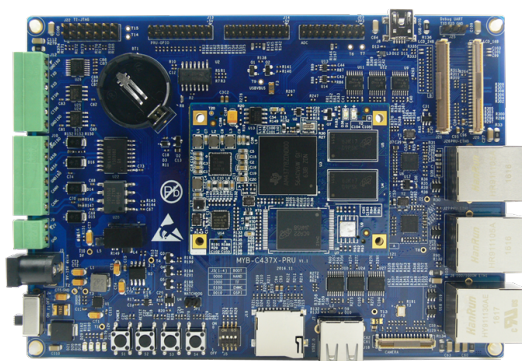


Hardware Performance Comparison

In this article we consider a capability of hardware acceleration in EtherCAT network on the example of MYIR board.



There are an Ethernet controller and PRUSS module on the board. Therefore, when using this board, data transfer is possible both through the internal interface and through the PRUSS module with support of hardware acceleration.

To measure Master cycle stability, we use a separate hardware module ET2000 which allows to track the time of sending frames with an accuracy of nanosecond.

1. The first case.
Data transferring via Linux driver with the socket interface.
2. The second case.
PRUSS driver is used as a socket interface. Master accesses PRUSS driver directly.
3. The third case.
Using the PRUSS with the Hardware timed send feature.

Table 1. HW performance comparison

Test case	CPU usage, %	Slaves response time, μ s	Master cycle range measured with ET2000, μ s
1. Via Linux driver	47	348	min 232 - max 1705
2. Via PRUSS driver	32	176	min 823 - max 1167
3. Via PRUSS with HW timed send	29	7	min 999 - max 1000

As you can see, using the Hardware timed send feature allows to achieve the best result: minimal slaves response time and more stable Master cycle.

For details on the Hardware timed send feature, refer to [KPA website](#).

koenig-pa GmbH
Im Talesgrund 9a
91207 Lauf a.d. Pegnitz
Germany
<https://koenig-pa.de/>

Contact
email: sales@koenig-pa.de
tel.: +49 9128 725 631
tel.: +49 9123 960 5796

koenig-pa GmbH Quality Management System is certified according to DIN EN ISO 9001:2015. Initial certification in 2008.
Copyright © koenig-pa GmbH, Germany. All rights reserved.
EtherCAT® is registered trademark and patented technology, licensed by Beckhoff Automation GmbH, Germany.

