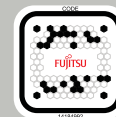# FUJITSU

Low Power 10-Bit 50MS/s ADC IP
# AMA2L1ASAA3

Description

The Fujitsu's Analog-to-Digital Converter (ADC) IP is designed to provide high efficiency and ultra-low power for various mixed-signal applications, including portable ultrasound devices, mobile basebands, TV demodulators, industrial automation and robotics. Based on a 65nm CMOS process, the ADC macro features a sophisticated Successive Approximation Register (SAR) that reduces power consumption by up to 90% compared to conventional ADCs while still offering the high-speed and performance necessary for demanding applications.

Applications

- Portable ultrasound and medical imaging
- Robotic and high-speed scanner
- Demodulation such as ISDB-T, ISDB-Tsb, DVB-T, CMMB, etc.

Features and Benefits

- 10bit resolution for high accuracy
- Up to 50MS/s for fast sampling
- 1.2V power supply for low voltage design
- 1.5mW (TYP) for ultra low power macro operation
- 1.2Vpp low noise differential analog input
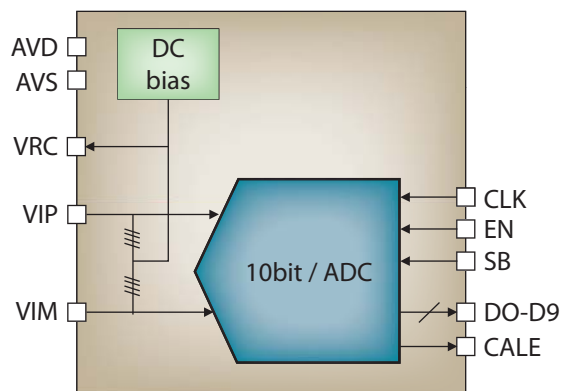

Block diagram

Table of Reference Data

IP Type/Technology	Hard Macro/65nm			
Parameter	MIN	TYP	MAX	Units
Power supply (analog)	1.1	1.2	1.3	V
Power consumption, 50MS/s		1.51		mV
INL		±1.0		LSB
DNL		±0.9		LSB
SNDR, 50MS/s Fin=10MHz		57.0		dBFS
SFDR, 50MS/s Fin=10MHz		73.9		dBFS
ENOB, 50MS/s Fin=10MHz		9.18		bits

Application Examples
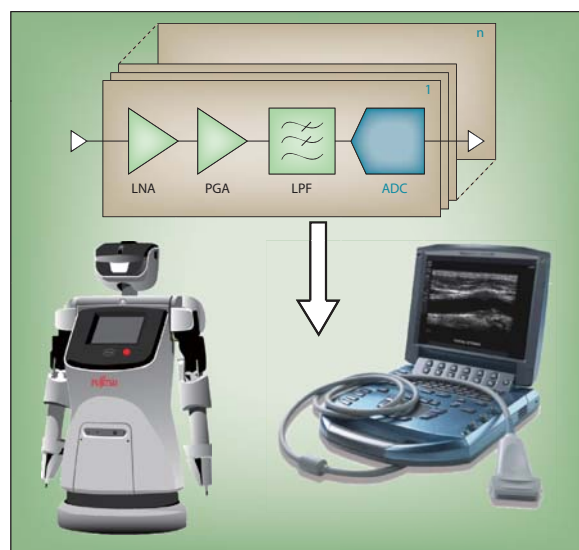
Example 1: Demodulation LSI

- Digital TV demodulator for mobile and low-power applications
- Supports major broadcasting standards, including ISDB-T (1-seg Full-seg), ISDB-Tsb (3-seg), DVB-T
- Supporting: zero-IF, 4MHz, 36MHz, 44MHz, 57MHz
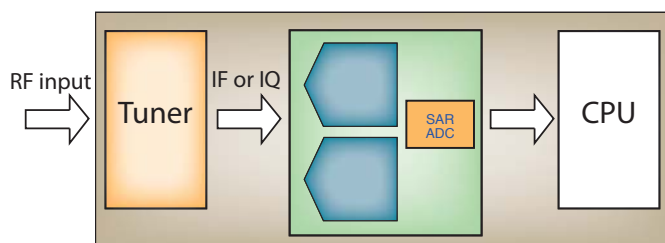
Digital TV Set-top Box Applications

Example 2: Multi-channel signal processor

- Compact and environmentally friendly system-on-a-chip (SoC) design ideal for medical applications (such as ultrasound measurement equipment) that require multiple channels, low power, and a small size
- Other applications include various sophisticated sensors for use in robotics and industrial-automation equipment

Ultrasound Equipment and Robotic Applications

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