

1AE~~S~~.TXT

Hello, and welcome to the first in a continuing series on the ESS1 and 1A switching systems. The information in this series had been obtained from my knowledge and by trashing various empire (AT&T, BELL) trash bins.

In this first file I will start off with a very basic review of what the ESS system is, and will then go on to talk about some other things you will find interesting.

The ESS System In Review

ESS (Which stands for Electronic Switching System) was designed by good old AT&T in the state of the art labs of the computer-controlled space-division. The principle is simple, you have a switching system that is controlled by simple electronics and stored computer programs. (not to be confused with CCIS which is just a interoffice command link).

The ESS system is a class 5(End Office) system, and has some spinoffs (like the No. 10A RSS [Remote Switching System]). It uses digital transmissions, although they must be converted to analog by a hybrid as this is what kind of electronics AT&T chose to use.

The ESS is divided in to separate modules, so as to make repairs and additions easier. Each module is connected to the system by interfaces (one of which will be covered later). In a whole, the ESS system provides the standard BORSCHT functions, plus some extra ones.

Well, them there's the basics, now on with the good, technical, informational, fun stuff.....

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ESS1A Processor

The following is about the 1A Processor, and will give you an understanding on how it functions.

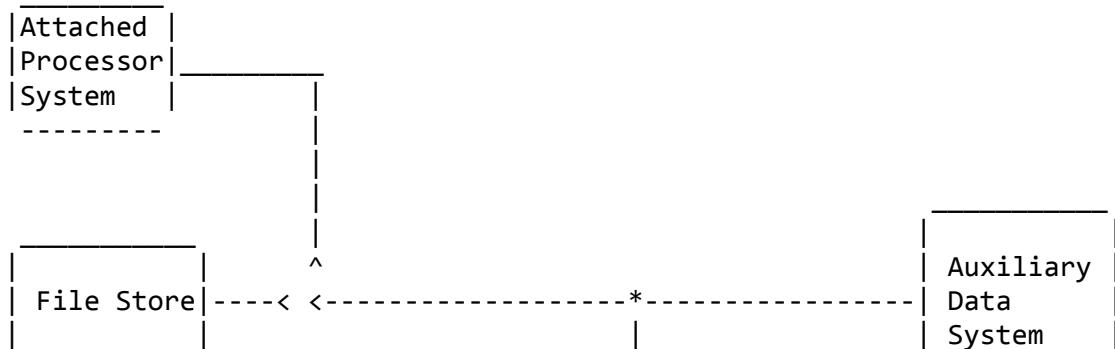
The 1A processor is used for a number of ESS systems, but most specifically is used for the following:

