



*Shaping the future of wireless communications*

## RFSoc FR3 Test Solution

*6.9–25.8 GHz  
1.2 GHz Instantaneous Bandwidth*

### The challenge

Because the RFSoc DFE does not directly support the FR3 frequency range, we developed a custom extension board. It enables FR3 band compatibility and delivers a complete test environment to characterize power amplifiers and evaluate RF performance in the 6.9–25.8 GHz range, built around three complementary elements:



#### **AMD RFSoc Platform (ZCU670) & Wupatec Firmware**

Real-time DPD, signal generation, sequencing, and control.



#### **Wupatec FR3 Extension Board**

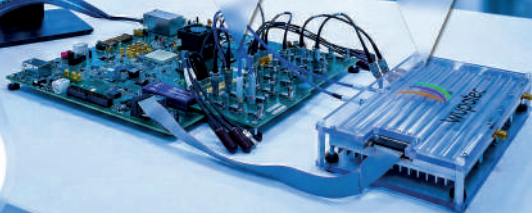
Up-conversion/down-conversion  
and all RF interfaces to reach the  
FR3 band.

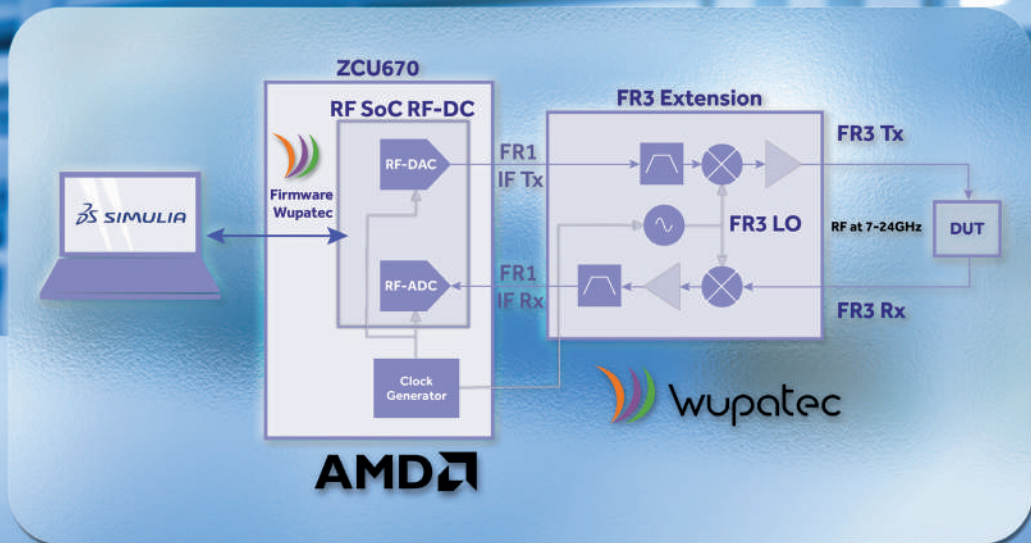


#### **IVCAD Suite (Dassault Systèmes)**

Measurement environment,  
automation, calibration, and  
instrument control.

 **SIMULIA**





Module / Item	Provided by	Description
RFSoc board (ZCU670)	Wupatec / Customer / AMD	Base RFSoc evaluation board
Wupatec Firmware Package	Wupatec	Real-time DPD, RF signal chain, control logic, and interfaces to IVCAD Suite
FR3 Extension Board	Wupatec	Up/down-conversion to operate in FR3
IVCAD Suite License	Dassault Systèmes	Measurement automation, PA test suites, and DPD



- ✓ A complete, ready-to-use FR3 measurement bench
- ✓ Real-time DPD + full Power Amplifier test
- ✓ A single software environment (IVCAD Suite) for everything
- ✓ A clear procurement path and modular setup
- ✓ Ideal for:
  - Power Amplifier R&D (GaN, FR3)
  - DPD algorithm validation
  - FR3 waveform prototyping
  - Early-stage hardware evaluations
  - System/antenna integration experiment



# 1

## Wupatec Firmware (on RFSoc) Core Features

- **Real-time Digital Predistortion (DPD)** using AMD IP Wideband signal generation (IQ) compatible with FR3 up-conversion
- **Live selection of the central frequency**
- **Easy sampling rate configuration** (standard and high sampling rates available from the RFSoc)
- **High-speed DAC & ADC configuration**
- **Direct link to IVCAD Suite** for:
  - Waveform playback
  - Measurement capture
  - Closed-loop DPD testing

# 2

## IVCAD Suite: Measurement & Control Software

### Measurements enabled by IVCAD Suite

- **1-tone CW & pulsed measurements**  
Gain, P1dB, AM/AM, AM/PM, thermal behaviour
- **2-tone measurements**  
Video bandwidth, IMD, memory effects
- **Waveform testing (IQ)**  
5G NR, custom modulations, radar waveforms
- **DPD evaluation**  
Compare hardware DPD (Wupatec) vs. Software
- **Bias sequencing**
- **Calibrated power measurements**
- **Complete instrument control**  
Signal generators, power meters, supplies, attenuators

# 3

## Wupatec FR3 Extension Board

### Key features:

- **Up-conversion** and **down-conversion** from RFSoc base frequency to FR3 band (7.125–24.25 GHz)
- **High-linearity RF chain suitable for power amplifier testing**
- **Support for wideband modulation** (5G NR, radar, custom signals)
- **Compact form factor** compatible with standard RFSoc eval kits



[www.wupatec.com](http://www.wupatec.com)