STRATEGY UPDATE

AUGUST 6, 2020
HIDETOSHI SHIBATA
PRESIDENT AND CEO
RENESAS ELECTRONICS CORPORATION

BIG IDEAS FOR EVERY SPACE **RENESAS**

REVENUE PROGRESS

(oku-yen)	2020			
	1Q	2Q	1H	YoY
Revenue	1,787	1,667	3,454	+0.7%
Gross margin	47.3%	47.5%	47.4%	+6.2pts
Operating profit (Margin)	337 (18.8%)	302 (18.1%)	639 (18.5%)	+296 (+8.5pts)
Net income	299	237	536	+215
EBITDA	576	508	1,085	+233
1 USD	110yen	108yen	109yen	+2yen
1 EUR	121yen	118yen	119yen	+6yen

BIG IDEAS FOR EVERY SPACE RENESAS
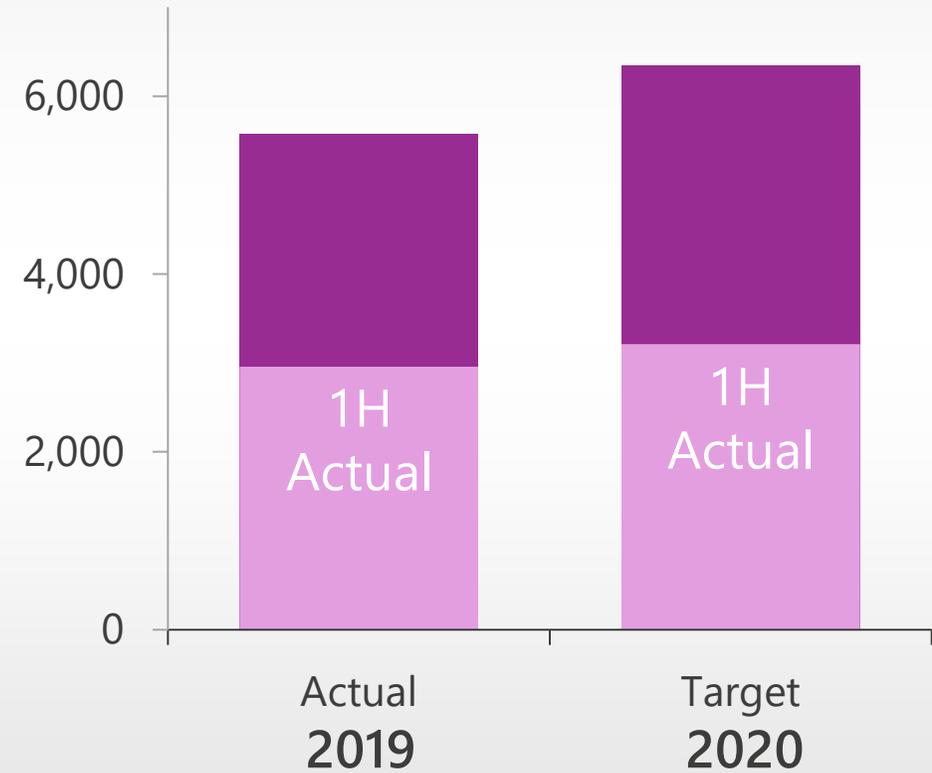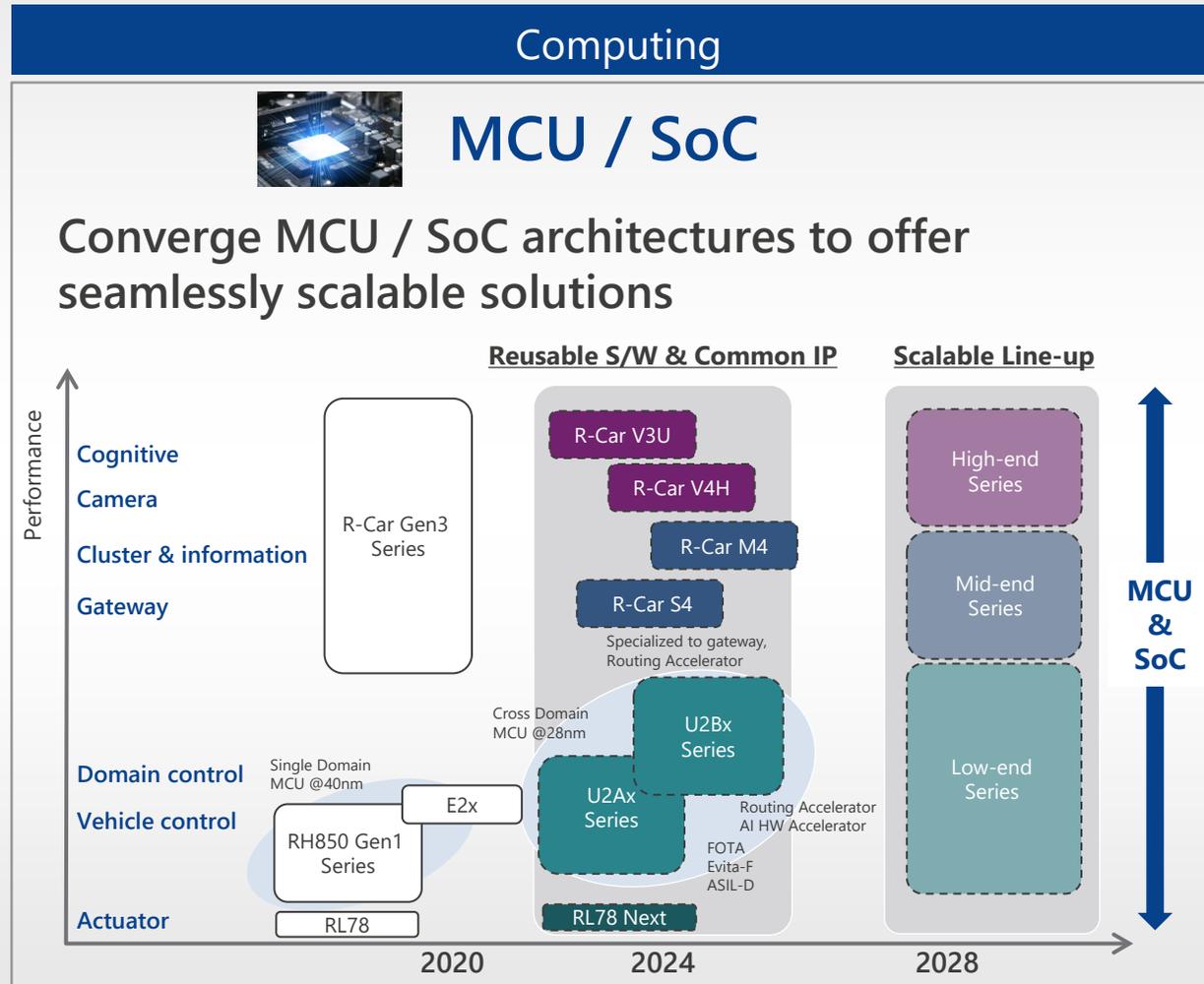
D-IN PROGRESS

