/M-86, substitute a **.CMD** extension for **.COM**.

Step 4 Copying the SuperCalc files

SuperCalc on one diskette:

If the original SuperCalc files came on one diskette, use the procedure below, or use any copy procedure described in the manuals that came with your computer.

SuperCalc on more than one diskette:

If you have more than one original SuperCalc diskette, repeat the disk preparation and copy procedures for each diskette.

Optionally, select the files you want to copy to your main program disk from the list below titled "Original SuperCalc Diskette Files."

Reminder:

If your system does not function properly in the next procedure, check the manuals that came with your computer. Your computer might require a special disk preparation procedure, or a utility file we have not included in the list above.

Procedure:

- Put the SuperCalc program disk (that is, the disk you are preparing) into drive A.
- Put the original SuperCalc diskette into drive B.
- Substitute your own drive names if different than A and B.
- CP/M system users only: Press (CTRL C) (**CTRL** and **C** at the same time) to tell your system you changed diskettes.
- Copy the original SuperCalc diskette files onto your program disk. At the A> prompt:

  For DOS systems, type: **COPY B:*.* A:/V** (↵)

  For CP/M systems, type: **PIP A:=B:*.* [V]** (↵)

Notes:

(1) The * (asterisk) character used above allows you to copy an entire diskette without naming every file. For more information about *, read the section on "global filename characters" (DOS) or "wildcards" (CP/M) in your system manual.

(2) If you see a "DISK FULL" message, or a similar message displayed during the copy procedure, you will need to copy some files onto another diskette.

The information on the following list will help you decide which files to put on which diskette. The only files you need to run SuperCalc are those with SC for a filename. The other files serve useful support functions, as described below.

ORIGINAL SUPERCALC DISKETTE FILES
Listed by category and operating system

SuperCalc Program Files

These are the files you must have on your program disk to run the SuperCalc program.

CP/M	CP/M-86 & Concurrent CP/M-86	IBM & MS-DOS
SC.COM	SC.CMD	SC.COM
SC.OVL	SC.OVL	SC.OVL
SC.HLP	SC.HLP	SC.HLP

Sample Spreadsheet Files

These are the files you need to be able to use the lessons provided in the SuperCalc package. These files can be in any disk drive.

Your version of SuperCalc may not include BARRIER.CAL, but it is not required for the lessons in your SuperCalc or Super Data Interchange manuals.

CP/M	CP/M-86 & Concurrent CP/M-86	IBM & MS-DOS
BARRIER.CAL	BARRIER.CAL	BARRIER.CAL
BRKEVN.CAL	BRKEVN.CAL	BRKEVN.CAL
BUDGET.CAL	BUDGET.CAL	BUDGET.CAL
SAMPLE.CAL	SAMPLE.CAL	SAMPLE.CAL

Installation Files

If you need to use the installation program (described in PARTS 2 and 3 of this Guide), you will need these files in one of your drives: The installation files do not need to be on the diskette with the SuperCalc program files.

CP/M	CP/M-86 & Concurrent CP/M-86	IBM & MS-DOS
INSTALLS.COM	INSTALLS.CMD	INSTALLS.COM
or	or	or
INSTALL.COM	INSTALL.CMD	INSTALL.COM
INSTALL.OVL	INSTAL86.OVL	INSTALL.OVL
INSTALL.DAT	INSTAL86.DAT	INSTALL.DAT

Submit File (for CP/M systems only)

This file is not required to use SuperCalc. The Submit File can be used to make a copy of most files on the original SuperCalc diskette if you know the procedure.

Your version of SuperCalc may not include a Submit File.

CP/M	CP/M-86 & Concurrent CP/M-86
INSTALLS.SUB	INSTAL86.SUB
or	
INSTALL.SUB	

SuperData InterChange Files

These files are not required to use SuperCalc. SDI is used for file conversions only. See the SuperData Interchange manual for program capabilities.

CP/M	CP/M-86 & Concurrent CP/M-86	IBM & MS-DOS
SDI.COM	SDI.CMD	SDI.COM
SDI.OVL	SDI.OVL	SDI.OVL

Special-Purpose Files (For the IBM PC or similar computers only)

These files perform special console functions for the IBM PC. See "IBM Personal Computer special considerations" below.

Concurrent CP/M-86	IBM DOS
SC.PFK	COLOR.COM
	MONO.COM
	AUTOEXEC.BAT
	AUTOBW.BAT
	AUTO40.BAT
	AUTOBW40.BAT

IBM Personal Computer special considerations

This section covers three topics:

1. Special files for SuperCalc with IBM DOS
2. Special files for SuperCalc with Concurrent CP/M-86
3. Special keyboard functions

1. Special files for SuperCalc with IBM DOS

When you copied the original SuperCalc diskette onto your program disk, you copied a file named AUTOEXEC.BAT and three other files with a .BAT extension. AUTOEXEC.BAT is a special file that starts SuperCalc automatically when your computer is switched on (after the normal system self-check delay).

> Note: If you do not want SuperCalc to start automatically, you can erase AUTOEXEC.BAT and the other .BAT files from your program disk (see the ERASE command in your DOS manual).

> If you do not use an AUTOEXEC.BAT file, you can begin a SuperCalc session by typing SC. Exception: If your computer sends color video signals, and you use a black & white or any other monochrome monitor (but no color monitor), type **SC /BW** to begin a SuperCalc session.

AUTOEXEC.BAT is set for an 80-column color monitor with Color/Graphics Adapter, or an 80-column monochrome monitor with Monochrome Adapter. SuperCalc determines which combination you have.

