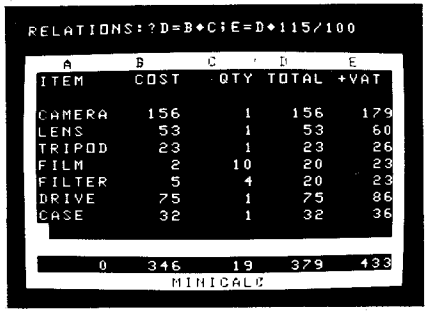


MINICALC

Cassette 2 — Financial Planning

The MINICALC program will introduce you to the concepts of financial modelling that are widely used in business, and will prove invaluable for household budgeting.

SALES uses graphical techniques to chart sales over a 12-month period, with cumulative and 3-monthly averages.

Cassette 3 — Household

Programs for use in the home.

TBOOK is a computerised telephone-book, which can hold 95 names and telephone numbers for quick and easy access; these can be stored on cassette.

TYPER

Learn to touch-type with TYPER, which gives you a carefully graded series of exercises which get harder as you improve; it includes a diagram of the keyboard so you do not have to look down at your hands.

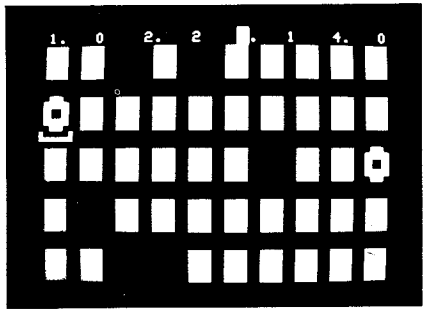
Timing a series of actions is difficult, even with a stopwatch; TIMER will automatically organise the timing of a series of events, such as the stages in preparing a meal, display the current time and a countdown, and ring an alarm when each one is due.

Cassette 4 — Games

ATTACK — defend yourself from attack with a laser gun.

CONNECT4 — Play against the computer, or another player, to get 4 counters in a row.

BREAKOUT — Knock bricks from a wall with a bat and ball, and try to beat the high score.

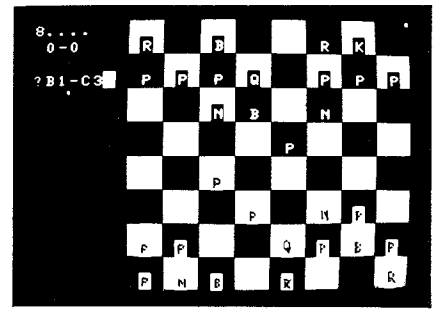


MEMORY

MEMORY — For 1 to 4 players; the computer lays out 25 pairs of cards face-down, and you must remember where the pairs are.

MASTERMIND — Crack the computer's code in less than ten attempts.

ATOM CHESS

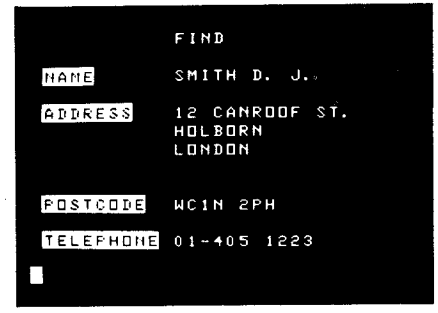


ATOM CHESS is a complete chess-playing program, with the following features:

- 6 levels of play, giving novice to professional standards.
- Computer moves in 2 seconds at the lowest level.
- Board display with coordinate entry of moves, and rejection of illegal moves.
- Computer and human castling (0-0 and 0-0-0).
- En-passant captures allowed, and played by computer.
- Up to 127 moves each side are stored, and can be replayed from any point in the game.
- A game can be restarted at any earlier point.

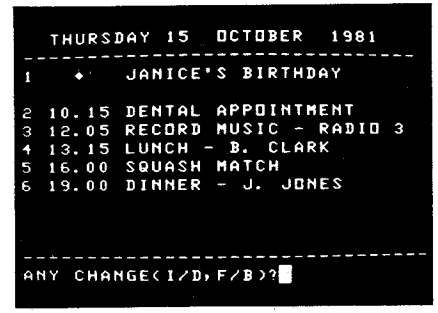
Program 5K, graphics 6K.

ATOM DESK DIARY



ADDRESS BOOK

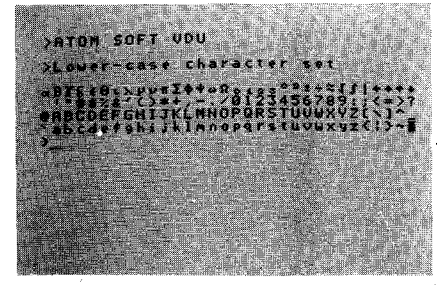
Allows a file of up to 100 names, addresses, post codes, and telephone numbers to be built up and searched in a fast and convenient way. Options are selected from menus displayed by the program, and it allows all the entries to be printed out for mailing lists, etc.
Program 5K, graphics 6K.



PLANNER

Works just like a written diary with many automatic features, and space for up to 300 entries. Three types of entries can be made: appointments, at a specified time-of-day; permanent entries, such as birthdays and holidays, which automatically get carried through to subsequent years; and exclusive entries, for trips and holidays, which prevent further appointments to be made on that day. Program 5K, graphics 6K.

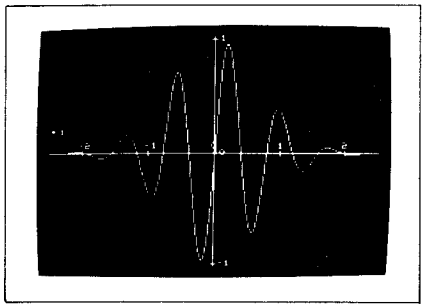
SOFT VDU



SOFT VDU

The soft VDU replaces the normal ATOM VDU, but provides 128 characters including upper and lower-case letters, and mathematical symbols. The characters can be mixed with high-resolution graphics, and the DESIGN program allows new characters, such as foreign letters, to be designed and added to the character set. Program 1.5K, graphics 6K.

