# Lite Gateway-V1.0

## For AURIX™ family

## About this document

### Scope and purpose

This document describes the features and hardware details of the Lite Gateway-V1.0 equipped with an TriCore AURIX™ Microcontroller from Infineon Technologies AG.

### Intended audience

This document is intended for anyone who wants to develop software on the Lite Gateway-V1.0 or wants to use this kit for evaluating and demonstrating the capabilities of the AURIX™ microcontroller in combination with other Infineon Technologies products.

## Table of contents

# 1    Introduction of the Lite Gateway V1.0

The Lite Gateway-V1.0 offers a wide range of Application use cases. With the AURIX™ TC377 in combination with Broadcom's BCM89559G Switch with integrated 1000Base-T1 PHY future In Vehicle Networks can be addressed and evaluated. The TC377 featured with one Gigabit Ethernet Port is connected with a 1Gbps RGMII port to the Ethernet Switch for data transfer. The BCM89559G provide two 100Base-T1 Ports together with the Rosenberger H-MTD® connector. The integrated 1000Base-T1 PHYs from Broadcom in addition provide the right feature set to connect the Lite Gateway-V1.0 to an In-Vehicle Network. 8 CAN-FD connections with Infineon's TLE9250VSJ CAN transceiver, 5 LIN and 2 FlexRay channels allow bridging of different network topologies. And extension header allows to connect additional components to the board.

AURIX™ TC3xx does not compromise on security. The second generation of the programmable Hardware Security Module (HSM) is available across the family for secure on-board communications and to prevent hardware manipulation.

## 1.1    Key features

- AURIX™ TC377 with one Gigabit Ethernet Ports
- Infineon Supply IC's TLF30682QVS01, TLS4125V50, TLE4274GSV33, IR3883
- Infineon CAN transceivers TLE9250VSJ
- Infineon LIN transceiver TLE7258SJ and Flexray transceiver TLE9222
- Broadcom BCM89559G Switch and BCM89610 Ethernet PHY

## 1.2 Block diagram

The block diagram in Figure 1 shows the main components of the Lite Gateway-V1.0 and interconnects between the used devices.

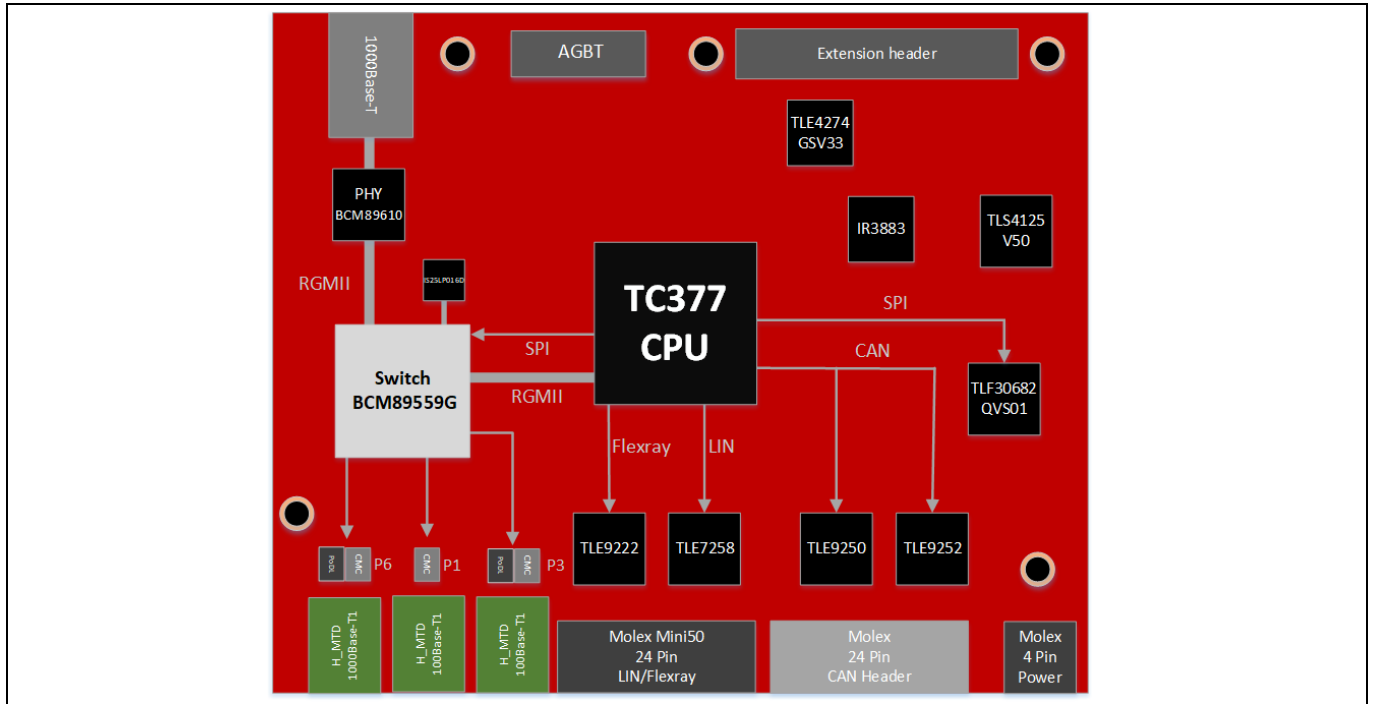

**Figure 1     Block diagram of the Gateway Board**

# 2 Hardware description

The following chapters provide a detailed description of the hardware and how it can be used.
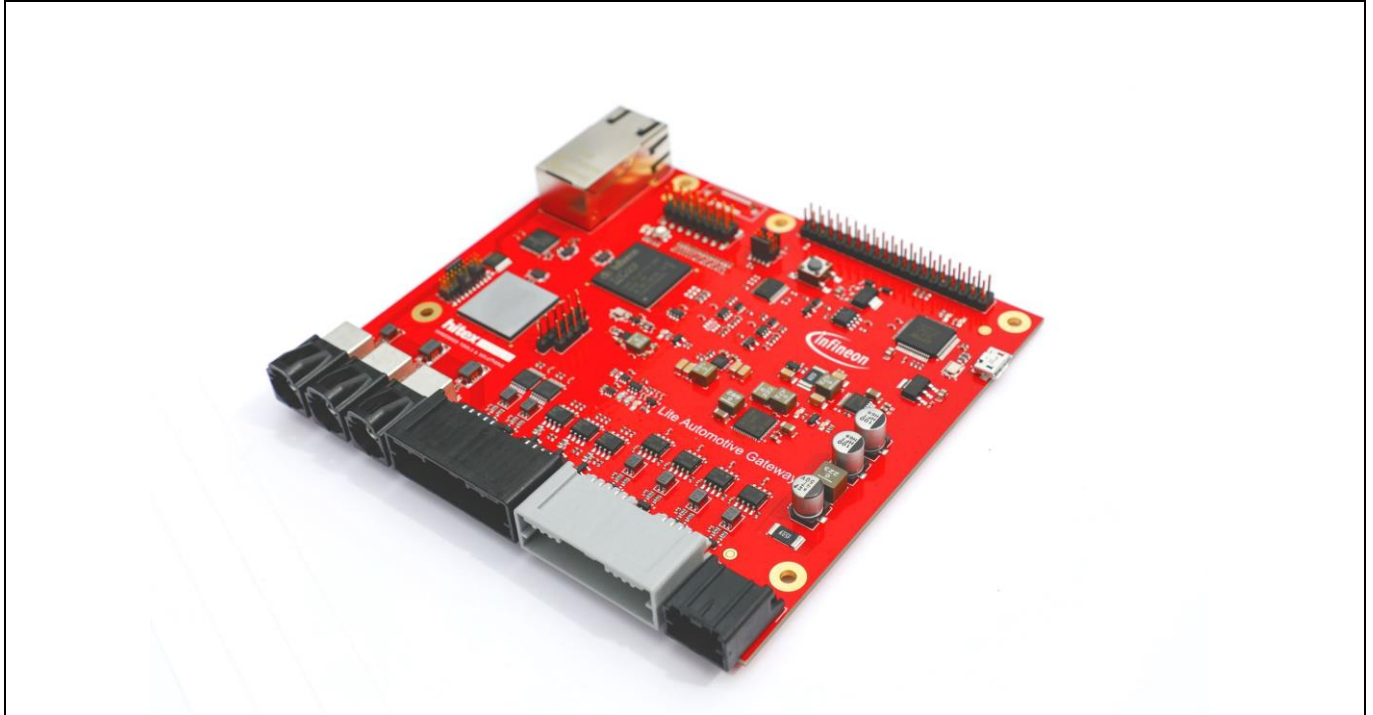


**Figure 2** **PCB of the Lite Gateway-V1.0**

## 2.1 Power supply

The Power Supply concept must guarantee a stable supply of the Board. The standard Input voltage is 12V. Out of several voltages will be generated. Figure 3 visualize the power domains and used structure of Infineon's supply IC behind.



