Deutsches Museum

Munich, Germany UNIVAC Collection

By Keith Myhre – August 2026

BACKGROUND

The Deutsches Museum in Munich, Germany has the only UNIVAC I computer in existence today of the 46 that were manufactured from 1951-1958 at the UNIVAC Pennsylvania facilities.

I visited the Deutsches Museum in July 2026, along with my grandson and late wife Tricia's niece and family, during a two-week driving tour of Bavaria. I made a point of staying two nights in Ulm (west of Munich on the Danube River) to check out the changes over the past 50 years. In 1976/77 I was on temporary assignment in Ulm as a Sperry UNIVAC system engineer, working with AEG-Telefunken to define the command & control computer system for the German Navy's F-122 frigate.

A month before our visit I had arranged to meet with Dr. Carola Dahlke, the curator of the museum's Computer Science & Cryptology Department.

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MUSEUM IN MUNICH

The Deutsches Museum is undergoing an eight-year renovation, so their computer collection is currently in an off-site storage site.

Dr. Carola Dahlke
Main Department of Technology
Computer Science and Cryptology Department
Curator

Address
Deutsches Museum
80306 Munich

Email c.dahlke@deutsches-museum.de

Cryptography

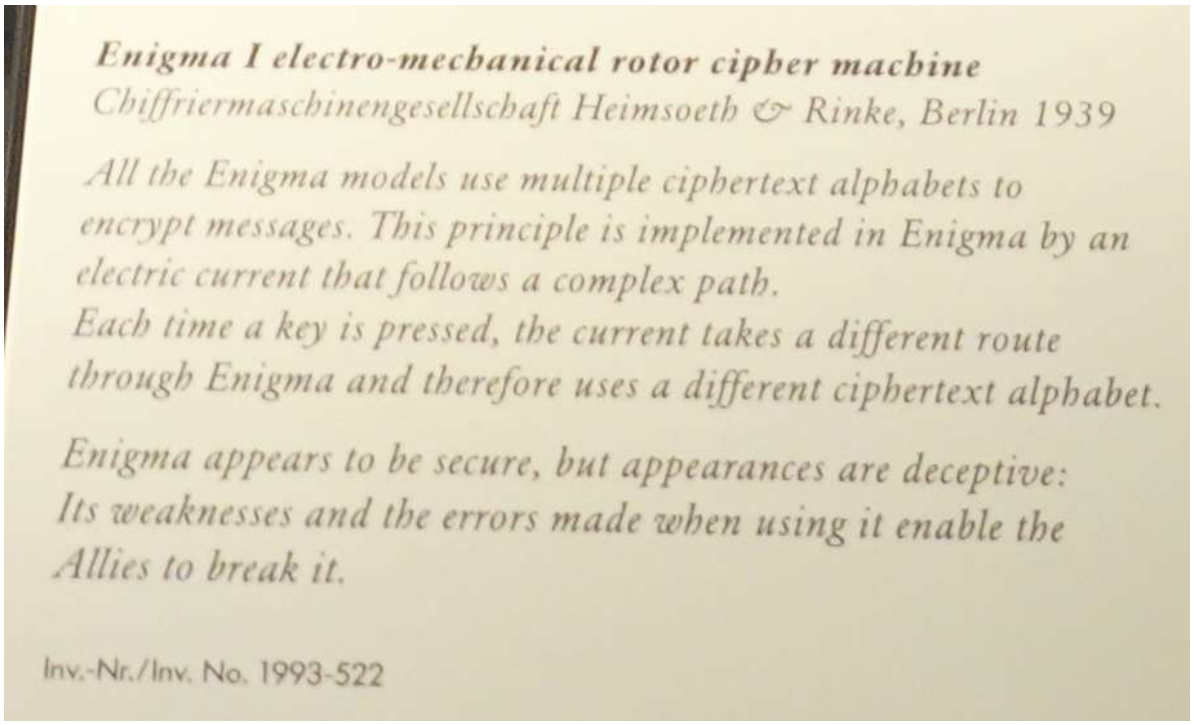
Dr. Dahlke gave the six of us a one-hour tour of "her" cryptographic equipment (she has a master's and PhD in cryptography), including hands-on with a smaller, portable version of the Enigma machine used by the US Army.

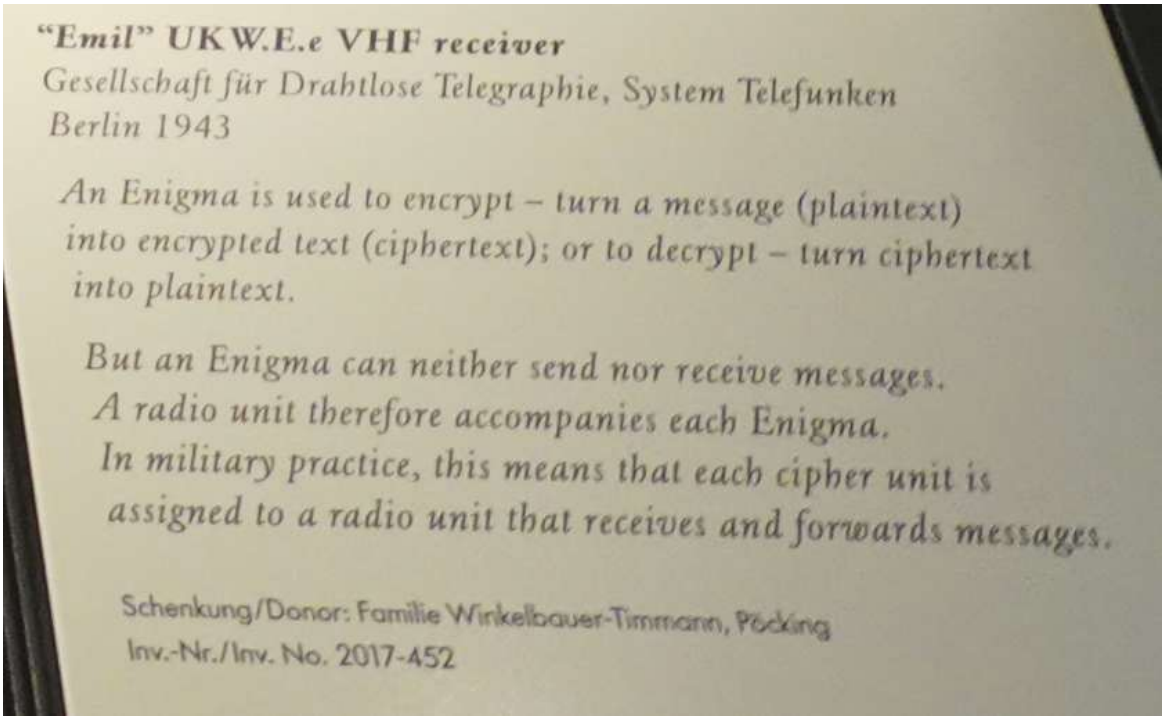
SIGNAL CORPS CIPHER MACHINE

Dr. Dahlke said she could bring out an Enigma machine that I could "practice" with, but I declined.

U.S. ARMY SIGNAL CORPS PORTABLE CIPHER MACHINE

ENIGMA I ELECTRO-MECHANICAL ROTOR CIPHER MACHINE





UNIVAC I

The Eckert Mauchly division of Remington Rand Corporation in Philadelphia delivered its first UNIVAC I computer to the U.S. Census Bureau in Washington, DC in March1951. The last one, Serial number 46, was manufactured in 1958. https://vipclubmn.org/EngDocImg/CommlCustomers.pdf

Serial number 16 was shipped to the St. Paul Minnehaha Ave. facility in January 1955 where it became the prototype for the UNIVAC II computer. Rollie Arndt was one of the engineers who designed and implemented a core memory to replace some of the 7 long and sixteen short mercury tanks of the UNIVAC I.