If you have a different monitor-adapter combination, you can change the content of AUTOEXEC.BAT to match your equipment. See options **a**, **b**, and **c** below for details.

If you do not know which monitor-adapter combination you have, try AUTOEXEC.BAT as is. When you start using SuperCalc you will know if AUTOEXEC.BAT — with its original content — is correct for your system:

> If the spreadsheet does not look right (compare it with spreadsheet illustrations in the SuperCalc manual), change the content of AUTOEXEC.BAT to any adapter-monitor combination that seems appropriate. See the options below.

To change the AUTOEXEC.BAT file (if required):

With your SuperCalc program disk in drive A, enter the command that matches your system from the following three options:

a. If you have a Color/Graphics Adapter and a monochrome monitor with an 80-column display. At the system prompt, type:

COPY AUTOBW.BAT AUTOEXEC.BAT ↵

b. If you have a Color/Graphics Adapter and a color monitor with a 40-column display. At the system prompt, type:

COPY AUTO40.BAT AUTOEXEC.BAT ↵

c. If you have a Color/Graphics Adapter and a monochrome monitor with a 40-column display. At the system prompt, type:

COPY AUTOBW40.BAT AUTOEXEC.BAT ↵

If you have two monitors (color & monochrome) connected to your IBM PC:

You can use the files COLOR.COM and MONO.COM on your program disk to direct data to either monitor. When you start using SuperCalc, data will normally be sent to your monochrome monitor automatically (by default). To direct data to the color monitor, type **COLOR** at the system prompt. To change back to monochrome without restarting your computer, type **MONO** at the system prompt.

2. Special files for SuperCalc with Concurrent CP/M-86

If you are using SuperCalc with Concurrent CP/M-86, you must use the FUNCTION command to assign special keyboard functions (described in item 3 below). The FUNCTION command will also disable the un-assigned function keys F3-F10 so they will not cause problems if you press them by mistake.

Concurrent CP/M-86 users only:

At each SuperCalc session, type the following command at the system prompt:

FUNCTION SC.PFK

To restore the original keyboard functions when you finish using SuperCalc, type the following command at the system prompt:

FUNCTION DATA.PFK

3. Special Keyboard Functions

With all versions of SuperCalc for the IBM PC (IBM DOS, CP/M-86, and Concurrent CP/M-86 versions) you can use the following special keys—in addition to the standard set of keys used by SuperCalc:

F1	AnswerKey. Displays current AnswerScreen (same as ? key).
F2	Clears data entry/command line (same as CTRL Z)
HOME	Moves cursor to cell A1 (same as =A1); also refreshes screen display.
INS	Insert mode on/off switch for data entry.
DEL	Delete character under data entry cursor (same as down arrow)

CP/M-86 users only:

To restore the original key functions, reset your system when you finish using SuperCalc. To reset your system, press the ALT, CTRL and DEL keys at the same time.

PART 2 Tailoring SuperCalc to your terminal (if required)

Note

If you see "[Must Be Installed]" on the original SuperCalc diskette label, the procedure outlined in PART 2 is required. Otherwise, start using SuperCalc, or optionally go on to PART 3.

Purpose:

Tailoring (or "configuring") SuperCalc means providing the SuperCalc program with data about your terminal. All you need to do, essentially, is select the name of your terminal from a list displayed by the installation program.

The installation files you need for this procedure are INSTALL.COM, INSTALL.OVL, and INSTALL.DAT (or INSTALL.CMD, INSTAL86.OVL, and INSTAL86.DAT). Keep these files on the same diskette.

If you have a file named INSTALLS on your diskette, and none named INSTALL, SuperCalc has already been tailored (or "configured") for your terminal.

Procedure:

Step 1 Put your SuperCalc program disk (the copy you prepared) into the system startup drive—drive A on many computers.

If the INSTALL files are on a separate diskette in drive B, log onto drive B by typing **B:** ↵.

If your drives are not called A and B, substitute your own drive names.

Step 2 To display the list of terminals:

Type: **INSTALL** ↵

Step 3 You see the SuperCalc installation program sign-on display, ending with the prompt:

Do you wish to proceed (Y/N)? (for Yes or No)

Type: **Y**

Step 4 You are asked to enter the name of the SuperCalc file (that is, the program file), preceded by the drive name, such as A:.

Type: **A:SC** ↵

Note: You can quit the program any time — WITHOUT SAVING YOUR SELECTION — by pressing CTRL C (**CTRL** and **C** at the same time).

Step 5 You see a list of terminal brand names.

Select the letter in front of the name of your terminal, then respond to prompts.

If your terminal is not listed, see the list of "Compatible Terminals" at the end of PART 2. *

Step 6 After you select your terminal at Step 5, you see another set of options. The usual choice is to save your selection, then exit.

In fact, you have three choices: You can choose to save your selection (called "Save SuperCalc on disk" in some versions); quit the Install program; or return to the terminals list (the first "menu").

Notes: If you quit the Install program before choosing the Save option, information about the terminal you selected is not sent to SuperCalc, nor "written to disk."

If you return to the terminals list, you can choose an option that will let you modify (or "edit") any screen or printer default settings (not required).

After you have selected your terminal you can start using SuperCalc.

Optionally, you can change some screen or printer default settings in SuperCalc, as outlined in PART 3.

*** IF YOUR TERMINAL IS NOT LISTED ON THE TERMINALS SCREEN:**

See the list of compatible terminals below, or see the manual that came with your terminal: It might provide the name of a listed terminal compatible to your own.

Select a compatible terminal if yours is not listed on the terminals screen.