**Figure 3      Supply structure**

## 2.1.1 Molex Mini4 power supply connector

There is a Molex Mini4 connector as power supply connection to the Lite Gateway-V1.0.



**Figure 4      Power supply connector**

## 2.1.2     TLF30682QVS01

The TLF30682QVS01, member of the OPTIREG™ PMIC-family, is a multi-rail supply for ADAS-applications like 76-79 GHz-Radar, multi-purpose Camera, or Display, Cluster, or Center Stack applications.

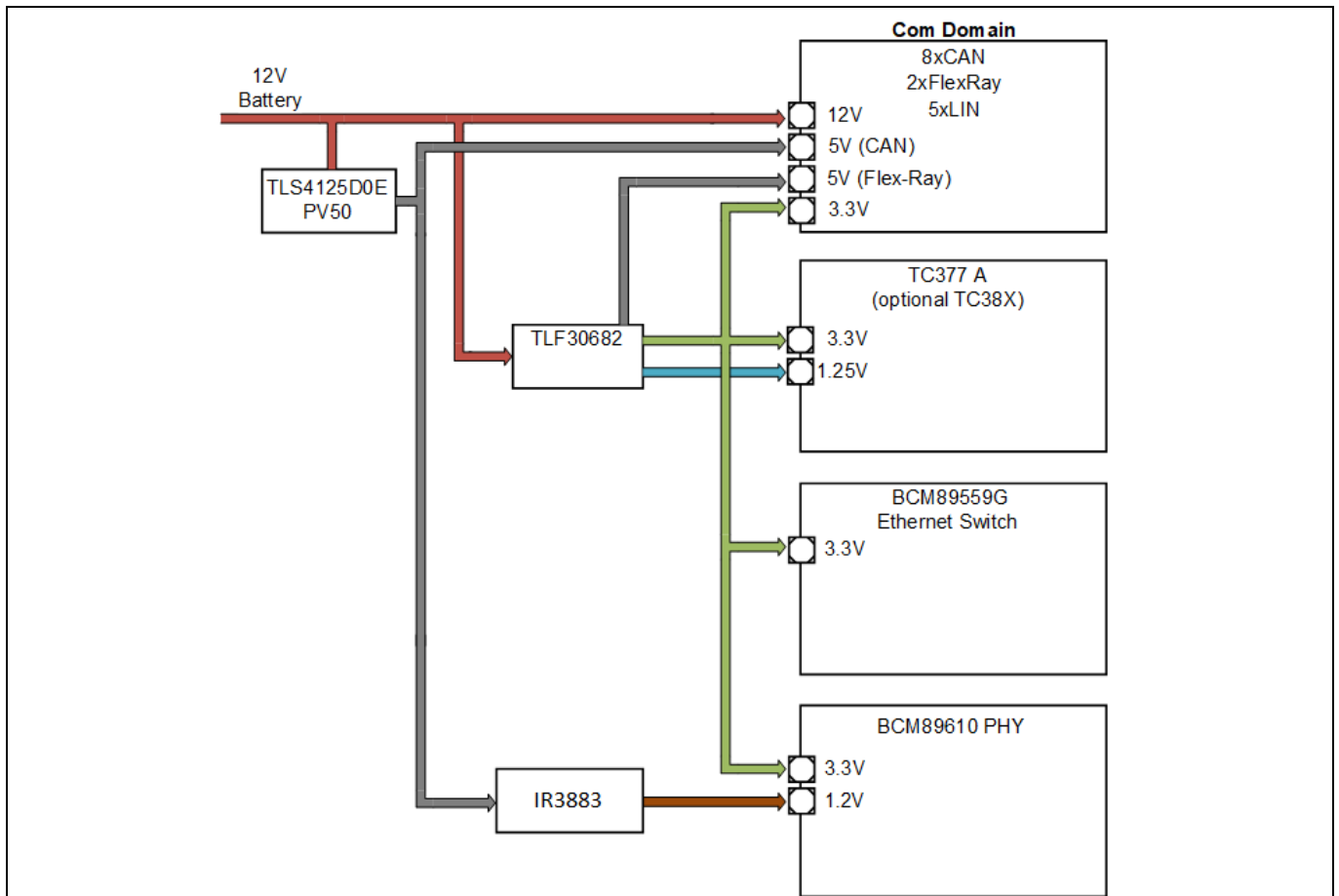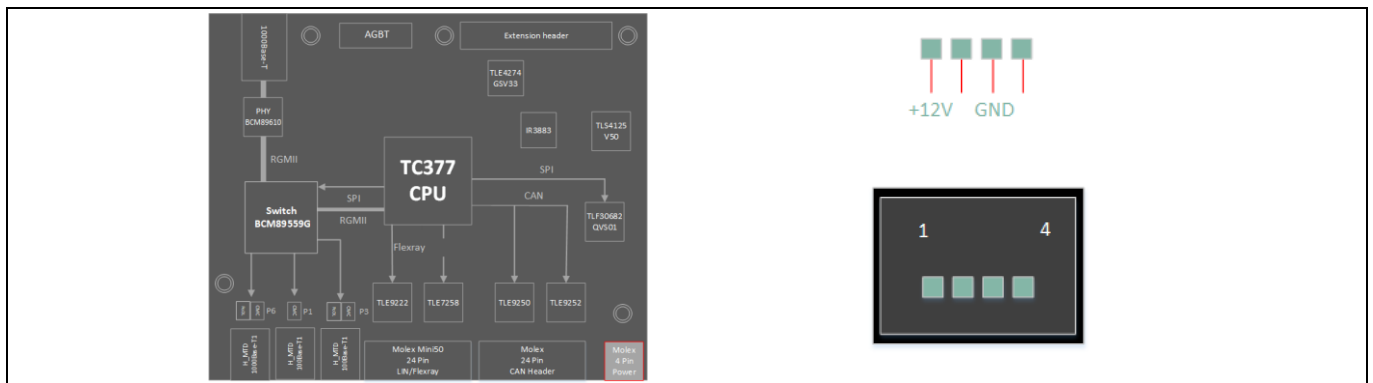It's using an efficient and flexible pre-/post-regulator concept over a wide input voltage range. The high switching frequency range of the battery connected, synchronous buck (3V3/3.5A) with integrated switches allows optimization in usage of small filter components. An integrated synchronous SMPR-buck (Switch-Mode Post-Regulator) with high switching frequency enables supply for core or for memory (0V9-1V3/2.0A). Additionally, an asynchronous SMPR-boost (5V0/0.25A), running as well with high switching frequency, provides the 5V-domain for transceiver. Integrated switches, compensation and the high switching frequency is both minimizing the number and the value of external components required.

Additional features are under-/over-voltage monitoring (via independent reference) of all integrated and up to two external rails as well as a flexible watchdog concept to supervise the µC offers high flexibility for multiple applications.

The automotive qualified TLF30682QVS01 is coming in small, thermally enhanced VQFN-48 capable for automated optical inspection.

The TLF30682QVS01 is PRO-SIL™ ISO26262-Ready, functional safety documents are available on request (for more info visit **www.infineon.com/PRO-SIL** ).

