

## Developer Kit Contents

- 1 x Test board with 14 x RF connectors, 1 x DC connector, and 1 x SPI connector
- 1 x DC power cable assembly
- 1 x High speed SPI cable assembly
- 1 x SPI interposer board
- 1 x USB-SPI interface module
- 5 x AWS-0103 (1 mounted on test board)
- 1 x Flash drive including SPI driver software, full test results, and board calibration
- 1 x Software Installation and Control Software User's Guide



## Applications

The AWS-0103 is a highly integrated silicon quad core IC intended for use in commercial and weather RADARs and 5G AESA communications systems. The device supports four radiating antenna elements, single beam transmit and dual beam receive, and includes all requisite beam steering controls for 6 bit phase and gain control.

## General Description

The Developer Kit includes all hardware required to interface to the AWS-0103. It enables full evaluation and RF testing of the X Band Quad Core IC with easily defined user interfaces. The test board has been carefully designed to easily replicate the performance of the device and to provide the necessary channel to channel isolation. Calibration data is included to enable the removal of test board line losses. The SPI control is supported through a high speed cable, interposer board, and USB interface module. Driver software is supplied to provide control from a PC. DC power is supplied to the test board through a separate cable assembly. A full set of measured data is included to provide reference performance for each Developer Kit. Evaluation of the AWS-0103 with the Developer Kit will significantly shorten the time to become familiar with the operation and performance of the product, thereby reducing system development time and cost.



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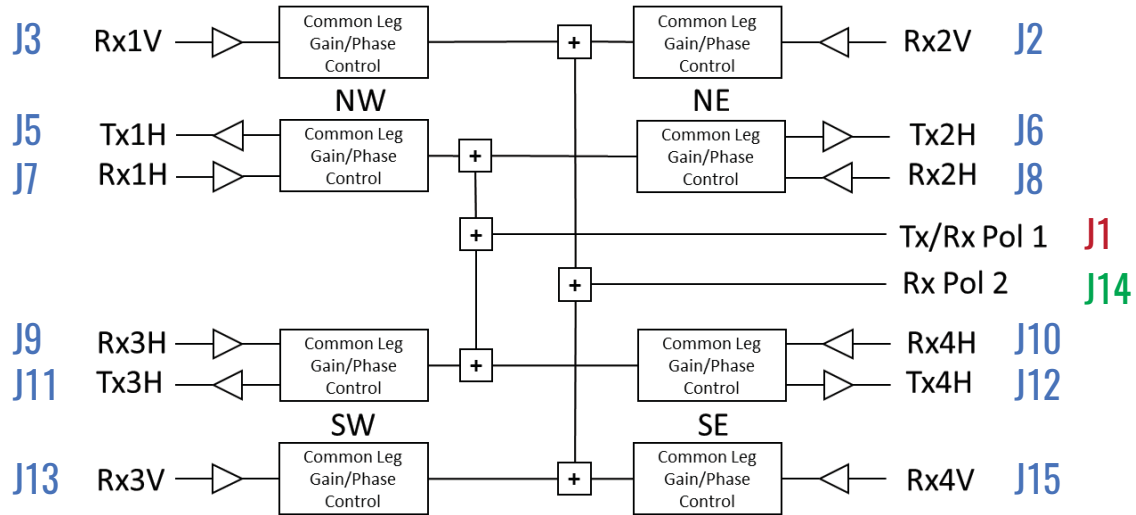
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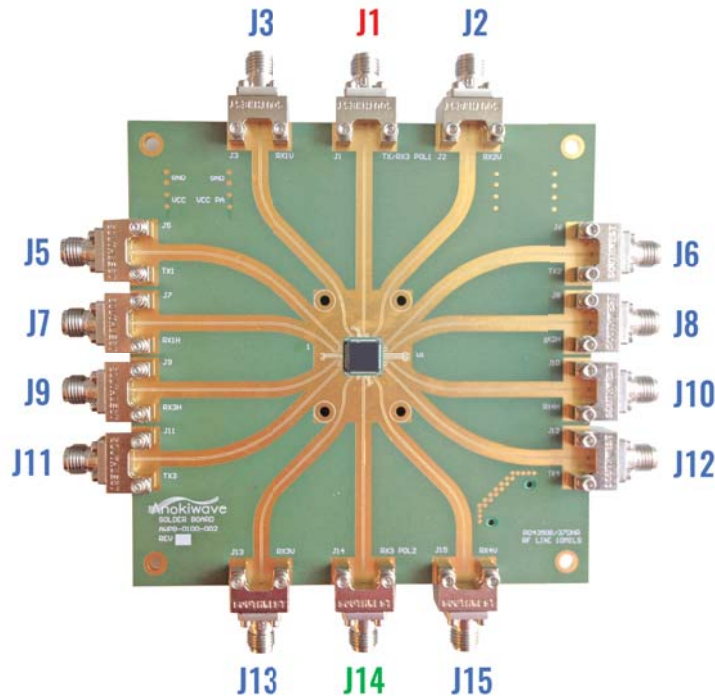
# Product Overview