Compatible Terminals (subject to change):

Your Terminal	Compatible Brand	Compatible Model
ABM 80	DEC	VT-52
Direct 800	DEC	VT-100
Heathkit H19	Zenith	Z19
Heathkit H89	Zenith	Z19
Teleray 100	DEC	VT-100
Televideo 925	Televideo	920 or 950
Xerox 860	Xerox	820

IF YOU CAN NOT FIND THE NAME OF A COMPATIBLE TERMINAL:

Your SuperCalc dealer might be able to custom install the program for your terminal.

Custom installation is a task for programmers or experienced custom installers. If you have the technical knowhow to do a custom installation yourself, ask your dealer for a copy of the Dealer's Installation Guide for SuperCalc. You can ask Sorcim for a copy of the guide if your dealer does not have one.

PART 3 Changing screen and printer settings (optional)

Note: You can skip PART 3 until after you try using the SuperCalc program. You can change certain screen or printer default settings at any time. Some settings, noted below, can be changed in SuperCalc each time you print a spreadsheet.

Purpose:

Though SuperCalc is shipped ready to work with most display monitors and printers, you may want to change some default settings. You can use the installation program to change the settings listed below.

Settings you can change:

Category	Default Settings in SuperCalc
1. Screen dimensions	**24** video lines. **80** video columns (characters per line).
2. Printer page dimensions*	**66** printer lines. **132** columns (characters per line).
3. Border character	**7C** (hex value) On most screens and many printers, 7C (hex) is the "¦" character. If you see an odd-looking character or symbol on your spreadsheet row or column border, you can change this setting. For example, 3A (hex) sets the border character to ":". See the table of ASCII characters and corresponding hex values in the SuperCalc manual.

4. Printer initialization string*	**Unconfigured** or **0** Unconfigured means no control codes are sent at the start of a /Output (to printer) command. Example: You might want to change your printer default setting to "compressed" print, if your printer has that capability. If so, change this setting to the compressed print hex value for your printer. See your printer manual for control codes and hex values for printer capabilities such as compressed print, double strike, italics, etc.

* Settings marked with one asterisk (*) can also be changed within SuperCalc whenever you print a spreadsheet (See /Output command, Setup option.)

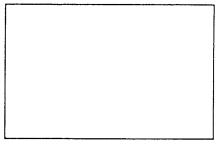
Procedure:

Note that changing a default setting is not permanent. You can change any modified setting back to the way it was, or you can exit from the installation program before saving your changes.

Step 1 Put your SuperCalc program disk into drive A (or the system drive for your computer). Your program disk is probably still in drive A if you are proceeding from PART 1 or PART 2.

You can begin this procedure by selecting an option at the terminals menu (if you have one in your version of the installation program), or start at the system prompt, as described in Step 2.

Step 2 Your entry at the system prompt depends on the name of your installation program. (If you do not know the name of your program, check your disk directory. At the system prompt, type **DIR** ↵):



- If you have a program named INSTALLS.COM (or .CMD):

  Type: **INSTALLS** ↵

  Then respond to program prompts.

- If you have a program named INSTALL.COM (or .CMD):

  Type: **INSTALL** ↵

  Then respond to program prompts.

Notes:

(1) Your version of the INSTALL program might ask if you wish to change the current "printer initialization string." You can skip the question by typing **N**, for No, or you can enter a string by typing **Y** and responding to prompts.

The question is asked for those who wish to change the way their printer functions when printing a SuperCalc spreadsheet. Skipping the question will not affect the proper operation of SuperCalc at all.

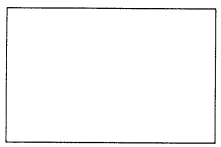
(2) When you see the modifications screen (that is, the display listing the modifiable screen and printer settings), select any option, then respond to program prompts.

(3) For details about the options, including the printer initialization string, refer to the section above titled "Settings you can change."

Step 3 Save your changes, then exit (or quit without saving any changes).

Select the appropriate options to SAVE your changes:

To save or exit, the option you select at the modifications screen is either "Save changes." or "Exit to menu," depending on your version of the installation program.

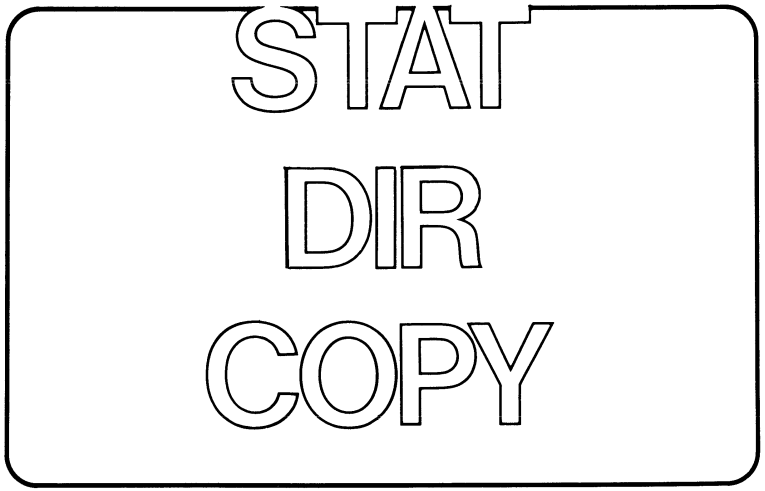


APPENDIX B

Installation Guide

To complete the process, respond to program prompts.

That ends the modifications procedure. For safekeeping, we suggest you make a backup copy of your installed SuperCalc program disk(s).



