



Marvell Unveils 802.3ch 10G Automotive Multi-Gigabit Ethernet PHY

Overview

Company founded

1995

FY21 revenue

\$3.0B

Employees

5,000+

Patents worldwide

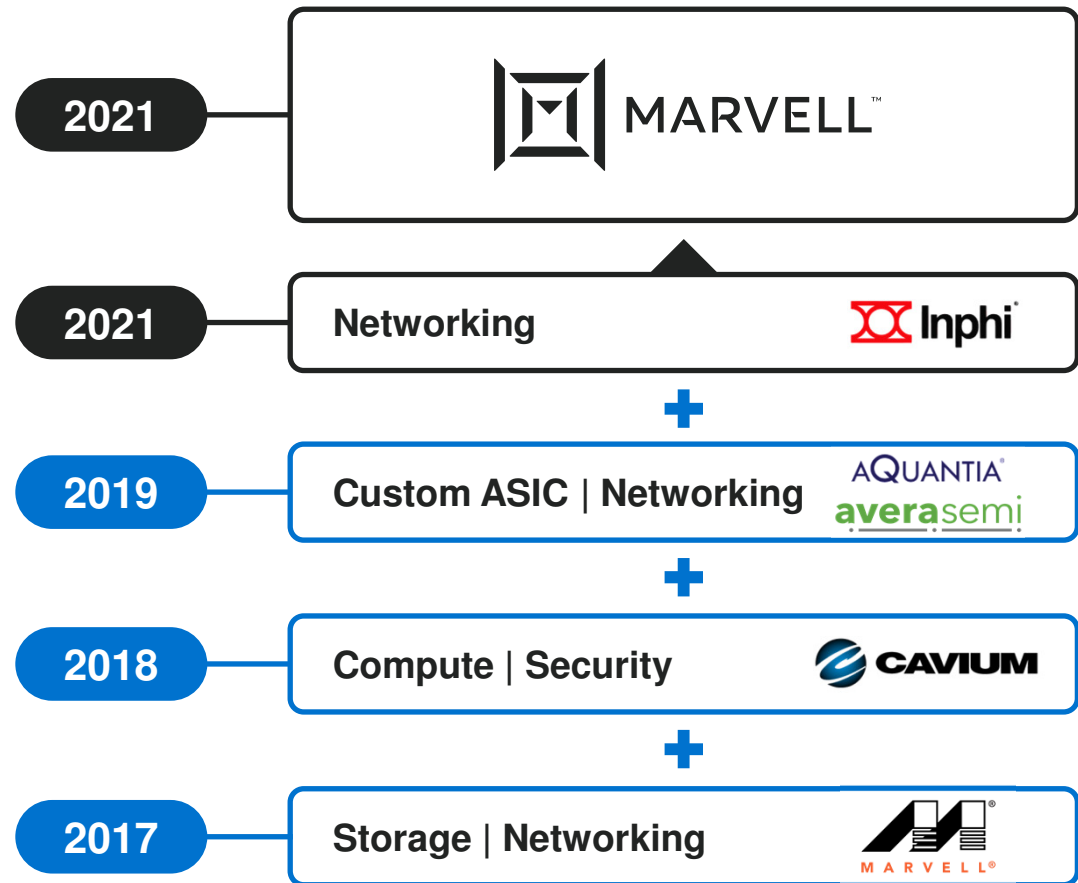
10,000+

Located in **Santa Clara, CA**

