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(71) Applicant (for all designated States except US): **CREATIVE TECHNOLOGY LTD** [SG/SG]; 31 International Business Park, Singapore 609921 (SG).

(72) Inventor; and

(71) Applicant (for US only): **ROSSUM, David** [US/US]; 26 Moreno Drive, Santa Cruz, CA 95060-1423 (US).

(74) Agents: **GEAN, Desmond** et al.; Creative Labs, Inc., 1901 McCarthy Blvd, Milpitas, CA 95035 (US).

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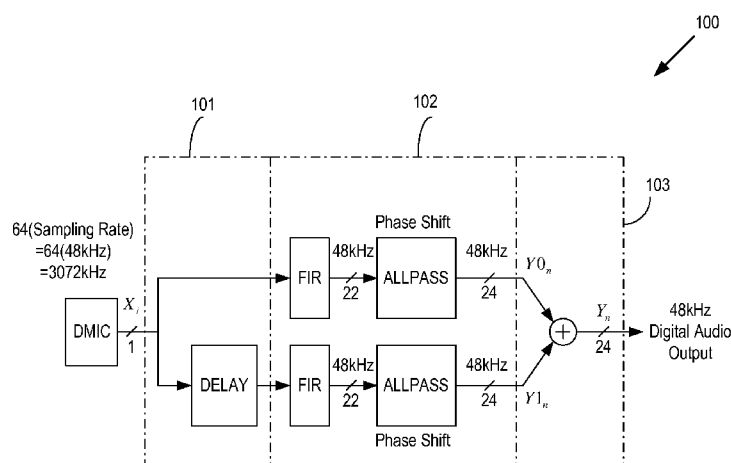


Figure 1

(57) Abstract: A new and more efficient filtering system (e.g., digital microphone decimation filter architecture system) is described. A key to this architecture is the use of two parallel filter paths. Each path operates at the output sample rate, and comprises a shorter FIR filter followed by a series of allpass stages (e.g., implementing IIR filters). The FIR filter is designed to remove all but the last octave of out-of-band noise. The allpass stages are designed such that when the two paths are summed together, the out-of-band noise for the final octave cancels out, leaving only the desired sign