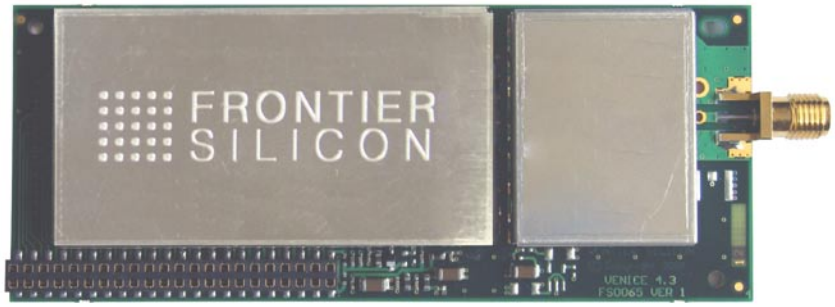
Venice 4.3 FS2024

Advanced DAB/FM digital radio module with rewind and record



Applications

- **Portable DAB radios**
- **Kitchen DAB/FM radios**
- **Advanced DAB radios with record/ rewind and MP3**
- **CD micro HiFi systems with DAB/ FM**
- **CD boomboxes with DAB/FM**
- **Separate HiFi components**
- **Home cinema systems**

Overview

Venice 4 is a fully-featured DAB/FM-RDS receiver module suitable for incorporation in a wide range of fixed and portable audio and HiFi systems. It is electrically and mechanically compatible with all previous modules in the market-leading Venice series, and offers superior DAB performance with low power consumption. Venice 4 uses the Frontier Silicon Apollo1/Chorus 1 chipset for advanced features and a low component count.

The module supports reception of DAB Band 2 and Band 3, with Venice 4.3 adding L-Band, and incorporates optional Software FM-RDS, which reduces overall system cost by removing the need for a separate FM tuner subsystem.

The RF front-end is based on Frontier Silicon's Apollo tuner. This device uses near-zero IF technology to make it the lowest-power DAB tuner on the market.

The baseband is based around Frontier Silicon's powerful multithreaded baseband processor Chorus 1. This performs demodulation of DAB and FM, as well as the protocol stack in a digital radio. With its integrated display controller and general purpose I/O pins, Chorus 1 implements a complete digital radio user interface with no external MCU. With additional software, advanced radio features can also be implemented, including a DAB Electronic Program Guide (EPG), rewind/record and MP3 playback.

Two variants of Venice 4 are available:

- Venice 4.3 FS2024-3B DAB Band 3 and Software FM
- Venice 4.3 FS2024-3D DAB Band 3, L-Band and Software FM

Software is pre-installed in Flash memory, configured to customer requirements. Software builds are available for the module to be used as master, or as slave under control of a host microcontroller.

Features

- DAB receiver module for Band 3 and L-Band with Software FM-RDS
- Low power consumption (less than 650 mW when decoding stereo DAB)
- DAB sensitivity -97 dBm for Band 3, -95 dBm for L-Band (typ)
- On-board stereo DAC
- LCD interface and general purpose I/O to implement user interface
- 4 Mbit Flash memory (8 Mbit optional)
- 0, 8, 16 or 32 Mbytes SDRAM
- SD card interface
- Flexible interfacing: USB, I^2S, RDI, RS-232
- Eureka-147 DAB receiver, compliant with EN300.401

[1] *Product briefs available from website.*

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Specifications

Supply Voltage	3.3 V (Improved audio signal-to-noise ratio available with 5 V supply to DAC)
Power Consumption	DAB: 640 mW (typ) Software FM: 1 W (typ)
Input Signal Tuning Range	Band 2: 87.5 to 108 MHz Band 3: 174 to 240 MHz L-band: 1453 - 1490 MHz
Adjacent Channel Selectivity	32 dB (typ)
Far Off Selectivity	-40 dBm (min)
Sensitivity	-96 dBm (typ)
Dimensions	100 x 40 x 8 mm

Connectors

Venice 4.3 has a combined Band 3, L-Band and Band 2 input connector for DAB and FM, so only a single antenna input is needed. For backwards compatibility with Venice 3 however, L-Band RF may be supplied via a separate optional UMP connector.

Supported connector types for the main RF input include F-Type, SMA/SMB and UMP.

Chorus 1 processor

Venice 4 is based on Frontier Silicon's Chorus 1 FS1010 processor, an integrated low-power system-on-chip (SoC) delivering a highly flexible and efficient solution for multimedia and communication applications such as digital radios, portable music players and home/in-car audio and multimedia.

The processing power and programmability of Chorus 1 allow it to be used for demanding application-specific functions such as surround-sound decoding, audio encoding and advanced data service decoding[1].

Software FM

Standard user interface features are provided in FM mode for preset programming, manual/automatic tuning, menu information and RDS2 functionality.

The display button cycles through the Programme type, Radio text, Time/date, Frequency, Stereo/mono indicators and Signal strength. The top line of the LCD shows either the programme service name or the frequency if the programme name is not available.

If the Radio text[2] is wider than the LCD, the receiver scrolls the message horizontally, allowing the user to read longer text strings.

[1] For example RDS (Radio Data Service) - transmission of additional text via FM.

[2] Radio text may be transmitted by the broadcaster to convey additional information about the selected service.

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