The device provides the following features:

– Step-down pre-regulator for wide input voltage range from 3.7 to 35 V (40 V limited time) with low overall power loss and fast transient performance. Suitable for operation with ceramic capacitors
– High-efficiency step-down post regulator for second output voltage generation
– Step-up post regulator with 5 V output voltage
– Voltage monitoring for two external voltage rails including enable signals
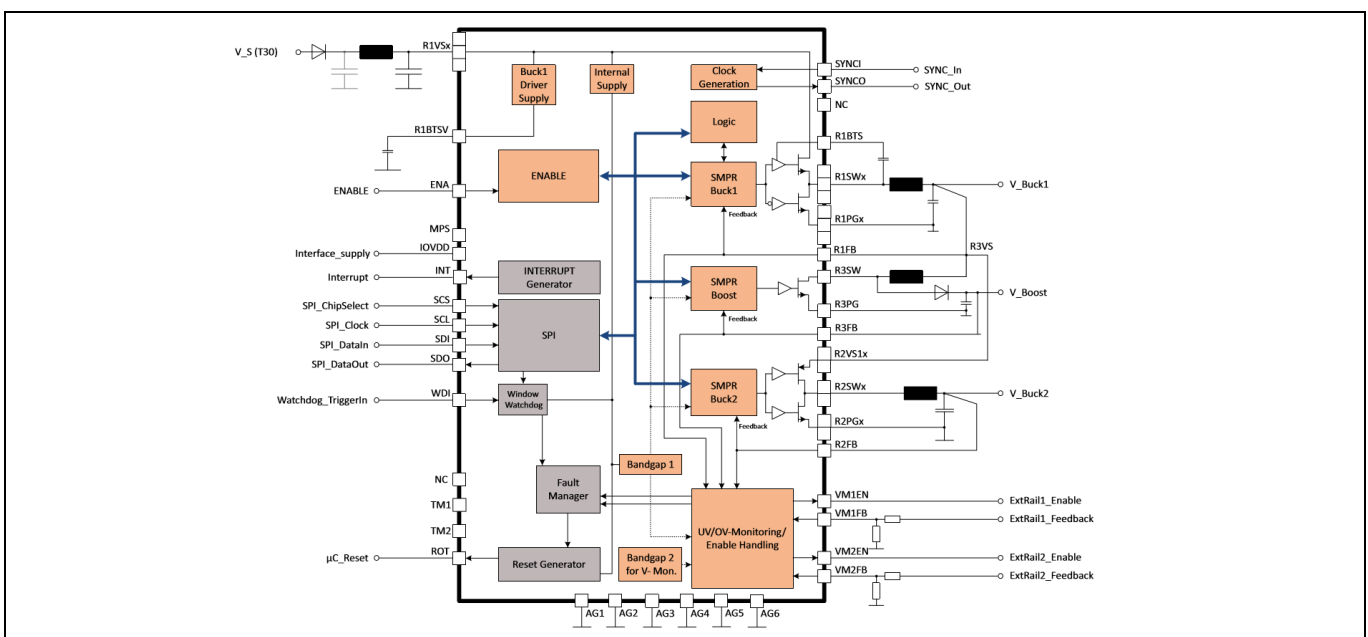– 16-bit SPI interface to host CPU
– Configurable window watchdog



**Figure 5     TLF30682QVS01 Block Diagram**

Table 1 shows the signal connection list for the connection between CPU and the TLF30682QV01.

**Table 1        Connection between CPU and TLF30682QVS01**

| CPU | Module | Signal | Pin | Comment |
|---|---|---|---|---|
| CPU | QSPI4 | SLSO3 | P22.2 | SLSO3 |
| CPU | QSPI4 | SCLK | P22.3 | |
| CPU | QSPI4 | MTSR | P22.0 | |
| CPU | QSPI4 | MRST | P22.1 | |
| CPU | ESR | INT | /ESR1 | |
| CPU | Reset | /PORST | /PORST | |
| CPU | I/O | WDI | P40.6 | |

## 2.1.3        Power supply validation and reset generation

The Lite Gateway-V1.0 supply is converted into several different voltage domains. Powering up the board will switch on the cascaded voltage ICs. An additional logic generates the reset for the ethernet components.
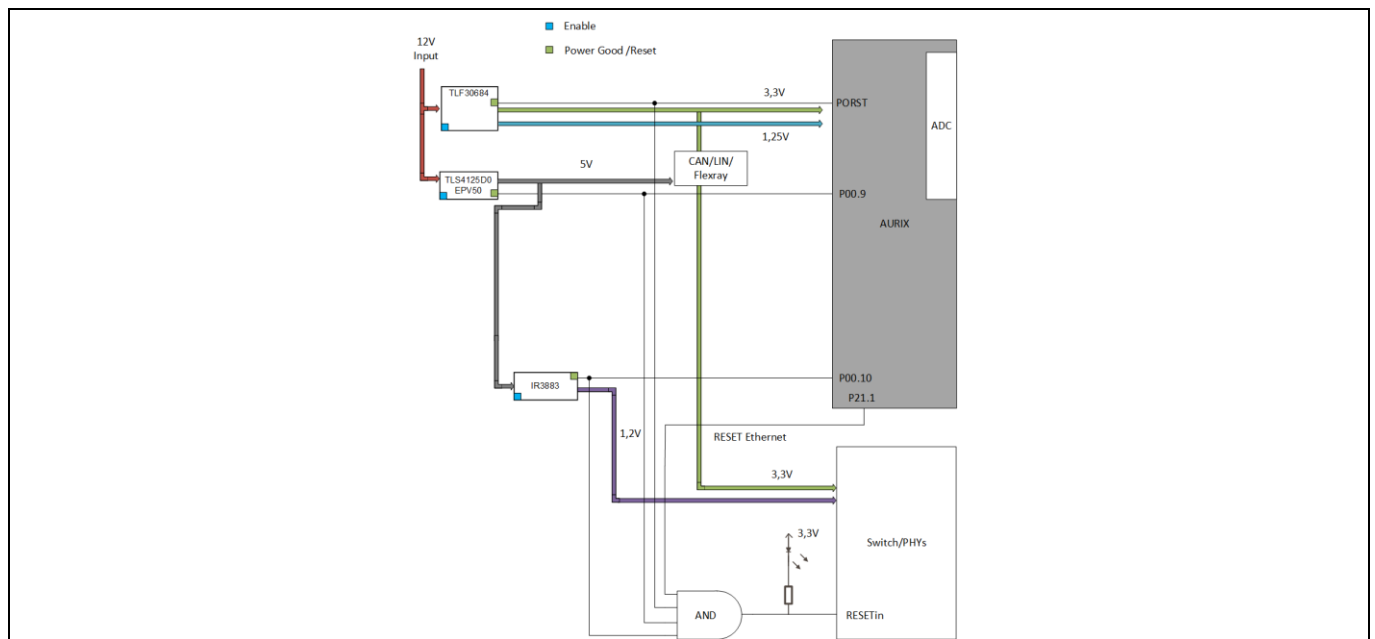


**Figure 5        Board power validation**

## 2.1.4        Supply Monitoring functions

The Lite Gateway-V1.0 provide several monitoring functions to determine the correct voltage levels, acting according violations and provide these as meta data to higher management functions.

The following tables list the signals connected to the VADC of TC377.

**Table 2        Analog Signals to TC377TX**

| Module | Signal | ADC Kernel | Comment |
|---|---|---|---|
| VADC | AN0 | | +12V analog signal |

| VADC | AN1 | | +5V analog signal |
|------|------|--|--------------------|
| VADC | AN2 | | +5V FR analog signal |
| VADC | AN3 | | +3,3 analog signal |
| VADC | AN4 | | +1,8V analog signal |
| VADC | AN5 | | +1,25V analog signal |
| VADC | AN6 | | +1,2V analog signal |
| VADC | AN7 | | +3,3V ext. analog signal |
| VADC | AN8 | | +1 analog signal |
| VADC | AN9 | | +12V Board input rail current |
| VADC | AN10 | | +5V rail current generated by TLS4125D0EPV50 |
| VADC | AN11 | | BTS7008-2EPA feedback |

## 2.2 Gateway Board Resets

The Lite Gateway-V1.0 features several reset sources and groups depending on connected devices. The TC377 reset source is the /PORST signal driven by the TLF30682QV01.

