

OVERVIEW

1. Facts & Data Micro & Mini Computers

Designed by
VUVT Zilina,
Czechoslovakia (now Slovak Republic)

A. Family of 16-bit Real-Time Computers

1. RPP 16 M

- data path	16 bits
- address path	16 bits
- number of instructions	62
- time of ADD exe	6 800 ns
- FP SP instructions	none
- max. memory capacity	16 KW
- type of memory	core
- memory acces time	800 ns
- memory check	parity
- developed by	VUVT Zilina
- end of development	1973 table form 1977 19" rack form
- SW compatible with	RPP 16 S
- manufactured by	TESLA Orava, Namestovo plant
- start of manufacturing	1974 table form 1978 19" rack form

2. RPP 16 S

- data path	16 bits
- address path	16 bits
- number of instructions	78
- time of ADD exe	4 000 ns
- FP SP instructions	yes
- max. memory capacity	64 KW
- type of memory	core
- memory acces time	800 ns
- memory check	parity
- developed by	VUVT Zilina
- end of development	1973 table form 1977 19" rack form
- SW compatible with	RPP 16 M
- manufactured by	TESLA Orava, Namestovo plant
- start of manufacturing	1974 table form 1978 19" rack form

B. Family of 16-bit Mini & Micro Computers

1. SM 3-20 Mini Computer

- data path	16 bits
- memory address path	16 bits
- number of instructions	76
- time of ADD exe	3 300 ns
- max. memory capacity	64 KB
- type of memory	core, semiconductor
- memory check	parity
- developed by	VUVT Zilina
- end of development	1978
- SW compatible with	PDP 11/04
- manufactured by	ZVT Namestovo
- start of manufacturing	1980

2. SM 4-20 Mini Computer

- data path	16 bits
- memory address path	18 bits
- number of instructions	132
- time of ADD exe	2 300 ns
- FP S/D P processor	yes
- max. memory capacity	256 KB
- type of memory	semiconductor
- memory check	ECC
- designed by	VUVT Zilina
- end of development	1979
- SW compatible with	PDP 11/34A
- manufactured by	ZVT Namestovo
- start of manufacturing	1980

3. SM 50/50-1 Micro Computer

- data path	16 bits
- memory address path	16(18) bits
- number of instructions	86
- time of ADD exe	2 400 ns (without cache)
- cache memory	(2 KB)
- max. memory capacity	64(256) KB
- type of memory	semiconductor
- memory check	parity
- developed by	VUVT Zilina
- end of development	1980
- SW compatible with	PDP 11/34
- manufactured by	ZVT Námestovo
- start of manufacturing	1982

4. SM 52/11 Mini Computer

- data path	16 bits
- memory address path	18 bits
- number of instructions	132 (+ customer designed)
- time of ADD exe	340 ns
- FP S/D P processor	yes
- DCS	yes
- WCS	yes
- ECS	yes
- cache memory	2 KB
- max. memory capacity	256 KB
- type of memory	semiconductor
- memory check	ECC
- developed by	VUVT Zilina
- end of development	1980
- SW compatible with	PDP 11/60
- manufactured by	ZVT Namestovo
- start of manufacturing	1982

5. SM 52/11+ Mini Computer

- data path	16 bits
- memory address path	22 bits
- number of instructions	198
- time of ADD exe	340 ns
- FP S/D P processor	yes
- CIS	yes
- WCS	yes
- DCS	yes
- ECS	yes
- cache memory	2 KB
- max. memory capacity	4 MB
- type of memory	semiconductor
- memory check	ECC
- developed by	VUVT Zilina
- end of development	1983
- SW compatible with	PDP 11/60 + PDP 11/44
- manufactured by	ZVT Namestovo
- start of manufacturing	1985

6. M 16-22 Micro Computer

- data path	16 bits
- memory address path	22 bits
- number of instructions	132(+66)
- time of ADD exe	2 300 ns (without cache)
- FP S/D P processor	yes
- CIS	no (yes)
- ECS	yes
- cache memory	no(2 KB)
- max. memory capacity	4 MB
- memory check	parity (ECC)

- developed by	VUVT Zilina
- end of development	1985
- SW compatible with	(PDP 11/44)
- manufactured by	ZVT Namestovo
- start of manufacturing	1987

