Computer History Archives Project

INTRODUCTION

The Computer History Archives Project under the leadership of Adjunct Professor Mark Greenia has developed several computer industry history videos. The most recent is the UNIVAC Fastrand drum, https://www.youtube.com/watch?v=luPM6XaKZuU or https://youtu.be/luPM6XaKZuU.

Sperry UNIVAC FASTRAND!

A brief look at this massive drum storage device of the 1960's. Through vintage photos, facts and urban legend, we take a fond look back at this giant machine and a few associated UNIVAC models. If you have a first-hand story of a FASTRAND machine, please feel free to share or comment. How many machines were made? How many survive?"

When the DRAFT video link was distributed to Roseville engineers by retired Unisys Director Paul Dickson; several comments were returned.

1. From Ron Q. Smith: I think the 100 mentioned applied to the Fastrand I. It wasn't very successful because of the precession problem. The Fastrand II was very successful and I'm sure 1000s of them were sold.
2. From Vince Ahart who was the technical support manager here in Roseville for a number of years and worked on the USAF 1050 Base Supply systems in his early days: All of the 120 plus Base Level Supply 1050-II had Fastrand units. It was an option on other commercial and military 1050s.
3. This is input from Paul Lindquist who was a field SA on the 1100s at UAL: The University of Wisconsin had two. Every customer site I was on through early 80's had at least one.
4. From Walt Pogwizd, Technical Support: UAL had a room full of them also. EH!
5. From Mike Adelman, Federal Systems: Only about 100 FASTRANDs? I remember the Navy ICPs had between 30-40 of them. Maybe more. Good video.
6. One story from Paul Lindquist: One of my most vivid memories involved moving an F2. I was sent to a Quebec govt. site in Quebec City to do a major upgrade in about 1976. A major obstacle was how to remove the F2 from a basement computer room, the elevator being far too small for the task. They broke down the F2 into 3 pieces. The motor, control, and drum cabinets. The two end cabinets fit in the elevator, but not the drum. The first problem was they had to get it off the raised floor down the ramp to the real floor. The ramp met the raised floor with an uneven lip transition. They struggled hard to get it to bump over that lip, and when it finally did it shot down the ramp rolling over a guy's foot!

Now the really weird part. It would not fit it the elevator, but it just fit in the empty shaft. They raised the car leaving the exterior doors open. Then they somehow pushed the drum into the shaft and slung it from the bottom of the car for the lift up. For the life of me I can't remember how they got it out at the ground floor. Anyway, it was a most entertaining day.

7. Another comment from Paul Lindquist: U Wisconsin had two. Every customer site I was on through early 80's had at least one. Except... My 1st customer site as a Univac SA was Canadian Tax [1973]. They had none. Partially owing to the fact they were on the 10th floor of an office tower where the weight would have been dicey. Instead they had about 100 Ampex disc drives ganged together in groups of 4 to make 24 pseudo F2's. They were configured as Fastrand units.

8. Paul to Mark: Thanks for doing this, a great part of our history. I sent it to a number of Roseville retirees and all felt the 100 Fastrand units built/shipped is on the very low side. Was that quantity just referring to just the Fastrand 1? I remember one client having to remove a large window from a building and lift the Fastrand with a crane and swing/pull it into the data center. There were lots of them on our larger sites and a lot on the USAF 1050 installations around the world. Thanks for keeping the history alive.

UNIVAC III FASTRAND MASS STORAGE SUBSYSTEM

Fastrand description hereunder copied from UP3853, source Bit Savers. Part of the UNIVAC III UTMOST system. FASTRANDs were also used with 1100 series, 490 series, and 418 series commercial systems.
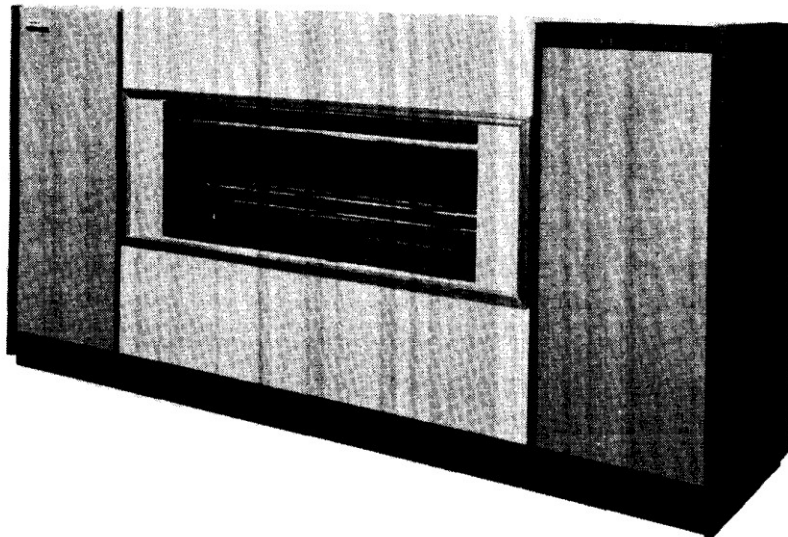
Figure 17-F-1. UNIVAC III FASTRAND Mass *Storage Unit*

