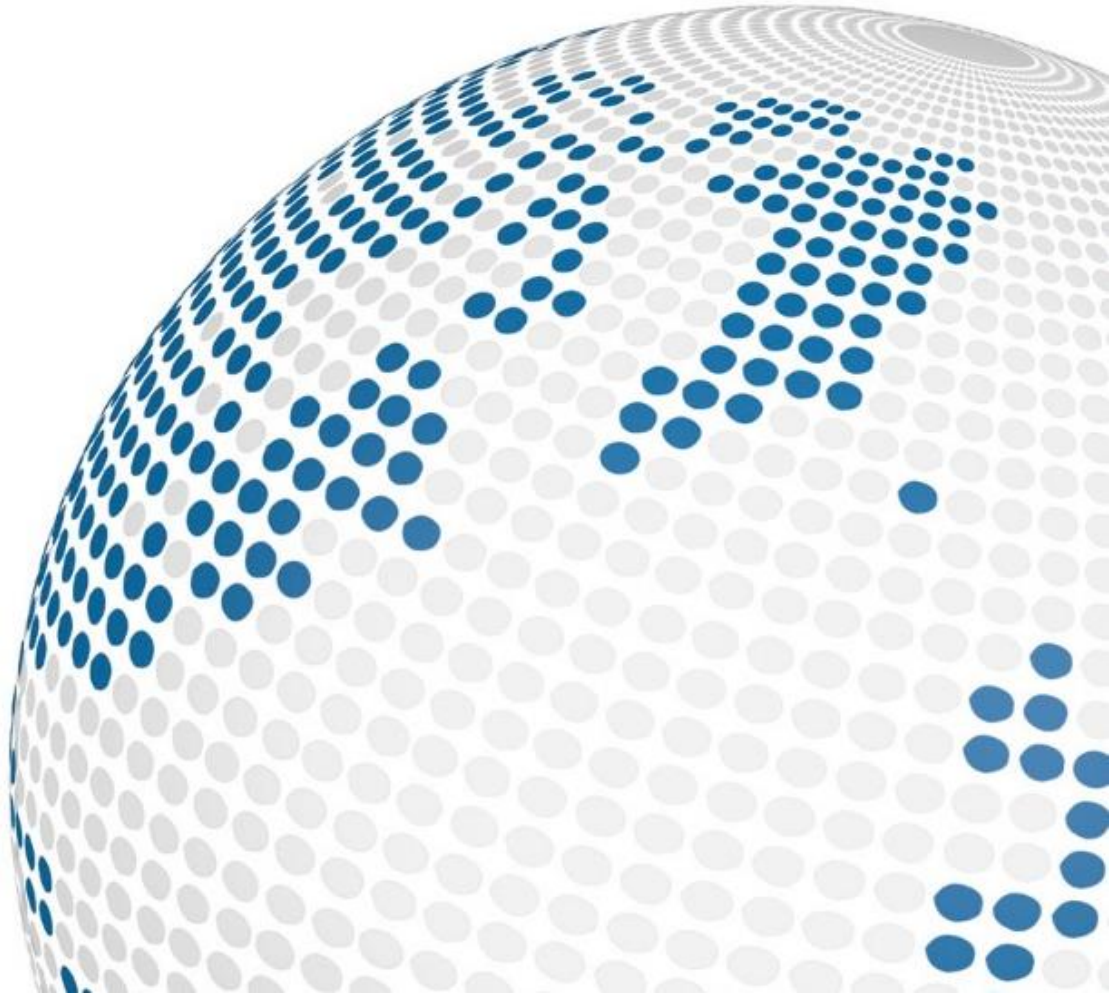
ams

Techno Week Barcelona 2021



ams at-a-glance

ams standalone

High performance sensor solutions for leading OEMs, focused on sensor-rich markets

Key figures

2.086 bn USD revenues 2019	**32%** Revenue growth year-on-year	**8,000** Customers
9,000 Employees	**1,100** Engineers	**>3,000** Patents granted and applied

Our markets

Consumer



Medical, Automotive, Industrial



Medical Imaging

Embedded in the ams core strategy, focused and accelerated, leveraging ams synergies

Medical Imaging part of the ams core strategy

Being uncontested leader in optical solutions and contributing in all major markets.

