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NUMBER 1

**BEST  
GAMES OF '85**

# FAMILY COMPUTING

## Building Your Software Library

How to Set Up Your Finances

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Hands On: How to Enhance Your System

Plus: K-Power for Kids



**CONTEST**  
Computing Family of the Year

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SPECIAL BONUS:  
ROCK 'N' ROLL PROGRAM!



# FAMILY COMPUTING

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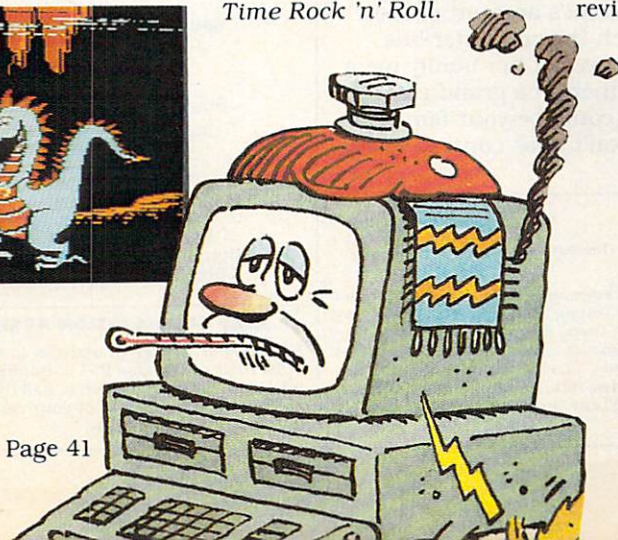
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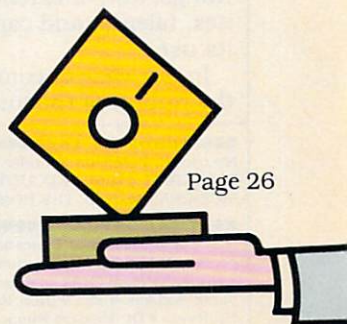
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# 300-, 1200-, and 2400-BAUD MODEMS