Rollie Arndt inside the computer.

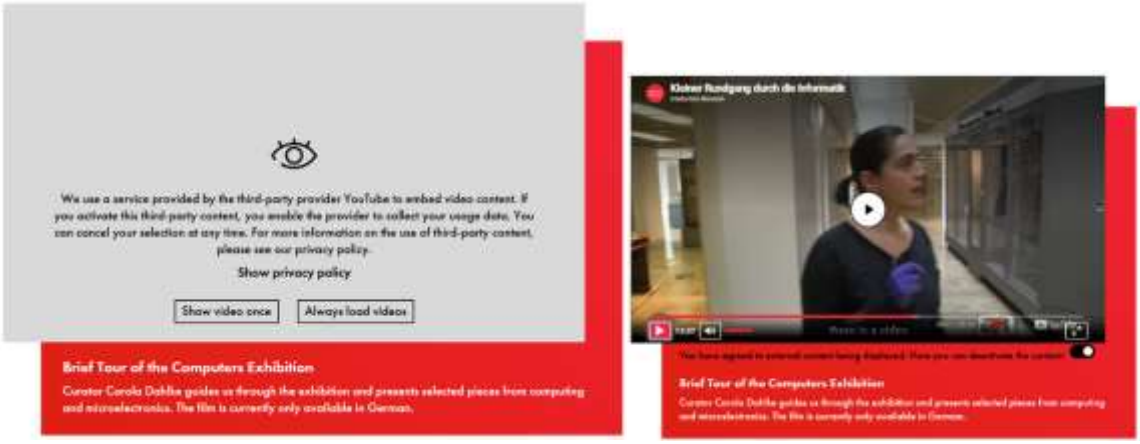

A UNIVAC I at work at the Census Bureau.

Allan Reiter's web site page documented this information on page 16, saved on the UNIVAC VIP Club website as http://vipclubmn.org/Articles/UNIVAC_I_Technical.pdf.

Click on this URL to view a video tour of the Munich Museum's Computers Exhibition produced before the computer exhibits were removed due to renovation:

https://www.deutsches-museum.de/en/museumsinsel/ausstellung/computers

Scroll down until you see this image.



Click on "Show video once" to play the video. Dr. Dahlke is the tour guide. The UNIVAC I computer clip begins at 13:57. {Editor's note: A Cray machine is toward the video end.}

Below are UNIVAC I images captured from web page titled "Computing system UNIVAC I Factronic", https://digital.deutsches-museum.de/de/digital-catalogue/collection-object/75681/

Computing system UNIVAC I Factronic

Photo: Deutsches Museum / Konrad Rainer, CC BY-SA 4.0

Inventory no.	75681
Systematics	422.07.02 Program Control and Universal Computers / Digital Computing Systems / Tube Computers
Accessories	+ Runtime memory, mercury delay line UNIVAC I (75681Z1)
Permalink	https://digital.deutsches-museum.de/item/75681
Description	With the UNIVAC I (Universal Automatic Computer) computing system, the serial construction of universal computers began. In 1949, the first example of the series was started, and in 1951 it was completed. A total of 49 plants were built, costing $1 million each in 1957. The central unit consists of over 975,000 individual parts. The total weight is 19 tons. The number is displayed in binary-decimal according to the Stibitz code. The serial processing of the twelve decimal places is carried out in fixed point representation. There are one-address commands. The memory is mercury delay lines. 5600 tubes, 18,000 diodes and 300 relays are available. The exhibited facility worked from 19 October 1956 to 1963 at the Battelle Institute for Nuclear Physics in Frankfurt, which was closed in the mid-1990s.

