IPS2200 and IPS2550

Compatibility and Migration to IPS2550

Introduction

This document provides guidance for transitioning from the discontinued IPS2200 position sensor to its replacement, the IPS2550. It outlines the necessary configuration settings and updated specifications for successful implementation.

Contents

1. Migration Path Summary

1.1 Option 1: Drop-in Replacement (NO Hardware Changes)

This option allows for quick migration without schematic or PCB modifications by following these steps:

1. Replace IPS2200 chip with IPS2550
2. Configure IPS2550 in compatibility mode using the GUI.

Note: This approach maintains existing PCB layouts but does not leverage the full capabilities of the IPS2550.

1.2 Option 2: Optimized Redesign (Recommended)

This option maximizes the performance benefits of the IPS2550 by following these steps:

1. Update schematic to incorporate IPS2550 specifications
2. Add RX interleaved coils to the design
3. Modify PCB layout accordingly (see section 6)

Benefit: Full utilization of enhanced IPS2550 features including improved temperature range and higher rotational velocity.

2. Parameters

Table 1 summarizes the updated operating parameters. All other electrical characteristics (supply current, voltage, etc.) remain unchanged and can be found in the *IPS2550 Datasheet* document.

Key improvements in IPS2550 are the following:

- Extended ambient and junction temperature ranges
- Increased maximum rotational velocity (2.4× improvement)

Table 1. Operating Conditions

Symbol	Parameter	Conditions	Minimum	Typical	Maximum	Units
T_{AMB_TSSOP}	Ambient temperature: 16-TSSOP		-40		**IPS2200: 125** IPS2550: 160	ºC
T_J	Junction temperature		-40		**IPS2200: 145** IPS2550: 165	ºC
T_{STOR}	Storage temperature	Unmounted units must be limited to 10 hours at temperatures above 125°C	-55		**IPS2200: 150** IPS2550: 160	ºC
t_{pup}	Start-up time	Power-on reset (POR) to valid output signal			**IPS2200: 3** IPS2550: 5	ms
V_{EL}	Input rotational velocity	Electrical speed Sine or cosine periods per minute			**IPS2200: 250 000** IPS2550: 600 000	rpm

3. Block Diagrams

The principal architectural differences between the IPS2200 and IPS2550 are highlighted in red on Figure 1.
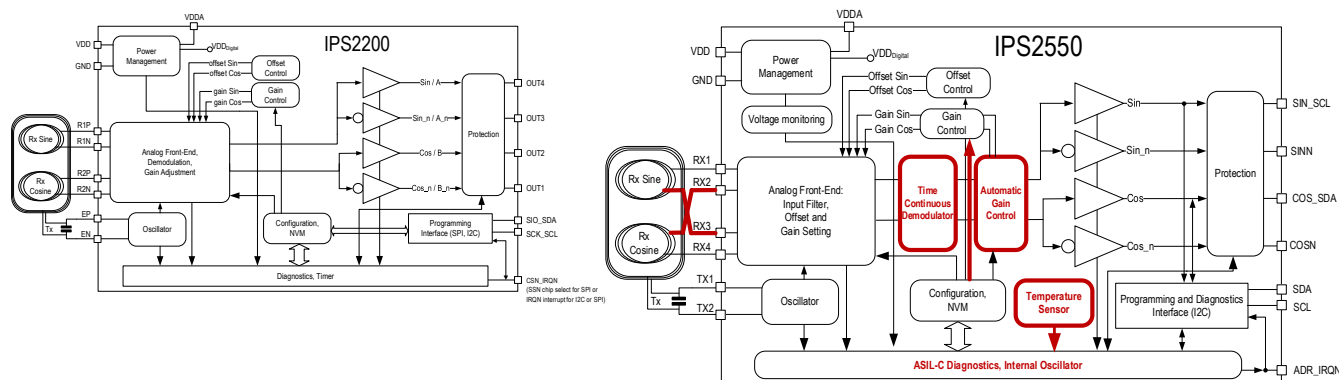