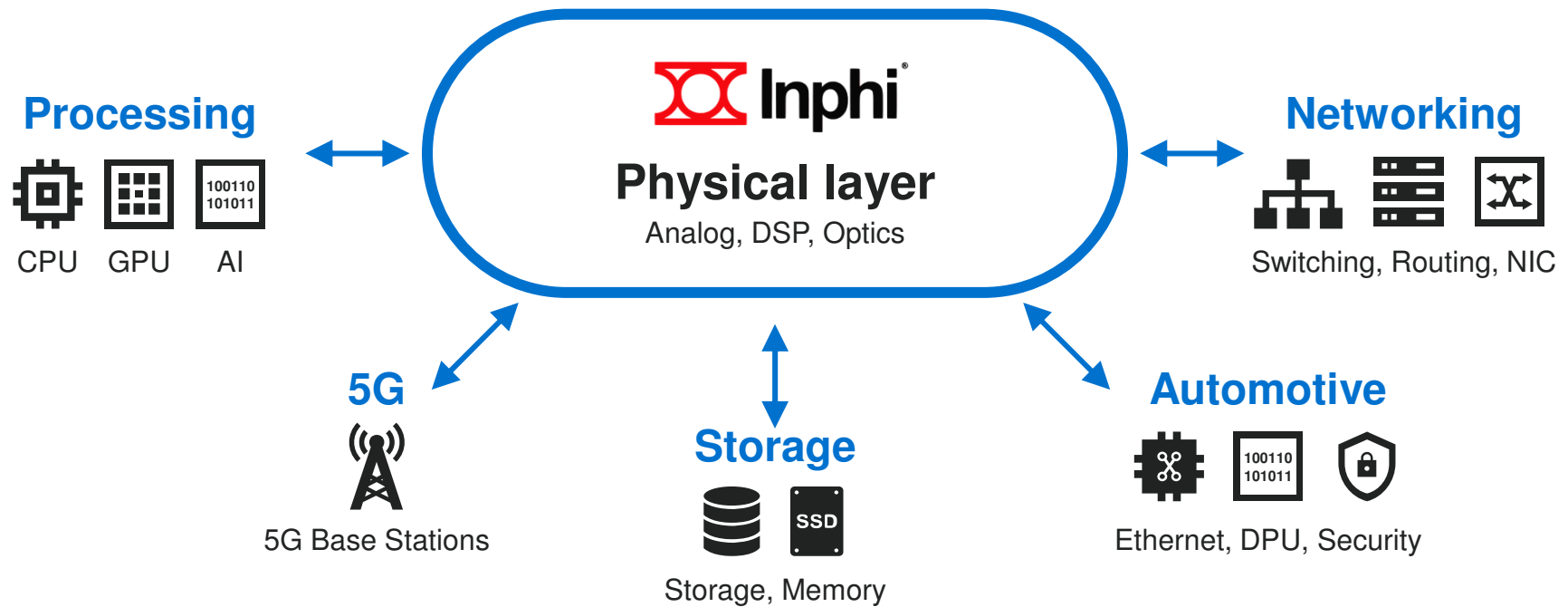
R&D centers in **US, Israel, India, Germany, China**



Transformation to premier data infrastructure partner



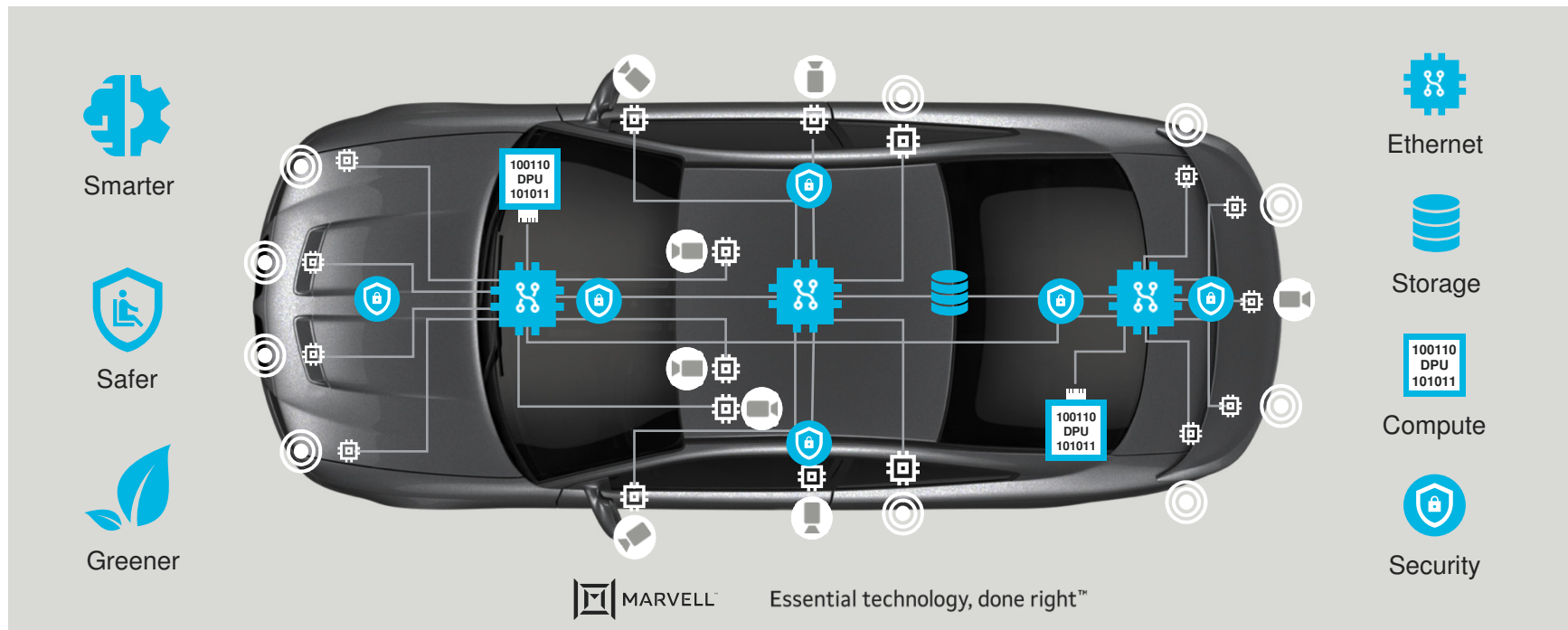
Inphi acquisition will add leading high-speed data interconnects