Data | *Download* | *Contact Now*

Participants	Production: Remington Rand
Locations	Production: Philadelphia
Dating	Manufacture: 1956
Labeling	Inscription: Remington Rand
Dimensions	Weight: 5355 kg total, according to Philip Mendry
Literature	• Bauer, Friedrich L. (Hrsg.): Informatik. Guide through the exhibition (exhibition catalogue Deutsches Museum). With the participation of Erhard Anthes, Joachim Fischer, Menso Folkerts, Ulf Hashagen, Alfred Krüss, Hartmut Petzold, Ivo Schneider and Heinz Zemanek. New edition Munich 2004, p. 177, fig. 178 (BVB) • Beauclair, Wilfried de: Rechnen mit Maschinen. Eine Bildgeschichte der Rechentechnik. Braunschweig 1968. p. 124f., fig. 124 (BVB) • Bruderer, Herbert: Meilensteine der Rechentechnik. Zur Geschichte der Mathematik und Informatik. Berlin and Boston 2015, p. 280 (BVB) • Schlombs, Corinna: Der Univac. An international masterpiece of electronic data processing. In: Kultur & Technik 32 (2008), H. 1, S. 24-29 BVB, Full text
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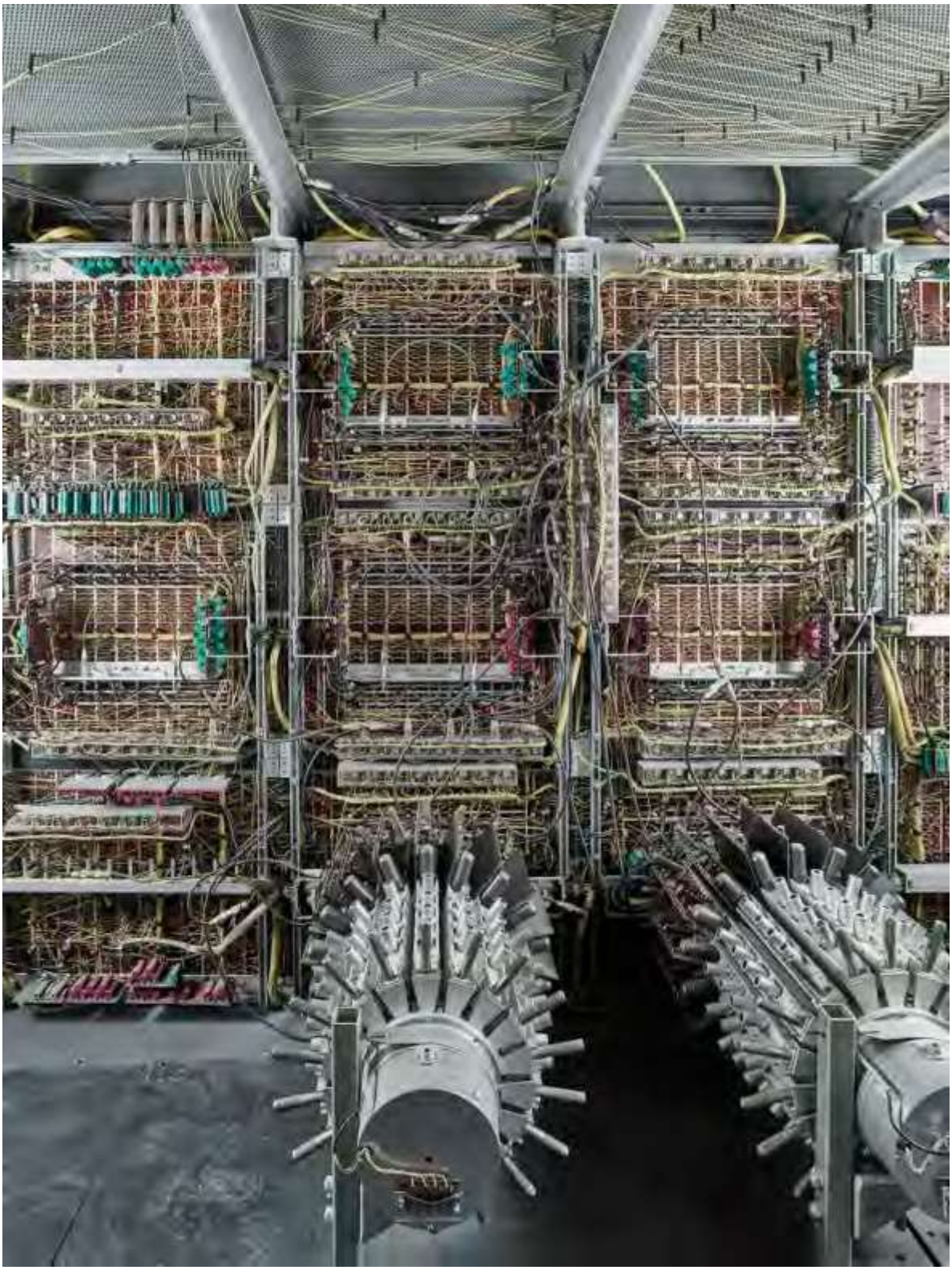
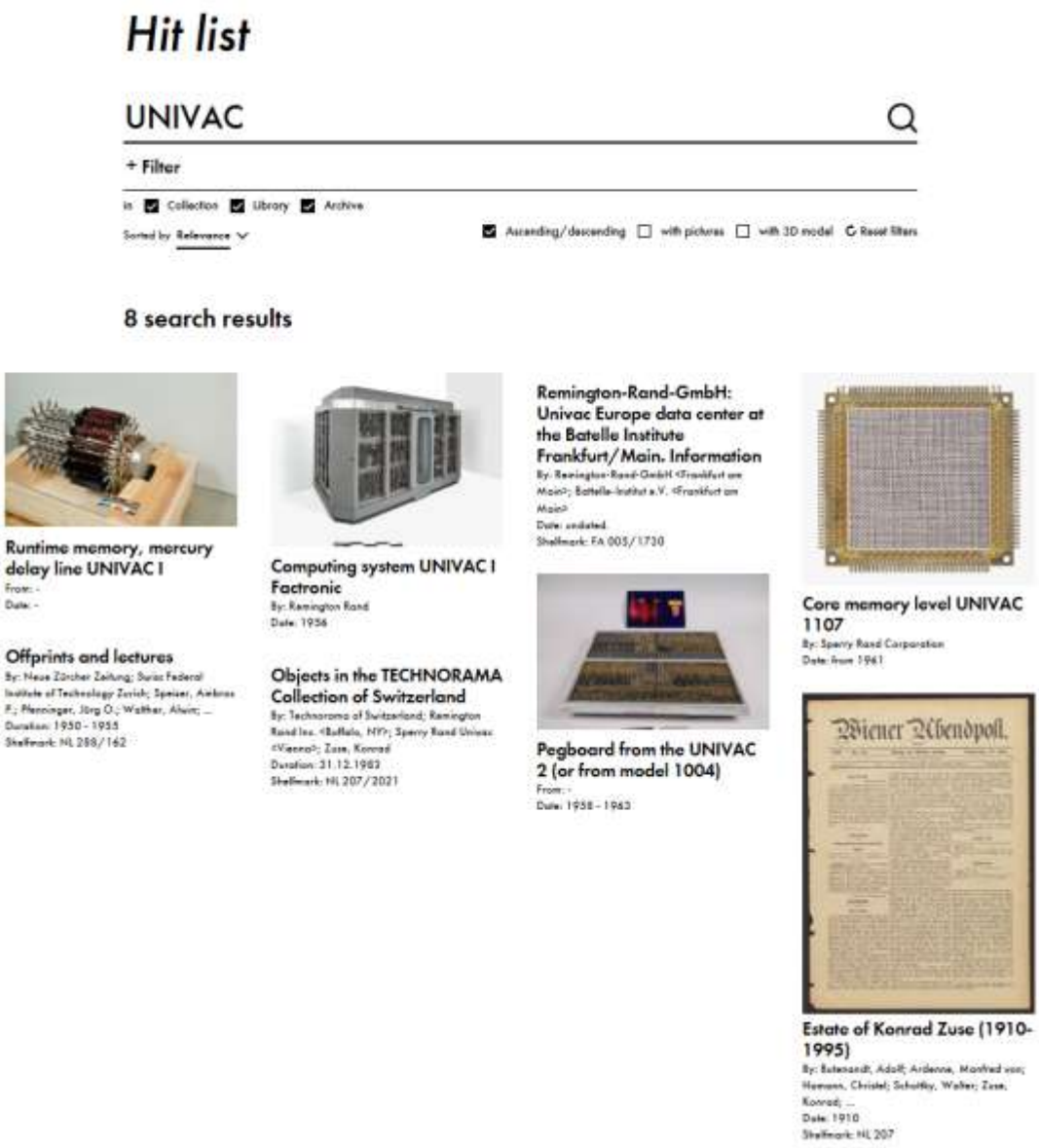
Remington Rand



OTHER ITEMS

The Deutsche Museum has several other UNIVAC items in its collection beyond the UNIVAC I computer.



Mercury Delay Line Memory

The UNIVAC I computer utilized mercury delay lines for main memory and computational and control circuits. The mercury delay line memory was contained in seven rather large mercury tanks called long tanks. Each tank contained eighteen 10-word channels. Each channel was a horizontal column of mercury with sending and receiving piezoelectric quartz crystals in physical contact with each end of a column of mercury. The channels were separated by metal tubes, which acted as wave guides as the data bits moved through the mercury. This Computer History Museum (https://computerhistory.org/) video describes its operation: https://www.youtube.com/watch?v=kignGE77l_I

Runtime memory, mercury delay line UNIVAC I

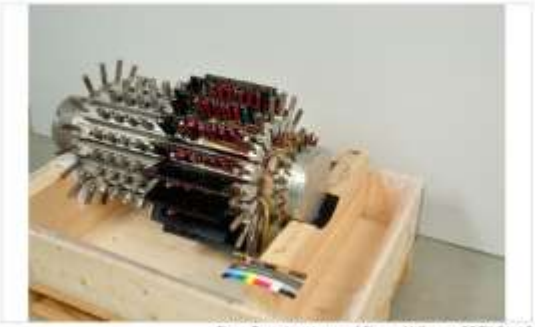


Photo: Deutsches Museum / Sigmund Wimmer, CC BY-SA 4.0

Inventory no.	75681Z1
Systematics	422.07.02 Program Control and Universal Computers / Digital Computing Systems / Tube Computers
Accessories from	• Calculator UNIVAC I Fachronic (75681)
Permalink	https://digital.deutsches-museum.de/item/75681Z1
Description	The memory unit taken from the UNIVAC I computing system contains 18 mercury delay lines, each 57.7 cm long, which can serially store 10 words of 45 bits. The average access time is 222 microseconds. The pulse amplifiers are mounted directly on the housing of the storage unit.

