Intro to CEC1736 Trust Shield

A Leading Provider of Smart, Connected and Secure Embedded Control Solutions

Computing Product Group

Sep, 2022

Platform Root of Trust (PRoT) Portfolio

CEC1302
ARM M4 @ 48MHz
Secure Boot w/ HW RoT
144-WFBGA

CEC1702
ARM M4F w/MPU @ 48MHz
Secure Boot w/ HW RoT
84-WFBGA

CEC1712
ARM M4 @ 48 MHz
CNSA Suite Secure Boot
Key Revocation
Code Rollback Protection
84-WFBGA

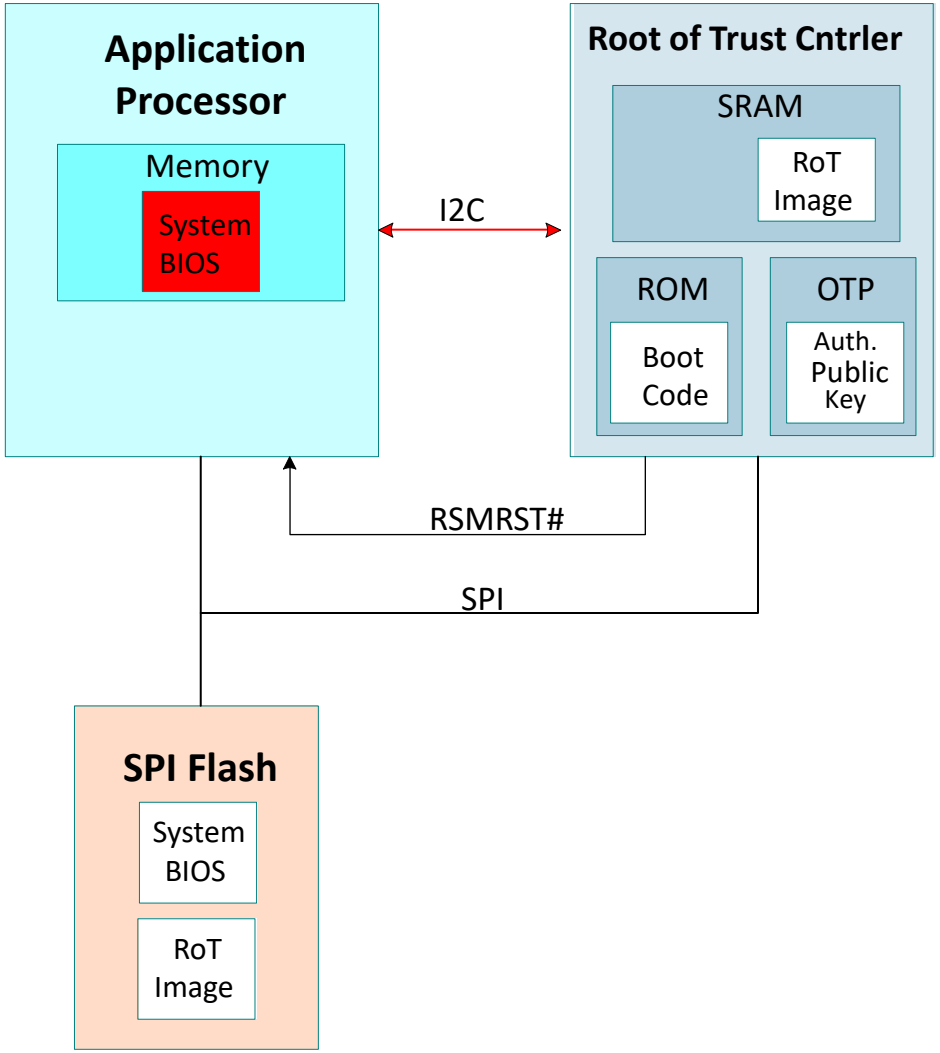
NEW

CEC1736 Trust Shield
ARM M4 @ 96M MHz
Real-time system bus protection
Attestation
Physical Attack Countermeasures
64-/84-WFBGA

