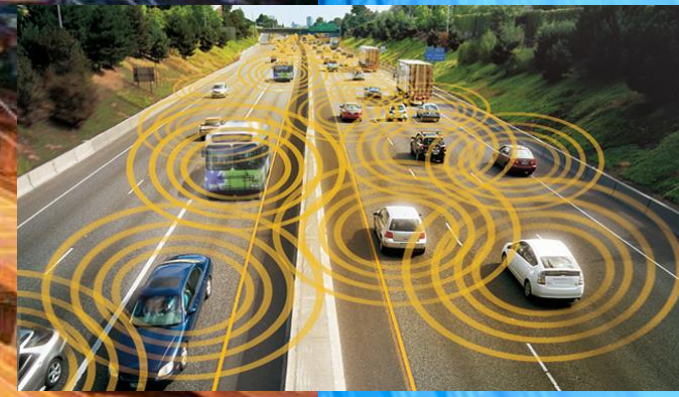


# RunEL- Revolutionizing



Drones Communication



Connected Cars

# RunEL Vision and Mission



**VISION-** IMPROVE LIFE EXPERIENCE BY  
CONNECTING PEOPLE AND THINGS  
USING SUPERIOR TECHNOLOGY

**MISSION-** INTRODUCE THE REVOLUTIONARY **Sparq-2020** CHIPSET  
FOR 5G INFRASTRUCTURE THAT WILL BECOME A SIGNIFICANT  
PLAYER IN ULTRA RELIABLE LOW LATENCY COMMUNICATION  
(URLLC)

# 5G Market needs



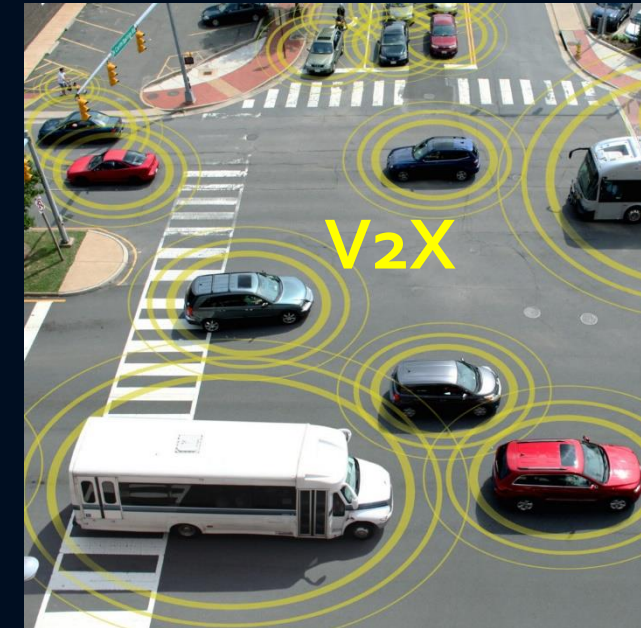
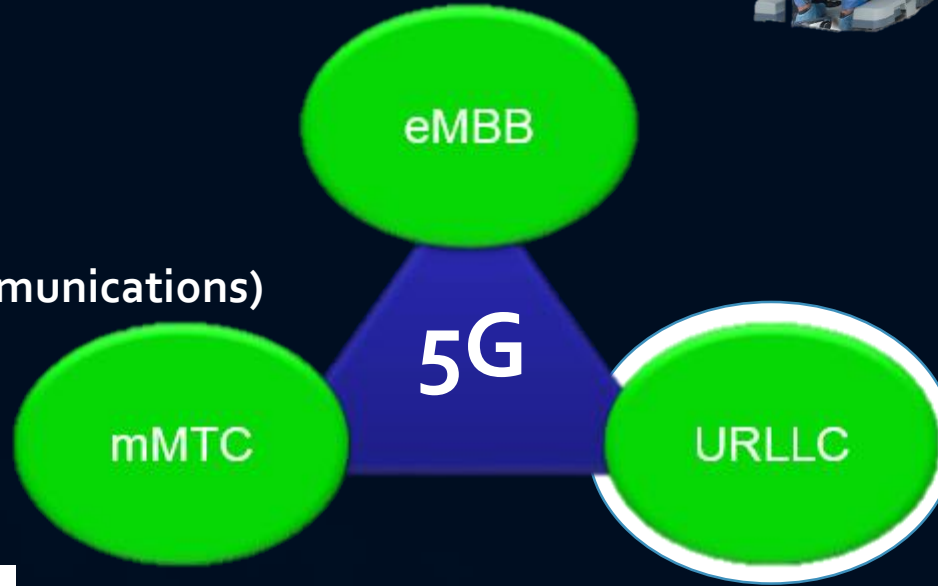
eMBB (Enhanced Mobile Broadband)