MATHS PACK 1



PLOT
A versatile graph-plotting package for use in research, accounting, schools, and mathematics, or simply for amusement. Will draw a graph of a specified function, with automatic scaling if required, or a plot of coordinate data, connected by line segments or a smooth curve; a regression line can be fitted to data. Annotated axes are drawn if required. Program 5K, graphics 6K.

SIMULTANEOUS
Solves a set of simultaneous equations, with integer or real coefficients, by the rapid Gaussian-elimination technique. Program 2K, graphics ½K.

REGRESSION
Calculates the best-fitting straight line to a specified set of data points, gives the equation of the line, and the correlation coefficient of the fit. Program 2K, graphics 1/2K.

MATHS PACK 2: Picomath Algebraic Manipulation Package

The Picomath suite of programs will perform a wide range of algebraic manipulations, and expressions can be symbolically differentiated or integrated.

POLYNOM can expand and simplify, differentiate, or integrate, a polynomial expression such as:

$$(2x - y).(x + y)^2 - (28z - 1)^2$$

into the equivalent polynomial:

$$2x^3 + 3x^2y - y^3 - 784z^2 + 56z - 1$$

RATIONAL can expand and simplify an expression such as:

$$1 + \frac{1}{x-1} - \frac{1}{x-1} + \frac{2x}{x^2-1}$$

into the equivalent ratio of two polynomials, reduced to lowest terms:

$$\frac{x+1}{x-1}$$

TRIGONOM can expand and simplify, differentiate, or integrate, a trigonometric expression such as:

$$\frac{1 + \tan^2 x}{1 + \cot^2 x}$$

into the equivalent standard form:

$$\sec^2 x - 1$$

FOURIER can perform trigonometric transformations into a linear combination of sines and cosines of integer multiples of x. For example:

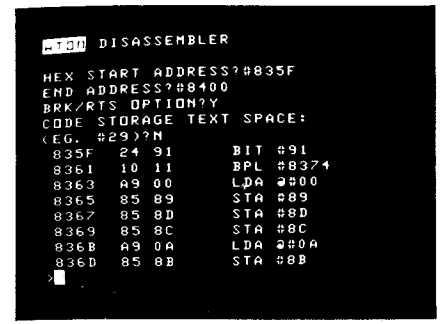
$$64 \sin^4 x \cos^3 x$$

will be transformed into:

$$3 \cos x - 3 \cos (3x) - \cos (5x) + \cos (7x)$$

Memory requirements: Programs 5K, graphics 1/2K, need floating-point.

UTILITY PACK 1

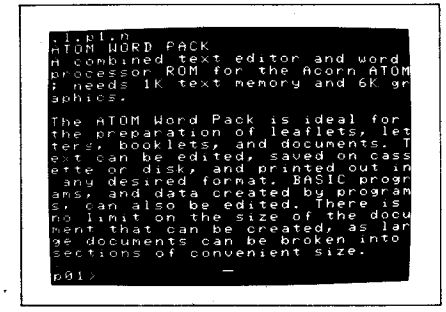


DISASSEMBLER
A versatile disassembler which can list machine code in standard ATOM assembler form, or store the assembler text into memory so that it can be edited and re-assembled with any starting address. Graphics 2K.

FAST COS
Speeds up program saving by modifying the ATOM's standard cassette-interface routines to operate at 1200 baud, or 4 times the standard speed. Program 1K.

RENUMBER
A fast renumber for BASIC or assembler programs, which gives a display of the line numbers for labelled lines. Program 1K.

WORD PACK ROM



A combined text editor and word processor ROM for the Acorn ATOM; needs 1K text memory and 6K graphics.

The ATOM Word Pack is ideal for the preparation of leaflets, letters, booklets, and documents. Text can be edited, saved on cassette or disk, and printed out in any desired format. BASIC programs, and data created by programs, can also be edited. There is no limit to the size of document that can be created, as large documents can be broken into sections of convenient size.

The Word Pack is supplied in a 4K ROM which simply plugs in to the ATOM's utility ROM socket. The ROM adds the commands EDIT and TEXT to the ATOM's command set, and these commands can be inserted in programs. The EDIT command enters the text editor/word processor. The TEXT command stores text to the editor's text area, so that output generated by programs, or by the LIST command, can subsequently be edited.

The Word Pack comes complete with a 16-page booklet giving full instructions, and examples of use.

Text Editor

The Text editor uses the ATOM's high-resolution screen to display the text, with full upper and lower case. Editing commands are all single keystrokes; they allow text to be added anywhere in the document, deleted, or moved, using a cursor to specify the required position. Any part of the document can be viewed, and the editor includes a 'find' command which will search for a string, and replace all or selected occcurrences of it by another string; thus, for example, spelling mistakes can be corrected throughout the text with a single command.

Text-Editor Commands:

Insert after, insert before, copy text to buffer, end of text, delete, enter text, escape/delete mark, find (and replace), home cursor, insert character, next page, output to printer, previous page, quit to BASIC program, replace text, move to start, transfer text to buffer, where is end of text, exchange character, move to end, roll up one line, cursor to start of line, cursor to end of line, mark cursor position, load text file, save text file, execute COS/DOS command.

Word Processor

The processor commands can be inserted into the text to give great flexibility in how it is printed. Pages can be printed in any format, with optional page numbers, and sections can be justified as required. The processor caters for most makes of printer, and for single-sheet printing the processor can be made to wait for a keypress after each page.