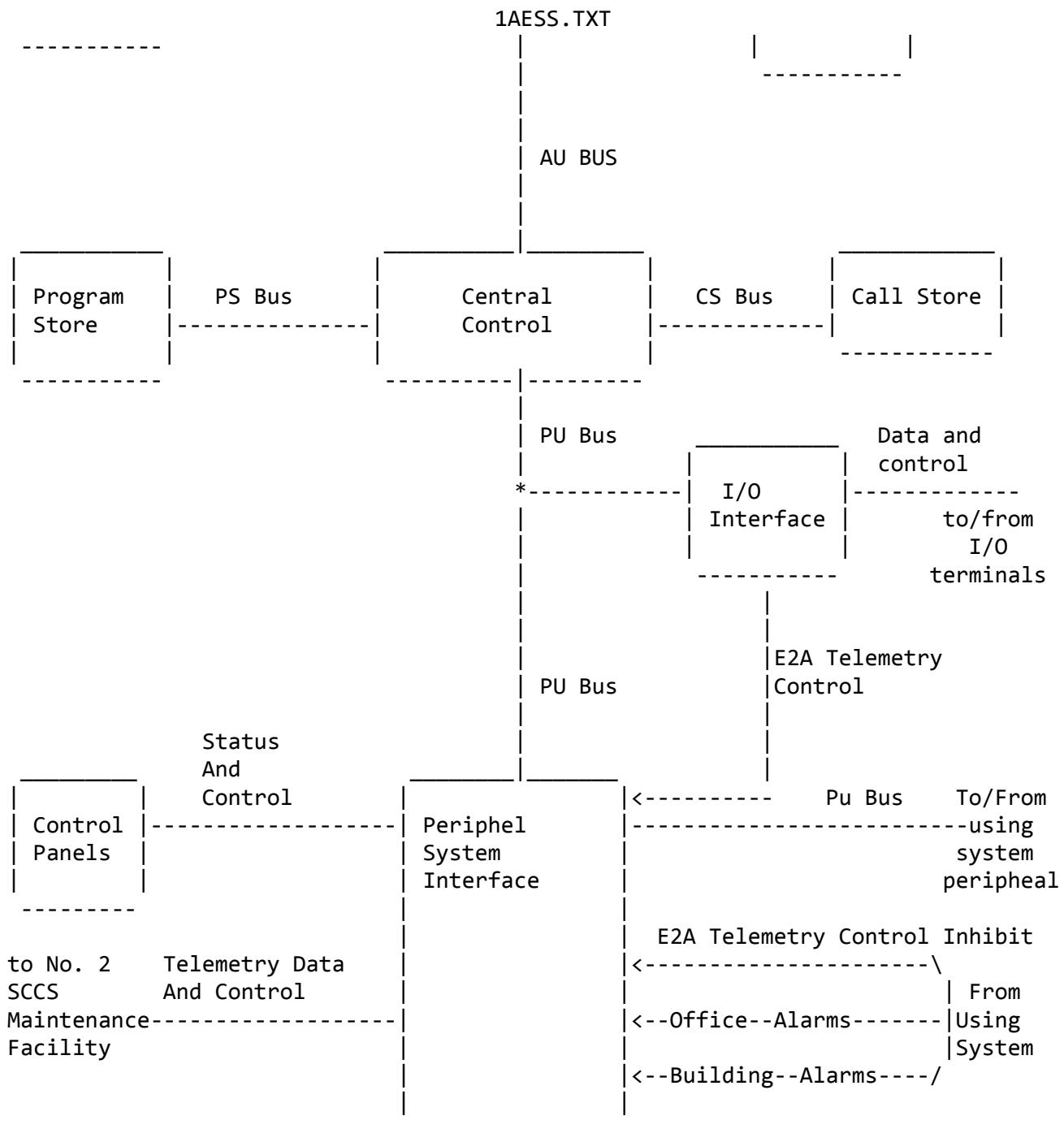
- o To control the 4 ESS switch.
- o To control the 1A ESS switch.
- o To be added to older 1 ESS switches, so as to update it to a 1A ESS.
- o To support future switching systems.
- o To accommodate bulk memory systems.
- o And to provide real time and continuous control through highly automatic maintenance. (less than 2 hours downtime in 40 years continuous operation).

The 1A processor uses stored programs, and operates in a real time environment. The processor can function without being hooked up to the switching network. The processor is devoted to internal maintenance and administrative tasks. So TELCO employee's can monitor the processor (from now on called the 1A) it is hooked up to control panels and to I/O terminals. (which, incidentally interface with software defined I/O channels).

All frames (they make up the 1A) sent out from the 1A are duplicated. So that a failure from one won't screw up and equipment.

The following is a high level block diagram of the 1A:





LEGEND

- AU--Auxiliary Unit
- CS--Call Store
- PS--Program Store
- PU--Peripheral Unit
- SCCS--Switching Control Center System

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About the above:

Central Control: Interfaces with the 1A, and performs the processing functions of the 1A. It also executes all maintenance routines.

Program Store: High speed semiconductor that stores program instructions, and system configuration system.

Call Store: Similar to the above, but is used for storage translation data, and frequently changed call processing data, such as:

- o Status of trunks and switching network.
- o Records of network terminations used for each call in progress.
- o Digits received and digits to be outpulsed.
- o Maintenance data related to programmed diagnostic tests.

Call store also includes an emergency system recovery program, used to establish a working system of a program store failure.

File Store: Magnetic disk memory, used for program backup.

Attached Processor System: 3B20D computer, of which one or more are used as slave processors (used for multitasking, ect.)

Auxillary Data System: Magnetic tape system used to store and retrieve data such as system reinitialization, memory dumps, ect.....

I/O interface: Used to connect 1A to terminals used to input control messages, and to receive status messages.

Peripheral System Interface: Serves as the main junction between all peripherals.

Control Panels: An additional I/O device used to monitor the 1A, and to exercise manual control over the 1A.

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