

AURIX™ TC37x variants

About this document

Scope and purpose

This document is an addendum to the TC37x Product Data Sheet and User's Manual, listing all planned product variants, key parameters such as memory size and optional features.

The User's Manual lists functions implemented on the Silicon, but this document counts functions that are pinning dependent; i.e. functions are counted that are connected to at least one package pin. As pins are overlaid with several functions the pinning needs to be checked (see Product Data Sheet) to determine the number of usable functions in an application.

Naming conventions

Prefix:

- SAK: T_{ambient} Temperature Range from -40 °C up to +125 °C.
- SAL: T_{ambient} Temperature Range from -40 °C up to +150 °C (packaged device).

Feature Package:

- P: Standard feature.
- E: Emulation device with all features of the emulated standard type, additionally full MCDS, overlay functionality for calibration, AGBT as trace interface for development (depending on the package). Refer to the Emulation devices Data Sheet for further details.
- C,I,V,Z: Customer Specific.
- A: ADAS ext. Memory.
- T: ADAS + emulation.
- X: Extended Feature device. These products contain the extended memory (EMEM) of the ADAS subsystem. The ADAS peripherals SPU and RIF are not available.
- M: MotionWise software.
- F: Extended Flash.
- G: Additional Connectivity.
- H: ADAS Standard feature.
- N: Standard feature with AMU.

Table of contents

Table of contents

| | | |
|----------|--|----|
| | About this document | 1 |
| | Table of contents | 2 |
| 1 | TC37x AA step variants | 3 |
| 1.1 | TC37x AA step (part 1) | 3 |
| 1.2 | TC37x AA step (part 2) | 6 |
| 2 | Memory maps of TC37x variants | 9 |
| | Revision history | 10 |
| | Disclaimer | 11 |

1 TC37x AA step variants

1 TC37x AA step variants

1.1 TC37x AA step (part 1)

A table listing the TC37x AA step variants.

Table 1 TC37x_AA step (part 1)

| SAL-TC377TP-96F300S | SAL-TC375TP-96F300W | SAK-TC377TP-96F300S | SAK-TC375TP-96F300W | SAK-TC377DP-96F300S | SAL-TC377DP-96F300S | SAK-TC375DP-96F300W |
|--|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|
| Step | | | | | | |
| AA | AA | AA | AA | AA | AA | AA |
| Production Status | | | | | | |
| Standard | Standard | Standard | Standard | Customer Specific | Customer Specific | Customer Specific |
| Package Type | | | | | | |
| PG-LFBGA-292 | PG-QFP-176 | PG-LFBGA-292 | PG-QFP-176 | PG-LFBGA-292 | PG-LFBGA-292 | PG-QFP-176 |
| Pinout | | | | | | |
| LFBGA 0.8 mm | LQFP 0.5 mm | LFBGA 0.8 mm | LQFP 0.5 mm | LFBGA 0.8 mm | LFBGA 0.8 mm | LQFP 0.5 mm |
| Reference Silicon | | | | | | |
| TC37x | TC37x | TC37x | TC37x | TC37x | TC37x | TC37x |
| Temperature Range (Ambient) | | | | | | |
| SAL | SAL | SAK | SAK | SAK | SAL | SAK |
| Chip ID | | | | | | |
| Attention: The value of SCU_CHIPID in the UCODE field contains the default value 0 not the µCode version. | | | | | | |
| 0x89007780 | 0x89007580 | 0x89007780 | 0x89007580 | 0xC9007780 | 0xC9007780 | 0x89007580 |
| Cores / Checker Cores | | | | | | |
| 3/2 | 3/2 | 3/2 | 3/2 | 2/2 | 2/2 | 2/2 |
| Max. Freq. (MHz) | | | | | | |
| 300 | 300 | 300 | 300 | 300 | 300 | 300 |
| Program Flash (MB) | | | | | | |
| 6 | 6 | 6 | 6 | 6 | 6 | 6 |
| Data Flash0 (single-ended) (KB) | | | | | | |
| 256 | 256 | 256 | 256 | 256 | 256 | 256 |
| Total SRAM (without EMEM and Cache) (KB) | | | | | | |
| 992 | 992 | 992 | 992 | 768 | 768 | 768 |
| EMEM Size (KB) | | | | | | |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 |