Automotive (oku-yen)
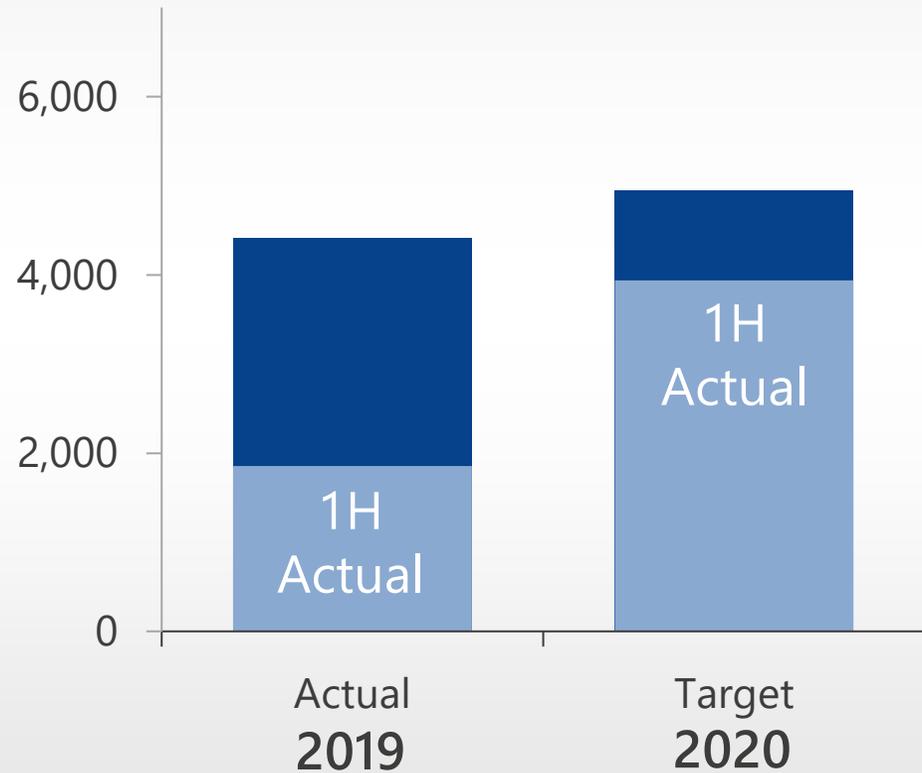
Industrial, Infra and IoT (oku-yen)

2019/1H: USD=110 yen / EUR=125 yen, 2019/2H: USD=107 yen / EUR=119 yen, 2020/1H: USD=108 yen / EUR=119 yen

BIG IDEAS FOR EVERY SPACE

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HOW WE WIN – AUTOMOTIVE 1

Computing

MCU / SoC

Converge MCU / SoC architectures to offer seamlessly scalable solutions

Performance

| | Reusable S/W & Common IP | Scalable Line-up |

- Cognitive
- Camera
- Cluster & information
- Gateway

R-Car Gen3 Series

R-Car V3U
R-Car V4H
R-Car M4
R-Car S4
Specialized to gateway, Routing Accelerator

High-end Series
Mid-end Series
Low-end Series

Cross Domain MCU @28nm

U2Bx Series

U2Ax Series

Routing Accelerator AI HW Accelerator

FOTA Evita-F ASIL-D

- Domain control
- Vehicle control

Single Domain MCU @40nm

E2x

RH850 Gen1 Series

- Actuator

RL78

RL78 Next

2020   2024   2028

MCU & SoC

Power / Battery management

PMIC

Bottom side

PMIC

PMICs fully calibrated to our MCUs and SoCs

PMIC

MCU / SoC

BMIC

BMS solutions of supreme accuracy and long life

BMIC

MCU

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HOW WE WIN – AUTOMOTIVE 1

Computing	Power / Battery management
D-in ADAS/AD front camera > $1 billion **Handful of sizable opportunities in funnel**	**D-in EV/HEV inverter** for Great Wall Motor (China) and for a major Indian OEM **SOP in 2021**

