

 SPERRY RAND

UNIVAC

1108

UNITIZED
CHANNEL
STORAGE

MARKETING
GUIDE

COMPANY CONFIDENTIAL

MARKETING PHILOSOPHY

Unitized Channel Storage is a timely addition to the group of peripheral subsystems available to 1100 Family users. As usage of the 1108 has moved from primarily scientific applications into communications and business, the greatly increased loading of the system has pinpointed certain facilities where improvement would significantly enhance performance. The high usage of the drum subsystems in a busy multiprogramming environment was found to be a sensitive area.

Studies have shown that a decrease in latency time for drum subsystems (1782/432) will provide a significant increase in performance. For example, changing from 1782 drums to 432's increased throughput by over 70% in one job mix. Reducing the latency to zero via a static storage device as a drum replacement would provide a substantial increase in throughput.

An inherent problem in the use of any rotary device as secondary storage lies in the fact that the processor may be interrupted during data transfer. If this interrupt is of such length and time that the next word of information has passed by the read/write heads, then an entire revolution must occur before data transmission from drum to core memory can be reinstated. Unitized Channel Storage data transfer operations can be interrupted then resumed without loss of time or data.

The most dramatic results of incorporating Unitized Channel Storage into a system can be expected in multiprogramming environments that require a great deal of swapping in and swapping out. The savings achieved in these situations should easily justify the costs involved.

SOFTWARE

The Unitized Channel Storage Subsystem appears to the software as a 432 Drum Subsystem. It is fully software supported and utilized in the hierarchy of drum subsystems.

HARDWARE

General Description

The Unitized Channel Storage Subsystem is a free standing subsystem for use on 1100 Family Systems via an I/O channel. A 5031-00 or 4031-01 (for 50z) controller is required for each subsystem. There can be up to four 262K modules per subsystem giving a maximum capacity of 1048K. The subsystem can interface multiple processors or IOC's through installation of the SPI feature. Modules of 262K are field installable up to the capacity of the subsystem. The maximum data transfer rate of Unitized Channel Storage is equal to channel speed (2.25 microseconds per word on the 1108). The effective rate of transfer is adjustable at 2.25, 4.0 or 8.0 microseconds per word. The varying transfer rate can be used to tailor the subsystem, according to the characteristics of the installation.