May-17, 2022 Announcement

3rd generation Root of Trust of CEC17xx series for Datacenters, Telecom, Networking, Embedded Computing & Industrial

Recap - Secure Boot (Basic Root of Trust)



- **The Root of Trust (RoT) Controller contains the Immutable Boot Code and OTP**
- **At power-on, the RoT Controller:**
  - Holds Application Processor in reset
  - Loads and authenticates RoT Image with the public key in the OTP
- **The authenticated RoT Image begins execution, authenticates the Processor System BIOS code**
- **Releases the Host Processor from reset**

Why CEC1736 Trust Shield?

- **Best in-class Platform Root of Trust Controllers**
  - Hardware Cryptographic Cipher Suite (AES-256, SHA-512, RSA-4096, ECC and ECDSA P-384)
  - Boot ROM, 8Kbit OTP
  - Real-time system bus protection (SPI, I2C/SMBus)
  - Device Identity Authentication
  - Physical Unclonable Function (PUF) technology
- **Reduced system cost**
  - In-package 2MByte/4MByte Flash
  - Integrated QSPI Analog Switches
- **Quick time-to-market**
  - Development board, Trust Platform Design Suite (GUI), MPLAB Harmony
  - Sample Code, User Guides, Design Collateral, Webinars
- **Standards / Compliance**
  - NIST 800-193 PFR, Open Compute Project (OCP) Security, TCG DICE
  - Printer Working Group HCD-CPP, FIPS 140-2, CAVP, 3rd party penetration tests

CEC1736 *vs* CEC1712?

Applications

Runtime / Operating System

Firmware / Boot loader

Hardware (Components)

Trusted hardware & boot code

CEC173x (Real-time PRoT)

Real-time system Bus Protection

Device Identity Authentication

Ownership Transfer

Lifecycle Management

Data Exfiltration Countermeasures

Advanced Key Generation

CEC1712 (RoT)