1 TC37x AA step variants

Table 1 TC37x_AA step (part 1) (continued)

| SAL-TC377TP-96F300S | SAL-TC375TP-96F300W | SAK-TC377TP-96F300S | SAK-TC375TP-96F300W | SAK-TC377DP-96F300S | SAL-TC377DP-96F300S | SAK-TC375DP-96F300W |
|--|-------------------------|-------------------------|-------------------------|---------------------|---------------------|-------------------------|
| DSPR (KB) | | | | | | |
| 240 in CPU0&1; 96 other | 240 in CPU0&1; 96 other | 240 in CPU0&1; 96 other | 240 in CPU0&1; 96 other | 240 in CPU0&1 | 240 in CPU0&1 | 240 in CPU0&1; 96 other |
| DLMU (KB) | | | | | | |
| 64 per CPU | 64 per CPU | 64 per CPU | 64 per CPU | 64 per CPU | 64 per CPU | 64 per CPU |
| PSPR (KB) | | | | | | |
| 64 per CPU | 64 per CPU | 64 per CPU | 64 per CPU | 64 per CPU | 64 per CPU | 64 per CPU |
| LMU (KB) | | | | | | |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| DAM (KB) | | | | | | |
| 32 | 32 | 32 | 32 | 32 | 32 | 32 |
| AMU¹⁾ | | | | | | |
| No | No | No | No | No | No | No |
| ADC (Primary Groups/Channels) | | | | | | |
| 4/32 | 4/25 | 4/32 | 4/25 | 4/32 | 4/32 | 4/25 |
| ADC (Secondary Groups/Channels) | | | | | | |
| 4/60 | 4/45 | 4/60 | 4/45 | 4/60 | 4/60 | 4/45 |
| ADC (Fast Compare Channels) | | | | | | |
| 4 | 4 | 4 | 4 | 4 | 4 | 4 |
| ADC (EDSADC Channels) | | | | | | |
| 6 | 6 | 6 | 6 | 6 | 6 | 6 |
| CAN (Modules/Nodes) | | | | | | |
| 2/2x4 | 2/2x4 | 2/2x4 | 2/2x4 | 2/2x4 | 2/2x4 | 2/2x4 |
| FlexRay (Modules/Channels) | | | | | | |
| 1/1x2 | 1/1x2 | 1/1x2 | 1/1x2 | 1/1x2 | 1/1x2 | 1/1x2 |
| HSSL Modules | | | | | | |
| 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| ASCLIN Modules / with ASC & LIN / with 3-wire SPI | | | | | | |
| 12/12/11 | 12/12/10 | 12/12/11 | 12/12/10 | 12/12/11 | 12/12/11 | 12/12/10 |
| QSPI Modules / with LVDS | | | | | | |

¹ AMU is abbreviated as ASC Modeling Unit. For Additional details about AMU, Contact an Infineon Representative

1 TC37x AA step variants

Table 1 TC37x_AA step (part 1) (continued)