- High Throughput > 10Gbps to user
- High Spectral Efficiency

Remote Surgery



Drones Communications



mMTC (massive Machine Type Communications)

- Improved link budget (range)
- Long Battery life
- High Density Device Deployment



URLLC (Ultra Reliable Low Latency Communications)

- High Reliability ( Low Packet Error Rate)
- Low Latency < 1msec

# RunEL Offering

## RUNEL IS INTRODUCING THE **Sparq-2020** SoC

- 5G 3GPP STANDARD COMPLIANT (REL-15)
- INCLUDES 5G PHY AND MAC ( LAYERS 1 , 2)
- OPTIMIZED FOR URLLC – INCLUDING **"Sparq-Minislots<sup>®</sup>"** AND INTEGRATED MOBILE EDGE COMPUTING (**"I-MEC"**)
- FPGA BASED ( 16 NM TECHNOLOGY)
- MAIN FEATURES:
  - 3 x 200 MHz BW
  - > 10 Gbps Capacity ( with carrier aggregation)
  - Latency < 0.5 msec
  - MU-MIMO; Beam Forming, CoMP

Innovative new technologies that enable instantaneous response to fast events while maintaining network performance



# RunEL Competitive Advantages

FIRST IN THE MARKET WITH 5G COMPLIANT SYSTEM ON CHIP FOR NR (NEW RADIO), RRH AND SRRH

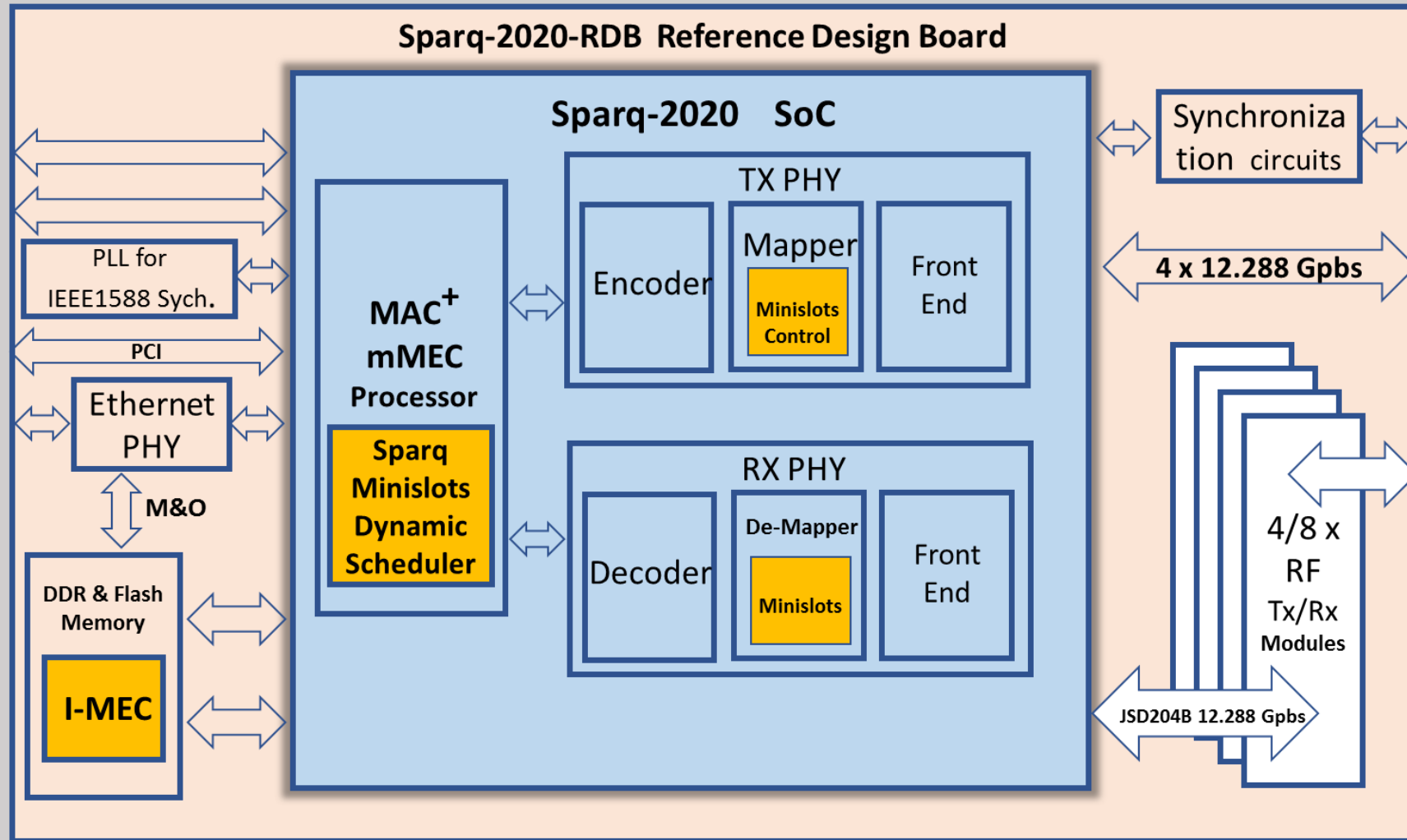


- ENABLES 5G EQUIPMENT VENDORS A FAST AND SMOOTH TIME TO MARKET
- OUTSTANDING PERFORMANCE
- ALLOWS VENDOR CUSTOMIZATION AND DIFFERENTIATION

OPTIMIZED FOR V<sub>2</sub>X, CONNECTED CARS, DRONES, ETC. (URLLC)



