



*SCALING AT THE
EDGE*

Pegatron 5G
Private Network
Solution - Digital
Resilience

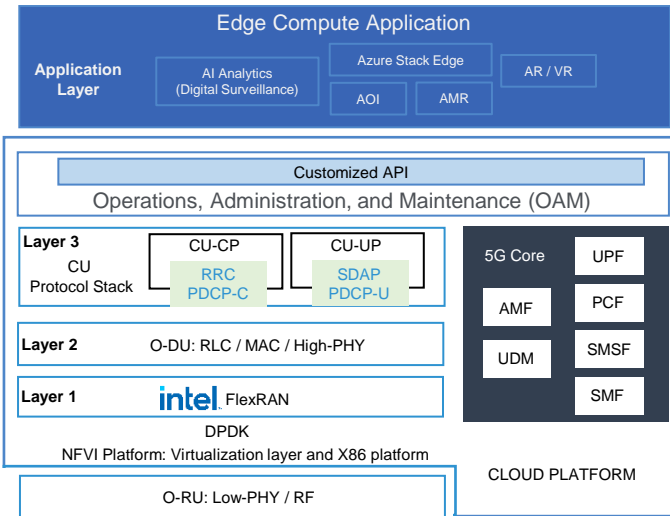


Victor Shar

Private Network Management, Pegatron Corporation

Pegatron Private 5G Network Solution Brief

Pegatron private 5G network solution contains 5G-SA O-RAN based gNodeB plus 5G core system. Pegatron's 5G solutions are cloud-native platforms running on Intel® FlexRAN™ technology to provide the maximum computing power in a highly reliable mobile private network system. Deploying Network Function Virtualization Infrastructure (NFVI) in O-RAN based cloud provides enhanced high availability and further provides flexible, fast, and customizable services. The backhaul external network can be connected to leased lines by ISPs or orbital satellites for internet connection so it's quick and easily to setup a 5G private network to provide on demand broadband network anywhere, based on your use case for Digital Resilience applications. Applications can cover digital transformation for smart factories, public transportation, public safety, IT systems, corporate data security, etc.



- 3rd party applications
- 5G Core Solution Partner
- Pegatron 5G RAN Stack
- Pegatron Customized API

Pegatron Private 5G Network Solution Software Stack

FEATURES

Band Support	FR1: n78, n79, N48 [2023Q1]
Modulation	256QAM (DL), 64QAM (UL)
Ant. MIMO	4T4R, DL 4 Layers, UL 2 Layers
Profile	■ DL Centric 7:3, 4:1 ■ UL Centric 2:3
GPS Grand Master	■ 1588v2 PTP protocol support ■ PTP to sync-E and sync-E to PTP conversion
OAM	1. System Configuration 2. UE management with list usage & QoS profile 3. Network slicing management 4. Northbound interface for higher level management
5G Core (Optional)	Option 1: Druid Raemis 5GC™ Option 2: Saviah 5GC

Radio Unit (RU)

HW: PR1400 Series 4T4R RU, Intel® Arria® 10 FPGA platform

gNodeB Unit (DU, CU)

HW: PG5100 Series computing platform with Intel® Xeon® Scalable Gold processor, ACC100 FEC acceleration card

SW: Pegatron 5G RAN w/ Pegatron RAN portal Intel® FlexRAN™ architecture.

5G Core (Optional)

HW: PG5100 Series computing platform with Intel® Xeon® Scalable Gold processor, same hardware unit with gNodeB.

SW: Druid 5G Core or Saviah 5G Core.

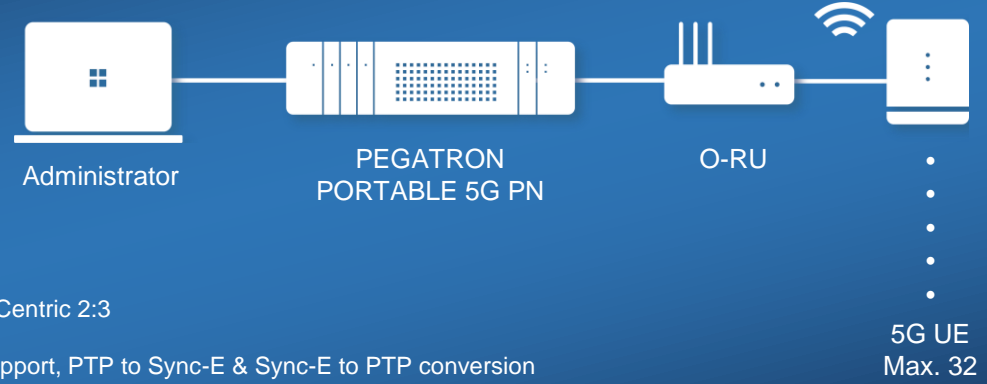


Intel, the Intel logo, Xeon, Arria, and FlexRAN are trademarks of Intel Corporation or its subsidiaries.