Recovery

Firmware Authentication

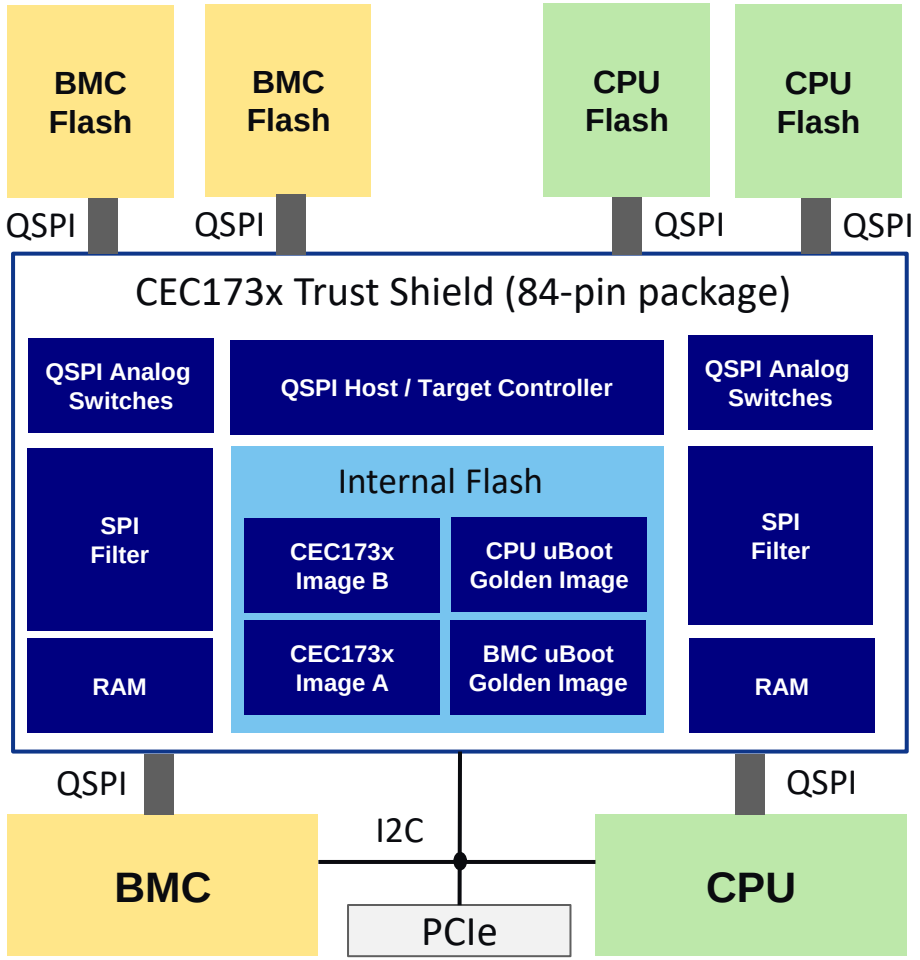
Secure Boot / Update

Provisioned Keys/Certs

CEC1736 Brings Next Gen Root of Trust Subsystem

Application Example

Real-time root of trust in server's baseboard management system



NOTE: 64-pin package option to support one (1) application processor system

