JANUS REMOTE COMMUNICATIONS

Application Note 114

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Janus CF Plug-In Modems Migration Instructions

Overview

With the continual shut down of the 2G network over time until it is completely unavailable, many Janus CF users want to update to the newer technology. When doing so, the requirements and hardware differences of the newer units need to be taken into account to ensure compatibility with a customer's current system integration.

A summarized list of differences can be found in our comparison chart as well.

Contents:

Bulletin	JA01-AN114
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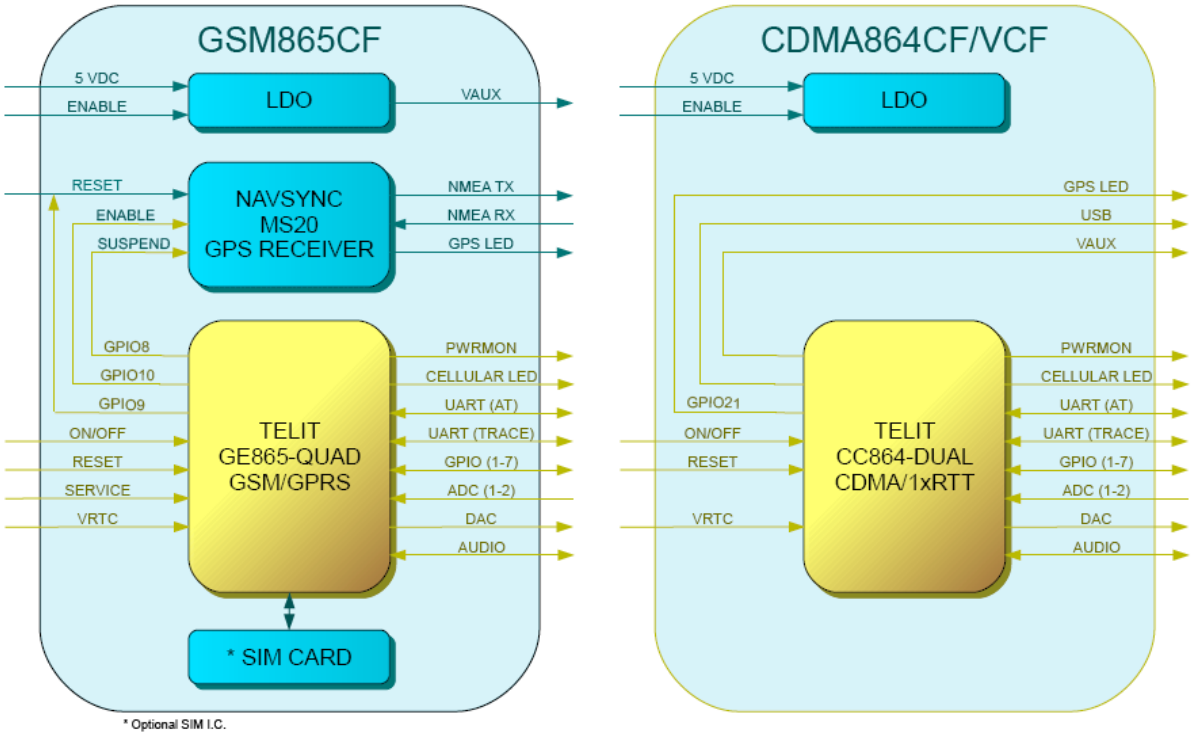
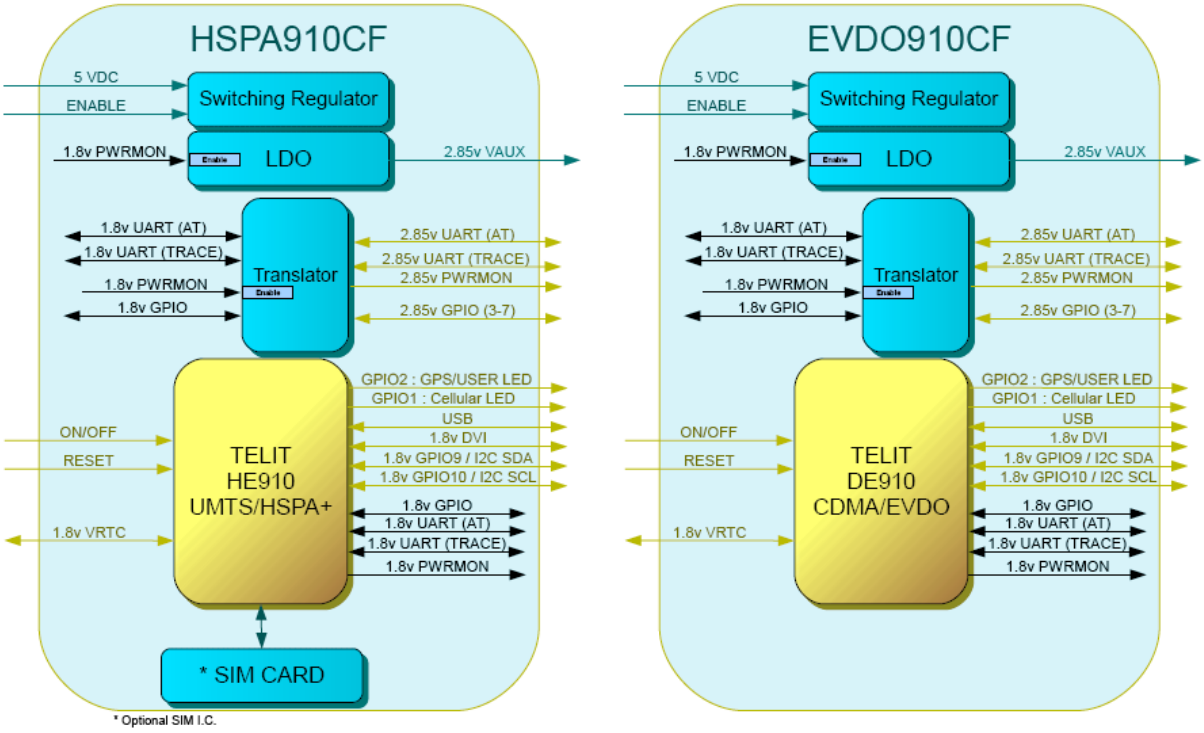
Module Topology

