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: $T_{ambient}$ 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.

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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
Step							
	AA	AA	AA	AA	AA	AA	AA
Production Status							
	Standard	Customer Specific	Standard	Standard	Standard	Customer Specific	Customer Specific
Package Type							
	PG-LFBGA-292	PG-LFBGA-292	PG-LFBGA-180	PG-LFBGA-292	PG-LFBGA-180	PG-LFBGA-292	PG-LFBGA-180
Pinout							
	ADAS	ADAS	ADAS	ADAS	ADAS	ADAS	ADAS
Reference Silicon							
	TC33xEXT	TC33xEXT	TC33xEXT	TC33xEXT	TC33xEXT	TC33xEXT	TC33xEXT
Temperature Range (Ambient)							
	SAK	SAK	SAK	SAK	SAK	SAK	SAK
Chip ID *Attention:* **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
Cores / Checker Cores							
	2/1	2/1	2/1	2/1	2/1	2/1	2/1
Max. Freq. (MHz)							
	200	200	200	300	300	300	200
Program Flash (MB)							
	2	2	2	2	2	2	1
Data Flash0 (single-ended) (KB)							
	128	128	128	128	128	128	128
Total SRAM (without EMEM and Cache) (KB)							
	456	424	456	456	456	424	456
EMEM Size (KB)							
	1024	1024	1024	1024	1024	1024	1024
DSPR (KB)							
	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
DLMU (KB)							
	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
PSPR (KB)							
	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
LMU (KB)							
	0	0	0	0	0	0	0
DAM (KB)							
	0	0	0	0	0	0	0
AMU							
	No	No	No	No	No	No	No
ADC (Primary Groups/Channels)							
	6/40	6/40	6/30	6/40	6/30	6/40	6/30
ADC (Secondary Groups/Channels)							
	0	0	0	0	0	0	0
ADC (Fast Compare Channels)							
	0	0	0	0	0	0	0
ADC (EDSADC Channels)							
	0	0	0	0	0	0	0
CAN (Modules/Nodes)							
	1/1x4	1/1x4	1/1x4	1/1x4	1/1x4	1/1x4	1/1x4
FlexRay (Modules/Channels)							
	0	0	0	0	0	0	0
HSSL Modules							
	0	0	0	0	0	0	0
ASCLIN Modules / with ASC & LIN / with 3-wire SPI							
	6/6/6	6/6/6	5/5/5	6/6/6	5/5/5	6/6/6	5/5/5
QSPI Modules / with LVDS							
	4/0	4/0	4/0	4/0	4/0	4/0	4/0
SENT Channels							
	6	6	6	6	6	6	6
MSC Modules							

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
PSI5 Channels							
	0	0	0	0	0	0	0
PSI5-S Module							
	No	No	No	No	No	No	No
SDMMC Module							
	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Max. Ethernet Availability: 1GBit/100Mbit/No							
	1Gbit/s	1Gbit/s	1Gbit/s	1Gbit/s	1Gbit/s	1Gbit/s	1Gbit/s
MCDS Availability							
	MCDSlight	MCDSlight	MCDSlight	MCDSlight	MCDSlight	MCDSlight	MCDSlight
ADAS Cluster Available							
Note: ADAS Cluster includes RIF,SPU.							
	Yes	Yes	Yes	Yes	Yes	Yes	Yes
CIF							
	No	No	No	No	No	No	No
HSM Available							
	Yes	Yes	Yes	Yes	Yes	Yes	Yes

