AMS group at a glance

Key financial data

9 months 2020 revenues

$2.5B
Analog, MEMS & Sensors Group

$1B
Analog

$1.5B
MEMS & Sensors

9 Months - YoY evolution

AMS
+12%

MEMS & Sensors
+13%

Analog
+10%

A wide range and diversified product portfolio to support a large customers base

Serving more than 70,000 Customers

34% of 2019 ST revenues

2
AMS strategy addressing underlying trends

Sensorization of the world around us

Smarter and more efficient energy use
AMS strategy

Markets

- Strategic focus on industrial & automotive end markets
- Address specific high-volume opportunities in personal electronics
- Selective approach in Communications Equipment and Computers & Peripherals focusing on advanced power management
- OEMs and distribution

Products

Analog
- Application Specific
- General Purpose

MEMS & Sensors
- MEMS Sensors & Actuators
- Optical Sensing Solutions

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From zero to billions...
MEMS Sensors & actuators Technology & products

**Differentiated Technologies [Thelma*, Bastille*…]**
*ST proprietary MEMS technologies

Motion and pressure sensors for multiple markets and applications
- Higher accuracy
- Ultra-low power
- Embedded Machine Learning Core

Micro-actuators for inkjet printing, AR/VR and LiDAR
- Innovative materials
- Higher efficiency
- Lower cost

#1 50% Market Share** in Motion MEMS in Personal Electronics & Automotive telematics

#1 Micromachined actuators For ink-jet printing

#1 Micromachined actuators For ink-jet printing

**Source: OMDIA

100X Power reduction

Sensors Data
Computation Block
Machine Learning

AI at the Edge of the Edge

Innovative materials
Higher efficiency
Lower cost

Higher accuracy
Ultra-low power
Embedded Machine Learning Core

Life. Augmented
Optical sensing solutions diversification
Technology & products

#1 Time-of-Flight-Sensors

Direct Time-of-Flight
40 nm SPAD, 3D-SPAD

indirect Time-of-Flight
4.6 µm fast photodiode

Global Shutter
2.6 µm down to 2.2 µm pixel

All-in-one Time-of-Flight modules
Longer ranging, wider field-of-view

Time-of-Flight sensors
Higher resolution, 3D - BSI

Ambient Light Sensors
Small size, low power, flicker detection
Optical sensing solutions diversification

Customers

World Facing

5th Generation of Time-of-Flight solutions

40 nm SPAD Multi-zone

~200 smartphones including ST FlightSense™

Photos courtesy of TechInsight
MEMS & sensors for automotive

Motion MEMS for safety & telematics

LiDAR for ADAS & autonomous driving

Global Shutter sensors for in-cabin monitoring

#1 In MEMS for Automotive telematics

Leadership in global shutter sensors
MEMS & sensors for industrial IoT

High performance sensors
- High Accuracy
- Ultra Low Power
- Machine Learning

Wireless and wireline communication
- BlueNRG
- SPIRIT
- KNX
- IO-Link

Asset tracking
Predictive maintenance
Real-time monitoring
Metering
- Electricity
- Gas
- Water
ST MEMS mirrors for Augmented Reality

Remote control & optimization

Sensor data flow

Smart connected machine

Cloud

Analytics

Monitoring

Digital interaction

Augmented Reality devices

Digital Twin

Analytics

Monitoring

Cloud

Sensor data flow

Remote control & optimization

ST launches LaSAR Alliance for Augmented-Reality eyewear

(1): https://www.youtube.com/watch?v=eqFqtAJM1YE
(2): https://www.youtube.com/watch?v=Rx-7ZEAMeg
Leverage broad portfolio to address mass market through distribution partners.
Analog – Application specific Leadership in energy management

- Smart GaN solutions for higher efficiency and power density
- Power management solution for ST industrial MPUs
- Power management solutions for servers, CPU, GPU, SSD

World-first driver w/ GaN transistors enables smaller and faster chargers

STPMIC1
Fully integrated Power-Management IC
Analog – Application specific
Metering & motion control

**Metering – 38% Market Share**

**Motion Control – 11% Market Share**

- Powerline Communication
- Motor Drivers

25% of industrial business in 2020 coming from products less than 2 years old

Source: ABI Research, WSTS, ST Estimation
Galvanic isolation solutions for industrial robots and multiple applications

Analog – Application specific Galvanic isolation

Gate driver with 6kV galvanic isolation for industrial and home appliances

High Voltage Low Voltage
Analog – Application specific Wireless charging solutions

soon...

> 50 W - Under Development
Suitable for industrial applications e.g. power tools

25-50 W Flagship smartphones, tablets, laptops
Ultra fast charging and proprietary protocol

10-25 W Entry to Mid smartphones / appliances
Enabling high penetration rate for wireless charging

1-10 W Wearable / Hearable Devices
Optimized for ultra-compact battery-operated

Available on the market

Complete ST turnkey Transmitter and Receiver solutions
• Broadest portfolio of MEMS and Optical Sensing Solutions rapidly expanding through diversification

• General Purpose & Application Specific Analog products addressing all markets served by ST

• Innovation DNA: Technology + Application knowhow
Thank you