Manufacturer	Model	Price	Software Included	Internal/External	Hayes-Compatible	Features	Computer & Interface
<b>300 BAUD</b>							
Anchor Automation	Volkmodem	\$79	—	E	NA <sup>11</sup>	Aux. phone jack	Cables for many computers. \$12.95 ea.
Apple Computer	Modem 300	\$225	Apple Term <sup>3</sup>	E	No	—	All Apple computers (no software with Mac), cable included
Atari	XM301	\$49	XE Term	E	No	LED <sup>6</sup>	Atari <sup>12</sup>
CDI	Mitey Mo	\$99	Smart 64 Terminal +4	E <sup>2</sup>	No <sup>4</sup>	Aux. phone jack	C 64/128, cable included
Coleco	AdamLink	\$99	AdamLink <sup>3</sup>	I	No	—	Adam
Commodore	1660/Modem 300	\$129	Common Sense	E <sup>2</sup>	No <sup>4</sup>	Speaker	Commodore <sup>8</sup>
E + E DataComm	Avatex 300	\$64	—	E	Yes	Aux. phone jack	RS-232C
General Electric	3-8200	\$119	—	E	No	Acoustic coupler & direct connect. LED <sup>6</sup>	RS-232C, Atari <sup>12</sup>
Hayes	Smartmodem 300 <sup>5</sup>	\$199	—	E	Yes	LED <sup>6</sup> , speaker	RS-232C
	Micromodem IIe	\$199	Smartcom	I	Yes	Speaker	Apple II series <sup>9</sup>
Microperipheral	Autoprint Microconnection	\$69	Yes	E	No	Aux. phone jack, LED <sup>6</sup>	Atari and Commodore <sup>14</sup> , Centronics parallel
Novation	The Cat	\$189	—	E	NA <sup>11</sup>	Acoustic coupler, LED <sup>6</sup>	RS-232C
Tandy	AC-4	\$119	—	E	NA <sup>11</sup>	Acoustic coupler	RS-232C
	DCM 3	\$59	—	E	No	—	RS-232C
Trans Com	TCM-1	\$109	Yes	E <sup>2</sup>	No <sup>4</sup>	Aux. phone jack, LED <sup>6</sup>	C 64/128
U.S. Robotics	Password 300	\$199	—	E	Yes	Speaker	RS-232C
ZOOM Telephonics	ZOOM/MODEM IIe	\$179	ZOOM Communications	I	Yes	Speaker	Apple II series <sup>9</sup>
<b>1200 BAUD</b>							
Anchor Automation	Volkmodem 12	\$299	—	E	Yes	—	RS-232C, cables for many computers—\$12.95 ea.
Apple Computer	The Apple Personal Modem	\$399	—	E	Yes	LED <sup>6</sup> , speaker	All Apple computers, cables \$29 ea.
AT&T	Model 4000	\$499	SoftCall (\$79) <sup>7</sup>	E	Yes	Aux. phone jack, LED <sup>6</sup> , speaker	RS-232C
Cermetek	Apple-MATE 1200	\$299	Built in	I	Yes	Speaker	Apple II series <sup>9</sup>
	1200LC	\$199	—	E	Yes	Aux. phone jack, LED <sup>6</sup> , speaker	RS-232C
	1200TPC	\$149	QC-Modem	I	Yes	Speaker	IBM PC
Commodore	1670/Modem 1200	\$199	Common Sense	E <sup>2</sup>	Yes	Speaker	Commodore <sup>8</sup>
E + E DataComm	Avatex 1200	\$199	—	E	Yes	Aux. phone jack, LED <sup>6</sup>	RS-232C
General DataComm	Acculine 1200	\$499	—	E	Yes	Aux. phone jack, LED <sup>6</sup> , speaker	RS-232C
Hayes	Smartmodem 1200	\$599	—	E	Yes	LED <sup>6</sup> , speaker	RS-232C
	Smartmodem 1200B	\$549	Smartcom II 2.0	I	Yes	Aux. phone jack	IBM PC
Microcom	MacModem	\$699	MacModem	E	No	—	Macintosh
	ERA 2 1200	\$499	ERA 2	I	No	Aux. phone jack, speaker	IBM PC/PCjr, Apple II series <sup>9</sup>
	ZX 1200	\$699	—	E	Yes	LED <sup>6</sup> , speaker	RS-232C
Novation	Apple-Cat 212	\$319	Com-Ware II	I	No	Aux. phone jack	Apple II series <sup>9</sup>
	Smart Cat Plus	\$499	Mite <sup>1</sup>	E	Yes	Aux. phone jack, LED <sup>6</sup> , speaker	RS-232C
Prentice	POPCOM C150	\$465	PFS: Access	I	Yes	Aux. phone jack, speaker	IBM PC
Prometheus	ProModem 1200	\$495	—	E	Yes	LED <sup>6</sup> , speaker	RS-232C
	ProModem 1200A	\$449	Built in	I	Yes	—	Apple II series <sup>9</sup>
	ProModem 1200B	\$399	Mite	I	Yes	Speaker	IBM PC
	ProModem 1200M	\$549	ProCom-M	E	Yes	LED <sup>6</sup> , speaker	Macintosh, cable included
Racal-Vadic	Maxwell 1200V	\$295	CommuniKit (\$79) <sup>13</sup>	E	Yes	—	RS-232C
	Maxwell 1200PC	\$295	George 2.0 <sup>7</sup>	I	Yes	—	IBM PC
Tandy	PC Modem 1200	\$299	—	I	Yes	Aux. phone jack	Tandy 1000/1200HD, IBM PC
	DC-2212	\$399	—	E	No	—	RS-232C
Trans Com	TCM-1200	\$225	TransTerm	E	No <sup>4</sup>	Aux. phone jack, LED <sup>6</sup> , speaker	C 64/128
Transend	PC ModemCard	\$241	—	I	Yes	Aux. phone jack, speaker	IBM PC
	InfoPhone 1200	\$385	—	E	Yes	Same as above	RS-232C
U.S. Robotics	Password 1200	\$499	—	E	Yes	—	RS-232C
ZOOM Telephonics	ZOOM/MODEM PC1200	\$499	ZOOM/DISK, PFS: Access	I	Yes	—	IBM PC
<b>2400 BAUD</b>							
Anchor Automation	Signalman Lightning 24	\$599	—	E	Yes	Aux. phone jack, LED <sup>6</sup> , speaker	RS-232C
Cermetek	2400 Modem	\$745	—	E	Yes	Same as above	RS-232C
Hayes	Smartmodem 2400	\$899	—	E	Yes	Same as above	RS-232C
Microcom	MacModem 2400	\$999	MacModem	E	No	Same as above	Macintosh, cable included
Multi-Tech	MultiModem224	\$795	—	E	Yes	Same as above	RS-232C
Novation	Professional 2400	\$795	—	E	Yes	Aux. phone jack, LCD <sup>10</sup> , speaker	RS-232C
Racal-Vadic	Maxwell 2400V	\$595	CommuniKit (\$79) <sup>13</sup>	E	Yes	Aux. phone jack, LED <sup>6</sup> , speaker	RS-232C
U.S. Robotics	Courier 2400	\$895	—	E	Yes	Same as above	RS-232C

