END
DATE
FILMED

6-79
DDC

FTD-ID(RS)T-0314-78

① 1

FOREIGN TECHNOLOGY DIVISION

JSEP-EC 1032 COMPUTER

by

Frantisek Veis

78 12 22 006

EDITED TRANSLATION

78 12 22 006

JSEP-EC 1032 COMPUTER

Frantisek Veis

...... in the basic unit in the form of elemental operations (micro-operations)
and by the 'memory for notes' which is a very rapid memory. The universal
registers , floating point registers, and the operation registers of the system
are located there.

CHANNELS

are used for input and output of data from or into auxiliary devices. All channels
attached to the computer EC 1032 can operate at the same time. They effect
parallel completion or decompletion of the data bytes with computations carried
out in the basic unit. At the same time when the words are transmitted into or
from the operation memory, a short pause of the program takes place in the
basic unit. The channels cooperate with the input-output devices utilizing the
standard principles of cooperation.

The system can be equipped by one of two types of channels:

-- The multiplex channel utilizes 128 input devices in the time-sharing scheme.
Each basic unit can utilize only one multiplex channel.

-- Selector channel enables one to transmit in a given time rapidly a block
of data from one input-output device which is connected to this channel.

The maximum of 256 devices can be connected to a selector channel. Each basic
unit can utilize maximum of six selector channels.

The EC 1032 computer has a standard equipment of two selector channels. The
channels are equipped by a joint operational memory which is not accessible to the
programmer; it has registers controlling the input-output operations.

The system can be equipped by an optional set of output-input devices. This
set can include the following:

-- readers and punchers for punch tape;

-- readers and punchers for punch cards;

-- line printer;

-- electrical typewriters;

-- disc memories with a control unit;

-- tape memories with a control unit;

-- drum memories with a control unit;

-- data transfer devices;

-- plotter;

-- other devices.

EC 1032 SOFTWARE

The operation of the EC 1032 computer is controlled by a disc operation system (DOS). In the near future, the utilization of the operation system (OS) will be used. It has a built-in universal set of instructions (143) which includes all arithmetic instructions with the permanent and floating decimal point, instructions of the decadic arithmetics, logics and control instructions, and instructions for protection of the operational memory.

The DOS effects:

-- shortening of time required for programming;

-- automatic processing of programs by the computer;

-- multiprogram operation regime;

-- improvement of the operation of the computer and its utilization.

The DOS consists of two basic groups of programs:

1. Control programs

2. Service programs.

The control programs effect the efficient operation of the computer -- they prepare the system for operation and control the course of service programs, including

the user's programs. The following programs belong to the control programs:

-- SUPERVIZOR -- which is the main control program. It controls the entire
computer system, controls all types of interruption, analyses and services errors
in the operation of the system, effects communication of the system with the operator,
controls time sharing of the central unit during multi-programming.

-- JOB CONTROL -- controls processing of sets of tasks. It facilitates the
operator's work, it assigns the devices to individual logics units according to
control instructions (JOB); it determines the operation regime of the system; it
edits and records the information on set labeling; it prepares programs for the next start
from the control points.

--IPL -- is the 'introductory program'. It effects the introduction of the
DOS system into the operational memory.

--SPI -- initiator of independent programs. It effects the function of the
JOB CONTROL program for independent programs.

-- IOCS -- system of input-output control. It controls transfer of information
between the operational memory and peripheral devices. It effects control of sets
on the logics or physical level (LIOCS and PIOCS).

The service programs are realized under the supervision of control programs.
The majority of such programs utilizes the control system (input-output operations)
and obtains information from the SUPERVIZOR and JOB CONTROL.

The following programs belong in this class:

-- TRANSLATORS -- translate the 'source' programs in various programing languages
into the relative modules. The EC 1032 DOS is equipped by ASSEMBLER, RPG, FORTRAN,
PL/1, and COBOL translators.

--EDITOR -- is a 'joining' program. Together with the control parameters
of the relative modules (after translation), it forms the absolute modules (phase),
ready for realization. It can compile several modules written in different programming
languages at different times into one phase.

---LIBRARIAN -- updates all system and user's libraries (source libraries libraries -- SL; module libraries -- RL; phase libraries -- CL); it places information into libraries; directs output from libraries; directs duplication of libraries; directs excerpting from catalogues.

-- AUXILIARY SYSTEM PROGRAMS -- effect initiation of magnetic tapes and discs; effect erasing of information from discs, copying of an area of a disc, conversion of information from one media to another, etc.

-- SORT and MERGE -- sorting and 'establishing' programs for magnetic tapes and discs.

-- AUTOTEST , OLTEP -- testing programs.

-- programs for generation of the system.

Basic Technical Parameters of the EC 1032 Computer

The basic unit contains the following elements:

-- processor with the microprogram memory and the permanent memory;

--multiplex channel;

-- selector channels;

--operation memory with an adapter of the memory protection;

-- source.

Processor

-- information structure -- 1 byte;

-- word length -- 32 bites;

-- basic memory cycle -- 300 nsec.;

-- control principle -- microprograms;

-- microprogram memory -- capacity is 2,816 words of 86 bites each;

-- permanent memory -- 64 words, 32 bits each, on interated circuits;

-- memory protection -- 64 words, 8 bits each, on integrated circuits
     (128 Kb per one block);

-- control system controlling the operation memories, microprograms, input-output interferences, and coordination of channels with the processor;

-- separation of instructions -- in fixed decimal point, in floating decimal point, decimal system.

Channels

-- multiplex channel -- number of channels is 128 or 526; 8 control units can be attached. Transfer speed is 145 kb/sec for the multiplex regime and 470 kb/sec. for the selector regime;

-- selector channel -- 8 control units can be attached; the transfer speed is 1500 kb/sec.; the total capacity of the selector channels is 2,500 kb kb/sec.;

Operation Memory

-- capacity range: 128-1,024 kb;

-- memory cycle -- 1.2 microsec.;

-- recalling time -- 0.5 microsec.;

-- word length -- 36 bites (32 +4 control bites);

-- memory protection during enry of 'reading entry'

Source of Power

-- basic technical parameters

(a) Industrial three-phase network 3x380/220 V, ±50 Hz;

(b) Permissible voltage variation larger than +10% and -15%;

(c) energy consuption of the basic unit is max. 10 kVA.

The system will be imported from the Polish Pepoles' Republic by the Kovo- *Importing* Company. The sales and service is done by the Neto Organization, represented by the Kancelarske Stroje Co. in Czechoslovakia.

DISTRIBUTION LIST

DISTRIBUTION DIRECT TO RECIPIENT

ORGANIZATION		MICROFICHE	ORGANIZATION		MICROFICHE
A205	DMATC	1	E053	AF/INAKA	1
A210	DMAAC	2	E017	AF/RDXTR-W	1
B344	DIA/RDS-3C	8	E404	AEDC	1
C043	USAMIIA	1	E408	AFWL	1
C509	BALLISTIC RES LABS	1	E410	ADTC	1
C510	AIR MOBILITY R&D LAB/FIO	1	E413	ESD	2
C513	PICATINNY ARSENAL	1		FTD	
C535	AVIATION SYS COMD	1		CCN	1
				ASD/FTD/NICD	3
C591	FSTC	5		NIA/PHS	1
C619	MIA REDSTONE	1		NICD	2
D008	NISC	1			
H300	USAICE (USAREUR)	1			
P005	ERDA	1			
P055	CIA/CRS/ADD/SD	1			
NAVORDSTA (50L)		1			
NASA/KSI		1			
AFIT/LD		1			