

PROJECT BETA

7
February 13, 1956

FILE MEMO #16

SUBJECT: Error Detection and Correction

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The following describes a system for determining if errors have been made in transmission. This system has been suggested to the Stretch people as a possible solution for the problem of address transmission error detection and correction.

Assuming that the address in the transmission register is correct, an error in transmission or in receiving is indicated if the address which is sent to the receiving register does not agree with the address in the transmission register.

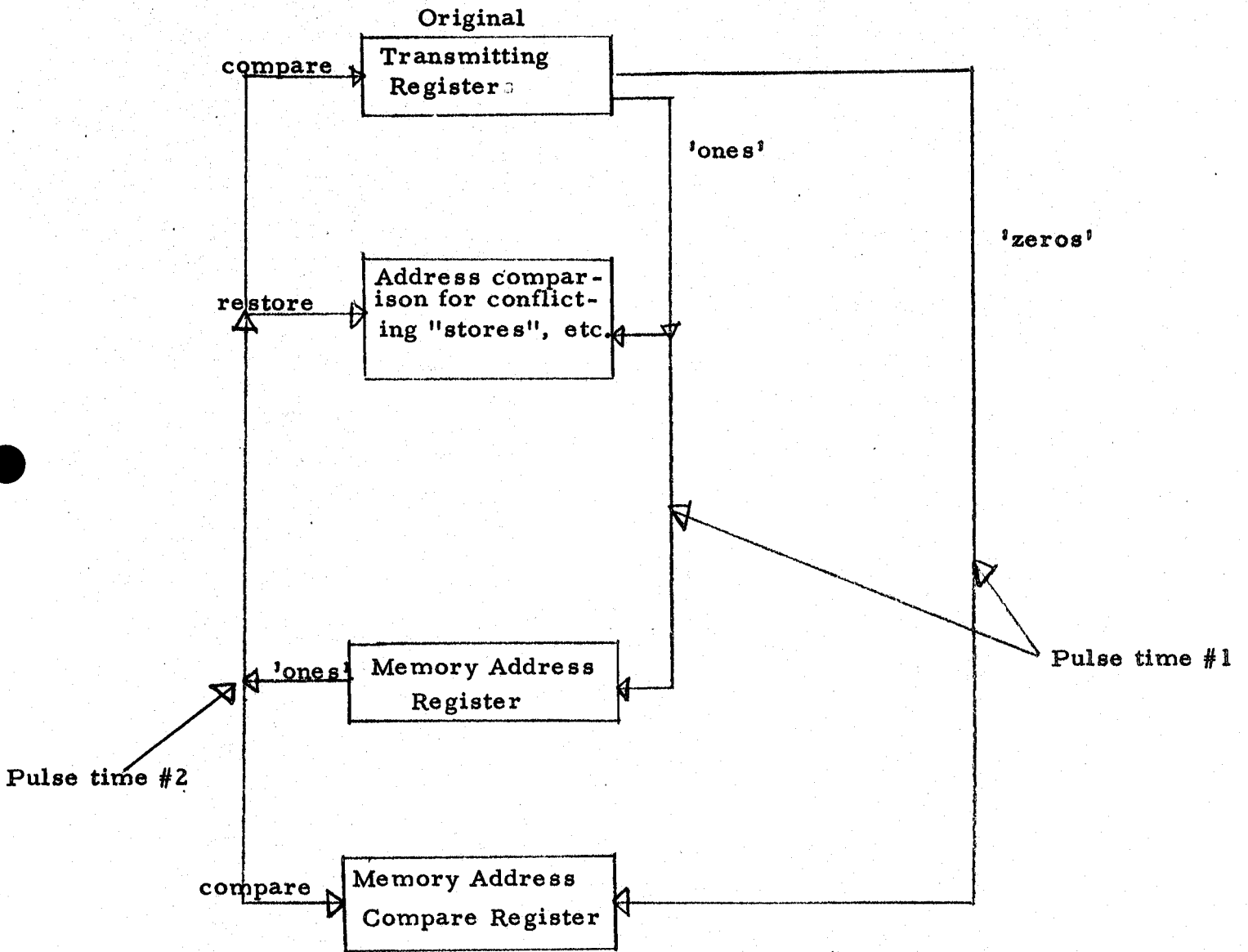
The problem of how to implement this may be answered in part if the system described in BETA Memo #14 is used. This latter system will probably require an additional register of address size for comparing the address obtained from the selected planes with the address in the memory address register.

Assuming the compare of the previous paragraph, an error detection scheme can be had by transmitting the address to both registers and comparing for differences. If the receiving registers are first set to all ones and all zeros, respectively, and zeros are transmitted to the "ones" register and ones to the "zero" register, the transmitters and the transmission lines can be checked also.

The detection of an error using this scheme does not tell which of the two registers is in error, but only that an error has occurred. In order to determine which is in error a further comparison must be made, preferably with the transmitting register. In order that this comparison be reliable when it is used, it should be tested frequently. This testing can be done at all times by always making the second comparison.

This second comparison could be part of the address comparison scheme described in Stretch Memo #15 and BETA Memo #9.

The following shows a block diagram of some of the possible address information paths. To #16 add after "paths." The address comparison for conflicting "stores," etc., does not show an error checking scheme. Note, that if the scheme mentioned in Stretch File Memo #15 is used, the compares reset the respective registers to zero thereby clearing the respective registers except in the case an error is detected in which case the bit position in error contains a one.



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