The reset of Broadcom's Ethernet components is generated out of power good signals coming from the DC/DC converters and the TC377 Pin P21.1. By default, this signal shell be pulled high so that the Broadcom components booting up. The red LED D200 signalizes the active reset state if the LED is on.
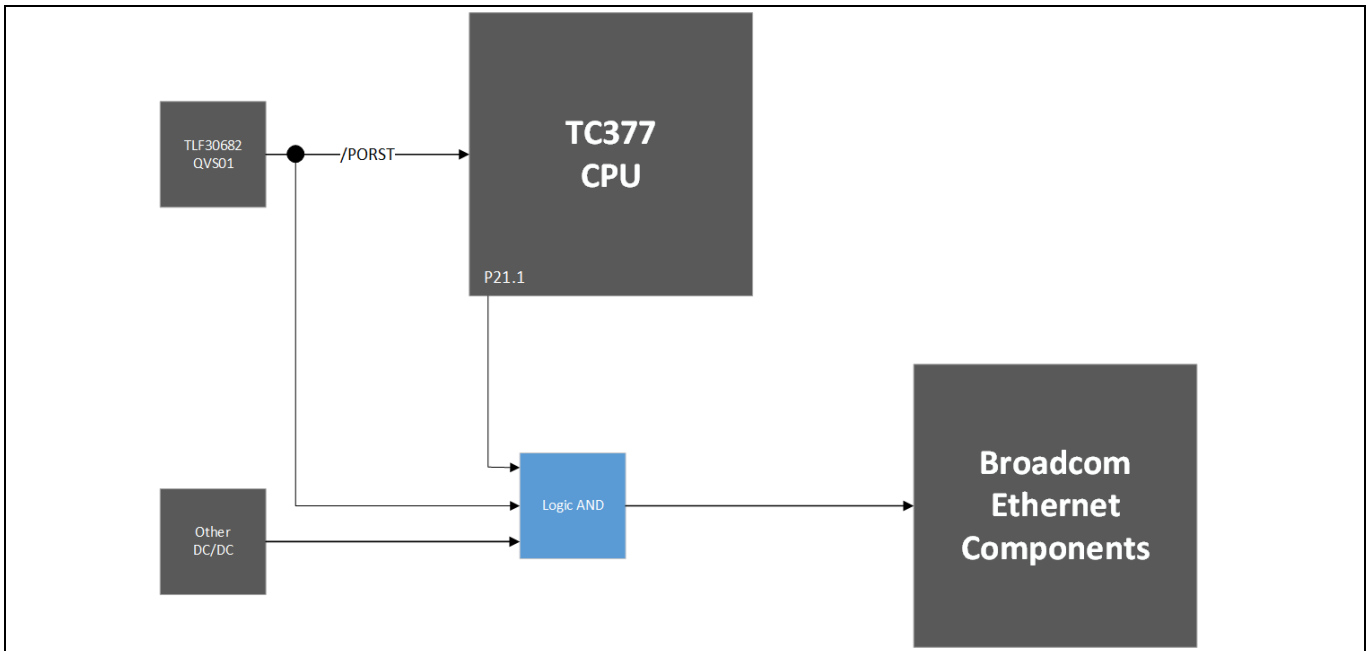


**Figure 6      Reset connections**

## 2.3 Gateway Board Debug options

### 2.3.1 miniWiggler JDS

The miniWiggler JDS is a low-cost debug tool which allows you access to the JTAG of the device. Make sure that you have the latest DAS release installed. Debugging is possible via the DAS Server 'UDAS'. Please contact your preferred debug vendor for support of DAS or use Infineon's AURIX Developer Studio.
If the Board is connected to the PC and the DAS server is running, then a working connection is visible via the green ACTIV LED (D500).
The status RUN LED is switched on/off through the DAS Server, depending on the used debugger (client).

*Note:          Make sure that there is no or a tristate connection on X501 (OCDS1) and X503 (DAP) if the ACTIV LED is on.*

## 2.3.2 OCDS1 connector

The OCDS1 connector can be used to connect an external debugger box. If this debug option is chosen, all other options like the on board miniWiggler JDS or DAP connector must be inactive/not connected.



**Figure 7**     **OCDS1 connector**

## 2.3.3 DAP connector

The DAP connector can be used as well to connect an external debugger box. If this debug option is chosen, all other options like the on board miniWiggler JDS or OCDS1 connector must be inactive/not connected.
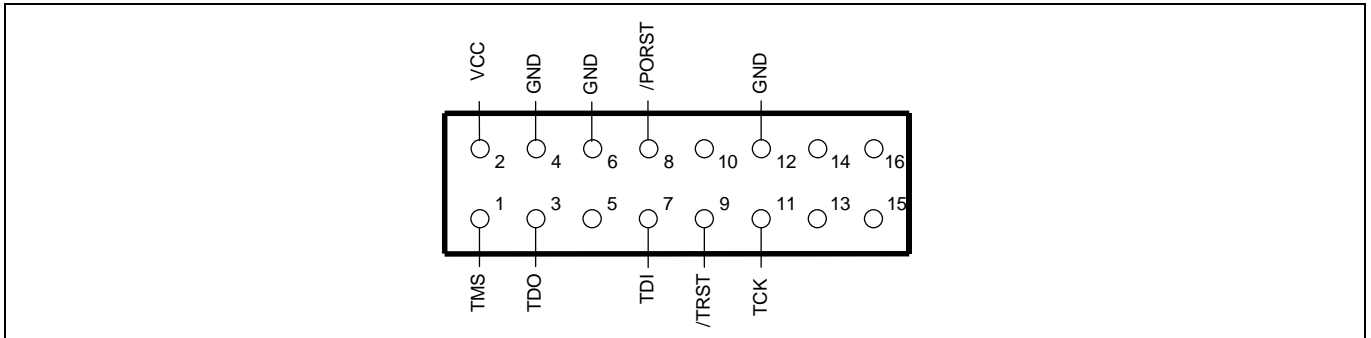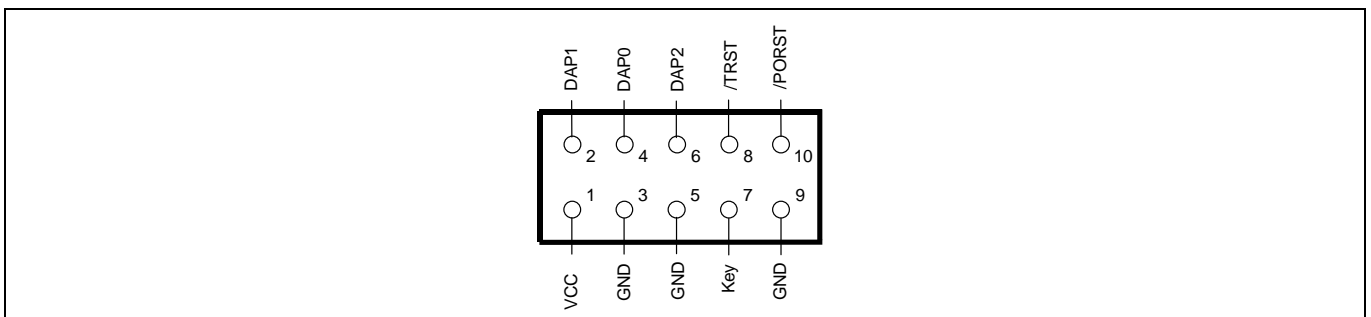


**Figure 8**     **DAP connector**

## 2.3.4 AGBT connector

The AGBT connector (X502) can be used for tracing functionality with an external hardware box of a Debug Tool vendor. The connector is not soldered by default. In case tracing is required a Samtec connector ASP-137969-01 (serie ERM8, Nexus HS22) need to soldered.

