 SPERRY RAND

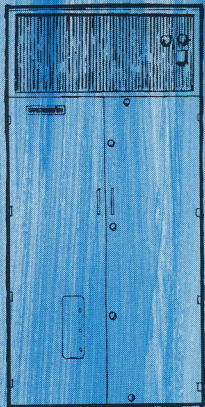
COMPUTERS

10101010
01010101
10101010

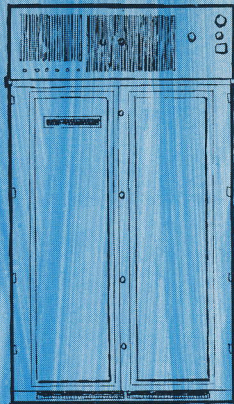
UNIVAC

FEDERAL SYSTEMS DIVISION

UNIVAC
FEDERAL SYSTEMS DIVISION
St. Paul, Minnesota



1212



1213



1218



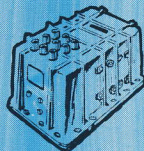
1230



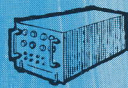
1219



1289



1824



1818



1830A



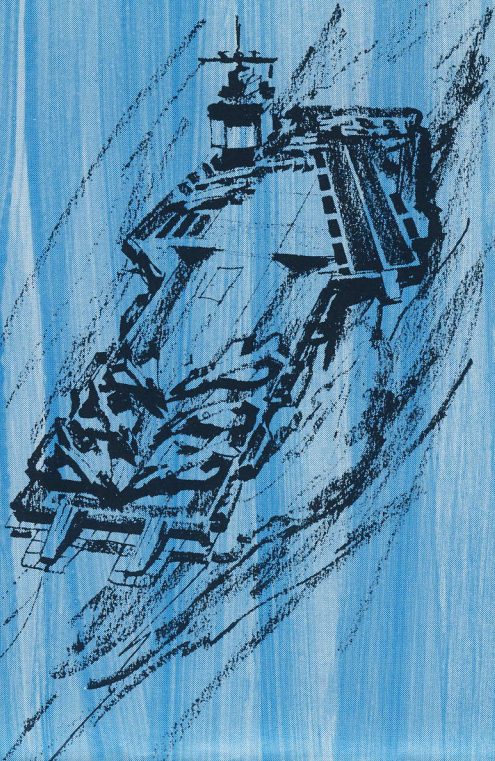
INTRODUCTION

The computer systems presented on the following pages represent the advanced military computer technology available from UNIVAC Federal Systems Division. Two families of ruggedized systems components, designed and constructed to meet military specifications, are included:

- Fixed-Location and Mobile Surface Systems.
- Aerospace and Avionic Systems.

The hardware capabilities, software capabilities, and available peripheral equipment are shown in tabulated form toward the end of the booklet.

The sizes and weights listed are approximate.



UNIVAC® 1212 MILITARY COMPUTER (CP-642B)

MILITARIZED CONSTRUCTION (MIL-E-16400)

COMPACT

Size: 72"H x 38"W x 37"D
Weight: 2400 pounds

30-BIT WORD LENGTH

Half-Word Option

MEMORY

Magnetic Core Main Memory
32K Words
4-Microsecond Cycle Time
NDRO Memory
64 Words
Magnetic Thin-Film Control Memory
64 Words
667-Nanoseconds Cycle Time

SEVEN INDEX REGISTERS

Located in Control Memory

INSTRUCTIONS

62 Single Address Instructions
15 Logical
Square Root Instruction
Branching Possible On Most

TIMING DEVICES

(Time Increment of 1/1024 Second)

INPUT/OUTPUT CAPABILITIES (Buffered)

