

piccolo®

INTRODUCTION

The microcomputer system PICCOLO has been developed and is produced by RC COMPUTER. The latest technology together with RC COMPUTER's long experience with large computer systems, modular software, and data communication, have been combined in the design of the system. The result is a high-quality microcomputer with many applications.

PICCOLO covers a wide range of applications. PICCOLO will be able to perform a large number of tasks within, among others, the fields of education and administrative data processing.

An important aspect of PICCOLO's design philosophy is the possibility of connecting several PICCOLO systems. PICCOLO can also communicate with larger computers (e.g. RC8000/RC3600) with a view to transfers of data and programs. Furthermore PICCOLO can function as an interactive display unit connected with another computer system. Connecting several PICCOLO systems permits the systems to share peripherals such as printer, Master Diskette, and transmission line. The connection is effected by means of a Line Selector, to which up to 8 PICCOLO systems can be connected.

The programming languages for PICCOLO are COMAL80 (BASIC), PASCAL, and assembler. Furthermore RC COMPUTER can offer you the supervisory program CP/M, which is an internationally recognized system, under which a large number of software products can be operated.

HARDWARE

- (Z80A) microprocessor 4MHz
- 48KB RAM memory (expandable to 64KB)
- 2KB ROM memory for autoloading routines, etc.
- 12" display unit, 25 lines of 80 characters
- Semi-graphic set of characters
- Flexible disc drive as standard (0.32/1.2MB).

SOFTWARE

- COMAL80 (structured BASIC)
- PASCAL (UCSD compatible)
- Macro-assembler
- CP/M operating system
- TTY emulator
- File-router.



PICCOLO MICROCOMPUTER SYSTEM-SOFTWARE

USER PROGRAMS

The PICCOLO system is based on standardized machinery and basic programs. By way of example we can mention the supervisory program CP/M.

As user you will thus obtain the advantage of being able to buy ready-made standard programs "off the shelf", or you can exchange programs with a colleague.

PICCOLO can be used in connection with a wide variety of business functions, trades and public services e.g.

Building industry
Retail distribution
Invoicing
Trade associations
Surgeries and clinics
Payroll accounts
Sales administration
Economic model building
Shipping
Teaching.

As PICCOLO uses the two most well-known and recognized languages for microcomputers (PASCAL and COMAL 80), it will also be easy for you to make your own special data processing systems, or to have it made for you.

For PICCOLO, RC COMPUTER can supply various programming languages and programs for communication with other computers. Apart from this we can offer you system software for generating a catalog, for generating systems, and for copying flexible discs.

BASIC PROGRAMS

PICCOLO is provided with the following programming languages:

COMAL80

COMAL80 is a newly developed programming language based partly on RC COMPUTER's long experience with COMAL on RC7000 and RC8000.

Apart from the well-known types of instructions contained in BASIC, COMAL80 contains many new things, such as:

- IF - THEN - ELSE
- REPEAT - UNTIL
- CASE - CONSTRUCTION
- PROCEDURES (RECURSIVE)
- DEFINITION OF FUNCTIONS OVER SEVERAL LINES
- ADVANCED FILE PROCESSING
- LOGICAL OPERATIONS
- STRING PROCESSING
- ACCURACY OF 13 DIGITS
- XY CURSOR ADDRESSING

COMAL80 is equally well suited for educational purposes as well as for administrative programs.

PASCAL

In many places PASCAL is gaining ground as a programming language. For PICCOLO, RC COMPUTER can offer a standard PASCAL (UCSD-compatible) based on the supervisory system CP/M.

MACRO ASSEMBLER

ASSEMBLER is used for the programming of special routines which are e.g. very time-consuming.

TTY EMULATOR

The TTY emulator makes PICCOLO an ordinary V24 compatible display unit. The speed of transmission can be set when starting up, and can be set from 50 BPS to 2400 BPS. If PICCOLO's main task is to function as a terminal, the starting up of PICCOLO's TTY emulator can take place automatically.

CP/M

PICCOLO supports the supervisory system CP/M, which provides for a high degree of accessibility to ready-made programs.

FILE TRANSFER

PICCOLO can transfer data and programs to/from another computer. These routines have primarily been developed for communication with RC7000/RC3600 and RC8000. Other types of computers can, however, also be used.

SYSTEM SOFTWARE

In order to facilitate the day-to-day running of the system there are a number of programs for e.g.:

- copying of flexible discs
- copying of the basic system
- generating a catalog on a flexible disc
- generating systems.

