

ARM KNOWLEDGE LAB: DESIGNING THE FUTURE

DAY 3

SO-DIMM Compute Modules for TRAVEO™
Shilpa Thomas & Oliver Dengiz, Hitex

Arm Knowledge Lab: Three short and compact sessions



Day 1

Secure by Design – From
Threats to Trusted Devices



Day 2

AI at the Edge – Building
Smarter Embedded Systems



Day 3

Safety-Critical Systems –
Engineering Reliability

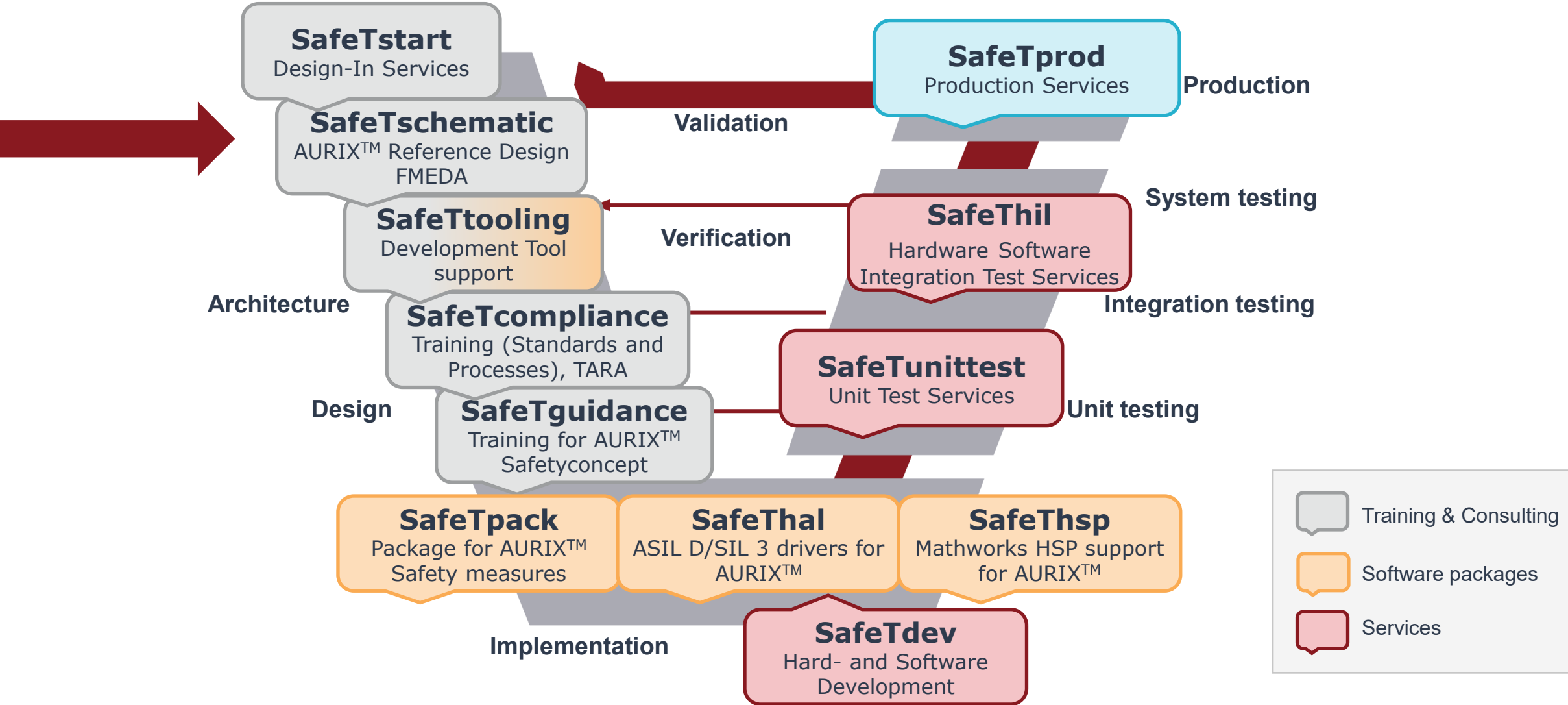
Find more presentations from our Arm Knowledge Lab:
<https://www2.hitex.com/arm-knowledge-lab-2026-download>

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- Customer Application example

Our defined products & services for Infineon controllers along the development process



