

Date: May 27, 2024

About

This document is to provide users of the CAN-PCIe/200 products assistance to migrate to their successor CAN-PCIe/402.

Affected Products

Old Device	PLM Status	Recommended Successor Device	PLM Status
CAN-PCIe/200-1 (C.2042.02)	End of life (EOL)	CAN-PCIe/402-1 (C.2045.02)	Available (VERF)
CAN-PCIe/200-2 (C.2042.04)	End of life (EOL)	CAN-PCIe/402-2 (C.2045.04)	Available (VERF)

Background and Information

The CAN interface card CAN-PCIe/200 (C.2042.02 and C.2042.04) is at end of life. They are replaced by their successor CAN-PCIe/402 (C.2045.02 and C.2045.04). The new cards are designed as a drop-in replacement, however, require some adaptations in the application.

Technical differences

The following table lists the main differences between the CAN-PCIe/200 and the CAN-PCIe/402.

Device Property	CAN-PCIe/200	CAN-PCIe/402
CAN-Controller Type	SJA1000	esdACC IP Core
CAN Controller Frequency	16 MHz	80 MHz
Driver Family	C200	C402
MSI Interrupt Support	No	Yes
Busmaster DMA Support	No	Yes
HW Timestamp Support	No	Yes
On-board selectable CAN Termination	No	Yes
Ambient temperature	0 °C ... +50 °C	0 °C ... +75 °C
NTCAN API support available	Yes	Yes
SocketCAN support available	Yes, native	Yes, available as kernel patches on request
Driver Version for Windows	V 2.x	V 4.x
Driver Version for Linux	V 4.x	V 4.x
Support for RTX	RTX only	RTX64 only
Support for QNX	Yes	Yes
Support for VxWorks	5.4/5.5/6.x only	Yes

Contact for Questions

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The following table shows the differences in support for the individual features of the NTCAN API.

NTCAN API Feature	CAN-PCle/200	CAN-PCle/402
Support for frame scheduling (ID 7)	Linux only	Windows and Linux
Support for firmware upgrade (ID 10)	No	Yes
Support for Disabled Automatic Retransmission (ID 20)	No	Yes
Support for Transmit Pause (ID 21)	No	Yes
Support for Extended CAN Bus Diagnostic (ID 14)	No	Yes

NTCAN Feature ID according to chapter 3.18 of the NTCAN Application Developers Manual Part 1

Necessary changes in application

Device Driver on Windows and Linux

- The CAN-PCle/402 requires a different driver family than the CAN-PCle/200.
Download the latest C402 driver for your system from: <https://esd.eu/en/support/can-driver>. These are available as free download for Windows and Linux. Drivers for real time operating systems are available on request.
- Install the driver according to the install instructions from the download package.

Baud rate settings

- Bus Timing Register**
If the configuration via Bus Timing Registers is used, the CAN-PCle/402 uses different values because these are specific for every controller. The Bus Timing Register for the esdACC controller is described in Annex A of the NTCAN Application Developers Manual Part 1 available from <https://esd.eu/en/support/can-driver>
- Numerical value and bit rate table**
The baud rate settings using the numerical value, or the bit rate table index do not differ between the CAN-PCle/200 and the CAN-PCle/402.

SocketCAN (LinuxCAN) support

- SocketCAN support for the 402 series is available in the mainline Linux kernel starting with kernel version 6.9 and newer.
Patches for SocketCAN support on earlier kernel-versions are available on request from our support team.
- The preferred way is to use the C402 driver with the NTCAN API.

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Document History

Rev.	Changes	Date
1.0	Initial version of the application note	2024-03-15
1.1	Updated information for SocketCAN availability	2024-05-27

Technical details are subject to change without further notice.

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