Pegatron Private 5G Network Product

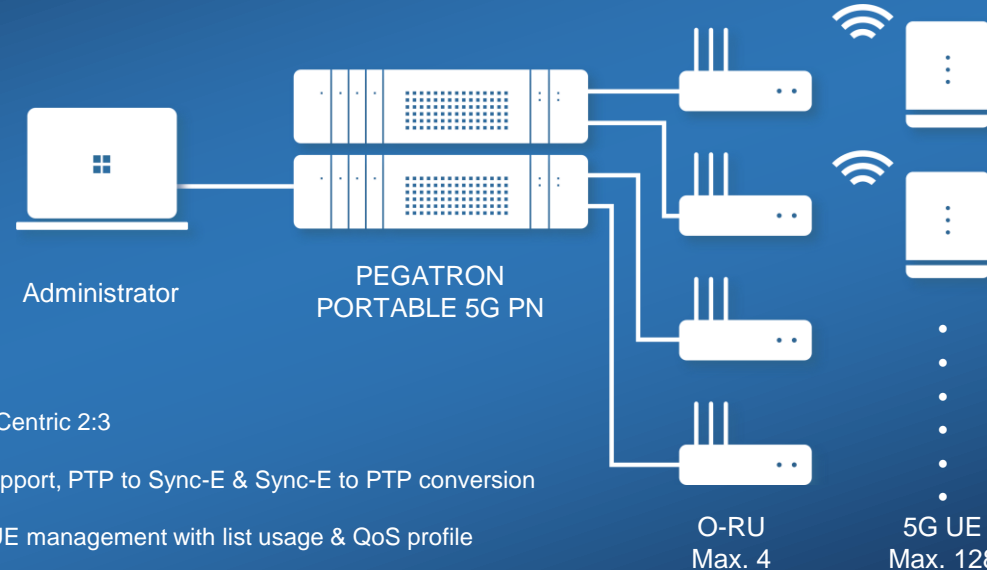
5G Portable



- **Standard**
3GPP Rel.15, Protocol: O-RAN/3GPP
- **Radio Band**
n78, n79, n48* (2023Q1), Bandwidth up to 100MHz
- **Modulation**
256QAM (DL), 64QAM (UL)
- **Ant. MIMO**
4T4R, DL 4 Layers, UL 2 Layers

- **Profile**
DL Centric 7:3, 4:1, UL Centric 2:3
- **GPS Grandmaster**
1588v2 PTP protocol support, PTP to Sync-E & Sync-E to PTP conversion
- **OAM**
System Configuration, UE management with list usage & QoS profile
- **Connectivity**
Active UE from 32 users per cell, able to scale up to 128 users per cell and RU/Cell support up to 4 RUs

5G Premium



- **Standard**
3GPP Rel.15, Protocol: O-RAN/3GPP
- **Radio Band**
n78, n79, n48* (2023Q1), Bandwidth up to 100MHz
- **Modulation**
256QAM (DL), 64QAM (UL)
- **Ant. MIMO**
4T4R, DL 4 Layers, UL 2 Layers

- **Profile**
DL Centric 7:3, 4:1, UL Centric 2:3
- **GPS Grandmaster**
1588v2 PTP protocol support, PTP to Sync-E & Sync-E to PTP conversion
- **OAM**
System Configuration, UE management with list usage & QoS profile
- **Connectivity**
Active UE from 32 users up to 128 users per cell, RU/Cell support up to 4 RUs
- **Edge Computing**
Optional RTX3080 or A40 GPU Card
Support Kubernetes, 3rd party IoT Edge and Vision on Edge platforms



Flexible

- Deploying Network Function Virtualization Infrastructure (NFVI) in O-RAN based cloud
- Enhances high availability and further provide flexible, fast, and customizable services for various 5G applications.



Integrated

- Integrated 5G RAN and 5G Core into an All-in-One Intel x86 Server to deliver high-speed throughput and low latency communications for rapid deployment of advanced 5G applications which reduces deployment costs.
- Provides northbound interface and customized API service for higher level system integration with customer's management system and 5G application solutions.



Easy Setup

- Contains Pegatron RAN Portal webGUI management for system operations, administration, and maintenance.
- Provide configurable profile to adjust uplink and downlink throughput for different 5G application deployment cases.



