

# Silicom Time Synchronization (STS) Solution

### **Red Hat Software Partner**

# **1588 and SyncE Time Synchronization**



# **Executive summary**

Silicom, an IT solutions provider for Telecom and Datacenters has developed a time synchronization solution to support Open RAN. The uniqueness of this platform is the simplicity of its building blocks and its ability to provide a carrier grade time synchronization solution for Fronthaul, Midhaul and Backhaul RAN deployments.

"Silicom Time Sync Technology (STS) is designed to enable support for all time synchronization configurations (LLS C1, C2, and C3). With STS, vRAN vendors can transform any standard platform to an Open RAN DU and CU, meeting the real-time processing needs of 5G with carrier grade software."

> Oren Benisty EVP Sales and Marketing



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Silicom integrated its Time Sync Solution as a Certified Operator with <u>Red Hat OpenShift Container</u> <u>Platform</u>, easing installation and management of the solution at scale.

# **Product profile**

Silicom Time Synchronization is a NIC platform based on the Intel® E810 Ethernet Controller and implemented as a PCIe add-in card code-named STS – Silicom Time Synchronization. Four primary versions are offered to address customer requirements for different (Lower Layer Split) LLS configurations. STS major building blocks to support LLS C1, C2 and C3 timing configuration, which includes:

- DPLL, Microchip DPLL
- GNSS Receiver, Ublox
- Ethernet PHY,
- Broadcom Supporting 1GbE and 10GbE
- Broadcom Supporting 10GbE, 25GbE and 100GbE
- OCXO, Vectron
- uController M4 cortex ARM



"Developers and architects looking to build new applications in, and for the cloud, or migrate existing applications to a cloud-based infrastructure, partner with Red Hat to develop and deliver more supportable solutions sooner. **Red Hat certification** assures a supportable platform for all types of customer deployment models. Red Hat is thrilled to work with software partners like, Silicom, resulting in the world's largest open, and commercially supportable application ecosystem."

> Mike Werner Sr. Director, Global Technology

Partner Ecosystems Red Hat

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# Resources

STS1 STS2 STS3

STS4 Silicom Sales

VP Sales

Company: Silicom Ltd.

Learn more

Email: contact@silicom.info

https://www.silicom-usa.com

## **About Silicom**

Silicom Ltd. is an industry-leading provider of high-performance networking and data infrastructure solutions. Designed primarily to improve performance and efficiency in Cloud and Data Center environments, Silicom's solutions increase throughput, decrease latency and boost the performance of servers and networking appliances, the infrastructure backbone that enables advanced Cloud architectures and leading technologies like NFV, SD-WAN, 5G and Cyber Security.

## **About Red Hat**

Red Hat is the world's leading provider of enterprise open source software solutions, using a community-powered approach to deliver reliable and high-performing Linux, hybrid cloud, container, and Kubernetes technologies. Red Hat helps customers integrate new and existing IT applications, develop cloud-native applications, standardize on our industry-leading operating system, and automate, secure, and manage complex environments. Award-winning support, training, and consulting services make Red Hat a trusted adviser to the Fortune 500. As a strategic partner to cloud providers, system integrators, application vendors, customers, and open source communities, Red Hat can help organizations prepare for the digital future.



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### **Use cases**

- LLS C1 and C2
- vCSR virtual Cell Site Router

LLS Synchronization is critical in 5G networks and more importantly in the fronthaul design. The O-RAN alliance has defined four types of S- Plane (Synchronization Plane) configuration modes for timing distribution in the RAN infrastructure. The S-Plane configuration modes are specified in O-RAN Control, User and Synchronization Plane Specification (O-RAN.WG4.CUS.O-v05.00) and mainly addresses sync plane configuration between O-RU and O-DU. These configuration modes are known as follows:

- Configuration LLS-C1 (LLS-C1): This configuration specifies network timing distribution from O-DU to O-RU via point-to-point topology between central site and remote site.
- Configuration LLS-C2 (LLS-C2): In this configuration, one or more ethernet switches are allowed for network timing distribution from O-DU to O-RU between central sites and remote sites. The interconnection among switches and fabric topology (for example mesh, ring, tree, spur etc.) are out of scope of this configuration and subject to deployment decisions.



