

# AURIX™ TC33xEXT variants

## About this document

### Scope and purpose

This document is an addendum to the TC33xEXT 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:  $T_{\text{ambient}}$  Temperature Range from -40 °C up to +125 °C.

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).
- C,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**

	<b>About this document</b> .....	1
	<b>Table of contents</b> .....	2
<b>1</b>	<b>TC33xEXT AA step</b> .....	3
<b>2</b>	<b>Memory maps of TC33xEXT variants</b> .....	6
	<b>Revision history</b> .....	7
	<b>Disclaimer</b> .....	8

## 1 TC33xEXT AA step

## 1 TC33xEXT AA step

A table listing the TC33xEXT AA step variants.

Table 1 TC33xEXT\_AA step

SAK-TC337DA-32F200S	SAK-TC337DZ-32F200S	SAK-TC336DA-32F200S	SAK-TC337DA-32F300S	SAK-TC336DA-32F300S	SAK-TC337DZ-32F300S	SAK-TC336DA-16F200S
<b>Step</b>						
AA	AA	AA	AA	AA	AA	AA
<b>Production Status</b>						
Standard	Customer Specific	Standard	Standard	Standard	Customer Specific	Customer Specific
<b>Package Type</b>						
PG-LFBGA-292	PG-LFBGA-292	PG-LFBGA-180	PG-LFBGA-292	PG-LFBGA-180	PG-LFBGA-292	PG-LFBGA-180
<b>Pinout</b>						
ADAS	ADAS	ADAS	ADAS	ADAS	ADAS	ADAS
<b>Reference Silicon</b>						
TC33xEXT	TC33xEXT	TC33xEXT	TC33xEXT	TC33xEXT	TC33xEXT	TC33xEXT
<b>Temperature Range (Ambient)</b>						
SAK	SAK	SAK	SAK	SAK	SAK	SAK
<b>Chip ID</b>						
<b>Attention:</b> The value of SCU_CHIPID in the UCODE field contains the default value 0 not the µCode version.						
0xB4013780	0xE4013780	0xB4013680	0xB4013780	0xB4013680	0xE4013780	0xE2013680
<b>Cores / Checker Cores</b>						
2/1	2/1	2/1	2/1	2/1	2/1	2/1
<b>Max. Freq. (MHz)</b>						
200	200	200	300	300	300	200
<b>Program Flash (MB)</b>						
2	2	2	2	2	2	1
<b>Data Flash0 (single-ended) (KB)</b>						
128	128	128	128	128	128	128
<b>Total SRAM (without EMEM and Cache) (KB)</b>						
456	424	456	456	456	424	456
<b>EMEM Size (KB)</b>						
1024	1024	1024	1024	1024	1024	1024
<b>DSPR (KB)</b>						
192 in CPU0; 96 in CPU1	192 in CPU0; 96 in CPU1	192 in CPU0; 96 in CPU1	192 in CPU0; 96 in CPU1	192 in CPU0; 96 in CPU1	192 in CPU0; 96 in CPU1	192 in CPU0; 96 in CPU1

## 1 TC33xEXT AA step

Table 1 TC33xEXT\_AA step (continued)

