Electrocardiogram on a chip: overview and first experiences of an electrocardiogram manufacturer of medium size

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Abstract: The integration of an electrocardiogram (ECG) device into a chip is already well known in the field of implanted devices, such as pacemakers. For noninvasive electrocardiology, this approach has not been used on a broad scale commercially. The extension of electrocardiology to telemetry, home care, and special applications as in magnetic resonance imaging has spawned a new interest in highly miniaturized ECG devices. In our company, we are aiming for using highly integrated devices exactly in these fields. On one hand, the home monitoring market ("eHealth," "pHealth") requires small and lightweight devices ("ECG in an electrode"); on the other hand, the use of an ECG device within a hostile environment as in an magnetic resonance imaging machine with strong electromagnetic fields requires small dimensions of the device. Of these 2 fields, the one of home monitoring is the most promising. There is a large population in need of such monitoring (eg, patients with congestive heart failure), and the cost issue in medical care drives the market in this direction. Projects in both fields will be presented as well as the first experiences as a middle-sized manufacturer in trying to produce an integrated ECG "device.".

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