C. Virtual Memory 32-bit Mini Computer

1. 32-bit Mini Computer SM 52/12

- data path	32 bits
- memory address path	30 bits
- number of instructions	243
- FP S/D P processor	yes
- virtual memory size	4 GB
- cache memory	8 KB
- number of memory subsystems	2
- max. memory capacity	8 MB (32 MB)
- memory check	ECC
- number of I/O subsystems	4
- developed by	VUVT Zilina
- end of development	1984
- SW compatible with	VAX 11/780
- manufactured by	ZVT Namestovo
- start of production	1986 (1985 in VUVT Zilina)

D. Family of 8-bit & 16-bit Micro Computers

1. 8-bit Micro Computer SM 50/40-1.

- data path	8 bits
- memory address path	16 bits
- microprocessor	MHB 8080A
- FP procesor	additional board
- max. memory capacity	64 KB
- costruction	- set of more than 16 functional boards - cassette for 5 boards with power supply & cooling - IT with external floppy - MVS 80 (microcomputer development system with in-circuit emulator & PROM programmer with external paper tape or floppy)
- developed by	VUVT Zilina
- end of development	1980
- SW compatible with	SBC 80/20, MDS II
- manufactured by	ZVT Banská Bystrica
- start of production	1982

2. 16 bit Micro Computer M 16-1

- data path	16 bits
- memory address path	20 bits
- microprocessor	8086
- FP processor	8087
- max. memory capacity	1 MB
- construction	- set of functional boards - cassette for 5 boards with power supply & cooling - IT with floppy or hard disk - MVS 86 (microcomputer development system with in-circuit emulator & PROM programmer with floppy or hard disk)
- developed by	VUVT Zilina
- end of development	1985
- SW compatible with	SBC 86/12, MDS III
- manufactured by	ZVT Banska Bystrica
- start of production	1987

E. Family of Personal Computers

1. PP 01

- Type of processor	MHB 8080A
- RAM size	48 KB
- EPROM size	10 (16) KB
- Monitor raster size-characters	32 x 32
-points	256 x 256
-External memory	tape recorder
- Expansion	-
- End of development	1984
- Start of production	1985

2. PP 02

- Type of processor	MHB 8080A (+SM 50/40-1)
- RAM size	64 KB(+64KB)
- EPROM size	10 (16) KB
- FPP	board
- Monitor raster size-characters	32 x 32
-points	256 x 256
- External memory	floppy 2 x 160 KB (5,25")
- Expansion	8 standard boards
- Monitor	external
- End of development	1984
- Start of production	1985

3. PP 03

- Type of processor	SM 50/40-1
- RAM size	48 KB
- EPROM size	16 KB
- FPP	board
- Monitor raster size-characters	64 x 32/16
-points	512 x 256
- External memory	floppy 2 x 160 KB (5,25“)
- Monitor	built in
- Expansion	6 standard boards
- End of development	1984
- Start of production	1985

4. PP 04

- Type of processor	M 16-22
- RAM size	(128 KB) 256 KB
- FPP	board
- Monitor raster size-characters	64 x 32/16 (80 x 24)
- points	384 x 256 (640 x 480)
- External memory	floppy 1MB (8“)
- Expansion	4 standard boards
- Monitor	external
- End of development	1985
- Start of production	1986

5. PP 05

- Type of processor	M 16-1
- RAM size	128 KB(256 KB)
- FPP	8087
- Monitor raster size-characters	64 x 32/16
-points	512 x 256
- External memory	2 x 160 KB (5,25“)
- Monitor	built in
- Expansion	5 standard boards
- End of development	1985
- Start of production	1986

6. PP 06

- Type of processor	8088
- RAM size	128 KB (640 KB)
- FPP	8087
- Monitor raster size-characters	80 x 24
-points	640 x 200(480)
- External memory	2 x 160 KB (5,25“), (HDD 5,25“)
- SW compatible	IBM PC (XT)
- End of development	1985
- Start of production	1986

()..... optional or added later

FP S/D P floating point single/double precision

FP SP - floating point single precision

FPP - floating point processor

2. Facts & Data Peripheral Devices

Designed by
VUVT Zilina,
Czechoslovakia (now Slovak Republic)

