

A Flexible Low Cost EMWIN-HRIT Receiver for the GOES-R Transition

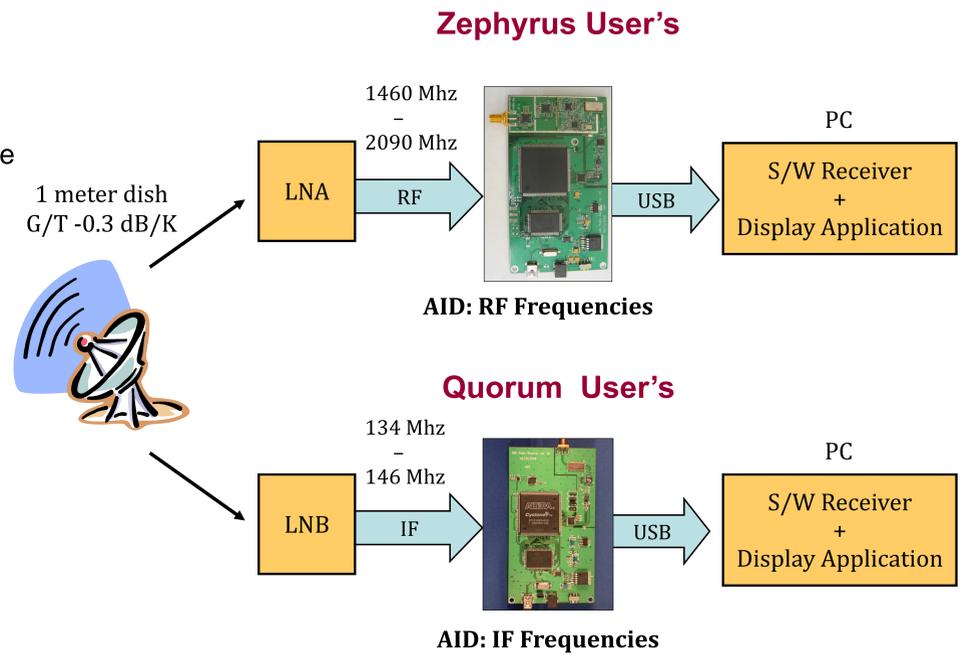
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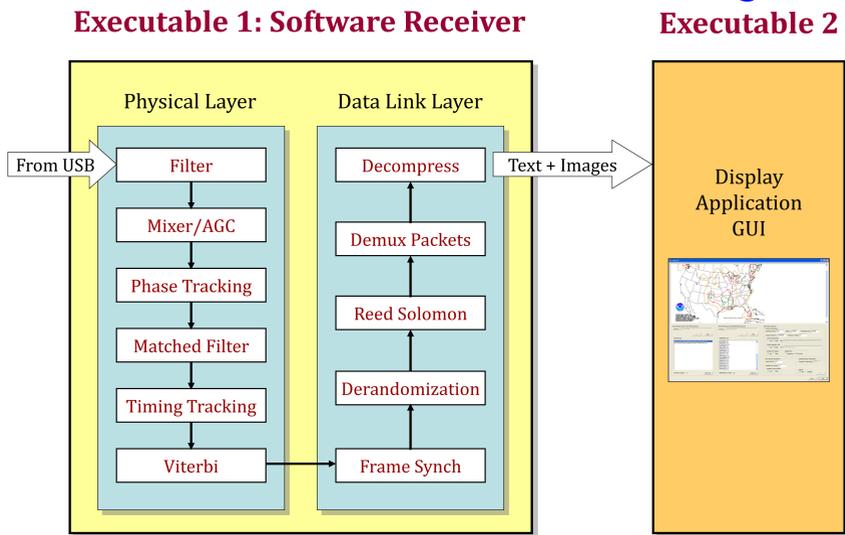
Project Overview

- Purpose:** To design a radio platform to ease the transition to GOES-R
- Challenge:** GOES-R HRIT/EMWIN rate 927 kbps
- Approach:** Move as much processing from hardware to software
- Architecture:**
 - Software: Radio Receiver + Display Application
 - Hardware: Antenna + LNB/LNA + *IF / RF Digitizer* + PC
- Advantages:**
 - Lower Cost and More Generic Hardware
 - Smaller Form Factor
 - Greater Flexibility
 - Upgradeability
 - Leverages Emerging Technology

