Summary of the Activity in the First Half of 2020

Kalray’ MPPA®
The Processor at the Heart of New Intelligent Systems

July 10, 2020
Agenda

1. Kalray in a Nutshell
2. Key facts H1-2020
3. Coolidge™ commercial launch
4. Data Center Market
5. Automotive Market
6. What’s next?
THE SPEAKERS

Eric Baissus  
Executive Board Chairman

20 years’ experience as senior executive for major telecom (Alcatel-Lucent) and electronics (Texas Instruments) groups, startup director.


Anne Gabrot  
CFO

20 years’ experience as CFO for major telecom groups and tech startups.

ÉCOLE POLYTECHNIQUE UNIVERSITY PARIS-Saclay

ESSEC BUSINESS SCHOOL
Kalray offers a new type of processor targeting the booming market of intelligent systems.

A Global Presence
- France (Grenoble, Sophia-Antipolis)
- USA (Los Altos, CA)
- Japan (Yokohama)
- Canada (Partner)
- China (Partner)
- South Korea (Partner)

Financial investors: CEA Investissement, Bpifrance, ACE, INOCAP Gestion, Pengpai
INTELLIGENT SYSTEMS / EDGE COMPUTING
At the Heart of Next Decade Industry

Next Gen. Embedded Systems
Next Gen. Data Center

Compute and AI Intensive Critical Systems

MPPA® Processors
PCIe Cards & Modules

Acceleration Solutions for Storage, Networking and Compute
STATE-OF-THE ART SUPPLY CHAIN
High-Quality Partners

Built for High Volumes & High Quality Products

- Fabless model – fully scalable
- Qualified Global Supply Chain
- Support highly demanding customers in Automotive & Aerospace
- Partnership with NXP on safety-centric systems and technologies
EDGE COMPUTING OPPORTUNITY
Data are generated at the Network Edge

Data are Exploding
AI, 5G, IoT

ONLY 25% of "usable" data will reach a data center
75% are Ephemeral
And need to be analyzed locally in real time

9x Data created
In the last 2 years
versus Entire History of the humanity!

IoT
6Bu IoT devices
connections by 2026

Telecom
5Bu Mobile Phone
Users by 2020

Smart Factory
5 petabytes of
video data/day
1 Smart Factory

Smart City
200 petabytes of data/day
1 million-people smart city

Autonomous Vehicle
4 terabytes of data/day
1 Autonomous vehicle

Twitter
500m of Tweets
every day
6000 every second

Facebook
100m of video hours
seen every days

Youtube
5b of videos
every day

Facebook
100m of video hours
seen every days

Facebook
100m of video hours
seen every days

Facebook
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INTELLIGENT SYSTEMS / EDGE COMPUTING

Intelligent Systems Analyses a Huge Flow of Data in Real-Time

A Disruption Requiring a New Generation of Processors & IP

Multiple emerging end-markets

- Data centers
- Autonomous driving
- Aerospace & Defense
- Industrial 4.0 & Robotics
- 5G / Telecom
- Other Edge Computing Applications

COMPUTERS APPLICATION PROCESSING

SMARTPHONES CONNECTIVITY & MOBILITY

INTELLIGENT SYSTEMS ANALYSIS & DECISION-MAKING

1970+
1990+
2020+

INTELLIGENT SYSTEMS & EDGE COMPUTING OPPORTUNITIES

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INTELLIGENT SYSTEMS & EDGE COMPUTING MARKETS: The Next Wave of AI

Centralized AI processing
- Big data
- Massive Storage
- Training and Inference

Today
99% of a $5,5B market\(^{(1)}\)
Controlled by Cloud giants incl. Google, NVIDIA and Intel

AI processing close to Data
- Real time
- Inference and co-training
- Security & Privacy

Today
1% of a $5,5B market\(^{(1)}\)
Booming of AI, deployment of new intelligent systems

\(^{(1)}\) McKinsey – Jan. 2019 – AI-related semiconductor market
### INTELLIGENT SYSTEMS & EDGE COMPUTING MARKETS:
The Next Wave of AI

<table>
<thead>
<tr>
<th>Cloud</th>
<th>Centralized AI processing</th>
<th>Today</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>• Big data&lt;br&gt;• Massive Storage&lt;br&gt;• Training and Inference</td>
<td>99% of a $5.5B market (1)&lt;br&gt;Controlled by Cloud giants incl. Google, NVIDIA and Intel</td>
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<tr>
<th>Edge Computing</th>
<th>AI processing close to Data</th>
<th>Today: 1% of a $5.5B market (2)&lt;br&gt;But in 2025 a $5.5B market! (3)</th>
</tr>
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<td></td>
<td>• Real time&lt;br&gt;• Inference and co-training&lt;br&gt;• Security &amp; Privacy</td>
<td>Need for flexible solution able to accelerate application, protocol and artificial intelligence</td>
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KEY FACTS

First sales of Coolidge™
Several dozens of sales of Coolidge™ development workstations and dev cards in Q2-2020.

On the route to certification
Ongoing certification of our “Smart Adapter NVMe-oF” targeting new storage servers.

