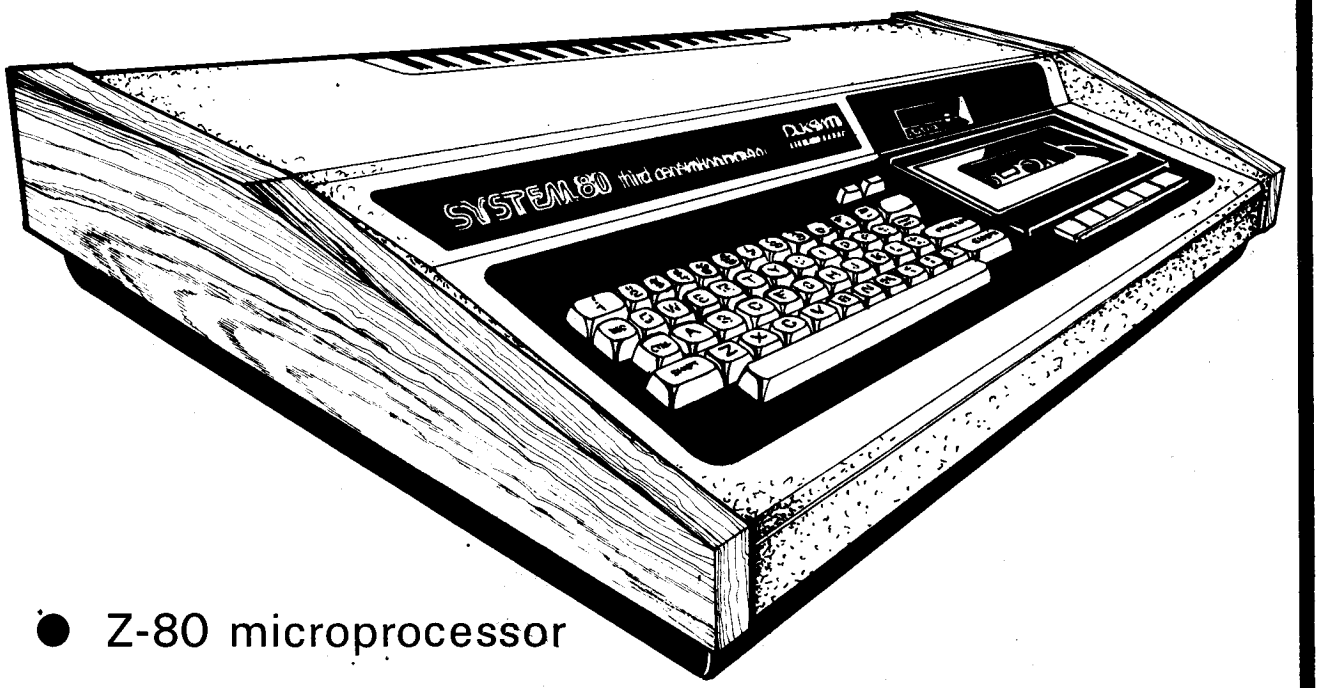
IT HAD TO HAPPEN!

THE COMPUTER OF THE DECADE

DICK SMITH SYSTEM 80

third generation computer system



- Z-80 microprocessor
- Takes two cassette players – one is built in!
- RF output direct to TV set (video output as well)
- 12k Tandy compatible BASIC
- 16 lines of 64 or 32 characters
- 128 x 48 graphics matrix
- Expansion with S-100 system
- Dick Smith backup

The design philosophy of the Dick Smith System-80 Personal Computer is for a general purpose computer system which features maximum expansion capability and versatility whilst retaining the lowest possible price.
The main unit, (X-4003/5), contains a Z-80 Central Processor Unit, a keyboard, cassette interface with its own built-in cassette recorder, a video interface with a video modulator so that you can use a video monitor or your own standard TV set.

The Dick Smith System-80 Computer comes in two different models. Cat.X-4003 Computer contains 4K of user RAM memory, whilst the Cat. X-4005 System-80 contains 16K of user RAM memory. These two models are identical in all other respects and can be changed to the other by changing the memory IC's in the computers.

This hardware configuration is very powerful as it means that the complete working computer system is contained in one box. The only other item required is a standard TV set or a Video Monitor.

To complement this 'hardware', the System-80 has a powerful resident EXTENDED BASIC Interpreter which is compatible with that of Tandy TRS-80 Level-II BASIC. This, of course, means that you can use the multitude of programs that have been written for the TRS-80 Computer since it was first released several years ago. So now you have a state-of-the-art Computer with the software ready and waiting.