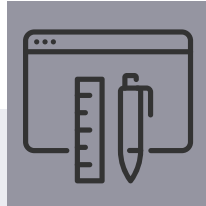
Our customers' challenges



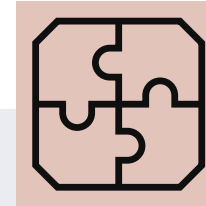
As a PDH Hitex addresses many small and medium-sized customers beyond the well-known OEM and TIER1. From many customer conversations, we repeatedly encounter the following challenges faced by our customers



High cost and time pressure



Limited Resources for Hardware Design
or
functional safety design expertise



High Design Variance
e.g. across diverse HMI form factors



Need for Rapid Execution
of prototypes and low-volume applications

SO-DIMM compute modules vs Infineon Evaluation boards and Application kits



Why a new series of boards while Infineon Evaluation boards and Application kits already exist?

- **Infineon boards** are not developed or recommended for productive use
- Partially incomplete wiring of PMIC for ASIL / SIL
- Connections and access to peripherals not standardized and only available via pin headers
- Boards with socket very expensive
- **SO-DIMM compute modules** are not exclusively designed for evaluation purposes
- Developed and tested for productive use
- Designed for ISO26262 upto ASIL-D or IEC 61508 SIL3
- Standardized interface for easy design-in into the target application
- PIN-compatible across the controller families and architectures
- Budget friendly



TriCore TC387XE Board



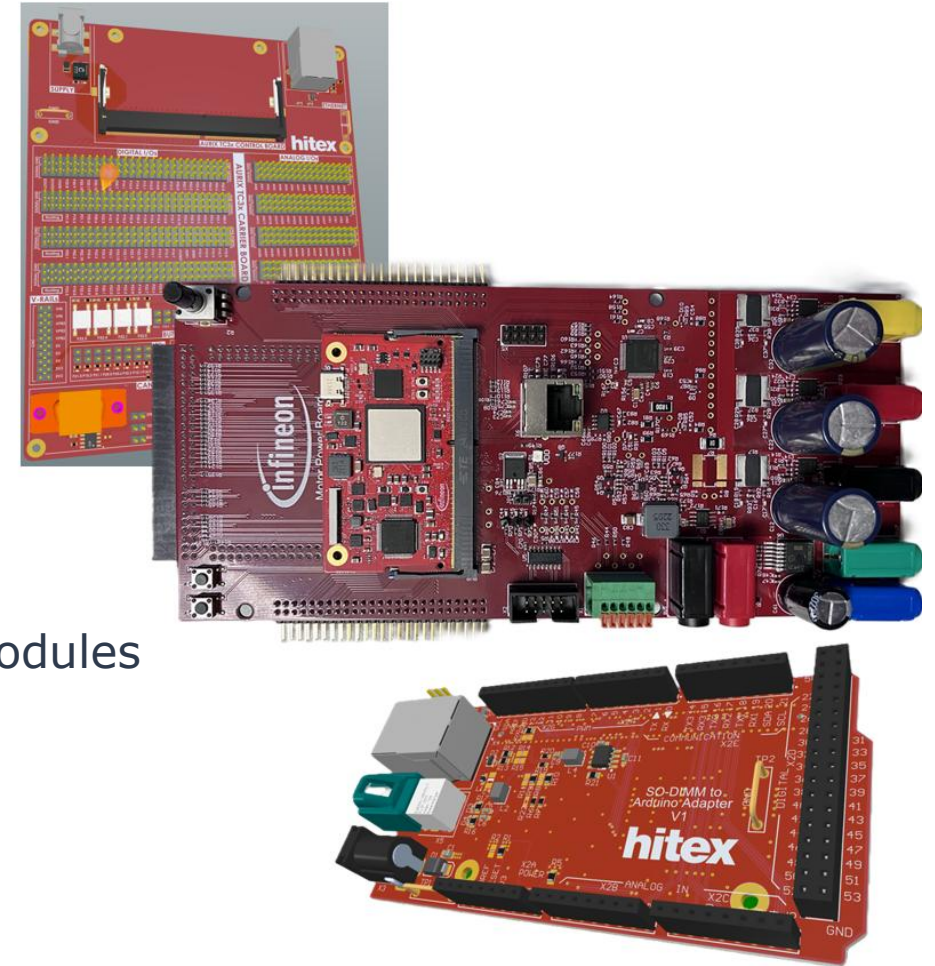
Traveo CYTVII-B-E-100-SO socketed evaluation board