Market and technology leadership in CT and X-Ray is a core pillar of the ams medical imaging strategy.

https://ams.com/medical-imaging

Mass market production capacity applied for special requirements

High volume manufacturing is adapted to special requirements of medical imaging, enabling cost-effective,

high quality, leading edge performance and secure sourcing.

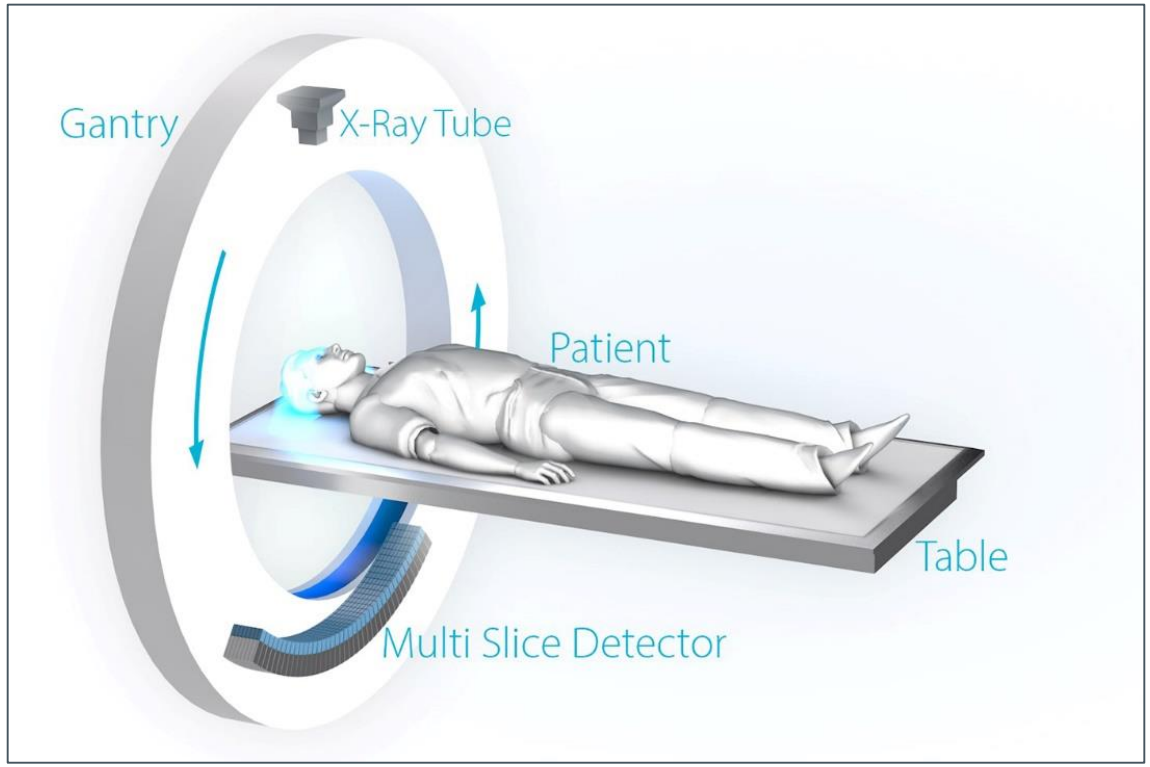
Focus on CT and X-Ray trough a dedicated business line