Figure 1. Block Diagram Comparison

4. Pinouts

The key pinout changes between the IPS2200 and the IPS2550 are highlighted in red on Figure 2.
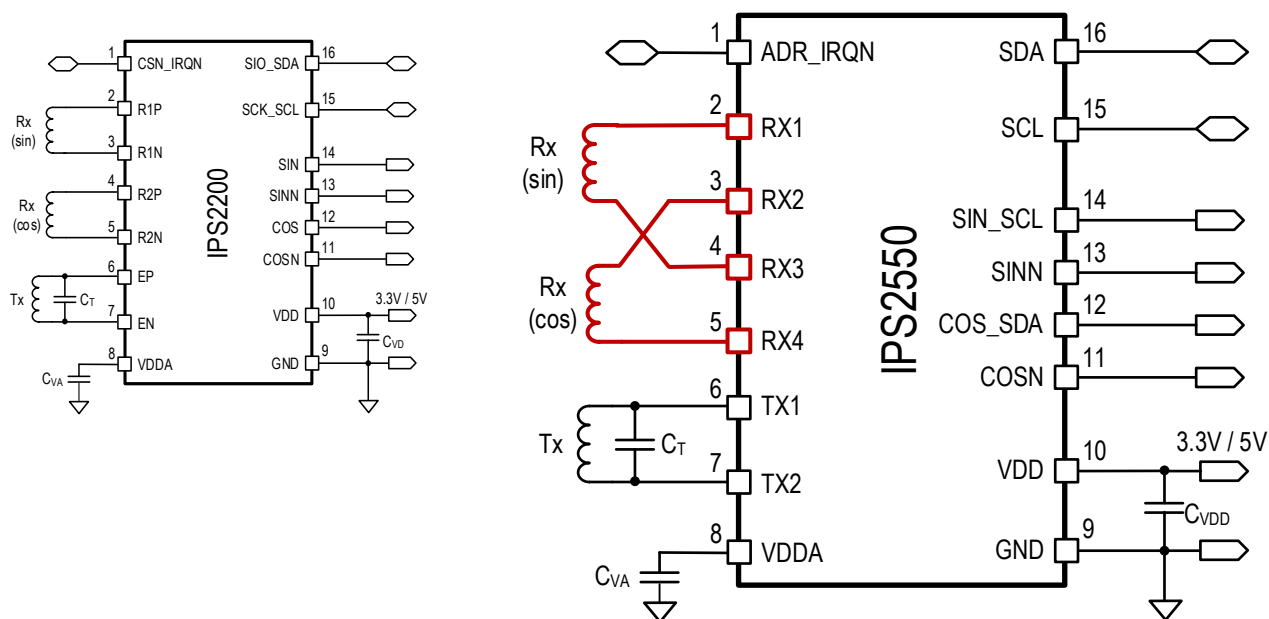

Figure 2. Pinout Comparison

Safety Compliance: The IPS2550 is suitable for implementation in safety-related systems compliant with ISO 26262:

- Up to ASIL-C on a single IC.
- Up to ASIL-D on dual IC configuration.

5.   PCB Layout

The key PCB layout changes between the IPS2200 and the IPS2550 are highlighted on Figure 3.