16 I/O Channels (Maximum)
Automatic Priority Determination

INTERCOMPUTER

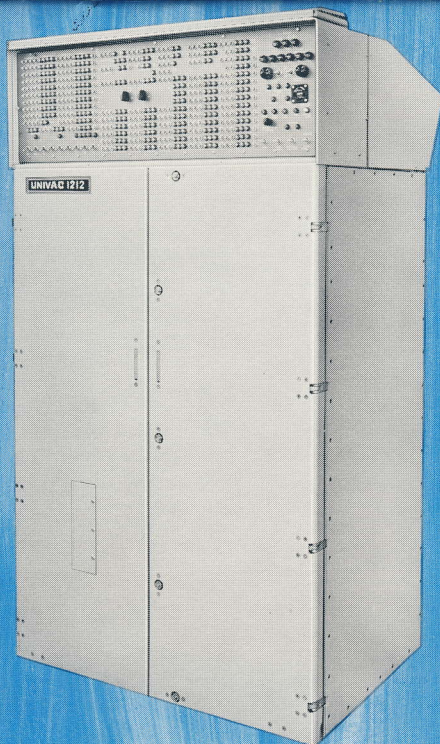
On Any Channel

INTERRUPTS

16 External
65 Internal

RELIABILITY

MTBF of 1500 Hours (Calculated)





UNIVAC 1213 MILITARY COMPUTER (CP-808 TYK)

MILITARIZED CONSTRUCTION (MIL-E-16400)

COMPACT

Size: 72"H x 38"W x 37"D
Weight: 1650 pounds

30-BIT WORD LENGTH Half-Word Option

MEMORY

Magnetic Core Main Memory
32K Words
4-Microseconds Cycle Time
NDRO Memory
64 Words
Magnetic Thin-Film Control Memory
64 Words
667-Nanoseconds Cycle Time

SEVEN INDEX REGISTERS

Located in Control Memory

INSTRUCTIONS

62 Single Address Instructions
15 Logical
Square Root Instruction
Branching Possible On Most

TIMING DEVICES

(Time Increment of 1/1024 Second)

INPUT/OUTPUT CAPABILITIES (Buffered)

12 I/O Channels (Maximum)
Automatic Priority Determination

INTERCOMPUTER

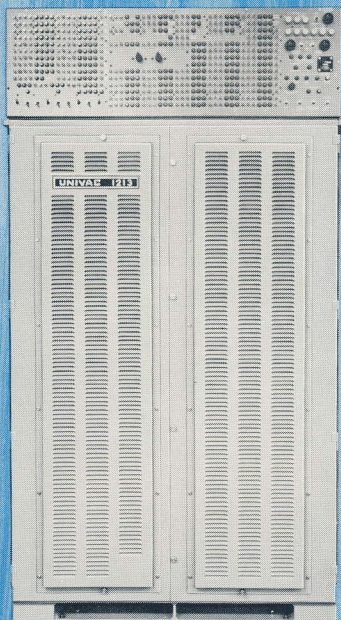
On Any Channel

INTERRUPTS

16 External
65 Internal

RELIABILITY

MTBF of 1500 Hours (Calculated)





UNIVAC 1218 MILITARY COMPUTER (CP-789/UYK)

MILITARIZED CONSTRUCTION (MIL-E-16400)

COMPACT

Size: 72"H x 26"W x 30"D
Weight: 830 Pounds (16K 8 I/O)

18-BIT WORD LENGTH

Double-Word Option
Arithmetic
Input/Output Transfer

MEMORY

Magnetic Core
4K, 8K, 16K or 32K Words
32 Words NDRO (Bootstrap)
4-Microseconds Cycle Time

EIGHT INDEX REGISTERS

Located 1-10₈ in Core Memory
18 Bits Each

98 SINGLE ADDRESS INSTRUCTIONS

16 Logical (Bit Manipulation Type)
4 Double Precision

TIMING DEVICES

(Time Increment of 1/1024 Second)

INPUT/OUTPUT CAPABILITIES (Buffered)

Four or Eight I/O Channels
Forward or Backward
Automatic Priority Determination
ESI and ESA
Dual Channel Capability (36-Bits)