25-800Gbps+ electro-optics interconnect

Automotive Vision

Enabling smarter, safer and greener vehicles with innovative automotive networking, storage, compute and security semiconductor solutions.



Marvell Automotive

Market leader for
In-Vehicle-Network (IVN)



1,000+ engineers developing
Ethernet IP and products



2,000+ Ethernet patents



30+ Automotive IVN products in 2020



Committed to investing in continuous improvement



Opened the Automotive Center of Excellence (ACE) in Ettlingen, Germany in 2017



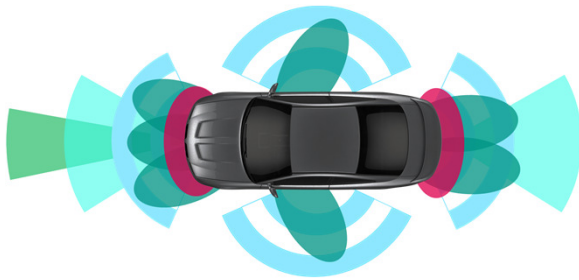
Launched the first CISPR 25 qualified automotive EMC lab in North America in 2018



Achieved ASPICE Level II and ASIL-B certifications in 2019 to ensure quality software and robust products

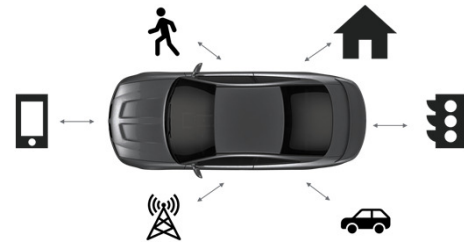


Next generation automotive megatrends



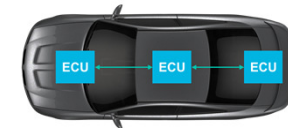
Autonomous

Higher level of Autonomy driving high resolution sensor integration



Connected

5G is enabling real time vehicle to external world communication for better safety and user experience