Complete Hardware & Software Eco-System for SO-DIMM Compute Modules



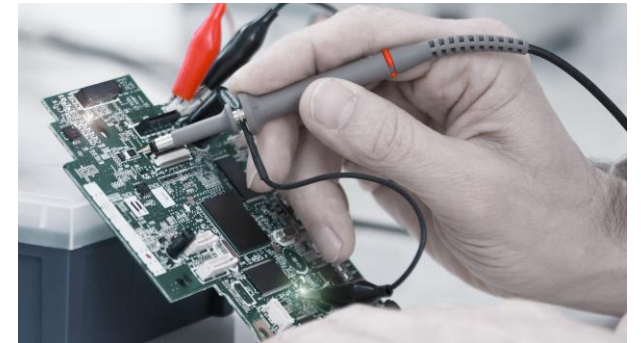
- Full device enablement for customers
 - Ready to use
 - Ready to start
- Breakout and Application Boards
 - Breakout Board for fast prototyping
 - Motor Control Kit for BLDC motors
 - Connector Board for Arduino shields
 - miniHIL breakout board
- Software ready to install and use on SO-DIMM compute modules
 - Quick Installation guide
 - Support for ACS / Modus Toolbox
 - With drivers and safety library configured
 - e.g. SafeTpal, MCAL, SafeTpack, SafetyLib
 - Demo application
 - Complete user documentation



Common features of Hitex SO-DIMM Compute Modules



- Same form factor for several Infineon microcontroller families and architectures
- The SO-DIMM incorporates several typical design aspects already:
 - The controller and its passives
 - A debug unit for software development
 - Rich features set of I/Os made available at the SO-DIMM connector
 - The SO-DIMM connector is standardized across various architectures, ensuring compatibility and streamlined integration within diverse system designs.
 - Ready for ASIL-B / ASIL-D / SIL-2 / SIL-3 depending on microcontroller
 - ASIL-B for TRAVEO™ T2G
 - ASIL-D For upcoming RISC-V Infineon automotive controllers
 - ASIL-D / SIL-3 for AURIX™
- A lot of applications available with Arduino connector
- Schematic and documentation included
- FMEDA available
- **Designed for productive use and EMV tested**



Common features of Software for SO-DIMM Compute Modules

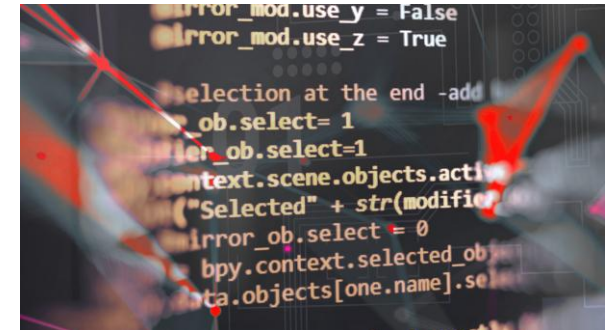


For every SO-DIMM Compute Module a demo space with software is available.

- Full Documentation
 - Quick Installation Guide
 - User Manual
- Software for Peripherals and Safety
 - Demo space (project tree)
 - Low Level drivers (eg. SafeThal, MCAL)
 - Safety Library (eg. SafeTpack, SafeTlib)
- Demo Software
 - E.g. Blinkie



From unpacking to blinking < 1h !!!



Key Features of Traveo II MCU

- MCU series:CYT4BF
- Dual core cortex 350 Mhz main core frequency
- ISO26262 ASIL-B support, eSHE, HSM
- 10Base-T1s,1G Ethernet
- 8MB flash
- BGA 272 and BGA 320 package
- Pinout compatible to CYT6 series(offers Quad core and higher flash rate)
- I2S,CAN & LIN supported

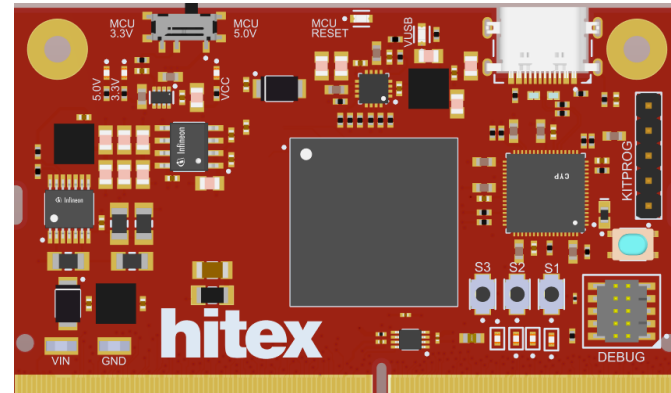
A deeper look at SO-DIMM compute module for Traveo T2G

