NewEdge
Signal Solutions

RUX105 Wideband 5G OpenRAN Compliant Software Defined Radio

Versatile and scalable 3U open architecture

- VITA 48.2 3U form factor, 1" slot pitch , OpenVPX, ORAN, and SOSA Compliant
- Rugged and Compact
- Latest Intel SoC and Analog Devices RFICs
- Coverage n77, n78, and n79 FR-1 bands for 5G 4x4 MIMO

The NewEdge RUX105 is a modular, wideband Software Defined Radio in a VITA 48.2 3U form factor, 1" slot pitch. This model is capable of 4x4 MIMO operation over the 5G bands n77, n78 and n79 enabling next-generation communications platforms with SOSA - aligned capabilities. This is a Two-Level Maintenance compliant design.

The RUX105 is 3GPP compliant and designed to be used in conjunction with an ORAN Split 7.2 DU via eCPRI data link. With built-in CFR and DPD, the module can be used with a compliant RFFE.

The RUX105 is designed for use in a conduction cooled VITA compliant chassis with variants for air-cooled systems. This allows for a broader spectrum of usability for greater performance in rugged, deployed environments. Equipped with configurable UART communications to enable support of remote RFFEs.

An RTM is available for use in development chassis.

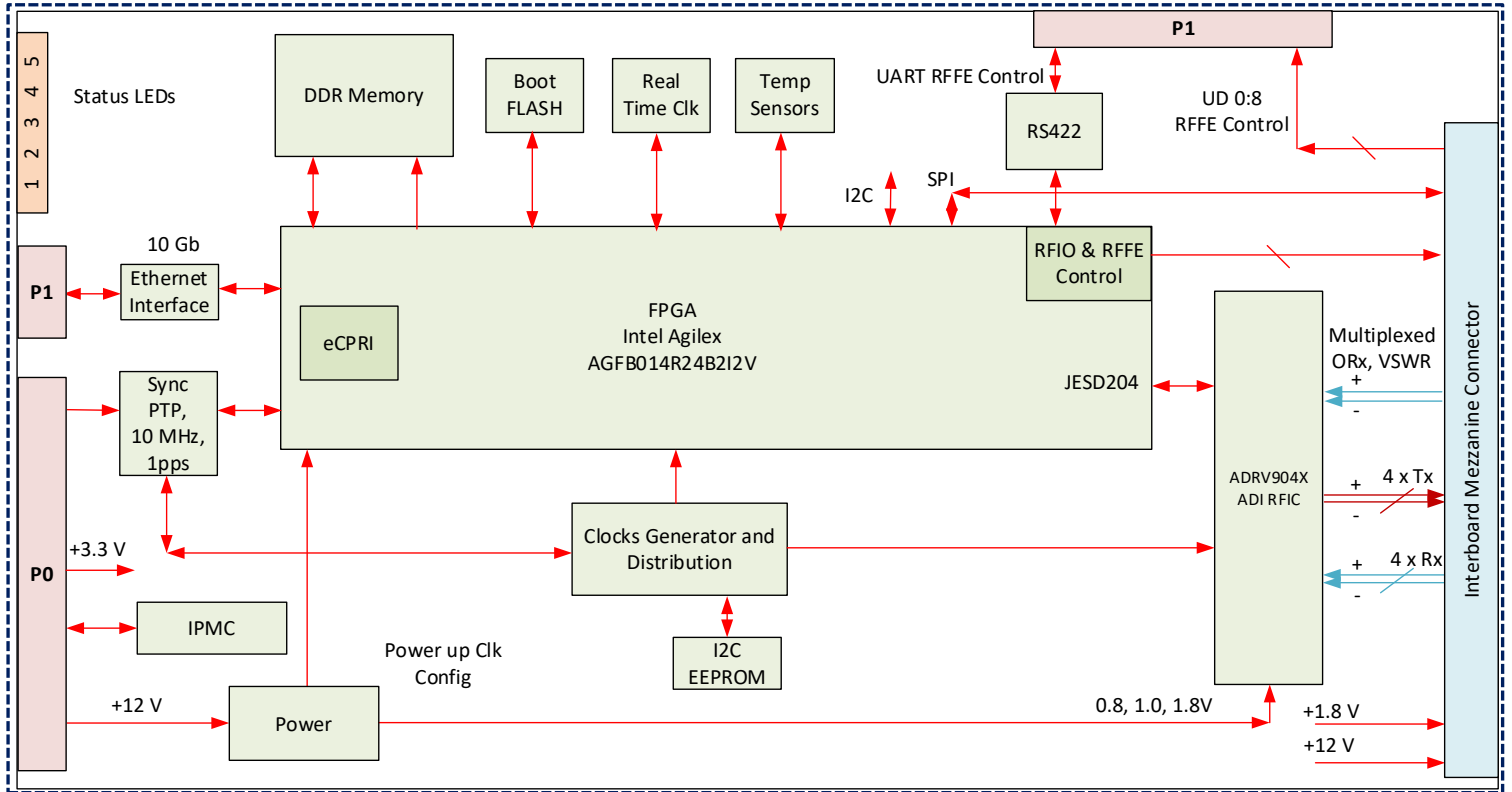Details on software implementation and interfacing are available on request.