APPENDICES
Managing Your Disk Files

C

C. Managing Your Disk Files

Contents:

Purpose:

To show you how to manage your disk files with these five operating system commands:

MS-DOS Commands*	CP/M Commands**	Description (primary functions)
DIR	DIR	Displays disk file directory.
CHKDSK	STAT	Displays disk space available.
COPY	PIP	Copies disk files.
ERASE	ERA	Erases disk files.
RENAME	REN	Renames a disk file.

Everything covered in this Appendix is described in more detail in your operating system manual. Specific features of each operating system are subject to change as newer versions are released.

* The MS-DOS commands listed above are the same as DOS commands for the IBM Personal Computer.

** The CP/M commands listed above are the same for CP/M-86, Concurrent CP/M-86, MP/M and MP/M-86.

What is a disk file?

A disk file, for our purposes, is any information you can store on a disk and define with a filename. When we use the word "file" we mean "disk file."

Examples of the "information" in a file include the data in a spreadsheet, or the text in a business letter, or the code in a program file.

Naming a file

A filename consists of one to eight valid characters, but no blank spaces.

Valid characters are letters (A-Z or a-z), numbers (0-9), and some special keyboard symbols (such as - or &).

Valid filename examples:

15	FB-23	MYP&L
JM-RPT	BALSHEET	SALESJUN

Note that valid special symbols differ from one operating system to another. Check your operating system manual if you need additional special symbols for your filenames.

At times you need to identify a file with more than a filename. You may need to add a drive name or a filename extension, or both, as described in the examples below.

Example:

You see the A> prompt on your display screen, meaning you are logged onto drive A. You want to erase a file named MYP&L.CAL in drive B. (".CAL" is the filename extension.)

At the system A>, type: **ERASE B:MYP&L.CAL** ↵

NOTES:

- "B:" is the drive name for drive B. If MYP&L.CAL were in the logged drive (drive A in our example), you would not need to type the drive name. Your operating system searches the disk in your current logged (or "default") drive unless you specify a different drive name.
- When you type a filename with an operating system command, you need to include the extension, if any.
- ERASE is an MS-DOS command. The erase command for CP/M systems is ERA.

Another example:

You are logged onto drive A, and you have started SuperCalc. Now you want to load a spreadsheet file named MYP&L.CAL from a disk in drive B (using the SuperCalc /Load command).

When /Load asks for a filename, type: **B:MYP&L**

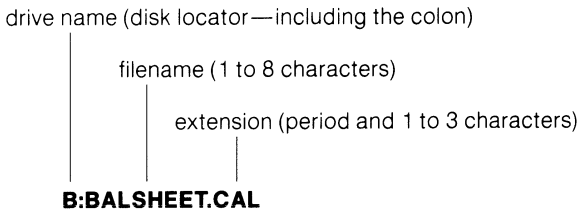
NOTES:

- SuperCalc looks in the logged drive by default. You do not need to type a logged drive name, but in our example the file you want to load is not in the current logged drive. MYP&L.CAL is in drive B ("B:").
- SuperCalc automatically looks for the filename you specify, with a .CAL extension. You do not need to type the .CAL extension with SuperCalc commands. (SuperCalc assigns a .CAL extension to any filename specified at the time a spreadsheet is saved.)

Summing it up

A complete file ID (or "filespec") has up to three parts. The "filename" is the second part. You can type all three parts when you are asked to enter a filename, or you can type just one or two of the parts, as appropriate.

Here are the three parts to a file ID:



Note: An extension is also called a "filetype" or "typ."

Reserved filename extensions:

The following extensions are associated with programs or program-related files. Do not use these extensions with files you create:

.COM	**.CMD**	**.OVL**	**.086**
.HLP	**.DAT**	**.PFK**	**.SYS**

The following extensions should be reserved for the purposes described:

.CAL For standard SuperCalc[2] (or SuperCalc) spreadsheet files. Assigned automatically by SuperCalc if no other extension is specified when a file is saved.

.PRN Assigned automatically by SuperCalc if you Output a spreadsheet file to Disk — if no other extension is specified. A .PRN file can be edited by SuperWriter (and many other word processing programs), or viewed with the operating system TYPE command. See /Output in this manual for more information about .PRN files.

.BAK Assigned to an existing file by SuperCalc if you Output or Save a spreadsheet file to Disk with the Backup option. Selecting Backup assigns a .CAL extension to your new file, and a .BAK extension to the old file. See /Output in this manual for more information.

CAUTION: A .BAK file will overwrite any other .BAK file with the same filename on the same disk. Note that a .BAK file cannot be loaded by SuperCalc^2, but you can rename a SuperCalc^2 .BAK file as a .CAL file.

.XQT Used in conjunction with the /X (execute) command in SuperCalc . An .XQT extension must be used when you Output an execute file to Disk. See /X (execute) in this manual for more information.

File management guidelines

- To log onto a different drive, type the other drive name at the system prompt. Example: At the A> prompt, type **B:** ↵ to change the current logged drive from A to B.
- It is usually a good idea to keep your program files on a disk in the system startup drive (often drive A), and your data files (such as spreadsheets) on a disk in another drive. Otherwise you might run out of space on your program disk.

  If you have a hard disk, keep your data in your own user area.
- Write-protecting a disk: Write-protecting means your computer can not "write" data onto the disk or erase any of the disk files. Write-protecting is optional, and methods vary from one computer to another. Check your computer manual for specific instructions.
- Error messages: Here is a sampling of operating system error messages you might see on your monitor:

  FILE NOT FOUND, or **NO FILE**

  Means you probably forgot to type the drive name in front of the filename, or you typed the filename incorrectly, or put the wrong disk in the drive you specified.