Hardware

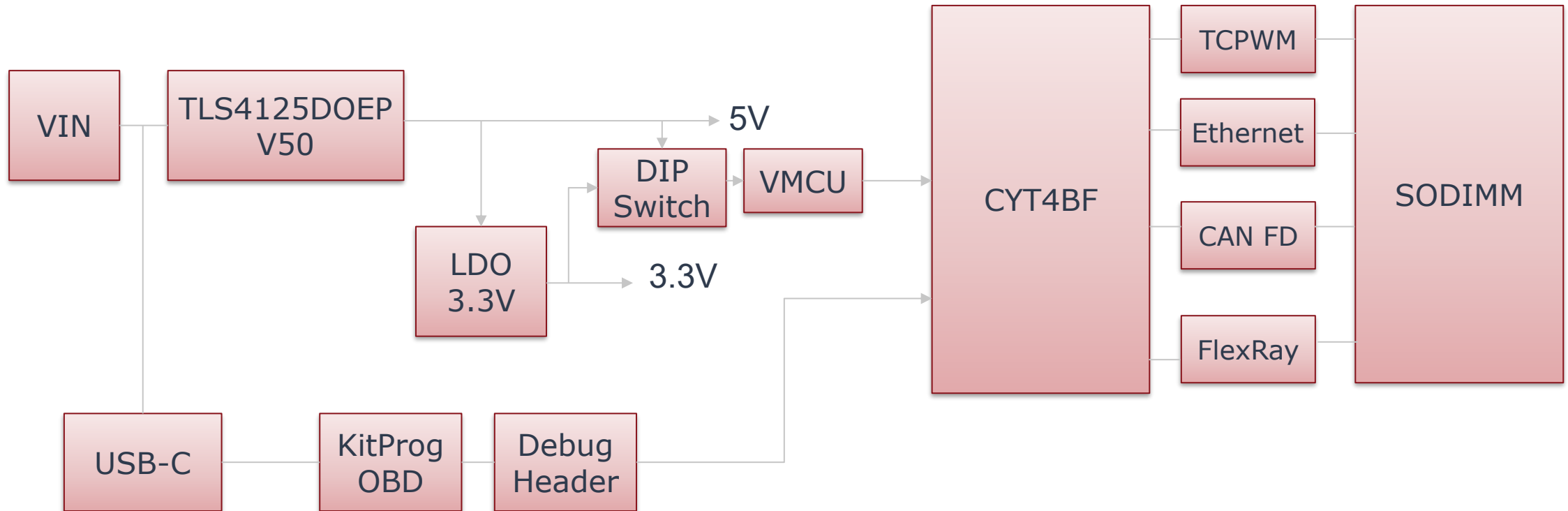
- Infineon Traveo 2 CYT4BF 272 Pin MCU
- Power Supply System:
 - USB C connector
 - TLS4125DOEPV50 voltage regulator
 - LDO for 3.3V generation
- On board Kit Prog Debugger/Programmer powered by USB C
- Programmable Debug Header
- Power and User Application LEDs
 - Power LED
 - Reset LED
 - Debug LED
- 24 TCPWMs
- RJ45 and Automotive Ethernet
- CAN FD and I2S
- Pinout similar to TC397 SODIMM
- MCU Pinout compatible to higher derivatives

Software

- Sample Installation of
 - Infineon MCAL drivers
 - Infineon Safetlib with Demo Safety/WD Manager
- For environments
 - IAR



Block Diagram



Other Infineon automotive controllers are also in the SO-DIMM Compute Modules Family



- AURIX™ TC3xx
- AURIX™ TC4x
- PSOC™
- Upcoming Infineon RISC-V automotive controllers



- For details have a look at our SO-DIMM Webinar:
- <https://www.hitex.com/company/news/@webinars>
- Or the SO-DIMM product Page
- <https://www.hitex.com/products/development-tools/so-dimm-compute-modules>

Hitex Eco system for all SO-DIMM compute modules



Hitex has setup a full eco system for the SO-DIMM Compute Modules as part of the SafeTpal suite