| SAL-TC377TP-96F300S | SAL-TC375TP-96F300W | SAK-TC377TP-96F300S | SAK-TC375TP-96F300W | SAK-TC377DP-96F300S | SAL-TC377DP-96F300S | SAK-TC375DP-96F300W |
|---|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|
| 5/2 | 5/2 | 5/2 | 5/2 | 5/2 | 5/2 | 5/2 |
| SENT Channels | | | | | | |
| 15 | 15 | 15 | 15 | 15 | 15 | 15 |
| MSC Modules | | | | | | |
| 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| PSI5 Channels | | | | | | |
| 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| PSI5-S Module | | | | | | |
| Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| SDMMC Module | | | | | | |
| No | No | No | No | No | No | No |
| Max. Ethernet Availability: 1Gbit/100Mbit/No | | | | | | |
| 1Gbit/s | 100Mbit/s (RMII) | 1Gbit/s | 100Mbit/s (RMII) | 1Gbit/s | 1Gbit/s | 100Mbit/s (RMII) |
| MCDS Availability | | | | | | |
| miniMCDS | miniMCDS | miniMCDS | miniMCDS | miniMCDS | miniMCDS | miniMCDS |
| ADAS Cluster Available | | | | | | |
| No | No | No | No | No | No | No |
| CIF | | | | | | |
| No | No | No | No | No | No | No |
| HSM Available | | | | | | |
| Yes | Yes | Yes | Yes | Yes | Yes | Yes |

1 TC37x AA step variants

1.2 TC37x AA step (part 2)

A continuation table listing the TC37x AA step variants.

Table 2 TC37x_AA step (part 2)

| SAL-TC375DP-96F300W | SAK-TC375TI-96F300W | SAL-TC375TI-96F300W |
|--|-------------------------|-------------------------|
| Step | | |
| AA | AA | AA |
| Production Status | | |
| Customer Specific | Customer Specific | Customer Specific |
| Package Type | | |
| PG-QFP-176 | PG-QFP-176 | PG-QFP-176 |
| Pinout | | |
| LQFP 0.5 mm | LQFP 0.5 mm | LQFP 0.5 mm |
| Reference Silicon | | |
| TC37x | TC37x | TC37x |
| Temperature Range (Ambient) | | |
| SAL | SAK | SAL |
| Chip ID | | |
| <i>Attention: The value of SCU_CHIPID in the UCODE field contains the default value 0 not the µCode version.</i> | | |
| 0x89007580 | 0xE9007580 | 0xE9007580 |
| Cores / Checker Cores | | |
| 2/2 | 3/2 | 3/2 |
| Max. Freq. (MHz) | | |
| 300 | 300 | 300 |
| Program Flash (MB) | | |
| 6 | 6 | 6 |
| Data Flash0 (single-ended) (KB) | | |
| 256 | 256 | 256 |
| Total SRAM (without EMEM and Cache) (KB) | | |
| 768 | 992 | 992 |
| EMEM Size (KB) | | |
| 0 | 0 | 0 |
| DSPR (KB) | | |
| 240 in CPU0&1; 96 other | 240 in CPU0&1; 96 other | 240 in CPU0&1; 96 other |
| DLMU (KB) | | |
| 64 per CPU | 64 per CPU | 64 per CPU |

1 TC37x AA step variants

Table 2 TC37x_AA step (part 2) (continued)

| | SAL-TC375DP-96F300W | SAK-TC375TI-96F300W | SAL-TC375TI-96F300W |
|--|---------------------|---------------------|---------------------|
| PSPR (KB) | 64 per CPU | 64 per CPU | 64 per CPU |
| LMU (KB) | 0 | 0 | 0 |
| DAM (KB) | 32 | 32 | 32 |
| AMU²⁾ | No | No | No |
| ADC (Primary Groups/Channels) | 4/25 | 4/25 | 4/25 |
| ADC (Secondary Groups/Channels) | 4/45 | 4/45 | 4/45 |
| ADC (Fast Compare Channels) | 4 | 4 | 4 |
| ADC (EDSADC Channels) | 6 | 6 | 6 |
| CAN (Modules/Nodes) | 2/2x4 | 2/2x4 | 2/2x4 |
| FlexRay (Modules/Channels) | 1/1x2 | 1/1x2 | 1/1x2 |
| HSSL Modules | 1 | 1 | 1 |
| ASCLIN Modules / with ASC & LIN / with 3-wire SPI | 12/12/10 | 12/12/10 | 12/12/10 |
| QSPI Modules / with LVDS | 5/2 | 5/2 | 5/2 |
| SENT Channels | 15 | 15 | 15 |
| MSC Modules | 2 | 2 | 2 |
| PSI5 Channels | 2 | 2 | 2 |

