

# kontron

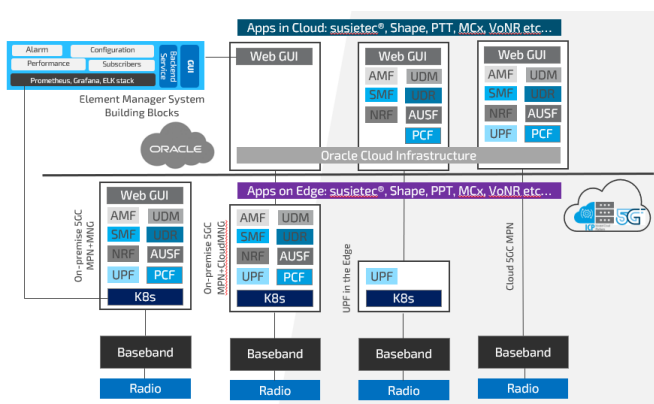
## Kontron 5G Premium

Empowering the industry with carrier grade 5G wireless solution

The next generation 5G network architecture is opening a window of opportunity for enterprises to leave behind legacy architectures and to redesign the services that they are practising for many years, but also give industry vertical fact track to digitalization. A 5G network brings benefits for digital transformation, it is an enabler for delivering more innovative, with better security, and with lower cost services. Coverage and latency are key factors when dealing with advanced services implementations that require real-time communication which are demanding latency within 10ms.

Kontron 5G is an internal development SA version Release 16 compliant solution which includes all fundamental Network Functions from Control Plane and User Plane perspective. The solution is cloud-native mobile 5G core and it is hardware agnostic which means it can be deployed on any cloud – private, public or hybrid, centralized or edge, with an optimized performance footprint for any deployment model. 5G Standalone (5G SA) ensures unprecedented levels of automation across an end-to-end network to fulfil the needs of new services and applications.

Engine. Single server deployment on Kontron 5G SA Core is the optimal solution for quick start to digitalization through introduction of carrier grade wireless solution.



The whole solution aside from the high performance single servers designed to meet the demands of 5G technology is equipped also with switch witch seamlessly connects and manages your 5G network, ensuring optimal network performance and scalability. Finally, the setup includes multiple small cells strategically placed throughout your facility to extend the 5G coverage, allowing you to reach every corner of your area.

5G Standalone (5G SA) revolutionizes network automation, perfectly aligning with the requirements of emerging services and applications. Our 5G Core solution combines flexibility, programmability, and distributed architecture, empowering rapid time-to-market acceleration while achieving peak performance and efficiency. This advanced 5G Core operates on a security-hardened Ubuntu OS and leverages container-based virtualization, orchestrated by Kubernetes

The 5G Premium variant consist of one arbiter server and two compute nodes as part of Kubernetes cluster which is responsible for the seamless redundancy and resilience of the whole solution. In order to ensure full blown high availability, the solution is equipped with two switched. Our solution offers a user-friendly and intuitive web-based GUI with comprehensive

dashboard for effortlessly monitoring and configuration, giving full visibility and control over your 5G network. Aside for the 5G Core, Kontron as part of the portfolio has developed its own 5G RAN which can be offer as turn key end-to-end Private 5G solution. But also, we have rich experience and expertise in successful interoperability testing with various RAN

partners and if requested by customer we support and encourages the 'Bring Your Own RAN' (BYORAN) option, in alignment with 3GPP. Furthermore, our portfolio extends with variety of 5G devices and wide range of applications, including routers, gateways, cameras, and sensors.

## KEY FEATURES AND BENEFITS

- **Coverage** and **Mobility** are the most apparent use cases. 5G guaranties that the enterprise's campus area, both indoors and outdoors are covered, through a dedicated spectrum, even in remote locations.
- **Security** 5G MPNs offers high levels of security as 3GPP standards compliant, and the private nature of this solution ensures that all data will stays on the campus area.
- **Capacity** is an essential feature, as a private network removes any contention with other network users, making it possible to guarantee network performance, such as uplink and downlink bit rates and latency.
- **Control** Private Networks are enabling enterprises to determine and control how resources are utilized, and how traffic is prioritized, including optimize reliability and latency, and security.
- **Reliability** is assured as private networks are based on 5G technology, which offers performance and enables applications that cannot be accommodated by Wi-Fi, such as mission-critical services and ultra-high-video.
- **Predictability and low latency** are another important feature. It is a must requirement for many IoT applications that rely on timebound communications, where delays can result in a catastrophic failure.

## Technical Data

### 5G Core - Control Plane Function

- 3GPP R15/R16 Standards compliant
- Service Based Architecture (SBA): AMF, SMF, UDM, UDR, AUSF, NRF and PCF
- AMF Access and Mobility Management Function
- SMF Session Management Function
- UDM Unified Data Management
- UDR Unified Data Repository
- AUSF Authentication Server Function
- NRF Network Repository Function
- PCF Policy Control Function

### 5G Core - User Plane Function

- UPF – general purpose User Plane Function HW agnostic
- DPDK-UPF – high performance UPF with acceleration
- Edge-UPF – distributed UPF on customer premisses

### 5G Core Key Functionalities

- Registration Management
  - Registration, Deregistration (UE, Network)
- Connection Management
  - UE triggered, Network triggered (Paging), AN Release
- Mobility Management
  - Xn based HO
- Security
- SBA architecture; Release 16
  - Using NRF
  - NF Service discovery and selection
- High Availability
- Specific use cases
  - Subscribed UE data manipulation
  - RAT restriction
  - Reregistration required
  - Subscription withdrawn
  - Framed Routing Support

### 5G Premium HA Configuration

- 1 × Server Arbiter
  - Processing: Intel Xeon-Silver 4310 2.1GHz 12-core
  - Memory: 64 GB
  - Network: 4 × 1 Gbps + 4 × 10 Gbps (Intel E810)
  - Storage: 2 × 960 GB SATA SSD RAID
  - Power: 2 × 230V Power Supply Kit
- 2 × Server Compute
  - Processing: Intel Xeon-Silver 4310 2.1GHz 12-core
  - Memory: 64 GB
  - Network: 4 × 1 Gbps + 4 × 10 Gbps (Intel E810)
  - Storage: 2 × 960 GB SATA SSD RAID
  - Power: 2 × 230V Power Supply Kit
- 2 × Switch
  - 20 × 1 G/10 G + SFP 4 × 10 G/25 G + SFP28 2 × 40 G QSFP+ ports available
- 5G Indoor and Outdoor Small Cell
  - N78 band (others on request)
  - 2x2 MIMO (others on request)
- Num. of users: Up to 10000

### 5G Core Element Manager

- Intuitive Web based system which provides Fault and Performance management
- Dashboard with main KPIs, statuses and statistics
- Network Function provisioning and manipulation
- Subscriber provisioning and configuration
- Network exporters and Monitoring
- Backup and Restore
- Alerting
- Logging
- SSO

Some features are hardware dependent.  
Some features might not be included in dedicated software releases.



**kontron**

Kontron, d. o. o.

Ljubljanska cesta 24 a  
SI 4000 Kranj, Slovenia

P +386 4 207 20 00  
F +386 4 207 27 12

info.slovenia@kontron.com  
www.kontron-slovenia.com