INTERRUPTS

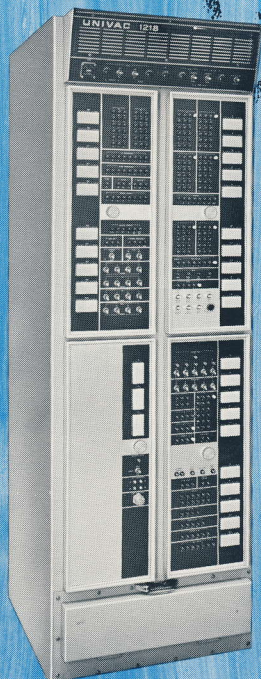
8 External
25 Internal
1 Synchronizing

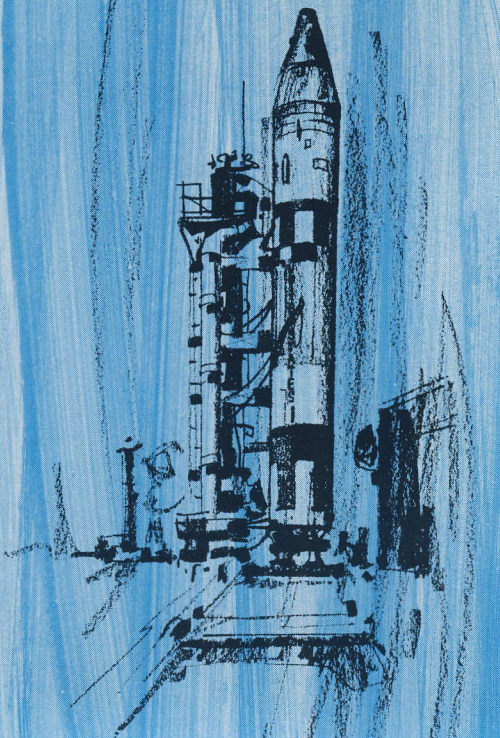
INTERCOMPUTER

On Any Channel

RELIABILITY

MTBF of 2100 Hours (Calculated)





UNIVAC 1219 MILITARY COMPUTER (CP-848/UJK)

MILITARIZED CONSTRUCTION (MIL-E-16400)

COMPACT

Size: 72"H x 26"W x 30"D
(32K - 8 I/O)
Weight: 1000 Pounds

18-BIT WORD LENGTH

Double-Word Option
Arithmetic
Input/Output Transfer

MEMORY

Magnetic Core Main Memory
2-Microsecond Cycle Time
8K, 16K, 32K, or 65K Words
Fast Core Control Memory
500-Nanosecond Cycle Time
128 18-Bit Words (256 Words Optional)
Fixed Memory
32 18-Bit Words (NDRO)
Bootstrap and Fault Recovery Operations

EIGHT INDEX REGISTERS (18-Bits Each)

Located 1-10₈ in Control Memory

102 SINGLE ADDRESS INSTRUCTIONS

16 Logical (Bit Manipulation Type)
4 Double Precision

TIMING DEVICES

(Time Increment of 1/1024 Second)

INPUT/OUTPUT CAPABILITIES (Buffered)

Four or Eight I/O Channels
Forward or Backward
Automatic Priority Determination
CDM, ESI and ESA
Dual Channel Capability (36-Bits)

INTERRUPTS

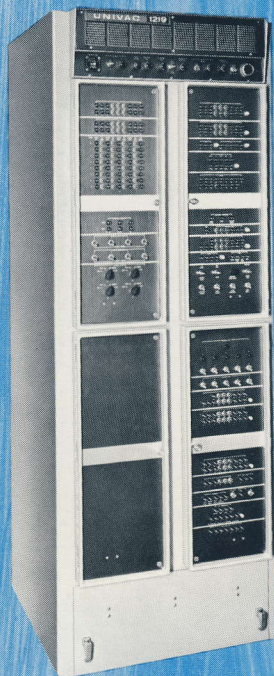
8 or 16 External
27 or 51 Internal

INTERCOMPUTER

On Any Channel

RELIABILITY

MTBF of 1500 Hours (Calculated)



UNIVAC 1230 MILITARY COMPUTER (CP-855/UJK)

MILITARIZED CONSTRUCTION (MIL-E-16400)

COMPACT

Size: 72"H x 38"W x 37"D
Weight: 2200 Pounds

30-BIT WORD LENGTH Half-Word Option

MODES OF OPERATION (Switch Selectable) CP-642A/CP/642B Mode 1230 Mode

MEMORY

Magnetic Core Main Memory
32K to 65K Words
Expandable in 16K Modules
2-Microsecond Cycle Time for Each Bank
Overlap Feature Produces Effective
One-Microsecond Cycle Time
Nondestructive Readout Memory
64 30-Bit Words
Magnetic Thin-Film Control Memory
128 30-Bit Words (256 Words Optional)
400-Nanosecond Cycle Time

