

Xylon d.o.o.

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Features

- Daughter card compatible with the Xilinx® Spartan®-6 FPGA based Xylon's platforms:
 - logiCRAFT-CC Companion Chip Platform
 - logiCRAFT6 Multimedia Development Platform
- Enables digital FM radio reception, Bluetooth wireless connectivity and additional audio channels (S/PDIF, Line In/Out)
- FM Radio (band 65 - 108MHz) and Radio Data Systems (RDS) supported by the TEF6862 Car Radio Enhanced Selectivity Tuner (CREST)
- The SAA7706H Car Radio DSP controls:
 - 2x S/PDIF inputs
 - 1x stereo audio line in
 - front stereo audio line out
 - rear stereo audio line out
 - RDS output
- BlueCore6 BC63B239A04-IQD-E4 Bluetooth core:
 - Bluetooth to 4 Mbaud UART
 - PCM and I2S audio
 - Piconet and Scatternet support
- Card's interfaces (I2S, RS232, PCM, I2C) can be controlled by the Xilinx® Spartan®-6 FPGA device
- Provided Linux driver for Digital FM Radio
- Digital radio application for Linux OSs provided as a part of the logiCRAFT-CC Companion Chip Platform kit
- The daughter card's kit includes: the Radio & Bluetooth PCB, User's Manual, schematics, Linux driver for FM radio and an example FM Radio software application for Linux

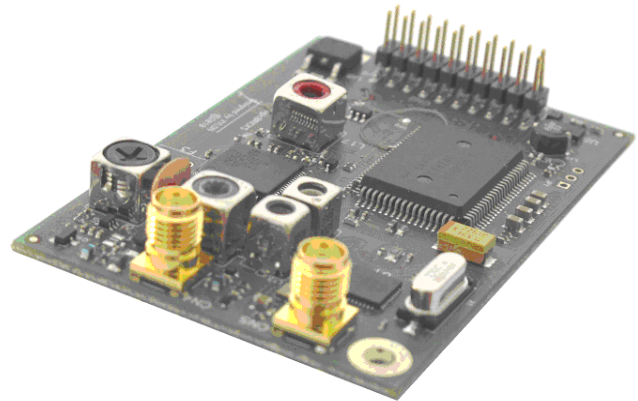


Figure 1: The logiCC-FMB FM Radio & Bluetooth Daughter Card

Applications

- Digital FM Radio and Stereo Audio
- Bluetooth wireless communications

General Description

The logiCC-FMB FM Radio & Bluetooth daughter card is Xylon's add-on board (card) compatible with the logiCRAFT6 Multimedia Development Platform and the logiCRAFT-CC Companion Chip Platform development systems. The logiCRAFT6 and the logiCRAFT-CC are Xilinx Spartan-6 FPGA based platforms.

This daughter card expands capabilities of feature-rich logiCRAFT6 and logiCRAFT-CC platforms, and provides support for FPGA based applications which require FM radio, weather channel and RDS reception, or need wireless Bluetooth connectivity. The Bluetooth interface supports UART, PCM and I2S audio channels.

Audio information from the demodulated radio channel is available as the I2S digital audio stream. The card also supports separate analog stereo line outputs, and the separated RDS output. Two additional S/PDIF channels can be encoded into I2S and analog audio outputs.

The daughter card can be plugged in 40-pin connectors (SAMTEC ERM8-020-09.0-S-DV-TR) available on these two popular Xylon's development systems.

Functional Description

The Figure 2 presents card's internal structure. The main functional blocks are:

- TEF6862 Radio Tuner,
- SAA7706H Car Radio DSP,
- BC63B239A04-IQD-E4 Bluetooth core,
- I2C I/O,
- Power supply,
- Auxiliary connectors,
- Main board connector