- Break Out Board for fast Prototyping
- Motor Control Kit
- miniHIL Adapter Board for Hardware-In-the-Loop Tests (HIL)
- Arduino Connector
- All Boards and Break-Out boards available in Hitex shop <https://www.ehitex.de/>

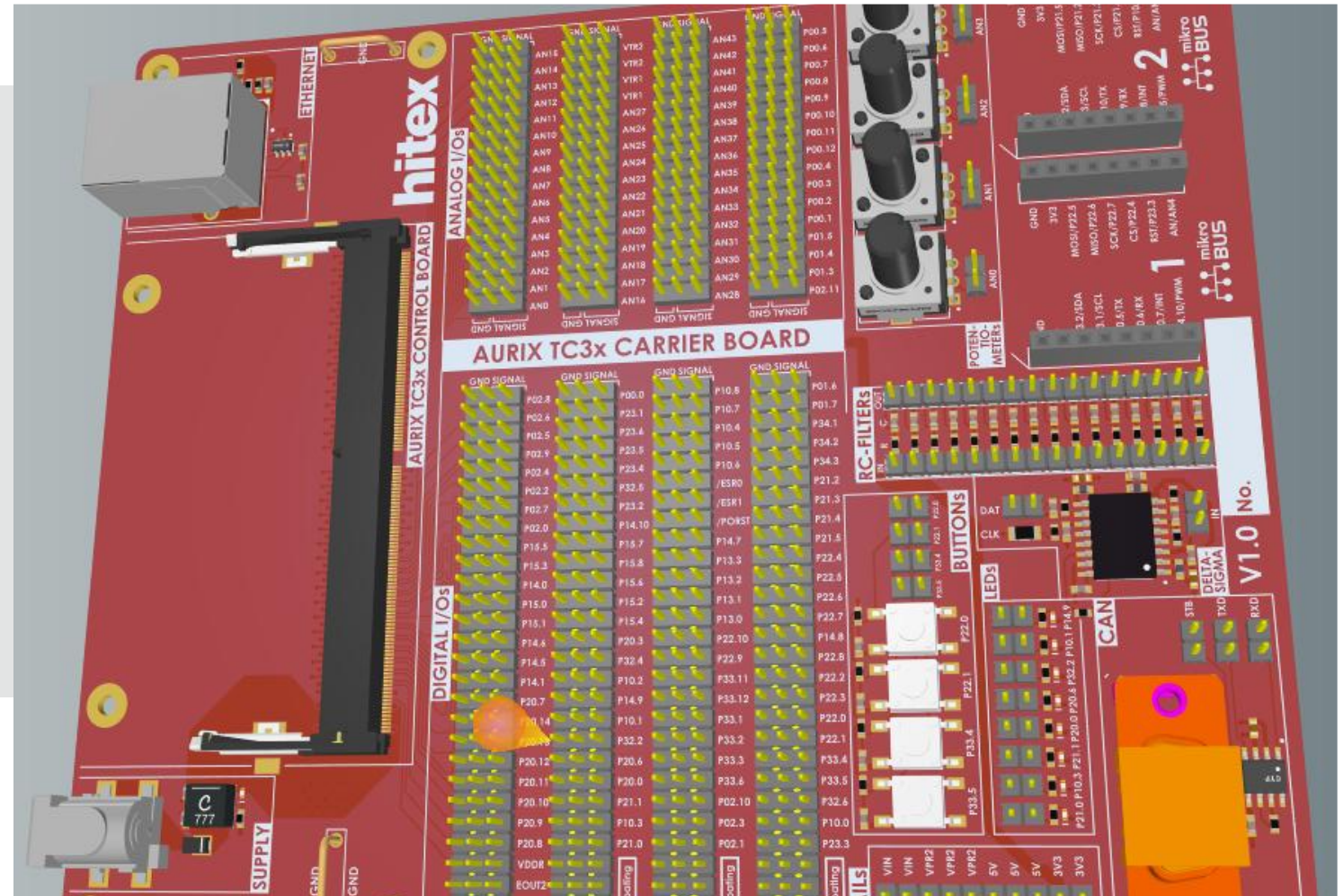


Generic breakout board for all SO-DIMM compute modules



Breakout board

- Fanout of SO-DIMM connector to pinheaders
- CAN transceiver
- RJ45 ethernet jack and magnetics
- External Delta-Sigma converter
- Potentiometers
- Mikro-Bus headers