SEVEN INDEX REGISTERS

Located in Control Memory

INSTRUCTIONS

78 Single Address Instructions
15 Logical
Square Root Instruction
Branching Possible On Most

TIMING DEVICES

(Time Increment of 1/1024 Second)

INPUT/OUTPUT CAPABILITIES (Buffered)

16 I/O Channels (Maximum)
Automatic Priority Determination
CDM, ESI and ESA

INTERRUPTS

16 External
65 Internal

INTERCOMPUTER

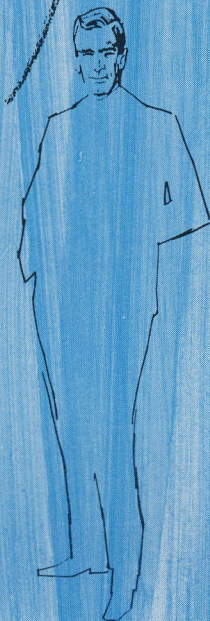
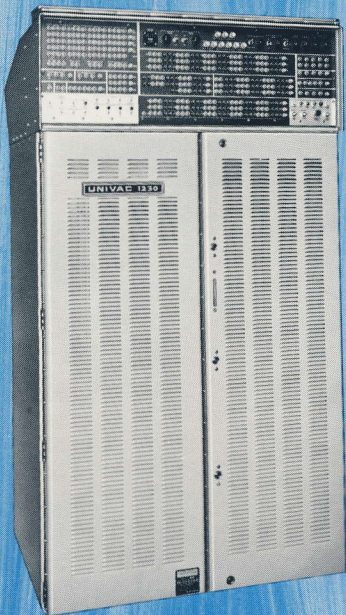
On Any Channel

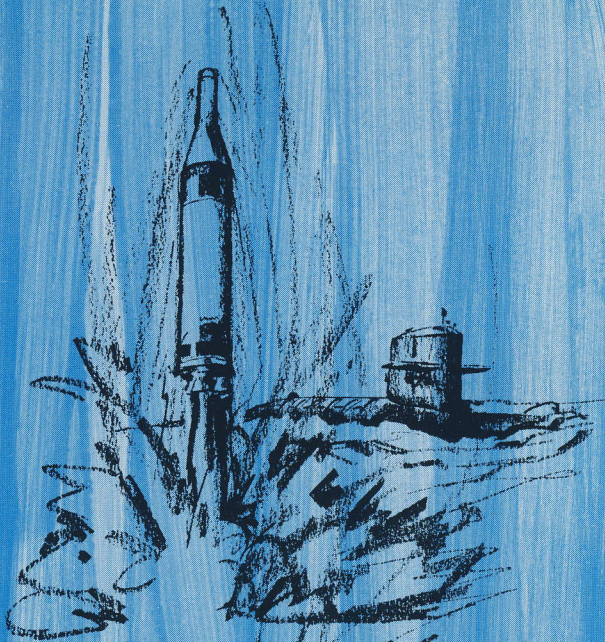
RELIABILITY

MTBF of 1500 Hours (Calculated)

OPTIONS

Floating Point
Expanded Memory





UNIVAC 1289 MILITARY COMPUTER (CP-890/UJK)

MILITARIZED CONSTRUCTION

(MIL-E-16400)

Integrated Circuit Modules

COMPACT

Size: 74"H x 22"W x 18"D

Weight: 700 Pounds Maximum

30-BIT WORD LENGTH

Arithmetic

Input/Output Transfer

MEMORY

Magnetic Core (32-bit; 2 parity bits)

32K to 262K Words

1.8 Microsecond Cycle Time

Overlap Feature Produces Effective

One-Microsecond Cycle Time

Temperature Stable

SEVEN INDEX REGISTERS

Integrated Circuits

105 SINGLE ADDRESS INSTRUCTIONS

Floating Point; Double Precision

Controlled Index Addressing

Indirect Addressing

TIMING DEVICES

(Time Increment of 1/1024 Second)