For optimal performance with the recommended Option 2 (see section 1.2), implement interleaved RX coil configuration as shown in the layout reference.
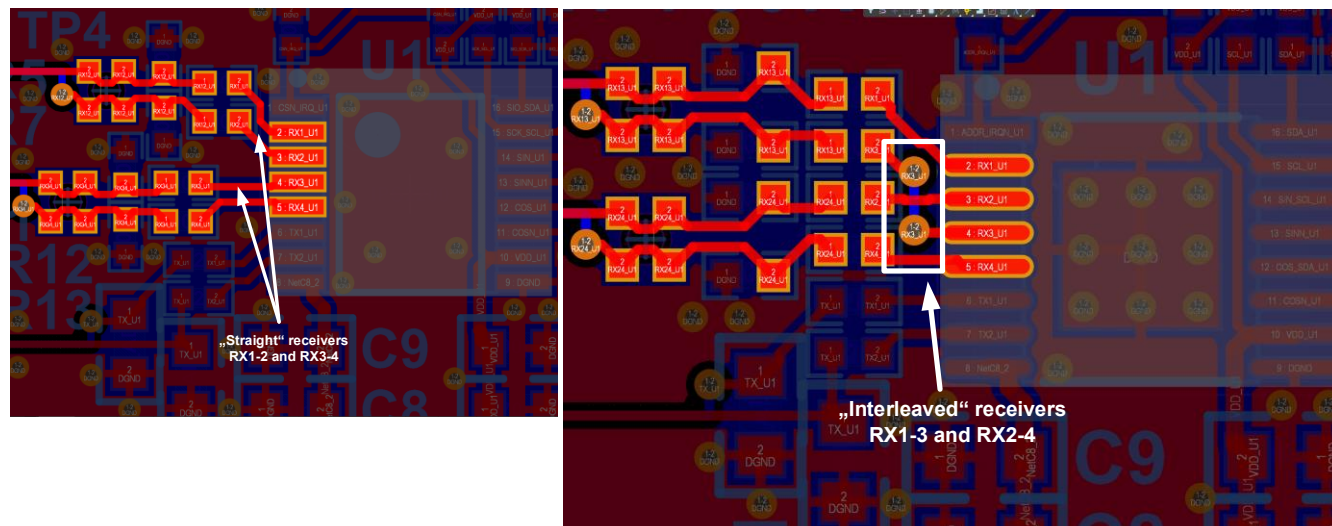

Figure 3. PCB Layout Comparison

6.   IPS2550 GUI Setting

Follow these steps for switching from IPS2200 to IPS2550 on the GUI:

1. Open the IPS2550 GUI and navigate to the 'Configure' tab.
2. Select either of the following values from the rc_switch drop-down list (see Figure 4):
   - For Option 1 (see section 1.1): Straight
   - For Option 2 (see section 1.2): Interleaved
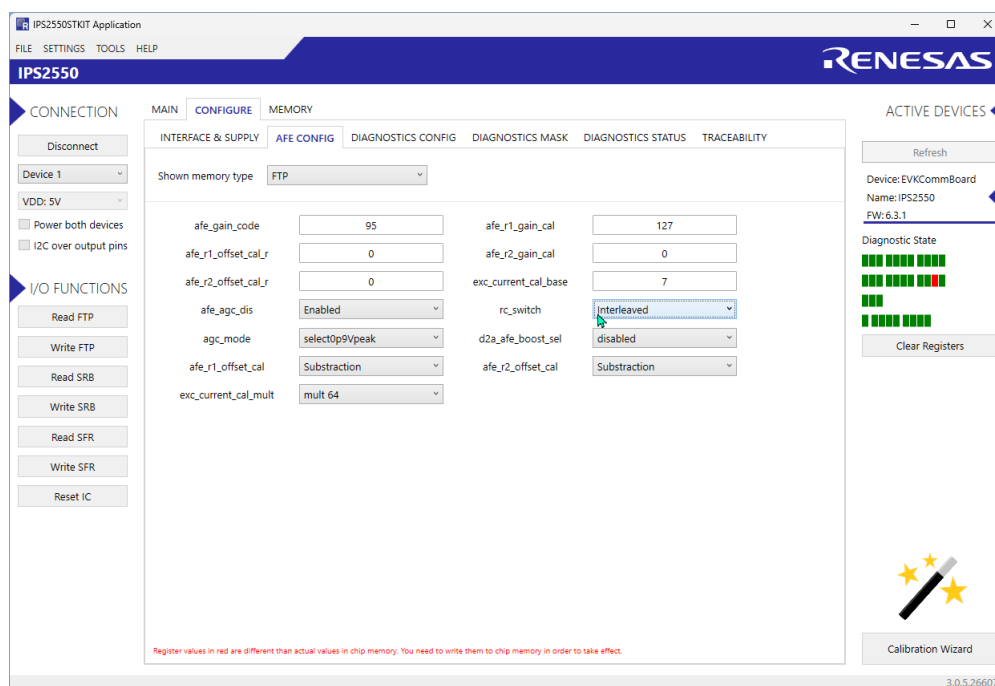3. Write FTP to save the changes in the internal memory.

Figure 4. GUI Setting for IPS2550

7.   Revision History

Revision	Date	Description
1.00	Nov 3, 2025	Initial release.

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