CONNECTION OF SEVERAL PICCOLO MICRO-COMPUTER SYSTEMS

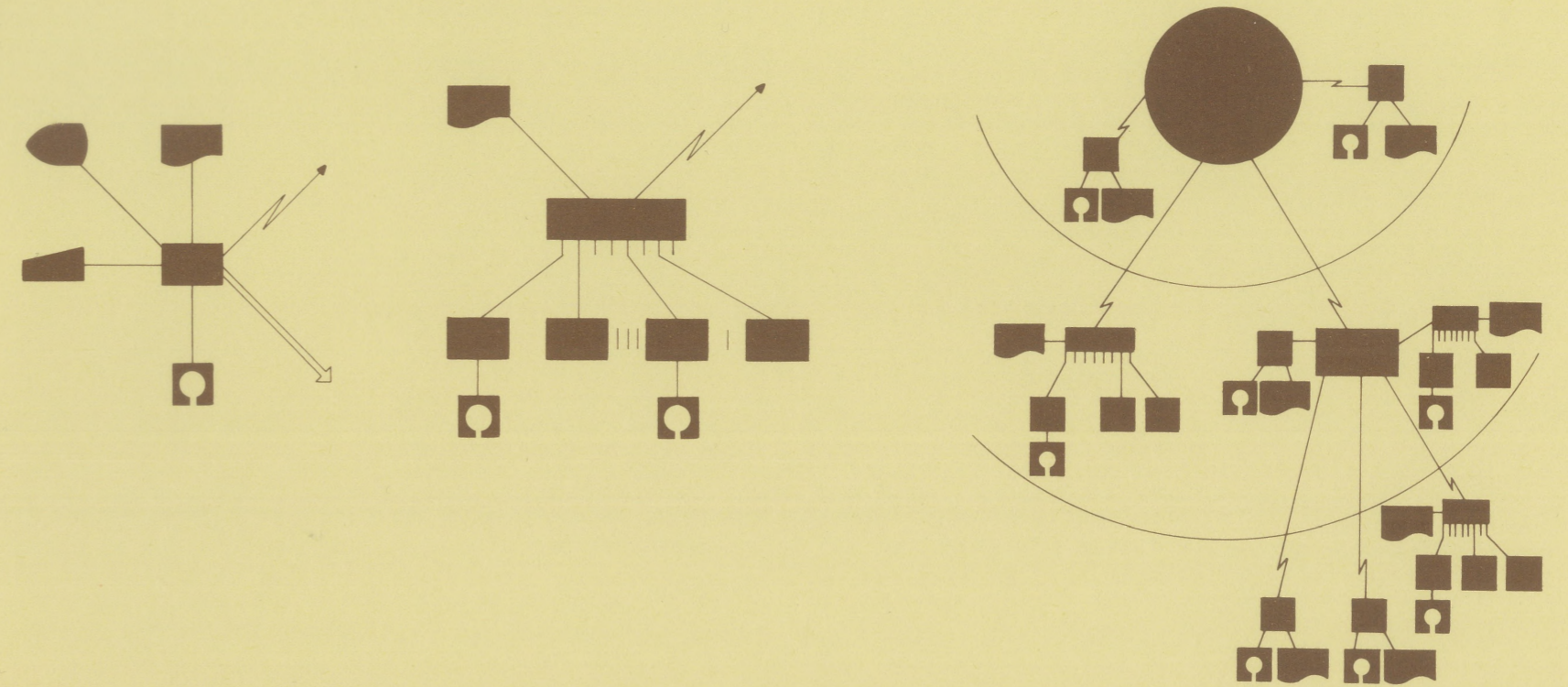
Up to 8 PICCOLO's can be connected according to the following principles:

Each of the 8 PICCOLO systems connected functions as an independent microcomputer system with a flexible disc capacity ranging from 0.32 to 2.4MB. The systems are connected via a line selector, to which a common printer and a Master PICCOLO, if desired, are attached.

The purpose of the master is to function as a program library for the systems attached. Programs stored on the master flexible disc can be executed on all the systems attached.

If the master is detached from the line selector, it can function in the same way as the other units.

The drawing below illustrates an example of a PICCOLO multiuser arrangement.



PICCOLO MICROCOMPUTER SYSTEM - HARDWARE GENERAL DESCRIPTION

The latest technology was applied when the microcomputer system - PICCOLO - was developed. This means that the electronic equipment is placed on only one printed circuit board, which ensures a high degree of serviceability, as interconnections are avoided. The basic system consists of the following units.

- Central Processing Unit (Z80A)-4MHz
- Memory (2KB ROM - 48KB RAM)
- Flexible disc drive (0.32/1.2MB)
- Keyboard
- 12" Display unit
- Documentation

This system can be extended with a printer, just as several PICCOLO systems can be built together.

CENTRAL PROCESSING UNIT

PICCOLO has been constructed on the basis of one of the markets most advanced microprocessors, Z80A. The CPU can execute 158 different instructions, inclusive of Intel 8080 instructions. The frequency used is 4MHz.

MEMORY

As standard the system besides 48KB RAM is provided with 2KB ROM memory containing autoload routines. The supervisory system and the programming language are input from the flexible disc drive into the RAM memory. This input process takes about 3 seconds and takes place automatically when the machine is turned on. The ROM memory does not take up any addressing space, the RAM memory is thus completely at the user's disposal. The standard size of the RAM memory is 48KB, and can be expanded to 64KB.