## Notes

1. IBM PC, Kaypro, and Macintosh versions available. 2. Cartridge. 3. Software doesn't transfer files. 4. Commodore 1650-compatible. 5. Apple IIc version (\$239) includes IIc cable and Smartcom I. 6. Light-Emitting Diodes (display lights). 7. Software works with IBM PC and compatibles. 8. Commodore includes C 64/128/16, VIC-20, Plus/4. 9. Not including the IIc. 10. Liquid Crystal Display—modem status in English. 11. Not applicable to manual-dial modems. 12. Atari includes Atari 130XE, 400, 600XL, 800, and 800XL. 13. IBM PC or Macintosh kit includes cable and communications software. 14. Versions available: Atari 400, 600XL, 800, 800XL; C 64/128; and VIC 20.

# the PROGRAMMER



ILLUSTRATION BY BARTON STABLER

★ J A N U A R Y ★

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**MORE PROGRAMS  
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Try *Baby Box*,  
to give  
your young child a  
real computer  
experience!

**ARCADE GAME**

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Can you beat  
the times shown  
and win a gold medal?  
You're  
the champion with  
this crowd-pleasing,  
fast-action sports  
game!

**PRODUCTIVITY  
PROGRAM**

Page 70

Our own  
versatile filebox  
program,  
*Home Information Manager*,  
is presented here  
for the IBM PC  
and PCjr.

ILLUSTRATION BY JIM CHERRY III

Cherry

# TIPS TO THE TYPIST

Typing in FAMILY COMPUTING'S programs is a great way to become familiar with your computer and get some free software "to boot." But it's frustrating to type in a long program only to find it doesn't work as it should. When this happens, simple typing errors are most often the cause. So to help you gain greatest value from the time you spend computing with us, we've put together some tips on how to avoid typing errors—and what to do if a program doesn't run right. Read them carefully and you'll be up and running in no time!

## SOME GENERAL RULES

**1. Do** read instructions and program headings carefully. Make sure your computer has enough memory, the right version of BASIC, and the appropriate peripherals (joysticks, printers, disk drives, etc.) for a program.

**2. Don't** let fatigue and boredom contribute to inaccuracy. If you're new to programming, try typing in shorter programs first. Type in a longer program in easy stages, **SAVE**ing each installment as you go.

**3.** Until you are fairly familiar with BASIC, **do** assume that every word, number, letter, space, and punctuation mark in a program listing must be copied accurately if the program is to function as intended.

**4. Do** watch out for potential trouble spots. About 90 percent of all typing errors occur in **DATA** statements: long lines filled with numbers or incomprehensible secret codes. If possible, have someone else read **DATA** to you as you type, and help you proofread it if you have trouble later on. Proofreading from a printout is best.

**5. Do** be aware that program listings printed in FAMILY COMPUTING sometimes differ from what you will see on your computer's screen or in printouts you produce at home. Our program listings are printed 54 characters wide. Thus, a single BASIC program "line" (sometimes called a "logical line") may appear as several lines in our listing. If you are typing along and reach the right margin of the printed listing, don't press **RETURN** or **ENTER** until you've checked to see if the program "line" you're typing really ends there. The way to tell is to check if the line following begins with a multiple of 10 that follows in sequence from the previous logical line. **REM** statements are the exception and typing them in is optional.

Several computers (ADAM, Apple, Atari, and TI) format BASIC programs according to unique rules of their own. Don't let this throw you—just type in the listing exactly as printed in the magazine and your computer is guaranteed to accept it, even though it may end up looking a little different on your screen.

**6.** One foolproof way to correct an error in a BASIC program line is to type the line in again from the beginning, and press **RETURN** or **ENTER** to set it in place of the old one in your computer's memory.

## WHICH PROGRAMS WILL RUN ON MY COMPUTER?

Unless a program heading indicates otherwise, programs

will run on any version of the computer specified, with the following exceptions:

- Apple programs run under Applesoft (not Integer) BASIC on the Apple II (with language card), II plus, IIe, and IIc.

- IBM compatibility of BASIC programs is determined by both the hardware and the version of BASIC used. Our programs for IBM PC & compatibles are composed on IBM PC & PCjr's, and tested under most versions of BASIC available for these machines. They are then tested on a variety of IBM-compatible machines under the versions of BASIC supplied with them. Each "IBM PC & compatibles" program listing is supplemented by a rundown of the machines and versions of BASIC under which the program is guaranteed to work. Most programs will probably run on many other PC Compatibles and under other versions of BASIC.