Processor Commands:

Allow lines to be on the same page, allow new page, centre line, double-space lines, equal-position line numbers, indent, justify lines, keypress for new page, set lines per page, line one of document, margin, no justification, output character to printer, set page number, no page numbers, right margin, single-space, temporary indent, width of page, exchange control character, comment line.

ATOM DATABASE

```
#>?SET TYPE SUB R AND DRINK = NO

#>?PRINT NAME TYPE YEAR

#>?SORT NAME

#>?GO
NAME                    TYPE  YEAR

BEAUNE                  RM3   1976
LA TOUR-HAUT-BRIO       RM2   1976
VOLNAY                  RM3   1976

#>?
```

The ATOM DATABASE is a very versatile and efficient cassette or disk based database system. Possible applications include:

Keeping a personal telephone directory
Recording the stock of a wine cellar
Storing data on the chemical elements
Organising census data

The information can be typed in and edited just like a BASIC program, making it very easy to create and edit databases. The format of the database is chosen by the user, and consists of any number of named fields of specified width. The program includes commands to list subsets of the database, and output the database to a printer with full control over the output format. Subsets of the database are selected with a versatile testing command, allowing searches for equality, substrings, and alphabetical inequalities. The data can be sorted into alphabetical order of any field, and will sort 100 records in under 20 seconds.

The ATOM DATABASE comes complete with a 16-page booklet giving full instructions, and a sample application.

Database Commands:

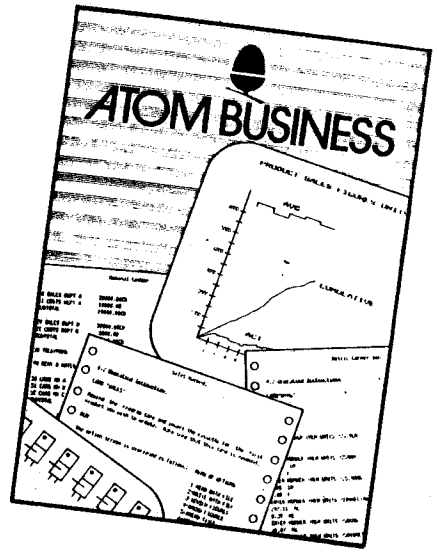
Give all values taken by field, edit database, leave program, list fieldnames, execute search, specify fields to be printed, switch printer on/off, renumber database, reset, specify search, sort database on any field, print current test, discard sort.

Test options:

AND, OR, ⟩, ⟨, ⟩=, ⟨=, ⟨⟩, =, SUB, NSUB

Program 5K, graphics 1K.

ATOM BUSINESS



The book "ATOM Business", and its accompanying cassette, describe eleven business programs covering a wide range of different business applications:

ADDUP tallies a column of totals, and provides verification facilities.

LABEL prints multiple copies of labels from a typed address.

WTMS is a general-purpose conversion program, between metric and imperial units, and can be extended to deal with any desired conversions.

DCF calculates whether the best option in a particular situation is to lease or buy equipment, based on the discounted cash flows involved.

SALES maintains a file of sales data on cassette, and provides commands to update and edit it.

GRAPH will print a 'Z' curve of the sales figures from the SALES program, showing cumulative sales for the year to date, actual sales week by week, and a plot of the 3-week moving average.

NOM maintains a nominal ledger, using a printer for an audit roll.

BUDG performs the calculations necessary to divide a financial budget into the correct portions over a year.

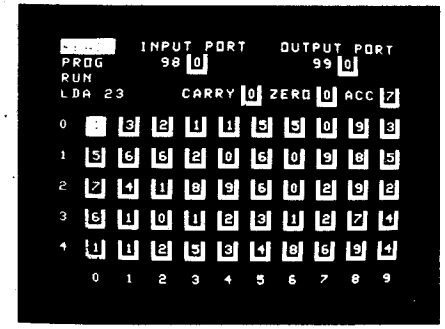
EXS calculates an expenses claim, keeping control of the VAT components of each expense.

STD gives the standard deviation for a set of data values.

QUE sets up a simulation of a queueing situation in a supermarket or shop, and gives a pictorial display of the state of the queues as a function of time.

The book and cassette are produced in conjunction with Phipps Associates.

PEEKO - COMPUTER



The PEEKO-Computer simulates the operation of a simplified microcomputer in order to teach the fundamentals of machine-code programming. The PEEKO-Computer has ten easily-learned instructions, and the display gives a visual analogy of the operation of a real microcomputer. Programs can be entered, single-stepped, or run, with the memory and register contents being displayed at every step. To aid comprehension each instruction mnemonic is displayed as it is encountered.

The PEEKO-Computer comes complete with a 16-page instruction manual which contains

ATOM SOFTWARE AND BOOKS

Code	Description	Price
1320	Games Tape 1. "Asteroids", "subhunt", "breakout"	10.00
1325	Games Tape 2. "Dog fight", "Mastermind", "Zombie"	10.00
1330	Games Tape 3. "Rat trap", "Lunar Lander", "Black Box"	10.00
1335	Games Tape 4. "Star Trek", "Four row", "Space attack"	10.00
1336	Games Tape 5. "Invaders", "Wumpus", "Reversi"	10.00
1337	Games Tape 6. "Dodgems", "Simon", "Amoeba"	10.00
1338	Games Tape 7. "Green Things", "Ballistics", "Snake"	10.00
1339	Games Tape 8. "Star Gate", "Gomoku", "Robots"	10.00
1343	Games Tape 9. "Snapper", "Minotaur", "Babies"	10.00
1347	Games Tape 10. "Breakout", "Hectic", "Mastermind" "Ski-run", "Snake", "Track", "Simon", "Squash", "Moon", "Bombs-away"	10.00
1348	Games Tape Adventures.	10.00
1349	Games Tape Life Package.	10.00
1353	Word Tutor Tape	10.00
1354	Chess Pack Tape	10.00
1355	Introductory Pack (4 Tapes)	20.00
1356	Desk Diary	10.00
1342	Utility pack 1	10.00
1341	Maths Pack 1	10.00
1344	Maths Pack 2	10.00
1340	Soft VDU	10.00
1357	Data Base	10.00
1358	Business Tape	10.00
1359	Business Book	10.00
1346	Peeko Pack	8.00
1350	Word Pack in ROM	30.00
1351	Word Pack for use with Econet (PROM)	50.00
1360	Forth Tape	10.00
1361	Forth Book	7.00