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HOW WE WIN – AUTOMOTIVE 2

Camera / Video interface

Analog HD Link

Camera module

Sensing ECU

PMIC

HD link IC (Tx)

AHL Lines

HD link IC (Rx)

MIPI V-ch

HV Power IC

PMIC

Power lines

R-Car V3x

Clock lines

Timing IC

Lower BOM cost

30% down

SerDes — AHL

Lighter cable (kg per 15m)

1.2 kg

60% down

0.5 kg

Coaxial — Twist pair cable

Sensing

Radar / Lidar

Strategic partnerships

STERADIANSEMI   LeddarTech®

Ultra low noise, 4D   Solid state, high resolution

Position Sensor

- No magnet
- No resolver-to-digital converter ("RDC")
- Fewer number of wires

> **1/10 thinner**
> **1/100 lighter**

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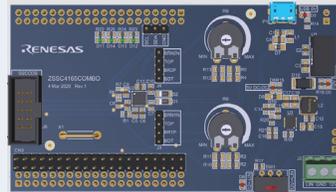
HOW WE WIN – AUTOMOTIVE 2

Camera / Video interface

New winning combo

Sensor signal conditioner

- Easier integration of SSC in car network
- Reduction of customer's R&D cost
- New introduction of SSC to provide accurate sensing for HVAC system

Wireless charger

- Leader in wireless charging in auto & consumer
- Track record of 500M+ devices shipment
- Turn-key reference design for auto
- Very low EMI & highest efficiency
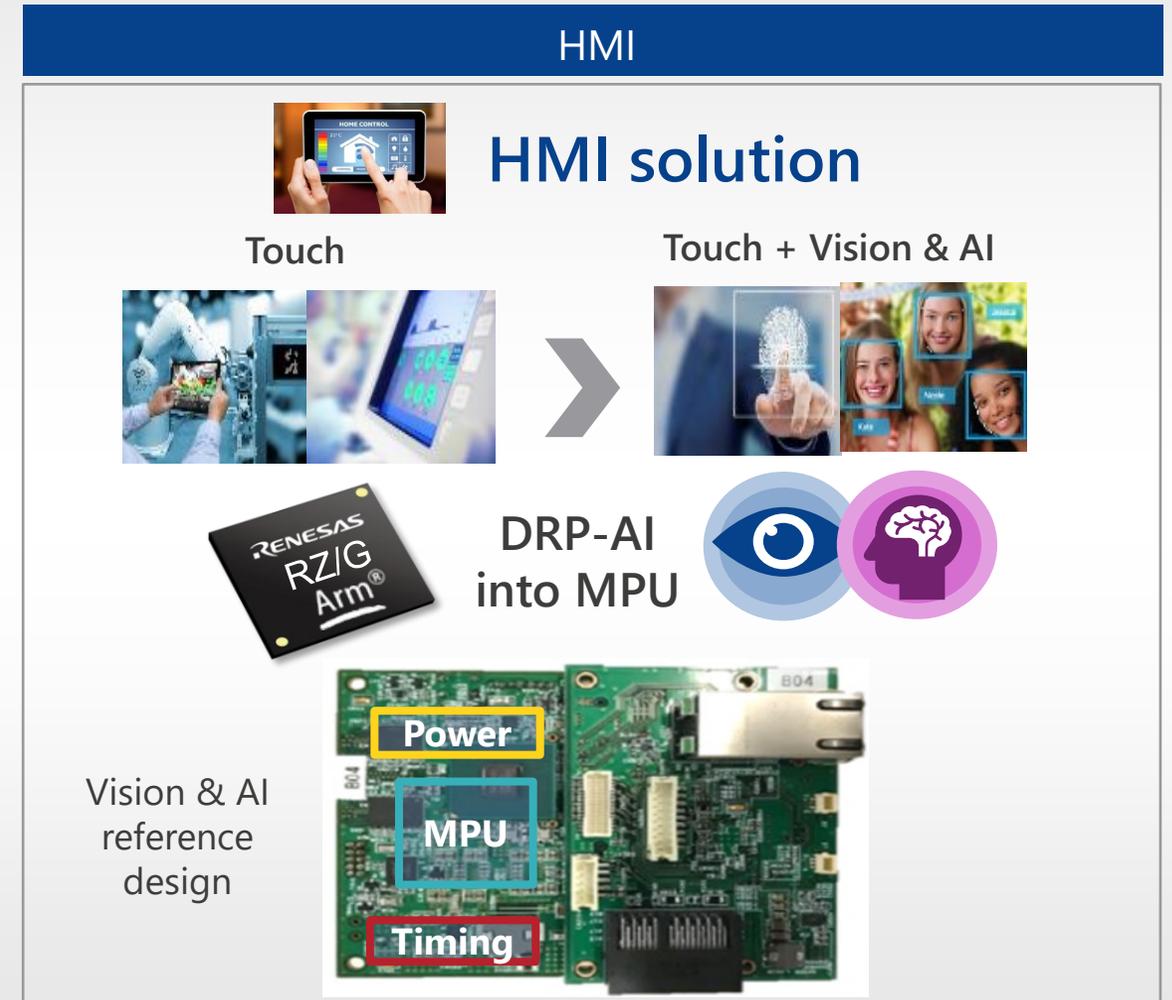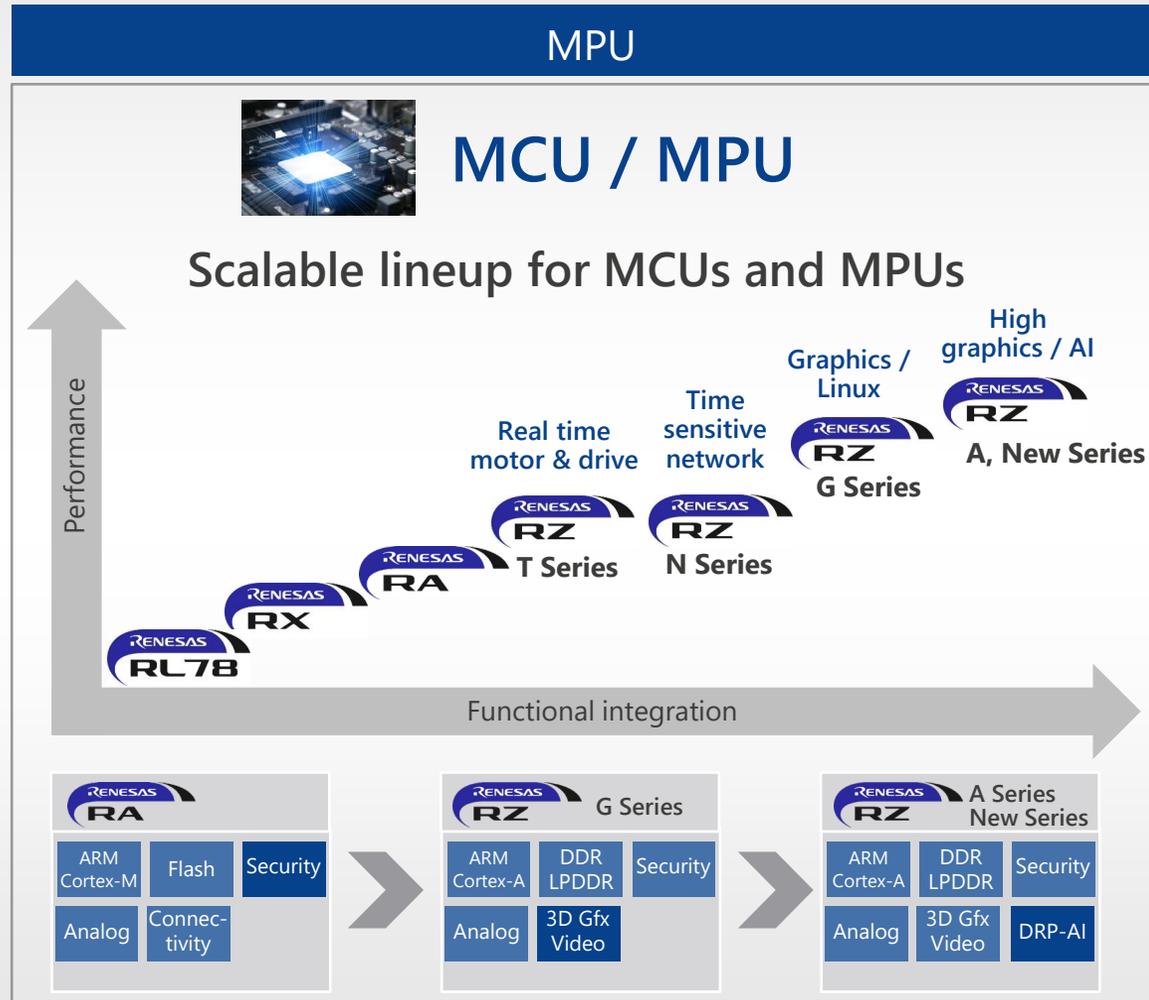
Sensing