Crisis management
- Minimized impact of Covid19
- Revenue H1-20 +7% vs H1 19
- Revised objectives of April-20 confirmed
- Data Center is strong and is short term priority in term of revenue

Partnership in Automotive
NXP equity investment to strengthen partnership with Kalray and co-develop, jointly promote and deploy safe autonomous driving solutions on the market.

+13M€ Cash-In
- 8M€ NXP investment
- 5M€ “PGE” loans

Euronext Award
Kalray received the European Rising Tech label, awarded by Euronext
Coolidge™: A technological breakthrough now available

MPPA®
The Processor at the Heart of Intelligent Systems
ARCHITECTURE ADAPTED TO HARNESS ALL THE BENEFITS OF MPPA® TECHNOLOGY, CONCENTRATING THE EXPERTISE ACCUMULATED OVER THE PAST 10 YEARS:

- >100 man-years of development over 2018/2019
- 80% of the R&D team
- 66% Software / 33% Hardware
- 50% dev. / 50% validation and testing

COOLIDGE™ A MAJOR EVOLUTION
First Time Public Demonstrate at CES 2020
COMPREHENSIVE PRODUCT OFFERING

**CORE PRODUCTS**

**MPPA® PROCESSORS**

Coolidge™: Kalray’s 3rd generation processor available since Q1-2020

**KONIC™ BOARDS**

Kalray OpeN & Intelligent Cards (KONICs)
Programmable & Reconfigurable PCIe cards

**ACCESSCORE® SOFTWARE SUITE**

Comprehensive OS, AI, Compute, Storage and Networking software stacks

**SUPPORT PRODUCTS**

**SOFTWARE DEVELOPMENT KITS**

SDK

**DEVELOPMENT PLATFORMS**
# COOLIDGE™: TOWARDS VOLUME IN 2021

<table>
<thead>
<tr>
<th>Bring Up (1)</th>
<th>Customer Evaluation &amp; Coolidge™ integration on their own product</th>
<th>Production Qualification Ready for mass production</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q4 2019</td>
<td>Q1 2020</td>
<td>Q2 2020</td>
</tr>
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</table>

**Coolidge™ samples availability**

**First samples of cards**
- K200 cards for development, prototyping and production
- Software environment

**1st Coolidge™ demo at CES (7-10 Jan. 2020)**

**Shipment of 1st dev. workstations to early adopter customers has started!**

**Coolidge™ General availability**

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(1) The bring-up phase covers the validation of key blocks and the initial port of the development environment of the MPPA®
Progress on our 2 targeted markets: Intelligent data centers & cars

MPPA®
The Processor at the Heart of Intelligent Systems
MULTI SEGMENTS & COMPOSABLE SOLUTIONS
A Single Card for The Future of Data Centers

NVMe-oF storage solutions
- JBOF
- Hybrid JBOF / JBOD
- Disaggregated storage servers

Software defined, composable & hyper-converged storage solutions
AI storage container
Computational storage

EDGECOMPUTINGHPC

Compute acceleration
AI Inference acceleration
New Distributed Platform nodes

SECURITY

SSL / TLS offload
Encryption / Decryption offload
New data center security models

NETWORKING

SDN Acceleration
(OpenvSwitch, SD-WAN, NAT...)

STORAGE

AI storage container
Computational storage

AI Inference acceleration

New Distributed Platform nodes
GLOBAL COMPUTE & STORAGE DATA CENTER ARCHITECTURE

Where does Kalray fit?

- SmartNIC
  - Bare Metal + Containers

- SSL / TLS offload
  - Encryption / Decryption offload
  - New data center security models

- Acceleration Cards
  - AI

- Application / Compute Nodes

- Storage Appliance
  - Front-end Network
  - Front-end ports
  - Back-end Network
  - Direct Attach

- Storage Head Nodes with Data Services (DS)

- Storage Shelves
  - (JBOD, JBOF, AI Cache ...)
  - Computational Storage

New data center security models
COOLIDGE™ “NVMe-oF” SMART ADAPTER
On The Route to Certification

NVMe-oF certification in progress ...

... with

University of New Hampshire InterOperability Laboratory

NVM Express™ over Fabrics
WISTRON & 2CRSi & OTHERS: Business in Progress

Wistron is an Original Design Manufacturer (ODM) that manufactures and assembles electronic components. Wistron was a spin-off company created in 2000 by Acer.

- Listed in Taiwan, it is one of the leading suppliers of electronics for data centers.
- Wistron has already announced the successful integration of Kalray boards in its next storage server (JBOF), which will support NVMe-TCP.

Kalray’s KONIC™ card support multiple profile to enable 2CRSi to rapidly compose modular solutions e.g. AI engines, application acceleration or protocol stacks.

- Enabled by MPPA® manycore intelligent unique architecture.
- Markets such as video surveillance, defect detection, finance algorithm optimization, Artificial Intelligence and many others.