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Material	Metal Wood
Dimensions	Dimensions: 60 kg Object dimensions (H/L x D): estimated 900 x 500 mm Object dimensions (H x W x L/D): 960 x 830 x 1190 mm (total dimensions incl. packaging) Dimensions: estimated 150 kg (total dimensions)
Literature	Bauer, Friedrich L. (Hrsg.): Informatik. Guide through the exhibition (exhibition catalogue Deutsches Museum). With the participation of Erhard Anthes, Joachim Fischer, Manso Folkerts, Ulf Hashagen, Alfred Kridss, Hartmut Petzold, Ivo Schneider and Heinz Zemanek. New edition, Munich 2004, p. 198 (BVB)
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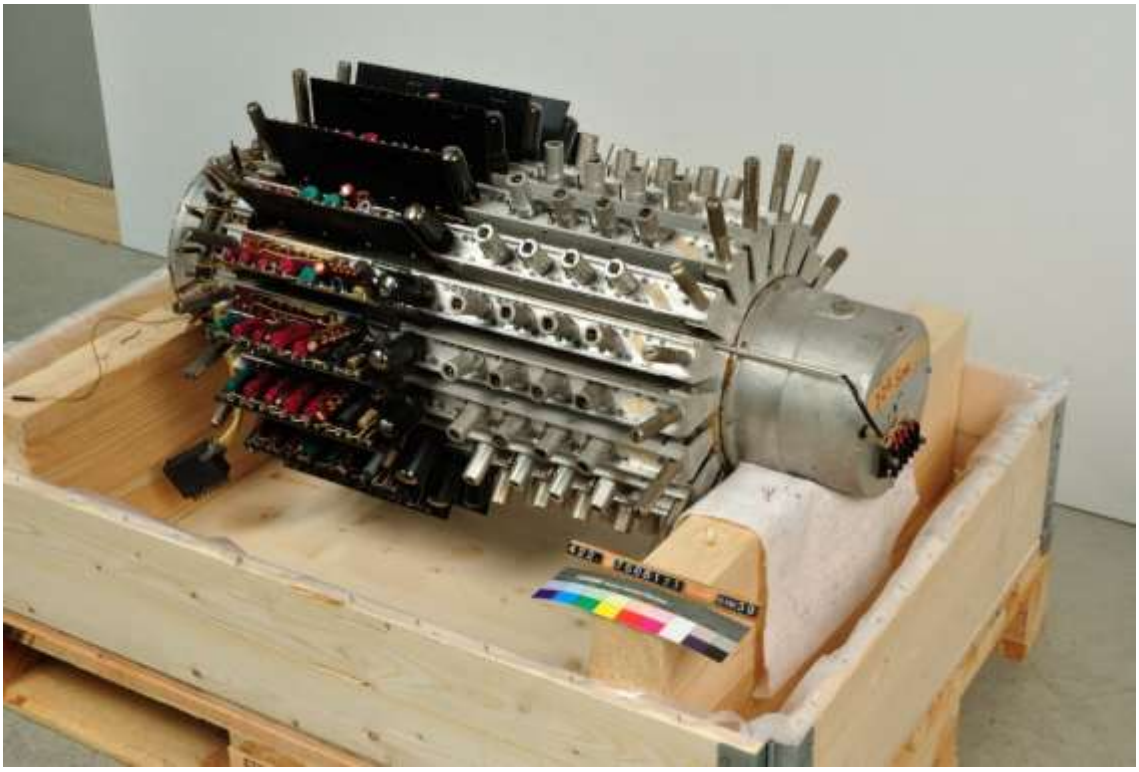
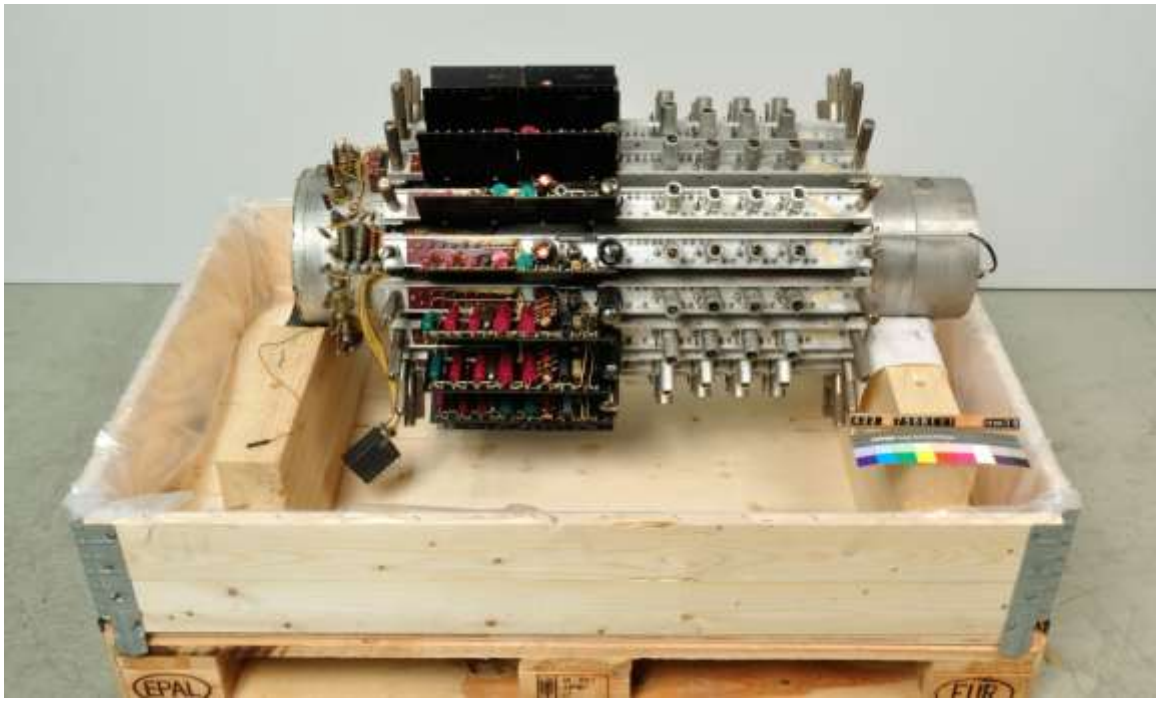
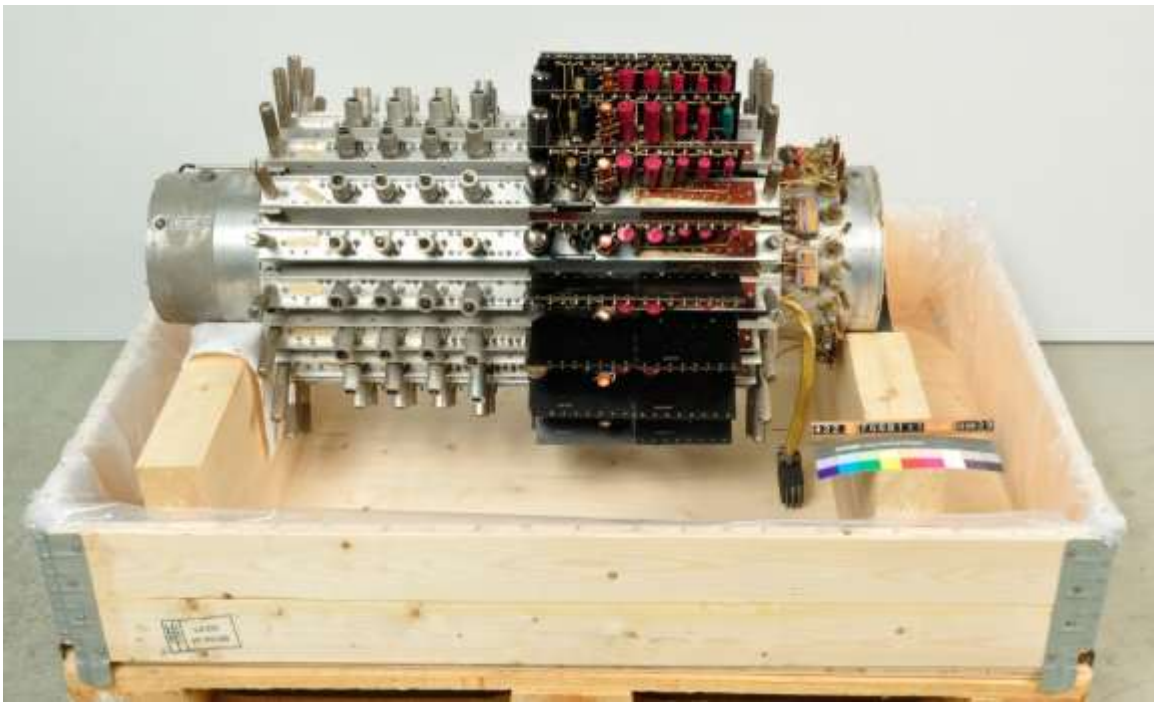
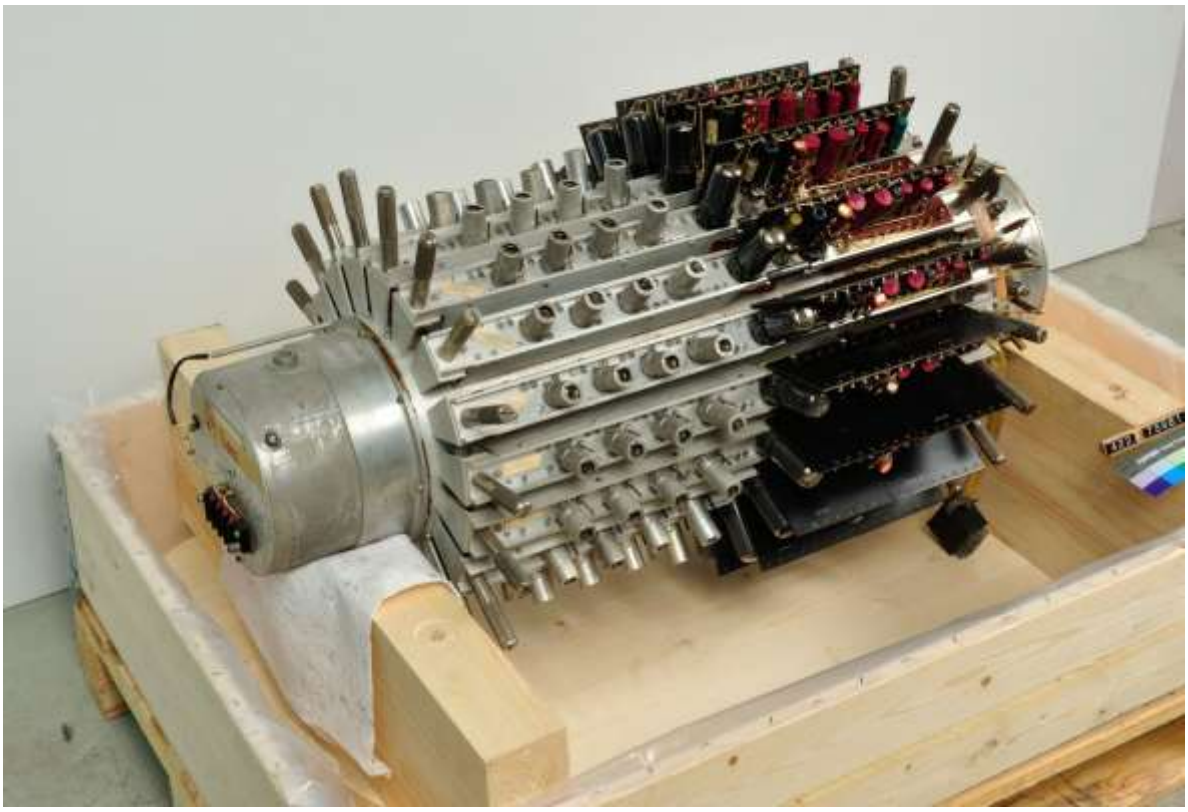
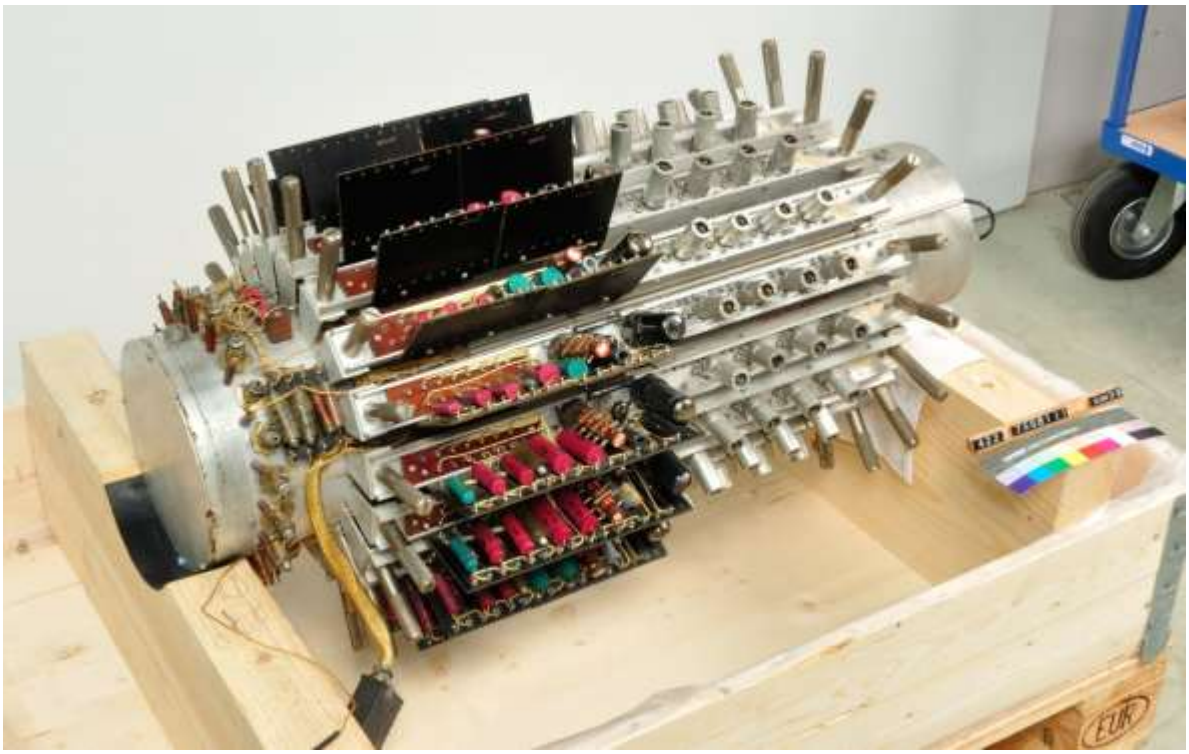