INPUT/OUTPUT CAPABILITIES

12* to 16 30-Bit Parallel Buffered

I/O Channels

2 Special Input Channels*

2 Special Output Channels*

INTERRUPTS

21 External

72 Internal

1 Real Time Clock

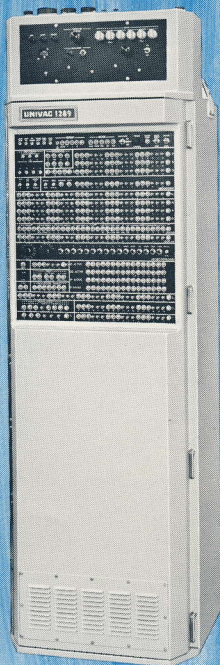
INTERCOMPUTER

On Any Standard Input/Output Channel

RELIABILITY

MTBF of 2000 Hours (Calculated)

*CP-890 Only





UNIVAC 1818 AVIONICS COMPUTER

MILITARIZED CONSTRUCTION

(MIL-E-5400 Class 2)

COMPACT

Size:* 7.6"H x 9.9"W x 20.5"D
Weight:** 43 Pounds

18-BIT WORD LENGTH

Instruction and Data Words
Double Precision Add/Subtract Optional

MEMORY

Intermix of Coincident Current Core (DRO)***
and Core Rope (NDRO)
4K to 32K Total Capacity
2-Microsecond Cycle Time

THREE INDEX REGISTERS

Located in Core Memory
18-Bits Each

INSTRUCTIONS

27 Basic
62 Total

TIMING

Real Time Interrupt 1024 Hz

INPUT/OUTPUT CAPABILITIES

8 I/O Channels (Maximum)

INTERRUPTS

1 Power
1 Fault
1 Real Time Clock
6 External

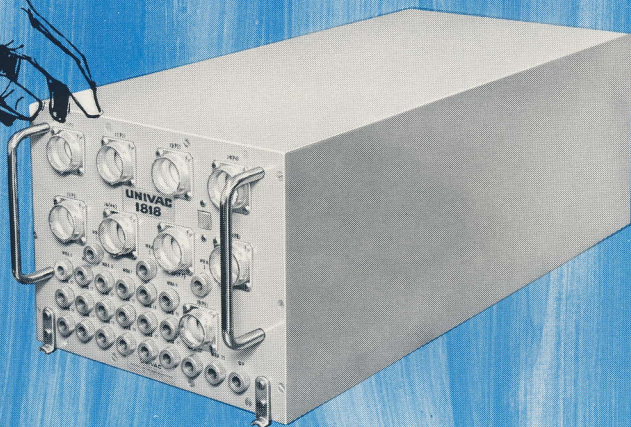
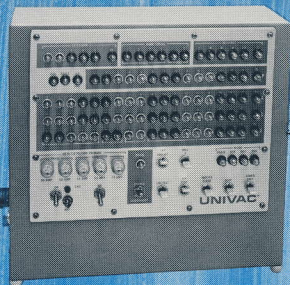
INTERCOMPUTER

Optional

RELIABILITY

MTBF of 3410 Hours (Calculated)

*Up to 12K Memory and 8 I/O Channels
**For 4K Memory Configuration
***Unprotected or Protected Core





UNIVAC 1824 AEROSPACE COMPUTER

MILITARIZED CONSTRUCTION

Designed for Aerospace Environment
(MIL-STD-810; FED-STD-151;
Classified Document for Nuclear
Radiation; Meets Severe Re-Entry
Environment)

COMPACT*

Size: 9.1"H x 9.4"W x 15.3"D
Weight: 44.6 Pounds

16-BIT INSTRUCTION WORD LENGTH

24-BIT DATA WORD LENGTH

MEMORY

Magnetic Thin-Film
4-Microsecond Cycle Time
DRO: 256-1024 24-Bit Words
NDRO: 1024 to 8192 48-Bit Words
(Up to 24,516 16-Bit Instructions)
Random Access
Electrically Alterable