²⁾ AMU is abbreviated as ASC Modeling Unit. For Additional details about AMU, Contact an Infineon Representative

1 TC37x AA step variants
Table 2 TC37x_AA step (part 2) (continued)

| SAL-TC375DP-96F300W | SAK-TC375TI-96F300W | SAL-TC375TI-96F300W |
|---|----------------------------|----------------------------|
| PSI5-S Module | | |
| Yes | Yes | Yes |
| SDMMC Module | | |
| No | No | No |
| Max. Ethernet Availability: 1Gbit/100Mbit/No | | |
| 100Mbit/s (RMII) | 100Mbit/s (RMII) | 100Mbit/s (RMII) |
| MCDS Availability | | |
| miniMCDS | miniMCDS | miniMCDS |
| ADAS Cluster Available | | |
| No | No | No |
| CIF | | |
| No | No | No |
| HSM Available | | |
| Yes | Yes | Yes |

2 Memory maps of TC37x variants

2 Memory maps of TC37x variants

This section describes the influence of the available feature variants on the memory map.

Cores / checker cores

Variants:

- 3/2: umbrella, see User's Manual.
- 2/2: reduced CPU variant, not available is CPU2 including its RAMs (DSPR, DCACHE, DTAG, PSPR, PCACHE, PTAG, DLMU).

HSM

Variants:

- Yes: umbrella, see User's Manual.
- No: HSM and DF1 are not available.

Ethernet availability

- 1Gbit/s: umbrella, see User's Manual.
- 100Mbit/s (RMII): due to pin limitations in this package the GETH module can be only used in RMII mode.

ADC availability

- Limitation on availability of ADC channels are caused by pin limitations. See Data Sheet for the pinning table of the package.

Revision history
Revision history

| Document version | Date of release | Description of changes |
|------------------|-----------------|--|
| V1.0 | 2019-02-05 | <ul style="list-style-type: none"> First release. |
| V1.1 | 2019-03-01 | <ul style="list-style-type: none"> Removed devices: SAK-TC377T-96F300S and SAK-TC375T-96F300W. Added devices: SAK-TC377DP-96F300S and SAL-TC377DP-96F300S. |
| V1.2 | 2019-06-12 | <ul style="list-style-type: none"> Chapter 1: TC37x AA step variants table format changed to fit all the contents. Chapter 1: Added new row in the variant tables called "AMU" with the footnote for additional details. Chapter: About this document: Feature package definitions are updated to consistent with the product naming nomenclature definition. |
| V1.3 | 2020-01-10 | <ul style="list-style-type: none"> Chapter 1: New TC37x AA step variants added: SAK-TC375DP-96F300W, SAL-TC375DP-96F300W . Page 1: About the document: Feature Package 'X' definition is updated to remove CIF. Chapter 1: Added new row in the variant tables called "CIF" indicating the Camera Interface availability. |
| V1.4 | 2020-04-30 | <ul style="list-style-type: none"> Chapter 1: New TC37x AA step variants added: SAK-TC375TI-96F300W, SAL-TC375TI-96F300W . About this document section: Added an additional note for the Feature package 'E'. |
| V1.5 | 2020-11-18 | <ul style="list-style-type: none"> Chapter 1: Removed Bare Die Marking variant SAL-TC370TP-96F300. |

Trademarks

All referenced product or service names and trademarks are the property of their respective owners.

Edition 2020-11

Published by
Infineon Technologies AG
81726 Munich, Germany

© 2020 Infineon Technologies AG
All Rights Reserved.

Do you have a question about any aspect of this document?