System Diagram

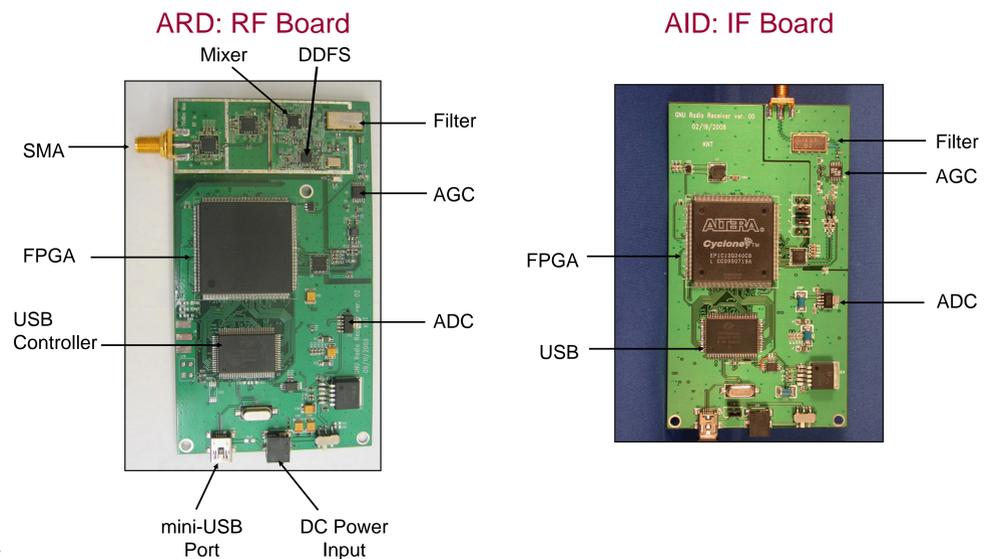


Software Receiver Block Diagram

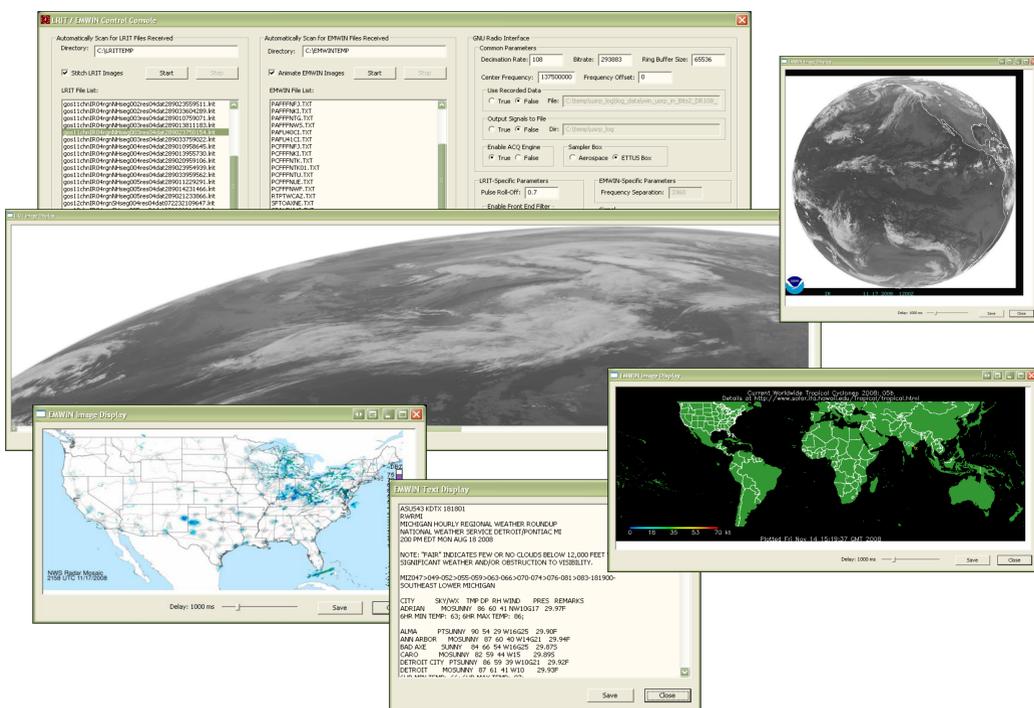


- The radio software and visualization software are designed to be split.
- Two different contractors can design the different applications.

Aerospace Digitizer Boards



Display Application GUI



Hardware Block Diagram

- Parts Cost:** < \$100
- RF Range:** 1460 Mhz – 2090 MHz
- IF Range:** 134 Mhz – 146 MHz
- Down sampling Range:** 4-256
- Bandwidth:** Up to 10 MHz
- Symbol Rate Range:** Up to 8 Msymbols/sec