NewEdge is a leading provider of RFFE subsystems designed and made in the USA

Block Diagram: Main SDR Digital Board

<u>Note</u>: Status LEDs may be customized as required

RFIO Mezzanine Board

UD 0:8 RFFE Control

RS422 ← RFFE Control

SPI

RFIO & RFFE Control

Lattice ICE FPGA

RFIO Control

Interboard Mezzanine Connector

Multiplexed ORx, VSWR

Balun

67.3C

ORx, VSWR

4 x Tx — 4 x Balun — Tx 0, 1, 2, 3 — Tx 0, 2, 3 — 4 x Tx — 4 x Tx

Tx 1

4 x Rx — 4 x Balun — Rx 0, 2, 3 — Rx 1 — 4 x Rx — 4 x Rx

Rx 1

Antenna calibration Switching

Tx 1

Rx 1

Tx/Rx Ant Cal Port

+1.8 V

+12 V
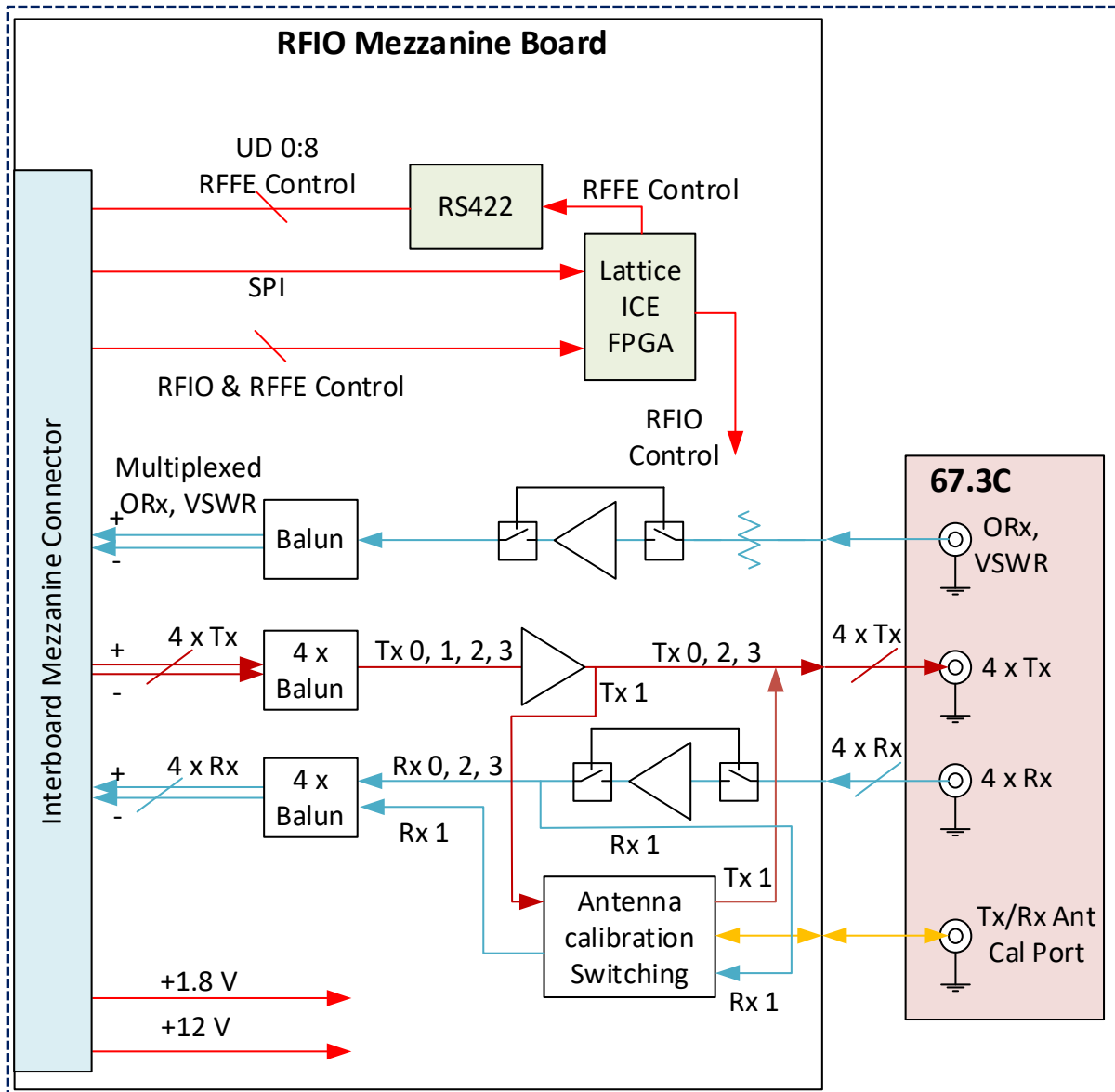
Note: The RF interface board may be customized for specific usage cases. Variations may include different frequency ranges or control of a customized RF front end.

