IA611

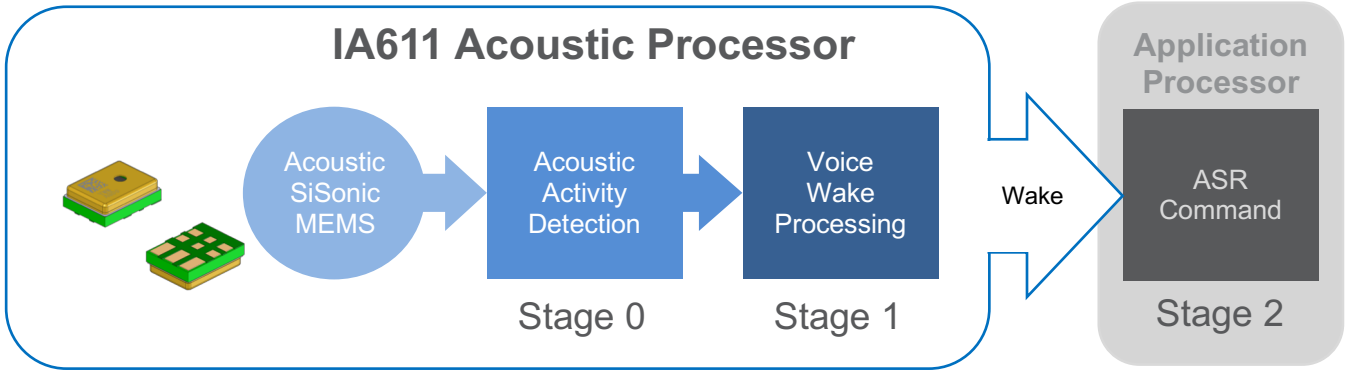
The IA611 is an “always-on” Acoustic Processor featuring Voice Wake and Voice ID keyword detector, a three second buffer, and Knowles’ proven high performance acoustic SiSonic™ MEMS technology in a single, miniature, top-port package. The IA611 offers flexibility by supporting the most relevant audio and data interfaces. Its integrated programmable DSP with 248 KBytes of RAM is available for customer and 3rd party algorithms, enabling unlimited creativity. The solution pushes the system performance to ultra-low power with its custom core design, and accelerates times to market with its unique combination of hardware, software, and firmware.

Product Features

- High-accuracy Voice Wake and Voice ID keyword recognition to wake-up any system from a trigger phrase
- Minimum latency when burst out three-second audio buffer using SPI
- Ultra-low-power “always on” Acoustic Activity Detector (AAD) capable waking the embedded DSP
- Interrupt signal to the host processor when a voice keyword trigger is detected
- Integrated power tree from a single 1.8 V supply
- Extra flexibility with I²C/UART interfaces
- 248 KB RAM, 160 MFLOPS, 43 MHz, 32-bit complex-valued floating-point ALU, low-power open developer platform with SDK
- High-Performance Acoustic SiSonic MEMS with ±1 dB matched sensitivity, 65.5 dB SNR and 132.5 dB SPL AOP
- Packaged in SPK 4.00 x 3.00 x 1.30 mm

Typical Applications

- Smartphones
- Wearables
- Tablets
- Small, portable electronics
- Remote controllers
- Connected home devices



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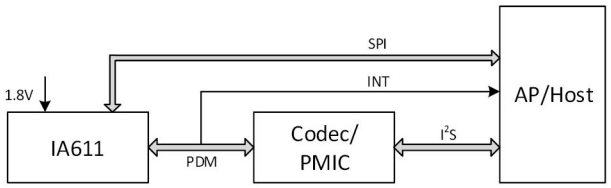
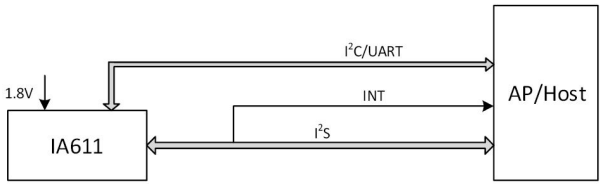
Typical Application Block Diagrams



Application Schematic for a Host System using I²S with SPI



Application Schematic for a Host System using I²S and I²C or UART

Pin Descriptions

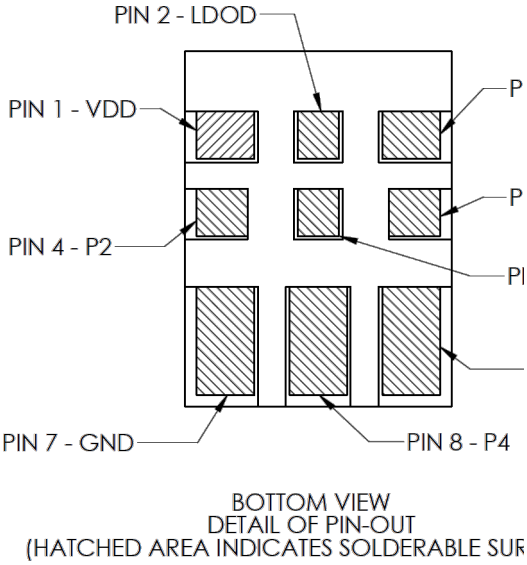


Figure 1 Pin Assignments (Bottom View)

Table 1 Pin Descriptions

Pin#	Name	Type	Description
1	VDD	Power	Power Supply
2	LDOD	Power	Connect to Bypass Capacitor
3	P0	Digital I/O	P0 I/O
4	P2	Digital I/O	P2 I/O
5	P1	Digital I/O	P1 I/O
6	P3	Digital I/O	P3 I/O
7	GND	Power	Ground
8	P4	Digital I/O	P4 I/O
9	P5	Digital I/O	P5 I/O

Mechanical Specifications

Item	Dimension	Tolerance	Units
Length (L)	4.00	±0.10	mm
Width (W)	3.00	±0.10	mm
Height (H)	1.30	±0.15	mm
Acoustic Port (AP)	0.65	±0.05	mm

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