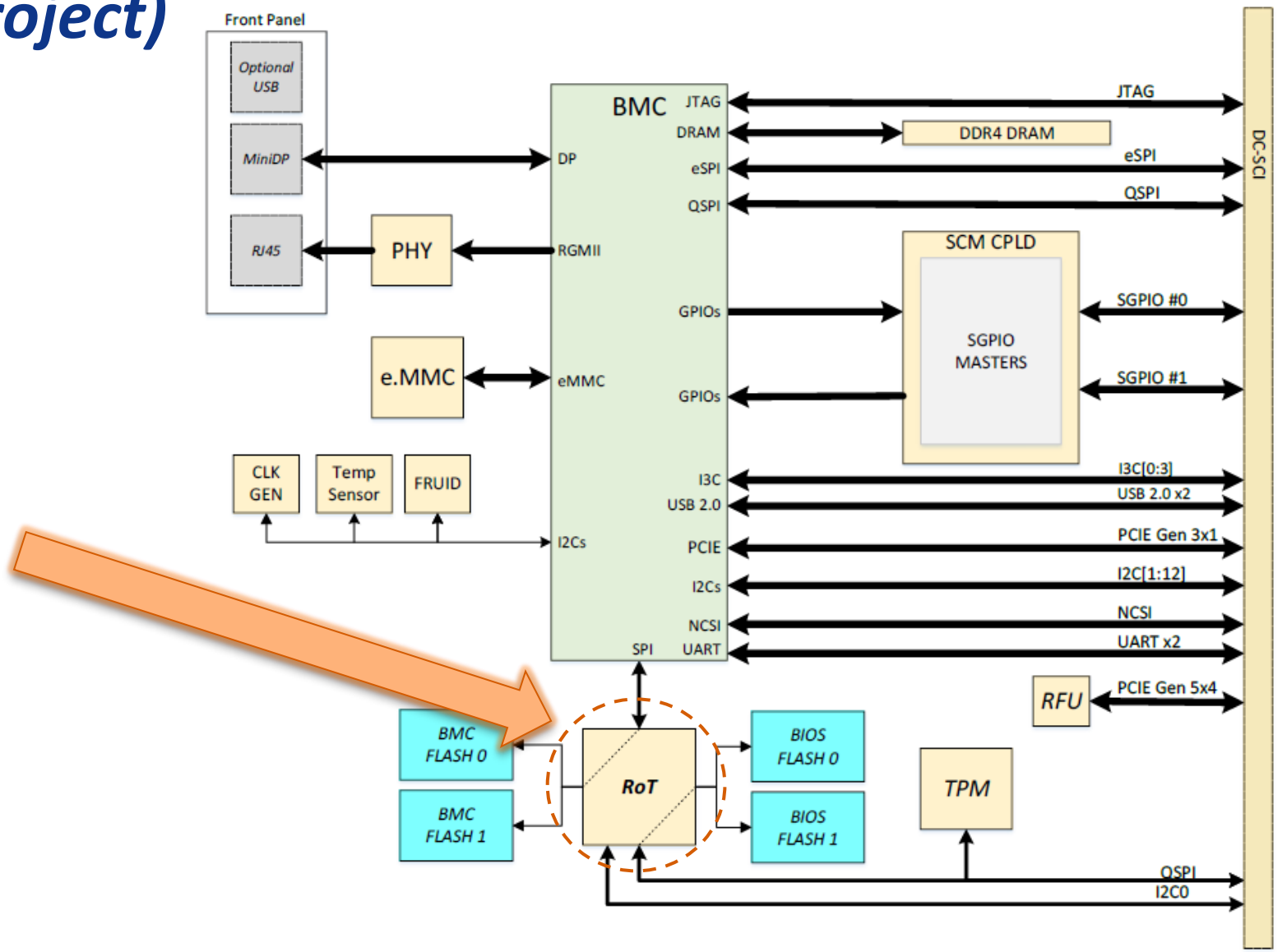
Target Markets

- **Data Centers**
  - Edge
  - Backplane
- **Embedded Computing**
  - Multi-function printers
- **Telecommunications**
  - Distributed/Central units
  - Small cells
- **Networking/Internet of Things**
  - Routers
  - Gateways
- **Industrial**
  - Control systems
  - Robotics/Automation

