

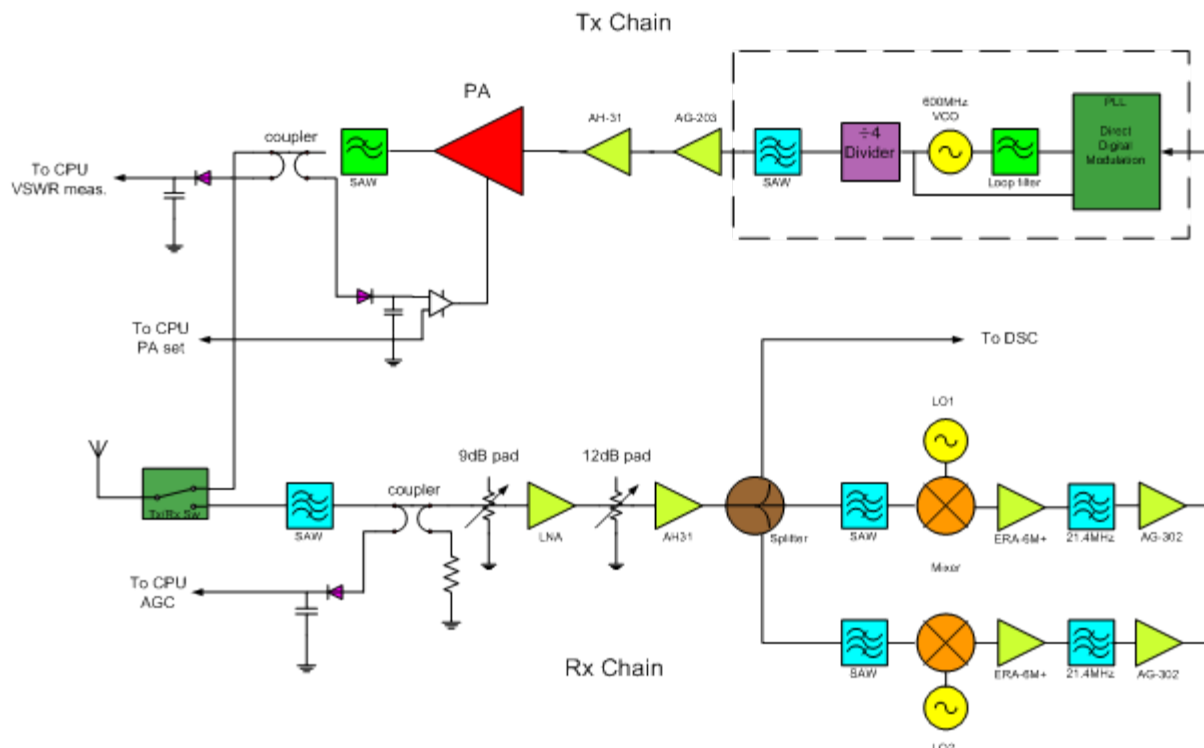
## 1. Operational Description

The AISA3-000-XX AIS radio supports 25 kHz AIS channels and DSC channels defined by ITU-1371-3 and IEC 61993-2 in the maritime band of 156.025 MHz to 162.025 MHz. The AIS RF transceiver design receives two AIS TDMA channels and transmits AIS and DSC data. The radio is designed to operate has an integrated DC power supply that operates from a supply voltage in the range of 12Vdc to 24Vdc.

The design consists of:

- Two TDMA GMSK receive paths using a two-conversion super-heterodyne frequency translation with an FM quadrature discriminator in each path.
- A third split RF path out to the DSC receiver card.
- A transmit chain that consists of a fractional-N synthesizer/modulator, filtering, gain and a 12.5W PA also capable of a low power setting of 1W.

The block diagram below illustrates the architecture:



The CPU board is responsible for processing AIS and DSC messages received or transmitted over the VHF Data Link (VDL) as well as messages and sensor data over the serial data interfaces (Presentation Interface or PI) that are on the Controller board. The Presentation Interface is designed to meet the requirements of ITU 1371-3 and IEC 61162-2. Position and timing information is provided by a GPS receiver that is integrated on the Controller board. The CPU is also processes commands from the front panel controls that is termed a Minimum Display Keyboard (MKD).