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2xIPMB

12 V

3V3 Aux

Aux CLK

Ref CLK

RTC_VBATT

10 Gbase-KR (Data)

10 Gbase-KR (Control)

RS232 (MP)

UD [0:8] RS422 RFFE

UD [9:10] RS422 UART

UD [11] RS422 RFFE Fault

4x Tx

4x Rx

1x Obs / VSWR

1x Ant Cal

P0

P1

67.3C
Aperture H

14
SMPM
Contacts

SE P0

SE

Data Plane
Not Used

Data Plane

Not Used | Not Used

Not Used

Control Plane

MP

User Defined
(UD) Plane

67.3C
Aperture H

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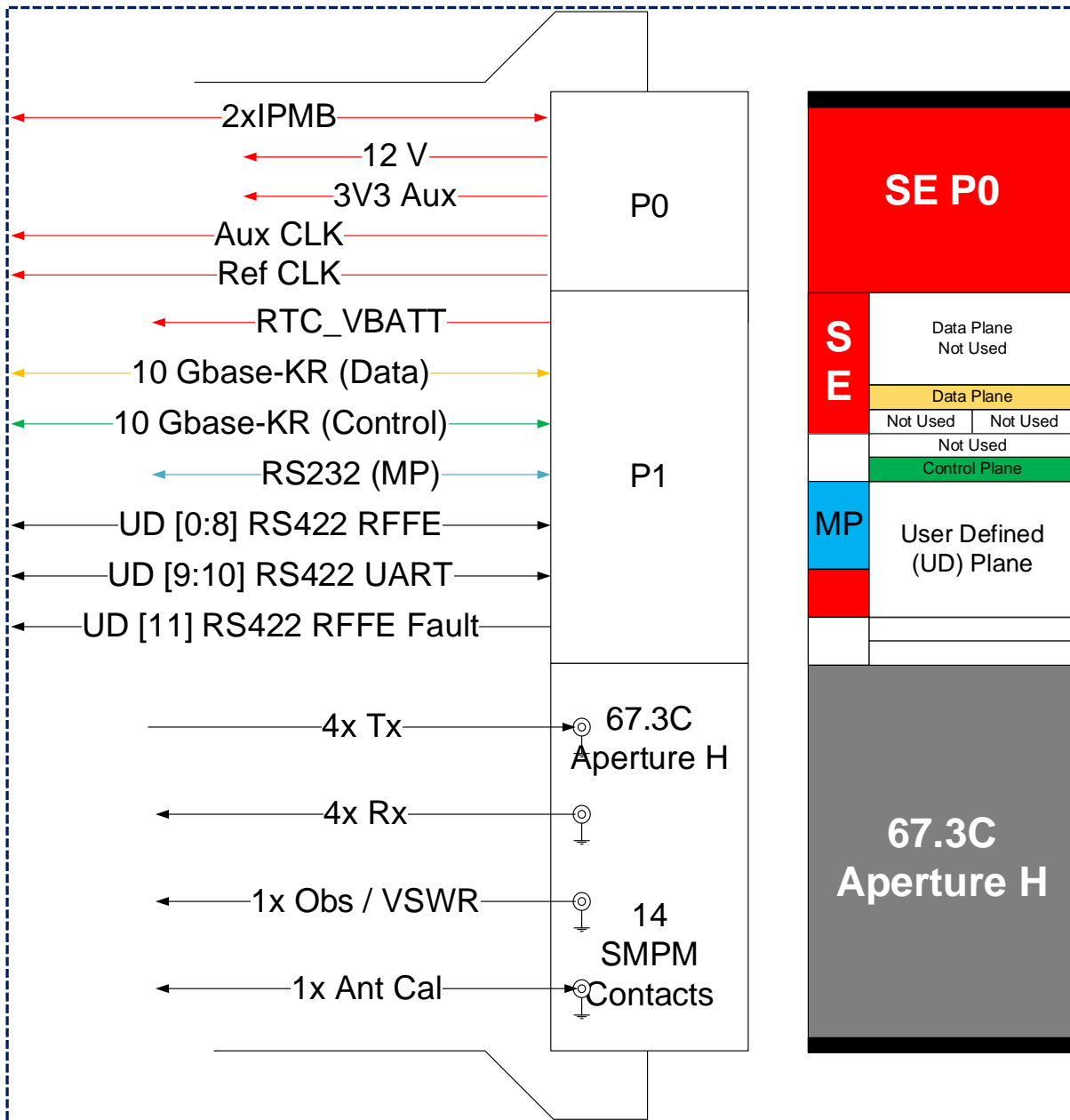
Specifications

