

PROFITAP



ProfiShark Use Case

CASE STUDY MOSER-BAER AG

In-depth network analysis with ProfiShark helped the Moser-Baer AG R&D department improve their new products



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Summary

Moser-Baer AG is a family business, founded in 1938, that has grown out to be a multinational organization, with offices in Europe and Asia. With over 75 years of experience, MOBATime operates in the fields of Electronic Components, Precision Mechanics, and ICT.

One of their products is the MOBATime timeserver, which offers time solutions to many industries, like airports, railways, hospitals, Formula One circuits, and many more.

ProfiShark 1G has helped Moser-Baer's R&D team to:

- Verify and prove information sent on the network.
- Improve existing Hardware & Software design by discovering failures.
- Perform accurate analysis for better cooperation with development partners.



The Challenge

To keep improving the new generation of their timeservers Moser-Baer's R&D had to make sure nothing was overlooked. Working with new standards, third parties and multiple devices meant they had to stay on top of everything that was happening over their network.

They needed a strong analysis tool that could help them take the right decisions in the development process.

Moser-Baer's knowledge and expertise in networking technologies is growing, which in practice means that more and more processes and solutions need to be thoroughly checked.

With the timeservers designed to work on Ethernet infrastructures, Moser-Baer's Soft & Hardware Engineers have to make sure they have full access to the information on the network connection.

Third-party devices can also influence the way a product behaves in development. To make sure these devices correctly align and work well together with the existing infrastructure, it was important to solve all the problems in the early stage of development.

Accurate measurement results can be used to convince involved parties of present problems and the required steps needed to solve them.



How did the ProfiShark help?

To justify design choices made in the R&D department, comprehensive validation and debugging needed to be performed on outputs and sent/received traffic. ProfiShark can be used for analysis of low-level protocols, but also for complex traffic analysis on higher protocol levels, some of which are:

- NTP (Network Time Protocol)
- SNMP (Simple Network Management Protocol)
- PTP (Precise Time Protocol)
- SyncE (Synchronous Ethernet)
- LAG (Link-Aggregation)
- VLAN (Virtual-LAN) with PCP

Providing full visibility of the monitored networks, combined with a portable form factor, ProfiShark has proven to be a highly useful tool for the Moser-Baer R&D team.

Discovery of improper network interface (hardware fault)

Our timeserver has an SFP connection interface for different purposes. One is a redundant operation use case for synchronizing 2 of our devices. On our first PCB layout version (pre prototype) we were not able to make a connection with this SFP interface. With the help of the ProfiShark, we were able to see that Ethernet packets are sent to our device, but the answer from our device had always CRC errors in the Ethernet frames.

The Solution: We had some issues with the PCB layout constraints. On the second version of the PCB layout, we could fix those issues.

Verification of tagged VLAN frames on top of a LAG interface

Our timeserver is able to send tagged VLAN frames and for that, we must fill a PCP value in these frames for QoS purposes. For redundancy purposes, our timeserver uses LAG to bundle multiple physical LAN ports on logical LAN ports.

With the help of ProfiShark, we verified the generated VLAN frames that were sent by our devices, and also checked the corresponding PCP value.

Check compliance with specified standards for timestamps and message flow

ProfiShark was also used to verify PTP timestamps and message flow from our PTP-IP-Core (FGPA), both on IP layer and on Ethernet layer. The PTP-IP-Core could be run in different modes due to the generated packets being slightly different in all of these modes.

By using ProfiShark we could verify the implemented modes regarding the IEEE 1588 standard.

ProfiShark also helped us demonstrate to one of our development partners that in some cases their part does not behave as it was specified.

ProfiShark showed us that one of our third-party devices did not behave as the PTP standard defines it. That way, we could exclude an error on our side and validate that our device is in line with the standard.

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