A. Family of “CM System” Videoterminals

1. Videoterminal CM 7202

- number of characters per line	80
- number of lines per screen	24
- capacity of memory	1920
- raster of characters	5 x 7 dots
- number of characters	96
- interface	asynchronous, full duplex serial line
- interface standard	CCITT V.24, current loop
- interface speed	up to 9 600 bits/s
- connectivity of local printer	yes
- SW compatible with	VT 52 made by DEC
- developed by	VUVT Zilina
- end of development	1978
- manufactured by	TESLA Orava
- start of manufacturing	1979

2. Videoterminal CM 7202 M.1 G

- number of characters per line	80
- number of lines per screen	24
- capacity of memory	1920
- raster of characters	5 x 7 dots
- number of characters	96
- number of graphs/histograms	2
- raster of graphs/histograms	512 x 236 dots
- interface	asynchronous, full duplex serial line
- interface standard	CCITT V.24, current loop
- interface speed	up to 9 600 bits/s
- connectivity of local printer	yes
- SW compatible with	VT 55 made by DEC
- developed by	VUVT Zilina
- end of development	1981
- manufactured by	TESLA Orava
- start of manufacturing	1983

3. Videoterminal CM 7202 M.2 G

- number of characters per line 80/132
- number of lines per screen 24
- raster of characters 7 x 9 dots
- number of characters 96
- number of graphs/histograms 2
- raster of graphs/histograms 512 x 236 dots
- full raster graphic 760 x 240 dots
- interface asynchronous, full duplex serial line
- interface standard CCITT V.24, current loop
- interface speed up to 9 600 bits/s
- connectivity of local printer yes
- SW compatible with VT 125 made by DEC
- developed by VUVT Zilina
- end of development 1985
- manufactured by TESLA Orava
- start of manufacturing 1987

4. Dot matrix printer terminal CM 7108

- number of characters per line 132
- raster of characters 7 x 7 dots
- number of characters 96
- interface asynchronous, full duplex serial line
- interface standard CCITT V.24, current loop
- interface speed 300 bits/s
- SW compatible with LA 36 made by DEC
- developed by Zbrojovka Brno & VUVT Zilina
- end of development 1978
- manufactured by Zbrojovka Brno
- start of manufacturing 1980

5. Videoterminal for microcomputers CM 1601

- number of characters per line 64/40
- number of lines per screen 16/12
- capacity of memory 1024
- raster of characters 5 x 7 dots
- number of characters 96
- interface asynchronous, full duplex serial line
- interface standard CCITT V.24, current loop
- interface speed up to 9 600 bits/s
- connectivity of local printer no
- developed by VUVT Zilina
- end of development 1980
- manufactured by TESLA Orava
- start of manufacturing 1981

6. Graphic work station GS 1 with interactive vector graphic display CM 7405

- addressable dots on screen	1 024 x 1 024
- screen size	14"
- raster of characters	7 x 7 dots
- number of characters	96
- interactive elements	light pen
- addr. dots of graphic processor	1 024 x 1 024
- system computer	SM 3-20
- memory size	28 KW
- interface	asynchronous, full duplex serial line
- interface standard	CCITT V.24, current loop
- interface speed	up to 9 600 bits/s
- connectivity of local printer	yes
- connectivity of local digitizer	yes
- SW compatible with	VT 11/GT 43 made by DEC
- developed by	VUVT Zilina
- end of development	1981
- manufactured by	TESLA Orava
- start of manufacturing	1983

7. Graphic work station GS 2 with interactive vector graphic display CM 7405 M.1

- addressable dots on screen	1 024 x 1 024
- screen size	16"
- raster of characters	7 x 7 dots
- number of characters	96
- interactive elements	light pen
- addr. dots of graphic processor	4 096 x 4 096
- system computer	M 16-22 (SM 4-20)
- memory size	256 KW (124 KW)
- interface	asynchronous, full duplex serial line
- interface standard	CCITT V.24, current loop
- interface speed	up to 9 600 bits/s
- connectivity of local printer	yes
- connectivity of local digitizer	yes
- SW compatible with	VT 60/GT 62 made by DEC
- developed by	VUVT Zilina
- end of development	1984
- manufactured by	TESLA Orava
- start of manufacturing	1986