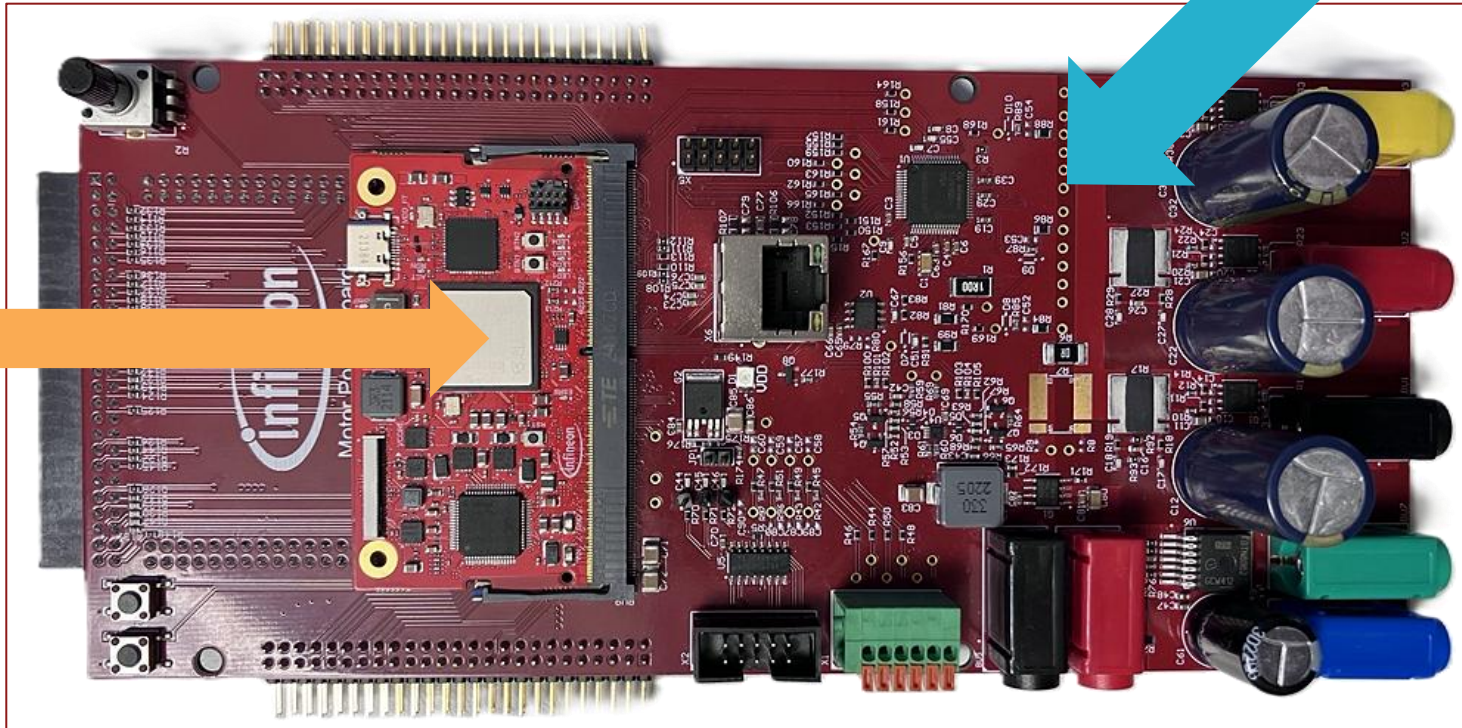
Motor Control Kit for BLDC motors

The board is a three-phase BLDC design with Infineon gate driver, with resolver and encoder support!