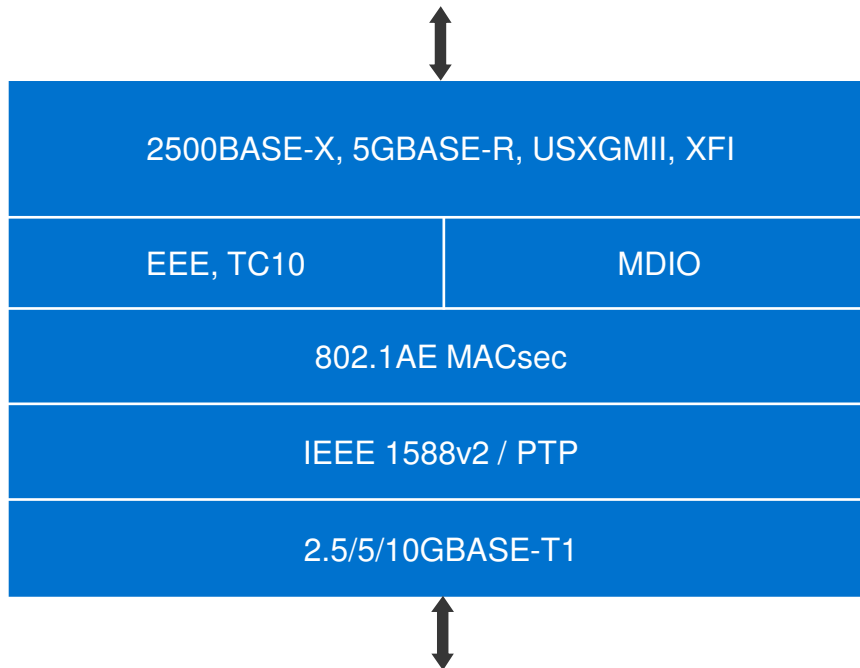


Software-Defined

Future cars are getting architected as a software defined. Car compute is getting centralized, requiring high speed networks

Introducing Marvell's 2nd generation 88Q4364 Ethernet PHY

IEEE 802.3ch 2.5/5/10G BASE-T1 PHY



Key Features

- IEEE 802.3ch compliant
- Speed Grades: 2.5/5/10GBASE-T1
- 802.1AE MACsec supported
- Energy Efficient Ethernet
- Sleep/Wake: TC10
- AEC-Q100 Grade 2 (-40°C to +105°C)
- 7x11 BGA

Secure multi-gig automotive Ethernet PHY



802.3ch Compliant
Multi-gig
Ethernet PHY
(2.5G/5G/10G)