EPAL
EUR







UNIVAC 1107 Thin-Film Memory Computer

The 1107 computer was the first transistorized UNIVAC computer, first delivered in October 1962. It utilized magnetic thin-film memory (developed under U.S. National Security Agency contract) for general registers and ferrite core memory for programs/data.

Photo is from U.S. Bureau of the Census dated 1965.

Core memory level UNIVAC 1107

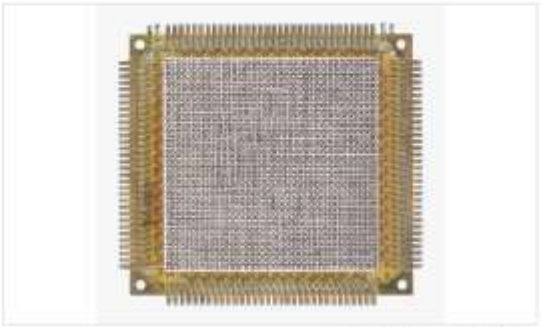


Photo: Deutsches Museum, CC BY-SA 4.0

1 of 2

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Inventory no.	76020
Systematics	422.09.02 Program Control and Universal Computers / Peripherals / External Memory, general
Permalink	https://digital.deutsches-museum.de/item/76020
Description	On a carrier frame manufactured as a printed circuit, the core memory level is formed from 4096 toroidal cores, which are threaded on 64x64 copper wires. The punched tongues of the frame form the connection points for horizontal (x) and vertical (y) control wires.