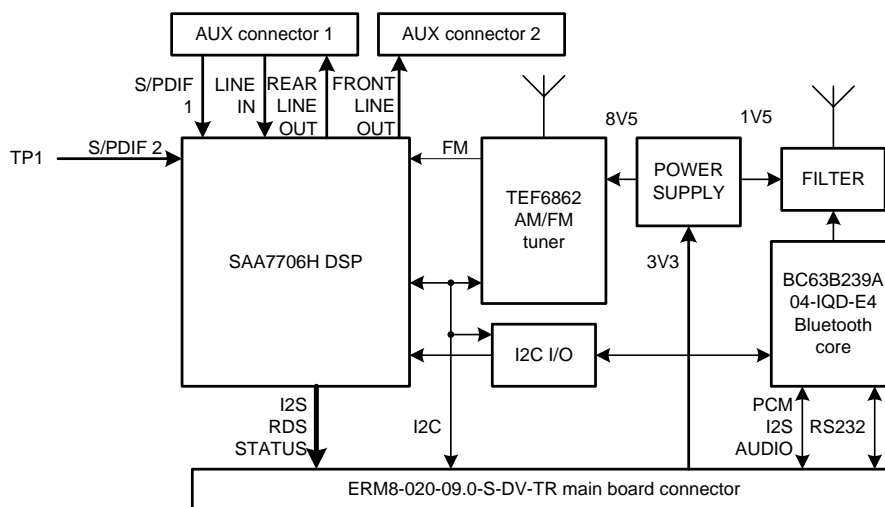


Figure 2: The logiCC-FMB FM Radio & Bluetooth Daughter Card's Block Diagram

TEF6862 Single Chip Tuner

The TEF6862 is a single-chip car radio tuner for AM, FM and weather band reception capable of US FM, Europe FM, Japan FM, East Europe FM and weather band reception. The tuner is controlled through the I2C interface.

Important: FM Radio & Bluetooth Daughter Card utilizes only the FM portion of the TEF6862 tuner!

SAA7706H Car Radio DSP

The SAA7706H performs all signal functions in front of power amplifiers and behind the radio tuner. These functions are:

- Interference absorption
- Stereo decoding
- RDS-demodulation
- Weak signal processing (soft mute, sliding stereo and high cut)
- Audio controls for volume, balance, fader, tone and dynamics compression.

This DSP also accepts digital audio signals from external I2S and S/PDIF sources.

BC63B239A04-IQD-E4 Bluetooth Core

BlueCore6-ROM is a single-chip radio and baseband IC for Bluetooth 2.4GHz systems including enhanced data rates (EDR) to 3Mbits/s. The FM Radio & Bluetooth Daughter Card utilizes Bluetooth core in a way that it provides PCM, I2S audio and up to 4 Mbaud UART channel to the main system.

Important: Xylon currently does not provide software support for the Bluetooth.

I2C I/O

The FPGA on the host development platform can use the PCA9538BS I2C I/O expander for control of the SAA7706H Radio DSP and the Bluetooth core.

Power Supply

Provides 8V5 and 1V5 voltages required for the radio tuner and Bluetooth filter circuits.

Auxiliary connectors

Auxiliary connectors (TYCO146130 – AUX1 and 3-pin header – AUX2) enable connections of external analog and digital audio devices.

Main board connector

It connects the daughter card to the logiCRAFT6 or the logiCRAFT-CC platforms. The main connector is the ERM8-020-09.0-S-DV-TR SAMTEC.

Related Xylon Products

The FM Radio & Bluetooth Daughter Card can be used with two development platforms currently available from Xylon:

The logiCRAFT-CC Companion Chip Platform:

URL: www.logicbricks.com/Products/logiCRAFT-CC.aspx

The logiCRAFT6 Multimedia Evaluation/Development Platform:

URL: <http://www.logicbricks.com/Products/logiCRAFT6.aspx>

To learn more about the Xylon boards and development platforms, contact Xylon or visit the web:

Email: support@logicbricks.com

URL: www.logicbricks.com

Ordering Information

This product is available directly from Xylon. Please visit our web shop or contact Xylon for pricing and additional information:

Email: sales@logicbricks.com

URL: <http://www.logicbricks.com/Products/logiCC-FMB.aspx>

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Related Information

Xilinx Programmable Logic

For information on Xilinx programmable logic or development system software, contact your local Xilinx sales office, or:

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Revision History

Version	Date	Note
1.00.	26.10.2010.	Initial Xylon release