# X-Band Silicon RADAR Quad Core IC Developer Kit AWS-0103-DK

## RF Ports



NOTE: Unused ports must have 50 Ω terminations



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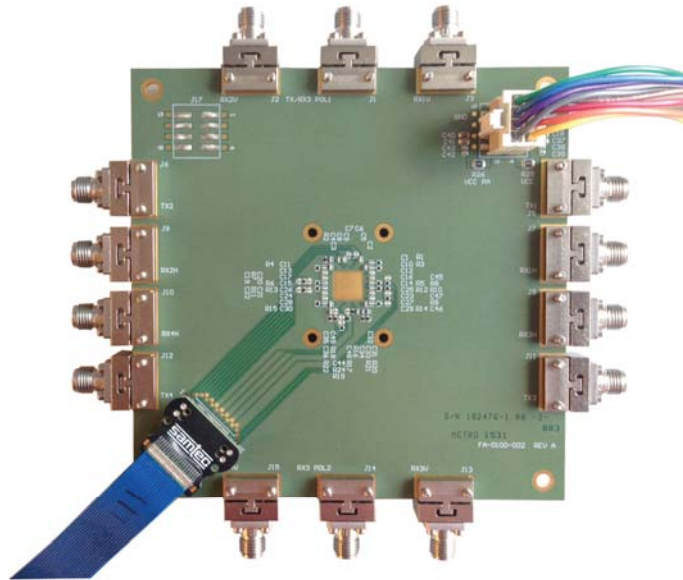
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# Product Overview

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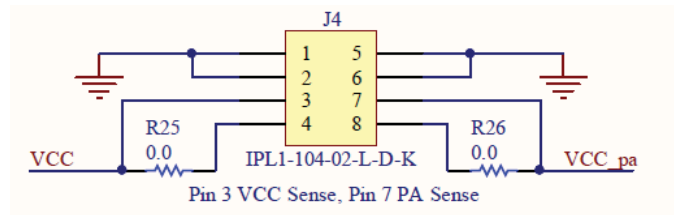
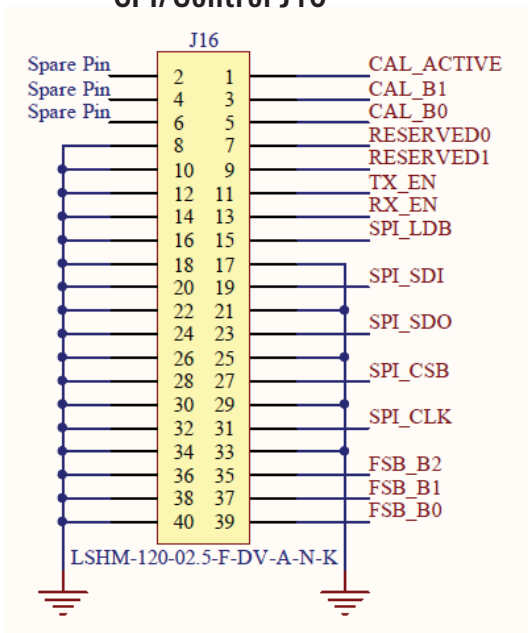
## Bias and Control