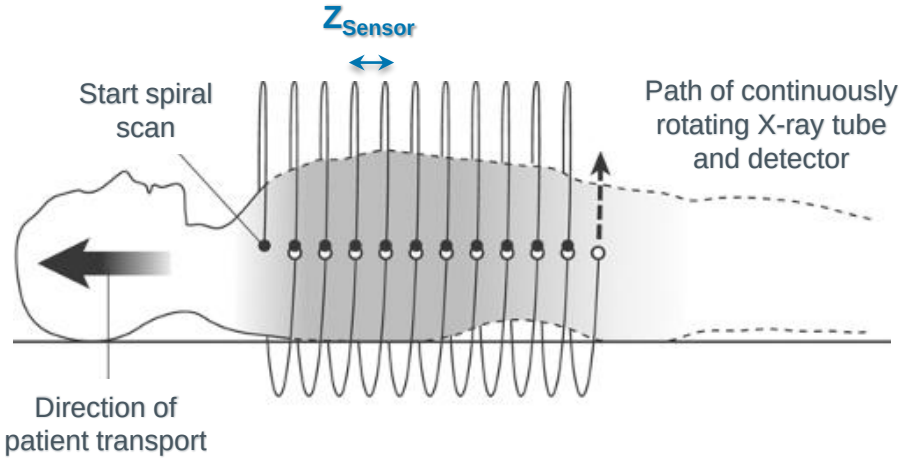
Since more than 20 years ams R&D develops CT and X-Ray solutions. MSS, a dedicated medical imaging business line, drives long term innovation from base technology to system architecture.

Introduction to Medical Imaging

Computed Tomography

Both the source and the detector rotate around the patient's body, resulting in a "slice" image generated by **computerized tomography (CT)** which can be reconstructed into a 3D image



