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

<table>
<thead>
<tr>
<th>Parameter</th>
<th>MIN</th>
<th>TYP</th>
<th>MAX</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power supply (analog)</td>
<td>1.1</td>
<td>1.2</td>
<td>1.3</td>
<td>V</td>
</tr>
<tr>
<td>Power consumption, 50MS/s</td>
<td>1.51</td>
<td></td>
<td></td>
<td>mV</td>
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<td>INL</td>
<td>±1.0</td>
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<td></td>
<td>LSB</td>
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<td>DNL</td>
<td>±0.9</td>
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<td></td>
<td>LSB</td>
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<td>SNDR, 50MS/s Fin=10MHz</td>
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<td></td>
<td>dBFS</td>
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<tr>
<td>SFDR, 50MS/s Fin=10MHz</td>
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<td>dBFS</td>
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<td>ENOB, 50MS/s Fin=10MHz</td>
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<td>9.18</td>
<td></td>
<td>bits</td>
</tr>
</tbody>
</table>

### 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](image1.png)

#### 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](image2.png)

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