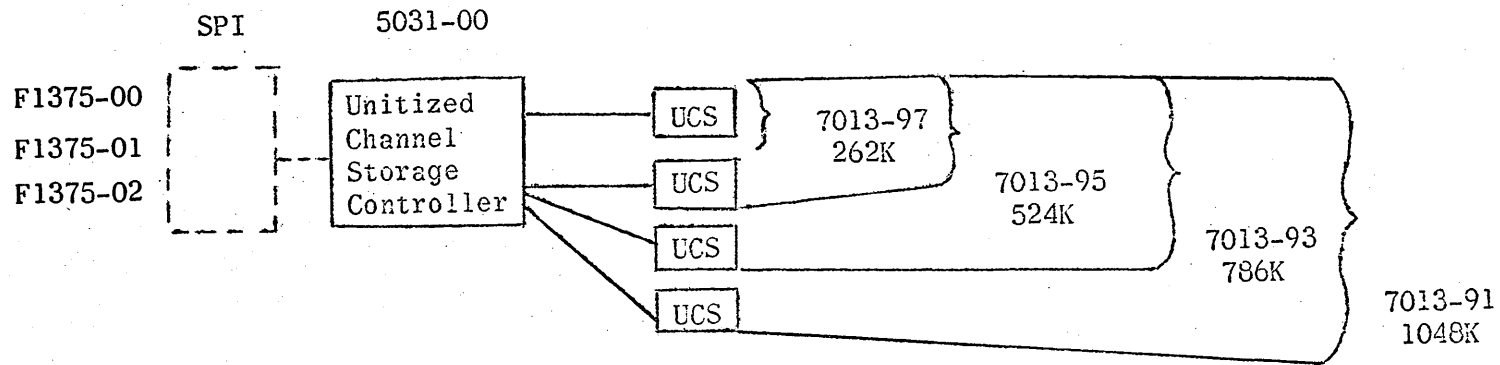
CONFIGURATOR

Unitized Channel Storage 7013-97 - 262K

Unitized Channel Storage 7013-95 - 512K

Unitized Channel Storage 7013-93 - 786K

Unitized Channel Storage 7013-91 - 1048K



F1375-00 Shared Peripheral Interface 1-2 Processors 36-Bit

F1375-01 Shared Peripheral Interface 2-3 Processors 36-Bit

F1375-02 Shared Peripheral Interface 3-4 Processors 36-Bit

Note: 7013-97 (262K) modules can be added
in the field to bring the total capacity
of the subsystem to 1048K.

COMPETITIVE ANALYSIS

Of the major suppliers in the EDP market, only CDC and IBM offer static storage as peripherals for their product lines. These two companies employ static storage in completely different ways. The IBM approach is to use it as a direct extension of main storage. This use is facilitated by the 24-bit displacement register incorporated into the architecture of the 360 line enabling all of the storage to be directly addressed by the CPU. Thus, the IBM unit will be used to store infrequently called subroutines and the CPU can execute commands directly from the unit. Likewise, operands may be stored in the unit and handled directly. This will be helpful for very large directories, reference tables, and matrices. It should be remembered that the ability to execute commands in static storage carries with it a high price. A word can be brought into main storage from UNIVAC Unitized Channel Storage and executed in as little as 3.0 microseconds.* 4.0 microseconds plus instruction time are required with the IBM unit.

The CDC approach is to use static storage as a secondary storage medium and "swap" large portions of the primary storage for exchange of programs in a multiprogrammed environment. To make it more effective in this role, CDC has elected to employ a specialized "extended storage control" which permits a very fast transfer of multiple words. As an example, 480 data bits can be accessed every 3.2 microseconds in the CDC system versus IBM's maximum rate of 64 bits every 4.0 microseconds.

* 2.25 microseconds to fetch the instruction plus .75 microseconds typical execution time.

Both the CDC and IBM units are utilized primarily in the user mode rather than as an integrated part of the hardware/software system. Unlike this method of use, Unitized Channel Storage is an integral part of the system as a member of the hierarchy of drum subsystem. This approach insures efficient use of the subsystem under control of the Operating System (EXEC II or EXEC 8). Although not as fast as the CDC unit, the more effective utilization of the Unitized Channel Storage Subsystem tends to offset this difference. IBM cannot execute from their unit as fast as UNIVAC can both transfer to main storage and execute. Finally, on a cost per bit basis, UNIVAC maintains a slight advantage over both CDC and IBM.

UNITIZED CHANNEL STORAGE

Advantages

COST

Unitized Channel Storage costs less per bit than competitive units.

IMPACT

Can be installed in existing systems without the usual impact of new software and user interface. Since it is a member of the "drum" hierarchy, all is required is a system generation and then the customer is on-the-air!

PERFORMANCE

Since the Unitized Channel Storage is an established integrated part of the system, and can be tailored to operate according to the environmental requirements, system performance improvements of up to 70% can be realized.

RELIABILITY

A new product, a new application, but a tried-and-true established and reliable storage medium - core storage. No down time from mechanical failure.

UNITIZED CHANNEL STORAGE

<u>Type and Feature No.</u>	<u>Product Name</u>	<u>Purchase Price</u>	<u>Monthly Maint. Rate</u>	<u>Mo. Equipment Charge</u>
7013-97	I/O Unitized Channel Storage 262K	\$270,240	\$ 630	\$5,630
7013-95	I/O Unitized Channel Storage Expansion 262K to 524K	270,240	630	5,630
7013-93	I/O Unitized Channel Storage Expansion 524K to 786K	270,240	630	5,630
7013-91	I/O Unitized Channel Storage Expansion 786K to 1048K	270,240	630	5,630
5031-00	Control Unit	40,800	150	850
1375-00	SPI	19,575	25	450
1375-01	SPI Expansion	3,480	5	80
1375-02	SPI Expansion	2,395	5	55