SAK-TC337DA-32F200S	SAK-TC337DZ-32F200S	SAK-TC336DA-32F200S	SAK-TC337DA-32F300S	SAK-TC336DA-32F300S	SAK-TC337DZ-32F300S	SAK-TC336DA-16F200S
<b>DLMU (KB)</b>						
8 in CPU0; 64 in CPU1	8 in CPU0; 64 in CPU1	8 in CPU0; 64 in CPU1	8 in CPU0; 64 in CPU1	8 in CPU0; 64 in CPU1	8 in CPU0; 64 in CPU1	8 in CPU0; 64 in CPU1
<b>PSPR (KB)</b>						
32 in CPU0; 64 in CPU1	32 in CPU0; 32 in CPU1	32 in CPU0; 64 in CPU1	32 in CPU0; 64 in CPU1	32 in CPU0; 64 in CPU1	32 in CPU0; 32 in CPU1	32 in CPU0; 64 in CPU1
<b>LMU (KB)</b>						
0	0	0	0	0	0	0
<b>DAM (KB)</b>						
0	0	0	0	0	0	0
<b>AMU</b>						
No	No	No	No	No	No	No
<b>ADC (Primary Groups/Channels)</b>						
6/40	6/40	6/30	6/40	6/30	6/40	6/30
<b>ADC (Secondary Groups/Channels)</b>						
0	0	0	0	0	0	0
<b>ADC (Fast Compare Channels)</b>						
0	0	0	0	0	0	0
<b>ADC (EDSADC Channels)</b>						
0	0	0	0	0	0	0
<b>CAN (Modules/Nodes)</b>						
1/1x4	1/1x4	1/1x4	1/1x4	1/1x4	1/1x4	1/1x4
<b>FlexRay (Modules/Channels)</b>						
0	0	0	0	0	0	0
<b>HSSL Modules</b>						
0	0	0	0	0	0	0
<b>ASCLIN Modules / with ASC &amp; LIN / with 3-wire SPI</b>						
6/6/6	6/6/6	5/5/5	6/6/6	5/5/5	6/6/6	5/5/5
<b>QSPI Modules / with LVDS</b>						
4/0	4/0	4/0	4/0	4/0	4/0	4/0
<b>SENT Channels</b>						
6	6	6	6	6	6	6
<b>MSC Modules</b>						

## 1 TC33xEXT AA step

Table 1 TC33xEXT\_AA step (continued)

SAK-TC337DA-32F200S	SAK-TC337DZ-32F200S	SAK-TC336DA-32F200S	SAK-TC337DA-32F300S	SAK-TC336DA-32F300S	SAK-TC337DZ-32F300S	SAK-TC336DA-16F200S
0	0	0	0	0	0	0
<b>PSI5 Channels</b>						
0	0	0	0	0	0	0
<b>PSI5-S Module</b>						
No	No	No	No	No	No	No
<b>SDMMC Module</b>						
Yes	Yes	Yes	Yes	Yes	Yes	Yes
<b>Max. Ethernet Availability: 1Gbit/100Mbit/No</b>						
1Gbit/s	1Gbit/s	1Gbit/s	1Gbit/s	1Gbit/s	1Gbit/s	1Gbit/s
<b>MCDS Availability</b>						
MCDSlight	MCDSlight	MCDSlight	MCDSlight	MCDSlight	MCDSlight	MCDSlight
<b>ADAS Cluster Available</b>						
<i>Note: ADAS Cluster includes RIF,SPU.</i>						
Yes	Yes	Yes	Yes	Yes	Yes	Yes
<b>CIF</b>						
No	No	No	No	No	No	No
<b>HSM Available</b>						
Yes	Yes	Yes	Yes	Yes	Yes	Yes

## 2 Memory maps of TC33xEXT variants

### 2 Memory maps of TC33xEXT variants

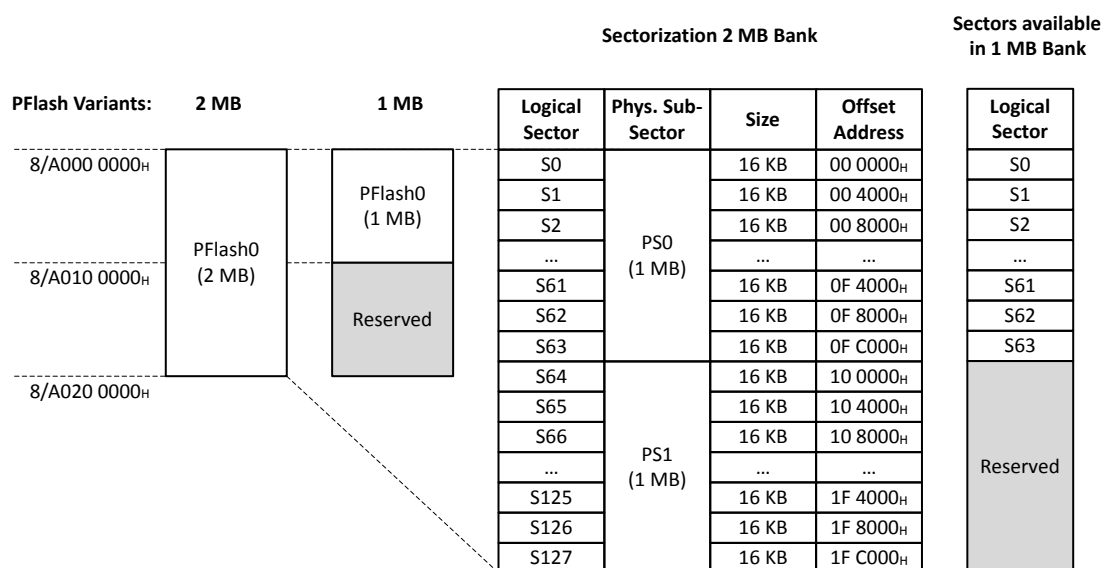
This Section describes the influence of the available feature variants on the memory map.