8. Graphic work station GS 2 with interactive color raster graphic display CM 7405 M.2

- addressable dots on screen	512 x 512
- screen size	19"
- raster of characters	7 x 7 dots
- number of characters	96
- interactive elements	joy stick
- add. dots of graphic processor	4 096 x 4 096
- system computer	M 16-22
- memory size	256 KW
- interface	asynchronous, full duplex serial line
- interface standard	CCITT V.24, current loop
- interface speed	up to 9 600 bits/s
- connectivity of local printer	yes
- connectivity of local digitizer	yes
- SW compatible with	VS 11/GT ?? made by DEC
- developed by	VUVT Zilina
- end of development	1985
- manufactured by	TESLA Orava
- start of manufacturing	1987

9. Graphic work station CM 7408

- addressable dots on screen	640 x 200
- screen size	12"
- raster of characters	5 x 9 dots
- number of characters	96
- interactive elements	key board
- addr. dots of graphic processor	640 x 742
- system computer	SM 50/40-1
- memory size	64 KB
- interface	asynchronous, full duplex serial line
- interface standard	CCITT V.24, current loop
- interface speed	up to 9 600 bits/s
- connec. of local printer	yes
- connec. of local tape memory	yes
- SW compatible with	Tx 4025 made by Tektronix
- developed by	VUVT Zilina
- end of development	1982
- manufactured by	TESLA Orava
- start of manufacturing	1986

10. Graphic work station GS 3 - CM 7318

- addressable dots on screen	1 280 x 1 024
- screen size	19"
- interactive elements	thumb wheels & tablet
- addr. dots of graphic processor	2*32 x 2*32
- number of colors	256 from pallette of 2*24
- system computer	8086 & 8087

- memory size	800 KB RAM & 128 KB EPROM
- interface	asynchronous, full duplex serial line
- interface standard	CCITT V.24, current loop
- interface speed	up to 9 600 bits/s
- DMA interface	yes
- connectivity of local printer	yes
- connectivity of local digitizer	yes
- connectivity of local floppy	yes
- connectivity of local hard disk	yes
- SW compatible with	Tx 4115B made by Tektonix
- developed by	VUVT Zilina
- end of development	1988
- manufactured by	VUVT Žilina
- start of manufacturing	1990

11. Graphic work station PP 06.3 - CM 1922

- addressable dots on screen	640 x 480
- size of screen	14"
- interactive elements	mouse & tablet
- number of colors	256 from palette 4 096
- graphic processor	8088
- graphic memory	320 KB RAM & 64 KB EPROM
- system computer	8088 & 8087
- memory size	640 KB RAM
- interface	asynchronous, full duplex serial line
- interface standard	CCITT V.24, current loop
- interface speed	up to 9 600 bits/s
- connectivity of local printer	yes
- connectivity of local digitizer	yes
- connectivity of local floppy	yes
- connectivity of local hard disk	yes
- SW compatible with	IBM PC PGA made by IBM
- developed by	VUVT Zilina
- end of development	1988
- manufactured by	VUVT Žilina
- start of manufacturing	1990

B. Family of „EC System“ Videoterminals

1. Videodisplay EC 7063

- number of characters per line	80/64/40
- number of lines per screen	12/15/24
- capacity of memory	960
- number of characters	96
- interface	parallel lines
- interface standard	EC
- interface speed	50 000 characters/s

- connectivity of local printer no
- SW compatible with IBM 3413 made by IBM
- developed by VUMS Praha, VUVT Zilina
- end of development 1973
- manufactured by TESLA Orava
- start of manufacturing 1976

2. Videoterminal EC 7925

- number of characters per line 80/40
- number of lines per screen 24/12
- capacity of memory 1920
- raster of characters 5 x 7 dots
- number of characters 96
- interface synchronous, full duplex serial line
- interface standard CCITT V.24, 28
- interface protocol BSC
- interface speed up to 9 600 bits/s
- connectivity of local printer yes
- SW compatible with IBM 3270 made by IBM
- developed by VUMS Praha, VUVT Zilina
- end of development 1978
- manufactured by ZVT, k.p.
- start of manufacturing 1982