➡ H2-2020: solutions dedicated to data centers integrating Coolidge™ processors integration
NEXT GENERATION VEHICLES

2 key Challenges

PERFORMANCE | AGGREGATION

A need for performance

A need to consolidate the electronic functions in the car

Perf. increase

x100 up to

x1,000

50 to 100 processors per car today

ESTIMATED REQUIREMENT FROM MANUFACTURERS TODAY: 150 TO 300 TOPS


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NXP / KALRAY STRATEGIC ALLIANCE
Next Generation of Central Compute Solution for Car Industry

CENTRAL COMPUTING SOLUTION
FOR AUTONOMOUS VEHICLES

- For Level 3 vehicles
- Roadmap up to Level 5

1 Gartner 2017 market share
2 NXP 2017 market share

#1 in automotive semiconductors
(11% market share)  
#2 in automotive processors
(28% market share)
STRATEGIC INVESTMENT OF NXP IN KALRAY

APRIL 2020

TRANSACTION

€8 million equity investment
to strengthen partnership to co-develop,
jointly promote and deploy safe autonomous driving solutions on the market

NXP Group holds
9.95% of Kalray’s share capital and voting rights

STRENGTHENED PARTNERSHIP

The funds raised will be used to both finance:
• Kalray’s resources and investments required by the implementation of the strategic partnership with NXP;
• Kalray’s roadmap in support of Kalray’s automotive and embedded strategy.

NXP will support Kalray in term of sales, marketing, automotive expertise and global technical support.
Cash position reinforced & financial objectives confirmed in 2021

MPPA®
The Processor at the Heart of Intelligent Systems
COVID-19 CRISIS: RECOVERY IN BUSINESS ACTIVITIES

MANAGEMENT OF THE COVID-19 CRISIS IMPACT

Kalray rapidly adapted to ensure the operational continuity of the company:

• Generalization of home working
• Slowdown in business cycle resulting in a delay in the deployment of certain current projects in the company

DATA CENTERS

In the data center market, the delay linked to the health crisis impact on projects and on business activity should only be a few months.

INTELLIGENT CARS

In the automotive market, more affected by the Covid-19 crisis, impacts remain limited, intelligent cars reflecting longer-term growth potential.
## CASH POSITION REINFORCED IN 1H-2020

<table>
<thead>
<tr>
<th>H1 2020 REVENUE: +7,5% VS H1 2019</th>
<th>€19.0M AVAILABLE CASH AT JUNE 30, 2020</th>
</tr>
</thead>
<tbody>
<tr>
<td>H1 2020 Revenue: 489 K€ (+7%)</td>
<td>• This level enables to pursue the technological roadmap and commercial deployment plans</td>
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<tr>
<td></td>
<td>• Cash position reinforced by €8M from NXP investment and by the first half (€2.5M) of State Guaranteed loan (PGE). Second half (€2.5M) received early July.</td>
</tr>
<tr>
<td></td>
<td>• 11 new recruitments completed in H1 2020 (R&amp;D and commercial engineers)</td>
</tr>
</tbody>
</table>
FINANCIAL OBJECTIVES CONFIRMED
Solid Cash Situation

<table>
<thead>
<tr>
<th>REVENUE</th>
<th>OPEX</th>
<th>CASH</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall estimated impact is a delay of 6 months versus original plans (assuming business back to normal September 2020)</td>
<td>≈20% increase in 2020 (vs 2019)</td>
<td>Cash position enabling the company to pursue the strategy over the next 12 months</td>
</tr>
</tbody>
</table>

€100M REVENUE BETWEEN MID 2022 TO MID 2023

MONTHLY EBITDA BREAKEVEN MID 2021
A CLEAR STRATEGY TO BE PURSUED IN 2020
On Two Priority Markets

INTELLIGENT DATA CENTER (STORAGE & NETWORKING)

Target market KALRAY
$\approx$€1bn by 2022*

STRATEGY
- Focus on Coolidge™
- Vertical approach (prepackaged software solutions including NVMe-TCP)
- Nourishing ongoing partnerships/agreements
- Volume ramp up starting end 2020

INTELLIGENT CAR / EMBEDDED SYSTEMS

Target market KALRAY
$\approx$€1.5bn in 2025**

STRATEGY
- Alliance with key market players to solidify reputation
- Working on a limited number of high-potential projects
- Technology licensing

* Comprising:
  - €500m SMARTNIC market ("Serverless DPDK Public Report" – CAVIUM)
  - €500m NVMe-OF Smart Adapter market (G2ME NVMe Market Report - 2017)

Thank You

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## KALRAY STOCK MARKET DATA

### STOCK EXCHANGE

- **Market**: Euronext Growth
- **Name**: KALRAY
- **ISIN code**: FR0010722819
- **Ticker symbol**: ALKAL
- **Share price**: €19.00 (at 08/07/2020)
- **Market capitalization**: €96.1m (at 08/07/2020)

### SHAREHOLDING - AS OF JUNE 30, 2020

- **Number of shares**: 5,058,710
- **Free Float**: 33.54%
- **Financial investors**
  - 33.12%
- **Corporate investors**
  - 33.35%
- **Note**:
  1. Financial investors include shareholders holding more than 5% of shares.
  2. Corporate investors include Safran, MBDA, Alliance Ventures, Pengwall, Definvest, NXP.

### NEXT MEETINGS

- September 21, 2020: 2020 Half-Year Results
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