Embedded 5G Module for CSG700 and CSG1000 Platforms

Versa CSG700 and CSG1000 series appliances can be equipped with factory-installed (internal) enterprise-grade 5G modules that deliver the highest level of performance. Versa's 5G module supports FR1, aka sub-6, mode of operation and associated frequencies to provide a consistent, flexible, and optimized WAN connection. Versa CSG's 5G Module-based WAN links have the flexibility to be leveraged as both a primary link or a backup link. As with all the components of Versa's portfolio of solutions, the embedded 5G Module functionality is centrally managed and controlled by Versa Director with network and device analytics provided through Versa Analytics.

The Versa Wireless Advantage

The integrated global sub-6 5G module is based on industry-leading, latest 5G chipset used in commercial and enterprise applications today. The global 5G module, when integrated with CSG700 and CSG1000 series appliances, provides unique advantages of performance, deployment flexibility, and agility.

5G Module Overview

The integrated 5G Module for Versa CSG700 and CSG1000 series platforms is capable of supporting FR1/sub-6 5G based high performance connectivity to facilitate high performance deployments.

Sub-6 Frequency

Versa's embedded sub-6 5G module offers market leading performance of up to 5 Gbps downlink performance and up to 650 Mbps uplink performance. Note: while these performance numbers are maximum performance numbers, performance numbers observed in real-life deployments will likely be less and performance will depend on a variety of factors including the carrier's network throughput, signal strength on a given location, available frequency bands, available level of carrier aggregation options, data plan, and other factors.

Support for SA and NSA Modes

Versa's 5G module supports 5G Stand-Alone (SA) mode and Non-Stand-Alone (NSA) modes of operation allowing our customers to continue utilizing 5G connections to support diverse set of 5G service providers and their 5G adoption plans as they may be going through different stages of 5G migration of their wireless network. This flexibility allows our customers to purchase 5G module once and be future proofed for expanded deployments of 5G networks and 5G network modes.

Flexibility of Connection

Versa's embedded sub-6 module is an intelligent device that supports sub-6 5G and LTE Pro Advanced CAT20 and lower modes of connection to provide flexibility of connection to our customers. Our customers can use a SIM card associated with a 5G data plan that will allow the Versa modem to scan the air for related sub-6 5G frequencies for connection. If these 5G frequencies are present, it will connect to that respective network. If the 5G frequencies are absent on a given location, then Versa will look for next set of high frequency bands, starting from CAT20 and continuing on to scan scan the air for best connectivity options to give highest performance.

SIM Card Option

Alternatively, our customers may choose to use a SIM card associated with an LTE data plan. In such a case, the Versa modem will connect to respective LTE bands. When leveraging an LTE data plan, our customers may choose to upgrade to 5G data plan later and when only after an upgrade will the Versa modem will connect to the 5G bands of the provider appropriately.

In NSA mode, our modem can aggregate up to 7 bands which can be a mix of 5G and LTE bands or only LTE bands to maximize connectivity performance.

Multi-Constellation

Versa's embedded 5G module comes with multi constellation global positioning support for GPS, GLOSNAS, Galileo, and BeiDou to help our customers pinpoint the location of their deployment with high degree of accuracy.

Private, Public, or Emergency

Versa 5G module can connect to public, private, or emergency 5G networks under the guidance of the data plan associated with the SIM card.

5G Based Smart Connectivity

Versa's software appliance operating system, VOS™, auto-recognizes 5G modems, auto-configures mobile interfaces, and leverages the high performance of the modem for data plane, management plane, and control plane functions (or any combinations of these), while uniquely identifying that the underlying medium is 5G.

VOS™ manages individual 5G interfaces based on specific deployment configurations as a primary WAN interface or as a backup WAN link that will only be activated upon failure or SLA-violation of SD-WAN traffic steering policies. All features (routing, SD-WAN, security) of VOS™ can be applied to leverage the 5G interface.

In addition to supporting fully featured services over 5G and managing traffic traversing the 5G interface, VOS™ also has the contextual intelligence of identifying the volume and rate of data and control traffic to ensure effective utilization of Advanced Pro LTE and 5G network resources. Examples of this intelligence and advanced control are LTE / 5G focused, dynamic SD-WAN probes, adaptive probing capabilities, and suppression.