Participants	Production: Sperry Rand Corporation
Locations	Production: Philadelphia
Dating	Production: from 1961
Material	Metal
Dimensions	Weight: 0.024 kg
Literature	Bauer, Friedrich L. (Hrsg.): Informatik. Guide through the exhibition (exhibition catalogue Deutsches Museum). With the participation of Erhard Anthes, Joachim Fischer, Manso Folkerts, Ulf Hashagen, Alfred Krabs, Hartmut Petzold, Ivo Schneider and Heinz Zemanek. New edition Munich 2004, p. 208, fig. 207 (BVB)
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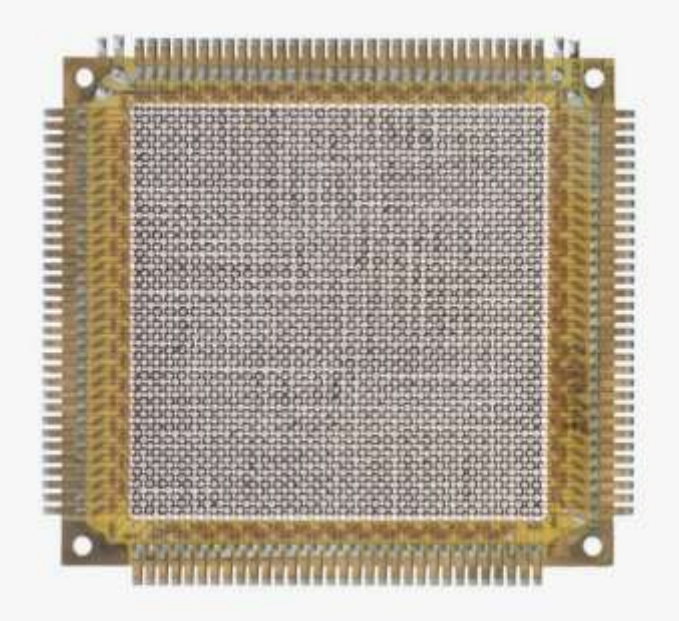
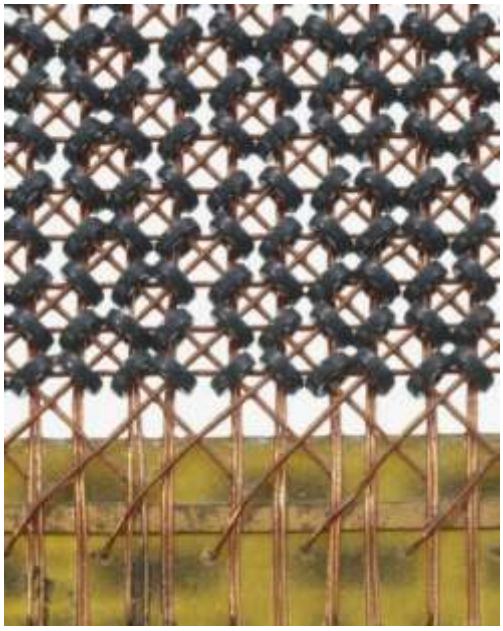
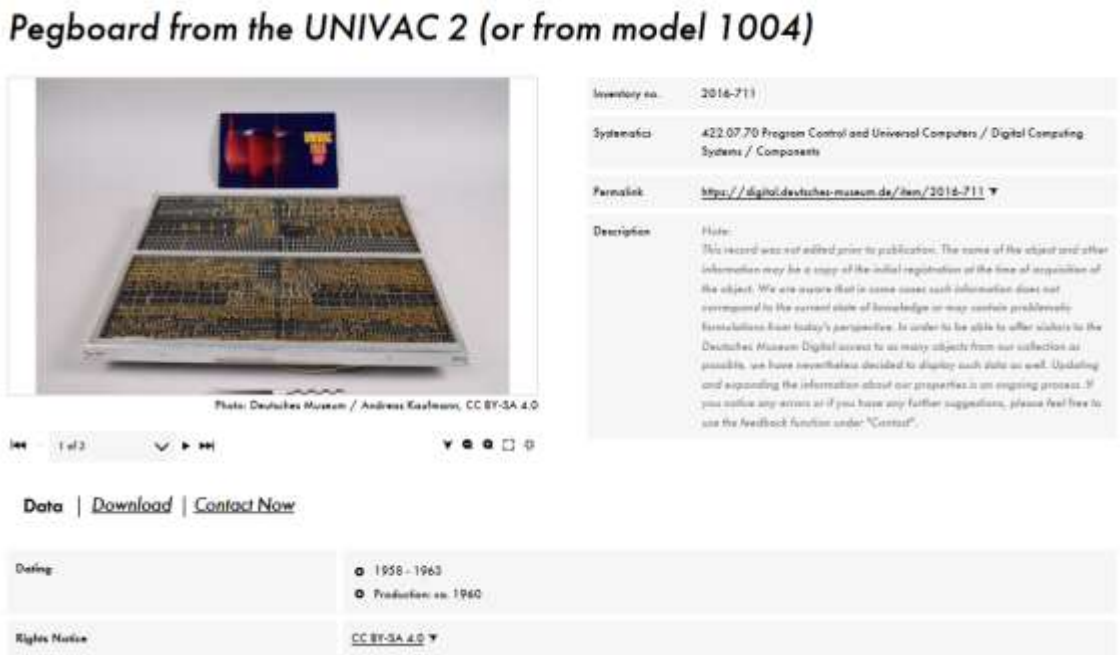
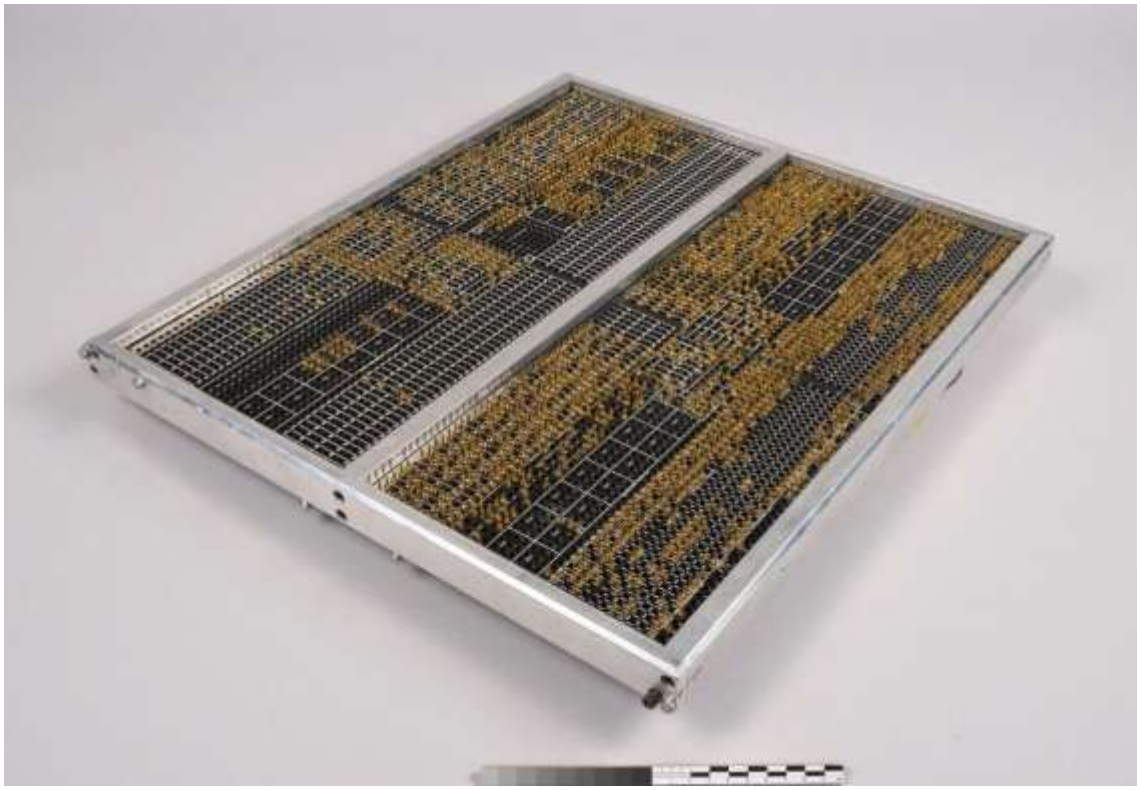