The UNIVAC FASTRAND Mass Storage Subsystem *(Figure 17-F-1)* provides the UNIVAC III Data Processing System with random access external storage capability. Each subsystem is composed of from one to eight storage units linked to the central processor through a control unit and synchronizer. The control unit and synchronizer are housed in a single cabinet. Each Mass Storage (drum) Unit requires its own storage cabinet and power supply. The storage capacity of a full-size subsystem is 528,482,304 six-bit alphanumeric characters. The capacity of a subsystem with one Mass Storage (drum) Unit attached is 66,060,288 characters.

Data is recorded around the surface of the drum cylinders in a bit serial format. The basic unit of drum storage is the sector which contains either 42 or 37 UNIVAC III words depending upon the recording mode used. 64 sectors per track are accessed serially as the drum rotates. There are 64 read/write heads located along the length of the drum, allowing the accessing of 64 tracks without changing the position of the read/write heads. The read/write heads are moveable and can be positioned over any one of 96 separate tracks. (See *Figure 17-F-2* for conceptual presentation).

Each FASTRAND Mass Storage Drum Unit contains two cylinders which revolve at the rate of 880 RPM.

From the programmer's point of view, these two cylinders can be regarded as a single drum. The UNIVAC III programmer deals solely with the logical relationship of the various tracks and sectors, without regard to their physical location. Operation of the unit is entirely under program control. The functions of the FASTRAND subsystem, like all other input/output components of the UNIVAC III Computer, are performed under its own control. The central processor action is merely to initiate the FASTRAND function request, after which it is free to perform operations or calculations as directed by the operating programs. The FASTRAND control unit controls the execution of all requested functions, automatically interrupting the central processor when a requested function has been completed.

USAF 1050[1] INSTALLATIONS

From Mark – PS, several years ago, I posted a video on the UNIVAC 1050-II at USAF base in Da Nang, Viet Nam. Might be fun.   https://www.youtube.com/watch?v=hkobjQKx19A
"Brief educational video featuring UNIVAC Model 1050-II used by the US Air Force beginning in 1963 and lasting many years. UNIVAC 1050 was part of Air Force Standard Base-level Supply System (SBSS) automation strategy for material and logistics."

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[1] The 1050 computers were a UNIVAC Blue Bell product, see http://vipclubmn.org/processors.html#1950Tree

From Wikipedia: A version used by the U.S. Air Force, the U1050-II real-time system, had some extra peripherals. The most significant of these was the FASTRAND 1[2] Drum Storage Unit. This physically large device had two contra-rotating drums mounted horizontally, one above the other in a pressurized cabinet. Read-write heads were mounted on a horizontally moving beam between the drums, driven by a voice coil servo external to the pressurized cabinet. This high-speed access subsystem allowed the real-time operation. The operator's console had the 'stop and go' buttons and a Teletype Model 33 teleprinter for communication and control.

Other Computer History Videos

These history videos show parts of the ERA/UNIVAC/Sperry/UNISYS story.

- UNIVAC Scientific Computer: https://www.youtube.com/watch?v=W-GAncrdtM0 Brief but rare film footage of the UNIVAC 1103A Scientific Computer in action. A successor to the early ERA computers, the UNIVAC 1103A was used by many U.S. Government agencies during the 1950's.
- Slide show featuring selected UNIVAC computers from 1951 to 1971. A "Computer History Archives" presentation for created for educational and historical purposes. 8 mins. https://www.youtube.com/watch?v=Ikj2fJY-5Dg
- NASA, Computers Apollo: Through vintage photos & film clips, we take a brief look at Sperry Rand computers supporting NASA's Apollo program. Shown are UNIVAC 1218, 1230, 490, 494 and others of that time. https://www.youtube.com/watch?v=nsy2QAboRzE
- The UNIVAC I memory https://www.youtube.com/watch?v=kignGE77l_I 1951 UNIVAC I Mercury delay line Memory Tank. The UNIVAC computer was used to accurately predict the 1952 Election win of Dwight D. Eisenhower.
- This humorous promotional film for the Remington Rand UNIVAC computer features J. Presper Eckert and John Mauchly in leading roles. https://www.youtube.com/watch?v=h4wQJfdhOlU
- https://www.youtube.com/watch?v=6-aKrCUIjfo – Introducing Sperry Univac System 80 Computer (rare 1979 film)

Editor's note: Thanks to Mark for giving credit to the VIP Club and the various individuals who contributed stories to the video.

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[2] This is a Wikipedia error, The U1050-II system used the Fastrand 2 with the contra rotating drums.