We said earlier that the System-80 was expandable. This is vital if you are to use your computer and treat it as an investment for years to come. Rather than follow an obscure expansion system, we have chosen the world standard S-100 Bus system for the Dick Smith System-80. There is an edge connector on the back panel of the System-80 to which the S-100 expansion Unit will attach when it is released. This expander Unit will provide the S-100 sockets to allow you to plug in any of the multitude of S-100 cards which are available from over 200 manufacturers around the world. The sort of things you might want to add to your System-80 could be:

Memory cards – to expand your system up to 48K user RAM.
Disk Controllers – you can use the Micropolis Metafloppy drives to give your system a capacity of up to 1260K (that's over 1.2 Megabyte) on-line storage.
Device controllers – to turn on and off the equipment in your home or office.
Music Synthesisers – you can compose music even if you can't play an instrument.
Voice Synthesisers – talking computers are now a reality!
Real-time Clocks – so that your System-80 knows what time it is!

Let us now take a closer look at the 'Level II' BASIC in the Dick Smith System-80. This BASIC can be divided into eight sections:

1. ACTIVE COMMANDS
2. TEXT EDITING
3. BASIC STATEMENTS
4. ARRAYS
5. STRINGS
6. ARITHMETIC FUNCTIONS
7. GRAPHICS
8. SPECIAL FEATURES.

In the Dick Smith System-80 Computer there are four different operating levels:

1: Active command level; In this level, the computer responds to commands as soon as they are entered (by pressing the new line key). Whenever the >__ signs are on the display, the user is in the active command level.

2: The Program Execution Level: This level is entered by typing RUN, causing the BASIC program in the memory to be executed. On entering this level all variables are set to null (empty) before execution starts.

2: Text editing Level: This level allows the user to modify, add or delete characters and lines of the Basic Program source resident in the memory. The most significant feature of this level is that the user can change any portion of a line without having to re-type the entire line.

4: Monitor Level: This level permits the user to load machine-language programs into the memory. This may be a machine language executable programs or even data files. Such 'object' files can also be accessed by BASIC programs.

As you can see, this makes for a very powerful personal computer. When you consider the price, it just cannot be beaten for value!

Cat X-4003 4k System-80 computer ..... $595.00 inc tax
Cat X-4004 16k System-80 computer ..... $695.00 inc tax
Cat X-1196 Video Monitor (only if you want one – not essential) ... $149.50 inc tax.

The Dick Smith System-80 Personal Computer accepts variable names which can be longer than two characters, however, only the first two characters will be recognised as the variable name by the computer. Variables must start with a letter and the second character may be a letter or a digit. Therefore variables may be from AA to ZZ and A0 to Z9. Please note however that when using long variable names you must ensure that they do not contain 'reserved words'. These reserved words are ones like 'GOTO' 'PRINT', 'RUN' etc.

There are four kinds of variables; Integer, Single precision floating Double precision floating point, String. These are distinguished by appending one of the following special characters, respectively: %, !, #, $.

The following operators are used by the System-80:

+ Addition
− Subtraction
* Multiplication
/ Division
ESC Exponentiation
< Less than
> Greater than
<> Not equal
<= Less than or equal to
>= Greater than or equal to
= Equal to

In addition the System-80 recognises three logical operators:

AND , OR , NOT

and string operators for comparing the precedence of strings.

1. ACTIVE COMMANDS.

1	AUTO	Automatic line numbering
2	CLEAR	Resets Variables to zero and sets aside string space
3	CLOAD	Loads a program of specified filename from specified tape unit.
4	CLOAD?	Verifies that the loaded program is correct.
5	CONT	Continue execution after stopping.
6	CSAVE	Saves BASIC program to tape.
7	DELETE	Deletes line or lines specified from program.
8	EDIT	Puts System-80 in EDIT mode to correct part of a line
9	LIST	Lists the program lines specified.
10	NEW	Clears the current program from memory.
11	RUN	Starts program execution
12	SYSTEM	Puts System-80 in Monitor mode
13	TROFF	Turns off the trace diagnostic
14	TRON	Turns on the trace diagnostic
15	LPRINT	Prints a file to the printer
16	LLIST	Lists the program to the printer.

2. TEXT EDITING.

By typing in EDIT 100, for example, the computer will prepare to edit line 100. You can:

1: Insert text
2. Delete from end of line
3. Delete from cursor to end of line and insert text.
4. Add to end of line
5. List line
6. Quit and restart edit
7. Change characters

3: BASIC STATEMENTS.

1. PRINT	18. STOP
2. PRINT@	19. GOTO
3. PRINT USING	20. GOSUB
4. INPUT	21. RETURN
5. DATA	22. ON GOTO
6. READ	23. ON GOSUB
7. RESTORE	24. FOR TO STEP
8. PRINT#	25. NEXT
9. INPUT#	26. RUN
10. DEFINT	27. ON ERROR GOTO
11. DEFSNG	28. ERROR
12. DEFDBL	29. RESUME
13. DEFSTR	30. REM
14. CLEAR	31. IF
15. DIM	32. THEN
16. LET	33. ELSE
17. END	

4. ARRAYS.

The Dick Smith System-80 Computer is capable of accepting both numeric and string arrays. An array is simply a list or table of data which is set out in the memory of the computer for easy access to programs. The dimension of an array is simply the number of ways it is expanded from a single value. Thus a table of data with eight columns and eight rows is a two dimensional array containing sixty-four separate variables. In the computer these are represented with subscripts; e.g. A(1,1), A(1,2), A(1,3)..... A(8,8) These arrays are set up in the computer using the DIM statement.