Email: erratum@infineon.com

Document reference
IFX-vxe1559112312940

IMPORTANT NOTICE

The information given in this document shall in no event be regarded as a guarantee of conditions or characteristics ("Beschaffheitsgarantie").

With respect to any examples, hints or any typical values stated herein and/or any information regarding the application of the product, Infineon Technologies hereby disclaims any and all warranties and liabilities of any kind, including without limitation warranties of non-infringement of intellectual property rights of any third party.

In addition, any information given in this document is subject to customer's compliance with its obligations stated in this document and any applicable legal requirements, norms and standards concerning customer's products and any use of the product of Infineon Technologies in customer's applications.

The data contained in this document is exclusively intended for technically trained staff. It is the responsibility of customer's technical departments to evaluate the suitability of the product for the intended application and the completeness of the product information given in this document with respect to such application.

WARNINGS

Due to technical requirements products may contain dangerous substances. For information on the types in question please contact your nearest Infineon Technologies office.

Except as otherwise explicitly approved by Infineon Technologies in a written document signed by authorized representatives of Infineon Technologies, Infineon Technologies' products may not be used in any applications where a failure of the product or any consequences of the use thereof can reasonably be expected to result in personal injury.

X-ON Electronics

Largest Supplier of Electrical and Electronic Components

Click to view similar products for [Development Boards & Kits - Other Processors](#) category:

Click to view products by [Infineon](#) manufacturer:

Other Similar products are found below :

[KIT_AURIX_TC233LP_TRB](#) [EVB-MEC1418MECC](#) [P1020RDB-PD](#) [STM8S/32-D/RAIS](#) [T4240QDS-PB](#) [SPC58EEMU](#)
[YR0K50571MS000BE](#) [QB-R5F104PJ-TB](#) [OV-7604-C7-EVALUATION-BOARD](#) [SK-AD02-D62Q1747TB](#) [ST7MDT1-EMU2](#)
[RTK5572TKCS00000BE](#) [KITAURIXTC234TFTTOBO1](#) [SL-MIPI-LVDS-HDMI-CNV4](#) [QB-R5F104LE-TB](#) [R0K521380S000BE](#) [LV-24-33](#)
[V6 44-PIN TQFP MCU CARD EMPTY](#) [LV-24-33](#) [V6 64-PIN TQFP MCU CARD EMPTY](#) [LV-24-33](#) [V6 80-PIN TQFP 1 MCU CARD](#)
[EMPTY](#) [32X32 RGB LED MATRIX PANEL - 6MM PITCH](#) [READY FOR XMEGA CASING \(WHITE\)](#) [RELAY4 BOARD](#) [ETHERNET](#)
[CONNECTOR](#) [RFID CARD 125KHZ - TAG](#) [RFID READER](#) [RFM12B-DEMO](#) [MAROON](#) [MAX232](#) [MAX3232 BOARD](#) [ARTY S7-50](#)
[THREE-AXIS ACCELEROMETER BOARD](#) [TINKERKIT HALL SENSOR](#) [TOUCHPANEL CONTROLLER](#) [MIKROBOARD FOR AVR](#)
[WITH ATMEGA128](#) [MIKROBOARD FOR PSOC WITH CY8C27643](#) [MIKRODRIVE](#) [MIKROETH 100 BOARD](#) [MIKROPROG TO ST-](#)
[LINK V2 ADAPTER](#) [BANANA PI GPIO EXTEND MODULE](#) [BATTERY BOOST SHIELD BOARD](#) [BEE PROTO](#) [BIGDSPIC6 80-PIN](#)
[TQFP 1 MCU CARD EMPTY](#) [BIPOLAR STEPPER MOTOR DRIVER](#) [MOD-28.Z](#) [MOD-30.Z](#) [MOD-37.Z](#) [MOD-50](#) [MOD-54](#) [MOD-60](#)
[MOD-64](#)