Layer 2 security
through integrated
MACsec



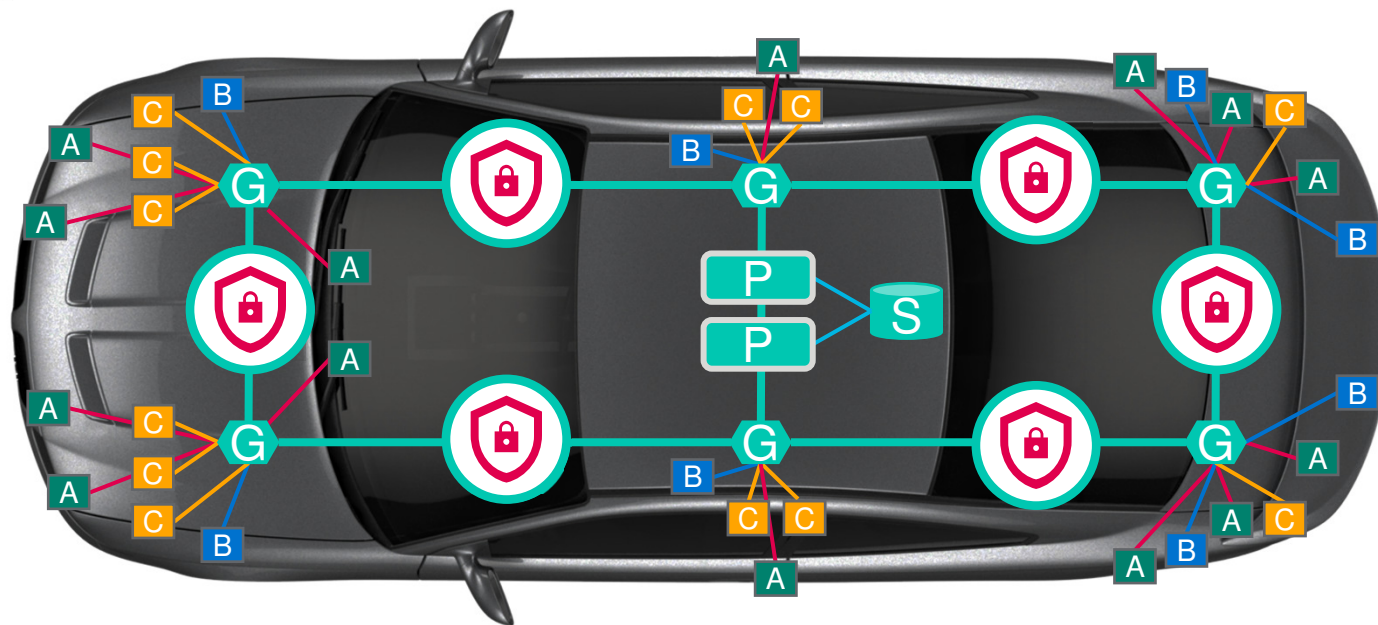
TC10 for Partial
Networking



Asymmetric Data
Transfer using
Energy Efficient
Ethernet

MACsec Integrated Automotive Multigig T1 PHY

- MACsec **secures IVN** by securing data exchange on a hop-by-hop basis
- **Prevents Layer 2 security threats** such as intrusion, man-in-the-middle, and replay attacks.



Low power through TC10 and EEE



TC10 Capable Multigig PHY

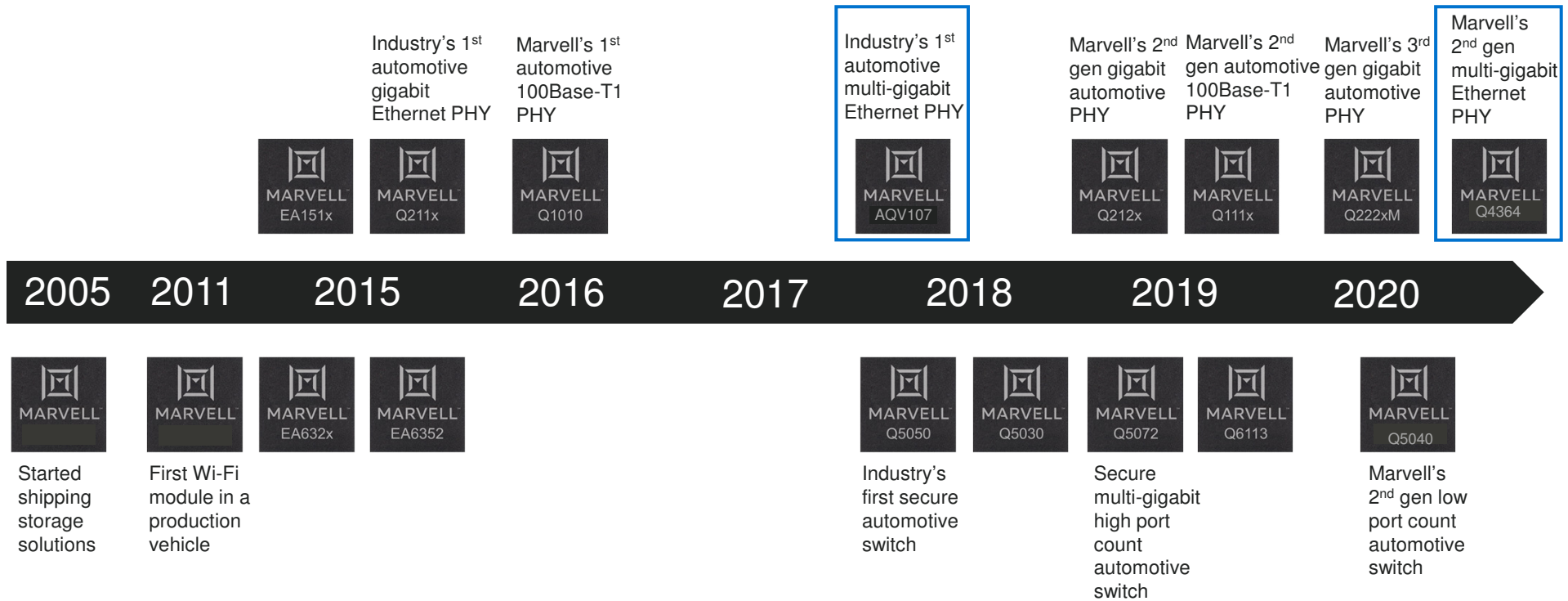
Enables Partial Networking allowing fast and on-demand wake / sleep for segments of IVN