Compatible with Traveo T2G and AURIX TC3/TC4

One basic layout for application

Different controllers (Traveo / AURIX) based on your requirements

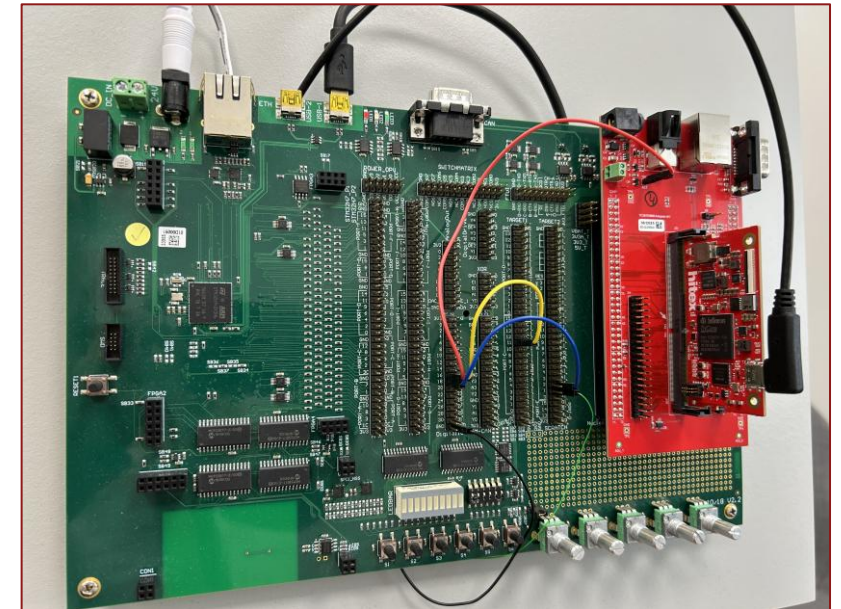
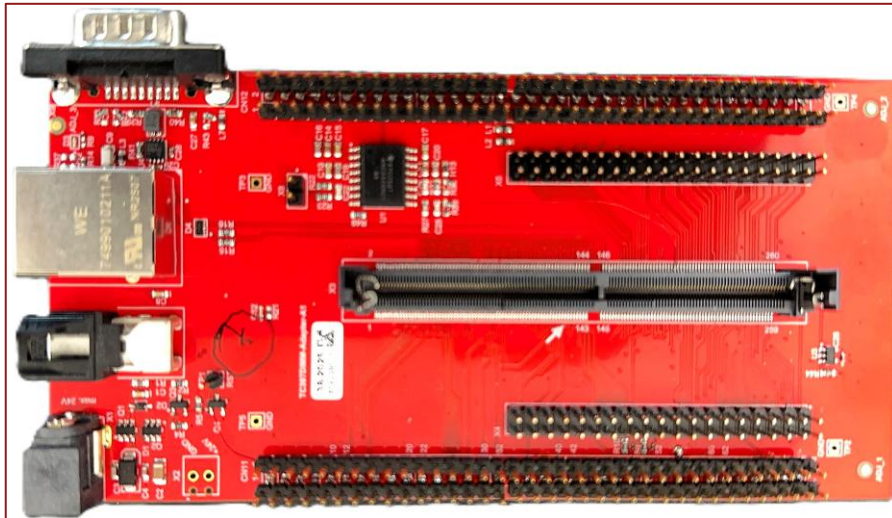


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SafeTdevboard SO-DIMM & miniHIL breakout board

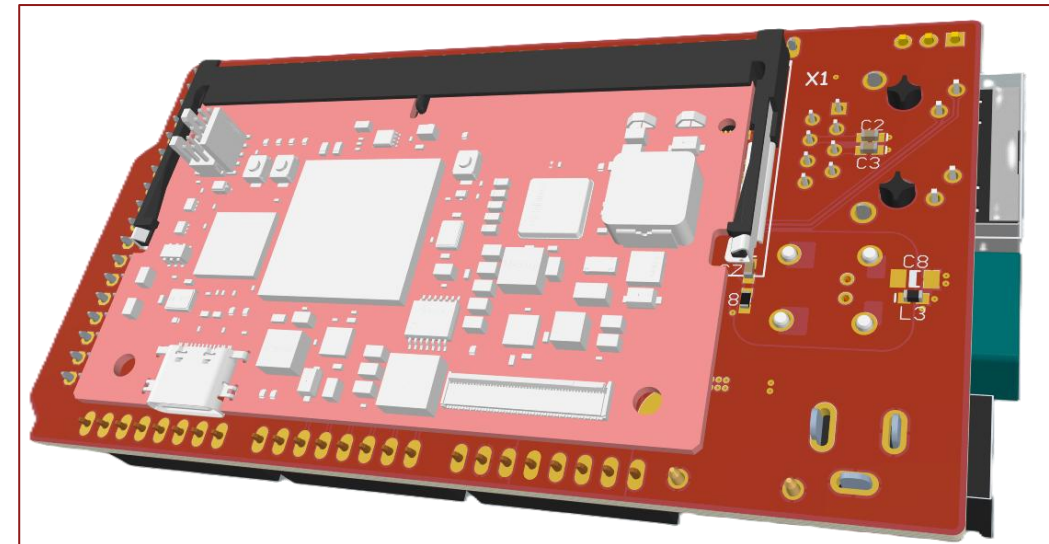
For the PROTOS miniHIL a special break out board is available:

