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(54) **Title:** REAL-TIME MULTI-FUNCTIONAL ECG SIGNAL PROCESSING SYSTEM, DSPE FOR THE ECG SIGNAL PROCESSING SYSTEM, AND METHOD THEREOF

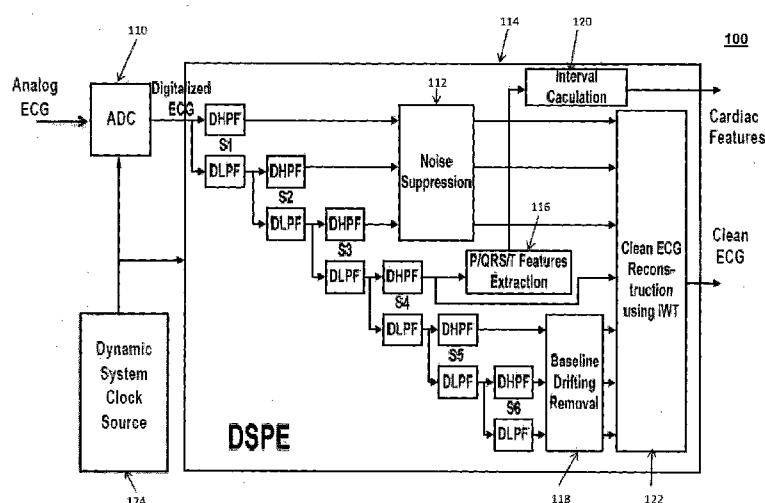


FIG. 1

(57) **Abstract:** An electrocardiogram (ECG) signal processing system is provided. The ECG signal processing system comprises an analog-to-digital converter (ADC) configured to convert an input analog ECG signal into a digital ECG signal, and a digital signal processing engine (DSPE) coupled to the ADC to receive the digital ECG signal. The DSPE is configured to decompose and reconstruct the digital ECG signal. A dynamic system clock source is coupled to the ADC and the DSPE at a first frequency f1 to detect one or more first parameters of the input analog ECG signal and at a second frequency f2 to detect one or more second parameters of the input analog ECG signal.