ATOM HARDWARE AND SOFTWARE UPDATE

Even as this catalogue was being compiled, more news came in about hardware and software extensions to the Atom. LISP and BBC-type BASIC are now ready and deliveries will start soon. Pascal, although announced earlier, has been deferred, and will not be available for some time.

Control Universal are manufacturing a 17K bytes DRAM card, which fills in the awkward gap in the memory map from 3C00 to 3FFF, and then provides user RAM from 4000 to 7FFF, a continuous text space of 22527 bytes.

Atomsoft have added another games pack, no 11, with "Missile Base", "Snooker" and "Dominoes".

ATOMPLUS 17K BYTES DRAM CARD FOR ATOM

This new card is manufactured by Control Universal and offers a solution to the problem of adding memory to the Atom without leaving a gap. The 17K memory consists of 1k of static RAM from hex 3C00 to 3FFF and 16K of dynamic RAM from 4000 to 7FFF. This then provides continuous text space from hex 2800 to 7FFF (22527 bytes).

Power requirements are low - can be expected to be within 300 mA.

The recommended method of connection to the Atom bus is to fill the inner of the two bus connectors with vertical pins, and use a 64 way ribbon cable from those pins to the ATOMPLUS. (Both these items are on page 13.1). The ATOMPLUS is then bolted to the floor of the Atom case where it fits without interference with the Atom pcb.

ATOMPLUS is completely compatible with all CUBE and Acorn rack mounting systems, and can be used to provide 16k RAM memory from hex 4000 to hex 7FFF.

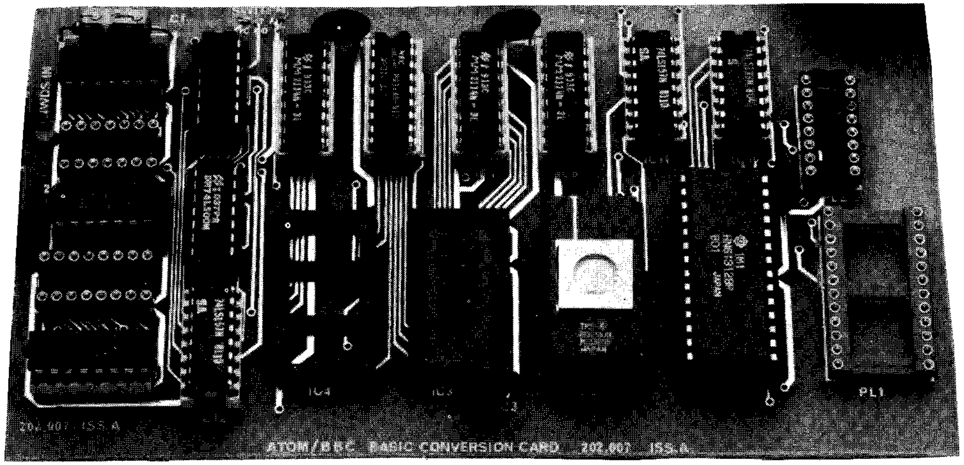
570	ATOMPLUS with 17k RAM memory, assembled and tested	69.00
578	ATOMPLUS pcb only with manual and circuit	25.00

WORDPACK 3000 - EXTENDED BUFFER SIZE VERSION

With the availability of the memory extensions for the Atom, it becomes interesting to enlarge the size of the change buffer. This has the advantage of allowing longer text entries without interruption, and much more convenient text manipulations, as blocks of 2048 characters can be handled, compared with 448 characters in the standard version. Disk files are then stored as starting from hex 3000, and become compatible with the the screen EDIT software offered for systems 3, 4, and 10. Note that some text processor commands differ between wordpack and Screen EDIT, and must be amended when changing systems.

1362	Atom Wordpack 3000	50.00

BBC - TYPE BASIC FOR ACORN ATOM



Available now , a 20K BBC ROM conversion module which can be added inside an Atom. It will support the full set of BBC-type BASIC commands. The BASIC syntax is identical so all programs that don't rely on the BBC hardware can be run on the Atom without any modification.

The module is fitted in parallel with Atom BASIC and may be selected by a switch or from the keyboard if certain modifications are made. It consists of 16K BASIC ROM, a 4K operating system ROM and an additional 2K RAM that can be used by the Atom as well.

Complete with manual
A comprehensive BBC-type BASIC manual is supplied with every set giving full operating and fitting instructions.

How it works:
The BBC-type BASIC conversion board uses the same 16K BASIC ROM as used in the BBC Microcomputer. The board includes a 4K MOS ROM to provide the correct machine environment on the Atom. The board also includes logic to alter the memory map so that RAM is available from 0000 upwards, and so that the 16K BASIC ROM can reside at 8000 to C000.

The BBC-BASIC TIME function is implemented by means of interrupts, generated by the Atom's 6522 timer (which must therefore be fitted).

The BBC-type BASIC board is simply fitted by removing four integrated circuits from the Atom and inserting these in sockets on the BBC-type BASIC board. The board is then plugged into the empty sockets on the Atom.