GSM/CDMA Technology



HSPA/EVDO Technology



The main differences and similarities can be referenced by the block diagrams alone. The GSM865CF and CDMA864CF modules have the same pinout, save for the GPS receiver on the GSM865CF which is a non-integrated receiver, the GPS LED, and the ability to use USB. Likewise, the HSPA910CF and EVDO910CF are mirrors of each other, save for the technology and SIM card holder requirement.

Signal Differences

When moving from the older units to the newer units, a few things need to be noted as different.

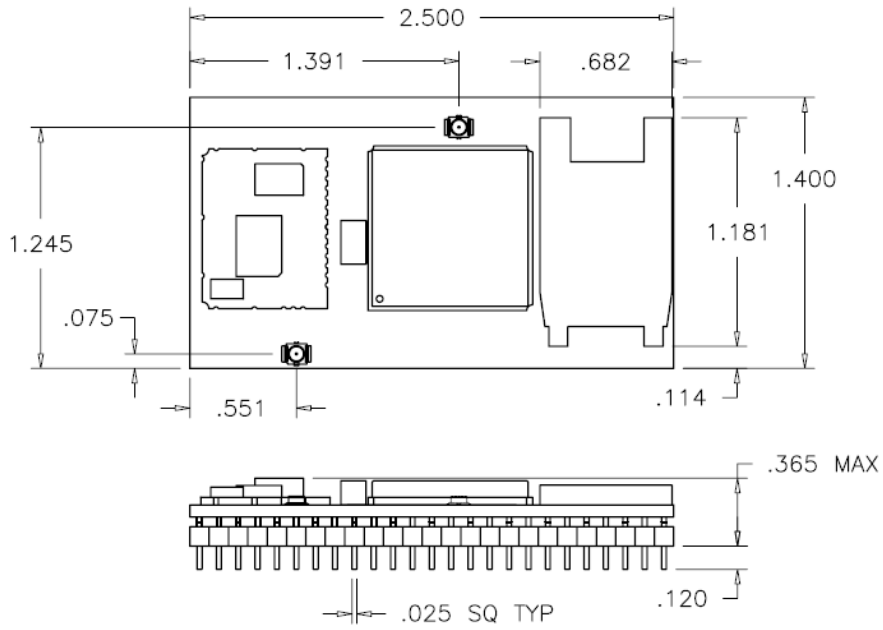
	GSM & CDMA	HSPA+, EV-DO, & LTE
GPIO Count	7 (1 thru 7)	5 (3 thru 7)
ADC Count	2	1
DAC Count	1	0
I2C Count	0	1
Audio Type	Analog	DVI

On the newer devices there are fewer GPIO and I/O options, which need to be taken into account when planning a migration.