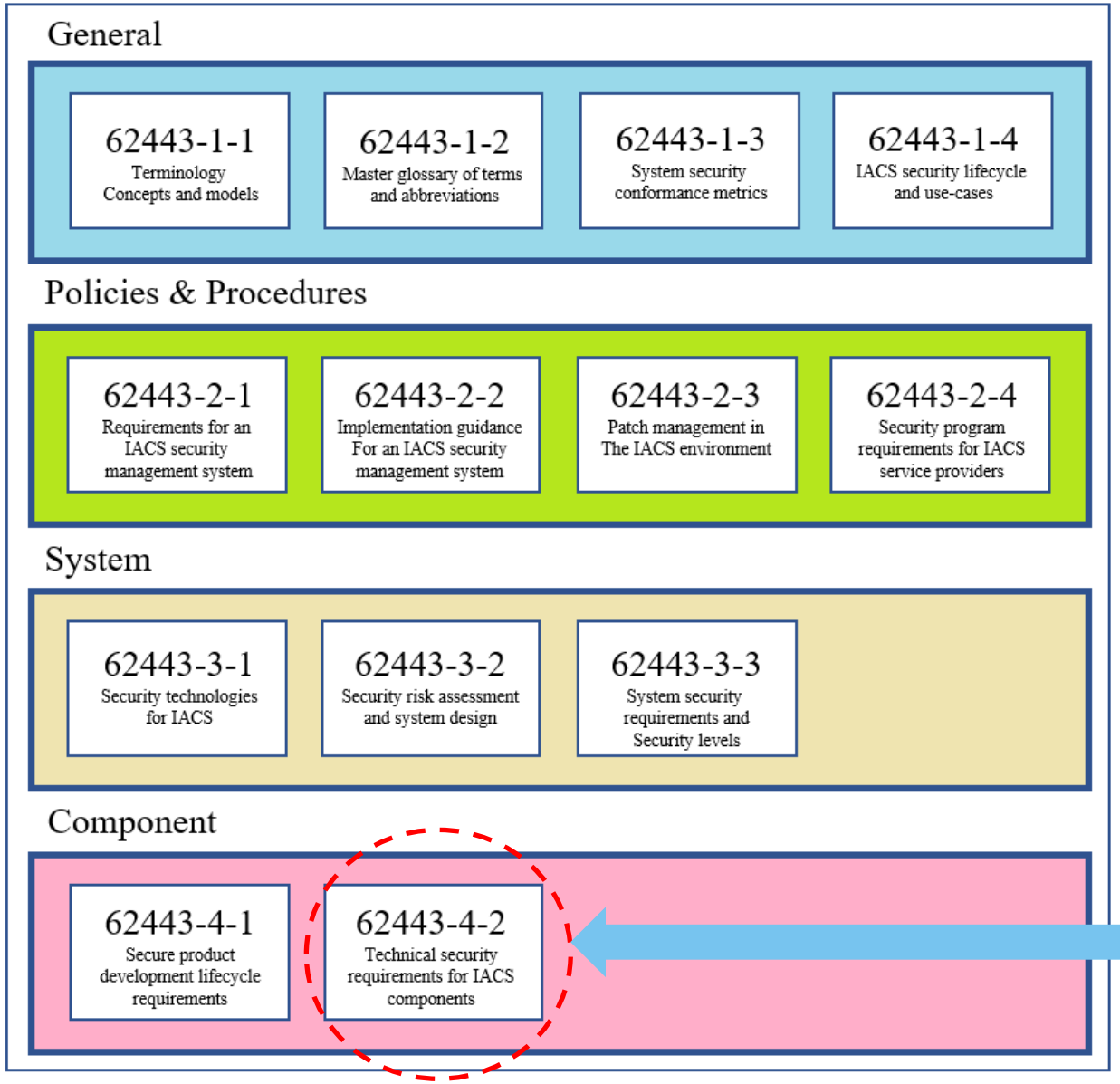
DC-SCM Example Block Diagram

(Open Compute Project)

CEC1736 Trust Shield



Industrial Network and System Security – IEC62443



TUV NORD協助研華取得IEC 62443-4-2認證

2022 / 01 / 14 - 編輯部

MOXA 產品 解決方案 支援 購買

首頁 > 關於我們 > 新聞與活動 > 新聞發布 > Moxa 通過 IEC 62443-4-1 認證，致力確保工業網路安全的承諾

Moxa 通過 IEC 62443-4-1 認證，致力確保工業網路安全的承諾

2021年3月11日
企業快訊

工業通訊及網路設備領導廠商 Moxa 宣布，該公司已通過並取得與網路安全標準相關的 IEC 62443-4-1 認證。該認證由 LCIE Bureau Veritas 負責進行測試和審核，最後由 IECEE 認證機構頒發認證。Moxa 長期在網路安全產業耕耘，經過全球知名相符性評估和認證服務供應商審核後，成為全球最早取得 IEC 62443-4-1 認證的公司之一。

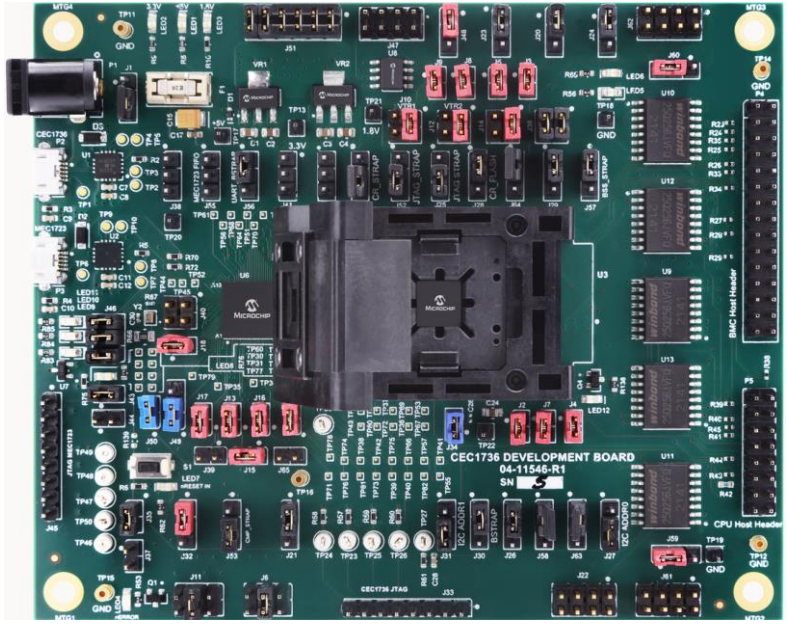
MICROCHIP

CEC1736 Development Board

CPN EV19K07A - $399

- Out-of-box demo with a pre-provisioned CEC1736
- Application processor emulation
- On-board 4x flash devices (128MByte)
- Standalone demo, or Daughter card to the system