FLEXIBLE DISC DRIVE

As standard, PICCOLO is provided with a flexible disc drive. The flexible disc is used for storing the programs and for working with data files. Each flexible disc can store either 0.32MB (5¼") or 1.2MB (8").

Programs and data are stored and called by means of a name. Data can be stored in files with direct access.

The flexible disc can be write protected if protection of programs and data is wanted. PICCOLO can be provided with a total of 2 flexible disc drives, i.e. 2x0.32MB or 2x1.2MB.

DISPLAY UNIT

The display unit shows 80 characters per line in 25 lines in all. This has been done in order to secure compatibility with normal display units, and because it lightens the building up of the screen picture.

Character format: 5x7 dot contained in a 7x11 dot matrix.

The cursor is shown as a flashing underlining or flashing character.

Set of characters: 96 char. ASCII (small and capital letters). 64 char. semi-graphic set of characters.

It will be possible to show the characters on the display unit in normal writing, inverted writing, flashing writing, and underlined. These facilities can furthermore be combined as you wish.

KEYBOARD

The keyboard has a standard UK ASCII character set and special keys for cursor control and editing. Furthermore the keyboard can be provided with a separate numeric keyboard and keys for special functions.

In order to obtain the best possible working posture, the monitor and the keyboard are separated from each other.

The keyboard is controlled by an independent microprocessor, so that the CPU is relieved of this function.

The keyboard contains keys for the following check functions:

carriage return
back space
cursor UP
cursor DOWN
cursor LEFT
cursor RIGHT
insert/delete

INTERFACES

Two identical communication channels, which meet the electrical specifications in the V24 recommendations, corresponding to RS232.

Normally the two V24 channels will be used to connect the printer with the CPU or to connect one computer with another, either direct or via modem.

The transmission speed can be 50, 110, 300, 1200 or 2400 bps.

8-BIT PARALLEL I/O PORT

This is an 8-bit parallel input/output port, which, under program control, can transfer data to and from a peripheral unit. By way of example the following may be cited: control of a slide projector in connection with an educational system based on the use of computers, registration of the results of measurements, x-y plotter, etc.

PRINTER

For RC700 we can offer you a matrix printer with a capacity of 80 characters per second and 80/132 positions in each line. Normal paper is used, either with feed holes, or in a roll.

This printer is for users whose daily need for printing out is a couple of hours or so.

For larger volume use, RC COMPUTER can offer other types of printers.

PICCOLO ADDITIONAL EQUIPMENT

The purpose of RC COMPUTER's wide range of accessories and extension units, is to give the user the necessary flexibility, and at the same time to make sure that all the necessary material can be obtained from the same supplier.

A. FLEXIBLE DISC DRIVE

Mini Disc (5¼"):
The upgrade from one to two discs is carried out by RC COMPUTER and the reference numbers are as follows:
Original equipment disc ref: RC 761-1
Second disc ref: RC 761-2

Maxi Disc (8"):
These discs can be attached by yourself and the reference numbers are as follows:
Original equipment disc ref: RC 762-1
Second disc ref: RC 762-2

Please note that the mini and maxi discs are not interchangeable on the same RC 702 central processing unit.

B. LINE SELECTOR

By means of the line selector RC 791 you can connect up to 8 PICCOLO systems.

These systems can then share a printer, a transmission line and a library flexible disc (master).

C. POWER PANEL

As additional equipment a power distribution panel = MF002 can be acquired. This is an extension cable which will handle up to 5 power connection plugs.

D - LINE LOAD

If you need to be able automatically to load and start up a program received from another computer or another PICCOLO system, the MF006 is used.

This unit is a PROM (Programmable Read Only Memory) installed at RC COMPUTER.

E. MEMORY EXPANSION

Certain types of tasks are most conveniently performed if the memory is 64KB. (This is e.g. the case with programs coded in PASCAL).

MF001 is a 16KB expansion of the memory (from 48KB - 64KB) which can be installed by RC COMPUTER.

F. CABLES

For the connection between PICCOLO and the line selector, between PICCOLO and modem, and between two PICCOLO systems the cables MF003, MF009, and MF004 are used respectively.

They are available in lengths of 5, 12, and 25 m.

G. SUNDRY ITEMS

Dust caps for all units, detergent, files for flexible discs, additional flexible discs, printer paper, ribbon, disks, etc. can all be ordered from RC COMPUTER.

H. EXTENDED KEYBOARD

If you have a great need for numeric input there is a special keyboard - RC722 - with 15 additional keys for special functions and a separate numeric keyboard.

I. MANUALS

RC COMPUTER publishes a number of textbooks and manuals for PICCOLO as well as covering programming techniques in general.

J. COURSES

There are PICCOLO-courses dealing with hardware as well as software.

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A/S REGNECENTRALEN af 1979

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