Features

- Kit content:
  - a STEVAL-C34AT02 multisensing expansion board (25x25mm) with a 34-pin board-to-FPC connector
  - a 34-pin flex cable
- Ideal plug-in for the STEVAL-STWINBX1 evaluation board
- iNEMO inertial module with embedded ISPU (ISM330IS):
  - 3-axis accelerometer with selectable full scale: ±2/±4/±8/±16 g
  - 3-axis gyroscope with selectable full scale: ±125/±250/±500/±1000/±2000 dps
  - Embedded ISPU: ultra-low-power, high-performance programmable core to execute signal processing and AI algorithms in the edge for a seamless digital-life experience
  - Low-power consumption: 0.59 mA in high-performance mode, 0.46 mA in low-power mode (gyroscope + accelerometer only, ISPU not included)
- Low-voltage, ultra-low-power, 0.5°C accuracy I²C/SMBus 3.0 temperature sensor (STTS22H)
  - Programmable thresholds through an interrupt pin
  - Ultra-low current: 1.75 µA in one-shot mode
  - Operating temperature -40 to +125°C
- Exposed pad on the bottom side to improve the thermal coupling for the temperature sensor
- 1.8 to 3.3 V power supply input

Description

The STEVAL-C34KAT2 is a multisensing expansion kit that includes the STEVAL-C34AT02 expansion board and a flex cable.

The ISM330IS sensor is soldered at the center of the small 25 x 25 mm board. The STTS22H temperature sensor is placed on the PCB side and is thermally coupled to the PCB bottom exposed pad through vias.

The ISM330IS is a system-in-package featuring a 3-axis digital accelerometer and a 3-axis digital gyroscope, boosting performance at 0.59 mA in high-performance mode and enabling always-on low-power features for optimal motion results in industrial and IoT solutions.

The ISM330IS embeds a new ST category of processing intelligent sensor processing unit (ISPU) to support real-time applications that rely on sensor data.

The ISPU is an ultra-low-power, high-performance programmable core, which can execute signal processing and AI algorithms in the edge. The main benefits of the ISPU are C programming and an enhanced ecosystem with libraries and third-party tools/IDE.

Its optimized ultra-low-power hardware circuitry for real-time execution of the algorithms is a state-of-the-art feature for any wireless sensor node from small equipment or accessories to enterprise solutions for industry 5.0 (anomaly detection, asset tracking, factory automation).
The expansion board can be mounted on the equipment for the vibration analysis using the four holes or the double-sided adhesive tape. This board is compatible with the STWIN.box kit (STEVAL-STWINBX1).
1 Schematic diagrams

Figure 1. STEVAL-C34KAT2 circuit schematic: STEVAL-C34AT02

iNemo 3xAcc + 3xGyro + ISPU

34 pin-expansion connector
Orientation: odd pins should be on the side of the box

Temperature
Figure 2. STEVAL-C34KAT2 circuit schematic: STEVAL-FLTCB02
Kit versions

Table 1. STEVAL-C34KAT2 versions

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<td>STEVAL$C34KAT2A schematic diagrams</td>
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1. This code identifies the STEVAL-C34KAT2 evaluation kit first version. The kit consists of the STEVAL$C34AT02A expansion board and the STEVAL$FLTCB02A flex cable. The STEVAL$C34AT02A code is printed on the expansion board PCB. The STEVAL$FLTCB02A code is printed on the flex cable.
### Table 2. Document revision history

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<td>13-Sep-2023</td>
<td>1</td>
<td>Initial release.</td>
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