- TI programs not marked "w/TI Extended BASIC" should be run under standard (console) TI BASIC.

## DEBUGGING HINTS

Sometimes even the most careful typist makes a mistake. Don't expect your program to run right off the bat. If you have problems, remain patient and follow these general instructions for a probable quick fix.

**1.** Write down any error messages you receive.

**2.** If necessary, look these up in your manual, and check the indicated lines for simple mistakes. Also check related lines (see No. 4, below), such as the **DATA** statements corresponding to a **READ** routine. Correct all the problems you can find, and **SAVE** a corrected copy of the program before typing **RUN** again. If you're lucky, all systems will be **GO**; if not . . .

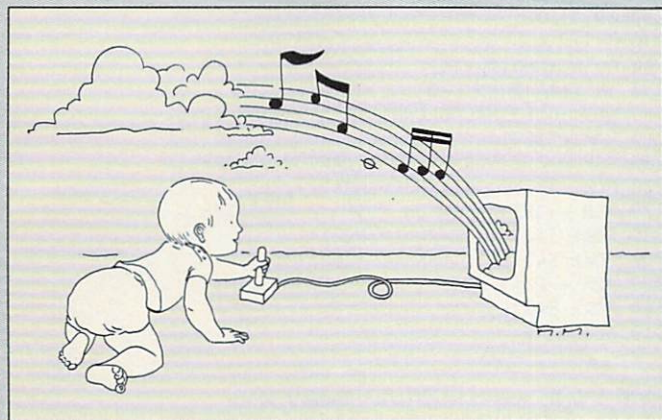
**3.** **LIST** the program in screen-size chunks (check your manual for instructions on how to **LIST** parts of a program). Even better, if you have a printer, get a printout. Compare what you've typed in—letter by letter—to the published program. Make sure that you haven't typed the numeral 0 (which is slashed in our listings) for the letter O (which isn't), swapped a small letter "l" for the numeral one, dropped or mixed up some punctuation, switched uppercase text for lowercase, or vice versa (particularly in **DATA** statements or within quotes), or miscounted the characters (and/or spaces) between a pair of quotes. Get someone to help you if possible.

**4.** Check your **DATA** statements—then check them again. Mistakes in **DATA** statements are the single most common cause of program failures. Bad data can cause a program to malfunction at any point, which can be misleading. If you can't find your error in the lines the computer specifies, check your **DATA** statements line by line, letter by letter, comma by comma. Then have someone else check it for you.

**5.** If all else fails, turn off your computer and relax. Then try again the next day—exhausted proofreaders are careless proofreaders.

**BABY BOX**

BY JOEY LATIMER



What do you do when you're working on your home computer and your small child comes over to see what you're doing? I always used to wish there were some way I could let my daughter, Erin, play with the machine and get comfortable with it. Unfortunately, though I had access to a huge library of software, there weren't any programs I could find that would appeal to a one-year-old. For a while, Erin and I played with the word-processor, but she was too young for typing and ended up being more interested in the beeping of the keyboard than in literary experiments. Then I tried some arcade games, but she had a hard time understanding how to push the joystick (actually, she preferred chewing on it).

Eventually, however, my wife and I noticed something that solved our problem. Erin's "activity box" had something like a trak ball in it, and when she sat in her infant seat she could spin it with her feet. "Hmmm. . ." we thought. "Let's put a *real* trak ball in front of her, and see if she can spin that." It worked. She could spin it just the same.

Knowing this, I went to the computer and wrote a little program that would change the colors of the screen and play musical notes each time the trak

ball was spun.

We call our little program *Baby Box*, and we're happy that FAMILY COMPUTING is sharing it with you.

Because most people don't own trak balls, we've modified the original program so that it works with the keyboard or a joystick. (However, if you do own a trak ball and can plug it into your computer's joystick port, it should work, also.) To use the program, type it into your computer, then SAVE it to disk or cassette. Next, if you have a joystick (or trak ball), plug it into port number one. Then type RUN. Seat your child safely in an infant seat, high chair, or on your lap, and give him or her access to the controller or keyboard. Each time the child presses a key or moves the controller (or presses the controller's button), the screen will change colors, and the computer will play a tone, randomly picked from a musical scale.

Remember that young children have very short attention spans—usually less than five minutes. Don't be upset if your child doesn't seem interested at first, or even seems a little afraid. Don't force things. Start with the volume turned down low, and let the baby explore a little. It won't be long before your little one is banging out a colorful tune on the *Baby Box*.

