SYNTIANT

Always-On Speech & Audio Recognition Processors
NDP100 Product Brief

NDP100 Neural Decision Processors™

Product Overview

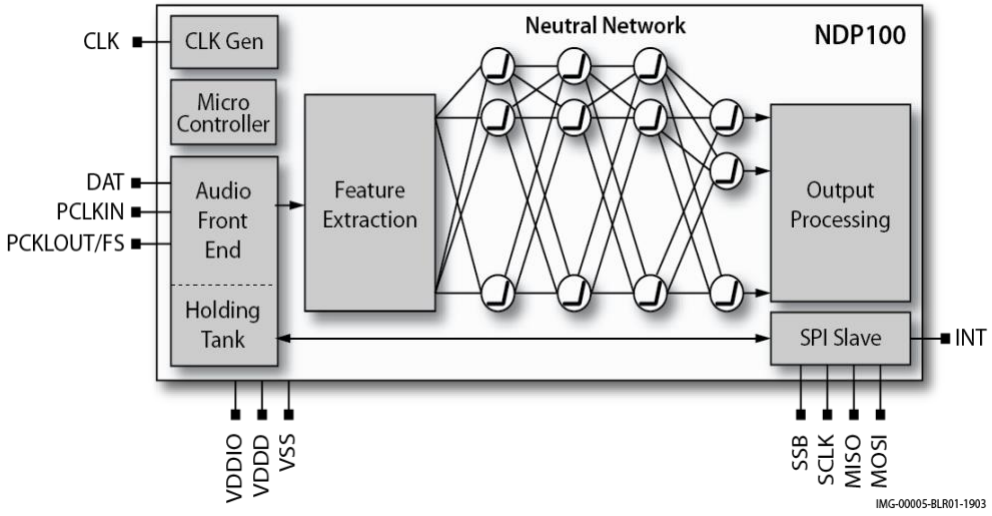
The Syntiant™ Neural Decision Processors™ are self-contained audio classification solutions based on ultra-low-power technology. The NDP100 is designed for keyword spotting (for example, Alexa, Cortana, Ok Google) in battery powered systems. NDP100 supports dozens of application-defined audio sequences for use cases including:

- Keyword Speech interface
- Wake word detection
- Speaker identification
- Audio event and environment classification
- Other 'low-speed' tasks

Key Features & Benefits

- The NDP100 is in a WLBGA package for extremely space constrained environments
- Dual PDM microphone input or PCM-over-SPI input
- Stereo/mono I2S interface multiplexed with PDM
- Frequency, time-domain & batch input models
- 16-bit input holding tank with nominally two seconds of audio and with faster than real-time SPI extraction
- Encoded 'winner', 1-bit & 8-bit outputs
- General purpose ARM M0 processor with 112KB SRAM
- Integrated clock multiplier and dividers supports low frequency clock source or external clocking
- Optimized interrupt and SPI slave interface
- Onboard firmware security and authentication support
- Syntiant English Speech Service for keyword training
- Ultra-low power consumption while always-on <200 μW
- NDP device control Software Development Kit (SDK) integrates in any software environment
- Optional Training Development Kit (TDK) to enable the user of standard frameworks such as TensorFlow for customer-programmed applications

NDP100 Block Diagram & Packaging



NDP100 in 12 ball WLBGA Package

NDP100 Applications

The NDP100 enables speech interface in the smallest systems to supplement tactile interface (buttons, switches, dials & touch screens) and enable entirely new very small form factors and usage models, designed to wake-up to speech rather than touch. The following are NDP100 applications:

- Mobile phones
- Ear buds
- Bluetooth headsets
- Smart watches
- Toys
- Hearing aids

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