SIM Cards Support

CSG700 and CSG1000 appliances come equipped with 2 nano-SIM card slots, while each SIM slot maps to a specific 5G or LTE module internally. If the unit is ordered with the 5G modem, the modem is installed in the factory on internal mobile slot #1 so the 5G SIM should be inserted on associated SIM slot #1. If the unit is ordered with one 5G and one LTE modem to facilitate concurrent connectivity to two separate providers over the air, then both SIM slots need to be populated, first SIM slot for 5G and then secondly with the SIM slot for LTE.

SIM cards are externally accessible as they are located behind the easily identifiable SIM slot doors. SIM slot doors are designed to ensure easy insertion or removal of SIM cards while ensuring security.

Versa CSG700 and CSG1000 units do not ship with SIM cards pre-installed. Customers will need to purchase SIM card(s) from their respective mobile provider. Versa recommends using pre-activated 5G SIM cards to ensure the most positive initial deployment experience.

Once inserted, SIM cards are auto detected by the platform and platform connects to the recognized 5G (or LTE-A Pro/LTE-A/LTE/4G/3G) network accordingly.

SIM cards can also be host-swapped thus enabling a fast and easy transition from one mobile network provider to another. Upon insertion of a new SIM card, CSG700 and CSG1000 appliance will auto-detect the new SIM card and connect to the corresponding mobile network.

Agility

The CSG700 or CSG1000 series appliances with the installed 5G module are certified to be operated across different geo-regions. Please refer to CSG700 and CSG1000 hardware documentation for more details.

Versa's embedded 5G module are firmware-based smart modems to allow updates to cover patches, introduce new features, and adopt to changes in carrier network deployments. Versa's embedded 5G module supports in-device (ie: CLI or GUI driven) or over

the air (OTA) upgrades to facilitate easy firmware updates.

Firmware-based operation allows Versa modems to connect to 5G, LTE-A Pro, LTE-A, LTE, 4G, and 3G networks with flexibility. Also, Versa allows for easy adoption of updates if/when needed by the carrier.

Versa's 5G module also supports security features such as Secure Boot for anti-tamper protection.

Frequency Bands

Please see the following supported mobile frequency band coverage in the *Specifications Table* below.

Specifications Table

Feature	Specs Summary
Modem	Sub-6 FR1 (3GPP Release 15) with CAT-20/CAT-18 LTE-A Pro, HSPA+ support
Regional	Global
5G Category	Sub-6, FR1
5G Bands (NSA & SA)	n1, n2, n3, n5, n7, n8, n12, n20, n25, n28, n38, n40, n41, n48, n66, n77, n78, n79
LTE Category	CAT20
LTE Bands (FDD&TDD combined)	B1, B2, B3, B4, B5, B6, B7, B8, B9, B12, B13, B14, B17, B18, B19, B20, B25, B26, B28, B29, B30, B32, B34, B38, B39, B40, B41, B42, B43, B46(LAA), B48, B66, B71
UMTS/WCDMA Bands	B1, B2, B3, B4, B5, B6, B8, B19
5G max speeds	DL: 5 Gbps, UL: 650 Mbps
LTE max speeds	DL: 2 Gbps, UL: 200 Mbps
Antenna	4x4 MIMO
LTE Carrier Aggregation	DL: Up to 7CC, UL: Up to 2CC
Secure boot	Y
Global Positioning	Multi constellation support w/GPS, GLOSNAS, Galileo, BeiDou
Tx Power	Up to 26 dBm

Ordering Information

CSG700 and CSG1000 units can be ordered with one factory installed 5G modem by itself or together with another LTE or WiFi AP module to give most flexibility of deployment for Versa customers. Versa provides clearly distinguishable SKUs to facilitate ease of ordering of desired combinations of platforms and associated wireless modules.

Versa 5G module is a global module that can be deployed across different regions around the world, also simplifying the ordering process by eliminating regional SKUs.

For further details, please refer to the Versa ordering guide.

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