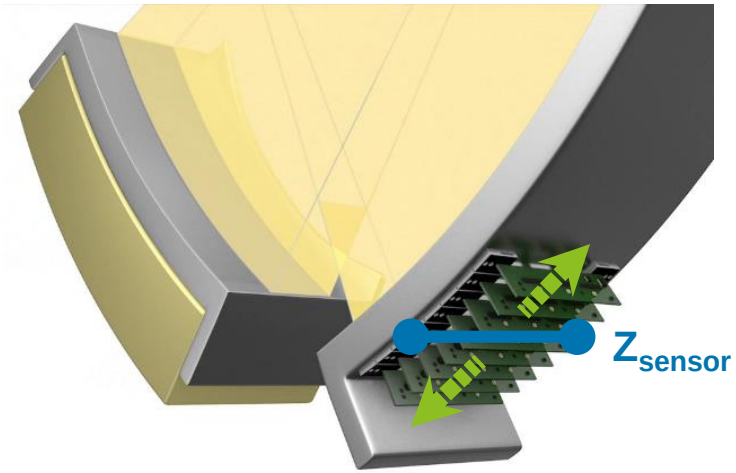


	Value CT	Mid-end / Performance CT	Premium CT
Z_{Sensor}	≤40 mm	64-80 mm	≥128 mm

More information on: www.ams.com/computed-tomography

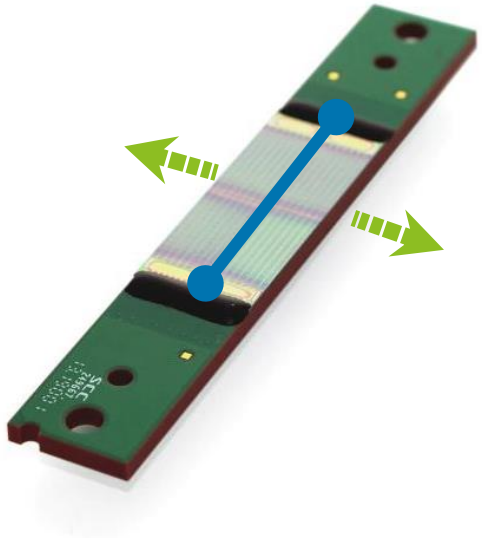
Medical Computed Tomography

CT Detector



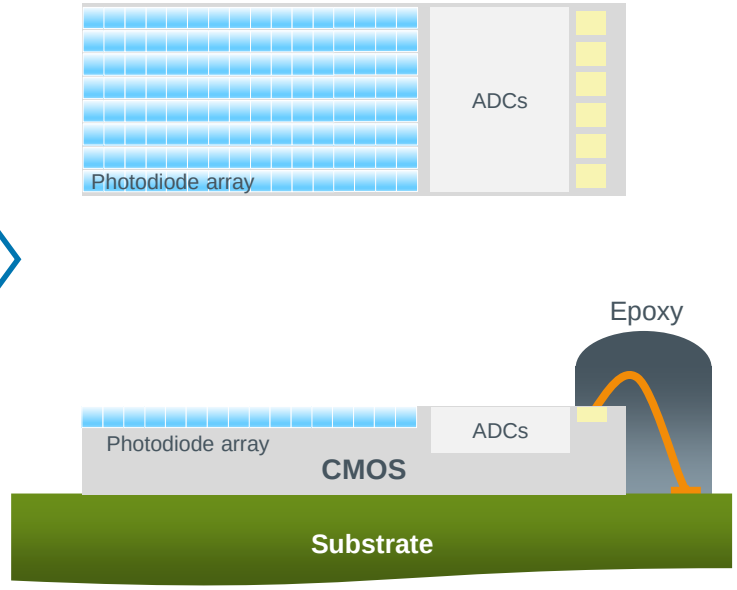
The **CT detector** is around 100cm long and between 8mm and 320mm wide (Z_{sensor})

CT Modules



Several **CT modules** are equipped side-by-side on one detector over the entire length of 100cm

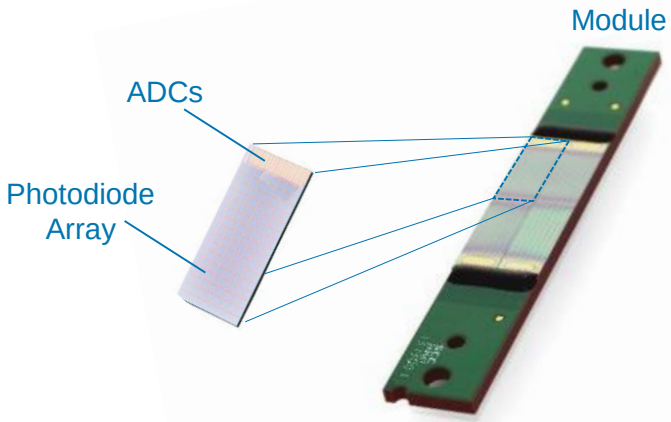
CT Sensors



Several **CT sensors** (typically 4 to 12 pcs) are assembled on one module. X-ray is converted into light, that is acquired by the photodiodes of the CT sensors and converted into digital words by the ADC.

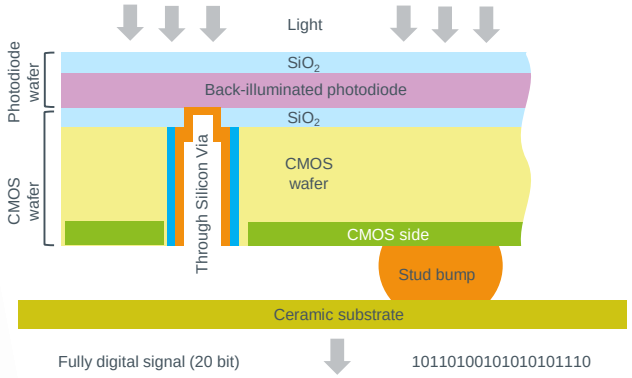
Conventional CT Sensor Solutions

Value CT



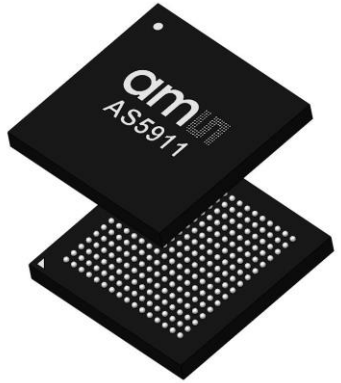
- Monolithic integration of photodiodes and ADC in one die
- Allows 3-side buttable solution
- Optimizes module BOM by eliminates complexity of connection between photodiode array and ADC and simplifies connection to PCB.
- Optimum for 16 to 64-Slice CT solutions

Premium CT



- Photodiode and ADC 3D stacking based on Though Silicon Via technology
- Allows 4-side buttable solution
- Optimizes connection between photodiode and ADC
- Optimizes noise vs power trade-off
- No limitation in slice count