SYNTAX ERROR, or **INVALID FORMAT**, or **BAD COMMAND**

Means you typed a command incorrectly. Are the elements of the command line in the right order? Did you forget to enter a blank space, or did you enter a space in the wrong location?

BDOS ERR ON B: (or any other drive specified)

Usually means you forgot to put a disk in the drive, or forgot to close the drive door, or put a disk in upside-down. It can also mean the disk is improperly formatted.

If the message identifies certain bad "tracks" or "sectors" you may have some bad spots on the disk surface, or the read/write head may be dirty or out of alignment. Check the error message section of your operating system manual. It may tell you to copy all files you want to save onto another disk, then use an unimportant practice disk in the error drive to see if the head is reading and writing correctly.

APPENDIX C

Managing Your Disk Files

Five basic file management commands

We make the following assumptions in our examples:

- Commands are typed at the system prompt, such as A> for drive A, or B> for drive B.
- You will press your (↵) key (labeled RETURN or ENTER on some keyboards) following any command.
- All commands are directed at files in the current logged drive, unless a different drive name (such as A: or B:) is specified.
- You have a two drive system, with drives named A: and B: (substitute your own drive names if they are different).

NOTES:

CP/M calls the asterisk (*), used in some command lines below, a wildcard. MS-DOS calls it a global filename character. In our examples, the * means "any filename," or "any extension" (depending on where the * is positioned). You can read more about the * symbol in your operating system manual. The question mark (?), not used in our examples, serves a related function.

Use the (BACKSPACE) key to erase typing errors.

APPENDIX C

Managing Your Disk Files

Disk Directory

DIR

MS-DOS

```
A DIR
COMMAND  COM   7664  4-15-83  12:15a
CHKDSK   COM   6400  4-22-83  13:20p
```

CP/M

```
A DIR
A:PIP COM :STAT COM :FORMAT COM :SYSGEN COM
A:SC  COM :SC   OVL :SC     HLP :SAMPLE CAL
```

Illustration C-1: Display Disk Directory

A. Display a directory of disk files:

MS-DOS: **DIR** CP/M: **DIR**

B. Display a directory of files in drive B.

MS-DOS: **DIR B:** CP/M: **DIR B:**

C. Display a directory of files with .CAL extensions only.

MS-DOS: **DIR *.CAL** CP/M: **DIR *.CAL**

NOTES: To stop a directory from scrolling, press (CTRL S).
To restart the scrolling, press (CTRL S) or (CTRL Q).
To cancel the command, press (CTRL C).

Disk and File Space

CHKDSK

MS-DOS

```
A>CHKDSK
  179712 bytes total disk space
   22016 bytes in 2 hidden disk files
  138752 bytes in 24 user files
   18944 bytes available on disk
```

STAT

CP/M

```
A>STAT
A:R/W, Space:  154k
B:R/W, Space:  446k
```

Illustration C-2: Display Disk Status

A. Display space available on disk:

MS-DOS: **CHKDSK** CP/M: **STAT**

B. Display space available on disk in drive B:

MS-DOS: **CHKDSK B:** CP/M: **STAT B:**

C. Display size of each disk file:

MS-DOS: **DIR** CP/M: **STAT *.***

D. Display size of each .CAL file:

MS-DOS: **DIR *.CAL** CP/M: **STAT *.CAL**

Copy Files

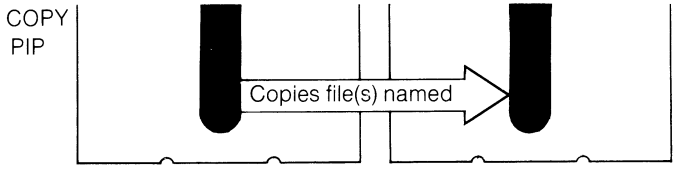


Illustration C-3: Copy a File

A. Copy all files from drive A to drive B and verify:

MS-DOS: **COPY A:*.* B:/V**

CP/M: **PIP B:=A:*.*[V]**

B. Copy .CAL files from drive A to drive B:

MS-DOS: **COPY A:*.CAL B:**

CP/M: **PIP B:=A:*.CAL**

C. Copy a file from drive A to drive B:

MS-DOS: **COPY A:filename.ext B:**

CP/M: **PIP B:=A:filename.ext**

NOTE: The verify option used in example A is not required, but is recommended -- especially when copying program files. The verify option will notify you if the copy is incomplete.