5: STRINGS

The System-80 uses two kinds of strings:

1: Constants – these are always represented within quotes inside the program; eg "yes"
2: Variables – eg, A$

As you can see, a string is simply a 'string of characters'; they can, of course, be letters, numbers, or special punctuation and mathematical characters. The computer can add, divide, compare and create strings as you desire. The functions it uses are:

1. ASC	6. MID$
2. CHR$	7. STR$
3. LEFT$	8. STRING$
4. RIGHT$	9. VAL
5. LEN	

6. ARITHMETIC FUNCTIONS

The System-80 features sixteen built-in arithmetic functions:

1. ABS	9. INT
2. ATN	10. LOG
3. CDBL	11. RANDOM
4. CINT	12. RND
5. COS	13. SGN
6. CSNG	14. SIN
7. EXP	15. SQR
8. FIX	16. TAN

7: GRAPHICS.

The graphics of the System-80 are arranged as 48 lines of 128 columns. The graphics commands available are as follows:

1. SET	3. CLS
2. RESET	4. POINT

8: SPECIAL FEATURES.

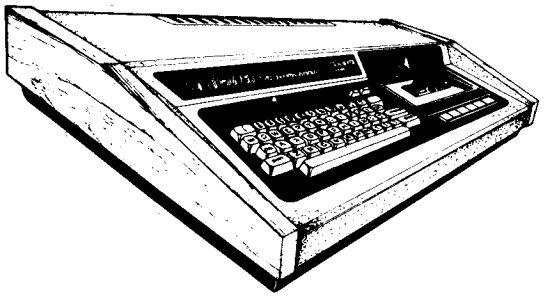
The following special features are implemented in the System-80:

1:INP This command will input the 8-bit byte from the port specified.
2: OUT This command outputs a byte to the port specified.
3. PEEK This command returns the decimal value of the memory location specified.
4. POKE This command lets you insert a value into the specified location in memory.

9. ERROR CODES.

To assist in trapping errors in your programs, the System-80 has twenty two error codes:

ERROR CODE	ABBREVIATION	ERROR
1	NF	NEXT without FOR
2	SN	Syntax error
3	RG	RETURN without GOSUB
4	OD	Out of data
5	FC	Illegal function call
6	OV	Overflow
7	OM	Out of memory
8	UL	Undefined line
9	BS	Subscript out of range
10	DD	Redimensioned array
11	/0	Division by 0
12	ID	Illegal direct command
13	TM	Type Mismatch
14	OS	Out of string space
15	LS	String too long
16	ST	String formula too complex
17	CN	Can't continue
18	NR	No resume
19	RW	RESUME without error
20	UE	Unprintable error
21	MO	Missing operand
22	FD	Bad file data



COMPARE THE FEATURES — THEN COMPARE THE PRICES!

The System-80 compares more than favourably with the TRS-80 with level II on features alone (S-100 compatible, inbuilt cassette, etc), but look at the bottom of the table for the incredible savings you make when you buy the SYSTEM 80 — EXCLUSIVE TO DICK SMITH ELECTRONICS

	PARAMETER	SYSTEM-80	TRS-80 (level I)	TRS-80 (level II)
1	CPU type	Z-80	Z-80	Z-80
2	Speed	1.7MHz	1.7MHz	1.7MHz
3	Amount of RAM	16k	16k	16k
4	Built-in cassette recorder	Yes	No	No
5	Built-in video modulator	Yes	No	No
6	Capacity of BASIC ROM	12k	4k	12k
7	Type of BASIC supplied	Microsoft 12k Floating point	Floating point	Microsoft 12k Floating point
8	ROM expansion on-board to:	12k	12k	12k
9	Machine language programs accessible from executing BASIC programs	Yes	No	Yes
10	Full ASCII characters	Upper case only	Upper case only	Upper case only
11	Numeric keypad	No	Yes (option)	Yes (option)
12	Programmable graphics characters	No	No	No
13	Graphics resolution (dots)	8192	8192	8192
14	Mixed graphics/text — any format	Yes	Yes	Yes
15	Text format	16 lines x 64 or 32	16 lines x 64	16 lines x 64 or 32
16	Number of cassette interfaces	2	1	1
17	Baud rate	500	250	500
18	Time to load 8k program	2 min 30 sec	4 min 50 sec	2 min 30 sec
19	Cassette file names	Yes	No	Yes
20	Number of cassette recorders	2	1	1
21	Motor control for cassette recorders	Yes (2)	Yes (1)	Yes (1)
22	Number of string variables	930	2	930
23	Maximum length of string variables	255	16	255
24	S-100 compatible	Yes	No	No
25	Supports disc drive system	Yes	Yes	Yes
26	Usable as a terminal without hardware modification	No	No	No
27	**Cost of basic unit with 16k RAM including tax**	**$695.00**	**$989.00**	**$1169.00**

DICK SMITH ELECTRONICS

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