THREE INDEX REGISTERS

Located in Film Memory

INSTRUCTIONS

41 Instructions (16-Bits)

TIMING

Real Time Clock

INPUT/OUTPUT CAPABILITY

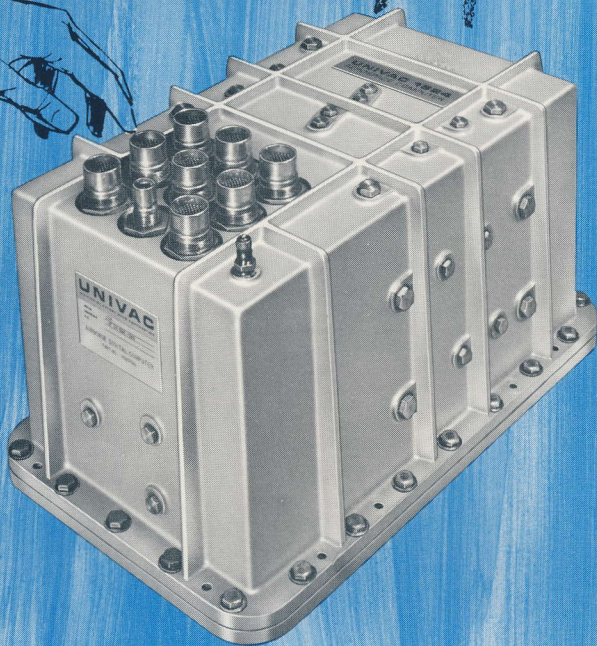
Complete I/O Circuit Family
Available; Can Be Readily Tailored
to Specific I/O Requirements

INTERRUPTS

2 External
1 Internal

RELIABILITY

M TBF of 10,000 Hours (Calculated)



*For 4096-Word 48-Bit NDRO, 512-Word 24-Bit DRO Memory
Configuration

UNIVAC 1830A AVIONICS COMPUTER (CP-901)

MILITARIZED CONSTRUCTION

(MIL-E-5400)

COMPACT*

Size: 51"H x 13.5"W x 17.6"D

Weight: 345 Pounds

30-BIT WORD LENGTH

Single Word

Arithmetic

Input/Output Transfer

MEMORY

Magnetic Core

4K to 65K Words (Expandable to 131K)

512 Words NDRO (Core Rope Bootstrap)

2-Microseconds Cycle Time Without
Overlap

1-Microsecond (Effective) Cycle Time
With Overlap

SEVEN INDEX REGISTERS

Hardware Index Registers (15-Bits)

70 SINGLE ADDRESS INSTRUCTIONS

7 Branch Designator

7 Operand Interpretation Designators

TIMING DEVICES

(Time Increment of 1/1024 Second)

INPUT/OUTPUT CAPABILITIES (Buffered)

16 I/O Channels (Maximum)

Automatic Priority Determination

ESA, and ESI (Optional)

INTERRUPTS

4 Internal

5 I/O (Unique Types)

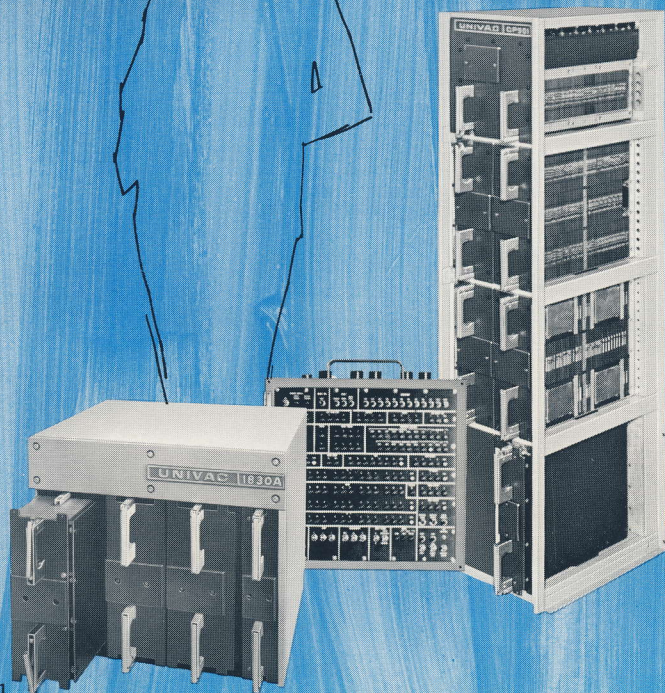
INTERCOMPUTER

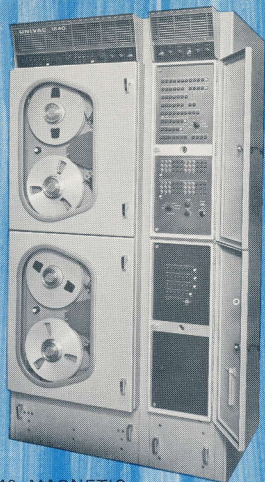
On Any Channel

RELIABILITY

MTBF of 2000 Hours (Calculated)