Erase Files

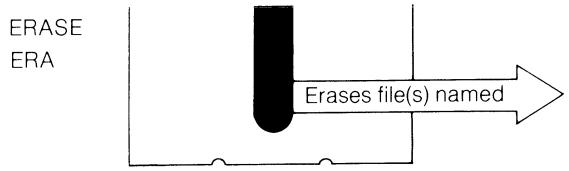


Illustration C-4: Erase a File

A. Erase all disk files:

MS-DOS: **ERASE *.*** CP/M: **ERA *.***

B. Erase all .CAL files:

MS-DOS: **ERASE *.CAL** CP/M: **ERA *.CAL**

C. Erase a file:

MS-DOS: **ERASE filename.ext** CP/M: **ERA filename.ext**

Rename Files

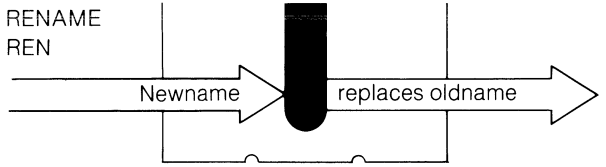
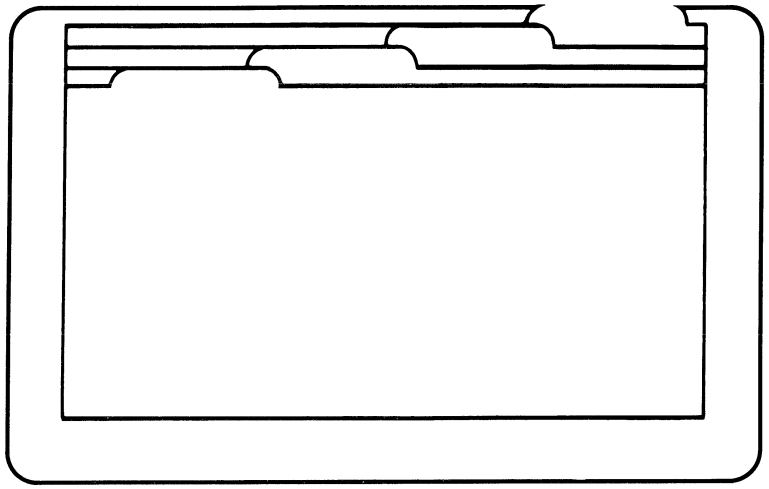


Illustration C-5: Rename a File

Rename a disk file:

MS-DOS: **RENAME oldname.ext newname.ext**
CP/M: **REN newname.ext=oldname.ext**



APPENDICES
Compatability of Files

D

D. Compatibility of Files

When SuperCalc, SuperCalc2, or SuperCalc3 saves a file on disk, it writes the name of the program as part of the .CAL file. This is checked when the program attempts to load the file.

Any .CAL file prepared by SuperCalc can be used by SuperCalc2 or SuperCalc3 with no changes. Any .CAL file prepared by SuperCalc2 can be used by SuperCalc3 with no changes.

SuperCalc can load a file created by SuperCalc2 or SuperCalc3 provided that none of the following features were ever used in the creation of that file.

Calendar Functions

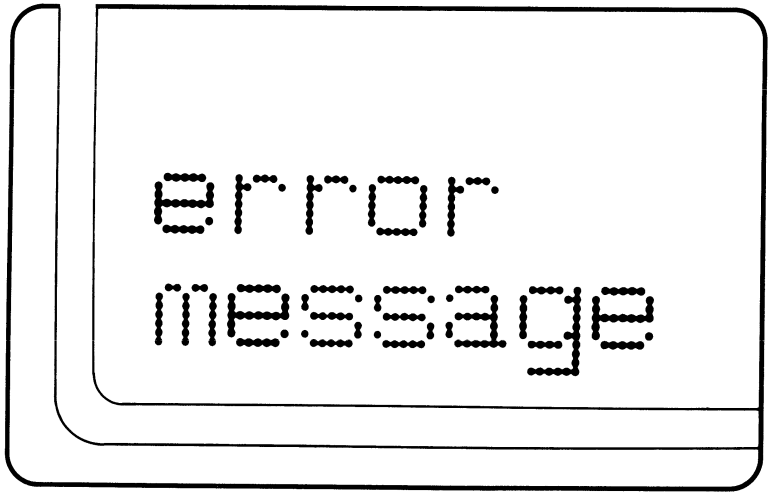
Textual values

User-defined display format

Hide display format

If the data file does contain data pertaining to these features, SuperCalc will give an error message and not load the file.

The use of new SuperCalc3 financial functions or any function abbreviations will generally prevent successful loading into SuperCalc2 or SuperCalc. The mere addition of graph descriptions does not create a compatibility problem.



APPENDICES
Error Messages

E

E. SuperCalc Error Messages: Cause and Cure

This chapter provides you with a detailed description of the error messages that you may receive while using the SuperCalc program. They are discussed in alphabetical order. For each error message we have included a brief explanation of its causes and a procedure for correcting the situation that resulted in the error message.

Here is a list of errors considered:

BDOS Error
Column Error
Disk Full
Drive Not Ready
File Not on Disk
Formula Error
Memory Full
Overlay Error
Protected Entry
Range Error
Replicate Definition Error
Row Error
Window Parameter Error
Worksheet Full Error

Some of these errors come from your CP/M operating system rather than from the SuperCalc program. They are included here for your convenience.

BDOS Error

This is an error message from the CP/M operating system. It will appear on your screen as "BDOS ERROR ON *d:error*". The *d:* stands for a drive designation, such as A or B; the actual designation will appear on your screen. The *error* in our example stands for the detailed error message that will appear on your screen. For example:

BAD SECTOR
SELECT
READ ONLY
FILE R/O

CP/M uses a simple approach to handle errors:

a. If you want to retry the operation, press any key *except* (CTRL | X)

b. If you want to quit, press (CTRL | C). You will return to the CP/M operating system. You will have to chance to save your work in the SuperCalc program, because CP/M will not return you to the SuperCalc program.

For error messages READ ONLY OR FILE R/C, there is no point in retrying the operation. The condition will not change.

Consult your CP/M system documentation for information about the BDOS error conditions. In addition to the CP/M documentation, you should select the documentation provided with your disk drives for information about recovering from disk-drive problems such as a BAD SECTOR OR SELECT.

Column Error

Cause:
Incorrect specification of a column. Correct specification is a letter from A to Z or two letters from AA to BK.

To Correct:
Use the in-line editor to correct the entry and re-enter the command, or cancel the command with (CTRL | Z).