- CEC1736 socket
- BMC host header – I2C, QSPI, GPIOs
- CPU host header – QSPI, GPIOs
- Programming/debugging interface



CEC1736 Development Board (CPN EV19K07A – $399)

CEC1736 Supporting Collateral

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Review **Transferring FPGA software, design files and licenses from Microsemi to Microchip document** to determine the next steps to access FPGA software, design files and licenses on Microchip website.
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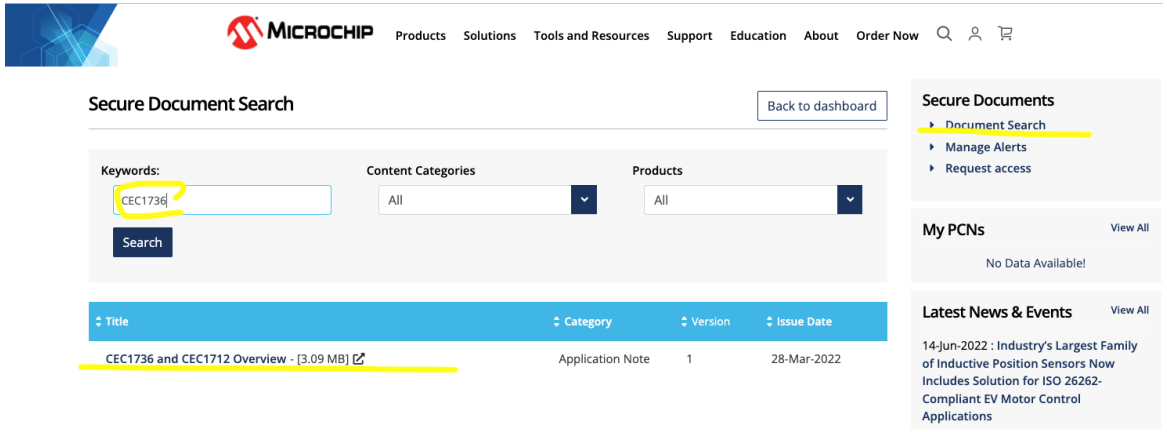

Keywords: CEC173x

Content Categories: All

Products: All

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Title	Category	Version	Issue Date
CEC173x Soteria-G3 OTP Spreadsheet - [102 KB]	Application Note	1	11-Apr-2022
CEC173x Boot Timing - [103 KB]	Application Note	1	08-Mar-2022
CEC173x I2C Crisis Port for Secure Boot Applications - [283 KB]	Application Note	21	15-Dec-2021
CEC173x PUF User Guide - [320 KB]	Application Note	2	15-Dec-2021
CEC173x Crypto ROM API - [289 KB]	Application Note	2	15-Dec-2021
CEC173x SPI Mon Description - [433 KB]	Application Note	1	15-Dec-2021
CEC173x Internal SPI Flash Usage - [22 KB]	Application Note	2	15-Dec-2021
SPDM Support in CEC173x - [252 KB]	Application Note	1	15-Dec-2021
CEC173x EC Firmware Overview - [676 KB]	Application Note	4	15-Dec-2021
CEC173x Development Board Documentation - [38.19 MB]	Board Product	1	27-Apr-2022
CEC173x BSDL File - [27 KB]	BSDL Files	1	24-Feb-2022
CEC173x Data Sheet - [3.20 MB]	Data Sheet	1	15-Nov-2021
CEC173x Data Brief (NDA) - [660 KB]	Data Sheet		20-Oct-2021
CEC173x IBIS Files - [915 KB]	Models	1	24-Feb-2022
CEC173x Soteria-G3 Secure Boot App (binary) - [272.73 MB]	Software	11	27-May-2022