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

Logical Sector	Phys. Sub-Sector	Size	Offset Address	Logical Sector
S0		16 KB	00 0000H	S0
S1		16 KB	00 4000H	S1
S2		16 KB	00 8000H	S2
...	PS0 (1 MB)	...	...	...
S61		16 KB	0F 4000H	S61
S62		16 KB	0F 8000H	S62
S63		16 KB	0F C000H	S63
S64		16 KB	10 0000H	
S65		16 KB	10 4000H	
S66		16 KB	10 8000H	
...	PS1 (1 MB)	...	...	Reserved
S125		16 KB	1F 4000H	
S126		16 KB	1F 8000H	
S127		16 KB	1F C000H	
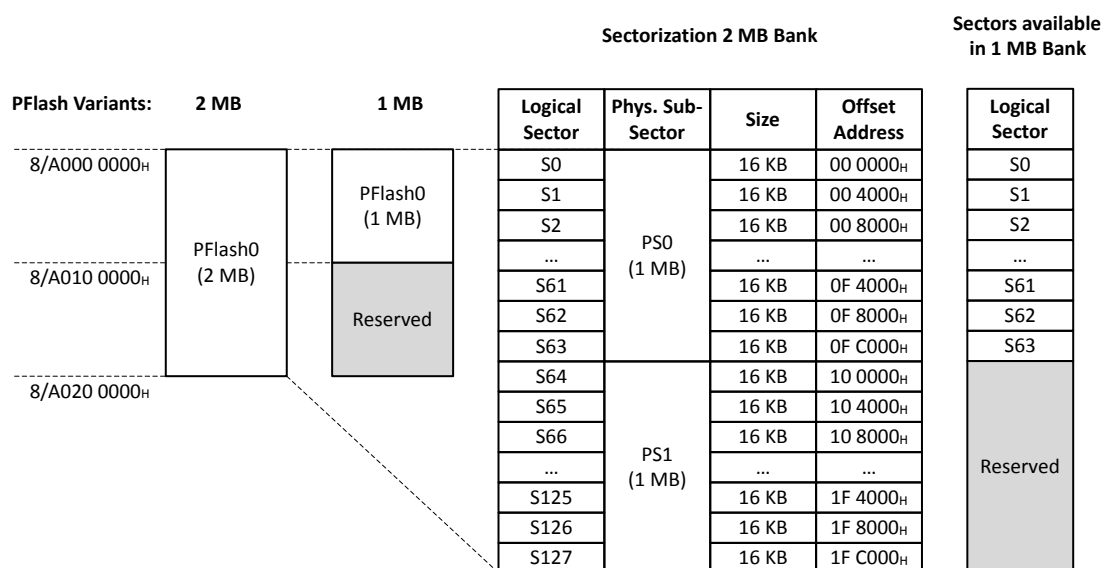
PSPR

*   CPU1 PSPR of 64KB, see User's Manual.

*   CPU1 PSPR of 32KB: see Figure below.

Figure 2   TC33xEXT PSPR variants
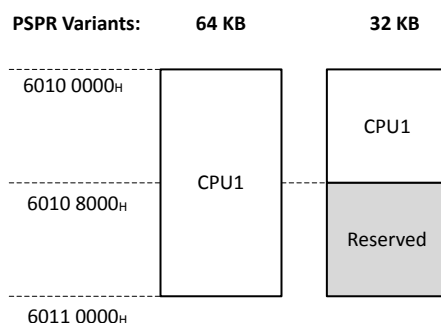
ADC availability

*   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

Document version	Date of release	Description of changes
V1.0	2019-03-01	• First release.
V1.1	2019-06-12	• Added new variant SAK-TC337DZ-32F200S in the Chapter 1.1, Table 1 • Chapter 1: TC33xEXT 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.
V1.2	2020-01-13	• Added new variant •SAK-TC337DZ-32F300S in the Table 1 • 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.
V1.3	2020-02-03	• Chapter 1, Table 1: Added new variant SAK-TC336DA-16F200S. • Chapter 1, Table 1: In the PSPR (KB) row, added 'per CPU' to make it more transparent. • Chapter 1: Table 1: SAK-TC337DZ-32F200S, SAK-TC337DZ-32F300S - Updated the CPU1 PSPR to 32KB. • Chapter 2: Added Program Flash and PSPR variant Figures.
V1.4	2020-03-13	• 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. • Chapter 1, Table 1: Added a 'Note' to clarify the modules included in ADAS Cluster.

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