Disk Full

Cause:
The disk designated to receive the file does not have enough space. The SuperCalc program will ask if you want to re-do the operation (Y) or (N). If you want to re-do the operation, remove the disk and insert anothery one, which has enough space, then press Y. If you press N, the operation is aborted, and you return to the SuperCalc program.

Drive Not Ready

This is a system error message from the BIOS portion of your CP/M operating system. To retry or cancel the operation, see the procedure given under BDOS ERROR above. It is possible that the drive will become ready and that retrying will work. If you retry several times without success, consult your disk-drive documentation for further information.

File Not On Disk

This occurs with the *load* command.

Cause:
The file name given is not found on the disk drive specified or implied in the entry.

To Correct:
Check your command entry.

1. Check the drive designation. If you did not specify one, the SuperCalc program assumes you mean the system drive.
2. Check the spelling of the file name.
3. Is the correct disk on the drive?

For cases 1 and 2, use the in-line editor to correct the drive designation or the file name and re-eter the command.

For case 3, either place the correct disk in the drive, or if this is not feasible, cancel the command with (CTRL | Z).

Formula Error

Cause:
These are two possible causes.

1. You entered text without a leading ". The SuperCalc program assumed that you intended to enter a formula, and it cannot make sense out of the entry as a formula.

2. There is some error in the way you specified a formula. Check it for correct specification of function name, correct use of expressions, balanced parentheses, valid cell names, etc. (See the section on "Formulas and Functions" in chapter 10, "Detailed Reference", for a list of all valid expression and function names.)

To Correct:
Use the in-line editor to correct your entry and re-enter, or cancel the entry with (CTRL | Z).

Memory Full

Cause:
Too much content in the worksheet. (This is a different case from Worksheet Full, described below, in which there are too many cell stubs on the worksheet.)

To Correct:
Blank any contents that you can spare. If you can, move material to the upper left of the worksheet, trying to preserve a roughly rectanglar shape. Save the worksheet, *zap* the screen and reload the worksheet.

If this does not free enough space, they you must break the worksheet into convenient portions for future work. To do this, *zap* the screen and reload selected portions of the saved worksheet. Build two or more worksheets out of these portions, saving them as separate worksheets.

Overlay Error

This is a serious error that prevents the SuperCalc program from being used.

Cause:

There are two possible causes.

1. The SuperCalc program has not been "installed" or has been "installed" incorrectly. Installing the SuperCalc program means customizing it to your computer system. This customizing involves specifying the terminal that you are using, the disk drives available, the memory space available, and the version of the CP/M operating system that you use.
2. The version of the CP/M operating system that you are using is incompatible with the SuperCalc program. Your version of CP/M may be an early or outmoded one, or it may have been incorrectly installed.

To Correct:

1. If you are installing the SuperCalc program yourself, re-install it, checking the installation documentation carefully as you proceed. If you still have the error, consult your dealer or Sorcim Corporation. If your dealer installed the SuperCalc program, have the dealer re-install it.
2. Consult your dealer or Sorcim Corporation to determine if the CP/M system is incompatible. If this is the case, then contact the supplier of your CP/M system for information and assistance.

Protected Entry

Cause:

This message can appear as the result of an error, or it may appear as an informational note. If the message is the result of an error it will appear during data entry or the *edit* command. You are attempting to enter data into an Active Cell which is protected. You must either remove the data from the entry line or cancel the *edit* command.

To Correct:

If you wish to put data in that cell, *unprotect* the cell and re-do the operation.

1. This message may appear as an informational note during a *blank, copy, load,* or *replicate* command. If there are protected cells in the area being blanked or in the destination area of the copy, load, or replicate command, the protected cells in the area have been changed. If you meant to leave the protected cells unchanged, all is well. If not, you may wish to unprotect them and re-do the command.

Range Error

Cause:

Incorrect specification of a range. A range may be a single cell, a partial column, or a partial row.

To Correct:

Use the in-line editor to correct the entry and re-enter the command, or cancel the command with (CTRL | Z).

Row Error

Cause:

Incorrect specification for a row. Correct specification is a number from 1 to 254.

To Correct:

Use the inline editor to correct the entry and re-enter the command, or cancel the command with (CTRL | Z).

Replicate Definition Error

Cause:

The destination may be specified incorrectly, or the destination area may be too small.

1. Specification error for the destination.
   a. If the source is a single cell, the destination should be specified as a partial column or partial row.
   b. If the source is a partial column, the destination should be specified as cells on the upper row of the destination. This will look like a partial row.
   c. If the source is a partial row, the destination should be specified as cells in the column on the left of the destination. This will look like a partial column.
2. Destination area is too small (will not fit).

Given the size of the source and the location of the destination, the result will not fit within the worksheet boundaries.

To Correct:
Correct the specification using the in-line editor and re-enter the command, or cancel the command with CTRL Z. (Note: The SuperCalc program caught the error before attempting to execute the command.)

Window Parameter Error

This occurs during the window command.