#### Program flash

Variants:

- 2 MB: umbrella (2 x 1 MB), see User's Manual.
- 1 MB: see Figure below.

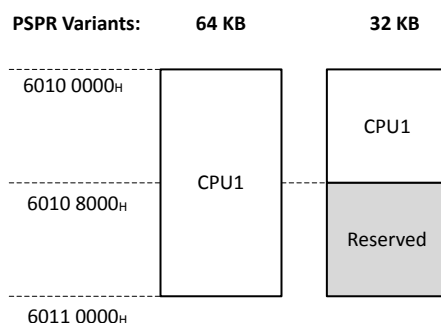
**Figure 1 TC33xEXT PFlash variants**



#### PSPR

- CPU1 PSPR of 64KB, see User's Manual.
- CPU1 PSPR of 32KB: see Figure below.

**Figure 2 TC33xEXT PSPR variants**



#### ADC availability

- A limitation on the availability of ADC channels is caused by pin limitations. See the Data-sheet for the pinning table of the package.

---

**Revision history**
**Revision history**

Document version	Date of release	Description of changes
V1.0	2019-03-01	<ul style="list-style-type: none"> <li>First release.</li> </ul>
V1.1	2019-06-12	<ul style="list-style-type: none"> <li>Added new variant SAK-TC337DZ-32F200S in the Chapter 1.1, Table 1</li> <li>Chapter 1: TC33xEXT AA step variants table format changed to fit all the contents.</li> <li>Chapter 1: Added new row in the variant tables called "AMU" with the footnote for additional details.</li> <li>Chapter: About this document: Feature package definitions are updated to consistent with the product naming nomenclature definition.</li> </ul>
V1.2	2020-01-13	<ul style="list-style-type: none"> <li>Added new variant •SAK-TC337DZ-32F300S in the Table 1</li> <li>Page 1: About the document: Feature Package 'X' definition is updated to remove CIF.</li> <li>Chapter 1: Added new row in the variant tables called "CIF" indicating the Camera Interface availability.</li> </ul>
V1.3	2020-02-03	<ul style="list-style-type: none"> <li>Chapter 1, Table 1: Added new variant SAK-TC336DA-16F200S.</li> <li>Chapter 1, Table 1: In the PSPR (KB) row, added 'per CPU' to make it more transparent.</li> <li>Chapter 1: Table 1: SAK-TC337DZ-32F200S, SAK-TC337DZ-32F300S - Updated the CPU1 PSPR to 32KB.</li> <li>Chapter 2: Added Program Flash and PSPR variant Figures.</li> </ul>
V1.4	2020-03-13	<ul style="list-style-type: none"> <li>Chapter 1, Table 1: For the Variants SAK-TC337DZ-32F200S, SAK-TC337DZ-32F300S the "Total SRAM (KB, without EMEM and Cache)" is updated to 424KB.</li> <li>Chapter 1, Table 1: Added a 'Note' to clarify the modules included in ADAS Cluster.</li> </ul>

## Trademarks

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

**Edition 2020-03**

**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](mailto:erratum@infineon.com)**

**Document reference**  
**IFX-hiv1559117634003**

## 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