Energy Efficient Ethernet

Power savings through asymmetric data transfer capability

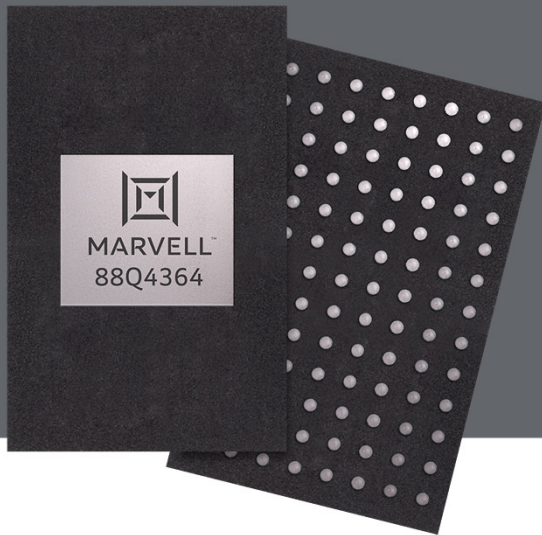
Marvell extends the IVN leadership with 88Q4364



Sampling now

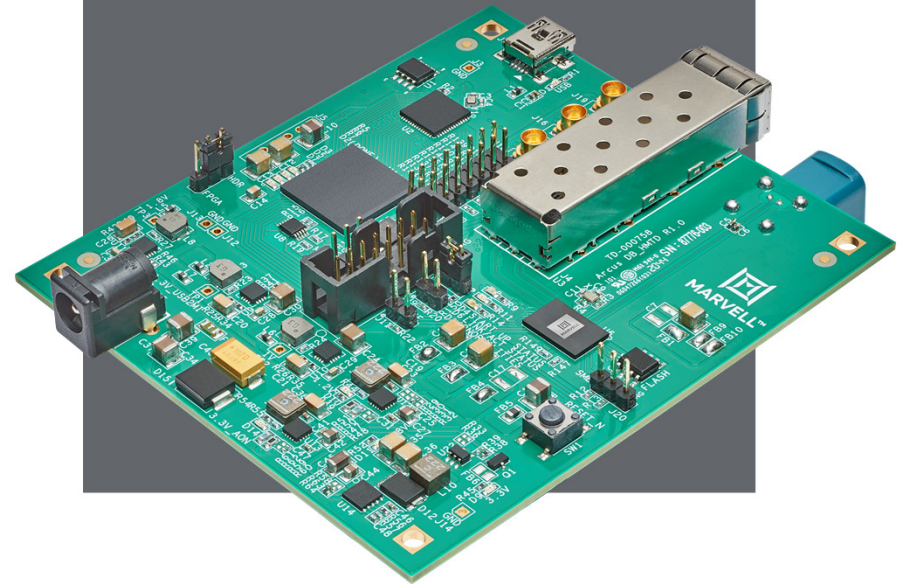
88Q4364

2.5G/5G/10GBASE-T1
7mm x 11mm 104-pin,
FETFBGA package
0.8 mm ball pitch



DB-88Q4364-A1-MC-1

88Q4364 Media Converter Board









“The DRIVE Orin platform can scale from level 2 to level 5 autonomy by aggregating multiple ECUs over a high-speed network. Leveraging Marvell’s latest 10Gbps Ethernet PHY, NVIDIA can provide high-speed connectivity at multi-gig speeds to enable load balancing with low latency, delivering enormous performance capability.”

- *Nvidia*

Summary

- | | | |
|---|---|--|
| 1 | Marvell extends leadership in automotive Ethernet with 2 nd gen mGig PHY |  |
| 2 | MACsec integrated T1 PHY for Layer 2 security |  |
| 3 | Supports low power operation through TC10 and EEE |  |
| 4 | Triple speed PHY that supports all (2.5/5/10G) 802.3ch speed modes |  |



Essential technology, done right™