



US007271750B1

(12) **United States Patent**
Ali

(10) **Patent No.:** **US 7,271,750 B1**
(45) **Date of Patent:** **Sep. 18, 2007**

(54) **PIPELINED CONVERTER SYSTEMS WITH ENHANCED ACCURACY**

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(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

(21) Appl. No.: **11/473,650**

(22) Filed: **Jun. 22, 2006**

(51) **Int. Cl.**
H03M 1/06 (2006.01)

(52) **U.S. Cl.** **341/118; 341/155**

(58) **Field of Classification Search** 341/161, 341/118, 120, 172, 162

See application file for complete search history.

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(57) **ABSTRACT**

Converter system embodiments are formed with signal-processing stages which include successive signal converters and a preceding signal sampler wherein all but a last one of the stages provides an output signal to a succeeding one of the stages and all of said signal converters generate a corresponding digital code. The system embodiments generally address a selected one of the stages and include controllers which are configured to process, at a process rate less than the system's sample rate, a digital error signal and the back-end digital code of back-end ones of signal converters that succeed the selected stage to thereby adjust at least one of the back-end digital code and a control voltage in the selected stage to enhance the accuracy of the system digital code. Once the processes of these embodiments have been applied to the selected stage, they may be successively applied to preceding stages. System embodiments are also directed to nonlinear amplifier gain by including approximations (e.g., piece-wise and polynomial approximations) of amplifier gain so that they are better directed to an amplifier gain that is appropriate for the signal that is being processed through the amplifier.

24 Claims, 7 Drawing Sheets