The BBC-type BASIC board includes the following components:
16K BASIC ROM
4K MOS ROM
2K of additional RAM
Socket for utility ROM
Socket for MOS extension ROM
Decoding logic

The board can either be wired permanently in BBC-type BASIC mode, or, with the addition of two wires to the Atom keyboard, you can select between Atom or BBC-type BASIC by pressing CTRL-BREAK or SHIFT-BREAK respectively.

1363 BBC-type BASIC for Atom on module, assembled and tested 44.00

ATOMCALC

```
C8       V   ATOMCALC
B8*.15

EXPENSE        COST       VAT      TOTAL
----------------------------------------
FOOD          63.39      0.00      63.39
GAS           12.00      1.80      13.80
ELECT.        33.20      4.98      38.18
PHONE          7.10      1.06       8.16
RENT          95.85     14.37     110.22
PETROL        47.10      7.06      54.16
INSURE.       23.11      3.46      26.57
----------------------------------------
EXPENSES                          314.50
INCOME                            325.00
SPENDING                           10.49
```

For: Planning, Projecting, Estimating, Scheduling, Calculating, Recalculating, Revising, Critical Path Analysis, Scientific tables, Teaching ....

What is it?
Atomcalc is an all-purpose planning and modelling program contained in a plug-in 4K ROM, which fits into the utility socket of a standard Atom. It is very easy to use; if you can use a calculator, you can use Atomcalc and no programming skill is needed.

Atomcalc creates a grid of up to 62 rows and up to 255 rows, like a ledger. Each position can contain a label, a number or a calculation.

What will it do?
You set up a series of automatic calculating functions like totalling or percentages. Then fill in the columns with your figures and the program produces the answers. If you want to change one figure in the calculation, it immediately changes the relationship of all the other figures involved. So, for example, you can see what effect on profit a 5% increase in sales might have or a 10% increase in production or a 3% drop in transport.

Applications can be stored on tape and printed out on an optional printer.

Users' Manual
Atomcalc comes complete with a 30-page Users' Guide, with financial and scientific examples.

1364 ATOMCALC on cassette with manual 34.00

ATOM LISP

The ATOM LISP interpreter consists of 5½ K of machine-code interpreter plus 3K of initialised LISP workspace containing LISP utilities and constants, which can be deleted to make extra space if not required. It is supplied on cassette and is designed to run on a 8+12K ATOM.

ATOM LISP is intended for:

* Hobbyists who want to discover about the fundamental language of artificial-intelligence research.
* University and school students who are learning LISP or carrying out research.
* System designers who require more flexibility in data and control structures than is provided by traditional programming languages.

Also available is a 44-page guide to ATOM LISP, "LISP Theory and Practice".

Important features include:

* Fully interactive with explicit EVALUATE and VALUE IS messages.
* Automatic parenthesis count to help in typing complex expressions on the computer.
* Built-in superprinter to format the printing of large expressions.
* Editing by screen editing or built-in LISP editor.
* All errors trapped and optional full traceback printed.

ATOM LISP includes a number of extensions to basic LISP, including:

* PEEK, POKE, and CALL to control hardware and machine-code programs.
* Functions can have optional arguments with default values.
* Improved iterative control structures using LOOP, WHILE, and UNTIL functions.
* Automatic access to COS or DOS commands with "*".
* Cassette (or disk) input/output control functions.

The fast compacting garbage collector automatically finds space for numbers, lists, or character strings if there is any space at all remaining so that the programmer never need be concerned about the details of storage allocation.

LISP Functions

AND, APPLY, ATOM, BLANK, CALL, CAR, CDR, CAAR, CADR, CDAR, CDDR, CHARP, CHARS, CLOSE, COND, CONS, CR, DEFUN, DIFFERENCE, DOLLAR, EDIT, EQ, ERROR, ERRORSET, EVAL, F, FSUBRP, GET, GETCHAR, GREATERP, LAMBDA, LESSP, LIST, LISTP, LOAD, LOOP, LPAR, MESSOFF, MESSON, MINUS, NIL, NOT, NULL, NUMBERP, OBLIST, OPEN, OR, ORDINAL, PEEK, PERIOD, PLIST, PLUS, POKE, PRIN0, PRINT, PROGN, PUT, QUOTE, QUOTIENT, READ, READLINE, RECLAIM, REMAINDER, REMPROP, RPAR, RPLACA, RPLACD, SAVE, SET, SETQ, SUBRP, SPRINT, T, TIMES, UNDEFINED, UNTIL, WHILE, WRITE, WRITE0, ZEROP.

1365 1365 **ATOM LISP on cassette with manual** 15.00

ACORN DOCUMENTATION

355	System 1 User manual (Includes 6502 CPU technical manual)	5.00
356	Acorn System 2 and Cassette Operating System manual	5.00
357	Acorn Disk Manual for Drive, DOS & controller card	3.50
358	Acorn 6502 Assembler/Disassembler/Editor user manual	5.00
359	Acorn 6809 user manual	5.00
360	Acorn BASIC manual	17.50
361	Acorn Atom manual	8.00
362	Technical manual on Acorn 8K RAM card	1.00
363	Technical manual on Acorn VDU card	1.00
364	Technical manual on Acorn FDC card (Section out of DOS manual)	1.00
365	Technical manual on Acorn VIB card	1.00
366	Technical manual on Acorn Eprom programmer card	1.00
367	Technical manual on Acorn Analog card	1.00
368	Technical manual on Acorn Laboratory Interface	1.00
369	Acorn Atom PAL encoder board manual	1.00
370	ONLI extension to BASIC user manual	3.00
371	Econet User Manual	3.00
372	Econet Technical Manual	3.00
373	FLEX user manual	30.00
374	Acorn 32K DRAM card technical manual	1.00
375	Acorn In-circuit Emulator technical manual	1.00
376	Atom disk manual	5.00