*For 1830A with 65K Memory

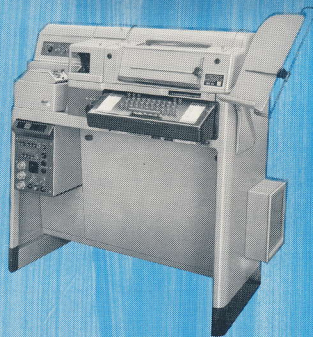


1540 MAGNETIC
TAPE UNIT2010 DATA
TRANSMISSION UNIT

1532 INPUT/OUTPUT CONSOLE



1551 DISPLAY UNIT



1259 TELETYPEWRITER SET



1569 HIGH SPEED PRINTER



1549 CARD READER-PUNCH-INTERPRETER

UNIVAC PERIPHERAL EQUIPMENT

ON-LINE TYPEWRITER

- * 1532 I/O Console
Keyboard IN — 10 Characters
Per Second Printer
- * Teletypewriter and Adapter Unit
UGC-6, 13 or FGC 20, 25, 52

PAPER TAPE READER

- * 1532 I/O Console.....300 cps
- Commercial Subsystem.....400 cps

PAPER TAPE PUNCH

- * 1532 I/O Console.....110 cps
- Commercial Subsystems.....110 cps

CARD EQUIPMENT

- Military Card Punch.....200 cards/min
- Military Card Reader400 cards/min
- Commercial Card Punch.....200 cards/min
- Commercial Card Reader615 cards/min

HIGH-SPEED PRINTERS

- 1569 Printer.....600 lpm

MASS STORAGE

- 786,432 Character Drum
- 4.7 Million Character Drum
- 132 Million Character Drum

MAGNETIC TAPE

- * 1243 (NTDS Service Test)
- 1240 (556 BPI, 112.5 IPS, Pinch Roller)
- 1245 (200 BPI, 112.5 IPS, Pinch Roller)
- * 1540 (800 BPI, 120 IPS, Pinch Roller)
- * RD 261 (1600 BPI, 30 IPS, Pinch Roller)

DISPLAY TERMINAL

- 1551 Alphanumeric Display Unit
- 25 Lines, 80 Characters
- Flexible Data Entry and
Control Structure

COMMUNICATIONS EQUIPMENT

- * Teletypewriter
- Standard Communications Subsystem
- Communications Multiplexer (CM)
- Scanner Selectors
- Communication Line Terminals (CLT)
- Communication Control Units (CCU)
- Scanner Selectors
- * Data Transmission Unit (DTU)

*MILITARIZED EQUIPMENT

COMPUTER COMPARISON TABLE

	1212/ CP-642B	1213/ CP-808	1218/ CP-789	1219/ CP-848	1230/ CP-855	1289/ CP-890	1818	1824	1830A/ CP-901		
Word Size (Bits)	30	30	18	18	30	30	18	16	30		
Indirect Addressing	Some	Some	Some	Some	Some	Some	No	No	Some		
MEMORY	Main	Capacity (Words)	32K	32K	4K-32K	32K-65K	16K-131K	32K-262K	4K-32K	3K-16K	4K-131K
		Cycle Time	4 μ s	4 μ s	4 μ s	2 μ s	2 μ s	1.8 μ s	2 μ s	4 μ s	2 μ s
		Overlapped Banks	No	No	No	No	Yes	Yes	No	No	Yes
		Data Size (Bits)	15 or 30	15 or 30	18 or 36	18 or 36	15 or 30	15 or 30	18 or 36	24	15 or 30
	Control	Capacity (Words)	64	64	None	128 or 256	128 or 256	128	None	None	N/A
		Cycle Time	0.667 μ s	0.667 μ s	N/A	0.5 μ s	0.4 μ s	0.1 μ s	N/A	N/A	N/A
		Bootstrap (Words)	64	64	32	32	64	128	No	1	512
Index Registers	7(Film)	7(Film)	8(Core)	8(Fast Core)	7(Film)	7 \blacktriangle	3(Core)	3(Film)	7 \blacktriangle		
Instructions	62	62	98	102	78 \blacksquare	105	27	41	70		
Basic Add Time	8 μ s	8 μ s	8 μ s	4 μ s	2 μ s \blacklozenge	1.8 μ s \blacklozenge	2 μ s	8 μ s	2 μ s		
Interrupts	82	82	34	51	98	120	9	2	85		
I/O Channel (Max)	16	12	8	16	16 \triangle	16	16	2 ¹² +2 ⁴	16		
ESI or ESA Options	No	No	ESI/ESA	ESI/ESA	ESI/ESA	ESI/ESA	ESI	ESI	Yes		
Real-Time Clocks	1	1	1	2	1 or 2	2	1	1	2		