Collaboration progressing

STERADIANSEMI   LeddarTech®

Auto product coming by end of year

Non-auto product (IPS2200) released in June

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HOW WE WIN – INDUSTRIAL

MPU

MCU / MPU

Scalable lineup for MCUs and MPUs

Performance ↑

High graphics / AI

RENESAS RZ
A, New Series

Graphics / Linux

RENESAS RZ
G Series

Time sensitive network

RENESAS RZ
N Series

Real time motor & drive

RENESAS RZ
T Series

RENESAS RA

RENESAS RX

RENESAS RL78

Functional integration →

RENESAS RA		
ARM Cortex-M	Flash	Security
Analog	Connectivity	

RENESAS RZ G Series		
ARM Cortex-A	DDR LPDDR	Security
Analog	3D Gfx Video	

RENESAS RZ A Series New Series		
ARM Cortex-A	DDR LPDDR	Security
Analog	3D Gfx Video	DRP-AI

HMI

HMI solution

Touch

Touch + Vision & AI

RENESAS RZ/G Arm®

DRP-AI into MPU

Vision & AI reference design

Power

MPU

Timing

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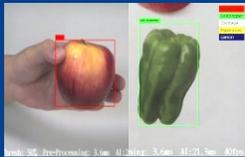# HOW WE WIN – INDUSTRIAL

MPU

100x

1st D-in of RZ/V series
for AI-enabled camera solutions

Thermal camera

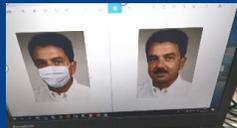Food recognition

Crowd monitoring

CASIO

10x

D-ins of RZ/A series
for vision solutions

IRIS authentication

Mask check

2D barcode

HMI (Face recognition)