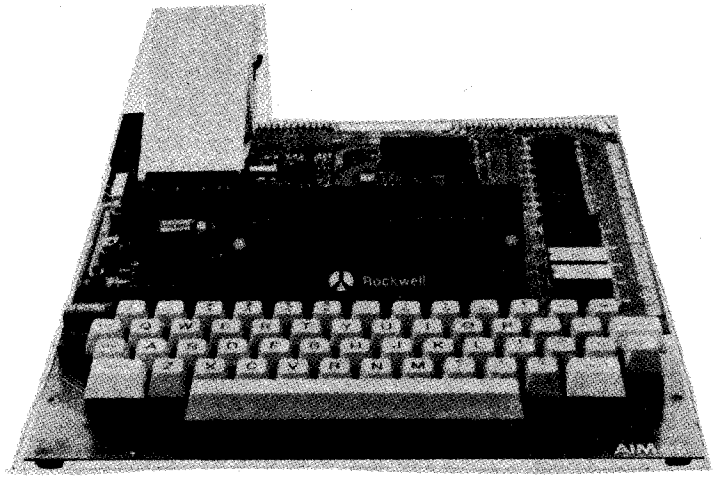
ROCKWELL DOCUMENTATION

300	R6500 Programming manual	4.00
305	R6500 Hardware manual	4.00
310	AIM 65 User handbook	11.00
315	AIM 65 Circuit diagram	1.00
316	AIM 65 Monitor listing	3.00
320	Items 300-316 together	19.50
325	AIM 65 BASIC manual	6.00
326	Items 320,325 together	25.00

Items 300, 305 and 325 include the appropiate quick reference card.

330	Terminal Interface Monitor manual	2.50
335	Micropower Data Catalogue	9.00
340	Microprocessor Systems Engineering	12.00
345	6502 Software Design Manual	8.00
350	AIM 65 PL/65 User manual	9.00
352	AIM 65 Laboratory Practice Leo J Scanlon. First class teaching aid for AIM 65	9.00
327	AIM 65 Forth Manual	11.00
328	AIM 65 Pascal Manual	11.00

ROCKWELL AIM 65



Since its introduction in 1978, the Rockwell AIM 65 "Advanced Interactive Microcomputer" has remained successful and unchallenged in its particular niche in the micro spectrum. Its unique combination of full size keyboard, built-in single line display and built-in printer have earned it many friends, especially in Education and Industry. Educationalists like the relatively low cost of providing a complete computer to a student, including permanent print-out copy for notes, and avoiding the need for a bulky tv monitor. The well written documentation and the built-in machine code features have also proved factors in the choice of AIM 65 for computer laboratories. Industrial users comment favourably on the compact solution to those computing problems where user guidance, keyboard entries and hard copy have to be provided on desk or bench.

Control Universal have had several interesting special purpose projects based on AIM 65s, including foreign exchange calculators for a bank, automatic hearing testers and scorers for exhibition dart matches.

The general specification of the Rockwell AIM 65 is as follows:-

6502 - based microcomputer, crystal controlled at 1MHz.

On-board sockets provide space for 4K NMOS RAM in 2114 type ICs, plus five sockets for 4k 24 pin ROMs. As supplied, the E and F sockets are fitted with the 8k monitor. The D socket is used for the two pass assembler ROM, or for a PROM version of a BASIC user program, or any other convenient use. BASIC, Forth or PL/65 are designed to occupy the B and C sockets, while Pascal requires these sockets plus three off-board sockets in an extension board such as CU-MEM.

The facilities offered by the 8k monitor include initialisation at power-on to provide a prompt in the display awaiting a command from

the keyboard. At this point the user may enter BASIC or Assembler by pressing 5 or N, or may examine memory (M), enter the text editor (E), dump or load memory to or from tape or other defined medium (D, L), examine cpu registers (R), change A, X, Y registers, stack pointer or address pointer (A, X, Y, S, *).

A dual interface to cassette tape with motor control allows tape to tape assembly. The hardware designer can benefit from the use made of 6502, 6520, 6532, and 6522 devices, and can use the spare 6522 exactly as required. All the connections from the tape interface, the spare 6522 and the cpu itself are brought out to 44 way connectors at the rear of the board.

The printer is fully controlled under software, and prints 20 columns wide onto thermal paper. The display is made up of "starburst" 16 segment red LED displays to give a 20 character single line display which scrolls in use for convenient viewing.

code	description	price
100	AIM 65 with 1k RAM	289.00
105	AIM 65 with 4k RAM	307.00
110	AIM 65 with 4k RAM, BASIC and two pass Assembler	328.00
120	AIM 65 two pass assembler ROM	24.00
125	AIM 65 BASIC in two ROMs with manual	43.00
155	AIM 65 PL/65 high level machine code programming language in two ROMs, with manual	57.00
160	AIM 65 Forth in two ROMs with manual	43.00
161	AIM 65 Pascal in five ROMs - needs extension card, eg CU-MEM, with manual	66.00
140	AIM 65 spare printer	35.00
141	AIM 65 spare display chip (4 characters)	10.00
145	AIM 65 spare keyboard with connector	30.00
150	AIM 65 spare red display filter	4.00
500	AIM 65 connector for expansion and application, 44 way	5.00
505	Box of 10 x 250ft thermal paper rolls, blue print	23.00
510	Box of 20 x 250ft thermal paper rolls, blue print	43.00
511	Box of 20 x 66ft thermal paper rolls, black print	16.00

See under "Documentation" for prices of Rockwell manuals bought separately.