DC Bias J4

Pin	Bias	Color
1	GND	Brown
2	GND	Red
3	Vcc Sense	Orange
4	Vcc Force 1.8V	Yellow
5	GND	Green
6	GND	Blue
7	VccPA Sense	Violet
8	VccPA Force 1.8V	Gray

SPI/Control J16



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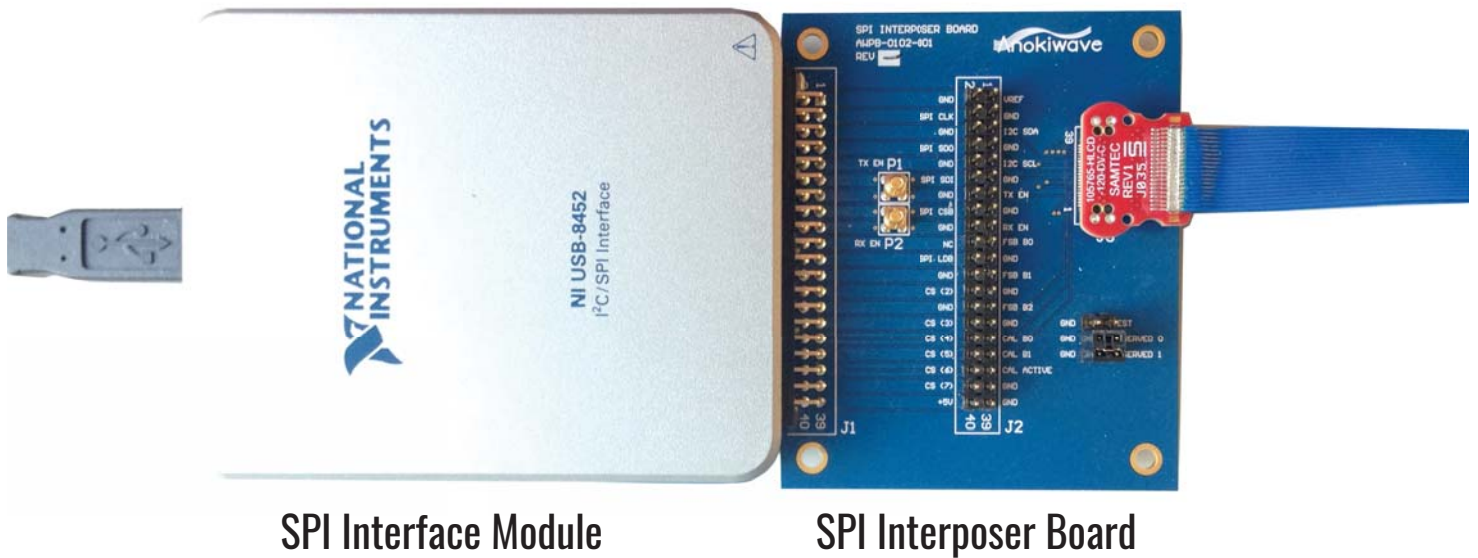
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## SPI Controller



Refer to the Anokiwave SPI Operation & Interface document number PRO-10012. The SPI interposer board routes the National Instruments SPI interface module (or customer may use their own unique SPI) directly to a high speed IP cable. Header J2 allows the user to wire their SPI signals directly to the IC. Reserved 0 and reserved 1 jumpers are required.

SPI Logic Level: 1.8V

Ref: SPI Interposer Board Schematic SC-0102-001



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## Turn-on and Bias Sequence

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- Attach RF cables for measurement
- Terminate unused RF ports
- Apply Vcc followed by VccPA. (Vcc and VccPA may be applied simultaneously)
- Initial Functionality test: Write and read a SPI word
- Typical Currents:
  - Turn On/Standby: 26 mA
  - Receive: 870 mA
  - Transmit: 1,125 mA



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