I/O UNITS	Day Clock (Input)	Yes	Yes	Yes	Yes	Yes	Yes	No	No	Yes
	Magnetic Drums	Yes	Yes	Yes	Yes	Yes		No	No	Yes
	Magnetic Tapes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	Yes
	Printers	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
	Paper Tape	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
	Punched Cards	80 Col	80 Col	80 Col	80 Col	80 Col	80 Col	No	No	80 Col
	CUUs and CTUs	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No
Software	FORTRAN CS-1 SYCOL SYMON Executive	FORTRAN CS-1 SYCOL SYMON Executive	FORTRAN Trim Assembler	FORTRAN Trim Assembler	FORTRAN SYMON SYCOL CS-1 Service Library	SYCOL CS-1 Service Library	Assembler Utility Package	Assembler Interpreter Service Library	SYMON \square SYCOL \square CS-1 \square LIBIN \square FORTRAN IV \square Service \blacksquare Library	
Hardware Diagnostics	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Circuit Cards (Full Machine)	3400	3400	1200	2000	3400			2000 \blacktriangle	510	
MTBF (Calculated in Hours)	1500	1500	2100	1500	1500	2000	3410	10,000	2000	

* Circuit Cards and Circuit Blocks

 \blacktriangle Microelectronic Circuits \triangle Plus 4 Additional Channels in EMU \blacksquare Basic Instruction \blacklozenge Overlapped \blacksquare Programs Will Run on This Computer \square Programs Will Not Run on This Computer But May Be Used on Other Computers to Generate Instructions for the Computer Listed.

AVAILABLE PERIPHERAL EQUIPMENT AND SOFTWARE TABLE

PERIPHERAL EQUIPMENT	1212/ CP-642B	1213/ CP-808	1218/ CP-789	1219/ CP-848	1230/ CP-855	1289/ CP-890	1818	1824	1830A/ CP-901
ON-LINE CONTROL DEVICES	x	x	x	x	x		x*		x*
TYPEWRITERS	x	x	x	x	x	x	x	x	x
PAPER TAPE	x	x	x	x	x	x	x	x	x
MAGNETIC TAPE	x	x	x	x	x	x			x
CARD EQUIPMENT	x	x	x	x	x	x			x
HIGH SPEED PRINTERS	x	x	x	x	x	x			x
MASS STORAGE	x	x	x	x	x	x			
SOFTWARE									
ASSEMBLERS	x	x	x	x	x		x	x**	
COMPILERS									
CS-1	x	x			x	x			

SYCOL	x	x	x	x	x	x			
FORTRAN	x	x	x	x	x				
JOVIAL			x	x					
SERVICE ROUTINE									
MATHEMATICS	x	x	x	x	x	x		x	x
FLOATING POINT	x	x	x	x	x	x			
UTILITY	x	x	x	x	x	x	x	x	x
SYMON MONITOR					x	x			
HARDWARE DIAGNOSTICS	x	x	x	x	x	x	x	x	x
LIBRARIAN	x	x	x	x	x	x			
DEBUGGING AID	x	x	x	x	x	x			x
CONVERSION	x	x	x	x	x	x			x

*Operator's Control Panel
**On Univac 1206 or 490 Computer