HMI

VUI solutions

RL78/L1C HMI Kit

RX231 VR Board

RA6M1 VR Board

Wake-on -voice

Keyword and phrase recognition

Natural language

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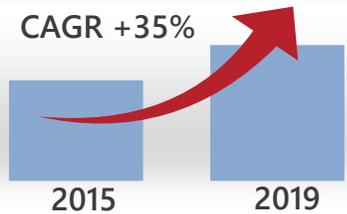# HOW WE WIN – INFRA AND IoT

Infra

5G

Revenue for RF (4G & 5G)

CAGR +35%

2015　　2019

Fastest entry to market with
- ✓ RF ICs for massive MIMO
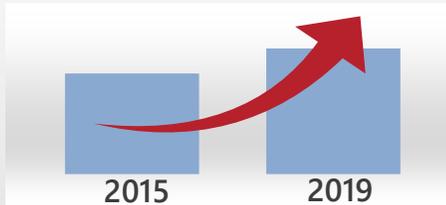- ✓ Beamformer ICs for mm Wave phased array antennas

Data center

MIP competitive landscape

Revenue for Data center

CAGR +25%

2015　　2019

DDR	DDR2	DDR3	DDR4	DDR5
7	10	5	3	3
IDT	IDT	IDT	IDT	IDT
Texas Instruments	Montage Technology	Montage Technology	Montage Technology	Montage Technology
PHILIPS	Texas Instruments	Texas Instruments	Rambus	Rambus
ICS	PHILIPS ICS	SILEGO		
CYPRESS	CYPRESS	Inphi		
FAIRCHILD	intel			
PERICOM	NEC			
	diablo technologies			
	Qimonda			

IoT

Arm MCU

RENESAS RA

Security for IoT

TrustZone®
System Security by ARM

Connectivity

Bluetooth® Low Energy

Telink

NB IoT

altair
A Sony Group Company

Low pin count

RL78/G11　　RL78/G11　　RL78/G11

25pin WFLGA　24pin HWQFN　20pin LSSOP

1mm

Cloud partnership

Microsoft Azure

powered by aws

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HOW WE WIN – INFRA AND IoT

Infra

5G

+80% revenue

1H/20 vs 1H/19

Data center

+20% revenue

1H/20 vs 1H/19

IoT

RA family

8x D-ins 1H/20 vs 2H/19

Low pin count MCU

7 products MP in 2Q/20
14 products MP in 2H/20

Connectivity and cloud partnership progressing
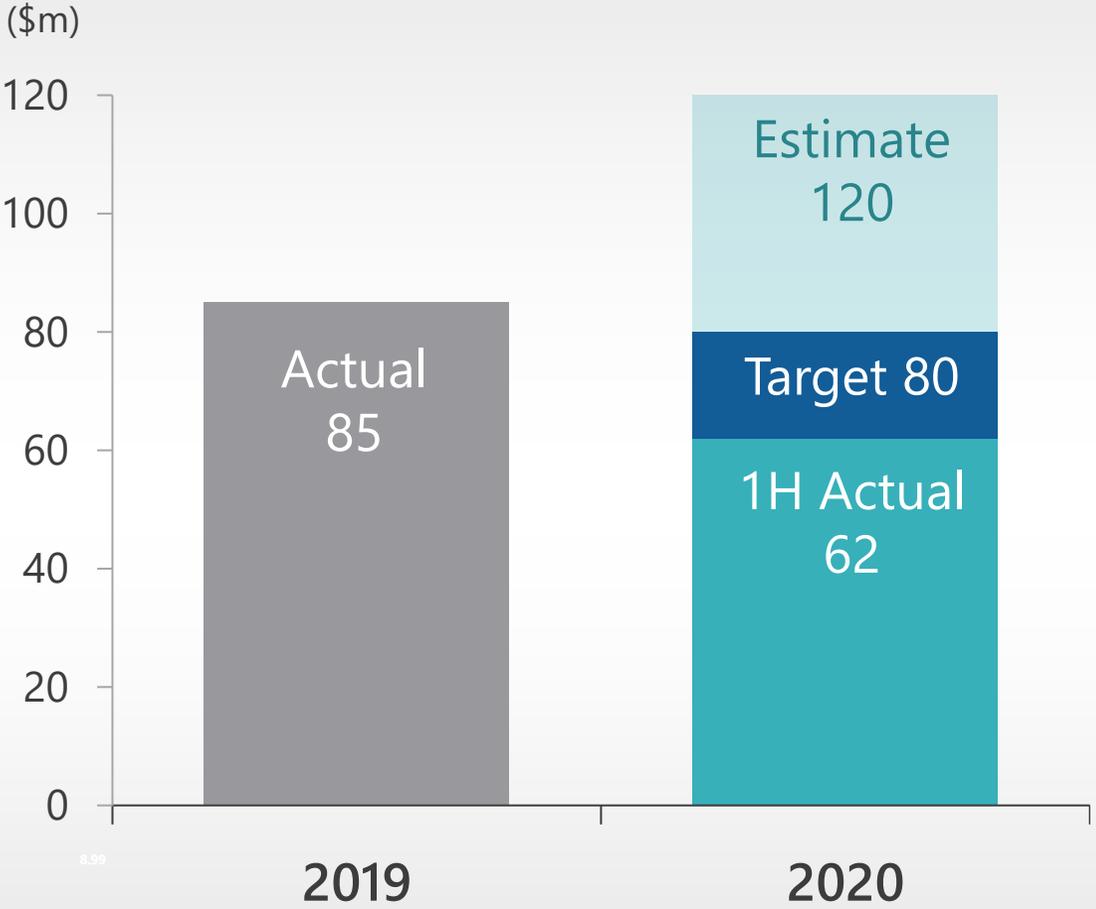
Microsoft Azure
Seamless out-of-box cloud connections

