

ABSTRACTWRITABLE DISTRIBUTED NON-VOLATILE ANALOG REFERENCE SYSTEM AND METHOD FOR
ANALOG SIGNAL RECORDING AND PLAYBACK

A writable distributed non-volatile analog reference system and method for analog signal recording and playback having application in integrated circuits which sample and directly store analog information. The invention is useful to facilitate the sensing of analog levels stored in nonvolatile memory cells where the analog levels are played back such as to reproduce voice or music or tone information. In accordance with the method, one or more reference storage columns are included in the array at each side of the storage cell array and are used to store a reference signal at the same time that the adjacent storage cell stores a signal sample. On playback, the stored reference signals for the row of the array are read back and weighted relative to each other in accordance with the relative row position of the signal storage cell being simultaneously read, with the output signal being taken as the difference between the signal sample read back and the reference signals read back (as weighted relative to each other as per the position in the row of the signal cell). This differencing places many error sources in the common mode, thereby substantially eliminating the same from the output signal. A specific memory array organization and the operation thereof is disclosed.