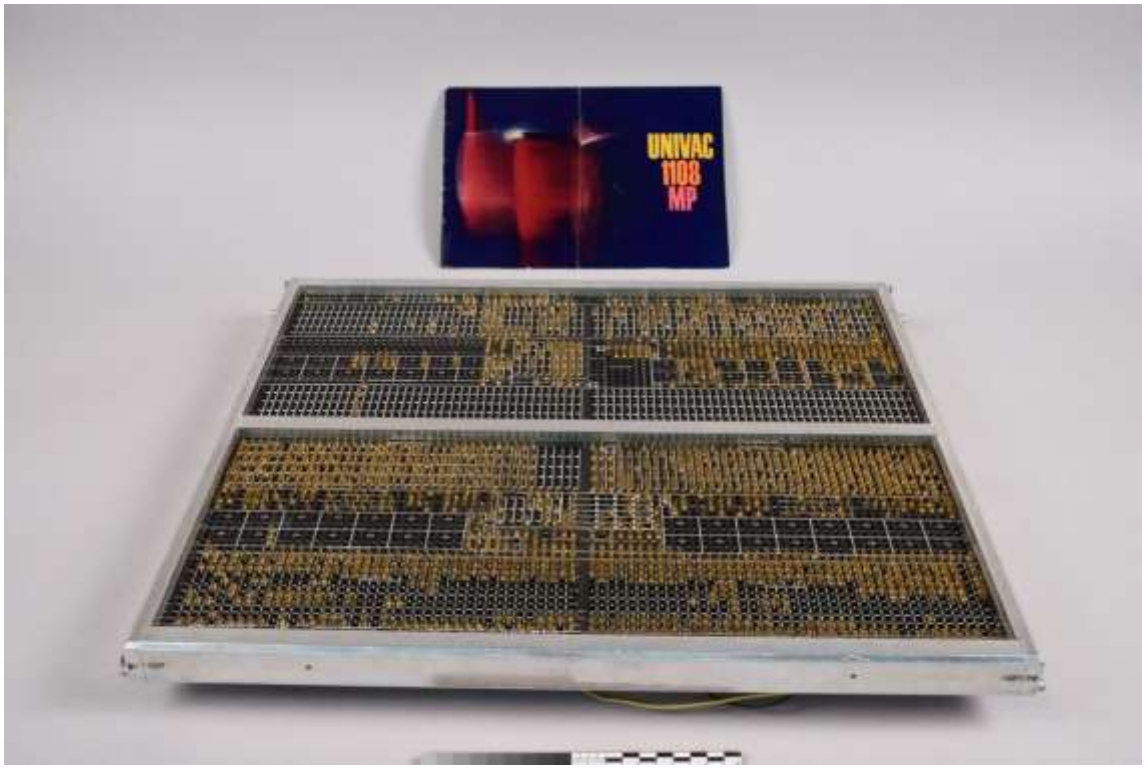


EDITOR'S NOTE: 1. FOUR WIRES GO THROUGH EACH CORE: HORIZONTAL IS THE X DRIVE LINE, DIAGONAL IS THE SENSE LINE; AND VERTICAL ARE THE Y DRIVE LINE AND THE INHIBIT LINE. ADDRESSING CIRCUITRY SENDS A CONCURRENT CURRENT THROUGH ONE X AND ONE Y DRIVE LINE SIMULTANEOUSLY WHICH CAUSES THE CORE MAGNETISM TO FLIP DIRECTION. THE SENSE LINE DETECTS THE FLIPPING THUS ONE READOUT, ETC..

UNIVAC 1004 Card Processor/Computer

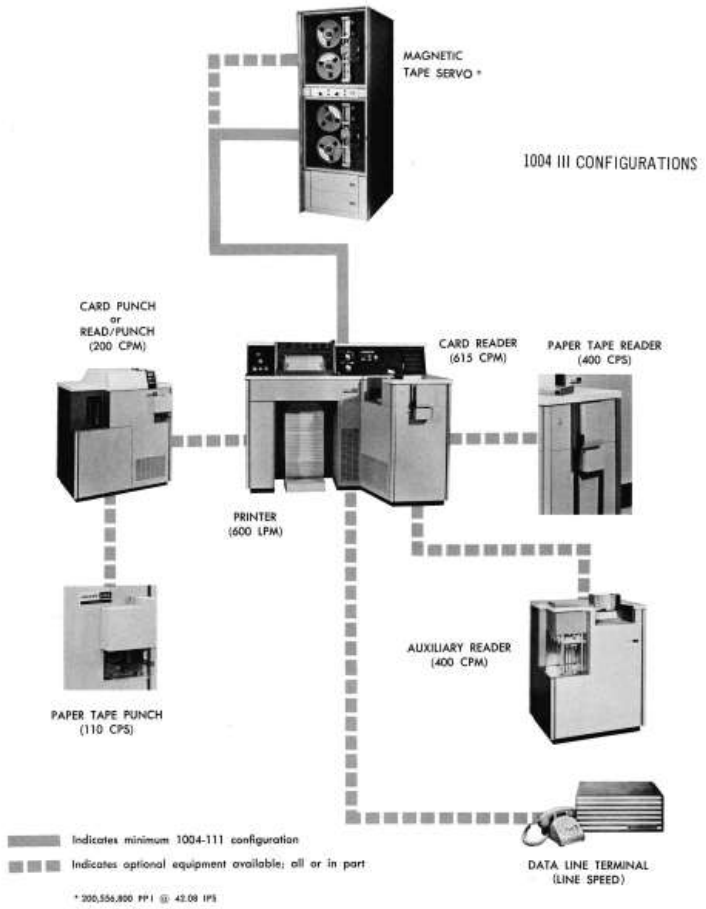






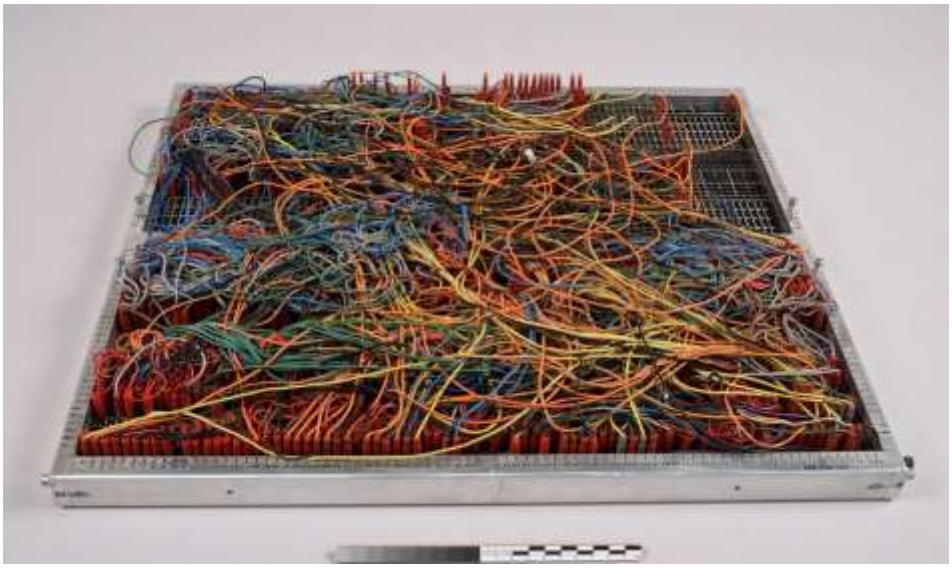
{2. EDITOR'S NOTE: ALTHOUGH A POSTER '*UNIVAC 1108 MP*' IS POSITIONED ADJACENT TO THIS 1004 PLUGBOARD, THERE IS NO RELATIONSHIP BETWEEN THE TWO MACHINE TYPES. BTW, I WORKED WITH A 1004 MACHINE FROM 1963 TO 1966 IN THE ST. PAUL PLANT 1 AS A COMPUTER OPERATOR FOR NTDS DEFENSE MACHINES. THERE WAS AN 1107 IN AN ADJACENT COMMERCIAL COMPUTER CENTER.}

This is a Connection Panel (commonly called a Plug Board) for the UNIVAC 1004 Card Processor/Computer. The 1004 system comprises a cabinet containing a processor, 80 column card reader and printer, and an external magnetic tape unit. The Plug Board is used to "program" the functionality of the system to perform desired tasks. As you can see, the "programming" can use many interconnecting cables.