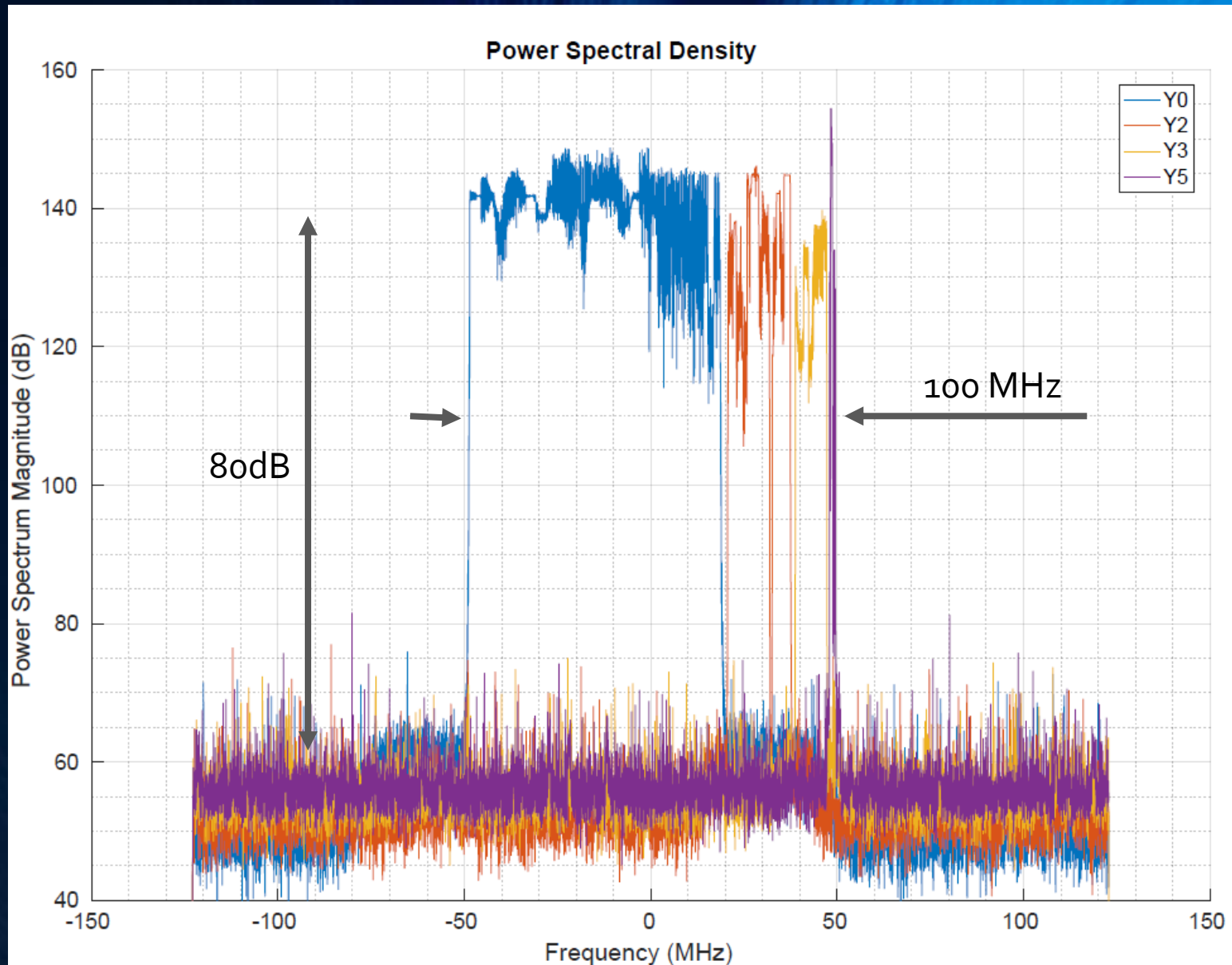
# Sparq-2020 Block diagram



Sparq-2020-RDB

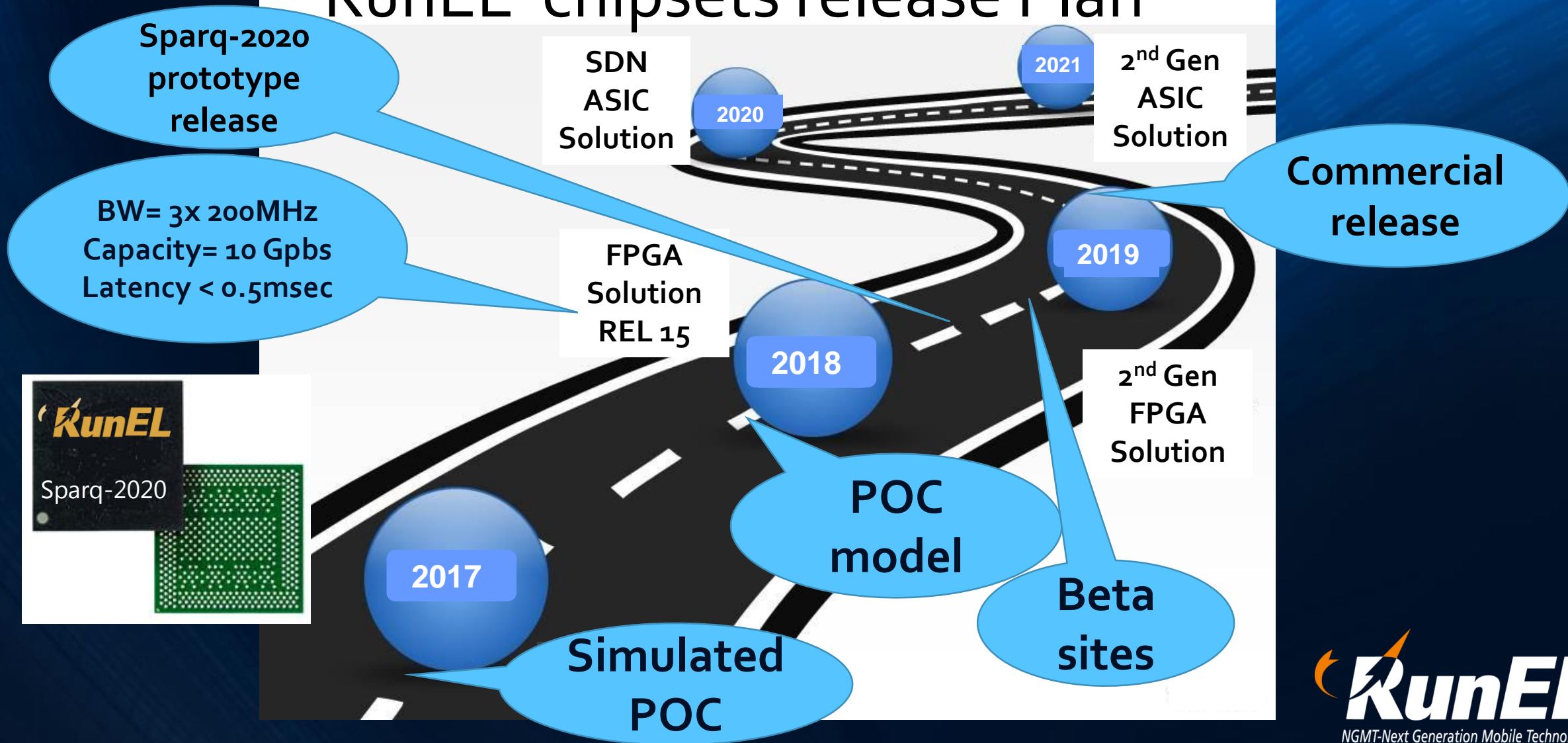


# Some Outstanding current Results



# Solution Roadmap

## RunEL chipsets release Plan





# The RunEL Team

THE TEAM IS BASED ON EXPERIENCED RESEARCHERS, LEADED BY DR. ZION HADAD, OFDMA TECHNOLOGY INVENTOR WHICH BECAME THE BASIS FOR THE 4G NETWORKS (LTE AND WIMAX) DEPLOYED TODAY.



# RunEL is a partner in HERON Consortia 2016-2019

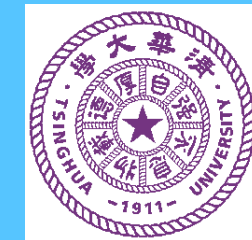
For 5G and beyond Next Generation

Heron focus is on 5G and beyond research, aiming at innovative solutions and contributions to the world wireless community



# RunEL Collaboration- IoRL

## Internet of Radio-Light in Buildings – 5GPPP



# Looking for Strategic Partners

**RUNEL IS WISHING TO COLLABORATE WITH:**

- 5G EQUIPMENT VENDORS (NR, RRH, SRRH, BTS, AP)
- 5G MAC SW DEVELOPERS
- 5G OPERATORS FOR BETA SITES
- MM WAVE ANTENNA DEVELOPERS
- 5G VERTICAL MARKETS (V2X, IOT, ETC.)



# Thank you

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