## 2.4 AURIX™ 2G CPU to Switch connections

The AURIX™ TC377TX provides a 1Gbit Ethernet MAC's using RGMII to connect a Switch. On the Lite Gateway-V1.0 the AURIX™ device is connected via GMAC RGMII interface to Broadcom's BCM89559G switch MII 1 port. As Switch Management interface the SPI is used. In order to configure the switch , the SPI Interface is used.
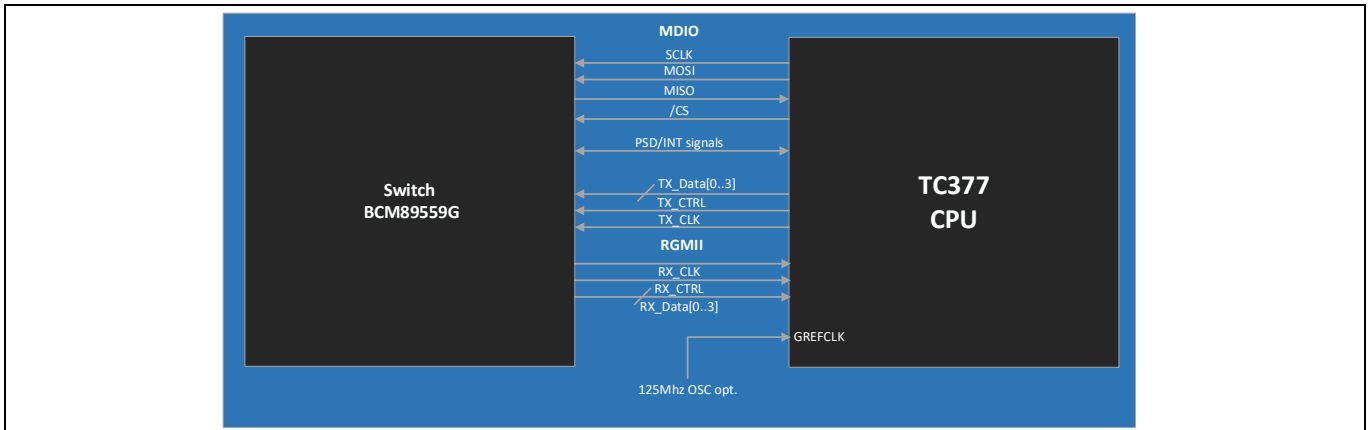


**Figure 9    AURIX™ 2G CPU to BCM89559G Switch connections**

Beside the standard RGMII signals the AURIX™ needs a 125MHz reference clock called GREFCLK for the Gb Ethernet Interface. By default, this clock will be generated a crystal oscillator. In addition, there is the option on the Lite Gateway-V1.0 to use a reference clock from a PHY for GREFCLK selectable via a resistor jumper.

*Attention: If the 125MHz GREFCLK is not present, the GMAC will not execute the DMA_MODE.SWR software reset.*

Table 3 shows the signal connection list for the connection between CPU and the Ethernet Switch.

**Table 3    Connection between TC377 and the Ethernet Switch**

| Module | Signal | Pin | Comment |
|---|---|---|---|
| GMAC | TXD0_0 | P11.3 | GETH_TXD0 |
| GMAC | TXD1_0 | P11.2 | GETH_TXD1 |
| GMAC | TXD2_0 | P11.1 | GETH_TXD2 |
| GMAC | TXD3_0 | P11.0 | GETH_TXD3 |
| GMAC | TCTL_0 | P11.6 | GETH_TCTL |
| GMAC | TXCLK_0 | P11.4 | GETH_TXCLK |
| GMAC | RXD0_0 | P11.10 | GETH_RXD0 |
| GMAC | RXD1_0 | P11.9 | GETH_RXD1 |
| GMAC | RXD2_0 | P11.8 | GETH_RXD2 |
| GMAC | RXD3_0 | P11.7 | GETH_RXD3 |
| GMAC | RCTL_0 | P11.11 | GETH_ RXCTLA |
| GMAC | RXCLK_0 | P11.12 | GETH_RXCLKA |
| GMAC | REFCLK_0 | P11.5 | GETH_GREFCLK |

## 2.5 AURIX™ Ethernet MAC Address EEPROM

The Lite Gateway-V1.0 supports an I2C EEPROM. Software can load these and use it to configure the Ethernet GMAC's.

**Table 4    Ethernet MAC Address EEPROM**

| Module | Signal | Pin | Comment |
|---|---|---|---|
| I2C | SCL | P13.1 | |
| I2C | SDA | P13.2 | |

## 2.6 MDI Address configuration

The Ethernet devices on the Lite Gateway-V1.0 are connected via the MDIO Bus together and can be addressed by the given address list in Table 5.

**Table 5    MDI address list**

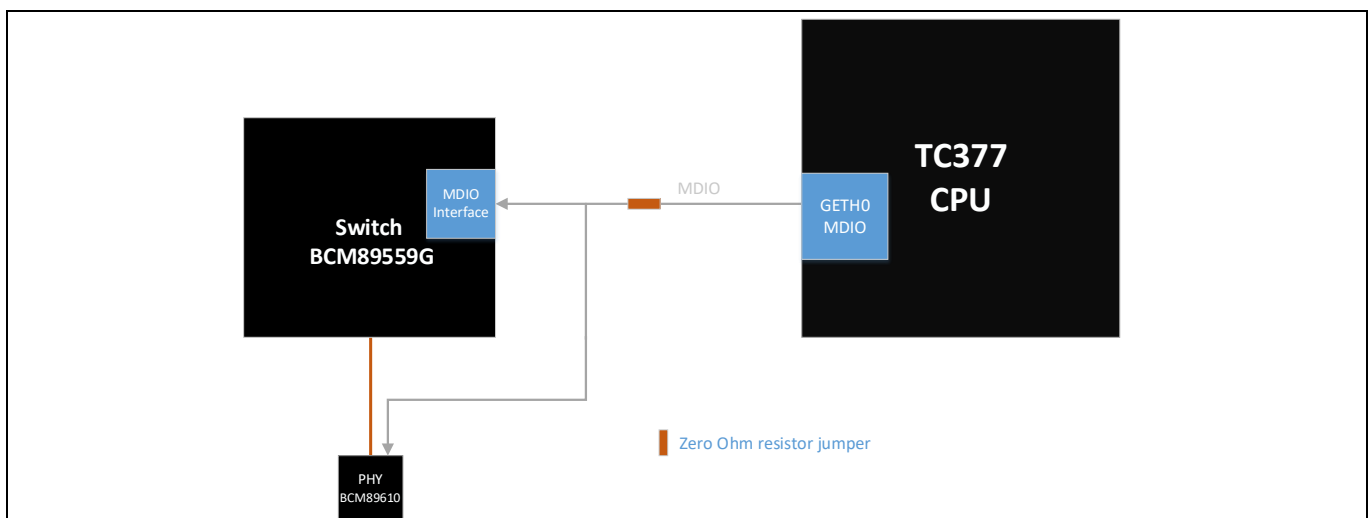| Device | Module | Address | Comment |
|---|---|---|---|
| BCM89610 | GETH 0 | 0x01 | |



**Figure 10    MDI Bus structure**

## 2.7 Broadcom Ethernet Components

To find out more about Broadcom's Switch and PHY please contact the listed contact partner EBV in Appendix A. They work closely with our technicians and can help with your questions.
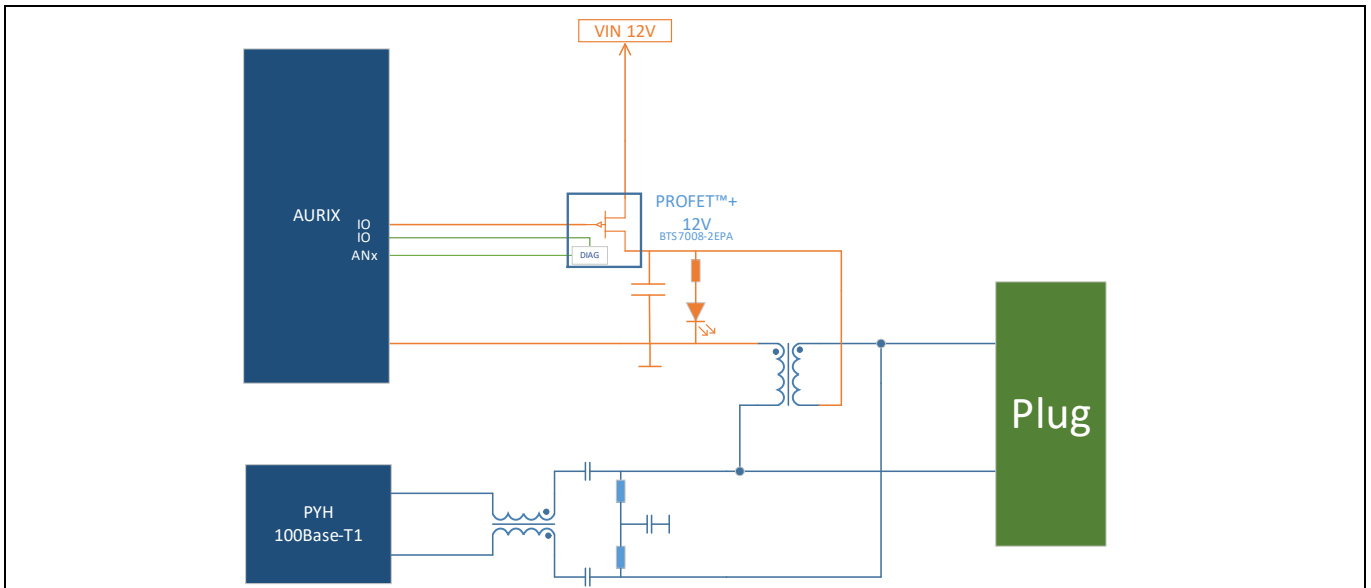
## 2.7.1        1000/100Base-T1 CMC and PoDL