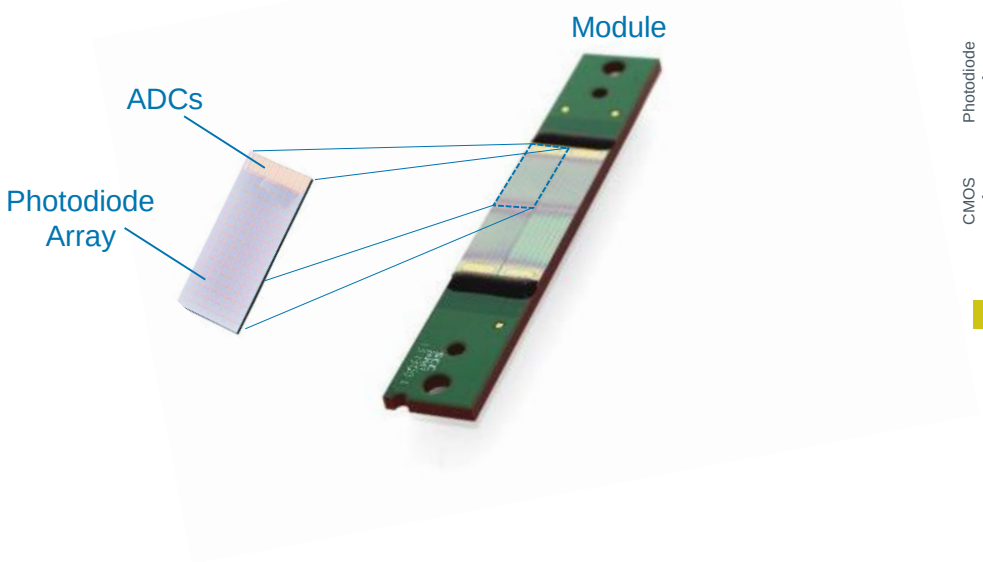
Discrete modules



- ADCs with different channel count options
- Available in BGA including passives
- Allows for flexible module design

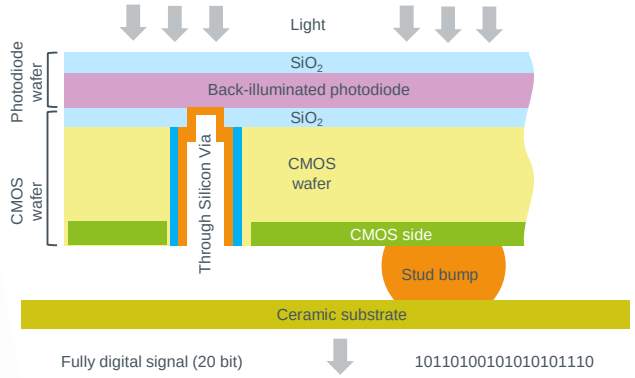
Conventional CT Sensor Solutions

Value CT



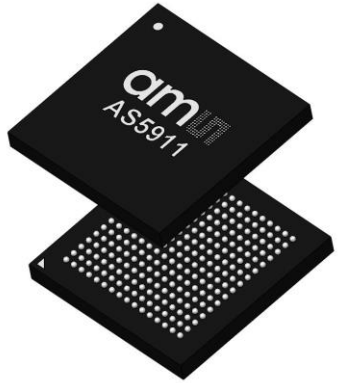
AS5950
16 Slice CT Sensor with pixel array of 8x8