Portable

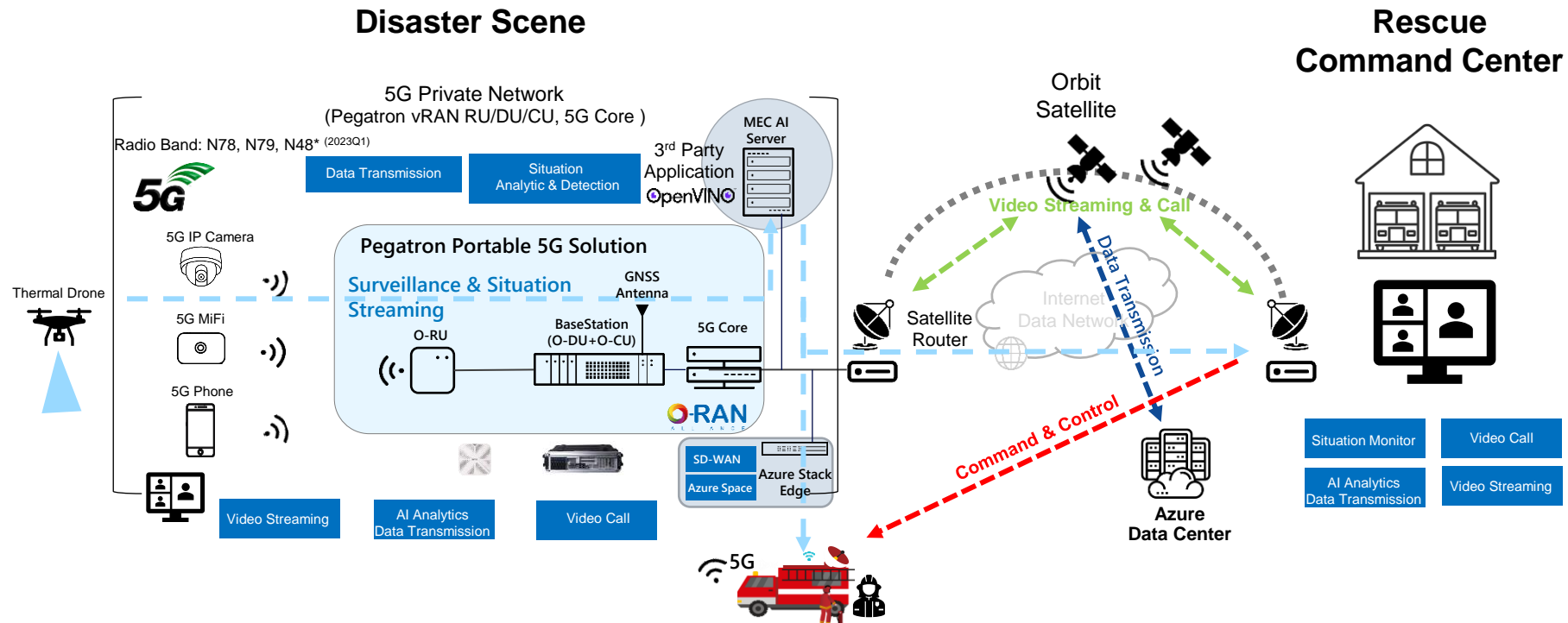
- 19" lightweight luggage suitcase that is easy to transport and deploy anywhere. (Model: Portable)

Challenge / Industry Pain-point

- Large-scale power, telecommunications, and sub-marine cable interruptions caused by devastating disasters or regional conflicts
- Firstline responders cannot communicate or report the status to the command center
- Traditional satellite phones can only provide voice communications, but not able to support video conversations, data transfer, real-time video transmissions, and multi-person instant meetings

Solution Description

- Integrate 5G ORAN base station and orbit satellite communications
- Emergency contact for devastating disasters and regional conflicts
- Non-interruption for IoT data link and disaster relief communications
- Disaster response for semiconductor global core supply chain in Taiwan
- Urgent message delivery for government and national security