Panthronics
NFC-enabled wireless charging

3db
UWB solutions

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IDT SYNERGY: SAVINGS

($m)

Chart showing IDT synergy savings:
- 2019: Actual 85
- 2020: 1H Actual 62, Target 80, Estimate 120

Key Contributors

- Patent and design tools
- Organization and operation
- Procurement
- Distribution margin
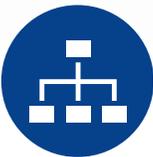
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IDT SYNERGY: REVENUES

Strategy		Solution	2019 Actual	2020 1H Actual
Deeper	Boost sales per customer	Winning combinations	LTV of $ 129m	LTV of **$ 357m**
Broader	Win new customers	New customer acquisition	11,802 new customers	**20,664 new** customers

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100+ WINNING COMBOS SINCE ACQUISITION

Automotive

- Battery management system
- BLDC motor control using inductive position sensing
- Electric vehicle charger

4 solutions

Industrial IoT

- 48V position control
- Air quality monitor (PM2.5)
- Industrial flow sensor
- Gas sensor

27 solutions

Infrastructure

- Cellular base station
- Cellular cloud connected system
- Enterprise server

17 solutions

Building automation and security

- Image sensor module
- Time-of-flight sensor module
- IP camera - sensor board
- IP camera - ISP board

0 solutions

Healthcare

- Ventilator system
- CPAP flow sensor
- Pulse oximeter
- IR contactless thermometer

10 solutions

Home appliance

- Cordless vacuum cleaner
- Induction heating cooker
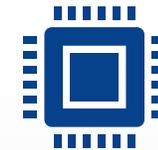- Refrigerator compressor digital inverter

25 solutions

Energy management

- E-valve with flow meter
- Home energy management system with PLC
- Solar battery charger

3 solutions

Xilinx and others

- Virtex Ultrascale + HBM
- Zynq Ultrascale + MPSoC
- Smart agriculture sensing with energy harvesting

15 solutions

As of January 24th, 2020

BIG IDEAS FOR EVERY SPACE **RENESAS**

160+ WINNING COMBOS SINCE ACQUISITION

Automotive

- Battery management system
- BLDC motor control using inductive position sensing
- Electric vehicle charger

4 ➡ 19 solutions

Industrial IoT

- 48V position control
- Air quality monitor (PM2.5)
- Industrial flow sensor
- Gas sensor

27 ➡ 29 solutions

Infrastructure

- Cellular base station
- Cellular cloud connected system
- Enterprise server

17 ➡ 33 solutions

Building automation and security

- Image sensor module
- Time-of-flight sensor module
- IP camera - sensor board
- IP camera - ISP board

0 ➡ 5 solutions

Healthcare

- Ventilator system
- CPAP flow sensor
- Pulse oximeter
- IR contactless thermometer

10 ➡ 13 solutions

Home appliance

- Cordless vacuum cleaner
- Induction heating cooker
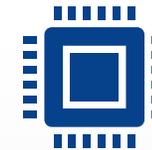- Refrigerator compressor digital inverter

25 ➡ 35 solutions

Energy management

- E-valve with flow meter
- Home energy management system with PLC
- Solar battery charger

3 ➡ 9 solutions

Xilinx and others

- Virtex Ultrascale + HBM
- Zynq Ultrascale + MPSoC
- Smart agriculture sensing with energy harvesting