See under "Expanding the AIM 65" for details of Control Universal boards and disk systems for providing extensions to the AIM 65 such as video, PROM programming, more i/o channels, analog, disk storage, etc.

See under "Microflex Modules" for details of Rockwell's own range of AIM 65 extension cards.

See under "Enclosures" for the choice of cabinets for AIM 65.

See under "Power supplies" for the choice of power supplies for AIM 65.

EXTENDING THE ROCKWELL AIM 65

The virtues of the AIM 65 are detailed in the previous section, and indeed it does fulfil many roles extremely well. However, in some circumstances, more features are required than are provided in the standard unit. We offer two ranges of extensions to the AIM 65, namely the CUBIT range made by Control Universal, and the Microflex range made by Rockwell themselves. Microflex has the advantage of being made by the same manufacturer as the AIM 65, but the British made CUBIT system of extension offers good value for money, and a wider range as a result of being compatible throughout both the CUBIT and Acorn ranges of units.

The CUBIT range is described below, in this section. Microflex has the whole of the next section to itself.

1.CUBIT See Page 2.1

CUBIT is an interface unit which extends the AIM 65 in four ways:-

4k RAM memory extension, which can be mapped at 0, 1, 8, 9, A, B, C, or D. As an AIM 65 extension it would normally be mapped at 1, ie from hex 1000 to 1FFF. This provides a contiguous memory expansion from the 4k RAM on board the AIM 65, and makes the system ready for further memory extensions, which are usually in 8k blocks.

4k ROM/PROM extension. A socket is provided for a 4k or 2k ROM or PROM, which can be mapped at 8, 9, A, B, C, D, E or F. This is particularly convenient for mounting the DOS (disk operating system) PROM, in which case it is mapped at 8, ie hex 8000 to 8FFF.

Additional VIA 6522 chip. This provides a further 20 i/o lines and two timers. It can be mapped at 9000, 9400, 9800 or 9C00.

Data Highway Connector. The AIM 65 does have an expansion connector, but the configuration of the CUBIT Data Highway Connector is to the Acorn bus standard. This makes it compatible with the entire range of Acorn and Control Universal products, and also allows ribbon cable connection, which is not possible with the 44 way AIM connector.

2. MORE MEMORY

Using the Acorn Eurocard data bus extension on the CUBIT, further memory can be added by plugging directly onto the 64 way ribbon cable. The choice of memory cards includes the following:

Acorn 8k RAM + 8k ROM card. Code 730. £87 with 8k RAM memory. Uses 2114L RAM chips. Can take two 4k ROMs. Decoded in 8k blocks. See page 3.5

Acorn 32k DRAM card. Code 680. £149. No ROM slots. Decoded in 8k blocks. Uses sixteen 16k bit 5v only DRAM chips type 4816. See page 3.6

CU-MEM Universal Memory Carrier. Code 535. £70 without memory devices. £104 with 16k NMOS RAM (code 536). £132 with 16k CMOS memory (code 537). Arranged in two banks of four 28 pin sockets, which can accept NMOS or CMOS RAM, ROM or PROM, in 2k, 4k or 8k devices, as 24 or 28 pin packages. Complete with self charging battery back-up circuit for non-volatile RAM. See page 2.7

CUDRAM 64k Dynamic RAM Card. Code 670. £99. 4K ROM slot. Decoded in 4k blocks. See page 2.9

3. RACK EXTENSION

A 64 way ribbon cable can be plugged into the Data Highway Connector of the CUBIT. The other end can be plugged on the back of a standard Control Universal backplane, modified for AIM 65 use. See page 2.13. Note that the AIM version carries a suffix A, eg. 954A is a 14 way buffered backplane modified for AIM 65 use. Racks and subracks can be found on page 2.14, and enclosures in their own section.

4. DISK EXTENSION

A disk facility is probably the greatest increase in convenience that can be achieved with any computer. Loading a 4k bytes disk file takes only about a second, and disk based two pass machine code assembly becomes very straightforward and quick. All of the AIM 65 facilities remain valid with the Control Universal disk extension, but in addition, the user gains access to the range of Acorn software, including their assembler, BASIC, Word Processor, and many others.

The minimum items required to add a disk facility to an AIM 65 are as follows:

1209	Replacement PROM for AIM65 ROM Z22, which adds DOS vectors	£10
1216	Disk Operating System (DOS) in EPROM, at hex 8000, mounted in the ROM socket on CUBIT, with documentation and utilities disk	£45
600	CUBIT 4k Interface unit	£70
615	CUBIT 64 way interface cable	£25
765	Floppy disk controller	£134
770	Floppy disk drive (approx 100 KBytes storage)	£165
775	Floppy disk connection cable	£15
	TOTAL	£464

1140 SINGLE DISK ENCLOSED MINIMUM SYSTEM D1
Includes parts shown above, mounted in a 245mm (8" internal capacity) caseframe with 12v 1.5a power supply. It relies on the availability of 750mA at 5v from the user's AIM power supply. One further card, eg memory, video etc, can be accomodated in the rack. £550

