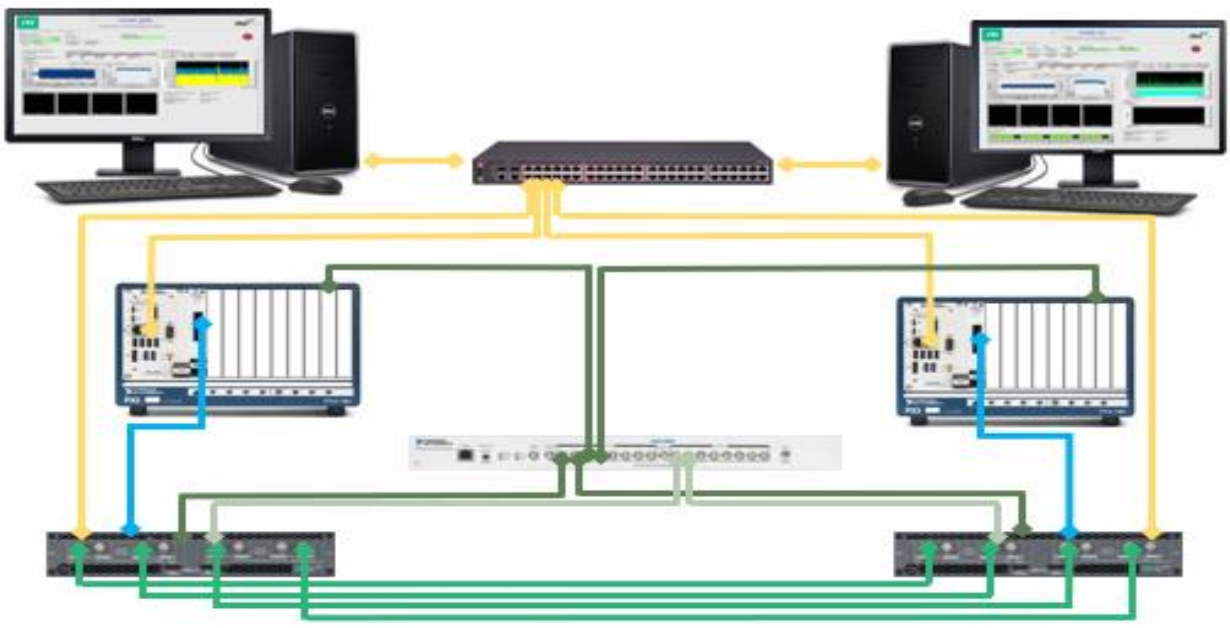
5G/6G MIMO research using LabVIEW and USRP X410

MIMO (Multiple-Input Multiple-Output), as an important direction for the evolution of 5G/6G technology in the future, is expected to play an important role in future mobile communications. For example, it provides higher data transmission rates, better coverage and link stability, improves spectral efficiency, reduces communication delays, and provides better anti-interference capabilities.

To accelerate the evolution of 5G/6G MIMO technology, NI has launched an end-to-end system solution based on LabVIEW and USRP X410, which supports real-time video data transmission, 100 MHz bandwidth, and 4x4 MIMO and other powerful functions.

MIMO system hardware composition



Core support features

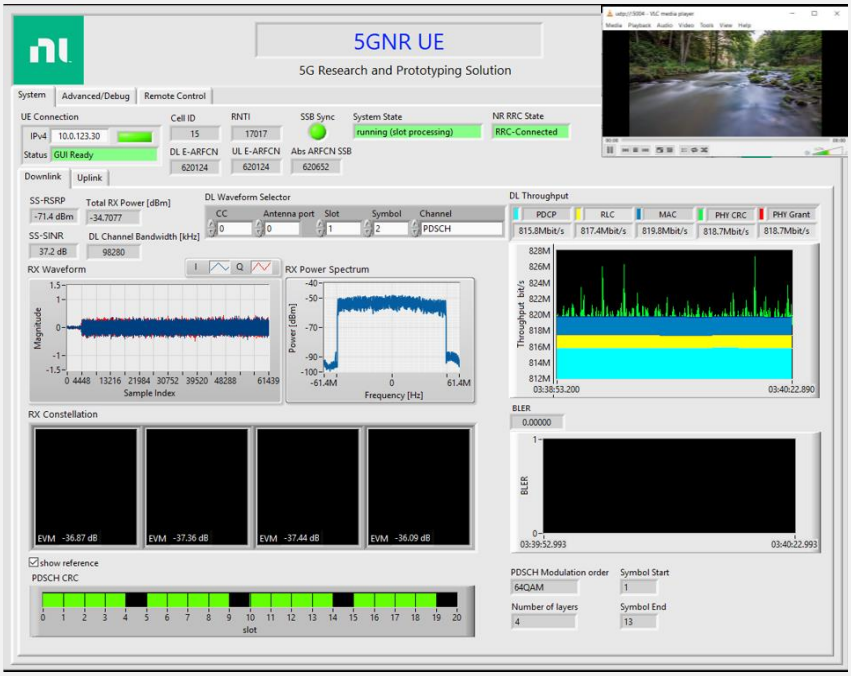
Supports real-time video transmission between gNB and UE

Supports 100MHz bandwidth and 30kHz subcarrier spacing

5G NR signal generation and analysis with 4x4 MIMO

System core specification

Specification	
Frequency	FR1
Bandwidth	100MHz
Subcarrier spacing	30 kHz SCS
Modulation mode	64QAM
Mode of transmission	OFDM (downlink only)
MIMO	4x4
Channel	PDSCH
Transmission Function	• 5G NR transmit waveform • Video Streaming
Receive function	• Equalized Constellation • Spectrum • EVM • Video Streaming
Software	• LabVIEW 2020 • LabVIEW FPGA 2020 • LabVIEW RT 2020



User Interface (UE)

More Information

https://www.ni.com/en/solutions/electronics/5g-6g-wireless-research-prototyping.html

NI
11500 N Mopac Expwy
Austin, TX 78759-3504
(888) 280-7645