**Figure 11     CMC and PODL schematic**

Table 6 shows the PoDL signal connection list.

**Table 6         PoDL Signal List**

| Module | Signal | Pin | Comment |
|--------|--------|-----|---------|
| I/O | IN0 | P21.2 | Port ETH_P6 1000Base-T1 power enable |
| I/O | IN1 | P21.3 | Port ETH_P3 100Base-T1 power enable |
| I/O | DEN | P21.4 | Port ETH_P3 and ETH_P6 diagnose enable |
| I/O | DSEL | P21.5 | Port ETH_P3 and ETH_P6 channel select |
| AN | IS | AN11 | Diagnose feedback ETH_P3 and ETH_P6 |

## 2.7.2 Standard 1000Base-T1 / 100Base-T1 connector

Rosenberger H-MTD® is a 360° fully shielded differential connector system. The new developed system combines high-performance data transmission up to 15 GHz or 20 Gbps and a small package size in a robust automotive grade housing.  H-MTD® Cable and PCB connectors are available as single, double, quad for STP, UTP and SPP cables.
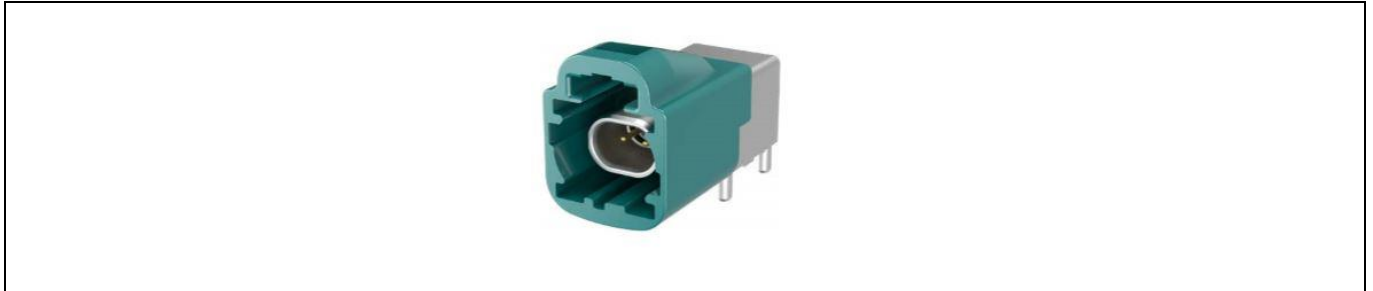


**Figure 12    Rosenberger H-MTD**

To find out more about Rosenberger H-MTD® please contact the listed contact partner in Appendix A.

## 2.7.3 1000Base-TX Magnetics and RJ45 Jack

To connect the Lite Gateway-V1.0 to a standard IT infrastructure two RJ45 jacks for PHYs provide CAT6/CAT7 cables connections. One Gbit Ethernet port is connected as port 5 to the BCM89559G Switch.



**Figure 13    Magnetics and RJ45 Jack**

## 2.8 Molex Mini50 Power supply

On the Board is one Molex Mini50 4 pin connector providing the supply for the complete Board. The pin connection is shown in the picture below.
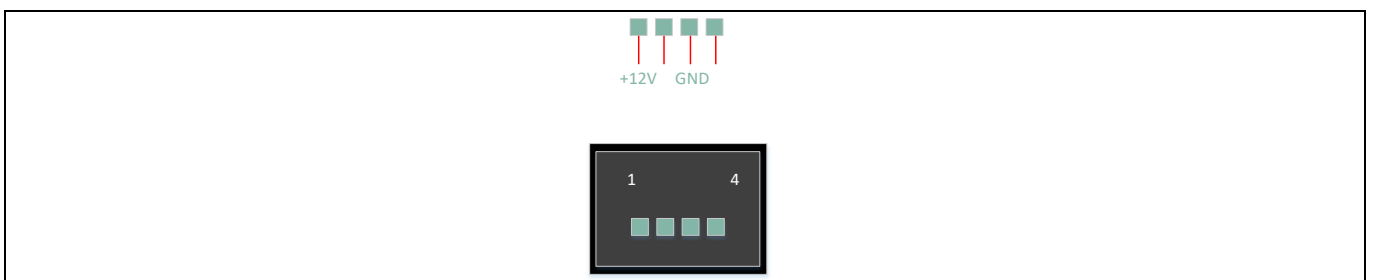


**Figure 14    Power supply connector**

## 2.9 Molex Mini50 CAN-FD

There is one Molex Mini50 connectors for CAN-FD connections on the Lite Gateway-V1.0. In sum 8 Nodes capable for classic CAN and CAN-FD are available through these headers.
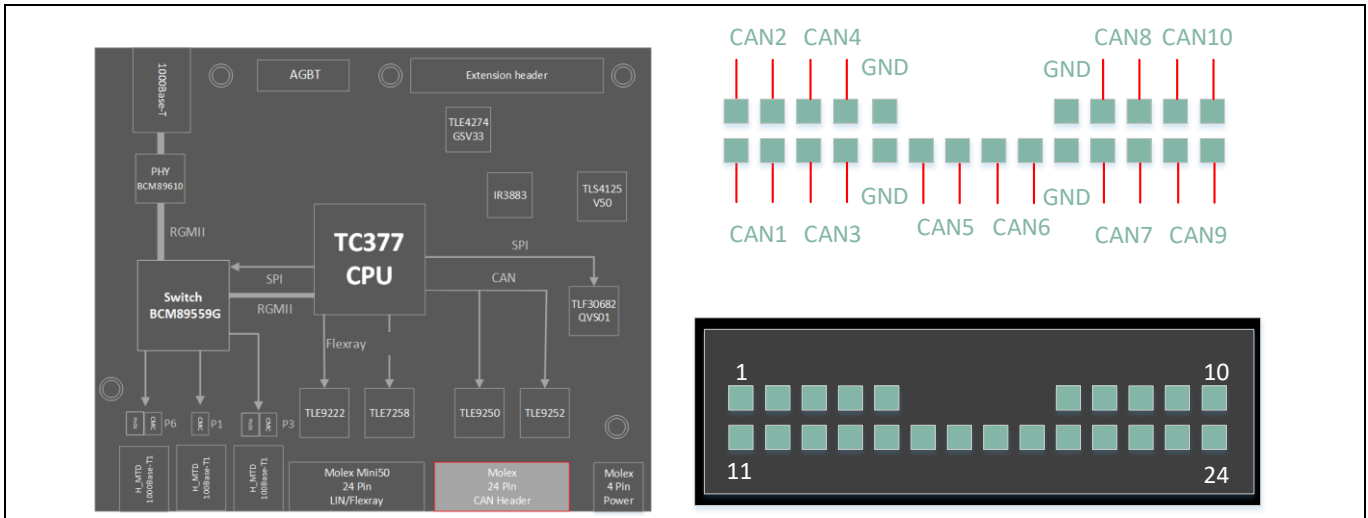


**Figure 15    Molex Mini50 CAN-FD signal coding**

### 2.9.1 CAN-FD Signals on Molex connectors

In sum the Lite Gateway-V1.0 provides 8 CAN-FD channels using TLE7258SJ Infineon's CAN transceiver. This connector is colored gray on that board.