1141 As 1140 above, but without the provision of the CUBIT card £480

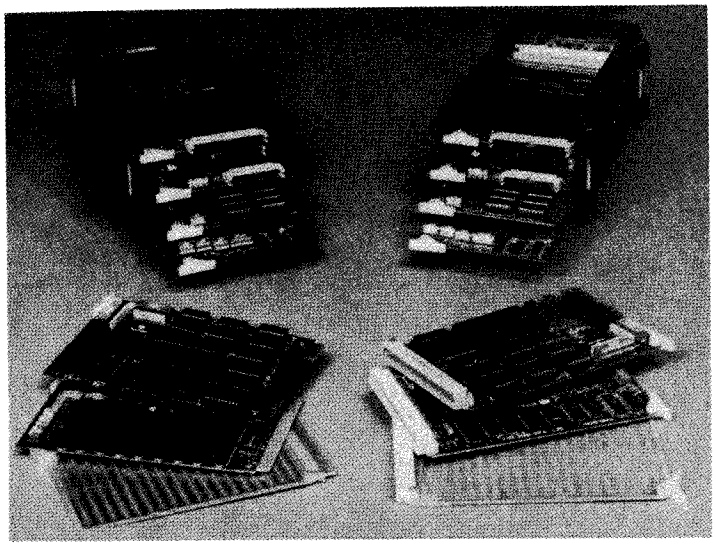
1150 SINGLE DISK ENCLOSED 19" RACK SYSTEM WITH POWER SUPPLY RD1
This is similar to the D1 system above, but has a full 19" caseframe with 16.8" internal capacity, and provided with 8 Eurosockets and associated card guides, and a disk module mounted on module guides. Of the eigth sockets, one is used for the floppy disk card, and the other seven are completely free for user determination. The power supply is 3a at 5v, plus 1.5a at 12v. £679

1151 As 1150 above but without CUBIT £609

1160 DOUBLE DISK DOUBLE HEIGHT 19" RACK SYSTEM WITH POWER SUPPLY RD2
This is similar to the RD1 system above, but the power supply is increased to 5a, 5a plus 1.5a 12v, the lower half of the rack is provided with 14 Eurosockets and associated card guides, and the upper half is provided with two disk drives. £999

1161 As 1160, but without CUBIT £929

ROCKWELL MICROFLEX MODULES



Microflex 65 is the name given to the range of Eurocard modules made by Rockwell to be both an extension to the AIM 65 and a stand alone modular Eurocard rack mounted computer. The 64 line bus offers memory addressing up to 128k bytes, and allows any card in any slot. A range of cages (4, 8 and 16 way) permit a variety of packaging configurations.

166 RM65-1000E Microflex single board computer £121

Integrates a 6502 CPU, 2k bytes of static RAM, 16K bytes ROM capacity, 6522 VIA onto a Eurocard. Selectable memory map compatibility with AIM 65 allows programs developed on AIM 65 to be installed on this SBC.

165 RM65-3108E Microflex 8k static RAM card £171
Carries 8k bytes RAM in 2114 devices, in two 4k blocks. Starting addresses of each block is selectable by switch, and a further switch allocates the block to one of two 64k banks, allowing the CPU to select from 128k bytes.

171 RM65-3132E Microflex 32k bytes dynamic RAM £171
Arranged in eight 4k blocks which can be selected in 4k blocks, and assigned to one of two 64k banks. The entire module can be write protected by a switch. Refreshing is automatic and transparent to the CPU

170 RM65-3216 Microflex 16k PROM/ROM module £58
Eight 24 pin sockets each allowing a ROM or PROM of up to 8k bytes. Switches allow independent setting of the start addresses of 4k memory blocks. Choice of 2, 4 or 8k byte memory device is by jumper.

167 RM65-5101 Microflex Floppy Disk Controller £246
Controls up to four 8" or 5.25" drives, single or double sided, soft sectored. Single or double density may be selected under software control. Price includes ROM firmware for Disk, File and Directory functions.

168 RM65-5102E Microflex CRT controller (VDU card) £118
Monochrome output to monitor or tv (via on board RF modulator). 5x7 matrix in a 7x10 field provides alphanumerics and symbols from on-board character generator.

172 RM65-5222E Microflex General Purpose I/O and Timer (GPIO) £118
Provides two 6522 VIA devices offering a total of 40 i/o lines plus 4 timers. Can be assigned to one or both of the two 64k memory banks

200 RM65-5451E Asynchronous Communications Interface Adaptor (ACIA) £136
Interfaces two independent asynchronous serial i/o channels onto the bus, eac of which may operate as a data terminal or data set, selectable by jumpers. Both RS232C and 20mA TTY current loop are provided on channel 1; RS232C on channel 2. Uses 6551 ACIA device.

185 RM65-7004E Microflex 4 slot card cage £86
182 RM65-7004NE Microflex 4 slot pcb only £12
186 RM65-7008E Microflex 8 slot card cage £142
183 RM65-7008NE Microflex 8 slot pcb only £19
187 RM65-7016E Microflex 16 slot card cage £216
184 RM65-7016NE Microflex 16 slot pcb only £34
Cages have integral card guides. Allows extension to AIM 65 through a buffer module (code 180). May be mounted in a variety of orientations. Accepts axial module cooling fan. Screw terminals provided for power connection.

175 RM65-7101 Single Card Adaptor for AIM 65 to one Microflex module £36
One end plugs directly onto the AIM 65 expansion connctor, and the other onto the Microflex module to be used.

173 RM65-7102E IEEE 488 Bus Controller Module £177
ROM resident firmware implements all the bus functions specified in the IEEE 488, 1978. A TI TMS 9914 GPIB adaptor intefaces the 16 bit GPIB to the 8 bit Microflex bus. Address, data and control lines are buffered.

180 RM65-7104E Adaptor/Buffer Module for AIM 65 to multiple modules £52
Consists of an adaptor, two cables and buffer module that connects an AIM 65 to the expansion cages. The adaptor plugs onto the AIM expansion connector.

190 RM65-7201E Design Prototyping module £25
Plain card with pre-routed power and return lines, and connector pattern, with holes for wire-wrapping prototype circuits.

195 RM65-7211E Extender Module £27
Allows a module to be accessible by an engineer while remaining plugged in to the bus.

191 RM65-7116E Microflex Cable Driver Module £68
As code 180, allows AIM 65 to be connected to multiple Microflex modules, but in this case the cage may be up to 6 feet away, where the standard unit is limited to 16 inches.