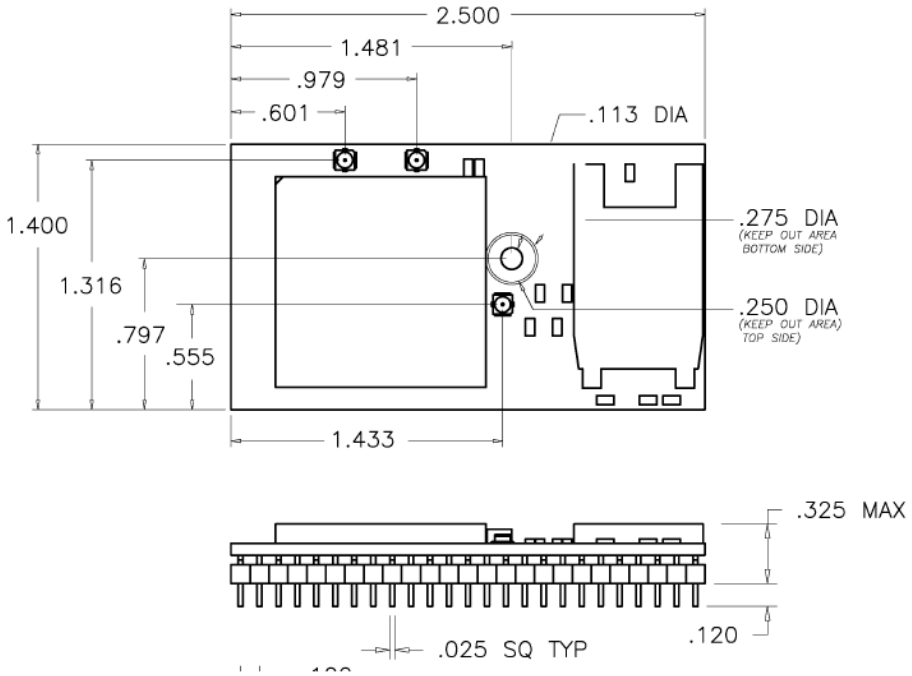
Mechanical Differences

The newer modules retain the same X&Y dimensions (2.50 in x 1.40 in), and they are smaller in vertical height. They also have a mounting hole available to help with stabilization in any installation. The details for the screw and spacer are noted in the user manual.

GSM865CF



HSPA910CF, EVDO910CF, LTE910CF



Electrical Specifications

The plug in modems are designed in a way that the electrical nature of the I/O is similar, so the VIH/VIL levels will allow a direct swap in the majority of systems. The main difference is that, as the block diagram shows, there is on-board translation for the newer devices. This translation may be impacted by some external translation in a given system.

UART

If your system utilizes open collector translation with pull ups to VAUX on the TXD or other UART input signals, you may have to decrease the impedance of the pull up as the on board translation can require a higher current draw to function properly, a drive of 1mA will suffice.

If you find problems with the UART when migrating, check the input signals via oscilloscope, if you find the signal latching on the return to idle transition, this is the change you will want to make.

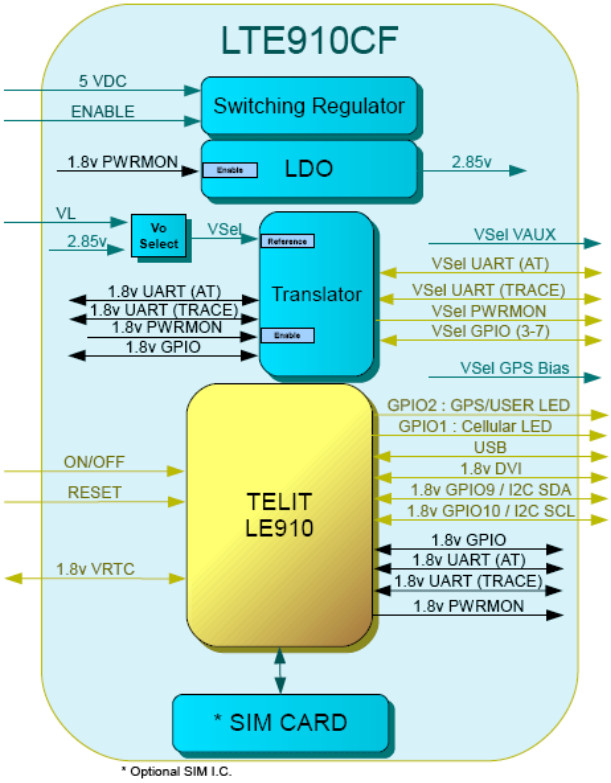
- Keep the reference at VAUX, and reduce the pull up to about 2.2k Ohm value.

USB

When migrating from a GSM865CF to a unit that has USB that you intend to use. It's required to take into consideration the delayed connection of the VBUS signal. Janus has a circuit diagram as an example located in the "USB VBUS Switch" section of the user manuals.

Looking forward towards LTE and Future HSPA/EVDO builds

The LTE910CF builds on the x910CF based footprint and electrical specifications. If you design for the HSPA910CF/EVDO910CF, everything matches identically in terms of GPIO and specifications. There is one added feature of the footprint that a user may find useful.



VL Input

The units contain a VL Input which allows a user to inject a desired I/O voltage. This allows the user to bypass translation altogether and match the level to their system. This is featured ONLY on the LTE910CF for now, but a user may want to design for this in the future as our plug in modems eventually begin to all have this feature.

The specifications for the input are in the LTE910CF user manual.