C. Graphic Plotters

1. Pen plotter VZ 930 – CM 6411

- number of pens 3
- width of paper 860 mm
- max. length of paper 30 m
- max. hor. or vert. speed 100 m/s
- max. acceleration 3 g
- repeatability 0,16 mm
- controlled by microprocessor 8080 A
- interface asynchronous, full duplex serial line
- interface standard CCITT V.24, current loop
- interface speed up to 9 600 bits/s
- SW compatible with Calcomp 1039 made by CALCOMP
- developed by VUVT Zilina
- end of development 1984
- manufactured by ZPA Prešov
- start of manufacturing 1986

2. Pen plotter VZ 565 – CM 6426

- number of pens 8
- width of paper 860 - 220 mm (A0 až A4)
- max. length of paper 30 m
- max. hor. or vert. speed 400 m/s
- max. acceleration 3 g
- repeatability 0,16 mm
- controlled by microprocessor 8086 & ASICs
- interface asynchronous, full duplex serial line
- interface standard CCITT V.24, current loop
- interface speed up to 9 600 bits/s
- SW compatible with HP 7586B made by Hewlett Packard
- developed by VUVT Zilina
- end of development 1988
- manufactured by ZPA Prešov
- start of manufacturing 1991

3. Pen plotter VZ 300

- number of pens 6
- width of paper 310 mm (A3 and A4)
- max. hor. or vert. speed 100 mm/s
- max. acceleration 3 g
- repeatability 0,16 mm
- controlled by microprocessor 8086 & ASICs
- interface asynchronous, full duplex serial line
- interface standard CCITT V.24, current loop
- interface speed up to 9 600 bits/s
- SW compatible with HP 7475 made by Hewlett Packard
- developed by VUVT Zilina
- end of development 1988
- manufactured by ZPA Prešov
- start of manufacturing 1991

D. Magnetic Disc & Tape Memory Subsystems

1. 8“ floppy disc drive memory subsystem (SS, SD) – CM 6405

- number of disc drives 2
- total capacity 512 KB
- acces time 500 ms
- max. transfer speed 50 KB/s
- system interface Unified bus
- hight of 19“ rack 7 U
- SW compatible with RX 11 made by DEC
- developed by VUVT Zilina
- end of development 1980
- manufactured by ZVT k.p.
- start of manufacturing 1982

2. 8“ floppy disc drive memory subsystem (SS, DD) – CM 6426

- number of disc drives	2
- total capacity	512 - 2048 KB
- acces time	500 ms
- max. transfer speed	50 – 100 KB/s
- system interface	Unified bus
- hight of 19“ rack	4 U
- SW compatible with	RX 211 made by DEC
- developed by	VUVT Zilina
- end of development	1983
- manufactured by	ZVT k.p.
- start of manufacturing	1985

3. Hard disc & floppy disc drive memory subsystem

- number of hard disc drives	2
- max. transfer speed	5 Mbit/s
- max. capacity	2 x 112 MB
- number of floppy disc drives	2
- max. transfer speed	50 – 100 KB/s
- system interface	Unified bus
- hight of 19“ rack	4 U
- SW compatible with	RK 711 & RX 50 made by DEC
- developed by	VUVT Zilina
- end of development	1986
- manufactured by	ZVT k.p.
- start of manufacturing	1988

4. 1/2“ magnetic tape drive memory subsystem

Control unit

- number of connected drives	1 to 4
- encoding systems	NRZ-I & PE
- density	800/1 600 bpi
- max. transfer speed	36 – 72 KB/s
- system interface	Unified bus
- size	2 x 3/3 PCBs
- SW compatible with	TS 11 made by DEC
- developed by	VUVT Zilina
- end of development	1983
- manufactured by	ZPA Prešov
- start of manufacturing	1984

1/2" magnetic tape drive CM 5311

- encoding system	NRZ-I & PE
- density	800/1 600 bpi
- max. transfer speed	36 – 72 KB/s
- reading/writing tape speed	1,14 m/s
- rewind tape speed	3,81 m/s
- reel size	266 mm
- weight	59 kg
- power consumption	400 VA
- developed by	VUVT Zilina
- end of development	1983
- manufactured by	ZPA Prešov
- start of manufacturing	1984
- developed by	VUVT Zilina
- end of development	1983
- manufactured by	ZPA Prešov
- start of manufacturing	1984