Customer Training Workshop

Traveo™ II Chip Operational Modes

Q4 2020

Target Products
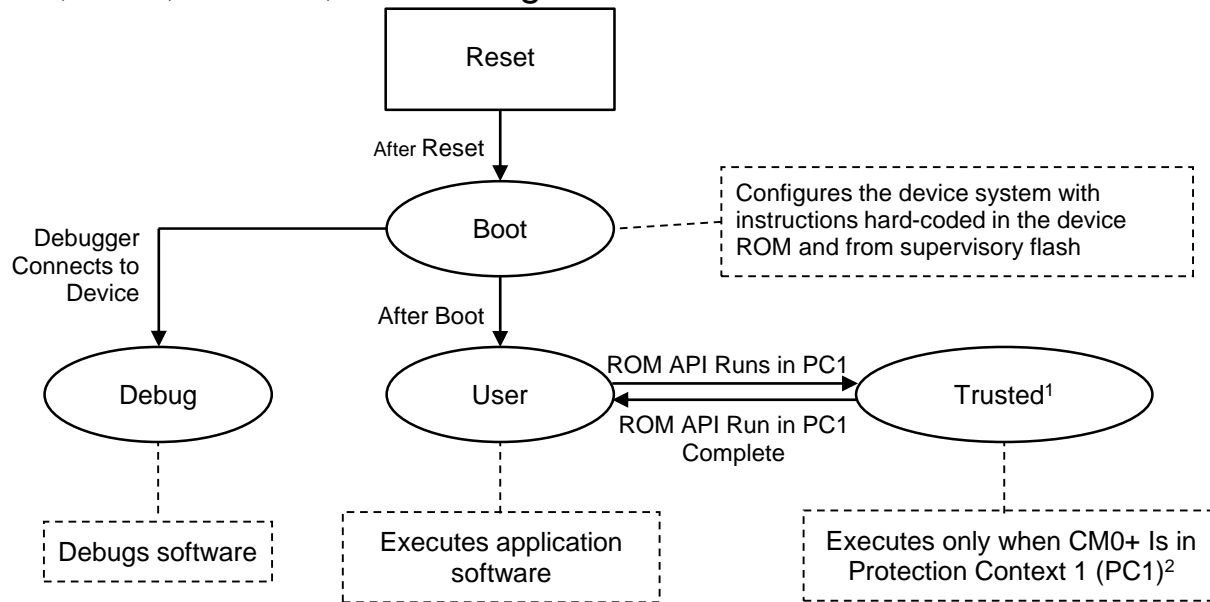
› Target product list for this training material

Family Category	Series	Code Flash Memory Size
Traveo™ II Automotive Body Controller Entry	CYT2B6	Up to 576KB
Traveo II Automotive Body Controller Entry	CYT2B7	Up to 1088KB
Traveo II Automotive Body Controller Entry	CYT2B9	Up to 2112KB
Traveo II Automotive Body Controller Entry	CYT2BL	Up to 4160KB
Traveo II Automotive Body Controller High	CYT3BB/CYT4BB	Up to 4160KB
Traveo II Automotive Body Controller High	CYT4BF	Up to 8384KB
Traveo II Automotive Cluster	CYT3DL	Up to 4160KB
Traveo II Automotive Cluster	CYT4DN	Up to 6336KB

Traveo™ II Operational Modes Overview

› Overview
  – Traveo II can execute software in four different modes:
    Boot, User, Trusted, and Debug

Reset

After Reset

Boot — Configures the device system with instructions hard-coded in the device ROM and from supervisory flash

Debugger Connects to Device

After Boot

Debug — ROM API Runs in PC1 → User ← ROM API Run in PC1 Complete → Trusted[1]

Debug — Debugs software

User — Executes application software

Trusted — Executes only when CM0+ Is in Protection Context 1 (PC1)[2]

[1] Trusted mode allows the execution of special subroutines stored in the device ROM, which cannot be modified by the user and are used to execute copyrighted code.
[2] In Traveo II, the ROM API runs in PC1 for safety and security reasons so that the ROM API has the minimum privilege required to perform its functions.

Operational Modes Summary

› Operation modes are summarized in the following table

	Main Operation				Privilege Level	
	ROM Boot Execute	Flash Boot Execute	User Software Execute from Flash	Trusted ROM Code Execute Only When CM0+ Is In Protection Context 1	Privileged Operation	Unprivileged Operation
			Interrupt / Debugging			
Boot Mode	✔	✔			✔	
User Mode			✔ (Interrupt)		✔	✔
Trusted Mode				✔	✔	
Debug Mode			✔ (Interrupt) ✔ (Debugging)		✔	✔

Hint Bar

Review TRM chapter 14 for additional details

Review TRM chapter 13 for additional details on protection states.

Review the Device Security training section for additional details on protection context

Review the CPU Subsystem training section for additional details on privileged and unprivileged operation

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002-22200 *C

Revision History

Revision	ECN	Submission Date	Description of Change
**	6123648	04/06/2018	Initial release
*A	6324692	09/28/2018	Added page 2 and the note descriptions of all pages
*B	6649384	08/07/2019	Updated page 2
*C	7073093	01/22/2021	Updated page 2