15 ➡ 18 solutions

Explore the latest comprehensive Winning Combination solutions
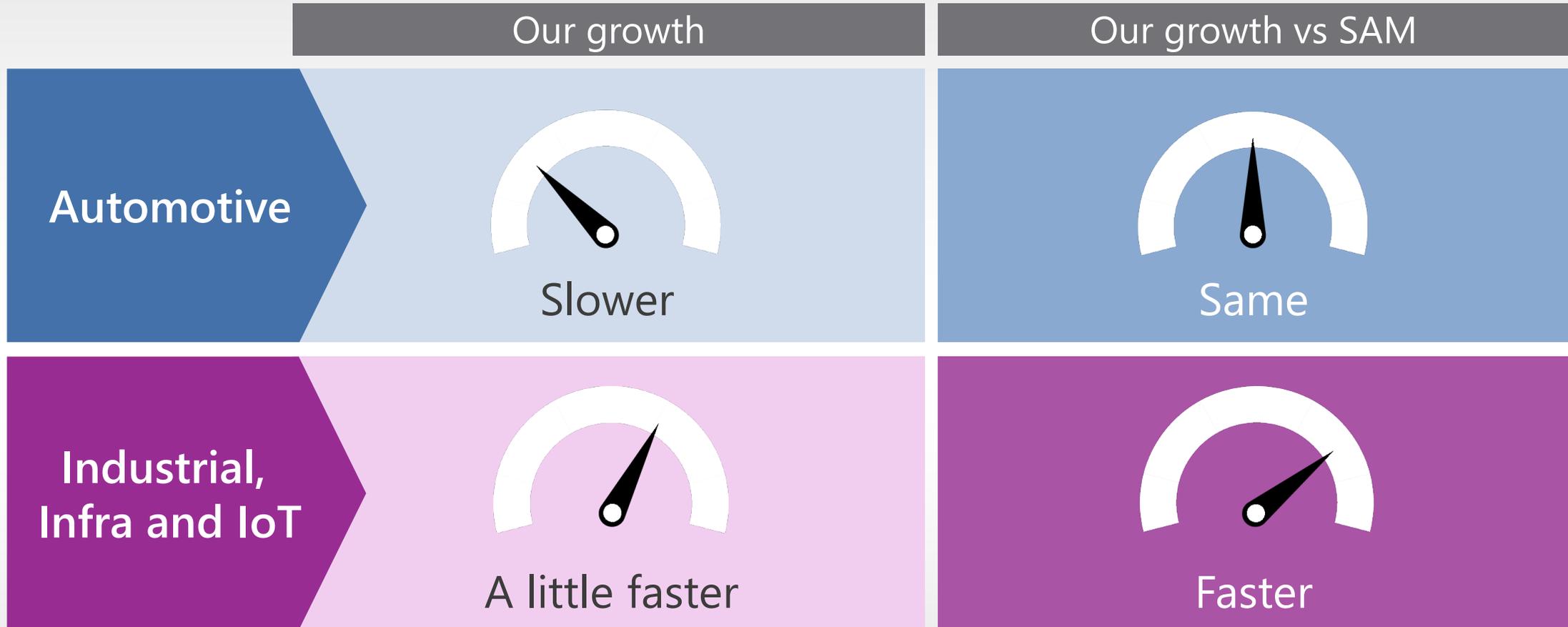
As of June 30th, 2020

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TARGET FINANCIAL MODEL

Analyst day (February ,2020)

Long-term target*

	2019 Actual	2019 Adjusted*	Automotive	Industrial, Infra & IoT	Total
Revenue	7,182 oku-yen	6,204 oku-yen	Grow @SAM	Grow @SAM+	Grow @SAM+
Gross margin	44%	43%**	40-45%	55-60%	50%
Operating margin	13%	12%	10-15%	25-30%	20%+

* FX 1USD=100yen, 1EUR=120yen. Continuing business only
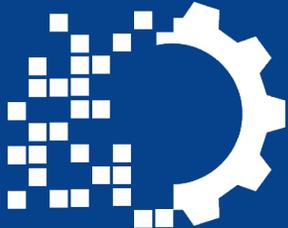** After reclassification (part of SG&A reclassified to CoGs and R&D)

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LONG-TERM GROWTH – LAP TIME

	Our growth	Our growth vs SAM
Automotive	Slower	Same
Industrial, Infra and IoT	A little faster	Faster

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COVID-19 – CHANGES PULLED IN

Contact-less

DX

New industry structure

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NEW GROWTH ANGLES

Automotive
New!

- Focus on more driver-appealing features
- Faster growth of xEVs
- Longer life for existing technologies

Industrial, Infra and IoT
New!