**Adam/Baby Box**

```

10 LOMEM: 29000
20 FOR i = 28000 TO 28012
30 READ a
40 POKE i,a
50 NEXT i
59 REM --SET WHITE TEXT ON BLACK BACKGROUND--
60 POKE 17115,240
70 TEXT
80 PRINT TAB(11);"*-BABY BOX-*"
90 PRINT
100 PRINT TAB(4);"Press the keys or move the"
110 PRINT TAB(12);"joystick."
120 VTAB 20:HTAB 5
130 PRINT "Press any key to start."
140 GET k$
150 HOME
160 x = 0
169 REM --PREPARE FOR KEYPRESS--
170 CALL 28007
179 REM --"PEEK(64885)" TELLS LAST KEY PRESSED--
180 IF PDL(5) <> 0 OR PDL(7) <> 0 OR PDL(9) <> 0 OR PDL(13) <> 15 OR PEEK(64885) <> 0 THEN 270
190 IF x = 0 THEN 180
200 x = x+1
210 IF x < 50 THEN 180
219 REM --TURN OFF SOUND--
220 POKE 28006,159
230 CALL 28000
240 POKE 17115,240
250 TEXT
260 GOTO 160
270 x = 1
280 back = INT(RND(1)*14)+2
290 fore = back+INT(RND(1)*13)+1
300 IF fore > 15 THEN fore = fore-14
309 REM --SET RANDOM TEXT AND BACKGROUND COLORS--
310 POKE 17115,back+16*fore
320 TEXT
329 REM --PLAY A RANDOM NOTE--
330 POKE 28006,130+INT(RND(0)*10)
340 CALL 28000
350 POKE 28006,20+INT(RND(0)*50)
360 CALL 28000
370 POKE 28006,144
380 CALL 28000
390 GOTO 170
1000 DATA 58,102,109,211,255,201,0,62,0,50,117,253,201

```

**Apple II series/Baby Box**

```

10 FOR S = 768 TO 796
20 READ A
30 POKE S,A
40 NEXT S
49 REM --PREPARE FOR KEYPRESS--
50 POKE -16368,0
60 P0 = PDL(0)
70 P1 = PDL(1)
80 HGR
90 PRINT TAB(15);"*-BABY BOX-*"
100 PRINT
110 PRINT TAB(3);"PRESS THE KEYS OR MOVE THE JOYSTICK."
"
120 PITCH = 0
129 REM -- -16286 IS TRIGGER, -16384 KEYBOARD STATUS--
130 IF ABS(PDL(0)-P0) > 2 OR ABS(PDL(1)-P1) > 2 OR PEEK(-16286) > 127 OR PEEK(-16384) > 127 THEN 220
140 IF PITCH = 0 THEN 130
149 REM --PLAY A LONG NOTE--
150 POKE 6,200
160 POKE 8,PITCH
170 CALL 768
180 HCOLOR= 0

```

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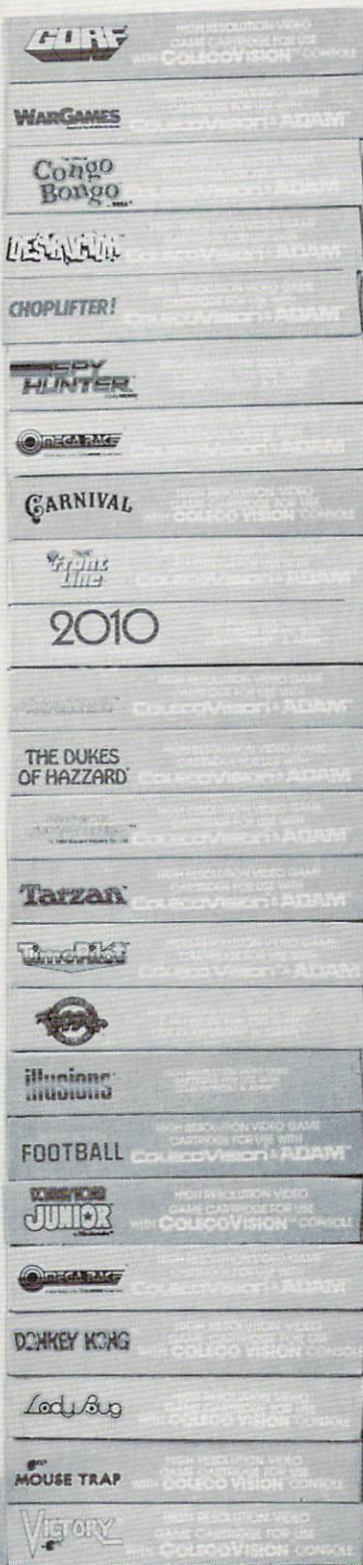
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\*Availability of some software programs subject to change.

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