Table 7 shows the CAN-FD signal connection list of the connector X1105.

**Table 7    CAN-FD Signal List Header X1107**

| Module | Signal | Pin | Header | Comment |
|---|---|---|---|---|
| CAN0 | CAN01_RXD01E | P02.10 | X1107.12   CAN_H | CAN 0 Node 1 |
| CAN0 | CAN01_TXD | P02.9 | X1107.11   CAN_L | CAN 0 Node 1 |
| CAN0 | CAN00_RXDA | P02.1 | X1107.2   CAN_H | CAN 0 Node 0 |
| CAN0 | CAN00_TXD | P02.0 | X1107.1   CAN_L | CAN 0 Node 0 |
| CAN0 | CAN02_RXDB | P02.3 | X1107.14   CAN_H | CAN 0 Node 2 |
| CAN0 | CAN02_TXD | P02.2 | X1107.13   CAN_L | CAN 0 Node 2 |
| CAN0 | CAN03_RXDA | P00.3 | X1107.22   CAN_H | CAN 0 Node 3 |
| CAN0 | CAN03_TXD | P00.2 | X1107.21   CAN_L | CAN 0 Node 3 |
| CAN1 | CAN10_RXDA | P00.1 | X1107.4     CAN_H | CAN 1 Node 0 |
| CAN1 | CAN10_TXD | P00.0 | X1107.3   CAN_L | CAN 1 Node 0 |
| CAN1 | CAN11_RXDA | P00.5 | X1107.19   CAN_H | CAN 1 Node 1 |
| CAN1 | CAN11_TXD | P00.4 | X1107.18   CAN_L | CAN 1 Node 1 |

| CAN1 | CAN12_RXDB | P10.8 | X1107.17   CAN_H | CAN 1 Node 2 |
|------|-----------|-------|------------------|--------------|
| CAN1 | CAN12_TXD | P10.7 | X1107.16   CAN_L | CAN 1 Node 2 |
| CAN1 | CAN13_RXDA | P22.5 | X1107.8   CAN_H | CAN 1 Node 3 |
| CAN2 | CAN13_TXD | P22.4 | X1107.7   CAN_L | CAN 1 Node 3 |

Table 8 shows the CAN-FD signal connection list of the connector X1107.

## 2.10 Molex Mini50 FlexRay™ LIN PSI5S

The Molex Mini 50 connector X1103 combines FlexRay and LIN signal connections. This connector is colored black on that board. Figure 16 show the connection scheme of that connector.
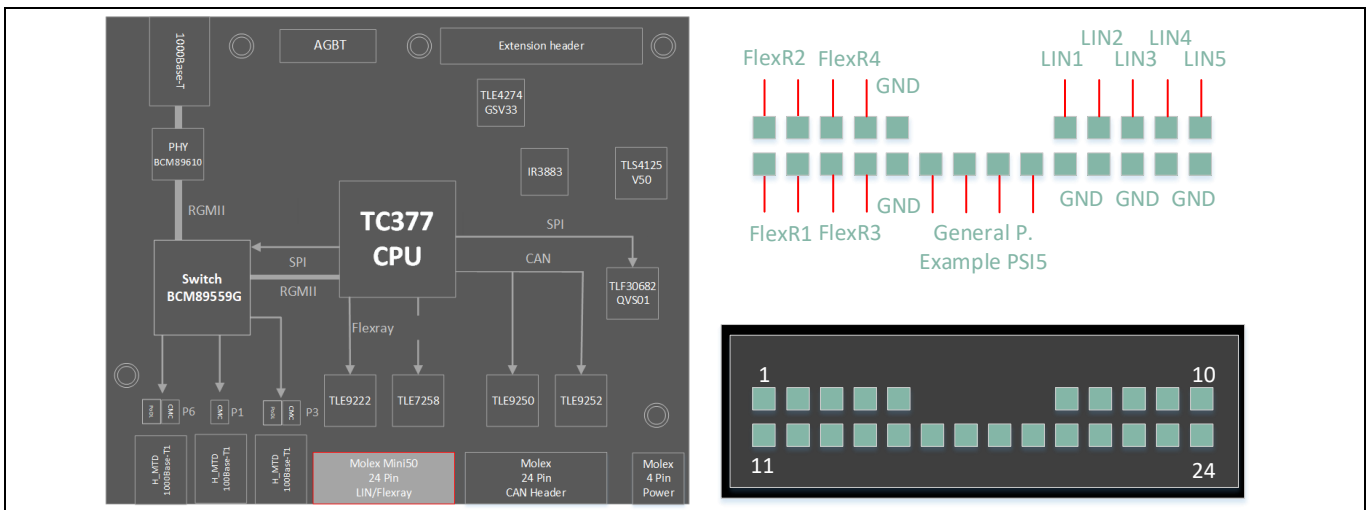


**Figure 16    Molex Mini50 FlexRay™ LIN signal coding**

## 2.10.1 FlexRay™

There are 2 FlexRay™ channel available on the Lite Gateway-V1.0 with Infineon's TLE9222 transceiver. In addition to the standard FlexRay™ signals, several control signals are added on PCB between AURIX and the FlexRay™ transceivers.

Table 8 shows the FlexRay™ signal connection list.

**Table 8    FlexRay™ Signal List**

| Module | Signal | Pin | Header X1103 | Comment |
|--------|--------|-----|--------------|---------|
| ERAY0 | RXDA | P14.1 | FR1_P – pin 9 | ERAY-A_A - ERAY0_RXDA3 – U701 |
| ERAY0 | TXD | P14.0 | FR1_N – pin 10 | ERAY-A_A - ERAY0_TXDA – U701 |
| ERAY0 | TXDEN | P14.9 | N.C | ERAY0_TXENA |
| I/O | STBN | P00.7 | N.C | Zero Ohm R262 resistor (assembled) |
| I/O | ERRN | P00.6 | N.C | |
| I/O | BGE | P00.8 | N.C | |
| ERAY0 | RXD | P14.7 | FR2_P – pin 7 | ERAY-B_A - ERAY0_RXDB0 – U703 |

| ERAY0 | TXD | P14.5 | FR2_N – pin 8 | ERAY-B_A - ERAY0_TXDB – U703 |
|---|---|---|---|---|
| ERAY0 | TXDEN | P14.6 | N.C | ERAY0_TXENB |
| I/O | STBN | P02.7 | N.C | Zero Ohm R263 resistor (assembled) |
| I/O | ERRN | P02.6 | N.C | |
| I/O | BGE | P02.8 | N.C | |

## 2.10.2    LIN

There are 5 LIN channels available on the Molex connector X1103 of the Lite Gateway-V1.0 using Infineon's TLE7258.

Table 9 shows the LIN signal connection list.

**Table 9       LIN Signal List**

| Module | Signal | Pin | Header X1103 | Comment |
|---|---|---|---|---|
| ASCLIN0 | RXD | P15.3 | Pin 2 | ASCLIN0_ARXB |
| ASCLIN0 | TXD | P15.2 | N.C | ASCLIN0_ATX |
| I/O | EN | P20.11 | N.C | Zero Ohm resistor (assembled) |
| I/O | INH | P20.13 | N.C | INH output of transceiver |
| ASCLIN1 | RXD | P15.1 | Pin 1 | ASCLIN1_ARXA |
| ASCLIN1 | TXD | P15.0 | N.C | ASCLIN1_ATX |
| I/O | EN | P11.13 | N.C | Zero Ohm resistor (assembled) |
| I/O | INH | P11.15 | N.C | INH output of transceiver |
| ASCLIN2 | RXD | P14.3 | Pin 1 | ASCLIN2_ARXA |
| ASCLIN2 | TXD | P14.2 | N.C | ASCLIN2_ATX |
| I/O | EN | P13.0 | N.C | Zero Ohm resistor (assembled) |
| I/O | INH | P14.8 | N.C | INH output of transceiver |
| ASCLIN3 | RXD | P15.7 | Pin 1 | ASCLIN3_ARXA |
| ASCLIN3 | TXD | P15.6 | N.C | ASCLIN3_ATX |
| I/O | EN | P11.14 | N.C | Zero Ohm resistor (assembled) |
| I/O | INH | P13.3 | N.C | INH output of transceiver |
| ASCLIN4 | RXD | P34.2 | Pin 1 | ASCLIN4_ARXB |
| ASCLIN4 | TXD | P34.1 | N.C | ASCLIN4_ATX |
| I/O | EN | P00.11 | N.C | Zero Ohm resistor (assembled) |
| I/O | INH | P00.12 | N.C | INH output of transceiver |

## 2.11 QSPI channels

There are 2 QSPI channels available on the Lite Gateway-V1.0. Using various chip select lines allow addressing for several slave ICs like the PMIC device TLF30682QVS01, as well as FlexRay transceivers.

