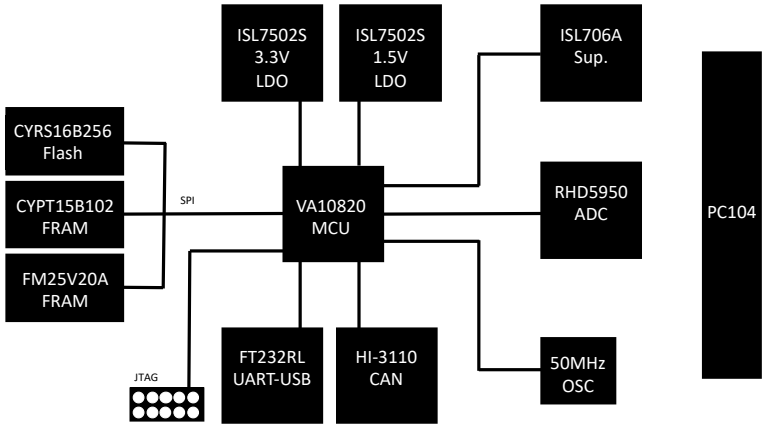
VORAGO TECHNOLOGIES

RH-OBC-1
Block Diagram

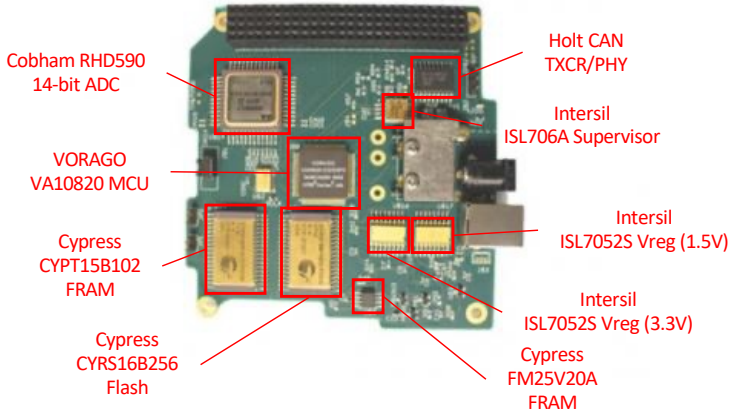


Kit Contents – RH-OBC-1

- Quickstart guide (this document)
- RH-OBC-1 Evaluation Board
- USB cable ?

VORAGO TECHNOLOGIES

Radiation-hardened OBC / C&DH Board and Reference Design Kit
RH-OBC-1



Kit Features

- Evaluation board and software board support package
- All key components use rad-hard (prototype grade) ICs
- Uses 1 x rad-hard FRAM and 1 x Auto FRAM
- CAN and USB ICs have radiation mitigation circuits
- PC104 connector / Pumpkin CubeSat Kit Bus compatible
- Mass 76.6g
- Remove before flight switch
- EPS board pre-flight power connector

VISIT: www.voragotech.com/products/rhobc1

www.voragotech.com

Getting Started

Step 1 - Download documentation at www.voragotech.com/products/htdab1

Step 2 – Wiring Harness connections

- The board comes with two wiring harnesses and two interface boards to make the initial use of the board very simple. Unpack the boards and connect the harnesses to the main HT-DAB board. An Allen wrench is provided.
- The "Power /Comm Breakout" board provides power to the HT-DAB-1 and has a UART to USB converter chip.
    - With the power supply off, connect "3.3VIN" to a 3.3V supply and "DGND" to the supply ground. (continued on next page)
    - For initial board bring-up, tie the 3.3V supply to Vp and the supply ground to Vm. Vp and Vm are the power pins for the analog subsystem. For the best accuracy and widest analog input swing, Vp can be set to 5V and Vm to -2.5V.
    - Plug the USB cable into the HT-DAB-1 board but not to the computer yet.

- The "Analog Input Breakout" board has 8 connectors for analog inputs

If an analog signal between 0V and 2.5V is readily available, it can be connected to any of the inputs. If one is not available, the board has ADC channels 8 & 9 connected to a divided down VCC and temperature sensor respectively.

Step 3 – Powering the board

- Turn on the 3.3V power supply. It should draw approximately 45 mA.
- Connect the USB cable to the PC
    - There are no LED indicators to show that power is applied. However, LEDs on the Breakout board will illuminate when data is active on the communication port
    - The FTDI USB to UART chip will enumerate on the PC. It may take a few seconds for the FTDI driver to be located and installed.
- The MCU is pre-programmed with firmware to interface to the GUI software and to perform conversions on demand

Step 4 – Start the PC GUI software and connect to COM port

- One of the files included in the download is DemoViewer.exe. This is a GUI that can start an acquisition and will report the results in a graphical format. Start this program by double clicking.
- Determine the COM port # being used by going into Control Panel -> Device Manager -> ports (COM & LPT). Enter that number in the top box of the GUI and click on the connect button.

Once the COM port is entered, the temperature of the board should be displayed.

Step 5 – Conduct a burst conversion on channels 8 & 9

- By default, some of the channels will be selected in the GUI. Unclick all but channels 8 & 9. Channel 8 is a resistor divider of VCC and channel 9 is the RTD sensor voltage.
- Click on the Single button at the bottom of the screen. An experiment should be run and a graph for data from channels 8 & 9 will be shown. If VCC is 3.3V, channel 8 should be abc . If the temperature is around 25C, channel 9 should show xyz.

Step 6 – Conduct experiments

- Attach analog signals

www.voragotech.com