Packaging

Format / Size: 3U VPX, 1'' slot pitch
Control Interface: 10GbE (consult NewEdge for options)
Weight: <0.8kg (rugged conduction cooled)

Power

Voltage: 12 V
Power: less than 60W

ORAN

Compliance: ORAN Split 7.2

RF Specifications

Compliance: 3GPP compliant
RF Output Coverage: 3 GHz to 6 GHz
MIMO: 4X4
RF Tx power: >10 dBm
Duplex: TDD and FDD
Channel bandwidths: 10, 20, 50 and 100 MHz
SCS: Supports 15, 30 kHz.
ACLR: >50 dB
VSWR: 2:1 for 50 Ω single-ended

Connectivity

Data and control: 2x 10 GbE
RF: 50 Ω 4xTx, 4xRx 67.3C SMPM
DPD Obs: 50 Ω 67.3C SMPM
RFFE: Configurable UD control of RFFE, UART serial comms

Environmental

Operational: Class CC3
Non-operational: Class C4
Standards: MIL-STD-810
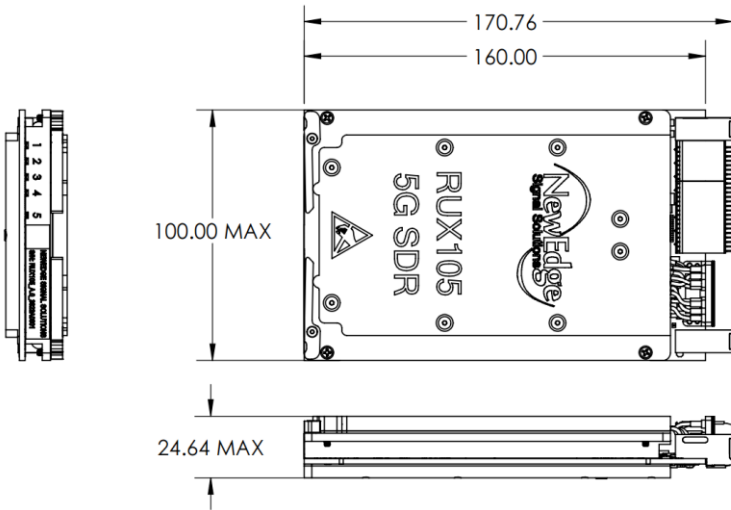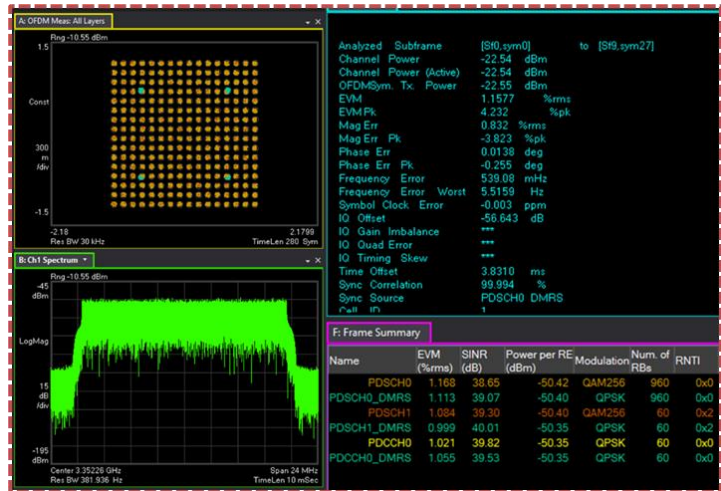
Pinout to / from the 67.3C Aperture H block.

	Signal	Location
SDR Coaxial Cable Connection	TX0	D1
	TX1	D2
	TX2	B3
	TX3	B4
	OBS / VSWR	C3
	ANT CAL	C1
	RX0	B1
	RX1	B2
	RX2	D3
	RX3	D4
NOT Used	NC	C2
	NC	A1
	NC	A2
	NC	A3

Need more help? Need a different Band? Power Level?

Contact the NewEdge team at: info@newedges2.com

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