- Ramp-up of remote activity enablers (VR, PC/tablet & sensors)
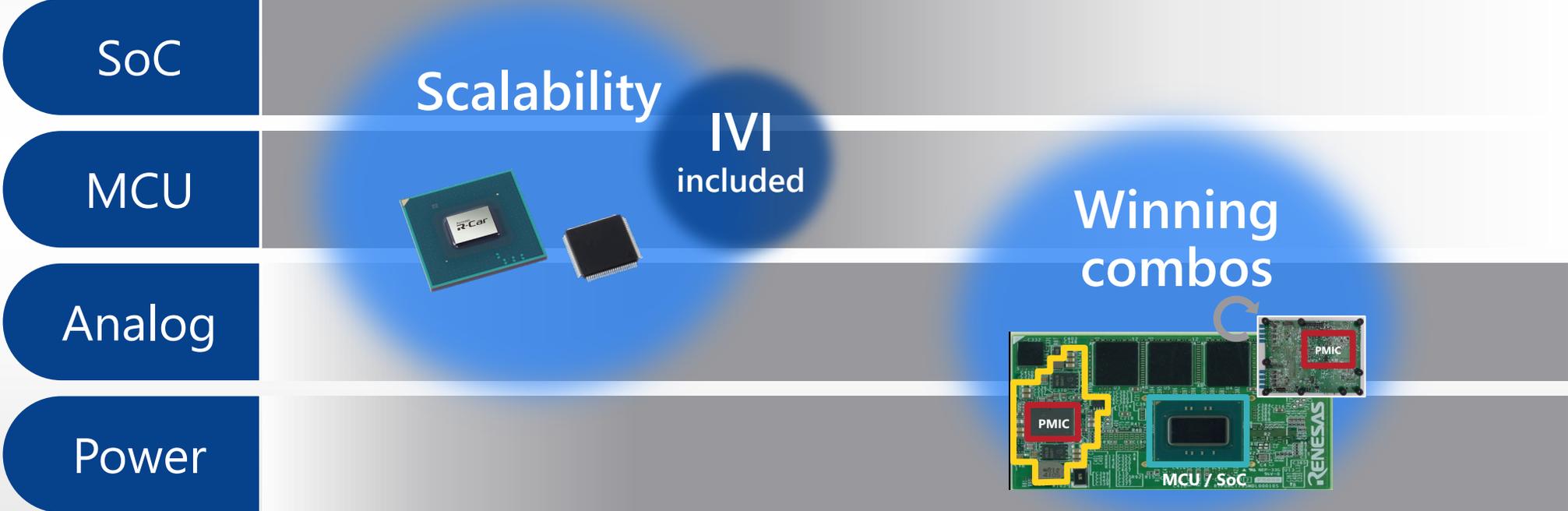- Proliferation of contact-less applications
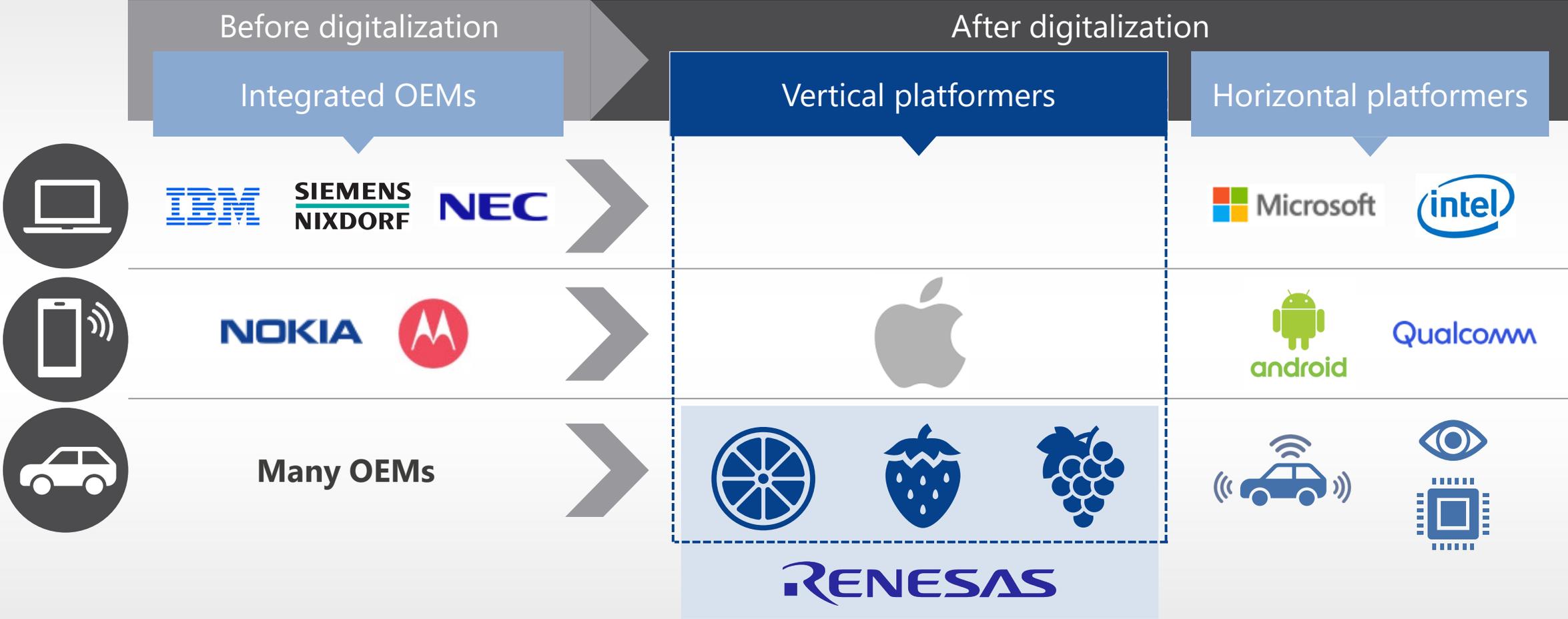- Larger demand for compute and comm infra

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LIVE AND LET LIVE
AUTOMOTIVE SOC STRATEGY

Before digitalization	After digitalization	
Integrated OEMs	Vertical platformers	Horizontal platformers
IBM, SIEMENS NIXDORF, NEC		Microsoft, intel
NOKIA, MOTOROLA	Apple	android, Qualcomm
Many OEMs		

Help establish integrated platformers

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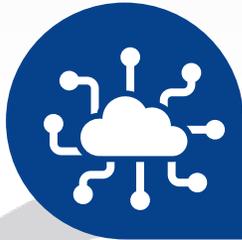
NOTHING NEW, JUST PULLED IN
INDUSTRIAL, INFRA AND IOT STRATEGY
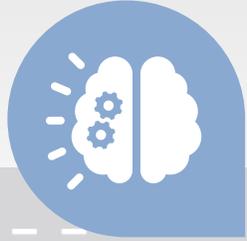
AI
Edge/EP-AI

Cloud
Bandwidth demand

IoT
Sensors, surveillance and tracking

VR/AR
Social & training

VUI
Voice user interface

Telecom/5G
Traditional vs O-RAN

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IMPLICATIONS ON GROWTH BY VERTICAL
INDUSTRIAL, INFRA AND IOT STRATEGY

	Pre COVID-19		Post COVID-19
Data center	+	›	+ +
Smart phone	+ +	›	+
Laptop & tablet	+	›	+ +
Healthcare & environment	+	›	+ +
Surveillance, VUI	neutral	›	+
Rad hard technology	neutral	›	+

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SUMMARY

Well positioned portfolio

To address high growth market

With emphasis on delivering results

BIG IDEAS FOR EVERY SPACE

SUMMARY

Well positioned portfolio

To address high growth market

With emphasis on delivering results

- ✓ **Valid technology portfolio**

- ✓ **Same verticals, different (new) apps**

- ✓ **Execution on track**

... to make our lives easier

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