Xilinx® Zynq® as well as other Xilinx FPGAs are well suited for completing the processing tasks associated with sound, and by extension voice recognition. Although Zynq is an ideal candidate, this does not preclude use of other development platforms.

The seven (7) microphones are strategically spaced to support directionality applications associated with the human voice.

**Microphone System**
- Seven (7) PDM Knowles SPH0641LM4H-1 microphones
- Four (4) Analog Devices’ ADAU7002 support stereo PDM-to-TDM or I²S conversion
- Multiplexer enables PDM data to be directly passed to the FMC connector, bypassing TDM/I²S conversion
- Three (3) microphone end fire array structure
- Strategic spacing for directionality applications
- An LED placed near each microphone can be used to visually indicate source or microphone activity level

**Connectors**
- LPC FMC connector
- Designed for compatibility with VITA 57.1 specification (wide range of carrier card support)
- Headers for test and debug or desktop access

**Power Requirements**
- Main rails: 3.3V
- Wide range VADJ support: 1.2 to 3.3V
- FMC as well as Desktop operation supported

**Board Dimension**
- Similar to Single width, air-cooled, LPC FMC

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**Features**
- 7x PDM microphones
  - Selectable onboard PDM-to-TDM/I²S conversion
  - 3x microphone end fire array structure
- Supports both FMC and desktop operation
- Compatible with FMC Specification (VITA 57.1)
- Designed for electrical compatibility with most carrier cards

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1 Desktop operation requires cabling of unit to a host system
2 Verify your target mainboard with us prior to ordering
Function Block Diagram

Available References

Design Package (available under license)
- Schematics, PCB Layout, Artwork, Bill of Materials

FPGA Reference Designs
- Downloadable .bit file examples
- Licensable source (some blocks netlist encrypted)

Sales and Support
For additional information, questions or request for quotation visit: www.fidus.com

Customize your TB-FMCL-7MIC
Speak with our Design Services Group on how to accelerate your custom design: design@fidus.com

About Fidus
Fidus Systems, founded in 2001, specializes in leading-edge electronic product development with offices in Ottawa and Waterloo Ontario, and San Jose, California. Our hardware, software, FPGA and signal integrity teams architect, design and deliver next-generation products for clients in emerging technology markets. We build long-term relationships by consistently exceeding expectations.

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