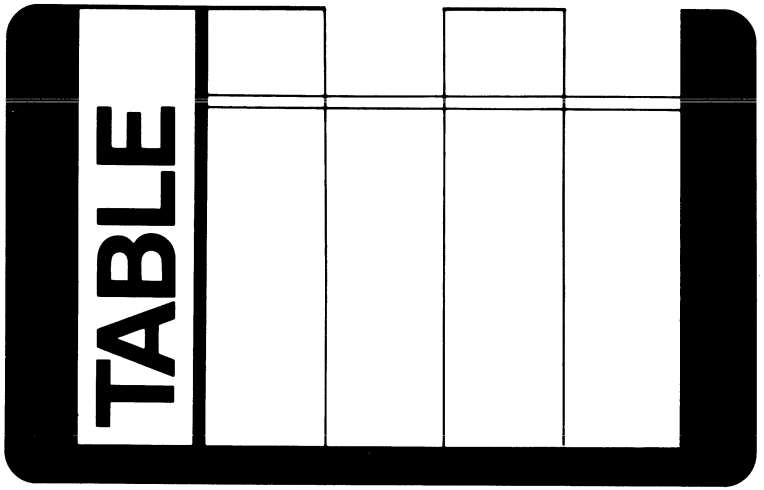
Cause:
Attempting to split the screen with the *window* command when the Active Cell is at the left or right edge or the top or bottom row of the display screen. Because of the way that the command works, the split cannot be made at the edges of the screen.

To Correct:
Either move the Active Cell away from the edge of the display window or scroll the screen to provide an additional column or row between the edge and the location you desire for the split.

Worksheet Full

Cause:
The worksheet is too large in size; there are too many cell stubs. (This is different from the case described above in Memory Full, where the worksheet has too much content.)

To Correct:
If you can, *blank* any unnecessary contents and move the other contents to the upper left, try to preserve a roughly rectangular shape. Then *save* the worksheet, *zap* the screen, and reload.



APPENDICIES
ASCII Table

F

APPENDIX F

ASCII Table

ASCII Codes

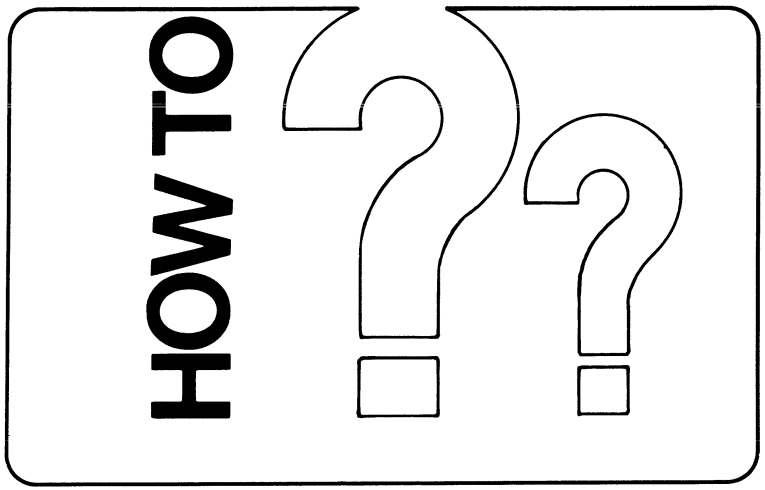
CONTROL		NUMBERS SYMBOLS		UPPER CASE		LOWER CASE	
NUL CTRL @ 00 0	DLE CTRL P 10 16	SP 20 32	0 30 48	@ 40 64	P 50 80	` 60 96	p 70 112
SOH CTRL A 01 1	DC1 CTRL Q 11 17	! 21 33	1 31 49	A 41 65	Q 51 81	a 61 97	q 71 113
STX CTRL B 02 2	DC2 CTRL R 12 18	" 22 34	2 32 50	B 42 66	R 52 82	b 62 98	r 72 114
ETX CTRL C 03 3	DC3 CTRL S 13 19	# 23 35	3 33 51	C 43 67	S 53 83	c 63 99	s 73 115
EOT CTRL D 04 4	DC4 CTRL T 14 20	$ 24 36	4 34 52	D 44 68	T 54 84	d 64 100	t 74 116
ENQ CTRL E 05 5	NAK CTRL U 15 21	% 25 37	5 35 53	E 45 69	U 55 85	e 65 101	u 75 117
ACK CTRL F 06 6	SYN CTRL V 16 22	& 26 38	6 36 54	F 46 70	V 56 86	f 66 102	v 76 118
BEL CTRL G 07 7	ETB CTRL W 17 23	' 27 39	7 37 55	G 47 71	W 57 87	g 67 103	w 77 119
BS CTRL H 08 8	CAN CTRL X 18 24	(28 40	8 38 56	H 48 72	X 58 88	h 68 104	x 78 120
HT CTRL I 09 9	EM CTRL Y 19 25	) 29 41	9 39 57	I 49 73	Y 59 89	i 69 105	y 79 121
LF CTRL J 0A 10	SUB CTRL Z 1A 26	* 2A 42	: 3A 58	J 4A 74	Z 5A 90	j 6A 106	z 7A 122
VT CTRL K 0B 11	ESC CTRL [1B 27	+ 2B 43	; 3B 59	K 4B 75	[5B 91	k 6B 107	{ 7B 123
FF CTRL L 0C 12	FS CTRL \ 1C 28	, 2C 44	< 3C 60	L 4C 76	\ 5C 92	l 6C 108	¦ 7C 124
CR CTRL M 0D 13	GS CTRL] 1D 29	- 2D 45	= 3D 61	M 4D 77	] 5D 93	m 6D 109	} 7D 125
SO CTRL N 0E 14	RS CTRL ^ 1E 30	. 2E 46	> 3E 62	N 4E 78	^ 5E 94	n 6E 110	~ 7E 126
SI CTRL O 0F 15	US CTRL _ 1F 31	/ 2F 47	? 3F 63	O 4F 79	_ 5F 95	o 6F 111	DEL (RUBOUT) 7F 127

KEY

CR
CTRL M
OD 13

ASCII Name

hex decimal



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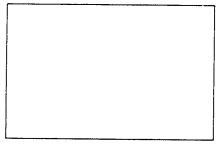

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