I used a 1004 system (card reader, printer & magnetic tape unit) in 1972/1973 while debugging an AN/UYK-7 assembly language maintenance test program (POFA) I wrote for a digital analog/digital converter (ICKCMX) for US Navy ships.

The Museum Victoria in Melbourne, Australia also has a UNIVAC 1004 Plug Board in their collection: Computer Plug-Board - Univac, Model 1004, circa1965



Air Traffic Control Workstations

While touring the numerous museum exhibits, I came across a display of air traffic control (ATC) workstations from the former control tower at Cologne/Bonn airport. They were installed in the 1960s until decommissioning in 1994. The five printed flight strips shown below (page 19) contain information about five different aircraft.

These flight strips were generated initially beginning in the late 1970s by a system called ZKSD (Zentraler Kontrollstreifendruck). Later in the 1990s ZKSD was superseded by UKD (Unterer Kontrollbezirk – Lower Control Area). Both systems automated the distribution, processing, and physical printing of flight progress strips for air traffic controllers in the lower-altitude controlled airspace sector in the pre-DFS (Deutsche Flugsicherung - German equivalent of the FAA) era.

In 1976 Sperry UNIVAC Germany received an RFQ (Request for Quote) from the German government for an update to their air traffic control operations, as did IBM. The proposal manager, Glen Hambleton (Defense Systems Division – St. Paul), put together a team of five ATC engineers/proposal writers from St. Paul plus Sperry UNIVAC Germany personnel in Wiesbaden, Germany. Six weeks later the proposal was submitted. To everyone's surprise, Sperry UNIVAC won the contract. More details can be found here: https://vipclubmn.org/Articles/ZKSD-Proposed.pdf and https://vipclubmn.org/aircontrol.html.

I cannot find any evidence that Sperry UNIVAC supplied any computers/equipment to the ZKSD system. However, Sperry UNIVAC engineers were responsible for defining the system architecture and operation for the ZKSD/UKD systems and future German air traffic control.

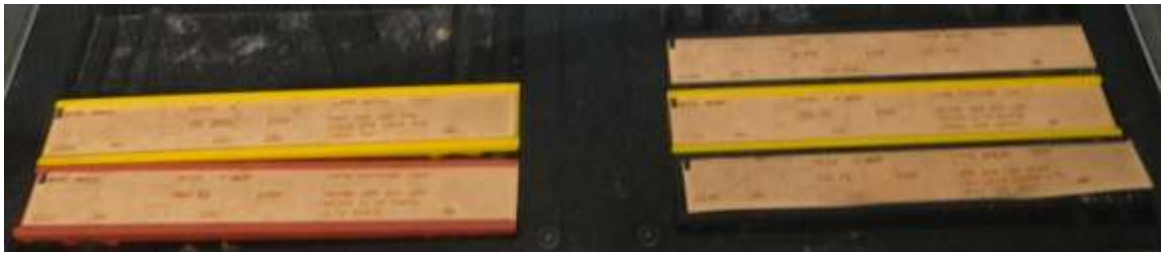
Poster wording:

Workplace of Control Tower.
The workstations on display are from the former control tower at Cologne/Bonn Airport. Although they were installed in the 1960s their technology was continually updated in the 30 years prior to their decommissioning in 1994.

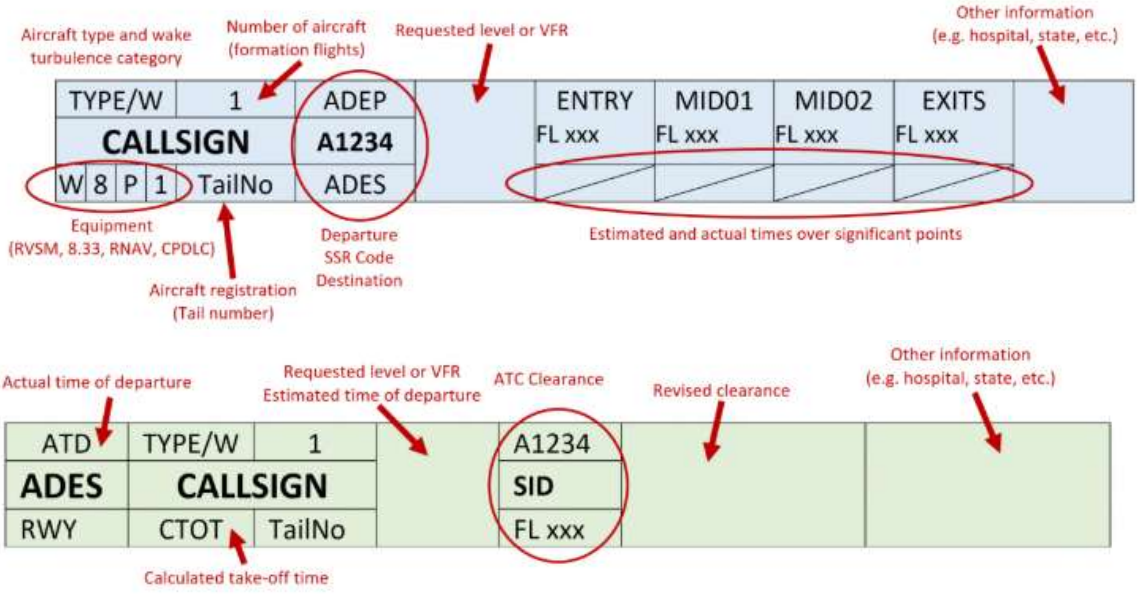
From the control tower, controllers grant takeoff and landing clearances and observe and coordinate activities on the apron and in the surrounding airspace the control zone. Unlike radar controllers who work in remote air traffic centers, air traffic controllers in the tower can see the aircraft from their workstation. They are supported by state-of-the-art technology, such as ground radar in case of poor visibility.

As control towers play such a key role in the transport system, access is strictly regulated and security measures are particularly stringent.

End of poster wording.



{Editor's note: Flight strips similar to these were used in the US, automated printing started with the File Computer in the mid-50s. In the early 60s, the ARTS I system had flight strip information on electronic displays versus paper for tower controllers.}



EPILOGUE

Thanks to Dr. Dahlke and Keith Myhre for the tour, history of some of our technology, and the photos.

KEITH MYHRE & DR. CAROLA DAHLKE

Editor's Note: Mr. Myhre worked at UNIVAC/Sperry/Unisys/Lockheed Martin from 1972 to 1991; he earned a master's degree supplementing his U of MN BEE while there. Since 2012, he has been volunteering at the South St. Paul Lawshe Memorial Museum cataloguing and documenting legacy artifacts and photos. https://vipclubmn.org/People5.html#Myhre is his career summary.

Paper formatted for web viewing by LABenson*, VIP Club Legacy Historian,*
https://vipclubmn.org/People1.html#Benson.