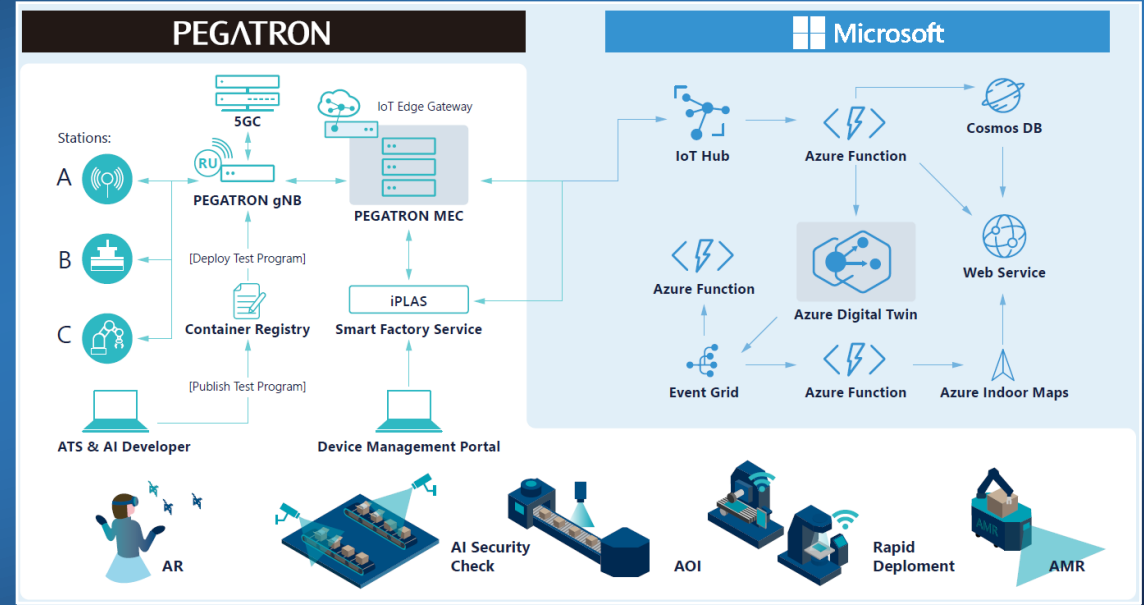


Smart Factory

In the control center, rapid deployment of lines are continuously made and updated using wireless 5G connectivity which standardizes test stations with edge computing on MEC servers.

On the factory floor, Autonomous Mobile Robots (AMR) move materials to limit human resources for repetitive tasks.

On production lines, Automated Optical Inspections (AOI) and Visual AI with continuous AI improvement on the Edge to improve accuracy. On the side, technicians use AR/VR to receive remote assistant to make repairs and discuss projects by remote collaboration anywhere.



Transportation

5G Private Network deployed in transportation uses DAS to extend 5G signals in tunnels and using Fast Fading technology for fast handover between the remote radio units.

This allows 4K IP cameras over 5G Private Network to provide high upload throughput for AI computing on edge computing servers to provide real time monitoring of physical conditions and the status of security controls in the transportation system.

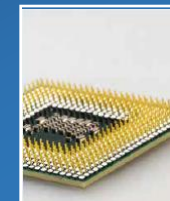


Emergency

A highly reliable mobile orbital satellite 5G disaster relief network system. The mobile 5G base station uses orbital satellite communications as a backhaul network to connect to the Internet and to global data centers.



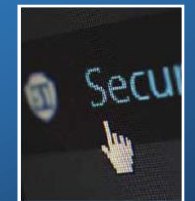
Emergency
communications for
major disasters and
regional conflicts



Disaster response
for global
semiconductor supply
chains



Non-interruption
for IOT data link
and core disaster
relief



Urgent message
delivery for
government and
national security



Learn more

PEGATRON Private 5G Networks

[Learn more by email](mailto:pegatron5g@pegatroncorp.com), pegatron5g@pegatroncorp.com

About PEGATRON Corporation

PEGATRON was founded on January 1, 2008. With abundant product development experience and vertically integrated manufacturing, we are committed to providing clients with innovative design, systematic production and manufacturing service in order to comprehensively and efficiently satisfy all of our customers' needs. PEGATRON features a solid R&D team, friendly, fast service quality as well as a high degree of employee cohesion. Furthermore, we have combined EMS and ODM industries to become an emerging Design and Manufacturing Service (DMS) company. Consequently, we are able to offer industry-leading, state-of-the-art products and profitable business opportunities for our partners.

pegatroncorp.com

Legal Notices and Disclaimers

Performance varies by use, configuration and other factors. Learn more at www.Intel.com/PerformanceIndex.

Performance results are based on testing as of dates shown in configurations and may not reflect all publicly available security updates. See backup for configuration details.

No product or component can be absolutely secure.

Your costs and results may vary.

Intel technologies may require enabled hardware, software or service activation.

© Intel Corporation. Intel, the Intel logo, and other Intel marks are trademarks of Intel Corporation or its subsidiaries. Other names and brands may be claimed as the property of others.