



# PCapØ1 – System Overview

PCapØ1 is a dedicated Capacitance-to-Digital Conversion Digital Signal Processor. Its front end is based on acam's patented **PICOCAP®** principle. This conversion principle offers high resolution at conversion times as short as 2 µs. Customers benefit from outstanding versatility for optimizing power consumption, resolution and speed.

## Features:

- Digital measuring principle in CMOS technology
- Up to 8 capacitances in grounded mode
- Up to 4 capacitances in floating mode (potential-free and with zero bias voltage)
- Compensation on internal (grounded) and external parasitic capacities (floating)
- High resolution: up to
  - 6 aF RMS at 5 Hz and 10 pF base cap.
  - 17 bit resolution at 5 Hz (100 pF base/10 pF excitation)
- High measurement rate to 500 kHz
- Extremely low current consumption possible: Down to 4 µA at 3 Hz with 13.4 bit resolution
- High stability with temperature
- Dedicated ports for precision temperature measurement (with Pt 1000 sensors, the resolution is 5 mK)
- Serial peripheral interface (SPI compatible)
- Inter-Integrated Circuit Interface (I2C compatible)
- Self-boot capability
- Single power supply (2.1 to 3.6 V)
- No need for a clock
- RISC processor core using Harvard architecture
- 48 x 48 bit RAM Data
- 4k x 8 bit volatile program memory (high speed)
- 4k x 8 bit non-volatile (OTP), normal speed

## Applications:

- MEMS sensors
- Humidity/Temperature
- Dewpoint sensors
- Pressure sensors
- Acceleration sensors
- Inclination sensors
- Tilt/Angle sensors
- Force sensors