Premium CT



Customized Solutions

Discrete modules



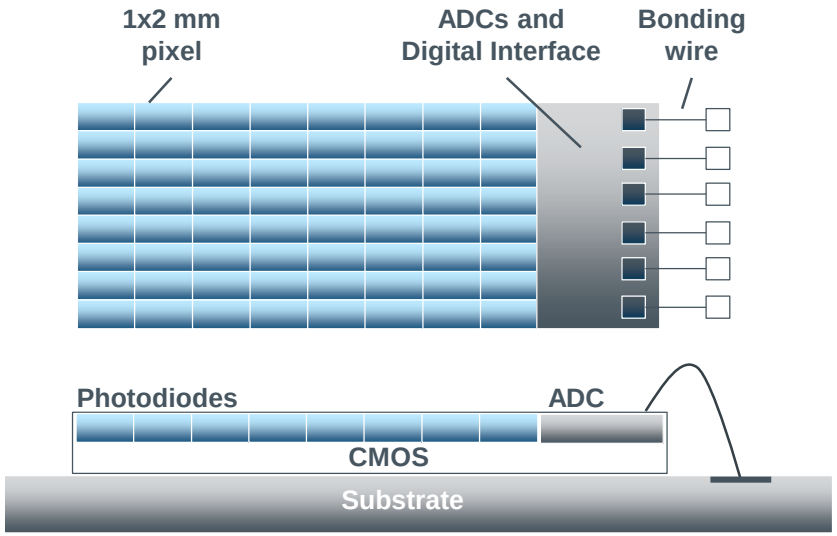
AS5900
CT Front end standalone ADC with 128ch

Value CT Sensor Solutions

AS5950 Key Technical Specifications

Benefits

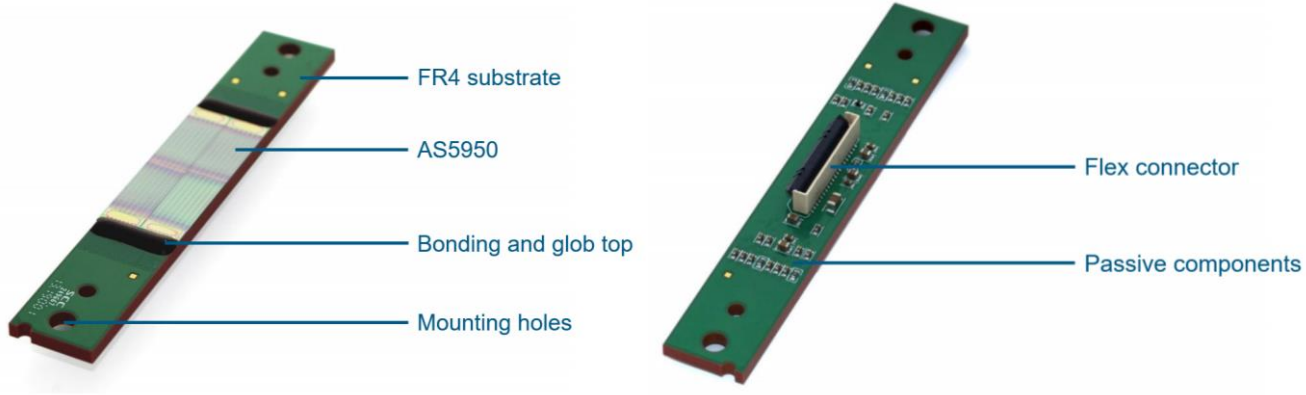
- Ultra-low overall input related noise down to **max. 0.28fC including photodiode** for **input current of 200nA and 200µs**
- **Maximum input current of 600nA**
- Fast integration time down to **200µs**
- High ADC linearity of **±250ppm of reading** and **±2ppm of Full Scale Range**
- Low power dissipation down to **0.8mW per channel**
- **Binning mode: pixel dimensions 1.0 x 2.0 mm2**
  - Binning mode: Pixel dimensions customization: (0.9-3.0) x (0.6 – 3.6)
- **Non binning mode: 1.0 x 1.0 mm2**
  - Not binning mode: Pixel dimensions customization: (0.9-3.0) x (0.3 – 1.8)



Features

- Highly sensitive photodiode and readout circuit **in one integrated sensor**
- Adaptive array enables selection of **total sensor dimension of 16mm or 32mm**
- **Adjustable** active sensor area, pixel resolution, full scale range and integration time
- Standard pixel dimension of 0.98x0.98mm. **Customized pixel dimension** and assembly of entire detector module on request.
- **Reference design in 2x2 module available to order**

Module Reference Design



Thank you!

Please visit our website
www.ams.com