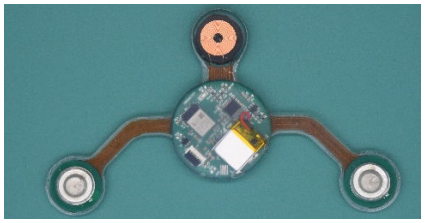
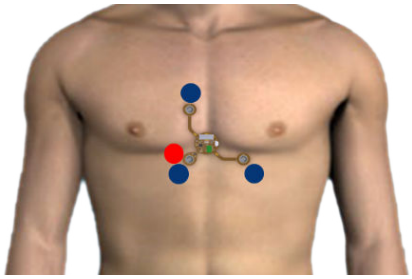
STDES-ESP01

Data brief

ST1VAFE6AX and ST1VAFE3BX reference board supporting an electronic skin patch for cardio monitoring





Product summary	
ST1VAFE6AX and ST1VAFE3BX reference board supporting an electronic skin patch for cardio monitoring	STDES-ESP01
Biosensor with vAFE (vertical analog front-end) for biopotential signals and 6-axis IMU (inertial measurement unit) with AI and sensor fusion	ST1VAFE6AX
Biosensor with vAFE (vertical analog front-end) for biopotential signals and ultralow-power accelerometer with AI and antialiasing	ST1VAFE3BX
Applications	Remote patient monitoring Smart home Electronic skin patch ECG anomaly pattern detection and classification

Features

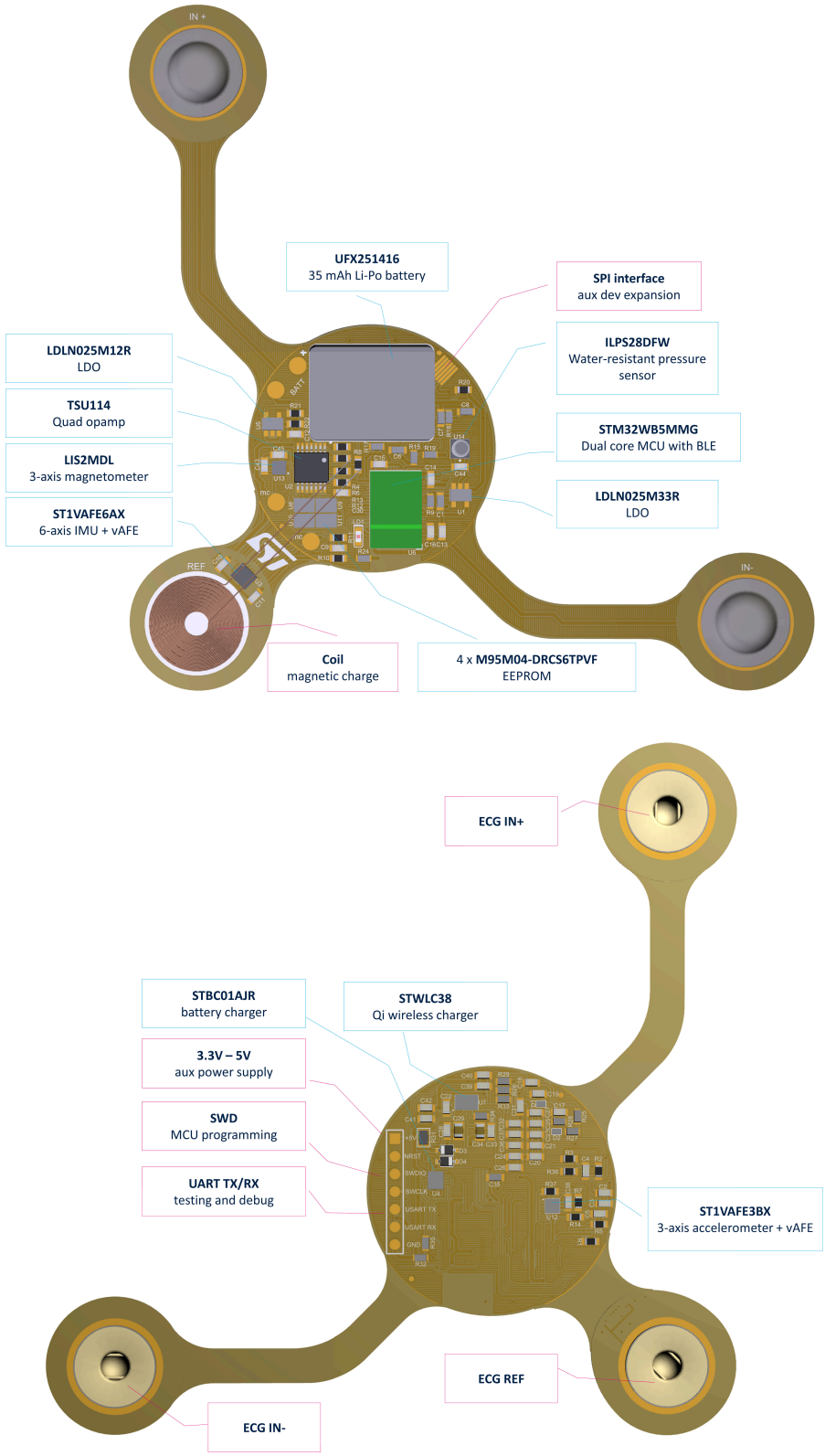
- Supports electrocardiography (ECG), seismocardiography (SCG), and gyrocardiography (GCG)
- Supports dry and wet electrodes for ECG
- Supports a skin adhesive layer provided by DuPont™ Liveo™
- Computation of heart rate and heart rate variability
- Activity tracking using the ST1VAFE6AX and ST1VAFE3BX biosensors
- Context-aware ECG measurements
- Bluetooth connectivity
- Silicone rubber encapsulation
- 35 mAh lithium-ion polymer battery
- RoHS compliant

Description

The STDES-ESP01 reference board demonstrates the capability of the ST1VAFE6AX and ST1VAFE3BX biosensors to detect electrocardiography (ECG) and seismocardiography (SCG) signals using an electronic skin patch (eSP). The ST1VAFE6AX, mounted on the board, can also detect the gyrocardiography (GCG) signal enabled by the embedded gyroscope. The figure on the left depicts the eSP positioning with three terminals with snap connectors for using standard wet ECG electrodes or dry electrodes. This electronic board provides features for the computation of heart rate and heart rate variability. In addition, it can be used for implementing anomaly pattern detection and classification. Finally, developers can implement routines for motion-based events and context-aware biosignal acquisition and analysis.

1 PCB layout and components

Figure 1. Front and back of the electronic skin patch with key components



Revision history

Table 1. **Document revision history**

Date	Version	Changes
04-Feb-2025	1	Initial release