- It can be easily connected with miniHIL
- Hardware-in-the-Loop tests made easy



Arduino Connector Board for SO-DIMM modules

- Connector between TRAVEO™ / PSOC™ or AURIX™ modules with the diverse world of Arduino boards
- Ideal for rapid prototyping with a wide range of Arduino applications



Timeline



	Available		In Development / planed		
Product	Q1/26	Q2/26	Q3/26	Q4/26	Q1/27
Controller					
AURIX™ TC3xx	TC3x7+TLF35585		TC3x7 400Mhz TC3x7+TLF35585+Marvell T1S		
AURIX™ TC4xx	TC4D7+TFL4D985 TC497+iPMIC		TC4D7+TFL4D985 + T1S		
TRAVEO™ T2G			TVII B-h Marvell T1s TVII Body high		
PSOC™				Psoc SODIMM	
RISC V	Risc Core SODIMM				Infineon RISC-V Automotive
Eco-system					
Carrier Boards	Generic Carrier Board miniHIL Carrier Board Arduino Carrier Board	MotorDrive Carrier Board	Update for Generic Carrier for T1s		
Software & Tools					
Tools/Services		SafeTschematic			
SafeTpal		SafeThal / SafeThsp			
	SafeTpack				

Fast Prototyping with SO-DIMM Boards

- The compute modules in SO-DIMM form factor, enable an easy to use entry into Infineon functional safety capable microcontrollers:
 - TRAVEO™ T2G
 - AURIX™ TC3xx and TC4xx
 - PSOC™ microcontrollers is in roadmap
 - Infineon RISC-V Architectures will come soon as dives are available
- While a hardware team is designing an application board to carry the SO-DIMM ...
... a software team can already develop their routines on the microcontroller.
- Later combining them by just plugging them together.
- No need to convert firmware from an evaluation board to a final application board.
- Also, if a basic setup is made, like an OS is integrated, lowlevel drivers have been integrated
- This setup can be used as a starting point for other projects at the company. Significantly enhancing reusability and reducing development time and time-to-market.
- Meanwhile the hardware team can focus on their expertise. For example motor drive or BMS circuitry.
- There is no need to deep dive also into the microcontroller architecture hardware aspects.
These are already covered by the SO-DIMM board



Application Example:

Multiple form factors & specification – One hardware to enable multiple TRAVEO™ T2G cluster concepts

Manufacturer of HMI-systems for cars and two-wheeler

Challenge: Support multiple form factors / Use the same controller basis

Solution

Support different form factors and layout with one TRAVEO™ T2G compute module:

- One software base
- Reducing
 - Development costs
 - testing & verification effort
- Accelerating
 - Time to market
 - Customizations



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Services, customization & know-how



SafeTstart

Design-In service
Safety & Security
Consulting
Consulting package at
the start of your
project



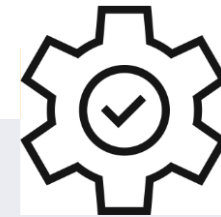
SafeTdev

Soft- & Hardware
development for
Infineon Controllers
Development services
based on TÜV certified
development process
According to safety
standards ISO 26262,
IEC 61508, CENELEC
...



Consulting

Consulting during
product development
Process consulting for
functional safety and
embedded security



Customization

Adaptation of the SO-DIMM
modules to your requirements.
- Controller
- Ethernet Phy
- Application
Customization of the
baseboards
Development of customized
baseboards

Conclusion and summary



Standards

With SO-DIMM Compute Modules all functional safety standards are covered



Automotive Ethernet
10BASE-T1S ready

Time-to-market

Ready-to-use Compute Modules for productive use
Fast Prototyping, sample series or small production volume



Budget

Save time and money with Hitex SO-DIMM Compute Modules
Real budget friendly alternative to other offerings

Hitex offerings ...



Ask alexander.hess@hitex.de – he looks forward to receiving your inquiries regarding Hitex offerings, including:

- Development support & services
- Self-test libraries for ArmV8 microcontrollers
- Training courses: From tools and software to RTOS and Security with Arm
- Unit testing for embedded software with TESSY
- SO-DIMM compute modules for PSOC™, TRAVEO™ and more for an easy entry into the Infineon MCs.

THANK YOU.
SEE YOU NEXT TIME!

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Find all the information at www.hitex.de