Table 10 shows the QSPI signal connection list.

**Table 10     QSPI connection list**

| Module | Signal | Pin | Device connected | Comment |
|--------|--------|-----|------------------|---------|
| QSPI2 | MRSTA | P15.4 | | Master receive slave transmit |
| QSPI2 | SCLK | P15.8 | | Clock output |
| QSPI2 | SLSO7 | P20.10 | U702 TLE9222PX | Slave select output 7 |
| QSPI2 | SLSO8 | P20.6 | U700 TLE9222PX | Slave select output 8 |
| | | | | |
| QSPI4 | MRST | P22.1 | | Master receive slave transmit |
| QSPI4 | MTSR | P22.0 | | Master transmit slave receive |
| QSPI4 | SCLK | P22.3 | | Clock output |
| QSPI4 | SLSO3 | P22.2 | U101 TLF30682QVS01 | Slave select output 3 |

## 2.12        General Purpose LEDs

The Lite Gateway-V1.0 supports one own RGB LED and 2 general purpose LED connected to the pins listed Table 11.

**Table 11        LEDs TC377TX**

| Module | Signal | Pin | Comment |
|--------|--------|-----|---------|
| GPIO | BLUE | P23.4 | |
| GPIO | BLUE | P23.0 | |
| GPIO | GREEN | P32.3 | RGB Led |
| GPIO | RED | P23.1 | RGB Led |
| GPIO | BLUE | P32.2 | RGB Led |

## 2.13        USB Connector

The USB connector is providing a Debug channel and a VCOM port to a connected PC. When first time plugged, a driver is required. To be prepared, download the latest DAS version from the Infineon web side or search for "Infineon das tool" in the internet.

## 2.13.1        Serial Connection to PC

During the installation of the DAS driver a new COM port will be created on PC. This COM port can be used to communicate with the board via ASCLIN0 in UART mode of the device. The VCOM channel is connected to P33.9 and P33.10.

## 2.14 Extension Header X1200

The extension Header X1200 is a raspberry pi 3 like connector. It allows to use extension Boards used on raspberry pi on that Board. The +5V of the Board will generate a +3,3V of a separate LDO. Both supply voltages are protected by diodes against reverse supply form the extension Board.

**Table 12 Extension Header CPU**

| Module | Signal | Pin | Pin on Header | Comment |
|---|---|---|---|---|
| PWR | +3V3_EXT | | 1 | |
| PWR | +5V | | 2 | |
| I2C | SDA | P02.4 | 3 | |
| PWR | +5V | | 4 | |
| I2C | SDC | P02.5 | 5 | |
| GND | GND | | 6 | |
| Bluetooth | BT_WAKE | P33.0 | 7 | |
| Bluetooth | BLE_TXD | P32.6 | 8 | |
| GND | GND | | 9 | |
| Bluetooth | BLE_RXD | P32.7 | 10 | |
| Bluetooth | BLE_RTS | P33.1 | 11 | |
| | PCM_CLK | P40.1 | 12 | |
| WiFi | WIFI_SDIO_D3 | | 13 | |
| GND | GND | | 14 | |
| WiFi | WIFI_SDIO_SCLK | P33.3 | 15 | |
| WiFi | WIFI_SDIO_CMD | P33.14 | 16 | |
| PWR | +3V3_EXT | | 17 | |
| WiFi | WIFI_SDIO_D0 | P33.15 | 18 | |
| SPI | SPI_MOSI | P20.14 | 19 | |
| GND | GND | | 20 | |
| SPI | SPI_MISO | P20.12 | 21 | |
| WiFi | WIFI_SDIO_D1 | P33.11 | 22 | |
| SPI | SPI_CLK_B | P22.7 | 23 | |
| SPI | SPI_C0 | P20.8 | 24 | |
| GND | GND | | 25 | |
| SPI | SPI_C1 | P20.9 | 26 | |
| I2C | I2C_ID_Data | P02.4/P23.2 | 27 | Default R1201 soldered for P23.2 |
| I2C | I2C_ID_CLK | P02.5/P23.3 | 28 | Default R1203 soldered for P23.3 |
| Bluetooth | BLE_BT_RST_N | P33.4 | 29 | |
| GND | GND | | 30 | |
| WiFi | WIFI_WL_REG_ON | P33.5 | 31 | |
| Timer | PWM | P33.12 | 32 | |
| Bluetooth | BLE_HOST_WAKE | P33.6 | 33 | |

| GND | GND | | 34 | |
|-----|-----|-----|-----|-----|
| | PCM_SYNCH | P33.7 | 35 | |
| Bluetooth | BLE_CTS | P33.12 | 36 | |
| WiFi | WIFI_SDIO_D2 | P33.8 | 37 | |
| | PCM_OUT | P32.4 | 38 | |
| GND | GND | | 39 | |
| | PCM_IN | P32.5 | 40 | |

# 3 Software initialization sequence

For example, projects please refer to Infineon MyCIP system. There you will find software examples for the AURIX™ TC377.

Broadcom Ethernet components may need a certain setup after boot up by its own. In the AURIX™ example projects only basic support for these components is supported in form of binary libraries. Please contact Broadcom for requesting the API Software examples for the PHY and Switch.

Depending on Board soldering options the GPIO P21.1 must be taken care. This pin can reset the complete Broadcom components and per default be pulled low. This would lead to a permanent reset, signalized with the red LED (D200).

# 4 Schematic and PCB

The schematic and layout data can be requested by Infineon as long the user has a valid NDA with Broadcom. Please contact either Infineon or Broadcom contacts for that.

# 5 Appendix A

For future information about the Infineon products, Broadcom IC's and Rosenberger connectors please contact the companies below.

For Broadcom devices, please contact Broadcom's distribution partner EBV Elektronik for further assistance. They work closely with our technicians and can help with your questions.

| Infineon Technologies AG | Broadcom | Rosenberger |
|---|---|---|
| Infineon Technologies AG Am CAMPEON 1-12 85579 Neubiberg, Germany

Contact: http://www.infineon.com/productsupport

www.infineon.com | EBV Elektronik

You can find your nearest EBV branch office under this link: https://www.avnet.com/wps/portal/ebv/company/locations-contacts | Rosenberger Hochfrequenztechnik GmbH & Co. KG Hauptstraße 1 83413 Fridolfing P.O. Box 1260 84526 Tittmoning Germany Phone +49 8684 18-0 info@rosenberger.com www.rosenberger.com |

Molex Connector information

| Power Supply | CAN | LIN / Flexray |
|---|---|---|
| **Molex Part Number: 347910040** | **Molex** Part Number: 348240245 | **Molex** Part Number: 348240244 |
|  |  |  |
| Mini50 Unsealed Receptacle, Single Row, Non-Bridged, 4 Circuits, Polarization Option A, Black | Mini50 Unsealed Receptacle, Dual Row, Non-Bridged, 24 Circuits, EcoPaXX Resin, Polarization Option B, Gray | Mini50 Unsealed Receptacle, Dual Row, Non-Bridged, 24 Circuits, EcoPaXX Resin, Polarization Option A, Black |

# Revision history

**Major changes from V1.0**

| Page or reference | Description of change |
|---|---|
| Add chapter 2.1.1 | Power supply connector |
| Add chapter 2.3 and 2.13 | On Board Debugger/Debug support |
| | |